ESTADÍSTICAS CLIMATOLÓGICAS HORARIAS DEL ESTADO DE ZACATECAS (PERÍODO 2002-2022)

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C O N T E N I D O

Página

1. Introducción 1

2. Antecedentes 2

3. La red de estaciones meteorológicas automáticas 5

3.1. Estación convencional y automática 8

4. Aplicaciones de la información meteorológica 11

4.1. Temperatura del aire 11

4.2. Precipitación pluvial 12

4.3. Humedad relativa 12

4.4. Radiación solar 13

4.5. Velocidad del viento 13

4.6. Dirección del viento 14

4.7. Aplicaciones específicas del uso de información climática 14

5. Base de datos climáticos 17

6. Cálculo de parámetros 21

7. Estadísticas climatológicas horarias 31

8. Bibliografía 788

ÍNDICE DE ESTACIONES

Estación	Página
Ábrego, Fresnillo	37
Agua Nueva, Villa de Cos	53
Campo Experimental Zacatecas, Calera	74
Campo Uno, Miguel Auza	95
Cañitas, Cañitas	116
CBTA Tepechitlán, Tepechitlán	137
CBTA Valparaíso, Valparaíso	158
Chaparrosa, Villa de Cos	179
COBAEZ Villa de Cos, Villa de Coas	200
Col. Emancipación, Fresnillo	221
Col. González Ortega, Sombrerete	242
Col. Hidalgo, Sombrerete	263
Col. Progreso, Río Grande	284
El Alpino, Ojocaliente	305
El Pardillo 3, Fresnillo	326
El Saladillo, Pánfilo Natera	347
Emiliano Zapata, Sombrerete	368
Estancia de Ánimas, Villa González Ortega	389
La Victoria, Pinos	410
Las Arcinas, Trancoso	431
Loreto, Loreto	452
Marianita, Mazapil	473
Mesa de Fuentes, Enrique Estrada	494
Mogotes, Francisco R. Murguía	515
Momax, Momax	536
Providencia, Sombrerete	557
Rancho Grande, Fresnillo	578
Santa Fe, Jerez	599
Santa Rita, Jerez	620
Santo Domingo, Jalpa	641
Sierra Vieja, Villa de Cos	662
Tanque de Hacheros, Mazapil	683
Tierra Blanca, Tabasco	704
U. A. Agronomía, Zacatecas	725
U. A. Biología, Guadalupe	746
Villanueva, Villanueva	767

Presentación

La necesidad de contar con estadísticas climatológicas actualizadas para apoyar el desarrollo agropecuario y forestal, la planeación, y la investigación, ha motivado la realización de la presente obra. La información que aquí se incluye tiene un amplio espectro de aplicación y constituye una herramienta de apoyo en cualquier campo del conocimiento.

El presente documento contiene información de la Red de Estaciones Meteorológicas Automáticas (EMA) del INIFAP en el estado de Zacatecas. La red cuenta con 38 estaciones que registran datos cada 15 minutos. En esta obra se presentan estadísticas climatológicas de 36 de las 38 estaciones de la red, la cual incluye 13 parámetros horarios en formato de tablas de datos y gráficas, y 21 parámetros mensuales en los mismos formatos. Los datos horarios y mensuales aquí presentados son derivados de la base de datos de 15 minutos. La información presentada representa una actualización substancial a la publicada en "Estadísticas climatológicas básicas del estado de Zacatecas (Periodo 1961-2003)" en el año 2004, con la relevancia de que se incluyen datos de las variables humedad relativa, radiación solar, velocidad y dirección del viento que no han sido publicados anteriormente. Los datos corresponden a los años 2002 a 2022, sin embargo, en algunas estaciones la serie de datos no cubre el periodo completo debido a que su fecha de inicio de operación es posterior al 2002, no obstante, se incluyeron ya que resultan estratégicas por su ubicación geográfica para el monitoreo del clima en Zacatecas.

La información que se incluye en esta obra es producto de un proceso de recopilación, captura, revisión, y corrección de datos, por lo que se considera que es información confiable. Es la intención de los autores que esta obra contribuya a incrementar el acervo de fuentes de información climatológica actualizada, robusta y confiable para el estado de Zacatecas.

1. Introducción

El clima es uno de los componentes ambientales más determinantes en la adaptación, distribución y productividad de los seres vivos (FAO, 1981; Critchfield, 1983). Gran parte de las actividades productivas del hombre se ven fuertemente influidas por el clima. Tanto el sector primario como el de transformación e incluso el de servicios, dependen significativamente de los patrones espacio-temporales del clima. Las formas posibles en que un suelo puede ser cultivado están determinadas por el clima, la calidad del suelo y los requerimientos climáticos del cultivo. A partir de estas formas, generalmente se escoge una opción atendiendo a factores socioeconómicos y políticos (Dennett y Elston, 1994). La industria, sobre todo aquella que depende de materias primas, presenta patrones estacionales de operación, en respuesta a su disponibilidad, la que a su vez se ve condicionada por la eficiencia en el funcionamiento intrínseco y extrínseco de las cadenas de producción, fuertemente influenciada por factores climáticos y comportamiento de los mercados de consumo. En el sector servicios ecosistémicos, las actividades turísticas son un claro ejemplo de su dependencia climática.

Es importante destacar que, por efectos del cambio climático, el sistema climático actual se encuentra en transición, lo que ocasiona una mayor complejidad en su comportamiento. Con esta base de datos se pretende una mejor caracterización de los factores climáticos, lo que la convierte en un insumo recomendado para documentar sus efectos en el medio ambiente. Con lo anterior, es evidente la importancia de la influencia del clima en la vida del hombre y lo difícil que resulta en la mayoría de los casos pretender un control sobre este componente ambiental.

Es importante destacar también la necesidad perentoria de que, al emprenderse una actividad productiva, el clima debe valorarse bajo el

contexto de recurso natural disponible (Villalpando y García, 1993; Ruiz *et al.*, 1999) y dentro de este contexto evaluar las probables restricciones a los sistemas de producción (Castro y Arteaga, 1993; Medina *et al.*, 2008).

Para evaluar las disponibilidades o limitantes climáticas de una región determinada es imprescindible caracterizar en términos cuantitativos el comportamiento de los diversos elementos del clima, tales como temperatura, precipitación pluvial, humedad ambiental, evaporación, radiación solar, viento y otros (Villalpando *et al.*, 1991). Esta caracterización se logra eficazmente, siempre que se disponga de datos climatológicos representativos y confiables (Castro y Arteaga, 1993; OMM, 2017) del espacio geográfico.

El objetivo de la presente publicación es poner a disposición de usuarios, técnicos de campo, agentes de cambio, investigadores, académicos, comercializadores, y tomadores de decisiones, información climatológica actualizada del estado de Zacatecas, en forma de estadísticas a nivel horario y mensual. La información se describe a manera de tablas de datos y gráficas que pretenden presentar la información de manera sencilla. Por cada EMA, para cada variable se incluye una tabla de estadísticas horarias por mes año calendario, su gráfica correspondiente y una tabla de estadísticas mensuales.

2. Antecedentes

Es innegable la importancia que representa el contar con fuentes confiables de información climatológica. Esto puede reconocerse a través de diversas acciones, tales como la conformación y consolidación de redes de monitoreo meteorológico y agrometeorológico, como es el caso de la red de EMA del INIFAP en Zacatecas, o a través de la publicación de información de estadísticas climatológicas, las cuales tienen el objetivo fundamental de caracterizar la climatología del espacio geográfico.

La red de EMA del INIFAP en Zacatecas inició sus actividades en el año 2002 y a la fecha cuenta con 38 estaciones, cada una equipada con sensores para registrar la temperatura del aire, humedad relativa, precipitación, dirección y velocidad del viento y radiación solar. La medición de las condiciones meteorológicas del estado del tiempo se realiza cada 15 minutos. Los datos registrados son transmitidos por radiofrecuencia a la base central que se encuentra ubicada en el Campo Experimental Zacatecas del INIFAP. Cabe resaltar que, desde su inicio de operación en el año 2002, la red de EMA ha funcionado al 100%.

La información de las estaciones puede ser consultada en Internet en el portal web https://zacatecas.inifap.gob.mx; es mostrada en tiempo cercano al real cada 15 minutos. Para facilitar la visualización de datos, se presentan en forma diaria y en forma de gráfica. Se presentan también aplicaciones desarrolladas como: unidades calor, horas frío, horas helada, índice de humedad, alerta fitosanitaria y un sistema para programar el riego en tiempo real, entre otras.

La utilidad que han tenido los datos climáticos desde hace muchos años ha sido considerable; sin embargo, la necesidad de contar con información más actualizada, obligó al desarrollo de bases de datos y sistemas de información climatológica, tanto a escala nacional, como a nivel Estado. Aquí se engloban los trabajos de García (1975) y Medina *et al.* (1998) para la República Mexicana, y Villalpando y García (1993) para el estado de Jalisco. El INIFAP en los años dos mil publicó estadísticas climatológicas con datos de las estaciones del Servicio Meteorológico Nacional (SMN) del periodo 1961-2003 para cada uno de los estados del país (Medina *et al.*, 2005; Díaz *et al.*, 2006; Medina *et al.*, 2006; Ruiz *et al.*, 2006; Serrano *et al.*, 2007; Díaz *et al.*, 2007).

En el estado de Zacatecas, Ortiz (1990) publicó las estadísticas decenales de 54 estaciones hasta el año 1986, Ruiz (1990) lo realizó para la Región de los Cañones y Medina y Ruiz (2004) publicaron las estadísticas decenales y mensuales de 98 estaciones del SMN del periodo 1961 - 2003.

De acuerdo con la Organización Meteorológica Mundial (OMM) (OMM, 2017; Arguez *et al.*, 2012), las normales climatológicas comprenden un periodo consecutivo de 30 años de datos. Sin embargo, INEGI (2005) indica que un estudio climatológico se hace sobre la base de datos meteorológicos de un largo periodo, cuyo mínimo es de 10 años, y preferentemente entre 20 y 30 años. A los datos meteorológicos medios, de periodos entre 20 y 30 años, se les conoce como normales climatológicas. El SMN, dependiente de la Comisión Nacional del Agua (CONAGUA), sabedor de la importancia que representa el contar con la información climatológica actualizada, confiable y de fácil acceso para los usuarios, ha puesto a disposición las normales climatológicas de los periodos 1971-2000, 1981-2010 y 1951-2010 de las estaciones que tienen esos datos disponibles en cada uno de los estados del país (SMN, 2023). Los datos que se reportan son las normales de temperatura (máxima, mínima y promedio), precipitación y evaporación, así como los valores extremos de cada una de las variables.

La importancia de las normales climatológicas del SMN es indudable, sin embargo, la escasez de datos de otras variables climáticas no tan comunes, como las que se registran en las estaciones del INIFAP y sobre todo estadísticas a nivel horario, hace muy importante la publicación de esta información; además de que muchas de las estaciones del INIFAP están ubicadas en áreas agrícolas importantes.

Aunque las estaciones del INIFAP en Zacatecas solo cuentan con 21 años de registro de datos, dada la importancia de las variables mencionadas y de la

frecuencia de registros, se obtuvieron estadísticas climatológicas horarias y mensuales para su publicación y uso por parte de productores, dependencias del sector, universidades, institutos de investigación, entre otros. Cabe aclarar que en esta publicación no se presentan normales, sino estadísticas climatológicas.

3. La red de estaciones meteorológicas automáticas

La red de EMA del INIFAP en Zacatecas está conformada por 38 estaciones que están distribuidas en la mayor parte del Estado, principalmente en zonas agrícolas importantes (Figura 1). La red está estructurada de tal manera que los datos de todas las estaciones son transmitidos vía radio a la base central que se encuentra en las instalaciones del Campo Experimental Zacatecas (Figura 2).

Las estaciones transmiten sus datos cada 15 minutos, pero debido a que la mayoría se encuentran instaladas a una distancia mayor de 20 km (teóricamente es la máxima distancia de transmisión entre un radio transmisor y otro) del Campo Experimental Zacatecas, se cuenta además con 11 repetidores instalados en sitios estratégicos altos para ayudar a retransmitir los datos de las estaciones ubicadas a mayor distancia.

Las estaciones son marca Adcon® (Adcon. 2013), transmiten los datos vía radio transmisor y los datos transmitidos son recibidos en la base central receptora que es un equipo Gateway modelo A850, a través de un modem inalámbrico modelo A440. En la base central receptora están configuradas las 38 estaciones y los 11 repetidores de la red de tal manera que lleguen los datos de todas las estaciones; una vez que los datos llegan a este equipo se pasan a un servidor de datos de clima donde son almacenados por el programa AddVantage Pro 6.4®, que es proporcionado por la misma compañía Addcon®

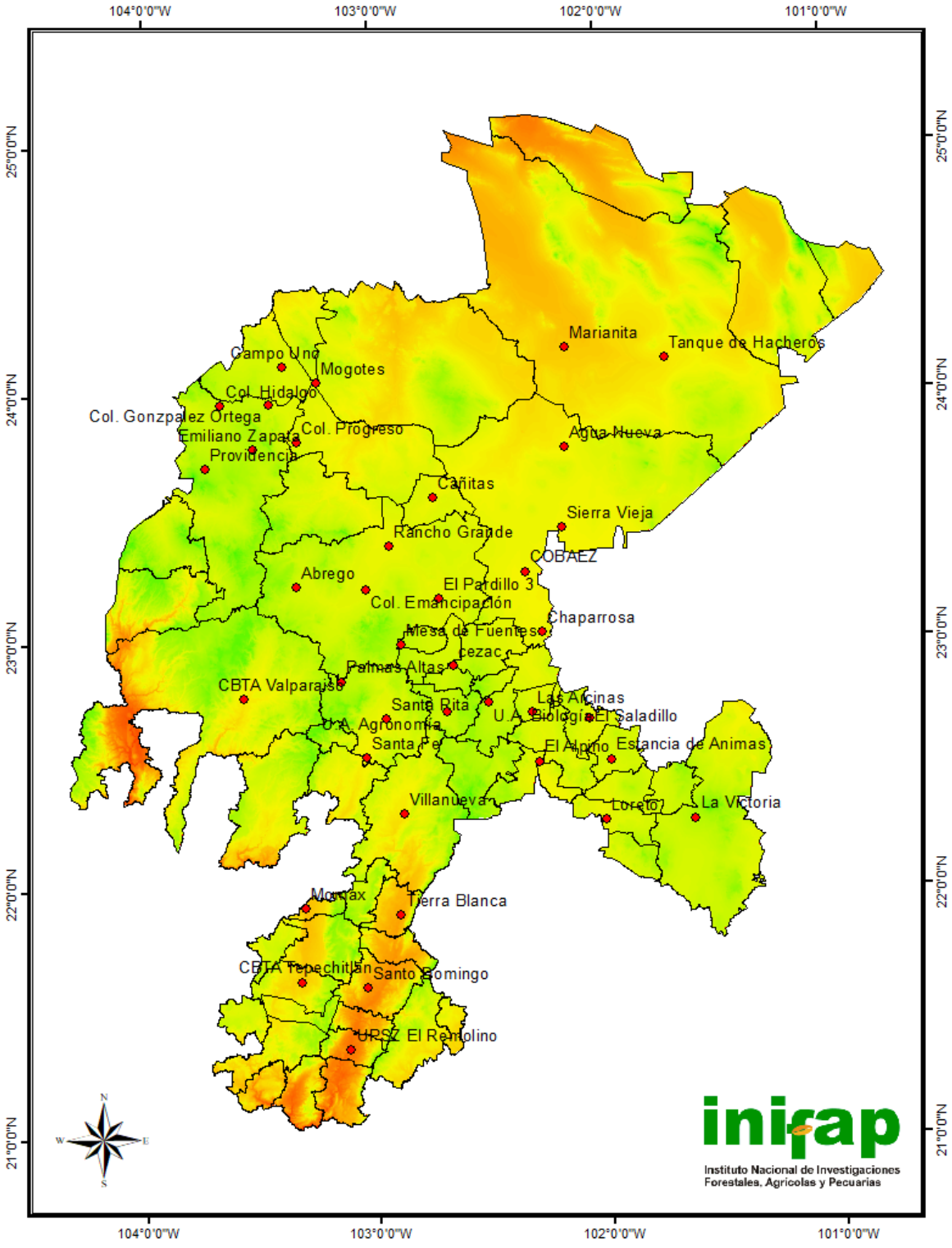


Figura 1. Localización geográfica de la red de EMA del INIFAP en el estado de Zacatecas.

(Figura 2). Al mismo tiempo que los datos se van almacenando, son procesados y enviados al servidor de internet donde están disponibles para cualquier usuario de manera numérica, gráfica, mapas, aplicaciones, entre otros.

Las estaciones trabajan con un panel solar de siete voltios. Cuentan con un radio transmisor que envía los datos a la base central, equipado con baterías para almacenar la energía del panel solar y memoria para almacenamiento de los datos. Las estaciones están equipadas con sensores para medir la temperatura del aire, humedad relativa, precipitación, velocidad del viento, dirección del viento y radiación solar (Figura 3). Con estas variables, el programa AddVantage 6.4 calcula la evapotranspiración potencial.

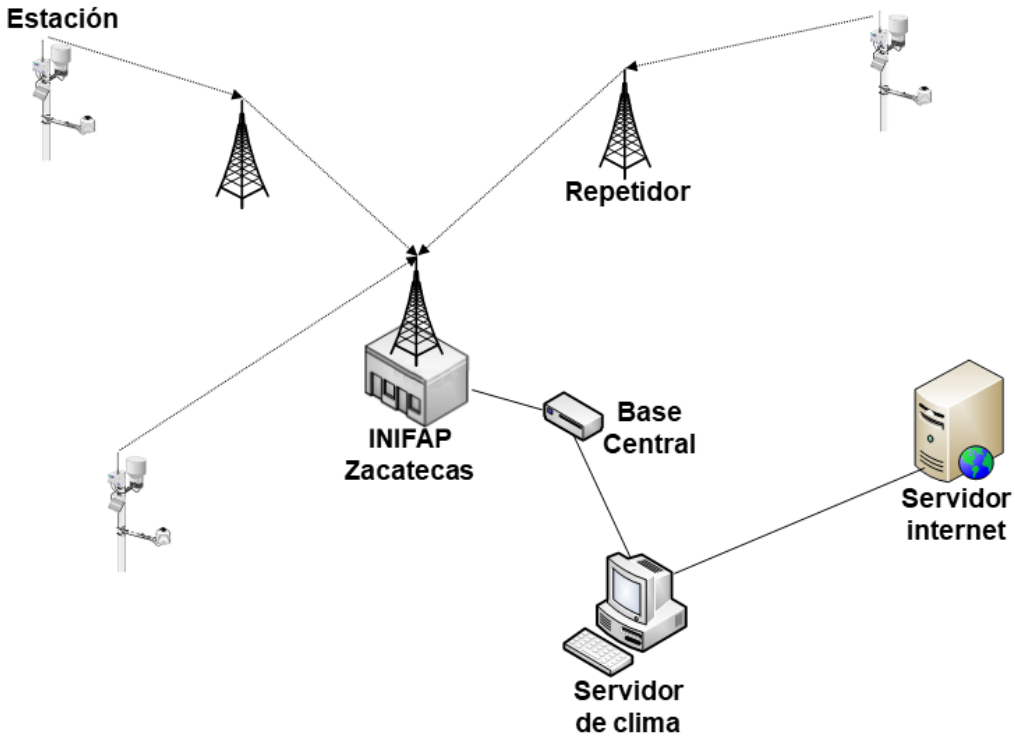


Figura 2. Estructura de la red de EMA del INIFAP en el estado de Zacatecas.

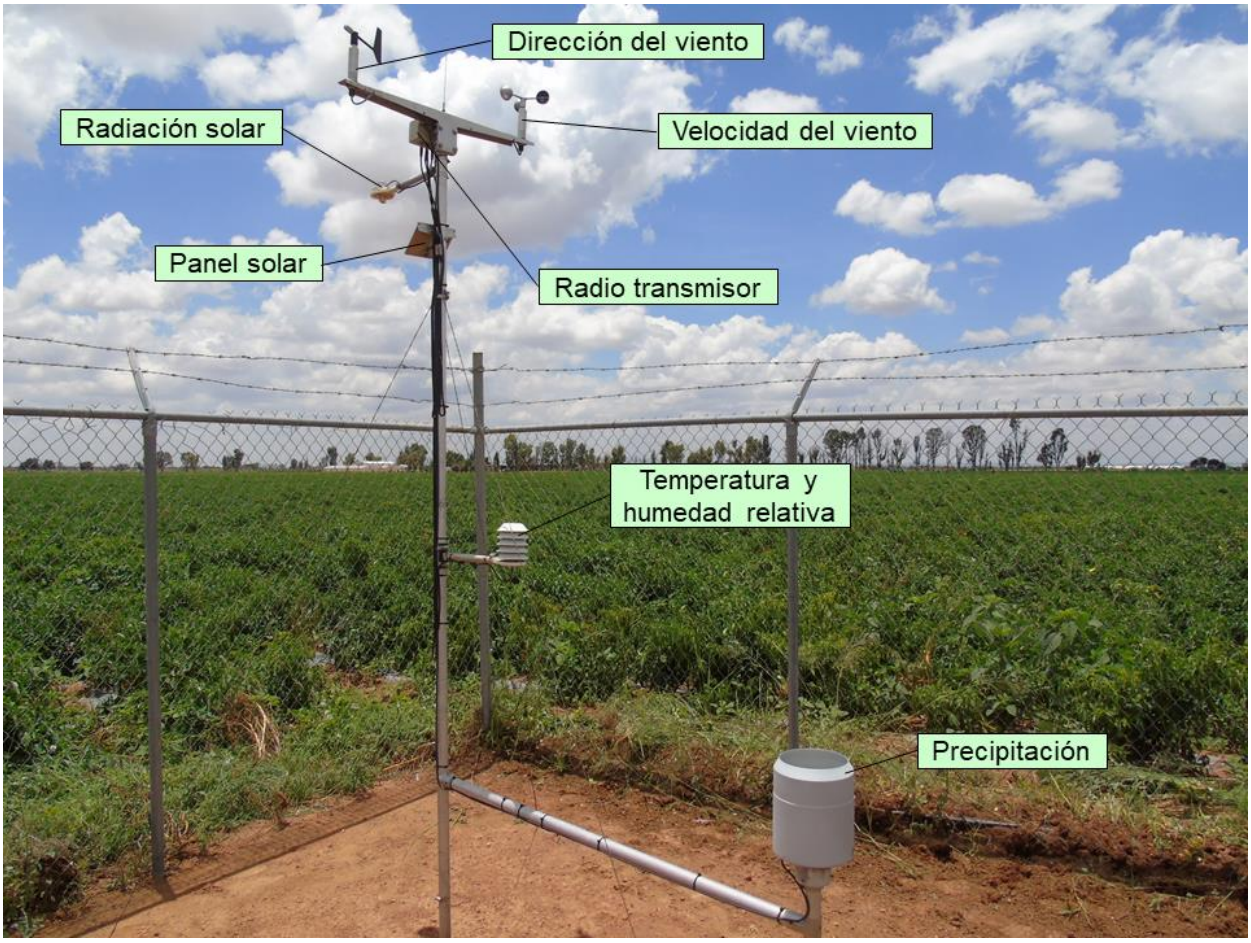


Figura 3. Estación meteorológica automática marca Adcon®.

3.1. Estación convencional y automática

Los servicios meteorológicos han utilizado tradicionalmente estaciones convencionales, pero en los últimos años el uso de las estaciones automáticas ha venido en aumento. Las estaciones automáticas contribuyen a mejorar la normalización de la información meteorológica, ya que con ellas se eliminan algunos problemas del sistema tradicional tales como la subjetividad del observador y los errores de digitación (Ureña-Elizondo, 2011; SE, 2013).

La observación meteorológica consiste en la medición de todas las variables atmosféricas que en su conjunto representan las condiciones del estado de la

atmósfera en un momento dado y en un determinado lugar, utilizando instrumental adecuado en el lugar adecuado (CONAGUA, 2010).

Es necesario conocer el estado de las variables atmosféricas para hacer diagnósticos en tiempo real, previsión del tiempo, alertas meteorológicas y estudios del clima. Algunas actividades también necesitan conocer el estado actual del tiempo o la previsión a futuro para su funcionamiento, como los aeropuertos y actividades agropecuarias.

La OMM clasifica varios tipos de estaciones meteorológicas, entre las que se encuentran las estaciones de superficie, y dentro de ellas las estaciones convencionales y las automáticas. Las estaciones automáticas, tienen un registro y almacenamiento continuo de las variables, mientras que en las convencionales se cuenta con personal capacitado para realizar la lectura y registro de los datos (observador meteorológico). En la estación convencional, los datos se toman horariamente o diariamente (CONAGUA, 2010).

Las estaciones convencionales con registro diario de datos cuentan con una garita o caseta para el termómetro de máximas y mínimas, un pluviómetro y un tanque de evaporación, para reportar las siguientes variables (IMTA, 2016):

Temperatura observada	(a las 8 horas)
Temperatura mínima	(día de hoy)
Temperatura máxima	(día anterior)
Precipitación en 24 horas	(de 8 am a 8 am)
Evaporación en 24 horas	(de 8 am a 8 am)
Tormenta	(0=no hubo 1=sí hubo)
Granizo	(0=no hubo 1=sí hubo)
Niebla	(0=no hubo 1=sí hubo)
Cobertura de cielo	(0=despejado 1=medio nublado 2=nublado)

La EMA es un conjunto de dispositivos eléctricos, electrónicos y mecánicos que realizan mediciones de las variables meteorológicas en forma numérica, está conformada por un grupo de sensores que registran y transmiten información meteorológica de forma automática y autónoma. Su función principal es la recopilación y monitoreo de algunas variables meteorológicas para generar archivos del promedio de cada periodo de tiempo, esta información es enviada por algún medio de transmisión a intervalos regulares (SE, 2013).

En el caso de las EMA del INIFAP, el intervalo o periodo de tiempo para registrar los datos de las variables es de 15 minutos, aunque internamente los sensores hacen un muestreo cada minuto. Las variables que se registran en ese periodo de tiempo son:

- Temperatura. Promedio de las mediciones realizadas de la temperatura ambiente en un lapso de 15 minutos, su unidad de medición es ˚C.
- Precipitación. Lámina de precipitación acumulada en un lapso de 15 minutos medida en milímetros.
- Humedad relativa. Promedio de la humedad relativa en un lapso de 15 minutos, su unidad de medición es %.
- Radiación solar. Promedio de los valores medidos en un lapso de 15 minutos, su unidad de medición es W/m^2 ($watt/m^2$)
- Velocidad del viento promedio. Promedio de las velocidades del viento en un lapso de 15 minutos, su unidad de medición es km/h.
- Dirección del viento. Promedio de 15 minutos de la dirección del viento. La dirección indica de donde proviene el viento, su unidad de medición es en grados, donde 0˚ es el norte.
- Evapotranspiración potencial. Es el promedio de la evapotranspiración potencial en un lapso de una hora en milímetros. Estimada a partir de las variables radiación solar, temperatura, humedad relativa y velocidad del viento.

4. Aplicaciones de la información climática

La disponibilidad de información meteorológica confiable y representativa de una zona contribuye a una buena planificación en urbanismo, ingeniería o en ordenación del territorio, también es utilizada para análisis del tiempo, pronóstico, advertencias de clima extremo y en operaciones locales que dependen del clima (operaciones en aeropuerto, trabajos de construcción). En la agricultura es importante para una infinidad de actividades. Las variables o elementos climatológicos, en una estación meteorológica, esenciales a medir son: temperatura, humedad del aire, viento, radiación solar, precipitación y evaporación, resulta necesario determinar el valor de la información registrada en relación con su utilidad y finalidad de la misma y los instrumentos de medida deben estar homologados, ser robustos y estar bien calibrados (Romo y Arteaga, 1989; WMO, 1993; Elías y Castellví, 2001; Texeira *et al.*, 2003; WMO, 2008; Funari *et al.*, 2010; Arteaga-Ramírez *et al.*, 2017).

De manera general, algunas de las posibles aplicaciones que se pueden derivar de cada una de las variables climáticas se presentan a continuación (Medina *et al.*, 2008):

4.1. Temperatura del aire

La temperatura es la medida del contenido de calor de un cuerpo o del medio ambiente. El calor equivale a la energía calorífica que contiene. Se mide con el sensor denominado *termómetro* y se expresa en grados Celsius (˚C).

Esta variable climática es importante para calcular unidades térmicas de crecimiento de cultivos, comúnmente llamadas unidades calor o grados-día, mediante las cuales es posible medir la influencia de la temperatura en la velocidad de desarrollo de los cultivos e insectos, y con ello predecir la

aparición de etapas fenológicas de cultivos y estadios biológicos en los insectos. Los registros de temperatura también se usan para calcular horas o unidades frío requeridas por los frutales caducifolios y algunos insectos durante la etapa de hibernación. En regiones de clima templado, la temperatura de 0 ˚C se usa como referencia para estimar períodos libres de heladas durante las etapas de crecimiento. Además, se pude calcular la ocurrencia de temperaturas extremas en duración y localización, que ayudan a medir niveles de riesgo en heladas tempranas o tardías, o agobio calórico en las plantas.

4.2. Precipitación pluvial

La precipitación es la caída directa de gotas de agua o de cristales de hielo sobre la superficie terrestre. La cantidad de precipitación se mide en milímetros (mm) con el sensor llamado *pluviómetro*.

Se utiliza para estudiar el efecto en la producción de cultivos, predecir posibles problemas de enfermedades y daños físicos en los cultivos. También puede utilizarse para calcular balances hídricos e índices de sequía y fechas de siembra. Probabilidad de ocurrencia de lluvias, labores de preparación de suelos, siembra, germinación, control de malezas, deshije, riegos suplementarios, aplicación de fertilizantes, cosechas, etc.

4.3. Humedad relativa

Se denomina humedad relativa o ambiental a la cantidad de vapor de agua presente en el aire. Se puede expresar de forma absoluta o de forma relativa denominándose humedad relativa o grado de humedad. Normalmente, se emplea la segunda y se expresa como porcentaje (%) respecto a un ambiente

saturado. La humedad relativa se mide normalmente con un sensor llamado *psicrómetro*.

Esta variable es importante para pronosticar heladas junto con la temperatura. También es una variable climática clave para el pronóstico de enfermedades de cultivos, y se utiliza en combinación con otras variables para estimar la evapotranspiración.

4.4. Radiación solar

Es el flujo de energía que se recibe del sol en forma de ondas electromagnéticas de diferentes frecuencias. Es medida en diferentes unidades, watts por metro cuadrado (W/m^2), kilo watts hora por metro cuadrado (kWh/m^2), mega joules por metro cuadrado por segundo ($Mj/m^2/s$), etc., con el sensor denominado *piranómetro*.

Es importante para estimar tasas fotosintéticas y de acumulación de materia seca por un cultivo. También se usa para estimar la evapotranspiración potencial a través de fórmulas empíricas que involucran diversos factores de clima.

4.5. Velocidad del viento

El viento es definido como "el aire en movimiento" y se describe por dos características: la velocidad y la dirección. El instrumento que se usa para medir la velocidad del viento se llama *anemómetro*. Se mide en unidades m/s o km/h.

Se utiliza para determinar la evapotranspiración en cultivos. También es importante por su efecto en la erosión del suelo y daños a los cultivos, así como en la programación de aplicaciones de pesticidas. Índices de acame de plantas

y daño a frutos y flores, mediante la valoración de los niveles de velocidad de viento registrados. Esta información de velocidad de viento puede ser útil también en el diseño y construcción de cortinas rompe vientos.

4.6. Dirección del viento

Se llama dirección del viento al punto del horizonte de donde viene o sopla. Para distinguir la dirección se le aplica el nombre de los principales puntos cardinales o grados de azimut con respecto al Norte Magnético. El instrumento que se usa para medir la dirección es la *veleta*. Se expresa en grados de azimut o puntos cardinales N, S, E, W, NE, NW, SE, SW, etc.

Se utiliza para orientar la construcción de invernaderos, en la programación de aplicaciones de pesticidas, permite conocer la trayectoria de organismos benéficos y nocivos a las plantas y distribución del polen de las plantas.

4.7. Aplicaciones específicas del uso de información climática

La agricultura es una actividad estrechamente relacionada con el clima. La cantidad de agua de lluvia, la humedad almacenada en el suelo, la ocurrencia de heladas, o la presencia de granizo, constituyen algunos de los componentes del clima que año con año repercuten en la producción de cosechas. La presencia de plagas y enfermedades, la eficiencia en la absorción de nutrientes, la demanda de agua por las plantas y la duración de los ciclos vegetativos, dependen también en gran medida de las condiciones del clima (Medina *et al.*, 2008).

Históricamente, la agricultura ha tenido que adaptarse al clima para disminuir el riesgo de los fenómenos meteorológicos, debido a la variabilidad climática que generalmente se ha dado dentro de rangos manejables (CEPAL, 2011).

Para disminuir ese riesgo, actualmente se aprovecha la información climática de las diferentes variables, de tal manera que se utiliza de manera directa o indirecta mediante la estimación de variables agroclimáticas y probabilidad de ocurrencia de eventos.

Acorde con la alta influencia del componente climático sobre el quehacer humano y el desarrollo y productividad de los seres vivos en general, las aplicaciones que pueden derivarse de la información climatológica son innumerables y variadas. Un aspecto inicial y fundamental que los elementos del clima determinan sobre los seres vivos es su adaptación; la existencia de zonas climáticas con características distintas en cuanto a temperatura, duración del día, humedad, luminosidad y precipitación pluvial, establecen condiciones de selección natural para las especies, las cuales responden de manera diferente a estos gradientes. (Yepes y Silveira 2011; Li, 2014; Ruiz *et al.*, 2021).

La influencia de la temperatura sobre el crecimiento y desarrollo vegetal corrobora lo anterior; a menudo, un cambio de pocos grados propicia un cambio significativo en la tasa de crecimiento. Cada especie o variedad, posee en cualquier etapa de su ciclo de vida y en cualquier conjunto determinado de condiciones de estudio, una temperatura mínima umbral debajo de la cual no crece (Del Pozo *et al.*, 1987), una temperatura óptima (o rango de temperaturas) en la que crece con una tasa máxima (Ruiz *et al.*, 1998) y una temperatura máxima por arriba de la cual no crecerá (Summerfield *et al.*, 1989). En general, el crecimiento de varias especies está adaptado a las temperaturas de sus ambientes naturales; las especies alpinas tienen mínimos, máximos y óptimos bajos y las tropicales tienen temperaturas cardinales mucho mayores. Las plantas que están cerca de las temperaturas umbral mínima o máxima con frecuencia están bajo tensión o estrés (Salisbury y Ross, 1994; Ruiz *et al.*, 2021).

La distribución geográfica de las especies está en función de las condiciones climatológicas predominantes, según lo demuestran los trabajos de Sánchez y Ruiz (1996), Sánchez *et al.*, (1998) y Ruiz *et al.*, (2001) para el caso del teocintle. También es posible observar una fuerte correlación entre tipos climáticos y tipos de vegetación (Rzedowski, 1983; García, 1988; Virgen-Cobos, *et al.*, 2022).

Así mismo, estos principios han sido llevados a las especies cultivadas, donde el clima resulta determinante para definir las áreas potenciales de producción, tal es el caso de estudios realizados en hortalizas (Tapia *et al.*, 1995; Medina *et al.*, 2017); cultivos anuales (Ruiz y Rivera, 1994; Ruiz *et al.*, 1997; González *et al.*, 1998; Ruiz *et al.*, 2011; Medina-García *et al.*, 2016); cultivos tropicales (Núñez *et al.*, 1994; Ruiz *et al.*, 1995; Vizcaíno *et al.*, 1996); cultivos de clima templado (Medina *et al.*, 2003; Medina *et al.*, 2009); cultivos forrajeros (Santamaría *et al.*, 2000; Medina *et al.*, 2001; Medina-García *et al.*, 2020); cultivos industriales como caña de azúcar (González *et al.*, 1996; Bravo *et al.*, 2012), planta de hule (Rueda, 2001), agave (Nobel *et al.*, 1998; Ruiz *et al.*, 2002); oleaginosas (González *et al.*, 2001; Díaz *et al.*, 2008); especies forestales (Ruiz y Rueda, 1994; Flores *et al.*, 1997; Rueda, 1998; Rueda-Sánchez *et al.*, 2017); especies no maderables (Martínez *et al.*, 2011); frutales como durazno (Rumayor-Rodríguez *et al.*, 1998), manzano (Medina *et al.*, 2011) aguacate (Alcántar *et al.*, 1999; Álvarez-Bravo *et al.*, 2017); así como otros cultivos de importancia económica para México (Díaz *et al.*, 2012).

Se sabe que los niveles de confort ambiental tanto en humanos como en animales dependen en gran medida de la temperatura y la humedad relativa. La relación entre estas variables climáticas y el comportamiento y productividad animal generalmente se ha expresado a través de índices de confort, como es el THI o índice temperatura-humedad, el cual ha sido

aplicado con éxito para explicar la producción de leche (Ariasa *et al.*, 2008; Cerqueira *et al.*, 2016); la tasa de conversión cárnica (Armendano *et al.*, 2015; Molina *et al.*, 2015), la tasa de concepción reproductiva de vacas (Ingraham, 1974; Uribe y Vélez, 2010) y la tasa de crecimiento en pollos (Corona *et al.*, 2012; Días *et al.*, 2016), entre otros.

En general, la información del clima es parte fundamental para la toma de decisiones en la agricultura. Dado que el productor que cultiva a cielo abierto nunca podrá tener control del clima (Ruiz *et al.*, 2002), es conveniente que esté bien informado de las condiciones climatológicas para poder hacer frente a cualquier eventualidad ambiental.

Las redes de estaciones climáticas de una región permiten contar con información meteorológica automatizada en tiempo real, que ayudaría al productor a tomar decisiones oportunas en el manejo de cultivos para librar de mejor manera los riesgos climáticos que representan las heladas, granizadas, olas de calor, vientos fuertes, sequías e inundaciones; y también para obtener los máximos beneficios de condiciones climáticas favorables para la obtención de altas cosechas.

5. Base de datos climáticos

Los datos de las estaciones se registran cada 15 minutos y se ajustan a un diseño relacional para su manejo en el entorno SQL (Structured Query Language) server. Como medida de calidad, diariamente se revisan los datos que ingresan para detectar si hubo algún error de transmisión de la estación a la base central o si hay datos aberrantes. Si es el caso, se corrigen tomando en cuenta el registro previo y el subsecuente del registro con error. Si algún sensor falla y deja de transmitir datos, normalmente se va a la estación a los dos o tres días y se reemplaza por otro sensor, de tal manera que hay pocos

datos faltantes en la base de datos. Afortunadamente no son frecuentes los errores de transmisión y menos la falla de sensores. Las baterías de las estaciones tienen una vida útil de entre cinco y siete años, por lo que tampoco es frecuente la pérdida de datos por esta situación. Se procura reemplazarlas antes de que fallen.

La ubicación geográfica de las estaciones se describe en el Cuadro 1, su distribución espacial se observa en la Figura 1; la división municipal del Estado se presenta en la Figura 4. De las 38 estaciones con las que cuenta la red, fueron seleccionadas 36 por la longitud de su serie de datos, las dos restantes solo cuentan con ocho años de datos por lo que no se incluyeron en este estudio.

Cuadro 1. Localización geográfica, altitudinal y longitud de la serie de datos de 36 EMA en el estado de Zacatecas.

ESTACIÓN	MUNICIPIO	LONGITUD OESTE	LATITUD NORTE	ALTITUD (msnm)	INICIO	FIN	AÑOS
Ábrego	Fresnillo	103° 20' 20"	23° 13' 51"	2203	2003	2022	20
Agua Nueva	Villa de Cos	102° 09' 36"	23° 46' 56"	1913	2005	2022	18
Campo Experimental Zacatecas	Calera	102° 39' 34"	22° 54' 31"	2197	2002	2022	21
Campo Uno	Miguel Auza	103° 23' 20"	24° 07' 08"	2140	2002	2022	21
Cañitas	Cañitas	102° 44' 10"	23° 35' 16"	2025	2005	2022	18
CBTA Tepechitlán	Tepechitlán	103° 19' 49"	21° 38' 19"	1765	2004	2022	19
CBTA Valparaíso	Valparaíso	103° 34' 17"	22° 46' 57"	1933	2003	2022	20
Chaparrosa	Villa de Cos	102° 16' 19"	23° 02' 21"	2011	2002	2022	21
COBAEZ	Villa de Cos	102° 20' 30"	23° 17' 01	1999	2005	2022	18
Col. Emancipación	Fresnillo	103° 02' 10"	23° 13' 02"	2064	2002	2022	21
Col. González Ortega	Sombrerete	103° 27' 07"	23° 58' 11"	2104	2005	2022	18
Col. Hidalgo	Sombrerete	103° 39' 48"	23° 57' 51"	2234	2002	2022	21
Col. Progreso	Rio Grande	103° 19' 46"	23° 49' 00"	2090	2002	2022	21
El Alpino	Ojocaliente	102° 17' 21"	22° 31' 02"	2032	2002	2022	21
El Pardillo 3	Fresnillo	102° 43' 01"	23° 10' 49"	2077	2002	2022	21
El Saladillo	Pánfilo Natera	102° 04' 15"	22° 41' 20"	2065	2002	2022	21
Emiliano Zapata	Sombrerete	103° 31' 17"	23° 47' 20"	2366	2002	2022	21
Estancia de Ánimas	V. González O.	101° 58' 49"	22° 31' 19"	2133	2005	2022	18
La Victoria	Pinos	101° 37' 06"	22° 16' 44"	2369	2002	2022	21
Las Arcinas	Trancoso	102° 19' 13"	22° 43' 03"	2106	2005	2022	18
Loreto	Loreto	102° 00' 16"	22° 16' 44"	2029	2002	2022	21
Marianita	Mazapil	102° 09' 06"	24° 11' 08"	1670	2004	2022	19
Mesa de Fuentes	E. Estrada	102° 53' 02"	22° 59' 36"	2318	2005	2022	18
Mogotes	Fco. R. Murguía	103° 14' 33"	24° 03' 22"	2120	2005	2022	18
Momax	Momax	103° 18' 37"	21° 56' 02"	1652	2005	2022	18
Providencia	Sombrerete	103° 43' 55"	23° 42' 38"	2418	2002	2022	21
Rancho Grande	Fresnillo	102° 55' 58"	23° 23' 36"	2080	2003	2022	20
Santa Fe	Jerez	103° 02' 24"	22° 32' 24"	1941	2005	2022	18
Santa Rita	Jerez	102° 57' 09"	22° 41' 48"	2036	2002	2022	21
Santo Domingo	Jalpa	103° 02' 58"	21° 36' 43"	1466	2003	2022	20
Sierra Vieja	Villa de Cos	102° 10' 43"	23° 27' 28"	1981	2002	2022	21
Tanque de Hacheros	Mazapil	101° 42' 44"	24° 08' 19"	1880	2004	2022	19
Tierra Blanca	Tabasco	102° 53' 59"	21° 54' 15"	1563	2002	2022	21
U. A. Agronomía	Zacatecas	102° 41' 10"	22° 43' 28"	2234	2002	2022	21
U. A. Biología	Guadalupe	102° 30' 36"	22° 45' 26"	2289	2003	2022	20
Villanueva	Villanueva	102° 52' 49"	22° 18' 39"	1908	2003	2022	20

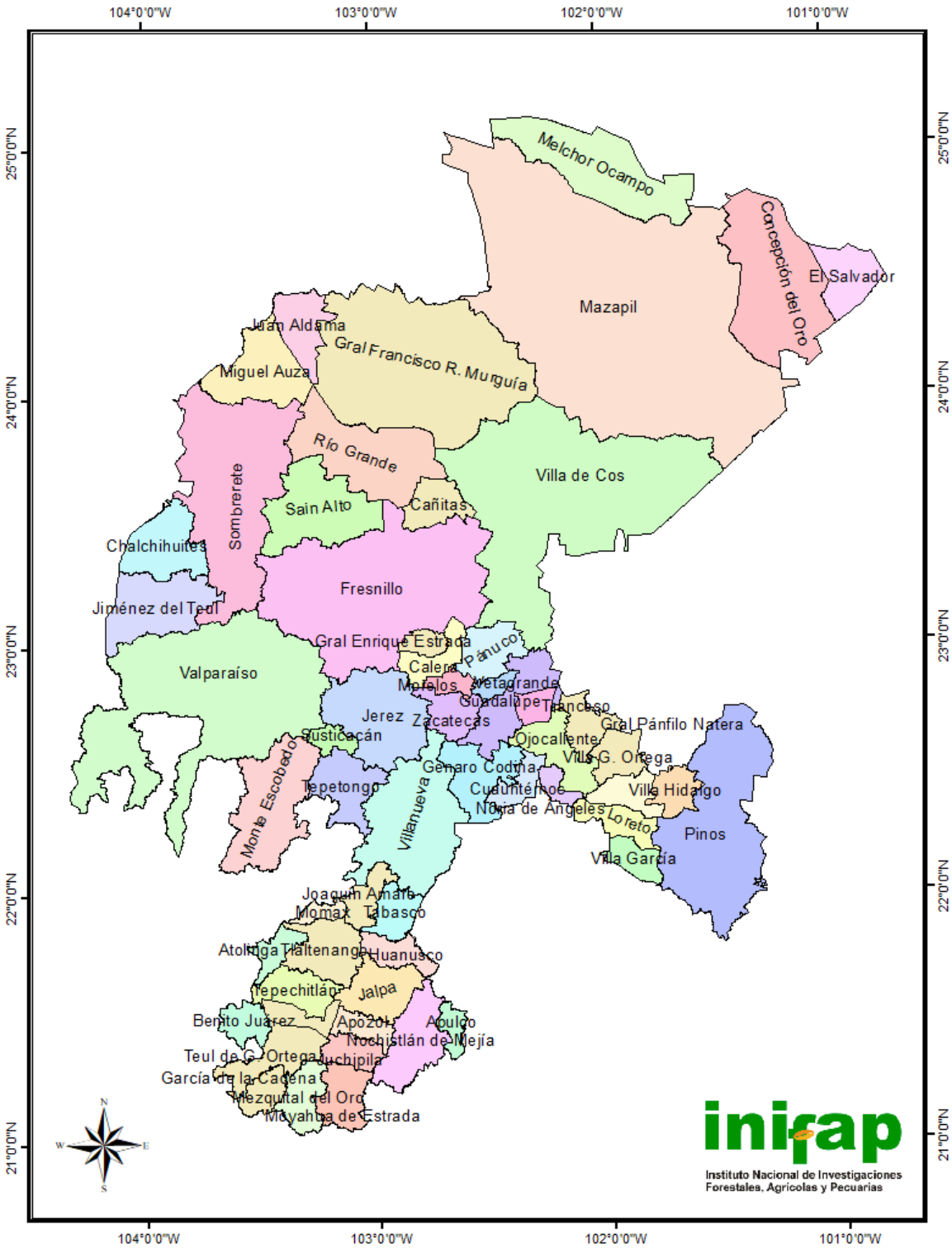


Figura 4. Municipios del estado de Zacatecas.

Fuente: Marco Geoestadístico Municipal v 2020.

6. Cálculo de parámetros

No obstante que el objetivo de esta publicación es presentar estadísticas horarias, al mismo tiempo se estimaron estadísticas mensuales y por ende las estadísticas anuales. Mediante el programa Excel se calcularon los parámetros a nivel horario y mensual (Cuadro 2).

Cuadro 2. Parámetros horarios y mensuales estimados de cada una de las estaciones.

PARÁMETRO	HORARIO	MENSUAL
Temperatura máxima media (˚C)	✓	✓
Temperatura máxima maximorum (˚C)	✓	✓
Temperatura mínima media (˚C)	✓	✓
Temperatura mínima minimorum (˚C)	✓	✓
Temperatura media (˚C)	✓	✓
Oscilación térmica (˚C)		✓
Precipitación acumulada media (mm)	✓	✓
Precipitación máxima maximorum (mm)	✓	
Precipitación máxima maximorum en 24 horas (mm)		✓
Número de días promedio con lluvia		✓
Evapotranspiración potencial media (mm)	✓	✓
Humedad relativa máxima media (%)		✓
Humedad relativa máxima maximorum (%)		✓
Humedad relativa mínima media (%)		✓
Humedad relativa mínima minimorum (%)	✓	✓
Humedad relativa media (%)	✓	✓
Radiación solar global media (W/m^2)	✓	✓
Radiación solar global media (kWh/m^2)	✓	✓
Radiación solar global media ($Mj/m^2/s$)	✓	✓
Velocidad del viento máxima media (km/h)		✓
Velocidad del viento máxima maximorum (km/h)	✓	✓
Velocidad del viento media (km/h)	✓	✓
Frecuencia de velocidad del viento (%)		✓
Frecuencia de dirección del viento (%)		✓
Dirección dominante del viento		✓

La descripción conceptual y/o del cálculo matemático de cada uno de los parámetros se realiza a continuación (Ostle, 1981; Infante y Zárate, 2012):

Temperatura máxima media. Constituye el valor promedio histórico de la temperatura máxima:

$$Txm = \frac{\sum_{i=1}^{n} Tx}{n}$$

Donde:

Txm = Temperatura máxima media

Tx = Temperatura máxima media de la hora o del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Temperatura máxima *maximorum*. Es el valor máximo de temperatura presentado a nivel horario o diario para el mes en cuestión en la serie histórica de datos.

Temperatura mínima media. Representa el valor promedio histórico de temperatura mínima.

$$Tim = \frac{\sum_{i=1}^{n} Ti}{n}$$

Donde:

Tim = Temperatura mínima media

Ti = Temperatura mínima media de la hora o del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Temperatura mínima *minimorum*. Es el valor mínimo de temperatura presentado a nivel horario o diario para el mes en cuestión en la serie histórica de datos.

Temperatura media. Constituye el valor promedio histórico de temperatura media.

$$Tm = \frac{\sum_{i=1}^{n} Tp}{n}$$

Donde:

Tm = Temperatura media

Tp = Temperatura promedio de la hora o del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Oscilación térmica. Es la diferencia entre los valores promedio de temperatura máxima y temperatura mínima.

$$OT = Txm - Tim$$

Precipitación acumulada media. Constituye el valor promedio histórico de la precipitación acumulada.

$$Pm = \frac{\sum_{i=1}^{n} Pa}{n}$$

Donde:

Pm = Precipitación acumulada media

Pa = Precipitación acumulada de la hora o del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Precipitación máxima *maximorum*. Es el valor máximo de precipitación presentado a nivel horario o diario para el mes en cuestión en la serie histórica de datos.

Número de días promedio con lluvia. Es el número de días promedio con lluvia para el mes en cuestión en la serie histórica de datos.

$$Dp = \frac{\sum_{i=1}^{n} Pd}{n}$$

Donde:

Dp = Número de días promedio con lluvia

Pd = Precipitación acumulada por día mayor de cero en el mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Evapotranspiración potencial media. Es el valor promedio histórico de la evapotranspiración. La evapotranspiración potencial horaria es estimada directamente por el programa AddVantage Pro 6.4 (Adcon, 2013), que es el que controla toda la base de datos de las estaciones, es estimada a partir de la temperatura, radiación solar, humedad relativa y velocidad del viento, con la metodología de Penman-Montieth (Allen *et al.*, 2006), tal como se describe a continuación:

$$ETo = \frac{0.408\Delta(R_n - G) + \gamma \frac{900}{T + 273} u_2 (e_s - e_a)}{\Delta + \gamma(1 + 0.34u_2)}$$

Donde:

ETo=Evapotranspiración de referencia (mm/día)
Rn=Radiación neta en la superficie del cultivo (MJ/m^2/día)
G=Flujo del calor de suelo (MJ/m^2/día)
T=Temperatura media del aire a 2 m de altura (˚C)
u_2=Velocidad del viento a 2 m de altura (m/s)
e_s=Presión de vapor de saturación (kPa)
e_a=Presión real de vapor (kPa)
$e_s - e_a$=Déficit de presión de vapor (kPa)
Δ=Pendiente de la curva de presión de vapor (kPa/˚C)
γ =Constante psicrométrica (kPa/˚C)

Con los datos estimados de evapotranspiración se obtuvieron los valores medios de la manera siguiente:

$$ETo = \frac{\sum_{i=1}^{n} ETp}{n}$$

Donde:
ETo= Evapotranspiración potencial media
ETp = Evapotranspiración promedio de la hora o del mes cuestión
n = Cada uno de los años de la serie histórica de la estación

Humedad relativa máxima media. Es el valor promedio histórico de la humedad relativa máxima:

$$HRxm = \frac{\sum_{i=1}^{n} HRx}{n}$$

Donde:

HRxm = Humedad relativa máxima media

HRx = Humedad relativa máxima media del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Humedad relativa máxima *maximorum*. Es el valor máximo de humedad relativa a nivel diario para el mes en cuestión en la serie histórica de datos.

Humedad relativa mínima media. Representa el valor promedio histórico de humedad relativa mínima.

$$HRim = \frac{\sum_{i=1}^{n} HRi}{n}$$

Donde:

HRim = Humedad relativa mínima media

HRi = Humedad relativa mínima media del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Humedad relativa mínima *minimorum*. Es el valor mínimo de humedad relativa presentado a nivel horario o diario para el mes en cuestión en la serie histórica de datos.

Humedad relativa media. Constituye el valor promedio histórico de humedad relativa media.

$$HRm = \frac{\sum_{i=1}^{n} Hrm}{n}$$

Donde:
HRm = Humedad relativa media
Hrm = Humedad relativa promedio de la hora o del mes en cuestión
n = Cada uno de los años de la serie histórica de la estación

Radiación solar global media. Es el valor promedio histórico de radiación solar global media.

$$RSm = \frac{\sum_{i=1}^{n} Rsm}{n}$$

Donde:
RSm = Radiación solar global media
Rsm = Radiación solar global promedio de la hora o del mes en cuestión
n = Cada uno de los años de la serie histórica de la estación

Velocidad del viento máxima media. Es el valor promedio histórico de la velocidad del viento máxima:

$$VVxm = \frac{\sum_{i=1}^{n} VVx}{n}$$

Donde:

VVxm = Velocidad del viento máxima media

VVx = Velocidad del viento máxima media del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Velocidad del viento máxima *maximorum*. Es el valor máximo de velocidad del viento a nivel horario o diario para el mes en cuestión en la serie histórica de datos.

Velocidad del viento media. Constituye el valor promedio histórico de velocidad del viento media.

$$VVm = \frac{\sum_{i=1}^{n} Vvm}{n}$$

Donde:

VVm = Velocidad del viento media

Vvm = Velocidad del viento promedio de la hora o del mes en cuestión

n = Cada uno de los años de la serie histórica de la estación

Frecuencia relativa de velocidad del viento. Es la proporción de valores dentro de cada rango de velocidad, con respecto al total de observaciones (UF, 2023).

$$FVV = \frac{\sum_{i=1}^{n} Vv}{n}$$

Donde:

FVV = Frecuencia relativa de velocidad del viento

Vv = Número de datos con velocidad del viento dentro de cada rango definido, del mes en cuestión

n = Número total de observaciones en los años de la serie histórica de la estación

Se consideraron los siguientes rangos de velocidad del viento (km/h):

0.0 a 5.0

5.1 a 10.0

10.1 a 15.0

15.1 a 20.0

20.1 a 25.0

25.1 a 30.0

30.1 a 35.0

35.1 a 40.0

40.1 a 45.0

45.1 a 50.0

>50

Frecuencia relativa de dirección del viento. Es la proporción de valores dentro de cada rango de dirección, con respecto al total de observaciones.

La dirección del viento se mide en grados y va de 0˚ a 360˚, donde 90˚ corresponde al Este, 180˚ corresponde al Sur, 270˚ corresponde al Oeste y 360˚

y/o 0° corresponden al Norte. Sin embargo, para definir las 16 direcciones del viento que normalmente se manejan, se definieron 16 rangos en grados, los cuales se presentan a continuación:

DIRECCIÓN DEL VIENTO		RANGO (grados)
Norte	N	>348.75 a 360.00 y >0.00 a 11.25
Nornoreste	NNE	>11.25 a 33.75
Noreste	NE	>33.75 a 56.25
Estenoreste	ENE	>56.25 a 78.75
Este	E	>78.75 a 101.25
Estesureste	ESE	>101.25 a 123.75
Sureste	SE	>123.75 a 146.25
Sursureste	SSE	>146.25 a 168.75
Sur	S	>168.75 a 191.25
Sursuroeste	SSO	>191.25 a 213.75
Suroeste	SO	>213.75 a 236.25
Oestesuroeste	OSO	>236.25 a 258.75
Oeste	O	>258.75 a 281.25
Oestenoroeste	ONO	>281.25 a 303.75
Noroeste	NO	>303.75 a 326.25
Nornoroeste	NNO	>326.25 a 348.75

$$FDV = \frac{\sum_{i=1}^{n} Dv}{n}$$

Donde:

FDV = Frecuencia relativa de dirección del viento

Dv = Número de datos con dirección del viento dentro de cada rango definido, del mes en cuestión

n = Número total de observaciones en los años de la serie histórica de la estación.

7. Estadísticas climatológicas horarias

7.1. Estación: Ábrego, Fresnillo

Cuadro 3. Temperatura máxima media (˚C) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.2	8.6	11.3	15.1	17.6	18.0	16.2	16.1	14.7	11.9	7.9	6.0	12.5
01	5.3	7.6	10.1	13.8	16.4	17.2	15.6	15.5	14.2	11.1	7.0	5.1	11.6
02	4.6	6.8	9.0	12.6	15.3	16.3	15.0	14.8	13.7	10.3	6.2	4.4	10.7
03	3.8	5.9	8.0	11.5	14.1	15.4	14.5	14.2	13.2	9.6	5.4	3.8	10.0
04	3.4	5.3	7.2	10.5	13.1	14.6	14.0	13.7	12.8	9.1	4.9	3.3	9.3
05	2.8	4.7	6.4	9.5	12.2	13.9	13.5	13.2	12.4	8.5	4.3	2.8	8.7
06	2.4	4.1	5.7	8.6	11.4	13.3	13.0	12.7	12.0	8.1	3.8	2.4	8.1
07	2.6	4.7	8.0	9.5	12.2	14.0	13.4	12.8	12.2	8.5	6.2	3.0	8.9
08	7.2	9.8	13.0	13.8	16.3	17.2	15.8	15.5	14.5	12.3	11.9	8.5	13.0
09	11.0	13.3	16.5	17.6	19.6	19.5	17.9	17.8	16.9	16.1	15.3	12.4	16.2
10	14.0	16.4	19.2	20.6	22.4	21.6	19.6	19.6	18.8	18.7	17.9	15.4	18.7
11	16.2	18.5	21.1	22.8	24.5	23.4	21.1	21.2	20.4	20.6	19.8	17.6	20.6
12	17.8	20.0	22.5	24.4	26.0	25.0	22.6	22.6	21.7	22.1	21.0	18.9	22.1
13	18.8	21.0	23.4	25.6	27.1	26.1	23.6	23.7	22.6	23.0	21.8	19.8	23.0
14	19.3	21.5	23.9	26.3	27.7	26.7	24.2	24.4	23.2	23.6	22.2	20.2	23.6
15	19.4	21.6	24.0	26.6	28.0	26.9	24.3	24.6	23.4	23.7	22.1	20.2	23.7
16	19.0	21.3	23.7	26.5	27.9	26.9	24.2	24.5	23.1	23.5	21.5	19.7	23.5
17	18.0	20.5	22.9	26.1	27.6	26.4	23.8	24.0	22.4	22.8	20.1	18.4	22.8
18	15.7	18.8	21.4	25.2	26.9	25.6	23.1	23.1	21.3	21.2	16.6	15.1	21.2
19	12.0	15.3	18.5	23.6	25.5	24.5	22.0	21.9	19.6	18.2	13.2	11.8	18.8
20	10.7	13.2	16.2	21.0	23.4	22.9	20.4	20.0	17.3	15.3	12.3	10.7	16.9
21	9.6	12.2	15.0	18.8	21.1	20.9	18.7	18.2	16.1	14.4	11.2	9.5	15.5
22	8.5	11.2	14.0	17.5	19.8	19.6	17.7	17.3	15.6	13.6	10.0	8.3	14.4
23	7.3	9.9	12.7	16.3	18.7	18.8	16.9	16.6	15.1	12.6	8.9	7.2	13.4
Media	10.6	13.0	15.6	18.5	20.6	20.6	18.8	18.7	17.4	15.8	13.0	11.0	16.1

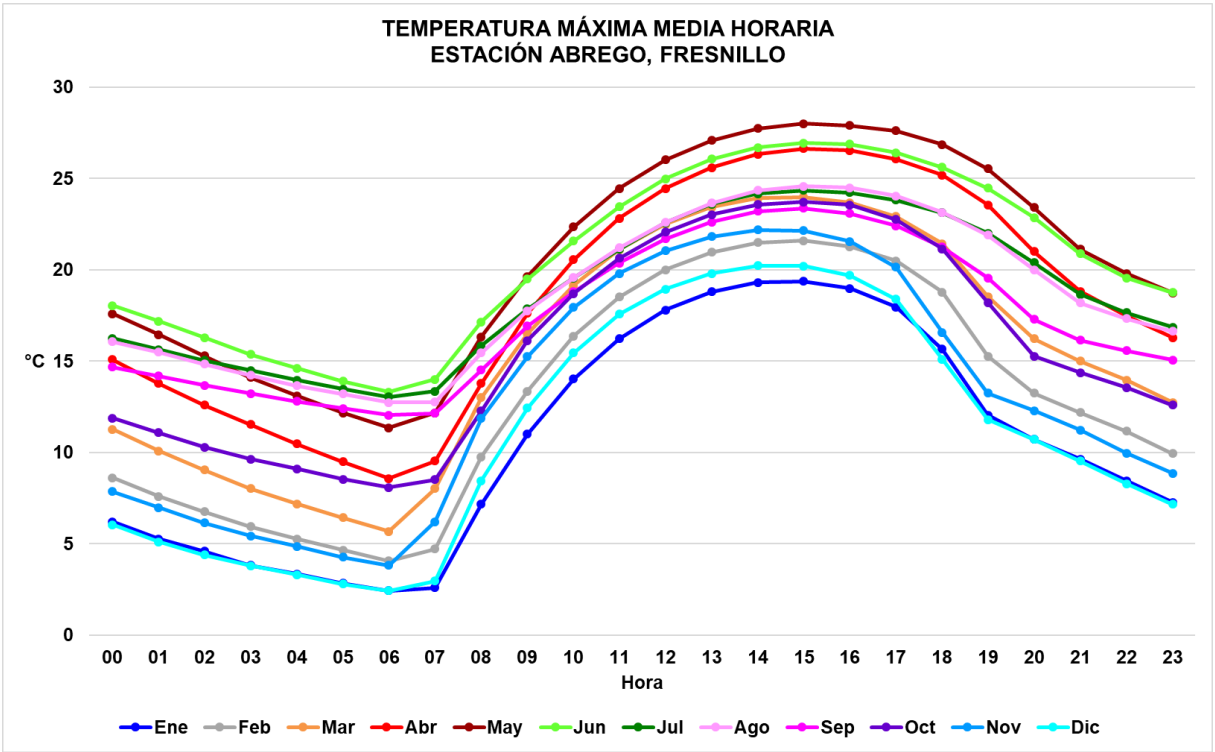


Figura 5. Temperatura máxima media (˚C) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 4. Temperatura máxima maximorum (˚C) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.3	18.5	20.1	21.9	25.9	26.3	23.0	22.3	19.5	19.5	15.5	14.2	26.3
01	13.6	15.7	18.6	20.4	22.8	24.4	20.8	21.1	18.5	18.7	15.6	13.3	24.4
02	12.7	15.2	16.2	20.3	22.1	23.7	19.8	20.2	18.6	17.5	14.6	12.9	23.7
03	12.0	14.5	15.9	20.3	20.7	22.0	20.1	19.0	17.0	16.8	13.9	13.3	22.0
04	11.3	14.1	15.5	20.4	20.0	22.2	19.8	18.4	17.0	16.5	13.6	13.3	22.2
05	11.0	13.3	14.9	20.3	19.0	21.6	18.1	17.5	16.5	16.2	13.4	13.0	21.6
06	11.4	13.3	15.3	19.6	19.9	19.2	17.3	16.9	16.1	15.6	13.5	12.9	19.9
07	11.2	13.7	18.6	18.0	21.8	19.8	18.4	17.1	16.5	15.0	14.0	12.7	21.8
08	15.5	18.9	21.4	21.1	24.8	23.8	20.7	20.2	18.9	19.3	18.5	16.3	24.8
09	20.4	22.4	24.9	24.9	27.1	25.5	22.9	22.6	21.7	23.3	22.5	21.3	27.1
10	22.7	25.8	28.0	27.2	30.4	28.5	25.8	25.0	24.1	26.2	25.7	24.7	30.4
11	24.6	27.8	29.6	28.9	31.9	30.0	29.0	27.0	26.1	27.2	26.8	26.3	31.9
12	25.9	28.2	30.8	30.8	32.9	31.6	30.5	27.8	27.4	28.5	27.7	27.0	32.9
13	27.0	29.0	31.8	31.9	34.2	32.4	31.5	29.6	28.8	29.4	28.4	27.2	34.2
14	27.0	29.4	32.1	32.2	35.1	33.2	30.8	30.4	29.1	29.5	28.8	27.2	35.1
15	27.1	29.3	31.9	32.5	35.5	33.9	31.8	30.6	30.1	30.0	28.7	27.2	35.5
16	26.3	28.7	31.8	32.9	35.3	33.8	31.2	30.8	30.5	30.4	28.4	26.4	35.3
17	24.8	27.8	31.4	32.7	35.1	33.4	32.0	30.6	29.8	30.4	26.9	24.9	35.1
18	21.9	26.9	30.4	31.5	33.6	33.2	31.3	30.1	29.0	27.6	23.3	21.8	33.6
19	18.3	23.7	26.8	29.2	33.1	32.0	31.0	28.7	27.9	24.8	19.3	18.3	33.1
20	18.0	21.9	24.1	27.8	29.8	30.8	28.0	26.5	25.1	21.9	18.3	17.9	30.8
21	17.2	21.3	23.3	24.5	29.0	29.9	25.3	25.2	23.2	21.4	18.1	16.9	29.9
22	16.0	19.8	21.8	23.4	27.8	27.6	24.3	23.7	22.9	20.3	17.5	16.6	27.8
23	15.3	19.3	21.1	22.6	26.5	26.1	23.1	23.1	20.8	20.5	17.0	15.2	26.5
Máx.	27.1	29.4	32.1	32.9	35.5	33.9	32.0	30.8	30.5	30.4	28.8	27.2	35.5

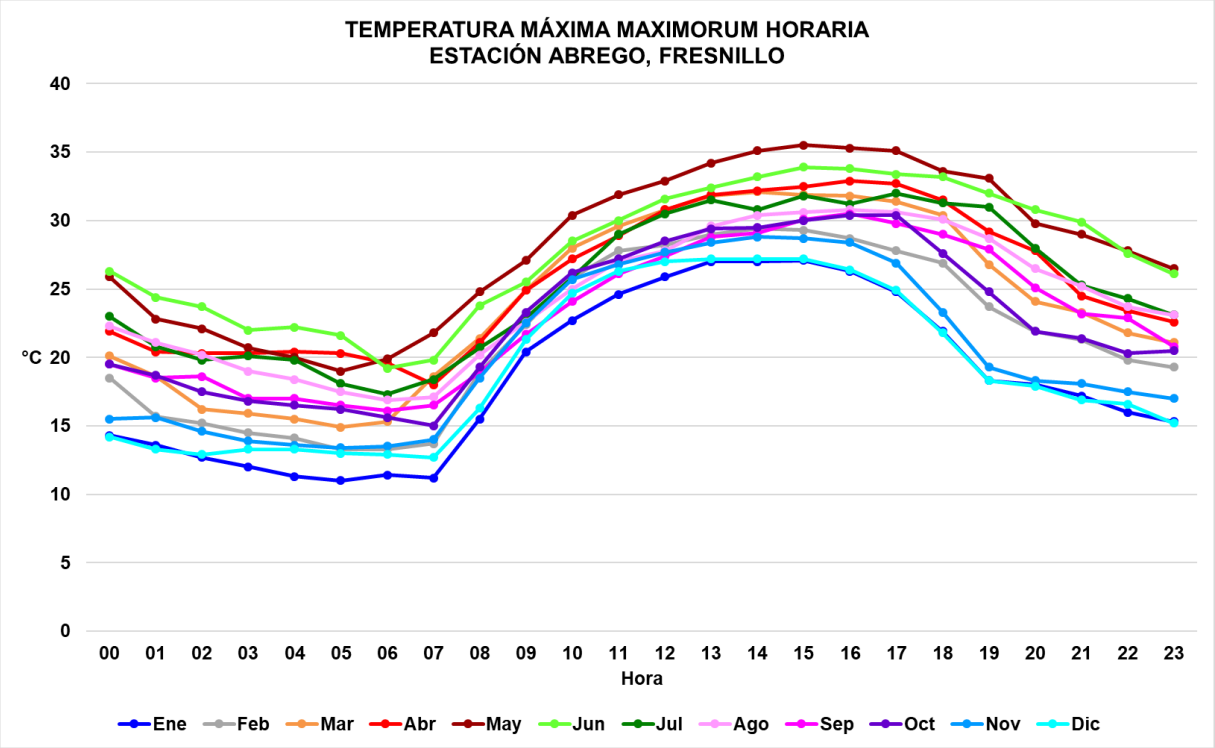


Figura 6. Temperatura máxima maximorum (˚C) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 5. Temperatura mínima media (˚C) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.7	7.0	9.7	13.6	16.3	17.0	15.4	15.2	13.9	10.8	6.5	4.5	11.2
01	3.8	6.1	8.5	12.2	15.1	16.1	14.9	14.7	13.5	10.0	5.7	3.7	10.4
02	3.2	5.3	7.5	11.0	13.8	15.2	14.3	14.1	13.0	9.3	4.9	3.1	9.6
03	2.4	4.5	6.4	10.0	12.7	14.5	13.8	13.5	12.6	8.7	4.2	2.4	8.8
04	2.0	3.8	5.7	8.9	11.7	13.7	13.3	13.0	12.2	8.1	3.6	2.0	8.2
05	1.5	3.3	4.9	7.9	10.8	13.0	12.8	12.5	11.8	7.6	3.1	1.5	7.6
06	1.1	2.7	4.1	7.0	10.0	12.4	12.4	12.1	11.5	7.2	2.7	1.2	7.0
07	1.0	2.7	4.6	7.0	10.0	12.4	12.4	11.8	11.3	7.1	3.1	1.1	7.0
08	2.9	5.6	9.5	10.0	13.0	14.8	13.8	13.0	12.2	8.7	7.9	3.9	9.6
09	8.3	10.7	13.9	14.8	17.2	17.7	16.3	16.1	15.2	13.5	12.7	9.6	13.8
10	11.8	14.1	17.2	18.4	20.4	20.0	18.2	18.1	17.3	16.8	16.0	13.2	16.8
11	14.6	16.9	19.7	21.2	22.9	22.0	19.8	19.9	19.1	19.1	18.4	16.0	19.1
12	16.5	18.8	21.4	23.2	24.8	23.7	21.4	21.4	20.5	20.9	20.0	17.8	20.9
13	17.8	20.1	22.5	24.6	26.1	24.9	22.4	22.6	21.5	22.0	20.9	18.9	22.0
14	18.5	20.8	23.1	25.5	26.7	25.5	22.9	23.2	22.0	22.6	21.4	19.5	22.6
15	18.7	21.0	23.3	25.8	27.0	25.7	23.1	23.4	22.1	22.7	21.3	19.5	22.8
16	18.1	20.5	22.9	25.7	27.0	25.7	22.9	23.3	21.7	22.4	20.5	18.7	22.5
17	16.4	19.3	21.8	25.2	26.6	25.3	22.6	22.8	21.0	21.4	17.8	16.3	21.4
18	12.6	16.2	19.4	24.0	25.7	24.4	21.9	21.9	19.7	18.9	13.4	12.0	19.2
19	10.5	13.2	16.3	21.7	23.9	23.2	20.7	20.4	17.7	15.5	11.8	10.3	17.1
20	9.3	11.8	14.8	19.1	21.4	21.2	18.9	18.3	16.1	14.0	10.9	9.2	15.4
21	8.2	10.8	13.6	17.4	19.7	19.5	17.6	17.1	15.3	13.2	9.7	8.0	14.2
22	7.0	9.7	12.5	16.2	18.6	18.5	16.7	16.4	14.8	12.4	8.5	6.7	13.2
23	5.7	8.4	11.2	15.0	17.6	17.7	16.0	15.8	14.3	11.4	7.4	5.6	12.2
Media	9.0	11.4	13.9	16.9	19.1	19.3	17.7	17.5	16.3	14.4	11.4	9.4	14.7

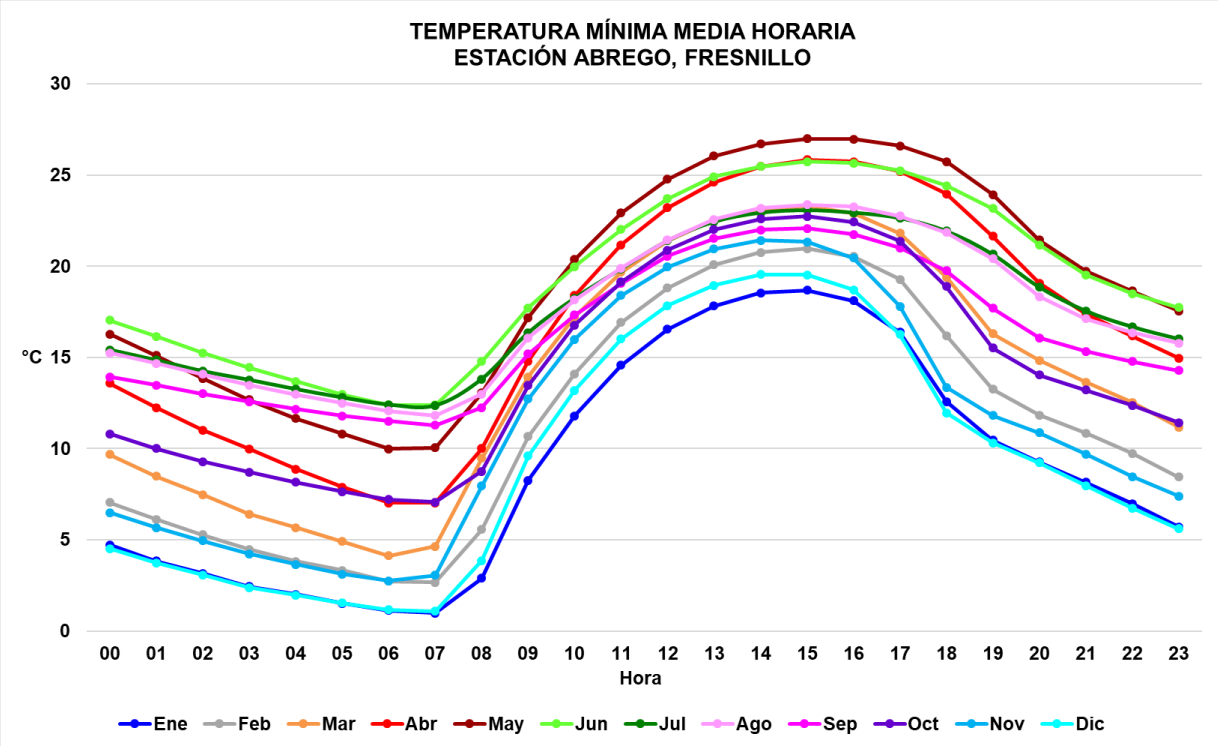


Figura 7. Temperatura mínima media (˚C) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 6. Temperatura mínima minimorum (˚C) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.9	-3.3	-3.9	2.5	8.7	11.1	10.3	9.9	8.1	-0.8	-8.2	-8.8	-8.8
01	-7.0	-4.2	-5.5	0.9	5.9	9.8	9.6	9.5	6.3	-1.2	-10.3	-11.6	-11.6
02	-6.8	-6.4	-5.7	0.5	3.0	8.6	9.4	8.5	5.5	-2.8	-11.7	-11.4	-11.7
03	-7.8	-6.6	-6.3	0.8	1.9	8.1	8.4	8.4	4.8	-3.5	-13.0	-11.3	-13.0
04	-9.0	-6.1	-7.1	-1.0	3.8	6.2	8.2	8.1	4.3	-4.0	-13.8	-14.1	-14.1
05	-8.8	-8.0	-8.3	-1.4	2.9	5.6	7.1	7.1	3.4	-5.1	-13.5	-14.6	-14.6
06	-11.0	-8.0	-9.6	-3.0	0.9	5.3	6.5	6.3	3.2	-4.8	-12.9	-14.9	-14.9
07	-9.8	-7.3	-9.3	-2.6	0.5	5.9	6.9	6.1	1.7	-5.1	-12.8	-14.6	-14.6
08	-9.8	-6.3	-4.4	-0.9	4.6	9.1	8.2	6.7	3.7	-1.5	-5.4	-8.7	-9.8
09	-0.8	0.3	1.4	5.9	8.1	13.1	12.1	11.4	10.9	4.2	1.2	-4.2	-4.2
10	0.8	2.7	1.3	10.0	10.1	13.9	12.7	13.2	12.2	7.6	3.4	-1.6	-1.6
11	2.1	4.9	4.0	12.4	11.9	14.7	12.8	14.0	13.2	8.4	4.3	-1.7	-1.7
12	3.3	5.4	5.3	14.2	12.7	15.0	13.3	14.2	14.6	10.2	5.4	-1.7	-1.7
13	4.7	5.5	6.3	15.8	12.6	14.6	12.8	14.0	14.4	11.6	7.3	-1.9	-1.9
14	5.6	6.0	5.3	16.8	12.0	13.6	12.8	11.8	14.4	11.4	8.1	-1.1	-1.1
15	1.9	6.3	5.2	13.1	13.7	13.6	13.1	12.4	13.7	10.6	7.9	0.4	0.4
16	4.3	6.3	3.6	13.2	11.1	14.5	12.2	13.0	13.8	12.4	6.7	0.9	0.9
17	2.8	5.1	4.4	12.7	11.2	12.4	13.0	13.2	13.2	10.7	4.2	0.2	0.2
18	1.7	5.1	2.8	11.8	11.2	12.8	13.6	13.9	11.1	8.1	1.4	-1.4	-1.4
19	-1.4	3.7	0.1	11.1	11.7	12.9	13.5	13.6	11.6	6.8	-0.5	-3.2	-3.2
20	-3.2	2.8	-1.9	9.4	11.5	10.4	13.0	10.3	10.8	5.3	-0.7	-4.8	-4.8
21	-4.0	1.2	-2.5	8.9	11.2	12.0	12.6	10.8	10.3	3.3	-3.0	-6.9	-6.9
22	-5.3	-0.7	-2.0	6.1	9.7	12.1	11.4	11.1	9.0	1.6	-6.0	-7.9	-7.9
23	-6.3	-1.2	-3.2	4.5	9.5	11.7	11.1	10.0	8.5	1.3	-6.9	-8.9	-8.9
Mín.	-11.0	-8.0	-9.6	-3.0	0.5	5.3	6.5	6.1	1.7	-5.1	-13.8	-14.9	-14.9

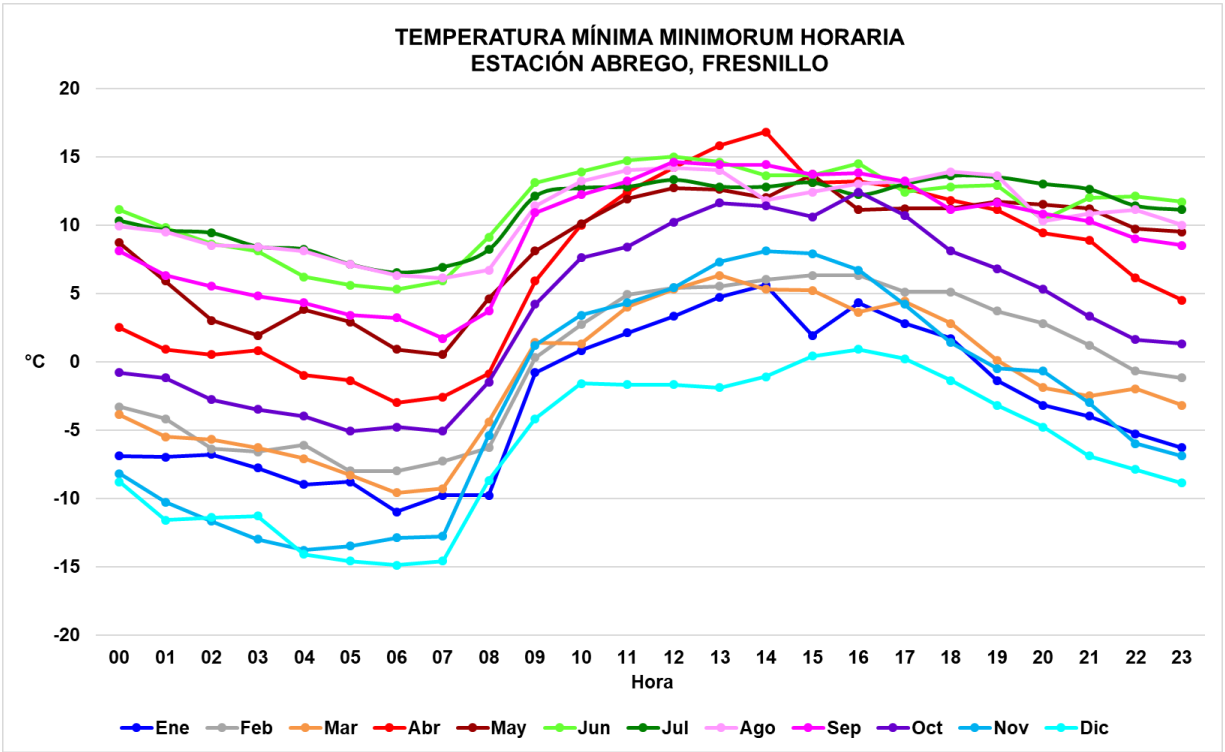


Figura 8. Temperatura mínima minimorum (˚C) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 7. Temperatura media (˚C) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.4	7.8	10.5	14.3	16.9	17.5	15.8	15.7	14.3	11.3	7.2	5.3	11.8
01	4.5	6.9	9.3	13.0	15.8	16.7	15.2	15.1	13.8	10.5	6.3	4.4	11.0
02	3.9	6.0	8.3	11.8	14.6	15.8	14.6	14.5	13.3	9.8	5.5	3.7	10.1
03	3.1	5.2	7.2	10.8	13.4	14.9	14.1	13.8	12.9	9.2	4.8	3.1	9.4
04	2.7	4.5	6.4	9.7	12.4	14.2	13.6	13.3	12.5	8.6	4.2	2.6	8.7
05	2.2	4.0	5.7	8.7	11.5	13.4	13.1	12.8	12.1	8.1	3.7	2.2	8.1
06	1.8	3.4	4.9	7.8	10.6	12.8	12.7	12.4	11.8	7.6	3.3	1.8	7.6
07	1.7	3.6	6.2	8.2	11.0	13.1	12.8	12.2	11.7	7.7	4.4	1.9	7.9
08	5.0	7.8	11.3	11.9	14.7	16.0	14.9	14.2	13.3	10.4	10.0	6.3	11.3
09	9.7	12.0	15.2	16.2	18.4	18.6	17.1	16.9	16.1	14.8	14.0	11.0	15.0
10	12.9	15.3	18.2	19.5	21.4	20.8	18.9	18.9	18.1	17.7	17.0	14.4	17.7
11	15.4	17.7	20.4	22.0	23.7	22.7	20.5	20.6	19.7	19.9	19.1	16.8	19.9
12	17.2	19.4	22.0	23.8	25.4	24.3	22.0	22.0	21.1	21.5	20.5	18.4	21.5
13	18.3	20.5	23.0	25.1	26.6	25.5	23.0	23.1	22.1	22.5	21.4	19.4	22.5
14	18.9	21.1	23.5	25.9	27.2	26.1	23.6	23.8	22.6	23.1	21.8	19.9	23.1
15	19.0	21.3	23.6	26.3	27.5	26.3	23.7	24.0	22.7	23.2	21.7	19.9	23.3
16	18.6	20.9	23.3	26.1	27.4	26.3	23.6	23.9	22.4	23.0	21.0	19.2	23.0
17	17.2	19.9	22.4	25.6	27.1	25.8	23.2	23.4	21.7	22.1	19.1	17.4	22.1
18	14.1	17.6	20.5	24.6	26.3	25.0	22.6	22.5	20.5	20.1	14.8	13.4	20.2
19	11.3	14.2	17.4	22.6	24.8	23.8	21.3	21.2	18.6	16.8	12.5	11.1	18.0
20	10.0	12.5	15.5	20.0	22.4	22.0	19.6	19.1	16.6	14.6	11.6	10.0	16.2
21	8.9	11.5	14.3	18.1	20.4	20.2	18.1	17.6	15.7	13.8	10.5	8.8	14.8
22	7.7	10.5	13.3	16.9	19.2	19.0	17.2	16.8	15.2	13.0	9.2	7.5	13.8
23	6.5	9.2	12.0	15.6	18.2	18.2	16.4	16.2	14.7	12.0	8.1	6.4	12.8
Media	9.8	12.2	14.8	17.7	19.9	20.0	18.2	18.1	16.8	15.1	12.2	10.2	15.4

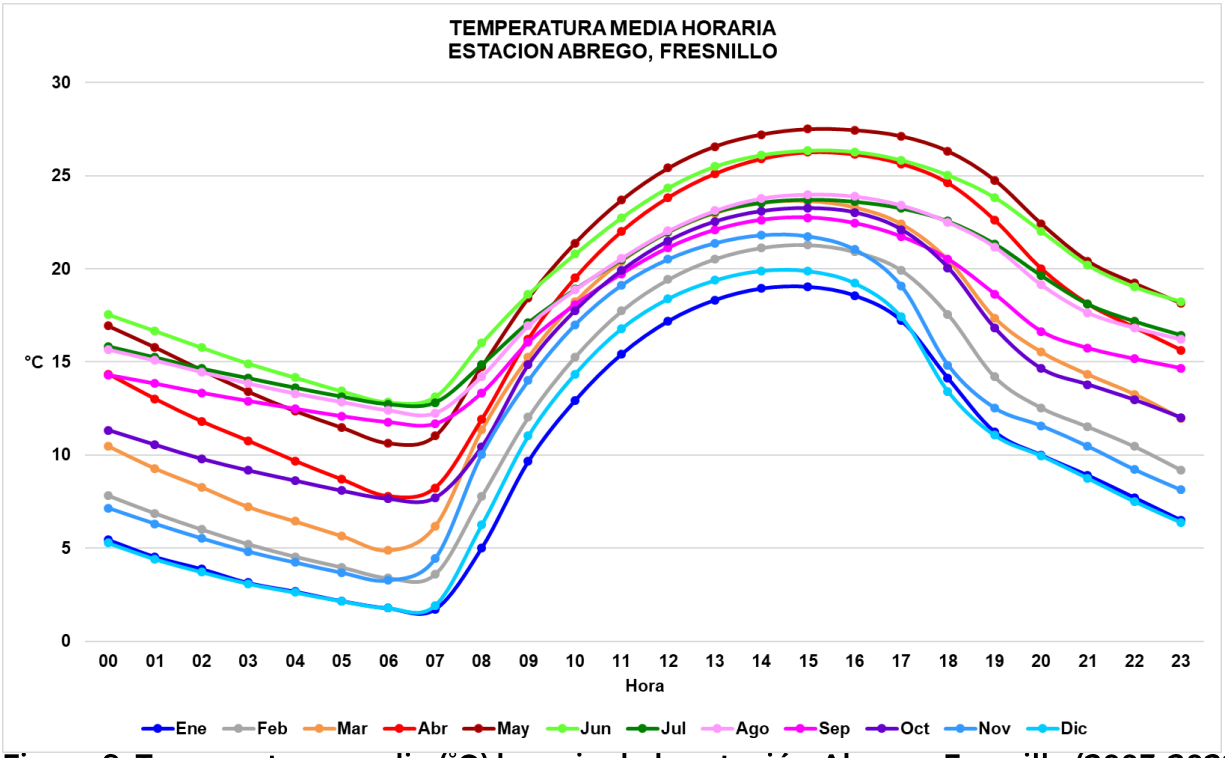


Figura 9. Temperatura media (˚C) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 8. Precipitación media (mm) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.6	0.3	0.0	0.2	4.2	5.0	5.6	7.5	2.0	0.2	0.7	26.5
01	0.4	0.4	0.2	0.0	0.4	4.8	3.8	3.2	7.9	2.2	0.3	0.4	24.2
02	0.5	0.4	0.1	0.0	0.2	4.7	4.8	2.9	5.6	1.9	0.4	0.3	21.7
03	0.7	0.7	0.2	0.0	0.2	3.0	4.6	4.4	3.7	1.9	0.4	0.4	20.1
04	0.4	0.5	0.1	0.0	0.1	1.5	3.8	2.0	4.5	0.9	0.2	0.5	14.5
05	0.4	0.4	0.3	0.0	0.1	0.9	2.1	1.6	2.8	0.7	0.2	0.5	9.8
06	0.2	0.5	0.1	0.0	0.0	0.7	1.1	1.0	1.6	0.4	0.2	0.3	6.1
07	0.3	0.6	0.1	0.0	0.0	1.0	0.8	0.7	0.9	0.6	0.3	0.5	5.9
08	0.6	0.6	0.1	0.0	0.0	0.4	0.7	1.4	0.8	0.8	0.3	0.5	6.0
09	0.3	0.8	0.0	0.0	0.1	0.1	1.3	1.6	0.8	0.2	0.2	0.5	5.7
10	0.2	0.5	0.0	0.0	0.1	0.1	0.5	0.7	0.4	0.2	0.4	0.5	3.4
11	0.2	0.8	0.0	0.0	0.1	0.2	1.3	0.5	0.3	0.4	0.4	0.5	4.7
12	0.1	0.7	0.1	0.0	0.0	0.5	0.5	0.4	0.2	0.3	0.8	0.4	4.1
13	0.4	0.8	0.4	0.1	0.3	0.3	3.8	1.0	1.4	1.2	0.7	0.7	11.2
14	1.0	0.5	0.4	0.1	0.7	3.1	5.1	2.1	2.0	0.5	0.8	0.3	16.7
15	0.7	0.4	0.4	0.3	0.9	2.2	8.1	6.7	2.9	2.4	0.7	0.6	26.1
16	0.5	0.7	0.3	0.2	0.7	2.4	9.7	7.3	6.8	1.1	0.6	0.4	30.6
17	0.9	0.7	0.2	0.2	0.5	3.8	5.6	7.5	9.3	2.5	1.0	0.4	32.4
18	0.5	1.9	0.3	0.3	0.3	4.0	5.4	6.0	11.5	2.6	0.5	0.2	33.6
19	0.6	1.0	0.6	0.1	0.7	4.4	5.3	4.8	7.7	3.1	0.4	0.3	28.9
20	0.6	0.7	0.6	0.1	1.0	5.6	5.8	6.7	6.9	4.4	0.9	0.4	33.7
21	0.3	0.5	0.7	0.0	0.6	5.8	7.6	5.2	8.9	2.5	0.3	0.4	32.9
22	0.6	0.6	0.5	0.1	0.7	3.6	8.1	6.8	8.3	2.9	0.6	0.8	33.4
23	0.3	0.6	0.5	0.0	0.7	3.0	8.1	4.7	8.0	1.2	0.3	0.7	28.0
Suma	10.7	15.7	6.6	1.5	8.5	60.3	102.8	84.5	110.8	36.8	10.9	11.0	459.9

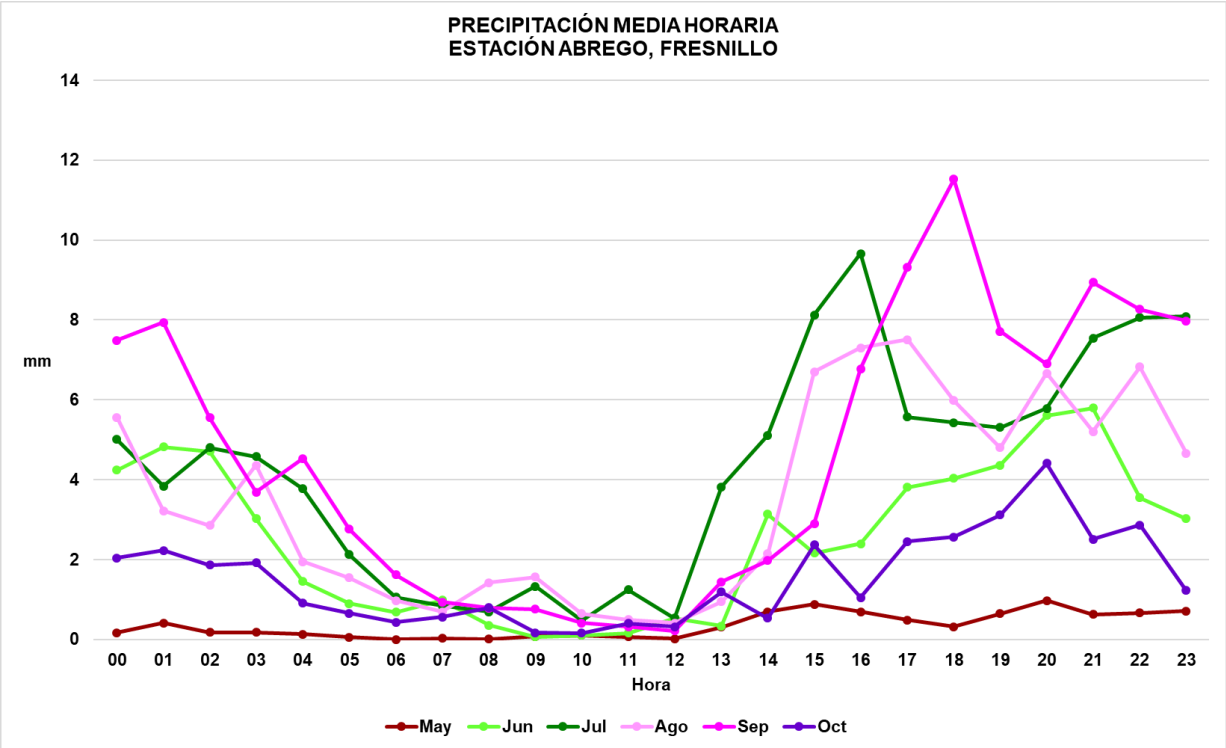


Figura 10. Precipitación media (mm) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 9. Precipitación máxima maximorum (mm) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.8	3.4	3.6	0.0	1.4	11.6	12.8	13.8	15.8	9.0	1.6	5.0	15.8
01	1.6	3.8	1.4	0.0	2.4	15.8	6.2	6.2	19.4	9.6	1.4	2.0	19.4
02	2.4	2.8	0.6	0.0	1.4	17.2	13.8	9.2	13.4	5.6	2.0	2.4	17.2
03	2.8	3.4	1.0	0.0	1.2	6.0	18.8	11.0	11.4	6.8	2.6	2.2	18.8
04	2.2	1.4	1.4	0.0	1.0	6.0	22.0	5.8	15.0	4.4	1.2	5.0	22.0
05	2.4	1.6	2.2	0.0	0.6	3.0	8.2	4.2	8.6	3.8	1.4	3.6	8.6
06	1.2	3.0	0.8	0.0	0.0	5.0	8.6	3.4	4.8	1.6	0.8	3.0	8.6
07	1.6	4.0	1.2	0.0	0.2	10.2	6.0	2.6	2.6	3.8	3.2	3.2	10.2
08	2.2	3.6	0.6	0.0	0.2	2.2	4.0	10.2	2.8	9.2	2.0	2.8	10.2
09	1.6	3.8	0.4	0.0	1.4	0.6	10.4	11.0	6.8	0.6	2.8	2.2	11.0
10	1.6	2.4	0.0	0.0	1.8	1.2	5.6	4.2	2.2	1.0	3.6	2.8	5.6
11	2.4	4.2	0.6	0.0	1.4	1.4	9.6	7.4	2.2	4.0	3.0	2.8	9.6
12	0.4	2.6	1.8	0.0	0.4	5.2	3.8	3.8	2.2	1.6	8.2	1.6	8.2
13	3.4	4.0	8.0	2.8	5.0	2.0	22.2	4.6	8.6	7.6	4.2	3.0	22.2
14	7.6	3.2	3.2	0.8	3.6	10.6	15.0	11.2	11.6	2.2	4.2	2.4	15.0
15	5.2	1.6	3.2	3.0	4.4	13.8	19.2	14.8	9.8	13.8	4.0	3.0	19.2
16	2.6	2.0	3.8	2.4	3.4	11.8	25.8	33.6	20.2	4.8	1.8	2.8	33.6
17	3.4	2.8	1.6	1.4	3.4	20.2	14.6	26.8	26.0	13.2	8.2	2.4	26.8
18	1.6	12.0	2.6	4.2	2.2	16.8	13.8	12.2	24.4	7.2	3.8	1.4	24.4
19	6.0	4.0	3.6	1.2	6.0	10.8	9.2	9.8	29.0	17.4	3.8	1.2	29.0
20	3.4	3.8	4.0	0.4	3.2	26.4	12.8	22.4	13.6	39.6	8.8	4.6	39.6
21	1.8	2.2	2.8	0.2	3.2	29.6	30.0	8.4	20.8	25.0	2.6	3.8	30.0
22	2.8	5.2	3.6	1.8	3.6	7.4	14.8	10.2	8.8	7.2	6.6	4.8	14.8
23	1.8	4.0	3.2	0.2	3.6	5.2	16.2	5.6	18.2	5.6	2.4	4.8	18.2
Máx.	7.6	12.0	8.0	4.2	6.0	29.6	30.0	33.6	29.0	39.6	8.8	5.0	39.6

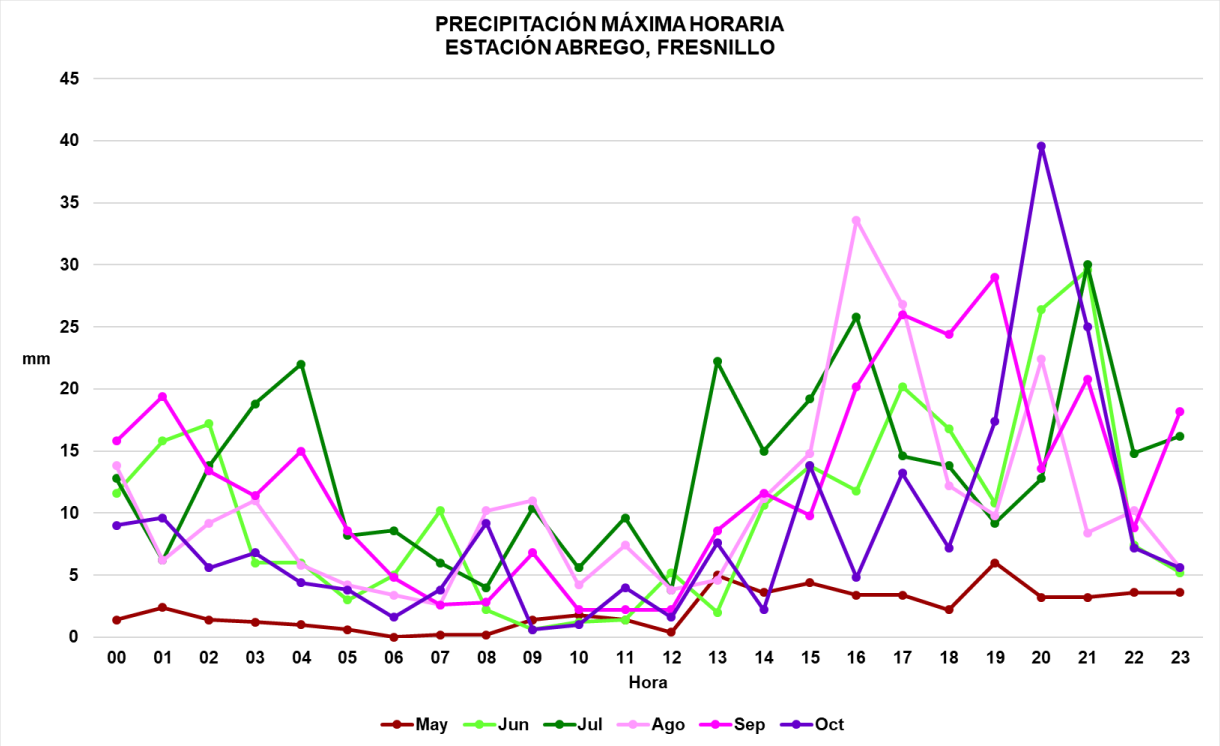


Figura 11. Precipitación máxima maximorum (mm) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 10. Evapotranspiración potencial media (mm) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.04	0.08	0.09	0.04	0.01	0.01	0.00	0.00	0.01	0.01	0.03
01	0.01	0.02	0.03	0.06	0.07	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.02
02	0.01	0.01	0.02	0.05	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
06	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08	0.02	0.04	0.07	0.05	0.06	0.05	0.02	0.01	0.01	0.01	0.03	0.02	0.03
09	0.08	0.14	0.21	0.17	0.18	0.16	0.12	0.11	0.09	0.10	0.15	0.10	0.13
10	0.20	0.28	0.37	0.33	0.35	0.31	0.25	0.25	0.22	0.24	0.28	0.22	0.28
11	0.32	0.41	0.51	0.49	0.51	0.45	0.38	0.39	0.35	0.38	0.40	0.34	0.41
12	0.42	0.52	0.61	0.63	0.63	0.58	0.50	0.52	0.46	0.49	0.48	0.43	0.52
13	0.47	0.57	0.66	0.71	0.71	0.65	0.58	0.60	0.53	0.56	0.51	0.47	0.58
14	0.48	0.57	0.66	0.74	0.72	0.66	0.60	0.62	0.54	0.57	0.49	0.47	0.59
15	0.44	0.54	0.61	0.72	0.69	0.63	0.57	0.58	0.50	0.53	0.43	0.43	0.56
16	0.37	0.46	0.52	0.65	0.63	0.56	0.50	0.53	0.44	0.45	0.34	0.35	0.48
17	0.28	0.36	0.40	0.56	0.54	0.47	0.42	0.44	0.34	0.33	0.22	0.23	0.38
18	0.16	0.23	0.28	0.44	0.42	0.37	0.33	0.32	0.22	0.21	0.11	0.13	0.27
19	0.08	0.13	0.17	0.34	0.31	0.25	0.21	0.22	0.13	0.10	0.04	0.06	0.17
20	0.04	0.08	0.11	0.23	0.22	0.17	0.13	0.11	0.04	0.03	0.02	0.03	0.10
21	0.03	0.06	0.09	0.15	0.15	0.10	0.06	0.04	0.01	0.01	0.02	0.03	0.06
22	0.02	0.05	0.08	0.12	0.12	0.06	0.03	0.02	0.01	0.01	0.01	0.02	0.05
23	0.01	0.04	0.07	0.11	0.11	0.04	0.02	0.01	0.00	0.01	0.01	0.01	0.04
Media/día /mes	3.48	4.57	5.58	6.75	6.63	5.61	4.75	4.81	3.88	4.02	3.56	3.36	4.75

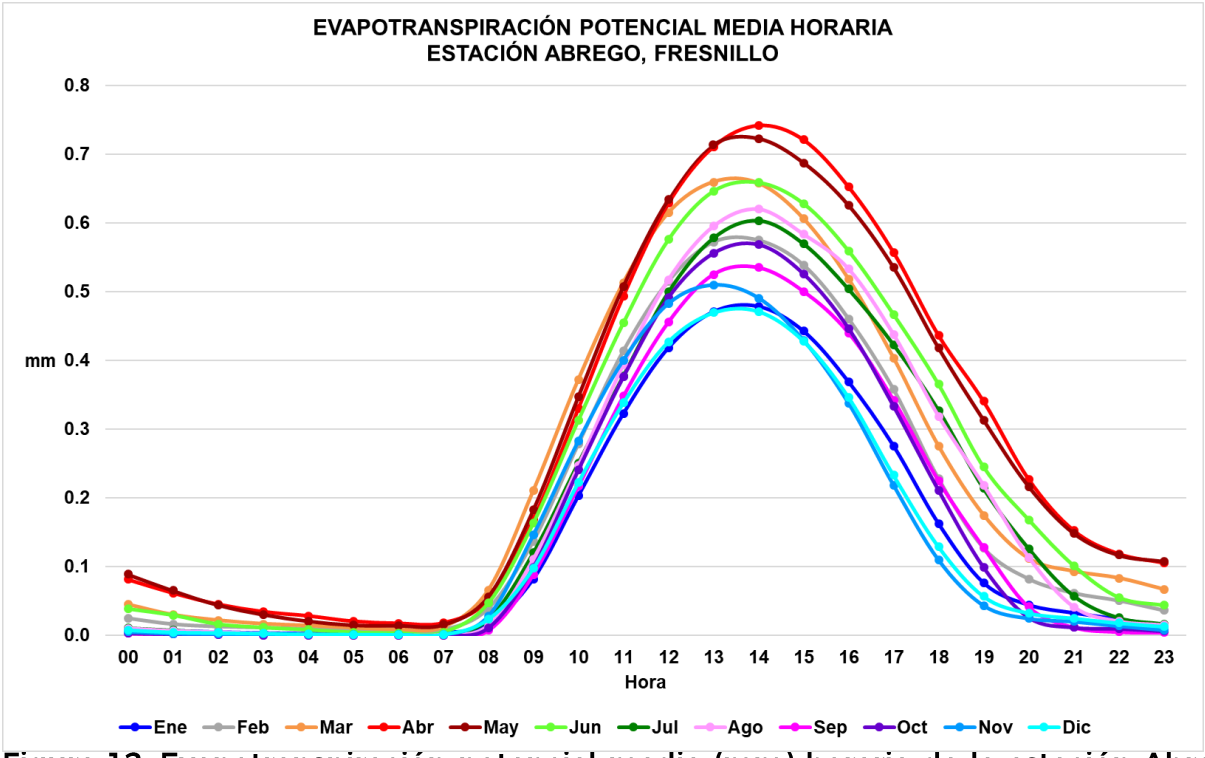


Figura 12. Evapotranspiración potencial media (mm) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 11. Humedad relativa media (%) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	63.7	53.7	41.7	33.6	39.8	59.4	78.7	79.6	86.9	80.2	73.8	65.7	63.1
01	66.8	56.6	45.1	36.7	43.2	63.2	81.4	82.2	88.8	83.2	76.9	68.8	66.1
02	69.3	59.6	47.9	39.7	47.0	67.0	83.9	84.8	90.5	85.9	79.9	71.4	68.9
03	71.8	62.1	50.9	42.0	50.5	70.6	85.9	87.2	91.7	88.0	82.2	73.7	71.4
04	73.4	64.3	53.5	44.7	53.6	73.9	87.8	89.2	92.9	89.8	84.2	75.5	73.6
05	75.2	66.1	56.0	47.1	56.3	76.7	89.4	90.5	94.0	91.3	85.9	77.2	75.5
06	76.4	68.1	58.6	49.6	58.5	78.7	90.6	91.7	94.7	92.5	87.3	78.5	77.1
07	77.0	68.2	56.2	48.9	58.0	78.3	90.6	92.4	95.0	92.6	85.2	78.6	76.7
08	68.6	56.9	43.2	41.4	49.4	70.1	84.5	87.3	91.5	85.8	68.6	66.8	67.8
09	54.2	44.4	34.0	32.2	39.9	61.0	74.9	76.4	81.3	70.9	54.4	51.6	56.3
10	44.0	35.6	27.1	25.0	31.6	52.7	66.8	67.9	72.0	59.1	43.8	41.4	47.3
11	36.4	29.2	22.1	19.7	25.1	44.6	59.4	60.7	64.8	50.5	36.8	34.1	40.3
12	31.1	25.0	18.9	16.4	20.7	38.0	52.6	54.3	58.9	44.4	32.2	29.6	35.2
13	27.7	22.3	16.9	14.3	18.0	33.5	47.9	49.4	54.8	40.4	29.4	26.7	31.8
14	25.8	21.0	15.8	13.2	16.8	31.3	45.5	46.5	52.4	38.2	27.8	25.0	30.0
15	25.2	20.3	15.5	12.7	16.4	30.5	44.9	45.5	51.8	37.5	27.6	24.6	29.4
16	25.8	20.7	15.7	12.7	16.5	30.6	45.3	45.6	52.7	37.9	29.1	25.7	29.9
17	28.5	22.1	16.6	13.1	16.9	31.9	46.4	47.1	55.7	40.7	33.8	29.1	31.8
18	35.2	26.4	19.1	14.0	18.1	34.3	49.0	50.2	60.5	47.7	45.2	38.2	36.5
19	42.9	33.3	23.7	16.2	20.6	37.9	53.6	55.5	68.8	59.2	52.2	44.8	42.4
20	47.4	37.6	27.6	19.7	24.6	43.2	60.8	64.2	77.2	66.8	56.1	49.0	47.9
21	51.4	41.2	30.9	23.4	28.9	48.9	67.5	70.5	80.6	70.2	60.6	53.4	52.3
22	55.6	44.9	34.2	27.0	32.8	53.3	71.9	74.2	83.0	73.2	65.4	57.8	56.1
23	59.8	49.2	37.7	30.4	36.6	57.1	75.5	77.2	85.0	76.8	69.6	61.7	59.7
Media	51.4	42.9	33.7	28.1	34.2	52.8	68.1	69.6	76.1	66.8	57.8	52.0	52.8

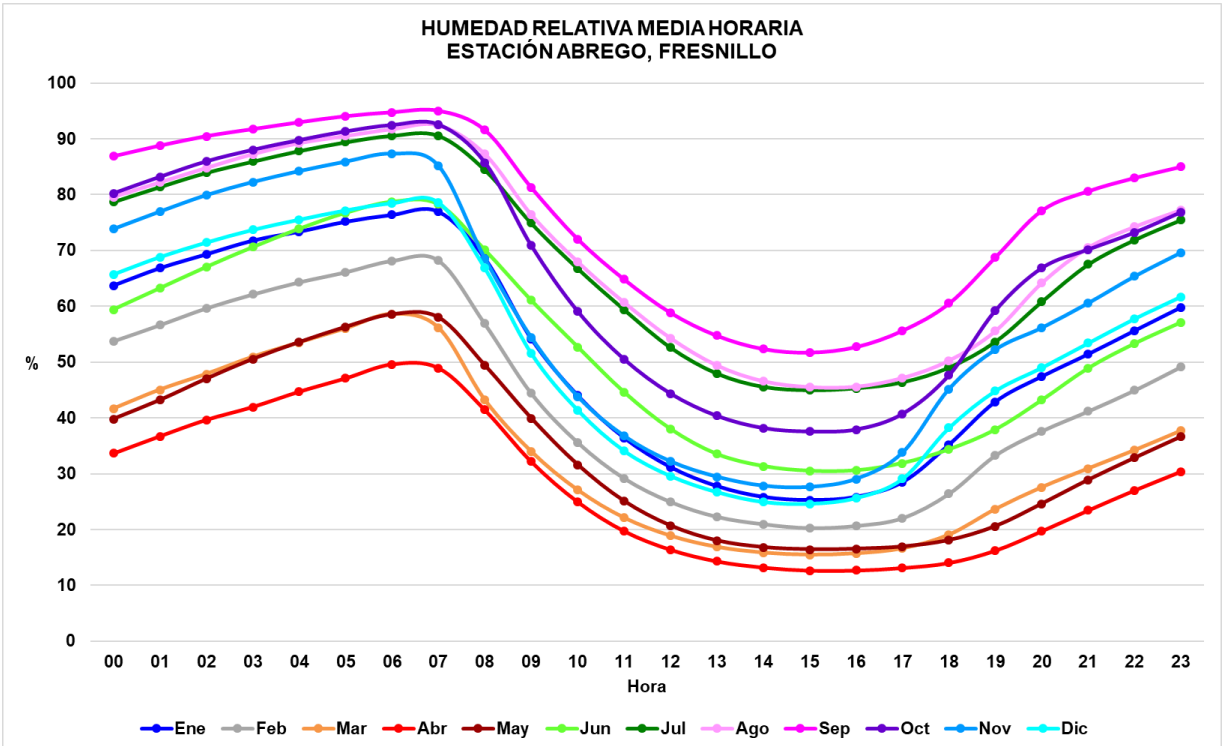


Figura 13. Humedad relativa media (%) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 12. Humedad relativa mínima minimorum (%) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	12.0	14.0	10.1	9.0	9.0	13.0	30.0	31.0	35.0	32.0	22.0	15.0	9.0
01	14.0	13.0	9.0	8.0	9.0	14.0	34.0	32.0	31.0	29.0	21.0	15.0	8.0
02	13.0	14.0	7.0	9.0	9.0	15.0	41.5	38.0	42.0	32.0	20.0	14.0	7.0
03	19.0	17.0	9.0	10.0	11.0	10.0	41.0	48.0	49.0	27.0	27.0	19.0	9.0
04	18.0	15.0	9.0	9.0	12.0	11.0	49.5	50.0	52.0	35.0	23.0	19.0	9.0
05	13.0	16.0	9.8	10.0	13.0	11.0	47.0	50.0	61.0	28.5	27.0	22.0	9.8
06	12.0	17.0	11.1	12.0	14.0	16.0	48.0	60.0	60.0	28.0	31.0	21.8	11.1
07	13.0	18.0	10.0	11.6	15.0	21.0	57.0	57.0	58.0	26.0	26.0	23.0	10.0
08	12.0	12.0	5.8	7.8	11.0	20.0	42.0	48.8	43.4	20.0	13.0	15.0	5.8
09	9.0	9.0	5.0	6.4	7.0	11.0	29.0	35.0	33.9	18.0	11.0	12.0	5.0
10	7.0	7.0	4.8	5.7	3.7	9.0	22.0	30.0	26.4	11.2	8.0	7.0	3.7
11	5.0	6.0	4.0	5.0	3.3	6.0	20.0	22.0	22.6	11.5	6.0	6.0	3.3
12	5.0	5.0	3.0	4.2	3.6	4.0	17.0	21.0	19.9	8.4	4.0	5.0	3.0
13	4.0	4.0	3.0	3.0	3.0	3.0	15.4	20.0	19.0	6.8	4.0	5.0	3.0
14	3.0	4.0	2.8	3.3	3.1	3.0	13.0	18.0	16.0	6.9	3.0	4.0	2.8
15	3.0	4.0	3.3	3.0	4.0	3.0	12.0	16.0	16.0	8.0	4.0	4.0	3.0
16	3.0	5.0	3.9	3.0	4.0	3.0	12.0	14.7	14.0	6.7	3.0	4.0	3.0
17	3.0	5.0	4.4	3.0	4.0	3.0	12.0	15.0	14.0	7.3	4.0	5.0	3.0
18	5.0	6.0	5.0	3.0	4.0	3.0	12.0	15.0	15.0	11.0	7.0	8.0	3.0
19	7.0	8.0	6.0	4.0	4.0	4.0	12.0	15.0	18.0	15.0	9.0	9.0	4.0
20	8.6	8.0	7.0	5.0	5.0	4.0	15.0	18.0	29.0	24.0	12.0	10.0	4.0
21	9.0	10.0	8.0	6.0	5.0	7.0	23.0	24.0	29.0	24.0	12.0	10.0	5.0
22	10.0	12.0	8.0	7.0	7.0	11.0	24.7	27.0	33.0	26.0	12.0	12.0	7.0
23	10.0	13.0	10.0	8.0	8.0	12.0	27.0	27.0	34.0	27.8	14.0	14.0	8.0
Mín.	3.0	4.0	2.8	3.0	3.0	3.0	12.0	14.7	14.0	6.7	3.0	4.0	2.8

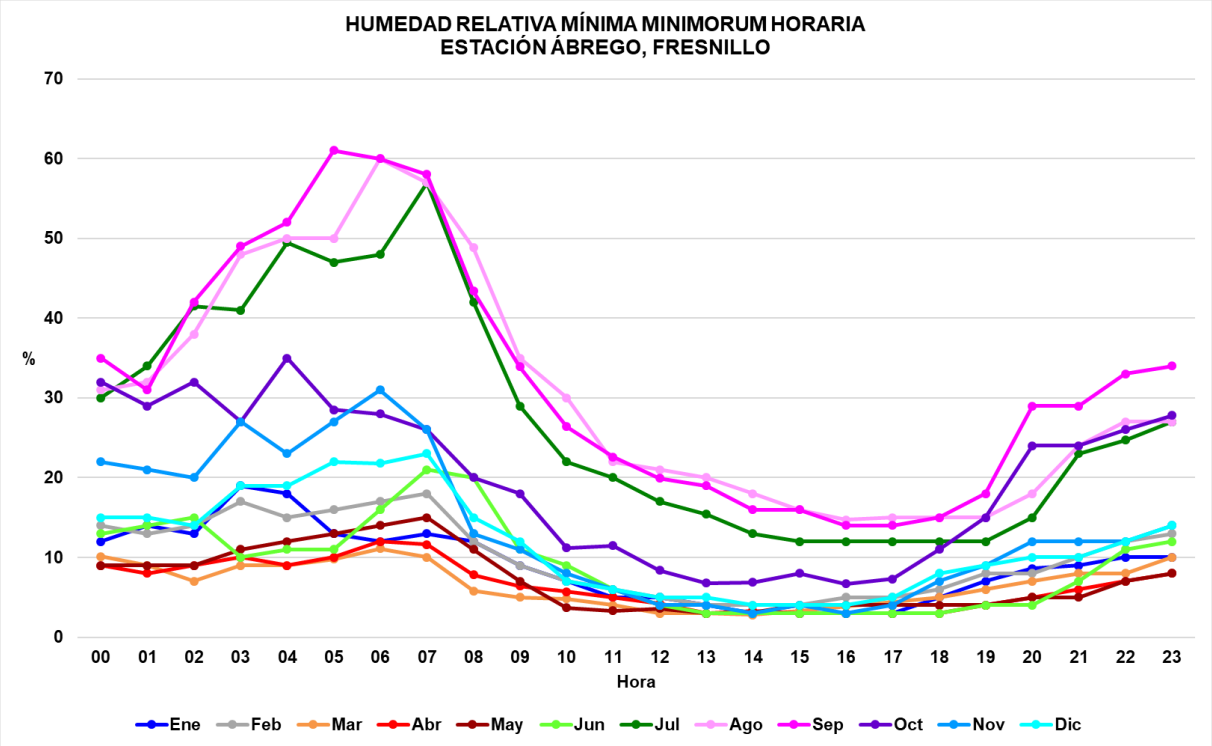


Figura 14. Humedad relativa mínima minimorum (%) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 13. Radiación solar global media horaria (W/m^2) de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	16	7	9	8	4	1	0	2	6	1	5
07	59	121	311	185	200	182	121	80	58	86	238	96	145
08	559	776	1143	842	887	801	644	558	467	558	976	667	740
09	1348	1649	2077	1771	1790	1624	1421	1363	1205	1382	1787	1460	1573
10	2078	2445	2889	2664	2643	2432	2203	2185	1980	2166	2461	2149	2358
11	2631	3005	3472	3370	3340	3102	2870	2901	2626	2799	2915	2626	2971
12	2907	3329	3743	3796	3754	3500	3339	3355	3071	3187	3062	2834	3323
13	2879	3333	3702	3933	3820	3571	3428	3495	3158	3247	2928	2779	3356
14	2614	3059	3347	3748	3525	3291	3183	3310	2983	2997	2544	2466	3089
15	2085	2541	2783	3344	3091	2855	2759	2892	2558	2545	1950	1919	2610
16	1398	1839	2028	2710	2551	2314	2251	2342	1992	1912	1197	1194	1977
17	644	1006	1187	1935	1902	1694	1689	1660	1338	1154	427	439	1256
18	88	241	380	1096	1149	1030	1065	981	676	452	19	24	600
19	0	2	11	355	442	453	468	384	166	51	0	0	194
20	0	0	0	21	48	70	75	34	4	0	0	0	21
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19288	23347	27089	29775	29151	26925	25518	25542	22283	22538	20508	18653	24218

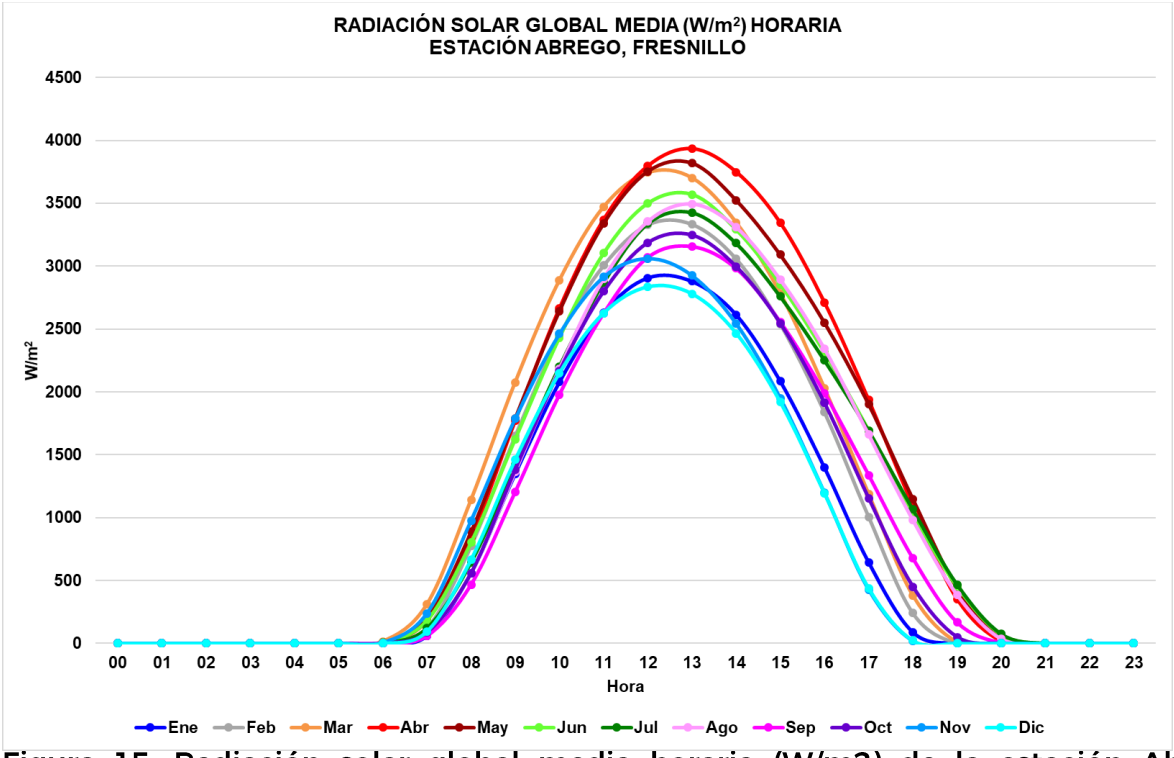


Figura 15. Radiación solar global media horaria (W/m2) de la estación Abrego, Fresnillo (2003-2022).

Cuadro 14. Radiación solar global media horaria (kWh/m^2) de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.05	0.05	0.03	0.02	0.01	0.02	0.06	0.02	0.04
08	0.14	0.19	0.29	0.21	0.22	0.20	0.16	0.14	0.12	0.14	0.24	0.17	0.18
09	0.34	0.41	0.52	0.44	0.45	0.41	0.36	0.34	0.30	0.35	0.45	0.37	0.39
10	0.52	0.61	0.72	0.67	0.66	0.61	0.55	0.55	0.49	0.54	0.62	0.54	0.59
11	0.66	0.75	0.87	0.84	0.84	0.78	0.72	0.73	0.66	0.70	0.73	0.66	0.74
12	0.73	0.83	0.94	0.95	0.94	0.87	0.83	0.84	0.77	0.80	0.77	0.71	0.83
13	0.72	0.83	0.93	0.98	0.96	0.89	0.86	0.87	0.79	0.81	0.73	0.69	0.84
14	0.65	0.76	0.84	0.94	0.88	0.82	0.80	0.83	0.75	0.75	0.64	0.62	0.77
15	0.52	0.64	0.70	0.84	0.77	0.71	0.69	0.72	0.64	0.64	0.49	0.48	0.65
16	0.35	0.46	0.51	0.68	0.64	0.58	0.56	0.59	0.50	0.48	0.30	0.30	0.49
17	0.16	0.25	0.30	0.48	0.48	0.42	0.42	0.41	0.33	0.29	0.11	0.11	0.31
18	0.02	0.06	0.10	0.27	0.29	0.26	0.27	0.25	0.17	0.11	0.00	0.01	0.15
19	0.00	0.00	0.00	0.09	0.11	0.11	0.12	0.10	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.82	5.84	6.77	7.44	7.29	6.73	6.38	6.39	5.57	5.63	5.13	4.66	6.05

Cuadro 15. Radiación solar global media horaria (Mj/m^2/s) de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.11	0.28	0.17	0.18	0.16	0.11	0.07	0.05	0.08	0.21	0.09	0.13
08	0.50	0.70	1.03	0.76	0.80	0.72	0.58	0.50	0.42	0.50	0.88	0.60	0.67
09	1.21	1.48	1.87	1.59	1.61	1.46	1.28	1.23	1.08	1.24	1.61	1.31	1.42
10	1.87	2.20	2.60	2.40	2.38	2.19	1.98	1.97	1.78	1.95	2.22	1.93	2.12
11	2.37	2.70	3.12	3.03	3.01	2.79	2.58	2.61	2.36	2.52	2.62	2.36	2.67
12	2.62	3.00	3.37	3.42	3.38	3.15	3.01	3.02	2.76	2.87	2.76	2.55	2.99
13	2.59	3.00	3.33	3.54	3.44	3.21	3.08	3.15	2.84	2.92	2.63	2.50	3.02
14	2.35	2.75	3.01	3.37	3.17	2.96	2.86	2.98	2.68	2.70	2.29	2.22	2.78
15	1.88	2.29	2.50	3.01	2.78	2.57	2.48	2.60	2.30	2.29	1.76	1.73	2.35
16	1.26	1.66	1.83	2.44	2.30	2.08	2.03	2.11	1.79	1.72	1.08	1.07	1.78
17	0.58	0.91	1.07	1.74	1.71	1.52	1.52	1.49	1.20	1.04	0.38	0.39	1.13
18	0.08	0.22	0.34	0.99	1.03	0.93	0.96	0.88	0.61	0.41	0.02	0.02	0.54
19	0.00	0.00	0.01	0.32	0.40	0.41	0.42	0.35	0.15	0.05	0.00	0.00	0.17
20	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.36	21.01	24.38	26.80	26.24	24.23	22.97	22.99	20.05	20.28	18.46	16.79	21.80

Cuadro 16. Velocidad del viento media (km/h) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.3	5.7	6.8	9.1	9.2	6.8	4.7	4.5	3.1	3.0	3.2	3.9	5.4
01	3.9	5.4	5.8	7.4	7.5	5.7	4.2	3.8	2.8	2.7	2.9	3.7	4.7
02	3.6	5.2	5.0	6.4	6.1	4.9	3.9	3.4	2.4	2.4	2.8	3.5	4.1
03	3.5	4.8	4.6	5.7	5.1	4.5	3.5	3.1	2.3	2.2	2.5	3.4	3.8
04	3.5	4.5	4.2	4.9	4.6	3.9	3.2	2.9	2.0	2.0	2.5	3.2	3.5
05	3.3	4.2	3.8	4.6	4.1	3.5	2.9	2.6	1.8	1.9	2.4	3.2	3.2
06	3.3	3.9	3.5	4.0	3.9	3.1	2.6	2.4	1.8	1.9	2.2	3.0	3.0
07	3.1	3.9	3.0	3.7	3.4	2.7	2.3	2.2	1.6	1.6	1.8	2.9	2.7
08	2.7	3.9	3.7	3.7	3.4	3.0	2.7	2.4	1.9	1.5	2.0	2.5	2.8
09	4.3	5.8	6.1	5.5	4.8	4.3	3.8	3.7	3.4	2.5	3.8	4.2	4.4
10	6.7	8.4	9.2	8.1	7.1	5.4	4.9	4.7	4.7	4.2	6.1	6.7	6.4
11	9.4	11.5	12.0	11.3	9.1	7.2	5.9	6.0	6.0	6.0	8.2	9.2	8.5
12	11.4	13.9	13.9	13.6	10.8	9.3	7.1	7.2	7.1	7.4	9.5	11.2	10.2
13	13.0	15.7	15.5	15.1	12.1	11.0	9.0	8.8	8.1	8.2	10.2	12.4	11.6
14	14.1	16.4	16.5	16.4	13.1	12.4	10.7	10.4	8.8	8.6	10.6	13.0	12.6
15	14.3	17.1	17.3	17.2	14.0	12.8	11.7	11.4	9.2	8.7	10.6	13.2	13.1
16	14.4	17.1	17.2	18.1	14.2	13.2	12.5	11.8	9.4	8.5	10.3	12.6	13.3
17	13.1	16.3	16.9	18.2	14.5	13.5	12.5	11.8	9.1	8.0	8.6	10.8	12.8
18	9.6	13.2	15.3	17.6	14.8	13.4	12.3	11.4	8.1	6.4	5.8	7.5	11.3
19	7.9	10.1	11.7	16.3	14.4	13.1	11.3	9.6	5.9	4.3	5.5	6.7	9.7
20	7.4	9.5	11.2	14.0	12.7	10.9	8.5	6.7	4.2	4.1	5.3	6.3	8.4
21	6.7	9.2	11.3	13.0	11.9	8.8	6.5	6.0	3.8	4.1	4.7	5.6	7.6
22	5.6	8.2	10.4	12.9	12.1	8.0	6.2	5.6	3.7	3.7	4.1	5.2	7.1
23	4.8	7.0	8.4	11.4	10.8	7.6	5.5	5.1	3.5	3.2	3.6	4.5	6.3
Media	7.2	9.2	9.7	10.8	9.3	7.9	6.6	6.1	4.8	4.5	5.4	6.6	7.3

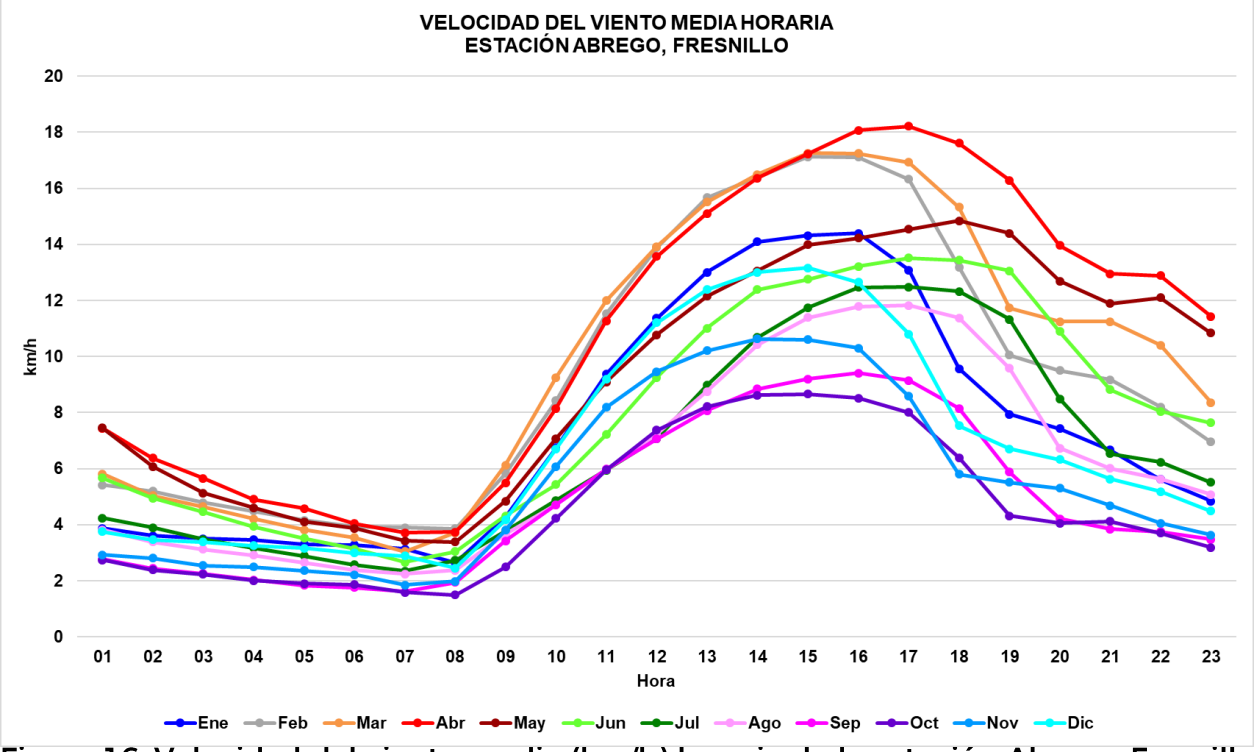


Figura 16. Velocidad del viento media (km/h) horaria de la estación Abrego, Fresnillo (2003-2022).

Cuadro 17. Velocidad del viento máxima maximorum (km/h) horaria de la estación Ábrego, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	32.3	36.2	41.0	35.8	37.7	40.3	25.0	27.0	22.0	23.0	37.0	39.4	41.0
01	34.1	47.8	38.0	34.1	39.0	33.1	23.0	24.2	19.0	18.2	46.0	35.5	47.8
02	34.9	42.0	42.0	32.0	35.0	32.1	22.9	26.8	23.4	29.0	46.0	32.1	46.0
03	40.4	29.7	68.0	32.0	30.4	43.0	25.2	22.0	21.0	25.3	43.0	34.0	68.0
04	37.0	30.3	42.0	40.1	35.1	41.0	28.1	23.2	12.6	18.8	47.0	35.0	47.0
05	35.0	33.1	59.0	47.0	34.7	29.0	25.1	21.5	17.4	20.2	32.9	28.8	59.0
06	28.2	33.3	56.0	36.9	35.1	22.0	22.1	17.9	16.4	22.7	27.6	35.4	56.0
07	37.0	33.0	64.0	30.0	39.8	20.0	25.6	17.0	13.5	23.1	24.7	38.0	64.0
08	37.0	34.5	50.0	54.1	40.7	22.0	26.3	22.6	18.0	23.6	35.0	37.0	54.1
09	42.0	36.0	50.0	43.1	37.9	24.0	28.4	26.0	22.6	23.9	36.0	44.0	50.0
10	41.0	40.2	52.0	48.3	43.0	23.1	23.0	27.8	22.3	27.2	36.0	52.9	52.9
11	54.5	47.2	54.0	51.8	38.9	32.0	24.7	27.8	23.7	29.6	40.0	46.5	54.5
12	61.0	54.8	62.0	50.8	40.0	34.0	27.8	28.9	25.0	31.3	40.7	49.9	62.0
13	62.7	52.5	57.0	59.0	42.7	48.0	31.6	30.0	23.3	30.4	44.0	56.8	62.7
14	56.9	49.0	58.0	50.0	43.7	35.0	32.0	35.8	23.3	29.3	46.0	52.0	58.0
15	53.0	48.8	58.0	53.0	47.0	47.0	39.0	33.1	25.0	29.0	44.0	55.0	58.0
16	46.2	46.6	49.0	51.0	49.0	37.0	33.0	34.9	33.0	34.4	44.0	44.0	51.0
17	42.0	44.0	51.0	48.0	43.6	40.0	35.0	34.1	31.6	32.2	41.0	47.0	51.0
18	42.0	47.0	49.0	46.0	44.0	38.0	37.5	32.3	33.5	26.0	36.0	41.1	49.0
19	41.0	45.0	37.0	42.0	40.0	51.0	41.0	35.3	25.1	20.6	36.0	42.9	51.0
20	33.0	34.5	30.5	39.0	44.6	41.0	35.5	37.3	23.0	21.0	33.0	37.2	44.6
21	41.1	36.2	43.0	41.0	40.0	42.9	33.4	35.5	26.0	27.0	35.0	39.1	43.0
22	36.6	34.9	36.0	37.0	47.0	39.8	36.1	26.1	26.7	25.0	38.0	42.1	47.0
23	31.0	37.1	37.0	38.7	42.0	50.2	37.9	26.0	21.8	20.9	35.0	39.2	50.2
Máx.	62.7	54.8	68.0	59.0	49.0	51.0	41.0	37.3	33.5	34.4	47.0	56.8	68.0

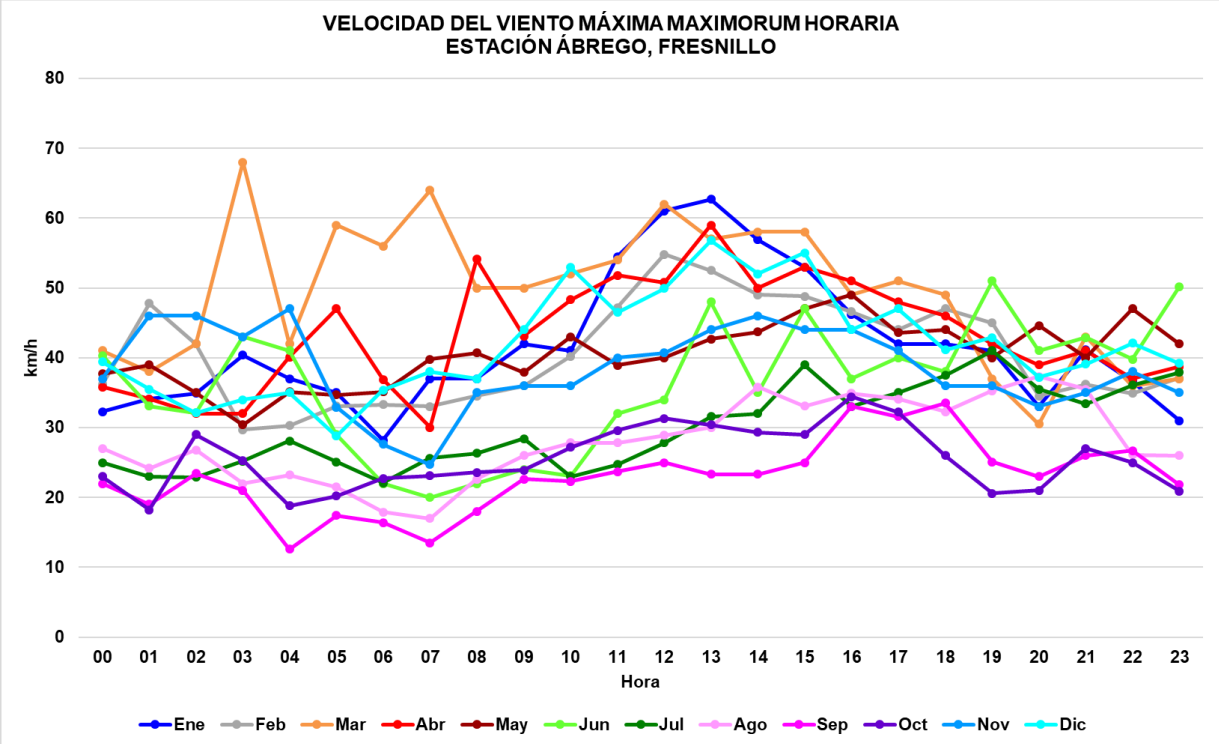


Figura 17. Velocidad del viento máxima maximorum (km/h) horaria de la estación Ábrego, Fresnillo (2003-2022).

Cuadro 18. Frecuencia de velocidad del viento (%) mensual de la estación Ábrego, Fresnillo (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	37.7	27.8	24.4	19.0	20.9	28.3	37.7	41.2	50.4	55.3	49.5	42.9	36.5
5.1 a 10.0	29.7	28.0	26.6	25.4	27.7	28.0	26.6	26.6	27.8	27.1	28.3	28.1	27.5
10.1 a 15.0	13.8	16.3	17.2	17.8	19.8	18.8	17.5	17.6	15.4	12.6	12.7	13.4	16.1
15.1 a 20.0	8.8	11.7	13.6	15.2	15.4	14.5	11.6	10.0	5.4	4.0	5.8	7.8	10.3
20.1 a 25.0	5.1	7.4	8.8	11.7	9.5	7.1	5.0	3.4	1.0	0.8	2.3	4.0	5.5
25.1 a 30.0	2.6	4.1	4.8	6.3	4.5	2.4	1.3	1.0	0.1	0.1	0.9	2.0	2.5
30.1 a 35.0	1.2	2.5	2.8	2.9	1.5	0.7	0.2	0.2	0.0	0.0	0.4	1.0	1.1
35.1 a 40.0	0.6	1.4	1.2	1.2	0.5	0.2	0.1	0.0	0.0	0.0	0.1	0.5	0.5
40.1 a 45.0	0.3	0.7	0.4	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.2
45.1 a 50.0	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
>50	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

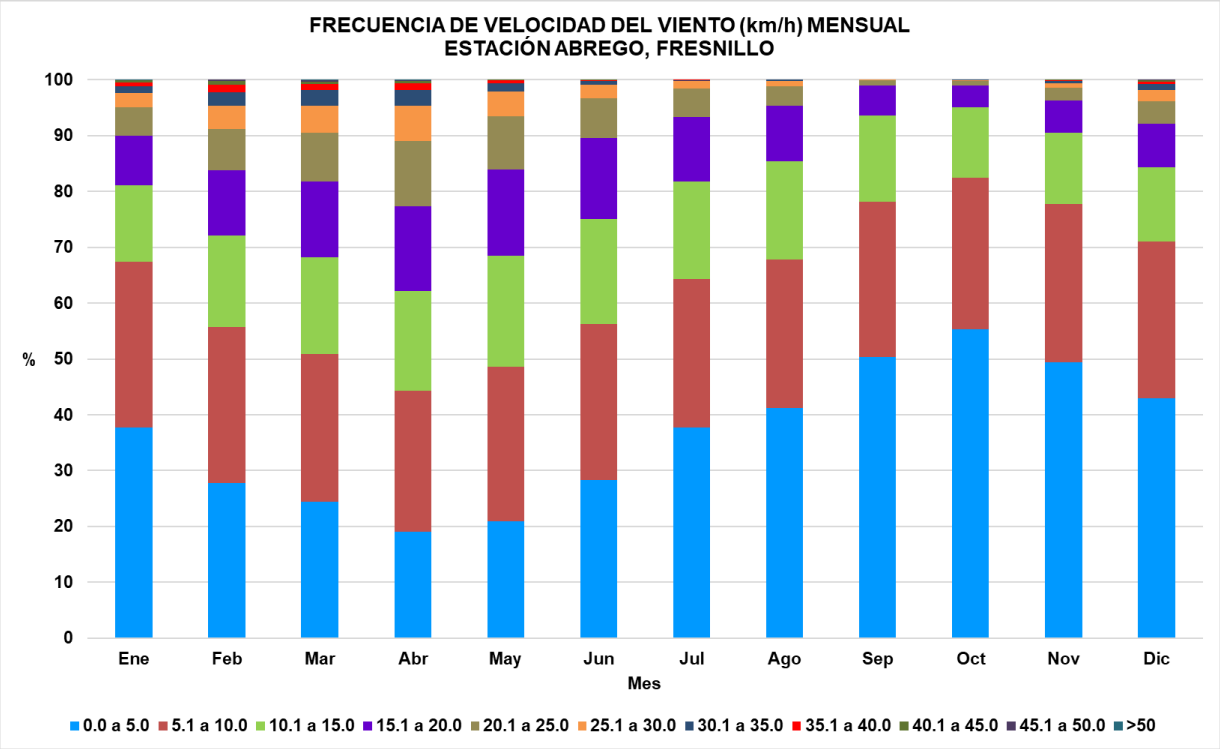


Figura 18. Frecuencia de velocidad del viento (%) mensual de la estación Abrego, Fresnillo (2003-2022).

Cuadro 19. Frecuencia de dirección del viento (%) mensual de la estación Ábrego, Fresnillo (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.0	3.4	3.8	3.3	4.5	7.4	5.2	6.6	9.3	6.7	5.1	3.5	5.3
NNE	3.7	3.1	3.2	3.2	4.5	7.1	5.3	6.3	8.2	6.0	4.5	3.3	4.9
NE	3.5	3.0	3.1	2.8	4.5	7.8	7.0	7.9	8.7	6.6	4.5	3.2	5.3
ENE	4.1	3.3	3.5	3.3	4.9	9.6	10.3	11.5	10.8	7.9	5.3	3.7	6.6
E	4.0	3.5	3.7	3.2	4.9	9.7	11.8	11.2	9.6	6.8	5.2	3.6	6.5
ESE	3.4	3.1	3.4	2.9	4.0	6.0	7.0	6.5	5.2	4.2	3.7	3.2	4.4
SE	3.0	3.1	3.3	3.0	3.8	4.4	4.6	4.2	3.5	3.4	3.2	2.9	3.6
SSE	3.3	3.4	3.5	3.8	3.9	3.7	3.7	3.1	2.8	2.8	2.9	3.0	3.3
S	4.5	4.8	5.0	5.3	4.8	3.4	3.5	2.8	2.6	3.2	3.8	4.6	4.0
SSO	10.6	11.2	10.2	11.2	8.7	5.8	6.7	4.6	4.5	5.9	7.5	11.2	8.1
SO	15.5	17.7	16.8	19.1	13.6	8.0	9.0	6.6	5.9	8.2	11.1	15.1	12.1
OSO	15.3	18.1	18.3	18.7	15.5	6.8	7.0	6.9	6.0	10.0	14.1	16.1	12.6
O	11.4	10.4	10.4	9.5	9.8	6.2	6.2	7.1	6.6	10.5	12.9	12.7	9.5
ONO	5.8	5.0	4.8	4.4	5.3	4.9	4.5	5.3	5.6	7.1	6.9	6.3	5.5
NO	4.3	3.9	3.7	3.2	4.0	4.4	4.2	4.7	5.0	5.4	4.9	4.3	4.3
NNO	3.6	3.2	3.4	3.0	3.4	4.7	3.9	4.8	5.8	5.1	4.4	3.4	4.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

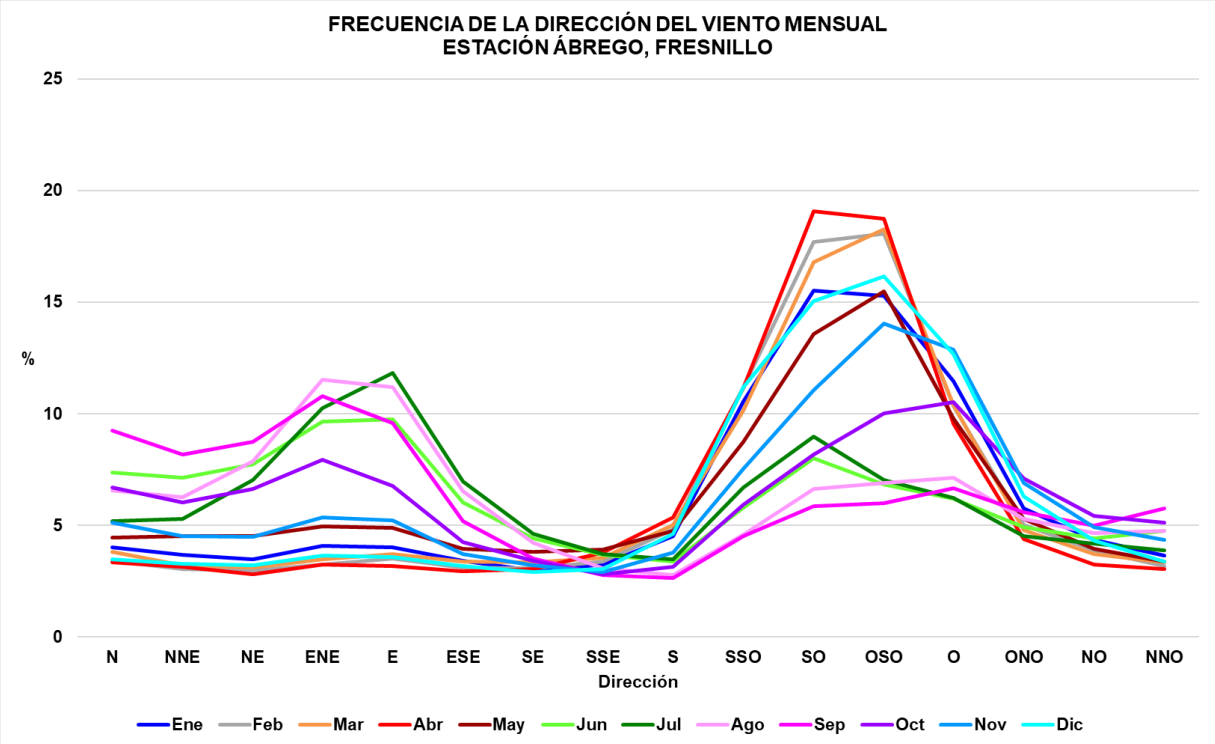


Figura 19. Frecuencia de dirección del viento (%) mensual de la estación Ábrego, Fresnillo (2003-2022).

Cuadro 20. Frecuencia de dirección del viento (%) trimestral de la estación Ábrego, Fresnillo (2003-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.7	5.1	6.8	5.0	5.2
NNE	3.3	5.0	6.5	4.7	4.9
NE	3.2	5.0	7.8	4.8	5.2
ENE	3.6	5.8	10.7	5.7	6.5
E	3.8	5.8	10.9	5.3	6.5
ESE	3.3	4.3	6.3	3.7	4.4
SE	3.2	3.8	4.2	3.2	3.6
SSE	3.4	3.8	3.2	2.9	3.3
S	4.8	4.5	3.0	3.8	4.0
SSO	10.7	8.5	5.3	8.2	8.1
SO	16.6	13.5	7.2	11.4	12.1
OSO	17.1	13.7	6.7	13.2	12.6
O	10.8	8.6	6.8	12.0	9.5
ONO	5.2	4.9	5.2	6.8	5.5
NO	4.0	3.9	4.6	4.9	4.4
NNO	3.4	3.8	4.8	4.3	4.1
Suma	100.0	100.0	100.0	100.0	100.0

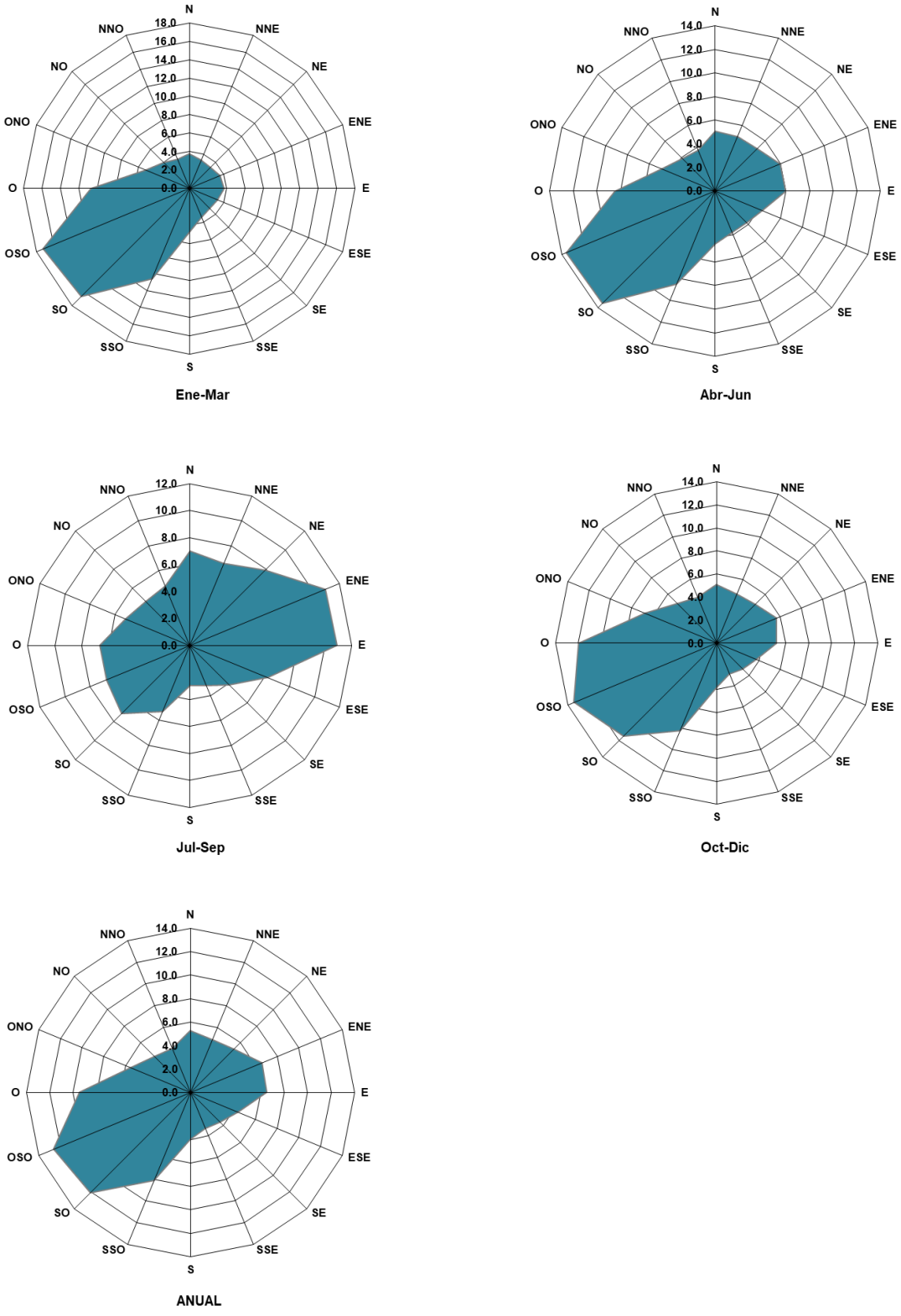


Figura 20. Frecuencia de dirección del viento (%) trimestral de la estación Ábrego, Fresnillo (2003-2022).

Cuadro 21. Estadísticas climatológicas mensuales de la estación Ábrego, Fresnillo (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.1	22.3	24.7	27.4	28.9	27.8	25.5	25.7	24.4	24.6	22.8	20.9	24.6
Temperatura máxima maximorum (°C)	34.5	36.2	37.8	37.6	40.0	33.9	33.3	33.4	32.6	33.5	32.3	33.7	40.0
Temperatura mínima media (°C)	0.3	2.1	3.8	6.5	9.7	12.0	12.3	11.8	11.2	6.9	2.3	0.2	6.6
Temperatura mínima minimorum (°C)	-11.0	-7.3	-9.6	-3.0	0.5	5.3	6.5	6.1	1.7	-5.1	-13.8	-14.9	-14.9
Temperatura media (°C)	10.1	12.5	15.1	18.0	20.2	20.0	18.5	18.3	17.1	15.4	12.3	10.3	15.7
Oscilación térmica (°C)	19.8	20.2	21.0	20.9	19.2	15.8	13.2	13.9	13.2	17.7	20.5	20.7	18.0
Precipitación acumulada media (mm)	11.9	17.4	7.3	1.2	8.8	60.1	109.5	86.8	115.2	37.2	11.3	11.5	478.1
Precipitación máxima maximorum en 24 horas (mm)	21.2	28.6	39.6	6.6	16.8	61.8	43.8	49.0	63.8	52.0	27.0	22.8	63.8
Número de días promedio con lluvia	3.6	2.8	1.8	0.9	4.3	10.7	16.1	15.2	15.8	6.8	3.3	3.8	84.9
Evapotranspiración acumulada potencial media (mm)	111.2	132.5	177.8	204.5	207.0	173.9	155.5	156.3	124.2	130.3	113.9	107.6	1783.16
Humedad máxima media (%)	83.1	74.4	65.3	55.2	63.8	82.8	94.2	94.8	97.0	95.3	91.0	84.6	81.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.2	17.8	13.6	10.7	13.6	24.7	37.4	38.6	45.0	33.1	25.1	22.2	25.3
Humedad mínima minimorum (%)	3.0	4.0	3.0	3.0	3.0	3.0	12.0	14.7	14.0	8.0	3.0	4.0	3.0
Humedad media (%)	51.8	42.8	34.5	27.9	34.3	52.5	68.5	69.8	76.1	67.0	58.5	52.7	53.0
Radiación global media día/mes (W/m^2)	19,311.2	23,357.5	27,021.0	29,846.5	29,163.2	26,942.8	25,547.3	25,648.9	22,330.1	22,625.4	20,471.2	18,625.2	24,240.9
Radiación global media día/mes (kWh/m^2)	4.8	5.8	6.8	7.5	7.3	6.7	6.4	6.4	5.6	5.7	5.1	4.7	6.1
Radiación global media día/mes ($Mj/m^2/s$)	17.4	21.0	24.3	26.9	26.2	24.2	23.0	23.1	20.1	20.4	18.4	16.8	21.8
Velocidad del viento máxima media (km/h)	20.5	24.1	25.4	27.0	25.5	24.2	21.5	19.7	15.9	14.3	15.7	18.7	21.0
Velocidad del viento máxima maximorum (km/h)	62.7	54.8	68.0	59.0	49.0	51.0	41.0	37.3	33.5	34.4	47.0	56.8	68.0
Velocidad del viento media (km/h)	7.1	9.0	9.4	10.5	9.2	7.9	6.5	6.0	4.7	4.4	5.2	6.4	7.2
Dirección dominante del viento	SO	OSO	OSO	SO	OSO	E	E	ENE	ENE	O	OSO	OSO	OSO

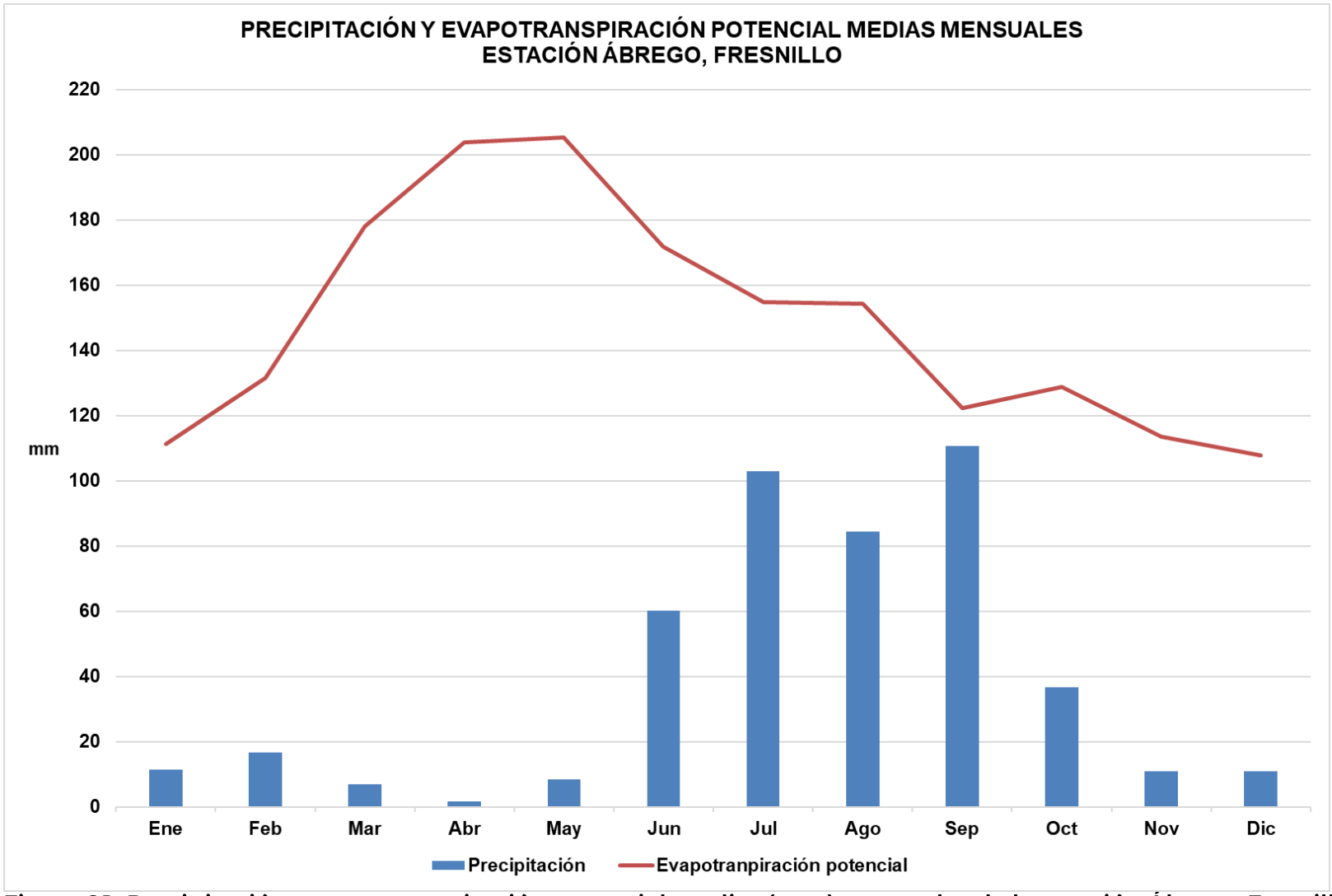


Figura 21. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Ábrego, Fresnillo (2003-2022).

7.2. Estación: Agua Nueva, Villa de Cos

Cuadro 22. Temperatura máxima media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.6	11.1	13.6	17.2	19.2	19.5	18.2	18.3	16.8	14.6	10.9	9.3	14.8
01	7.9	10.2	12.5	16.0	18.1	18.5	17.4	17.5	16.2	13.9	10.4	8.8	14.0
02	7.4	9.5	11.6	14.9	17.1	17.5	16.7	16.8	15.7	13.4	9.8	8.2	13.2
03	6.8	8.8	10.8	14.0	16.2	16.8	16.1	16.2	15.2	12.8	9.3	7.6	12.6
04	6.4	8.2	10.1	13.2	15.4	16.2	15.7	15.7	14.8	12.3	8.7	7.1	12.0
05	5.9	7.7	9.6	12.4	14.6	15.6	15.2	15.2	14.4	11.9	8.3	6.8	11.5
06	5.6	7.2	9.1	11.8	14.1	15.1	14.8	14.6	14.0	11.4	8.0	6.4	11.0
07	5.6	7.6	10.7	12.4	14.7	15.6	14.9	14.6	14.0	11.6	8.9	6.6	11.4
08	8.5	11.4	14.8	16.0	18.1	18.5	17.4	17.1	16.1	14.0	12.8	9.9	14.5
09	11.9	14.9	18.0	19.5	21.2	21.0	19.6	19.6	18.6	17.3	15.9	13.3	17.6
10	14.7	17.5	20.4	22.1	23.7	23.2	21.6	21.8	20.6	19.9	18.4	16.1	20.0
11	16.8	19.7	22.4	24.2	25.8	25.3	23.5	23.8	22.4	21.9	20.4	18.2	22.0
12	18.5	21.3	23.9	26.0	27.6	27.1	25.1	25.4	23.9	23.6	21.8	19.8	23.7
13	19.7	22.5	25.1	27.3	28.9	28.4	26.4	26.8	24.9	24.7	22.8	20.9	24.9
14	20.5	23.3	25.8	28.3	29.9	29.4	27.3	27.8	25.7	25.5	23.4	21.6	25.7
15	20.9	23.8	26.2	28.8	30.3	29.9	27.9	28.2	26.1	26.0	23.6	21.8	26.1
16	20.8	23.7	26.0	29.0	30.4	29.9	27.9	28.2	26.1	25.9	23.2	21.6	26.1
17	20.0	23.1	25.5	28.7	30.2	29.6	27.5	27.8	25.6	25.4	22.2	20.6	25.5
18	17.9	21.7	24.2	28.0	29.5	28.8	26.7	26.7	24.4	24.2	19.1	17.6	24.1
19	14.6	18.3	21.3	26.4	28.2	27.5	25.2	25.2	22.6	21.5	16.2	14.7	21.8
20	13.0	16.2	18.9	23.6	25.8	25.4	23.3	23.0	20.4	18.7	14.7	13.2	19.7
21	11.6	14.7	17.5	21.3	23.1	23.1	21.1	21.0	19.0	17.3	13.3	11.8	17.9
22	10.5	13.3	16.1	19.9	21.7	21.6	19.9	19.8	18.1	16.2	12.3	10.9	16.7
23	9.4	12.2	14.8	18.6	20.5	20.5	19.0	19.0	17.4	15.2	11.5	10.0	15.7
Media	12.6	15.3	17.9	20.8	22.7	22.7	21.2	21.3	19.7	18.3	15.2	13.5	18.4

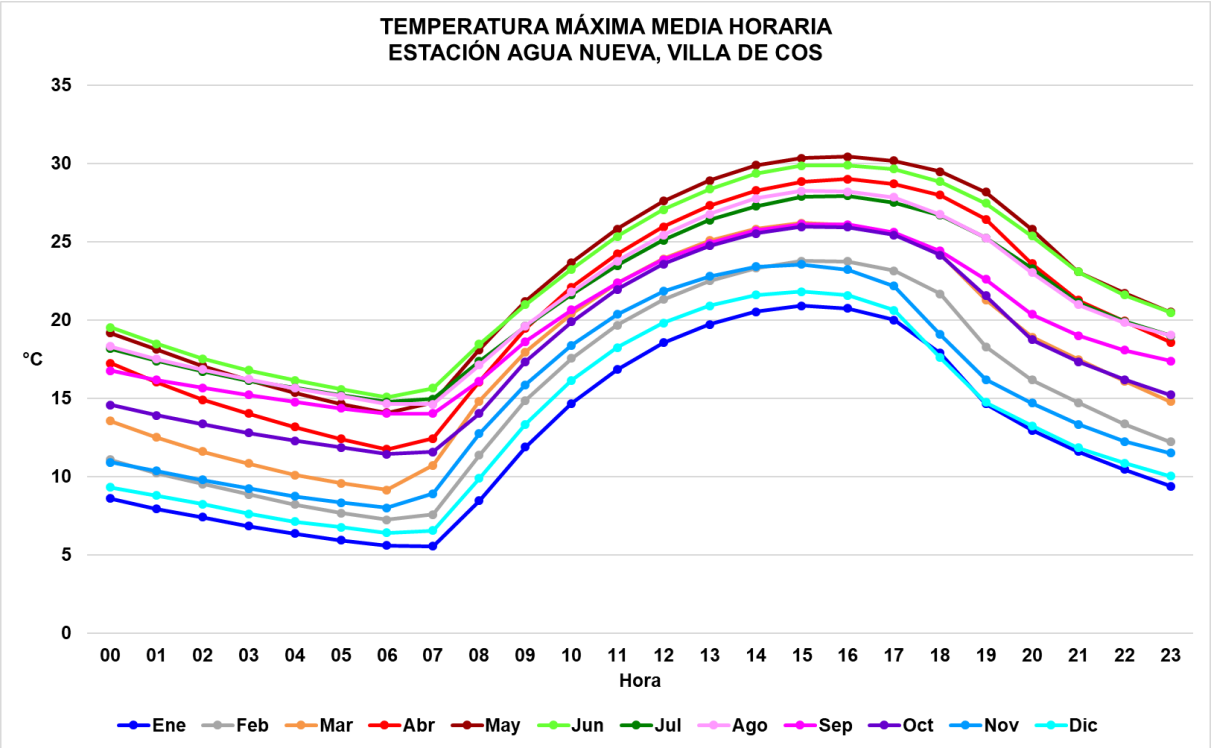


Figura 22. Temperatura máxima media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 23. Temperatura máxima maximorum (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.0	20.5	21.1	24.7	26.8	27.4	23.4	23.5	23.0	21.4	17.3	15.7	27.4
01	14.9	18.5	19.7	24.4	24.9	25.5	21.8	22.0	21.1	19.9	16.8	15.2	25.5
02	14.4	17.4	20.5	22.8	23.8	22.9	21.3	20.8	20.1	18.9	15.2	14.7	23.8
03	13.9	17.1	19.8	21.5	24.1	21.3	20.0	19.7	19.5	17.5	15.3	14.4	24.1
04	13.4	16.1	17.7	19.6	23.4	20.6	19.0	19.3	19.1	17.1	14.9	14.5	23.4
05	13.1	14.2	17.1	20.3	20.9	19.8	18.7	18.7	18.3	16.9	14.6	14.1	20.9
06	13.1	13.8	16.6	18.4	20.2	18.6	18.3	18.8	17.9	16.7	14.7	13.8	20.2
07	13.2	15.5	19.1	19.7	22.2	21.7	20.0	18.9	17.9	16.5	15.7	13.5	22.2
08	17.2	20.8	22.7	23.4	26.5	25.0	22.2	21.1	20.0	21.4	21.0	18.4	26.5
09	20.8	23.0	26.4	26.1	29.5	27.6	24.0	23.9	23.5	24.3	24.1	22.8	29.5
10	23.3	26.2	28.6	28.7	31.9	29.7	26.9	26.3	25.0	26.7	26.3	25.1	31.9
11	24.7	28.8	30.9	30.9	32.7	31.6	28.8	28.3	28.4	28.4	27.7	26.9	32.7
12	26.1	30.8	32.6	31.8	34.6	33.3	31.2	30.3	29.5	29.3	29.7	28.1	34.6
13	27.0	31.9	33.9	33.1	35.5	33.7	32.5	31.7	30.1	30.7	30.7	28.5	35.5
14	27.4	32.5	34.6	33.9	37.1	35.2	33.1	32.8	30.8	31.4	31.1	29.0	37.1
15	27.8	32.6	34.7	34.4	37.4	35.5	34.3	33.5	31.7	31.8	31.5	29.0	37.4
16	27.4	32.4	34.5	34.9	37.3	36.0	34.5	34.1	32.3	32.0	31.3	28.0	37.3
17	26.6	31.8	34.0	34.8	37.8	35.8	34.2	33.6	32.8	32.2	29.6	26.7	37.8
18	25.5	30.3	32.8	34.5	37.0	35.2	34.9	33.5	32.2	31.5	25.4	24.7	37.0
19	22.0	27.0	29.2	32.9	35.5	34.7	32.7	32.0	30.4	29.9	23.2	21.8	35.5
20	21.5	25.1	26.4	29.9	32.9	33.2	30.5	30.3	27.3	24.5	22.7	20.5	33.2
21	20.9	23.6	25.6	27.7	30.0	30.0	27.5	27.4	25.3	23.9	20.5	19.3	30.0
22	19.6	22.6	25.5	27.3	28.7	28.6	25.5	26.7	24.1	22.5	20.0	17.6	28.7
23	17.8	21.9	23.3	25.4	29.1	27.3	24.7	24.7	23.3	21.6	19.6	16.6	29.1
Máx.	27.8	32.6	34.7	34.9	37.8	36.0	34.9	34.1	32.8	32.2	31.5	29.0	37.8

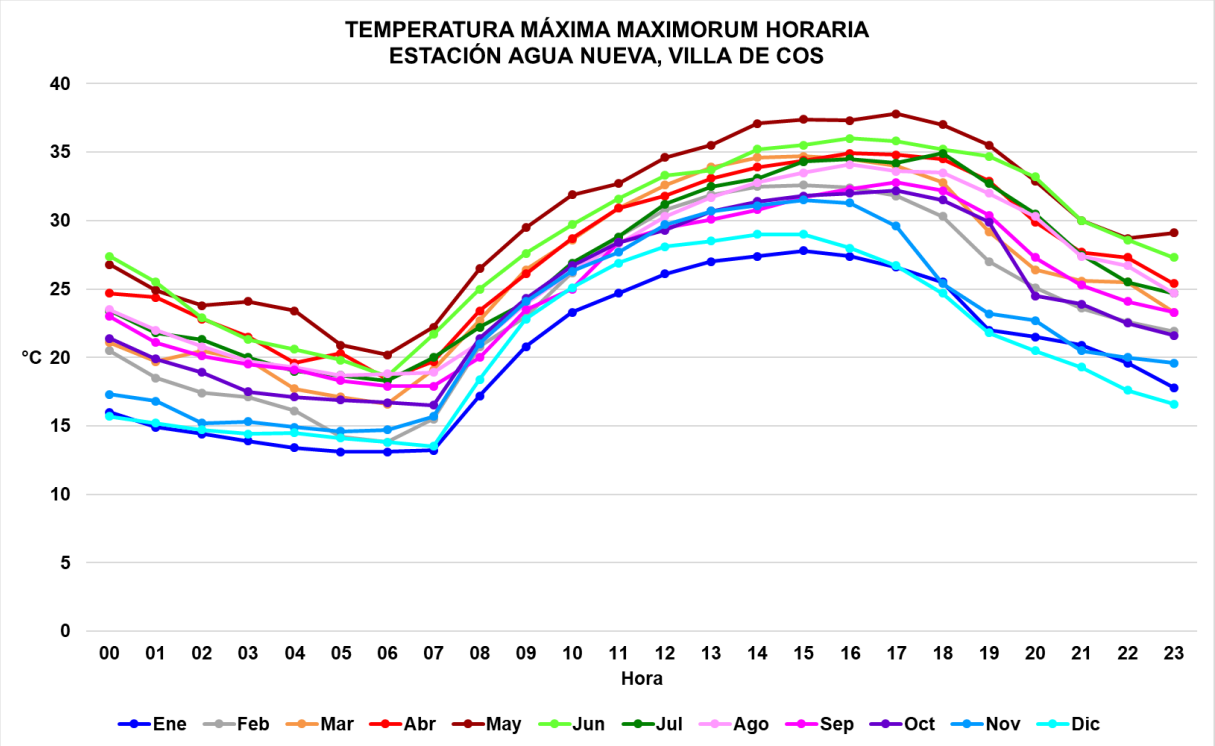


Figura 23. Temperatura máxima maximorum (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 24. Temperatura mínima media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.5	9.9	12.3	15.9	18.0	18.6	17.4	17.5	16.1	13.7	10.0	8.3	13.8
01	6.9	9.1	11.4	14.8	17.0	17.6	16.8	16.9	15.6	13.1	9.5	7.8	13.0
02	6.4	8.5	10.6	13.8	16.2	16.8	16.2	16.2	15.1	12.6	9.0	7.3	12.4
03	5.9	7.8	9.8	13.0	15.3	16.2	15.7	15.7	14.7	12.1	8.4	6.7	11.8
04	5.5	7.3	9.2	12.2	14.5	15.6	15.2	15.2	14.3	11.7	8.0	6.3	11.2
05	5.1	6.8	8.6	11.5	13.9	15.0	14.7	14.6	13.9	11.2	7.6	6.0	10.7
06	4.8	6.4	8.2	10.9	13.3	14.6	14.3	14.1	13.6	10.8	7.2	5.6	10.3
07	4.6	6.3	8.6	10.8	13.4	14.6	14.2	13.9	13.4	10.7	7.4	5.5	10.3
08	5.6	8.1	11.8	13.0	15.4	16.3	15.4	14.9	14.1	11.7	9.8	6.9	11.9
09	9.4	12.3	15.7	17.0	18.9	19.1	18.0	17.8	16.8	14.9	13.6	10.8	15.4
10	12.6	15.6	18.6	20.1	21.8	21.5	20.1	20.1	19.1	18.0	16.5	14.1	18.2
11	15.2	18.1	20.9	22.6	24.2	23.7	22.0	22.2	21.0	20.4	18.9	16.7	20.5
12	17.2	20.0	22.7	24.6	26.2	25.6	23.7	24.0	22.6	22.3	20.7	18.6	22.4
13	18.7	21.5	24.0	26.2	27.7	27.1	25.1	25.5	23.7	23.7	21.9	20.0	23.8
14	19.7	22.5	25.0	27.3	28.7	28.1	25.9	26.4	24.5	24.5	22.6	20.9	24.7
15	20.2	23.1	25.4	28.0	29.2	28.5	26.4	26.8	24.8	25.0	22.9	21.2	25.1
16	20.0	23.1	25.3	28.1	29.3	28.5	26.4	26.6	24.7	25.0	22.4	20.8	25.0
17	18.6	22.1	24.5	27.8	29.1	28.3	26.0	26.1	24.1	24.3	20.2	18.6	24.1
18	15.2	19.2	22.2	26.8	28.4	27.5	25.2	25.1	22.9	22.2	16.5	15.0	22.2
19	13.0	16.4	19.1	24.3	26.4	25.8	23.7	23.5	20.8	19.1	14.6	13.2	20.0
20	11.4	14.7	17.4	21.4	23.4	23.5	21.4	21.2	19.1	17.3	13.1	11.7	18.0
21	10.1	13.2	15.9	19.7	21.5	21.7	20.0	19.8	18.0	16.0	11.9	10.4	16.5
22	9.1	12.0	14.6	18.4	20.2	20.5	19.0	18.9	17.3	15.0	11.2	9.6	15.5
23	8.2	10.9	13.5	17.1	19.2	19.5	18.2	18.2	16.6	14.2	10.5	8.9	14.6
Media	11.3	14.0	16.5	19.4	21.3	21.4	20.0	20.1	18.6	17.1	13.9	12.1	17.1

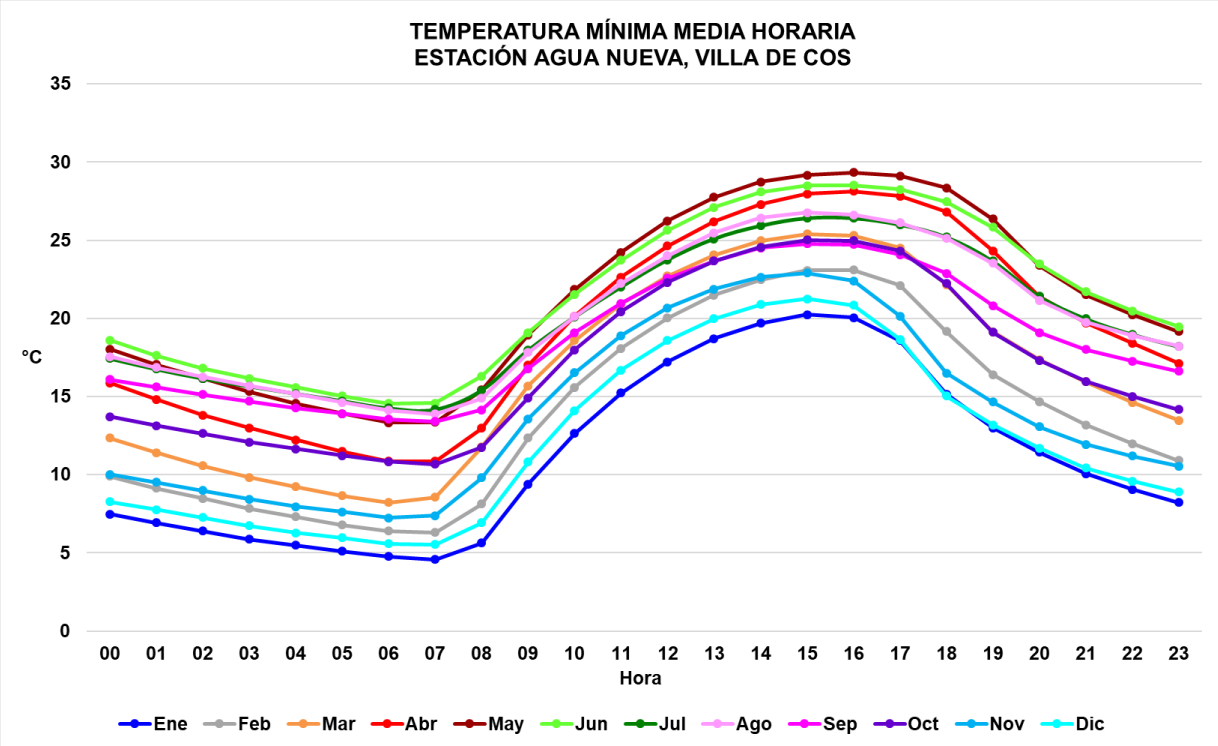


Figura 24. Temperatura mínima media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 25. Temperatura mínima minimorum (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.2	-5.0	-2.8	6.0	8.7	11.6	13.4	12.8	8.8	1.3	-6.6	-11.4	-11.4
01	-4.9	-6.1	-3.9	4.1	6.5	9.5	12.6	11.6	7.3	1.3	-8.3	-11.3	-11.3
02	-5.4	-7.3	-4.1	2.6	5.9	8.1	11.8	11.7	5.4	0.6	-9.6	-10.5	-10.5
03	-8.7	-6.0	-4.9	0.6	5.3	7.0	11.1	10.5	6.4	-1.7	-10.0	-11.7	-11.7
04	-6.8	-8.0	-6.0	0.3	3.1	7.9	9.8	8.4	3.6	-3.0	-10.5	-13.1	-13.1
05	-7.1	-8.3	-7.6	-1.9	1.8	7.0	8.8	8.2	2.6	-4.3	-10.8	-13.7	-13.7
06	-7.4	-9.0	-7.9	-3.2	1.5	6.8	8.6	7.6	2.5	-4.3	-7.4	-13.5	-13.5
07	-7.4	-9.5	-4.7	-2.1	1.7	6.9	9.2	7.9	3.2	-3.4	-7.4	-12.1	-12.1
08	-6.7	-8.7	-1.8	-2.6	4.4	10.9	9.9	10.2	6.6	1.7	-2.9	-8.3	-8.7
09	-2.1	-7.1	2.9	8.4	11.2	14.2	14.1	14.3	11.0	7.2	0.4	-4.1	-7.1
10	-1.9	-4.8	3.5	10.7	11.9	14.3	15.0	14.7	14.7	10.1	1.7	-3.4	-4.8
11	-1.1	-0.1	1.7	12.1	13.7	14.7	15.1	16.2	15.5	12.6	1.8	-3.2	-3.2
12	0.3	3.5	2.0	13.3	15.0	16.6	15.7	16.2	15.2	13.8	2.1	-2.9	-2.9
13	2.7	7.0	1.7	14.5	16.2	15.8	15.4	16.2	15.0	14.6	3.6	-2.6	-2.6
14	3.1	7.5	5.8	12.0	14.3	16.2	15.2	15.8	15.3	14.4	4.5	-2.7	-2.7
15	4.4	7.5	5.8	17.5	12.8	14.4	13.6	15.2	15.0	13.8	5.2	-2.6	-2.6
16	6.1	7.5	6.3	16.2	13.8	14.7	14.6	15.2	13.7	13.0	6.1	-2.7	-2.7
17	5.2	7.2	5.9	16.3	14.5	14.2	15.2	14.5	15.2	11.9	4.0	-2.9	-2.9
18	3.2	5.0	5.0	12.7	14.2	14.2	14.4	15.0	14.1	10.7	1.2	-3.7	-3.7
19	1.6	2.0	4.6	12.1	13.7	13.9	13.8	14.8	14.7	8.1	-0.6	-6.0	-6.0
20	-2.0	-0.5	2.6	10.5	14.3	14.2	13.2	13.7	13.2	6.2	-3.5	-7.3	-7.3
21	-2.8	-2.3	1.1	9.4	13.1	13.5	13.2	13.6	12.8	4.1	-3.9	-9.1	-9.1
22	-3.6	-3.8	0.8	9.1	10.8	13.3	14.0	14.0	10.3	3.7	-5.5	-10.8	-10.8
23	-3.7	-4.2	-1.6	6.8	10.5	13.0	13.3	12.9	9.9	2.4	-5.9	-10.7	-10.7
Mín.	-8.7	-9.5	-7.9	-3.2	1.5	6.8	8.6	7.6	2.5	-4.3	-10.8	-13.7	-13.7

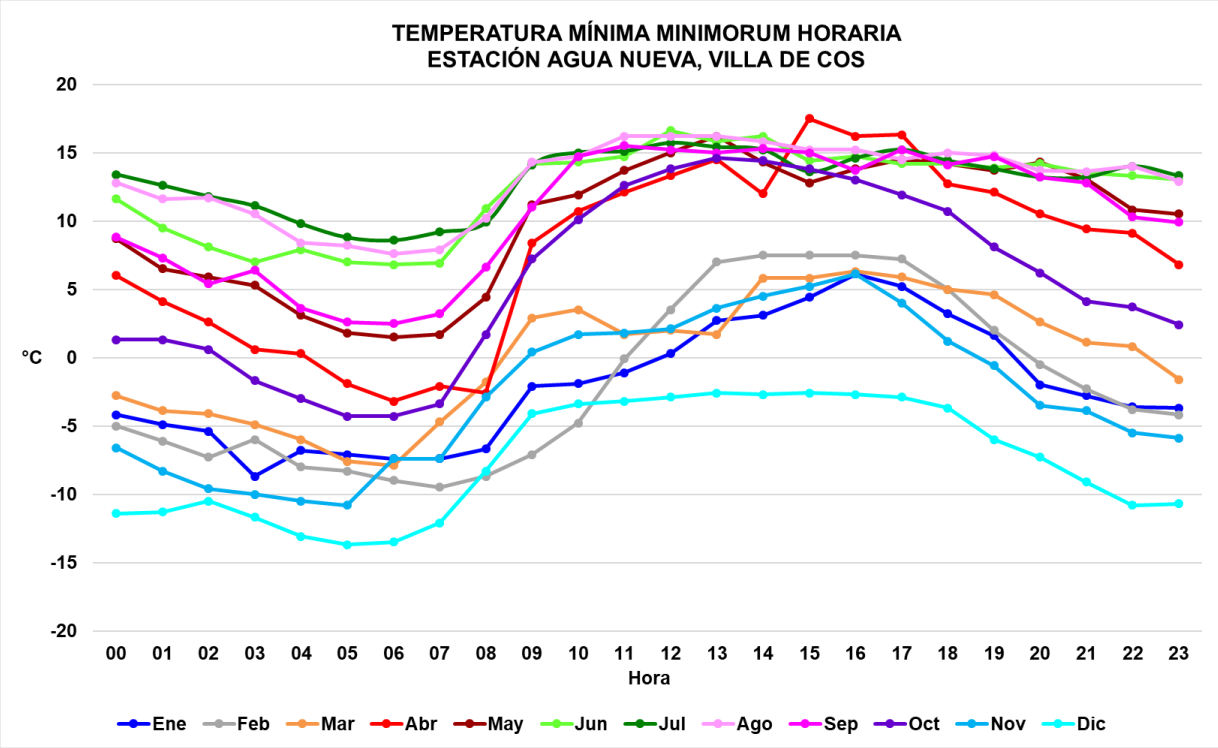


Figura 25. Temperatura mínima minimorum (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 26. Temperatura media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.0	10.5	13.0	16.6	18.6	19.1	17.8	17.9	16.4	14.1	10.5	8.8	14.3
01	7.4	9.7	12.0	15.4	17.6	18.0	17.1	17.2	15.9	13.5	9.9	8.3	13.5
02	6.9	9.0	11.1	14.4	16.6	17.2	16.4	16.5	15.4	13.0	9.4	7.8	12.8
03	6.4	8.4	10.3	13.5	15.8	16.5	15.9	16.0	15.0	12.4	8.8	7.2	12.2
04	5.9	7.8	9.7	12.7	15.0	15.9	15.4	15.4	14.5	12.0	8.3	6.7	11.6
05	5.5	7.2	9.1	11.9	14.3	15.3	15.0	14.9	14.1	11.5	8.0	6.4	11.1
06	5.2	6.8	8.7	11.3	13.7	14.8	14.5	14.4	13.8	11.1	7.6	6.0	10.7
07	5.0	6.9	9.5	11.6	14.0	15.0	14.5	14.2	13.7	11.1	8.0	6.0	10.8
08	7.0	9.7	13.3	14.5	16.8	17.4	16.4	16.0	15.1	12.8	11.3	8.4	13.2
09	10.7	13.6	16.8	18.3	20.1	20.0	18.8	18.7	17.7	16.2	14.7	12.1	16.5
10	13.7	16.6	19.5	21.1	22.8	22.4	20.9	20.9	19.9	19.0	17.5	15.1	19.1
11	16.1	18.9	21.6	23.4	25.0	24.5	22.7	23.0	21.7	21.2	19.6	17.5	21.3
12	17.9	20.7	23.3	25.3	26.9	26.4	24.4	24.7	23.2	22.9	21.3	19.2	23.0
13	19.2	22.0	24.6	26.7	28.3	27.7	25.7	26.1	24.3	24.2	22.3	20.4	24.3
14	20.1	22.9	25.4	27.8	29.3	28.7	26.6	27.1	25.1	25.0	23.0	21.2	25.2
15	20.6	23.4	25.8	28.4	29.8	29.2	27.2	27.5	25.5	25.5	23.2	21.5	25.6
16	20.4	23.4	25.7	28.6	29.9	29.2	27.2	27.4	25.4	25.5	22.8	21.2	25.6
17	19.3	22.6	25.0	28.3	29.7	29.0	26.8	27.0	24.8	24.9	21.2	19.7	24.9
18	16.5	20.5	23.2	27.4	28.9	28.2	26.0	25.9	23.7	23.2	17.7	16.2	23.1
19	13.8	17.3	20.2	25.4	27.3	26.6	24.5	24.4	21.7	20.3	15.4	14.0	20.9
20	12.2	15.4	18.1	22.5	24.6	24.4	22.3	22.0	19.7	18.0	13.9	12.5	18.8
21	10.8	14.0	16.7	20.5	22.3	22.4	20.5	20.4	18.5	16.6	12.6	11.1	17.2
22	9.8	12.7	15.4	19.2	21.0	21.0	19.4	19.4	17.7	15.6	11.7	10.2	16.1
23	8.8	11.6	14.1	17.9	19.8	20.0	18.6	18.6	17.0	14.7	11.0	9.5	15.1
Media	12.0	14.6	17.2	20.1	22.0	22.0	20.6	20.7	19.2	17.7	14.6	12.8	17.8

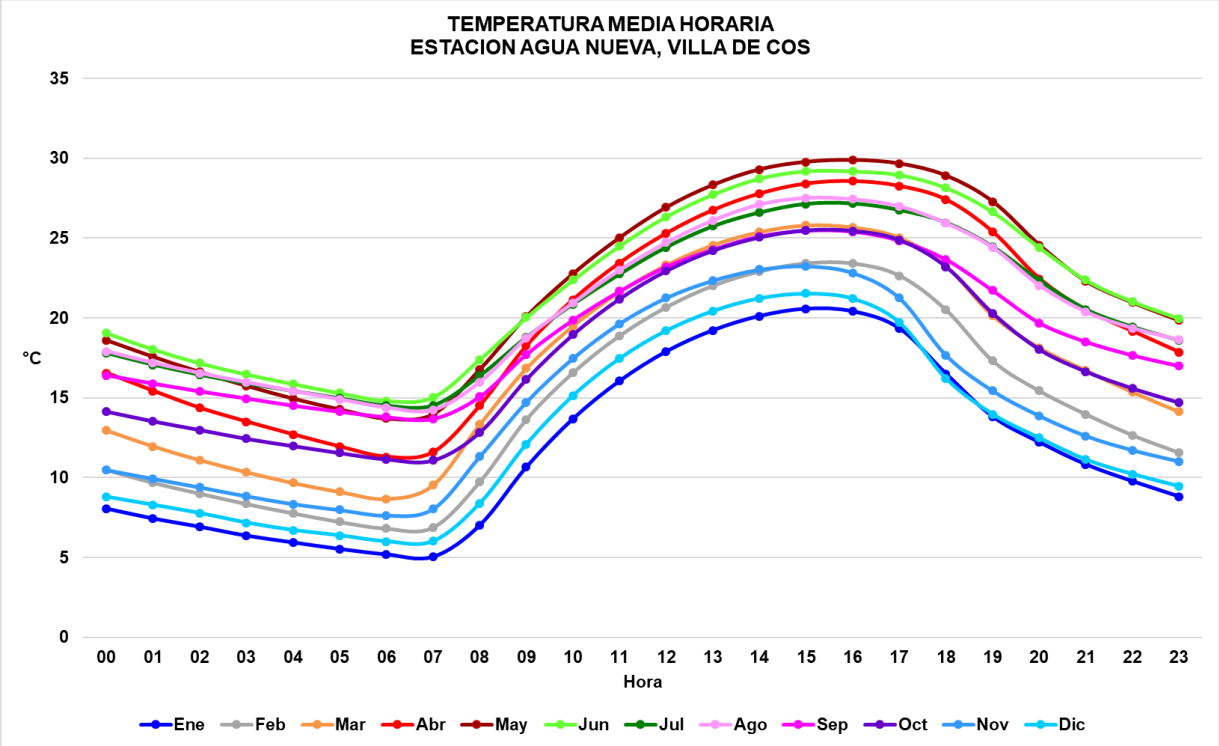


Figura 26. Temperatura media (˚C) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 27. Precipitación media (mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.3	0.3	0.4	0.6	2.5	3.7	2.0	6.6	1.0	0.6	0.3	18.7
01	0.5	0.5	0.6	0.0	1.2	3.0	3.6	2.8	3.0	1.1	0.3	0.6	17.4
02	0.8	0.6	0.8	0.0	0.4	1.6	1.7	3.5	3.3	0.4	0.2	0.8	14.0
03	0.4	0.2	0.3	0.0	0.8	1.2	1.8	2.7	2.4	0.9	0.3	0.4	11.2
04	0.5	0.3	0.3	0.0	1.1	1.1	1.7	2.0	1.8	0.9	0.4	0.3	10.4
05	0.5	0.1	0.3	0.0	0.6	1.0	1.4	0.8	1.2	1.1	0.2	0.4	7.6
06	0.4	0.1	0.1	0.1	0.3	0.3	1.5	1.6	1.1	1.0	0.2	0.6	7.1
07	0.2	0.2	0.2	0.0	0.1	0.3	0.8	0.4	0.6	0.4	0.2	0.4	3.8
08	0.2	0.1	0.1	0.0	0.0	0.1	1.0	0.3	1.1	0.3	0.1	0.4	3.8
09	0.4	0.1	0.0	0.1	0.0	0.2	0.5	0.5	0.8	0.2	0.2	0.3	3.4
10	0.2	0.1	0.0	0.0	0.0	0.2	0.5	0.2	0.4	0.0	0.4	0.4	2.4
11	0.2	0.2	0.2	0.0	0.0	0.4	0.2	0.1	0.6	0.1	0.4	0.4	2.8
12	0.3	0.2	0.1	0.0	0.0	0.1	1.0	0.1	0.2	0.1	0.5	0.4	3.0
13	0.8	0.6	0.0	0.3	0.3	0.5	2.3	0.3	0.8	0.1	0.3	0.6	6.9
14	0.2	0.4	0.1	0.1	0.5	0.5	4.1	1.8	1.9	0.1	1.1	0.3	11.1
15	0.0	1.4	0.8	0.1	1.0	2.4	7.2	3.2	6.2	0.7	1.1	0.4	24.7
16	0.5	0.8	0.4	0.5	1.0	2.7	5.4	4.3	6.9	1.7	0.4	0.6	25.2
17	0.8	0.9	0.4	0.1	0.9	3.7	4.9	4.6	5.3	1.2	0.8	0.6	24.2
18	0.6	0.7	0.6	0.6	1.8	3.3	6.0	5.0	4.9	2.0	1.1	0.6	27.2
19	0.2	0.4	0.5	0.7	0.9	6.1	6.9	4.4	8.0	3.0	0.5	0.6	32.1
20	0.4	0.4	0.2	0.4	0.6	4.4	7.4	7.7	9.4	1.7	0.9	1.1	34.6
21	0.7	0.2	0.3	0.3	1.3	8.5	4.5	5.4	4.6	1.6	1.1	0.5	28.9
22	0.7	0.2	0.2	0.3	1.3	8.7	5.7	6.9	9.1	2.8	1.2	0.2	37.4
23	0.5	0.2	0.3	0.3	1.6	4.1	4.9	3.3	6.7	2.4	0.4	0.2	25.0
Suma	10.3	9.4	7.1	4.3	16.4	57.0	78.5	64.1	86.8	24.9	12.7	11.4	383.0

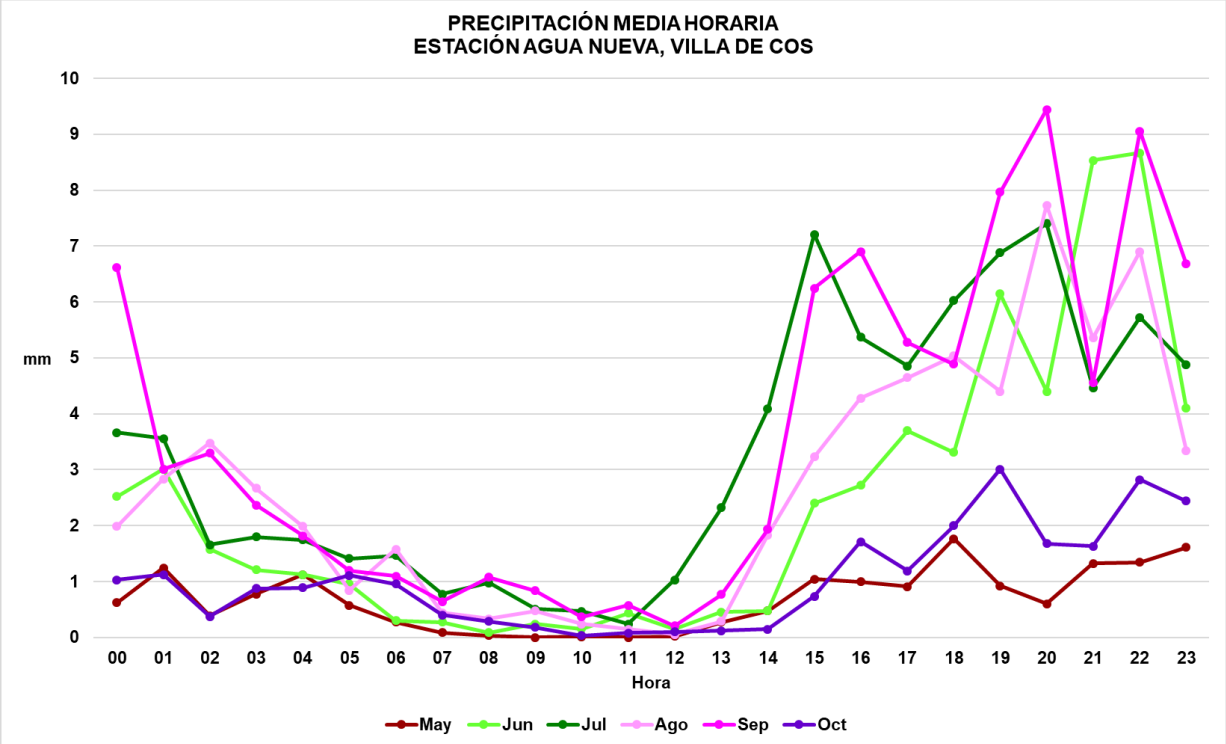


Figura 27. Precipitación media (mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 28. Precipitación máxima maximorum(mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.8	2.4	3.2	4.4	4.2	6.6	9.6	7.0	14.2	3.6	4.4	1.6	14.2
01	2.6	2.0	7.6	0.6	10.4	16.0	13.6	14.2	5.0	8.2	2.8	3.0	16.0
02	3.4	3.6	11.8	0.2	1.4	8.4	4.8	14.4	12.8	2.2	1.4	8.4	14.4
03	1.8	1.4	3.0	0.0	5.2	4.2	8.4	11.8	5.8	7.6	1.4	2.4	11.8
04	2.6	1.6	3.4	0.2	15.4	3.4	6.6	15.8	10.4	5.4	2.4	2.2	15.8
05	2.0	1.2	2.6	0.4	3.0	6.2	3.6	5.0	5.2	10.2	1.6	3.4	10.2
06	2.0	0.8	2.0	1.2	2.8	1.8	4.6	15.2	6.2	9.0	0.8	3.6	15.2
07	1.6	1.8	2.6	0.2	1.4	2.6	3.4	2.6	2.8	3.0	2.0	3.0	3.4
08	2.0	1.0	0.6	0.0	0.6	0.6	5.4	2.0	5.6	3.0	1.6	3.6	5.6
09	3.8	2.4	0.0	1.4	0.0	2.0	5.4	4.0	4.0	1.6	1.8	2.2	5.4
10	2.0	1.4	0.8	0.6	0.2	1.6	2.8	1.6	3.0	0.2	2.4	3.8	3.8
11	2.2	1.2	2.4	0.0	0.0	4.6	1.4	2.2	6.2	1.2	2.2	2.2	6.2
12	3.8	1.2	1.0	0.0	0.2	2.0	7.6	0.6	2.0	1.2	3.2	2.2	7.6
13	9.4	4.0	0.6	4.4	2.4	2.8	11.2	2.0	4.4	1.2	2.6	4.4	11.2
14	0.6	2.8	0.4	0.6	6.2	2.6	17.0	8.2	16.2	0.8	12.6	2.6	17.0
15	0.6	10.8	12.6	1.8	10.4	8.0	20.0	13.6	17.2	5.2	7.2	3.2	20.0
16	5.4	8.6	2.6	4.4	3.6	8.0	13.0	16.8	17.0	7.4	1.8	2.6	17.0
17	8.2	4.8	1.8	0.8	3.0	16.4	19.4	15.2	14.4	4.4	5.0	4.0	19.4
18	5.8	5.4	5.8	5.0	19.4	12.8	14.6	9.8	12.0	19.0	7.4	4.8	19.4
19	1.2	1.6	5.0	5.8	3.8	16.6	15.8	11.4	38.2	17.4	2.8	3.6	38.2
20	3.6	2.8	2.0	1.8	3.8	15.6	24.6	33.2	24.6	4.6	5.4	7.4	33.2
21	7.0	1.8	5.0	1.4	5.2	33.6	9.8	10.6	16.6	5.8	7.8	1.8	33.6
22	5.8	1.8	1.6	2.6	7.8	24.4	25.6	15.6	30.4	11.4	5.4	1.4	30.4
23	5.0	1.6	2.8	3.2	6.8	7.4	9.0	7.0	15.8	7.2	2.8	1.0	15.8
Máx.	9.4	10.8	12.6	5.8	19.4	33.6	25.6	33.2	38.2	19.0	12.6	8.4	38.2

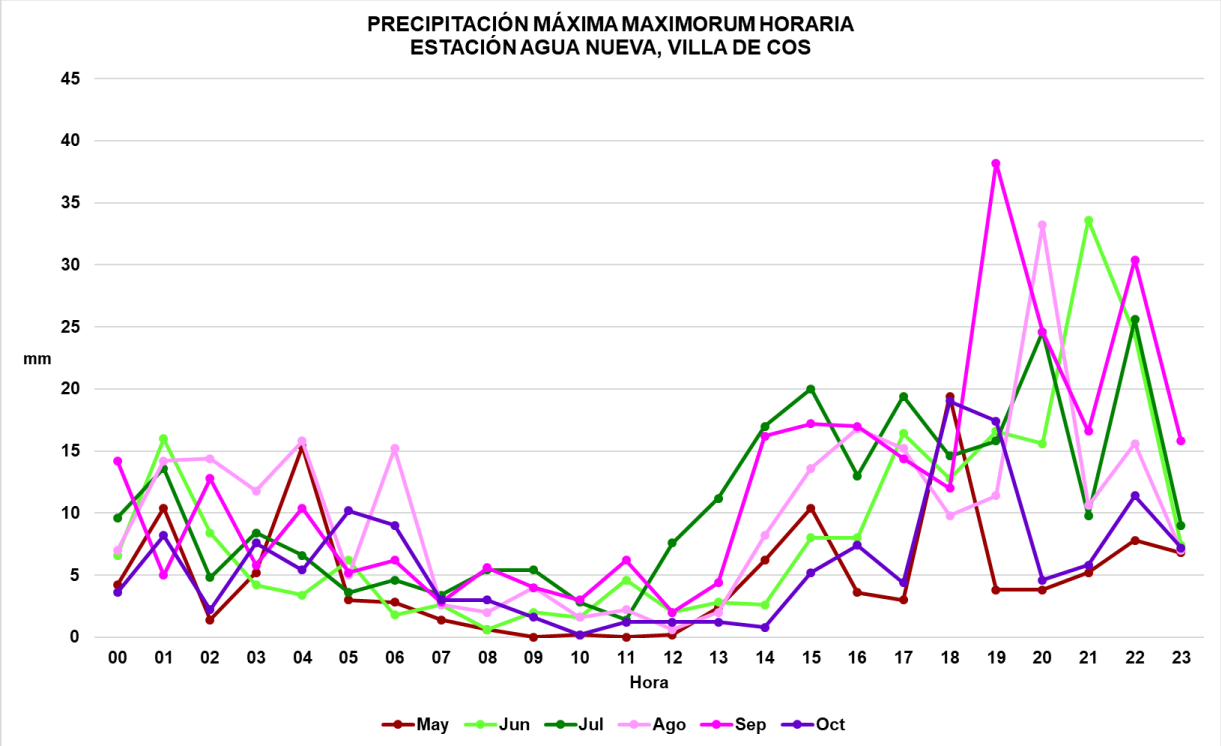


Figura 28. Precipitación máxima maximorum(mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 29. Evapotranspiración potencial media (mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.03	0.03	0.05	0.04	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.02
01	0.01	0.02	0.03	0.04	0.03	0.03	0.02	0.02	0.00	0.01	0.01	0.01	0.02
02	0.01	0.02	0.02	0.03	0.02	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.01
03	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01
04	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01
05	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.02	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01
08	0.02	0.05	0.09	0.06	0.07	0.05	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.09	0.14	0.22	0.18	0.19	0.18	0.13	0.12	0.10	0.10	0.15	0.11	0.14
10	0.20	0.28	0.37	0.34	0.36	0.32	0.27	0.27	0.23	0.24	0.27	0.22	0.28
11	0.31	0.40	0.51	0.50	0.51	0.47	0.40	0.41	0.36	0.37	0.38	0.33	0.41
12	0.40	0.50	0.60	0.62	0.64	0.59	0.52	0.54	0.47	0.48	0.46	0.41	0.52
13	0.45	0.55	0.65	0.70	0.72	0.65	0.59	0.62	0.53	0.54	0.48	0.44	0.58
14	0.45	0.55	0.64	0.73	0.74	0.67	0.62	0.64	0.53	0.55	0.45	0.43	0.58
15	0.41	0.50	0.57	0.69	0.71	0.63	0.59	0.60	0.51	0.51	0.39	0.38	0.54
16	0.32	0.41	0.46	0.61	0.61	0.55	0.52	0.52	0.44	0.42	0.28	0.29	0.45
17	0.22	0.29	0.33	0.48	0.50	0.45	0.42	0.41	0.33	0.31	0.15	0.16	0.34
18	0.11	0.14	0.18	0.35	0.35	0.34	0.30	0.29	0.21	0.21	0.07	0.09	0.22
19	0.05	0.08	0.11	0.27	0.23	0.19	0.17	0.18	0.13	0.10	0.03	0.04	0.13
20	0.03	0.05	0.07	0.14	0.14	0.14	0.12	0.10	0.04	0.02	0.02	0.03	0.07
21	0.03	0.04	0.05	0.08	0.07	0.07	0.04	0.03	0.01	0.01	0.01	0.02	0.04
22	0.02	0.04	0.05	0.06	0.05	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.03
23	0.02	0.03	0.04	0.06	0.05	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.03
Media/día /mes	3.24	4.18	5.10	6.08	6.12	5.51	4.83	4.85	3.94	3.95	3.26	3.11	4.51

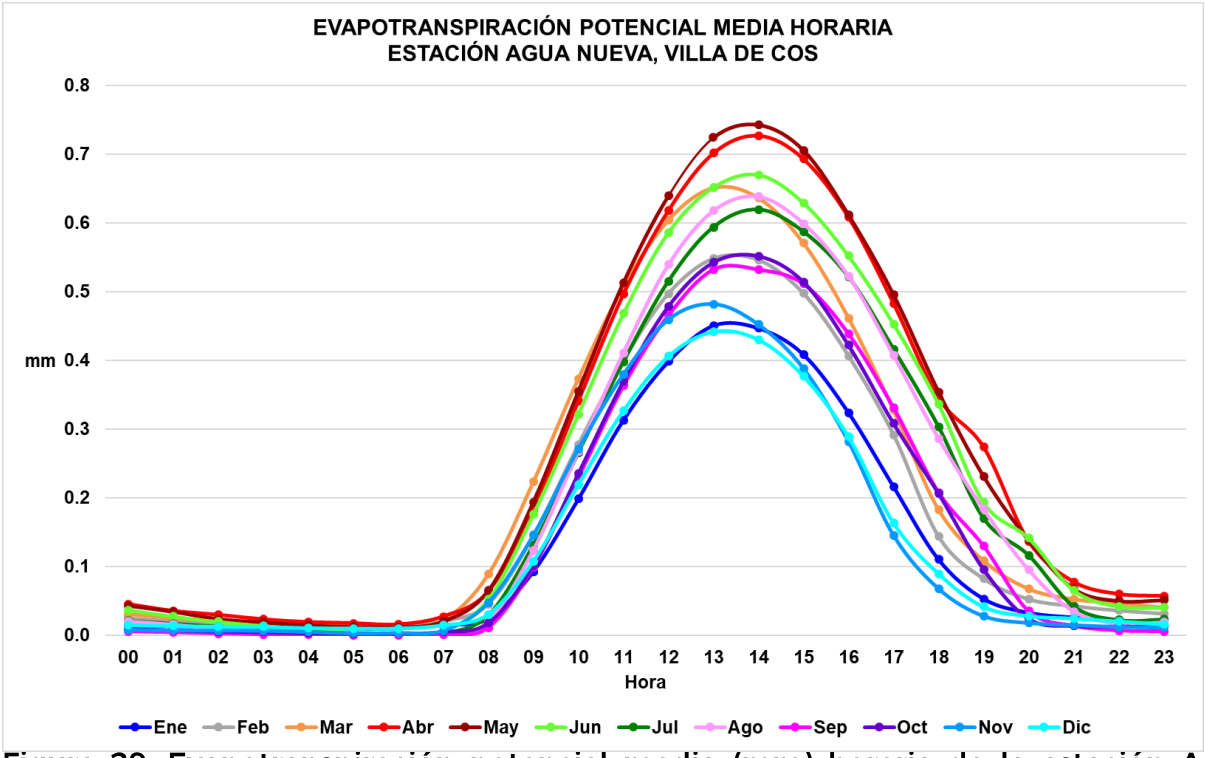


Figura 29. Evapotranspiración potencial media (mm) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 30. Humedad relativa media (%) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	60.0	49.9	44.3	36.8	46.3	65.0	76.9	76.7	85.0	74.8	71.6	61.9	62.4
01	63.2	53.9	48.5	41.1	51.7	70.6	80.6	80.9	87.6	78.6	75.3	65.1	66.4
02	66.1	57.4	52.5	45.4	56.6	75.2	83.6	84.1	89.9	81.7	78.2	67.9	69.9
03	68.8	60.5	56.1	49.5	61.0	78.8	86.2	87.1	91.7	84.7	80.6	70.7	73.0
04	70.9	63.1	59.6	53.2	64.9	82.0	88.4	89.6	93.4	86.9	82.8	72.8	75.6
05	72.8	65.6	62.5	56.9	68.4	84.7	90.3	91.6	94.5	88.6	84.5	74.5	77.9
06	74.4	67.9	64.7	60.1	71.4	87.0	92.1	93.3	95.5	90.0	86.0	76.3	79.9
07	75.5	68.8	63.5	60.5	71.6	86.6	92.4	93.8	95.7	90.3	85.5	77.3	80.1
08	70.8	61.6	53.2	54.0	63.9	78.2	85.8	88.5	92.2	85.9	76.1	71.2	73.5
09	60.2	50.1	42.2	43.3	51.5	66.9	75.0	77.0	82.3	74.6	64.0	60.2	62.3
10	50.2	40.6	33.8	33.7	40.5	56.5	65.6	66.7	72.4	62.8	53.1	49.8	52.1
11	42.0	33.3	27.6	26.6	32.3	47.4	57.4	57.5	64.2	53.4	44.6	41.6	44.0
12	35.7	28.3	23.5	21.8	26.4	40.3	50.3	50.1	57.3	46.3	38.4	35.7	37.8
13	31.5	24.9	20.6	18.7	22.4	35.0	45.2	44.4	52.5	41.2	34.4	31.5	33.5
14	28.7	22.8	18.7	16.5	19.8	31.5	42.2	40.7	49.0	38.0	31.9	28.8	30.7
15	26.9	21.5	17.8	15.2	18.7	30.0	40.4	39.3	47.7	36.1	30.9	27.5	29.3
16	26.7	21.1	17.7	14.8	18.5	30.2	40.3	39.6	47.7	35.7	31.1	27.6	29.3
17	28.6	22.0	18.3	15.0	18.5	30.6	41.7	40.8	49.7	36.9	34.3	29.9	30.5
18	33.8	24.8	20.3	15.8	19.5	32.2	43.4	44.1	54.3	40.9	41.7	35.9	33.9
19	39.5	29.4	23.8	18.1	22.0	36.0	48.3	48.9	61.3	48.8	47.5	40.9	38.7
20	43.9	32.9	27.4	21.1	26.5	41.7	55.5	57.2	69.0	55.6	52.5	45.3	44.0
21	48.1	36.4	31.1	24.5	31.3	47.8	62.3	63.6	74.0	60.7	57.7	49.9	49.0
22	52.2	40.5	35.5	28.1	36.1	53.8	67.6	68.3	78.1	65.3	62.9	54.1	53.5
23	56.1	44.9	40.0	32.2	41.1	60.1	72.4	72.6	81.5	70.0	67.6	58.0	58.0
Media	51.1	42.6	37.6	33.5	40.9	56.2	66.0	66.5	73.6	63.7	58.9	52.3	53.6

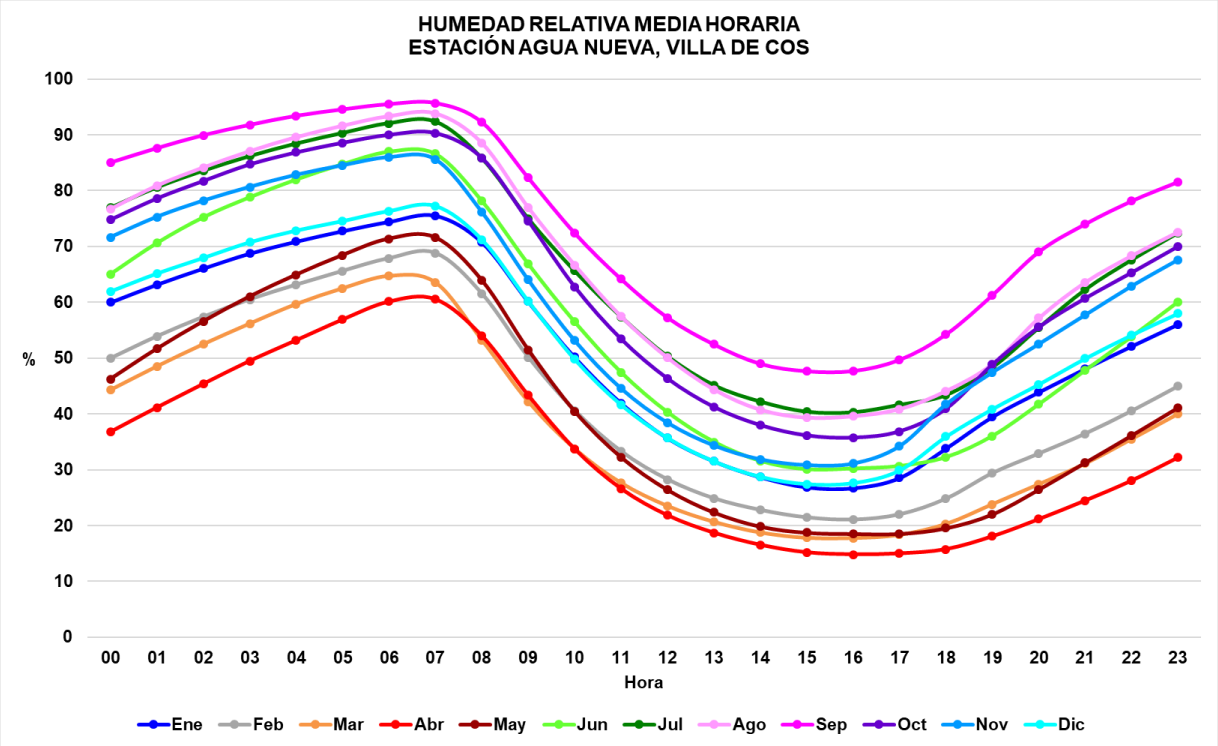


Figura 30. Humedad relativa media (%) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 31. Humedad relativa mínima minimorum (%) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.0	11.0	6.0	6.0	8.0	11.0	30.0	31.0	25.0	22.0	10.0	10.0	6.0
01	11.0	12.0	8.0	7.0	8.0	14.0	34.0	41.0	32.0	22.0	10.0	11.0	7.0
02	12.0	13.0	9.0	8.0	10.0	16.0	38.0	40.0	34.0	24.0	17.0	11.0	8.0
03	12.0	14.0	9.0	9.0	10.0	18.0	41.0	35.0	37.0	25.0	20.0	12.0	9.0
04	13.0	14.0	10.0	10.0	11.0	20.0	45.0	36.0	40.0	26.0	19.0	13.0	10.0
05	14.0	14.0	10.0	9.0	11.0	18.0	47.0	43.0	37.0	26.0	22.0	14.0	9.0
06	14.0	14.0	11.0	10.0	10.0	17.0	52.0	54.0	46.0	29.0	19.0	16.0	10.0
07	15.0	14.0	10.0	11.0	12.0	17.0	52.0	61.0	45.0	26.0	21.0	18.0	10.0
08	12.0	11.0	8.0	11.0	10.0	23.0	40.0	54.0	43.0	19.0	17.0	16.0	8.0
09	11.0	10.0	7.0	9.0	8.0	16.0	33.0	41.0	30.0	18.0	9.0	12.0	7.0
10	9.0	7.0	6.0	7.0	6.0	10.0	24.0	31.0	26.0	13.0	8.0	10.0	6.0
11	7.0	7.0	5.0	5.0	5.0	9.0	20.0	25.0	16.0	11.0	7.0	7.0	5.0
12	6.0	6.0	4.0	5.0	5.0	9.0	18.0	20.0	12.0	9.0	6.0	7.0	4.0
13	6.0	5.0	4.0	4.0	5.0	7.0	16.0	18.0	12.0	8.0	5.0	5.0	4.0
14	5.0	4.0	4.0	3.0	4.0	6.0	14.0	14.0	12.0	9.0	5.0	5.0	3.0
15	4.0	5.0	4.0	3.0	4.0	6.0	13.0	13.0	14.0	8.0	5.0	6.0	3.0
16	5.0	5.0	4.0	3.0	4.0	6.0	10.0	12.0	13.0	8.0	5.0	5.0	3.0
17	4.0	4.0	4.0	3.0	4.0	5.0	12.0	12.0	11.0	8.0	5.0	6.0	3.0
18	5.0	5.0	4.0	3.0	4.0	6.0	12.0	12.0	10.0	8.0	7.0	6.0	3.0
19	7.0	6.0	4.0	4.0	4.0	5.0	11.0	12.0	9.0	10.0	8.0	7.0	4.0
20	8.0	8.0	5.0	4.0	5.0	7.0	12.0	14.0	10.0	12.0	8.0	7.0	4.0
21	8.0	8.0	5.0	4.0	7.0	8.0	18.0	17.0	17.0	13.0	13.0	8.0	4.0
22	9.0	10.0	6.0	5.0	7.0	8.0	22.0	19.0	19.0	16.0	13.0	9.0	5.0
23	9.0	10.0	6.0	5.0	7.0	9.0	28.0	25.0	25.0	17.0	12.0	9.0	5.0
Mín.	4.0	4.0	4.0	3.0	4.0	5.0	10.0	12.0	9.0	8.0	5.0	5.0	3.0

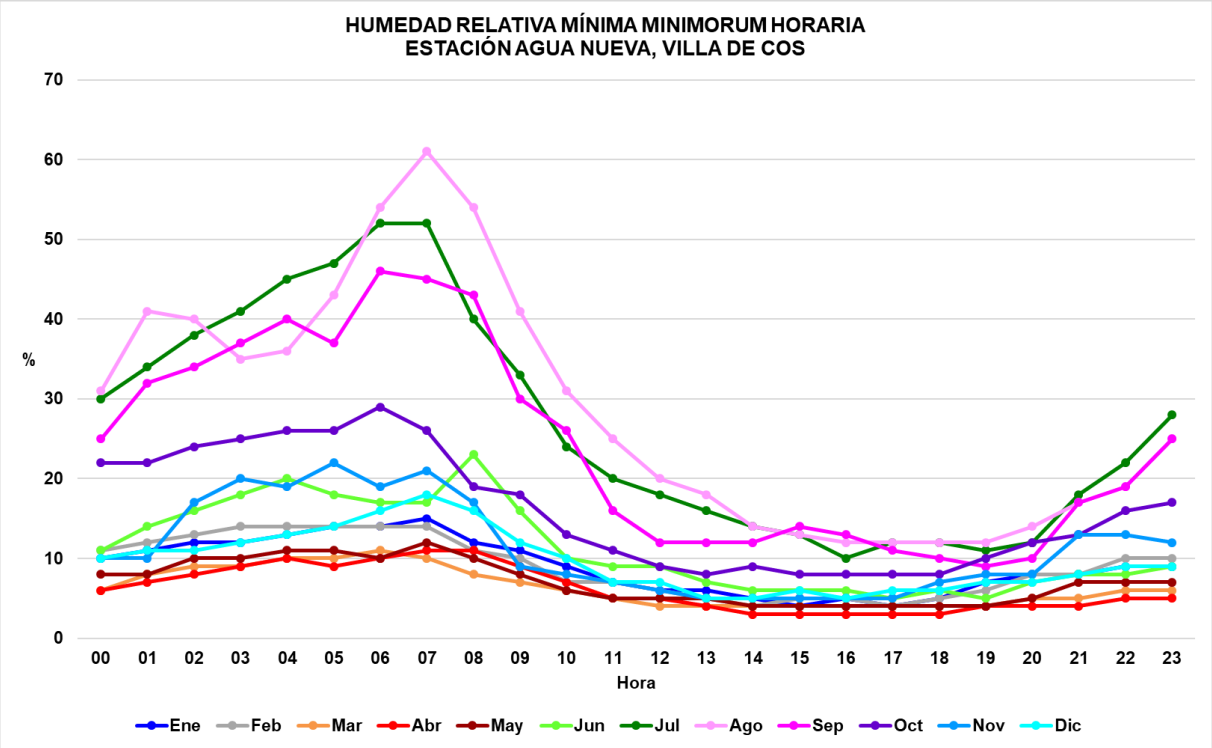


Figura 31. Humedad relativa mínima minimorum (%) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 32. Radiación solar global media horaria (W/m2) de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	17	5	4	3	2	1	1	2	6	1	4
07	58	139	287	132	154	137	88	60	44	66	185	79	119
08	575	817	1046	752	793	705	564	504	460	540	783	582	677
09	1361	1718	1966	1672	1696	1524	1326	1285	1218	1351	1547	1318	1498
10	2126	2519	2786	2575	2578	2349	2118	2133	2027	2109	2204	1997	2293
11	2676	3107	3403	3303	3326	3057	2803	2864	2664	2690	2664	2485	2920
12	2990	3413	3717	3810	3811	3498	3298	3321	3061	3033	2828	2703	3290
13	2952	3395	3701	3949	3952	3592	3507	3507	3089	3048	2682	2606	3332
14	2675	3070	3346	3753	3744	3422	3355	3323	2943	2823	2332	2295	3090
15	2117	2514	2778	3268	3248	2994	2991	2907	2548	2316	1740	1754	2598
16	1372	1733	2020	2563	2683	2443	2396	2312	1951	1657	1005	1070	1934
17	627	900	1195	1830	1925	1835	1773	1658	1265	936	323	396	1222
18	107	246	447	956	1102	1078	1077	932	582	321	14	34	574
19	1	23	80	342	451	481	436	337	127	28	0	0	192
20	0	1	10	28	62	88	71	33	4	1	0	0	25
21	0	0	0	0	3	5	3	1	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19639	23598	26800	28939	29534	27214	25808	25180	21986	20922	18315	17321	23771

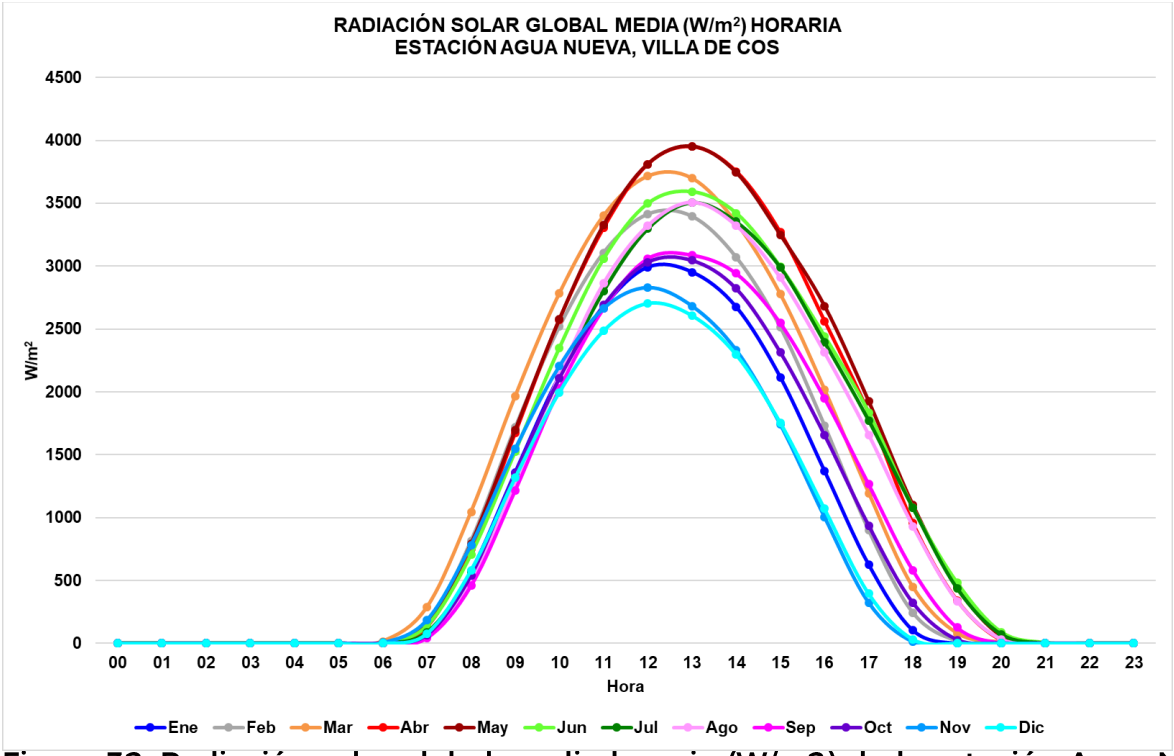


Figura 32. Radiación solar global media horaria (W/m2) de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 33. Radiación solar global media horaria (kWh/m2) de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.03	0.04	0.03	0.02	0.01	0.01	0.02	0.05	0.02	0.03
08	0.14	0.20	0.26	0.19	0.20	0.18	0.14	0.13	0.12	0.13	0.20	0.15	0.17
09	0.34	0.43	0.49	0.42	0.42	0.38	0.33	0.32	0.30	0.34	0.39	0.33	0.37
10	0.53	0.63	0.70	0.64	0.64	0.59	0.53	0.53	0.51	0.53	0.55	0.50	0.57
11	0.67	0.78	0.85	0.83	0.83	0.76	0.70	0.72	0.67	0.67	0.67	0.62	0.73
12	0.75	0.85	0.93	0.95	0.95	0.87	0.82	0.83	0.77	0.76	0.71	0.68	0.82
13	0.74	0.85	0.93	0.99	0.99	0.90	0.88	0.88	0.77	0.76	0.67	0.65	0.83
14	0.67	0.77	0.84	0.94	0.94	0.86	0.84	0.83	0.74	0.71	0.58	0.57	0.77
15	0.53	0.63	0.69	0.82	0.81	0.75	0.75	0.73	0.64	0.58	0.44	0.44	0.65
16	0.34	0.43	0.51	0.64	0.67	0.61	0.60	0.58	0.49	0.41	0.25	0.27	0.48
17	0.16	0.23	0.30	0.46	0.48	0.46	0.44	0.41	0.32	0.23	0.08	0.10	0.31
18	0.03	0.06	0.11	0.24	0.28	0.27	0.27	0.23	0.15	0.08	0.00	0.01	0.14
19	0.00	0.01	0.02	0.09	0.11	0.12	0.11	0.08	0.03	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.91	5.90	6.70	7.23	7.38	6.80	6.45	6.30	5.50	5.23	4.58	4.33	5.94

Cuadro 34. Radiación solar global media horaria (Mj/m2/s) de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.13	0.26	0.12	0.14	0.12	0.08	0.05	0.04	0.06	0.17	0.07	0.11
08	0.52	0.74	0.94	0.68	0.71	0.63	0.51	0.45	0.41	0.49	0.70	0.52	0.61
09	1.22	1.55	1.77	1.50	1.53	1.37	1.19	1.16	1.10	1.22	1.39	1.19	1.35
10	1.91	2.27	2.51	2.32	2.32	2.11	1.91	1.92	1.82	1.90	1.98	1.80	2.06
11	2.41	2.80	3.06	2.97	2.99	2.75	2.52	2.58	2.40	2.42	2.40	2.24	2.63
12	2.69	3.07	3.35	3.43	3.43	3.15	2.97	2.99	2.76	2.73	2.55	2.43	2.96
13	2.66	3.06	3.33	3.55	3.56	3.23	3.16	3.16	2.78	2.74	2.41	2.35	3.00
14	2.41	2.76	3.01	3.38	3.37	3.08	3.02	2.99	2.65	2.54	2.10	2.07	2.78
15	1.91	2.26	2.50	2.94	2.92	2.69	2.69	2.62	2.29	2.08	1.57	1.58	2.34
16	1.23	1.56	1.82	2.31	2.41	2.20	2.16	2.08	1.76	1.49	0.90	0.96	1.74
17	0.56	0.81	1.08	1.65	1.73	1.65	1.60	1.49	1.14	0.84	0.29	0.36	1.10
18	0.10	0.22	0.40	0.86	0.99	0.97	0.97	0.84	0.52	0.29	0.01	0.03	0.52
19	0.00	0.02	0.07	0.31	0.41	0.43	0.39	0.30	0.11	0.03	0.00	0.00	0.17
20	0.00	0.00	0.01	0.03	0.06	0.08	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.67	21.24	24.12	26.05	26.58	24.49	23.23	22.66	19.79	18.83	16.48	15.59	21.39

Cuadro 35. Velocidad del viento media (km/h) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.8	7.0	7.3	6.9	7.4	8.3	8.1	6.9	5.0	5.8	6.6	6.6	6.9
01	7.1	7.1	7.1	6.8	7.3	8.1	8.2	7.1	5.1	5.8	6.9	7.0	6.9
02	7.4	7.1	7.2	6.6	7.0	7.8	8.1	7.0	5.0	5.9	7.0	7.4	6.9
03	7.4	7.3	7.2	6.4	6.9	7.3	7.8	6.5	4.8	5.8	6.9	7.6	6.8
04	7.4	7.5	7.2	6.4	6.7	6.9	7.0	5.8	4.5	5.7	6.6	7.6	6.6
05	7.5	7.6	7.3	6.3	6.6	6.3	6.0	5.0	4.2	5.4	6.5	7.6	6.4
06	7.7	8.0	7.3	6.4	6.5	5.9	5.2	4.4	3.8	5.2	6.5	7.8	6.2
07	7.8	8.1	7.8	6.6	6.5	6.0	5.0	4.0	3.6	5.2	6.5	7.8	6.2
08	8.0	8.7	8.8	7.4	7.7	7.7	6.6	5.3	4.3	5.6	7.4	8.2	7.1
09	9.1	9.6	9.5	8.8	8.5	8.7	8.2	7.3	6.2	6.9	8.2	9.0	8.3
10	9.7	10.0	9.5	9.3	8.3	7.8	8.0	7.4	6.7	7.2	8.0	9.3	8.4
11	9.8	10.2	9.6	9.1	7.5	6.7	7.1	6.6	6.3	7.0	7.7	9.5	8.1
12	10.0	10.5	10.1	9.3	7.4	6.3	6.5	6.1	6.1	6.9	7.8	9.7	8.0
13	10.2	10.9	10.3	9.9	7.8	6.7	6.6	6.2	6.1	7.0	7.9	9.8	8.3
14	10.3	11.2	10.7	10.4	8.4	7.3	6.9	6.6	6.2	7.0	7.8	9.9	8.6
15	10.3	11.3	11.0	10.7	8.6	7.8	7.2	7.1	6.4	7.1	7.6	9.9	8.7
16	10.2	11.3	10.9	10.7	8.8	8.0	7.8	7.4	6.6	6.9	7.1	9.1	8.7
17	9.2	10.5	10.6	10.8	8.7	8.1	7.9	7.7	6.7	6.6	5.9	7.6	8.4
18	7.0	8.3	9.3	10.5	8.6	8.4	7.8	7.5	6.4	5.4	4.8	5.7	7.5
19	6.5	6.8	7.5	9.1	7.9	8.1	7.3	6.6	4.8	4.2	5.2	5.9	6.7
20	6.5	7.0	7.6	7.6	6.8	7.0	6.2	5.7	4.2	4.3	5.5	6.0	6.2
21	6.3	7.1	7.8	7.7	6.9	6.7	5.8	5.4	4.2	4.6	5.6	6.0	6.2
22	6.3	7.1	7.7	7.8	7.5	7.6	6.6	5.6	4.5	5.0	6.0	6.2	6.5
23	6.4	6.9	7.3	7.5	7.7	8.2	7.6	6.3	4.7	5.4	6.3	6.4	6.7
Media	8.1	8.6	8.6	8.3	7.6	7.4	7.1	6.3	5.3	5.9	6.8	7.8	7.3

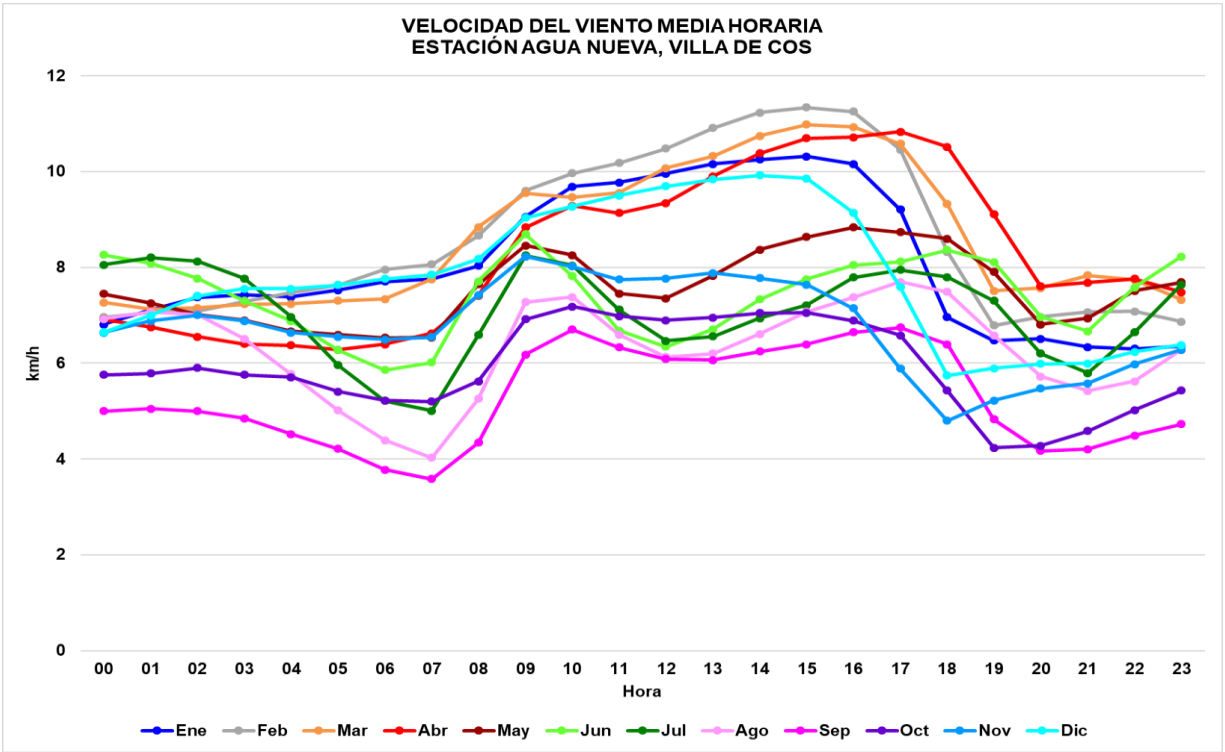


Figura 33. Velocidad del viento media (km/h) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 36. Velocidad del viento máxima maximorum (km/h) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	26.7	27.1	28.2	24.3	24.4	23.2	25.9	19.9	17.6	19.6	23.4	30.0	30.0
01	26.4	27.9	33.2	23.2	23.4	22.4	21.7	18.6	19.1	23.6	22.2	28.2	33.2
02	26.6	25.6	35.0	27.0	22.3	21.9	21.7	21.8	18.8	21.7	24.1	29.3	35.0
03	23.4	25.3	33.2	24.6	24.2	22.0	21.1	19.9	18.3	20.5	19.7	28.6	33.2
04	26.6	26.5	37.7	22.1	22.5	23.2	21.6	21.4	18.1	22.2	21.4	29.4	37.7
05	22.9	23.1	43.4	18.7	25.1	18.0	19.5	18.0	19.1	20.1	19.2	34.9	43.4
06	24.0	26.4	39.0	19.0	18.9	17.8	17.4	16.7	16.2	20.3	22.3	32.8	39.0
07	24.6	27.6	44.3	22.7	20.1	21.4	20.2	17.5	15.1	15.5	21.0	29.6	44.3
08	26.2	28.2	43.6	19.9	23.2	23.5	22.6	17.3	15.8	18.9	22.1	28.5	43.6
09	29.7	29.1	50.4	27.1	26.5	22.5	24.5	17.2	19.7	23.5	24.0	34.8	50.4
10	30.0	44.2	44.2	30.3	22.8	21.5	20.5	17.7	19.1	26.1	30.6	34.4	44.2
11	31.8	40.9	40.0	30.5	24.2	20.1	21.6	18.3	19.0	27.4	34.7	40.5	40.9
12	37.8	37.8	44.4	40.6	26.8	18.1	23.1	17.4	18.0	29.5	29.5	39.3	44.4
13	38.1	38.6	42.1	38.4	25.9	18.9	21.9	18.0	16.6	29.5	36.0	40.8	42.1
14	40.6	40.2	38.4	35.8	27.4	20.9	23.2	22.1	18.4	30.5	32.5	42.8	42.8
15	37.7	40.0	41.0	37.0	31.5	23.7	22.5	26.6	17.8	29.1	33.0	38.6	41.0
16	43.6	42.1	36.2	32.6	32.4	25.1	22.7	22.1	19.1	26.0	35.5	37.8	43.6
17	37.8	32.0	38.8	36.0	31.6	29.9	24.7	22.9	21.8	29.3	37.2	35.5	38.8
18	32.4	28.3	30.9	29.8	32.1	32.2	24.5	25.3	25.8	26.7	25.0	31.1	32.4
19	29.4	22.2	27.2	30.0	29.1	30.3	24.7	27.0	25.7	26.7	20.6	25.8	30.3
20	32.2	24.8	38.7	29.0	28.4	24.0	25.1	22.5	25.6	24.7	18.9	27.3	38.7
21	26.2	25.6	29.2	31.1	28.9	38.0	22.2	25.3	18.4	21.0	20.5	31.9	38.0
22	33.4	27.2	27.2	26.2	25.8	26.4	24.6	23.1	18.4	18.9	19.8	26.0	33.4
23	26.0	24.9	25.8	26.7	24.6	24.3	24.0	22.1	18.6	22.8	24.5	29.2	29.2
Máx.	43.6	44.2	50.4	40.6	32.4	38.0	25.9	27.0	25.8	30.5	37.2	42.8	50.4

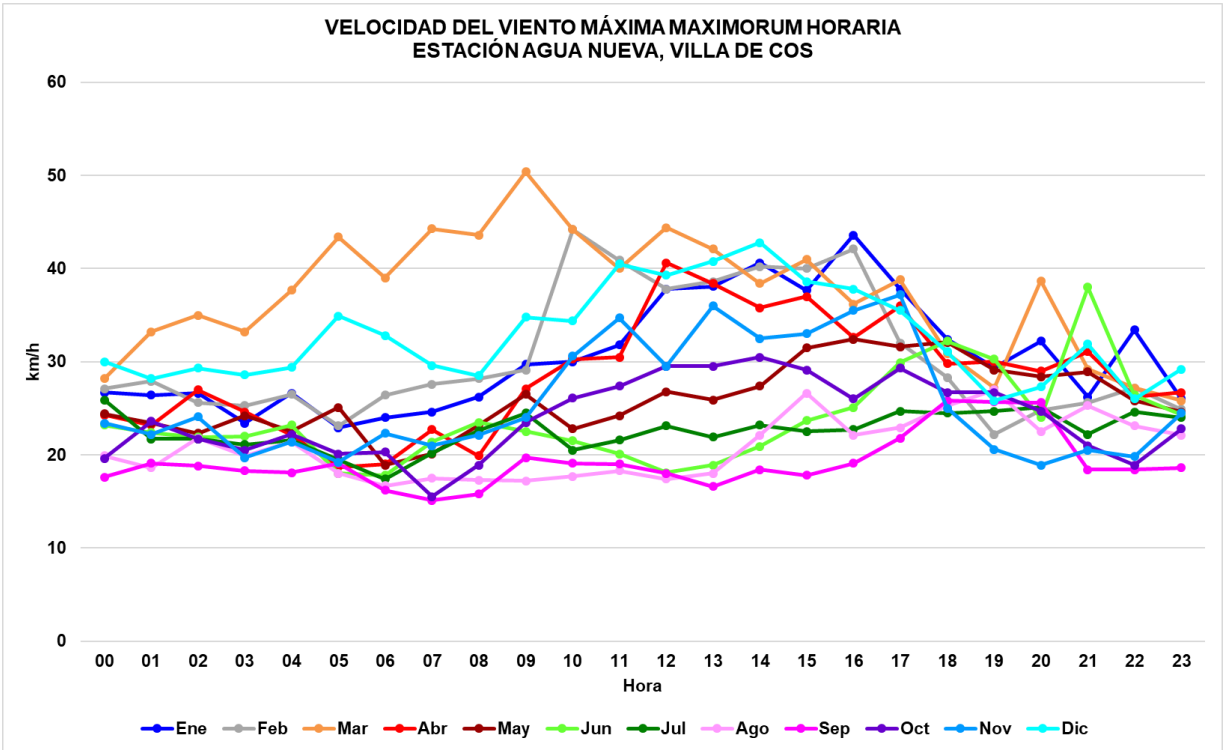


Figura 34. Velocidad del viento máxima maximorum (km/h) horaria de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 37. Frecuencia de velocidad del viento (%) mensual de la estación Agua Nueva, Villa de Cos (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	30.1	26.8	24.7	26.1	26.2	27.0	29.3	37.6	49.8	42.8	36.1	31.3	32.4
5.1 a 10.0	38.4	39.3	42.3	43.2	49.4	49.5	50.8	48.1	42.2	45.2	44.1	40.5	44.5
10.1 a 15.0	22.1	22.4	21.9	22.0	19.7	20.7	17.9	13.2	7.7	10.5	16.6	20.6	17.9
15.1 a 20.0	7.0	8.2	8.0	6.6	4.1	2.7	2.0	1.0	0.3	1.2	2.7	5.2	4.0
20.1 a 25.0	1.7	2.4	2.3	1.6	0.5	0.1	0.0	0.0	0.0	0.2	0.3	1.5	0.9
25.1 a 30.0	0.4	0.7	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.6	0.2
30.1 a 35.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

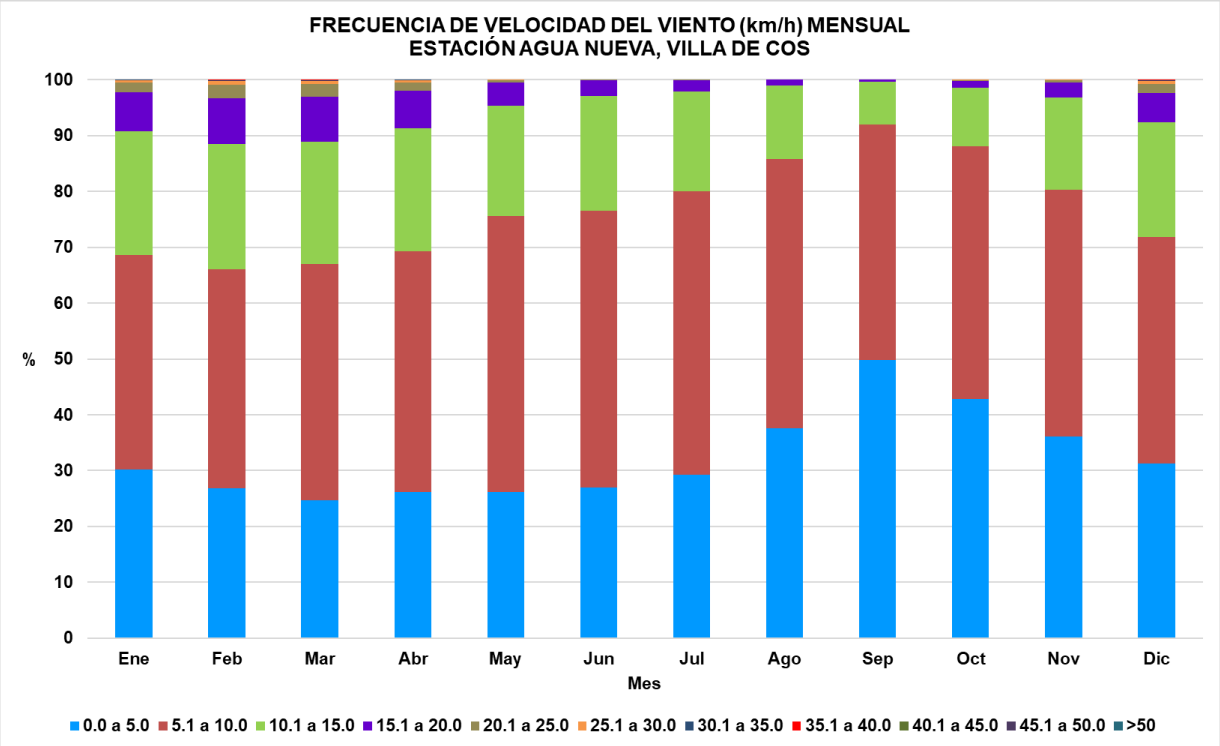


Figura 35. Frecuencia de velocidad del viento (%) mensual de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 38. Frecuencia de dirección del viento (%) mensual de la estación Agua Nueva, Villa de Cos (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	5.0	4.3	4.4	3.7	4.7	4.9	2.9	3.9	6.6	5.6	4.8	4.1	4.6
NNE	3.6	3.1	3.0	2.9	3.7	4.5	3.3	4.5	5.4	4.8	3.6	3.2	3.8
NE	2.8	2.3	2.4	2.1	3.0	4.6	3.4	4.7	4.8	3.9	3.0	2.4	3.3
ENE	1.6	1.6	1.8	1.8	2.7	4.8	3.7	4.9	4.5	3.7	2.5	1.6	3.0
E	5.6	5.5	4.7	3.8	4.4	5.9	5.8	6.3	6.4	6.9	6.1	6.3	5.7
ESE	16.3	14.5	12.5	11.0	10.7	11.9	12.5	12.6	13.4	16.7	17.6	17.7	14.0
SE	18.6	16.6	16.7	14.9	18.0	23.0	26.1	24.1	21.7	21.8	22.1	18.4	20.2
SSE	11.8	10.3	10.5	10.6	12.9	18.4	22.2	19.3	15.8	13.5	13.3	11.6	14.3
S	6.7	6.5	6.0	6.2	6.1	7.1	8.5	7.8	6.1	6.2	6.1	7.5	6.7
SSO	6.4	8.0	7.4	7.6	5.6	3.0	3.3	3.0	2.7	3.4	4.6	7.6	5.2
SO	6.2	8.7	9.4	11.1	6.5	2.0	1.6	1.7	1.6	2.4	3.9	6.0	5.0
OSO	4.4	6.6	7.3	9.6	6.7	1.7	1.3	1.3	1.4	1.9	3.1	4.4	4.1
O	3.0	3.8	4.9	5.3	4.8	1.6	1.2	1.3	1.6	1.7	2.3	2.5	2.8
ONO	2.0	2.5	2.8	3.2	3.3	1.4	0.9	1.1	1.6	1.7	1.6	1.8	2.0
NO	2.7	2.8	3.2	3.1	3.5	2.1	1.4	1.5	2.7	2.6	2.3	2.1	2.5
NNO	3.4	3.0	3.3	2.9	3.6	3.2	1.8	2.0	3.7	3.1	3.0	2.8	3.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

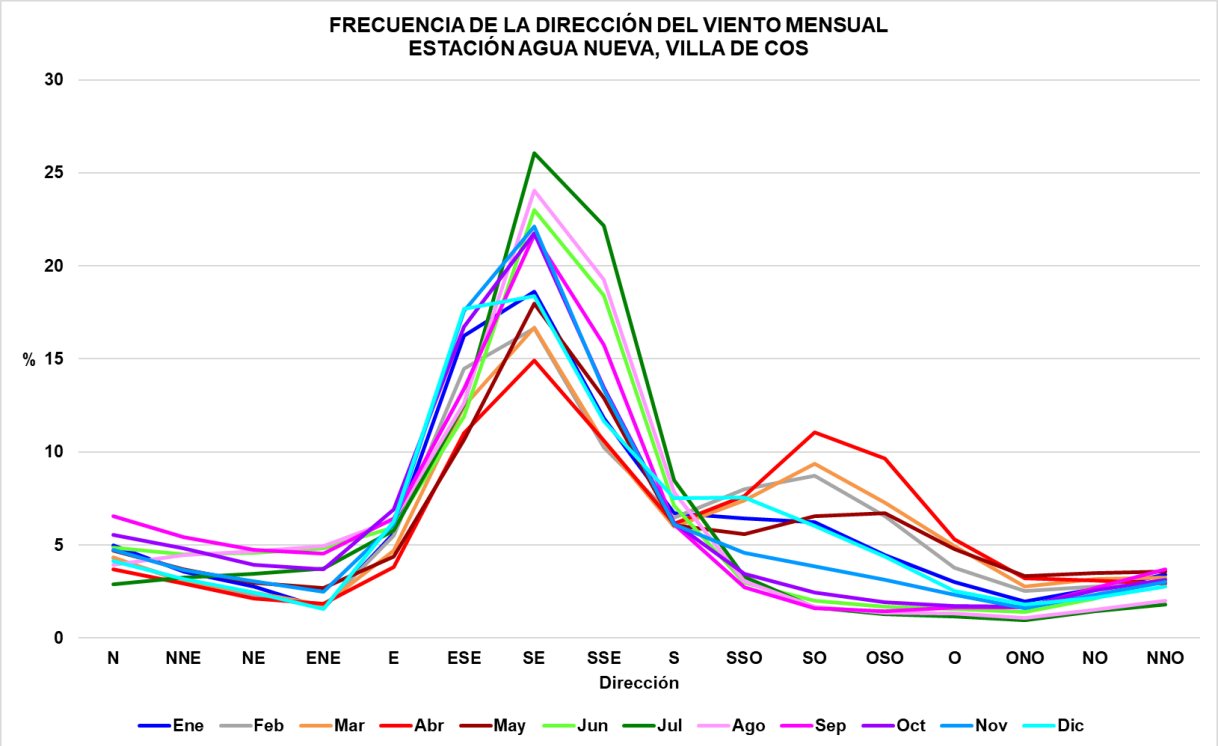


Figura 36. Frecuencia de dirección del viento (%) mensual de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 39. Frecuencia de dirección del viento (%) trimestral de la estación Agua Nueva, Villa de Cos (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	4.5	4.4	4.4	4.8	4.6
NNE	3.2	3.7	4.4	3.9	3.8
NE	2.5	3.2	4.3	3.1	3.3
ENE	1.7	3.1	4.4	2.6	3.0
E	5.3	4.7	6.2	6.4	5.7
ESE	14.4	11.2	12.8	17.3	14.0
SE	17.3	18.7	24.0	20.7	20.2
SSE	10.9	14.1	19.1	12.8	14.3
S	6.4	6.5	7.5	6.6	6.7
SSO	7.2	5.3	3.0	5.2	5.2
SO	8.1	6.4	1.6	4.1	5.0
OSO	6.1	5.9	1.4	3.1	4.1
O	3.9	3.9	1.4	2.2	2.8
ONO	2.4	2.6	1.2	1.7	2.0
NO	2.9	2.9	1.9	2.3	2.5
NNO	3.2	3.2	2.5	3.0	3.0
Suma	100.0	100.0	100.0	100.0	100.0

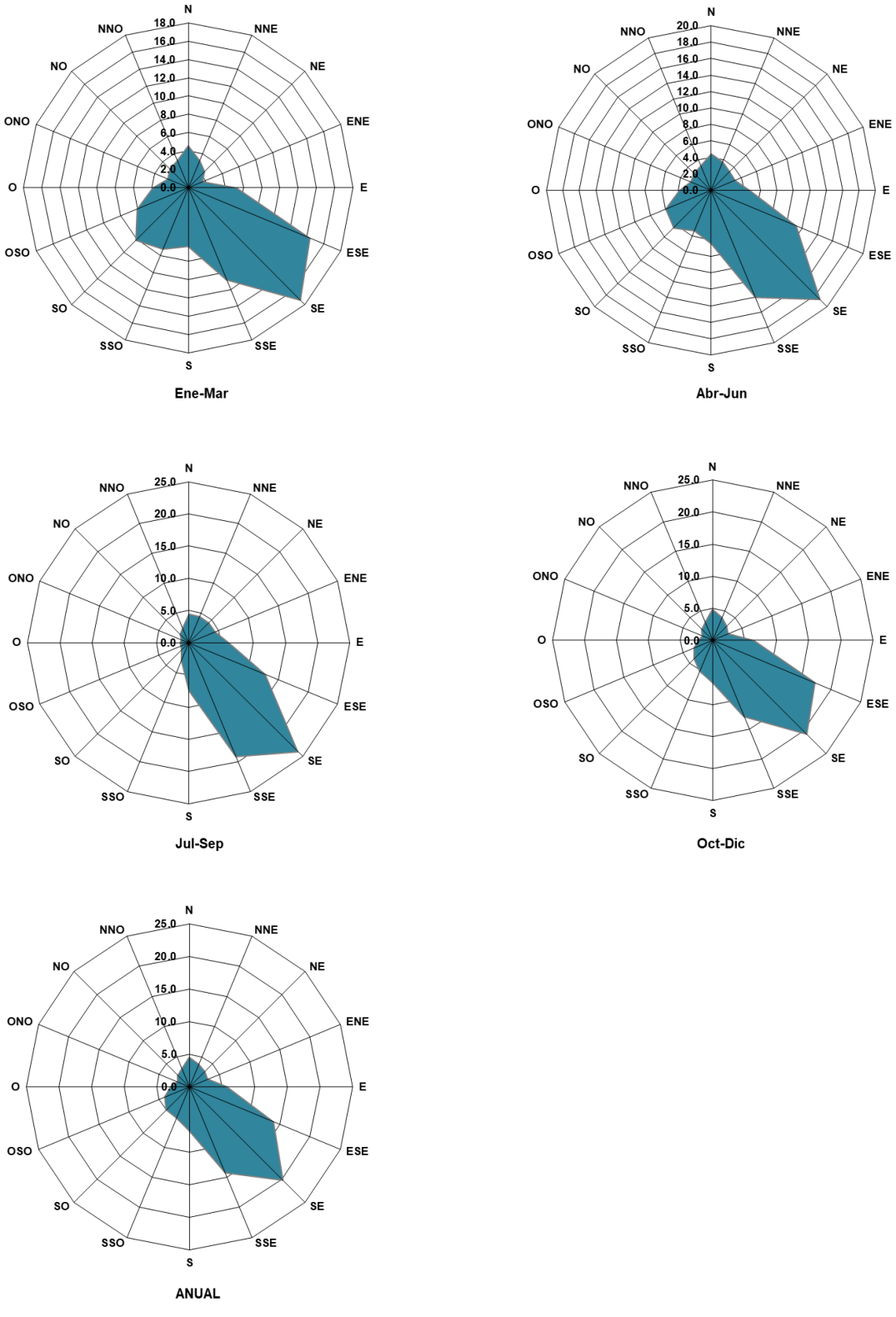


Figura 37. Frecuencia de dirección del viento (%) trimestral de la estación Agua Nueva, Villa de Cos (2005-2022).

Cuadro 40. Estadísticas climatológicas mensuales de la estación Agua Nueva, Villa de Cos (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.2	24.1	26.5	29.3	31.0	30.7	28.9	29.1	26.9	26.4	23.9	22.1	26.7
Temperatura máxima maximorum (°C)	27.8	32.6	34.7	34.9	37.8	36.0	34.9	34.1	32.8	32.2	31.5	29.0	37.8
Temperatura mínima media (°C)	3.6	5.5	7.6	10.3	12.9	14.2	13.9	13.7	13.1	10.2	6.5	4.5	9.7
Temperatura mínima minimorum (°C)	-8.7	-9.5	-7.9	-3.2	1.5	6.8	8.6	7.6	2.5	-4.3	-10.8	-13.7	-13.7
Temperatura media (°C)	12.0	14.6	17.2	20.1	22.0	22.0	20.6	20.7	19.2	17.7	14.6	12.8	17.8
Oscilación térmica (°C)	17.6	18.5	18.9	19.1	18.1	16.5	14.9	15.4	13.8	16.3	17.4	17.6	17.0
Precipitación acumulada media (mm)	10.9	10.0	7.5	4.5	16.4	57.0	78.5	64.1	86.8	24.9	12.7	11.4	384.8
Precipitación máxima maximorum en 24 horas (mm)	22.8	31.2	27.0	11.8	29.4	47.2	69.4	40.6	54.4	28.2	30.6	29.2	69.4
Número de días promedio con lluvia	4.1	3.4	3.9	2.3	5.7	9.3	11.8	12.4	13.6	6.5	4.1	3.4	80.5
Evapotranspiración acumulada potencial media (mm)	106.0	127.8	166.8	187.0	195.0	171.2	159.7	158.5	126.9	132.1	108.9	103.8	1743.8
Humedad máxima media (%)	80.4	73.4	69.5	65.4	76.5	90.1	94.7	95.6	97.2	92.9	89.4	81.7	83.9
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	23.9	18.8	15.5	12.8	15.4	24.9	33.3	32.9	41.0	31.9	28.3	24.8	25.3
Humedad mínima minimorum (%)	4.0	4.0	4.0	3.0	4.0	5.0	10.0	12.0	9.0	8.0	5.0	5.0	3.0
Humedad media (%)	51.1	42.6	37.6	33.5	40.9	56.2	66.0	66.5	73.6	63.7	58.9	52.3	53.6
Radiación global media día/mes (W/m^2)	19638.8	23602.2	26799.6	28969.7	29376.3	27193.0	25808.2	25180.1	21985.8	20922.3	18314.7	17320.7	23759.3
Radiación global media día/mes (kWh/m^2)	4.9	5.9	6.7	7.2	7.3	6.8	6.5	6.3	5.5	5.2	4.6	4.3	5.9
Radiación global media día/mes ($Mj/m^2/s$)	17.7	21.2	24.1	26.1	26.4	24.5	23.2	22.7	19.8	18.8	16.5	15.6	21.4
Velocidad del viento máxima media (km/h)	16.7	17.8	18.2	17.9	16.7	16.4	15.6	14.9	12.9	13.0	14.2	16.2	15.9
Velocidad del viento máxima maximorum (km/h)	43.6	44.2	50.4	40.6	32.4	38.0	25.9	27.0	25.8	30.5	37.2	42.8	50.4
Velocidad del viento media (km/h)	8.1	8.6	8.6	8.3	7.6	7.4	7.1	6.3	5.3	5.9	6.8	7.8	7.3
Dirección dominante del viento	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE

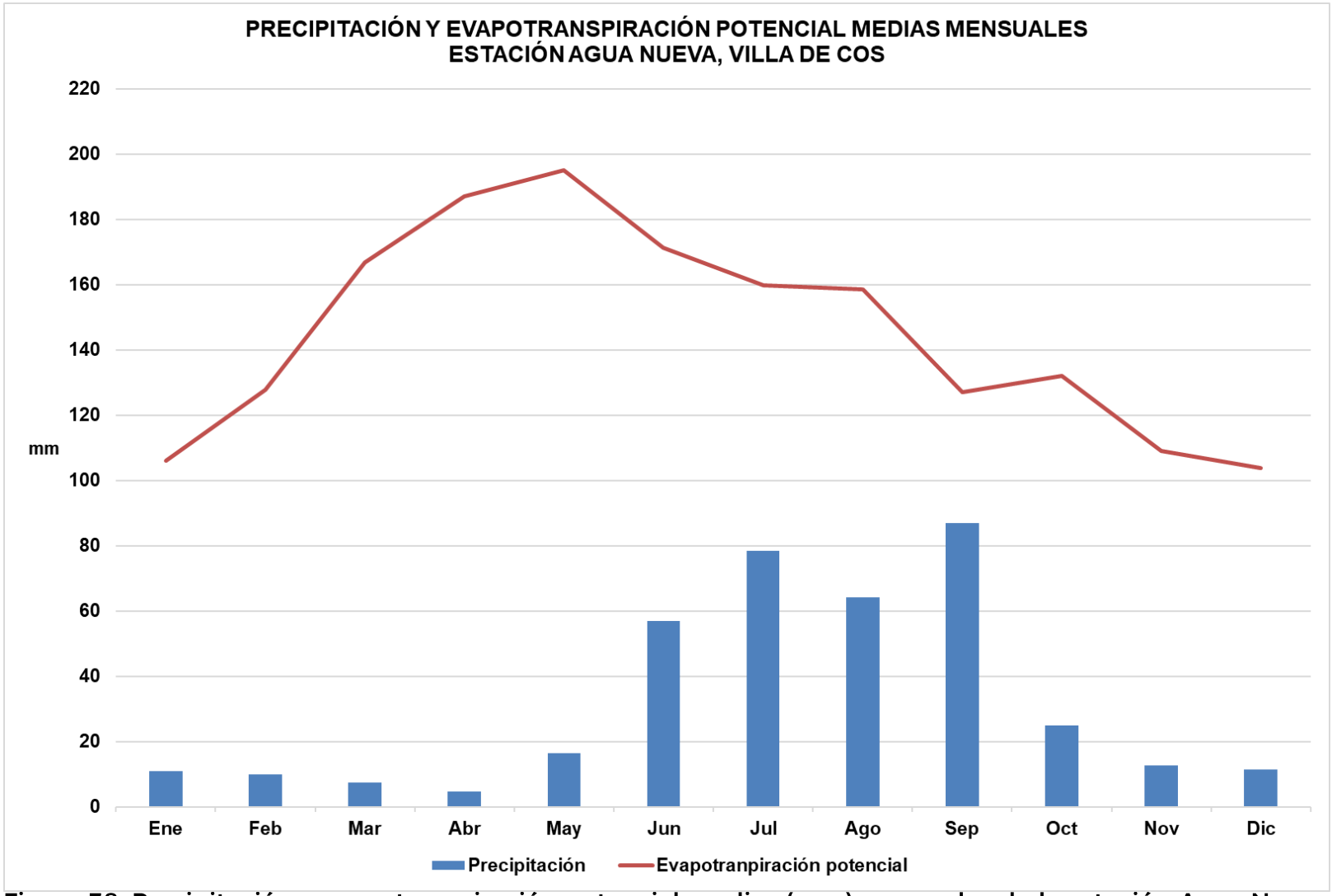


Figura 38. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Agua Nueva, Villa de Cos (2005-2022).

7.3. Estación: Campo Experimental Zacatecas, Calera

Cuadro 41. Temperatura máxima media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.4	9.5	11.7	15.3	17.9	18.2	16.5	16.7	15.3	13.5	9.6	7.5	13.3
01	6.7	8.5	10.5	14.1	16.9	17.4	16.0	16.1	14.8	12.7	8.7	6.8	12.4
02	6.1	7.7	9.6	13.1	15.8	16.7	15.4	15.5	14.3	11.9	8.0	6.3	11.7
03	5.5	7.0	8.8	12.2	14.9	15.9	14.9	15.0	13.8	11.2	7.4	5.8	11.0
04	5.0	6.4	8.1	11.5	14.1	15.3	14.4	14.4	13.4	10.6	6.8	5.3	10.4
05	4.6	5.9	7.6	10.8	13.3	14.6	13.9	13.8	13.0	10.1	6.5	4.9	9.9
06	4.3	5.5	7.2	10.2	12.6	14.1	13.4	13.3	12.6	9.6	6.1	4.6	9.5
07	4.4	6.2	9.4	10.8	13.2	14.5	13.6	13.3	12.6	9.9	7.8	5.0	10.1
08	8.2	10.5	13.7	14.4	16.7	16.9	15.7	15.4	14.5	12.7	12.2	9.4	13.4
09	11.7	13.9	16.8	18.0	19.8	19.2	17.7	17.6	16.7	15.9	15.4	12.9	16.3
10	14.4	16.5	19.2	20.7	22.2	21.2	19.4	19.5	18.5	18.4	17.7	15.5	18.6
11	16.3	18.4	21.0	22.7	24.2	22.9	20.9	21.1	20.0	20.2	19.3	17.4	20.4
12	17.7	19.8	22.4	24.3	25.7	24.3	22.2	22.3	21.2	21.5	20.5	18.6	21.7
13	18.7	20.8	23.4	25.4	26.9	25.3	23.1	23.3	22.1	22.4	21.2	19.5	22.7
14	19.2	21.5	24.0	26.2	27.7	26.1	23.8	24.0	22.8	23.0	21.7	20.0	23.3
15	19.4	21.7	24.2	26.6	28.1	26.5	24.2	24.4	23.1	23.3	21.7	20.0	23.6
16	19.1	21.6	24.0	26.7	28.1	26.6	24.2	24.5	23.1	23.2	21.3	19.7	23.5
17	18.3	20.9	23.3	26.4	27.8	26.4	23.9	24.2	22.6	22.7	20.2	18.7	22.9
18	16.3	19.3	21.9	25.6	27.2	25.7	23.2	23.5	21.7	21.4	17.4	15.9	21.6
19	13.0	16.2	19.2	24.1	26.0	24.6	22.1	22.3	20.1	19.0	14.2	12.7	19.5
20	11.2	13.8	16.5	21.7	23.9	23.0	20.6	20.4	18.0	16.5	13.1	11.3	17.5
21	10.3	12.6	15.1	19.3	21.5	21.1	18.9	18.6	16.7	15.4	12.2	10.4	16.0
22	9.4	11.7	14.0	17.8	19.9	19.7	17.8	17.8	16.2	14.8	11.4	9.4	15.0
23	8.4	10.6	12.9	16.6	19.0	18.9	17.2	17.2	15.7	14.1	10.5	8.4	14.1
Media	11.5	13.6	16.0	18.9	21.0	20.6	18.9	18.9	17.6	16.4	13.8	11.9	16.6

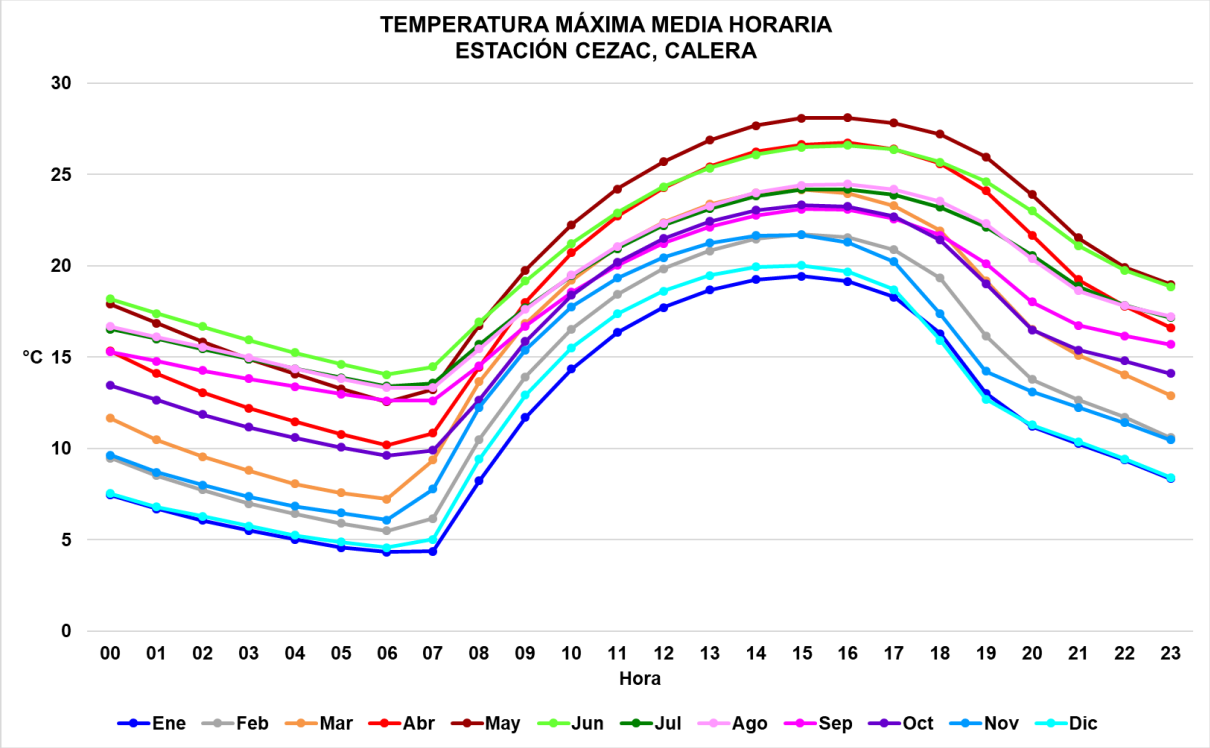


Figura 39. Temperatura máxima media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 42. Temperatura máxima maximorum (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.0	17.7	19.6	23.4	24.9	25.5	22.5	22.9	20.4	20.1	16.4	14.7	25.5
01	14.1	17.6	18.8	21.9	24.3	23.7	21.2	20.8	19.5	18.2	15.7	13.5	24.3
02	13.3	17.2	16.6	20.8	22.8	22.4	20.2	19.6	18.0	17.2	14.7	13.6	22.8
03	13.3	13.9	16.1	20.5	22.4	21.0	19.5	19.0	17.7	16.5	14.3	13.7	22.4
04	12.6	13.4	15.7	20.3	22.4	19.1	19.0	18.1	17.1	16.1	14.3	13.7	22.4
05	12.2	13.1	17.2	18.6	21.1	18.7	18.3	17.9	16.9	15.8	14.3	13.6	21.1
06	11.9	14.3	15.6	19.0	19.8	18.6	17.7	17.0	16.6	15.5	14.2	13.5	19.8
07	11.7	15.3	17.7	18.2	20.0	19.3	18.0	17.0	16.6	16.0	16.3	14.2	20.0
08	16.2	20.4	22.1	21.9	23.6	22.3	20.1	19.6	18.5	20.6	19.5	18.3	23.6
09	19.1	23.5	25.5	25.0	27.1	25.6	23.5	22.0	22.1	23.0	22.2	21.6	27.1
10	22.7	25.4	27.4	26.9	29.4	27.7	25.8	23.8	23.7	24.8	24.3	24.3	29.4
11	24.4	26.9	29.4	27.9	31.1	29.1	26.8	25.4	25.0	26.5	26.1	25.5	31.1
12	25.3	28.5	30.3	29.4	32.4	30.9	27.6	27.2	26.1	28.1	27.3	26.2	32.4
13	25.8	29.3	31.5	30.6	33.2	31.5	28.4	27.7	26.8	29.0	27.5	26.6	33.2
14	26.6	29.7	31.5	31.5	33.4	32.2	29.0	28.4	28.1	29.9	28.5	26.8	33.4
15	26.5	29.5	31.6	32.0	33.7	33.2	29.8	29.2	28.9	29.9	28.7	26.8	33.7
16	26.1	29.4	31.5	32.0	34.0	33.5	29.9	29.7	28.9	30.3	28.1	26.0	34.0
17	25.0	28.5	31.1	31.7	34.2	33.6	29.9	29.5	29.4	29.9	26.9	24.5	34.2
18	22.7	26.7	30.3	31.3	34.0	33.0	30.3	29.6	28.8	29.2	23.9	22.7	34.0
19	19.2	23.2	26.6	30.5	32.5	33.4	29.7	28.7	27.9	27.8	21.5	18.6	33.4
20	17.5	21.0	24.2	30.2	31.6	31.4	28.1	27.1	24.8	24.1	19.9	18.4	31.6
21	16.2	19.2	23.4	28.7	28.8	27.4	26.0	24.5	22.0	22.7	18.9	18.0	28.8
22	15.7	19.1	22.5	26.1	28.0	26.4	23.5	24.2	21.7	21.8	17.9	17.6	28.0
23	15.6	18.4	21.7	25.8	26.4	26.0	23.0	22.7	20.9	19.9	17.3	16.2	26.4
Máx.	26.6	29.7	31.6	32.0	34.2	33.6	30.3	29.7	29.4	30.3	28.7	26.8	34.2

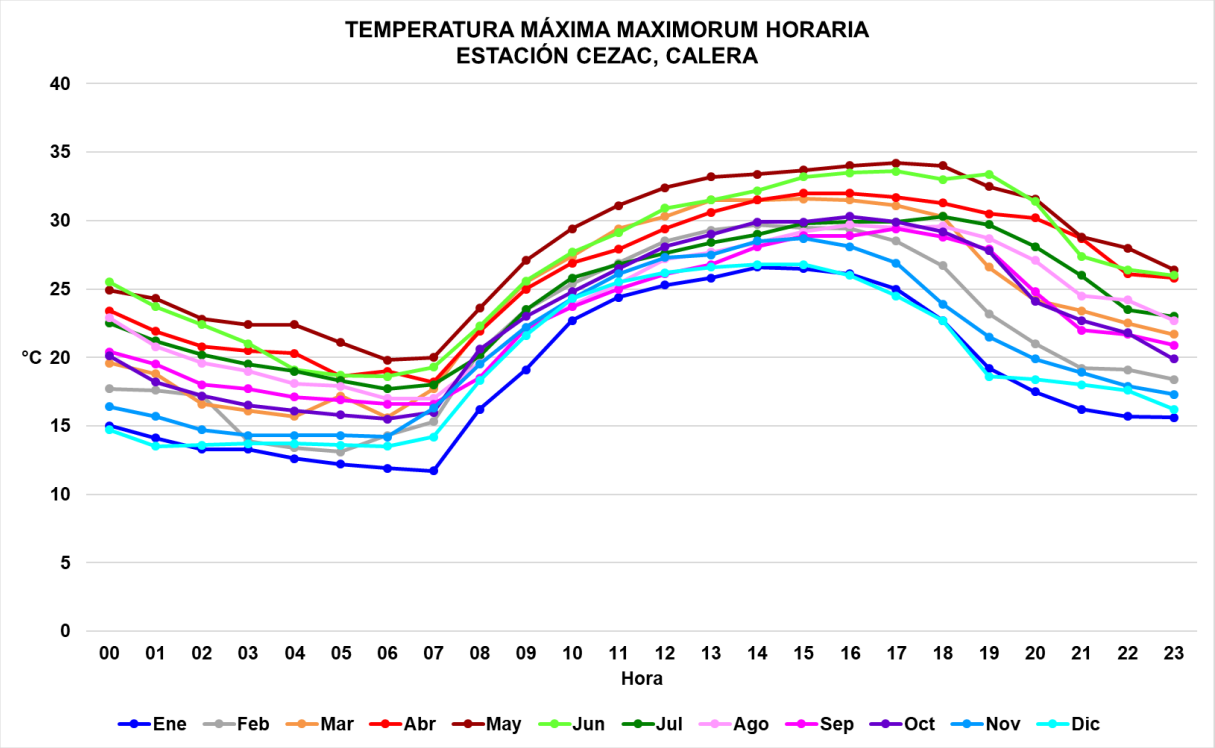


Figura 40. Temperatura máxima maximorum (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 43. Temperatura mínima media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.2	8.1	10.2	13.9	16.7	17.4	15.9	16.0	14.6	12.4	8.3	6.3	12.2
01	5.5	7.2	9.1	12.8	15.7	16.7	15.4	15.4	14.1	11.6	7.5	5.6	11.4
02	4.9	6.5	8.3	11.8	14.7	15.9	14.8	14.8	13.6	10.9	6.9	5.1	10.7
03	4.4	5.9	7.5	11.0	13.8	15.2	14.3	14.2	13.2	10.2	6.3	4.6	10.0
04	3.9	5.3	6.9	10.3	13.0	14.5	13.7	13.6	12.8	9.7	5.8	4.2	9.5
05	3.5	4.8	6.4	9.6	12.2	13.9	13.3	13.1	12.4	9.2	5.4	3.8	9.0
06	3.2	4.4	6.1	9.0	11.5	13.3	12.8	12.6	12.0	8.8	5.0	3.5	8.5
07	3.1	4.5	6.6	8.9	11.6	13.3	12.7	12.4	11.8	8.6	5.3	3.5	8.5
08	4.7	6.9	10.6	11.3	13.9	15.0	13.9	13.5	12.7	10.0	9.0	5.8	10.6
09	9.2	11.4	14.5	15.4	17.5	17.5	16.2	16.0	15.0	13.5	13.1	10.3	14.1
10	12.4	14.6	17.5	18.7	20.4	19.7	18.1	18.1	17.1	16.6	16.0	13.6	16.9
11	14.9	17.0	19.7	21.3	22.8	21.6	19.8	19.8	18.8	18.9	18.1	16.0	19.0
12	16.6	18.7	21.3	23.1	24.5	23.2	21.1	21.3	20.2	20.5	19.5	17.6	20.6
13	17.8	20.0	22.5	24.5	25.8	24.3	22.1	22.3	21.1	21.5	20.4	18.7	21.8
14	18.5	20.7	23.2	25.4	26.7	25.0	22.8	23.0	21.7	22.2	21.0	19.3	22.5
15	18.8	21.1	23.5	25.9	27.1	25.4	23.1	23.3	22.0	22.5	21.1	19.5	22.8
16	18.4	20.9	23.2	26.0	27.2	25.5	23.1	23.4	21.9	22.3	20.5	18.9	22.6
17	16.9	19.8	22.3	25.5	26.9	25.3	22.7	23.1	21.5	21.6	18.3	16.9	21.7
18	13.7	17.1	20.0	24.5	26.1	24.6	22.1	22.3	20.4	19.6	14.7	13.2	19.9
19	11.3	14.0	16.9	22.3	24.4	23.3	20.8	20.8	18.5	16.8	12.9	11.1	17.8
20	10.0	12.4	15.1	19.7	22.0	21.5	19.1	18.8	16.7	15.2	12.0	10.0	16.0
21	9.1	11.4	13.8	17.8	20.0	19.9	17.8	17.7	15.9	14.4	11.1	9.1	14.8
22	8.1	10.4	12.7	16.5	18.7	18.8	17.1	17.0	15.4	13.8	10.2	8.1	13.9
23	7.0	9.3	11.5	15.3	17.9	18.0	16.5	16.5	15.0	13.1	9.2	7.1	13.0
Media	10.1	12.2	14.6	17.5	19.6	19.5	17.9	17.9	16.6	15.2	12.4	10.5	15.3

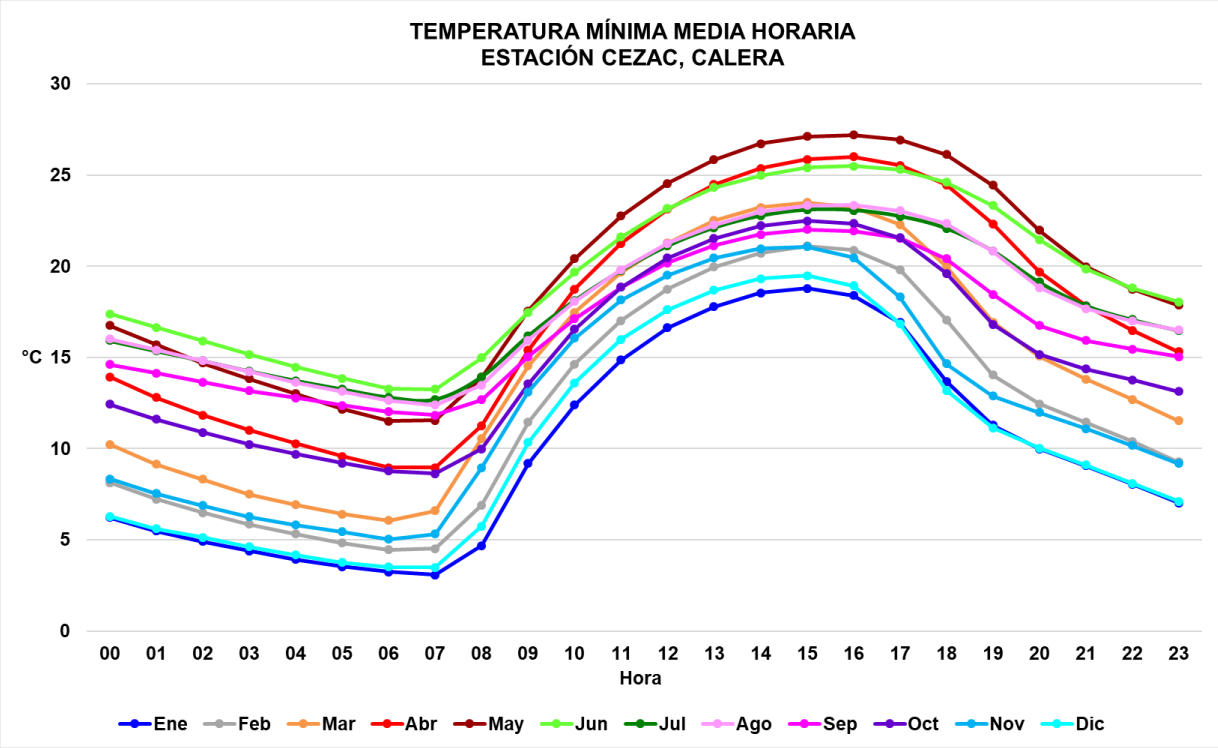


Figura 41. Temperatura mínima media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 44. Temperatura mínima minimorum (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.5	-2.1	-0.4	3.7	8.6	10.6	11.5	11.8	6.1	0.6	-5.0	-9.0	-9.0
01	-5.6	-3.1	-3.2	2.8	7.7	9.2	11.0	11.5	5.7	0.4	-6.4	-9.5	-9.5
02	-7.4	-3.6	-2.9	2.1	6.4	8.1	10.6	11.1	5.0	-1.0	-8.1	-9.3	-9.3
03	-9.2	-4.7	-5.6	1.6	5.4	7.3	9.5	10.0	4.6	-1.7	-8.8	-10.0	-10.0
04	-10.4	-6.0	-5.4	1.1	4.7	6.3	9.6	9.3	4.4	-2.1	-9.0	-10.9	-10.9
05	-11.0	-6.5	-5.8	-1.3	3.9	5.4	9.0	8.5	4.0	-2.3	-9.8	-11.0	-11.0
06	-12.0	-7.1	-6.7	-1.5	3.6	4.8	7.6	7.4	3.1	-3.3	-9.7	-11.1	-12.0
07	-9.8	-5.9	-6.6	-1.4	2.3	5.2	7.8	7.5	2.6	-3.2	-9.2	-11.2	-11.2
08	-9.7	-4.7	-1.4	0.1	3.8	9.4	9.3	8.1	4.3	-0.2	-4.8	-9.4	-9.7
09	-1.5	-1.2	1.3	6.3	8.5	11.8	11.2	9.5	6.1	4.9	-1.9	-3.1	-3.1
10	0.2	1.7	0.3	11.1	8.9	13.9	13.4	13.3	10.3	6.3	-0.2	-2.8	-2.8
11	0.4	4.7	-0.4	12.9	9.0	13.7	14.5	14.8	12.4	6.6	2.3	-3.5	-3.5
12	0.6	5.4	2.1	14.2	11.4	13.9	15.0	16.0	14.3	6.8	2.6	-3.5	-3.5
13	2.3	5.5	3.8	16.0	14.3	14.4	11.0	14.4	14.4	7.5	3.5	-3.3	-3.3
14	2.9	5.3	4.1	15.9	14.7	13.9	12.1	12.2	14.1	7.7	4.1	-2.8	-2.8
15	4.4	6.2	5.7	12.2	13.7	13.2	11.5	13.1	14.4	7.5	4.1	-2.6	-2.6
16	5.1	5.0	5.8	13.6	13.7	14.1	11.9	13.1	14.0	8.0	3.9	-2.2	-2.2
17	5.0	4.9	6.2	11.2	15.1	14.3	13.8	11.4	13.6	7.8	3.3	-2.4	-2.4
18	4.5	4.9	4.3	10.6	13.3	13.7	13.0	11.8	13.0	5.8	1.2	-3.8	-3.8
19	1.4	4.4	2.5	11.6	11.8	12.1	13.0	12.3	11.2	4.8	0.3	-4.8	-4.8
20	-1.0	1.9	1.2	11.0	11.1	12.1	13.2	12.2	9.4	3.0	-0.8	-6.1	-6.1
21	-1.0	0.7	0.6	9.2	9.4	12.1	12.7	12.9	8.6	2.6	-1.5	-6.4	-6.4
22	-3.0	-0.1	0.0	6.8	10.6	12.1	11.2	12.7	7.3	1.9	-3.0	-7.5	-7.5
23	-4.1	-1.6	-0.4	4.5	9.6	12.1	11.9	12.5	6.9	1.2	-4.4	-8.4	-8.4
Mín.	-12.0	-7.1	-6.7	-1.5	2.3	4.8	7.6	7.4	2.6	-3.3	-9.8	-11.2	-12.0

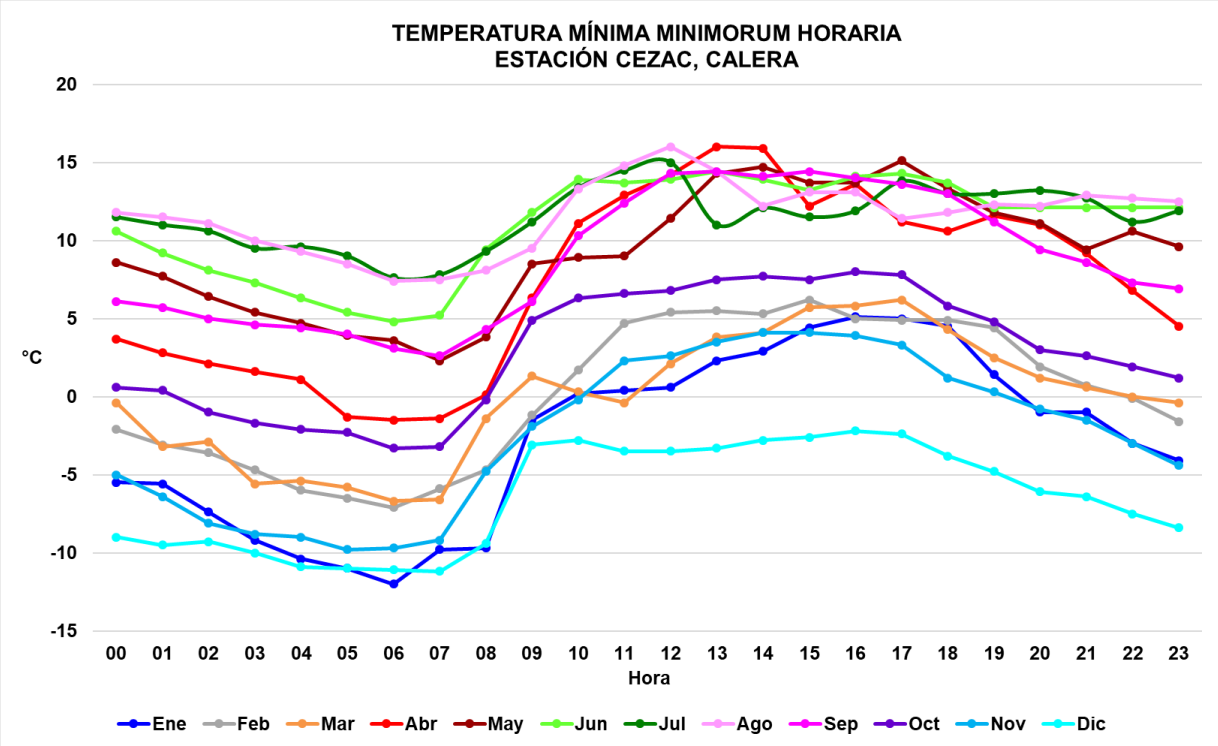


Figura 42. Temperatura mínima minimorum (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 45. Temperatura media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.8	8.8	10.9	14.6	17.3	17.8	16.2	16.3	15.0	12.9	9.0	6.9	12.7
01	6.1	7.9	9.8	13.5	16.3	17.0	15.7	15.8	14.5	12.1	8.1	6.2	11.9
02	5.5	7.1	8.9	12.5	15.3	16.3	15.1	15.2	14.0	11.4	7.4	5.7	11.2
03	5.0	6.4	8.1	11.6	14.4	15.6	14.6	14.6	13.5	10.7	6.8	5.2	10.5
04	4.5	5.9	7.5	10.9	13.5	14.9	14.1	14.0	13.1	10.1	6.3	4.7	9.9
05	4.0	5.4	7.0	10.2	12.7	14.2	13.6	13.5	12.7	9.6	6.0	4.3	9.4
06	3.8	5.0	6.6	9.6	12.0	13.7	13.1	13.0	12.3	9.2	5.5	4.0	9.0
07	3.7	5.3	7.9	9.8	12.3	13.8	13.1	12.8	12.2	9.2	6.4	4.2	9.2
08	6.4	8.7	12.2	12.9	15.4	16.0	14.8	14.5	13.6	11.3	10.7	7.6	12.0
09	10.5	12.7	15.7	16.7	18.7	18.3	16.9	16.8	15.9	14.7	14.3	11.6	15.2
10	13.4	15.6	18.4	19.8	21.4	20.4	18.8	18.8	17.8	17.5	16.9	14.6	17.8
11	15.6	17.7	20.4	22.0	23.5	22.3	20.4	20.5	19.4	19.5	18.7	16.7	19.7
12	17.2	19.3	21.8	23.7	25.1	23.7	21.7	21.8	20.7	21.0	20.0	18.1	21.2
13	18.2	20.4	22.9	25.0	26.4	24.8	22.6	22.8	21.6	22.0	20.9	19.1	22.2
14	18.9	21.1	23.6	25.8	27.2	25.5	23.3	23.5	22.3	22.6	21.3	19.6	22.9
15	19.1	21.4	23.8	26.3	27.6	26.0	23.6	23.9	22.6	22.9	21.4	19.8	23.2
16	18.8	21.2	23.6	26.4	27.7	26.0	23.6	23.9	22.5	22.8	20.9	19.3	23.1
17	17.6	20.4	22.8	26.0	27.4	25.9	23.3	23.6	22.1	22.1	19.3	17.8	22.4
18	15.0	18.2	21.0	25.0	26.7	25.2	22.7	23.0	21.1	20.6	15.9	14.5	20.7
19	12.1	15.1	18.0	23.2	25.2	24.0	21.5	21.6	19.3	17.9	13.5	11.9	18.6
20	10.6	13.1	15.8	20.7	22.9	22.2	19.8	19.6	17.4	15.8	12.5	10.7	16.8
21	9.7	12.1	14.5	18.5	20.7	20.5	18.3	18.1	16.3	14.9	11.7	9.7	15.4
22	8.7	11.1	13.4	17.1	19.3	19.3	17.5	17.4	15.8	14.3	10.8	8.8	14.5
23	7.7	9.9	12.2	16.0	18.4	18.4	16.8	16.9	15.4	13.6	9.8	7.8	13.6
Media	10.8	12.9	15.3	18.2	20.3	20.1	18.4	18.4	17.1	15.8	13.1	11.2	16.0

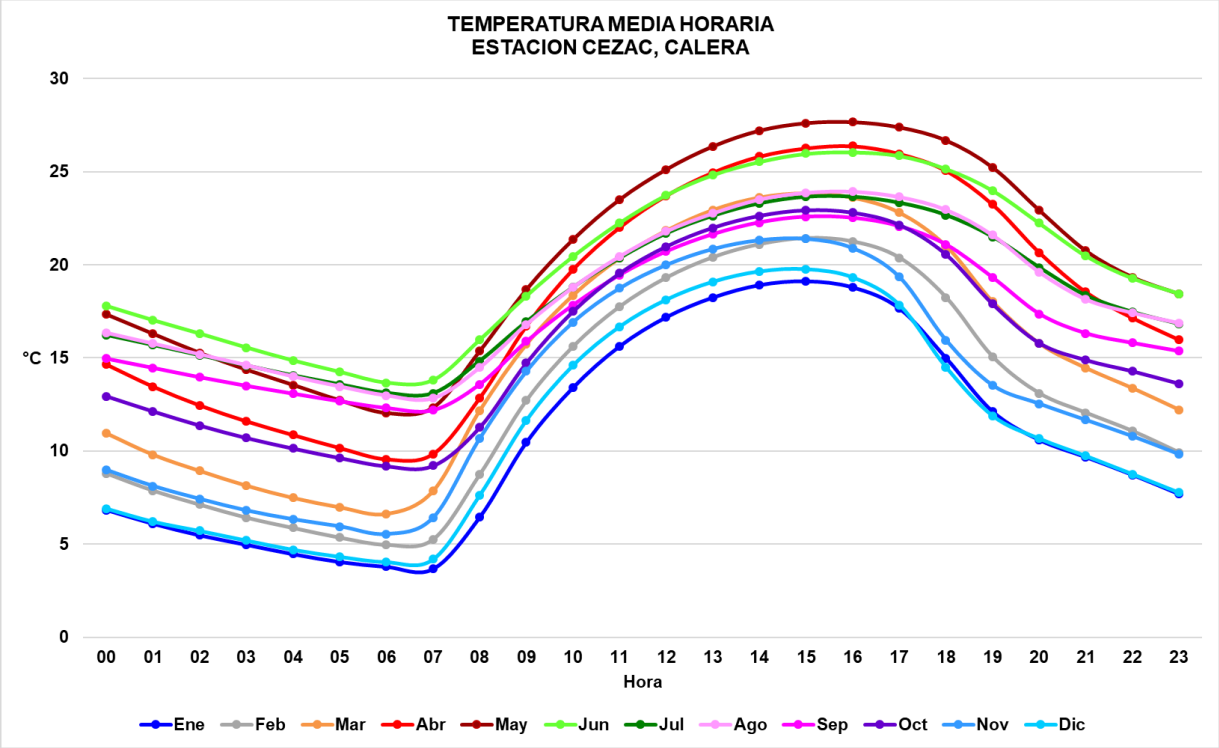


Figura 43. Temperatura media (˚C) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 46. Precipitación media (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.7	0.6	0.3	0.0	1.2	3.4	5.4	4.5	5.0	1.4	0.6	0.4	23.5
01	0.7	0.6	0.5	0.0	1.2	2.1	4.9	3.4	5.6	1.0	0.7	0.7	21.4
02	0.3	0.6	0.2	0.0	0.4	3.4	3.6	2.4	6.1	1.3	0.4	0.3	19.0
03	0.4	0.6	0.2	0.0	0.7	4.0	2.2	3.6	4.7	0.7	0.2	1.0	18.2
04	0.6	0.5	0.1	0.0	0.4	2.5	1.7	4.4	3.4	1.5	0.1	0.7	15.9
05	0.6	0.4	0.1	0.0	0.2	2.4	1.7	2.3	2.8	0.7	0.1	0.5	11.8
06	0.4	0.2	0.1	0.0	0.1	1.7	0.9	1.1	1.5	0.9	0.1	0.6	7.5
07	0.5	0.2	0.0	0.0	0.1	0.9	1.3	2.4	1.5	0.5	0.1	0.5	7.9
08	0.3	0.4	0.0	0.0	0.2	0.5	0.7	0.6	0.7	0.4	0.1	0.7	4.7
09	0.2	0.4	0.1	0.0	0.1	0.4	0.2	0.2	2.2	0.2	0.1	0.6	4.9
10	0.1	0.4	0.1	0.0	0.0	0.6	1.0	0.3	1.2	0.2	0.2	0.5	4.6
11	0.1	0.3	0.1	0.0	0.1	1.1	1.0	0.1	0.1	0.3	0.3	0.3	3.9
12	0.3	0.7	0.2	0.0	0.0	0.3	0.7	0.2	0.3	0.2	0.8	0.3	3.9
13	0.3	0.5	0.0	0.0	0.0	0.6	4.3	0.6	0.4	0.6	0.4	0.4	8.1
14	0.2	0.7	0.1	0.1	0.0	2.9	2.7	3.0	1.8	0.4	0.6	0.4	13.0
15	0.4	1.3	0.5	0.8	2.3	5.5	4.7	3.6	2.7	4.6	1.3	0.7	28.4
16	1.4	0.8	0.5	0.2	1.0	3.8	5.2	3.6	3.8	1.9	2.0	1.1	25.3
17	0.6	0.6	1.2	0.3	1.5	1.5	9.7	6.0	4.3	3.5	0.7	0.7	30.7
18	0.7	1.3	0.4	0.2	1.3	3.7	12.0	7.0	6.2	3.4	0.8	0.9	37.9
19	0.9	1.0	0.8	0.0	0.7	5.8	11.4	6.6	6.2	1.7	1.5	0.4	37.2
20	0.6	0.8	0.5	0.1	0.7	6.4	8.6	7.4	6.1	2.3	1.5	0.4	35.4
21	0.4	0.8	0.8	0.0	1.4	8.5	7.8	4.5	5.7	1.7	0.9	0.3	32.9
22	0.5	1.0	1.0	0.0	2.9	7.1	7.2	8.0	7.8	1.8	0.9	0.3	38.5
23	0.5	1.0	0.8	0.1	1.9	5.7	7.2	6.6	6.1	1.5	0.7	0.7	32.8
Suma	11.7	15.8	8.8	2.1	18.4	74.5	106.2	82.5	86.1	32.8	15.0	13.3	467.2

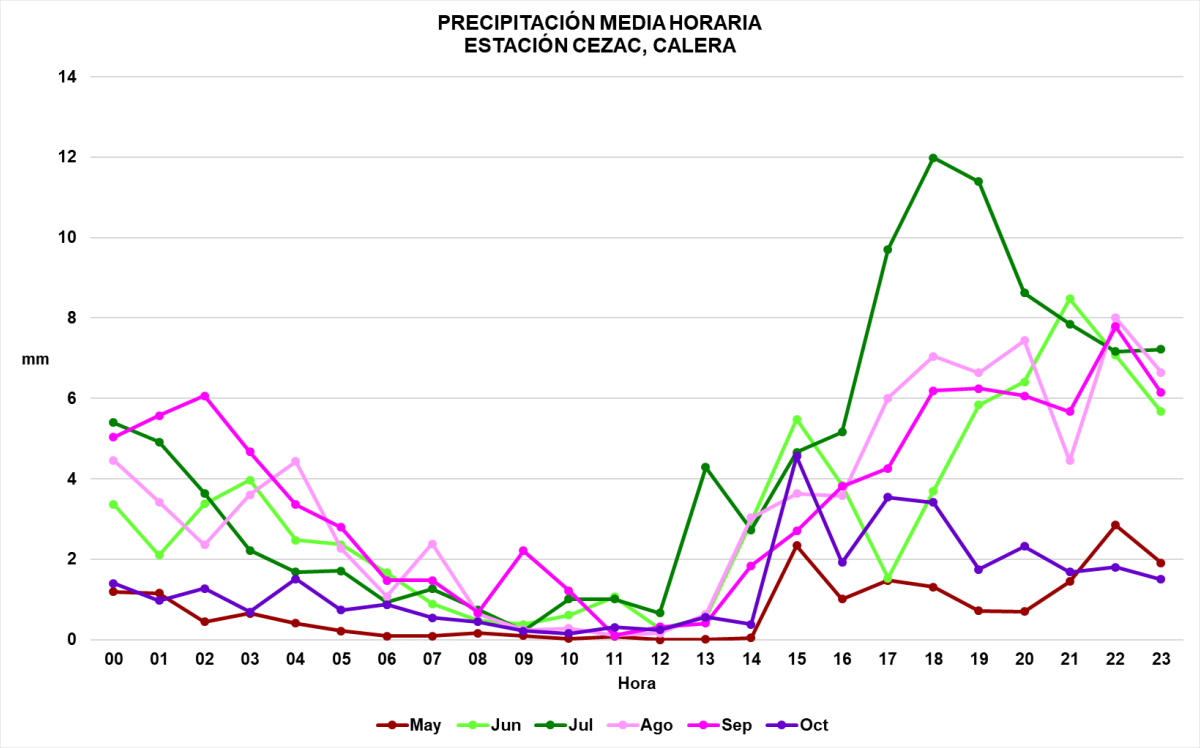


Figura 44. Precipitación media (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 47. Precipitación máxima maximorum (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.5	3.7	5.0	0.5	8.7	8.2	23.1	16.8	10.4	6.8	4.4	2.0	23.1
01	5.5	4.8	8.2	0.0	9.0	5.2	16.2	15.0	19.1	3.2	7.3	4.4	19.1
02	1.8	3.8	2.4	0.8	3.0	8.8	7.8	5.0	10.8	9.4	2.6	2.2	10.8
03	2.2	2.0	2.2	0.2	3.8	14.8	6.2	12.6	16.2	2.9	0.8	11.2	16.2
04	3.2	2.0	2.2	0.2	5.8	6.1	10.0	23.8	10.2	9.1	0.3	4.0	23.8
05	2.8	2.4	0.8	0.6	1.1	6.8	10.6	11.9	8.8	5.6	0.3	2.4	11.9
06	1.8	1.4	0.6	0.2	0.8	8.4	6.6	4.0	2.7	5.5	0.3	6.6	8.4
07	4.6	1.2	0.2	0.2	1.2	2.9	7.8	18.6	5.8	3.6	0.4	2.9	18.6
08	2.0	2.2	0.4	0.0	2.6	3.3	8.0	2.8	1.8	3.0	1.4	4.7	8.0
09	2.2	2.4	2.2	0.1	1.0	2.2	1.0	1.4	35.8	1.7	1.6	3.2	35.8
10	0.4	3.0	1.6	0.0	0.3	8.8	18.0	3.6	21.0	2.3	1.7	3.6	21.0
11	0.8	1.8	1.3	0.0	1.4	17.6	11.2	1.6	0.6	2.4	4.7	3.0	17.6
12	3.2	4.4	2.7	0.0	0.0	1.5	3.0	2.0	3.0	2.6	8.7	2.2	8.7
13	2.0	3.9	0.2	0.0	0.2	2.4	34.6	3.6	5.6	6.2	4.1	2.8	34.6
14	2.0	2.2	1.1	1.2	0.5	18.2	14.6	31.1	15.8	1.8	4.4	2.0	31.1
15	1.6	11.1	5.0	7.2	13.6	27.2	21.4	19.0	9.2	33.8	5.8	10.2	33.8
16	9.8	3.8	4.8	3.3	4.6	8.2	8.2	12.5	14.8	9.0	9.4	4.8	14.8
17	4.2	2.8	16.0	2.9	8.2	6.4	33.6	21.6	27.4	11.1	2.8	4.3	33.6
18	3.1	5.0	5.7	2.2	5.2	18.1	33.2	19.2	13.0	20.2	2.1	3.6	33.2
19	6.0	4.6	6.0	0.2	6.7	14.0	23.4	23.0	12.5	13.0	17.7	1.9	23.4
20	3.0	3.0	3.2	1.2	5.4	12.2	21.2	23.6	19.2	12.5	15.7	3.0	23.6
21	3.0	4.0	5.1	0.4	9.3	30.8	30.4	8.8	12.3	6.7	6.3	1.7	30.8
22	4.0	4.3	11.6	0.5	22.2	15.4	19.4	21.4	22.0	3.8	5.9	2.6	22.2
23	1.7	5.6	4.4	1.5	11.2	17.5	16.2	9.8	14.0	5.0	5.6	6.0	17.5
Máx.	9.8	11.1	16.0	7.2	22.2	30.8	34.6	31.1	35.8	33.8	17.7	11.2	35.8

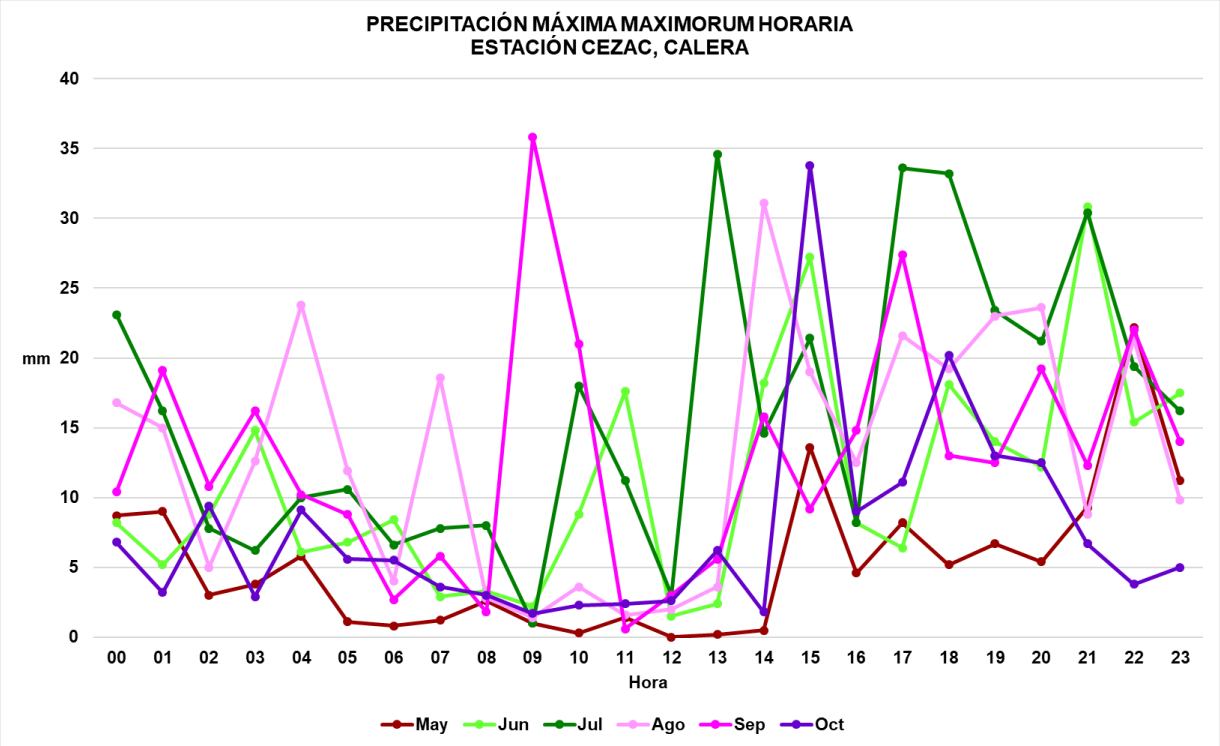


Figura 45. Precipitación máxima maximorum (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 48. Evapotranspiración potencial media (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.06	0.06	0.05	0.03	0.02	0.01	0.01	0.01	0.01	0.03
01	0.01	0.02	0.03	0.04	0.05	0.03	0.02	0.02	0.00	0.01	0.01	0.01	0.02
02	0.01	0.02	0.02	0.04	0.04	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.02
03	0.01	0.02	0.02	0.04	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01
04	0.01	0.01	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
05	0.01	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.01	0.02	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
08	0.02	0.05	0.09	0.07	0.07	0.05	0.03	0.02	0.01	0.01	0.05	0.03	0.04
09	0.09	0.14	0.24	0.20	0.21	0.16	0.13	0.11	0.09	0.10	0.15	0.11	0.14
10	0.21	0.28	0.40	0.36	0.37	0.31	0.25	0.25	0.22	0.23	0.28	0.23	0.28
11	0.32	0.41	0.53	0.52	0.53	0.45	0.38	0.39	0.35	0.37	0.39	0.34	0.42
12	0.41	0.51	0.63	0.64	0.66	0.57	0.49	0.52	0.45	0.48	0.47	0.42	0.52
13	0.46	0.56	0.68	0.73	0.73	0.64	0.56	0.58	0.51	0.54	0.49	0.46	0.58
14	0.46	0.56	0.67	0.75	0.76	0.66	0.58	0.61	0.53	0.56	0.47	0.45	0.59
15	0.42	0.52	0.62	0.74	0.73	0.64	0.57	0.59	0.51	0.51	0.41	0.40	0.55
16	0.35	0.43	0.51	0.65	0.65	0.58	0.51	0.53	0.45	0.44	0.31	0.32	0.48
17	0.25	0.32	0.38	0.55	0.55	0.49	0.43	0.45	0.36	0.33	0.20	0.21	0.37
18	0.14	0.18	0.23	0.43	0.43	0.38	0.33	0.33	0.24	0.21	0.10	0.12	0.26
19	0.07	0.09	0.12	0.31	0.30	0.24	0.21	0.23	0.14	0.10	0.04	0.05	0.16
20	0.04	0.05	0.07	0.18	0.19	0.16	0.13	0.11	0.04	0.04	0.03	0.03	0.09
21	0.03	0.04	0.05	0.11	0.11	0.09	0.06	0.05	0.01	0.02	0.02	0.02	0.05
22	0.02	0.03	0.05	0.07	0.07	0.06	0.04	0.03	0.01	0.02	0.02	0.02	0.04
23	0.02	0.03	0.04	0.06	0.07	0.05	0.03	0.03	0.01	0.02	0.02	0.02	0.03
Media/día /mes	3.41	4.33	5.48	6.66	6.71	5.67	4.79	4.88	3.94	4.00	3.51	3.29	4.72

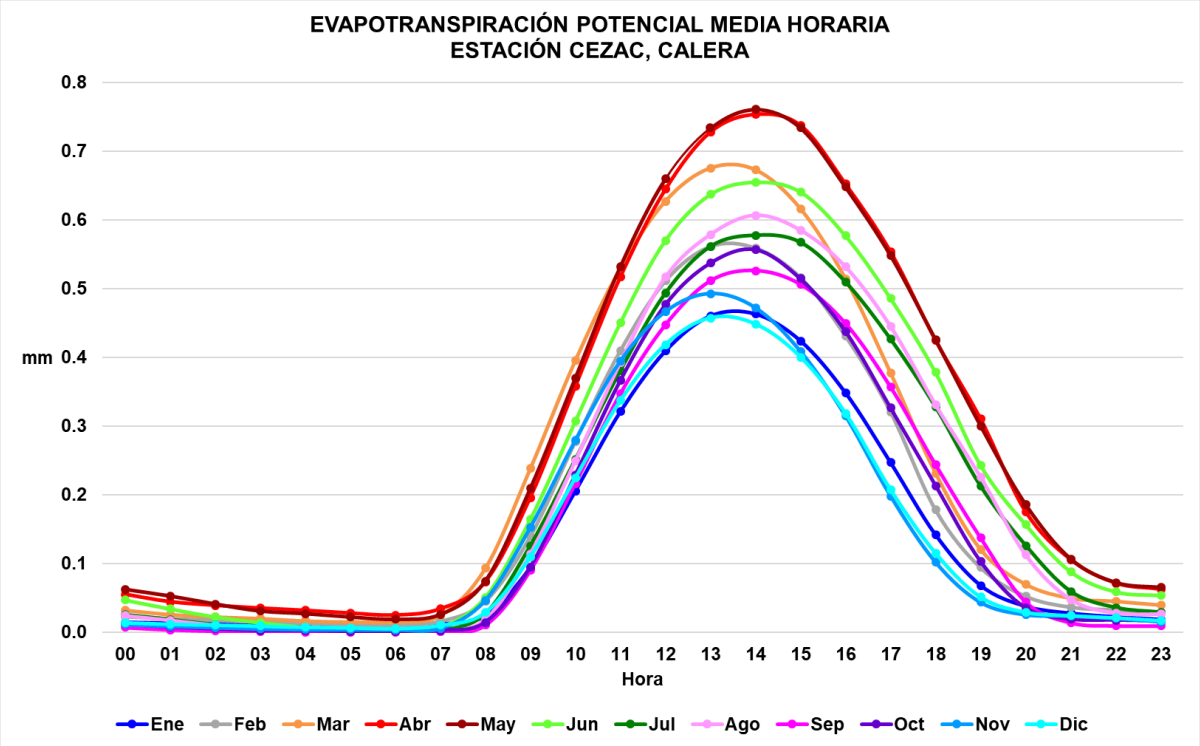


Figura 46. Evapotranspiración potencial media (mm) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 49. Humedad relativa media (%) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	59.4	51.0	41.1	34.5	42.4	63.0	77.6	77.1	85.6	75.6	68.8	61.3	61.5
01	62.1	54.0	44.1	37.7	46.1	66.5	80.0	79.8	87.6	78.8	72.1	64.0	64.4
02	64.6	56.8	46.7	40.4	49.5	69.6	82.2	82.3	89.5	81.9	74.8	66.2	67.1
03	66.8	59.7	49.3	43.1	52.6	72.6	84.5	84.7	91.1	84.4	77.3	68.4	69.5
04	68.9	62.0	51.7	45.5	55.3	75.2	86.5	87.2	92.5	86.6	79.4	70.4	71.8
05	70.7	64.1	53.8	47.7	57.9	77.7	88.2	89.1	93.8	88.4	81.0	72.0	73.7
06	72.0	65.8	55.4	50.1	60.3	79.7	89.9	90.9	94.6	89.7	82.5	73.5	75.4
07	73.1	65.9	53.6	50.3	60.3	79.8	90.4	91.6	94.9	89.9	80.7	73.7	75.3
08	66.6	58.0	45.1	44.7	53.8	73.8	85.3	87.1	91.8	84.7	69.4	65.3	68.8
09	55.9	47.5	37.0	36.4	44.9	65.3	76.6	78.1	83.6	73.7	57.5	54.3	59.2
10	46.3	38.6	30.0	28.6	36.1	56.5	68.2	69.1	74.8	62.7	47.6	45.0	50.3
11	38.7	32.4	25.1	22.9	29.3	49.1	61.0	61.6	67.2	53.8	40.6	37.8	43.3
12	33.4	28.1	21.7	19.4	24.7	42.9	55.2	55.6	61.4	47.6	35.9	32.8	38.2
13	30.2	25.4	19.3	17.1	21.5	38.5	51.0	51.2	57.1	43.4	32.9	29.7	34.8
14	28.0	23.7	17.8	15.8	19.5	35.7	48.1	47.9	54.1	40.7	31.1	27.9	32.5
15	27.2	22.6	17.3	15.1	18.7	34.1	46.6	46.3	52.7	39.2	30.6	27.2	31.5
16	27.6	22.4	17.4	14.7	18.4	33.7	46.5	45.9	52.9	39.4	31.4	27.7	31.5
17	29.8	23.5	18.1	15.0	18.8	34.0	47.7	46.6	54.4	41.2	34.9	30.1	32.8
18	35.0	26.9	20.1	15.8	19.8	35.9	50.0	48.9	58.4	46.2	43.1	36.9	36.4
19	41.4	32.6	24.2	17.5	22.3	39.2	54.2	53.8	65.8	55.0	49.9	43.0	41.6
20	45.8	37.1	27.9	20.9	26.6	44.8	60.7	61.7	74.5	62.3	54.0	47.1	47.0
21	49.3	40.3	31.3	24.5	31.4	51.0	66.9	68.1	79.3	65.8	57.9	50.7	51.4
22	52.8	43.6	34.8	27.8	35.6	56.0	71.3	71.7	81.4	68.8	61.6	54.3	55.0
23	56.4	47.0	38.0	31.0	39.2	60.3	74.5	74.7	83.4	71.9	65.1	58.0	58.3
Media	50.1	42.9	34.2	29.8	36.9	55.6	68.5	68.8	75.9	65.5	56.7	50.7	53.0

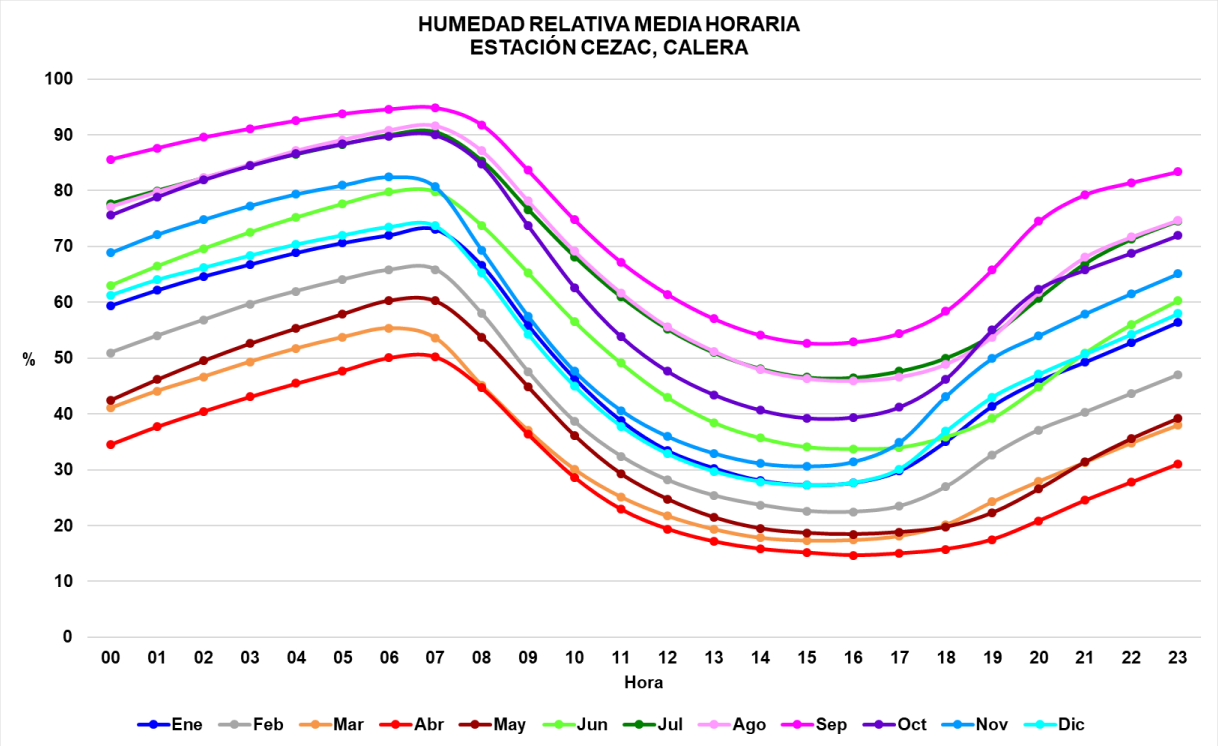


Figura 47. Humedad relativa media (%) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 50. Humedad relativa mínima minimorum (%) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.0	10.0	9.0	9.0	7.0	11.0	29.0	31.0	33.0	26.0	8.0	9.0	7.0
01	16.0	12.0	9.0	10.0	9.0	13.0	35.0	32.0	39.0	27.0	11.0	10.0	9.0
02	17.0	14.0	10.0	11.0	8.0	13.0	31.0	31.0	45.0	28.0	11.0	13.0	8.0
03	18.0	16.0	12.0	12.0	9.0	13.0	30.0	27.0	50.0	30.0	23.0	18.0	9.0
04	18.0	15.0	13.0	12.0	10.0	16.0	32.0	30.0	53.5	33.0	21.0	18.0	10.0
05	18.0	17.0	12.0	13.0	14.0	18.0	31.0	34.0	50.9	32.0	29.0	14.0	12.0
06	19.0	17.0	12.0	13.0	14.0	20.0	40.0	33.0	53.7	32.0	34.0	18.0	12.0
07	17.0	13.0	11.0	13.0	18.0	23.0	38.0	33.0	58.5	31.0	26.0	18.0	11.0
08	13.5	12.0	9.4	11.0	13.0	22.0	37.0	40.0	48.0	24.0	15.0	13.0	9.4
09	12.0	9.0	6.7	10.0	12.0	14.0	31.0	32.0	26.0	20.0	11.0	8.0	6.7
10	9.0	7.0	6.0	7.0	7.0	9.0	19.0	27.0	26.0	13.0	7.0	7.0	6.0
11	4.0	6.0	5.0	4.0	5.0	8.0	19.0	22.0	23.5	11.0	5.0	6.0	4.0
12	4.0	5.0	4.0	3.0	5.0	6.0	21.0	19.0	23.0	9.0	5.0	4.0	3.0
13	4.0	5.0	4.0	4.0	5.0	5.0	18.0	19.0	21.0	8.0	5.0	4.0	4.0
14	4.0	5.0	4.0	3.0	4.0	5.0	14.0	18.0	18.0	7.0	5.0	4.0	3.0
15	4.0	4.0	3.0	3.0	4.0	4.0	11.0	19.0	13.0	7.1	4.0	4.0	3.0
16	4.0	4.0	3.0	4.0	4.0	4.0	14.0	16.0	13.0	7.0	4.0	4.0	3.0
17	5.0	3.0	4.0	3.0	5.0	4.0	15.0	15.0	14.0	7.0	5.0	4.0	3.0
18	5.0	4.0	4.0	3.0	5.0	4.0	14.0	15.0	12.0	8.0	8.0	5.0	3.0
19	6.0	7.0	5.0	4.0	5.0	4.0	12.0	16.0	14.0	11.0	10.0	8.0	4.0
20	8.0	9.0	8.0	4.0	5.0	5.0	12.0	16.0	21.0	14.0	10.0	10.0	4.0
21	9.0	10.0	8.0	5.0	5.0	6.0	20.0	19.0	24.0	18.0	12.0	11.0	5.0
22	11.0	10.0	8.0	6.0	6.0	9.0	25.0	21.0	25.0	20.0	14.0	12.0	6.0
23	11.0	10.0	9.0	7.0	6.0	10.0	27.0	26.0	33.0	22.0	10.0	11.0	6.0
Mín.	4.0	3.0	3.0	3.0	4.0	4.0	11.0	15.0	12.0	7.0	4.0	4.0	3.0

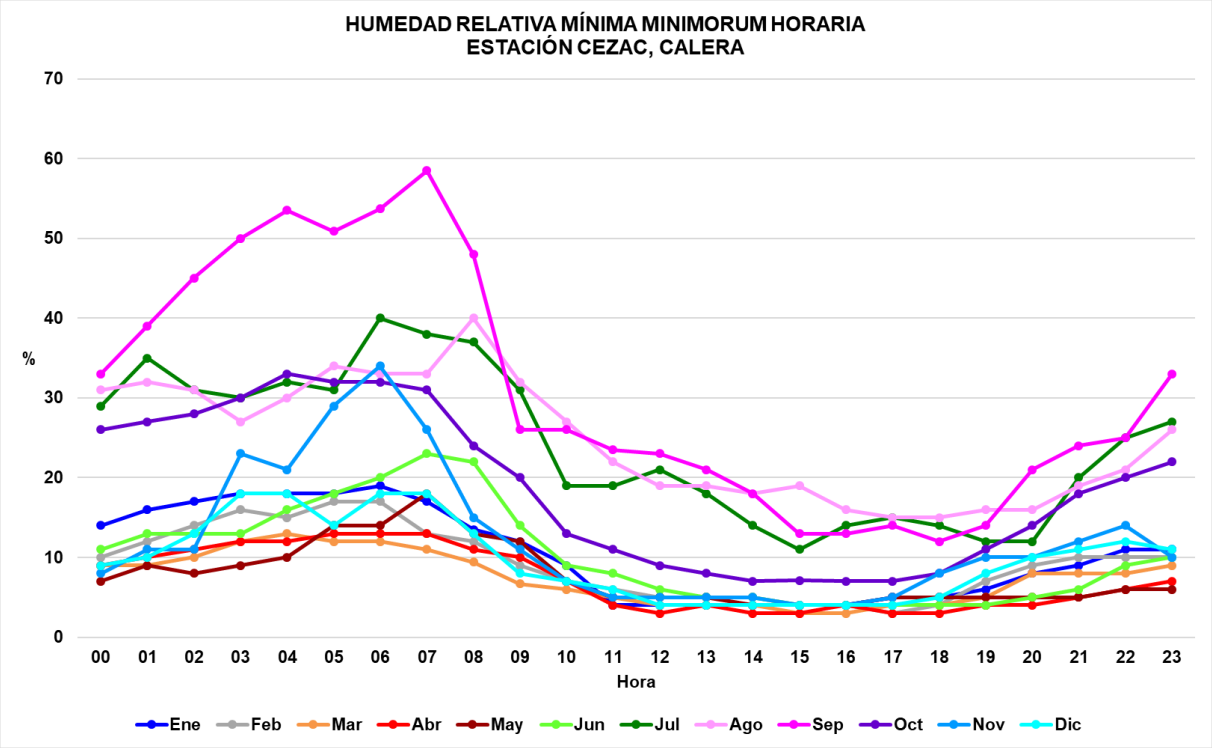


Figura 48. Humedad relativa mínima minimorum (%) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 51. Radiación solar global media horaria (W/m²) de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	17	8	9	9	5	2	1	4	7	1	6
07	56	115	308	175	191	175	124	87	59	81	218	88	140
08	540	727	1117	799	846	752	633	547	455	506	920	628	706
09	1324	1600	2044	1708	1730	1552	1386	1319	1189	1274	1726	1396	1521
10	2060	2421	2879	2604	2611	2377	2170	2132	1972	2096	2434	2114	2322
11	2639	3033	3476	3346	3344	3051	2841	2859	2615	2751	2894	2614	2955
12	2955	3380	3782	3834	3779	3470	3273	3276	3046	3146	3067	2850	3322
13	2949	3382	3780	3980	3962	3549	3358	3394	3153	3260	2942	2800	3376
14	2629	3121	3458	3830	3781	3420	3229	3307	3050	3028	2554	2469	3156
15	2112	2622	2867	3379	3316	3074	2892	2958	2728	2582	1967	1921	2702
16	1431	1895	2087	2757	2735	2545	2391	2465	2163	1924	1213	1210	2068
17	662	1020	1218	1955	2044	1909	1821	1815	1492	1208	424	450	1335
18	90	237	377	1115	1234	1205	1168	1126	777	489	17	25	655
19	0	2	11	374	498	543	538	428	200	71	0	0	222
20	0	0	0	31	62	100	98	52	12	4	0	0	30
21	0	0	0	1	3	6	4	3	0	0	0	0	2
22	0	0	0	0	0	0	0	1	0	0	0	0	0
23	0	0	0	0	0	0	0	1	0	0	0	0	0
Media/día/mes	19449	23557	27422	29896	30146	27739	25933	25774	22913	22425	20383	18568	24517

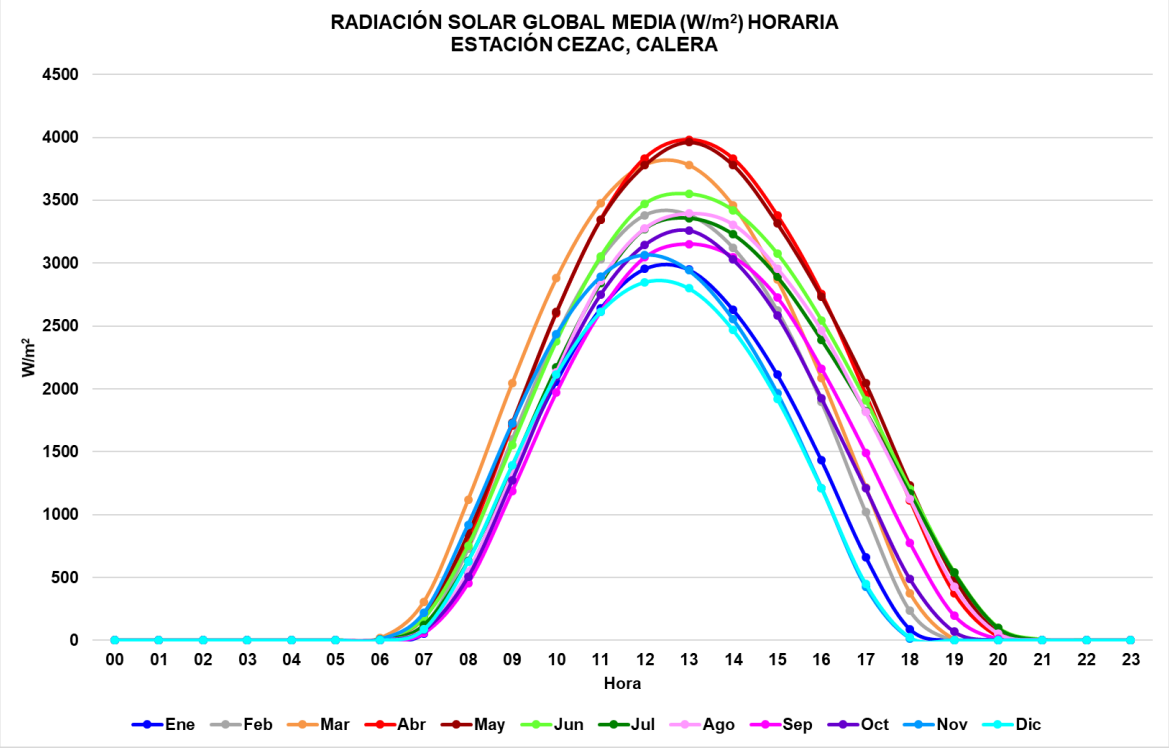


Figura 49. Radiación solar global media horaria (W/m²) de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 52. Radiación solar global media horaria (kWh/m^2) de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.04	0.05	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.13	0.18	0.28	0.20	0.21	0.19	0.16	0.14	0.11	0.13	0.23	0.16	0.18
09	0.33	0.40	0.51	0.43	0.43	0.39	0.35	0.33	0.30	0.32	0.43	0.35	0.38
10	0.52	0.61	0.72	0.65	0.65	0.59	0.54	0.53	0.49	0.52	0.61	0.53	0.58
11	0.66	0.76	0.87	0.84	0.84	0.76	0.71	0.71	0.65	0.69	0.72	0.65	0.74
12	0.74	0.84	0.95	0.96	0.94	0.87	0.82	0.82	0.76	0.79	0.77	0.71	0.83
13	0.74	0.85	0.94	0.99	0.99	0.89	0.84	0.85	0.79	0.82	0.74	0.70	0.84
14	0.66	0.78	0.86	0.96	0.95	0.85	0.81	0.83	0.76	0.76	0.64	0.62	0.79
15	0.53	0.66	0.72	0.84	0.83	0.77	0.72	0.74	0.68	0.65	0.49	0.48	0.68
16	0.36	0.47	0.52	0.69	0.68	0.64	0.60	0.62	0.54	0.48	0.30	0.30	0.52
17	0.17	0.25	0.30	0.49	0.51	0.48	0.46	0.45	0.37	0.30	0.11	0.11	0.33
18	0.02	0.06	0.09	0.28	0.31	0.30	0.29	0.28	0.19	0.12	0.00	0.01	0.16
19	0.00	0.00	0.00	0.09	0.12	0.14	0.13	0.11	0.05	0.02	0.00	0.00	0.06
20	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.86	5.89	6.86	7.47	7.54	6.93	6.48	6.44	5.73	5.61	5.10	4.64	6.13

Cuadro 53. Radiación solar global media horaria (Mj/m^2/s) de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.05	0.10	0.28	0.16	0.17	0.16	0.11	0.08	0.05	0.07	0.20	0.08	0.13
08	0.49	0.65	1.00	0.72	0.76	0.68	0.57	0.49	0.41	0.46	0.83	0.57	0.64
09	1.19	1.44	1.84	1.54	1.56	1.40	1.25	1.19	1.07	1.15	1.55	1.26	1.37
10	1.85	2.18	2.59	2.34	2.35	2.14	1.95	1.92	1.77	1.89	2.19	1.90	2.09
11	2.38	2.73	3.13	3.01	3.01	2.75	2.56	2.57	2.35	2.48	2.60	2.35	2.66
12	2.66	3.04	3.40	3.45	3.40	3.12	2.95	2.95	2.74	2.83	2.76	2.56	2.99
13	2.65	3.04	3.40	3.58	3.57	3.19	3.02	3.05	2.84	2.93	2.65	2.52	3.04
14	2.37	2.81	3.11	3.45	3.40	3.08	2.91	2.98	2.74	2.73	2.30	2.22	2.84
15	1.90	2.36	2.58	3.04	2.98	2.77	2.60	2.66	2.46	2.32	1.77	1.73	2.43
16	1.29	1.71	1.88	2.48	2.46	2.29	2.15	2.22	1.95	1.73	1.09	1.09	1.86
17	0.60	0.92	1.10	1.76	1.84	1.72	1.64	1.63	1.34	1.09	0.38	0.41	1.20
18	0.08	0.21	0.34	1.00	1.11	1.08	1.05	1.01	0.70	0.44	0.02	0.02	0.59
19	0.00	0.00	0.01	0.34	0.45	0.49	0.48	0.38	0.18	0.06	0.00	0.00	0.20
20	0.00	0.00	0.00	0.03	0.06	0.09	0.09	0.05	0.01	0.00	0.00	0.00	0.03
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.50	21.20	24.68	26.91	27.13	24.97	23.34	23.20	20.62	20.18	18.34	16.71	22.07

Cuadro 54. Velocidad del viento media (km/h) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.2	7.2	7.8	8.6	9.8	10.9	9.2	8.5	6.0	5.8	5.5	6.3	7.7
01	6.2	7.3	7.3	8.1	8.9	9.3	8.3	7.3	5.2	5.1	5.2	6.3	7.0
02	6.3	7.3	7.1	7.6	7.8	7.8	6.9	5.9	4.7	4.6	4.9	6.4	6.4
03	6.2	7.3	7.0	7.5	7.2	6.7	5.8	5.0	4.2	4.3	4.6	6.2	6.0
04	6.0	7.3	7.0	7.3	6.7	5.8	5.0	4.3	3.9	4.1	4.6	6.3	5.7
05	6.0	7.1	6.8	6.9	6.0	5.3	4.5	4.0	3.6	4.0	4.6	6.3	5.4
06	6.1	7.1	6.7	6.7	5.5	4.8	4.1	3.5	3.3	3.8	4.5	6.2	5.2
07	6.0	7.0	6.8	6.7	5.5	4.7	4.1	3.3	3.3	3.7	4.3	6.1	5.1
08	6.4	7.9	9.0	7.8	7.0	6.2	4.9	4.0	3.8	4.1	5.5	6.7	6.1
09	9.1	11.0	11.5	10.2	9.2	8.0	6.4	5.8	5.8	6.0	8.6	9.4	8.4
10	11.4	13.1	12.7	11.6	9.7	8.4	7.2	7.1	7.6	8.0	10.1	11.6	9.9
11	12.8	14.7	13.8	12.7	10.1	9.0	8.0	8.1	8.7	9.3	11.2	13.0	10.9
12	14.0	15.8	15.0	13.7	10.8	9.6	8.7	8.9	9.5	10.2	12.0	13.9	11.8
13	14.7	16.2	15.9	14.8	11.8	10.8	9.6	9.8	9.9	10.7	12.2	14.3	12.5
14	14.8	16.5	16.5	15.5	12.4	11.9	10.6	10.6	10.3	10.8	12.1	14.3	13.0
15	14.7	16.4	16.4	15.8	12.8	12.4	11.4	11.3	10.5	10.7	11.8	14.0	13.2
16	14.2	16.1	16.2	15.9	13.1	12.7	12.0	11.5	10.4	10.6	11.3	13.3	13.1
17	13.1	15.0	15.7	15.8	13.2	12.8	12.1	11.6	10.2	10.1	9.6	11.3	12.5
18	9.7	12.1	13.5	15.3	12.9	13.0	12.0	11.3	9.3	8.5	6.8	7.8	11.0
19	8.0	8.8	9.9	13.5	12.6	12.8	11.7	10.3	7.2	6.4	7.0	7.3	9.6
20	7.9	8.2	8.8	10.7	11.0	11.7	10.3	8.4	5.6	6.2	7.5	7.2	8.6
21	7.6	8.2	8.8	9.6	10.0	10.8	9.3	8.0	6.1	6.7	7.4	7.1	8.3
22	7.2	8.0	8.6	9.4	10.2	11.4	9.6	8.4	6.7	7.0	6.8	6.8	8.4
23	6.5	7.4	8.2	9.4	10.4	11.5	9.7	8.9	6.6	6.6	6.0	6.4	8.1
Media	9.2	10.5	10.7	10.9	9.8	9.5	8.4	7.7	6.8	7.0	7.7	8.9	8.9

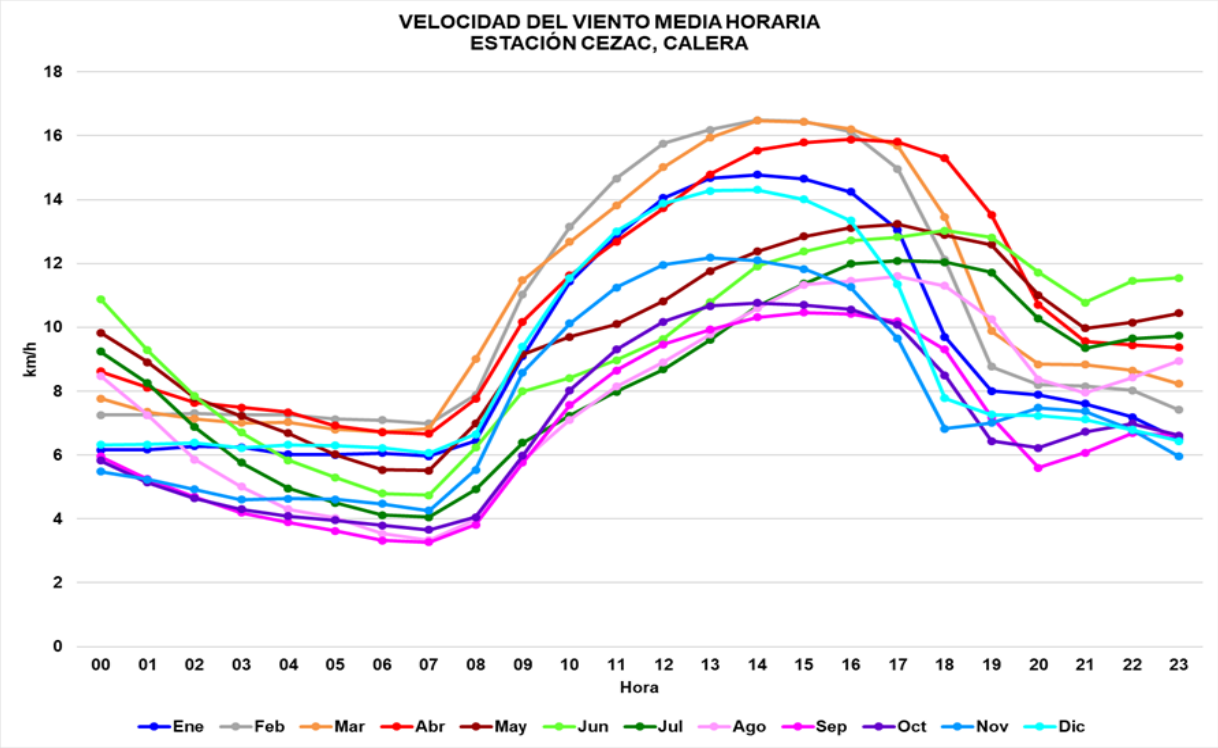


Figura 50. Velocidad del viento media (km/h) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 55. Velocidad del viento máxima maximorum (km/h) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	39.0	31.0	33.0	36.0	46.9	43.5	38.9	36.2	32.5	30.7	34.7	34.9	46.9
01	37.0	40.0	35.0	35.7	47.0	46.2	40.2	29.6	34.7	29.4	31.0	36.0	47.0
02	37.0	36.0	41.0	32.0	36.9	47.6	37.2	32.1	25.4	24.5	33.0	45.0	47.6
03	36.7	38.5	48.0	32.8	30.6	44.9	28.7	30.3	26.0	27.8	38.0	40.0	48.0
04	34.0	33.8	47.0	30.1	26.1	48.3	28.4	29.1	28.0	23.9	35.0	38.0	48.3
05	33.0	39.0	52.0	33.2	26.0	43.3	27.3	24.6	26.9	25.8	35.0	39.0	52.0
06	32.0	37.0	62.0	32.5	29.7	36.6	24.2	24.5	24.1	29.5	33.0	44.0	62.0
07	31.0	34.0	62.0	31.0	25.9	27.6	27.8	23.0	24.2	24.9	27.0	42.0	62.0
08	37.1	38.0	67.0	31.6	27.5	29.0	30.0	23.3	27.0	29.1	28.8	39.0	67.0
09	40.0	51.0	65.0	35.8	28.7	32.7	37.0	37.8	31.6	37.1	34.3	44.0	65.0
10	49.0	51.0	62.0	43.2	31.0	38.2	27.4	36.4	30.6	48.7	38.0	43.0	62.0
11	49.0	52.3	63.0	45.1	34.0	46.8	35.8	30.7	27.1	42.1	36.8	49.0	63.0
12	49.0	45.7	60.0	46.0	40.4	36.9	32.1	32.4	30.0	41.7	44.6	47.0	60.0
13	49.0	54.5	57.6	44.0	40.2	35.7	32.2	35.2	38.4	37.5	40.0	51.0	57.6
14	49.0	49.1	52.0	53.9	47.2	38.6	28.9	31.8	30.1	39.8	41.0	49.0	53.9
15	46.0	55.6	53.6	56.8	45.3	40.3	34.8	38.6	37.5	36.1	43.0	44.0	56.8
16	48.0	53.5	45.0	50.5	46.0	41.6	36.1	34.1	29.1	38.1	37.0	43.9	53.5
17	42.0	44.9	48.1	58.9	43.4	40.4	41.8	40.6	34.4	34.3	38.0	41.0	58.9
18	40.6	41.6	45.7	45.9	46.0	45.7	36.8	42.2	29.8	39.0	30.6	42.0	46.0
19	47.0	34.3	41.0	46.3	43.2	44.6	39.6	31.7	35.6	27.0	31.5	34.5	47.0
20	49.0	36.0	38.0	43.2	38.0	37.7	36.6	39.0	34.6	29.1	39.8	29.0	49.0
21	40.0	35.0	34.0	49.9	39.7	44.0	34.0	40.1	43.8	34.0	36.0	32.0	49.9
22	39.0	37.0	35.0	48.5	43.7	41.0	39.1	36.9	30.4	33.2	39.2	35.0	48.5
23	36.8	30.4	37.3	43.3	42.1	45.8	38.6	37.7	31.1	32.2	33.4	33.8	45.8
Máx.	49.0	55.6	67.0	58.9	47.2	48.3	41.8	42.2	43.8	48.7	44.6	51.0	67.0

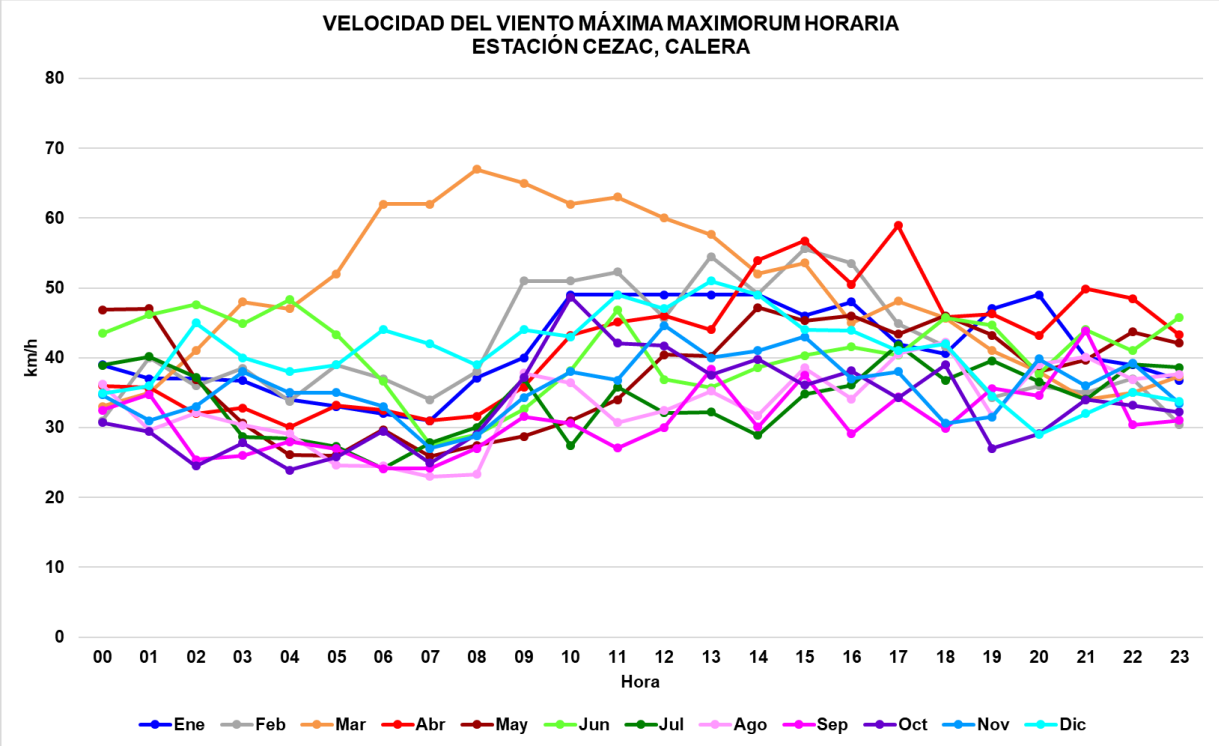


Figura 51. Velocidad del viento máxima maximorum (km/h) horaria de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 56. Frecuencia de velocidad del viento (%) mensual de la estación Campo Experimental Zacatecas, Calera (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	33.2	25.6	22.4	20.0	22.1	25.8	33.2	37.1	43.8	42.9	38.6	33.5	31.6
5.1 a 10.0	32.5	32.2	34.3	32.2	36.2	33.2	32.5	32.7	32.4	33.6	34.1	33.7	33.3
10.1 a 15.0	16.4	19.1	20.5	23.9	24.3	23.8	21.5	20.8	18.2	16.6	17.2	16.7	19.9
15.1 a 20.0	9.3	11.2	11.6	13.6	11.7	11.7	9.2	7.3	4.5	5.4	6.5	8.5	9.2
20.1 a 25.0	4.8	6.3	5.9	6.8	3.8	3.9	2.9	1.8	1.0	1.0	2.3	4.4	3.7
25.1 a 30.0	2.2	3.3	3.1	2.6	1.3	1.2	0.5	0.3	0.2	0.4	0.7	2.0	1.5
30.1 a 35.0	1.1	1.4	1.3	0.6	0.4	0.3	0.1	0.1	0.0	0.1	0.4	0.7	0.5
35.1 a 40.0	0.4	0.6	0.6	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.2
40.1 a 45.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
45.1 a 50.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

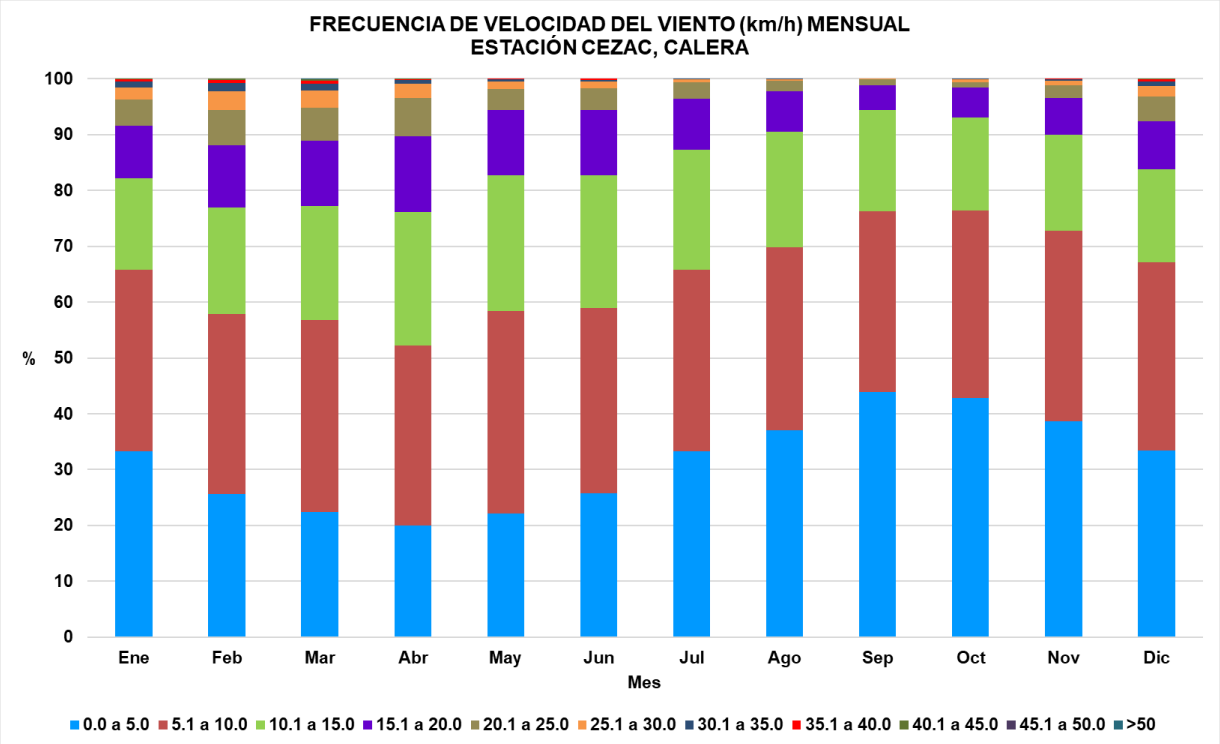


Figura 52. Frecuencia de velocidad del viento (%) mensual de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 57. Frecuencia de dirección del viento (%) mensual de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.6	3.3	3.6	2.8	4.6	6.0	4.0	4.5	7.1	5.7	4.7	3.9	4.6
NNE	3.4	2.7	2.7	2.0	3.6	5.7	4.4	5.3	7.2	5.5	4.1	3.2	4.2
NE	3.3	2.5	2.6	1.9	3.8	6.9	6.3	7.7	8.9	7.0	4.2	3.0	4.9
ENE	4.2	3.1	3.0	2.5	4.5	9.1	9.7	11.5	11.9	8.8	5.8	3.7	6.5
E	6.3	4.6	4.7	3.6	5.7	11.8	13.6	14.9	14.5	11.6	8.9	5.6	8.9
ESE	8.8	6.9	6.4	4.8	6.1	10.0	11.8	12.7	11.6	11.5	11.0	8.5	9.2
SE	6.5	5.9	5.6	5.1	6.0	7.3	8.9	9.2	7.3	7.9	8.0	7.1	7.1
SSE	13.1	12.8	12.8	13.5	12.0	9.3	9.6	8.5	7.1	9.9	13.1	14.8	11.3
S	16.3	18.7	16.9	18.6	15.8	11.4	11.3	8.2	7.3	10.4	13.7	17.7	13.8
SSO	13.3	16.4	14.5	15.4	11.4	6.9	7.2	5.5	4.6	7.0	9.5	13.6	10.4
SO	8.5	10.4	11.1	11.6	8.3	3.9	3.7	3.2	2.7	4.2	6.2	8.0	6.8
OSO	3.8	5.2	6.6	7.9	6.2	2.3	2.2	2.0	1.8	2.3	3.4	3.7	3.9
O	2.3	2.6	3.7	4.4	3.8	1.7	1.7	1.6	1.5	1.7	2.0	2.0	2.4
ONO	1.6	1.4	1.9	2.1	2.5	1.8	1.5	1.4	1.4	1.6	1.5	1.4	1.7
NO	1.7	1.4	1.7	1.8	2.5	2.2	1.7	1.6	1.8	1.9	1.6	1.5	1.8
NNO	2.4	2.1	2.3	2.2	3.3	3.7	2.4	2.4	3.4	3.1	2.5	2.3	2.7
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

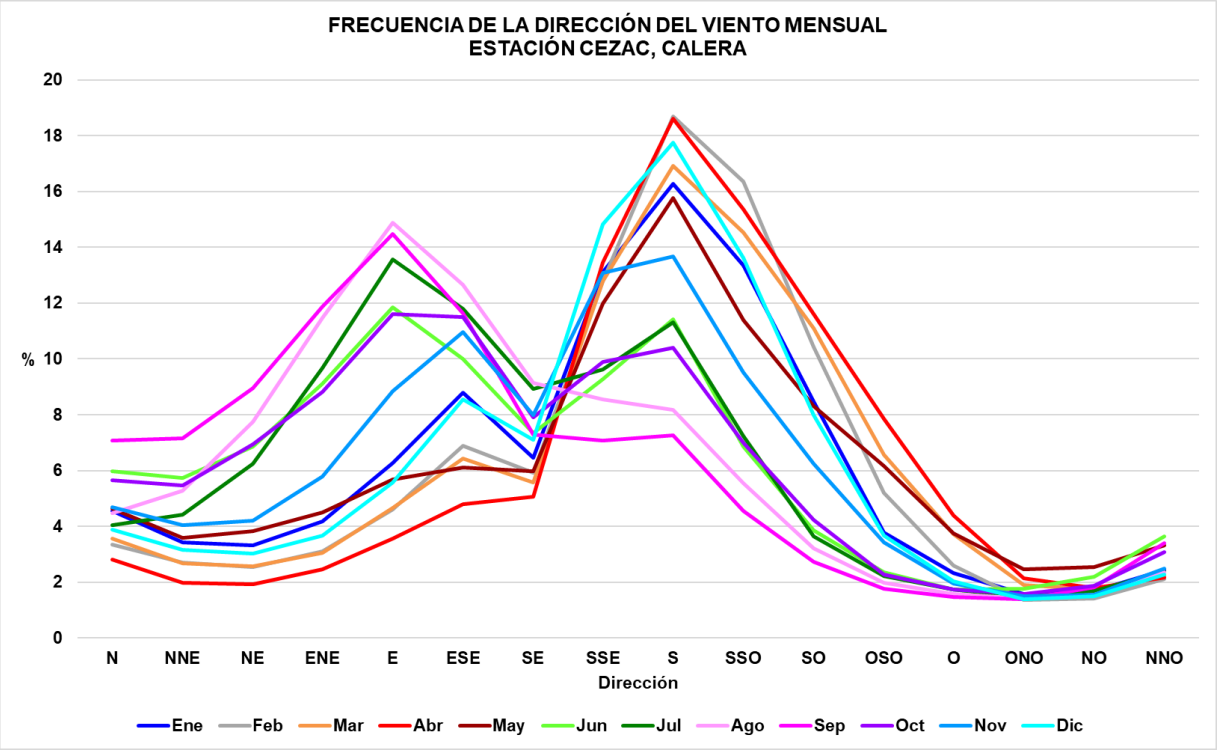


Figura 53. Frecuencia de dirección del viento (%) mensual de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 58. Frecuencia de dirección del viento (%) trimestral de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.8	4.5	5.2	4.8	4.6
NNE	2.9	3.8	5.6	4.2	4.2
NE	2.8	4.2	7.6	4.7	4.9
ENE	3.5	5.3	11.0	6.1	6.5
E	5.2	7.0	14.3	8.7	8.9
ESE	7.4	7.0	12.0	10.3	9.2
SE	6.0	6.1	8.5	7.7	7.1
SSE	12.9	11.6	8.4	12.6	11.3
S	17.2	15.3	8.9	13.9	13.8
SSO	14.7	11.2	5.8	10.0	10.4
SO	10.0	7.9	3.2	6.2	6.8
OSO	5.2	5.5	2.0	3.1	3.9
O	2.9	3.3	1.6	1.9	2.4
ONO	1.6	2.1	1.4	1.5	1.7
NO	1.6	2.2	1.7	1.6	1.8
NNO	2.3	3.1	2.7	2.6	2.7
Suma	100.0	100.0	100.0	100.0	100.0

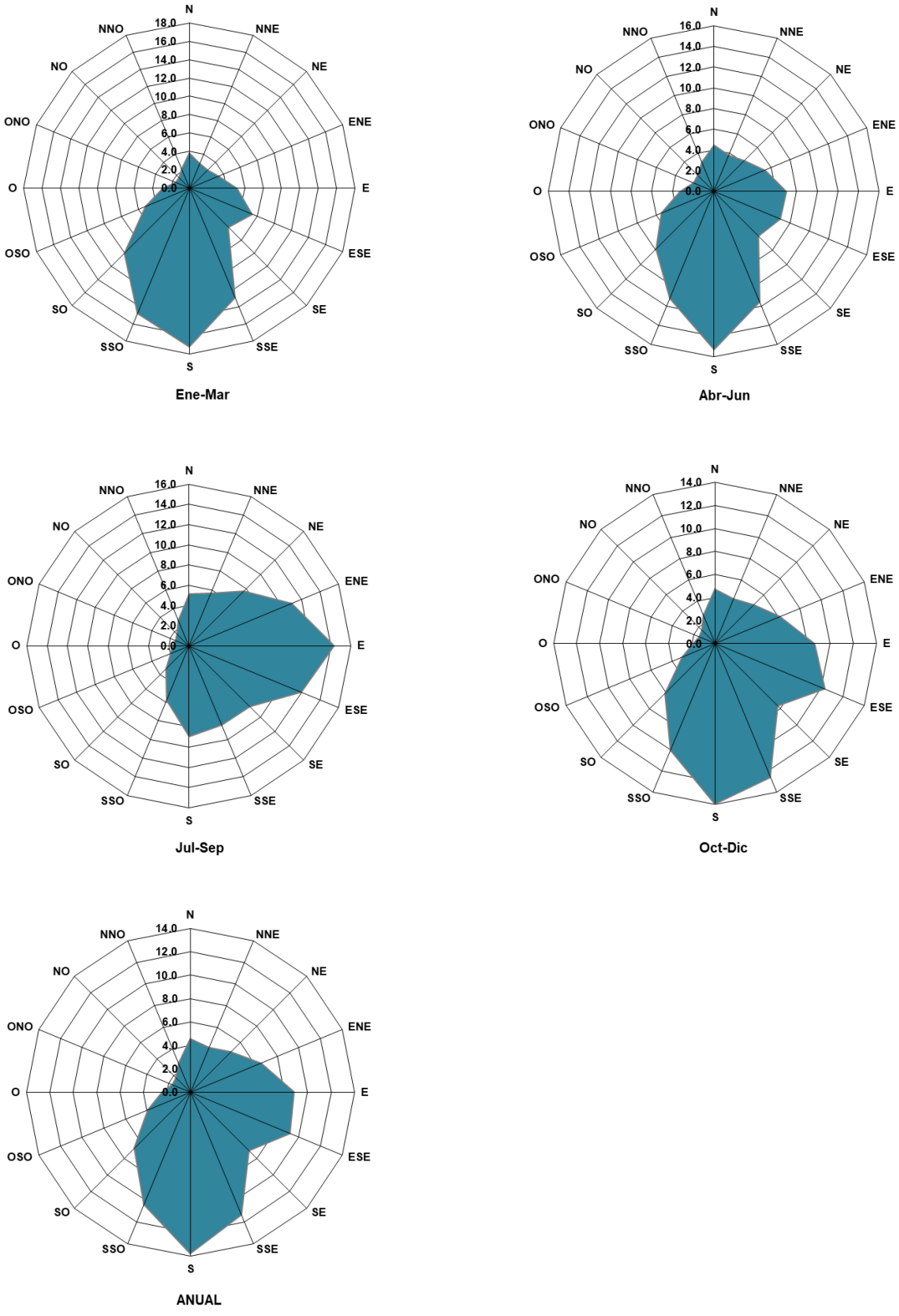


Figura 54. Frecuencia de dirección del viento (%) trimestral de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Cuadro 59. Estadísticas climatológicas mensuales de la estación Campo Experimental Zacatecas, Calera (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (˚C)	19.7	22.0	24.4	27.1	28.6	27.3	25.0	25.2	23.7	23.8	22.0	20.3	24.1
Temperatura máxima maximorum (˚C)	26.6	29.7	31.6	32.0	34.2	33.6	30.3	29.7	29.4	30.3	28.7	26.8	34.2
Temperatura mínima media (˚C)	2.1	3.6	5.3	8.2	10.9	12.9	12.4	12.1	11.5	8.1	4.3	2.4	7.8
Temperatura mínima minimorum (˚C)	-12.0	-7.1	-6.7	-1.5	2.3	4.8	7.6	7.4	2.6	-3.3	-9.8	-11.2	-12.0
Temperatura media (˚C)	10.8	12.9	15.3	18.2	20.3	20.1	18.4	18.4	17.1	15.8	13.1	11.2	16.0
Oscilación térmica (˚C)	17.6	18.4	19.2	18.9	17.7	14.4	12.6	13.0	12.2	15.7	17.7	17.9	16.3
Precipitación acumulada media (mm)	12.3	16.6	9.2	2.1	18.4	74.5	106.2	82.5	86.1	32.8	15.0	13.3	469.0
Precipitación máxima maximorum en 24 horas (mm)	17.6	39.2	40.3	10.5	32.0	51.5	68.4	41.6	73.6	38.4	46.9	32.9	73.6
Número de días promedio con lluvia	4.4	3.5	4.0	2.4	5.1	10.6	14.5	13.0	13.0	7.5	3.8	3.6	85.3
Evapotranspiración acumulada potencial media (mm)	110.8	129.8	176.2	199.4	206.9	174.1	155.8	155.0	125.7	129.0	113.9	108.9	1785.4
Humedad máxima media (%)	77.8	71.2	60.4	55.8	65.9	84.1	93.5	94.6	97.0	93.0	86.2	78.5	79.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	24.1	19.6	15.2	12.8	15.5	28.2	39.3	39.1	46.5	34.9	27.8	24.5	27.3
Humedad mínima minimorum (%)	4.0	3.0	3.0	3.0	4.0	4.0	11.0	15.0	12.0	7.0	4.0	4.0	3.0
Humedad media (%)	50.1	42.9	34.2	29.8	36.9	55.6	68.5	68.8	75.9	65.5	56.7	50.7	53.0
Radiación global media día/mes (W/m^2)	19451.6	23560.8	27421.9	29896.0	30146.0	27739.4	25933.4	25773.8	22913.1	22425.2	20383.3	18567.8	24517.7
Radiación global media día/mes (kWh/m^2)	4.9	5.9	6.9	7.5	7.5	6.9	6.5	6.4	5.7	5.6	5.1	4.6	6.1
Radiación global media día/mes ($Mj/m^2/s$)	17.5	21.2	24.7	26.9	27.1	25.0	23.3	23.2	20.6	20.2	18.3	16.7	22.1
Velocidad del viento máxima media (km/h)	20.9	22.7	23.5	23.8	23.0	23.2	21.1	19.8	17.1	16.7	17.8	19.6	20.8
Velocidad del viento máxima maximorum (km/h)	49.0	55.6	67.0	58.9	47.2	48.3	41.8	42.2	43.8	48.7	44.6	51.0	67.0
Velocidad del viento media (km/h)	9.2	10.5	10.7	10.9	9.8	9.5	8.4	7.7	6.8	7.0	7.7	8.9	8.9
Dirección dominante del viento	S	S	S	S	S	E	E	E	E	E	S	S	S

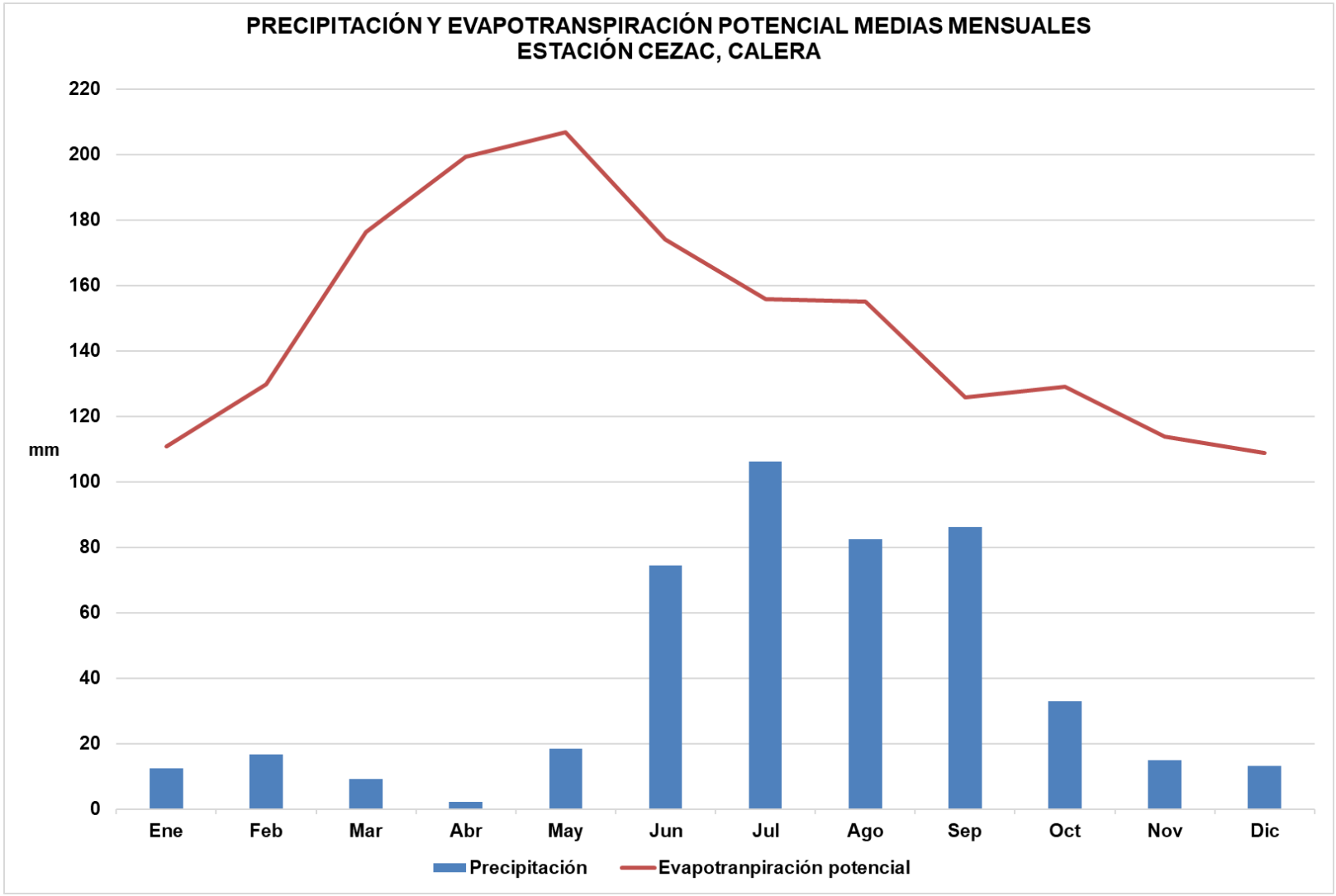


Figura 55. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Campo Experimental Zacatecas, Calera (2002-2022).

7.4. Estación: Campo Uno, Miguel Auza

Cuadro 60. Temperatura máxima media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.9	9.0	11.6	15.4	18.2	18.8	17.3	17.0	15.2	12.6	8.9	7.0	13.2
01	6.2	8.3	10.6	14.3	17.1	18.0	16.6	16.4	14.7	11.9	8.0	6.3	12.4
02	5.6	7.5	9.7	13.2	16.0	17.1	16.0	15.8	14.2	11.2	7.4	5.7	11.6
03	5.0	6.9	8.9	12.3	15.0	16.2	15.5	15.2	13.7	10.6	6.9	5.1	11.0
04	4.6	6.3	8.1	11.5	14.2	15.5	14.9	14.7	13.3	10.1	6.4	4.7	10.3
05	4.1	5.8	7.5	10.7	13.3	14.8	14.4	14.2	13.0	9.6	5.9	4.3	9.8
06	3.7	5.4	6.8	9.9	12.5	14.2	14.0	13.8	12.7	9.3	5.6	3.9	9.3
07	3.7	5.5	8.1	10.1	12.9	14.6	14.1	13.8	12.7	9.5	6.9	4.2	9.7
08	6.5	9.2	12.7	13.7	16.5	17.3	15.9	15.6	14.4	12.3	11.5	8.1	12.8
09	10.6	13.3	16.3	17.7	19.9	19.7	17.9	17.7	16.6	15.9	14.9	12.3	16.1
10	13.5	16.2	18.9	20.6	22.5	21.9	19.8	19.6	18.6	18.5	17.5	15.2	18.6
11	15.7	18.3	20.9	22.8	24.5	23.8	21.5	21.3	20.3	20.5	19.4	17.2	20.5
12	17.4	19.9	22.4	24.5	26.1	25.3	23.0	22.8	21.6	22.0	20.8	18.8	22.1
13	18.5	21.0	23.5	25.7	27.3	26.5	24.1	24.0	22.6	23.1	21.7	19.7	23.1
14	19.1	21.7	24.1	26.6	28.2	27.2	24.8	24.8	23.3	23.7	22.1	20.3	23.8
15	19.4	21.9	24.4	27.1	28.6	27.6	25.1	25.1	23.5	23.9	22.1	20.3	24.1
16	19.1	21.6	24.2	27.2	28.7	27.4	25.0	25.1	23.3	23.8	21.6	19.9	23.9
17	18.1	20.9	23.5	26.8	28.3	27.1	24.6	24.7	22.7	23.1	20.3	18.7	23.2
18	16.2	19.4	22.1	26.0	27.6	26.5	24.0	23.9	21.7	21.7	17.5	15.9	21.9
19	13.0	16.4	19.6	24.6	26.5	25.5	23.0	22.6	20.1	19.2	14.4	12.8	19.8
20	11.1	14.1	17.0	22.2	24.6	24.0	21.5	20.8	18.1	16.5	12.8	11.1	17.8
21	9.9	12.6	15.4	19.8	22.3	22.0	19.9	19.2	16.8	15.0	11.7	9.9	16.2
22	8.8	11.4	14.1	18.2	20.7	20.6	18.8	18.2	16.1	14.1	10.5	8.8	15.0
23	7.8	10.2	12.8	16.9	19.4	19.6	18.0	17.5	15.6	13.3	9.6	7.8	14.0
Media	11.0	13.5	16.0	19.1	21.3	21.3	19.6	19.3	17.7	16.3	13.5	11.6	16.7

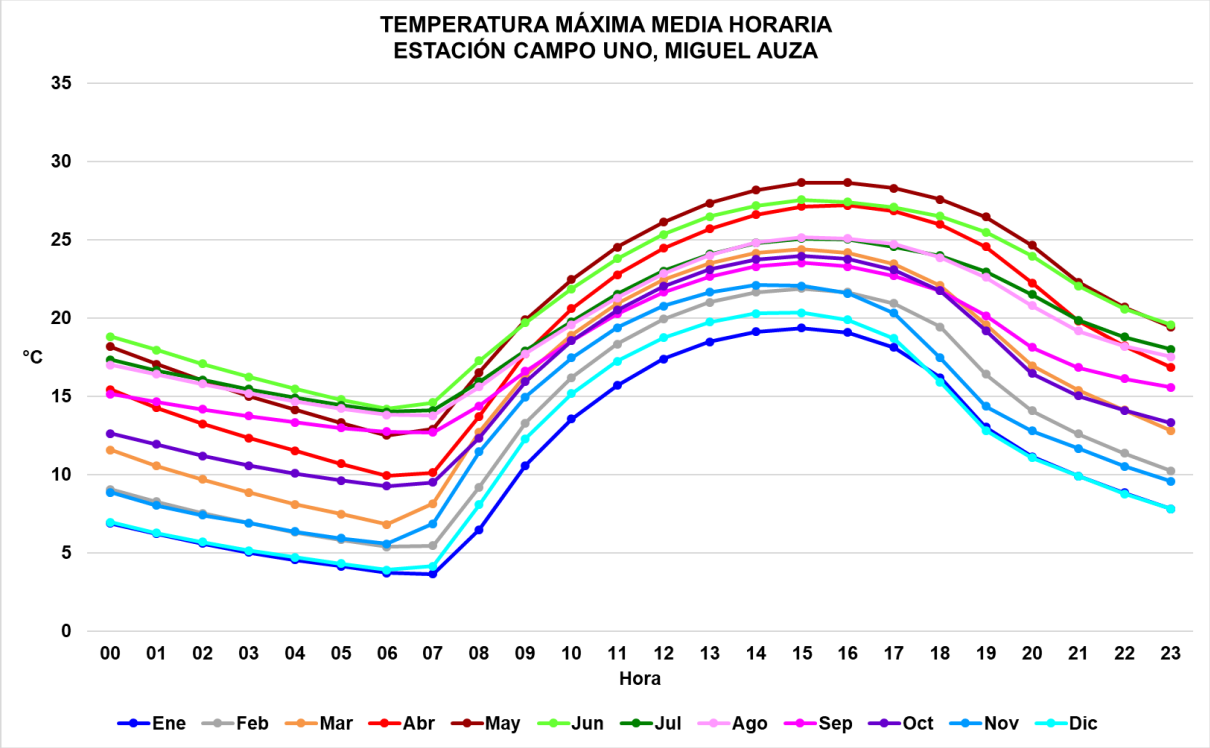


Figura 56. Temperatura máxima media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 61. Temperatura máxima maximorum (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.1	16.6	22.0	23.0	25.6	25.0	23.4	23.0	21.9	19.8	16.6	15.3	25.6
01	15.0	16.5	19.5	22.7	23.5	24.9	22.0	22.6	20.1	18.9	16.2	14.7	24.9
02	14.3	16.1	18.4	21.1	22.3	22.9	21.4	21.4	19.6	18.2	16.1	14.7	22.9
03	13.8	15.6	17.0	20.2	22.1	21.6	19.5	20.5	17.8	17.6	15.9	13.9	22.1
04	12.8	15.0	16.8	19.2	21.5	20.1	18.8	18.4	17.1	17.1	15.5	13.7	21.5
05	12.7	13.8	18.1	18.8	21.0	19.2	18.0	18.2	16.8	16.3	15.2	14.5	21.0
06	12.6	12.9	16.9	19.9	19.6	18.8	17.2	17.8	16.2	15.6	15.3	14.4	19.9
07	12.3	13.2	18.1	18.5	21.5	19.8	17.6	17.6	16.8	15.6	15.3	13.7	21.5
08	17.6	18.7	21.5	22.1	25.8	23.4	21.9	21.1	18.5	19.8	19.1	18.0	25.8
09	20.6	24.0	25.5	25.3	27.4	27.1	24.8	23.3	21.6	24.1	24.4	23.6	27.4
10	23.1	26.2	28.1	27.6	29.5	29.4	26.0	25.3	24.3	27.6	27.3	25.2	29.5
11	25.2	28.5	29.5	28.9	31.4	30.7	27.7	26.8	28.4	28.0	28.7	26.6	31.4
12	25.6	30.2	31.0	30.1	32.6	31.6	29.8	28.3	27.7	29.2	29.2	27.6	32.6
13	26.3	31.2	31.9	30.7	33.7	32.6	30.0	29.9	28.7	29.8	30.3	28.3	33.7
14	26.4	31.5	32.7	31.6	34.4	33.4	31.1	30.3	29.0	30.1	30.9	28.5	34.4
15	26.5	31.8	33.2	32.5	35.1	33.8	31.6	30.5	29.9	29.1	30.5	28.1	35.1
16	26.1	31.5	33.0	32.8	35.2	33.7	32.0	30.7	30.3	29.7	29.6	27.5	35.2
17	25.2	29.9	32.2	32.5	34.9	33.6	31.9	29.9	29.7	29.3	28.0	25.5	34.9
18	23.6	27.7	31.5	32.2	34.3	33.7	31.4	29.4	29.7	28.3	25.6	22.8	34.3
19	20.1	24.7	28.3	31.0	33.4	33.3	29.5	28.7	26.8	27.1	20.4	19.2	33.4
20	18.7	22.5	26.2	28.1	31.8	31.7	28.9	27.6	25.4	24.4	19.0	17.8	31.8
21	17.6	20.9	26.2	26.5	28.5	28.4	27.1	26.4	23.8	21.8	18.2	17.0	28.5
22	16.9	19.5	22.1	24.8	26.6	26.8	25.2	25.4	21.8	21.0	16.6	16.1	26.8
23	16.0	19.1	21.8	24.2	25.7	26.1	25.2	23.9	21.2	21.8	16.7	15.6	26.1
Máx.	26.5	31.8	33.2	32.8	35.2	33.8	32.0	30.7	30.3	30.1	30.9	28.5	35.2

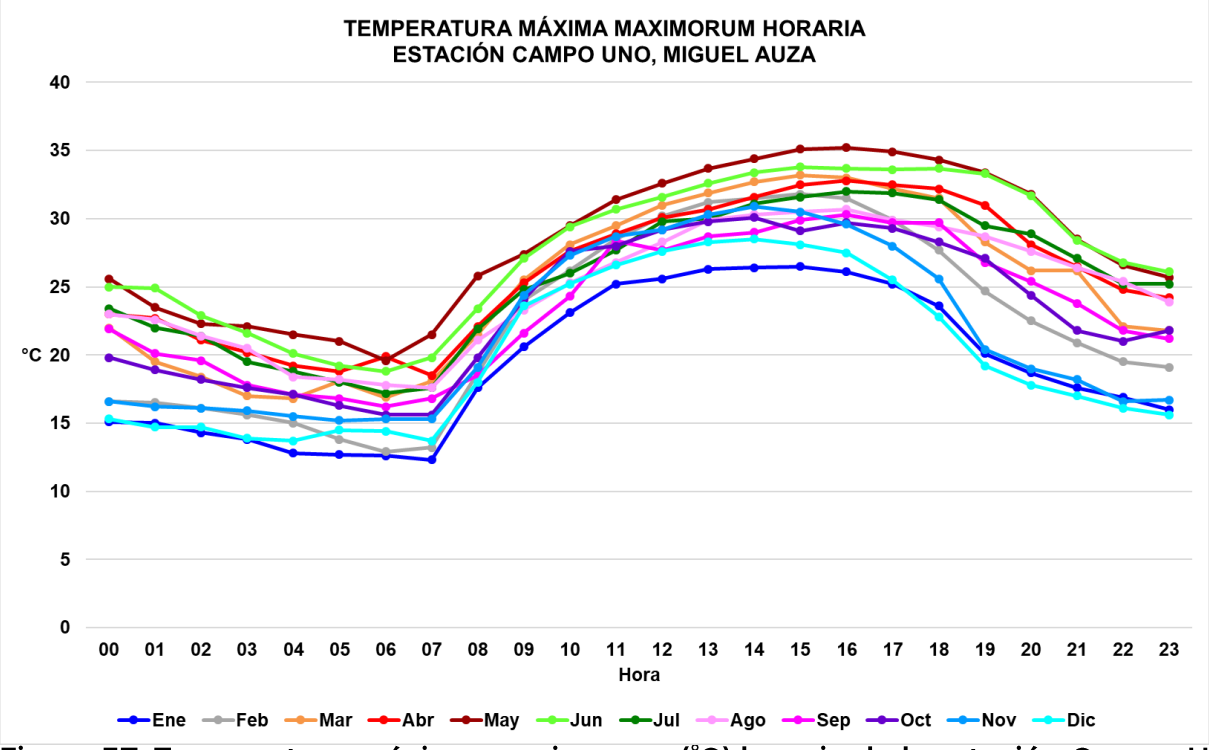


Figura 57. Temperatura máxima maximorum (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 62. Temperatura mínima media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.8	7.9	10.3	14.2	17.0	17.9	16.6	16.3	14.6	11.7	7.8	5.8	12.2
01	5.2	7.1	9.3	13.0	15.9	17.1	16.0	15.7	14.1	11.0	7.0	5.1	11.4
02	4.6	6.4	8.5	12.0	14.9	16.2	15.4	15.1	13.6	10.4	6.5	4.5	10.7
03	4.0	5.8	7.7	11.1	14.0	15.5	14.9	14.6	13.2	9.8	5.9	4.1	10.0
04	3.5	5.2	7.0	10.3	13.1	14.8	14.4	14.2	12.9	9.3	5.4	3.6	9.5
05	3.1	4.7	6.3	9.5	12.2	14.1	13.9	13.7	12.6	8.9	5.0	3.2	8.9
06	2.8	4.3	5.6	8.7	11.5	13.6	13.5	13.4	12.3	8.6	4.7	2.9	8.5
07	2.5	4.1	5.9	8.5	11.4	13.6	13.4	13.2	12.1	8.4	4.9	2.8	8.4
08	3.6	5.8	9.2	10.4	13.5	15.2	14.4	13.9	12.8	9.6	7.9	4.5	10.1
09	7.5	10.3	13.7	14.9	17.5	17.9	16.4	16.1	14.9	13.3	12.5	9.2	13.7
10	11.4	14.1	17.0	18.5	20.6	20.2	18.3	18.2	17.1	16.6	15.6	13.1	16.7
11	14.1	16.8	19.4	21.2	23.0	22.4	20.2	20.0	18.9	19.0	17.9	15.7	19.0
12	16.1	18.7	21.3	23.2	24.9	24.1	21.8	21.6	20.4	20.8	19.6	17.6	20.8
13	17.5	20.1	22.6	24.7	26.3	25.4	23.0	22.9	21.6	22.1	20.8	18.9	22.1
14	18.3	20.9	23.4	25.7	27.2	26.1	23.6	23.7	22.1	22.8	21.4	19.6	22.9
15	18.7	21.2	23.7	26.3	27.7	26.3	23.8	23.9	22.2	23.0	21.4	19.7	23.2
16	18.3	21.0	23.4	26.4	27.7	26.2	23.8	23.8	22.0	22.7	20.6	19.0	22.9
17	16.8	19.9	22.4	26.0	27.4	26.0	23.4	23.4	21.4	21.9	18.4	16.8	22.0
18	13.7	17.2	20.3	24.9	26.6	25.4	22.8	22.6	20.4	19.9	14.9	13.3	20.2
19	11.4	14.5	17.4	22.9	25.1	24.3	21.8	21.2	18.5	16.9	12.9	11.2	18.2
20	9.9	12.7	15.5	20.3	22.7	22.4	20.1	19.3	17.0	15.1	11.6	9.8	16.4
21	8.8	11.4	14.1	18.4	20.8	20.7	18.8	18.2	16.1	14.0	10.4	8.6	15.0
22	7.6	10.1	12.8	17.0	19.5	19.6	17.9	17.4	15.5	13.2	9.4	7.5	14.0
23	6.6	9.0	11.5	15.6	18.3	18.7	17.3	16.8	14.9	12.4	8.5	6.6	13.0
Media	9.7	12.1	14.5	17.6	19.9	20.1	18.6	18.3	16.7	15.1	12.1	10.1	15.4

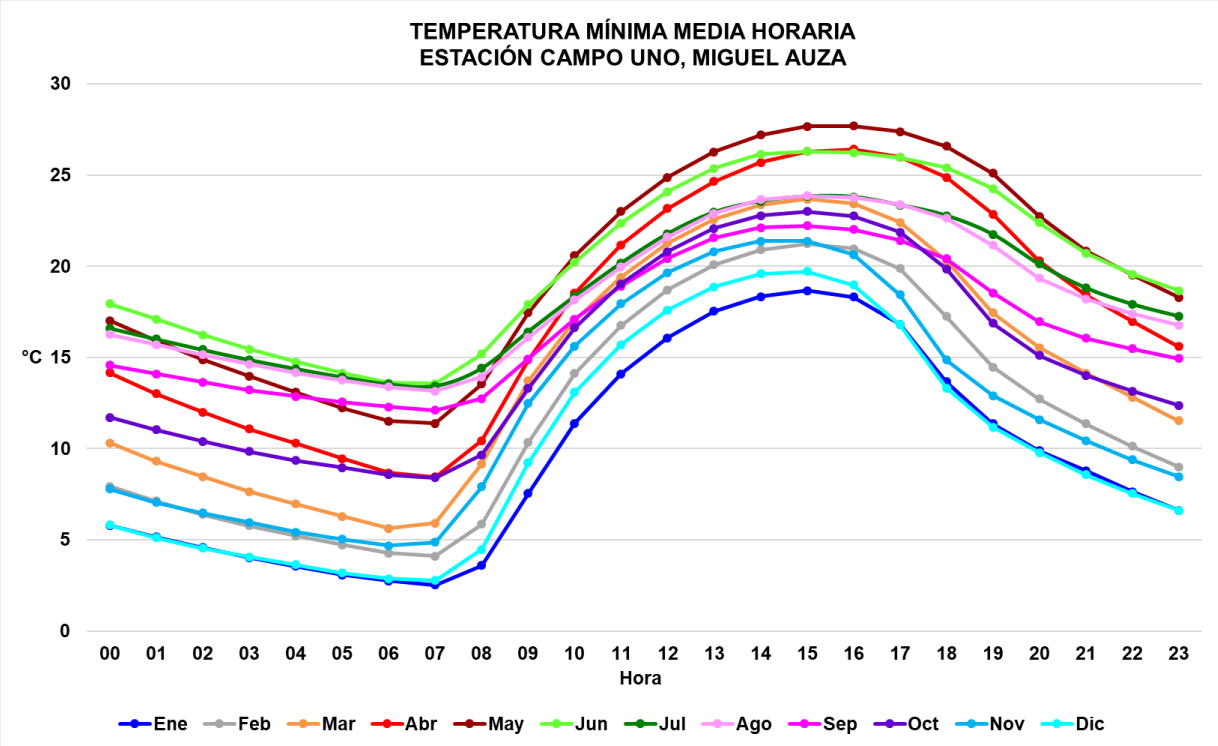


Figura 58. Temperatura mínima media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 63. Temperatura mínima minimorum (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.4	-5.9	-1.9	2.3	8.1	10.9	11.2	10.4	8.5	0.5	-7.4	-8.7	-8.7
01	-5.2	-6.2	-4.2	1.0	7.1	10.2	10.9	9.8	6.6	0.2	-7.4	-9.3	-9.3
02	-5.9	-6.7	-5.2	0.6	5.7	9.9	11.1	9.1	5.6	0.0	-7.4	-10.5	-10.5
03	-5.8	-8.4	-6.1	-0.1	5.1	8.4	10.4	9.0	5.0	-1.5	-8.8	-10.4	-10.4
04	-6.9	-9.9	-7.3	-0.9	4.1	7.8	10.1	8.5	4.5	-1.9	-9.2	-10.1	-10.1
05	-8.6	-11.1	-7.1	-1.4	3.2	7.4	9.3	8.7	3.4	-2.2	-8.7	-10.9	-11.1
06	-8.2	-11.8	-7.3	-1.9	2.4	5.7	9.1	8.3	2.6	-2.9	-9.3	-10.8	-11.8
07	-9.9	-12.0	-7.9	-2.1	1.9	6.4	9.7	8.3	2.5	-3.3	-10.0	-11.2	-12.0
08	-10.0	-11.4	-5.0	-1.0	3.5	10.4	9.6	9.0	4.2	1.1	-5.3	-8.2	-11.4
09	-5.0	-9.3	1.7	5.4	8.0	12.3	10.7	10.1	4.7	4.1	-0.3	-7.1	-9.3
10	-1.4	-5.8	0.4	6.5	8.5	12.8	12.7	13.4	10.4	4.5	1.2	-4.0	-5.8
11	0.9	-2.3	0.7	8.6	9.6	13.0	13.6	13.8	12.9	5.7	2.0	-3.2	-3.2
12	3.2	1.3	1.3	10.7	10.8	12.1	14.4	14.7	13.9	7.8	3.2	-3.3	-3.3
13	3.5	5.0	2.3	12.8	12.5	13.0	14.2	14.7	14.6	10.5	4.6	-3.3	-3.3
14	3.4	7.2	2.3	14.6	15.2	14.4	14.0	15.2	13.7	11.2	5.0	-2.6	-2.6
15	2.9	5.6	2.0	15.1	16.0	14.2	13.7	13.0	12.9	11.1	5.9	-2.0	-2.0
16	2.7	5.5	3.0	15.2	14.2	12.1	12.9	13.7	13.1	11.2	4.8	-0.2	-0.2
17	2.0	5.1	3.5	12.8	14.5	12.4	13.7	14.3	13.3	9.7	2.6	-2.3	-2.3
18	0.6	1.5	2.4	11.7	12.7	12.6	13.1	13.4	13.0	10.2	0.8	-5.7	-5.7
19	0.1	-0.7	2.3	10.1	12.6	13.6	13.0	13.9	12.0	7.5	-1.0	-7.1	-7.1
20	-0.2	-2.1	2.4	7.6	13.8	13.8	13.1	12.6	11.4	6.6	-2.4	-8.3	-8.3
21	-0.9	-3.5	1.8	5.8	13.2	13.3	12.7	12.4	10.9	5.3	-5.2	-8.7	-8.7
22	-3.6	-4.4	-0.3	4.4	11.3	13.1	13.3	13.4	10.0	3.4	-5.9	-9.2	-9.2
23	-4.8	-5.2	0.0	3.6	9.8	12.0	11.9	12.6	8.6	1.7	-6.4	-9.6	-9.6
Mín.	-10.0	-12.0	-7.9	-2.1	1.9	5.7	9.1	8.3	2.5	-3.3	-10.0	-11.2	-12.0

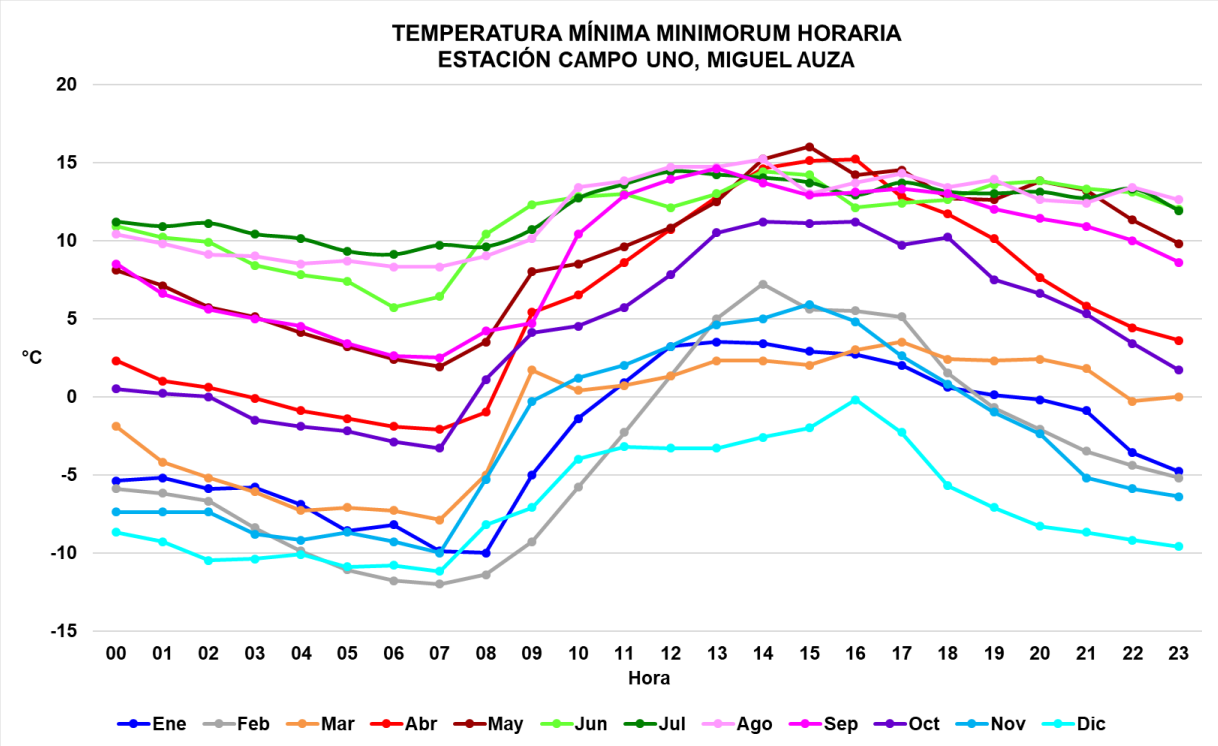


Figura 59. Temperatura mínima minimorum (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 64. Temperatura media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.3	8.5	10.9	14.8	17.6	18.4	17.0	16.6	14.9	12.2	8.3	6.4	12.7
01	5.7	7.7	9.9	13.6	16.5	17.5	16.3	16.1	14.4	11.5	7.5	5.7	11.9
02	5.1	7.0	9.1	12.6	15.4	16.7	15.7	15.5	13.9	10.8	6.9	5.1	11.1
03	4.5	6.3	8.3	11.7	14.5	15.8	15.2	14.9	13.5	10.2	6.4	4.6	10.5
04	4.1	5.8	7.5	10.9	13.6	15.1	14.7	14.4	13.1	9.7	5.9	4.2	9.9
05	3.6	5.3	6.9	10.1	12.8	14.5	14.2	14.0	12.8	9.3	5.5	3.7	9.4
06	3.2	4.8	6.2	9.3	12.0	13.9	13.8	13.6	12.5	8.9	5.1	3.4	8.9
07	3.1	4.7	6.9	9.2	12.1	14.0	13.7	13.4	12.4	8.9	5.7	3.4	9.0
08	5.0	7.5	11.0	12.0	15.0	16.2	15.2	14.7	13.5	10.9	9.7	6.2	11.4
09	9.1	11.9	15.1	16.4	18.7	18.8	17.2	16.9	15.8	14.6	13.7	10.8	14.9
10	12.5	15.2	18.0	19.6	21.5	21.1	19.1	18.9	17.8	17.6	16.6	14.2	17.7
11	14.9	17.6	20.2	22.0	23.8	23.1	20.8	20.6	19.6	19.8	18.7	16.5	19.8
12	16.7	19.3	21.9	23.8	25.5	24.7	22.4	22.2	21.0	21.4	20.2	18.2	21.5
13	18.0	20.5	23.0	25.2	26.8	25.9	23.5	23.5	22.1	22.6	21.2	19.3	22.6
14	18.7	21.3	23.8	26.2	27.7	26.7	24.2	24.2	22.7	23.3	21.7	19.9	23.4
15	19.0	21.6	24.0	26.7	28.2	27.0	24.5	24.5	22.9	23.5	21.7	20.0	23.6
16	18.7	21.3	23.8	26.8	28.2	26.8	24.4	24.5	22.7	23.3	21.1	19.4	23.4
17	17.5	20.4	22.9	26.4	27.8	26.5	24.0	24.1	22.1	22.5	19.5	17.8	22.6
18	14.9	18.4	21.2	25.4	27.1	26.0	23.4	23.2	21.1	20.8	16.1	14.6	21.0
19	12.2	15.4	18.5	23.7	25.8	24.9	22.4	21.9	19.3	18.0	13.6	12.0	19.0
20	10.5	13.4	16.2	21.2	23.7	23.2	20.8	20.1	17.5	15.8	12.2	10.4	17.1
21	9.4	12.0	14.8	19.1	21.5	21.4	19.3	18.7	16.4	14.5	11.1	9.2	15.6
22	8.2	10.8	13.5	17.6	20.1	20.1	18.4	17.8	15.8	13.6	10.0	8.2	14.5
23	7.2	9.6	12.2	16.2	18.9	19.1	17.6	17.2	15.3	12.8	9.0	7.2	13.5
Media	10.3	12.8	15.2	18.4	20.6	20.7	19.1	18.8	17.2	15.7	12.8	10.9	16.0

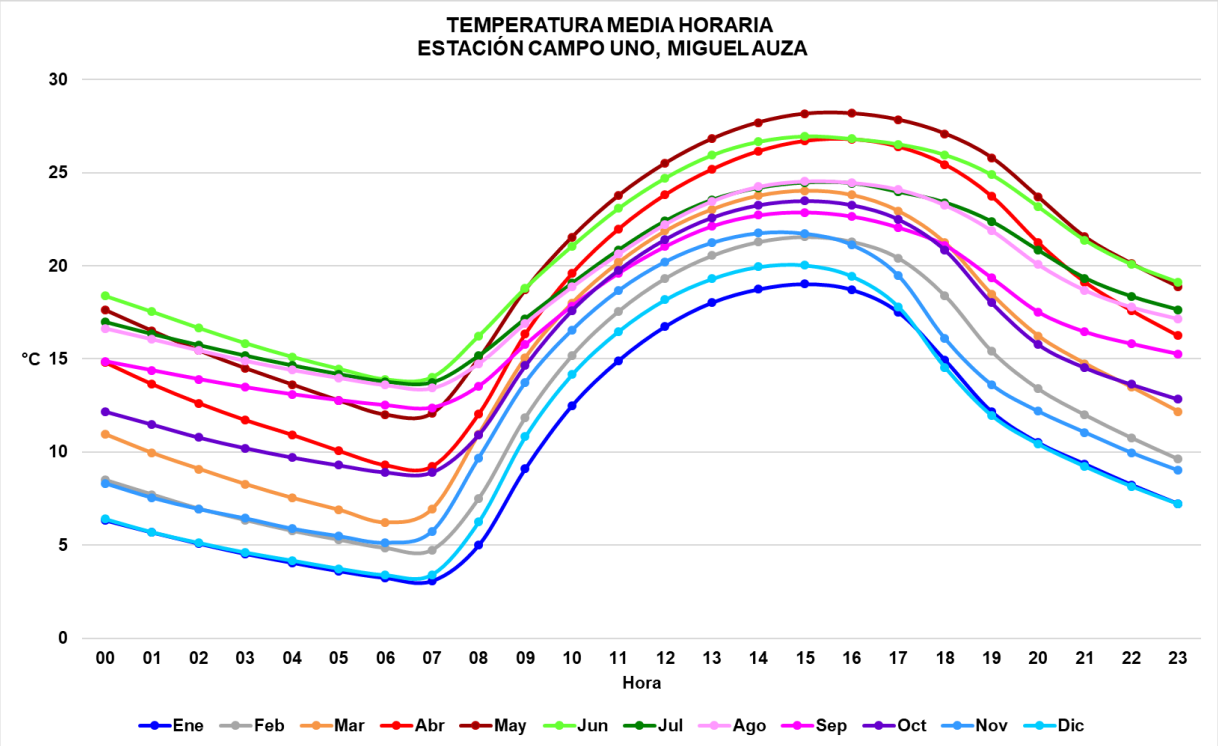


Figura 60. Temperatura media (˚C) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 65. Precipitación media (mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.7	0.5	0.1	0.3	0.9	2.8	3.6	6.6	6.6	1.8	0.2	0.1	24.2
01	0.5	0.3	0.3	0.0	0.5	4.2	3.8	5.2	7.1	1.7	0.1	0.1	23.7
02	0.4	0.2	0.1	0.0	0.1	2.4	2.8	7.0	7.2	1.4	0.3	0.0	21.9
03	0.3	0.4	0.1	0.0	0.3	1.9	2.1	3.8	4.1	1.2	0.2	0.1	14.5
04	0.3	0.3	0.0	0.0	0.2	1.3	1.3	2.4	4.6	1.1	0.2	0.2	11.8
05	0.1	0.2	0.0	0.0	0.1	0.7	1.1	1.9	2.3	0.6	0.5	0.1	7.7
06	0.2	0.1	0.0	0.0	0.1	0.5	1.4	0.7	1.7	0.6	0.7	0.4	6.3
07	0.4	0.2	0.0	0.0	0.1	0.4	1.3	0.6	1.1	0.8	0.3	0.5	5.8
08	0.7	0.3	0.1	0.0	0.1	0.3	0.6	0.3	0.9	0.6	0.3	0.1	4.4
09	0.6	0.2	0.1	0.0	0.1	0.2	0.7	0.2	0.6	0.7	0.5	0.2	4.2
10	0.3	0.7	0.1	0.0	0.1	0.5	0.5	0.1	0.5	0.4	0.5	0.1	3.8
11	0.2	0.4	0.1	0.0	0.0	0.1	0.6	0.2	0.7	0.2	0.2	0.1	3.0
12	0.2	0.4	0.1	0.0	0.2	0.8	1.7	0.3	0.5	0.5	0.3	0.1	5.1
13	0.1	0.6	0.3	0.0	0.1	0.5	2.5	0.4	0.8	0.8	0.4	0.2	6.7
14	0.7	0.2	0.2	0.5	0.2	2.0	7.5	2.2	3.1	1.3	0.6	0.2	18.7
15	0.1	0.4	0.4	0.2	0.8	6.7	4.8	9.5	7.4	2.7	0.7	0.1	33.7
16	0.3	0.3	0.3	0.2	1.6	6.3	5.4	6.4	7.4	4.3	0.6	0.1	33.3
17	0.7	1.1	0.4	0.0	1.0	4.6	7.0	4.0	9.0	4.3	0.7	0.2	33.0
18	0.8	0.5	0.3	0.9	1.0	4.4	9.9	10.1	6.3	3.6	0.6	0.1	38.6
19	0.7	0.2	0.2	0.4	2.1	6.8	8.4	8.3	10.6	2.0	0.5	0.2	40.4
20	0.7	0.4	0.6	0.5	1.0	6.6	7.9	9.5	9.6	1.5	0.3	0.5	39.2
21	0.7	0.1	0.2	0.0	0.4	5.3	6.3	4.9	5.3	1.0	0.7	0.2	25.3
22	0.4	0.2	0.2	0.1	1.4	4.8	6.6	8.9	7.2	1.7	0.2	0.1	31.8
23	0.4	0.3	0.2	0.0	1.2	4.0	4.8	7.3	7.6	2.2	0.2	0.1	28.3
Suma	10.6	8.6	4.5	3.2	13.3	68.4	92.5	100.9	112.5	37.1	9.8	4.1	465.5

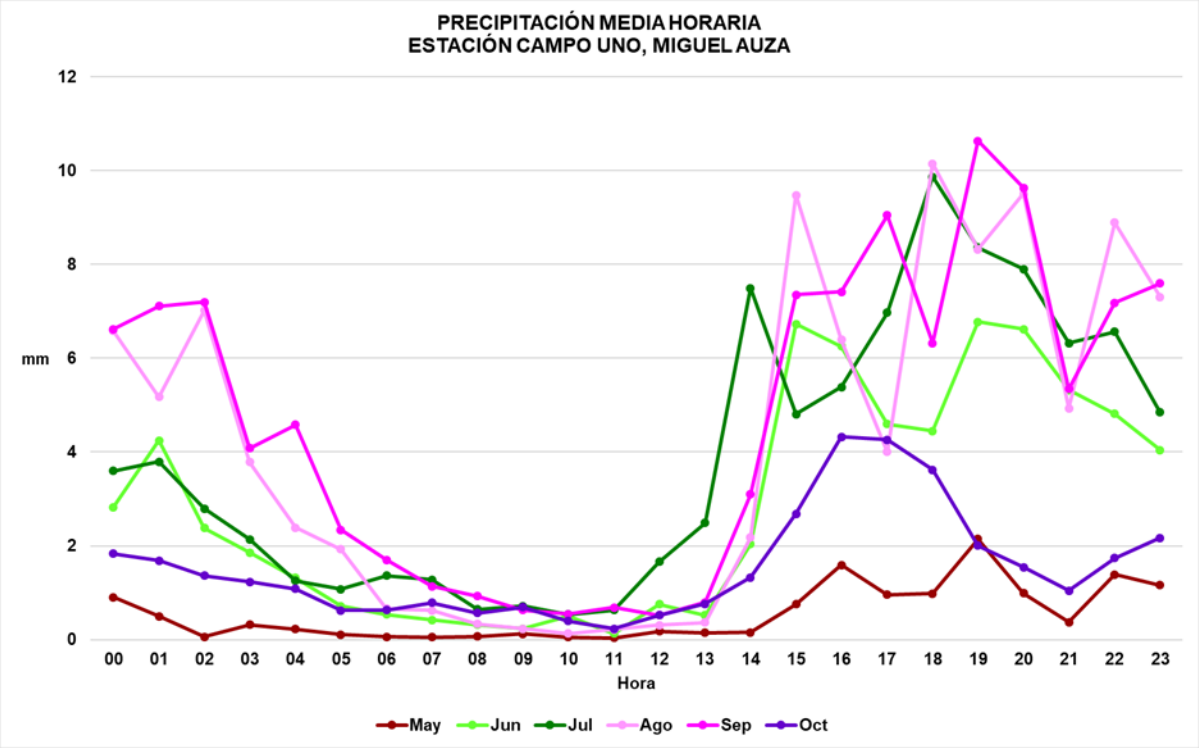


Figura 61. Precipitación media (mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 66. Precipitación máxima maximorum (mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hor	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anu
00	6.8	5.6	0.5	5.4	8.0	7.5	12.0	20.8	15.2	13.6	1.0	0.6	20.8
01	6.0	2.7	2.3	0.2	8.0	39.0	14.0	11.3	13.2	6.8	1.3	0.8	39.0
02	3.0	1.7	1.0	0.2	0.4	11.8	6.0	35.2	20.8	6.4	2.4	0.4	35.2
03	1.0	1.3	2.1	0.2	5.6	6.0	6.2	10.5	10.0	6.6	1.6	1.1	10.5
04	2.0	2.2	0.2	0.1	3.8	4.6	7.1	4.2	15.0	6.4	1.0	0.8	15.0
05	0.4	1.8	0.5	0.0	1.2	3.3	2.8	15.6	7.1	4.0	3.0	1.1	15.6
06	0.9	1.1	0.2	0.1	0.9	4.0	7.2	5.6	4.8	2.2	3.8	2.9	7.2
07	3.0	1.7	0.4	0.0	0.8	4.6	6.6	3.6	5.0	7.7	1.5	4.2	7.7
08	7.4	1.8	1.1	0.0	0.8	3.2	3.2	2.4	4.8	3.2	1.2	0.8	7.4
09	8.6	2.5	1.0	0.0	1.6	2.8	2.8	1.0	5.2	5.0	3.6	1.7	8.6
10	2.8	3.8	1.2	0.0	1.0	6.8	2.4	0.9	5.4	1.8	5.0	0.4	6.8
11	2.2	2.8	1.4	0.0	0.8	1.2	6.4	2.0	3.4	1.4	1.6	0.6	6.4
12	1.6	3.8	0.9	0.0	2.4	12.8	8.8	3.4	4.6	4.4	2.2	1.9	12.8
13	1.5	7.4	3.7	0.0	2.8	2.8	12.6	2.4	2.8	5.2	3.3	1.5	12.6
14	5.4	1.4	2.5	9.4	2.2	10.4	31.8	12.6	15.2	5.9	3.9	2.8	31.8
15	0.4	3.0	4.1	1.6	7.2	17.4	11.6	32.0	24.1	32.9	3.7	0.6	32.9
16	3.0	1.8	2.3	4.9	16.0	32.5	13.6	24.8	10.4	17.8	4.4	1.2	32.5
17	3.4	13.6	2.5	0.3	5.6	33.4	14.8	7.7	21.1	14.3	6.0	1.2	33.4
18	3.2	3.1	1.9	7.3	7.4	19.6	27.6	31.2	18.4	22.7	3.8	0.8	31.2
19	2.8	1.4	1.2	6.4	13.6	41.7	16.8	38.0	26.1	6.1	3.5	1.7	41.7
20	3.3	1.6	4.4	9.5	12.3	16.0	16.4	17.8	20.4	6.6	2.3	4.1	20.4
21	3.8	0.9	1.7	0.6	3.4	23.5	12.9	12.1	12.1	3.4	6.3	1.9	23.5
22	5.6	2.4	1.0	1.2	6.1	13.7	19.7	16.9	19.8	9.7	1.5	1.1	19.8
23	3.8	2.2	2.1	0.4	5.8	9.2	8.8	13.0	13.3	6.6	2.3	0.5	13.3
Máx.	8.6	13.6	4.4	9.5	16.0	41.7	31.8	38.0	26.1	32.9	6.3	4.2	41.7

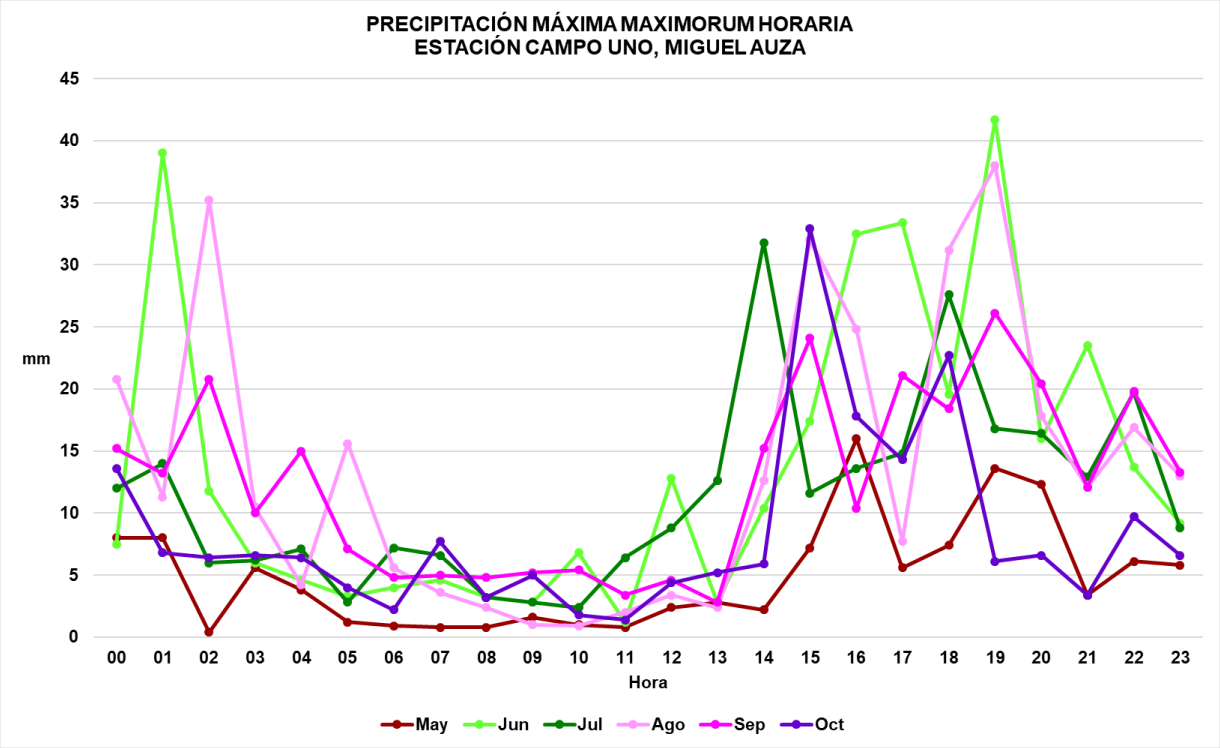


Figura 62. Precipitación máxima maximorum(mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 67. Evapotranspiración potencial media (mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.03	0.05	0.08	0.08	0.05	0.02	0.01	0.00	0.01	0.01	0.01	0.03
01	0.01	0.02	0.03	0.06	0.06	0.04	0.01	0.01	0.00	0.00	0.01	0.01	0.02
02	0.01	0.02	0.03	0.05	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.02
03	0.01	0.02	0.02	0.03	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01
04	0.01	0.01	0.02	0.03	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01
05	0.01	0.01	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
07	0.01	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.02	0.04	0.06	0.05	0.06	0.05	0.02	0.02	0.01	0.01	0.02	0.03	0.03
09	0.07	0.12	0.20	0.16	0.18	0.16	0.11	0.10	0.08	0.09	0.13	0.09	0.12
10	0.18	0.26	0.35	0.32	0.34	0.30	0.23	0.23	0.19	0.22	0.26	0.21	0.26
11	0.30	0.39	0.49	0.48	0.49	0.43	0.36	0.37	0.31	0.35	0.37	0.32	0.39
12	0.39	0.49	0.59	0.60	0.61	0.55	0.48	0.49	0.42	0.46	0.45	0.40	0.49
13	0.45	0.54	0.63	0.68	0.69	0.63	0.55	0.57	0.49	0.52	0.48	0.44	0.56
14	0.45	0.55	0.63	0.71	0.72	0.65	0.56	0.59	0.51	0.53	0.46	0.44	0.57
15	0.41	0.51	0.58	0.69	0.68	0.61	0.53	0.55	0.48	0.49	0.40	0.40	0.53
16	0.35	0.43	0.49	0.61	0.61	0.54	0.47	0.49	0.40	0.42	0.31	0.32	0.45
17	0.25	0.33	0.37	0.51	0.50	0.46	0.38	0.40	0.31	0.31	0.20	0.22	0.36
18	0.16	0.21	0.26	0.40	0.38	0.36	0.29	0.30	0.21	0.19	0.11	0.13	0.25
19	0.08	0.13	0.17	0.30	0.27	0.25	0.20	0.20	0.11	0.09	0.05	0.07	0.16
20	0.05	0.09	0.11	0.21	0.19	0.18	0.12	0.11	0.05	0.04	0.02	0.04	0.10
21	0.04	0.06	0.08	0.15	0.15	0.13	0.08	0.05	0.02	0.01	0.02	0.03	0.07
22	0.03	0.05	0.07	0.12	0.11	0.08	0.04	0.02	0.01	0.01	0.02	0.02	0.05
23	0.02	0.04	0.06	0.10	0.10	0.06	0.02	0.02	0.01	0.01	0.01	0.02	0.04
Media/día /mes	3.31	4.41	5.33	6.39	6.40	5.64	4.53	4.54	3.62	3.77	3.35	3.23	4.54

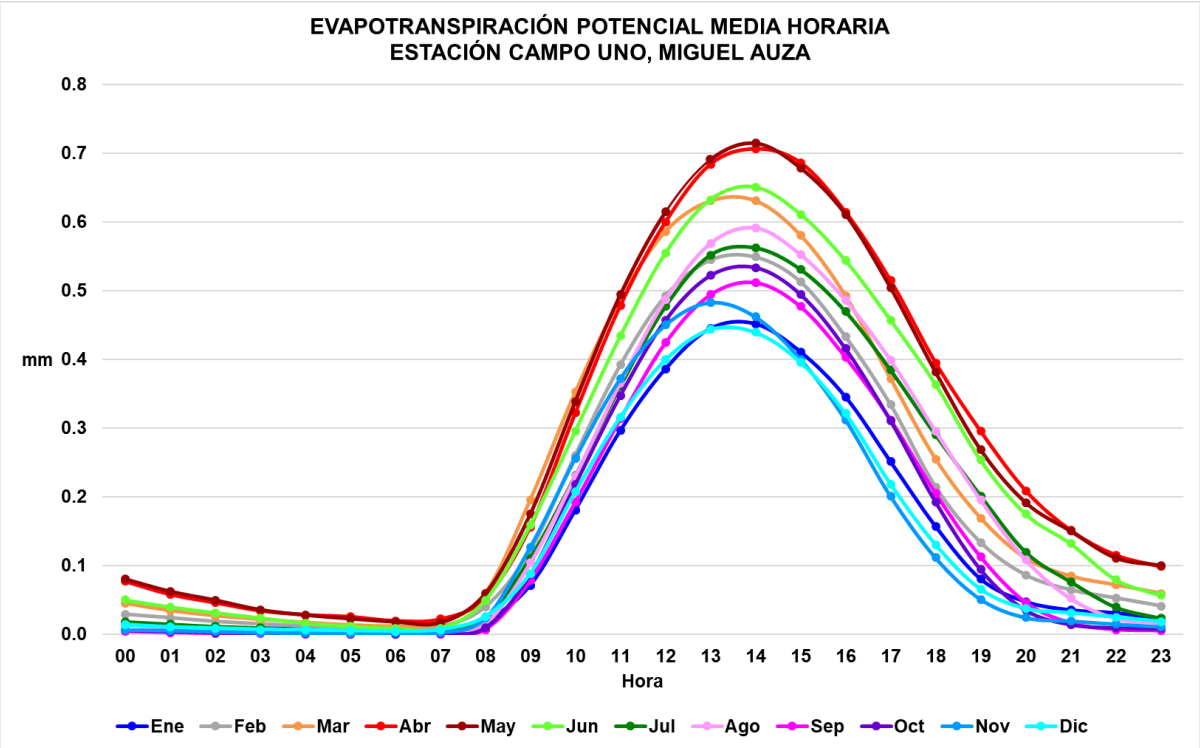


Figura 63. Evapotranspiración potencial media (mm) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 68. Humedad relativa media (%) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	57.2	47.8	39.0	32.9	38.3	56.8	75.0	77.8	86.3	77.0	66.6	57.1	59.3
01	59.6	50.2	41.9	36.1	42.1	60.6	78.2	80.7	88.1	79.7	69.8	59.4	62.2
02	61.8	52.7	44.3	38.7	46.0	64.3	81.0	83.1	89.9	82.5	72.3	61.3	64.8
03	63.8	55.0	46.7	41.4	49.5	68.1	83.3	85.6	91.4	84.6	74.3	63.2	67.2
04	65.6	57.1	49.0	43.7	53.0	71.6	85.3	87.5	92.6	86.4	76.3	64.9	69.4
05	67.3	58.9	51.0	46.2	56.0	74.4	87.1	89.0	93.5	87.9	78.0	66.6	71.3
06	68.8	60.5	53.4	48.4	58.5	77.2	88.6	90.5	94.3	89.1	79.5	68.0	73.1
07	69.6	61.2	52.8	49.5	59.2	77.7	89.3	91.3	94.7	89.3	78.6	68.5	73.5
08	65.5	55.3	45.7	45.0	53.3	71.9	84.9	88.0	92.7	84.9	68.3	61.8	68.1
09	55.3	44.3	35.8	35.8	43.5	63.1	76.9	79.8	85.5	73.7	55.6	49.9	58.3
10	45.2	35.1	27.9	27.4	34.1	54.2	68.8	71.5	76.6	62.0	45.7	40.1	49.0
11	37.4	28.5	22.6	21.5	27.0	45.8	61.1	64.0	68.6	53.2	38.3	33.2	41.8
12	31.8	24.1	19.0	17.6	22.2	39.2	54.1	57.0	62.6	46.6	33.0	28.2	36.3
13	27.9	21.4	16.8	15.3	19.2	34.6	49.0	51.4	57.8	41.9	29.6	25.1	32.5
14	25.7	19.8	15.4	13.7	17.3	31.9	46.1	47.8	55.0	39.1	27.7	23.3	30.2
15	24.6	19.2	14.8	12.8	16.4	31.0	44.6	46.1	54.1	37.9	27.2	22.7	29.3
16	24.7	19.4	14.9	12.5	16.4	31.2	44.4	45.9	54.8	38.2	28.1	23.4	29.5
17	27.0	20.5	16.2	12.7	16.9	32.0	45.7	46.6	56.9	40.2	31.8	26.3	31.1
18	32.2	23.7	18.4	13.7	17.9	33.2	47.7	49.5	60.6	45.3	39.3	32.3	34.5
19	38.0	28.6	21.8	15.6	19.9	35.9	51.5	54.9	68.1	54.8	46.0	38.0	39.4
20	42.5	33.0	25.5	18.8	23.3	40.6	57.4	62.5	75.9	62.6	51.0	42.8	44.6
21	46.5	36.7	29.0	22.2	27.1	46.2	63.6	68.4	80.0	66.9	55.2	46.9	49.1
22	50.3	40.4	32.2	25.7	30.9	50.9	68.2	72.4	82.2	70.3	59.4	50.6	52.8
23	53.9	43.9	35.7	29.3	34.9	54.7	71.6	75.4	84.2	73.4	63.1	54.0	56.2
Media	47.6	39.0	32.1	28.2	34.3	52.0	66.8	69.5	76.9	65.3	54.0	46.1	51.0

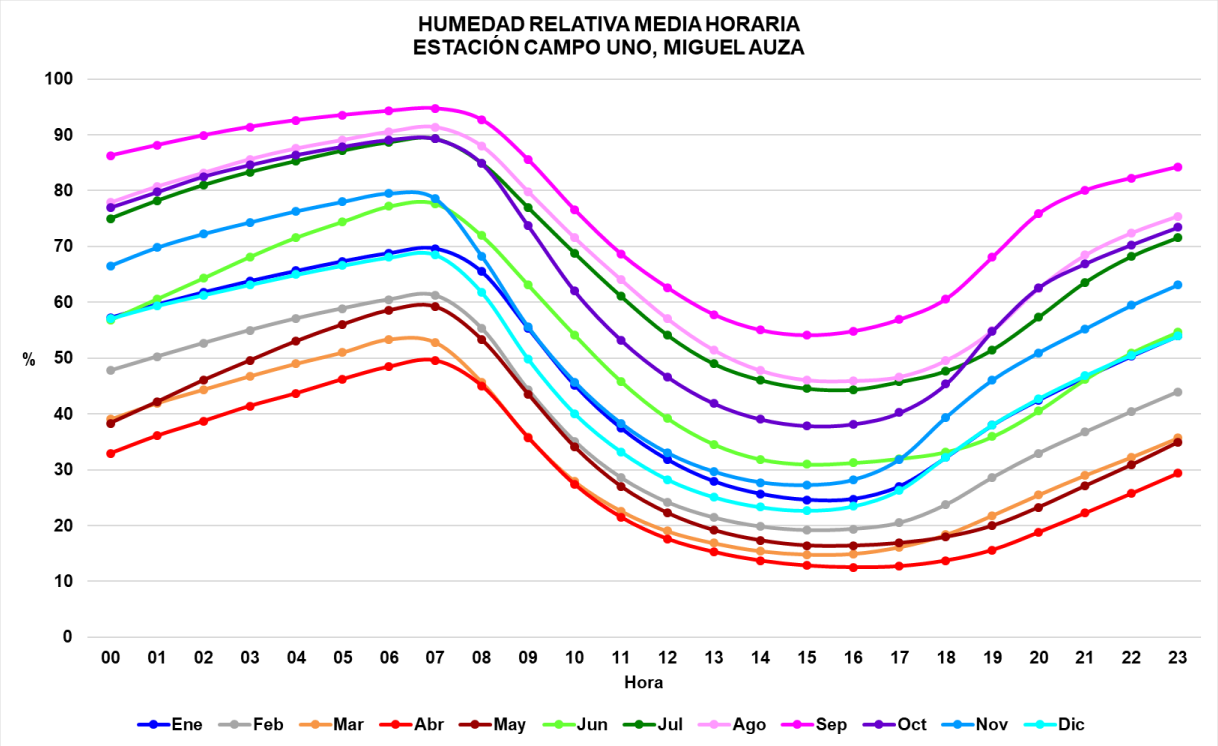


Figura 64. Humedad relativa media (%) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 69. Humedad relativa mínima minimorum (%) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	11.0	13.0	11.0	10.6	10.0	12.0	15.0	29.0	31.0	28.0	17.0	12.0	10.0
01	11.0	14.0	9.0	11.0	10.0	12.0	24.0	33.0	27.0	27.0	18.0	12.0	9.0
02	11.0	13.0	9.0	12.7	11.0	14.0	31.0	37.0	30.0	31.0	19.0	12.0	9.0
03	10.0	13.0	10.0	13.0	12.0	17.0	35.0	38.0	43.0	31.0	20.0	12.0	10.0
04	10.0	13.0	10.0	14.0	11.0	18.0	42.0	47.0	49.0	30.0	23.0	11.0	10.0
05	11.0	13.0	12.0	11.0	12.0	20.0	49.0	56.0	51.0	35.0	23.0	12.0	11.0
06	11.0	13.0	12.0	9.0	13.0	21.0	46.0	59.0	54.0	39.0	22.0	12.0	9.0
07	11.0	16.6	10.6	9.0	12.0	17.0	45.0	62.0	61.0	33.0	20.0	13.0	9.0
08	13.0	10.4	8.0	9.0	10.0	14.0	42.0	48.9	54.9	23.0	19.0	12.0	8.0
09	12.0	9.0	5.0	6.0	7.0	11.0	31.0	42.0	33.9	17.8	11.0	10.0	5.0
10	6.0	6.0	4.0	5.0	6.0	7.0	27.0	33.5	27.1	12.5	8.8	7.0	4.0
11	5.0	4.0	3.6	4.0	5.0	6.0	22.0	27.0	22.8	11.2	7.7	6.0	3.6
12	4.0	4.0	3.0	4.0	4.0	5.0	17.0	23.0	20.0	10.0	6.0	5.0	3.0
13	4.0	4.4	3.0	3.0	3.0	4.0	13.0	23.0	18.7	10.3	6.0	4.0	3.0
14	4.0	4.0	3.0	3.0	3.0	3.0	11.0	19.0	16.0	9.9	5.0	3.0	3.0
15	4.0	4.0	3.0	3.0	3.0	3.0	12.0	18.0	13.0	10.0	5.0	4.0	3.0
16	3.0	4.0	3.0	3.0	3.0	3.0	11.0	17.0	15.0	9.9	5.0	4.0	3.0
17	4.0	4.0	3.0	3.0	4.0	4.0	11.0	15.0	14.0	10.5	5.0	4.0	3.0
18	4.0	6.0	3.0	4.0	4.0	3.0	11.0	14.0	14.0	11.0	7.0	5.0	3.0
19	6.0	7.0	4.0	4.0	4.0	4.0	11.0	16.0	15.0	13.0	10.0	8.0	4.0
20	7.0	9.0	5.0	5.0	4.0	4.0	13.0	17.0	19.0	17.0	10.0	10.0	4.0
21	8.0	10.0	6.0	6.0	6.0	2.0	12.0	21.0	25.0	21.0	11.0	9.0	2.0
22	10.0	11.0	7.0	7.0	8.0	7.0	12.0	22.0	26.0	23.0	14.0	10.0	7.0
23	11.0	13.0	9.0	9.0	9.0	11.0	12.0	25.0	29.0	26.0	14.0	12.0	9.0
Mín.	3.0	4.0	3.0	3.0	3.0	2.0	11.0	14.0	13.0	9.9	5.0	3.0	2.0

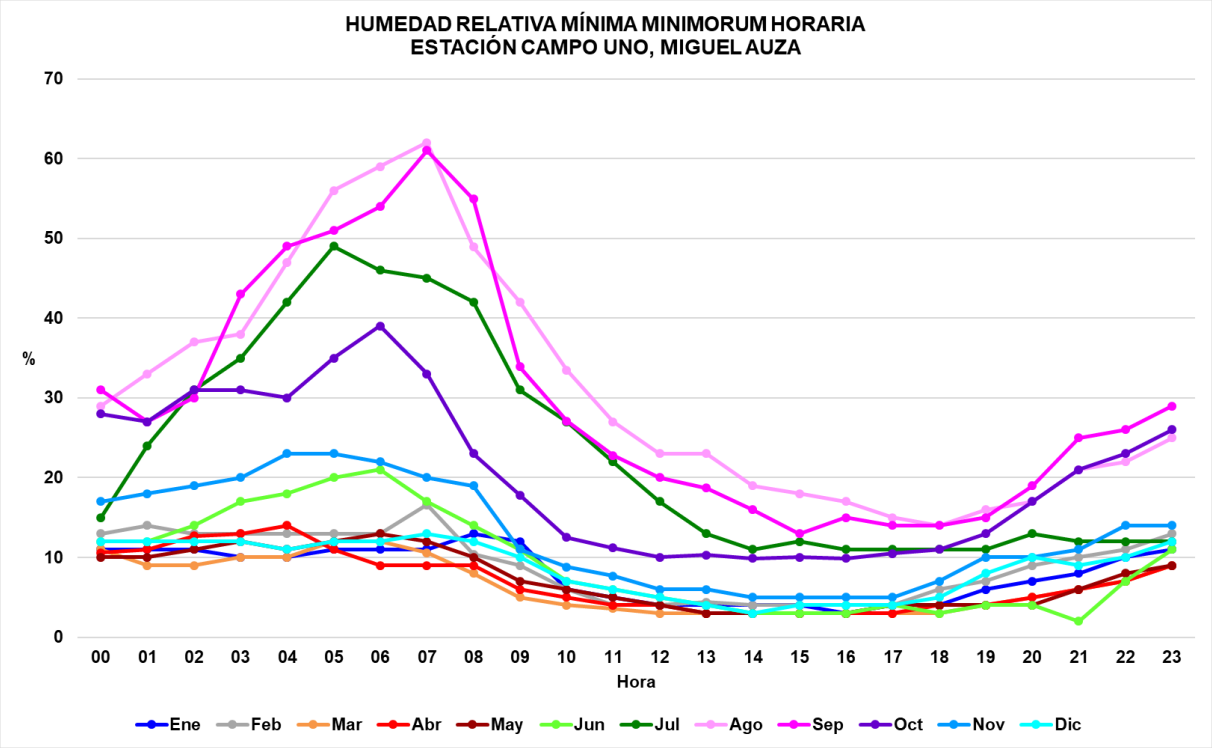


Figura 65. Humedad relativa mínima minimorum (%) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 70. Radiación solar global media horaria (W/m²) de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	13	4	6	5	3	1	0	2	5	0	3
07	46	102	290	151	175	159	102	69	48	77	206	79	125
08	490	715	1093	800	853	794	611	547	442	518	903	607	698
09	1224	1584	2015	1733	1785	1660	1403	1356	1153	1303	1694	1364	1523
10	1942	2359	2813	2606	2662	2476	2229	2195	1929	2113	2364	2006	2308
11	2485	2940	3385	3307	3353	3153	2919	2911	2583	2752	2807	2477	2923
12	2772	3231	3634	3745	3766	3517	3346	3375	3018	3130	2954	2676	3264
13	2734	3194	3576	3825	3873	3555	3371	3477	3134	3182	2782	2599	3275
14	2405	2876	3220	3622	3625	3270	3099	3225	2943	2934	2378	2257	2988
15	1891	2331	2602	3140	3131	2831	2630	2776	2506	2431	1708	1662	2470
16	1156	1561	1806	2484	2440	2194	2080	2193	1946	1753	920	922	1788
17	483	727	951	1664	1649	1575	1389	1548	1275	1019	282	309	1072
18	60	161	283	844	875	909	849	841	653	395	13	16	491
19	0	1	9	251	337	402	389	311	175	61	0	0	161
20	0	0	0	16	42	62	83	47	14	4	0	0	22
21	0	0	0	1	0	0	4	3	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17687	21781	25689	28194	28572	26563	24506	24874	21820	21674	19015	16976	23112

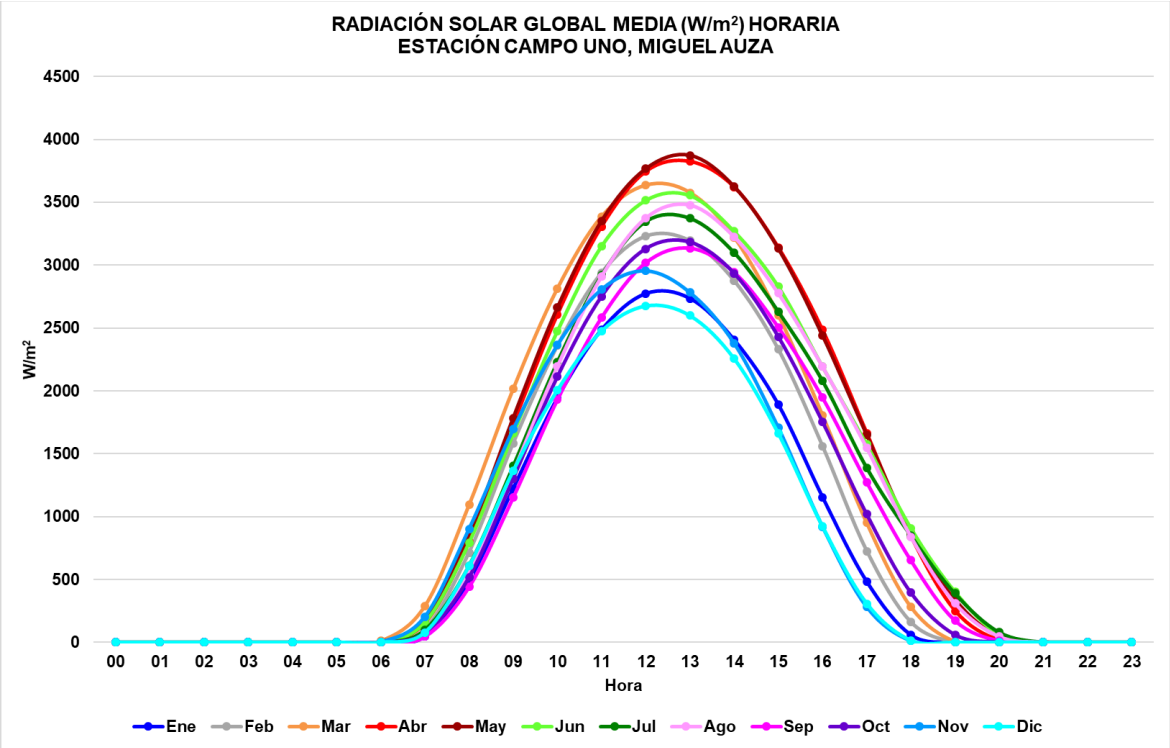


Figura 66. Radiación solar global media horaria (W/m²) de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 71. Radiación solar global media horaria (kWh/m^2) de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.04	0.04	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.12	0.18	0.27	0.20	0.21	0.20	0.15	0.14	0.11	0.13	0.23	0.15	0.17
09	0.31	0.40	0.50	0.43	0.45	0.42	0.35	0.34	0.29	0.33	0.42	0.34	0.38
10	0.49	0.59	0.70	0.65	0.67	0.62	0.56	0.55	0.48	0.53	0.59	0.50	0.58
11	0.62	0.73	0.85	0.83	0.84	0.79	0.73	0.73	0.65	0.69	0.70	0.62	0.73
12	0.69	0.81	0.91	0.94	0.94	0.88	0.84	0.84	0.75	0.78	0.74	0.67	0.82
13	0.68	0.80	0.89	0.96	0.97	0.89	0.84	0.87	0.78	0.80	0.70	0.65	0.82
14	0.60	0.72	0.81	0.91	0.91	0.82	0.77	0.81	0.74	0.73	0.59	0.56	0.75
15	0.47	0.58	0.65	0.79	0.78	0.71	0.66	0.69	0.63	0.61	0.43	0.42	0.62
16	0.29	0.39	0.45	0.62	0.61	0.55	0.52	0.55	0.49	0.44	0.23	0.23	0.45
17	0.12	0.18	0.24	0.42	0.41	0.39	0.35	0.39	0.32	0.25	0.07	0.08	0.27
18	0.01	0.04	0.07	0.21	0.22	0.23	0.21	0.21	0.16	0.10	0.00	0.00	0.12
19	0.00	0.00	0.00	0.06	0.08	0.10	0.10	0.08	0.04	0.02	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/d	4.42	5.45	6.42	7.05	7.14	6.64	6.13	6.22	5.46	5.42	4.75	4.24	5.78

Cuadro 72. Radiación solar global media horaria (Mj/m^2/s) de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.09	0.26	0.14	0.16	0.14	0.09	0.06	0.04	0.07	0.19	0.07	0.11
08	0.44	0.64	0.98	0.72	0.77	0.71	0.55	0.49	0.40	0.47	0.81	0.55	0.63
09	1.10	1.43	1.81	1.56	1.61	1.49	1.26	1.22	1.04	1.17	1.52	1.23	1.37
10	1.75	2.12	2.53	2.35	2.40	2.23	2.01	1.98	1.74	1.90	2.13	1.81	2.08
11	2.24	2.65	3.05	2.98	3.02	2.84	2.63	2.62	2.32	2.48	2.53	2.23	2.63
12	2.49	2.91	3.27	3.37	3.39	3.17	3.01	3.04	2.72	2.82	2.66	2.41	2.94
13	2.46	2.87	3.22	3.44	3.49	3.20	3.03	3.13	2.82	2.86	2.50	2.34	2.95
14	2.16	2.59	2.90	3.26	3.26	2.94	2.79	2.90	2.65	2.64	2.14	2.03	2.69
15	1.70	2.10	2.34	2.83	2.82	2.55	2.37	2.50	2.26	2.19	1.54	1.50	2.22
16	1.04	1.40	1.63	2.24	2.20	1.97	1.87	1.97	1.75	1.58	0.83	0.83	1.61
17	0.43	0.65	0.86	1.50	1.48	1.42	1.25	1.39	1.15	0.92	0.25	0.28	0.97
18	0.05	0.14	0.25	0.76	0.79	0.82	0.76	0.76	0.59	0.36	0.01	0.01	0.44
19	0.00	0.00	0.01	0.23	0.30	0.36	0.35	0.28	0.16	0.06	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.04	0.06	0.07	0.04	0.01	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.92	19.60	23.12	25.37	25.71	23.91	22.06	22.39	19.64	19.51	17.11	15.28	20.80

Cuadro 73. Velocidad del viento media (km/h) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.0	7.9	8.3	9.7	9.5	8.5	7.0	5.5	4.0	4.2	4.8	5.7	6.8
01	5.7	7.5	7.8	8.7	8.9	7.9	6.6	5.5	3.8	3.9	4.5	5.3	6.3
02	5.5	7.0	7.1	7.7	8.0	7.4	6.5	5.2	3.6	3.5	4.3	5.1	5.9
03	5.4	6.4	6.6	7.2	7.2	6.9	6.2	4.9	3.2	3.3	4.2	5.0	5.5
04	5.2	6.2	6.3	6.7	6.4	6.4	5.8	4.7	3.2	3.1	3.9	4.8	5.2
05	5.2	6.0	6.0	6.0	5.8	5.9	5.4	4.4	3.1	3.0	4.0	4.8	5.0
06	5.2	5.9	5.8	5.5	5.2	5.4	5.1	4.1	3.0	2.9	3.8	4.8	4.7
07	5.1	5.9	5.5	5.4	5.0	5.4	5.0	4.0	3.2	2.9	3.9	4.8	4.7
08	5.4	6.4	7.1	6.1	6.2	7.6	6.8	5.4	4.1	3.4	5.3	5.3	5.8
09	7.7	9.2	10.2	9.1	8.8	9.5	9.2	8.1	6.5	5.5	8.1	7.6	8.3
10	10.6	12.4	12.0	11.6	9.9	9.5	9.5	9.1	7.8	7.4	9.9	10.3	10.0
11	12.2	14.2	13.5	12.7	10.2	9.3	9.3	9.0	8.1	8.1	10.6	11.9	10.7
12	13.2	15.4	14.5	13.8	10.7	9.9	9.2	8.6	8.1	8.5	10.8	12.8	11.3
13	13.9	16.3	15.3	14.4	11.5	11.1	10.0	8.9	8.1	8.6	10.9	13.3	11.9
14	14.4	16.9	15.9	15.2	12.1	12.2	11.0	9.9	8.5	8.8	11.1	13.4	12.4
15	14.5	17.2	16.4	15.8	12.9	13.2	12.2	10.8	9.0	8.9	11.0	13.4	12.9
16	14.5	17.2	16.6	16.4	13.3	13.8	13.0	11.2	9.2	8.8	10.8	13.0	13.1
17	13.5	16.5	16.8	16.9	13.8	14.2	13.2	11.5	9.2	8.5	9.7	11.6	13.0
18	10.7	14.3	15.6	17.0	14.0	14.0	12.9	11.5	8.6	7.4	7.0	8.2	11.8
19	8.7	11.2	12.5	15.6	13.8	14.0	12.2	10.5	6.8	5.6	6.1	7.3	10.4
20	8.1	10.3	11.2	13.6	12.6	12.7	10.6	8.2	5.4	4.8	5.6	7.1	9.2
21	8.0	9.7	10.7	12.8	11.5	10.5	8.4	6.8	4.8	4.5	5.6	6.9	8.4
22	7.4	9.1	10.2	11.9	11.0	9.5	7.6	6.2	4.5	4.6	5.3	6.6	7.8
23	6.8	8.3	9.3	10.8	10.3	9.1	7.2	6.1	4.4	4.5	5.0	6.1	7.3
Media	8.9	10.7	10.9	11.3	10.0	9.7	8.8	7.5	5.8	5.6	6.9	8.1	8.7

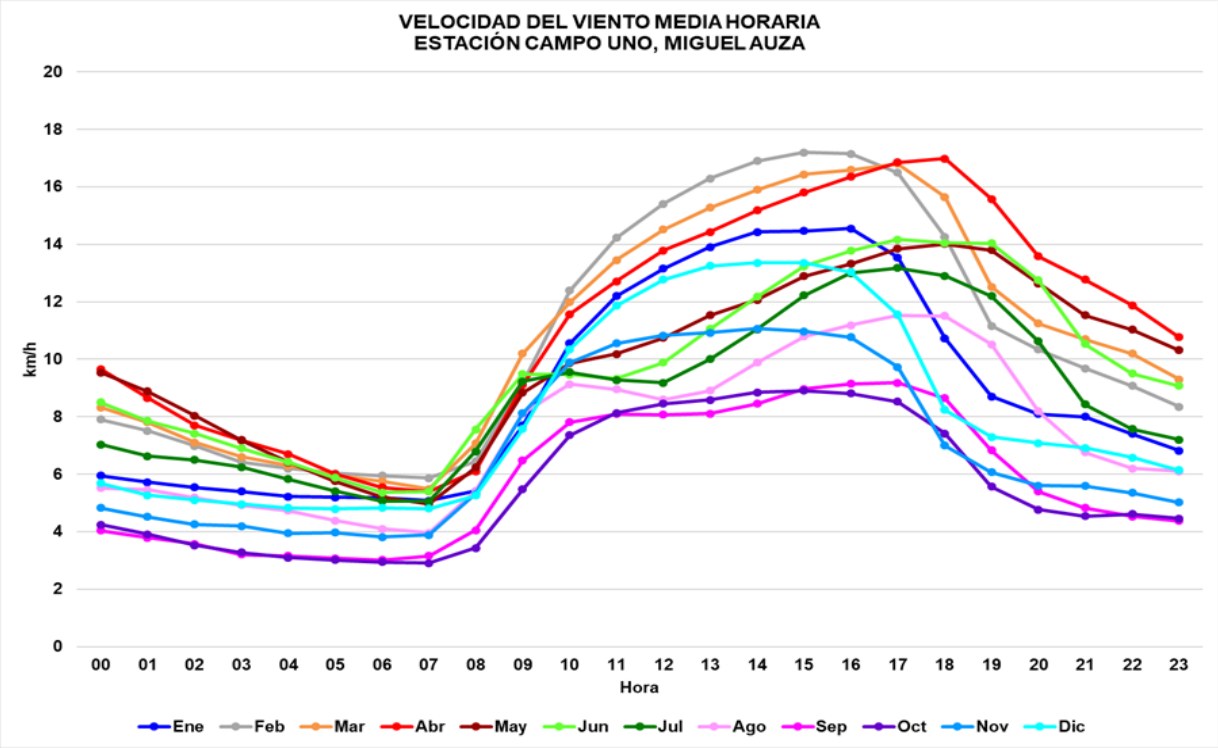


Figura 67. Velocidad del viento media (km/h) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 74. Velocidad del viento máxima maximorum (km/h) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	42.7	41.6	45.7	39.1	36.4	38.4	30.0	34.2	28.3	26.1	34.9	39.9	45.7
01	50.5	41.0	51.5	39.9	32.4	31.0	28.3	26.0	34.1	24.6	35.8	34.9	51.5
02	40.7	42.9	41.0	35.8	34.3	27.0	32.4	22.6	35.8	23.1	31.6	41.6	42.9
03	37.7	42.2	46.5	37.4	33.3	26.6	24.0	24.2	27.5	30.4	37.4	41.1	46.5
04	39.9	44.9	45.0	30.0	32.5	27.7	21.7	24.0	21.7	34.7	36.6	46.0	46.0
05	32.6	47.3	50.5	33.7	30.5	21.2	24.0	24.8	24.2	31.3	32.4	46.8	50.5
06	31.0	57.3	43.2	36.7	30.5	26.1	24.5	21.2	20.0	23.4	34.1	43.6	57.3
07	30.0	58.1	49.0	37.2	28.0	26.7	26.0	20.9	25.8	19.6	26.6	40.6	58.1
08	34.9	53.1	51.0	33.5	29.0	27.2	26.0	20.5	24.2	24.2	26.6	48.9	53.1
09	41.6	58.1	51.5	38.1	37.4	34.1	27.0	23.4	25.0	22.8	35.2	54.3	58.1
10	44.6	56.8	54.2	41.5	34.2	41.6	30.6	25.0	23.8	28.0	33.5	51.0	56.8
11	52.2	56.5	50.7	50.2	35.3	37.4	31.1	29.0	22.5	30.0	48.3	60.4	60.4
12	53.4	56.5	49.8	46.9	39.5	35.8	31.5	27.0	36.6	24.2	47.2	54.7	56.5
13	59.3	57.9	52.3	53.5	42.3	41.1	33.5	31.7	22.5	30.2	50.1	56.3	59.3
14	50.0	60.5	49.6	58.9	39.0	39.2	32.7	28.1	27.5	35.7	48.0	53.5	60.5
15	54.4	60.9	50.0	48.9	37.9	43.0	32.9	34.3	32.4	33.7	49.0	63.8	63.8
16	53.3	51.3	52.0	48.2	42.4	42.0	37.0	35.1	32.3	34.9	47.3	60.1	60.1
17	46.0	48.5	52.7	51.3	40.5	42.1	38.1	37.9	28.5	31.6	49.0	48.9	52.7
18	43.6	49.7	48.1	49.9	41.7	38.2	42.6	39.9	52.3	26.8	39.1	38.1	52.3
19	44.9	43.0	36.9	43.5	37.1	44.7	44.9	42.5	50.7	26.2	39.9	43.1	50.7
20	44.5	41.5	38.2	39.1	37.9	44.0	39.1	44.2	51.5	29.4	37.4	51.0	51.5
21	39.7	36.4	34.2	47.0	40.5	37.4	40.7	37.2	39.9	24.2	37.4	47.8	47.8
22	40.1	36.4	38.5	35.6	37.5	35.8	38.9	31.7	30.8	30.0	40.7	43.3	43.3
23	39.7	39.9	45.7	37.2	37.9	39.0	34.3	37.4	31.6	24.0	39.1	39.8	45.7
Máx.	59.3	60.9	54.2	58.9	42.4	44.7	44.9	44.2	52.3	35.7	50.1	63.8	63.8

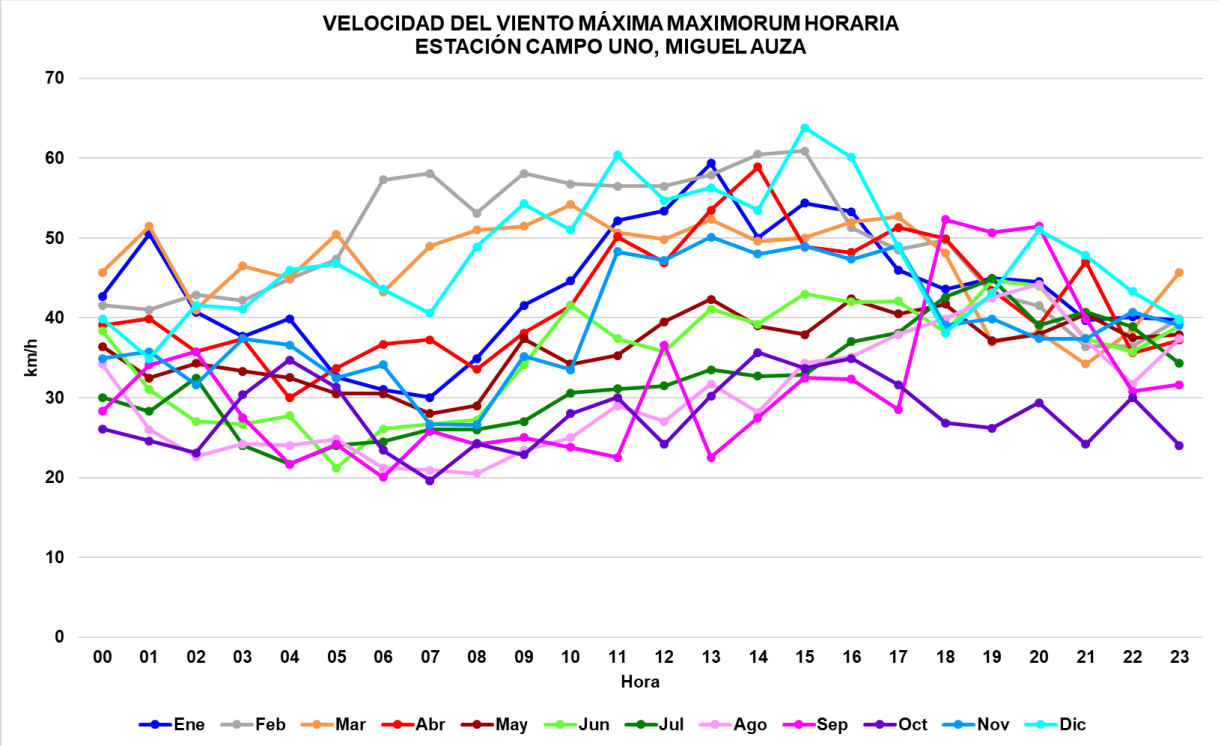


Figura 68. Velocidad del viento máxima maximorum (km/h) horaria de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 75. Frecuencia de velocidad del viento (%) mensual de la estación Campo Uno, Miguel Auza (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	37.1	27.2	24.1	21.7	23.3	23.4	29.2	35.9	49.6	53.3	45.8	41.5	34.6
5.1 a 10.0	30.5	31.5	32.1	31.0	34.7	32.6	34.0	35.4	33.8	32.4	32.4	30.3	32.6
10.1 a 15.0	16.4	18.0	19.4	21.0	22.3	25.6	23.4	21.5	14.4	11.6	13.7	14.8	18.5
15.1 a 20.0	8.7	10.3	11.9	13.2	12.3	13.4	10.7	6.0	2.0	2.3	5.4	7.1	8.5
20.1 a 25.0	3.7	6.2	6.6	7.7	5.2	4.0	2.4	1.0	0.1	0.4	1.8	3.5	3.5
25.1 a 30.0	1.9	3.3	3.1	3.5	1.7	0.8	0.4	0.1	0.1	0.0	0.6	1.4	1.4
30.1 a 35.0	0.9	1.7	1.6	1.3	0.5	0.2	0.0	0.0	0.0	0.0	0.2	0.7	0.6
35.1 a 40.0	0.5	1.1	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.3
40.1 a 45.0	0.2	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
45.1 a 50.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
>50	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

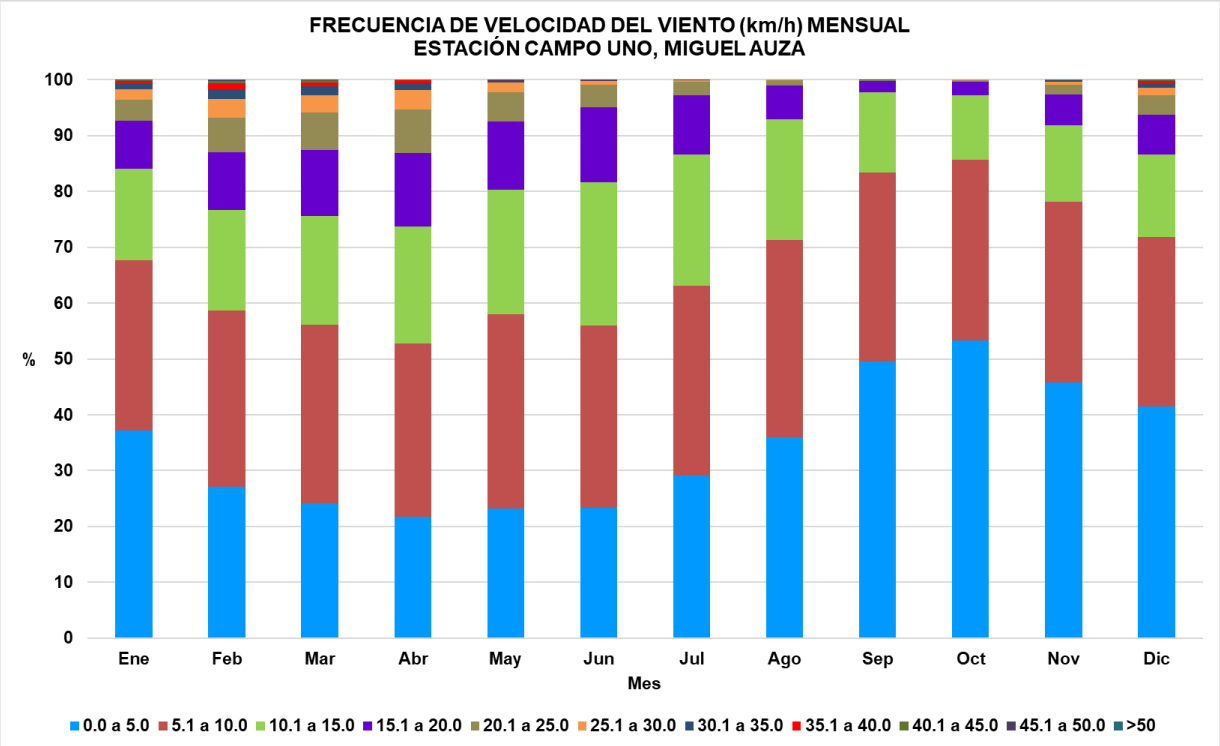


Figura 69. Frecuencia de velocidad del viento (%) mensual de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 76. Frecuencia de dirección del viento (%) mensual de la estación Campo Uno, Miguel Auza (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	3.9	3.9	4.8	5.1	6.9	10.5	7.1	7.9	9.1	6.9	5.5	4.1	6.3
NNE	2.0	1.9	2.6	2.7	4.1	7.1	5.5	5.7	5.1	4.2	2.8	2.1	3.8
NE	1.7	1.5	2.0	2.1	3.2	5.1	5.3	5.0	4.1	3.4	2.3	1.8	3.2
ENE	2.3	2.2	2.5	2.2	3.3	5.6	6.5	6.3	4.9	4.0	3.1	2.2	3.8
E	5.9	4.6	4.5	4.0	5.8	12.1	14.4	13.2	12.6	10.2	7.1	5.3	8.4
ESE	8.7	6.7	6.0	5.3	7.0	12.5	15.5	15.1	12.1	11.0	10.4	8.5	10.0
SE	9.1	7.4	5.9	5.5	6.3	8.9	11.8	11.4	9.3	9.9	9.7	8.4	8.7
SSE	7.3	7.2	6.1	6.0	5.5	5.1	6.5	6.3	5.5	6.5	7.6	7.9	6.5
S	8.9	9.9	8.2	9.5	7.3	3.5	3.9	4.0	3.7	5.7	6.9	10.2	6.8
SSO	9.9	11.3	10.9	12.5	8.8	2.7	2.9	2.7	2.7	5.0	7.6	10.7	7.2
SO	8.6	10.2	10.2	10.2	8.3	2.6	2.3	2.5	2.7	5.1	7.1	8.5	6.5
OSO	8.2	10.1	10.0	9.2	7.3	3.2	2.5	2.8	3.5	5.7	7.2	8.7	6.5
O	5.9	7.1	8.8	8.9	7.5	3.7	2.8	3.1	4.1	4.7	5.2	6.3	5.6
ONO	5.6	5.9	6.5	6.4	6.3	4.0	3.1	3.3	4.4	4.6	4.8	4.8	4.9
NO	7.0	5.9	6.2	5.6	6.4	5.9	5.0	5.2	8.2	6.8	6.9	6.1	6.3
NNO	4.9	4.1	4.9	4.7	5.9	7.3	4.9	5.6	8.2	6.2	5.7	4.4	5.6
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

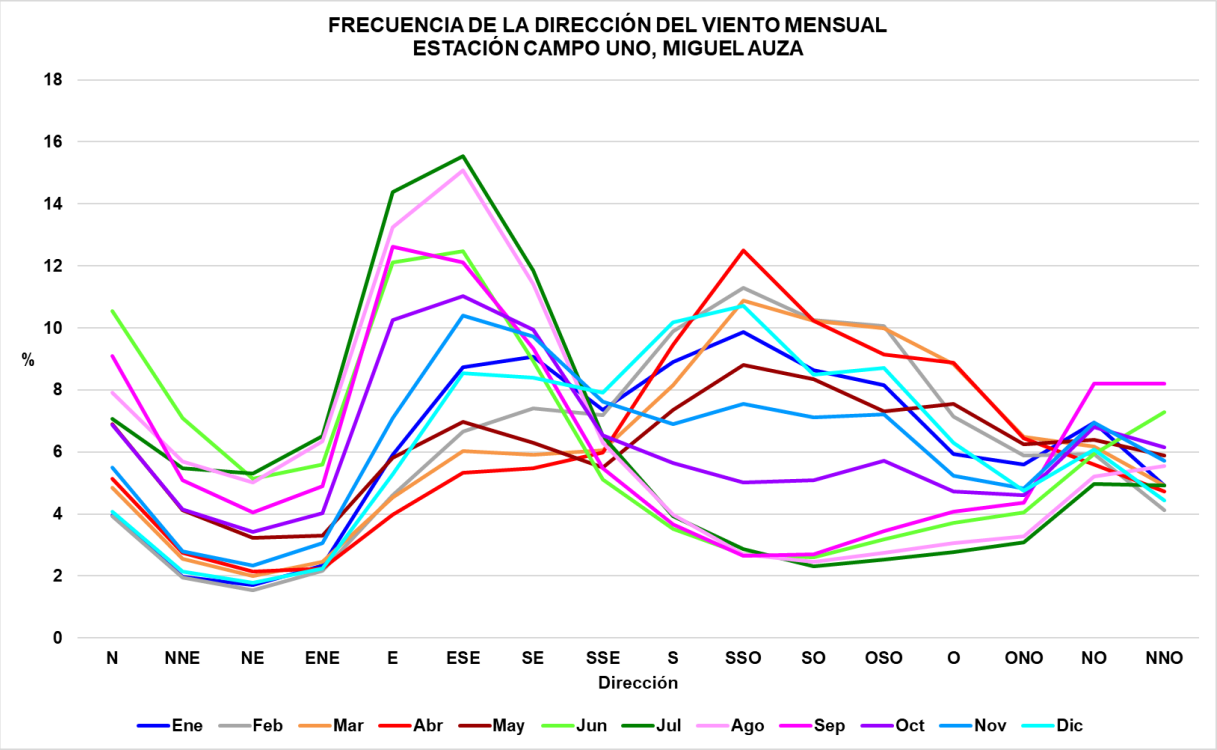


Figura 70. Frecuencia de dirección del viento (%) mensual de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 77. Frecuencia de dirección del viento (%) trimestral de la estación Campo Uno, Miguel Auza (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	4.2	7.5	8.0	5.5	6.3
NNE	2.2	4.6	5.4	3.0	3.8
NE	1.8	3.5	4.8	2.5	3.2
ENE	2.3	3.7	5.9	3.1	3.8
E	5.0	7.3	13.4	7.5	8.4
ESE	7.1	8.3	14.3	10.0	10.0
SE	7.5	6.9	10.9	9.4	8.7
SSE	6.9	5.5	6.1	7.4	6.5
S	8.9	6.8	3.9	7.6	6.8
SSO	10.7	8.0	2.7	7.8	7.2
SO	9.7	7.1	2.5	6.9	6.5
OSO	9.4	6.6	2.9	7.2	6.5
O	7.3	6.7	3.3	5.4	5.6
ONO	6.0	5.6	3.6	4.7	4.9
NO	6.4	6.0	6.1	6.6	6.3
NNO	4.7	6.0	6.2	5.4	5.6
Suma	100.0	100.0	100.0	100.0	100.0

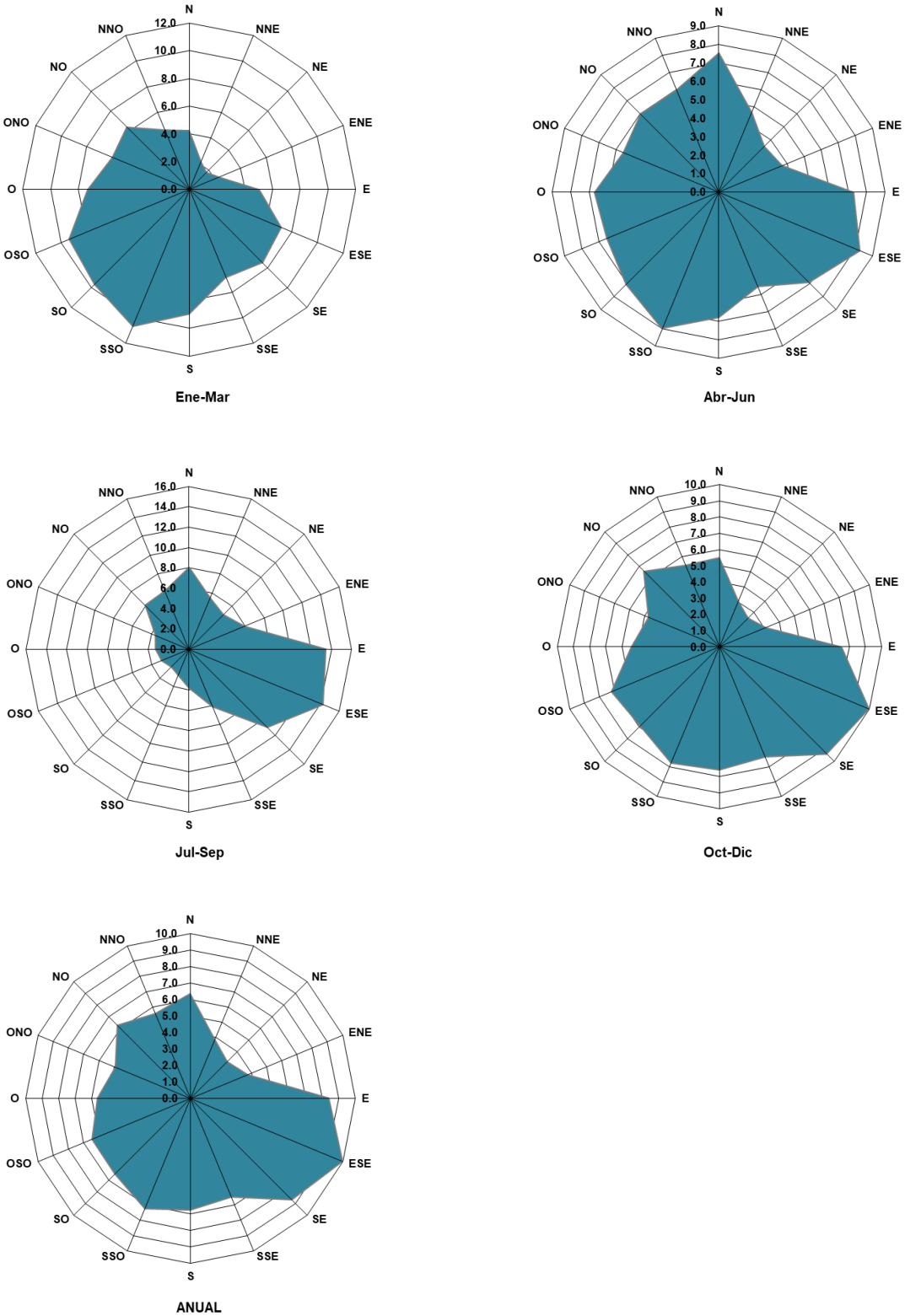


Figura 71. Frecuencia de dirección del viento (%) trimestral de la estación Campo Uno, Miguel Auza (2002-2022).

Cuadro 78. Estadísticas climatológicas mensuales de la estación Campo Uno, Miguel Auza (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.7	22.2	24.6	27.5	29.2	28.3	26.0	25.9	24.3	24.5	22.4	20.7	24.6
Temperatura máxima maximorum (°C)	26.5	31.8	33.2	32.8	35.2	33.8	32.0	30.7	30.3	30.1	30.9	28.5	35.2
Temperatura mínima media (°C)	1.8	3.4	5.1	8.0	11.0	13.3	13.2	13.0	11.9	8.0	4.0	1.9	7.9
Temperatura mínima minimorum (°C)	-10.0	-12.0	-7.9	-2.1	1.9	5.7	9.1	8.3	2.5	-3.3	-10.0	-11.2	-12.0
Temperatura media (°C)	10.4	12.8	15.2	18.4	20.6	20.7	19.1	18.8	17.2	15.7	12.8	10.9	16.0
Oscilación térmica (°C)	17.9	18.7	19.5	19.5	18.2	15.0	12.8	13.0	12.4	16.5	18.4	18.8	16.7
Precipitación acumulada media (mm)	11.1	9.0	4.8	3.4	14.0	71.8	92.5	100.9	112.5	37.1	9.8	4.1	471.0
Precipitación máxima maximorum en 24 horas (mm)	27.0	26.5	22.5	10.8	22.4	55.2	61.2	58.2	80.6	56.7	17.8	11.9	80.6
Número de días promedio con lluvia	4.9	3.3	3.7	2.4	4.3	10.8	15.8	17.0	16.4	7.9	4.3	3.3	94.2
Evapotranspiración acumulada potencial media (mm)	102.9	125.9	167.6	188.7	198.0	170.7	148.3	150.2	121.0	124.5	106.0	101.8	1705.6
Humedad máxima media (%)	75.8	67.5	60.1	56.6	65.1	81.7	91.8	93.3	96.1	92.3	83.7	74.4	78.2
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.5	16.8	12.9	10.8	13.5	25.2	36.7	38.5	46.9	33.5	24.8	20.3	25.1
Humedad mínima minimorum (%)	3.0	4.0	3.0	3.0	3.0	2.0	11.0	14.0	13.0	9.9	5.0	3.0	2.0
Humedad media (%)	47.6	39.1	32.1	28.2	34.3	52.0	66.8	69.5	76.9	65.3	54.0	46.1	51.0
Radiación global media día/mes (W/m^2)	17687.3	21779.3	25688.6	28194.2	28571.6	26563.3	24507.8	24873.6	21820.0	21674.3	19015.0	16975.6	23112.6
Radiación global media día/mes (kWh/m^2)	4.4	5.4	6.4	7.0	7.1	6.6	6.1	6.2	5.5	5.4	4.8	4.2	5.8
Radiación global media día/mes ($Mj/m^2/s$)	15.9	19.6	23.1	25.4	25.7	23.9	22.1	22.4	19.6	19.5	17.1	15.3	20.8
Velocidad del viento máxima media (km/h)	21.4	24.5	24.7	25.6	23.7	24.0	22.7	20.2	16.1	14.5	17.0	19.5	21.2
Velocidad del viento máxima maximorum (km/h)	59.3	60.9	54.2	58.9	42.4	44.7	44.9	44.2	52.3	35.7	50.1	63.8	63.8
Velocidad del viento media (km/h)	8.8	10.7	10.9	11.3	10.0	9.7	8.8	7.5	5.8	5.6	6.9	8.1	8.7
Dirección dominante del viento	SSO	SSO	SSO	SSO	SSO	ESE	ESE	ESE	E	ESE	ESE	SSO	ESE

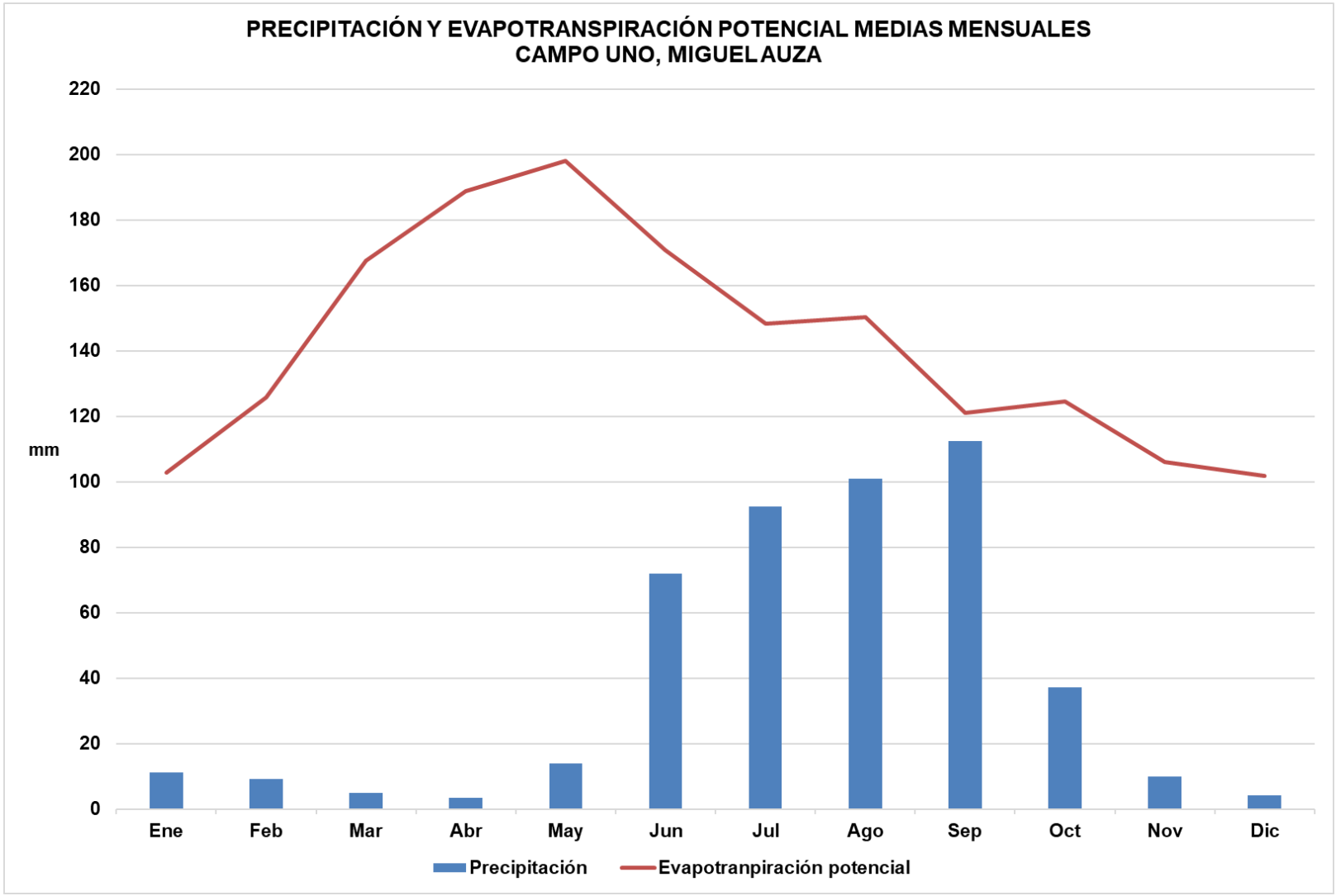


Figura 72. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Campo Uno, Miguel Auza (2002-2022).

7.5. Estación: Cañitas, Cañitas

Cuadro 79. Temperatura máxima media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.7	9.1	11.6	15.4	18.2	19.1	17.6	17.7	16.0	13.4	9.2	7.1	13.4
01	5.8	8.1	10.5	14.1	17.0	18.2	16.9	17.0	15.4	12.6	8.3	6.2	12.5
02	5.0	7.1	9.5	12.9	15.8	17.2	16.2	16.3	14.8	11.8	7.4	5.5	11.6
03	4.4	6.3	8.6	11.9	14.8	16.4	15.6	15.7	14.3	11.1	6.7	4.9	10.9
04	3.9	5.6	7.8	10.9	13.9	15.6	15.0	15.1	13.9	10.4	6.1	4.3	10.2
05	3.3	5.0	7.0	10.0	13.0	15.0	14.5	14.5	13.4	9.8	5.6	3.8	9.6
06	2.9	4.4	6.4	9.2	12.2	14.4	14.1	14.1	13.1	9.3	5.2	3.4	9.1
07	3.0	5.0	8.6	10.0	13.0	15.0	14.4	14.1	13.1	9.5	6.7	3.8	9.7
08	6.7	9.7	13.7	14.5	17.1	17.9	16.7	16.5	15.1	12.8	11.5	8.1	13.3
09	11.2	14.1	17.5	18.7	20.7	20.6	19.1	19.0	17.7	16.6	15.3	12.5	16.9
10	14.5	17.3	20.3	21.8	23.5	22.9	21.0	21.1	19.8	19.3	18.1	15.8	19.6
11	16.9	19.6	22.4	24.0	25.6	24.8	22.8	22.8	21.4	21.3	20.1	18.1	21.6
12	18.5	21.3	23.9	25.8	27.2	26.3	24.2	24.2	22.7	22.7	21.5	19.8	23.2
13	19.7	22.5	25.0	27.2	28.5	27.4	25.2	25.3	23.7	23.8	22.4	20.8	24.3
14	20.4	23.2	25.7	28.2	29.4	28.2	25.9	26.1	24.4	24.6	22.9	21.4	25.0
15	20.7	23.5	25.9	28.6	29.9	28.6	26.3	26.7	24.8	25.0	23.0	21.6	25.4
16	20.3	23.2	25.6	28.6	29.9	28.8	26.5	26.8	24.9	24.9	22.6	21.1	25.3
17	19.4	22.4	24.8	28.3	29.5	28.5	26.3	26.4	24.4	24.3	21.3	19.8	24.6
18	17.1	20.6	23.2	27.3	28.7	27.7	25.4	25.5	23.2	22.8	18.2	16.8	23.0
19	13.7	17.3	20.4	25.5	27.3	26.4	24.1	24.1	21.4	20.2	15.0	13.6	20.8
20	11.7	14.8	17.7	22.8	25.3	24.7	22.5	22.2	19.2	17.4	13.3	11.6	18.6
21	10.0	13.1	16.0	20.4	22.8	22.7	20.6	20.2	17.9	15.9	12.1	10.1	16.8
22	8.7	11.5	14.3	18.5	20.9	21.2	19.3	19.1	17.1	14.9	11.0	8.9	15.5
23	7.6	10.3	13.0	16.9	19.5	20.1	18.4	18.3	16.5	14.1	10.0	7.9	14.4
Media	11.3	14.0	16.6	19.7	21.8	22.0	20.4	20.4	18.7	17.0	13.9	11.9	17.3

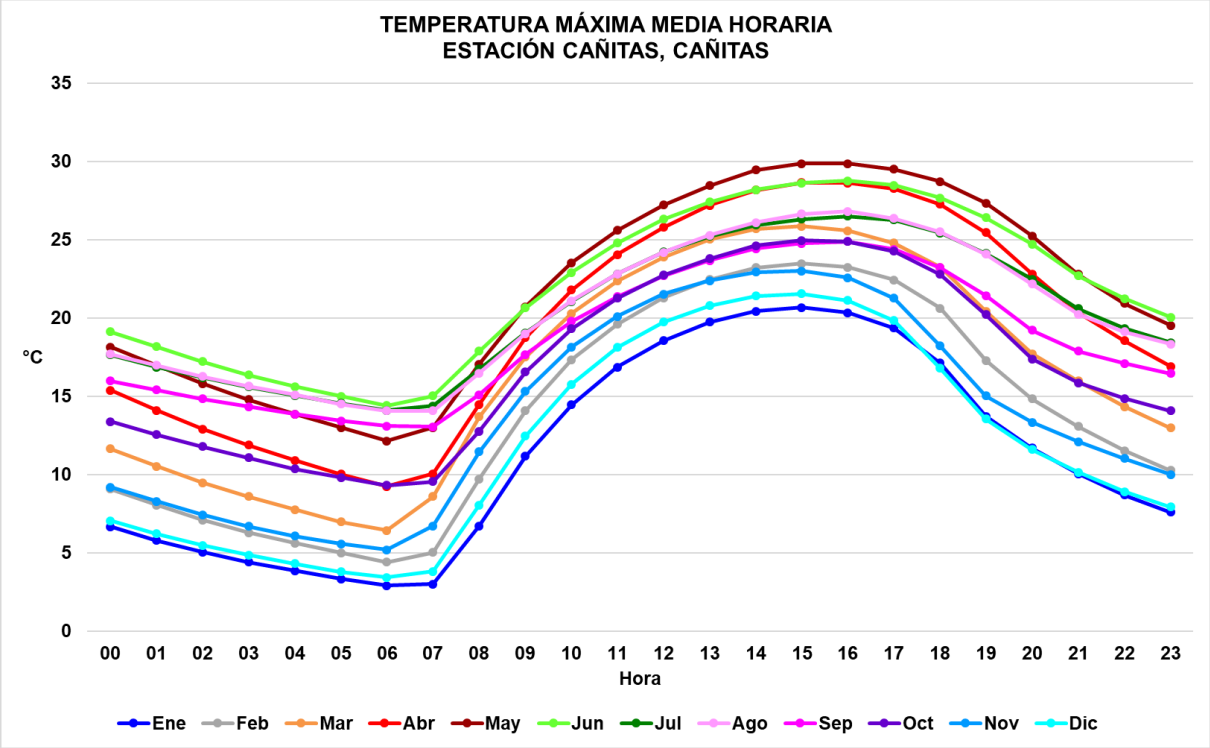


Figura 73. Temperatura máxima media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 80. Temperatura máxima maximorum (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.3	17.3	20.8	25.1	25.5	25.7	23.8	23.7	22.9	19.7	15.9	15.0	25.7
01	13.8	18.0	19.3	23.7	24.6	24.0	22.3	21.8	21.0	18.3	16.0	13.4	24.6
02	13.3	16.9	17.3	23.6	23.4	22.1	21.1	20.9	20.0	17.8	15.9	13.5	23.6
03	13.4	14.9	17.0	20.0	21.9	21.1	19.9	20.4	19.6	17.4	15.3	13.2	21.9
04	12.8	13.5	16.3	19.3	20.5	20.6	18.9	19.1	19.0	17.1	13.6	13.6	20.6
05	12.9	12.7	15.1	18.2	20.0	20.0	18.4	18.4	18.3	17.3	13.7	13.9	20.0
06	12.6	12.9	16.4	16.8	18.4	19.0	18.4	18.3	17.0	16.9	14.1	13.7	19.0
07	12.4	13.1	17.9	17.7	22.7	21.0	18.3	18.4	17.0	16.4	15.2	13.6	22.7
08	16.1	19.6	21.7	23.8	27.1	24.5	23.2	21.1	20.2	20.8	19.5	17.2	27.1
09	19.1	24.2	26.7	26.3	29.9	28.4	25.7	23.6	23.1	25.4	23.4	20.6	29.9
10	22.9	26.7	28.8	28.5	33.3	30.6	28.7	26.2	25.9	27.8	27.0	26.6	33.3
11	25.0	29.3	31.9	30.3	35.5	32.1	29.4	27.6	26.6	29.6	28.0	28.1	35.5
12	26.2	31.1	32.2	32.0	35.4	32.7	31.2	29.5	28.1	30.5	29.3	28.7	35.4
13	27.2	32.0	33.7	34.0	35.8	33.2	31.8	31.1	29.9	31.8	30.1	29.1	35.8
14	27.4	32.9	34.9	34.6	37.9	34.1	32.9	31.6	31.0	33.8	30.9	29.3	37.9
15	27.7	32.5	34.9	34.6	37.3	35.2	33.5	32.3	31.5	34.7	30.8	29.1	37.3
16	27.0	32.1	34.8	34.7	37.2	34.6	33.3	33.5	32.7	32.7	29.6	28.5	37.2
17	27.0	30.9	33.2	34.5	37.1	35.0	34.2	32.6	31.4	32.2	28.2	25.8	37.1
18	24.6	28.3	32.0	33.7	36.1	34.5	32.7	31.4	30.8	30.1	24.0	23.6	36.1
19	22.3	25.1	27.8	32.5	34.0	33.5	31.3	30.2	29.6	27.9	20.8	19.6	34.0
20	18.9	22.3	25.0	29.9	31.5	32.4	29.8	29.0	27.2	24.3	21.1	17.9	32.4
21	18.4	22.2	24.5	29.2	31.1	29.8	27.0	26.9	25.2	23.4	18.7	16.5	31.1
22	16.5	21.0	22.8	28.6	28.4	29.1	25.9	26.2	24.6	21.9	18.3	16.4	29.1
23	16.0	18.4	22.4	25.4	26.8	27.8	25.3	25.3	22.9	20.9	16.7	15.9	27.8
Máx.	27.7	32.9	34.9	34.7	37.9	35.2	34.2	33.5	32.7	34.7	30.9	29.3	37.9

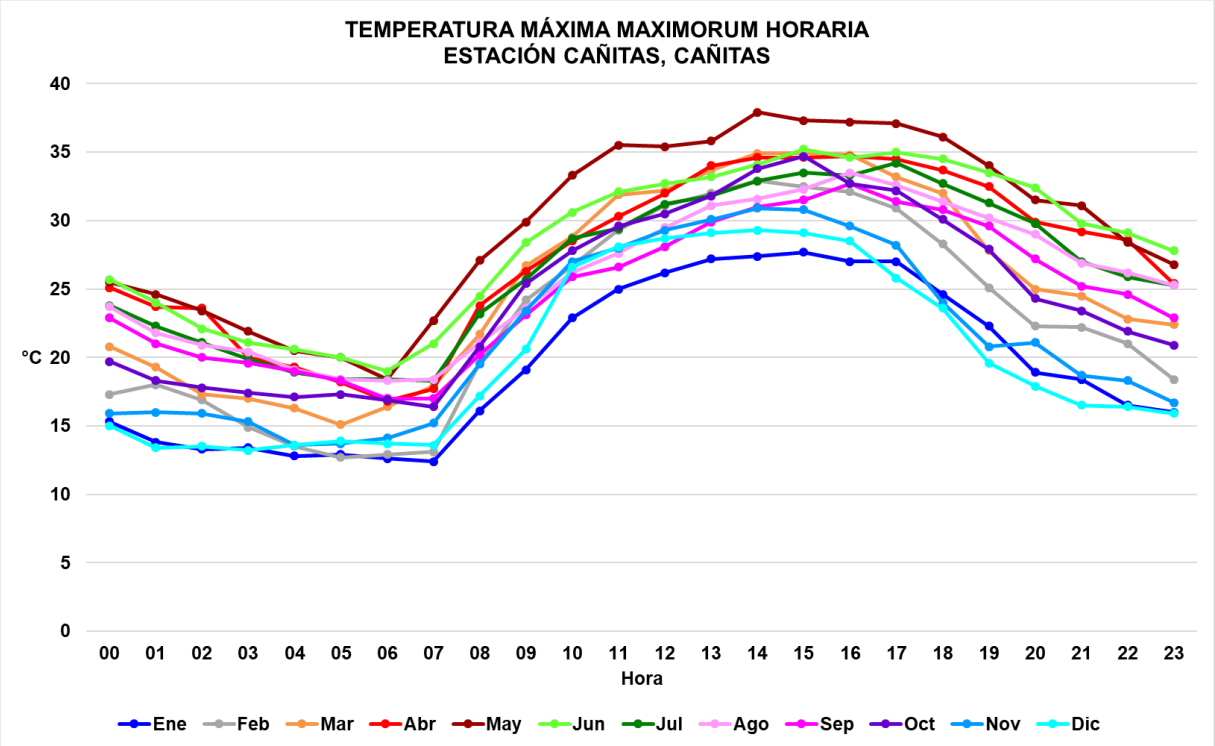


Figura 74. Temperatura máxima maximorum (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 81. Temperatura mínima media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.6	7.8	10.4	14.1	16.9	18.2	16.9	16.9	15.3	12.5	8.1	5.9	12.4
01	4.7	6.9	9.3	12.8	15.8	17.3	16.2	16.3	14.8	11.7	7.3	5.1	11.5
02	4.1	6.0	8.3	11.7	14.7	16.4	15.6	15.6	14.3	10.9	6.4	4.5	10.7
03	3.5	5.2	7.5	10.7	13.8	15.7	15.0	15.1	13.8	10.2	5.7	3.9	10.0
04	2.9	4.6	6.7	9.8	12.9	15.0	14.5	14.5	13.3	9.6	5.1	3.3	9.4
05	2.4	4.0	5.9	8.9	12.0	14.4	14.0	14.0	13.0	9.1	4.7	2.9	8.8
06	2.0	3.4	5.3	8.1	11.3	13.8	13.6	13.5	12.6	8.6	4.4	2.5	8.3
07	1.8	3.4	5.9	8.0	11.3	13.8	13.5	13.3	12.4	8.4	4.6	2.5	8.2
08	3.3	5.8	9.9	10.7	13.8	15.7	14.8	14.4	13.2	9.8	7.8	4.4	10.3
09	7.9	10.9	14.8	15.7	18.1	18.6	17.3	17.1	15.8	13.8	12.5	9.2	14.3
10	12.1	15.0	18.3	19.6	21.5	21.2	19.6	19.5	18.2	17.3	16.1	13.3	17.6
11	15.1	17.9	20.8	22.4	24.0	23.3	21.4	21.4	20.1	19.8	18.6	16.4	20.1
12	17.2	20.0	22.7	24.4	25.9	25.0	23.0	23.0	21.5	21.6	20.4	18.5	21.9
13	18.7	21.4	24.0	26.0	27.3	26.2	24.1	24.2	22.6	22.8	21.5	19.8	23.2
14	19.6	22.4	24.8	27.1	28.2	27.0	24.7	25.0	23.3	23.6	22.1	20.7	24.0
15	19.9	22.8	25.0	27.7	28.7	27.4	25.1	25.5	23.6	24.0	22.3	20.9	24.4
16	19.5	22.5	24.7	27.7	28.8	27.6	25.3	25.4	23.6	23.9	21.6	20.2	24.2
17	17.8	21.2	23.7	27.2	28.4	27.3	25.0	25.0	23.1	23.0	19.2	17.8	23.2
18	14.4	18.2	21.2	25.9	27.5	26.4	24.1	24.1	21.8	20.9	15.6	14.1	21.2
19	11.9	15.2	18.2	23.5	25.8	25.1	22.8	22.6	19.6	17.9	13.4	11.8	19.0
20	10.1	13.2	16.1	20.8	23.3	23.1	20.9	20.5	18.0	15.9	12.0	10.1	17.0
21	8.6	11.5	14.4	18.8	21.2	21.4	19.4	19.1	17.0	14.7	10.8	8.8	15.5
22	7.4	10.2	12.9	17.0	19.5	20.1	18.4	18.2	16.3	13.8	9.8	7.7	14.3
23	6.4	9.0	11.6	15.5	18.2	19.1	17.6	17.5	15.8	13.0	8.9	6.7	13.3
Media	9.9	12.4	15.1	18.1	20.4	20.8	19.3	19.2	17.6	15.7	12.5	10.5	15.9

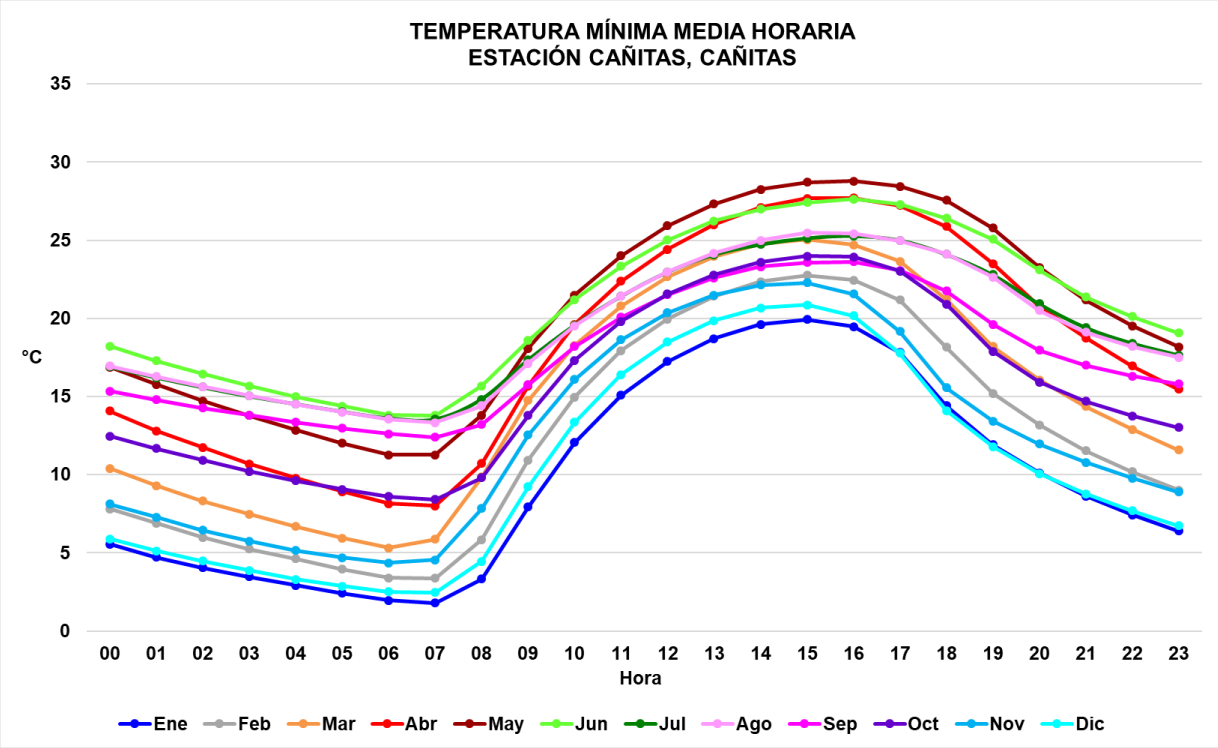


Figura 75. Temperatura mínima media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 82. Temperatura mínima minimorum (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.3	-3.5	-2.7	5.2	8.9	9.1	5.3	11.0	4.6	2.8	-7.9	-11.4	-11.4
01	-7.1	-4.6	-3.2	3.2	7.2	7.5	5.5	11.2	4.6	0.5	-8.8	-12.4	-12.4
02	-7.6	-4.9	-4.4	1.7	5.0	6.7	5.3	10.2	3.5	-0.7	-9.2	-12.2	-12.2
03	-8.4	-5.9	-5.1	-0.3	3.8	6.2	5.3	9.3	3.2	-1.2	-9.1	-13.2	-13.2
04	-9.2	-6.5	-5.1	-1.9	2.7	5.2	5.2	8.3	2.1	-1.5	-9.8	-13.7	-13.7
05	-8.8	-7.1	-6.2	-2.7	2.0	4.5	5.1	7.5	1.1	-2.0	-10.6	-13.5	-13.5
06	-9.7	-7.3	-6.8	-4.3	1.2	3.8	4.9	6.8	0.2	-3.0	-10.4	-14.4	-14.4
07	-10.0	-8.0	-7.7	-4.7	0.6	3.8	4.8	6.6	0.1	-3.7	-10.9	-13.9	-13.9
08	-9.1	-8.0	-4.5	-3.6	3.2	10.7	4.9	8.9	3.4	-0.6	-7.4	-10.2	-10.2
09	-3.4	-5.9	0.9	6.9	9.6	13.9	5.6	12.3	9.5	6.5	-0.9	-3.7	-5.9
10	-1.8	-2.6	0.8	11.4	11.5	15.1	6.7	14.4	11.7	9.1	2.0	-3.8	-3.8
11	-0.4	2.0	2.8	12.8	13.6	15.7	9.1	14.7	12.0	10.7	2.7	-3.4	-3.4
12	2.6	5.3	4.3	12.9	14.4	16.9	9.6	15.5	13.0	11.6	3.6	-2.9	-2.9
13	3.8	6.3	3.5	14.4	14.9	15.6	10.2	13.2	14.6	12.5	4.0	-3.0	-3.0
14	6.5	6.9	5.0	16.0	14.0	14.0	9.7	14.0	15.2	12.6	5.5	-2.8	-2.8
15	3.9	7.2	5.0	18.2	12.6	15.3	9.7	14.9	15.7	12.7	6.6	-2.4	-2.4
16	4.2	7.2	5.5	14.0	14.5	13.7	9.0	14.0	13.2	12.4	6.5	-1.3	-1.3
17	4.1	6.8	5.8	7.2	14.5	13.4	8.6	14.8	11.6	12.0	4.0	-2.8	-2.8
18	2.1	5.6	2.8	8.5	13.0	14.0	8.0	14.7	12.2	10.2	0.9	-5.5	-5.5
19	0.7	3.6	1.8	9.6	13.6	13.6	7.0	12.1	12.4	9.0	-0.6	-8.0	-8.0
20	-1.0	2.1	0.5	10.3	13.3	13.5	6.6	13.4	9.9	8.1	-2.6	-9.4	-9.4
21	-2.1	0.1	-0.9	10.8	12.6	13.5	6.4	13.4	7.5	6.1	-5.1	-10.8	-10.8
22	-3.8	-1.2	-0.5	8.0	11.9	12.6	6.0	13.1	7.1	4.9	-6.2	-12.0	-12.0
23	-4.7	-2.5	-2.4	6.9	10.1	11.2	5.7	12.1	6.2	3.8	-7.0	-12.0	-12.0
Mín.	-10.0	-8.0	-7.7	-4.7	0.6	3.8	4.8	6.6	0.1	-3.7	-10.9	-14.4	-14.4

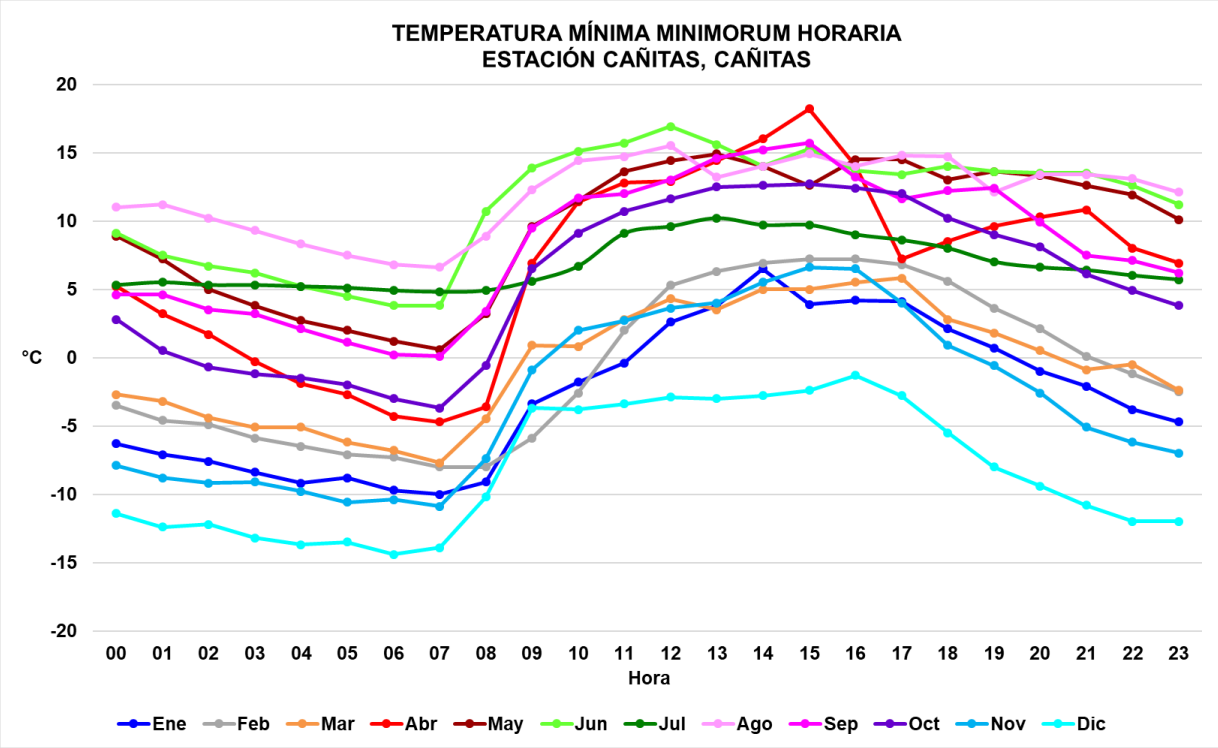


Figura 76. Temperatura mínima minimorum (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 83. Temperatura media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.1	8.4	11.0	14.7	17.5	18.7	17.3	17.3	15.7	12.9	8.7	6.5	12.9
01	5.3	7.5	9.9	13.5	16.4	17.7	16.5	16.6	15.1	12.1	7.8	5.7	12.0
02	4.5	6.5	8.9	12.3	15.3	16.8	15.9	15.9	14.6	11.3	6.9	5.0	11.2
03	3.9	5.8	8.0	11.3	14.3	16.0	15.3	15.4	14.1	10.6	6.2	4.4	10.4
04	3.4	5.1	7.2	10.3	13.4	15.3	14.8	14.8	13.6	10.0	5.6	3.8	9.8
05	2.9	4.5	6.4	9.5	12.5	14.7	14.3	14.3	13.2	9.4	5.1	3.3	9.2
06	2.4	3.9	5.8	8.7	11.7	14.1	13.9	13.8	12.9	9.0	4.8	3.0	8.7
07	2.4	4.1	7.1	8.9	12.0	14.3	13.9	13.7	12.7	8.9	5.5	3.1	8.9
08	5.0	7.8	11.8	12.6	15.4	16.8	15.8	15.4	14.1	11.2	9.7	6.2	11.8
09	9.6	12.5	16.2	17.2	19.4	19.6	18.2	18.1	16.7	15.2	14.0	10.9	15.6
10	13.3	16.2	19.3	20.7	22.5	22.1	20.3	20.3	19.0	18.4	17.1	14.6	18.6
11	16.0	18.8	21.6	23.2	24.8	24.1	22.1	22.1	20.7	20.5	19.4	17.3	20.9
12	17.9	20.6	23.3	25.1	26.6	25.7	23.6	23.6	22.1	22.1	20.9	19.1	22.6
13	19.2	21.9	24.5	26.6	27.9	26.8	24.7	24.7	23.1	23.3	21.9	20.3	23.8
14	20.0	22.8	25.2	27.6	28.8	27.6	25.3	25.5	23.9	24.1	22.5	21.0	24.5
15	20.3	23.1	25.5	28.2	29.3	28.0	25.7	26.1	24.2	24.5	22.6	21.2	24.9
16	19.9	22.9	25.1	28.2	29.3	28.2	25.9	26.1	24.2	24.4	22.1	20.7	24.8
17	18.6	21.8	24.2	27.7	29.0	27.9	25.7	25.7	23.7	23.7	20.3	18.9	23.9
18	15.8	19.4	22.3	26.6	28.1	27.0	24.8	24.8	22.5	21.9	16.8	15.4	22.1
19	12.8	16.2	19.3	24.5	26.6	25.7	23.5	23.4	20.5	19.0	14.2	12.7	19.9
20	10.9	14.0	16.9	21.8	24.3	23.9	21.7	21.3	18.6	16.6	12.6	10.8	17.8
21	9.3	12.3	15.2	19.5	22.0	22.0	20.0	19.7	17.4	15.3	11.4	9.5	16.1
22	8.1	10.9	13.6	17.7	20.2	20.7	18.9	18.7	16.7	14.3	10.4	8.3	14.9
23	7.0	9.6	12.3	16.2	18.8	19.6	18.0	17.9	16.1	13.5	9.4	7.3	13.8
Media	10.6	13.2	15.9	18.9	21.1	21.4	19.8	19.8	18.1	16.4	13.2	11.2	16.6

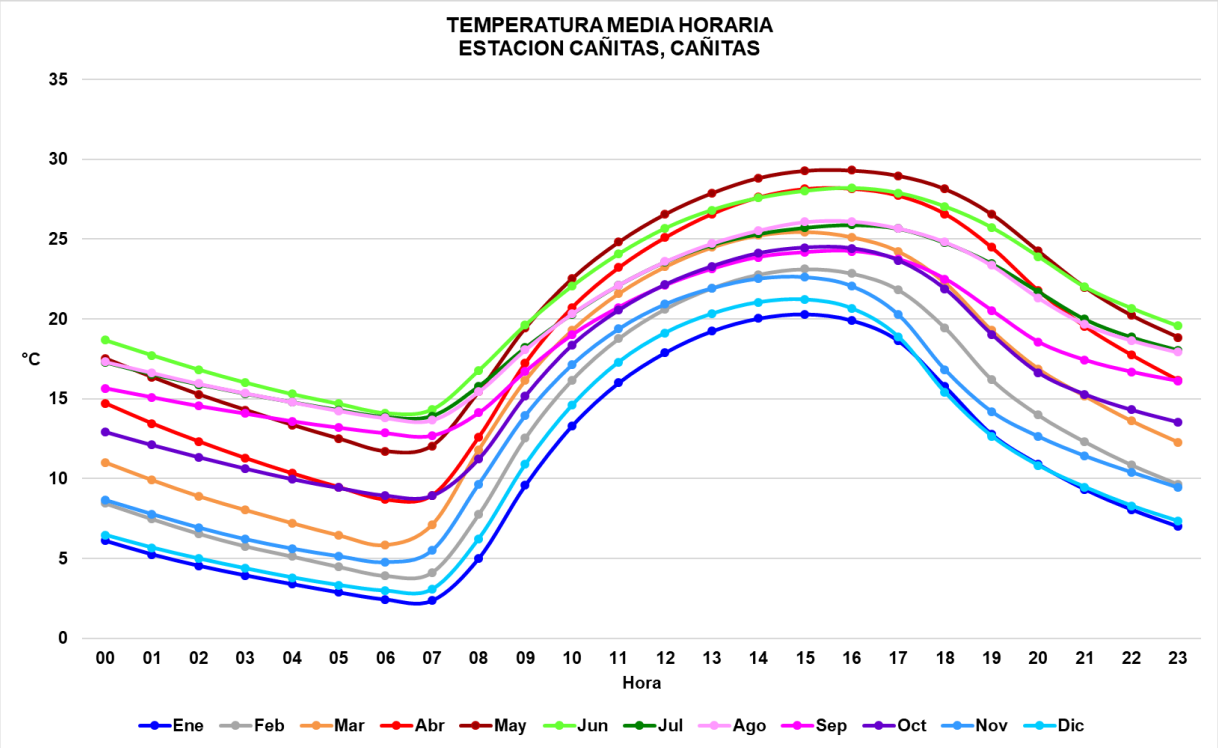


Figura 77. Temperatura media (˚C) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 84. Precipitación media (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.6	0.5	0.2	0.0	1.1	4.7	6.2	4.6	6.5	1.7	0.2	0.5	26.8
01	0.5	0.8	0.2	0.0	0.5	5.2	3.7	3.9	8.0	1.8	0.2	0.4	25.2
02	0.4	0.4	0.2	0.0	1.1	2.0	1.8	2.8	5.3	1.7	0.2	0.5	16.3
03	0.4	0.2	0.2	0.0	0.3	2.0	1.8	3.9	4.4	1.4	0.2	0.3	15.0
04	0.3	0.1	0.4	0.0	0.4	1.7	1.2	1.9	2.9	0.8	0.2	0.2	10.3
05	0.3	0.1	0.2	0.0	0.1	1.4	1.0	2.9	2.0	0.7	0.1	0.5	9.3
06	0.2	0.1	0.1	0.0	0.0	0.8	1.2	0.9	1.0	0.7	0.1	0.3	5.3
07	0.1	0.2	0.2	0.0	0.1	0.8	1.6	0.8	1.1	0.7	0.1	0.5	6.1
08	0.3	0.2	0.1	0.0	0.0	0.2	1.2	0.4	0.5	0.4	0.3	0.5	4.1
09	0.2	0.2	0.0	0.1	0.0	0.1	0.8	0.1	0.3	0.3	0.2	0.4	2.7
10	0.1	0.3	0.1	0.1	0.0	0.1	1.0	0.2	0.1	0.1	0.3	0.4	2.9
11	0.1	0.3	0.0	0.0	0.1	0.0	0.8	0.2	0.9	0.1	0.2	0.4	3.1
12	0.3	0.5	0.0	0.0	0.0	0.1	1.0	1.0	0.4	0.1	0.3	0.5	4.0
13	0.2	0.4	0.0	0.0	0.0	0.8	3.7	1.1	2.0	0.5	0.4	0.4	9.7
14	0.2	0.4	0.0	0.1	0.5	1.8	3.5	1.9	1.0	0.3	0.5	0.7	10.9
15	0.9	0.2	0.3	0.1	1.0	1.2	6.3	2.5	1.3	0.5	0.5	0.4	15.1
16	1.2	0.6	0.6	0.1	0.6	1.9	5.3	4.6	4.2	0.7	0.6	0.3	20.8
17	0.3	0.8	0.6	0.8	0.4	3.2	3.9	4.6	6.0	3.1	0.7	0.3	24.7
18	0.7	0.7	0.6	0.8	0.9	3.7	8.9	4.6	8.6	1.6	1.1	0.4	32.6
19	0.9	0.4	0.7	0.8	0.8	5.7	8.5	7.5	11.7	1.1	0.5	0.5	39.2
20	0.6	0.5	0.6	0.4	0.2	4.1	5.4	7.9	8.3	4.5	0.7	0.2	33.2
21	0.5	0.4	0.3	0.2	0.2	4.8	4.7	6.5	7.9	1.1	0.5	0.2	27.2
22	0.3	0.5	0.6	0.1	0.4	5.8	6.0	5.7	8.4	1.5	0.3	0.1	29.6
23	0.4	0.4	0.4	0.1	0.5	6.8	5.8	4.6	6.9	1.2	0.5	0.5	28.1
Suma	10.1	9.2	6.5	3.7	9.0	58.9	85.2	75.1	99.7	26.6	8.9	9.4	402.4

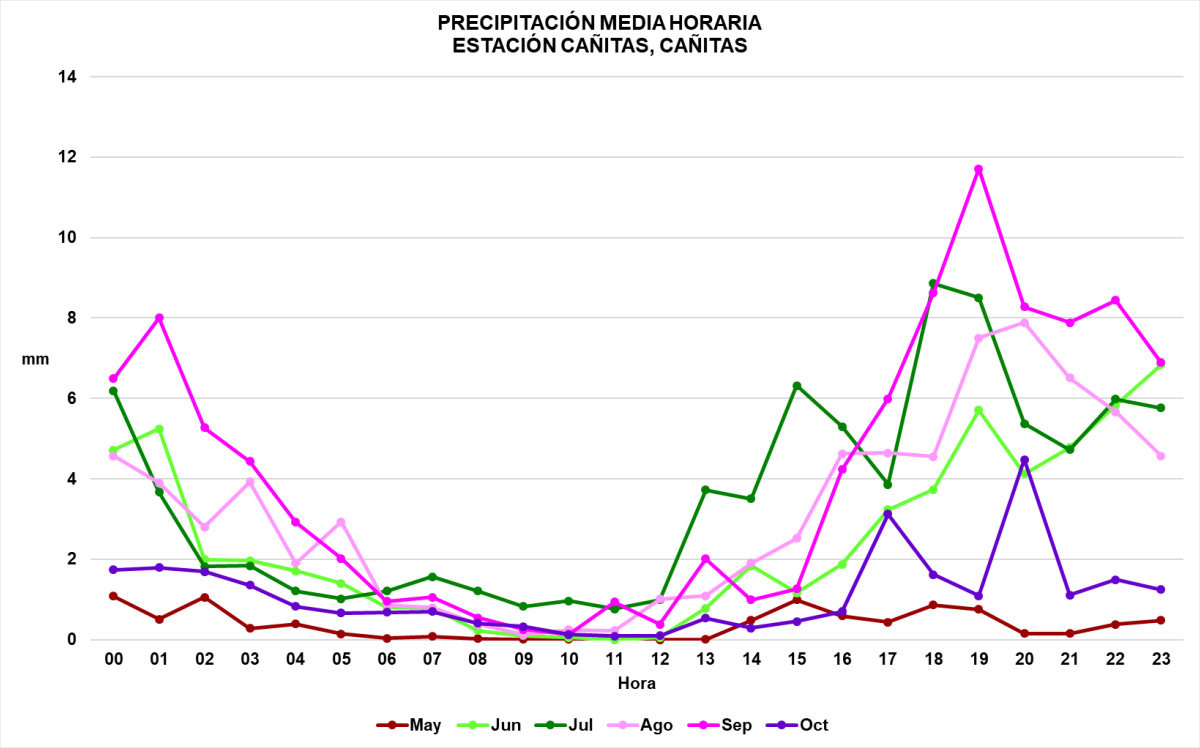


Figura 78. Precipitación media (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 85. Precipitación máxima maximorum (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.8	3.6	1.4	0.2	5.8	13.0	25.0	7.4	12.4	4.0	1.8	3.4	25.0
01	3.8	6.4	2.2	0.2	2.8	31.6	11.8	11.2	41.0	7.4	1.4	3.2	41.0
02	1.6	2.2	2.0	0.4	8.6	6.6	7.2	5.0	17.2	6.2	1.0	3.0	17.2
03	1.6	2.4	1.4	0.0	1.2	10.8	5.4	16.2	9.8	14.8	1.4	1.8	16.2
04	1.6	1.0	3.8	0.2	2.6	15.2	5.0	4.2	7.4	3.2	1.6	2.0	15.2
05	1.6	0.4	3.2	0.0	1.4	6.2	4.4	14.0	6.0	3.0	0.6	4.4	14.0
06	1.2	0.6	1.6	0.0	0.6	3.2	10.8	6.0	3.4	6.6	0.6	2.4	10.8
07	0.8	1.2	1.6	0.0	0.6	4.2	12.6	4.6	4.4	4.0	0.6	3.2	12.6
08	3.2	1.0	0.6	0.2	0.2	1.0	5.4	2.6	1.6	3.0	3.2	3.6	5.4
09	1.6	1.2	0.0	1.0	0.2	0.8	5.4	0.6	1.2	3.4	2.0	1.8	5.4
10	1.4	2.8	1.2	1.4	0.2	0.6	9.0	2.8	0.8	0.6	3.4	2.2	9.0
11	1.8	1.8	0.0	0.0	1.2	0.0	6.8	2.4	14.8	0.6	1.2	2.2	14.8
12	3.0	2.6	0.0	0.0	0.0	1.0	3.8	7.6	3.8	0.6	1.8	2.8	7.6
13	3.2	4.0	0.8	0.0	0.2	11.0	20.8	5.2	27.8	6.2	4.6	2.2	27.8
14	2.6	1.8	0.4	1.4	2.4	17.8	15.2	11.0	8.6	1.0	2.2	4.2	17.8
15	12.4	1.4	3.2	0.8	5.2	4.2	28.6	11.6	4.0	1.8	3.0	3.6	28.6
16	5.6	3.2	7.8	0.8	8.0	18.8	11.6	21.4	18.4	4.0	4.0	2.2	21.4
17	2.0	5.8	8.0	13.6	2.0	11.0	13.2	9.6	25.4	18.0	4.0	1.6	25.4
18	5.8	3.2	6.2	8.4	4.2	8.6	27.4	10.2	18.2	4.4	9.6	2.0	27.4
19	7.8	2.2	6.0	3.8	4.2	16.4	15.0	26.6	24.6	5.6	3.2	4.2	26.6
20	5.0	2.8	3.8	4.0	0.4	21.8	11.0	28.6	18.8	51.2	5.8	1.2	51.2
21	1.4	2.6	3.6	2.0	1.0	12.6	8.8	12.4	12.4	4.2	6.0	1.6	12.6
22	1.8	2.8	4.4	1.8	2.0	20.4	16.6	10.0	13.6	7.8	2.6	0.6	20.4
23	2.6	2.6	3.8	1.2	3.0	17.2	10.8	9.4	11.6	3.2	3.4	3.6	17.2
Máx.	12.4	6.4	8.0	13.6	8.6	31.6	28.6	28.6	41.0	51.2	9.6	4.4	51.2

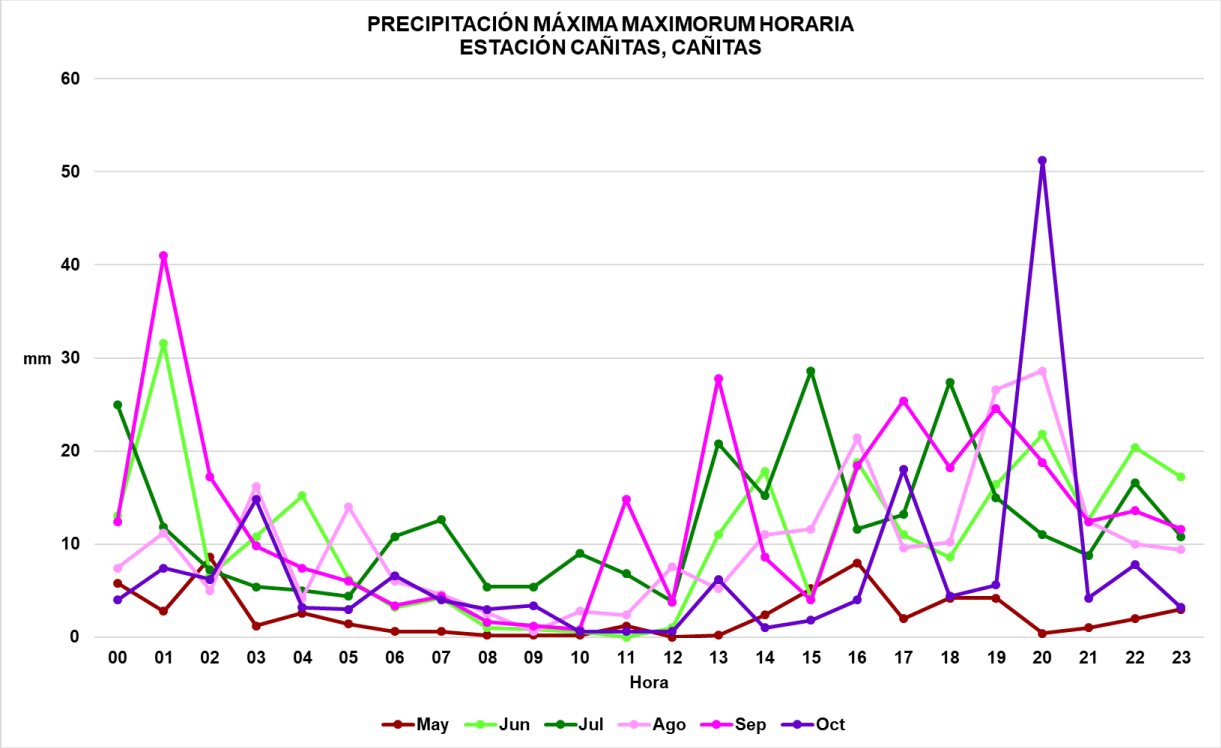


Figura 79. Precipitación máxima maximorum (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 86. Evapotranspiración potencial media (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.05	0.05	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.02
01	0.01	0.02	0.02	0.04	0.05	0.03	0.02	0.02	0.00	0.01	0.00	0.01	0.02
02	0.01	0.02	0.02	0.03	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01
03	0.01	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
04	0.01	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
05	0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
06	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.02	0.04	0.08	0.06	0.07	0.06	0.03	0.02	0.01	0.02	0.05	0.02	0.04
09	0.09	0.14	0.22	0.18	0.20	0.18	0.14	0.13	0.10	0.10	0.15	0.11	0.15
10	0.20	0.27	0.37	0.35	0.37	0.33	0.28	0.27	0.23	0.23	0.27	0.22	0.28
11	0.31	0.40	0.50	0.49	0.52	0.47	0.42	0.41	0.35	0.36	0.39	0.33	0.41
12	0.40	0.49	0.59	0.61	0.63	0.59	0.53	0.52	0.46	0.46	0.46	0.41	0.51
13	0.45	0.54	0.63	0.69	0.70	0.65	0.60	0.59	0.52	0.52	0.48	0.44	0.57
14	0.45	0.54	0.63	0.72	0.72	0.67	0.61	0.62	0.53	0.53	0.46	0.44	0.58
15	0.40	0.50	0.56	0.69	0.69	0.64	0.58	0.59	0.49	0.49	0.39	0.38	0.53
16	0.33	0.41	0.46	0.61	0.61	0.58	0.52	0.52	0.43	0.40	0.29	0.30	0.45
17	0.22	0.30	0.33	0.50	0.49	0.47	0.43	0.42	0.33	0.29	0.16	0.18	0.34
18	0.12	0.17	0.20	0.37	0.36	0.36	0.32	0.30	0.21	0.20	0.09	0.11	0.23
19	0.07	0.10	0.14	0.30	0.26	0.22	0.19	0.21	0.14	0.10	0.03	0.05	0.15
20	0.03	0.06	0.08	0.18	0.19	0.17	0.14	0.12	0.04	0.02	0.02	0.03	0.09
21	0.02	0.04	0.05	0.12	0.12	0.09	0.06	0.04	0.01	0.01	0.02	0.02	0.05
22	0.02	0.04	0.04	0.09	0.08	0.05	0.03	0.02	0.01	0.01	0.01	0.02	0.04
23	0.01	0.03	0.04	0.07	0.06	0.05	0.03	0.02	0.01	0.01	0.01	0.02	0.03
Media/día	3.20	4.19	5.07	6.24	6.30	5.71	4.97	4.87	3.88	3.77	3.30	3.13	4.55

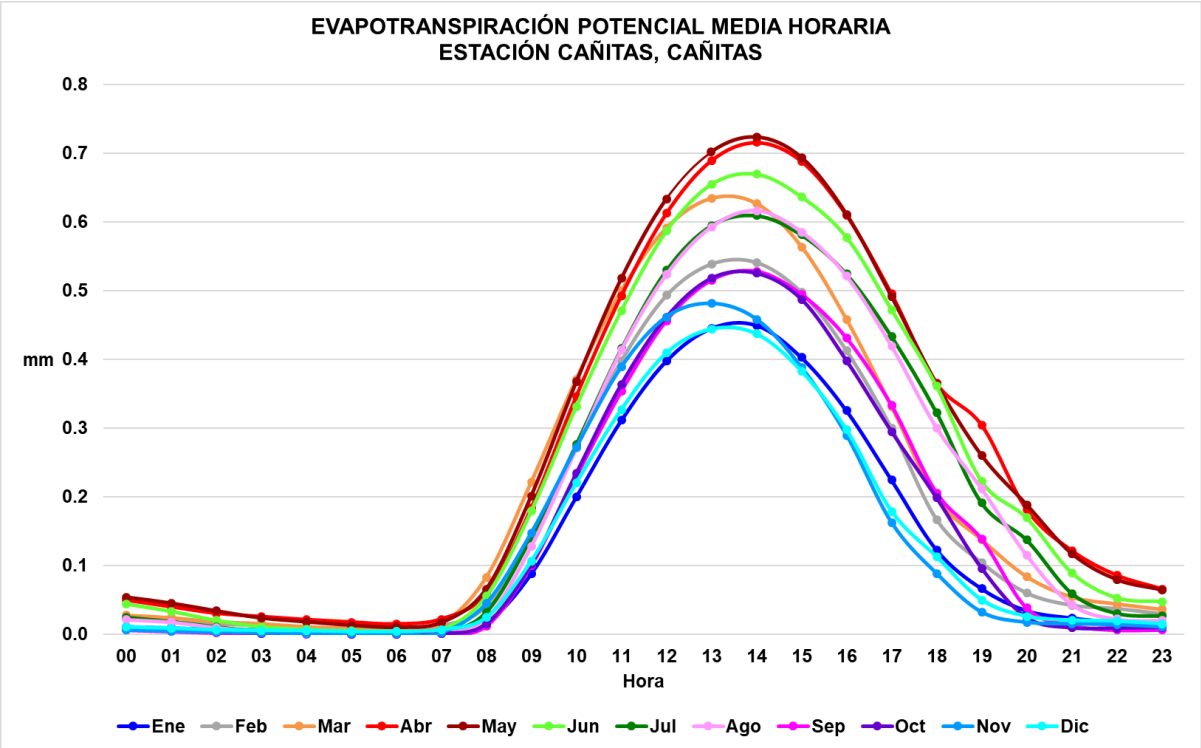


Figura 80. Evapotranspiración potencial media (mm) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 87. Humedad relativa media (%) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	60.0	49.9	40.8	33.4	39.7	58.0	72.6	72.6	82.2	73.2	69.6	62.1	59.5
01	63.5	53.5	44.3	37.4	44.4	62.9	76.2	76.1	84.6	76.8	73.2	65.4	63.2
02	66.2	56.7	47.9	41.1	49.1	67.3	78.9	79.4	86.8	80.1	76.6	68.3	66.5
03	68.7	59.7	51.1	44.8	53.2	71.3	81.2	82.1	88.7	82.9	79.3	70.8	69.5
04	71.0	62.3	54.1	47.9	56.8	74.3	83.3	84.4	90.4	85.5	81.6	73.1	72.0
05	72.9	65.0	56.9	50.8	60.0	77.1	85.2	86.5	91.7	87.6	83.7	75.2	74.4
06	74.6	67.3	59.2	53.4	62.9	79.4	86.8	88.2	92.7	89.3	85.4	76.9	76.3
07	75.3	67.5	56.9	53.1	62.5	79.0	87.1	88.8	93.0	89.6	83.8	77.4	76.2
08	68.3	57.9	46.1	45.5	53.9	71.0	80.7	83.0	89.0	83.5	71.7	68.4	68.2
09	55.4	45.2	35.4	35.6	42.6	60.4	71.1	72.7	79.2	70.3	57.7	54.9	56.7
10	44.2	35.4	27.6	26.9	32.5	50.4	62.2	63.1	69.5	58.1	46.7	43.8	46.7
11	35.9	28.2	22.3	20.9	25.6	42.3	54.3	55.1	61.9	49.3	38.5	35.5	39.2
12	30.2	23.7	18.6	17.1	21.0	35.9	47.9	48.7	55.7	42.8	33.0	29.8	33.7
13	26.2	20.8	16.4	14.6	17.9	31.7	43.4	43.6	51.1	38.3	29.4	26.1	30.0
14	23.9	19.0	15.0	13.0	16.1	29.1	40.5	40.1	47.8	35.1	27.2	24.1	27.6
15	22.9	18.0	14.5	12.2	15.2	27.7	38.8	37.8	46.3	33.6	26.5	23.2	26.4
16	23.4	18.1	14.7	12.0	14.9	26.8	37.9	37.7	45.9	33.3	27.4	23.6	26.3
17	25.4	19.5	15.3	12.3	15.4	27.5	38.4	39.0	47.5	35.0	31.1	26.3	27.7
18	30.3	22.7	17.3	13.2	16.5	29.7	41.4	41.8	52.2	39.9	39.0	32.9	31.4
19	36.8	27.7	21.0	15.2	18.7	33.2	46.0	46.7	60.4	48.6	46.1	39.5	36.6
20	42.1	32.4	25.0	18.3	21.9	38.3	52.4	54.3	69.2	56.8	51.4	44.8	42.2
21	47.4	36.9	28.6	21.8	26.2	43.9	59.5	61.4	74.0	61.5	56.4	49.6	47.3
22	52.0	41.2	32.7	25.4	30.9	48.7	64.5	66.2	77.1	65.4	61.1	54.2	51.6
23	56.0	45.4	36.9	29.3	35.2	54.1	68.6	69.9	79.6	69.0	65.4	58.4	55.7
Media	48.9	40.6	33.3	29.0	34.7	50.8	62.5	63.3	71.5	61.9	55.9	50.2	50.2

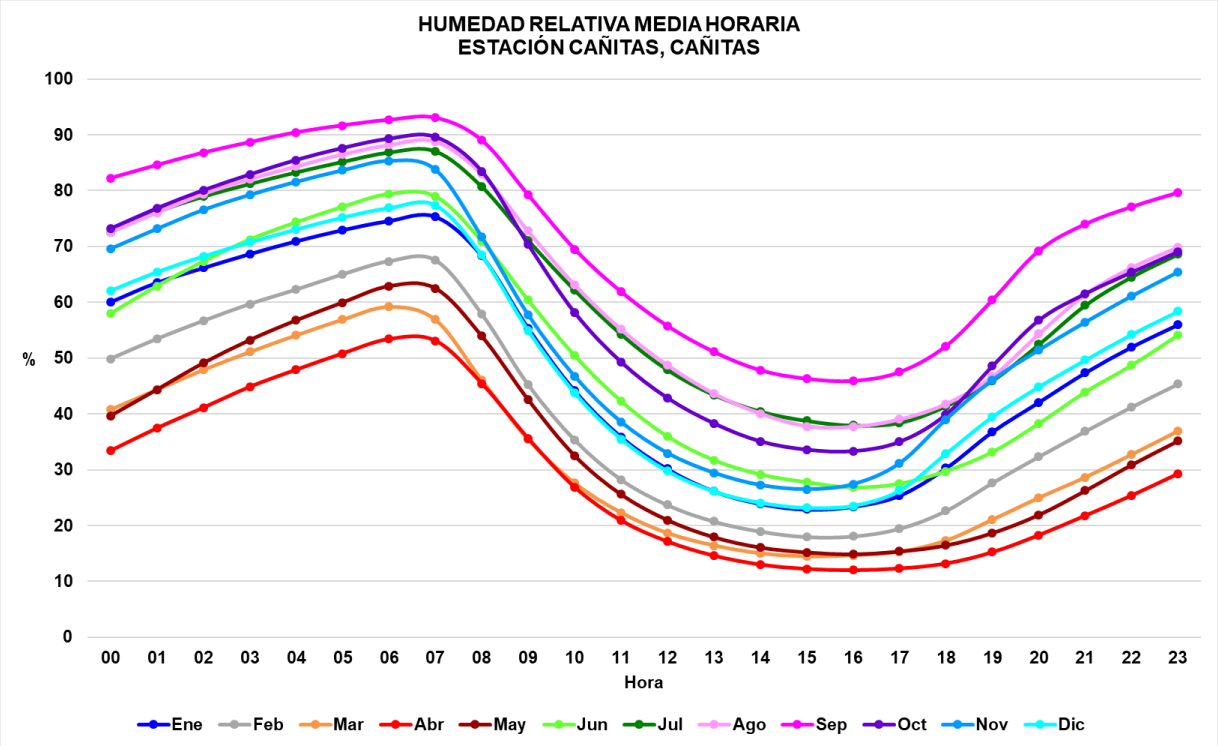


Figura 81. Humedad relativa media (%) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 88. Humedad relativa mínima minimorum (%) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	13.0	9.0	10.0	7.0	13.0	24.0	25.0	26.0	21.0	15.0	13.0	7.0
01	15.0	14.0	10.0	10.6	9.0	16.0	27.0	33.0	33.0	23.0	16.0	14.0	9.0
02	15.0	14.0	10.0	10.7	11.0	19.0	28.0	37.0	35.0	27.0	18.0	14.0	10.0
03	15.0	15.0	10.0	11.0	11.0	20.0	34.0	42.0	42.0	34.0	19.0	16.0	10.0
04	17.0	15.0	10.0	11.0	12.0	21.0	34.0	45.0	45.0	32.0	20.0	19.0	10.0
05	18.0	19.0	10.0	11.0	14.0	26.0	39.0	47.0	53.0	27.0	22.0	19.0	10.0
06	14.0	18.0	10.7	11.0	14.0	29.0	39.0	43.0	58.0	27.0	23.0	18.0	10.7
07	14.0	18.4	10.0	12.0	13.0	28.0	40.0	55.0	60.0	23.0	22.0	21.0	10.0
08	10.0	11.9	7.0	9.9	8.0	20.0	26.0	47.0	48.0	19.0	15.0	20.0	7.0
09	9.0	9.0	6.0	7.1	5.0	13.0	22.0	40.1	32.6	17.0	12.0	12.5	5.0
10	9.0	7.0	5.0	6.4	4.0	9.0	18.0	26.0	28.9	14.0	11.0	10.6	4.0
11	6.0	6.0	4.0	5.6	5.0	7.0	16.0	12.0	22.0	11.0	7.0	6.0	4.0
12	5.0	5.0	4.0	4.0	3.0	7.0	14.0	15.0	18.0	9.9	5.0	6.0	3.0
13	5.0	4.7	4.0	4.0	4.0	6.0	13.0	15.0	16.0	7.9	5.0	5.0	4.0
14	4.0	4.0	3.9	3.8	3.0	5.0	12.0	15.0	16.0	8.0	4.0	4.0	3.0
15	3.0	4.0	4.0	3.0	3.0	5.0	10.0	15.0	14.0	7.2	4.0	4.0	3.0
16	3.0	4.0	3.7	3.0	4.0	5.0	11.0	14.0	13.0	7.1	5.0	5.0	3.0
17	3.0	4.0	4.0	3.0	4.0	5.0	11.0	13.0	13.0	8.5	5.0	4.0	3.0
18	4.0	5.0	4.0	3.0	4.0	5.0	12.0	13.0	13.0	9.0	6.0	5.0	3.0
19	6.0	6.0	5.0	4.0	4.0	5.0	13.0	14.0	13.0	11.0	9.0	6.0	4.0
20	7.0	9.0	6.0	4.0	5.0	6.0	13.0	15.0	17.0	14.0	10.0	9.0	4.0
21	7.0	9.0	7.0	5.0	5.0	8.0	15.0	18.0	20.0	19.0	11.0	10.0	5.0
22	12.0	9.0	6.0	7.0	7.0	10.0	17.0	22.0	22.0	13.0	13.0	11.0	6.0
23	13.0	11.0	8.0	7.9	7.0	11.0	23.0	24.0	26.0	16.0	14.0	13.0	7.0
Mín.	3.0	4.0	3.7	3.0	3.0	5.0	10.0	12.0	13.0	7.1	4.0	4.0	3.0

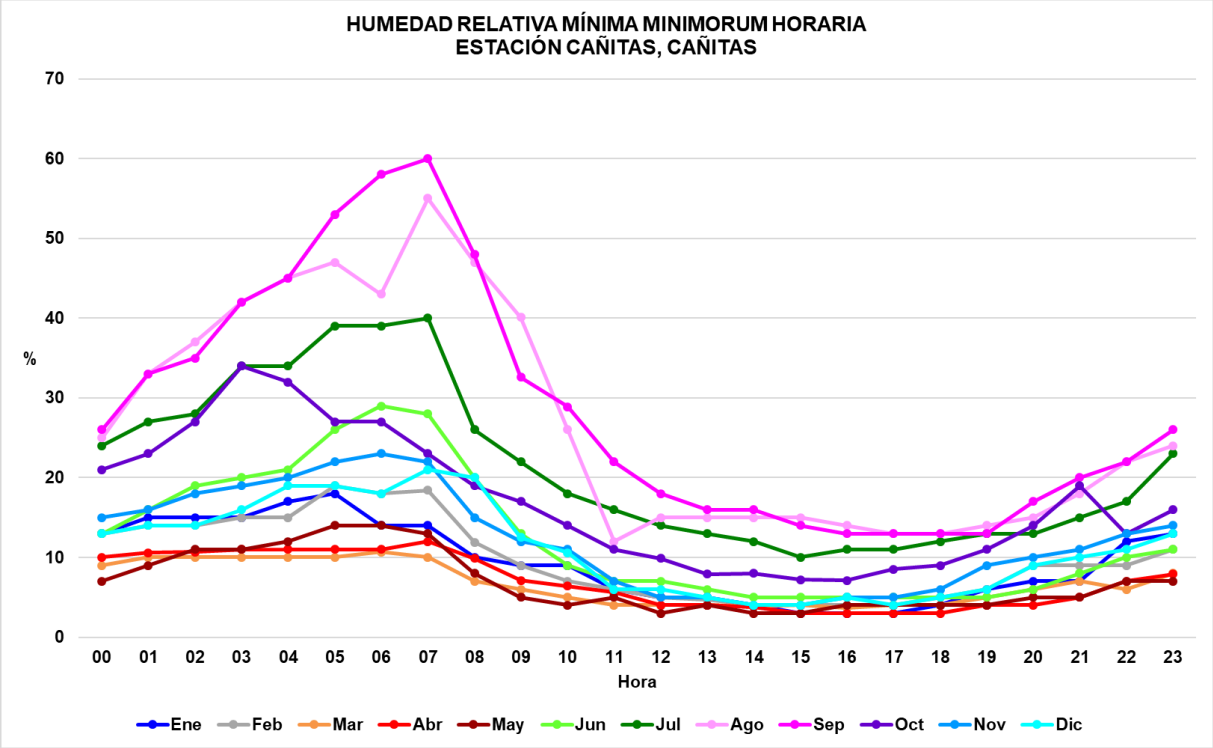


Figura 82. Humedad relativa mínima minimorum (%) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 89. Radiación solar global media horaria (W/m²) de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	21	7	10	8	4	1	0	2	6	1	5
07	62	122	321	187	225	210	142	93	65	85	228	95	153
08	511	723	1112	857	924	857	712	634	505	555	891	610	741
09	1253	1555	1998	1769	1807	1700	1492	1446	1261	1328	1656	1339	1550
10	1952	2325	2760	2611	2654	2488	2280	2252	2011	2112	2335	1986	2314
11	2474	2905	3302	3304	3318	3125	2938	2891	2603	2691	2779	2469	2900
12	2752	3181	3570	3729	3719	3515	3297	3274	2975	3020	2896	2669	3216
13	2750	3174	3531	3859	3818	3588	3404	3404	3073	3060	2713	2585	3247
14	2446	2905	3187	3685	3622	3387	3222	3241	2924	2851	2307	2259	3003
15	1922	2390	2583	3210	3158	2991	2873	2860	2520	2362	1753	1715	2528
16	1263	1643	1821	2548	2478	2453	2401	2284	2030	1775	1042	1016	1896
17	555	849	998	1783	1783	1816	1765	1622	1313	1041	344	347	1185
18	64	191	289	921	1034	1081	1059	949	615	366	11	14	549
19	0	0	6	267	369	425	451	325	127	31	0	0	167
20	0	0	0	14	39	60	65	25	1	0	0	0	17
21	0	0	0	2	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18003	21967	25500	28754	28956	27705	26104	25301	22023	21280	18962	17103	23472

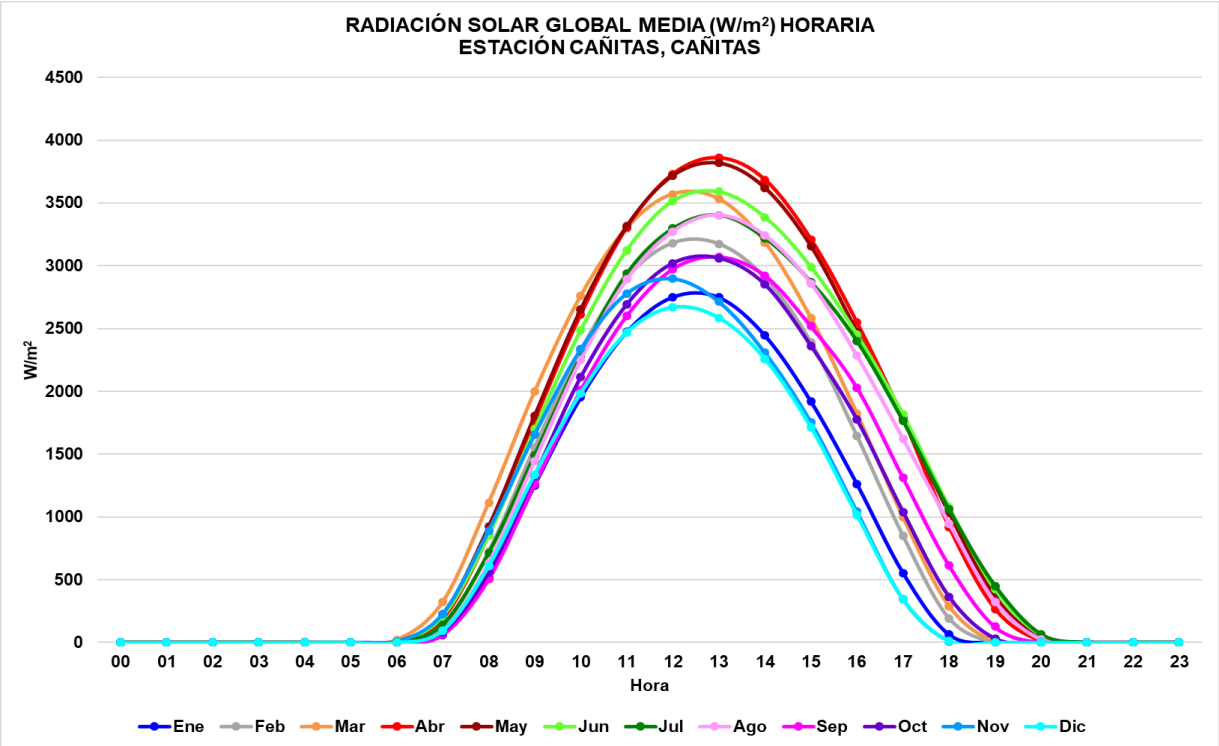


Figura 83. Radiación solar global media horaria (W/m²) de la estación Cañitas, Cañitas (2005-2022).

Cuadro 90. Radiación solar global media horaria (kWh/m^2) de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.03	0.08	0.05	0.06	0.05	0.04	0.02	0.02	0.02	0.06	0.02	0.00	0.04
03	0.18	0.28	0.21	0.23	0.21	0.18	0.16	0.13	0.14	0.22	0.15	0.02	0.18
07	0.39	0.50	0.44	0.45	0.42	0.37	0.36	0.32	0.33	0.41	0.33	0.16	0.37
11	0.58	0.69	0.65	0.66	0.62	0.57	0.56	0.50	0.53	0.58	0.50	0.36	0.57
14	0.73	0.83	0.83	0.83	0.78	0.73	0.72	0.65	0.67	0.69	0.62	0.53	0.72
16	0.80	0.89	0.93	0.93	0.88	0.82	0.82	0.74	0.76	0.72	0.67	0.65	0.80
16	0.79	0.88	0.96	0.95	0.90	0.85	0.85	0.77	0.77	0.68	0.65	0.71	0.81
14	0.73	0.80	0.92	0.91	0.85	0.81	0.81	0.73	0.71	0.58	0.56	0.70	0.76
11	0.60	0.65	0.80	0.79	0.75	0.72	0.71	0.63	0.59	0.44	0.43	0.62	0.64
07	0.41	0.46	0.64	0.62	0.61	0.60	0.57	0.51	0.44	0.26	0.25	0.49	0.49
03	0.21	0.25	0.45	0.45	0.45	0.44	0.41	0.33	0.26	0.09	0.09	0.31	0.31
00	0.05	0.07	0.23	0.26	0.27	0.26	0.24	0.15	0.09	0.00	0.00	0.11	0.15
00	0.00	0.00	0.07	0.09	0.11	0.11	0.08	0.03	0.01	0.00	0.00	0.01	0.04
00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	5.49	6.37	7.19	7.24	6.93	6.53	6.33	5.51	5.32	4.74	4.28	4.66	5.88

Cuadro 91. Radiación solar global media horaria (Mj/m^2/s) de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.06	0.11	0.29	0.17	0.20	0.19	0.13	0.08	0.06	0.08	0.21	0.09	0.14
08	0.46	0.65	1.00	0.77	0.83	0.77	0.64	0.57	0.45	0.50	0.80	0.55	0.67
09	1.13	1.40	1.80	1.59	1.63	1.53	1.34	1.30	1.13	1.19	1.49	1.21	1.40
10	1.76	2.09	2.48	2.35	2.39	2.24	2.05	2.03	1.81	1.90	2.10	1.79	2.08
11	2.23	2.61	2.97	2.97	2.99	2.81	2.64	2.60	2.34	2.42	2.50	2.22	2.61
12	2.48	2.86	3.21	3.36	3.35	3.16	2.97	2.95	2.68	2.72	2.61	2.40	2.89
13	2.47	2.86	3.18	3.47	3.44	3.23	3.06	3.06	2.77	2.75	2.44	2.33	2.92
14	2.20	2.61	2.87	3.32	3.26	3.05	2.90	2.92	2.63	2.57	2.08	2.03	2.70
15	1.73	2.15	2.32	2.89	2.84	2.69	2.59	2.57	2.27	2.13	1.58	1.54	2.28
16	1.14	1.48	1.64	2.29	2.23	2.21	2.16	2.06	1.83	1.60	0.94	0.91	1.71
17	0.50	0.76	0.90	1.61	1.60	1.63	1.59	1.46	1.18	0.94	0.31	0.31	1.07
18	0.06	0.17	0.26	0.83	0.93	0.97	0.95	0.85	0.55	0.33	0.01	0.01	0.49
19	0.00	0.00	0.01	0.24	0.33	0.38	0.41	0.29	0.11	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.06	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.20	19.77	22.95	25.88	26.06	24.93	23.49	22.77	19.82	19.15	17.07	15.39	21.12

Cuadro 92. Velocidad del viento media (km/h) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.5	6.8	7.0	8.0	8.5	8.5	7.7	6.3	4.1	4.6	4.4	5.7	6.4
01	5.2	6.3	6.4	7.3	7.7	7.6	6.9	5.6	3.6	4.0	4.0	5.2	5.8
02	5.1	5.9	6.1	6.6	7.0	6.4	5.7	4.6	3.0	3.3	3.5	5.1	5.2
03	5.1	5.5	5.6	6.2	6.3	5.5	4.9	3.9	2.7	2.9	3.3	5.1	4.7
04	5.0	5.4	5.0	5.6	5.7	4.9	4.3	3.5	2.4	2.7	3.0	4.8	4.4
05	4.7	5.1	4.7	5.1	5.0	4.4	4.0	3.2	2.3	2.6	3.0	4.6	4.0
06	4.6	4.8	4.5	4.8	4.5	3.9	3.8	3.0	2.1	2.4	3.0	4.6	3.8
07	4.4	4.8	4.8	4.5	4.5	3.9	3.8	2.8	2.0	2.4	3.1	4.5	3.8
08	5.4	6.5	7.4	6.0	6.3	6.0	5.4	4.2	2.8	3.2	4.7	5.5	5.3
09	8.0	9.1	9.5	8.8	8.1	7.7	7.5	6.6	5.2	5.3	6.7	8.3	7.6
10	9.8	10.2	9.9	9.6	8.2	7.5	7.4	7.1	6.4	6.3	7.7	9.6	8.3
11	10.5	11.2	10.6	10.0	8.1	7.2	7.0	6.9	6.6	6.7	8.2	10.2	8.6
12	11.2	12.4	11.3	10.8	8.6	7.5	7.1	6.9	6.8	7.2	8.8	10.9	9.1
13	12.0	13.0	12.3	11.7	9.5	8.6	7.7	7.5	7.1	7.6	9.2	11.5	9.8
14	12.5	13.8	13.0	12.7	10.3	9.8	8.9	8.4	7.5	8.1	9.3	11.8	10.5
15	12.8	14.3	13.6	13.4	11.0	10.5	9.7	8.9	7.7	8.2	9.2	11.9	10.9
16	12.7	14.2	13.7	14.0	11.5	10.8	10.3	9.4	7.9	8.1	9.0	11.5	11.1
17	11.7	13.9	13.6	14.2	11.9	11.3	10.8	9.9	8.1	7.9	7.8	10.2	10.9
18	8.9	11.4	12.7	14.4	12.0	11.5	11.0	9.9	7.9	6.7	5.3	7.1	9.9
19	7.1	8.4	10.0	13.3	11.7	11.3	10.2	9.0	6.0	4.7	5.0	6.1	8.6
20	6.6	7.8	8.9	11.1	10.3	9.9	8.6	7.0	4.3	4.0	5.4	6.1	7.5
21	6.4	7.9	8.2	10.2	9.4	8.3	7.5	6.3	4.0	4.3	5.7	6.2	7.0
22	6.2	7.8	8.0	9.4	9.1	8.3	7.5	6.1	4.2	4.8	5.6	6.3	6.9
23	5.9	7.1	7.4	8.8	8.6	8.9	7.9	6.4	4.3	5.0	5.0	5.9	6.8
Media	7.8	8.9	8.9	9.4	8.5	7.9	7.3	6.4	5.0	5.1	5.8	7.4	7.4

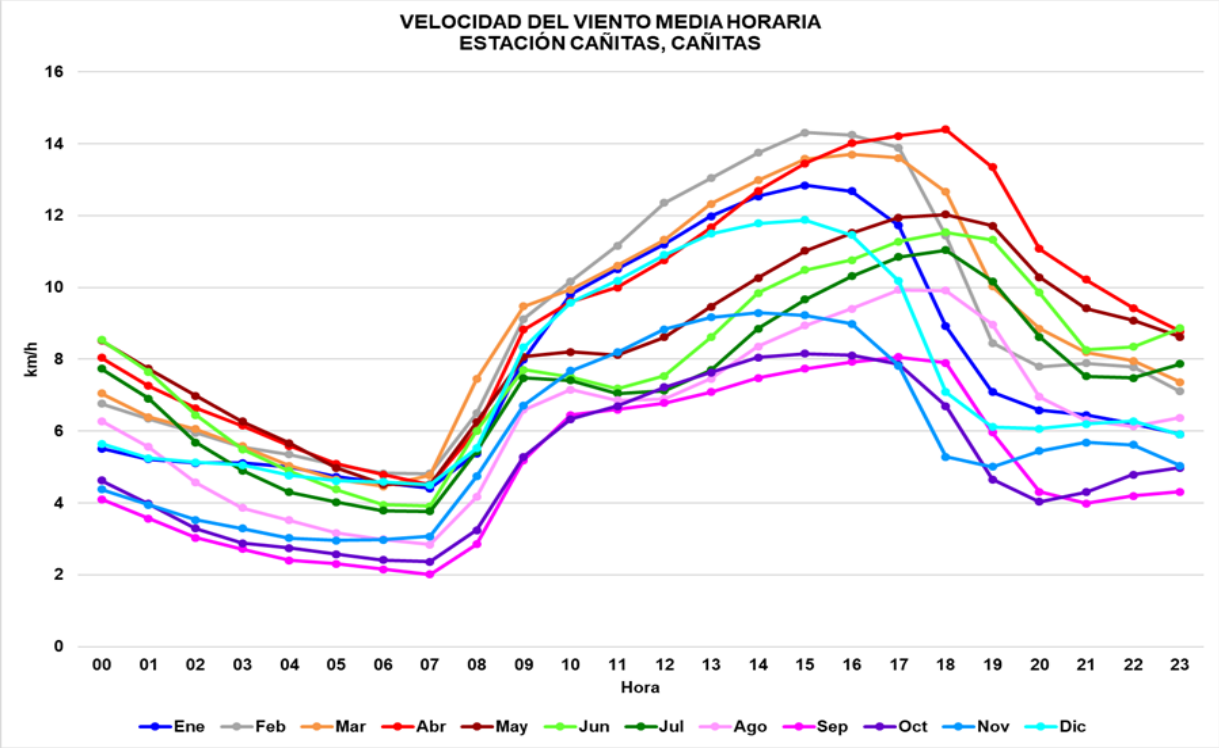


Figura 84. Velocidad del viento media (km/h) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 93. Velocidad del viento máxima maximorum (km/h) horaria de la estación Cañitas, Cañitas (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	39.5	38.7	38.7	35.9	30.8	32.5	29.9	24.0	21.9	23.8	25.2	53.3	53.3
01	38.9	41.2	44.6	28.0	30.2	32.1	27.9	31.0	19.5	23.9	28.6	40.9	44.6
02	38.8	34.8	43.6	30.7	25.6	28.1	31.5	30.9	20.6	21.3	28.0	45.4	45.4
03	35.7	36.7	41.8	31.9	31.1	25.3	29.3	29.0	17.0	19.7	26.3	45.6	45.6
04	37.8	44.8	42.1	29.7	25.7	31.9	25.2	22.2	18.7	17.8	30.8	42.7	44.8
05	36.9	39.4	39.9	31.6	33.2	22.4	26.2	16.3	19.2	20.6	30.1	38.1	39.9
06	34.2	32.6	46.2	27.0	26.8	26.5	23.5	27.7	19.1	28.4	32.2	49.6	49.6
07	29.4	33.9	39.4	24.6	25.0	21.9	25.1	26.9	16.1	25.5	32.9	50.0	50.0
08	28.8	39.9	50.3	33.7	24.1	20.5	24.9	24.3	15.3	21.5	31.5	52.9	52.9
09	34.1	44.8	48.2	37.8	28.1	23.8	33.9	21.0	18.4	26.4	32.1	49.1	49.1
10	43.0	51.2	52.5	38.9	34.7	23.2	33.3	23.9	22.7	29.2	37.2	54.8	54.8
11	44.2	46.9	49.7	36.7	39.2	23.0	34.5	23.3	32.3	27.1	33.2	46.3	49.7
12	45.9	51.7	48.2	38.8	37.3	24.2	35.1	21.7	24.1	31.0	40.4	45.0	51.7
13	41.9	48.3	45.9	37.6	33.2	26.9	37.9	25.3	20.7	30.3	39.2	45.8	48.3
14	54.0	46.3	44.3	37.7	44.6	35.9	32.9	24.8	32.9	32.5	39.3	48.9	54.0
15	51.1	47.2	49.0	38.7	47.7	35.4	29.5	28.5	26.2	33.1	45.1	43.1	51.1
16	47.5	48.3	45.3	40.0	42.3	30.9	34.0	29.5	26.7	32.1	41.1	42.9	48.3
17	44.6	47.2	46.0	40.7	36.6	39.3	33.9	32.2	29.4	30.3	36.1	40.1	47.2
18	38.8	41.9	41.3	36.4	43.6	33.0	31.4	32.0	32.0	27.1	29.0	34.9	43.6
19	40.7	33.1	37.0	39.2	41.7	36.0	32.1	31.1	28.4	27.9	27.7	31.8	41.7
20	38.1	34.0	37.2	35.6	46.1	36.3	32.4	31.9	32.9	24.0	35.1	40.0	46.1
21	44.0	31.9	37.8	37.5	34.5	34.0	30.2	30.9	22.5	25.4	32.5	35.3	44.0
22	40.8	37.4	39.5	39.6	32.2	39.8	29.7	24.6	22.5	22.5	23.8	34.6	40.8
23	40.7	35.7	35.6	42.6	41.0	35.5	26.6	31.4	20.3	25.8	26.7	40.8	42.6
Máx.	54.0	51.7	52.5	42.6	47.7	39.8	37.9	32.2	32.9	33.1	45.1	54.8	54.8

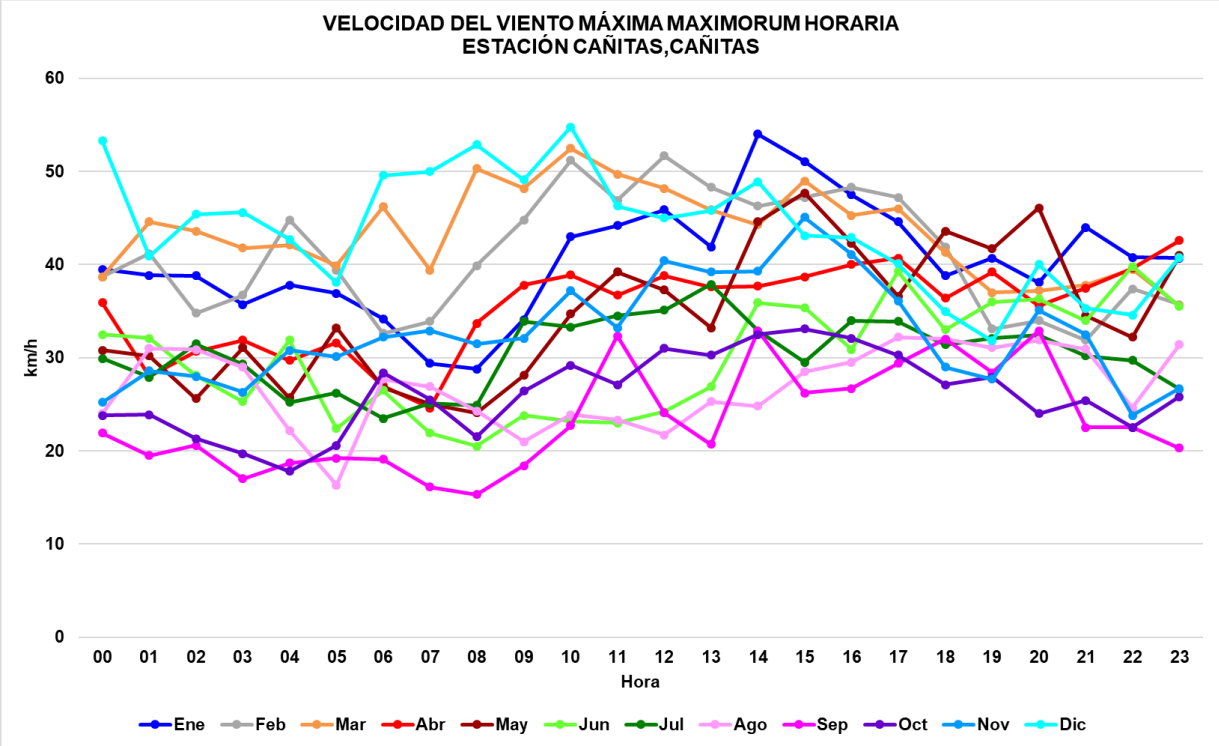


Figura 85. Velocidad del viento máxima maximorum (km/h) horaria de la estación Cañitas, Cañitas (2005-2022).

Cuadro 94. Frecuencia de velocidad del viento (%) mensual de la estación Cañitas, Cañitas (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	43.2	37.5	34.7	30.2	30.0	31.3	35.5	42.0	55.7	56.3	53.5	44.7	41.3
5.1 a 10.0	29.1	29.2	31.1	32.0	36.4	36.7	37.8	38.5	33.7	31.7	29.4	29.2	33.0
10.1 a 15.0	14.3	16.1	17.1	18.9	20.8	23.4	21.2	16.2	9.2	9.9	11.3	14.5	16.1
15.1 a 20.0	7.1	8.2	9.4	10.8	8.9	6.9	4.6	2.8	1.2	1.6	4.1	6.5	5.9
20.1 a 25.0	3.2	4.6	4.8	5.4	3.0	1.4	0.7	0.4	0.2	0.3	1.2	2.7	2.3
25.1 a 30.0	1.9	2.5	1.9	2.0	0.7	0.3	0.1	0.1	0.0	0.1	0.4	1.3	0.9
30.1 a 35.0	0.8	1.1	0.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.3
35.1 a 40.0	0.3	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
40.1 a 45.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

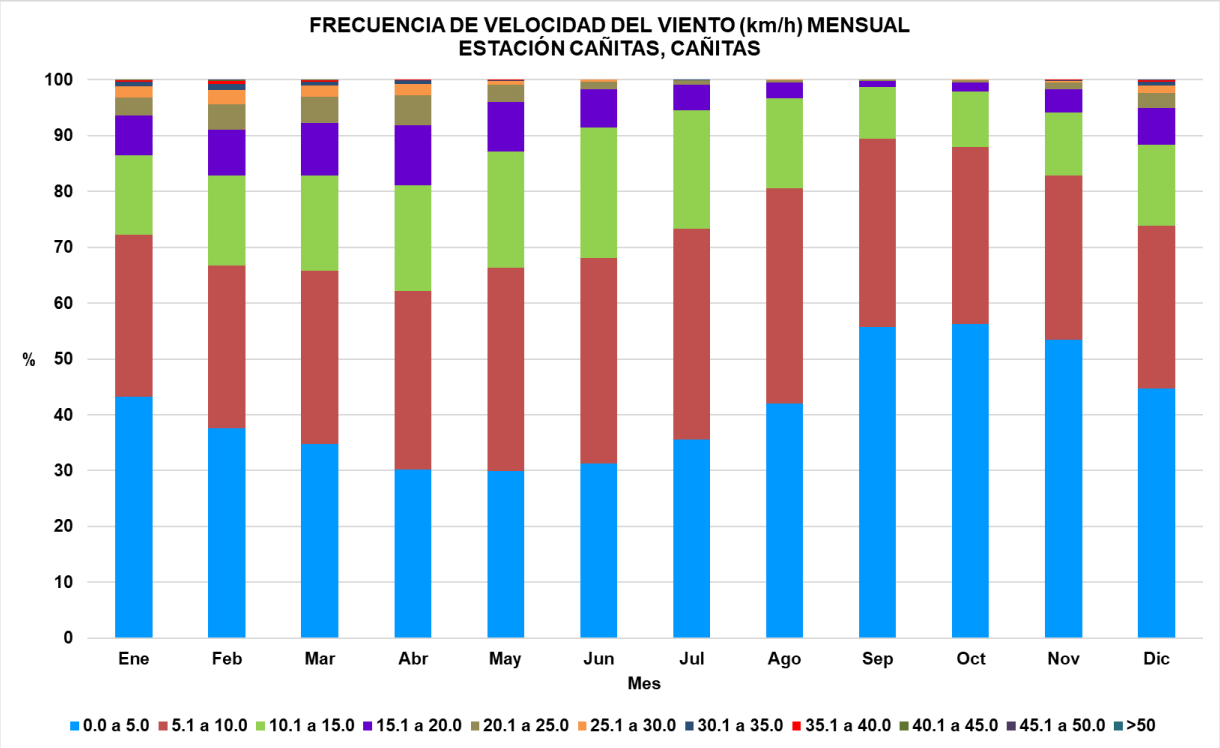


Figura 86. Frecuencia de velocidad del viento (%) mensual de la estación Cañitas, Cañitas (2005-2022).

Cuadro 95. Frecuencia de dirección del viento (%) mensual de la estación Cañitas, Cañitas (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.2	3.8	4.2	3.5	4.9	6.4	3.8	5.7	8.4	7.0	5.3	4.0	5.1
NNE	3.1	2.8	3.0	3.0	4.4	6.8	4.9	6.6	8.4	6.6	4.8	3.0	4.8
NE	3.9	3.2	3.6	3.4	5.1	8.7	7.0	9.0	10.0	8.0	5.4	3.1	5.9
ENE	3.2	2.7	3.1	2.7	4.5	8.1	8.2	9.1	8.8	6.9	4.6	2.7	5.4
E	3.8	3.0	3.7	2.7	4.5	9.1	10.5	10.9	9.4	7.7	5.8	3.0	6.2
ESE	5.1	3.7	4.4	3.5	5.4	12.3	16.1	14.2	10.7	8.8	7.7	4.2	8.1
SE	5.7	5.2	5.0	4.8	7.3	13.1	15.8	13.5	10.2	8.6	7.9	5.4	8.6
SSE	4.1	4.2	4.0	4.4	5.8	7.4	8.5	7.3	6.8	6.1	5.2	4.4	5.7
S	7.0	6.7	6.3	6.6	6.0	4.4	4.8	4.3	4.3	6.0	5.8	7.7	5.8
SSO	19.7	21.4	18.6	20.0	13.6	6.0	6.1	4.9	5.6	10.0	13.5	22.1	13.3
SO	18.7	20.5	19.9	20.9	14.2	4.9	4.7	4.2	4.4	8.4	14.1	20.6	12.8
OSO	7.3	8.4	8.3	8.9	7.1	2.7	2.4	2.4	2.5	3.8	6.5	7.9	5.6
O	3.8	4.8	5.0	5.4	5.0	1.9	1.5	1.6	1.8	2.7	3.6	3.6	3.4
ONO	3.2	3.6	3.9	4.2	4.5	2.1	1.5	1.8	1.8	2.4	2.7	2.8	2.9
NO	3.6	2.9	3.5	3.1	4.0	2.6	1.9	1.8	2.9	3.0	3.2	2.7	2.9
NNO	3.6	3.1	3.4	2.8	3.7	3.6	2.3	2.8	4.1	3.9	3.9	3.0	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

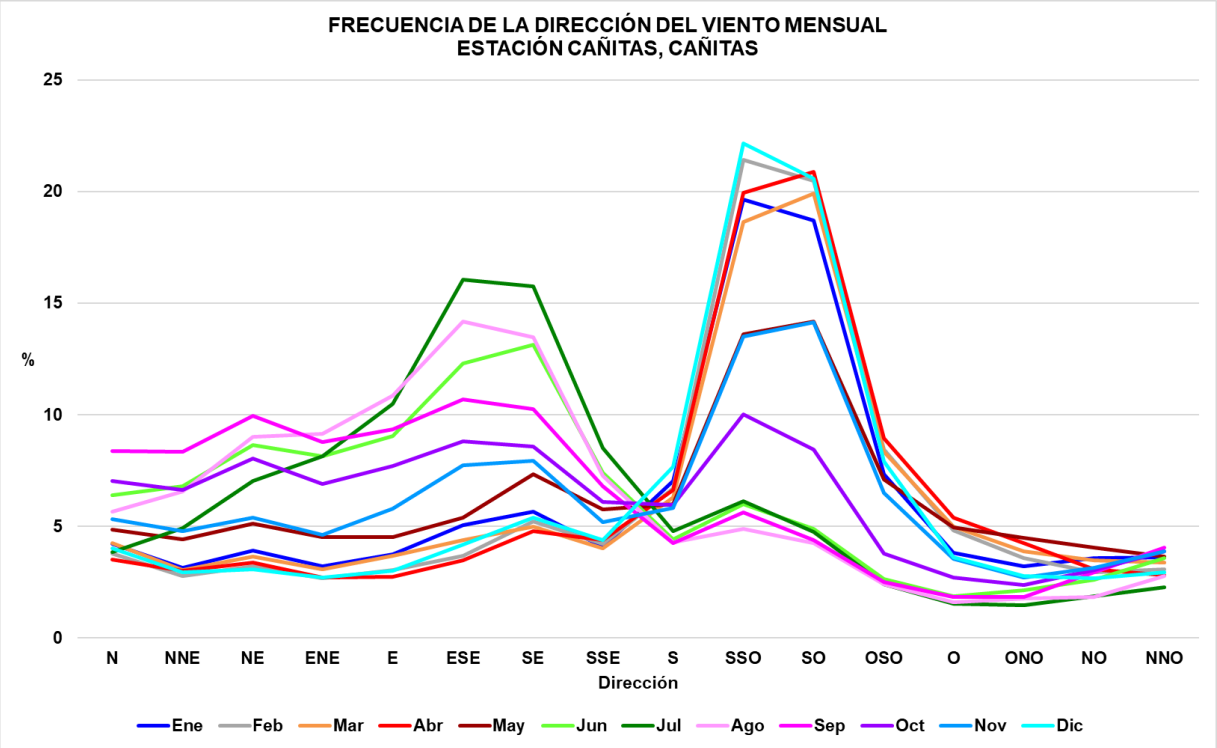
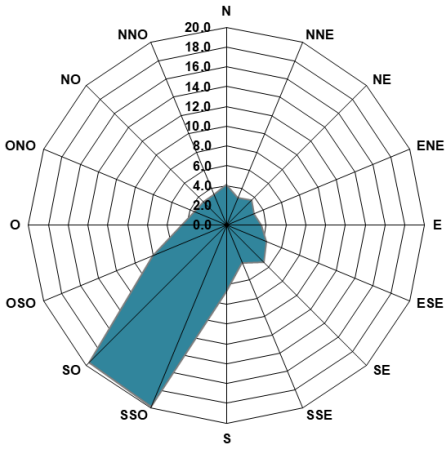


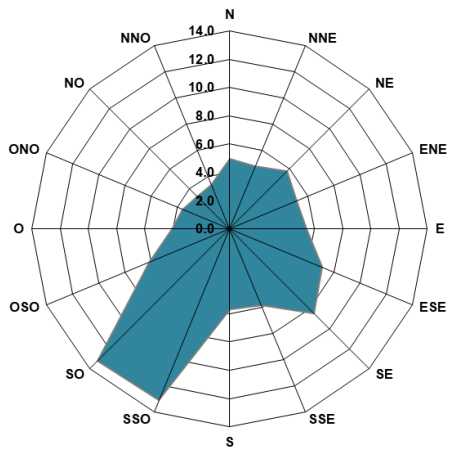
Figura 87. Frecuencia de dirección del viento (%) mensual de la estación Cañitas, Cañitas (2005-2022).

Cuadro 96. Frecuencia de dirección del viento (%) trimestral de la estación Cañitas, Cañitas (2005-2022).

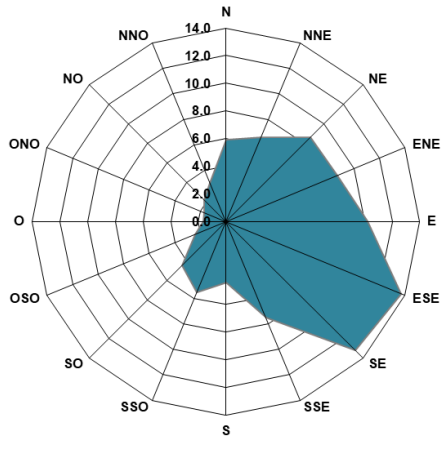
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	4.1	5.0	5.9	5.5	5.1
NNE	3.0	4.8	6.6	4.8	4.8
NE	3.6	5.7	8.7	5.5	5.9
ENE	3.0	5.1	8.7	4.8	5.4
E	3.5	5.5	10.3	5.5	6.2
ESE	4.4	7.1	13.7	6.9	8.1
SE	5.3	8.5	13.2	7.3	8.6
SSE	4.1	5.9	7.5	5.2	5.7
S	6.7	5.7	4.4	6.5	5.8
SSO	19.9	13.1	5.6	15.2	13.3
SO	19.7	13.2	4.5	14.4	12.8
OSO	8.0	6.2	2.4	6.1	5.6
O	4.5	4.1	1.7	3.3	3.4
ONO	3.5	3.6	1.7	2.6	2.9
NO	3.3	3.3	2.2	2.9	2.9
NNO	3.4	3.4	3.0	3.6	3.3
Suma	100.0	100.0	100.0	100.0	100.0



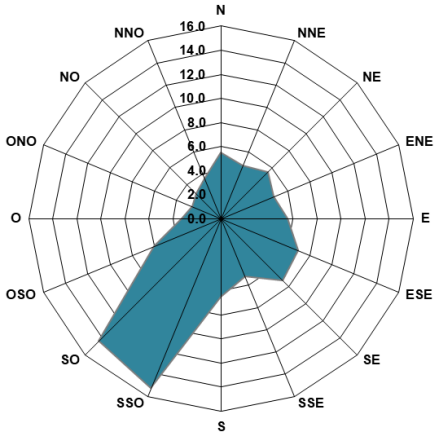
Ene-Mar



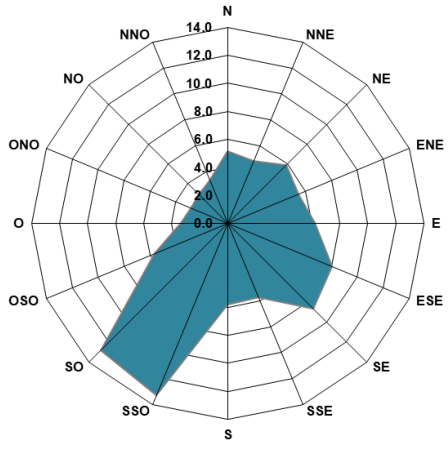
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 88. Frecuencia de dirección del viento (%) trimestral de la estación Cañitas, Cañitas (2005-2022).

Cuadro 97. Estadísticas climatológicas mensuales de la estación Cañitas, Cañitas (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.0	23.8	26.2	29.1	30.5	29.4	27.4	27.5	25.6	25.5	23.4	21.9	25.9
Temperatura máxima maximorum (°C)	27.7	32.9	34.9	34.7	37.9	35.2	34.2	33.5	32.7	34.7	30.9	29.3	37.9
Temperatura mínima media (°C)	1.1	2.7	4.8	7.5	10.8	13.5	13.3	13.1	12.2	8.0	3.7	1.5	7.7
Temperatura mínima minimorum (°C)	-10.0	-8.0	-7.7	-4.7	0.6	3.8	4.8	6.6	0.1	-3.7	-10.9	-14.4	-14.4
Temperatura media (°C)	10.6	13.2	15.9	18.9	21.1	21.4	19.8	19.8	18.1	16.4	13.2	11.2	16.6
Oscilación térmica (°C)	19.9	21.1	21.4	21.6	19.7	15.9	14.1	14.4	13.4	17.5	19.7	20.3	18.3
Precipitación acumulada media (mm)	10.7	9.7	6.9	3.9	9.0	58.9	85.2	75.1	99.7	26.6	8.9	9.4	404.1
Precipitación máxima maximorum en 24 horas (mm)	33.2	24.0	44.2	20.6	12.0	48.8	52.2	38.2	52.4	59.8	28.6	23.0	59.8
Número de días promedio con lluvia	3.8	3.5	3.0	2.3	3.9	9.7	13.1	14.0	14.4	6.0	4.3	3.4	81.5
Evapotranspiración acumulada potencial media (mm)	104.1	124.0	162.4	189.4	195.9	171.5	157.7	154.1	121.4	122.0	104.7	100.7	1707.8
Humedad máxima media (%)	80.1	72.8	64.0	59.1	67.6	83.1	90.3	91.6	95.0	92.4	88.5	81.9	80.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.7	98.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.3	15.9	12.7	10.4	12.6	22.6	31.7	31.7	39.9	29.7	24.2	20.8	22.7
Humedad mínima minimorum (%)	3.0	4.0	3.7	3.0	3.0	5.0	10.0	12.0	13.0	7.1	4.0	4.0	3.0
Humedad media (%)	48.9	40.5	33.3	29.0	34.7	50.9	62.4	63.3	71.5	61.9	55.9	50.2	50.2
Radiación global media día/mes (W/m^2)	18002.9	21985.0	25509.2	28754.3	28956.4	27694.7	26119.9	25300.6	22022.9	21280.4	18962.4	17103.5	23474.3
Radiación global media día/mes (kWh/m^2)	4.5	5.5	6.4	7.2	7.2	6.9	6.5	6.3	5.5	5.3	4.7	4.3	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.2	19.8	23.0	25.9	26.1	24.9	23.5	22.8	19.8	19.2	17.1	15.4	21.1
Velocidad del viento máxima media (km/h)	19.1	20.7	20.8	22.3	21.3	20.7	19.0	17.8	14.8	14.0	15.2	17.7	18.6
Velocidad del viento máxima maximorum (km/h)	54.0	51.7	52.5	42.6	47.7	39.8	37.9	32.2	32.9	33.1	45.1	54.8	54.8
Velocidad del viento media (km/h)	7.8	8.9	8.9	9.4	8.5	7.9	7.3	6.4	5.0	5.1	5.8	7.4	7.4
Dirección dominante del viento	SSO	SSO	SO	SO	SO	SE	ESE	ESE	ESE	SSO	SO	SSO	SSO

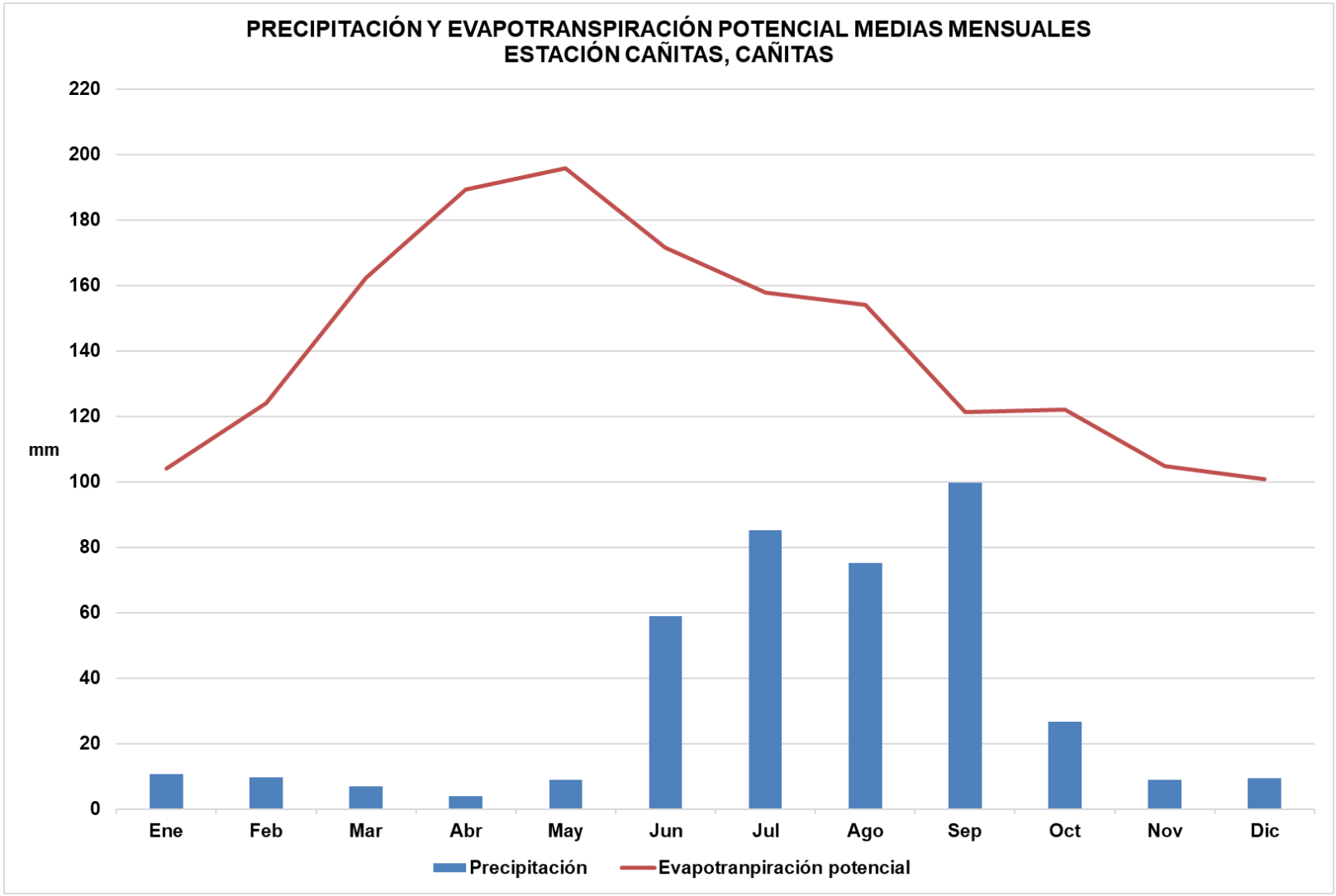


Figura 89. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Cañitas, Cañitas (2005-2022)

7.6. Estación: CBTA Tepechitlán, Tepechitlán

Cuadro 98. Temperatura máxima media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.3	10.9	12.9	15.6	18.0	19.5	17.5	17.3	16.8	15.1	11.3	9.2	14.5
01	8.6	10.0	11.9	14.7	17.1	18.8	17.0	16.9	16.5	14.6	10.5	8.5	13.7
02	7.9	9.2	11.0	13.6	16.2	18.2	16.6	16.6	16.1	13.9	9.8	7.8	13.1
03	7.2	8.4	10.1	12.7	15.4	17.6	16.3	16.3	15.7	13.4	9.2	7.2	12.4
04	6.6	7.7	9.3	11.8	14.5	17.0	16.0	15.9	15.3	12.9	8.6	6.6	11.9
05	5.9	7.1	8.5	11.0	13.8	16.4	15.7	15.6	15.0	12.4	8.0	6.1	11.3
06	5.5	6.5	8.0	10.1	13.1	15.9	15.4	15.3	14.7	11.9	7.5	5.6	10.8
07	5.2	6.7	9.4	10.6	13.5	16.2	15.4	15.3	14.7	11.9	8.6	5.7	11.1
08	8.5	10.9	14.9	14.8	17.7	18.8	17.2	17.0	16.4	14.2	12.9	9.4	14.4
09	13.2	15.9	19.7	20.2	22.2	21.6	19.4	19.4	19.0	17.8	17.2	14.2	18.3
10	17.2	19.6	23.0	24.2	25.5	24.0	21.5	21.6	21.4	20.8	20.4	17.9	21.4
11	20.1	22.5	25.4	26.9	27.8	26.1	23.3	23.4	23.2	23.2	22.9	20.8	23.8
12	22.2	24.3	27.0	28.8	29.7	27.8	24.7	24.7	24.6	25.0	24.5	22.8	25.5
13	23.4	25.5	28.0	30.0	31.0	29.1	25.8	25.7	25.6	26.1	25.4	23.9	26.6
14	24.0	26.0	28.5	30.8	31.9	29.9	26.5	26.5	26.2	26.8	25.8	24.4	27.3
15	24.0	26.0	28.5	31.1	32.3	30.2	26.9	26.8	26.4	27.0	25.7	24.3	27.4
16	23.6	25.7	28.2	30.9	32.1	29.9	26.8	26.7	26.1	26.7	25.2	23.8	27.1
17	22.4	24.8	27.3	30.3	31.6	29.0	26.2	26.3	25.4	25.9	23.6	22.4	26.3
18	19.9	22.7	25.5	29.2	30.5	27.8	25.2	25.2	24.2	24.3	20.1	19.0	24.5
19	16.0	18.8	21.9	27.1	28.8	26.1	23.8	23.5	22.4	21.4	16.8	15.4	21.8
20	13.9	16.0	18.6	23.8	25.9	24.3	21.7	21.2	19.9	18.5	15.0	13.5	19.4
21	12.5	14.4	16.7	20.7	22.9	22.3	19.7	19.3	18.6	17.1	13.8	12.1	17.5
22	11.3	13.0	15.1	18.6	20.9	21.0	18.7	18.3	17.8	16.2	12.9	11.0	16.2
23	10.3	11.9	13.9	17.0	19.4	20.1	18.0	17.7	17.2	15.5	12.0	10.1	15.3
Media	14.1	16.0	18.5	21.0	23.0	22.8	20.6	20.5	20.0	18.9	16.2	14.2	18.8

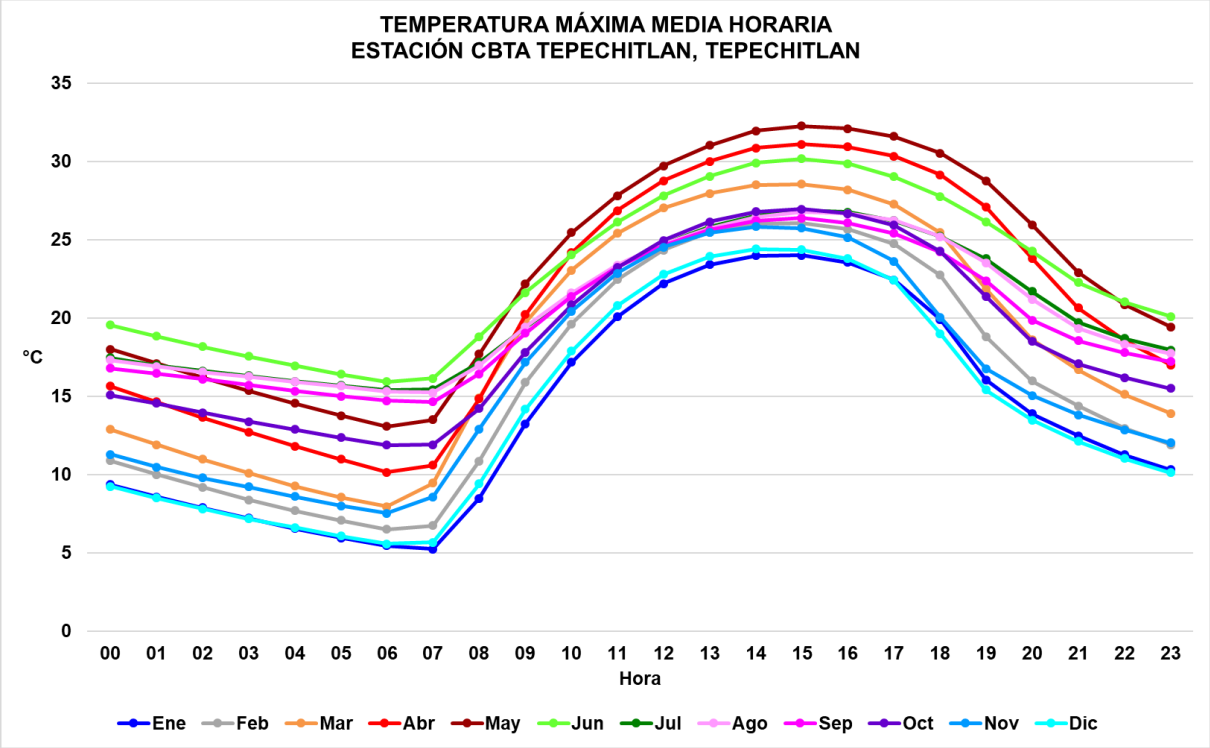


Figura 90. Temperatura máxima media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 99. Temperatura máxima maximorum (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	17.4	19.1	20.1	24.4	26.1	27.5	23.3	23.7	21.5	21.9	18.1	17.8	27.5
01	17.1	17.8	19.5	23.5	24.4	26.7	24.2	22.3	21.1	21.3	17.3	17.9	26.7
02	16.6	17.3	18.1	21.7	23.6	24.6	22.4	21.7	20.5	20.1	17.6	17.8	24.6
03	16.0	17.2	18.1	20.8	22.7	23.1	21.5	20.9	19.9	19.5	17.5	16.8	23.1
04	14.8	15.8	16.7	24.0	22.5	22.0	19.9	20.2	19.8	19.2	17.2	15.5	24.0
05	14.0	14.7	16.6	23.9	21.2	21.7	19.4	19.4	19.6	18.8	17.3	15.2	23.9
06	14.1	15.3	15.7	20.3	20.6	21.4	19.0	19.4	19.6	18.3	16.5	15.3	21.4
07	12.9	14.7	17.1	20.1	22.2	21.0	19.1	19.1	19.3	18.0	16.8	15.6	22.2
08	17.2	20.4	24.9	23.7	25.4	25.2	23.0	22.9	21.2	20.8	19.8	19.0	25.4
09	21.5	24.6	27.9	27.4	29.6	27.5	25.4	24.8	23.3	24.0	23.2	21.6	29.6
10	24.3	27.4	31.9	30.6	32.1	30.6	27.4	25.6	25.0	27.0	26.3	24.6	32.1
11	27.6	30.2	32.3	32.9	34.3	34.3	29.9	27.0	27.4	29.4	29.0	27.2	34.3
12	29.2	31.7	33.4	34.5	35.6	35.3	31.1	28.5	29.2	31.1	30.2	28.4	35.6
13	29.8	32.2	34.7	36.0	37.2	35.8	31.8	29.6	30.2	31.1	31.3	30.3	37.2
14	31.1	34.1	35.9	37.0	38.5	38.6	33.0	30.8	31.7	31.8	32.2	31.1	38.6
15	31.4	33.0	36.5	37.6	38.8	38.5	33.3	31.5	31.6	32.7	32.0	30.8	38.8
16	30.5	33.3	36.5	36.4	39.6	38.8	33.8	32.0	32.4	32.5	31.6	29.7	39.6
17	29.7	32.4	35.4	35.8	38.3	38.4	33.5	32.4	33.0	31.6	30.1	28.5	38.4
18	26.9	31.0	32.4	35.2	37.9	37.7	32.7	32.0	31.6	30.4	25.3	25.1	37.9
19	21.7	27.0	28.2	33.0	37.0	36.2	32.4	31.4	28.4	28.3	23.5	21.3	37.0
20	19.1	23.0	23.9	31.1	34.6	33.1	30.1	28.6	25.1	24.6	24.1	20.6	34.6
21	18.6	21.8	26.8	27.1	29.3	29.9	26.6	25.2	23.3	22.8	22.0	19.6	29.9
22	18.5	20.3	26.2	26.0	27.8	28.6	24.9	23.0	22.8	22.5	20.7	18.1	28.6
23	18.7	20.0	25.2	25.4	26.4	27.1	24.3	23.2	21.8	22.2	20.5	18.0	27.1
Máx.	31.4	34.1	36.5	37.6	39.6	38.8	33.8	32.4	33.0	32.7	32.2	31.1	39.6

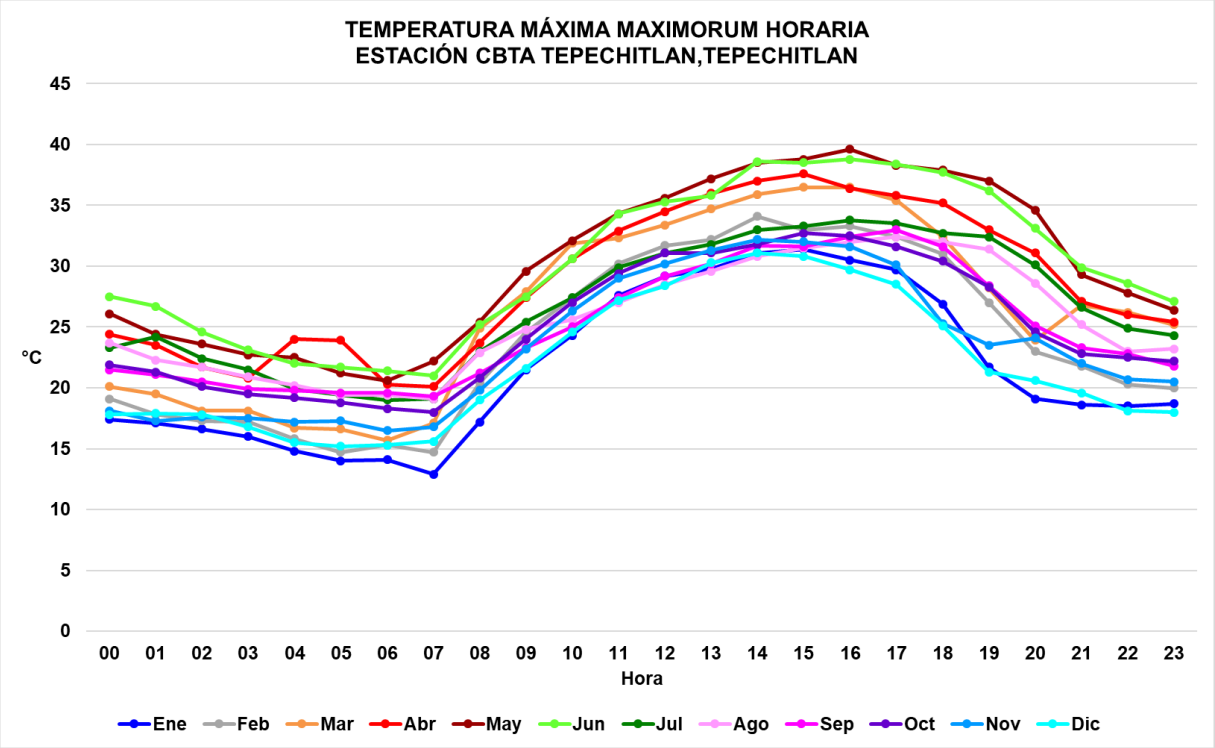


Figura 91. Temperatura máxima maximorum (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 100. Temperatura mínima media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.5	9.9	11.8	14.5	17.0	18.6	16.8	16.7	16.2	14.3	10.4	8.4	13.6
01	7.7	9.1	11.0	13.5	16.1	18.0	16.4	16.4	15.9	13.8	9.6	7.7	12.9
02	7.1	8.3	10.1	12.6	15.2	17.3	16.1	16.0	15.5	13.2	9.0	7.0	12.3
03	6.4	7.5	9.2	11.7	14.4	16.8	15.8	15.7	15.2	12.7	8.5	6.4	11.7
04	5.8	6.9	8.4	10.8	13.6	16.1	15.5	15.4	14.8	12.2	7.8	5.8	11.1
05	5.2	6.3	7.8	10.0	12.9	15.7	15.2	15.1	14.5	11.7	7.3	5.3	10.6
06	4.7	5.8	7.2	9.3	12.2	15.2	14.9	14.8	14.2	11.2	6.8	4.9	10.1
07	4.3	5.5	7.2	9.0	12.1	15.2	14.8	14.7	14.1	11.0	6.9	4.6	9.9
08	5.4	7.3	10.7	11.1	14.2	16.6	15.6	15.3	14.6	11.9	9.5	6.1	11.5
09	9.6	12.1	16.2	16.2	18.9	19.4	17.7	17.6	17.0	15.1	14.0	10.6	15.4
10	14.3	16.9	20.6	21.3	23.0	22.1	19.8	19.9	19.6	18.6	18.0	15.1	19.1
11	17.9	20.3	23.6	24.8	25.9	24.4	21.9	22.0	21.7	21.4	21.1	18.6	22.0
12	20.5	22.8	25.6	27.2	28.2	26.3	23.4	23.5	23.4	23.6	23.2	21.2	24.1
13	22.2	24.3	26.8	28.7	29.7	27.6	24.6	24.6	24.4	25.0	24.4	22.8	25.4
14	22.9	25.0	27.5	29.7	30.7	28.3	25.2	25.3	25.0	25.6	24.9	23.4	26.1
15	23.1	25.1	27.6	30.0	31.0	28.5	25.5	25.4	25.0	25.8	24.8	23.5	26.3
16	22.5	24.6	27.2	29.9	30.8	28.0	25.4	25.3	24.7	25.4	23.9	22.7	25.9
17	20.7	23.3	25.9	29.1	30.1	27.1	24.7	24.8	24.0	24.4	21.2	20.1	24.6
18	16.8	19.8	22.9	27.5	29.0	25.9	23.8	23.6	22.7	22.2	17.3	16.0	22.3
19	14.2	16.4	19.2	24.6	26.6	24.5	22.1	21.8	20.4	19.0	15.2	13.7	19.8
20	12.6	14.6	16.9	21.2	23.4	22.5	20.0	19.6	18.6	17.2	13.9	12.3	17.7
21	11.3	13.1	15.3	18.8	21.1	20.9	18.7	18.3	17.7	16.2	12.8	11.1	16.3
22	10.3	11.9	13.9	17.1	19.5	19.9	17.9	17.6	17.1	15.4	11.9	10.1	15.2
23	9.4	10.9	12.8	15.7	18.2	19.2	17.3	17.1	16.6	14.8	11.1	9.2	14.4
Media	12.6	14.5	16.9	19.3	21.4	21.4	19.5	19.4	18.9	17.6	14.7	12.8	17.4

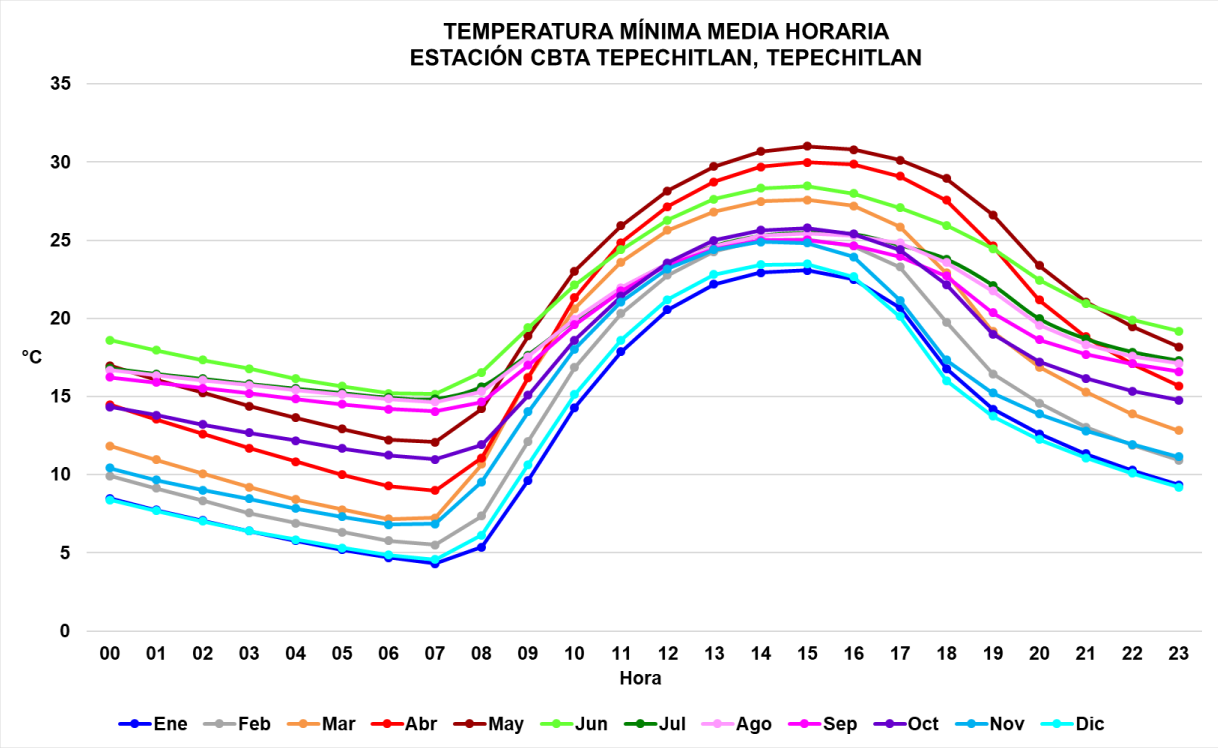


Figura 92. Temperatura mínima media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 101. Temperatura mínima minimorum (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.5	2.4	1.3	5.5	9.2	9.5	5.9	12.4	11.8	4.4	0.5	0.7	0.5
01	0.4	1.5	1.2	5.8	8.8	8.1	5.7	12.8	11.6	4.5	-0.2	-0.6	-0.6
02	-0.8	-0.6	0.5	4.2	6.4	9.9	6.3	13.0	10.7	4.4	-1.3	-1.0	-1.3
03	-1.9	-1.3	0.5	4.3	5.5	8.7	5.2	12.8	9.9	2.6	-2.7	-2.4	-2.7
04	-2.7	-1.8	0.1	2.9	3.7	6.8	4.3	12.5	9.1	1.9	-3.6	-1.6	-3.6
05	-2.8	-3.0	-0.4	2.0	4.2	5.0	5.1	12.3	8.7	2.4	-3.9	-3.7	-3.9
06	-3.4	-3.3	-1.0	-0.6	3.7	3.8	3.5	10.8	6.3	1.6	-4.1	-4.0	-4.1
07	-4.4	-4.0	-1.0	0.4	3.7	6.4	4.2	10.9	6.4	1.0	-4.5	-3.9	-4.5
08	-3.9	-1.6	0.8	3.2	5.6	8.6	8.4	10.8	6.8	0.9	-1.8	-4.1	-4.1
09	-0.1	4.1	5.1	7.7	10.5	11.6	10.0	14.0	11.3	6.3	3.3	0.6	-0.1
10	2.8	7.4	4.3	13.8	14.3	11.7	11.0	14.7	14.6	11.9	8.2	3.8	2.8
11	3.4	9.7	4.5	15.0	14.7	14.6	14.2	15.9	15.1	15.0	10.1	7.3	3.4
12	2.8	9.5	5.3	16.9	16.2	16.6	15.1	16.9	16.3	16.4	11.3	8.5	2.8
13	2.1	9.8	7.3	17.7	20.0	12.7	17.0	16.8	16.8	15.1	11.6	8.2	2.1
14	1.8	8.9	10.2	15.6	14.8	9.2	14.2	16.8	14.9	15.3	11.4	8.1	1.8
15	2.3	9.0	11.6	16.8	13.3	8.4	13.5	15.9	15.7	15.8	10.2	8.5	2.3
16	3.1	8.8	12.3	18.9	14.0	11.1	14.4	14.5	13.8	15.9	9.8	8.2	3.1
17	3.7	8.5	10.6	15.1	14.9	13.5	11.9	14.7	14.4	15.6	8.6	6.4	3.7
18	3.7	8.3	9.3	14.9	15.8	14.0	9.1	14.2	14.6	14.5	8.5	6.0	3.7
19	3.6	8.1	6.3	14.0	14.7	11.6	7.4	13.9	14.0	12.4	7.8	5.8	3.6
20	3.5	7.0	6.1	13.0	14.4	9.2	8.9	11.9	14.6	11.1	7.3	3.4	3.4
21	3.1	6.1	3.1	11.9	12.8	8.5	8.9	12.0	13.9	9.4	6.2	3.0	3.0
22	2.6	5.1	2.5	8.8	12.1	8.0	9.4	12.2	12.6	6.7	3.9	1.3	1.3
23	2.0	4.2	1.6	4.6	10.4	10.1	8.2	12.2	12.1	6.1	2.3	1.0	1.0
Mín.	-4.4	-4.0	-1.0	-0.6	3.7	3.8	3.5	10.8	6.3	0.9	-4.5	-4.1	-4.5

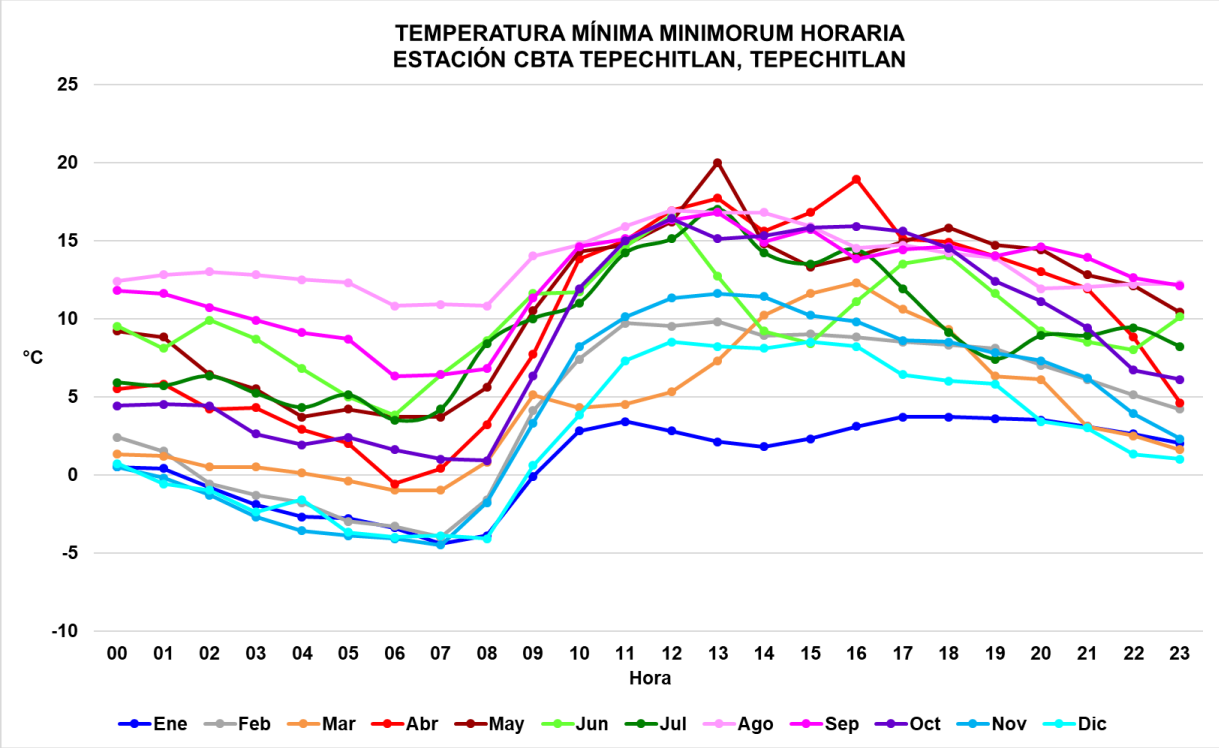


Figura 93. Temperatura mínima minimorum (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 102. Temperatura media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.9	10.4	12.4	15.1	17.5	19.1	17.1	17.0	16.5	14.7	10.9	8.8	14.0
01	8.2	9.6	11.4	14.1	16.6	18.4	16.7	16.6	16.2	14.2	10.1	8.1	13.3
02	7.5	8.8	10.5	13.1	15.7	17.7	16.4	16.3	15.8	13.6	9.4	7.4	12.7
03	6.8	8.0	9.7	12.2	14.9	17.2	16.1	16.0	15.5	13.0	8.8	6.8	12.1
04	6.2	7.3	8.8	11.3	14.1	16.5	15.7	15.7	15.1	12.5	8.2	6.2	11.5
05	5.6	6.7	8.2	10.5	13.3	16.0	15.5	15.4	14.8	12.0	7.7	5.7	10.9
06	5.1	6.1	7.6	9.7	12.6	15.6	15.2	15.1	14.5	11.6	7.2	5.2	10.4
07	4.7	6.1	8.2	9.7	12.7	15.6	15.1	14.9	14.3	11.4	7.6	5.1	10.5
08	6.9	9.1	12.8	12.9	15.9	17.7	16.4	16.1	15.5	13.0	11.2	7.7	12.9
09	11.5	14.0	18.0	18.3	20.6	20.5	18.5	18.5	18.0	16.4	15.6	12.4	16.9
10	15.8	18.3	21.9	22.8	24.3	23.1	20.7	20.8	20.5	19.8	19.3	16.5	20.3
11	19.0	21.4	24.5	25.9	26.9	25.2	22.6	22.7	22.5	22.3	22.0	19.7	22.9
12	21.4	23.6	26.3	28.0	28.9	27.0	24.1	24.1	24.0	24.3	23.9	22.0	24.8
13	22.8	24.9	27.4	29.4	30.4	28.3	25.2	25.2	25.0	25.6	24.9	23.4	26.0
14	23.5	25.5	28.0	30.3	31.3	29.1	25.9	25.9	25.6	26.2	25.4	23.9	26.7
15	23.5	25.6	28.1	30.6	31.6	29.3	26.2	26.1	25.7	26.4	25.3	23.9	26.9
16	23.0	25.2	27.7	30.4	31.5	28.9	26.1	26.0	25.4	26.0	24.6	23.2	26.5
17	21.6	24.1	26.6	29.7	30.9	28.1	25.4	25.5	24.7	25.2	22.5	21.3	25.5
18	18.3	21.3	24.3	28.4	29.8	26.8	24.5	24.4	23.5	23.2	18.6	17.4	23.4
19	15.1	17.6	20.4	25.9	27.7	25.3	23.0	22.7	21.4	20.1	16.0	14.5	20.8
20	13.3	15.3	17.7	22.4	24.7	23.3	20.8	20.3	19.2	17.8	14.4	12.9	18.5
21	11.9	13.7	16.0	19.7	22.0	21.6	19.2	18.8	18.1	16.6	13.3	11.6	16.9
22	10.8	12.4	14.5	17.8	20.1	20.5	18.3	18.0	17.4	15.8	12.4	10.6	15.7
23	9.8	11.4	13.4	16.3	18.8	19.6	17.6	17.4	16.9	15.1	11.6	9.7	14.8
Media	13.4	15.3	17.7	20.2	22.2	22.1	20.1	20.0	19.4	18.2	15.4	13.5	18.1

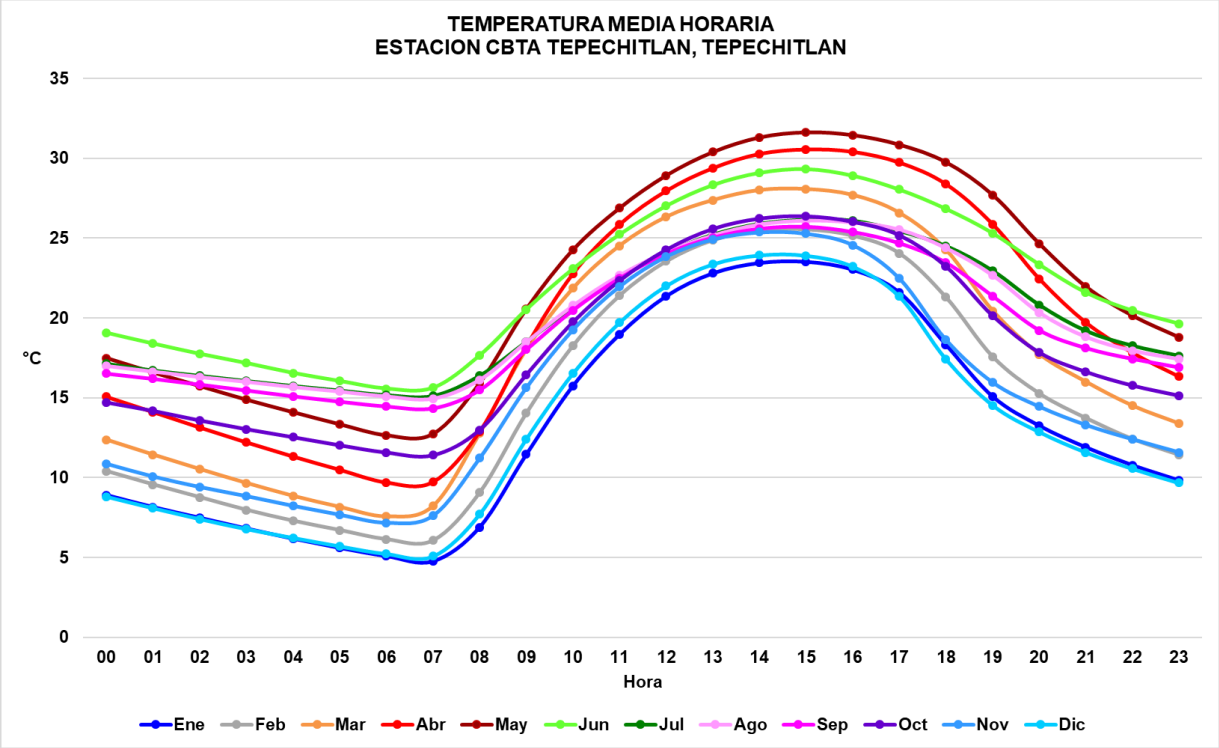


Figura 94. Temperatura media (˚C) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 103. Precipitación media (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.7	0.0	0.0	1.2	6.9	17.5	14.6	9.8	3.2	0.4	0.8	55.5
01	0.6	0.8	0.0	0.0	0.8	6.8	18.3	11.4	10.3	3.0	0.3	0.6	52.9
02	0.5	1.1	0.0	0.0	0.4	6.0	9.5	12.2	8.6	2.1	0.3	0.5	41.1
03	0.8	0.8	0.0	0.0	0.2	5.0	11.3	9.7	6.5	3.4	0.4	0.4	38.3
04	0.9	0.4	0.2	0.0	0.1	4.2	6.9	9.3	5.3	2.4	0.2	0.6	30.5
05	0.6	0.5	0.0	0.0	0.1	2.6	5.4	5.0	3.2	2.0	0.3	1.1	20.5
06	0.4	0.2	0.0	0.0	0.2	2.5	5.2	5.4	2.4	0.8	0.2	0.6	17.9
07	0.3	0.4	0.1	0.0	0.3	1.5	2.2	2.0	1.3	1.5	0.1	0.8	10.6
08	0.2	0.3	0.0	0.0	0.1	0.6	3.3	2.4	0.9	0.9	0.2	0.8	10.0
09	0.2	0.9	0.1	0.0	0.0	0.2	2.3	0.9	1.4	0.6	0.1	0.5	7.1
10	0.2	0.5	0.1	0.0	0.0	0.2	1.0	0.4	0.3	0.3	0.2	0.3	3.5
11	0.4	0.6	0.1	0.0	0.0	0.0	0.6	0.5	0.2	0.1	0.3	0.2	3.0
12	0.2	0.7	0.2	0.0	0.0	0.1	0.4	0.7	1.2	0.4	0.3	0.6	4.9
13	0.8	0.8	0.2	0.0	0.0	1.2	0.9	1.4	0.7	1.6	0.8	0.8	9.1
14	0.5	0.8	0.2	0.4	0.1	1.9	2.4	2.0	1.5	1.0	0.8	0.4	11.9
15	0.4	0.8	0.4	0.1	0.7	2.4	8.9	4.8	2.3	2.0	0.9	0.6	24.3
16	0.4	0.8	0.3	0.2	0.7	5.2	3.9	3.7	4.1	1.8	0.5	0.4	22.0
17	0.3	0.5	0.8	0.3	0.9	5.7	9.4	5.4	5.5	1.8	1.3	0.6	32.6
18	0.4	0.9	1.0	0.4	0.9	7.4	12.6	9.5	4.8	2.1	0.8	1.5	42.2
19	0.3	0.6	0.5	0.1	1.2	4.6	12.2	7.6	7.6	3.2	0.7	0.5	39.0
20	0.4	0.4	0.5	0.1	0.9	9.8	12.9	9.9	5.5	1.5	0.7	0.3	42.9
21	0.9	0.5	0.4	0.0	2.1	4.9	17.4	10.5	8.5	2.8	0.7	0.3	49.2
22	0.7	0.7	0.0	0.0	0.6	8.5	22.1	14.2	7.7	2.2	0.9	0.2	57.9
23	0.6	0.6	0.0	0.0	1.8	6.4	20.0	12.0	11.0	2.3	0.9	0.8	56.6
Suma	11.1	15.2	5.3	1.9	13.5	94.5	206.4	155.6	110.8	43.1	12.2	14.1	683.6

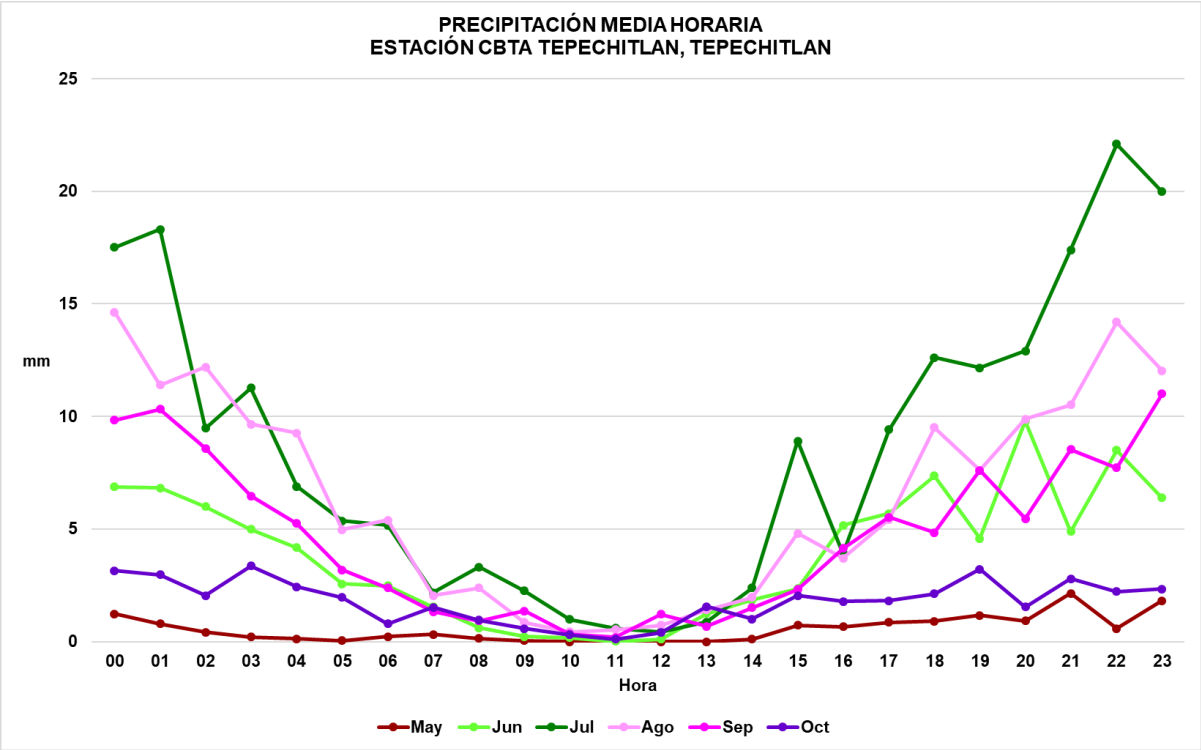


Figura 95. Precipitación media (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 104. Precipitación máxima maximorum (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.4	4.8	0.4	0.0	10.6	25.4	26.8	18.8	15.4	13.0	2.0	8.6	26.8
01	3.4	8.0	0.4	0.0	4.8	22.0	34.4	18.4	21.6	7.6	1.2	3.2	34.4
02	5.0	9.0	0.0	0.0	3.4	22.6	12.8	37.0	17.4	7.6	2.8	6.0	37.0
03	5.6	4.4	0.2	0.8	2.0	28.2	19.6	30.6	18.2	14.0	2.4	3.6	30.6
04	5.2	1.6	2.4	0.2	1.4	15.6	10.4	24.6	15.6	17.8	1.4	3.4	24.6
05	3.2	2.6	0.2	0.0	0.4	6.4	20.6	10.8	11.6	5.2	1.2	5.0	20.6
06	3.2	1.8	0.2	0.0	2.6	14.0	13.4	43.4	10.8	2.0	1.0	3.4	43.4
07	1.8	2.6	0.2	0.4	5.6	8.2	11.2	9.8	3.6	17.6	0.6	5.0	17.6
08	1.8	1.8	0.4	0.2	2.2	5.6	12.8	10.8	3.4	6.6	1.0	4.4	12.8
09	1.0	9.0	1.0	0.0	0.6	1.6	8.6	3.2	14.4	4.0	0.6	4.2	14.4
10	1.4	3.0	1.4	0.0	0.0	1.6	4.6	4.2	3.2	2.2	1.2	2.6	4.6
11	3.8	3.8	0.8	0.2	0.8	0.2	5.4	6.6	1.2	1.0	1.6	1.2	6.6
12	1.6	3.8	2.2	0.0	0.0	0.6	1.8	7.6	16.8	6.4	2.2	4.2	16.8
13	5.8	3.4	1.4	0.0	0.0	15.6	4.4	5.8	7.4	25.6	4.4	5.0	25.6
14	3.0	4.4	1.6	4.4	0.8	8.6	6.4	4.8	5.2	6.0	5.2	2.4	8.6
15	4.0	6.0	4.6	1.0	5.4	10.0	53.0	16.2	8.0	9.6	5.4	5.4	53.0
16	2.4	6.4	4.8	2.0	5.0	11.0	11.4	10.4	18.4	11.0	3.4	2.0	18.4
17	3.0	2.2	12.8	4.0	3.6	16.8	21.6	12.4	28.4	8.8	10.6	2.2	28.4
18	1.8	3.2	14.2	6.8	3.0	21.0	26.6	22.0	25.2	14.0	4.2	16.8	26.6
19	1.6	3.8	8.0	0.4	7.2	17.2	31.2	33.4	25.4	19.2	4.2	3.0	33.4
20	2.4	4.2	6.0	0.8	4.4	40.2	30.6	22.2	20.2	13.6	3.2	1.8	40.2
21	2.6	3.0	6.6	0.2	26.8	11.0	27.4	22.6	18.4	24.6	4.0	1.0	27.4
22	2.8	3.4	0.2	0.2	2.4	27.8	38.0	32.8	19.4	12.6	5.4	1.4	38.0
23	1.8	4.4	0.4	0.0	25.8	18.8	36.4	29.0	38.2	13.4	4.6	9.0	38.2
Máx.	5.8	9.0	14.2	6.8	26.8	40.2	53.0	43.4	38.2	25.6	10.6	16.8	53.0

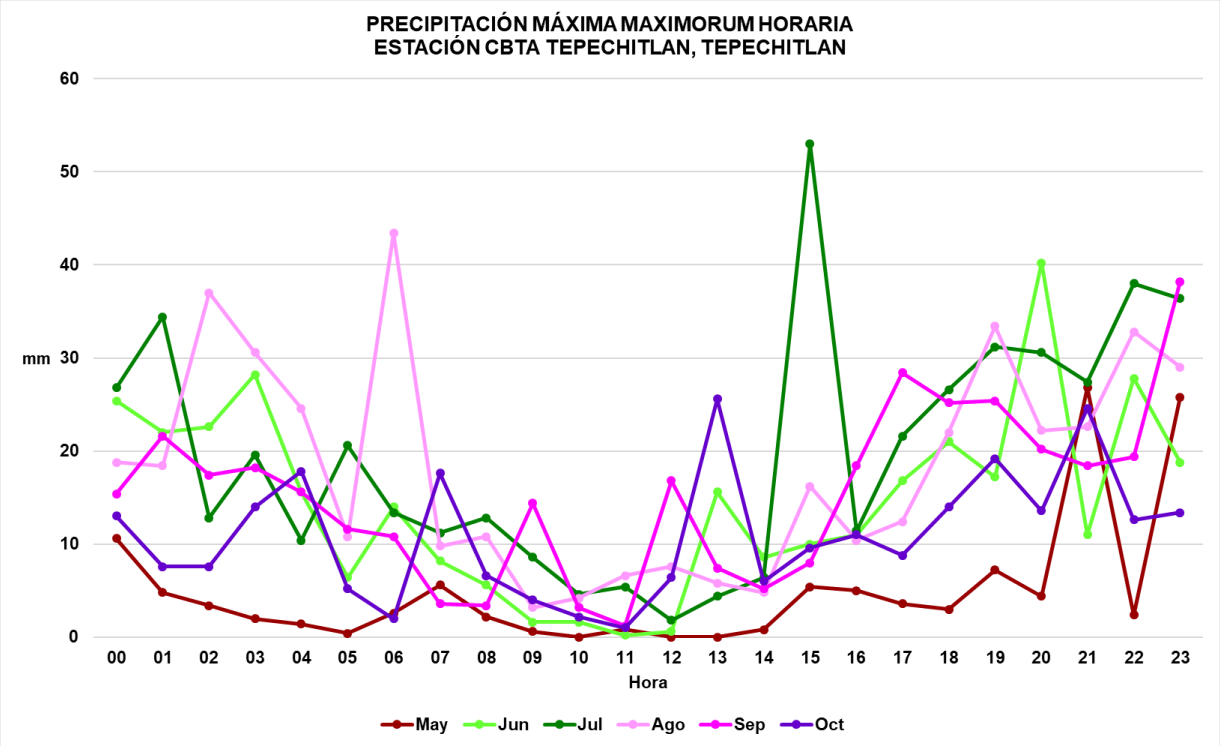


Figura 96. Precipitación máxima maximorum (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 105. Evapotranspiración potencial media (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.02	0.05	0.03	0.04	0.03	0.01	0.01	0.01	0.01	0.03	0.01	0.02
09	0.07	0.11	0.19	0.13	0.15	0.13	0.09	0.10	0.08	0.09	0.14	0.09	0.12
10	0.18	0.25	0.36	0.29	0.31	0.27	0.22	0.22	0.21	0.22	0.27	0.20	0.25
11	0.31	0.39	0.51	0.46	0.47	0.42	0.36	0.37	0.35	0.36	0.39	0.33	0.39
12	0.41	0.50	0.62	0.61	0.61	0.54	0.48	0.50	0.47	0.48	0.47	0.42	0.51
13	0.47	0.56	0.68	0.70	0.71	0.63	0.57	0.59	0.55	0.55	0.50	0.45	0.58
14	0.47	0.56	0.67	0.74	0.75	0.65	0.59	0.62	0.57	0.58	0.48	0.44	0.59
15	0.42	0.51	0.61	0.71	0.72	0.61	0.57	0.59	0.53	0.52	0.40	0.39	0.55
16	0.34	0.42	0.50	0.64	0.61	0.51	0.51	0.51	0.44	0.42	0.29	0.29	0.46
17	0.23	0.29	0.35	0.51	0.50	0.39	0.40	0.41	0.33	0.30	0.16	0.17	0.34
18	0.10	0.14	0.20	0.37	0.37	0.27	0.27	0.27	0.21	0.18	0.07	0.08	0.21
19	0.02	0.05	0.09	0.26	0.25	0.14	0.14	0.16	0.11	0.07	0.01	0.00	0.11
20	0.00	0.00	0.02	0.13	0.15	0.09	0.06	0.05	0.02	0.01	0.00	0.00	0.04
21	0.00	0.00	0.00	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01
22	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día	3.03	3.82	4.84	5.62	5.71	4.75	4.27	4.41	3.88	3.80	3.23	2.87	4.19

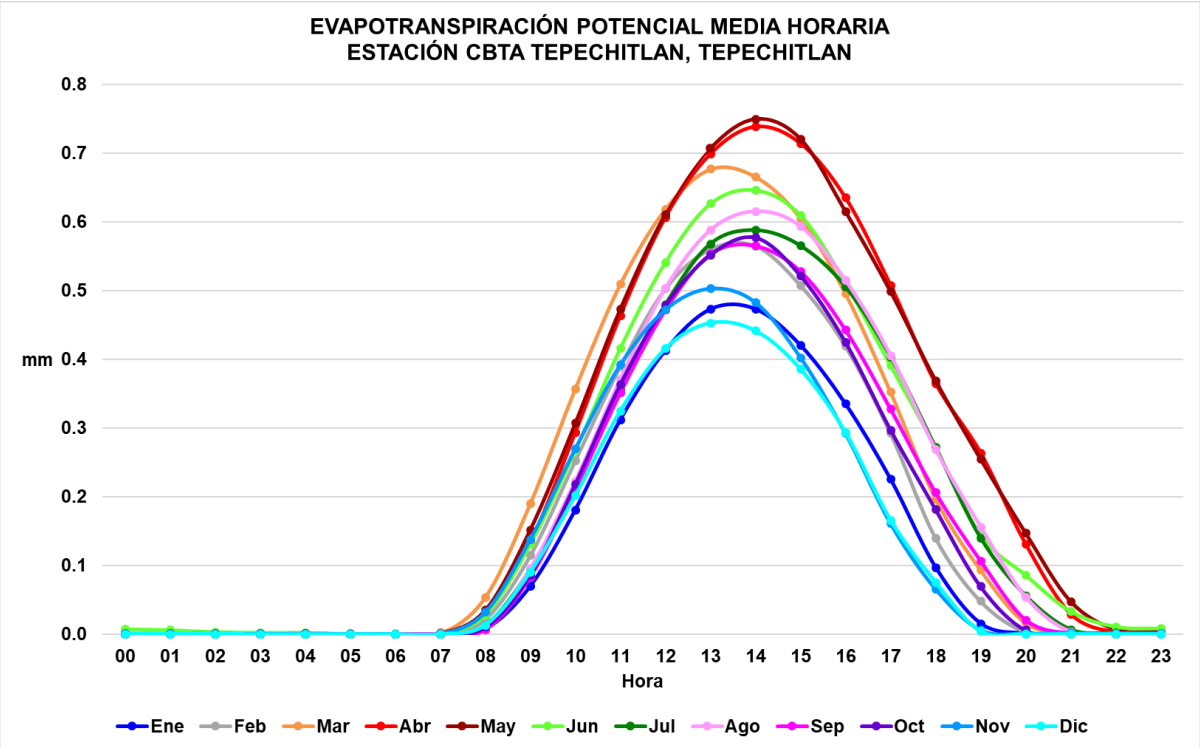


Figura 97. Evapotranspiración potencial media (mm) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 106. Humedad relativa media (%) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	66.2	59.5	47.8	39.7	45.9	66.7	86.4	87.6	88.5	81.7	76.8	72.4	68.3
01	69.5	63.4	51.7	43.3	49.6	70.1	88.2	88.9	89.6	84.0	80.1	75.7	71.2
02	72.7	66.9	55.6	47.2	53.2	73.1	89.5	90.0	90.6	86.2	82.8	78.6	73.9
03	75.5	70.3	59.2	50.8	56.7	75.7	90.6	91.0	91.7	88.1	84.9	81.2	76.3
04	78.2	73.0	62.5	54.1	60.1	78.2	91.5	91.8	92.6	89.7	87.0	83.3	78.5
05	80.5	75.5	65.2	57.0	63.0	80.0	92.2	92.7	93.5	91.3	88.9	85.2	80.4
06	82.5	77.9	67.6	59.7	65.6	81.7	93.1	93.4	94.2	92.5	90.4	87.0	82.1
07	83.8	78.4	65.7	59.6	65.7	81.7	93.1	93.8	94.5	92.9	89.3	87.6	82.2
08	76.5	67.9	51.0	50.5	56.1	74.5	89.1	90.7	91.7	88.5	76.9	78.6	74.3
09	59.6	50.3	35.2	35.3	41.4	62.6	79.9	81.6	82.6	76.2	59.3	60.9	60.4
10	44.4	36.9	25.5	24.2	30.8	52.2	69.6	71.2	71.4	62.6	46.3	45.9	48.4
11	34.5	28.8	20.4	18.4	24.5	44.3	61.0	63.0	62.6	52.3	37.8	36.3	40.3
12	28.1	24.0	17.4	15.2	20.4	38.3	55.0	57.3	56.5	45.2	32.4	30.3	35.0
13	24.7	21.4	16.0	13.6	17.7	34.0	50.7	53.3	52.4	40.6	29.4	26.8	31.7
14	23.2	20.2	15.0	12.7	16.3	31.8	48.2	50.6	50.4	38.3	28.1	25.1	30.0
15	22.8	20.0	14.7	12.5	15.9	31.3	47.3	49.7	49.9	38.0	28.1	24.7	29.6
16	23.4	20.3	14.8	12.6	16.2	33.0	47.3	49.9	51.0	38.8	29.5	25.8	30.2
17	26.0	21.9	15.8	13.1	17.1	35.6	49.7	51.4	53.6	41.2	34.6	29.9	32.5
18	33.1	27.0	18.7	14.3	18.5	39.3	53.1	55.8	58.6	47.5	45.1	39.8	37.6
19	41.7	35.0	24.9	17.1	21.6	43.9	59.6	63.3	67.4	58.2	53.8	48.1	44.5
20	47.4	40.6	30.4	22.1	26.8	49.9	69.2	73.5	76.6	67.4	60.1	54.2	51.5
21	52.9	45.6	34.7	27.2	32.7	56.1	76.9	80.3	81.6	72.8	65.1	59.7	57.1
22	57.8	50.5	39.4	31.5	37.7	61.1	81.3	84.1	84.7	76.5	69.1	64.5	61.5
23	62.2	54.8	43.6	35.7	42.0	64.7	84.3	86.1	86.8	79.1	73.0	68.6	65.1
Media	52.8	47.1	37.2	32.0	37.3	56.6	72.8	74.6	75.5	67.9	60.4	57.1	55.9

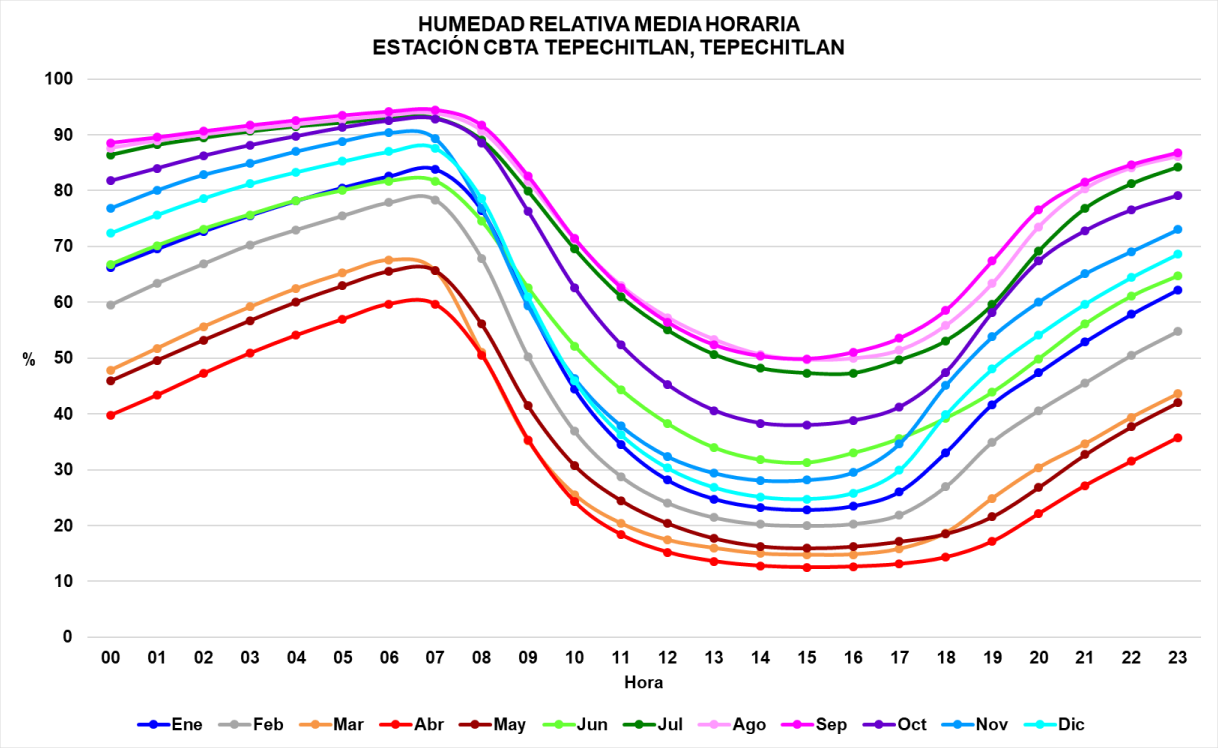


Figura 98. Humedad relativa media (%) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 107. Humedad relativa mínima minimorum (%) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	18.0	18.0	12.0	15.0	12.0	16.0	37.0	39.0	34.0	25.0	23.0	27.0	12.0
01	24.0	19.0	13.0	15.0	13.0	20.0	38.4	40.0	39.0	24.2	27.0	28.3	13.0
02	31.0	22.0	16.0	16.0	14.0	17.0	33.0	37.0	44.0	22.0	30.0	30.7	14.0
03	32.0	22.0	17.0	17.0	17.0	15.0	35.0	34.0	56.0	23.0	30.0	34.0	15.0
04	32.0	27.0	20.0	17.0	17.0	19.0	40.0	36.0	56.0	27.5	30.0	37.0	17.0
05	34.0	29.0	21.0	20.0	16.0	24.0	46.0	47.0	58.0	38.0	35.0	39.0	16.0
06	34.0	30.0	23.0	22.0	24.0	32.0	56.0	54.0	61.0	45.0	39.0	39.0	22.0
07	39.0	37.0	20.3	24.0	24.0	32.0	60.0	62.0	63.0	40.0	40.0	40.0	20.3
08	28.0	26.0	12.0	14.0	16.0	22.0	52.0	56.0	52.0	29.0	22.0	29.0	12.0
09	14.0	13.0	7.8	7.0	9.0	16.0	39.0	44.0	49.0	21.0	12.0	19.0	7.0
10	11.0	5.0	5.2	5.0	6.0	8.0	33.0	35.0	35.0	17.0	9.0	13.0	5.0
11	9.0	6.0	4.8	4.0	6.0	8.0	26.0	32.0	23.0	15.0	8.0	9.0	4.0
12	6.7	4.9	4.0	4.0	5.0	6.0	21.0	29.7	22.0	12.0	7.0	8.0	4.0
13	6.0	4.0	3.0	3.0	4.0	5.0	16.0	25.6	19.0	11.0	6.0	8.0	3.0
14	6.0	4.0	4.0	3.0	5.0	5.0	15.0	26.0	19.0	10.0	6.0	7.0	3.0
15	4.9	5.0	3.9	3.3	4.8	5.0	13.0	23.0	19.0	10.0	5.0	7.0	3.3
16	5.0	5.0	4.0	4.0	5.0	5.0	10.0	21.0	18.0	10.0	5.0	7.0	4.0
17	6.0	5.0	4.0	3.9	4.0	5.0	12.0	19.0	17.0	10.0	6.0	7.0	3.9
18	7.0	5.0	4.0	4.0	4.0	5.0	12.0	19.0	19.0	11.0	8.0	12.0	4.0
19	10.0	9.0	5.0	4.0	5.0	6.0	11.0	22.0	22.0	14.0	10.0	13.0	4.0
20	12.0	11.0	10.0	6.0	6.0	9.0	12.0	27.0	28.0	21.0	12.0	20.4	6.0
21	13.0	12.0	11.0	9.0	8.0	10.0	20.0	37.0	41.0	22.0	15.0	25.0	8.0
22	22.0	13.0	10.0	11.0	9.0	12.0	27.0	45.0	39.0	23.9	16.0	25.0	9.0
23	23.0	16.0	11.0	12.0	11.0	13.0	33.0	44.5	36.0	24.1	23.0	26.4	11.0
Mín.	4.9	4.0	3.0	3.0	4.0	5.0	10.0	19.0	17.0	10.0	5.0	7.0	3.0

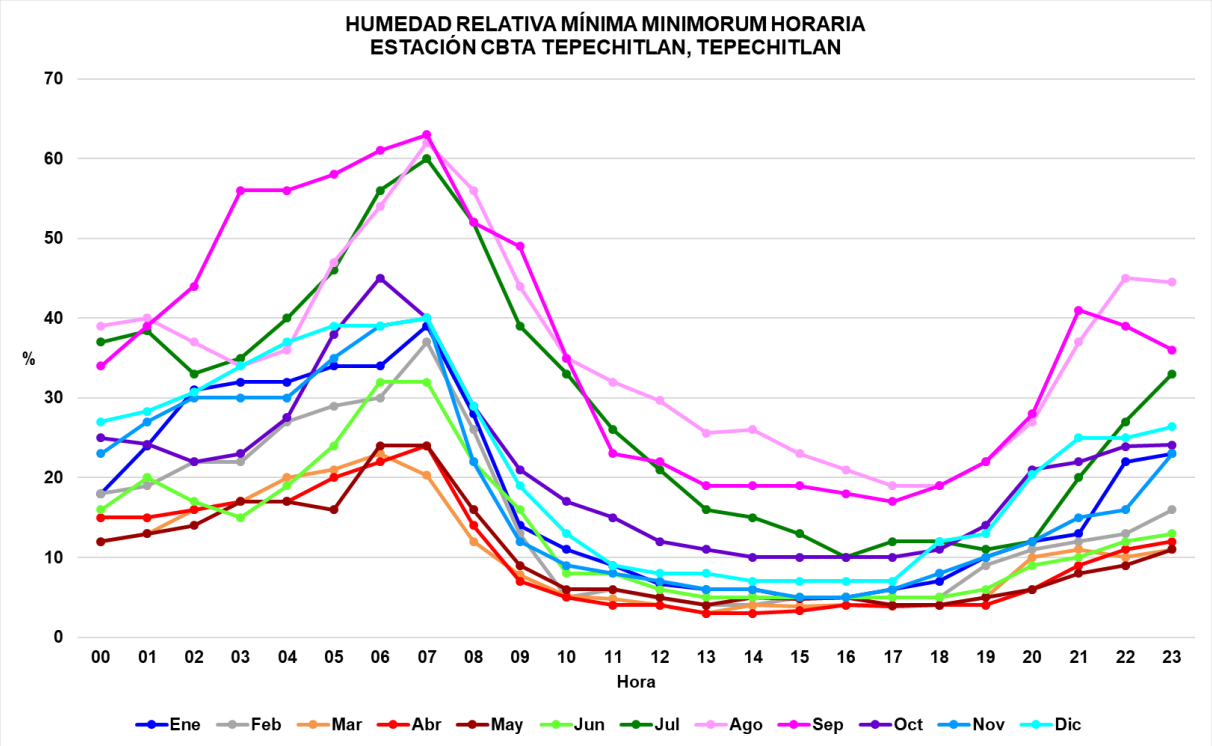


Figura 99. Humedad relativa mínima minimorum (%) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 108. Radiación solar global media horaria (W/m²) de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	11	3	5	5	2	1	0	2	4	0	3
07	42	88	241	135	152	127	80	58	42	66	182	70	107
08	454	612	981	694	722	606	476	439	396	449	807	549	599
09	1183	1444	1918	1573	1572	1361	1167	1148	1104	1183	1607	1272	1378
10	1922	2234	2729	2463	2432	2175	1988	1982	1918	1997	2303	1942	2174
11	2468	2832	3329	3207	3145	2872	2700	2717	2584	2652	2737	2423	2806
12	2768	3130	3660	3693	3637	3320	3158	3192	3072	3049	2903	2634	3185
13	2740	3162	3632	3884	3825	3418	3345	3360	3165	3140	2791	2584	3254
14	2445	2882	3348	3756	3664	3195	3236	3285	3024	2867	2412	2288	3033
15	1974	2390	2777	3348	3178	2704	2861	2909	2557	2387	1816	1780	2557
16	1328	1705	2032	2693	2553	2078	2310	2323	1982	1764	1104	1105	1915
17	612	899	1146	1914	1879	1467	1627	1659	1335	1071	372	409	1199
18	77	197	356	1045	1120	868	959	911	653	411	15	23	553
19	0	2	10	332	421	354	377	328	153	44	0	0	168
20	0	0	0	17	45	50	49	25	3	0	0	0	16
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18012	21578	26171	28758	28350	24599	24338	24339	21987	21083	19055	17079	22946

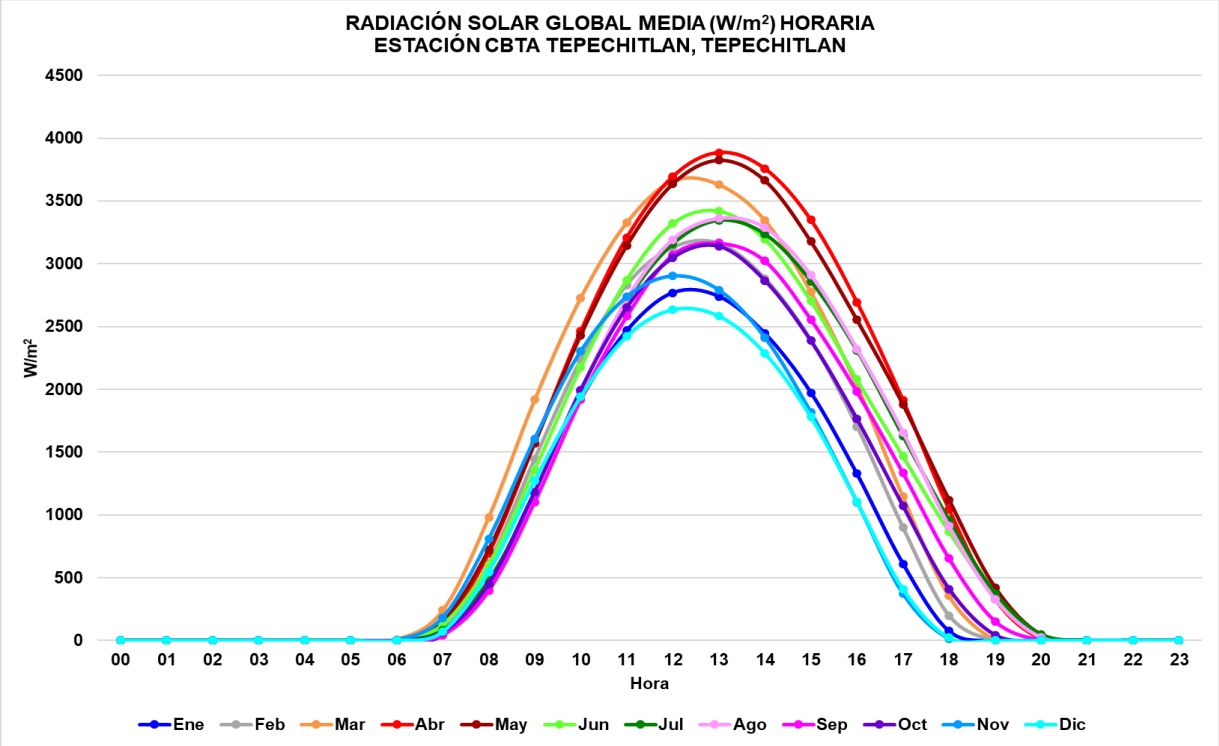


Figura 100. Radiación solar global media horaria (W/m²) de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 109. Radiación solar global media horaria (kWh/m²) de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.06	0.03	0.04	0.03	0.02	0.01	0.01	0.02	0.05	0.02	0.03
08	0.11	0.15	0.25	0.17	0.18	0.15	0.12	0.11	0.10	0.11	0.20	0.14	0.15
09	0.30	0.36	0.48	0.39	0.39	0.34	0.29	0.29	0.28	0.30	0.40	0.32	0.34
10	0.48	0.56	0.68	0.62	0.61	0.54	0.50	0.50	0.48	0.50	0.58	0.49	0.54
11	0.62	0.71	0.83	0.80	0.79	0.72	0.68	0.68	0.65	0.66	0.68	0.61	0.70
12	0.69	0.78	0.92	0.92	0.91	0.83	0.79	0.80	0.77	0.76	0.73	0.66	0.80
13	0.68	0.79	0.91	0.97	0.96	0.85	0.84	0.84	0.79	0.79	0.70	0.65	0.81
14	0.61	0.72	0.84	0.94	0.92	0.80	0.81	0.82	0.76	0.72	0.60	0.57	0.76
15	0.49	0.60	0.69	0.84	0.79	0.68	0.72	0.73	0.64	0.60	0.45	0.45	0.64
16	0.33	0.43	0.51	0.67	0.64	0.52	0.58	0.58	0.50	0.44	0.28	0.28	0.48
17	0.15	0.22	0.29	0.48	0.47	0.37	0.41	0.41	0.33	0.27	0.09	0.10	0.30
18	0.02	0.05	0.09	0.26	0.28	0.22	0.24	0.23	0.16	0.10	0.00	0.01	0.14
19	0.00	0.00	0.00	0.08	0.11	0.09	0.09	0.08	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.50	5.39	6.54	7.19	7.09	6.15	6.08	6.08	5.50	5.27	4.76	4.27	5.74

Cuadro 110. Radiación solar global media horaria (Mj/m²/s) de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.08	0.22	0.12	0.14	0.11	0.07	0.05	0.04	0.06	0.16	0.06	0.10
08	0.41	0.55	0.88	0.62	0.65	0.55	0.43	0.40	0.36	0.40	0.73	0.49	0.54
09	1.06	1.30	1.73	1.42	1.41	1.23	1.05	1.03	0.99	1.06	1.45	1.14	1.24
10	1.73	2.01	2.46	2.22	2.19	1.96	1.79	1.78	1.73	1.80	2.07	1.75	1.96
11	2.22	2.55	3.00	2.89	2.83	2.59	2.43	2.45	2.33	2.39	2.46	2.18	2.53
12	2.49	2.82	3.29	3.32	3.27	2.99	2.84	2.87	2.76	2.74	2.61	2.37	2.87
13	2.47	2.85	3.27	3.50	3.44	3.08	3.01	3.02	2.85	2.83	2.51	2.33	2.93
14	2.20	2.59	3.01	3.38	3.30	2.88	2.91	2.96	2.72	2.58	2.17	2.06	2.73
15	1.78	2.15	2.50	3.01	2.86	2.43	2.58	2.62	2.30	2.15	1.63	1.60	2.30
16	1.20	1.53	1.83	2.42	2.30	1.87	2.08	2.09	1.78	1.59	0.99	0.99	1.72
17	0.55	0.81	1.03	1.72	1.69	1.32	1.46	1.49	1.20	0.96	0.33	0.37	1.08
18	0.07	0.18	0.32	0.94	1.01	0.78	0.86	0.82	0.59	0.37	0.01	0.02	0.50
19	0.00	0.00	0.01	0.30	0.38	0.32	0.34	0.30	0.14	0.04	0.00	0.00	0.15
20	0.00	0.00	0.00	0.02	0.04	0.05	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.21	19.42	23.55	25.88	25.51	22.14	21.90	21.91	19.79	18.97	17.15	15.37	20.65

Cuadro 111. Velocidad del viento media (km/h) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.6	1.3	1.1	1.1	1.6	2.4	1.7	1.5	1.1	1.4	1.6	1.5	1.5
01	1.6	1.5	1.2	1.1	1.6	2.1	1.5	1.4	1.0	1.4	1.4	1.6	1.4
02	1.6	1.5	1.4	1.3	1.5	2.0	1.3	1.1	0.9	1.3	1.3	1.5	1.4
03	1.4	1.4	1.4	1.3	1.5	1.9	1.1	1.0	0.8	1.2	1.3	1.3	1.3
04	1.3	1.4	1.5	1.4	1.5	1.4	0.9	0.9	0.7	1.0	1.1	1.2	1.2
05	1.2	1.4	1.4	1.5	1.5	1.2	0.8	0.7	0.6	0.8	1.0	1.0	1.1
06	1.1	1.3	1.5	1.4	1.4	1.1	0.6	0.6	0.5	0.7	0.9	1.0	1.0
07	1.0	1.3	1.3	1.4	1.5	1.1	0.6	0.6	0.5	0.7	0.9	0.9	1.0
08	1.0	1.4	1.4	1.4	1.7	1.5	0.9	0.8	0.7	0.8	1.0	1.0	1.1
09	1.3	1.7	2.1	1.7	2.2	2.3	1.6	1.5	1.4	1.3	1.5	1.2	1.7
10	2.5	2.9	3.6	2.9	3.2	3.3	2.4	2.3	2.5	2.4	2.8	2.2	2.8
11	3.9	4.4	5.3	4.3	4.3	4.4	3.3	3.4	3.9	3.6	4.1	3.5	4.0
12	5.2	6.0	6.9	5.8	5.6	5.3	4.1	4.2	4.9	4.8	5.2	4.5	5.2
13	6.3	7.3	8.3	7.4	6.8	6.1	4.7	4.9	5.4	5.6	6.0	5.6	6.2
14	7.1	8.3	9.1	8.7	7.8	6.8	5.1	5.2	5.8	5.8	6.3	6.4	6.9
15	7.6	8.7	9.4	9.6	8.4	7.2	5.5	5.4	5.8	5.8	6.3	6.8	7.2
16	7.7	8.8	9.5	10.0	8.9	7.4	5.9	5.5	5.5	5.7	6.1	6.7	7.3
17	6.7	8.1	9.3	10.3	9.1	7.8	6.0	5.2	5.2	5.2	4.7	5.3	6.9
18	3.6	5.6	7.7	10.1	9.1	7.3	5.3	4.6	4.0	3.7	2.0	2.2	5.4
19	1.9	2.6	4.4	8.7	8.6	6.3	4.2	3.3	2.5	2.0	1.2	1.3	3.9
20	1.4	1.6	2.3	5.3	6.1	4.7	2.7	1.9	1.4	1.3	1.1	1.0	2.6
21	1.2	1.2	1.5	2.7	3.8	3.4	2.2	1.5	1.2	1.2	1.2	0.9	1.8
22	1.3	1.1	1.1	1.6	2.7	2.7	2.0	1.4	1.3	1.3	1.4	1.1	1.6
23	1.5	1.2	1.1	1.2	1.9	2.5	1.8	1.4	1.1	1.4	1.5	1.4	1.5
Media	3.0	3.4	3.9	4.3	4.3	3.8	2.8	2.5	2.4	2.5	2.6	2.5	3.2

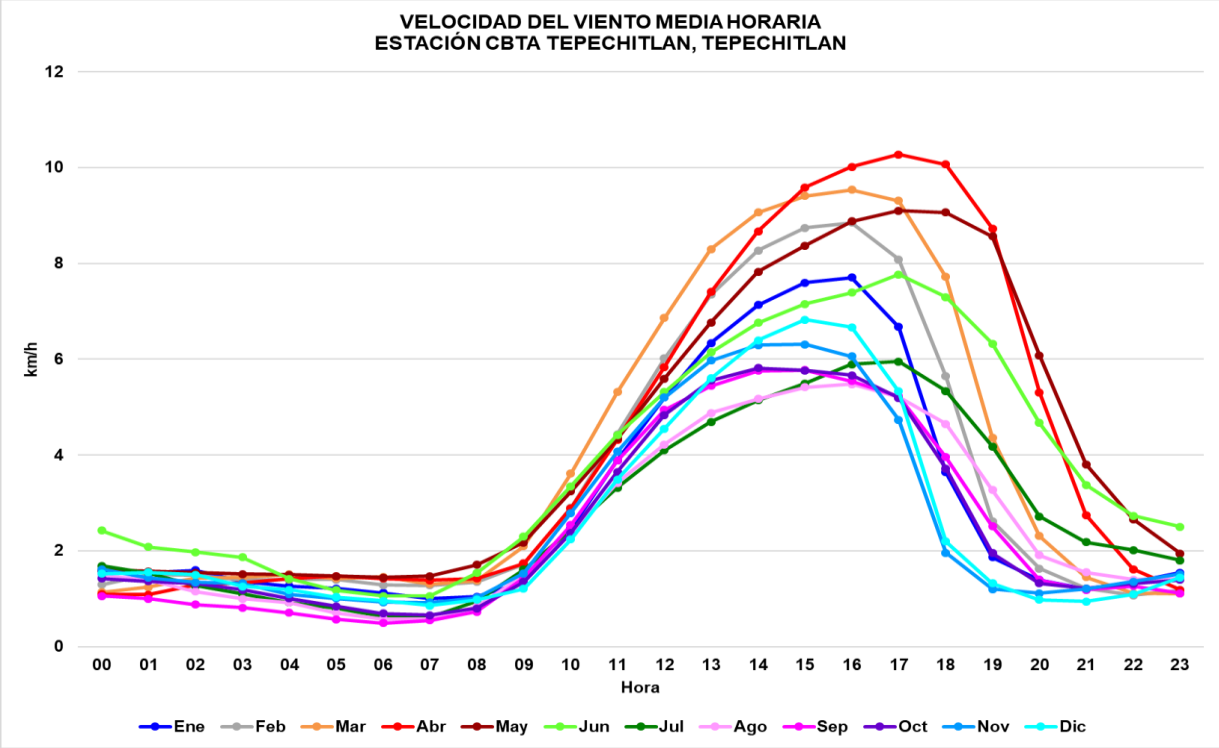


Figura 101. Velocidad del viento media (km/h) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 112. Velocidad del viento máxima maximorum (km/h) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.6	17.0	14.7	19.0	26.5	33.6	24.0	25.4	18.0	18.0	15.4	12.1	33.6
01	16.8	15.8	13.1	17.2	22.9	29.6	23.6	27.0	16.0	17.2	19.0	15.9	29.6
02	14.8	12.6	19.5	29.1	18.0	21.2	25.0	21.3	23.0	16.1	16.0	17.0	29.1
03	15.1	13.6	17.5	27.7	15.0	17.8	18.6	17.0	16.2	19.9	13.6	16.0	27.7
04	14.6	13.2	17.9	12.0	13.7	13.2	13.0	19.9	12.0	18.0	12.4	13.0	19.9
05	14.4	11.2	15.9	14.0	11.1	15.4	15.2	16.6	12.0	11.7	13.0	10.0	16.6
06	10.9	14.0	12.5	12.0	13.1	13.3	24.8	14.0	11.3	14.7	13.1	14.0	24.8
07	13.3	14.8	11.9	12.0	13.0	11.0	12.0	15.0	13.0	10.7	13.0	13.0	15.0
08	14.0	14.9	17.8	14.0	16.0	11.9	12.0	12.3	12.0	21.0	19.0	15.0	21.0
09	17.1	18.7	18.6	13.5	15.3	17.7	13.4	14.3	17.0	19.0	15.8	20.0	20.0
10	20.8	21.0	18.2	17.6	25.3	21.0	19.0	19.5	23.1	26.0	24.0	25.0	26.0
11	23.5	20.0	23.0	20.0	22.5	23.1	19.6	18.1	21.6	31.0	21.0	19.8	31.0
12	22.0	21.0	24.0	20.1	21.7	20.2	16.9	20.5	19.0	27.0	23.8	22.6	27.0
13	24.7	23.0	27.0	25.0	22.0	26.0	22.3	21.4	22.4	25.0	23.3	20.2	27.0
14	25.0	27.0	27.9	25.0	26.2	24.0	20.1	18.0	24.9	23.0	24.0	20.4	27.9
15	23.9	24.1	28.0	27.0	23.5	21.2	20.2	17.2	26.7	21.0	20.9	23.0	28.0
16	26.0	22.0	27.0	25.1	29.9	30.8	24.0	26.3	19.8	23.5	21.6	23.7	30.8
17	21.0	22.4	28.0	26.0	25.1	26.5	27.9	24.5	25.4	26.2	20.1	19.6	28.0
18	22.0	19.0	27.0	22.2	35.3	39.3	27.1	22.4	22.2	38.5	16.6	17.8	39.3
19	20.0	19.0	22.2	28.0	28.0	24.5	39.2	31.8	27.0	27.9	17.0	13.3	39.2
20	22.0	15.0	17.5	25.2	28.1	30.6	29.0	23.0	23.0	22.0	27.0	18.0	30.6
21	20.5	20.0	14.7	32.7	34.2	29.6	27.2	29.4	19.7	27.0	23.0	16.0	34.2
22	20.0	17.0	21.4	22.9	33.0	26.0	26.8	29.3	24.2	24.0	23.1	12.6	33.0
23	17.3	15.0	24.3	23.9	26.9	27.7	23.0	25.5	22.3	22.0	18.2	15.0	27.7
Máx.	26.0	27.0	28.0	32.7	35.3	39.3	39.2	31.8	27.0	38.5	27.0	25.0	39.3

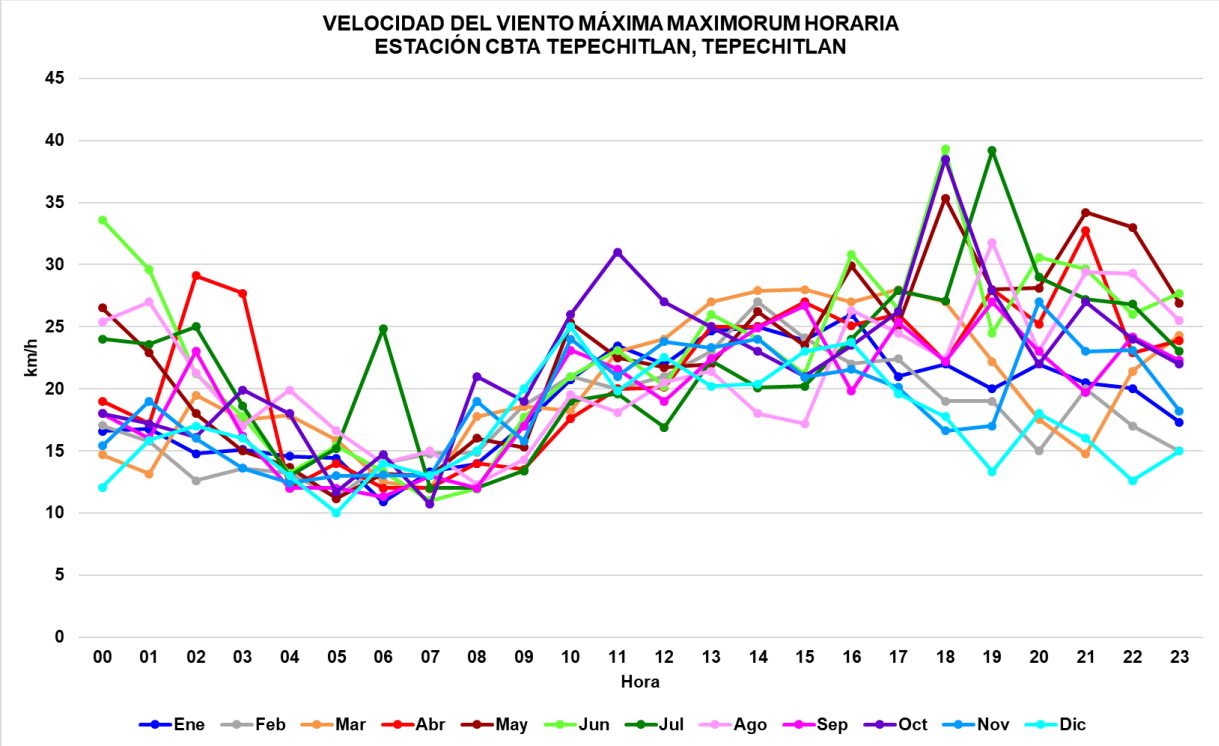


Figura 102. Velocidad del viento máxima maximorum (km/h) horaria de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 113. Frecuencia de velocidad del viento (%) mensual de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	80.6	75.5	70.8	67.7	65.0	70.5	81.9	84.3	83.9	85.2	84.6	84.9	78.1
5.1 a 10.0	13.9	16.6	18.5	18.9	24.6	22.3	15.1	13.2	13.1	11.7	11.8	11.7	15.9
10.1 a 15.0	4.9	6.6	8.5	11.3	8.9	6.2	2.7	2.3	2.7	2.6	3.1	3.0	5.2
15.1 a 20.0	0.7	1.2	2.0	1.9	1.2	0.9	0.2	0.2	0.2	0.4	0.4	0.3	0.8
20.1 a 25.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1
25.1 a 30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.1 a 35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

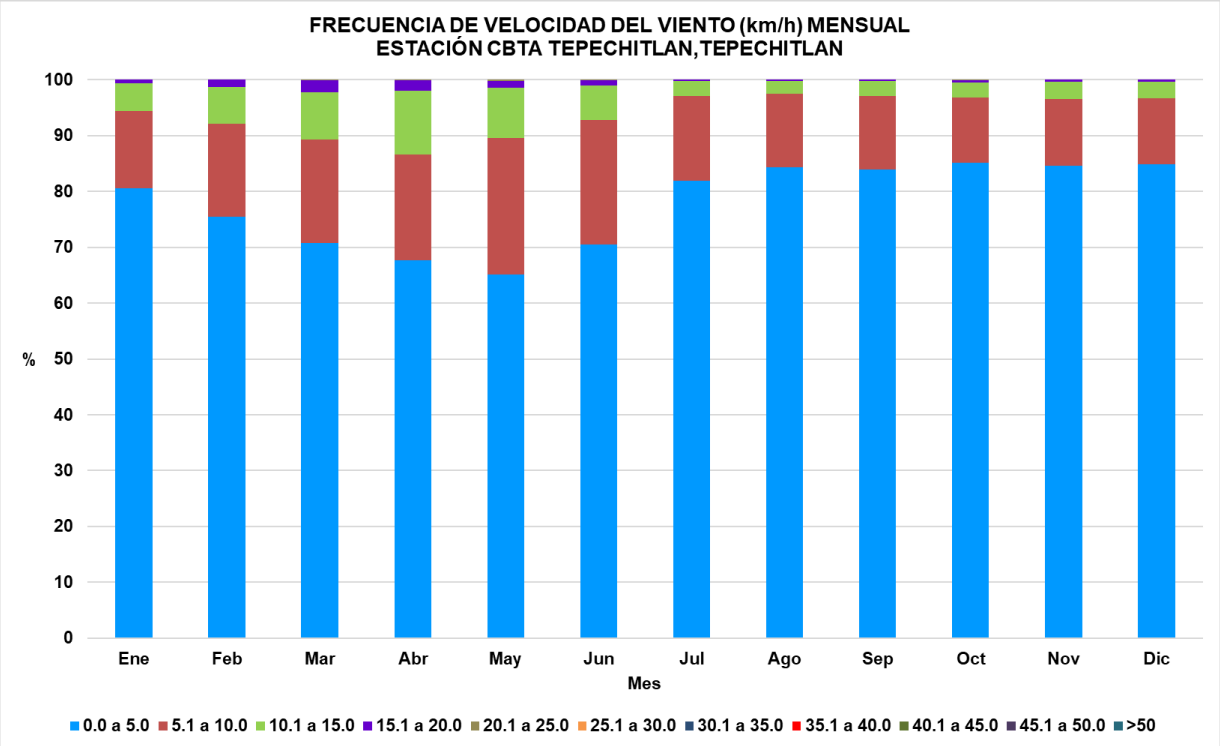


Figura 103. Frecuencia de velocidad del viento (%) mensual de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 114. Frecuencia de dirección del viento (%) mensual de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	3.4	3.1	2.9	3.0	3.3	4.5	5.0	5.0	4.9	3.8	3.6	3.2	3.8
NNE	2.6	2.6	2.4	2.4	3.0	4.2	4.9	4.8	4.5	3.5	3.3	2.7	3.4
NE	2.5	2.2	2.2	2.3	2.8	4.3	4.7	4.8	5.1	3.9	2.9	2.3	3.4
ENE	2.8	2.5	2.4	2.4	3.0	5.5	5.6	6.3	7.3	5.4	3.8	2.3	4.1
E	3.6	3.3	3.1	2.9	4.1	8.2	8.5	8.9	10.3	7.8	5.3	3.3	5.8
ESE	5.0	4.3	4.1	4.0	5.1	7.3	8.3	8.9	9.6	7.9	5.8	4.6	6.3
SE	5.2	5.0	5.0	5.0	5.8	5.6	7.1	7.7	7.5	6.9	5.9	5.1	6.0
SSE	4.9	4.8	4.8	5.0	5.1	4.8	5.3	5.2	5.3	5.0	5.0	5.1	5.0
S	7.4	7.5	7.4	7.2	7.3	6.6	6.0	5.6	5.8	6.4	7.1	7.9	6.8
SSO	9.7	9.7	9.5	8.7	8.2	7.6	6.1	5.8	5.3	7.2	8.9	10.2	8.0
SO	21.0	21.0	19.5	17.6	15.2	11.2	8.8	8.5	8.5	12.9	17.5	21.5	15.2
OSO	15.5	15.8	15.8	16.6	14.8	10.8	9.8	10.0	9.4	12.5	14.0	15.0	13.3
O	7.5	8.9	10.1	11.7	10.3	7.3	7.1	6.6	5.8	6.4	6.6	7.4	7.9
ONO	3.7	4.2	5.1	5.7	5.3	4.2	4.3	4.1	3.5	3.8	3.7	3.7	4.3
NO	2.7	2.7	3.1	3.2	3.5	3.8	4.3	4.0	3.3	3.3	3.3	2.8	3.3
NNO	2.6	2.5	2.6	2.4	3.2	4.1	4.1	3.9	3.8	3.4	3.3	2.9	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

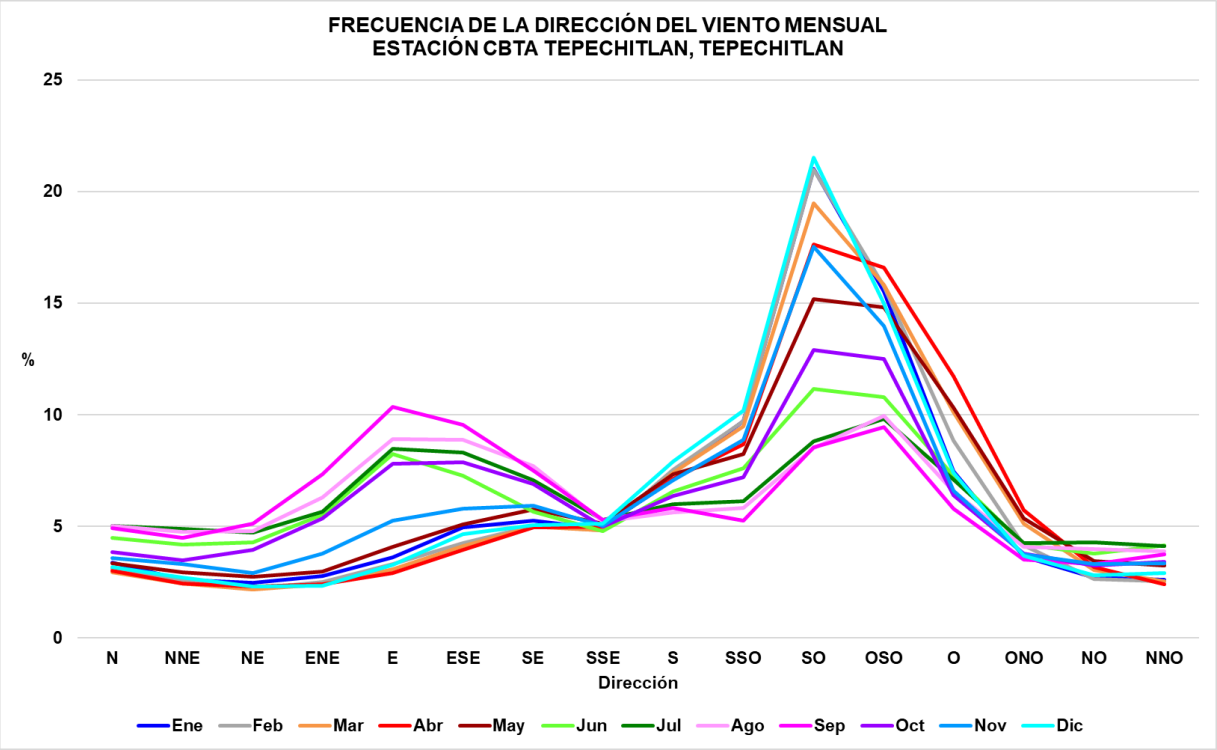


Figura 104. Frecuencia de dirección del viento (%) mensual de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 115. Frecuencia de dirección del viento (%) trimestral de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.1	3.6	5.0	3.5	3.8
NNE	2.5	3.2	4.7	3.2	3.4
NE	2.3	3.1	4.9	3.1	3.4
ENE	2.6	3.6	6.4	3.8	4.1
E	3.3	5.1	9.2	5.5	5.8
ESE	4.5	5.4	8.9	6.1	6.3
SE	5.1	5.5	7.4	6.0	6.0
SSE	4.8	5.0	5.3	5.0	5.0
S	7.4	7.0	5.8	7.1	6.8
SSO	9.6	8.2	5.7	8.7	8.0
SO	20.5	14.6	8.6	17.3	15.2
OSO	15.7	14.1	9.7	13.8	13.3
O	8.8	9.8	6.5	6.8	7.9
ONO	4.3	5.1	4.0	3.7	4.3
NO	2.8	3.5	3.9	3.1	3.3
NNO	2.6	3.3	3.9	3.2	3.3
Suma	100.0	100.0	100.0	100.0	100.0

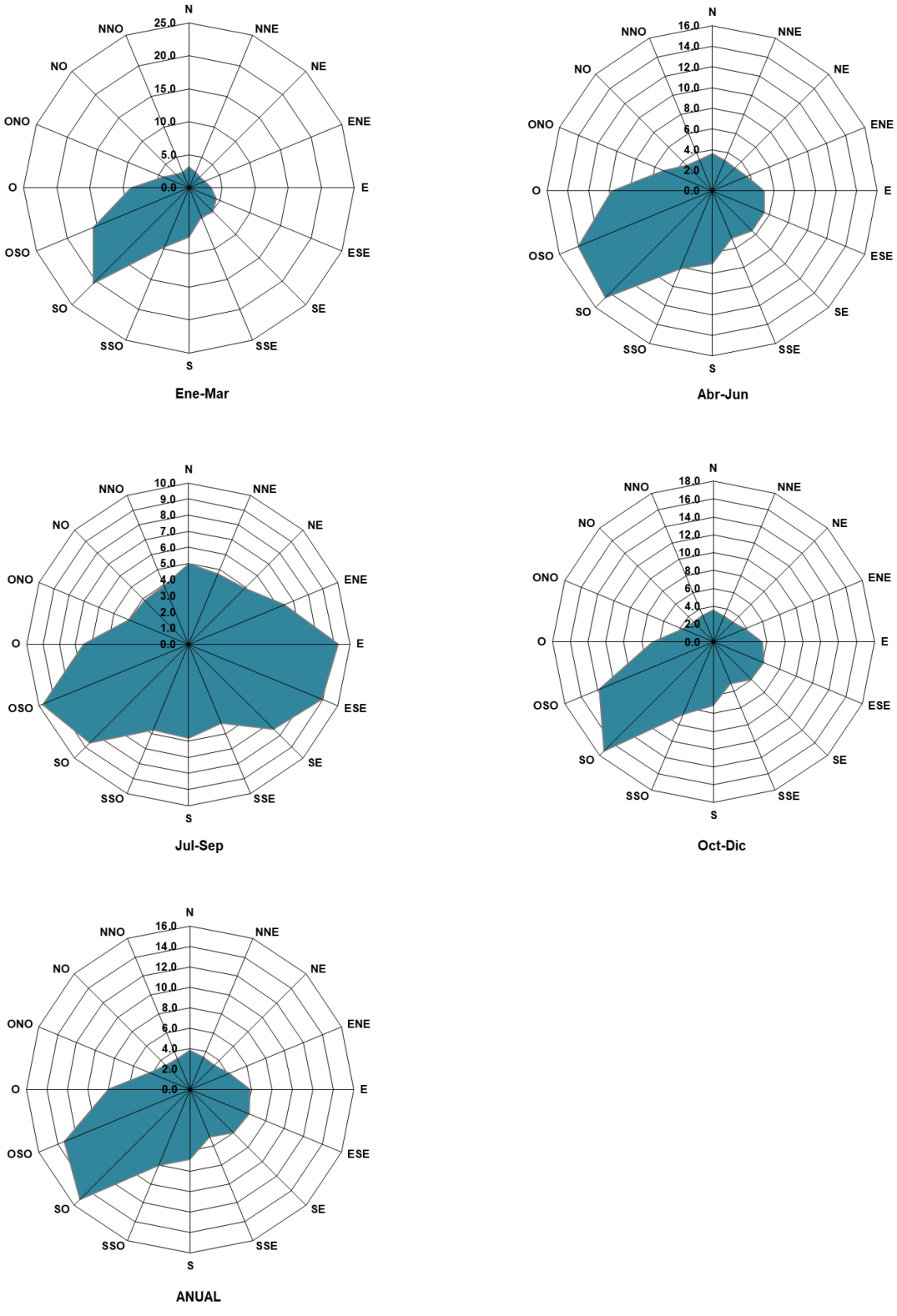


Figura 105. Frecuencia de dirección del viento (%) trimestral de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Cuadro 116. Estadísticas climatológicas mensuales de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	24.5	26.5	29.0	31.5	32.8	31.3	27.9	27.7	27.2	27.6	26.2	24.8	28.1
Temperatura máxima maximorum (°C)	31.4	34.1	36.5	37.6	39.6	38.8	33.8	32.4	33.0	32.7	32.2	31.1	39.6
Temperatura mínima media (°C)	4.1	5.3	6.8	8.7	11.8	14.8	14.5	14.4	13.8	10.7	6.5	4.3	9.6
Temperatura mínima minimorum (°C)	-4.4	-4.0	-1.0	-0.6	3.7	3.8	3.5	10.8	6.3	0.9	-4.5	-4.1	-4.5
Temperatura media (°C)	13.4	15.3	17.7	20.2	22.2	22.1	20.1	20.0	19.4	18.2	15.4	13.5	18.1
Oscilación térmica (°C)	20.3	21.3	22.2	22.7	21.0	16.5	13.4	13.3	13.4	16.9	19.8	20.5	18.4
Precipitación acumulada media (mm)	11.7	16.1	5.6	2.0	14.2	99.7	206.4	155.6	110.8	43.1	12.2	14.1	691.4
Precipitación máxima maximorum en 24 horas (mm)	30.4	45.6	62.2	7.2	27.4	58.8	62.6	80.8	58.0	50.0	29.8	42.2	80.8
Número de días promedio con lluvia	3.5	3.9	3.7	2.0	5.1	14.0	21.7	20.5	15.2	7.5	3.8	3.2	104.1
Evapotranspiración acumulada potencial media (mm)	99.4	114.3	158.0	174.0	180.0	148.2	141.3	143.1	123.9	122.8	104.8	93.6	1603.3
Humedad máxima media (%)	86.5	81.8	71.5	64.4	70.2	85.9	95.5	95.9	96.3	94.9	92.8	90.2	85.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	97.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	19.9	17.3	12.7	10.6	13.2	25.3	39.2	42.2	43.1	33.0	25.0	22.0	25.3
Humedad mínima minimorum (%)	4.9	4.0	3.0	3.0	4.0	5.0	10.0	19.0	17.0	10.0	5.0	7.0	3.0
Humedad media (%)	52.8	47.1	37.2	32.0	37.3	56.6	72.7	74.6	75.5	67.9	60.4	57.0	55.9
Radiación global media día/mes (W/m^2)	18021.1	21585.6	26170.9	28760.3	28347.3	24599.3	24315.7	24339.2	21987.0	21083.1	19054.7	17086.4	22945.9
Radiación global media día/mes (kWh/m^2)	4.5	5.4	6.5	7.2	7.1	6.1	6.1	6.1	5.5	5.3	4.8	4.3	5.7
Radiación global media día/mes ($Mj/m^2/s$)	16.2	19.4	23.6	25.9	25.5	22.1	21.9	21.9	19.8	19.0	17.1	15.4	20.7
Velocidad del viento máxima media (km/h)	11.7	13.0	14.0	14.9	15.1	15.2	13.2	12.0	11.3	10.6	10.4	10.3	12.7
Velocidad del viento máxima maximorum (km/h)	26.0	27.0	28.0	32.7	35.3	39.3	39.2	31.8	27.0	38.5	27.0	25.0	39.3
Velocidad del viento media (km/h)	3.0	3.4	3.9	4.3	4.3	3.8	2.8	2.5	2.4	2.6	2.6	2.5	3.2
Dirección dominante del viento	SO	SO	SO	SO	SO	SO	OSO	OSO	E	SO	SO	SO	SO

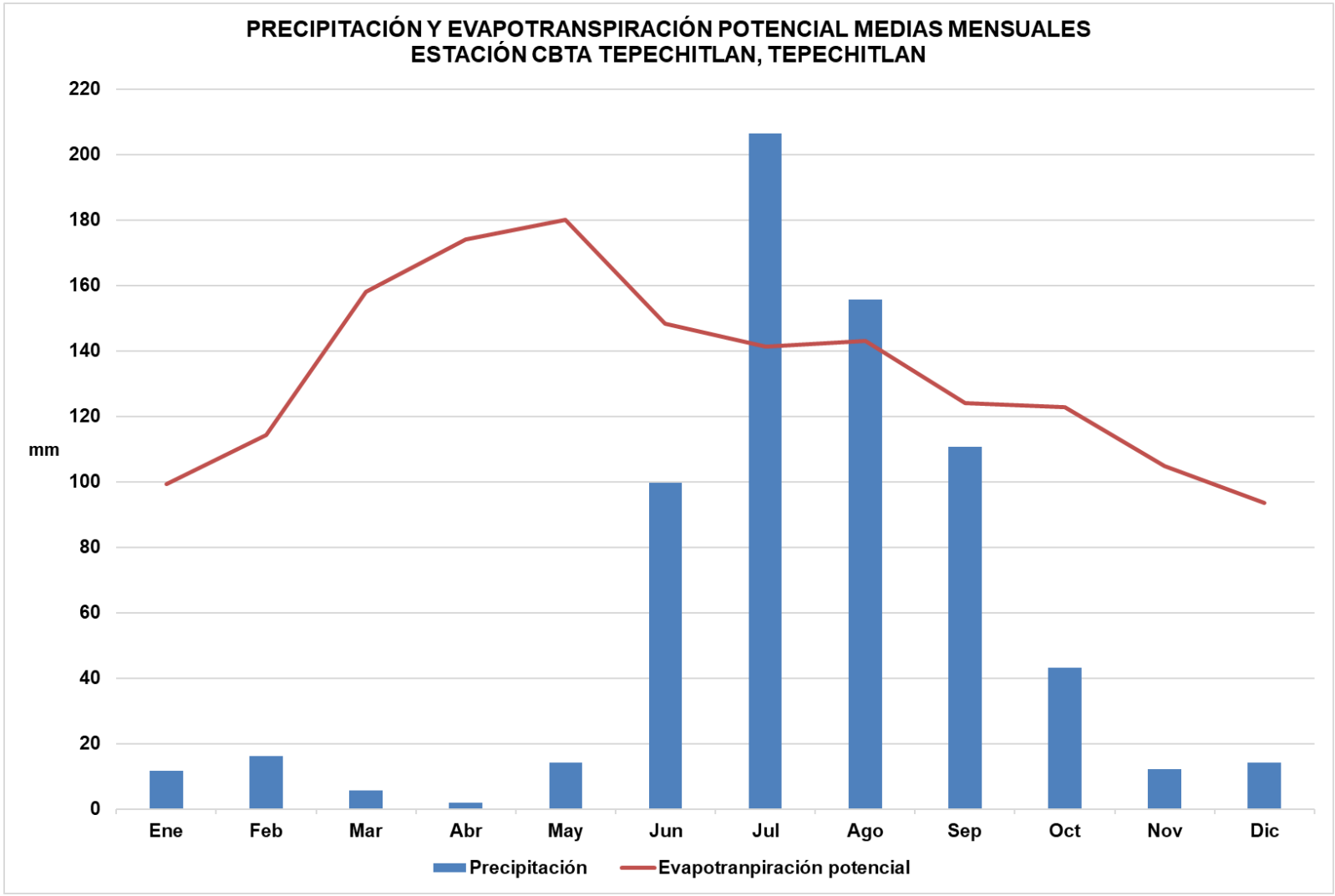


Figura 106. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación CBTA Tepechitlán, Tepechitlán (2004-2022).

7.7. Estación: CBTA Valparaíso, Valparaíso

Cuadro 117. Temperatura máxima media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.8	9.6	11.9	15.5	18.2	19.3	17.4	17.2	16.3	13.9	9.8	7.5	13.7
01	6.8	8.5	10.6	14.0	16.8	18.4	16.9	16.7	15.8	13.2	8.9	6.6	12.8
02	5.9	7.5	9.4	12.6	15.6	17.7	16.4	16.2	15.4	12.5	8.0	5.7	11.9
03	5.2	6.6	8.4	11.4	14.4	16.9	15.9	15.7	15.0	11.8	7.3	5.0	11.1
04	4.5	5.8	7.5	10.2	13.4	16.3	15.5	15.3	14.6	11.3	6.6	4.3	10.4
05	3.9	5.1	6.7	9.2	12.5	15.6	15.1	14.9	14.3	10.7	6.0	3.7	9.8
06	3.3	4.5	6.0	8.3	11.7	15.1	14.8	14.5	13.9	10.3	5.6	3.3	9.3
07	3.2	4.7	7.4	8.7	12.0	15.3	14.8	14.5	13.9	10.4	6.9	3.4	9.6
08	6.6	9.3	12.9	12.8	16.1	18.0	16.8	16.3	15.7	13.0	11.6	7.3	13.0
09	11.2	13.7	17.5	17.8	20.2	20.9	19.2	19.1	18.6	17.0	16.1	12.3	17.0
10	15.4	17.6	21.0	21.7	23.6	23.4	21.4	21.5	21.0	20.2	19.6	16.4	20.2
11	18.4	20.6	23.6	24.7	26.3	25.5	23.2	23.3	22.9	22.7	22.1	19.4	22.7
12	20.3	22.4	25.2	26.7	28.4	27.3	24.8	24.8	24.4	24.5	23.6	21.2	24.5
13	21.4	23.4	26.2	28.0	29.7	28.7	25.9	26.1	25.5	25.6	24.5	22.2	25.6
14	22.0	24.0	26.6	28.8	30.5	29.3	26.4	26.7	26.1	26.3	24.9	22.7	26.2
15	22.0	24.1	26.7	29.1	30.8	29.4	26.2	26.7	26.0	26.6	24.8	22.6	26.2
16	21.6	23.8	26.4	29.0	30.6	29.1	25.8	26.2	25.5	26.3	24.2	22.1	25.9
17	20.4	22.8	25.5	28.4	30.0	28.4	25.2	25.6	24.6	25.4	22.7	20.7	25.0
18	17.9	20.8	23.6	27.2	29.1	27.4	24.3	24.4	23.2	23.8	19.4	17.5	23.2
19	15.0	17.7	20.7	25.3	27.4	26.1	23.1	22.9	21.5	21.1	16.3	14.4	21.0
20	13.1	15.5	18.4	22.8	25.1	24.3	21.4	21.1	19.5	18.4	14.6	12.7	18.9
21	11.6	13.9	16.8	20.6	22.9	22.5	19.8	19.5	18.1	16.9	13.1	11.1	17.2
22	10.1	12.4	15.1	18.8	21.2	21.1	18.7	18.5	17.4	15.7	11.8	9.6	15.9
23	8.9	11.0	13.5	17.2	19.7	20.0	18.0	17.8	16.7	14.7	10.7	8.4	14.7
Media	12.4	14.4	17.0	19.5	21.9	22.3	20.3	20.2	19.4	18.0	14.9	12.5	17.7

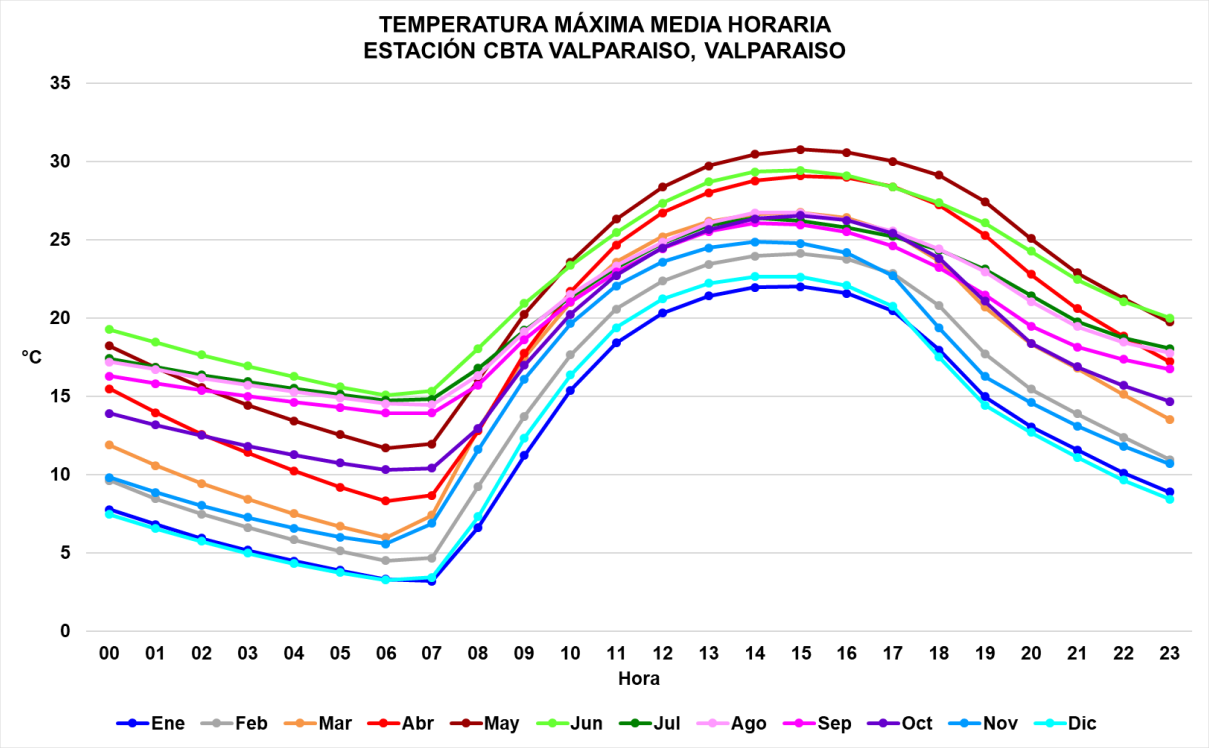


Figura 107. Temperatura máxima media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 118. Temperatura máxima maximorum (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	17.0	17.1	19.4	22.2	24.8	25.3	23.4	22.8	21.8	20.1	17.7	15.9	25.3
01	15.4	15.9	18.8	21.4	24.4	25.6	22.6	22.0	20.6	20.8	16.8	14.5	25.6
02	14.2	14.5	18.5	20.4	23.4	24.5	21.6	21.5	20.1	19.4	16.3	14.5	24.5
03	13.4	14.2	16.8	19.1	22.6	22.6	21.7	21.2	19.6	18.4	16.4	14.5	22.6
04	13.8	13.9	15.5	18.4	22.6	21.0	21.5	21.2	19.2	18.2	16.2	14.4	22.6
05	13.2	13.6	14.4	17.9	22.2	20.4	20.5	19.8	18.7	17.4	16.0	14.3	22.2
06	13.2	13.3	14.2	16.7	20.9	22.1	20.3	18.8	18.3	17.6	14.7	14.2	22.1
07	13.2	13.2	16.2	18.1	21.9	24.1	20.2	18.9	18.4	17.6	16.3	14.2	24.1
08	14.5	18.8	20.7	23.8	27.1	25.5	21.0	21.2	21.0	20.8	20.6	18.0	27.1
09	19.3	23.5	24.1	26.4	29.4	27.0	24.3	23.2	23.4	23.9	23.4	21.6	29.4
10	24.0	27.0	28.5	29.1	31.7	29.3	26.5	24.8	26.4	27.1	26.8	24.8	31.7
11	27.3	28.6	30.2	31.0	33.2	33.8	28.4	27.5	28.9	30.2	29.8	27.6	33.8
12	28.5	30.1	32.3	33.1	34.8	34.7	30.3	30.6	29.7	30.9	30.7	29.2	34.8
13	29.0	31.1	33.3	33.7	36.6	35.4	31.6	31.2	31.0	31.7	31.6	29.6	36.6
14	30.4	32.2	34.4	35.5	37.5	36.1	32.4	31.9	32.0	32.6	32.0	30.5	37.5
15	29.9	32.4	34.4	35.2	37.8	37.5	33.8	32.3	32.1	32.4	32.2	30.2	37.8
16	30.0	32.0	34.6	35.0	38.5	36.6	33.7	32.6	32.9	32.4	31.4	29.0	38.5
17	28.9	31.9	33.9	34.4	36.8	36.3	33.3	32.4	32.3	31.6	30.0	28.4	36.8
18	25.4	30.4	32.0	33.8	37.0	35.7	33.2	32.0	31.2	30.4	24.8	23.7	37.0
19	22.3	26.0	28.0	32.0	35.8	34.3	32.4	31.1	29.0	28.4	23.9	20.8	35.8
20	20.3	23.5	25.5	29.2	32.4	32.0	30.5	29.2	26.3	25.5	22.0	20.2	32.4
21	19.2	22.2	24.3	25.8	29.5	29.8	27.7	26.7	23.2	22.8	20.5	19.5	29.8
22	17.8	22.3	24.1	26.4	28.1	28.4	26.7	24.3	22.7	22.6	18.6	17.7	28.4
23	17.1	20.6	23.2	23.5	26.5	28.4	24.8	24.0	21.7	21.3	18.1	16.2	28.4
Máx.	30.4	32.4	34.6	35.5	38.5	37.5	33.8	32.6	32.9	32.6	32.2	30.5	38.5

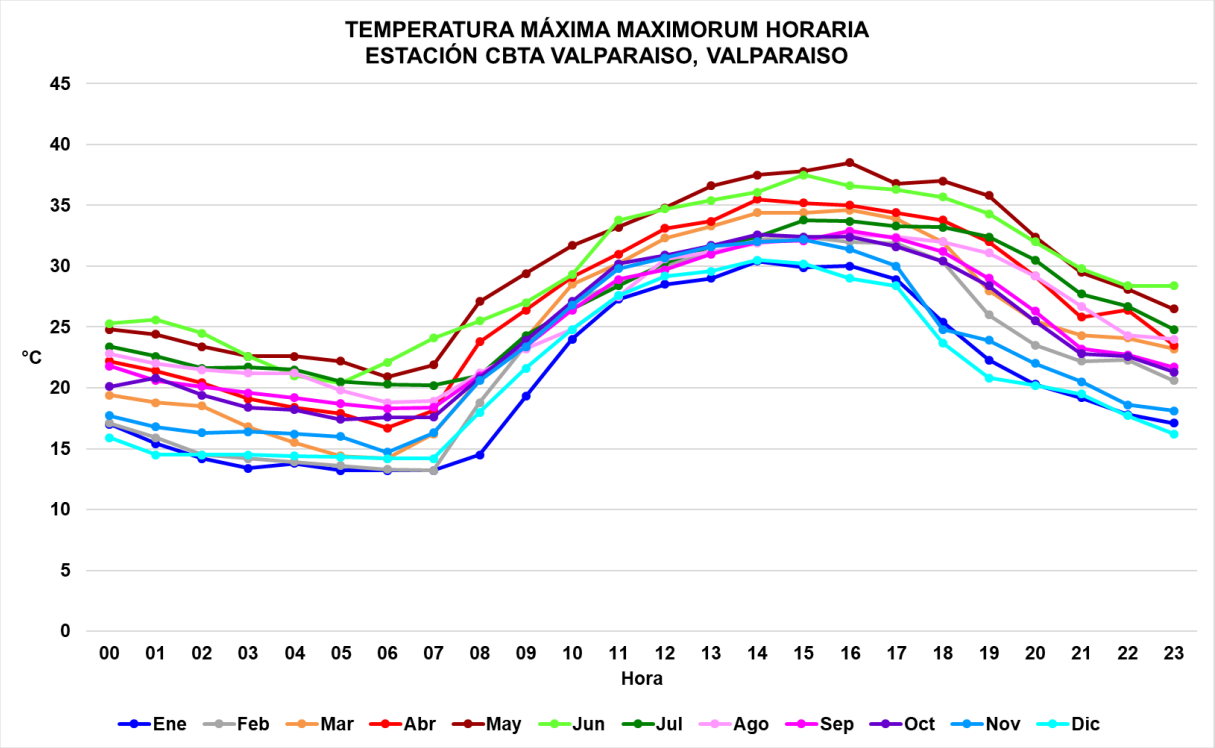


Figura 108. Temperatura máxima maximorum (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 119. Temperatura mínima media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.8	8.5	10.7	14.1	17.0	18.4	16.8	16.5	15.7	13.1	8.9	6.5	12.7
01	5.9	7.5	9.5	12.7	15.7	17.6	16.3	16.0	15.2	12.4	7.9	5.6	11.9
02	5.1	6.5	8.4	11.5	14.5	16.8	15.8	15.6	14.8	11.7	7.2	4.9	11.1
03	4.4	5.7	7.5	10.3	13.4	16.2	15.4	15.1	14.5	11.1	6.4	4.2	10.4
04	3.7	5.0	6.6	9.2	12.5	15.5	15.0	14.8	14.1	10.6	5.8	3.6	9.7
05	3.1	4.4	5.8	8.2	11.6	14.9	14.6	14.4	13.8	10.1	5.3	3.0	9.1
06	2.6	3.7	5.1	7.4	10.8	14.4	14.3	14.0	13.5	9.7	4.9	2.6	8.6
07	2.3	3.5	5.2	7.1	10.6	14.3	14.2	13.8	13.2	9.5	5.0	2.4	8.4
08	3.4	5.3	8.8	9.0	12.6	15.8	15.0	14.5	13.9	10.4	8.1	3.9	10.1
09	7.7	10.4	14.2	14.1	17.2	18.8	17.4	17.0	16.4	14.0	12.7	8.5	14.0
10	12.4	14.8	18.4	18.8	21.1	21.5	19.7	19.7	19.2	17.8	17.1	13.4	17.8
11	16.2	18.4	21.7	22.5	24.3	23.8	21.7	21.9	21.4	20.8	20.3	17.2	20.9
12	18.9	21.0	23.9	25.2	26.8	25.8	23.5	23.6	23.2	23.1	22.4	19.8	23.1
13	20.4	22.5	25.2	26.9	28.5	27.3	24.6	24.8	24.3	24.5	23.6	21.3	24.5
14	21.1	23.2	25.9	27.8	29.4	27.9	24.9	25.3	24.8	25.3	24.0	21.9	25.1
15	21.2	23.4	26.0	28.2	29.7	27.9	24.6	25.0	24.4	25.5	24.0	21.9	25.1
16	20.6	22.9	25.5	28.1	29.5	27.6	24.1	24.5	23.8	25.1	23.0	21.0	24.6
17	18.6	21.4	24.1	27.3	28.9	26.9	23.7	23.9	23.0	24.0	20.3	18.4	23.4
18	15.6	18.5	21.4	25.8	27.7	26.0	22.9	22.9	21.8	21.8	16.8	15.0	21.4
19	13.3	15.8	18.7	23.4	25.6	24.6	21.7	21.4	19.8	18.8	14.8	12.9	19.3
20	11.8	14.1	17.0	21.0	23.3	22.7	20.0	19.6	18.3	17.0	13.3	11.3	17.4
21	10.3	12.6	15.4	19.2	21.5	21.1	18.7	18.5	17.3	15.8	11.9	9.8	16.0
22	9.0	11.1	13.8	17.4	19.9	20.0	18.0	17.6	16.6	14.7	10.7	8.5	14.8
23	7.8	9.8	12.1	15.8	18.5	19.1	17.3	17.0	16.1	13.8	9.7	7.4	13.7
Media	10.9	12.9	15.5	18.0	20.4	21.0	19.2	19.1	18.3	16.7	13.5	11.0	16.4

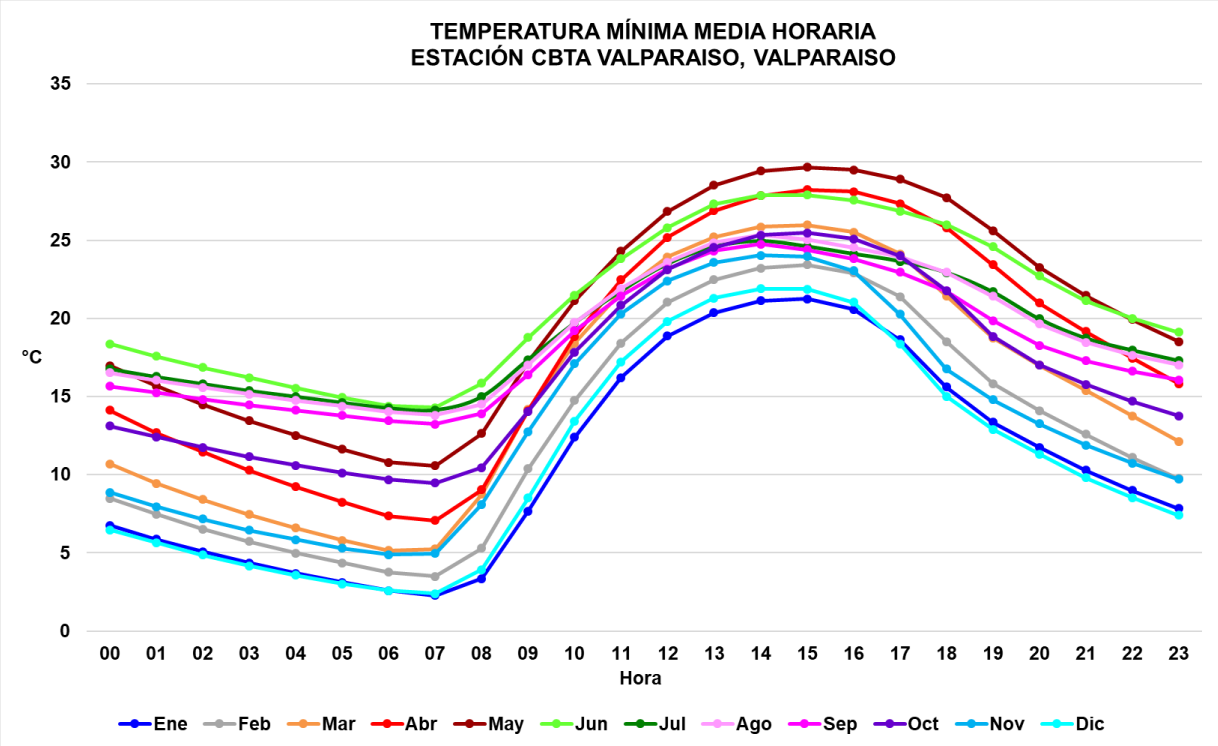


Figura 109. Temperatura mínima media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 120. Temperatura mínima minimorum (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.2	1.3	0.1	6.6	8.9	7.0	13.0	12.3	9.9	3.4	-3.2	-3.0	-3.2
01	-5.2	-0.1	-0.3	4.6	8.9	8.1	11.9	11.0	8.6	2.0	-4.0	-3.7	-5.2
02	-5.4	-1.3	-0.1	3.4	5.1	5.1	10.5	11.5	7.8	1.5	-5.2	-3.8	-5.4
03	-5.6	-2.5	-1.1	1.6	5.5	7.5	9.5	10.3	7.2	0.9	-5.6	-5.3	-5.6
04	-6.1	-3.0	-2.4	0.2	4.2	5.5	9.4	10.1	5.6	-0.2	-5.8	-5.2	-6.1
05	-6.9	-3.9	-3.7	-0.9	3.2	5.3	8.5	9.1	5.4	-0.7	-6.8	-5.5	-6.9
06	-7.9	-4.8	-4.3	-2.0	1.0	4.5	8.1	8.6	5.1	-1.6	-7.7	-6.2	-7.9
07	-7.7	-5.7	-4.7	-1.6	0.6	6.1	8.8	8.7	5.4	-1.6	-7.6	-6.7	-7.7
08	-6.5	-3.9	-1.3	-0.9	0.7	3.6	10.6	9.1	5.9	-0.1	-4.9	-5.7	-6.5
09	-1.6	1.5	2.2	6.7	9.2	7.8	13.0	12.7	9.7	5.0	0.9	0.0	-1.6
10	1.8	6.5	3.2	11.6	11.4	9.4	14.6	14.6	14.4	10.3	7.1	3.2	1.8
11	3.1	7.6	3.8	15.4	14.3	14.2	14.0	15.8	15.5	13.6	9.6	6.0	3.1
12	4.2	7.9	5.5	17.3	15.7	14.7	14.7	15.8	15.9	13.9	10.8	6.1	4.2
13	5.3	8.1	6.8	17.9	14.9	15.3	14.7	16.5	16.7	14.9	10.6	5.8	5.3
14	6.8	7.6	8.1	14.1	16.0	15.2	14.3	15.3	16.6	14.6	10.4	3.8	3.8
15	8.1	7.5	5.8	15.6	16.0	13.6	14.0	14.6	14.3	12.6	10.5	3.9	3.9
16	6.4	7.0	4.5	14.4	15.8	14.0	13.3	12.7	13.8	13.9	9.8	4.4	4.4
17	6.1	7.6	7.8	15.1	15.6	14.4	13.6	13.7	13.1	12.9	8.4	4.5	4.5
18	6.0	7.5	5.3	17.5	15.5	14.0	13.9	12.9	13.9	13.4	5.9	2.3	2.3
19	5.3	7.4	3.3	13.9	13.9	13.3	14.4	13.3	13.1	12.0	4.7	0.7	0.7
20	3.1	6.5	2.2	13.3	12.4	13.1	13.6	14.1	13.8	9.6	3.9	0.0	0.0
21	2.0	5.1	1.4	12.0	11.5	11.5	13.9	14.4	12.6	8.9	3.2	-1.0	-1.0
22	0.6	3.4	1.0	9.9	9.6	9.6	14.3	11.6	11.1	6.0	0.3	-2.1	-2.1
23	-0.9	2.4	0.4	7.8	11.2	11.2	13.6	11.1	10.1	4.9	-2.6	-3.0	-3.0
Mín.	-7.9	-5.7	-4.7	-2.0	0.6	3.6	8.1	8.6	5.1	-1.6	-7.7	-6.7	-7.9

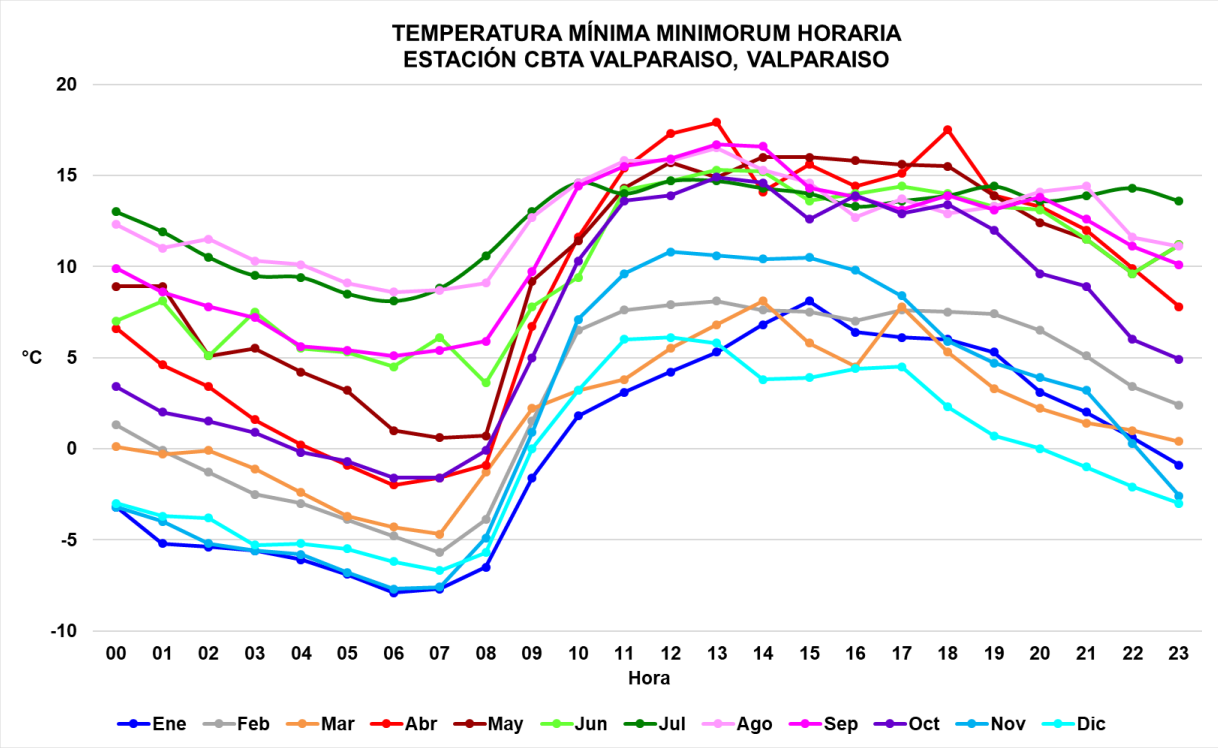


Figura 110. Temperatura mínima minimorum (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 121. Temperatura media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.3	9.0	11.3	14.8	17.6	18.8	17.1	16.9	16.0	13.5	9.3	7.0	13.2
01	6.3	8.0	10.0	13.3	16.3	18.0	16.6	16.4	15.5	12.8	8.4	6.1	12.3
02	5.5	7.0	8.9	12.0	15.0	17.2	16.1	15.9	15.1	12.1	7.6	5.3	11.5
03	4.8	6.2	7.9	10.8	13.9	16.6	15.7	15.4	14.7	11.5	6.8	4.6	10.7
04	4.1	5.4	7.0	9.7	13.0	15.9	15.3	15.0	14.4	10.9	6.2	3.9	10.1
05	3.5	4.7	6.2	8.7	12.1	15.3	14.9	14.6	14.0	10.4	5.6	3.4	9.5
06	2.9	4.1	5.6	7.8	11.2	14.7	14.5	14.3	13.7	10.0	5.2	2.9	8.9
07	2.7	4.0	6.2	7.8	11.2	14.8	14.5	14.1	13.5	9.9	5.8	2.8	8.9
08	4.9	7.3	10.8	10.8	14.3	16.9	15.9	15.4	14.8	11.6	9.9	5.6	11.5
09	9.4	12.0	15.9	16.0	18.8	19.9	18.3	18.1	17.5	15.5	14.4	10.4	15.5
10	13.9	16.2	19.7	20.3	22.4	22.4	20.5	20.6	20.1	19.0	18.4	14.9	19.1
11	17.3	19.5	22.6	23.6	25.3	24.6	22.5	22.6	22.2	21.8	21.2	18.3	21.8
12	19.6	21.7	24.6	26.0	27.6	26.6	24.1	24.2	23.8	23.8	23.0	20.5	23.8
13	20.9	23.0	25.7	27.5	29.1	28.0	25.2	25.5	24.9	25.1	24.0	21.8	25.1
14	21.6	23.6	26.3	28.3	30.0	28.6	25.7	26.0	25.4	25.8	24.5	22.3	25.7
15	21.6	23.8	26.4	28.6	30.2	28.6	25.4	25.9	25.2	26.0	24.4	22.2	25.7
16	21.1	23.3	26.0	28.6	30.0	28.3	25.0	25.4	24.6	25.7	23.6	21.6	25.3
17	19.6	22.2	24.8	27.9	29.5	27.6	24.5	24.7	23.8	24.7	21.5	19.6	24.2
18	16.8	19.7	22.5	26.5	28.4	26.7	23.7	23.7	22.5	22.8	18.0	16.2	22.3
19	14.1	16.7	19.7	24.4	26.6	25.3	22.4	22.2	20.6	19.9	15.5	13.7	20.1
20	12.4	14.8	17.7	21.9	24.2	23.5	20.7	20.3	18.9	17.7	13.9	12.0	18.2
21	10.9	13.2	16.1	19.9	22.2	21.8	19.2	18.9	17.7	16.3	12.5	10.5	16.6
22	9.5	11.7	14.5	18.1	20.6	20.5	18.3	18.0	17.0	15.2	11.3	9.1	15.3
23	8.4	10.4	12.8	16.5	19.1	19.6	17.7	17.4	16.4	14.2	10.2	7.9	14.2
Media	11.6	13.6	16.2	18.7	21.2	21.7	19.7	19.7	18.9	17.4	14.2	11.8	17.1

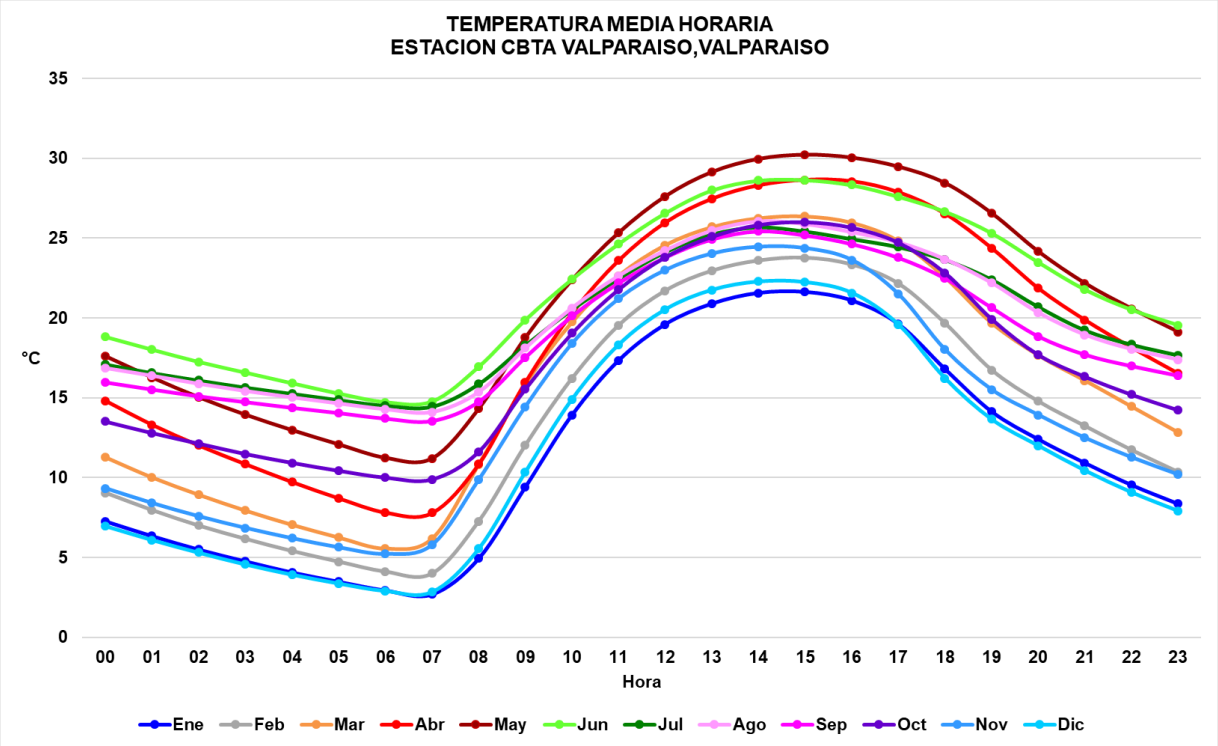


Figura 111. Temperatura media (˚C) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 122. Precipitación media (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.6	0.3	0.0	0.2	3.9	4.4	4.9	7.0	1.8	0.2	0.7	24.2
01	0.4	0.4	0.2	0.0	0.4	4.7	3.3	3.0	7.4	2.1	0.3	0.4	22.6
02	0.5	0.4	0.1	0.0	0.2	4.6	4.2	2.5	5.0	1.6	0.4	0.3	19.8
03	0.7	0.7	0.2	0.0	0.2	2.8	4.1	3.9	3.2	1.6	0.4	0.4	18.0
04	0.4	0.5	0.1	0.0	0.1	1.4	3.6	1.9	3.6	0.9	0.2	0.5	13.2
05	0.4	0.4	0.3	0.0	0.1	0.9	2.1	1.5	2.2	0.6	0.2	0.5	9.0
06	0.2	0.5	0.1	0.0	0.0	0.6	1.1	0.9	1.5	0.4	0.1	0.3	5.7
07	0.3	0.6	0.1	0.0	0.0	1.0	0.8	0.7	0.9	0.5	0.3	0.5	5.6
08	0.6	0.6	0.1	0.0	0.0	0.3	0.7	1.4	0.8	0.8	0.3	0.5	5.8
09	0.3	0.8	0.0	0.0	0.1	0.1	1.1	1.5	0.7	0.2	0.2	0.5	5.4
10	0.2	0.5	0.0	0.0	0.1	0.1	0.5	0.6	0.4	0.2	0.4	0.5	3.4
11	0.2	0.8	0.0	0.0	0.1	0.2	1.2	0.5	0.3	0.4	0.4	0.5	4.6
12	0.1	0.7	0.1	0.0	0.0	0.5	0.5	0.4	0.2	0.3	0.8	0.4	3.9
13	0.4	0.8	0.4	0.1	0.3	0.2	3.7	0.8	1.4	1.1	0.7	0.7	10.7
14	1.0	0.5	0.4	0.1	0.7	2.4	4.8	2.1	2.0	0.4	0.6	0.3	15.2
15	0.6	0.4	0.4	0.1	0.9	1.5	7.3	5.2	2.5	2.0	0.5	0.5	21.9
16	0.5	0.7	0.3	0.2	0.7	2.3	9.1	6.9	5.5	0.8	0.6	0.4	27.9
17	0.9	0.7	0.2	0.2	0.5	3.7	5.3	6.9	8.9	2.3	1.0	0.4	30.8
18	0.5	1.9	0.3	0.3	0.3	3.6	5.0	4.9	10.6	2.5	0.5	0.2	30.6
19	0.6	1.0	0.6	0.1	0.6	3.6	4.7	4.5	7.4	2.9	0.4	0.3	26.7
20	0.6	0.7	0.6	0.0	1.0	5.0	5.0	5.9	6.6	4.4	0.9	0.4	31.0
21	0.3	0.5	0.7	0.0	0.6	5.0	6.7	4.6	8.7	2.3	0.3	0.4	30.1
22	0.6	0.6	0.5	0.0	0.5	3.2	7.4	6.5	8.0	2.8	0.6	0.8	31.5
23	0.3	0.6	0.5	0.0	0.7	2.6	8.0	4.5	7.2	1.1	0.3	0.7	26.2
Suma	10.6	15.7	6.6	1.1	8.2	54.1	94.3	76.2	101.8	34.0	10.5	10.9	423.8

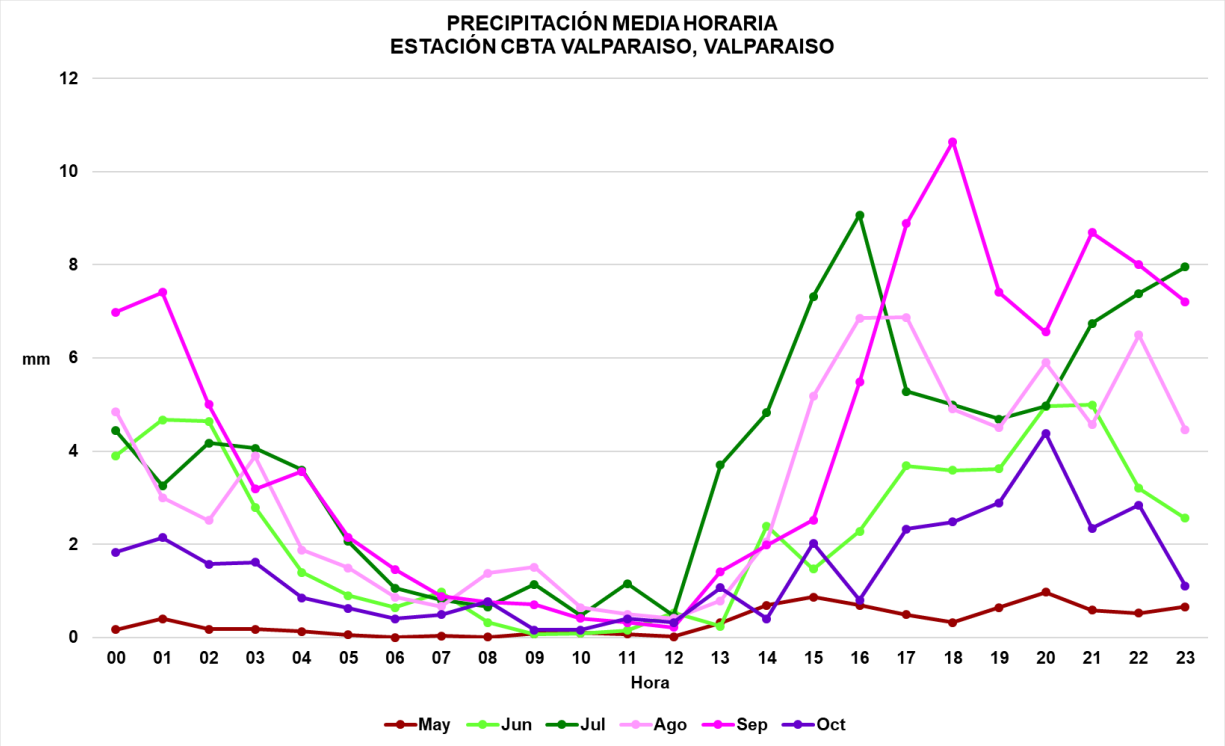


Figura 112. Precipitación media (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 123. Precipitación máxima maximorum (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.0	4.4	1.8	0.0	2.4	15.2	16.2	18.6	23.8	6.0	5.6	6.8	23.8
01	5.0	6.4	5.8	0.0	4.0	28.2	18.0	22.4	19.8	5.2	4.6	3.4	28.2
02	2.0	7.6	6.0	0.0	7.4	27.2	7.0	20.0	12.6	6.0	2.6	2.2	27.2
03	4.0	3.2	2.8	0.0	0.4	7.0	8.8	13.2	17.2	13.0	1.6	3.4	17.2
04	2.6	2.4	1.6	0.0	0.2	10.6	4.6	9.8	21.0	13.4	13.4	5.8	21.0
05	2.4	2.6	1.4	0.0	0.6	11.2	9.0	23.0	6.2	5.8	4.2	5.8	23.0
06	4.6	9.0	1.8	0.0	0.0	6.4	7.6	9.8	5.8	10.0	2.2	3.8	10.0
07	1.2	5.0	1.0	0.0	0.6	1.6	8.6	18.2	4.8	1.8	4.6	2.6	18.2
08	2.0	4.4	0.4	0.0	3.0	2.2	4.4	5.8	15.8	1.8	1.6	3.6	15.8
09	2.8	3.6	0.4	0.0	2.0	2.8	5.4	3.8	2.4	13.0	2.4	2.0	13.0
10	0.8	5.0	0.6	0.0	0.8	8.0	5.8	6.0	1.5	4.2	2.8	8.8	8.8
11	1.8	6.4	3.0	0.0	0.2	1.8	6.2	5.4	1.6	7.2	5.0	1.8	7.2
12	1.0	5.0	4.6	0.0	0.4	1.8	7.4	6.2	2.8	4.4	3.6	3.2	7.4
13	11.2	4.2	3.8	0.0	1.2	3.0	14.2	2.4	1.0	2.8	3.4	2.8	14.2
14	4.6	2.2	4.0	7.8	4.6	9.0	26.6	16.6	9.6	1.8	2.8	3.6	26.6
15	2.4	5.6	3.6	3.2	4.4	15.0	23.8	15.6	32.4	7.4	2.6	3.4	32.4
16	2.8	3.0	3.6	0.8	10.4	21.2	37.6	33.2	21.0	13.4	4.6	6.8	37.6
17	4.0	4.6	2.6	4.8	5.8	10.2	14.2	13.2	25.8	6.8	6.6	4.4	25.8
18	6.4	4.4	3.0	0.0	6.0	28.4	28.0	36.4	12.4	12.2	6.2	7.6	36.4
19	4.8	5.6	5.8	0.6	3.2	34.0	33.0	23.6	23.0	6.0	6.6	4.2	34.0
20	5.8	3.8	5.4	0.4	13.0	16.0	16.0	8.8	20.4	7.8	2.6	4.2	20.4
21	3.0	4.8	2.8	0.8	23.6	13.4	15.6	12.8	26.6	4.0	4.6	4.8	26.6
22	2.8	2.0	3.2	0.0	2.2	12.4	11.4	42.0	14.2	8.6	3.2	7.0	42.0
23	6.0	2.8	4.4	0.0	5.0	8.4	17.0	16.8	14.2	4.6	5.6	9.6	17.0
Máx.	11.2	9.0	6.0	7.8	23.6	34.0	37.6	42.0	32.4	13.4	13.4	9.6	42.0

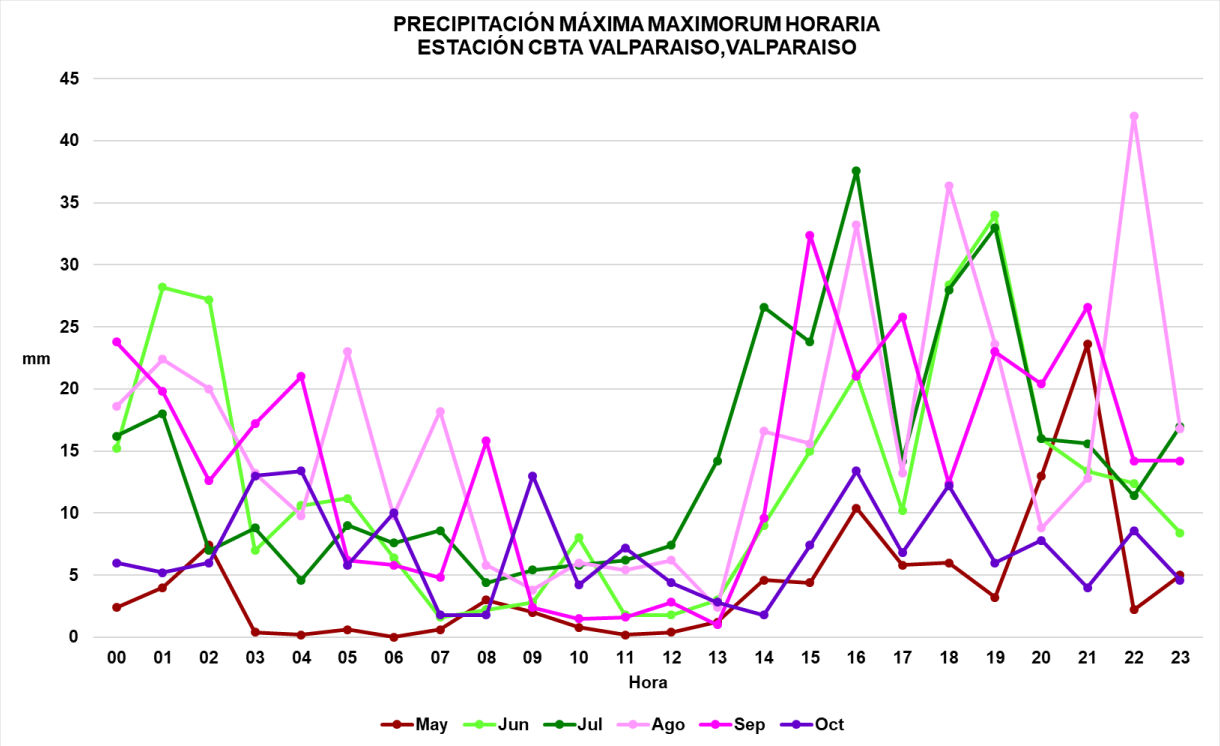


Figura 113. Precipitación máxima maximorum (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 124. Evapotranspiración potencial media (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.02	0.05	0.02	0.03	0.03	0.01	0.01	0.01	0.01	0.04	0.02	0.02
09	0.07	0.13	0.21	0.14	0.17	0.15	0.11	0.10	0.08	0.08	0.14	0.08	0.12
10	0.19	0.26	0.39	0.33	0.35	0.33	0.26	0.27	0.24	0.24	0.28	0.21	0.28
11	0.33	0.42	0.55	0.51	0.54	0.50	0.43	0.44	0.40	0.40	0.44	0.35	0.44
12	0.45	0.55	0.68	0.67	0.68	0.64	0.57	0.58	0.54	0.53	0.53	0.45	0.57
13	0.50	0.61	0.74	0.78	0.79	0.73	0.67	0.68	0.62	0.62	0.57	0.50	0.65
14	0.51	0.62	0.74	0.81	0.82	0.74	0.67	0.69	0.64	0.63	0.54	0.49	0.66
15	0.46	0.57	0.67	0.79	0.78	0.67	0.60	0.63	0.56	0.58	0.46	0.43	0.60
16	0.36	0.46	0.56	0.71	0.69	0.57	0.48	0.51	0.46	0.47	0.33	0.32	0.49
17	0.24	0.32	0.39	0.58	0.56	0.46	0.39	0.40	0.32	0.33	0.17	0.18	0.36
18	0.10	0.15	0.21	0.42	0.41	0.32	0.26	0.25	0.20	0.21	0.07	0.09	0.23
19	0.04	0.08	0.12	0.32	0.28	0.17	0.13	0.16	0.12	0.09	0.02	0.02	0.13
20	0.01	0.03	0.05	0.15	0.16	0.12	0.08	0.06	0.02	0.02	0.01	0.00	0.06
21	0.01	0.01	0.01	0.07	0.08	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.02
22	0.00	0.00	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
23	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día	3.30	4.26	5.41	6.37	6.40	5.55	4.70	4.81	4.22	4.25	3.59	3.17	4.67

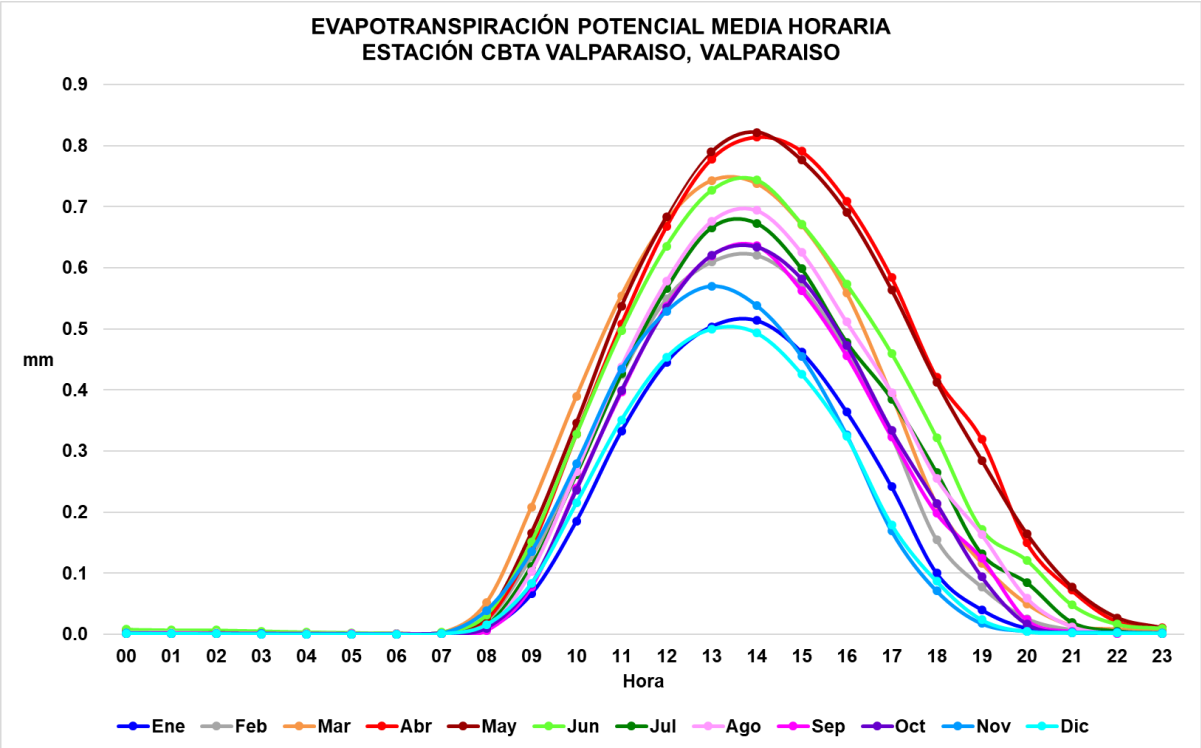


Figura 114. Evapotranspiración potencial media (mm) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 125. Humedad relativa media (%) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	61.4	54.5	44.0	36.7	43.1	63.6	81.6	82.9	85.5	77.3	69.5	64.6	63.7
01	64.5	57.9	47.4	40.2	46.5	66.4	83.9	84.6	86.9	79.5	72.7	67.4	66.5
02	67.4	60.9	50.5	43.4	49.6	69.1	85.5	86.4	88.0	81.6	75.6	70.3	69.0
03	69.8	63.7	53.3	46.2	52.3	71.1	86.9	87.9	89.0	83.8	78.3	73.0	71.3
04	72.4	66.4	56.0	49.1	55.0	73.1	88.0	89.0	89.9	85.5	80.6	75.3	73.4
05	74.4	68.7	58.6	51.9	57.5	75.3	89.1	90.0	90.7	87.0	82.6	77.4	75.3
06	76.3	71.1	61.2	54.5	60.0	77.2	89.9	90.7	91.4	88.1	83.9	79.0	76.9
07	77.1	71.7	59.4	54.3	59.9	76.7	89.8	91.0	91.7	88.3	82.1	79.4	76.8
08	69.5	60.7	45.9	45.9	51.0	69.1	84.4	86.8	87.7	82.5	68.0	69.9	68.5
09	55.5	46.9	34.3	34.5	40.3	59.5	74.1	75.8	77.0	68.8	53.8	54.7	56.3
10	43.4	36.6	26.6	26.4	32.4	51.2	64.6	65.4	66.6	56.7	43.2	42.9	46.3
11	34.8	29.1	20.9	20.2	25.4	43.4	56.6	57.2	58.2	47.7	35.6	34.8	38.7
12	29.2	24.3	17.6	16.3	20.3	36.8	49.9	50.8	51.9	40.8	30.4	29.4	33.1
13	26.1	21.7	15.7	14.0	17.3	32.2	45.6	46.2	47.6	36.5	27.5	26.0	29.7
14	24.4	20.4	14.9	13.0	15.9	30.2	44.4	44.3	45.9	34.0	26.1	24.4	28.1
15	23.9	19.8	14.5	12.6	15.4	30.3	45.8	45.4	47.3	33.4	25.9	24.1	28.2
16	24.5	20.3	14.9	12.6	15.7	31.3	47.9	47.7	49.3	34.3	27.2	25.1	29.2
17	27.0	22.1	15.9	13.1	16.5	33.7	49.7	50.2	52.8	36.9	31.5	28.7	31.5
18	32.6	25.9	18.5	14.1	17.8	36.1	52.7	54.1	57.9	42.3	40.3	36.3	35.7
19	39.4	31.7	22.8	16.7	20.8	39.5	57.6	60.2	65.4	51.8	47.8	43.3	41.4
20	44.7	36.8	27.1	20.5	25.3	45.3	64.8	68.2	73.3	60.0	53.2	48.5	47.3
21	49.6	41.3	31.2	24.5	30.3	51.7	71.9	74.1	78.3	65.6	58.5	53.9	52.6
22	53.9	46.0	35.6	28.5	35.2	57.0	76.3	78.1	81.2	70.2	62.7	58.2	56.9
23	57.5	50.2	39.9	32.7	39.5	61.4	79.3	81.0	83.6	73.9	66.2	61.8	60.6
Media	50.0	43.7	34.5	30.1	35.1	53.4	69.2	70.3	72.4	62.8	55.1	52.0	52.4

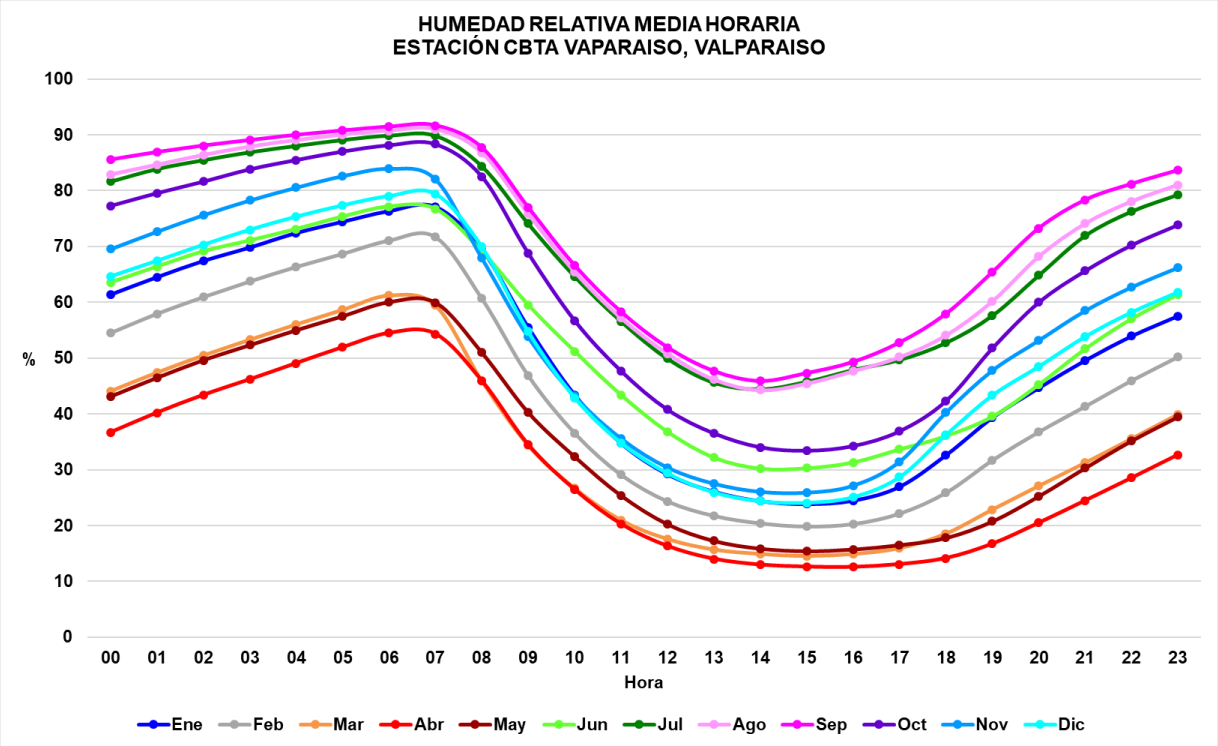


Figura 115. Humedad relativa media (%) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 126. Humedad relativa mínima minimorum (%) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.1	13.0	12.5	10.0	15.0	17.0	26.0	27.0	32.0	27.0	15.0	20.0	10.0
01	19.0	15.0	13.0	9.0	16.0	19.0	30.0	28.0	39.0	28.0	20.0	20.0	9.0
02	20.0	14.0	13.1	8.0	15.0	19.0	37.0	37.0	42.0	27.0	16.0	21.0	8.0
03	23.0	14.0	13.1	8.0	18.0	22.4	43.0	42.0	46.0	27.0	18.0	21.0	8.0
04	22.0	14.0	12.8	10.0	18.0	24.0	44.0	44.0	49.0	28.0	22.0	20.0	10.0
05	14.0	24.0	13.7	12.0	20.0	26.0	50.0	36.0	57.0	28.0	24.0	20.0	12.0
06	14.0	26.0	11.0	14.0	19.0	30.0	50.0	41.0	54.0	44.0	26.0	21.0	11.0
07	26.0	25.0	9.1	16.0	24.0	23.0	52.0	44.0	58.0	27.0	27.0	24.0	9.1
08	12.0	18.1	7.2	11.6	13.0	21.0	45.0	49.8	49.0	20.0	18.0	18.0	7.2
09	11.7	12.1	5.2	7.0	10.0	20.0	36.0	36.7	36.7	16.0	11.0	10.0	5.2
10	9.3	8.0	4.3	4.2	6.0	13.0	29.0	30.5	28.4	14.0	7.0	7.0	4.2
11	5.5	7.7	3.6	4.6	5.0	8.0	23.0	26.0	19.7	11.1	6.0	7.0	3.6
12	4.7	5.0	3.0	4.2	5.0	7.0	19.0	24.0	17.2	9.1	5.0	5.0	3.0
13	4.7	5.0	2.9	4.0	5.0	6.0	14.0	19.0	16.3	8.8	4.0	4.0	2.9
14	5.0	5.0	3.1	3.7	4.0	6.0	11.0	15.6	14.0	8.0	4.0	5.0	3.1
15	4.0	4.6	3.3	4.0	4.0	5.0	10.0	14.2	13.0	7.0	3.0	4.0	3.0
16	4.0	4.9	3.4	3.6	4.0	5.0	10.0	13.0	13.0	7.0	4.0	5.0	3.4
17	5.0	5.0	3.6	3.8	3.0	6.0	11.0	13.0	11.0	8.0	5.0	5.0	3.0
18	6.0	6.0	4.0	4.0	4.0	6.0	11.0	14.0	13.0	9.0	7.0	6.0	4.0
19	9.0	8.0	5.7	4.0	4.0	7.0	10.0	15.0	14.0	13.0	9.0	9.0	4.0
20	9.0	9.0	7.0	6.0	6.0	8.0	13.0	17.0	22.0	14.0	11.0	12.0	6.0
21	10.0	11.0	8.0	9.0	7.0	9.0	14.0	23.0	27.0	18.0	11.0	14.0	7.0
22	11.0	11.0	9.0	10.0	10.0	12.0	19.0	31.0	28.0	19.0	11.0	16.0	9.0
23	11.2	13.0	11.6	10.0	13.0	13.0	26.0	33.0	34.0	24.0	13.0	18.0	10.0
Mín.	4.0	4.6	2.9	3.6	3.0	5.0	10.0	13.0	11.0	7.0	3.0	4.0	2.9

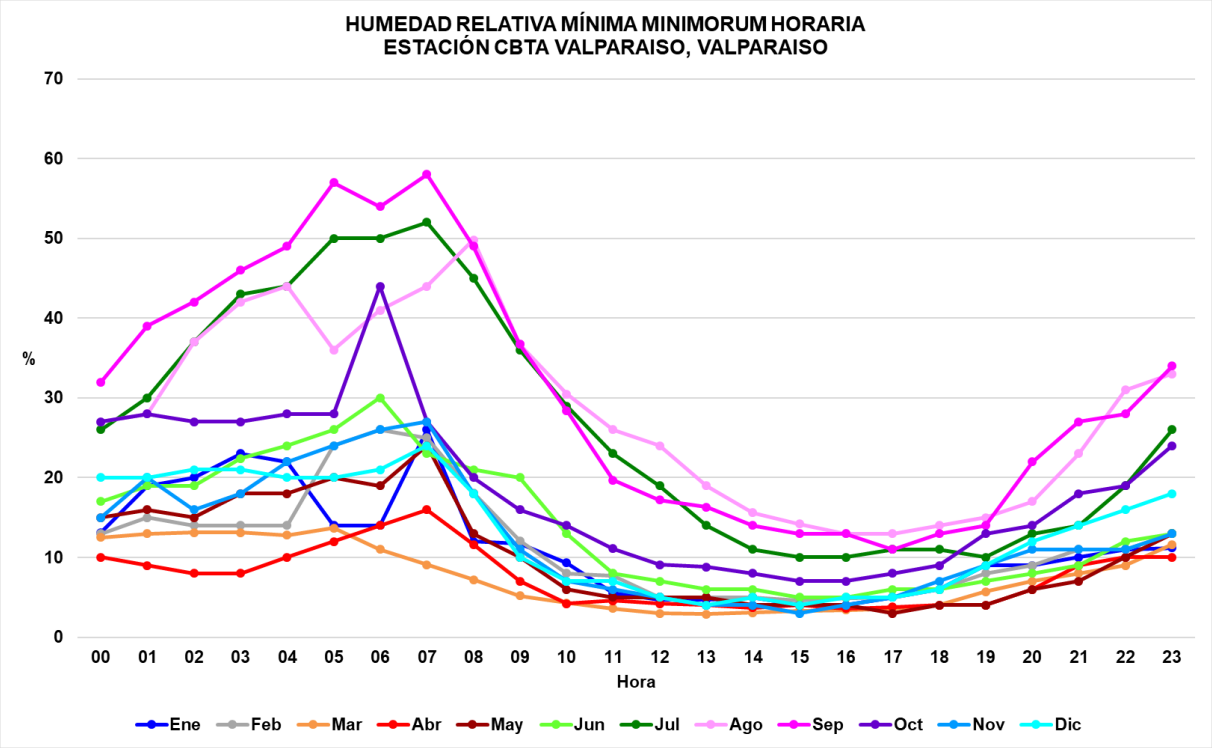


Figura 116. Humedad relativa mínima minimorum (%) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 127. Radiación solar global media horaria (W/m²) de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	9	4	5	8	2	1	0	1	4	1	3
07	42	67	171	107	121	125	81	50	37	48	168	65	90
08	369	578	936	647	666	598	480	400	333	370	695	433	542
09	1030	1359	1899	1570	1565	1460	1236	1201	1090	1124	1483	1150	1347
10	1854	2204	2734	2461	2480	2295	2081	2069	1930	1958	2282	1924	2189
11	2428	2832	3323	3197	3208	3004	2833	2792	2640	2629	2746	2422	2838
12	2708	3146	3660	3680	3706	3449	3322	3275	3078	3045	2935	2677	3223
13	2730	3212	3662	3869	3868	3504	3378	3413	3171	3127	2835	2627	3283
14	2486	2967	3365	3755	3643	3150	3035	3090	2871	2927	2450	2319	3005
15	1989	2472	2824	3351	3205	2677	2426	2549	2348	2435	1873	1795	2495
16	1318	1750	2064	2747	2604	2130	1941	1985	1778	1808	1130	1114	1864
17	562	928	1182	1963	1901	1512	1414	1406	1167	1087	330	366	1152
18	57	175	325	1075	1124	916	880	820	586	416	13	17	534
19	0	2	9	296	383	360	365	275	124	42	0	0	155
20	0	0	0	17	35	46	49	24	3	0	0	0	15
21	0	0	0	0	1	1	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17571	21693	26162	28740	28516	25237	23523	23349	21158	21016	18945	16910	22735

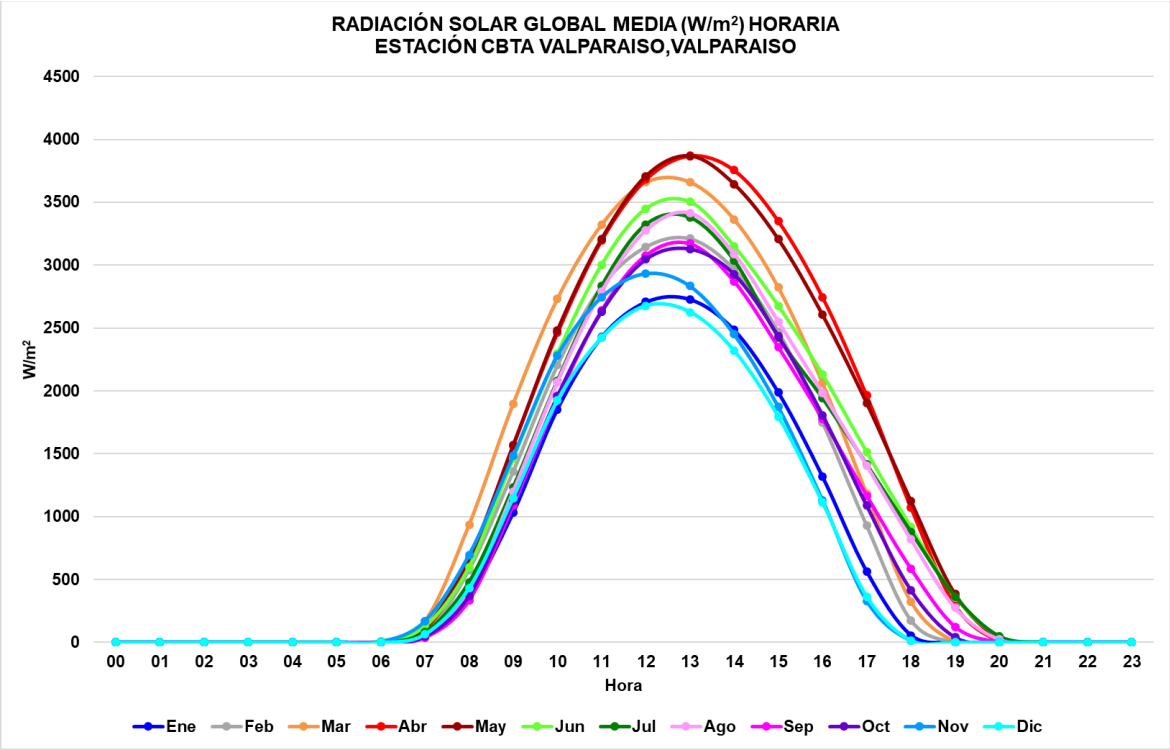


Figura 117. Radiación solar global media horaria (W/m²) de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 128. Radiación solar global media horaria (kWh/m^2) de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.04	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.04	0.02	0.02
08	0.09	0.14	0.23	0.16	0.17	0.15	0.12	0.10	0.08	0.09	0.17	0.11	0.14
09	0.26	0.34	0.47	0.39	0.39	0.36	0.31	0.30	0.27	0.28	0.37	0.29	0.34
10	0.46	0.55	0.68	0.62	0.62	0.57	0.52	0.52	0.48	0.49	0.57	0.48	0.55
11	0.61	0.71	0.83	0.80	0.80	0.75	0.71	0.70	0.66	0.66	0.69	0.61	0.71
12	0.68	0.79	0.91	0.92	0.93	0.86	0.83	0.82	0.77	0.76	0.73	0.67	0.81
13	0.68	0.80	0.92	0.97	0.97	0.88	0.84	0.85	0.79	0.78	0.71	0.66	0.82
14	0.62	0.74	0.84	0.94	0.91	0.79	0.76	0.77	0.72	0.73	0.61	0.58	0.75
15	0.50	0.62	0.71	0.84	0.80	0.67	0.61	0.64	0.59	0.61	0.47	0.45	0.62
16	0.33	0.44	0.52	0.69	0.65	0.53	0.49	0.50	0.44	0.45	0.28	0.28	0.47
17	0.14	0.23	0.30	0.49	0.48	0.38	0.35	0.35	0.29	0.27	0.08	0.09	0.29
18	0.01	0.04	0.08	0.27	0.28	0.23	0.22	0.20	0.15	0.10	0.00	0.00	0.13
19	0.00	0.00	0.00	0.07	0.10	0.09	0.09	0.07	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.39	5.42	6.54	7.18	7.13	6.31	5.88	5.84	5.29	5.25	4.74	4.23	5.68

Cuadro 129. Radiación solar global media horaria (Mj/m^2/s) de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.06	0.15	0.10	0.11	0.11	0.07	0.04	0.03	0.04	0.15	0.06	0.08
08	0.33	0.52	0.84	0.58	0.60	0.54	0.43	0.36	0.30	0.33	0.63	0.39	0.49
09	0.93	1.22	1.71	1.41	1.41	1.31	1.11	1.08	0.98	1.01	1.33	1.04	1.21
10	1.67	1.98	2.46	2.21	2.23	2.07	1.87	1.86	1.74	1.76	2.05	1.73	1.97
11	2.19	2.55	2.99	2.88	2.89	2.70	2.55	2.51	2.38	2.37	2.47	2.18	2.55
12	2.44	2.83	3.29	3.31	3.34	3.10	2.99	2.95	2.77	2.74	2.64	2.41	2.90
13	2.46	2.89	3.30	3.48	3.48	3.15	3.04	3.07	2.85	2.81	2.55	2.36	2.95
14	2.24	2.67	3.03	3.38	3.28	2.83	2.73	2.78	2.58	2.63	2.20	2.09	2.70
15	1.79	2.22	2.54	3.02	2.88	2.41	2.18	2.29	2.11	2.19	1.69	1.62	2.25
16	1.19	1.58	1.86	2.47	2.34	1.92	1.75	1.79	1.60	1.63	1.02	1.00	1.68
17	0.51	0.84	1.06	1.77	1.71	1.36	1.27	1.26	1.05	0.98	0.30	0.33	1.04
18	0.05	0.16	0.29	0.97	1.01	0.82	0.79	0.74	0.53	0.37	0.01	0.02	0.48
19	0.00	0.00	0.01	0.27	0.35	0.32	0.33	0.25	0.11	0.04	0.00	0.00	0.14
20	0.00	0.00	0.00	0.02	0.03	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.81	19.52	23.55	25.87	25.66	22.71	21.17	21.01	19.04	18.91	17.05	15.22	20.46

Cuadro 130. Velocidad del viento media (km/h) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.8	1.6	1.9	1.9	2.2	2.6	1.8	1.8	1.7	1.7	1.6	1.5	1.8
01	1.7	1.5	1.7	1.6	1.7	2.3	1.6	1.6	1.6	1.6	1.6	1.5	1.7
02	1.6	1.5	1.5	1.4	1.4	2.0	1.4	1.4	1.5	1.6	1.4	1.5	1.5
03	1.5	1.5	1.5	1.1	1.2	1.8	1.3	1.3	1.5	1.5	1.4	1.5	1.4
04	1.4	1.4	1.4	1.0	1.2	1.6	1.2	1.2	1.4	1.5	1.3	1.5	1.3
05	1.3	1.4	1.3	1.0	1.1	1.3	1.1	1.2	1.4	1.5	1.3	1.4	1.3
06	1.3	1.3	1.3	1.0	1.0	1.2	1.0	1.2	1.3	1.4	1.2	1.4	1.2
07	1.3	1.3	1.5	1.0	1.1	1.2	1.0	1.1	1.4	1.4	1.4	1.4	1.2
08	1.7	2.0	2.7	1.6	1.8	2.1	1.7	1.7	2.0	1.9	2.5	1.9	2.0
09	3.2	3.5	3.9	2.8	2.7	3.3	2.9	3.2	3.7	3.5	3.9	3.1	3.3
10	4.7	5.3	5.9	4.4	4.1	4.0	3.5	4.1	4.8	4.6	4.8	4.4	4.6
11	6.6	7.8	8.1	6.9	5.8	4.8	3.8	4.3	5.2	5.4	6.2	6.4	6.0
12	8.3	9.9	10.1	9.2	7.3	5.8	4.4	4.7	5.7	6.3	7.3	8.1	7.3
13	9.7	11.4	11.5	11.2	8.7	6.7	5.2	5.4	6.2	7.0	8.0	9.3	8.4
14	10.5	12.2	12.4	12.6	9.7	8.0	6.0	6.0	6.5	7.4	8.3	9.9	9.1
15	10.6	12.2	12.7	13.3	10.3	8.7	6.7	6.7	6.7	7.5	8.2	9.8	9.4
16	10.3	12.1	12.4	13.5	10.6	8.7	6.9	6.5	6.7	7.3	7.7	9.2	9.3
17	9.0	11.0	11.7	13.1	10.6	8.7	6.6	6.2	6.0	6.6	6.2	7.6	8.6
18	6.1	8.5	9.9	12.3	10.2	8.1	6.0	5.5	5.1	5.3	3.5	4.3	7.1
19	3.6	5.0	6.5	10.5	9.4	7.2	5.0	4.1	3.4	3.3	2.5	2.8	5.3
20	2.8	3.4	4.3	7.4	7.2	5.9	3.9	2.8	2.1	2.2	2.0	2.0	3.8
21	2.3	2.6	3.3	5.0	5.0	4.4	2.8	2.2	1.7	2.0	2.0	1.8	2.9
22	2.1	2.1	2.8	3.4	3.8	3.7	2.3	2.1	1.7	1.9	1.9	1.7	2.4
23	1.9	1.9	2.2	2.6	2.8	3.0	2.0	1.8	1.6	1.8	1.7	1.5	2.1
Media	4.4	5.1	5.5	5.8	5.0	4.5	3.3	3.3	3.4	3.6	3.7	4.0	4.3

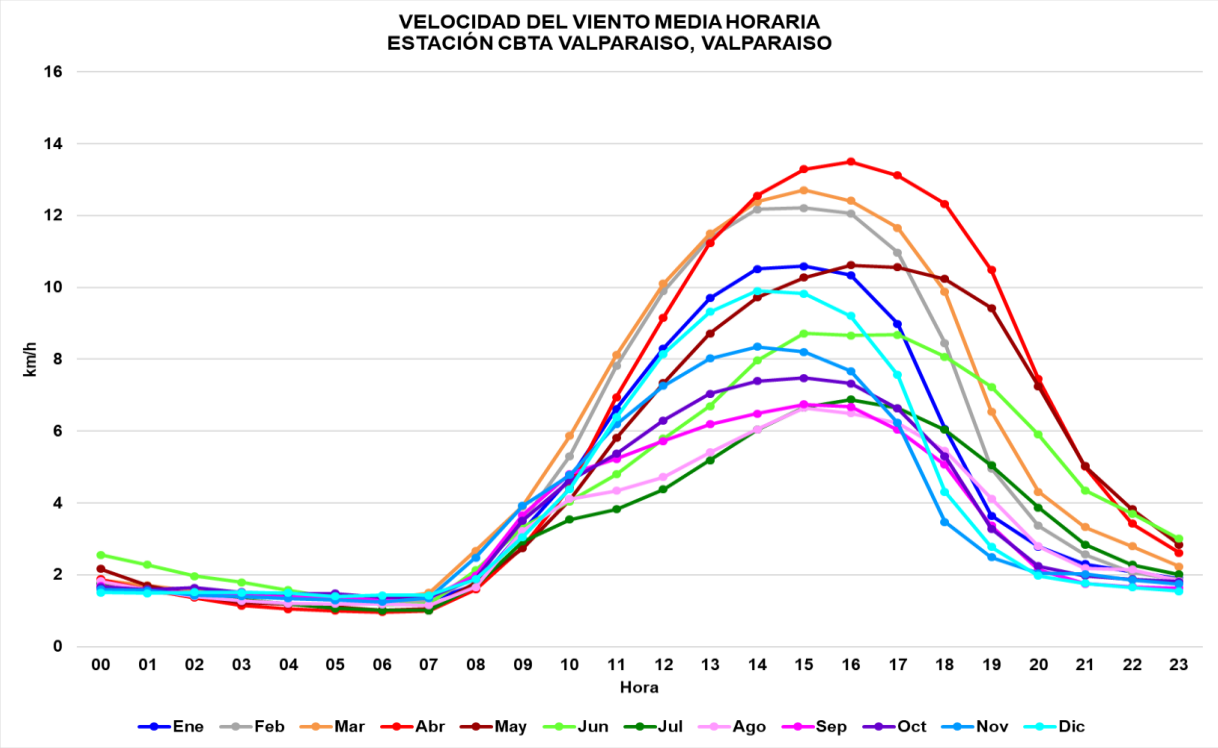


Figura 118. Velocidad del viento media (km/h) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 131. Velocidad del viento máxima maximorum (km/h) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	20.5	17.4	23.9	20.4	31.4	24.0	18.2	21.9	19.8	22.4	26.5	27.0	31.4
01	18.0	18.3	21.8	23.4	22.4	22.7	18.9	17.0	26.4	22.4	23.4	25.7	26.4
02	18.3	28.5	20.1	23.8	20.0	17.8	17.7	15.0	20.5	21.8	25.0	27.3	28.5
03	25.6	25.6	27.1	17.5	20.7	20.1	17.4	24.5	19.9	23.8	25.6	26.3	27.1
04	17.1	27.2	23.4	17.9	17.0	15.8	17.4	15.9	14.1	25.3	29.9	20.1	29.9
05	19.8	23.0	23.8	15.3	18.9	15.2	17.0	19.8	13.5	31.6	32.4	22.0	32.4
06	22.4	20.1	23.8	18.7	17.3	14.3	15.3	15.6	14.4	34.3	27.6	22.5	34.3
07	20.6	22.4	36.2	16.1	15.1	14.7	15.5	14.8	15.6	33.8	30.8	24.8	36.2
08	24.8	24.1	39.6	19.4	16.7	15.4	19.9	15.7	15.3	38.7	27.3	19.9	39.6
09	25.4	29.8	44.4	20.4	20.4	18.0	19.8	18.5	19.2	34.5	32.4	22.7	44.4
10	28.2	34.3	44.6	26.0	22.1	18.3	21.7	19.5	21.1	32.4	31.6	27.1	44.6
11	32.2	38.8	47.3	30.9	27.9	22.1	21.3	23.0	22.5	24.8	32.1	35.7	47.3
12	35.3	37.4	44.8	30.6	28.5	22.1	25.4	24.0	23.8	28.2	33.7	40.9	44.8
13	45.1	35.6	40.9	37.4	27.6	30.3	26.4	24.8	23.4	25.4	35.7	42.2	45.1
14	40.6	36.4	39.8	35.7	34.0	29.1	29.3	22.4	21.1	26.1	38.0	42.5	42.5
15	37.9	38.1	39.1	42.5	29.9	31.8	29.7	27.6	27.1	25.5	37.5	41.1	42.5
16	34.9	37.4	37.4	35.7	33.4	29.6	32.2	39.6	27.2	37.0	37.2	42.6	42.6
17	36.7	35.6	32.1	39.1	41.3	34.1	27.9	28.2	28.2	28.0	36.3	41.1	41.3
18	34.0	32.4	32.8	37.0	31.8	29.2	24.6	24.0	25.7	25.4	29.5	31.7	37.0
19	30.8	20.5	30.1	28.3	35.9	28.6	24.4	24.8	29.9	19.8	25.0	32.3	35.9
20	29.0	19.3	29.0	28.6	34.1	35.9	32.1	25.8	22.0	28.6	25.4	33.1	35.9
21	25.3	20.1	28.2	26.1	31.6	39.1	27.9	36.1	27.5	26.0	25.4	20.0	39.1
22	26.6	20.4	28.3	24.8	43.4	25.7	24.7	25.8	19.5	29.6	18.8	22.2	43.4
23	23.4	23.1	26.6	25.4	29.9	30.5	17.6	18.1	19.4	23.7	19.8	19.2	30.5
Máx.	45.1	38.8	47.3	42.5	43.4	39.1	32.2	39.6	29.9	38.7	38.0	42.6	47.3

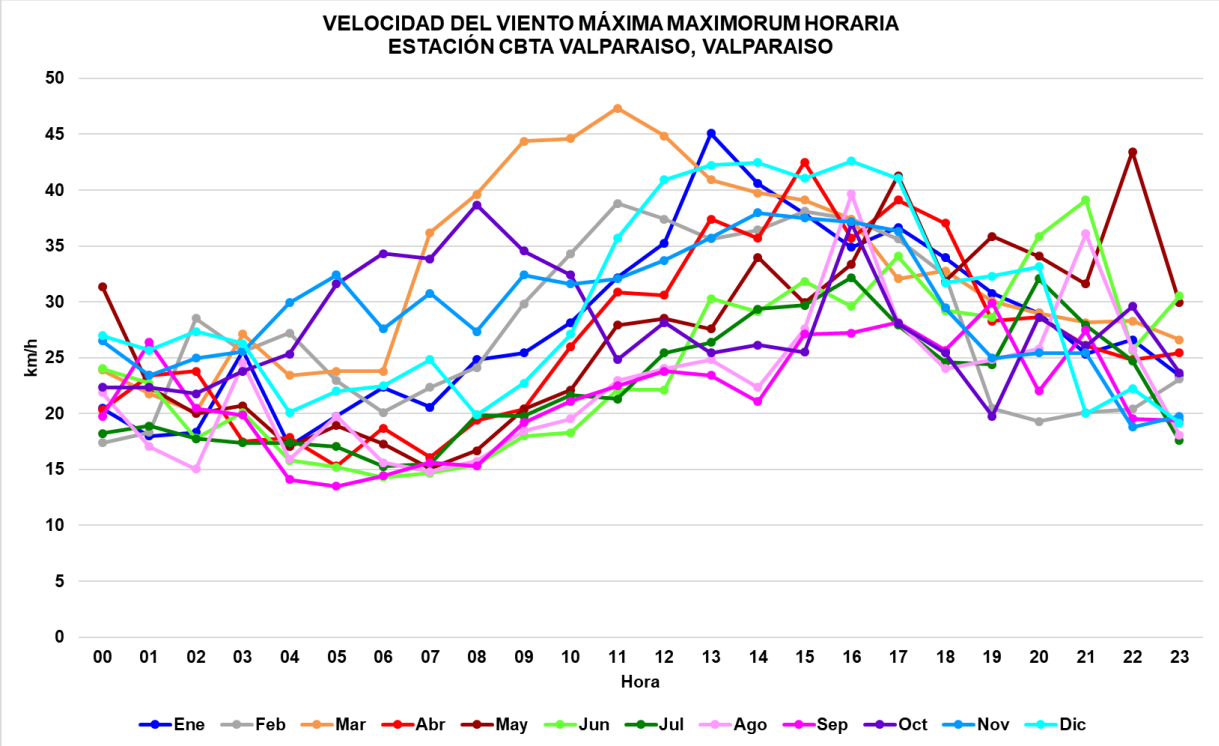


Figura 119. Velocidad del viento máxima maximorum (km/h) horaria de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 132. Frecuencia de velocidad del viento (%) mensual de la estación CBTA Valparaíso, Valparaíso (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	67.9	63.4	59.6	57.3	59.4	64.1	74.8	76.1	73.1	72.3	71.7	70.5	67.6
5.1 a 10.0	17.1	17.5	19.5	18.0	22.7	22.9	18.8	17.4	20.5	19.7	18.7	17.0	19.2
10.1 a 15.0	9.5	10.8	11.7	14.9	13.3	10.6	5.5	5.6	5.8	6.2	7.0	8.4	9.1
15.1 a 20.0	3.7	5.7	6.2	7.6	4.1	2.3	0.8	0.8	0.6	1.3	1.9	2.9	3.1
20.1 a 25.0	1.3	1.8	2.1	1.8	0.5	0.2	0.1	0.1	0.0	0.3	0.5	0.8	0.8
25.1 a 30.0	0.4	0.6	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
30.1 a 35.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

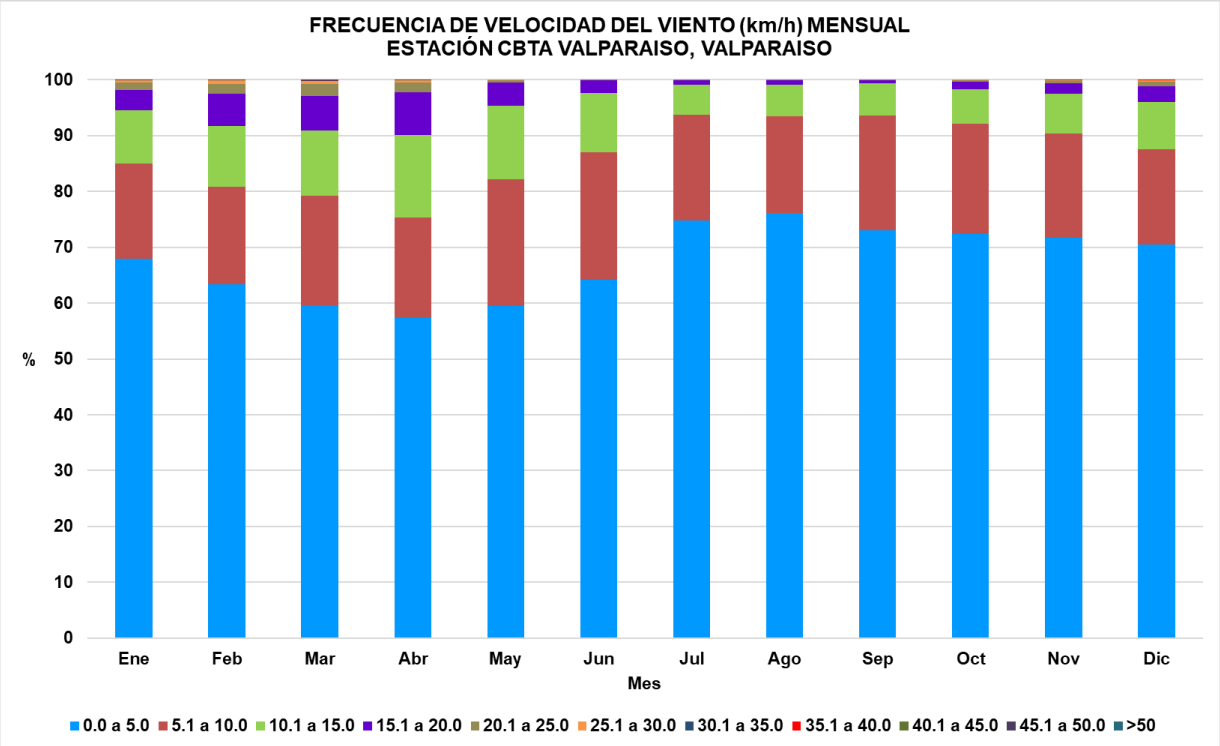


Figura 120. Frecuencia de velocidad del viento (%) mensual de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 133. Frecuencia de dirección del viento (%) mensual de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	7.9	6.6	6.0	4.8	6.0	8.1	7.0	8.5	10.0	10.3	8.8	8.1	7.7
NNE	11.4	8.8	7.9	6.8	7.8	13.1	12.3	14.6	18.9	17.6	13.7	10.1	12.0
NE	10.1	8.5	8.2	6.9	7.2	11.6	11.3	12.7	16.2	14.8	12.4	9.1	10.8
ENE	6.5	6.0	6.0	5.2	5.7	8.2	8.1	8.6	8.8	8.3	7.5	6.7	7.1
E	4.3	4.3	4.4	3.9	4.6	5.3	5.3	5.5	5.4	5.1	5.3	5.0	4.9
ESE	2.8	2.8	2.8	2.8	3.1	3.4	3.7	3.5	3.2	2.9	3.2	3.3	3.1
SE	2.6	2.5	2.8	2.7	3.0	3.1	3.1	2.9	2.2	2.3	2.8	2.7	2.7
SSE	3.3	3.3	3.5	3.6	4.2	3.8	3.9	3.5	2.6	2.5	3.1	3.6	3.4
S	4.2	4.2	4.6	4.7	5.1	4.5	4.9	3.9	3.0	3.1	3.6	4.6	4.2
SSO	5.7	6.3	6.7	7.4	7.1	5.4	5.6	4.7	3.4	3.7	4.5	6.0	5.5
SO	10.5	13.5	13.5	16.3	12.6	7.4	7.2	5.9	4.1	5.1	7.0	10.1	9.4
OSO	11.6	14.6	15.3	16.9	14.1	7.9	8.1	6.9	5.2	6.4	8.8	11.1	10.5
O	6.7	7.3	7.3	8.0	8.0	6.5	7.3	6.6	5.9	5.6	6.1	6.9	6.8
ONO	4.5	4.1	4.0	4.0	4.4	4.7	4.9	4.7	4.5	4.2	4.3	4.4	4.4
NO	3.5	3.0	3.2	2.9	3.4	3.3	3.5	3.4	3.0	3.4	3.8	3.8	3.4
NNO	4.5	4.1	3.9	3.0	3.8	3.8	3.8	4.1	4.0	4.8	5.0	4.6	4.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

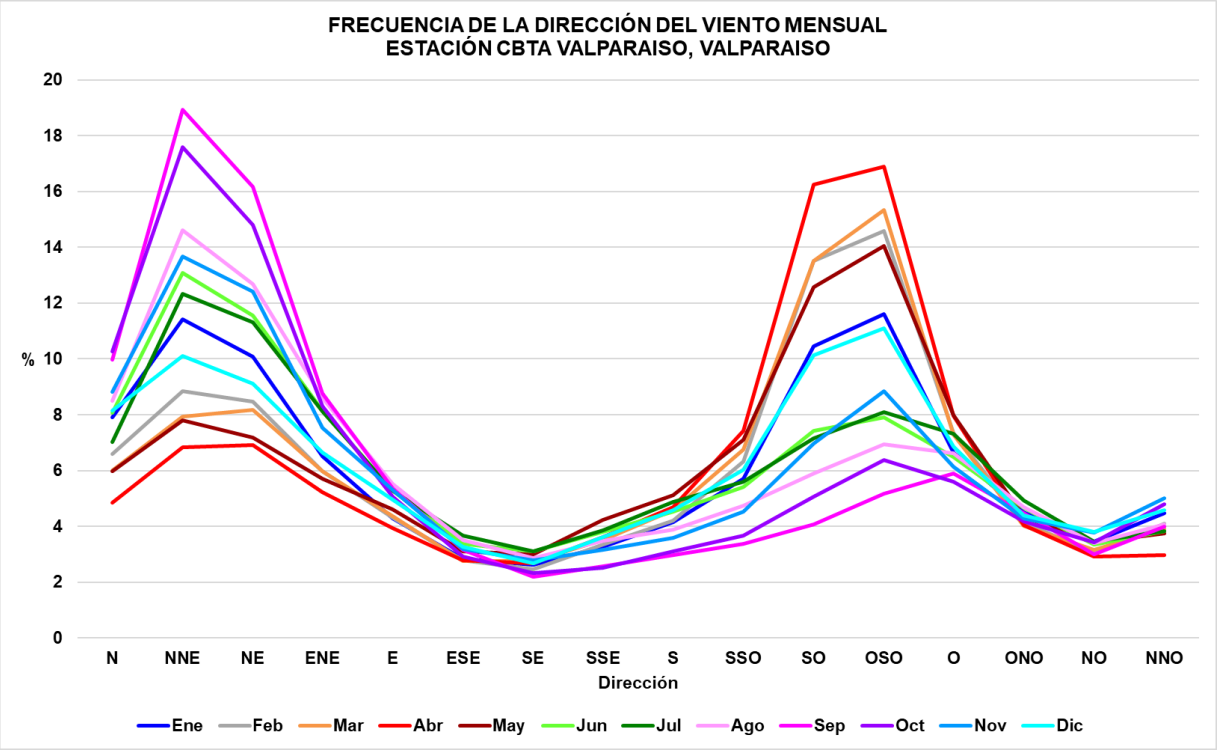


Figura 121. Frecuencia de dirección del viento (%) mensual de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 134. Frecuencia de dirección del viento (%) trimestral de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	6.8	6.3	8.5	9.1	7.7
NNE	9.4	9.2	15.2	13.8	12.0
NE	8.9	8.5	13.4	12.1	10.8
ENE	6.2	6.3	8.5	7.5	7.1
E	4.3	4.6	5.4	5.1	4.9
ESE	2.8	3.1	3.5	3.1	3.1
SE	2.6	2.9	2.7	2.6	2.7
SSE	3.4	3.9	3.3	3.1	3.4
S	4.3	4.8	3.9	3.8	4.2
SSO	6.3	6.7	4.6	4.7	5.5
SO	12.5	12.1	5.7	7.4	9.4
OSO	13.8	13.0	6.7	8.8	10.5
O	7.1	7.5	6.6	6.2	6.8
ONO	4.2	4.3	4.7	4.3	4.4
NO	3.2	3.2	3.3	3.7	3.4
NNO	4.2	3.5	4.0	4.8	4.1
Suma	100.0	100.0	100.0	100.0	100.0

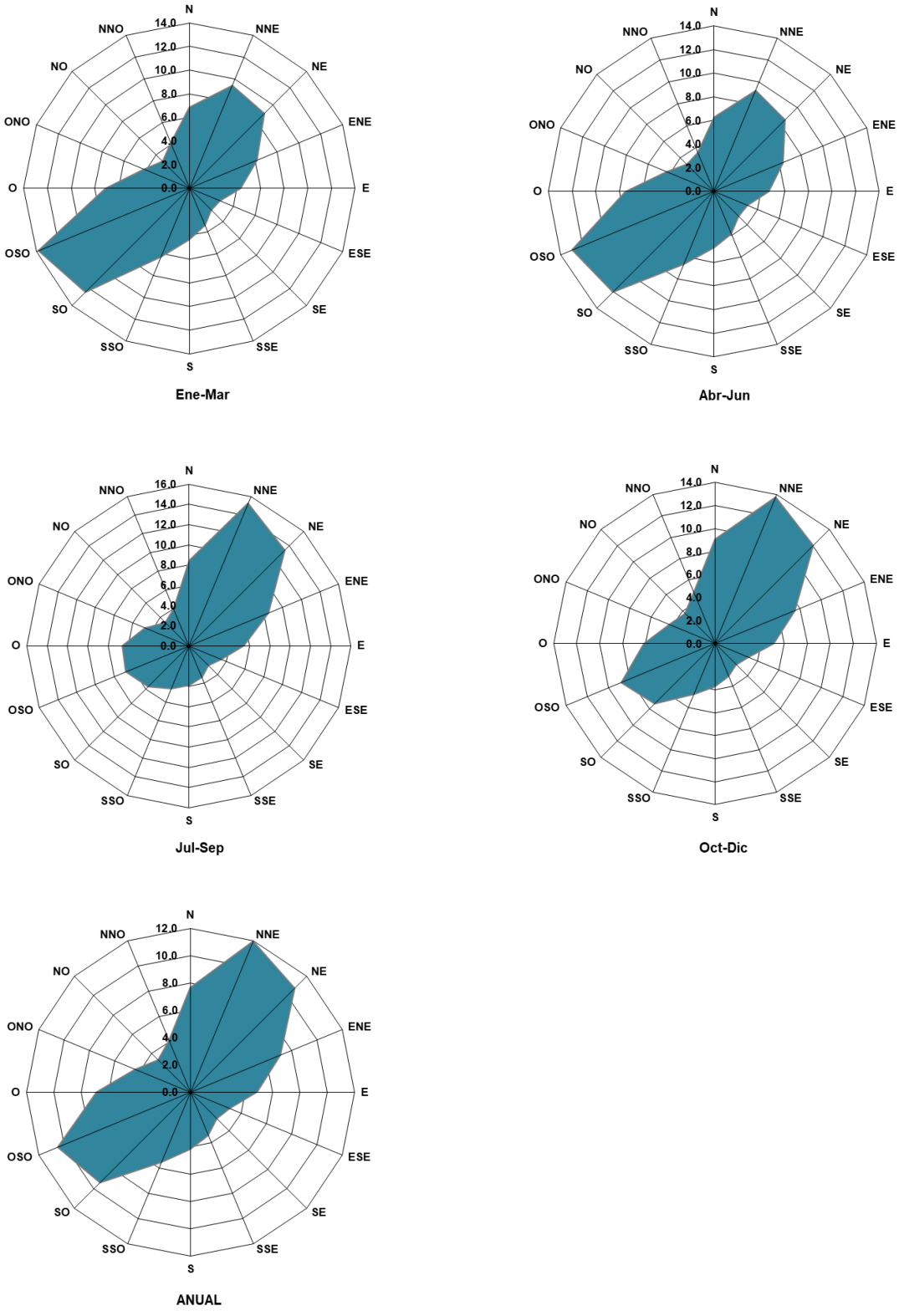


Figura 122. Frecuencia de dirección del viento (%) trimestral de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Cuadro 135. Estadísticas climatológicas mensuales de la estación CBTA Valparaíso, Valparaíso (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	22.4	24.4	27.1	29.4	31.3	30.5	27.6	27.8	27.0	27.1	25.2	23.0	26.9
Temperatura máxima maximorum (°C)	30.4	32.4	34.6	35.5	38.5	37.5	33.8	32.6	32.9	32.6	32.2	30.5	38.5
Temperatura mínima media (°C)	1.9	3.2	4.8	6.8	10.3	14.0	13.9	13.6	13.0	9.2	4.5	2.0	8.1
Temperatura mínima minimorum (°C)	-7.9	-5.7	-4.7	-2.0	0.6	3.6	8.1	8.6	5.1	-1.6	-7.7	-6.7	-7.9
Temperatura media (°C)	11.6	13.7	16.2	18.7	21.2	21.7	19.7	19.7	18.9	17.4	14.2	11.8	17.1
Oscilación térmica (°C)	20.4	21.2	22.3	22.6	21.0	16.5	13.7	14.2	14.0	17.9	20.7	21.0	18.8
Precipitación acumulada media (mm)	16.7	23.8	7.7	1.3	9.7	77.9	136.9	123.7	109.3	32.9	15.6	20.4	575.7
Precipitación máxima maximorum en 24 horas (mm)	42.6	55.2	51.6	7.8	40.4	62.2	50.0	64.6	62.2	43.8	58.8	45.4	64.6
Número de días promedio con lluvia	4.1	4.6	3.6	1.2	3.7	13.1	19.7	18.6	15.9	6.6	4.6	3.9	99.3
Evapotranspiración acumulada potencial media (mm)	106.9	126.8	173.0	194.2	200.1	167.5	151.5	151.9	130.8	135.2	113.7	101.5	1753.2
Humedad máxima media (%)	81.5	76.2	66.1	60.1	65.4	82.1	93.1	93.7	94.4	91.3	86.9	83.2	81.2
Humedad máxima maximorum (%)	100.0	100.0	100.0	97.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.8	17.7	12.6	10.7	12.9	23.6	35.9	37.0	39.6	29.0	23.3	21.6	23.7
Humedad mínima minimorum (%)	4.0	4.6	2.9	3.6	3.0	5.0	10.0	13.0	11.0	7.0	3.0	4.0	2.9
Humedad media (%)	50.0	43.7	34.5	30.1	35.1	53.4	69.2	70.3	72.4	62.8	55.1	52.0	52.4
Radiación global media día/mes (W/m^2)	17573.6	21703.0	26162.2	28739.8	28516.5	25236.8	23523.4	23349.0	21157.7	21016.1	18944.8	16910.2	22736.1
Radiación global media día/mes (kWh/m^2)	4.4	5.4	6.5	7.2	7.1	6.3	5.9	5.8	5.3	5.3	4.7	4.2	5.7
Radiación global media día/mes ($Mj/m^2/s$)	15.8	19.5	23.5	25.9	25.7	22.7	21.2	21.0	19.0	18.9	17.1	15.2	20.5
Velocidad del viento máxima media (km/h)	15.3	16.9	17.8	18.5	16.8	16.0	13.7	12.8	12.4	12.2	12.7	14.0	14.9
Velocidad del viento máxima maximorum (km/h)	45.1	38.8	47.3	42.5	43.4	39.1	32.2	39.6	29.9	38.7	38.0	42.6	47.3
Velocidad del viento media (km/h)	4.4	5.1	5.5	5.8	5.0	4.5	3.3	3.3	3.4	3.6	3.7	4.0	4.3
Dirección dominante del viento	OSO	OSO	OSO	OSO	OSO	NNE	NNE	NNE	NNE	NNE	NNE	OSO	NNE

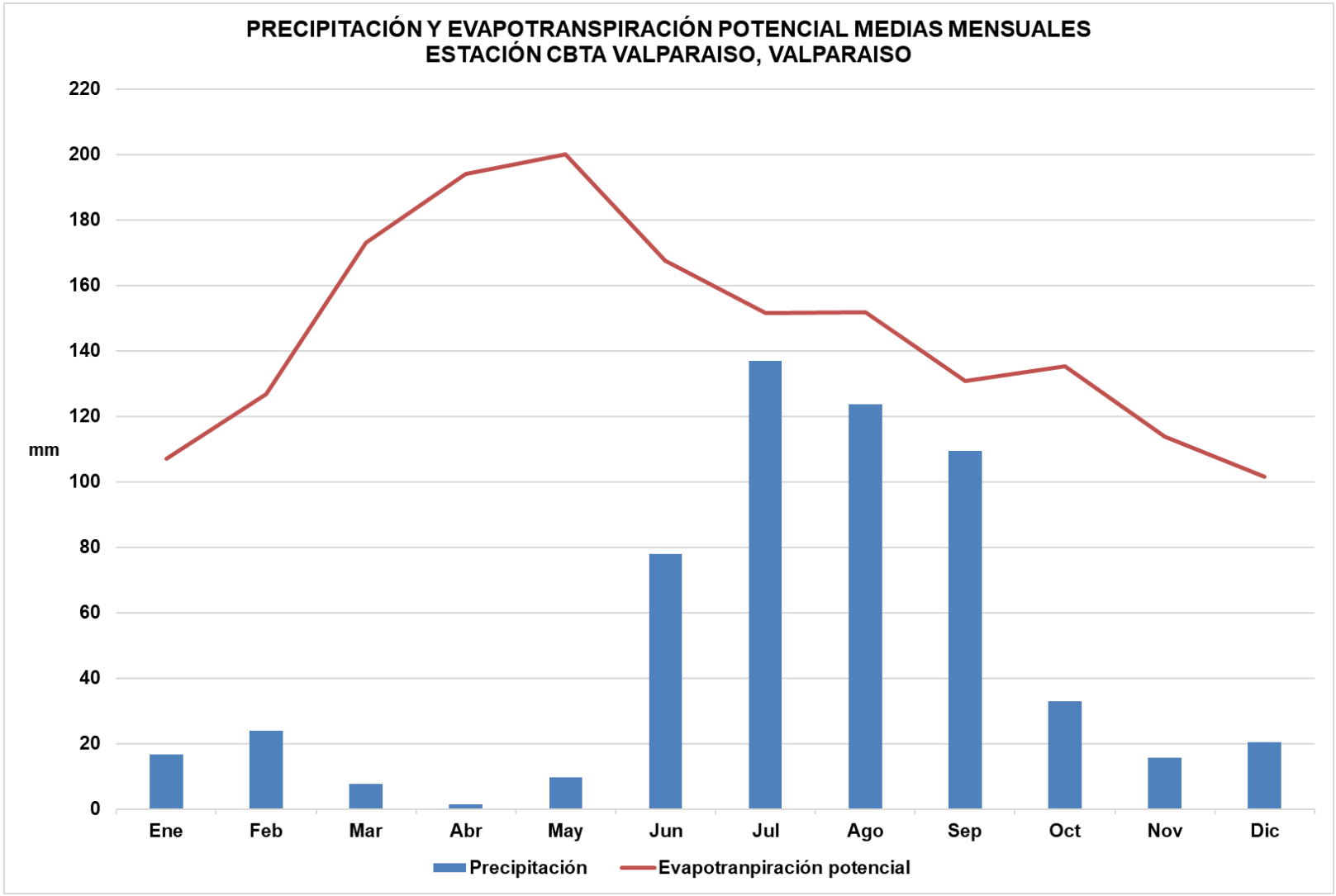


Figura 123. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación CBTA Valparaíso, Valparaíso (2003-2022).

7.8. Estación: Chaparrosa, Villa de Cos

Cuadro 136. Temperatura máxima media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.6	10.0	12.4	16.0	18.5	18.8	17.4	17.5	16.1	13.9	9.7	7.6	13.8
01	6.7	9.0	11.3	14.9	17.5	17.9	16.7	16.8	15.5	13.0	8.7	6.6	12.9
02	5.8	8.0	10.3	13.8	16.4	17.1	16.1	16.1	15.0	12.2	7.9	5.9	12.1
03	5.1	7.1	9.3	12.7	15.5	16.4	15.5	15.5	14.5	11.5	7.1	5.1	11.3
04	4.3	6.3	8.3	11.8	14.6	15.7	14.9	14.9	14.0	10.8	6.3	4.4	10.5
05	3.7	5.4	7.4	10.8	13.7	15.0	14.4	14.3	13.6	10.2	5.6	3.7	9.8
06	3.1	4.7	6.7	9.9	12.8	14.5	13.9	13.8	13.2	9.6	5.1	3.3	9.2
07	3.0	5.1	8.2	10.4	13.3	14.8	14.1	13.7	13.1	9.8	6.6	3.6	9.6
08	6.7	9.6	13.2	14.4	16.7	17.2	16.1	15.9	15.0	12.4	11.4	7.9	13.0
09	11.1	13.8	17.0	18.3	20.0	19.6	18.2	18.3	17.2	16.0	15.2	12.4	16.4
10	14.3	16.9	19.8	21.2	22.7	21.7	20.1	20.3	19.3	18.8	18.0	15.6	19.0
11	16.6	19.1	21.9	23.5	24.8	23.6	21.8	22.1	21.0	20.9	20.0	17.8	21.1
12	18.3	20.8	23.4	25.2	26.5	25.2	23.2	23.6	22.5	22.5	21.4	19.4	22.7
13	19.5	22.0	24.5	26.5	27.8	26.4	24.5	24.8	23.5	23.7	22.3	20.5	23.8
14	20.3	22.7	25.2	27.4	28.8	27.3	25.3	25.8	24.3	24.5	22.8	21.1	24.6
15	20.5	23.0	25.5	27.9	29.3	27.9	25.9	26.3	24.7	24.9	22.9	21.3	25.0
16	20.3	22.8	25.3	27.9	29.4	28.2	26.0	26.4	24.7	24.8	22.5	21.0	25.0
17	19.5	22.2	24.6	27.7	29.2	27.8	25.7	26.2	24.3	24.3	21.4	19.9	24.4
18	17.5	20.7	23.3	26.9	28.5	27.2	25.0	25.3	23.2	22.9	18.2	17.0	23.0
19	14.2	17.4	20.4	25.3	27.3	26.1	23.8	24.0	21.6	20.2	15.2	13.8	20.8
20	12.1	14.9	17.6	22.6	25.1	24.3	22.1	21.9	19.4	17.7	13.6	12.1	18.6
21	10.8	13.3	15.9	20.0	22.4	22.2	20.1	20.1	18.1	16.3	12.6	10.8	16.9
22	9.7	12.3	14.6	18.5	20.8	20.8	18.9	19.0	17.2	15.4	11.7	9.7	15.7
23	8.6	11.2	13.6	17.4	19.6	19.7	18.1	18.2	16.6	14.7	10.7	8.7	14.8
Media	11.6	14.1	16.7	19.6	21.7	21.5	19.9	20.0	18.7	17.1	14.0	12.1	17.3

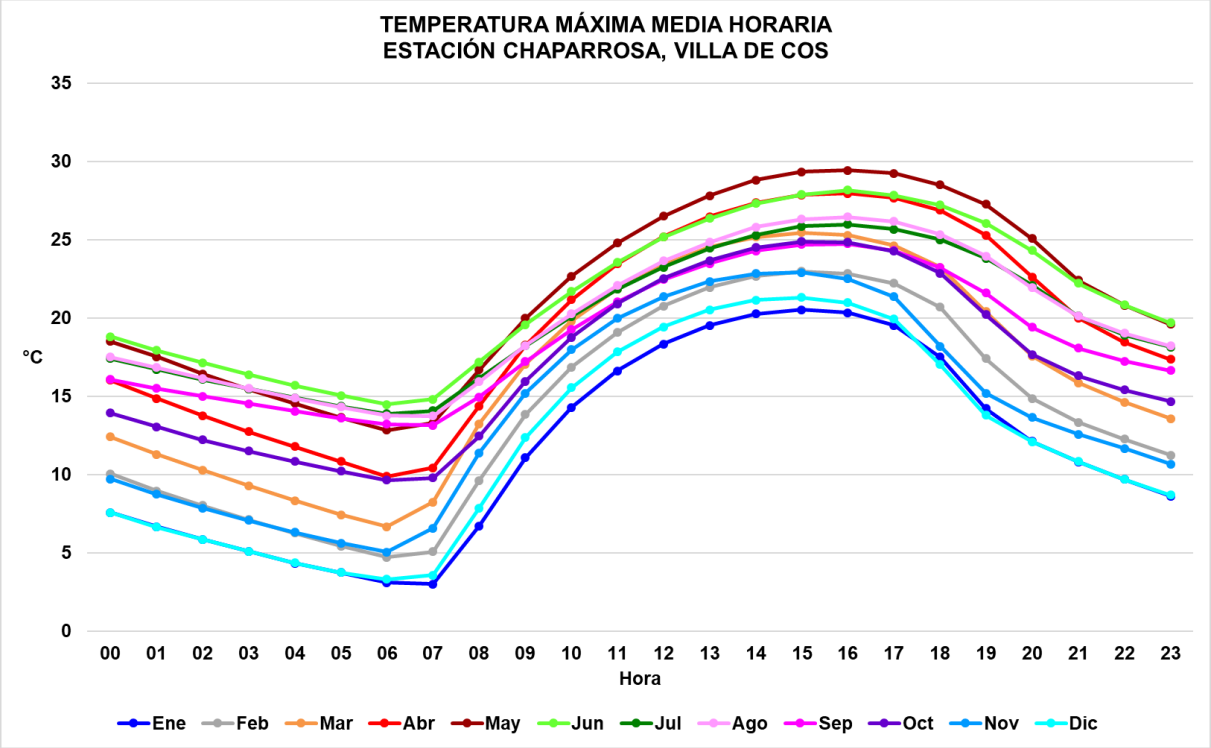


Figura 124. Temperatura máxima media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 137. Temperatura máxima maximorum (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.2	16.8	21.1	26.0	25.4	25.4	23.5	22.6	21.0	21.1	18.3	15.7	26.0
01	13.9	15.9	21.5	22.7	23.2	23.8	22.0	21.4	20.4	18.9	16.5	14.6	23.8
02	13.2	15.8	19.4	20.9	23.5	22.3	21.0	19.9	19.3	18.2	15.7	14.4	23.5
03	13.3	14.3	18.4	19.4	22.7	21.0	20.0	19.4	18.2	18.0	15.9	14.6	22.7
04	13.0	15.1	17.3	19.1	21.3	20.3	19.6	19.3	17.8	17.8	15.5	14.5	21.3
05	13.0	14.3	16.9	18.2	20.3	19.0	18.8	18.9	17.8	16.8	15.4	14.3	20.3
06	12.7	13.8	16.6	17.9	19.2	18.6	18.3	17.6	17.3	16.3	15.2	14.8	19.2
07	12.6	14.3	19.1	18.7	19.8	20.0	18.6	17.6	17.1	16.7	16.6	14.8	20.0
08	16.1	19.5	23.7	21.5	25.0	23.1	20.9	20.9	19.4	20.3	18.7	17.0	25.0
09	20.6	22.6	25.5	24.7	27.3	26.0	22.8	22.9	22.9	24.1	23.1	20.9	27.3
10	23.1	25.9	28.8	28.4	30.1	28.3	27.0	24.5	24.1	26.5	25.0	23.9	30.1
11	24.7	28.3	30.2	29.5	31.9	30.0	27.9	26.3	26.0	27.9	26.6	26.1	31.9
12	26.1	28.9	31.7	30.7	33.3	31.5	28.7	28.6	27.3	28.7	27.4	28.1	33.3
13	26.8	30.0	33.2	31.9	34.2	32.8	30.2	29.7	28.6	29.6	28.5	28.3	34.2
14	27.9	30.6	33.4	33.0	35.4	33.7	30.6	30.6	30.0	30.8	29.4	28.8	35.4
15	27.5	30.5	33.2	33.3	36.0	34.2	31.6	31.1	31.3	32.5	30.3	29.1	36.0
16	27.2	29.8	33.2	33.7	35.6	34.5	32.2	31.8	32.2	32.2	29.4	28.1	35.6
17	26.6	29.5	32.9	33.6	35.6	34.8	33.1	31.8	31.3	30.8	28.6	25.9	35.6
18	25.3	28.4	32.1	32.9	35.2	34.3	32.6	31.6	31.3	31.3	24.4	24.0	35.2
19	20.9	24.8	27.9	32.4	34.6	34.6	31.1	30.4	28.4	29.5	21.7	19.5	34.6
20	20.0	23.1	25.4	29.1	32.7	32.6	29.6	28.3	26.0	25.1	20.7	18.3	32.7
21	19.3	21.4	24.8	28.6	30.0	29.7	27.3	26.1	24.0	22.8	20.8	18.4	30.0
22	16.9	19.6	23.1	28.5	29.0	28.1	27.0	24.3	22.8	22.2	18.7	17.3	29.0
23	16.4	18.8	22.1	26.9	27.4	25.8	24.1	23.4	23.0	21.9	18.1	16.0	27.4
Máx.	27.9	30.6	33.4	33.7	36.0	34.8	33.1	31.8	32.2	32.5	30.3	29.1	36.0

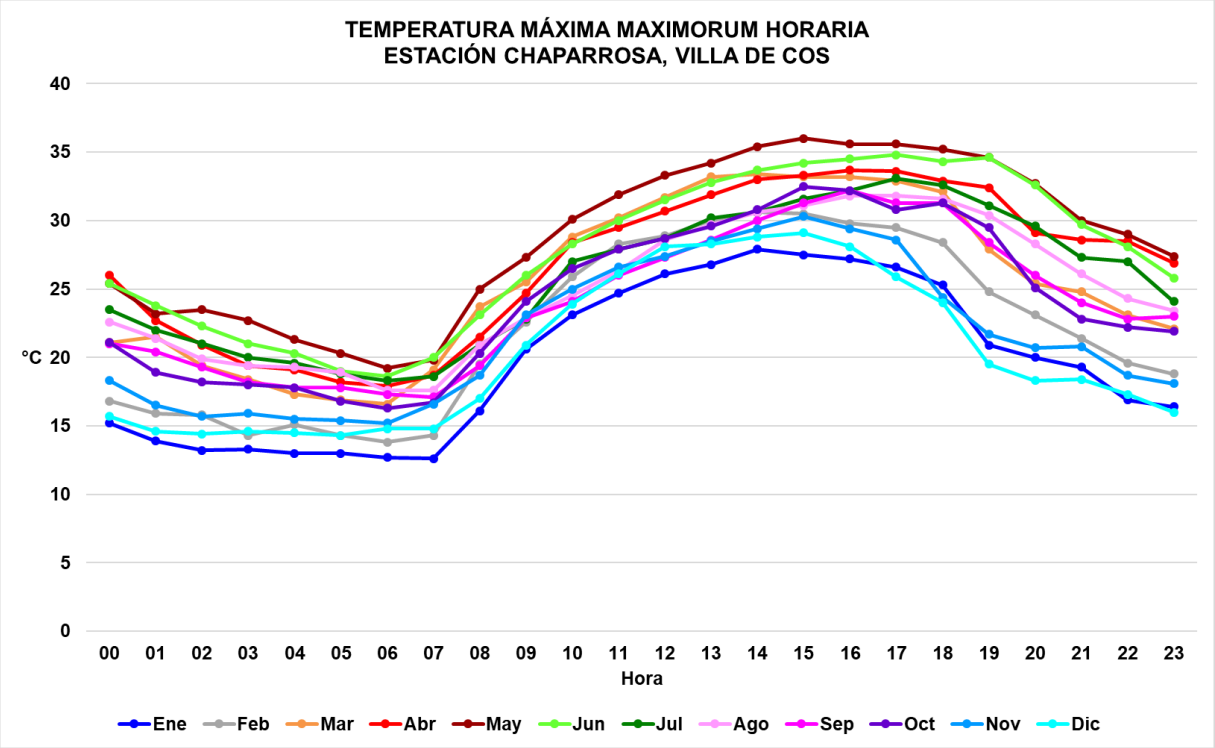


Figura 125. Temperatura máxima maximorum (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 138. Temperatura mínima media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.4	8.7	11.0	14.6	17.3	18.0	16.7	16.7	15.4	12.9	8.5	6.3	12.7
01	5.5	7.6	10.0	13.5	16.4	17.1	16.0	16.1	14.8	12.0	7.6	5.4	11.8
02	4.7	6.8	9.0	12.4	15.3	16.4	15.4	15.4	14.3	11.3	6.8	4.7	11.0
03	4.0	5.9	8.0	11.5	14.4	15.7	14.8	14.8	13.8	10.6	6.0	3.9	10.3
04	3.3	5.1	7.1	10.5	13.5	15.0	14.2	14.2	13.4	10.0	5.3	3.2	9.6
05	2.7	4.3	6.2	9.6	12.6	14.3	13.7	13.6	13.0	9.3	4.6	2.7	8.9
06	2.1	3.6	5.5	8.7	11.8	13.7	13.3	13.1	12.6	8.8	4.1	2.2	8.3
07	1.8	3.5	5.7	8.5	11.7	13.7	13.2	12.8	12.4	8.6	4.3	2.1	8.2
08	3.2	5.7	9.5	10.9	13.8	15.2	14.4	13.9	13.1	9.8	7.7	4.1	10.1
09	7.9	10.8	14.3	15.5	17.5	17.8	16.6	16.5	15.5	13.3	12.4	9.1	13.9
10	11.9	14.7	17.8	19.0	20.7	20.1	18.6	18.7	17.7	16.7	15.9	13.2	17.1
11	14.9	17.4	20.3	21.8	23.2	22.1	20.4	20.6	19.6	19.3	18.5	16.1	19.5
12	17.0	19.5	22.2	23.8	25.2	23.8	22.0	22.3	21.2	21.2	20.2	18.2	21.4
13	18.5	20.9	23.5	25.4	26.7	25.2	23.3	23.7	22.4	22.6	21.4	19.6	22.7
14	19.4	21.8	24.4	26.4	27.8	26.2	24.2	24.7	23.1	23.5	22.0	20.4	23.7
15	19.8	22.3	24.7	27.0	28.4	26.9	24.8	25.2	23.5	23.9	22.2	20.6	24.1
16	19.5	22.1	24.4	27.1	28.5	27.1	24.9	25.3	23.6	23.9	21.6	20.1	24.0
17	18.1	21.1	23.5	26.8	28.2	26.8	24.6	24.9	23.0	23.0	19.2	18.0	23.1
18	14.9	18.3	21.2	25.6	27.3	26.1	23.8	24.0	21.8	20.9	15.6	14.3	21.1
19	12.3	15.2	18.0	23.3	25.6	24.6	22.4	22.3	19.8	18.0	13.7	12.1	19.0
20	10.7	13.3	15.9	20.4	22.8	22.6	20.4	20.3	18.1	16.2	12.4	10.7	17.0
21	9.6	12.0	14.4	18.4	20.8	20.9	18.9	19.0	17.1	15.2	11.4	9.5	15.6
22	8.4	10.9	13.3	17.0	19.5	19.7	18.0	18.1	16.4	14.5	10.5	8.4	14.6
23	7.4	9.9	12.2	16.0	18.4	18.7	17.3	17.4	15.9	13.7	9.5	7.3	13.6
Media	10.2	12.6	15.1	18.1	20.3	20.3	18.8	18.9	17.6	15.8	12.6	10.5	15.9

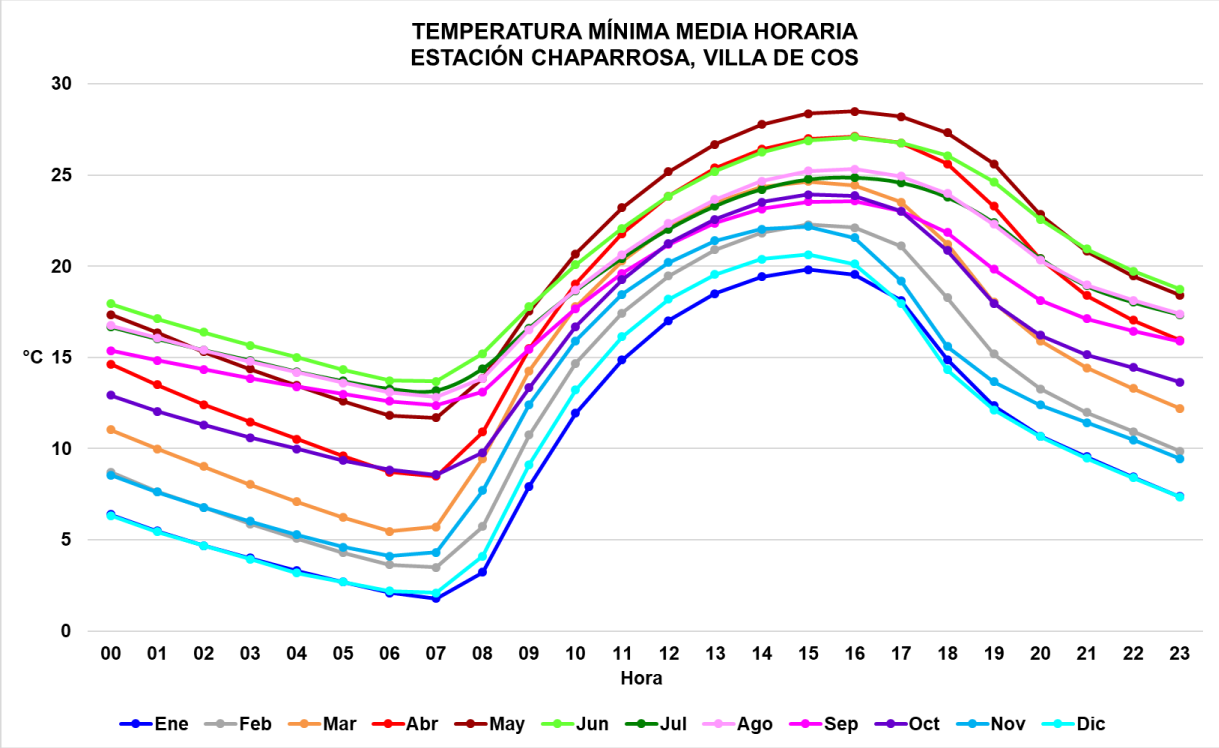


Figura 126. Temperatura mínima media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 139. Temperatura mínima minimorum (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.7	-2.2	-3.3	4.9	9.2	12.1	12.2	11.7	8.5	0.5	-8.7	-9.4	-9.4
01	-7.5	-2.8	-3.6	3.7	6.1	12.0	10.6	11.0	6.6	0.3	-9.0	-11.2	-11.2
02	-8.0	-4.1	-5.4	1.4	5.8	10.6	10.4	10.2	6.5	-1.5	-9.1	-10.8	-10.8
03	-9.5	-4.8	-6.4	0.2	4.7	9.6	10.1	9.1	5.3	-1.9	-8.6	-11.5	-11.5
04	-10.8	-5.2	-6.6	0.2	3.9	7.7	8.4	8.7	4.7	-2.5	-10.1	-11.5	-11.5
05	-10.7	-6.4	-6.0	-1.6	2.2	7.8	8.2	7.4	4.0	-3.0	-10.6	-12.2	-12.2
06	-11.6	-7.0	-7.7	-2.9	2.4	6.6	7.4	7.1	3.9	-3.8	-12.5	-12.4	-12.5
07	-12.4	-7.0	-7.5	-2.4	2.9	7.2	7.6	7.2	3.3	-3.4	-11.7	-11.9	-12.4
08	-12.1	-4.6	-4.1	-2.5	4.3	8.9	8.0	8.4	4.9	-0.7	-7.0	-9.7	-12.1
09	-3.2	-1.7	0.8	3.9	9.7	12.7	10.5	9.6	7.5	2.1	-0.6	-5.4	-5.4
10	-1.2	2.1	1.9	9.5	10.6	14.5	14.4	13.3	9.9	5.6	1.0	-3.9	-3.9
11	0.0	4.3	0.6	11.9	10.6	15.1	15.3	14.7	11.8	5.8	3.0	-2.4	-2.4
12	1.8	6.4	0.0	14.3	11.3	15.8	15.7	16.2	15.3	6.0	3.4	-2.5	-2.5
13	3.1	7.1	4.3	15.3	12.5	15.6	15.1	14.6	15.5	6.9	3.8	-2.1	-2.1
14	4.6	6.8	5.4	16.6	15.3	15.3	14.3	15.2	15.6	6.7	3.9	-1.9	-1.9
15	5.1	7.6	5.7	14.0	15.3	15.8	15.4	14.6	14.0	8.3	4.7	-1.5	-1.5
16	5.6	6.8	6.4	14.7	14.4	15.3	15.0	14.4	14.0	8.7	5.2	-1.1	-1.1
17	5.9	6.8	6.8	14.2	15.5	14.3	14.9	13.2	13.8	9.5	4.0	-1.2	-1.2
18	5.0	6.5	5.8	12.0	13.4	13.6	14.2	14.5	14.0	8.3	1.9	-3.1	-3.1
19	3.1	6.2	3.8	11.5	9.1	13.2	13.6	14.3	13.4	7.8	0.7	-4.4	-4.4
20	1.8	4.0	2.1	10.8	12.6	14.3	12.9	13.7	11.8	6.8	-2.8	-6.1	-6.1
21	-0.1	2.1	0.6	9.2	11.9	13.9	13.1	12.9	11.3	5.4	-4.2	-7.3	-7.3
22	-2.8	-1.0	-0.4	7.8	10.7	13.5	12.3	13.5	9.3	4.3	-6.1	-7.2	-7.2
23	-7.3	-1.1	-2.1	5.9	10.6	12.7	12.7	12.0	8.7	1.6	-8.0	-9.0	-9.0
Mín.	-12.4	-7.0	-7.7	-2.9	2.2	6.6	7.4	7.1	3.3	-3.8	-12.5	-12.4	-12.5

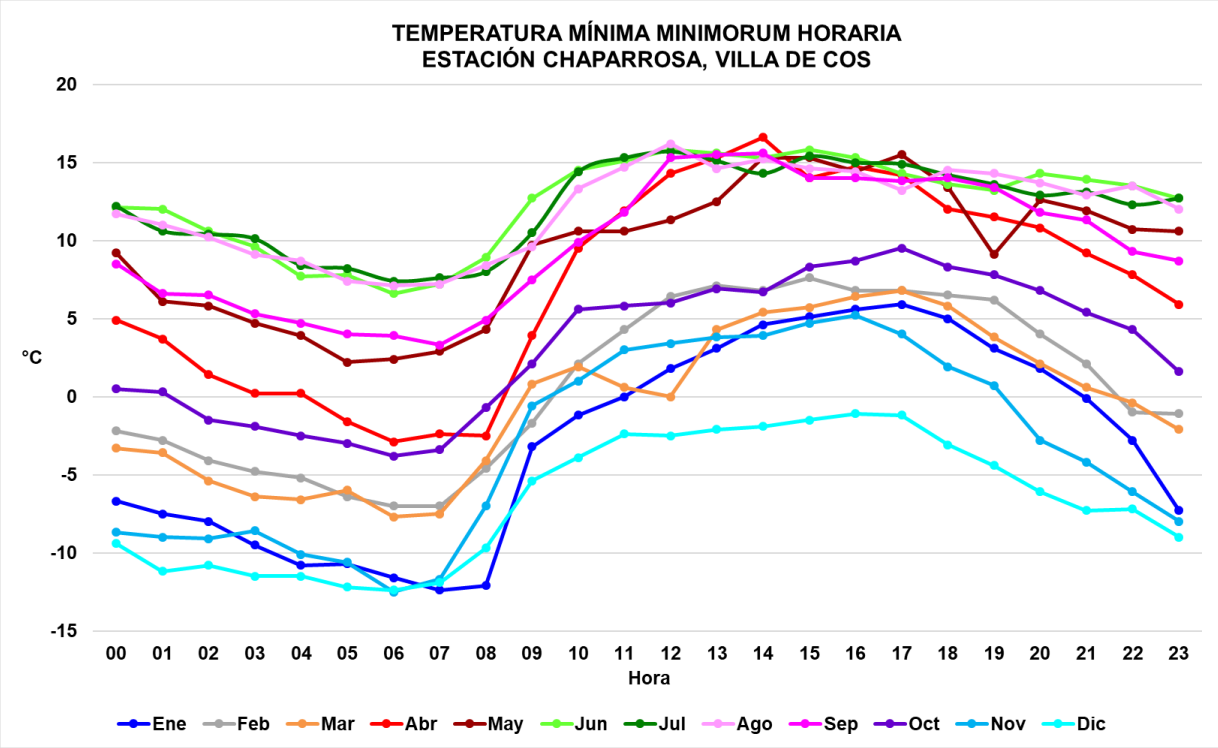


Figura 127. Temperatura mínima minimorum (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 140. Temperatura media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	9.4	11.7	15.3	17.9	18.4	17.0	17.1	15.7	13.4	9.1	7.0	13.3
01	6.1	8.3	10.6	14.2	16.9	17.5	16.4	16.5	15.2	12.5	8.2	6.0	12.4
02	5.3	7.4	9.7	13.1	15.9	16.8	15.7	15.8	14.7	11.8	7.3	5.3	11.6
03	4.5	6.5	8.7	12.1	14.9	16.0	15.2	15.1	14.2	11.0	6.5	4.5	10.8
04	3.8	5.7	7.7	11.2	14.0	15.4	14.6	14.5	13.7	10.4	5.8	3.8	10.0
05	3.2	4.9	6.8	10.2	13.1	14.7	14.0	14.0	13.3	9.8	5.1	3.2	9.4
06	2.6	4.2	6.1	9.3	12.3	14.1	13.6	13.4	12.9	9.2	4.6	2.7	8.7
07	2.3	4.2	6.9	9.4	12.4	14.2	13.6	13.2	12.7	9.1	5.3	2.8	8.9
08	4.9	7.7	11.4	12.6	15.3	16.2	15.2	14.9	14.0	11.1	9.6	6.0	11.6
09	9.5	12.3	15.7	16.9	18.8	18.7	17.4	17.4	16.3	14.7	13.8	10.8	15.2
10	13.1	15.8	18.8	20.1	21.7	20.9	19.4	19.5	18.5	17.7	17.0	14.4	18.1
11	15.8	18.3	21.1	22.6	24.0	22.8	21.1	21.4	20.3	20.1	19.2	17.0	20.3
12	17.7	20.1	22.8	24.5	25.9	24.5	22.6	23.0	21.8	21.9	20.8	18.8	22.0
13	19.0	21.4	24.0	25.9	27.2	25.8	23.9	24.2	22.9	23.1	21.9	20.0	23.3
14	19.8	22.3	24.8	26.9	28.3	26.8	24.8	25.2	23.7	24.0	22.4	20.8	24.2
15	20.2	22.6	25.1	27.4	28.9	27.4	25.3	25.8	24.1	24.4	22.5	21.0	24.6
16	19.9	22.5	24.9	27.5	29.0	27.6	25.4	25.9	24.2	24.4	22.0	20.6	24.5
17	18.9	21.7	24.1	27.2	28.7	27.3	25.1	25.6	23.7	23.7	20.4	19.0	23.8
18	16.2	19.5	22.3	26.3	27.9	26.6	24.4	24.7	22.6	21.9	16.8	15.6	22.1
19	13.2	16.3	19.2	24.3	26.5	25.4	23.1	23.1	20.7	19.1	14.4	13.0	19.9
20	11.4	14.1	16.7	21.5	23.9	23.4	21.3	21.1	18.8	16.9	13.0	11.4	17.8
21	10.2	12.7	15.1	19.2	21.6	21.6	19.5	19.5	17.6	15.7	12.0	10.2	16.2
22	9.1	11.6	14.0	17.7	20.1	20.3	18.5	18.6	16.8	14.9	11.1	9.1	15.1
23	8.0	10.6	12.9	16.7	19.0	19.2	17.7	17.8	16.3	14.2	10.1	8.0	14.2
Media	10.9	13.3	15.9	18.8	21.0	20.9	19.4	19.5	18.1	16.5	13.3	11.3	16.6

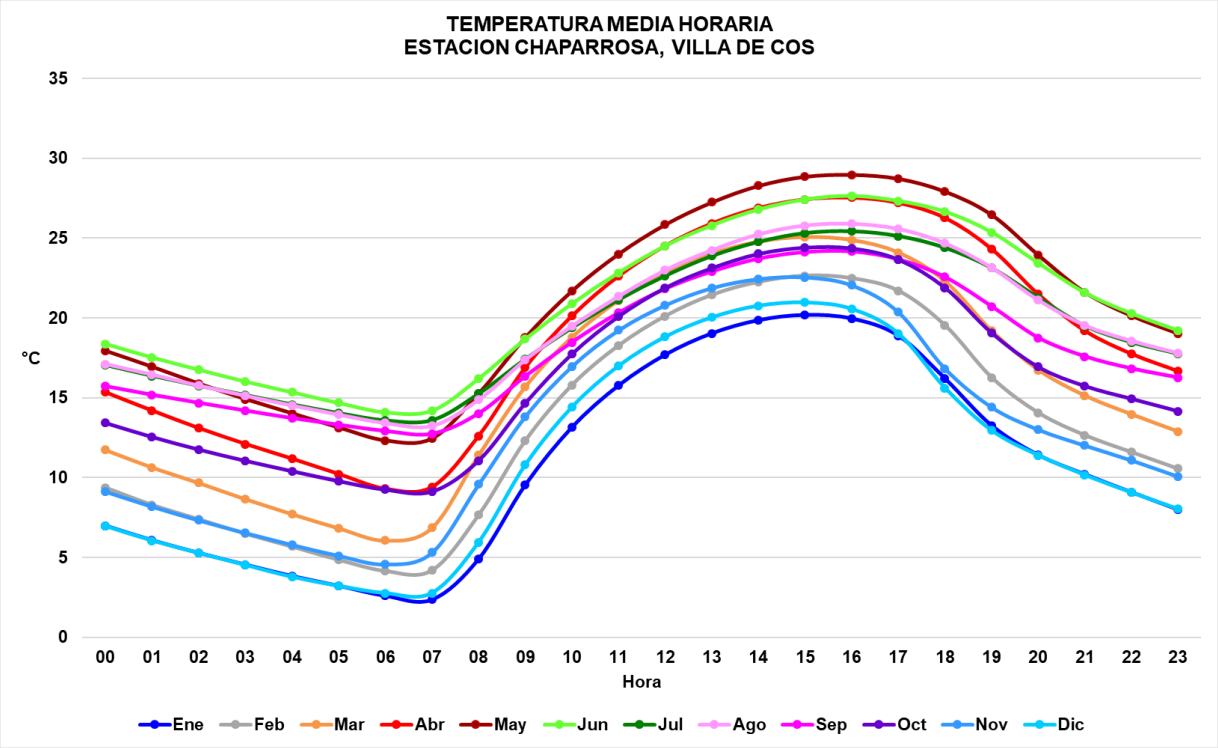


Figura 128. Temperatura media (˚C) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 141. Precipitación media (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.6	0.3	0.1	0.5	7.0	6.3	3.9	7.1	0.7	0.2	0.5	27.5
01	0.5	0.4	0.1	0.0	0.6	4.2	2.6	2.5	4.7	0.8	0.6	0.2	17.1
02	0.5	0.5	0.1	0.0	0.5	2.3	2.4	3.7	3.8	0.6	0.3	0.8	15.5
03	0.3	0.5	0.1	0.0	0.7	1.8	4.3	1.7	4.8	1.0	0.3	0.9	16.4
04	0.4	0.5	0.0	0.0	0.8	1.4	3.3	1.7	2.6	0.4	0.4	0.6	12.1
05	0.5	0.6	0.1	0.0	0.4	1.9	1.3	0.9	1.2	0.7	0.2	0.3	8.0
06	0.4	0.4	0.1	0.0	0.2	1.1	1.4	0.9	1.3	0.3	0.1	0.3	6.4
07	0.3	0.1	0.0	0.0	0.0	1.0	1.2	0.6	1.7	0.1	0.1	0.3	5.5
08	0.3	0.3	0.1	0.0	0.0	0.4	0.9	0.6	1.0	0.1	0.2	0.2	4.0
09	0.2	0.5	0.1	0.0	0.1	0.1	1.0	0.9	0.3	1.3	0.1	0.3	4.7
10	0.2	0.2	0.1	0.0	0.0	0.0	1.0	0.4	0.3	0.1	0.1	0.5	2.9
11	0.2	0.3	0.0	0.0	0.0	0.2	1.2	0.4	1.4	0.1	0.2	0.2	4.3
12	0.4	0.4	0.2	0.0	0.4	0.1	1.1	0.3	0.5	0.1	0.2	0.2	4.0
13	0.2	0.6	0.2	0.0	0.5	0.2	2.0	1.0	1.5	0.4	0.3	0.3	7.2
14	0.1	0.5	0.1	0.0	0.3	1.1	2.6	1.0	1.6	0.3	1.2	0.5	9.3
15	0.6	0.7	0.5	0.3	0.4	1.5	2.8	2.5	3.8	1.2	1.1	0.4	15.8
16	0.3	0.9	0.7	0.2	0.7	1.8	4.6	4.2	3.4	2.1	1.4	0.4	20.6
17	1.1	0.6	0.8	0.1	0.7	3.4	3.2	3.9	7.3	2.5	0.5	0.9	24.8
18	1.4	0.6	0.3	0.1	2.2	4.1	4.9	4.8	5.0	3.7	0.5	0.7	28.3
19	0.4	0.7	0.7	0.4	1.3	4.3	6.4	7.8	6.2	2.2	0.7	0.8	31.8
20	0.4	0.6	1.0	0.2	1.0	3.0	9.6	7.0	6.4	2.1	0.9	0.2	32.3
21	0.4	0.6	0.9	0.3	1.7	5.4	9.2	5.2	10.7	1.7	0.7	0.2	37.1
22	0.3	0.6	0.7	0.5	1.7	7.8	7.2	4.4	9.0	2.0	0.5	0.2	34.8
23	0.4	0.4	0.4	0.1	1.5	8.7	5.7	3.8	7.0	1.1	0.6	0.3	30.0
Suma	10.2	12.2	7.6	2.4	16.0	62.8	86.3	63.9	92.3	25.5	11.6	10.1	400.7

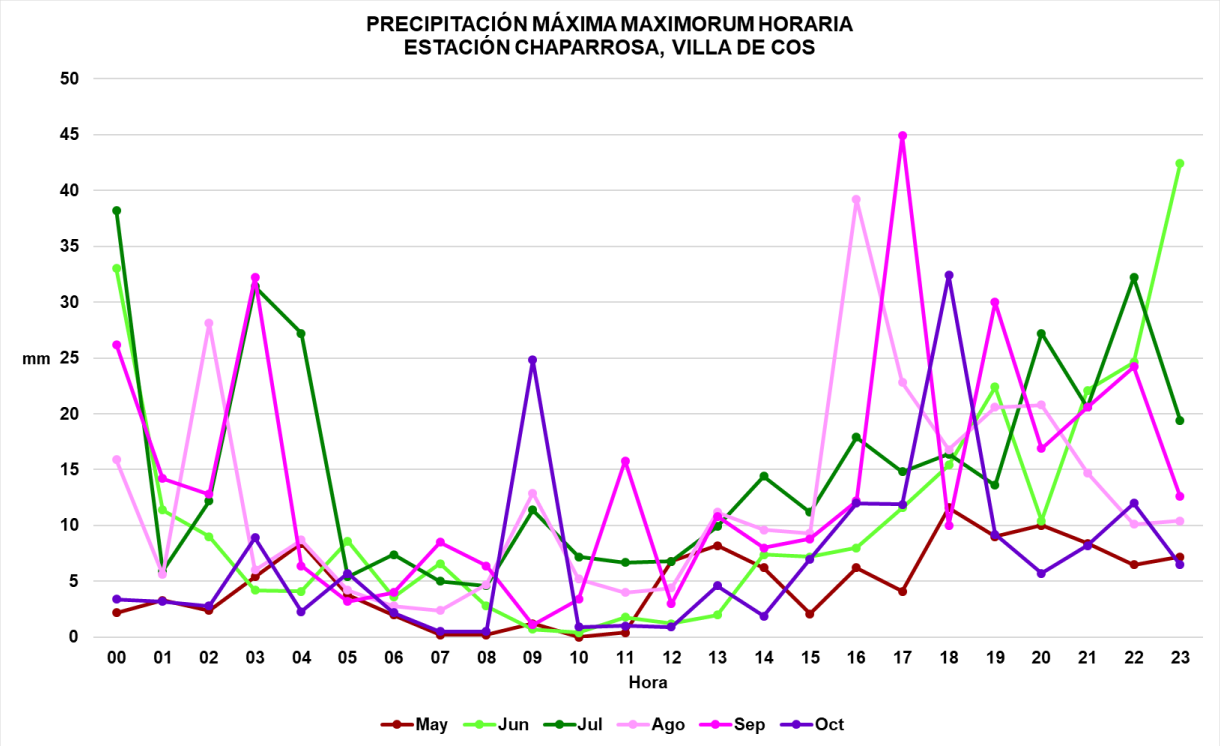


Figura 129. Precipitación media (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 142. Precipitación máxima maximorum (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.4	2.2	2.9	1.1	2.2	33.0	38.2	15.9	26.2	3.4	1.3	3.2	38.2
01	2.8	2.0	2.4	0.1	3.3	11.4	5.9	5.6	14.2	3.2	7.0	0.6	14.2
02	3.1	3.2	0.9	0.1	2.4	9.0	12.2	28.1	12.8	2.8	1.0	6.8	28.1
03	2.2	1.8	1.4	0.0	5.4	4.2	31.4	6.0	32.2	8.9	1.8	10.6	32.2
04	4.0	2.4	0.1	0.0	8.4	4.1	27.2	8.7	6.4	2.3	7.3	5.3	27.2
05	3.6	3.2	2.2	0.2	3.8	8.6	5.4	4.2	3.2	5.7	1.4	2.5	8.6
06	2.8	1.8	1.5	0.2	2.0	3.6	7.4	2.8	4.0	2.2	0.6	2.7	7.4
07	2.0	0.8	0.1	0.1	0.2	6.6	5.0	2.4	8.5	0.5	0.5	2.2	8.5
08	2.0	2.2	0.4	0.0	0.2	2.8	4.6	4.7	6.4	0.5	2.3	2.5	6.4
09	1.4	3.2	0.6	0.0	1.2	0.7	11.4	12.9	1.1	24.8	1.1	1.5	24.8
10	2.2	2.2	1.0	0.0	0.0	0.4	7.2	5.2	3.4	0.9	1.6	3.6	7.2
11	1.2	3.6	0.6	0.0	0.4	1.8	6.7	4.0	15.8	1.0	1.5	1.4	15.8
12	6.4	2.6	2.2	0.0	6.8	1.2	6.8	4.4	3.0	0.9	2.5	1.9	6.8
13	1.7	2.6	1.4	0.0	8.2	2.0	9.9	11.2	10.8	4.6	2.2	2.7	11.2
14	2.4	2.8	1.0	0.3	6.2	7.4	14.4	9.6	8.0	1.9	6.6	3.6	14.4
15	9.1	3.6	3.8	4.3	2.1	7.2	11.2	9.3	8.8	7.0	5.0	3.9	11.2
16	2.1	3.2	6.3	4.8	6.2	8.0	17.9	39.2	12.2	12.0	17.3	3.5	39.2
17	8.6	1.8	13.5	1.1	4.1	11.6	14.8	22.8	44.9	11.9	2.3	6.8	44.9
18	11.3	4.4	2.0	1.0	11.6	15.4	16.4	16.8	10.0	32.4	3.6	4.1	32.4
19	1.8	3.0	6.7	3.5	9.0	22.4	13.6	20.6	30.0	9.2	3.8	9.4	30.0
20	2.2	4.2	7.1	2.0	10.0	10.4	27.2	20.8	16.9	5.7	4.4	1.6	27.2
21	3.4	4.0	13.2	1.8	8.4	22.1	20.6	14.7	20.6	8.2	5.2	1.4	22.1
22	2.6	4.2	5.2	2.9	6.5	24.6	32.2	10.1	24.2	12.0	2.2	1.8	32.2
23	4.6	2.6	3.6	1.2	7.2	42.4	19.4	10.4	12.6	6.5	3.0	2.0	42.4
Máx.	11.3	4.4	13.5	4.8	11.6	42.4	38.2	39.2	44.9	32.4	17.3	10.6	44.9

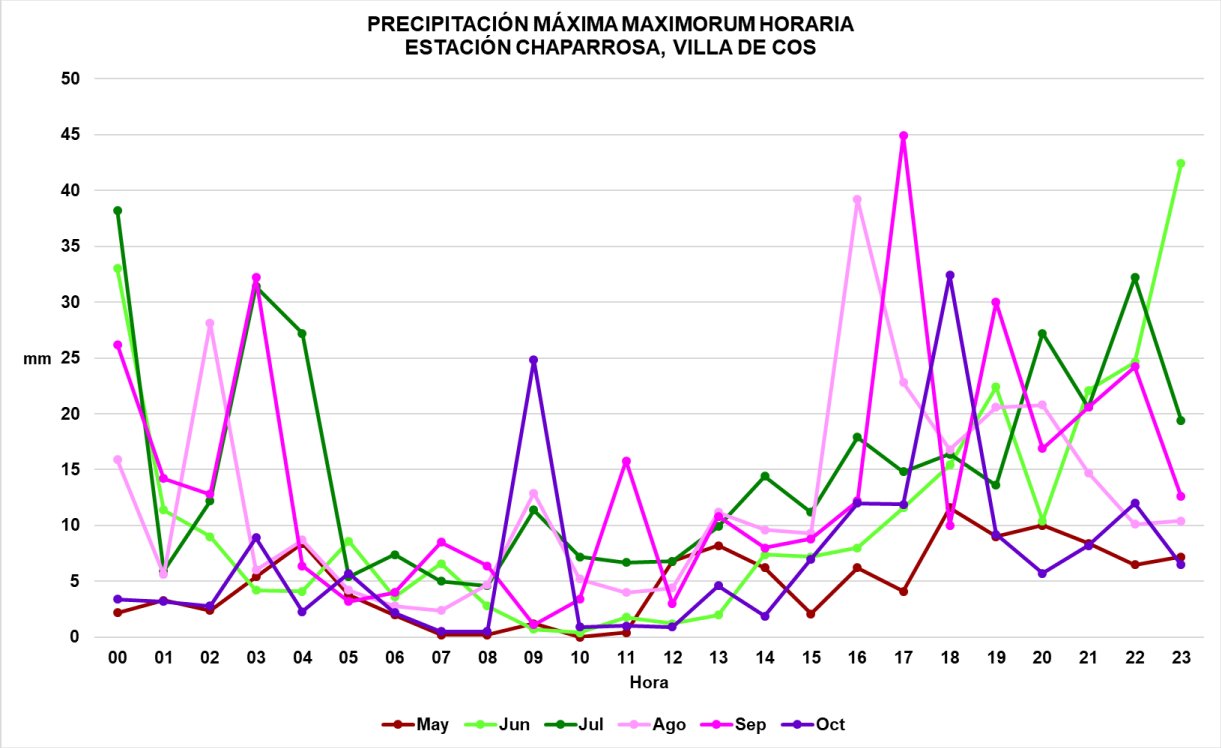


Figura 130. Precipitación máxima maximorum (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 143. Evapotranspiración potencial media (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.06	0.07	0.05	0.03	0.03	0.01	0.01	0.01	0.01	0.03
01	0.01	0.01	0.02	0.04	0.05	0.04	0.02	0.02	0.00	0.01	0.00	0.01	0.02
02	0.00	0.01	0.02	0.03	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08	0.02	0.04	0.09	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.05	0.03	0.04
09	0.10	0.15	0.23	0.19	0.20	0.18	0.14	0.14	0.11	0.11	0.16	0.12	0.15
10	0.22	0.28	0.39	0.35	0.36	0.33	0.27	0.28	0.24	0.25	0.29	0.24	0.29
11	0.33	0.42	0.53	0.51	0.52	0.47	0.40	0.43	0.37	0.39	0.41	0.36	0.43
12	0.43	0.52	0.63	0.64	0.65	0.58	0.52	0.54	0.48	0.50	0.49	0.44	0.53
13	0.48	0.57	0.67	0.72	0.73	0.66	0.60	0.62	0.55	0.56	0.51	0.48	0.60
14	0.48	0.57	0.66	0.74	0.76	0.68	0.63	0.64	0.57	0.58	0.48	0.47	0.61
15	0.44	0.52	0.60	0.71	0.72	0.67	0.61	0.64	0.54	0.55	0.42	0.41	0.57
16	0.35	0.43	0.50	0.64	0.65	0.60	0.56	0.57	0.48	0.46	0.32	0.32	0.49
17	0.24	0.32	0.36	0.53	0.52	0.50	0.47	0.46	0.38	0.35	0.18	0.19	0.38
18	0.13	0.17	0.22	0.39	0.39	0.38	0.35	0.34	0.25	0.23	0.09	0.11	0.25
19	0.06	0.10	0.13	0.31	0.28	0.24	0.22	0.24	0.16	0.11	0.03	0.04	0.16
20	0.03	0.05	0.08	0.17	0.18	0.18	0.16	0.13	0.05	0.03	0.02	0.02	0.09
21	0.02	0.04	0.06	0.10	0.10	0.10	0.07	0.06	0.02	0.02	0.02	0.02	0.05
22	0.02	0.03	0.05	0.08	0.08	0.07	0.05	0.04	0.01	0.02	0.02	0.02	0.04
23	0.01	0.03	0.05	0.07	0.08	0.06	0.04	0.03	0.01	0.02	0.01	0.01	0.03
Media/día /mes	3.41	4.30	5.34	6.43	6.51	5.91	5.21	5.25	4.24	4.22	3.53	3.34	4.81

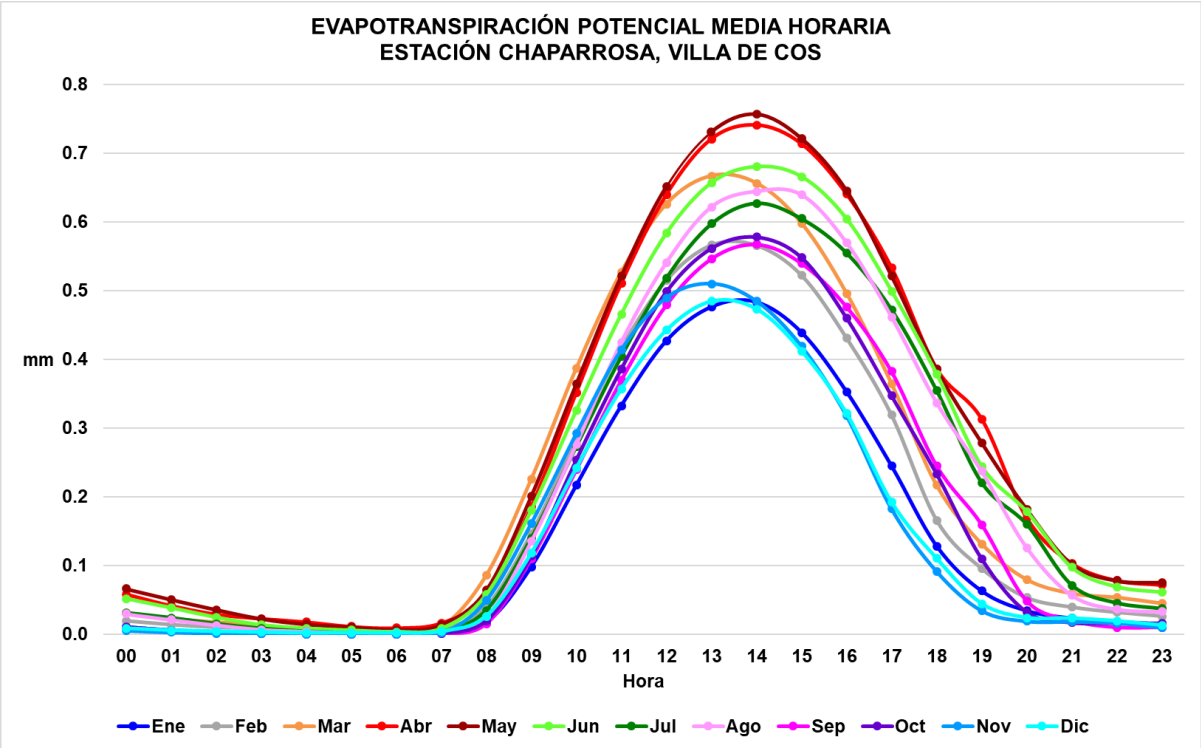


Figura 131. Evapotranspiración potencial media (mm) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 144. Humedad relativa media (%) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	60.2	51.8	44.1	37.7	47.3	64.8	75.1	75.0	83.4	75.7	71.5	62.3	62.4
01	63.3	55.2	47.9	42.0	51.6	69.1	78.3	78.4	85.8	79.2	74.8	65.5	65.9
02	66.1	58.2	51.3	46.0	55.7	72.6	80.9	81.3	87.8	82.3	77.7	68.3	69.0
03	68.6	61.5	54.6	49.4	59.5	75.6	83.2	83.8	89.5	84.9	80.4	71.0	71.8
04	71.0	64.2	57.6	52.7	62.6	78.3	85.5	86.2	91.0	87.0	82.7	73.4	74.4
05	72.9	66.9	60.3	55.6	65.7	80.6	87.6	88.1	92.1	88.7	84.4	75.2	76.5
06	74.7	69.1	62.4	58.2	68.4	82.4	89.3	89.8	93.0	90.2	85.9	76.9	78.4
07	75.6	69.4	61.2	58.1	68.1	82.2	89.6	90.6	93.5	90.6	84.3	77.2	78.4
08	70.1	61.3	51.6	51.3	60.7	75.8	84.7	86.3	91.1	86.2	73.6	69.4	71.8
09	59.1	49.7	40.9	41.4	49.8	66.5	75.5	76.5	82.5	75.1	60.9	57.2	61.3
10	48.9	39.9	32.2	32.4	39.6	57.0	66.7	66.8	72.5	63.1	49.8	46.8	51.3
11	40.4	32.7	25.8	25.0	31.6	48.7	58.7	58.2	64.1	53.6	41.2	38.5	43.2
12	34.0	27.5	21.6	20.2	25.8	41.8	52.1	51.0	57.3	46.1	35.4	32.5	37.1
13	29.7	24.1	18.8	17.3	21.8	36.7	46.8	45.5	52.4	40.9	31.5	28.4	32.8
14	27.1	22.2	17.1	15.5	19.0	32.7	43.0	41.4	48.8	37.2	29.4	25.9	29.9
15	25.8	21.1	16.3	14.7	17.6	30.6	40.9	39.1	47.1	35.4	28.7	24.9	28.5
16	26.1	21.1	16.4	14.3	17.2	29.7	40.4	38.5	46.6	35.0	29.4	25.3	28.3
17	28.1	22.3	17.4	14.5	17.6	30.6	41.3	39.4	48.3	37.0	33.4	28.3	29.8
18	33.4	25.6	19.8	15.5	19.3	32.4	43.8	42.5	52.7	42.6	41.8	35.0	33.7
19	39.8	30.8	24.3	17.9	22.0	36.1	48.0	47.9	60.5	51.7	48.6	41.1	39.1
20	45.1	35.4	28.8	21.7	26.8	42.1	55.2	55.7	69.2	59.2	54.1	45.8	44.9
21	49.1	39.5	33.2	25.9	32.2	48.7	62.5	62.3	74.3	64.1	58.7	50.4	50.1
22	53.0	43.6	36.8	29.4	37.4	54.5	67.4	66.9	77.7	67.7	63.4	54.7	54.4
23	56.6	47.7	40.4	33.2	42.9	60.3	71.3	71.4	80.2	71.5	67.7	58.3	58.4
Media	50.8	43.4	36.7	32.9	40.0	55.4	65.3	65.1	72.6	64.4	57.9	51.3	53.0

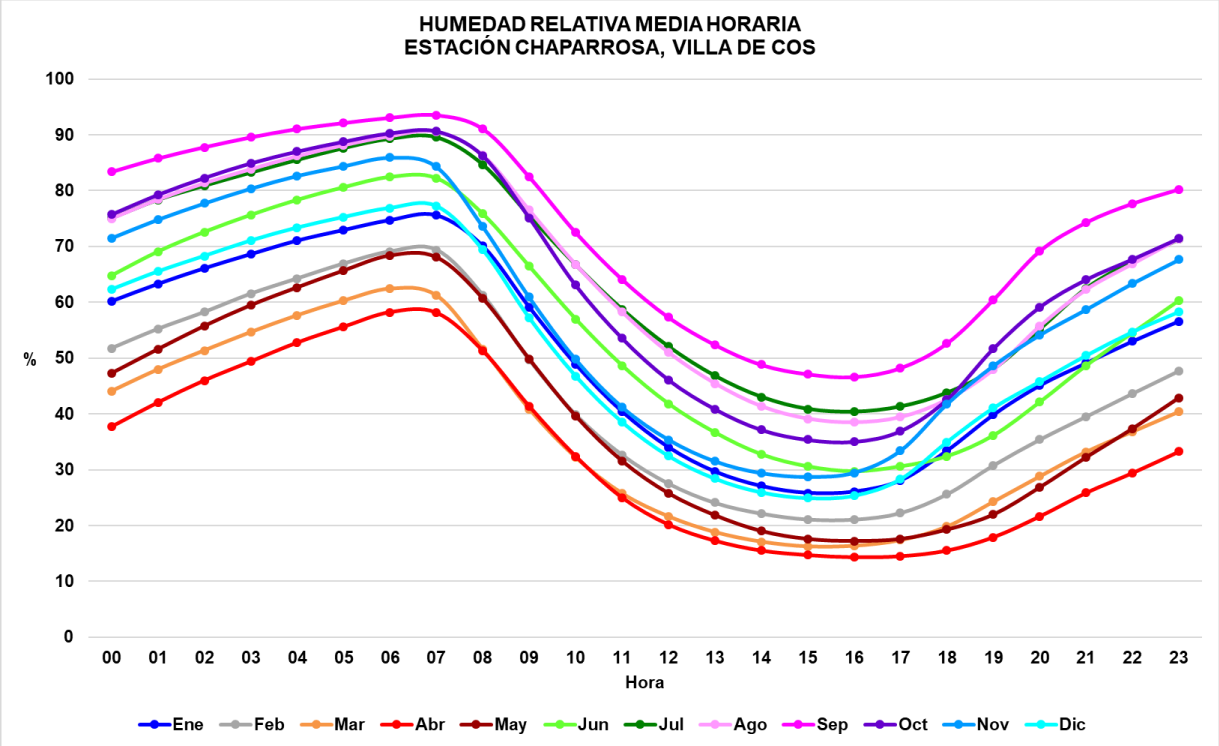


Figura 132. Humedad relativa media (%) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 145. Humedad relativa mínima minimorum (%) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	13.0	9.0	9.8	11.0	12.0	25.0	34.0	41.0	28.0	25.0	19.0	9.0
01	17.0	15.0	10.0	10.0	12.0	14.0	32.0	35.0	45.0	32.0	30.0	18.0	10.0
02	17.0	13.0	10.0	10.0	13.0	13.0	35.0	38.0	51.0	31.0	30.0	19.0	10.0
03	19.0	15.0	12.0	12.0	13.0	17.0	40.0	40.0	58.0	36.0	38.0	21.0	12.0
04	20.0	16.3	13.0	13.0	16.0	19.0	44.0	44.0	61.0	38.0	37.0	22.0	13.0
05	22.0	17.0	13.9	14.0	19.0	27.0	43.0	52.0	63.0	48.0	34.0	19.0	13.9
06	23.0	15.0	11.3	14.7	18.0	25.0	41.0	51.0	66.0	45.0	41.0	11.0	11.0
07	28.0	19.0	11.7	11.6	18.0	37.0	49.0	58.0	68.0	42.0	39.0	9.0	9.0
08	14.0	11.7	8.3	9.7	11.5	28.0	45.0	50.0	59.0	30.0	26.0	11.0	8.3
09	12.0	9.6	6.8	8.4	10.9	21.0	30.0	41.0	42.0	21.2	15.0	11.0	6.8
10	9.0	7.0	5.0	6.8	7.5	11.0	23.0	33.0	32.0	13.0	11.0	9.6	5.0
11	8.0	6.0	4.0	4.9	5.0	8.0	20.0	25.4	25.0	10.4	7.0	8.0	4.0
12	4.0	5.0	4.0	4.2	5.0	6.0	15.0	21.0	18.2	9.5	5.0	6.0	4.0
13	4.0	4.0	4.0	4.3	5.0	5.0	12.0	19.0	16.2	9.0	3.0	5.0	3.0
14	3.0	4.0	3.6	2.0	4.5	5.0	11.0	17.0	14.7	8.6	4.0	3.0	2.0
15	4.0	5.0	3.0	4.0	4.0	4.0	10.0	15.0	13.7	8.6	5.0	3.0	3.0
16	4.0	4.0	2.0	3.5	4.0	4.0	10.0	14.0	13.9	6.8	3.0	3.0	2.0
17	4.0	5.0	2.0	3.0	4.0	4.0	10.0	13.0	14.9	7.8	5.0	3.0	2.0
18	5.0	6.0	3.0	3.0	4.0	3.0	11.0	14.0	14.0	9.0	8.0	6.0	3.0
19	7.0	7.5	5.0	4.0	5.0	4.0	12.0	14.0	16.0	12.0	11.0	8.0	4.0
20	9.0	9.8	7.0	5.0	6.0	5.0	14.0	15.0	27.0	13.0	12.0	10.0	5.0
21	9.0	10.0	7.0	6.0	8.0	10.0	17.0	19.0	30.0	22.0	17.0	10.0	6.0
22	11.0	11.0	9.0	7.0	9.0	11.0	21.0	24.0	36.0	23.0	17.0	12.0	7.0
23	12.0	11.0	9.0	9.0	10.0	12.0	21.0	31.0	34.0	25.0	20.0	15.0	9.0
Mín.	3.0	4.0	2.0	2.0	4.0	3.0	10.0	13.0	13.7	6.8	3.0	3.0	2.0

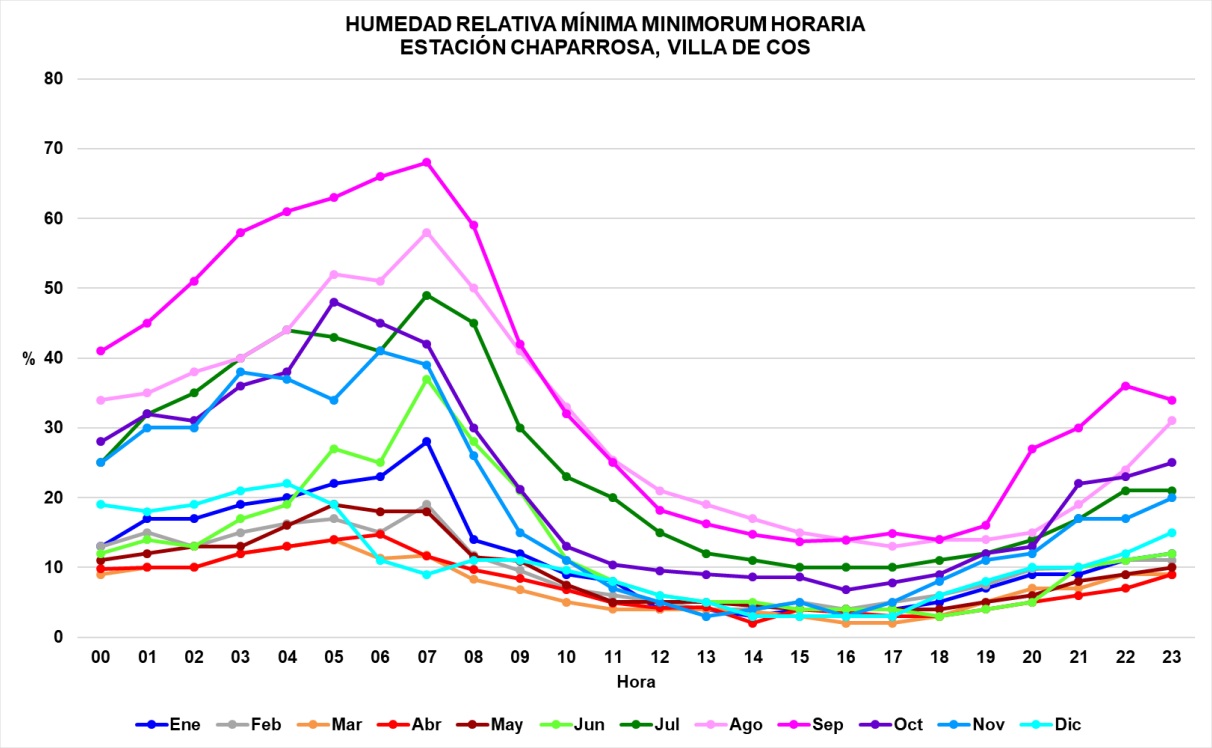


Figura 133. Humedad relativa mínima minimorum (%) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 146. Radiación solar global media horaria (W/m²) de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	19	8	9	9	5	2	1	2	8	1	6
07	64	127	328	194	199	189	135	93	63	86	239	107	152
08	547	739	1128	838	840	786	663	593	495	533	944	655	730
09	1298	1573	2015	1725	1690	1583	1429	1382	1223	1310	1728	1409	1530
10	1993	2328	2793	2576	2536	2364	2172	2202	1983	2102	2410	2075	2294
11	2521	2872	3353	3236	3229	2992	2788	2836	2605	2709	2827	2541	2876
12	2801	3178	3581	3643	3659	3415	3227	3292	2980	3064	2947	2743	3211
13	2777	3154	3500	3750	3793	3523	3409	3409	3095	3128	2807	2667	3251
14	2475	2855	3163	3559	3642	3452	3279	3350	2999	2965	2429	2319	3040
15	1956	2356	2576	3114	3205	3087	2981	2991	2667	2508	1842	1777	2588
16	1302	1653	1847	2491	2592	2553	2484	2429	2162	1915	1111	1075	1968
17	579	876	1023	1715	1867	1915	1867	1802	1467	1170	371	383	1253
18	74	193	301	934	1110	1179	1159	1076	737	466	12	18	605
19	0	1	7	282	440	505	519	403	184	60	0	0	200
20	0	0	0	13	53	84	86	44	10	2	0	0	24
21	0	0	0	0	2	4	3	2	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18386	21908	25632	28079	28867	27639	26207	25904	22670	22020	19674	17770	23730

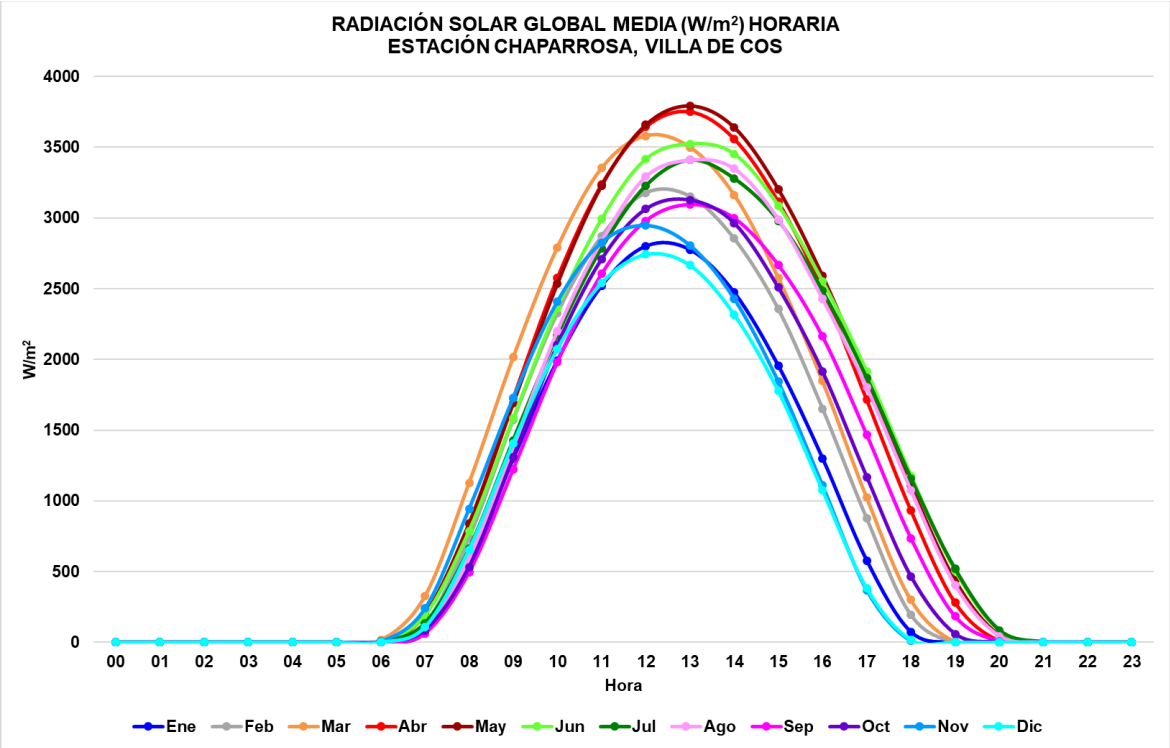


Figura 134. Radiación solar global media horaria (W/m²) de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 147. Radiación solar global media horaria (kWh/m^2) de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.03	0.08	0.05	0.05	0.05	0.03	0.02	0.02	0.02	0.06	0.03	0.04
08	0.14	0.18	0.28	0.21	0.21	0.20	0.17	0.15	0.12	0.13	0.24	0.16	0.18
09	0.32	0.39	0.50	0.43	0.42	0.40	0.36	0.35	0.31	0.33	0.43	0.35	0.38
10	0.50	0.58	0.70	0.64	0.63	0.59	0.54	0.55	0.50	0.53	0.60	0.52	0.57
11	0.63	0.72	0.84	0.81	0.81	0.75	0.70	0.71	0.65	0.68	0.71	0.64	0.72
12	0.70	0.79	0.90	0.91	0.91	0.85	0.81	0.82	0.74	0.77	0.74	0.69	0.80
13	0.69	0.79	0.87	0.94	0.95	0.88	0.85	0.85	0.77	0.78	0.70	0.67	0.81
14	0.62	0.71	0.79	0.89	0.91	0.86	0.82	0.84	0.75	0.74	0.61	0.58	0.76
15	0.49	0.59	0.64	0.78	0.80	0.77	0.75	0.75	0.67	0.63	0.46	0.44	0.65
16	0.33	0.41	0.46	0.62	0.65	0.64	0.62	0.61	0.54	0.48	0.28	0.27	0.49
17	0.14	0.22	0.26	0.43	0.47	0.48	0.47	0.45	0.37	0.29	0.09	0.10	0.31
18	0.02	0.05	0.08	0.23	0.28	0.29	0.29	0.27	0.18	0.12	0.00	0.00	0.15
19	0.00	0.00	0.00	0.07	0.11	0.13	0.13	0.10	0.05	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.60	5.48	6.41	7.02	7.22	6.91	6.55	6.48	5.67	5.50	4.92	4.44	5.93

Cuadro 148. Radiación solar global media horaria (Mj/m^2/s) de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.06	0.11	0.30	0.17	0.18	0.17	0.12	0.08	0.06	0.08	0.22	0.10	0.14
08	0.49	0.66	1.02	0.75	0.76	0.71	0.60	0.53	0.45	0.48	0.85	0.59	0.66
09	1.17	1.42	1.81	1.55	1.52	1.42	1.29	1.24	1.10	1.18	1.56	1.27	1.38
10	1.79	2.09	2.51	2.32	2.28	2.13	1.95	1.98	1.78	1.89	2.17	1.87	2.07
11	2.27	2.59	3.02	2.91	2.91	2.69	2.51	2.55	2.34	2.44	2.54	2.29	2.59
12	2.52	2.86	3.22	3.28	3.29	3.07	2.90	2.96	2.68	2.76	2.65	2.47	2.89
13	2.50	2.84	3.15	3.38	3.41	3.17	3.07	3.07	2.79	2.81	2.53	2.40	2.93
14	2.23	2.57	2.85	3.20	3.28	3.11	2.95	3.01	2.70	2.67	2.19	2.09	2.74
15	1.76	2.12	2.32	2.80	2.88	2.78	2.68	2.69	2.40	2.26	1.66	1.60	2.33
16	1.17	1.49	1.66	2.24	2.33	2.30	2.24	2.19	1.95	1.72	1.00	0.97	1.77
17	0.52	0.79	0.92	1.54	1.68	1.72	1.68	1.62	1.32	1.05	0.33	0.34	1.13
18	0.07	0.17	0.27	0.84	1.00	1.06	1.04	0.97	0.66	0.42	0.01	0.02	0.54
19	0.00	0.00	0.01	0.25	0.40	0.45	0.47	0.36	0.17	0.05	0.00	0.00	0.18
20	0.00	0.00	0.00	0.01	0.05	0.08	0.08	0.04	0.01	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.55	19.72	23.07	25.27	25.98	24.87	23.59	23.31	20.40	19.82	17.71	15.99	21.36

Cuadro 149. Velocidad del viento media (km/h) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.6	6.5	7.5	8.8	10.9	11.9	9.7	8.9	5.6	5.3	4.5	4.8	7.5
01	5.2	6.1	6.9	7.9	9.7	10.1	8.4	7.8	4.7	4.3	4.0	4.4	6.6
02	4.9	5.9	6.4	7.2	8.3	8.5	7.1	6.1	4.0	3.7	3.5	4.1	5.8
03	4.5	5.4	5.4	6.6	7.3	7.3	5.9	5.1	3.5	3.3	3.2	3.7	5.1
04	4.2	5.0	4.8	5.9	6.4	6.1	5.0	4.3	2.9	2.9	2.8	3.6	4.5
05	4.0	4.4	4.4	5.1	5.4	5.2	4.2	3.6	2.6	2.5	2.6	3.5	4.0
06	3.7	4.2	4.2	4.4	4.5	4.6	3.7	3.1	2.3	2.3	2.5	3.3	3.6
07	3.5	4.2	4.2	4.0	4.2	4.4	3.6	2.8	2.2	2.2	2.6	3.2	3.4
08	4.1	5.5	6.5	5.4	5.9	6.5	5.3	4.0	3.1	2.8	4.1	3.9	4.8
09	6.6	8.0	8.7	8.2	7.7	8.4	7.4	6.8	5.7	4.9	6.1	6.1	7.1
10	8.8	9.9	10.3	9.6	8.1	8.4	7.7	7.9	7.4	6.6	7.5	8.2	8.4
11	10.6	11.7	11.6	10.8	8.4	8.1	7.7	8.1	7.7	7.5	8.7	9.8	9.2
12	11.7	13.0	12.9	12.0	9.1	8.4	7.8	8.2	8.0	8.1	9.6	11.1	10.0
13	12.6	14.0	14.0	13.0	9.8	9.2	8.4	8.5	8.2	8.6	10.1	11.8	10.7
14	13.1	14.7	14.8	13.9	10.5	10.0	9.1	9.0	8.5	8.7	10.3	12.1	11.2
15	13.3	15.0	15.1	14.6	11.1	10.7	9.9	9.7	8.7	8.7	10.2	12.2	11.6
16	13.2	14.8	15.3	15.1	11.5	11.4	10.7	10.0	8.9	8.8	9.9	11.7	11.8
17	12.1	14.1	14.9	15.0	11.8	12.2	11.3	10.7	9.2	8.6	8.4	10.0	11.5
18	8.9	11.4	13.0	14.7	12.0	12.6	11.6	10.8	8.7	7.3	6.1	6.9	10.3
19	7.6	8.3	10.1	13.0	11.9	12.7	11.5	10.1	6.9	5.8	6.1	6.5	9.2
20	7.6	7.9	9.7	10.5	10.5	11.9	10.2	8.4	5.6	5.5	6.8	6.9	8.4
21	7.6	8.2	9.8	10.3	10.4	11.4	9.6	8.1	5.6	6.1	7.2	6.9	8.4
22	7.2	8.0	9.5	10.4	11.1	11.9	9.9	8.6	6.1	6.5	6.6	6.3	8.5
23	6.4	7.5	8.6	10.1	11.5	12.3	10.2	9.1	6.2	6.0	5.4	5.5	8.2
Media	7.8	8.9	9.5	9.9	9.1	9.3	8.2	7.5	5.9	5.7	6.2	6.9	7.9

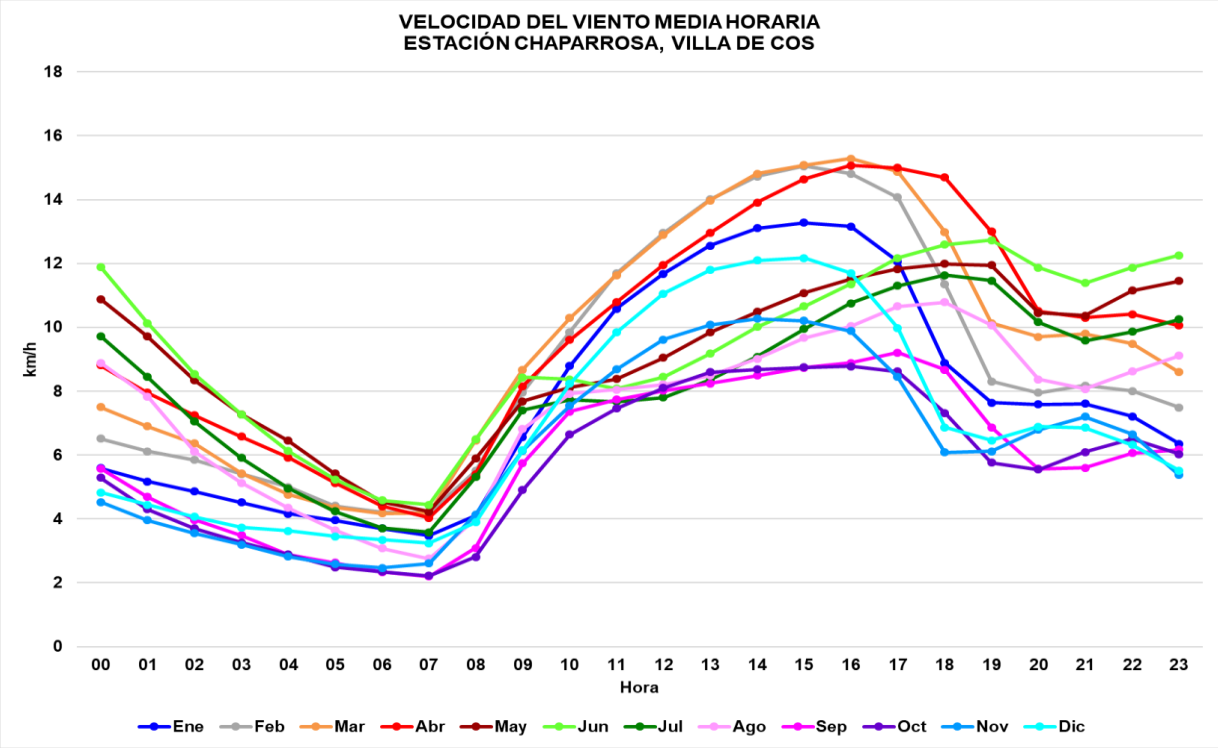


Figura 135. Velocidad del viento media (km/h) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 150. Velocidad del viento máxima maximorum (km/h) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	47.6	34.9	29.9	38.9	36.0	33.2	31.0	31.3	25.2	28.3	25.3	30.9	47.6
01	35.0	32.6	34.3	40.4	44.0	43.2	35.0	30.9	23.0	26.0	24.0	30.0	44.0
02	29.7	36.0	41.0	50.5	35.0	43.3	50.0	27.9	22.0	30.0	27.0	35.0	50.5
03	29.4	34.0	44.0	43.8	31.8	26.5	52.0	22.2	20.9	27.0	30.0	33.0	52.0
04	32.0	29.0	43.0	29.7	30.0	32.0	52.0	29.6	17.2	27.0	23.0	31.0	52.0
05	31.0	31.0	44.0	24.2	27.0	28.0	48.0	27.6	17.6	18.5	21.0	34.0	48.0
06	24.0	33.0	42.0	22.5	26.0	20.0	50.0	21.0	20.5	19.7	27.6	34.9	50.0
07	26.8	39.3	60.0	31.1	25.9	22.0	53.0	23.0	19.4	20.0	29.6	37.0	60.0
08	29.8	40.0	58.0	38.1	26.0	26.0	48.0	24.0	18.1	20.6	31.0	40.0	58.0
09	36.0	45.0	63.0	47.2	38.0	27.0	44.0	30.3	22.1	22.3	33.0	41.1	63.0
10	41.0	46.0	61.0	56.1	38.0	29.4	36.0	30.0	22.6	22.4	34.0	43.0	61.0
11	47.0	53.0	63.0	47.1	34.0	29.8	37.0	29.0	25.1	27.6	37.4	55.3	63.0
12	52.0	47.0	55.0	58.4	36.9	28.6	38.0	25.4	25.9	31.4	36.9	49.7	58.4
13	63.5	48.6	56.0	53.1	33.5	30.4	37.0	28.0	27.4	30.3	37.0	52.9	63.5
14	50.0	52.5	46.0	49.2	37.2	33.7	43.0	33.0	26.8	25.9	38.5	51.4	52.5
15	44.0	54.2	44.0	58.0	36.1	36.0	41.0	33.0	31.7	26.3	46.3	49.0	58.0
16	49.8	52.1	46.7	55.5	40.1	34.0	44.0	31.2	27.9	27.6	41.0	49.0	55.5
17	54.0	46.4	42.6	45.5	45.6	38.8	40.0	36.0	29.5	29.0	32.0	45.0	54.0
18	38.0	38.5	46.0	43.0	44.2	40.0	35.0	33.7	27.6	30.9	31.0	39.0	46.0
19	34.0	32.6	47.3	46.7	38.0	38.0	34.0	31.5	31.0	33.0	28.0	35.0	47.3
20	38.0	35.8	40.8	69.5	46.0	41.0	32.7	35.4	27.0	24.0	32.0	32.0	69.5
21	39.0	32.0	38.0	44.2	45.0	42.0	35.4	33.6	29.0	26.3	28.3	31.1	45.0
22	37.3	32.0	35.0	38.0	40.0	41.0	32.0	28.5	28.6	27.6	32.0	39.7	41.0
23	41.7	33.0	33.0	36.0	36.0	37.0	30.0	31.5	22.2	27.1	29.2	36.2	41.7
Máx.	63.5	54.2	63.0	69.5	46.0	43.3	53.0	36.0	31.7	33.0	46.3	55.3	69.5

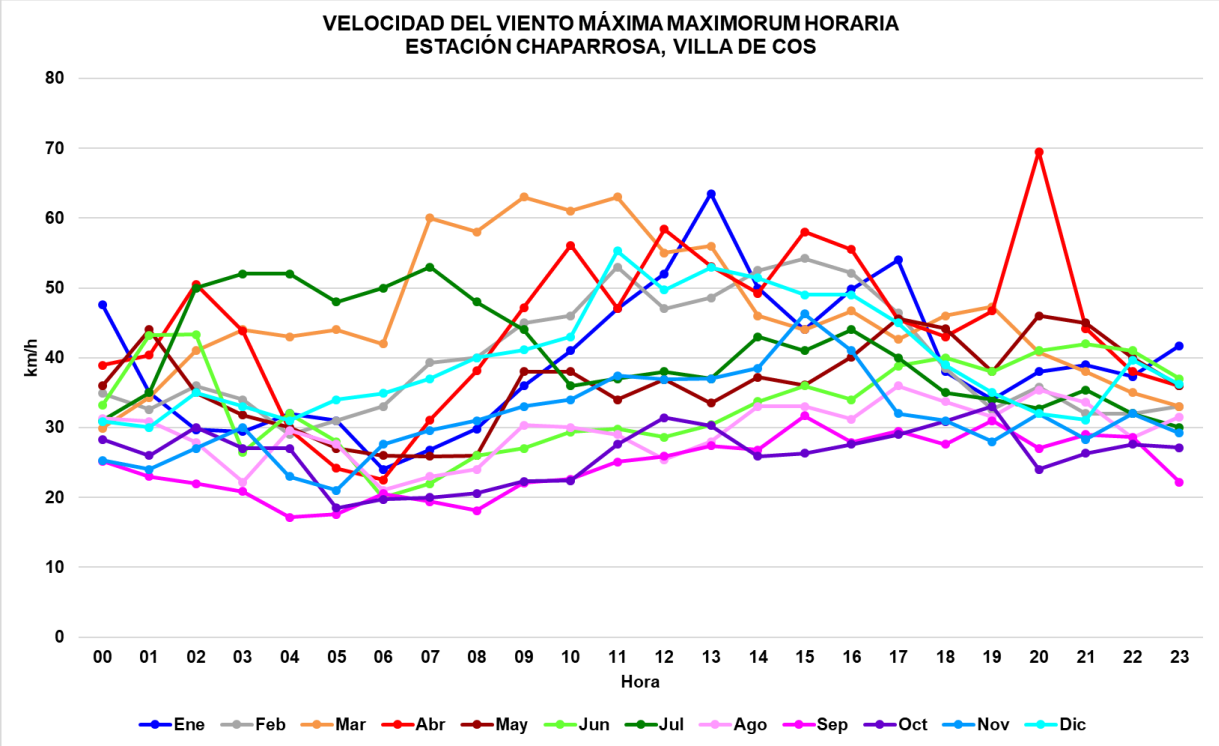


Figura 136. Velocidad del viento máxima maximorum (km/h) horaria de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 151. Frecuencia de velocidad del viento (%) mensual de la estación Chaparrosa, Villa de Cos (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	45.6	39.0	33.0	28.6	28.6	25.0	32.3	36.6	48.4	52.2	51.5	49.4	39.2
5.1 a 10.0	25.6	26.2	30.3	31.4	35.0	34.7	35.6	35.3	33.7	31.1	27.6	26.5	31.2
10.1 a 15.0	13.7	16.5	16.8	19.3	20.1	24.2	21.0	20.3	15.1	12.5	13.2	12.5	17.1
15.1 a 20.0	8.5	9.6	9.6	11.6	10.1	11.2	8.7	6.3	2.6	3.7	5.8	6.7	7.8
20.1 a 25.0	4.1	4.6	5.3	5.7	4.2	3.9	1.9	1.4	0.2	0.4	1.5	3.2	3.0
25.1 a 30.0	1.7	2.5	2.8	2.3	1.5	0.8	0.3	0.2	0.0	0.1	0.3	1.0	1.1
30.1 a 35.0	0.6	1.2	1.4	0.8	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.4	0.4
35.1 a 40.0	0.2	0.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
40.1 a 45.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

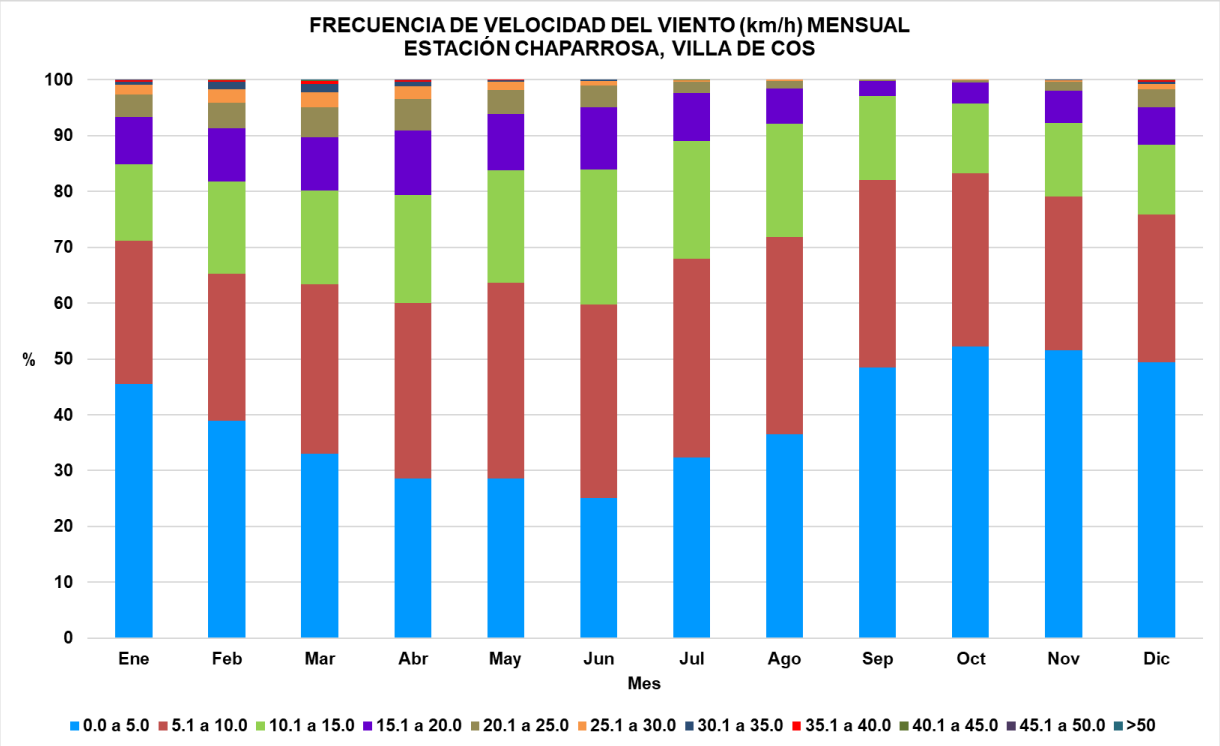


Figura 137. Frecuencia de velocidad del viento (%) mensual de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 152. Frecuencia de dirección del viento (%) mensual de la estación Chaparrosa, Villa de Cos (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.4	5.5	4.8	5.0	5.5	6.5	5.2	5.4	7.7	7.0	6.6	6.3	6.0
NNE	3.3	2.9	3.0	2.6	3.8	5.4	4.6	5.1	5.8	4.5	3.6	2.9	4.0
NE	3.2	2.8	2.7	2.8	4.1	6.3	6.4	6.4	6.8	5.2	3.7	2.8	4.5
ENE	4.0	3.9	3.8	3.6	5.1	9.0	10.3	10.5	9.8	7.8	5.4	3.9	6.5
E	7.5	6.3	6.7	5.9	8.2	15.5	18.2	18.0	15.4	12.7	10.0	6.7	11.0
ESE	9.8	8.2	9.5	8.4	11.5	17.6	18.5	18.7	15.7	14.0	12.7	8.7	12.9
SE	7.3	5.9	6.7	6.2	8.2	10.4	10.5	10.6	9.3	9.2	8.7	6.9	8.4
SSE	6.7	6.1	5.5	4.9	5.6	6.0	6.1	5.9	5.5	6.6	6.9	7.5	6.1
S	9.6	10.0	8.1	8.0	7.5	5.2	5.0	4.5	4.6	6.8	8.6	11.3	7.4
SSO	11.2	13.4	11.4	11.9	8.5	3.7	3.4	3.2	3.7	5.8	8.7	12.8	8.0
SO	9.6	12.5	11.7	12.7	7.8	2.5	2.4	2.3	2.8	4.5	6.9	9.6	7.0
OSO	6.7	8.3	9.3	10.0	6.8	2.2	2.0	1.9	2.4	3.6	5.2	6.6	5.3
O	3.8	4.1	5.0	5.7	4.8	2.0	1.8	1.7	2.2	2.7	3.1	3.5	3.3
ONO	3.3	3.4	4.1	4.5	4.3	2.2	1.8	1.7	2.2	2.7	2.8	3.2	3.0
NO	3.4	3.1	3.6	3.9	4.1	2.3	1.9	1.8	2.5	3.0	3.1	3.3	3.0
NNO	4.2	3.6	4.0	4.0	4.3	3.3	2.2	2.4	3.8	3.9	4.2	4.0	3.6
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

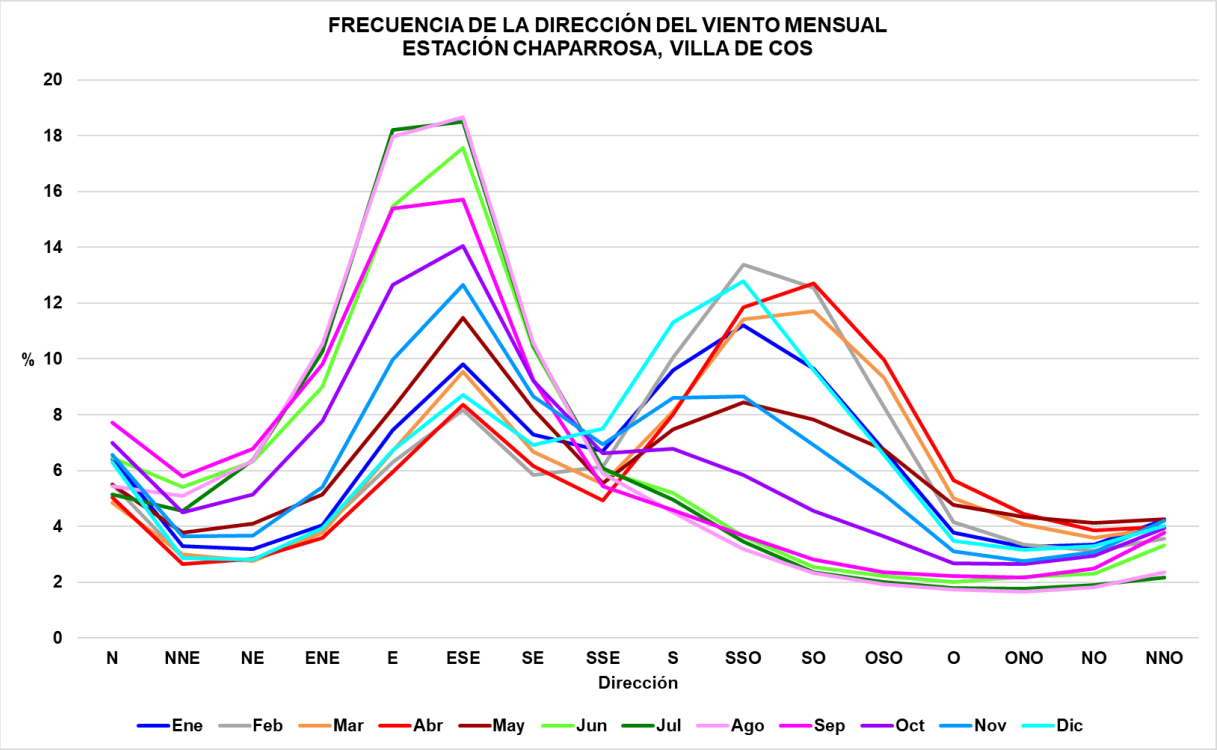
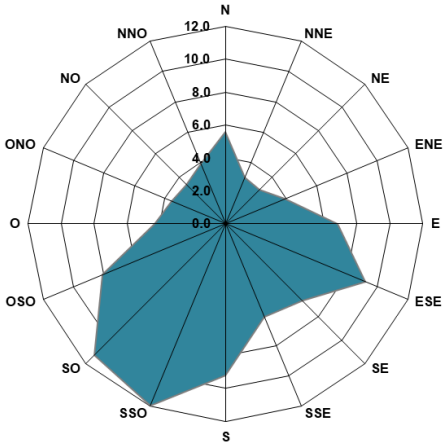


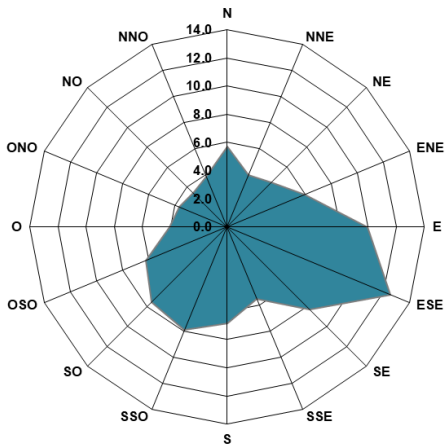
Figura 138. Frecuencia de dirección del viento (%) mensual de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 153. Frecuencia de dirección del viento (%) trimestral de la estación Chaparrosa, Villa de Cos (2002-2022).

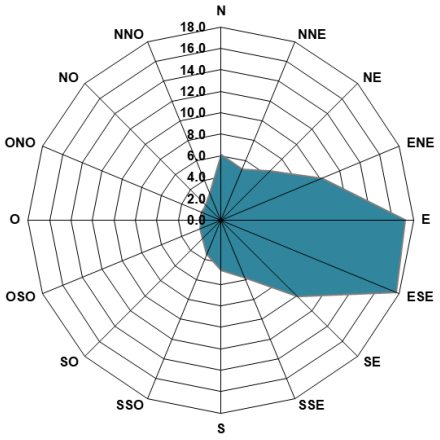
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.6	5.7	6.1	6.6	6.0
NNE	3.1	4.0	5.1	3.7	4.0
NE	2.9	4.4	6.5	3.9	4.5
ENE	3.9	6.0	10.2	5.7	6.5
E	6.8	9.9	17.2	9.8	11.0
ESE	9.2	12.5	17.6	11.8	12.9
SE	6.6	8.3	10.1	8.3	8.4
SSE	6.1	5.5	5.8	7.0	6.1
S	9.2	6.9	4.7	8.9	7.4
SSO	12.0	7.9	3.4	9.1	8.0
SO	11.3	7.6	2.5	7.0	7.0
OSO	8.1	6.2	2.1	5.1	5.3
O	4.3	4.1	1.9	3.1	3.3
ONO	3.6	3.7	1.9	2.9	3.0
NO	3.4	3.4	2.1	3.1	3.0
NNO	3.9	3.9	2.7	4.1	3.6
Suma	100.0	100.0	100.0	100.0	100.0



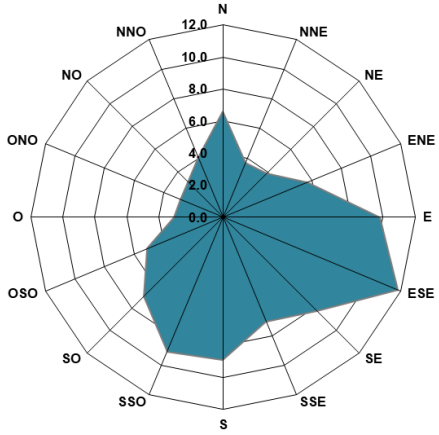
Ene-Mar



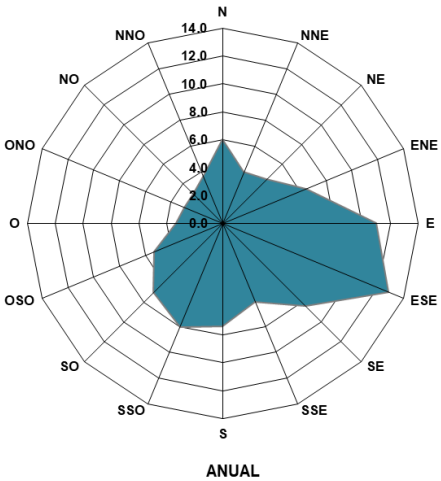
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 139. Frecuencia de dirección del viento (%) trimestral de la estación Chaparrosa, Villa de Cos (2002-2022).

Cuadro 154. Estadísticas climatológicas mensuales de la estación Chaparrosa, Villa de Cos (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.8	23.3	25.8	28.3	29.9	28.7	26.6	27.1	25.4	25.3	23.2	21.6	25.5
Temperatura máxima maximorum (°C)	27.9	30.6	33.4	33.7	36.0	34.8	33.1	31.8	32.2	32.5	30.3	29.1	36.0
Temperatura mínima media (°C)	1.1	2.8	4.9	8.0	11.3	13.4	12.9	12.6	12.1	8.1	3.4	1.1	7.6
Temperatura mínima minimorum (°C)	-12.4	-7.0	-7.7	-2.9	2.2	6.6	7.4	7.1	3.3	-3.8	-12.5	-12.4	-12.5
Temperatura media (°C)	10.9	13.3	15.9	18.8	21.0	20.9	19.4	19.5	18.1	16.5	13.3	11.3	16.6
Oscilación térmica (°C)	19.7	20.4	20.9	20.3	18.7	15.3	13.8	14.5	13.3	17.3	19.8	20.5	17.9
Precipitación acumulada media (mm)	10.7	12.8	7.9	2.5	16.0	62.8	86.3	63.9	92.3	25.5	11.6	10.1	402.4
Precipitación máxima maximorum en 24 horas (mm)	23.4	31.2	29.1	5.4	18.1	60.8	83.2	42.2	65.0	39.0	26.4	26.8	83.2
Número de días promedio con lluvia	4.1	3.4	4.0	1.9	5.9	9.5	11.5	11.4	11.9	6.5	4.1	3.5	77.6
Evapotranspiración acumulada potencial media (mm)	107.4	124.0	168.9	188.8	201.1	179.1	165.7	164.4	130.9	131.9	111.3	104.7	1778.0
Humedad máxima media (%)	80.4	74.7	68.6	65.0	73.9	85.9	92.1	92.8	95.3	93.2	89.1	82.2	82.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.8	18.2	13.9	11.9	14.3	25.3	34.4	32.9	40.6	31.0	25.8	22.4	24.5
Humedad mínima minimorum (%)	3.0	4.0	2.0	2.0	4.0	3.0	10.0	13.0	13.7	6.8	3.0	3.0	2.0
Humedad media (%)	50.7	43.4	36.7	33.0	40.0	55.4	65.3	65.1	72.6	64.4	57.9	51.3	53.0
Radiación global media día/mes (W/m^2)	18388.7	21939.2	25632.2	28087.0	28866.7	27638.9	26206.9	25892.5	22669.6	22019.7	19673.8	17770.0	23732.1
Radiación global media día/mes (kWh/m^2)	4.6	5.5	6.4	7.0	7.2	6.9	6.6	6.5	5.7	5.5	4.9	4.4	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.5	19.7	23.1	25.3	26.0	24.9	23.6	23.3	20.4	19.8	17.7	16.0	21.4
Velocidad del viento máxima media (km/h)	20.1	21.9	23.4	23.9	23.4	22.9	20.1	19.1	16.1	15.2	16.2	18.3	20.0
Velocidad del viento máxima maximorum (km/h)	63.5	54.2	63.0	69.5	46.0	43.3	53.0	36.0	31.7	33.0	46.3	55.3	69.5
Velocidad del viento media (km/h)	7.8	8.9	9.5	9.9	9.1	9.3	8.2	7.5	5.9	5.7	6.2	6.9	7.9
Dirección dominante del viento	SSO	SSO	SO	SO	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SSO	ESE

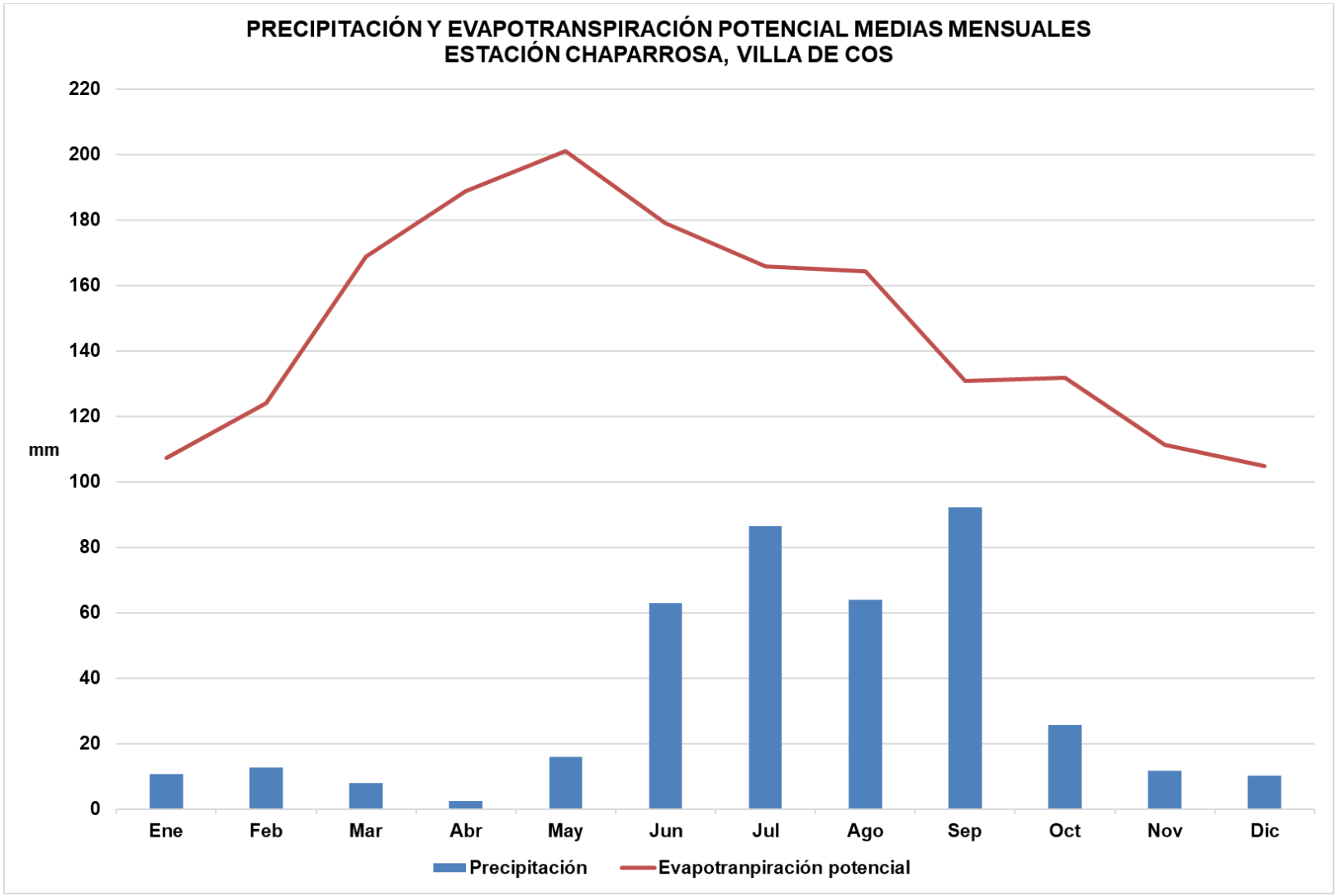


Figura 140. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Chaparrosa, Villa de Cos (2002-2022).

7.9. Estación: COBAEZ, Villa de Cos

Cuadro 155. Temperatura máxima media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.2	10.8	13.3	17.1	19.2	19.3	17.9	18.2	16.6	14.4	10.3	8.4	14.5
01	7.3	9.8	12.3	15.9	18.1	18.4	17.1	17.3	15.9	13.5	9.6	7.6	13.6
02	6.6	9.0	11.3	14.8	17.0	17.5	16.5	16.6	15.5	12.9	8.9	6.9	12.8
03	5.9	8.0	10.4	13.8	16.1	16.8	15.9	16.0	15.0	12.3	8.3	6.3	12.1
04	5.2	7.2	9.5	12.9	15.1	16.1	15.4	15.5	14.6	11.8	7.6	5.7	11.4
05	4.6	6.6	8.6	11.9	14.2	15.5	15.0	15.0	14.2	11.2	7.0	5.1	10.8
06	4.1	5.9	8.0	11.1	13.4	15.0	14.6	14.6	13.9	10.7	6.6	4.6	10.2
07	4.0	6.2	9.7	11.7	14.0	15.4	14.7	14.6	13.9	10.8	7.7	4.7	10.6
08	7.2	10.0	13.7	15.1	17.3	17.7	16.5	16.5	15.5	13.1	11.4	8.4	13.5
09	10.9	13.8	17.2	18.6	20.4	19.9	18.4	18.5	17.6	16.2	14.8	12.2	16.5
10	14.1	17.0	20.0	21.6	23.1	22.1	20.3	20.5	19.5	18.8	17.6	15.4	19.2
11	16.7	19.4	22.2	24.0	25.4	24.1	22.1	22.3	21.1	21.0	19.8	17.9	21.3
12	18.5	21.2	23.8	25.8	27.1	25.7	23.6	23.9	22.5	22.6	21.4	19.7	23.0
13	19.8	22.5	24.9	27.1	28.3	27.0	24.8	25.2	23.7	23.8	22.4	20.8	24.2
14	20.6	23.3	25.7	28.0	29.3	28.0	25.7	26.1	24.5	24.7	22.9	21.5	25.0
15	20.9	23.6	26.0	28.6	29.9	28.6	26.3	26.8	25.0	25.1	23.1	21.7	25.5
16	20.7	23.5	25.9	28.7	30.0	28.8	26.5	27.0	25.1	25.1	22.8	21.4	25.5
17	19.9	22.9	25.3	28.4	29.6	28.5	26.2	26.6	24.6	24.6	21.7	20.4	24.9
18	18.0	21.5	23.9	27.6	28.9	27.8	25.5	25.9	23.6	23.4	19.1	17.8	23.6
19	15.1	18.5	21.4	26.1	27.8	26.7	24.4	24.6	22.2	21.3	16.5	15.1	21.6
20	13.3	16.3	19.0	23.7	25.8	25.0	22.9	22.7	20.3	19.1	15.0	13.4	19.7
21	11.8	14.7	17.4	21.4	23.4	23.0	21.1	21.1	19.0	17.7	13.6	11.9	18.0
22	10.5	13.3	16.0	19.9	21.8	21.5	19.8	20.0	18.0	16.5	12.3	10.6	16.7
23	9.3	12.0	14.6	18.5	20.5	20.3	18.8	19.0	17.2	15.3	11.2	9.4	15.5
Media	12.2	14.9	17.5	20.5	22.3	22.0	20.4	20.6	19.1	17.7	14.6	12.8	17.9

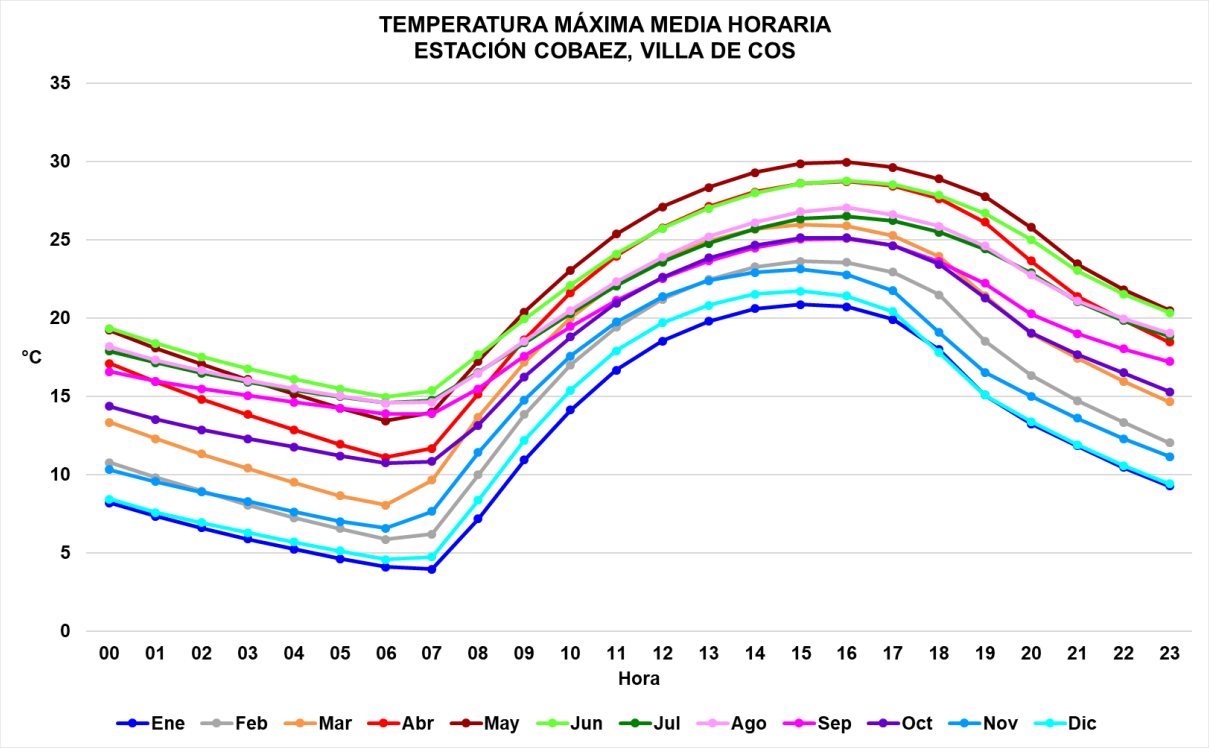


Figura 141. Temperatura máxima media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 156. Temperatura máxima maximorum (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.2	18.3	21.6	24.2	25.8	27.2	23.8	24.6	22.1	20.6	17.8	15.3	27.2
01	14.6	18.0	19.0	23.9	24.6	23.6	22.1	22.4	20.8	20.9	16.6	14.2	24.6
02	14.4	17.3	20.5	21.3	23.0	22.8	21.2	21.2	19.7	18.5	16.4	13.9	23.0
03	14.0	16.8	19.6	20.4	22.4	22.0	20.5	20.1	19.2	17.5	15.7	13.5	22.4
04	14.2	15.7	18.1	19.9	22.2	20.3	19.8	19.3	18.7	17.1	15.1	13.8	22.2
05	12.8	14.5	18.3	18.9	22.5	19.8	18.9	19.3	18.1	16.6	15.1	14.1	22.5
06	12.7	13.1	17.4	18.4	20.1	19.7	18.8	18.4	17.5	16.3	15.1	14.0	20.1
07	12.0	13.6	19.0	18.2	20.5	19.8	18.4	18.3	17.5	16.6	15.7	14.5	20.5
08	15.1	18.4	22.2	21.9	25.1	23.1	20.9	20.4	19.1	20.4	18.9	18.0	25.1
09	19.2	22.3	25.3	25.4	28.5	25.5	23.3	22.7	21.7	23.2	22.4	21.0	28.5
10	23.4	26.5	27.9	28.1	30.5	27.9	25.8	24.7	24.5	26.1	24.8	24.3	30.5
11	25.3	29.1	30.1	30.0	31.4	30.2	27.6	26.5	26.0	27.5	26.7	26.1	31.4
12	26.3	30.2	32.2	31.3	32.9	31.4	29.4	28.7	27.6	28.9	28.1	27.6	32.9
13	26.8	31.4	32.9	32.5	34.1	32.5	30.2	29.5	28.8	29.9	28.8	28.0	34.1
14	27.8	31.8	33.8	33.3	35.3	34.4	31.5	30.7	30.2	30.1	29.5	28.6	35.3
15	28.3	31.9	33.8	33.9	36.3	34.0	32.1	31.3	31.2	30.8	29.5	28.2	36.3
16	28.0	31.8	33.9	34.7	37.2	34.5	32.4	32.0	31.3	30.9	29.7	27.6	37.2
17	27.4	31.4	33.7	34.2	36.3	34.4	32.5	32.0	31.3	30.8	28.9	26.2	36.3
18	25.4	29.7	32.7	33.5	35.5	34.2	32.6	32.5	31.1	30.2	24.7	23.9	35.5
19	22.7	25.4	29.1	32.3	34.8	33.6	31.5	30.5	30.0	28.9	23.1	20.8	34.8
20	21.0	23.1	26.2	29.7	32.9	32.3	30.1	28.8	27.9	25.8	23.3	19.1	32.9
21	19.1	22.7	25.4	27.9	30.0	29.5	27.4	27.1	26.0	24.0	19.6	18.1	30.0
22	17.0	21.0	24.4	27.4	28.9	27.8	26.4	27.1	23.5	23.6	18.8	16.8	28.9
23	16.8	19.4	22.0	26.9	28.6	26.2	25.5	25.9	23.1	21.9	18.0	16.2	28.6
Máx.	28.3	31.9	33.9	34.7	37.2	34.5	32.6	32.5	31.3	30.9	29.7	28.6	37.2

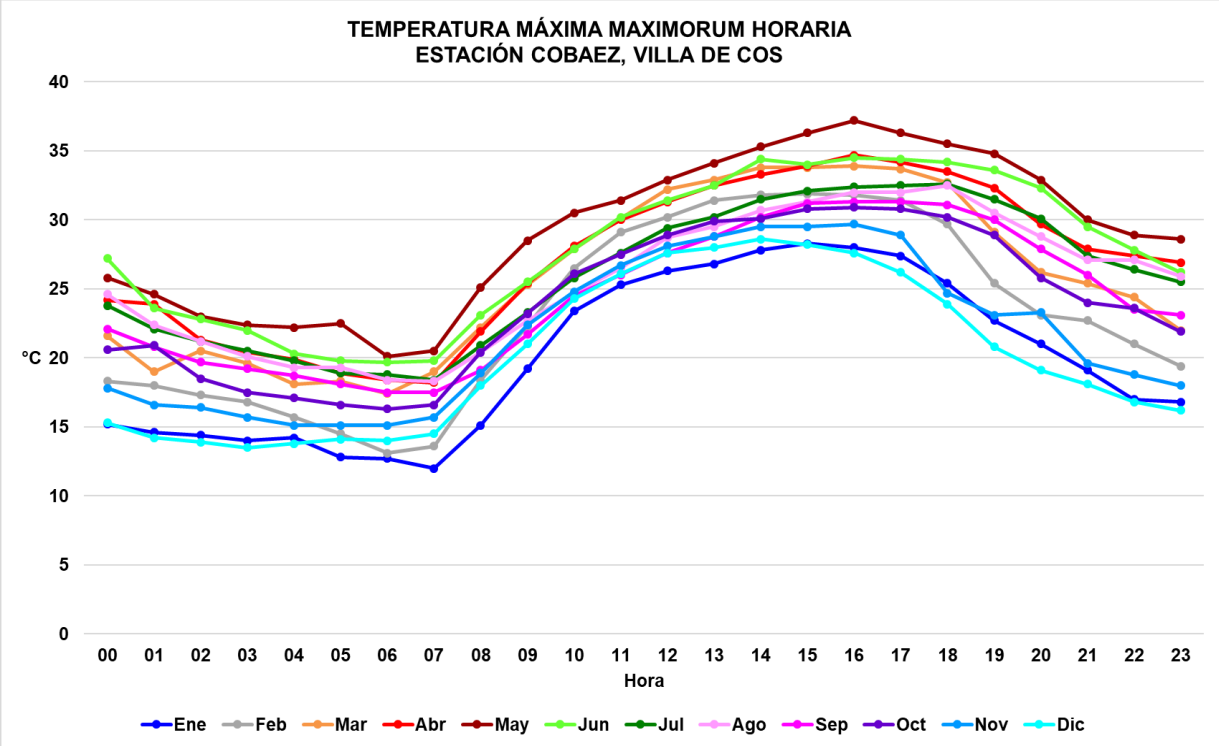


Figura 142. Temperatura máxima maximorum (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 157. Temperatura mínima media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	9.7	12.3	16.0	18.2	18.5	17.2	17.4	16.0	13.5	9.4	7.5	13.6
01	6.5	8.9	11.3	14.8	17.1	17.6	16.5	16.7	15.4	12.8	8.7	6.7	12.8
02	5.7	8.0	10.3	13.8	16.2	16.9	15.9	16.1	15.0	12.2	8.1	6.1	12.0
03	5.1	7.1	9.5	12.9	15.2	16.2	15.4	15.5	14.6	11.7	7.5	5.4	11.3
04	4.4	6.4	8.6	11.9	14.3	15.5	15.0	15.0	14.2	11.1	6.9	4.9	10.7
05	3.8	5.7	7.8	11.0	13.4	15.0	14.6	14.6	13.8	10.6	6.3	4.3	10.1
06	3.3	5.0	7.2	10.2	12.7	14.4	14.2	14.1	13.5	10.1	5.8	3.8	9.5
07	3.0	4.9	7.4	10.0	12.6	14.4	14.1	14.0	13.3	9.9	6.0	3.6	9.4
08	4.2	6.8	10.6	12.2	14.7	15.9	15.1	14.8	14.0	11.0	8.5	5.3	11.1
09	8.1	11.0	14.6	16.1	18.1	18.2	17.0	17.0	16.0	13.9	12.3	9.4	14.3
10	11.8	14.7	17.9	19.4	21.1	20.5	18.8	19.0	18.0	16.9	15.5	13.0	17.2
11	14.8	17.6	20.5	22.3	23.7	22.6	20.7	20.9	19.8	19.4	18.1	16.1	19.7
12	17.1	19.8	22.5	24.4	25.8	24.4	22.4	22.6	21.4	21.3	20.1	18.3	21.7
13	18.7	21.4	24.0	26.0	27.3	25.9	23.7	24.1	22.6	22.8	21.5	19.8	23.2
14	19.8	22.4	24.9	27.1	28.3	27.0	24.7	25.1	23.5	23.8	22.2	20.8	24.1
15	20.2	23.0	25.3	27.8	28.9	27.6	25.4	25.7	24.0	24.3	22.5	21.1	24.6
16	20.0	22.9	25.1	28.0	29.0	27.8	25.5	25.9	23.9	24.2	22.0	20.6	24.6
17	18.6	21.9	24.3	27.6	28.6	27.4	25.1	25.4	23.4	23.6	19.9	18.7	23.7
18	15.7	19.3	22.2	26.5	27.9	26.7	24.4	24.7	22.4	21.9	17.0	15.5	22.0
19	13.5	16.7	19.5	24.3	26.3	25.4	23.2	23.1	20.6	19.4	15.2	13.6	20.1
20	12.0	15.0	17.7	21.8	23.9	23.4	21.4	21.3	19.1	17.9	13.8	12.1	18.3
21	10.6	13.5	16.2	20.0	22.0	21.8	20.0	20.1	18.1	16.7	12.4	10.7	16.8
22	9.3	12.1	14.7	18.6	20.6	20.5	19.0	19.1	17.3	15.5	11.2	9.4	15.6
23	8.2	10.9	13.5	17.3	19.4	19.4	18.0	18.2	16.5	14.3	10.2	8.4	14.5
Media	10.9	13.5	16.2	19.2	21.1	21.0	19.5	19.6	18.2	16.6	13.4	11.5	16.7

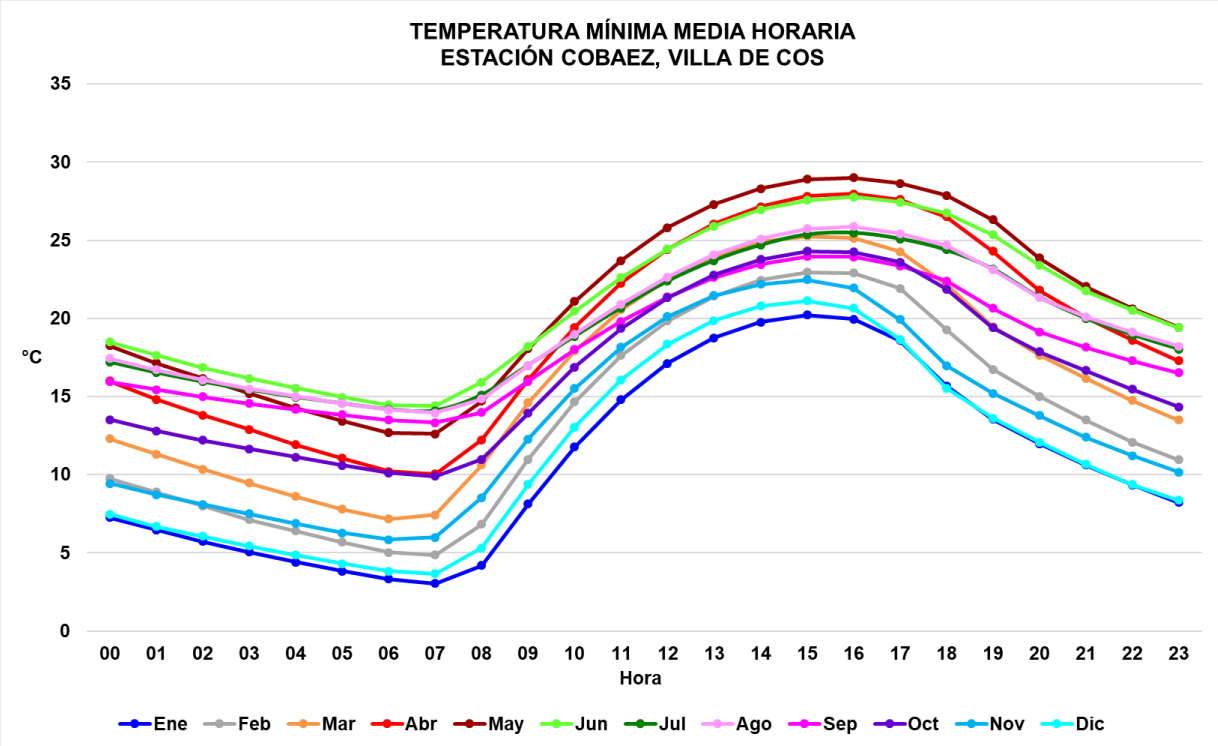


Figura 143. Temperatura mínima media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 158. Temperatura mínima minimorum (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.3	-1.4	-0.7	7.2	11.7	11.0	12.9	13.4	11.4	4.4	-4.0	-7.8	-7.8
01	-4.9	-2.3	-0.7	6.1	10.9	11.8	12.4	11.8	9.9	1.3	-6.2	-8.4	-8.4
02	-6.1	-3.2	-0.5	5.9	9.8	11.9	12.4	11.2	9.1	0.2	-6.8	-9.1	-9.1
03	-6.9	-3.7	-1.3	4.8	8.3	11.2	11.4	10.4	8.0	0.7	-7.5	-9.1	-9.1
04	-7.6	-3.7	-4.1	4.0	7.8	10.8	11.1	10.8	7.4	0.2	-8.2	-9.3	-9.3
05	-8.6	-4.0	-4.2	2.6	7.0	10.2	10.2	10.5	6.7	-2.1	-8.3	-10.1	-10.1
06	-9.2	-4.3	-3.9	2.1	5.8	8.7	9.9	10.2	5.0	-3.0	-8.9	-11.1	-11.1
07	-9.4	-3.8	-4.5	0.5	4.5	9.0	9.7	10.1	4.4	-2.4	-8.7	-11.1	-11.1
08	-8.5	-2.0	-1.5	1.9	6.8	11.3	11.5	11.0	6.9	2.6	-5.9	-8.0	-8.5
09	-2.8	-0.5	2.7	7.1	10.5	14.5	13.7	14.0	10.9	4.6	0.2	-3.7	-3.7
10	-1.8	2.5	1.6	11.0	13.0	15.4	14.4	14.3	12.2	7.0	2.6	-2.6	-2.6
11	-0.1	5.2	1.8	13.4	14.7	15.6	14.6	15.0	14.0	10.6	3.1	-2.6	-2.6
12	2.8	7.5	0.5	15.4	15.8	16.6	15.3	16.2	15.7	11.4	3.1	-2.2	-2.2
13	3.9	7.1	3.6	15.8	17.0	16.6	15.1	15.7	16.9	11.6	3.8	-2.0	-2.0
14	5.3	6.3	6.6	17.0	16.2	13.8	15.7	14.9	13.8	12.2	4.5	-1.6	-1.6
15	5.5	7.4	6.6	16.5	14.8	15.8	16.4	15.4	14.3	12.1	5.6	-1.0	-1.0
16	6.3	7.1	7.0	13.0	16.8	13.5	14.9	15.3	14.8	11.8	5.7	-0.7	-0.7
17	6.6	6.7	7.5	14.5	15.5	13.8	11.9	15.0	14.1	10.9	4.3	-1.8	-1.8
18	4.3	6.5	6.3	11.6	13.5	14.1	12.2	13.2	14.0	10.1	1.9	-3.2	-3.2
19	2.6	5.9	4.8	12.7	14.4	12.6	13.8	14.2	14.8	8.8	1.0	-4.7	-4.7
20	2.1	5.1	3.9	12.1	13.5	12.9	14.2	14.4	14.0	8.1	-0.3	-5.5	-5.5
21	1.9	3.7	1.6	11.1	13.4	13.8	13.2	14.4	12.8	7.3	-1.5	-6.0	-6.0
22	0.7	2.5	0.9	9.5	13.2	13.4	13.6	14.1	11.9	7.4	-1.9	-7.5	-7.5
23	-3.2	0.1	0.5	8.3	12.3	10.1	13.5	13.7	10.3	5.6	-3.8	-7.6	-7.6
Mín.	-9.4	-4.3	-4.5	0.5	4.5	8.7	9.7	10.1	4.4	-3.0	-8.9	-11.1	-11.1

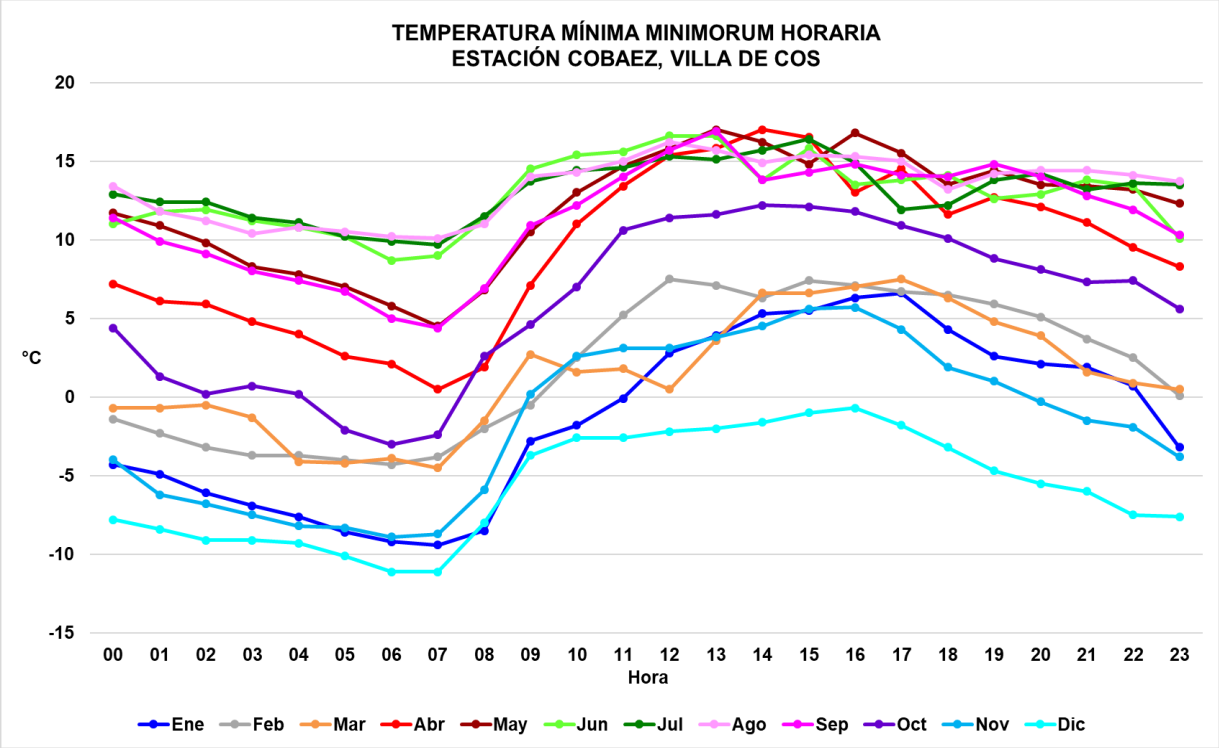


Figura 144. Temperatura mínima minimorum (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 159. Temperatura media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	10.3	12.8	16.5	18.7	18.9	17.5	17.8	16.3	13.9	9.9	8.0	14.0
01	6.9	9.4	11.8	15.4	17.6	18.0	16.8	17.0	15.7	13.2	9.1	7.1	13.2
02	6.1	8.5	10.8	14.3	16.6	17.2	16.2	16.3	15.2	12.5	8.5	6.5	12.4
03	5.5	7.6	9.9	13.4	15.6	16.5	15.7	15.8	14.8	12.0	7.9	5.9	11.7
04	4.8	6.8	9.0	12.4	14.7	15.8	15.2	15.3	14.4	11.4	7.2	5.3	11.0
05	4.2	6.1	8.2	11.5	13.8	15.2	14.8	14.8	14.0	10.9	6.6	4.7	10.4
06	3.7	5.4	7.6	10.6	13.0	14.7	14.4	14.4	13.7	10.4	6.2	4.2	9.9
07	3.5	5.5	8.4	10.8	13.2	14.8	14.4	14.3	13.6	10.3	6.7	4.1	10.0
08	5.7	8.4	12.2	13.7	16.0	16.8	15.8	15.7	14.7	12.0	10.0	6.8	12.3
09	9.6	12.4	15.9	17.4	19.2	19.1	17.7	17.8	16.8	15.1	13.5	10.8	15.4
10	13.0	15.9	19.0	20.5	22.1	21.3	19.6	19.7	18.7	17.8	16.6	14.2	18.2
11	15.7	18.5	21.4	23.1	24.5	23.4	21.4	21.6	20.5	20.2	19.0	17.0	20.5
12	17.8	20.5	23.2	25.1	26.5	25.1	23.0	23.3	22.0	22.0	20.8	19.0	22.3
13	19.3	21.9	24.5	26.6	27.8	26.5	24.2	24.7	23.1	23.3	21.9	20.3	23.7
14	20.2	22.9	25.3	27.6	28.8	27.5	25.2	25.6	24.0	24.2	22.5	21.2	24.6
15	20.5	23.3	25.6	28.2	29.4	28.1	25.9	26.3	24.5	24.7	22.8	21.4	25.1
16	20.3	23.2	25.5	28.4	29.5	28.3	26.0	26.5	24.5	24.7	22.4	21.0	25.0
17	19.3	22.5	24.8	28.0	29.1	28.0	25.7	26.0	24.0	24.1	20.9	19.6	24.3
18	16.8	20.4	23.1	27.1	28.4	27.3	24.9	25.3	23.0	22.7	18.0	16.6	22.8
19	14.3	17.6	20.4	25.2	27.1	26.0	23.8	23.9	21.4	20.3	15.9	14.3	20.9
20	12.6	15.7	18.3	22.7	24.8	24.2	22.1	22.0	19.7	18.4	14.4	12.7	19.0
21	11.2	14.1	16.8	20.7	22.7	22.4	20.5	20.6	18.6	17.2	13.0	11.3	17.4
22	9.9	12.7	15.3	19.2	21.2	21.0	19.4	19.5	17.7	16.0	11.7	10.0	16.1
23	8.7	11.5	14.1	17.9	19.9	19.9	18.4	18.6	16.9	14.8	10.7	8.9	15.0
Media	11.6	14.2	16.8	19.8	21.7	21.5	19.9	20.1	18.7	17.2	14.0	12.1	17.3

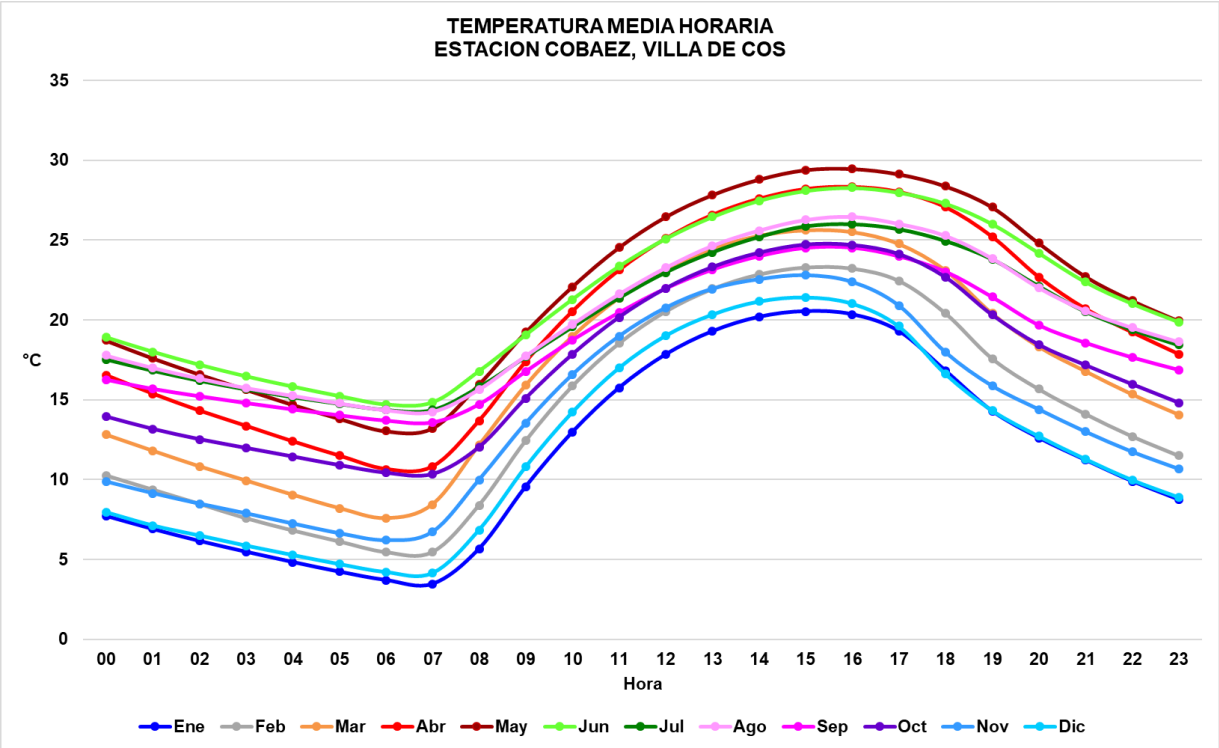


Figura 145. Temperatura media (˚C) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 160. Precipitación media (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.6	0.4	0.1	0.6	7.6	4.5	3.0	9.3	1.2	0.3	0.3	28.3
01	0.7	0.5	0.2	0.2	0.8	3.6	3.6	1.7	5.6	0.9	0.5	0.3	18.7
02	0.9	0.4	0.1	0.4	1.1	3.4	4.2	2.4	3.6	1.4	0.3	0.7	18.9
03	0.3	0.3	0.1	0.5	0.3	1.5	3.1	2.2	3.0	0.6	0.2	0.4	12.6
04	0.4	0.3	0.1	0.0	0.2	1.5	2.4	1.3	2.4	1.0	0.3	0.4	10.2
05	0.3	0.3	0.1	0.0	0.1	0.9	1.6	0.8	1.8	0.9	0.1	0.6	7.7
06	0.1	0.3	0.1	0.0	0.1	0.7	1.1	1.2	1.1	0.5	0.2	0.4	5.8
07	0.2	0.1	0.0	0.0	0.0	0.3	1.6	0.9	0.6	0.3	0.2	0.5	4.9
08	0.1	0.2	0.1	0.0	0.0	0.3	0.9	0.3	0.3	0.2	0.1	0.5	3.0
09	0.1	0.4	0.0	0.0	0.0	0.1	0.7	0.1	0.3	0.1	0.2	0.5	2.6
10	0.2	0.2	0.0	0.0	0.0	0.1	0.7	0.2	0.2	0.2	0.3	0.6	2.7
11	0.2	0.5	0.2	0.0	0.0	0.1	0.7	0.0	0.1	0.1	0.2	0.3	2.3
12	0.0	0.3	0.2	0.0	0.0	0.2	2.0	0.2	0.5	0.1	0.3	0.4	4.3
13	0.2	0.6	0.1	0.2	0.1	0.2	1.5	0.4	0.6	0.1	0.5	0.6	5.1
14	0.0	0.5	0.1	0.3	0.5	0.6	0.9	3.2	1.8	0.6	2.4	0.5	11.5
15	0.1	1.1	0.3	0.0	1.0	0.8	0.9	1.8	4.3	1.1	0.8	0.5	12.7
16	0.9	0.5	0.1	0.2	1.2	2.5	2.6	3.8	4.6	2.5	0.8	0.4	20.2
17	0.7	0.4	0.1	0.1	1.1	4.2	8.0	5.9	8.1	1.7	1.4	1.2	32.9
18	0.7	0.5	0.8	0.7	0.7	3.4	10.5	4.9	5.9	2.5	1.4	1.2	33.2
19	0.6	0.6	1.9	0.9	1.1	7.9	10.4	7.7	6.7	2.2	0.8	0.6	41.5
20	0.9	0.3	0.4	0.3	1.4	5.4	7.0	5.7	10.2	3.1	1.1	0.5	36.3
21	0.6	0.4	0.4	0.5	1.6	8.8	10.5	7.0	13.0	2.2	0.9	0.8	46.5
22	0.1	0.6	0.3	0.2	0.7	10.1	6.4	5.0	12.0	1.9	0.6	0.1	38.2
23	0.1	0.6	0.2	0.1	0.4	8.5	4.6	4.2	7.6	1.3	0.3	0.2	28.1
Suma	9.0	10.4	6.5	4.8	13.1	73.0	90.4	63.9	103.6	26.8	14.2	12.3	428.0

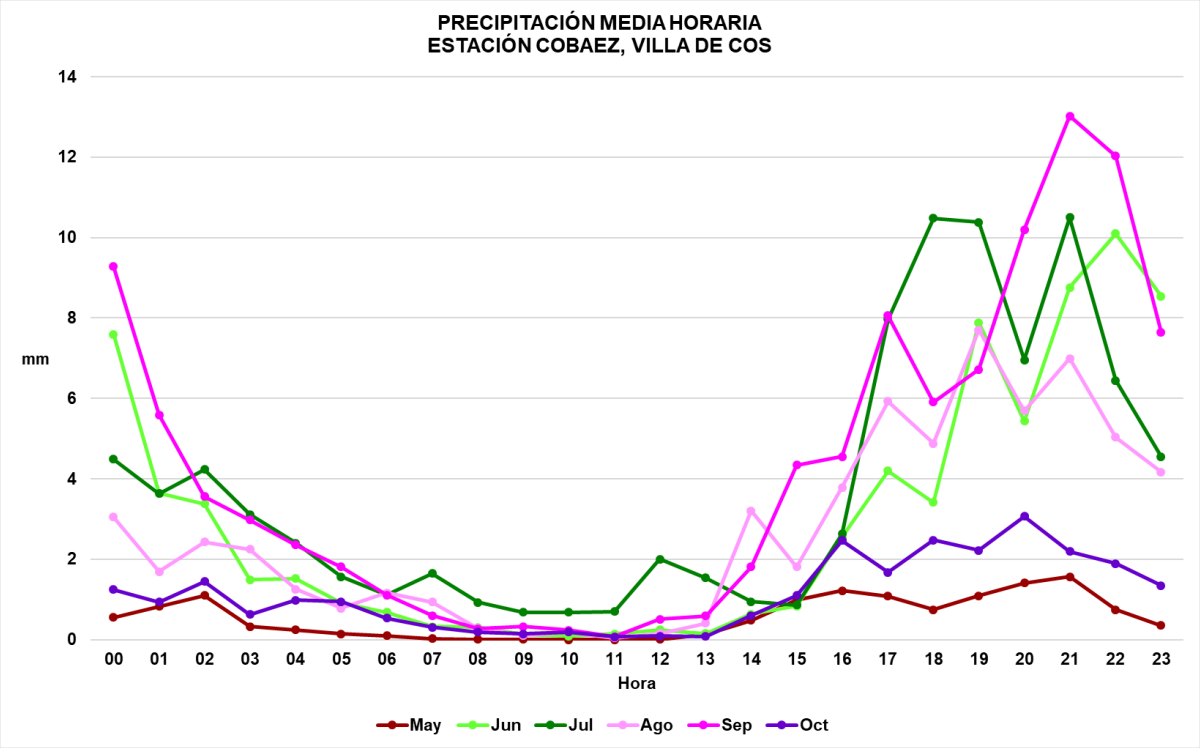


Figura 146. Precipitación media (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 161. Precipitación máxima maximorum (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.6	4.0	2.8	1.4	3.2	30.0	12.4	10.8	27.4	7.0	2.2	1.4	30.0
01	2.4	2.6	2.6	3.2	5.2	8.4	8.6	4.0	15.4	5.2	3.6	2.0	15.4
02	8.0	2.2	1.4	7.0	8.6	10.0	16.2	7.6	13.0	9.0	1.2	4.6	16.2
03	1.4	2.0	0.6	8.8	2.0	4.4	22.8	11.0	6.8	1.8	1.2	3.4	22.8
04	2.2	1.2	0.8	0.0	1.2	7.4	10.2	3.2	6.8	4.2	1.8	2.8	10.2
05	2.2	1.4	1.0	0.2	1.4	3.6	11.2	5.2	4.0	5.4	1.4	2.2	11.2
06	0.8	2.0	1.0	0.4	0.8	4.2	8.4	9.6	3.4	2.4	0.9	2.0	9.6
07	1.2	0.4	0.2	0.0	0.2	1.2	8.4	5.8	1.8	2.2	1.5	3.0	8.4
08	1.2	1.8	1.0	0.2	0.2	1.6	5.8	1.6	0.8	1.6	0.6	2.6	5.8
09	1.8	2.6	0.4	0.0	0.2	1.0	5.8	0.8	1.2	0.6	2.2	3.0	5.8
10	1.2	2.0	0.2	0.0	0.0	1.6	4.6	2.0	2.0	1.8	2.8	3.8	4.6
11	1.2	3.6	3.0	0.0	0.0	1.8	4.4	0.4	1.0	0.6	1.8	1.8	4.4
12	0.4	3.4	1.4	0.0	0.2	2.6	22.2	2.2	4.0	1.2	2.8	2.6	22.2
13	3.0	3.4	1.2	3.0	2.2	2.0	7.2	4.4	2.2	1.0	1.4	2.4	7.2
14	0.2	2.6	0.8	2.8	5.6	6.6	4.2	36.0	13.6	8.4	18.6	4.2	36.0
15	1.0	7.6	2.0	0.4	6.6	4.8	3.4	11.8	21.0	10.0	2.6	4.0	21.0
16	8.6	1.8	1.2	2.6	8.2	12.6	9.6	12.6	18.0	12.2	3.2	2.6	18.0
17	6.4	2.0	1.6	1.0	5.4	22.4	27.0	15.6	25.0	10.8	12.4	10.4	27.0
18	3.4	3.0	11.4	4.0	5.2	9.0	46.2	18.2	18.4	12.2	14.4	5.2	46.2
19	6.0	3.2	12.8	5.8	8.4	51.2	18.8	18.6	14.2	16.6	4.6	3.2	51.2
20	8.2	3.0	5.4	1.2	9.6	29.2	19.0	10.2	21.4	16.4	5.8	2.8	29.2
21	6.4	3.0	4.4	2.8	9.6	33.2	36.6	18.6	30.6	8.2	4.2	4.8	36.6
22	1.6	3.8	4.8	1.2	5.4	39.8	18.8	16.2	32.4	6.2	6.2	0.6	39.8
23	1.0	3.4	2.2	1.4	1.6	19.4	16.4	10.8	15.6	7.4	1.6	1.2	19.4
Máx.	8.6	7.6	12.8	8.8	9.6	51.2	46.2	36.0	32.4	16.6	18.6	10.4	51.2

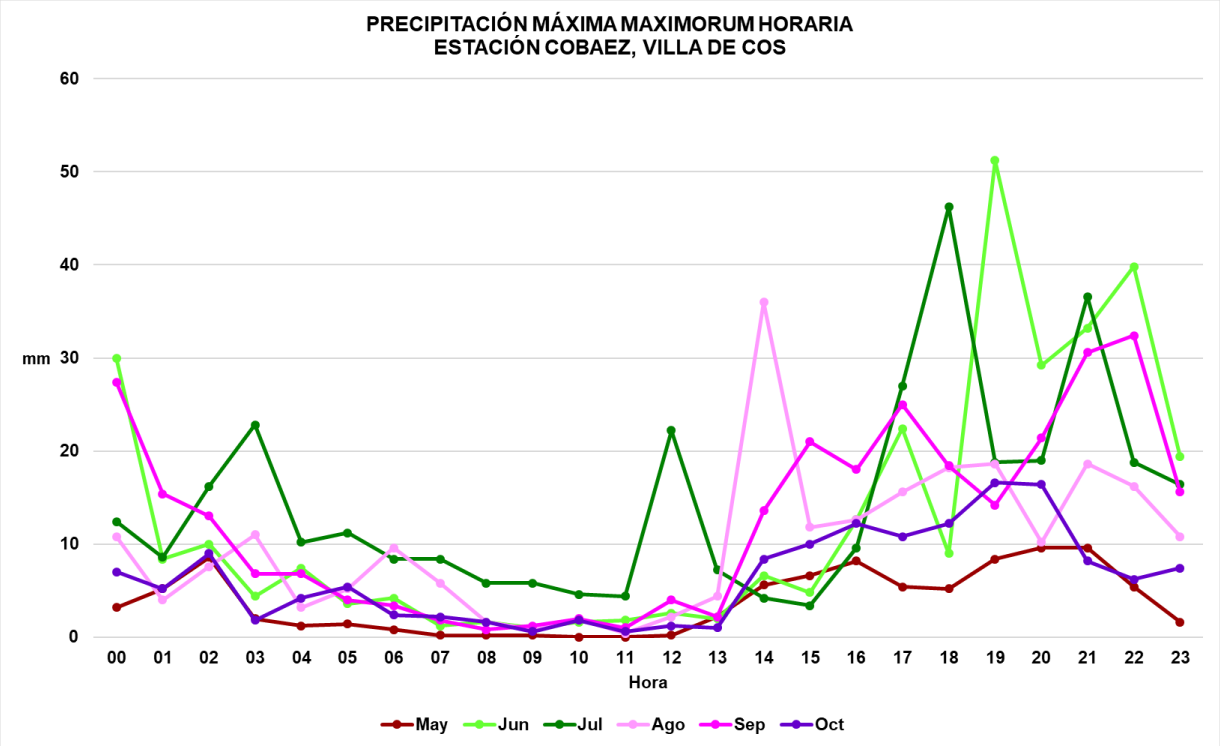


Figura 147. Precipitación máxima maximorum (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 162. Evapotranspiración potencial media (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.05	0.06	0.05	0.03	0.03	0.01	0.01	0.00	0.01	0.02
01	0.01	0.02	0.02	0.04	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.02
02	0.00	0.01	0.02	0.03	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
08	0.02	0.04	0.08	0.06	0.06	0.06	0.03	0.02	0.01	0.02	0.04	0.02	0.04
09	0.09	0.14	0.22	0.18	0.19	0.17	0.13	0.13	0.10	0.10	0.15	0.11	0.14
10	0.20	0.28	0.38	0.34	0.36	0.31	0.25	0.26	0.22	0.24	0.27	0.22	0.28
11	0.31	0.41	0.51	0.50	0.51	0.45	0.39	0.40	0.35	0.36	0.39	0.33	0.41
12	0.41	0.50	0.61	0.63	0.65	0.57	0.50	0.53	0.45	0.48	0.47	0.42	0.52
13	0.46	0.56	0.66	0.72	0.73	0.65	0.58	0.61	0.53	0.54	0.50	0.46	0.58
14	0.46	0.56	0.65	0.75	0.76	0.68	0.61	0.65	0.55	0.57	0.47	0.45	0.60
15	0.42	0.51	0.58	0.72	0.72	0.66	0.61	0.62	0.53	0.53	0.40	0.39	0.56
16	0.34	0.42	0.48	0.64	0.63	0.59	0.55	0.56	0.47	0.44	0.30	0.30	0.48
17	0.24	0.31	0.35	0.51	0.51	0.48	0.45	0.45	0.35	0.33	0.17	0.18	0.36
18	0.12	0.17	0.21	0.37	0.37	0.36	0.34	0.32	0.22	0.23	0.09	0.11	0.24
19	0.07	0.10	0.13	0.30	0.27	0.23	0.21	0.23	0.15	0.12	0.04	0.05	0.16
20	0.04	0.06	0.08	0.17	0.18	0.18	0.15	0.13	0.06	0.04	0.03	0.03	0.09
21	0.03	0.04	0.06	0.11	0.11	0.10	0.08	0.07	0.03	0.02	0.02	0.02	0.06
22	0.02	0.04	0.05	0.08	0.08	0.07	0.05	0.04	0.02	0.02	0.01	0.01	0.04
23	0.01	0.02	0.04	0.07	0.07	0.06	0.04	0.04	0.01	0.01	0.01	0.01	0.03
Media/día	3.26	4.23	5.22	6.37	6.40	5.77	5.05	5.13	4.07	4.07	3.38	3.12	4.67

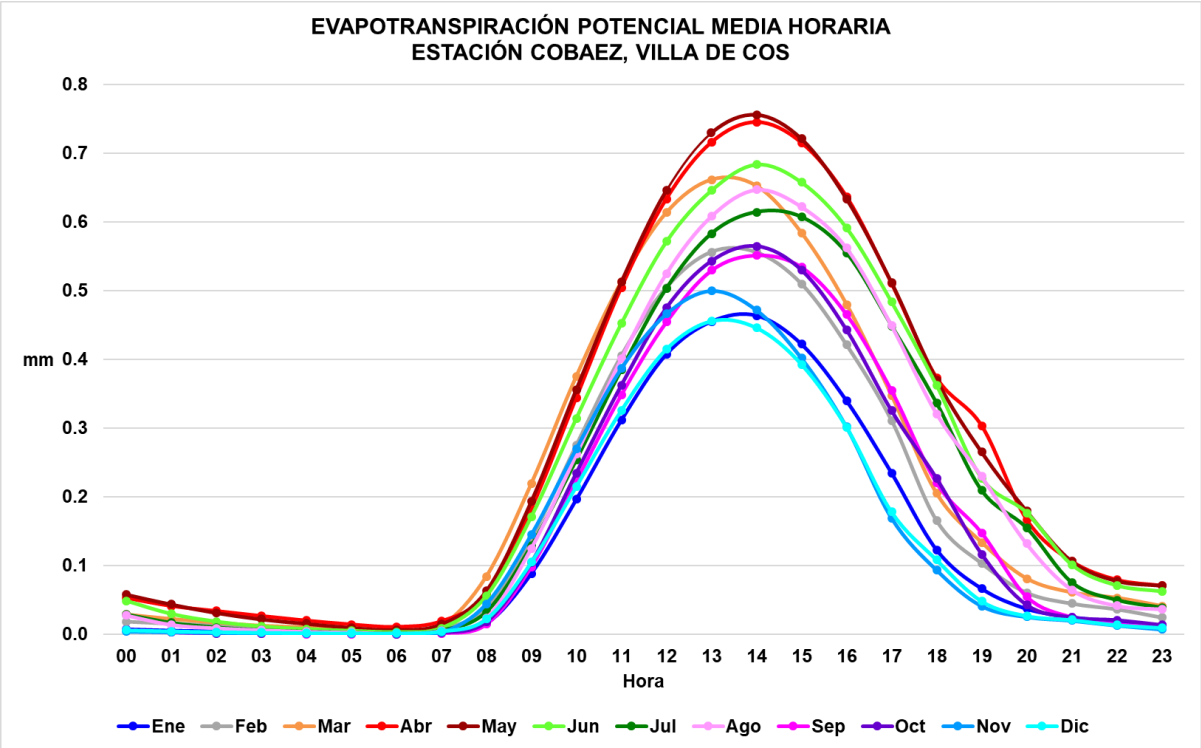


Figura 148. Evapotranspiración potencial media (mm) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 163. Humedad relativa media (%) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	56.6	47.6	40.4	33.4	42.2	61.0	72.3	71.3	79.9	71.0	67.8	59.7	58.6
01	59.7	51.1	43.9	36.9	46.7	65.4	75.6	75.1	82.7	74.4	71.0	63.2	62.1
02	62.6	54.4	47.2	40.4	51.0	69.2	78.3	78.2	84.8	77.3	74.0	65.8	65.3
03	65.2	57.8	50.6	43.8	54.8	72.2	80.6	80.8	86.7	79.8	76.4	68.3	68.1
04	67.6	61.0	54.0	47.2	58.2	74.9	82.6	82.8	88.3	81.9	78.9	70.7	70.7
05	70.0	63.6	57.1	50.6	61.2	77.5	84.4	84.8	89.6	83.9	81.0	72.9	73.0
06	72.0	66.3	59.2	53.7	63.9	79.5	86.0	86.6	90.6	85.6	82.6	74.7	75.1
07	73.3	66.8	57.8	53.8	63.5	79.3	86.4	87.1	90.9	86.1	81.8	75.6	75.2
08	67.5	58.9	49.1	47.8	56.6	72.2	81.2	82.3	87.4	81.6	72.6	68.2	68.8
09	57.0	48.1	39.3	39.2	46.6	63.2	73.0	73.4	78.8	71.2	61.3	57.3	59.0
10	47.0	38.3	30.7	30.4	36.7	53.8	64.6	64.5	69.8	60.3	50.3	47.1	49.5
11	38.3	30.6	24.4	23.2	28.4	45.2	56.6	56.1	62.1	51.1	41.5	38.5	41.3
12	31.8	25.3	20.3	18.4	22.7	38.4	49.6	48.9	55.3	43.9	35.0	31.9	35.1
13	27.4	22.0	17.6	15.5	19.1	33.2	44.3	42.9	50.0	38.5	30.9	27.7	30.8
14	24.7	19.9	15.9	13.8	16.9	29.6	40.3	39.0	46.4	34.8	28.8	25.0	27.9
15	23.5	18.8	15.1	12.7	15.6	27.4	37.7	36.5	44.2	32.7	27.6	23.9	26.3
16	23.6	18.6	14.9	12.4	15.5	26.7	37.2	35.7	44.0	32.6	28.0	24.2	26.1
17	25.3	19.4	15.6	12.5	16.0	27.4	38.1	37.2	46.1	33.9	31.1	26.5	27.4
18	30.0	22.2	17.3	13.4	17.2	29.2	40.6	39.3	49.5	37.7	37.8	32.3	30.5
19	35.5	26.5	21.1	15.4	19.1	32.9	44.4	44.1	55.9	44.6	43.4	37.5	35.0
20	40.2	30.4	24.9	18.7	23.0	38.2	50.5	50.7	63.4	50.9	48.8	42.3	40.2
21	44.6	34.4	28.8	22.1	27.6	44.5	57.2	56.8	68.3	55.7	54.4	47.1	45.1
22	48.9	38.5	33.1	25.7	32.4	50.2	62.6	61.9	72.7	61.0	59.4	51.8	49.8
23	53.0	42.7	36.7	29.5	37.6	56.3	67.5	66.7	76.5	66.2	64.0	56.0	54.4
Media	47.7	40.1	34.0	29.6	36.4	52.0	62.2	61.8	69.3	59.9	55.3	49.5	49.8

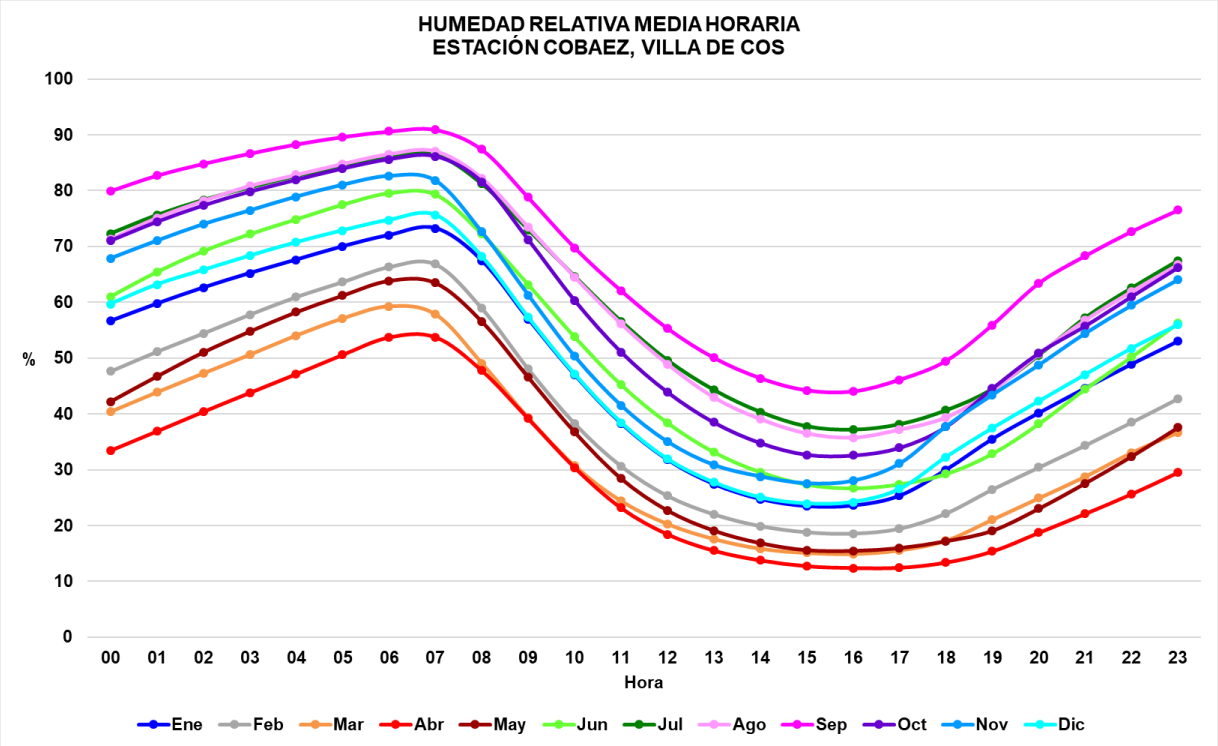


Figura 149. Humedad relativa media (%) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 164. Humedad relativa mínima minimorum (%) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.0	11.0	8.0	7.3	8.0	13.0	24.0	26.0	29.0	16.0	16.0	13.0	7.3
01	11.0	13.0	7.9	8.1	9.0	15.0	29.0	30.0	34.0	20.0	19.0	14.0	7.9
02	13.0	14.0	8.1	9.3	10.0	14.0	35.0	41.0	37.0	23.0	18.0	17.0	8.1
03	15.0	13.0	10.0	10.0	11.0	13.0	41.0	42.0	39.0	26.0	20.0	19.0	10.0
04	15.0	14.0	10.0	10.0	13.0	15.0	43.0	42.0	43.0	29.0	21.0	20.0	10.0
05	14.0	15.0	10.0	11.0	14.0	18.0	41.0	47.0	49.0	31.0	25.0	21.0	10.0
06	16.0	17.0	10.0	11.0	16.0	18.0	42.0	52.0	52.0	38.0	26.0	24.0	10.0
07	18.0	18.0	10.0	12.0	14.0	32.0	43.0	55.0	52.0	32.0	24.0	23.0	10.0
08	14.0	13.6	8.0	8.1	13.0	23.0	44.0	52.0	55.0	24.0	17.0	18.0	8.0
09	12.0	9.9	7.0	6.8	10.1	18.0	28.0	46.3	38.0	18.0	15.0	14.0	6.8
10	9.0	8.6	4.4	6.3	8.0	13.0	26.0	28.9	28.4	12.8	12.0	12.0	4.4
11	8.0	6.6	3.4	5.3	5.5	8.0	18.0	25.4	20.0	10.3	9.0	9.0	3.4
12	5.0	5.0	3.9	3.8	4.3	7.0	14.0	20.0	16.0	7.3	7.0	7.0	3.8
13	5.0	5.0	3.8	3.7	3.6	6.0	13.0	18.0	15.0	6.4	6.0	6.0	3.6
14	5.0	4.9	4.0	3.7	3.6	5.0	11.0	15.0	14.0	6.5	5.0	5.7	3.6
15	4.0	3.9	3.9	3.0	3.8	5.0	11.0	14.0	13.0	6.3	5.0	5.0	3.0
16	5.0	3.7	3.0	3.0	3.8	5.0	11.0	14.0	13.0	6.1	5.0	4.0	3.0
17	5.0	3.9	4.0	3.7	3.9	5.0	11.0	14.0	13.0	7.0	5.0	5.0	3.7
18	5.0	5.0	4.0	3.0	4.0	5.0	12.0	12.0	14.0	7.0	6.0	6.0	3.0
19	5.0	7.0	5.0	3.0	4.0	5.0	12.0	12.0	14.0	7.0	7.0	7.0	3.0
20	7.0	8.0	6.0	4.0	5.0	6.0	13.0	13.0	18.0	11.0	9.0	7.0	4.0
21	8.0	9.0	6.7	5.0	6.0	7.0	17.0	18.0	20.0	13.0	11.0	8.0	5.0
22	10.0	10.0	6.0	6.0	6.0	9.0	19.0	19.0	20.0	14.0	13.0	9.0	6.0
23	9.0	10.0	7.0	6.6	7.0	11.0	21.0	25.0	25.0	14.0	14.0	11.0	6.6
Mín.	4.0	3.7	3.0	3.0	3.6	5.0	11.0	12.0	13.0	6.1	5.0	4.0	3.0

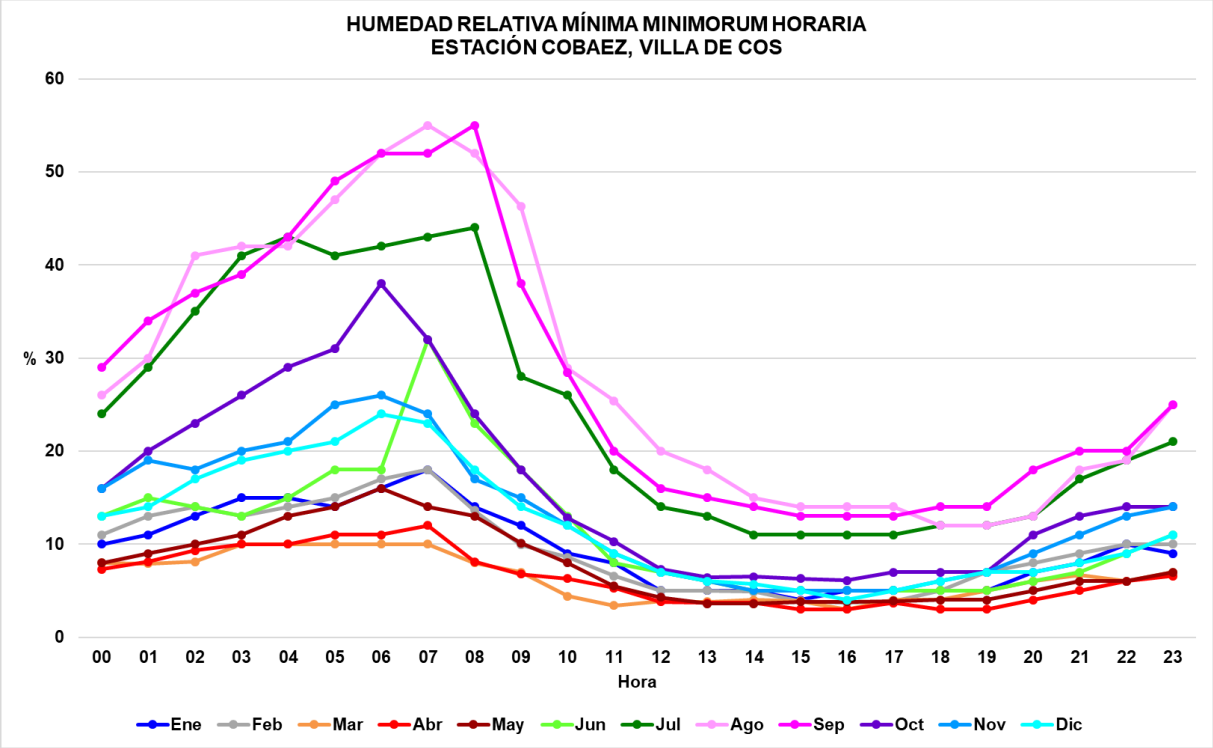


Figura 150. Humedad relativa mínima minimorum (%) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 165. Radiación solar global media horaria (W/m²) de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	18	7	11	11	6	2	1	3	7	1	6
07	52	124	329	200	226	213	146	103	72	94	215	83	155
08	528	747	1142	880	919	843	687	628	522	570	896	626	749
09	1273	1623	2077	1816	1831	1674	1458	1450	1284	1394	1698	1373	1579
10	2020	2445	2905	2720	2708	2483	2244	2277	2065	2198	2408	2076	2379
11	2600	3034	3498	3429	3442	3152	2921	2982	2663	2821	2887	2601	3002
12	2882	3360	3773	3900	3880	3544	3387	3441	3103	3197	3065	2820	3363
13	2898	3346	3730	4027	4009	3720	3544	3642	3218	3289	2935	2744	3425
14	2602	3055	3365	3838	3788	3595	3469	3465	3082	3088	2499	2405	3187
15	2052	2511	2736	3385	3342	3197	3139	3107	2747	2616	1896	1825	2713
16	1369	1781	1965	2685	2633	2588	2527	2521	2124	1911	1127	1095	2027
17	609	930	1098	1859	1877	1867	1866	1755	1380	1151	387	388	1264
18	80	216	331	1001	1101	1129	1145	1036	644	433	16	18	596
19	0	1	9	290	417	465	485	358	141	41	0	0	184
20	0	0	0	13	39	63	68	28	2	0	0	0	18
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18965	23174	26975	30051	30223	28542	27092	26794	23048	22806	20037	18055	24647

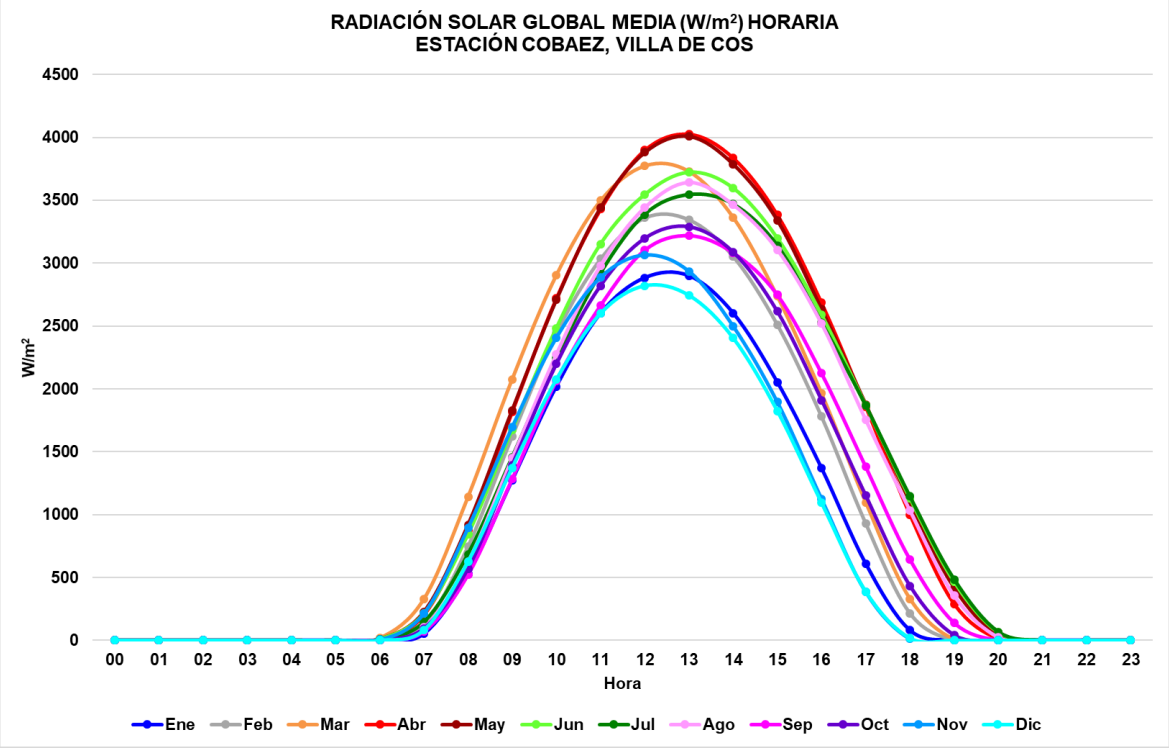


Figura 151. Radiación solar global media horaria (W/m²) de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 166. Radiación solar global media horaria (kWh/m^2) de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.06	0.05	0.04	0.03	0.02	0.02	0.05	0.02	0.04
08	0.13	0.19	0.29	0.22	0.23	0.21	0.17	0.16	0.13	0.14	0.22	0.16	0.19
09	0.32	0.41	0.52	0.45	0.46	0.42	0.36	0.36	0.32	0.35	0.42	0.34	0.39
10	0.50	0.61	0.73	0.68	0.68	0.62	0.56	0.57	0.52	0.55	0.60	0.52	0.59
11	0.65	0.76	0.87	0.86	0.86	0.79	0.73	0.75	0.67	0.71	0.72	0.65	0.75
12	0.72	0.84	0.94	0.97	0.97	0.89	0.85	0.86	0.78	0.80	0.77	0.71	0.84
13	0.72	0.84	0.93	1.01	1.00	0.93	0.89	0.91	0.80	0.82	0.73	0.69	0.86
14	0.65	0.76	0.84	0.96	0.95	0.90	0.87	0.87	0.77	0.77	0.62	0.60	0.80
15	0.51	0.63	0.68	0.85	0.84	0.80	0.78	0.78	0.69	0.65	0.47	0.46	0.68
16	0.34	0.45	0.49	0.67	0.66	0.65	0.63	0.63	0.53	0.48	0.28	0.27	0.51
17	0.15	0.23	0.27	0.46	0.47	0.47	0.47	0.44	0.35	0.29	0.10	0.10	0.32
18	0.02	0.05	0.08	0.25	0.28	0.28	0.29	0.26	0.16	0.11	0.00	0.00	0.15
19	0.00	0.00	0.00	0.07	0.10	0.12	0.12	0.09	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.74	5.79	6.74	7.51	7.56	7.14	6.77	6.70	5.76	5.70	5.01	4.51	6.16

Cuadro 167. Radiación solar global media horaria (Mj/m^2/s) de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01
07	0.05	0.11	0.30	0.18	0.20	0.19	0.13	0.09	0.06	0.08	0.19	0.07	0.14
08	0.48	0.67	1.03	0.79	0.83	0.76	0.62	0.56	0.47	0.51	0.81	0.56	0.67
09	1.15	1.46	1.87	1.63	1.65	1.51	1.31	1.30	1.16	1.25	1.53	1.24	1.42
10	1.82	2.20	2.61	2.45	2.44	2.23	2.02	2.05	1.86	1.98	2.17	1.87	2.14
11	2.34	2.73	3.15	3.09	3.10	2.84	2.63	2.68	2.40	2.54	2.60	2.34	2.70
12	2.59	3.02	3.40	3.51	3.49	3.19	3.05	3.10	2.79	2.88	2.76	2.54	3.03
13	2.61	3.01	3.36	3.62	3.61	3.35	3.19	3.28	2.90	2.96	2.64	2.47	3.08
14	2.34	2.75	3.03	3.45	3.41	3.24	3.12	3.12	2.77	2.78	2.25	2.16	2.87
15	1.85	2.26	2.46	3.05	3.01	2.88	2.83	2.80	2.47	2.35	1.71	1.64	2.44
16	1.23	1.60	1.77	2.42	2.37	2.33	2.27	2.27	1.91	1.72	1.01	0.99	1.82
17	0.55	0.84	0.99	1.67	1.69	1.68	1.68	1.58	1.24	1.04	0.35	0.35	1.14
18	0.07	0.19	0.30	0.90	0.99	1.02	1.03	0.93	0.58	0.39	0.01	0.02	0.54
19	0.00	0.00	0.01	0.26	0.38	0.42	0.44	0.32	0.13	0.04	0.00	0.00	0.17
20	0.00	0.00	0.00	0.01	0.03	0.06	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.07	20.86	24.28	27.05	27.20	25.69	24.38	24.11	20.74	20.53	18.03	16.25	22.18

Cuadro 168. Velocidad del viento media (km/h) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.7	5.8	6.5	7.9	8.9	9.6	8.3	7.3	5.0	4.2	3.8	4.4	6.4
01	4.5	5.7	6.1	7.3	7.9	8.2	7.1	6.5	4.6	3.8	3.7	4.1	5.8
02	4.3	5.2	5.6	6.6	6.9	7.2	6.2	5.8	4.2	3.6	3.6	4.0	5.3
03	4.1	4.7	5.1	5.8	6.1	6.5	5.8	5.3	4.0	3.5	3.5	3.7	4.8
04	3.9	4.4	4.8	5.1	5.2	5.8	5.5	5.0	3.8	3.4	3.2	3.7	4.5
05	3.8	4.1	4.4	4.7	4.7	5.0	5.0	4.6	3.6	3.2	2.9	3.5	4.1
06	3.6	3.8	4.1	4.2	4.1	4.6	4.5	4.0	3.3	3.1	2.9	3.4	3.8
07	3.5	3.9	4.4	4.1	4.0	4.7	4.5	3.7	3.3	2.9	3.1	3.4	3.8
08	4.2	5.1	6.3	5.6	5.8	7.0	6.5	5.2	4.6	3.8	4.5	4.2	5.2
09	6.1	7.4	8.4	8.1	7.8	8.6	8.5	7.8	6.9	5.9	6.4	6.3	7.3
10	8.2	9.3	9.7	9.3	8.4	8.5	8.7	8.7	8.1	7.3	7.6	8.1	8.5
11	9.8	10.7	10.6	10.1	8.8	8.3	8.5	8.6	8.3	8.0	8.4	9.4	9.1
12	10.8	11.8	11.6	11.1	9.2	8.5	8.4	8.6	8.4	8.5	9.2	10.3	9.7
13	11.7	12.7	12.3	12.0	10.0	9.3	8.9	8.9	8.5	9.0	9.7	11.0	10.3
14	12.1	13.3	12.9	12.8	10.6	10.0	9.5	9.5	8.6	9.1	9.8	11.3	10.8
15	12.5	13.5	13.3	13.3	10.9	10.5	10.2	9.9	8.9	9.1	9.7	11.3	11.1
16	12.2	13.5	13.3	13.5	11.4	11.0	10.8	10.4	9.3	9.0	9.4	10.8	11.2
17	11.2	12.9	13.1	13.4	11.7	11.5	11.5	11.0	9.5	8.8	8.5	9.6	11.1
18	9.0	11.0	12.1	13.5	11.7	11.8	11.7	11.1	9.0	8.0	6.6	7.2	10.2
19	7.5	8.6	9.8	12.3	11.4	12.1	11.4	10.6	7.7	6.5	6.6	6.5	9.3
20	7.2	8.2	9.2	10.5	10.2	11.3	10.4	9.1	6.6	6.3	6.5	6.1	8.5
21	6.6	7.8	9.1	10.3	9.8	10.7	9.7	8.7	6.5	6.4	5.8	5.5	8.1
22	5.8	6.8	8.3	10.0	10.0	11.2	9.7	8.6	6.4	6.0	4.8	4.9	7.7
23	5.2	6.2	7.2	9.0	9.7	10.8	9.5	8.2	5.8	5.0	4.1	4.5	7.1
Media	7.2	8.2	8.7	9.2	8.6	8.9	8.4	7.8	6.5	6.0	6.0	6.6	7.7

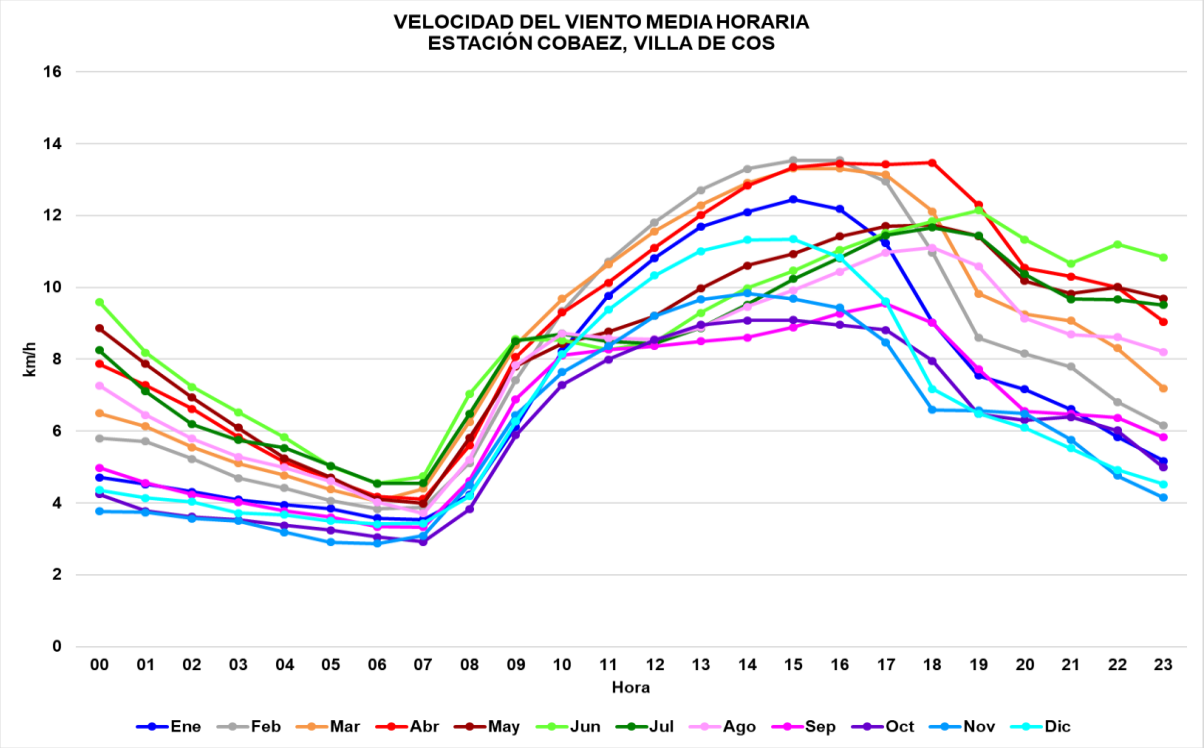


Figura 152. Velocidad del viento media (km/h) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 169. Velocidad del viento máxima maximorum (km/h) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	34.6	34.5	24.4	25.0	37.7	30.7	24.6	24.2	20.7	22.5	18.6	24.3	37.7
01	34.5	36.6	25.3	24.0	29.3	33.6	30.2	21.2	16.7	18.9	18.2	25.7	36.6
02	35.1	30.5	33.2	28.6	25.7	27.1	28.2	27.2	16.5	14.2	23.0	27.5	35.1
03	32.7	25.6	33.6	24.4	24.7	30.2	24.7	21.7	17.1	21.3	25.4	28.1	33.6
04	31.1	28.9	33.6	20.0	20.5	21.4	21.9	17.3	14.7	19.2	25.3	30.5	33.6
05	38.7	33.0	39.1	19.2	25.1	17.3	19.4	20.5	13.0	27.7	21.0	39.2	39.2
06	23.7	31.0	36.4	19.3	21.3	16.1	18.1	19.5	12.5	16.6	23.8	28.2	36.4
07	22.7	26.0	38.6	18.5	16.5	17.5	19.7	15.0	12.4	16.9	23.8	41.7	41.7
08	25.5	32.1	46.3	26.1	19.4	19.5	21.4	15.6	15.4	18.5	23.6	30.1	46.3
09	24.7	36.9	43.4	35.0	28.0	20.9	26.0	28.0	23.5	24.6	22.8	38.1	43.4
10	32.6	37.1	43.4	29.1	28.5	20.4	27.4	30.0	20.2	27.1	26.7	38.4	43.4
11	35.9	37.2	54.4	31.6	26.9	21.8	25.3	27.8	23.6	27.2	29.7	43.4	54.4
12	39.1	41.3	44.4	33.2	28.6	23.2	27.9	23.0	21.4	24.4	35.7	42.5	44.4
13	39.1	43.3	41.8	32.5	29.6	24.0	27.7	25.2	25.8	27.9	38.3	46.7	46.7
14	46.7	41.7	36.1	34.6	35.3	26.1	29.4	28.7	22.7	28.9	34.7	47.0	47.0
15	39.9	43.6	35.4	40.2	35.0	36.7	27.7	27.6	22.3	30.6	36.5	43.6	43.6
16	38.8	40.5	35.1	32.4	33.5	29.8	27.7	35.2	25.6	29.7	41.4	43.3	43.3
17	39.3	40.2	36.5	33.6	34.1	31.2	32.5	30.9	24.4	33.3	35.6	35.2	40.2
18	32.4	33.8	36.3	41.5	34.5	31.8	29.8	30.7	28.5	29.6	24.3	34.1	41.5
19	28.7	29.1	32.5	35.8	32.4	33.9	29.9	27.5	26.9	31.6	25.3	28.8	35.8
20	30.1	27.0	32.2	29.8	38.8	36.5	29.5	30.8	27.7	25.6	21.9	25.0	38.8
21	29.6	27.7	26.3	37.9	32.2	30.3	26.4	28.2	23.1	24.0	20.9	27.2	37.9
22	32.0	25.5	31.6	36.7	30.4	33.3	27.1	29.4	19.7	25.2	20.6	25.4	36.7
23	28.2	32.4	26.9	29.6	40.8	33.8	28.6	22.4	21.5	23.1	21.6	21.1	40.8
Máx.	46.7	43.6	54.4	41.5	40.8	36.7	32.5	35.2	28.5	33.3	41.4	47.0	54.4

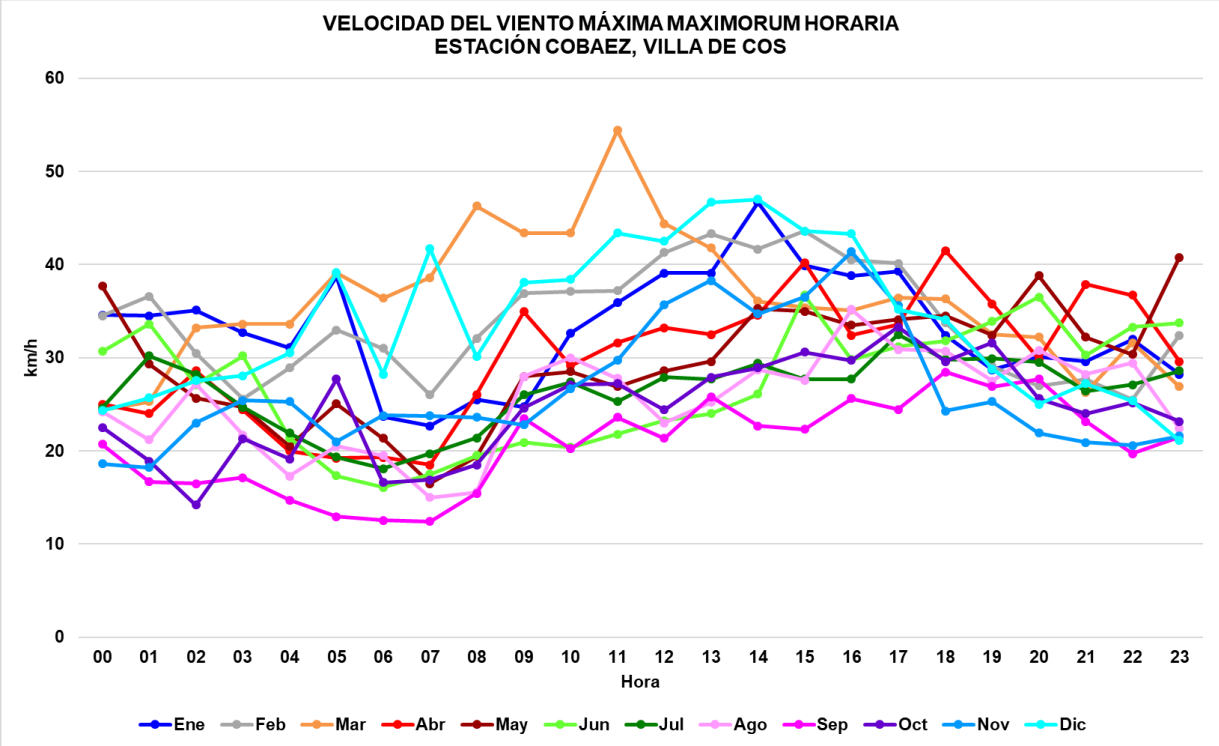


Figura 153. Velocidad del viento máxima maximorum (km/h) horaria de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 170. Frecuencia de velocidad del viento (%) mensual de la estación COBAEZ, Villa de Cos (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	43.5	35.9	30.0	24.2	23.4	20.3	24.1	27.3	38.5	45.7	48.4	47.9	34.1
5.1 a 10.0	32.2	33.9	36.7	37.1	42.8	42.5	43.9	44.9	44.1	39.5	34.8	31.7	38.8
10.1 a 15.0	14.3	16.9	19.3	23.4	24.1	27.7	24.5	22.8	15.7	12.7	12.5	12.5	18.9
15.1 a 20.0	6.7	8.3	9.2	10.9	7.8	8.0	6.1	4.6	1.6	1.8	3.4	5.4	6.1
20.1 a 25.0	2.3	3.4	3.4	3.5	1.5	1.5	1.2	0.4	0.1	0.3	0.6	1.7	1.6
25.1 a 30.0	0.8	1.3	1.1	0.7	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.6	0.4
30.1 a 35.0	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
35.1 a 40.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

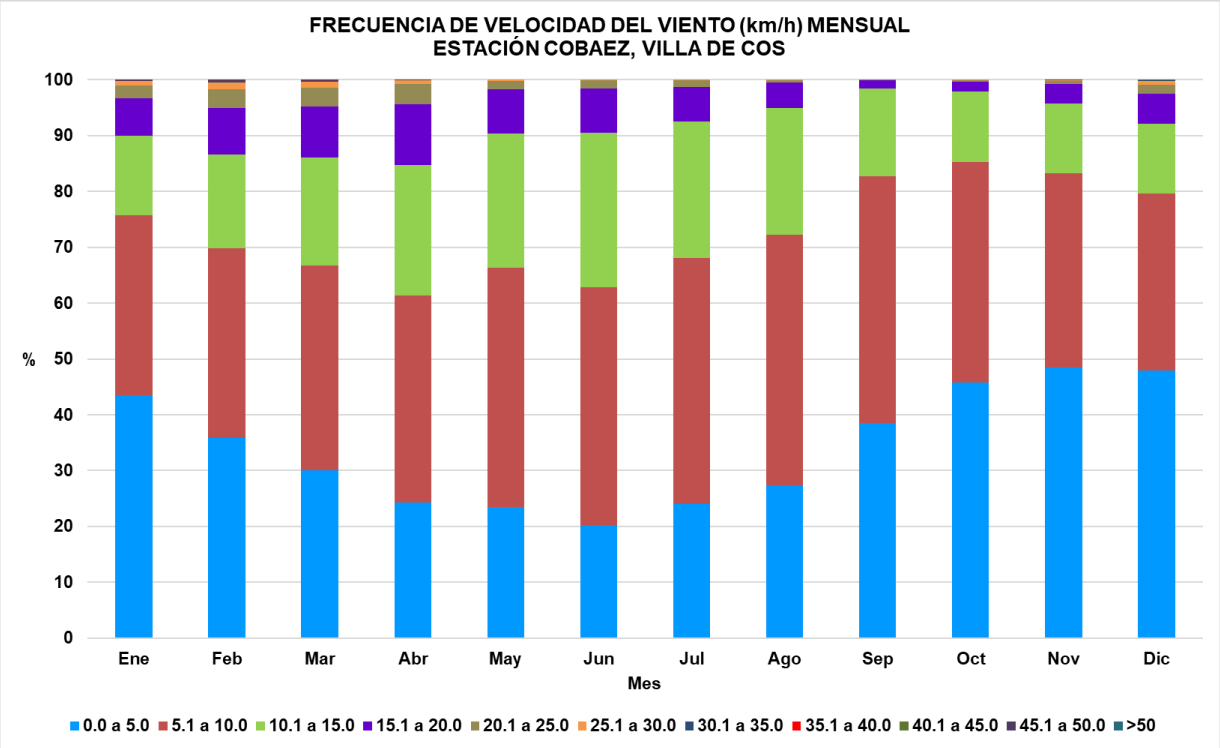


Figura 154. Frecuencia de velocidad del viento (%) mensual de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 171. Frecuencia de dirección del viento (%) mensual de la estación COBAEZ, Villa de Cos (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.8	4.4	3.7	3.1	3.6	4.0	2.4	2.6	4.9	5.1	5.4	4.3	4.0
NNE	4.3	3.6	3.2	2.5	3.5	4.2	3.1	3.9	5.1	5.1	4.3	4.2	3.9
NE	3.7	3.3	2.9	2.5	3.3	5.0	3.8	5.0	6.0	5.5	4.7	3.7	4.1
ENE	5.1	4.6	4.5	3.9	5.3	8.3	7.5	9.0	9.6	8.4	6.7	4.7	6.5
E	7.2	5.7	6.6	5.7	7.9	13.7	15.3	15.2	15.1	13.1	10.7	7.2	10.4
ESE	9.1	7.2	8.6	6.9	10.0	20.5	23.1	22.8	18.5	15.3	12.9	8.3	13.7
SE	9.0	7.1	7.7	7.2	10.3	16.0	18.1	17.6	14.1	13.0	11.1	8.9	11.8
SSE	6.2	5.8	5.7	5.6	7.1	7.6	8.4	7.3	6.7	6.7	6.5	6.9	6.7
S	7.3	7.0	6.2	6.4	6.8	4.7	4.9	4.3	4.0	4.9	5.9	8.2	5.9
SSO	10.7	13.0	11.1	11.9	8.5	3.4	3.4	3.1	2.9	4.6	7.1	12.0	7.6
SO	9.9	13.7	13.5	16.2	9.8	2.4	2.1	2.0	2.0	3.8	6.9	10.2	7.5
OSO	6.2	8.7	9.6	11.3	8.1	1.9	1.7	1.5	1.6	2.9	4.6	6.3	5.3
O	4.1	4.8	5.3	6.3	5.1	1.5	1.4	1.3	1.6	2.3	2.8	3.9	3.3
ONO	3.9	3.9	4.0	4.3	4.1	1.7	1.4	1.3	1.9	2.7	2.9	3.8	3.0
NO	4.2	3.6	3.9	3.4	3.5	2.2	1.6	1.4	2.5	3.0	3.5	3.7	3.0
NNO	4.2	3.6	3.5	2.9	3.2	2.9	1.7	1.7	3.4	3.7	3.9	3.7	3.2
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

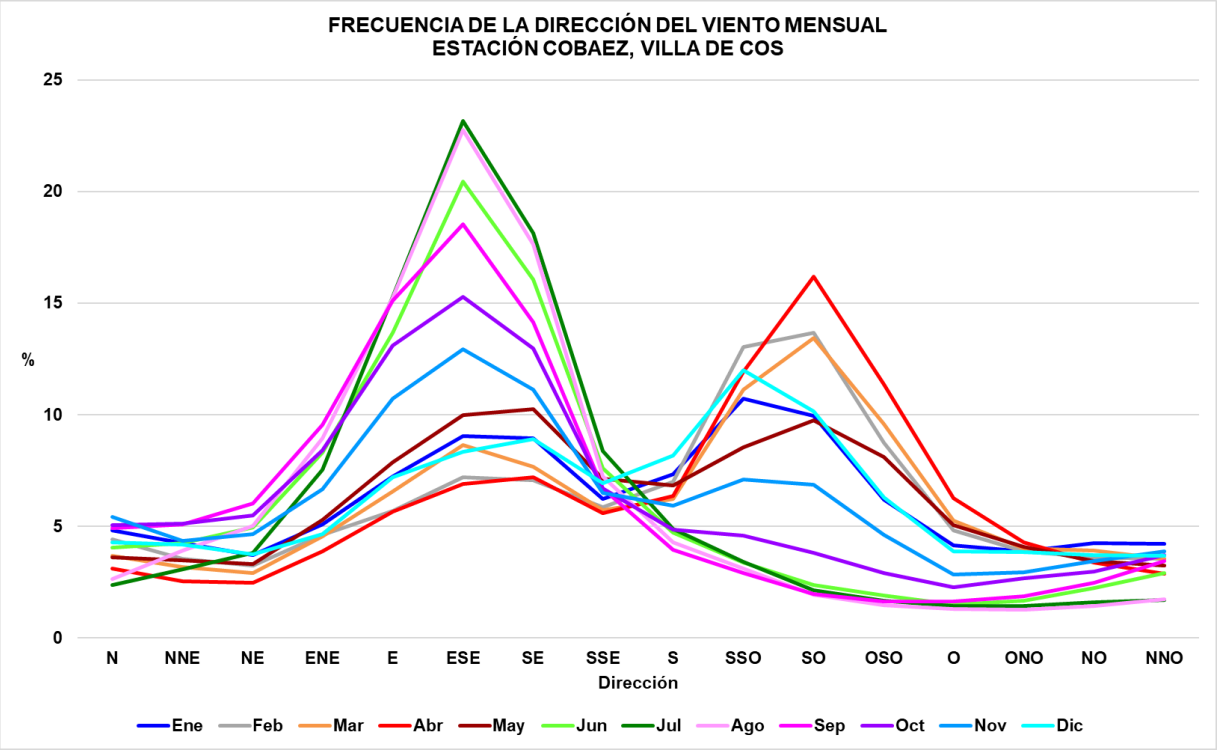
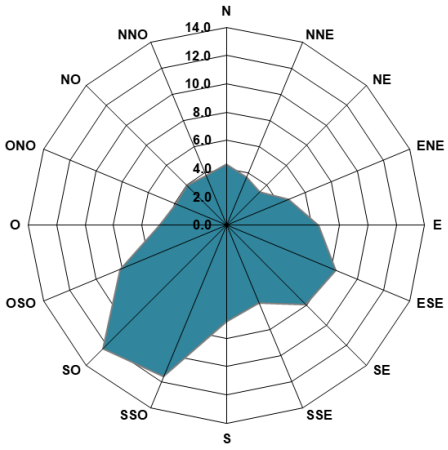


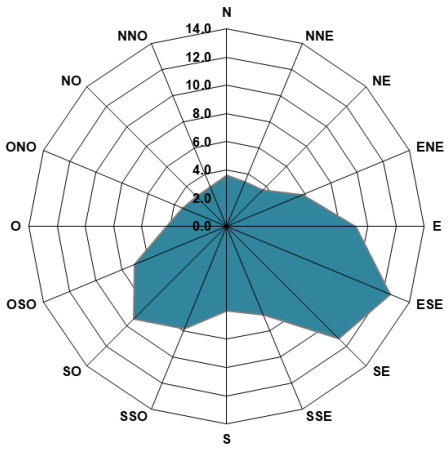
Figura 155. Frecuencia de dirección del viento (%) mensual de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 172. Frecuencia de dirección del viento (%) trimestral de la estación COBAEZ, Villa de Cos (2005-2022).

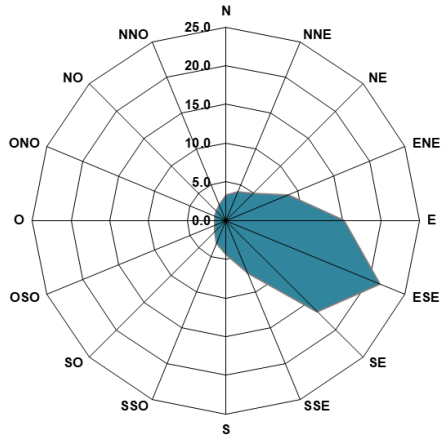
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	4.3	3.6	3.3	4.9	4.0
NNE	3.7	3.4	4.0	4.6	3.9
NE	3.3	3.6	5.0	4.6	4.1
ENE	4.8	5.9	8.7	6.6	6.5
E	6.5	9.1	15.2	10.3	10.4
ESE	8.3	12.5	21.5	12.2	13.7
SE	7.9	11.2	16.7	11.0	11.8
SSE	5.9	6.8	7.4	6.7	6.7
S	6.8	6.0	4.4	6.3	5.9
SSO	11.6	7.9	3.2	7.9	7.6
SO	12.3	9.3	2.0	7.0	7.5
OSO	8.2	7.0	1.6	4.6	5.3
O	4.7	4.2	1.5	3.0	3.3
ONO	3.9	3.3	1.5	3.2	3.0
NO	3.9	3.0	1.8	3.4	3.0
NNO	3.8	3.0	2.3	3.8	3.2
Suma	100.0	100.0	100.0	100.0	100.0



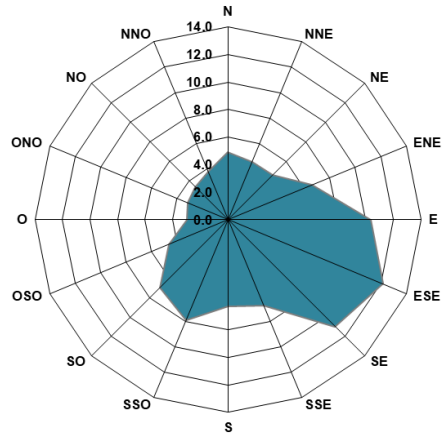
Ene-Mar



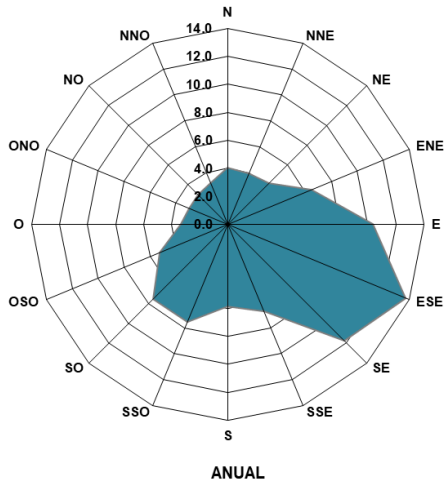
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 156. Frecuencia de dirección del viento (%) trimestral de la estación COBAEZ, Villa de Cos (2005-2022).

Cuadro 173. Estadísticas climatológicas mensuales de la estación COBAEZ, Villa de Cos (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.2	23.9	26.3	29.0	30.4	29.3	27.1	27.6	25.7	25.6	23.4	22.0	26.0
Temperatura máxima maximorum (°C)	28.3	31.9	33.9	34.7	37.2	34.5	32.6	32.5	31.3	30.9	29.7	28.6	37.2
Temperatura mínima media (°C)	2.6	4.4	6.8	9.7	12.3	14.1	13.9	13.8	13.1	9.6	5.4	3.1	9.1
Temperatura mínima minimorum (°C)	-9.4	-4.3	-4.5	0.5	4.5	0.0	9.7	10.1	4.4	-3.0	-8.9	-11.1	-11.1
Temperatura media (°C)	11.6	14.2	16.8	19.8	21.7	21.5	19.9	20.1	18.7	17.2	14.0	12.1	17.3
Oscilación térmica (°C)	18.6	19.5	19.5	19.3	18.1	15.1	13.3	13.8	12.5	16.0	18.0	18.9	16.9
Precipitación acumulada media (mm)	9.5	11.1	6.9	5.0	13.1	73.0	90.4	63.9	103.6	26.8	14.2	12.3	429.8
Precipitación máxima maximorum en 24 horas (mm)	21.0	32.2	36.6	19.0	23.2	99.4	71.0	40.8	62.6	47.2	23.8	26.8	99.4
Número de días promedio con lluvia	3.7	4.1	3.1	2.6	5.1	9.2	11.2	11.3	13.0	7.1	4.7	3.3	78.4
Evapotranspiración acumulada potencial media (mm)	106.0	127.2	168.9	192.6	200.8	176.7	162.8	163.7	128.9	132.6	110.0	102.9	1773.1
Humedad máxima media (%)	77.6	71.4	64.1	59.3	68.8	83.0	88.9	89.4	92.9	88.8	86.0	79.7	79.2
Humedad máxima maximorum (%)	100.0	99.0	98.0	97.0	97.0	99.0	99.0	98.0	99.0	100.0	99.0	100.0	100.0
Humedad mínima media (%)	20.8	16.4	13.1	10.7	13.2	23.0	31.7	30.6	38.5	29.1	25.0	21.5	22.8
Humedad mínima minimorum (%)	4.0	3.7	3.0	3.0	3.6	5.0	11.0	12.0	13.0	6.1	5.0	4.0	3.0
Humedad media (%)	47.7	40.1	34.0	29.7	36.4	52.0	62.1	61.8	69.3	59.9	55.3	49.5	49.8
Radiación global media día/mes (W/m^2)	18970.1	23179.7	26975.4	30061.1	30222.6	28542.3	27118.4	26793.7	23047.6	22806.3	20036.5	18055.0	24650.7
Radiación global media día/mes (kWh/m^2)	4.7	5.8	6.7	7.5	7.6	7.1	6.8	6.7	5.8	5.7	5.0	4.5	6.2
Radiación global media día/mes ($Mj/m^2/s$)	17.1	20.9	24.3	27.1	27.2	25.7	24.4	24.1	20.7	20.5	18.0	16.2	22.2
Velocidad del viento máxima media (km/h)	17.2	18.8	19.4	20.5	20.0	20.1	18.9	17.9	15.4	14.1	14.2	16.0	17.7
Velocidad del viento máxima maximorum (km/h)	46.7	43.6	54.4	41.5	40.8	36.7	32.5	35.2	28.5	33.3	41.4	47.0	54.4
Velocidad del viento media (km/h)	7.2	8.2	8.7	9.2	8.6	8.9	8.4	7.8	6.5	6.0	6.0	6.6	7.7
Dirección dominante del viento	SSO	SO	SO	SO	SE	ESE	ESE	ESE	ESE	ESE	ESE	SSO	ESE

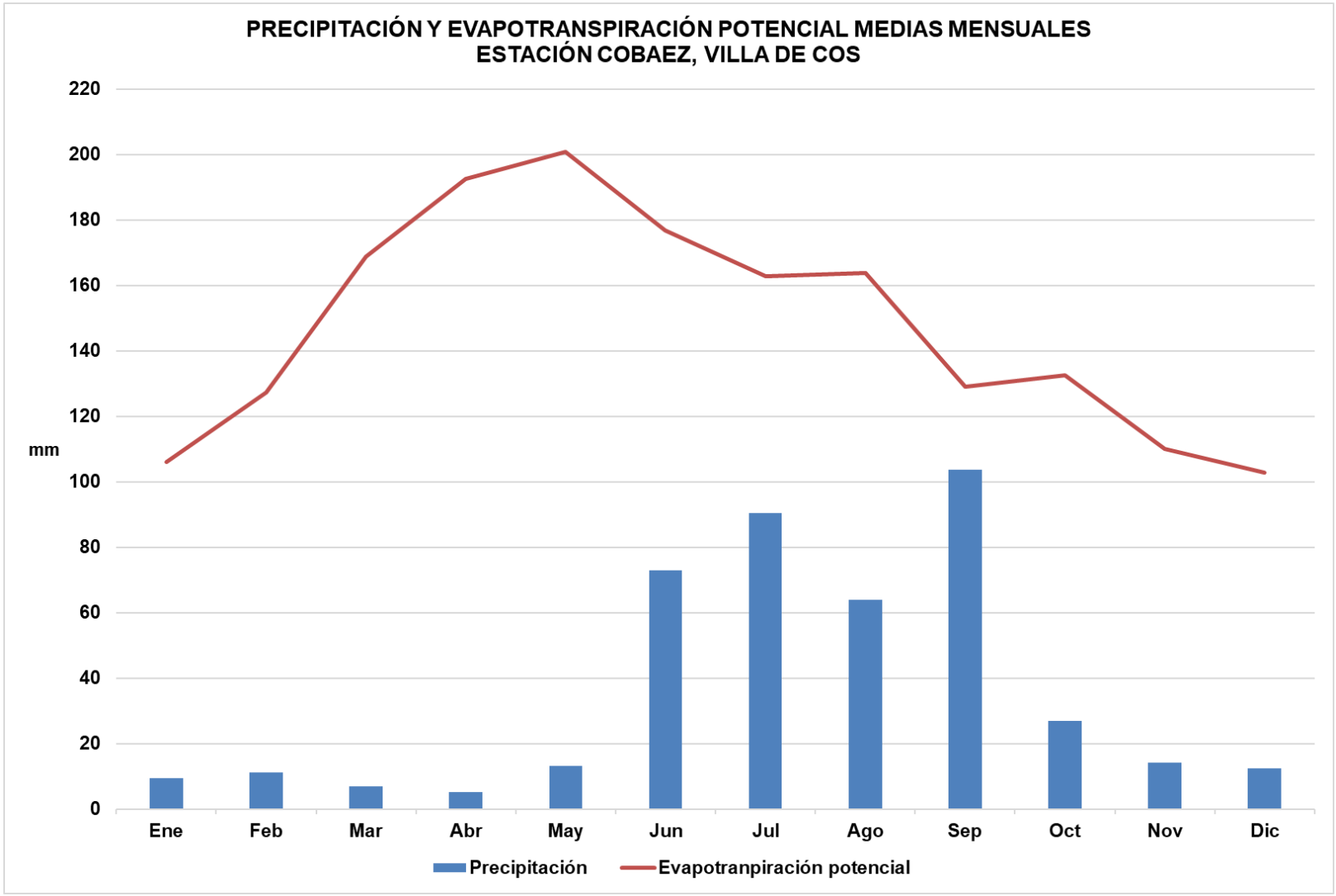


Figura 157. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación COBAEZ, Villa de Cos (2005-2022).

7.10. Estación: Col. Emancipación, Fresnillo

Cuadro 174. Temperatura máxima media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	9.5	11.8	15.4	17.9	18.7	17.0	16.8	15.2	12.5	8.5	6.8	13.1
01	6.3	8.5	10.7	14.3	16.9	17.8	16.3	16.2	14.7	11.6	7.5	5.9	12.2
02	5.5	7.6	9.6	13.1	15.9	17.0	15.7	15.5	14.3	10.7	6.6	5.2	11.4
03	4.9	6.8	8.5	12.1	14.8	16.1	15.1	14.9	13.8	10.1	5.9	4.6	10.6
04	4.4	6.2	7.8	11.0	13.7	15.4	14.5	14.3	13.4	9.6	5.2	4.1	10.0
05	3.9	5.6	7.0	10.1	12.7	14.7	14.0	13.8	13.0	9.0	4.8	3.8	9.4
06	3.4	5.1	6.4	9.2	11.9	14.0	13.5	13.3	12.6	8.6	4.4	3.3	8.8
07	3.4	5.3	7.8	9.6	12.3	14.4	13.7	13.3	12.6	8.8	6.1	3.6	9.3
08	6.7	9.2	12.5	13.2	16.0	17.2	16.2	15.7	14.7	11.9	11.1	7.8	12.7
09	10.7	13.2	16.4	17.4	19.5	19.7	18.5	18.3	17.3	15.9	15.2	12.2	16.2
10	14.0	16.4	19.3	20.6	22.4	21.9	20.5	20.5	19.5	19.1	18.3	15.5	19.0
11	16.5	18.9	21.6	23.1	24.7	23.9	22.2	22.2	21.3	21.4	20.5	17.9	21.2
12	18.4	20.5	23.2	24.9	26.5	25.4	23.5	23.6	22.6	23.0	22.0	19.6	22.8
13	19.5	21.7	24.3	26.3	27.7	26.6	24.5	24.7	23.6	24.1	22.8	20.7	23.9
14	20.2	22.4	25.0	27.2	28.6	27.3	25.2	25.4	24.3	24.7	23.4	21.3	24.6
15	20.4	22.7	25.1	27.6	29.0	27.8	25.5	25.8	24.4	25.0	23.4	21.4	24.8
16	20.1	22.4	24.9	27.6	29.0	27.7	25.4	25.8	24.3	24.9	22.8	20.9	24.6
17	19.1	21.7	24.1	27.2	28.7	27.3	24.9	25.2	23.6	24.1	21.3	19.6	23.9
18	17.0	20.0	22.6	26.3	28.0	26.6	24.1	24.3	22.4	22.4	17.7	16.4	22.3
19	13.6	16.8	19.8	24.6	26.6	25.3	22.7	22.8	20.5	19.1	14.1	13.0	19.9
20	11.7	14.4	17.1	22.1	24.3	23.5	20.9	20.5	17.9	15.8	12.7	11.4	17.7
21	10.4	13.0	15.5	19.6	21.8	21.6	19.1	18.6	16.5	14.5	11.7	10.1	16.0
22	9.3	11.9	14.3	17.9	20.2	20.3	18.2	17.8	15.9	13.8	10.7	8.9	14.9
23	8.3	10.8	13.1	16.7	19.1	19.4	17.6	17.3	15.5	13.2	9.6	7.8	14.0
Media	11.5	13.8	16.2	19.1	21.2	21.2	19.5	19.4	18.1	16.4	13.6	11.7	16.8

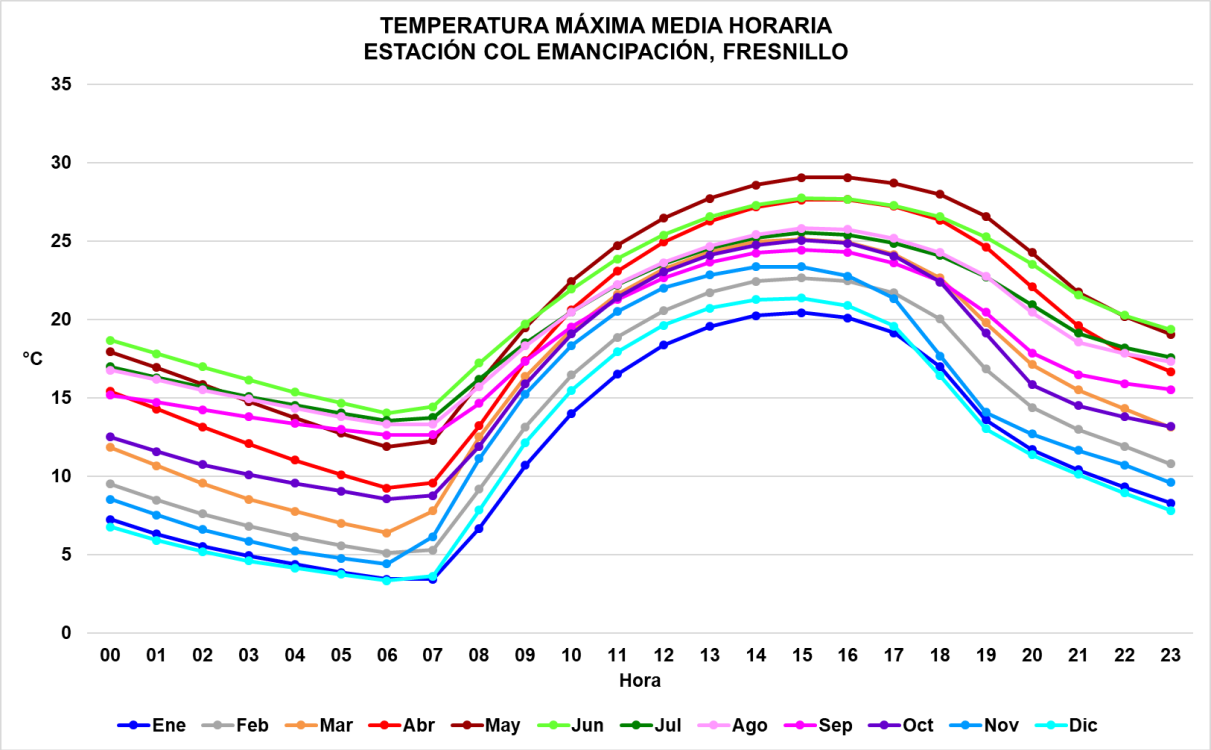


Figura 158. Temperatura máxima media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 175. Temperatura máxima maximorum (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.7	17.0	20.7	22.9	26.6	25.0	23.1	22.7	20.0	20.2	16.9	14.2	26.6
01	13.7	15.8	18.7	21.6	24.4	23.9	21.7	22.0	19.2	19.1	16.5	15.4	24.4
02	13.3	16.7	17.3	21.4	23.8	22.5	20.8	20.9	18.3	19.0	14.3	15.2	23.8
03	13.3	16.7	16.6	18.6	22.9	21.8	19.5	20.0	17.9	17.8	14.9	14.3	22.9
04	13.3	16.5	16.2	17.6	21.5	20.7	18.8	18.9	17.9	16.6	14.4	14.2	21.5
05	12.6	15.0	15.5	17.2	20.2	20.1	18.0	18.8	17.5	16.7	15.8	13.9	20.2
06	13.2	14.1	14.2	17.0	19.4	18.6	17.9	19.3	17.5	16.4	15.1	14.1	19.4
07	13.4	14.2	17.8	16.5	21.6	18.7	17.8	17.4	16.8	16.2	15.9	13.8	21.6
08	14.6	17.5	21.1	21.2	23.1	22.9	20.7	19.7	19.4	17.7	18.3	15.5	23.1
09	19.5	21.3	24.3	24.8	27.0	25.5	23.3	22.6	21.4	23.1	22.8	19.6	27.0
10	22.0	25.5	27.7	26.8	28.8	28.4	26.5	25.2	23.8	26.1	25.7	24.0	28.8
11	24.6	28.5	29.9	28.5	31.4	30.4	28.2	26.6	25.8	27.1	28.2	26.3	31.4
12	26.2	29.8	30.9	30.3	33.0	30.9	29.7	28.0	27.2	28.6	29.4	28.3	33.0
13	27.8	30.8	32.4	32.0	34.1	32.1	31.0	29.5	28.6	29.6	30.4	28.4	34.1
14	27.7	31.3	33.7	32.8	34.0	33.0	31.9	30.5	29.5	29.9	31.3	28.7	34.0
15	27.9	31.1	33.2	33.2	35.3	34.0	32.3	30.7	31.0	31.5	31.3	28.6	35.3
16	27.7	30.1	34.0	34.0	35.7	33.7	32.4	31.2	31.1	31.4	30.8	27.5	35.7
17	26.6	29.1	32.7	33.9	35.5	33.9	32.0	31.5	30.8	31.1	29.2	25.8	35.5
18	24.6	28.1	31.9	33.0	35.3	33.6	31.8	30.5	29.6	30.2	24.4	23.0	35.3
19	19.6	24.8	26.9	30.5	35.3	32.0	30.1	29.6	29.0	29.7	22.5	19.0	35.3
20	19.0	23.0	24.7	27.5	30.8	30.6	27.6	27.1	24.3	26.8	22.0	17.6	30.8
21	16.5	21.1	25.4	26.2	29.0	29.2	26.3	25.4	23.1	22.8	19.4	16.4	29.2
22	15.8	21.3	25.2	24.4	28.8	27.4	24.5	25.5	21.4	22.2	18.2	15.8	28.8
23	15.0	19.6	22.6	23.0	26.9	26.4	24.1	23.9	20.5	22.0	18.1	15.1	26.9
Máx.	27.9	31.3	34.0	34.0	35.7	34.0	32.4	31.5	31.1	31.5	31.3	28.7	35.7

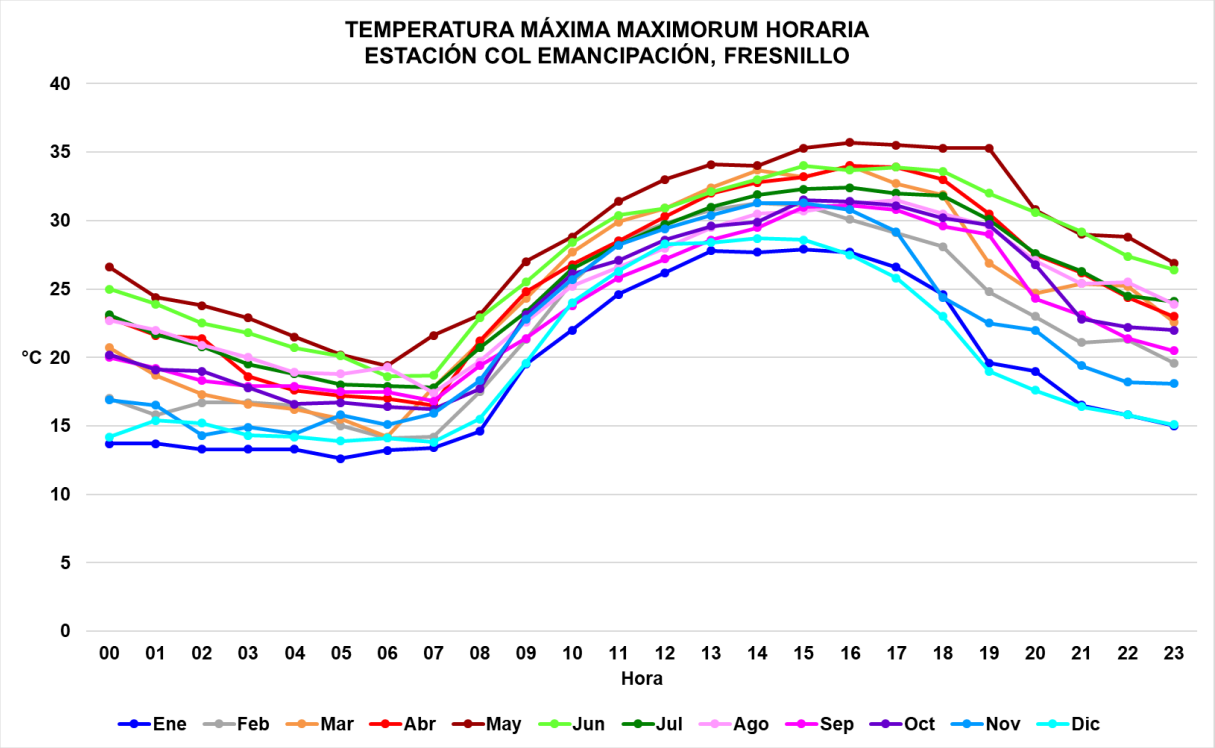


Figura 159. Temperatura máxima maximorum (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 176. Temperatura mínima media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.9	8.2	10.4	14.1	16.6	17.5	16.0	15.8	14.3	11.3	7.1	5.4	11.9
01	5.1	7.2	9.3	13.0	15.6	16.7	15.3	15.2	13.9	10.4	6.2	4.6	11.0
02	4.3	6.4	8.2	11.8	14.6	15.9	14.8	14.6	13.4	9.7	5.4	4.0	10.2
03	3.8	5.7	7.3	10.8	13.5	15.1	14.2	14.0	13.0	9.1	4.7	3.4	9.5
04	3.2	5.0	6.5	9.8	12.5	14.4	13.7	13.5	12.6	8.6	4.1	3.0	8.9
05	2.8	4.5	5.8	8.8	11.6	13.7	13.2	13.0	12.2	8.1	3.7	2.6	8.3
06	2.4	4.0	5.2	8.0	10.7	13.0	12.8	12.5	11.9	7.7	3.4	2.2	7.8
07	2.1	3.8	5.4	7.8	10.6	13.0	12.7	12.3	11.7	7.4	3.6	2.1	7.7
08	3.5	5.8	8.9	9.9	12.9	14.9	14.1	13.4	12.6	8.9	7.4	4.2	9.7
09	7.6	10.2	13.5	14.3	16.9	17.8	16.7	16.3	15.2	13.0	12.2	8.9	13.5
10	11.5	14.0	17.2	18.2	20.3	20.2	18.9	18.8	17.8	16.7	16.0	13.0	16.9
11	14.6	17.1	19.9	21.2	23.0	22.3	20.8	20.8	19.8	19.6	18.9	16.1	19.5
12	16.9	19.2	21.9	23.5	25.1	24.1	22.3	22.4	21.4	21.7	20.7	18.2	21.4
13	18.4	20.6	23.3	25.1	26.6	25.4	23.3	23.5	22.5	22.9	21.8	19.6	22.7
14	19.3	21.5	24.1	26.1	27.5	26.1	24.0	24.1	23.0	23.6	22.4	20.4	23.5
15	19.6	21.9	24.3	26.7	27.9	26.5	24.2	24.5	23.1	23.9	22.4	20.5	23.8
16	19.2	21.6	24.0	26.7	28.0	26.4	23.9	24.3	22.8	23.6	21.6	19.8	23.5
17	17.6	20.5	23.0	26.2	27.6	26.0	23.4	23.7	22.1	22.5	18.9	17.4	22.4
18	14.2	17.7	20.6	25.0	26.7	25.2	22.6	22.8	20.8	19.9	14.3	13.5	20.3
19	11.7	14.7	17.5	22.7	24.8	23.8	21.2	20.9	18.3	16.1	12.3	11.2	17.9
20	10.2	12.8	15.5	20.0	22.1	21.8	19.2	18.5	16.3	14.2	11.2	9.8	16.0
21	9.0	11.6	14.1	17.9	20.1	20.1	17.9	17.3	15.5	13.2	10.2	8.5	14.6
22	7.9	10.5	12.9	16.5	18.8	19.0	17.1	16.7	15.0	12.5	9.2	7.4	13.6
23	6.9	9.3	11.7	15.4	17.8	18.2	16.6	16.3	14.6	12.0	8.1	6.4	12.8
Media	9.9	12.2	14.6	17.5	19.7	19.9	18.3	18.1	16.8	14.9	11.9	10.1	15.3

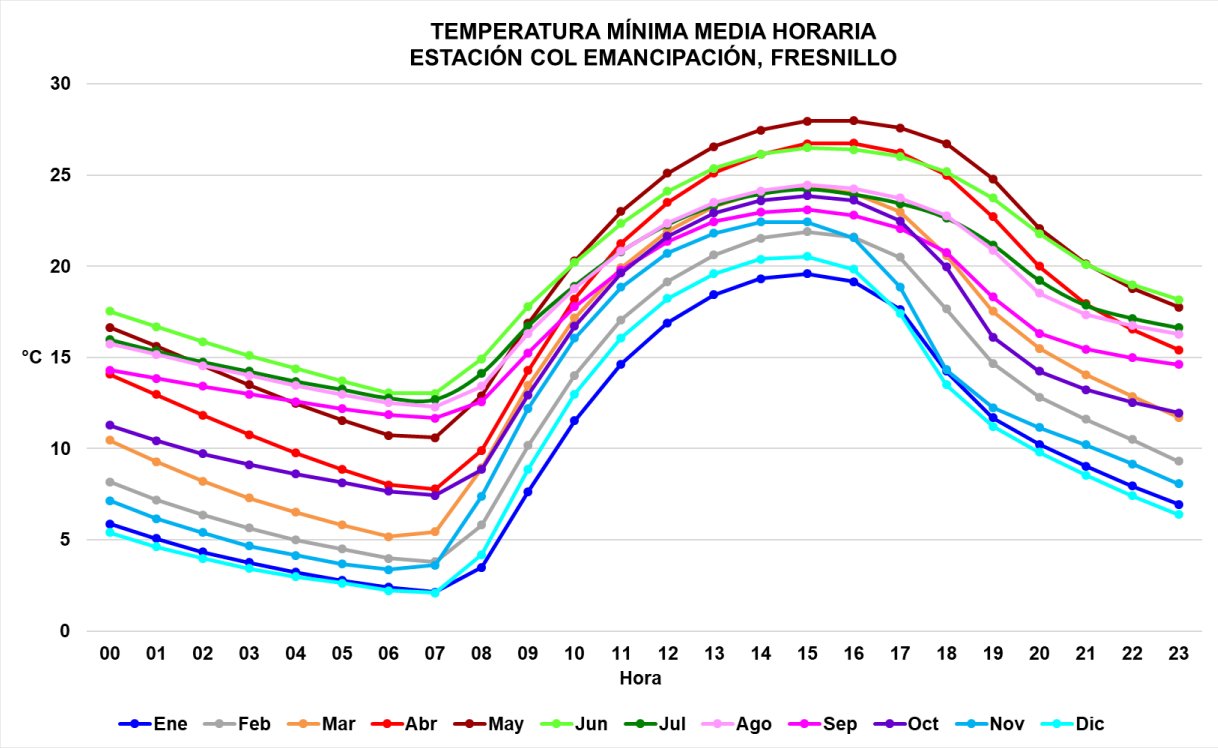


Figura 160. Temperatura mínima media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 177. Temperatura mínima minimorum (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.5	-2.0	-1.7	4.4	9.0	10.7	10.0	11.8	5.3	1.0	-9.6	-8.7	-9.6
01	-7.3	-2.4	-2.2	3.7	7.7	8.7	9.3	10.8	5.4	0.4	-10.0	-9.1	-10.0
02	-7.4	-2.9	-2.4	3.7	5.5	7.5	8.5	9.7	5.0	-0.6	-10.7	-10.4	-10.7
03	-7.5	-4.1	-4.2	0.9	4.1	6.4	7.9	8.9	4.1	-0.8	-10.7	-13.1	-13.1
04	-8.1	-5.6	-5.9	0.6	4.1	5.3	7.7	7.7	4.1	-2.8	-11.6	-13.9	-13.9
05	-7.8	-7.1	-6.6	-2.4	2.7	5.6	7.2	7.1	3.4	-4.1	-12.4	-15.2	-15.2
06	-9.2	-6.3	-7.2	-2.7	3.3	4.8	6.9	6.6	2.9	-4.6	-12.8	-15.4	-15.4
07	-10.0	-7.6	-6.3	-2.7	2.4	4.5	6.9	6.8	1.8	-4.8	-13.7	-14.7	-14.7
08	-8.0	-5.2	-3.8	-1.8	3.1	8.9	7.5	7.4	4.5	-1.2	-6.9	-10.9	-10.9
09	-2.7	0.8	1.1	4.8	8.0	13.2	11.6	11.2	9.0	4.7	-0.1	-4.7	-4.7
10	1.1	2.5	1.8	9.2	10.3	14.2	13.5	13.3	12.4	6.6	2.8	-1.9	-1.9
11	2.4	4.6	2.9	11.5	11.0	15.2	13.7	14.4	14.6	6.3	4.3	-2.0	-2.0
12	4.1	5.8	5.3	13.6	13.4	15.6	14.1	14.9	14.9	6.4	5.4	-1.8	-1.8
13	5.3	6.6	6.5	14.5	14.5	14.3	13.1	15.0	15.3	7.3	5.7	-1.5	-1.5
14	6.6	6.5	6.3	16.1	13.4	14.6	12.2	12.7	14.5	9.1	7.2	-1.2	-1.2
15	4.5	6.9	6.1	13.8	13.6	13.2	12.0	14.1	14.7	11.6	7.6	-0.6	-0.6
16	4.9	6.4	5.7	14.3	14.5	13.0	12.3	14.2	14.5	12.1	6.5	0.3	0.3
17	5.5	6.3	6.1	13.9	12.0	12.9	12.9	14.0	13.2	11.0	4.1	-0.6	-0.6
18	3.5	6.4	3.5	13.1	10.5	13.0	13.7	14.3	13.4	9.1	-0.4	-2.0	-2.0
19	2.8	4.8	2.4	11.1	11.2	12.2	13.0	13.5	10.8	7.8	-3.9	-3.4	-3.9
20	-0.6	4.0	0.8	10.1	11.2	12.3	12.0	13.2	9.1	5.1	-3.7	-5.1	-5.1
21	-1.0	0.8	0.0	8.4	10.8	12.0	12.3	12.6	8.7	4.3	-7.2	-7.5	-7.5
22	-3.7	0.9	0.0	6.1	11.5	11.1	12.1	11.6	7.6	2.9	-8.1	-9.1	-9.1
23	-4.1	-1.0	-1.2	4.7	10.9	11.3	11.3	11.8	6.4	2.3	-8.7	-7.9	-8.7
Mín.	-10.0	-7.6	-7.2	-2.7	2.4	4.5	6.9	6.6	1.8	-4.8	-13.7	-15.4	-15.4

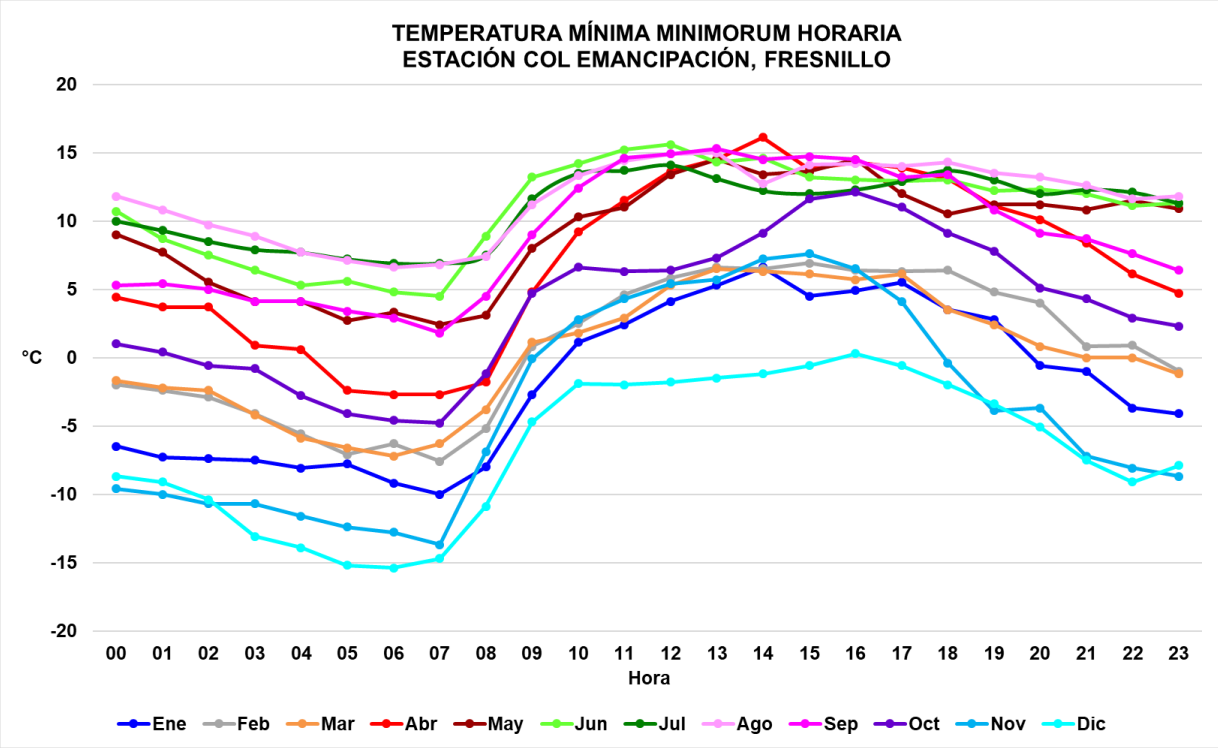


Figura 161. Temperatura mínima minimorum (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 178. Temperatura media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	8.8	11.1	14.8	17.3	18.1	16.5	16.3	14.7	11.9	7.8	6.1	12.5
01	5.7	7.8	10.0	13.6	16.3	17.2	15.8	15.7	14.3	11.0	6.8	5.3	11.6
02	4.9	7.0	8.9	12.5	15.2	16.4	15.2	15.0	13.8	10.2	6.0	4.6	10.8
03	4.3	6.2	7.9	11.4	14.1	15.6	14.7	14.5	13.4	9.6	5.2	4.0	10.1
04	3.8	5.6	7.1	10.4	13.1	14.9	14.1	13.9	13.0	9.1	4.7	3.6	9.4
05	3.3	5.0	6.4	9.5	12.1	14.2	13.6	13.4	12.6	8.6	4.2	3.2	8.8
06	2.9	4.5	5.8	8.6	11.3	13.5	13.2	12.9	12.2	8.1	3.9	2.8	8.3
07	2.7	4.5	6.5	8.6	11.4	13.7	13.2	12.8	12.1	8.1	4.7	2.8	8.4
08	5.1	7.5	10.7	11.5	14.5	16.1	15.2	14.5	13.6	10.3	9.3	6.0	11.2
09	9.2	11.7	14.9	15.8	18.2	18.8	17.6	17.3	16.3	14.4	13.8	10.5	14.9
10	12.8	15.2	18.3	19.4	21.4	21.1	19.7	19.6	18.7	17.9	17.2	14.3	18.0
11	15.6	18.0	20.8	22.2	23.9	23.1	21.5	21.5	20.5	20.5	19.7	17.0	20.4
12	17.6	19.9	22.6	24.2	25.8	24.8	22.9	23.0	22.0	22.4	21.4	18.9	22.1
13	19.0	21.2	23.8	25.7	27.2	26.0	23.9	24.1	23.0	23.5	22.3	20.2	23.3
14	19.8	22.0	24.5	26.7	28.0	26.7	24.6	24.8	23.6	24.2	22.9	20.8	24.1
15	20.0	22.3	24.7	27.2	28.5	27.1	24.9	25.2	23.8	24.5	22.9	20.9	24.3
16	19.6	22.0	24.5	27.2	28.5	27.0	24.7	25.0	23.6	24.3	22.2	20.4	24.1
17	18.4	21.1	23.6	26.7	28.1	26.6	24.2	24.5	22.8	23.3	20.2	18.6	23.2
18	15.6	18.9	21.7	25.7	27.4	25.9	23.4	23.5	21.6	21.2	15.9	14.9	21.3
19	12.6	15.7	18.6	23.7	25.7	24.5	22.0	21.8	19.4	17.6	13.1	12.1	18.9
20	11.0	13.6	16.3	21.0	23.2	22.7	20.1	19.5	17.1	15.0	11.9	10.6	16.8
21	9.7	12.3	14.8	18.8	20.9	20.8	18.5	17.9	16.0	13.9	10.9	9.3	15.3
22	8.6	11.2	13.6	17.2	19.5	19.6	17.7	17.3	15.4	13.2	9.9	8.2	14.3
23	7.6	10.1	12.4	16.1	18.4	18.8	17.1	16.8	15.1	12.6	8.8	7.1	13.4
Media	10.7	13.0	15.4	18.3	20.4	20.6	18.9	18.8	17.4	15.6	12.7	10.9	16.1

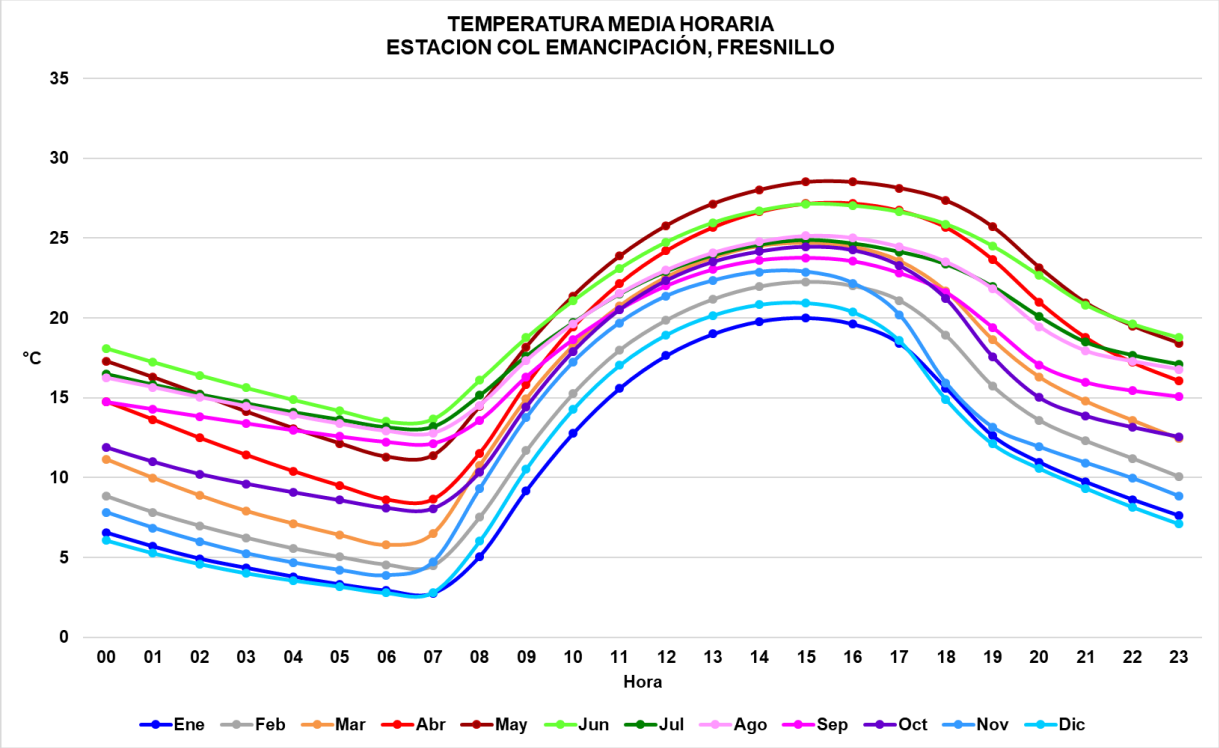


Figura 162. Temperatura media (˚C) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 179. Precipitación media (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.7	0.2	0.0	0.5	3.9	3.8	6.2	9.8	2.3	0.4	0.8	28.9
01	0.4	0.5	0.2	0.0	0.3	3.6	3.8	5.6	6.6	2.1	0.3	0.9	24.2
02	0.4	0.4	0.2	0.0	0.3	2.6	4.3	3.2	6.7	0.9	0.2	0.3	19.6
03	0.5	0.4	0.2	0.0	0.2	2.0	3.4	4.1	4.0	1.4	0.2	0.3	16.7
04	0.4	0.5	0.1	0.0	0.2	2.2	1.9	2.8	3.4	1.0	0.1	0.3	12.9
05	0.3	0.3	0.1	0.0	0.1	1.3	1.4	2.0	2.3	0.7	0.2	0.4	9.0
06	0.2	0.4	0.1	0.0	0.2	0.8	0.5	0.9	1.2	0.4	0.2	0.5	5.4
07	0.1	0.4	0.1	0.0	0.2	0.5	0.5	0.7	1.1	0.5	0.2	0.4	4.7
08	0.2	0.3	0.0	0.0	0.3	0.5	1.1	1.1	0.9	0.4	0.1	0.4	5.2
09	0.1	0.4	0.1	0.0	0.1	0.5	1.4	0.6	0.3	0.5	0.2	0.6	4.8
10	0.1	0.4	0.0	0.0	0.1	0.2	1.3	0.3	0.7	0.2	0.4	0.8	4.6
11	0.0	0.8	0.0	0.0	0.1	0.1	0.9	0.2	0.1	0.7	0.4	0.3	3.7
12	0.1	1.0	0.0	0.0	0.0	0.3	0.9	0.3	0.1	0.2	0.4	0.5	3.8
13	0.1	0.7	0.0	0.0	0.1	0.5	3.1	1.1	0.5	0.6	0.6	0.4	7.8
14	0.3	0.6	0.3	0.0	0.4	1.2	3.2	2.7	1.0	0.9	1.1	0.9	12.7
15	0.6	0.6	0.4	0.2	0.5	2.8	5.5	3.7	3.0	1.5	0.7	0.6	20.2
16	0.9	0.9	0.5	0.2	0.2	3.1	7.7	6.5	5.8	3.0	2.4	0.4	31.5
17	1.1	1.0	0.4	0.2	0.6	3.1	7.5	7.0	8.4	3.1	1.1	0.6	34.2
18	0.7	0.5	0.7	0.2	0.2	3.1	7.8	4.6	7.2	1.8	0.4	0.5	27.8
19	1.1	0.5	0.3	0.4	1.0	4.5	8.2	7.3	5.2	2.1	1.0	1.0	32.6
20	1.2	0.9	0.2	0.1	0.9	3.1	9.9	6.1	6.0	2.0	0.2	0.6	31.3
21	0.8	0.7	0.3	0.0	0.7	4.2	9.8	6.3	10.3	2.2	0.4	0.1	35.9
22	0.7	0.5	0.3	0.0	1.2	5.7	6.7	6.0	8.5	2.9	0.5	0.4	33.4
23	1.0	0.5	0.1	0.0	0.6	4.8	4.0	7.8	11.1	1.8	0.4	0.5	32.6
Suma	11.6	13.9	4.8	1.4	9.2	54.4	98.3	87.2	104.5	33.5	12.3	12.4	443.4

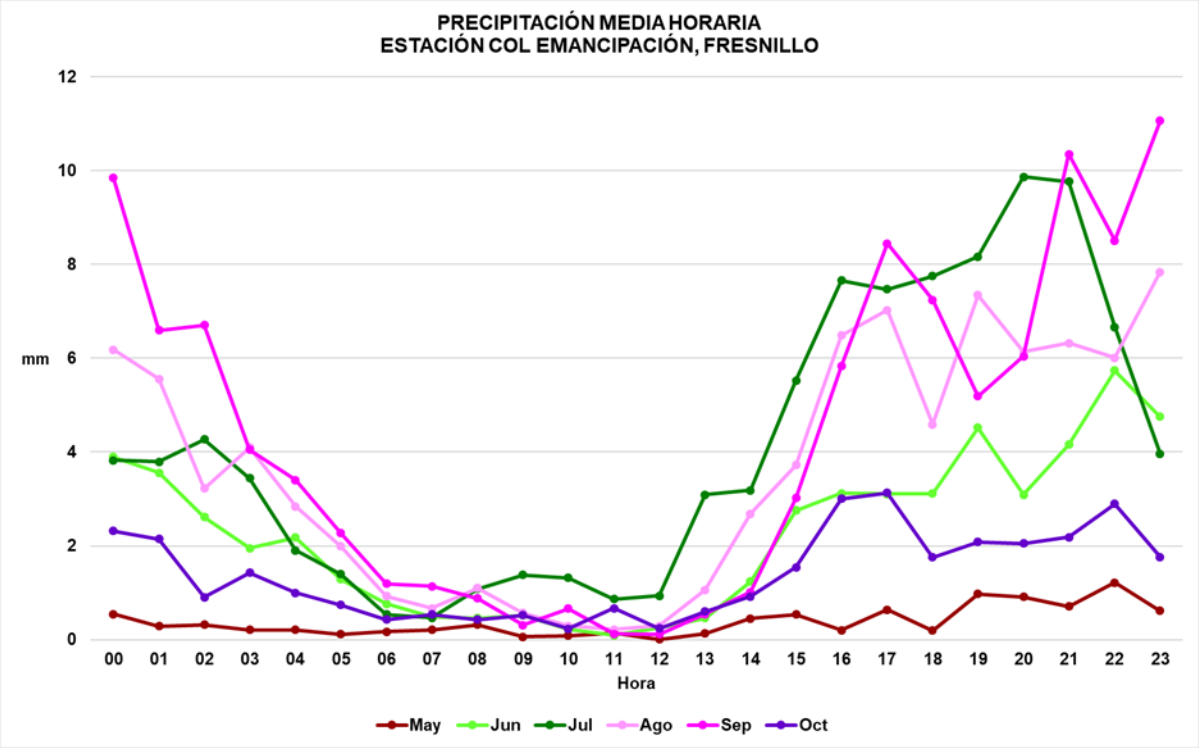


Figura 163. Precipitación media (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 180. Precipitación máxima maximorum (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.2	4.2	2.4	0.0	4.2	10.4	7.4	15.0	27.4	7.4	2.8	4.2	27.4
01	1.8	5.2	3.4	0.2	3.8	9.8	6.8	27.0	23.0	8.2	3.4	8.0	27.0
02	3.0	1.8	3.4	0.0	4.2	9.0	12.0	6.0	17.4	3.8	2.0	3.0	17.4
03	1.6	2.8	3.2	0.4	1.8	5.6	17.0	14.2	13.2	8.6	1.0	1.6	17.0
04	2.6	3.6	0.6	0.0	2.2	11.4	6.8	6.2	14.0	4.2	0.6	2.6	14.0
05	1.4	1.0	0.4	0.0	2.0	6.2	5.6	12.0	15.0	6.0	2.0	4.0	15.0
06	1.6	2.2	0.8	0.0	2.8	3.8	1.8	2.0	3.2	3.0	1.2	3.8	3.8
07	1.0	1.8	0.6	0.0	1.8	3.0	1.2	5.2	5.5	4.4	0.8	1.8	5.5
08	1.0	2.2	0.2	0.0	5.4	6.6	8.8	8.0	4.6	2.2	1.0	2.6	8.8
09	0.8	1.6	1.2	0.0	1.0	6.2	9.4	2.6	1.4	5.4	2.6	7.2	9.4
10	0.6	2.0	0.2	0.2	1.0	2.0	10.6	1.2	9.0	1.4	6.2	4.4	10.6
11	0.2	3.6	0.0	0.2	2.6	1.0	6.0	2.0	1.0	10.8	3.8	1.8	10.8
12	0.6	3.6	0.2	0.0	0.2	4.0	4.6	2.4	0.8	2.0	3.2	3.4	4.6
13	1.0	4.0	0.8	0.0	1.6	3.0	19.0	6.8	4.6	3.0	4.4	2.8	19.0
14	4.0	2.2	4.4	0.4	6.4	10.6	34.4	9.2	5.2	9.2	11.4	8.4	34.4
15	8.8	2.4	6.2	3.8	4.2	14.0	21.4	15.2	11.8	8.4	4.4	4.2	21.4
16	6.6	4.8	7.8	3.2	2.2	15.4	35.0	36.4	18.4	17.2	22.4	4.2	36.4
17	8.0	5.6	3.0	2.4	8.6	24.2	21.0	32.4	26.2	16.0	14.0	5.2	32.4
18	3.2	2.8	7.2	2.0	1.0	5.0	31.2	12.2	20.4	6.6	2.0	3.2	31.2
19	5.2	3.4	2.0	3.8	9.2	12.0	13.0	26.2	16.4	9.6	12.0	11.6	26.2
20	3.6	6.8	3.0	1.4	3.8	6.2	26.4	26.4	15.4	6.2	1.4	4.6	26.4
21	6.6	4.6	2.2	0.6	5.0	11.6	36.0	25.4	19.6	10.6	3.8	1.0	36.0
22	5.4	2.6	3.0	0.2	18.8	19.6	22.4	14.4	28.4	29.2	3.6	2.6	29.2
23	8.6	4.4	1.8	0.6	2.6	16.1	6.8	14.4	17.6	6.2	3.6	3.2	17.6
Máx.	8.8	6.8	7.8	3.8	18.8	24.2	36.0	36.4	28.4	29.2	22.4	11.6	36.4

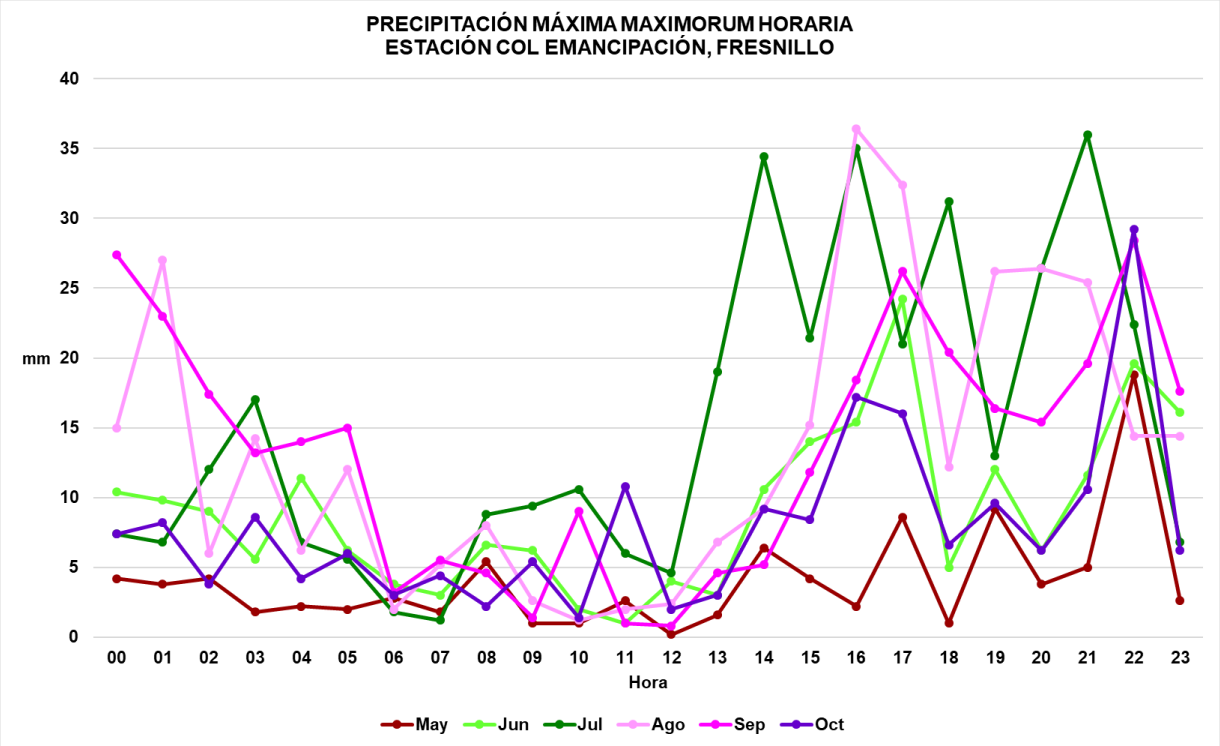


Figura 164. Precipitación máxima maximorum (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 181. Evapotranspiración potencial media (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.04	0.06	0.10	0.09	0.06	0.02	0.02	0.00	0.01	0.01	0.02	0.04
01	0.02	0.03	0.05	0.08	0.07	0.04	0.01	0.01	0.00	0.00	0.01	0.01	0.03
02	0.02	0.03	0.04	0.07	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.02
03	0.01	0.02	0.03	0.06	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.02
04	0.01	0.02	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
05	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.02	0.02	0.03	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.03	0.05	0.09	0.08	0.08	0.06	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.10	0.15	0.23	0.20	0.20	0.17	0.13	0.12	0.09	0.10	0.15	0.11	0.15
10	0.20	0.28	0.38	0.35	0.36	0.31	0.26	0.26	0.22	0.23	0.28	0.22	0.28
11	0.31	0.41	0.51	0.50	0.51	0.45	0.39	0.40	0.35	0.37	0.40	0.33	0.41
12	0.40	0.50	0.61	0.63	0.63	0.57	0.51	0.52	0.45	0.47	0.46	0.41	0.51
13	0.45	0.55	0.65	0.71	0.71	0.64	0.58	0.58	0.51	0.53	0.49	0.45	0.57
14	0.46	0.56	0.65	0.74	0.73	0.65	0.58	0.59	0.52	0.54	0.46	0.44	0.58
15	0.42	0.52	0.59	0.72	0.69	0.63	0.56	0.57	0.48	0.49	0.39	0.39	0.54
16	0.35	0.44	0.50	0.65	0.62	0.56	0.49	0.50	0.41	0.40	0.29	0.31	0.46
17	0.25	0.33	0.38	0.54	0.51	0.46	0.40	0.39	0.31	0.29	0.16	0.20	0.35
18	0.15	0.21	0.26	0.42	0.39	0.35	0.29	0.28	0.19	0.19	0.09	0.13	0.25
19	0.10	0.15	0.19	0.36	0.30	0.22	0.17	0.18	0.12	0.08	0.04	0.07	0.16
20	0.06	0.10	0.13	0.24	0.22	0.18	0.12	0.09	0.03	0.02	0.02	0.04	0.10
21	0.04	0.07	0.10	0.17	0.14	0.11	0.05	0.03	0.01	0.01	0.02	0.03	0.07
22	0.04	0.06	0.08	0.13	0.10	0.07	0.03	0.02	0.00	0.01	0.02	0.03	0.05
23	0.03	0.05	0.07	0.11	0.09	0.06	0.02	0.02	0.00	0.01	0.01	0.02	0.04
Media/día /mes	3.49	4.64	5.71	7.02	6.68	5.66	4.66	4.59	3.72	3.78	3.35	3.29	4.72

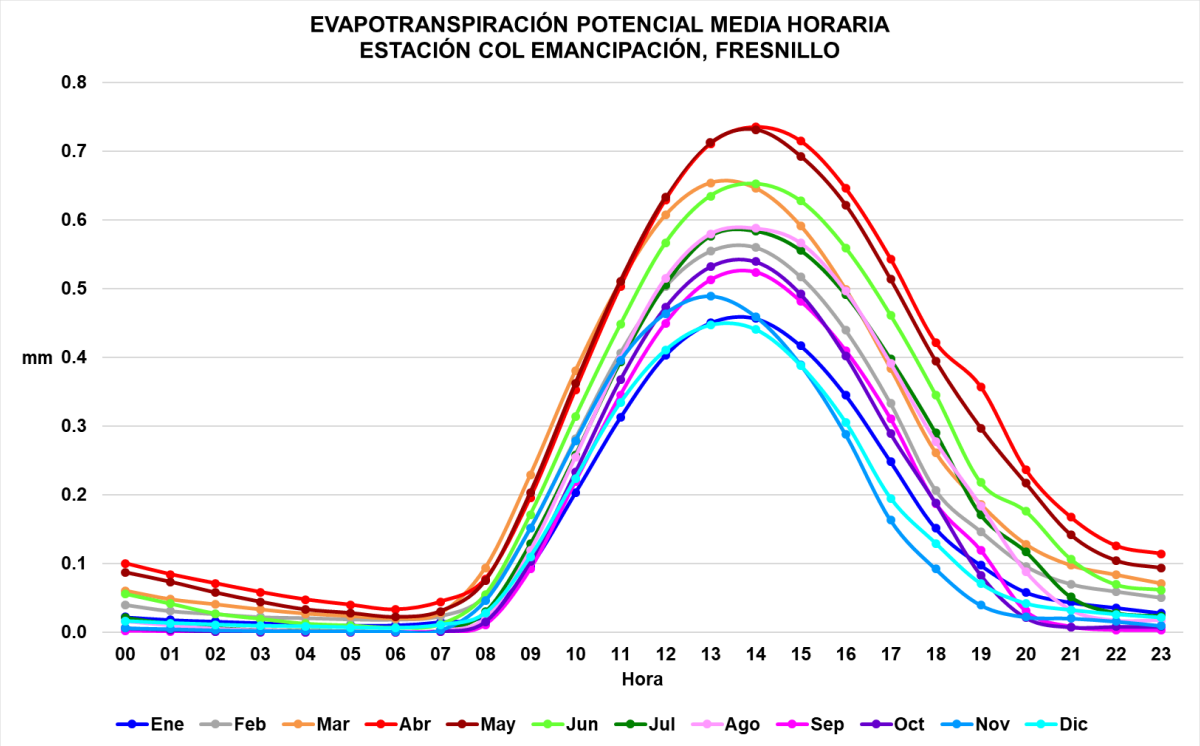


Figura 165. Evapotranspiración potencial media (mm) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 182. Humedad relativa media (%) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	62.2	52.9	42.1	36.3	44.8	62.1	78.5	80.7	88.4	82.0	73.7	63.9	64.0
01	65.3	56.2	45.6	39.5	48.8	65.8	81.6	83.5	90.0	85.1	77.2	67.0	67.1
02	68.1	59.2	48.8	42.8	52.6	69.5	84.4	85.9	91.4	87.7	80.2	69.7	70.0
03	70.2	61.9	51.8	45.9	56.5	73.1	86.7	88.0	92.7	89.6	82.6	71.9	72.6
04	72.0	64.3	54.4	48.7	60.0	76.3	88.7	90.0	93.8	91.1	84.5	73.7	74.8
05	73.7	66.0	56.6	51.4	63.1	78.9	90.1	91.7	94.6	92.2	86.0	75.4	76.6
06	75.1	67.6	58.5	53.8	65.6	81.3	91.6	92.9	95.2	93.3	87.1	76.9	78.2
07	75.7	68.3	57.7	54.2	65.7	81.3	92.0	93.4	95.5	93.4	85.8	77.4	78.4
08	70.1	60.5	47.9	48.0	57.3	74.1	86.5	89.2	92.9	88.7	73.1	69.2	71.5
09	58.4	48.5	37.3	37.8	46.4	64.8	76.4	78.6	83.7	75.9	57.8	55.6	60.1
10	47.2	38.3	29.0	29.1	36.6	56.1	67.3	68.6	73.2	62.1	45.8	43.9	49.8
11	38.1	30.8	23.1	22.7	29.0	48.0	59.8	60.6	65.0	51.5	37.4	35.3	41.8
12	31.8	26.0	19.2	18.4	23.6	41.2	53.7	54.4	58.8	44.4	32.0	29.6	36.1
13	27.9	23.0	17.0	15.8	20.3	36.4	49.4	49.8	54.5	40.0	28.9	26.2	32.4
14	25.6	21.2	15.8	14.4	18.5	33.3	46.4	46.9	51.9	37.4	27.1	24.3	30.2
15	24.8	20.4	15.3	13.7	17.5	32.1	45.2	45.3	51.1	36.2	26.8	23.6	29.3
16	25.4	20.5	15.3	13.5	17.5	32.2	46.0	45.5	51.7	36.4	28.2	24.3	29.7
17	27.6	21.8	16.3	13.9	18.0	33.2	47.6	47.2	54.4	39.1	32.4	27.5	31.6
18	33.6	25.5	18.8	15.1	19.1	35.3	50.2	50.4	59.3	45.8	43.3	35.2	36.0
19	40.7	31.4	23.1	17.5	22.0	39.3	55.0	57.0	69.0	59.3	51.7	42.3	42.4
20	45.9	36.6	27.2	21.0	26.8	44.5	62.5	67.2	79.4	69.3	56.5	47.1	48.7
21	50.2	40.9	31.0	24.9	31.7	50.3	69.4	73.9	83.9	73.4	61.0	51.8	53.5
22	54.3	44.7	34.7	28.9	36.2	55.1	72.7	76.3	85.8	76.0	65.3	56.3	57.2
23	58.3	48.5	38.3	32.6	40.7	59.3	75.4	78.4	86.9	78.5	69.6	60.1	60.5
Media	50.9	43.1	34.4	30.8	38.3	55.1	69.0	70.6	76.8	67.9	58.1	51.2	53.9

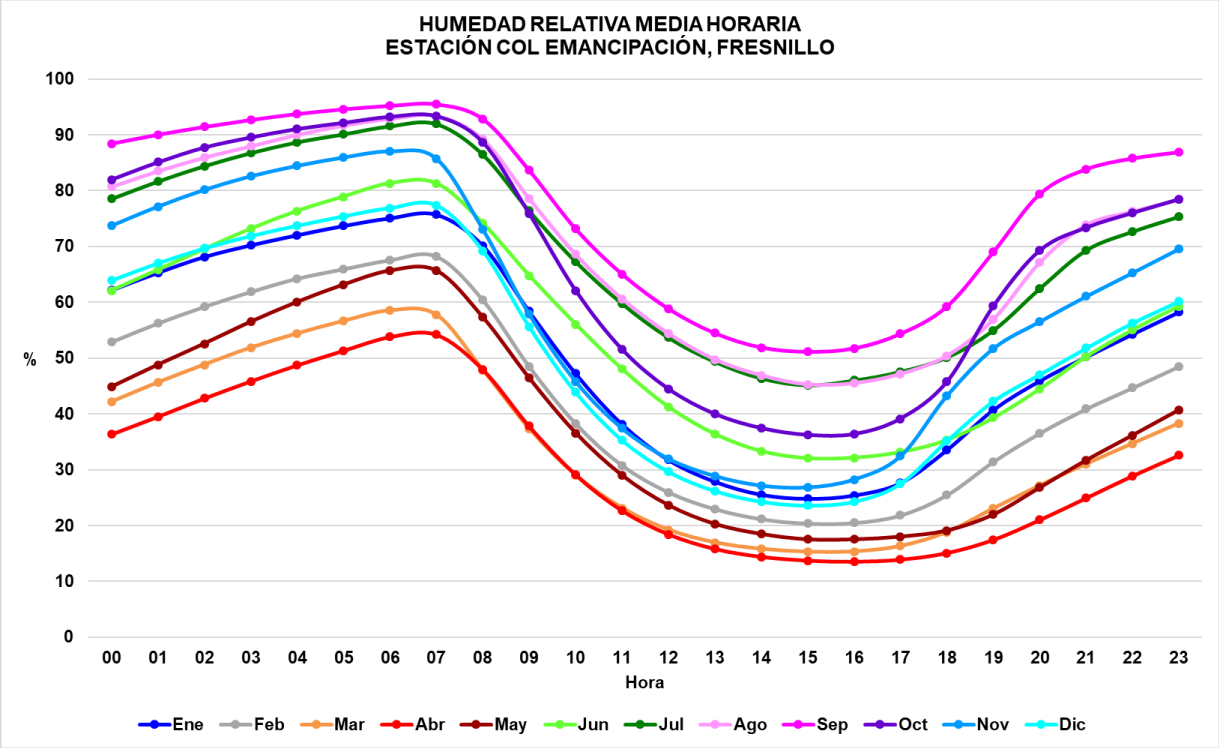


Figura 166. Humedad relativa media (%) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 183. Humedad relativa mínima minimorum (%) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.0	16.0	11.1	10.0	11.0	17.0	27.0	34.0	37.0	27.8	21.0	15.5	10.0
01	14.0	15.0	11.5	11.0	11.0	19.0	35.0	33.0	41.0	31.6	19.0	17.0	11.0
02	15.0	15.0	11.5	11.0	11.9	22.0	41.0	37.0	48.0	33.7	28.0	17.0	11.0
03	17.0	18.0	9.7	11.0	16.0	26.0	49.0	43.1	48.0	39.0	28.0	20.0	9.7
04	15.0	21.0	8.7	11.0	17.0	27.0	54.0	48.8	55.0	38.0	29.0	15.0	8.7
05	14.0	20.0	8.8	11.0	19.0	28.0	52.0	56.0	68.0	38.0	29.0	12.0	8.8
06	14.0	20.0	9.2	13.0	17.0	35.0	52.0	57.0	71.0	42.0	31.0	19.0	9.2
07	12.0	11.2	7.4	14.0	18.0	29.0	63.0	60.0	77.0	32.0	29.0	20.0	7.4
08	10.0	8.0	7.6	5.7	15.0	24.0	49.0	52.0	61.0	22.0	16.0	19.0	5.7
09	10.0	6.7	5.8	5.0	9.7	18.0	33.0	41.0	41.4	19.0	11.0	13.0	5.0
10	9.0	6.5	3.9	5.5	7.8	12.0	27.0	36.0	29.5	13.3	9.0	9.7	3.9
11	6.3	6.0	4.0	4.1	4.9	10.0	24.0	29.7	25.0	9.7	7.0	7.2	4.0
12	6.9	5.2	3.6	4.3	4.7	8.0	21.0	27.6	19.0	9.2	5.0	4.8	3.6
13	3.0	3.2	3.5	3.6	4.0	7.0	19.4	23.0	19.5	7.7	4.0	4.6	3.0
14	3.0	3.0	3.0	3.0	3.0	6.0	18.8	20.0	16.8	8.0	4.0	4.0	3.0
15	3.0	4.0	3.0	2.9	4.0	6.0	16.9	19.0	15.5	6.9	3.0	3.0	2.9
16	4.0	4.0	3.0	3.0	4.0	6.0	15.0	18.0	14.9	7.0	3.0	3.0	3.0
17	4.0	4.0	4.0	3.0	4.0	6.0	16.0	16.0	14.8	7.6	4.0	4.0	3.0
18	5.0	5.0	4.0	3.0	4.0	6.0	14.0	17.0	17.1	9.0	5.0	6.0	3.0
19	8.0	6.0	5.0	4.0	5.0	6.0	13.0	18.0	21.0	14.6	9.0	9.0	4.0
20	11.0	8.0	6.0	5.0	6.0	8.0	16.0	21.0	31.0	18.0	10.0	12.0	5.0
21	9.0	10.0	6.7	6.0	8.0	10.0	18.0	26.0	34.4	20.0	11.0	12.0	6.0
22	13.0	11.0	9.0	8.0	9.0	13.0	23.0	23.0	32.0	25.5	13.0	13.0	8.0
23	13.0	11.0	10.0	8.0	11.0	14.0	24.0	27.0	33.0	27.0	14.0	16.2	8.0
Mín.	3.0	3.0	3.0	2.9	3.0	6.0	13.0	16.0	14.8	6.9	3.0	3.0	2.9

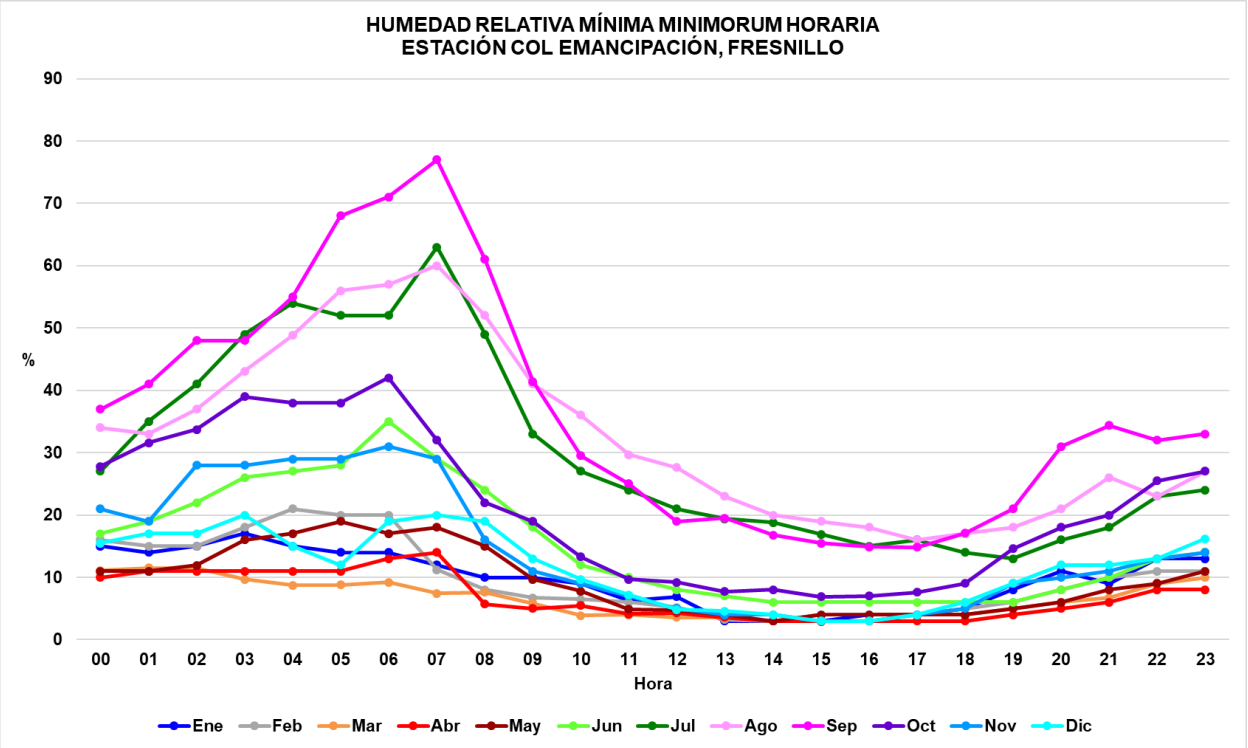


Figura 167. Humedad relativa mínima minimorum (%) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 184. Radiación solar global media horaria (W/m2) de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	15	7	8	8	4	1	0	2	5	1	4
07	52	110	301	181	200	187	124	87	60	77	204	83	139
08	509	725	1121	830	881	804	651	564	460	512	874	597	711
09	1255	1572	2040	1729	1767	1611	1404	1332	1186	1270	1651	1343	1513
10	1948	2346	2820	2577	2623	2410	2203	2152	1921	2045	2304	2003	2279
11	2484	2897	3390	3278	3317	3101	2913	2880	2553	2635	2718	2441	2884
12	2738	3177	3656	3730	3773	3513	3350	3303	2999	2999	2868	2636	3228
13	2710	3184	3584	3825	3881	3598	3388	3375	3090	3074	2706	2580	3250
14	2396	2887	3207	3646	3651	3366	3183	3180	2880	2820	2318	2229	2980
15	1875	2332	2591	3170	3189	2981	2773	2809	2486	2374	1727	1686	2499
16	1208	1603	1824	2506	2436	2260	2183	2224	1920	1737	1004	1010	1826
17	521	811	993	1720	1755	1658	1607	1611	1265	1018	347	352	1138
18	71	182	294	904	988	954	976	904	633	380	21	21	527
19	0	2	10	275	364	382	401	321	147	44	1	0	162
20	0	0	0	16	38	61	64	27	3	0	0	0	17
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17767	21829	25847	28394	28872	26893	25223	24772	21601	20987	18750	16983	23160

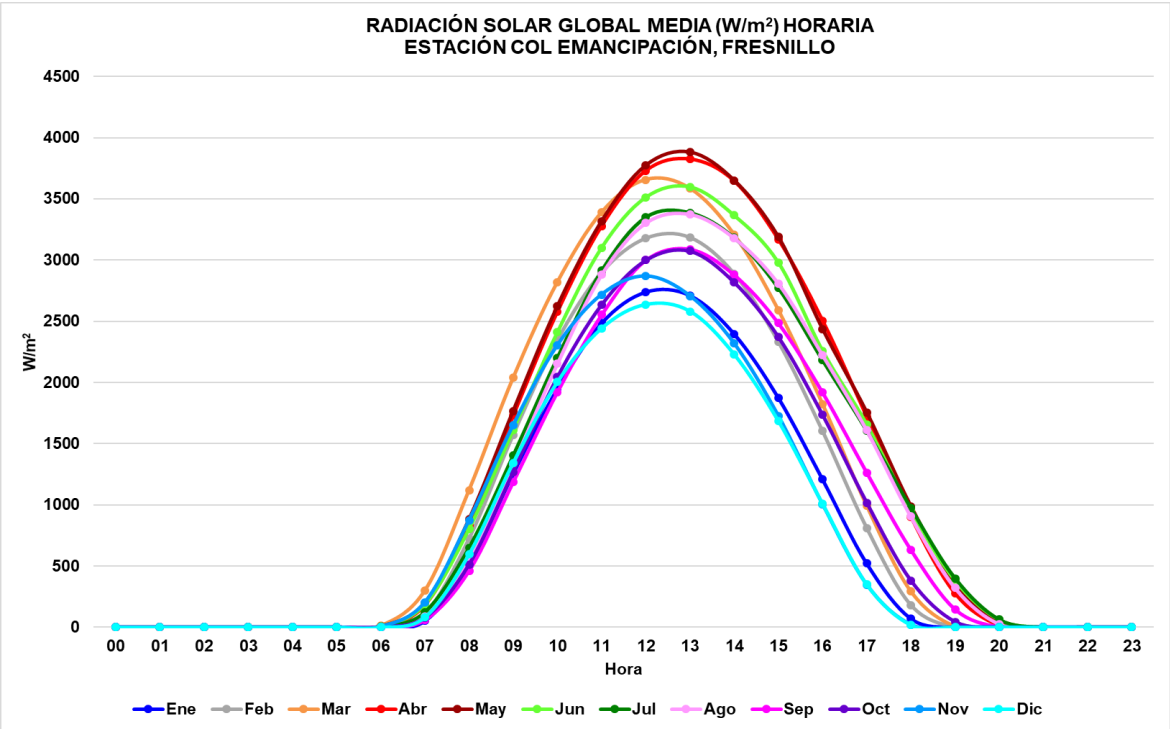


Figura 168. Radiación solar global media horaria (W/m2) de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 185. Radiación solar global media horaria (kWh/m²) de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.05	0.05	0.03	0.02	0.02	0.02	0.05	0.02	0.03
08	0.13	0.18	0.28	0.21	0.22	0.20	0.16	0.14	0.12	0.13	0.22	0.15	0.18
09	0.31	0.39	0.51	0.43	0.44	0.40	0.35	0.33	0.30	0.32	0.41	0.34	0.38
10	0.49	0.59	0.71	0.64	0.66	0.60	0.55	0.54	0.48	0.51	0.58	0.50	0.57
11	0.62	0.72	0.85	0.82	0.83	0.78	0.73	0.72	0.64	0.66	0.68	0.61	0.72
12	0.68	0.79	0.91	0.93	0.94	0.88	0.84	0.83	0.75	0.75	0.72	0.66	0.81
13	0.68	0.80	0.90	0.96	0.97	0.90	0.85	0.84	0.77	0.77	0.68	0.65	0.81
14	0.60	0.72	0.80	0.91	0.91	0.84	0.80	0.80	0.72	0.70	0.58	0.56	0.75
15	0.47	0.58	0.65	0.79	0.80	0.75	0.69	0.70	0.62	0.59	0.43	0.42	0.62
16	0.30	0.40	0.46	0.63	0.61	0.56	0.55	0.56	0.48	0.43	0.25	0.25	0.46
17	0.13	0.20	0.25	0.43	0.44	0.41	0.40	0.40	0.32	0.25	0.09	0.09	0.28
18	0.02	0.05	0.07	0.23	0.25	0.24	0.24	0.23	0.16	0.10	0.01	0.01	0.13
19	0.00	0.00	0.00	0.07	0.09	0.10	0.10	0.08	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.44	5.46	6.46	7.10	7.22	6.72	6.31	6.19	5.40	5.25	4.69	4.25	5.79

Cuadro 187. Radiación solar global media horaria (Mj/m²/s) de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.05	0.10	0.27	0.16	0.18	0.17	0.11	0.08	0.05	0.07	0.18	0.07	0.12
08	0.46	0.65	1.01	0.75	0.79	0.72	0.59	0.51	0.41	0.46	0.79	0.54	0.64
09	1.13	1.41	1.84	1.56	1.59	1.45	1.26	1.20	1.07	1.14	1.49	1.21	1.36
10	1.75	2.11	2.54	2.32	2.36	2.17	1.98	1.94	1.73	1.84	2.07	1.80	2.05
11	2.24	2.61	3.05	2.95	2.99	2.79	2.62	2.59	2.30	2.37	2.45	2.20	2.60
12	2.46	2.86	3.29	3.36	3.40	3.16	3.01	2.97	2.70	2.70	2.58	2.37	2.91
13	2.44	2.87	3.23	3.44	3.49	3.24	3.05	3.04	2.78	2.77	2.44	2.32	2.92
14	2.16	2.60	2.89	3.28	3.29	3.03	2.86	2.86	2.59	2.54	2.09	2.01	2.68
15	1.69	2.10	2.33	2.85	2.87	2.68	2.50	2.53	2.24	2.14	1.55	1.52	2.25
16	1.09	1.44	1.64	2.26	2.19	2.03	1.96	2.00	1.73	1.56	0.90	0.91	1.64
17	0.47	0.73	0.89	1.55	1.58	1.49	1.45	1.45	1.14	0.92	0.31	0.32	1.02
18	0.06	0.16	0.26	0.81	0.89	0.86	0.88	0.81	0.57	0.34	0.02	0.02	0.47
19	0.00	0.00	0.01	0.25	0.33	0.34	0.36	0.29	0.13	0.04	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.06	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.99	19.65	23.26	25.55	25.98	24.20	22.70	22.29	19.44	18.89	16.88	15.28	20.84

Cuadro 186. Velocidad del viento media (km/h) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	9.5	10.2	11.6	10.7	8.8	6.2	4.8	3.2	3.6	4.2	6.2	7.2
01	7.1	8.9	9.5	11.0	9.5	7.3	5.2	3.9	2.7	3.1	3.8	6.1	6.5
02	6.8	8.5	8.8	9.7	8.5	6.5	4.6	3.4	2.5	2.8	3.5	5.9	6.0
03	6.7	8.4	8.1	8.8	7.6	5.9	4.2	3.1	2.3	2.6	3.3	5.8	5.6
04	6.4	8.2	7.8	8.2	7.0	5.6	3.9	2.9	2.3	2.4	3.2	5.8	5.3
05	6.3	8.2	7.3	7.5	6.3	5.1	3.7	2.7	2.0	2.3	3.1	5.8	5.0
06	6.3	8.1	7.0	7.2	5.9	4.6	3.3	2.5	1.9	2.2	2.9	5.5	4.8
07	6.2	7.8	6.8	6.8	5.6	4.3	3.1	2.3	1.8	2.2	2.9	5.3	4.6
08	6.9	9.4	9.4	8.2	6.9	5.6	4.0	2.7	2.4	2.8	4.5	6.4	5.8
09	9.7	12.4	12.1	10.8	9.1	7.0	5.3	4.3	4.0	4.4	6.4	8.9	7.9
10	11.6	14.2	13.1	12.2	9.3	7.2	5.7	5.3	5.2	5.5	7.9	11.1	9.0
11	13.0	16.0	14.7	13.3	9.5	7.5	6.2	6.1	6.2	6.6	9.3	12.3	10.1
12	14.6	17.6	16.5	14.5	10.3	8.4	6.9	6.8	7.0	7.6	10.4	13.6	11.2
13	15.9	18.7	18.0	16.1	11.5	9.7	7.9	7.7	7.5	8.3	10.8	14.5	12.2
14	16.7	19.6	19.0	17.6	12.6	10.9	8.8	8.5	7.9	8.7	10.9	14.9	13.0
15	17.2	20.1	19.7	18.7	13.6	11.7	9.6	9.0	8.0	8.8	10.8	15.0	13.5
16	16.9	20.2	20.0	19.3	14.3	12.2	10.4	9.3	8.0	8.5	10.4	14.7	13.7
17	15.8	19.5	19.8	19.7	14.7	12.3	10.5	9.3	7.6	8.0	8.8	12.8	13.2
18	12.5	16.2	17.7	19.4	14.7	12.2	10.3	8.7	6.8	6.2	5.9	9.3	11.6
19	10.1	12.6	14.0	17.6	13.8	11.8	9.5	7.2	4.7	4.3	5.5	8.2	9.9
20	9.4	11.5	12.5	14.6	11.9	10.4	7.7	5.3	3.4	3.9	6.0	7.7	8.7
21	8.9	11.1	11.9	13.2	11.0	9.3	6.7	5.0	3.3	3.9	6.2	7.3	8.1
22	8.5	10.6	11.6	13.0	11.4	9.4	6.9	5.3	3.4	4.1	5.5	6.9	8.0
23	7.8	10.0	11.1	12.8	11.2	9.2	6.9	5.4	3.4	4.1	4.7	6.7	7.8
Media	10.4	12.8	12.8	13.0	10.3	8.5	6.6	5.5	4.5	4.9	6.3	9.0	8.7

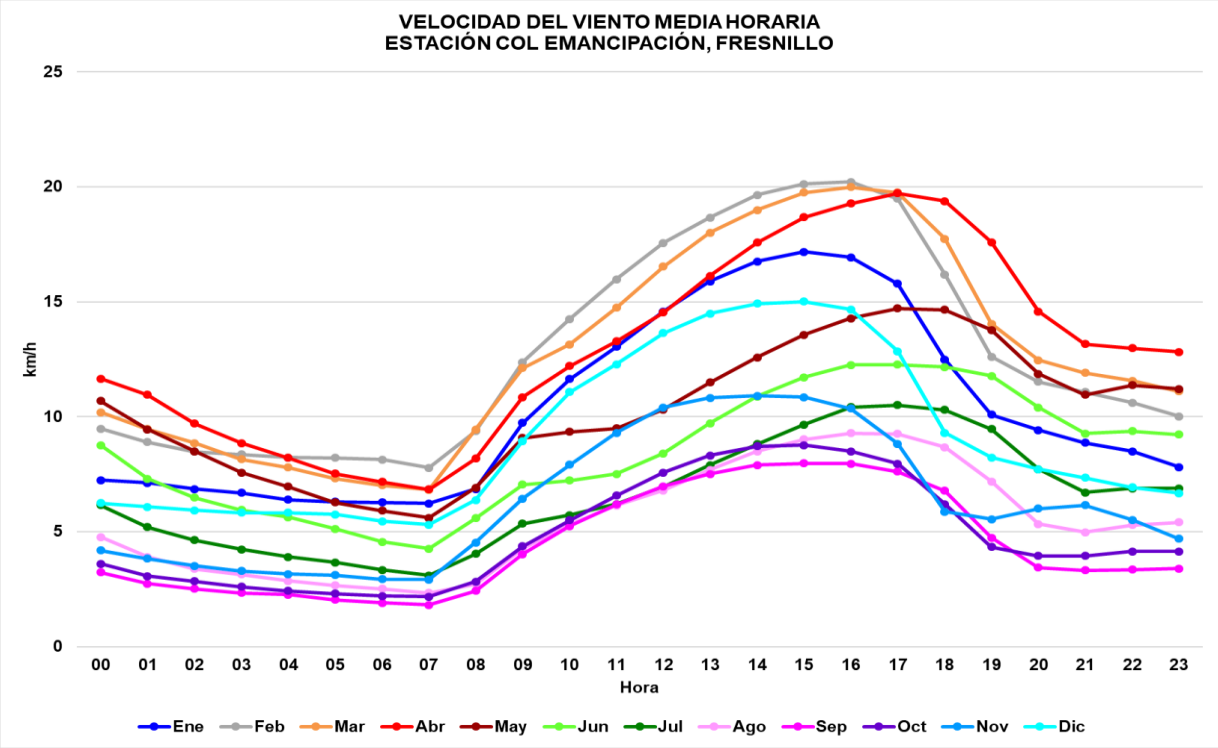


Figura 169. Velocidad del viento media (km/h) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 188. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	47.1	41.4	39.5	48.7	44.0	42.4	30.8	30.1	21.0	30.7	31.0	56.0	56.0
01	43.8	49.0	45.0	50.1	40.3	32.2	25.0	31.4	18.7	18.0	31.0	52.0	52.0
02	42.8	47.0	43.0	52.1	37.1	30.1	23.0	26.8	18.0	19.0	32.0	47.0	52.1
03	51.4	41.4	52.0	51.4	37.9	26.3	25.0	25.6	19.0	20.1	38.0	40.0	52.0
04	51.7	48.0	45.0	47.3	31.9	23.0	25.9	21.4	21.9	23.4	40.0	46.0	51.7
05	50.8	50.0	55.0	44.1	28.0	24.1	21.1	17.0	14.0	19.0	48.0	38.0	55.0
06	48.6	41.0	51.0	45.8	26.7	22.0	19.0	19.3	18.0	18.9	46.0	39.7	51.0
07	44.0	44.0	55.0	47.7	28.0	21.1	19.4	18.6	13.0	20.3	48.0	38.3	55.0
08	43.8	49.0	58.0	53.4	36.0	26.0	20.2	20.0	24.0	23.5	51.0	39.7	58.0
09	46.0	61.0	68.0	55.3	34.7	26.8	25.9	33.7	21.0	28.1	47.0	46.1	68.0
10	53.0	57.9	64.0	59.3	36.6	27.3	25.9	36.0	26.0	31.9	46.0	51.0	64.0
11	54.5	59.8	59.0	59.5	40.0	27.0	23.0	39.0	28.0	32.3	47.0	54.0	59.8
12	52.0	66.6	59.0	56.6	43.3	29.0	25.1	35.0	32.1	28.2	50.0	57.0	66.6
13	57.0	64.5	59.0	57.9	46.1	32.7	24.7	30.0	27.0	28.1	52.0	60.0	64.5
14	58.1	63.3	56.0	62.3	47.8	32.9	26.0	30.0	24.0	31.0	59.0	63.0	63.3
15	54.0	56.2	58.0	59.8	50.2	36.7	31.0	31.0	31.8	31.0	52.0	63.0	63.0
16	56.0	54.2	62.0	52.7	51.0	35.9	34.0	34.0	36.0	31.0	45.0	54.0	62.0
17	51.0	51.3	52.0	49.0	50.0	35.7	33.0	38.4	28.3	32.0	40.0	56.0	56.0
18	47.0	52.3	48.0	49.2	47.5	35.9	29.0	35.4	29.7	32.0	32.0	45.4	52.3
19	46.0	50.8	43.0	50.2	46.8	37.0	30.9	35.5	22.8	30.0	31.0	45.7	50.8
20	40.0	42.0	42.0	45.8	40.0	42.9	37.3	25.9	25.2	25.0	34.0	45.7	45.8
21	41.0	39.0	44.1	45.2	40.1	44.0	31.0	30.0	30.2	22.1	32.0	46.1	46.1
22	41.0	44.1	43.0	40.0	39.0	42.0	28.1	31.8	28.3	23.8	32.0	43.7	44.1
23	41.0	39.0	40.5	42.1	42.0	42.3	27.8	29.3	30.2	28.3	28.5	44.0	44.0
Máx.	58.1	66.6	68.0	62.3	51.0	44.0	37.3	39.0	36.0	32.3	59.0	63.0	68.0

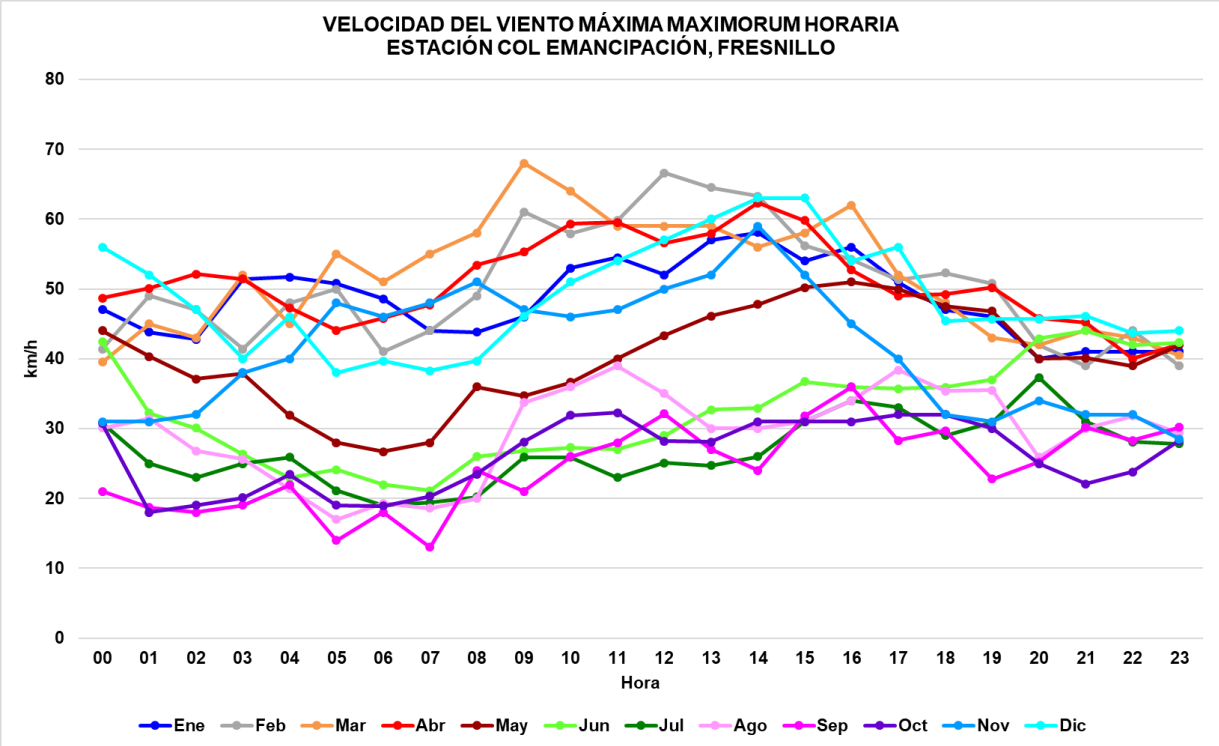


Figura 170. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 189. Frecuencia de velocidad del viento (%) mensual de la estación Col Emancipación, Fresnillo (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	32.3	21.1	19.7	17.0	24.1	33.5	45.6	55.0	63.6	61.9	52.8	38.8	39.1
5.1 a 10.0	30.9	31.2	30.8	28.4	33.4	31.6	31.2	29.0	26.3	26.3	27.7	30.4	29.8
10.1 a 15.0	14.7	16.3	17.5	20.3	20.3	21.4	17.1	12.5	8.6	8.5	11.5	12.8	15.1
15.1 a 20.0	8.6	10.6	12.1	14.5	12.9	10.2	5.1	2.7	1.4	2.5	5.0	7.4	7.7
20.1 a 25.0	5.7	8.0	8.4	9.2	5.7	2.6	0.8	0.6	0.2	0.6	1.7	5.0	4.0
25.1 a 30.0	3.7	5.7	5.3	5.9	2.5	0.6	0.1	0.2	0.0	0.2	1.0	2.8	2.3
30.1 a 35.0	2.1	3.5	3.0	3.2	0.9	0.1	0.0	0.0	0.0	0.0	0.2	1.5	1.2
35.1 a 40.0	1.2	2.1	1.9	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.5
40.1 a 45.0	0.5	1.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3
45.1 a 50.0	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
>50	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

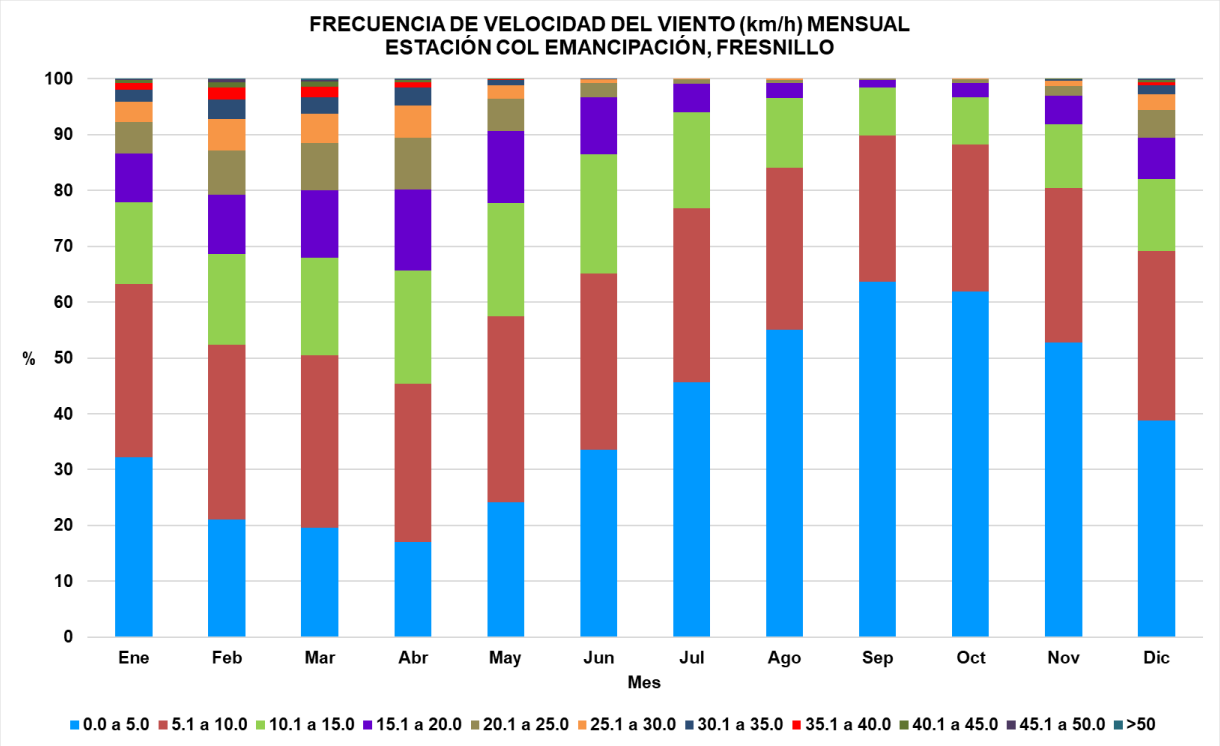


Figura 171. Frecuencia de velocidad del viento (%) mensual de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 190. Frecuencia de dirección del viento (%) mensual de la estación Col Emancipación, Fresnillo (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.1	5.7	7.8	6.9	7.8	9.4	6.3	7.4	9.3	6.9	5.1	4.8	7.0
NNE	3.9	3.3	3.3	2.8	4.3	7.1	6.3	7.2	9.1	6.2	4.5	3.3	5.1
NE	3.7	2.9	2.9	2.5	3.9	7.5	7.8	8.5	9.6	6.7	4.7	3.2	5.4
ENE	3.9	2.8	3.0	2.3	3.8	9.3	9.8	10.6	10.5	7.4	5.2	3.3	6.1
E	4.1	2.9	3.3	2.5	4.1	10.3	11.4	11.8	10.2	7.7	6.0	3.5	6.5
ESE	3.8	3.0	3.1	2.1	4.1	7.9	8.7	8.9	7.8	6.8	6.1	3.6	5.6
SE	5.1	3.9	3.4	2.5	3.8	5.3	5.8	6.1	6.2	7.0	7.0	5.3	5.2
SSE	5.7	4.7	3.8	2.9	3.9	3.9	4.3	4.7	5.2	7.1	7.9	6.9	5.1
S	11.2	11.3	10.3	10.7	9.1	5.3	6.0	5.5	5.6	8.4	11.2	12.3	8.9
SSO	17.5	20.4	18.5	21.0	16.2	7.9	8.3	7.0	6.1	9.7	13.4	19.1	13.6
SO	12.8	14.0	12.9	14.2	12.4	7.2	8.0	6.0	5.1	8.6	10.8	13.7	10.4
OSO	8.4	10.4	9.3	10.2	8.2	5.4	5.2	4.2	3.6	6.0	7.1	8.6	7.2
O	4.6	5.2	5.8	6.4	5.7	3.6	3.3	3.0	2.7	3.6	4.0	4.4	4.3
ONO	3.2	3.5	4.4	4.5	4.3	2.8	2.7	2.6	2.4	2.3	2.5	3.1	3.2
NO	2.8	3.0	4.0	3.9	4.0	2.9	2.7	2.7	2.6	2.4	2.1	2.3	2.9
NNO	3.2	3.1	4.4	4.5	4.5	4.2	3.4	3.8	4.1	3.2	2.4	2.5	3.6
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

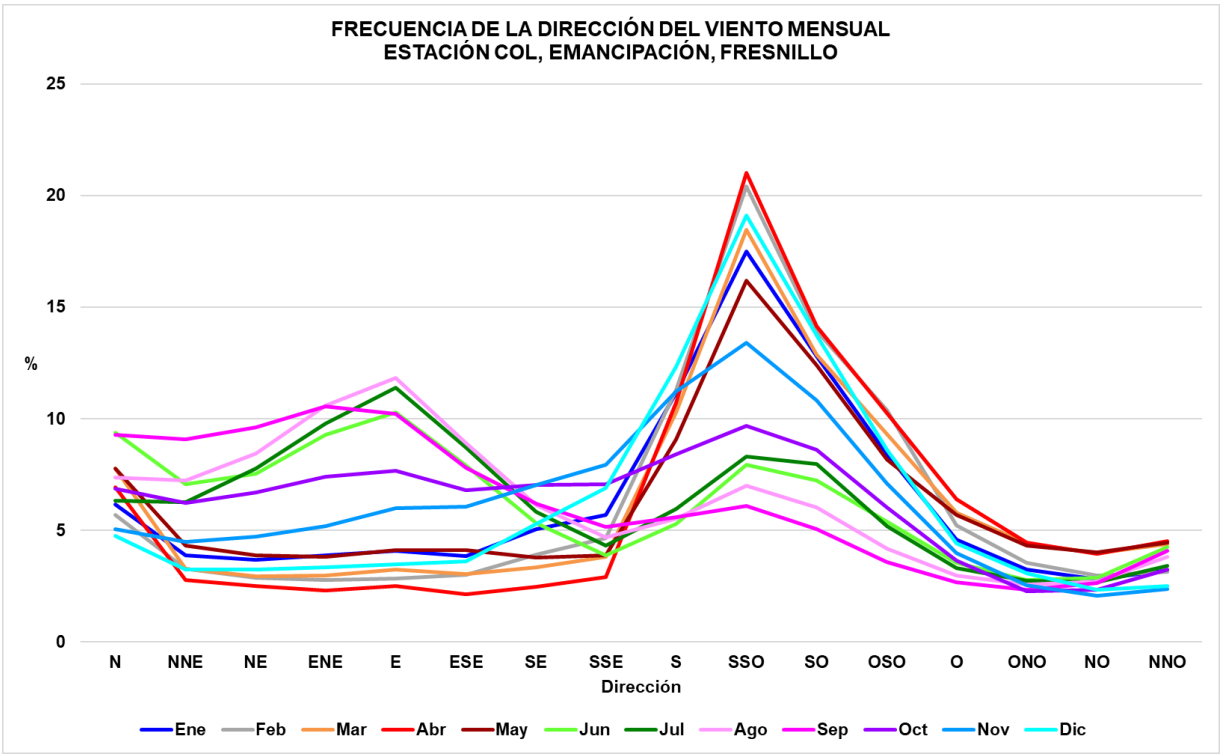
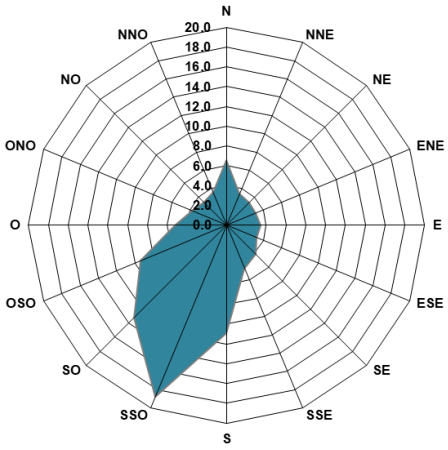


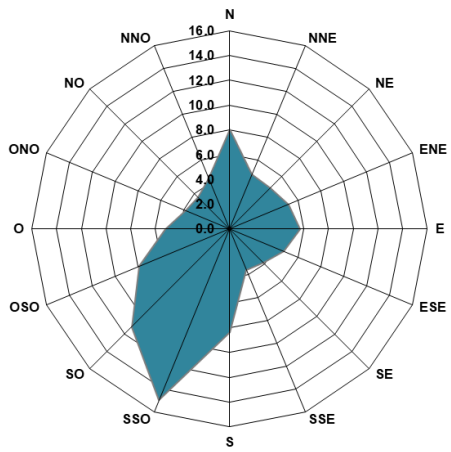
Figura 172. Frecuencia de dirección del viento (%) mensual de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 191. Frecuencia de dirección del viento (%) trimestral de la estación Col Emancipación, Fresnillo (2002-2022).

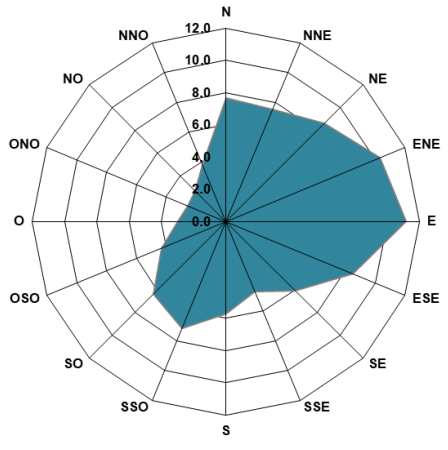
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	6.6	8.0	7.6	5.6	7.0
NNE	3.5	4.7	7.5	4.7	5.1
NE	3.2	4.7	8.6	4.9	5.4
ENE	3.2	5.2	10.3	5.3	6.1
E	3.4	5.7	11.2	5.7	6.5
ESE	3.3	4.7	8.5	5.5	5.6
SE	4.1	3.9	6.1	6.5	5.2
SSE	4.7	3.6	4.7	7.3	5.1
S	10.9	8.3	5.7	10.6	8.9
SSO	18.7	15.0	7.1	14.1	13.6
SO	13.2	11.2	6.4	11.1	10.4
OSO	9.4	7.9	4.3	7.2	7.2
O	5.2	5.2	3.0	4.0	4.3
ONO	3.7	3.8	2.6	2.6	3.2
NO	3.3	3.6	2.7	2.3	2.9
NNO	3.6	4.4	3.8	2.7	3.6
Suma	100.0	100.0	100.0	100.0	100.0



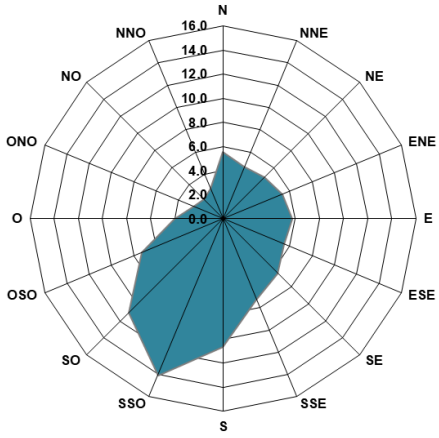
Ene-Mar



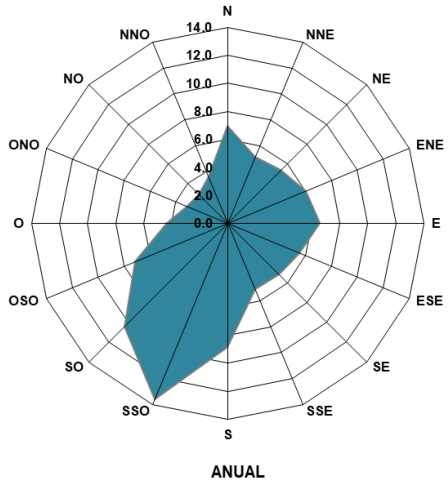
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 173. Frecuencia de dirección del viento (%) trimestral de la estación Col Emancipación, Fresnillo (2002-2022).

Cuadro 192. Estadísticas climatológicas mensuales de la estación Col Emancipación, Fresnillo (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.8	23.0	25.5	28.1	29.6	28.5	26.4	26.6	25.2	25.6	23.8	21.7	25.4
Temperatura máxima maximorum (°C)	27.9	31.3	34.0	34.0	35.7	34.0	32.4	31.5	31.1	31.5	31.3	28.7	35.7
Temperatura mínima media (°C)	1.3	3.2	4.6	7.3	10.2	12.6	12.4	12.0	11.3	6.9	2.6	1.1	7.1
Temperatura mínima minimorum (°C)	-10.0	-7.6	-7.2	-2.7	2.4	4.5	6.9	6.6	1.8	-4.8	-13.7	-15.4	-15.4
Temperatura media (°C)	10.7	13.0	15.4	18.3	20.4	20.6	18.9	18.8	17.4	15.6	12.7	10.9	16.1
Oscilación térmica (°C)	19.4	19.8	20.8	20.7	19.4	15.9	14.1	14.6	13.9	18.6	21.2	20.6	18.3
Precipitación acumulada media (mm)	12.2	14.6	5.0	1.5	9.2	54.4	98.3	87.2	104.5	33.5	12.3	12.4	445.0
Precipitación máxima maximorum en 24 horas (mm)	28.0	30.0	36.2	7.8	19.0	40.6	62.8	66.4	60.8	49.6	47.6	30.6	66.4
Número de días promedio con lluvia	4.7	3.6	3.4	1.6	3.8	9.7	15.6	15.0	14.4	7.0	3.2	3.1	85.1
Evapotranspiración acumulada potencial media (mm)	110.9	133.6	181.1	206.6	205.5	172.5	152.0	148.6	119.2	121.7	107.1	106.5	1765.3
Humedad máxima media (%)	80.6	73.2	63.9	60.1	71.3	85.4	94.7	95.8	97.2	95.6	90.2	81.7	82.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.8	17.8	13.1	11.4	14.4	26.7	37.9	38.1	44.6	31.9	24.1	21.2	25.3
Humedad mínima minimorum (%)	3.0	3.0	3.0	2.9	3.0	6.0	13.0	16.0	14.8	6.9	3.0	3.0	2.9
Humedad media (%)	50.8	43.1	34.4	30.8	38.3	55.1	69.0	70.6	76.8	67.9	58.1	51.2	53.8
Radiación global media día/mes (W/m^2)	17773.4	21829.9	25847.2	28394.4	28871.6	26893.4	25222.9	24772.0	21601.3	20986.6	18750.2	16982.7	23160.5
Radiación global media día/mes (kWh/m^2)	4.4	5.5	6.5	7.1	7.2	6.7	6.3	6.2	5.4	5.2	4.7	4.2	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.0	19.6	23.3	25.6	26.0	24.2	22.7	22.3	19.4	18.9	16.9	15.3	20.8
Velocidad del viento máxima media (km/h)	24.0	27.4	27.7	28.0	25.0	22.3	18.4	16.3	13.7	13.6	16.1	20.6	21.1
Velocidad del viento máxima maximorum (km/h)	58.1	66.6	68.0	62.3	51.0	44.0	37.3	39.0	36.0	32.3	59.0	63.0	68.0
Velocidad del viento media (km/h)	10.4	12.8	12.8	13.0	10.3	8.5	6.6	5.5	4.5	4.9	6.3	9.0	8.7
Dirección dominante del viento	SSO	SSO	SSO	SSO	SSO	E	E	E	ENE	SSO	SSO	SSO	SSO

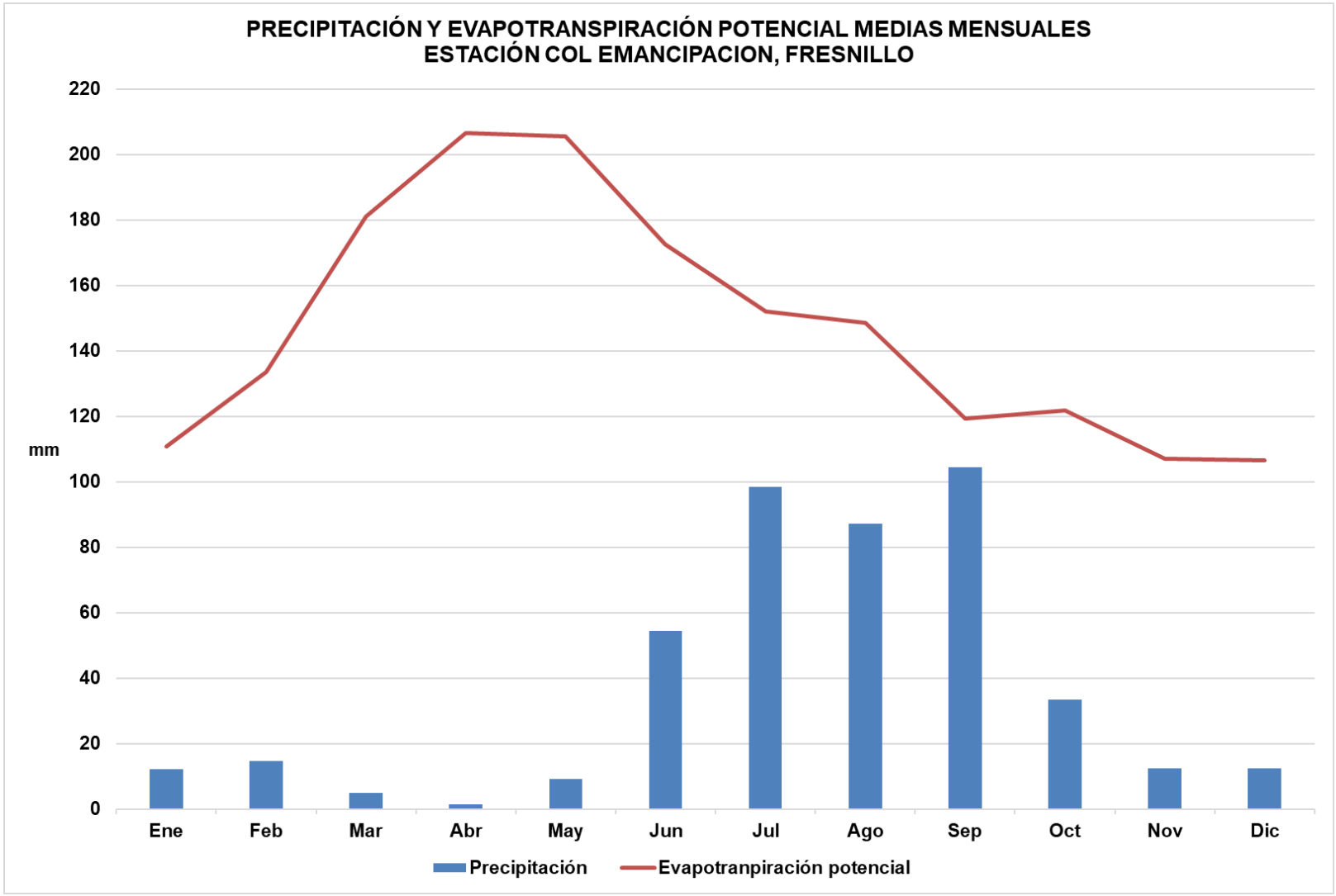


Figura 174. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Col Emancipación, Fresnillo (2002-2022).

7.11. Estación: Col. González Ortega, Sombrerete

Cuadro 193. Temperatura máxima media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.6	10.6	12.6	15.9	18.1	18.6	17.0	16.7	15.0	13.3	10.5	9.3	13.8
01	8.1	10.0	11.8	15.1	17.2	17.8	16.4	16.1	14.6	12.8	9.9	8.9	13.2
02	7.7	9.4	11.1	14.2	16.3	17.0	15.8	15.5	14.2	12.2	9.4	8.4	12.6
03	7.2	8.8	10.5	13.6	15.5	16.3	15.3	14.9	13.8	11.7	8.8	7.9	12.0
04	6.8	8.3	10.0	13.0	14.8	15.6	14.7	14.4	13.4	11.3	8.4	7.6	11.5
05	6.4	7.9	9.5	12.3	14.2	15.0	14.3	14.0	13.1	10.9	8.0	7.2	11.1
06	6.0	7.5	9.1	11.8	13.7	14.6	13.9	13.6	12.8	10.6	7.7	6.8	10.7
07	6.0	7.9	10.5	12.4	14.4	15.1	14.1	13.7	12.9	10.8	9.0	7.0	11.2
08	8.7	11.3	14.2	15.4	17.4	17.6	16.1	15.7	14.6	13.4	12.7	10.3	13.9
09	11.6	14.4	17.1	18.5	20.3	20.0	17.9	17.7	16.7	16.5	15.5	13.3	16.6
10	14.1	16.8	19.4	21.1	22.7	22.3	19.8	19.7	18.7	18.8	17.8	15.7	18.9
11	16.1	18.8	21.3	23.1	24.7	24.2	21.6	21.4	20.3	20.7	19.6	17.6	20.8
12	17.6	20.3	22.7	24.7	26.2	25.7	23.0	22.9	21.6	22.1	20.9	18.9	22.2
13	18.7	21.3	23.6	25.9	27.3	26.8	24.1	24.0	22.6	23.1	21.7	19.8	23.2
14	19.2	21.9	24.2	26.8	28.2	27.5	24.8	24.8	23.1	23.7	22.1	20.3	23.9
15	19.4	22.1	24.4	27.2	28.6	27.8	25.0	25.2	23.4	23.9	22.0	20.2	24.1
16	19.0	21.8	24.1	27.2	28.6	27.6	24.8	25.1	23.0	23.7	21.4	19.7	23.8
17	17.9	20.9	23.3	26.7	28.2	27.1	24.3	24.5	22.4	22.9	19.9	18.4	23.0
18	15.7	18.9	21.6	25.7	27.4	26.4	23.6	23.5	21.1	21.0	16.6	15.4	21.4
19	13.1	16.2	19.1	23.9	26.0	25.2	22.5	22.0	19.2	18.1	14.4	13.3	19.4
20	11.8	14.6	17.1	21.7	24.0	23.5	20.9	20.1	17.4	16.2	13.3	12.2	17.7
21	10.8	13.3	15.7	19.8	21.9	21.7	19.3	18.6	16.4	15.2	12.4	11.3	16.4
22	9.9	12.3	14.6	18.3	20.4	20.3	18.3	17.8	15.9	14.4	11.6	10.5	15.4
23	9.2	11.4	13.6	17.1	19.2	19.3	17.6	17.2	15.4	13.7	11.0	9.9	14.6
Media	12.1	14.4	16.7	19.6	21.5	21.4	19.4	19.1	17.6	16.7	14.4	12.9	17.1

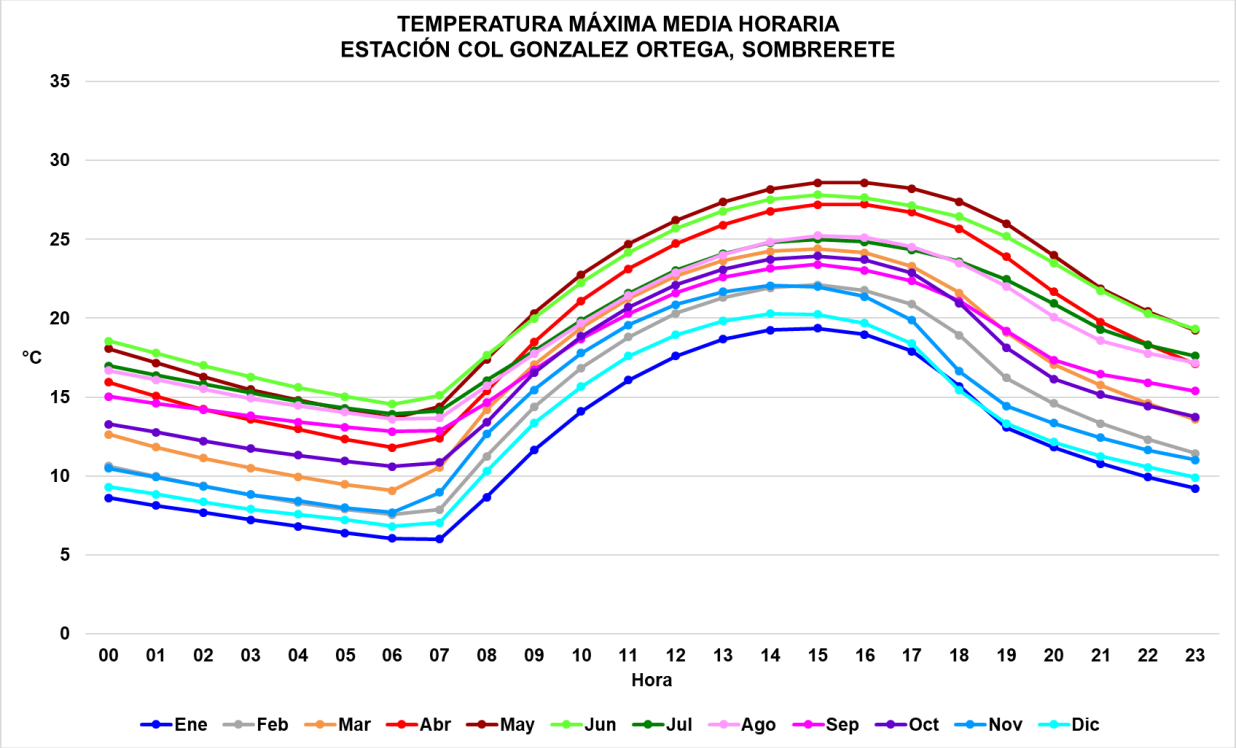


Figura 175. Temperatura máxima media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 194. Temperatura máxima maximorum (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.3	20.0	20.9	22.1	25.1	24.2	22.6	21.8	19.8	19.6	18.0	16.1	25.1
01	15.4	19.3	19.8	21.2	23.6	24.5	22.5	20.8	19.5	18.0	17.1	15.9	24.5
02	14.9	18.7	19.7	20.1	23.7	23.0	21.9	19.6	19.2	18.1	16.8	15.7	23.7
03	14.8	18.1	18.2	19.7	23.4	22.0	20.7	18.7	17.9	17.0	16.9	15.4	23.4
04	14.1	17.9	18.7	19.1	22.8	21.9	19.5	18.4	18.0	16.8	16.3	14.7	22.8
05	13.4	16.6	18.4	19.4	22.7	21.8	19.6	17.7	16.6	17.2	15.7	14.5	22.7
06	13.5	16.2	17.4	19.5	21.7	21.7	19.3	17.1	16.3	16.6	15.8	14.1	21.7
07	14.5	17.0	19.0	20.1	22.5	20.2	18.6	17.3	16.4	17.6	15.9	15.5	22.5
08	17.9	20.6	23.4	23.5	24.9	24.6	21.9	20.3	19.8	21.4	20.5	20.6	24.9
09	22.2	23.6	26.5	26.0	27.9	27.3	24.2	23.1	22.5	24.1	24.8	23.4	27.9
10	23.2	26.2	29.0	28.2	29.4	29.0	25.8	25.5	24.9	26.8	27.2	25.0	29.4
11	25.3	28.2	30.6	29.3	31.5	30.6	27.8	27.3	26.2	27.5	28.2	27.2	31.5
12	25.7	29.3	31.4	30.2	33.3	32.0	29.3	28.6	27.9	28.4	29.5	27.4	33.3
13	26.4	30.3	32.8	31.1	34.1	33.0	29.8	29.7	28.8	28.6	29.8	27.9	34.1
14	27.0	30.6	33.4	32.0	35.2	33.8	30.6	31.7	29.5	28.8	30.3	29.8	35.2
15	27.0	30.7	34.0	32.8	35.5	34.5	31.2	32.4	30.0	29.4	29.5	27.6	35.5
16	25.8	30.6	33.8	33.5	36.3	35.2	31.5	32.0	30.2	29.1	28.6	26.3	36.3
17	24.9	29.0	32.6	32.6	35.0	34.8	31.8	31.8	29.6	28.6	27.4	24.6	35.0
18	22.5	26.8	30.8	32.4	34.5	33.7	30.8	30.0	29.2	28.7	22.5	21.9	34.5
19	19.6	23.7	28.3	30.4	33.6	33.2	29.5	28.4	27.2	26.3	21.1	20.1	33.6
20	18.5	22.5	27.9	27.6	32.3	31.3	28.0	26.6	25.0	22.9	19.5	19.3	32.3
21	17.3	21.5	26.4	26.0	30.0	28.5	25.9	24.7	23.0	21.2	18.8	18.4	30.0
22	17.1	20.6	24.9	25.2	27.8	26.7	24.6	24.1	21.6	21.0	18.0	17.6	27.8
23	16.6	20.3	22.6	23.6	26.1	26.3	23.9	23.3	21.0	21.3	18.7	16.5	26.3
Máx.	27.0	30.7	34.0	33.5	36.3	35.2	31.8	32.4	30.2	29.4	30.3	29.8	36.3

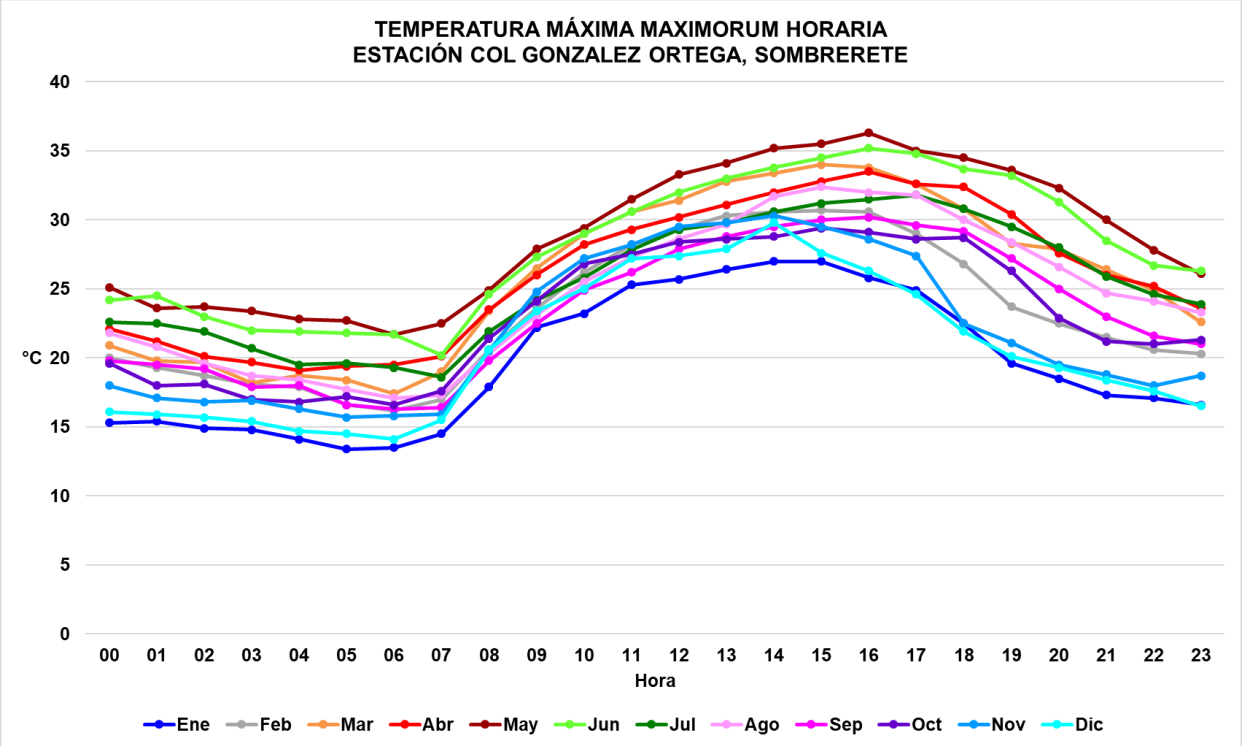


Figura 176. Temperatura máxima maximorum (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 195. Temperatura mínima media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	9.7	11.7	15.0	17.1	17.8	16.3	16.0	14.5	12.5	9.6	8.4	13.0
01	7.2	9.0	10.9	14.1	16.2	17.0	15.8	15.5	14.1	12.0	9.0	7.9	12.4
02	6.8	8.4	10.2	13.3	15.4	16.3	15.2	14.9	13.7	11.5	8.5	7.3	11.8
03	6.2	7.8	9.5	12.7	14.6	15.6	14.7	14.4	13.3	11.0	8.0	6.9	11.2
04	5.8	7.3	9.0	12.0	14.0	15.0	14.2	13.9	12.9	10.6	7.6	6.6	10.7
05	5.4	6.9	8.5	11.3	13.3	14.4	13.8	13.5	12.6	10.2	7.2	6.2	10.3
06	5.0	6.5	8.1	10.7	12.8	13.9	13.5	13.1	12.4	9.9	6.8	5.8	9.9
07	4.8	6.5	8.5	10.8	12.9	13.9	13.4	13.0	12.2	9.8	7.1	5.7	9.9
08	6.1	8.3	11.4	12.8	15.0	15.7	14.5	13.9	13.0	11.0	9.8	7.4	11.6
09	9.4	12.0	14.9	16.2	18.1	18.2	16.5	16.2	15.1	14.2	13.4	11.1	14.6
10	12.2	15.0	17.7	19.2	21.0	20.6	18.3	18.2	17.2	17.1	16.0	13.9	17.2
11	14.5	17.3	19.8	21.6	23.2	22.7	20.2	20.0	19.0	19.2	18.2	16.1	19.3
12	16.4	19.1	21.5	23.5	25.0	24.4	21.8	21.7	20.4	20.9	19.8	17.8	21.0
13	17.6	20.4	22.7	24.9	26.3	25.6	22.9	22.9	21.4	22.0	20.8	18.9	22.2
14	18.4	21.2	23.4	25.9	27.1	26.3	23.5	23.7	22.0	22.7	21.3	19.5	22.9
15	18.6	21.4	23.6	26.4	27.5	26.5	23.5	23.9	22.0	22.9	21.2	19.6	23.1
16	18.1	21.0	23.3	26.4	27.5	26.3	23.4	23.7	21.7	22.6	20.2	18.7	22.7
17	16.4	19.5	22.0	25.7	27.1	25.9	22.9	23.0	20.9	21.3	17.6	16.3	21.6
18	13.4	16.9	19.7	24.3	26.3	25.2	22.3	22.1	19.5	18.8	14.7	13.5	19.7
19	11.9	14.8	17.4	22.2	24.5	23.8	21.2	20.4	17.6	16.3	13.4	12.2	18.0
20	10.8	13.4	15.9	20.1	22.2	22.1	19.6	18.7	16.4	15.2	12.4	11.2	16.5
21	9.8	12.3	14.7	18.6	20.6	20.5	18.3	17.7	15.8	14.3	11.5	10.3	15.4
22	9.0	11.3	13.6	17.2	19.3	19.3	17.5	17.1	15.3	13.6	10.8	9.6	14.5
23	8.3	10.5	12.6	16.1	18.2	18.4	16.9	16.4	14.8	13.0	10.1	8.9	13.7
Media	10.8	13.2	15.4	18.4	20.2	20.2	18.3	18.1	16.6	15.5	13.1	11.7	16.0

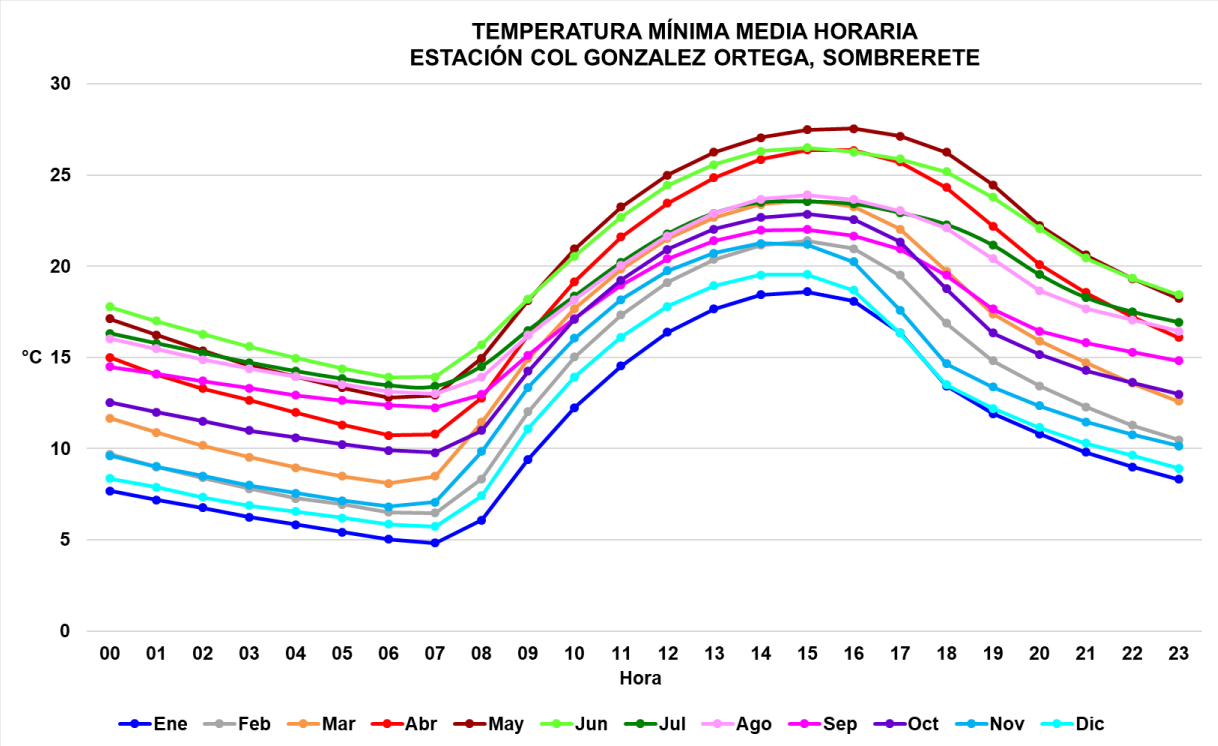


Figura 177. Temperatura mínima media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 196. Temperatura mínima minimorum (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-1.0	-5.4	-0.5	6.6	8.0	12.1	12.2	11.6	7.7	3.0	-4.6	-7.7	-7.7
01	-1.5	-5.4	-0.6	5.5	7.2	11.4	11.6	10.9	7.1	2.7	-4.9	-7.8	-7.8
02	-2.4	-5.7	-1.6	5.4	7.0	10.6	11.6	10.3	6.9	2.0	-5.6	-8.0	-8.0
03	-2.8	-5.8	-2.3	5.1	6.6	10.3	11.1	10.2	7.0	2.3	-5.9	-7.3	-7.3
04	-4.0	-5.1	-3.0	4.0	5.1	9.1	10.7	9.6	6.6	1.7	-6.2	-7.6	-7.6
05	-4.0	-6.7	-3.8	2.3	4.0	9.0	10.4	9.3	5.7	0.9	-6.3	-7.6	-7.6
06	-4.5	-9.4	-3.2	2.7	3.7	8.6	9.9	9.1	5.0	0.4	-6.7	-8.0	-9.4
07	-6.0	-10.2	-2.8	1.9	3.2	9.4	9.8	9.0	5.1	0.1	-6.7	-8.1	-10.2
08	-5.6	-8.3	-0.2	3.9	5.9	11.0	10.4	9.5	5.9	3.0	-4.0	-6.8	-8.3
09	-2.5	-5.0	0.9	8.0	8.2	13.0	12.2	12.3	10.3	5.5	-0.5	-4.7	-5.0
10	-0.5	-2.2	0.6	10.4	8.6	13.5	12.7	12.8	12.6	7.8	1.0	-4.2	-4.2
11	1.6	1.0	0.9	12.2	9.7	13.7	13.3	13.3	12.7	10.1	1.8	-3.9	-3.9
12	2.8	5.4	1.7	14.1	11.4	14.2	14.0	13.7	13.7	10.9	2.3	-3.6	-3.6
13	3.8	5.6	2.0	16.0	13.0	15.1	13.7	14.2	14.4	11.0	3.9	-3.2	-3.2
14	5.8	6.9	2.0	16.6	15.1	12.8	13.0	13.6	13.6	10.9	4.8	-2.8	-2.8
15	4.1	5.6	1.8	15.1	13.6	12.0	12.9	13.6	13.3	10.8	5.8	-1.6	-1.6
16	2.8	5.6	2.0	12.8	15.0	12.7	13.2	13.5	12.9	10.7	4.6	-0.9	-0.9
17	1.8	5.1	2.6	10.4	12.7	13.5	12.9	12.4	12.7	11.1	1.8	-2.8	-2.8
18	0.3	2.9	2.3	12.2	12.2	12.8	13.3	13.2	12.6	9.3	-0.2	-5.2	-5.2
19	0.0	1.5	1.9	12.2	13.9	12.0	13.0	11.3	12.4	8.0	-1.5	-6.1	-6.1
20	-1.2	0.7	1.0	10.4	13.9	12.3	12.6	11.8	11.3	6.5	-2.7	-6.7	-6.7
21	-1.6	-2.1	0.5	8.6	11.1	12.1	11.8	12.6	10.5	3.8	-3.1	-6.6	-6.6
22	-1.3	-2.9	-0.5	8.0	9.8	12.3	12.2	12.3	9.7	4.2	-3.8	-7.1	-7.1
23	-0.9	-5.6	-0.7	7.0	9.5	12.5	12.5	11.7	8.5	3.3	-4.0	-7.4	-7.4
Mín.	-6.0	-10.2	-3.8	1.9	3.2	8.6	9.8	9.0	5.0	0.1	-6.7	-8.1	-10.2

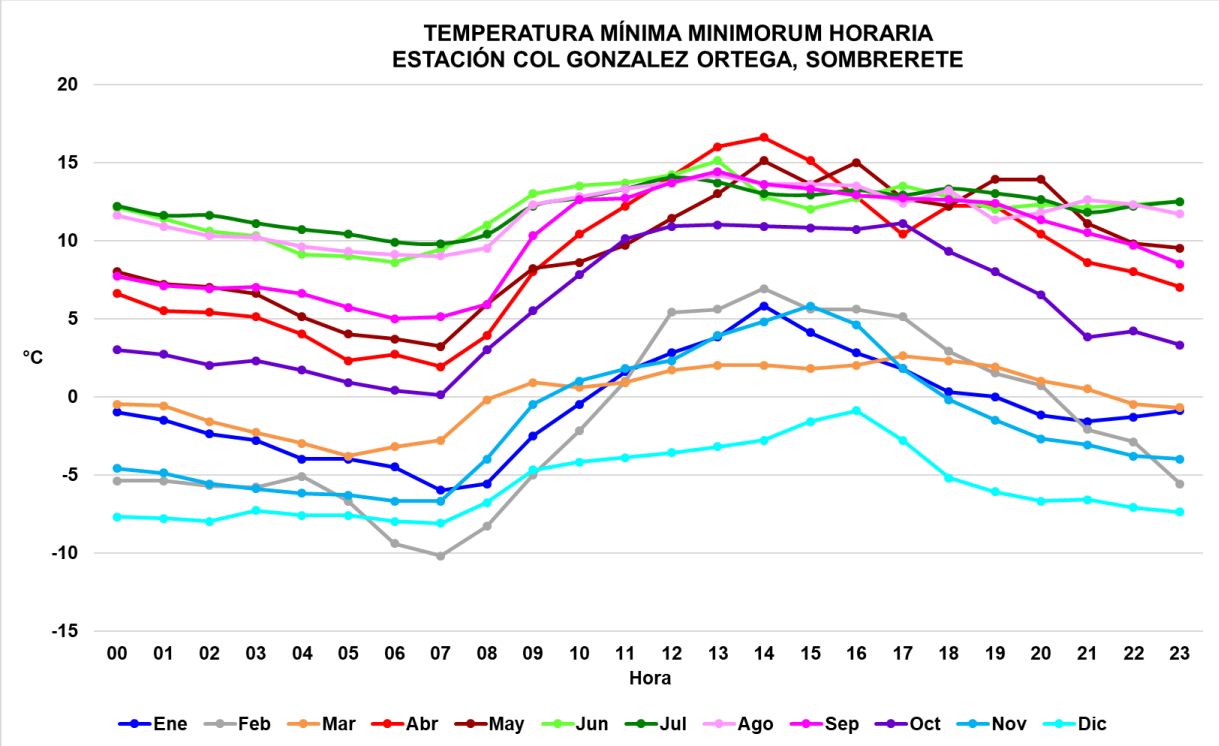


Figura 178. Temperatura mínima minimorum (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 197. Temperatura media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.1	10.2	12.2	15.5	17.6	18.2	16.6	16.4	14.8	12.9	10.0	8.9	13.4
01	7.7	9.5	11.4	14.6	16.7	17.4	16.1	15.8	14.3	12.4	9.5	8.4	12.8
02	7.2	8.9	10.7	13.8	15.8	16.6	15.5	15.2	14.0	11.9	8.9	7.9	12.2
03	6.7	8.3	10.0	13.1	15.0	15.9	15.0	14.7	13.6	11.4	8.4	7.4	11.6
04	6.3	7.8	9.5	12.5	14.4	15.3	14.5	14.2	13.2	11.0	8.0	7.1	11.1
05	5.9	7.4	9.0	11.8	13.8	14.7	14.1	13.8	12.9	10.6	7.6	6.7	10.7
06	5.5	7.0	8.6	11.3	13.2	14.2	13.7	13.4	12.6	10.2	7.3	6.3	10.3
07	5.4	7.1	9.4	11.6	13.6	14.5	13.7	13.3	12.5	10.3	7.9	6.4	10.5
08	7.3	9.8	12.8	14.1	16.2	16.7	15.3	14.8	13.8	12.1	11.3	8.9	12.8
09	10.5	13.2	16.0	17.4	19.2	19.1	17.2	17.0	15.9	15.4	14.4	12.2	15.6
10	13.2	15.9	18.5	20.1	21.9	21.4	19.1	18.9	17.9	18.0	16.9	14.8	18.1
11	15.3	18.1	20.6	22.4	24.0	23.5	20.9	20.7	19.6	20.0	18.9	16.9	20.1
12	17.0	19.7	22.1	24.1	25.6	25.1	22.4	22.3	21.0	21.5	20.3	18.4	21.6
13	18.2	20.9	23.2	25.4	26.8	26.2	23.5	23.5	22.0	22.6	21.2	19.4	22.7
14	18.8	21.5	23.8	26.3	27.6	26.9	24.2	24.3	22.6	23.2	21.7	19.9	23.4
15	19.0	21.8	24.0	26.8	28.1	27.2	24.3	24.6	22.7	23.4	21.6	19.9	23.6
16	18.5	21.4	23.7	26.8	28.1	27.0	24.1	24.4	22.4	23.1	20.8	19.2	23.3
17	17.2	20.2	22.7	26.2	27.7	26.5	23.6	23.8	21.7	22.1	18.8	17.4	22.3
18	14.5	17.9	20.7	25.0	26.8	25.8	23.0	22.8	20.3	19.9	15.5	14.4	20.6
19	12.5	15.5	18.2	23.0	25.3	24.5	21.8	21.2	18.4	17.2	13.9	12.7	18.7
20	11.3	14.0	16.5	20.9	23.1	22.8	20.2	19.3	16.9	15.6	12.9	11.7	17.1
21	10.3	12.8	15.2	19.2	21.2	21.1	18.8	18.1	16.1	14.7	11.9	10.8	15.9
22	9.5	11.8	14.1	17.8	19.9	19.8	17.9	17.4	15.6	14.0	11.2	10.1	14.9
23	8.8	11.0	13.1	16.6	18.7	18.9	17.3	16.8	15.1	13.4	10.6	9.4	14.1
Media	11.5	13.8	16.1	19.0	20.8	20.8	18.9	18.6	17.1	16.1	13.7	12.3	16.6

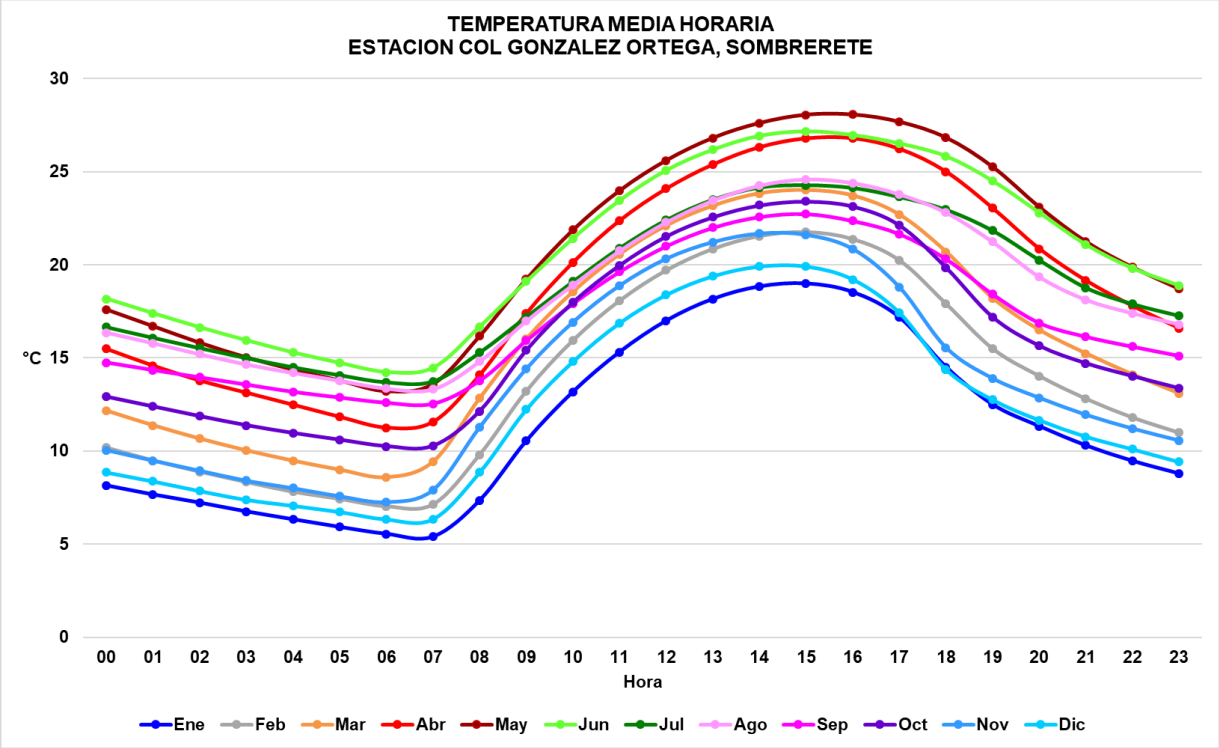


Figura 179. Temperatura media (˚C) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 198 Precipitación media (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.8	0.1	0.5	0.4	4.3	4.9	5.9	9.9	2.5	0.2	0.1	29.9
01	0.2	0.5	0.2	0.1	0.2	2.6	5.2	6.9	5.0	2.6	0.2	0.1	23.9
02	0.3	0.3	0.2	0.0	0.1	1.8	2.9	5.2	4.4	1.8	0.4	0.1	17.6
03	0.3	0.4	0.1	0.1	0.1	2.6	3.0	3.7	4.2	1.5	0.4	0.1	16.4
04	0.3	0.2	0.1	0.1	0.1	1.8	2.4	1.9	3.8	1.5	0.3	0.3	12.7
05	0.1	0.2	0.1	0.0	0.3	0.7	1.2	1.3	1.9	0.8	0.5	0.1	7.2
06	0.4	0.1	0.1	0.0	0.1	0.2	1.6	1.2	2.0	0.8	0.8	0.5	7.7
07	0.5	0.2	0.1	0.0	0.8	0.3	1.3	0.7	1.4	0.9	0.4	0.4	6.9
08	0.8	0.3	0.1	0.0	0.8	0.5	1.8	0.4	1.0	0.5	0.3	0.2	6.7
09	0.6	0.2	0.1	0.0	0.1	0.3	0.8	0.6	0.6	0.3	0.4	0.2	4.1
10	0.2	0.5	0.1	0.0	0.1	0.0	0.4	0.4	0.6	0.3	0.3	0.2	3.1
11	0.2	0.8	0.0	0.0	0.1	0.2	0.7	0.4	0.4	0.3	0.2	0.2	3.5
12	0.2	0.3	0.4	0.0	0.0	0.2	1.4	1.9	0.8	0.8	0.4	0.2	6.7
13	0.7	0.3	0.3	0.0	0.0	1.1	2.0	0.6	1.2	1.3	0.5	0.4	8.5
14	0.6	0.2	0.3	0.0	0.3	1.4	5.4	4.1	2.2	0.9	0.5	0.1	15.8
15	0.4	0.6	0.3	0.1	0.5	4.8	10.9	3.1	3.2	1.1	1.0	0.1	26.1
16	0.4	0.4	0.7	0.4	0.5	2.8	9.9	6.4	8.1	0.8	1.4	0.1	31.9
17	0.2	0.6	0.6	0.2	0.9	4.5	11.9	6.2	7.6	1.4	0.8	0.4	35.4
18	0.6	0.4	0.6	0.4	0.3	3.8	7.8	6.3	9.9	3.5	0.6	0.4	34.7
19	0.7	0.3	0.1	0.2	0.5	8.4	9.7	10.9	9.5	2.1	0.7	0.4	43.5
20	0.6	0.4	0.4	0.0	0.8	6.3	5.7	10.4	6.8	1.8	0.6	0.2	34.1
21	0.3	0.2	0.2	0.1	1.2	5.5	11.9	8.7	7.4	2.1	0.3	0.3	38.1
22	0.2	0.5	0.3	0.1	1.5	6.3	8.3	7.4	7.4	3.1	0.3	0.1	35.4
23	0.4	0.4	0.1	0.1	0.6	6.1	7.1	6.9	9.6	2.1	0.3	0.2	33.8
Suma	9.3	9.2	5.5	2.3	10.4	66.4	118.2	101.5	108.8	34.8	11.9	5.5	483.8

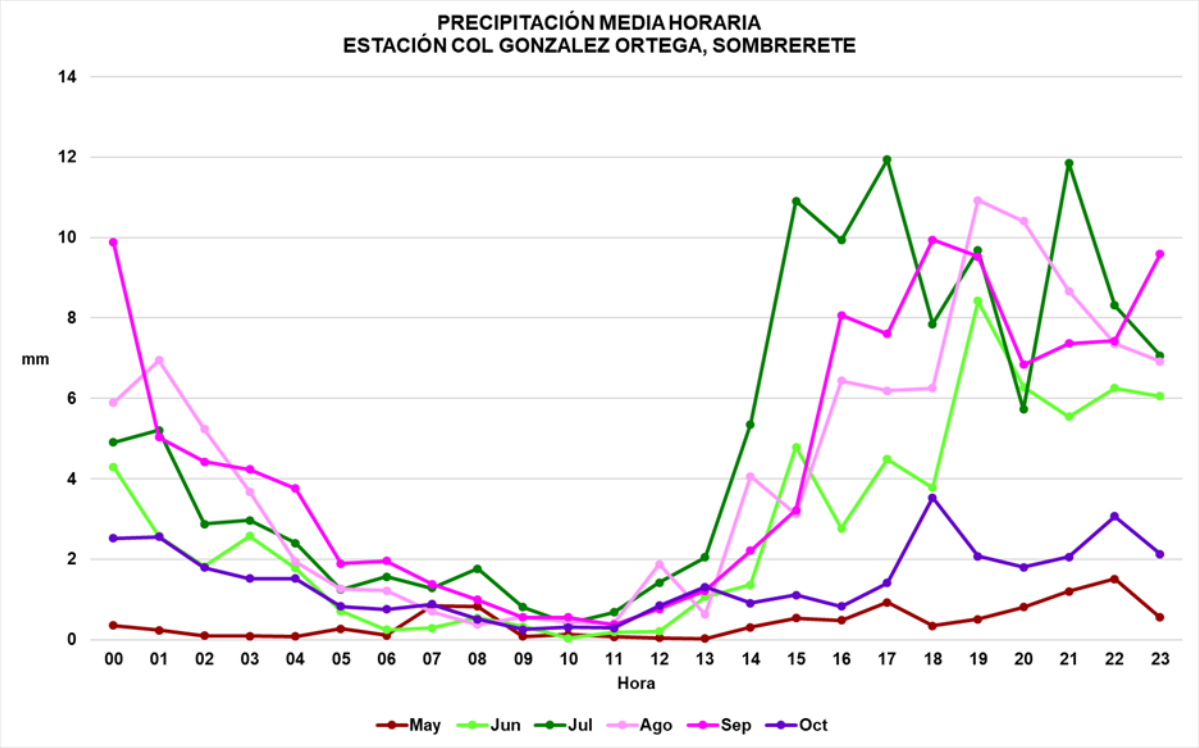


Figura 180. Precipitación media (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 199. Precipitación máxima maximorum (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.6	4.8	0.6	4.4	2.4	13.2	10.2	6.0	26.4	7.6	1.2	0.8	26.4
01	1.4	3.6	1.2	1.4	2.6	9.2	15.0	15.8	12.0	12.6	1.6	0.8	15.8
02	1.6	2.0	1.8	0.8	0.8	6.6	6.0	17.8	11.4	10.8	2.4	0.6	17.8
03	2.4	2.2	1.2	1.4	1.2	6.8	15.2	11.0	15.8	5.6	1.6	1.0	15.8
04	3.0	1.4	0.4	1.2	0.4	4.8	14.6	4.6	11.0	7.2	2.8	1.8	14.6
05	1.0	1.2	1.2	0.0	2.6	2.8	3.2	6.0	3.4	2.8	2.8	1.4	6.0
06	3.6	1.0	0.4	0.2	1.6	1.2	11.2	3.6	7.4	3.0	4.2	3.4	11.2
07	4.8	1.8	1.2	0.0	12.8	2.6	5.4	2.4	3.8	5.4	2.2	2.2	12.8
08	9.4	1.8	1.4	0.0	14.6	5.4	18.4	1.4	4.0	2.2	1.4	1.0	18.4
09	8.2	2.2	0.8	0.0	1.0	3.2	3.8	5.4	2.0	2.0	1.8	1.6	8.2
10	1.2	3.6	0.6	0.0	1.8	0.6	1.2	4.0	2.2	1.8	1.4	1.0	4.0
11	1.6	9.2	0.6	0.0	1.0	2.4	5.0	4.0	2.6	1.0	1.4	1.4	9.2
12	0.8	2.4	2.8	0.0	0.6	1.2	13.0	23.0	6.8	5.2	3.0	2.4	23.0
13	8.0	2.2	3.0	0.0	0.2	7.0	8.8	2.6	6.2	14.2	5.4	2.0	14.2
14	3.0	1.4	2.0	0.0	5.2	4.4	18.6	19.6	11.2	3.0	2.8	0.8	19.6
15	3.0	4.2	2.2	2.0	2.8	18.4	23.6	16.2	8.4	3.0	8.0	1.6	23.6
16	3.0	2.4	4.2	6.0	3.0	7.8	19.0	28.4	40.8	4.2	5.8	1.0	40.8
17	1.4	3.0	3.8	2.8	10.8	9.2	24.0	10.4	22.6	5.0	3.6	2.2	24.0
18	3.0	1.8	2.6	4.0	2.8	11.8	11.0	13.0	14.8	26.4	1.8	3.0	26.4
19	5.4	1.8	0.6	2.6	3.6	28.8	29.6	18.4	22.2	14.4	2.4	2.6	29.6
20	2.6	2.4	2.4	0.2	6.8	54.8	10.8	16.4	13.2	9.8	3.0	1.2	54.8
21	1.2	1.0	1.8	1.2	6.8	16.2	29.4	29.4	20.2	11.4	1.2	1.6	29.4
22	0.8	4.4	1.8	0.8	7.2	15.4	16.8	14.2	24.0	24.0	1.8	0.6	24.0
23	2.0	4.2	1.4	1.4	2.6	27.2	20.2	19.6	19.8	14.8	1.6	1.0	27.2
Máx.	9.4	9.2	4.2	6.0	14.6	54.8	29.6	29.4	40.8	26.4	8.0	3.4	54.8

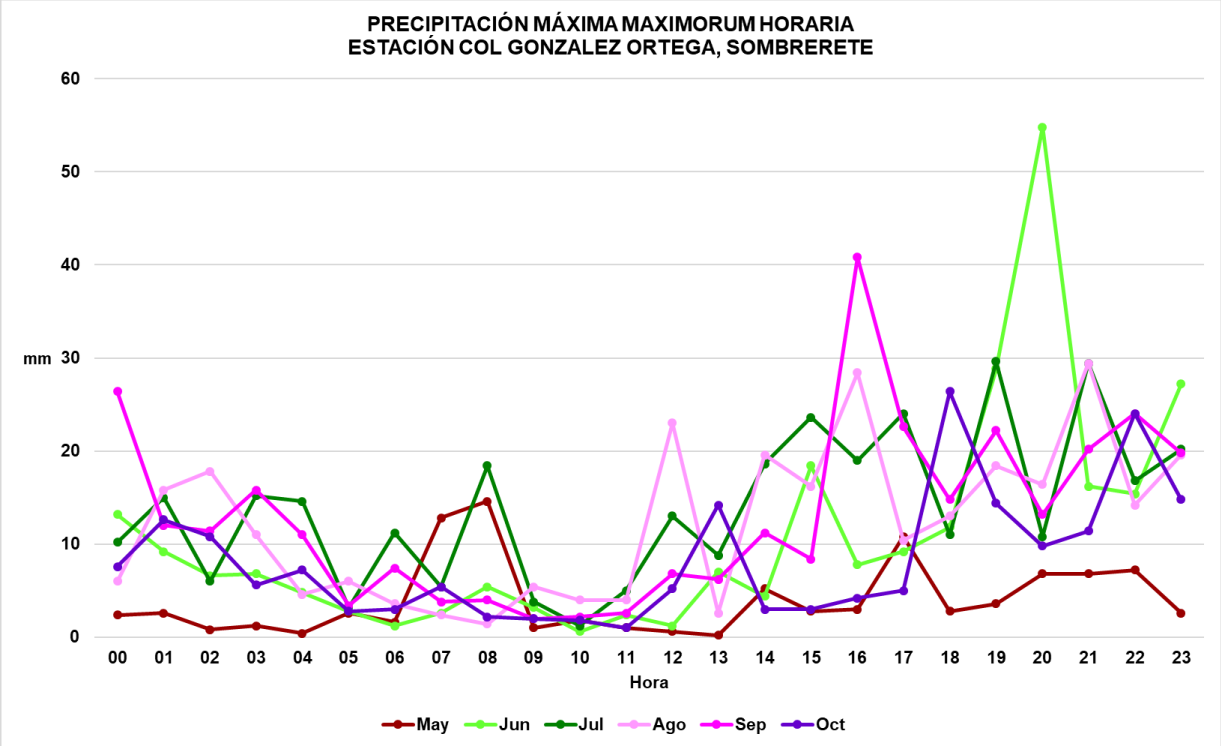


Figura 181. Precipitación máxima maximorum (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 200. Evapotranspiración potencial media (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.03	0.04	0.07	0.05	0.03	0.01	0.01	0.00	0.00	0.01	0.02	0.02
01	0.01	0.03	0.03	0.06	0.05	0.02	0.01	0.01	0.00	0.00	0.01	0.02	0.02
02	0.01	0.02	0.03	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.02	0.02
03	0.01	0.02	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.02
04	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
05	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
06	0.01	0.02	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
07	0.02	0.02	0.03	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.02
08	0.03	0.05	0.10	0.08	0.08	0.05	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.10	0.15	0.23	0.20	0.21	0.18	0.13	0.12	0.09	0.10	0.16	0.12	0.15
10	0.21	0.29	0.39	0.36	0.37	0.33	0.26	0.26	0.21	0.24	0.29	0.23	0.29
11	0.32	0.42	0.52	0.51	0.53	0.48	0.40	0.40	0.35	0.38	0.40	0.34	0.42
12	0.41	0.52	0.62	0.64	0.66	0.60	0.52	0.53	0.45	0.49	0.48	0.43	0.53
13	0.46	0.57	0.67	0.72	0.73	0.67	0.60	0.61	0.53	0.56	0.51	0.46	0.59
14	0.46	0.57	0.66	0.76	0.76	0.69	0.62	0.64	0.55	0.57	0.48	0.45	0.60
15	0.42	0.52	0.60	0.73	0.72	0.66	0.58	0.61	0.52	0.53	0.41	0.39	0.56
16	0.33	0.42	0.49	0.65	0.64	0.58	0.50	0.54	0.44	0.45	0.30	0.30	0.47
17	0.22	0.30	0.35	0.52	0.52	0.48	0.40	0.42	0.33	0.32	0.17	0.17	0.35
18	0.11	0.14	0.19	0.37	0.38	0.36	0.30	0.30	0.20	0.20	0.08	0.10	0.23
19	0.06	0.09	0.12	0.28	0.27	0.24	0.19	0.20	0.12	0.07	0.03	0.05	0.14
20	0.04	0.06	0.08	0.15	0.18	0.18	0.13	0.10	0.03	0.02	0.02	0.03	0.08
21	0.03	0.05	0.06	0.12	0.11	0.10	0.05	0.03	0.01	0.01	0.02	0.03	0.05
22	0.02	0.04	0.06	0.10	0.08	0.05	0.02	0.01	0.00	0.01	0.02	0.02	0.04
23	0.02	0.03	0.05	0.09	0.06	0.03	0.01	0.01	0.00	0.00	0.01	0.02	0.03
Media/día /mes	3.35	4.39	5.38	6.69	6.58	5.81	4.77	4.82	3.84	3.99	3.49	3.30	4.70

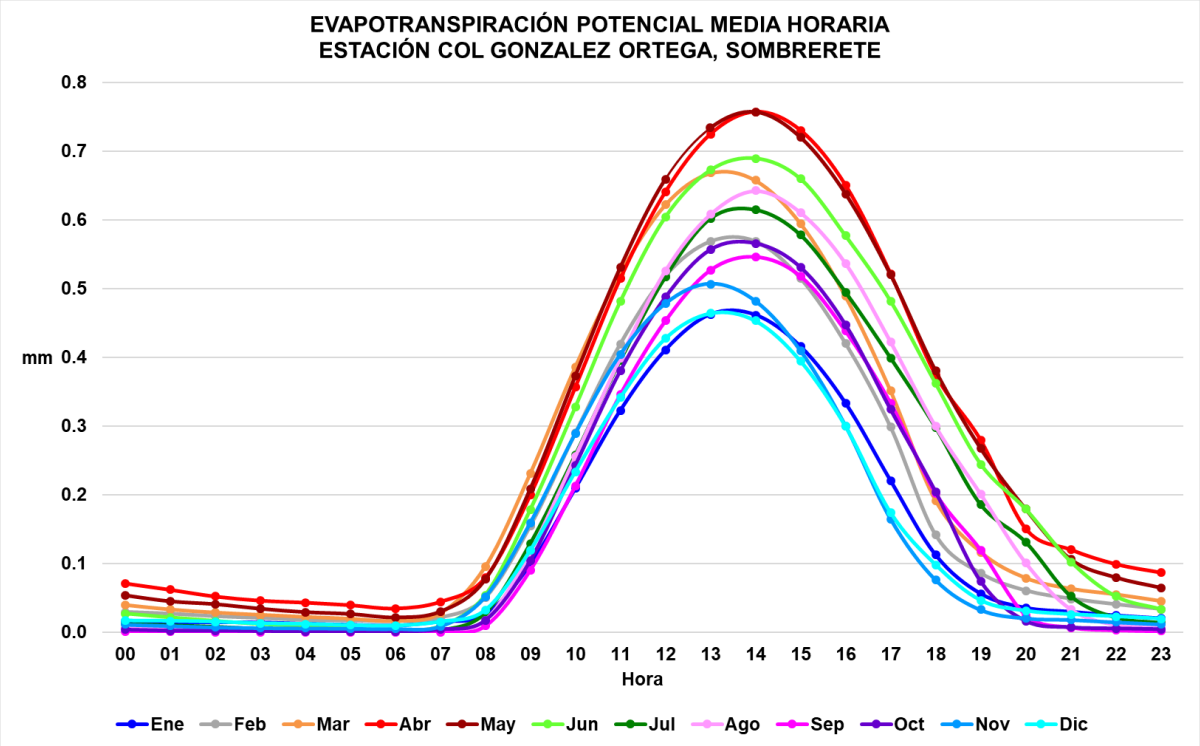


Figura 182. Evapotranspiración potencial media (mm) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 201. Humedad relativa media (%) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	52.4	43.3	37.7	32.0	38.2	56.9	76.5	78.5	86.4	73.6	63.9	53.3	57.7
01	54.1	45.3	39.8	34.3	41.3	60.0	79.3	81.3	88.0	75.9	66.3	55.0	60.1
02	55.7	47.1	41.8	36.6	44.7	63.5	82.2	83.9	89.5	78.2	68.7	56.7	62.4
03	57.3	48.8	43.7	38.8	47.9	67.0	84.7	86.4	90.9	80.2	70.9	58.4	64.6
04	58.7	50.4	45.1	40.6	50.5	70.2	87.0	88.4	92.2	82.0	72.5	59.6	66.4
05	59.9	51.8	46.5	42.3	52.9	73.1	88.8	90.3	93.3	83.4	74.2	60.8	68.1
06	61.2	53.1	47.9	43.8	54.9	75.6	90.5	92.1	94.3	84.8	75.3	62.3	69.7
07	62.1	53.1	46.9	43.2	54.7	75.8	90.9	92.6	94.8	85.2	73.8	62.7	69.6
08	57.6	46.9	40.1	38.5	48.9	69.8	86.2	88.8	92.6	80.7	64.6	56.4	64.3
09	49.5	39.2	32.9	31.8	40.4	62.1	79.2	81.6	86.6	71.3	54.9	47.6	56.4
10	42.1	32.7	26.9	25.8	32.4	53.5	71.6	74.1	79.4	62.0	46.6	40.2	48.9
11	36.0	27.6	22.6	21.1	26.3	45.5	63.8	66.5	72.5	54.5	39.9	34.4	42.6
12	31.1	23.9	19.6	17.7	22.1	39.2	57.0	59.8	66.7	48.6	35.0	30.1	37.6
13	27.8	21.5	17.6	15.4	19.2	34.9	51.8	54.5	62.3	44.3	31.9	27.3	34.0
14	25.9	20.0	16.4	13.8	17.7	32.2	48.6	50.6	59.4	41.5	30.1	25.8	31.8
15	25.1	19.4	15.8	13.0	16.9	31.5	47.6	48.5	58.2	40.3	29.6	25.1	30.9
16	25.4	19.8	16.0	12.8	16.7	32.0	47.8	48.4	59.0	40.2	30.8	26.0	31.2
17	27.5	21.0	17.1	13.2	17.2	33.1	49.1	49.9	61.1	42.3	34.7	28.9	32.9
18	32.5	24.1	19.5	14.3	18.1	34.4	50.9	52.9	65.7	48.8	42.2	35.0	36.5
19	37.3	28.2	22.8	16.3	20.3	37.6	54.5	58.2	73.0	57.3	47.3	39.3	41.0
20	41.0	31.8	26.2	19.3	23.7	41.9	60.2	65.5	78.4	62.2	51.5	43.1	45.4
21	44.6	35.1	29.4	22.6	27.5	46.7	66.4	70.7	80.7	65.5	55.1	46.2	49.2
22	47.5	38.1	32.4	26.2	31.4	51.1	70.2	73.8	82.8	68.1	58.3	48.7	52.4
23	50.0	40.7	35.2	29.4	35.0	54.9	73.4	76.6	84.6	70.8	61.1	51.2	55.2
Media	44.3	35.9	30.8	26.8	33.3	51.8	69.1	71.4	78.9	64.2	53.3	44.8	50.4

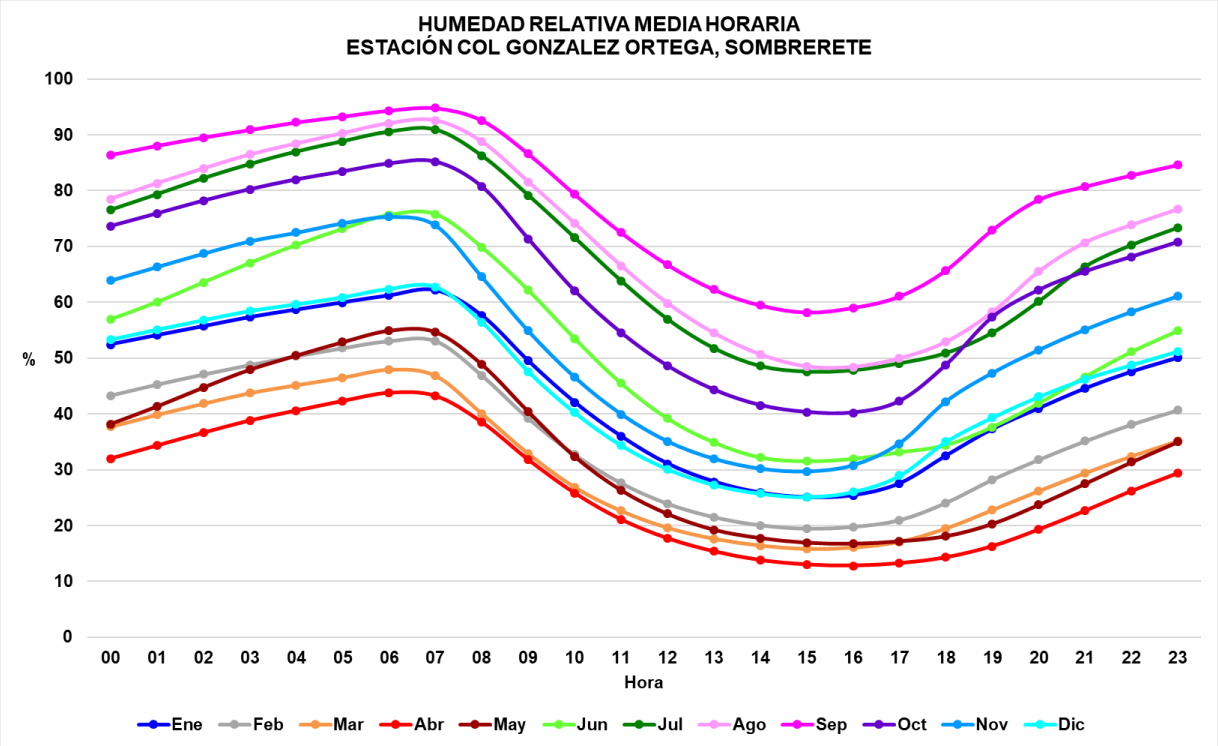


Figura 183. Humedad relativa media (%) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 202. Humedad relativa mínima minimorum (%) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.0	9.0	8.7	8.0	8.0	12.0	19.0	31.0	26.0	25.0	14.0	8.0	8.0
01	8.0	9.0	8.8	9.0	9.0	13.0	25.0	36.0	28.0	26.0	13.0	8.0	8.0
02	7.0	9.0	9.0	9.0	9.0	14.0	29.0	37.0	28.0	25.0	13.0	7.0	7.0
03	7.0	9.0	9.4	9.0	9.0	17.0	34.0	44.0	29.0	26.5	12.0	8.0	7.0
04	8.0	9.0	8.9	8.0	9.0	18.0	34.0	45.0	40.0	21.0	13.0	7.0	7.0
05	8.0	9.0	8.7	9.0	9.0	13.0	39.0	45.0	40.0	22.0	14.0	8.0	8.0
06	8.0	10.0	7.8	8.0	8.0	13.0	42.0	46.0	40.0	21.7	14.4	7.0	7.0
07	9.0	11.0	8.6	7.0	7.0	15.0	44.0	53.0	45.0	21.1	12.7	8.0	7.0
08	10.0	10.0	5.0	7.0	7.0	16.0	37.0	49.0	46.0	20.0	12.0	7.0	5.0
09	8.0	8.0	5.0	4.0	6.0	11.0	29.0	42.0	32.0	17.6	10.0	7.0	4.0
10	7.0	6.0	4.0	3.0	5.0	8.0	27.0	30.0	25.0	15.0	8.0	6.0	3.0
11	5.0	5.0	4.0	3.0	3.0	6.0	24.0	28.0	19.0	12.0	7.0	5.0	3.0
12	5.0	5.0	4.0	3.0	3.0	6.0	19.0	26.0	19.0	11.0	7.0	4.0	3.0
13	5.0	5.0	3.0	3.0	3.0	5.0	15.0	24.0	19.0	10.0	6.0	4.0	3.0
14	4.0	5.0	3.0	3.0	3.0	5.0	13.0	20.0	17.0	10.0	5.0	4.0	3.0
15	4.0	5.0	4.0	2.0	3.0	5.0	12.0	19.0	15.0	9.0	6.0	4.0	2.0
16	4.0	4.0	3.0	2.0	3.0	5.0	12.0	18.0	14.0	9.0	6.0	4.0	2.0
17	4.0	4.0	4.0	3.0	3.0	5.0	12.0	18.0	16.0	9.0	6.0	5.0	3.0
18	5.0	4.0	5.0	3.0	3.0	5.0	13.0	17.0	15.0	10.0	9.0	5.0	3.0
19	6.0	6.0	5.0	2.0	3.0	5.0	13.0	17.0	19.0	12.0	10.0	6.0	2.0
20	6.0	7.0	4.0	3.0	5.0	6.0	15.0	18.0	23.0	17.0	10.0	6.0	3.0
21	7.0	9.0	7.0	4.0	6.0	7.0	19.0	21.0	26.0	21.0	10.0	8.0	4.0
22	8.0	10.0	8.0	6.0	7.0	8.0	22.0	26.0	25.0	19.0	12.0	9.0	6.0
23	8.0	11.0	8.0	7.0	8.0	9.0	19.0	28.0	27.0	24.0	12.0	9.0	7.0
Mín.	4.0	4.0	3.0	2.0	3.0	5.0	12.0	17.0	14.0	9.0	5.0	4.0	2.0

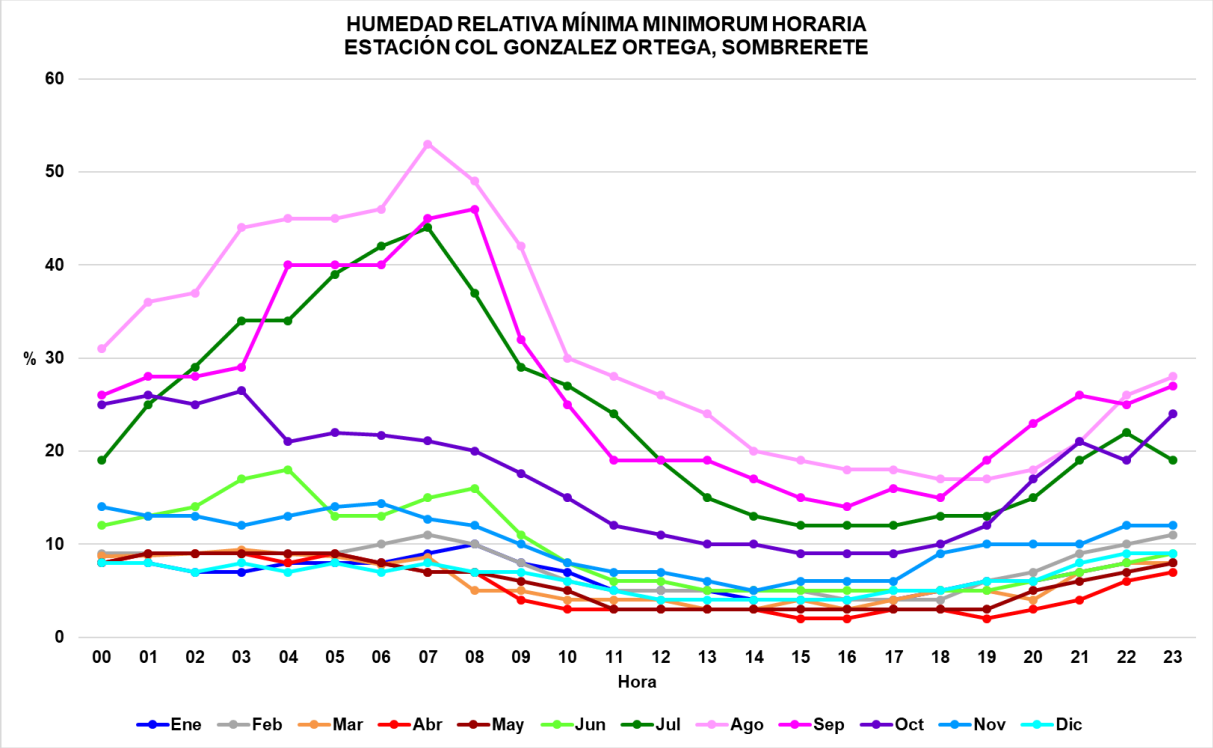


Figura 184. Humedad relativa mínima minimorum (%) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 203. Radiación solar global media horaria (W/m2) de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	14	7	11	10	5	2	0	2	4	0	5
07	48	105	309	193	231	209	136	97	61	80	214	80	147
08	510	745	1143	871	940	869	690	626	495	562	919	630	750
09	1284	1646	2094	1812	1858	1723	1469	1469	1234	1402	1727	1408	1594
10	2032	2474	2912	2724	2736	2574	2295	2327	2049	2225	2435	2081	2405
11	2595	3111	3516	3468	3450	3236	3013	3037	2695	2851	2890	2604	3039
12	2911	3429	3822	3926	3896	3626	3464	3488	3126	3232	3051	2819	3399
13	2895	3416	3764	4079	3999	3634	3530	3638	3257	3284	2927	2772	3433
14	2624	3134	3431	3945	3716	3408	3256	3460	3090	3074	2542	2423	3175
15	2114	2592	2828	3476	3311	2950	2776	2984	2665	2587	1921	1866	2673
16	1409	1832	2084	2817	2673	2369	2194	2354	2055	1936	1174	1153	2004
17	631	913	1165	1957	1936	1762	1599	1681	1357	1128	367	408	1242
18	70	127	298	1015	1167	1131	1022	974	646	321	8	14	566
19	0	1	6	240	443	457	452	323	117	27	0	0	172
20	0	0	0	12	35	51	60	25	2	0	0	0	15
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19124	23526	27387	30541	30403	28011	25962	26485	22850	22713	20180	18258	24620

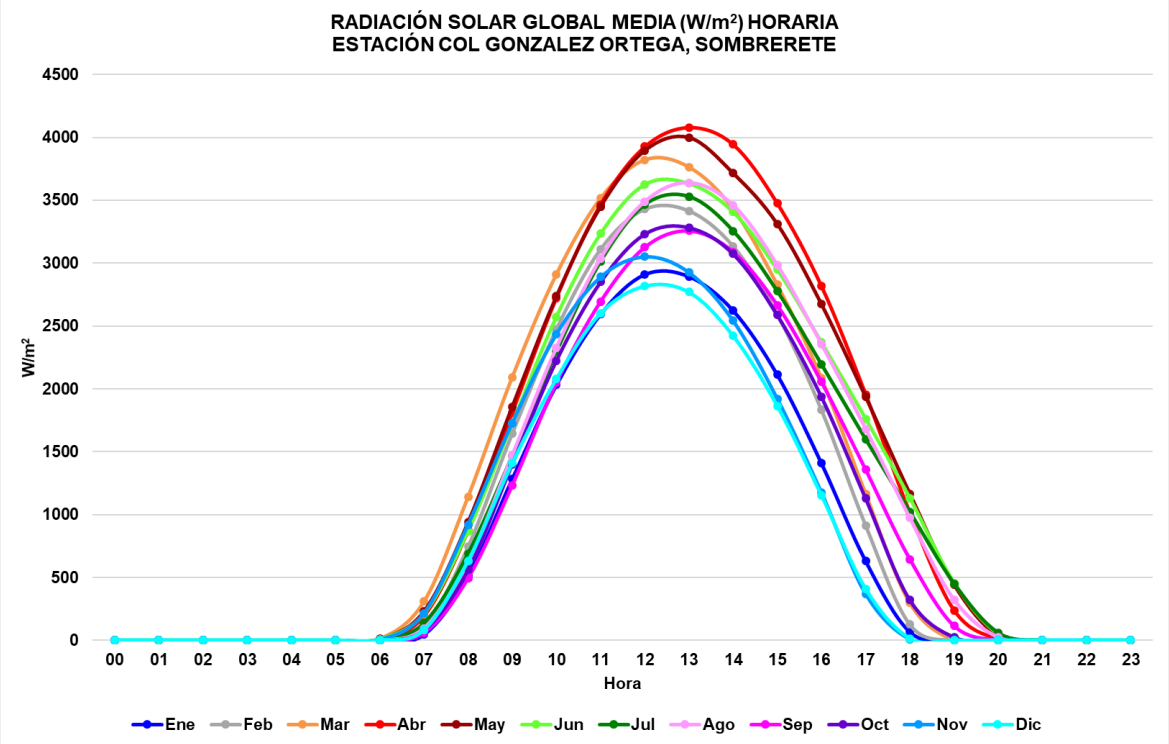


Figura 185. Radiación solar global media horaria (W/m2) de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 204. Radiación solar global media horaria (kWh/m2) de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.06	0.05	0.03	0.02	0.02	0.02	0.05	0.02	0.04
08	0.13	0.19	0.29	0.22	0.23	0.22	0.17	0.16	0.12	0.14	0.23	0.16	0.19
09	0.32	0.41	0.52	0.45	0.46	0.43	0.37	0.37	0.31	0.35	0.43	0.35	0.40
10	0.51	0.62	0.73	0.68	0.68	0.64	0.57	0.58	0.51	0.56	0.61	0.52	0.60
11	0.65	0.78	0.88	0.87	0.86	0.81	0.75	0.76	0.67	0.71	0.72	0.65	0.76
12	0.73	0.86	0.96	0.98	0.97	0.91	0.87	0.87	0.78	0.81	0.76	0.70	0.85
13	0.72	0.85	0.94	1.02	1.00	0.91	0.88	0.91	0.81	0.82	0.73	0.69	0.86
14	0.66	0.78	0.86	0.99	0.93	0.85	0.81	0.86	0.77	0.77	0.64	0.61	0.79
15	0.53	0.65	0.71	0.87	0.83	0.74	0.69	0.75	0.67	0.65	0.48	0.47	0.67
16	0.35	0.46	0.52	0.70	0.67	0.59	0.55	0.59	0.51	0.48	0.29	0.29	0.50
17	0.16	0.23	0.29	0.49	0.48	0.44	0.40	0.42	0.34	0.28	0.09	0.10	0.31
18	0.02	0.03	0.07	0.25	0.29	0.28	0.26	0.24	0.16	0.08	0.00	0.00	0.14
19	0.00	0.00	0.00	0.06	0.11	0.11	0.11	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.78	5.88	6.85	7.64	7.60	7.00	6.49	6.62	5.71	5.68	5.04	4.56	6.15

Cuadro 205. Radiación solar global media horaria (Mj/m2/s) de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.09	0.28	0.17	0.21	0.19	0.12	0.09	0.05	0.07	0.19	0.07	0.13
08	0.46	0.67	1.03	0.78	0.85	0.78	0.62	0.56	0.45	0.51	0.83	0.57	0.68
09	1.16	1.48	1.88	1.63	1.67	1.55	1.32	1.32	1.11	1.26	1.55	1.27	1.43
10	1.83	2.23	2.62	2.45	2.46	2.32	2.07	2.09	1.84	2.00	2.19	1.87	2.16
11	2.34	2.80	3.16	3.12	3.10	2.91	2.71	2.73	2.43	2.57	2.60	2.34	2.73
12	2.62	3.09	3.44	3.53	3.51	3.26	3.12	3.14	2.81	2.91	2.75	2.54	3.06
13	2.61	3.07	3.39	3.67	3.60	3.27	3.18	3.27	2.93	2.96	2.63	2.49	3.09
14	2.36	2.82	3.09	3.55	3.34	3.07	2.93	3.11	2.78	2.77	2.29	2.18	2.86
15	1.90	2.33	2.54	3.13	2.98	2.65	2.50	2.69	2.40	2.33	1.73	1.68	2.41
16	1.27	1.65	1.88	2.54	2.41	2.13	1.97	2.12	1.85	1.74	1.06	1.04	1.80
17	0.57	0.82	1.05	1.76	1.74	1.59	1.44	1.51	1.22	1.02	0.33	0.37	1.12
18	0.06	0.11	0.27	0.91	1.05	1.02	0.92	0.88	0.58	0.29	0.01	0.01	0.51
19	0.00	0.00	0.01	0.22	0.40	0.41	0.41	0.29	0.10	0.02	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.21	21.17	24.65	27.49	27.36	25.21	23.37	23.84	20.56	20.44	18.16	16.43	22.16

Cuadro 206. Velocidad del viento media (km/h) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.8	7.4	7.1	8.9	7.4	6.1	5.7	4.5	3.1	3.5	4.9	6.1	5.9
01	5.7	6.9	6.7	8.3	7.1	5.8	5.6	4.3	3.0	3.6	4.6	6.0	5.6
02	5.7	6.4	6.3	7.8	6.8	5.3	5.4	4.1	2.9	3.4	4.3	5.6	5.3
03	5.4	6.1	5.9	7.6	6.3	4.9	5.0	3.7	2.7	3.1	4.1	5.4	5.0
04	5.1	5.8	5.7	7.1	6.1	4.6	4.5	3.6	2.6	3.1	3.8	5.1	4.8
05	4.8	5.6	5.4	6.5	5.5	4.2	4.1	3.4	2.7	2.9	3.7	4.9	4.5
06	4.5	5.3	5.0	5.8	4.9	3.8	3.8	3.2	2.6	2.8	3.5	4.7	4.1
07	4.5	5.4	4.9	5.4	4.8	3.8	3.6	3.1	2.6	2.6	3.5	4.7	4.1
08	5.3	6.1	6.2	6.2	5.8	5.4	5.0	4.3	3.4	3.3	4.8	5.4	5.1
09	7.2	8.1	8.2	8.0	7.4	7.3	7.0	6.8	5.5	5.1	7.1	7.3	7.1
10	9.2	9.9	9.7	9.6	8.2	8.2	7.9	8.2	7.0	7.0	8.6	9.1	8.6
11	10.0	11.2	10.6	10.3	8.7	8.8	8.5	8.6	7.9	8.0	9.3	10.2	9.4
12	10.6	11.8	11.1	10.8	9.3	9.8	8.9	8.9	8.2	8.6	9.7	10.8	9.9
13	10.9	12.0	11.6	11.4	9.8	11.0	9.6	9.3	8.6	8.9	9.8	11.0	10.3
14	11.2	12.1	11.7	11.7	10.2	11.8	10.6	9.9	8.8	8.9	9.8	10.9	10.6
15	11.2	12.0	11.6	11.8	10.5	12.5	11.3	10.8	9.1	8.8	9.6	10.7	10.8
16	11.0	12.0	11.6	11.7	10.6	12.8	11.6	10.9	9.1	8.6	9.3	10.4	10.8
17	10.3	11.4	11.3	12.0	10.6	12.5	11.4	10.9	8.6	8.2	8.3	9.3	10.4
18	8.7	10.0	10.7	11.5	10.5	12.1	11.0	10.1	7.4	6.9	6.5	7.6	9.4
19	7.7	9.0	9.6	11.0	10.3	11.7	10.1	9.0	5.5	4.6	5.9	7.3	8.5
20	7.4	8.7	9.3	10.7	9.3	10.5	8.5	6.6	4.1	4.2	5.7	7.0	7.7
21	6.9	8.4	8.9	10.9	8.9	8.4	6.5	5.2	3.8	3.9	5.3	6.8	7.0
22	6.6	7.9	8.2	10.7	8.4	7.0	6.0	4.9	3.6	3.7	5.2	6.6	6.6
23	6.3	7.6	7.8	9.8	7.7	6.5	5.7	4.6	3.2	3.5	5.1	6.3	6.2
Media	7.6	8.6	8.5	9.4	8.1	8.1	7.4	6.6	5.2	5.3	6.4	7.5	7.4

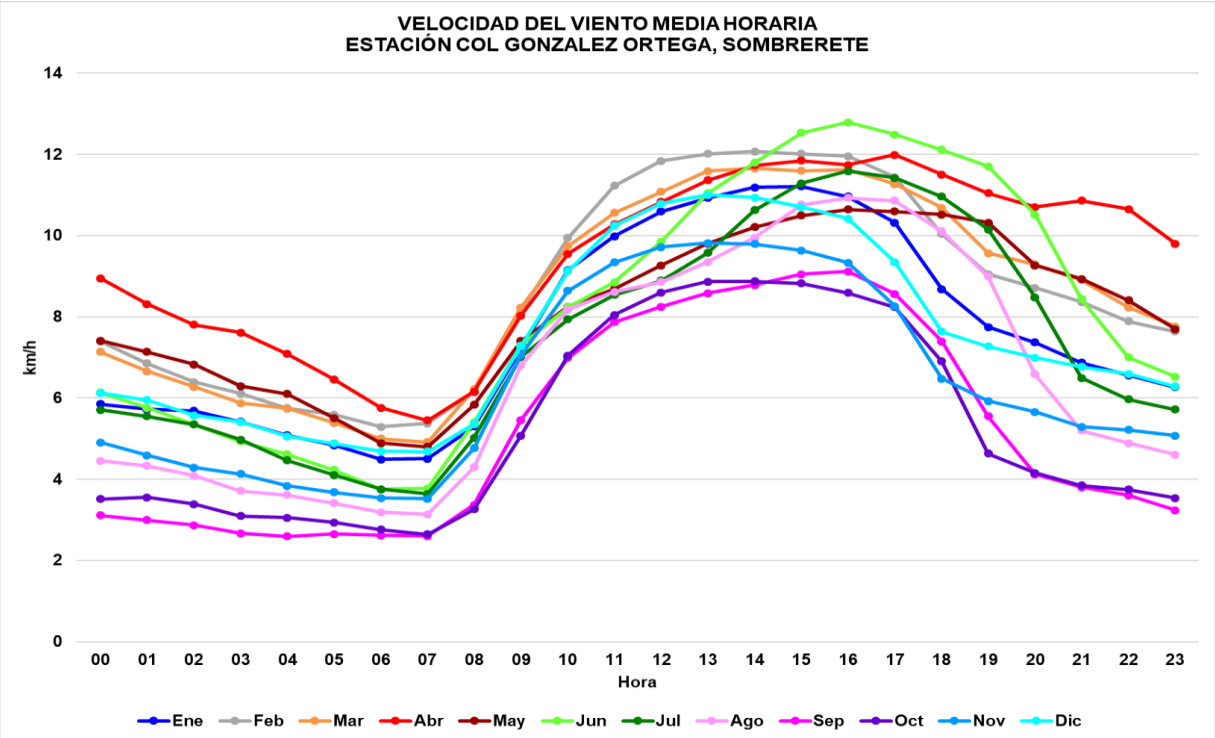


Figura 186. Velocidad del viento media (km/h) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 207. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	43.1	33.8	38.4	30.2	25.8	26.8	31.6	21.2	21.2	20.0	32.4	38.5	43.1
01	48.0	33.6	38.3	35.3	29.5	25.9	28.6	22.5	26.8	25.4	38.5	40.9	48.0
02	43.6	31.6	44.9	31.8	29.1	21.1	22.8	23.5	24.8	27.1	37.9	45.8	45.8
03	36.0	40.4	40.1	30.9	27.2	21.7	24.1	21.5	25.4	24.7	34.2	45.3	45.3
04	31.0	40.3	42.1	36.0	30.9	20.2	23.5	21.5	24.8	28.5	31.9	40.0	42.1
05	32.9	42.8	35.4	37.3	32.6	20.9	21.6	25.9	23.5	20.4	37.2	34.0	42.8
06	40.5	41.6	41.9	35.3	28.0	24.7	23.5	24.8	20.2	20.8	40.1	35.2	41.9
07	35.3	36.9	33.6	34.2	28.2	23.3	19.5	24.8	20.2	20.8	39.1	34.3	39.1
08	36.4	36.0	38.9	30.8	28.3	19.1	22.8	30.0	22.1	23.2	38.5	36.3	38.9
09	43.1	44.7	41.6	33.8	29.2	23.2	26.9	30.7	28.7	27.0	35.4	41.4	44.7
10	44.0	41.9	45.3	34.4	27.4	24.6	27.4	35.3	26.7	26.1	36.6	43.7	45.3
11	43.3	44.4	43.1	37.9	27.9	25.6	28.8	32.0	26.7	31.4	40.6	43.6	44.4
12	45.5	47.1	44.9	37.9	29.6	30.0	32.0	35.3	35.3	33.3	37.3	45.2	47.1
13	42.8	44.4	42.6	36.1	30.8	31.7	29.4	30.0	38.6	33.3	36.6	47.4	47.4
14	50.6	43.8	39.2	36.7	30.9	38.5	33.8	26.7	37.3	31.4	36.7	51.0	51.0
15	40.1	40.5	39.2	35.4	39.9	37.8	33.2	40.0	38.6	29.4	40.4	47.5	47.5
16	39.0	41.1	40.9	41.2	37.2	40.2	30.4	33.2	41.7	29.5	35.1	41.4	41.7
17	39.9	43.5	35.9	35.9	36.3	33.3	34.8	33.8	32.7	28.7	35.3	44.1	44.1
18	36.8	38.8	36.0	36.6	33.6	33.9	43.0	38.0	28.7	26.1	33.0	33.7	43.0
19	32.7	35.0	35.7	37.0	36.6	37.1	32.7	31.6	23.8	22.4	33.6	29.6	37.1
20	33.5	32.4	37.1	31.8	31.4	42.5	34.1	34.1	20.4	22.3	34.9	36.3	42.5
21	29.7	33.4	37.4	30.5	28.9	36.2	28.3	30.8	21.5	23.5	33.1	39.1	39.1
22	30.3	31.4	42.1	30.2	29.4	33.2	32.0	28.5	25.4	20.8	33.4	36.5	42.1
23	30.7	30.7	37.0	30.9	34.6	26.6	27.9	28.4	23.5	19.1	37.1	40.7	40.7
Máx.	50.6	47.1	45.3	41.2	39.9	42.5	43.0	40.0	41.7	33.3	40.6	51.0	51.0

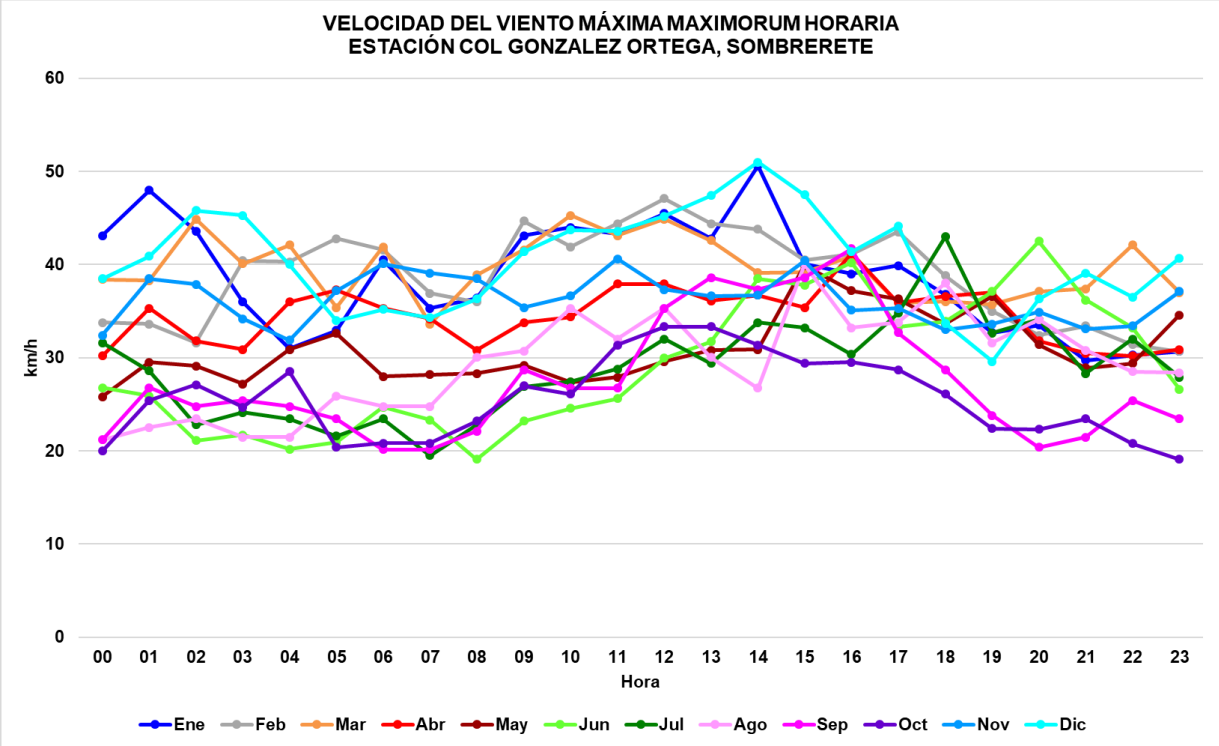


Figura 187. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 208. Frecuencia de velocidad del viento (%) mensual de la estación Col González Ortega, Sombrerete (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	38.7	33.6	31.8	25.0	28.6	31.7	35.7	42.0	53.4	54.2	46.9	39.9	38.6
5.1 a 10.0	33.6	32.3	35.0	34.5	40.4	34.5	36.7	35.4	34.0	33.4	33.7	33.6	34.8
10.1 a 15.0	17.4	19.6	19.1	23.5	21.4	23.0	20.2	18.0	10.1	9.3	13.5	16.7	17.6
15.1 a 20.0	6.7	8.8	9.2	11.8	7.5	8.5	6.2	3.7	1.8	2.2	3.7	6.5	6.3
20.1 a 25.0	2.5	3.7	3.2	4.0	1.9	2.0	1.1	0.7	0.4	0.7	1.2	1.9	1.9
25.1 a 30.0	0.7	1.3	1.2	0.9	0.2	0.2	0.2	0.2	0.1	0.3	0.6	0.8	0.5
30.1 a 35.0	0.3	0.4	0.5	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.4	0.2
35.1 a 40.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

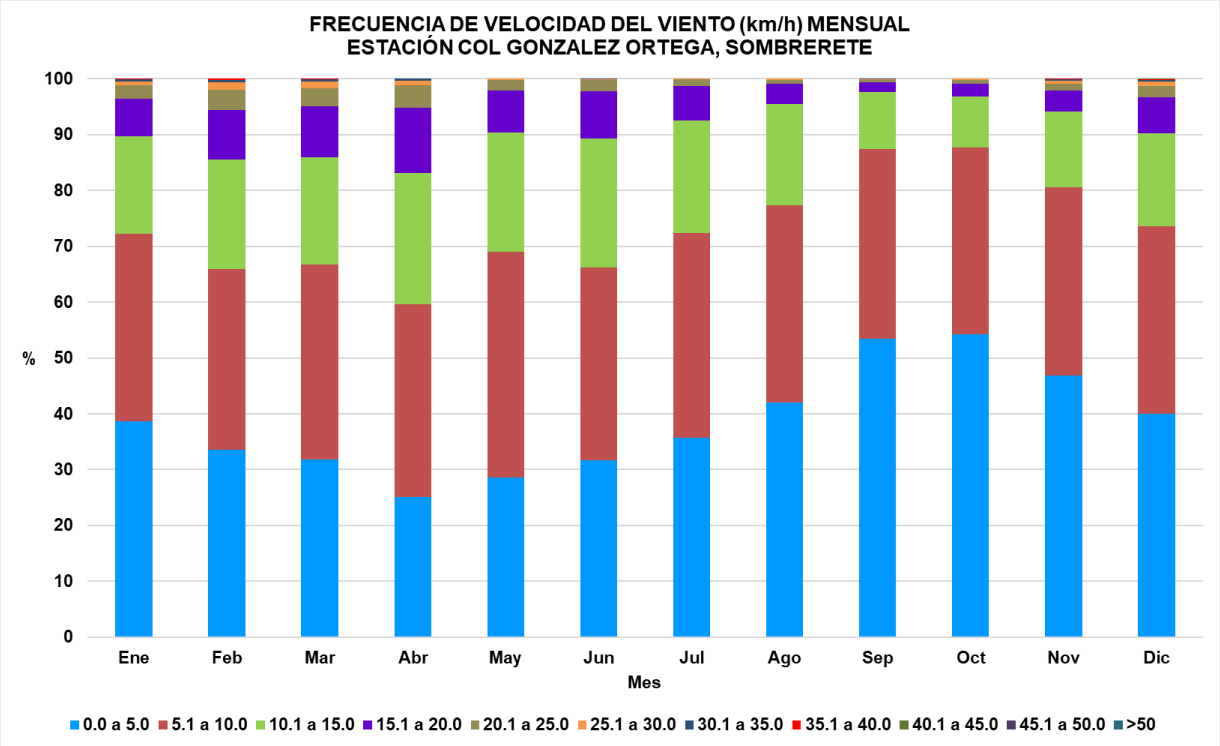


Figura 188. Frecuencia de velocidad del viento (%) mensual de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 209. Frecuencia de dirección del viento (%) mensual de la estación Col González Ortega, Sombrerete (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.2	3.5	4.4	3.8	5.8	9.5	5.7	6.5	8.8	6.3	4.9	3.3	5.6
NNE	1.8	1.8	2.0	2.0	3.9	7.3	4.3	5.3	5.8	4.4	2.7	1.6	3.6
NE	1.8	1.5	1.6	1.7	3.1	7.0	5.9	6.2	6.1	4.4	2.5	1.4	3.6
ENE	2.3	1.8	1.9	1.7	3.0	6.7	7.4	7.6	7.2	4.8	3.0	2.0	4.2
E	3.1	2.3	2.5	2.0	3.1	6.7	8.4	8.3	7.5	5.6	4.1	2.6	4.7
ESE	4.8	3.3	3.2	2.8	3.9	9.5	12.6	12.1	10.0	7.7	6.4	3.9	6.8
SE	5.9	4.1	4.0	3.4	5.2	11.7	14.7	14.0	10.3	8.8	8.0	4.6	8.0
SSE	3.0	3.0	2.9	2.6	3.8	5.3	6.8	6.9	5.9	5.9	5.3	3.4	4.6
S	4.3	4.2	3.6	3.3	3.4	3.1	3.8	4.0	3.9	4.8	5.3	5.1	4.1
SSO	10.4	9.7	8.7	9.0	6.4	3.4	3.9	3.5	3.2	5.2	7.6	12.2	6.9
SO	22.6	24.7	21.8	24.2	16.8	5.8	6.4	5.4	6.0	11.1	17.0	24.3	15.3
OSO	17.5	20.1	19.0	19.1	16.2	7.2	6.4	5.5	7.1	12.0	15.4	17.6	13.4
O	8.2	9.6	10.9	11.6	10.9	5.5	4.8	4.5	5.2	7.1	7.3	8.1	7.8
ONO	3.9	4.7	6.1	6.2	6.4	3.6	3.3	3.5	4.0	4.0	4.1	4.2	4.5
NO	3.3	3.2	4.2	3.7	4.3	3.2	2.6	3.1	3.9	3.7	3.2	3.1	3.5
NNO	2.9	2.8	3.3	2.8	3.9	4.3	3.2	3.7	5.1	4.2	3.4	2.7	3.5
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

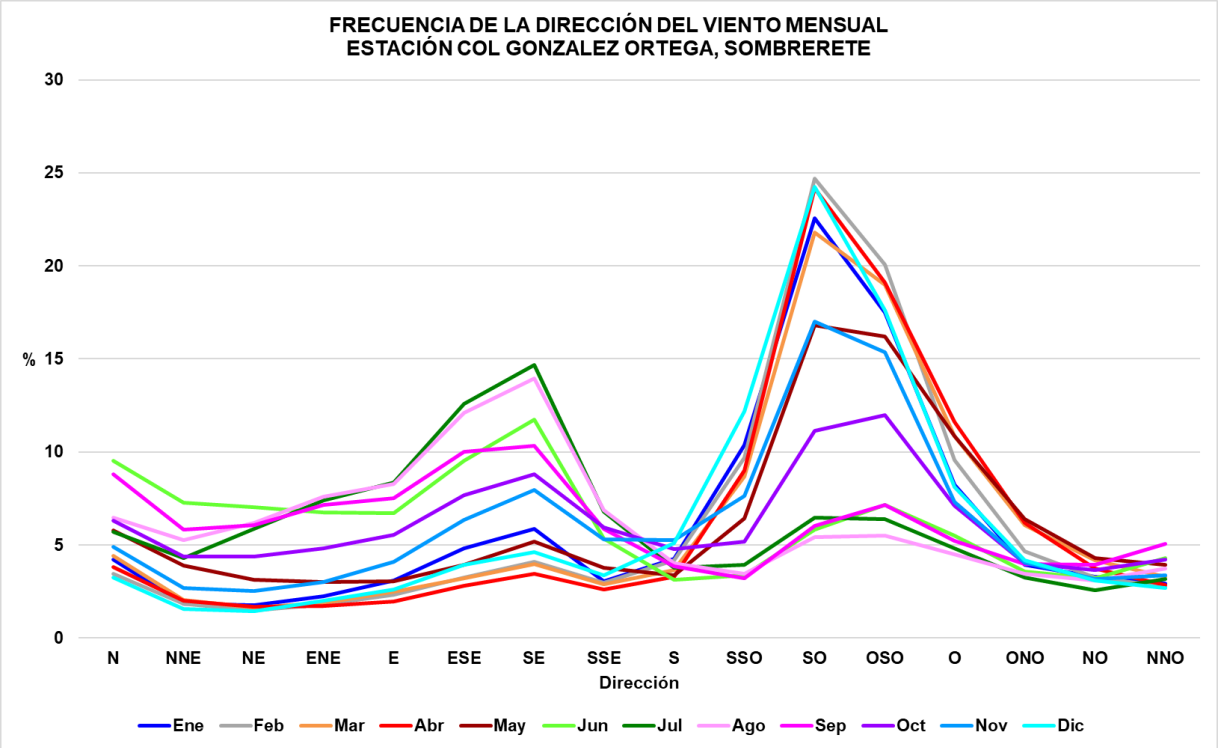


Figura 189. Frecuencia de dirección del viento (%) mensual de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 210. Frecuencia de dirección del viento (%) trimestral de la estación Col González Ortega, Sombrerete (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	4.0	6.4	7.0	4.8	5.6
NNE	1.9	4.5	5.1	2.9	3.6
NE	1.6	4.0	6.0	2.8	3.6
ENE	2.0	3.9	7.4	3.3	4.2
E	2.6	3.9	8.1	4.1	4.7
ESE	3.8	5.5	11.6	6.0	6.8
SE	4.6	6.8	13.0	7.1	8.0
SSE	3.0	3.9	6.5	4.9	4.6
S	4.0	3.3	3.9	5.0	4.1
SSO	9.6	6.2	3.5	8.3	6.9
SO	23.0	15.4	6.0	17.5	15.3
OSO	18.8	14.1	6.3	15.0	13.4
O	9.5	9.3	4.8	7.5	7.8
ONO	4.9	5.4	3.6	4.1	4.5
NO	3.6	3.8	3.2	3.3	3.5
NNO	3.0	3.7	4.0	3.4	3.5
Suma	100.0	100.0	100.0	100.0	100.0

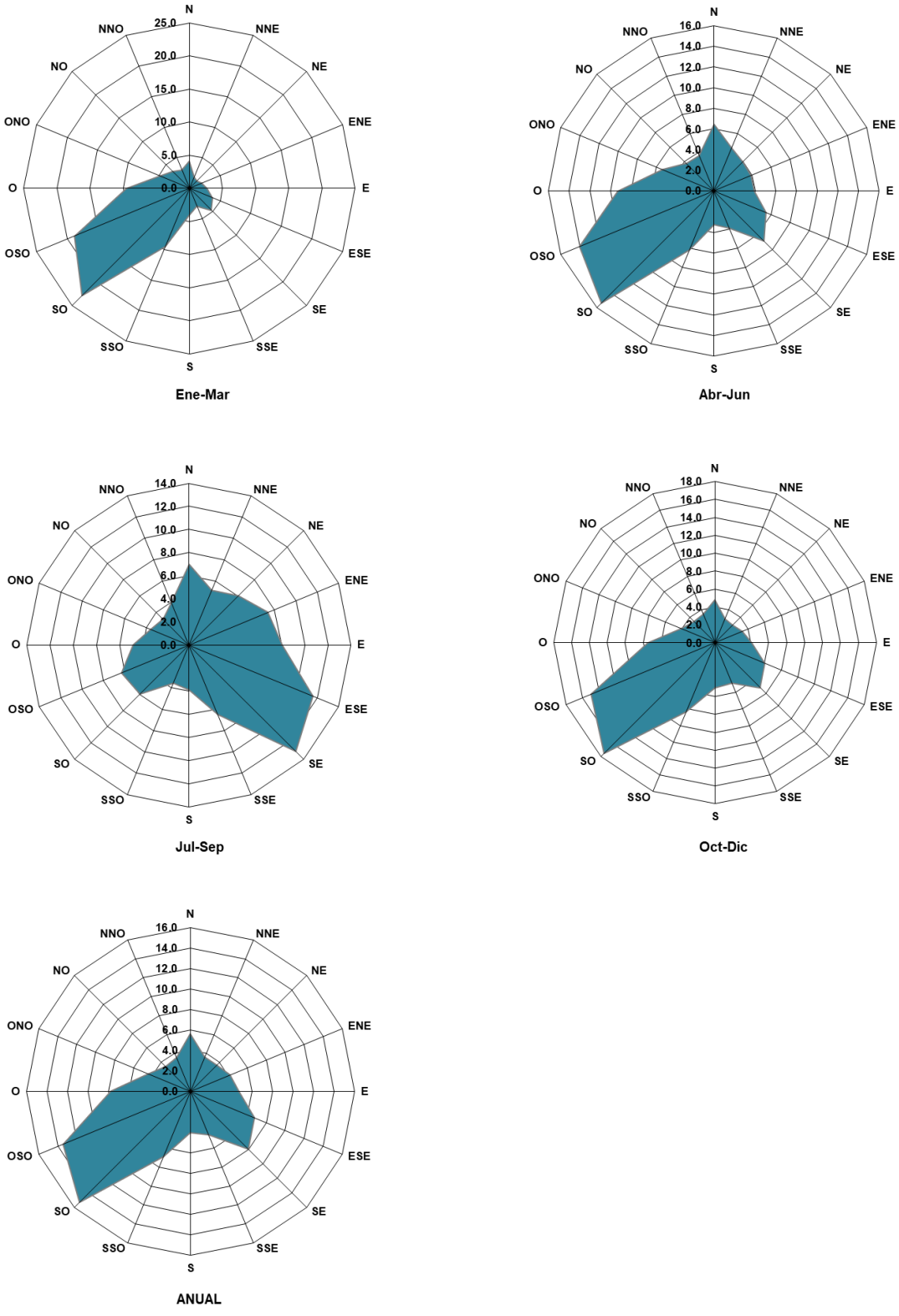


Figura 190. Frecuencia de dirección del viento (%) trimestral de la estación Col González Ortega, Sombrerete (2005-2022).

Cuadro 211. Estadísticas climatológicas mensuales de la estación Col González Ortega, Sombrerete (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.7	22.4	24.7	27.6	29.1	28.6	26.0	25.9	24.1	24.4	22.4	20.6	24.6
Temperatura máxima maximorum (°C)	27.0	30.7	34.0	33.5	36.3	35.2	31.8	32.4	30.2	29.4	30.3	29.8	36.3
Temperatura mínima media (°C)	4.0	5.6	7.5	10.0	12.3	13.6	13.2	12.8	12.0	9.3	6.2	4.7	9.3
Temperatura mínima minimorum (°C)	-6.0	-10.2	-3.8	1.9	3.2	8.6	9.8	9.0	5.0	0.1	-6.7	-8.1	-10.2
Temperatura media (°C)	11.5	13.8	16.1	19.0	20.8	20.8	18.9	18.6	17.1	16.1	13.7	12.3	16.6
Oscilación térmica (°C)	15.7	16.7	17.2	17.5	16.8	15.0	12.8	13.1	12.1	15.1	16.3	15.9	15.4
Precipitación acumulada media (mm)	9.8	9.7	5.8	2.4	10.4	66.4	118.2	101.5	108.8	34.8	11.9	5.5	485.4
Precipitación máxima maximorum en 24 horas (mm)	39.0	35.6	29.2	9.0	29.4	75.0	75.6	52.8	49.0	46.8	22.2	14.0	75.6
Número de días promedio con lluvia	3.6	3.6	3.9	1.7	3.9	10.4	18.1	17.1	15.4	7.6	4.5	3.2	92.9
Evapotranspiración acumulada potencial media (mm)	108.4	131.4	173.6	200.0	205.7	176.5	155.1	156.2	123.6	130.5	113.0	107.3	1781.4
Humedad máxima media (%)	69.7	60.0	54.4	50.6	60.9	80.8	94.0	95.2	96.3	88.8	80.5	70.5	75.1
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.6	17.3	14.0	11.1	14.1	26.0	39.4	41.7	51.4	36.0	27.1	22.5	26.8
Humedad mínima minimorum (%)	4.0	4.0	3.0	2.0	3.0	5.0	12.0	17.0	14.0	9.0	5.0	4.0	2.0
Humedad media (%)	44.2	36.0	30.8	26.8	33.3	51.8	69.1	71.4	78.9	64.2	53.3	44.8	50.4
Radiación global media día/mes (W/m^2)	19132.1	23532.9	27387.0	30562.9	30402.9	28011.2	25961.8	26485.0	22849.9	22712.6	20179.9	18258.4	24623.0
Radiación global media día/mes (kWh/m^2)	4.8	5.9	6.8	7.6	7.6	7.0	6.5	6.6	5.7	5.7	5.0	4.6	6.2
Radiación global media día/mes ($Mj/m^2/s$)	17.2	21.2	24.6	27.5	27.4	25.2	23.4	23.8	20.6	20.4	18.2	16.4	22.2
Velocidad del viento máxima media (km/h)	17.7	19.7	19.6	20.9	19.5	20.8	19.7	18.3	14.7	13.8	15.1	16.9	18.1
Velocidad del viento máxima maximorum (km/h)	50.6	47.1	45.3	41.2	39.9	42.5	43.0	40.0	41.7	33.3	40.6	51.0	51.0
Velocidad del viento media (km/h)	7.6	8.6	8.5	9.4	8.1	8.1	7.4	6.6	5.2	5.3	6.4	7.5	7.4
Dirección dominante del viento	SO	SO	SO	SO	SO	SE	SE	SE	SE	OSO	SO	SO	SO

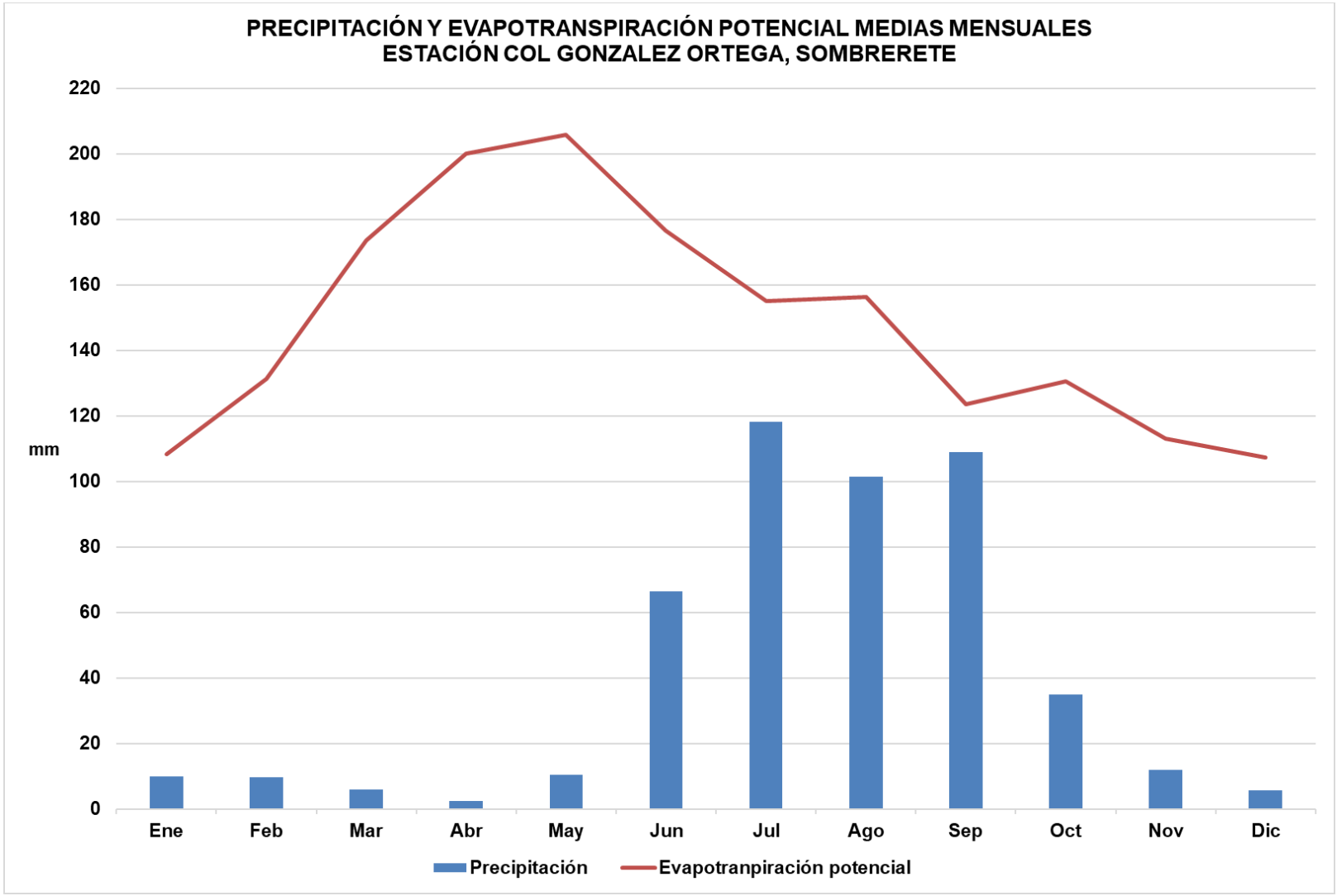


Figura 191. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Col González Ortega, Sombrerete (2005-2022).

7.12. Estación: Col. Hidalgo, Sombrerete

Cuadro 212. Temperatura máxima media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.3	8.2	10.6	14.3	17.1	18.2	16.5	16.3	14.8	12.3	8.5	6.5	12.5
01	5.6	7.3	9.6	13.2	16.0	17.4	16.0	15.8	14.2	11.5	7.7	5.8	11.7
02	4.9	6.7	8.7	12.1	14.9	16.5	15.4	15.2	13.8	10.9	7.0	5.2	10.9
03	4.4	6.0	7.9	11.1	14.0	15.6	14.9	14.7	13.3	10.3	6.4	4.7	10.3
04	3.9	5.4	7.1	10.2	13.1	14.9	14.4	14.2	13.0	9.7	5.8	4.2	9.7
05	3.5	5.0	6.4	9.4	12.2	14.3	13.9	13.8	12.6	9.3	5.4	3.9	9.1
06	3.2	4.6	5.9	8.7	11.4	13.7	13.5	13.3	12.3	8.9	5.1	3.6	8.7
07	3.3	4.8	7.6	9.3	12.0	14.2	13.7	13.3	12.3	9.1	6.5	3.8	9.2
08	6.4	9.0	12.2	13.0	15.7	16.9	15.8	15.3	14.2	12.0	11.0	7.7	12.4
09	10.4	12.9	15.8	17.0	19.1	19.6	17.8	17.7	16.5	15.6	14.6	11.8	15.7
10	13.4	15.8	18.5	20.0	21.9	21.9	19.8	19.7	18.6	18.4	17.2	14.7	18.3
11	15.5	17.7	20.3	22.2	23.9	23.7	21.4	21.3	20.2	20.2	18.9	16.8	20.2
12	16.9	19.1	21.7	23.8	25.4	25.1	22.7	22.6	21.3	21.5	20.0	18.1	21.5
13	17.9	20.1	22.7	24.9	26.6	26.1	23.5	23.5	22.1	22.2	20.8	18.9	22.4
14	18.5	20.7	23.2	25.8	27.4	26.7	24.1	24.1	22.6	22.8	21.1	19.4	23.0
15	18.6	21.0	23.5	26.3	27.8	27.0	24.2	24.4	22.7	23.0	21.2	19.5	23.3
16	18.3	20.7	23.3	26.3	27.9	26.9	24.1	24.3	22.4	22.9	20.8	19.1	23.1
17	17.5	20.0	22.6	26.0	27.6	26.4	23.7	23.7	21.8	22.4	19.7	18.0	22.4
18	15.5	18.5	21.2	25.1	26.9	25.7	22.9	22.8	20.9	21.1	17.1	15.3	21.1
19	12.4	15.4	18.6	23.6	25.7	24.7	21.9	21.5	19.5	18.8	14.1	12.2	19.0
20	10.5	13.1	16.0	21.2	23.8	23.1	20.4	19.8	17.4	16.2	12.5	10.6	17.1
21	9.3	11.8	14.4	18.8	21.4	21.3	18.9	18.3	16.3	14.9	11.4	9.4	15.5
22	8.2	10.5	13.1	17.1	19.7	20.0	17.9	17.4	15.7	13.9	10.3	8.2	14.3
23	7.1	9.4	11.9	15.7	18.4	18.9	17.2	16.8	15.2	13.1	9.2	7.2	13.3
Media	10.5	12.7	15.1	18.1	20.4	20.8	18.9	18.7	17.2	15.9	13.0	11.0	16.0

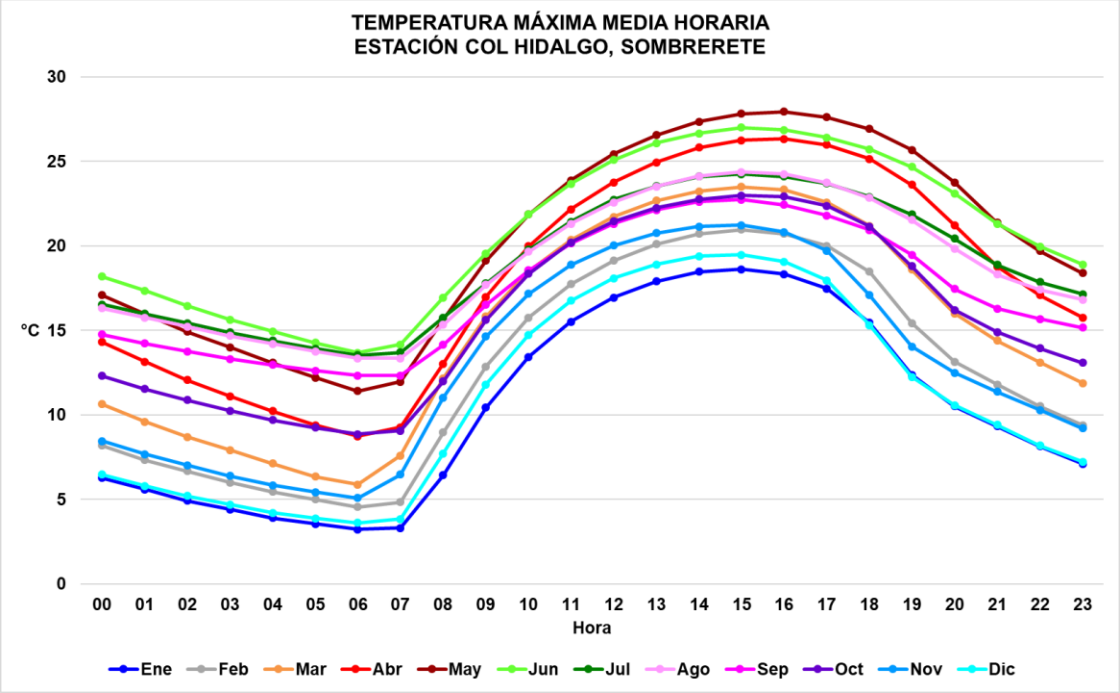


Figura 192. Temperatura máxima media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 213. Temperatura máxima maximorum (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	12.8	16.3	19.3	20.3	25.4	24.7	22.8	21.2	20.0	19.1	15.5	14.4	25.4
01	13.3	15.5	18.8	20.1	22.8	25.0	22.1	20.6	19.4	18.0	14.7	13.1	25.0
02	12.0	14.5	17.1	19.1	21.8	23.1	20.5	19.9	18.8	17.3	14.4	12.8	23.1
03	11.8	14.1	16.2	18.4	20.9	22.0	19.6	18.7	18.7	16.7	14.0	13.0	22.0
04	11.6	13.3	15.5	17.0	19.8	21.0	18.6	18.0	17.4	16.2	13.6	12.9	21.0
05	11.6	13.3	15.1	17.1	18.8	20.2	18.1	17.9	16.3	16.1	13.5	13.6	20.2
06	11.0	12.6	15.5	16.8	18.0	19.8	18.2	17.5	16.1	15.8	13.6	12.7	19.8
07	11.4	13.3	17.0	16.7	20.8	18.5	17.3	16.6	15.8	15.6	14.3	12.9	20.8
08	15.0	17.5	20.2	22.3	24.2	22.9	19.9	20.0	18.2	18.5	18.6	16.4	24.2
09	18.2	20.7	23.9	24.7	26.3	25.7	23.6	23.1	21.8	22.0	22.8	20.4	26.3
10	21.2	24.5	27.6	26.1	28.6	29.1	25.1	25.4	23.6	24.9	25.7	23.9	29.1
11	24.2	26.6	29.7	28.6	31.3	31.0	27.5	27.1	24.9	26.0	27.0	24.6	31.3
12	25.2	28.1	31.0	29.4	33.0	31.6	29.1	28.1	26.5	26.9	27.7	25.9	33.0
13	25.2	28.9	31.5	30.9	33.7	33.4	29.3	28.9	27.0	27.4	28.7	25.9	33.7
14	26.0	29.6	31.6	31.2	35.3	34.0	30.2	30.6	28.0	27.9	28.4	26.2	35.3
15	26.0	29.8	32.2	31.7	34.8	34.3	30.3	29.9	29.1	28.3	28.6	27.0	34.8
16	25.2	28.9	31.7	32.3	34.8	34.5	31.2	30.5	29.2	28.7	27.7	25.8	34.8
17	24.1	28.1	31.7	31.5	34.3	34.2	30.4	30.5	29.3	29.2	26.3	24.6	34.3
18	22.1	26.8	30.5	31.6	34.1	33.4	30.6	29.5	29.4	27.8	23.9	21.4	34.1
19	18.8	23.6	28.4	30.0	33.5	33.0	29.1	28.5	26.7	26.1	21.0	19.3	33.5
20	18.2	21.1	26.6	28.4	30.7	31.7	28.0	26.1	24.3	23.0	19.3	17.2	31.7
21	17.2	19.6	23.6	25.4	29.2	28.6	25.1	24.4	23.1	22.2	18.1	17.0	29.2
22	15.4	18.9	21.9	23.1	28.0	26.6	25.9	23.4	21.7	21.1	17.7	15.9	28.0
23	14.9	17.8	20.0	22.2	28.0	25.7	23.9	22.7	20.5	19.1	16.5	14.5	28.0
Máx.	26.0	29.8	32.2	32.3	35.3	34.5	31.2	30.6	29.4	29.2	28.7	27.0	35.3

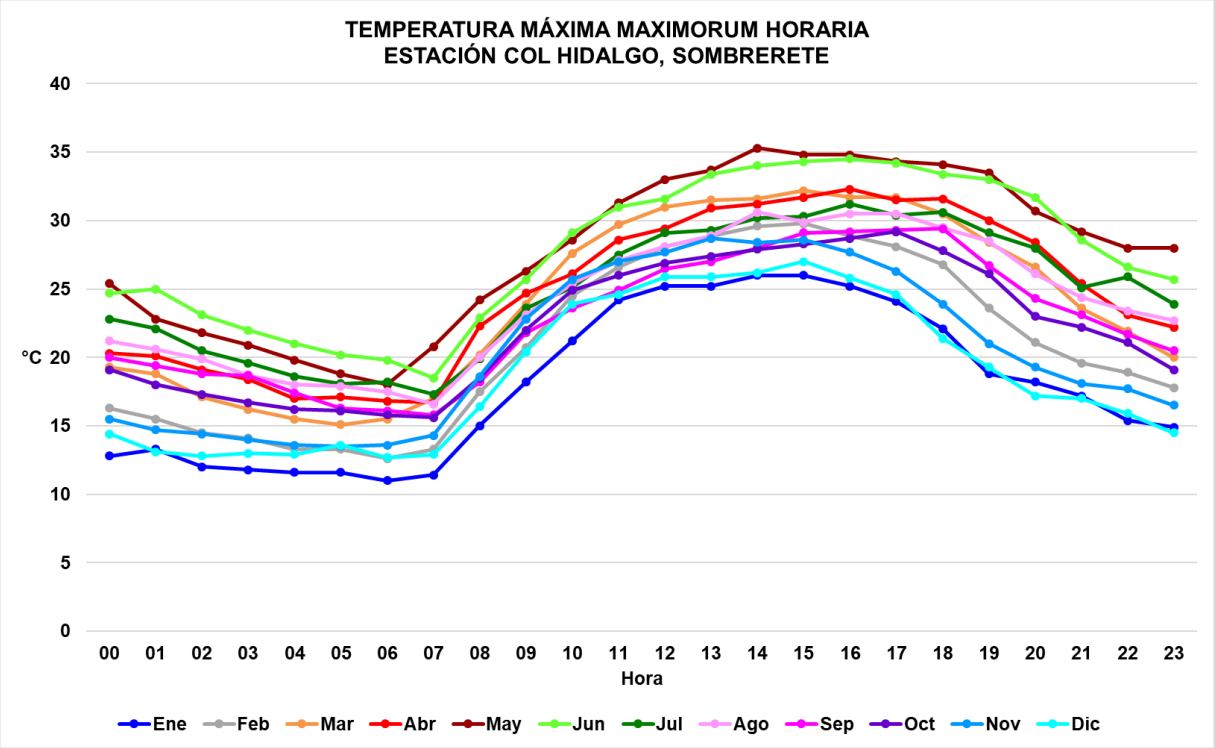


Figura 193. Temperatura máxima maximorum (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 214. Temperatura mínima media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.1	7.0	9.3	13.0	15.9	17.2	15.7	15.4	13.9	11.2	7.3	5.2	11.4
01	4.4	6.2	8.3	11.9	14.8	16.3	15.2	14.9	13.4	10.5	6.6	4.6	10.6
02	3.8	5.5	7.5	10.9	13.8	15.5	14.6	14.4	13.0	9.9	5.9	4.0	9.9
03	3.3	4.9	6.7	9.9	12.9	14.7	14.1	13.9	12.6	9.3	5.3	3.5	9.3
04	2.8	4.4	5.9	9.0	12.0	14.0	13.7	13.5	12.3	8.8	4.8	3.1	8.7
05	2.4	3.9	5.2	8.2	11.1	13.4	13.2	13.1	12.0	8.4	4.4	2.8	8.2
06	2.1	3.5	4.7	7.5	10.4	12.9	12.9	12.7	11.6	8.0	4.0	2.5	7.7
07	2.0	3.4	5.0	7.4	10.3	12.8	12.8	12.5	11.5	7.8	4.2	2.4	7.7
08	3.3	5.4	8.7	9.6	12.6	14.6	13.9	13.5	12.2	9.1	7.5	4.2	9.5
09	7.5	10.0	13.1	14.1	16.6	17.5	16.2	15.8	14.6	12.9	12.0	8.9	13.3
10	11.2	13.6	16.5	17.8	19.8	20.1	18.2	18.1	16.9	16.3	15.3	12.6	16.4
11	13.9	16.2	18.9	20.5	22.3	22.2	20.0	19.9	18.8	18.7	17.5	15.2	18.7
12	15.7	17.9	20.5	22.4	24.1	23.8	21.5	21.4	20.2	20.3	19.0	16.9	20.3
13	16.9	19.1	21.7	23.8	25.4	24.8	22.3	22.4	21.0	21.2	19.8	18.0	21.4
14	17.6	19.9	22.3	24.8	26.2	25.5	22.8	22.9	21.4	21.8	20.3	18.6	22.0
15	17.8	20.1	22.6	25.3	26.7	25.7	22.9	23.1	21.4	21.9	20.4	18.7	22.2
16	17.4	19.9	22.4	25.4	26.9	25.5	22.7	22.9	21.0	21.9	19.8	18.1	22.0
17	16.0	18.8	21.4	25.0	26.5	25.1	22.3	22.3	20.5	21.1	17.9	16.2	21.1
18	12.9	16.2	19.3	23.9	25.7	24.4	21.6	21.4	19.6	19.3	14.5	12.7	19.3
19	10.6	13.4	16.4	21.8	24.1	23.3	20.5	20.0	17.8	16.6	12.5	10.6	17.3
20	9.2	11.8	14.5	19.2	21.8	21.5	19.0	18.3	16.2	14.9	11.2	9.2	15.6
21	8.0	10.4	13.0	17.2	19.8	20.0	17.7	17.2	15.4	13.7	10.0	8.0	14.2
22	6.9	9.2	11.8	15.7	18.4	18.8	16.9	16.5	14.9	12.7	8.9	6.8	13.1
23	5.9	8.0	10.5	14.4	17.1	17.9	16.3	15.9	14.4	11.9	8.0	6.0	12.2
Media	9.0	11.2	13.6	16.6	19.0	19.5	17.8	17.6	16.1	14.5	11.5	9.5	14.7

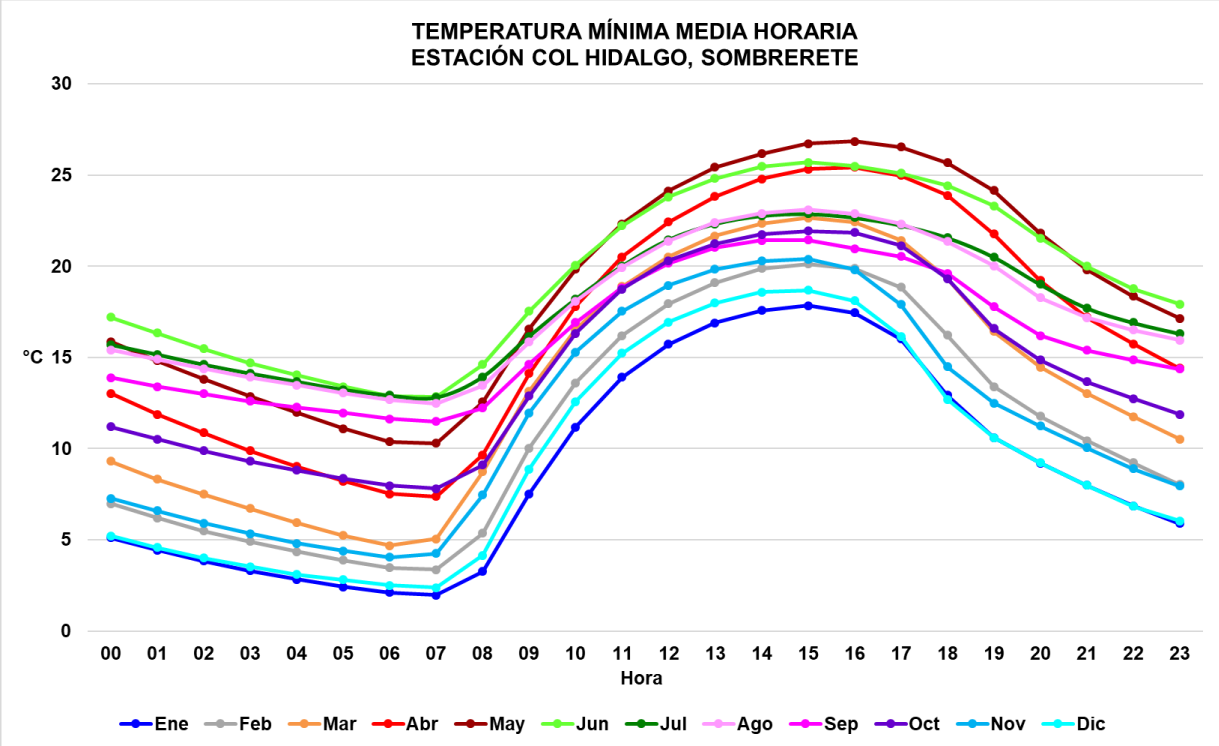


Figura 194. Temperatura mínima media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 215. Temperatura mínima minimorum (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.8	-5.3	-2.8	1.9	7.5	11.7	12.1	10.9	7.7	-0.5	-5.2	-9.1	-9.1
01	-5.7	-5.8	-4.1	0.1	6.6	8.4	10.6	10.3	6.6	-1.0	-8.2	-9.2	-9.2
02	-6.5	-6.5	-6.1	0.6	4.6	7.5	10.1	9.8	4.9	-1.6	-8.3	-9.5	-9.5
03	-6.3	-6.9	-5.6	-0.4	3.8	7.5	8.6	9.2	4.5	-2.1	-9.5	-11.1	-11.1
04	-8.0	-6.4	-7.1	-1.8	2.4	6.5	9.5	8.6	2.6	-2.7	-10.7	-11.8	-11.8
05	-8.4	-7.1	-7.5	-2.0	2.1	5.0	7.9	7.6	3.1	-3.7	-10.2	-12.5	-12.5
06	-9.4	-8.4	-7.9	-3.2	1.9	5.1	8.0	6.3	2.8	-4.3	-10.6	-12.5	-12.5
07	-9.9	-8.9	-8.6	-3.3	1.2	5.1	9.2	6.5	1.1	-4.5	-10.8	-12.6	-12.6
08	-8.9	-7.4	-3.7	-1.4	3.3	9.2	8.9	7.2	3.5	1.1	-6.1	-8.5	-8.9
09	-2.6	-1.8	0.2	3.8	7.1	11.5	12.3	11.6	9.8	4.1	-0.6	-5.0	-5.0
10	-0.6	1.3	0.0	8.5	8.5	13.3	12.8	12.6	11.8	6.4	1.2	-4.5	-4.5
11	1.7	4.1	0.9	10.9	9.6	14.1	13.5	13.3	12.5	8.2	1.5	-4.3	-4.3
12	3.2	5.5	0.9	12.2	11.2	14.7	14.0	13.9	12.9	8.9	2.4	-4.2	-4.2
13	4.5	4.3	1.0	14.4	12.9	11.1	13.2	12.8	14.4	10.2	4.2	-4.1	-4.1
14	5.5	6.3	1.1	14.7	11.7	12.8	11.3	12.6	13.7	10.2	4.7	-3.5	-3.5
15	5.0	5.9	1.1	15.3	13.5	12.5	10.8	13.2	12.4	10.1	5.6	-1.4	-1.4
16	4.5	5.2	2.1	12.3	10.1	13.1	12.3	13.2	11.4	10.3	5.3	-0.7	-0.7
17	2.7	5.1	3.1	12.1	10.7	13.2	12.6	13.6	12.5	10.3	2.3	-2.6	-2.6
18	0.8	3.3	2.7	12.3	11.5	12.8	12.8	12.6	13.2	8.8	0.4	-5.6	-5.6
19	0.7	1.9	1.7	10.3	11.6	12.5	12.1	12.6	12.4	7.1	-1.1	-7.3	-7.3
20	-1.4	0.8	1.3	8.6	11.1	12.3	12.4	12.3	11.2	4.1	-4.3	-8.4	-8.4
21	-2.0	-0.1	0.3	5.8	10.9	12.7	12.8	11.4	10.0	2.6	-4.3	-8.4	-8.4
22	-2.8	-2.7	-0.4	4.3	9.5	10.9	12.3	11.2	9.2	1.3	-5.4	-8.2	-8.2
23	-6.2	-3.7	-0.9	2.2	8.5	12.3	12.0	12.1	8.1	-0.1	-5.5	-8.4	-8.4
Mín.	-9.9	-8.9	-8.6	-3.3	1.2	5.0	7.9	6.3	1.1	-4.5	-10.8	-12.6	-12.6

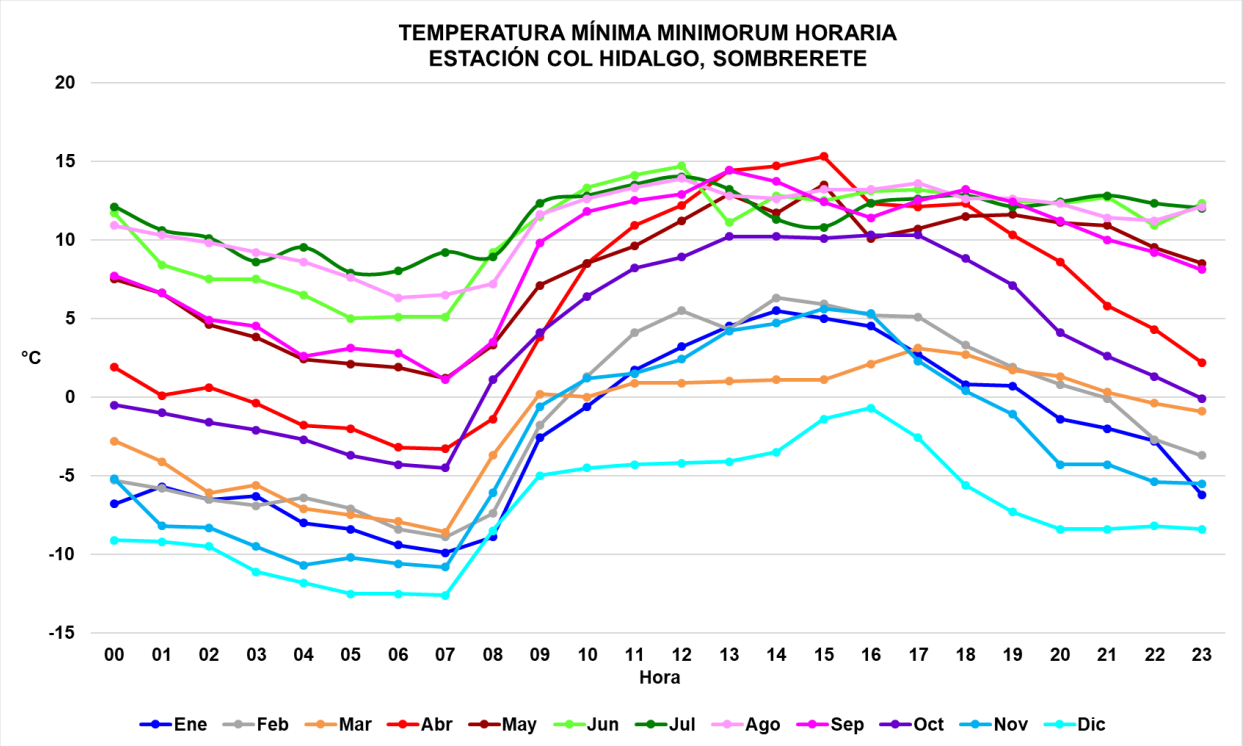


Figura 195. Temperatura mínima minimorum (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 216. Temperatura media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.7	7.6	10.0	13.7	16.5	17.7	16.1	15.9	14.3	11.8	7.9	5.8	11.9
01	5.0	6.8	9.0	12.5	15.4	16.8	15.6	15.3	13.8	11.0	7.1	5.2	11.1
02	4.4	6.1	8.1	11.5	14.4	16.0	15.0	14.8	13.4	10.4	6.5	4.6	10.4
03	3.9	5.4	7.3	10.5	13.4	15.2	14.5	14.3	13.0	9.8	5.9	4.1	9.8
04	3.4	4.9	6.5	9.6	12.5	14.5	14.0	13.8	12.6	9.3	5.3	3.6	9.2
05	3.0	4.4	5.8	8.8	11.6	13.8	13.6	13.4	12.3	8.8	4.9	3.3	8.6
06	2.7	4.0	5.3	8.1	10.9	13.3	13.2	13.0	12.0	8.4	4.6	3.0	8.2
07	2.6	4.0	6.2	8.3	11.1	13.5	13.2	12.9	11.9	8.4	5.2	3.1	8.4
08	4.8	7.1	10.5	11.3	14.1	15.8	14.8	14.4	13.2	10.5	9.3	5.9	11.0
09	9.0	11.5	14.5	15.6	17.9	18.5	17.0	16.8	15.6	14.3	13.3	10.4	14.5
10	12.3	14.7	17.5	18.9	20.9	21.0	19.0	18.9	17.8	17.4	16.3	13.7	17.4
11	14.7	17.0	19.6	21.3	23.1	23.0	20.7	20.6	19.5	19.5	18.2	16.0	19.4
12	16.3	18.5	21.1	23.1	24.8	24.5	22.1	22.0	20.7	20.9	19.5	17.5	20.9
13	17.4	19.6	22.2	24.4	26.0	25.4	22.9	23.0	21.6	21.7	20.3	18.4	21.9
14	18.0	20.3	22.8	25.3	26.8	26.1	23.5	23.5	22.0	22.3	20.7	19.0	22.5
15	18.2	20.6	23.1	25.8	27.3	26.4	23.6	23.8	22.1	22.5	20.8	19.1	22.8
16	17.9	20.3	22.9	25.9	27.4	26.2	23.4	23.6	21.7	22.4	20.3	18.6	22.5
17	16.8	19.4	22.0	25.5	27.1	25.8	23.0	23.0	21.2	21.8	18.9	17.1	21.8
18	14.2	17.4	20.3	24.5	26.3	25.1	22.2	22.1	20.3	20.2	15.7	13.9	20.2
19	11.5	14.4	17.5	22.7	24.9	24.0	21.2	20.8	18.6	17.7	13.3	11.4	18.2
20	9.9	12.5	15.2	20.2	22.8	22.3	19.7	19.0	16.8	15.5	11.9	9.9	16.3
21	8.7	11.1	13.7	18.0	20.6	20.6	18.3	17.7	15.8	14.3	10.7	8.7	14.9
22	7.5	9.9	12.4	16.4	19.0	19.4	17.4	16.9	15.3	13.3	9.6	7.5	13.7
23	6.5	8.7	11.2	15.1	17.8	18.4	16.7	16.4	14.8	12.5	8.6	6.6	12.8
Media	9.8	11.9	14.4	17.4	19.7	20.1	18.4	18.2	16.7	15.2	12.3	10.3	15.3

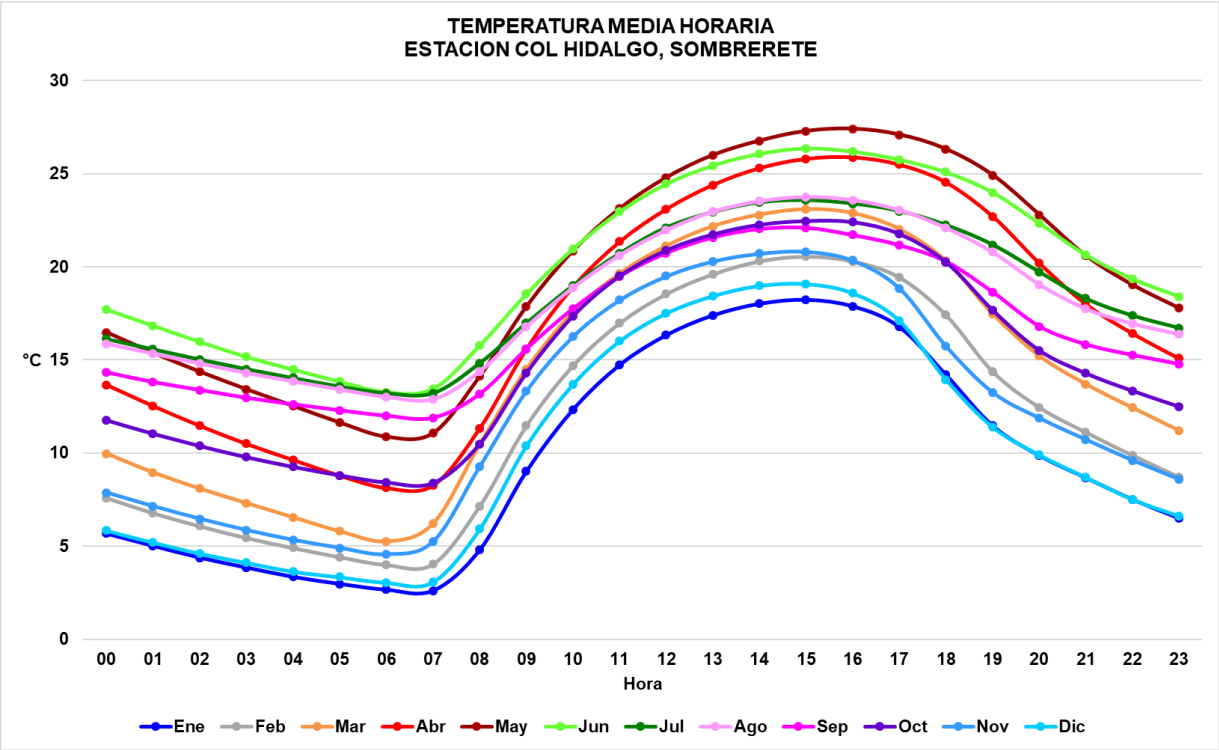


Figura 196. Temperatura media (˚C) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 217 Precipitación media (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.5	0.6	0.2	0.1	0.2	3.3	7.5	7.4	4.9	1.6	0.2	0.1	26.5
01	0.4	0.3	0.2	0.0	0.4	2.7	6.5	5.7	5.4	1.4	0.2	0.0	23.2
02	0.5	0.5	0.2	0.1	0.0	2.1	3.9	6.4	5.9	1.4	0.5	0.0	21.4
03	0.4	0.6	0.1	0.1	0.0	1.5	2.2	3.8	3.0	1.0	0.2	0.2	13.2
04	0.3	0.4	0.1	0.0	0.2	1.4	2.1	2.9	1.7	0.5	0.4	0.2	10.3
05	0.4	0.4	0.1	0.0	0.7	0.9	1.9	1.7	2.4	0.8	0.8	0.3	10.4
06	0.9	0.3	0.1	0.0	0.3	0.4	2.6	1.0	1.1	0.6	0.5	0.4	8.2
07	0.5	0.3	0.1	0.0	0.1	0.2	2.1	0.6	0.9	0.5	0.4	0.3	6.2
08	0.7	0.5	0.3	0.0	0.0	0.1	1.1	0.4	0.9	0.4	0.3	0.1	4.7
09	0.5	0.3	0.1	0.0	0.1	0.8	1.0	0.4	0.4	0.4	0.4	0.2	4.6
10	0.3	0.7	0.0	0.0	0.1	0.1	0.7	0.6	0.3	0.6	0.4	0.2	4.0
11	0.6	0.8	0.1	0.0	0.0	0.2	0.9	1.2	0.3	0.5	0.1	0.4	5.1
12	0.5	0.4	0.1	0.0	0.0	0.8	2.7	1.0	0.2	1.1	0.4	0.2	7.4
13	0.5	0.6	0.2	0.0	0.0	1.5	3.6	2.0	0.4	1.5	0.3	0.2	10.8
14	0.4	0.4	0.2	0.0	1.8	1.1	8.0	3.1	4.6	1.4	0.6	0.0	21.7
15	0.4	0.4	0.3	0.3	0.2	4.2	12.6	5.7	8.7	2.9	0.4	0.1	36.0
16	0.7	0.4	0.4	0.3	0.8	4.4	7.6	6.2	13.7	0.9	1.4	0.2	37.1
17	1.3	0.7	0.9	0.1	0.9	5.0	7.0	7.6	8.8	2.0	1.2	0.3	35.8
18	1.0	0.4	0.3	0.0	0.8	7.9	8.5	10.6	4.9	3.0	0.5	0.2	37.9
19	0.6	0.6	0.3	0.0	0.7	2.8	6.9	8.4	6.8	1.4	0.6	0.6	29.7
20	0.6	0.4	0.6	0.1	1.0	3.8	4.9	8.4	8.0	2.5	0.4	0.2	30.8
21	0.5	0.1	0.3	0.4	1.8	6.5	4.3	7.6	5.4	3.4	0.3	0.3	30.9
22	0.6	0.1	0.1	0.1	0.9	5.0	7.1	4.9	5.0	2.1	0.5	0.2	26.6
23	0.9	0.6	0.1	0.0	0.3	4.5	7.0	8.3	6.4	1.5	0.2	0.2	30.1
Suma	13.8	10.8	5.5	1.7	11.4	61.2	112.8	106.1	99.7	33.8	10.9	5.2	472.8

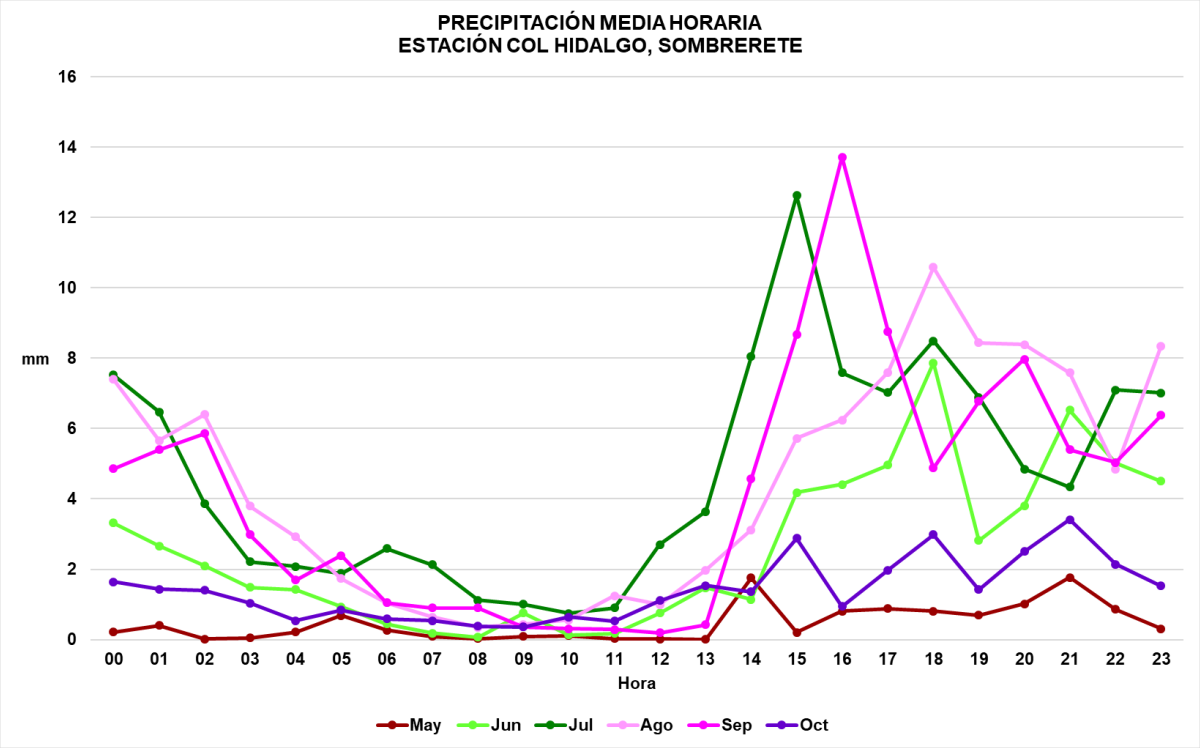


Figura 197. Precipitación media (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 218. Precipitación máxima maximorum (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.2	4.3	1.6	1.3	2.0	7.3	23.8	22.0	5.8	13.8	1.4	0.4	23.8
01	3.0	2.8	3.6	0.7	5.2	12.4	18.7	14.0	10.1	7.6	0.7	0.2	18.7
02	2.4	4.2	3.2	2.2	0.2	9.3	10.2	30.7	17.6	6.6	3.5	0.6	30.7
03	1.6	3.4	2.0	1.4	0.4	4.2	6.2	16.8	11.2	4.4	1.8	1.2	16.8
04	1.8	2.8	2.6	0.5	1.9	6.6	5.6	10.8	3.9	3.0	2.8	1.4	10.8
05	2.0	2.6	0.8	0.0	12.1	4.1	6.2	8.0	6.6	3.1	5.7	2.5	12.1
06	5.6	2.0	1.6	0.2	3.2	1.5	22.3	4.1	2.2	4.3	2.2	2.0	22.3
07	2.4	1.2	0.9	0.0	1.5	1.2	29.9	2.2	4.6	2.5	2.8	2.1	29.9
08	8.0	3.2	2.5	0.0	0.4	0.6	7.4	1.9	4.7	1.8	1.6	0.7	8.0
09	6.4	2.4	1.2	0.0	2.0	13.8	6.6	5.9	1.6	2.3	2.6	1.7	13.8
10	2.1	4.2	0.4	0.0	2.0	1.7	3.8	8.2	1.2	2.8	2.2	0.6	8.2
11	5.2	5.0	2.6	0.0	0.5	3.0	4.6	17.0	1.2	3.0	1.0	4.5	17.0
12	2.1	1.8	1.1	0.1	0.4	10.1	29.4	12.0	1.5	8.9	2.2	2.3	29.4
13	3.2	2.2	1.4	0.3	0.1	16.1	37.0	15.4	3.0	13.8	1.4	1.8	37.0
14	1.8	2.0	2.2	0.0	31.2	4.9	19.2	7.4	28.8	5.3	6.3	0.3	31.2
15	5.0	2.0	2.6	2.4	1.4	15.2	60.0	25.6	35.6	12.6	2.0	0.5	60.0
16	4.4	2.2	3.8	2.2	6.8	13.6	26.9	21.2	28.2	5.8	14.0	1.4	28.2
17	7.0	5.9	8.4	1.4	5.3	16.0	19.8	23.8	20.6	9.8	7.4	2.6	23.8
18	5.2	1.8	2.4	0.2	8.9	54.5	17.4	46.6	19.6	10.2	2.7	0.8	54.5
19	2.1	3.2	3.0	0.0	6.2	15.1	7.6	24.0	16.8	4.6	5.2	10.3	24.0
20	2.2	2.6	4.9	0.4	5.4	8.3	16.7	16.0	15.6	13.4	2.8	1.3	16.7
21	1.6	0.4	2.4	7.1	13.3	26.6	5.1	9.4	13.0	18.8	1.7	3.0	26.6
22	2.0	1.0	1.0	1.1	7.6	22.8	25.2	7.8	11.4	13.8	3.2	1.1	25.2
23	7.0	5.0	0.9	0.3	2.6	10.3	13.0	20.8	23.0	5.6	1.3	0.6	23.0
Máx.	8.0	5.9	8.4	7.1	31.2	54.5	60.0	46.6	35.6	18.8	14.0	10.3	60.0

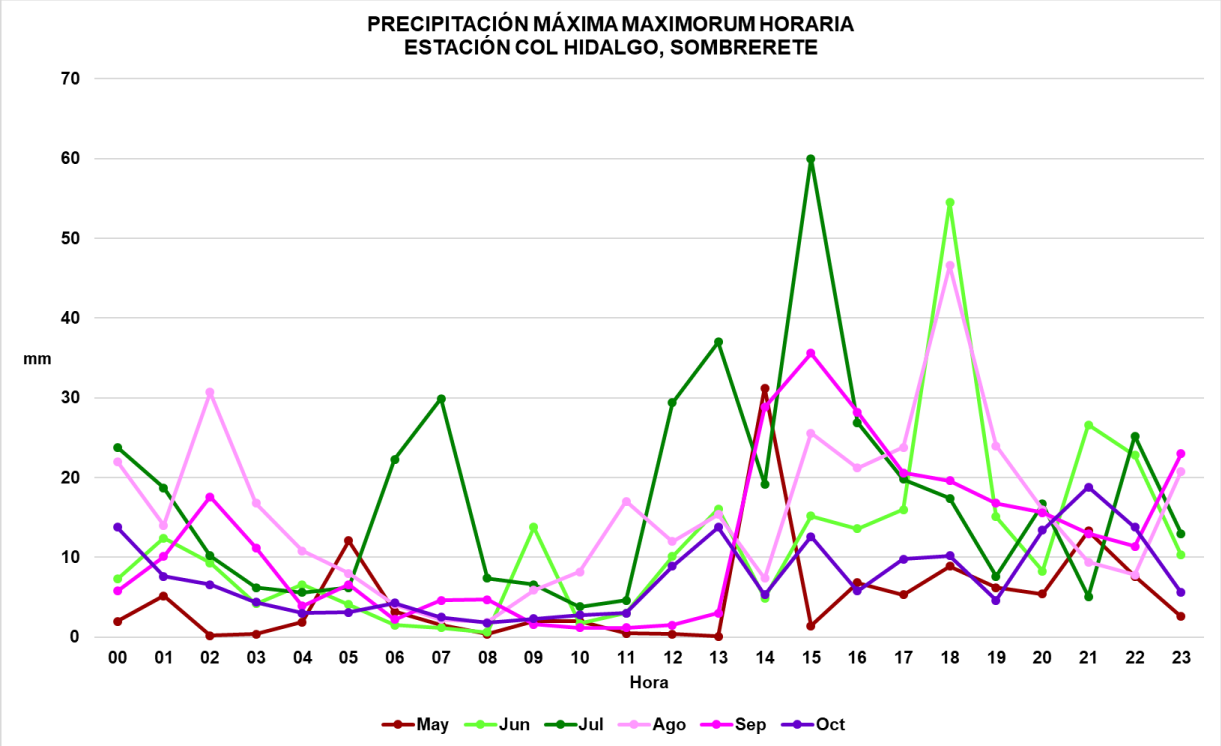


Figura 198. Precipitación máxima maximorum (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 219. Evapotranspiración potencial media (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.04	0.06	0.06	0.04	0.01	0.01	0.00	0.01	0.01	0.01	0.02
01	0.01	0.02	0.03	0.05	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.02
02	0.01	0.01	0.02	0.04	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01
03	0.01	0.01	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
04	0.01	0.01	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
05	0.01	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.02	0.04	0.06	0.05	0.06	0.05	0.02	0.01	0.00	0.01	0.03	0.03	0.03
09	0.07	0.12	0.20	0.16	0.18	0.16	0.11	0.10	0.08	0.08	0.13	0.09	0.12
10	0.18	0.26	0.36	0.32	0.34	0.31	0.24	0.24	0.20	0.21	0.26	0.20	0.26
11	0.30	0.39	0.49	0.48	0.50	0.45	0.37	0.37	0.33	0.35	0.37	0.32	0.39
12	0.39	0.48	0.59	0.61	0.62	0.56	0.48	0.49	0.44	0.46	0.45	0.40	0.50
13	0.44	0.54	0.64	0.69	0.70	0.63	0.56	0.57	0.51	0.52	0.48	0.44	0.56
14	0.45	0.54	0.63	0.72	0.72	0.64	0.57	0.60	0.52	0.53	0.46	0.43	0.57
15	0.41	0.50	0.58	0.69	0.69	0.61	0.53	0.57	0.50	0.49	0.40	0.39	0.53
16	0.34	0.42	0.49	0.62	0.62	0.54	0.47	0.50	0.42	0.42	0.31	0.31	0.45
17	0.24	0.32	0.37	0.51	0.51	0.44	0.38	0.40	0.32	0.32	0.20	0.21	0.35
18	0.14	0.20	0.24	0.38	0.38	0.34	0.29	0.28	0.21	0.21	0.11	0.12	0.24
19	0.08	0.12	0.16	0.28	0.27	0.22	0.18	0.18	0.12	0.10	0.05	0.07	0.15
20	0.04	0.07	0.10	0.19	0.18	0.14	0.10	0.10	0.05	0.04	0.03	0.03	0.09
21	0.03	0.05	0.07	0.13	0.13	0.10	0.06	0.05	0.02	0.02	0.02	0.03	0.06
22	0.02	0.04	0.06	0.09	0.09	0.07	0.03	0.02	0.01	0.01	0.01	0.02	0.04
23	0.01	0.03	0.05	0.07	0.08	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.03
Media/día /mes	3.22	4.22	5.26	6.26	6.29	5.44	4.44	4.52	3.75	3.80	3.34	3.17	4.47

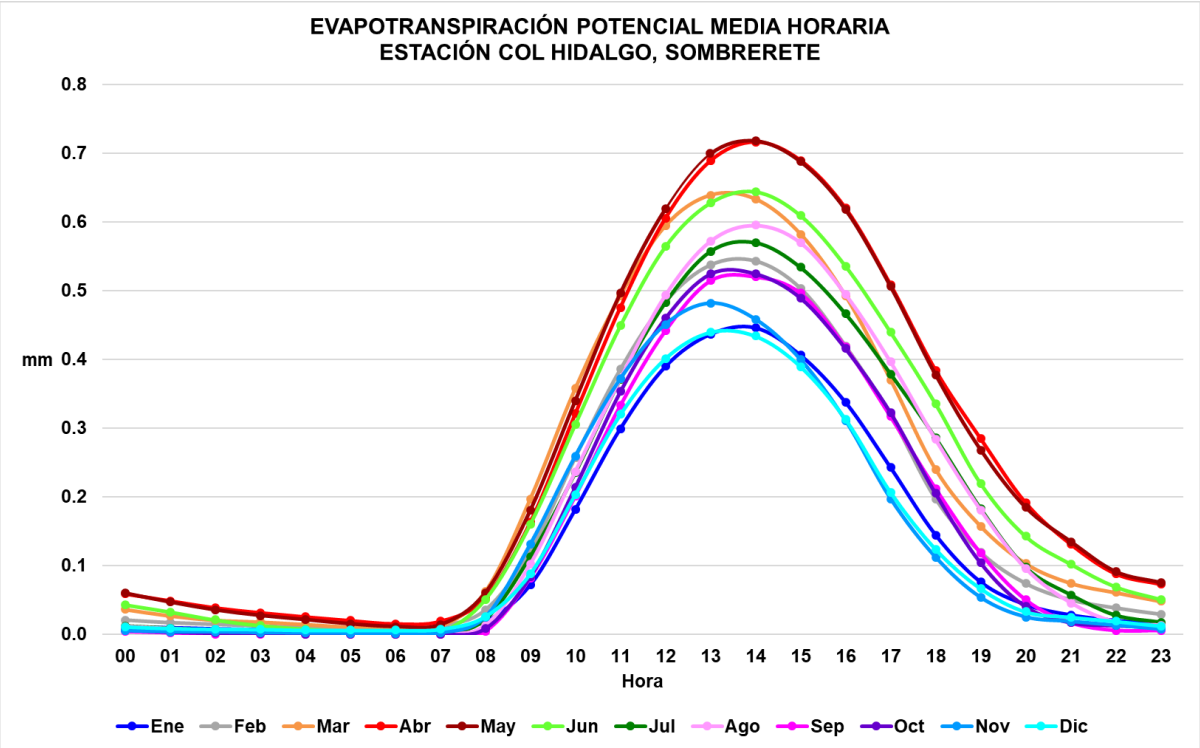


Figura 199. Evapotranspiración potencial media (mm) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 220. Humedad relativa media (%) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	58.8	50.1	40.7	34.0	39.8	57.3	77.6	78.8	86.2	76.8	67.0	59.1	60.5
01	61.3	52.6	43.5	37.0	43.6	60.9	80.2	81.3	88.3	79.5	69.9	61.3	63.3
02	63.4	54.9	45.8	39.8	47.1	64.5	82.7	83.7	89.8	82.0	72.5	63.4	65.8
03	65.3	57.2	48.0	42.2	50.6	68.1	85.0	85.7	91.2	84.1	74.8	65.4	68.1
04	67.0	59.1	50.2	44.7	53.7	71.3	87.1	87.5	92.3	85.9	76.8	67.3	70.3
05	68.3	60.8	52.4	47.0	56.4	73.9	88.9	89.3	93.2	87.6	78.7	68.7	72.1
06	69.5	62.0	54.1	48.7	58.7	76.3	90.0	90.7	94.0	88.8	79.9	69.9	73.5
07	69.8	62.1	52.2	48.5	58.8	76.3	90.3	91.3	94.3	89.0	78.1	70.1	73.4
08	64.3	54.5	42.7	42.1	51.5	69.7	84.8	86.7	90.9	83.2	66.3	62.3	66.6
09	52.8	43.0	33.1	32.8	41.1	60.3	75.7	77.4	82.3	70.7	53.1	49.2	56.0
10	42.8	33.9	25.5	24.8	31.6	50.6	66.6	68.3	73.0	59.0	42.8	39.1	46.5
11	35.2	27.6	20.6	19.3	24.7	42.4	58.6	60.7	65.0	49.8	35.8	32.0	39.3
12	30.1	23.8	17.9	16.1	20.5	36.5	52.3	54.6	59.4	44.1	31.5	27.5	34.5
13	27.0	21.7	16.1	14.0	17.9	32.7	48.4	50.1	55.6	40.5	29.0	25.1	31.5
14	25.4	20.3	15.0	12.7	16.5	30.4	46.0	47.5	53.7	38.5	27.6	23.6	29.8
15	24.7	19.7	14.6	12.1	15.7	29.6	45.2	46.2	53.5	37.7	27.1	23.1	29.1
16	25.3	19.9	14.8	12.0	15.5	30.4	45.7	46.5	54.9	37.6	28.0	23.9	29.5
17	27.5	20.8	16.0	12.5	16.0	31.8	47.2	48.2	57.1	39.1	31.3	26.7	31.2
18	32.7	24.0	18.1	13.4	17.3	33.5	50.1	51.9	60.6	43.8	38.7	33.1	34.8
19	39.0	29.7	22.0	15.4	19.4	36.5	54.1	57.4	68.0	53.1	46.0	39.5	40.0
20	43.9	34.7	26.3	18.8	23.0	41.2	60.1	64.7	76.4	61.3	50.9	44.5	45.5
21	48.1	38.8	30.1	22.8	27.7	46.8	66.6	70.5	80.2	65.9	55.4	48.9	50.1
22	52.3	42.7	33.7	26.8	32.0	51.5	71.0	73.9	82.4	69.6	59.8	52.9	54.0
23	55.8	46.3	37.2	30.6	36.1	55.5	74.5	76.6	84.0	72.9	63.7	56.2	57.4
Media	47.9	40.0	32.1	27.8	34.0	51.2	67.9	69.6	76.1	64.2	53.5	47.2	51.0

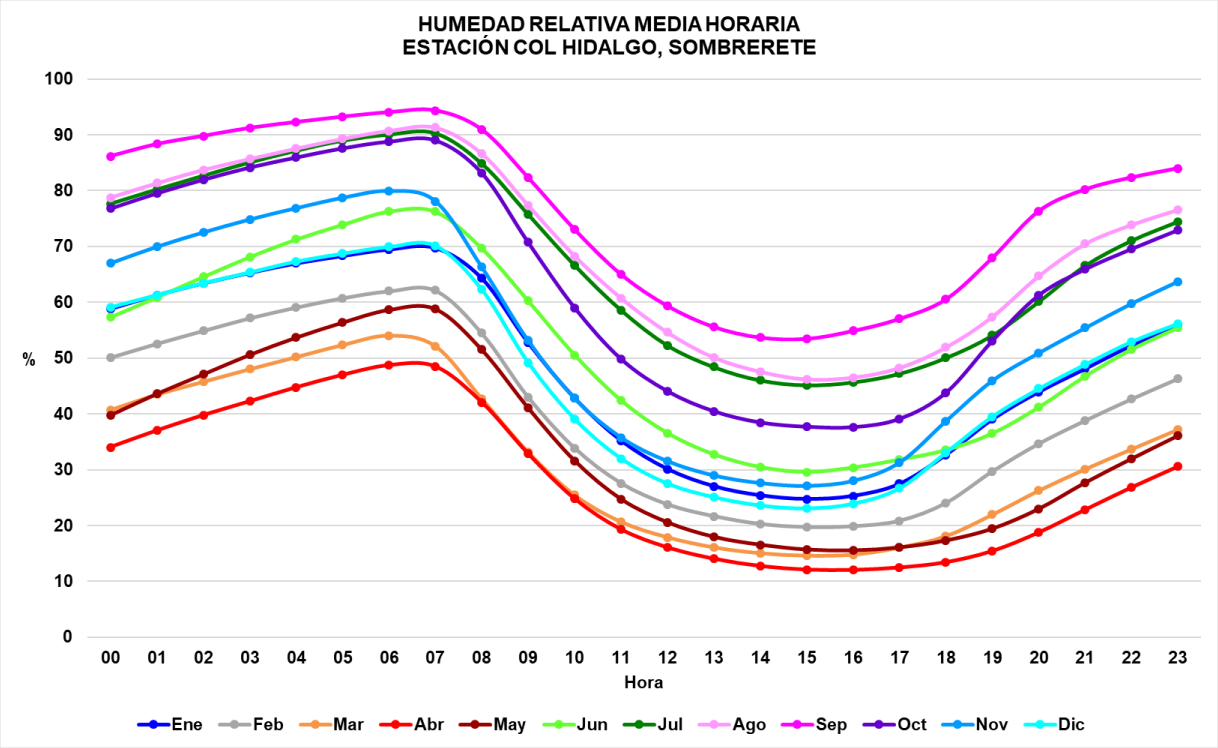


Figura 200. Humedad relativa media (%) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 221. Humedad relativa mínima minimorum (%) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.0	12.0	8.7	10.0	10.0	12.0	19.0	27.0	26.0	23.7	15.0	16.0	8.7
01	9.0	12.0	8.1	12.0	10.0	15.0	23.0	28.0	28.0	23.2	22.0	13.0	8.1
02	11.0	12.0	8.7	11.0	11.0	19.0	29.0	32.6	34.0	23.9	21.0	15.0	8.7
03	10.0	13.0	8.8	11.0	13.0	20.0	31.0	38.0	45.0	31.0	25.0	14.0	8.8
04	10.0	14.0	9.2	9.0	13.0	20.0	35.0	47.9	48.0	28.0	23.0	13.0	9.0
05	11.0	14.0	10.0	7.0	12.0	22.0	38.0	49.0	57.0	31.0	22.0	12.0	7.0
06	10.0	14.0	10.2	8.0	13.0	25.0	38.0	46.0	57.0	40.0	24.0	12.0	8.0
07	11.0	15.6	8.3	9.0	13.0	26.0	44.0	54.7	58.0	38.0	25.0	11.0	8.3
08	13.0	11.3	7.2	6.7	9.2	17.0	35.0	49.9	54.9	23.0	12.0	11.0	6.7
09	10.0	8.0	4.1	5.2	6.7	11.0	25.0	38.0	40.1	16.1	10.0	9.0	4.1
10	6.0	6.0	3.0	4.6	5.0	9.0	21.0	29.0	29.6	12.9	8.0	7.0	3.0
11	4.0	5.0	3.3	3.2	4.0	5.0	20.0	24.0	18.9	11.0	6.0	5.0	3.2
12	3.0	5.0	2.8	3.1	3.9	5.0	19.0	23.0	17.8	10.1	6.0	4.0	2.8
13	3.0	3.0	2.8	3.0	2.8	5.0	17.0	18.6	17.1	8.6	5.0	3.0	2.8
14	3.0	3.0	2.5	3.0	2.3	5.0	13.0	18.6	16.3	8.8	4.0	4.0	2.3
15	3.0	4.0	2.4	2.7	2.9	4.0	12.0	15.8	13.0	9.7	5.0	4.0	2.4
16	3.0	3.3	2.9	2.7	2.9	4.0	13.0	16.6	12.0	9.1	5.0	5.0	2.7
17	3.0	4.0	3.2	3.0	3.0	3.0	11.0	17.6	13.0	9.0	5.0	5.0	3.0
18	5.0	4.6	3.7	2.5	3.0	4.0	12.0	15.9	14.7	11.0	6.0	6.0	2.5
19	6.0	7.0	5.0	3.0	3.0	4.0	12.0	16.9	17.0	13.0	8.0	9.0	3.0
20	7.0	9.0	5.9	3.7	4.0	4.0	13.0	19.9	27.0	18.0	12.0	10.0	3.7
21	8.0	11.0	6.4	5.0	5.0	6.0	17.0	24.0	28.0	21.0	14.0	10.0	5.0
22	9.0	11.0	7.7	7.0	8.0	9.0	20.0	26.1	29.0	19.7	12.0	12.0	7.0
23	10.0	12.0	9.2	8.5	8.0	11.0	18.0	28.0	26.0	22.0	10.0	12.0	8.0
Mín.	3.0	3.0	2.4	2.5	2.3	3.0	11.0	15.8	12.0	8.6	4.0	3.0	2.3

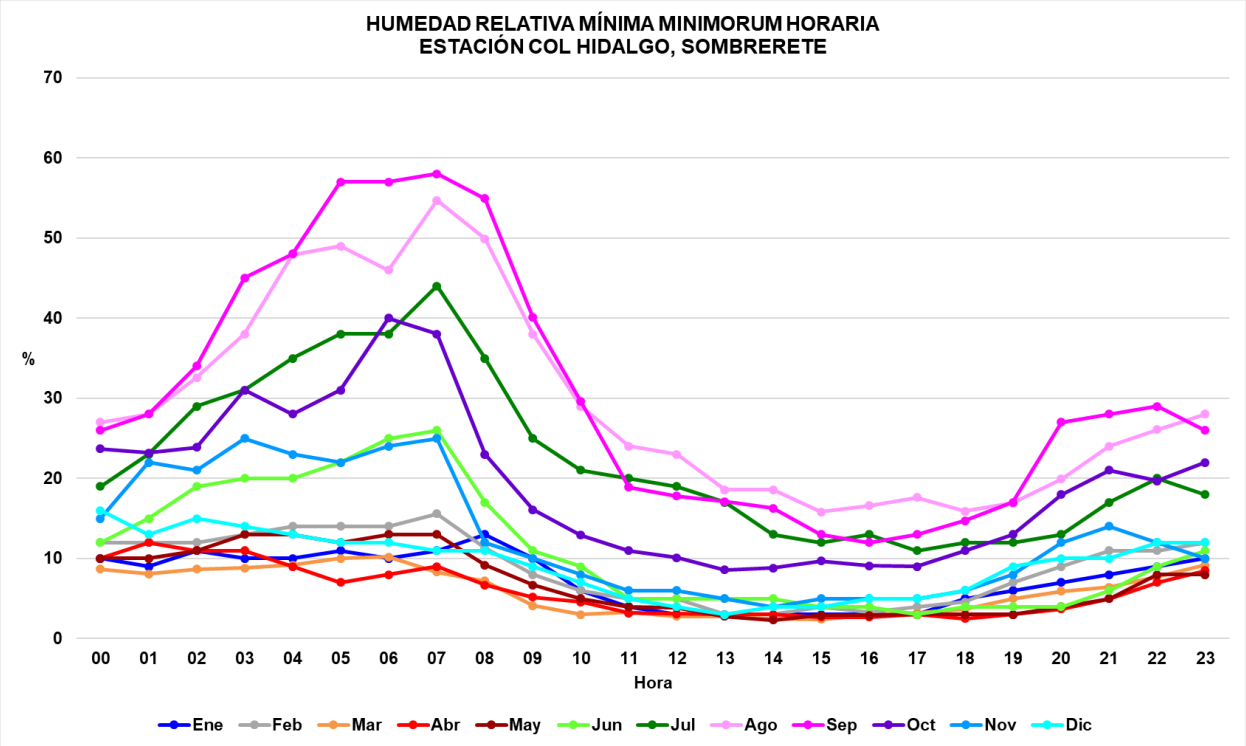


Figura 201. Humedad relativa mínima minimorum (%) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 222. Radiación solar global media horaria (W/m²) de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	10	4	7	6	11	1	0	1	3	0	4
07	37	82	250	147	162	158	109	71	46	66	170	57	113
08	439	636	1009	735	791	753	611	517	428	469	808	530	644
09	1166	1481	1909	1609	1665	1561	1338	1299	1149	1235	1578	1266	1438
10	1880	2252	2704	2487	2503	2359	2128	2092	1944	2038	2237	1926	2213
11	2415	2821	3303	3194	3200	2978	2744	2778	2592	2680	2670	2402	2815
12	2657	3119	3584	3661	3647	3353	3138	3205	2998	3018	2824	2608	3151
13	2655	3118	3539	3796	3751	3378	3161	3352	3062	3004	2695	2543	3171
14	2382	2860	3187	3623	3549	3154	2976	3158	2894	2796	2329	2247	2929
15	1897	2338	2655	3179	3142	2757	2551	2731	2489	2370	1778	1708	2466
16	1246	1619	1907	2548	2533	2216	2011	2132	1901	1796	1081	1038	1836
17	557	845	1072	1796	1814	1626	1461	1517	1279	1089	384	376	1151
18	78	198	337	966	1083	1018	911	860	639	421	30	24	547
19	0	2	12	311	428	441	405	323	150	47	0	0	177
20	0	0	0	22	53	71	71	32	3	0	0	0	21
21	0	0	0	0	0	0	5	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17408	21370	25476	28079	28327	25830	23631	24070	21576	21029	18586	16724	22675

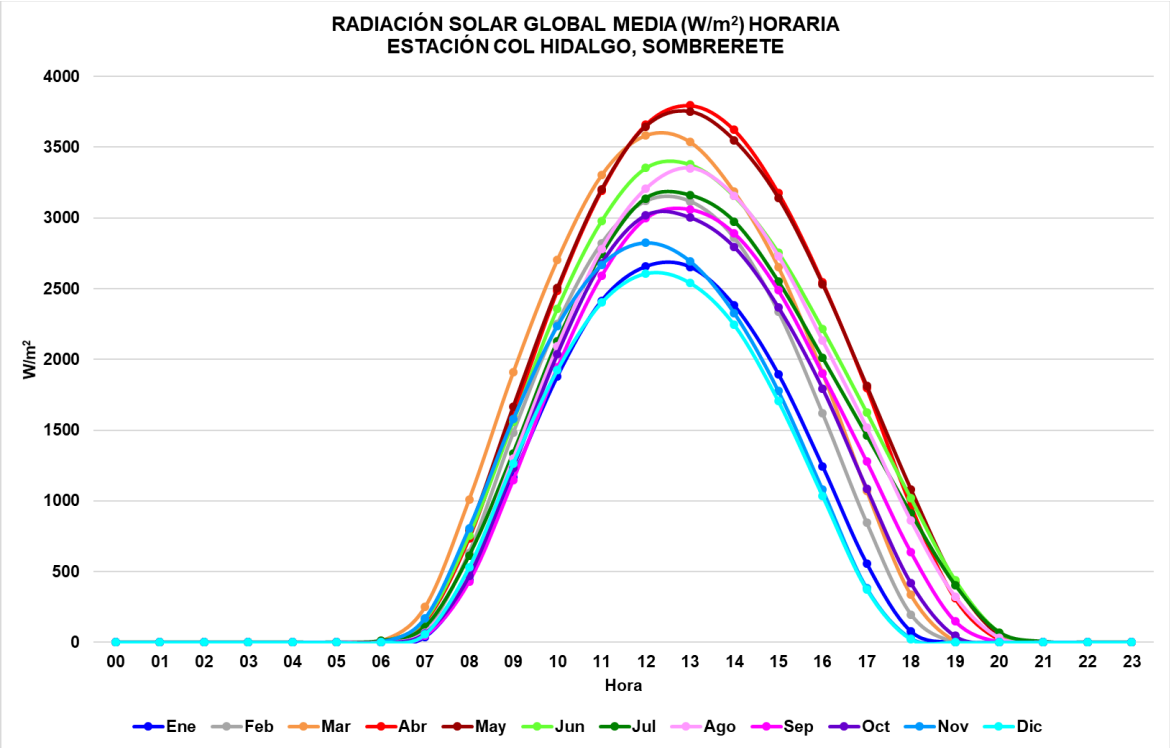


Figura 202. Radiación solar global media horaria (W/m2) de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 223. Radiación solar global media horaria (kWh/m2) de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.06	0.04	0.04	0.04	0.03	0.02	0.01	0.02	0.04	0.01	0.03
08	0.11	0.16	0.25	0.18	0.20	0.19	0.15	0.13	0.11	0.12	0.20	0.13	0.16
09	0.29	0.37	0.48	0.40	0.42	0.39	0.33	0.32	0.29	0.31	0.39	0.32	0.36
10	0.47	0.56	0.68	0.62	0.63	0.59	0.53	0.52	0.49	0.51	0.56	0.48	0.55
11	0.60	0.71	0.83	0.80	0.80	0.74	0.69	0.69	0.65	0.67	0.67	0.60	0.70
12	0.66	0.78	0.90	0.92	0.91	0.84	0.78	0.80	0.75	0.75	0.71	0.65	0.79
13	0.66	0.78	0.88	0.95	0.94	0.84	0.79	0.84	0.77	0.75	0.67	0.64	0.79
14	0.60	0.71	0.80	0.91	0.89	0.79	0.74	0.79	0.72	0.70	0.58	0.56	0.73
15	0.47	0.58	0.66	0.79	0.79	0.69	0.64	0.68	0.62	0.59	0.44	0.43	0.62
16	0.31	0.40	0.48	0.64	0.63	0.55	0.50	0.53	0.48	0.45	0.27	0.26	0.46
17	0.14	0.21	0.27	0.45	0.45	0.41	0.37	0.38	0.32	0.27	0.10	0.09	0.29
18	0.02	0.05	0.08	0.24	0.27	0.25	0.23	0.22	0.16	0.11	0.01	0.01	0.14
19	0.00	0.00	0.00	0.08	0.11	0.11	0.10	0.08	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.35	5.34	6.37	7.02	7.08	6.46	5.91	6.02	5.39	5.26	4.65	4.18	5.67

Cuadro 224. Radiación solar global media horaria (Mj/m2/s) de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
07	0.03	0.07	0.23	0.13	0.15	0.14	0.10	0.06	0.04	0.06	0.15	0.05	0.10
08	0.40	0.57	0.91	0.66	0.71	0.68	0.55	0.47	0.39	0.42	0.73	0.48	0.58
09	1.05	1.33	1.72	1.45	1.50	1.40	1.20	1.17	1.03	1.11	1.42	1.14	1.29
10	1.69	2.03	2.43	2.24	2.25	2.12	1.92	1.88	1.75	1.83	2.01	1.73	1.99
11	2.17	2.54	2.97	2.87	2.88	2.68	2.47	2.50	2.33	2.41	2.40	2.16	2.53
12	2.39	2.81	3.23	3.29	3.28	3.02	2.82	2.88	2.70	2.72	2.54	2.35	2.84
13	2.39	2.81	3.18	3.42	3.38	3.04	2.84	3.02	2.76	2.70	2.43	2.29	2.85
14	2.14	2.57	2.87	3.26	3.19	2.84	2.68	2.84	2.60	2.52	2.10	2.02	2.64
15	1.71	2.10	2.39	2.86	2.83	2.48	2.30	2.46	2.24	2.13	1.60	1.54	2.22
16	1.12	1.46	1.72	2.29	2.28	1.99	1.81	1.92	1.71	1.62	0.97	0.93	1.65
17	0.50	0.76	0.96	1.62	1.63	1.46	1.32	1.37	1.15	0.98	0.35	0.34	1.04
18	0.07	0.18	0.30	0.87	0.97	0.92	0.82	0.77	0.58	0.38	0.03	0.02	0.49
19	0.00	0.00	0.01	0.28	0.38	0.40	0.36	0.29	0.14	0.04	0.00	0.00	0.16
20	0.00	0.00	0.00	0.02	0.05	0.06	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.67	19.23	22.93	25.27	25.49	23.25	21.27	21.66	19.42	18.93	16.73	15.05	20.41

Cuadro 225. Velocidad del viento media (km/h) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.7	7.6	8.5	9.5	9.6	8.8	6.9	6.3	5.1	4.4	4.4	5.5	6.9
01	5.3	7.2	7.7	8.7	8.6	7.8	6.3	5.8	4.4	3.9	4.3	5.2	6.3
02	5.2	6.8	7.2	7.9	7.8	6.7	5.9	5.0	4.0	3.6	4.2	5.1	5.8
03	4.9	6.5	6.6	7.1	7.0	5.8	5.5	4.5	3.6	3.4	3.9	5.0	5.3
04	4.9	6.1	6.2	6.5	6.5	5.4	5.1	4.2	3.4	3.3	3.8	4.9	5.0
05	4.9	5.7	5.7	5.8	5.7	4.9	4.6	3.8	3.2	3.1	3.7	4.9	4.7
06	4.8	5.5	5.4	5.4	5.3	4.5	4.3	3.6	3.2	3.0	3.6	4.8	4.4
07	4.9	5.3	5.1	5.0	4.8	4.4	4.2	3.3	3.3	2.9	3.6	4.8	4.3
08	5.0	5.9	6.5	5.9	5.9	5.7	5.4	4.1	3.8	3.1	4.5	5.0	5.1
09	7.3	9.3	10.0	9.2	8.9	7.7	6.8	6.0	5.7	4.8	7.0	7.5	7.5
10	10.1	12.9	12.9	12.5	11.2	8.7	7.5	7.2	7.0	6.8	9.5	10.6	9.7
11	12.4	15.5	15.1	14.6	12.1	9.4	8.1	8.0	8.0	8.5	11.1	13.0	11.3
12	14.0	16.9	16.6	16.0	12.7	10.6	8.9	8.8	8.7	9.3	12.0	14.5	12.4
13	15.2	18.0	17.5	17.0	13.2	11.8	10.2	9.6	9.2	9.9	12.5	15.3	13.3
14	15.7	18.7	18.3	17.7	14.1	12.6	11.4	10.6	9.7	10.2	12.7	15.6	13.9
15	15.8	18.8	18.7	18.3	14.6	13.4	12.5	11.4	10.2	10.2	12.5	15.4	14.3
16	15.4	18.7	18.9	18.7	15.1	14.0	13.1	11.9	10.6	10.3	12.2	14.9	14.5
17	14.6	18.0	18.7	19.0	15.3	14.2	13.0	12.1	10.4	10.1	11.2	13.4	14.2
18	11.8	15.7	17.6	18.5	15.6	13.8	12.9	11.6	9.6	9.0	8.4	10.3	12.9
19	9.8	12.1	14.3	17.3	15.6	13.7	11.7	10.5	8.1	7.0	7.5	8.9	11.4
20	8.9	11.1	12.3	15.1	14.3	12.7	10.0	8.7	6.8	6.5	7.1	8.0	10.1
21	8.1	10.0	11.1	12.8	12.4	11.3	8.6	7.6	6.4	6.2	6.4	7.2	9.0
22	7.0	9.2	10.2	11.6	11.5	10.4	8.0	7.2	6.2	5.8	5.5	6.3	8.3
23	6.2	8.3	9.2	10.6	10.9	9.8	7.3	6.8	5.8	5.1	4.7	5.9	7.6
Media	9.1	11.2	11.7	12.1	10.8	9.5	8.3	7.4	6.5	6.3	7.3	8.8	9.1

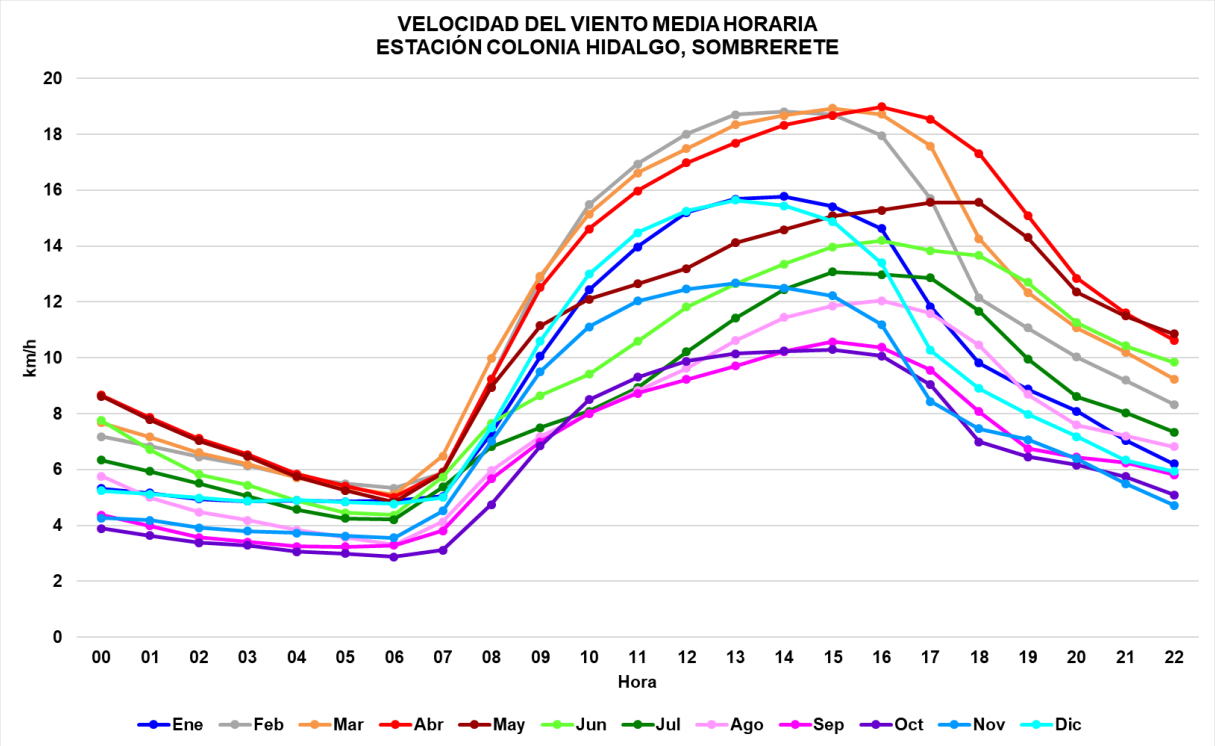


Figura 203. Velocidad del viento media (km/h) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 226. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	44.0	39.0	47.0	31.0	37.0	34.0	28.0	23.1	23.0	20.7	25.9	33.4	47.0
01	38.1	37.5	44.0	30.0	31.7	33.0	25.9	23.4	26.1	23.5	34.0	34.9	44.0
02	38.8	41.1	36.2	30.6	28.9	28.0	24.0	23.0	17.7	22.6	33.0	38.3	41.1
03	37.0	39.4	39.0	28.7	30.2	24.0	25.2	22.9	17.0	33.2	35.0	34.5	39.4
04	36.4	44.4	45.0	28.9	30.0	30.0	26.9	18.8	16.2	32.3	34.0	38.0	45.0
05	34.0	54.5	44.0	27.0	33.2	25.0	25.6	20.7	18.1	29.1	31.0	37.0	54.5
06	34.0	52.0	52.0	30.0	37.7	23.1	22.8	23.0	18.5	23.1	34.0	45.6	52.0
07	34.0	49.0	51.0	35.0	40.5	23.3	22.9	23.0	16.1	21.3	34.3	48.5	51.0
08	38.1	53.0	49.0	37.0	43.7	23.5	24.8	19.8	17.0	22.2	36.3	44.0	53.0
09	44.6	54.0	51.0	35.0	45.3	27.0	24.4	27.1	23.0	21.6	40.0	49.1	54.0
10	54.7	51.0	53.0	39.3	44.0	35.0	32.3	26.1	24.3	26.9	43.0	52.0	54.7
11	49.4	55.0	60.0	44.8	44.6	34.0	32.6	30.0	27.0	32.8	41.0	58.0	60.0
12	55.0	52.0	60.0	49.1	44.6	31.0	30.8	26.0	27.0	42.5	47.0	58.0	60.0
13	57.0	57.0	56.0	52.0	44.8	32.0	30.2	27.0	29.0	39.7	45.0	58.0	58.0
14	55.2	60.8	56.0	48.1	44.0	35.4	31.0	28.0	28.0	39.7	44.6	60.0	60.8
15	57.0	53.9	54.0	53.0	41.2	34.0	34.0	30.0	26.3	45.9	46.0	59.0	59.0
16	54.0	54.8	52.0	59.1	43.3	39.0	32.5	31.3	34.5	34.3	42.0	52.0	59.1
17	51.0	48.9	54.0	50.6	44.8	37.0	40.0	39.9	38.4	34.0	39.0	48.9	54.0
18	44.0	53.7	48.0	50.0	40.1	42.0	43.3	32.0	24.0	31.0	36.0	43.0	53.7
19	39.2	46.6	43.0	45.9	37.7	36.0	36.2	37.0	25.2	27.2	33.4	43.0	46.6
20	34.7	40.7	45.9	56.0	38.8	39.0	33.0	39.7	28.7	32.6	31.0	35.0	56.0
21	37.5	45.0	37.0	50.0	33.0	40.1	33.0	33.4	25.4	31.9	37.0	33.0	50.0
22	35.4	43.0	37.0	35.0	37.0	49.4	31.0	34.4	24.4	24.1	36.0	38.8	49.4
23	45.0	41.0	39.0	32.6	36.0	36.0	32.0	26.6	21.8	21.0	36.0	39.4	45.0
Máx.	57.0	60.8	60.0	59.1	45.3	49.4	43.3	39.9	38.4	45.9	47.0	60.0	60.8

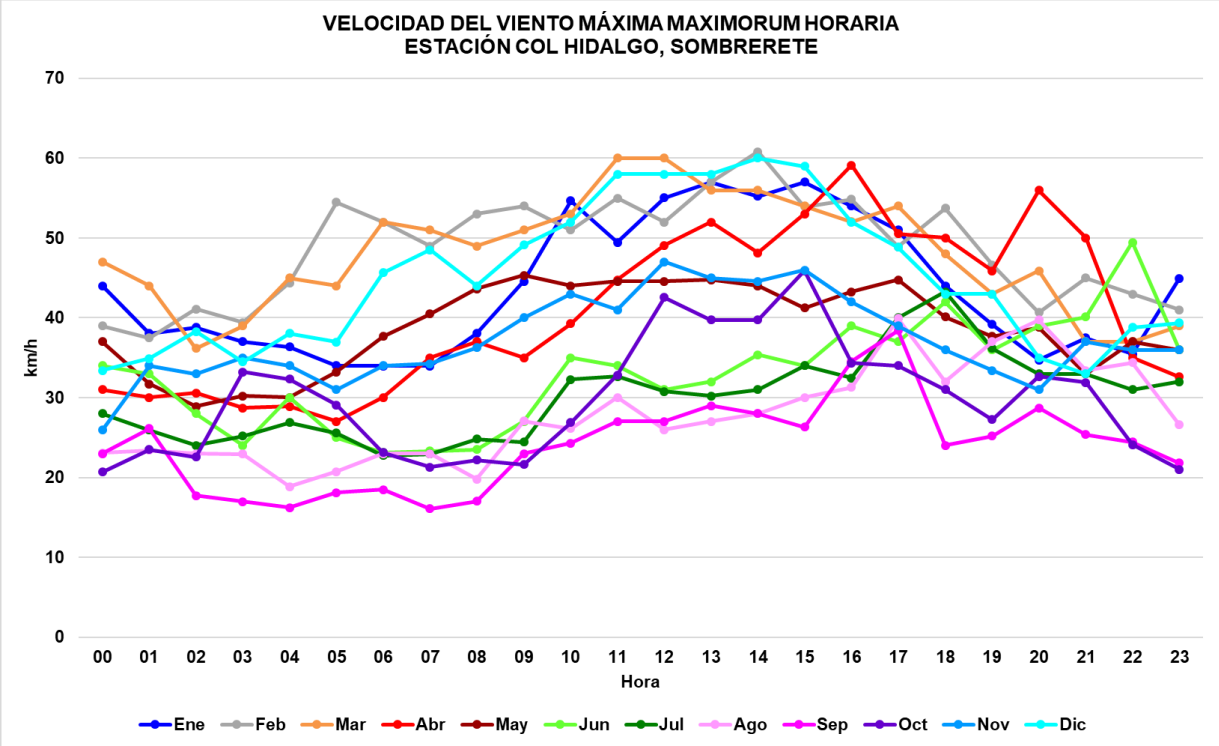


Figura 204. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 227. Frecuencia de velocidad del viento (%) mensual de la estación Col Hidalgo, Sombrerete (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	38.6	29.4	24.5	22.3	22.3	25.2	31.8	36.4	42.3	48.5	44.9	41.7	34.2
5.1 a 10.0	27.4	26.7	27.3	24.9	29.1	32.0	33.8	34.8	36.1	32.5	29.6	26.1	30.1
10.1 a 15.0	15.5	16.6	19.8	22.3	25.2	26.7	23.8	22.2	18.0	14.5	15.4	13.9	19.4
15.1 a 20.0	9.4	10.8	12.3	14.5	14.1	12.2	8.3	5.8	3.2	3.7	6.6	8.6	9.1
20.1 a 25.0	4.4	7.3	7.2	8.4	6.4	3.2	2.0	0.7	0.3	0.5	2.0	4.8	3.9
25.1 a 30.0	2.5	4.5	4.5	4.4	2.2	0.6	0.3	0.1	0.0	0.2	0.8	2.5	1.9
30.1 a 35.0	1.4	2.3	2.2	1.9	0.6	0.1	0.0	0.0	0.0	0.0	0.4	1.2	0.8
35.1 a 40.0	0.6	1.5	1.3	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.4
40.1 a 45.0	0.2	0.5	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
45.1 a 50.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
>50	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

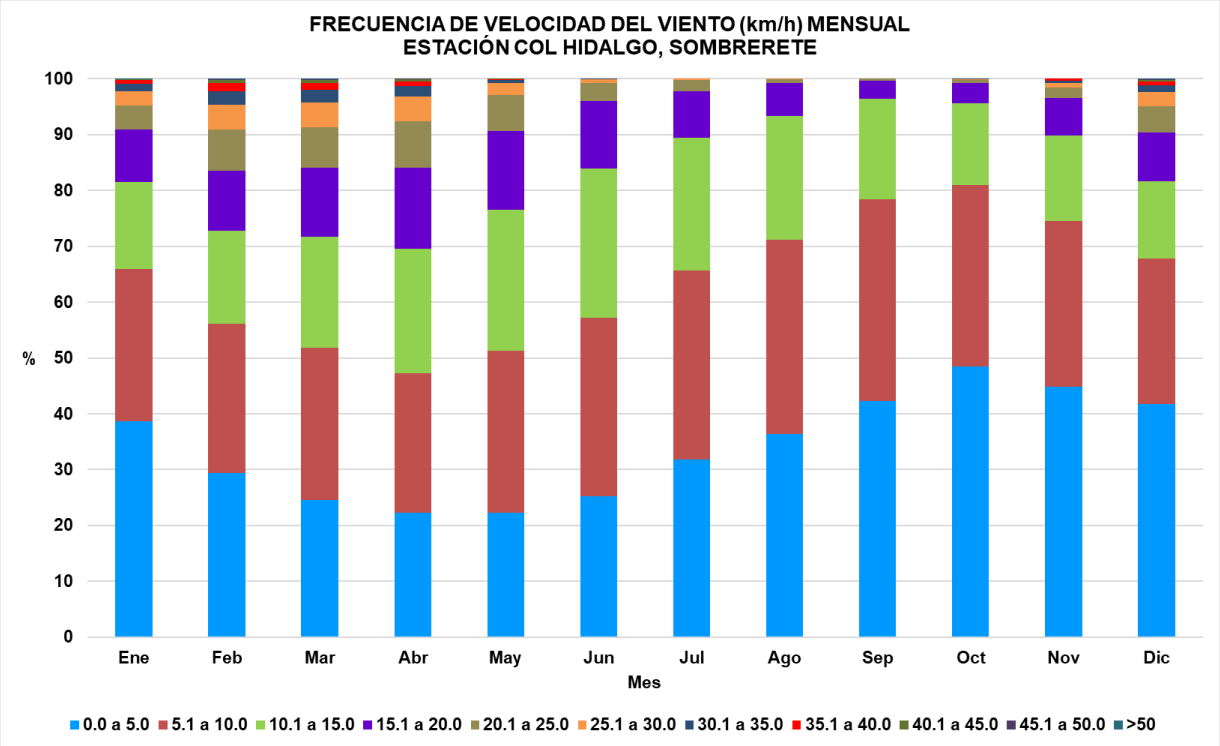


Figura 205. Frecuencia de velocidad del viento (%) mensual de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 228. Frecuencia de dirección del viento (%) mensual de la estación Col Hidalgo, Sombrerete (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	8.6	6.7	6.6	5.2	6.0	10.1	6.9	9.3	12.6	11.8	11.7	8.3	8.7
NNE	7.5	5.5	5.9	4.9	6.3	11.9	7.9	10.8	14.8	11.9	10.2	7.2	8.8
NE	5.0	3.8	4.0	3.0	5.0	10.0	8.7	10.9	12.4	9.5	7.0	5.4	7.1
ENE	4.5	3.1	3.1	2.5	4.6	11.2	12.8	13.9	12.6	9.3	6.8	4.3	7.4
E	5.6	3.6	2.7	2.3	3.9	10.1	12.9	12.5	10.8	7.7	5.5	3.6	6.8
ESE	6.0	4.5	2.1	1.7	2.9	5.6	7.7	6.9	5.3	4.6	3.4	2.8	4.5
SE	2.1	2.0	1.8	1.6	2.4	3.3	4.0	3.5	2.9	2.8	2.4	2.1	2.6
SSE	2.3	2.5	2.2	1.9	2.4	2.7	3.2	2.8	2.5	2.8	2.3	2.5	2.5
S	3.6	3.5	3.6	3.5	3.5	3.2	3.9	3.2	2.7	3.6	3.7	4.3	3.5
SSO	9.5	10.8	9.5	9.7	7.3	4.1	4.9	3.8	3.2	5.2	7.2	11.4	7.2
SO	14.1	19.0	17.8	19.1	13.6	5.5	6.2	4.7	4.0	6.9	11.0	15.7	11.4
OSO	11.9	15.9	18.1	20.2	17.4	6.7	6.8	5.1	4.3	6.7	10.2	12.4	11.2
O	7.9	9.0	11.0	13.1	12.3	6.0	5.9	4.3	3.4	5.2	6.9	7.6	7.7
ONO	4.0	3.8	4.6	4.8	5.3	3.2	2.9	2.7	2.2	3.6	3.7	4.1	3.7
NO	2.9	2.5	3.1	3.0	3.6	2.7	2.3	2.3	2.2	3.2	3.0	3.3	2.8
NNO	4.6	3.9	4.0	3.3	3.6	3.8	3.1	3.3	4.0	5.2	5.1	5.0	4.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

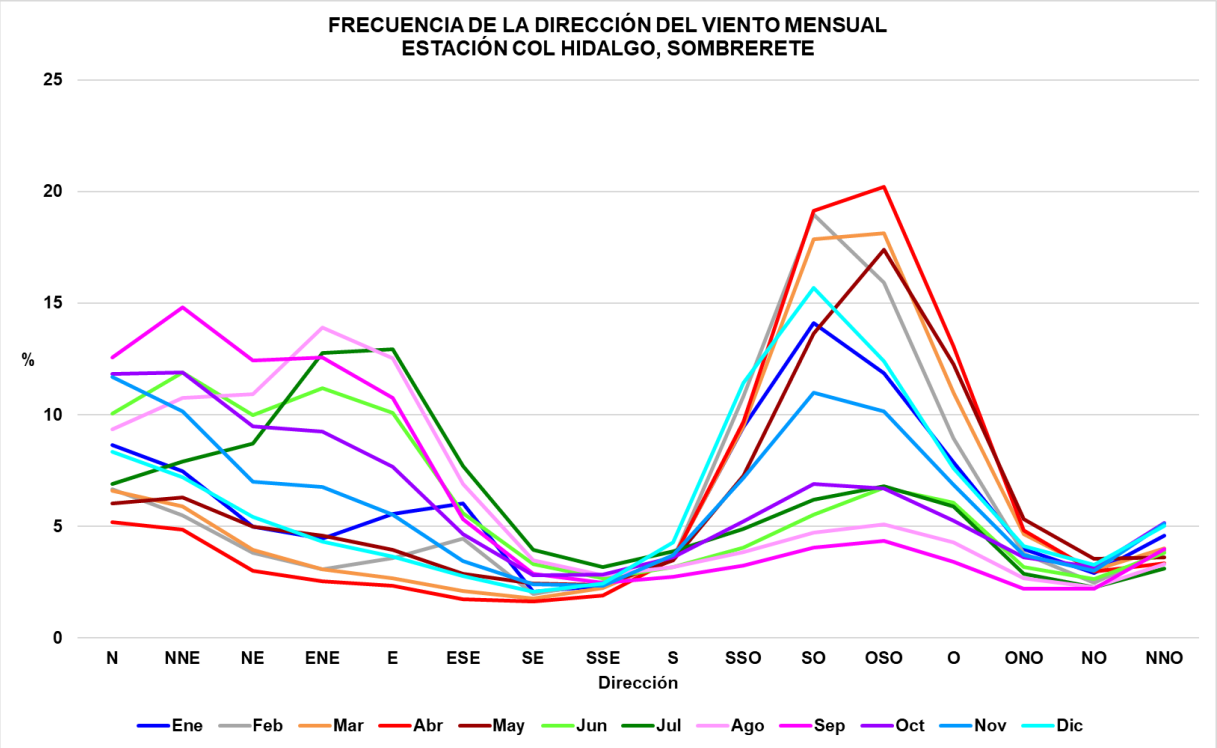


Figura 206. Frecuencia de dirección del viento (%) mensual de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 229. Frecuencia de dirección del viento (%) trimestral de la estación Col Hidalgo, Sombrerete (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	7.3	7.1	9.6	10.6	8.7
NNE	6.3	7.7	11.2	9.7	8.8
NE	4.3	6.0	10.7	7.3	7.1
ENE	3.5	6.1	13.1	6.8	7.4
E	3.9	5.4	12.1	5.6	6.8
ESE	4.2	3.4	6.6	3.6	4.5
SE	1.9	2.5	3.4	2.4	2.6
SSE	2.4	2.3	2.8	2.5	2.5
S	3.6	3.4	3.3	3.9	3.5
SSO	9.9	7.0	4.0	8.0	7.2
SO	16.9	12.8	5.0	11.2	11.4
OSO	15.3	14.8	5.4	9.8	11.2
O	9.3	10.5	4.5	6.6	7.7
ONO	4.1	4.5	2.6	3.8	3.7
NO	2.8	3.1	2.2	3.2	2.8
NNO	4.2	3.6	3.5	5.1	4.1
Suma	100.0	100.0	100.0	100.0	100.0

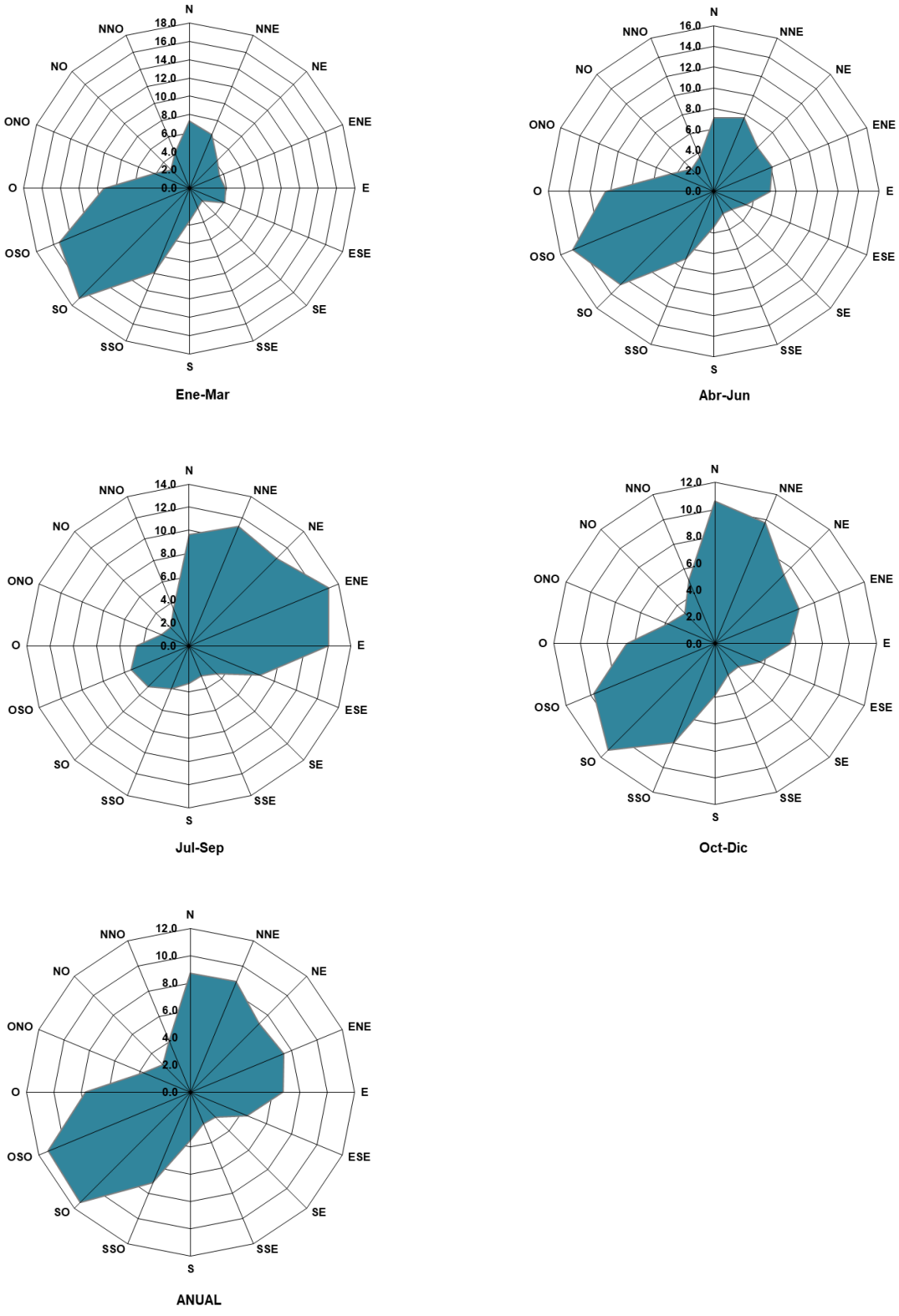


Figura 207. Frecuencia de dirección del viento (%) trimestral de la estación Col Hidalgo, Sombrerete (2002-2022).

Cuadro 230. Estadísticas climatológicas mensuales de la estación Col Hidalgo, Sombrerete (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.0	21.3	23.8	26.7	28.5	27.8	25.3	25.2	23.5	23.5	21.5	19.8	23.8
Temperatura máxima maximorum (°C)	26.0	29.8	32.2	32.3	35.3	34.5	31.2	30.6	29.4	29.2	28.7	27.0	35.3
Temperatura mínima media (°C)	1.2	2.7	4.2	6.9	9.9	12.5	12.5	12.2	11.2	7.4	3.4	1.5	7.1
Temperatura mínima minimorum (°C)	-9.9	-8.9	-8.6	-3.3	1.2	5.0	7.9	6.3	1.1	-4.5	-10.8	-12.6	-12.6
Temperatura media (°C)	9.8	11.9	14.4	17.4	19.7	20.1	18.4	18.2	16.7	15.2	12.3	10.3	15.3
Oscilación térmica (°C)	17.8	18.6	19.6	19.8	18.6	15.3	12.8	12.9	12.3	16.1	18.1	18.4	16.7
Precipitación acumulada media (mm)	14.5	11.4	5.8	1.7	11.9	64.2	118.5	111.4	99.7	33.8	10.9	5.2	489.0
Precipitación máxima maximorum en 24 horas (mm)	28.4	30.5	20.5	7.6	31.4	95.4	101.5	62.4	64.6	36.6	25.1	13.0	101.5
Número de días promedio con lluvia	4.5	4.2	3.7	2.1	3.9	10.6	17.9	17.5	14.9	7.4	3.7	3.2	93.4
Evapotranspiración acumulada potencial media (mm)	102.7	123.9	168.7	186.5	194.9	164.1	142.8	144.0	121.0	120.9	105.2	101.6	1676.2
Humedad máxima media (%)	76.5	68.1	59.5	54.6	64.0	81.1	93.6	94.0	96.4	92.2	84.2	76.4	78.4
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.4	17.0	12.5	10.2	12.9	24.4	37.3	39.2	46.4	33.0	24.3	20.5	24.9
Humedad mínima minimorum (%)	3.0	3.0	2.4	2.5	2.3	3.0	11.0	15.8	12.0	8.6	4.0	3.0	2.3
Humedad media (%)	47.9	40.0	32.1	28.0	34.1	51.4	67.9	69.6	76.1	64.2	53.5	47.2	51.0
Radiación global media día/mes (W/m^2)	17415.9	21373.2	25476.5	28064.7	28301.5	25783.6	23631.1	24069.7	21576.4	21045.4	18587.3	16730.1	22671.3
Radiación global media día/mes (kWh/m^2)	4.4	5.3	6.4	7.0	7.1	6.4	5.9	6.0	5.4	5.3	4.6	4.2	5.7
Radiación global media día/mes ($Mj/m^2/s$)	15.7	19.2	22.9	25.3	25.5	23.2	21.3	21.7	19.4	18.9	16.7	15.1	20.4
Velocidad del viento máxima media (km/h)	22.1	25.5	26.0	26.7	24.3	22.8	21.2	19.3	16.3	15.7	17.9	21.2	21.6
Velocidad del viento máxima maximorum (km/h)	57.0	60.8	60.0	59.1	45.3	49.4	43.3	39.9	38.4	45.9	47.0	60.0	60.8
Velocidad del viento media (km/h)	9.1	11.2	11.7	12.1	10.7	9.5	8.3	7.4	6.5	6.3	7.4	8.8	9.1
Dirección dominante del viento	SO	SO	OSO	OSO	OSO	NNE	E	ENE	NNE	NNE	N	SO	SO

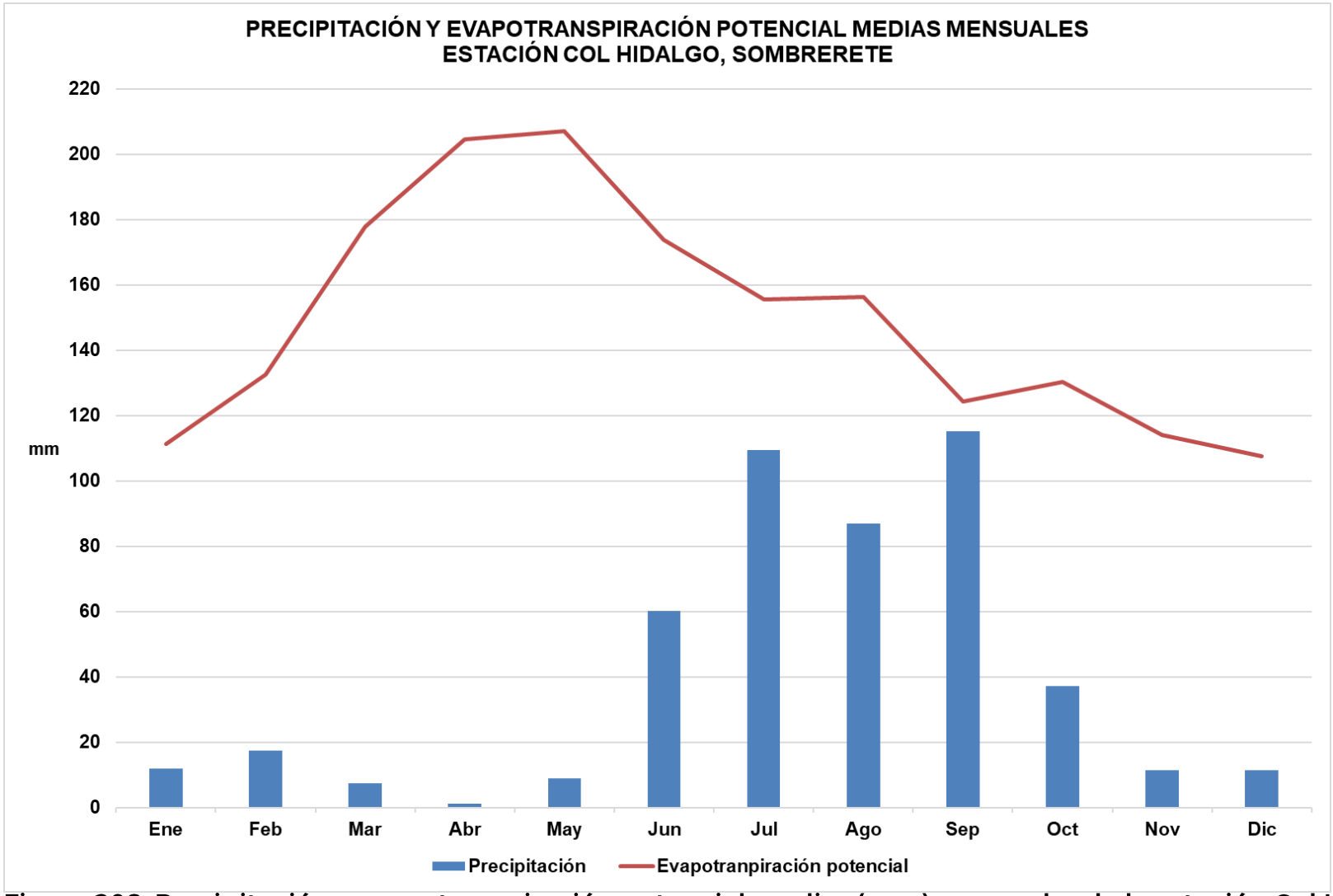


Figura 208. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Col Hidalgo, Sombrerete (2002-2022).

7.13. Estación: Col. Progreso, Río Grande

Cuadro 231. Temperatura máxima media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.6	10.1	12.4	16.5	19.1	19.2	17.8	17.4	15.5	13.0	9.5	7.8	13.8
01	6.9	9.2	11.5	15.5	18.0	18.4	17.2	16.8	15.0	12.3	8.6	7.1	13.1
02	6.3	8.5	10.5	14.5	17.0	17.5	16.6	16.2	14.5	11.5	7.9	6.5	12.3
03	5.6	7.8	9.7	13.6	16.0	16.7	16.0	15.5	14.0	10.8	7.1	5.8	11.6
04	5.0	7.1	8.8	12.6	15.0	15.9	15.4	14.9	13.6	10.2	6.4	5.2	10.8
05	4.4	6.4	8.0	11.7	14.1	15.1	14.9	14.3	13.2	9.6	5.8	4.7	10.2
06	4.0	5.9	7.3	10.8	13.1	14.5	14.4	13.8	12.8	9.1	5.4	4.3	9.6
07	3.9	5.9	8.7	11.0	13.6	14.9	14.4	13.7	12.7	9.2	6.8	4.5	9.9
08	7.2	10.1	13.7	14.8	17.5	17.8	16.5	16.0	14.7	12.4	11.9	8.8	13.4
09	11.3	14.0	17.1	18.6	20.8	20.2	18.4	18.2	17.2	16.4	15.3	12.9	16.7
10	14.1	16.8	19.6	21.4	23.2	22.4	20.3	20.1	19.1	18.9	17.8	15.6	19.1
11	16.2	18.8	21.6	23.5	25.3	24.3	22.0	21.9	20.7	20.9	19.7	17.7	21.0
12	17.8	20.4	23.1	25.2	26.8	25.9	23.5	23.4	22.0	22.3	21.1	19.2	22.6
13	19.0	21.5	24.2	26.4	28.0	27.1	24.6	24.6	23.1	23.4	22.1	20.2	23.7
14	19.7	22.2	24.8	27.3	28.9	27.9	25.4	25.5	23.8	24.1	22.6	20.8	24.4
15	19.9	22.5	25.1	27.8	29.4	28.3	25.8	25.9	24.2	24.5	22.7	20.9	24.7
16	19.7	22.3	24.8	27.9	29.4	28.3	25.6	25.9	23.9	24.4	22.2	20.5	24.6
17	18.8	21.5	24.1	27.5	29.0	27.9	25.3	25.5	23.3	23.7	20.9	19.3	23.9
18	16.9	20.1	22.8	26.6	28.3	27.2	24.6	24.6	22.3	22.3	18.3	16.6	22.5
19	13.7	17.2	20.3	25.2	27.1	26.1	23.6	23.3	20.8	19.9	15.0	13.5	20.5
20	11.7	14.8	17.8	22.9	25.3	24.6	22.2	21.5	18.6	17.0	13.2	11.6	18.4
21	10.4	13.2	16.1	20.7	23.0	22.8	20.4	19.8	17.3	15.4	12.0	10.4	16.8
22	9.3	12.0	14.8	19.0	21.4	21.1	19.3	18.7	16.5	14.4	11.0	9.5	15.6
23	8.5	11.0	13.7	17.8	20.2	20.0	18.5	18.0	15.9	13.6	10.2	8.6	14.7
Media	11.6	14.1	16.7	19.9	22.1	21.8	20.1	19.8	18.1	16.6	13.9	12.2	17.2

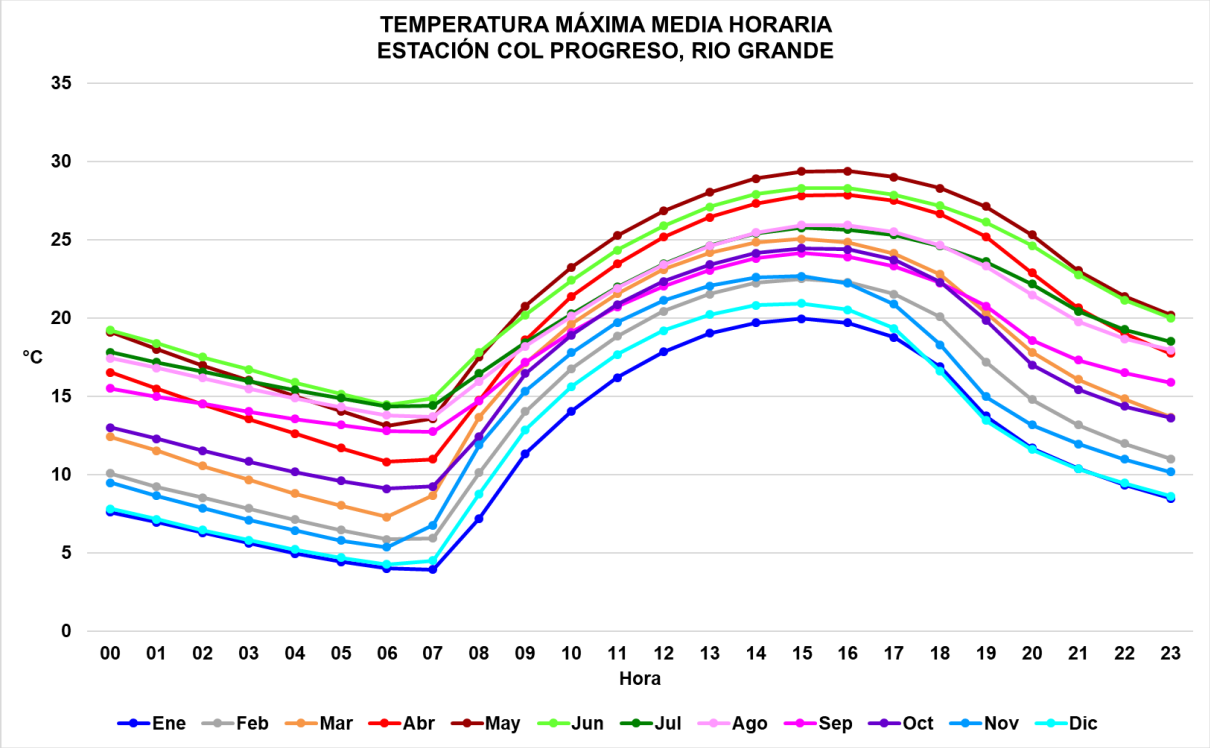


Figura 209. Temperatura máxima media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 232. Temperatura máxima maximorum (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.5	18.9	23.5	23.8	29.3	26.7	24.8	22.8	21.0	20.0	18.1	16.1	29.3
01	15.9	17.9	21.8	22.9	26.3	26.0	23.9	22.4	20.0	19.8	17.4	14.7	26.3
02	15.2	17.3	20.4	21.9	24.4	23.4	22.0	21.4	19.4	19.2	17.1	14.8	24.4
03	15.0	17.3	19.2	20.9	23.3	23.0	20.5	20.7	19.6	18.6	16.3	14.6	23.3
04	14.7	16.6	18.1	21.0	22.4	22.6	19.8	20.0	18.7	17.5	16.4	13.7	22.6
05	14.4	17.5	17.4	21.0	21.9	21.0	19.2	18.9	18.0	17.1	16.1	14.7	21.9
06	13.7	16.8	16.4	20.5	21.3	20.1	19.1	18.4	18.3	16.4	15.9	14.5	21.3
07	14.2	16.3	18.8	20.9	23.9	21.8	20.1	18.1	17.7	16.9	16.6	14.9	23.9
08	17.5	20.2	22.6	24.0	26.9	24.9	23.0	20.9	19.6	20.9	20.1	17.4	26.9
09	20.5	24.3	26.1	26.3	28.8	27.2	25.3	23.1	22.4	23.1	23.6	22.0	28.8
10	22.4	27.5	29.0	28.7	30.5	29.9	26.9	25.7	24.5	26.2	27.0	25.4	30.5
11	24.9	29.0	30.2	30.3	32.2	31.1	29.1	27.6	26.3	28.0	28.2	26.7	32.2
12	25.8	30.5	31.8	31.4	34.5	32.0	30.7	29.0	27.7	29.0	29.0	26.8	34.5
13	26.6	31.3	32.4	32.1	34.8	33.5	31.6	30.1	28.5	29.3	29.8	28.2	34.8
14	27.2	31.7	33.5	32.8	35.5	34.3	32.3	30.7	29.3	29.9	30.8	28.4	35.5
15	26.9	31.5	33.3	33.4	35.3	34.4	31.6	31.6	30.1	30.0	31.0	28.0	35.3
16	26.2	31.5	33.0	33.7	35.9	34.6	33.5	31.9	31.2	29.9	29.9	27.5	35.9
17	25.4	30.4	32.5	34.4	35.2	34.8	32.8	31.9	31.9	29.7	27.5	25.8	35.2
18	24.0	28.3	31.7	33.9	35.0	34.7	31.7	31.0	30.0	28.1	24.4	23.3	35.0
19	21.3	25.2	29.0	32.0	33.8	33.7	30.5	29.4	28.3	26.0	22.1	19.9	33.8
20	20.1	23.3	26.4	29.8	32.0	32.6	29.3	28.1	26.0	24.1	20.8	18.5	32.6
21	19.1	22.0	24.7	27.2	30.1	30.4	27.1	26.9	25.1	23.7	19.5	18.3	30.4
22	18.5	21.4	25.1	25.8	29.0	27.5	25.8	25.7	23.2	21.9	18.8	17.1	29.0
23	17.7	19.8	23.7	25.0	27.9	27.2	24.7	23.9	21.7	20.4	18.3	17.2	27.9
Máx.	27.2	31.7	33.5	34.4	35.9	34.8	33.5	31.9	31.9	30.0	31.0	28.4	35.9

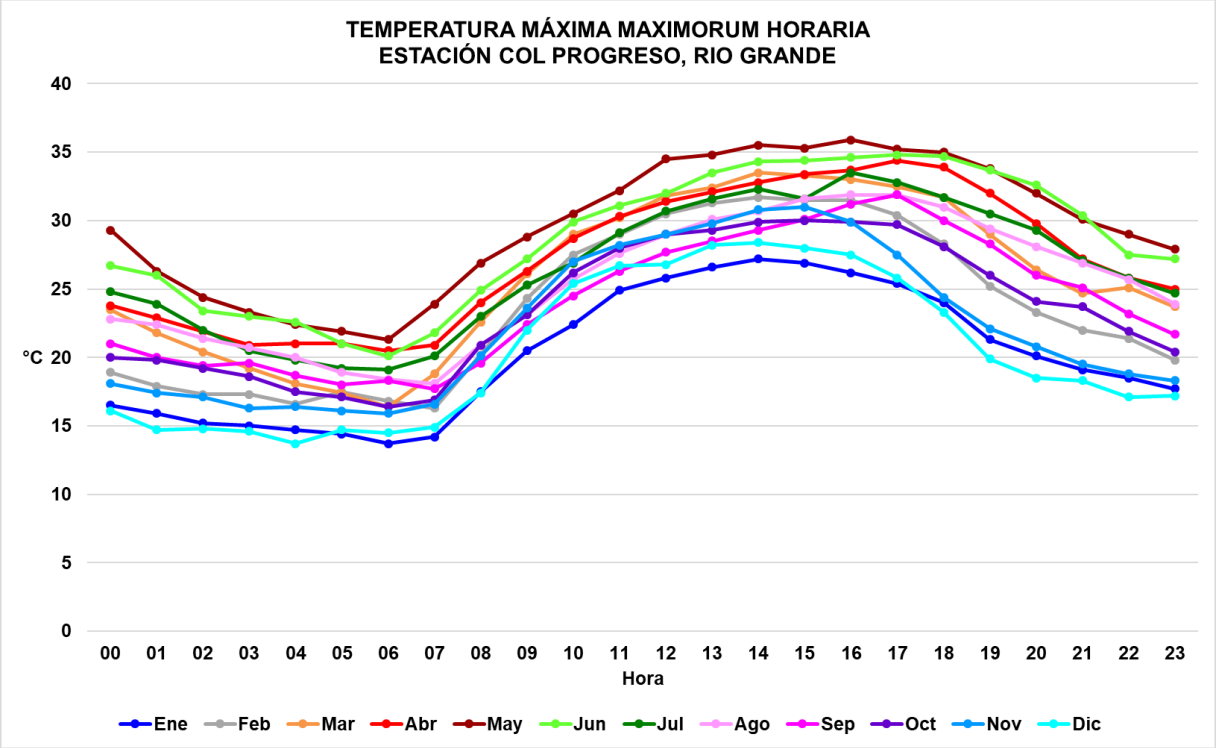


Figura 210. Temperatura máxima maximorum (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 233. Temperatura mínima media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	8.9	11.3	15.3	17.9	18.3	17.1	16.6	14.8	12.1	8.4	6.8	12.8
01	5.9	8.1	10.3	14.3	16.9	17.5	16.5	16.1	14.4	11.4	7.6	6.1	12.1
02	5.2	7.4	9.3	13.3	15.9	16.7	15.9	15.4	13.9	10.7	6.8	5.4	11.3
03	4.6	6.7	8.5	12.3	14.9	15.9	15.3	14.8	13.4	10.0	6.1	4.7	10.6
04	3.9	5.9	7.6	11.4	13.9	15.1	14.8	14.2	13.0	9.4	5.5	4.1	9.9
05	3.4	5.3	6.8	10.5	12.9	14.4	14.3	13.7	12.6	8.9	4.9	3.6	9.3
06	3.0	4.8	6.1	9.5	12.0	13.7	13.8	13.2	12.3	8.4	4.5	3.3	8.7
07	2.6	4.5	6.3	9.2	11.9	13.6	13.7	12.9	12.1	8.1	4.6	3.1	8.6
08	3.9	6.4	9.9	11.3	14.2	15.5	14.8	13.9	12.8	9.4	8.0	5.0	10.4
09	8.3	11.3	14.6	15.8	18.4	18.4	16.9	16.6	15.4	13.6	12.9	9.9	14.3
10	12.1	14.8	17.8	19.4	21.4	20.7	18.8	18.7	17.6	17.1	16.0	13.6	17.3
11	14.6	17.3	20.1	21.9	23.7	22.9	20.6	20.5	19.4	19.4	18.3	16.1	19.6
12	16.6	19.2	21.9	23.8	25.6	24.6	22.3	22.2	20.9	21.1	20.0	18.0	21.3
13	18.0	20.6	23.2	25.4	27.0	25.9	23.5	23.5	22.0	22.4	21.2	19.4	22.7
14	18.9	21.4	24.0	26.4	27.9	26.8	24.2	24.4	22.7	23.2	21.9	20.1	23.5
15	19.3	21.8	24.3	27.0	28.3	27.1	24.5	24.8	22.9	23.5	22.0	20.3	23.8
16	19.0	21.6	24.1	27.1	28.3	27.1	24.5	24.6	22.6	23.4	21.2	19.7	23.6
17	17.5	20.5	23.1	26.6	28.0	26.7	24.1	24.2	22.0	22.5	19.2	17.5	22.7
18	14.4	18.0	21.1	25.5	27.3	26.1	23.4	23.3	21.0	20.5	15.5	14.0	20.8
19	11.9	15.2	18.3	23.5	25.8	24.9	22.3	21.8	19.0	17.5	13.3	11.7	18.8
20	10.3	13.2	16.3	21.0	23.5	23.1	20.7	19.9	17.4	15.5	11.8	10.3	16.9
21	9.2	11.8	14.8	19.2	21.6	21.3	19.3	18.6	16.4	14.2	10.7	9.2	15.5
22	8.2	10.8	13.5	17.8	20.1	20.0	18.4	17.8	15.7	13.4	9.9	8.3	14.5
23	7.4	9.8	12.4	16.6	19.1	19.0	17.7	17.1	15.2	12.7	9.1	7.5	13.6
Media	10.2	12.7	15.2	18.5	20.7	20.6	19.1	18.7	17.1	15.3	12.5	10.7	15.9

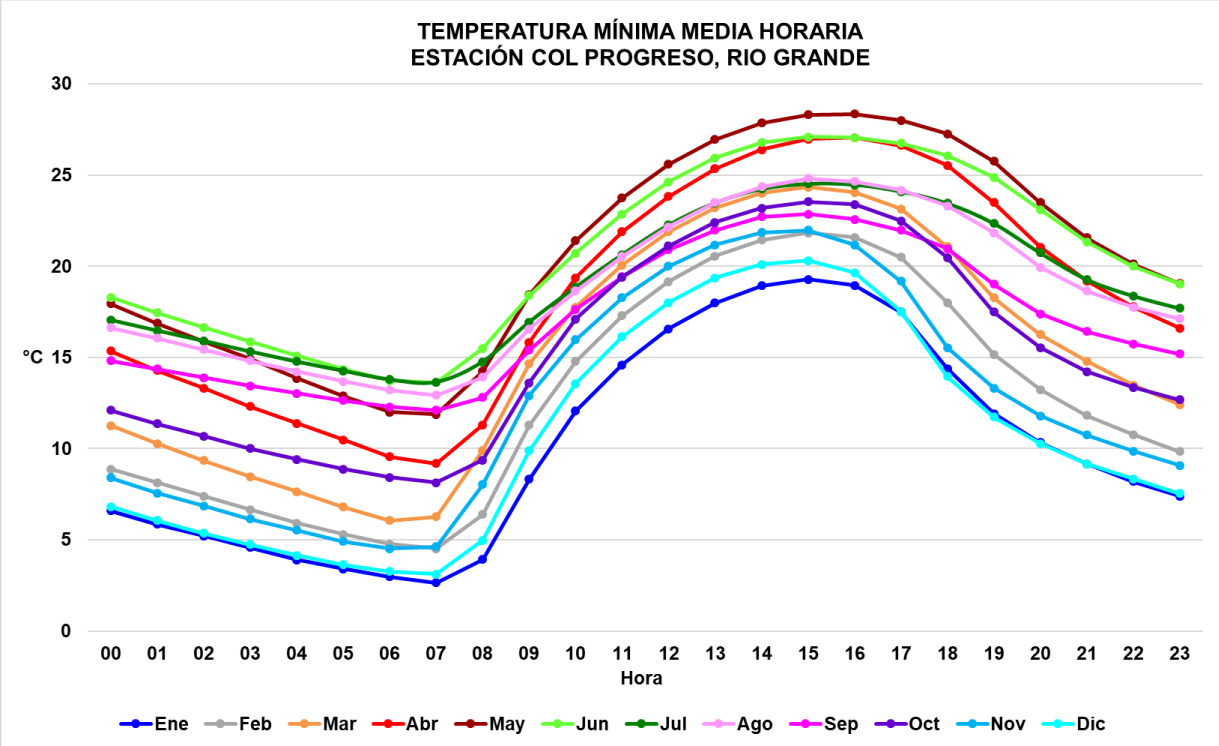


Figura 211. Temperatura mínima media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 234. Temperatura mínima minimorum (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.1	-5.6	-3.9	1.9	7.8	11.2	12.9	11.5	7.5	-0.6	-7.9	-10.2	-10.2
01	-5.9	-6.4	-4.9	1.5	6.4	9.7	12.6	10.9	6.6	-0.6	-9.3	-10.4	-10.4
02	-6.4	-4.9	-4.8	-0.1	5.3	9.0	11.4	10.1	5.9	-1.1	-9.0	-10.4	-10.4
03	-6.4	-5.5	-6.3	0.1	4.4	8.1	10.6	9.4	5.5	-2.1	-9.9	-10.7	-10.7
04	-8.2	-6.5	-6.5	0.5	3.5	7.1	9.5	8.6	4.2	-3.0	-10.9	-11.5	-11.5
05	-11.8	-7.1	-6.7	-1.2	2.7	6.7	8.8	8.0	3.2	-3.2	-10.4	-12.0	-12.0
06	-12.4	-8.9	-8.3	-2.0	2.0	6.2	8.4	6.6	3.0	-3.4	-9.8	-12.2	-12.4
07	-11.7	-9.5	-8.4	-2.5	1.3	6.0	8.2	6.6	2.8	-3.4	-9.9	-12.5	-12.5
08	-11.3	-8.5	-4.0	-2.3	3.2	9.7	9.7	7.5	4.8	1.1	-5.7	-8.7	-11.3
09	-2.9	-5.7	2.4	6.3	9.2	12.8	12.8	11.4	10.6	4.9	1.0	-4.9	-5.7
10	0.2	-2.7	2.4	7.8	9.9	14.2	13.1	13.8	12.9	6.4	2.6	-3.3	-3.3
11	1.7	1.2	3.0	10.6	10.7	15.2	14.3	13.9	13.6	7.0	3.2	-2.8	-2.8
12	3.0	4.8	3.3	12.0	12.1	15.8	15.3	14.8	14.2	8.4	3.6	-2.5	-2.5
13	4.1	7.2	4.1	14.1	13.4	15.7	14.0	15.0	14.8	10.5	4.3	-2.4	-2.4
14	5.6	7.1	4.5	15.6	13.7	14.5	14.4	14.4	14.8	11.1	5.5	-1.6	-1.6
15	6.6	6.6	4.8	16.6	13.7	14.6	12.5	14.6	12.5	11.1	6.5	-0.4	-0.4
16	5.1	7.2	4.8	14.0	13.3	13.1	13.5	14.7	13.8	11.6	6.9	-0.1	-0.1
17	3.6	6.9	2.1	13.9	12.6	13.5	13.9	14.6	14.0	11.7	4.5	-1.6	-1.6
18	2.3	5.2	0.8	13.7	15.7	13.1	13.4	13.7	12.2	10.8	1.5	-5.0	-5.0
19	1.5	3.5	1.8	11.6	13.1	12.6	11.9	13.9	12.7	7.6	1.1	-6.1	-6.1
20	-0.6	0.8	1.6	9.0	12.8	13.8	13.3	13.7	11.9	4.4	-2.0	-7.9	-7.9
21	-1.6	-1.1	0.7	6.7	11.1	13.6	13.1	13.5	11.1	3.5	-5.3	-8.8	-8.8
22	-3.3	-2.7	0.0	4.8	11.3	13.0	13.6	13.4	9.8	1.7	-7.0	-9.6	-9.6
23	-4.9	-4.1	-2.8	3.3	10.2	12.9	13.7	12.8	8.3	0.8	-7.5	-9.9	-9.9
Mín.	-12.4	-9.5	-8.4	-2.5	1.3	6.0	8.2	6.6	2.8	-3.4	-10.9	-12.5	-12.5

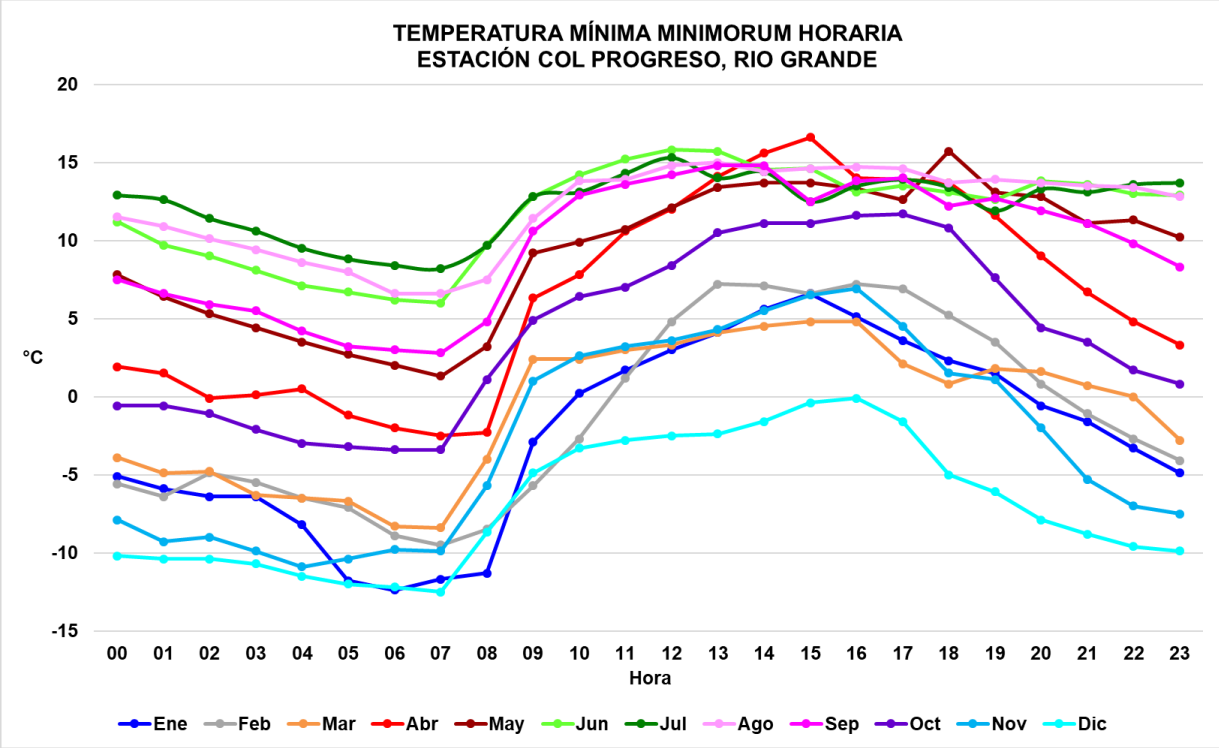


Figura 212. Temperatura mínima minimorum (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 235. Temperatura media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.1	9.5	11.8	15.9	18.5	18.8	17.4	17.0	15.2	12.5	8.9	7.3	13.3
01	6.4	8.7	10.9	14.9	17.4	17.9	16.8	16.4	14.7	11.8	8.1	6.6	12.6
02	5.7	8.0	9.9	13.9	16.4	17.1	16.2	15.8	14.2	11.1	7.3	5.9	11.8
03	5.1	7.2	9.1	12.9	15.5	16.3	15.6	15.1	13.7	10.4	6.6	5.3	11.1
04	4.4	6.5	8.2	12.0	14.4	15.5	15.1	14.5	13.3	9.8	6.0	4.7	10.4
05	3.9	5.9	7.4	11.1	13.5	14.7	14.6	14.0	12.9	9.2	5.3	4.2	9.7
06	3.5	5.3	6.7	10.2	12.5	14.1	14.1	13.5	12.5	8.8	4.9	3.7	9.1
07	3.2	5.2	7.4	10.0	12.6	14.2	14.0	13.3	12.4	8.6	5.5	3.7	9.2
08	5.5	8.2	11.8	13.0	15.9	16.7	15.6	14.9	13.7	10.8	10.0	6.8	11.9
09	9.9	12.7	15.9	17.3	19.6	19.3	17.7	17.4	16.3	15.1	14.2	11.4	15.6
10	13.1	15.8	18.7	20.4	22.3	21.6	19.5	19.4	18.4	18.0	16.9	14.6	18.2
11	15.4	18.1	20.8	22.7	24.5	23.6	21.3	21.2	20.1	20.1	19.0	16.9	20.3
12	17.2	19.8	22.5	24.5	26.2	25.3	22.9	22.8	21.5	21.7	20.6	18.6	22.0
13	18.5	21.1	23.7	25.9	27.5	26.5	24.0	24.1	22.5	22.9	21.6	19.8	23.2
14	19.3	21.8	24.4	26.9	28.4	27.3	24.8	24.9	23.3	23.7	22.2	20.5	24.0
15	19.6	22.2	24.7	27.4	28.9	27.7	25.2	25.4	23.5	24.0	22.3	20.6	24.3
16	19.3	21.9	24.5	27.5	28.9	27.7	25.1	25.3	23.3	23.9	21.7	20.1	24.1
17	18.1	21.0	23.7	27.1	28.5	27.3	24.7	24.8	22.7	23.1	20.1	18.5	23.3
18	15.7	19.1	22.0	26.1	27.8	26.6	24.1	24.0	21.6	21.4	16.9	15.2	21.7
19	12.8	16.1	19.3	24.4	26.5	25.5	23.0	22.6	19.9	18.7	14.1	12.6	19.6
20	11.0	14.0	17.0	22.0	24.4	23.9	21.5	20.7	17.9	16.2	12.5	10.9	17.7
21	9.8	12.5	15.4	19.9	22.3	22.0	19.8	19.2	16.9	14.8	11.3	9.8	16.1
22	8.8	11.4	14.2	18.4	20.8	20.6	18.8	18.2	16.1	13.9	10.4	8.9	15.0
23	7.9	10.4	13.0	17.2	19.6	19.5	18.1	17.5	15.5	13.1	9.6	8.1	14.1
Media	10.9	13.4	16.0	19.2	21.4	21.2	19.6	19.3	17.6	16.0	13.2	11.4	16.6

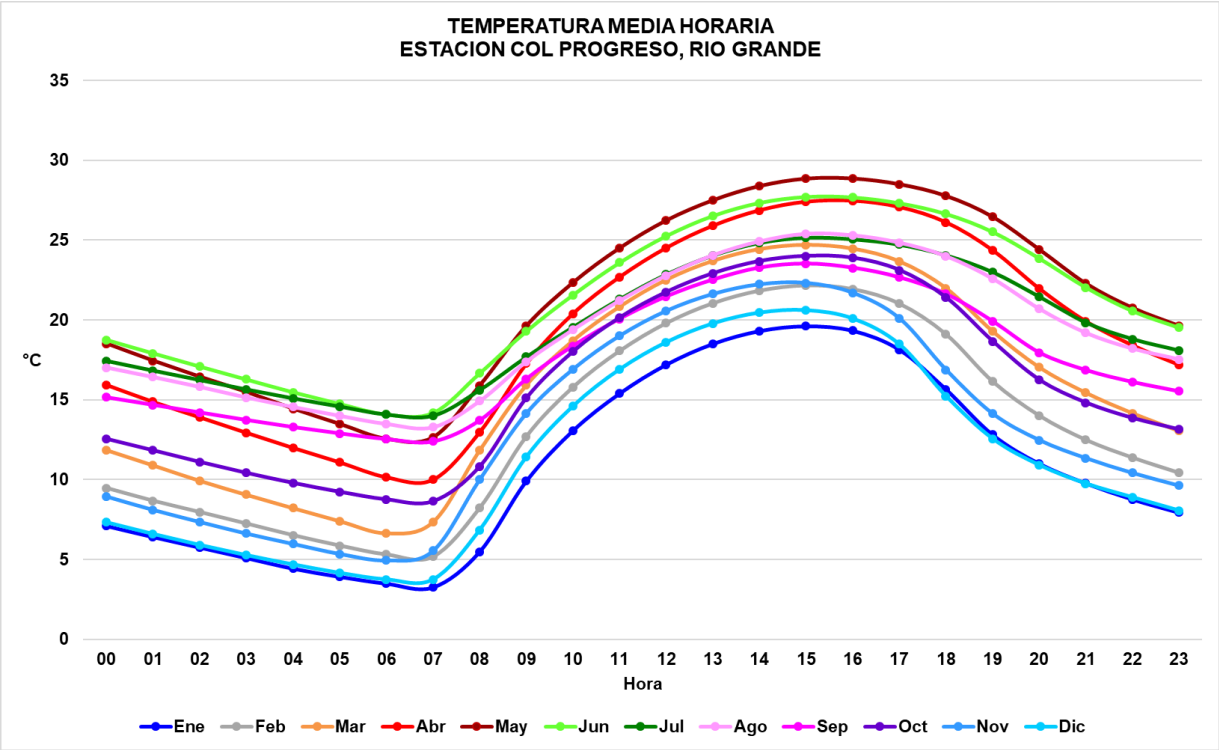


Figura 213. Temperatura media (˚C) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 236. Precipitación media (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.7	0.1	0.0	0.3	4.0	7.2	5.9	7.2	2.0	0.3	0.2	28.3
01	0.6	0.5	0.4	0.6	0.1	3.1	4.9	5.9	6.8	2.4	0.1	0.2	25.7
02	0.6	0.4	0.1	0.0	0.2	2.9	2.9	4.2	5.6	1.3	0.3	0.3	18.9
03	0.3	0.4	0.2	0.0	0.1	1.6	2.5	3.1	5.1	1.4	0.2	0.2	15.1
04	0.2	0.3	0.0	0.1	0.0	1.0	3.7	2.9	4.2	1.1	0.2	0.3	13.9
05	0.1	0.2	0.1	0.0	0.1	0.6	2.5	2.4	2.8	1.0	0.1	0.3	10.2
06	0.2	0.2	0.0	0.0	0.1	0.5	1.8	0.9	2.1	0.6	0.8	0.3	7.7
07	0.4	0.2	0.1	0.0	0.1	0.3	1.8	1.9	1.0	0.3	0.3	0.4	6.9
08	0.8	0.5	0.1	0.0	0.1	0.3	0.7	1.4	1.2	0.4	0.2	0.2	6.0
09	0.7	0.4	0.1	0.0	0.2	0.0	0.8	0.3	0.9	0.2	0.3	0.5	4.4
10	0.2	0.4	0.1	0.0	0.1	0.1	0.6	0.2	0.3	0.4	0.4	0.2	3.0
11	0.1	0.6	0.0	0.0	0.0	0.6	0.2	0.2	0.4	0.3	0.4	0.3	3.1
12	0.1	0.6	0.1	0.0	0.3	0.1	1.3	0.6	1.1	0.5	0.4	0.4	5.5
13	0.1	0.5	0.3	0.0	0.2	0.1	2.6	0.8	0.5	0.3	0.1	0.5	6.0
14	0.2	0.5	0.2	0.0	0.2	2.0	4.1	3.5	1.8	1.0	0.5	0.2	14.3
15	0.6	0.4	0.2	0.0	1.0	2.8	7.1	2.9	6.1	3.7	0.6	0.6	25.9
16	0.4	0.4	0.6	0.3	1.0	4.7	8.1	5.9	6.3	0.7	0.3	0.3	29.0
17	1.0	0.5	0.2	0.2	0.9	5.0	9.3	6.7	8.2	3.4	0.7	0.2	36.4
18	1.2	0.4	0.3	0.1	0.3	4.3	10.2	5.9	10.7	2.2	1.3	0.3	37.1
19	1.4	0.5	0.2	0.2	0.8	7.2	11.4	7.7	12.2	1.4	1.0	0.1	44.3
20	0.7	0.4	0.3	0.0	1.0	3.9	8.3	6.9	7.4	1.0	0.8	0.1	30.7
21	0.3	0.4	0.2	0.9	1.7	4.2	7.1	7.3	8.3	1.7	0.5	0.4	33.1
22	0.2	0.2	0.2	0.4	1.0	5.3	5.8	9.7	8.6	2.3	1.0	0.4	35.1
23	0.3	0.4	0.2	0.0	1.4	4.6	8.9	6.9	10.3	1.4	0.8	0.3	35.3
Suma	11.2	10.0	4.2	2.9	11.1	59.3	114.0	94.3	119.0	30.9	11.6	7.2	475.7

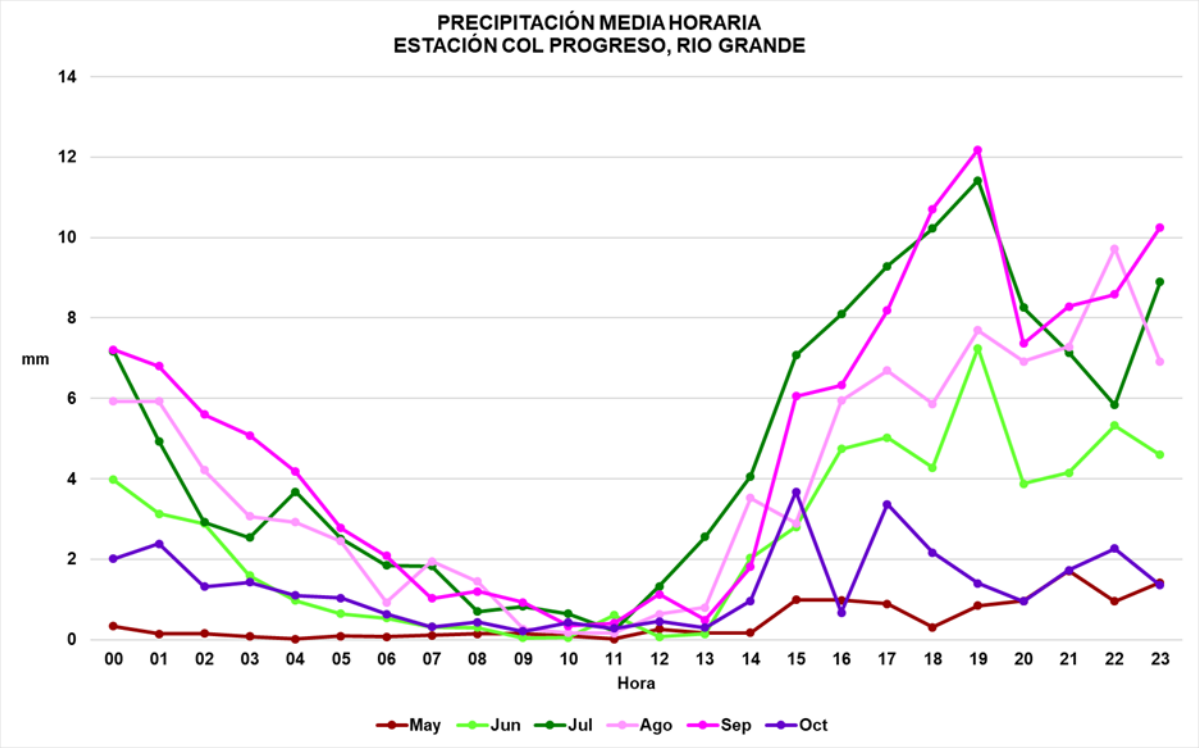


Figura 214. Precipitación media (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 237. Precipitación máxima maximorum (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.6	5.0	0.7	0.2	2.4	12.4	16.0	16.6	28.8	6.0	1.9	1.2	28.8
01	4.0	3.4	5.1	11.6	1.8	7.2	10.0	17.9	35.9	8.4	0.7	1.0	35.9
02	2.4	2.3	0.9	0.4	1.9	8.2	19.0	9.5	34.0	11.4	1.6	3.2	34.0
03	1.8	2.5	1.7	0.2	1.3	3.8	6.2	7.0	12.0	7.0	1.0	2.4	12.0
04	1.6	1.8	0.1	1.1	0.3	3.4	31.0	21.2	9.2	5.2	1.1	2.8	31.0
05	0.9	1.2	0.8	0.6	1.4	3.0	9.6	10.4	14.5	8.2	0.6	2.1	14.5
06	0.8	1.8	0.2	0.4	1.2	3.6	6.8	3.2	16.4	3.9	7.3	2.5	16.4
07	1.8	1.9	0.8	0.2	1.2	1.4	14.6	16.0	3.7	1.2	2.6	2.6	16.0
08	4.0	3.8	0.6	0.0	3.0	2.2	3.4	8.3	3.0	2.6	1.7	1.1	8.3
09	9.2	4.3	0.7	0.0	3.0	0.4	3.6	1.2	4.2	1.3	2.5	5.2	9.2
10	1.2	4.6	0.8	0.0	1.1	0.8	3.2	0.6	1.8	5.1	3.4	1.5	5.1
11	1.4	3.3	0.4	0.0	0.2	11.2	1.3	1.6	3.0	4.0	4.8	4.2	11.2
12	0.8	3.9	1.1	0.0	5.1	0.6	8.8	9.3	11.6	5.6	3.5	2.8	11.6
13	0.6	3.2	5.2	0.0	2.6	1.2	11.0	4.6	2.2	1.5	1.6	2.3	11.0
14	3.6	4.7	2.5	1.0	1.2	9.5	19.0	16.8	7.1	5.7	4.0	3.3	19.0
15	8.6	2.7	2.4	0.2	6.9	12.1	24.8	12.4	22.6	29.2	2.7	8.4	29.2
16	3.6	2.1	6.8	4.8	4.8	34.0	27.5	19.4	23.2	2.4	1.8	1.2	34.0
17	8.2	3.7	2.5	1.9	5.0	18.2	22.2	24.0	15.2	46.4	4.6	1.0	46.4
18	5.2	2.2	2.2	0.8	1.0	24.4	22.0	9.2	40.8	13.4	10.3	2.7	40.8
19	5.8	3.8	1.3	4.4	10.6	49.4	35.8	23.8	32.2	5.2	4.0	0.8	49.4
20	3.4	1.8	3.0	0.0	7.4	12.9	22.8	19.6	12.3	3.9	3.1	0.7	22.8
21	1.8	2.5	2.7	18.3	11.6	13.3	13.8	13.8	20.2	4.6	3.5	2.1	20.2
22	2.0	1.5	1.9	7.8	3.4	19.3	16.4	18.4	16.0	10.8	6.4	4.9	19.3
23	1.9	3.0	1.4	0.2	18.8	8.0	27.6	16.0	27.9	3.2	4.3	1.3	27.9
Máx.	9.2	5.0	6.8	18.3	18.8	49.4	35.8	24.0	40.8	46.4	10.3	8.4	49.4

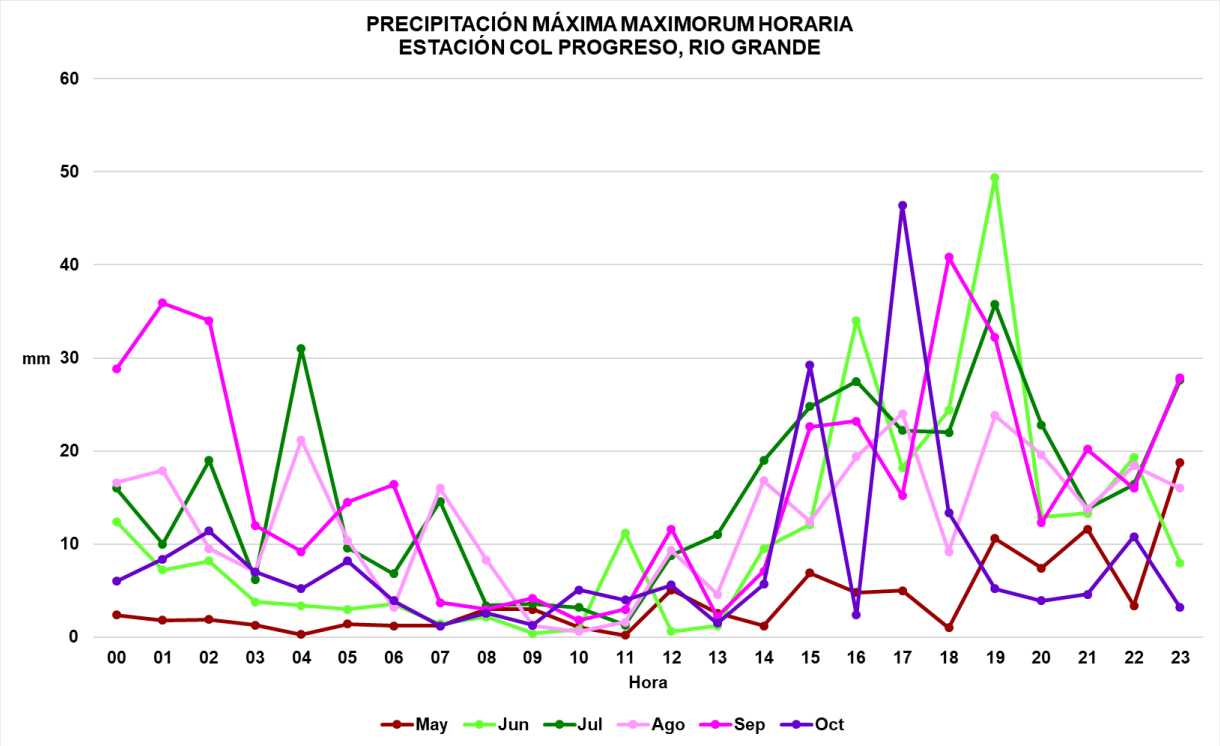


Figura 215 Precipitación máxima maximorum (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 238. Evapotranspiración potencial media (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.03	0.04	0.06	0.10	0.09	0.05	0.03	0.02	0.00	0.01	0.01	0.03	0.04
01	0.02	0.03	0.05	0.09	0.07	0.04	0.02	0.01	0.00	0.01	0.01	0.02	0.03
02	0.02	0.03	0.04	0.07	0.07	0.03	0.02	0.01	0.00	0.00	0.01	0.02	0.03
03	0.02	0.03	0.03	0.06	0.05	0.02	0.01	0.01	0.00	0.00	0.01	0.01	0.02
04	0.01	0.02	0.03	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.02
05	0.01	0.02	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.02	0.03	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.02
08	0.02	0.05	0.09	0.08	0.08	0.06	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.09	0.15	0.22	0.19	0.20	0.18	0.13	0.12	0.09	0.10	0.15	0.11	0.14
10	0.20	0.28	0.37	0.34	0.36	0.32	0.26	0.25	0.21	0.23	0.27	0.22	0.28
11	0.31	0.41	0.51	0.50	0.51	0.46	0.39	0.39	0.34	0.36	0.38	0.33	0.41
12	0.40	0.50	0.60	0.62	0.64	0.58	0.51	0.51	0.45	0.47	0.46	0.41	0.51
13	0.45	0.56	0.65	0.70	0.72	0.66	0.58	0.59	0.52	0.54	0.50	0.45	0.58
14	0.46	0.57	0.65	0.74	0.74	0.68	0.61	0.62	0.54	0.55	0.48	0.45	0.59
15	0.43	0.53	0.60	0.72	0.72	0.66	0.59	0.61	0.52	0.52	0.42	0.42	0.56
16	0.36	0.45	0.52	0.66	0.64	0.60	0.53	0.55	0.45	0.45	0.33	0.34	0.49
17	0.26	0.34	0.39	0.55	0.53	0.50	0.44	0.44	0.34	0.34	0.18	0.21	0.38
18	0.14	0.19	0.26	0.44	0.41	0.39	0.34	0.33	0.22	0.23	0.11	0.13	0.27
19	0.09	0.13	0.18	0.37	0.32	0.27	0.23	0.24	0.15	0.11	0.05	0.07	0.18
20	0.05	0.09	0.11	0.24	0.24	0.22	0.17	0.14	0.04	0.03	0.03	0.04	0.12
21	0.04	0.06	0.08	0.16	0.16	0.13	0.08	0.06	0.01	0.01	0.02	0.04	0.07
22	0.03	0.05	0.07	0.13	0.11	0.08	0.04	0.03	0.01	0.01	0.02	0.03	0.05
23	0.03	0.05	0.07	0.11	0.09	0.05	0.03	0.02	0.00	0.01	0.02	0.03	0.04
Media/día /mes	3.50	4.63	5.67	7.05	6.90	6.05	5.05	4.97	3.94	4.01	3.53	3.46	4.90

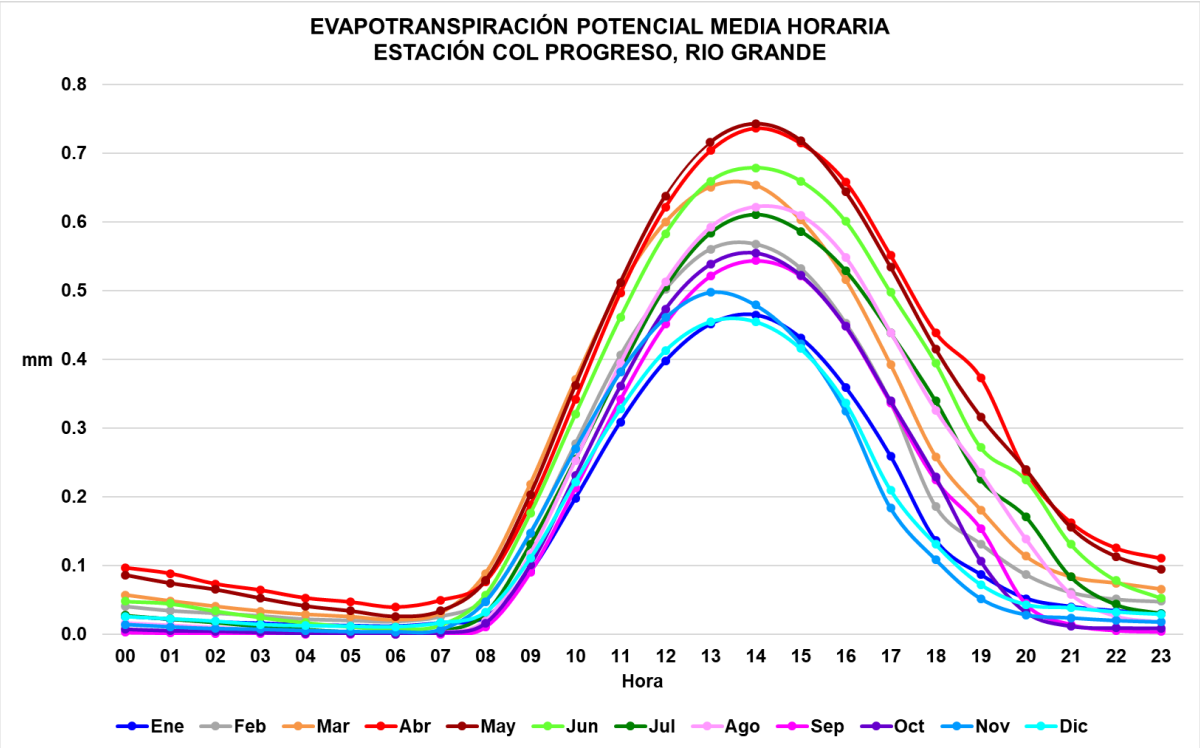


Figura 216. Evapotranspiración potencial media (mm) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 239. Humedad relativa media (%) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	55.1	44.9	35.1	28.9	35.3	54.7	72.8	75.5	86.0	76.1	64.9	55.1	57.0
01	57.2	47.1	37.5	31.3	38.5	58.3	75.7	78.3	87.7	78.6	67.9	57.5	59.6
02	59.3	49.3	39.5	33.2	41.4	61.6	78.3	80.8	89.4	81.2	70.6	59.8	62.0
03	61.5	51.1	41.5	35.1	44.1	64.9	80.8	83.3	90.9	83.5	73.2	61.9	64.3
04	63.4	53.1	43.4	37.0	46.5	67.8	83.1	85.6	92.1	85.7	75.3	63.9	66.4
05	65.1	55.0	45.3	38.9	48.9	70.4	85.2	87.6	93.2	87.3	77.3	65.7	68.3
06	66.5	56.6	47.3	40.7	51.2	72.6	87.1	89.3	94.0	88.6	78.8	67.1	70.0
07	67.3	57.1	46.6	41.2	51.4	72.5	87.4	90.0	94.4	88.8	77.3	67.4	70.1
08	62.1	50.5	39.2	36.9	46.0	66.9	81.6	85.3	91.2	83.1	65.2	59.4	64.0
09	51.0	40.1	31.5	30.0	37.8	59.2	73.2	76.0	82.1	69.8	52.7	47.4	54.2
10	42.3	32.7	25.3	23.9	30.3	50.7	65.2	67.6	73.1	59.0	43.7	38.6	46.0
11	35.4	27.1	20.7	19.2	24.3	42.8	57.3	59.8	65.8	50.8	36.9	32.0	39.3
12	30.0	23.2	17.5	16.0	19.9	36.3	50.5	52.9	59.9	44.7	31.8	27.4	34.2
13	26.4	20.5	15.5	13.7	17.1	31.7	45.3	47.2	55.2	40.1	28.5	24.4	30.5
14	24.3	18.9	14.2	12.2	15.5	29.0	41.8	43.5	51.8	37.1	26.6	22.6	28.1
15	23.5	18.3	13.7	11.5	14.8	27.9	40.3	41.3	50.6	35.8	26.0	22.1	27.1
16	23.8	18.5	13.8	11.4	14.8	28.1	40.5	41.5	51.4	35.7	27.0	22.8	27.4
17	25.8	19.6	14.7	11.8	15.5	29.0	41.7	42.8	53.9	37.5	30.3	25.6	29.0
18	30.9	22.6	16.8	12.7	16.4	30.7	44.0	45.6	57.8	42.6	37.9	31.8	32.5
19	37.0	27.5	20.1	14.6	18.3	33.9	48.2	51.1	65.6	52.4	45.3	37.8	37.6
20	41.9	32.1	23.7	17.3	21.3	38.7	54.5	58.8	74.2	61.6	50.5	42.4	43.1
21	45.7	35.7	26.9	20.4	25.3	43.7	61.4	65.6	79.0	67.1	54.8	46.3	47.7
22	49.2	38.8	29.9	23.5	29.1	48.5	66.2	70.1	81.8	70.5	58.4	49.6	51.3
23	52.1	41.5	32.5	26.3	32.4	52.5	69.5	73.2	84.1	72.9	61.7	52.7	54.3
Media	45.7	36.7	28.8	24.5	30.7	48.8	63.8	66.3	75.2	63.8	52.6	45.0	48.5

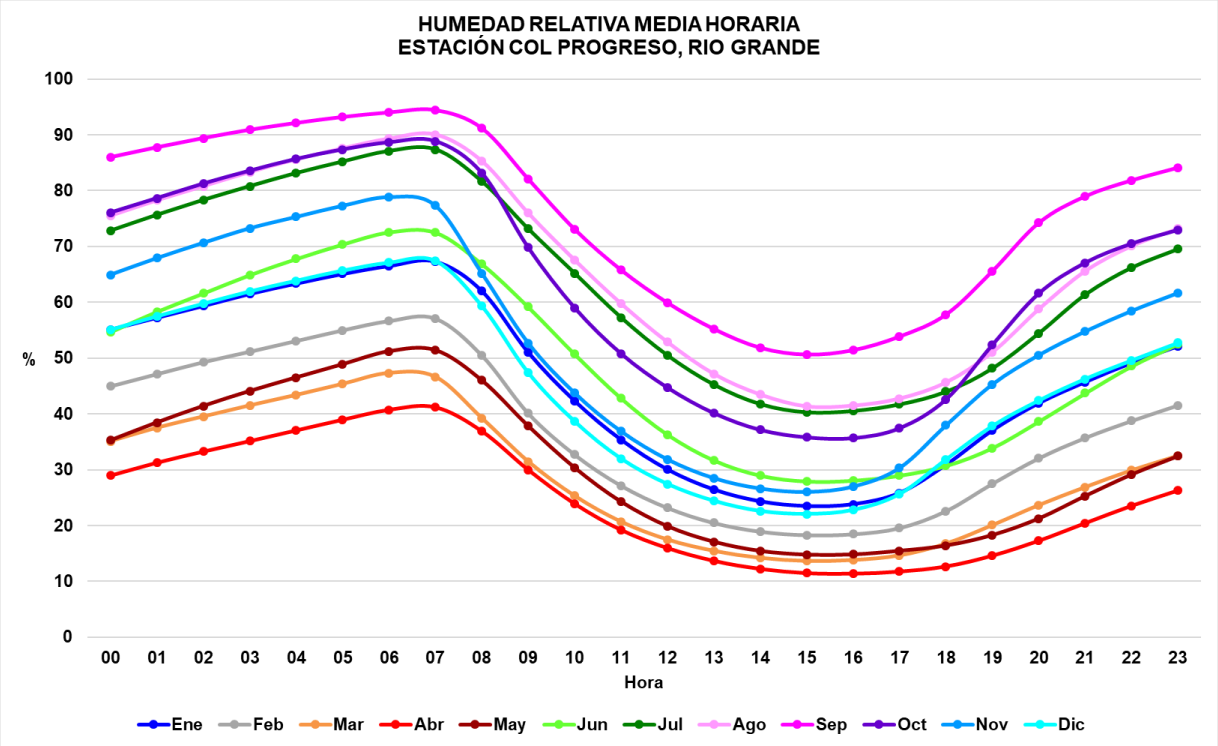


Figura 217. Humedad relativa media (%) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 240. Humedad relativa mínima minimorum (%) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.0	13.0	6.1	7.0	9.0	12.0	19.0	29.0	30.0	23.0	18.0	8.0	6.1
01	9.0	12.0	5.4	7.0	9.0	14.0	26.0	33.0	38.0	23.0	18.0	9.0	5.4
02	11.0	11.0	5.5	8.0	8.0	13.0	29.0	34.0	44.0	21.0	18.0	11.0	5.5
03	12.0	10.0	5.0	9.0	8.0	11.0	32.0	42.0	45.0	25.0	20.0	10.0	5.0
04	11.0	10.0	5.6	9.0	8.0	10.0	35.0	47.0	44.0	25.0	21.0	9.0	5.6
05	12.0	10.0	8.0	8.5	8.0	11.0	37.0	52.0	51.0	32.0	21.0	8.0	8.0
06	12.0	11.0	8.0	9.4	9.0	13.0	46.0	58.0	61.0	40.0	21.0	9.0	8.0
07	12.0	12.0	8.0	9.0	8.0	14.0	52.0	59.0	66.0	27.9	23.0	10.0	8.0
08	11.0	10.0	6.2	6.5	7.0	12.0	32.0	52.5	53.4	22.0	15.0	10.7	6.2
09	10.0	5.0	3.6	5.6	6.0	11.0	22.0	33.8	28.9	15.0	9.0	9.0	3.6
10	6.0	5.0	3.6	4.0	5.0	7.0	19.0	30.1	23.0	11.2	8.0	8.0	3.6
11	5.0	4.9	2.4	3.0	4.0	6.0	17.0	24.0	17.0	8.7	5.8	6.0	2.4
12	5.0	4.0	2.3	2.9	3.0	5.0	16.0	23.0	18.0	8.7	5.0	5.0	2.3
13	5.0	4.0	2.7	2.5	3.0	5.0	14.0	20.5	16.0	6.8	5.0	4.0	2.5
14	3.0	3.0	2.6	2.0	2.8	4.0	13.0	16.9	15.0	6.8	5.0	3.0	2.0
15	3.0	3.0	2.4	2.0	2.4	4.0	10.0	15.6	16.7	6.8	5.0	4.0	2.0
16	3.0	3.0	2.7	2.1	2.4	4.0	9.0	14.0	15.0	7.0	4.0	4.0	2.1
17	3.0	4.0	2.9	2.1	2.6	4.0	11.0	14.0	14.0	7.0	5.0	4.0	2.1
18	4.0	5.0	3.1	2.7	3.0	4.0	12.0	14.0	13.0	8.0	7.0	4.0	2.7
19	6.0	6.0	4.3	2.9	4.0	4.0	12.0	16.0	16.0	12.0	9.0	6.0	2.9
20	7.0	8.0	5.0	3.8	4.0	4.0	14.0	16.0	20.0	16.0	10.0	7.0	3.8
21	8.0	10.0	6.0	5.0	6.0	5.0	15.0	19.0	22.0	20.0	11.0	7.0	5.0
22	8.0	9.0	7.6	7.0	7.0	8.0	17.0	22.0	31.0	20.0	11.0	7.0	7.0
23	8.0	12.0	9.3	8.0	8.0	11.0	19.0	28.0	28.0	20.0	14.0	8.0	8.0
Mín.	3.0	3.0	2.3	2.0	2.4	4.0	9.0	14.0	13.0	6.8	4.0	3.0	2.0

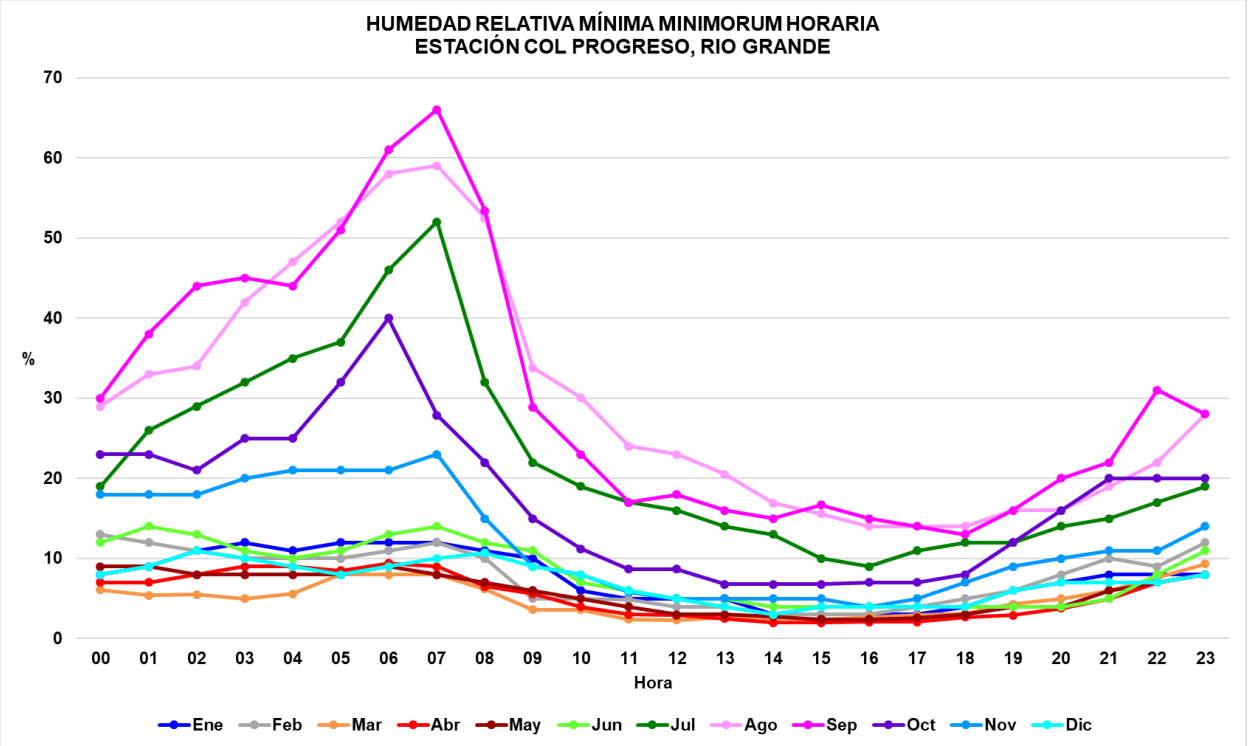


Figura 218. Humedad relativa mínima minimorum (%) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 241. Radiación solar global media horaria (W/m2) de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	12	6	9	8	5	1	0	15	5	0	5
07	42	90	259	164	197	179	124	83	53	84	181	72	127
08	454	638	1006	764	839	769	635	547	432	498	820	555	663
09	1172	1447	1898	1617	1701	1567	1389	1329	1142	1270	1580	1280	1449
10	1886	2239	2683	2465	2529	2357	2181	2154	1927	2048	2249	1928	2221
11	2429	2830	3245	3144	3223	3028	2839	2838	2588	2699	2705	2421	2832
12	2724	3158	3551	3604	3640	3451	3291	3299	3015	3088	2911	2649	3199
13	2764	3186	3534	3757	3762	3529	3391	3468	3162	3173	2800	2622	3262
14	2510	2934	3213	3578	3584	3356	3185	3321	3077	2999	2460	2353	3047
15	2037	2475	2663	3183	3132	2949	2768	2896	2666	2556	1880	1838	2587
16	1374	1757	1967	2554	2507	2387	2212	2313	2050	1921	1111	1116	1939
17	510	878	1141	1868	1842	1756	1650	1633	1402	1159	307	314	1205
18	64	179	366	1074	1121	1115	1047	968	728	411	14	15	592
19	0	1	10	354	465	511	471	368	179	53	0	0	201
20	0	0	0	20	54	81	77	33	3	11	0	0	23
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17966	21813	25549	28151	28604	27043	25264	25254	22423	21986	19021	17162	23353

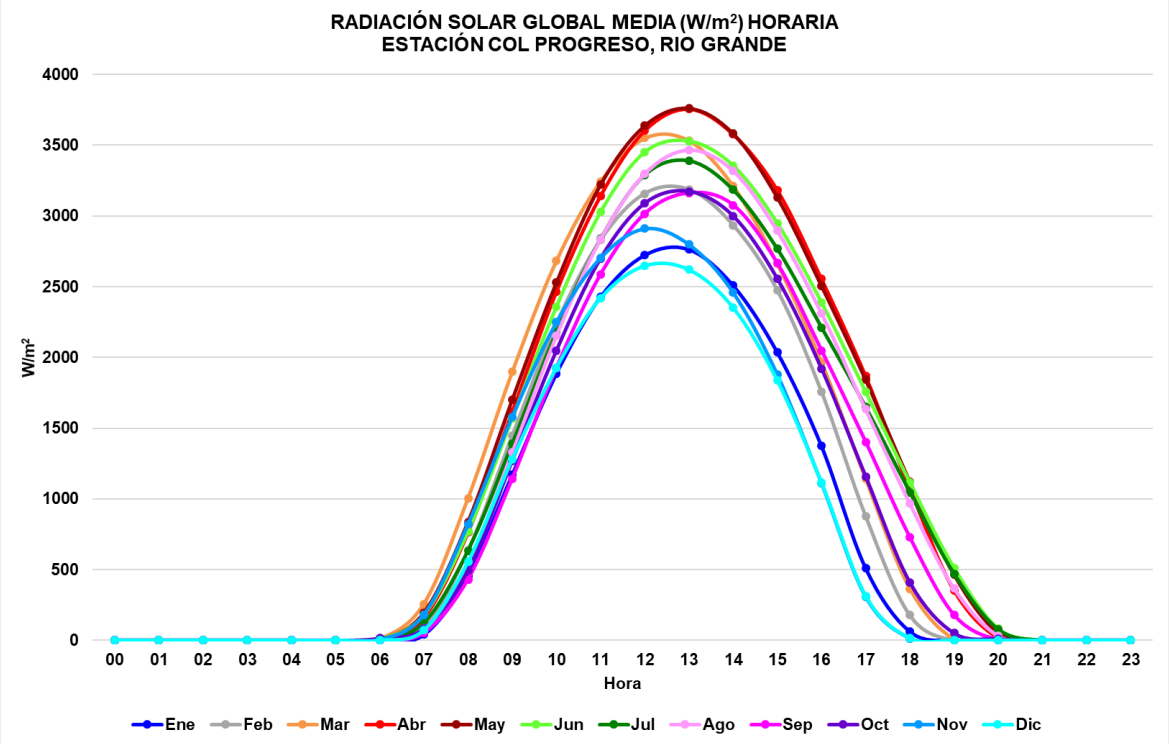


Figura 219. Radiación solar global media horaria (W/m2) de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 242. Radiación solar global media horaria (kWh/m²) de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.06	0.04	0.05	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.11	0.16	0.25	0.19	0.21	0.19	0.16	0.14	0.11	0.12	0.20	0.14	0.17
09	0.29	0.36	0.47	0.40	0.43	0.39	0.35	0.33	0.29	0.32	0.39	0.32	0.36
10	0.47	0.56	0.67	0.62	0.63	0.59	0.55	0.54	0.48	0.51	0.56	0.48	0.56
11	0.61	0.71	0.81	0.79	0.81	0.76	0.71	0.71	0.65	0.67	0.68	0.61	0.71
12	0.68	0.79	0.89	0.90	0.91	0.86	0.82	0.82	0.75	0.77	0.73	0.66	0.80
13	0.69	0.80	0.88	0.94	0.94	0.88	0.85	0.87	0.79	0.79	0.70	0.66	0.82
14	0.63	0.73	0.80	0.89	0.90	0.84	0.80	0.83	0.77	0.75	0.62	0.59	0.76
15	0.51	0.62	0.67	0.80	0.78	0.74	0.69	0.72	0.67	0.64	0.47	0.46	0.65
16	0.34	0.44	0.49	0.64	0.63	0.60	0.55	0.58	0.51	0.48	0.28	0.28	0.48
17	0.13	0.22	0.29	0.47	0.46	0.44	0.41	0.41	0.35	0.29	0.08	0.08	0.30
18	0.02	0.04	0.09	0.27	0.28	0.28	0.26	0.24	0.18	0.10	0.00	0.00	0.15
19	0.00	0.00	0.00	0.09	0.12	0.13	0.12	0.09	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.49	5.45	6.39	7.04	7.15	6.76	6.32	6.31	5.61	5.50	4.76	4.29	5.84

Cuadro 243. Radiación solar global media horaria (Mj/m2/s) de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
07	0.04	0.08	0.23	0.15	0.18	0.16	0.11	0.07	0.05	0.08	0.16	0.06	0.11
08	0.41	0.57	0.91	0.69	0.76	0.69	0.57	0.49	0.39	0.45	0.74	0.50	0.60
09	1.05	1.30	1.71	1.46	1.53	1.41	1.25	1.20	1.03	1.14	1.42	1.15	1.30
10	1.70	2.02	2.42	2.22	2.28	2.12	1.96	1.94	1.73	1.84	2.02	1.74	2.00
11	2.19	2.55	2.92	2.83	2.90	2.72	2.55	2.55	2.33	2.43	2.43	2.18	2.55
12	2.45	2.84	3.20	3.24	3.28	3.11	2.96	2.97	2.71	2.78	2.62	2.38	2.88
13	2.49	2.87	3.18	3.38	3.39	3.18	3.05	3.12	2.85	2.86	2.52	2.36	2.94
14	2.26	2.64	2.89	3.22	3.23	3.02	2.87	2.99	2.77	2.70	2.21	2.12	2.74
15	1.83	2.23	2.40	2.86	2.82	2.65	2.49	2.61	2.40	2.30	1.69	1.65	2.33
16	1.24	1.58	1.77	2.30	2.26	2.15	1.99	2.08	1.84	1.73	1.00	1.00	1.75
17	0.46	0.79	1.03	1.68	1.66	1.58	1.48	1.47	1.26	1.04	0.28	0.28	1.08
18	0.06	0.16	0.33	0.97	1.01	1.00	0.94	0.87	0.65	0.37	0.01	0.01	0.53
19	0.00	0.00	0.01	0.32	0.42	0.46	0.42	0.33	0.16	0.05	0.00	0.00	0.18
20	0.00	0.00	0.00	0.02	0.05	0.07	0.07	0.03	0.00	0.01	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.17	19.63	22.99	25.34	25.74	24.34	22.74	22.73	20.18	19.79	17.12	15.45	21.02

Cuadro 244. Velocidad del viento media (km/h) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.2	8.3	10.3	9.5	8.4	7.5	5.1	3.2	3.7	4.6	6.7	6.8
01	6.0	7.9	7.8	9.5	8.9	7.9	7.0	4.7	3.0	3.5	4.2	6.3	6.4
02	5.8	7.4	7.2	8.7	8.2	6.9	6.4	4.4	2.7	3.1	4.0	5.7	5.9
03	5.4	6.7	6.7	7.9	7.2	6.1	5.8	3.8	2.4	2.8	3.7	5.4	5.3
04	5.1	6.6	6.4	7.2	6.3	5.3	4.8	3.2	2.2	2.5	3.5	5.2	4.9
05	5.0	6.2	5.8	6.6	5.5	4.6	3.9	2.7	2.0	2.4	3.3	5.2	4.4
06	4.8	6.0	5.5	6.0	4.9	4.0	3.5	2.4	1.9	2.3	3.1	5.0	4.1
07	4.6	5.8	5.3	5.5	4.4	3.7	3.2	2.2	1.8	2.1	2.9	4.8	3.9
08	4.6	5.9	5.8	5.8	5.0	4.9	4.4	2.9	2.2	2.1	3.4	4.8	4.3
09	6.1	7.9	8.5	7.7	6.8	7.3	6.9	5.7	4.2	3.2	5.9	6.4	6.4
10	8.7	11.1	10.7	9.8	8.2	8.0	7.9	7.5	6.2	5.6	7.8	8.9	8.4
11	10.6	13.4	12.7	11.8	9.3	8.6	8.3	8.0	7.0	6.8	9.2	10.9	9.7
12	12.3	14.9	14.2	13.4	10.5	9.7	8.9	8.4	7.5	7.6	10.1	12.2	10.8
13	13.5	15.7	15.2	14.6	11.5	11.2	10.1	9.2	7.8	8.2	10.5	13.0	11.7
14	14.1	16.6	15.9	15.2	12.1	12.6	11.7	10.2	8.2	8.6	10.8	13.4	12.5
15	14.3	16.9	16.4	15.7	13.0	13.6	13.2	11.3	8.8	8.8	10.8	13.5	13.0
16	14.0	16.7	16.6	16.3	13.3	14.1	13.9	11.9	9.1	8.8	10.6	13.0	13.2
17	13.1	16.0	16.4	16.9	13.8	14.4	14.4	12.1	8.9	8.5	9.5	11.7	13.0
18	10.4	13.8	15.5	16.9	14.2	14.3	13.8	11.9	8.3	7.3	6.5	8.5	11.8
19	8.3	10.6	11.9	15.6	14.1	14.3	13.1	10.8	6.2	4.9	5.6	7.4	10.2
20	7.7	9.6	10.4	13.2	12.3	12.7	11.1	7.8	4.4	3.9	5.4	7.2	8.8
21	7.5	8.7	9.8	12.3	10.9	10.1	8.8	6.1	3.7	3.9	5.4	7.3	7.9
22	7.3	8.7	9.5	11.5	10.2	9.0	7.8	5.5	3.5	4.0	5.4	7.2	7.5
23	7.2	8.4	9.1	10.8	9.9	8.4	7.7	5.3	3.3	4.0	5.1	7.0	7.2
Media	8.4	10.4	10.5	11.2	9.6	9.2	8.5	6.8	4.9	4.9	6.3	8.2	8.2

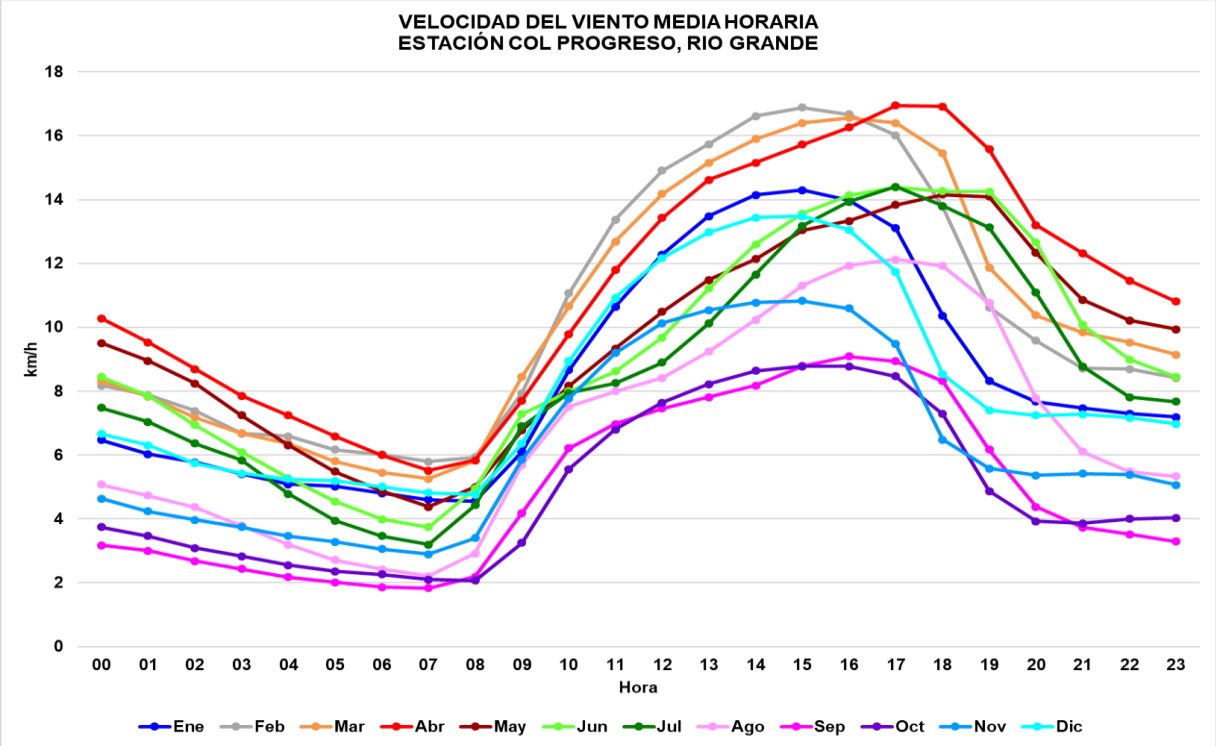


Figura 220. Velocidad del viento media (km/h) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 245. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	47.3	48.0	53.0	43.0	38.4	37.0	34.0	36.3	32.0	29.3	40.0	48.6	53.0
01	44.3	45.3	60.0	46.0	37.1	33.2	32.0	41.4	39.0	27.5	41.0	50.0	60.0
02	56.8	43.2	46.3	41.0	37.0	29.0	37.0	25.0	41.0	25.7	36.0	54.4	56.8
03	46.1	46.0	54.0	43.0	32.1	30.0	33.0	25.4	31.0	34.5	43.0	51.8	54.0
04	49.4	52.0	44.0	34.0	27.5	26.6	28.1	22.7	24.0	31.2	42.0	49.0	52.0
05	39.2	55.0	48.3	35.6	29.7	23.0	24.6	19.9	27.0	25.0	37.0	50.0	55.0
06	35.1	67.0	48.9	42.1	30.6	23.6	32.6	25.1	22.0	26.1	39.0	47.0	67.0
07	32.0	68.0	57.0	42.8	28.8	24.0	28.9	19.7	29.0	21.5	30.0	46.0	68.0
08	41.1	62.0	55.0	42.6	31.3	25.6	28.3	23.2	27.0	27.1	29.0	50.3	62.0
09	48.0	68.0	60.0	44.9	36.5	39.0	26.2	27.2	27.0	25.4	39.5	54.7	68.0
10	54.5	60.0	58.0	44.4	37.7	48.0	32.0	24.9	26.0	29.0	45.1	59.6	60.0
11	55.0	62.0	59.0	58.4	44.5	43.0	34.0	31.0	24.2	34.1	72.5	58.7	72.5
12	58.0	66.0	58.0	57.6	53.1	41.0	34.4	30.3	42.0	27.0	54.5	63.9	66.0
13	69.5	63.0	61.0	62.4	50.7	42.2	42.0	28.1	25.0	34.3	58.2	64.3	69.5
14	56.7	60.7	53.0	54.0	48.4	40.1	44.7	36.3	32.0	40.9	50.0	60.8	60.8
15	59.6	59.6	54.8	51.4	52.7	46.3	43.5	42.6	46.6	38.5	57.0	74.9	74.9
16	53.0	55.5	55.0	53.5	49.0	45.0	46.5	39.1	38.9	40.0	55.0	70.4	70.4
17	49.4	55.1	55.7	59.8	48.8	47.5	43.8	42.2	30.0	36.0	57.0	56.9	59.8
18	45.0	57.9	52.6	58.1	50.8	51.6	43.4	46.7	61.0	30.2	45.0	55.1	61.0
19	52.1	73.8	47.0	50.3	42.3	41.0	45.4	44.0	59.0	29.4	46.0	48.1	73.8
20	51.6	52.7	50.0	39.0	43.0	40.1	42.0	41.9	60.0	33.3	43.0	48.7	60.0
21	36.0	53.1	44.6	37.0	37.0	43.0	47.0	39.5	46.0	27.0	43.0	40.2	53.1
22	43.8	53.5	42.0	39.5	43.1	42.0	38.9	39.1	35.0	34.1	47.0	53.6	53.6
23	50.0	46.0	53.0	38.8	45.6	38.0	37.4	28.7	36.0	26.8	45.0	59.6	59.6
Máx.	69.5	73.8	61.0	62.4	53.1	51.6	47.0	46.7	61.0	40.9	72.5	74.9	74.9

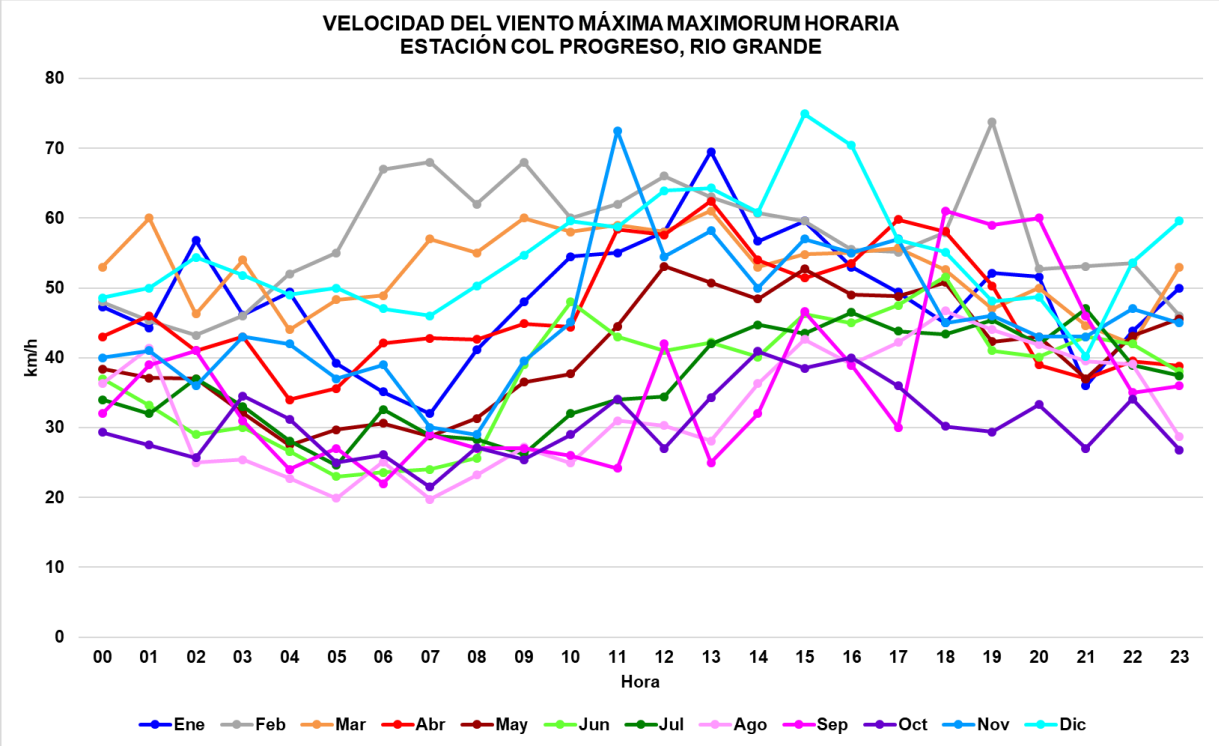


Figura 221. Velocidad del viento máxima maximorum (km/h) horaria de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 246. Frecuencia de velocidad del viento (%) mensual de la estación Col Progreso, Rio Grande (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	44.4	32.3	30.4	27.2	28.6	32.6	35.6	45.9	59.7	62.1	54.1	47.0	41.9
5.1 a 10.0	26.6	28.4	27.9	25.6	31.5	26.3	28.2	27.7	26.8	25.6	26.1	25.3	27.2
10.1 a 15.0	13.6	16.3	17.7	19.9	20.4	22.5	20.4	18.2	11.5	9.4	11.7	13.6	16.2
15.1 a 20.0	7.4	9.9	11.3	14.2	11.8	12.9	11.1	6.6	1.6	2.1	4.8	6.6	8.3
20.1 a 25.0	3.9	5.7	6.5	7.4	5.1	4.3	3.9	1.3	0.2	0.6	2.2	3.8	3.7
25.1 a 30.0	2.0	3.3	3.0	3.5	1.9	1.0	0.8	0.2	0.1	0.1	0.6	1.7	1.5
30.1 a 35.0	1.0	2.1	1.5	1.4	0.5	0.2	0.1	0.0	0.0	0.0	0.2	0.9	0.6
35.1 a 40.0	0.5	1.0	0.9	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.6	0.3
40.1 a 45.0	0.3	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
45.1 a 50.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
>50	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

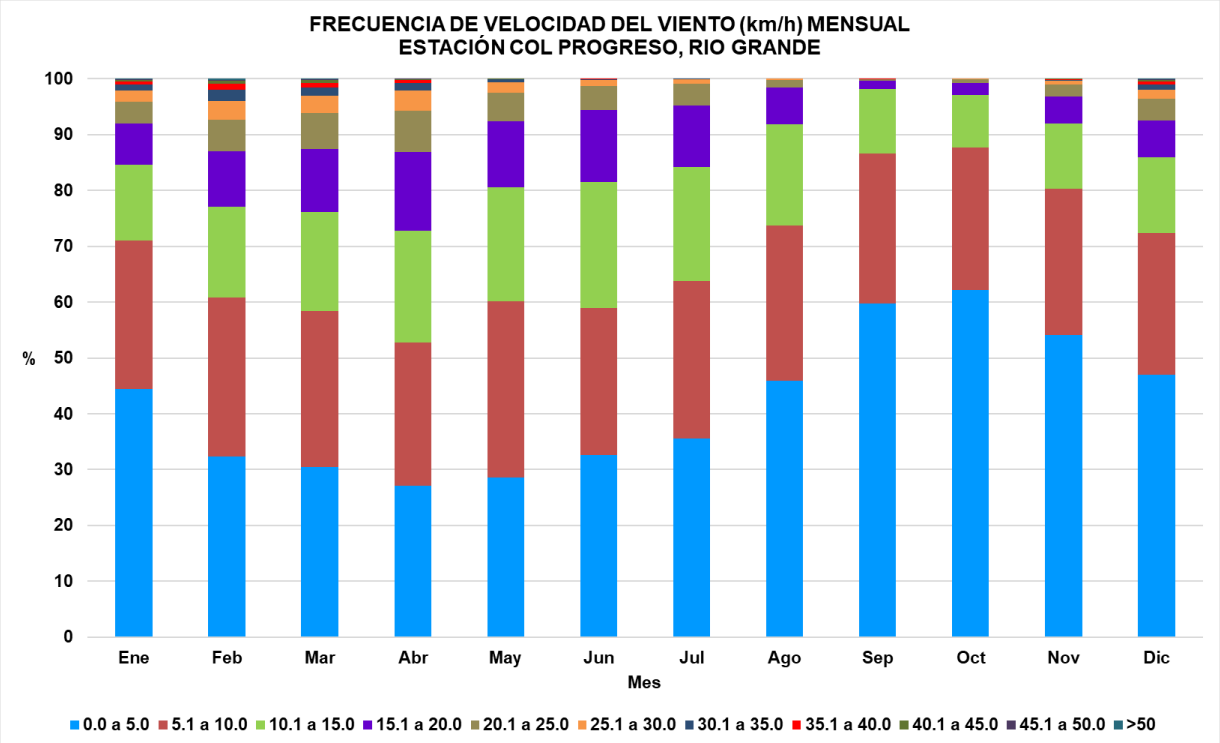


Figura 222. Frecuencia de velocidad del viento (%) mensual de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 247. Frecuencia de dirección del viento (%) mensual de la estación Col Progreso, Rio Grande (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.0	3.4	3.8	3.3	4.5	7.4	5.2	6.6	9.3	6.7	5.1	3.5	5.3
NNE	3.7	3.1	3.2	3.2	4.5	7.1	5.3	6.3	8.2	6.0	4.5	3.3	4.9
NE	3.5	3.0	3.1	2.8	4.5	7.8	7.0	7.9	8.7	6.6	4.5	3.2	5.3
ENE	4.1	3.3	3.5	3.3	4.9	9.6	10.3	11.5	10.8	7.9	5.3	3.7	6.6
E	4.0	3.5	3.7	3.2	4.9	9.7	11.8	11.2	9.6	6.8	5.2	3.6	6.5
ESE	3.4	3.1	3.4	2.9	4.0	6.0	7.0	6.5	5.2	4.2	3.7	3.2	4.4
SE	3.0	3.1	3.3	3.0	3.8	4.4	4.6	4.2	3.5	3.4	3.2	2.9	3.6
SSE	3.3	3.4	3.5	3.8	3.9	3.7	3.7	3.1	2.8	2.8	2.9	3.0	3.3
S	4.5	4.8	5.0	5.3	4.8	3.4	3.5	2.8	2.6	3.2	3.8	4.6	4.0
SSO	10.6	11.2	10.2	11.2	8.7	5.8	6.7	4.6	4.5	5.9	7.5	11.2	8.1
SO	15.5	17.7	16.8	19.1	13.6	8.0	9.0	6.6	5.9	8.2	11.1	15.1	12.1
OSO	15.3	18.1	18.3	18.7	15.5	6.8	7.0	6.9	6.0	10.0	14.1	16.1	12.6
O	11.4	10.4	10.4	9.5	9.8	6.2	6.2	7.1	6.6	10.5	12.9	12.7	9.5
ONO	5.8	5.0	4.8	4.4	5.3	4.9	4.5	5.3	5.6	7.1	6.9	6.3	5.5
NO	4.3	3.9	3.7	3.2	4.0	4.4	4.2	4.7	5.0	5.4	4.9	4.3	4.3
NNO	3.6	3.2	3.4	3.0	3.4	4.7	3.9	4.8	5.8	5.1	4.4	3.4	4.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

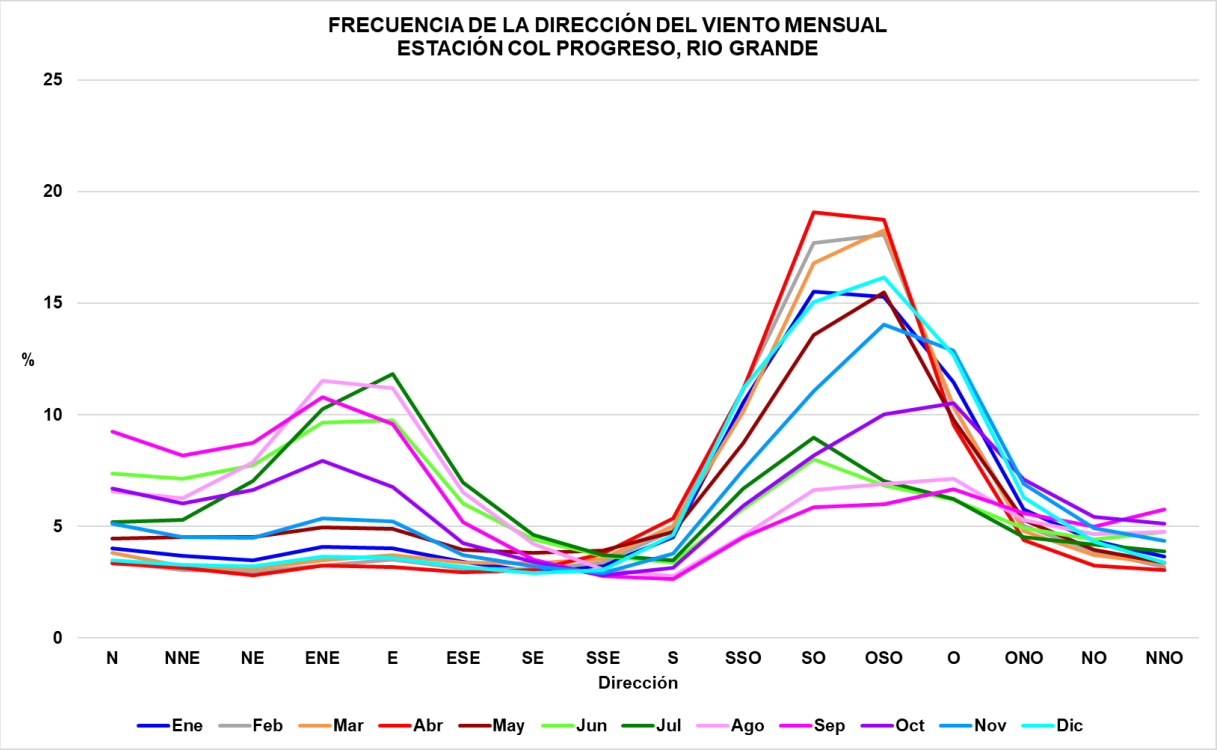
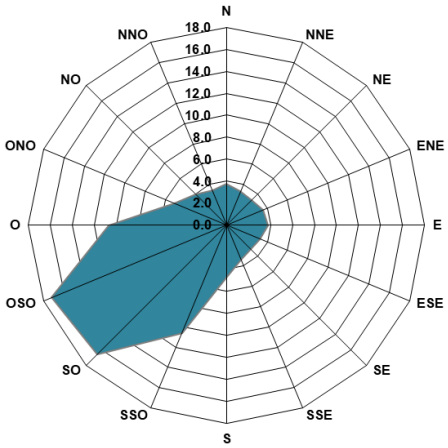


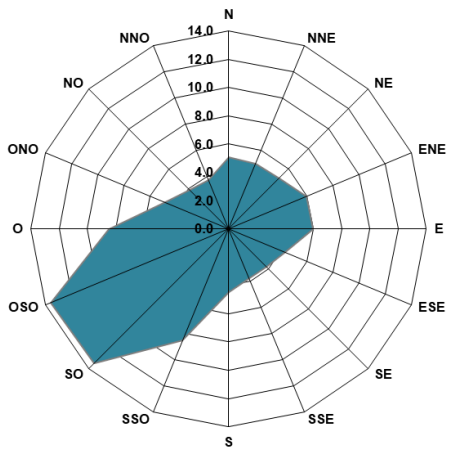
Figura 223. Frecuencia de dirección del viento (%) mensual de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 248. Frecuencia de dirección del viento (%) trimestral de la estación Col Progreso, Rio Grande (2002-2022).

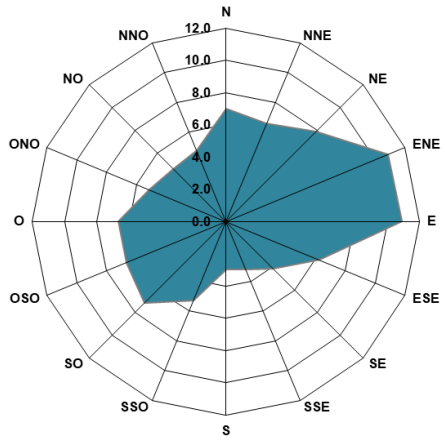
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.8	5.1	7.0	5.1	5.3
NNE	3.3	5.0	6.6	4.6	4.9
NE	3.2	5.1	7.9	4.8	5.3
ENE	3.6	6.0	10.9	5.7	6.6
E	3.8	6.0	10.9	5.2	6.5
ESE	3.3	4.3	6.2	3.7	4.4
SE	3.1	3.8	4.1	3.2	3.6
SSE	3.4	3.8	3.2	2.9	3.3
S	4.8	4.5	3.0	3.8	4.0
SSO	10.6	8.5	5.3	8.2	8.1
SO	16.6	13.4	7.2	11.4	12.1
OSO	17.2	13.6	6.7	13.4	12.6
O	10.7	8.5	6.7	12.0	9.5
ONO	5.2	4.9	5.1	6.8	5.5
NO	4.0	3.9	4.6	4.9	4.3
NNO	3.4	3.7	4.8	4.3	4.1
Suma	100.0	100.0	100.0	100.0	100.0



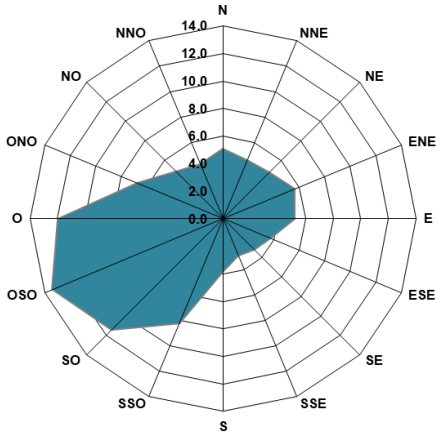
Ene-Mar



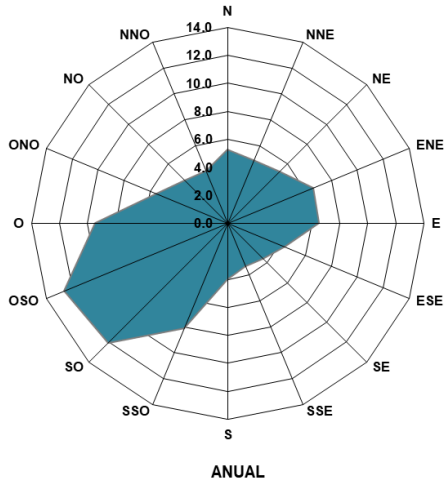
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 224. Frecuencia de dirección del viento (%) trimestral de la estación Col Progreso, Rio Grande (2002-2022).

Cuadro 249. Estadísticas climatológicas mensuales de la estación Col Progreso, Rio Grande (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.3	22.8	25.3	28.2	29.9	29.0	26.6	26.7	24.8	25.0	23.0	21.2	25.2
Temperatura máxima maximorum (°C)	27.2	31.7	33.5	34.4	35.9	34.8	33.5	31.9	31.9	30.0	31.0	28.4	35.9
Temperatura mínima media (°C)	1.9	3.8	5.4	8.7	11.5	13.3	13.4	12.8	11.8	7.7	3.9	2.2	8.0
Temperatura mínima minimorum (°C)	-12.4	-9.5	-8.4	-2.5	1.3	6.0	8.2	6.6	2.8	-3.4	-10.9	-12.5	-12.5
Temperatura media (°C)	10.9	13.4	16.0	19.2	21.4	21.2	19.6	19.3	17.6	16.0	13.2	11.4	16.6
Oscilación térmica (°C)	18.4	19.0	19.9	19.5	18.5	15.7	13.2	13.9	12.9	17.2	19.1	19.0	17.2
Precipitación acumulada media (mm)	11.8	10.5	4.4	3.1	11.6	59.3	114.0	94.3	119.0	30.9	11.6	7.5	478.1
Precipitación máxima maximorum en 24 horas (mm)	28.0	44.0	26.0	20.2	20.9	52.4	75.0	46.0	79.5	59.8	19.6	25.9	79.5
Número de días promedio con lluvia	4.3	3.4	3.3	2.1	4.2	10.7	16.8	16.7	15.5	8.1	3.6	3.4	92.1
Evapotranspiración acumulada potencial media (mm)	106.5	131.8	177.3	198.9	208.7	177.6	160.7	157.7	125.6	129.0	110.1	107.4	1791.3
Humedad máxima media (%)	73.1	63.0	52.6	47.1	56.9	77.6	90.8	92.5	95.9	91.5	82.6	73.2	74.7
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.4	16.0	11.8	9.8	12.1	22.7	33.0	34.8	44.2	31.2	23.6	19.6	23.3
Humedad mínima minimorum (%)	3.0	3.0	2.3	2.0	2.4	4.0	9.0	14.0	13.0	6.8	4.0	3.0	2.0
Humedad media (%)	45.6	36.8	28.8	24.6	30.7	48.9	63.8	66.3	75.2	63.8	52.6	45.0	48.5
Radiación global media día/mes (W/m^2)	17976.0	21807.9	25548.9	28134.2	28600.6	27064.8	25263.6	25254.1	22422.9	21985.8	19021.3	17150.7	23352.6
Radiación global media día/mes (kWh/m^2)	4.5	5.5	6.4	7.0	7.2	6.8	6.3	6.3	5.6	5.5	4.8	4.3	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.2	19.6	23.0	25.3	25.7	24.4	22.7	22.7	20.2	19.8	17.1	15.4	21.0
Velocidad del viento máxima media (km/h)	21.8	25.4	25.4	26.7	25.2	26.1	25.8	22.5	16.9	15.2	17.6	20.7	22.4
Velocidad del viento máxima maximorum (km/h)	69.5	73.8	61.0	62.4	53.1	51.6	47.0	46.7	61.0	40.9	72.5	74.9	74.9
Velocidad del viento media (km/h)	8.4	10.4	10.5	11.2	9.6	9.2	8.5	6.8	4.9	4.9	6.3	8.2	8.2
Dirección dominante del viento	S	S	SSO	SSO	SSO	E	E	E	E	S	SSO	S	SSO

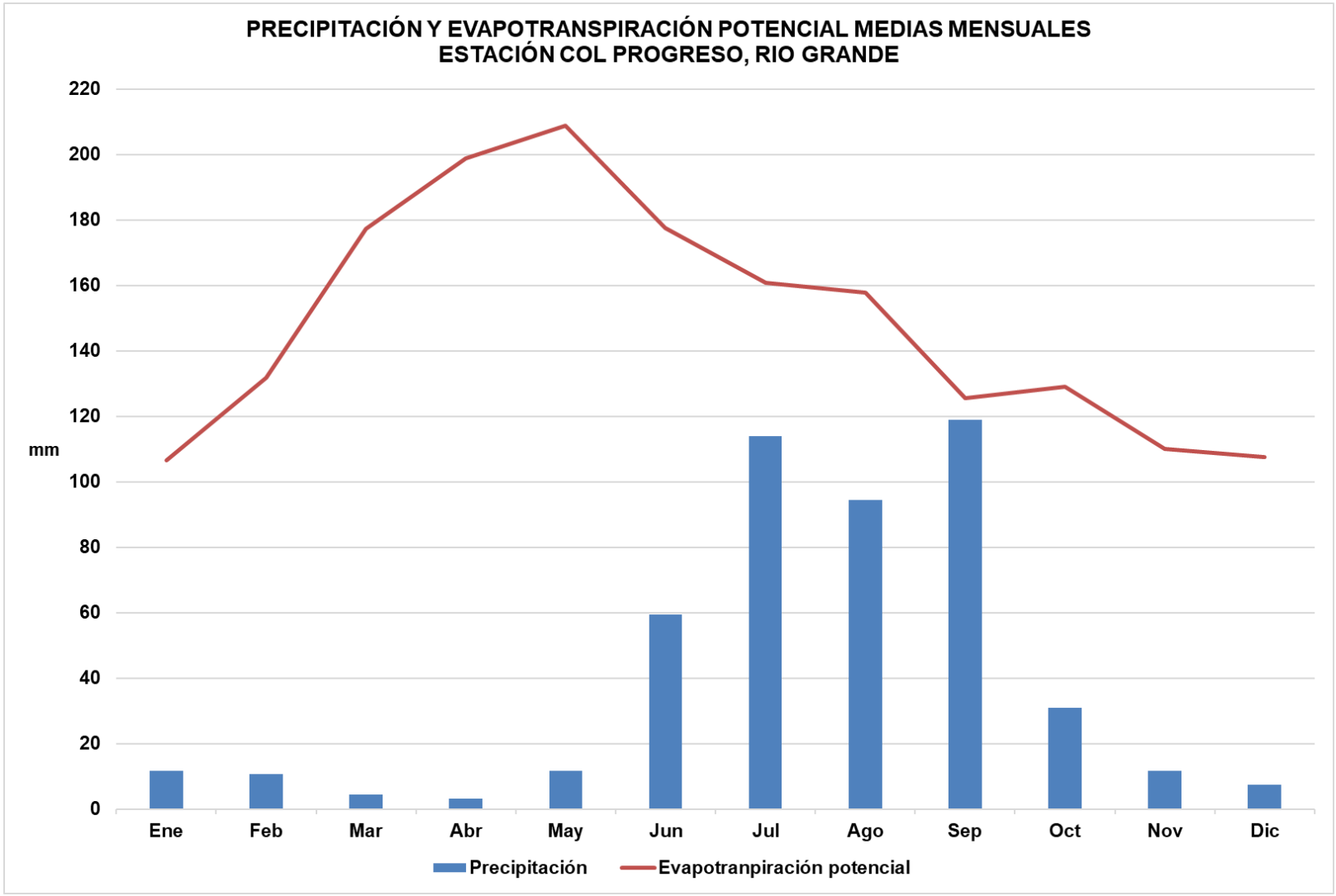


Figura 225. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Col Progreso, Rio Grande (2002-2022).

7.14. Estación: El Alpino, Ojocaliente

Cuadro 250. Temperatura máxima media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.9	10.3	12.9	16.9	18.6	17.9	16.4	16.5	15.0	12.7	9.0	7.4	13.5
01	6.9	9.2	11.7	15.6	17.4	17.0	15.6	15.6	14.5	11.8	8.0	6.4	12.5
02	6.1	8.2	10.5	14.3	16.1	16.1	15.0	14.8	14.0	11.0	7.2	5.6	11.6
03	5.4	7.3	9.3	13.1	14.8	15.4	14.4	14.2	13.5	10.4	6.5	5.1	10.8
04	4.8	6.4	8.4	11.9	13.6	14.6	13.9	13.7	13.1	9.9	5.9	4.5	10.1
05	4.2	5.7	7.4	10.7	12.6	13.9	13.4	13.2	12.8	9.4	5.6	4.0	9.4
06	3.7	5.1	6.8	9.7	11.6	13.3	13.0	12.8	12.5	9.0	5.3	3.5	8.9
07	3.7	5.7	9.1	10.6	12.8	14.4	13.5	13.1	12.7	9.6	7.4	4.5	9.8
08	7.6	10.4	14.0	15.1	17.4	17.5	16.3	16.1	15.2	13.1	12.5	9.3	13.7
09	11.7	14.3	17.4	18.8	20.3	19.7	18.5	18.7	17.8	16.8	15.8	13.2	16.9
10	14.7	17.2	20.2	21.7	22.9	21.8	20.3	20.6	19.8	19.4	18.5	16.1	19.4
11	17.2	19.7	22.4	24.1	25.3	23.7	22.1	22.3	21.6	21.5	20.5	18.5	21.6
12	18.9	21.4	24.1	26.0	27.2	25.4	23.6	23.8	22.9	23.1	22.0	20.1	23.2
13	20.2	22.6	25.1	27.3	28.5	26.7	24.7	24.9	24.0	24.2	22.9	21.2	24.4
14	20.9	23.3	25.8	28.1	29.2	27.5	25.4	25.8	24.6	24.9	23.3	21.8	25.1
15	21.1	23.6	25.9	28.5	29.6	27.9	25.8	26.2	24.8	25.2	23.4	21.8	25.3
16	20.9	23.4	25.7	28.4	29.6	27.9	25.7	26.2	24.6	24.9	22.9	21.4	25.1
17	20.1	22.7	25.1	28.0	29.2	27.5	25.3	25.7	24.0	24.2	21.5	20.3	24.5
18	18.0	21.1	23.6	27.1	28.3	26.5	24.4	24.6	22.9	22.7	18.4	17.3	22.9
19	14.7	17.7	20.6	25.4	26.8	25.1	23.0	23.2	21.1	20.0	15.5	14.2	20.6
20	12.8	15.5	18.1	22.7	24.3	23.2	21.1	21.0	18.7	17.3	14.0	12.5	18.4
21	11.4	14.1	16.6	20.5	22.0	21.2	19.4	19.4	17.5	16.0	12.7	11.2	16.8
22	10.2	12.9	15.5	19.3	20.7	20.0	18.2	18.3	16.5	14.8	11.3	9.7	15.6
23	9.0	11.7	14.2	18.2	19.6	18.9	17.3	17.4	15.6	13.6	10.0	8.6	14.5
Media	12.2	14.6	17.1	20.1	21.6	21.0	19.4	19.5	18.3	16.9	14.2	12.4	17.3

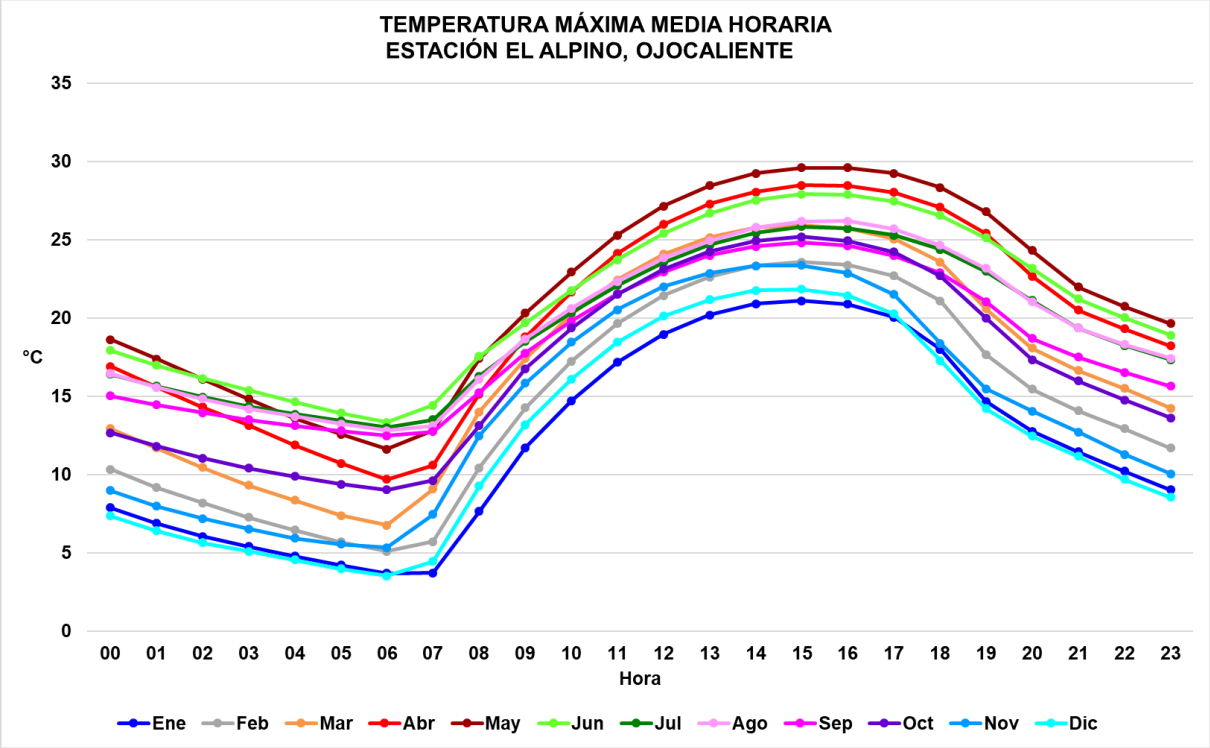


Figura 226. Temperatura máxima media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 251. Temperatura máxima maximorum (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.3	20.4	20.4	24.2	25.7	24.6	22.9	21.2	19.5	21.1	16.9	15.9	25.7
01	14.4	17.5	20.2	23.3	24.4	22.5	22.0	20.6	19.0	20.8	17.3	15.0	24.4
02	13.7	16.9	19.6	22.4	22.6	21.6	20.0	20.8	18.4	20.5	14.5	14.9	22.6
03	12.8	15.9	18.2	21.5	21.8	20.9	19.8	20.0	18.5	19.9	14.6	14.5	21.8
04	12.5	15.6	18.0	20.5	21.5	19.3	19.3	19.0	17.9	19.4	14.9	13.8	21.5
05	12.1	15.3	17.2	19.9	20.1	18.6	19.7	18.3	17.5	16.8	14.4	13.3	20.1
06	11.8	15.6	14.8	19.2	18.6	18.0	17.4	17.9	17.4	16.5	14.6	12.7	19.2
07	12.2	15.2	17.2	19.3	21.4	20.7	18.8	18.0	17.3	16.9	16.6	15.3	21.4
08	17.0	20.3	21.6	22.9	24.4	24.1	21.0	20.9	20.0	20.5	20.2	18.3	24.4
09	19.7	23.4	25.4	26.5	27.0	27.1	23.3	23.2	22.6	23.3	23.6	22.0	27.1
10	22.3	26.0	28.5	30.0	29.1	29.3	25.9	25.9	25.1	25.8	26.0	25.2	30.0
11	24.6	27.6	29.8	31.4	31.1	31.9	28.0	28.2	27.3	27.2	27.4	26.5	31.9
12	26.9	29.0	31.1	32.6	32.8	32.9	29.7	29.9	28.4	28.8	28.6	27.8	32.9
13	27.4	30.4	32.3	33.4	34.1	33.6	30.8	31.1	29.3	30.0	29.2	28.4	34.1
14	28.1	31.4	33.2	33.7	35.2	34.4	31.8	32.0	30.0	30.5	29.9	28.7	35.2
15	28.2	31.6	33.5	34.0	35.3	34.7	32.4	32.1	30.9	30.6	29.8	28.9	35.3
16	27.7	31.4	33.4	33.9	35.5	34.5	33.0	31.9	30.7	31.1	29.7	28.5	35.5
17	27.1	30.8	32.8	33.2	35.3	34.1	32.7	32.0	30.6	30.3	28.2	26.7	35.3
18	24.8	28.9	31.5	32.4	36.0	33.5	33.3	31.4	30.6	29.5	24.0	24.2	36.0
19	20.7	24.7	27.1	31.3	34.9	32.2	30.6	29.7	27.7	28.4	22.1	20.3	34.9
20	20.4	23.7	25.5	28.9	31.0	30.3	27.8	27.6	25.1	25.4	21.0	19.5	31.0
21	20.0	22.3	23.9	27.7	29.2	29.2	26.0	25.4	23.2	24.5	20.3	18.5	29.2
22	17.5	21.4	23.2	25.5	28.3	26.8	24.7	24.6	22.4	23.6	19.2	17.1	28.3
23	17.2	20.8	21.8	25.0	27.3	26.3	23.6	23.2	21.1	21.3	19.1	16.5	27.3
Máx.	28.2	31.6	33.5	34.0	36.0	34.7	33.3	32.1	30.9	31.1	29.9	28.9	36.0

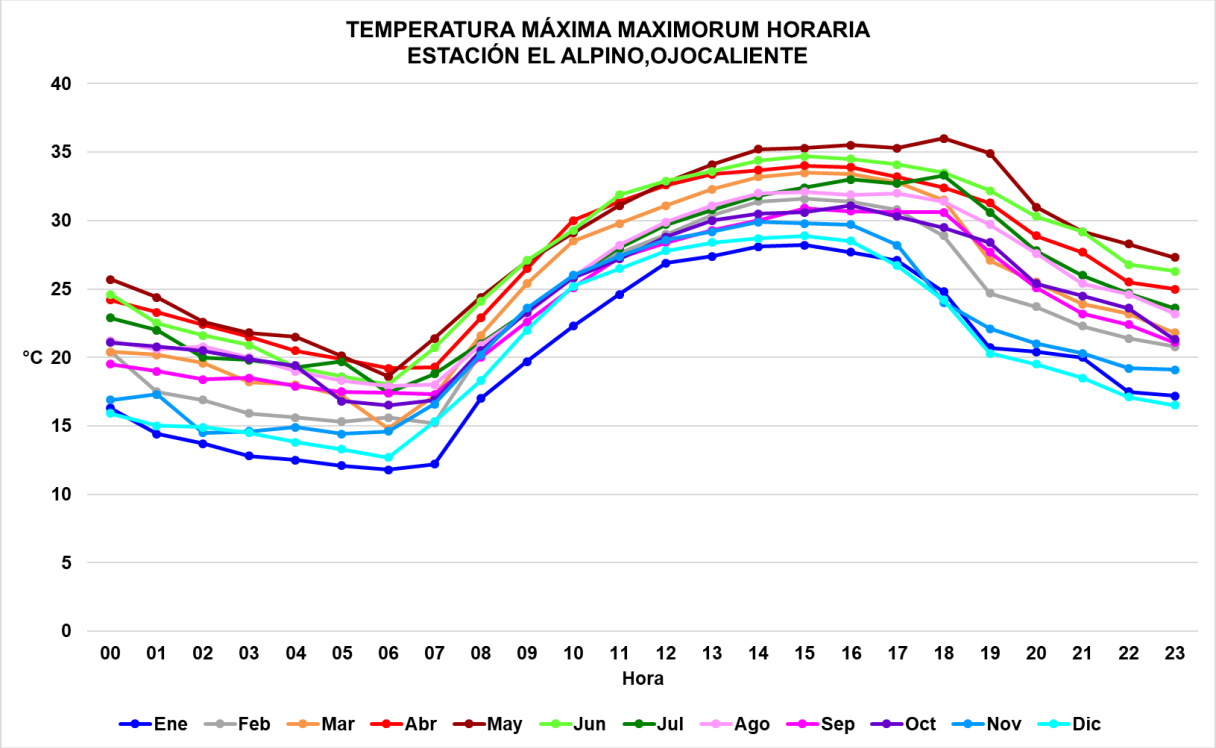


Figura 227. Temperatura máxima maximorum (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 252. Temperatura mínima media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.9	11.4	15.4	17.2	16.8	15.5	15.4	14.2	11.5	7.6	6.0	12.2
01	5.7	7.8	10.2	14.1	16.0	16.0	14.8	14.7	13.7	10.7	6.8	5.1	11.3
02	4.9	6.9	9.0	12.8	14.7	15.2	14.2	14.0	13.2	10.1	6.0	4.5	10.5
03	4.3	6.0	8.0	11.6	13.5	14.5	13.6	13.4	12.8	9.5	5.5	3.9	9.7
04	3.7	5.2	7.0	10.4	12.3	13.8	13.2	12.9	12.5	9.0	5.0	3.4	9.0
05	3.1	4.5	6.2	9.3	11.3	13.1	12.8	12.5	12.2	8.6	4.5	2.9	8.4
06	2.6	3.9	5.5	8.3	10.5	12.6	12.4	12.2	11.9	8.2	4.3	2.5	7.9
07	2.3	3.8	6.0	8.2	10.4	12.7	12.3	12.1	11.8	8.2	4.8	2.5	7.9
08	3.9	6.4	10.4	11.3	13.9	15.2	14.0	13.5	13.0	10.0	8.7	5.2	10.5
09	8.8	11.6	14.9	16.2	18.2	18.1	16.9	16.8	15.9	14.1	13.4	10.4	14.6
10	12.5	15.0	18.1	19.5	21.0	20.2	18.9	19.1	18.2	17.4	16.5	13.9	17.5
11	15.4	17.9	20.8	22.3	23.5	22.2	20.7	20.9	20.1	19.9	19.0	16.7	20.0
12	17.6	20.1	22.8	24.6	25.7	24.0	22.3	22.6	21.7	21.8	20.8	18.8	21.9
13	19.2	21.6	24.2	26.2	27.3	25.5	23.5	23.8	22.8	23.1	22.0	20.3	23.3
14	20.1	22.6	25.0	27.2	28.2	26.4	24.3	24.6	23.3	23.9	22.5	21.1	24.1
15	20.5	23.0	25.2	27.7	28.6	26.7	24.6	24.9	23.5	24.2	22.6	21.2	24.4
16	20.1	22.7	24.9	27.7	28.7	26.6	24.4	24.9	23.3	23.9	21.8	20.6	24.1
17	18.7	21.6	23.9	27.1	28.2	26.3	23.9	24.3	22.7	22.9	19.4	18.3	23.1
18	15.3	18.6	21.5	25.8	27.0	25.2	23.0	23.2	21.4	20.7	15.8	14.6	21.0
19	12.9	15.7	18.4	23.4	24.9	23.6	21.5	21.5	19.1	17.7	14.0	12.5	18.8
20	11.3	13.9	16.6	20.7	22.1	21.5	19.5	19.5	17.5	15.9	12.6	10.9	16.8
21	10.1	12.7	15.2	19.1	20.5	20.0	18.2	18.3	16.5	14.6	11.1	9.5	15.5
22	8.8	11.4	14.0	18.0	19.4	18.9	17.2	17.3	15.5	13.4	9.9	8.2	14.3
23	7.7	10.2	12.7	16.8	18.3	17.8	16.4	16.3	14.8	12.4	8.7	7.1	13.3
Media	10.7	13.0	15.5	18.5	20.1	19.7	18.3	18.3	17.2	15.5	12.6	10.8	15.8

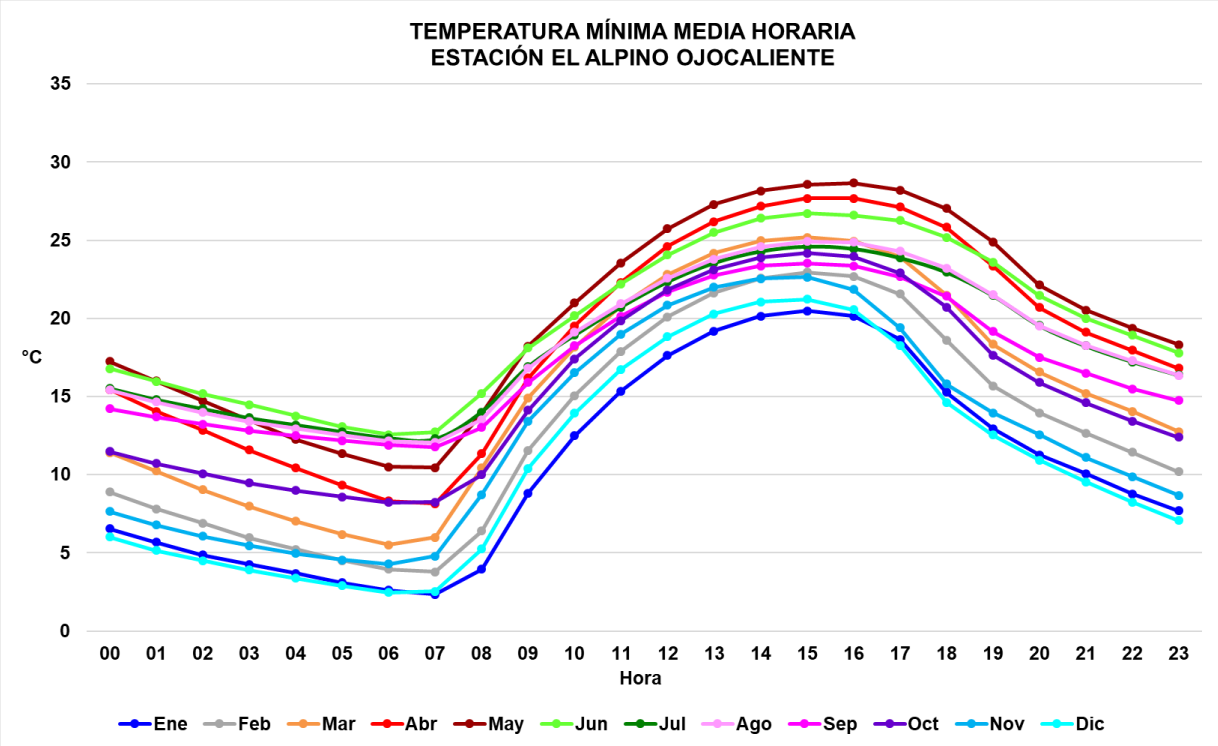


Figura 228. Temperatura mínima media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 253. Temperatura mínima minimorum (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.1	-1.1	-0.9	5.4	7.4	11.5	10.2	9.0	6.5	2.8	-4.3	-7.1	-7.1
01	-5.8	-2.6	-2.4	3.2	6.1	10.2	9.1	8.8	6.6	1.8	-4.9	-7.2	-7.2
02	-5.6	-3.4	-3.9	1.8	3.7	9.9	8.0	8.3	5.9	0.4	-6.4	-7.8	-7.8
03	-6.3	-3.8	-4.7	0.9	2.0	8.7	7.2	6.9	5.0	-0.3	-7.3	-7.7	-7.7
04	-8.1	-5.6	-5.2	-1.0	1.6	7.7	7.0	7.0	3.3	-0.9	-8.2	-8.1	-8.2
05	-9.5	-5.4	-5.3	-1.4	1.8	6.5	6.2	6.6	3.4	-1.6	-9.9	-9.0	-9.9
06	-10.0	-6.6	-5.7	-2.0	1.3	5.5	5.6	6.6	3.2	-2.6	-11.1	-11.1	-11.1
07	-10.3	-6.5	-6.4	-2.1	1.1	6.0	5.8	6.4	1.9	-3.0	-10.0	-11.5	-11.5
08	-9.9	-2.8	-0.6	2.1	4.2	9.7	7.9	7.8	3.0	-2.6	-4.4	-7.8	-9.9
09	-1.6	0.2	1.9	7.3	10.3	13.5	12.5	12.8	10.1	4.5	0.6	-1.9	-1.9
10	0.2	3.0	5.6	10.9	10.8	14.1	14.2	14.2	11.6	6.1	1.6	0.5	0.2
11	0.2	6.1	2.2	13.6	10.1	15.0	15.0	15.5	15.2	7.8	3.6	-0.2	-0.2
12	0.5	7.3	3.6	15.6	11.7	15.2	15.6	15.9	14.7	9.1	4.6	-0.8	-0.8
13	1.1	7.4	3.4	16.1	14.7	16.2	15.0	14.8	15.1	9.6	4.7	-1.6	-1.6
14	2.4	7.6	4.0	14.8	14.7	15.8	13.9	14.8	13.7	10.1	4.9	-1.8	-1.8
15	4.0	7.5	5.2	11.6	13.2	15.4	12.6	13.6	14.4	11.3	4.8	-1.4	-1.4
16	3.9	7.3	6.0	13.3	14.1	13.9	12.6	12.1	12.8	9.9	5.4	-0.9	-0.9
17	3.6	7.3	6.3	11.5	14.2	14.1	14.1	13.2	14.2	9.7	4.1	-1.1	-1.1
18	3.4	6.7	5.5	7.9	14.2	14.7	14.2	13.7	14.2	9.4	2.5	-1.7	-1.7
19	3.0	6.4	3.5	9.4	12.7	13.4	14.0	13.7	13.9	9.3	1.7	-2.0	-2.0
20	2.1	4.4	1.6	9.7	13.6	12.4	12.9	13.8	12.2	8.0	-1.0	-3.4	-3.4
21	1.5	2.1	1.0	9.8	12.0	13.2	12.5	12.6	9.9	5.9	-1.5	-4.6	-4.6
22	-2.3	0.3	1.5	7.8	9.6	12.2	12.4	12.0	7.3	4.3	-2.1	-5.7	-5.7
23	-2.7	-0.6	0.9	5.1	9.4	12.1	11.4	9.9	6.3	2.7	-4.2	-6.4	-6.4
Mín.	-10.3	-6.6	-6.4	-2.1	1.1	5.5	5.6	6.4	1.9	-3.0	-11.1	-11.5	-11.5

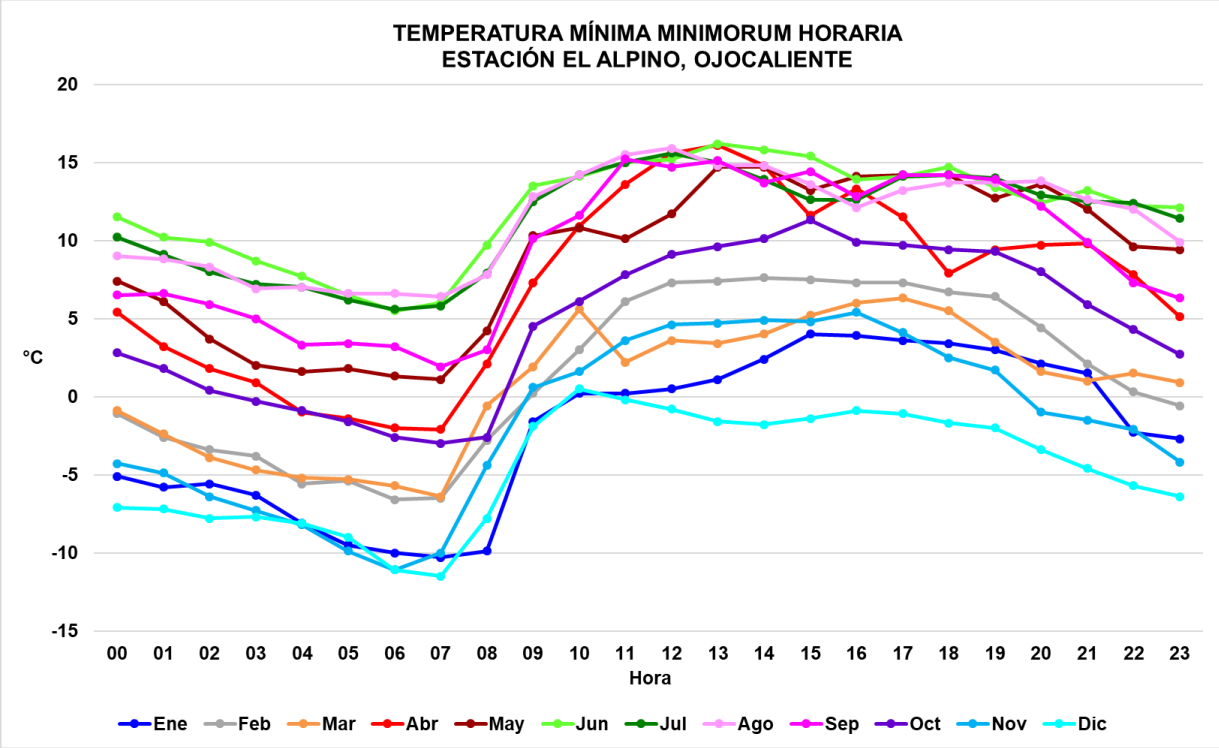


Figura 229. Temperatura mínima minimorum (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 254. Temperatura media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	9.6	12.2	16.2	17.9	17.4	16.0	15.9	14.6	12.1	8.3	6.7	12.8
01	6.3	8.5	11.0	14.8	16.7	16.5	15.2	15.1	14.1	11.3	7.4	5.8	11.9
02	5.5	7.5	9.7	13.6	15.4	15.7	14.6	14.4	13.6	10.5	6.6	5.1	11.0
03	4.8	6.6	8.6	12.4	14.2	14.9	14.0	13.8	13.2	9.9	6.0	4.5	10.2
04	4.2	5.8	7.7	11.1	12.9	14.2	13.5	13.3	12.8	9.4	5.4	3.9	9.5
05	3.6	5.1	6.8	10.0	12.0	13.5	13.1	12.9	12.5	9.0	5.0	3.4	8.9
06	3.2	4.5	6.1	9.0	11.0	13.0	12.7	12.5	12.2	8.6	4.8	3.0	8.4
07	3.0	4.7	7.4	9.3	11.5	13.5	12.8	12.5	12.2	8.9	6.0	3.4	8.8
08	5.8	8.4	12.3	13.3	15.7	16.4	15.2	14.8	14.1	11.5	10.7	7.3	12.1
09	10.3	12.9	16.2	17.5	19.3	18.9	17.7	17.8	16.9	15.5	14.7	11.8	15.8
10	13.6	16.2	19.2	20.6	22.0	21.0	19.6	19.8	19.0	18.4	17.5	15.0	18.5
11	16.3	18.8	21.6	23.2	24.4	23.0	21.4	21.6	20.9	20.7	19.8	17.6	20.8
12	18.3	20.8	23.5	25.3	26.5	24.7	23.0	23.2	22.3	22.5	21.4	19.5	22.6
13	19.7	22.1	24.7	26.7	27.9	26.1	24.1	24.4	23.4	23.7	22.4	20.7	23.8
14	20.5	23.0	25.4	27.6	28.7	27.0	24.9	25.2	24.0	24.4	22.9	21.4	24.6
15	20.8	23.3	25.6	28.1	29.1	27.3	25.2	25.5	24.2	24.7	23.0	21.5	24.9
16	20.5	23.1	25.3	28.1	29.1	27.3	25.1	25.6	24.0	24.5	22.4	21.0	24.7
17	19.4	22.2	24.5	27.6	28.7	26.9	24.6	25.0	23.3	23.6	20.5	19.3	23.8
18	16.6	19.9	22.6	26.5	27.7	25.9	23.7	23.9	22.2	21.7	17.0	15.9	22.0
19	13.8	16.6	19.4	24.4	25.9	24.4	22.2	22.3	20.1	18.8	14.7	13.4	19.7
20	12.0	14.7	17.3	21.6	23.2	22.3	20.3	20.2	18.1	16.6	13.3	11.7	17.6
21	10.8	13.4	15.9	19.8	21.2	20.6	18.8	18.8	17.0	15.3	11.9	10.4	16.2
22	9.5	12.2	14.8	18.6	20.1	19.5	17.7	17.8	16.0	14.1	10.6	9.0	15.0
23	8.4	11.0	13.5	17.5	19.0	18.4	16.8	16.9	15.2	13.0	9.3	7.8	13.9
Media	11.4	13.8	16.3	19.3	20.8	20.3	18.8	18.9	17.7	16.2	13.4	11.6	16.6

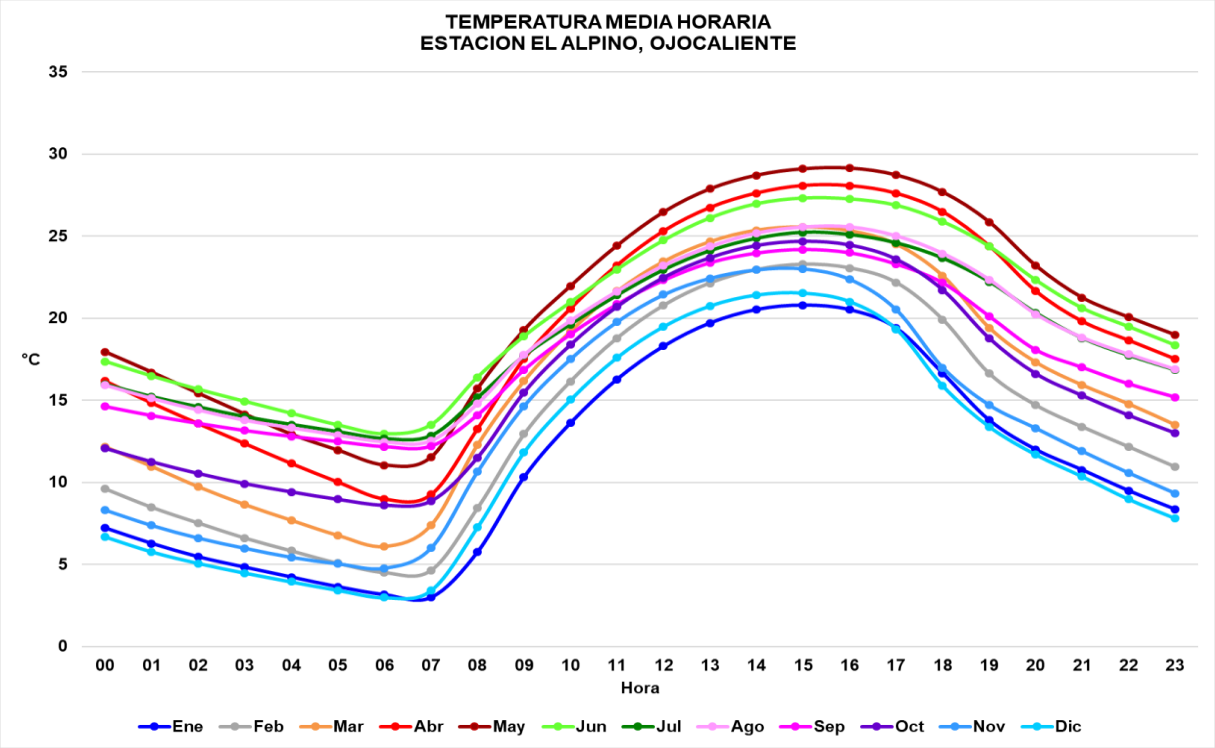


Figura 230. Temperatura media (˚C) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 255. Precipitación media (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.6	0.4	0.0	0.9	5.7	5.1	4.0	5.8	1.0	0.6	0.2	24.9
01	0.5	0.6	0.2	0.1	0.3	6.2	3.5	2.9	6.1	2.1	0.4	0.2	22.9
02	0.5	0.5	0.2	0.0	0.7	4.0	7.1	3.0	4.9	2.0	0.2	0.5	23.7
03	0.4	0.6	0.4	0.0	0.4	5.7	3.9	3.3	3.1	2.1	0.2	0.6	20.6
04	0.2	0.2	0.1	0.0	0.1	3.5	1.8	1.7	3.4	0.6	0.4	0.3	12.5
05	0.6	0.4	0.1	0.0	0.1	1.3	1.8	2.1	2.1	0.6	0.3	0.5	9.8
06	0.3	0.6	0.2	0.0	0.1	1.0	1.9	1.2	1.6	0.6	0.4	0.5	8.5
07	0.4	0.5	0.1	0.1	0.0	0.6	1.3	0.8	1.6	1.1	0.2	0.4	7.2
08	0.3	0.3	0.1	0.1	0.0	0.9	0.6	0.7	0.5	0.3	0.2	0.3	4.4
09	0.3	0.3	0.4	0.0	0.1	0.5	0.7	0.3	0.5	0.2	0.2	0.3	3.8
10	0.3	0.3	0.1	0.0	0.0	0.6	0.3	0.3	0.2	0.1	0.2	0.3	2.6
11	0.2	0.5	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.2	2.1
12	0.1	0.4	0.2	0.0	0.0	0.2	1.2	0.9	0.5	0.1	0.3	0.3	4.2
13	0.6	0.4	0.3	0.1	0.4	0.3	1.3	2.1	1.1	1.9	1.0	0.3	10.0
14	0.4	0.4	0.4	0.4	0.4	0.8	3.9	1.7	2.4	1.5	0.7	0.8	13.6
15	0.6	0.6	0.6	0.7	1.1	2.7	3.7	4.0	3.4	1.4	0.7	0.6	20.0
16	0.6	0.6	0.5	0.1	0.6	4.4	5.5	4.5	5.2	1.5	1.3	0.4	25.0
17	0.2	0.7	0.4	0.6	0.8	4.0	8.0	6.7	5.1	2.7	1.0	0.2	30.3
18	0.1	0.6	0.3	2.3	2.0	4.4	8.3	5.5	4.5	2.6	1.0	0.4	31.9
19	0.3	0.6	0.8	0.3	2.5	6.3	5.5	6.8	3.8	2.9	1.3	0.6	31.5
20	0.3	0.6	0.8	2.0	1.5	6.0	6.0	5.5	6.6	2.3	1.1	0.7	33.5
21	0.6	0.5	0.7	0.4	1.5	6.5	6.6	7.0	7.4	2.3	0.8	0.4	34.5
22	0.6	0.6	0.4	0.4	1.5	5.5	6.5	6.2	5.2	1.4	0.5	0.2	29.0
23	0.6	0.6	0.5	0.3	2.6	4.1	5.6	4.6	6.0	1.8	0.7	0.2	27.6
Suma	9.4	11.9	8.3	8.0	17.7	75.4	90.1	75.5	81.1	33.1	14.0	9.4	433.9

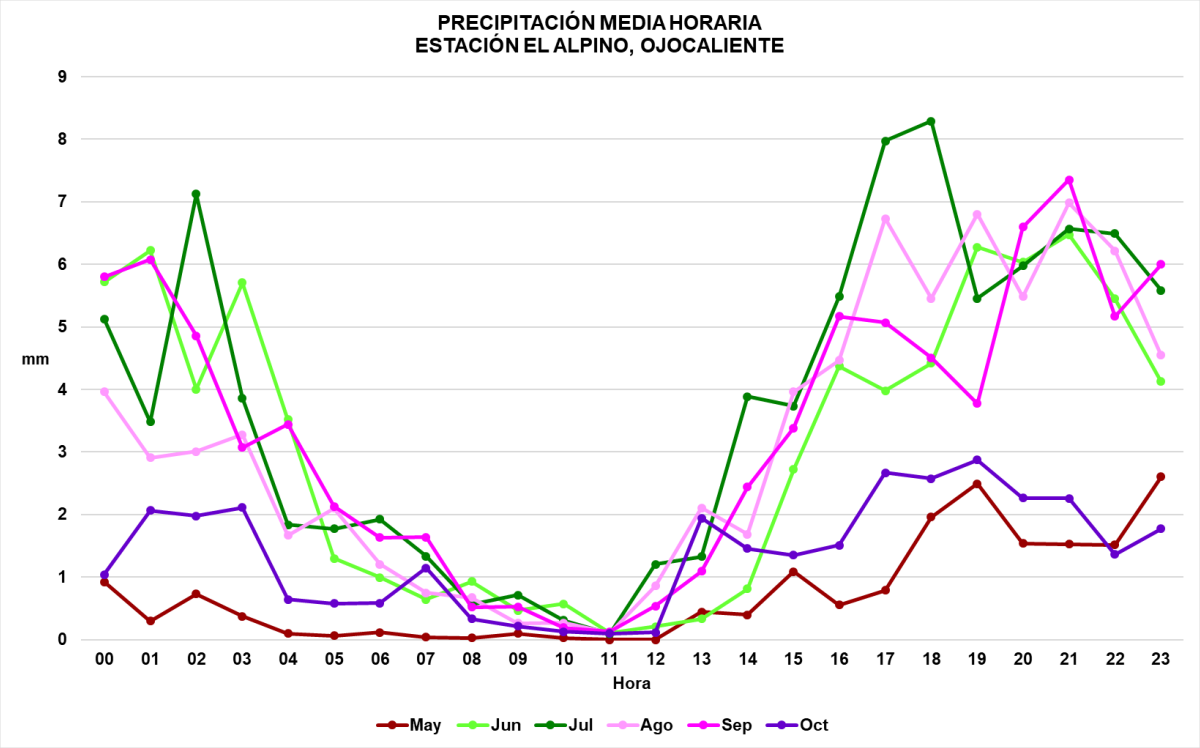


Figura 231. Precipitación media (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 256. Precipitación máxima maximorum (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.6	3.0	2.8	0.7	3.7	20.7	14.8	7.1	15.8	4.4	3.8	1.6	20.7
01	2.4	2.2	1.9	1.6	1.1	22.6	8.1	8.1	17.6	20.9	1.6	0.9	22.6
02	2.3	3.0	3.3	0.3	3.0	13.7	32.4	15.0	14.4	24.0	1.2	4.7	32.4
03	2.3	3.0	3.3	0.2	2.0	37.2	7.8	13.6	7.3	23.9	1.0	4.4	37.2
04	1.6	1.8	1.0	0.1	0.8	15.9	5.7	3.3	9.7	3.8	6.2	3.3	15.9
05	4.6	1.8	0.7	0.2	0.4	5.2	4.4	9.2	3.4	4.4	1.5	3.2	9.2
06	2.0	4.8	2.0	0.0	1.7	4.6	6.0	7.6	5.5	3.6	4.1	3.4	7.6
07	4.7	5.0	0.9	0.8	0.3	3.4	5.1	7.3	9.2	12.3	0.7	4.1	12.3
08	1.7	2.5	0.7	1.6	0.2	10.4	1.7	7.6	2.2	3.0	1.5	2.2	10.4
09	2.2	2.0	7.2	0.1	1.8	2.8	3.1	1.0	2.9	2.5	2.0	1.9	7.2
10	2.8	1.7	2.0	0.0	0.3	9.4	2.5	2.2	0.8	1.6	0.9	1.7	9.4
11	1.4	2.4	2.1	0.4	0.0	0.9	0.7	0.6	0.6	1.7	3.2	1.5	3.2
12	1.1	1.8	2.3	0.0	0.0	1.8	11.8	6.2	7.3	1.3	1.8	4.2	11.8
13	4.6	3.0	2.2	1.3	7.4	2.2	8.3	20.8	7.5	18.1	13.4	2.2	20.8
14	1.6	2.0	5.5	8.0	4.6	3.8	20.2	4.4	12.0	10.0	4.0	4.5	20.2
15	3.6	3.8	5.0	9.0	6.8	17.6	20.8	13.8	16.2	6.8	3.7	2.5	20.8
16	7.0	2.6	4.7	1.0	4.9	14.4	24.6	13.4	16.4	8.8	13.3	1.9	24.6
17	2.9	4.0	2.1	8.6	13.3	20.4	31.6	12.2	24.8	13.6	5.8	1.5	31.6
18	0.6	2.6	4.6	37.8	7.2	12.2	18.1	19.8	16.2	7.8	4.9	2.0	37.8
19	2.4	3.6	14.3	3.0	22.0	16.8	15.2	26.9	8.4	9.4	7.0	4.2	26.9
20	2.2	3.6	8.8	28.9	5.8	20.8	9.3	15.8	20.1	9.6	8.7	3.7	28.9
21	3.2	1.5	10.3	5.9	4.5	21.8	21.5	22.0	16.9	14.8	5.5	3.5	22.0
22	3.2	2.5	5.9	8.3	6.9	26.6	19.3	12.4	8.7	5.0	2.7	3.4	26.6
23	7.4	3.1	4.0	4.2	34.8	7.0	18.7	16.4	10.0	10.5	7.3	2.3	34.8
Máx.	7.4	5.0	14.3	37.8	34.8	37.2	32.4	26.9	24.8	24.0	13.4	4.7	37.8

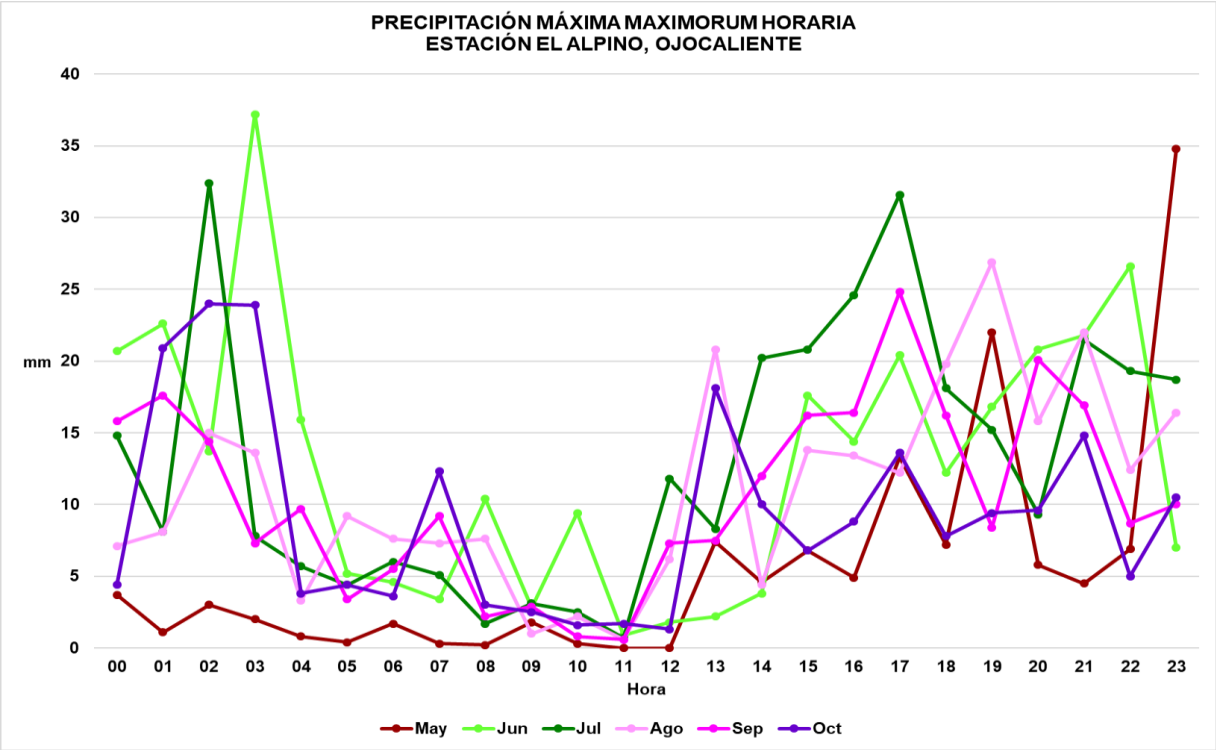


Figura 232. Precipitación máxima maximorum (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 257. Evapotranspiración potencial media (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.07	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.02
01	0.00	0.01	0.02	0.05	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
02	0.00	0.01	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.02	0.04	0.08	0.05	0.05	0.04	0.02	0.02	0.01	0.02	0.05	0.02	0.03
09	0.09	0.14	0.22	0.17	0.18	0.15	0.12	0.11	0.09	0.10	0.15	0.11	0.14
10	0.20	0.27	0.37	0.33	0.34	0.29	0.24	0.25	0.21	0.23	0.27	0.22	0.27
11	0.31	0.40	0.51	0.49	0.49	0.43	0.37	0.38	0.34	0.35	0.38	0.32	0.40
12	0.39	0.49	0.60	0.62	0.62	0.55	0.49	0.50	0.44	0.46	0.45	0.40	0.50
13	0.45	0.54	0.65	0.70	0.70	0.62	0.56	0.58	0.51	0.52	0.47	0.44	0.56
14	0.45	0.54	0.63	0.72	0.70	0.64	0.59	0.60	0.52	0.53	0.44	0.43	0.57
15	0.41	0.49	0.57	0.68	0.66	0.59	0.56	0.58	0.48	0.49	0.37	0.37	0.52
16	0.33	0.41	0.47	0.60	0.58	0.52	0.49	0.50	0.41	0.40	0.28	0.29	0.44
17	0.23	0.30	0.35	0.48	0.47	0.43	0.40	0.40	0.31	0.29	0.16	0.17	0.33
18	0.12	0.16	0.21	0.36	0.34	0.31	0.28	0.28	0.19	0.19	0.08	0.10	0.22
19	0.06	0.09	0.13	0.29	0.25	0.18	0.16	0.19	0.13	0.09	0.03	0.04	0.14
20	0.03	0.05	0.08	0.16	0.16	0.14	0.11	0.10	0.04	0.03	0.01	0.02	0.08
21	0.02	0.03	0.06	0.10	0.09	0.07	0.05	0.04	0.01	0.01	0.01	0.01	0.04
22	0.02	0.03	0.05	0.09	0.07	0.04	0.02	0.02	0.00	0.01	0.01	0.01	0.03
23	0.01	0.03	0.04	0.08	0.07	0.02	0.01	0.01	0.00	0.00	0.01	0.01	0.02
Media/día /mes	3.16	4.08	5.14	6.12	5.91	5.07	4.50	4.56	3.71	3.73	3.18	3.01	4.35

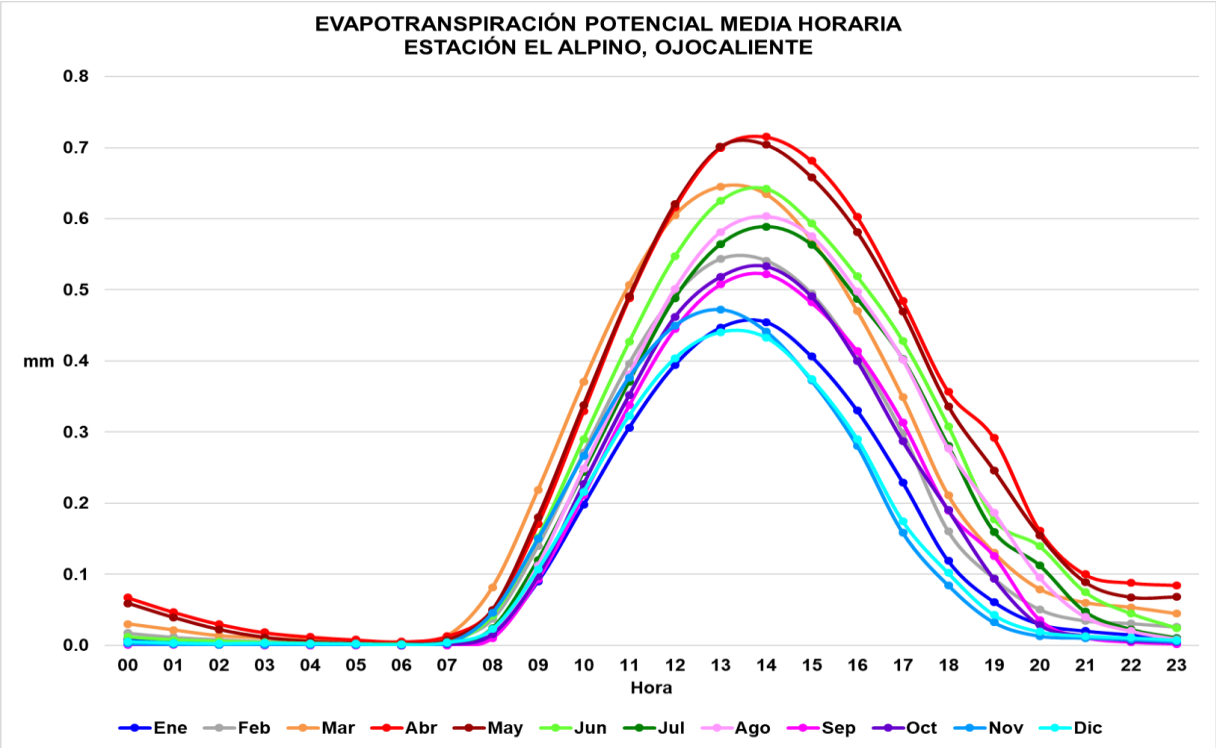


Figura 233. Evapotranspiración potencial media (mm) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 258. Humedad relativa media (%) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	59.6	50.3	41.3	34.5	44.9	67.2	79.6	79.5	87.3	78.9	72.5	62.7	63.2
01	62.8	54.1	45.0	38.3	49.4	71.3	82.9	83.3	89.5	82.1	76.0	65.9	66.7
02	65.6	57.7	48.9	41.9	54.0	74.9	85.3	86.2	91.2	84.8	79.0	68.5	69.8
03	68.1	61.0	52.5	45.8	58.6	78.0	87.6	88.5	92.6	87.0	81.3	70.9	72.7
04	70.5	64.0	56.0	49.9	62.8	80.9	89.3	90.2	93.7	88.6	83.4	73.3	75.2
05	72.7	66.9	59.2	54.1	66.1	83.4	90.9	91.7	94.6	90.1	85.0	75.5	77.5
06	74.7	69.2	61.8	57.6	69.2	85.4	92.1	92.9	95.3	91.3	86.3	77.5	79.4
07	76.1	70.0	60.1	57.9	68.5	84.2	92.1	93.1	95.3	91.1	84.0	77.0	79.1
08	69.9	61.5	49.9	50.0	58.3	75.5	85.6	87.3	91.4	84.9	71.8	68.1	71.2
09	58.1	49.7	40.6	40.4	48.4	66.3	74.9	75.4	80.8	72.2	58.9	56.0	60.1
10	48.5	40.6	32.3	32.3	39.9	58.1	66.7	66.2	70.9	60.8	48.9	46.7	51.0
11	40.1	33.3	25.8	24.9	32.0	50.0	59.4	58.7	62.9	51.8	40.8	38.8	43.2
12	33.9	27.8	21.5	19.9	25.7	42.9	52.9	52.1	56.7	44.8	34.8	32.7	37.1
13	29.5	24.1	18.8	16.8	21.7	37.5	48.0	47.2	52.2	40.1	31.4	28.5	33.0
14	26.8	21.8	17.2	15.1	19.5	34.1	44.8	43.7	49.7	37.1	29.6	26.1	30.5
15	25.5	20.6	16.5	14.1	18.4	32.6	43.1	42.1	48.4	35.7	28.6	25.3	29.3
16	25.4	20.6	16.3	13.8	17.8	32.5	43.4	41.7	48.6	35.9	29.5	25.8	29.3
17	27.2	21.7	16.9	14.1	18.1	33.3	44.8	43.2	50.7	38.0	33.5	28.4	30.8
18	32.4	25.0	18.9	15.2	19.7	35.9	47.7	46.3	54.6	43.1	41.9	34.9	34.6
19	38.4	30.4	23.2	17.3	23.0	40.2	52.5	51.9	62.9	52.3	48.6	40.8	40.1
20	43.6	34.6	27.4	20.8	28.0	46.7	59.6	59.9	71.4	59.8	53.8	45.9	46.0
21	47.9	38.2	30.9	24.1	32.5	52.8	66.1	65.7	76.2	65.2	58.9	50.2	50.7
22	52.1	41.9	34.2	27.2	36.9	57.9	70.9	70.9	80.9	70.0	63.8	54.7	55.1
23	56.0	45.6	37.7	30.6	41.7	63.1	75.3	75.4	84.5	74.4	68.2	58.8	59.3
Media	50.2	42.9	35.5	31.5	39.8	57.7	68.1	68.0	74.3	65.0	57.9	51.4	53.5

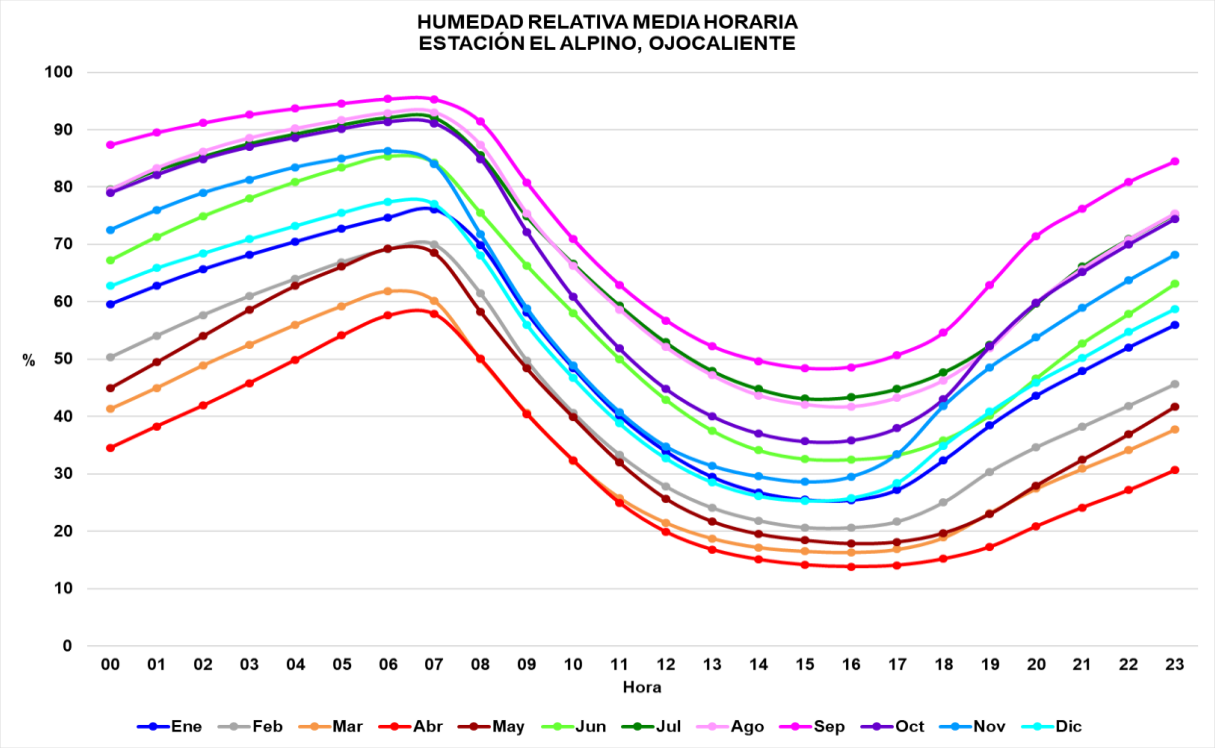


Figura 234. Humedad relativa media (%) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 259. Humedad relativa mínima minimorum (%) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	8.0	9.0	9.0	9.0	11.0	33.1	40.0	48.0	25.0	21.0	13.0	8.0
01	14.0	9.0	10.0	10.0	9.0	14.0	38.1	47.0	47.1	26.0	28.0	18.0	9.0
02	18.0	11.0	10.0	10.0	10.0	16.0	43.1	41.0	58.0	29.0	32.0	16.0	10.0
03	17.0	11.0	12.0	12.0	11.0	16.0	46.0	37.0	63.1	35.0	33.0	20.0	11.0
04	20.0	11.0	13.0	12.0	15.0	16.0	53.0	42.0	69.0	31.0	37.0	21.0	11.0
05	23.0	12.0	16.0	14.0	15.0	26.0	54.0	45.0	68.0	32.0	37.0	23.0	12.0
06	22.0	13.0	16.0	14.0	15.0	27.0	53.0	56.0	70.5	37.0	41.0	24.0	13.0
07	26.0	13.0	13.3	12.7	19.0	20.0	46.0	57.0	56.0	31.0	27.0	20.6	12.7
08	17.3	12.0	11.0	8.0	14.0	16.0	48.0	48.0	45.0	22.0	20.0	15.8	8.0
09	14.1	12.0	8.8	8.0	11.0	11.0	26.0	35.0	33.2	16.0	13.0	10.0	8.0
10	10.0	9.0	5.7	8.0	8.0	9.0	20.0	32.0	27.9	13.0	10.0	9.0	5.7
11	7.0	6.1	5.0	5.0	6.0	8.0	19.0	24.1	24.8	12.0	8.0	7.9	5.0
12	5.0	6.0	4.0	4.0	5.0	5.0	18.0	20.0	16.7	9.5	5.0	6.0	4.0
13	5.0	5.0	4.0	4.0	4.8	4.0	13.0	20.0	15.0	7.7	4.0	5.0	4.0
14	5.0	4.9	4.0	4.0	5.0	4.0	12.0	17.0	13.5	8.3	5.0	4.0	4.0
15	5.0	5.0	4.0	3.0	4.0	5.0	12.0	15.9	13.1	7.0	5.0	4.0	3.0
16	5.0	5.0	3.0	3.0	4.0	4.0	11.0	14.1	13.0	7.0	5.0	3.0	3.0
17	5.0	5.0	3.0	4.0	4.0	5.0	11.0	11.0	12.8	7.0	5.0	4.0	3.0
18	6.0	6.0	3.0	4.0	4.0	5.0	11.0	11.0	13.9	8.0	6.0	5.0	3.0
19	6.0	8.0	5.0	4.0	4.0	6.0	11.0	12.0	18.0	11.0	9.0	6.0	4.0
20	7.0	8.0	5.0	5.0	6.0	6.0	13.0	14.0	25.0	12.0	12.0	7.0	5.0
21	9.0	10.0	6.0	6.0	7.0	6.0	17.0	17.0	27.0	14.0	13.0	11.0	6.0
22	10.0	11.0	8.0	7.0	8.0	8.0	24.0	22.0	31.0	19.0	15.0	11.0	7.0
23	9.0	10.0	8.0	8.0	9.0	10.0	30.0	31.0	42.0	20.0	21.0	13.0	8.0
Mín.	5.0	4.9	3.0	3.0	4.0	4.0	11.0	11.0	12.8	7.0	4.0	3.0	3.0

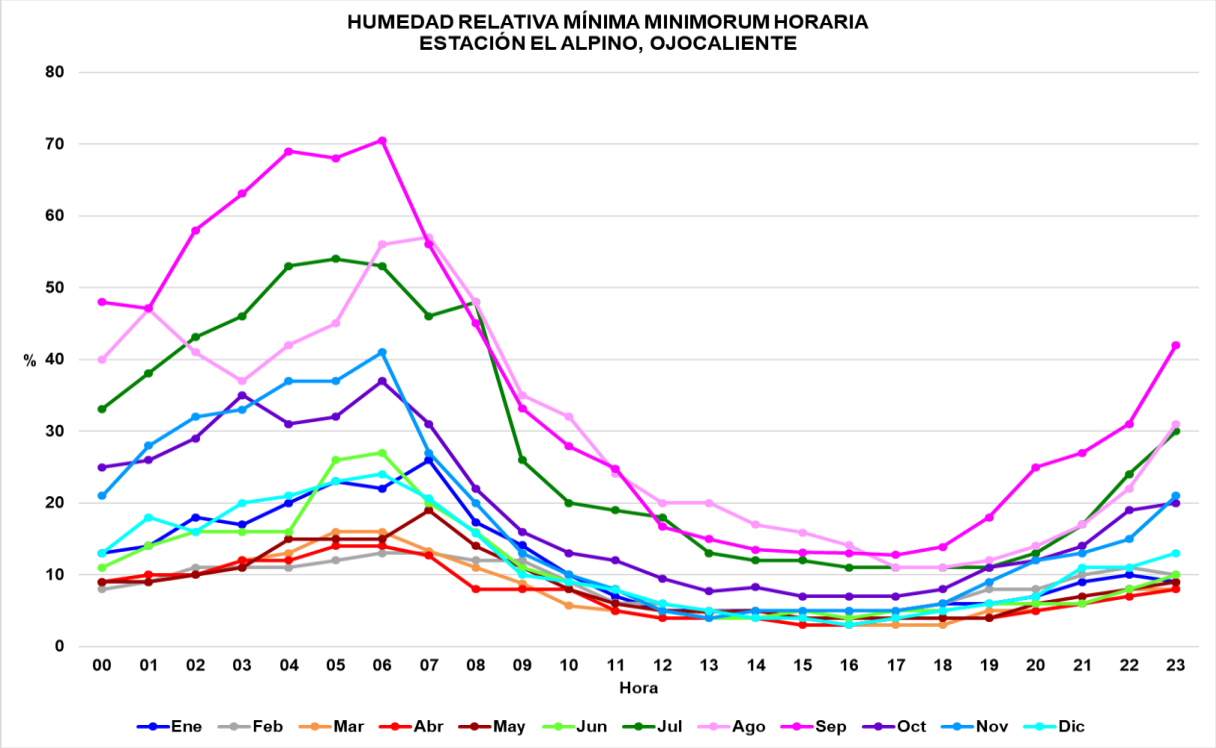


Figura 235. Humedad relativa mínima minimorum (%) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 260. Radiación solar global media horaria (W/m2) de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	15	10	13	14	8	4	1	3	15	1	7
07	50	108	291	194	219	204	147	101	75	91	245	117	154
08	488	689	1080	852	891	783	668	586	500	540	913	642	719
09	1213	1517	1983	1753	1765	1546	1397	1359	1194	1280	1675	1354	1503
10	1906	2261	2765	2598	2615	2320	2128	2118	1933	2028	2321	2003	2250
11	2428	2821	3327	3281	3296	2983	2785	2781	2540	2664	2736	2461	2842
12	2691	3108	3592	3706	3718	3397	3237	3237	2914	2984	2854	2632	3172
13	2701	3090	3523	3779	3762	3509	3344	3316	3010	3044	2677	2544	3192
14	2386	2797	3157	3529	3449	3247	3170	3177	2773	2806	2246	2183	2910
15	1854	2261	2556	3084	3014	2759	2731	2747	2375	2303	1671	1629	2415
16	1201	1563	1807	2374	2415	2265	2202	2234	1828	1661	959	949	1788
17	530	806	994	1635	1666	1636	1589	1552	1182	945	305	323	1097
18	67	180	287	855	919	929	957	854	565	338	11	14	498
19	0	1	7	246	323	362	367	283	111	31	0	0	144
20	0	0	0	10	27	45	45	19	1	0	0	0	12
21	0	0	0	0	0	1	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17515	21203	25384	27905	28093	26000	24775	24367	21004	20717	18629	16851	22704

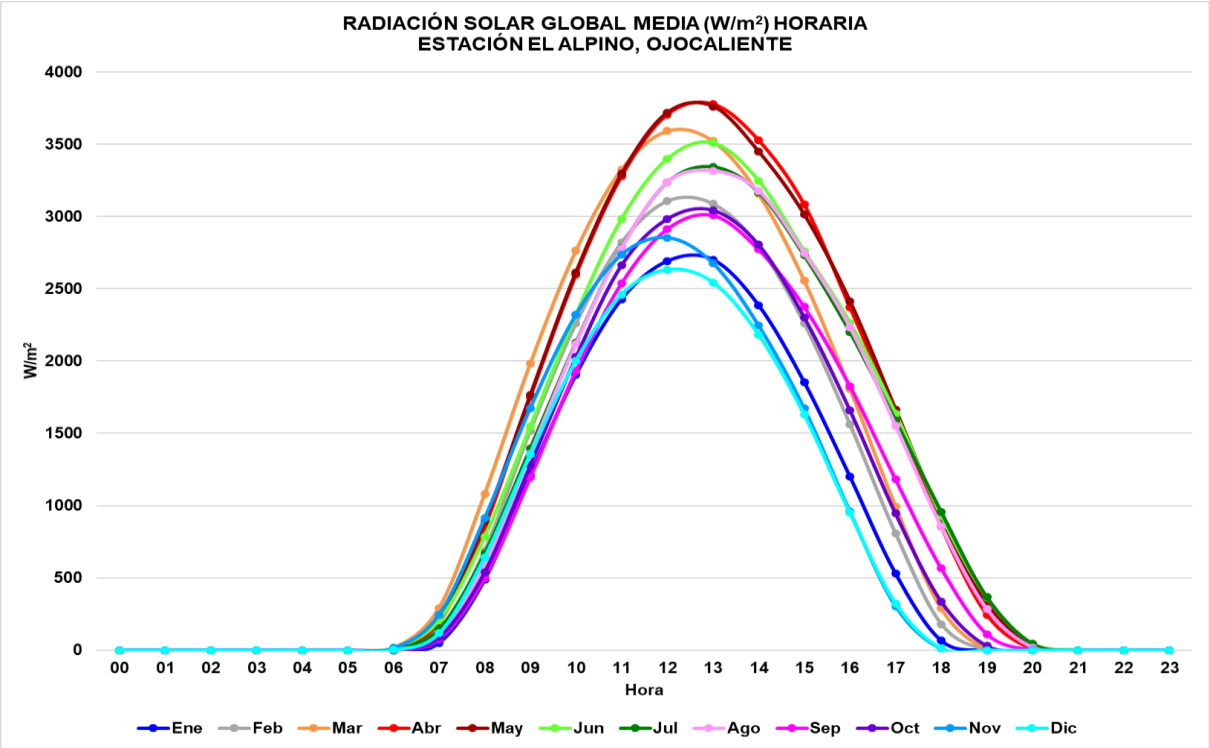


Figura 236. Radiación solar global media horaria (W/m2) de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 261. Radiación solar global media horaria (kWh/m2) de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.05	0.05	0.05	0.04	0.03	0.02	0.02	0.06	0.03	0.04
08	0.12	0.17	0.27	0.21	0.22	0.20	0.17	0.15	0.13	0.13	0.23	0.16	0.18
09	0.30	0.38	0.50	0.44	0.44	0.39	0.35	0.34	0.30	0.32	0.42	0.34	0.38
10	0.48	0.57	0.69	0.65	0.65	0.58	0.53	0.53	0.48	0.51	0.58	0.50	0.56
11	0.61	0.71	0.83	0.82	0.82	0.75	0.70	0.70	0.63	0.67	0.68	0.62	0.71
12	0.67	0.78	0.90	0.93	0.93	0.85	0.81	0.81	0.73	0.75	0.71	0.66	0.79
13	0.68	0.77	0.88	0.94	0.94	0.88	0.84	0.83	0.75	0.76	0.67	0.64	0.80
14	0.60	0.70	0.79	0.88	0.86	0.81	0.79	0.79	0.69	0.70	0.56	0.55	0.73
15	0.46	0.57	0.64	0.77	0.75	0.69	0.68	0.69	0.59	0.58	0.42	0.41	0.60
16	0.30	0.39	0.45	0.59	0.60	0.57	0.55	0.56	0.46	0.42	0.24	0.24	0.45
17	0.13	0.20	0.25	0.41	0.42	0.41	0.40	0.39	0.30	0.24	0.08	0.08	0.27
18	0.02	0.05	0.07	0.21	0.23	0.23	0.24	0.21	0.14	0.08	0.00	0.00	0.12
19	0.00	0.00	0.00	0.06	0.08	0.09	0.09	0.07	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.38	5.30	6.35	6.98	7.02	6.50	6.19	6.09	5.25	5.18	4.66	4.21	5.68

Cuadro 262. Radiación solar global media horaria (Mj/m2/s) de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01
07	0.05	0.10	0.26	0.17	0.20	0.18	0.13	0.09	0.07	0.08	0.22	0.11	0.14
08	0.44	0.62	0.97	0.77	0.80	0.70	0.60	0.53	0.45	0.49	0.82	0.58	0.65
09	1.09	1.37	1.78	1.58	1.59	1.39	1.26	1.22	1.08	1.15	1.51	1.22	1.35
10	1.72	2.03	2.49	2.34	2.35	2.09	1.92	1.91	1.74	1.82	2.09	1.80	2.02
11	2.19	2.54	2.99	2.95	2.97	2.68	2.51	2.50	2.29	2.40	2.46	2.21	2.56
12	2.42	2.80	3.23	3.34	3.35	3.06	2.91	2.91	2.62	2.69	2.57	2.37	2.86
13	2.43	2.78	3.17	3.40	3.39	3.16	3.01	2.98	2.71	2.74	2.41	2.29	2.87
14	2.15	2.52	2.84	3.18	3.10	2.92	2.85	2.86	2.50	2.53	2.02	1.96	2.62
15	1.67	2.03	2.30	2.78	2.71	2.48	2.46	2.47	2.14	2.07	1.50	1.47	2.17
16	1.08	1.41	1.63	2.14	2.17	2.04	1.98	2.01	1.65	1.49	0.86	0.85	1.61
17	0.48	0.73	0.89	1.47	1.50	1.47	1.43	1.40	1.06	0.85	0.27	0.29	0.99
18	0.06	0.16	0.26	0.77	0.83	0.84	0.86	0.77	0.51	0.30	0.01	0.01	0.45
19	0.00	0.00	0.01	0.22	0.29	0.33	0.33	0.25	0.10	0.03	0.00	0.00	0.13
20	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.76	19.08	22.85	25.11	25.28	23.40	22.30	21.93	18.90	18.65	16.77	15.17	20.43

Cuadro 263. Velocidad del viento media (km/h) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.9	4.5	5.5	7.2	7.1	5.0	4.3	3.6	2.5	2.5	2.8	3.4	4.4
01	3.7	4.1	4.7	5.7	5.4	4.5	3.8	3.2	2.4	2.3	2.6	3.4	3.8
02	3.4	3.8	4.3	4.6	4.2	3.7	3.4	2.6	2.1	2.2	2.4	3.4	3.3
03	3.3	3.7	4.0	4.0	3.4	3.1	2.7	2.1	1.9	2.1	2.4	3.3	3.0
04	3.2	3.7	3.7	3.4	2.9	2.5	2.3	1.8	1.7	2.1	2.3	3.2	2.7
05	3.1	3.6	3.7	3.0	2.6	2.2	2.1	1.6	1.6	2.0	2.3	3.1	2.6
06	3.1	3.5	3.5	2.7	2.3	2.0	2.0	1.5	1.4	2.0	2.4	3.0	2.4
07	3.0	3.2	3.1	2.5	2.1	2.0	1.9	1.5	1.4	2.0	2.3	2.8	2.3
08	3.2	3.8	4.5	3.1	2.8	3.0	2.6	2.0	2.0	2.3	3.1	3.1	3.0
09	5.2	6.2	7.0	5.6	5.0	4.9	4.1	3.5	3.5	3.6	4.9	5.2	4.9
10	7.4	8.5	9.1	7.9	6.7	6.1	5.2	4.8	5.0	5.1	6.7	7.2	6.6
11	8.9	10.1	10.7	9.5	7.5	6.6	5.9	5.7	5.9	6.4	7.8	8.7	7.8
12	10.3	11.5	11.8	10.6	8.1	7.2	6.5	6.4	6.6	7.3	8.7	9.9	8.7
13	11.4	12.5	12.9	11.8	9.0	7.9	7.2	6.9	7.1	8.0	9.2	10.6	9.5
14	12.0	13.3	13.7	12.7	9.7	8.9	7.9	7.8	7.5	8.3	9.4	11.2	10.2
15	12.2	13.6	14.0	13.3	10.5	9.6	8.7	8.3	7.8	8.5	9.5	11.2	10.6
16	12.1	13.4	14.2	13.6	10.8	10.2	9.3	8.7	7.9	8.5	9.3	10.7	10.7
17	10.8	12.7	13.7	13.7	11.0	10.6	9.9	9.2	8.0	8.1	7.8	8.8	10.4
18	7.7	9.9	11.7	13.4	11.2	10.9	10.1	9.1	7.2	6.9	5.5	5.9	9.1
19	6.3	7.0	8.8	11.6	10.6	10.6	9.7	8.5	5.5	5.1	5.4	5.5	7.9
20	6.0	6.6	8.5	9.3	9.0	9.4	8.5	6.8	4.6	4.6	5.0	4.8	6.9
21	5.4	6.4	8.1	9.4	8.7	8.4	7.2	6.0	4.3	4.0	4.1	4.2	6.4
22	4.6	5.8	7.5	9.8	8.9	7.5	6.1	5.2	3.5	3.4	3.4	3.9	5.8
23	4.4	5.3	6.4	9.0	8.2	6.0	5.0	4.3	2.8	2.9	3.1	3.7	5.1
Media	6.4	7.4	8.1	8.2	7.0	6.4	5.7	5.1	4.3	4.6	5.1	5.8	6.2

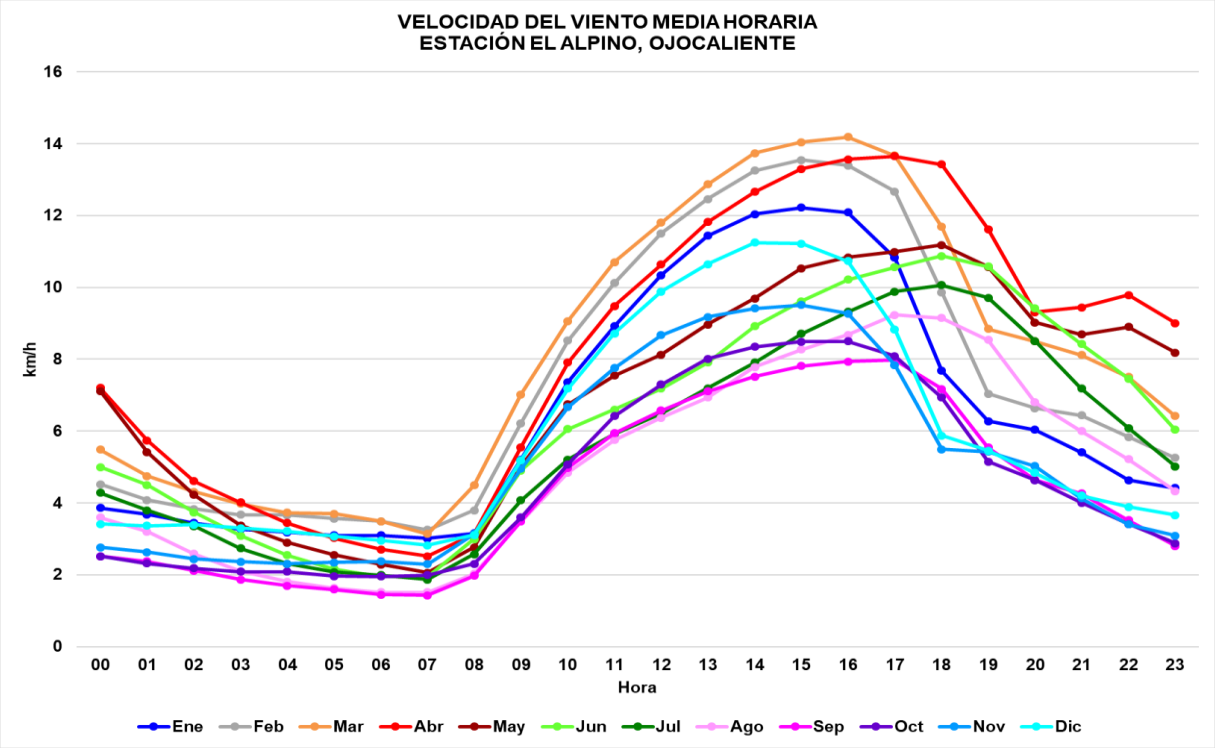


Figura 237. Velocidad del viento media (km/h) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 264. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	27.1	31.6	31.6	33.7	34.1	27.1	23.6	25.6	17.0	22.5	28.3	22.8	34.1
01	30.6	32.7	31.4	30.5	34.9	26.6	21.3	20.1	20.0	22.5	15.4	29.2	34.9
02	27.1	27.1	34.1	31.9	32.5	24.0	23.0	17.0	16.1	22.5	16.0	33.1	34.1
03	27.9	23.0	34.3	28.0	23.7	20.1	23.8	19.4	16.0	23.8	18.3	29.1	34.3
04	25.6	30.4	31.8	24.6	17.8	14.8	18.7	16.3	12.4	29.5	17.8	24.5	31.8
05	26.3	34.1	39.5	25.8	21.1	14.6	20.7	18.6	16.0	27.0	21.0	23.3	39.5
06	24.3	28.1	43.4	21.4	21.0	14.0	19.6	13.9	11.6	23.1	22.2	24.0	43.4
07	28.3	28.7	47.3	19.0	17.6	17.1	22.0	15.5	14.0	23.2	21.5	25.5	47.3
08	27.9	29.4	53.5	26.0	17.8	17.8	25.0	14.7	17.0	19.4	25.1	32.5	53.5
09	27.1	39.5	57.3	27.8	23.2	19.4	27.8	21.7	16.8	21.7	26.1	32.5	57.3
10	37.2	48.0	60.4	31.2	27.1	20.3	26.3	24.8	22.7	22.5	31.8	34.9	60.4
11	39.5	46.5	53.5	30.2	25.1	23.2	28.0	20.9	23.8	24.9	31.0	36.4	53.5
12	39.6	41.3	52.7	31.6	28.4	24.8	25.3	22.0	21.3	26.9	34.9	38.0	52.7
13	40.7	40.3	45.7	35.4	29.0	29.4	25.3	24.0	21.2	28.1	28.7	43.5	45.7
14	37.2	40.3	44.9	37.4	31.3	28.0	25.6	24.6	21.2	25.7	33.3	41.7	44.9
15	39.5	41.2	43.8	37.5	38.7	24.9	27.9	24.9	21.6	28.7	28.7	41.3	43.8
16	38.0	37.0	42.1	36.0	30.6	29.3	27.1	32.9	22.9	28.7	31.2	39.1	42.1
17	37.0	35.1	38.0	33.8	41.1	30.2	26.2	33.1	24.0	31.0	27.9	35.1	41.1
18	36.4	34.2	36.3	34.5	33.3	37.4	30.5	27.8	21.9	27.9	25.0	26.3	37.4
19	30.2	26.0	30.7	30.3	36.0	36.0	27.3	41.8	21.7	27.9	30.0	29.7	41.8
20	29.0	27.0	33.0	37.1	36.2	33.0	27.0	32.7	23.0	25.9	30.0	23.0	37.1
21	28.6	27.0	34.9	31.5	38.0	31.0	34.0	31.6	27.0	24.7	26.0	26.3	38.0
22	35.1	29.8	33.3	32.3	37.2	37.6	27.0	31.0	25.2	24.8	22.0	23.2	37.6
23	27.0	29.9	29.5	34.8	42.0	32.2	26.1	25.0	19.0	26.7	25.1	26.8	42.0
Máx.	40.7	48.0	60.4	37.5	42.0	37.6	34.0	41.8	27.0	31.0	34.9	43.5	60.4

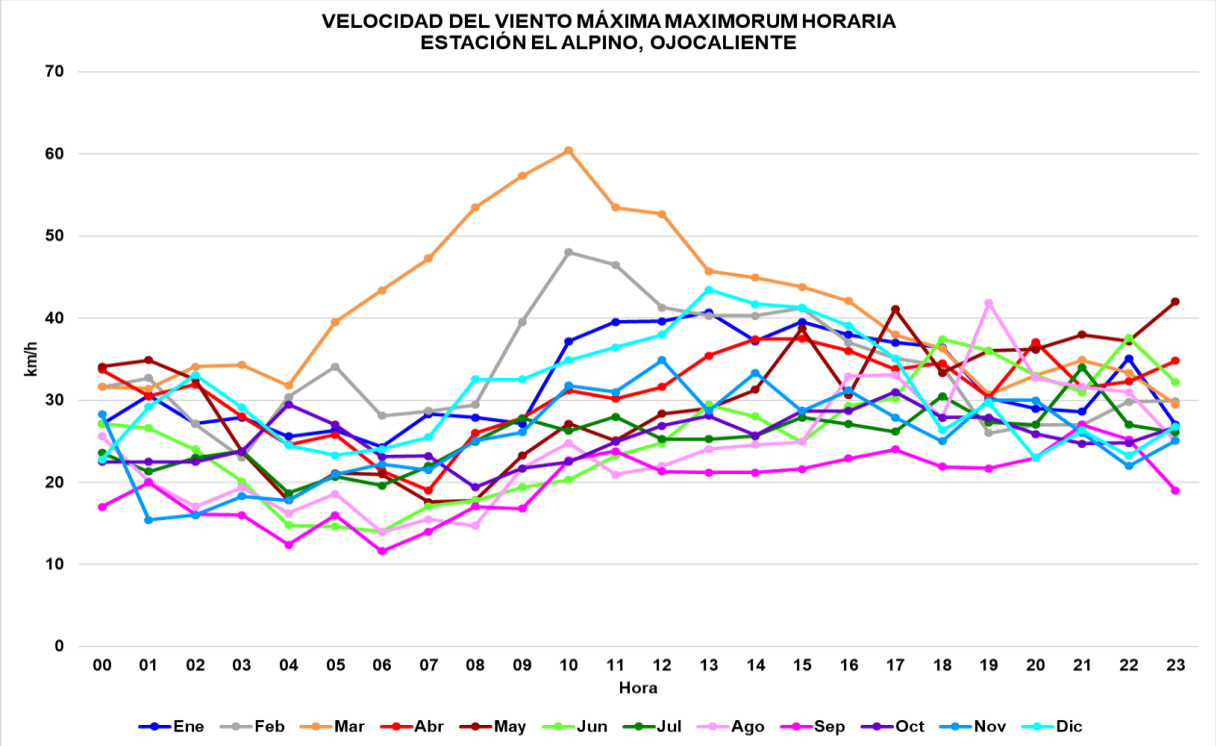


Figura 238. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 265. Frecuencia de velocidad del viento (%) mensual de la estación El Alpino, Ojocaliente (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	53.0	47.0	41.4	39.4	42.5	46.7	53.1	58.8	64.8	64.1	61.5	58.3	52.6
5.1 a 10.0	25.6	26.6	27.8	27.1	31.7	30.7	28.5	26.2	25.3	25.0	24.5	23.1	26.8
10.1 a 15.0	12.4	14.1	15.5	17.8	17.4	16.5	14.0	12.5	8.9	9.1	10.5	11.4	13.3
15.1 a 20.0	5.7	7.3	9.0	10.9	6.4	5.4	3.9	2.3	0.9	1.5	2.8	4.8	5.1
20.1 a 25.0	2.4	3.3	4.3	3.8	1.7	0.7	0.5	0.2	0.0	0.3	0.5	1.6	1.6
25.1 a 30.0	0.6	1.1	1.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.5	0.4
30.1 a 35.0	0.2	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
35.1 a 40.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

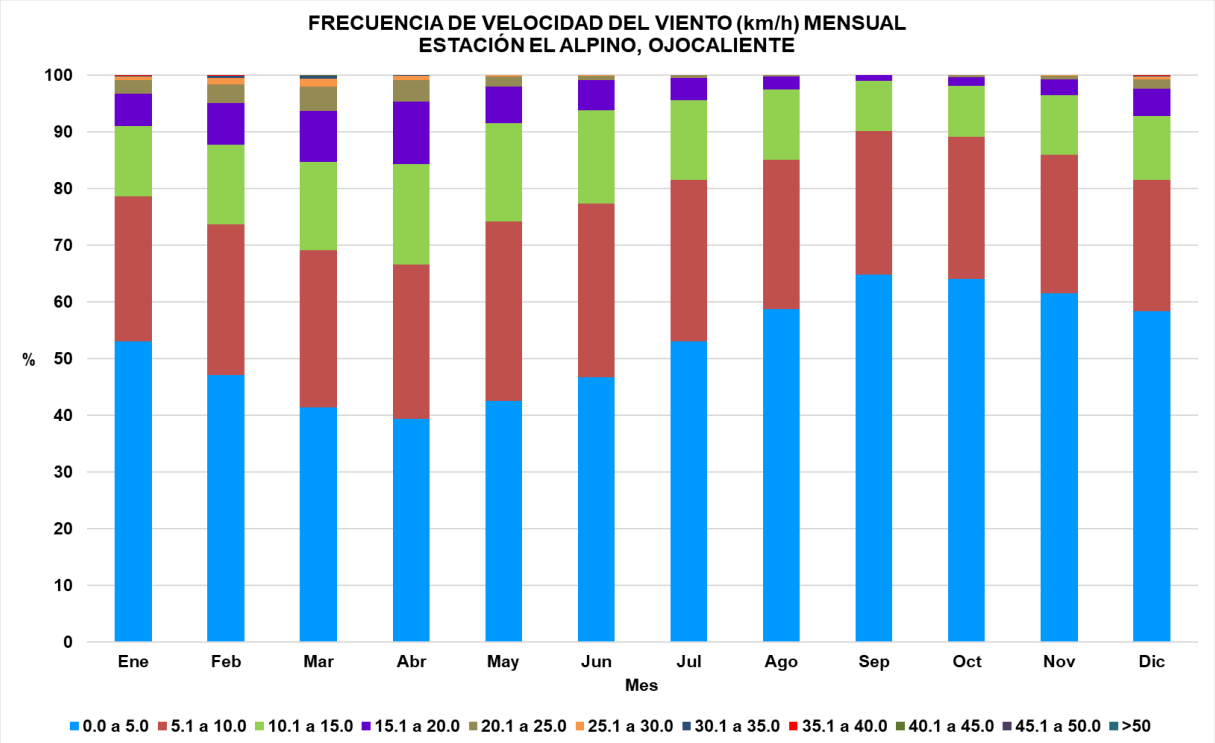


Figura 239. Frecuencia de velocidad del viento (%) mensual de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 266. Frecuencia de dirección del viento (%) mensual de la estación El Alpino, Ojocaliente (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	13.6	11.2	10.0	7.6	12.0	11.0	6.4	7.4	10.4	12.3	13.7	13.9	10.8
NNE	7.6	6.9	6.4	4.6	5.3	5.9	5.8	6.6	8.4	8.3	7.8	7.2	6.7
NE	6.2	5.6	5.3	4.9	5.5	7.7	8.3	9.3	10.3	8.9	7.3	5.7	7.1
ENE	4.8	4.1	4.4	4.0	5.8	10.2	11.4	12.5	11.9	9.5	6.6	4.2	7.5
E	3.9	3.3	4.1	3.9	5.5	9.5	10.9	11.1	8.8	7.3	5.2	3.2	6.4
ESE	4.7	4.7	5.0	4.7	5.1	6.5	7.4	6.9	5.7	5.5	5.2	4.3	5.5
SE	6.3	6.4	6.7	6.8	6.7	6.8	7.7	6.4	5.3	5.3	6.2	6.0	6.4
SSE	7.9	8.8	8.2	8.7	8.5	8.2	8.0	6.5	5.6	5.6	6.9	8.7	7.6
S	7.6	8.6	7.8	7.8	7.5	7.3	6.8	5.7	4.9	5.2	5.7	7.7	6.9
SSO	6.1	7.1	6.7	6.6	6.0	5.6	5.3	4.8	4.0	4.1	4.5	6.0	5.6
SO	5.2	6.5	6.1	6.9	5.2	3.8	3.7	3.5	3.0	2.8	3.7	4.8	4.6
OSO	4.9	6.3	7.0	9.4	6.0	2.9	2.9	2.8	2.4	2.8	3.5	4.8	4.6
O	4.3	5.3	6.5	9.2	6.5	2.9	3.0	3.1	2.9	3.3	3.8	4.1	4.6
ONO	3.3	3.4	4.1	4.6	4.2	2.8	3.1	3.3	3.5	3.7	3.6	3.8	3.6
NO	5.8	5.2	5.3	4.9	4.8	4.1	4.5	4.6	5.5	6.7	7.0	6.7	5.4
NNO	7.9	6.7	6.5	5.2	5.4	4.8	4.7	5.4	7.3	8.8	9.3	9.1	6.8
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

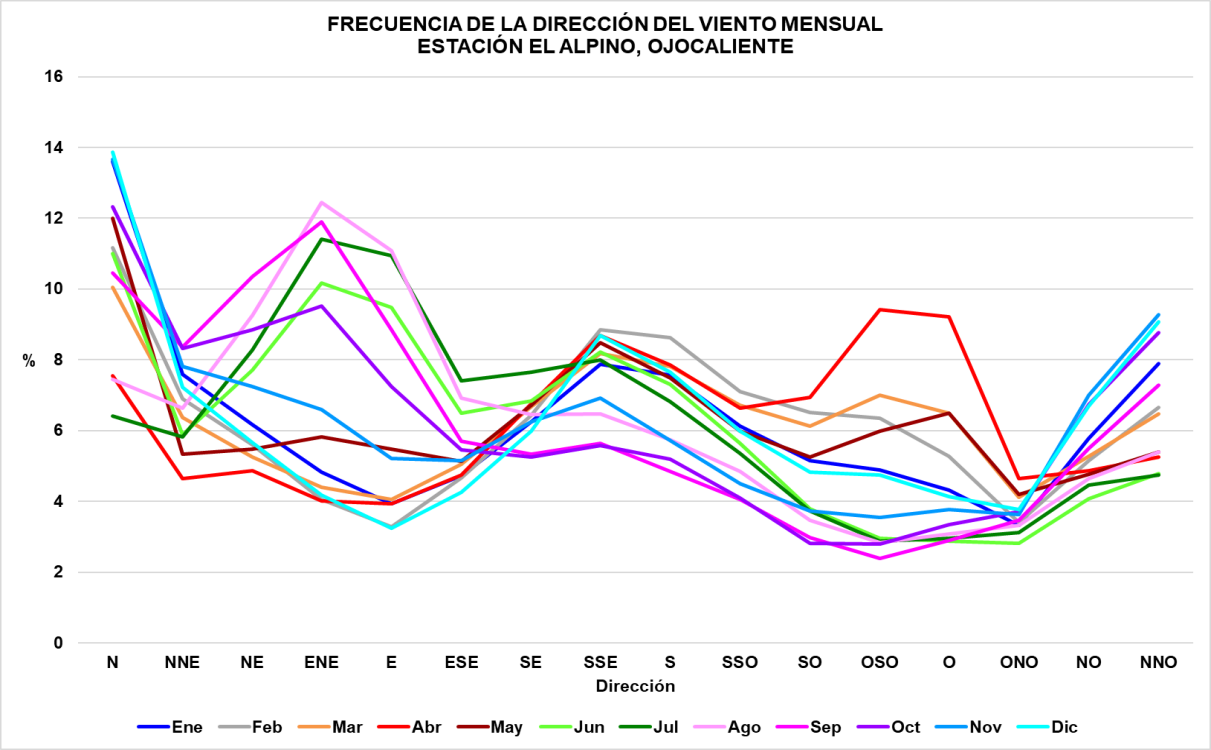


Figura 240. Frecuencia de dirección del viento (%) mensual de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 267. Frecuencia de dirección del viento (%) trimestral de la estación El Alpino, Ojocaliente (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	11.6	10.2	8.1	13.3	10.8
NNE	7.0	5.3	6.9	7.8	6.7
NE	5.7	6.0	9.3	7.3	7.1
ENE	4.4	6.7	11.9	6.8	7.5
E	3.8	6.3	10.3	5.2	6.4
ESE	4.8	5.5	6.7	5.0	5.5
SE	6.5	6.8	6.5	5.8	6.4
SSE	8.3	8.5	6.7	7.1	7.6
S	8.0	7.5	5.8	6.2	6.9
SSO	6.6	6.1	4.8	4.9	5.6
SO	5.9	5.3	3.4	3.8	4.6
OSO	6.1	6.1	2.7	3.7	4.6
O	5.4	6.2	3.0	3.7	4.6
ONO	3.6	3.9	3.3	3.7	3.6
NO	5.4	4.6	4.9	6.8	5.4
NNO	7.0	5.1	5.8	9.0	6.8
Suma	100.0	100.0	100.0	100.0	100.0

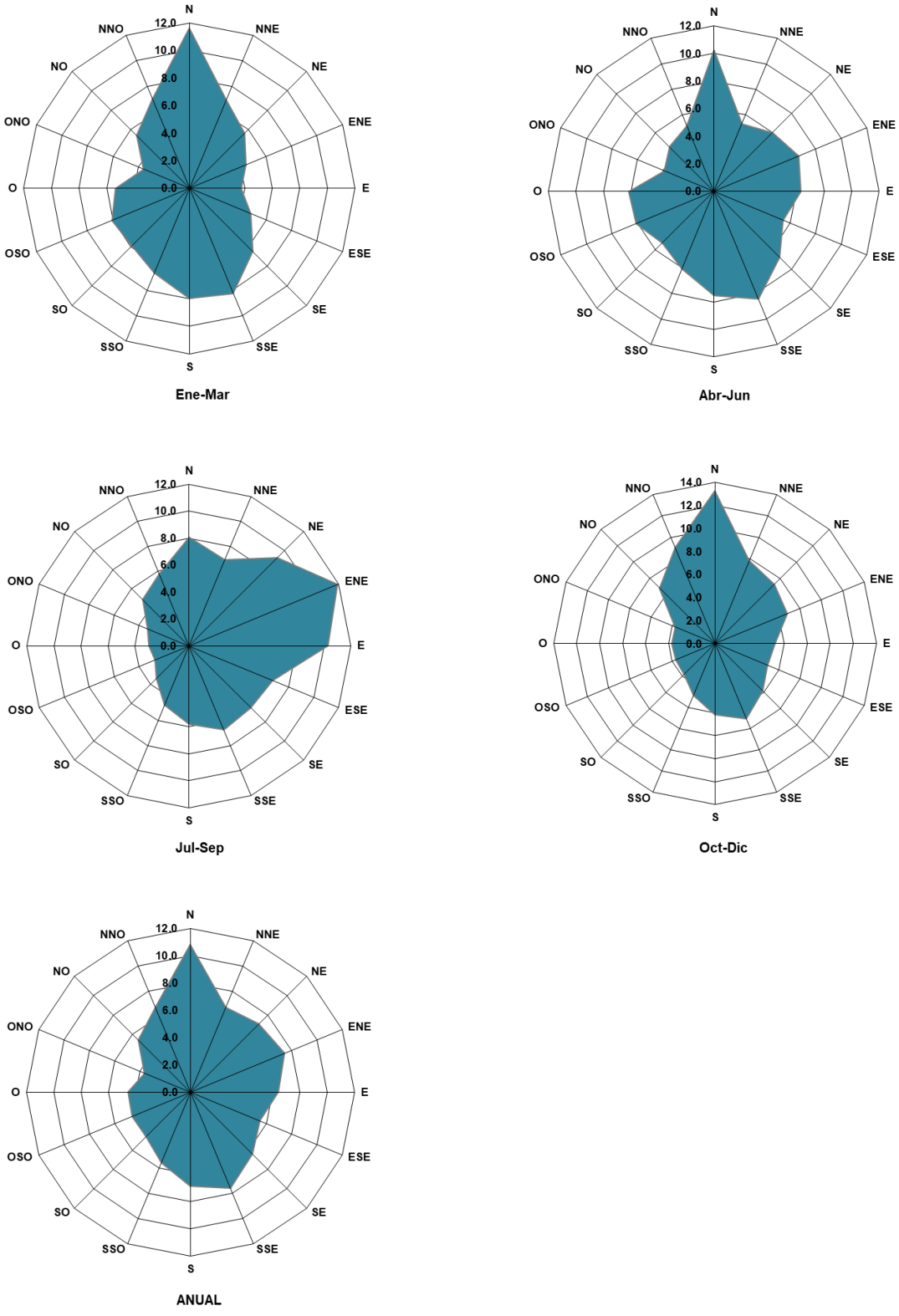


Figura 241. Frecuencia de dirección del viento (%) trimestral de la estación El Alpino, Ojocaliente (2002-2022).

Cuadro 268. Estadísticas climatológicas mensuales de la estación El Alpino, Ojocaliente (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.4	23.8	26.3	28.8	30.2	28.6	26.6	27.0	25.5	25.6	23.7	22.2	25.8
Temperatura máxima maximorum (°C)	28.2	31.6	33.5	34.0	36.0	34.7	33.3	32.1	30.9	31.1	29.9	28.9	36.0
Temperatura mínima media (°C)	1.7	3.2	5.0	7.6	10.0	12.2	11.9	11.6	11.3	7.5	3.6	1.6	7.3
Temperatura mínima minimorum (°C)	-10.3	-6.6	-6.4	-2.1	1.1	5.5	-14.5	6.4	1.9	-3.0	-11.1	-11.5	-14.5
Temperatura media (°C)	11.4	13.8	16.3	19.3	20.8	20.3	18.8	18.9	17.7	16.2	13.4	11.6	16.6
Oscilación térmica (°C)	19.7	20.6	21.3	21.3	20.2	16.5	14.7	15.3	14.2	18.1	20.1	20.6	18.5
Precipitación acumulada media (mm)	9.4	11.9	8.3	8.0	17.7	75.4	90.1	75.5	81.1	33.1	14.0	9.4	433.9
Precipitación máxima maximorum en 24 horas (mm)	21.6	25.6	42.4	60.9	41.7	65.8	53.6	45.6	61.6	47.8	28.5	30.4	65.8
Número de días promedio con lluvia	4.1	3.5	3.9	2.2	5.5	11.8	14.1	12.5	12.6	5.9	4.0	2.8	82.7
Evapotranspiración acumulada potencial media (mm)	103.8	121.2	165.0	182.7	185.7	158.2	148.0	146.0	117.6	121.3	104.5	98.3	1652.2
Humedad máxima media (%)	80.3	74.5	66.9	63.8	74.7	89.0	94.9	95.5	97.1	93.8	89.5	82.2	83.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.4	18.1	14.0	11.9	15.0	27.1	36.4	35.3	42.1	31.5	25.8	22.6	25.2
Humedad mínima minimorum (%)	5.0	4.9	3.0	3.0	4.0	4.0	11.0	11.0	12.8	7.0	4.0	3.0	3.0
Humedad media (%)	50.2	42.9	35.6	31.6	39.8	57.7	68.2	68.0	74.3	65.0	57.9	51.4	53.5
Radiación global media día/mes (W/m^2)	17516.0	21213.5	25383.0	27911.6	28100.1	25999.8	24774.6	24366.9	21004.1	20688.8	18628.6	16851.2	22703.2
Radiación global media día/mes (kWh/m^2)	4.4	5.3	6.3	7.0	7.0	6.5	6.2	6.1	5.3	5.2	4.7	4.2	5.7
Radiación global media día/mes ($Mj/m^2/s$)	15.8	19.1	22.8	25.1	25.3	23.4	22.3	21.9	18.9	18.6	16.8	15.2	20.4
Velocidad del viento máxima media (km/h)	17.8	19.2	21.0	21.3	19.9	18.3	17.0	15.6	13.5	13.5	14.6	16.2	17.3
Velocidad del viento máxima maximorum (km/h)	40.7	48.0	60.4	37.5	42.0	37.6	34.0	41.8	27.0	31.0	34.9	43.5	60.4
Velocidad del viento media (km/h)	6.4	7.4	8.1	8.2	7.0	6.4	5.7	5.1	4.3	4.6	5.1	5.8	6.2
Dirección dominante del viento	N	N	N	OSO	N	N	ENE	ENE	ENE	N	N	N	N

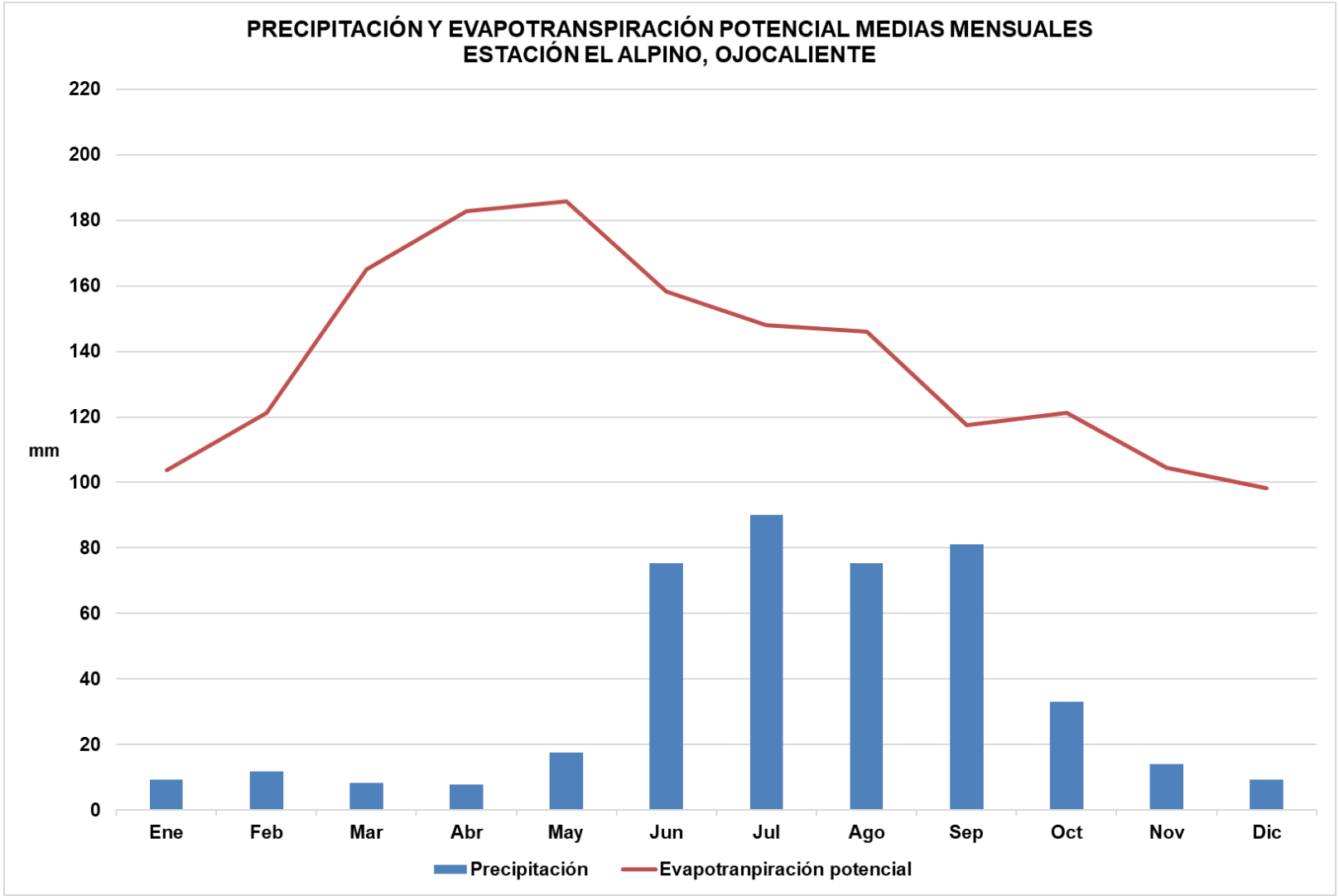


Figura 242. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación El Alpino, Ojocaliente (2002-2022).

7.15. Estación: El Pardillo 3, Fresnillo

Cuadro 269. Temperatura máxima media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.3	8.9	11.5	15.7	18.2	18.6	16.9	16.9	15.4	12.4	8.0	6.0	12.9
01	5.3	7.8	10.2	14.3	17.0	17.6	16.2	16.2	14.8	11.5	7.0	5.0	11.9
02	4.4	6.8	9.0	12.9	15.8	16.6	15.5	15.5	14.3	10.7	6.1	4.1	11.0
03	3.7	5.8	7.8	11.7	14.6	15.8	15.0	14.9	13.8	10.0	5.3	3.4	10.1
04	2.9	5.0	6.9	10.6	13.6	15.0	14.4	14.3	13.4	9.4	4.6	2.7	9.4
05	2.3	4.2	5.9	9.6	12.5	14.3	13.9	13.7	13.0	8.8	4.0	2.2	8.7
06	1.7	3.6	5.2	8.6	11.5	13.6	13.4	13.2	12.6	8.3	3.6	1.7	8.1
07	1.9	3.9	7.1	9.1	12.1	14.1	13.5	13.2	12.5	8.5	5.3	2.1	8.6
08	5.9	8.8	12.7	13.5	16.5	17.2	16.0	15.6	14.6	11.6	10.5	6.9	12.5
09	10.7	13.6	17.0	18.1	20.4	19.9	18.3	18.2	17.2	15.8	14.9	11.8	16.3
10	14.4	17.0	20.0	21.5	23.2	22.1	20.3	20.3	19.3	18.9	18.1	15.6	19.2
11	16.9	19.4	22.0	23.8	25.3	24.0	22.0	22.1	21.0	21.1	20.1	18.1	21.3
12	18.6	21.0	23.6	25.5	27.0	25.6	23.4	23.6	22.4	22.6	21.5	19.6	22.9
13	19.7	22.1	24.6	26.7	28.2	26.8	24.6	24.8	23.5	23.7	22.4	20.7	24.0
14	20.4	22.7	25.2	27.6	29.0	27.6	25.4	25.6	24.2	24.4	22.9	21.3	24.7
15	20.6	22.9	25.4	28.1	29.5	28.0	25.8	26.1	24.5	24.8	22.9	21.3	25.0
16	20.2	22.7	25.2	28.0	29.5	28.1	25.8	26.1	24.5	24.8	22.5	20.9	24.9
17	19.3	22.0	24.5	27.7	29.1	27.8	25.4	25.8	23.9	24.1	21.3	19.8	24.2
18	17.1	20.3	23.0	26.8	28.4	27.0	24.7	25.0	22.8	22.6	18.0	16.6	22.7
19	13.6	16.8	20.0	25.1	27.1	25.8	23.5	23.6	21.1	19.8	14.7	13.2	20.4
20	11.5	14.4	17.3	22.5	24.8	24.0	21.7	21.4	18.8	17.1	12.9	11.2	18.1
21	10.0	12.9	15.8	20.1	22.2	21.8	19.8	19.4	17.5	15.5	11.5	9.6	16.4
22	8.8	11.6	14.4	18.5	20.7	20.4	18.7	18.3	16.7	14.4	10.2	8.3	15.1
23	7.5	10.2	13.0	17.2	19.5	19.4	17.7	17.6	15.9	13.3	9.0	7.1	13.9
Media	11.0	13.5	16.1	19.3	21.5	21.3	19.7	19.7	18.2	16.4	13.2	11.2	16.8

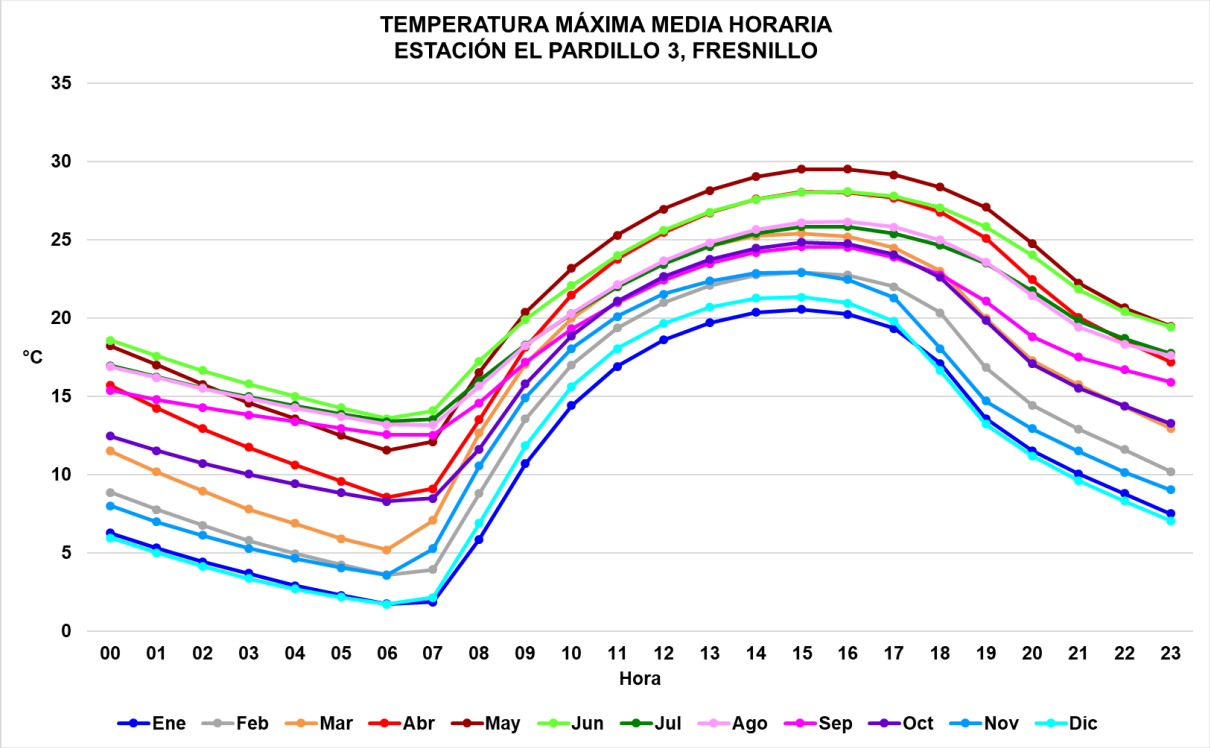


Figura 243. Temperatura máxima media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 270. Temperatura máxima maximorum (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.9	17.0	19.3	25.1	25.6	25.2	23.4	22.9	21.7	20.0	15.6	14.3	25.6
01	14.1	15.4	17.9	22.5	24.0	23.7	20.8	22.0	20.5	17.9	14.9	14.1	24.0
02	13.2	14.9	17.0	22.1	22.2	22.3	20.1	20.6	18.8	17.2	14.9	14.2	22.3
03	13.1	14.0	16.4	19.9	21.6	21.1	19.4	19.1	18.2	17.2	15.4	14.0	21.6
04	12.1	13.7	16.4	18.6	20.6	20.0	19.4	18.4	17.8	16.9	15.4	14.2	20.6
05	11.8	13.8	15.9	17.4	19.4	19.3	18.3	18.2	17.6	16.1	15.7	14.1	19.4
06	12.2	13.0	15.0	17.4	19.9	18.9	17.5	17.2	17.0	15.8	15.8	13.7	19.9
07	11.8	13.9	17.1	16.6	19.2	19.6	19.6	17.5	16.8	16.0	15.4	13.7	19.6
08	15.1	18.5	21.1	21.8	24.5	23.3	21.4	20.2	19.1	18.8	19.0	16.2	24.5
09	21.0	23.3	26.0	26.0	27.2	25.7	23.9	22.8	22.0	24.2	22.7	20.6	27.2
10	23.5	27.3	28.0	27.9	30.2	28.2	25.9	24.9	24.7	27.5	25.0	24.5	30.2
11	25.2	29.6	30.1	30.0	31.6	30.2	28.0	26.8	27.3	28.7	27.2	26.7	31.6
12	26.6	30.8	31.7	31.4	33.2	32.0	29.4	28.9	28.4	29.3	28.4	27.5	33.2
13	27.5	31.7	32.2	32.2	34.2	32.9	30.6	31.0	29.1	29.5	29.3	28.1	34.2
14	27.9	32.0	33.0	32.9	35.2	33.5	31.8	31.5	29.8	30.4	30.1	28.4	35.2
15	27.8	32.0	33.1	33.4	35.6	33.9	32.6	31.9	31.0	31.2	30.4	28.4	35.6
16	27.8	32.2	33.5	34.0	35.9	34.4	32.7	32.5	30.9	31.5	29.9	28.0	35.9
17	26.4	30.5	32.5	33.7	35.6	34.7	33.2	32.0	31.1	31.2	28.7	25.9	35.6
18	24.3	27.9	31.2	33.4	35.5	34.7	32.4	31.9	30.5	30.8	24.4	23.5	35.5
19	19.7	24.2	27.5	31.3	34.7	33.5	31.1	30.0	29.5	28.8	20.9	19.1	34.7
20	19.7	22.0	24.8	29.0	32.0	32.9	29.1	28.3	26.2	24.2	19.1	17.8	32.9
21	17.0	21.6	24.3	26.8	29.6	29.5	25.7	26.4	23.9	24.5	19.3	16.4	29.6
22	18.0	20.5	22.5	25.0	28.9	27.9	24.3	24.5	22.3	23.9	18.0	16.4	28.9
23	15.9	18.2	21.2	24.4	26.3	26.7	22.6	24.2	21.6	20.5	17.0	16.3	26.7
Máx.	27.9	32.2	33.5	34.0	35.9	34.7	33.2	32.5	31.1	31.5	30.4	28.4	35.9

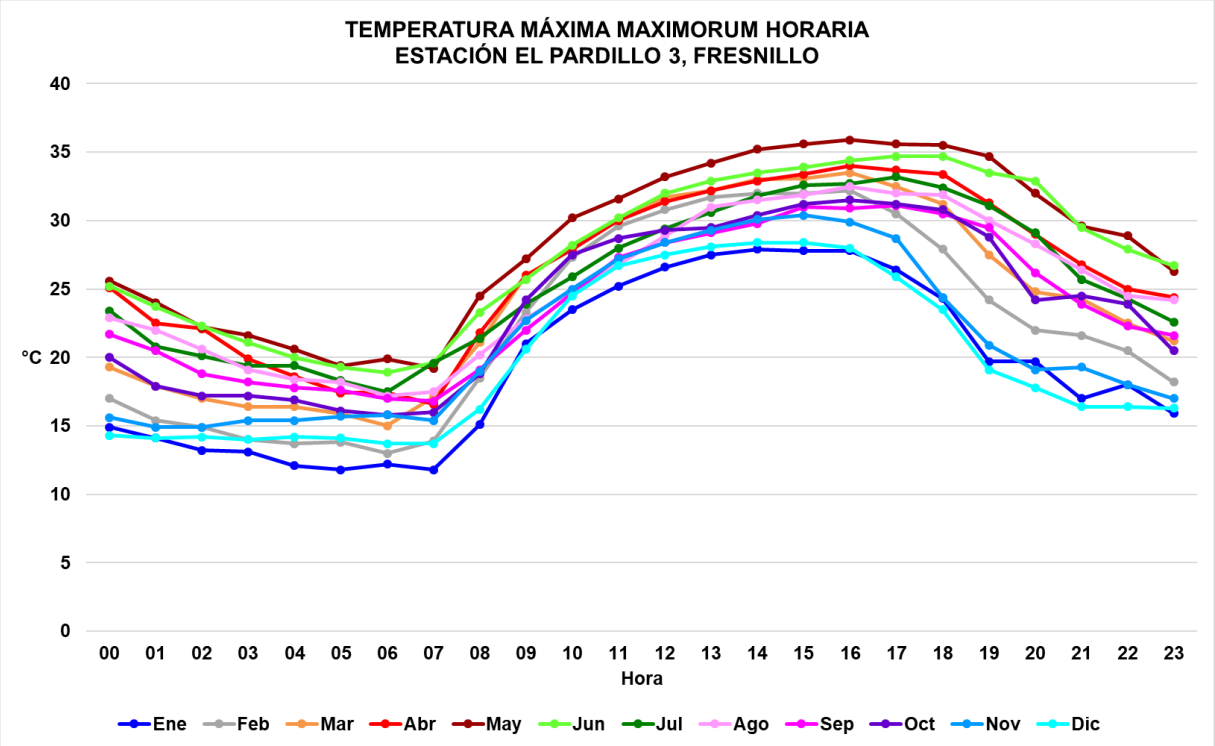


Figura 244. Temperatura máxima maximorum (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 271. Temperatura mínima media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.0	7.4	9.9	14.0	16.8	17.6	16.1	16.1	14.7	11.4	6.8	4.7	11.7
01	4.1	6.4	8.7	12.7	15.6	16.6	15.4	15.4	14.1	10.6	5.9	3.8	10.8
02	3.3	5.4	7.5	11.4	14.4	15.7	14.8	14.7	13.7	9.8	5.0	3.0	9.9
03	2.5	4.5	6.4	10.3	13.4	14.9	14.3	14.1	13.2	9.2	4.3	2.3	9.1
04	1.8	3.8	5.6	9.2	12.3	14.1	13.8	13.6	12.8	8.6	3.6	1.7	8.4
05	1.3	3.1	4.7	8.2	11.3	13.4	13.2	13.0	12.4	8.1	3.1	1.2	7.8
06	0.8	2.5	4.0	7.3	10.4	12.8	12.7	12.5	12.0	7.5	2.7	0.7	7.2
07	0.6	2.3	4.4	7.0	10.3	12.7	12.6	12.3	11.7	7.3	2.9	0.6	7.1
08	2.1	4.7	8.5	9.6	13.0	14.8	14.0	13.4	12.6	8.6	6.5	2.8	9.2
09	7.1	10.1	13.9	14.8	17.6	17.9	16.6	16.4	15.2	12.8	11.7	8.2	13.5
10	11.7	14.5	17.9	19.1	21.1	20.4	18.8	18.7	17.7	16.6	15.8	12.9	17.1
11	15.1	17.6	20.5	22.1	23.7	22.6	20.6	20.7	19.7	19.4	18.6	16.3	19.7
12	17.3	19.7	22.4	24.2	25.7	24.3	22.2	22.4	21.2	21.4	20.4	18.4	21.6
13	18.7	21.1	23.6	25.6	27.0	25.7	23.5	23.7	22.3	22.7	21.5	19.8	22.9
14	19.6	21.9	24.4	26.7	28.0	26.5	24.3	24.5	23.0	23.4	22.1	20.5	23.7
15	19.9	22.3	24.6	27.2	28.5	26.8	24.7	24.9	23.4	23.9	22.2	20.7	24.1
16	19.4	22.0	24.3	27.2	28.4	26.9	24.6	24.9	23.2	23.7	21.5	20.0	23.9
17	17.8	20.8	23.4	26.7	28.1	26.7	24.2	24.6	22.6	22.8	19.1	17.7	22.9
18	14.3	17.7	20.9	25.5	27.2	25.8	23.4	23.6	21.3	20.6	15.2	13.8	20.8
19	11.8	14.7	17.7	23.1	25.4	24.4	22.1	21.9	19.3	17.5	13.0	11.3	18.5
20	10.0	12.9	15.7	20.4	22.6	22.2	20.1	19.7	17.5	15.5	11.5	9.5	16.5
21	8.5	11.4	14.2	18.6	20.7	20.5	18.7	18.3	16.6	14.2	10.1	8.1	15.0
22	7.3	10.0	12.7	17.1	19.3	19.3	17.7	17.4	15.8	13.2	8.8	6.8	13.8
23	6.1	8.7	11.3	15.6	18.1	18.4	16.9	16.7	15.2	12.2	7.7	5.7	12.7
Media	9.4	11.9	14.5	17.6	20.0	20.0	18.6	18.5	17.1	15.0	11.7	9.6	15.3

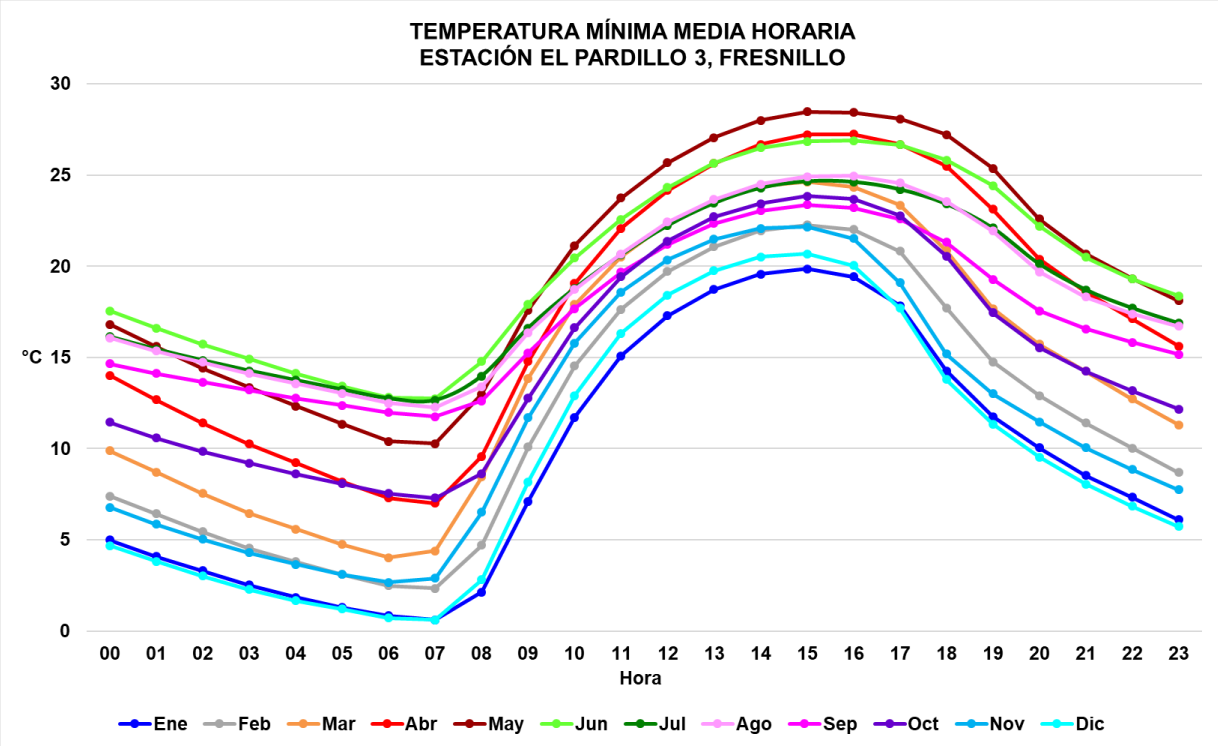


Figura 245. Temperatura mínima media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 272. Temperatura mínima minimorum (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-8.6	-2.6	-2.0	3.3	8.8	11.0	10.3	11.7	6.3	-0.5	-8.9	-10.9	-10.9
01	-10.2	-4.7	-3.2	2.8	7.2	10.9	8.7	10.5	6.0	-1.1	-8.9	-12.2	-12.2
02	-10.0	-6.4	-4.6	0.5	4.5	9.2	8.4	9.6	5.5	-2.2	-10.3	-12.1	-12.1
03	-10.6	-5.9	-6.5	-0.9	3.2	7.2	7.8	8.9	4.4	-1.9	-10.6	-13.1	-13.1
04	-11.7	-6.3	-7.1	-1.5	3.4	6.4	7.0	7.9	2.8	-3.4	-11.8	-13.2	-13.2
05	-13.0	-7.3	-8.9	-3.2	3.2	5.3	5.9	7.7	2.4	-4.9	-11.9	-14.7	-14.7
06	-14.2	-8.6	-8.9	-3.5	0.9	4.2	5.5	7.3	1.2	-5.5	-13.7	-15.1	-15.1
07	-13.5	-7.9	-8.5	-3.9	0.9	4.2	5.4	7.1	1.5	-5.4	-14.2	-14.7	-14.7
08	-12.9	-6.5	-5.3	-1.2	2.9	7.2	7.4	7.4	2.3	-1.4	-8.3	-11.4	-12.9
09	-6.2	0.6	2.6	6.4	8.8	13.6	12.5	12.0	9.7	3.7	-2.3	-5.4	-6.2
10	0.1	3.4	2.1	9.9	9.5	14.8	13.5	14.2	12.8	6.2	2.8	-2.4	-2.4
11	2.1	5.8	2.9	12.4	9.7	14.9	14.4	14.4	13.6	6.8	3.3	-2.7	-2.7
12	3.4	7.0	5.1	13.3	11.1	15.0	14.6	15.5	15.0	7.3	3.9	-2.2	-2.2
13	4.4	6.1	6.3	15.0	14.3	14.7	15.5	14.4	15.4	7.3	4.7	-2.1	-2.1
14	5.2	7.2	6.3	14.9	14.4	15.4	15.3	14.3	14.0	8.4	5.5	-1.6	-1.6
15	6.5	7.2	6.7	13.8	12.6	13.3	15.1	14.3	13.7	9.9	6.2	-1.0	-1.0
16	6.7	6.4	7.1	14.0	13.7	13.7	14.5	13.7	13.4	10.7	6.2	-0.5	-0.5
17	5.5	6.0	7.0	14.3	14.2	13.6	13.7	13.0	13.4	9.5	5.1	-0.8	-0.8
18	3.3	5.7	5.2	12.4	13.8	12.9	14.1	12.6	14.4	6.9	2.4	-3.5	-3.5
19	2.2	5.2	3.5	11.7	12.1	14.0	12.4	14.2	11.4	7.8	-0.6	-4.7	-4.7
20	0.5	2.7	0.8	10.1	11.4	13.2	13.1	13.4	10.3	5.3	-2.0	-6.4	-6.4
21	-1.3	1.1	0.4	7.4	12.2	13.0	13.1	13.6	9.3	4.7	-3.6	-7.8	-7.8
22	-4.6	-2.1	-0.9	6.3	11.7	13.1	12.8	12.8	8.2	2.3	-6.3	-9.4	-9.4
23	-6.9	-1.8	-0.1	4.6	9.7	11.4	11.3	12.5	7.4	1.3	-7.0	-10.4	-10.4
Mín.	-14.2	-8.6	-8.9	-3.9	0.9	4.2	5.4	7.1	1.2	-5.5	-14.2	-15.1	-15.1

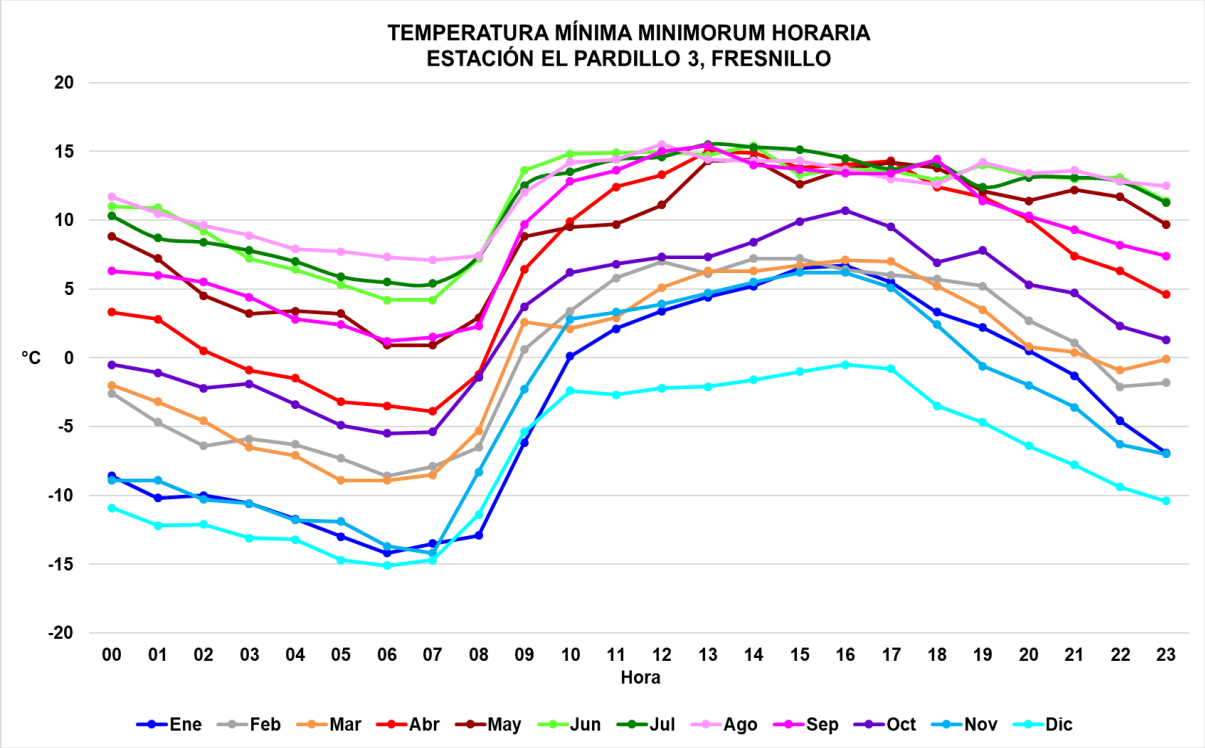


Figura 246. Temperatura mínima minimorum (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 273. Temperatura media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.6	8.1	10.7	14.9	17.5	18.1	16.5	16.5	15.0	11.9	7.4	5.3	12.3
01	4.7	7.1	9.4	13.5	16.3	17.1	15.8	15.8	14.4	11.1	6.4	4.4	11.3
02	3.9	6.1	8.2	12.2	15.1	16.2	15.2	15.1	14.0	10.3	5.6	3.6	10.4
03	3.1	5.2	7.1	11.0	14.0	15.4	14.6	14.5	13.5	9.6	4.8	2.8	9.6
04	2.4	4.4	6.2	9.9	13.0	14.6	14.1	13.9	13.1	9.0	4.1	2.2	8.9
05	1.8	3.7	5.3	8.9	11.9	13.8	13.6	13.4	12.7	8.4	3.6	1.7	8.2
06	1.3	3.0	4.6	7.9	11.0	13.2	13.1	12.8	12.3	7.9	3.1	1.2	7.6
07	1.2	3.1	5.6	8.0	11.1	13.3	13.1	12.7	12.1	7.8	3.9	1.3	7.8
08	3.9	6.7	10.6	11.5	14.8	16.0	15.0	14.5	13.6	10.0	8.6	4.8	10.8
09	8.9	11.9	15.5	16.5	19.0	18.9	17.5	17.3	16.2	14.3	13.3	10.0	15.0
10	13.1	15.8	19.0	20.3	22.2	21.3	19.5	19.5	18.5	17.8	17.0	14.3	18.2
11	16.0	18.5	21.3	22.9	24.5	23.3	21.3	21.4	20.3	20.3	19.4	17.2	20.5
12	18.0	20.4	23.0	24.8	26.3	25.0	22.8	23.0	21.8	22.0	20.9	19.0	22.3
13	19.2	21.6	24.1	26.2	27.6	26.2	24.0	24.2	22.9	23.2	21.9	20.2	23.5
14	20.0	22.3	24.8	27.1	28.5	27.0	24.9	25.1	23.6	23.9	22.5	20.9	24.2
15	20.2	22.6	25.0	27.6	29.0	27.5	25.3	25.5	24.0	24.4	22.5	21.0	24.5
16	19.8	22.4	24.8	27.6	29.0	27.5	25.2	25.6	23.9	24.2	22.0	20.5	24.4
17	18.6	21.4	23.9	27.2	28.6	27.2	24.8	25.2	23.3	23.4	20.3	18.8	23.6
18	15.7	19.1	22.0	26.1	27.8	26.4	24.0	24.3	22.1	21.6	16.5	15.1	21.7
19	12.6	15.8	18.8	24.1	26.2	25.2	22.8	22.8	20.2	18.6	13.8	12.3	19.4
20	10.8	13.7	16.5	21.4	23.7	23.1	20.9	20.5	18.2	16.3	12.2	10.4	17.3
21	9.3	12.1	15.0	19.3	21.5	21.1	19.3	18.9	17.0	14.9	10.8	8.8	15.7
22	8.1	10.8	13.6	17.8	20.0	19.8	18.2	17.9	16.3	13.8	9.5	7.6	14.4
23	6.8	9.4	12.1	16.4	18.8	18.9	17.3	17.2	15.5	12.7	8.4	6.4	13.3
Media	10.2	12.7	15.3	18.5	20.7	20.7	19.1	19.1	17.7	15.7	12.4	10.4	16.0

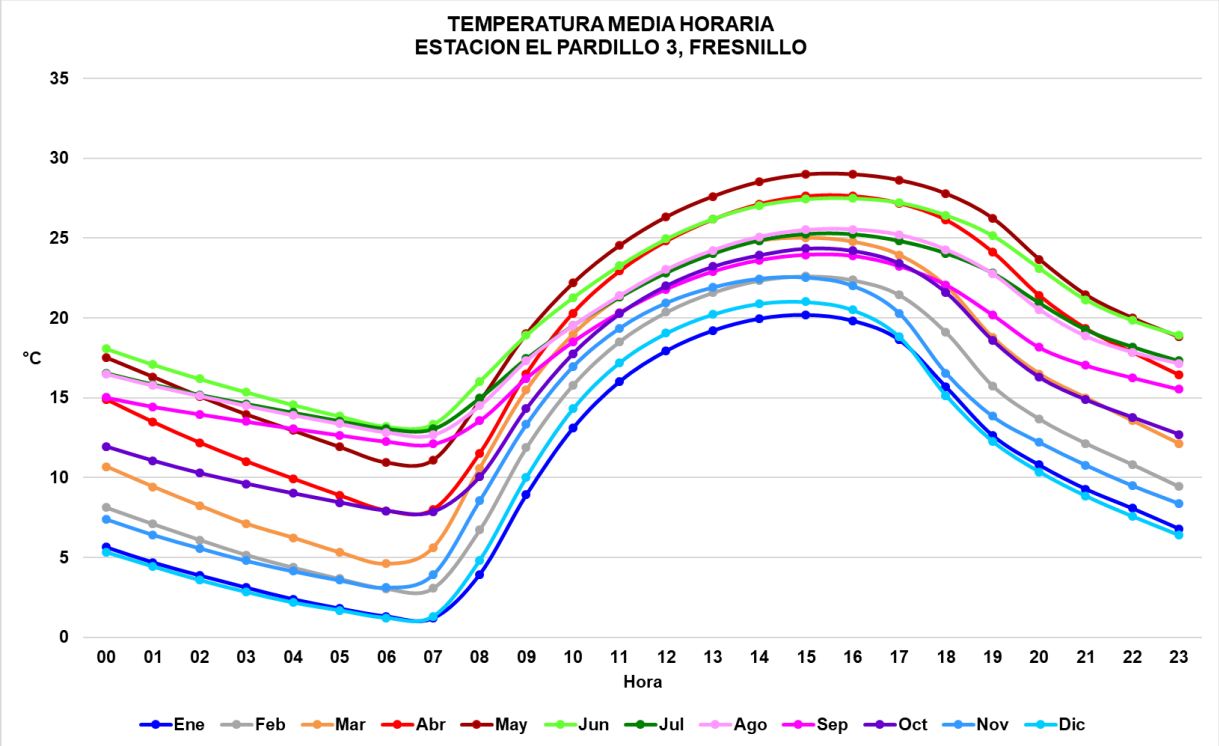


Figura 247. Temperatura media (˚C) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 274. Precipitación media (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.5	0.3	0.0	0.8	5.1	5.4	4.0	9.1	2.7	0.5	0.3	29.0
01	0.4	0.5	0.3	0.1	0.5	4.6	5.7	5.0	6.5	1.1	0.3	0.4	25.4
02	0.3	0.5	0.2	0.0	0.3	2.3	3.9	3.9	5.0	0.7	0.2	0.4	17.7
03	0.3	0.3	0.4	0.0	0.2	2.5	3.3	3.1	3.5	0.8	0.2	0.4	14.9
04	0.4	0.4	0.3	0.0	0.4	1.5	1.4	3.7	3.7	0.8	0.3	0.6	13.3
05	0.2	0.3	0.2	0.1	0.1	1.4	1.4	1.6	2.5	0.8	0.1	0.5	9.0
06	0.2	0.2	0.1	0.0	0.0	0.7	1.5	0.8	1.5	0.6	0.2	0.6	6.4
07	0.3	0.1	0.4	0.0	0.1	0.5	1.2	0.7	0.6	0.3	0.3	0.4	4.8
08	0.3	0.3	0.1	0.0	0.1	0.3	1.0	0.5	0.9	0.6	0.3	0.4	4.7
09	0.2	0.3	0.1	0.0	0.1	0.2	1.2	0.3	0.7	0.6	0.2	0.5	4.3
10	0.2	0.3	0.0	0.0	0.0	0.2	1.3	0.1	0.2	0.4	0.4	0.4	3.5
11	0.1	0.4	0.0	0.0	0.0	0.2	0.9	0.2	0.1	0.2	0.7	0.2	3.0
12	0.0	0.7	0.0	0.0	0.0	0.8	1.3	0.2	0.1	0.3	0.6	0.5	4.5
13	0.2	0.5	0.2	0.1	0.4	1.4	1.7	0.8	1.4	0.5	1.2	0.5	8.9
14	0.1	0.6	0.4	0.0	0.3	0.3	2.6	3.5	3.2	1.4	0.9	0.6	14.0
15	0.7	0.6	0.3	0.2	1.3	3.3	3.4	4.9	3.0	1.7	1.3	0.6	21.4
16	0.7	1.1	0.9	0.2	1.2	3.3	7.0	7.3	4.8	2.9	1.7	0.6	31.7
17	0.5	0.7	0.6	0.8	0.8	5.3	7.5	7.3	8.9	2.7	0.5	0.5	36.0
18	1.0	1.2	0.6	0.4	1.5	4.6	5.0	7.1	6.5	3.5	1.2	0.5	33.0
19	0.6	0.8	0.6	0.2	1.7	3.6	8.9	6.8	5.7	2.0	1.1	0.3	32.3
20	0.7	0.8	0.4	0.3	1.0	6.1	7.3	10.5	8.3	2.1	1.1	0.4	38.9
21	0.4	0.6	0.2	0.2	1.1	5.1	5.7	10.6	7.3	2.9	0.9	0.2	35.2
22	0.4	0.7	0.5	0.1	0.6	5.9	7.0	5.9	7.0	2.3	1.6	0.1	32.1
23	0.4	0.6	0.6	0.0	1.0	4.8	8.4	4.3	10.0	1.9	0.9	0.2	33.0
Suma	9.0	12.7	7.7	2.7	13.4	63.9	93.9	93.0	100.5	33.7	16.5	10.3	457.3

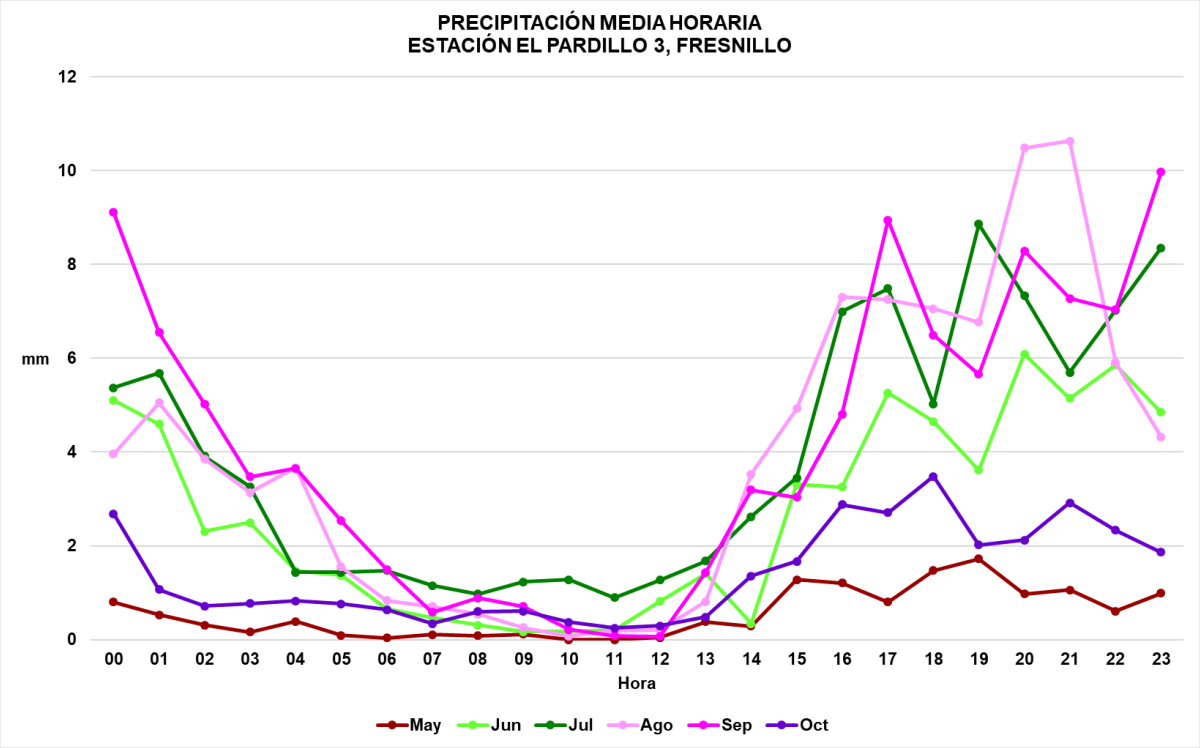


Figura 248. Precipitación media (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 275. Precipitación máxima maximorum (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.4	2.6	3.2	0.1	7.7	10.2	8.3	13.8	22.4	14.7	4.8	2.0	22.4
01	3.3	3.2	3.8	1.2	3.2	16.2	14.2	26.3	24.8	3.9	2.8	2.4	26.3
02	2.0	2.0	2.0	0.2	1.4	4.8	26.8	17.2	15.0	3.0	0.8	3.6	26.8
03	1.9	1.6	4.0	0.0	1.1	12.4	15.0	10.9	9.8	4.9	1.5	4.8	15.0
04	2.0	2.0	2.4	0.0	3.7	5.3	4.8	16.6	18.4	5.6	1.2	4.7	18.4
05	1.8	1.8	1.2	0.6	0.4	5.4	10.6	6.0	21.4	5.0	1.0	4.4	21.4
06	1.1	1.4	0.8	0.1	0.6	2.8	14.4	5.2	9.0	5.6	1.9	5.6	14.4
07	3.2	1.0	6.4	0.0	1.0	2.0	8.3	3.6	2.5	1.6	1.9	3.3	8.3
08	2.5	2.2	0.8	0.0	0.8	1.6	7.9	4.6	9.8	3.8	3.3	2.1	9.8
09	2.2	2.2	1.0	0.0	1.6	1.5	11.8	2.6	7.2	5.2	2.2	3.8	11.8
10	1.2	1.8	0.4	0.0	0.0	2.0	8.6	0.6	3.0	2.0	4.2	4.0	8.6
11	0.5	2.2	0.8	0.0	0.0	2.2	5.0	1.4	0.6	1.8	6.6	1.2	6.6
12	0.5	4.1	0.6	0.0	0.6	10.4	10.9	1.6	0.4	2.4	4.7	4.1	10.9
13	1.8	2.4	2.4	1.2	4.0	17.3	4.4	3.6	8.7	4.0	6.6	2.7	17.3
14	1.0	2.8	8.5	0.5	3.0	1.4	14.4	18.6	27.0	7.4	8.8	4.3	27.0
15	9.0	2.0	1.6	3.3	10.3	18.0	10.8	13.2	9.4	9.9	9.3	3.4	18.0
16	6.2	8.4	9.2	1.9	6.2	17.0	23.1	29.4	17.2	9.3	7.8	6.0	29.4
17	3.8	3.6	8.3	5.6	3.6	14.6	26.8	20.0	18.4	22.6	4.7	2.6	26.8
18	5.5	7.8	4.6	2.4	13.1	19.0	11.8	24.8	11.5	18.1	4.7	2.4	24.8
19	3.0	4.4	3.8	2.0	16.8	9.1	52.4	16.0	19.8	23.2	5.8	1.9	52.4
20	7.7	3.6	4.2	5.2	4.6	20.5	11.1	28.3	26.6	15.0	11.9	3.0	28.3
21	1.9	2.2	2.2	3.8	7.8	20.4	17.1	46.4	17.1	17.8	6.4	2.5	46.4
22	2.2	4.2	5.5	1.4	3.3	21.8	23.0	14.9	8.3	14.0	7.9	0.9	23.0
23	1.6	3.8	8.1	0.2	9.6	13.3	36.9	10.2	24.1	9.8	5.6	1.6	36.9
Máx.	9.0	8.4	9.2	5.6	16.8	21.8	52.4	46.4	27.0	23.2	11.9	6.0	52.4

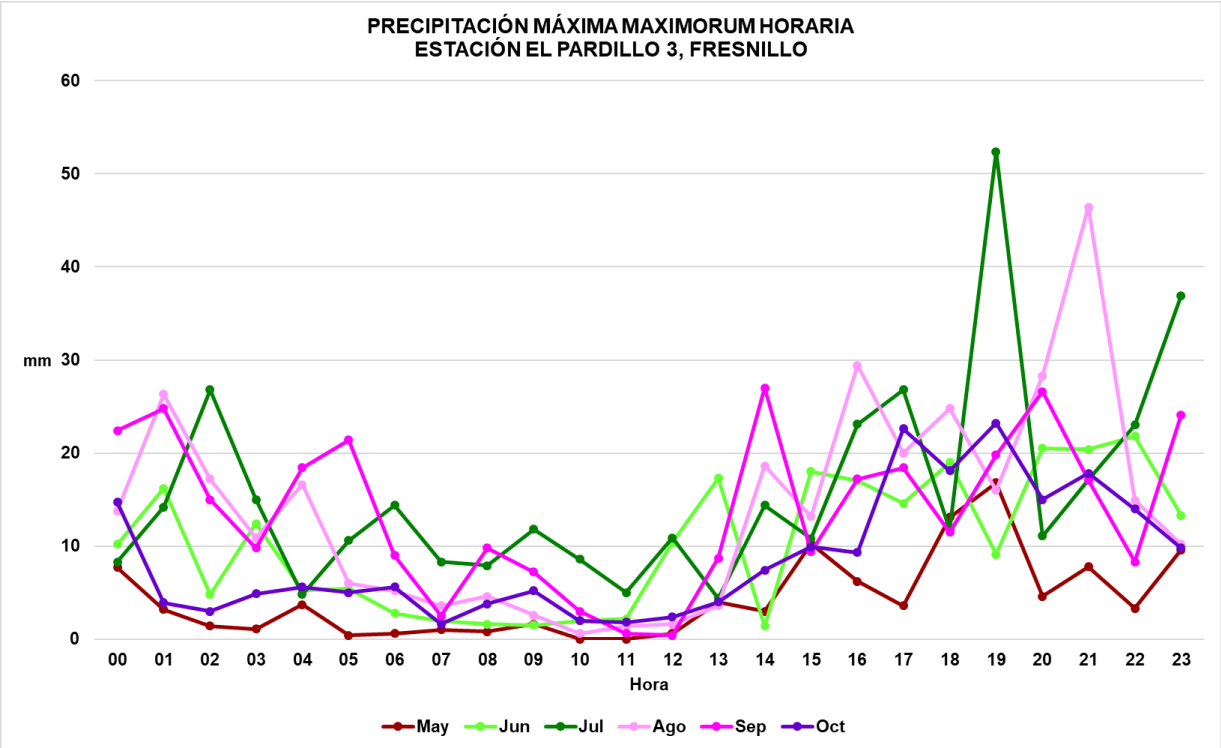


Figura 249. Precipitación máxima maximorum (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 276. Evapotranspiración potencial media (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.06	0.06	0.05	0.02	0.02	0.00	0.00	0.00	0.01	0.02
01	0.01	0.02	0.02	0.04	0.05	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.02
02	0.01	0.01	0.02	0.04	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01
03	0.01	0.01	0.01	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04	0.01	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
06	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.02	0.04	0.08	0.06	0.07	0.05	0.03	0.02	0.01	0.02	0.05	0.02	0.04
09	0.09	0.14	0.22	0.19	0.20	0.18	0.13	0.13	0.10	0.11	0.15	0.10	0.15
10	0.20	0.28	0.38	0.35	0.36	0.32	0.26	0.27	0.22	0.24	0.28	0.22	0.28
11	0.32	0.41	0.52	0.51	0.52	0.46	0.39	0.40	0.35	0.37	0.39	0.34	0.41
12	0.41	0.51	0.61	0.63	0.64	0.57	0.50	0.52	0.45	0.48	0.47	0.42	0.52
13	0.46	0.56	0.65	0.71	0.72	0.64	0.57	0.60	0.52	0.54	0.49	0.45	0.58
14	0.46	0.56	0.64	0.73	0.74	0.66	0.60	0.62	0.54	0.55	0.46	0.45	0.58
15	0.42	0.52	0.59	0.70	0.70	0.64	0.60	0.60	0.51	0.51	0.40	0.40	0.55
16	0.34	0.43	0.48	0.63	0.62	0.57	0.54	0.54	0.45	0.44	0.30	0.31	0.47
17	0.24	0.32	0.36	0.52	0.51	0.48	0.45	0.45	0.36	0.33	0.18	0.19	0.37
18	0.14	0.18	0.23	0.39	0.40	0.37	0.33	0.33	0.23	0.23	0.11	0.12	0.25
19	0.08	0.12	0.15	0.32	0.29	0.24	0.21	0.24	0.16	0.12	0.05	0.06	0.17
20	0.04	0.07	0.09	0.20	0.20	0.19	0.15	0.14	0.05	0.04	0.02	0.03	0.10
21	0.03	0.05	0.07	0.13	0.12	0.10	0.07	0.06	0.02	0.02	0.02	0.02	0.06
22	0.02	0.04	0.05	0.09	0.08	0.07	0.04	0.03	0.01	0.01	0.01	0.02	0.04
23	0.02	0.03	0.04	0.08	0.07	0.06	0.03	0.03	0.01	0.01	0.01	0.01	0.03
Media/día /mes	3.36	4.32	5.31	6.48	6.49	5.74	4.98	5.03	4.02	4.00	3.39	3.20	4.69

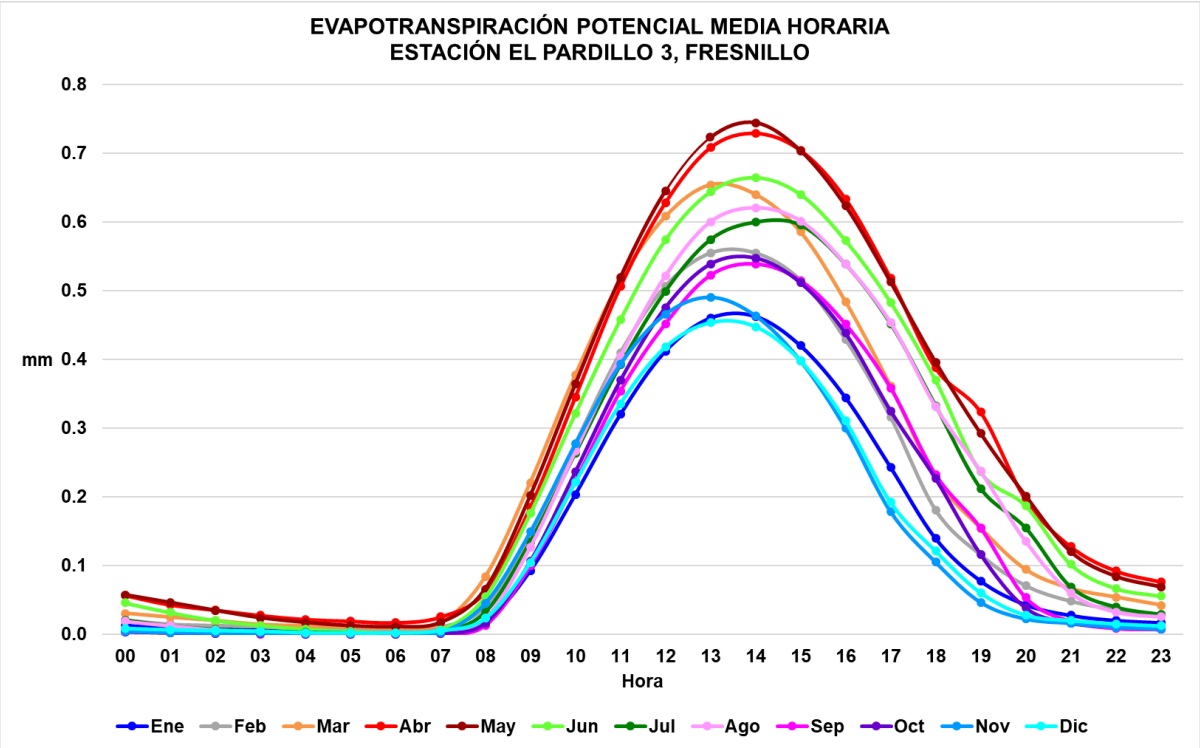


Figura 250. Evapotranspiración potencial media (mm) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 277. Humedad relativa media (%) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	61.9	52.7	43.1	34.6	42.9	61.9	77.1	77.4	86.1	79.8	73.7	64.5	63.0
01	65.3	56.2	46.8	38.6	47.3	66.5	80.3	80.8	88.4	83.1	77.1	67.9	66.5
02	68.1	59.6	50.3	42.3	51.8	70.6	83.0	83.7	90.1	85.8	79.8	70.6	69.6
03	70.4	62.8	53.7	45.3	55.5	74.1	85.1	86.1	91.7	88.0	82.2	73.2	72.3
04	72.7	65.2	56.4	48.4	58.8	77.1	87.1	88.2	92.9	89.8	84.2	75.2	74.7
05	74.7	67.9	59.2	51.4	61.9	79.7	88.9	89.9	94.0	91.2	85.8	77.2	76.8
06	76.0	70.0	61.4	54.3	64.6	81.9	90.4	91.5	94.7	92.4	87.0	78.7	78.6
07	76.6	70.5	59.2	54.6	64.5	81.7	90.7	92.2	95.1	92.6	85.3	78.7	78.5
08	70.0	61.5	48.4	47.5	55.7	74.1	85.4	87.8	92.3	88.0	74.1	70.3	71.3
09	57.8	48.4	37.2	36.9	44.4	63.6	75.4	76.9	82.7	75.2	59.8	56.9	59.6
10	46.1	37.8	28.7	27.8	34.4	54.0	65.8	66.8	72.1	62.0	47.7	44.5	49.0
11	37.4	30.2	23.2	21.4	27.0	45.7	57.7	58.3	63.7	51.9	39.1	35.7	40.9
12	31.4	25.3	19.5	17.6	22.2	39.1	51.1	51.2	57.3	44.8	33.4	30.1	35.2
13	27.5	22.5	17.1	15.2	19.2	34.2	45.9	46.0	52.3	39.8	30.1	26.5	31.4
14	25.2	20.7	15.7	13.7	17.2	31.1	42.5	42.6	49.1	36.8	28.2	24.3	28.9
15	24.4	19.9	15.2	13.0	16.2	29.9	40.8	40.6	47.6	34.9	27.7	23.5	27.8
16	25.0	20.2	15.3	12.8	16.1	29.5	40.9	40.2	47.7	35.0	28.4	24.2	27.9
17	27.1	21.2	16.0	13.1	16.7	30.1	42.2	41.2	50.1	37.0	32.3	27.1	29.5
18	32.7	24.8	18.3	14.1	17.9	32.1	44.8	44.2	54.9	42.7	41.3	34.0	33.5
19	39.3	30.4	22.7	16.2	20.3	35.6	49.3	49.8	62.9	52.7	48.8	40.7	39.1
20	44.5	35.1	26.9	19.5	24.8	41.7	56.5	58.9	71.8	60.8	54.6	46.6	45.1
21	49.4	39.5	31.0	23.1	29.8	48.0	63.5	66.0	77.0	66.3	60.1	51.8	50.4
22	53.6	43.7	35.0	26.7	34.1	53.2	68.6	70.7	80.5	70.9	65.0	56.5	54.9
23	58.0	48.1	39.2	30.5	38.6	58.2	73.0	74.3	83.5	75.6	69.5	60.8	59.1
Media	50.6	43.1	35.0	29.9	36.7	53.9	66.1	66.9	74.1	65.7	58.1	51.6	52.7

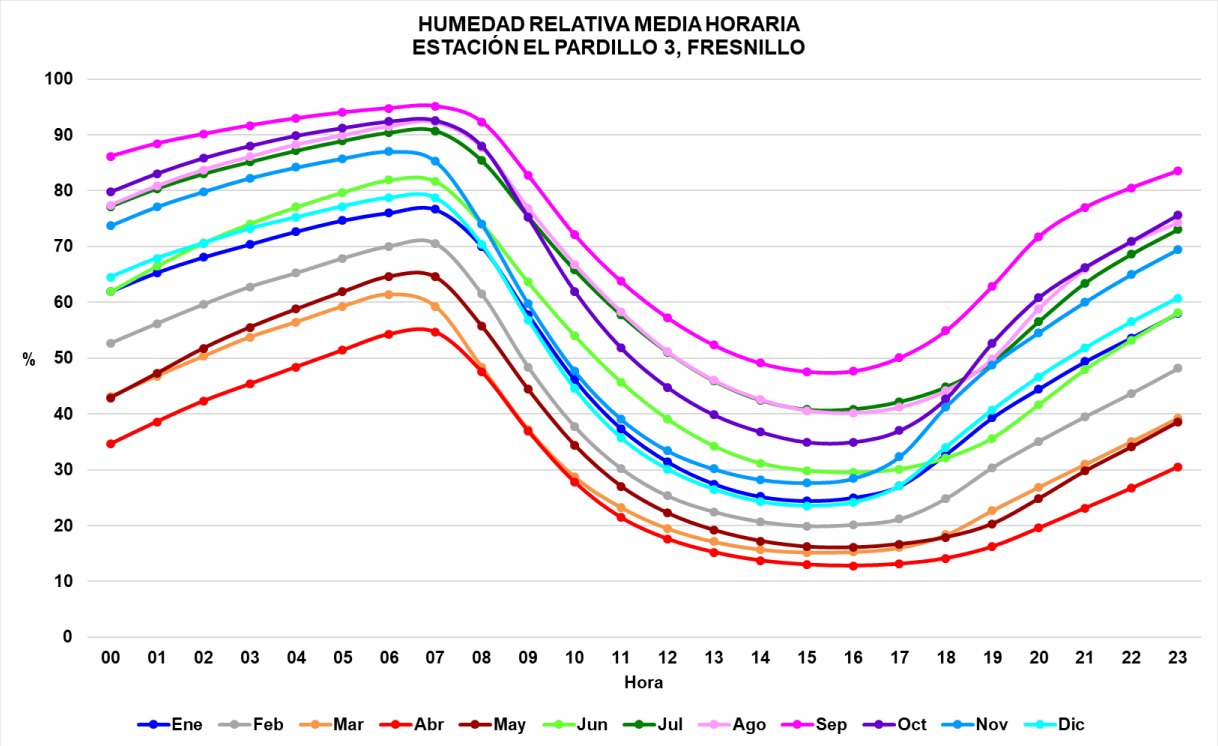


Figura 251. Humedad relativa media (%) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 278. Humedad relativa mínima minimorum (%) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	11.0	13.0	9.0	7.3	9.0	14.0	30.2	33.9	33.0	19.9	31.0	17.0	7.3
01	12.0	14.0	9.0	9.3	9.0	16.0	37.0	41.0	37.0	24.7	32.0	20.0	9.0
02	17.0	14.0	11.5	9.7	13.0	17.0	43.0	40.0	46.0	25.2	36.0	19.0	9.7
03	14.0	15.0	12.0	7.0	13.0	17.0	45.0	43.0	47.0	27.1	34.0	20.0	7.0
04	15.0	19.0	12.0	9.0	11.0	26.0	52.0	43.0	51.0	31.1	34.0	24.0	9.0
05	19.0	19.0	12.3	10.0	12.0	25.0	47.0	45.0	57.0	41.0	42.0	19.0	10.0
06	22.0	18.0	10.0	11.0	15.0	31.0	50.0	46.0	53.0	42.9	46.0	19.0	10.0
07	21.0	20.0	10.0	9.0	15.0	32.0	55.0	45.0	63.0	44.0	47.0	25.0	9.0
08	18.0	19.0	8.7	7.9	11.0	23.0	47.0	48.4	47.0	23.0	28.7	24.7	7.9
09	11.0	10.5	3.4	6.5	9.0	19.0	29.0	39.9	33.0	17.0	18.0	11.9	3.4
10	9.0	5.8	3.4	5.9	3.7	11.0	18.0	29.0	26.0	10.5	9.9	9.1	3.4
11	6.0	5.0	3.7	3.9	2.9	6.0	16.0	24.0	21.9	5.6	7.0	6.0	2.9
12	5.0	4.0	3.0	3.5	3.0	5.0	14.0	20.0	17.0	5.9	6.8	5.9	3.0
13	3.0	5.0	3.4	3.6	3.5	5.0	13.0	19.0	16.5	6.2	6.0	4.0	3.0
14	3.0	4.8	3.0	3.0	3.2	5.0	14.0	17.0	14.0	5.8	5.0	4.9	3.0
15	3.0	3.9	3.0	3.0	3.0	4.0	12.0	16.0	14.0	5.9	4.0	4.8	3.0
16	3.0	4.0	3.0	3.8	3.0	4.0	11.0	14.0	13.0	6.8	5.0	4.0	3.0
17	4.0	5.0	3.0	3.0	3.3	4.0	12.0	14.0	13.0	8.0	5.0	5.0	3.0
18	5.0	5.9	4.0	3.0	3.4	4.0	11.0	14.3	12.0	8.0	6.0	7.0	3.0
19	7.0	6.0	5.0	4.0	4.0	4.0	12.0	15.0	16.0	11.0	11.0	8.0	4.0
20	8.0	8.7	7.0	5.0	5.0	5.0	13.0	17.0	21.0	13.0	12.0	9.0	5.0
21	10.0	10.0	7.0	6.0	7.0	8.0	17.0	21.0	28.0	16.6	13.0	10.0	6.0
22	12.0	11.0	7.8	7.0	8.0	10.0	23.0	27.0	33.0	21.0	18.0	11.0	7.0
23	11.0	13.0	9.0	7.1	8.0	13.0	30.0	30.0	38.0	20.7	23.0	13.0	7.1
Mín.	3.0	3.9	3.0	3.0	2.9	4.0	11.0	14.0	12.0	5.6	4.0	4.0	2.9

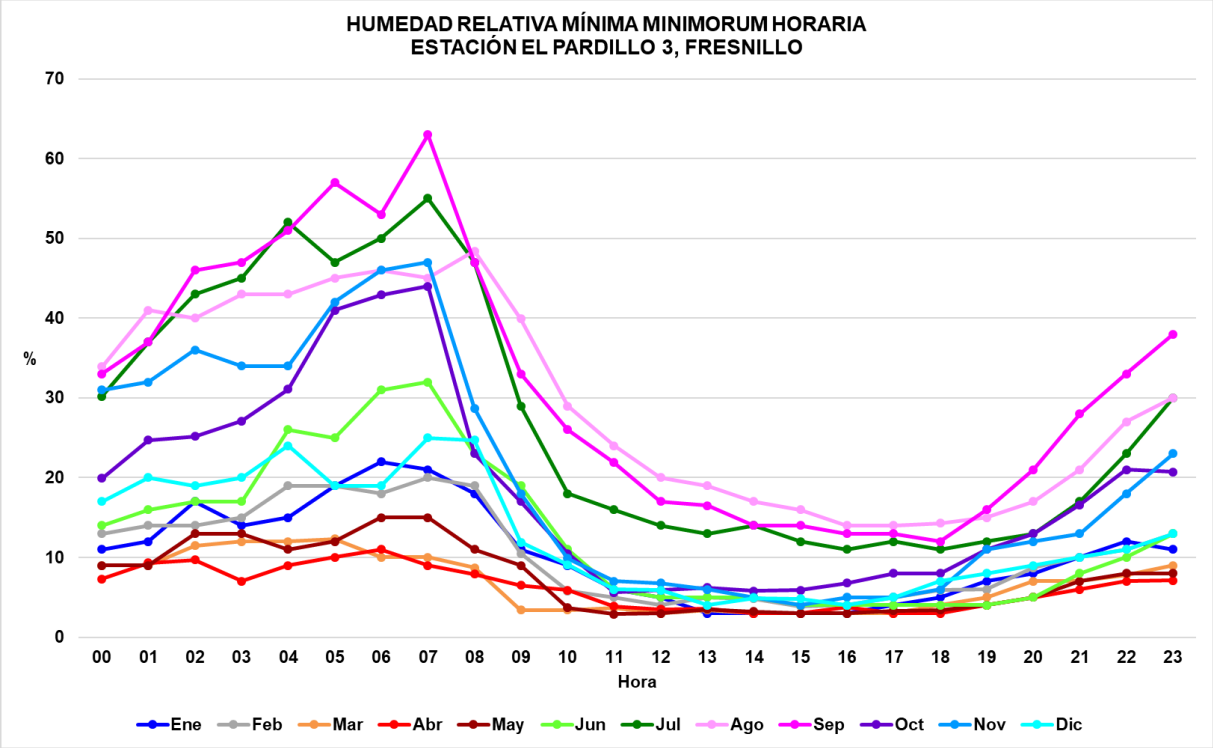


Figura 252. Humedad relativa mínima minimorum (%) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 279. Radiación solar global media horaria (W/m2) de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	16	8	11	9	5	2	1	2	6	1	5
07	57	116	311	187	216	191	130	90	66	82	214	88	146
08	528	729	1110	839	908	812	664	592	496	537	882	602	725
09	1266	1567	2002	1729	1786	1624	1425	1388	1225	1314	1669	1320	1526
10	1958	2313	2788	2577	2622	2397	2190	2177	1985	2088	2335	1981	2284
11	2481	2878	3334	3244	3290	3033	2815	2850	2596	2692	2748	2440	2867
12	2743	3140	3605	3672	3706	3445	3237	3300	2982	3043	2906	2633	3201
13	2719	3138	3526	3794	3811	3521	3383	3425	3090	3080	2748	2581	3235
14	2413	2866	3195	3622	3586	3311	3304	3263	2932	2864	2360	2272	2999
15	1915	2342	2579	3184	3131	2933	2919	2877	2597	2454	1775	1727	2536
16	1271	1640	1860	2524	2498	2400	2388	2380	2036	1822	1076	1048	1912
17	566	861	1050	1756	1807	1773	1753	1737	1349	1089	372	376	1207
18	72	195	316	972	1080	1074	1086	990	657	420	16	19	575
19	0	1	9	305	410	453	477	366	150	43	0	0	184
20	0	0	0	17	40	64	71	31	2	0	0	0	19
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17992	21787	25702	28430	28902	27041	25848	25469	22163	21532	19109	17089	23422

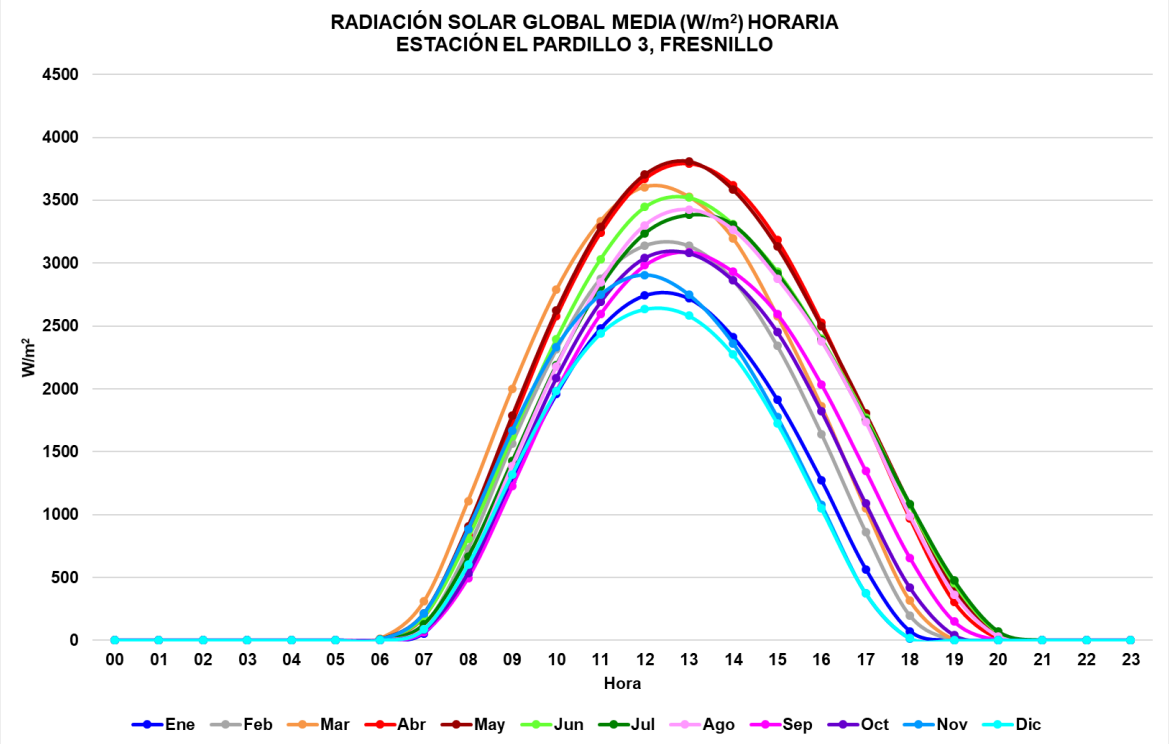


Figura 253. Radiación solar global media horaria (W/m2) de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 280. Radiación solar global media horaria (kWh/m2) de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.05	0.05	0.03	0.02	0.02	0.02	0.05	0.02	0.04
08	0.13	0.18	0.28	0.21	0.23	0.20	0.17	0.15	0.12	0.13	0.22	0.15	0.18
09	0.32	0.39	0.50	0.43	0.45	0.41	0.36	0.35	0.31	0.33	0.42	0.33	0.38
10	0.49	0.58	0.70	0.64	0.66	0.60	0.55	0.54	0.50	0.52	0.58	0.50	0.57
11	0.62	0.72	0.83	0.81	0.82	0.76	0.70	0.71	0.65	0.67	0.69	0.61	0.72
12	0.69	0.78	0.90	0.92	0.93	0.86	0.81	0.82	0.75	0.76	0.73	0.66	0.80
13	0.68	0.78	0.88	0.95	0.95	0.88	0.85	0.86	0.77	0.77	0.69	0.65	0.81
14	0.60	0.72	0.80	0.91	0.90	0.83	0.83	0.82	0.73	0.72	0.59	0.57	0.75
15	0.48	0.59	0.64	0.80	0.78	0.73	0.73	0.72	0.65	0.61	0.44	0.43	0.63
16	0.32	0.41	0.47	0.63	0.62	0.60	0.60	0.60	0.51	0.46	0.27	0.26	0.48
17	0.14	0.22	0.26	0.44	0.45	0.44	0.44	0.43	0.34	0.27	0.09	0.09	0.30
18	0.02	0.05	0.08	0.24	0.27	0.27	0.27	0.25	0.16	0.11	0.00	0.00	0.14
19	0.00	0.00	0.00	0.08	0.10	0.11	0.12	0.09	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.50	5.45	6.43	7.11	7.23	6.76	6.46	6.37	5.54	5.38	4.78	4.27	5.86

Cuadro 281. Radiación solar global media horaria (Mj/m2/s) de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.10	0.28	0.17	0.19	0.17	0.12	0.08	0.06	0.07	0.19	0.08	0.13
08	0.48	0.66	1.00	0.75	0.82	0.73	0.60	0.53	0.45	0.48	0.79	0.54	0.65
09	1.14	1.41	1.80	1.56	1.61	1.46	1.28	1.25	1.10	1.18	1.50	1.19	1.37
10	1.76	2.08	2.51	2.32	2.36	2.16	1.97	1.96	1.79	1.88	2.10	1.78	2.06
11	2.23	2.59	3.00	2.92	2.96	2.73	2.53	2.56	2.34	2.42	2.47	2.20	2.58
12	2.47	2.83	3.24	3.30	3.34	3.10	2.91	2.97	2.68	2.74	2.62	2.37	2.88
13	2.45	2.82	3.17	3.41	3.43	3.17	3.04	3.08	2.78	2.77	2.47	2.32	2.91
14	2.17	2.58	2.88	3.26	3.23	2.98	2.97	2.94	2.64	2.58	2.12	2.04	2.70
15	1.72	2.11	2.32	2.87	2.82	2.64	2.63	2.59	2.34	2.21	1.60	1.55	2.28
16	1.14	1.48	1.67	2.27	2.25	2.16	2.15	2.14	1.83	1.64	0.97	0.94	1.72
17	0.51	0.77	0.95	1.58	1.63	1.60	1.58	1.56	1.21	0.98	0.33	0.34	1.09
18	0.06	0.18	0.28	0.87	0.97	0.97	0.98	0.89	0.59	0.38	0.01	0.02	0.52
19	0.00	0.00	0.01	0.27	0.37	0.41	0.43	0.33	0.13	0.04	0.00	0.00	0.17
20	0.00	0.00	0.00	0.01	0.04	0.06	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.19	19.61	23.13	25.59	26.01	24.34	23.26	22.92	19.95	19.38	17.20	15.38	21.08

Cuadro 282. Velocidad del viento media (km/h) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.2	6.6	7.2	8.9	9.5	9.0	7.4	6.1	4.2	3.8	4.0	5.1	6.4
01	4.9	6.3	6.7	8.0	8.4	8.1	6.3	5.2	3.6	3.4	3.6	5.0	5.8
02	4.7	5.9	6.1	7.2	7.2	7.0	5.6	4.7	3.4	3.2	3.4	4.7	5.3
03	4.5	5.5	5.7	6.6	6.4	6.0	5.0	4.4	3.1	3.0	3.3	4.3	4.8
04	4.3	5.3	5.5	6.1	5.8	5.4	4.7	4.1	2.8	2.8	3.0	4.2	4.5
05	4.1	5.1	5.1	5.6	5.3	4.7	4.4	3.8	2.7	2.6	2.8	4.1	4.2
06	4.1	4.9	4.8	5.3	4.6	4.2	4.0	3.3	2.5	2.4	2.8	3.9	3.9
07	4.1	4.9	5.0	5.0	4.5	4.1	4.0	2.9	2.4	2.2	2.7	3.8	3.8
08	4.5	5.8	6.6	5.8	5.8	6.1	5.5	4.0	3.2	2.7	3.9	4.5	4.9
09	6.3	7.8	8.5	7.9	7.5	7.9	7.6	6.5	5.5	4.5	5.9	6.3	6.9
10	8.4	10.1	10.6	9.5	8.4	8.3	8.1	8.0	7.2	6.2	7.5	8.4	8.4
11	10.5	12.1	12.3	10.9	9.3	8.4	8.2	8.2	8.0	7.4	8.9	10.1	9.5
12	12.0	13.8	13.9	12.5	10.1	9.0	8.5	8.4	8.3	8.4	9.9	11.5	10.5
13	13.2	15.2	14.8	13.6	11.0	10.1	9.3	9.0	8.7	9.0	10.4	12.4	11.4
14	13.7	15.8	15.7	14.7	11.7	11.2	10.5	9.9	9.0	9.2	10.6	12.9	12.1
15	13.9	16.0	16.2	15.6	12.3	12.1	11.4	10.6	9.4	9.3	10.6	12.9	12.5
16	13.9	15.9	16.2	16.0	12.8	12.4	12.0	11.1	9.6	9.4	10.3	12.5	12.7
17	13.1	15.2	16.0	16.1	13.3	12.8	12.6	11.5	9.7	9.0	9.2	10.9	12.4
18	10.0	12.8	14.6	16.1	13.5	13.4	12.7	11.6	9.1	7.9	6.7	8.1	11.4
19	8.1	9.9	11.4	14.8	13.2	13.1	12.2	10.3	7.1	5.7	6.2	6.9	9.9
20	7.3	9.1	10.2	12.5	11.5	11.6	10.1	8.3	5.4	4.9	5.9	6.4	8.6
21	6.7	8.5	9.7	11.6	10.7	10.4	8.7	7.3	4.9	4.9	5.5	6.0	7.9
22	6.2	7.8	9.0	10.8	10.4	10.3	8.6	7.2	5.0	4.7	5.0	5.8	7.6
23	5.9	7.1	7.9	10.1	10.0	9.9	8.1	6.7	4.6	4.4	4.6	5.4	7.1
Media	7.9	9.5	10.0	10.5	9.3	9.0	8.2	7.2	5.8	5.5	6.1	7.3	8.0

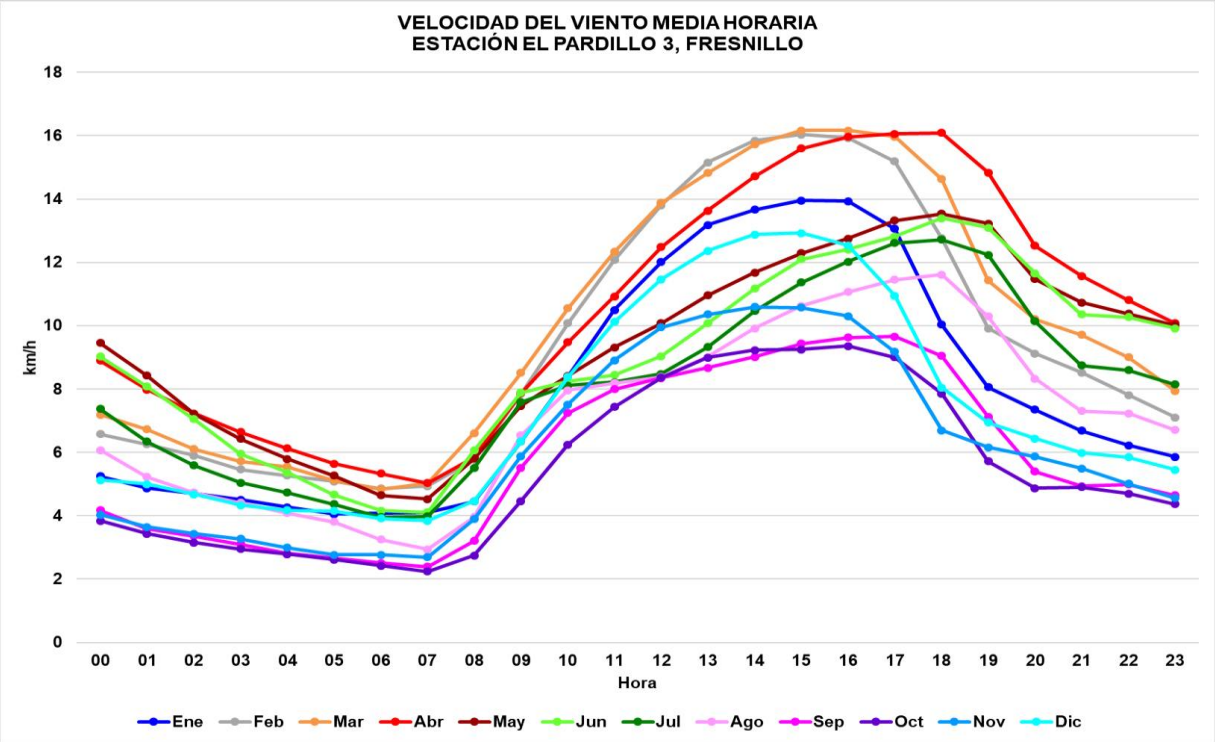


Figura 254. Velocidad del viento media (km/h) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 283. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	29.2	39.0	39.6	35.1	39.0	31.2	31.6	32.1	26.1	21.2	26.0	32.0	39.6
01	30.2	47.9	45.0	31.5	34.0	31.0	38.9	27.6	19.4	16.8	21.8	37.7	47.9
02	49.7	42.8	47.0	40.0	29.0	35.0	33.8	23.2	19.8	18.6	27.2	32.1	49.7
03	45.2	35.5	43.0	33.8	35.9	25.0	25.5	29.8	23.0	20.0	35.3	27.8	45.2
04	43.7	40.5	51.0	32.0	27.3	23.0	25.8	24.8	16.9	26.0	37.0	32.2	51.0
05	34.5	46.5	51.0	27.8	26.9	23.6	26.3	26.2	14.4	21.0	47.3	32.2	51.0
06	36.0	43.6	52.0	28.8	22.0	24.0	23.3	21.9	15.0	23.1	56.8	42.0	56.8
07	35.0	31.0	60.0	27.0	23.8	20.0	22.7	16.3	17.0	23.4	34.0	42.3	60.0
08	37.0	35.1	64.0	31.9	26.0	23.7	28.0	19.2	20.0	23.7	31.0	35.0	64.0
09	43.0	43.5	70.0	41.7	30.0	24.6	29.0	23.4	21.5	26.6	31.4	39.9	70.0
10	50.0	49.3	80.0	43.6	34.0	24.7	38.2	28.4	22.5	27.8	35.0	53.0	80.0
11	52.0	50.0	77.0	45.6	31.0	26.0	32.0	30.5	23.0	31.2	36.3	56.3	77.0
12	52.0	47.2	59.0	43.0	33.8	29.5	38.4	31.7	23.9	32.0	40.2	58.7	59.0
13	53.0	51.0	55.0	45.0	41.5	31.6	36.2	31.0	26.9	30.3	39.0	50.5	55.0
14	56.6	49.0	51.0	51.0	49.9	42.0	35.7	33.7	28.3	30.0	44.0	54.2	56.6
15	54.2	49.0	53.0	50.0	49.5	36.0	36.3	32.7	37.0	31.9	41.0	49.7	54.2
16	51.0	49.0	48.0	45.1	48.2	40.5	44.0	32.0	31.5	32.0	36.0	44.7	51.0
17	51.3	46.0	46.0	47.4	42.1	38.5	42.7	36.2	37.3	29.0	36.4	43.3	51.3
18	47.0	43.6	43.0	44.4	43.1	44.6	40.1	40.3	39.0	30.0	31.1	41.0	47.0
19	39.0	40.7	44.0	42.0	40.1	43.0	37.9	37.8	33.1	24.3	30.4	32.2	44.0
20	37.0	36.6	37.0	35.3	42.0	46.5	35.3	43.3	29.0	24.5	30.1	34.7	46.5
21	36.0	38.7	36.0	39.0	45.2	56.0	31.0	38.2	29.3	21.8	24.1	38.0	56.0
22	34.1	44.6	37.0	43.0	47.3	41.0	37.8	57.4	26.8	22.9	24.0	37.1	57.4
23	39.5	35.0	38.7	40.0	42.4	37.7	34.0	37.0	28.4	22.8	23.6	29.9	42.4
Máx.	56.6	51.0	80.0	51.0	49.9	56.0	44.0	57.4	39.0	32.0	56.8	58.7	80.0

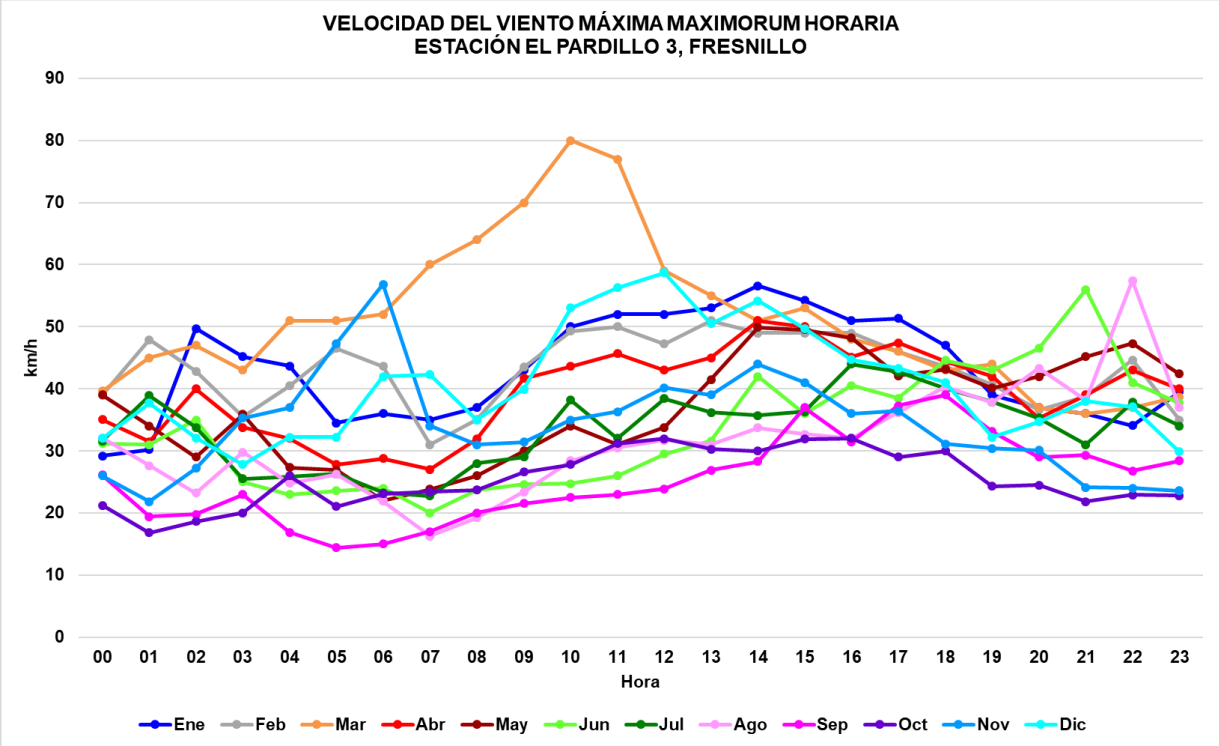


Figura 255. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 284. Frecuencia de velocidad del viento (%) mensual de la estación El Pardillo 3, Fresnillo (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	44.1	35.2	30.3	25.3	26.8	27.1	32.6	38.7	49.7	55.2	53.0	47.3	38.9
5.1 a 10.0	27.6	28.4	30.8	30.2	34.5	34.3	35.4	35.8	34.1	30.1	28.3	27.6	31.5
10.1 a 15.0	14.1	16.1	16.9	20.3	22.4	24.6	21.4	18.3	13.2	11.3	12.0	12.9	17.0
15.1 a 20.0	7.4	9.6	11.0	13.5	10.9	10.3	7.8	5.5	2.6	2.8	4.4	6.6	7.6
20.1 a 25.0	3.7	5.5	5.7	6.8	4.1	2.8	2.1	1.4	0.4	0.5	1.5	3.2	3.1
25.1 a 30.0	1.8	3.0	2.9	2.7	1.1	0.7	0.6	0.2	0.0	0.2	0.5	1.4	1.2
30.1 a 35.0	0.7	1.5	1.5	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.5	0.5
35.1 a 40.0	0.4	0.4	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
40.1 a 45.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
45.1 a 50.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

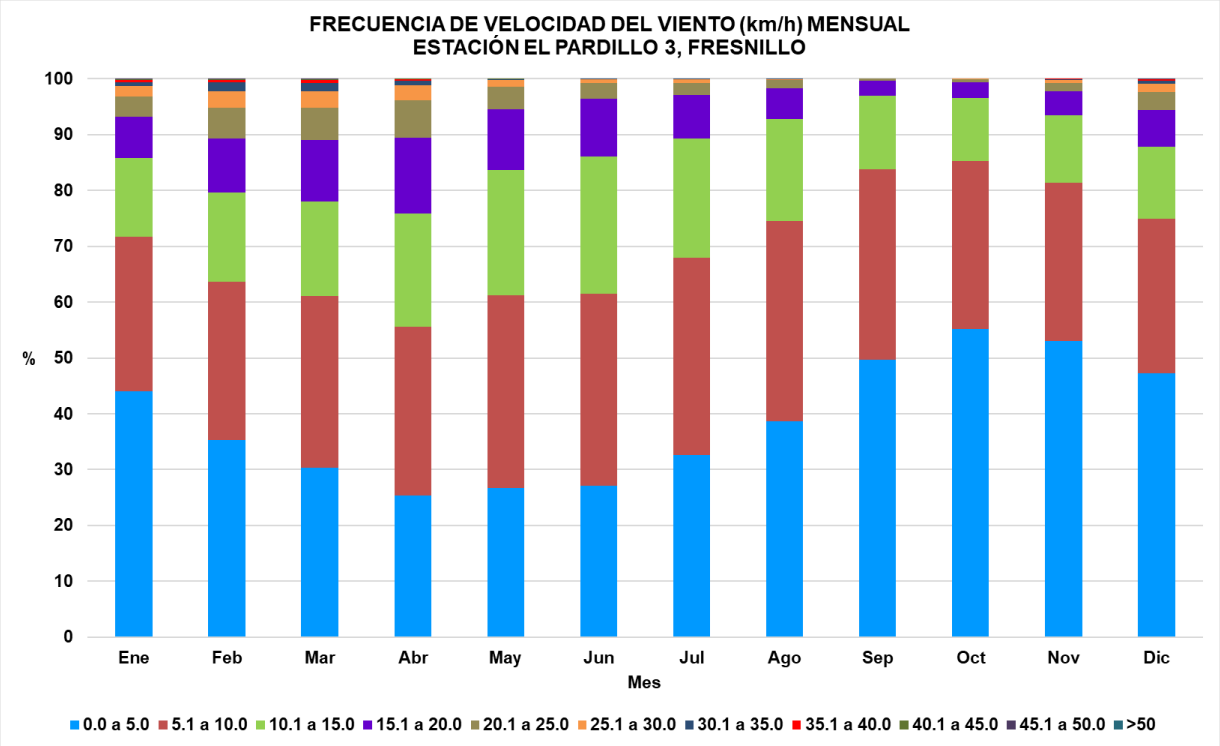


Figura 256. Frecuencia de velocidad del viento (%) mensual de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 285. Frecuencia de dirección del viento (%) mensual de la estación El Pardillo 3, Fresnillo (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.0	3.1	3.7	3.4	4.0	4.5	2.6	3.3	5.0	4.3	4.3	3.7	3.8
NNE	3.3	3.1	3.0	2.8	3.8	5.2	3.2	3.8	5.3	4.5	3.8	3.2	3.8
NE	3.6	3.3	3.2	2.9	4.2	5.9	4.8	5.7	7.0	6.0	4.3	3.4	4.6
ENE	4.3	3.6	3.8	3.5	5.1	8.0	7.8	9.5	10.2	7.9	5.8	4.0	6.2
E	5.6	4.3	4.9	4.1	6.4	11.6	14.4	14.3	13.6	10.1	7.4	4.8	8.5
ESE	7.4	5.7	6.0	5.0	8.0	15.7	18.7	17.9	14.9	11.1	9.0	5.8	10.5
SE	9.0	8.2	7.9	7.1	8.9	12.7	14.6	14.1	11.4	10.5	10.1	8.9	10.3
SSE	9.0	8.5	8.1	7.4	8.1	7.2	8.8	8.0	6.7	8.6	9.2	10.3	8.3
S	9.6	10.0	8.9	9.5	8.4	6.8	7.1	5.8	5.0	7.5	8.7	10.7	8.1
SSO	11.5	12.6	11.2	11.1	8.7	5.1	4.9	4.2	3.6	6.5	8.2	12.3	8.2
SO	10.9	13.7	12.8	14.3	9.0	3.3	2.8	2.7	2.7	5.0	7.8	11.1	7.9
OSO	6.9	9.4	10.4	11.7	7.8	2.5	2.0	2.0	2.4	3.8	6.1	7.2	5.9
O	4.5	5.1	5.9	6.6	5.7	2.6	2.1	2.1	2.4	3.5	4.4	4.7	4.1
ONO	3.4	3.3	3.7	4.1	4.3	2.6	1.9	2.0	2.6	3.3	3.7	3.5	3.2
NO	3.6	3.1	3.2	3.3	3.8	3.0	2.2	2.3	3.2	3.4	3.4	3.2	3.2
NNO	3.5	2.9	3.1	3.2	3.8	3.4	2.3	2.4	3.9	3.8	3.9	3.3	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

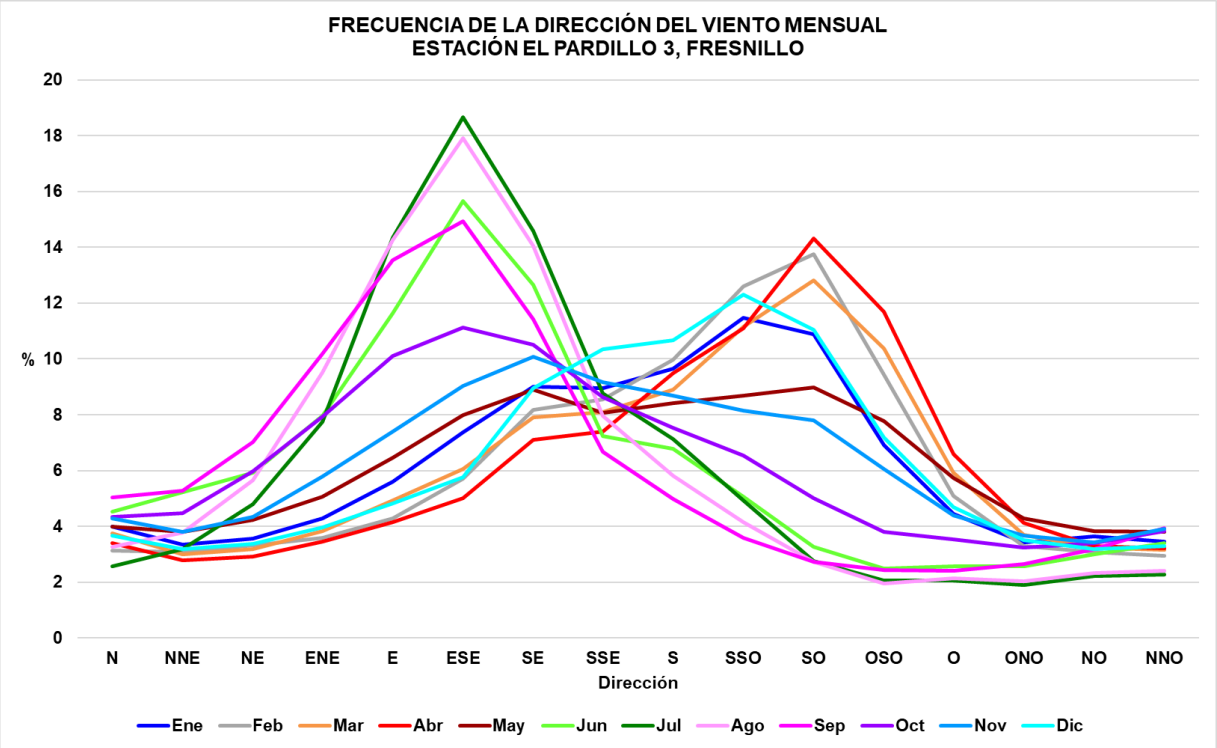
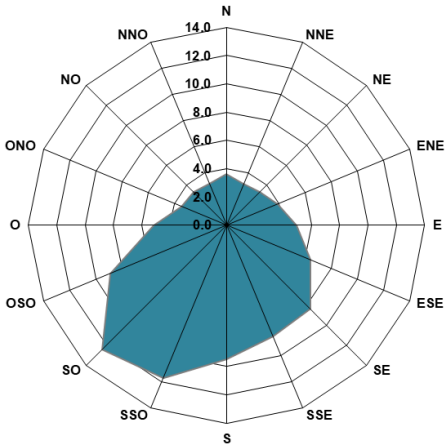


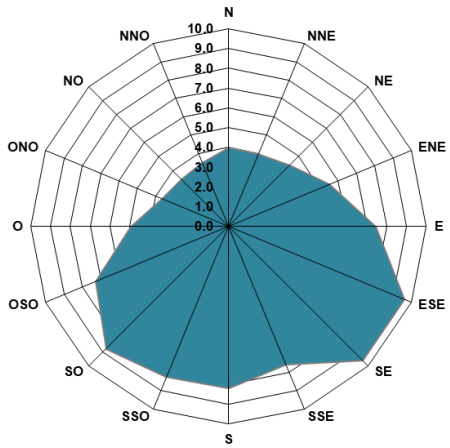
Figura 257. Frecuencia de dirección del viento (%) mensual de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 286. Frecuencia de dirección del viento (%) trimestral de la estación El Pardillo 3, Fresnillo (2002-2022).

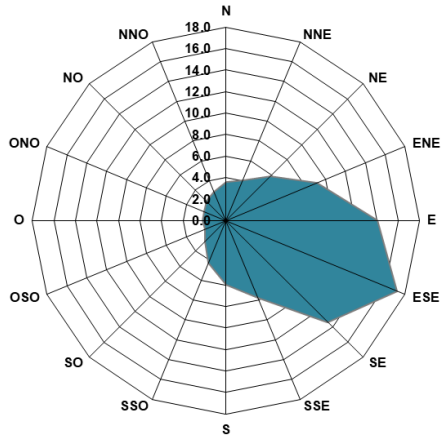
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.6	4.0	3.6	4.1	3.8
NNE	3.1	4.0	4.1	3.8	3.8
NE	3.4	4.4	5.8	4.6	4.6
ENE	3.9	5.5	9.1	5.9	6.2
E	5.0	7.5	14.1	7.4	8.5
ESE	6.4	9.6	17.2	8.6	10.5
SE	8.4	9.6	13.4	9.8	10.3
SSE	8.5	7.6	7.8	9.4	8.3
S	9.5	8.2	6.0	9.0	8.1
SSO	11.7	8.2	4.2	9.0	8.2
SO	12.4	8.8	2.7	8.0	7.9
OSO	8.9	7.3	2.1	5.7	5.9
O	5.2	4.9	2.2	4.2	4.1
ONO	3.5	3.7	2.2	3.5	3.2
NO	3.3	3.4	2.6	3.3	3.2
NNO	3.2	3.5	2.9	3.7	3.3
Suma	100.0	100.0	100.0	100.0	100.0



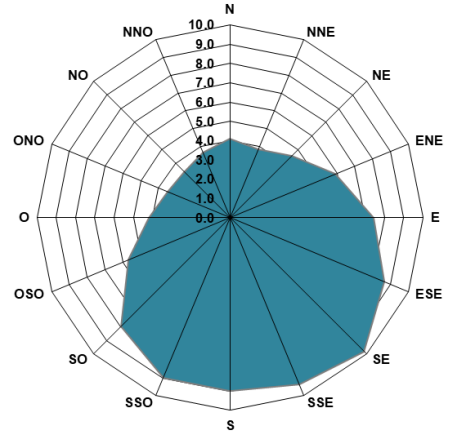
Ene-Mar



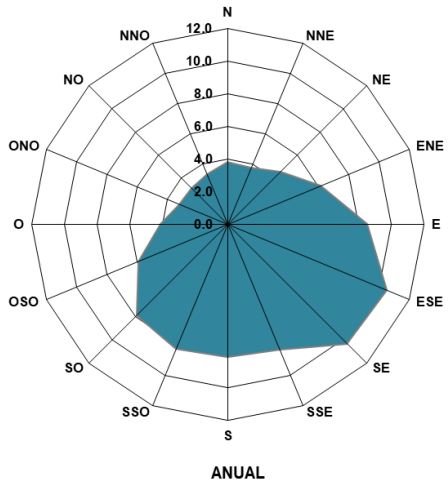
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 258. Frecuencia de dirección del viento (%) trimestral de la estación El Pardillo 3, Fresnillo (2002-2022).

Cuadro 287. Estadísticas climatológicas mensuales de la estación El Pardillo 3, Fresnillo (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.9	23.3	25.8	28.5	30.0	28.7	26.6	26.9	25.2	25.3	23.3	21.7	25.5
Temperatura máxima maximorum (°C)	27.9	32.2	33.5	34.0	35.9	34.7	33.2	32.5	31.1	31.5	30.4	28.4	35.9
Temperatura mínima media (°C)	-0.2	1.7	3.4	6.5	9.8	12.4	12.4	12.0	11.5	6.9	2.0	-0.3	6.5
Temperatura mínima minimorum (°C)	-14.2	-8.6	-8.9	-3.9	0.9	4.2	5.4	7.1	1.2	-5.5	-14.2	-15.1	-15.1
Temperatura media (°C)	10.2	12.7	15.3	18.5	20.7	20.7	19.1	19.1	17.7	15.7	12.4	10.4	16.0
Oscilación térmica (°C)	21.0	21.6	22.3	22.0	20.2	16.3	14.2	14.9	13.8	18.4	21.2	22.0	19.0
Precipitación acumulada media (mm)	9.4	13.4	8.1	2.8	13.4	63.9	93.9	93.0	100.5	33.7	16.5	10.3	458.9
Precipitación máxima maximorum en 24 horas (mm)	25.4	32.2	33.7	10.2	20.0	62.1	68.3	64.1	71.7	55.4	57.5	38.7	71.7
Número de días promedio con lluvia	4.2	3.7	3.8	2.7	5.2	10.3	14.0	13.8	13.0	7.2	4.2	3.4	85.6
Evapotranspiración acumulada potencial media (mm)	106.7	125.1	169.0	192.5	200.1	175.2	161.6	159.6	126.0	127.1	107.7	102.3	1752.9
Humedad máxima media (%)	81.8	76.5	67.7	61.6	69.9	85.4	93.1	94.3	96.6	94.5	90.0	83.6	82.9
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.5	17.4	12.9	10.8	13.4	24.6	34.2	34.0	41.3	30.9	24.9	21.0	23.9
Humedad mínima minimorum (%)	3.0	3.9	3.0	3.0	2.9	4.0	11.0	14.0	12.0	5.6	4.0	4.0	2.9
Humedad media (%)	50.6	43.1	35.0	29.9	36.7	53.9	66.1	66.9	74.1	65.7	58.1	51.6	52.6
Radiación global media día/mes (W/m^2)	17993.5	21790.2	25702.1	28429.9	28907.9	27041.2	25848.2	25468.8	22163.2	21531.9	19108.5	17088.8	23422.9
Radiación global media día/mes (kWh/m^2)	4.5	5.4	6.4	7.1	7.2	6.8	6.5	6.4	5.5	5.4	4.8	4.3	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.2	19.6	23.1	25.6	26.0	24.3	23.3	22.9	19.9	19.4	17.2	15.4	21.1
Velocidad del viento máxima media (km/h)	19.7	22.1	23.2	23.9	23.1	22.6	20.9	19.6	16.1	14.5	15.5	17.9	19.9
Velocidad del viento máxima maximorum (km/h)	56.6	51.0	80.0	51.0	49.9	56.0	44.0	57.4	39.0	32.0	56.8	58.7	80.0
Velocidad del viento media (km/h)	7.9	9.5	10.0	10.5	9.3	9.0	8.2	7.2	5.8	5.5	6.1	7.3	8.0
Dirección dominante del viento	SSO	SO	SO	SO	SO	ESE	ESE	ESE	ESE	ESE	SE	SSO	ESE

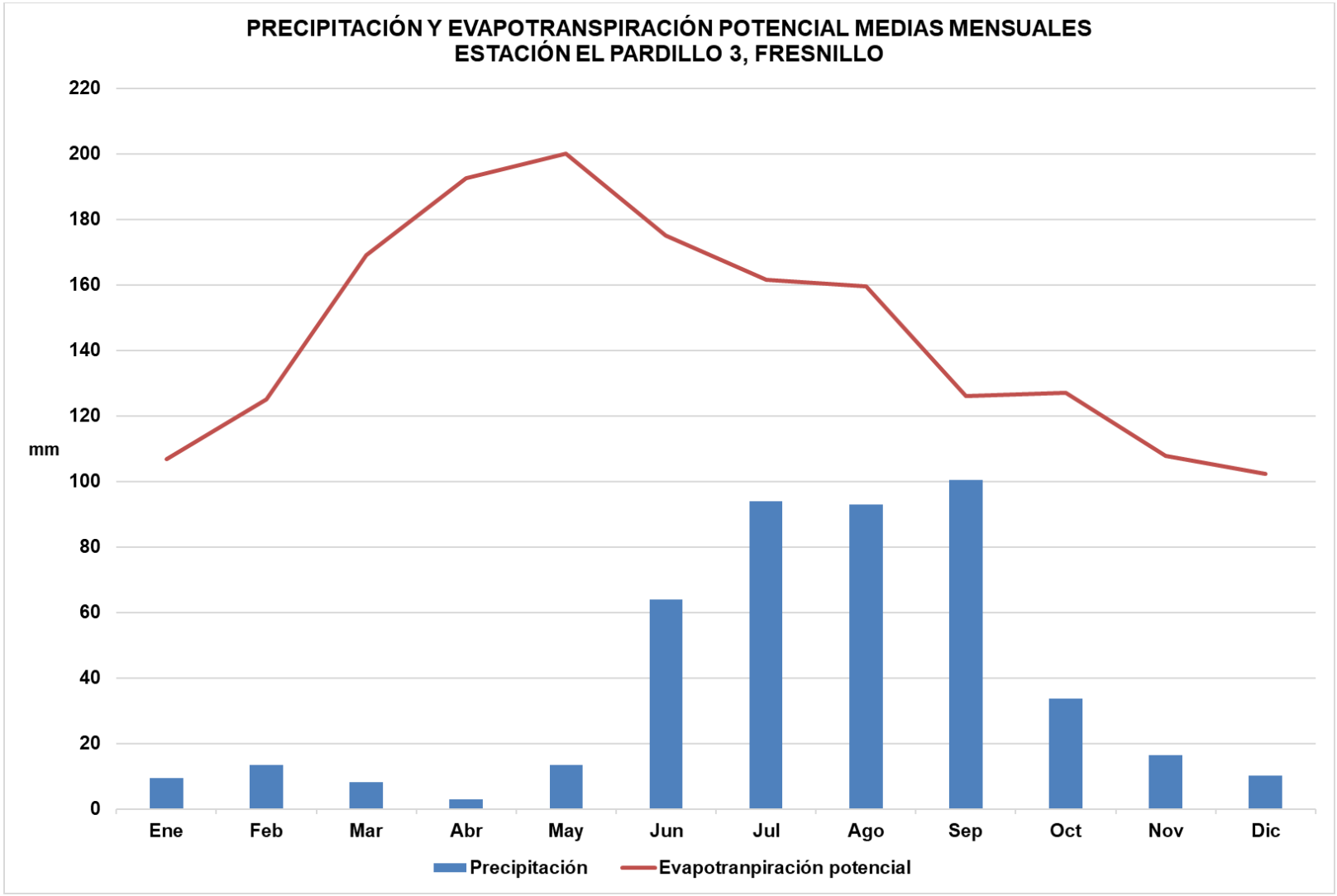


Figura 259. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación El Pardillo 3, Fresnillo (2002-2022).

7.16. Estación: El Saladillo, Pánfilo Natera

Cuadro 288. Temperatura máxima media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.8	10.1	12.4	16.2	18.1	18.0	16.6	16.8	15.5	13.3	9.4	7.8	13.5
01	6.8	8.9	11.2	14.9	17.0	17.1	15.9	16.0	14.9	12.4	8.5	6.8	12.5
02	6.0	7.9	10.1	13.7	15.9	16.3	15.3	15.4	14.4	11.7	7.7	5.9	11.7
03	5.3	7.1	9.1	12.6	14.8	15.6	14.7	14.8	14.0	11.0	7.0	5.2	10.9
04	4.6	6.3	8.1	11.6	13.9	14.9	14.2	14.2	13.6	10.5	6.4	4.6	10.3
05	4.1	5.7	7.4	10.7	13.0	14.3	13.8	13.7	13.3	10.0	6.0	4.2	9.7
06	3.5	5.0	6.9	9.9	12.2	13.8	13.4	13.3	13.0	9.6	5.7	3.7	9.2
07	3.6	5.5	8.8	10.5	12.9	14.4	13.6	13.5	13.0	10.0	7.3	4.2	9.8
08	7.2	9.7	13.2	14.3	16.4	16.8	15.7	15.6	14.9	12.6	11.5	8.3	13.0
09	11.1	13.8	17.0	18.1	19.6	19.0	17.8	17.9	17.0	15.8	15.1	12.4	16.2
10	14.4	16.9	19.9	21.2	22.4	21.1	19.6	19.8	19.0	18.5	18.0	15.7	18.9
11	16.7	19.1	21.9	23.5	24.6	23.0	21.3	21.6	20.7	20.7	20.0	18.0	20.9
12	18.4	20.8	23.3	25.2	26.3	24.6	22.8	23.1	22.0	22.3	21.3	19.5	22.5
13	19.6	21.9	24.4	26.5	27.6	25.9	23.9	24.3	23.0	23.4	22.2	20.6	23.6
14	20.2	22.6	25.1	27.3	28.5	26.7	24.7	25.2	23.8	24.1	22.6	21.1	24.3
15	20.4	22.9	25.3	27.7	28.9	27.2	25.1	25.7	24.1	24.4	22.6	21.2	24.6
16	20.1	22.7	25.1	27.8	28.9	27.3	25.2	25.7	24.0	24.3	22.1	20.8	24.5
17	19.2	21.9	24.4	27.4	28.6	26.9	24.9	25.3	23.5	23.6	20.8	19.7	23.8
18	17.1	20.3	22.9	26.6	27.9	26.2	24.1	24.5	22.6	22.2	17.8	16.8	22.4
19	13.9	17.3	20.2	25.0	26.6	25.0	23.0	23.2	21.0	19.8	15.0	13.9	20.3
20	12.2	15.1	17.7	22.6	24.4	23.3	21.3	21.3	19.0	17.4	13.7	12.3	18.4
21	11.0	13.7	16.1	20.3	22.1	21.4	19.6	19.6	17.7	16.1	12.6	11.1	16.8
22	9.8	12.6	14.9	18.8	20.5	20.0	18.4	18.5	16.8	15.1	11.4	10.0	15.6
23	8.8	11.4	13.7	17.5	19.3	18.9	17.5	17.6	16.1	14.1	10.4	8.9	14.5
Media	11.7	14.1	16.6	19.6	21.3	20.7	19.3	19.4	18.2	16.8	14.0	12.2	17.0

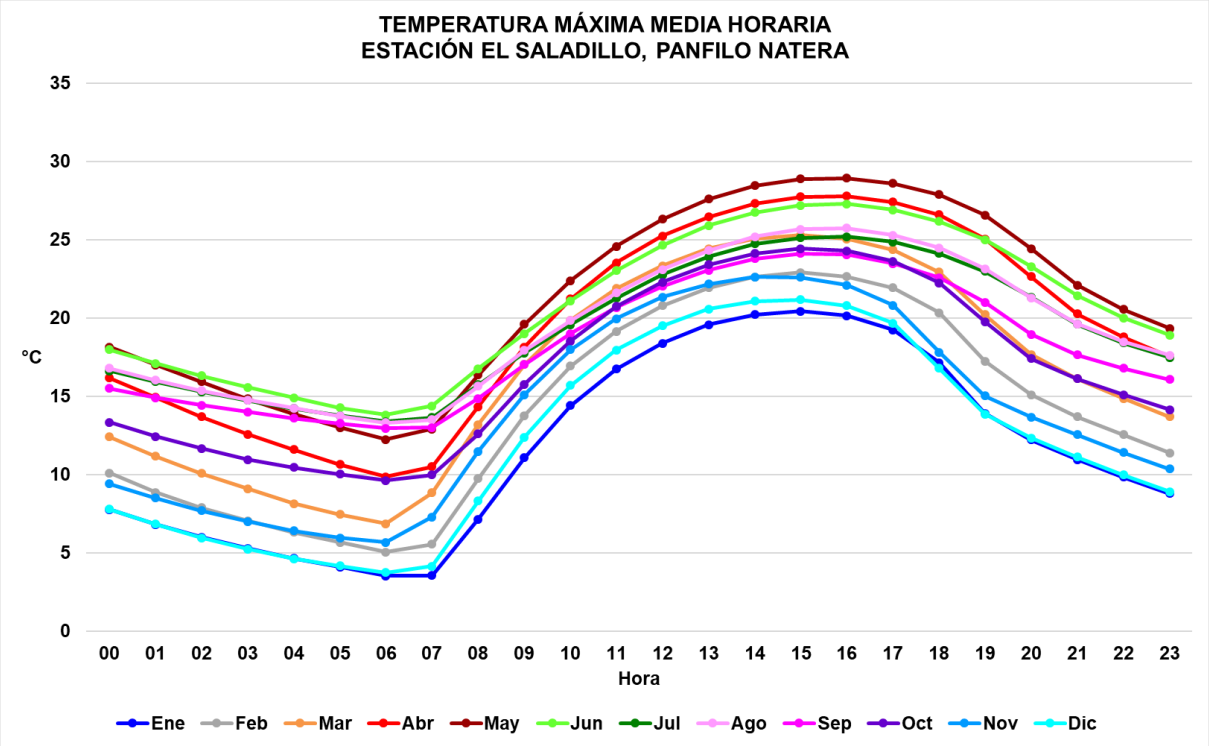


Figura 260. Temperatura máxima media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 289. Temperatura máxima maximorum (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.2	16.9	21.1	22.8	26.1	23.5	21.6	21.2	20.8	18.8	16.6	16.0	26.1
01	15.2	16.4	20.4	21.4	23.7	22.2	20.8	20.5	19.8	18.1	15.9	15.3	23.7
02	13.4	15.8	19.0	21.3	23.3	21.8	19.7	19.3	19.3	17.0	15.0	13.9	23.3
03	13.0	15.9	18.3	20.0	21.7	19.5	18.8	18.9	17.8	17.2	14.7	13.2	21.7
04	12.1	15.3	17.5	19.2	20.0	18.9	18.3	17.6	17.3	16.7	14.6	12.5	20.0
05	12.2	14.5	16.6	19.6	19.7	18.4	17.9	17.0	17.1	16.4	14.4	12.4	19.7
06	12.4	13.3	15.4	18.0	20.0	17.7	17.2	16.8	17.0	15.9	14.3	12.3	20.0
07	12.9	14.1	17.6	18.5	22.2	19.2	17.8	17.5	16.9	16.1	15.5	12.8	22.2
08	16.2	19.1	21.4	22.3	26.0	22.8	20.1	19.6	19.7	19.0	19.7	16.9	26.0
09	19.6	22.6	25.3	25.9	27.7	25.6	22.4	22.2	22.0	23.2	23.7	22.2	27.7
10	22.9	25.7	27.9	28.2	30.4	28.0	25.0	24.6	24.8	25.8	25.7	24.3	30.4
11	24.6	27.3	30.1	29.8	31.2	29.3	27.6	26.9	26.6	27.1	26.9	26.5	31.2
12	26.3	29.1	31.7	30.9	32.7	30.4	28.8	28.5	27.7	28.9	28.6	27.5	32.7
13	27.0	30.0	32.5	31.7	34.0	32.0	30.5	29.5	29.1	29.2	29.4	27.9	34.0
14	27.3	31.1	32.6	32.6	34.6	32.7	31.7	30.3	29.3	30.6	29.8	28.5	34.6
15	27.2	31.1	32.8	33.1	35.3	33.5	31.9	30.9	30.3	31.0	29.9	28.2	35.3
16	26.6	30.6	32.9	33.7	35.1	33.8	32.3	31.0	30.3	31.1	30.1	27.7	35.1
17	25.8	29.8	32.2	33.3	35.2	33.5	32.2	31.0	30.6	30.3	28.3	25.7	35.2
18	23.9	28.0	31.4	32.6	35.1	33.5	30.7	30.2	30.5	29.5	23.8	23.2	35.1
19	20.1	24.9	28.1	31.6	33.4	33.5	30.1	28.7	29.4	28.8	22.3	20.4	33.5
20	20.3	23.0	25.2	28.6	31.4	32.0	27.4	26.9	26.5	25.0	21.9	19.3	32.0
21	18.5	21.9	23.3	27.1	28.8	28.6	25.4	24.6	24.5	23.8	19.3	18.3	28.8
22	18.2	21.9	21.8	27.3	27.8	27.4	24.2	23.2	24.1	23.1	19.0	16.5	27.8
23	17.5	18.5	21.3	23.9	27.2	26.4	22.8	21.9	21.1	20.1	17.1	15.9	27.2
Máx.	27.3	31.1	32.9	33.7	35.3	33.8	32.3	31.0	30.6	31.1	30.1	28.5	35.3

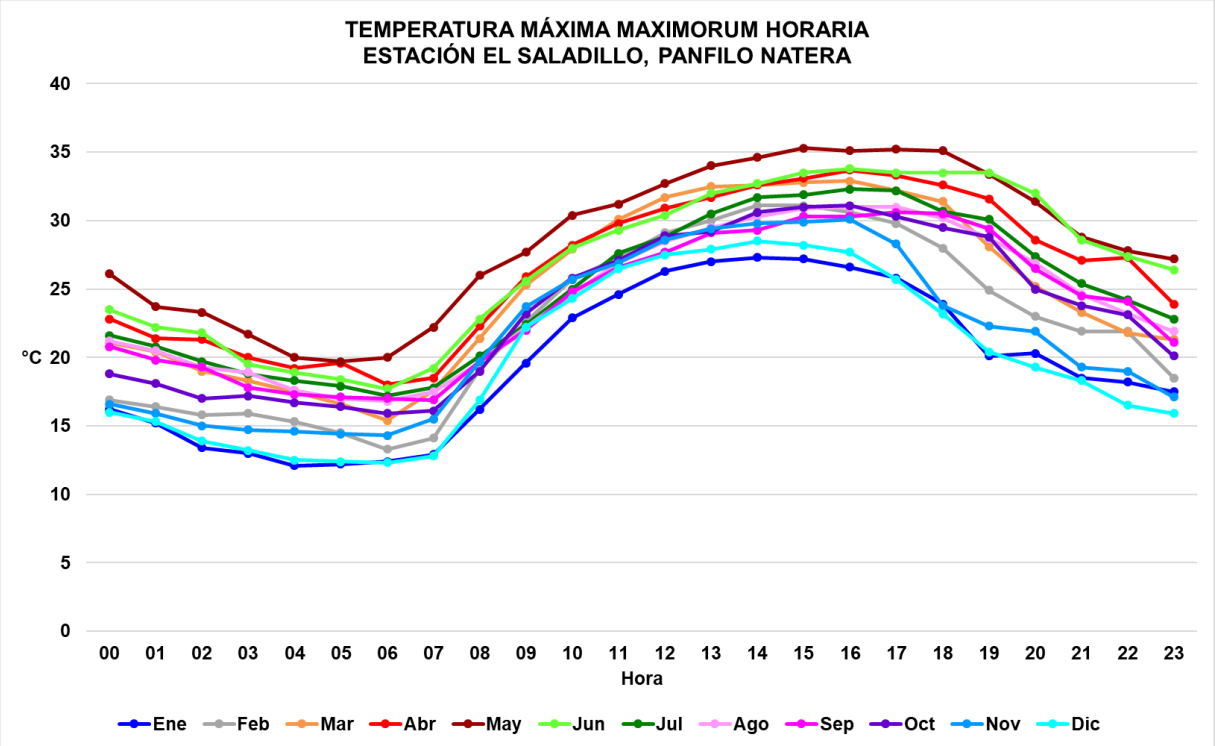


Figura 261. Temperatura máxima maximorum (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 290. Temperatura mínima media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	8.8	11.1	14.9	17.0	17.2	16.0	16.1	14.9	12.4	8.3	6.6	12.5
01	5.7	7.7	9.9	13.6	15.9	16.4	15.3	15.4	14.3	11.5	7.4	5.7	11.6
02	4.9	6.7	8.9	12.5	14.9	15.6	14.7	14.8	13.9	10.8	6.7	4.9	10.8
03	4.2	5.9	7.9	11.4	13.9	14.9	14.2	14.2	13.5	10.2	6.1	4.2	10.0
04	3.6	5.2	7.0	10.4	13.0	14.3	13.7	13.7	13.1	9.7	5.5	3.6	9.4
05	3.0	4.5	6.3	9.5	12.1	13.7	13.3	13.2	12.8	9.3	5.1	3.2	8.8
06	2.5	4.0	5.7	8.8	11.4	13.2	12.9	12.8	12.5	8.9	4.7	2.7	8.3
07	2.3	3.9	6.2	8.6	11.3	13.3	12.8	12.6	12.3	8.8	5.1	2.6	8.3
08	3.8	6.3	9.9	11.0	13.6	14.9	14.1	13.7	13.1	10.1	8.4	4.8	10.3
09	8.1	10.8	14.2	15.3	17.2	17.3	16.2	16.2	15.4	13.4	12.5	9.3	13.8
10	12.0	14.6	17.8	19.0	20.3	19.5	18.2	18.4	17.5	16.5	15.9	13.3	16.9
11	15.1	17.5	20.4	21.8	23.0	21.6	20.0	20.2	19.4	19.1	18.5	16.3	19.4
12	17.1	19.6	22.2	23.9	25.0	23.4	21.5	21.9	20.9	21.1	20.2	18.3	21.3
13	18.6	21.0	23.5	25.4	26.5	24.8	22.8	23.2	22.0	22.4	21.3	19.7	22.6
14	19.5	21.9	24.3	26.5	27.5	25.7	23.7	24.1	22.8	23.2	21.9	20.4	23.5
15	19.8	22.3	24.6	27.0	27.9	26.2	24.1	24.6	23.0	23.5	21.9	20.6	23.8
16	19.4	22.0	24.3	27.0	28.0	26.3	24.2	24.7	22.9	23.3	21.1	20.0	23.6
17	17.9	20.8	23.3	26.6	27.6	25.8	23.8	24.2	22.4	22.4	18.8	17.8	22.6
18	14.5	18.1	21.0	25.4	26.8	25.1	23.0	23.3	21.3	20.4	15.4	14.3	20.7
19	12.4	15.4	18.1	23.3	25.0	23.7	21.7	21.7	19.4	17.7	13.7	12.4	18.7
20	11.0	13.7	16.2	20.7	22.5	21.8	19.9	19.9	17.8	16.1	12.5	11.0	16.9
21	9.8	12.5	14.8	18.9	20.7	20.2	18.5	18.6	16.8	15.0	11.3	9.8	15.6
22	8.6	11.2	13.7	17.6	19.4	19.0	17.6	17.6	16.0	14.1	10.3	8.7	14.5
23	7.6	10.1	12.3	16.3	18.2	18.0	16.7	16.8	15.4	13.1	9.2	7.6	13.4
Media	10.3	12.7	15.2	18.1	19.9	19.7	18.3	18.4	17.2	15.5	12.6	10.7	15.7

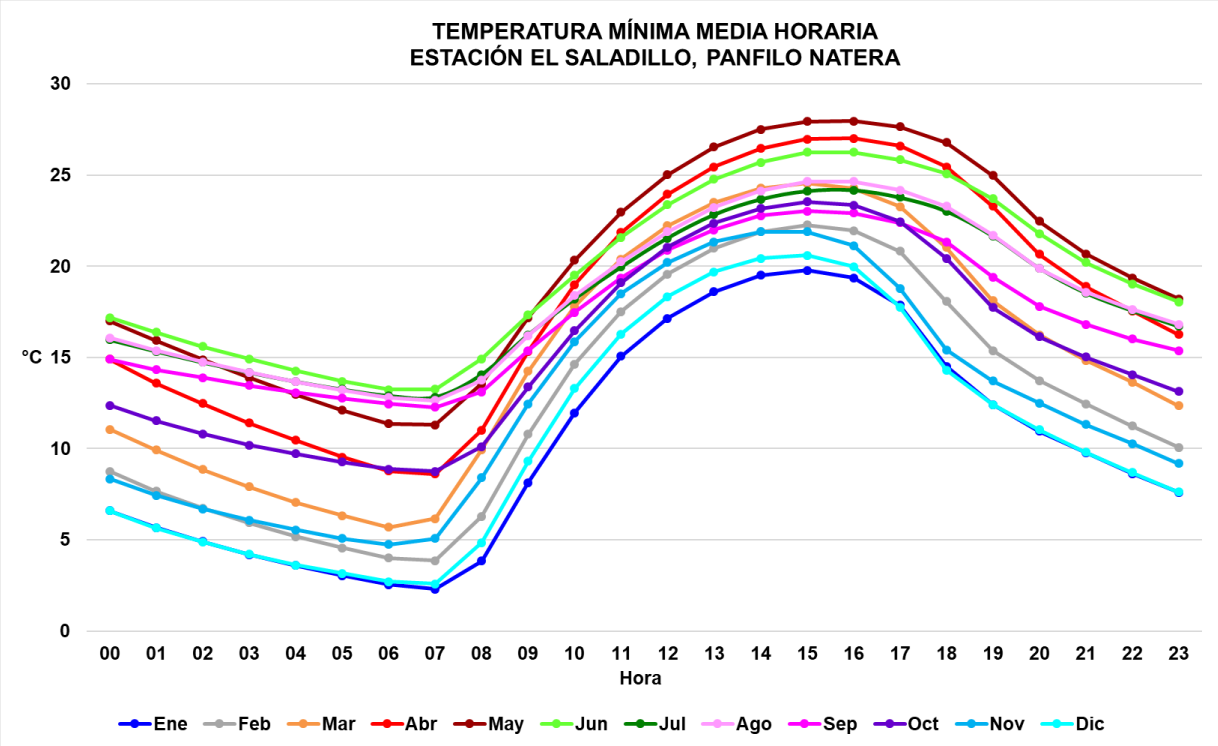


Figura 262. Temperatura mínima media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 291. Temperatura mínima minimorum (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.3	0.6	1.1	5.9	10.1	12.5	12.0	11.0	9.1	2.1	-3.8	-6.5	-6.5
01	-7.9	-1.8	-0.8	5.0	9.0	11.8	10.5	10.2	6.8	2.2	-5.6	-9.0	-9.0
02	-8.0	-2.3	-3.0	4.1	7.4	9.6	9.9	9.9	5.9	1.5	-6.2	-9.0	-9.0
03	-8.6	-3.4	-4.2	3.4	6.6	9.9	8.8	8.9	5.6	0.1	-6.7	-8.0	-8.6
04	-9.3	-4.3	-3.8	1.9	5.1	9.4	8.1	8.3	4.9	-0.6	-8.1	-9.8	-9.8
05	-9.1	-6.0	-5.2	0.4	5.3	8.2	8.3	8.0	4.0	-2.5	-7.4	-10.8	-10.8
06	-9.6	-5.8	-5.1	0.6	3.7	7.4	7.1	7.5	3.9	-2.7	-9.7	-11.4	-11.4
07	-10.3	-4.8	-5.4	-0.9	3.1	7.1	6.9	7.1	3.7	-2.6	-9.5	-11.4	-11.4
08	-9.3	-2.6	-0.8	0.5	5.4	9.8	9.6	7.8	5.1	-0.4	-5.0	-8.9	-9.3
09	-1.6	0.0	2.7	7.0	8.6	12.4	10.7	10.5	8.2	2.9	-0.4	-5.6	-5.6
10	-0.1	2.3	3.9	11.0	10.1	14.1	13.4	13.8	11.6	6.7	0.6	-3.7	-3.7
11	0.4	4.7	3.3	11.0	10.1	14.3	14.2	15.1	13.9	6.9	3.4	-2.1	-2.1
12	0.4	6.7	2.4	14.8	11.6	14.9	15.1	15.4	14.8	7.5	3.6	-2.4	-2.4
13	0.9	7.6	3.2	16.2	14.9	14.7	14.3	15.2	15.9	8.2	3.8	-2.7	-2.7
14	2.8	7.7	1.5	15.1	11.9	14.9	14.7	13.9	14.2	9.0	5.0	-2.6	-2.6
15	3.8	7.4	2.1	15.6	12.9	14.4	12.1	13.5	15.1	9.0	5.3	-2.4	-2.4
16	4.6	6.2	3.3	12.8	11.7	13.7	13.0	13.7	13.9	9.1	5.3	-1.9	-1.9
17	4.8	6.3	5.0	11.3	10.1	13.9	13.7	13.4	13.4	9.4	4.0	-2.0	-2.0
18	4.1	6.1	5.1	11.2	11.5	14.5	14.0	13.0	13.7	8.5	2.4	-3.1	-3.1
19	2.6	5.8	3.4	10.6	12.8	13.8	13.5	13.5	13.0	8.4	1.4	-3.0	-3.0
20	1.5	5.3	2.1	10.2	12.6	13.2	13.2	13.9	12.4	6.9	0.7	-4.2	-4.2
21	-0.8	4.5	0.7	9.0	12.0	12.8	13.1	13.4	9.6	5.9	-0.4	-5.1	-5.1
22	-1.9	3.4	0.6	7.9	10.9	13.2	11.2	12.1	8.1	4.9	-2.4	-6.0	-6.0
23	-4.3	1.4	1.0	7.0	10.6	12.5	13.1	11.4	7.3	3.5	-3.7	-6.7	-6.7
Mín.	-10.3	-6.0	-5.4	-0.9	3.1	7.1	6.9	7.1	3.7	-2.7	-9.7	-11.4	-11.4

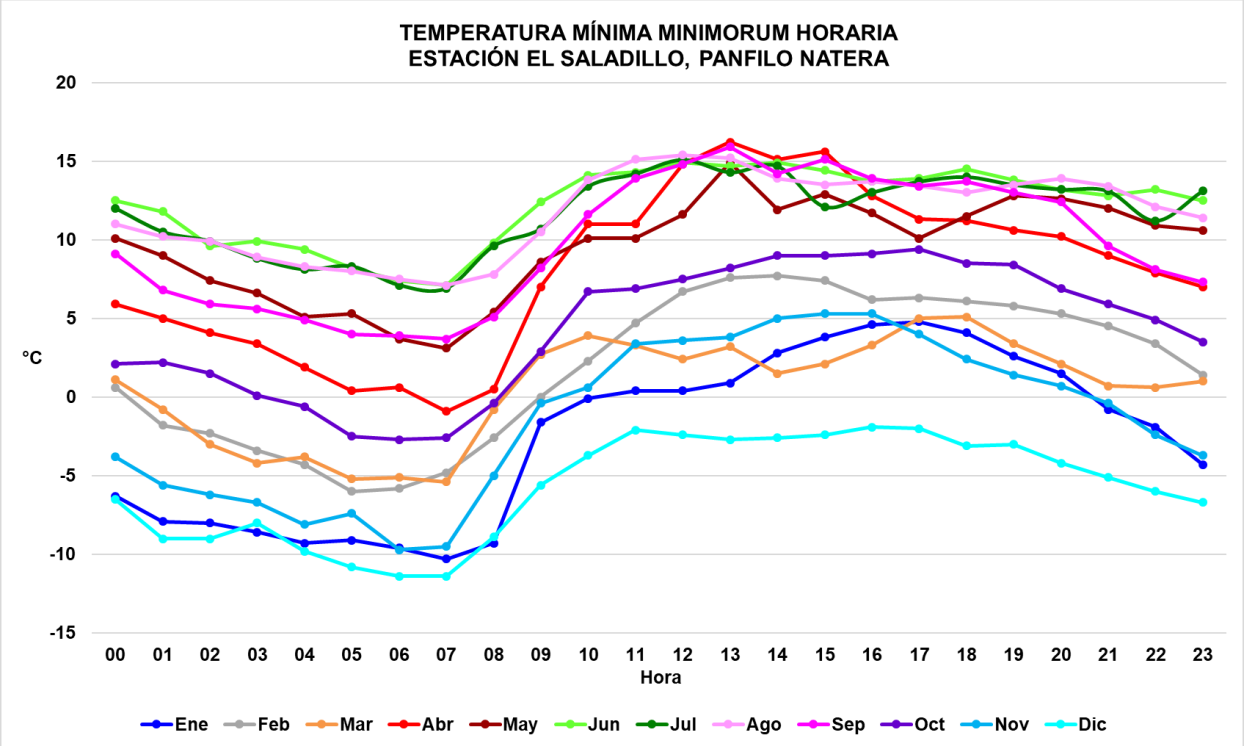


Figura 263 Temperatura mínima minimorum (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 292. Temperatura media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	9.4	11.7	15.5	17.6	17.6	16.3	16.4	15.2	12.8	8.9	7.2	13.0
01	6.2	8.3	10.5	14.3	16.5	16.7	15.6	15.7	14.6	12.0	8.0	6.2	12.1
02	5.4	7.3	9.5	13.1	15.4	16.0	15.0	15.1	14.2	11.2	7.2	5.4	11.2
03	4.7	6.5	8.5	12.0	14.4	15.2	14.5	14.5	13.7	10.6	6.5	4.7	10.5
04	4.1	5.7	7.6	11.0	13.4	14.6	13.9	14.0	13.3	10.1	6.0	4.1	9.8
05	3.6	5.1	6.9	10.1	12.6	14.0	13.5	13.5	13.0	9.6	5.5	3.7	9.3
06	3.0	4.5	6.3	9.3	11.8	13.5	13.1	13.1	12.7	9.2	5.2	3.2	8.8
07	2.9	4.6	7.4	9.5	12.0	13.8	13.2	13.0	12.6	9.3	6.0	3.3	9.0
08	5.5	8.0	11.6	12.7	15.0	15.9	14.9	14.7	14.0	11.3	10.0	6.6	11.7
09	9.6	12.3	15.7	16.8	18.4	18.2	17.0	17.1	16.2	14.6	13.8	10.9	15.0
10	13.2	15.8	18.8	20.1	21.4	20.3	18.9	19.1	18.2	17.5	17.0	14.5	17.9
11	15.9	18.4	21.2	22.7	23.8	22.3	20.6	20.9	20.0	19.9	19.2	17.1	20.2
12	17.8	20.2	22.8	24.6	25.7	24.0	22.2	22.5	21.5	21.7	20.8	18.9	21.9
13	19.1	21.5	24.0	26.0	27.1	25.3	23.4	23.8	22.5	22.9	21.8	20.1	23.1
14	19.9	22.3	24.7	26.9	28.0	26.2	24.2	24.7	23.3	23.7	22.3	20.8	23.9
15	20.1	22.6	24.9	27.4	28.4	26.7	24.6	25.2	23.6	24.0	22.3	20.9	24.2
16	19.8	22.3	24.7	27.4	28.5	26.8	24.7	25.2	23.5	23.8	21.6	20.4	24.1
17	18.6	21.4	23.8	27.0	28.1	26.4	24.3	24.7	22.9	23.1	19.9	18.8	23.3
18	15.8	19.3	22.0	26.0	27.3	25.6	23.6	23.9	22.0	21.4	16.5	15.5	21.6
19	13.1	16.3	19.1	24.2	25.8	24.4	22.3	22.5	20.2	18.7	14.4	13.1	19.5
20	11.6	14.4	17.0	21.6	23.4	22.5	20.6	20.6	18.4	16.8	13.1	11.7	17.6
21	10.4	13.1	15.5	19.6	21.4	20.8	19.1	19.1	17.2	15.6	11.9	10.5	16.2
22	9.2	11.9	14.3	18.2	20.0	19.5	18.0	18.1	16.4	14.6	10.8	9.3	15.0
23	8.2	10.7	13.0	16.9	18.8	18.5	17.1	17.2	15.7	13.6	9.8	8.3	14.0
Media	11.0	13.4	15.9	18.9	20.6	20.2	18.8	18.9	17.7	16.2	13.3	11.5	16.4

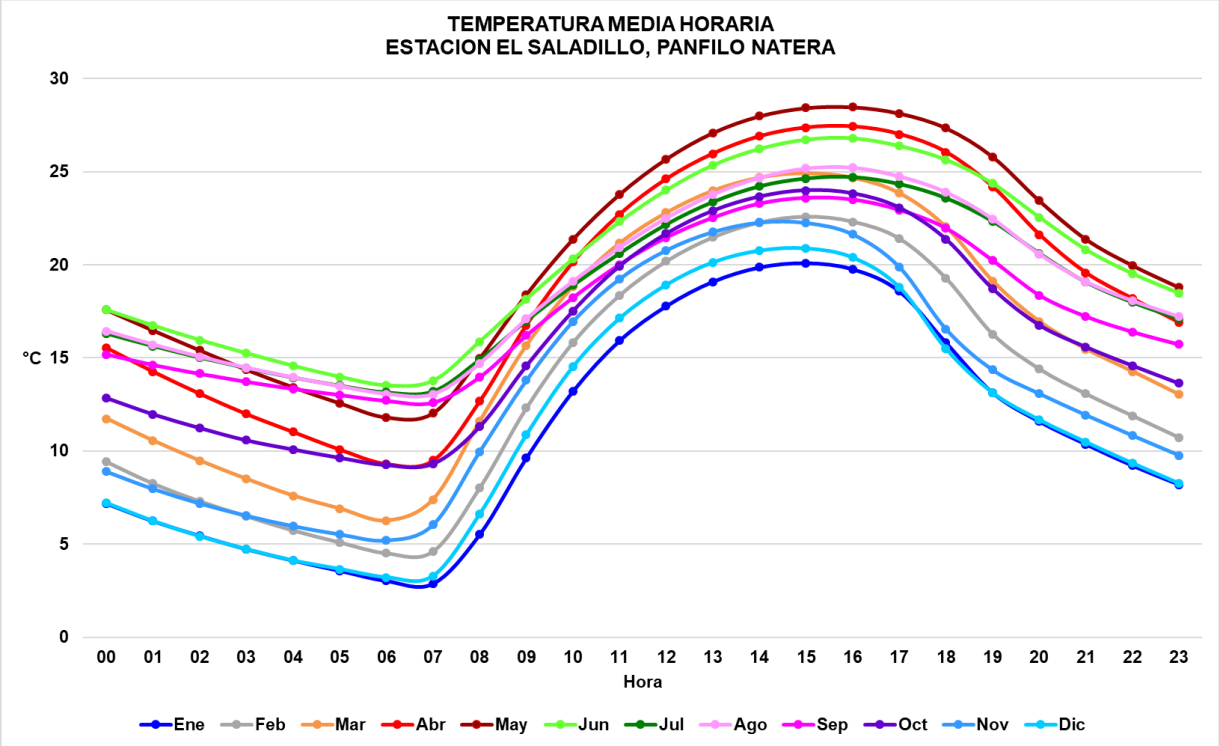


Figura 264. Temperatura media (˚C) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 293. Precipitación media (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.6	1.0	0.1	1.4	4.2	5.1	3.9	4.6	1.7	0.4	0.3	23.8
01	0.4	0.5	0.5	0.0	0.6	3.0	4.6	2.2	3.9	0.6	0.5	0.1	17.0
02	0.6	0.5	0.3	0.0	0.7	3.1	3.5	2.8	3.6	1.1	0.4	0.6	17.3
03	0.4	0.9	0.4	0.1	1.2	2.9	2.9	1.6	3.7	1.0	0.2	0.3	15.6
04	0.2	0.5	0.4	0.0	0.2	1.6	2.5	1.7	3.3	0.5	0.2	0.4	11.5
05	0.4	0.5	0.2	0.0	0.2	1.8	2.8	0.6	2.1	0.3	0.3	0.5	9.6
06	0.3	0.4	0.1	0.0	0.2	1.7	1.6	0.6	1.5	0.5	0.4	0.6	7.9
07	0.2	0.5	0.2	0.1	0.1	1.5	0.7	0.6	2.5	0.4	0.3	0.3	7.2
08	0.5	0.6	0.3	0.2	0.0	0.7	0.4	0.4	1.6	0.6	0.3	0.3	5.9
09	0.2	0.6	0.3	0.0	0.0	0.1	0.2	0.4	1.1	0.3	0.1	0.3	3.8
10	0.3	0.4	0.1	0.0	0.0	0.1	0.2	0.2	0.5	0.1	0.1	0.2	2.2
11	0.6	0.4	0.4	0.0	0.0	0.1	0.3	0.7	0.5	0.1	0.1	0.2	3.2
12	0.2	0.4	0.1	0.0	0.0	0.4	0.5	0.3	0.2	0.3	0.3	0.3	3.0
13	0.2	0.5	0.1	0.0	0.0	0.3	0.8	0.2	0.4	0.7	0.4	0.5	4.1
14	0.2	0.5	0.3	0.1	1.4	2.8	3.5	1.8	2.2	0.9	0.8	0.5	15.1
15	0.3	0.6	0.4	0.0	0.8	1.9	4.7	1.8	3.3	0.8	0.5	0.8	16.0
16	0.6	1.5	0.7	0.4	1.5	3.8	3.4	3.9	4.0	2.6	0.5	0.4	23.3
17	0.5	1.0	0.8	0.1	3.2	3.0	5.7	5.6	5.7	2.1	0.8	0.1	28.6
18	0.4	0.8	0.2	0.1	0.6	2.8	7.3	5.5	6.2	1.9	0.6	0.2	26.8
19	0.5	0.5	0.3	0.2	1.0	3.6	7.1	6.3	6.2	2.1	0.8	0.5	29.1
20	0.4	0.7	1.0	0.3	1.5	4.6	8.8	4.3	6.4	2.3	0.8	0.5	31.3
21	0.5	0.6	0.8	0.2	2.8	5.7	10.1	5.8	7.0	2.5	0.6	0.4	37.2
22	0.7	0.4	1.3	0.1	1.6	3.4	6.2	3.2	6.4	1.2	0.6	0.5	25.6
23	0.9	0.5	0.8	0.3	1.6	5.1	5.7	3.6	5.8	1.9	0.5	0.3	27.0
Suma	9.9	14.4	11.2	2.4	20.9	58.2	88.8	57.8	82.4	26.5	10.5	9.3	392.1

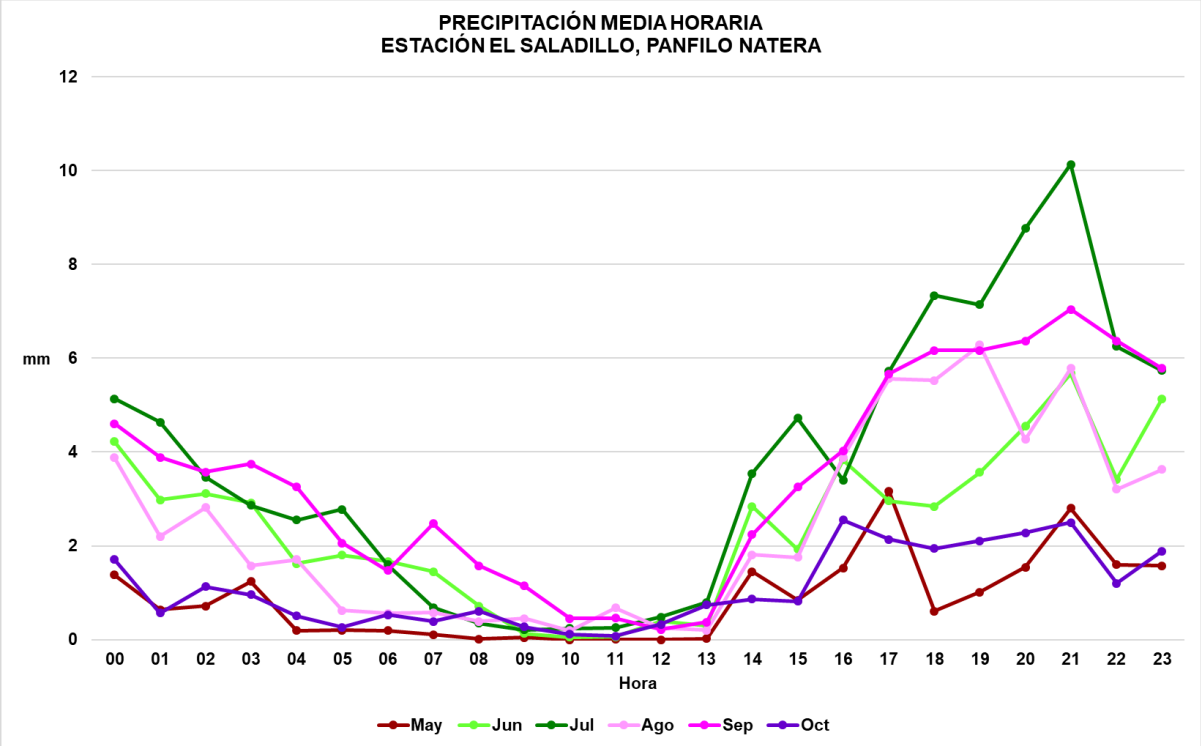


Figura 265. Precipitación media (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 294. Precipitación máxima maximorum (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.6	3.2	12.0	1.8	15.2	9.4	12.0	14.6	10.4	9.6	2.9	2.3	15.2
01	2.3	2.8	7.0	0.3	5.5	7.9	27.0	9.0	7.4	4.0	1.8	1.2	27.0
02	4.2	2.2	4.2	0.3	4.6	16.2	15.2	15.7	11.0	4.8	3.0	4.2	16.2
03	1.6	4.4	3.1	1.0	12.6	10.2	13.6	7.5	12.5	5.5	0.9	1.6	13.6
04	1.6	2.2	3.4	0.1	1.3	4.5	6.4	8.6	22.8	5.7	0.8	4.4	22.8
05	2.8	1.4	2.0	0.2	4.0	5.6	13.0	5.2	10.4	1.2	2.7	2.8	13.0
06	4.0	1.6	1.2	0.4	3.7	11.8	6.0	3.5	5.2	4.5	3.0	5.2	11.8
07	1.2	4.2	2.3	0.6	1.6	11.8	4.9	3.8	16.2	5.4	1.6	2.7	16.2
08	4.1	5.4	3.2	2.7	0.2	6.4	2.6	4.8	10.2	9.3	4.0	2.5	10.2
09	1.3	5.5	4.6	0.3	1.0	1.0	2.8	4.2	6.0	1.6	0.5	4.2	6.0
10	3.4	2.4	1.6	0.0	0.0	0.6	2.0	1.0	2.6	1.9	1.1	1.0	3.4
11	9.0	3.1	5.7	0.0	0.1	1.0	4.2	7.7	3.6	1.5	1.3	2.6	9.0
12	1.2	2.6	0.7	0.2	0.0	4.4	3.0	1.2	1.8	5.3	2.8	3.2	5.3
13	2.6	2.8	1.7	0.0	0.4	2.6	4.4	2.4	2.4	10.0	2.0	4.2	10.0
14	1.6	2.9	1.6	1.2	26.2	16.2	31.6	11.0	13.6	6.7	4.8	2.8	31.6
15	1.8	2.6	2.3	0.4	11.0	7.4	36.3	7.0	11.6	7.8	4.0	4.2	36.3
16	3.0	8.8	6.3	7.4	15.5	33.2	21.7	22.0	13.3	14.0	2.1	1.6	33.2
17	4.0	4.6	7.9	0.6	35.4	15.6	29.9	17.4	21.0	10.8	5.6	1.0	35.4
18	3.2	3.2	2.0	1.2	1.9	8.4	16.0	32.2	27.0	14.5	4.0	1.0	32.2
19	3.0	3.0	2.9	2.0	3.8	23.0	27.4	30.6	15.6	6.2	5.0	4.4	30.6
20	1.2	3.0	7.6	2.2	7.4	11.4	23.4	13.8	39.6	11.3	4.7	5.0	39.6
21	3.8	3.6	5.9	2.4	20.9	17.2	39.6	21.4	13.4	9.8	4.7	2.3	39.6
22	4.0	1.7	15.2	1.1	18.4	7.6	24.5	9.0	19.4	5.3	3.9	6.8	24.5
23	7.4	3.8	7.5	2.9	8.6	9.0	13.8	15.3	10.0	6.6	2.3	2.9	15.3
Máx.	9.0	8.8	15.2	7.4	35.4	33.2	39.6	32.2	39.6	14.5	5.6	6.8	39.6

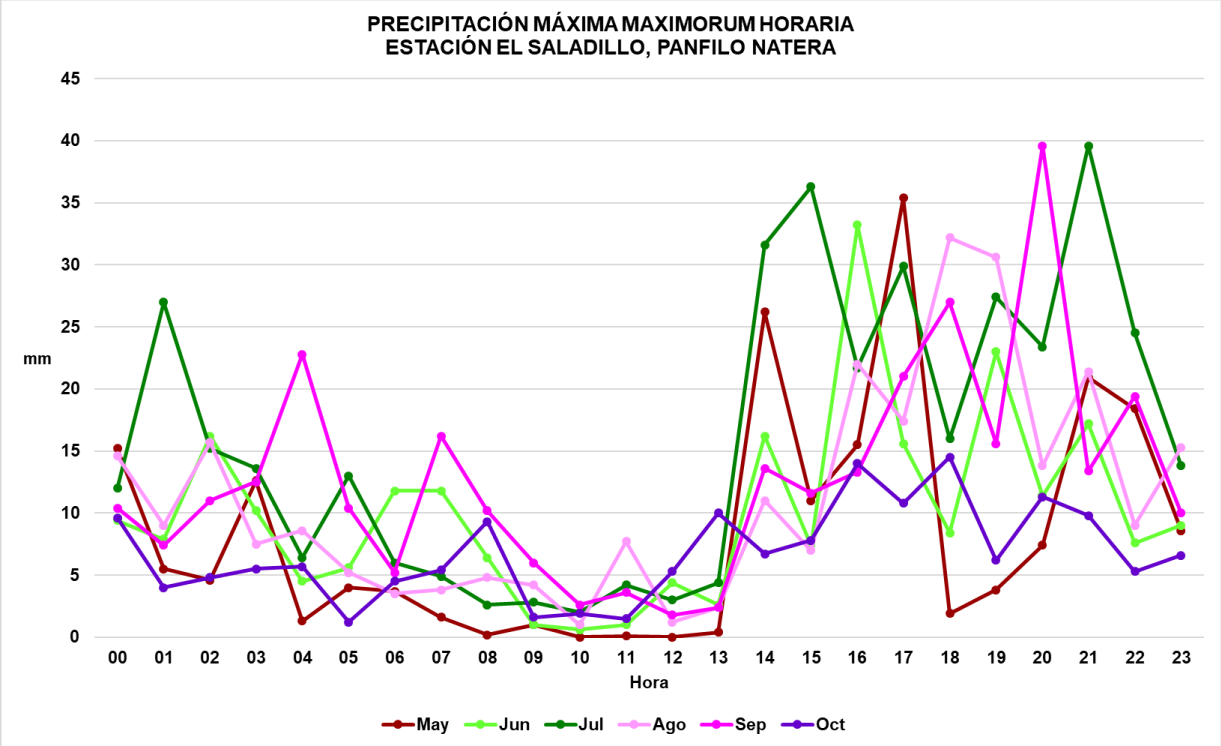


Figura 266. Precipitación máxima maximorum (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 295. Evapotranspiración potencial media (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.07	0.06	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.02
01	0.01	0.01	0.02	0.05	0.04	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.02
02	0.01	0.01	0.01	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.02	0.04	0.09	0.06	0.07	0.06	0.04	0.03	0.02	0.02	0.05	0.03	0.04
09	0.10	0.15	0.24	0.19	0.21	0.18	0.14	0.14	0.11	0.12	0.16	0.12	0.15
10	0.22	0.29	0.40	0.36	0.37	0.31	0.27	0.27	0.24	0.25	0.29	0.24	0.29
11	0.33	0.42	0.53	0.52	0.53	0.45	0.39	0.41	0.36	0.38	0.41	0.35	0.42
12	0.42	0.51	0.62	0.64	0.65	0.57	0.50	0.52	0.45	0.49	0.48	0.43	0.52
13	0.47	0.56	0.67	0.72	0.72	0.63	0.57	0.60	0.51	0.54	0.50	0.47	0.58
14	0.47	0.55	0.65	0.74	0.74	0.65	0.60	0.62	0.53	0.56	0.47	0.46	0.59
15	0.43	0.51	0.59	0.70	0.70	0.63	0.58	0.60	0.50	0.51	0.40	0.40	0.55
16	0.35	0.42	0.49	0.62	0.62	0.56	0.51	0.54	0.44	0.43	0.30	0.31	0.47
17	0.25	0.31	0.36	0.51	0.50	0.46	0.43	0.44	0.34	0.32	0.17	0.20	0.36
18	0.14	0.18	0.23	0.38	0.38	0.36	0.33	0.32	0.23	0.22	0.10	0.12	0.25
19	0.08	0.11	0.16	0.32	0.29	0.24	0.21	0.24	0.16	0.11	0.05	0.06	0.17
20	0.05	0.07	0.10	0.20	0.20	0.19	0.16	0.14	0.06	0.04	0.02	0.03	0.10
21	0.03	0.05	0.08	0.13	0.12	0.10	0.08	0.07	0.02	0.02	0.02	0.02	0.06
22	0.02	0.04	0.06	0.10	0.09	0.07	0.04	0.04	0.01	0.01	0.01	0.02	0.04
23	0.02	0.03	0.05	0.09	0.08	0.05	0.03	0.03	0.01	0.01	0.01	0.01	0.03
Media/día /mes	3.42	4.32	5.42	6.51	6.43	5.61	4.91	5.01	4.01	4.02	3.44	3.29	4.70

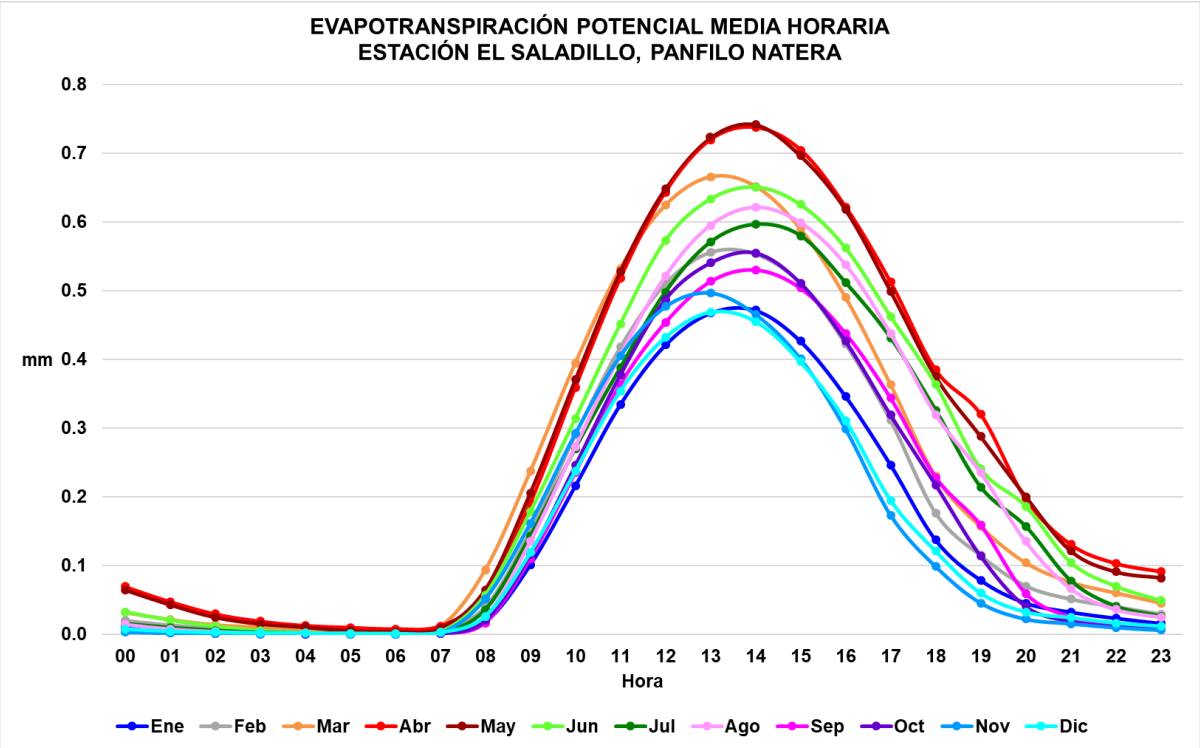


Figura 267. Evapotranspiración potencial media (mm) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 296. Humedad relativa media (%) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	61.3	52.7	46.0	38.2	49.3	67.6	76.6	76.3	83.7	77.4	73.5	63.1	63.8
01	64.9	57.1	50.2	42.7	53.8	71.6	79.6	79.8	86.3	81.0	77.2	66.7	67.6
02	68.1	60.7	54.4	47.1	58.2	75.0	82.3	82.6	88.2	83.8	80.3	70.0	70.9
03	71.0	64.1	58.0	51.3	62.2	78.0	84.7	85.0	89.9	86.4	83.1	73.1	73.9
04	73.5	67.1	61.4	55.3	65.8	80.8	86.8	87.0	91.2	88.3	85.1	75.7	76.5
05	75.6	69.7	64.1	59.0	69.2	83.2	88.4	88.8	92.3	89.8	86.7	77.8	78.7
06	77.8	72.2	66.7	61.9	72.0	84.9	89.8	90.3	93.2	91.2	88.2	79.5	80.6
07	78.9	72.9	64.8	62.2	72.1	84.4	90.1	90.9	93.7	91.4	86.8	80.0	80.7
08	72.1	64.2	54.2	54.7	63.8	77.3	85.0	86.5	90.7	87.1	75.3	71.2	73.5
09	60.1	51.5	42.0	43.2	51.9	67.4	75.8	76.2	81.5	75.7	61.5	58.4	62.1
10	48.7	40.0	31.8	32.3	40.1	57.6	66.7	66.4	71.6	63.1	49.1	46.3	51.1
11	39.2	32.1	25.1	24.3	31.2	48.8	58.7	57.9	63.2	52.6	40.1	37.2	42.5
12	33.0	26.9	21.0	19.4	25.1	41.7	51.7	50.9	56.6	45.3	34.3	31.2	36.4
13	28.8	23.5	18.4	16.6	21.3	36.4	46.4	45.4	51.8	40.2	30.9	27.3	32.2
14	26.4	21.5	16.9	14.9	18.9	32.9	42.8	41.6	48.4	37.0	29.1	25.3	29.6
15	25.4	20.5	16.3	14.0	17.8	31.1	41.0	39.6	47.0	35.4	28.8	24.5	28.4
16	25.8	20.8	16.3	13.7	17.6	30.8	40.7	39.0	47.2	35.6	29.9	25.0	28.5
17	28.0	22.1	17.2	14.0	18.0	32.0	41.8	40.5	49.1	37.5	33.8	28.0	30.2
18	33.7	25.4	19.7	15.2	19.5	34.1	44.4	43.1	52.6	42.4	42.4	34.8	33.9
19	40.3	30.8	24.2	17.5	22.6	37.8	48.7	48.0	59.5	51.3	49.3	40.8	39.2
20	45.2	35.3	28.9	21.3	27.6	43.8	55.1	55.0	67.6	58.4	54.8	45.6	44.9
21	49.5	39.5	33.4	25.4	33.1	50.6	61.9	61.6	73.0	63.6	59.9	50.1	50.1
22	53.6	43.8	37.2	29.4	38.5	57.1	67.5	67.3	77.2	68.5	64.8	54.4	54.9
23	57.4	48.0	41.2	33.6	44.7	63.2	72.3	72.5	80.7	73.2	69.3	58.7	59.6
Media	51.6	44.3	37.9	33.6	41.4	57.0	65.8	65.5	72.3	64.8	58.9	51.9	53.8

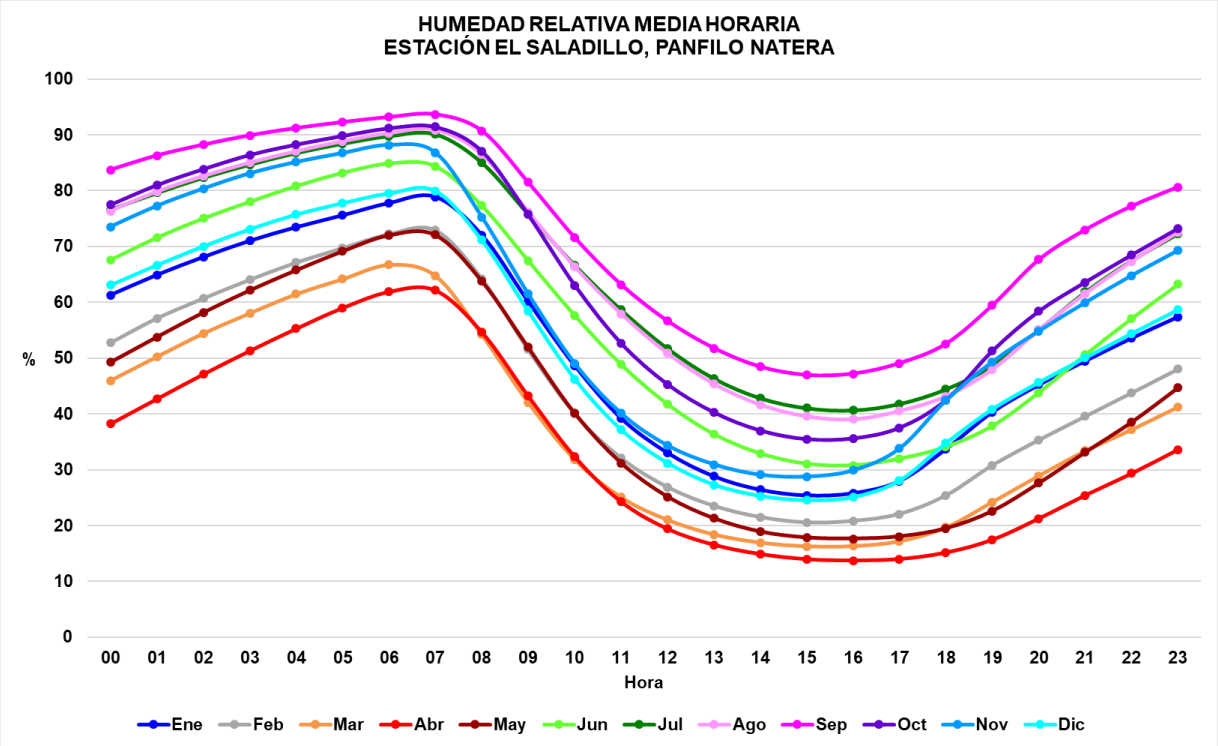


Figura 268. Humedad relativa media (%) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 297. Humedad relativa mínima minimorum (%) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.0	11.0	8.0	9.0	9.0	8.0	35.0	35.0	43.0	22.0	26.0	14.0	8.0
01	15.0	11.0	7.0	9.0	9.0	10.0	37.0	36.0	49.0	22.0	26.0	16.0	7.0
02	16.0	11.0	9.0	10.0	12.0	11.0	42.6	37.0	53.0	23.0	29.0	16.0	9.0
03	19.0	11.0	12.0	11.0	12.0	13.0	48.0	40.0	57.0	29.8	30.0	17.0	11.0
04	19.0	13.0	13.0	11.0	13.0	16.0	51.0	43.0	64.0	32.0	33.0	23.0	11.0
05	21.0	15.0	11.0	11.0	12.0	22.0	52.0	49.0	65.0	34.0	34.0	24.0	11.0
06	23.0	12.0	11.0	11.0	15.0	28.0	48.0	51.0	64.0	38.0	35.0	26.0	11.0
07	22.0	14.0	11.0	11.0	12.0	32.0	56.0	58.0	60.0	43.0	34.0	26.4	11.0
08	17.0	13.0	9.4	10.6	9.0	25.0	43.0	51.0	58.0	23.0	23.0	18.0	9.0
09	11.0	10.0	6.5	8.6	8.0	18.0	35.0	39.0	36.6	19.0	15.0	11.0	6.5
10	8.0	7.0	4.0	6.0	7.0	12.0	24.0	33.0	29.2	15.0	10.0	8.7	4.0
11	7.9	6.0	4.0	4.0	6.0	7.0	19.0	27.9	18.6	11.0	8.0	7.0	4.0
12	3.0	5.0	3.0	3.0	5.0	6.0	15.0	22.0	16.9	9.2	5.0	5.0	3.0
13	3.0	4.0	2.0	3.0	5.0	4.0	13.0	17.0	13.6	9.1	4.0	4.0	2.0
14	4.0	4.0	2.0	3.0	4.0	5.0	13.0	14.8	13.0	7.0	4.0	3.0	2.0
15	4.0	4.0	3.0	3.0	3.0	4.0	11.0	13.7	13.0	7.0	4.0	3.0	3.0
16	4.0	5.0	3.0	3.0	4.0	4.0	11.0	13.0	11.6	7.0	5.0	3.0	3.0
17	4.0	4.0	3.0	3.0	4.0	3.0	11.0	13.3	12.1	7.0	6.0	4.0	3.0
18	5.0	4.0	3.0	3.0	4.8	3.0	11.0	14.0	14.4	8.0	7.0	7.0	3.0
19	7.0	6.0	4.0	3.0	5.0	4.0	14.0	17.0	18.0	10.0	9.0	7.0	3.0
20	7.0	8.0	4.0	4.0	5.0	4.0	16.0	19.0	25.0	13.0	12.0	9.0	4.0
21	9.0	10.0	5.0	5.0	7.0	7.0	20.0	22.0	26.0	17.0	15.0	9.0	5.0
22	10.0	9.0	7.0	6.0	8.0	8.0	25.0	27.0	30.0	20.6	16.0	9.0	6.0
23	10.0	9.0	8.0	7.0	9.0	8.0	29.0	34.0	36.4	22.0	19.0	12.0	7.0
Mín.	3.0	4.0	2.0	3.0	3.0	3.0	11.0	13.0	11.6	7.0	4.0	3.0	2.0

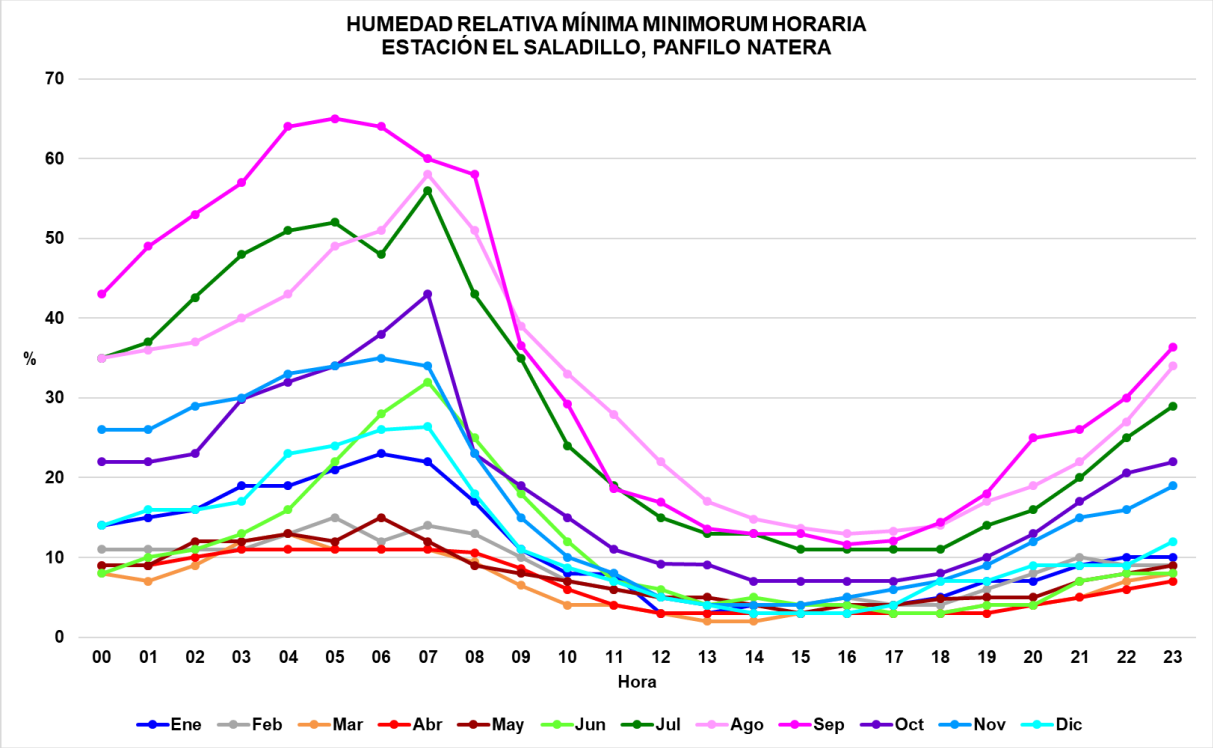


Figura 269. Humedad relativa mínima minimorum (%) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 298. Radiación solar global media horaria (W/m2) de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	3	23	9	10	9	4	2	0	3	8	2	6
07	77	149	383	216	227	204	139	98	62	90	259	119	169
08	617	835	1241	934	951	831	706	621	509	559	987	715	792
09	1393	1714	2171	1873	1858	1637	1473	1424	1238	1336	1795	1484	1616
10	2111	2476	2931	2715	2715	2404	2189	2211	2010	2113	2472	2164	2376
11	2608	3000	3485	3383	3379	3082	2831	2891	2626	2765	2901	2609	2963
12	2870	3259	3706	3789	3802	3471	3284	3317	2985	3101	2990	2797	3281
13	2813	3210	3605	3878	3891	3608	3432	3472	3088	3169	2819	2681	3306
14	2492	2900	3223	3639	3635	3398	3284	3338	2972	2913	2420	2302	3043
15	1940	2350	2598	3125	3131	3030	2917	2986	2591	2483	1793	1736	2557
16	1260	1594	1822	2459	2497	2481	2408	2409	2070	1842	1064	1052	1913
17	544	812	990	1681	1768	1793	1768	1741	1399	1111	347	358	1193
18	62	171	274	896	1041	1127	1119	1037	729	447	12	15	578
19	0	0	4	272	386	482	485	397	181	60	0	0	189
20	0	0	0	12	40	70	75	44	11	2	0	0	21
21	0	0	0	0	1	4	3	2	0	0	0	0	1
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18786	22472	26456	28880	29333	27633	26117	25989	22472	21994	19865	18034	24002

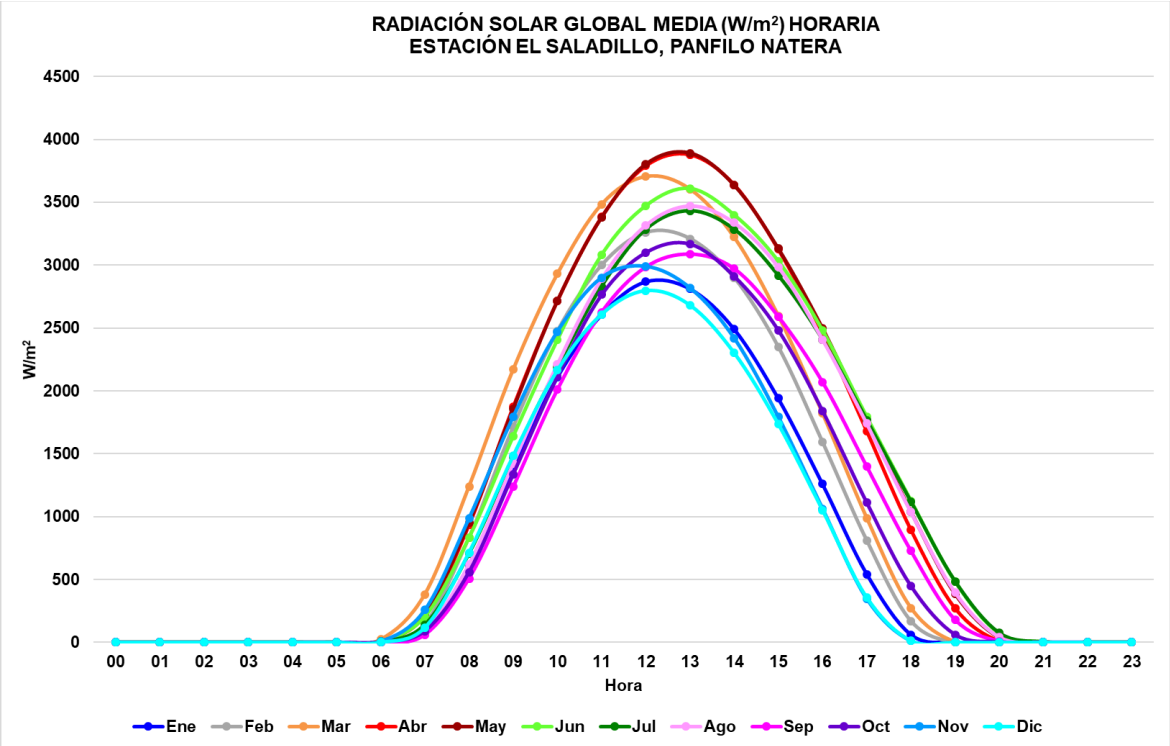


Figura 270. Radiación solar global media horaria (W/m2) de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 299. Radiación solar global media horaria (kWh/m2) de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.04	0.10	0.05	0.06	0.05	0.03	0.02	0.02	0.02	0.06	0.03	0.04
08	0.15	0.21	0.31	0.23	0.24	0.21	0.18	0.16	0.13	0.14	0.25	0.18	0.20
09	0.35	0.43	0.54	0.47	0.46	0.41	0.37	0.36	0.31	0.33	0.45	0.37	0.40
10	0.53	0.62	0.73	0.68	0.68	0.60	0.55	0.55	0.50	0.53	0.62	0.54	0.59
11	0.65	0.75	0.87	0.85	0.84	0.77	0.71	0.72	0.66	0.69	0.73	0.65	0.74
12	0.72	0.81	0.93	0.95	0.95	0.87	0.82	0.83	0.75	0.78	0.75	0.70	0.82
13	0.70	0.80	0.90	0.97	0.97	0.90	0.86	0.87	0.77	0.79	0.70	0.67	0.83
14	0.62	0.72	0.81	0.91	0.91	0.85	0.82	0.83	0.74	0.73	0.60	0.58	0.76
15	0.49	0.59	0.65	0.78	0.78	0.76	0.73	0.75	0.65	0.62	0.45	0.43	0.64
16	0.31	0.40	0.46	0.61	0.62	0.62	0.60	0.60	0.52	0.46	0.27	0.26	0.48
17	0.14	0.20	0.25	0.42	0.44	0.45	0.44	0.44	0.35	0.28	0.09	0.09	0.30
18	0.02	0.04	0.07	0.22	0.26	0.28	0.28	0.26	0.18	0.11	0.00	0.00	0.14
19	0.00	0.00	0.00	0.07	0.10	0.12	0.12	0.10	0.05	0.02	0.00	0.00	0.05
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.70	5.62	6.61	7.22	7.33	6.91	6.53	6.50	5.62	5.50	4.97	4.51	6.00

Cuadro 300. Radiación solar global media horaria (Mj/m2/s) de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.07	0.13	0.34	0.19	0.20	0.18	0.13	0.09	0.06	0.08	0.23	0.11	0.15
08	0.55	0.75	1.12	0.84	0.86	0.75	0.64	0.56	0.46	0.50	0.89	0.64	0.71
09	1.25	1.54	1.95	1.69	1.67	1.47	1.33	1.28	1.11	1.20	1.62	1.34	1.45
10	1.90	2.23	2.64	2.44	2.44	2.16	1.97	1.99	1.81	1.90	2.22	1.95	2.14
11	2.35	2.70	3.14	3.04	3.04	2.77	2.55	2.60	2.36	2.49	2.61	2.35	2.67
12	2.58	2.93	3.34	3.41	3.42	3.12	2.96	2.99	2.69	2.79	2.69	2.52	2.95
13	2.53	2.89	3.24	3.49	3.50	3.25	3.09	3.12	2.78	2.85	2.54	2.41	2.98
14	2.24	2.61	2.90	3.28	3.27	3.06	2.96	3.00	2.67	2.62	2.18	2.07	2.74
15	1.75	2.11	2.34	2.81	2.82	2.73	2.63	2.69	2.33	2.23	1.61	1.56	2.30
16	1.13	1.43	1.64	2.21	2.25	2.23	2.17	2.17	1.86	1.66	0.96	0.95	1.72
17	0.49	0.73	0.89	1.51	1.59	1.61	1.59	1.57	1.26	1.00	0.31	0.32	1.07
18	0.06	0.15	0.25	0.81	0.94	1.01	1.01	0.93	0.66	0.40	0.01	0.01	0.52
19	0.00	0.00	0.00	0.24	0.35	0.43	0.44	0.36	0.16	0.05	0.00	0.00	0.17
20	0.00	0.00	0.00	0.01	0.04	0.06	0.07	0.04	0.01	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.91	20.22	23.81	25.99	26.40	24.87	23.51	23.39	20.22	19.79	17.88	16.23	21.60

Cuadro 301. Velocidad del viento media (km/h) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.6	5.2	6.3	8.2	8.8	7.9	6.5	5.9	3.7	3.3	3.3	3.9	5.6
01	4.1	4.6	5.2	6.4	7.1	6.9	5.7	5.0	3.4	2.9	2.8	3.4	4.8
02	3.7	4.1	4.5	5.2	5.7	5.5	4.9	4.1	2.9	2.5	2.5	3.3	4.1
03	3.1	3.8	4.0	4.4	4.4	4.4	3.9	3.3	2.4	2.2	2.2	3.1	3.4
04	3.0	3.6	3.5	3.8	3.6	3.4	3.1	2.7	2.1	2.0	2.1	2.8	3.0
05	2.8	3.4	3.5	3.3	3.0	2.9	2.8	2.2	2.0	1.8	2.2	2.8	2.7
06	2.7	3.1	3.1	2.7	2.6	2.6	2.6	2.0	1.8	1.8	2.1	2.5	2.5
07	2.6	2.9	3.1	2.4	2.4	2.5	2.5	1.9	1.7	1.8	1.9	2.5	2.3
08	2.7	3.6	4.8	3.4	3.4	4.1	3.5	2.7	2.4	2.1	3.0	2.8	3.2
09	5.2	6.4	8.0	6.4	6.3	6.8	5.5	5.1	4.5	3.9	5.3	5.2	5.7
10	8.1	9.5	10.6	9.5	8.4	8.1	6.9	6.8	6.6	5.9	7.4	8.2	8.0
11	10.4	11.8	12.5	11.4	9.3	8.4	7.6	7.6	7.6	7.5	9.0	10.2	9.4
12	12.1	13.2	13.7	12.6	9.7	8.8	8.2	8.0	8.2	8.4	10.1	11.5	10.4
13	13.3	14.4	14.6	13.9	10.5	9.7	9.0	8.9	8.7	9.0	10.7	12.3	11.2
14	13.9	15.2	15.3	14.7	11.5	10.9	10.1	9.9	9.1	9.3	10.8	12.8	12.0
15	14.1	15.7	15.9	15.4	12.2	12.0	11.3	10.7	9.3	9.6	10.9	13.0	12.5
16	14.1	15.6	16.1	15.8	12.9	12.8	12.3	11.6	9.7	9.8	10.9	12.7	12.9
17	13.1	15.1	16.0	16.2	13.3	13.9	13.1	12.3	9.9	9.6	9.7	11.1	12.8
18	9.9	12.5	14.5	16.0	13.8	14.4	13.8	12.4	9.4	8.5	6.9	7.9	11.7
19	8.2	9.1	11.6	14.6	13.8	14.1	13.4	11.7	7.5	6.3	6.1	7.0	10.3
20	7.4	8.5	10.7	12.2	11.9	12.5	11.5	9.3	5.7	5.2	5.6	6.3	8.9
21	6.5	7.7	9.9	11.8	11.2	11.2	9.5	7.6	4.8	4.7	4.8	5.5	7.9
22	5.7	7.0	8.7	11.4	11.0	10.5	8.4	7.2	4.5	4.1	4.3	5.1	7.3
23	5.3	6.1	7.4	10.1	10.3	9.4	7.6	6.6	3.9	3.7	3.8	4.6	6.6
Media	7.4	8.4	9.3	9.7	8.6	8.5	7.7	6.9	5.5	5.2	5.8	6.7	7.5

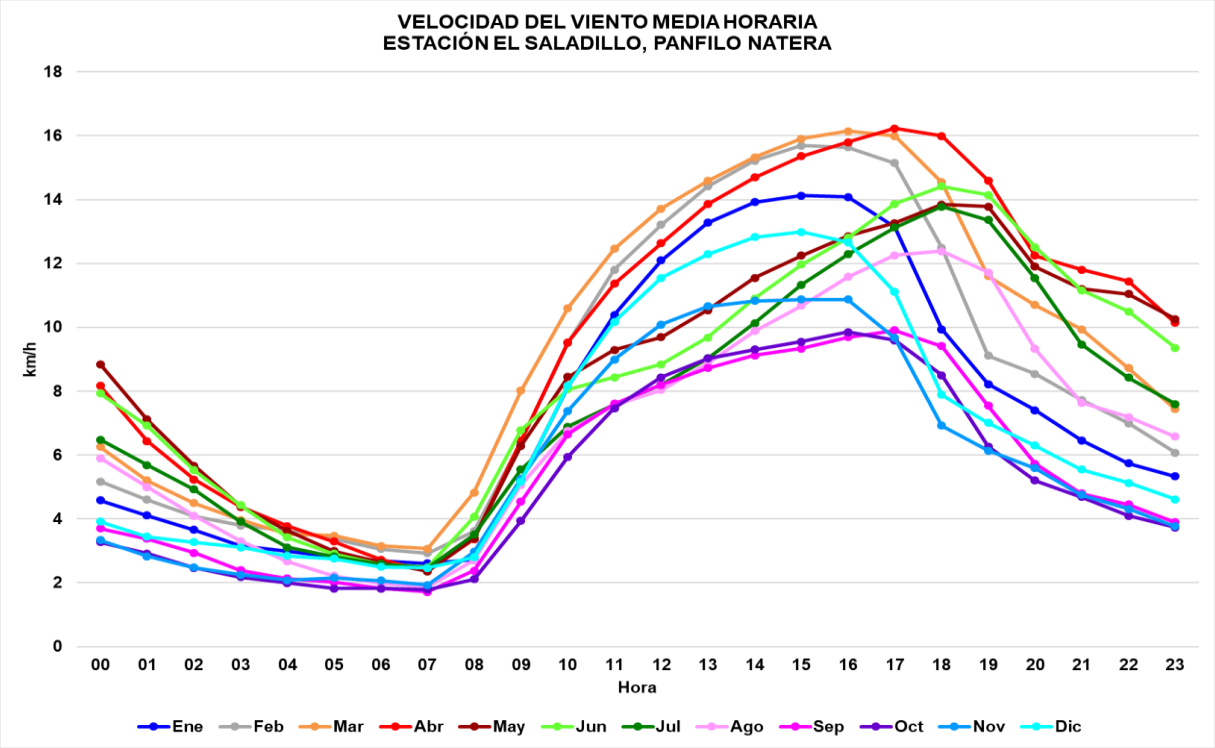


Figura 271. Velocidad del viento media (km/h) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 302. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	33.8	40.8	37.0	33.0	44.0	35.0	28.4	29.5	20.9	29.0	29.4	26.6	44.0
01	32.7	42.2	35.0	28.0	45.0	31.0	26.9	26.0	32.3	29.0	25.8	27.7	45.0
02	35.0	29.4	24.9	27.1	53.6	27.4	28.0	23.1	42.4	29.0	16.7	32.0	53.6
03	36.0	29.7	36.0	25.0	28.8	23.6	26.1	29.9	47.7	30.0	28.4	29.6	47.7
04	36.3	39.0	41.0	24.0	24.5	22.2	22.4	21.9	37.6	26.0	36.6	30.2	41.0
05	36.7	44.0	51.0	28.3	21.7	20.0	26.7	24.0	27.0	19.0	29.4	29.5	51.0
06	34.6	34.0	56.0	24.0	21.8	19.0	25.3	18.0	28.0	24.1	39.5	31.4	56.0
07	31.3	37.0	61.0	22.0	19.0	21.0	28.4	20.0	27.2	22.7	65.1	32.9	65.1
08	31.7	38.0	69.0	30.3	23.0	23.0	32.2	19.0	27.2	25.0	67.9	42.0	69.0
09	35.0	51.0	74.0	35.8	30.0	25.0	35.9	28.0	21.2	28.0	32.7	42.0	74.0
10	48.0	62.0	78.0	38.3	35.0	29.9	33.9	32.0	23.0	29.0	41.0	45.0	78.0
11	51.0	60.0	69.0	46.4	31.0	30.0	36.1	27.0	22.6	30.9	40.0	47.0	69.0
12	49.0	51.1	68.0	44.7	36.6	32.0	32.6	27.2	26.9	31.0	45.0	44.2	68.0
13	48.0	52.0	59.0	47.1	37.4	38.0	32.6	31.0	26.0	30.9	38.6	56.1	59.0
14	48.0	52.0	58.0	48.3	37.9	36.0	33.1	28.0	25.6	33.0	43.0	49.0	58.0
15	51.0	50.0	54.0	48.0	50.0	33.5	36.0	31.0	31.4	37.0	37.0	53.3	54.0
16	49.0	47.7	53.1	45.6	39.5	36.0	33.0	37.0	27.4	31.0	38.0	50.4	53.1
17	46.0	48.7	49.0	43.0	53.0	39.0	36.6	37.0	30.8	40.0	36.0	40.0	53.0
18	47.0	37.2	42.5	43.0	43.0	48.3	35.3	38.3	30.6	36.0	31.5	38.6	48.3
19	39.0	33.1	37.8	37.4	39.0	35.0	38.0	54.0	28.5	36.0	25.8	34.0	54.0
20	39.6	36.2	37.2	40.8	45.0	42.0	36.0	33.5	25.0	32.0	26.5	31.0	45.0
21	36.8	26.4	45.0	44.3	49.0	40.0	35.0	30.3	28.0	29.0	27.4	34.0	49.0
22	38.1	29.7	43.0	36.0	48.0	38.5	32.0	33.0	25.3	32.0	28.8	37.0	48.0
23	40.3	29.0	37.0	36.4	42.0	32.0	30.0	26.1	25.1	25.0	21.0	33.7	42.0
Máx.	51.0	62.0	78.0	48.3	53.6	48.3	38.0	54.0	47.7	40.0	67.9	56.1	78.0

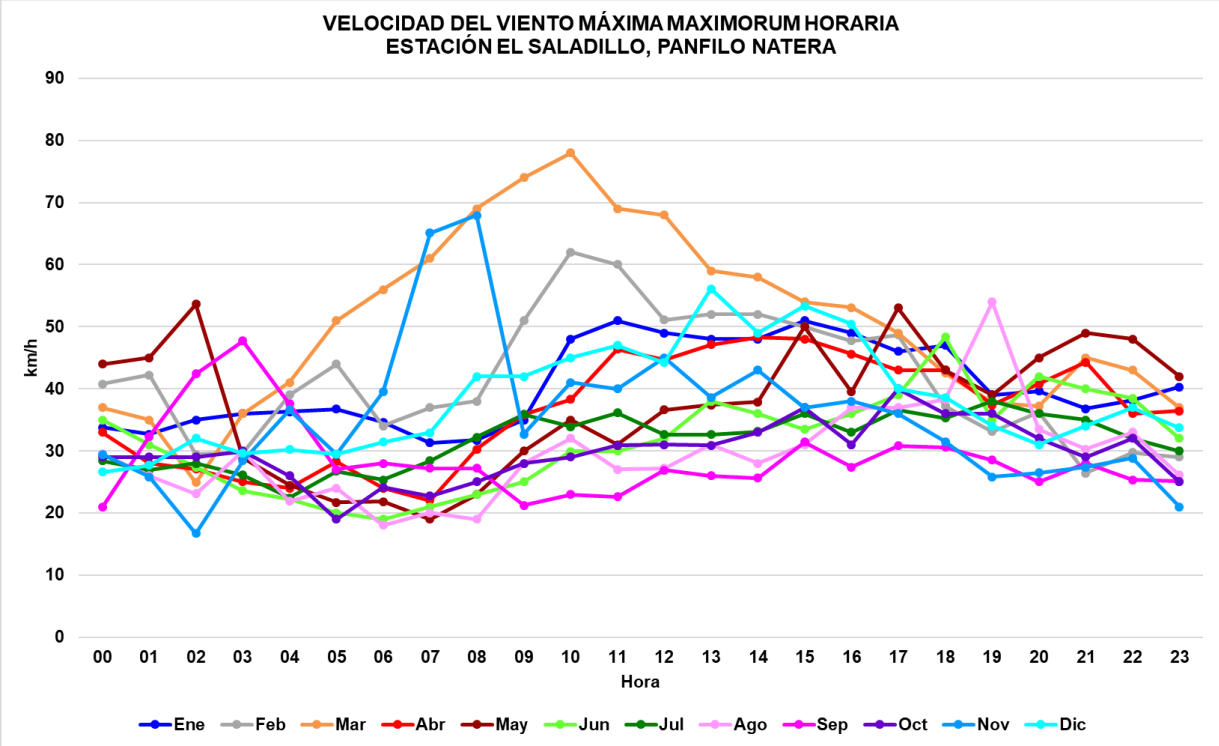


Figura 272. Velocidad del viento máxima maximorum (km/h) horaria de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 303. Frecuencia de velocidad del viento (%) mensual de la estación El Saladillo, Pánfilo Natera (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	50.3	44.7	38.6	35.3	35.0	35.6	41.6	46.2	56.1	59.4	57.3	53.7	46.2
5.1 a 10.0	22.3	23.5	25.1	24.0	30.0	28.5	27.5	27.1	25.0	24.0	23.5	22.6	25.3
10.1 a 15.0	13.3	14.5	15.2	18.4	18.8	19.4	17.8	17.2	14.6	11.8	12.2	12.0	15.4
15.1 a 20.0	7.7	8.9	10.0	11.9	10.3	11.6	9.4	8.0	3.8	4.1	5.0	6.8	8.1
20.1 a 25.0	3.8	4.5	6.0	6.8	4.1	4.0	3.2	1.4	0.5	0.6	1.5	3.0	3.3
25.1 a 30.0	1.6	2.3	3.0	2.6	1.3	0.8	0.5	0.1	0.0	0.1	0.3	1.2	1.1
30.1 a 35.0	0.6	1.1	1.3	0.8	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.5	0.4
35.1 a 40.0	0.3	0.4	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
40.1 a 45.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

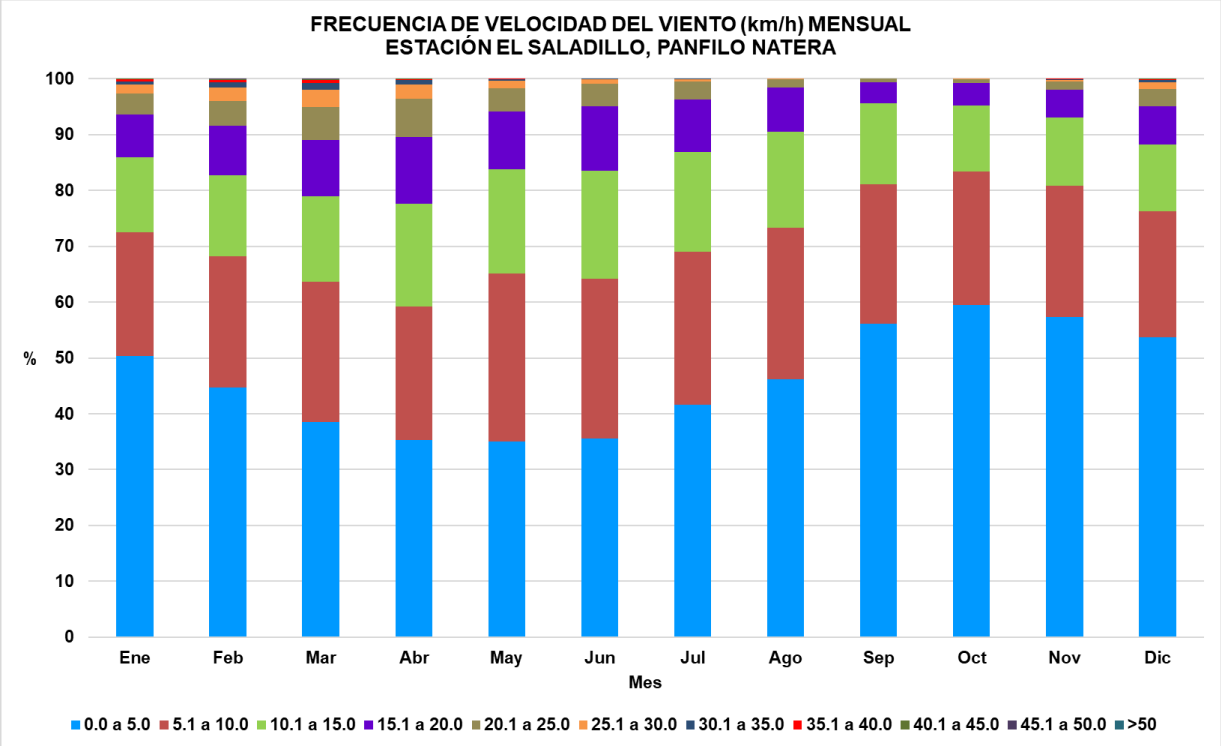


Figura 273. Frecuencia de velocidad del viento (%) mensual de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 304. Frecuencia de dirección del viento (%) mensual de la estación El Saladillo, Pánfilo Natera (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	7.9	6.6	6.7	5.4	5.8	5.0	3.8	4.3	6.8	7.0	7.9	7.1	6.2
NNE	4.2	3.9	3.7	3.2	4.3	4.4	3.6	4.0	5.7	4.8	4.5	3.7	4.2
NE	4.3	4.0	3.6	3.0	4.6	6.0	5.5	6.1	7.3	6.1	5.0	3.7	4.9
ENE	5.8	5.0	5.2	4.4	6.6	10.9	11.3	12.8	13.4	10.2	7.8	5.2	8.3
E	6.7	4.7	6.5	5.6	8.9	18.2	20.3	21.3	18.4	13.5	9.7	5.5	11.7
ESE	4.4	3.1	4.0	3.8	6.6	12.8	14.3	14.2	11.3	8.5	6.2	3.6	7.8
SE	3.7	3.1	3.6	3.5	5.1	6.8	7.6	6.9	5.6	4.8	4.5	3.4	4.9
SSE	4.3	4.2	4.5	4.9	5.6	6.1	6.2	5.4	4.1	4.1	4.5	4.5	4.9
S	6.6	7.0	6.7	6.7	7.2	6.8	6.3	4.9	4.1	4.7	5.3	6.8	6.1
SSO	9.1	10.4	9.1	8.4	7.7	5.9	5.8	4.3	3.9	5.0	6.2	9.9	7.1
SO	8.1	10.1	8.9	9.4	6.7	3.6	3.3	3.0	2.8	4.2	6.1	8.5	6.2
OSO	8.7	11.6	11.0	13.0	7.8	2.5	2.2	2.2	2.2	4.2	6.5	9.4	6.7
O	8.0	9.7	10.3	12.8	8.7	2.8	2.4	2.3	2.7	4.7	7.0	9.2	6.6
ONO	6.1	6.2	5.9	6.2	5.2	2.5	2.3	2.5	3.4	5.8	6.5	6.9	4.9
NO	5.3	4.9	5.0	4.9	4.5	2.5	2.5	2.8	3.7	6.1	6.3	6.0	4.5
NNO	6.6	5.4	5.4	4.8	4.8	3.2	2.5	3.0	4.6	6.2	6.1	6.5	4.9
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

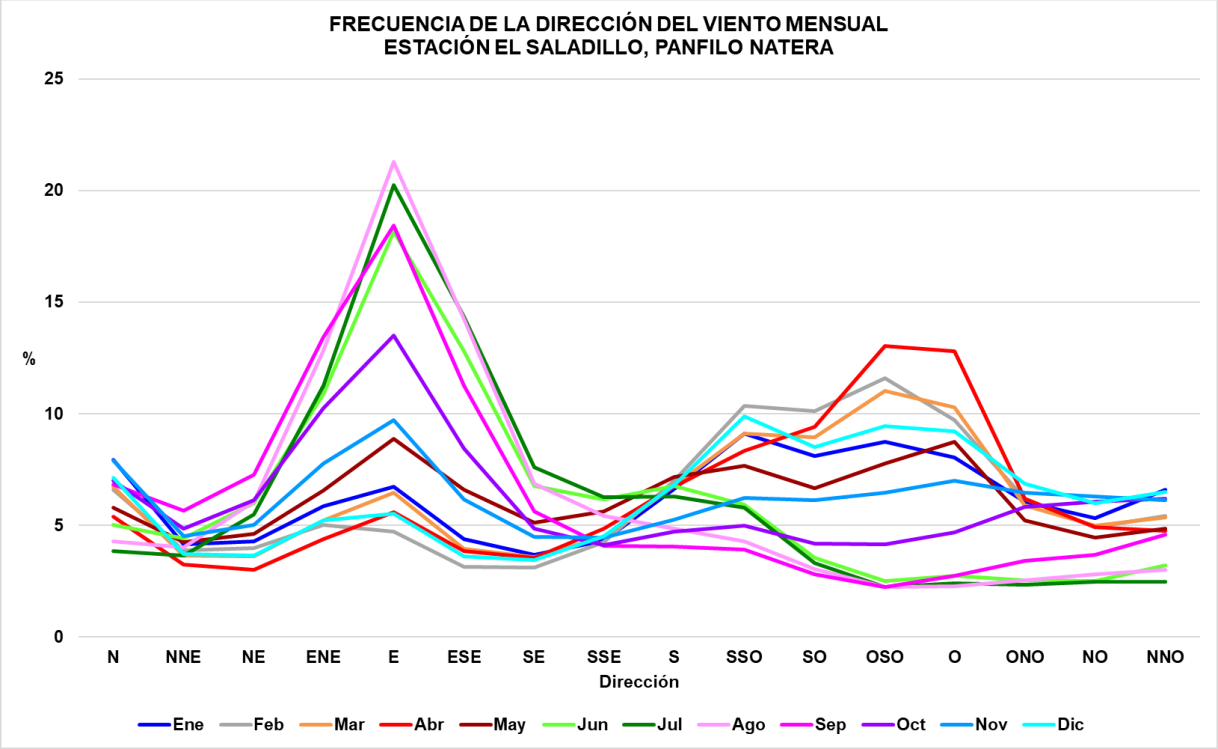
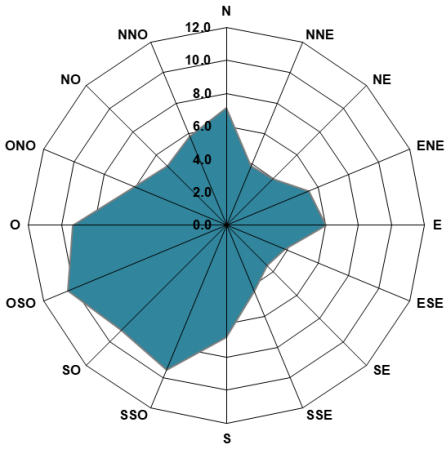


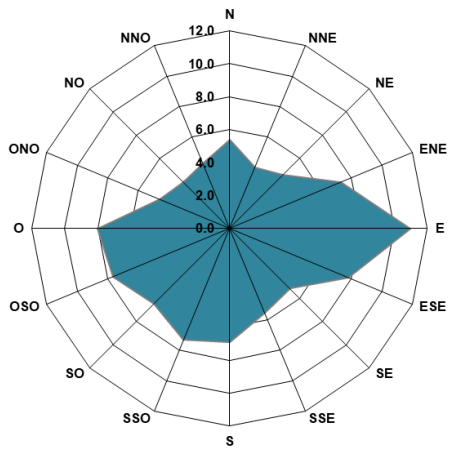
Figura 274. Frecuencia de dirección del viento (%) mensual de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 305. Frecuencia de dirección del viento (%) trimestral de la estación El Saladillo, Pánfilo Natera (2002-2022).

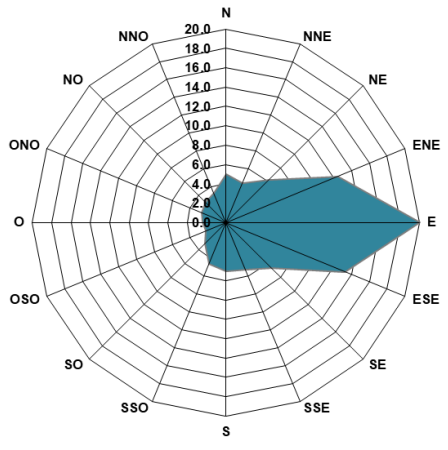
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	7.1	5.4	5.0	7.3	6.2
NNE	3.9	4.0	4.4	4.4	4.2
NE	4.0	4.6	6.3	4.9	4.9
ENE	5.4	7.3	12.5	7.7	8.3
E	6.0	11.0	20.0	9.6	11.7
ESE	3.9	7.8	13.3	6.1	7.8
SE	3.5	5.2	6.7	4.3	4.9
SSE	4.4	5.6	5.3	4.4	4.9
S	6.8	6.9	5.1	5.6	6.1
SSO	9.5	7.3	4.7	7.0	7.1
SO	9.0	6.5	3.1	6.3	6.2
OSO	10.4	7.7	2.2	6.7	6.7
O	9.3	8.0	2.5	7.0	6.6
ONO	6.0	4.6	2.8	6.4	4.9
NO	5.1	3.9	3.0	6.1	4.5
NNO	5.8	4.3	3.3	6.3	4.9
Suma	100.0	100.0	100.0	100.0	100.0



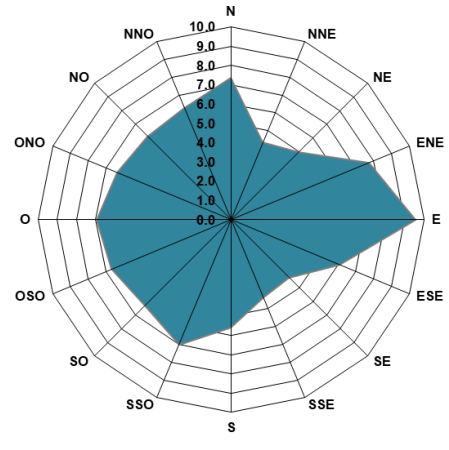
Ene-Mar



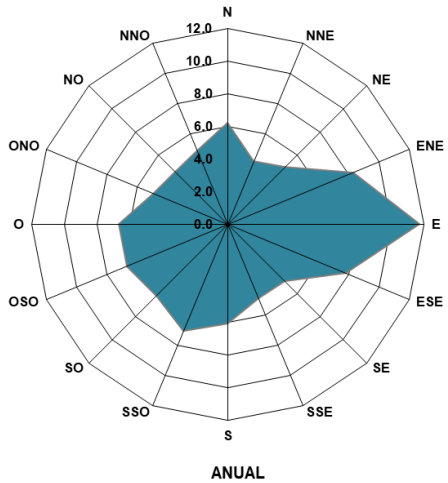
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 275. Frecuencia de dirección del viento (%) trimestral de la estación El Saladillo, Pánfilo Natera (2002-2022).

Cuadro 306. Estadísticas climatológicas mensuales de la estación El Saladillo, Pánfilo Natera (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.7	23.1	25.6	28.1	29.4	27.8	25.9	26.3	24.7	24.9	22.9	21.4	25.1
Temperatura máxima maximorum (°C)	27.3	31.1	32.9	33.7	35.3	33.8	32.3	31.0	30.6	31.1	30.1	28.5	35.3
Temperatura mínima media (°C)	1.8	3.4	5.3	8.2	10.9	12.9	12.6	12.4	11.9	8.2	4.1	1.8	7.8
Temperatura mínima minimorum (°C)	-10.3	-6.0	-5.4	-0.9	3.1	7.1	6.9	7.1	3.7	-2.7	-9.7	-11.4	-11.4
Temperatura media (°C)	11.0	13.4	15.9	18.9	20.6	20.2	18.8	18.9	17.7	16.2	13.3	11.5	16.4
Oscilación térmica (°C)	18.9	19.6	20.3	20.0	18.5	14.9	13.3	13.9	12.8	16.7	18.9	19.6	17.3
Precipitación acumulada media (mm)	10.4	15.1	11.8	2.5	20.9	58.2	88.8	57.8	82.4	26.5	10.5	9.3	394.0
Precipitación máxima maximorum en 24 horas (mm)	23.4	27.0	27.0	7.5	77.5	35.6	83.2	45.5	50.8	54.0	26.9	29.4	83.2
Número de días promedio con lluvia	4.3	3.2	4.1	2.8	5.2	9.7	11.1	9.6	10.6	6.2	4.1	3.1	73.9
Evapotranspiración acumulada potencial media (mm)	111.1	125.2	173.0	194.0	200.1	174.3	161.3	159.5	128.7	130.5	112.7	107.5	1777.8
Humedad máxima media (%)	82.9	77.9	71.5	67.6	77.2	87.9	92.5	92.9	95.4	93.9	91.0	84.1	84.6
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.5	18.1	13.9	11.7	14.6	26.2	34.9	33.6	41.2	31.5	25.9	21.9	24.7
Humedad mínima minimorum (%)	3.0	4.0	2.0	3.0	3.0	3.0	11.0	13.0	11.6	7.0	4.0	3.0	2.0
Humedad media (%)	51.6	44.6	37.9	33.7	41.5	57.0	65.8	65.6	72.3	64.8	58.9	51.9	53.8
Radiación global media día/mes (W/m^2)	18787.9	22348.2	26460.0	28878.7	29341.8	27632.6	26117.3	26007.3	22471.6	21994.2	19865.1	18034.1	23994.9
Radiación global media día/mes (kWh/m^2)	4.7	5.6	6.6	7.2	7.3	6.9	6.5	6.5	5.6	5.5	5.0	4.5	6.0
Radiación global media día/mes ($Mj/m^2/s$)	16.9	20.1	23.8	26.0	26.4	24.9	23.5	23.4	20.2	19.8	17.9	16.2	21.6
Velocidad del viento máxima media (km/h)	20.4	22.2	24.3	25.0	24.4	23.2	21.4	19.4	16.2	15.3	16.5	18.7	20.6
Velocidad del viento máxima maximorum (km/h)	51.0	62.0	78.0	48.3	53.6	48.3	38.0	54.0	47.7	40.0	67.9	56.1	78.0
Velocidad del viento media (km/h)	7.4	8.4	9.3	9.7	8.6	8.5	7.7	6.9	5.5	5.2	5.8	6.7	7.5
Dirección dominante del viento	SSO	OSO	OSO	OSO	E	E	E	E	E	E	E	SSO	E

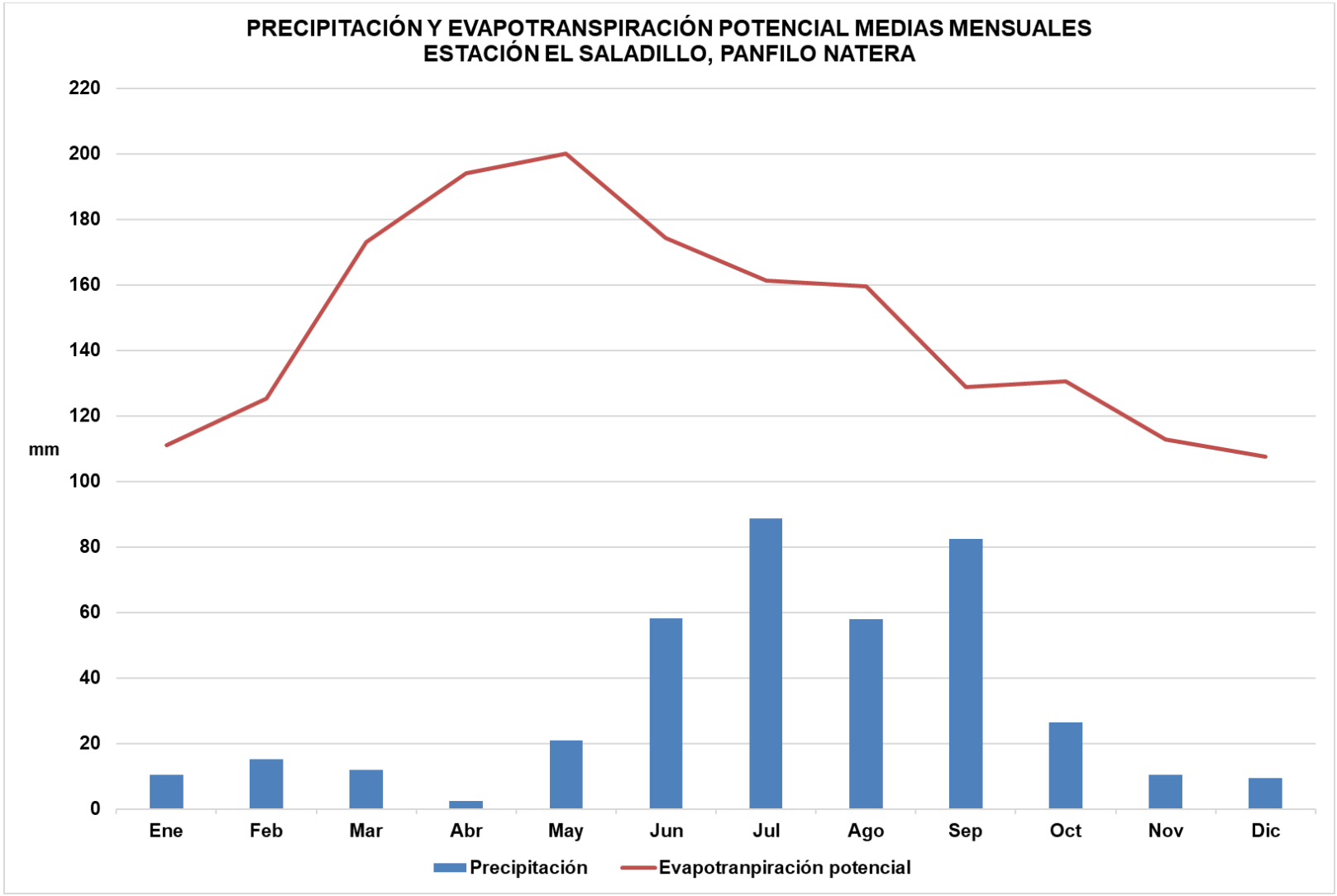


Figura 276. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación El Saladillo, Pánfilo Natera (2002-2022).

7.17. Estación: Emiliano Zapata, Sombrerete

Cuadro 307. Temperatura máxima media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.2	8.9	10.7	13.9	16.3	17.4	15.8	15.6	14.2	12.5	9.4	7.6	12.5
01	6.6	8.2	9.9	13.0	15.4	16.7	15.2	15.1	13.8	11.9	8.8	7.2	11.8
02	6.3	7.7	9.3	12.1	14.5	15.9	14.7	14.6	13.5	11.4	8.3	6.8	11.3
03	5.8	7.3	8.7	11.3	13.6	15.2	14.2	14.2	13.1	10.9	7.9	6.4	10.7
04	5.6	6.9	8.2	10.8	13.0	14.5	13.7	13.7	12.7	10.4	7.6	6.2	10.3
05	5.3	6.6	7.8	10.3	12.3	13.9	13.3	13.3	12.4	10.0	7.3	6.0	9.9
06	5.2	6.3	7.5	9.8	11.9	13.4	13.0	12.9	12.1	9.8	7.1	5.7	9.6
07	5.2	6.7	9.2	10.3	12.5	14.0	13.2	12.9	12.1	10.0	8.2	5.9	10.0
08	7.6	10.0	12.9	13.8	15.9	16.5	15.1	14.8	13.8	12.7	11.8	9.1	12.8
09	10.8	13.0	15.6	16.9	18.7	18.7	17.0	16.8	15.9	15.6	14.6	12.2	15.5
10	13.2	15.3	17.8	19.3	21.1	20.8	18.8	18.7	17.7	17.7	16.7	14.5	17.6
11	14.9	17.1	19.5	21.2	23.0	22.6	20.4	20.2	19.1	19.5	18.2	16.1	19.3
12	16.2	18.4	20.8	22.8	24.4	24.0	21.7	21.5	20.3	20.6	19.3	17.3	20.6
13	17.1	19.3	21.7	23.9	25.5	25.0	22.6	22.5	21.2	21.4	20.0	18.1	21.5
14	17.5	19.8	22.2	24.7	26.3	25.7	23.2	23.2	21.7	21.9	20.3	18.5	22.1
15	17.6	20.0	22.4	25.1	26.6	25.9	23.5	23.5	21.8	22.1	20.2	18.5	22.3
16	17.3	19.7	22.2	25.1	26.6	25.7	23.2	23.4	21.5	22.0	19.7	18.1	22.0
17	16.4	19.0	21.5	24.7	26.3	25.3	22.8	22.8	20.9	21.3	18.6	17.0	21.4
18	14.5	17.6	20.1	24.0	25.6	24.5	22.1	21.9	19.8	19.9	15.9	14.3	20.0
19	11.7	14.7	17.7	22.5	24.4	23.4	21.0	20.5	18.5	17.6	13.4	11.8	18.1
20	10.3	12.6	15.3	20.2	22.7	22.0	19.6	18.9	16.5	15.3	12.3	10.6	16.4
21	9.4	11.5	13.8	17.9	20.4	20.3	18.0	17.5	15.5	14.3	11.4	9.8	15.0
22	8.6	10.5	12.8	16.3	18.8	19.0	17.1	16.7	15.0	13.7	10.7	9.0	14.0
23	7.8	9.7	11.7	15.1	17.6	18.1	16.4	16.1	14.5	13.1	9.9	8.2	13.2
Media	10.8	12.8	15.0	17.7	19.7	19.9	18.1	18.0	16.6	15.7	13.2	11.4	15.7

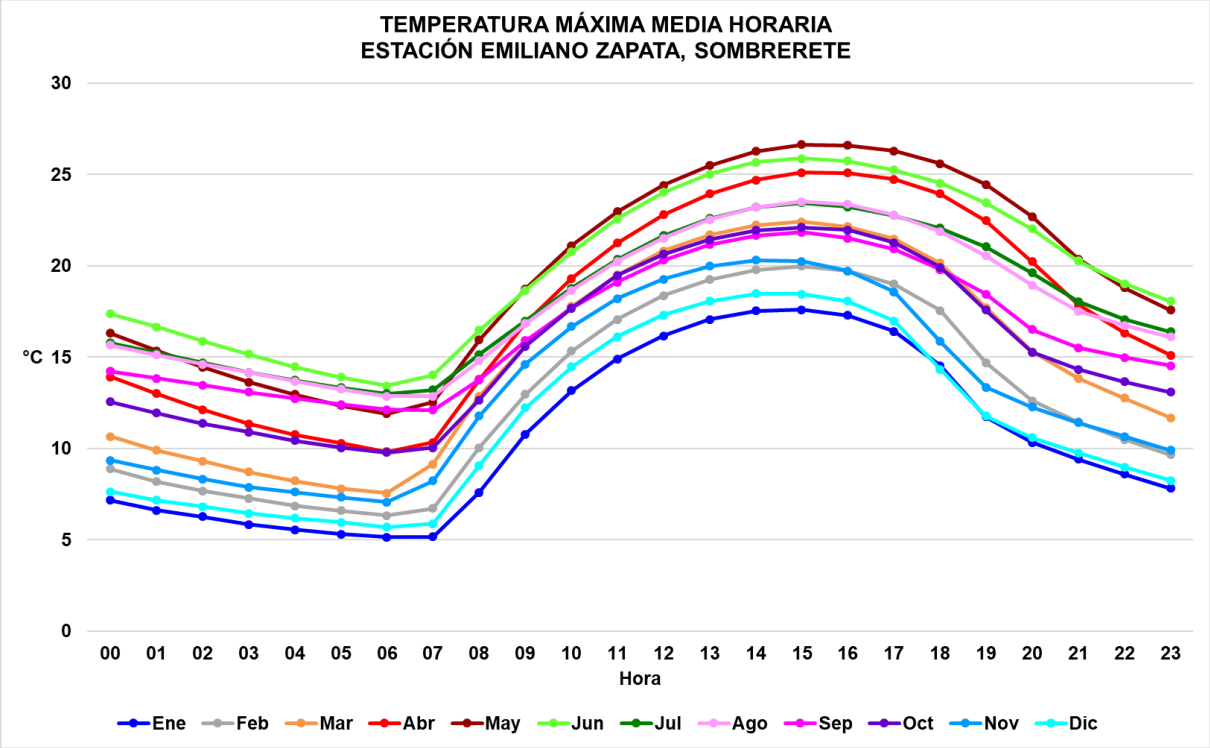


Figura 277. Temperatura máxima media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 308. Temperatura máxima maximorum (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.6	16.1	17.0	20.0	23.3	24.0	21.7	21.9	18.6	18.6	16.6	13.8	24.0
01	13.1	15.0	16.0	18.7	23.5	22.9	21.4	21.2	18.2	17.6	15.6	14.1	23.5
02	12.8	14.9	15.7	17.5	22.2	21.8	19.9	20.0	17.6	17.9	14.9	14.1	22.2
03	12.8	15.1	14.5	17.1	20.7	20.5	18.5	19.0	17.3	16.8	13.5	14.1	20.7
04	12.9	13.9	14.6	16.8	19.2	19.9	17.7	17.5	15.9	15.8	13.2	13.8	19.9
05	11.8	13.8	14.5	16.6	18.9	20.2	17.0	16.8	15.5	15.9	13.4	13.6	20.2
06	11.7	13.0	14.4	16.6	17.8	19.6	16.1	16.1	15.2	15.7	12.6	13.2	19.6
07	12.0	14.1	17.4	18.0	19.7	19.5	17.4	16.6	15.3	16.3	15.4	13.0	19.7
08	16.5	18.8	21.4	21.1	23.1	22.8	20.3	19.3	18.3	18.6	19.3	19.1	23.1
09	19.7	21.4	25.4	23.6	26.2	25.0	23.1	22.0	21.4	22.3	23.2	21.5	26.2
10	21.9	25.2	26.4	25.8	27.9	28.4	25.0	25.3	23.9	24.3	26.2	23.1	28.4
11	23.4	26.8	28.2	27.0	29.5	30.1	28.1	26.5	24.8	25.6	27.2	24.2	30.1
12	23.8	27.7	29.7	28.1	31.2	30.9	28.8	27.4	26.2	26.5	27.5	25.0	31.2
13	24.2	28.7	30.8	29.4	32.3	31.8	29.6	28.4	27.2	26.9	27.4	25.4	32.3
14	24.5	29.3	31.2	29.8	34.3	32.6	29.7	29.1	28.4	27.8	27.3	25.5	34.3
15	24.5	29.0	31.7	30.4	34.2	33.0	29.8	30.0	29.4	27.9	27.6	25.2	34.2
16	24.1	29.0	31.6	30.8	33.3	33.0	30.6	30.2	28.9	27.6	26.6	24.7	33.3
17	23.4	27.6	30.6	30.7	34.2	32.6	30.7	29.3	28.2	28.2	26.0	23.4	34.2
18	21.2	25.2	29.5	29.9	33.7	32.2	30.1	28.9	27.6	26.3	22.8	20.1	33.7
19	18.2	22.4	26.3	28.9	31.1	31.4	29.2	27.3	26.5	24.0	19.6	17.2	31.4
20	18.2	21.0	25.7	26.3	29.1	30.5	26.4	25.8	23.6	22.4	18.5	16.6	30.5
21	16.6	20.0	23.0	24.0	26.8	27.9	24.8	23.8	21.9	20.7	17.5	15.9	27.9
22	15.9	18.1	20.0	22.4	26.4	25.8	23.2	23.4	21.7	20.9	16.5	15.5	26.4
23	14.8	17.1	20.2	21.4	25.6	24.6	22.9	23.0	19.7	19.2	16.7	14.2	25.6
Máx.	24.5	29.3	31.7	30.8	34.3	33.0	30.7	30.2	29.4	28.2	27.6	25.5	34.3

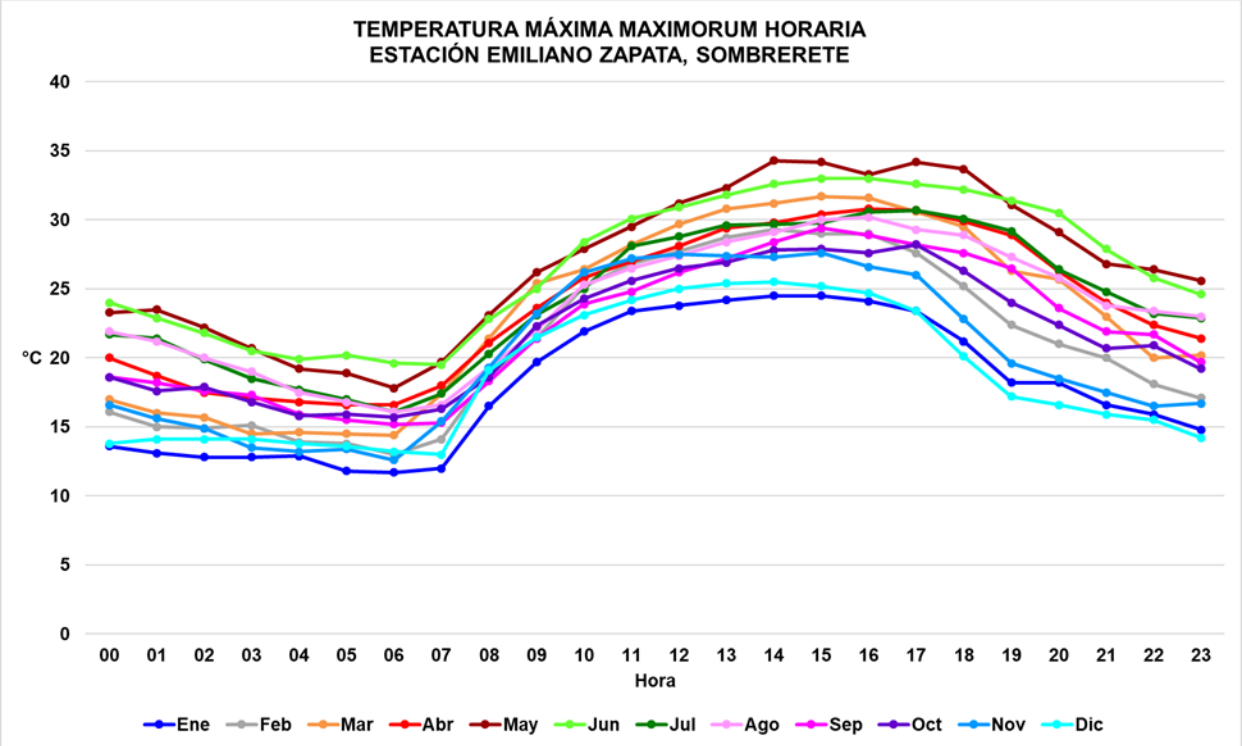


Figura 278. Temperatura máxima maximorum (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 309. Temperatura mínima media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.2	7.9	9.6	12.8	15.3	16.6	15.1	15.0	13.7	11.7	8.4	6.7	11.6
01	5.7	7.2	8.9	11.9	14.4	15.9	14.6	14.5	13.3	11.1	7.9	6.2	11.0
02	5.3	6.7	8.3	11.0	13.4	15.2	14.1	14.0	12.9	10.6	7.4	5.8	10.4
03	5.0	6.3	7.7	10.3	12.7	14.4	13.7	13.6	12.6	10.1	7.0	5.5	9.9
04	4.7	5.9	7.3	9.7	12.0	13.8	13.2	13.2	12.2	9.7	6.7	5.2	9.5
05	4.4	5.6	6.8	9.2	11.4	13.3	12.9	12.7	11.9	9.3	6.4	5.0	9.1
06	4.2	5.4	6.6	8.8	10.9	12.8	12.6	12.4	11.7	9.1	6.2	4.7	8.8
07	4.2	5.4	7.0	8.8	11.0	12.8	12.5	12.2	11.5	9.0	6.4	4.7	8.8
08	5.1	7.2	10.1	10.7	13.3	14.6	13.6	13.1	12.1	10.1	9.1	6.2	10.4
09	8.4	10.8	13.6	14.6	16.6	17.0	15.5	15.3	14.3	13.5	12.5	9.9	13.5
10	11.4	13.6	16.2	17.5	19.3	19.2	17.4	17.3	16.3	16.1	15.2	12.8	16.0
11	13.6	15.7	18.2	19.8	21.6	21.2	19.1	19.0	18.0	18.1	17.0	14.9	18.0
12	15.1	17.3	19.7	21.6	23.3	22.8	20.5	20.4	19.2	19.6	18.3	16.3	19.5
13	16.2	18.4	20.8	23.0	24.5	23.9	21.5	21.5	20.1	20.5	19.2	17.3	20.6
14	16.8	19.1	21.5	23.9	25.3	24.5	22.1	22.1	20.5	21.0	19.6	17.8	21.2
15	17.0	19.3	21.7	24.3	25.7	24.7	22.2	22.4	20.6	21.2	19.5	17.9	21.4
16	16.5	19.0	21.4	24.4	25.7	24.5	22.0	22.1	20.3	20.9	18.8	17.3	21.1
17	15.1	18.0	20.5	23.9	25.4	24.1	21.5	21.5	19.6	20.1	16.7	15.2	20.1
18	12.3	15.5	18.4	22.8	24.6	23.4	20.9	20.6	18.6	18.2	13.7	12.1	18.4
19	10.4	12.9	15.7	20.8	23.1	22.3	19.9	19.2	16.9	15.5	12.2	10.6	16.6
20	9.3	11.5	14.0	18.3	20.8	20.6	18.3	17.6	15.5	14.3	11.3	9.6	15.1
21	8.4	10.4	12.8	16.6	19.0	19.1	17.1	16.6	14.9	13.4	10.4	8.7	14.0
22	7.5	9.5	11.7	15.2	17.7	18.0	16.3	15.9	14.4	12.8	9.6	7.9	13.0
23	6.8	8.7	10.6	14.0	16.5	17.2	15.7	15.4	14.0	12.2	8.9	7.2	12.3
Media	9.6	11.6	13.7	16.4	18.5	18.8	17.2	17.0	15.6	14.5	12.0	10.2	14.6

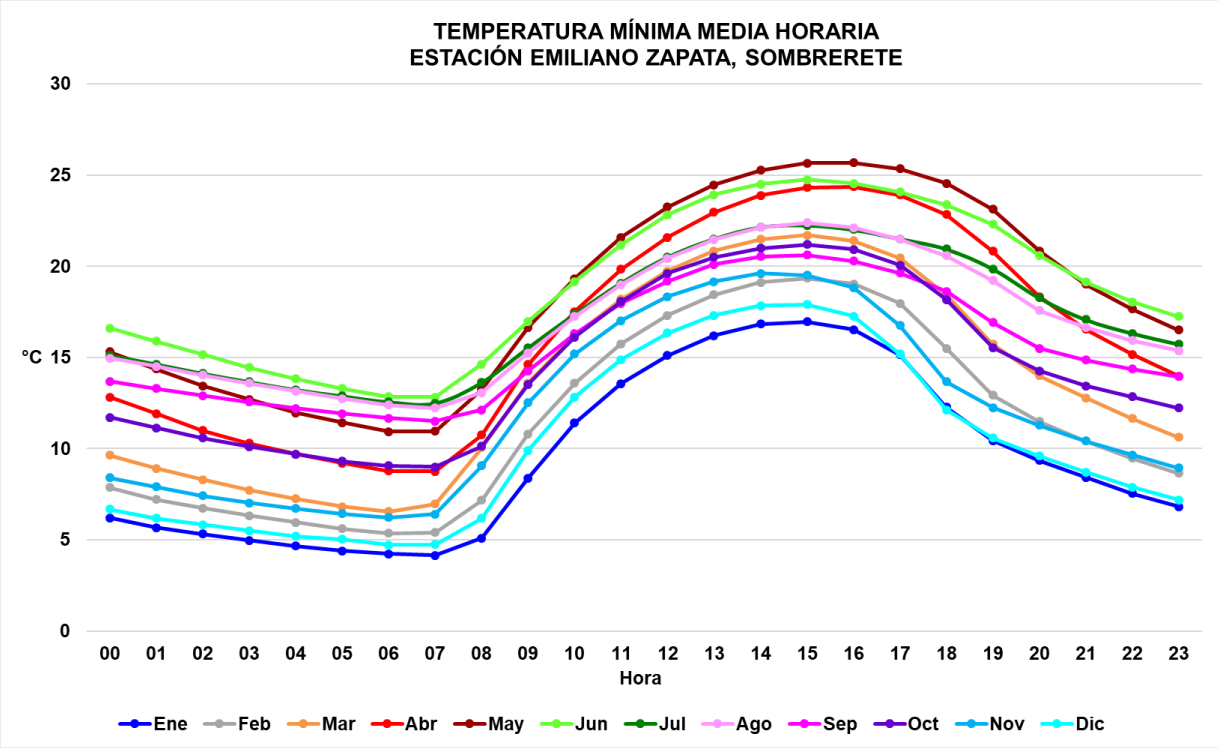


Figura 279. Temperatura mínima media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 310. Temperatura mínima minimorum (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.0	-2.1	-3.4	4.7	7.3	10.8	11.4	9.6	8.3	4.1	-5.4	-9.0	-9.0
01	-3.0	-3.5	-2.5	3.4	6.3	9.9	11.5	9.6	6.4	3.1	-5.6	-10.3	-10.3
02	-3.2	-4.4	-3.0	3.0	5.8	9.1	10.9	10.3	5.8	2.9	-6.1	-10.0	-10.0
03	-3.8	-5.3	-2.2	1.7	5.2	8.4	10.3	10.1	5.1	1.5	-6.9	-10.8	-10.8
04	-4.2	-6.5	-2.5	0.3	4.5	8.2	10.2	8.6	4.0	0.4	-7.7	-10.4	-10.4
05	-4.8	-5.8	-3.2	0.2	3.2	7.6	9.8	8.1	3.6	-0.3	-8.3	-9.2	-9.2
06	-5.2	-6.3	-2.9	0.0	3.4	6.3	9.2	7.5	3.7	0.3	-8.2	-9.3	-9.3
07	-5.9	-7.4	-3.7	-0.7	3.1	7.4	9.1	7.7	3.5	0.2	-7.5	-8.9	-8.9
08	-5.6	-5.3	-1.8	0.5	3.7	10.4	10.2	8.4	5.4	2.3	-4.2	-6.6	-6.6
09	-3.9	-1.7	-0.4	4.6	7.2	11.5	11.8	11.5	9.4	4.6	-1.3	-5.6	-5.6
10	-1.0	2.4	-0.3	6.8	8.1	13.0	12.5	12.4	11.1	6.5	0.9	-5.2	-5.2
11	1.2	4.1	-0.1	9.1	9.0	13.2	12.3	12.8	12.2	8.9	2.2	-4.7	-4.7
12	1.4	4.3	0.6	11.3	11.1	14.1	13.2	12.9	12.6	8.7	2.4	-4.5	-4.5
13	3.1	4.3	1.0	13.2	11.8	14.4	13.1	11.6	13.4	9.4	3.9	-4.4	-4.4
14	4.4	4.2	1.0	14.4	11.9	11.7	12.3	12.9	13.2	10.0	4.7	-3.4	-3.4
15	3.6	4.8	1.1	12.7	9.9	12.1	12.5	12.6	12.5	10.3	4.5	-1.5	-1.5
16	2.5	5.0	0.2	12.0	10.6	11.3	11.1	11.6	11.7	10.3	4.0	-1.4	-1.4
17	1.1	4.9	-0.4	8.6	10.4	12.1	12.5	11.1	12.0	9.6	1.7	-3.4	-3.4
18	0.4	3.0	-0.9	12.4	8.4	12.7	12.7	11.6	12.1	8.9	-0.4	-5.4	-5.4
19	-0.9	1.3	-1.6	9.0	9.8	11.8	12.3	9.9	12.0	7.7	-1.7	-7.3	-7.3
20	-1.8	0.2	-2.1	7.8	10.0	10.8	12.6	10.8	10.6	7.0	-2.7	-8.9	-8.9
21	-2.1	-0.6	-2.5	6.8	8.2	11.1	12.3	10.8	9.4	6.3	-3.3	-9.0	-9.0
22	-2.1	-1.0	-2.9	6.3	9.6	11.4	12.2	11.1	9.0	5.3	-4.2	-8.1	-8.1
23	-2.1	-1.3	-4.0	5.3	8.3	11.0	11.9	10.6	8.8	4.8	-4.5	-8.4	-8.4
Mín.	-5.9	-7.4	-4.0	-0.7	3.1	6.3	9.1	7.5	3.5	-0.3	-8.3	-10.8	-10.8

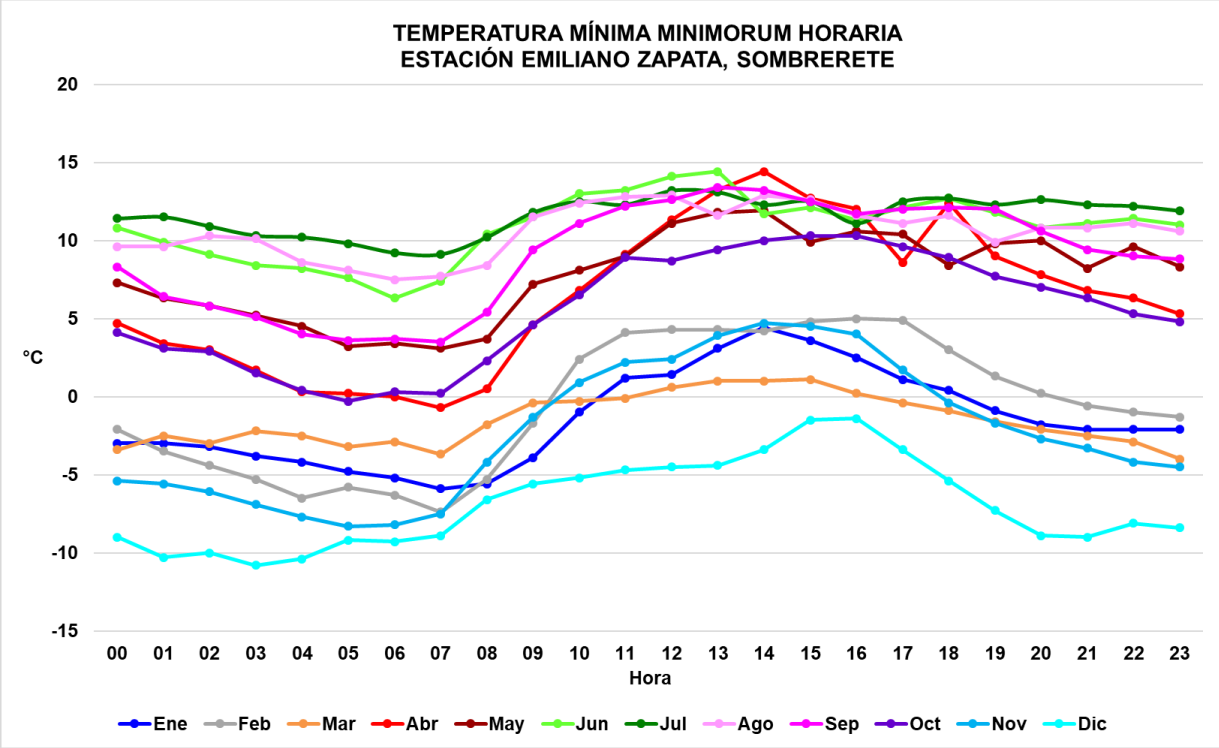


Figura 280. Temperatura mínima minimorum (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 311. Temperatura media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.7	8.4	10.2	13.4	15.8	17.0	15.4	15.3	13.9	12.1	8.9	7.2	12.0
01	6.2	7.7	9.4	12.5	14.9	16.3	14.9	14.8	13.6	11.5	8.4	6.7	11.4
02	5.8	7.2	8.8	11.6	13.9	15.5	14.4	14.3	13.2	11.0	7.9	6.3	10.8
03	5.4	6.8	8.2	10.8	13.2	14.8	13.9	13.9	12.8	10.5	7.5	6.0	10.3
04	5.1	6.4	7.7	10.2	12.5	14.1	13.5	13.4	12.5	10.1	7.2	5.7	9.9
05	4.9	6.1	7.3	9.7	11.9	13.6	13.1	13.0	12.2	9.7	6.9	5.5	9.5
06	4.7	5.8	7.1	9.3	11.4	13.1	12.8	12.6	11.9	9.4	6.6	5.2	9.2
07	4.6	6.0	8.0	9.5	11.7	13.3	12.8	12.5	11.8	9.5	7.2	5.3	9.4
08	6.3	8.6	11.5	12.3	14.7	15.6	14.4	13.9	12.9	11.3	10.5	7.6	11.6
09	9.6	11.9	14.6	15.8	17.7	17.8	16.3	16.0	15.1	14.6	13.6	11.1	14.5
10	12.3	14.5	17.0	18.4	20.2	20.0	18.1	18.0	17.0	16.9	16.0	13.7	16.8
11	14.2	16.4	18.9	20.6	22.3	21.9	19.7	19.6	18.5	18.8	17.6	15.5	18.7
12	15.6	17.8	20.3	22.2	23.8	23.4	21.1	21.0	19.8	20.1	18.8	16.8	20.1
13	16.6	18.9	21.3	23.5	25.0	24.5	22.1	22.0	20.6	21.0	19.6	17.7	21.1
14	17.2	19.5	21.8	24.3	25.8	25.1	22.7	22.7	21.1	21.5	20.0	18.2	21.6
15	17.3	19.7	22.1	24.7	26.1	25.3	22.9	23.0	21.2	21.6	19.9	18.2	21.8
16	16.9	19.4	21.8	24.7	26.1	25.1	22.6	22.8	20.9	21.5	19.3	17.7	21.6
17	15.8	18.5	21.0	24.3	25.8	24.7	22.1	22.1	20.3	20.7	17.7	16.2	20.8
18	13.4	16.6	19.3	23.4	25.1	24.0	21.5	21.2	19.2	19.1	14.7	13.1	19.2
19	11.1	13.8	16.7	21.7	23.8	22.9	20.5	19.9	17.7	16.5	12.8	11.2	17.4
20	9.8	12.0	14.6	19.3	21.8	21.3	18.9	18.2	16.0	14.8	11.8	10.1	15.7
21	8.9	10.9	13.3	17.2	19.7	19.7	17.5	17.1	15.2	13.9	10.9	9.2	14.5
22	8.1	10.0	12.2	15.8	18.2	18.5	16.7	16.3	14.7	13.3	10.2	8.4	13.5
23	7.3	9.2	11.1	14.6	17.1	17.7	16.1	15.7	14.2	12.7	9.4	7.7	12.7
Media	10.2	12.2	14.3	17.1	19.1	19.4	17.7	17.5	16.1	15.1	12.6	10.8	15.2

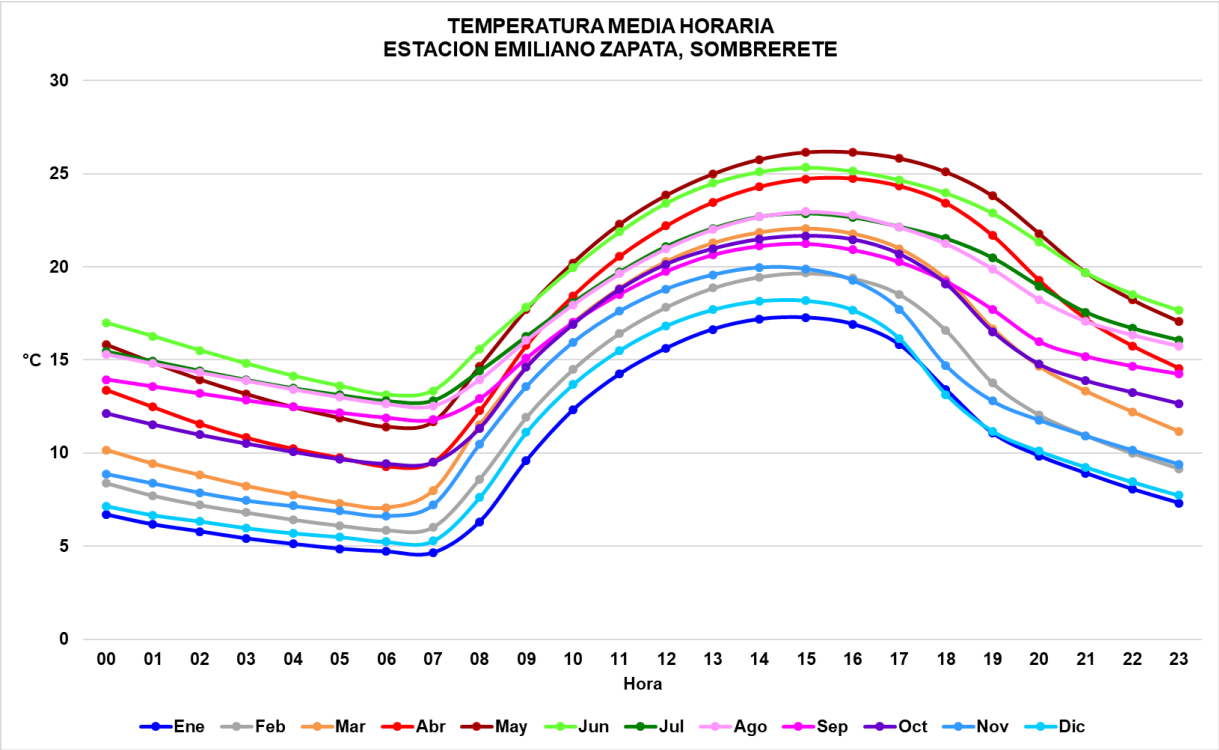


Figura 281. Temperatura media (˚C) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 312. Precipitación media (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	1.0	0.1	0.1	0.4	5.5	7.5	6.9	7.2	3.0	0.2	0.2	32.4
01	0.3	0.6	0.2	0.1	0.2	3.0	5.6	5.8	8.0	2.2	0.2	0.1	26.2
02	0.3	0.6	0.1	0.1	0.1	2.3	3.6	3.5	7.2	1.0	0.3	0.1	19.3
03	0.2	0.5	0.1	0.0	0.0	2.8	5.3	3.2	3.8	1.2	0.3	0.2	17.7
04	0.1	0.3	0.0	0.1	0.2	1.8	1.3	2.1	3.6	1.4	0.2	0.2	11.3
05	0.2	0.3	0.1	0.0	0.2	0.9	1.8	1.8	2.3	1.1	0.5	0.3	9.4
06	0.4	0.4	0.0	0.0	0.2	0.4	1.7	0.9	1.3	0.5	0.7	0.6	7.0
07	0.4	0.4	0.1	0.0	0.1	0.3	1.2	0.7	1.3	0.4	0.3	0.3	5.5
08	0.6	0.4	0.2	0.0	0.0	0.4	1.0	0.7	1.1	0.4	0.2	0.3	5.3
09	0.3	0.4	0.1	0.0	0.1	0.1	0.6	0.5	0.5	0.2	0.6	0.3	3.6
10	0.1	0.6	0.0	0.0	0.1	0.3	0.8	0.3	0.7	0.3	0.6	0.3	4.1
11	0.2	0.7	0.1	0.0	0.0	0.5	1.0	0.2	0.4	0.5	0.5	0.4	4.5
12	0.1	0.7	0.3	0.0	0.1	0.1	0.8	0.2	0.3	0.7	0.2	0.5	4.0
13	0.4	0.7	0.1	0.0	0.1	0.7	3.7	2.2	1.8	1.2	0.9	0.4	12.2
14	0.3	0.7	0.2	0.0	0.7	1.7	6.0	5.3	3.2	2.9	0.5	0.1	21.6
15	0.5	0.7	0.1	0.4	0.6	2.6	6.6	2.6	8.8	2.6	1.2	0.3	26.8
16	0.6	0.7	0.7	0.4	1.6	5.4	8.5	6.4	4.3	2.3	1.3	0.3	32.3
17	0.5	0.5	0.5	0.1	2.3	7.0	9.0	10.2	5.9	2.3	1.2	1.1	40.8
18	0.5	0.4	0.7	0.4	2.3	3.1	7.3	8.2	9.4	2.5	1.6	0.4	36.7
19	0.9	0.4	0.3	0.7	1.0	3.0	5.7	11.0	7.8	2.5	0.8	0.2	34.4
20	0.4	0.5	0.3	0.1	1.0	4.1	5.7	7.4	8.2	1.5	0.5	0.2	29.7
21	0.4	0.2	0.3	0.1	1.4	5.0	6.2	10.2	8.6	2.3	0.4	0.3	35.5
22	0.8	0.8	0.2	0.3	1.6	5.9	8.9	9.1	9.6	3.0	0.5	0.3	40.9
23	0.3	1.3	0.1	0.2	0.5	5.6	6.7	10.2	10.5	1.4	0.7	0.3	38.0
Suma	9.1	13.7	5.2	3.1	14.8	62.4	106.5	109.6	115.7	37.3	14.3	7.6	499.4

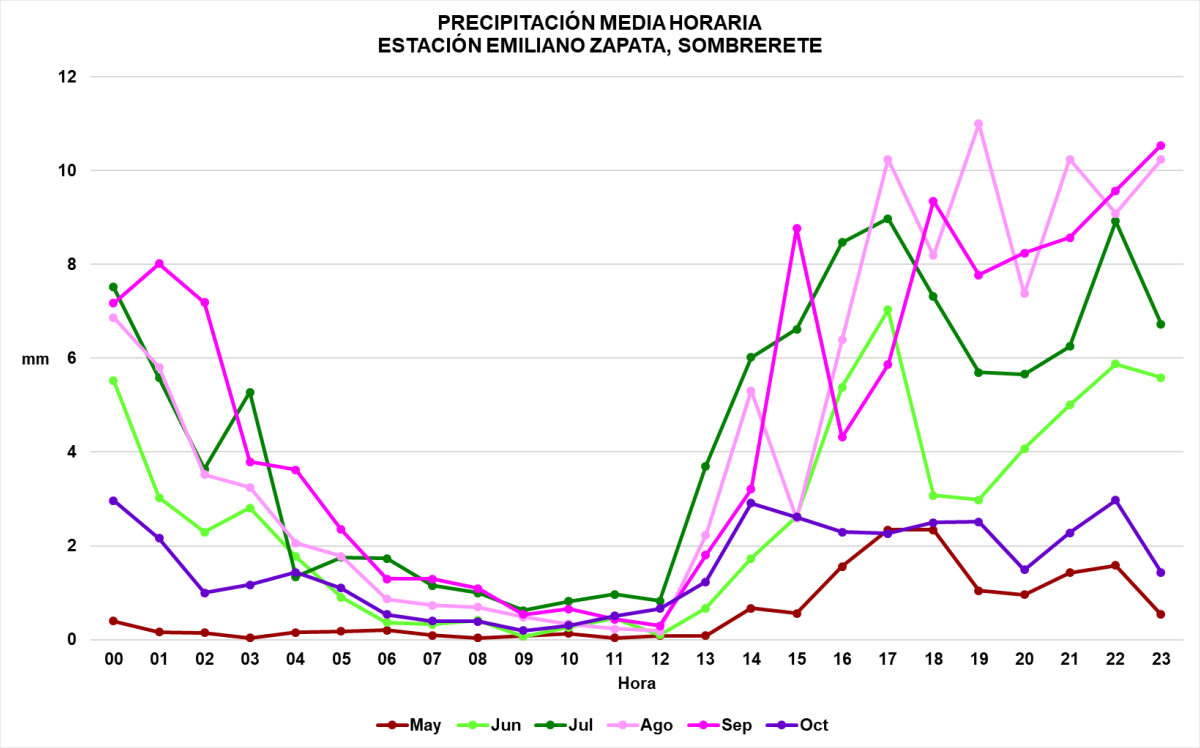


Figura 282. Precipitación media (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 313. Precipitación máxima maximorum (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.2	4.6	0.9	1.7	4.4	36.2	28.8	10.6	14.4	14.4	1.8	1.2	36.2
01	1.8	3.8	2.6	1.2	2.3	14.2	13.6	13.8	22.0	8.6	1.8	1.6	22.0
02	1.4	3.4	2.0	1.8	2.0	6.6	6.8	6.6	24.8	4.8	1.4	0.9	24.8
03	2.0	3.2	1.0	1.0	0.6	18.9	24.6	6.5	10.0	4.6	2.0	1.4	24.6
04	0.5	1.4	0.5	1.2	1.7	5.8	3.5	5.8	12.8	7.2	1.1	1.4	12.8
05	1.4	1.3	0.8	0.5	2.0	5.0	4.8	9.6	8.0	4.0	2.3	2.9	9.6
06	3.7	1.6	0.5	0.2	2.0	2.8	8.4	2.0	5.4	2.7	5.6	5.0	8.4
07	3.6	1.6	1.8	0.0	1.3	2.0	4.6	2.4	4.0	1.8	2.1	1.4	4.6
08	7.6	1.8	2.3	0.0	0.4	2.4	4.8	3.6	3.2	1.9	2.1	2.1	7.6
09	2.6	3.1	1.2	0.0	1.4	0.6	5.0	2.3	3.2	1.1	3.7	1.5	5.0
10	0.8	4.0	0.2	0.0	1.8	3.2	9.4	1.2	2.2	2.0	4.8	1.5	9.4
11	1.2	5.0	2.6	0.0	0.6	4.4	6.6	1.4	2.6	4.0	2.6	3.0	6.6
12	1.2	3.0	3.6	0.0	1.0	1.2	5.6	2.0	1.1	4.2	1.4	4.3	5.6
13	6.8	4.2	1.7	0.0	0.8	5.5	21.8	18.3	15.2	6.0	12.5	3.6	21.8
14	2.2	3.8	1.8	0.0	5.6	11.4	19.4	34.5	18.4	21.6	4.4	0.7	34.5
15	1.8	2.0	1.6	4.4	6.2	11.2	31.8	10.0	23.5	9.2	4.0	1.9	31.8
16	3.5	3.0	4.4	5.3	13.2	36.8	16.2	34.6	17.4	9.4	6.1	1.8	36.8
17	2.8	2.4	5.7	0.8	20.0	25.6	22.6	30.9	9.8	5.0	5.8	9.1	30.9
18	2.6	2.2	2.6	6.4	12.3	8.6	51.6	24.8	16.4	11.3	5.6	2.8	51.6
19	4.1	2.6	2.2	10.4	4.1	11.5	10.7	35.2	12.0	10.4	6.7	1.5	35.2
20	2.8	2.3	2.0	1.3	4.8	13.0	11.8	17.2	20.0	8.0	2.1	1.1	20.0
21	1.6	1.0	1.6	0.8	19.3	11.0	14.2	51.1	20.0	12.4	2.1	2.8	51.1
22	10.6	13.1	2.2	2.7	9.4	16.0	46.6	16.8	15.4	10.6	3.3	1.9	46.6
23	2.6	15.2	1.7	4.5	3.7	13.5	17.0	14.8	22.6	5.8	4.2	2.2	22.6
Máx.	10.6	15.2	5.7	10.4	20.0	36.8	51.6	51.1	24.8	21.6	12.5	9.1	51.6

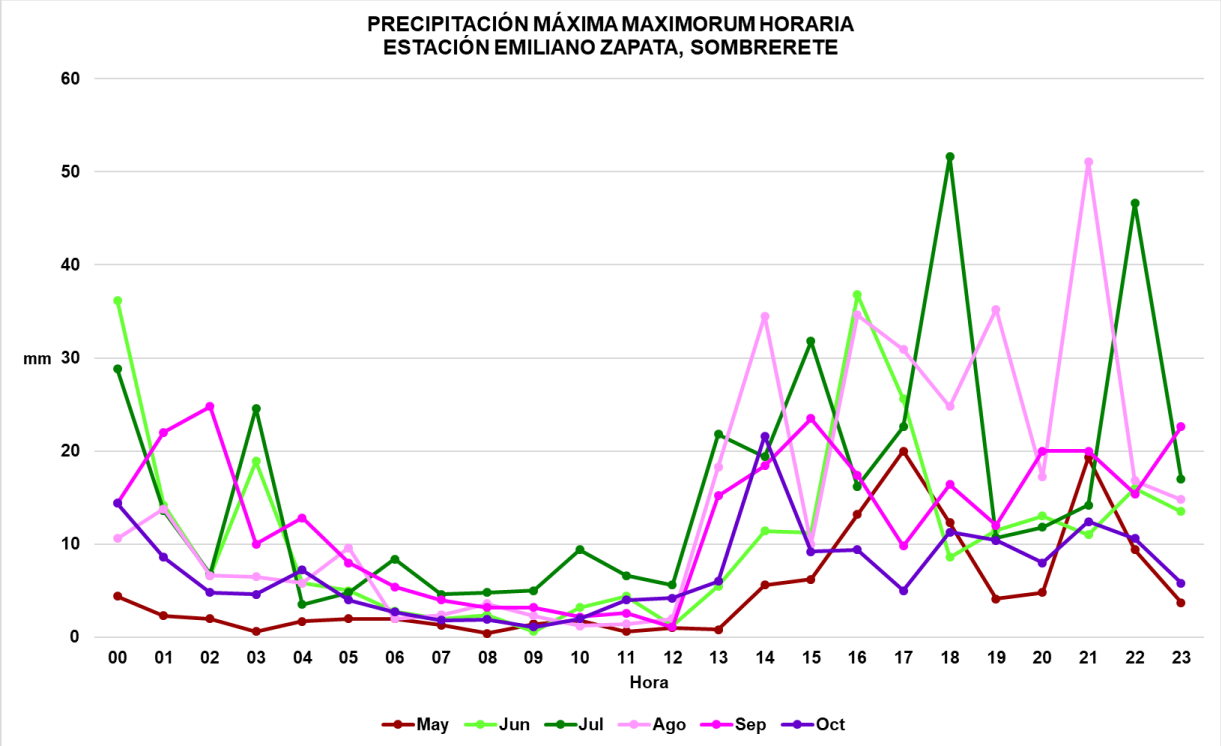


Figura 283. Precipitación máxima maximorum (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 314. Evapotranspiración potencial media (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.04	0.05	0.08	0.08	0.07	0.02	0.02	0.01	0.02	0.02	0.02	0.04
01	0.02	0.03	0.04	0.06	0.07	0.06	0.02	0.02	0.01	0.01	0.01	0.02	0.03
02	0.02	0.03	0.04	0.05	0.06	0.05	0.01	0.01	0.01	0.01	0.01	0.02	0.03
03	0.01	0.03	0.03	0.04	0.04	0.03	0.01	0.01	0.00	0.01	0.01	0.01	0.02
04	0.01	0.02	0.03	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.01	0.01	0.02
05	0.01	0.02	0.03	0.04	0.03	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.01
06	0.01	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
07	0.02	0.03	0.03	0.04	0.03	0.02	0.01	0.01	0.00	0.01	0.01	0.02	0.02
08	0.03	0.06	0.10	0.08	0.08	0.07	0.03	0.02	0.01	0.02	0.06	0.04	0.05
09	0.10	0.16	0.24	0.20	0.21	0.18	0.13	0.13	0.10	0.12	0.17	0.12	0.15
10	0.22	0.30	0.39	0.36	0.38	0.33	0.26	0.26	0.22	0.25	0.29	0.24	0.29
11	0.33	0.42	0.51	0.51	0.53	0.47	0.38	0.39	0.35	0.38	0.40	0.35	0.42
12	0.41	0.51	0.60	0.63	0.64	0.58	0.49	0.50	0.44	0.48	0.47	0.42	0.51
13	0.45	0.55	0.64	0.70	0.71	0.65	0.56	0.57	0.50	0.53	0.49	0.46	0.57
14	0.46	0.55	0.64	0.73	0.73	0.66	0.58	0.60	0.51	0.53	0.47	0.45	0.58
15	0.42	0.52	0.59	0.71	0.70	0.64	0.56	0.58	0.49	0.49	0.40	0.41	0.54
16	0.35	0.44	0.51	0.64	0.63	0.57	0.50	0.52	0.42	0.43	0.31	0.33	0.47
17	0.26	0.34	0.39	0.55	0.54	0.47	0.42	0.43	0.33	0.32	0.20	0.22	0.37
18	0.17	0.21	0.27	0.43	0.42	0.37	0.31	0.31	0.21	0.23	0.13	0.15	0.27
19	0.10	0.15	0.19	0.37	0.33	0.25	0.20	0.22	0.15	0.12	0.06	0.08	0.19
20	0.07	0.09	0.13	0.24	0.26	0.20	0.15	0.13	0.06	0.05	0.04	0.05	0.12
21	0.05	0.07	0.10	0.17	0.17	0.12	0.07	0.06	0.02	0.03	0.03	0.04	0.08
22	0.04	0.06	0.08	0.12	0.13	0.09	0.04	0.03	0.01	0.03	0.03	0.03	0.06
23	0.03	0.05	0.07	0.10	0.10	0.07	0.03	0.03	0.01	0.02	0.02	0.02	0.05
Media/día /mes	3.60	4.68	5.71	6.92	6.92	5.97	4.81	4.87	3.86	4.09	3.64	3.54	4.89

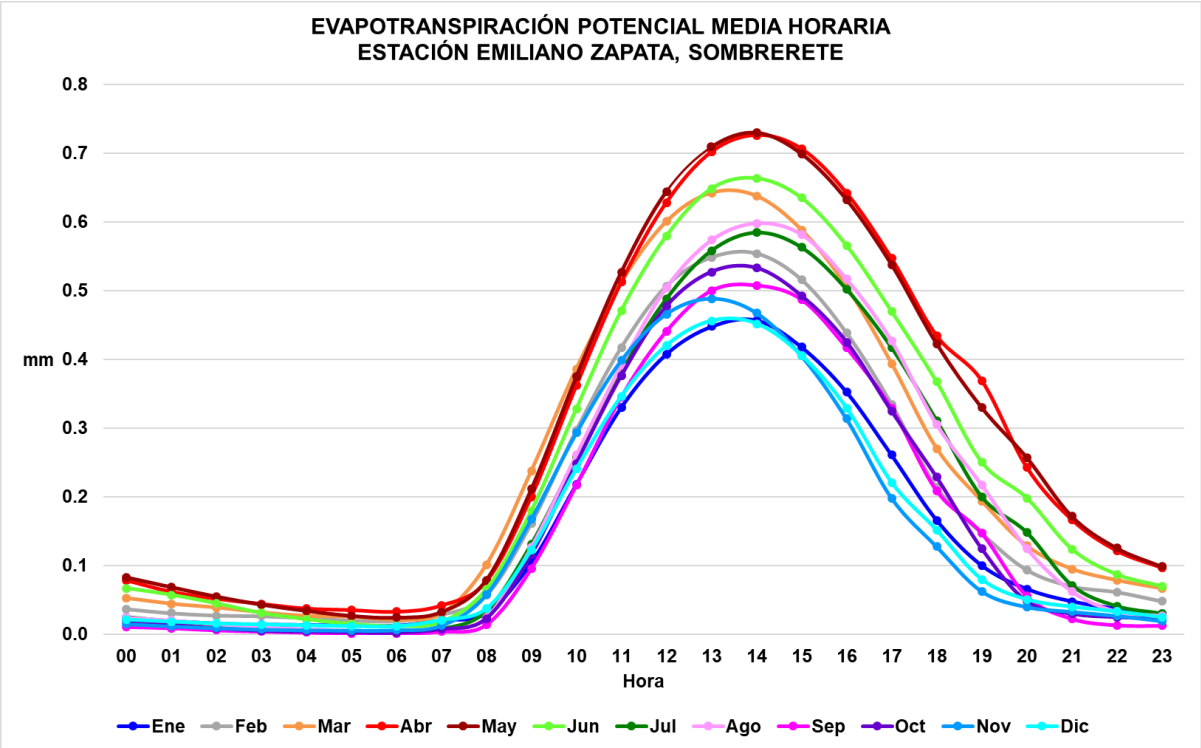


Figura 284. Evapotranspiración potencial media (mm) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 315. Humedad relativa media (%) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	55.2	46.1	38.3	32.6	39.5	58.5	77.1	78.0	84.3	71.9	63.5	54.5	58.3
01	57.0	48.3	40.3	34.8	42.8	61.6	79.4	80.4	85.8	74.3	65.6	56.4	60.6
02	58.3	49.8	42.0	37.1	46.0	65.2	81.9	82.5	87.3	76.7	67.6	57.5	62.7
03	59.8	50.9	43.6	39.2	49.0	68.5	84.2	84.3	88.6	78.6	69.2	58.9	64.6
04	60.7	52.0	45.2	41.0	51.6	71.6	86.0	86.2	90.0	80.4	70.2	59.8	66.2
05	61.4	53.1	46.5	42.4	53.6	74.0	87.5	88.0	91.2	81.9	71.1	60.4	67.6
06	61.9	53.9	47.5	43.7	55.2	76.2	88.7	89.3	92.1	83.0	71.9	61.2	68.7
07	62.1	53.9	46.4	43.6	55.3	76.1	88.7	89.9	92.6	83.2	70.8	61.4	68.7
08	58.6	48.2	39.0	38.5	48.5	69.5	83.6	86.0	90.4	78.9	62.1	56.0	63.3
09	49.8	39.7	31.1	30.9	39.3	61.3	75.9	78.0	83.1	68.4	51.6	46.2	54.6
10	41.5	32.4	25.0	24.3	31.3	52.6	67.7	69.9	74.7	58.9	42.9	37.9	46.6
11	35.3	27.4	21.1	19.7	25.3	44.7	60.4	62.7	67.8	51.2	36.9	32.2	40.4
12	31.0	24.2	18.4	16.7	21.3	38.4	54.3	56.7	62.5	45.8	32.9	28.4	35.9
13	28.1	22.1	16.6	14.7	18.8	34.4	49.8	52.1	58.6	42.4	30.4	26.1	32.8
14	26.6	21.0	15.7	13.4	17.4	32.2	47.0	49.1	56.5	40.4	29.1	24.9	31.1
15	26.3	20.6	15.3	12.9	16.8	31.3	46.0	47.5	55.6	39.5	29.1	24.5	30.4
16	26.9	20.8	15.7	12.9	16.9	31.8	46.5	47.8	56.5	39.5	30.4	25.3	30.9
17	29.1	22.0	16.6	13.3	17.5	33.3	48.2	49.9	58.7	41.6	34.1	28.5	32.7
18	34.0	25.0	18.8	14.4	18.6	35.2	50.0	53.1	62.5	46.3	41.8	34.8	36.2
19	39.9	30.1	22.6	16.4	20.5	38.0	53.8	58.2	68.8	55.0	47.3	40.1	40.9
20	43.8	34.3	26.6	19.6	23.8	42.6	60.2	64.7	76.2	61.4	51.2	43.8	45.7
21	47.1	37.8	30.1	23.3	28.2	48.2	66.5	69.7	79.2	64.7	54.6	47.0	49.7
22	50.1	40.9	33.1	26.8	32.3	52.6	70.6	73.2	81.3	67.0	57.8	49.8	53.0
23	52.8	43.4	35.8	29.8	36.2	56.5	73.7	76.1	82.8	69.2	60.8	52.4	55.8
Media	45.7	37.4	30.5	26.8	33.6	52.3	67.8	69.7	76.1	62.5	51.8	44.5	49.9

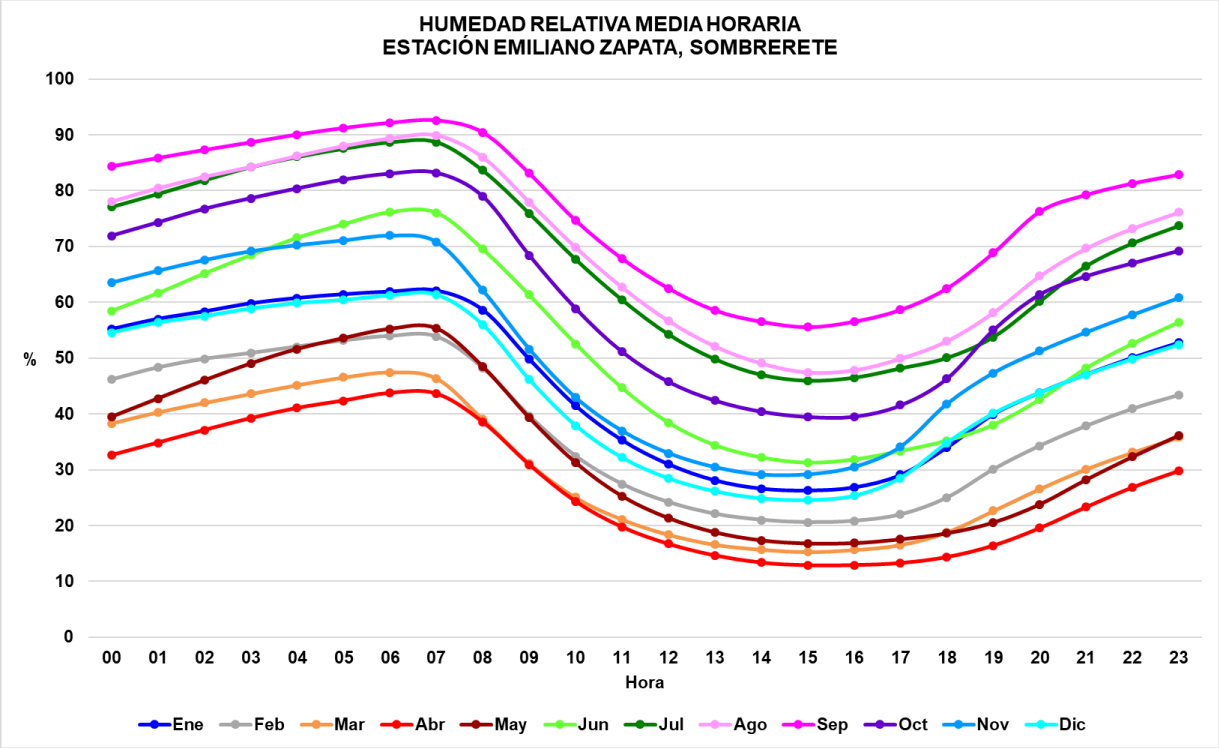


Figura 285. Humedad relativa media (%) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 316. Humedad relativa mínima minimorum (%) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	11.0	11.0	7.6	8.5	9.0	11.0	20.0	27.8	30.0	16.4	12.0	8.0	7.6
01	12.0	10.0	8.4	9.7	10.0	13.0	23.0	31.0	28.0	20.9	13.0	8.0	8.0
02	10.0	10.0	7.6	9.7	10.0	13.0	26.0	26.0	28.0	22.0	13.0	8.0	7.6
03	10.0	12.0	5.3	11.0	10.0	17.0	30.0	32.0	32.0	24.0	13.0	9.0	5.3
04	10.0	11.0	4.5	8.0	10.0	18.0	32.0	37.6	38.0	24.1	12.0	9.0	4.5
05	10.0	8.0	4.5	7.0	10.0	16.0	31.0	41.1	39.3	27.0	12.0	10.0	4.5
06	10.0	7.0	8.0	8.0	11.0	15.0	35.0	42.9	43.1	29.0	13.0	7.0	7.0
07	10.0	7.0	7.0	6.8	11.0	16.0	31.0	43.7	45.0	28.0	13.0	9.0	6.8
08	10.0	8.0	2.9	6.3	8.0	14.0	27.0	39.3	44.0	23.1	11.0	7.0	2.9
09	9.0	6.0	2.5	4.0	5.0	11.0	22.0	33.0	31.8	14.6	9.0	6.0	2.5
10	6.2	4.0	2.5	3.4	4.0	10.0	22.0	27.0	23.4	10.1	7.0	6.0	2.5
11	5.3	5.0	2.3	2.6	4.0	8.0	17.0	26.0	20.0	8.5	6.0	5.0	2.3
12	5.0	3.5	2.5	2.5	3.0	7.0	15.0	22.4	18.7	9.2	5.0	5.0	2.5
13	4.0	3.5	2.7	2.6	2.7	6.0	14.0	20.7	17.0	8.9	5.0	4.0	2.6
14	4.0	3.4	1.8	2.1	2.3	6.0	14.0	19.7	16.0	8.4	5.0	5.0	1.8
15	3.2	3.0	2.0	1.9	2.3	7.0	12.0	14.4	17.0	8.3	5.0	4.0	1.9
16	3.8	4.2	2.3	1.6	2.6	6.0	11.0	13.5	15.6	9.0	4.0	5.0	1.6
17	5.0	4.3	2.7	2.0	3.0	6.0	11.0	14.6	16.6	9.6	5.0	5.0	2.0
18	5.0	4.5	3.2	2.3	3.0	6.0	13.0	15.5	17.2	10.0	7.0	5.0	2.3
19	7.0	6.8	4.5	2.6	3.0	6.0	14.0	18.1	18.0	14.0	8.0	6.0	2.6
20	8.0	8.4	5.4	4.2	3.0	6.0	18.0	20.0	20.0	16.0	9.0	7.0	3.0
21	9.0	9.0	5.7	6.0	5.0	7.0	18.0	22.0	23.0	19.0	10.0	7.0	5.0
22	11.0	11.0	6.4	7.0	8.0	8.0	19.0	23.0	25.0	15.8	12.0	8.0	6.4
23	10.0	12.0	6.7	8.2	9.0	11.0	20.0	28.0	27.0	15.2	12.0	8.0	6.7
Mín.	3.2	3.0	1.8	1.6	2.3	6.0	11.0	13.5	15.6	8.3	4.0	4.0	1.6

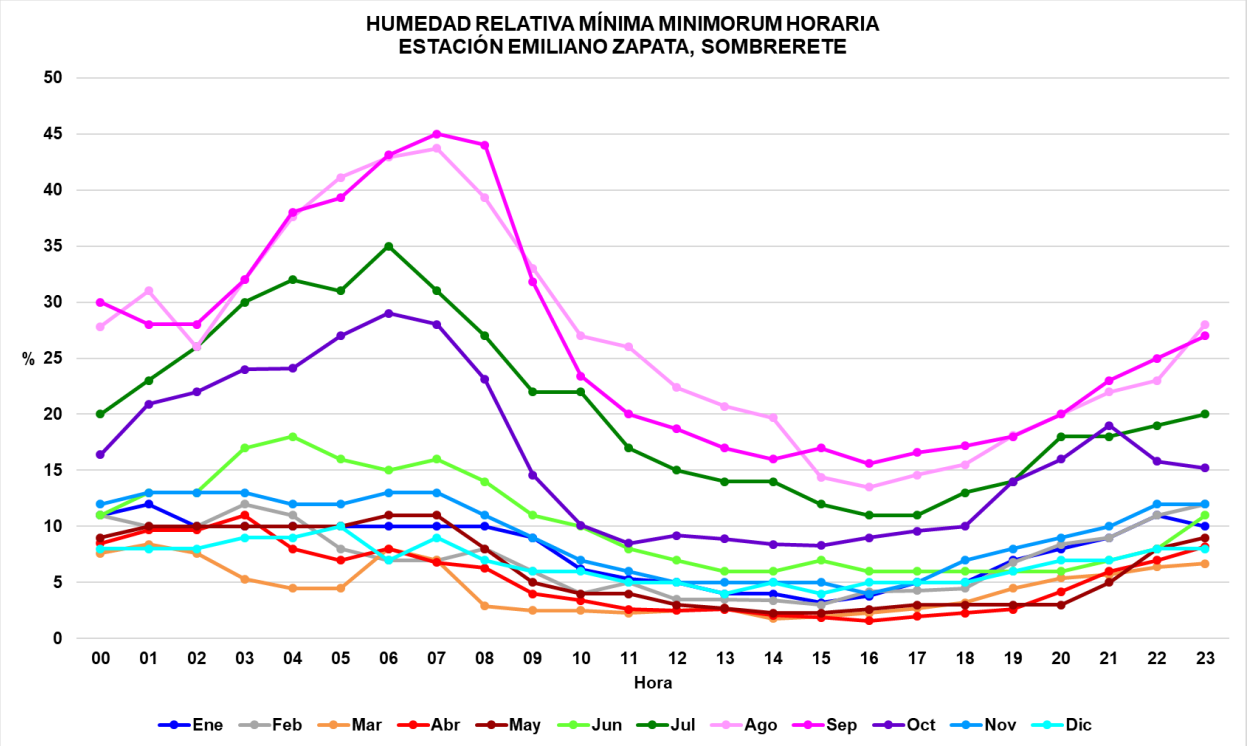


Figura 286. Humedad relativa mínima minimorum (%) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 317. Radiación solar global media horaria (W/m2) de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	13	5	9	8	5	2	0	2	5	0	4
07	47	107	295	171	201	190	129	84	55	82	212	79	138
08	500	716	1114	828	896	807	668	593	479	561	924	610	725
09	1288	1599	2023	1741	1803	1659	1451	1424	1246	1379	1718	1392	1560
10	2005	2376	2776	2605	2655	2481	2248	2263	2065	2186	2364	2058	2340
11	2495	2926	3310	3287	3328	3109	2848	2919	2655	2764	2777	2518	2911
12	2722	3194	3600	3711	3696	3457	3236	3316	3036	3056	2911	2715	3221
13	2736	3170	3527	3820	3755	3495	3361	3430	3087	3083	2771	2647	3240
14	2431	2908	3194	3637	3537	3279	3193	3266	2930	2855	2395	2337	2997
15	1953	2406	2638	3175	3086	2857	2783	2866	2546	2412	1815	1798	2528
16	1300	1706	1921	2595	2507	2273	2228	2290	1994	1824	1105	1094	1903
17	582	907	1110	1849	1840	1692	1628	1597	1312	1115	381	394	1201
18	81	217	352	1049	1114	1074	1042	932	663	425	19	23	583
19	0	2	13	345	459	470	457	346	164	44	0	0	192
20	0	0	0	24	59	78	76	35	3	0	0	0	23
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18141	22235	25885	28842	28945	26929	25353	25364	22234	21787	19397	17664	23565

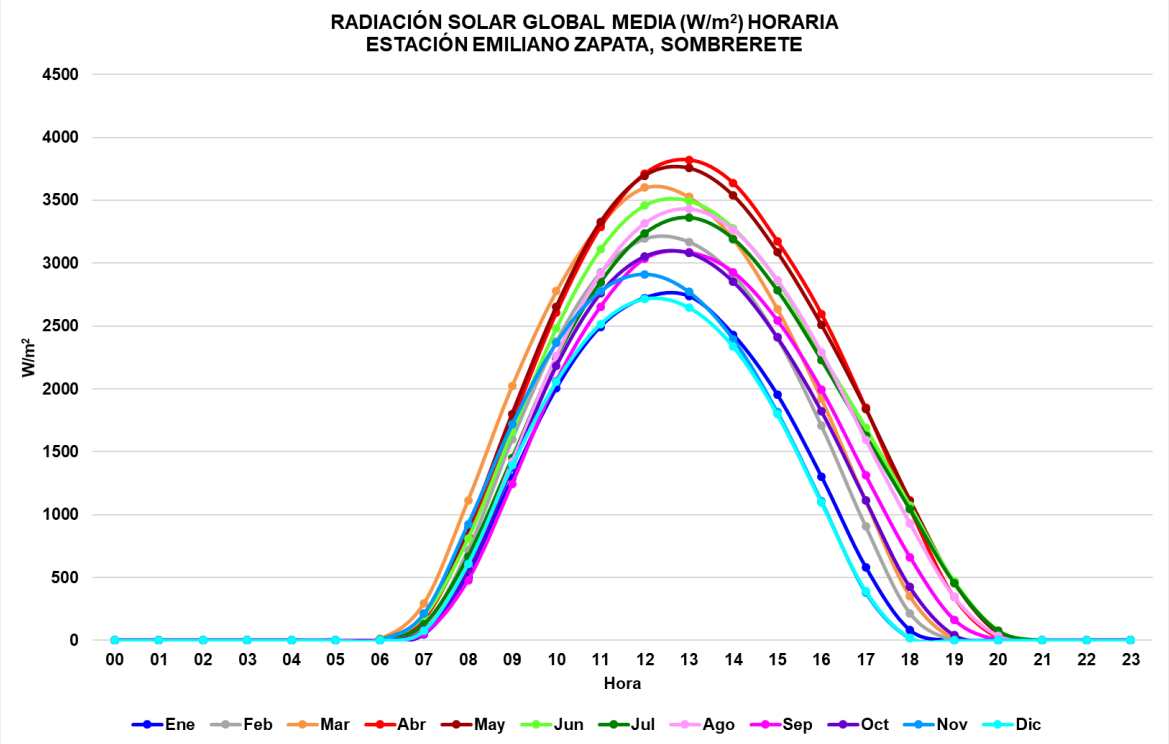


Figura 287. Radiación solar global media horaria (W/m2) de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 318. Radiación solar global media horaria (kWh/m2) de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.04	0.05	0.05	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.13	0.18	0.28	0.21	0.22	0.20	0.17	0.15	0.12	0.14	0.23	0.15	0.18
09	0.32	0.40	0.51	0.44	0.45	0.41	0.36	0.36	0.31	0.34	0.43	0.35	0.39
10	0.50	0.59	0.69	0.65	0.66	0.62	0.56	0.57	0.52	0.55	0.59	0.51	0.59
11	0.62	0.73	0.83	0.82	0.83	0.78	0.71	0.73	0.66	0.69	0.69	0.63	0.73
12	0.68	0.80	0.90	0.93	0.92	0.86	0.81	0.83	0.76	0.76	0.73	0.68	0.81
13	0.68	0.79	0.88	0.96	0.94	0.87	0.84	0.86	0.77	0.77	0.69	0.66	0.81
14	0.61	0.73	0.80	0.91	0.88	0.82	0.80	0.82	0.73	0.71	0.60	0.58	0.75
15	0.49	0.60	0.66	0.79	0.77	0.71	0.70	0.72	0.64	0.60	0.45	0.45	0.63
16	0.33	0.43	0.48	0.65	0.63	0.57	0.56	0.57	0.50	0.46	0.28	0.27	0.48
17	0.15	0.23	0.28	0.46	0.46	0.42	0.41	0.40	0.33	0.28	0.10	0.10	0.30
18	0.02	0.05	0.09	0.26	0.28	0.27	0.26	0.23	0.17	0.11	0.00	0.01	0.15
19	0.00	0.00	0.00	0.09	0.11	0.12	0.11	0.09	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.54	5.56	6.47	7.21	7.24	6.73	6.34	6.34	5.56	5.45	4.85	4.42	5.89

Cuadro 319. Radiación solar global media horaria (Mj/m2/s) de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.10	0.27	0.15	0.18	0.17	0.12	0.08	0.05	0.07	0.19	0.07	0.12
08	0.45	0.64	1.00	0.75	0.81	0.73	0.60	0.53	0.43	0.50	0.83	0.55	0.65
09	1.16	1.44	1.82	1.57	1.62	1.49	1.31	1.28	1.12	1.24	1.55	1.25	1.40
10	1.80	2.14	2.50	2.34	2.39	2.23	2.02	2.04	1.86	1.97	2.13	1.85	2.11
11	2.25	2.63	2.98	2.96	3.00	2.80	2.56	2.63	2.39	2.49	2.50	2.27	2.62
12	2.45	2.87	3.24	3.34	3.33	3.11	2.91	2.98	2.73	2.75	2.62	2.44	2.90
13	2.46	2.85	3.17	3.44	3.38	3.15	3.02	3.09	2.78	2.77	2.49	2.38	2.92
14	2.19	2.62	2.87	3.27	3.18	2.95	2.87	2.94	2.64	2.57	2.16	2.10	2.70
15	1.76	2.17	2.37	2.86	2.78	2.57	2.50	2.58	2.29	2.17	1.63	1.62	2.28
16	1.17	1.54	1.73	2.34	2.26	2.05	2.01	2.06	1.79	1.64	0.99	0.98	1.71
17	0.52	0.82	1.00	1.66	1.66	1.52	1.47	1.44	1.18	1.00	0.34	0.35	1.08
18	0.07	0.20	0.32	0.94	1.00	0.97	0.94	0.84	0.60	0.38	0.02	0.02	0.52
19	0.00	0.00	0.01	0.31	0.41	0.42	0.41	0.31	0.15	0.04	0.00	0.00	0.17
20	0.00	0.00	0.00	0.02	0.05	0.07	0.07	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.33	20.01	23.30	25.96	26.05	24.24	22.82	22.83	20.01	19.61	17.46	15.90	21.21

Cuadro 320. Velocidad del viento media (km/h) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.5	8.9	9.5	9.7	10.5	11.4	9.3	8.4	6.6	6.7	6.4	7.3	8.5
01	7.0	8.4	9.0	9.0	9.6	10.5	8.6	7.8	6.3	6.1	6.1	7.1	8.0
02	6.8	8.3	8.5	8.4	8.8	9.4	8.1	7.3	6.1	5.5	5.6	7.0	7.5
03	6.9	7.9	7.9	7.8	8.0	8.4	7.6	6.7	5.6	5.2	5.4	6.8	7.0
04	6.7	7.5	7.6	7.4	7.3	7.8	7.0	6.3	5.5	4.9	5.3	6.5	6.7
05	6.5	7.2	7.2	7.3	7.1	7.4	6.7	6.2	5.5	4.8	5.3	6.5	6.5
06	6.4	7.2	6.8	7.0	6.8	7.1	6.7	6.1	5.6	5.0	5.3	6.6	6.4
07	6.5	7.3	6.8	7.0	6.3	7.0	6.8	6.2	5.8	5.3	5.4	6.7	6.4
08	6.9	8.1	8.5	7.6	7.0	8.3	8.0	7.2	6.6	5.8	6.9	7.2	7.3
09	9.8	11.3	12.0	10.7	9.8	10.4	9.5	9.3	8.6	7.8	10.1	10.2	10.0
10	13.0	15.0	14.7	13.8	11.9	11.1	10.2	10.3	9.7	9.7	12.0	13.1	12.0
11	14.8	17.1	16.2	15.6	12.9	11.7	10.7	10.7	10.5	10.8	12.9	14.9	13.2
12	15.9	18.1	17.3	16.6	13.6	12.7	11.5	11.3	10.9	11.4	13.2	16.0	14.0
13	16.7	19.0	18.0	17.6	14.2	13.9	12.7	12.0	11.2	11.7	13.3	16.5	14.7
14	17.2	19.5	18.6	18.3	15.0	14.9	14.0	13.2	11.6	11.7	13.3	16.5	15.3
15	17.2	19.6	19.2	18.9	15.8	15.3	15.1	13.8	12.0	11.6	13.1	16.3	15.7
16	16.9	19.5	19.3	19.5	16.3	15.9	15.6	14.3	12.3	11.6	12.9	15.8	15.8
17	16.0	18.9	19.2	19.7	16.7	15.8	15.4	14.3	12.3	11.2	11.9	14.5	15.5
18	13.2	16.4	17.9	19.6	17.0	15.8	14.8	13.7	11.2	10.0	9.2	11.1	14.2
19	11.3	12.9	14.5	18.4	17.0	15.3	13.8	12.1	9.1	8.1	8.4	10.0	12.6
20	10.4	11.8	13.2	16.0	15.2	14.0	12.0	9.8	7.6	7.6	8.4	9.3	11.3
21	9.5	11.3	12.2	13.9	13.3	12.7	10.4	8.9	7.3	7.7	7.9	8.8	10.3
22	8.8	10.4	11.1	12.4	12.3	12.2	9.9	8.7	7.3	7.5	7.2	8.0	9.7
23	8.0	9.6	10.1	11.1	11.4	11.9	9.6	8.7	7.2	7.2	6.8	7.6	9.1
Media	10.8	12.5	12.7	13.1	11.8	11.7	10.6	9.7	8.4	8.1	8.8	10.4	10.7

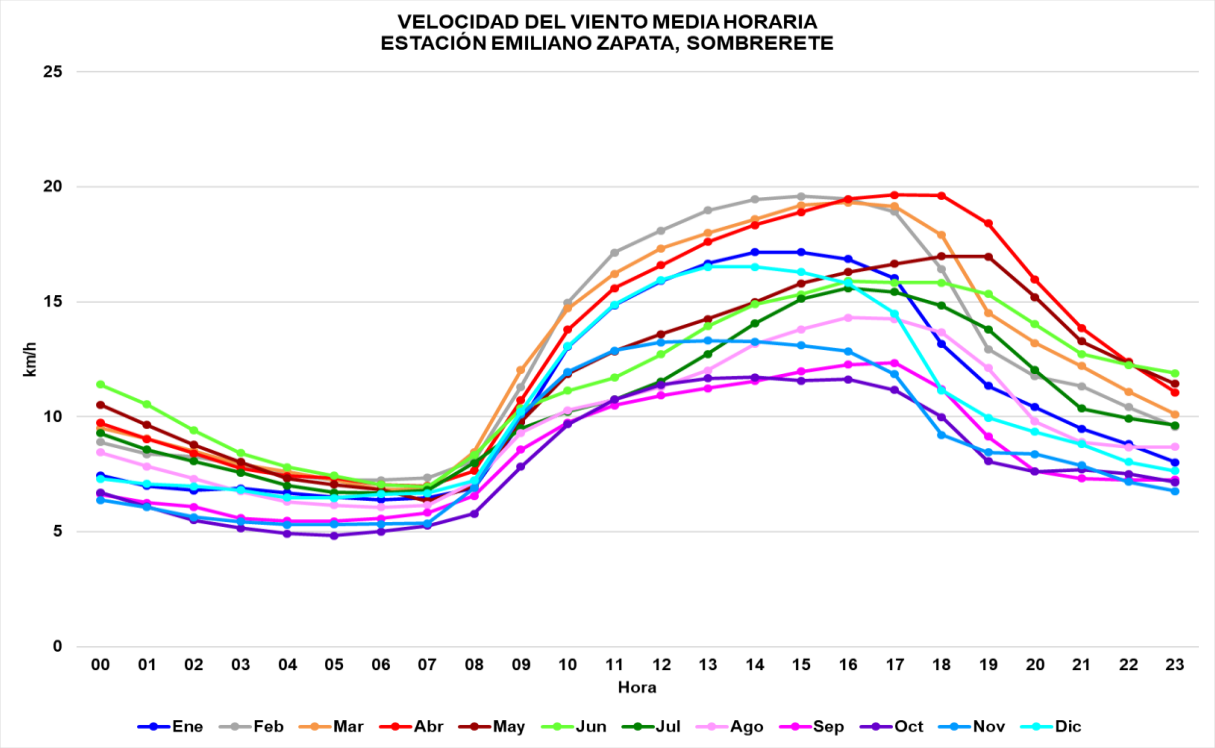


Figura 288. Velocidad del viento media (km/h) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 321. Velocidad del viento máxima maximorum (km/h) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	54.1	43.6	45.0	36.9	38.0	36.5	33.5	33.0	28.2	35.0	34.4	39.6	54.1
01	49.1	40.9	47.0	45.5	35.7	36.0	32.1	30.9	27.3	36.7	42.1	41.5	49.1
02	32.9	37.7	52.8	43.2	42.3	35.3	29.0	28.0	27.0	31.4	36.1	46.0	52.8
03	38.3	42.8	49.0	45.2	36.1	35.1	31.9	25.0	22.0	31.2	36.0	41.7	49.0
04	36.8	43.4	48.0	44.5	34.7	35.8	30.5	26.7	26.0	25.3	36.2	44.5	48.0
05	38.3	39.7	48.1	44.1	36.9	35.6	28.0	29.1	24.0	41.6	42.0	44.0	48.1
06	38.6	42.8	46.5	40.4	40.4	35.4	31.4	32.3	23.6	28.2	33.0	50.0	50.0
07	36.8	40.1	41.7	33.0	39.3	33.7	32.0	33.8	25.2	23.5	31.0	52.2	52.2
08	36.1	40.1	50.5	43.0	40.5	40.9	34.6	29.6	24.0	29.8	31.3	47.6	50.5
09	50.4	44.9	47.0	44.5	36.0	39.4	34.6	35.6	26.0	30.2	47.3	54.7	54.7
10	51.6	55.2	52.0	48.7	36.1	36.4	35.7	33.0	26.0	31.6	45.4	56.5	56.5
11	57.6	59.2	55.0	51.2	43.0	34.0	38.0	36.0	26.0	35.2	48.0	63.2	63.2
12	58.0	61.0	57.9	53.8	43.8	36.6	41.5	36.6	27.6	33.3	52.2	64.8	64.8
13	59.1	57.9	56.8	59.1	44.9	39.3	42.4	37.0	25.4	39.7	51.2	62.9	62.9
14	59.2	62.4	60.2	51.2	54.6	52.7	39.6	36.9	26.3	39.8	51.2	59.3	62.4
15	66.6	64.9	62.2	49.6	52.3	39.3	43.6	39.0	37.1	35.8	51.1	60.6	66.6
16	64.1	59.6	55.3	54.0	53.5	44.0	38.9	36.5	38.2	36.2	51.4	58.9	64.1
17	54.1	56.3	54.7	53.7	50.2	40.3	37.7	36.0	31.4	35.9	39.3	52.6	56.3
18	42.2	54.7	48.0	56.4	46.5	43.0	40.1	40.8	31.6	29.5	36.9	53.0	56.4
19	44.9	42.4	43.0	48.6	54.4	44.0	37.7	35.0	30.0	29.8	36.9	39.5	54.4
20	43.2	39.6	42.3	40.9	41.7	42.1	37.4	43.3	35.8	30.5	40.1	35.9	43.3
21	44.3	40.0	44.9	38.0	46.6	45.3	33.0	35.0	28.0	26.9	38.5	36.4	46.6
22	45.3	43.8	47.9	43.2	37.8	41.0	35.2	33.0	30.5	28.3	34.5	37.4	47.9
23	46.0	43.3	50.5	44.8	42.0	36.2	36.5	30.0	28.9	32.1	35.3	37.7	50.5
Máx.	66.6	64.9	62.2	59.1	54.6	52.7	43.6	43.3	38.2	41.6	52.2	64.8	66.6

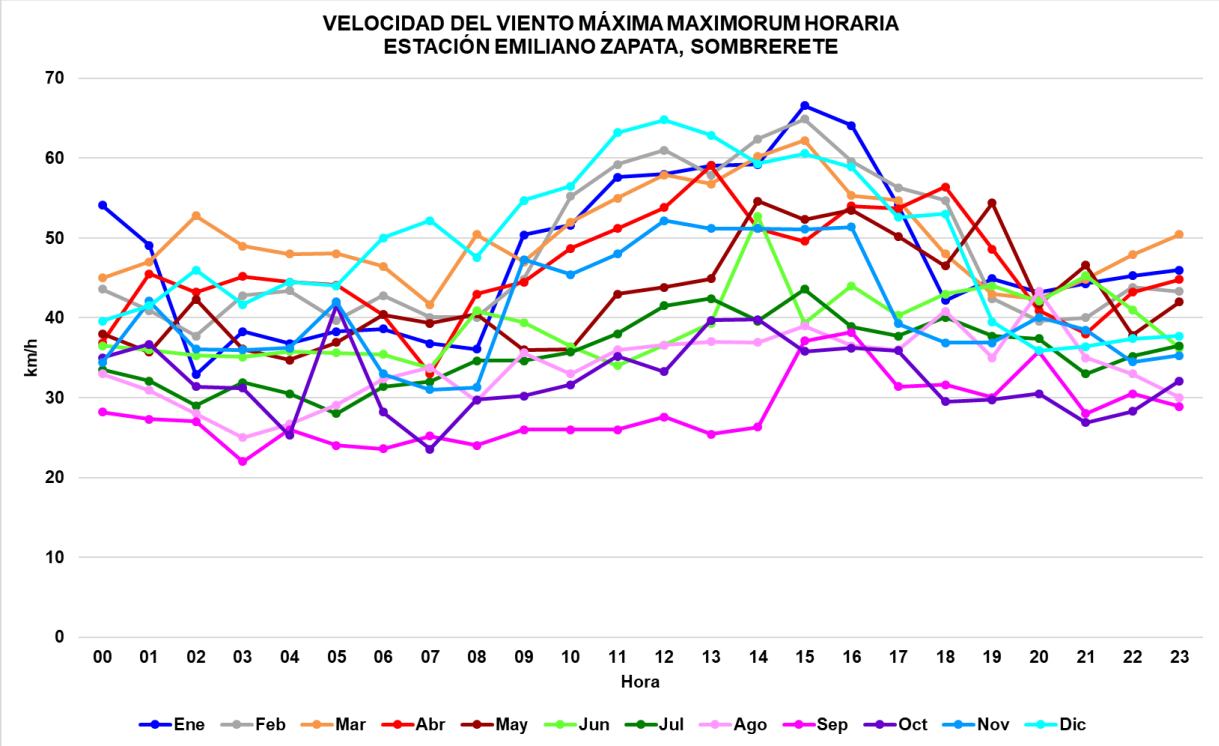


Figura 289. Velocidad del viento máxima maximorum (km/h) horaria de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 322. Frecuencia de velocidad del viento (%) mensual de la estación Emiliano Zapata, Sombrerete (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	25.8	17.9	16.3	15.3	14.9	19.3	23.5	27.2	32.9	37.8	34.9	26.4	24.5
5.1 a 10.0	31.3	30.0	27.9	27.3	30.4	25.7	28.6	29.7	32.6	33.3	33.3	33.3	30.3
10.1 a 15.0	19.4	22.5	24.3	24.3	27.4	27.4	25.8	25.7	24.2	20.1	18.1	19.0	23.2
15.1 a 20.0	11.3	12.6	14.4	15.4	15.4	18.1	15.9	13.8	8.8	7.0	8.7	9.9	12.5
20.1 a 25.0	5.9	7.3	8.3	8.7	7.4	7.1	5.1	3.0	1.5	1.4	3.3	5.6	5.3
25.1 a 30.0	3.3	4.5	4.4	5.0	3.3	1.7	0.8	0.5	0.0	0.4	1.1	2.8	2.3
30.1 a 35.0	1.7	2.4	2.4	2.4	0.8	0.4	0.2	0.1	0.0	0.1	0.4	1.5	1.0
35.1 a 40.0	0.7	1.4	1.2	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.8	0.5
40.1 a 45.0	0.3	0.8	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2
45.1 a 50.0	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
>50	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

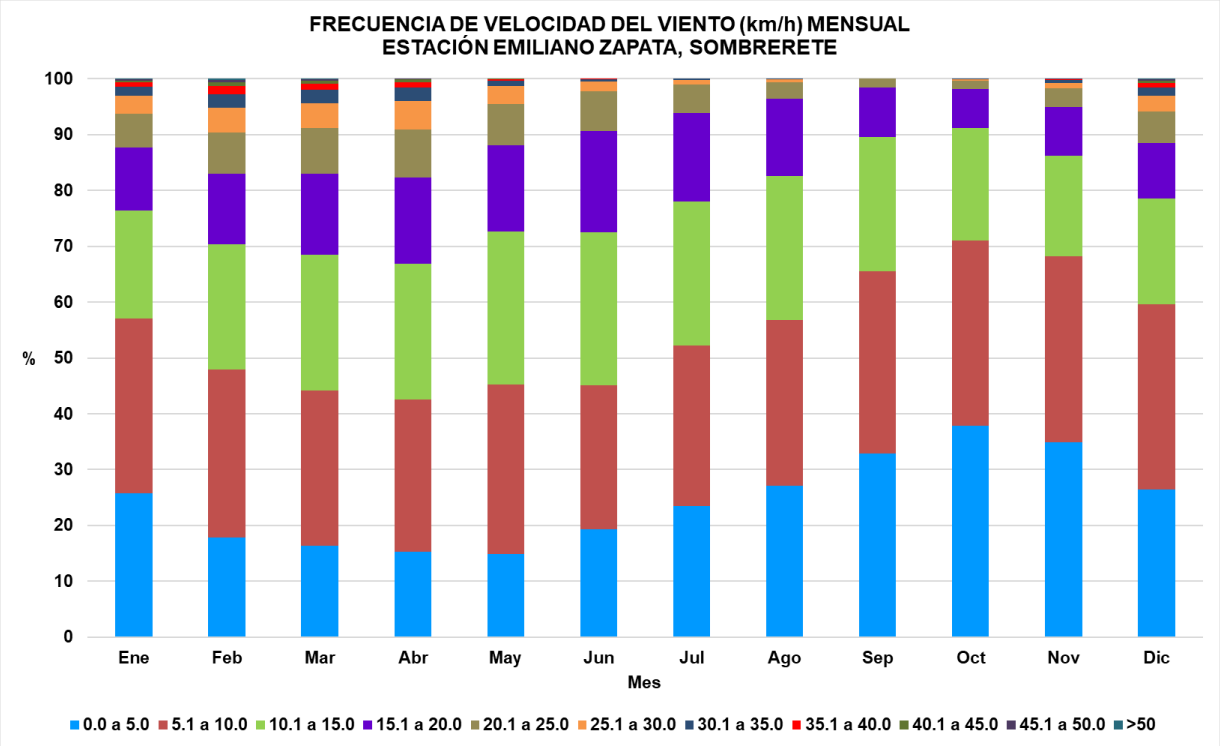


Figura 290. Frecuencia de velocidad del viento (%) mensual de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 323. Frecuencia de dirección del viento (%) mensual de la estación Emiliano Zapata, Sombrerete (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	2.9	2.1	3.0	2.4	3.1	3.4	2.4	2.6	4.4	4.4	3.8	3.7	3.2
NNE	4.6	3.6	3.5	2.8	3.8	6.0	3.6	4.8	7.3	6.3	5.0	4.5	4.7
NE	4.2	3.4	3.3	2.9	4.6	8.6	6.0	7.5	8.9	7.9	5.5	4.0	5.6
ENE	4.0	3.6	3.2	2.8	4.7	9.6	9.4	10.9	10.5	8.8	6.2	4.1	6.5
E	5.6	4.1	4.1	3.4	5.8	14.0	16.8	17.1	15.9	11.9	8.7	4.8	9.4
ESE	8.5	5.4	5.0	4.4	6.2	14.1	17.4	18.6	16.4	13.2	10.4	6.9	10.6
SE	8.2	6.2	5.1	4.5	5.3	8.3	10.9	9.9	9.5	9.1	8.7	7.4	7.8
SSE	5.5	5.0	4.3	3.5	3.7	4.2	4.8	4.4	4.3	5.4	5.8	5.6	4.7
S	5.8	5.4	4.9	3.9	3.7	3.1	3.1	2.7	2.6	3.9	4.9	6.6	4.2
SSO	9.8	10.0	8.0	7.7	5.4	2.7	2.8	2.1	2.1	4.0	6.7	11.2	6.0
SO	12.1	15.2	13.0	14.5	8.7	2.7	2.4	2.1	1.9	4.3	8.5	13.6	8.2
OSO	9.6	13.6	15.2	16.7	12.1	3.6	2.7	2.3	2.3	4.2	8.0	9.5	8.2
O	7.4	9.1	10.9	12.7	11.8	4.9	4.2	3.1	3.0	4.6	6.3	7.4	7.1
ONO	5.1	5.8	7.2	8.3	9.7	5.6	5.2	4.3	3.7	4.5	4.6	4.3	5.7
NO	4.1	4.7	6.2	6.4	7.5	5.7	5.4	4.9	4.4	4.4	4.1	3.9	5.1
NNO	2.5	2.7	3.3	3.0	3.9	3.4	2.9	2.7	2.8	3.0	2.7	2.5	3.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

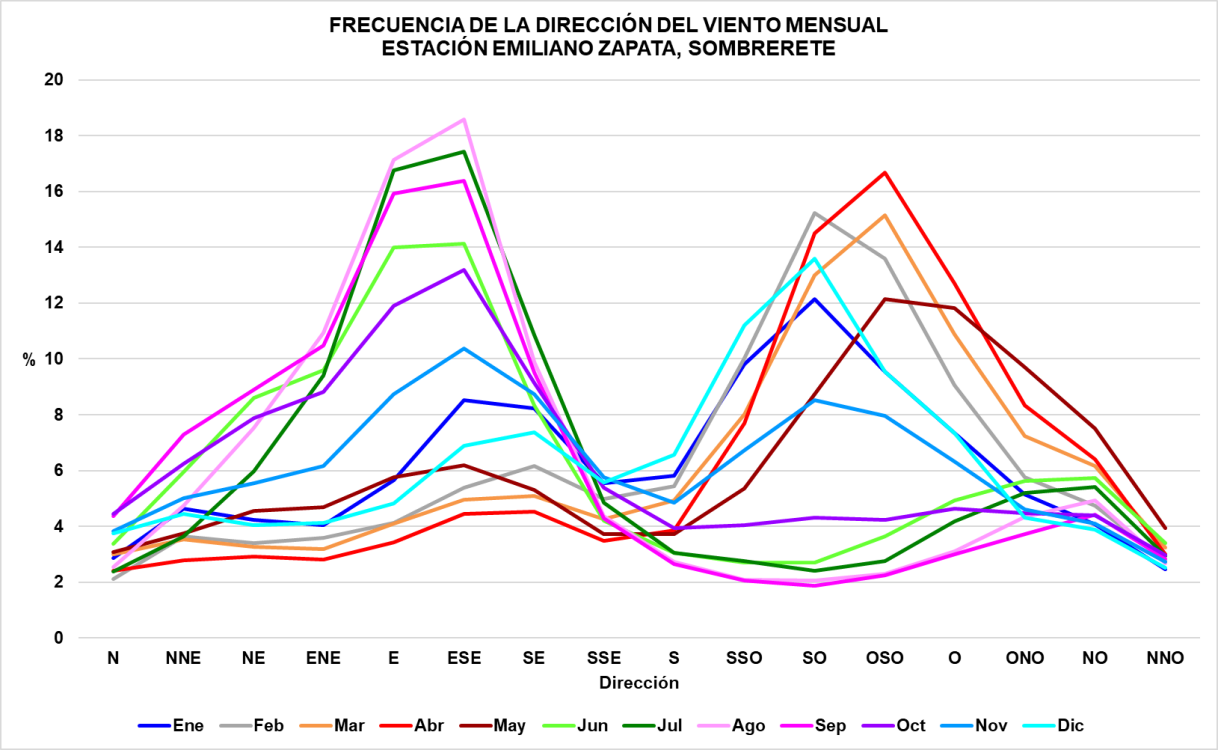
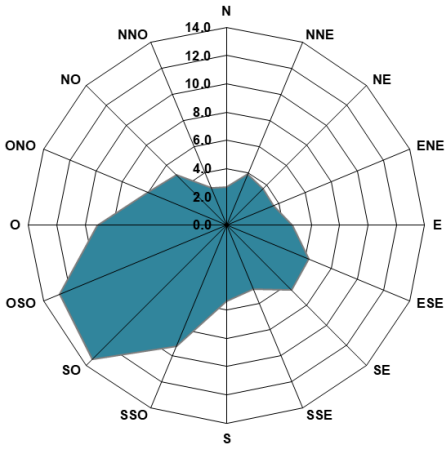


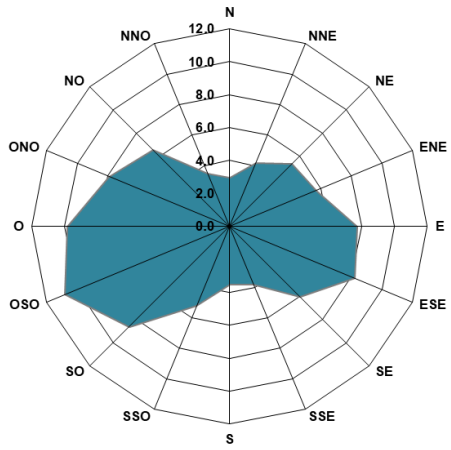
Figura 291. Frecuencia de dirección del viento (%) mensual de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 324. Frecuencia de dirección del viento (%) trimestral de la estación Emiliano Zapata, Sombrerete (2002-2022).

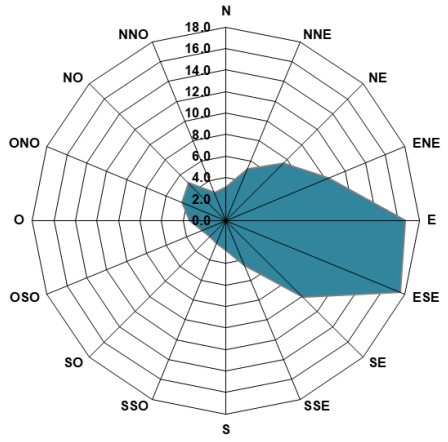
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	2.7	3.0	3.1	4.0	3.2
NNE	3.9	4.2	5.2	5.2	4.7
NE	3.6	5.4	7.5	5.8	5.6
ENE	3.6	5.7	10.3	6.3	6.5
E	4.6	7.7	16.6	8.4	9.4
ESE	6.3	8.2	17.5	10.1	10.6
SE	6.5	6.1	10.1	8.4	7.8
SSE	4.9	3.8	4.5	5.6	4.7
S	5.4	3.5	2.8	5.1	4.2
SSO	9.3	5.2	2.3	7.4	6.0
SO	13.4	8.6	2.1	8.9	8.2
OSO	12.8	10.8	2.4	7.3	8.2
O	9.1	9.8	3.4	6.1	7.1
ONO	6.1	7.9	4.4	4.5	5.7
NO	5.0	6.6	4.9	4.1	5.1
NNO	2.8	3.5	2.8	2.7	3.0
Suma	100.0	100.0	100.0	100.0	100.0



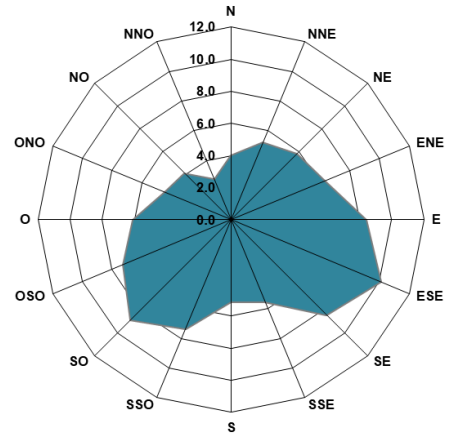
Ene-Mar



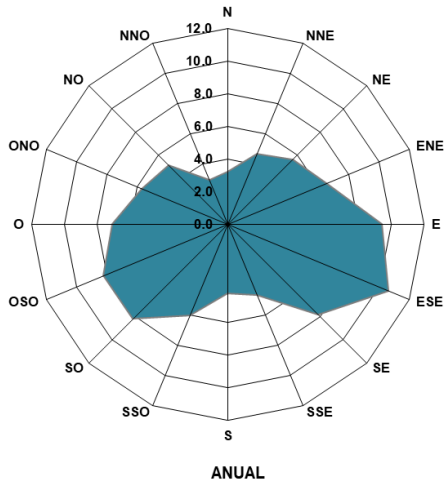
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 292. Frecuencia de dirección del viento (%) trimestral de la estación Emiliano Zapata, Sombrerete (2002-2022).

Cuadro 325. Estadísticas climatológicas mensuales de la estación Emiliano Zapata, Sombrerete (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	18.0	20.3	22.7	25.5	27.2	26.7	24.3	24.2	22.5	22.6	20.6	18.8	22.8
Temperatura máxima maximorum (°C)	24.5	29.3	31.7	30.8	34.3	33.0	30.7	30.2	29.4	28.2	27.6	25.5	34.3
Temperatura mínima media (°C)	3.4	4.6	6.0	8.1	10.5	12.5	12.3	12.0	11.3	8.5	5.6	3.8	8.2
Temperatura mínima minimorum (°C)	-5.9	-7.4	-4.0	-0.7	3.1	6.3	9.1	7.5	3.5	-0.3	-8.3	-10.8	-10.8
Temperatura media (°C)	10.2	12.2	14.3	17.1	19.1	19.4	17.7	17.5	16.1	15.1	12.6	10.8	15.2
Oscilación térmica (°C)	14.6	15.6	16.7	17.3	16.7	14.1	12.0	12.1	11.2	14.1	15.0	15.0	14.5
Precipitación acumulada media (mm)	9.6	14.4	5.4	3.2	15.6	65.5	111.9	109.6	115.7	39.2	14.3	7.6	512.0
Precipitación máxima maximorum en 24 horas (mm)	27.6	34.9	24.9	11.8	36.8	51.6	79.4	65.0	61.6	40.0	22.9	19.8	79.4
Número de días promedio con lluvia	4.3	3.9	4.2	2.1	4.4	11.7	17.2	17.5	16.2	7.8	3.9	3.3	96.5
Evapotranspiración acumulada potencial media (mm)	110.8	133.0	176.5	199.8	207.7	177.7	153.8	156.3	123.4	127.9	111.5	111.3	1789.7
Humedad máxima media (%)	70.6	61.4	54.1	50.8	61.2	81.0	92.2	92.8	94.8	87.4	78.3	69.7	74.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.7	17.8	13.2	11.0	14.0	25.8	38.5	40.8	49.0	34.8	26.2	21.8	26.3
Humedad mínima minimorum (%)	3.2	3.0	1.8	1.6	2.3	6.0	11.0	13.5	15.6	8.3	4.0	4.0	1.6
Humedad media (%)	45.7	37.4	30.5	26.8	33.6	52.3	67.8	69.7	76.2	62.5	51.8	44.5	49.9
Radiación global media día/mes (W/m^2)	18153.0	22235.9	25885.4	28868.8	28939.5	26928.9	25356.9	25364.5	22229.1	21786.9	19335.1	17664.3	23562.4
Radiación global media día/mes (kWh/m^2)	4.5	5.6	6.5	7.2	7.2	6.7	6.3	6.3	5.6	5.4	4.8	4.4	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.3	20.0	23.3	26.0	26.0	24.2	22.8	22.8	20.0	19.6	17.4	15.9	21.2
Velocidad del viento máxima media (km/h)	24.2	26.9	26.9	27.8	26.4	25.8	24.2	22.6	19.0	17.9	19.6	23.0	23.7
Velocidad del viento máxima maximorum (km/h)	66.6	64.9	62.2	59.1	54.6	52.7	43.6	43.3	38.2	41.6	52.2	64.8	66.6
Velocidad del viento media (km/h)	10.8	12.5	12.7	13.0	11.8	11.7	10.6	9.7	8.4	8.1	8.8	10.4	10.7
Dirección dominante del viento	SO	SO	OSO	OSO	OSO	ESE	ESE	ESE	ESE	ESE	ESE	SO	ESE

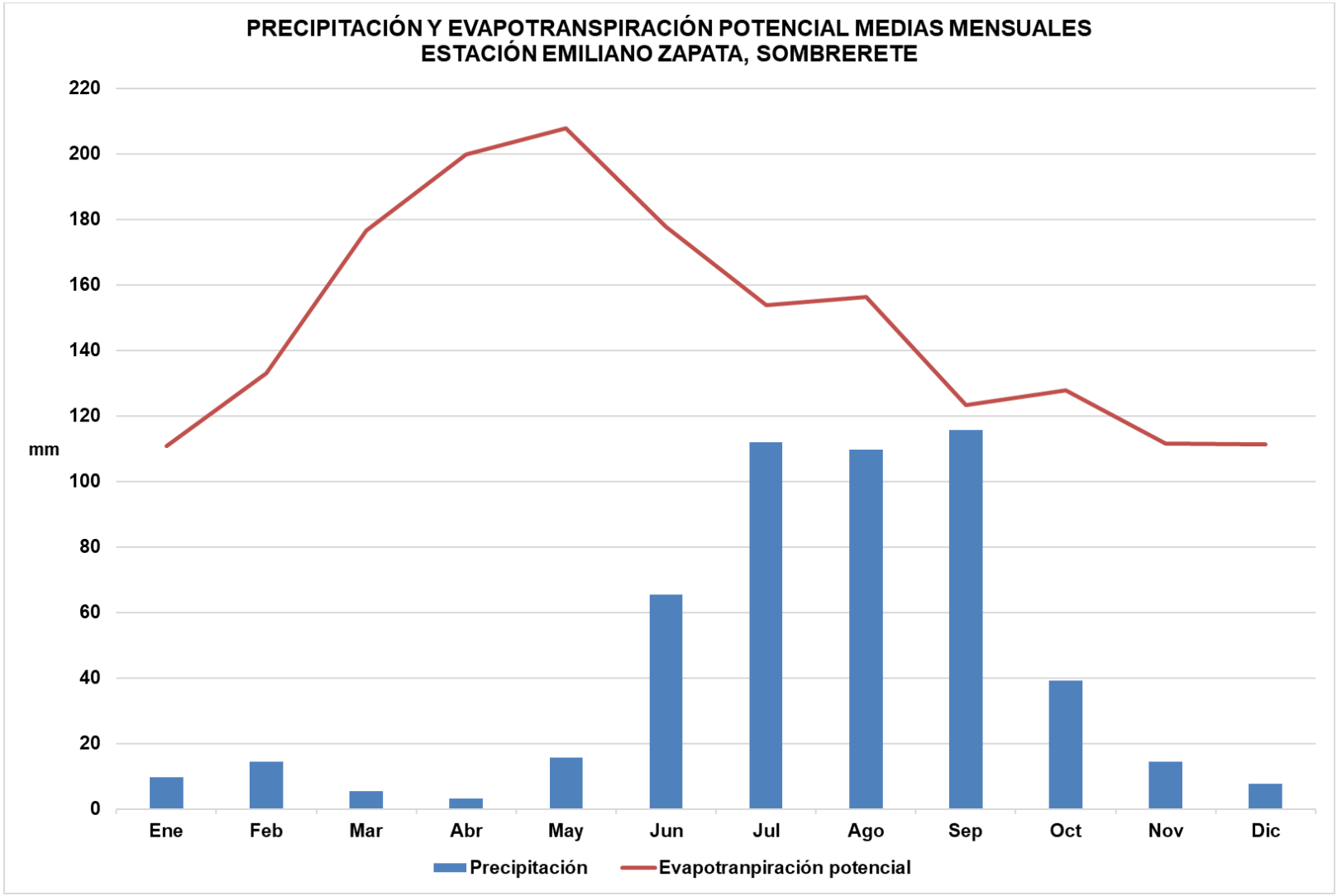


Figura 293. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Emiliano Zapata, Sombrerete (2002-2022).

7.18. Estación: Estancia de Ánimas, Villa González Ortega

Cuadro 326. Temperatura máxima media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	9.8	12.2	15.6	17.4	17.3	16.0	16.2	14.9	12.7	9.2	7.9	13.1
01	7.0	8.8	11.1	14.5	16.4	16.6	15.4	15.5	14.4	12.0	8.6	7.2	12.3
02	6.4	8.0	10.2	13.4	15.3	15.8	14.8	14.9	13.9	11.4	8.0	6.6	11.6
03	5.8	7.3	9.4	12.3	14.3	15.1	14.3	14.3	13.5	10.8	7.4	6.0	10.9
04	5.2	6.6	8.5	11.4	13.4	14.5	13.8	13.8	13.1	10.3	6.9	5.5	10.2
05	4.8	6.0	7.8	10.6	12.6	13.9	13.3	13.3	12.7	9.8	6.5	5.1	9.7
06	4.3	5.6	7.4	9.9	11.9	13.4	12.9	12.9	12.4	9.5	6.2	4.7	9.3
07	4.5	6.5	9.9	11.0	13.1	14.3	13.4	13.2	12.6	10.0	8.1	5.6	10.2
08	8.5	11.0	14.1	15.0	16.8	16.9	15.9	15.8	14.9	13.2	12.5	9.9	13.7
09	12.1	14.4	17.2	18.2	19.6	19.1	18.0	18.0	17.3	16.4	15.6	13.3	16.6
10	14.8	17.1	19.7	20.9	22.0	21.1	19.7	19.9	19.1	18.8	18.0	15.9	18.9
11	16.8	19.1	21.6	23.1	24.1	23.0	21.3	21.6	20.7	20.7	19.8	18.0	20.8
12	18.4	20.7	23.1	24.7	25.8	24.6	22.8	23.0	22.0	22.2	21.1	19.4	22.3
13	19.5	21.8	24.1	25.9	27.1	25.8	23.9	24.2	23.0	23.2	21.9	20.3	23.4
14	20.1	22.4	24.7	26.8	27.9	26.7	24.7	25.0	23.7	23.9	22.2	20.9	24.1
15	20.3	22.7	25.0	27.2	28.3	27.1	25.1	25.5	24.0	24.2	22.3	21.0	24.4
16	20.0	22.5	24.8	27.3	28.3	27.0	25.2	25.5	23.7	24.0	21.8	20.6	24.2
17	19.1	21.8	24.1	26.9	28.0	26.5	24.8	24.9	23.1	23.2	20.4	19.4	23.5
18	16.9	20.2	22.6	26.1	27.3	25.7	23.9	24.0	22.1	21.6	17.3	16.6	22.0
19	13.8	16.9	19.7	24.5	25.8	24.4	22.6	22.6	20.5	19.0	14.7	13.7	19.9
20	12.0	14.7	17.2	21.9	23.7	22.6	20.8	20.6	18.3	16.7	13.2	12.1	17.8
21	10.7	13.2	15.6	19.5	21.2	20.6	18.9	18.9	17.0	15.3	11.9	10.8	16.1
22	9.6	12.0	14.4	18.0	19.7	19.2	17.7	17.7	16.1	14.3	10.9	9.7	14.9
23	8.6	10.9	13.4	16.9	18.6	18.2	16.8	16.9	15.4	13.3	9.9	8.7	14.0
Media	11.9	14.2	16.6	19.2	20.8	20.4	19.0	19.1	17.8	16.5	13.9	12.4	16.8

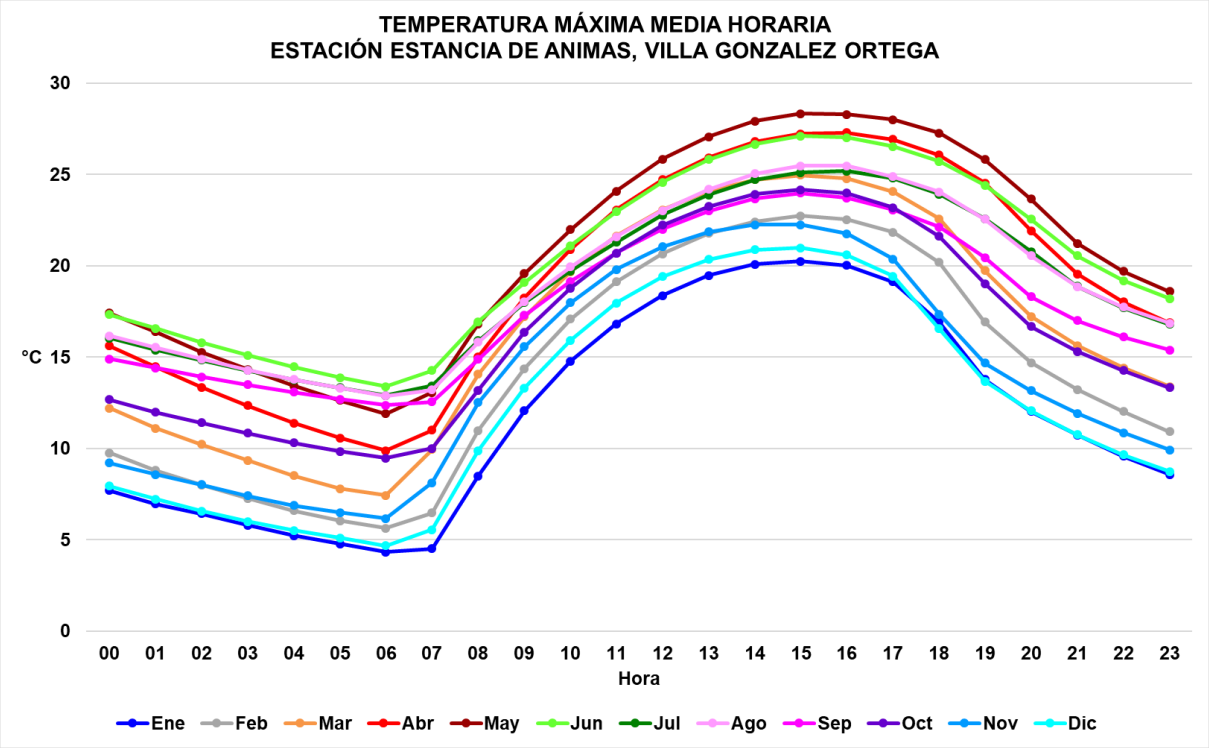


Figura 294. Temperatura máxima media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 327. Temperatura máxima maximorum (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.2	17.3	19.5	22.3	25.3	23.9	21.4	20.0	18.9	18.4	16.5	16.2	25.3
01	16.2	16.0	18.0	22.1	22.1	22.5	20.3	19.4	18.3	17.9	15.3	15.0	22.5
02	14.4	14.1	17.6	20.8	21.5	22.1	18.8	18.8	17.8	17.3	14.6	13.8	22.1
03	12.3	13.5	17.1	19.2	21.1	20.3	18.0	17.8	17.0	16.6	14.5	12.6	21.1
04	11.1	12.4	15.7	18.1	19.6	19.4	17.5	17.3	16.7	16.0	14.5	12.4	19.6
05	11.0	11.9	14.9	17.6	18.9	19.2	16.9	16.9	16.5	15.9	14.2	12.4	19.2
06	10.6	12.0	13.7	15.6	17.2	17.7	16.8	16.4	16.3	15.8	13.5	12.0	17.7
07	11.4	15.7	17.2	19.0	19.6	19.0	17.9	17.5	16.6	17.1	15.0	13.4	19.6
08	16.7	20.5	21.8	23.8	23.6	23.2	19.6	20.1	19.6	20.6	20.0	20.0	23.8
09	19.7	23.8	24.7	25.3	27.7	25.6	22.8	22.0	21.2	23.1	22.8	22.3	27.7
10	22.4	25.2	26.4	27.6	29.5	27.2	25.0	23.8	24.3	24.7	25.8	24.4	29.5
11	23.6	27.8	27.7	29.3	30.6	29.1	26.7	25.1	25.9	26.2	26.1	26.4	30.6
12	24.9	28.5	29.3	29.8	32.2	30.9	28.8	27.3	27.0	27.7	27.4	27.2	32.2
13	26.1	29.7	30.4	31.0	33.1	31.3	29.2	28.6	28.1	28.7	27.8	27.5	33.1
14	26.3	29.6	31.7	31.6	33.8	32.9	30.6	29.6	28.6	29.9	28.3	27.6	33.8
15	26.5	30.2	31.7	32.0	34.6	33.0	31.7	30.5	29.4	29.8	28.7	27.6	34.6
16	26.6	29.7	31.6	32.1	34.8	33.5	31.6	30.6	29.5	29.6	28.7	27.2	34.8
17	25.4	29.2	31.3	31.7	34.4	33.9	32.2	30.4	29.9	29.6	27.2	25.5	34.4
18	23.6	27.4	30.1	31.4	34.0	33.6	29.7	29.6	29.8	29.7	23.3	23.2	34.0
19	19.6	24.1	26.9	30.0	32.9	32.6	28.8	28.4	28.4	26.8	20.9	19.7	32.9
20	17.5	21.4	23.3	27.5	30.6	31.1	26.9	26.3	25.7	24.5	20.7	18.7	31.1
21	17.0	19.4	22.4	26.4	27.3	28.0	24.3	23.8	23.3	23.2	19.6	17.0	28.0
22	16.8	18.5	21.3	24.8	27.1	25.9	23.2	23.0	21.6	21.4	19.0	16.5	27.1
23	16.4	17.5	20.3	23.5	25.0	26.2	23.2	21.4	19.9	20.7	17.4	15.2	26.2
Máx.	26.6	30.2	31.7	32.1	34.8	33.9	32.2	30.6	29.9	29.9	28.7	27.6	34.8

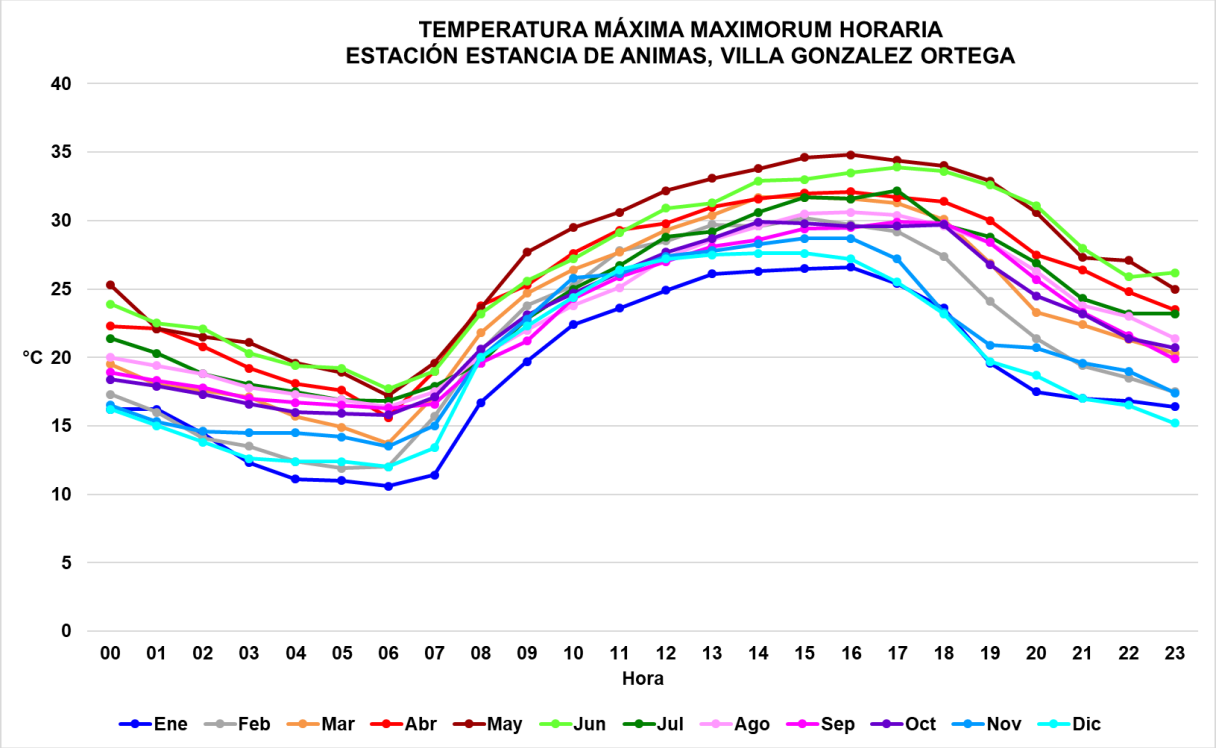


Figura 295. Temperatura máxima maximorum (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 328. Temperatura mínima media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.4	10.8	14.2	16.2	16.6	15.4	15.5	14.3	11.8	8.1	6.7	12.0
01	5.9	7.5	9.8	13.1	15.2	15.8	14.8	14.9	13.8	11.1	7.5	6.1	11.3
02	5.3	6.8	9.0	12.1	14.2	15.1	14.2	14.2	13.4	10.6	7.0	5.4	10.6
03	4.6	6.1	8.1	11.1	13.3	14.4	13.7	13.7	12.9	10.0	6.4	4.9	9.9
04	4.2	5.5	7.4	10.2	12.4	13.8	13.2	13.2	12.5	9.5	5.9	4.5	9.4
05	3.7	5.0	6.8	9.5	11.7	13.2	12.7	12.7	12.1	9.1	5.5	4.0	8.8
06	3.3	4.6	6.3	8.8	11.0	12.7	12.3	12.3	11.8	8.7	5.2	3.7	8.4
07	3.1	4.6	7.0	8.9	11.1	12.9	12.4	12.2	11.7	8.7	5.6	3.8	8.5
08	5.0	7.5	11.1	11.8	14.0	14.9	14.0	13.6	12.8	10.3	9.3	6.5	10.9
09	9.5	11.9	14.9	15.9	17.6	17.5	16.4	16.4	15.5	14.1	13.3	10.8	14.5
10	12.8	15.1	17.9	18.9	20.2	19.6	18.4	18.5	17.7	17.0	16.2	14.0	17.2
11	15.3	17.6	20.2	21.5	22.5	21.5	20.0	20.3	19.4	19.2	18.4	16.4	19.4
12	17.2	19.5	21.9	23.5	24.5	23.2	21.5	21.8	20.8	21.0	20.0	18.3	21.1
13	18.5	20.8	23.2	24.9	26.0	24.6	22.7	23.0	21.9	22.2	21.0	19.5	22.4
14	19.3	21.7	23.9	25.9	26.9	25.5	23.6	23.9	22.5	23.0	21.5	20.2	23.2
15	19.6	22.1	24.3	26.4	27.3	26.0	24.0	24.3	22.8	23.2	21.5	20.4	23.5
16	19.2	21.9	24.0	26.5	27.3	25.9	24.0	24.2	22.5	23.0	20.7	19.7	23.2
17	17.6	20.7	23.0	26.1	27.0	25.3	23.6	23.7	21.9	21.9	18.3	17.5	22.2
18	14.4	17.7	20.5	24.9	26.1	24.5	22.7	22.7	20.8	19.7	15.1	14.1	20.3
19	12.2	15.1	17.7	22.6	24.2	23.0	21.2	21.0	18.7	17.0	13.3	12.2	18.2
20	10.7	13.3	15.7	19.9	21.6	20.9	19.2	19.1	17.2	15.4	11.9	10.7	16.3
21	9.4	11.8	14.3	18.1	19.8	19.4	17.8	17.8	16.1	14.2	10.7	9.4	14.9
22	8.3	10.6	13.1	16.7	18.5	18.3	16.9	16.9	15.3	13.2	9.6	8.4	13.8
23	7.4	9.5	12.0	15.5	17.4	17.4	16.1	16.1	14.7	12.4	8.8	7.5	12.9
Media	10.5	12.7	15.1	17.8	19.4	19.2	17.9	18.0	16.8	15.3	12.5	11.0	15.5

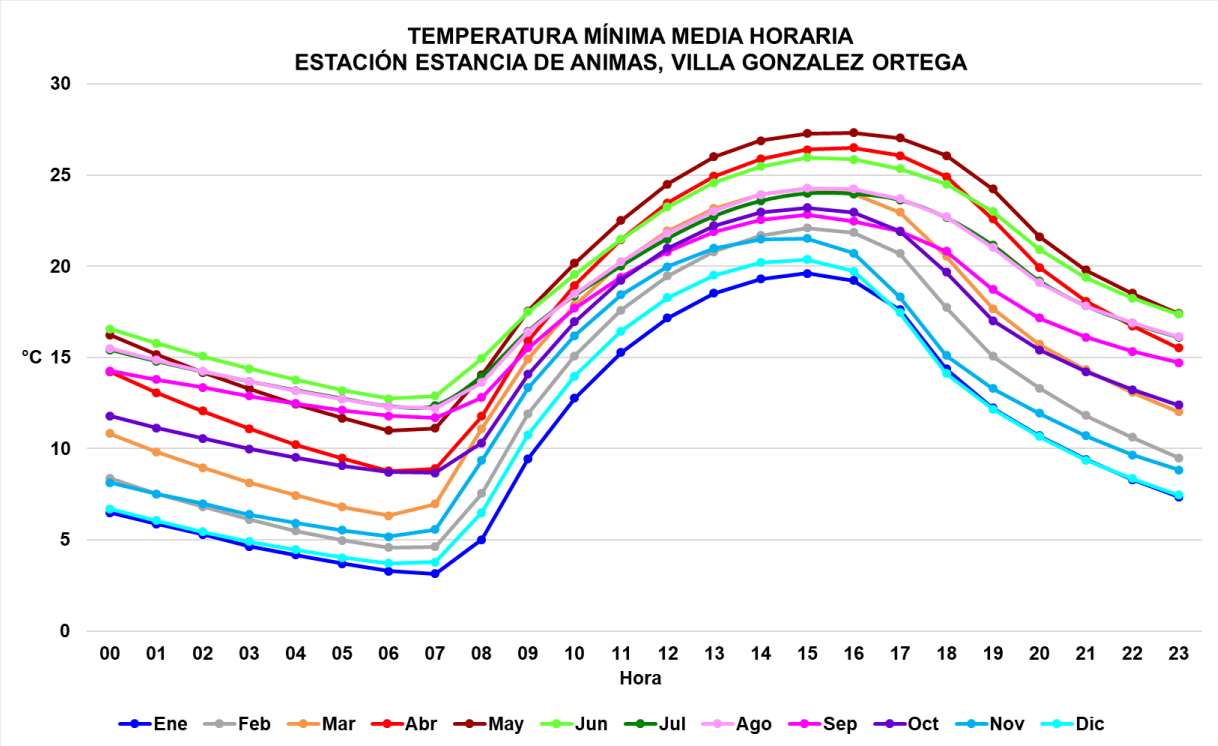


Figura 296. Temperatura mínima media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 329. Temperatura mínima minimorum (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.6	-0.2	1.3	6.4	9.5	12.3	10.8	11.0	7.5	2.7	-2.5	-7.0	-7.0
01	-4.2	-0.4	0.5	5.3	7.5	10.9	10.0	10.8	6.9	1.8	-3.5	-7.0	-7.0
02	-4.0	-0.6	-1.0	4.3	6.3	10.0	9.8	9.5	6.3	1.2	-4.3	-7.8	-7.8
03	-5.2	-2.0	-1.5	3.0	6.3	9.5	8.4	8.8	6.0	1.1	-4.2	-8.1	-8.1
04	-4.8	-2.3	-1.9	2.7	5.8	8.5	8.4	8.1	5.6	-1.3	-6.4	-7.4	-7.4
05	-5.5	-2.7	-3.8	1.8	5.2	7.2	7.5	7.7	5.3	-2.0	-6.3	-7.7	-7.7
06	-5.7	-3.0	-4.9	1.4	3.8	7.2	6.2	7.6	4.7	-4.6	-7.9	-9.2	-9.2
07	-6.1	-3.5	-3.8	0.3	4.6	7.6	6.5	7.6	4.4	-4.7	-7.1	-9.3	-9.3
08	-4.4	-1.3	-1.9	1.0	7.4	10.4	9.3	8.4	5.1	-1.4	-2.1	-6.6	-6.6
09	-1.0	-0.1	1.7	8.8	10.0	12.9	12.2	12.8	10.4	4.3	0.2	-4.0	-4.0
10	0.7	2.5	2.9	11.4	12.4	14.7	13.5	13.6	12.9	6.3	0.6	-2.0	-2.0
11	1.0	5.4	4.9	13.4	14.7	14.8	14.6	15.4	14.2	10.0	2.4	-2.1	-2.1
12	0.4	6.8	1.8	14.6	16.0	14.0	15.1	15.4	15.5	13.4	4.2	-2.8	-2.8
13	1.1	7.9	1.9	15.5	14.5	14.4	15.2	15.5	15.3	12.3	4.4	-2.9	-2.9
14	1.9	7.9	-0.2	16.1	14.8	14.1	15.7	13.9	14.7	12.2	4.7	-3.1	-3.1
15	2.7	7.5	0.0	15.8	12.8	14.7	12.6	13.4	12.3	11.3	4.6	-3.2	-3.2
16	3.6	6.7	1.5	14.0	12.3	14.1	12.2	14.2	11.5	10.7	4.7	-3.1	-3.1
17	3.2	6.2	3.9	12.5	13.9	11.4	13.8	12.4	10.9	9.4	4.2	-3.0	-3.0
18	3.0	6.1	4.7	10.5	12.8	14.0	13.8	11.5	13.6	8.3	3.5	-2.9	-2.9
19	2.1	5.6	2.7	9.9	11.0	13.9	13.2	12.0	11.0	8.1	2.0	-3.1	-3.1
20	0.6	4.4	1.5	9.9	11.4	13.2	13.1	13.2	9.4	5.9	1.0	-4.1	-4.1
21	0.4	2.9	0.3	9.1	11.7	11.9	13.6	12.9	9.4	6.3	0.3	-5.1	-5.1
22	-1.5	0.7	0.1	7.6	11.5	12.3	13.3	12.4	6.9	3.7	-0.8	-6.1	-6.1
23	-3.0	0.1	1.5	7.6	11.2	12.1	11.5	11.9	6.7	4.2	-2.1	-7.0	-7.0
Mín.	-6.1	-3.5	-4.9	0.3	3.8	7.2	6.2	7.6	4.4	-4.7	-7.9	-9.3	-9.3

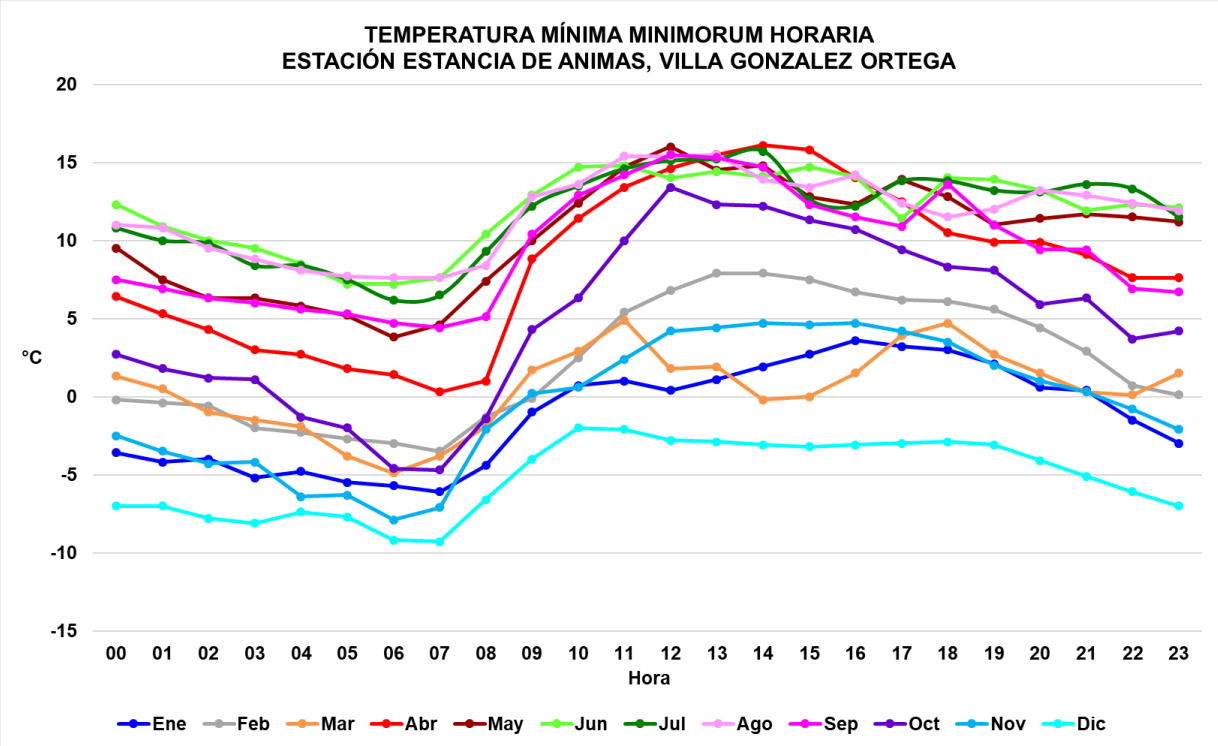


Figura 297. Temperatura mínima minimorum (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 230. Temperatura media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.1	9.1	11.5	14.9	16.8	17.0	15.7	15.8	14.6	12.2	8.7	7.3	12.6
01	6.4	8.1	10.5	13.8	15.8	16.2	15.1	15.2	14.1	11.6	8.0	6.7	11.8
02	5.9	7.4	9.6	12.7	14.7	15.4	14.5	14.6	13.6	11.0	7.5	6.0	11.1
03	5.2	6.7	8.8	11.7	13.8	14.7	14.0	14.0	13.2	10.4	6.9	5.5	10.4
04	4.7	6.0	8.0	10.8	12.9	14.1	13.5	13.5	12.8	9.9	6.4	5.0	9.8
05	4.2	5.5	7.3	10.0	12.2	13.5	13.0	13.0	12.4	9.5	6.0	4.6	9.3
06	3.8	5.1	6.9	9.3	11.4	13.1	12.6	12.6	12.1	9.1	5.7	4.2	8.8
07	3.8	5.5	8.3	9.9	12.0	13.5	12.8	12.7	12.1	9.3	6.7	4.6	9.3
08	6.8	9.3	12.6	13.4	15.5	15.9	14.9	14.7	13.8	11.7	11.0	8.2	12.3
09	10.8	13.2	16.1	17.1	18.6	18.3	17.2	17.2	16.4	15.3	14.5	12.1	15.6
10	13.8	16.1	18.8	19.9	21.1	20.3	19.1	19.2	18.4	17.9	17.1	15.0	18.1
11	16.1	18.4	20.9	22.3	23.3	22.2	20.7	20.9	20.1	20.0	19.1	17.2	20.1
12	17.8	20.1	22.5	24.1	25.2	23.9	22.2	22.4	21.4	21.6	20.5	18.9	21.7
13	19.0	21.3	23.6	25.4	26.5	25.2	23.3	23.6	22.4	22.7	21.4	19.9	22.9
14	19.7	22.1	24.3	26.4	27.4	26.1	24.1	24.5	23.1	23.4	21.9	20.6	23.6
15	19.9	22.4	24.6	26.8	27.8	26.5	24.6	24.9	23.4	23.7	21.9	20.7	23.9
16	19.6	22.2	24.4	26.9	27.8	26.5	24.6	24.9	23.1	23.5	21.3	20.2	23.7
17	18.4	21.3	23.5	26.5	27.5	25.9	24.2	24.3	22.5	22.6	19.4	18.5	22.9
18	15.6	19.0	21.6	25.5	26.7	25.1	23.3	23.4	21.5	20.7	16.1	15.3	21.2
19	13.0	16.0	18.7	23.6	25.1	23.7	21.9	21.8	19.6	18.0	14.0	12.9	19.0
20	11.4	14.0	16.5	20.9	22.6	21.7	20.0	19.8	17.7	16.0	12.5	11.4	17.0
21	10.1	12.5	15.0	18.8	20.5	20.0	18.3	18.3	16.6	14.8	11.3	10.1	15.5
22	8.9	11.3	13.8	17.4	19.1	18.7	17.3	17.3	15.7	13.7	10.3	9.0	14.4
23	8.0	10.2	12.7	16.2	18.0	17.8	16.4	16.5	15.1	12.9	9.4	8.1	13.4
Media	11.2	13.5	15.9	18.5	20.1	19.8	18.5	18.5	17.3	15.9	13.2	11.7	16.2

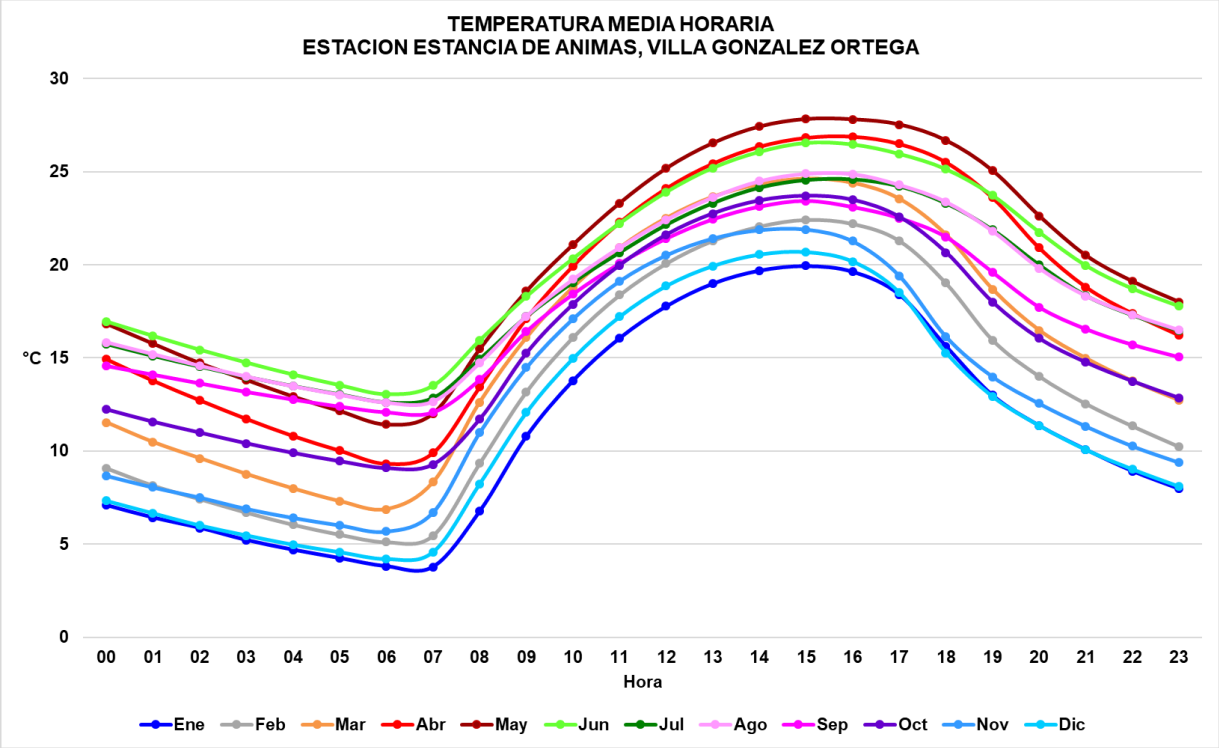


Figura 298. Temperatura media (˚C) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 331. Precipitación media (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.4	0.3	0.1	1.8	3.5	5.6	4.1	7.6	1.8	0.8	0.4	26.9
01	0.5	0.6	0.1	0.1	1.1	6.0	4.1	2.6	5.1	0.7	0.8	0.4	22.0
02	0.5	0.6	0.2	0.2	0.5	4.5	2.8	2.2	3.3	1.1	0.4	0.6	17.1
03	0.3	0.7	0.3	0.0	0.5	2.7	2.9	2.7	3.8	0.9	0.2	0.5	15.4
04	0.3	0.3	0.4	0.1	0.2	2.7	2.1	1.8	3.3	0.3	0.1	0.3	11.9
05	0.5	0.4	0.2	0.0	0.1	2.0	2.9	0.8	2.1	0.1	0.2	0.6	9.9
06	0.6	0.5	0.1	0.0	0.1	1.2	2.6	0.8	2.2	1.3	0.2	0.6	10.1
07	0.2	0.8	0.2	0.0	0.0	0.5	1.7	0.5	0.9	1.4	0.2	0.4	6.7
08	0.1	0.9	0.2	0.0	0.0	0.1	0.7	0.3	0.7	0.9	0.2	0.5	4.7
09	0.2	0.5	0.2	0.1	0.0	0.1	0.4	0.2	0.3	0.3	0.2	0.5	2.8
10	0.6	0.3	0.3	0.0	0.0	0.0	0.3	0.1	0.3	0.1	0.3	0.4	2.8
11	0.6	0.6	0.4	0.0	0.1	0.2	0.6	0.3	0.6	0.1	0.3	0.3	4.1
12	0.1	0.4	0.1	0.0	0.0	0.4	0.8	0.4	0.7	0.1	0.3	0.6	4.1
13	0.1	0.5	0.2	0.0	0.1	1.2	1.2	0.2	1.0	0.1	0.7	0.5	5.7
14	0.4	0.6	0.1	0.1	0.2	1.2	2.0	1.9	1.6	1.1	0.8	0.7	10.6
15	0.4	0.6	0.3	0.0	4.9	1.2	5.3	3.4	3.9	2.4	0.5	0.9	24.0
16	0.7	0.8	0.5	0.1	2.1	3.8	4.2	6.8	10.7	1.0	0.8	0.6	31.9
17	0.5	0.9	0.5	0.1	0.7	4.1	8.5	8.1	3.8	1.8	0.6	0.2	29.8
18	0.5	0.7	1.2	0.3	1.2	3.5	5.5	6.2	2.3	1.8	0.4	0.2	23.7
19	0.7	0.6	0.1	0.2	2.8	3.2	11.4	5.2	5.1	1.5	1.0	0.3	32.1
20	0.5	1.0	0.8	0.3	2.7	3.2	8.8	8.1	6.1	4.9	1.3	0.5	38.2
21	0.7	0.6	1.0	0.1	2.0	5.1	9.1	5.8	4.5	2.6	0.6	0.6	32.8
22	0.5	0.5	0.5	0.2	1.0	4.8	6.1	3.7	6.1	2.5	0.3	0.3	26.6
23	0.6	0.6	0.5	0.3	2.1	4.0	4.7	2.9	9.1	2.3	0.7	0.4	28.1
Suma	10.5	14.2	8.7	2.2	24.2	59.1	94.3	69.2	85.4	31.0	11.9	11.2	422.0

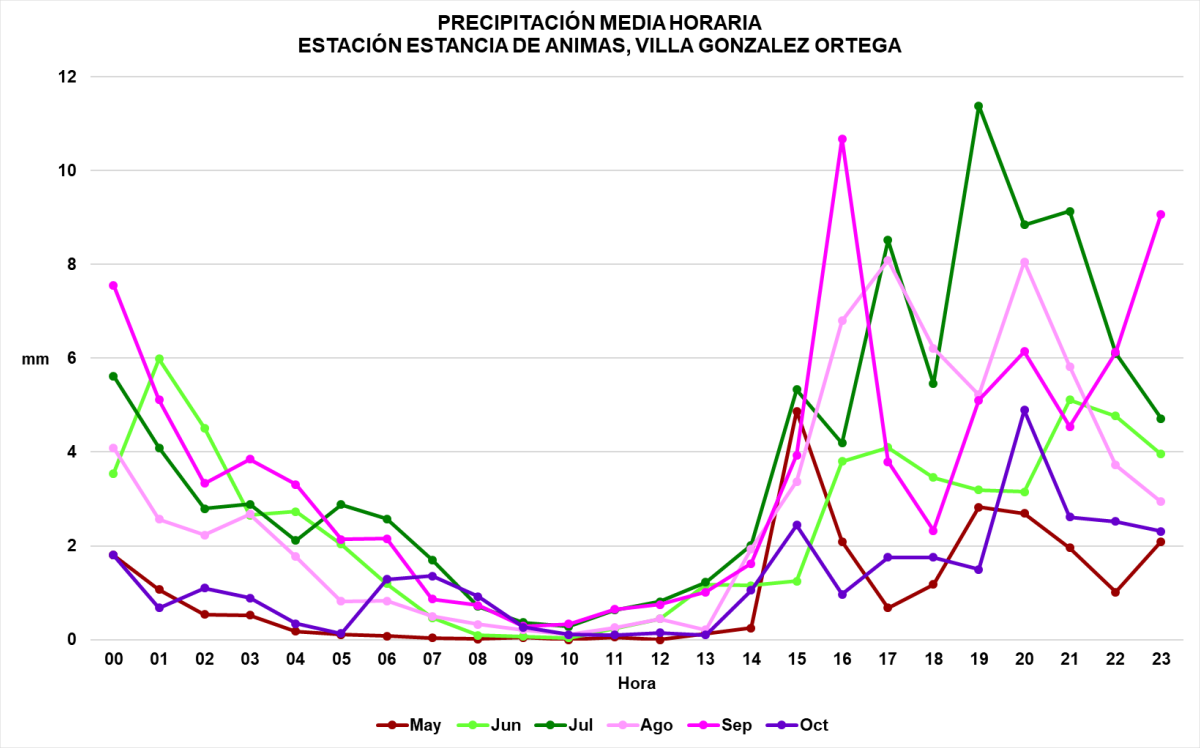


Figura 299. Precipitación media (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 332. Precipitación máxima maximorum (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.0	2.0	4.6	1.6	14.6	11.6	15.4	18.0	16.8	6.4	5.0	3.8	18.0
01	2.8	3.6	1.8	1.6	5.6	11.6	10.6	21.8	11.8	3.6	5.8	2.8	21.8
02	3.2	6.8	2.6	1.8	2.0	11.6	13.0	8.0	9.4	5.2	3.0	5.2	13.0
03	2.2	5.2	3.8	0.2	2.6	9.8	9.2	14.8	8.2	5.2	1.4	4.8	14.8
04	1.6	1.4	4.2	1.0	1.2	18.6	6.0	7.6	11.8	1.8	0.8	2.8	18.6
05	2.8	1.8	2.8	0.0	1.6	9.8	14.4	4.4	7.0	0.6	1.4	6.2	14.4
06	4.0	3.4	1.0	0.0	1.2	5.2	13.6	4.9	10.6	13.0	0.8	4.2	13.6
07	1.2	4.0	2.0	0.2	0.4	2.0	6.4	1.8	4.6	12.4	0.6	4.0	12.4
08	0.6	8.0	2.6	0.2	0.2	0.4	2.2	0.8	3.6	8.8	1.6	3.8	8.8
09	1.4	1.6	2.2	1.0	0.8	0.2	2.0	1.2	1.0	2.0	1.2	4.4	4.4
10	6.0	1.8	3.0	0.0	0.0	0.6	2.8	0.6	2.0	1.0	2.4	2.6	6.0
11	5.6	5.4	6.8	0.0	0.6	3.4	5.8	2.8	6.8	1.2	2.2	1.0	6.8
12	1.0	1.6	1.6	0.0	0.0	6.8	8.8	2.4	6.6	1.8	2.4	4.0	8.8
13	0.8	2.2	2.2	0.0	2.2	8.8	11.2	2.0	11.4	0.8	10.0	2.0	11.4
14	2.8	3.0	0.8	0.8	3.0	8.0	7.8	8.2	6.2	15.6	5.0	3.8	15.6
15	3.0	2.4	1.6	0.4	42.4	4.2	22.0	13.8	33.0	28.4	4.6	3.6	42.4
16	6.8	2.6	7.8	1.6	11.0	12.2	15.6	17.2	39.2	6.0	5.6	3.2	39.2
17	2.8	2.8	4.2	0.6	3.8	20.4	29.8	28.0	12.0	6.4	2.4	1.0	29.8
18	1.8	2.0	17.2	2.4	6.2	10.6	15.4	27.4	18.4	11.4	4.2	1.4	27.4
19	4.2	2.6	1.4	1.4	26.0	14.6	41.4	14.4	13.2	6.4	5.0	1.2	41.4
20	3.4	4.2	8.2	3.0	25.8	9.6	18.8	20.0	23.6	25.8	8.4	2.2	25.8
21	2.8	2.0	15.4	1.8	8.6	20.4	25.8	21.8	14.0	7.4	4.2	3.2	25.8
22	2.0	5.8	7.6	3.2	2.8	14.2	15.8	13.2	21.4	10.6	2.6	1.6	21.4
23	6.6	3.4	7.6	2.0	10.6	13.8	15.4	11.8	42.6	10.8	2.6	3.0	42.6
Máx.	6.8	8.0	17.2	3.2	42.4	20.4	41.4	28.0	42.6	28.4	10.0	6.2	42.6

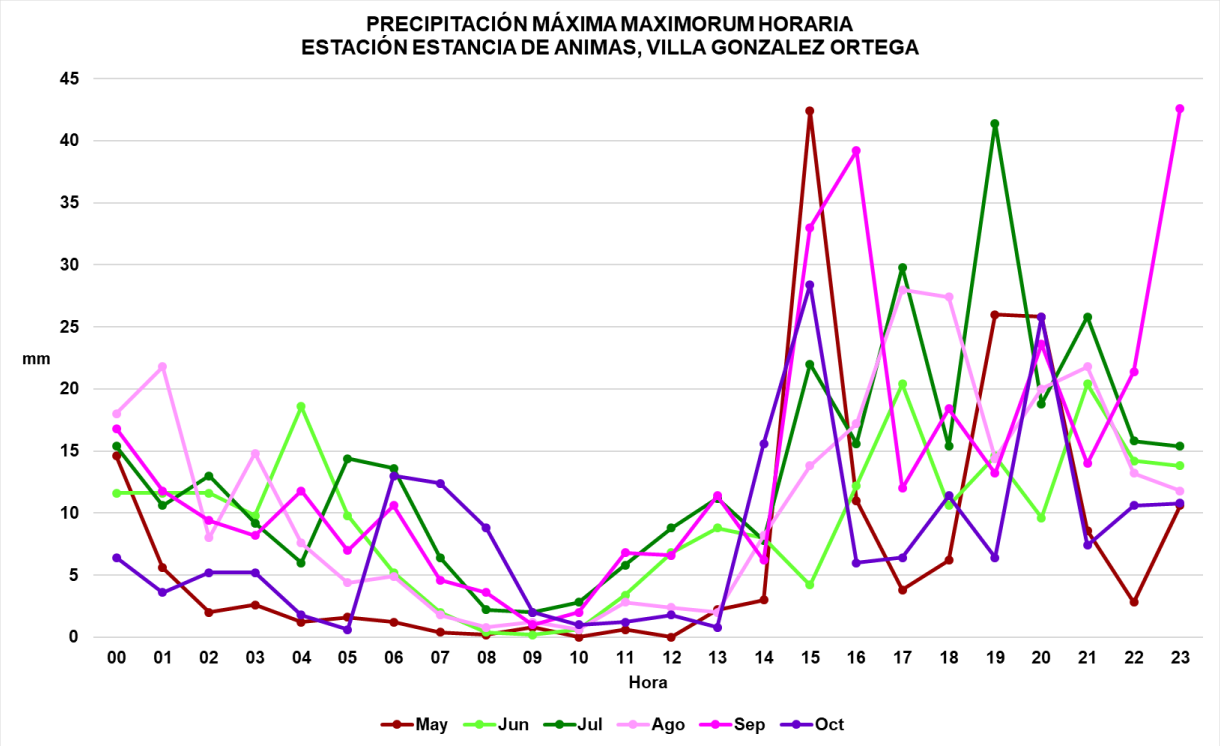


Figura 300. Precipitación máxima maximorum (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 333. Evapotranspiración potencial media (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.01	0.02	0.04	0.04	0.04	0.02	0.02	0.01	0.00	0.00	0.00	0.02
01	0.00	0.01	0.01	0.02	0.03	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.01
02	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01
04	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.02	0.04	0.09	0.05	0.06	0.05	0.03	0.02	0.01	0.02	0.06	0.03	0.04
09	0.11	0.16	0.24	0.19	0.20	0.17	0.14	0.13	0.11	0.12	0.17	0.12	0.15
10	0.22	0.30	0.40	0.36	0.36	0.31	0.27	0.27	0.24	0.25	0.30	0.25	0.29
11	0.34	0.43	0.53	0.52	0.52	0.45	0.39	0.41	0.37	0.39	0.42	0.36	0.43
12	0.43	0.52	0.63	0.64	0.65	0.57	0.50	0.52	0.47	0.50	0.49	0.44	0.53
13	0.48	0.57	0.68	0.72	0.73	0.64	0.58	0.60	0.53	0.57	0.51	0.48	0.59
14	0.48	0.57	0.67	0.75	0.75	0.66	0.60	0.64	0.55	0.58	0.48	0.46	0.60
15	0.44	0.53	0.60	0.71	0.71	0.63	0.58	0.62	0.52	0.53	0.41	0.40	0.56
16	0.36	0.43	0.50	0.63	0.62	0.55	0.52	0.55	0.45	0.45	0.31	0.31	0.47
17	0.25	0.31	0.36	0.51	0.51	0.46	0.45	0.45	0.34	0.34	0.18	0.19	0.36
18	0.12	0.16	0.22	0.37	0.37	0.36	0.34	0.33	0.24	0.23	0.09	0.11	0.25
19	0.06	0.09	0.14	0.30	0.28	0.24	0.22	0.25	0.17	0.12	0.04	0.04	0.16
20	0.03	0.05	0.08	0.17	0.19	0.19	0.16	0.15	0.07	0.05	0.02	0.02	0.10
21	0.02	0.03	0.05	0.10	0.11	0.11	0.09	0.08	0.03	0.02	0.01	0.01	0.06
22	0.01	0.02	0.04	0.06	0.07	0.08	0.05	0.05	0.02	0.01	0.01	0.01	0.04
23	0.01	0.01	0.03	0.06	0.06	0.06	0.04	0.03	0.01	0.01	0.00	0.00	0.03
Media/día /mes	3.40	4.26	5.32	6.25	6.30	5.64	5.01	5.15	4.15	4.19	3.52	3.25	4.70

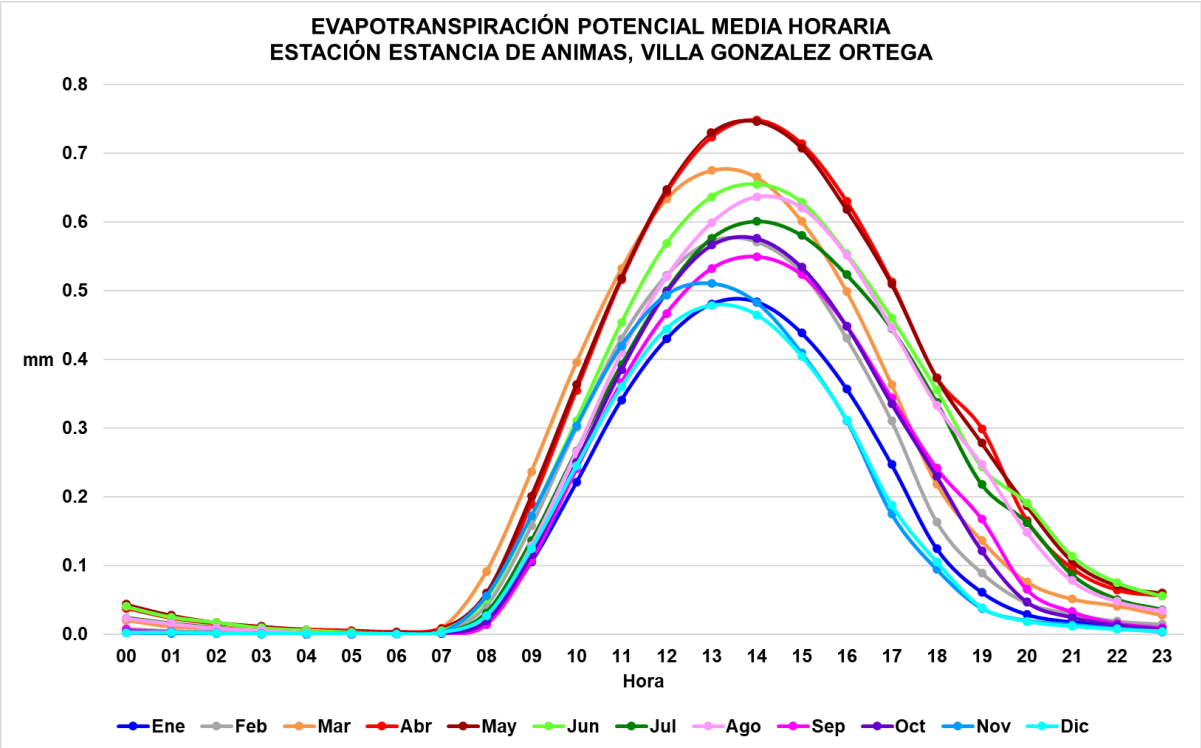


Figura 301. Evapotranspiración potencial media (mm) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 334. Humedad relativa media (%) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	61.1	53.9	46.1	38.3	49.6	68.6	78.3	78.1	85.0	78.3	74.6	64.1	64.7
01	63.9	57.6	50.2	42.1	54.0	71.8	80.6	80.8	87.0	81.0	77.3	67.2	67.8
02	66.5	60.8	53.9	46.6	58.1	74.9	83.0	83.3	88.8	83.4	80.0	70.3	70.8
03	69.3	64.1	57.6	51.0	61.8	77.8	85.3	85.7	90.5	85.7	82.4	72.9	73.7
04	71.7	67.0	61.0	55.1	65.4	80.5	87.3	87.8	91.9	87.7	84.4	75.4	76.3
05	73.8	69.8	63.8	58.5	68.3	82.9	89.0	89.5	93.0	89.4	86.1	77.5	78.5
06	76.0	71.8	66.1	61.4	71.0	84.9	90.6	91.0	93.9	90.7	87.3	79.5	80.3
07	76.9	71.8	63.2	61.1	69.8	84.0	90.3	91.2	94.1	90.6	85.3	79.5	79.8
08	69.1	61.2	51.4	52.4	59.9	75.7	83.6	84.9	89.6	84.5	72.7	69.3	71.2
09	57.2	49.4	40.7	41.8	49.1	65.6	73.8	74.5	79.3	71.4	59.1	57.1	59.9
10	46.9	39.7	32.3	32.8	39.9	56.5	65.4	65.4	70.0	60.3	48.6	47.0	50.4
11	38.9	32.8	26.3	25.4	32.1	48.5	58.1	57.7	62.7	51.7	40.8	39.0	42.8
12	33.0	27.9	22.3	20.6	26.1	41.9	51.8	51.4	57.0	45.2	35.8	33.2	37.2
13	29.1	24.6	19.6	17.6	22.4	37.0	47.0	46.4	52.7	40.7	32.4	29.3	33.2
14	26.7	22.4	17.9	15.8	20.0	33.9	43.8	43.0	49.8	37.8	30.6	27.1	30.7
15	25.8	21.3	17.1	14.9	19.0	32.0	42.1	41.5	48.2	36.7	30.0	26.4	29.6
16	26.0	21.4	17.1	14.6	19.0	32.2	41.7	41.3	49.2	36.9	31.2	27.1	29.8
17	28.2	22.7	18.1	15.0	19.1	33.7	42.6	42.9	51.0	39.1	35.8	30.3	31.5
18	34.1	26.3	20.9	16.1	20.6	35.8	45.4	45.7	53.7	44.9	44.4	37.0	35.4
19	40.8	31.8	25.8	18.4	23.9	39.9	50.2	50.6	61.0	53.5	51.6	43.4	40.9
20	45.8	37.0	30.7	22.5	29.1	46.2	57.5	58.1	69.2	61.0	57.6	48.6	46.9
21	50.3	41.2	35.0	27.0	34.7	53.2	64.9	65.0	74.9	66.8	63.0	53.3	52.4
22	54.3	45.3	38.6	30.7	40.1	59.5	70.5	70.8	79.1	71.4	67.4	57.1	57.1
23	57.7	49.5	41.9	34.4	45.3	65.0	74.8	75.3	82.4	75.4	71.2	60.7	61.1
Media	51.0	44.6	38.2	33.9	41.6	57.6	66.6	66.7	73.1	65.2	59.6	53.0	54.3

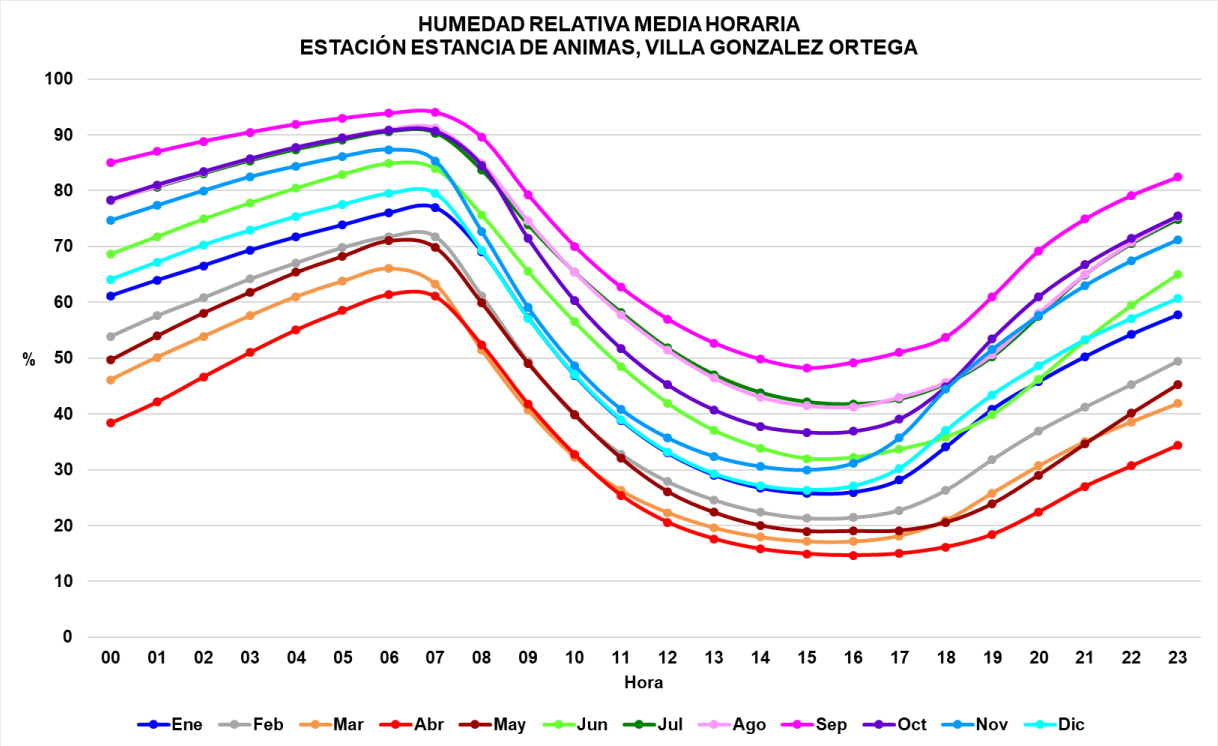


Figura 302. Humedad relativa media (%) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 335. Humedad relativa mínima minimorum (%) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	11.0	8.0	10.0	7.0	8.0	11.0	34.0	29.0	31.0	22.0	22.0	12.0	7.0
01	12.0	10.0	10.0	10.0	11.0	12.0	36.0	27.0	27.0	23.0	24.0	14.0	10.0
02	14.0	12.0	10.0	10.0	11.0	14.0	34.0	32.0	45.0	26.0	27.0	14.0	10.0
03	14.0	12.0	11.0	11.0	11.0	15.0	43.0	28.0	50.0	27.0	25.0	17.0	11.0
04	16.0	13.0	12.0	13.0	12.0	16.0	51.0	41.0	47.0	30.0	24.0	17.0	12.0
05	21.0	14.0	13.0	14.0	15.0	21.0	50.0	42.0	49.0	31.0	26.0	18.0	13.0
06	21.0	15.0	13.0	15.8	14.0	28.0	52.0	52.0	55.0	31.0	22.0	21.0	13.0
07	24.0	17.0	12.0	13.4	14.0	26.0	43.0	57.0	54.0	32.0	23.0	19.0	12.0
08	16.5	15.0	10.6	10.8	12.0	23.0	45.0	54.0	50.1	23.0	18.0	12.0	10.6
09	12.2	11.0	8.7	9.5	12.0	19.0	33.0	39.0	39.0	19.0	12.0	10.4	8.7
10	9.0	6.0	6.0	7.7	9.0	12.0	23.0	29.0	30.9	15.0	9.0	8.9	6.0
11	6.0	6.0	4.0	7.0	7.0	10.0	18.0	25.0	22.8	14.0	8.6	7.0	4.0
12	5.0	7.0	3.0	5.0	6.0	9.0	16.0	23.0	22.1	11.0	7.0	6.0	3.0
13	5.0	5.0	4.0	5.0	6.0	8.0	15.0	19.0	14.0	9.0	6.0	5.0	4.0
14	5.0	5.0	5.0	3.0	6.0	7.0	12.1	13.8	14.0	8.1	5.0	4.0	3.0
15	5.0	5.9	4.0	4.0	5.0	6.0	12.0	13.4	13.0	8.7	6.0	5.0	4.0
16	5.0	5.0	4.0	4.0	5.0	6.0	12.0	12.0	13.0	8.0	5.0	5.0	4.0
17	5.0	5.0	4.0	4.0	3.0	6.0	11.0	13.0	13.0	7.0	5.0	5.0	3.0
18	6.0	6.0	5.0	4.0	4.0	6.0	12.0	12.0	14.0	8.0	6.0	7.0	4.0
19	6.0	7.0	6.0	4.0	4.0	6.0	13.0	14.0	15.0	10.0	8.0	8.0	4.0
20	8.0	8.0	7.6	5.0	5.0	6.0	15.0	17.0	19.0	12.0	9.0	8.0	5.0
21	7.0	9.0	7.0	6.0	6.0	7.0	23.0	23.0	21.0	14.0	11.0	10.0	6.0
22	10.0	9.0	7.0	6.0	7.0	8.0	26.0	28.2	23.0	18.0	14.0	11.0	6.0
23	10.0	11.0	6.0	7.0	8.0	10.0	31.0	36.0	29.0	19.0	18.0	13.0	6.0
Mín.	5.0	5.0	3.0	3.0	3.0	6.0	11.0	12.0	13.0	7.0	5.0	4.0	3.0

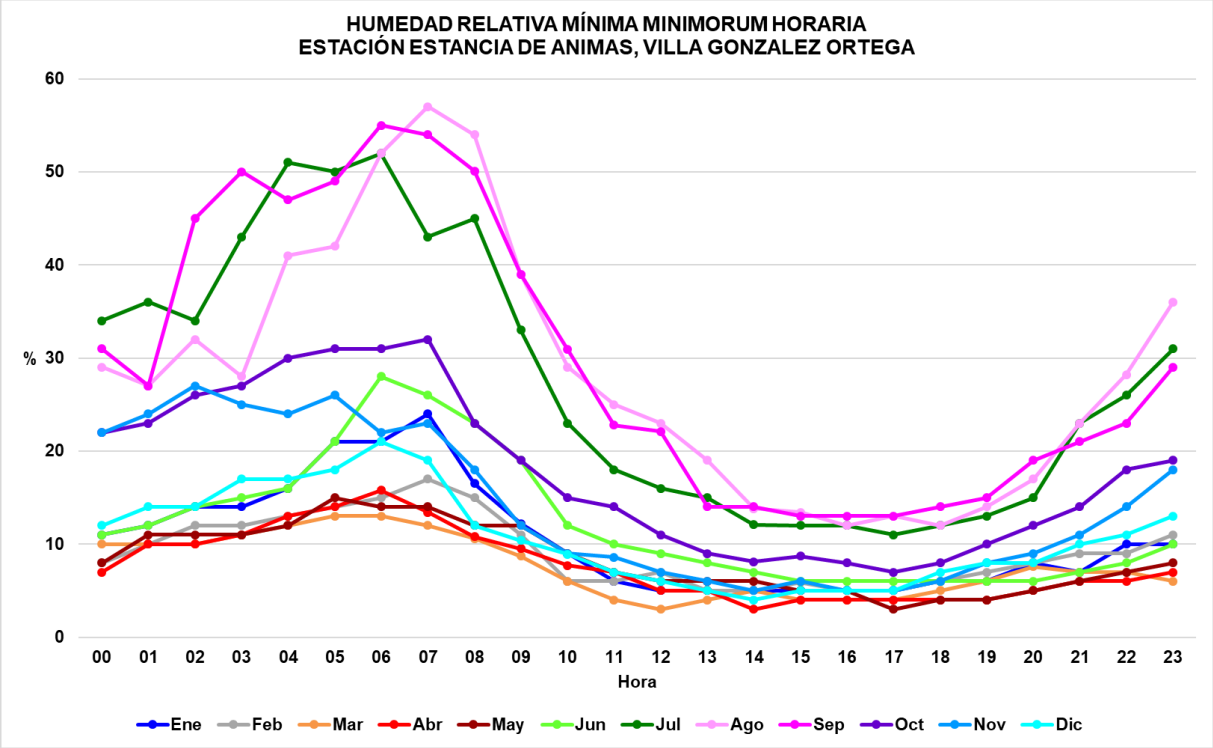


Figura 303. Humedad relativa mínima minimorum (%) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 336. Radiación solar global media horaria (W/m2) de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	1	3	23	9	10	10	5	2	0	3	9	2	6
07	79	156	359	208	227	199	144	107	72	99	265	126	170
08	594	810	1166	883	913	796	667	616	524	582	961	694	767
09	1342	1663	2071	1780	1773	1560	1395	1365	1261	1349	1730	1428	1560
10	2047	2434	2827	2629	2610	2337	2112	2151	1970	2105	2384	2079	2307
11	2557	2960	3374	3288	3268	2937	2682	2760	2528	2699	2807	2551	2868
12	2822	3215	3628	3699	3691	3307	3130	3186	2881	3077	2889	2732	3188
13	2809	3215	3562	3808	3772	3363	3246	3356	2992	3113	2736	2638	3217
14	2502	2917	3181	3589	3494	3201	3114	3238	2851	2883	2349	2285	2967
15	1980	2402	2619	3098	2978	2787	2754	2877	2463	2422	1799	1748	2494
16	1319	1683	1859	2441	2417	2253	2313	2323	1864	1802	1080	1085	1870
17	586	877	1012	1694	1742	1667	1718	1662	1297	1053	364	379	1171
18	67	187	286	900	986	1062	1042	988	651	385	11	15	548
19	0	0	5	265	350	441	437	357	135	33	0	0	169
20	0	0	0	12	26	53	57	25	1	0	0	0	15
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18704	22522	25974	28301	28258	25972	24815	25014	21493	21606	19385	17762	23317

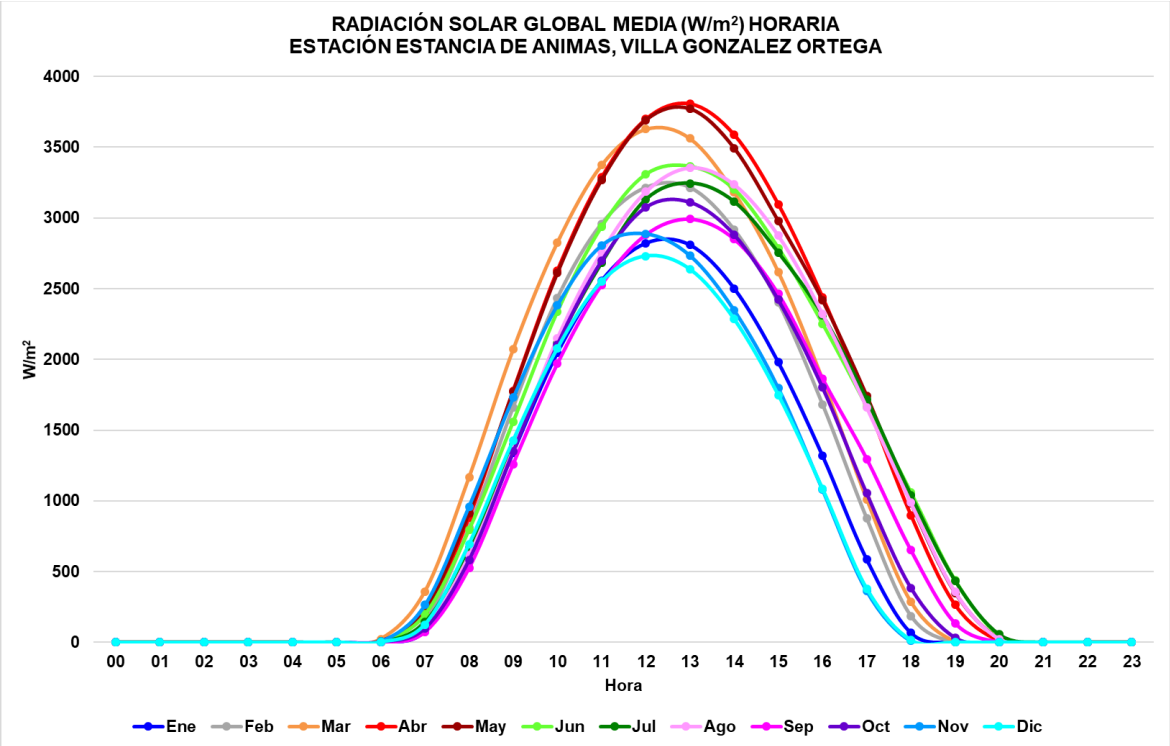


Figura 304. Radiación solar global media horaria (W/m2) de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 337. Radiación solar global media horaria (kWh/m2) de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.04	0.09	0.05	0.06	0.05	0.04	0.03	0.02	0.02	0.07	0.03	0.04
08	0.15	0.20	0.29	0.22	0.23	0.20	0.17	0.15	0.13	0.15	0.24	0.17	0.19
09	0.34	0.42	0.52	0.45	0.44	0.39	0.35	0.34	0.32	0.34	0.43	0.36	0.39
10	0.51	0.61	0.71	0.66	0.65	0.58	0.53	0.54	0.49	0.53	0.60	0.52	0.58
11	0.64	0.74	0.84	0.82	0.82	0.73	0.67	0.69	0.63	0.67	0.70	0.64	0.72
12	0.71	0.80	0.91	0.92	0.92	0.83	0.78	0.80	0.72	0.77	0.72	0.68	0.80
13	0.70	0.80	0.89	0.95	0.94	0.84	0.81	0.84	0.75	0.78	0.68	0.66	0.80
14	0.63	0.73	0.80	0.90	0.87	0.80	0.78	0.81	0.71	0.72	0.59	0.57	0.74
15	0.49	0.60	0.65	0.77	0.74	0.70	0.69	0.72	0.62	0.61	0.45	0.44	0.62
16	0.33	0.42	0.46	0.61	0.60	0.56	0.58	0.58	0.47	0.45	0.27	0.27	0.47
17	0.15	0.22	0.25	0.42	0.44	0.42	0.43	0.42	0.32	0.26	0.09	0.09	0.29
18	0.02	0.05	0.07	0.22	0.25	0.27	0.26	0.25	0.16	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.07	0.09	0.11	0.11	0.09	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.68	5.63	6.49	7.08	7.06	6.49	6.20	6.25	5.37	5.40	4.85	4.44	5.83

Cuadro 338. Radiación solar global media horaria (Mj/m2/s) de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.07	0.14	0.32	0.19	0.20	0.18	0.13	0.10	0.07	0.09	0.24	0.11	0.15
08	0.53	0.73	1.05	0.79	0.82	0.72	0.60	0.55	0.47	0.52	0.87	0.62	0.69
09	1.21	1.50	1.86	1.60	1.60	1.40	1.26	1.23	1.13	1.21	1.56	1.29	1.40
10	1.84	2.19	2.54	2.37	2.35	2.10	1.90	1.94	1.77	1.89	2.15	1.87	2.08
11	2.30	2.66	3.04	2.96	2.94	2.64	2.41	2.48	2.27	2.43	2.53	2.30	2.58
12	2.54	2.89	3.26	3.33	3.32	2.98	2.82	2.87	2.59	2.77	2.60	2.46	2.87
13	2.53	2.89	3.21	3.43	3.39	3.03	2.92	3.02	2.69	2.80	2.46	2.37	2.90
14	2.25	2.63	2.86	3.23	3.14	2.88	2.80	2.91	2.57	2.59	2.11	2.06	2.67
15	1.78	2.16	2.36	2.79	2.68	2.51	2.48	2.59	2.22	2.18	1.62	1.57	2.24
16	1.19	1.51	1.67	2.20	2.18	2.03	2.08	2.09	1.68	1.62	0.97	0.98	1.68
17	0.53	0.79	0.91	1.52	1.57	1.50	1.55	1.50	1.17	0.95	0.33	0.34	1.05
18	0.06	0.17	0.26	0.81	0.89	0.96	0.94	0.89	0.59	0.35	0.01	0.01	0.49
19	0.00	0.00	0.00	0.24	0.32	0.40	0.39	0.32	0.12	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.02	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.83	20.27	23.38	25.47	25.43	23.38	22.33	22.51	19.34	19.45	17.45	15.99	20.99

Cuadro 339. Velocidad del viento media (km/h) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.5	3.4	4.8	6.2	7.5	9.7	9.1	8.6	5.1	3.8	2.8	2.8	5.6
01	3.2	3.2	4.3	5.1	6.2	8.3	7.6	7.0	4.7	3.5	2.5	2.7	4.9
02	3.1	3.2	4.0	4.4	5.2	6.7	6.1	5.7	4.2	3.1	2.4	2.7	4.2
03	2.9	3.0	3.5	3.8	4.5	5.3	4.9	4.6	3.5	2.6	2.2	2.6	3.6
04	2.8	2.9	3.2	3.4	3.8	4.3	4.0	3.5	2.9	2.4	2.1	2.4	3.1
05	2.6	2.9	3.0	2.9	3.1	3.6	3.3	2.9	2.5	2.3	2.0	2.3	2.8
06	2.6	2.7	2.8	2.2	2.6	3.2	2.8	2.5	2.3	2.1	1.9	2.2	2.5
07	2.6	2.7	3.1	2.3	2.5	3.3	2.8	2.5	2.4	2.0	2.1	2.3	2.6
08	3.4	4.4	5.8	4.4	4.4	5.4	4.4	3.7	3.4	2.8	3.6	3.3	4.1
09	6.2	7.2	8.6	7.6	7.1	7.7	6.5	6.1	6.0	5.0	5.9	6.0	6.7
10	8.8	9.4	9.7	9.6	8.2	8.1	7.3	7.5	7.6	6.8	7.6	8.2	8.2
11	10.1	10.9	10.9	10.7	8.6	8.1	7.6	8.1	8.2	7.9	8.7	9.6	9.1
12	11.2	12.0	12.2	11.8	9.1	8.6	8.1	8.6	8.7	8.7	9.3	10.4	9.9
13	12.0	12.6	13.0	12.8	9.8	9.3	8.9	9.4	9.2	9.0	9.7	11.0	10.6
14	12.5	13.2	13.6	13.4	10.7	10.4	10.0	10.4	9.5	9.2	9.8	11.2	11.2
15	12.6	13.3	13.8	13.8	11.2	11.7	11.4	11.2	9.7	9.5	9.9	11.2	11.6
16	12.5	13.3	14.2	14.1	11.7	12.7	12.6	12.2	10.4	9.7	9.9	10.8	12.0
17	11.4	12.8	13.8	14.2	12.0	13.9	13.9	13.1	10.7	9.8	8.9	9.2	12.0
18	8.4	10.0	12.5	13.7	12.5	14.8	14.7	13.7	10.3	9.0	6.7	6.1	11.0
19	6.7	7.1	9.6	12.1	12.6	15.1	14.8	13.4	8.9	7.2	6.1	5.1	9.9
20	6.1	6.6	8.7	9.7	11.1	14.3	13.6	11.6	7.6	6.4	5.7	4.5	8.8
21	5.3	5.6	7.9	9.0	10.2	13.3	11.9	10.6	6.9	5.9	4.8	3.9	7.9
22	4.5	4.9	7.1	8.8	10.0	12.8	11.5	10.3	6.5	5.0	3.8	3.3	7.4
23	4.0	4.2	6.0	7.7	9.2	11.5	10.5	9.3	5.7	4.3	3.2	3.1	6.5
Media	6.6	7.1	8.2	8.5	8.1	9.3	8.7	8.2	6.5	5.7	5.5	5.7	7.3

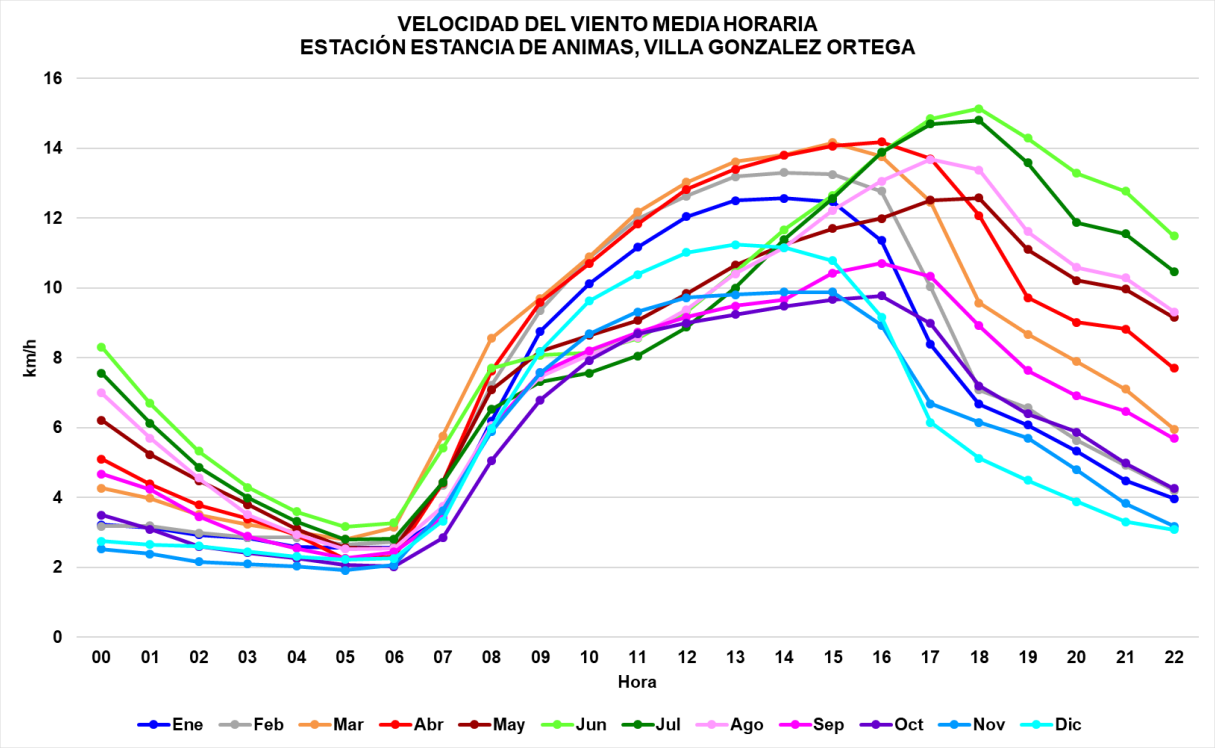


Figura 305. Velocidad del viento media (km/h) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 340. Velocidad del viento máxima maximorum (km/h) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	32.3	36.2	41.0	35.8	36.0	40.3	25.0	27.0	22.0	23.0	37.0	39.4	41.0
01	34.1	47.8	38.0	34.1	39.0	31.7	21.0	23.5	19.0	18.0	46.0	35.5	47.8
02	34.9	42.0	42.0	32.0	35.0	31.0	22.9	18.9	23.4	12.9	46.0	32.1	46.0
03	34.0	29.7	68.0	32.0	26.1	43.0	20.0	22.0	21.0	17.6	43.0	34.0	68.0
04	37.0	30.3	42.0	40.1	24.0	41.0	22.9	18.0	12.6	16.0	47.0	35.0	47.0
05	35.0	31.9	59.0	47.0	24.7	29.0	18.0	21.0	17.4	15.7	32.9	28.8	59.0
06	28.2	29.4	56.0	36.9	35.1	22.0	21.8	17.0	14.3	22.7	27.6	35.4	56.0
07	37.0	31.0	64.0	30.0	39.8	20.0	25.6	17.0	13.5	23.1	24.7	38.0	64.0
08	37.0	31.0	50.0	54.1	40.7	22.0	26.3	22.6	18.0	23.6	35.0	37.0	54.1
09	42.0	33.1	50.0	35.0	34.0	24.0	28.4	26.0	18.0	23.9	36.0	44.0	50.0
10	41.0	40.2	52.0	37.0	36.6	23.0	23.0	27.8	21.0	27.2	36.0	52.9	52.9
11	54.5	47.2	54.0	51.0	37.0	32.0	24.7	27.8	21.6	29.6	40.0	46.5	54.5
12	61.0	54.8	62.0	49.0	40.0	34.0	27.8	27.1	25.0	31.3	40.7	49.9	62.0
13	62.7	50.0	57.0	59.0	41.0	48.0	28.8	30.0	23.0	30.4	44.0	56.2	62.7
14	56.9	49.0	58.0	50.0	40.0	35.0	32.0	29.0	23.0	29.3	46.0	52.0	58.0
15	53.0	45.9	58.0	53.0	47.0	47.0	39.0	29.5	25.0	29.0	44.0	55.0	58.0
16	46.2	46.6	49.0	51.0	49.0	37.0	33.0	33.5	33.0	34.4	44.0	44.0	51.0
17	42.0	44.0	51.0	48.0	40.0	40.0	35.0	34.1	26.0	32.2	41.0	47.0	51.0
18	42.0	47.0	49.0	46.0	44.0	38.0	30.0	32.3	24.5	26.0	36.0	41.1	49.0
19	41.0	45.0	37.0	42.0	40.0	51.0	39.0	29.5	25.1	20.4	36.0	42.9	51.0
20	33.0	34.5	29.8	39.0	42.3	41.0	33.3	30.5	23.0	21.0	33.0	37.2	42.3
21	41.1	36.2	43.0	41.0	40.0	38.0	33.4	29.7	26.0	27.0	35.0	39.1	43.0
22	36.6	32.5	36.0	37.0	47.0	39.8	30.3	26.1	25.6	25.0	38.0	42.1	47.0
23	31.0	37.1	37.0	38.7	34.5	48.4	30.5	24.5	21.8	16.3	35.0	39.2	48.4
Máx.	62.7	54.8	68.0	59.0	49.0	51.0	39.0	34.1	33.0	34.4	47.0	56.2	68.0

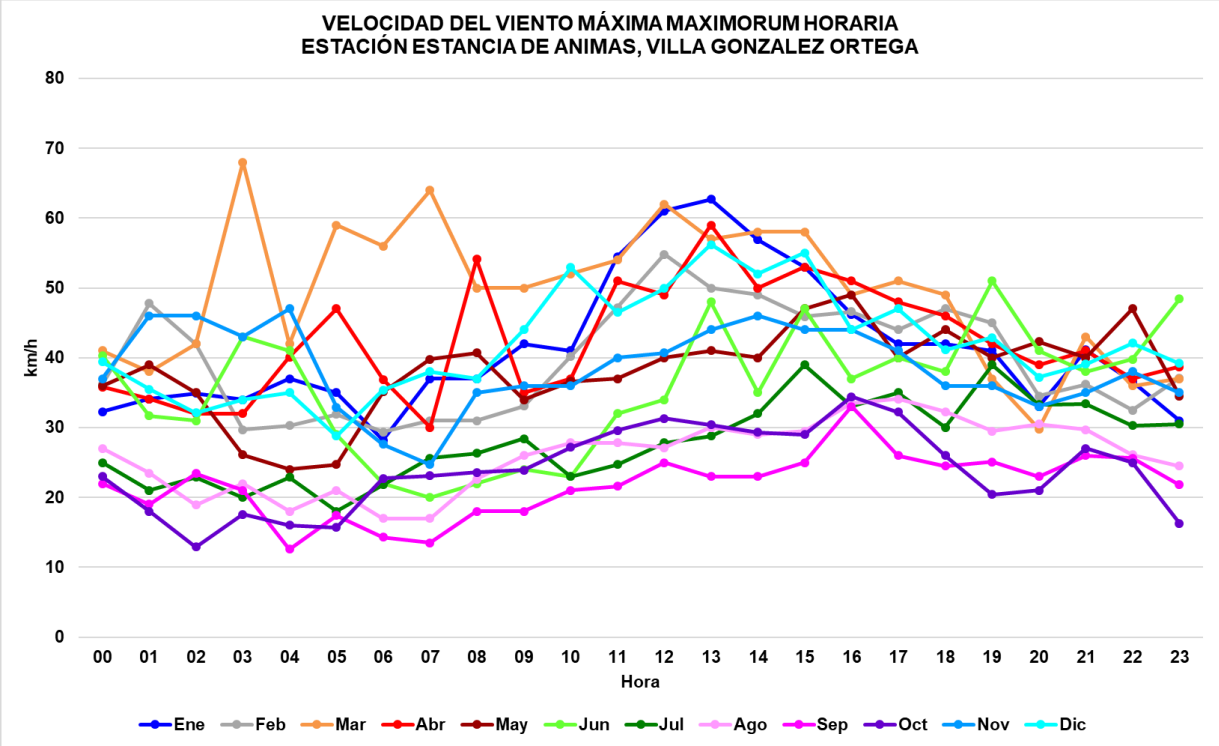


Figura 306. Velocidad del viento máxima maximorum (km/h) horaria de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 341. Frecuencia de velocidad del viento (%) mensual de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	51.6	47.0	40.6	38.5	34.8	32.5	37.0	39.3	46.5	52.6	56.4	56.6	44.4
5.1 a 10.0	23.5	25.3	27.0	25.3	32.8	28.9	27.4	26.5	29.1	28.7	24.9	22.6	26.9
10.1 a 15.0	13.5	14.5	16.0	19.0	19.5	17.9	16.8	17.2	16.9	12.6	12.6	12.4	15.7
15.1 a 20.0	6.9	8.2	9.1	10.8	8.7	11.9	10.6	11.3	6.0	4.7	4.7	5.8	8.2
20.1 a 25.0	3.2	3.3	4.8	4.5	2.9	6.3	6.0	4.5	1.3	1.2	1.2	1.9	3.4
25.1 a 30.0	1.0	1.2	1.9	1.4	1.1	2.1	1.9	1.0	0.2	0.1	0.2	0.5	1.0
30.1 a 35.0	0.3	0.4	0.5	0.4	0.2	0.4	0.3	0.2	0.0	0.0	0.0	0.2	0.2
35.1 a 40.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

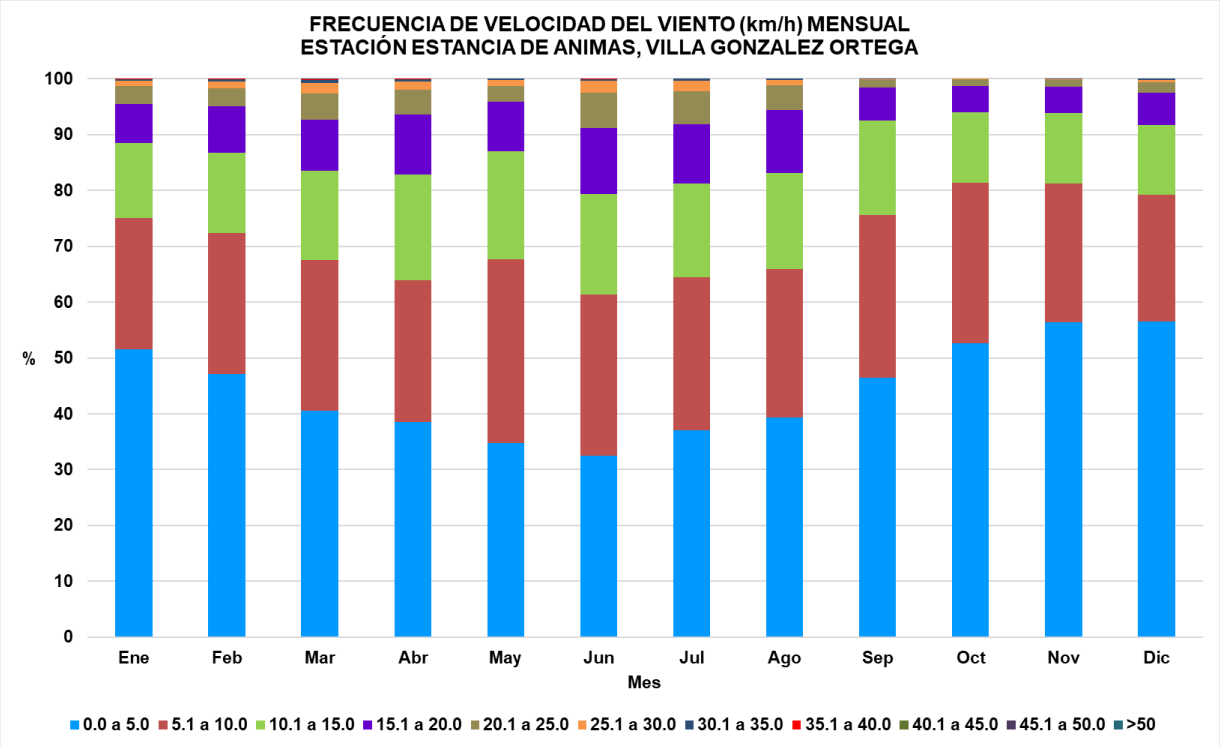


Figura 307. Frecuencia de velocidad del viento (%) mensual de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 342. Frecuencia de dirección del viento (%) mensual de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	5.9	4.9	4.7	3.8	3.6	2.7	2.2	2.4	3.5	4.7	5.6	5.7	4.1
NNE	4.2	4.3	3.3	2.9	2.9	2.3	1.9	2.2	2.4	3.6	4.1	4.8	3.2
NE	8.0	7.8	6.5	5.5	5.7	5.7	5.7	5.9	6.9	8.4	8.8	8.4	6.9
ENE	12.0	10.4	10.2	8.1	10.6	14.8	16.1	17.5	20.6	18.8	16.5	11.7	14.0
E	11.5	9.1	9.4	8.2	12.3	24.4	26.4	28.8	25.2	18.5	15.2	10.0	16.8
ESE	6.1	5.1	5.3	5.2	7.8	13.4	13.8	14.0	11.5	9.4	7.3	5.2	8.8
SE	3.1	3.2	3.6	3.5	4.9	6.4	6.4	6.0	4.9	4.1	3.8	3.4	4.5
SSE	3.1	3.5	3.7	3.7	4.5	4.9	4.6	3.7	3.4	2.9	3.3	3.9	3.8
S	7.5	7.7	7.6	8.4	8.4	6.7	6.6	5.0	4.3	4.7	5.3	8.2	6.7
SSO	9.8	11.0	10.7	12.1	9.7	5.9	5.1	4.0	3.7	5.4	6.5	10.4	7.8
SO	8.2	9.7	9.1	10.6	6.9	3.0	2.9	2.5	2.4	3.9	5.5	8.1	6.0
OSO	5.0	7.0	8.1	8.9	6.2	2.1	1.8	1.6	1.8	2.9	4.1	5.2	4.5
O	4.4	5.3	6.5	8.4	6.3	2.0	1.6	1.5	1.8	2.9	3.6	4.0	4.0
ONO	3.4	3.6	4.2	4.8	4.0	1.7	1.5	1.4	2.1	2.9	3.3	3.3	3.0
NO	3.3	3.6	3.5	3.1	3.3	1.9	1.5	1.5	2.3	3.1	3.0	3.5	2.8
NNO	4.6	3.9	3.6	2.8	3.0	2.3	1.8	2.0	3.2	3.9	4.1	4.2	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

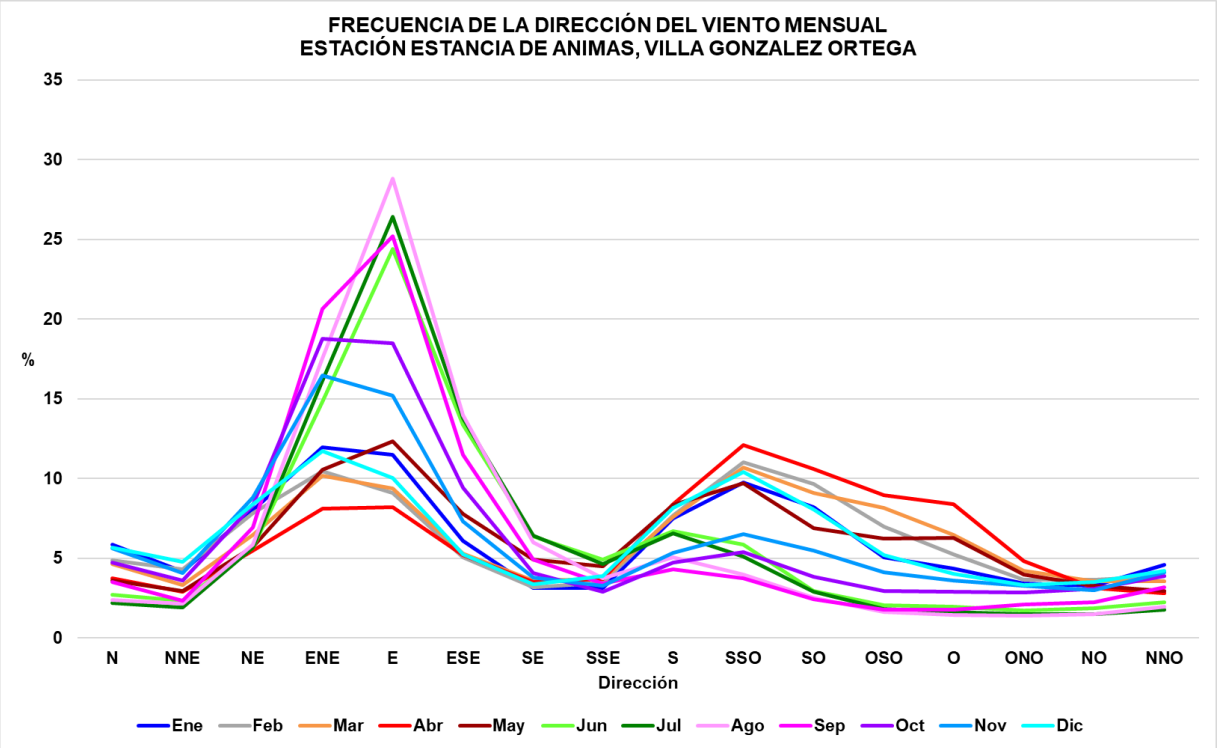


Figura 308. Frecuencia de dirección del viento (%) mensual de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 343. Frecuencia de dirección del viento (%) trimestral de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.7	5.1	6.8	5.0	5.2
NNE	3.3	5.0	6.5	4.7	4.9
NE	3.2	5.0	7.8	4.8	5.2
ENE	3.6	5.8	10.7	5.7	6.5
E	3.8	5.8	10.9	5.3	6.5
ESE	3.3	4.3	6.3	3.7	4.4
SE	3.2	3.8	4.2	3.2	3.6
SSE	3.4	3.8	3.2	2.9	3.3
S	4.8	4.5	3.0	3.8	4.0
SSO	10.7	8.5	5.3	8.2	8.1
SO	16.6	13.5	7.2	11.4	12.1
OSO	17.1	13.7	6.7	13.2	12.6
O	10.8	8.6	6.8	12.0	9.5
ONO	5.2	4.9	5.2	6.8	5.5
NO	4.0	3.9	4.6	4.9	4.4
NNO	3.4	3.8	4.8	4.3	4.1
Suma	100.0	100.0	100.0	100.0	100.0

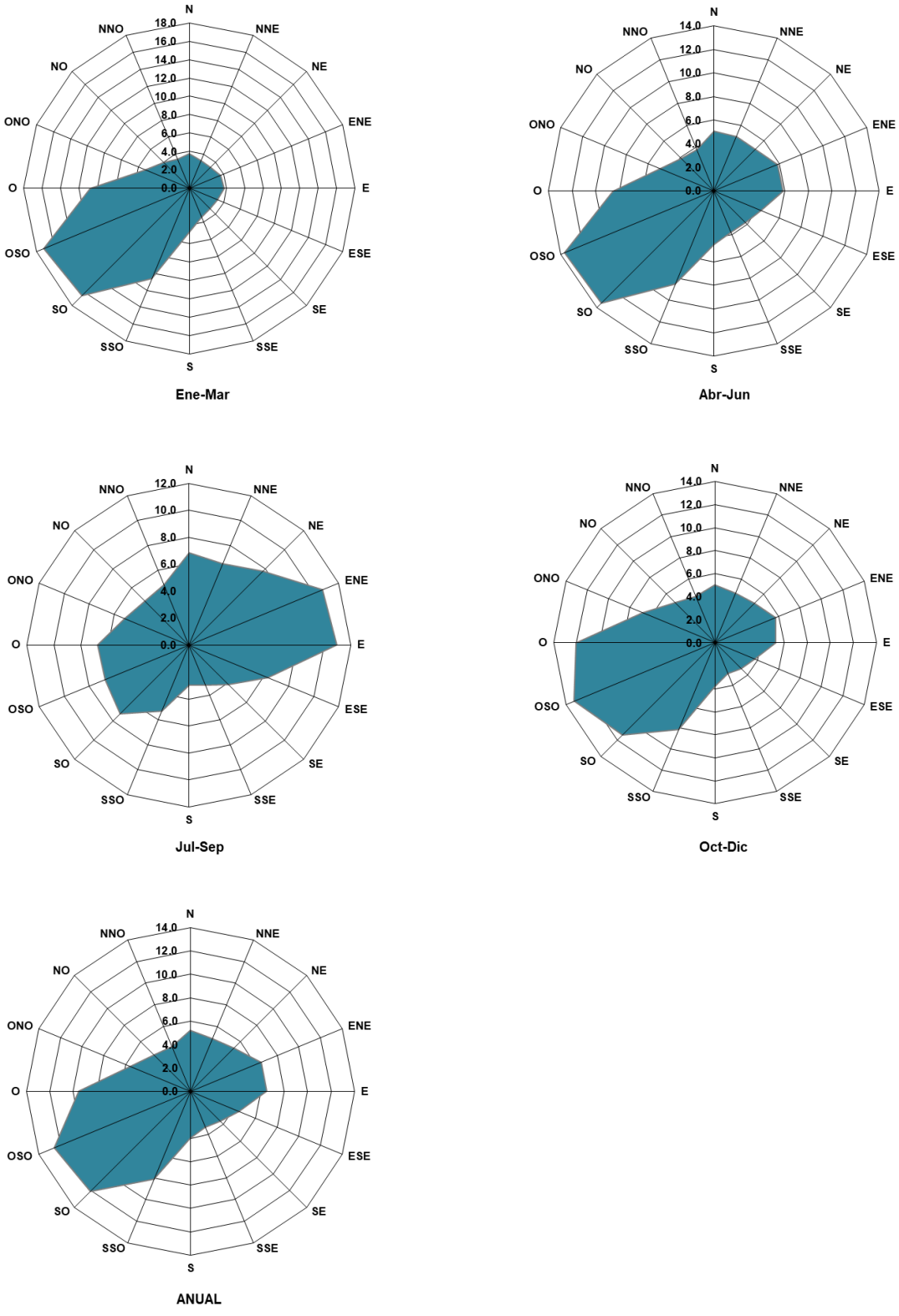


Figura 309. Frecuencia de dirección del viento (%) trimestral de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Cuadro 344. Estadísticas climatológicas mensuales de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.5	23.0	25.3	27.6	28.9	27.7	25.8	26.1	24.5	24.6	22.6	21.3	24.8
Temperatura máxima maximorum (°C)	26.6	30.2	31.7	32.1	34.8	33.9	32.2	30.6	29.9	29.9	28.7	27.6	34.8
Temperatura mínima media (°C)	2.5	3.9	5.9	8.2	10.6	12.5	12.0	11.9	11.3	8.0	4.5	2.9	7.8
Temperatura mínima minimorum (°C)	-6.1	-3.5	-4.9	0.3	3.8	7.2	6.2	7.6	4.4	-4.7	-7.9	-9.3	-9.3
Temperatura media (°C)	11.3	13.5	15.9	18.5	20.1	19.8	18.5	18.5	17.3	15.9	13.2	11.7	16.2
Oscilación térmica (°C)	18.1	19.0	19.4	19.4	18.2	15.3	13.8	14.2	13.2	16.6	18.1	18.4	17.0
Precipitación acumulada media (mm)	11.2	15.1	9.2	2.3	24.2	59.1	94.3	69.2	85.4	31.0	11.9	11.2	424.1
Precipitación máxima maximorum en 24 horas (mm)	23.0	39.0	39.0	9.8	42.4	40.0	74.6	47.4	87.4	54.0	34.4	30.2	87.4
Número de días promedio con lluvia	3.6	3.8	3.2	2.6	5.4	9.2	12.3	10.1	9.6	5.8	3.9	3.2	72.6
Evapotranspiración acumulada potencial media (mm)	110.8	128.5	172.4	190.7	199.0	173.3	162.5	164.4	129.7	134.5	113.7	107.1	1786.6
Humedad máxima media (%)	81.8	77.1	71.3	67.0	76.3	88.1	93.4	93.6	95.9	93.7	90.7	84.6	84.5
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	23.0	18.9	15.0	12.6	15.8	27.2	35.7	35.6	42.8	32.9	27.2	23.6	25.9
Humedad mínima minimorum (%)	5.0	5.0	3.0	3.0	3.0	6.0	11.0	12.0	13.0	7.0	5.0	4.0	3.0
Humedad media (%)	50.9	44.6	38.2	34.0	41.6	57.6	66.6	66.7	73.1	65.2	59.6	53.0	54.3
Radiación global media día/mes (W/m^2)	18706.6	22532.0	25973.6	28306.4	28258.5	25972.4	24815.4	25013.5	21492.6	21606.1	19384.9	17761.9	23318.7
Radiación global media día/mes (kWh/m^2)	4.7	5.6	6.5	7.1	7.1	6.5	6.2	6.3	5.4	5.4	4.8	4.4	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.8	20.3	23.4	25.5	25.4	23.4	22.3	22.5	19.3	19.4	17.4	16.0	21.0
Velocidad del viento máxima media (km/h)	18.6	19.7	21.9	22.9	22.6	24.0	23.0	21.5	17.2	15.5	15.5	16.7	19.9
Velocidad del viento máxima maximorum (km/h)	42.9	43.1	55.4	50.3	49.8	46.6	41.9	43.8	50.8	34.5	36.2	48.8	55.4
Velocidad del viento media (km/h)	6.6	7.1	8.2	8.5	8.1	9.3	8.7	8.2	6.5	5.7	5.5	5.7	7.3
Dirección dominante del viento	ENE	SSO	SSO	SSO	E	E	E	E	E	ENE	ENE	ENE	E

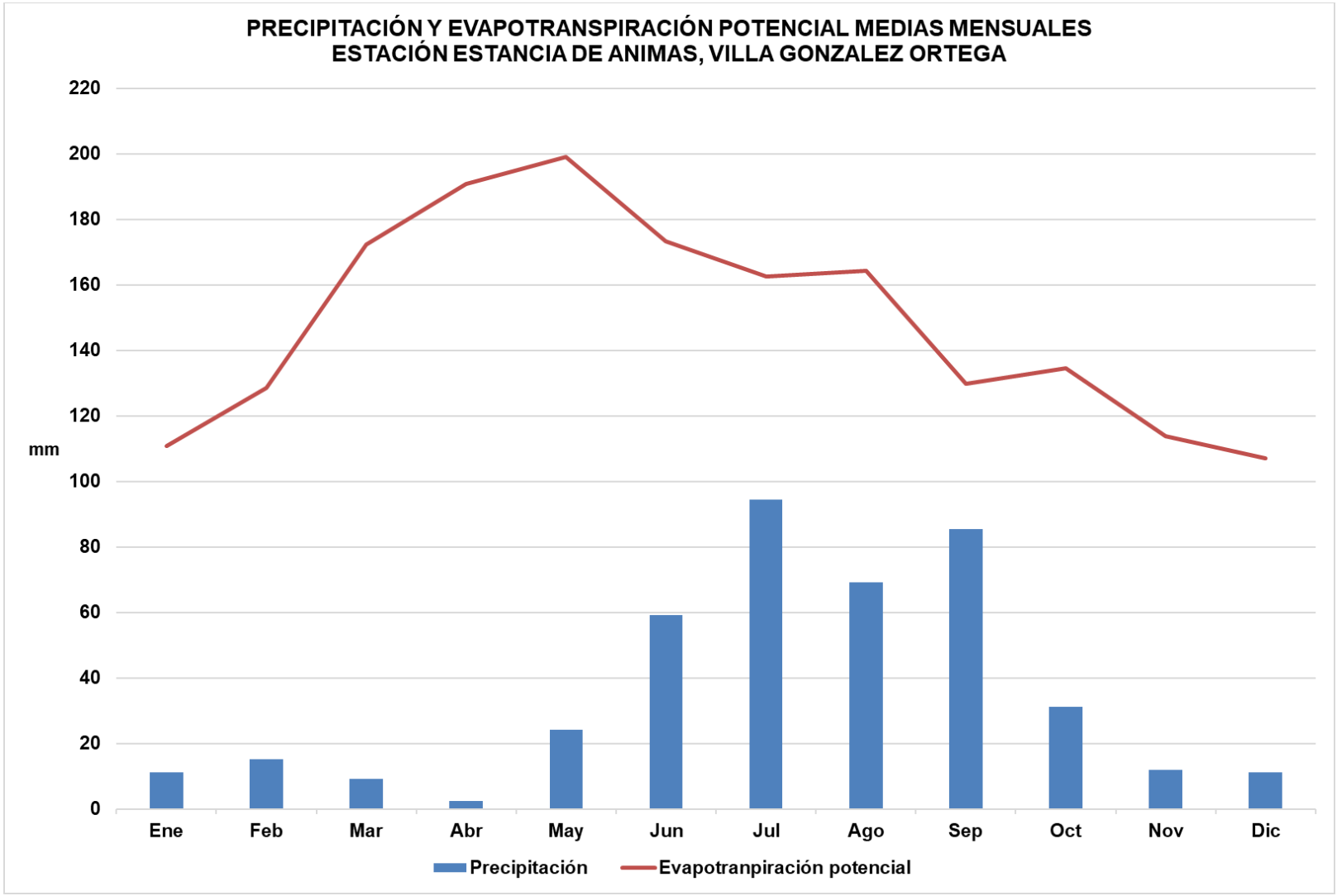


Figura 310. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Estancia de Ánimas, Villa González Ortega (2005-2022).

7.19. Estación: La Victoria, Pinos

Cuadro 345. Temperatura máxima media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.2	9.9	11.6	14.6	15.9	15.5	14.5	14.7	14.0	12.8	10.0	8.6	12.5
01	7.6	9.2	10.7	13.6	15.0	14.9	14.0	14.1	13.6	12.2	9.3	7.9	11.8
02	7.0	8.6	10.1	12.7	14.2	14.4	13.5	13.7	13.3	11.7	8.9	7.4	11.3
03	6.5	8.0	9.5	12.0	13.5	13.9	13.2	13.3	12.9	11.3	8.4	7.0	10.8
04	6.1	7.6	8.9	11.4	13.0	13.5	12.8	13.0	12.6	11.0	8.0	6.6	10.4
05	5.8	7.1	8.4	10.8	12.5	13.1	12.5	12.7	12.4	10.7	7.7	6.2	10.0
06	5.4	6.7	8.1	10.3	12.1	12.8	12.3	12.4	12.3	10.4	7.5	5.9	9.7
07	5.6	7.3	10.2	11.2	13.0	13.3	12.6	12.6	12.3	10.8	9.0	6.5	10.4
08	9.2	11.3	13.8	14.9	16.3	15.4	14.5	14.5	13.8	13.0	12.7	10.7	13.3
09	11.9	13.9	16.2	17.5	18.6	17.3	16.2	16.4	15.5	15.3	14.9	13.1	15.6
10	13.8	16.0	18.4	19.8	20.8	19.2	17.8	18.1	17.1	17.2	16.7	15.1	17.5
11	15.6	17.8	20.2	21.8	22.8	20.9	19.3	19.6	18.5	18.8	18.2	16.7	19.2
12	16.9	19.2	21.6	23.4	24.4	22.4	20.6	21.0	19.8	20.1	19.3	18.0	20.5
13	17.8	20.2	22.5	24.6	25.6	23.4	21.5	22.0	20.7	21.1	19.9	18.8	21.5
14	18.3	20.7	23.1	25.4	26.4	24.1	22.2	22.6	21.2	21.6	20.2	19.1	22.1
15	18.5	20.9	23.2	25.8	26.7	24.4	22.5	22.9	21.4	21.8	20.2	19.2	22.3
16	18.1	20.7	23.0	25.7	26.6	24.2	22.5	22.9	21.3	21.6	19.6	18.7	22.1
17	17.2	19.9	22.2	25.2	26.1	23.8	22.2	22.4	20.8	20.8	18.3	17.6	21.4
18	15.3	18.4	20.6	24.3	25.1	22.9	21.3	21.6	19.8	19.5	15.9	15.3	20.0
19	12.8	15.8	18.2	22.8	23.7	21.7	20.1	20.2	18.4	17.5	13.8	13.0	18.2
20	11.5	14.0	16.1	20.4	21.6	20.0	18.5	18.5	16.7	15.7	12.7	11.8	16.4
21	10.5	12.8	14.7	18.3	19.5	18.4	17.0	17.1	15.7	14.7	11.9	10.9	15.1
22	9.7	11.9	13.7	16.8	18.1	17.2	15.9	16.1	15.0	13.9	11.2	10.1	14.1
23	9.0	11.0	12.7	15.7	16.9	16.2	15.1	15.3	14.4	13.3	10.6	9.3	13.3
Media	11.6	13.7	15.7	18.3	19.5	18.4	17.2	17.4	16.4	15.7	13.5	12.2	15.8

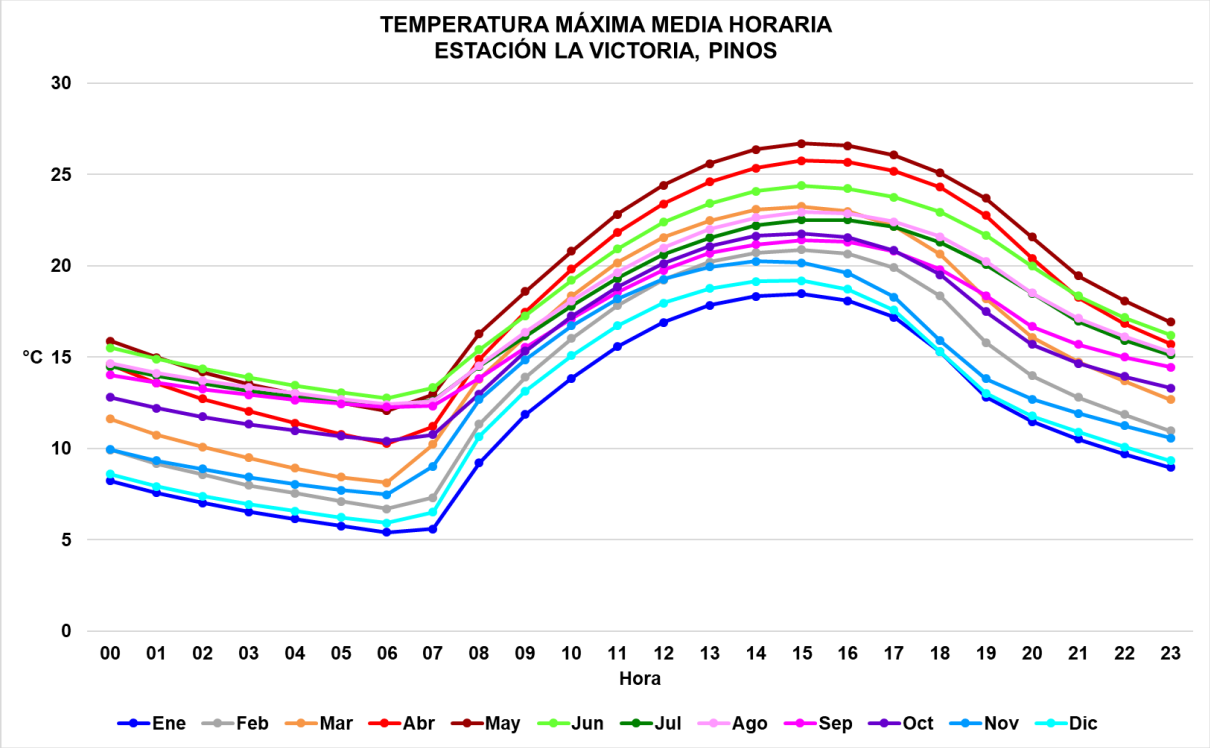


Figura 311. Temperatura máxima media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 346. Temperatura máxima maximorum (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.2	17.2	20.1	21.2	22.5	21.0	19.8	18.4	18.1	18.6	16.2	15.0	22.5
01	14.3	17.7	19.0	19.9	21.2	20.5	19.1	17.6	17.0	17.3	15.7	14.5	21.2
02	13.6	17.4	16.6	18.5	20.7	20.2	17.9	17.1	16.1	17.1	14.8	13.2	20.7
03	12.5	15.3	16.6	18.1	20.3	19.5	16.9	16.4	16.1	17.0	14.4	12.7	20.3
04	11.9	14.8	16.1	17.2	19.2	18.6	16.8	16.8	15.9	16.4	14.3	12.5	19.2
05	11.5	14.7	15.4	17.3	18.9	17.2	16.7	15.9	15.7	15.8	14.0	12.7	18.9
06	12.5	13.9	15.5	16.9	18.7	17.1	16.8	15.4	15.1	15.8	13.9	12.9	18.7
07	14.1	17.3	18.8	19.5	22.4	18.7	16.8	15.9	16.0	16.9	16.8	16.9	22.4
08	18.4	21.3	21.7	22.3	24.4	23.6	18.8	19.4	19.7	19.8	20.5	20.4	24.4
09	20.1	23.0	23.3	25.3	25.6	24.6	21.1	21.5	21.8	21.6	22.3	22.1	25.6
10	21.8	24.8	25.3	27.5	27.5	25.4	23.4	23.7	23.3	23.8	23.8	24.4	27.5
11	23.3	26.2	27.6	28.8	29.4	27.0	25.3	25.3	25.0	24.8	25.0	24.5	29.4
12	24.6	27.7	29.1	30.5	30.9	28.9	26.7	27.5	25.6	26.1	26.0	25.1	30.9
13	25.9	28.4	30.0	30.6	31.6	29.8	28.9	27.4	26.8	27.4	26.2	26.0	31.6
14	26.0	28.8	30.7	31.1	32.3	30.8	29.6	28.7	27.9	27.6	26.5	26.2	32.3
15	26.1	28.8	30.7	31.1	32.5	31.4	29.6	29.4	28.4	28.0	26.9	25.9	32.5
16	25.7	28.5	31.0	31.4	33.6	31.8	29.4	28.7	28.4	27.4	25.8	25.4	33.6
17	24.3	27.5	30.1	30.9	32.4	31.6	28.7	27.7	27.3	27.4	24.8	23.3	32.4
18	22.0	25.9	28.8	30.4	32.5	31.4	28.7	27.4	26.7	27.0	22.4	21.5	32.5
19	19.6	23.0	26.2	29.4	31.0	30.6	27.4	26.3	25.1	25.3	20.5	18.4	31.0
20	18.3	21.1	24.1	26.8	29.0	29.0	25.4	24.5	22.2	22.5	19.1	17.4	29.0
21	17.2	20.1	22.6	24.4	26.4	25.5	23.5	22.4	21.1	21.5	18.5	17.0	26.4
22	16.4	18.7	21.5	23.3	24.8	23.2	21.9	21.1	19.6	20.1	17.6	15.8	24.8
23	16.0	17.9	20.8	22.3	24.8	22.3	20.9	19.4	18.8	19.5	16.8	15.3	24.8
Máx.	26.1	28.8	31.0	31.4	33.6	31.8	29.6	29.4	28.4	28.0	26.9	26.2	33.6

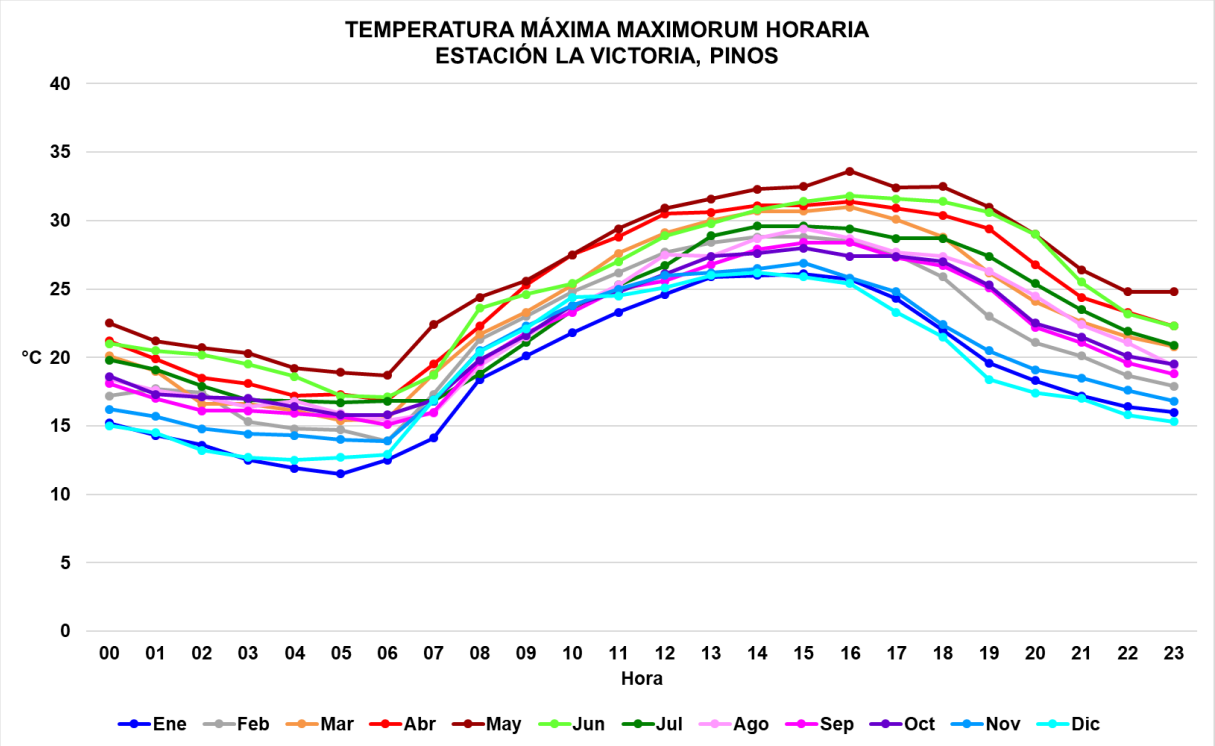


Figura 312. Temperatura máxima maximorum (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 347. Temperatura mínima media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.4	9.0	10.7	13.6	15.0	15.0	14.0	14.2	13.6	12.2	9.2	7.7	11.8
01	6.7	8.3	9.9	12.6	14.2	14.4	13.5	13.7	13.2	11.6	8.7	7.1	11.2
02	6.3	7.7	9.3	11.8	13.4	13.9	13.1	13.3	12.9	11.2	8.2	6.6	10.6
03	5.8	7.2	8.7	11.2	12.8	13.4	12.8	13.0	12.6	10.8	7.7	6.2	10.2
04	5.3	6.7	8.1	10.6	12.3	13.0	12.4	12.6	12.3	10.4	7.4	5.8	9.7
05	5.0	6.2	7.6	10.0	11.8	12.6	12.2	12.3	12.1	10.1	7.0	5.5	9.4
06	4.6	5.9	7.2	9.5	11.4	12.3	11.9	12.0	11.9	9.8	6.7	5.2	9.0
07	4.5	5.8	7.7	9.4	11.5	12.4	11.9	11.9	11.8	9.7	7.0	5.1	9.1
08	6.0	8.1	11.4	11.9	13.8	13.8	13.0	12.8	12.4	10.9	10.1	7.3	11.0
09	10.0	12.1	14.4	15.6	16.9	15.8	14.9	15.0	14.2	13.6	13.2	11.4	13.9
10	12.3	14.4	16.7	18.1	19.1	17.7	16.5	16.7	15.8	15.8	15.3	13.6	16.0
11	14.2	16.5	18.8	20.3	21.3	19.6	18.1	18.4	17.3	17.6	17.0	15.4	17.9
12	15.8	18.1	20.4	22.2	23.2	21.1	19.5	19.8	18.6	19.0	18.3	17.0	19.4
13	17.0	19.3	21.6	23.6	24.5	22.3	20.5	20.9	19.6	20.1	19.1	18.0	20.5
14	17.6	20.0	22.2	24.5	25.4	23.0	21.2	21.6	20.1	20.7	19.5	18.5	21.2
15	17.8	20.3	22.5	24.9	25.6	23.3	21.5	21.9	20.4	20.9	19.5	18.6	21.4
16	17.3	20.0	22.2	24.9	25.5	23.1	21.5	21.9	20.3	20.6	18.6	17.9	21.2
17	15.9	18.8	21.0	24.3	25.0	22.7	21.1	21.4	19.8	19.7	16.6	16.0	20.2
18	13.3	16.5	18.9	23.1	23.9	21.8	20.2	20.5	18.7	18.0	14.2	13.4	18.5
19	11.7	14.3	16.5	21.0	22.1	20.4	18.8	18.9	17.0	16.0	12.9	12.0	16.8
20	10.6	13.0	14.9	18.7	19.8	18.6	17.2	17.4	15.8	14.8	11.9	10.9	15.3
21	9.7	12.0	13.8	17.0	18.2	17.3	16.1	16.3	15.1	14.0	11.2	10.0	14.2
22	8.9	11.0	12.8	15.8	17.1	16.3	15.2	15.4	14.5	13.3	10.5	9.2	13.3
23	8.1	10.0	11.7	14.7	16.0	15.6	14.6	14.7	14.0	12.7	9.8	8.4	12.5
Media	10.5	12.5	14.5	17.0	18.3	17.5	16.3	16.5	15.6	14.7	12.5	11.1	14.8

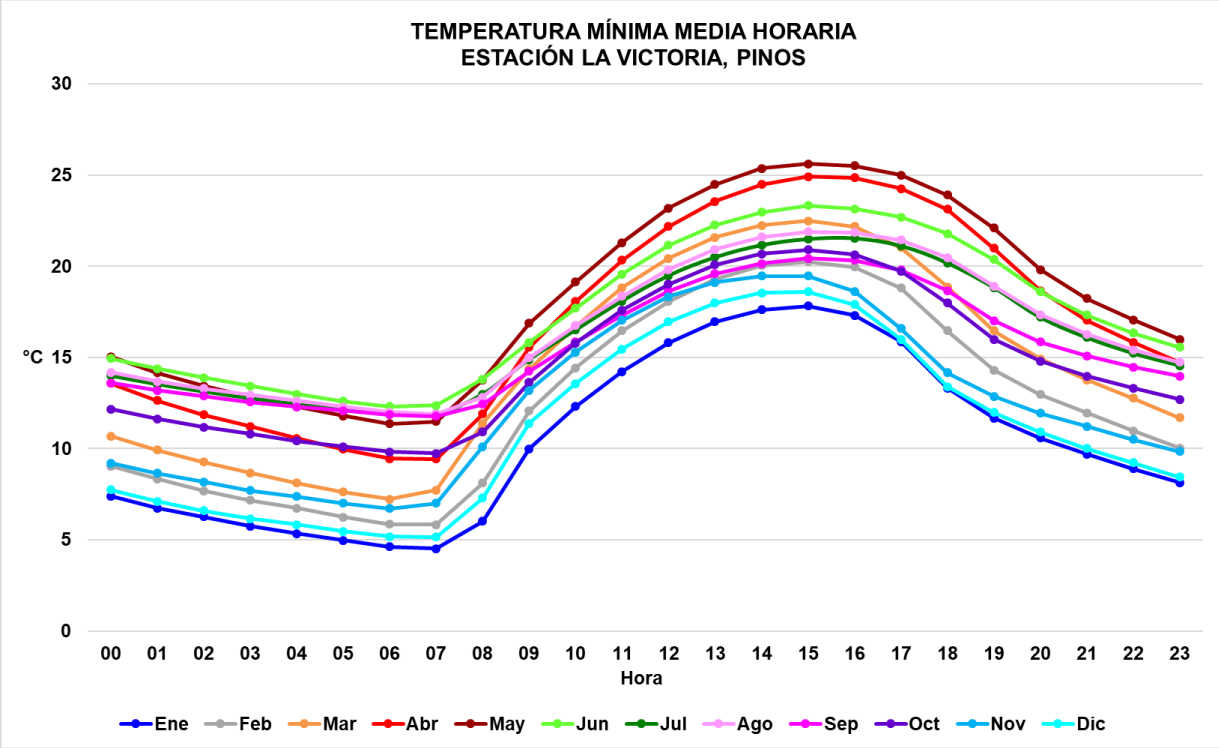


Figura 313 Temperatura mínima media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 348. Temperatura mínima minimorum (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-1.4	1.4	-0.6	5.2	8.1	10.8	10.4	11.0	8.6	3.0	-2.1	-2.6	-2.6
01	-1.7	-0.2	-0.8	5.1	8.1	10.6	10.0	10.3	7.5	3.0	-2.8	-2.7	-2.8
02	-2.8	-0.4	-0.6	4.7	7.3	10.4	9.5	9.6	7.0	2.3	-3.2	-4.0	-4.0
03	-3.5	-1.4	-0.9	3.6	5.7	9.5	8.5	9.3	5.6	2.5	-4.6	-5.7	-5.7
04	-4.3	-3.0	-2.2	3.4	4.7	8.7	8.5	8.7	5.0	1.7	-5.0	-6.5	-6.5
05	-4.9	-3.5	-3.5	2.6	4.6	8.7	8.2	8.8	4.9	1.5	-5.6	-6.7	-6.7
06	-5.1	-4.0	-4.0	3.0	4.0	8.1	7.6	7.7	4.9	0.1	-5.7	-7.5	-7.5
07	-4.9	-3.6	-3.3	1.7	3.8	8.0	7.7	7.7	4.6	0.2	-5.8	-6.5	-6.5
08	-4.3	-2.3	-0.9	1.9	5.6	10.4	9.6	9.3	6.0	0.8	-1.1	-4.0	-4.3
09	-2.2	0.2	0.0	7.2	6.9	11.1	11.1	11.1	8.1	5.9	-0.6	0.9	-2.2
10	0.3	3.5	0.5	8.5	7.4	11.4	11.3	12.4	10.4	8.0	0.4	3.3	0.3
11	2.1	5.3	1.2	10.4	9.0	12.8	12.7	13.3	12.1	8.4	1.0	3.7	1.0
12	1.2	6.0	3.0	11.1	11.3	12.1	13.8	13.2	12.7	9.1	2.1	1.9	1.2
13	0.5	5.5	1.2	11.8	12.8	12.9	12.9	14.6	13.5	9.7	3.3	0.3	0.3
14	-0.1	5.6	-0.2	13.2	15.3	13.5	13.4	10.3	11.2	8.7	5.2	-0.3	-0.3
15	-0.1	5.4	-0.8	12.8	11.0	13.0	12.8	10.7	11.0	9.3	5.5	-1.4	-1.4
16	0.1	5.1	-0.5	12.7	12.6	13.1	12.6	12.2	12.1	7.9	5.3	-2.2	-2.2
17	0.5	4.5	0.0	9.9	11.2	8.5	12.2	11.2	11.3	6.9	4.1	-2.2	-2.2
18	0.5	4.1	-0.1	9.4	10.5	11.1	9.4	10.4	10.5	6.3	3.2	-2.2	-2.2
19	-0.8	3.8	-1.4	9.0	9.8	11.6	11.9	12.3	10.1	6.0	3.0	-2.2	-2.2
20	-1.2	3.7	-2.5	8.2	8.7	10.8	11.7	11.9	9.8	5.7	2.7	-2.3	-2.5
21	-1.3	3.3	-2.8	7.6	8.2	11.7	11.6	12.2	9.6	4.4	2.5	-2.5	-2.8
22	-1.5	2.0	-2.4	7.1	8.4	11.4	11.5	11.8	9.0	3.7	1.2	-2.8	-2.8
23	-1.6	1.5	-0.5	5.6	8.0	10.9	11.5	11.5	8.9	3.2	0.0	-2.0	-2.0
Mín.	-5.1	-4.0	-4.0	1.7	3.8	8.0	7.6	7.7	4.6	0.1	-5.8	-7.5	-7.5

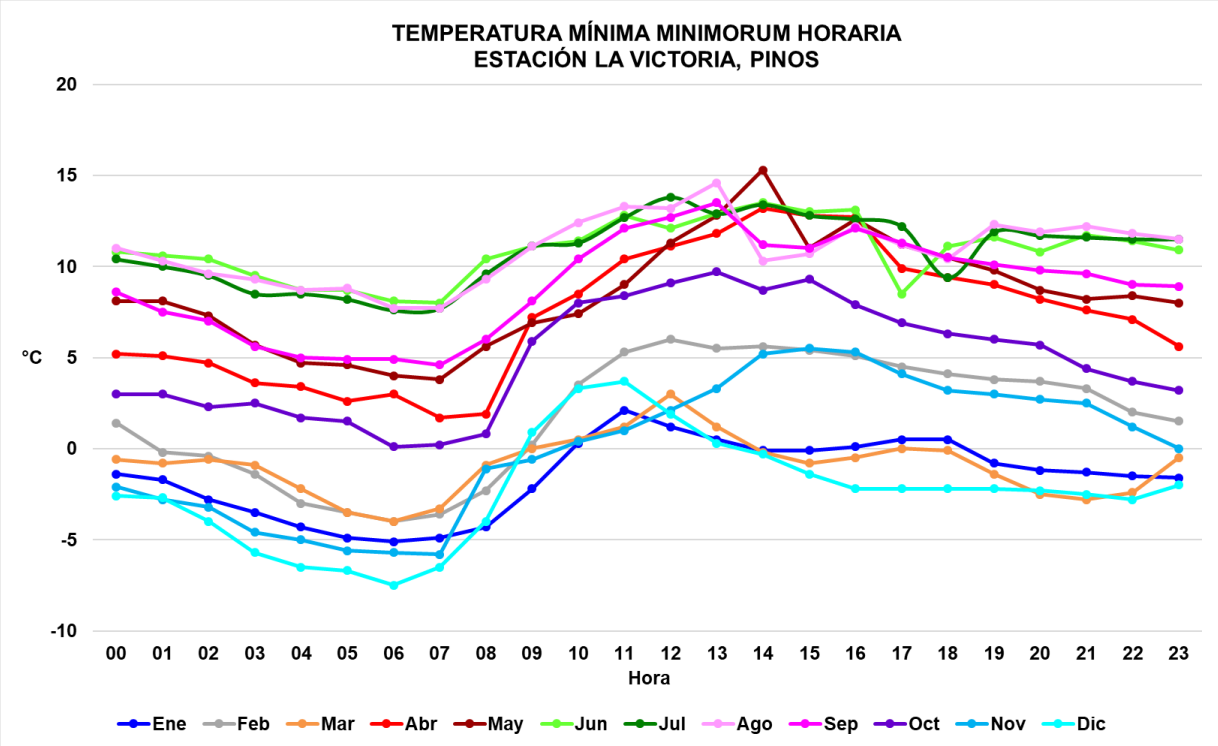


Figura 314. Temperatura mínima minimorum (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 349. Temperatura media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.8	9.5	11.1	14.1	15.5	15.2	14.2	14.4	13.8	12.5	9.6	8.2	12.2
01	7.2	8.8	10.3	13.1	14.6	14.6	13.8	13.9	13.4	11.9	9.0	7.5	11.5
02	6.6	8.1	9.7	12.3	13.8	14.1	13.3	13.5	13.1	11.5	8.5	7.0	11.0
03	6.1	7.6	9.1	11.6	13.2	13.7	13.0	13.1	12.7	11.1	8.1	6.5	10.5
04	5.7	7.1	8.5	11.0	12.7	13.2	12.6	12.8	12.5	10.7	7.7	6.2	10.1
05	5.4	6.7	8.0	10.4	12.1	12.8	12.4	12.5	12.3	10.4	7.4	5.8	9.7
06	5.0	6.3	7.7	9.9	11.7	12.5	12.1	12.2	12.1	10.1	7.1	5.5	9.3
07	5.0	6.5	8.9	10.2	12.2	12.8	12.2	12.2	12.0	10.2	7.9	5.7	9.7
08	7.6	9.8	12.7	13.4	15.1	14.6	13.8	13.7	13.1	11.9	11.5	9.0	12.2
09	11.0	13.0	15.3	16.5	17.7	16.5	15.5	15.7	14.9	14.5	14.0	12.3	14.7
10	13.1	15.2	17.5	18.9	20.0	18.5	17.1	17.4	16.5	16.5	16.0	14.3	16.8
11	14.9	17.2	19.5	21.1	22.1	20.3	18.7	19.0	17.9	18.2	17.6	16.1	18.5
12	16.4	18.7	21.0	22.8	23.8	21.8	20.1	20.4	19.2	19.6	18.8	17.5	20.0
13	17.4	19.8	22.0	24.1	25.0	22.8	21.0	21.5	20.1	20.6	19.5	18.4	21.0
14	18.0	20.4	22.7	24.9	25.9	23.5	21.7	22.1	20.7	21.2	19.9	18.8	21.6
15	18.1	20.6	22.9	25.3	26.2	23.9	22.0	22.4	20.9	21.3	19.8	18.9	21.9
16	17.7	20.3	22.6	25.3	26.1	23.7	22.0	22.4	20.8	21.1	19.1	18.3	21.6
17	16.6	19.4	21.6	24.7	25.5	23.2	21.7	21.9	20.3	20.3	17.5	16.8	20.8
18	14.3	17.5	19.8	23.7	24.5	22.4	20.8	21.0	19.3	18.7	15.0	14.3	19.3
19	12.2	15.0	17.3	21.9	22.9	21.0	19.5	19.6	17.7	16.7	13.3	12.5	17.5
20	11.0	13.5	15.5	19.5	20.7	19.3	17.8	17.9	16.2	15.2	12.3	11.4	15.9
21	10.1	12.4	14.2	17.6	18.8	17.8	16.5	16.7	15.4	14.3	11.6	10.5	14.7
22	9.3	11.4	13.2	16.3	17.6	16.7	15.6	15.8	14.7	13.6	10.9	9.7	13.7
23	8.5	10.5	12.2	15.2	16.5	15.9	14.8	15.0	14.2	13.0	10.2	8.9	12.9
Media	11.0	13.1	15.1	17.7	18.9	18.0	16.8	17.0	16.0	15.2	13.0	11.7	15.3

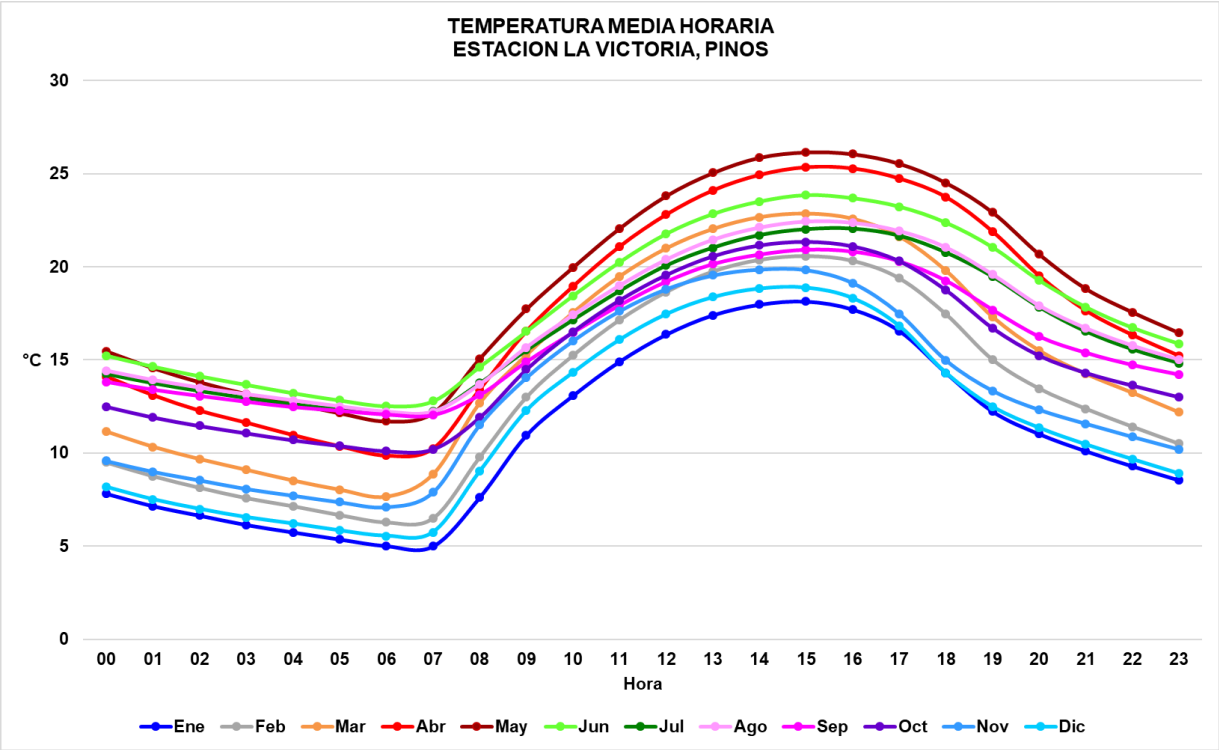


Figura 315. Temperatura media (˚C) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 350. Precipitación media (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.5	0.4	1.2	0.2	2.7	4.1	8.1	3.8	4.6	1.5	0.5	0.2	27.8
01	0.4	0.6	0.8	0.0	1.0	4.3	5.5	3.2	3.9	1.3	0.4	0.1	21.5
02	0.2	0.4	0.3	0.2	1.2	4.6	3.8	3.7	3.8	1.5	0.3	0.2	20.3
03	0.4	0.7	0.2	0.0	0.7	4.1	2.8	2.6	3.4	0.6	0.5	0.3	16.1
04	0.2	0.6	0.3	0.0	0.2	2.9	2.3	1.7	2.1	0.9	0.7	0.3	12.2
05	0.1	0.3	0.2	0.0	0.3	3.9	1.8	1.2	3.1	0.8	0.3	0.1	12.1
06	0.1	0.2	0.2	0.0	0.4	1.3	1.1	0.6	2.8	0.6	0.3	0.3	8.1
07	0.2	0.7	0.1	0.0	0.1	0.7	1.2	0.4	2.8	0.4	0.2	0.2	7.0
08	0.2	0.5	0.1	0.0	0.0	0.7	0.7	0.4	1.7	0.3	0.3	0.2	5.0
09	0.1	0.3	0.1	0.0	0.1	0.2	0.6	0.1	0.3	0.4	0.2	0.4	2.8
10	0.1	0.3	0.3	0.1	0.0	0.1	1.1	0.1	0.5	0.2	0.2	0.2	3.2
11	0.2	0.3	0.4	0.0	0.0	0.2	0.8	0.1	0.6	0.1	0.2	0.5	3.7
12	0.2	0.3	0.2	0.0	0.1	0.8	0.8	0.0	0.5	0.1	0.3	0.5	3.9
13	0.1	0.3	0.5	0.0	0.1	1.1	1.9	1.2	1.8	0.1	0.5	0.3	7.9
14	0.0	0.4	0.3	0.0	0.1	2.4	4.3	4.7	3.9	2.9	0.9	0.4	20.2
15	0.3	0.5	0.7	0.2	2.4	4.4	7.2	2.5	5.5	2.5	1.4	0.4	27.7
16	0.3	0.4	0.4	0.6	1.7	5.5	4.2	4.8	4.9	1.8	0.9	0.6	26.1
17	0.5	1.2	0.5	0.5	1.8	5.7	5.3	5.9	5.4	1.9	1.3	0.4	30.3
18	0.5	1.1	0.5	1.0	1.9	4.8	7.0	7.0	3.3	4.0	0.8	0.2	32.1
19	0.2	1.0	0.5	0.9	1.9	4.6	7.0	5.6	5.6	1.8	0.5	0.2	29.7
20	0.6	0.7	1.4	0.5	1.6	5.0	7.6	6.2	4.9	2.9	0.6	0.1	32.2
21	1.1	0.9	0.9	0.3	4.0	4.0	7.2	3.0	5.1	2.3	1.2	0.1	30.1
22	0.8	0.7	0.6	0.4	2.0	3.3	6.2	4.1	4.3	2.1	1.3	0.1	26.0
23	0.7	0.6	0.7	0.2	2.6	3.8	5.7	2.8	3.5	2.1	0.5	0.3	23.6
Suma	8.3	13.3	11.2	5.3	27.0	72.2	94.0	65.9	78.2	33.3	14.4	6.5	429.5

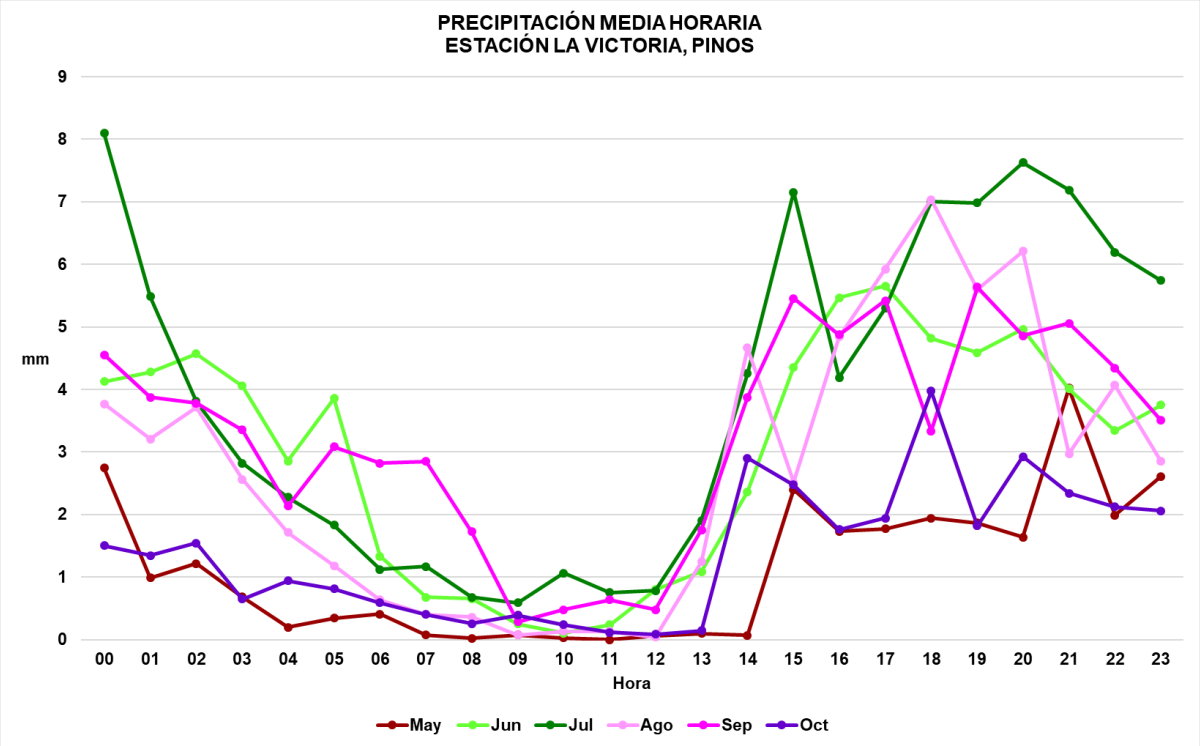


Figura 316. Precipitación media (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 351. Precipitación máxima maximorum (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.4	3.2	12.2	1.6	29.2	11.4	23.4	10.8	19.6	6.4	4.6	1.0	29.2
01	2.0	2.8	5.8	0.0	3.0	9.4	14.2	8.2	8.8	8.0	1.8	0.8	14.2
02	2.0	2.8	3.0	3.8	8.4	14.6	12.4	30.0	23.8	9.0	1.2	1.4	30.0
03	3.2	3.2	2.2	0.0	7.4	17.2	6.6	8.0	10.2	2.6	4.2	1.8	17.2
04	1.4	3.8	3.2	0.0	1.4	11.0	6.0	5.2	5.0	6.8	3.2	3.2	11.0
05	1.2	1.2	2.2	0.0	1.6	29.4	9.4	5.2	13.4	5.6	2.0	0.6	29.4
06	1.0	1.4	1.2	0.0	7.8	4.2	2.6	3.4	7.8	2.6	1.2	1.4	7.8
07	1.6	4.4	1.6	0.0	0.8	3.2	5.0	1.8	15.4	2.2	1.6	1.6	15.4
08	1.8	4.4	0.6	0.2	0.2	3.4	4.2	2.0	11.6	2.4	1.6	2.0	11.6
09	1.0	2.8	0.6	0.4	1.6	1.8	5.6	0.8	1.4	5.2	1.0	2.8	5.6
10	1.2	2.2	2.0	2.0	0.4	0.8	9.4	0.6	4.6	1.6	1.6	1.4	9.4
11	2.4	1.4	3.2	0.4	0.0	2.0	9.8	2.4	5.4	1.4	1.4	7.8	9.8
12	2.4	1.2	2.2	0.6	1.2	10.2	8.0	0.4	2.8	0.8	2.2	3.2	10.2
13	1.0	2.6	3.2	0.4	0.8	3.6	7.8	13.4	8.8	1.4	4.0	1.4	13.4
14	0.4	2.6	3.0	0.2	0.8	8.6	20.2	64.8	17.8	21.0	12.0	3.0	64.8
15	2.0	3.0	9.2	3.2	16.2	26.4	25.4	11.2	26.6	26.0	15.4	3.6	26.6
16	1.0	2.0	4.8	7.0	9.0	16.0	10.6	11.8	14.8	8.2	4.2	7.0	16.0
17	1.8	5.2	2.2	2.2	8.6	19.0	21.4	18.0	18.0	12.2	6.0	2.8	21.4
18	3.6	5.0	4.0	9.2	9.4	22.6	18.0	23.2	7.2	21.4	6.2	1.0	23.2
19	1.4	3.6	4.0	9.0	7.0	24.0	22.4	14.4	16.6	9.4	3.8	2.2	24.0
20	2.6	2.8	11.8	7.8	3.0	40.4	43.2	17.0	21.6	23.4	4.0	1.4	43.2
21	9.4	4.2	6.8	3.8	26.0	11.8	17.4	6.0	31.2	7.4	8.2	1.6	31.2
22	6.4	3.0	3.4	6.4	12.8	13.2	15.4	32.0	14.6	16.6	8.8	1.0	32.0
23	4.0	3.6	7.4	1.2	20.0	15.2	13.6	7.2	11.0	9.2	3.2	1.6	20.0
Máx.	9.4	5.2	12.2	9.2	29.2	40.4	43.2	64.8	31.2	26.0	15.4	7.8	64.8

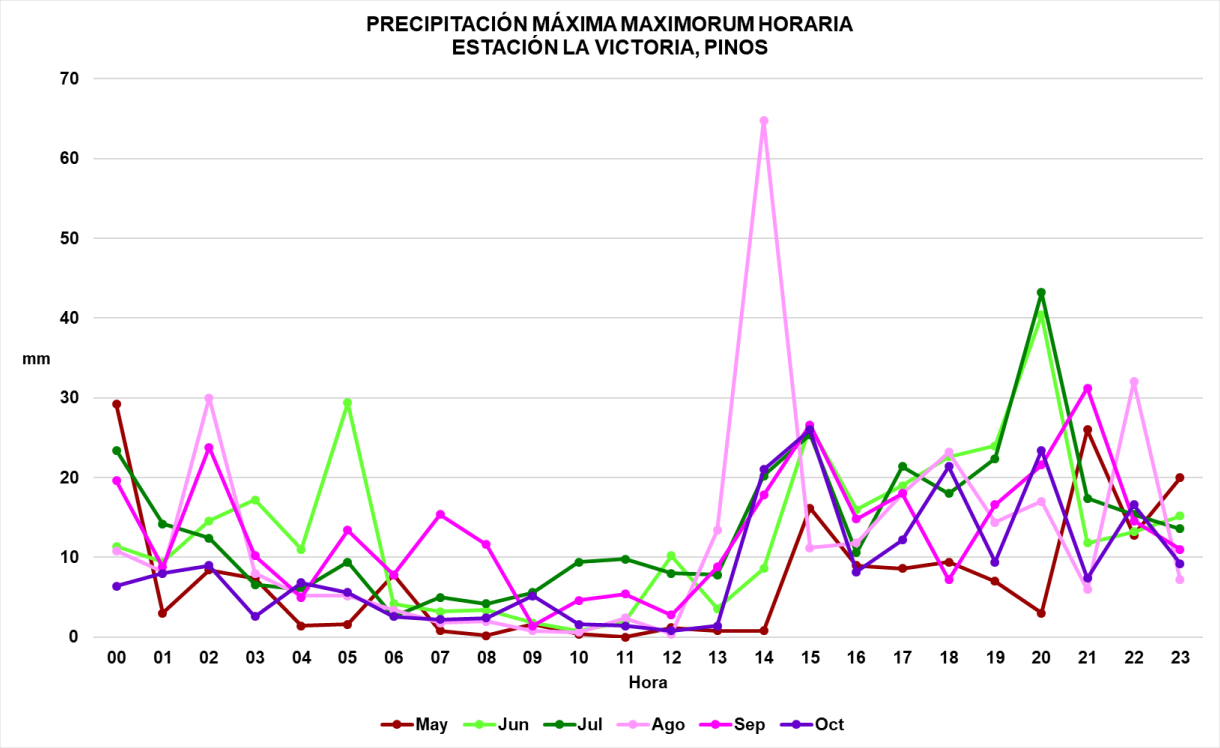


Figura 317. Precipitación máxima maximorum (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 352. Evapotranspiración potencial media (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.02	0.03	0.04	0.04	0.03	0.02	0.02	0.01	0.02	0.01	0.01	0.02
01	0.01	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.02
02	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.01
03	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01
04	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01
05	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
06	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
07	0.01	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01
08	0.02	0.05	0.09	0.06	0.06	0.04	0.03	0.02	0.01	0.02	0.06	0.03	0.04
09	0.10	0.15	0.22	0.17	0.18	0.14	0.12	0.11	0.09	0.10	0.15	0.12	0.14
10	0.21	0.27	0.36	0.32	0.32	0.27	0.22	0.23	0.20	0.22	0.27	0.22	0.26
11	0.31	0.39	0.49	0.47	0.47	0.39	0.34	0.35	0.30	0.34	0.37	0.32	0.38
12	0.38	0.47	0.57	0.59	0.59	0.49	0.44	0.46	0.40	0.43	0.43	0.40	0.47
13	0.43	0.51	0.61	0.66	0.65	0.55	0.50	0.52	0.45	0.48	0.45	0.43	0.52
14	0.43	0.51	0.60	0.68	0.66	0.55	0.51	0.54	0.46	0.50	0.42	0.42	0.52
15	0.39	0.47	0.54	0.65	0.63	0.53	0.51	0.52	0.44	0.47	0.36	0.36	0.49
16	0.32	0.39	0.45	0.57	0.56	0.48	0.46	0.48	0.39	0.40	0.28	0.28	0.42
17	0.22	0.28	0.33	0.47	0.46	0.41	0.40	0.40	0.30	0.29	0.16	0.17	0.33
18	0.12	0.16	0.20	0.34	0.34	0.31	0.30	0.30	0.20	0.21	0.10	0.11	0.22
19	0.06	0.09	0.13	0.28	0.25	0.21	0.19	0.22	0.14	0.11	0.04	0.05	0.15
20	0.03	0.05	0.08	0.15	0.16	0.16	0.14	0.13	0.06	0.06	0.03	0.03	0.09
21	0.03	0.04	0.05	0.08	0.09	0.09	0.07	0.07	0.03	0.04	0.03	0.03	0.05
22	0.02	0.04	0.05	0.05	0.06	0.06	0.05	0.05	0.02	0.03	0.02	0.02	0.04
23	0.02	0.03	0.04	0.04	0.05	0.04	0.03	0.03	0.01	0.02	0.02	0.02	0.03
Media/día /mes	3.18	4.01	4.93	5.75	5.68	4.84	4.37	4.49	3.56	3.78	3.25	3.08	4.24

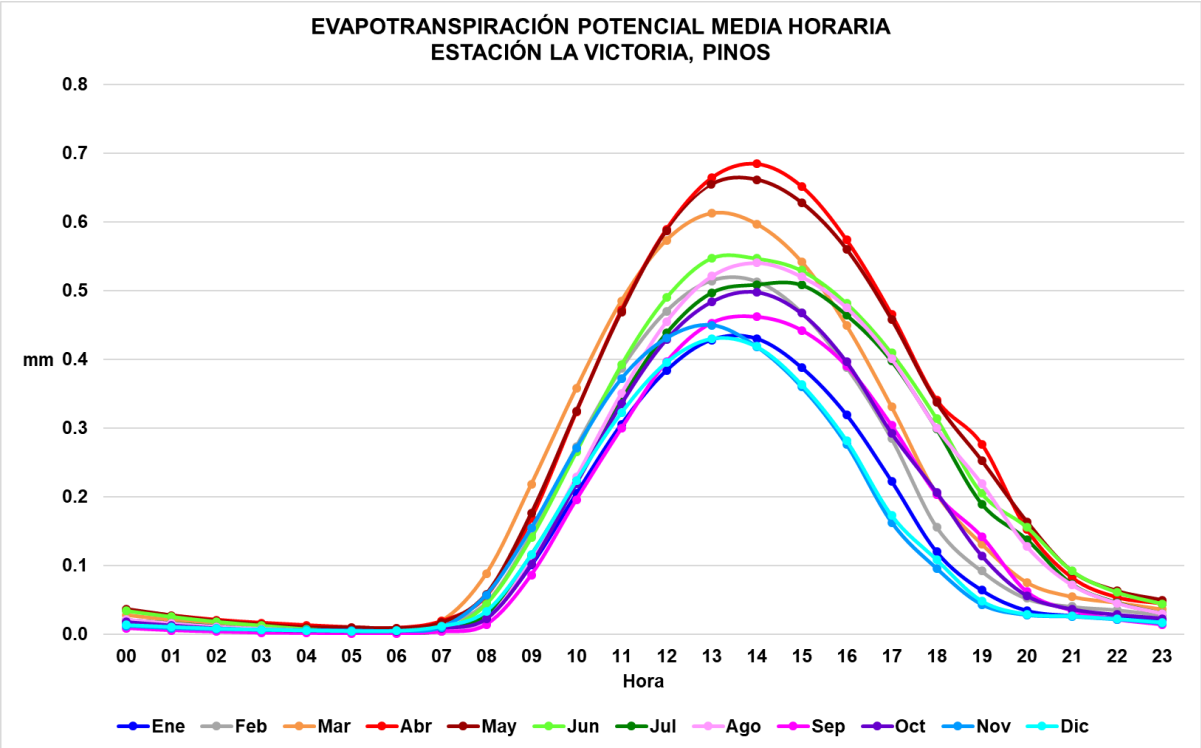


Figura 318. Evapotranspiración potencial media (mm) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 353. Humedad relativa media (%) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	60.5	53.5	50.3	43.4	57.5	77.1	83.4	83.5	87.9	78.7	72.5	61.6	67.5
01	63.3	56.7	53.5	47.2	60.6	79.5	85.4	85.5	89.6	81.2	74.9	64.5	70.2
02	65.5	59.4	56.1	50.6	63.4	81.9	87.3	87.2	90.9	83.4	76.5	67.0	72.4
03	67.7	61.5	58.4	53.5	66.2	83.9	88.9	88.5	91.9	84.9	78.1	69.0	74.4
04	69.3	63.4	60.5	56.1	68.1	85.8	90.3	89.9	92.7	85.7	79.1	70.8	76.0
05	70.7	65.1	61.8	58.4	69.1	87.1	91.1	91.3	93.1	86.2	80.1	72.3	77.2
06	72.1	66.2	62.8	59.9	70.0	87.9	91.5	92.0	93.5	86.6	80.7	73.2	78.0
07	72.5	66.2	59.7	58.9	68.5	86.6	90.9	91.6	93.4	86.2	78.6	73.3	77.2
08	66.1	58.0	49.7	51.3	60.2	79.5	85.2	86.0	89.9	81.2	67.9	64.9	70.0
09	56.5	48.5	41.8	42.0	50.7	70.6	77.2	76.9	82.3	71.9	58.3	54.7	61.0
10	48.9	40.9	34.4	33.9	42.5	61.6	69.7	68.5	74.9	63.3	50.5	47.2	53.0
11	42.0	35.1	28.8	27.3	35.1	53.8	62.8	61.4	68.3	56.5	44.3	40.5	46.3
12	36.7	30.7	24.8	22.7	29.3	47.4	57.0	55.6	63.0	50.9	39.7	35.4	41.1
13	33.0	27.5	22.0	19.7	25.6	42.9	53.0	51.0	59.0	46.8	37.0	32.0	37.5
14	30.8	25.6	20.3	17.9	22.9	40.0	49.9	48.2	56.7	44.2	35.6	30.0	35.2
15	30.0	24.8	19.6	16.9	22.3	38.9	48.5	46.8	55.1	43.2	35.3	29.2	34.2
16	30.7	24.8	19.8	16.9	22.4	39.3	47.9	46.5	55.1	43.5	37.0	30.2	34.5
17	33.2	26.6	21.5	17.7	23.4	40.6	49.2	48.1	57.0	45.8	41.9	33.8	36.6
18	38.9	30.5	25.2	19.3	25.9	43.2	52.5	51.1	61.0	51.3	50.3	40.2	40.8
19	44.7	36.2	30.6	22.6	30.0	48.0	57.2	56.7	67.6	59.2	56.7	45.5	46.3
20	48.9	40.8	35.5	27.3	36.3	55.0	64.2	64.2	74.6	66.0	61.0	49.4	51.9
21	52.0	44.1	39.4	32.0	43.2	62.5	71.3	71.0	79.3	70.6	64.0	52.5	56.8
22	54.7	46.9	42.7	36.3	49.0	69.5	77.1	77.0	82.9	73.7	66.7	55.4	61.0
23	57.6	49.9	46.4	39.8	54.4	74.6	81.2	81.3	85.7	76.2	69.3	58.2	64.5
Media	51.9	45.1	40.2	36.3	45.7	64.0	71.4	70.8	76.9	67.4	59.8	52.1	56.8

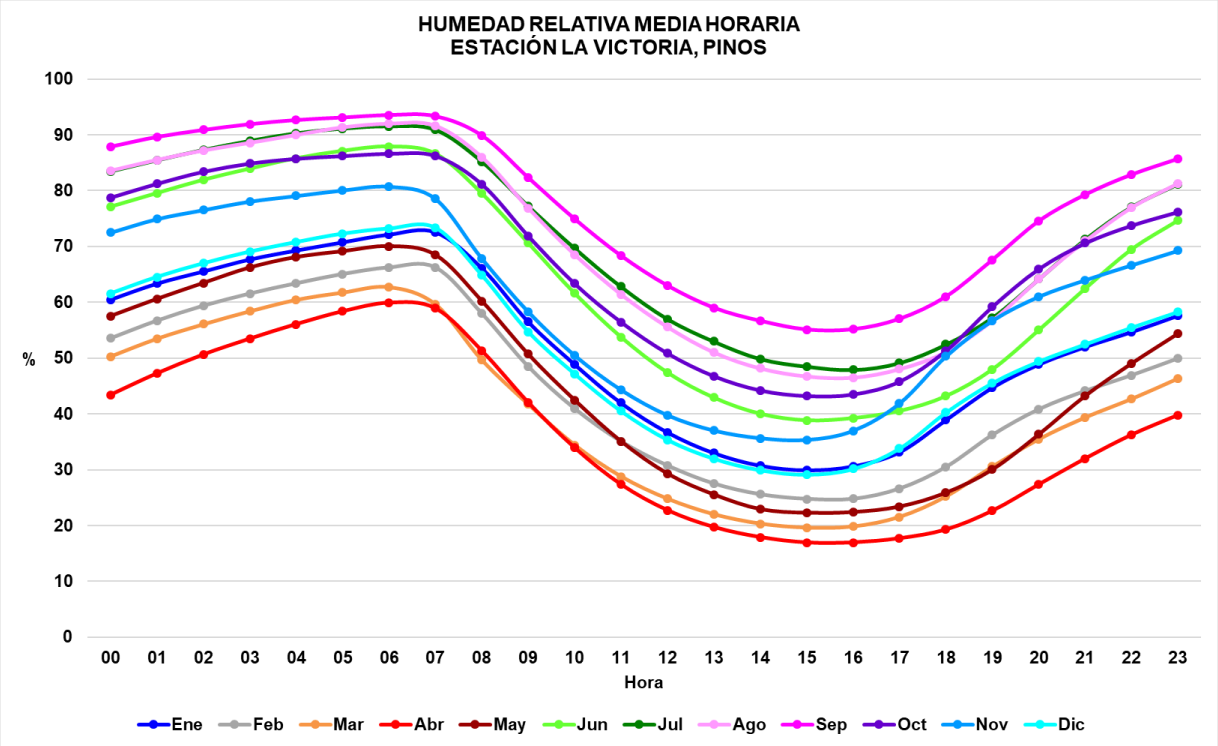


Figura 319. Humedad relativa media (%) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 354. Humedad relativa mínima minimorum (%) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	11.0	13.0	8.0	7.0	8.0	12.0	35.0	27.0	33.0	22.0	13.0	7.0	7.0
01	12.0	9.0	11.0	10.0	9.0	13.0	39.0	31.0	32.0	21.0	12.0	10.0	9.0
02	15.0	9.0	11.0	9.0	9.0	15.0	34.0	30.0	34.0	17.0	10.0	9.0	9.0
03	16.0	9.0	13.0	9.0	12.0	18.0	39.0	28.0	39.0	18.0	10.0	7.0	7.0
04	10.0	9.0	12.0	10.0	10.0	21.0	40.0	36.0	45.0	17.0	9.0	7.0	7.0
05	7.0	8.0	12.0	9.0	11.0	25.0	37.0	41.0	43.0	17.0	9.0	8.0	7.0
06	7.0	9.0	13.0	12.0	11.0	28.0	34.0	40.0	46.0	17.0	8.0	9.0	7.0
07	7.0	8.0	11.0	12.0	18.0	28.0	30.0	44.0	43.0	13.0	6.0	8.0	6.0
08	6.0	7.0	9.0	8.0	12.0	16.0	33.0	36.0	30.0	12.0	5.0	6.0	5.0
09	5.0	6.0	6.0	8.0	10.0	11.0	27.0	32.0	21.7	8.0	6.0	5.0	5.0
10	5.0	6.0	5.0	7.0	9.0	9.0	24.0	30.0	23.0	11.0	6.0	4.0	4.0
11	4.0	5.0	3.0	6.0	7.0	8.0	18.0	26.0	22.0	11.0	6.0	4.0	3.0
12	4.0	5.0	3.0	3.0	7.0	7.0	15.0	22.8	19.0	9.0	5.0	3.0	3.0
13	3.0	5.0	4.0	5.0	5.0	6.0	15.0	19.0	18.0	9.0	5.0	4.0	3.0
14	2.0	5.0	3.0	5.0	5.0	6.0	14.0	16.0	13.0	8.0	4.0	4.0	2.0
15	4.0	4.0	3.0	4.0	5.0	6.0	14.0	14.0	13.0	7.0	4.0	4.0	3.0
16	5.0	4.0	2.0	4.0	3.0	5.0	14.0	16.0	13.0	7.0	4.0	4.0	2.0
17	4.0	5.0	2.0	4.0	3.0	5.0	13.0	14.0	14.0	7.0	4.0	5.0	2.0
18	7.0	6.0	3.0	3.0	4.0	5.0	15.0	18.0	15.0	7.0	7.0	6.0	3.0
19	9.0	7.0	3.0	4.0	5.0	4.0	17.0	15.0	18.0	9.0	7.0	8.0	3.0
20	8.0	9.0	4.0	5.0	5.0	5.0	21.0	19.0	22.0	13.0	8.0	7.0	4.0
21	8.0	10.0	5.0	6.0	6.0	7.0	26.0	21.0	29.0	18.0	9.0	9.0	5.0
22	8.0	11.0	5.0	7.0	7.0	9.0	31.0	27.0	30.0	21.0	9.0	9.0	5.0
23	10.0	10.0	6.0	7.0	10.0	10.0	29.0	28.0	36.0	20.0	10.0	7.0	6.0
Mín.	2.0	4.0	2.0	3.0	3.0	4.0	13.0	14.0	13.0	7.0	4.0	3.0	2.0

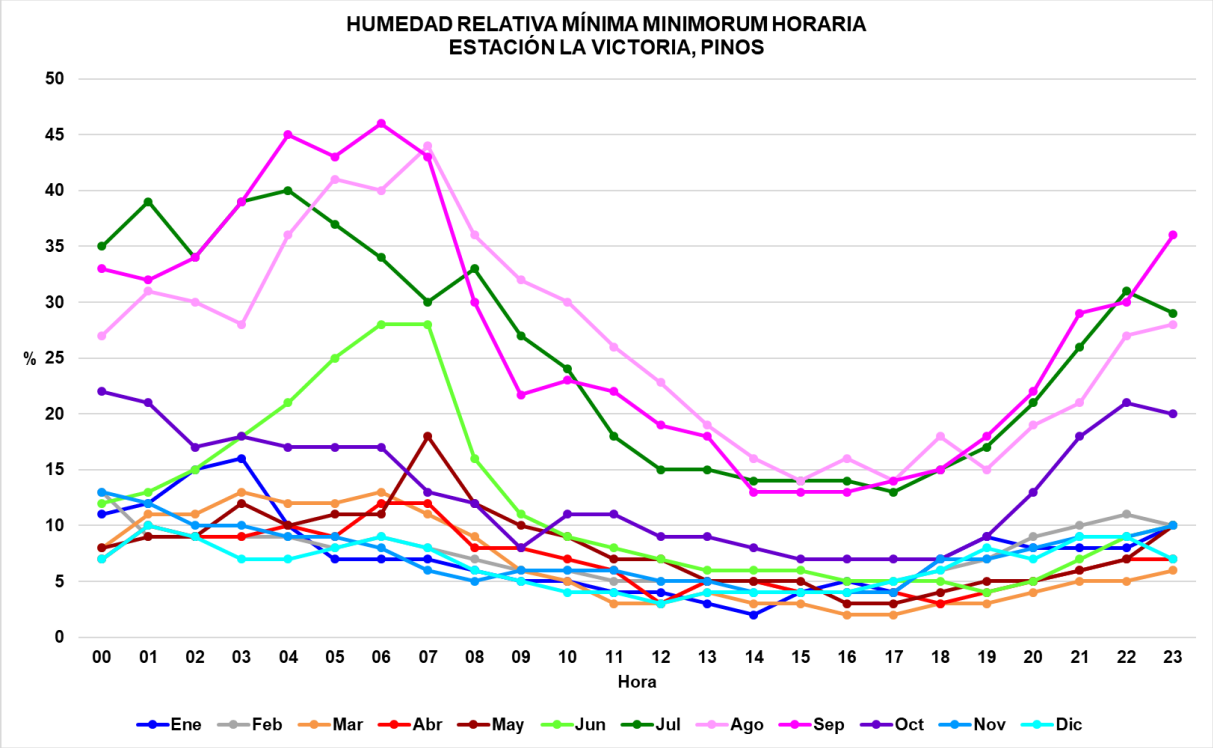


Figura 320. Humedad relativa mínima minimorum (%) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 355. Radiación solar global media horaria (W/m2) de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	16	6	9	7	3	2	0	2	6	1	5
07	57	113	300	174	194	165	117	86	57	80	217	98	138
08	521	713	1086	802	821	718	611	562	448	499	882	619	690
09	1263	1553	1979	1700	1684	1486	1327	1331	1162	1244	1653	1354	1478
10	1965	2316	2765	2562	2534	2281	2075	2114	1879	2008	2313	1994	2234
11	2484	2861	3320	3241	3202	2878	2694	2752	2491	2595	2712	2452	2807
12	2743	3131	3580	3646	3594	3218	3069	3172	2882	2934	2849	2664	3123
13	2707	3125	3496	3764	3634	3206	3093	3280	2949	3015	2686	2598	3129
14	2410	2840	3116	3545	3407	3075	3041	3119	2754	2825	2304	2248	2890
15	1912	2297	2562	3062	2945	2806	2784	2796	2429	2394	1758	1710	2455
16	1241	1603	1816	2400	2382	2299	2348	2306	1956	1774	1047	1035	1850
17	543	823	985	1629	1680	1741	1762	1706	1330	1067	339	358	1164
18	63	166	267	867	974	1073	1088	1010	656	399	11	16	549
19	0	1	5	244	349	438	444	351	138	36	0	0	167
20	0	0	0	10	27	50	54	24	1	0	0	0	14
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17908	21544	25294	27652	27438	25441	24509	24611	21134	20875	18777	17147	22694

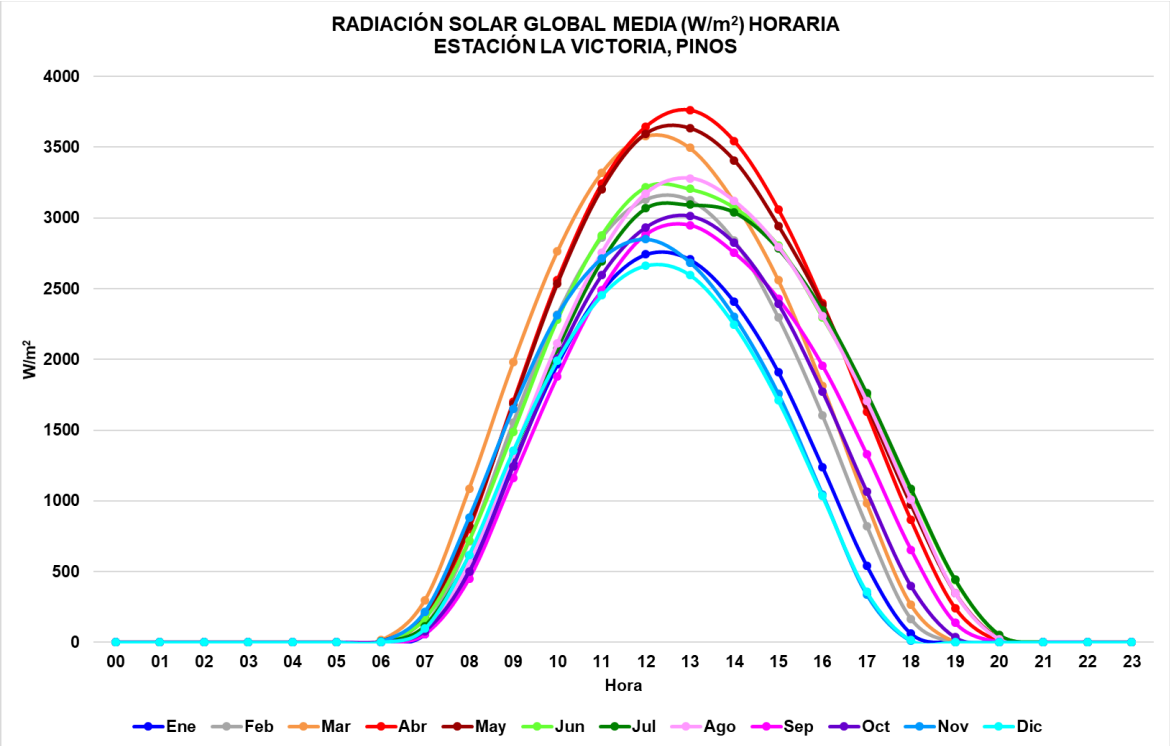


Figura 321. Radiación solar global media horaria (W/m2) de la estación La Victoria, Pinos (2002-2022).

Cuadro 356. Radiación solar global media horaria (kWh/m2) de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.04	0.05	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.13	0.18	0.27	0.20	0.21	0.18	0.15	0.14	0.11	0.12	0.22	0.15	0.17
09	0.32	0.39	0.49	0.43	0.42	0.37	0.33	0.33	0.29	0.31	0.41	0.34	0.37
10	0.49	0.58	0.69	0.64	0.63	0.57	0.52	0.53	0.47	0.50	0.58	0.50	0.56
11	0.62	0.72	0.83	0.81	0.80	0.72	0.67	0.69	0.62	0.65	0.68	0.61	0.70
12	0.69	0.78	0.89	0.91	0.90	0.80	0.77	0.79	0.72	0.73	0.71	0.67	0.78
13	0.68	0.78	0.87	0.94	0.91	0.80	0.77	0.82	0.74	0.75	0.67	0.65	0.78
14	0.60	0.71	0.78	0.89	0.85	0.77	0.76	0.78	0.69	0.71	0.58	0.56	0.72
15	0.48	0.57	0.64	0.77	0.74	0.70	0.70	0.70	0.61	0.60	0.44	0.43	0.61
16	0.31	0.40	0.45	0.60	0.60	0.57	0.59	0.58	0.49	0.44	0.26	0.26	0.46
17	0.14	0.21	0.25	0.41	0.42	0.44	0.44	0.43	0.33	0.27	0.08	0.09	0.29
18	0.02	0.04	0.07	0.22	0.24	0.27	0.27	0.25	0.16	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.06	0.09	0.11	0.11	0.09	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.48	5.39	6.32	6.91	6.86	6.36	6.13	6.15	5.28	5.22	4.69	4.29	5.67

Cuadro 357. Radiación solar global media horaria (Mj/m2/s) de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.10	0.27	0.16	0.17	0.15	0.11	0.08	0.05	0.07	0.20	0.09	0.12
08	0.47	0.64	0.98	0.72	0.74	0.65	0.55	0.51	0.40	0.45	0.79	0.56	0.62
09	1.14	1.40	1.78	1.53	1.52	1.34	1.19	1.20	1.05	1.12	1.49	1.22	1.33
10	1.77	2.08	2.49	2.31	2.28	2.05	1.87	1.90	1.69	1.81	2.08	1.79	2.01
11	2.24	2.58	2.99	2.92	2.88	2.59	2.42	2.48	2.24	2.34	2.44	2.21	2.53
12	2.47	2.82	3.22	3.28	3.23	2.90	2.76	2.85	2.59	2.64	2.56	2.40	2.81
13	2.44	2.81	3.15	3.39	3.27	2.89	2.78	2.95	2.65	2.71	2.42	2.34	2.82
14	2.17	2.56	2.80	3.19	3.07	2.77	2.74	2.81	2.48	2.54	2.07	2.02	2.60
15	1.72	2.07	2.31	2.76	2.65	2.53	2.51	2.52	2.19	2.15	1.58	1.54	2.21
16	1.12	1.44	1.63	2.16	2.14	2.07	2.11	2.08	1.76	1.60	0.94	0.93	1.67
17	0.49	0.74	0.89	1.47	1.51	1.57	1.59	1.54	1.20	0.96	0.30	0.32	1.05
18	0.06	0.15	0.24	0.78	0.88	0.97	0.98	0.91	0.59	0.36	0.01	0.01	0.49
19	0.00	0.00	0.00	0.22	0.31	0.39	0.40	0.32	0.12	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.02	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.12	19.39	22.76	24.89	24.69	22.90	22.06	22.15	19.02	18.79	16.90	15.43	20.42

Cuadro 358. Velocidad del viento media (km/h) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.8	6.1	7.9	8.0	10.4	14.2	13.7	13.8	11.4	9.4	7.6	6.1	9.6
01	6.5	6.1	7.2	7.3	9.2	13.1	12.6	12.7	10.6	8.6	7.2	5.9	8.9
02	6.3	5.9	6.6	6.7	8.2	11.7	11.4	11.8	9.9	8.2	6.8	5.8	8.3
03	6.0	5.6	6.1	6.1	7.2	10.2	10.1	10.8	8.9	7.6	6.4	5.7	7.6
04	5.8	5.5	5.8	5.6	6.5	8.8	8.8	9.5	8.1	7.2	6.1	5.6	6.9
05	5.6	5.3	5.6	5.2	5.7	7.5	7.9	8.4	7.5	6.7	5.8	5.4	6.4
06	5.7	5.1	5.4	4.9	5.3	6.6	7.2	7.5	7.3	6.5	5.8	5.3	6.0
07	5.6	5.1	5.1	4.6	5.0	6.4	6.8	7.1	7.1	6.4	5.8	5.2	5.9
08	5.8	5.6	6.6	5.3	5.5	7.4	7.9	8.1	8.0	6.9	6.7	5.2	6.6
09	8.0	8.3	9.4	7.9	7.0	8.5	8.9	9.7	9.8	8.5	8.8	7.5	8.5
10	10.3	10.8	11.2	10.2	8.3	8.9	9.1	10.0	10.6	9.8	10.1	9.6	9.9
11	11.8	12.3	12.4	11.7	9.2	9.0	9.2	10.0	10.8	10.5	10.8	11.1	10.7
12	12.7	13.2	13.0	12.7	9.8	9.5	9.3	10.3	10.8	10.8	11.1	12.0	11.3
13	13.2	13.8	13.5	13.4	10.5	10.5	9.9	10.8	10.7	10.9	11.1	12.4	11.7
14	13.5	14.3	13.9	13.8	11.2	11.4	10.8	11.4	10.8	11.0	11.2	12.3	12.1
15	13.5	14.3	14.2	14.2	11.7	12.4	11.8	12.2	11.0	11.1	11.2	12.2	12.5
16	13.1	14.0	14.4	14.4	12.2	13.3	12.9	13.0	11.5	11.2	11.2	11.9	12.8
17	12.3	13.5	14.4	14.4	12.7	14.2	14.1	13.8	12.0	11.5	10.7	10.9	12.9
18	9.6	11.1	13.3	13.9	13.1	14.9	15.1	14.5	12.4	11.0	8.7	7.7	12.1
19	8.0	8.2	10.6	12.4	12.9	15.1	15.5	14.6	11.5	10.3	8.9	6.8	11.2
20	8.1	7.9	9.9	10.0	11.7	14.6	14.6	13.9	11.2	10.5	9.3	7.1	10.7
21	8.1	7.8	9.8	9.4	11.9	14.8	14.5	14.0	11.8	10.8	9.3	7.2	10.8
22	7.8	7.2	9.2	9.2	11.9	15.0	14.6	14.3	12.0	10.7	8.8	6.9	10.6
23	7.4	6.6	8.6	8.8	11.5	14.7	14.4	14.2	11.8	10.1	8.3	6.4	10.2
Media	8.8	8.9	9.8	9.6	9.5	11.4	11.3	11.5	10.3	9.4	8.7	8.0	9.8

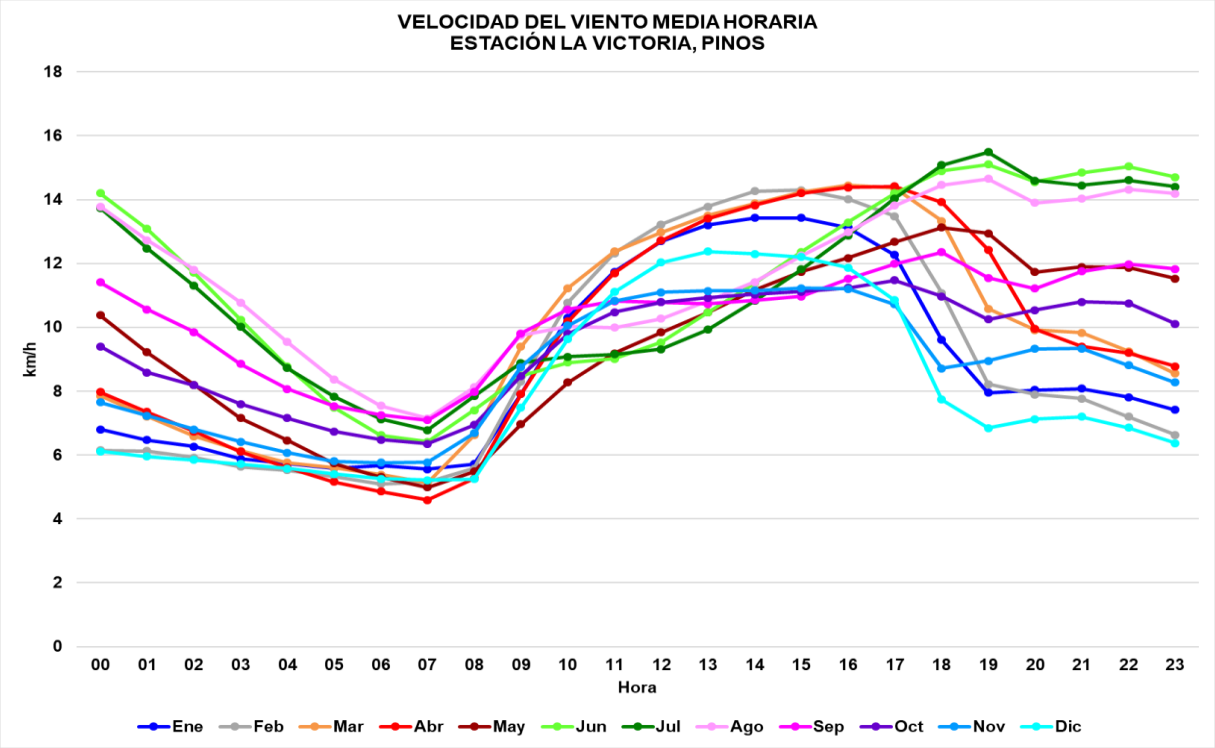


Figura 322. Velocidad del viento media (km/h) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 359. Velocidad del viento máxima maximorum (km/h) horaria de la estación La Victoria, Pinos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	33.8	34.0	40.9	47.7	47.2	37.5	37.9	34.4	39.5	38.7	33.7	43.8	47.7
01	34.0	29.8	40.1	42.5	37.9	36.9	37.6	32.0	36.0	36.6	36.1	38.4	42.5
02	36.0	32.0	30.5	33.9	32.8	34.2	36.4	33.0	34.3	35.0	28.0	30.5	36.4
03	35.4	35.3	31.0	33.7	35.8	34.4	34.6	34.0	28.1	33.8	31.0	31.6	35.8
04	30.6	37.0	29.2	35.5	28.6	36.1	33.3	30.9	31.0	34.2	31.0	37.3	37.3
05	31.6	29.3	28.9	33.4	30.5	31.9	33.6	43.8	30.2	36.0	31.3	33.8	43.8
06	32.8	29.0	29.3	34.9	31.3	29.0	35.5	41.0	30.0	34.0	34.3	33.2	41.0
07	35.2	28.4	29.8	45.9	30.8	32.4	40.4	43.1	28.3	30.0	38.3	28.7	45.9
08	36.0	40.0	34.0	36.4	31.3	36.9	44.8	48.0	30.8	40.0	37.0	30.7	48.0
09	33.4	35.8	37.8	37.0	30.4	31.9	45.6	50.5	36.0	41.0	37.9	35.0	50.5
10	39.8	42.2	38.0	40.6	28.0	39.7	38.5	37.2	33.2	41.0	39.0	36.4	42.2
11	38.2	38.0	39.4	44.1	27.5	32.4	41.0	34.1	33.4	43.0	39.0	35.4	44.1
12	40.2	39.0	39.0	43.0	27.3	33.5	41.1	38.0	33.1	44.0	35.2	36.3	44.0
13	36.5	44.6	44.8	40.1	32.4	41.4	35.2	34.1	33.5	36.0	36.7	39.1	44.8
14	37.8	42.5	40.4	40.8	34.8	44.6	33.9	37.4	33.1	33.2	36.5	36.7	44.6
15	44.3	46.2	41.0	40.2	36.2	42.9	33.3	35.1	31.2	33.5	33.9	38.8	46.2
16	38.2	39.1	39.0	39.4	34.6	37.9	35.2	35.5	30.3	29.4	32.5	35.7	39.4
17	39.0	40.5	39.3	40.1	35.9	37.6	36.0	38.3	31.1	30.8	30.7	33.4	40.5
18	34.6	34.1	39.0	40.0	46.7	36.3	36.5	34.1	33.2	29.8	32.8	28.7	46.7
19	37.0	37.2	45.0	40.6	46.5	40.5	38.1	35.0	35.8	32.2	33.2	31.8	46.5
20	38.1	32.0	44.2	48.4	49.2	45.7	36.2	39.4	33.5	33.2	34.5	36.8	49.2
21	38.1	35.0	44.0	46.5	49.2	42.0	38.3	42.2	32.6	32.2	35.0	32.5	49.2
22	39.6	31.1	38.3	46.5	42.2	43.3	40.1	36.1	34.8	32.0	36.1	40.0	46.5
23	36.0	34.0	41.0	49.5	46.0	35.8	40.0	35.1	34.7	39.4	33.3	42.4	49.5
Máx.	44.3	46.2	45.0	49.5	49.2	45.7	45.6	50.5	39.5	44.0	39.0	43.8	50.5

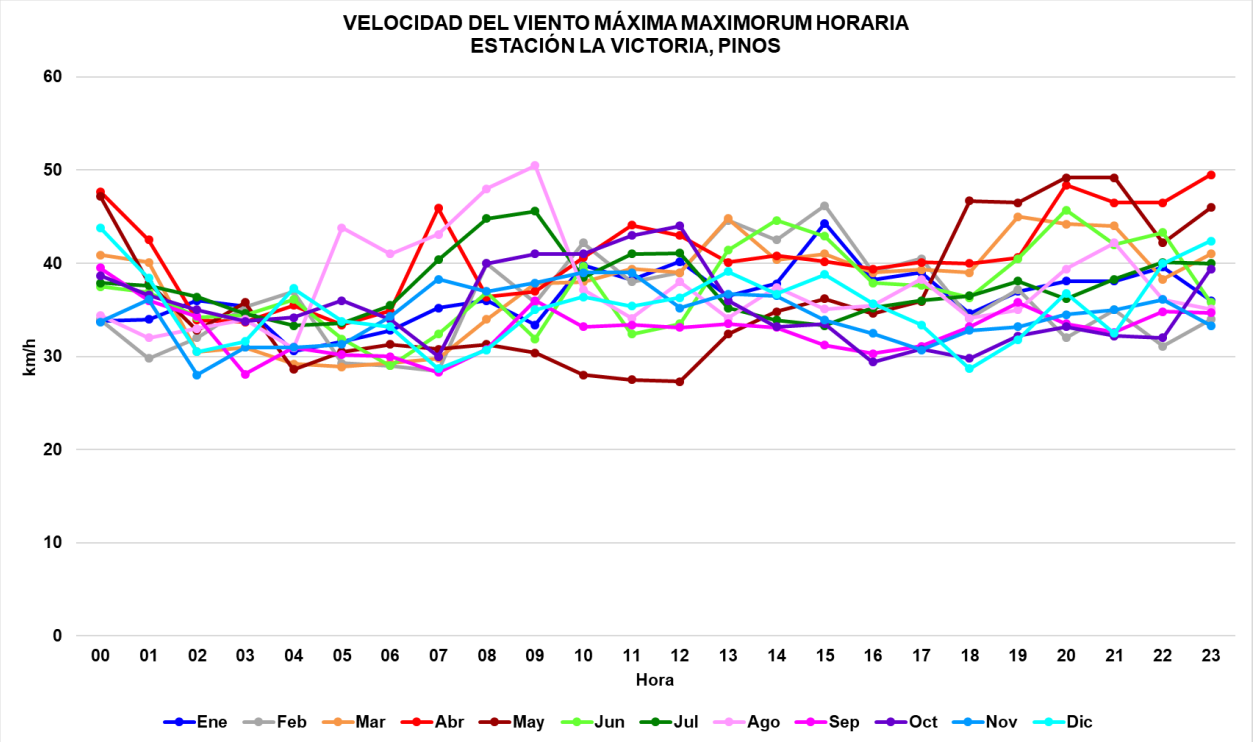


Figura 223. Velocidad del viento máxima maximorum (km/h) horaria de la estación La Victoria, Pinos (2002-2022).

Cuadro 360. Frecuencia de velocidad del viento (%) mensual de la estación La Victoria, Pinos (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	38.2	35.9	30.3	32.3	26.9	20.0	21.1	18.6	21.8	27.0	34.7	40.7	28.9
5.1 a 10.0	26.8	28.3	29.1	27.2	32.7	28.1	25.8	24.8	28.2	30.4	28.8	28.5	28.2
10.1 a 15.0	16.6	16.9	19.0	19.6	21.7	21.9	23.8	25.8	28.0	24.5	20.4	15.8	21.2
15.1 a 20.0	9.9	11.3	11.7	12.3	12.3	17.9	17.5	20.2	16.5	12.8	10.8	9.5	13.6
20.1 a 25.0	5.5	5.2	6.4	5.8	4.4	9.2	9.1	8.6	4.6	4.3	4.1	4.0	5.9
25.1 a 30.0	2.1	1.7	2.7	2.2	1.5	2.5	2.4	1.6	0.8	0.9	1.0	1.2	1.7
30.1 a 35.0	0.8	0.5	0.7	0.5	0.4	0.4	0.3	0.2	0.1	0.1	0.2	0.3	0.4
35.1 a 40.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
40.1 a 45.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

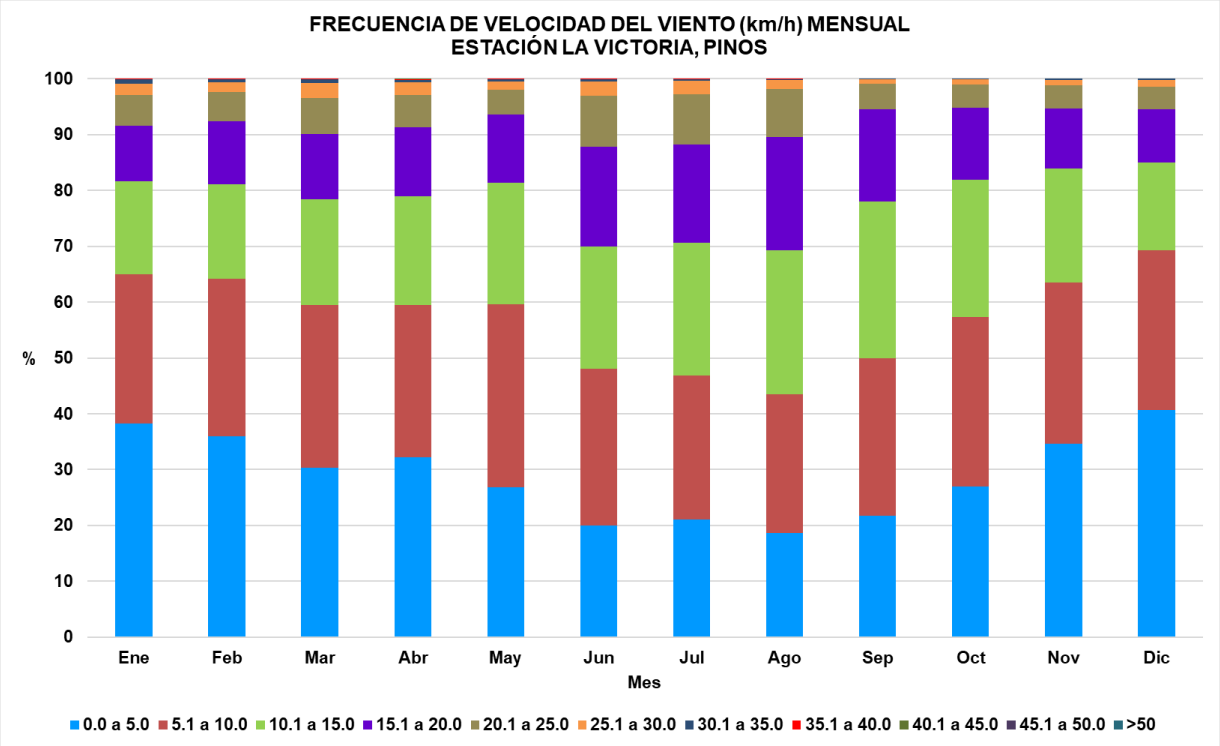


Figura 324. Frecuencia de velocidad del viento (%) mensual de la estación La Victoria, Pinos (2002-2022).

Cuadro 361. Frecuencia de dirección del viento (%) mensual de la estación La Victoria, Pinos (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.2	6.4	6.1	5.7	5.2	3.5	2.7	2.7	4.3	4.2	5.4	5.8	4.8
NNE	6.2	5.3	4.1	3.7	4.3	3.8	2.9	3.0	3.8	4.8	5.6	6.4	4.5
NE	7.0	6.2	5.1	4.6	5.1	6.7	6.2	6.6	6.5	7.6	8.1	8.5	6.5
ENE	11.0	10.4	9.7	9.1	11.9	19.0	19.3	20.7	20.2	18.3	14.9	11.6	14.8
E	15.0	12.1	14.5	12.8	19.0	28.7	31.9	33.7	31.5	26.3	20.3	13.4	21.8
ESE	9.0	7.0	8.1	7.0	10.5	14.5	15.8	15.9	15.5	14.2	12.2	8.5	11.6
SE	4.7	4.1	4.1	3.8	5.2	6.5	6.4	6.0	6.0	5.7	5.1	4.4	5.2
SSE	3.1	2.9	3.0	2.8	3.4	3.6	3.4	2.9	2.8	2.7	2.5	3.0	3.0
S	3.4	3.3	3.3	3.2	3.1	2.4	2.1	1.6	1.6	2.0	2.3	3.3	2.6
SSO	5.4	6.4	5.6	5.6	4.2	1.7	1.4	1.1	1.2	2.0	3.0	5.7	3.6
SO	8.4	10.8	9.9	10.5	6.0	1.6	1.4	0.9	1.0	2.6	5.0	8.4	5.4
OSO	7.5	9.7	9.6	11.2	6.6	1.6	1.4	1.1	1.0	2.7	5.4	7.6	5.4
O	4.7	5.5	6.3	7.6	5.1	1.6	1.5	1.0	1.1	2.0	3.7	4.9	3.7
ONO	3.2	3.8	4.2	5.1	4.1	1.6	1.3	0.9	1.1	1.7	2.4	3.3	2.7
NO	2.5	3.1	3.4	4.0	3.3	1.4	1.2	0.8	1.1	1.4	1.9	2.7	2.2
NNO	2.7	2.9	3.0	3.4	3.0	1.7	1.3	1.0	1.4	1.7	2.2	2.6	2.2
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

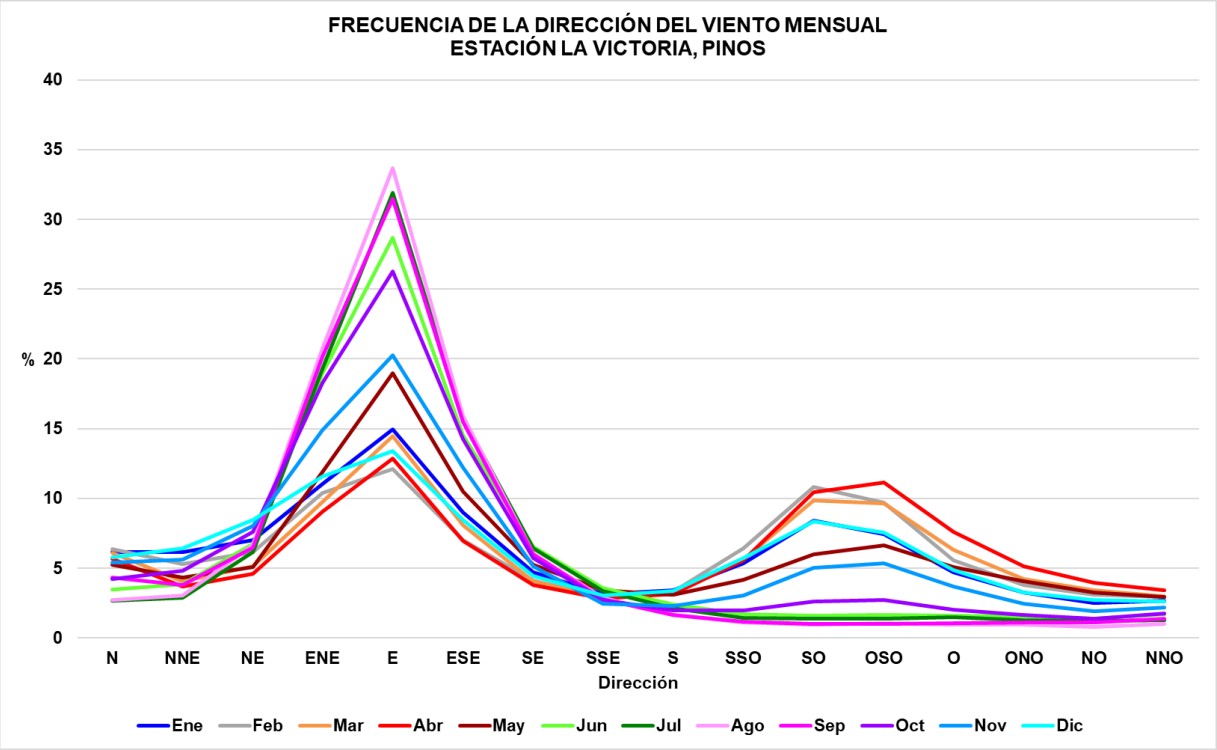


Figura 325. Frecuencia de dirección del viento (%) mensual de la estación La Victoria, Pinos (2002-2022).

Cuadro 362. Frecuencia de dirección del viento (%) trimestral de la estación La Victoria, Pinos (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	6.2	4.8	3.2	5.1	4.8
NNE	5.2	4.0	3.2	5.6	4.5
NE	6.1	5.5	6.4	8.0	6.5
ENE	10.4	13.4	20.1	14.9	14.8
E	13.9	20.3	32.3	20.0	21.8
ESE	8.0	10.7	15.7	11.6	11.6
SE	4.3	5.2	6.1	5.1	5.2
SSE	3.0	3.3	3.0	2.7	3.0
S	3.3	2.9	1.8	2.5	2.6
SSO	5.8	3.8	1.2	3.6	3.6
SO	9.7	6.0	1.1	5.3	5.4
OSO	8.9	6.4	1.2	5.2	5.4
O	5.5	4.7	1.2	3.5	3.7
ONO	3.8	3.6	1.1	2.5	2.7
NO	3.0	2.9	1.0	2.0	2.2
NNO	2.9	2.7	1.2	2.2	2.2
Suma	100.0	100.0	100.0	100.0	100.0

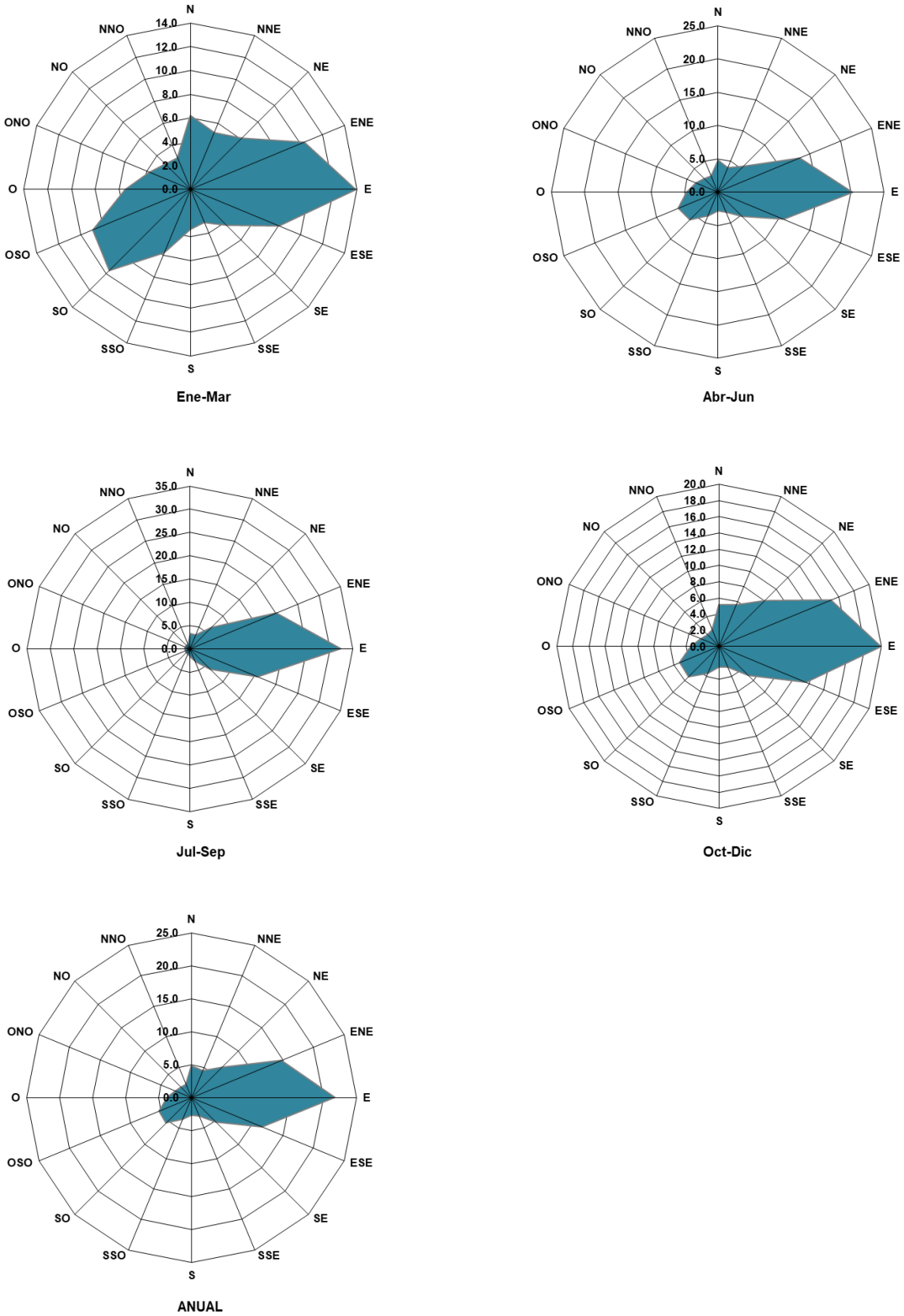


Figura 326. Frecuencia de dirección del viento (%) trimestral de la estación La Victoria, Pinos (2002-2022).

Cuadro 363. Estadísticas climatológicas mensuales de la estación La Victoria, Pinos (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	18.8	21.2	23.5	26.1	27.2	25.0	23.2	23.5	22.0	22.2	20.6	19.5	22.7
Temperatura máxima maximorum (°C)	26.1	28.8	31.0	31.4	33.6	31.8	29.6	29.4	28.4	28.0	26.9	26.2	33.6
Temperatura mínima media (°C)	3.9	5.3	6.8	8.9	11.0	12.1	11.6	11.7	11.5	9.3	6.2	4.5	8.6
Temperatura mínima minimorum (°C)	-5.1	-4.0	-4.0	1.7	3.8	8.0	7.6	7.7	4.6	0.1	-5.8	-7.5	-7.5
Temperatura media (°C)	11.0	13.1	15.1	17.7	18.9	18.0	16.8	17.0	16.0	15.2	13.0	11.7	15.3
Oscilación térmica (°C)	14.8	15.9	16.7	17.2	16.2	13.0	11.6	11.8	10.5	12.9	14.4	15.0	14.2
Precipitación acumulada media (mm)	8.7	13.9	11.8	5.5	28.3	72.2	94.0	65.9	78.2	33.3	14.4	6.5	432.7
Precipitación máxima maximorum en 24 horas (mm)	20.4	38.4	27.0	31.4	35.6	55.4	110.6	65.0	55.0	50.2	26.2	19.4	110.6
Número de días promedio con lluvia	3.9	3.5	3.8	2.4	6.6	9.3	10.5	8.9	10.2	6.5	4.1	2.6	72.3
Evapotranspiración acumulada potencial media (mm)	106.0	122.2	161.8	177.2	182.7	154.0	148.1	151.8	117.8	124.5	107.4	102.5	1656.1
Humedad máxima media (%)	79.8	74.1	70.8	67.2	78.2	91.6	94.9	95.0	96.1	92.2	87.1	79.9	83.9
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	26.4	21.7	17.0	14.4	18.4	32.9	41.5	40.5	49.1	38.7	31.7	26.3	29.9
Humedad mínima minimorum (%)	2.0	4.0	2.0	3.0	3.0	4.0	13.0	14.0	13.0	7.0	4.0	3.0	2.0
Humedad media (%)	51.9	45.1	40.2	36.4	45.7	64.0	71.4	70.8	76.9	67.4	59.8	52.1	56.8
Radiación global media día/mes (W/m^2)	17911.0	21551.5	25293.7	27646.4	27438.0	25458.4	24508.6	24611.0	21134.5	20874.7	18779.4	17146.7	22696.1
Radiación global media día/mes (kWh/m^2)	4.5	5.4	6.3	6.9	6.9	6.4	6.1	6.2	5.3	5.2	4.7	4.3	5.7
Radiación global media día/mes ($Mj/m^2/s$)	16.1	19.4	22.8	24.9	24.7	22.9	22.1	22.1	19.0	18.8	16.9	15.4	20.4
Velocidad del viento máxima media (km/h)	20.2	21.3	22.8	23.1	23.2	24.2	22.9	22.7	20.1	19.3	18.8	19.1	21.5
Velocidad del viento máxima maximorum (km/h)	44.3	46.2	45.0	49.5	49.2	45.7	45.6	50.5	39.5	44.0	39.0	43.8	50.5
Velocidad del viento media (km/h)	8.8	8.9	9.8	9.6	9.5	11.3	11.3	11.5	10.3	9.4	8.7	8.0	9.8
Dirección dominante del viento	E	E	E	E	E	E	E	E	E	E	E	E	E

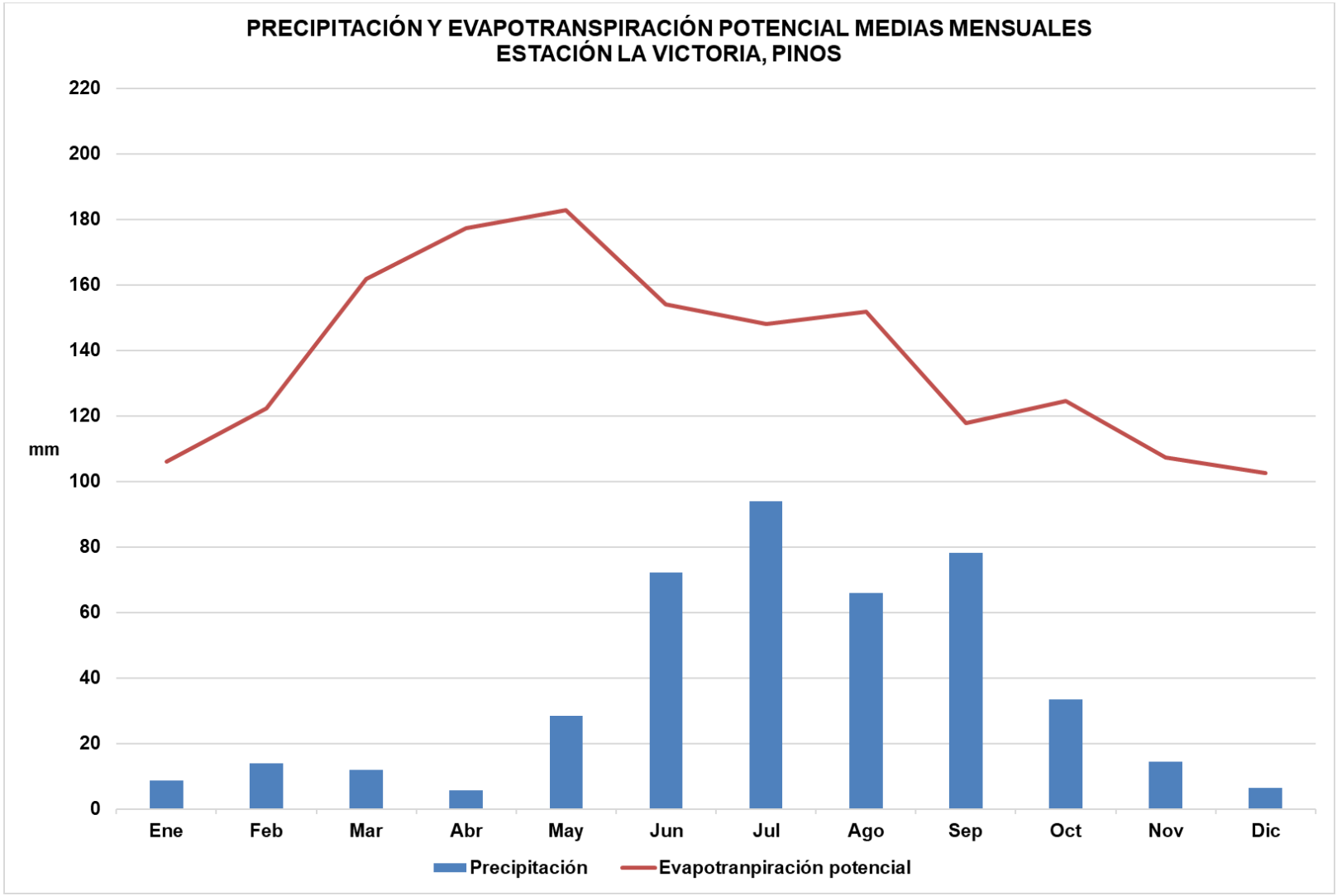


Figura 327. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación La Victoria, Pinos (2002-2022).

7.20. Estación: Las Arcinas, Trancoso

Cuadro 364. Temperatura máxima media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

c	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.5	10.9	12.9	16.5	18.0	17.5	16.2	16.2	14.9	12.7	9.6	8.7	13.5
01	7.7	9.9	11.9	15.4	17.0	16.5	15.4	15.4	14.3	11.9	8.7	7.8	12.7
02	6.9	9.1	11.0	14.5	16.0	15.7	14.8	14.7	13.7	11.2	8.0	7.1	11.9
03	6.3	8.2	10.2	13.5	15.0	14.9	14.2	14.1	13.3	10.5	7.4	6.4	11.2
04	5.6	7.5	9.3	12.6	14.1	14.2	13.7	13.5	12.9	9.9	6.8	5.9	10.5
05	5.0	6.8	8.5	11.7	13.3	13.6	13.2	13.0	12.5	9.5	6.2	5.4	9.9
06	4.5	6.2	7.8	10.9	12.4	13.1	12.8	12.6	12.2	9.1	5.8	4.9	9.4
07	4.5	6.8	9.9	11.6	13.2	14.0	13.3	12.9	12.4	9.6	7.9	5.5	10.1
08	8.2	11.0	14.2	15.2	16.9	16.8	15.7	15.6	14.8	13.1	12.3	9.7	13.6
09	11.7	14.4	17.3	18.5	20.0	19.1	17.7	17.8	16.9	16.2	15.4	13.1	16.5
10	14.4	17.0	19.7	21.3	22.5	21.2	19.5	19.6	18.8	18.6	17.8	15.8	18.9
11	16.5	19.1	21.6	23.3	24.5	23.1	21.2	21.4	20.4	20.6	19.6	17.8	20.8
12	18.0	20.6	23.0	24.9	26.1	24.7	22.7	22.8	21.7	22.1	20.9	19.2	22.2
13	19.2	21.6	24.0	26.1	27.2	25.9	23.8	24.0	22.8	23.2	21.8	20.2	23.3
14	19.9	22.3	24.6	26.9	28.0	26.6	24.6	24.8	23.4	23.9	22.2	20.7	24.0
15	20.0	22.5	24.8	27.3	28.4	27.0	25.0	25.3	23.8	24.2	22.2	20.8	24.3
16	19.8	22.4	24.7	27.3	28.4	27.1	25.0	25.4	23.7	24.0	21.8	20.4	24.2
17	19.0	21.8	24.0	26.9	28.1	26.8	24.6	25.0	23.2	23.4	20.6	19.4	23.6
18	17.0	20.3	22.6	26.0	27.3	26.1	23.8	24.1	22.2	21.9	17.5	16.6	22.1
19	13.8	17.2	19.9	24.4	26.0	24.8	22.5	22.6	20.5	19.2	14.7	13.7	19.9
20	12.2	15.2	17.8	22.1	23.7	22.8	20.7	20.6	18.2	16.8	13.6	12.4	18.0
21	11.2	14.1	16.4	20.1	21.5	20.8	19.0	18.9	17.0	15.6	12.6	11.4	16.6
22	10.3	13.0	15.2	18.8	20.2	19.6	17.9	17.9	16.2	14.6	11.5	10.5	15.5
23	9.4	12.0	14.0	17.6	19.1	18.4	17.0	17.0	15.4	13.7	10.5	9.6	14.5
Media	12.1	14.6	16.9	19.7	21.1	20.4	18.9	19.0	17.7	16.5	14.0	12.6	17.0

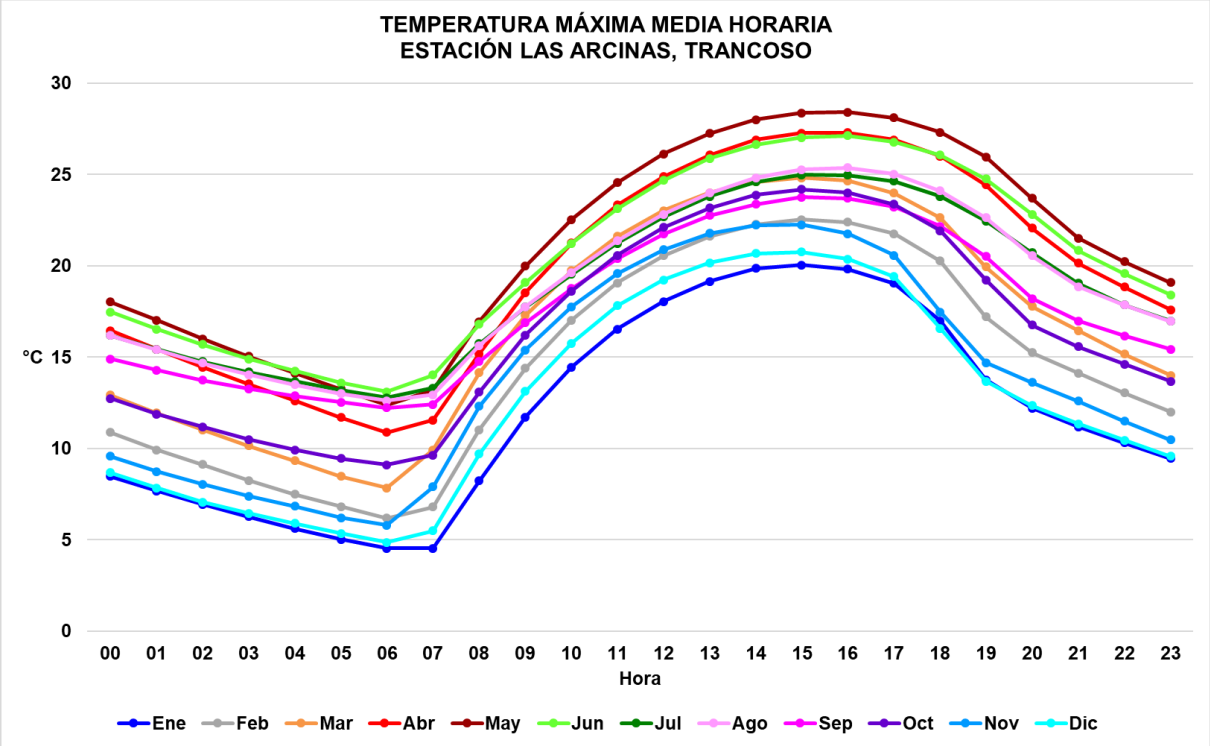


Figura 328. Temperatura máxima media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 365. Temperatura máxima maximorum (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.2	19.1	21.1	21.9	23.9	23.9	21.1	21.1	19.2	18.3	16.7	16.8	23.9
01	16.5	17.7	20.7	21.4	22.1	22.5	20.5	19.7	18.1	18.0	16.7	16.9	22.5
02	16.5	16.7	20.0	20.3	21.8	21.7	19.8	18.6	17.6	17.0	16.2	16.5	21.8
03	15.4	16.0	17.8	20.2	21.8	21.1	19.0	18.1	17.7	16.6	15.9	15.8	21.8
04	15.4	15.9	17.9	19.3	19.9	20.7	18.0	17.8	17.2	16.2	15.9	15.2	20.7
05	15.1	15.7	17.0	18.2	19.7	19.5	17.7	17.2	16.9	15.5	15.0	15.0	19.7
06	12.9	15.8	16.2	18.2	19.7	18.5	17.5	16.3	16.8	15.5	15.2	15.1	19.7
07	14.1	15.7	19.4	20.0	21.0	20.1	17.5	17.2	16.3	18.2	17.2	14.1	21.0
08	17.3	20.3	22.5	23.0	25.0	22.7	20.4	19.5	19.1	20.7	20.4	17.9	25.0
09	20.8	22.8	25.1	26.5	27.4	25.4	22.8	22.1	21.8	23.1	23.0	22.2	27.4
10	22.8	25.4	27.7	27.9	29.4	27.4	25.1	24.8	23.6	25.1	24.9	24.3	29.4
11	24.6	27.2	29.5	28.9	30.6	29.5	26.7	26.7	25.7	26.6	26.3	25.5	30.6
12	25.5	28.9	30.9	30.1	31.9	30.8	28.4	27.9	27.0	27.4	27.5	26.8	31.9
13	26.6	30.1	32.0	31.6	33.3	32.2	29.2	28.9	28.0	28.8	28.3	27.0	33.3
14	27.3	30.9	32.6	32.0	33.9	33.1	30.5	30.3	29.3	29.2	29.0	28.0	33.9
15	27.4	31.1	32.4	32.7	34.4	33.8	30.9	30.1	29.9	29.5	29.3	27.4	34.4
16	26.8	30.5	32.7	33.2	34.8	33.8	31.3	30.6	30.1	29.6	28.9	26.7	34.8
17	25.7	29.5	31.7	33.6	34.9	33.6	31.3	30.5	30.6	30.4	27.3	25.6	34.9
18	24.1	28.0	30.9	32.4	34.6	33.4	31.5	30.1	29.0	29.0	23.1	23.3	34.6
19	19.9	25.3	27.2	31.5	33.5	32.5	30.2	29.5	27.5	27.1	20.9	19.5	33.5
20	18.9	23.2	25.3	27.8	30.7	31.0	27.5	26.0	25.4	23.6	20.5	18.3	31.0
21	18.3	21.5	23.7	25.7	27.9	28.2	24.5	24.7	22.5	21.6	19.8	17.5	28.2
22	17.5	20.4	23.2	24.5	26.8	27.4	23.7	23.2	21.5	20.6	19.0	17.1	27.4
23	16.7	19.6	21.8	23.4	25.5	25.0	22.4	21.7	20.4	19.1	17.7	16.4	25.5
Máx.	27.4	31.1	32.7	33.6	34.9	33.8	31.5	30.6	30.6	30.4	29.3	28.0	34.9

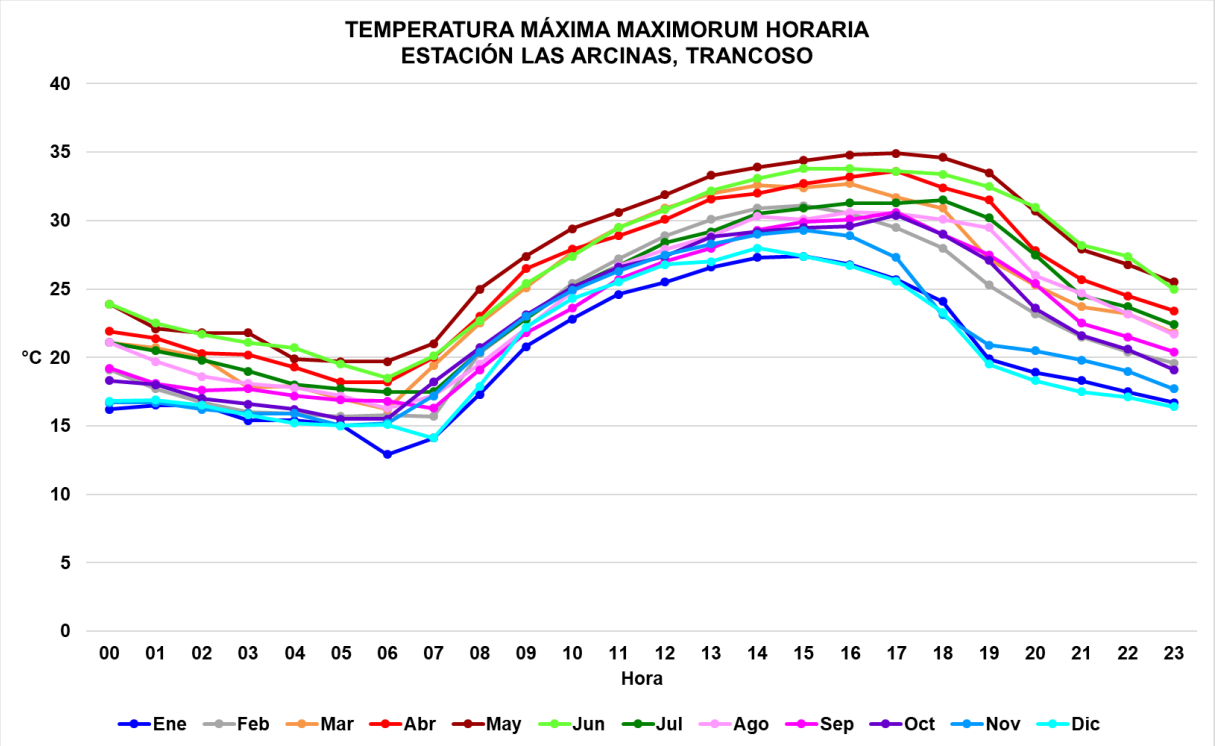


Figura 329. Temperatura máxima maximorum (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 366. Temperatura mínima media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.3	9.7	11.7	15.3	17.0	16.6	15.4	15.4	14.2	11.7	8.4	7.4	12.5
01	6.4	8.7	10.7	14.3	16.0	15.7	14.7	14.6	13.6	10.9	7.6	6.5	11.6
02	5.8	7.8	9.8	13.3	15.0	14.9	14.1	13.9	13.1	10.3	6.9	5.9	10.9
03	5.1	7.0	8.9	12.3	14.0	14.1	13.6	13.4	12.7	9.6	6.3	5.2	10.2
04	4.4	6.3	8.0	11.3	13.0	13.5	13.1	12.9	12.3	9.1	5.7	4.6	9.5
05	3.9	5.6	7.2	10.4	12.1	12.9	12.6	12.4	12.0	8.6	5.2	4.2	8.9
06	3.4	5.0	6.5	9.6	11.2	12.4	12.2	12.0	11.7	8.3	4.7	3.7	8.4
07	3.1	4.9	7.1	9.5	11.3	12.5	12.2	12.0	11.5	8.2	5.1	3.7	8.4
08	4.9	7.5	11.0	12.1	14.1	14.8	13.9	13.4	12.6	10.0	9.2	6.3	10.8
09	9.2	11.9	15.0	16.1	17.7	17.3	16.2	16.2	15.3	14.0	13.1	10.6	14.4
10	12.5	15.1	17.9	19.3	20.6	19.6	18.1	18.2	17.3	16.8	16.0	13.8	17.1
11	15.0	17.6	20.2	21.8	23.0	21.7	19.9	20.0	19.1	19.1	18.2	16.3	19.3
12	16.9	19.4	21.9	23.7	24.9	23.4	21.5	21.6	20.6	20.9	19.8	18.1	21.1
13	18.2	20.7	23.1	25.0	26.2	24.7	22.7	22.8	21.7	22.2	20.9	19.3	22.3
14	19.1	21.5	23.8	26.0	27.0	25.5	23.5	23.7	22.3	22.9	21.5	20.0	23.1
15	19.4	21.9	24.1	26.5	27.4	25.9	23.8	24.1	22.6	23.2	21.6	20.2	23.4
16	19.1	21.8	23.9	26.5	27.4	26.0	23.8	24.2	22.5	23.1	20.9	19.6	23.2
17	17.7	20.7	23.0	26.0	27.1	25.7	23.3	23.7	22.0	22.2	18.5	17.5	22.3
18	14.4	17.9	20.7	24.8	26.1	24.8	22.5	22.7	20.8	20.0	15.0	14.0	20.3
19	12.2	15.4	18.0	22.6	24.3	23.2	21.1	21.0	18.7	17.0	13.4	12.2	18.3
20	11.0	14.0	16.4	20.3	21.7	21.2	19.3	19.0	17.0	15.4	12.4	11.1	16.6
21	10.0	12.9	15.1	18.8	20.2	19.6	18.0	17.8	16.1	14.4	11.3	10.1	15.3
22	9.1	11.8	13.9	17.6	19.0	18.5	17.0	16.9	15.3	13.5	10.3	9.2	14.3
23	8.2	10.8	12.8	16.4	17.9	17.5	16.2	16.1	14.7	12.6	9.3	8.3	13.4
Media	10.7	13.2	15.5	18.3	19.8	19.2	17.9	17.8	16.6	15.1	12.5	11.2	15.6

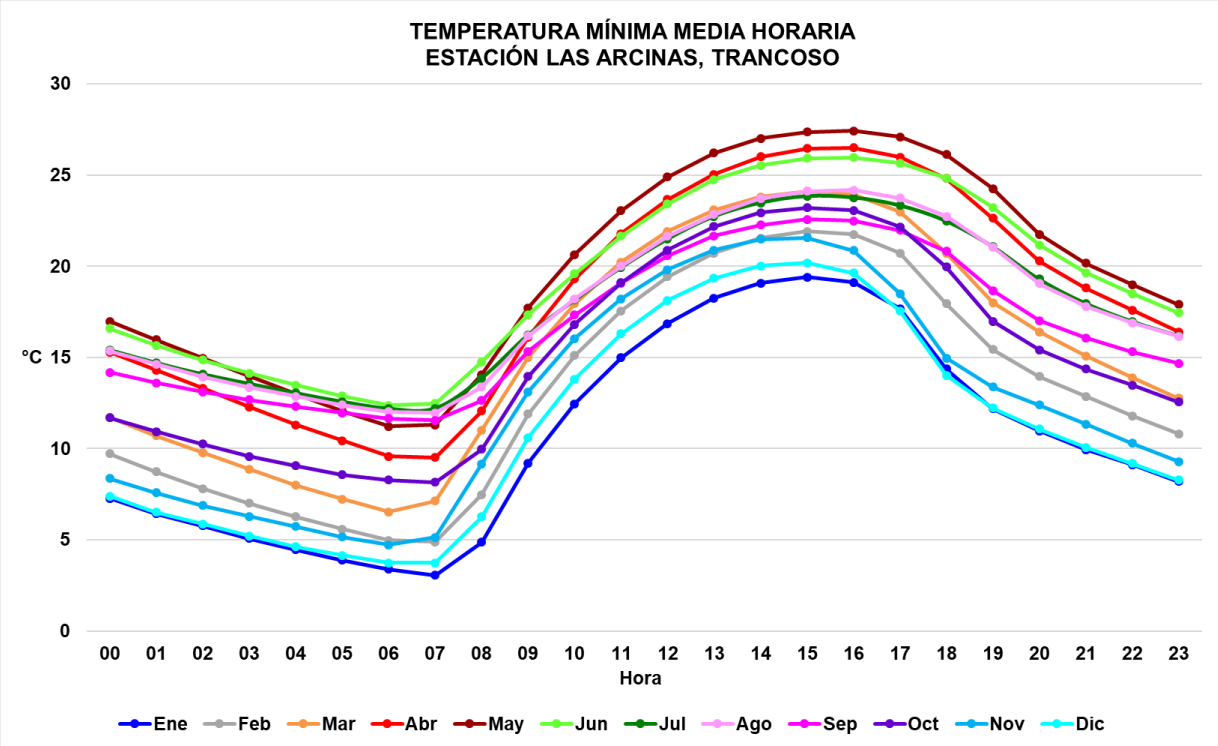


Figura 330. Temperatura mínima media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 367. Temperatura mínima minimorum (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.1	-0.9	-1.1	6.4	9.7	12.1	9.2	10.4	7.7	1.3	-6.9	-7.5	-7.5
01	-7.6	-1.7	-0.3	4.6	7.9	10.7	9.4	10.3	7.5	1.0	-5.9	-7.5	-7.6
02	-7.1	-3.1	-3.1	4.4	7.6	9.6	7.7	9.6	6.5	-1.9	-7.3	-7.8	-7.8
03	-10.2	-3.9	-3.3	3.3	6.7	8.6	7.7	9.1	6.0	-2.0	-7.9	-8.5	-10.2
04	-10.0	-3.9	-4.4	2.0	6.6	7.0	7.3	7.4	5.2	-3.0	-9.0	-8.7	-10.0
05	-9.4	-5.3	-5.6	1.1	4.7	6.1	6.8	7.2	4.0	-3.5	-9.6	-11.0	-11.0
06	-9.1	-5.3	-5.7	-0.2	3.7	5.6	5.5	6.7	3.4	-3.9	-9.7	-11.3	-11.3
07	-11.8	-5.8	-5.5	-0.7	2.6	5.9	5.4	7.0	3.2	-4.1	-9.2	-9.6	-11.8
08	-10.3	-3.2	-0.9	1.0	4.7	10.4	8.7	7.9	4.5	0.2	-2.7	-7.8	-10.3
09	-1.6	-1.3	3.1	6.8	10.1	13.1	12.6	11.8	10.5	4.1	-1.0	-3.0	-3.0
10	0.1	1.6	4.3	10.6	11.6	13.9	13.5	14.0	12.9	8.1	0.0	-1.6	-1.6
11	0.8	4.2	1.0	13.2	13.5	14.7	14.8	14.6	14.7	9.9	2.1	-1.9	-1.9
12	1.1	6.8	1.3	15.7	15.8	15.3	15.2	15.0	14.7	12.0	2.7	-2.1	-2.1
13	1.1	7.8	2.7	16.9	16.0	13.6	14.4	15.3	15.0	12.8	2.6	-2.7	-2.7
14	1.6	8.0	3.5	17.7	14.9	15.8	15.0	13.7	13.7	11.6	3.1	-2.6	-2.6
15	2.2	7.2	4.5	13.9	14.3	15.4	13.9	14.0	13.9	11.8	3.5	-2.4	-2.4
16	3.7	7.0	6.4	11.8	8.4	14.7	13.2	9.9	13.7	11.5	4.4	-2.0	-2.0
17	4.0	7.1	6.2	10.3	10.5	13.1	13.3	13.1	13.9	10.3	3.7	-2.2	-2.2
18	3.2	6.6	5.4	10.4	12.2	12.7	13.1	13.2	12.9	9.2	1.8	-3.3	-3.3
19	0.6	5.7	2.8	10.1	11.9	12.6	12.7	14.0	10.3	7.8	0.1	-3.7	-3.7
20	1.0	4.6	0.9	9.5	12.2	12.9	12.5	13.5	10.1	6.8	-0.4	-5.1	-5.1
21	-1.2	1.8	0.1	10.2	11.5	12.5	12.1	13.2	8.8	6.5	-3.7	-5.9	-5.9
22	-4.3	0.8	0.0	8.8	11.8	12.6	12.6	12.9	6.7	4.5	-4.5	-7.0	-7.0
23	-4.2	-1.0	-0.3	7.6	10.1	12.9	11.1	12.4	6.5	2.5	-6.1	-7.4	-7.4
Mín.	-11.8	-5.8	-5.7	-0.7	2.6	5.6	5.4	6.7	3.2	-4.1	-9.7	-11.3	-11.8

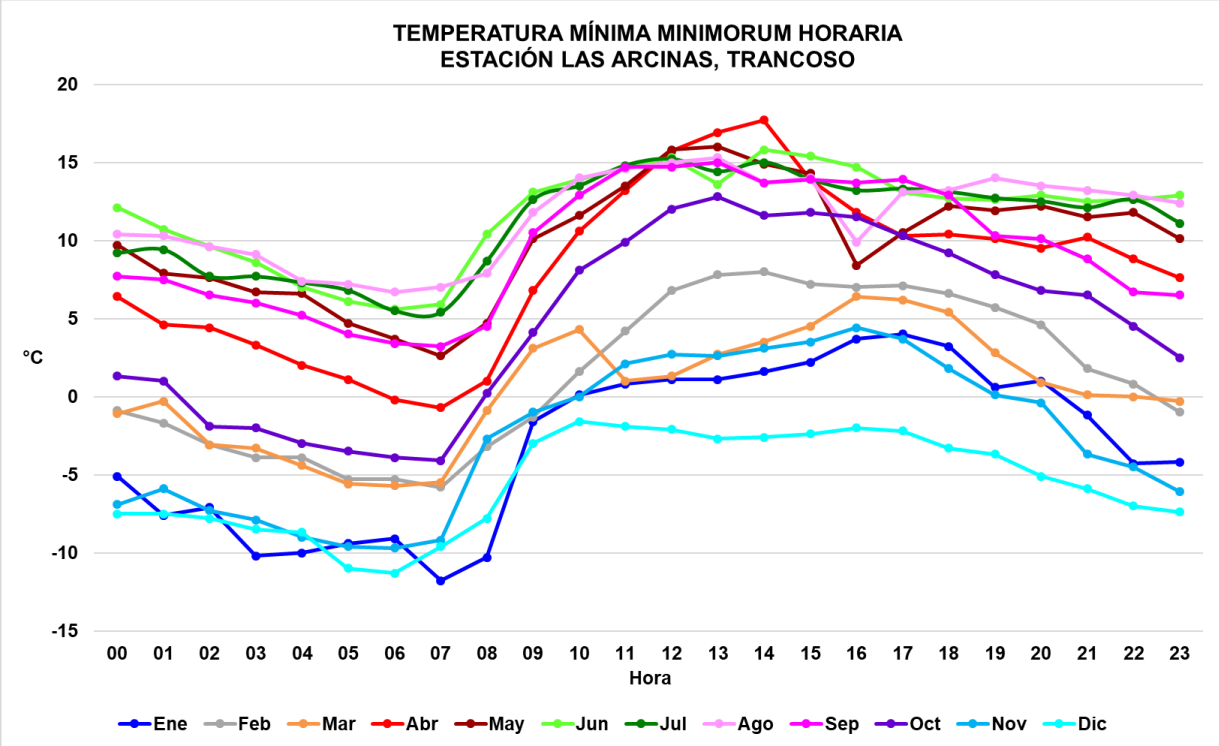


Figura 331. Temperatura mínima minimorum (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 368. Temperatura media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.9	10.3	12.3	15.9	17.5	17.0	15.8	15.8	14.6	12.2	9.0	8.0	13.0
01	7.1	9.3	11.3	14.9	16.5	16.1	15.1	15.0	13.9	11.4	8.2	7.2	12.2
02	6.4	8.5	10.4	13.9	15.5	15.3	14.4	14.3	13.4	10.7	7.5	6.5	11.4
03	5.7	7.6	9.5	12.9	14.5	14.5	13.9	13.7	13.0	10.0	6.8	5.8	10.7
04	5.0	6.9	8.6	12.0	13.6	13.9	13.4	13.2	12.6	9.5	6.3	5.3	10.0
05	4.4	6.2	7.8	11.1	12.7	13.2	12.9	12.7	12.2	9.0	5.7	4.7	9.4
06	4.0	5.6	7.2	10.2	11.8	12.7	12.5	12.3	11.9	8.7	5.2	4.3	8.9
07	3.7	5.8	8.4	10.5	12.2	13.2	12.7	12.4	11.9	8.8	6.4	4.5	9.2
08	6.5	9.3	12.6	13.6	15.5	15.8	14.8	14.5	13.7	11.5	10.8	8.0	12.2
09	10.5	13.2	16.2	17.3	18.9	18.2	17.0	17.0	16.1	15.1	14.3	11.9	15.5
10	13.5	16.1	18.9	20.3	21.6	20.4	18.8	18.9	18.0	17.7	16.9	14.8	18.0
11	15.8	18.3	20.9	22.6	23.8	22.4	20.6	20.7	19.7	19.8	18.9	17.1	20.1
12	17.5	20.0	22.5	24.3	25.5	24.0	22.1	22.2	21.2	21.5	20.4	18.7	21.7
13	18.7	21.2	23.5	25.6	26.7	25.3	23.3	23.4	22.2	22.7	21.3	19.8	22.8
14	19.5	21.9	24.2	26.5	27.5	26.1	24.0	24.3	22.8	23.4	21.9	20.4	23.5
15	19.7	22.2	24.5	26.9	27.9	26.5	24.4	24.7	23.2	23.7	21.9	20.5	23.8
16	19.5	22.1	24.3	26.9	27.9	26.6	24.4	24.8	23.1	23.5	21.3	20.0	23.7
17	18.4	21.3	23.5	26.5	27.6	26.2	24.0	24.4	22.6	22.8	19.6	18.6	23.0
18	15.7	19.2	21.7	25.4	26.7	25.5	23.2	23.4	21.5	21.0	16.1	15.2	21.2
19	13.0	16.3	18.9	23.6	25.1	24.0	21.8	21.8	19.6	18.0	14.0	13.0	19.1
20	11.6	14.6	17.1	21.1	22.7	22.0	20.0	19.8	17.6	16.1	13.0	11.7	17.3
21	10.6	13.5	15.8	19.5	20.8	20.2	18.5	18.3	16.5	15.0	12.0	10.7	16.0
22	9.7	12.4	14.5	18.2	19.6	19.0	17.4	17.4	15.7	14.1	10.9	9.8	14.9
23	8.8	11.4	13.4	17.0	18.5	17.9	16.6	16.6	15.0	13.1	9.9	8.9	13.9
Media	11.4	13.9	16.2	19.0	20.4	19.8	18.4	18.4	17.2	15.8	13.3	11.9	16.3

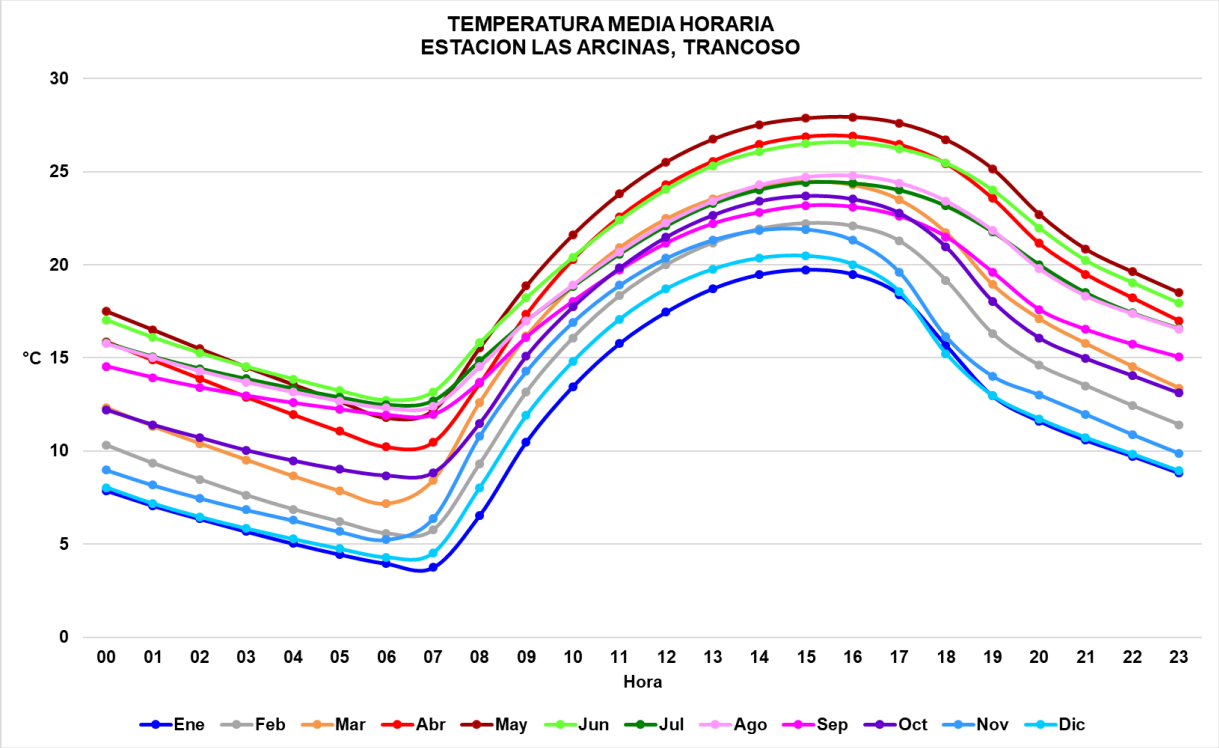


Figura 332. Temperatura media (˚C) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 369. Precipitación media (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.4	0.4	0.3	0.1	0.9	3.9	4.9	4.6	5.1	0.9	0.2	0.2	21.9
01	0.5	0.3	0.2	0.0	1.3	5.1	2.8	4.0	3.2	0.7	0.3	0.1	18.4
02	0.3	0.6	0.1	0.0	1.0	2.1	2.9	1.9	3.4	0.7	0.4	0.4	13.9
03	0.5	0.5	0.3	0.0	1.0	2.6	2.6	1.8	3.0	0.7	0.1	0.2	13.4
04	0.2	0.2	0.0	0.0	0.3	2.4	1.4	1.1	2.3	0.7	0.1	0.1	8.8
05	0.3	0.2	0.2	0.0	0.1	2.0	0.8	0.6	1.7	0.4	0.1	0.3	6.7
06	0.3	0.3	0.1	0.0	0.2	0.9	1.2	0.8	1.2	0.7	0.1	0.5	6.3
07	0.3	0.2	0.0	0.0	0.2	0.4	1.4	0.4	1.0	0.3	0.2	0.3	4.8
08	0.1	0.2	0.1	0.0	0.1	0.3	0.6	0.7	0.6	0.4	0.3	0.3	3.7
09	0.2	0.2	0.2	0.0	0.0	0.4	0.2	0.4	0.2	0.2	0.1	0.3	2.3
10	0.2	0.4	0.1	0.0	0.0	0.3	0.1	0.4	0.3	0.1	0.2	0.3	2.5
11	0.0	0.2	0.2	0.0	0.0	0.4	0.2	0.2	0.2	0.1	0.8	0.1	2.6
12	0.1	0.3	0.1	0.1	0.2	0.4	0.4	0.5	0.4	0.1	0.2	0.2	3.0
13	0.1	0.4	0.2	0.1	0.2	0.9	2.7	1.5	0.9	0.3	0.6	0.4	8.2
14	0.2	0.4	0.2	0.0	0.2	1.2	1.2	2.0	4.3	0.2	0.4	0.3	10.6
15	0.2	0.5	0.1	0.2	0.7	1.1	3.8	1.9	3.1	0.8	0.5	0.2	13.1
16	0.1	0.7	0.4	0.4	2.0	2.2	3.4	4.1	5.1	2.0	0.8	0.3	21.4
17	0.2	0.6	0.4	0.2	1.6	2.8	7.1	4.2	5.1	1.2	0.6	0.3	24.2
18	0.8	0.2	0.6	0.3	1.4	3.7	6.8	6.8	4.5	0.8	0.4	0.3	26.7
19	0.5	0.4	0.3	0.6	1.2	5.4	7.4	4.5	2.9	3.3	1.3	0.4	28.3
20	0.3	0.5	0.9	0.7	1.2	3.6	6.5	5.2	4.7	1.8	0.7	0.2	26.4
21	0.2	0.6	0.9	0.7	1.8	3.5	6.3	6.7	7.0	1.0	0.5	0.3	29.5
22	0.3	1.0	0.5	0.3	1.0	4.4	6.7	7.3	5.4	1.4	0.5	0.2	29.0
23	0.5	0.5	0.3	0.2	0.8	4.5	4.3	3.9	6.4	1.2	0.3	0.1	23.1
Suma	7.0	10.1	6.5	4.1	17.4	54.4	75.8	65.3	72.2	20.0	9.8	6.5	349.0

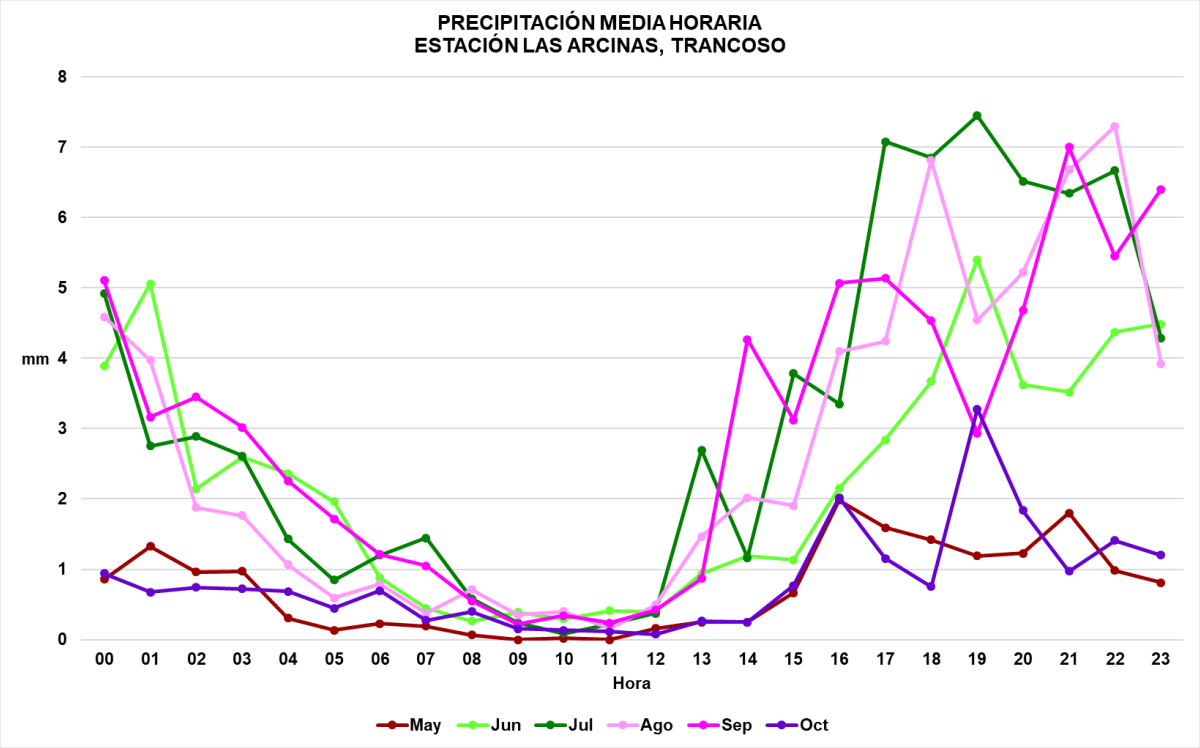


Figura 333. Precipitación media (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 370. Precipitación máxima maximorum (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.0	3.0	3.6	2.0	6.6	11.6	18.4	14.6	14.6	5.2	1.2	2.0	18.4
01	3.0	2.2	2.2	0.0	10.2	23.4	10.8	13.8	7.6	5.0	2.4	0.8	23.4
02	2.2	2.6	0.4	0.2	5.2	6.2	12.0	4.2	18.8	4.6	3.8	3.6	18.8
03	2.2	2.6	2.4	0.0	8.0	11.0	24.2	8.4	8.2	3.2	0.8	1.6	24.2
04	3.2	1.4	0.4	0.8	2.4	10.2	4.6	4.8	12.8	3.4	0.8	0.8	12.8
05	4.0	1.8	1.4	0.8	1.8	5.4	2.0	4.2	11.0	2.8	0.4	2.2	11.0
06	4.2	2.0	1.2	0.2	4.0	4.0	9.0	9.2	3.8	10.2	0.6	3.2	10.2
07	3.0	1.0	0.4	0.6	3.4	2.2	8.4	2.2	3.4	1.6	0.8	4.2	8.4
08	1.2	2.0	1.0	0.2	1.2	1.2	2.2	7.4	3.6	3.0	2.2	3.8	7.4
09	2.8	2.0	2.6	0.2	0.0	3.6	2.2	5.2	1.0	1.6	1.0	3.4	5.2
10	3.4	2.8	1.4	0.0	0.2	3.0	0.8	6.8	2.8	2.4	1.8	2.8	6.8
11	0.4	2.2	1.8	0.0	0.0	2.8	1.2	2.8	1.6	2.4	12.2	1.0	12.2
12	1.0	1.8	1.8	0.8	3.4	4.0	3.2	5.4	5.2	1.4	1.6	2.6	5.4
13	0.8	2.4	2.6	1.0	3.8	7.8	16.6	5.8	6.4	2.0	4.0	3.6	16.6
14	1.6	3.2	2.4	0.2	3.2	8.0	5.4	18.6	28.4	2.6	2.6	2.6	28.4
15	2.4	2.4	0.6	2.8	3.8	6.4	19.2	11.4	12.8	5.6	3.8	0.6	19.2
16	1.6	4.2	5.0	6.2	25.8	13.2	8.8	42.4	18.8	10.8	5.0	1.0	42.4
17	1.8	2.2	3.4	1.8	9.6	12.2	22.4	13.2	11.2	8.4	2.0	1.2	22.4
18	7.0	1.6	11.8	5.0	6.8	19.4	20.0	16.8	15.4	8.8	3.8	2.4	20.0
19	4.0	4.6	4.8	9.6	10.2	32.8	27.4	17.2	6.0	22.0	11.4	3.0	32.8
20	1.4	3.6	12.2	12.2	10.0	10.0	18.0	15.8	23.4	13.0	8.2	1.0	23.4
21	1.8	4.2	10.6	7.4	10.0	14.6	13.8	28.0	27.0	6.6	3.2	3.4	28.0
22	3.2	11.0	5.2	3.0	4.4	11.0	19.8	23.6	30.0	11.6	2.4	1.4	30.0
23	3.0	3.2	3.0	4.6	4.4	11.8	7.4	15.6	23.0	4.8	1.8	1.8	23.0
Máx.	7.0	11.0	12.2	12.2	25.8	32.8	27.4	42.4	30.0	22.0	12.2	4.2	42.4

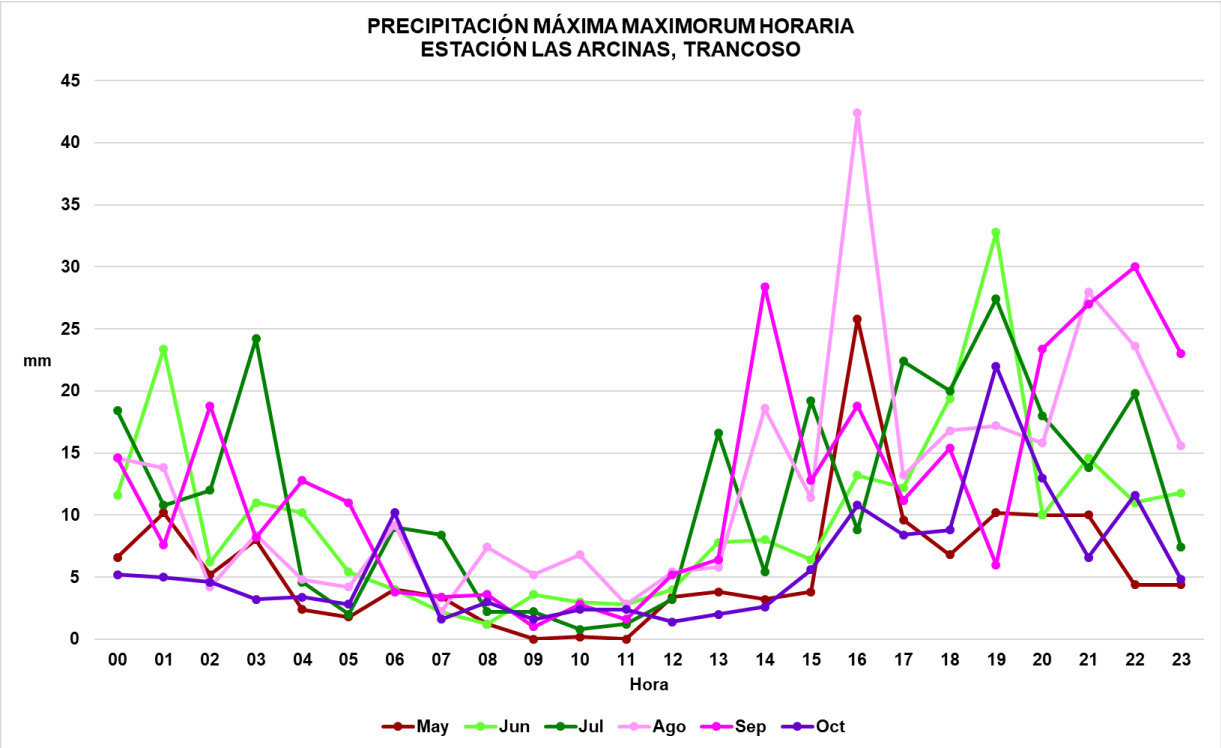


Figura 334. Precipitación máxima maximorum (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 371. Evapotranspiración potencial media (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.04	0.05	0.08	0.07	0.02	0.01	0.01	0.00	0.01	0.01	0.02	0.03
01	0.02	0.03	0.04	0.08	0.06	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.02
02	0.02	0.03	0.04	0.07	0.05	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.02
03	0.01	0.02	0.03	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02
04	0.01	0.02	0.02	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
05	0.01	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
07	0.01	0.02	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
08	0.02	0.05	0.10	0.07	0.07	0.05	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.10	0.16	0.24	0.20	0.20	0.17	0.13	0.13	0.10	0.11	0.16	0.12	0.15
10	0.22	0.29	0.40	0.36	0.37	0.31	0.26	0.26	0.22	0.24	0.29	0.24	0.29
11	0.34	0.42	0.54	0.52	0.53	0.46	0.39	0.40	0.35	0.37	0.40	0.35	0.42
12	0.43	0.52	0.63	0.65	0.66	0.58	0.51	0.53	0.46	0.49	0.48	0.44	0.53
13	0.47	0.57	0.68	0.73	0.74	0.66	0.59	0.61	0.53	0.56	0.51	0.47	0.59
14	0.48	0.57	0.66	0.75	0.75	0.67	0.62	0.64	0.54	0.57	0.48	0.46	0.60
15	0.44	0.53	0.61	0.72	0.71	0.64	0.59	0.62	0.51	0.54	0.42	0.41	0.56
16	0.36	0.44	0.51	0.64	0.64	0.57	0.53	0.55	0.45	0.45	0.32	0.32	0.48
17	0.25	0.33	0.37	0.52	0.52	0.47	0.44	0.45	0.35	0.33	0.18	0.20	0.37
18	0.14	0.18	0.23	0.38	0.38	0.36	0.32	0.32	0.23	0.23	0.10	0.12	0.25
19	0.07	0.11	0.14	0.31	0.28	0.22	0.19	0.22	0.15	0.11	0.04	0.05	0.16
20	0.04	0.06	0.09	0.17	0.18	0.15	0.13	0.11	0.05	0.03	0.03	0.03	0.09
21	0.03	0.05	0.08	0.11	0.10	0.08	0.05	0.05	0.02	0.02	0.02	0.03	0.05
22	0.03	0.05	0.07	0.10	0.08	0.05	0.03	0.02	0.01	0.01	0.02	0.03	0.04
23	0.03	0.05	0.06	0.09	0.08	0.04	0.02	0.02	0.00	0.01	0.02	0.02	0.04
Media/día /mes	3.54	4.56	5.66	6.76	6.60	5.53	4.86	4.97	3.97	4.12	3.57	3.40	4.80

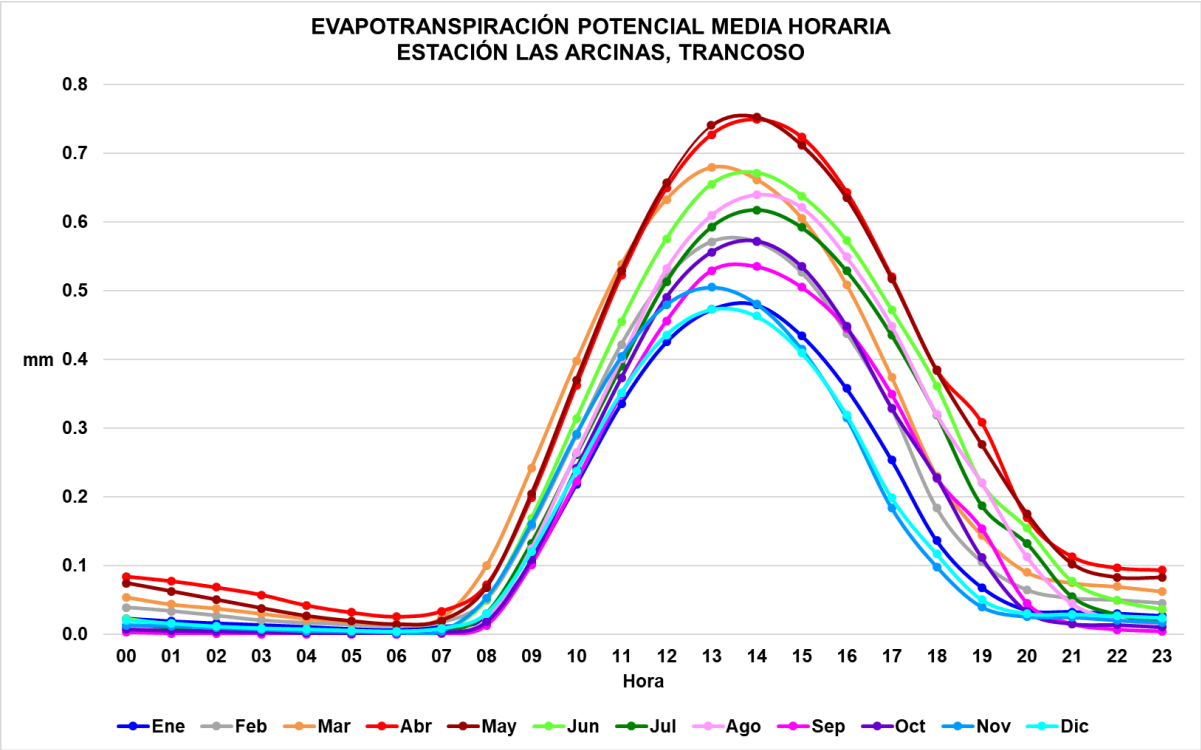


Figura 335. Evapotranspiración potencial media (mm) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 372. Humedad relativa media (%) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	56.3	47.4	40.8	35.0	45.5	65.9	77.3	77.8	84.6	76.7	70.3	59.5	61.4
01	59.3	50.7	44.1	38.2	49.8	70.3	80.7	81.3	87.1	79.9	73.2	62.6	64.8
02	62.0	53.4	47.1	41.4	53.8	73.9	83.2	84.3	89.0	82.4	75.8	65.1	67.6
03	64.5	56.5	49.9	44.8	57.3	77.0	85.4	86.5	90.5	84.9	78.3	67.6	70.3
04	66.9	59.4	52.8	48.2	60.4	79.7	87.2	88.3	91.7	86.9	80.5	70.0	72.7
05	69.1	62.0	55.4	51.5	63.1	82.0	88.9	89.7	92.6	88.3	82.7	72.4	74.8
06	71.0	64.4	57.9	54.4	65.9	83.6	90.1	90.9	93.3	89.4	84.2	74.4	76.6
07	72.0	64.3	56.2	54.7	65.6	82.6	89.9	91.1	93.6	89.2	81.8	74.4	76.3
08	65.4	56.2	47.7	48.6	57.5	75.0	83.6	85.6	89.9	82.8	69.9	65.4	69.0
09	55.0	46.1	38.5	39.7	47.6	66.0	74.8	76.1	80.7	70.7	58.2	54.7	59.0
10	45.4	37.4	30.8	31.1	37.8	56.9	66.5	67.2	71.9	59.9	48.2	45.3	49.9
11	38.0	31.1	25.1	24.5	30.3	48.5	58.8	59.2	64.3	51.2	40.6	37.7	42.4
12	32.7	26.5	21.4	20.2	25.1	41.6	52.2	52.4	57.9	44.3	35.2	32.0	36.8
13	28.8	23.4	18.9	17.3	21.5	36.5	47.1	47.1	53.2	39.5	31.7	28.5	32.8
14	26.4	21.7	17.4	15.5	19.6	33.7	43.8	43.4	50.5	36.4	29.8	26.6	30.4
15	25.3	20.6	16.7	14.6	18.9	32.0	42.2	41.6	48.7	35.2	29.2	26.0	29.2
16	25.2	20.4	16.6	14.4	18.5	31.4	42.2	41.0	48.7	35.5	30.2	26.5	29.2
17	27.1	21.5	17.3	14.7	18.8	32.0	43.2	42.1	50.4	37.4	34.4	29.1	30.7
18	32.7	24.7	19.4	15.7	20.3	34.0	46.0	45.2	54.4	42.9	43.1	36.0	34.5
19	38.7	29.5	23.2	17.7	23.0	38.2	50.8	50.6	62.1	52.2	49.6	41.8	39.8
20	43.0	33.4	27.4	20.8	27.7	44.6	57.4	58.5	70.5	59.3	53.6	45.8	45.2
21	46.8	36.6	30.8	24.2	32.5	50.8	63.9	64.9	75.2	63.6	58.0	49.4	49.7
22	50.1	40.0	34.2	27.5	36.9	56.2	69.0	69.5	78.9	67.7	62.5	52.8	53.8
23	53.2	43.4	37.5	31.4	41.7	61.8	73.2	74.0	82.0	71.9	66.5	56.3	57.7
Media	48.1	40.4	34.5	31.1	39.1	56.4	66.6	67.0	73.4	63.7	57.0	50.0	52.3

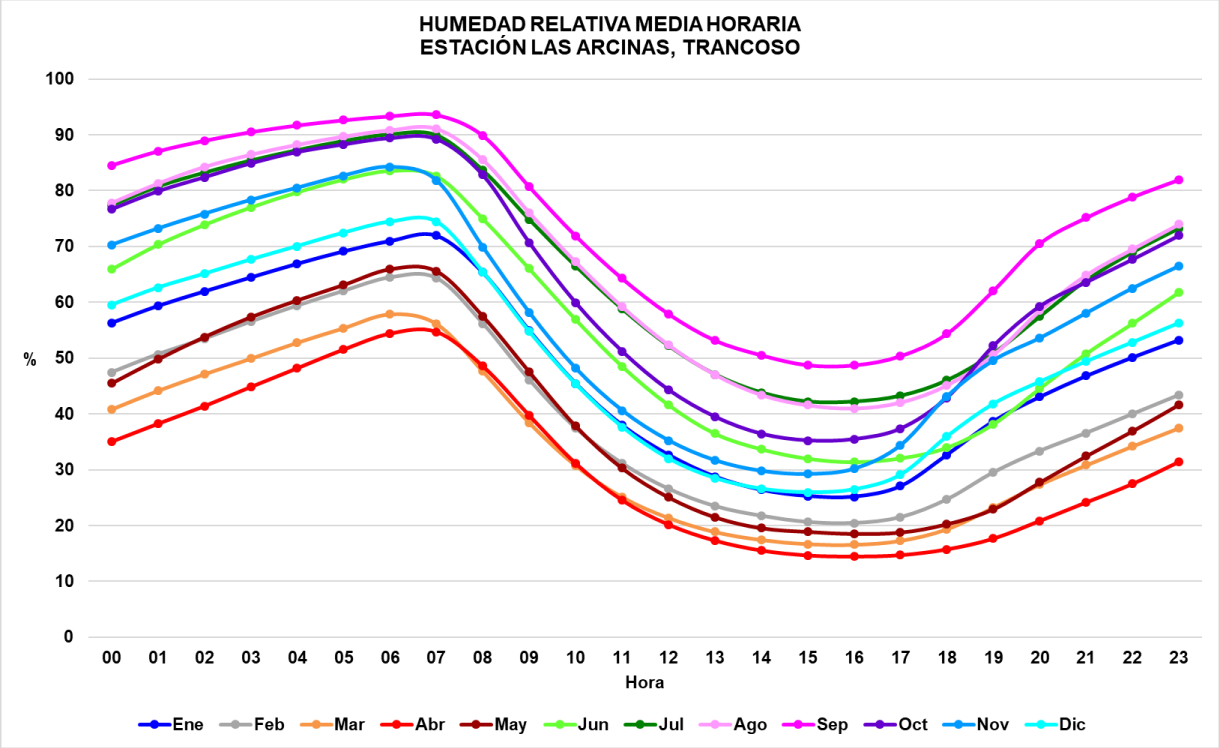


Figura 336. Humedad relativa media (%) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 373. Humedad relativa mínima minimorum (%) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	10.0	8.0	8.2	8.0	10.0	30.9	33.0	41.0	22.0	18.0	14.0	8.0
01	13.0	10.0	9.0	9.0	9.0	12.0	36.2	44.0	41.6	22.0	24.0	17.0	9.0
02	13.0	11.0	10.0	10.0	9.0	14.0	36.5	48.0	48.5	25.0	25.0	17.0	9.0
03	13.0	13.0	9.0	11.0	12.0	16.0	41.0	50.0	45.0	23.0	26.0	18.0	9.0
04	15.0	13.0	9.0	12.0	12.0	18.0	41.0	56.0	50.0	22.0	25.0	20.0	9.0
05	18.0	12.0	9.0	13.0	13.0	20.0	40.0	48.0	52.0	20.0	28.0	20.0	9.0
06	19.0	15.0	8.1	12.0	13.0	24.0	44.0	56.0	52.0	23.0	29.0	20.0	8.1
07	21.0	15.0	7.5	12.7	16.4	24.0	43.0	60.0	56.0	27.0	28.0	21.0	7.5
08	16.0	9.0	6.0	10.5	12.4	22.0	37.0	52.0	43.5	22.0	20.0	13.9	6.0
09	8.0	8.0	5.0	8.0	10.0	13.0	25.0	39.0	30.2	17.4	13.0	11.7	5.0
10	8.0	5.0	4.9	5.9	7.0	10.0	26.0	22.0	27.1	12.0	9.0	9.0	4.9
11	7.0	5.0	4.0	5.0	6.0	8.0	17.0	25.5	24.7	9.9	7.0	7.0	4.0
12	5.0	5.0	3.0	5.0	6.0	7.0	17.0	22.1	18.0	7.6	6.0	5.0	3.0
13	5.0	4.0	4.0	4.9	4.9	7.0	15.0	18.0	16.0	7.5	5.0	5.0	4.0
14	6.0	4.0	4.0	4.0	4.0	6.0	12.0	17.0	14.2	8.0	5.0	4.0	4.0
15	6.0	5.0	4.0	4.0	4.0	6.0	11.0	16.3	13.3	7.0	4.0	4.0	4.0
16	5.0	5.0	4.0	4.0	4.0	5.0	11.0	15.8	13.7	7.0	4.0	5.0	4.0
17	5.8	4.0	4.0	3.0	4.5	5.0	11.0	16.0	13.2	7.0	4.0	5.0	3.0
18	6.0	5.0	4.0	4.0	4.8	5.0	11.0	15.8	13.9	8.0	6.0	6.0	4.0
19	8.0	7.0	5.0	4.0	5.0	5.0	12.0	17.1	17.0	13.0	8.0	8.0	4.0
20	8.0	8.0	6.0	4.0	6.0	6.0	18.0	20.9	24.0	16.0	9.0	11.0	4.0
21	9.0	9.0	6.0	5.0	7.0	8.0	20.0	27.0	28.0	17.0	10.0	11.0	5.0
22	8.0	9.0	7.0	6.0	7.8	8.0	28.0	26.9	27.0	16.0	10.0	13.0	6.0
23	11.0	9.0	7.0	7.0	8.0	9.0	29.9	31.1	36.0	18.0	12.0	13.0	7.0
Mín.	5.0	4.0	3.0	3.0	4.0	5.0	11.0	15.8	13.2	7.0	4.0	4.0	3.0

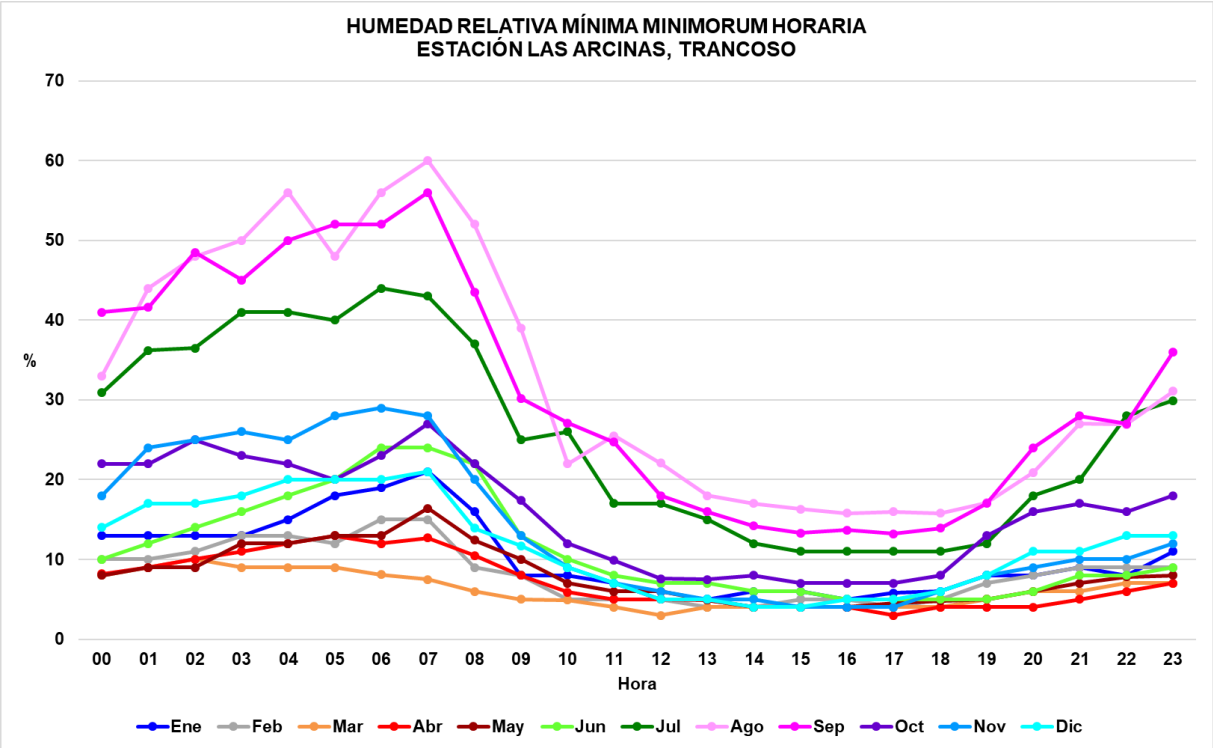


Figura 337. Humedad relativa mínima minimorum (%) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 374. Radiación solar global media horaria (W/m²) de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	19	5	3	1	1	0	0	1	6	1	3
07	66	135	342	209	234	202	142	101	64	93	238	106	161
08	556	768	1147	871	922	806	676	607	504	558	914	647	748
09	1302	1603	2060	1790	1801	1600	1419	1384	1217	1334	1695	1380	1549
10	2029	2377	2855	2647	2664	2406	2164	2156	1944	2091	2352	2051	2311
11	2574	2967	3396	3322	3321	3054	2829	2890	2568	2724	2783	2545	2914
12	2811	3274	3649	3740	3743	3455	3276	3336	2953	3089	2903	2750	3248
13	2829	3246	3554	3846	3798	3570	3422	3465	3012	3149	2766	2659	3276
14	2534	2965	3215	3679	3535	3313	3241	3339	2823	2920	2407	2340	3026
15	2019	2446	2684	3206	3114	2927	2861	2917	2488	2430	1837	1793	2560
16	1356	1742	1949	2577	2543	2436	2348	2390	2000	1798	1104	1108	1946
17	605	938	1108	1798	1846	1829	1713	1726	1340	1094	376	402	1231
18	69	204	325	989	1094	1121	1039	993	661	408	11	16	578
19	0	0	5	296	400	449	451	349	142	34	0	0	177
20	0	0	0	12	32	53	59	23	1	0	0	0	15
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18751	22667	26307	28988	29050	27224	25642	25675	21716	21723	19392	17799	23745

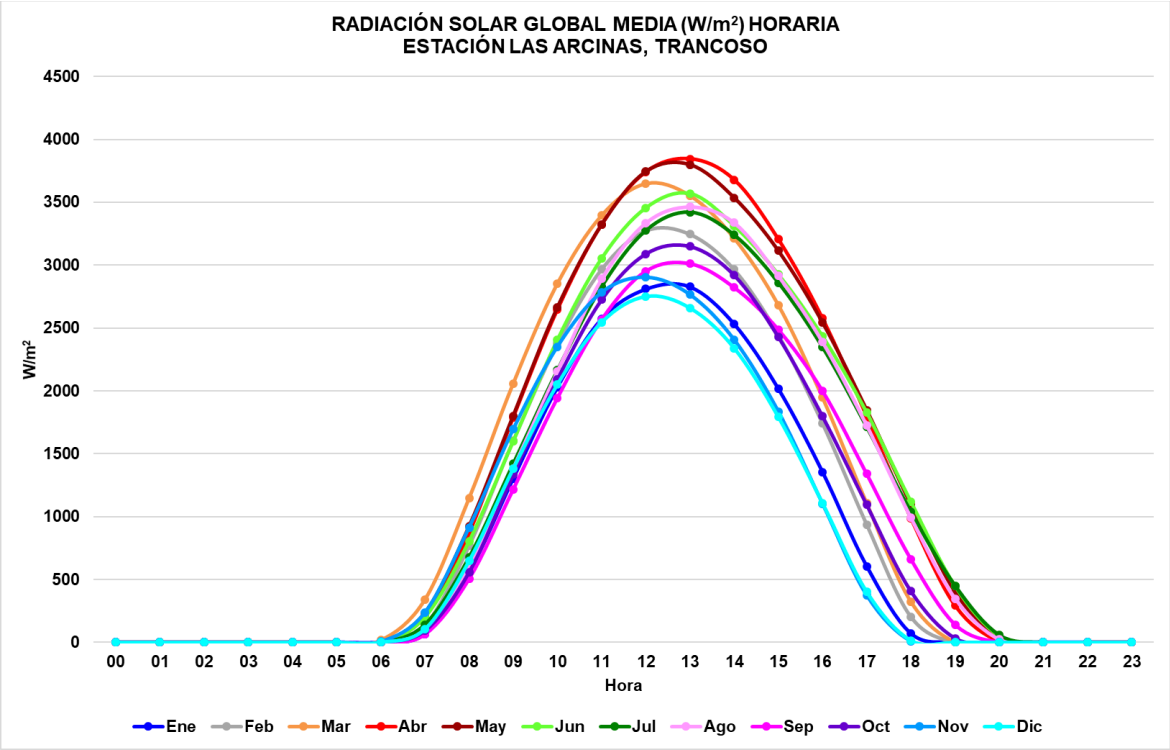


Figura 338. Radiación solar global media horaria (W/m²) de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 375. Radiación solar global media horaria (kWh/m²) de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.03	0.09	0.05	0.06	0.05	0.04	0.03	0.02	0.02	0.06	0.03	0.04
08	0.14	0.19	0.29	0.22	0.23	0.20	0.17	0.15	0.13	0.14	0.23	0.16	0.19
09	0.33	0.40	0.51	0.45	0.45	0.40	0.35	0.35	0.30	0.33	0.42	0.35	0.39
10	0.51	0.59	0.71	0.66	0.67	0.60	0.54	0.54	0.49	0.52	0.59	0.51	0.58
11	0.64	0.74	0.85	0.83	0.83	0.76	0.71	0.72	0.64	0.68	0.70	0.64	0.73
12	0.70	0.82	0.91	0.94	0.94	0.86	0.82	0.83	0.74	0.77	0.73	0.69	0.81
13	0.71	0.81	0.89	0.96	0.95	0.89	0.86	0.87	0.75	0.79	0.69	0.66	0.82
14	0.63	0.74	0.80	0.92	0.88	0.83	0.81	0.83	0.71	0.73	0.60	0.58	0.76
15	0.50	0.61	0.67	0.80	0.78	0.73	0.72	0.73	0.62	0.61	0.46	0.45	0.64
16	0.34	0.44	0.49	0.64	0.64	0.61	0.59	0.60	0.50	0.45	0.28	0.28	0.49
17	0.15	0.23	0.28	0.45	0.46	0.46	0.43	0.43	0.33	0.27	0.09	0.10	0.31
18	0.02	0.05	0.08	0.25	0.27	0.28	0.26	0.25	0.17	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.07	0.10	0.11	0.11	0.09	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.69	5.67	6.58	7.25	7.26	6.81	6.41	6.42	5.43	5.43	4.85	4.45	5.94

Cuadro 376. Radiación solar global media horaria (Mj/m²/s) de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.06	0.12	0.31	0.19	0.21	0.18	0.13	0.09	0.06	0.08	0.21	0.10	0.14
08	0.50	0.69	1.03	0.78	0.83	0.73	0.61	0.55	0.45	0.50	0.82	0.58	0.67
09	1.17	1.44	1.85	1.61	1.62	1.44	1.28	1.25	1.10	1.20	1.53	1.24	1.39
10	1.83	2.14	2.57	2.38	2.40	2.17	1.95	1.94	1.75	1.88	2.12	1.85	2.08
11	2.32	2.67	3.06	2.99	2.99	2.75	2.55	2.60	2.31	2.45	2.50	2.29	2.62
12	2.53	2.95	3.28	3.37	3.37	3.11	2.95	3.00	2.66	2.78	2.61	2.48	2.92
13	2.55	2.92	3.20	3.46	3.42	3.21	3.08	3.12	2.71	2.83	2.49	2.39	2.95
14	2.28	2.67	2.89	3.31	3.18	2.98	2.92	3.00	2.54	2.63	2.17	2.11	2.72
15	1.82	2.20	2.42	2.89	2.80	2.63	2.58	2.63	2.24	2.19	1.65	1.61	2.30
16	1.22	1.57	1.75	2.32	2.29	2.19	2.11	2.15	1.80	1.62	0.99	1.00	1.75
17	0.54	0.84	1.00	1.62	1.66	1.65	1.54	1.55	1.21	0.98	0.34	0.36	1.11
18	0.06	0.18	0.29	0.89	0.98	1.01	0.94	0.89	0.60	0.37	0.01	0.01	0.52
19	0.00	0.00	0.00	0.27	0.36	0.40	0.41	0.31	0.13	0.03	0.00	0.00	0.16
20	0.00	0.00	0.00	0.01	0.03	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.88	20.40	23.68	26.09	26.15	24.50	23.08	23.11	19.54	19.55	17.45	16.02	21.37

Cuadro 377. Velocidad del viento media (km/h) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.1	8.2	8.8	11.1	9.9	6.5	5.6	4.8	3.4	3.8	4.6	5.7	6.6
01	5.8	7.5	8.0	10.2	8.8	5.7	4.8	4.0	3.0	3.5	4.1	5.1	5.9
02	5.4	6.6	7.5	9.2	7.6	4.8	4.2	3.4	2.6	3.1	3.9	4.8	5.3
03	5.0	6.1	6.6	7.8	6.4	4.0	3.6	2.9	2.4	2.6	3.4	4.5	4.6
04	4.7	6.0	5.8	6.7	5.3	3.4	3.2	2.6	2.2	2.5	3.1	4.3	4.1
05	4.4	5.6	5.3	6.0	4.6	3.0	2.8	2.2	2.0	2.3	2.9	4.2	3.8
06	4.2	5.0	4.9	5.3	3.9	2.8	2.6	2.0	2.0	2.3	2.7	4.0	3.5
07	4.0	4.8	5.0	4.9	3.7	3.1	2.6	2.0	2.0	2.1	2.6	3.9	3.4
08	4.7	5.7	7.3	5.9	5.0	4.8	3.8	2.9	2.8	2.8	4.2	4.7	4.6
09	7.7	8.9	10.2	8.7	7.5	7.2	5.8	5.2	5.0	4.9	6.8	7.7	7.1
10	10.4	11.4	11.9	10.5	8.7	7.9	6.8	6.7	6.5	6.7	8.5	10.0	8.8
11	11.9	12.8	12.9	11.7	9.1	7.8	7.1	7.2	7.3	7.8	9.4	11.2	9.7
12	12.8	13.9	13.6	12.6	9.4	8.1	7.5	7.6	7.7	8.4	9.8	12.2	10.3
13	13.4	14.6	14.4	13.3	10.3	8.9	8.0	8.2	8.1	8.9	10.2	12.7	10.9
14	13.6	14.9	14.9	14.2	10.8	9.8	8.7	8.9	8.5	9.1	10.4	12.9	11.4
15	13.8	15.1	15.1	14.5	11.5	10.5	9.6	9.4	8.6	9.1	10.3	12.7	11.7
16	13.5	14.7	15.0	14.6	11.5	11.0	10.1	9.7	8.6	9.1	9.9	12.1	11.6
17	12.3	13.9	14.5	14.4	11.5	10.9	10.2	10.0	8.5	8.7	8.4	10.2	11.1
18	8.8	11.3	12.9	14.0	11.5	11.1	10.3	9.8	7.8	7.3	5.9	6.8	9.8
19	7.1	8.7	10.1	12.3	10.8	10.7	9.8	8.8	5.9	5.1	5.8	6.4	8.4
20	7.1	8.7	10.0	10.7	9.6	9.5	8.2	7.1	4.4	4.6	6.0	6.6	7.7
21	7.3	9.0	10.0	11.3	9.7	8.6	7.2	6.0	4.2	4.7	5.6	6.6	7.5
22	7.0	9.0	9.9	11.8	10.4	8.3	6.5	5.8	4.0	4.5	5.3	6.5	7.4
23	6.6	8.7	9.4	11.7	10.2	7.6	6.0	5.5	3.9	4.2	5.0	6.1	7.1
Media	8.2	9.6	10.2	10.6	8.7	7.3	6.5	5.9	5.1	5.3	6.2	7.6	7.6

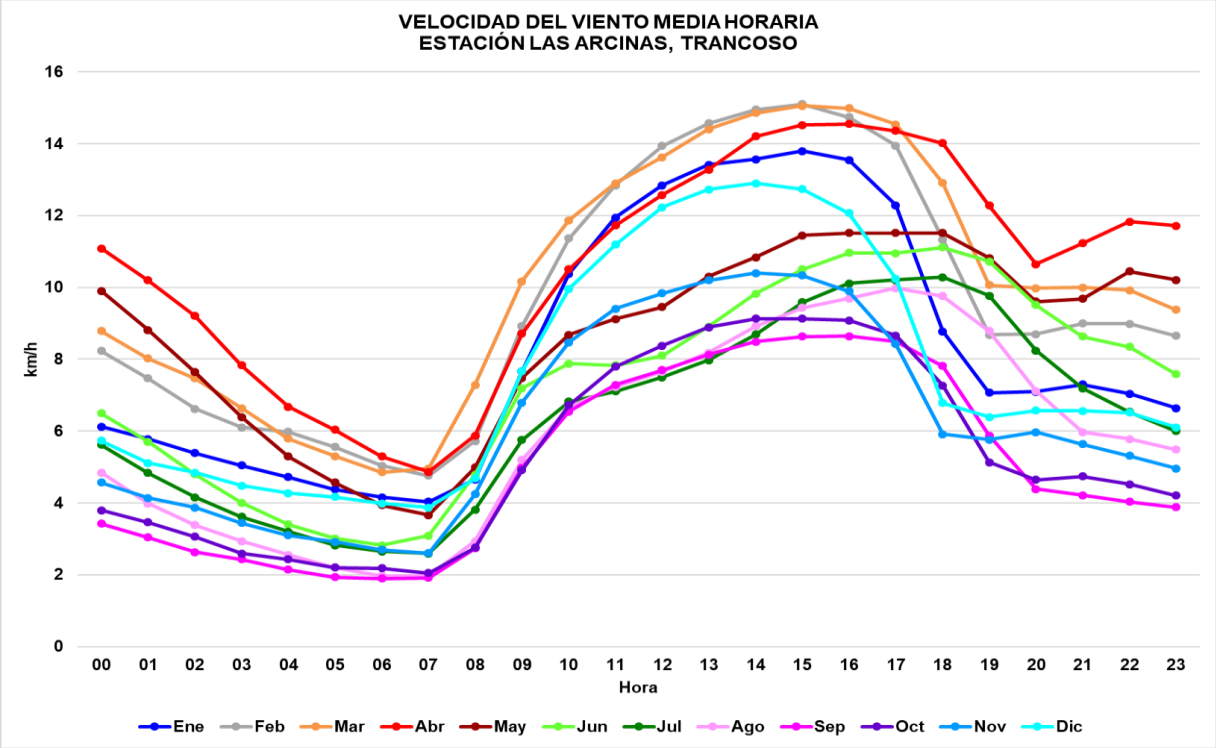


Figura 339. Velocidad del viento media (km/h) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 378. Velocidad del viento máxima maximorum (km/h) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	29.8	32.4	34.2	36.6	29.7	33.1	23.9	26.3	17.2	21.7	39.6	29.1	39.6
01	37.4	33.3	35.1	34.5	32.0	30.8	22.1	20.6	22.8	23.5	31.3	28.8	37.4
02	37.5	32.2	32.3	34.8	29.7	22.8	21.9	19.1	14.2	18.9	38.0	26.9	38.0
03	35.8	33.9	31.2	35.3	25.8	22.8	20.8	20.5	19.8	20.0	33.8	24.3	35.8
04	42.1	35.0	39.8	39.0	25.0	22.0	21.7	23.1	35.9	38.6	26.6	23.5	42.1
05	38.8	38.1	34.2	34.0	25.2	22.7	39.8	24.4	38.6	22.1	27.1	23.0	39.8
06	30.9	38.2	39.6	41.9	23.0	22.4	28.8	39.0	39.7	25.9	27.4	38.2	41.9
07	25.4	39.3	41.1	31.6	26.5	40.1	27.8	24.2	42.9	38.2	29.7	44.8	44.8
08	23.3	40.5	41.4	32.4	25.2	21.0	27.7	25.5	35.9	25.4	26.6	43.0	43.0
09	29.5	48.4	42.6	38.6	25.5	24.4	22.3	27.6	17.6	25.3	33.0	44.0	48.4
10	39.5	48.1	47.7	34.3	25.8	20.4	24.0	27.5	17.6	28.2	33.5	45.6	48.1
11	42.9	54.1	52.3	35.1	29.4	19.5	24.0	24.5	18.4	29.5	36.3	47.0	54.1
12	48.4	50.5	48.4	39.4	36.7	23.8	28.1	25.6	20.5	27.4	38.8	46.3	50.5
13	44.8	51.9	50.5	39.3	34.0	26.6	29.9	24.3	22.6	27.1	35.8	51.8	51.9
14	50.2	48.2	49.1	43.7	34.2	25.5	28.4	26.5	23.7	26.3	37.0	45.1	50.2
15	42.0	47.3	49.4	46.0	37.5	27.8	26.9	25.7	23.1	24.2	37.8	45.1	49.4
16	41.8	43.2	44.3	42.1	36.2	31.7	30.5	25.9	26.6	31.2	33.2	44.6	44.6
17	40.8	41.8	40.9	39.3	34.8	39.6	29.7	37.8	25.5	27.9	31.3	38.2	41.8
18	36.1	37.5	37.7	38.2	34.0	30.0	31.3	27.1	29.1	26.7	28.3	32.3	38.2
19	33.4	37.0	32.5	33.7	31.1	30.5	28.3	35.9	23.2	23.8	32.8	36.9	37.0
20	37.0	34.2	34.0	49.8	36.4	34.0	29.5	31.5	25.3	19.3	27.2	32.4	49.8
21	36.7	32.0	34.5	42.9	32.2	34.4	24.7	29.3	27.5	23.0	23.7	28.0	42.9
22	32.8	35.8	32.2	36.7	32.6	31.4	24.4	26.3	20.6	22.0	22.8	32.2	36.7
23	31.1	31.7	33.5	34.5	30.8	32.1	27.0	22.3	24.4	20.6	24.7	28.5	34.5
Máx.	50.2	54.1	52.3	49.8	37.5	40.1	39.8	39.0	42.9	38.6	39.6	51.8	54.1

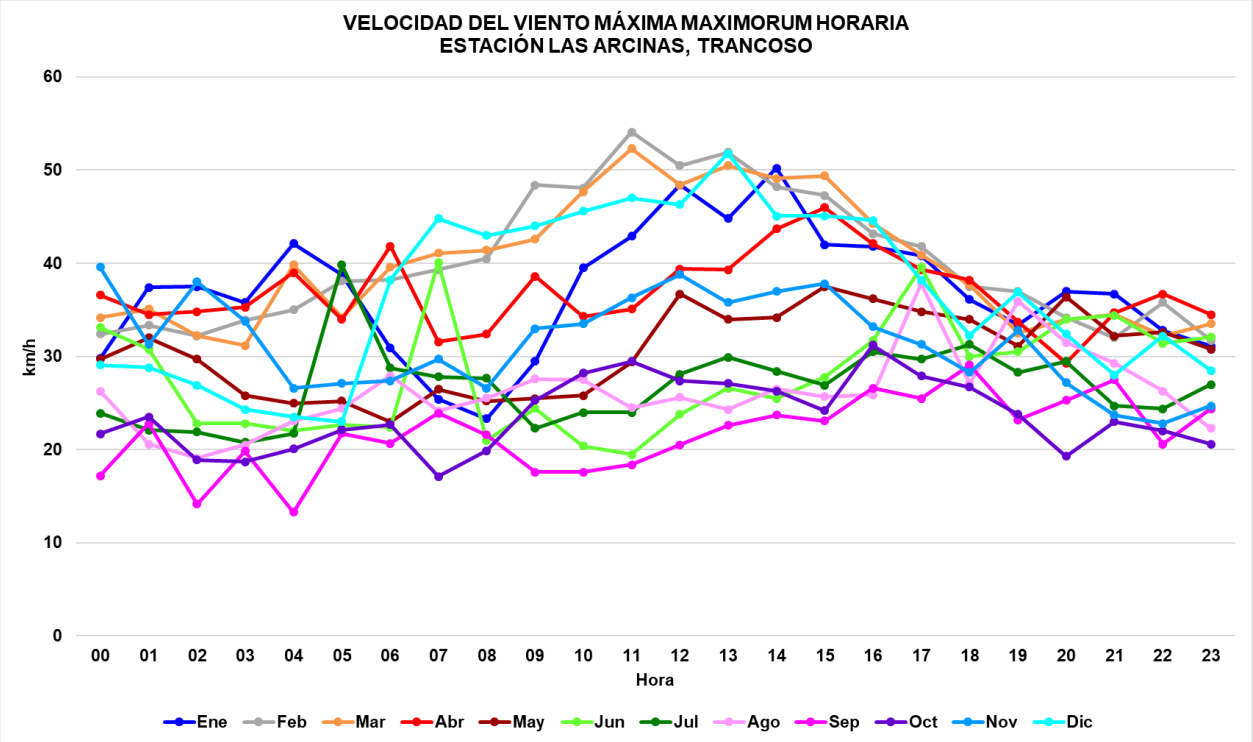


Figura 340. Velocidad del viento máxima maximorum (km/h) horaria de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 379. Frecuencia de velocidad del viento (%) mensual de la estación Las Arcinas, Trancoso (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	37.0	29.6	25.3	23.8	28.4	34.7	40.4	45.4	53.8	53.2	48.7	40.9	38.7
5.1 a 10.0	31.4	30.0	31.0	28.3	36.0	37.9	39.5	37.1	34.0	32.8	31.6	31.0	33.5
10.1 a 15.0	17.9	20.2	21.7	22.7	21.6	21.0	16.7	14.9	11.2	11.6	14.4	16.6	17.5
15.1 a 20.0	8.5	11.4	12.7	16.6	10.5	5.6	3.0	2.4	1.0	2.1	3.8	7.4	7.0
20.1 a 25.0	3.5	5.3	5.5	6.5	3.1	0.6	0.4	0.2	0.0	0.2	1.0	2.6	2.3
25.1 a 30.0	1.1	2.2	2.6	1.7	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.9	0.8
30.1 a 35.0	0.4	1.0	1.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3
35.1 a 40.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
40.1 a 45.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

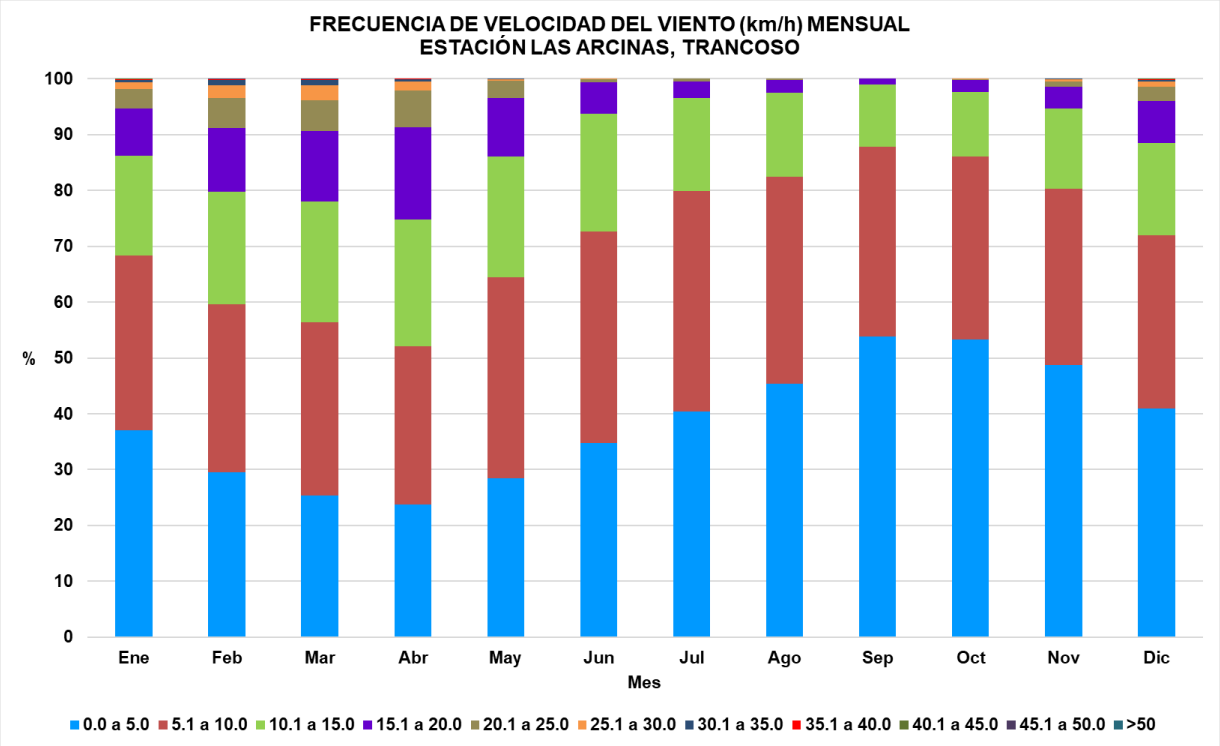


Figura 341. Frecuencia de velocidad del viento (%) mensual de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 380. Frecuencia de dirección del viento (%) mensual de la estación Las Arcinas, Trancoso (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.0	3.5	3.3	2.5	3.4	3.6	2.4	2.6	4.2	4.1	3.7	3.7	3.4
NNE	3.1	2.5	2.3	2.0	2.9	4.2	2.6	3.0	4.2	3.6	3.1	2.5	3.0
NE	2.0	2.0	2.0	1.7	3.0	4.4	3.6	3.8	4.3	3.6	2.7	1.8	2.9
ENE	2.2	2.2	2.3	1.9	3.1	5.8	6.5	7.2	6.9	5.3	3.8	2.2	4.2
E	3.9	3.2	3.7	3.0	5.1	11.4	12.8	13.9	12.7	9.5	6.3	3.2	7.5
ESE	4.6	3.8	4.3	4.1	6.2	11.9	13.4	13.7	11.5	8.8	6.4	3.9	7.8
SE	7.2	5.9	6.2	6.1	7.6	11.7	12.3	11.7	9.6	8.2	7.6	6.4	8.4
SSE	9.7	8.8	8.5	7.9	9.9	12.6	12.7	11.0	9.6	8.7	9.6	9.7	9.9
S	9.1	9.0	8.8	8.6	9.8	11.2	11.3	9.6	8.7	9.6	9.6	10.6	9.7
SSO	11.5	11.2	10.2	9.9	8.7	6.9	6.5	7.0	7.0	9.5	11.3	12.4	9.3
SO	15.8	17.4	16.4	16.7	11.8	5.0	5.2	5.2	6.0	9.6	12.3	16.5	11.3
OSO	12.2	16.7	17.6	21.4	14.1	3.3	3.7	3.8	4.0	7.1	10.1	13.1	10.4
O	5.2	6.0	6.3	7.7	6.2	2.1	2.1	2.5	3.0	4.0	5.5	5.6	4.6
ONO	2.5	2.3	2.4	2.4	2.8	1.5	1.4	1.7	2.4	2.3	2.4	2.5	2.2
NO	3.5	2.6	2.8	2.1	2.6	2.0	1.6	1.5	2.6	2.8	2.7	2.8	2.5
NNO	3.5	2.9	2.9	2.1	2.8	2.4	1.8	1.7	3.3	3.2	3.0	2.9	2.7
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

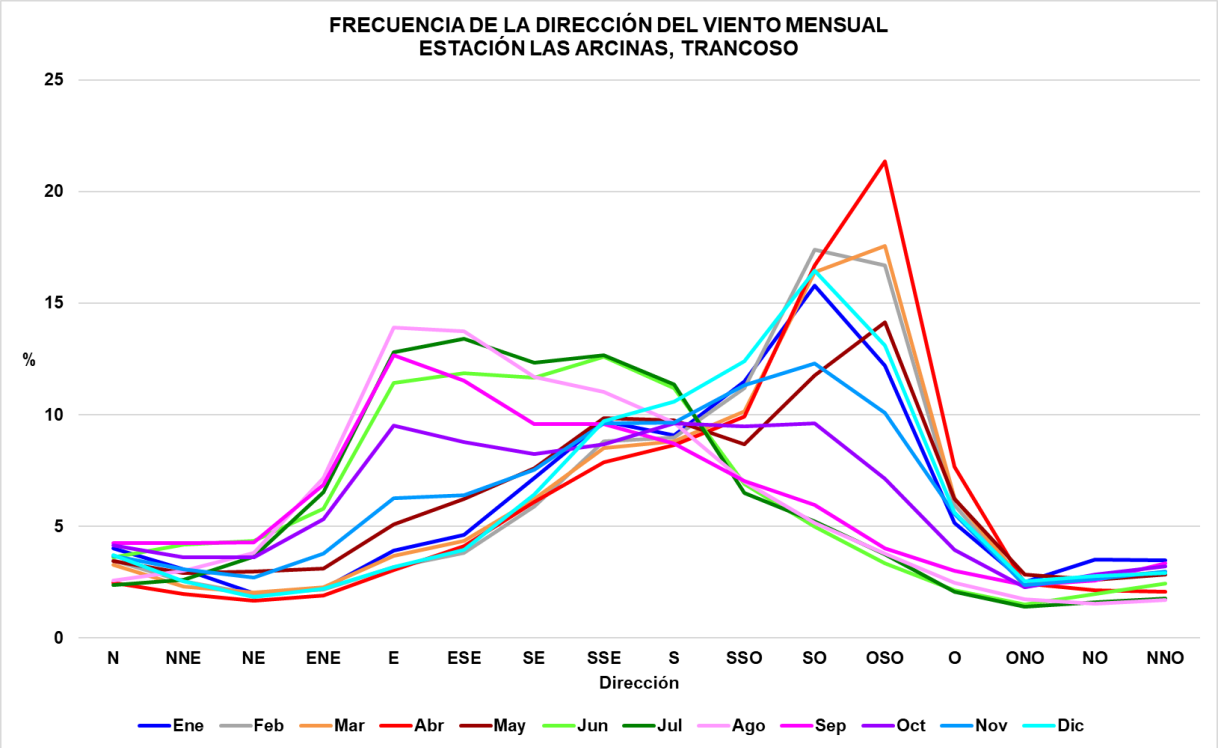


Figura 342. Frecuencia de dirección del viento (%) mensual de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 381. Frecuencia de dirección del viento (%) trimestral de la estación Las Arcinas, Trancoso (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.6	3.2	3.0	3.9	3.4
NNE	2.6	3.0	3.3	3.1	3.0
NE	2.0	3.0	3.9	2.7	2.9
ENE	2.2	3.6	6.9	3.8	4.2
E	3.6	6.6	13.1	6.3	7.5
ESE	4.3	7.5	12.9	6.4	7.8
SE	6.4	8.5	11.2	7.4	8.4
SSE	9.0	10.2	11.1	9.3	9.9
S	8.9	9.9	9.9	10.0	9.7
SSO	10.9	8.5	6.8	11.1	9.3
SO	16.5	11.0	5.5	12.8	11.3
OSO	15.5	12.8	3.9	10.1	10.4
O	5.8	5.3	2.5	5.0	4.6
ONO	2.4	2.3	1.8	2.4	2.2
NO	3.0	2.2	1.9	2.8	2.5
NNO	3.1	2.5	2.2	3.0	2.7
Suma	100.0	100.0	100.0	100.0	100.0

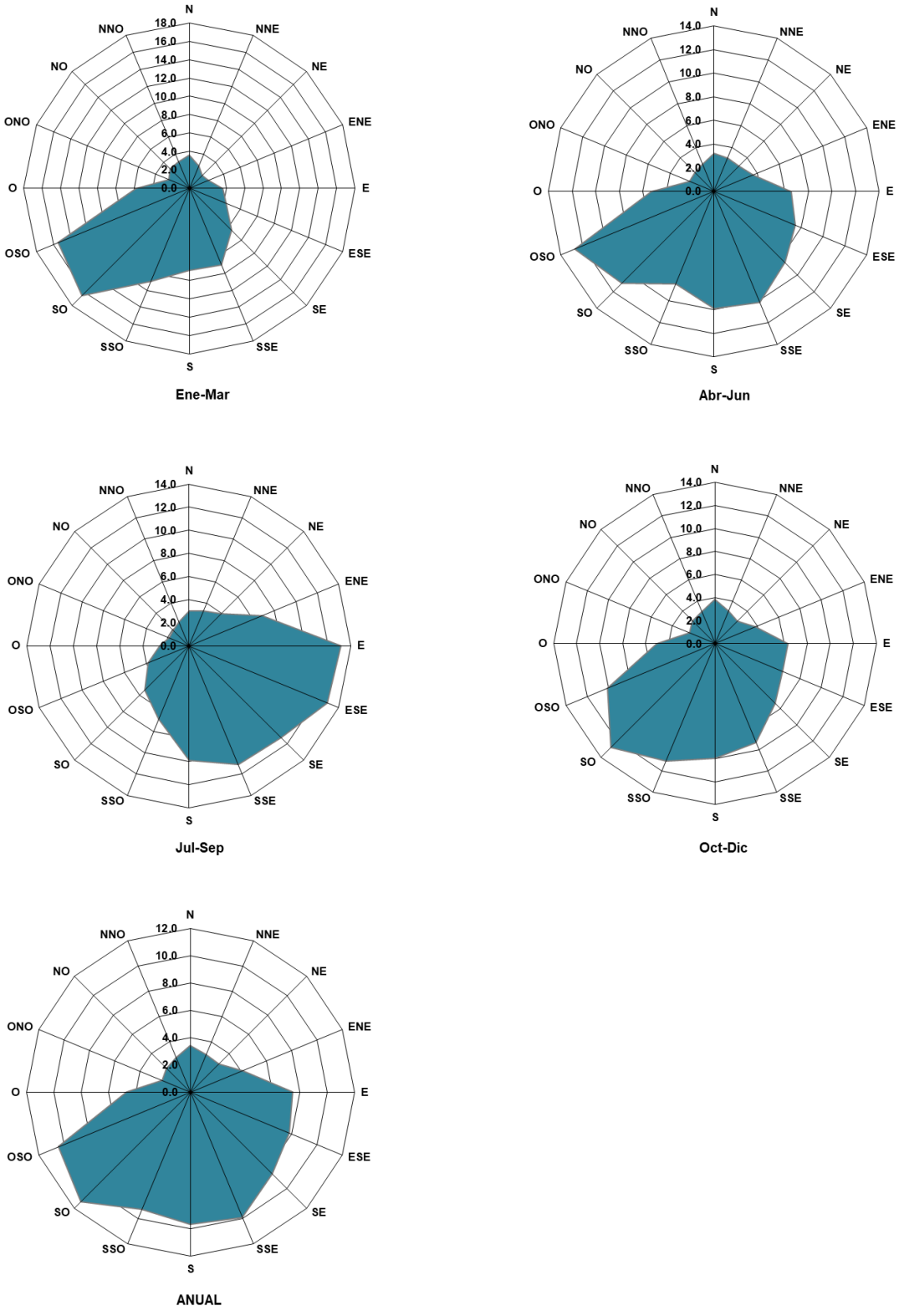


Figura 343. Frecuencia de dirección del viento (%) trimestral de la estación Las Arcinas, Trancoso (2005-2022).

Cuadro 382. Estadísticas climatológicas mensuales de la estación Las Arcinas, Trancoso (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.3	22.8	25.1	27.7	29.0	27.8	25.7	26.0	24.4	24.6	22.6	21.1	24.8
Temperatura máxima maximorum (°C)	27.4	31.1	32.7	33.6	34.9	33.8	31.5	30.6	30.6	30.4	29.3	28.0	34.9
Temperatura mínima media (°C)	2.4	4.2	6.0	8.8	10.7	12.0	11.9	11.6	11.2	7.5	4.0	2.7	7.7
Temperatura mínima minimorum (°C)	-11.8	-5.8	-5.7	-0.7	2.6	5.6	5.4	6.7	3.2	-4.1	-9.7	-11.3	-11.8
Temperatura media (°C)	11.4	13.9	16.2	19.0	20.4	19.8	18.4	18.4	17.2	15.8	13.3	11.9	16.3
Oscilación térmica (°C)	17.9	18.6	19.2	18.9	18.3	15.7	13.9	14.4	13.3	17.1	18.5	18.4	17.0
Precipitación acumulada media (mm)	8.7	12.5	8.1	5.1	20.3	63.5	88.4	76.2	84.2	23.3	11.4	7.5	409.1
Precipitación máxima maximorum en 24 horas (mm)	24.4	29.2	49.4	27.2	39.2	54.0	81.8	63.6	54.6	36.4	27.0	22.4	81.8
Número de días promedio con lluvia	3.2	3.6	3.7	2.4	5.4	8.9	13.2	12.5	10.9	6.3	3.7	2.9	76.7
Evapotranspiración acumulada potencial media (mm)	113.4	134.5	179.8	202.0	205.3	172.0	159.1	159.9	125.8	132.3	114.8	110.4	1809.1
Humedad máxima media (%)	77.6	70.5	64.2	61.3	72.0	86.8	92.5	93.2	95.1	92.3	87.7	80.4	81.1
Humedad máxima maximorum (%)	100.0	100.0	98.0	98.0	99.0	99.0	99.0	99.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.2	17.9	14.3	12.1	15.3	26.6	35.6	35.2	42.5	31.3	26.4	23.2	25.2
Humedad mínima minimorum (%)	5.0	4.0	3.0	3.0	4.0	5.0	11.0	15.8	13.2	7.0	4.0	4.0	3.0
Humedad media (%)	48.1	40.4	34.5	31.1	39.1	56.4	66.6	67.0	73.4	63.7	57.0	50.0	52.3
Radiación global media día/mes (W/m^2)	18749.9	22674.6	26307.3	28975.1	29050.5	27224.1	25641.8	25675.3	21716.3	21723.3	19392.1	17798.6	23744.1
Radiación global media día/mes (kWh/m^2)	4.7	5.7	6.6	7.2	7.3	6.8	6.4	6.4	5.4	5.4	4.8	4.4	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.9	20.4	23.7	26.1	26.1	24.5	23.1	23.1	19.5	19.6	17.5	16.0	21.4
Velocidad del viento máxima media (km/h)	19.5	21.4	22.6	23.2	21.0	19.2	17.6	16.5	14.3	14.0	15.4	17.8	18.5
Velocidad del viento máxima maximorum (km/h)	50.2	54.1	52.3	46.0	37.5	40.1	39.8	37.8	29.1	31.2	39.6	51.8	54.1
Velocidad del viento media (km/h)	8.2	9.6	10.2	10.6	8.7	7.3	6.5	5.9	5.1	5.3	6.2	7.4	7.6
Dirección dominante del viento	SO	SO	OSO	OSO	OSO	SSE	ESE	E	E	SO	SO	SO	SO

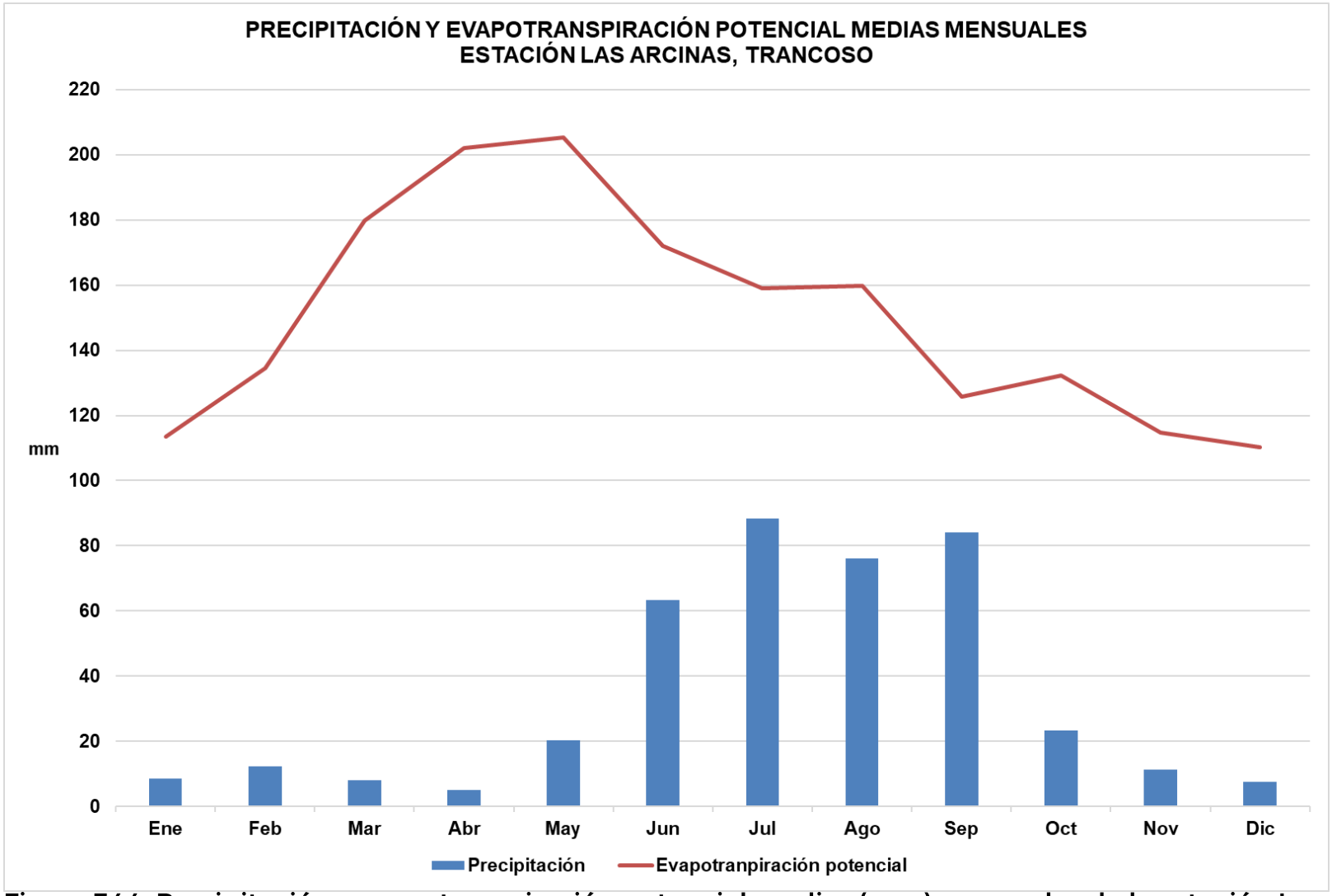


Figura 344. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Las Arcinas, Trancoso (2005-2022).

7.21. Estación: Loreto, Loreto

Cuadro 383. Temperatura máxima media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.9	10.2	12.9	16.2	18.3	18.4	16.9	17.1	16.0	14.1	9.9	7.6	13.8
01	7.0	9.1	11.6	15.0	17.2	17.6	16.3	16.4	15.5	13.2	8.9	6.5	12.9
02	6.1	8.0	10.4	13.7	16.1	16.9	15.6	15.8	14.9	12.4	8.0	5.7	12.0
03	5.4	7.2	9.3	12.6	15.0	16.1	15.1	15.2	14.4	11.7	7.3	4.9	11.2
04	4.6	6.3	8.4	11.6	14.1	15.5	14.5	14.6	14.0	10.9	6.5	4.2	10.4
05	4.0	5.5	7.6	10.7	13.2	14.8	14.0	14.1	13.6	10.3	6.0	3.7	9.8
06	3.5	4.8	6.8	9.9	12.4	14.2	13.6	13.6	13.2	9.8	5.4	3.2	9.2
07	3.3	5.0	8.2	10.1	12.7	14.5	13.7	13.5	13.2	9.8	6.6	3.4	9.5
08	6.5	9.2	13.1	13.8	16.2	16.9	15.8	15.6	14.9	12.3	11.0	7.4	12.7
09	11.0	13.6	17.0	17.9	19.5	19.2	18.0	18.1	17.3	15.9	14.9	12.1	16.2
10	14.4	16.9	19.8	20.9	22.1	21.2	19.9	20.1	19.3	18.7	17.9	15.5	18.9
11	16.9	19.2	21.9	23.3	24.3	23.0	21.5	21.8	21.0	20.8	19.9	17.9	21.0
12	18.5	20.8	23.5	25.1	26.1	24.7	22.9	23.2	22.3	22.3	21.2	19.5	22.5
13	19.6	22.0	24.5	26.4	27.5	25.9	24.0	24.4	23.3	23.4	22.1	20.5	23.6
14	20.2	22.7	25.2	27.3	28.3	26.8	25.0	25.2	24.0	24.2	22.5	21.1	24.4
15	20.5	23.0	25.4	27.7	28.8	27.3	25.4	25.6	24.3	24.5	22.6	21.2	24.7
16	20.3	22.9	25.3	27.8	28.9	27.3	25.4	25.6	24.2	24.4	22.2	20.9	24.6
17	19.5	22.2	24.7	27.4	28.6	26.9	25.0	25.2	23.6	23.7	21.0	19.8	24.0
18	17.4	20.6	23.2	26.6	27.7	26.0	24.1	24.4	22.7	22.3	18.0	16.9	22.5
19	14.4	17.4	20.3	24.9	26.2	24.7	22.9	23.1	21.1	19.9	15.5	14.1	20.4
20	12.7	15.3	18.0	22.3	23.9	23.0	21.2	21.2	19.2	17.7	14.0	12.5	18.4
21	11.4	13.9	16.5	20.1	21.8	21.3	19.6	19.6	18.0	16.6	12.9	11.2	16.9
22	10.3	12.8	15.3	18.7	20.5	20.1	18.5	18.6	17.2	15.6	11.9	10.0	15.8
23	9.1	11.6	14.2	17.5	19.3	19.2	17.7	17.8	16.5	14.8	10.9	8.8	14.8
Media	11.9	14.2	16.8	19.5	21.2	20.9	19.4	19.6	18.5	17.1	14.0	12.0	17.1

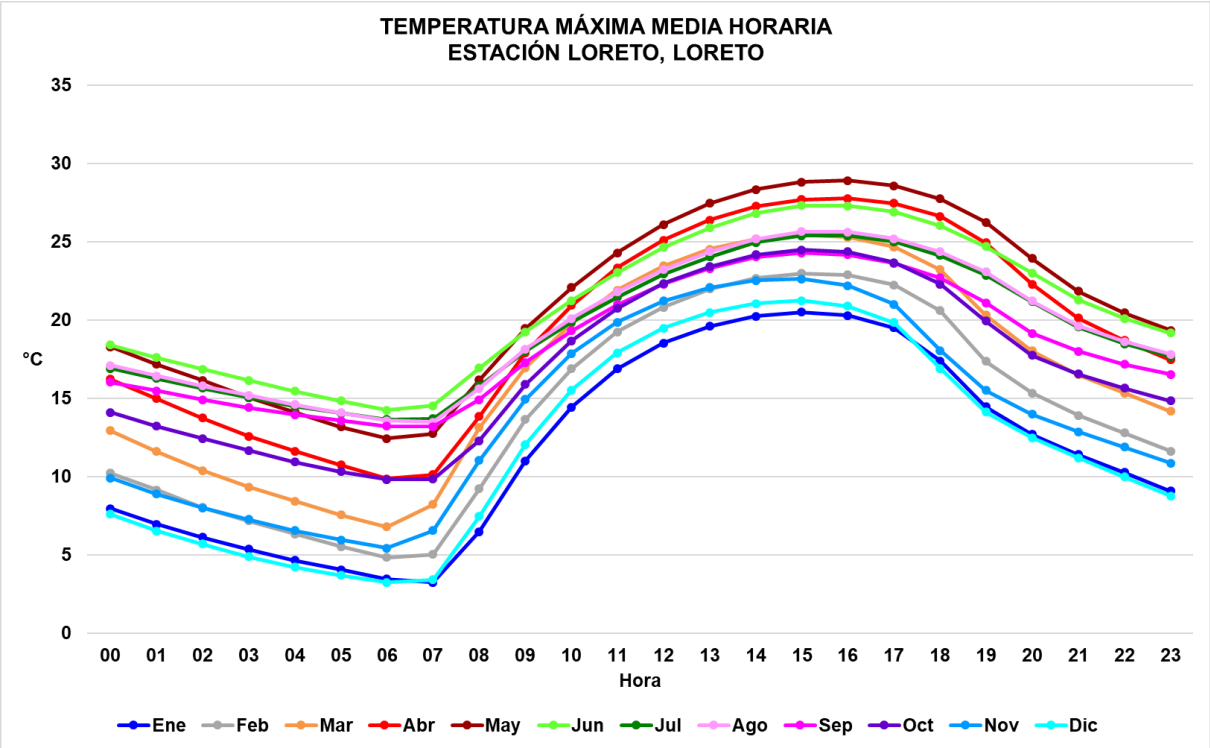


Figura 345. Temperatura máxima media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 384. Temperatura máxima maximorum (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.4	17.1	21.8	22.4	26.7	24.5	23.2	21.0	19.9	19.5	17.8	16.3	26.7
01	14.1	16.8	19.8	21.9	25.1	22.4	21.5	20.5	19.0	18.6	17.3	15.4	25.1
02	13.3	15.7	17.9	20.5	23.0	22.4	20.3	20.0	18.6	18.0	15.6	14.8	23.0
03	12.6	14.6	17.4	20.0	21.9	22.2	19.1	19.5	18.1	18.1	15.2	13.9	22.2
04	12.4	14.4	15.9	19.1	21.7	21.0	18.7	18.9	18.0	17.0	15.0	12.9	21.7
05	12.2	13.7	15.2	18.6	21.0	19.2	17.8	17.8	17.2	16.9	15.4	12.8	21.0
06	12.2	14.9	16.5	19.0	19.0	19.3	17.8	17.2	17.3	16.5	14.6	12.7	19.3
07	12.2	14.2	16.4	17.8	19.4	19.9	17.9	17.7	17.2	16.2	15.4	12.8	19.9
08	14.0	17.3	20.3	21.3	23.5	22.3	20.2	19.9	19.4	19.6	17.7	14.8	23.5
09	17.5	21.7	23.0	24.8	27.0	25.2	22.0	22.6	21.1	22.6	22.2	19.1	27.0
10	22.7	25.0	26.3	27.3	28.9	27.1	24.2	24.7	23.1	24.6	25.4	22.7	28.9
11	24.5	27.4	28.5	30.2	30.9	29.0	26.4	26.7	25.6	26.3	26.0	25.4	30.9
12	26.3	28.6	30.5	31.3	32.6	30.6	28.2	28.1	27.2	28.3	27.5	26.8	32.6
13	26.8	29.5	31.7	32.3	34.0	31.5	29.7	29.9	28.3	29.0	28.0	27.7	34.0
14	27.4	29.7	32.7	32.8	34.9	32.8	31.1	31.0	29.0	30.4	28.9	27.8	34.9
15	27.7	29.8	33.3	33.3	35.6	33.0	32.1	31.6	30.0	30.3	29.2	27.7	35.6
16	27.3	29.7	32.6	33.1	35.5	33.6	31.8	31.5	30.8	30.9	28.9	27.5	35.5
17	26.3	29.5	32.8	32.6	35.3	33.8	32.4	30.9	30.4	31.2	28.6	25.9	35.3
18	23.4	28.0	31.4	31.8	34.7	33.0	31.5	30.4	30.3	30.2	24.4	24.2	34.7
19	19.9	24.8	28.2	30.5	33.6	33.1	30.7	29.2	28.6	28.5	22.0	20.0	33.6
20	18.0	22.7	25.5	28.7	31.5	30.9	27.9	27.3	25.4	24.9	20.9	18.7	31.5
21	19.3	20.6	24.4	25.3	29.2	27.7	25.3	24.5	23.5	25.2	19.9	18.1	29.2
22	18.8	19.7	23.6	25.5	28.5	26.5	24.2	23.7	22.3	23.8	18.9	17.1	28.5
23	15.8	18.8	21.8	23.4	27.9	26.3	23.4	22.8	20.8	21.3	18.3	16.4	27.9
Máx.	27.7	29.8	33.3	33.3	35.6	33.8	32.4	31.6	30.8	31.2	29.2	27.8	35.6

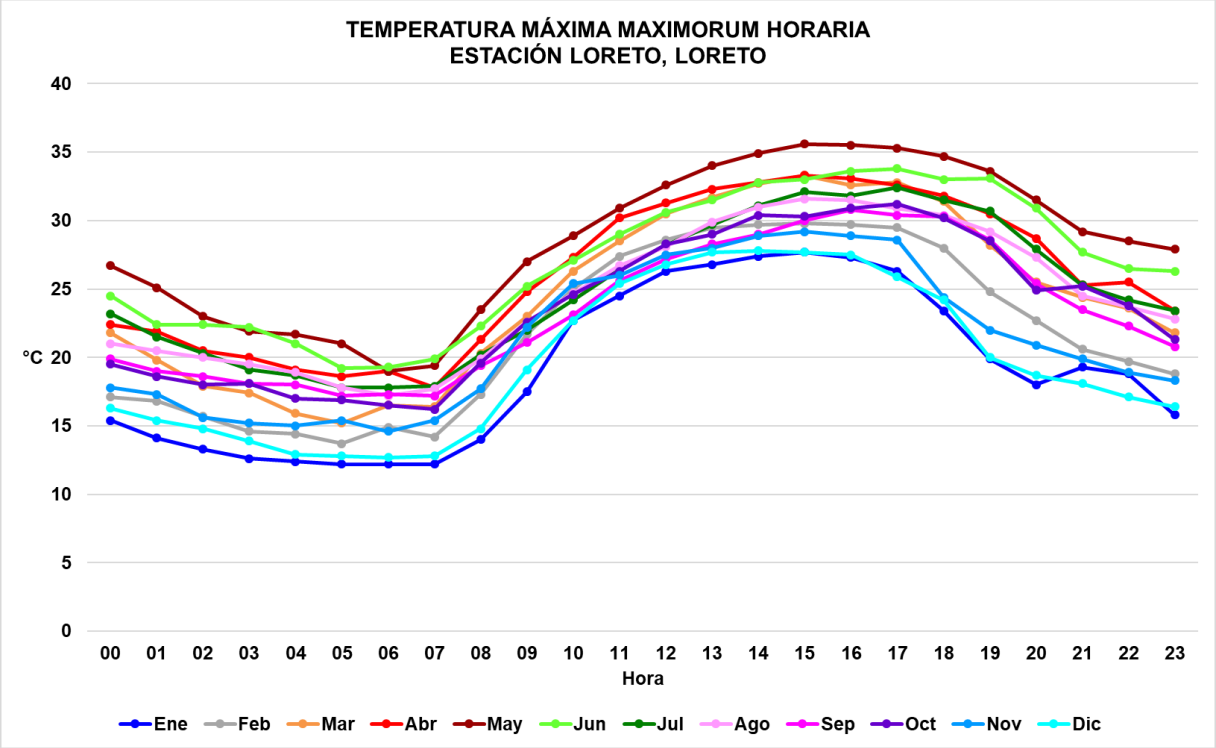


Figura 346. Temperatura máxima maximorum (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 385 Temperatura mínima media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	8.8	11.4	14.7	17.0	17.6	16.2	16.3	15.3	13.1	8.7	6.3	12.7
01	5.8	7.7	10.2	13.5	16.0	16.8	15.5	15.7	14.8	12.2	7.8	5.4	11.8
02	5.0	6.7	9.0	12.3	14.9	16.1	14.9	15.0	14.3	11.5	7.0	4.5	10.9
03	4.2	5.9	8.1	11.2	13.9	15.3	14.4	14.4	13.8	10.8	6.3	3.8	10.2
04	3.6	5.2	7.2	10.4	13.0	14.7	13.8	13.9	13.3	10.1	5.6	3.3	9.5
05	3.1	4.4	6.4	9.5	12.1	14.1	13.4	13.4	13.0	9.6	5.1	2.8	8.9
06	2.5	3.8	5.7	8.6	11.3	13.5	13.0	12.9	12.6	9.1	4.6	2.3	8.3
07	2.2	3.6	5.9	8.3	11.2	13.4	12.9	12.6	12.4	8.8	4.7	2.1	8.2
08	3.4	5.5	9.4	10.5	13.2	14.9	14.0	13.6	13.2	9.9	7.5	3.9	9.9
09	7.6	10.4	14.2	15.0	17.1	17.5	16.4	16.3	15.5	13.2	12.1	8.7	13.7
10	12.0	14.5	17.7	18.7	20.1	19.7	18.4	18.6	17.8	16.6	15.7	13.0	16.9
11	15.1	17.5	20.3	21.5	22.6	21.6	20.2	20.4	19.6	19.2	18.4	16.2	19.4
12	17.3	19.6	22.3	23.7	24.7	23.3	21.7	22.0	21.1	21.1	20.1	18.3	21.3
13	18.6	21.0	23.6	25.3	26.3	24.7	22.9	23.2	22.2	22.4	21.2	19.6	22.6
14	19.5	21.9	24.4	26.4	27.4	25.7	23.8	24.1	22.9	23.2	21.8	20.4	23.5
15	19.8	22.3	24.7	26.9	27.8	26.1	24.2	24.5	23.2	23.6	21.9	20.6	23.8
16	19.6	22.2	24.5	26.9	27.9	26.2	24.1	24.4	23.0	23.4	21.2	20.0	23.6
17	18.0	21.1	23.6	26.5	27.5	25.7	23.7	24.0	22.5	22.4	19.0	17.8	22.6
18	15.0	18.2	21.1	25.3	26.5	24.7	22.9	23.1	21.4	20.5	15.8	14.5	20.7
19	12.8	15.5	18.3	22.9	24.4	23.3	21.5	21.6	19.5	18.0	13.9	12.5	18.7
20	11.3	13.8	16.5	20.4	22.0	21.5	19.8	19.8	18.1	16.5	12.7	11.0	16.9
21	10.0	12.5	15.1	18.6	20.4	20.2	18.5	18.6	17.1	15.5	11.6	9.6	15.6
22	8.9	11.3	13.9	17.3	19.1	19.1	17.6	17.8	16.4	14.6	10.6	8.5	14.6
23	7.8	10.1	12.7	16.0	18.1	18.3	16.9	17.1	15.8	13.8	9.6	7.4	13.6
Media	10.4	12.6	15.2	17.9	19.8	19.8	18.4	18.5	17.5	15.8	12.6	10.5	15.7

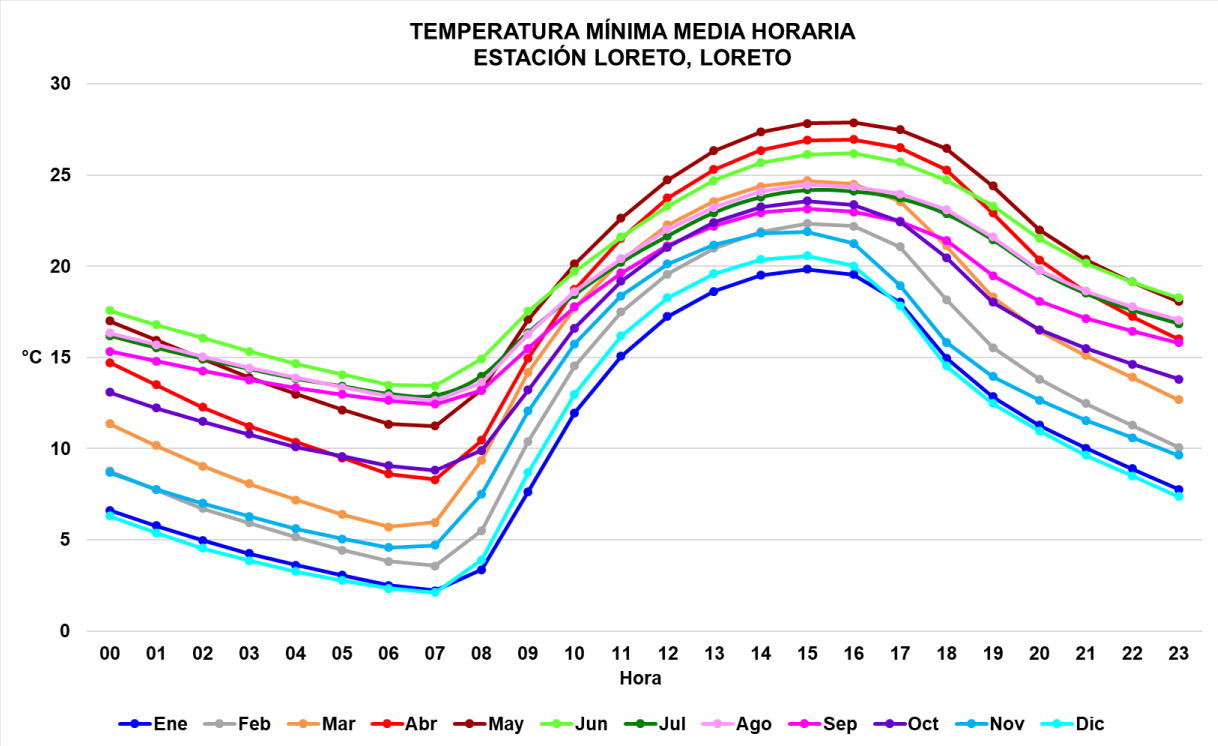


Figura 347. Temperatura mínima media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 386. Temperatura mínima minimorum (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.5	-0.5	0.7	7.0	9.5	12.6	12.5	11.8	9.3	2.0	-6.0	-5.9	-6.0
01	-5.8	-1.1	-0.7	6.0	8.4	11.9	10.9	10.5	8.1	1.2	-6.8	-6.9	-6.9
02	-8.0	-2.3	-2.5	4.6	7.5	11.1	9.8	10.4	8.2	-0.5	-8.3	-8.1	-8.3
03	-9.3	-3.4	-4.6	3.2	5.8	9.8	8.6	8.5	7.1	-1.3	-9.5	-6.9	-9.5
04	-9.9	-4.0	-4.1	2.4	3.8	9.3	7.7	8.1	6.2	-1.2	-9.7	-7.1	-9.9
05	-10.7	-5.2	-4.6	1.2	3.5	7.8	7.4	7.7	5.2	-2.0	-10.2	-8.8	-10.7
06	-10.9	-6.2	-5.1	0.0	2.7	7.1	7.0	7.1	4.7	-2.9	-11.0	-8.9	-11.0
07	-10.6	-6.8	-5.6	-0.7	1.1	6.5	6.9	7.0	4.2	-2.5	-11.3	-9.8	-11.3
08	-10.5	-4.5	-2.1	1.2	3.7	7.8	8.5	7.3	4.4	-1.4	-7.1	-8.5	-10.5
09	-4.4	1.8	2.6	6.9	9.1	13.2	12.1	11.3	9.7	3.9	0.0	-3.7	-4.4
10	0.8	4.5	4.2	10.9	9.6	14.2	14.2	14.2	12.3	7.5	2.7	-0.6	-0.6
11	3.2	7.0	5.4	12.5	11.7	14.5	15.1	15.8	15.4	8.6	3.7	0.4	0.4
12	1.8	7.9	5.1	14.2	13.6	14.1	16.3	16.5	15.7	8.7	5.0	-0.2	-0.2
13	0.8	8.8	1.5	14.6	14.9	15.2	16.0	15.4	15.8	9.4	6.3	-0.7	-0.7
14	0.7	8.2	-0.1	14.6	16.7	15.3	14.6	15.0	15.4	10.7	6.8	-1.2	-1.2
15	2.0	7.7	0.4	15.2	9.3	15.4	13.8	14.6	11.9	11.8	6.6	-1.7	-1.7
16	2.8	7.3	2.2	15.5	14.1	15.3	13.2	14.2	14.0	11.1	5.5	-1.7	-1.7
17	3.0	6.6	3.8	13.6	10.8	13.8	13.9	13.4	14.4	10.0	5.4	-1.5	-1.5
18	3.0	6.3	5.0	11.3	12.5	13.9	13.4	13.9	14.3	10.1	4.0	-1.6	-1.6
19	2.5	6.1	4.0	10.7	9.4	14.1	13.2	14.1	12.9	9.7	0.5	-1.7	-1.7
20	1.5	5.3	2.5	10.7	9.8	13.5	13.2	13.5	12.4	8.0	-0.4	-2.4	-2.4
21	0.2	4.6	1.7	11.2	11.3	12.5	13.0	13.6	12.0	5.8	-1.0	-3.3	-3.3
22	-2.4	2.0	2.8	8.7	11.5	13.3	13.8	13.2	10.2	3.8	-4.1	-4.3	-4.3
23	-4.8	1.0	2.0	5.8	9.8	12.6	12.6	12.8	9.8	3.0	-5.0	-5.1	-5.1
Mín.	-10.9	-6.8	-5.6	-0.7	1.1	6.5	6.9	7.0	4.2	-2.9	-11.3	-9.8	-11.3

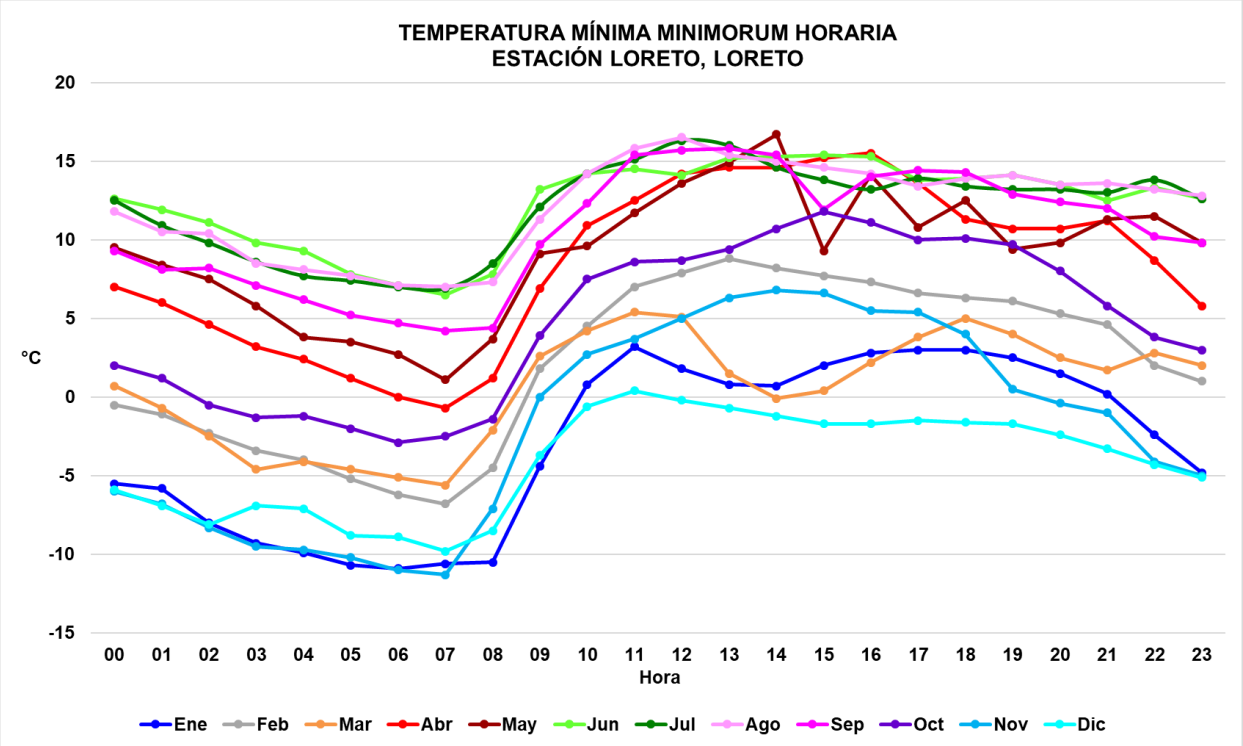


Figura 348. Temperatura mínima minimorum (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 387. Temperatura media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.3	9.5	12.1	15.5	17.7	18.0	16.6	16.7	15.7	13.6	9.3	6.9	13.2
01	6.4	8.4	10.9	14.2	16.6	17.2	15.9	16.1	15.1	12.7	8.3	6.0	12.3
02	5.5	7.4	9.7	13.0	15.5	16.5	15.3	15.4	14.6	11.9	7.5	5.1	11.5
03	4.8	6.6	8.7	11.9	14.5	15.8	14.7	14.8	14.1	11.2	6.8	4.4	10.7
04	4.1	5.7	7.8	11.0	13.6	15.1	14.2	14.3	13.6	10.5	6.1	3.7	10.0
05	3.6	5.0	7.0	10.1	12.6	14.4	13.7	13.7	13.3	9.9	5.5	3.2	9.3
06	3.0	4.3	6.2	9.2	11.9	13.9	13.3	13.2	12.9	9.4	5.0	2.8	8.8
07	2.7	4.2	7.0	9.2	11.9	13.9	13.3	13.0	12.8	9.3	5.5	2.7	8.8
08	4.9	7.3	11.3	12.1	14.7	15.9	14.9	14.6	14.0	11.0	9.3	5.6	11.3
09	9.3	12.1	15.6	16.5	18.3	18.4	17.2	17.2	16.4	14.6	13.5	10.4	15.0
10	13.2	15.8	18.8	19.8	21.1	20.5	19.1	19.4	18.6	17.7	16.8	14.3	17.9
11	16.0	18.4	21.1	22.4	23.5	22.3	20.8	21.1	20.3	20.0	19.1	17.1	20.2
12	17.9	20.2	22.9	24.4	25.4	24.0	22.3	22.6	21.7	21.7	20.7	18.9	21.9
13	19.1	21.5	24.1	25.8	26.9	25.3	23.5	23.8	22.7	22.9	21.6	20.0	23.1
14	19.9	22.3	24.8	26.8	27.9	26.3	24.4	24.6	23.5	23.7	22.2	20.7	23.9
15	20.2	22.7	25.1	27.3	28.3	26.7	24.8	25.1	23.7	24.0	22.3	20.9	24.3
16	19.9	22.6	24.9	27.4	28.4	26.8	24.8	25.0	23.6	23.9	21.7	20.5	24.1
17	18.8	21.7	24.1	27.0	28.0	26.3	24.4	24.6	23.0	23.1	20.0	18.9	23.3
18	16.2	19.4	22.2	26.0	27.1	25.4	23.5	23.8	22.1	21.4	16.9	15.6	21.6
19	13.6	16.4	19.3	23.9	25.3	24.0	22.2	22.3	20.3	18.9	14.7	13.3	19.5
20	12.0	14.6	17.2	21.3	22.9	22.3	20.5	20.5	18.6	17.1	13.3	11.7	17.7
21	10.7	13.2	15.8	19.4	21.1	20.7	19.0	19.1	17.6	16.0	12.2	10.4	16.3
22	9.6	12.0	14.6	18.0	19.8	19.6	18.0	18.2	16.8	15.1	11.2	9.2	15.2
23	8.4	10.9	13.4	16.8	18.7	18.7	17.3	17.4	16.2	14.3	10.2	8.1	14.2
Media	11.1	13.4	16.0	18.7	20.5	20.3	18.9	19.0	18.0	16.4	13.3	11.3	16.4

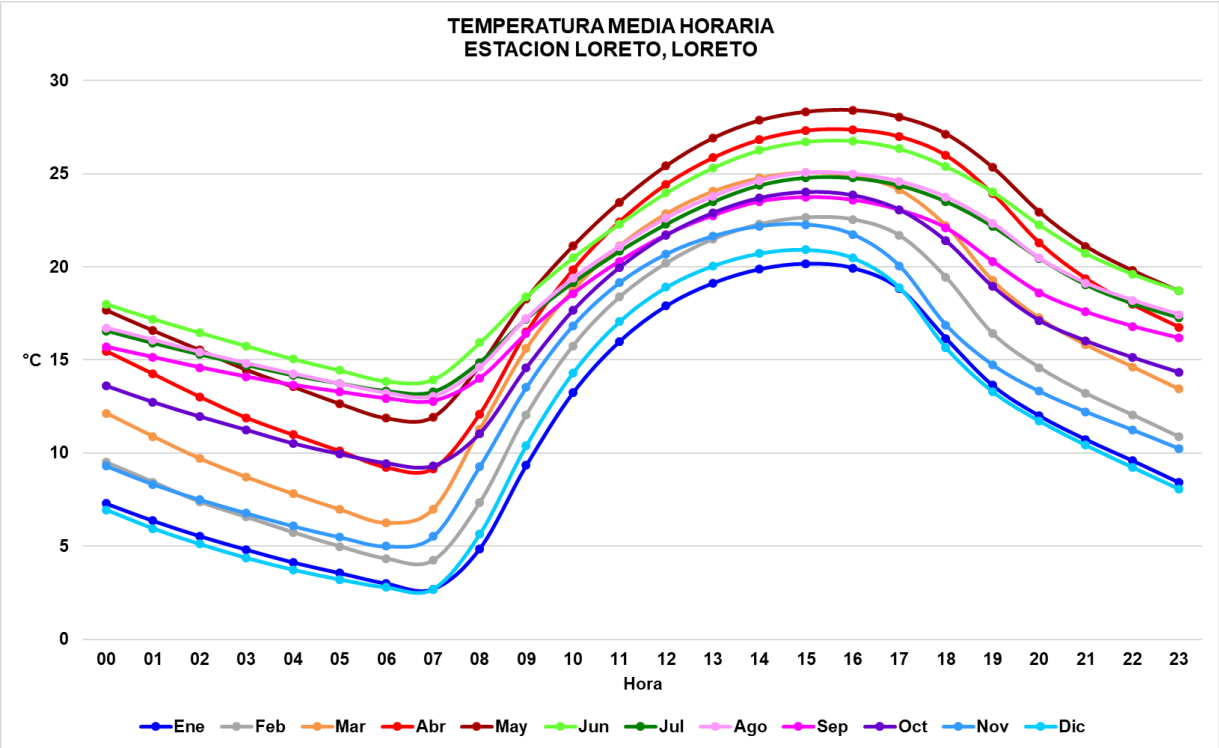


Figura 349. Temperatura media (˚C) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 388 Precipitación media (mm) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.7	0.6	0.5	0.4	0.8	4.8	7.1	3.9	6.1	2.4	0.6	0.3	28.2
01	0.7	0.5	0.5	0.2	1.4	7.8	7.4	4.9	7.6	0.7	0.8	0.1	32.7
02	0.6	0.4	0.2	0.1	0.7	6.9	4.4	3.7	5.8	1.3	0.5	0.4	24.8
03	0.4	0.8	0.2	0.0	0.4	3.7	5.4	3.1	3.3	0.5	0.3	0.2	18.4
04	0.4	0.5	0.2	0.2	0.2	2.8	2.9	2.1	3.6	0.7	0.4	0.2	14.1
05	0.4	0.4	0.3	0.0	0.0	2.9	2.4	1.1	3.4	1.1	0.2	0.1	12.4
06	0.4	0.8	0.2	0.0	0.1	1.6	2.3	0.7	1.6	1.0	0.1	0.4	9.2
07	0.2	0.8	0.2	0.0	0.1	0.3	1.2	0.4	1.1	0.6	0.2	0.4	5.4
08	0.2	0.6	0.1	0.0	0.0	0.2	0.4	0.2	0.5	0.8	0.1	0.4	3.6
09	0.1	0.3	0.0	0.1	0.0	0.3	0.3	0.1	0.3	0.3	0.1	0.5	2.5
10	0.5	0.4	0.2	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.5	2.4
11	0.2	0.4	0.2	0.0	0.0	0.6	0.3	0.2	0.3	0.1	0.2	0.2	2.6
12	0.2	0.4	0.1	0.0	0.0	0.6	0.3	0.3	0.4	0.1	0.1	0.5	3.0
13	0.2	0.3	0.2	0.0	0.2	0.5	0.8	0.8	1.7	0.0	0.6	0.3	5.6
14	0.4	0.6	0.0	0.1	0.2	1.2	3.5	2.9	2.5	0.2	0.5	0.5	12.5
15	0.3	0.4	0.3	0.0	1.2	4.3	4.5	4.6	5.2	0.6	0.7	0.4	22.6
16	0.7	1.0	0.7	0.0	0.7	2.8	7.5	6.4	4.1	1.3	1.0	0.5	26.7
17	0.8	1.0	0.4	0.3	1.2	4.3	5.3	7.9	3.7	1.8	0.6	0.5	27.6
18	0.5	0.8	0.7	0.2	2.2	7.0	6.8	6.4	4.9	1.8	0.4	0.4	32.0
19	0.7	1.1	0.3	0.6	5.8	5.7	6.1	4.6	6.4	2.4	1.1	0.2	35.0
20	0.8	0.9	0.6	0.3	2.0	6.0	8.6	5.3	3.4	2.8	1.2	0.2	32.1
21	0.7	0.9	0.5	2.1	1.5	4.5	9.2	5.1	7.4	3.3	0.9	0.2	36.2
22	0.7	0.8	0.7	0.3	2.6	5.3	7.7	6.1	7.6	3.1	0.5	0.2	35.7
23	0.6	0.5	0.6	0.7	0.8	3.3	6.9	4.5	4.9	1.9	0.8	0.6	26.0
Suma	11.5	15.2	7.7	5.6	22.0	77.6	101.5	75.6	85.9	28.8	12.0	8.1	451.3

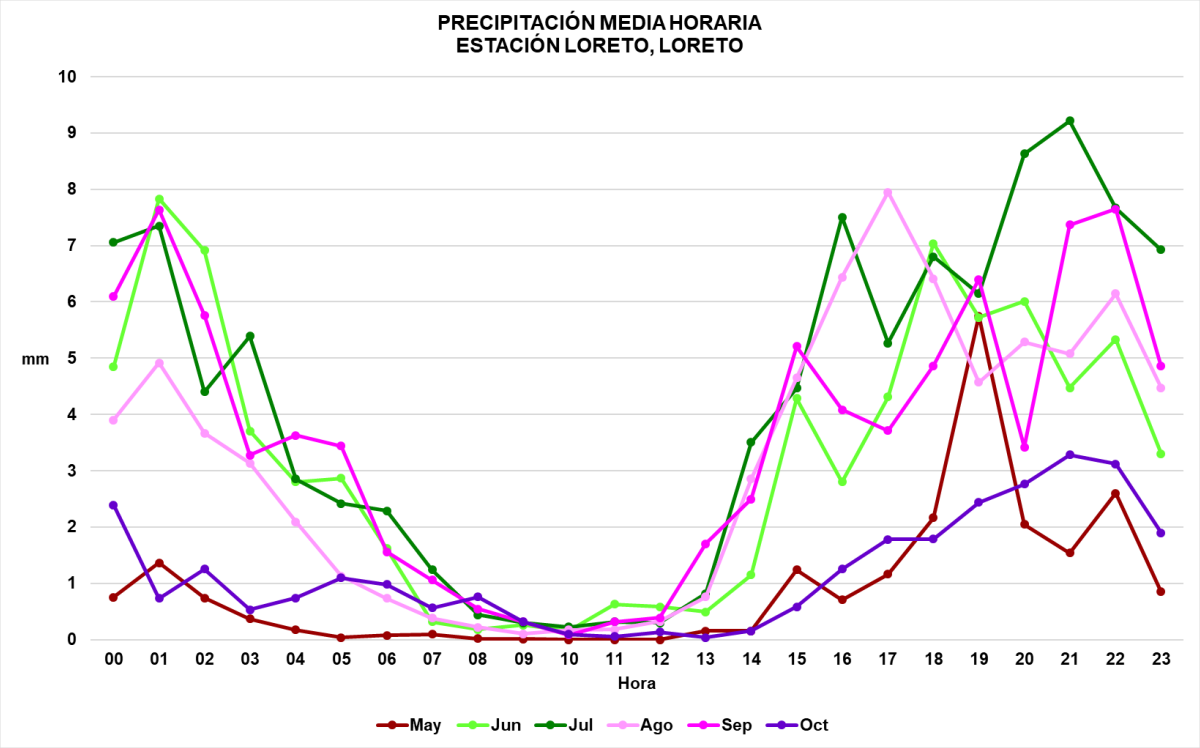


Figura 350. Precipitación media (mm) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 389. Precipitación máxima maximorum (mm) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.0	3.8	4.2	4.8	3.0	17.6	16.4	12.2	10.8	23.0	2.0	4.4	23.0
01	4.2	2.6	4.2	1.8	6.0	38.8	40.4	27.4	38.4	3.0	3.0	1.0	40.4
02	2.8	4.0	2.4	0.8	4.4	21.2	17.6	19.6	15.8	11.0	1.4	2.8	21.2
03	3.2	6.6	3.6	0.6	3.0	11.2	35.6	9.4	13.6	4.0	2.6	1.4	35.6
04	2.8	2.4	3.4	3.2	1.2	13.0	15.8	8.2	7.4	4.4	3.0	3.4	15.8
05	3.2	2.0	2.6	0.0	0.4	11.8	8.8	4.2	11.6	8.0	2.0	1.0	11.8
06	3.6	2.8	2.2	0.0	1.4	12.0	8.2	5.0	7.4	6.6	1.4	3.8	12.0
07	1.8	4.6	1.6	0.0	0.8	1.8	4.6	1.2	7.8	5.0	1.2	3.8	7.8
08	1.4	4.6	0.6	0.8	0.2	1.6	1.6	0.6	2.2	7.8	1.6	2.0	7.8
09	1.4	1.2	0.6	1.6	0.2	1.8	2.4	0.4	1.4	3.6	1.0	3.8	3.8
10	5.0	2.2	1.6	0.2	0.0	2.4	3.2	2.4	0.8	1.0	1.0	3.6	5.0
11	2.8	1.8	3.0	0.0	0.0	10.4	3.8	1.6	4.0	0.8	1.6	1.8	10.4
12	1.6	3.0	1.4	0.2	0.0	7.2	4.0	4.0	3.0	1.6	1.4	2.8	7.2
13	2.0	2.6	2.6	0.2	3.2	2.4	5.8	2.4	7.6	0.4	10.6	2.4	10.6
14	1.6	4.0	0.2	1.2	2.0	7.6	23.0	18.0	14.2	1.6	5.6	3.6	23.0
15	2.2	2.6	2.2	0.4	17.4	18.2	12.4	14.6	39.2	5.0	4.2	3.8	39.2
16	6.2	5.2	8.2	0.2	3.6	7.8	21.6	16.8	15.0	5.0	6.0	3.2	21.6
17	6.0	6.2	6.4	2.6	12.0	17.8	25.0	44.6	14.6	12.2	2.8	2.6	44.6
18	3.2	6.0	9.0	2.0	20.2	23.6	17.8	27.4	13.4	13.6	2.6	1.6	27.4
19	3.4	4.6	1.6	8.0	26.8	26.2	14.4	13.4	30.4	9.0	6.2	1.6	30.4
20	4.4	6.0	10.0	4.0	12.0	27.2	32.8	15.0	12.0	8.8	7.2	1.0	32.8
21	2.8	4.0	4.0	24.6	12.4	17.0	18.2	15.6	29.8	23.0	4.2	1.6	29.8
22	3.0	6.2	12.0	3.0	10.6	17.0	27.0	15.0	40.2	12.4	2.0	2.0	40.2
23	3.8	2.8	8.0	7.2	3.4	16.2	15.8	21.8	9.8	11.4	5.2	3.6	21.8
Máx.	6.2	6.6	12.0	24.6	26.8	38.8	40.4	44.6	40.2	23.0	10.6	4.4	44.6

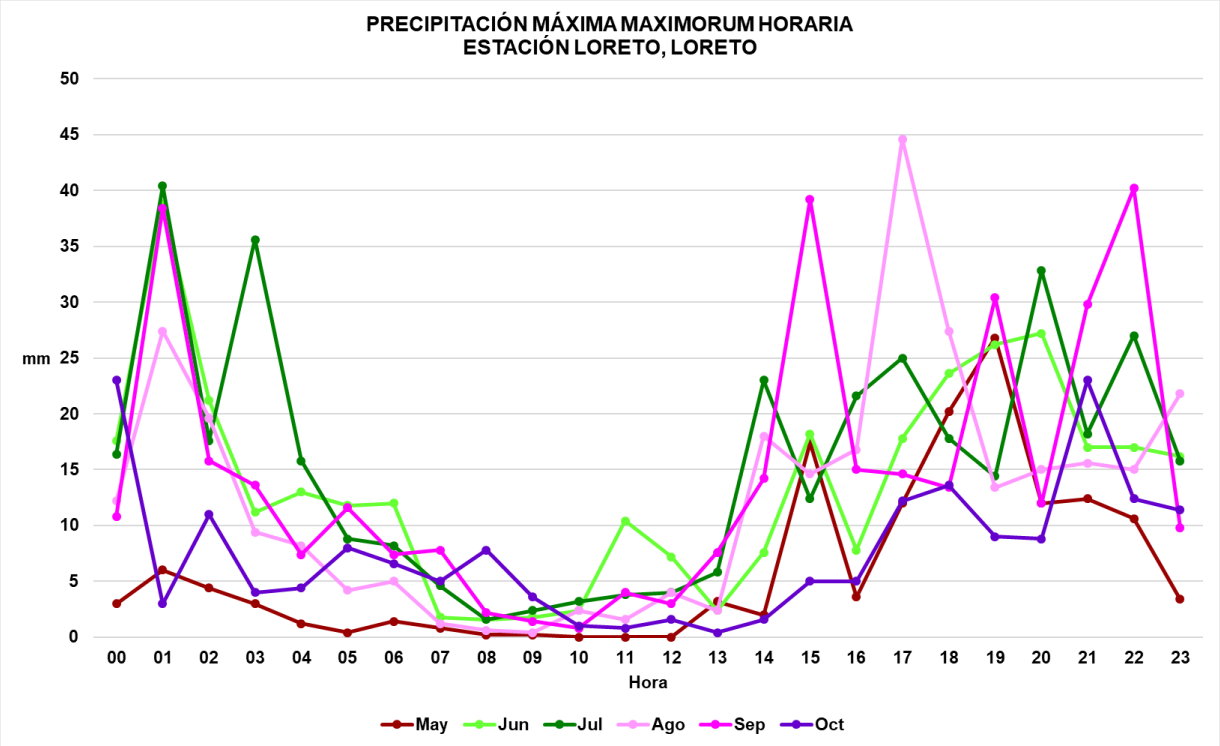


Figura 351. Precipitación máxima maximorum (mm) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 390. Evapotranspiración potencial media (mm) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.01	0.02	0.03	0.04	0.05	0.02	0.03	0.01	0.01	0.00	0.01	0.02
01	0.01	0.01	0.02	0.02	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.01
02	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
08	0.02	0.04	0.08	0.05	0.05	0.05	0.03	0.02	0.01	0.02	0.05	0.03	0.04
09	0.09	0.14	0.22	0.17	0.18	0.16	0.13	0.12	0.10	0.10	0.15	0.11	0.14
10	0.20	0.27	0.38	0.33	0.34	0.30	0.25	0.26	0.23	0.23	0.28	0.22	0.27
11	0.32	0.40	0.52	0.49	0.49	0.44	0.38	0.39	0.35	0.36	0.39	0.33	0.41
12	0.41	0.50	0.62	0.62	0.62	0.55	0.49	0.51	0.45	0.47	0.46	0.42	0.51
13	0.46	0.55	0.66	0.70	0.70	0.63	0.57	0.59	0.51	0.53	0.48	0.45	0.57
14	0.46	0.55	0.65	0.73	0.73	0.66	0.60	0.61	0.53	0.55	0.46	0.44	0.58
15	0.42	0.51	0.59	0.71	0.68	0.63	0.57	0.59	0.51	0.51	0.39	0.38	0.54
16	0.34	0.42	0.48	0.61	0.60	0.56	0.51	0.52	0.43	0.42	0.28	0.30	0.46
17	0.24	0.30	0.35	0.49	0.48	0.45	0.42	0.42	0.34	0.31	0.16	0.17	0.34
18	0.12	0.16	0.21	0.35	0.35	0.33	0.31	0.31	0.22	0.21	0.09	0.10	0.23
19	0.06	0.09	0.13	0.28	0.25	0.21	0.18	0.22	0.15	0.11	0.04	0.04	0.15
20	0.03	0.05	0.08	0.15	0.16	0.17	0.14	0.13	0.06	0.04	0.02	0.02	0.09
21	0.02	0.03	0.06	0.09	0.09	0.11	0.07	0.07	0.03	0.03	0.02	0.02	0.05
22	0.02	0.03	0.05	0.06	0.07	0.08	0.05	0.05	0.02	0.03	0.01	0.01	0.04
23	0.01	0.02	0.03	0.05	0.06	0.06	0.04	0.04	0.02	0.02	0.01	0.01	0.03
Media/día /mes	3.27	4.12	5.18	6.02	5.97	5.49	4.78	4.90	3.99	3.94	3.28	3.06	4.50

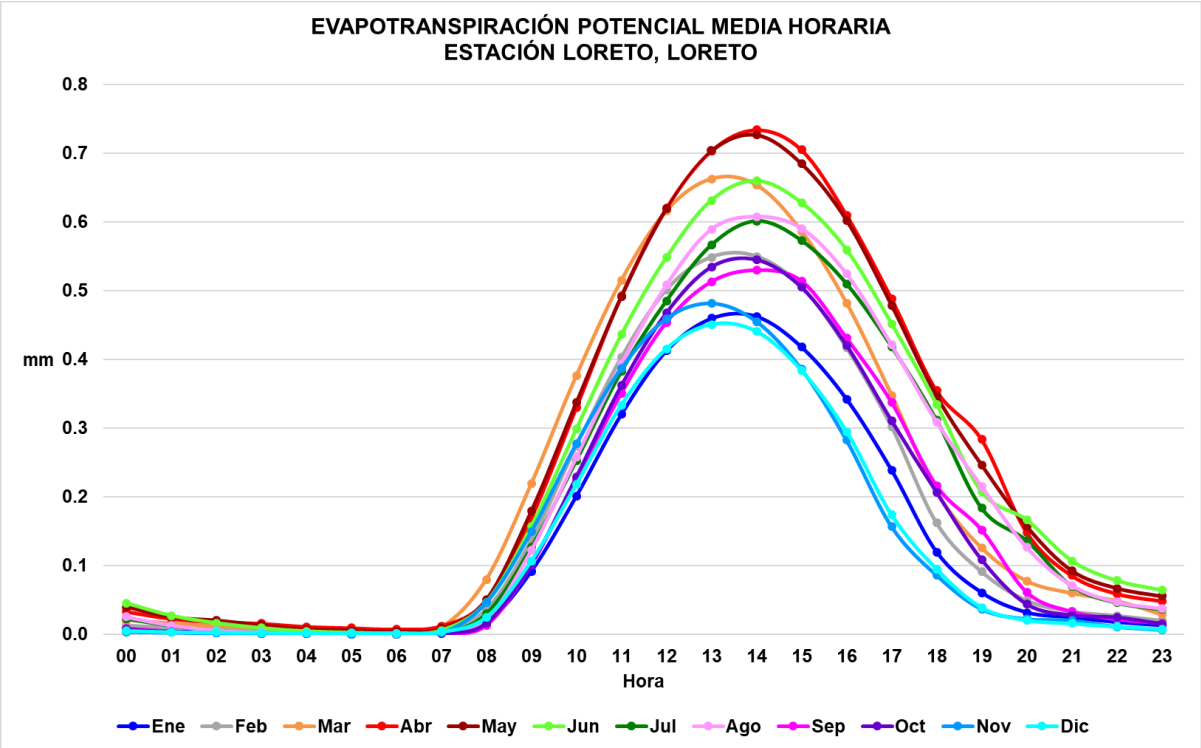


Figura 352. Evapotranspiración potencial media (mm) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 391. Humedad relativa media (%) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	62.9	54.6	45.5	39.2	48.8	65.9	76.2	75.8	81.6	76.2	74.2	66.3	63.9
01	66.3	58.8	50.1	43.4	53.2	69.4	78.9	78.3	84.0	79.4	77.6	69.9	67.4
02	69.5	62.7	54.6	47.9	57.3	72.5	81.4	80.9	86.2	82.3	80.5	73.1	70.7
03	72.0	65.9	58.4	52.0	61.1	75.4	83.8	83.3	88.1	84.8	82.9	75.9	73.7
04	74.8	68.9	62.0	55.6	64.6	78.1	86.1	85.5	89.6	87.1	84.9	78.3	76.3
05	76.8	71.8	65.1	59.2	67.9	80.5	87.6	87.4	90.8	88.9	86.7	80.3	78.6
06	78.9	74.2	67.9	62.8	70.7	82.6	89.0	89.0	91.8	90.2	88.1	82.1	80.6
07	80.2	75.6	67.3	64.1	71.4	82.8	89.5	89.8	92.1	90.8	87.8	82.9	81.2
08	75.5	68.6	56.8	58.2	64.8	76.9	85.4	85.9	89.7	87.4	79.6	76.6	75.5
09	63.8	55.5	44.5	46.3	53.3	67.1	75.8	75.8	81.2	76.9	65.3	63.4	64.1
10	52.0	43.7	34.6	35.8	43.4	58.2	66.8	65.8	71.0	64.0	52.3	51.0	53.2
11	42.1	35.2	27.5	27.6	35.0	50.5	59.2	57.8	62.6	54.0	43.2	41.1	44.6
12	35.5	29.5	23.0	22.1	28.5	43.6	52.7	51.4	56.3	46.8	37.2	34.6	38.4
13	31.3	25.9	20.1	18.9	24.2	38.4	47.8	46.7	52.1	41.9	33.6	30.3	34.3
14	28.7	23.7	18.4	17.0	21.4	34.9	44.2	43.3	48.9	38.6	31.5	27.9	31.5
15	27.5	22.6	17.4	15.9	20.2	33.2	42.6	41.7	47.9	37.2	30.8	27.0	30.3
16	27.7	22.4	17.4	15.6	19.8	32.8	42.6	41.9	48.5	37.4	32.0	27.7	30.5
17	30.2	24.1	18.3	15.9	20.2	34.1	44.1	43.4	50.3	39.9	36.6	31.3	32.4
18	36.2	28.2	21.3	17.3	22.1	37.0	47.1	46.1	53.8	45.3	45.1	38.3	36.5
19	42.0	33.7	25.9	20.3	26.1	40.9	51.8	51.1	61.1	53.6	51.7	44.0	41.8
20	46.7	38.0	30.2	24.2	31.1	46.4	58.2	57.9	67.8	60.3	57.2	48.9	47.2
21	50.9	41.9	34.2	28.0	36.0	52.3	64.1	63.6	72.5	65.0	62.0	53.4	52.0
22	54.8	45.8	37.6	31.7	41.0	57.9	68.9	68.5	76.1	69.0	66.1	57.6	56.2
23	58.9	49.7	41.2	35.5	45.4	62.9	72.7	72.6	79.0	72.7	70.0	62.1	60.2
Media	53.6	46.7	39.1	35.6	42.8	57.3	66.5	66.0	71.8	65.4	60.7	55.2	55.1

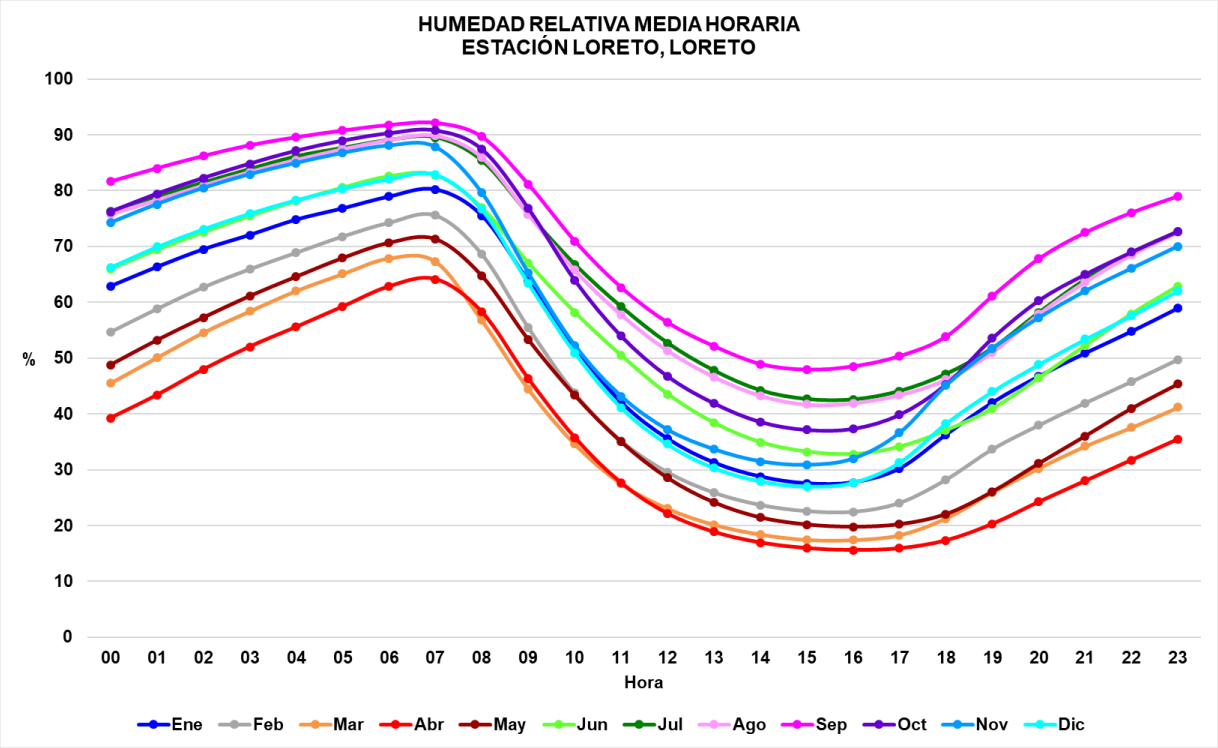


Figura 353. Humedad relativa media (%) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 392. Humedad relativa mínima minimorum (%) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.0	15.0	9.0	10.0	10.0	11.0	29.0	32.0	49.0	28.0	31.0	20.0	9.0
01	16.0	20.0	12.0	11.0	12.0	17.0	31.0	32.0	51.0	33.6	32.0	22.0	11.0
02	20.0	19.0	14.0	11.0	12.0	19.0	33.0	31.0	57.0	33.5	33.0	27.0	11.0
03	21.0	22.0	14.0	12.0	17.0	21.0	35.0	35.0	65.0	43.0	39.0	28.0	12.0
04	22.0	22.0	15.0	14.0	16.0	31.0	46.8	35.0	63.0	42.0	42.0	27.0	14.0
05	25.0	26.0	19.0	19.0	16.0	36.0	50.0	44.0	59.0	42.0	50.0	26.0	16.0
06	29.0	28.0	24.0	22.0	23.0	37.0	55.0	53.0	68.0	48.0	54.0	34.0	22.0
07	29.0	27.0	19.1	24.0	22.0	38.0	58.0	61.0	63.0	36.0	48.0	29.0	19.1
08	23.0	23.0	14.0	15.3	20.0	29.0	47.0	50.0	62.0	30.0	31.0	27.0	14.0
09	16.0	16.0	10.7	13.0	14.0	21.0	39.0	41.0	47.0	17.0	15.0	15.0	10.7
10	13.0	8.0	7.4	9.0	11.0	13.0	22.0	33.9	37.0	16.0	10.0	12.0	7.4
11	10.0	8.0	6.7	8.0	7.0	10.0	18.0	25.0	29.0	10.0	9.0	8.0	6.7
12	7.3	7.0	5.0	6.0	8.0	9.0	14.0	21.0	18.5	12.0	6.0	8.0	5.0
13	6.0	6.0	5.0	5.0	7.0	9.0	13.0	19.0	16.0	10.0	6.0	7.0	5.0
14	6.0	5.1	5.0	5.0	6.0	8.0	11.0	15.0	15.0	9.0	5.0	6.0	5.0
15	5.0	6.0	4.0	5.0	5.0	6.0	10.0	13.0	13.0	9.0	4.0	5.0	4.0
16	4.0	5.0	3.0	4.0	5.0	7.0	10.0	13.0	13.0	9.0	4.0	7.0	3.0
17	6.0	6.0	4.0	4.0	4.0	7.0	10.0	11.0	14.0	8.0	5.0	6.0	4.0
18	9.0	7.0	5.0	4.0	5.0	7.0	12.0	13.0	15.0	8.0	10.0	9.0	4.0
19	10.0	9.0	7.0	5.0	5.0	7.0	12.0	14.0	19.0	11.0	12.0	13.0	5.0
20	11.0	9.0	7.9	7.0	6.0	9.0	14.0	14.0	21.0	14.0	14.0	14.0	6.0
21	12.0	11.0	9.0	8.0	9.0	10.0	19.0	21.0	28.0	24.0	18.0	14.0	8.0
22	12.0	13.0	8.0	9.0	11.0	12.0	24.0	26.0	32.0	26.7	21.0	15.0	8.0
23	13.0	12.0	9.0	9.0	12.0	12.0	27.0	27.0	35.0	24.0	24.0	14.0	9.0
Mín.	4.0	5.0	3.0	4.0	4.0	6.0	10.0	11.0	13.0	8.0	4.0	5.0	3.0

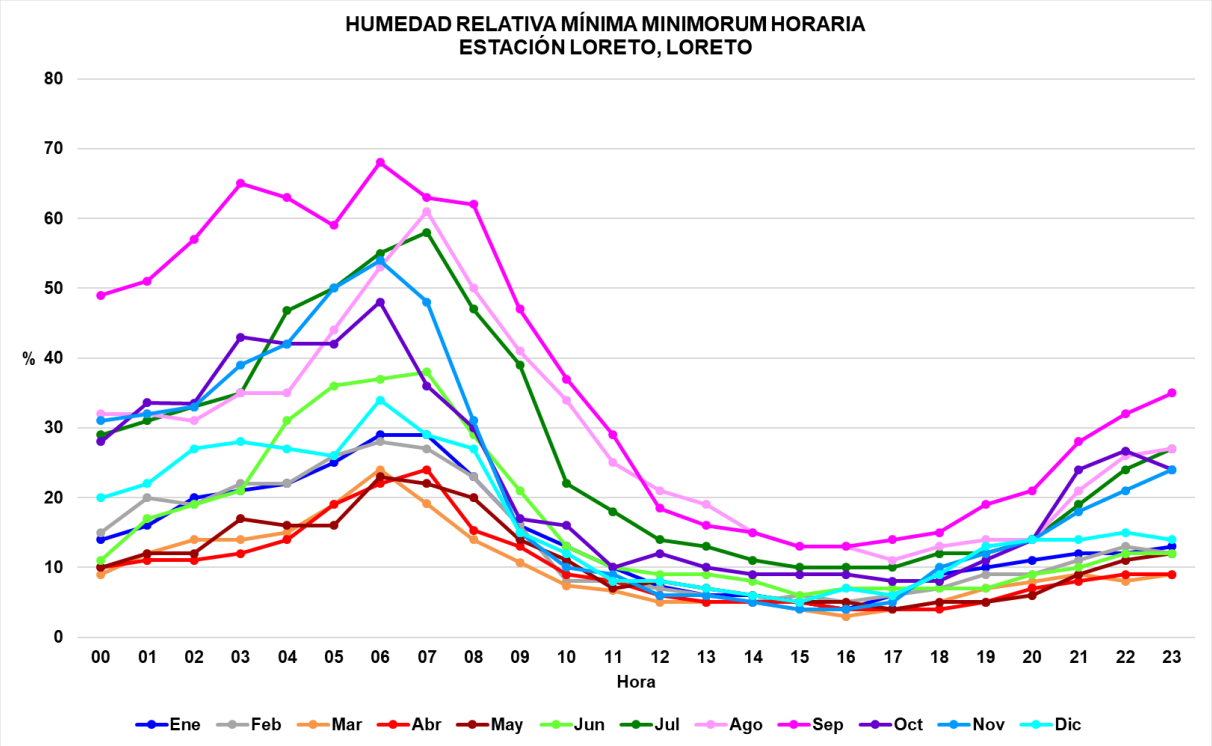


Figura 354. Humedad relativa mínima minimorum (%) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 393. Radiación solar global media horaria (W/m2) de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	1	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	1	2	17	8	11	9	5	2	1	3	7	1	6
07	63	131	318	183	191	170	125	89	64	87	234	106	147
08	562	788	1135	842	846	744	627	578	495	546	941	674	732
09	1330	1658	2046	1762	1736	1525	1375	1373	1224	1332	1732	1432	1544
10	2052	2425	2845	2636	2597	2338	2145	2166	1966	2134	2411	2101	2318
11	2587	2977	3405	3332	3295	2981	2781	2851	2562	2766	2826	2570	2911
12	2839	3247	3694	3766	3763	3446	3225	3295	2954	3120	2958	2767	3256
13	2807	3234	3625	3889	3904	3600	3429	3427	3070	3173	2792	2678	3302
14	2499	2931	3252	3712	3673	3442	3303	3304	2991	2967	2409	2335	3068
15	1988	2386	2640	3224	3158	3005	2882	2883	2520	2470	1792	1770	2560
16	1296	1678	1877	2469	2514	2416	2331	2312	1956	1830	1066	1084	1902
17	578	863	1035	1705	1766	1755	1719	1658	1297	1064	367	400	1184
18	75	193	299	891	985	1020	1014	943	629	391	15	20	540
19	0	1	7	266	353	406	413	325	128	38	0	0	161
20	0	0	0	14	31	51	55	24	2	0	0	0	15
21	0	0	0	0	0	2	0	0	0	0	0	0	0
22	0	0	0	0	0	2	0	0	0	0	0	0	0
23	0	0	0	0	0	1	0	0	0	0	0	0	0
Media/día/mes	18677	22517	26194	28700	28826	26914	25433	25231	21860	21922	19552	17939	23647

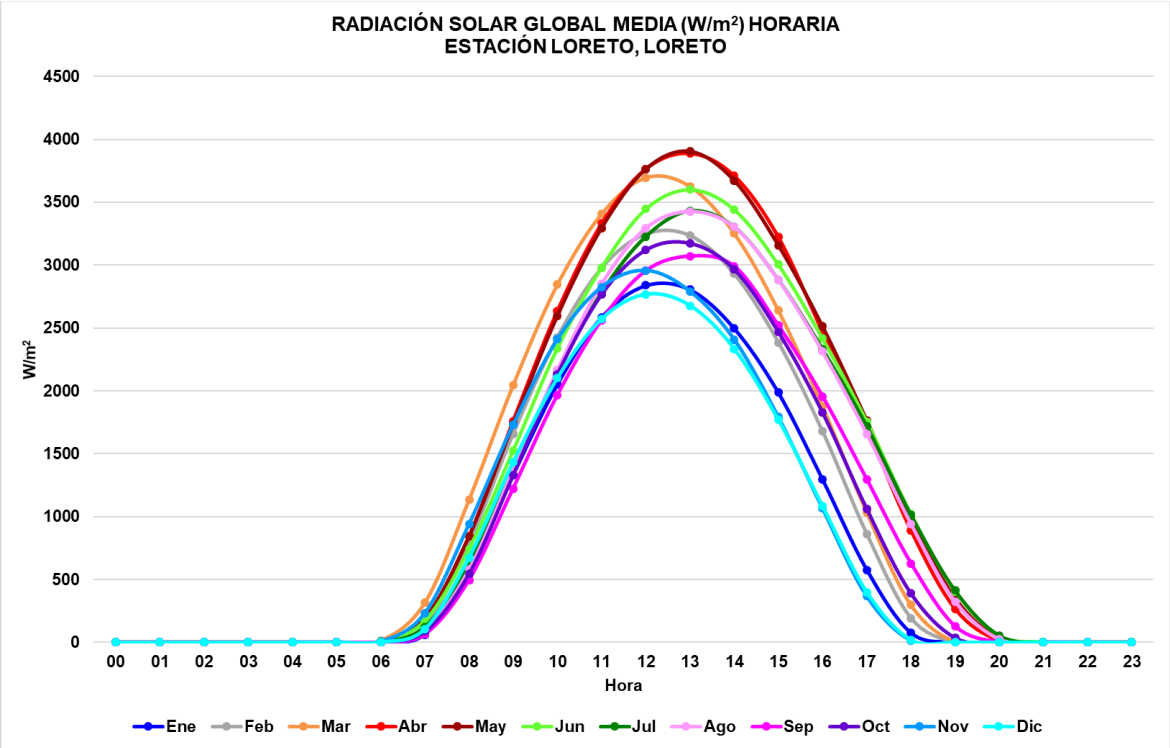


Figura 355. Radiación solar global media horaria (W/m2) de la estación Loreto, Loreto (2002-2022).

Cuadro 394. Radiación solar global media horaria (kWh/m2) de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.03	0.08	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.06	0.03	0.04
08	0.14	0.20	0.28	0.21	0.21	0.19	0.16	0.14	0.12	0.14	0.24	0.17	0.18
09	0.33	0.41	0.51	0.44	0.43	0.38	0.34	0.34	0.31	0.33	0.43	0.36	0.39
10	0.51	0.61	0.71	0.66	0.65	0.58	0.54	0.54	0.49	0.53	0.60	0.53	0.58
11	0.65	0.74	0.85	0.83	0.82	0.75	0.70	0.71	0.64	0.69	0.71	0.64	0.73
12	0.71	0.81	0.92	0.94	0.94	0.86	0.81	0.82	0.74	0.78	0.74	0.69	0.81
13	0.70	0.81	0.91	0.97	0.98	0.90	0.86	0.86	0.77	0.79	0.70	0.67	0.83
14	0.62	0.73	0.81	0.93	0.92	0.86	0.83	0.83	0.75	0.74	0.60	0.58	0.77
15	0.50	0.60	0.66	0.81	0.79	0.75	0.72	0.72	0.63	0.62	0.45	0.44	0.64
16	0.32	0.42	0.47	0.62	0.63	0.60	0.58	0.58	0.49	0.46	0.27	0.27	0.48
17	0.14	0.22	0.26	0.43	0.44	0.44	0.43	0.41	0.32	0.27	0.09	0.10	0.30
18	0.02	0.05	0.07	0.22	0.25	0.26	0.25	0.24	0.16	0.10	0.00	0.00	0.13
19	0.00	0.00	0.00	0.07	0.09	0.10	0.10	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.67	5.63	6.55	7.18	7.21	6.73	6.36	6.31	5.47	5.48	4.89	4.48	5.91

Cuadro 395. Radiación solar global media horaria (Mj/m2/s) de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.06	0.12	0.29	0.17	0.17	0.15	0.11	0.08	0.06	0.08	0.21	0.10	0.13
08	0.51	0.71	1.02	0.76	0.76	0.67	0.56	0.52	0.45	0.49	0.85	0.61	0.66
09	1.20	1.49	1.84	1.59	1.56	1.37	1.24	1.24	1.10	1.20	1.56	1.29	1.39
10	1.85	2.18	2.56	2.37	2.34	2.10	1.93	1.95	1.77	1.92	2.17	1.89	2.09
11	2.33	2.68	3.06	3.00	2.97	2.68	2.50	2.57	2.31	2.49	2.54	2.31	2.62
12	2.56	2.92	3.32	3.39	3.39	3.10	2.90	2.97	2.66	2.81	2.66	2.49	2.93
13	2.53	2.91	3.26	3.50	3.51	3.24	3.09	3.08	2.76	2.86	2.51	2.41	2.97
14	2.25	2.64	2.93	3.34	3.31	3.10	2.97	2.97	2.69	2.67	2.17	2.10	2.76
15	1.79	2.15	2.38	2.90	2.84	2.70	2.59	2.59	2.27	2.22	1.61	1.59	2.30
16	1.17	1.51	1.69	2.22	2.26	2.17	2.10	2.08	1.76	1.65	0.96	0.98	1.71
17	0.52	0.78	0.93	1.53	1.59	1.58	1.55	1.49	1.17	0.96	0.33	0.36	1.07
18	0.07	0.17	0.27	0.80	0.89	0.92	0.91	0.85	0.57	0.35	0.01	0.02	0.49
19	0.00	0.00	0.01	0.24	0.32	0.37	0.37	0.29	0.11	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.81	20.26	23.58	25.83	25.94	24.22	22.89	22.71	19.67	19.73	17.60	16.15	21.28

Cuadro 396. Velocidad del viento media (km/h) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.8	4.9	6.0	6.8	8.2	9.9	7.7	7.3	5.0	4.3	3.8	3.6	6.0
01	4.5	4.8	5.5	6.0	7.0	7.9	6.0	5.8	4.4	3.7	3.5	3.6	5.2
02	4.2	4.6	5.1	5.4	6.2	6.7	4.8	4.6	3.7	3.4	3.1	3.5	4.6
03	3.9	4.5	4.7	5.0	5.1	5.3	4.0	3.8	3.1	3.0	2.9	3.3	4.0
04	3.6	4.1	4.5	4.4	4.3	4.3	3.4	3.1	2.6	2.6	2.7	3.1	3.6
05	3.3	3.7	4.1	3.9	3.6	3.8	3.0	2.7	2.4	2.3	2.3	3.0	3.2
06	3.3	3.7	4.0	3.5	3.3	3.7	3.1	2.5	2.4	2.2	2.3	3.1	3.1
07	3.5	3.8	4.4	3.7	3.6	4.0	3.3	2.8	2.7	2.5	2.7	3.3	3.4
08	4.4	5.2	6.3	5.1	4.5	5.3	4.4	3.7	3.7	3.3	4.1	4.3	4.5
09	6.6	8.0	8.8	7.6	6.8	6.7	5.9	5.6	5.7	5.1	6.2	6.4	6.6
10	9.2	10.5	10.6	9.6	8.3	7.7	7.0	6.9	7.4	7.0	8.0	8.6	8.4
11	11.2	12.3	12.0	11.0	8.6	8.0	7.4	7.6	8.1	8.1	9.0	10.1	9.5
12	12.3	13.7	13.4	12.0	9.1	8.4	7.7	8.1	8.4	8.8	9.8	11.2	10.2
13	13.2	14.5	14.5	13.2	9.9	9.1	8.3	8.7	8.8	9.1	10.2	11.9	10.9
14	13.6	15.1	15.2	14.2	10.8	10.2	9.2	9.3	9.2	9.5	10.3	12.1	11.6
15	13.9	15.2	15.5	14.7	11.4	11.5	10.4	10.2	9.6	9.9	10.1	11.9	12.0
16	13.4	14.9	15.4	14.9	11.8	12.5	11.4	11.3	10.0	10.2	9.8	11.4	12.3
17	12.0	13.7	14.7	14.7	12.4	13.5	12.5	11.9	10.1	9.9	8.6	9.4	11.9
18	9.0	11.0	12.9	13.9	12.5	14.1	12.8	12.0	9.8	8.9	6.8	6.7	10.9
19	7.4	8.1	10.7	12.2	12.6	14.1	12.5	11.4	8.6	7.5	6.6	5.8	9.8
20	7.2	7.4	9.9	10.5	11.5	13.6	11.6	10.4	7.5	6.9	6.7	5.6	9.1
21	6.7	7.0	9.4	9.8	11.2	12.9	11.0	10.0	7.2	7.0	5.8	5.1	8.6
22	6.0	6.1	8.2	9.0	10.8	12.9	10.4	9.9	6.7	6.3	4.8	4.4	8.0
23	5.3	5.5	6.8	7.8	9.8	11.8	9.4	9.0	5.7	5.2	4.3	3.9	7.1
Media	7.6	8.4	9.3	9.1	8.5	9.1	7.8	7.4	6.4	6.1	6.0	6.5	7.7

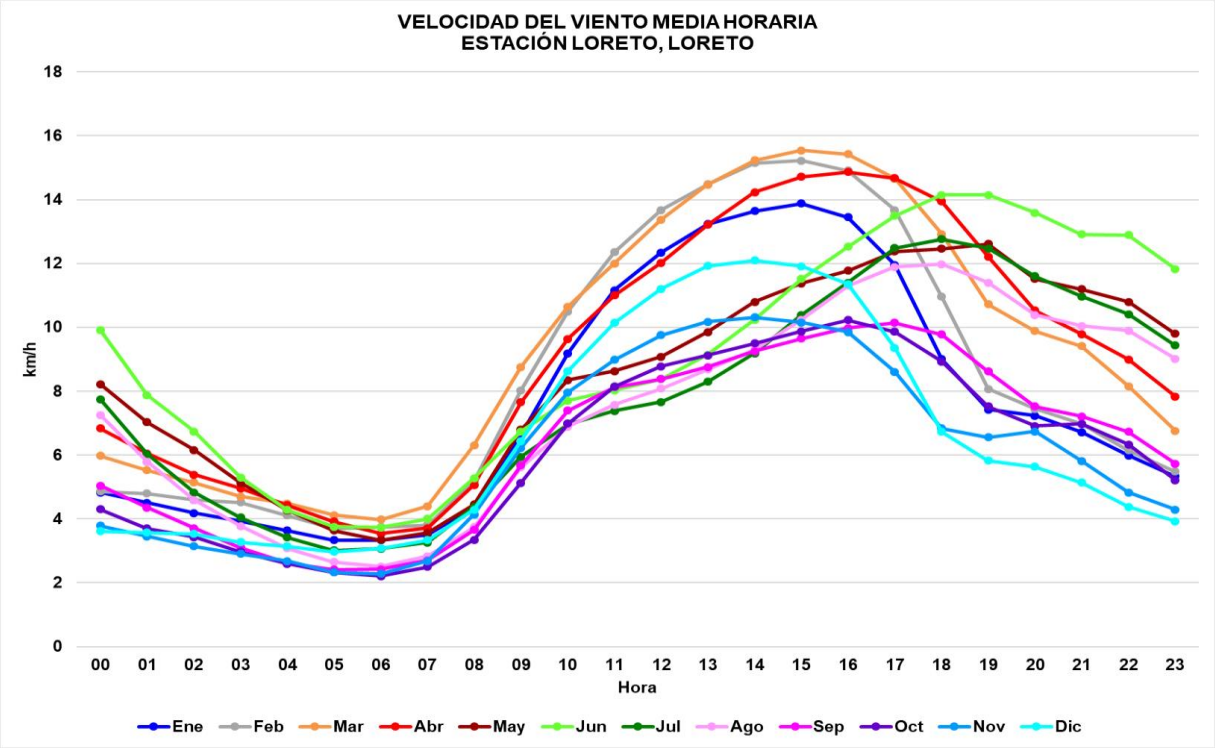


Figura 356. Velocidad del viento media (km/h) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 397. Velocidad del viento máxima maximorum (km/h) horaria de la estación Loreto, Loreto (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	29.1	30.8	30.1	38.7	42.5	34.0	35.1	30.7	27.6	33.6	28.0	30.4	42.5
01	30.0	33.8	37.5	39.7	40.8	30.1	29.8	31.0	33.8	30.1	25.0	27.6	40.8
02	30.0	30.4	36.3	31.0	30.8	34.7	30.6	28.0	32.0	25.0	26.2	27.9	36.3
03	28.3	35.0	40.8	31.0	29.9	28.1	25.6	28.3	25.4	25.0	24.9	31.5	40.8
04	35.3	36.0	45.2	21.0	31.2	25.6	27.2	27.7	19.5	28.3	28.3	28.7	45.2
05	29.3	25.5	45.0	23.1	25.5	23.4	24.7	26.0	42.5	40.3	30.6	25.8	45.0
06	37.3	28.8	44.3	23.7	26.8	28.5	25.9	23.5	46.1	36.8	29.8	27.1	46.1
07	32.3	27.7	43.6	27.0	26.4	26.8	25.3	24.5	36.1	33.6	30.2	26.1	43.6
08	37.3	31.6	56.0	32.0	26.1	25.7	33.4	28.9	49.4	26.7	28.7	30.4	56.0
09	34.0	40.8	62.0	32.0	27.0	26.7	32.0	30.2	45.5	30.0	32.9	43.9	62.0
10	40.0	44.7	63.0	31.2	26.5	28.0	31.0	32.3	34.5	31.0	34.2	42.0	63.0
11	50.0	54.7	63.0	38.5	30.5	26.4	33.5	31.1	28.6	30.0	32.0	45.2	63.0
12	56.0	44.3	61.0	36.7	31.0	33.0	35.5	35.9	26.6	34.5	36.2	44.6	61.0
13	57.0	44.2	54.0	46.0	34.5	31.5	29.7	34.4	35.5	32.6	35.0	47.5	57.0
14	52.0	52.2	47.7	43.1	33.3	33.0	32.3	34.3	35.9	29.1	34.9	45.0	52.2
15	74.0	48.8	49.0	43.0	40.3	38.1	35.1	31.5	30.2	31.8	35.2	48.0	74.0
16	55.0	44.2	49.1	46.0	38.8	36.3	40.0	40.0	29.0	37.0	35.9	49.0	55.0
17	43.8	43.0	50.0	42.2	40.0	40.4	36.6	32.2	31.2	30.7	31.3	41.0	50.0
18	44.0	55.1	46.5	50.0	44.0	37.0	32.0	39.5	28.1	30.1	30.0	35.0	55.1
19	36.6	38.0	48.4	45.2	46.0	39.2	35.8	33.1	27.6	29.9	38.0	35.0	48.4
20	37.4	35.0	41.4	45.8	48.0	42.0	35.0	36.0	30.0	31.9	31.0	29.1	48.0
21	34.7	33.5	43.0	36.8	45.4	40.0	37.2	34.1	27.9	34.6	29.3	31.0	45.4
22	33.2	32.0	37.3	41.0	45.0	39.0	37.3	31.2	28.7	31.3	27.0	28.3	45.0
23	36.7	30.6	36.0	38.1	51.0	40.0	37.6	33.3	29.7	29.6	24.4	29.0	51.0
Máx.	74.0	55.1	63.0	50.0	51.0	42.0	40.0	40.0	49.4	40.3	38.0	49.0	74.0

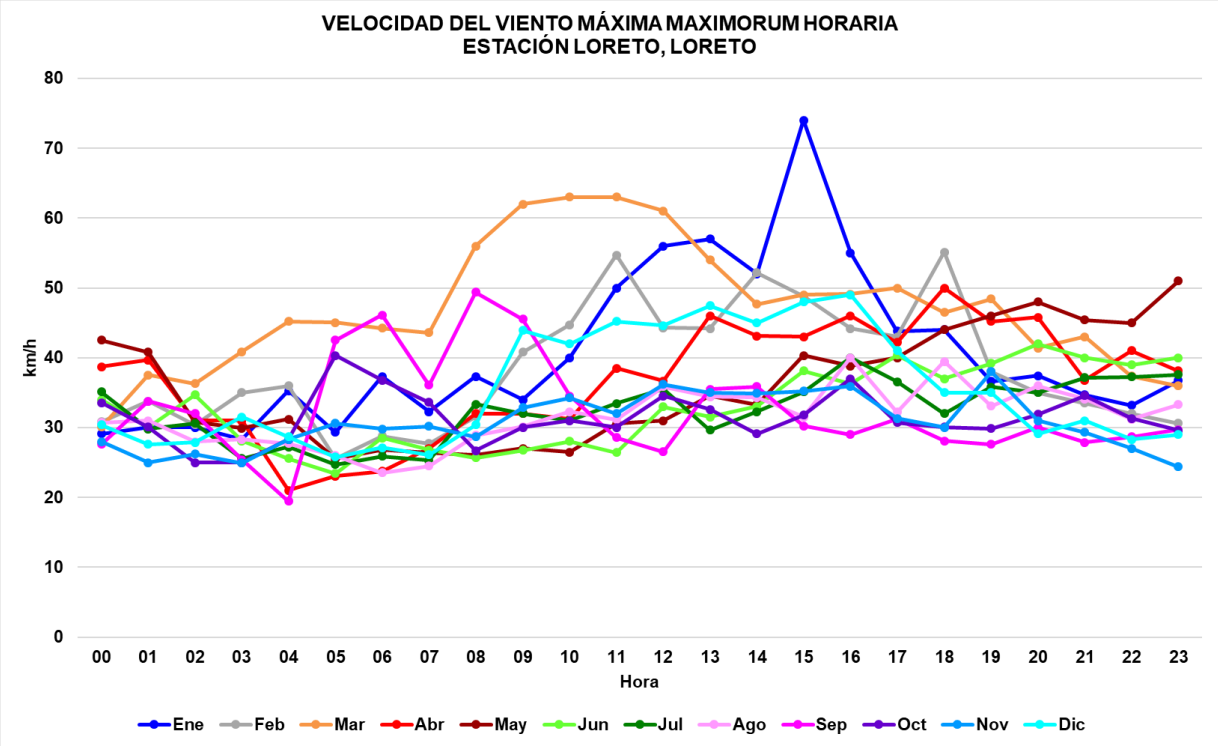


Figura 357. Velocidad del viento máxima maximorum (km/h) horaria de la estación Loreto, Loreto (2002-2022).

Cuadro 398. Frecuencia de velocidad del viento (%) mensual de la estación Loreto, Loreto (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	48.4	43.3	36.8	36.6	35.6	34.0	42.3	44.6	51.1	53.8	57.3	55.0	45.0
5.1 a 10.0	21.9	23.1	25.8	24.8	30.0	28.1	27.3	26.2	26.7	25.6	21.7	20.4	25.1
10.1 a 15.0	13.8	14.8	16.5	18.3	19.3	17.8	16.1	15.9	15.3	14.0	13.4	13.2	15.7
15.1 a 20.0	8.8	10.3	10.5	11.6	9.3	12.3	8.9	9.4	5.5	5.2	5.6	7.2	8.7
20.1 a 25.0	4.4	4.9	5.9	6.0	3.9	5.9	4.1	3.3	1.1	1.2	1.6	2.6	3.7
25.1 a 30.0	1.7	2.5	2.8	2.0	1.5	1.6	1.2	0.6	0.1	0.2	0.3	1.0	1.3
30.1 a 35.0	0.6	0.7	1.2	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.3	0.3
35.1 a 40.0	0.2	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
40.1 a 45.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

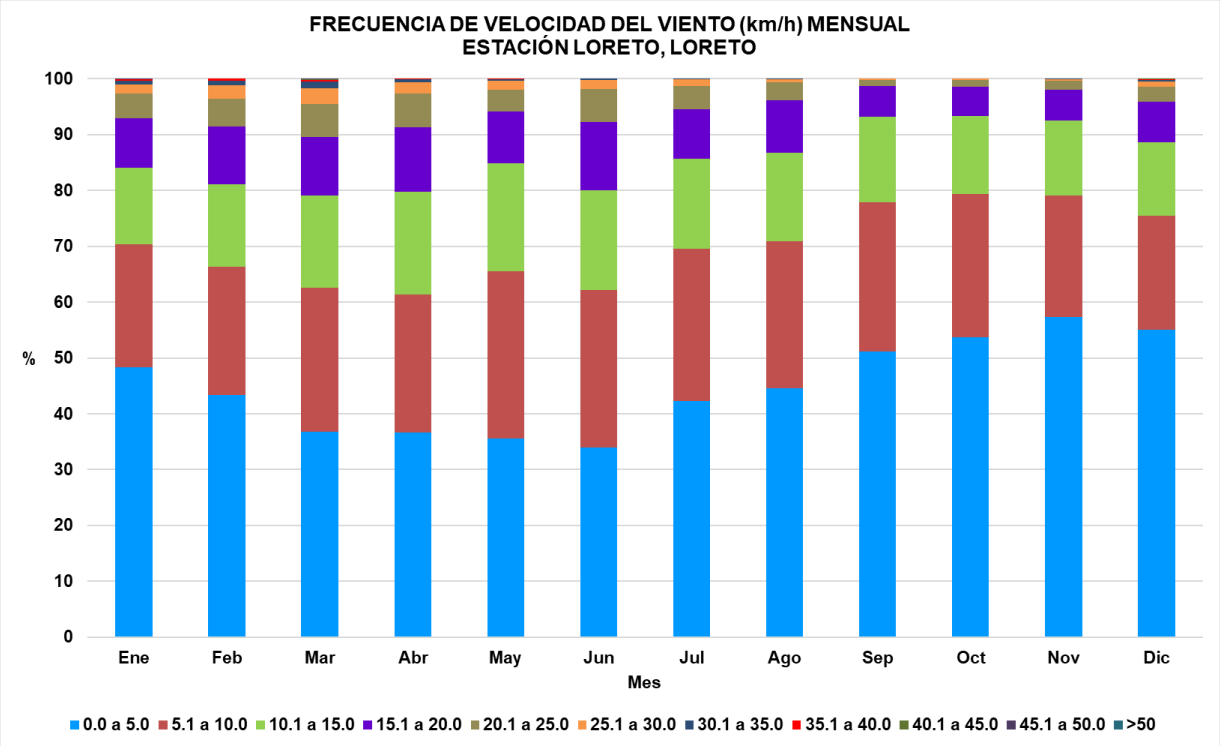


Figura 358. Frecuencia de velocidad del viento (%) mensual de la estación Loreto, Loreto (2002-2022).

Cuadro 399. Frecuencia de dirección del viento (%) mensual de la estación Loreto, Loreto (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	9.5	7.5	6.6	5.4	5.3	4.2	3.8	4.2	5.3	6.7	9.6	10.2	6.5
NNE	4.4	4.0	3.7	3.0	3.8	4.2	4.1	4.7	5.4	4.8	4.8	4.3	4.3
NE	4.6	4.8	4.3	4.0	5.1	7.2	7.6	8.6	9.3	8.0	6.4	5.1	6.3
ENE	7.8	7.0	7.0	6.8	9.2	15.8	17.5	19.8	19.9	15.5	11.5	7.2	12.2
E	10.5	8.1	9.8	9.5	13.2	20.0	18.9	19.4	18.2	15.2	13.2	8.2	13.8
ESE	4.7	4.1	4.4	4.4	6.0	7.8	7.9	8.1	7.3	6.1	5.6	4.5	5.9
SE	3.7	3.6	3.8	4.1	4.7	5.1	5.3	5.0	4.1	3.7	3.6	3.7	4.2
SSE	6.0	6.9	7.0	7.6	7.7	6.1	6.2	4.8	4.2	4.5	5.5	6.0	6.0
S	10.4	12.5	11.9	12.9	11.6	8.6	8.4	6.1	5.5	7.1	7.3	10.9	9.4
SSO	10.6	11.8	11.4	11.3	8.8	5.5	5.3	4.5	4.4	5.8	6.7	11.0	8.1
SO	7.1	9.0	8.9	9.6	6.1	3.1	2.9	2.8	2.7	3.9	5.0	7.1	5.6
OSO	4.5	5.7	6.6	7.6	4.9	2.5	2.1	2.1	2.0	3.0	3.6	4.4	4.0
O	3.5	3.6	4.2	5.2	4.2	2.4	2.2	2.3	2.3	3.1	3.1	3.7	3.3
ONO	3.5	3.2	3.3	3.0	3.2	2.3	2.4	2.4	2.6	3.6	3.6	3.7	3.1
NO	4.2	3.9	3.3	2.8	3.1	2.5	2.6	2.5	3.2	4.4	5.0	4.7	3.5
NNO	5.1	4.2	3.7	2.8	3.1	2.8	2.5	2.6	3.6	4.7	5.3	5.3	3.8
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

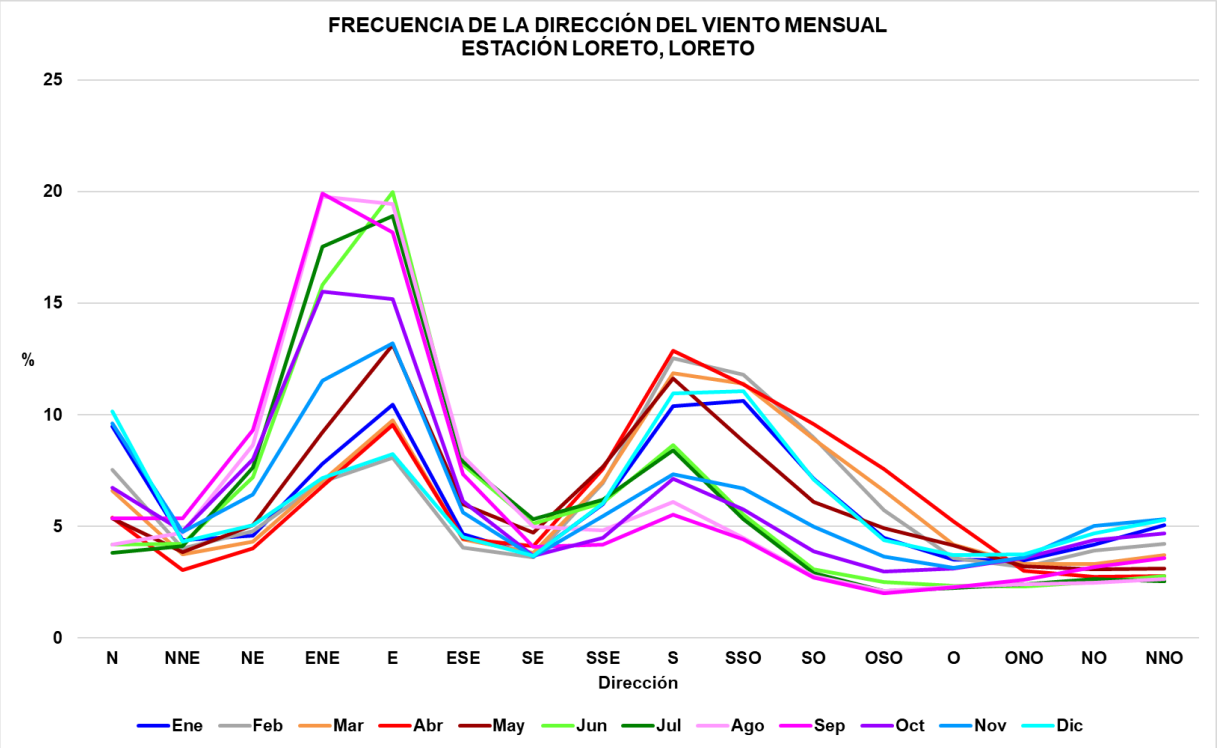
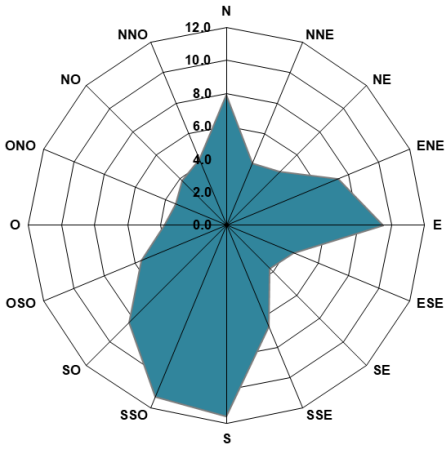


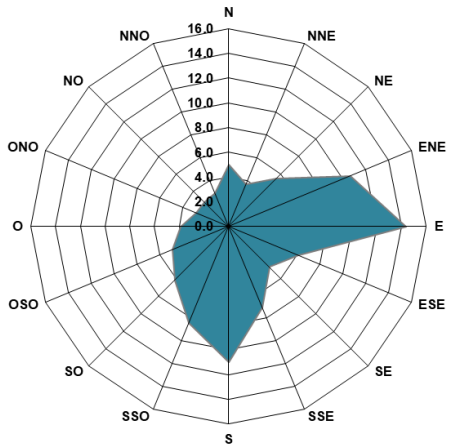
Figura 359. Frecuencia de dirección del viento (%) mensual de la estación Loreto, Loreto (2002-2022).

Cuadro 400. Frecuencia de dirección del viento (%) trimestral de la estación Loreto, Loreto (2002-2022).

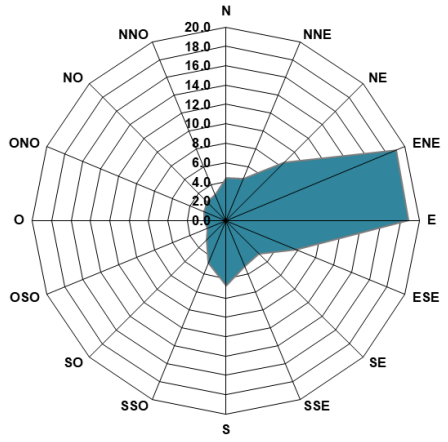
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	7.9	5.0	4.4	8.8	6.5
NNE	4.1	3.7	4.7	4.6	4.3
NE	4.6	5.5	8.5	6.5	6.3
ENE	7.3	10.7	19.0	11.3	12.2
E	9.5	14.3	18.9	12.1	13.8
ESE	4.4	6.1	7.8	5.4	5.9
SE	3.7	4.7	4.8	3.7	4.2
SSE	6.6	7.1	5.1	5.3	6.0
S	11.6	11.0	6.7	8.5	9.4
SSO	11.3	8.5	4.7	7.9	8.1
SO	8.3	6.2	2.8	5.4	5.6
OSO	5.6	4.9	2.1	3.7	4.0
O	3.8	3.9	2.3	3.3	3.3
ONO	3.3	2.8	2.5	3.6	3.1
NO	3.8	2.8	2.8	4.7	3.5
NNO	4.3	2.9	2.9	5.1	3.8
Suma	100.0	100.0	100.0	100.0	100.0



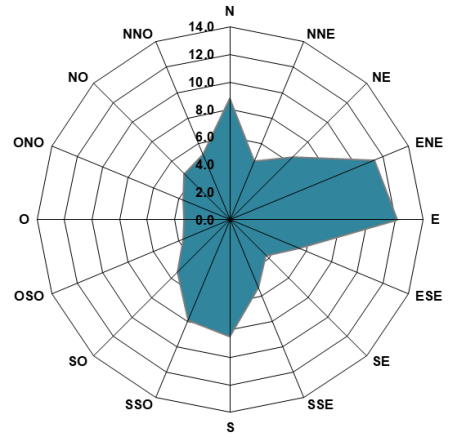
Ene-Mar



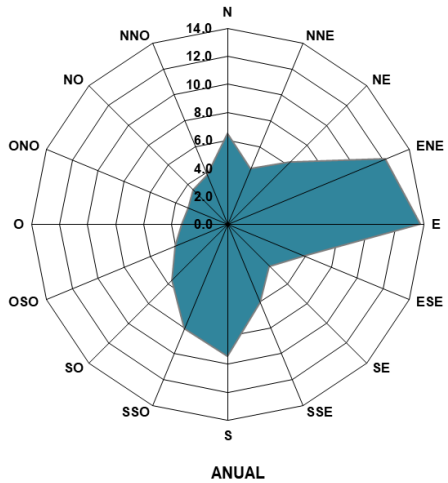
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 360. Frecuencia de dirección del viento (%) trimestral de la estación Loreto, Loreto (2002-2022).

Cuadro 401. Estadísticas climatológicas mensuales de la estación Loreto, Loreto (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.8	23.3	25.7	28.1	29.4	28.0	26.2	26.4	25.0	24.9	22.9	21.5	25.2
Temperatura máxima maximorum (°C)	27.7	29.8	33.3	33.3	35.6	33.8	32.4	31.6	30.8	31.2	29.2	27.8	35.6
Temperatura mínima media (°C)	1.7	3.2	5.3	7.8	10.8	13.1	12.6	12.4	12.1	8.4	4.0	1.5	7.7
Temperatura mínima minimorum (°C)	-10.9	-6.8	-5.6	-0.7	1.1	6.5	6.9	7.0	4.2	-2.9	-11.3	-9.8	-11.3
Temperatura media (°C)	11.1	13.4	16.0	18.6	20.5	20.3	18.9	19.0	18.0	16.4	13.3	11.3	16.4
Oscilación térmica (°C)	19.1	20.1	20.5	20.3	18.6	14.9	13.5	13.9	12.8	16.4	18.9	20.0	17.4
Precipitación acumulada media (mm)	12.1	15.9	8.1	5.8	23.1	77.6	101.5	75.6	90.2	30.2	12.6	8.1	460.8
Precipitación máxima maximorum en 24 horas (mm)	33.0	42.0	34.2	28.8	39.8	96.0	174.6	68.4	67.8	55.4	30.6	28.6	174.6
Número de días promedio con lluvia	3.7	3.8	3.6	2.4	4.6	9.5	12.8	10.6	10.9	5.4	3.8	2.7	73.6
Evapotranspiración acumulada potencial media (mm)	112.4	129.6	172.1	182.3	189.5	170.7	161.4	161.5	129.8	133.7	113.6	109.0	1765.7
Humedad máxima media (%)	83.8	79.4	73.1	69.9	76.5	86.4	92.0	92.2	94.1	92.9	90.8	86.3	84.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	24.4	19.7	15.1	13.1	16.4	27.5	35.5	35.2	41.8	33.1	27.8	24.2	26.2
Humedad mínima minimorum (%)	4.0	5.0	3.0	4.0	4.0	6.0	10.0	11.0	13.0	8.0	4.0	5.0	3.0
Humedad media (%)	53.5	46.7	39.1	35.5	42.6	57.3	66.5	66.0	71.8	65.4	60.7	55.2	55.0
Radiación global media día/mes (W/m^2)	18689.2	22520.7	26194.5	28717.4	28783.5	26948.8	25432.9	25218.9	21860.0	21922.1	19552.3	17939.1	23648.3
Radiación global media día/mes (kWh/m^2)	4.7	5.6	6.5	7.2	7.2	6.7	6.4	6.3	5.5	5.5	4.9	4.5	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.8	20.3	23.6	25.8	25.9	24.3	22.9	22.7	19.7	19.7	17.6	16.1	21.3
Velocidad del viento máxima media (km/h)	20.8	22.4	24.1	23.9	23.8	24.1	21.5	20.4	17.3	16.9	16.7	18.2	20.8
Velocidad del viento máxima maximorum (km/h)	74.0	55.1	63.0	50.0	51.0	42.0	40.0	40.0	49.4	40.3	38.0	49.0	74.0
Velocidad del viento media (km/h)	7.6	8.4	9.3	9.2	8.5	9.1	7.8	7.4	6.4	6.1	6.0	6.5	7.7
Dirección dominante del viento	SSO	S	S	S	E	E	E	ENE	ENE	ENE	E	SSO	E

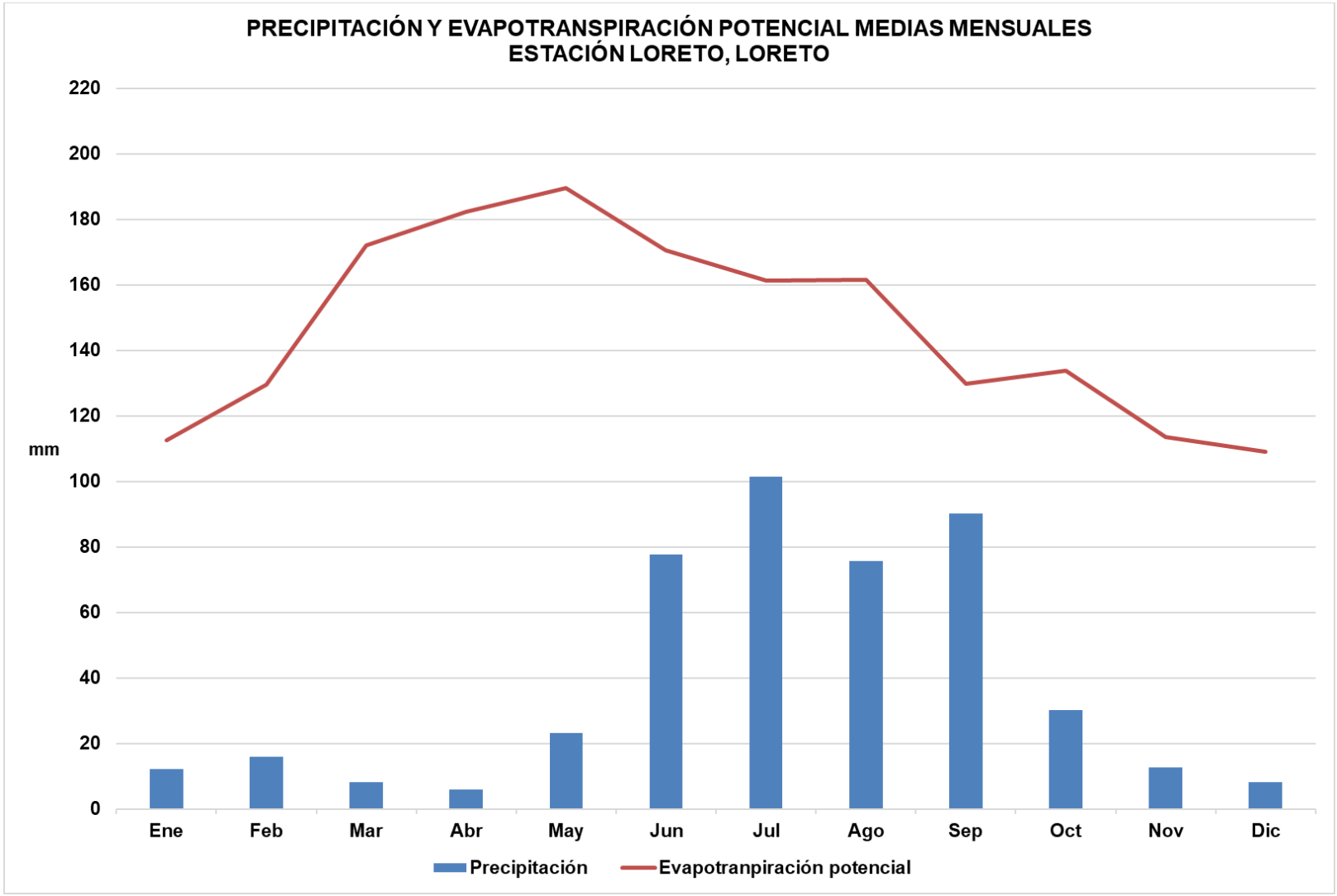


Figura 361. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Loreto, Loreto (2002-2022).

7.22. Estación: Marianita, Mazapil

Cuadro 402. Temperatura máxima media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.7	11.4	14.2	18.0	20.4	21.3	20.1	20.1	18.6	15.9	11.0	9.0	15.7
01	7.8	10.3	13.0	16.8	19.2	20.2	19.1	19.2	17.8	15.0	10.1	8.1	14.7
02	7.0	9.4	11.9	15.7	18.2	19.2	18.3	18.4	17.2	14.1	9.4	7.3	13.8
03	6.2	8.6	10.9	14.5	17.2	18.3	17.6	17.6	16.5	13.4	8.7	6.7	13.0
04	5.6	7.7	9.9	13.4	16.2	17.4	16.9	17.0	15.9	12.8	8.1	6.1	12.3
05	5.1	7.0	9.1	12.4	15.3	16.7	16.3	16.4	15.4	12.2	7.6	5.6	11.6
06	4.5	6.4	8.4	11.5	14.4	16.0	15.8	15.8	15.0	11.6	7.2	5.0	11.0
07	4.5	6.6	9.9	12.0	14.9	16.5	15.9	15.8	14.8	11.7	8.3	5.2	11.3
08	7.6	10.5	14.2	15.7	18.4	19.2	18.2	17.9	16.6	14.1	12.1	8.7	14.4
09	11.4	14.4	17.9	19.6	21.7	21.7	20.4	20.4	19.2	17.4	15.6	12.6	17.7
10	14.6	17.5	20.7	22.5	24.4	24.1	22.5	22.6	21.4	20.2	18.5	15.9	20.4
11	17.1	19.9	22.9	25.0	26.7	26.3	24.5	24.6	23.3	22.5	20.7	18.4	22.7
12	19.0	21.7	24.6	26.8	28.5	28.1	26.1	26.4	24.9	24.3	22.3	20.2	24.4
13	20.3	23.1	25.8	28.3	29.9	29.6	27.6	27.9	26.2	25.6	23.4	21.4	25.7
14	21.2	23.9	26.6	29.3	30.9	30.6	28.6	29.0	27.1	26.5	24.1	22.2	26.7
15	21.5	24.3	27.0	29.9	31.5	31.2	29.3	29.6	27.5	27.0	24.3	22.4	27.1
16	21.4	24.3	26.9	30.1	31.6	31.3	29.4	29.6	27.5	27.0	24.0	22.2	27.1
17	20.7	23.7	26.4	29.8	31.4	30.9	29.0	29.1	26.9	26.5	23.0	21.3	26.6
18	18.8	22.4	25.2	29.1	30.7	30.2	28.1	28.2	25.9	25.5	20.4	18.7	25.3
19	16.1	19.5	22.7	27.7	29.5	29.0	26.8	26.8	24.4	23.4	18.0	16.2	23.3
20	14.4	17.5	20.3	25.2	27.5	27.3	25.1	24.9	22.6	21.1	16.4	14.5	21.4
21	12.7	15.7	18.5	22.8	25.0	25.2	23.3	23.1	21.2	19.7	14.6	12.7	19.5
22	11.0	14.0	16.9	21.1	23.3	23.7	22.0	21.9	20.3	18.3	13.1	11.2	18.1
23	9.7	12.6	15.5	19.5	21.8	22.4	21.0	20.9	19.4	16.9	11.9	10.0	16.8
Media	12.8	15.5	18.3	21.5	23.7	24.0	22.6	22.6	21.1	19.3	15.5	13.4	19.2

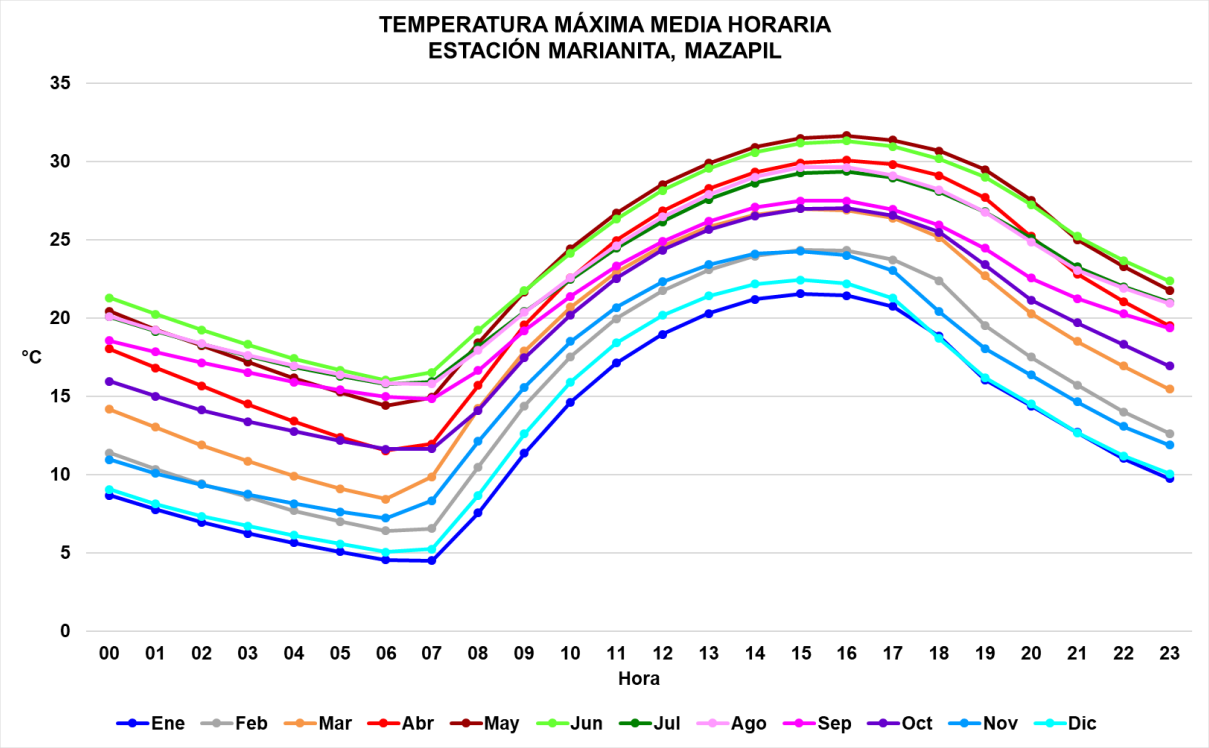


Figura 362. Temperatura máxima media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 403. Temperatura máxima maximorum (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	17.5	20.9	22.4	27.6	29.1	28.0	25.6	25.2	25.4	21.7	19.4	17.0	29.1
01	15.8	20.2	22.1	25.3	26.9	26.8	24.1	24.3	23.4	21.2	19.3	17.1	26.9
02	15.8	19.5	22.0	24.5	25.7	25.7	22.5	22.9	22.2	21.0	18.0	16.4	25.7
03	14.9	17.3	21.5	22.7	24.8	24.0	21.5	22.4	21.5	20.0	17.7	16.0	24.8
04	14.4	15.8	19.4	22.0	23.9	23.0	20.5	21.4	20.8	19.6	16.3	15.8	23.9
05	14.5	15.8	20.2	21.1	22.2	22.3	20.1	21.0	19.7	19.0	15.9	15.3	22.3
06	14.0	15.0	20.3	18.7	21.3	21.3	20.3	20.4	19.8	19.0	16.0	14.2	21.3
07	13.6	16.8	22.2	19.1	23.3	21.8	19.5	19.5	19.2	18.8	16.4	13.9	23.3
08	17.1	19.7	23.8	22.7	25.9	25.6	22.9	22.3	21.4	20.6	19.3	17.7	25.9
09	20.1	24.1	26.6	26.3	29.6	27.8	25.1	25.0	23.2	24.0	23.0	21.1	29.6
10	23.4	27.4	29.8	29.3	32.6	30.4	27.7	27.2	25.9	26.6	26.0	24.9	32.6
11	25.4	30.5	32.0	31.5	33.6	32.9	30.3	29.1	29.0	29.3	28.7	27.5	33.6
12	27.0	33.2	33.9	33.7	35.4	34.2	32.0	30.8	30.9	30.6	30.4	29.2	35.4
13	28.3	33.9	34.9	34.0	37.1	35.5	33.7	32.6	31.8	31.8	31.5	29.8	37.1
14	28.9	35.0	35.9	35.3	38.3	36.2	35.4	33.9	32.7	32.1	32.8	30.1	38.3
15	29.3	35.2	36.1	35.6	38.8	36.8	36.8	34.4	33.2	32.6	32.8	29.9	38.8
16	29.0	35.0	35.9	36.1	38.7	37.6	36.0	35.3	33.7	32.5	32.2	29.3	38.7
17	27.8	34.2	35.5	35.4	38.7	37.1	35.3	35.1	33.8	32.3	31.2	27.5	38.7
18	26.6	32.5	34.1	34.7	38.5	36.4	35.4	34.7	33.0	31.8	27.0	25.4	38.5
19	22.8	28.1	30.3	34.0	37.5	35.8	34.3	33.5	32.5	31.1	24.5	22.0	37.5
20	21.6	24.6	28.5	31.4	35.3	34.7	33.6	31.4	30.5	27.6	22.7	20.5	35.3
21	20.3	23.6	27.6	29.8	32.7	32.2	31.3	29.4	29.0	26.1	21.3	18.8	32.7
22	19.1	22.3	26.6	28.3	31.7	30.6	28.5	27.6	28.0	25.3	20.3	18.0	31.7
23	18.3	21.1	25.2	28.5	30.6	29.9	26.7	27.0	26.9	23.9	19.6	17.5	30.6
Máx.	29.3	35.2	36.1	36.1	38.8	37.6	36.8	35.3	33.8	32.6	32.8	30.1	38.8

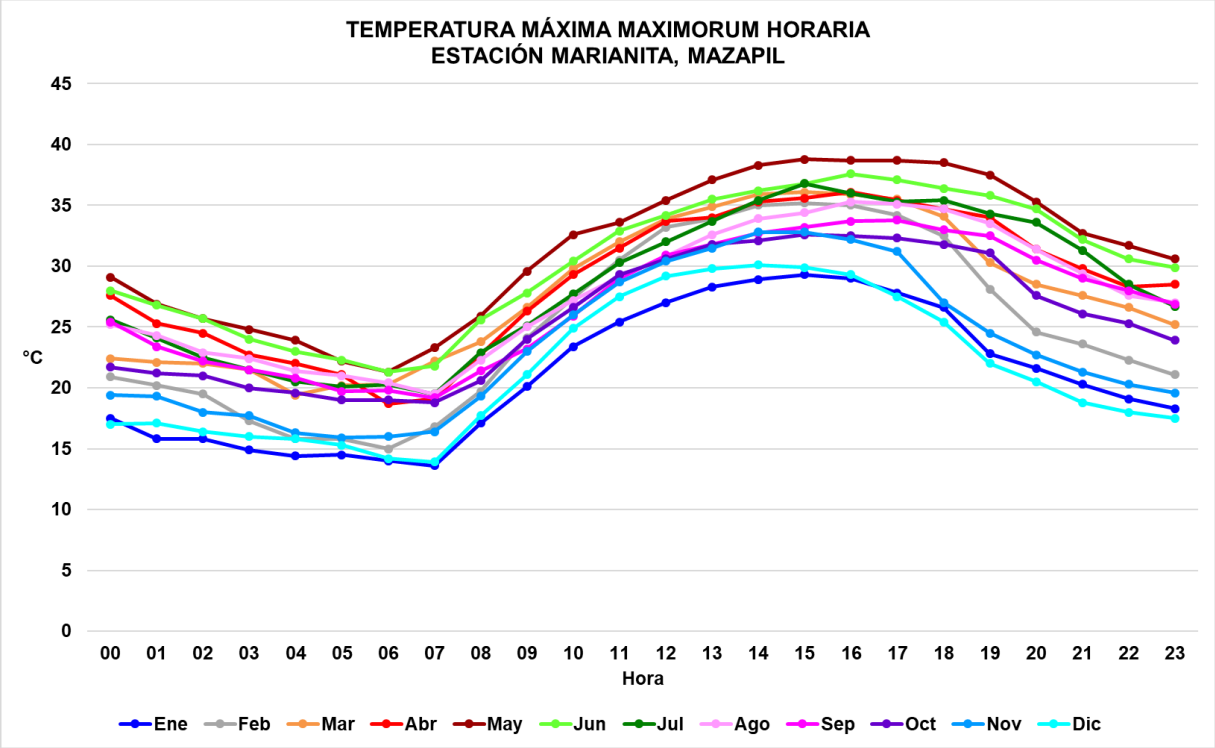


Figura 363. Temperatura máxima maximorum (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 404. Temperatura mínima media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	10.3	13.0	16.8	19.2	20.4	19.3	19.3	17.9	15.0	10.0	8.0	14.7
01	6.8	9.3	11.9	15.6	18.2	19.4	18.4	18.4	17.2	14.2	9.2	7.2	13.8
02	6.1	8.4	10.8	14.5	17.2	18.5	17.6	17.7	16.6	13.4	8.6	6.5	13.0
03	5.4	7.6	9.8	13.4	16.2	17.5	16.9	17.0	16.0	12.7	8.0	5.9	12.2
04	4.8	6.8	8.9	12.3	15.2	16.7	16.3	16.4	15.4	12.1	7.4	5.3	11.5
05	4.2	6.1	8.2	11.4	14.4	16.0	15.8	15.8	14.9	11.5	6.9	4.8	10.8
06	3.8	5.5	7.6	10.6	13.6	15.5	15.3	15.4	14.5	11.0	6.5	4.3	10.3
07	3.5	5.3	7.8	10.4	13.5	15.4	15.2	15.1	14.3	10.7	6.6	4.1	10.2
08	4.8	7.2	11.0	12.5	15.7	17.2	16.4	16.0	14.9	11.7	9.2	5.8	11.8
09	8.5	11.5	15.2	16.7	19.3	19.9	18.7	18.6	17.3	15.0	13.0	9.7	15.3
10	12.2	15.2	18.6	20.4	22.4	22.4	20.9	20.9	19.8	18.2	16.3	13.5	18.4
11	15.3	18.1	21.2	23.2	25.0	24.7	22.9	23.1	21.8	20.8	19.0	16.6	21.0
12	17.6	20.4	23.3	25.4	27.1	26.7	24.8	25.0	23.6	23.0	21.1	18.8	23.1
13	19.2	22.0	24.7	27.1	28.7	28.3	26.3	26.6	25.0	24.5	22.5	20.4	24.6
14	20.3	23.1	25.7	28.3	29.8	29.3	27.4	27.8	25.9	25.6	23.3	21.4	25.7
15	20.9	23.6	26.2	29.0	30.4	29.9	28.0	28.3	26.3	26.1	23.6	21.8	26.2
16	20.8	23.6	26.2	29.2	30.6	30.0	28.0	28.2	26.2	26.2	23.2	21.5	26.2
17	19.5	22.8	25.5	29.0	30.4	29.6	27.5	27.7	25.7	25.6	21.2	19.5	25.3
18	16.6	20.3	23.4	28.0	29.6	28.9	26.7	26.7	24.7	24.0	18.4	16.6	23.7
19	14.6	17.9	20.7	25.9	28.1	27.6	25.4	25.2	22.9	21.5	16.7	14.8	21.8
20	12.9	16.0	18.8	23.2	25.4	25.6	23.5	23.3	21.4	19.9	14.9	12.9	19.8
21	11.2	14.2	17.1	21.3	23.5	23.9	22.2	22.0	20.3	18.4	13.2	11.2	18.2
22	9.8	12.6	15.5	19.5	21.9	22.6	21.1	21.0	19.4	17.1	11.9	10.0	16.9
23	8.7	11.5	14.2	18.0	20.5	21.4	20.2	20.1	18.6	15.8	10.9	9.0	15.7
Media	11.5	14.1	16.9	20.1	22.3	22.8	21.5	21.5	20.0	18.1	14.2	12.1	17.9

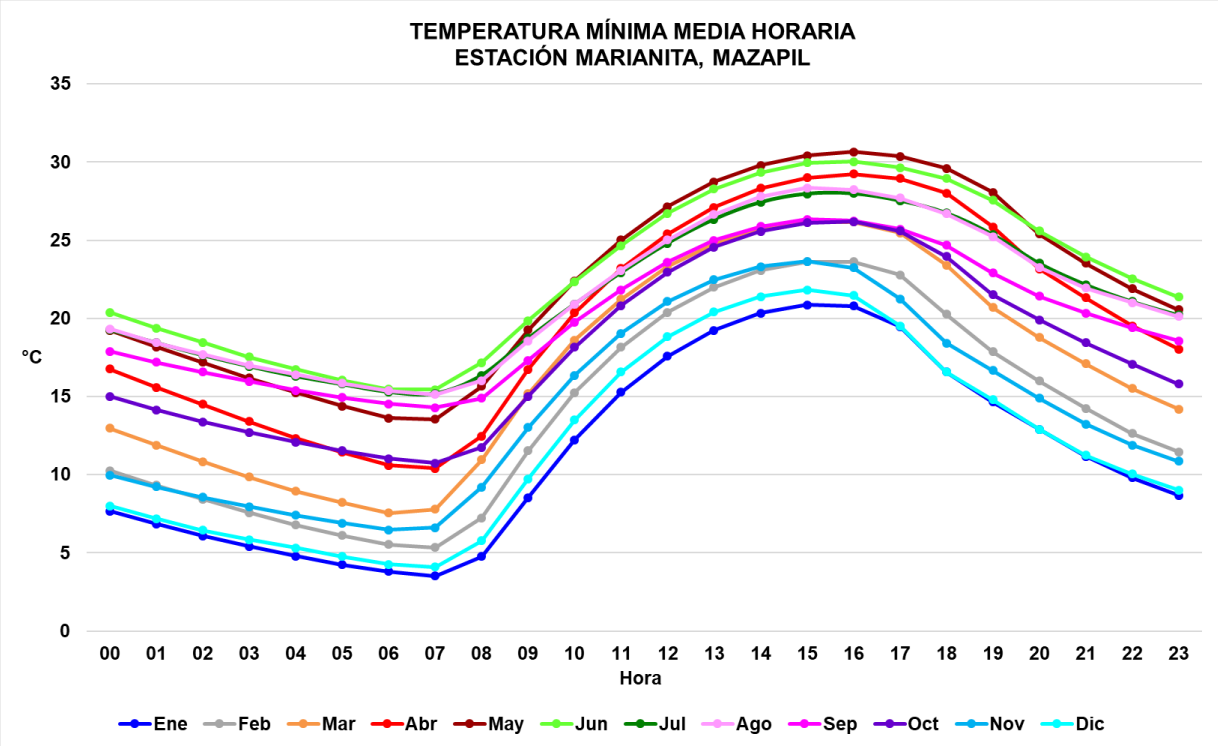


Figura 364. Temperatura mínima media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 405. Temperatura mínima minimorum (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.5	-5.5	-0.7	5.6	11.3	13.7	14.4	15.0	12.3	4.6	-5.0	-6.8	-6.8
01	-5.8	-6.1	-0.9	4.1	8.8	12.0	14.0	14.2	10.6	2.3	-5.2	-7.6	-7.6
02	-6.7	-7.4	-3.0	2.9	8.0	11.2	12.9	13.8	9.0	1.9	-6.3	-9.0	-9.0
03	-8.8	-7.6	-3.5	1.6	7.2	10.1	12.5	13.3	8.8	0.5	-7.4	-10.2	-10.2
04	-9.5	-7.7	-5.2	1.0	6.1	9.7	12.5	11.7	7.6	-0.1	-9.1	-9.8	-9.8
05	-9.0	-8.6	-5.8	-0.1	5.4	8.0	11.6	11.1	6.1	-1.3	-9.5	-10.8	-10.8
06	-7.8	-9.3	-6.1	-0.5	3.8	8.0	11.2	10.7	5.5	-1.5	-9.4	-11.4	-11.4
07	-8.2	-9.9	-6.7	-0.5	3.0	7.5	11.0	11.5	5.1	-2.2	-10.0	-11.1	-11.1
08	-7.6	-9.3	-3.6	0.0	4.6	11.2	11.6	11.6	6.5	2.1	-7.3	-8.9	-9.3
09	-4.1	-7.5	1.4	6.5	11.7	13.2	14.8	15.0	12.1	6.6	-1.3	-4.1	-7.5
10	-1.7	-5.7	3.7	12.1	13.5	13.7	16.0	15.2	14.9	10.5	2.1	-3.1	-5.7
11	-1.1	-3.3	1.8	13.7	15.5	14.7	15.4	16.1	16.3	12.6	3.1	-2.6	-3.3
12	0.2	-1.1	4.9	15.3	16.8	17.1	15.4	17.4	15.9	13.9	4.0	-2.1	-2.1
13	2.9	1.3	3.1	16.6	16.2	15.8	15.5	16.7	16.5	15.3	4.5	-2.2	-2.2
14	3.5	3.6	4.8	17.1	14.6	15.4	15.7	16.9	16.4	15.3	5.9	-2.1	-2.1
15	6.2	5.3	5.5	17.8	9.9	17.5	16.0	16.7	15.8	14.4	6.8	-1.2	-1.2
16	6.6	7.1	5.5	10.3	14.3	17.5	16.0	15.8	15.9	14.3	6.5	-0.8	-0.8
17	5.5	6.1	6.8	14.2	16.2	15.5	15.7	15.6	15.1	14.4	4.6	-1.4	-1.4
18	4.2	3.3	6.1	14.7	16.0	14.2	15.3	13.6	14.9	13.2	3.1	-2.7	-2.7
19	3.4	1.2	5.0	13.1	15.3	14.6	15.3	15.6	15.5	11.7	2.3	-3.2	-3.2
20	3.2	-0.5	4.1	12.5	15.3	14.2	15.0	15.5	14.9	9.6	1.7	-4.6	-4.6
21	0.5	-1.4	4.1	11.1	13.8	14.0	14.9	15.1	14.7	7.4	-0.7	-5.7	-5.7
22	-0.8	-2.5	2.7	10.0	14.2	14.6	15.1	15.2	13.9	6.9	-1.8	-6.1	-6.1
23	-4.6	-4.8	2.1	6.6	13.7	14.7	15.0	15.3	12.0	5.3	-2.5	-6.4	-6.4
Mín.	-9.5	-9.9	-6.7	-0.5	3.0	7.5	11.0	10.7	5.1	-2.2	-10.0	-11.4	-11.4

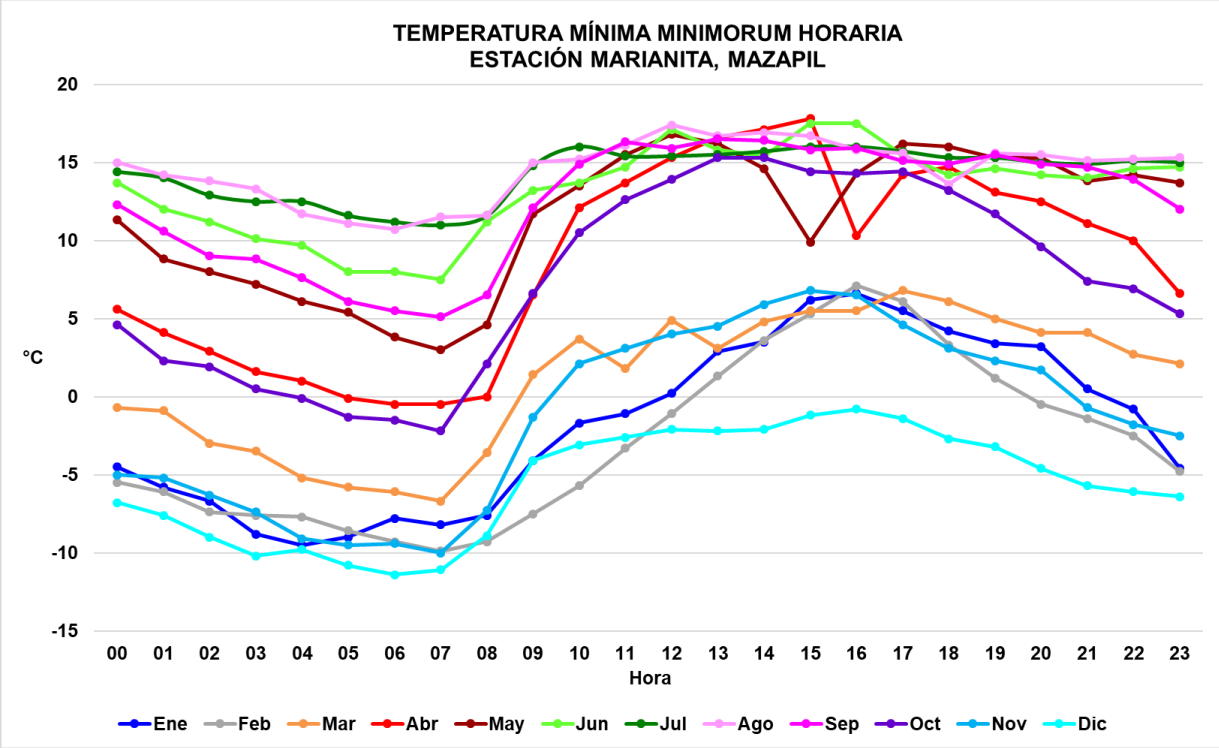


Figura 365. Temperatura mínima minimorum (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 406. Temperatura media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.2	10.8	13.6	17.4	19.8	20.8	19.7	19.7	18.2	15.5	10.5	8.5	15.2
01	7.3	9.8	12.5	16.2	18.7	19.8	18.8	18.8	17.5	14.6	9.6	7.7	14.3
02	6.5	8.9	11.4	15.1	17.7	18.9	18.0	18.0	16.9	13.8	9.0	6.9	13.4
03	5.8	8.1	10.3	13.9	16.7	17.9	17.2	17.3	16.2	13.0	8.3	6.3	12.6
04	5.2	7.2	9.4	12.9	15.7	17.1	16.6	16.7	15.7	12.4	7.8	5.7	11.9
05	4.7	6.6	8.7	11.9	14.8	16.4	16.0	16.1	15.2	11.8	7.3	5.2	11.2
06	4.2	6.0	8.0	11.1	14.0	15.7	15.5	15.6	14.7	11.3	6.8	4.7	10.6
07	4.0	5.9	8.7	11.1	14.2	15.9	15.5	15.4	14.5	11.2	7.4	4.6	10.7
08	6.1	8.9	12.6	14.1	17.0	18.2	17.3	16.9	15.7	12.9	10.7	7.2	13.1
09	10.0	13.0	16.6	18.2	20.5	20.8	19.6	19.5	18.3	16.2	14.3	11.2	16.5
10	13.4	16.4	19.7	21.5	23.4	23.3	21.7	21.7	20.6	19.2	17.4	14.7	19.4
11	16.2	19.1	22.1	24.1	25.9	25.5	23.7	23.8	22.6	21.7	19.9	17.5	21.8
12	18.3	21.1	23.9	26.1	27.8	27.4	25.5	25.7	24.2	23.7	21.7	19.5	23.8
13	19.8	22.5	25.3	27.7	29.3	28.9	27.0	27.3	25.6	25.1	22.9	20.9	25.2
14	20.8	23.5	26.2	28.8	30.3	30.0	28.0	28.4	26.5	26.0	23.7	21.8	26.2
15	21.2	24.0	26.6	29.5	30.9	30.6	28.6	29.0	26.9	26.6	24.0	22.1	26.7
16	21.1	24.0	26.5	29.7	31.2	30.7	28.7	28.9	26.9	26.6	23.6	21.8	26.6
17	20.2	23.3	25.9	29.4	30.9	30.3	28.3	28.4	26.3	26.1	22.2	20.5	26.0
18	17.7	21.4	24.3	28.6	30.1	29.6	27.4	27.4	25.3	24.8	19.3	17.6	24.5
19	15.3	18.7	21.6	26.8	28.8	28.3	26.1	26.0	23.7	22.5	17.4	15.5	22.6
20	13.6	16.8	19.5	24.2	26.5	26.4	24.3	24.0	22.0	20.5	15.6	13.7	20.6
21	11.9	15.0	17.8	22.1	24.2	24.6	22.7	22.5	20.8	19.1	13.9	11.9	18.9
22	10.4	13.3	16.2	20.3	22.6	23.1	21.5	21.5	19.8	17.7	12.5	10.6	17.5
23	9.2	12.0	14.8	18.8	21.2	21.9	20.6	20.5	19.0	16.4	11.4	9.5	16.3
Media	12.1	14.8	17.6	20.8	23.0	23.4	22.0	22.1	20.5	18.7	14.9	12.7	18.6

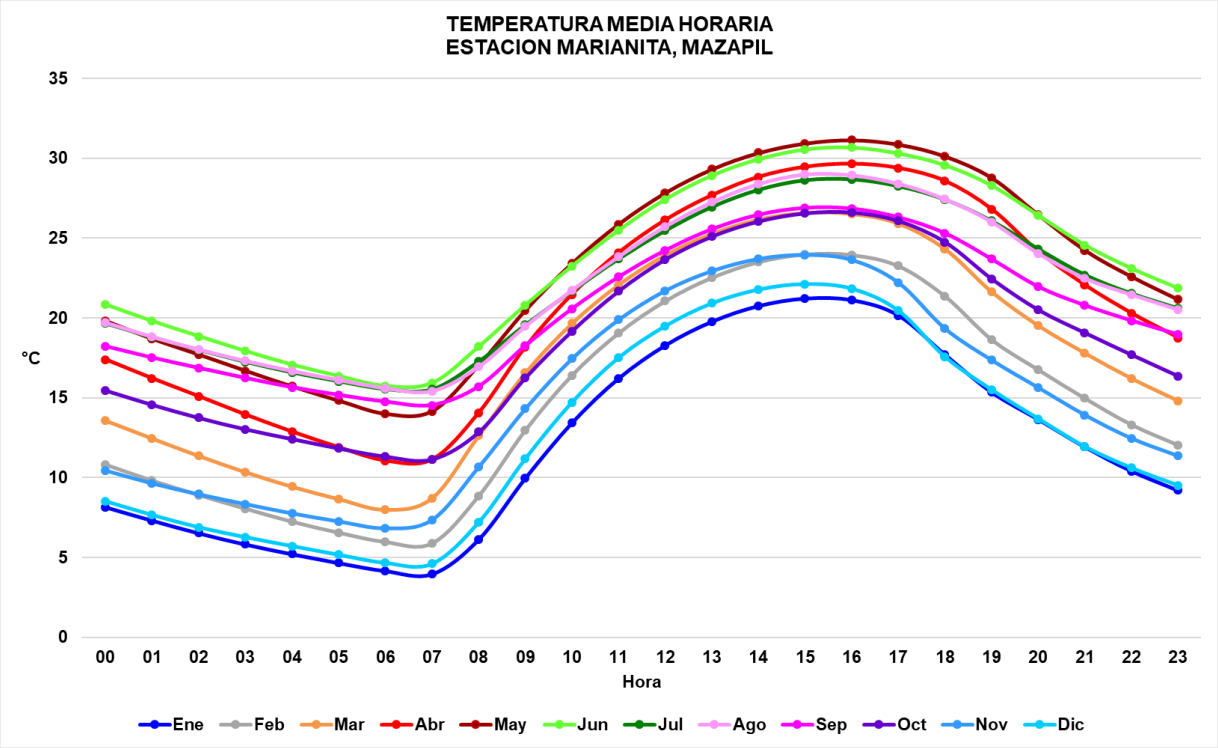


Figura 366. Temperatura media (˚C) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 407. Precipitación media (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.4	0.4	0.5	0.7	1.5	2.8	3.9	2.7	0.5	0.3	0.3	14.4
01	0.2	0.2	0.4	0.1	0.5	1.7	1.8	2.6	3.9	0.4	0.2	0.4	12.4
02	0.3	0.5	0.2	0.1	1.1	1.1	2.6	1.3	2.3	0.9	0.2	0.2	10.8
03	0.3	0.4	0.6	0.1	0.8	0.5	2.3	1.0	1.3	0.8	0.1	0.2	8.4
04	0.4	0.2	0.5	0.0	0.5	1.3	0.7	1.2	2.2	1.1	0.1	0.4	8.7
05	0.4	0.2	0.5	0.0	0.3	0.7	1.2	1.5	1.8	0.8	0.3	0.2	7.8
06	0.3	0.1	0.4	0.1	0.5	0.6	1.8	0.6	1.7	0.7	0.2	0.3	7.1
07	0.3	0.2	0.1	0.1	0.1	0.4	1.1	0.7	1.2	0.4	0.2	0.3	5.1
08	0.2	0.1	0.1	0.1	0.0	1.3	0.9	0.5	0.5	0.4	0.3	0.4	5.0
09	0.2	0.2	0.1	0.0	0.0	0.5	0.5	0.3	0.3	0.2	0.3	0.3	3.0
10	0.3	0.5	0.2	0.0	0.0	0.0	0.3	0.0	0.8	0.0	0.1	0.3	2.5
11	0.3	0.5	0.2	0.0	0.0	0.0	0.3	0.0	0.3	0.1	0.1	0.2	2.0
12	0.2	0.6	0.0	0.1	0.0	0.0	0.7	0.1	0.6	0.1	0.3	0.2	2.9
13	0.1	1.1	0.1	0.1	0.0	0.2	1.7	0.3	0.2	0.3	0.6	0.1	4.9
14	0.1	0.5	0.0	0.0	0.2	0.7	2.2	0.7	1.0	0.4	1.0	0.4	7.1
15	0.2	0.4	0.1	0.3	2.0	0.8	2.9	1.8	1.7	0.7	0.4	0.6	12.0
16	0.6	0.9	0.1	0.9	1.3	1.4	7.8	4.7	4.7	0.7	2.4	0.5	25.9
17	1.5	0.5	0.4	0.5	0.8	1.6	5.8	7.6	4.4	2.3	1.1	0.4	26.9
18	1.3	0.5	1.6	0.5	1.0	3.0	6.2	5.5	4.2	1.5	3.3	0.3	28.9
19	1.3	0.3	0.5	0.9	2.3	6.0	6.8	5.1	4.9	3.7	2.4	0.2	34.4
20	1.0	0.4	0.6	0.9	1.5	4.2	8.0	7.9	5.2	4.5	0.7	0.2	35.1
21	0.9	0.2	0.2	0.5	1.1	3.7	4.5	6.9	6.1	2.0	0.8	0.3	27.3
22	0.5	0.1	0.1	0.7	1.5	5.1	4.7	3.9	7.0	2.5	0.6	0.4	27.0
23	0.3	0.2	0.1	0.6	0.8	3.2	2.9	3.7	4.3	1.7	0.2	0.3	18.4
Suma	11.4	9.3	7.7	6.9	17.1	39.2	70.7	61.8	63.3	26.7	16.3	7.5	338.0

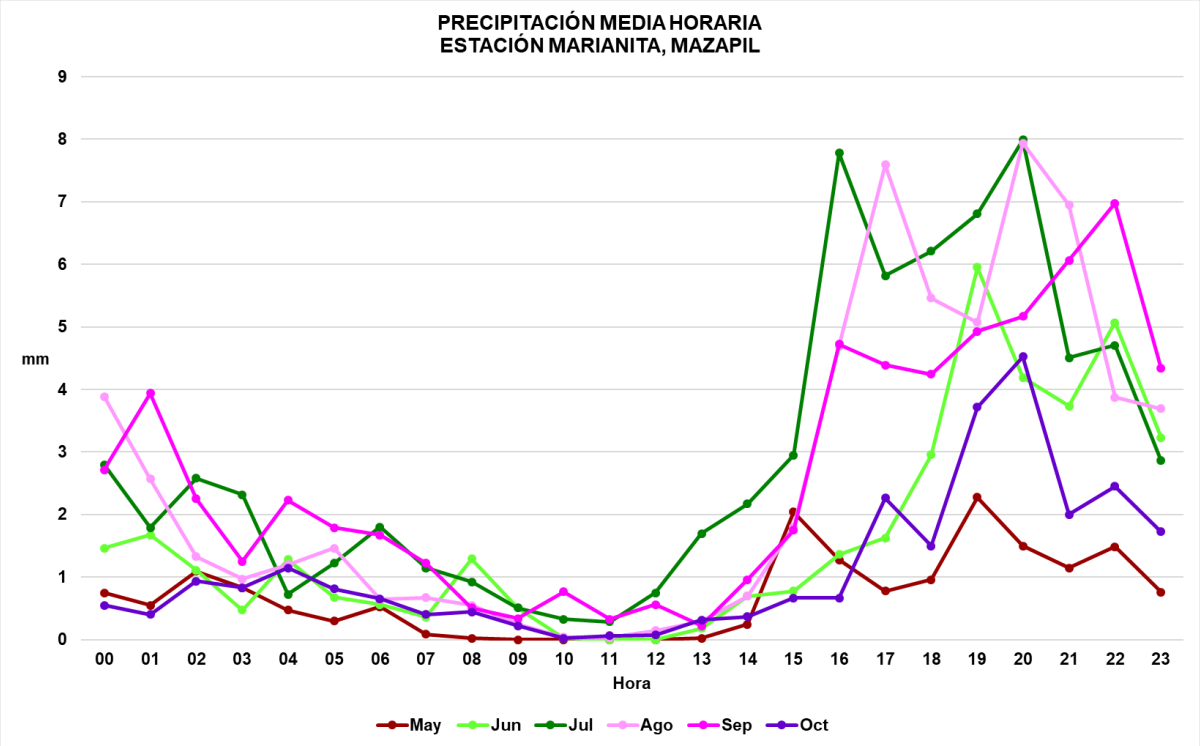


Figura 367. Precipitación media (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 408. Precipitación máxima maximorum (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.4	2.0	3.4	6.4	7.4	6.2	9.6	10.2	6.0	4.0	1.2	2.6	10.2
01	0.8	1.2	4.2	0.4	2.2	10.4	6.6	11.8	19.6	5.6	1.0	3.2	19.6
02	1.4	2.0	1.2	0.8	12.0	3.4	13.8	9.8	10.6	4.2	1.0	2.0	13.8
03	1.8	1.4	6.8	0.6	5.2	2.0	18.6	2.6	4.4	6.0	0.8	1.6	18.6
04	2.4	1.0	3.6	0.0	5.0	5.4	3.6	2.8	11.4	5.6	0.6	3.8	11.4
05	2.4	1.4	3.8	0.2	1.2	2.6	3.6	14.2	7.2	6.0	3.2	1.2	14.2
06	1.6	0.6	4.4	1.0	6.6	4.6	15.2	2.6	5.6	5.0	1.0	2.2	15.2
07	1.2	1.0	1.2	0.8	0.6	4.1	6.0	3.6	8.0	3.8	1.4	1.2	8.0
08	1.4	0.6	0.8	1.0	0.2	14.4	6.0	7.8	3.6	4.8	2.6	3.6	14.4
09	4.0	1.8	2.8	0.0	0.0	7.2	2.2	3.8	1.6	3.6	3.0	1.8	7.2
10	4.8	3.2	2.6	0.0	0.0	0.4	1.6	0.2	12.4	0.4	0.6	1.6	12.4
11	4.4	2.6	2.0	0.0	0.0	0.0	2.2	0.6	2.2	0.4	0.8	1.4	4.4
12	2.6	2.4	0.2	1.0	0.0	0.0	4.2	2.6	6.4	1.2	1.8	1.2	6.4
13	1.0	4.8	0.6	1.6	0.4	2.6	12.6	4.2	1.6	3.6	6.4	0.8	12.6
14	0.4	1.8	0.2	0.0	2.6	7.8	11.4	7.2	7.6	3.4	12.8	3.2	12.8
15	1.8	1.6	2.2	2.8	18.4	10.2	17.8	5.8	6.4	3.8	2.4	5.0	18.4
16	6.8	7.8	1.0	12.0	13.2	7.8	43.6	22.0	23.4	2.2	20.8	3.6	43.6
17	6.8	4.0	6.4	3.6	9.0	5.8	11.8	26.4	18.0	17.4	6.8	5.6	26.4
18	7.8	3.0	9.6	3.8	7.0	12.0	25.0	18.2	9.4	4.6	36.0	3.0	36.0
19	9.0	2.8	5.4	5.4	14.6	25.0	17.8	12.8	12.4	11.8	14.2	1.6	25.0
20	3.6	1.6	6.2	5.0	5.8	14.8	17.8	29.2	15.0	28.8	2.6	1.4	29.2
21	4.0	1.6	1.6	3.0	4.2	20.6	9.0	11.2	14.0	5.8	6.0	2.2	20.6
22	2.2	1.4	1.4	7.8	6.4	22.6	15.2	9.4	25.2	11.2	3.6	2.6	25.2
23	2.6	2.8	1.4	3.4	3.0	11.2	5.0	10.8	16.6	12.2	1.6	1.4	16.6
Máx.	9.0	7.8	9.6	12.0	18.4	25.0	43.6	29.2	25.2	28.8	36.0	5.6	43.6

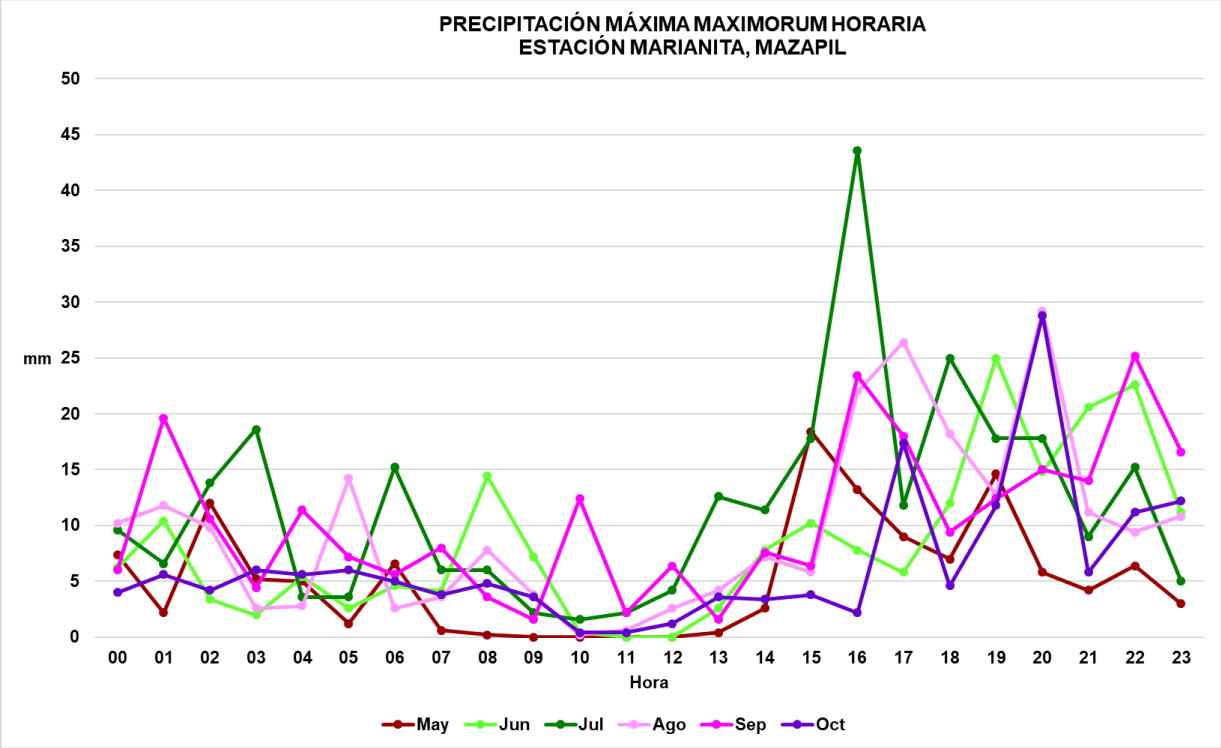


Figura 368. Precipitación máxima maximorum (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 409. Evapotranspiración potencial media (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.01	0.02	0.03	0.04	0.04	0.04	0.03	0.01	0.01	0.00	0.01	0.02
01	0.01	0.01	0.02	0.03	0.03	0.04	0.03	0.02	0.01	0.01	0.00	0.01	0.02
02	0.01	0.01	0.01	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.00	0.01	0.01
03	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01
08	0.02	0.05	0.09	0.06	0.07	0.07	0.04	0.03	0.01	0.02	0.06	0.03	0.05
09	0.10	0.16	0.23	0.19	0.21	0.20	0.16	0.15	0.12	0.12	0.16	0.12	0.16
10	0.22	0.30	0.39	0.36	0.39	0.36	0.30	0.31	0.26	0.27	0.30	0.24	0.31
11	0.33	0.43	0.54	0.53	0.55	0.52	0.45	0.47	0.42	0.41	0.42	0.35	0.45
12	0.43	0.54	0.65	0.67	0.69	0.65	0.58	0.60	0.54	0.53	0.50	0.44	0.57
13	0.48	0.59	0.70	0.76	0.78	0.74	0.67	0.69	0.61	0.60	0.52	0.48	0.64
14	0.48	0.59	0.68	0.78	0.80	0.76	0.71	0.73	0.62	0.61	0.49	0.46	0.64
15	0.43	0.53	0.60	0.73	0.75	0.71	0.68	0.70	0.60	0.57	0.41	0.40	0.59
16	0.33	0.42	0.48	0.64	0.66	0.63	0.60	0.61	0.50	0.46	0.29	0.29	0.49
17	0.22	0.28	0.33	0.49	0.52	0.50	0.48	0.46	0.38	0.33	0.15	0.16	0.36
18	0.11	0.12	0.17	0.33	0.36	0.36	0.34	0.31	0.23	0.22	0.07	0.09	0.23
19	0.05	0.08	0.11	0.27	0.24	0.21	0.19	0.20	0.16	0.11	0.03	0.04	0.14
20	0.03	0.05	0.06	0.14	0.15	0.17	0.14	0.12	0.06	0.04	0.02	0.03	0.08
21	0.02	0.03	0.04	0.07	0.08	0.10	0.07	0.06	0.03	0.02	0.02	0.02	0.05
22	0.02	0.03	0.03	0.05	0.06	0.06	0.04	0.03	0.02	0.02	0.01	0.02	0.03
23	0.01	0.02	0.03	0.04	0.05	0.05	0.04	0.03	0.01	0.01	0.01	0.01	0.03
Media/día /mes	3.33	4.27	5.21	6.25	6.52	6.24	5.58	5.60	4.64	4.39	3.47	3.23	4.89

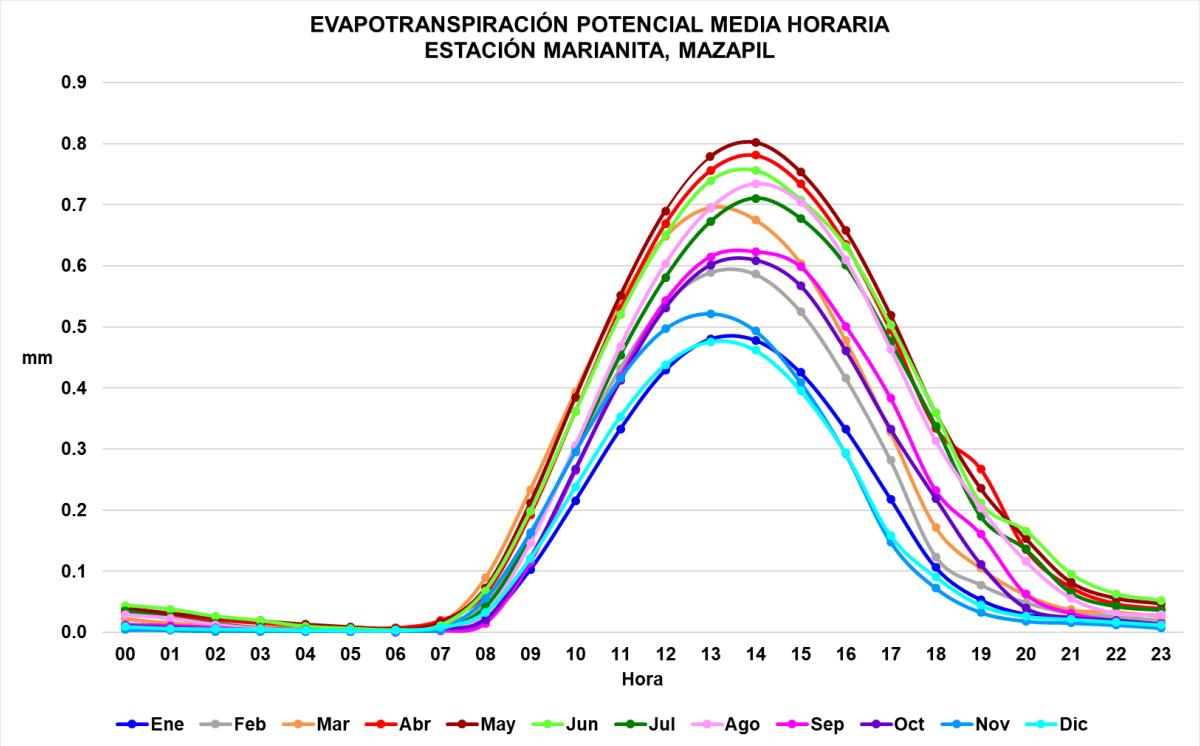


Figura 369. Evapotranspiración potencial media (mm) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 410. Humedad relativa media (%) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	55.1	44.8	37.7	31.8	39.8	55.2	68.1	67.9	75.7	65.7	63.6	56.2	55.1
01	57.9	48.2	41.1	35.5	44.1	59.6	72.1	71.8	78.9	69.7	67.2	59.4	58.8
02	60.7	51.5	44.6	38.9	48.0	63.8	75.5	75.4	81.7	73.4	70.6	62.4	62.2
03	63.4	54.6	47.9	42.6	51.7	68.0	78.7	78.7	84.5	76.8	73.9	65.0	65.5
04	66.1	57.7	51.0	46.0	55.7	71.9	81.4	81.7	87.0	79.7	77.0	67.8	68.6
05	68.6	60.5	53.9	48.9	59.5	75.2	83.8	84.2	89.1	82.4	79.4	70.4	71.3
06	70.9	63.5	56.6	51.8	62.6	77.9	85.8	86.4	90.7	84.6	81.4	72.8	73.8
07	72.3	64.9	56.5	52.9	63.4	77.8	86.2	87.4	91.4	85.8	80.7	73.8	74.4
08	67.1	58.0	48.6	48.3	57.2	70.9	79.8	82.1	87.7	81.3	71.3	67.2	68.3
09	57.5	48.2	40.1	39.9	47.9	61.9	70.1	71.8	77.9	70.2	60.6	56.7	58.6
10	48.2	39.6	32.2	32.2	38.6	52.7	61.1	62.3	68.2	59.9	50.5	47.2	49.4
11	40.2	32.7	26.1	25.7	30.6	44.1	52.9	53.6	59.7	50.7	42.4	39.3	41.5
12	34.2	27.4	21.9	20.7	24.9	36.9	46.0	46.0	52.5	43.3	36.3	33.5	35.3
13	29.8	23.9	19.1	17.4	20.9	31.6	40.6	40.1	46.8	38.0	32.2	29.4	30.8
14	26.8	21.7	17.1	15.2	18.5	28.4	36.9	36.1	43.2	34.5	29.6	26.8	27.9
15	25.1	20.4	16.2	14.0	17.2	26.5	35.2	34.1	41.6	32.5	28.3	25.2	26.4
16	24.8	20.2	16.0	13.4	16.5	26.2	35.2	34.0	41.8	31.9	28.4	25.2	26.1
17	26.1	20.8	16.4	13.5	16.7	27.1	36.5	35.8	43.4	32.9	30.9	27.3	27.3
18	30.4	23.3	18.1	14.2	17.7	28.7	39.0	38.8	47.0	36.1	36.6	32.1	30.2
19	34.8	27.2	21.1	16.1	19.6	31.8	43.2	43.2	53.1	41.8	41.2	36.2	34.1
20	38.8	30.5	24.2	19.1	23.1	36.5	49.0	50.0	59.5	47.2	45.9	40.7	38.7
21	43.5	34.0	27.4	22.0	27.3	41.4	54.7	56.1	64.2	51.6	50.9	45.2	43.2
22	47.8	37.7	30.7	25.2	31.8	46.4	59.4	60.5	68.3	56.4	55.6	49.1	47.4
23	51.4	41.1	34.1	28.4	36.0	51.4	63.4	64.6	72.0	61.2	59.7	52.8	51.3
Media	47.6	39.7	33.3	29.7	36.2	49.7	59.8	60.1	66.9	57.8	53.9	48.4	48.6

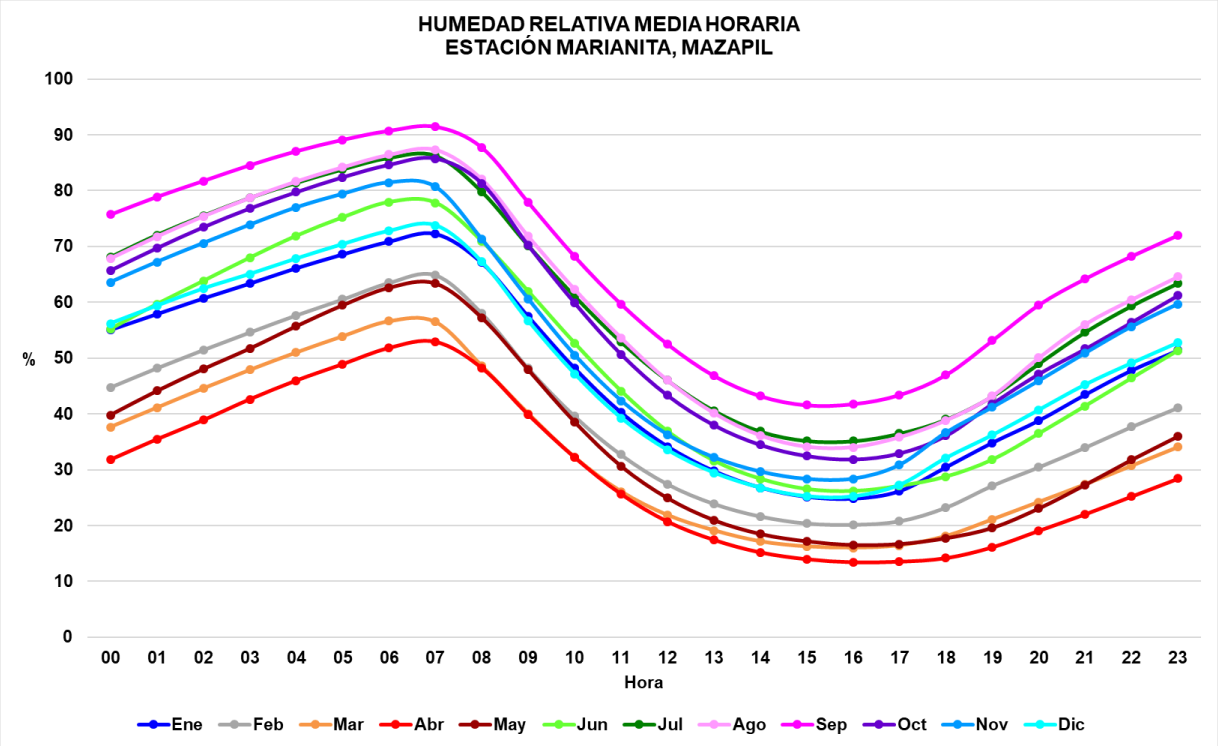


Figura 370. Humedad relativa media (%) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 411. Humedad relativa mínima minimorum (%) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	12.0	11.0	6.0	5.0	7.0	10.0	25.0	29.0	22.0	23.0	14.0	12.0	5.0
01	12.0	11.0	7.0	6.0	8.0	11.0	30.0	33.0	26.0	25.0	16.0	14.0	6.0
02	14.0	12.0	8.0	7.0	9.0	12.0	33.0	40.0	31.0	24.0	17.0	13.0	7.0
03	13.0	13.0	9.0	8.0	9.0	14.0	35.0	43.0	33.0	30.0	17.0	13.0	8.0
04	14.0	14.0	10.0	9.0	10.0	16.0	38.0	48.0	37.0	31.0	17.0	13.0	9.0
05	17.0	14.0	10.0	9.0	11.0	19.0	39.0	50.0	42.0	32.0	18.0	14.0	9.0
06	16.0	14.0	11.0	10.0	11.0	19.0	42.0	50.0	43.0	30.0	25.0	14.0	10.0
07	18.0	16.0	9.0	10.0	11.0	19.0	45.0	51.0	44.0	29.0	21.0	14.0	9.0
08	15.0	13.0	7.0	9.0	9.0	17.0	37.0	47.0	37.0	18.0	18.0	14.0	7.0
09	10.0	11.0	6.0	9.0	8.0	16.0	33.0	37.0	30.0	17.0	14.0	14.0	6.0
10	8.0	8.0	4.0	6.0	6.0	12.0	24.0	30.0	25.0	15.0	9.0	10.0	4.0
11	7.0	6.0	4.0	5.0	5.0	10.0	20.0	21.0	15.0	13.0	9.0	7.0	4.0
12	6.0	5.0	3.0	4.0	4.0	8.0	17.0	20.0	13.0	12.0	7.0	5.0	3.0
13	5.0	4.0	3.0	4.0	4.0	8.0	15.0	16.0	10.0	9.0	6.0	4.0	3.0
14	5.0	4.0	2.0	3.0	3.0	7.0	13.0	14.0	11.0	8.0	6.0	4.0	2.0
15	4.0	4.0	2.0	2.0	4.0	6.0	11.0	13.0	11.0	8.0	5.0	4.0	2.0
16	3.0	3.0	2.0	2.0	4.0	5.0	11.0	13.0	11.0	8.0	4.0	4.0	2.0
17	3.0	3.0	2.0	2.0	3.0	5.0	9.0	11.0	9.0	7.0	5.0	3.0	2.0
18	4.0	5.0	3.0	2.0	3.0	5.0	9.0	11.0	10.0	8.0	7.0	4.0	2.0
19	6.0	6.0	3.0	3.0	4.0	4.0	9.0	12.0	10.0	9.0	9.0	5.0	3.0
20	7.0	7.0	3.0	3.0	4.0	5.0	11.0	13.0	11.0	12.0	10.0	6.0	3.0
21	8.0	7.0	5.0	4.0	5.0	6.0	9.0	16.0	13.0	13.0	11.0	7.0	4.0
22	9.0	9.0	5.0	4.0	6.0	7.0	19.0	18.0	15.0	15.0	13.0	10.0	4.0
23	10.0	9.0	6.0	5.0	7.0	7.0	21.0	22.0	17.0	19.0	14.0	11.0	5.0
Mín.	3.0	3.0	2.0	2.0	3.0	4.0	9.0	11.0	9.0	7.0	4.0	3.0	2.0

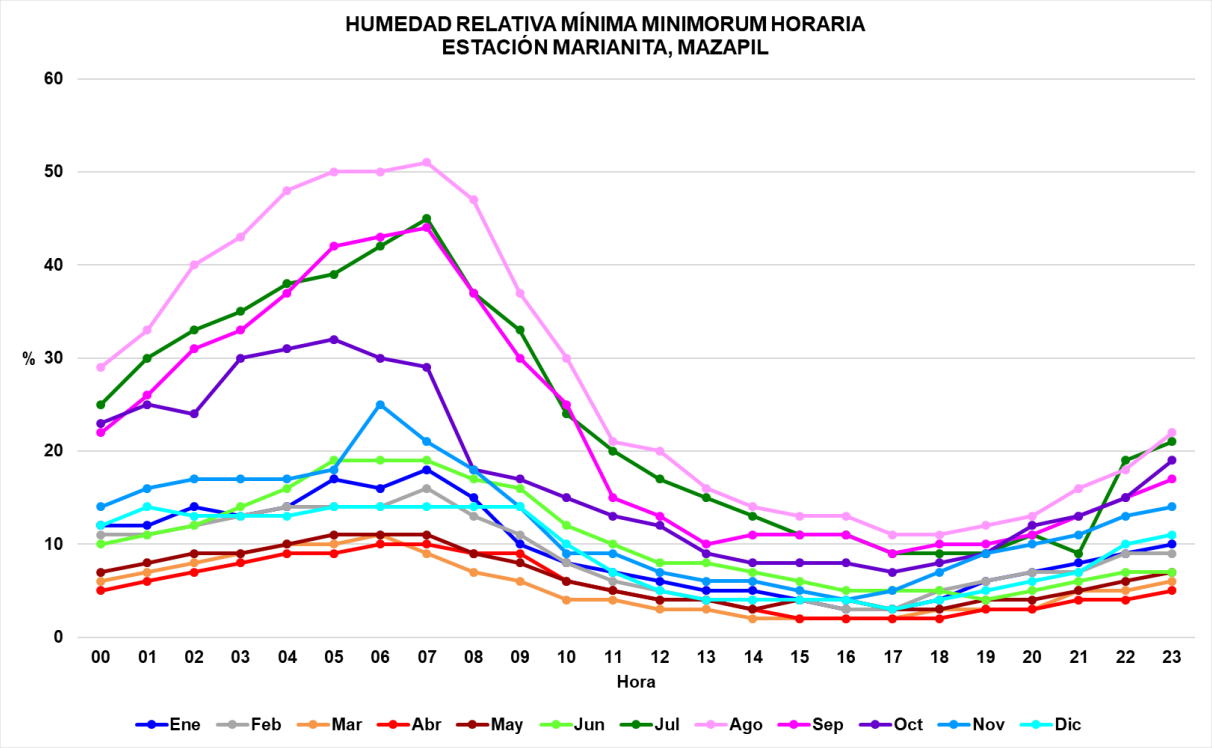


Figura 371. Humedad relativa mínima minimorum (%) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 412 Radiación solar global media horaria (W/m2) de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	13	7	10	11	6	2	1	2	5	1	5
07	58	109	295	182	208	212	149	102	63	80	209	91	146
08	526	728	1092	825	853	831	694	614	501	546	894	607	726
09	1260	1568	1993	1727	1718	1671	1480	1450	1289	1363	1675	1335	1544
10	1959	2322	2780	2593	2571	2491	2273	2305	2117	2166	2342	1998	2326
11	2484	2894	3353	3303	3265	3153	2916	3001	2776	2821	2793	2459	2935
12	2758	3179	3628	3756	3708	3619	3370	3445	3165	3189	2948	2670	3286
13	2738	3179	3567	3903	3851	3734	3588	3662	3251	3227	2808	2604	3343
14	2440	2882	3211	3703	3615	3500	3427	3517	3120	3021	2409	2248	3091
15	1913	2313	2577	3186	3167	3080	3007	3025	2664	2548	1785	1691	2580
16	1221	1585	1823	2508	2542	2491	2428	2332	2070	1869	1034	1000	1908
17	506	787	972	1702	1786	1772	1755	1595	1335	1104	318	323	1163
18	50	159	279	889	1025	1081	1043	887	637	409	8	11	540
19	0	1	7	266	392	444	410	308	143	38	0	0	167
20	0	0	0	14	42	68	59	25	2	0	0	0	18
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17912	21709	25590	28564	28752	28158	26606	26270	23132	22383	19229	17036	23778

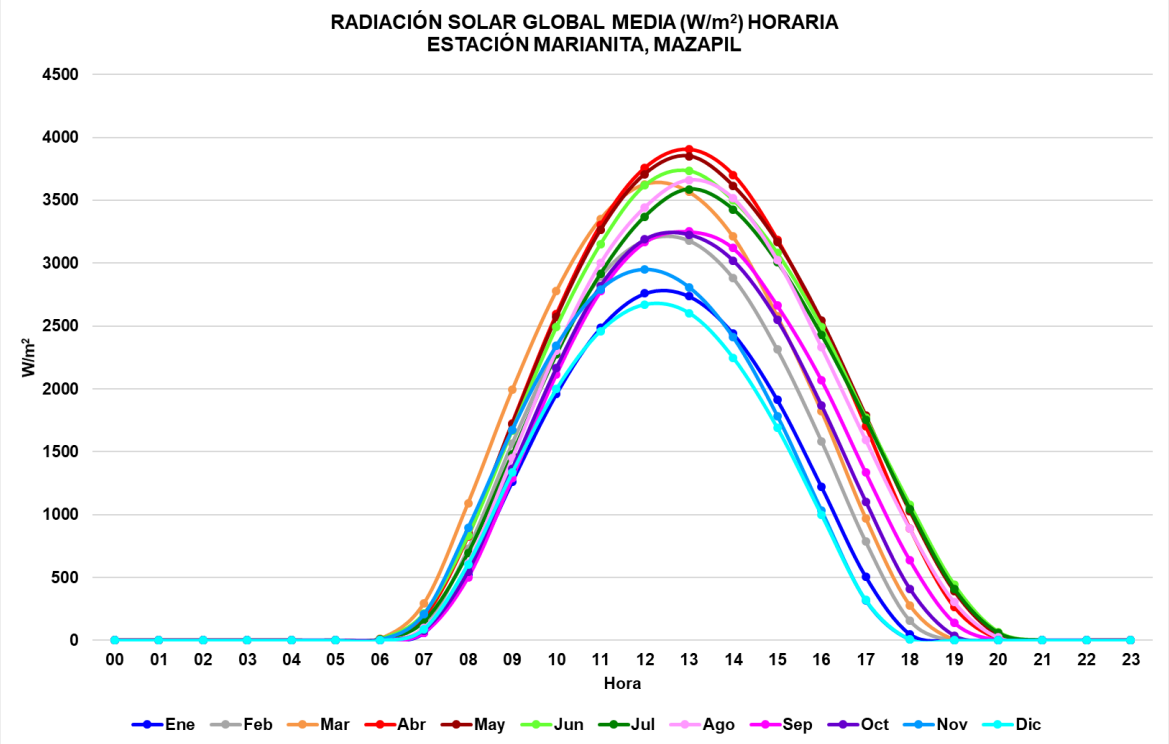


Figura 372. Radiación solar global media horaria (W/m2) de la estación Marianita, Mazapil (2004-2022).

Cuadro 413. Radiación solar global media horaria (kWh/m2) de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.05	0.05	0.05	0.04	0.03	0.02	0.02	0.05	0.02	0.04
08	0.13	0.18	0.27	0.21	0.21	0.21	0.17	0.15	0.13	0.14	0.22	0.15	0.18
09	0.31	0.39	0.50	0.43	0.43	0.42	0.37	0.36	0.32	0.34	0.42	0.33	0.39
10	0.49	0.58	0.69	0.65	0.64	0.62	0.57	0.58	0.53	0.54	0.59	0.50	0.58
11	0.62	0.72	0.84	0.83	0.82	0.79	0.73	0.75	0.69	0.71	0.70	0.61	0.73
12	0.69	0.79	0.91	0.94	0.93	0.90	0.84	0.86	0.79	0.80	0.74	0.67	0.82
13	0.68	0.79	0.89	0.98	0.96	0.93	0.90	0.92	0.81	0.81	0.70	0.65	0.84
14	0.61	0.72	0.80	0.93	0.90	0.88	0.86	0.88	0.78	0.76	0.60	0.56	0.77
15	0.48	0.58	0.64	0.80	0.79	0.77	0.75	0.76	0.67	0.64	0.45	0.42	0.64
16	0.31	0.40	0.46	0.63	0.64	0.62	0.61	0.58	0.52	0.47	0.26	0.25	0.48
17	0.13	0.20	0.24	0.43	0.45	0.44	0.44	0.40	0.33	0.28	0.08	0.08	0.29
18	0.01	0.04	0.07	0.22	0.26	0.27	0.26	0.22	0.16	0.10	0.00	0.00	0.13
19	0.00	0.00	0.00	0.07	0.10	0.11	0.10	0.08	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.48	5.43	6.40	7.14	7.19	7.04	6.65	6.57	5.78	5.60	4.81	4.26	5.94

Cuadro 414. Radiación solar global media horaria (Mj/m2/s) de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
07	0.05	0.10	0.27	0.16	0.19	0.19	0.13	0.09	0.06	0.07	0.19	0.08	0.13
08	0.47	0.66	0.98	0.74	0.77	0.75	0.62	0.55	0.45	0.49	0.80	0.55	0.65
09	1.13	1.41	1.79	1.55	1.55	1.50	1.33	1.30	1.16	1.23	1.51	1.20	1.39
10	1.76	2.09	2.50	2.33	2.31	2.24	2.05	2.07	1.90	1.95	2.11	1.80	2.09
11	2.24	2.60	3.02	2.97	2.94	2.84	2.62	2.70	2.50	2.54	2.51	2.21	2.64
12	2.48	2.86	3.27	3.38	3.34	3.26	3.03	3.10	2.85	2.87	2.65	2.40	2.96
13	2.46	2.86	3.21	3.51	3.47	3.36	3.23	3.30	2.93	2.90	2.53	2.34	3.01
14	2.20	2.59	2.89	3.33	3.25	3.15	3.08	3.17	2.81	2.72	2.17	2.02	2.78
15	1.72	2.08	2.32	2.87	2.85	2.77	2.71	2.72	2.40	2.29	1.61	1.52	2.32
16	1.10	1.43	1.64	2.26	2.29	2.24	2.19	2.10	1.86	1.68	0.93	0.90	1.72
17	0.46	0.71	0.88	1.53	1.61	1.59	1.58	1.44	1.20	0.99	0.29	0.29	1.05
18	0.04	0.14	0.25	0.80	0.92	0.97	0.94	0.80	0.57	0.37	0.01	0.01	0.49
19	0.00	0.00	0.01	0.24	0.35	0.40	0.37	0.28	0.13	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.04	0.06	0.05	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.12	19.54	23.03	25.71	25.88	25.34	23.95	23.64	20.82	20.14	17.31	15.33	21.40

Cuadro 415 Velocidad del viento media (km/h) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.6	3.9	4.4	5.2	6.4	7.6	6.8	5.9	4.5	3.6	2.7	3.4	4.8
01	3.3	3.6	4.1	4.7	5.7	6.6	5.6	5.1	4.1	3.4	2.6	3.3	4.3
02	3.1	3.4	3.7	4.3	5.3	5.9	4.7	4.3	3.5	3.1	2.5	3.3	3.9
03	3.3	3.4	3.5	3.9	4.7	5.0	4.1	3.8	3.1	2.8	2.5	3.3	3.6
04	3.5	3.3	3.4	3.5	4.2	4.3	3.8	3.4	2.7	2.6	2.7	3.4	3.4
05	3.6	3.4	3.5	3.4	3.8	3.9	3.5	3.2	2.6	2.7	2.9	3.5	3.3
06	3.7	3.6	3.4	3.2	3.6	3.7	3.3	3.1	2.5	2.8	3.0	3.5	3.3
07	3.9	3.8	4.1	3.6	3.9	4.2	3.9	3.3	2.7	3.0	3.6	3.8	3.6
08	4.7	5.0	5.5	5.1	5.6	6.1	5.6	4.8	3.9	4.1	5.0	4.8	5.0
09	5.9	6.2	6.3	6.3	6.6	7.2	7.1	6.2	5.2	5.3	5.9	6.0	6.2
10	6.7	6.9	6.9	6.9	6.7	6.9	7.1	6.4	5.5	5.8	6.1	6.5	6.5
11	7.1	7.6	7.4	7.3	6.4	6.1	6.5	5.9	5.4	6.0	6.2	7.0	6.6
12	7.6	8.1	8.0	7.8	6.7	6.1	6.3	5.7	5.3	6.0	6.3	7.4	6.8
13	8.1	8.5	8.6	8.5	7.1	6.5	6.3	5.8	5.4	6.0	6.4	7.8	7.1
14	8.6	9.1	9.2	9.1	7.6	7.0	6.8	6.2	6.1	6.3	6.6	8.0	7.6
15	8.8	9.5	9.5	9.6	8.1	7.9	7.4	6.9	6.5	6.6	6.7	8.1	8.0
16	8.8	9.6	9.7	9.8	8.5	8.5	7.9	7.6	7.0	6.7	6.5	7.8	8.2
17	8.2	9.3	9.5	9.8	8.7	8.6	8.4	8.2	7.4	6.6	5.6	6.8	8.1
18	5.9	7.3	8.5	9.5	8.8	8.7	8.6	8.2	7.4	5.9	4.2	4.8	7.3
19	5.3	5.8	6.5	8.4	8.5	8.8	8.0	7.7	6.2	5.0	4.6	5.0	6.6
20	5.4	5.8	5.9	6.8	7.2	8.3	7.0	6.5	5.1	4.8	4.8	4.9	6.0
21	5.1	5.4	5.8	6.3	7.0	7.7	6.7	6.1	5.0	4.9	4.2	4.7	5.7
22	4.7	4.9	5.4	6.0	7.3	8.3	7.0	6.1	4.9	4.4	3.7	4.4	5.6
23	4.1	4.3	4.9	5.6	7.1	8.0	7.1	6.0	4.7	4.0	3.0	3.9	5.2
Media	5.5	5.9	6.1	6.4	6.5	6.8	6.2	5.7	4.9	4.7	4.5	5.2	5.7

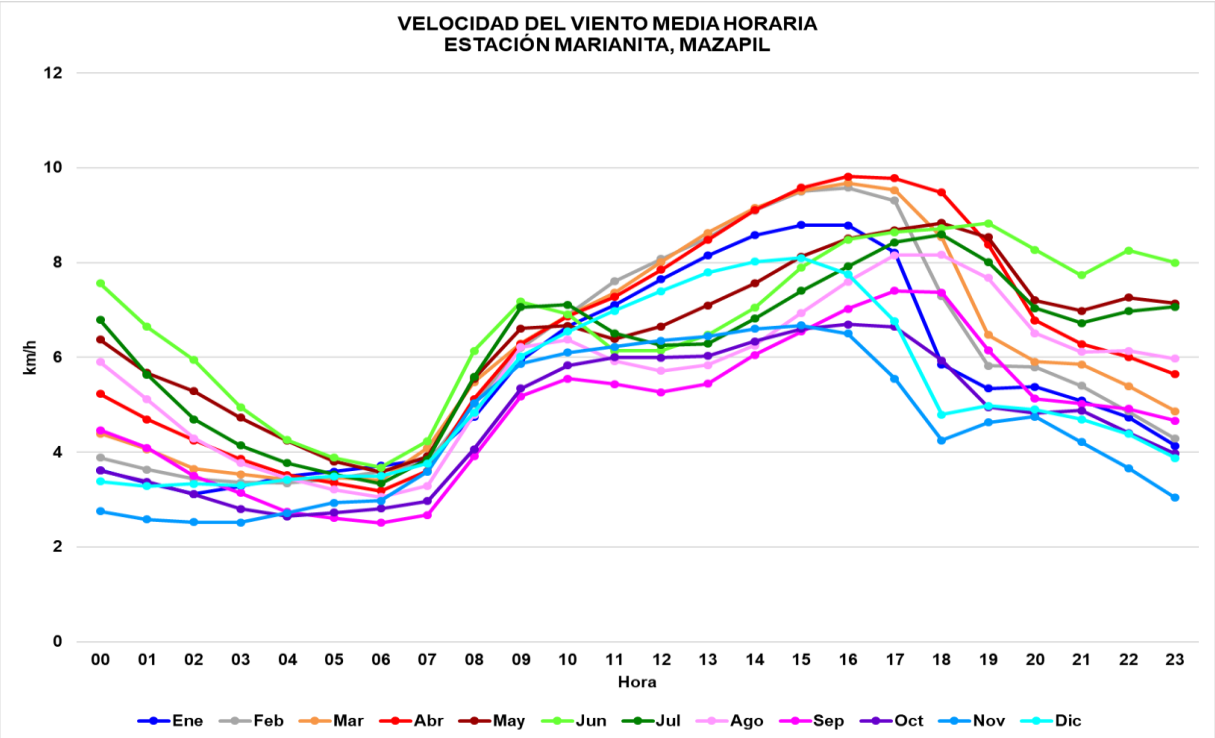


Figura 373. Velocidad del viento media (km/h) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 416. Velocidad del viento máxima maximorum (km/h) horaria de la estación Marianita, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	23.7	29.9	25.4	28.6	25.2	29.6	26.0	24.0	21.0	20.4	21.8	26.7	29.9
01	25.0	22.4	32.0	25.1	26.8	29.7	24.6	20.0	18.2	19.0	20.9	27.4	32.0
02	25.0	20.0	39.0	24.0	27.6	25.9	24.7	19.6	14.7	16.5	23.5	28.2	39.0
03	25.0	21.3	42.0	18.0	21.1	23.0	23.6	17.0	15.5	15.8	19.9	19.0	42.0
04	23.3	24.0	38.0	21.8	22.6	25.1	21.8	17.0	14.1	13.4	26.8	19.0	38.0
05	23.0	18.1	27.0	15.8	22.0	20.2	21.1	19.5	16.0	18.6	21.3	20.4	27.0
06	18.5	20.0	29.0	15.7	24.0	21.5	16.4	18.5	13.3	17.7	25.0	27.4	29.0
07	19.4	19.0	30.0	18.1	20.3	19.7	24.3	14.0	14.5	20.9	18.8	19.0	30.0
08	23.2	21.7	25.0	28.5	21.0	18.7	23.4	15.9	13.1	15.1	20.5	31.5	31.5
09	22.3	24.7	22.3	25.0	22.6	22.4	29.6	16.5	16.2	23.1	23.5	32.9	32.9
10	30.0	30.6	26.0	24.0	23.5	20.0	28.1	20.7	18.7	21.5	25.6	35.0	35.0
11	30.0	30.4	30.7	26.4	23.1	24.2	29.5	18.8	20.3	25.0	28.4	38.7	38.7
12	38.0	35.9	36.6	26.3	24.9	25.3	29.5	20.7	22.0	34.0	27.6	38.0	38.0
13	38.0	35.5	31.0	27.0	27.0	23.5	32.4	29.0	23.7	35.0	36.0	35.0	38.0
14	37.0	38.0	35.0	30.5	24.7	26.1	31.5	29.0	23.3	34.0	32.0	34.4	38.0
15	38.4	35.8	39.0	31.9	28.2	30.1	33.5	27.0	25.7	36.0	33.0	36.6	39.0
16	36.8	32.8	38.0	30.9	32.0	31.0	29.1	32.3	25.0	33.0	32.0	31.3	38.0
17	35.7	31.0	32.0	30.6	39.2	31.6	31.8	35.2	28.8	28.0	33.0	35.4	39.2
18	32.6	31.0	34.4	29.0	31.0	35.1	29.7	29.0	25.6	24.0	28.0	31.4	35.1
19	25.0	24.6	35.6	28.0	29.3	37.0	28.0	38.4	22.0	26.0	27.0	26.0	38.4
20	26.3	34.1	32.0	29.0	44.2	31.0	28.4	34.0	22.0	26.0	21.0	25.0	44.2
21	21.4	35.6	37.0	28.0	33.2	30.4	28.0	25.4	24.0	23.0	22.0	25.2	37.0
22	26.4	34.3	27.0	26.1	30.4	32.6	27.2	29.0	26.5	24.6	19.0	25.3	34.3
23	23.4	33.5	25.0	26.1	37.4	30.0	26.5	29.4	24.0	21.0	23.9	30.2	37.4
Máx.	38.4	38.0	42.0	31.9	44.2	37.0	33.5	38.4	28.8	36.0	36.0	38.7	44.2

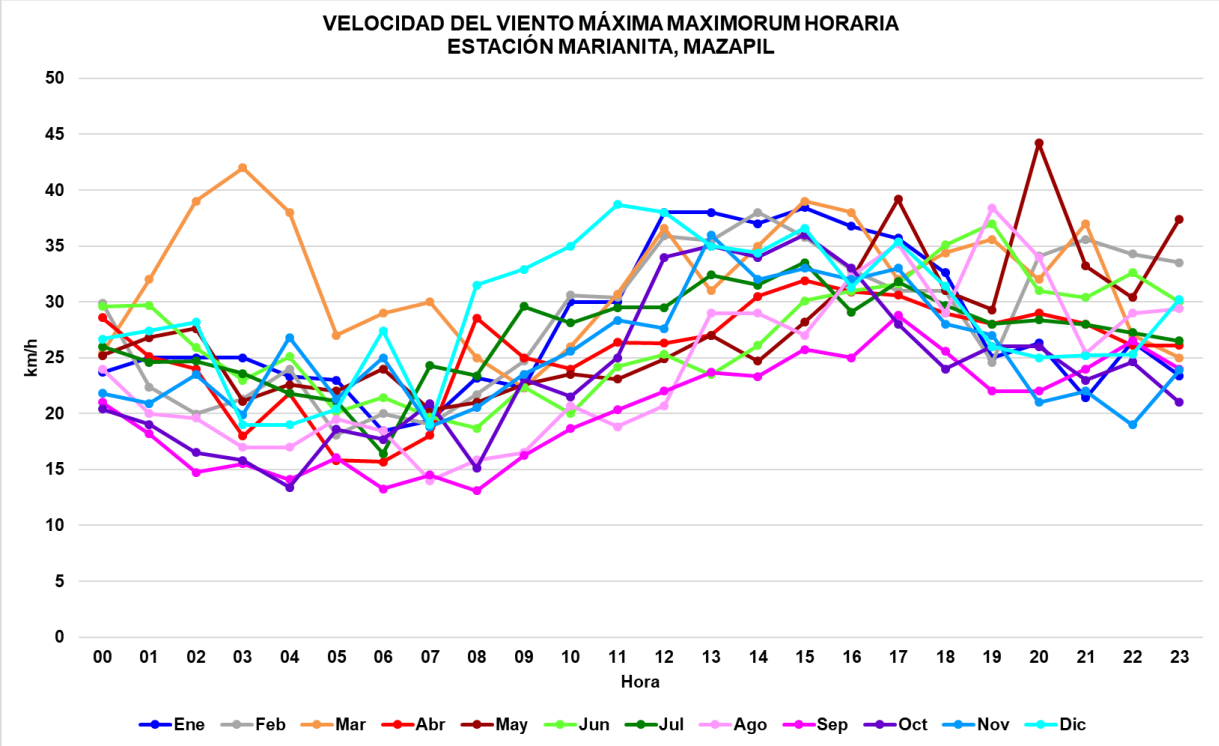


Figura 374. Velocidad del viento máxima maximorum (km/h) horaria de la estación Marianita, Mazapil (2004-2022).

Cuadro 417. Frecuencia de velocidad del viento (%) mensual de la estación Marianita, Mazapil (2004-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	54.8	53.1	49.5	44.6	41.6	37.5	42.5	47.8	58.2	61.2	64.0	58.5	51.2
5.1 a 10.0	29.6	28.8	32.3	36.1	40.0	43.5	42.1	40.5	33.1	30.5	27.1	27.8	34.3
10.1 a 15.0	11.6	12.2	12.4	14.3	14.2	14.7	12.3	9.8	7.6	6.8	7.0	10.0	11.0
15.1 a 20.0	3.2	4.5	4.3	4.2	3.3	3.5	2.6	1.6	1.0	1.2	1.5	2.9	2.8
20.1 a 25.0	0.7	1.1	1.3	0.7	0.9	0.7	0.4	0.2	0.1	0.2	0.3	0.6	0.6
25.1 a 30.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1
30.1 a 35.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

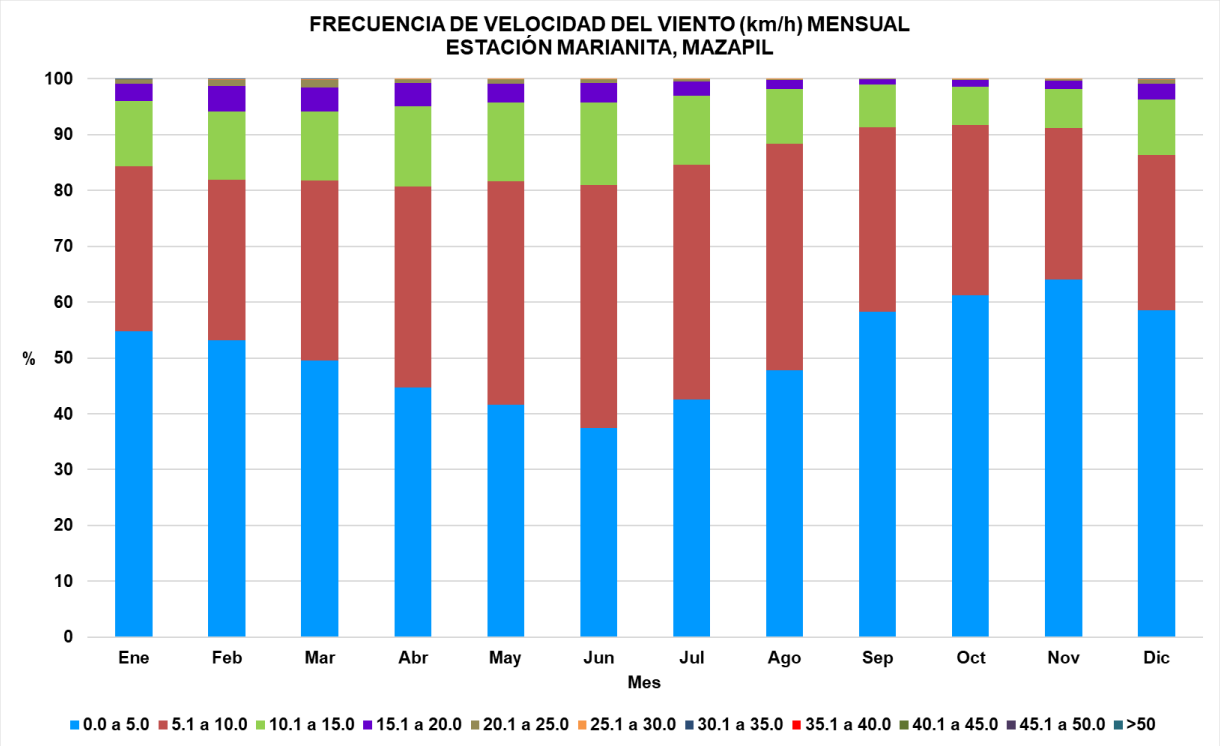


Figura 375. Frecuencia de velocidad del viento (%) mensual de la estación Marianita, Mazapil (2004-2022).

Cuadro 418. Frecuencia de dirección del viento (%) mensual de la estación Marianita, Mazapil (2004-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.2	5.7	6.0	5.8	6.6	6.6	4.7	5.8	6.6	6.3	5.8	5.8	6.0
NNE	2.6	2.5	2.6	2.5	3.1	4.0	3.2	3.5	3.6	3.0	2.9	2.5	3.0
NE	1.6	1.5	1.5	1.4	1.8	2.5	2.1	2.5	2.3	1.9	1.7	1.6	1.9
ENE	1.9	2.1	1.8	1.7	2.2	3.1	2.8	3.2	2.7	2.2	2.2	2.0	2.3
E	4.2	3.7	3.5	3.1	4.2	5.6	5.5	6.1	5.5	4.9	4.7	4.1	4.6
ESE	12.5	10.3	9.9	9.3	12.8	18.0	18.0	17.4	16.4	14.6	13.8	12.8	13.8
SE	16.6	14.3	13.6	14.0	16.4	23.8	26.3	23.3	21.0	20.2	19.2	17.0	18.9
SSE	12.1	11.2	10.3	10.3	10.9	13.1	15.6	15.0	12.3	13.5	13.7	12.6	12.6
S	9.0	9.6	8.3	8.9	8.0	6.3	7.7	7.3	6.8	8.2	8.0	10.0	8.2
SSO	7.3	8.5	7.4	8.0	5.4	2.8	3.3	3.3	3.7	4.3	5.1	7.7	5.5
SO	4.6	5.8	6.0	5.9	4.0	1.7	1.7	1.9	2.0	2.7	3.1	4.3	3.6
OSO	3.4	4.6	5.1	5.7	3.7	1.3	1.2	1.4	1.7	2.0	2.6	3.0	3.0
O	4.0	5.1	6.6	7.1	5.0	1.7	1.5	1.9	2.6	2.7	3.4	3.7	3.7
ONO	4.0	4.7	6.0	5.9	5.1	2.3	1.7	2.0	3.3	3.2	3.8	3.8	3.8
NO	4.7	5.0	5.5	5.1	5.1	3.0	2.1	2.3	4.1	4.5	4.8	4.3	4.2
NNO	5.4	5.4	6.0	5.2	5.6	4.0	2.7	3.2	5.4	5.9	5.4	4.8	4.9
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

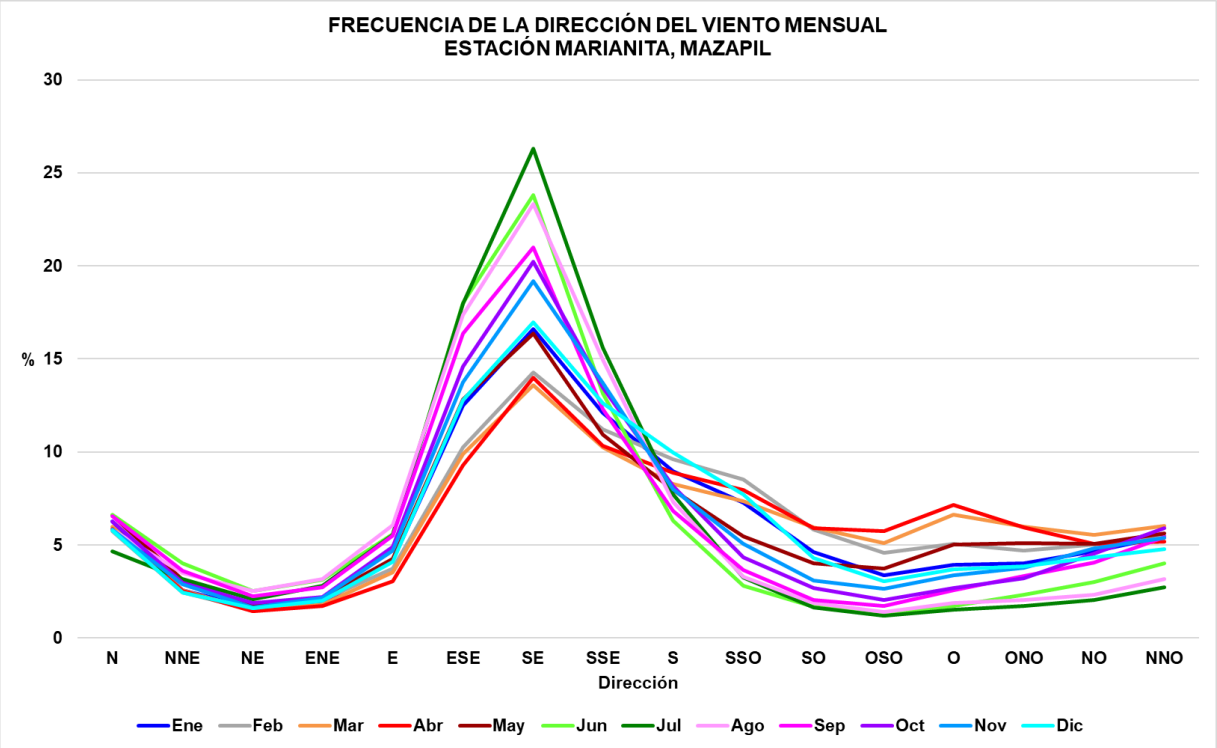


Figura 376. Frecuencia de dirección del viento (%) mensual de la estación Marianita, Mazapil (2004-2022).

Cuadro 419. Frecuencia de dirección del viento (%) trimestral de la estación Marianita, Mazapil (2004-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	6.0	6.4	5.7	6.0	6.0
NNE	2.5	3.2	3.4	2.8	3.0
NE	1.5	1.9	2.3	1.7	1.9
ENE	1.9	2.3	2.9	2.1	2.3
E	3.8	4.3	5.7	4.5	4.6
ESE	10.9	13.4	17.3	13.7	13.8
SE	14.8	18.1	23.6	18.8	18.9
SSE	11.2	11.5	14.3	13.3	12.6
S	8.9	7.7	7.3	8.7	8.2
SSO	7.7	5.4	3.4	5.7	5.5
SO	5.5	3.9	1.8	3.4	3.6
OSO	4.3	3.6	1.4	2.6	3.0
O	5.2	4.6	2.0	3.3	3.7
ONO	4.9	4.5	2.3	3.6	3.8
NO	5.1	4.4	2.8	4.6	4.2
NNO	5.6	5.0	3.7	5.4	4.9
Suma	100.0	100.0	100.0	100.0	100.0

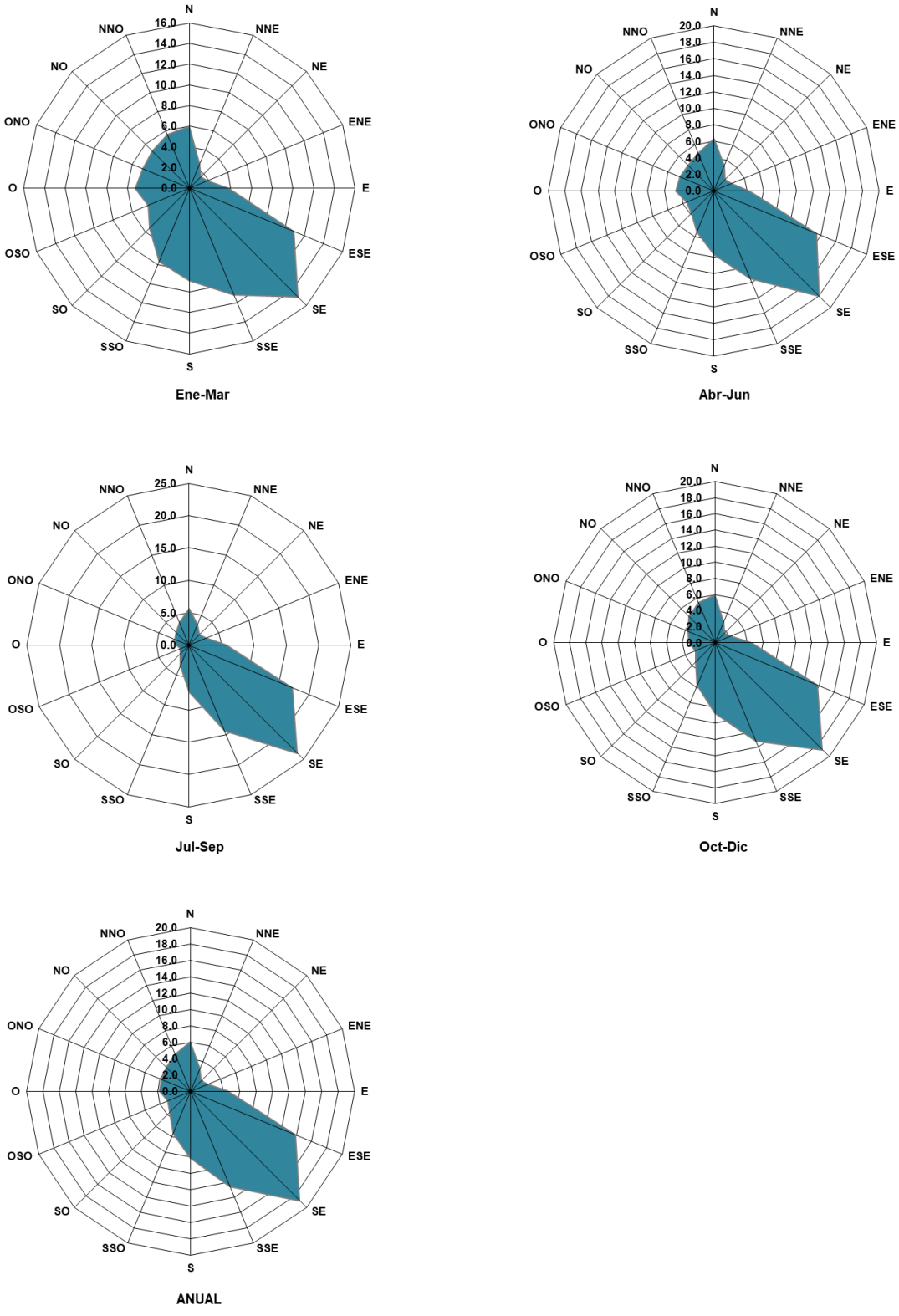


Figura 377. Frecuencia de dirección del viento (%) trimestral de la estación Marianita, Mazapil (2004-2022).

Cuadro 420. Estadísticas climatológicas mensuales de la estación Marianita, Mazapil (2004-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.9	24.7	27.3	30.4	32.1	32.0	30.2	30.4	28.2	27.4	24.5	22.7	27.7
Temperatura máxima maximorum (°C)	29.3	35.2	36.1	36.1	38.8	37.6	36.8	35.3	33.8	32.6	32.8	30.1	38.8
Temperatura mínima media (°C)	3.1	4.9	7.2	10.1	13.2	15.2	15.0	15.0	14.1	10.5	6.0	3.5	9.8
Temperatura mínima minimorum (°C)	-9.5	-9.9	-6.7	-0.5	3.0	7.5	11.0	10.7	5.1	-2.2	-10.0	-11.4	-11.4
Temperatura media (°C)	12.1	14.8	17.6	20.8	23.0	23.4	22.0	22.1	20.5	18.7	14.9	12.7	18.6
Oscilación térmica (°C)	18.8	19.8	20.1	20.4	18.9	16.8	15.2	15.4	14.0	17.0	18.5	19.2	17.8
Precipitación acumulada media (mm)	12.0	9.8	8.1	7.3	18.0	41.4	70.7	61.8	63.3	26.7	16.3	7.5	343.0
Precipitación máxima maximorum en 24 horas (mm)	34.2	21.8	17.0	15.6	19.6	49.2	51.6	47.0	47.0	41.0	55.8	18.4	55.8
Número de días promedio con lluvia	4.5	3.6	3.7	2.9	5.6	8.2	11.7	11.5	11.0	5.9	3.7	2.8	75.2
Evapotranspiración acumulada potencial media (mm)	106.2	123.9	167.3	189.0	203.4	189.6	175.9	176.3	144.2	141.4	110.8	103.1	1831.2
Humedad máxima media (%)	75.7	68.5	61.3	57.7	68.2	81.9	89.6	90.2	93.7	88.4	84.4	77.5	78.1
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.4	17.9	14.0	11.5	13.8	21.8	29.0	28.6	35.8	28.6	26.0	22.8	22.7
Humedad mínima minimorum (%)	3.0	3.0	2.0	2.0	3.0	4.0	9.0	11.0	9.0	7.0	4.0	3.0	2.0
Humedad media (%)	47.5	39.7	33.3	29.8	36.2	49.7	59.8	60.1	66.9	57.8	53.9	48.4	48.6
Radiación global media día/mes (W/m^2)	17913.6	21714.7	25590.2	28562.0	28752.4	28158.3	26597.3	26269.9	23131.9	22383.2	19228.7	17036.1	23778.2
Radiación global media día/mes (kWh/m^2)	4.5	5.4	6.4	7.1	7.2	7.0	6.6	6.6	5.8	5.6	4.8	4.3	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.1	19.5	23.0	25.7	25.9	25.3	23.9	23.6	20.8	20.1	17.3	15.3	21.4
Velocidad del viento máxima media (km/h)	15.1	15.8	16.6	17.4	17.9	18.4	17.7	16.5	14.8	13.3	12.7	14.0	15.8
Velocidad del viento máxima maximorum (km/h)	38.4	38.0	42.0	31.9	44.2	37.0	33.5	38.4	28.8	36.0	36.0	38.7	44.2
Velocidad del viento media (km/h)	5.5	5.9	6.1	6.4	6.5	6.8	6.2	5.7	4.9	4.7	4.5	5.2	5.7
Dirección dominante del viento	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE

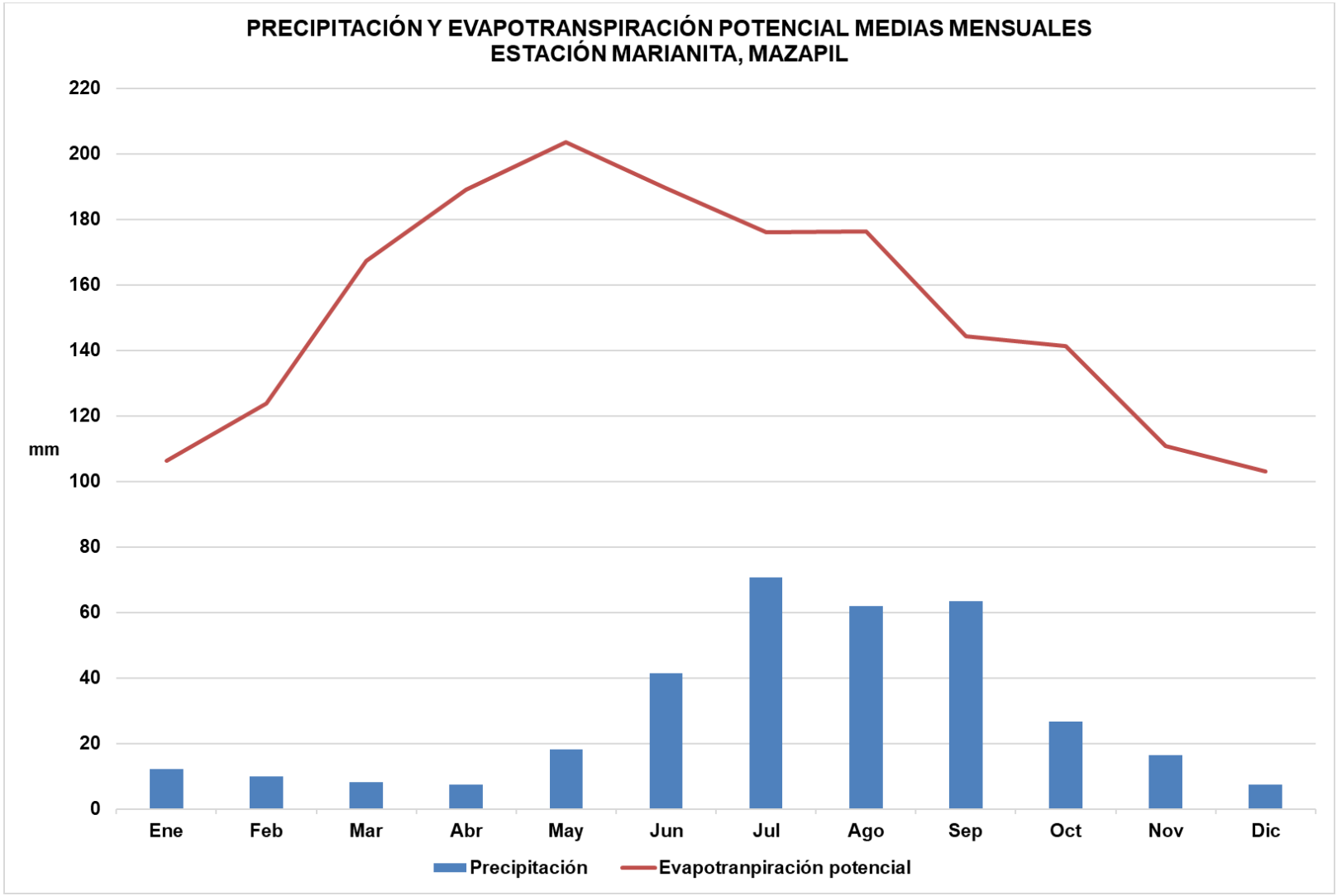


Figura 378. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Marianita, Mazapil (2004-2022).

7.23. Estación: Mesa de Fuentes, Enrique Estrada

Cuadro 421. Temperatura máxima media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.5	9.6	11.9	15.2	17.2	17.5	15.9	16.0	14.7	12.7	9.3	7.8	12.9
01	6.9	8.9	11.0	14.2	16.3	16.6	15.3	15.3	14.2	12.0	8.6	7.2	12.2
02	6.4	8.2	10.2	13.3	15.3	15.8	14.8	14.8	13.8	11.4	8.1	6.8	11.6
03	6.0	7.6	9.5	12.5	14.4	15.0	14.3	14.3	13.4	10.9	7.7	6.4	11.0
04	5.5	7.1	8.8	11.7	13.7	14.4	13.8	13.7	13.0	10.4	7.3	6.1	10.5
05	5.2	6.7	8.2	11.0	12.9	13.8	13.4	13.3	12.6	10.0	6.9	5.8	10.0
06	4.8	6.2	7.7	10.2	12.2	13.4	13.1	12.9	12.3	9.7	6.6	5.5	9.6
07	4.9	6.6	9.6	10.9	12.9	13.9	13.3	13.0	12.4	10.0	8.1	5.8	10.1
08	8.3	10.8	13.8	14.5	16.6	16.5	15.3	15.1	14.2	12.9	12.5	9.7	13.4
09	11.5	13.7	16.3	17.5	19.2	18.5	17.0	16.9	16.1	15.9	14.9	12.7	15.8
10	13.5	15.7	18.3	19.7	21.3	20.5	18.6	18.5	17.6	17.7	16.7	14.6	17.7
11	15.3	17.5	20.0	21.7	23.2	22.1	20.0	20.0	18.9	19.2	18.2	16.3	19.4
12	16.6	18.9	21.3	23.2	24.6	23.5	21.2	21.3	20.1	20.4	19.3	17.5	20.7
13	17.4	19.8	22.2	24.3	25.6	24.6	22.2	22.3	21.0	21.3	20.0	18.3	21.6
14	18.1	20.4	22.8	25.0	26.3	25.3	22.9	23.0	21.6	21.9	20.5	18.9	22.2
15	18.3	20.6	22.9	25.4	26.7	25.6	23.2	23.4	21.9	22.2	20.5	18.9	22.5
16	17.9	20.3	22.6	25.4	26.7	25.7	23.2	23.4	21.9	22.1	20.1	18.5	22.3
17	17.1	19.6	22.0	25.0	26.4	25.5	22.9	23.2	21.4	21.6	19.0	17.5	21.7
18	15.3	18.2	20.6	24.1	25.7	24.8	22.3	22.5	20.5	20.4	16.5	15.1	20.5
19	12.5	15.5	18.3	22.6	24.5	23.7	21.3	21.4	19.2	18.2	13.9	12.5	18.6
20	10.9	13.5	16.2	20.5	22.8	22.3	19.9	19.8	17.4	15.9	12.5	11.0	16.9
21	9.8	12.4	14.9	18.7	20.7	20.5	18.4	18.3	16.3	14.8	11.5	10.1	15.5
22	8.9	11.4	13.9	17.4	19.4	19.2	17.3	17.3	15.6	14.0	10.7	9.3	14.5
23	8.2	10.5	12.9	16.2	18.2	18.2	16.6	16.6	15.1	13.3	9.9	8.5	13.7
Media	11.1	13.3	15.7	18.3	20.1	19.9	18.2	18.2	16.9	15.8	13.3	11.7	16.0

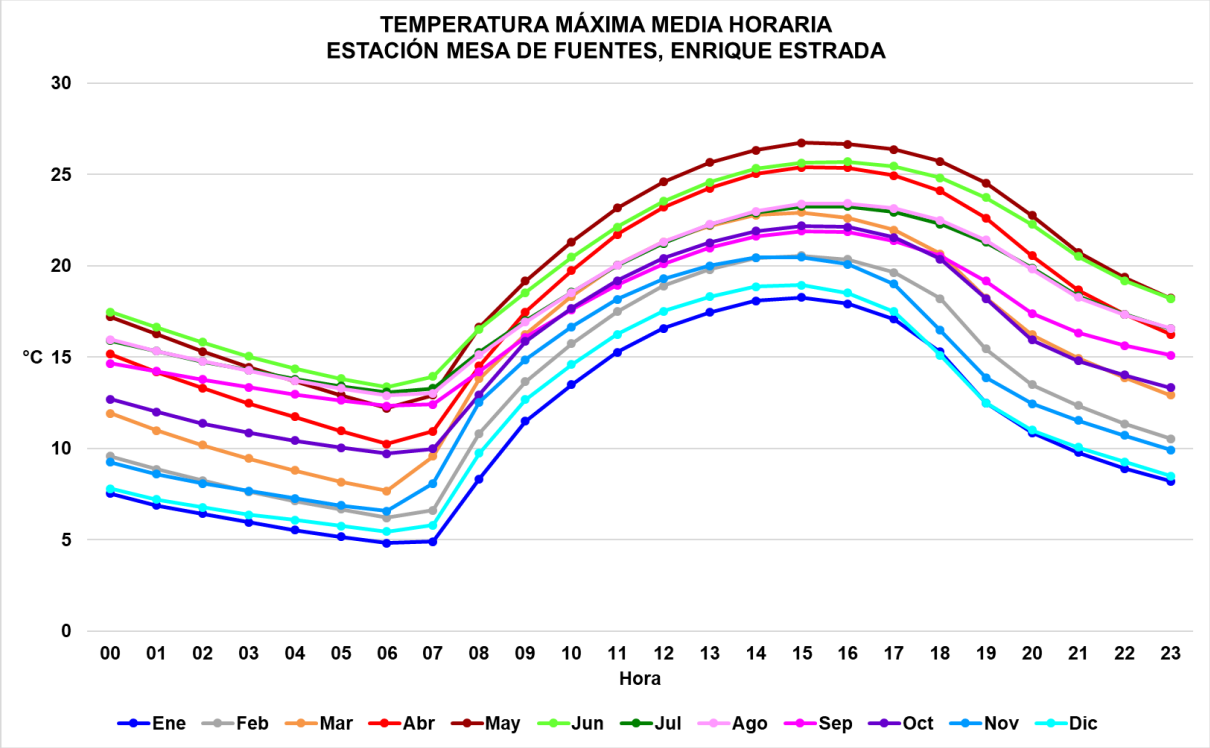


Figura 379. Temperatura máxima media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 422. Temperatura máxima maximorum (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.6	17.0	19.2	22.7	25.3	23.8	20.9	21.3	19.8	18.1	15.8	14.2	25.3
01	13.5	15.8	18.1	20.5	22.8	22.6	20.0	20.3	19.5	17.6	14.9	14.2	22.8
02	13.4	15.4	16.6	19.9	21.3	23.2	20.2	19.7	18.8	16.9	15.6	13.6	23.2
03	13.2	17.7	15.3	18.3	21.2	20.1	18.8	18.2	16.9	16.3	14.7	12.8	21.2
04	12.7	16.3	14.9	17.2	21.2	18.6	17.5	17.8	16.8	16.0	13.8	13.1	21.2
05	11.4	14.6	14.4	16.8	21.1	18.6	17.3	17.6	17.1	15.5	13.6	13.3	21.1
06	11.6	13.2	14.9	16.8	19.6	17.5	17.5	17.4	16.4	15.1	13.5	12.4	19.6
07	13.2	15.5	17.5	19.7	20.6	20.4	16.9	16.8	16.7	17.1	15.3	12.8	20.6
08	17.9	19.3	22.9	23.1	25.3	22.6	20.5	19.5	20.3	20.6	20.5	20.4	25.3
09	20.6	22.0	24.9	24.8	26.3	24.5	22.7	21.3	22.3	22.1	22.5	21.9	26.3
10	22.5	23.4	26.1	26.2	27.9	27.0	24.0	23.1	23.3	25.1	23.2	22.8	27.9
11	23.6	25.4	27.7	27.1	28.8	29.3	25.5	24.5	25.1	25.8	24.5	23.6	29.3
12	24.3	26.2	28.8	28.7	30.6	29.5	26.7	26.0	25.6	27.5	25.5	24.2	30.6
13	24.9	27.4	29.8	29.2	31.6	30.7	27.8	26.8	26.5	27.8	26.2	25.3	31.6
14	25.3	27.8	30.1	30.5	32.4	31.4	28.9	28.2	26.8	28.5	27.2	25.6	32.4
15	25.3	28.1	30.4	30.7	32.9	31.9	29.4	28.1	27.5	28.8	27.2	25.3	32.9
16	25.5	27.9	30.3	30.7	32.9	32.4	29.3	28.3	28.1	28.7	26.9	24.7	32.9
17	24.2	27.4	29.7	30.8	32.6	32.2	29.3	28.8	28.2	29.2	25.9	23.7	32.6
18	21.8	26.2	28.8	30.3	32.4	31.9	28.8	28.4	27.5	28.1	22.1	21.5	32.4
19	18.8	22.5	25.8	29.5	31.4	31.3	29.0	27.3	26.2	26.4	19.3	18.9	31.4
20	16.8	21.3	22.6	27.2	28.9	29.3	27.4	26.3	23.7	22.9	19.5	16.7	29.3
21	16.6	18.9	22.4	24.5	26.5	26.9	24.1	23.7	21.2	20.6	18.3	16.7	26.9
22	14.9	17.4	20.7	23.3	26.1	25.7	23.2	23.4	20.8	19.9	17.4	15.7	26.1
23	14.3	17.1	19.4	23.0	25.5	25.6	22.2	22.2	20.3	20.3	16.8	15.2	25.6
Máx.	25.5	28.1	30.4	30.8	32.9	32.4	29.4	28.8	28.2	29.2	27.2	25.6	32.9

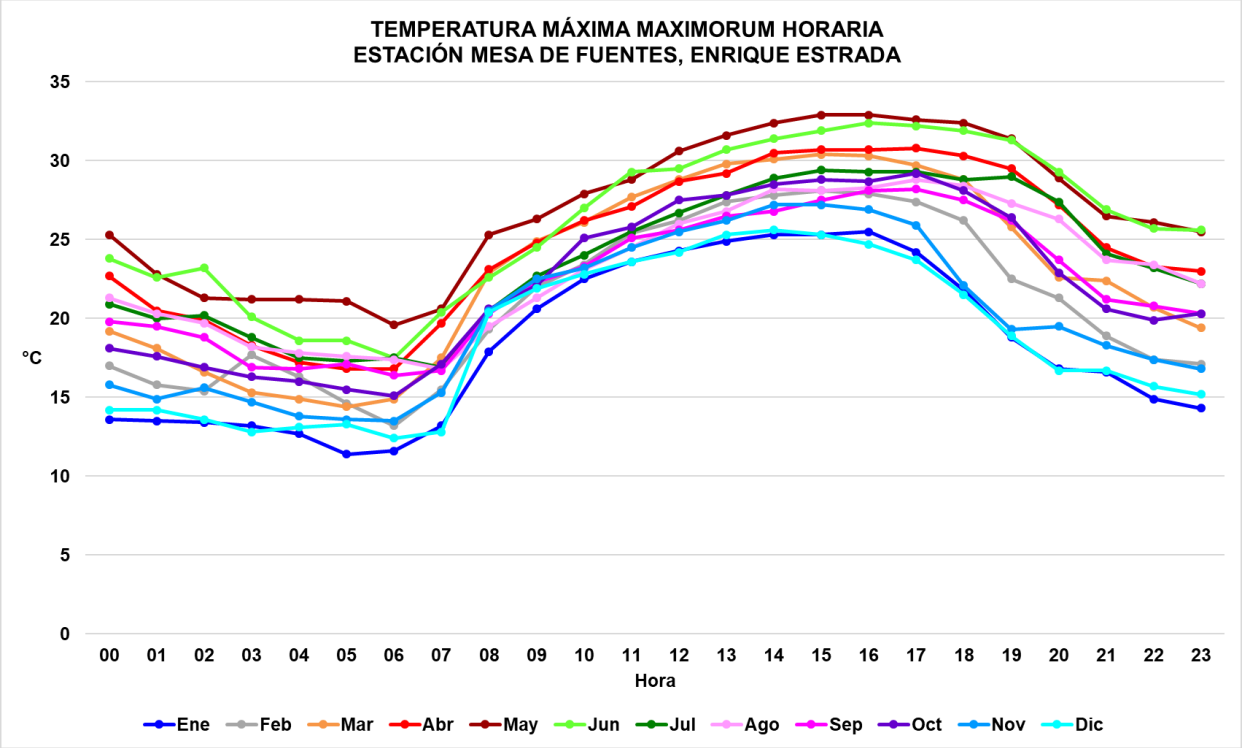


Figura 380. Temperatura máxima maximorum (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 423. Temperatura mínima media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.6	10.8	14.1	16.2	16.6	15.1	15.1	14.0	11.8	8.3	6.8	12.0
01	5.9	7.8	9.9	13.1	15.2	15.7	14.6	14.6	13.5	11.1	7.7	6.3	11.3
02	5.5	7.2	9.1	12.2	14.3	14.9	14.1	14.0	13.1	10.5	7.2	5.8	10.7
03	5.1	6.6	8.4	11.4	13.4	14.2	13.6	13.5	12.8	10.1	6.9	5.5	10.1
04	4.6	6.2	7.8	10.6	12.6	13.6	13.2	13.1	12.4	9.7	6.4	5.2	9.6
05	4.3	5.7	7.1	9.9	11.9	13.1	12.8	12.7	12.0	9.3	6.1	4.9	9.1
06	4.0	5.3	6.7	9.2	11.2	12.7	12.5	12.3	11.8	9.0	5.7	4.6	8.7
07	3.8	5.2	7.1	9.1	11.3	12.7	12.4	12.2	11.7	8.9	5.9	4.5	8.7
08	5.1	7.3	10.8	11.5	13.7	14.5	13.6	13.2	12.5	10.2	9.2	6.3	10.6
09	9.3	11.7	14.5	15.3	17.3	16.9	15.6	15.5	14.7	13.8	13.2	10.7	14.1
10	11.9	14.1	16.7	18.0	19.7	18.9	17.2	17.2	16.3	16.2	15.3	13.1	16.2
11	13.9	16.1	18.7	20.2	21.7	20.8	18.8	18.8	17.8	18.0	16.9	15.0	18.1
12	15.5	17.8	20.3	22.0	23.4	22.3	20.1	20.2	19.0	19.3	18.3	16.4	19.5
13	16.6	18.9	21.3	23.3	24.5	23.5	21.1	21.2	19.9	20.3	19.1	17.4	20.6
14	17.3	19.6	21.9	24.2	25.3	24.2	21.9	21.9	20.6	21.0	19.7	18.1	21.3
15	17.6	19.9	22.2	24.6	25.7	24.5	22.1	22.3	20.8	21.3	19.7	18.3	21.6
16	17.1	19.6	21.9	24.5	25.7	24.5	22.1	22.3	20.7	21.2	19.2	17.7	21.4
17	15.8	18.6	20.9	24.0	25.4	24.3	21.8	22.1	20.2	20.4	17.3	15.9	20.6
18	13.0	16.2	18.9	22.9	24.6	23.6	21.2	21.4	19.3	18.7	14.3	12.9	18.9
19	10.9	13.8	16.5	21.0	23.2	22.5	20.0	20.1	17.6	16.3	12.5	11.0	17.1
20	9.7	12.3	14.9	18.9	21.0	20.8	18.5	18.4	16.3	14.7	11.3	9.9	15.6
21	8.7	11.2	13.8	17.5	19.4	19.2	17.3	17.3	15.4	13.8	10.4	9.0	14.4
22	7.9	10.3	12.8	16.3	18.2	18.1	16.4	16.4	14.9	13.1	9.7	8.2	13.5
23	7.2	9.5	11.9	15.2	17.2	17.3	15.7	15.7	14.4	12.4	8.9	7.5	12.7
Media	9.9	12.1	14.4	17.1	18.8	18.7	17.2	17.1	15.9	14.6	12.1	10.5	14.9

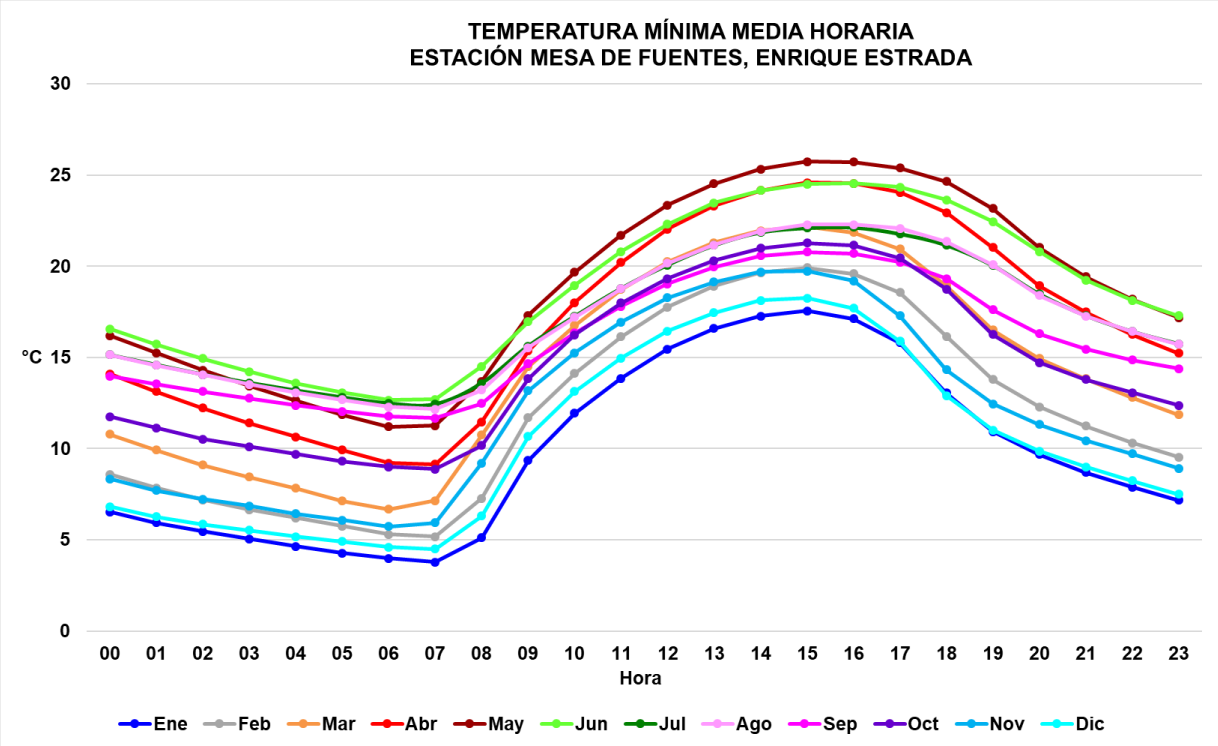


Figura 381. Temperatura mínima media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 424. Temperatura mínima minimorum (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-5.8	-1.6	-0.4	7.2	9.8	10.6	10.7	11.1	8.4	1.3	-3.2	-6.7	-6.7
01	-6.8	-2.4	-1.5	5.4	7.6	10.7	10.8	9.7	8.4	1.2	-4.3	-6.9	-6.9
02	-7.2	-2.7	-1.5	2.5	7.0	9.8	9.4	9.3	7.5	-0.6	-4.5	-6.4	-7.2
03	-6.2	-2.5	-1.9	2.8	6.3	9.7	8.9	9.7	7.0	-0.9	-5.3	-6.1	-6.2
04	-7.5	-2.6	-3.2	1.8	5.4	9.3	8.1	9.0	6.8	-1.8	-5.4	-5.7	-7.5
05	-8.0	-3.4	-2.9	2.1	4.2	8.1	8.3	8.2	5.3	-2.9	-6.0	-6.2	-8.0
06	-8.1	-5.8	-3.4	1.9	4.7	7.8	8.3	8.1	4.9	-3.4	-6.8	-7.2	-8.1
07	-7.7	-6.2	-3.4	0.7	5.1	8.3	8.8	7.9	4.8	-3.0	-6.9	-9.0	-9.0
08	-6.2	-2.9	-0.3	2.5	5.8	9.7	9.6	8.4	5.3	2.4	-3.2	-6.6	-6.6
09	-1.9	-0.4	-0.5	6.4	8.0	12.6	11.5	10.9	9.7	4.9	-1.6	-3.0	-3.0
10	-0.3	1.1	-0.7	8.5	9.2	12.8	12.9	12.2	10.0	6.4	1.2	-3.9	-3.9
11	0.8	3.9	0.0	11.2	12.1	12.3	13.1	13.2	12.1	9.1	1.8	-3.8	-3.8
12	2.1	5.8	2.3	13.3	12.5	12.8	12.9	13.8	13.0	11.7	2.1	-4.1	-4.1
13	1.9	4.2	3.4	11.9	13.9	13.5	13.8	13.2	13.7	11.7	2.9	-4.2	-4.2
14	2.2	4.9	4.0	14.0	12.5	13.9	10.7	12.1	13.3	12.5	4.1	-3.5	-3.5
15	4.5	4.5	4.2	10.2	11.5	9.4	11.4	13.8	12.9	12.1	4.7	-3.2	-3.2
16	4.7	4.3	4.2	10.5	12.6	10.8	11.4	13.1	12.6	11.6	4.4	-2.3	-2.3
17	4.7	4.0	4.0	10.9	13.6	13.0	12.4	12.9	12.7	10.2	3.0	-2.3	-2.3
18	3.1	3.8	2.5	11.4	13.2	13.5	13.0	12.8	12.1	8.7	1.9	-3.0	-3.0
19	1.2	4.0	1.2	10.5	12.0	13.3	12.0	12.8	12.8	8.4	0.4	-3.9	-3.9
20	-1.2	3.1	0.4	10.2	9.8	12.2	11.7	12.9	11.8	4.3	-0.8	-4.0	-4.0
21	-1.1	0.4	0.5	9.7	10.7	12.7	11.5	11.6	10.6	3.2	-2.1	-5.6	-5.6
22	-1.7	-0.1	-0.2	8.9	10.1	11.7	12.2	10.4	9.3	2.6	-2.7	-6.9	-6.9
23	-3.8	-1.5	-0.2	8.5	10.2	11.2	10.5	10.9	8.4	2.3	-3.2	-7.8	-7.8
Mín.	-8.1	-6.2	-3.4	0.7	4.2	7.8	8.1	7.9	4.8	-3.4	-6.9	-9.0	-9.0

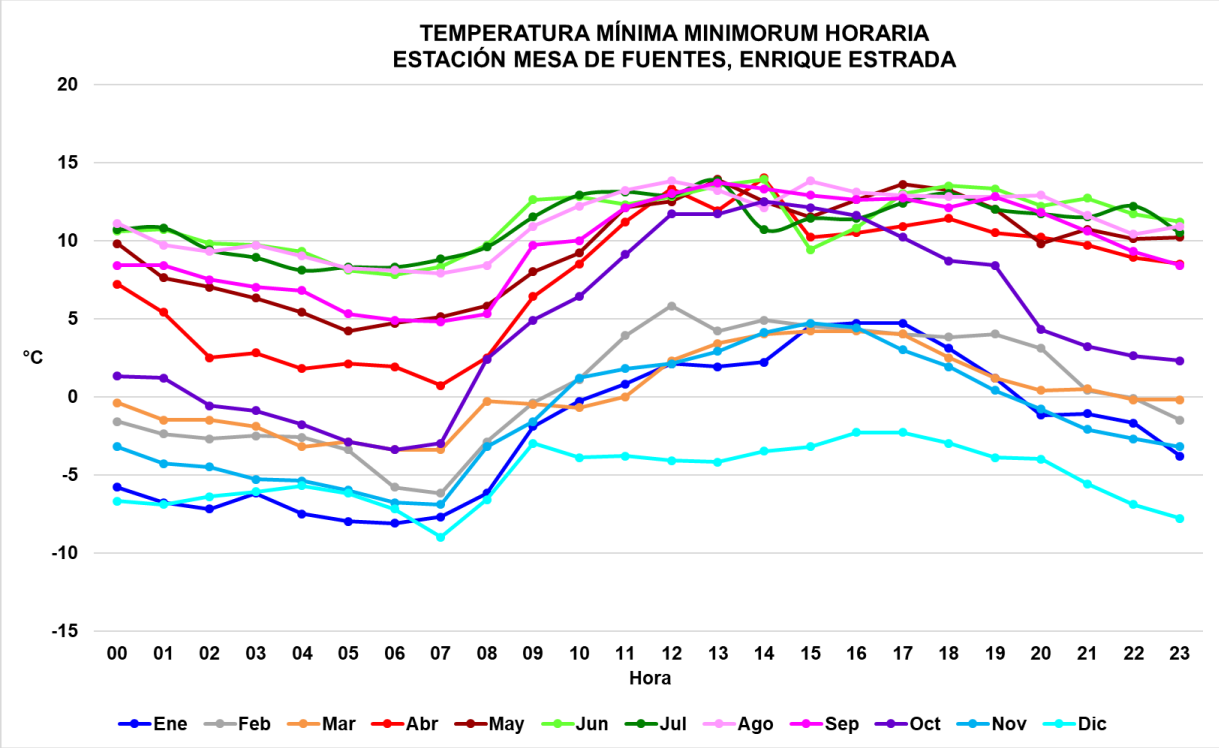


Figura 382. Temperatura mínima minimorum (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 425. Temperatura media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	9.1	11.4	14.7	16.7	17.0	15.5	15.6	14.3	12.2	8.8	7.3	12.5
01	6.4	8.3	10.5	13.7	15.8	16.2	15.0	15.0	13.9	11.6	8.1	6.7	11.8
02	5.9	7.7	9.6	12.8	14.8	15.4	14.4	14.4	13.5	10.9	7.7	6.3	11.1
03	5.5	7.1	8.9	11.9	13.9	14.6	13.9	13.9	13.1	10.5	7.3	5.9	10.6
04	5.1	6.7	8.3	11.2	13.2	14.0	13.5	13.4	12.7	10.1	6.8	5.6	10.0
05	4.7	6.2	7.6	10.5	12.4	13.4	13.1	13.0	12.3	9.7	6.5	5.3	9.6
06	4.4	5.8	7.2	9.7	11.7	13.0	12.8	12.6	12.1	9.3	6.2	5.0	9.1
07	4.3	5.8	8.2	10.0	12.0	13.3	12.8	12.6	12.0	9.4	6.9	5.1	9.4
08	6.7	9.1	12.4	13.0	15.2	15.6	14.4	14.2	13.3	11.5	11.0	8.0	12.0
09	10.5	12.7	15.4	16.4	18.3	17.7	16.3	16.2	15.4	14.9	14.0	11.7	15.0
10	12.7	14.9	17.5	18.9	20.5	19.7	17.9	17.9	17.0	17.0	16.0	13.9	17.0
11	14.6	16.8	19.4	21.0	22.4	21.5	19.4	19.4	18.4	18.6	17.6	15.6	18.7
12	16.0	18.3	20.8	22.6	24.0	22.9	20.7	20.8	19.6	19.9	18.8	17.0	20.1
13	17.0	19.4	21.7	23.8	25.1	24.0	21.7	21.7	20.5	20.8	19.6	17.9	21.1
14	17.7	20.0	22.4	24.6	25.8	24.7	22.4	22.5	21.1	21.4	20.1	18.5	21.8
15	17.9	20.2	22.5	25.0	26.2	25.1	22.7	22.8	21.4	21.7	20.1	18.6	22.0
16	17.5	20.0	22.2	25.0	26.2	25.1	22.7	22.8	21.3	21.6	19.7	18.1	21.9
17	16.5	19.1	21.5	24.5	25.9	24.9	22.4	22.6	20.8	21.0	18.2	16.7	21.2
18	14.2	17.2	19.8	23.5	25.2	24.2	21.7	21.9	19.9	19.6	15.3	14.0	19.7
19	11.7	14.6	17.3	21.8	23.9	23.1	20.7	20.8	18.4	17.2	13.1	11.7	17.9
20	10.3	12.9	15.6	19.7	21.9	21.5	19.2	19.1	16.8	15.3	11.9	10.4	16.2
21	9.2	11.8	14.4	18.1	20.1	19.9	17.8	17.8	15.9	14.3	11.0	9.5	15.0
22	8.4	10.8	13.3	16.8	18.8	18.7	16.9	16.9	15.3	13.5	10.2	8.8	14.0
23	7.7	10.0	12.4	15.7	17.7	17.7	16.1	16.2	14.7	12.8	9.4	8.0	13.2
Media	10.5	12.7	15.0	17.7	19.5	19.3	17.7	17.7	16.4	15.2	12.7	11.1	15.4

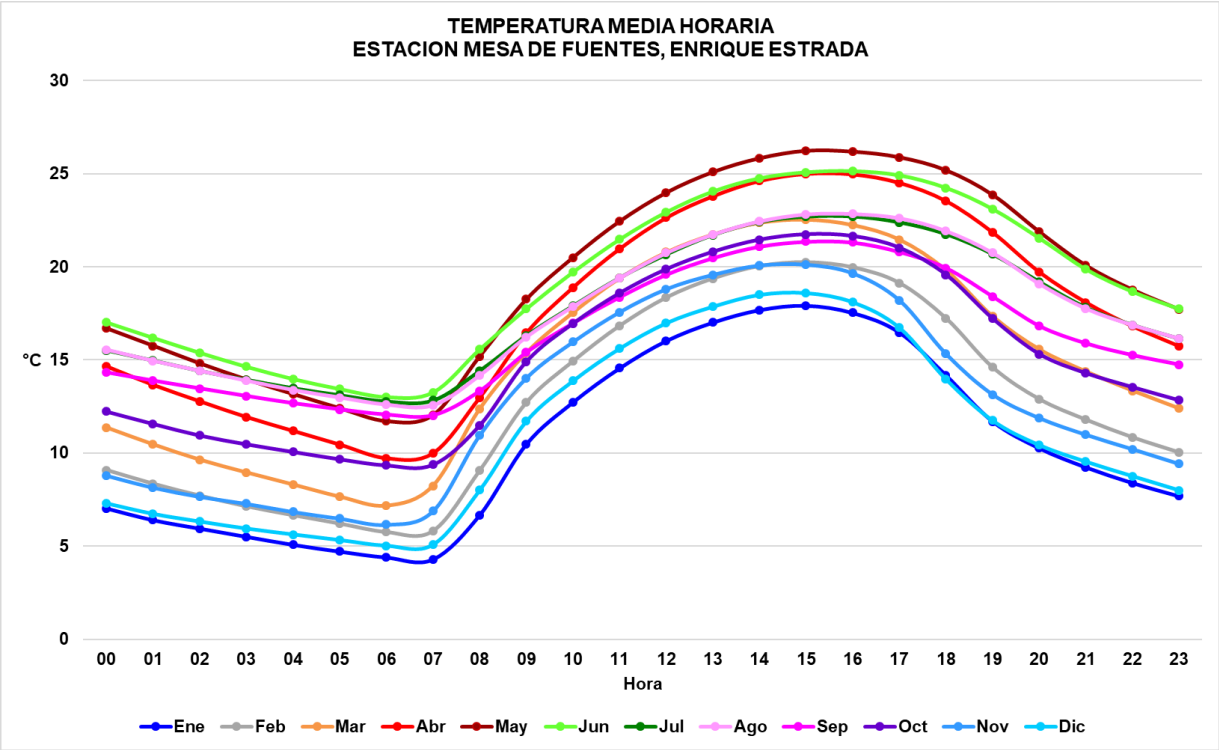


Figura 383. Temperatura media (˚C) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 426. Precipitación media (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.5	0.7	0.1	0.0	0.8	3.8	5.6	5.1	6.2	2.2	0.2	0.5	25.8
01	0.9	0.8	0.1	0.0	0.6	4.5	4.0	3.4	8.4	1.9	0.3	1.1	25.9
02	0.5	0.6	0.3	0.0	0.2	4.7	4.0	1.6	5.3	1.6	0.3	0.5	19.7
03	0.5	0.7	0.2	0.0	0.3	3.8	2.2	3.0	3.6	1.4	0.2	0.9	16.9
04	0.6	0.5	0.1	0.0	0.2	2.9	1.7	1.5	2.6	1.6	0.1	0.6	12.2
05	0.4	0.2	0.1	0.0	0.1	1.9	1.8	1.1	2.6	1.1	0.1	0.6	9.9
06	0.3	0.1	0.1	0.0	0.0	1.7	1.3	1.0	1.8	0.6	0.2	0.8	8.0
07	0.4	0.1	0.1	0.0	0.0	0.9	0.5	1.8	1.0	1.0	0.2	0.6	6.6
08	0.3	0.2	0.1	0.0	0.1	0.7	0.9	1.5	0.5	0.5	0.2	0.5	5.6
09	0.4	0.3	0.1	0.0	0.0	0.5	0.6	0.8	0.3	0.3	0.2	0.7	4.1
10	0.1	0.4	0.1	0.0	0.0	0.6	0.6	0.7	0.1	0.3	0.6	0.3	3.8
11	0.1	0.3	0.1	0.0	0.0	0.5	0.2	0.2	0.5	0.3	0.8	0.4	3.4
12	0.3	0.6	0.0	0.0	0.1	0.8	1.4	0.5	0.4	0.3	0.6	0.5	5.7
13	0.2	0.9	0.1	0.3	0.3	0.6	1.6	3.2	1.8	0.7	0.8	0.5	11.0
14	0.2	0.8	0.5	0.7	0.7	1.8	3.9	1.2	3.2	0.7	1.2	0.8	15.6
15	0.5	0.7	0.3	0.5	0.9	4.4	9.8	5.0	5.7	1.5	1.4	1.3	32.1
16	0.8	0.8	1.0	0.7	1.0	3.3	9.8	4.4	3.8	2.6	1.2	1.4	30.8
17	0.4	0.6	0.5	0.6	0.3	1.8	7.0	3.3	5.1	2.4	1.4	1.1	24.3
18	0.5	1.0	0.8	0.2	0.5	1.8	7.6	5.1	6.3	1.7	0.5	1.6	27.6
19	0.5	0.6	0.7	0.2	1.2	4.9	8.9	6.1	5.7	1.5	0.9	0.5	31.6
20	0.6	0.7	0.3	0.0	1.3	6.2	7.4	3.4	6.2	3.2	0.5	0.3	30.2
21	0.4	0.8	0.2	0.0	1.7	4.6	7.0	6.0	8.4	1.6	0.4	0.2	31.2
22	0.4	1.0	0.3	0.1	0.7	6.1	8.0	7.3	9.0	1.7	0.7	0.4	35.7
23	0.4	0.9	0.5	0.0	0.5	7.0	8.6	5.8	7.6	1.3	1.0	0.4	34.0
Suma	10.1	14.3	6.4	3.4	11.5	69.7	104.4	73.1	96.1	32.1	14.0	16.6	451.7

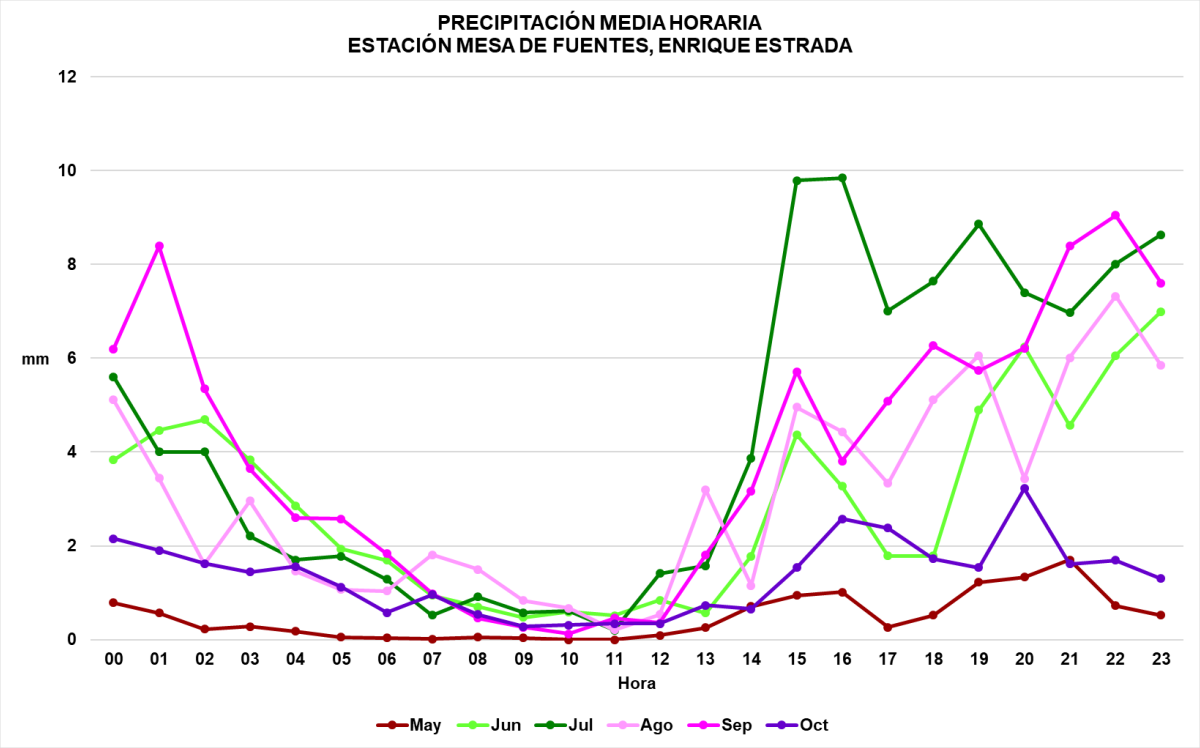


Figura 384. Precipitación media (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 427. Precipitación máxima maximorum (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.4	2.8	0.8	0.4	4.2	8.4	7.2	13.2	11.8	7.0	1.6	2.4	13.2
01	3.6	7.0	1.0	0.0	2.4	12.0	11.4	14.2	35.0	5.8	1.6	4.8	35.0
02	2.2	2.6	3.6	0.0	1.6	18.6	14.4	4.2	9.8	4.2	0.8	2.0	18.6
03	4.6	5.2	1.8	0.0	2.4	7.6	4.6	5.2	7.8	5.6	0.8	5.8	7.8
04	3.0	2.2	0.6	0.6	2.0	8.8	3.8	5.0	5.4	7.0	0.6	2.4	8.8
05	2.2	1.4	0.8	0.0	0.4	7.6	11.4	6.4	8.0	5.2	0.6	5.8	11.4
06	1.4	0.4	0.8	0.0	0.4	10.4	9.4	5.0	5.8	3.0	1.0	4.2	10.4
07	2.4	0.6	1.8	0.0	0.2	8.8	2.8	20.4	2.8	4.6	1.6	3.2	20.4
08	2.0	1.2	1.0	0.2	0.4	3.8	9.8	10.2	1.4	3.0	2.6	1.6	10.2
09	2.6	2.0	0.4	0.0	0.2	4.6	3.0	4.8	2.2	0.8	1.8	3.6	4.8
10	0.6	3.0	2.0	0.0	0.0	5.4	6.0	10.2	0.6	1.4	3.6	1.8	10.2
11	0.8	4.2	0.6	0.0	0.0	4.0	1.0	1.8	3.2	2.8	5.2	1.8	5.2
12	4.2	4.6	0.4	0.4	0.8	5.6	10.0	4.0	2.2	2.4	3.2	2.8	10.0
13	1.2	3.8	1.0	4.2	1.6	5.8	9.0	15.0	14.0	10.0	3.4	3.6	15.0
14	1.8	4.2	4.8	12.0	8.0	12.0	14.6	3.6	25.4	4.2	7.8	4.2	25.4
15	4.0	3.2	2.6	5.0	7.2	33.0	40.8	14.8	19.8	10.6	10.4	9.4	40.8
16	7.2	3.2	9.8	8.4	11.0	12.6	30.4	11.6	5.6	14.2	6.8	5.4	30.4
17	1.4	3.6	6.6	4.4	1.2	8.6	13.4	7.4	17.2	5.8	9.8	4.2	17.2
18	2.4	5.0	4.0	2.6	2.0	4.8	25.0	19.6	14.8	9.2	2.2	9.0	25.0
19	2.8	4.4	4.0	1.6	14.6	13.6	25.2	13.6	10.2	5.8	4.2	2.2	25.2
20	2.8	3.4	3.2	0.0	11.0	30.8	22.2	6.0	9.4	16.2	2.0	2.2	30.8
21	3.4	4.8	1.6	0.0	19.6	12.6	18.4	17.4	43.2	5.6	3.2	1.6	43.2
22	1.6	5.0	2.6	0.4	5.2	22.8	13.0	13.6	20.4	5.2	4.0	2.0	22.8
23	1.4	4.2	3.8	0.2	3.0	44.6	23.0	13.0	16.8	5.0	5.8	1.2	44.6
Máx.	7.2	7.0	9.8	12.0	19.6	44.6	40.8	20.4	43.2	16.2	10.4	9.4	44.6

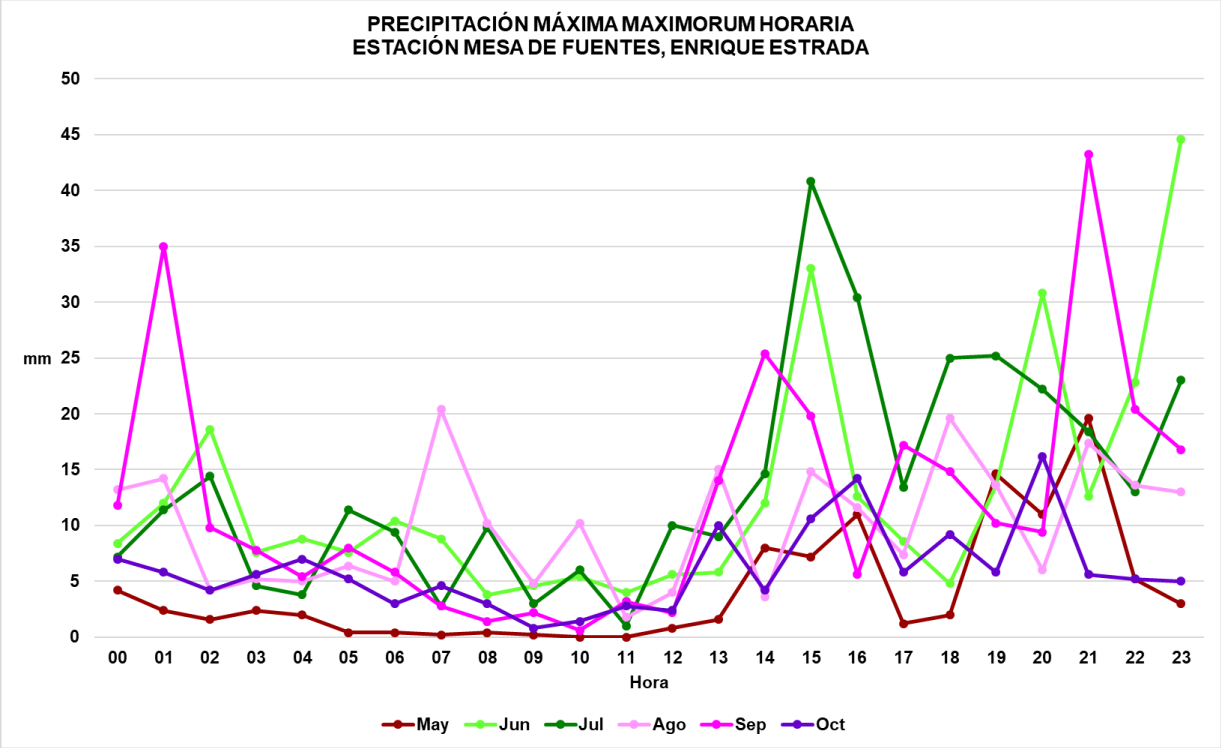


Figura 385. Precipitación máxima maximorum (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 428. Evapotranspiración potencial media (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.04	0.06	0.10	0.08	0.04	0.02	0.01	0.01	0.01	0.02	0.02	0.04
01	0.02	0.04	0.05	0.08	0.07	0.03	0.01	0.01	0.00	0.01	0.02	0.02	0.03
02	0.02	0.03	0.05	0.07	0.06	0.02	0.01	0.01	0.00	0.01	0.01	0.02	0.03
03	0.02	0.03	0.04	0.07	0.05	0.02	0.01	0.00	0.00	0.01	0.01	0.02	0.02
04	0.02	0.02	0.03	0.06	0.04	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.02
05	0.02	0.02	0.03	0.05	0.04	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.02
06	0.02	0.02	0.03	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
07	0.02	0.03	0.04	0.05	0.04	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.02
08	0.03	0.06	0.11	0.09	0.09	0.06	0.03	0.02	0.01	0.02	0.06	0.04	0.05
09	0.12	0.17	0.25	0.21	0.23	0.17	0.13	0.12	0.10	0.12	0.17	0.13	0.16
10	0.23	0.30	0.39	0.37	0.38	0.31	0.25	0.25	0.21	0.25	0.30	0.24	0.29
11	0.33	0.42	0.52	0.51	0.53	0.44	0.37	0.38	0.33	0.37	0.40	0.34	0.41
12	0.41	0.50	0.61	0.63	0.65	0.56	0.48	0.49	0.42	0.47	0.47	0.42	0.51
13	0.45	0.55	0.65	0.70	0.71	0.62	0.55	0.56	0.49	0.52	0.48	0.45	0.56
14	0.45	0.55	0.64	0.73	0.73	0.64	0.57	0.58	0.50	0.53	0.46	0.44	0.57
15	0.41	0.50	0.58	0.70	0.69	0.61	0.54	0.56	0.47	0.49	0.40	0.39	0.53
16	0.34	0.42	0.49	0.63	0.62	0.55	0.49	0.51	0.41	0.42	0.31	0.31	0.46
17	0.24	0.31	0.37	0.52	0.51	0.46	0.40	0.42	0.33	0.31	0.19	0.20	0.36
18	0.14	0.18	0.23	0.40	0.39	0.35	0.31	0.31	0.21	0.22	0.11	0.13	0.25
19	0.08	0.12	0.16	0.32	0.30	0.22	0.19	0.23	0.15	0.11	0.05	0.06	0.17
20	0.05	0.08	0.10	0.21	0.21	0.18	0.14	0.13	0.05	0.04	0.03	0.04	0.10
21	0.04	0.06	0.09	0.15	0.14	0.10	0.07	0.06	0.02	0.02	0.03	0.03	0.07
22	0.04	0.05	0.08	0.12	0.11	0.06	0.03	0.03	0.01	0.02	0.02	0.03	0.05
23	0.03	0.05	0.07	0.11	0.10	0.05	0.02	0.02	0.01	0.01	0.02	0.03	0.04
Media/día /mes	3.55	4.54	5.68	6.92	6.77	5.53	4.63	4.70	3.72	3.97	3.59	3.42	4.75

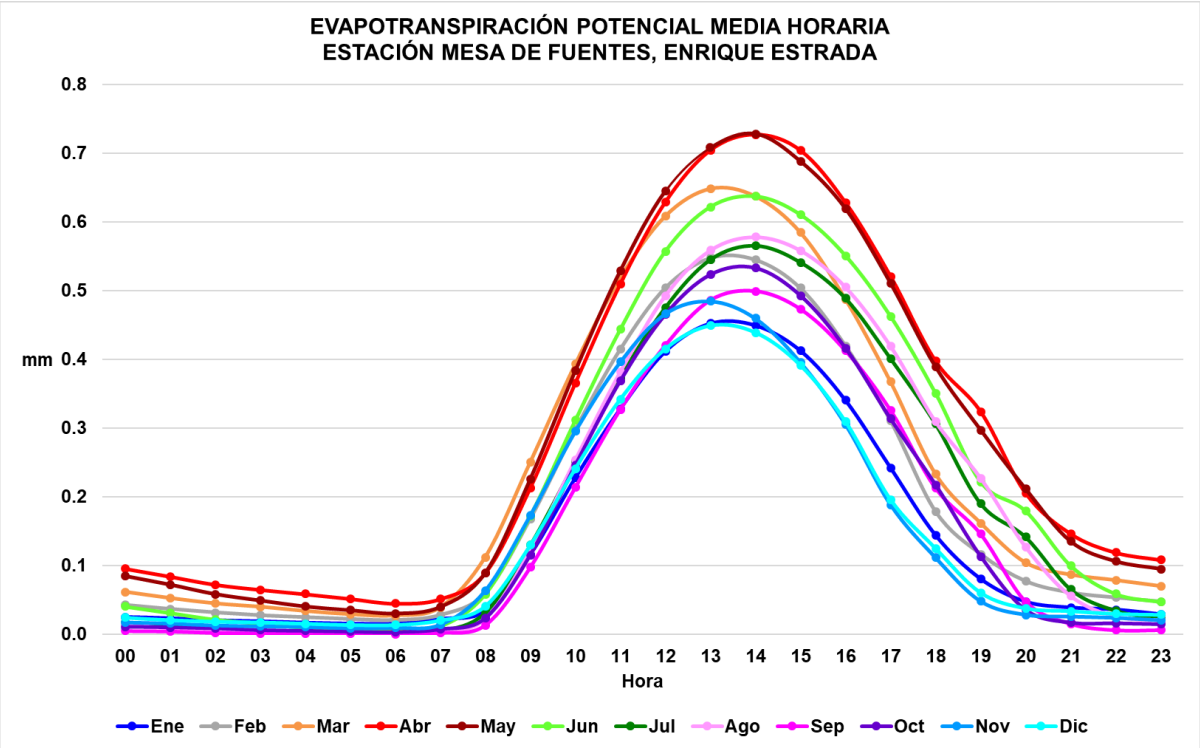


Figura 386. Evapotranspiración potencial media (mm) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 429. Humedad relativa media (%) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	57.8	49.3	40.0	33.5	40.8	60.2	76.7	76.9	83.7	75.2	69.3	61.2	60.4
01	60.2	51.9	42.6	35.9	44.3	64.0	79.5	79.8	85.7	78.0	71.9	63.3	63.1
02	61.9	54.2	45.1	37.8	47.1	67.9	82.3	82.5	87.6	80.5	73.7	65.0	65.5
03	63.6	56.1	47.2	39.7	49.7	71.4	84.2	84.8	89.2	82.3	75.2	66.4	67.5
04	65.0	57.8	49.3	41.7	52.2	74.3	86.0	86.9	90.5	83.9	76.8	67.8	69.4
05	66.2	59.3	51.4	43.9	54.7	76.7	87.4	88.4	91.7	85.4	78.0	69.3	71.0
06	67.4	60.9	53.3	46.1	56.7	78.7	88.6	89.8	92.6	86.6	79.4	70.7	72.6
07	68.2	61.2	51.2	46.1	56.1	77.9	88.6	90.0	93.0	86.7	77.7	71.2	72.3
08	62.0	52.9	41.2	40.0	48.1	70.7	82.9	84.6	89.1	80.4	65.5	63.0	65.0
09	50.4	42.4	33.5	32.1	39.0	62.1	74.3	75.7	80.4	67.7	54.2	51.8	55.3
10	43.0	35.9	27.9	26.1	32.0	53.6	66.6	68.2	73.0	59.1	46.6	44.2	48.0
11	37.0	30.4	23.5	21.2	26.3	46.2	59.6	61.3	66.6	52.4	40.6	38.2	41.9
12	32.3	26.4	20.5	17.8	22.3	40.1	54.0	55.2	61.3	46.7	36.0	33.7	37.2
13	29.1	23.7	18.3	15.9	19.8	35.6	49.4	50.6	57.2	42.9	33.0	30.4	33.8
14	27.0	22.0	17.1	14.5	18.1	32.9	46.3	47.2	54.1	40.1	31.1	28.1	31.5
15	26.1	21.2	16.5	13.9	17.3	31.7	45.1	45.6	52.8	38.7	30.5	27.3	30.6
16	26.5	21.3	16.8	13.7	17.2	31.4	44.9	45.0	52.6	38.7	31.3	27.9	30.6
17	28.4	22.5	17.6	14.2	17.6	32.0	45.9	45.5	54.4	40.2	34.8	30.7	32.0
18	33.6	25.9	19.7	15.1	18.5	33.7	48.2	47.9	57.9	44.8	43.0	37.3	35.5
19	40.4	31.3	23.6	17.2	20.9	37.2	52.3	52.5	64.9	53.3	50.5	44.0	40.7
20	45.3	35.8	27.2	20.1	24.6	42.1	58.7	59.6	72.3	60.7	55.4	48.4	45.8
21	49.0	39.5	30.6	23.7	28.9	47.8	65.2	65.7	76.6	64.8	59.3	52.1	50.3
22	52.3	42.9	34.0	27.4	33.6	52.9	69.7	70.0	79.3	68.0	62.9	55.4	54.0
23	55.1	45.7	37.0	30.6	37.7	57.4	73.3	74.0	81.3	71.3	66.3	58.6	57.4
Media	47.8	40.4	32.7	27.8	34.3	53.3	67.1	67.8	74.5	63.7	56.0	50.3	51.3

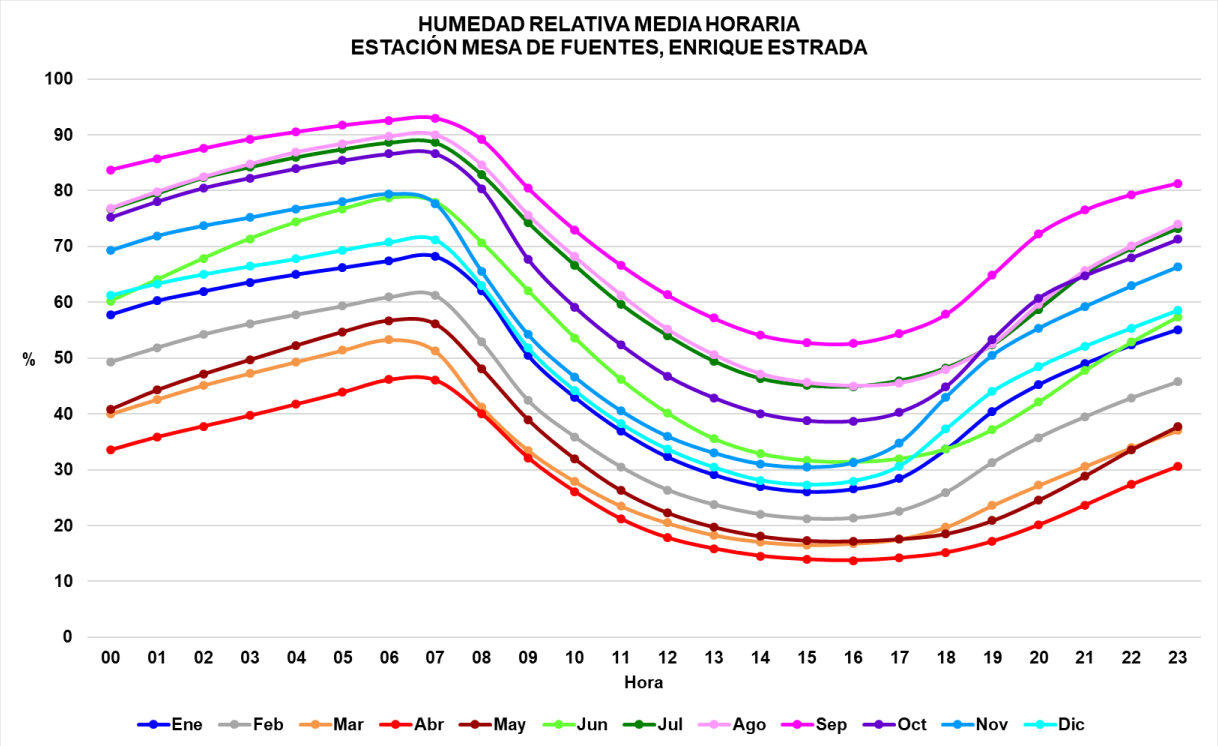


Figura 387. Humedad relativa media (%) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 430. Humedad relativa mínima minimorum (%) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	12.0	10.0	10.0	6.9	9.0	16.0	30.0	32.0	32.0	23.6	23.0	13.0	6.9
01	14.0	10.0	8.1	8.3	10.0	18.0	32.0	40.0	30.0	24.0	25.0	14.0	8.1
02	15.0	10.0	8.0	10.0	10.0	20.0	35.0	39.0	30.0	24.0	20.0	16.0	8.0
03	15.0	13.0	8.0	11.0	11.0	18.0	33.0	39.0	34.0	24.0	25.0	14.0	8.0
04	16.0	11.0	9.4	10.0	10.0	19.0	34.0	46.0	46.0	26.0	23.0	14.6	9.4
05	15.0	10.0	9.0	9.8	11.0	21.0	29.0	49.0	41.0	26.0	26.0	15.1	9.0
06	11.0	12.0	9.0	8.5	10.0	25.0	27.0	47.0	52.3	26.0	28.0	13.0	8.5
07	12.0	16.0	7.0	6.2	11.0	25.0	32.0	51.0	56.3	25.0	25.0	20.6	6.2
08	10.2	10.0	4.8	6.2	8.0	18.0	31.0	39.0	31.0	14.8	14.0	11.3	4.8
09	7.0	8.0	5.3	6.0	6.2	13.0	23.0	26.0	32.0	10.9	10.0	10.1	5.3
10	5.0	6.0	3.5	4.9	4.6	12.0	19.0	24.0	27.0	10.2	9.0	8.0	3.5
11	4.0	6.0	4.0	4.0	5.1	8.0	15.0	24.0	26.0	10.1	7.0	6.0	4.0
12	4.0	4.0	4.0	3.2	5.0	6.0	16.0	19.0	20.0	8.4	6.0	5.0	3.2
13	4.0	4.0	4.0	3.7	4.0	5.0	15.2	19.0	19.0	8.3	5.0	3.0	3.0
14	5.0	4.0	4.6	4.0	3.9	5.0	14.0	16.0	17.0	8.0	5.0	4.0	3.9
15	4.0	4.0	3.0	3.0	3.7	5.0	12.0	18.0	13.0	7.0	5.0	4.0	3.0
16	4.0	5.0	3.0	3.0	4.0	5.0	12.0	15.0	14.0	7.0	5.0	4.0	3.0
17	4.0	5.0	4.0	4.0	4.2	5.0	12.0	16.0	14.0	8.0	6.0	5.0	4.0
18	5.0	6.0	4.0	4.0	4.5	5.0	13.0	15.0	16.0	10.0	9.0	6.0	4.0
19	6.0	7.0	6.0	4.0	5.0	5.0	13.0	16.0	20.0	13.0	11.0	8.0	4.0
20	10.6	9.0	6.0	4.6	5.3	6.0	15.0	19.0	24.0	18.0	11.0	11.0	4.6
21	10.7	10.0	6.0	5.3	6.0	7.0	18.0	22.0	26.0	20.2	12.0	13.0	5.3
22	10.0	11.0	7.0	6.7	7.0	10.0	24.0	26.0	26.0	20.9	16.0	14.0	6.7
23	12.0	13.0	9.0	6.9	8.0	13.0	26.0	28.0	30.0	21.9	15.0	13.0	6.9
Mín.	4.0	4.0	3.0	3.0	3.7	5.0	12.0	15.0	13.0	7.0	5.0	3.0	3.0

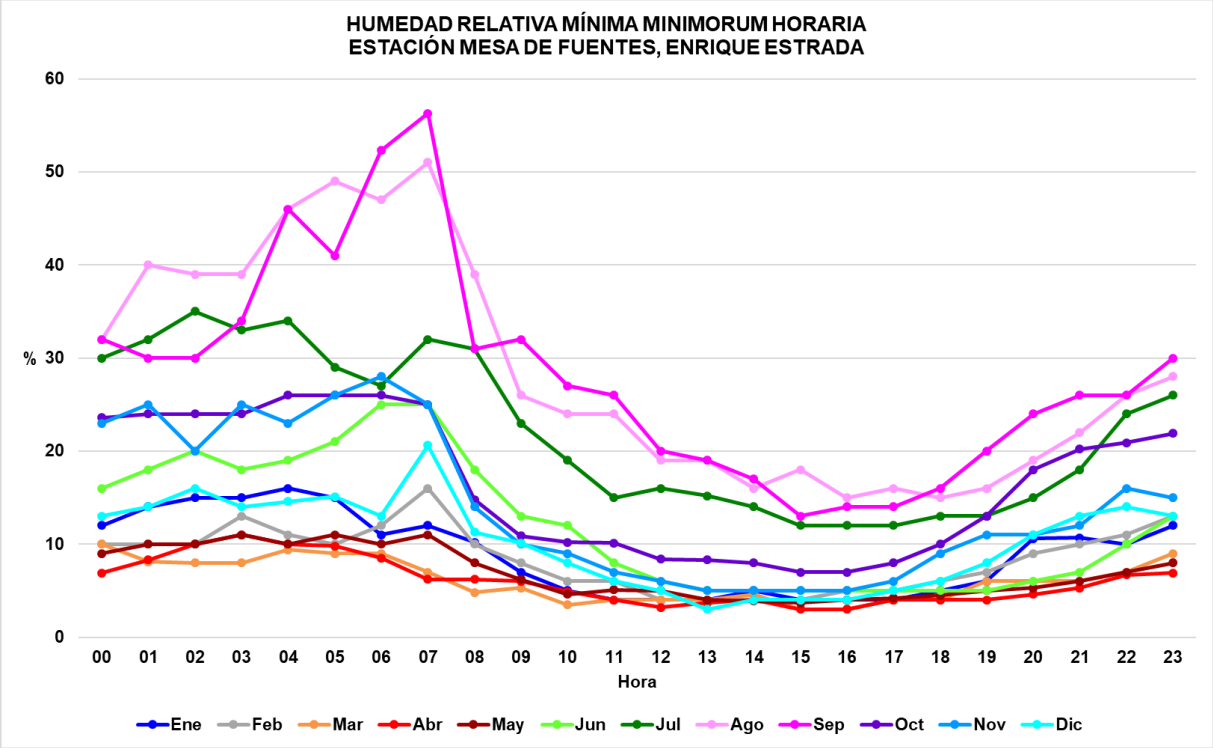


Figura 388. Humedad relativa mínima minimorum (%) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 431. Radiación solar global media horaria (W/m2) de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	21	9	12	10	5	2	0	2	7	1	6
07	68	144	365	216	243	207	143	102	68	99	260	109	169
08	603	835	1205	911	963	835	686	616	501	606	984	693	787
09	1394	1715	2126	1826	1855	1642	1434	1389	1223	1405	1787	1450	1604
10	2098	2491	2918	2685	2699	2401	2172	2177	1937	2179	2442	2129	2361
11	2648	3066	3466	3380	3357	3028	2781	2812	2521	2759	2860	2602	2940
12	2895	3329	3717	3812	3707	3398	3169	3204	2895	3103	2991	2781	3250
13	2844	3287	3640	3905	3775	3461	3276	3310	3012	3114	2816	2700	3262
14	2529	2987	3292	3735	3511	3247	3136	3145	2842	2886	2404	2377	3007
15	2028	2431	2683	3271	3118	2842	2706	2797	2469	2408	1815	1807	2531
16	1319	1704	1918	2595	2457	2305	2212	2279	1933	1779	1096	1087	1890
17	600	904	1070	1844	1779	1703	1633	1664	1280	1056	374	390	1191
18	82	203	312	978	1053	994	1001	972	631	382	16	21	554
19	0	1	7	294	399	412	423	351	132	35	0	0	171
20	0	0	0	15	37	56	63	27	2	0	0	0	17
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19110	23100	26740	29477	28966	26542	24842	24848	21447	21815	19853	18147	23740

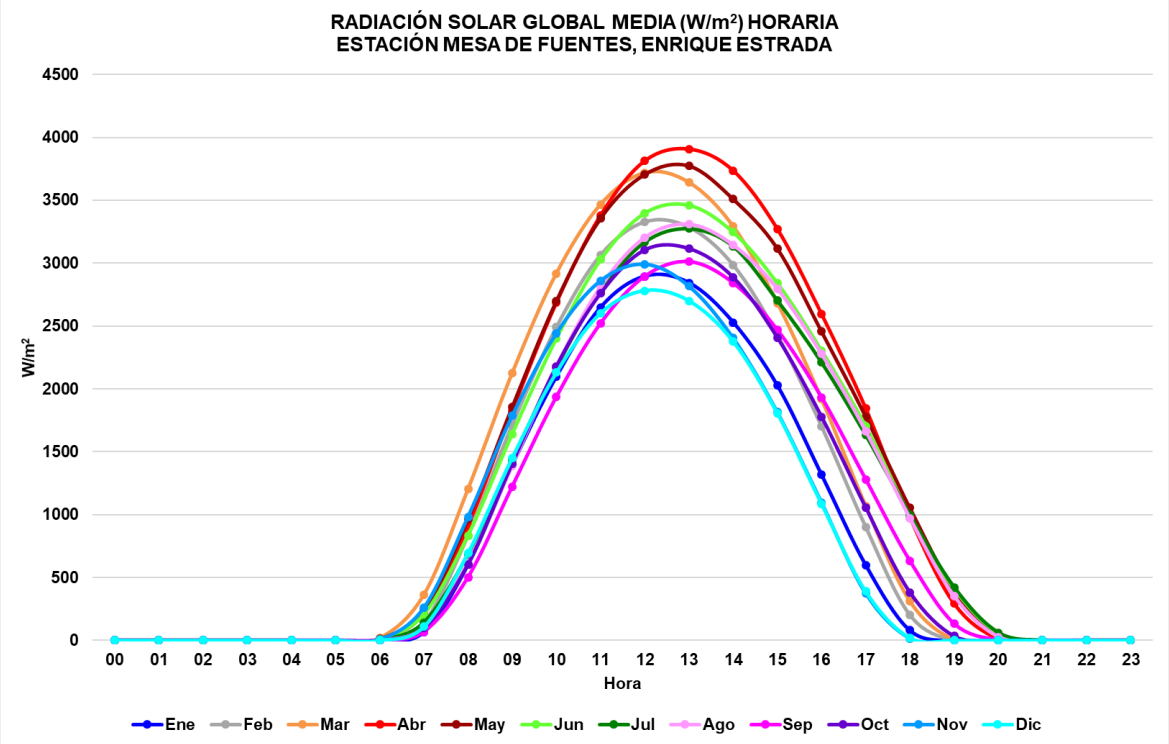


Figura 389. Radiación solar global media horaria (W/m2) de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 432. Radiación solar global media horaria (kWh/m2) de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.04	0.09	0.05	0.06	0.05	0.04	0.03	0.02	0.02	0.07	0.03	0.04
08	0.15	0.21	0.30	0.23	0.24	0.21	0.17	0.15	0.13	0.15	0.25	0.17	0.20
09	0.35	0.43	0.53	0.46	0.46	0.41	0.36	0.35	0.31	0.35	0.45	0.36	0.40
10	0.52	0.62	0.73	0.67	0.67	0.60	0.54	0.54	0.48	0.54	0.61	0.53	0.59
11	0.66	0.77	0.87	0.84	0.84	0.76	0.70	0.70	0.63	0.69	0.72	0.65	0.74
12	0.72	0.83	0.93	0.95	0.93	0.85	0.79	0.80	0.72	0.78	0.75	0.70	0.81
13	0.71	0.82	0.91	0.98	0.94	0.87	0.82	0.83	0.75	0.78	0.70	0.67	0.82
14	0.63	0.75	0.82	0.93	0.88	0.81	0.78	0.79	0.71	0.72	0.60	0.59	0.75
15	0.51	0.61	0.67	0.82	0.78	0.71	0.68	0.70	0.62	0.60	0.45	0.45	0.63
16	0.33	0.43	0.48	0.65	0.61	0.58	0.55	0.57	0.48	0.44	0.27	0.27	0.47
17	0.15	0.23	0.27	0.46	0.44	0.43	0.41	0.42	0.32	0.26	0.09	0.10	0.30
18	0.02	0.05	0.08	0.24	0.26	0.25	0.25	0.24	0.16	0.10	0.00	0.01	0.14
19	0.00	0.00	0.00	0.07	0.10	0.10	0.11	0.09	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.78	5.77	6.68	7.37	7.24	6.64	6.21	6.21	5.36	5.45	4.96	4.54	5.94

Cuadro 433. Radiación solar global media horaria (Mj/m2/s) de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.06	0.13	0.33	0.19	0.22	0.19	0.13	0.09	0.06	0.09	0.23	0.10	0.15
08	0.54	0.75	1.08	0.82	0.87	0.75	0.62	0.55	0.45	0.55	0.89	0.62	0.71
09	1.25	1.54	1.91	1.64	1.67	1.48	1.29	1.25	1.10	1.26	1.61	1.31	1.44
10	1.89	2.24	2.63	2.42	2.43	2.16	1.95	1.96	1.74	1.96	2.20	1.92	2.12
11	2.38	2.76	3.12	3.04	3.02	2.73	2.50	2.53	2.27	2.48	2.57	2.34	2.65
12	2.61	3.00	3.35	3.43	3.34	3.06	2.85	2.88	2.61	2.79	2.69	2.50	2.93
13	2.56	2.96	3.28	3.51	3.40	3.11	2.95	2.98	2.71	2.80	2.53	2.43	2.94
14	2.28	2.69	2.96	3.36	3.16	2.92	2.82	2.83	2.56	2.60	2.16	2.14	2.71
15	1.83	2.19	2.41	2.94	2.81	2.56	2.44	2.52	2.22	2.17	1.63	1.63	2.28
16	1.19	1.53	1.73	2.34	2.21	2.07	1.99	2.05	1.74	1.60	0.99	0.98	1.70
17	0.54	0.81	0.96	1.66	1.60	1.53	1.47	1.50	1.15	0.95	0.34	0.35	1.07
18	0.07	0.18	0.28	0.88	0.95	0.89	0.90	0.87	0.57	0.34	0.01	0.02	0.50
19	0.00	0.00	0.01	0.26	0.36	0.37	0.38	0.32	0.12	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.06	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.20	20.79	24.07	26.53	26.07	23.89	22.36	22.36	19.30	19.63	17.87	16.33	21.37

Cuadro 434. Velocidad del viento media (km/h) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.1	11.3	11.5	13.5	12.3	10.9	9.5	8.5	6.9	7.0	7.8	9.1	9.8
01	9.0	10.9	10.9	12.5	11.5	9.3	9.0	7.4	6.1	6.7	7.6	9.1	9.2
02	8.9	10.7	10.7	11.7	10.4	8.6	8.1	6.5	5.9	6.5	7.6	9.1	8.7
03	8.9	10.5	10.5	11.1	9.8	7.8	7.5	6.0	5.6	6.4	7.4	9.0	8.4
04	8.9	10.3	9.9	10.7	9.2	7.0	6.8	5.7	5.2	6.2	7.2	9.1	8.0
05	8.9	10.1	9.5	10.1	8.6	6.6	6.1	5.3	5.1	6.0	7.1	9.2	7.7
06	8.8	10.0	9.2	9.8	8.1	6.3	5.8	4.7	4.7	5.9	6.9	9.1	7.4
07	8.6	9.6	9.3	9.3	8.0	6.3	5.6	4.5	4.7	5.7	6.8	8.9	7.3
08	9.1	10.4	11.0	10.7	9.3	8.0	6.6	5.5	5.5	6.1	7.7	9.1	8.2
09	11.7	13.3	13.5	13.1	11.7	9.8	8.3	7.7	7.7	7.9	10.4	11.7	10.6
10	14.0	15.6	14.7	14.4	12.4	10.1	9.1	8.8	9.1	9.7	11.9	13.7	12.0
11	15.2	17.0	15.8	15.4	12.5	10.7	9.5	9.4	9.9	10.8	12.6	14.7	12.8
12	16.1	17.6	16.7	16.5	13.3	11.6	10.3	10.3	10.7	11.5	13.1	15.3	13.6
13	16.7	18.1	17.7	17.3	14.1	12.8	11.3	11.4	11.3	12.0	13.3	15.8	14.3
14	17.0	18.7	18.4	18.2	14.8	13.8	12.4	12.3	11.6	12.0	13.3	15.9	14.9
15	17.0	18.8	18.5	18.7	15.4	14.5	13.3	13.1	12.0	12.0	13.2	15.8	15.2
16	16.7	18.4	18.5	18.9	15.9	14.7	13.9	13.6	12.2	12.0	12.8	15.3	15.2
17	15.6	17.6	18.1	19.0	15.9	14.8	14.5	13.8	12.0	11.6	11.4	13.5	14.8
18	12.1	14.9	16.4	18.4	15.8	15.1	14.6	13.7	11.4	10.1	8.2	10.0	13.4
19	10.2	11.8	13.2	16.9	15.5	14.9	14.0	12.4	9.1	7.5	7.7	9.2	11.9
20	10.0	11.7	12.6	15.0	13.5	13.4	12.2	9.9	6.9	6.8	8.1	9.2	10.8
21	10.1	11.9	12.8	14.8	13.3	11.8	10.6	8.9	6.7	7.3	8.3	9.3	10.5
22	9.8	11.6	12.5	14.9	13.5	11.8	10.5	9.0	6.9	7.5	8.2	9.4	10.5
23	9.4	11.4	12.1	14.3	13.1	11.6	10.2	8.9	7.0	7.3	7.9	9.2	10.2
Media	11.7	13.4	13.5	14.4	12.4	10.9	10.0	9.1	8.1	8.4	9.4	11.2	11.1

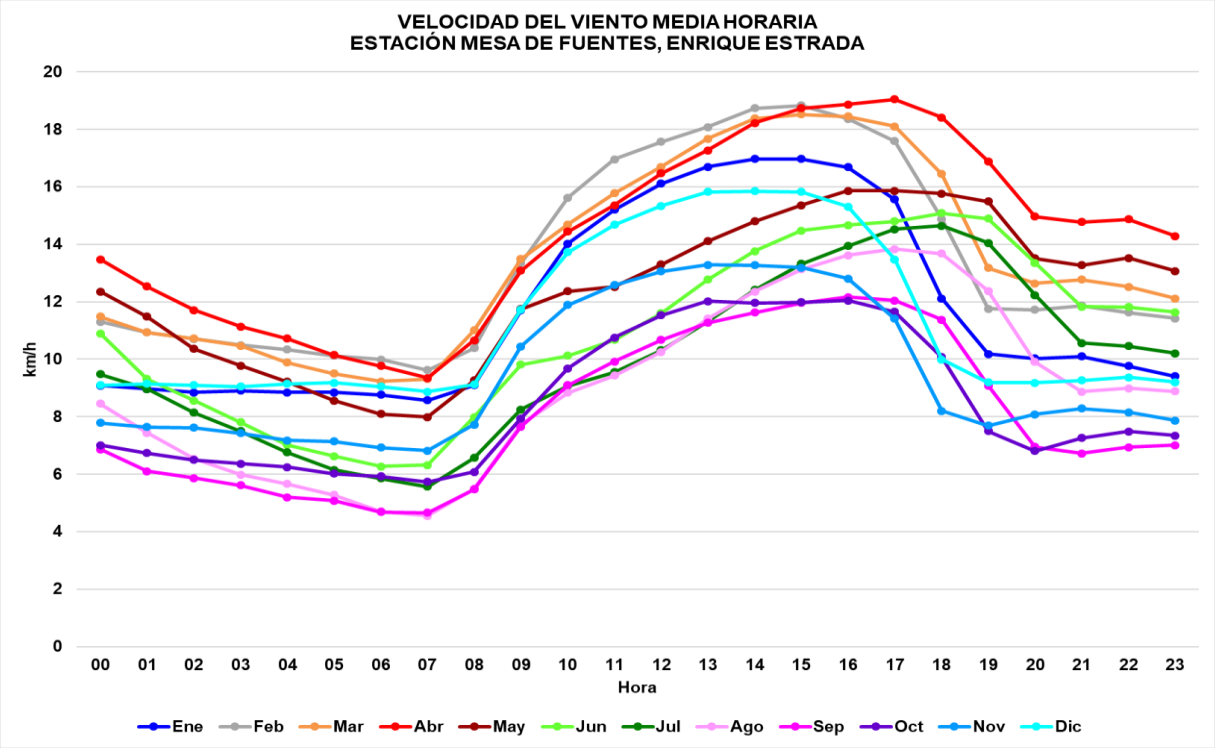


Figura 390. Velocidad del viento media (km/h) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 435. Velocidad del viento máxima maximorum (km/h) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	42.6	38.9	39.9	35.6	34.3	34.2	34.5	36.0	24.6	31.3	36.8	40.2	42.6
01	37.7	38.6	41.8	36.8	34.0	37.3	35.5	29.3	21.6	29.2	35.8	41.9	41.9
02	37.7	43.0	41.9	32.4	32.1	35.0	35.4	32.7	23.4	33.5	40.1	40.6	43.0
03	45.2	39.2	48.7	34.7	28.9	31.3	29.3	48.5	25.2	33.6	40.9	39.7	48.7
04	45.6	41.3	47.7	32.2	30.8	30.0	29.0	26.8	22.9	35.4	35.3	36.7	47.7
05	48.2	50.3	52.7	35.6	33.2	29.5	30.7	25.2	22.5	32.0	40.3	37.1	52.7
06	38.5	43.3	62.7	32.9	27.5	23.9	32.1	22.5	24.7	30.1	44.5	41.5	62.7
07	38.4	41.3	62.7	33.7	28.9	25.5	30.5	21.7	24.8	28.4	41.5	44.7	62.7
08	37.8	41.8	67.8	37.8	29.3	25.6	30.9	23.9	23.2	29.8	34.1	37.9	67.8
09	41.2	48.5	65.8	40.2	30.0	30.9	37.7	38.5	23.4	32.7	38.5	49.7	65.8
10	44.9	49.7	62.7	43.9	35.1	29.5	36.6	37.1	24.6	35.9	43.6	50.4	62.7
11	47.3	49.6	63.7	44.8	38.0	27.7	36.5	29.8	24.0	39.4	42.3	49.4	63.7
12	47.9	48.4	60.7	45.5	39.7	30.4	37.0	31.6	24.7	44.1	41.3	52.6	60.7
13	47.8	49.8	51.7	43.9	48.8	40.3	36.6	34.6	24.6	39.7	42.8	53.8	53.8
14	51.3	51.2	52.7	42.6	47.7	31.5	36.6	31.3	25.0	35.2	41.9	51.7	52.7
15	47.4	48.8	45.1	44.1	50.7	39.3	35.5	33.2	30.1	31.6	37.6	50.1	50.7
16	47.5	48.6	43.2	47.5	49.2	41.7	36.8	31.0	30.5	33.4	36.9	46.4	49.2
17	47.3	47.5	40.8	42.9	41.4	35.6	34.4	36.2	31.5	35.9	35.2	45.0	47.5
18	38.7	51.8	42.5	42.6	45.8	36.8	35.8	35.7	28.0	28.9	32.3	41.1	51.8
19	47.7	42.0	37.4	42.1	42.2	34.2	32.3	35.3	27.5	28.1	35.2	42.7	47.7
20	49.7	38.5	37.7	39.7	34.3	33.6	35.6	31.2	28.2	29.7	31.9	42.1	49.7
21	43.5	40.0	34.7	44.0	36.7	45.0	31.1	34.0	25.3	34.7	28.3	42.0	45.0
22	48.3	36.0	35.7	33.2	39.7	41.7	30.8	27.0	28.6	33.9	36.0	45.4	48.3
23	49.7	33.2	37.3	33.1	36.7	40.7	31.1	30.0	25.9	32.8	39.0	42.1	49.7
Máx.	51.3	51.8	67.8	47.5	50.7	45.0	37.7	48.5	31.5	44.1	44.5	53.8	67.8

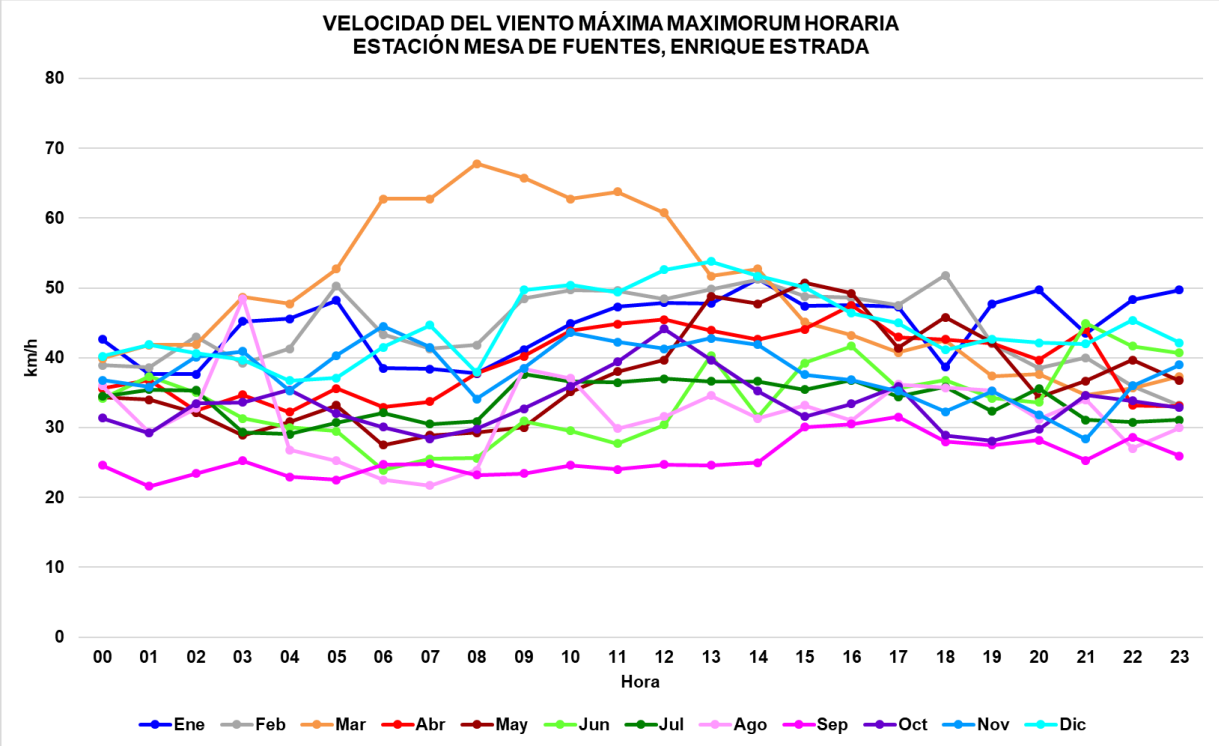


Figura 391. Velocidad del viento máxima maximorum (km/h) horaria de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 436. Frecuencia de velocidad del viento (%) mensual de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	14.4	9.0	8.5	5.9	9.3	14.5	18.5	25.4	28.4	26.0	20.3	14.4	16.4
5.1 a 10.0	36.1	31.2	29.9	24.1	29.6	33.2	36.2	34.8	38.3	41.7	41.8	40.0	34.9
10.1 a 15.0	23.3	25.3	26.5	26.8	29.4	28.8	27.1	25.4	25.7	22.2	23.2	21.8	25.5
15.1 a 20.0	13.1	16.3	18.2	23.0	20.3	17.0	13.9	11.8	6.8	7.5	9.6	11.8	14.0
20.1 a 25.0	7.0	9.3	9.0	12.5	8.4	5.2	3.5	2.4	0.8	2.0	3.4	6.5	5.7
25.1 a 30.0	3.5	4.9	4.6	5.6	2.4	1.1	0.7	0.3	0.0	0.4	1.1	3.3	2.3
30.1 a 35.0	1.4	2.3	2.2	1.6	0.4	0.2	0.1	0.0	0.0	0.2	0.4	1.2	0.8
35.1 a 40.0	0.8	1.1	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.3
40.1 a 45.0	0.3	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
45.1 a 50.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
>50	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

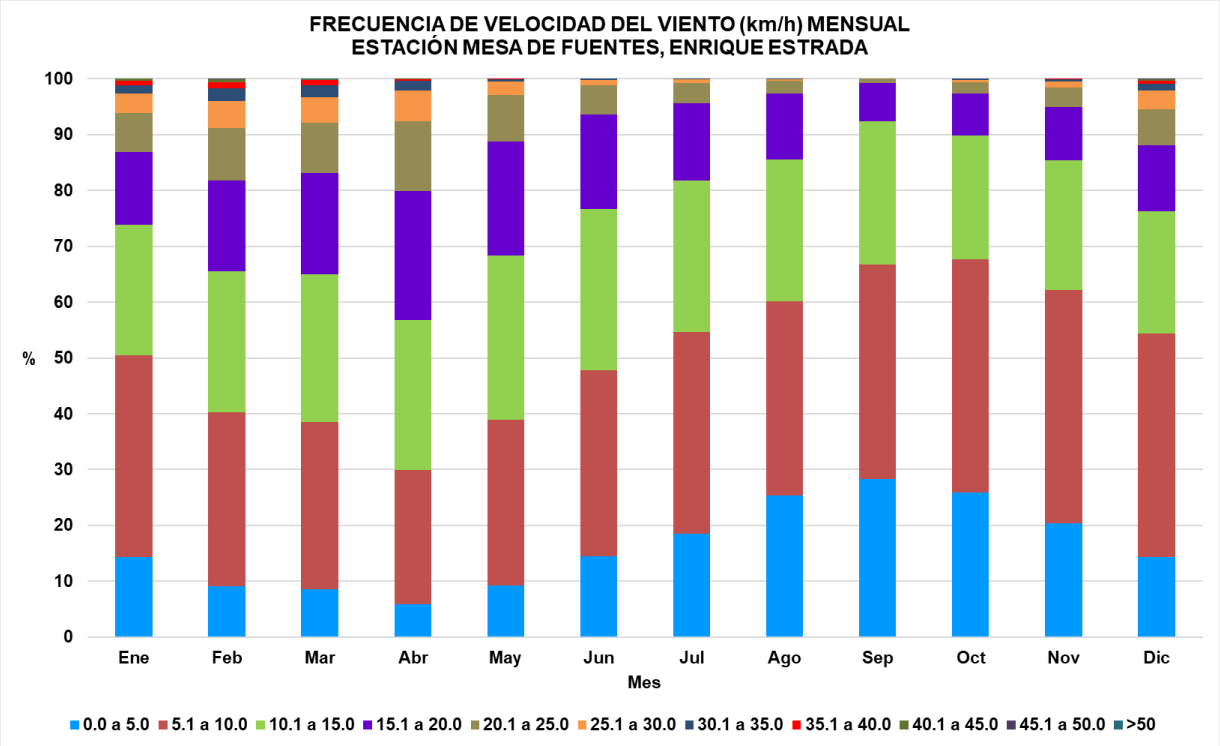


Figura 392. Frecuencia de velocidad del viento (%) mensual de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 437. Frecuencia de dirección del viento (%) mensual de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	3.8	2.8	3.2	2.4	3.5	4.7	2.8	3.5	5.6	4.8	4.6	2.7	3.7
NNE	3.4	2.5	2.3	1.8	2.9	5.2	3.6	4.6	6.1	4.9	3.6	2.2	3.6
NE	3.7	3.1	2.9	2.2	4.0	8.3	7.8	9.5	11.7	8.3	5.2	3.4	5.9
ENE	3.8	2.7	2.8	2.2	4.1	11.6	13.7	14.9	15.4	10.2	5.9	3.1	7.7
E	2.4	2.0	2.0	1.8	3.5	10.3	11.7	12.6	10.5	7.3	4.4	2.0	6.0
ESE	1.7	1.4	1.8	1.4	2.8	6.5	7.5	7.3	5.3	4.1	3.0	1.5	3.8
SE	1.7	1.5	2.0	1.6	2.8	5.1	5.7	5.5	3.6	3.2	2.5	1.6	3.1
SSE	1.8	1.7	2.4	2.1	3.5	4.0	4.6	4.1	3.0	2.9	2.2	1.7	2.8
S	5.0	5.0	5.1	5.0	5.2	4.6	5.5	4.1	3.3	4.0	4.3	4.9	4.7
SSO	13.0	14.3	13.2	13.0	11.3	9.0	9.4	7.1	5.6	7.9	10.4	15.0	10.7
SO	32.8	33.9	32.2	32.7	25.6	14.1	13.8	12.3	12.2	21.0	28.8	35.4	24.4
OSO	17.4	20.2	21.0	25.2	19.3	7.5	6.7	7.0	7.0	10.9	15.7	18.6	14.5
O	3.6	4.0	4.3	4.4	4.8	2.7	2.5	2.7	2.7	2.9	3.1	3.2	3.4
ONO	1.4	1.2	1.4	1.3	2.2	1.7	1.4	1.5	1.7	1.8	1.3	1.3	1.5
NO	1.6	1.3	1.3	1.2	2.0	1.8	1.4	1.2	2.5	2.4	1.5	1.3	1.6
NNO	2.9	2.3	2.2	1.6	2.5	3.0	1.7	1.9	3.7	3.7	3.5	2.1	2.6
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

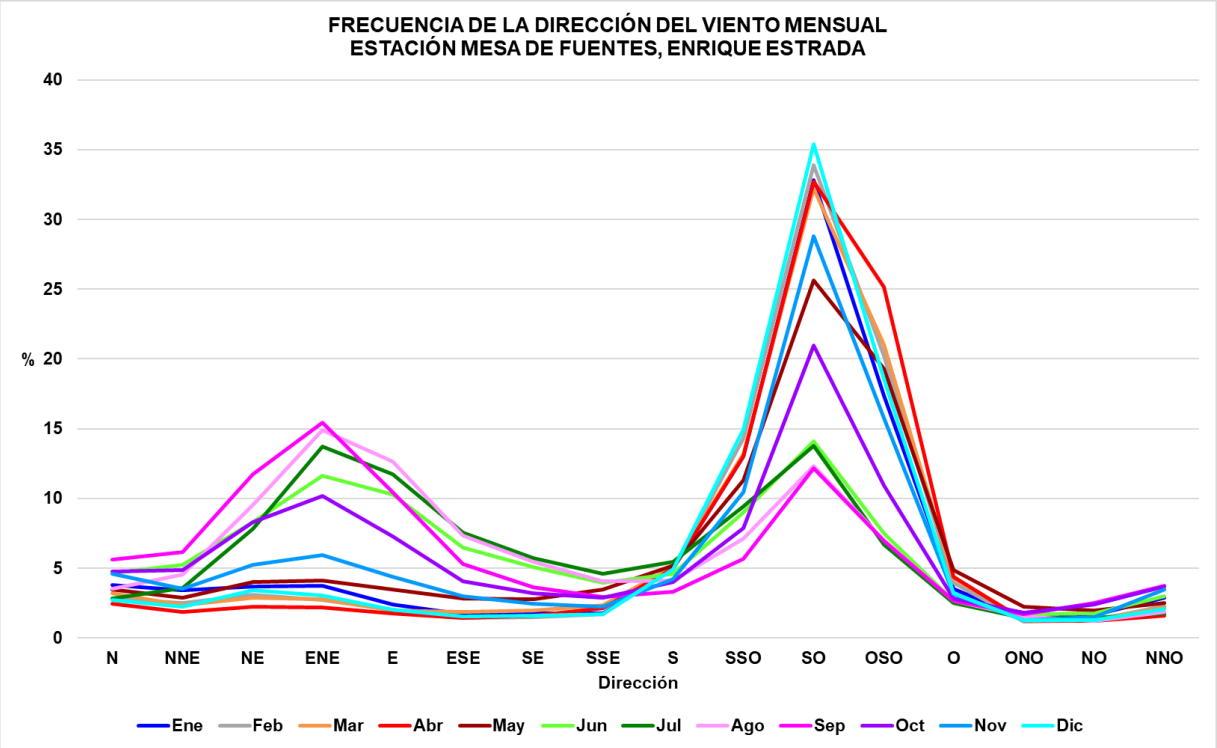


Figura 393. Frecuencia de dirección del viento (%) mensual de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 438. Frecuencia de dirección del viento (%) trimestral de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	3.3	3.5	4.0	4.0	3.7
NNE	2.8	3.3	4.8	3.6	3.6
NE	3.2	4.9	9.7	5.6	5.9
ENE	3.1	6.0	14.7	6.4	7.7
E	2.1	5.2	11.6	4.6	6.0
ESE	1.7	3.6	6.7	2.9	3.8
SE	1.7	3.2	5.0	2.4	3.1
SSE	2.0	3.2	3.9	2.3	2.8
S	5.0	4.9	4.3	4.4	4.7
SSO	13.5	11.1	7.4	11.1	10.7
SO	33.0	24.0	12.8	28.4	24.4
OSO	19.5	17.2	6.9	15.1	14.5
O	3.9	4.0	2.6	3.1	3.4
ONO	1.3	1.7	1.6	1.4	1.5
NO	1.4	1.7	1.7	1.7	1.6
NNO	2.5	2.4	2.4	3.1	2.6
Suma	100.0	100.0	100.0	100.0	100.0

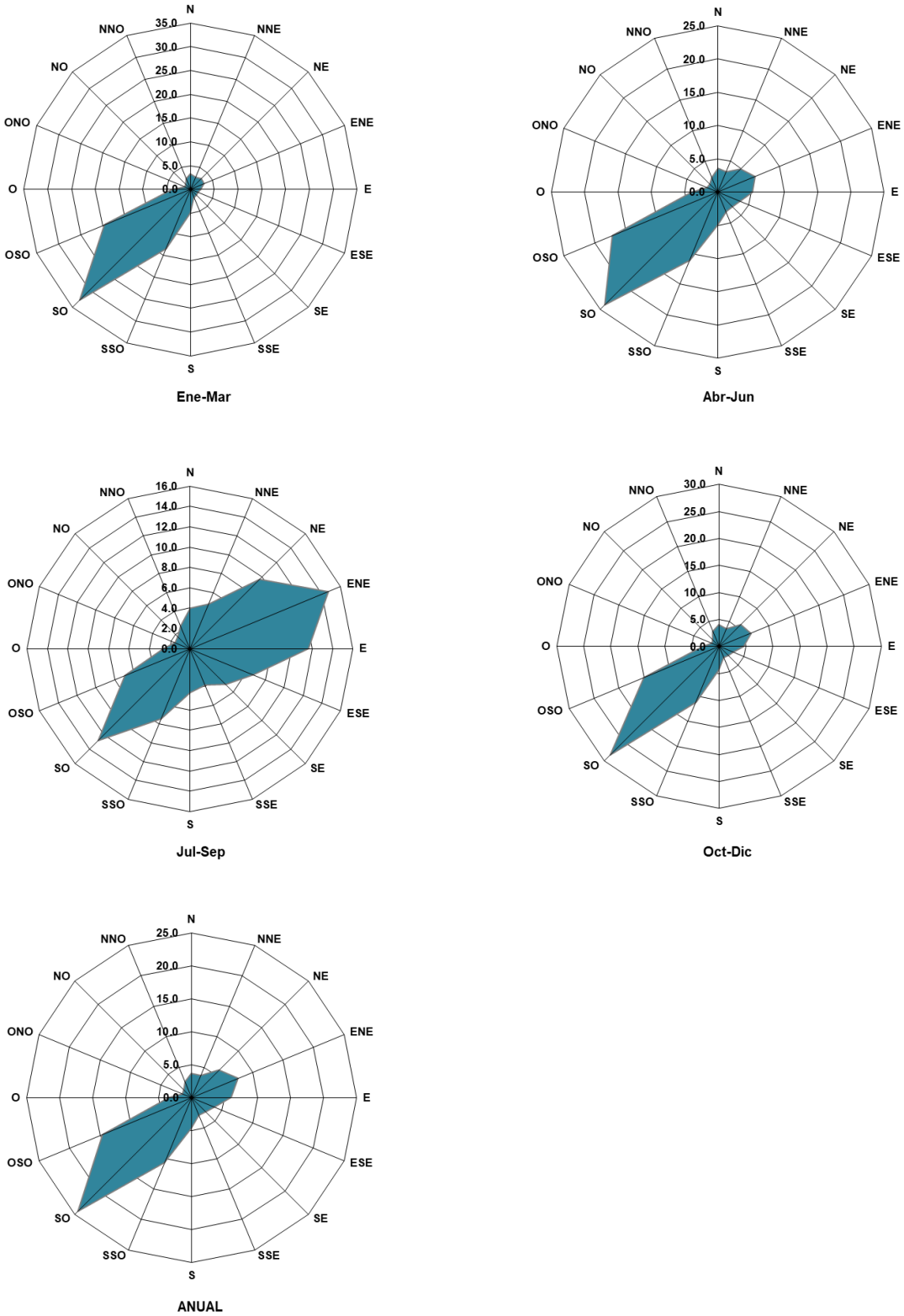


Figura 394. Frecuencia de dirección del viento (%) trimestral de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Cuadro 439. Estadísticas climatológicas mensuales de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	18.5	20.8	23.2	25.7	27.2	26.4	24.0	24.1	22.5	22.6	20.8	19.2	22.9
Temperatura máxima maximorum (°C)	25.5	28.1	30.4	30.8	32.9	32.4	29.4	28.8	28.2	29.2	27.2	25.6	32.9
Temperatura mínima media (°C)	3.2	4.6	6.2	8.6	10.7	12.3	12.1	11.9	11.4	8.5	5.2	3.7	8.2
Temperatura mínima minimorum (°C)	-8.1	-6.2	-3.4	0.7	4.2	7.8	8.1	7.9	4.8	-3.4	-6.9	-9.0	-9.0
Temperatura media (°C)	10.5	12.7	15.0	17.7	19.5	19.3	17.7	17.7	16.4	15.2	12.7	11.1	15.4
Oscilación térmica (°C)	15.4	16.2	17.0	17.1	16.5	14.1	11.9	12.2	11.1	14.2	15.6	15.5	14.7
Precipitación acumulada media (mm)	10.7	15.2	6.8	3.6	11.5	69.7	104.4	73.1	96.1	32.1	14.0	16.6	453.7
Precipitación máxima maximorum en 24 horas (mm)	18.4	51.2	37.4	17.0	31.8	72.8	64.0	45.0	89.8	37.4	42.0	35.6	89.8
Número de días promedio con lluvia	3.9	3.4	4.3	1.9	5.1	10.3	14.8	13.3	13.6	7.1	3.8	3.6	84.9
Evapotranspiración acumulada potencial media (mm)	116.3	135.7	180.5	209.6	209.9	170.1	152.5	152.4	120.1	130.8	117.2	112.5	1807.7
Humedad máxima media (%)	75.1	68.0	59.3	52.6	62.7	82.8	92.3	93.0	95.0	90.1	84.4	77.5	77.7
Humedad máxima maximorum (%)	100.0	100.0	99.0	99.0	98.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.8	18.6	14.2	11.6	14.3	26.1	37.9	38.5	46.4	34.4	27.4	24.4	26.4
Humedad mínima minimorum (%)	4.0	4.0	3.0	3.0	3.7	5.0	12.0	15.0	13.0	7.0	5.0	3.0	3.0
Humedad media (%)	47.8	40.4	32.7	27.8	34.3	53.3	67.1	67.8	74.5	63.7	55.9	50.3	51.3
Radiación global media día/mes (W/m^2)	19110.6	23107.7	26756.2	29476.6	28965.6	26542.1	24842.1	24847.6	21447.3	21815.2	19852.8	18146.8	23742.5
Radiación global media día/mes (kWh/m^2)	4.8	5.8	6.7	7.4	7.2	6.6	6.2	6.2	5.4	5.5	5.0	4.5	5.9
Radiación global media día/mes ($Mj/m^2/s$)	17.2	20.8	24.1	26.5	26.1	23.9	22.4	22.4	19.3	19.6	17.9	16.3	21.4
Velocidad del viento máxima media (km/h)	23.3	25.1	25.4	26.3	24.9	24.2	22.7	21.4	18.3	17.8	18.8	21.3	22.5
Velocidad del viento máxima maximorum (km/h)	51.3	51.8	67.8	47.5	50.7	45.0	37.7	48.5	31.5	44.1	44.5	53.8	67.8
Velocidad del viento media (km/h)	11.7	13.4	13.5	14.4	12.4	10.9	10.0	9.1	8.1	8.4	9.4	11.2	11.0
Dirección dominante del viento	SO	SO	SO	SO	SO	SO	SO	ENE	ENE	SO	SO	SO	SO

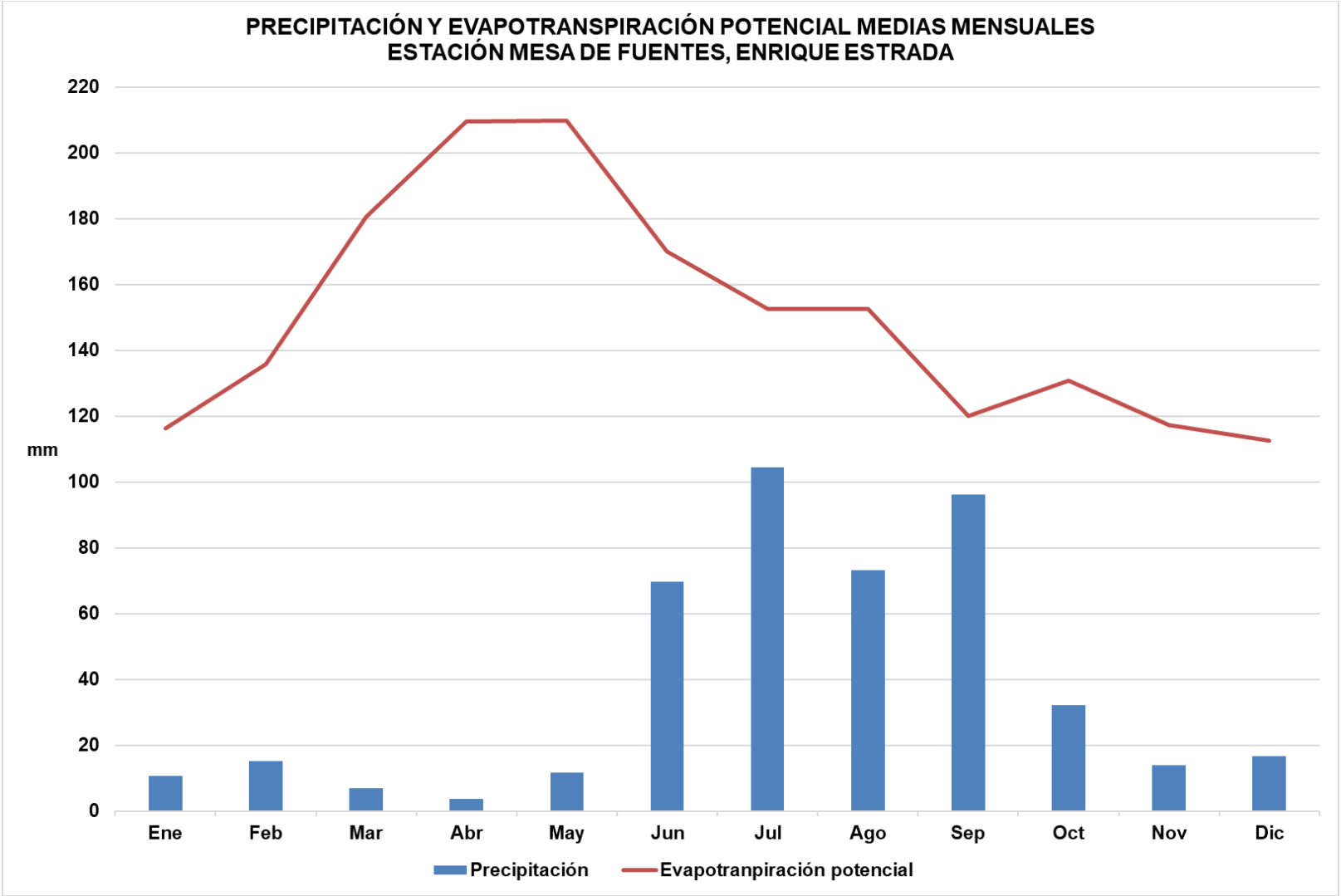


Figura 395. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Mesa de Fuentes, Enrique Estrada (2005-2022).

7.24. Estación: Mogotes, Francisco R. Murguía

Cuadro 440. Temperatura máxima media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.7	9.1	11.6	15.5	18.1	19.2	17.6	17.5	15.7	13.4	9.3	7.2	13.4
01	6.0	8.1	10.4	14.2	16.9	18.2	17.0	16.8	15.1	12.6	8.5	6.5	12.5
02	5.4	7.3	9.6	13.1	15.8	17.3	16.2	16.1	14.6	11.7	7.9	6.0	11.8
03	4.9	6.7	8.7	12.1	14.8	16.4	15.6	15.5	14.0	11.1	7.3	5.6	11.1
04	4.5	6.1	8.0	11.2	13.9	15.7	15.1	15.0	13.6	10.6	6.9	5.2	10.5
05	4.1	5.6	7.3	10.4	13.1	15.0	14.7	14.5	13.3	10.3	6.5	4.8	10.0
06	3.8	5.2	7.0	9.7	12.4	14.5	14.3	14.1	13.0	9.9	6.2	4.5	9.6
07	3.9	5.6	8.9	10.5	13.2	15.1	14.5	14.2	13.0	10.2	7.8	4.9	10.2
08	7.5	10.2	13.4	14.6	16.9	17.5	16.2	16.0	14.9	13.3	12.3	9.2	13.5
09	11.0	13.6	16.4	17.9	19.7	19.6	18.0	17.9	16.9	16.3	14.9	12.5	16.2
10	13.5	16.3	18.9	20.6	22.2	21.8	19.8	19.7	18.7	18.5	17.1	14.9	18.5
11	15.5	18.4	20.9	22.9	24.3	23.7	21.5	21.4	20.2	20.3	19.0	16.9	20.4
12	17.2	20.0	22.4	24.6	25.9	25.3	23.0	22.9	21.6	21.8	20.4	18.5	22.0
13	18.4	21.2	23.5	25.9	27.1	26.6	24.2	24.1	22.5	22.9	21.3	19.5	23.1
14	19.1	21.9	24.3	26.8	28.0	27.4	24.9	24.8	23.3	23.5	21.8	20.1	23.8
15	19.4	22.1	24.6	27.4	28.5	27.7	25.3	25.3	23.6	23.8	21.9	20.3	24.2
16	19.2	22.0	24.4	27.5	28.6	27.7	25.4	25.4	23.5	23.8	21.6	19.9	24.1
17	18.4	21.4	23.8	27.2	28.3	27.4	25.1	25.2	23.0	23.2	20.5	18.9	23.5
18	16.4	19.9	22.5	26.4	27.7	26.9	24.4	24.4	22.1	22.1	17.7	16.2	22.2
19	13.1	16.8	20.0	25.0	26.6	25.8	23.4	23.1	20.5	19.5	14.6	13.0	20.1
20	11.1	14.1	17.3	22.6	24.8	24.4	21.9	21.3	18.4	16.7	13.1	11.4	18.1
21	9.9	12.7	15.6	20.1	22.4	22.5	20.3	19.7	17.2	15.5	12.1	10.2	16.5
22	8.8	11.5	14.2	18.4	20.7	21.0	19.1	18.8	16.6	14.8	11.2	9.1	15.3
23	7.7	10.4	12.9	17.0	19.4	20.1	18.3	18.1	16.0	14.1	10.1	8.2	14.4
Media	11.1	13.6	16.1	19.2	21.2	21.5	19.8	19.7	18.0	16.7	13.8	11.8	16.9

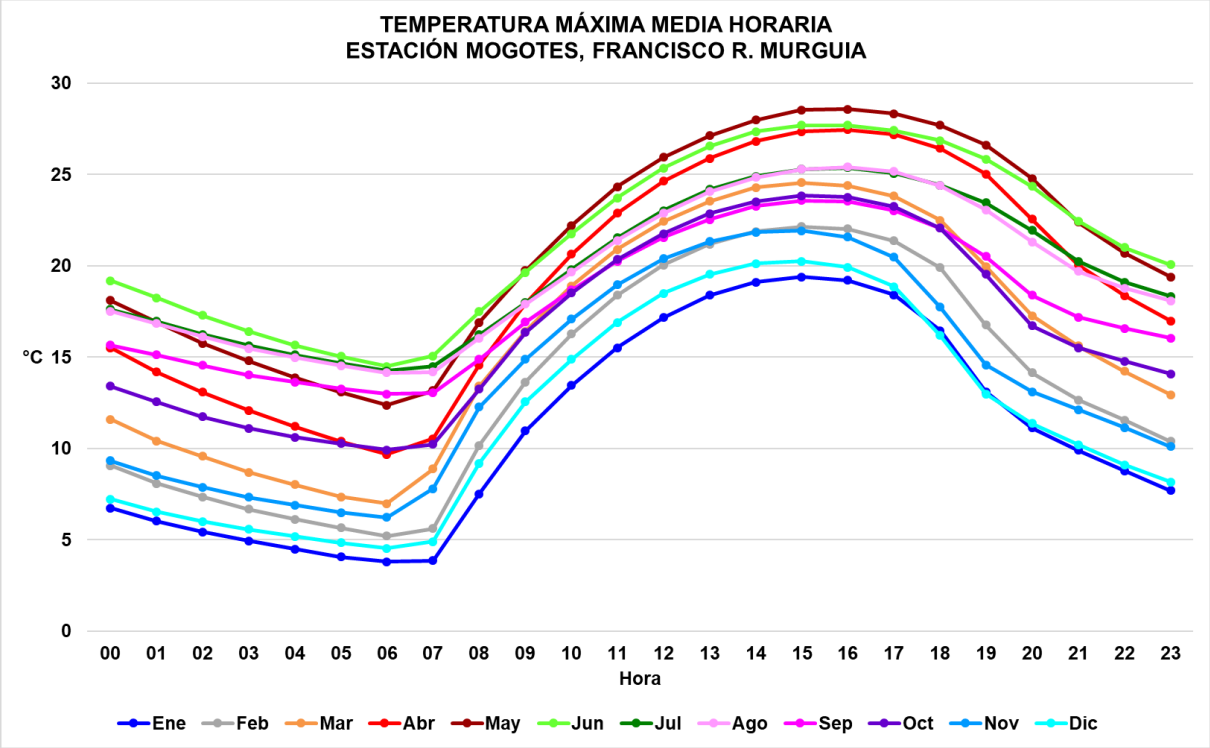


Figura 396. Temperatura máxima media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 441. Temperatura máxima maximorum (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.5	17.6	20.3	23.1	25.7	27.0	24.6	24.2	22.5	20.5	17.2	14.7	27.0
01	14.5	15.8	18.9	22.7	24.9	24.4	23.0	22.8	21.4	19.5	16.3	13.4	24.9
02	13.4	15.1	17.4	21.6	23.0	22.2	20.9	22.2	19.9	17.7	15.9	13.0	23.0
03	13.2	14.8	16.7	19.8	20.8	20.6	19.9	19.2	17.9	17.4	15.5	13.1	20.8
04	13.1	14.7	16.4	18.6	21.1	19.8	19.0	19.3	17.0	16.7	15.6	12.9	21.1
05	12.4	15.0	16.0	19.1	20.1	19.0	18.6	18.0	16.5	16.0	15.3	13.3	20.1
06	12.0	12.5	14.9	19.2	18.6	18.9	18.2	18.0	16.3	16.0	15.2	12.7	19.2
07	11.7	13.5	17.5	18.2	19.9	21.5	19.4	18.1	17.0	15.9	15.4	13.2	21.5
08	16.2	18.6	22.6	22.3	24.2	24.3	21.9	20.4	19.1	19.8	19.8	19.2	24.3
09	20.3	22.7	25.4	25.2	28.1	27.2	23.9	22.5	22.4	22.9	23.2	22.8	28.1
10	22.3	25.6	27.8	27.7	30.6	29.4	26.4	24.8	23.9	25.6	25.3	23.7	30.6
11	23.8	28.8	29.4	29.3	32.1	30.5	27.6	26.3	26.4	27.0	26.8	25.2	32.1
12	25.4	30.1	30.9	30.4	32.8	31.4	29.8	27.7	26.8	28.0	27.6	26.7	32.8
13	26.2	31.2	31.8	31.4	33.5	32.6	29.9	29.5	28.7	29.2	28.3	26.8	33.5
14	26.4	31.4	33.1	31.8	34.8	33.2	30.9	29.8	28.6	29.6	28.5	26.9	34.8
15	26.4	31.7	32.7	32.5	35.3	34.2	31.2	30.7	29.3	29.8	28.9	26.8	35.3
16	26.2	31.4	33.1	32.2	35.3	34.2	31.6	30.7	30.5	29.9	29.2	26.9	35.3
17	25.5	30.3	32.3	32.9	34.6	33.8	31.2	30.6	30.4	30.0	28.1	24.9	34.6
18	23.7	28.2	31.4	32.5	34.5	33.4	31.3	30.0	29.2	29.9	24.3	22.7	34.5
19	20.2	24.6	29.2	31.9	33.6	32.4	30.5	28.9	28.4	28.7	20.6	18.7	33.6
20	17.5	21.7	25.7	29.2	32.4	31.3	28.8	27.8	26.3	24.0	19.1	18.0	32.4
21	16.9	21.0	23.8	27.0	29.5	28.2	26.4	25.8	23.5	22.5	18.5	17.1	29.5
22	16.2	20.8	22.0	24.7	28.2	27.3	26.9	25.4	22.2	23.2	17.2	16.5	28.2
23	15.6	18.0	21.5	24.1	27.4	26.0	24.4	24.8	23.0	21.4	17.2	16.4	27.4
Máx.	26.4	31.7	33.1	32.9	35.3	34.2	31.6	30.7	30.5	30.0	29.2	26.9	35.3

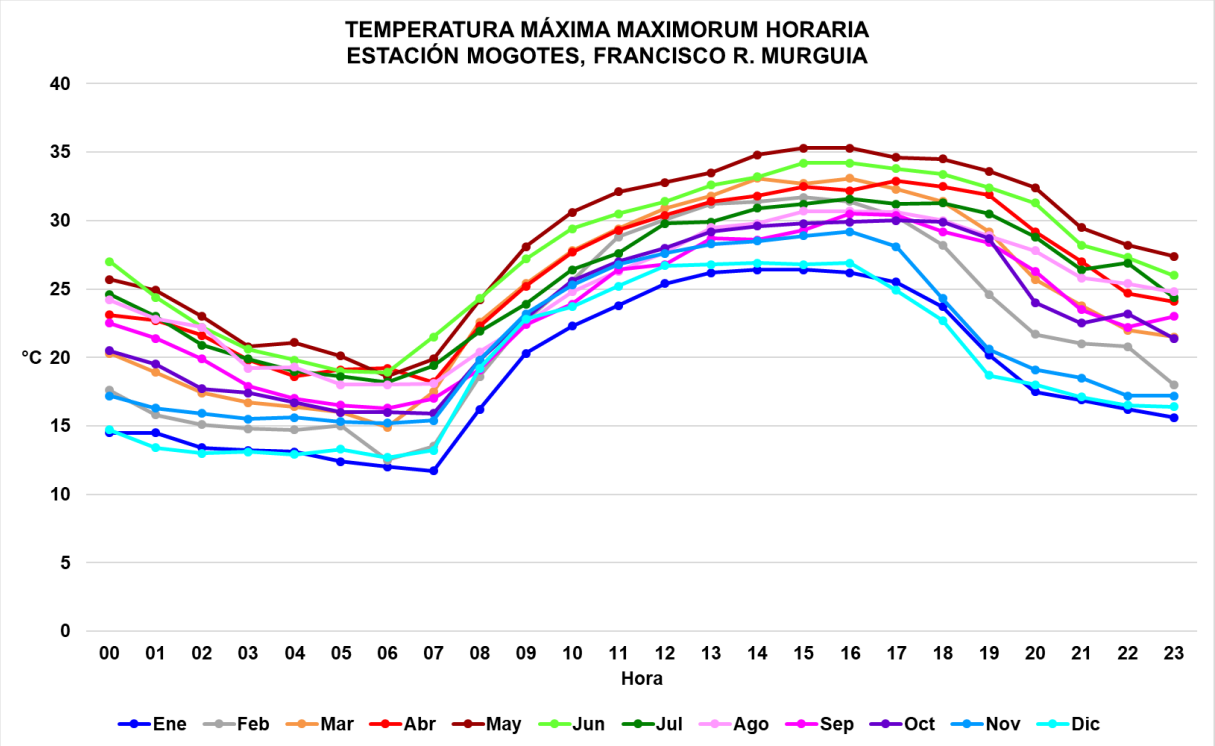


Figura 397. Temperatura máxima maximorum (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 442. Temperatura mínima media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.7	7.8	10.3	14.2	16.9	18.3	16.9	16.7	15.0	12.5	8.3	6.1	12.4
01	5.0	6.9	9.3	13.0	15.7	17.4	16.3	16.1	14.5	11.6	7.6	5.5	11.6
02	4.4	6.3	8.4	11.9	14.7	16.5	15.6	15.4	13.9	10.9	7.0	5.0	10.8
03	4.0	5.6	7.6	10.9	13.8	15.7	15.1	14.9	13.5	10.3	6.5	4.5	10.2
04	3.6	5.1	6.9	10.1	12.9	15.0	14.6	14.5	13.1	10.0	6.1	4.2	9.7
05	3.1	4.6	6.4	9.3	12.1	14.4	14.2	14.0	12.8	9.6	5.7	3.9	9.2
06	2.8	4.2	5.9	8.6	11.5	13.9	13.8	13.7	12.5	9.2	5.4	3.6	8.8
07	2.6	4.1	6.3	8.6	11.5	14.0	13.8	13.5	12.4	9.1	5.6	3.5	8.7
08	4.0	6.3	10.1	11.1	14.0	15.7	14.8	14.4	13.2	10.5	9.0	5.5	10.7
09	8.5	11.2	14.2	15.6	17.7	18.0	16.6	16.5	15.4	14.2	13.0	10.2	14.3
10	11.6	14.3	17.0	18.7	20.4	20.2	18.4	18.3	17.3	16.9	15.5	13.1	16.8
11	14.0	16.8	19.4	21.2	22.8	22.2	20.2	20.1	19.0	19.0	17.6	15.3	19.0
12	15.9	18.8	21.2	23.3	24.7	24.1	21.9	21.7	20.4	20.6	19.3	17.3	20.8
13	17.4	20.2	22.6	24.8	26.1	25.4	23.1	23.0	21.5	21.8	20.5	18.6	22.1
14	18.3	21.1	23.5	25.9	27.1	26.3	23.8	23.8	22.2	22.6	21.1	19.5	22.9
15	18.7	21.5	23.9	26.6	27.5	26.6	24.1	24.2	22.4	23.0	21.3	19.7	23.3
16	18.5	21.4	23.7	26.7	27.7	26.6	24.2	24.3	22.4	22.9	20.7	19.1	23.2
17	17.1	20.3	22.8	26.4	27.4	26.4	23.9	24.0	21.8	22.2	18.7	17.1	22.3
18	13.8	17.7	20.7	25.3	26.7	25.8	23.3	23.1	20.7	20.2	15.0	13.5	20.5
19	11.4	14.6	17.8	23.2	25.3	24.6	22.2	21.6	18.8	17.1	13.2	11.5	18.4
20	9.9	12.8	15.8	20.5	22.9	22.9	20.5	19.8	17.2	15.5	12.0	10.1	16.6
21	8.7	11.4	14.3	18.6	20.9	21.2	19.1	18.7	16.4	14.6	11.1	8.9	15.3
22	7.5	10.2	13.0	17.1	19.5	20.1	18.3	18.0	15.9	13.9	10.0	7.9	14.3
23	6.5	9.1	11.6	15.6	18.2	19.2	17.6	17.3	15.4	13.1	9.0	6.9	13.3
Media	9.7	12.2	14.7	17.8	19.9	20.4	18.8	18.7	17.0	15.5	12.5	10.4	15.6

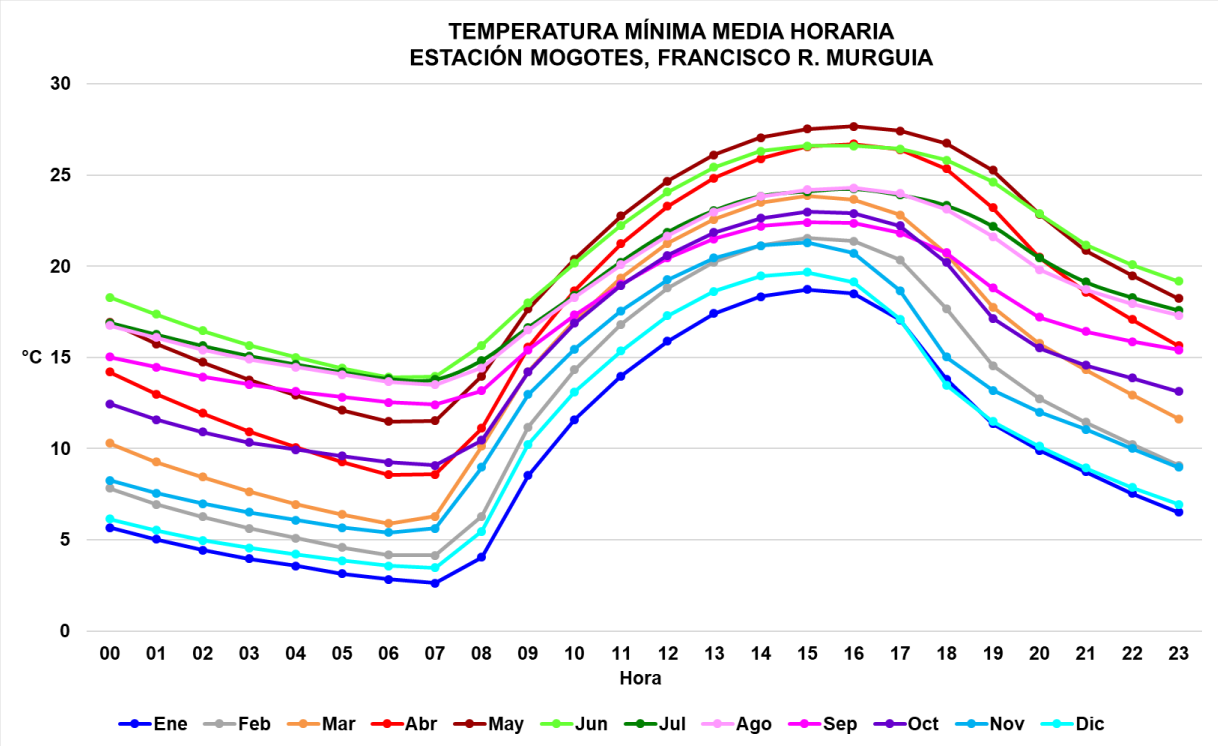


Figura 398. Temperatura mínima media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 443. Temperatura mínima minimorum (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.5	-5.6	-1.6	5.4	8.5	12.6	13.1	11.4	8.8	0.8	-7.6	-9.9	-9.9
01	-5.4	-6.0	-4.8	3.4	7.2	11.8	12.4	10.0	7.1	0.1	-8.5	-11.9	-11.9
02	-5.2	-7.2	-5.1	3.0	6.0	10.8	12.0	9.7	6.1	-0.6	-8.7	-10.7	-10.7
03	-6.1	-8.3	-6.2	1.6	4.4	9.4	11.4	9.7	5.2	-1.3	-8.8	-9.7	-9.7
04	-7.4	-8.6	-7.1	-0.2	3.8	8.3	11.3	9.6	3.4	-1.2	-9.7	-10.4	-10.4
05	-7.8	-6.9	-7.0	-0.4	3.2	8.2	9.9	9.5	2.5	-1.7	-8.4	-11.5	-11.5
06	-7.4	-7.5	-6.5	-1.0	2.7	7.9	10.4	10.0	2.1	-2.5	-7.9	-12.5	-12.5
07	-7.4	-8.9	-6.9	-1.3	2.6	7.5	9.4	9.5	1.7	-2.5	-8.0	-12.3	-12.3
08	-7.3	-9.1	-4.1	0.0	4.6	11.3	11.4	9.9	3.6	0.9	-5.6	-8.0	-9.1
09	-4.1	-6.9	2.0	7.0	8.1	13.4	12.8	13.1	10.7	5.2	-0.7	-3.6	-6.9
10	-0.5	-4.0	0.7	10.0	10.4	14.0	13.2	13.7	13.0	8.3	1.8	-3.3	-4.0
11	1.7	-0.1	0.9	12.8	10.9	14.9	13.6	14.5	13.4	10.9	2.5	-3.7	-3.7
12	2.9	3.9	1.7	13.9	12.1	16.3	14.2	13.9	14.0	11.6	2.9	-3.6	-3.6
13	4.0	4.9	2.3	13.3	11.6	15.4	13.7	14.7	14.7	12.4	4.4	-3.3	-3.3
14	3.9	5.4	3.0	15.8	13.4	16.1	15.2	14.7	14.0	11.6	5.1	-2.8	-2.8
15	3.6	6.3	2.4	17.6	14.4	14.6	13.3	15.1	14.7	11.3	5.6	-2.3	-2.3
16	3.4	6.3	2.8	15.4	14.7	14.4	14.0	15.5	13.5	11.6	5.8	-1.5	-1.5
17	2.7	6.4	3.9	13.0	15.2	14.0	13.1	14.4	13.9	12.2	3.5	-1.9	-1.9
18	1.5	4.0	1.9	12.5	14.6	13.6	14.5	13.8	13.2	10.6	1.2	-4.6	-4.6
19	0.5	2.5	1.4	12.3	14.5	14.0	14.6	13.8	13.0	8.4	-0.3	-7.5	-7.5
20	-0.2	0.1	1.7	11.4	14.0	14.0	13.8	13.9	12.0	6.6	-2.1	-8.0	-8.0
21	-1.0	-0.6	0.9	10.0	12.5	13.3	13.4	13.9	10.9	3.8	-3.2	-8.4	-8.4
22	-3.0	-3.1	0.0	9.3	11.3	13.4	13.3	13.2	9.9	2.4	-6.1	-8.9	-8.9
23	-4.5	-4.4	-0.6	7.8	10.7	12.6	13.4	12.8	9.5	1.9	-5.7	-8.2	-8.2
Mín.	-7.8	-9.1	-7.1	-1.3	2.6	7.5	9.4	9.5	1.7	-2.5	-9.7	-12.5	-12.5

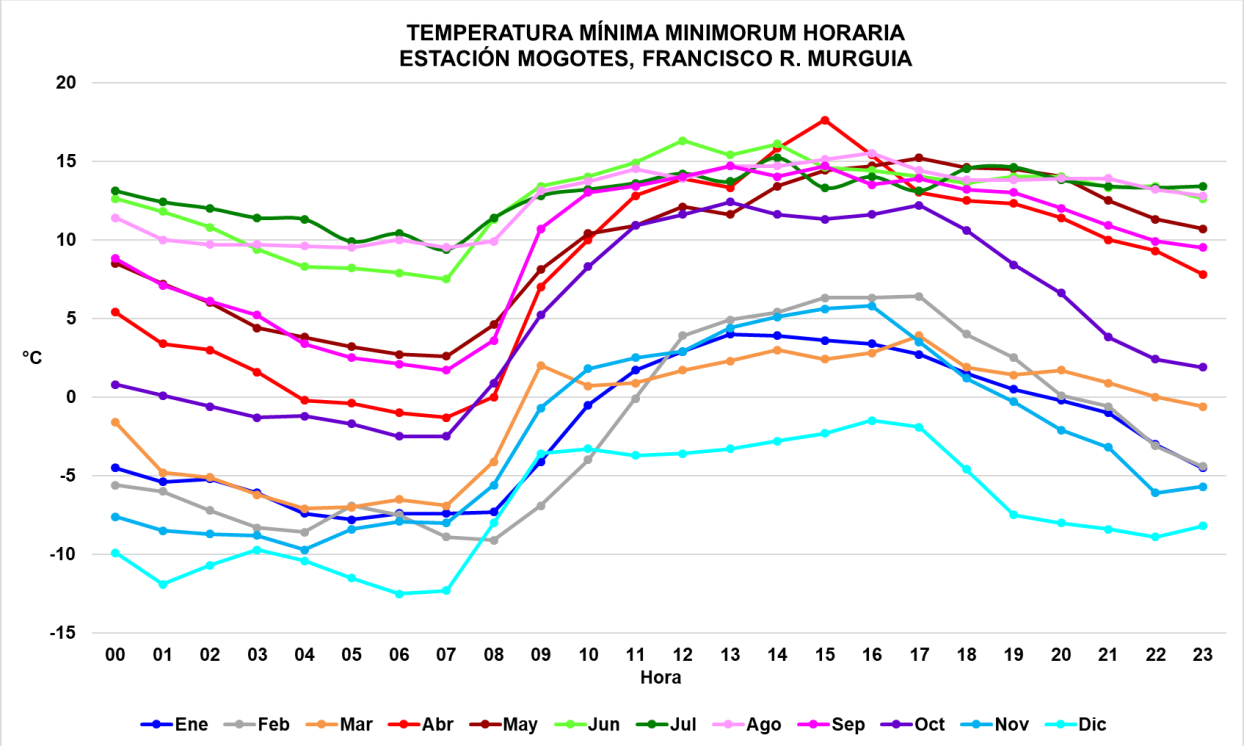


Figura 399. Temperatura mínima minimorum (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 444. Temperatura media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.2	8.4	10.9	14.9	17.5	18.7	17.3	17.1	15.3	12.9	8.8	6.7	12.9
01	5.5	7.5	9.8	13.6	16.3	17.8	16.6	16.5	14.8	12.1	8.0	6.0	12.0
02	4.9	6.8	9.0	12.5	15.2	16.9	15.9	15.8	14.2	11.3	7.4	5.5	11.3
03	4.4	6.1	8.2	11.5	14.3	16.0	15.4	15.2	13.8	10.7	6.9	5.1	10.6
04	4.0	5.6	7.5	10.6	13.4	15.3	14.9	14.7	13.4	10.3	6.5	4.7	10.1
05	3.6	5.1	6.9	9.8	12.6	14.7	14.4	14.3	13.0	9.9	6.1	4.3	9.6
06	3.3	4.7	6.4	9.1	11.9	14.2	14.0	13.9	12.8	9.6	5.8	4.1	9.1
07	3.2	4.8	7.5	9.5	12.3	14.5	14.1	13.8	12.7	9.6	6.6	4.1	9.4
08	5.7	8.2	11.9	12.9	15.5	16.6	15.5	15.2	14.0	11.8	10.7	7.3	12.1
09	9.8	12.4	15.3	16.8	18.7	18.8	17.3	17.2	16.2	15.3	13.9	11.4	15.3
10	12.5	15.3	18.0	19.6	21.3	21.0	19.1	19.0	18.0	17.7	16.3	14.0	17.7
11	14.8	17.6	20.2	22.1	23.5	23.0	20.9	20.7	19.6	19.7	18.3	16.1	19.7
12	16.5	19.4	21.8	24.0	25.3	24.7	22.4	22.3	21.0	21.2	19.8	17.9	21.4
13	17.9	20.7	23.1	25.4	26.6	26.0	23.6	23.5	22.0	22.4	20.9	19.1	22.6
14	18.7	21.5	23.9	26.4	27.5	26.8	24.4	24.3	22.7	23.1	21.5	19.8	23.4
15	19.1	21.8	24.2	27.0	28.0	27.2	24.7	24.8	23.0	23.4	21.6	20.0	23.7
16	18.9	21.7	24.0	27.1	28.1	27.1	24.8	24.9	23.0	23.3	21.2	19.5	23.6
17	17.8	20.9	23.3	26.8	27.9	26.9	24.5	24.6	22.4	22.7	19.6	18.1	23.0
18	15.1	18.9	21.6	25.9	27.2	26.3	23.9	23.8	21.4	21.2	16.3	14.8	21.4
19	12.2	15.6	18.8	24.1	26.0	25.3	22.8	22.3	19.7	18.3	13.9	12.2	19.3
20	10.5	13.4	16.5	21.5	23.8	23.6	21.2	20.5	17.8	16.1	12.6	10.8	17.4
21	9.3	12.1	15.0	19.3	21.6	21.8	19.7	19.2	16.8	15.0	11.6	9.6	15.9
22	8.2	10.9	13.6	17.7	20.1	20.5	18.7	18.4	16.2	14.3	10.6	8.5	14.8
23	7.1	9.7	12.3	16.3	18.8	19.6	18.0	17.7	15.7	13.6	9.5	7.5	13.8
Media	10.4	12.9	15.4	18.5	20.6	21.0	19.3	19.2	17.5	16.1	13.1	11.1	16.3

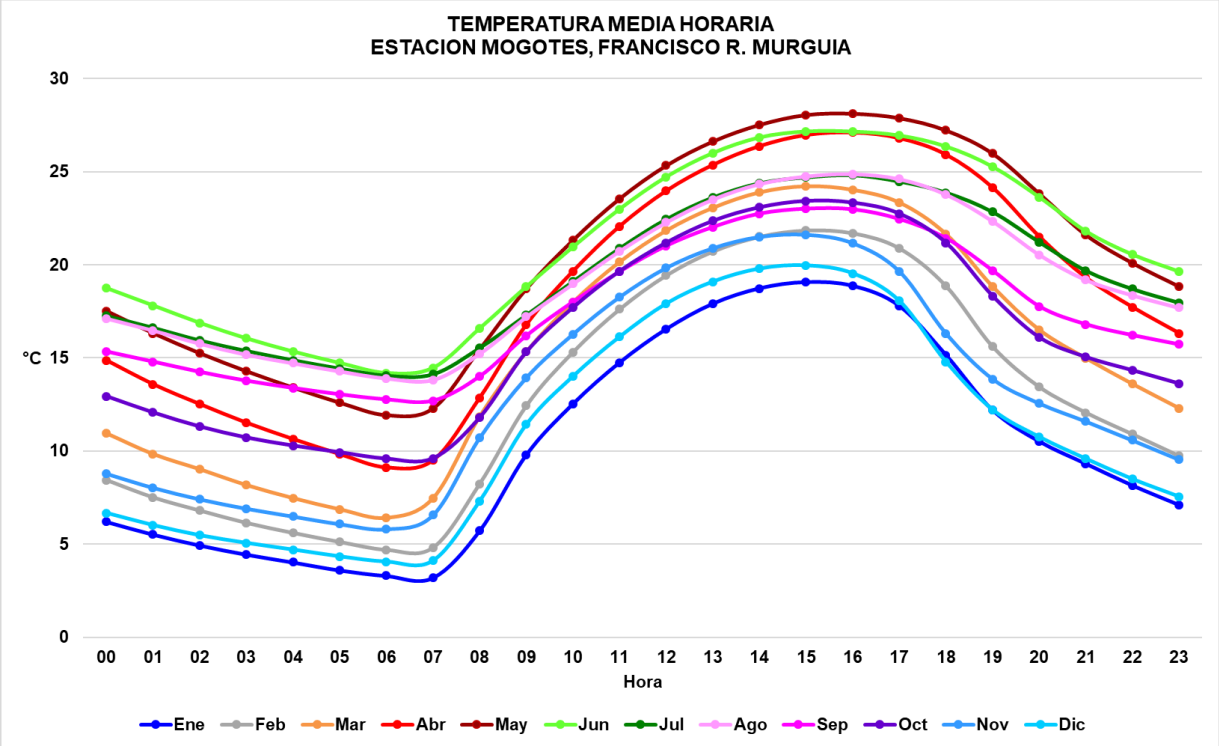


Figura 400. Temperatura media (˚C) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 445. Precipitación media (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.2	0.3	0.2	0.0	1.0	3.9	5.4	5.6	8.2	4.2	0.3	0.2	29.6
01	0.3	0.3	0.1	0.0	0.3	3.9	4.3	5.5	4.6	2.0	0.2	0.0	21.6
02	0.4	0.2	0.1	0.0	0.4	1.4	5.1	4.2	4.0	1.5	0.3	0.2	17.7
03	0.5	0.2	0.0	0.0	0.1	1.1	4.6	3.6	2.9	1.6	0.4	0.2	15.2
04	0.2	0.1	0.0	0.0	0.6	0.9	2.3	2.2	3.0	1.0	0.1	0.2	10.7
05	0.1	0.1	0.2	0.0	0.1	0.5	1.9	1.1	2.5	0.5	0.5	0.4	8.0
06	0.3	0.1	0.0	0.0	0.0	0.2	3.3	0.5	1.8	1.0	1.0	0.5	8.9
07	0.4	0.2	0.2	0.0	0.1	0.3	1.5	0.5	1.7	1.0	0.5	0.5	6.7
08	0.4	0.2	0.1	0.0	0.1	0.2	1.2	0.3	1.4	0.6	0.5	0.3	5.2
09	0.6	0.3	0.1	0.0	0.1	0.1	1.3	0.2	0.7	0.5	0.3	0.2	4.3
10	0.3	0.4	0.1	0.0	0.1	0.2	0.5	0.1	0.7	0.2	0.3	0.3	3.1
11	0.1	0.5	0.1	0.0	0.0	0.0	0.3	0.2	2.2	1.1	0.4	0.2	5.1
12	0.8	1.0	0.2	0.2	0.1	0.0	0.6	1.5	0.5	0.3	0.4	0.6	6.1
13	0.1	0.4	0.3	0.1	1.2	0.2	2.1	0.5	2.0	0.4	0.5	0.4	8.1
14	0.4	0.2	0.1	0.0	0.4	0.6	3.9	2.1	4.0	1.3	0.9	0.1	14.1
15	0.3	0.2	0.2	0.2	0.8	3.4	6.0	3.3	4.5	1.5	0.7	0.2	21.3
16	1.3	0.4	0.7	0.6	1.7	3.3	4.3	3.5	6.3	2.2	1.2	0.2	25.6
17	0.4	0.3	0.4	0.3	1.8	3.8	8.0	3.7	6.8	1.4	0.5	0.3	27.6
18	0.4	0.2	0.5	0.5	0.7	4.6	10.3	7.3	10.0	1.3	0.5	0.5	36.9
19	0.8	0.2	0.3	0.1	0.5	5.4	5.7	9.5	8.1	2.1	0.5	0.2	33.6
20	0.9	0.3	0.3	0.1	0.5	3.7	7.3	7.4	10.1	1.2	0.6	0.4	32.7
21	0.2	0.3	0.2	0.1	1.1	4.1	7.2	8.4	7.7	1.9	0.4	0.3	31.8
22	0.2	0.3	0.3	0.0	1.3	5.4	5.8	8.4	7.1	3.1	0.5	0.3	32.6
23	0.2	0.2	0.1	0.0	2.6	3.8	6.2	5.0	6.8	2.5	0.4	0.4	28.2
Suma	9.7	7.0	4.8	2.1	15.5	51.1	99.0	84.7	107.6	34.3	12.0	7.0	434.8

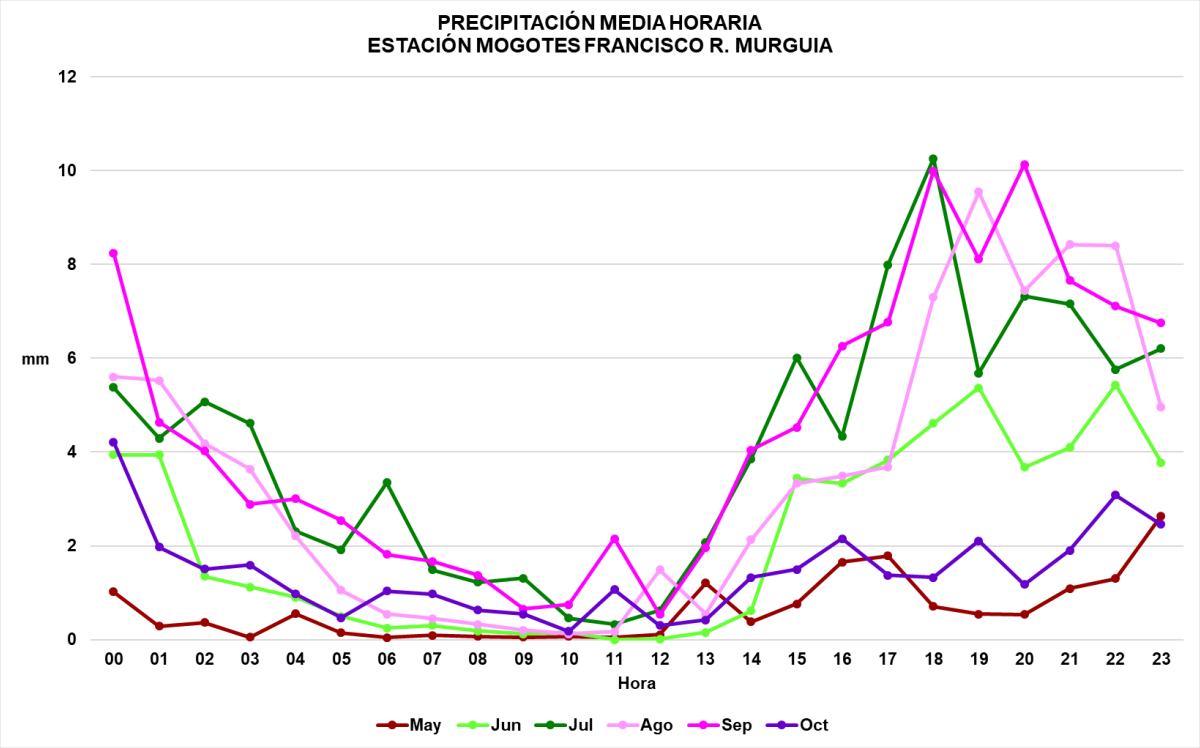


Figura 401. Precipitación media (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 446. Precipitación máxima maximorum (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.2	2.0	1.4	0.6	6.2	12.4	10.6	24.4	32.0	18.6	1.4	0.8	32.0
01	2.2	1.8	1.2	0.2	1.6	12.2	14.4	12.2	9.6	6.2	1.2	0.2	14.4
02	3.0	1.2	1.3	0.0	2.8	5.8	17.8	8.4	11.4	6.0	2.2	2.4	17.8
03	1.2	2.0	0.6	0.0	1.0	5.6	26.4	10.6	7.8	14.0	2.4	2.4	26.4
04	1.0	0.8	0.4	0.2	5.4	4.2	8.8	5.0	11.2	3.4	1.2	2.2	11.2
05	0.8	1.2	2.9	0.0	1.2	2.0	4.4	6.2	6.6	3.8	3.4	4.0	6.6
06	2.0	2.0	0.4	0.0	0.4	1.4	30.4	2.4	6.8	4.2	6.0	2.4	30.4
07	4.0	3.0	3.0	0.0	1.0	2.8	15.0	1.4	5.2	3.4	2.8	3.4	15.0
08	3.0	2.2	1.0	0.0	0.6	3.0	7.0	1.0	6.2	3.2	2.6	1.4	7.0
09	7.2	3.8	0.6	0.0	1.0	1.0	3.8	1.0	6.6	3.6	2.0	1.4	7.2
10	3.2	5.8	0.8	0.0	0.8	1.4	2.0	0.6	2.6	1.2	1.8	1.4	5.8
11	1.4	4.0	1.0	0.0	0.8	0.0	1.8	0.8	14.8	16.0	1.8	2.4	16.0
12	11.6	10.6	1.6	2.4	2.0	0.2	3.6	13.0	6.0	2.2	1.8	4.8	13.0
13	0.8	2.4	2.0	1.2	12.4	1.4	21.6	2.8	17.6	3.0	3.0	2.6	21.6
14	4.8	1.8	1.5	0.0	6.2	3.8	19.0	14.2	23.2	7.4	11.2	1.2	23.2
15	2.0	2.6	1.5	2.0	4.0	8.6	20.8	36.8	11.6	5.2	5.6	2.4	36.8
16	19.8	4.0	5.0	4.2	17.2	5.6	12.6	16.4	16.2	10.6	7.8	1.2	19.8
17	1.8	2.6	4.2	4.6	14.6	12.6	21.2	8.0	16.0	8.2	3.0	2.6	21.2
18	2.6	2.0	5.0	4.0	2.4	7.0	37.4	21.4	58.8	5.0	3.6	4.2	58.8
19	6.2	1.8	2.9	2.6	5.0	9.0	10.6	30.0	14.0	12.6	3.2	1.0	30.0
20	4.4	2.2	3.9	0.8	3.0	6.2	13.6	14.2	26.0	5.6	5.4	5.4	26.0
21	1.6	2.4	2.1	0.8	7.6	10.4	15.0	21.2	15.0	13.6	3.4	2.2	21.2
22	1.8	2.2	2.1	0.2	5.6	11.6	13.6	14.4	15.8	12.2	2.4	1.6	15.8
23	1.6	2.4	1.2	0.4	10.2	6.8	14.0	7.4	11.8	5.6	1.8	3.4	14.0
Máx.	19.8	10.6	5.0	4.6	17.2	12.6	37.4	36.8	58.8	18.6	11.2	5.4	58.8

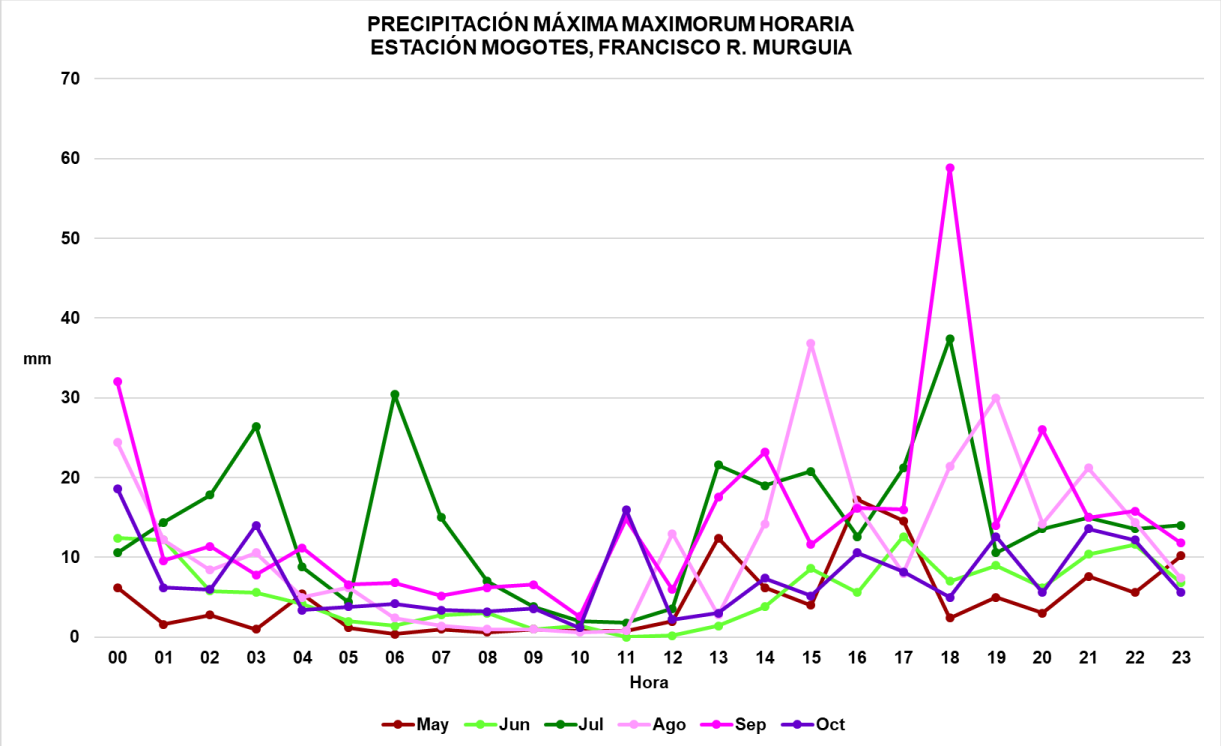


Figura 402. Precipitación máxima maximorum (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 447. Evapotranspiración potencial media (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.03	0.05	0.08	0.08	0.07	0.02	0.03	0.01	0.02	0.01	0.02	0.04
01	0.01	0.03	0.04	0.06	0.07	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.03
02	0.01	0.02	0.03	0.05	0.05	0.04	0.01	0.02	0.00	0.01	0.01	0.01	0.02
03	0.01	0.02	0.02	0.04	0.04	0.03	0.01	0.01	0.00	0.00	0.01	0.01	0.02
04	0.01	0.02	0.02	0.03	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.01
05	0.01	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.01	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.01	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.00	0.01	0.01	0.02	0.02
08	0.02	0.05	0.10	0.07	0.08	0.07	0.04	0.03	0.01	0.02	0.05	0.03	0.05
09	0.09	0.15	0.23	0.20	0.22	0.19	0.14	0.13	0.10	0.11	0.16	0.11	0.15
10	0.21	0.29	0.39	0.36	0.38	0.34	0.28	0.27	0.23	0.25	0.29	0.23	0.29
11	0.32	0.42	0.52	0.51	0.54	0.48	0.41	0.42	0.36	0.39	0.40	0.33	0.42
12	0.40	0.51	0.62	0.64	0.67	0.60	0.53	0.54	0.47	0.49	0.47	0.42	0.53
13	0.46	0.57	0.67	0.74	0.75	0.68	0.60	0.62	0.54	0.56	0.50	0.46	0.60
14	0.47	0.57	0.66	0.76	0.78	0.71	0.62	0.64	0.55	0.58	0.48	0.46	0.61
15	0.42	0.53	0.61	0.74	0.74	0.66	0.59	0.60	0.52	0.53	0.41	0.41	0.56
16	0.35	0.44	0.51	0.66	0.65	0.60	0.52	0.54	0.44	0.44	0.32	0.32	0.48
17	0.25	0.34	0.39	0.56	0.54	0.51	0.44	0.45	0.34	0.33	0.19	0.21	0.38
18	0.16	0.21	0.26	0.44	0.42	0.40	0.33	0.34	0.23	0.24	0.12	0.14	0.27
19	0.09	0.15	0.19	0.38	0.32	0.27	0.21	0.24	0.15	0.13	0.06	0.08	0.19
20	0.06	0.09	0.13	0.25	0.25	0.22	0.16	0.14	0.05	0.05	0.04	0.05	0.12
21	0.04	0.07	0.10	0.17	0.16	0.14	0.08	0.06	0.02	0.03	0.03	0.04	0.08
22	0.03	0.06	0.08	0.13	0.12	0.09	0.04	0.04	0.01	0.03	0.03	0.03	0.06
23	0.02	0.04	0.06	0.10	0.11	0.08	0.03	0.03	0.01	0.02	0.02	0.02	0.05
Media/día /mes	3.50	4.63	5.75	7.07	7.05	6.31	5.11	5.17	4.07	4.25	3.64	3.43	5.00

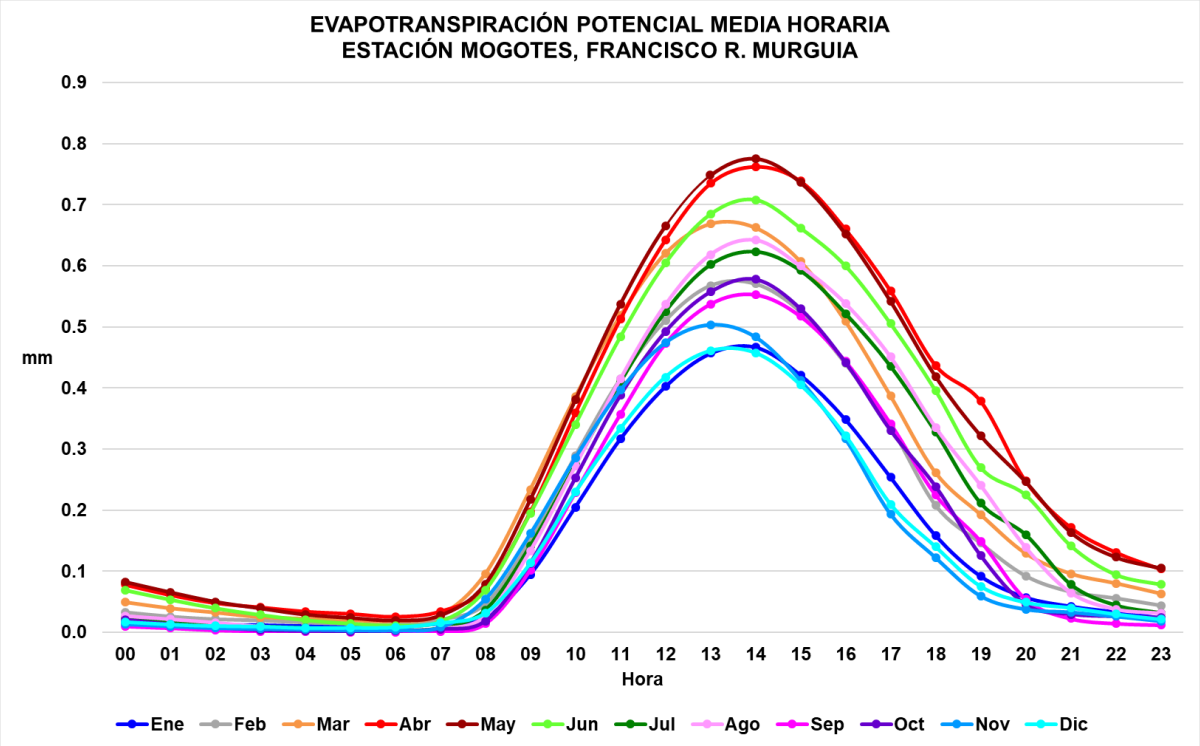


Figura 403. Evapotranspiración potencial media (mm) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 448. Humedad relativa media (%) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	55.7	44.8	37.2	30.5	36.9	54.8	73.0	73.7	82.4	71.4	65.1	57.3	56.9
01	58.4	48.1	40.2	33.7	40.8	58.9	76.2	77.1	84.6	75.1	68.4	59.9	60.1
02	60.7	50.6	43.0	36.5	44.5	63.1	79.4	80.2	87.0	78.3	71.1	62.4	63.1
03	62.9	53.2	45.6	39.4	48.1	67.1	81.8	82.9	89.0	80.8	73.3	64.2	65.7
04	64.9	54.9	48.1	42.0	51.6	70.6	83.8	85.1	90.4	82.9	75.2	65.8	67.9
05	66.6	56.8	50.2	44.5	54.7	73.7	85.6	86.9	91.8	84.5	77.0	67.5	70.0
06	67.8	58.5	52.0	46.9	57.5	76.2	87.1	88.3	92.7	85.9	78.3	68.7	71.7
07	68.7	59.0	51.4	47.2	57.9	76.4	87.3	89.0	93.1	86.3	77.1	69.2	71.9
08	63.3	52.2	43.4	42.1	52.0	71.0	82.8	85.1	90.1	81.1	66.1	62.1	66.0
09	52.6	42.1	35.0	34.1	43.1	62.9	75.7	77.3	82.2	69.4	55.3	50.6	56.7
10	44.0	34.2	28.1	27.1	34.2	54.1	67.9	69.9	74.3	59.8	46.9	42.2	48.5
11	36.8	27.9	22.8	21.0	26.8	45.4	59.9	62.4	67.1	51.9	39.7	35.5	41.4
12	31.4	23.4	19.2	17.0	21.8	38.3	52.7	55.3	60.8	45.7	34.0	30.0	35.8
13	27.4	20.4	16.8	14.4	18.6	33.1	47.3	49.5	56.0	40.8	30.2	26.4	31.8
14	24.8	18.8	15.3	12.8	16.6	30.1	43.8	45.5	52.5	37.8	28.1	24.3	29.2
15	23.5	17.9	14.5	11.8	15.7	29.1	42.4	43.5	51.2	36.2	27.4	23.5	28.1
16	23.6	17.9	14.7	11.6	15.8	29.0	41.8	42.6	51.3	36.1	28.0	24.0	28.0
17	25.4	18.9	15.4	11.7	16.1	29.6	42.8	43.2	53.1	37.4	31.3	26.5	29.3
18	30.1	21.6	17.4	12.5	17.1	31.0	44.8	46.1	57.2	41.9	38.6	32.3	32.5
19	36.3	26.6	20.7	14.2	18.9	33.9	48.5	51.6	64.8	51.5	44.8	38.0	37.5
20	40.6	30.9	24.3	17.3	22.1	38.4	54.7	58.8	72.8	59.0	49.1	42.4	42.5
21	44.5	34.3	27.7	20.5	25.9	43.9	61.1	64.4	76.2	62.4	53.0	46.2	46.7
22	48.4	37.5	30.9	23.8	29.7	47.9	65.6	67.9	78.3	64.9	57.2	50.1	50.2
23	52.0	40.7	34.1	27.2	33.6	51.7	69.3	71.1	80.2	67.8	61.3	53.8	53.6
Media	46.3	37.1	31.2	26.7	33.3	50.4	64.8	66.6	74.1	62.0	53.2	46.8	49.4

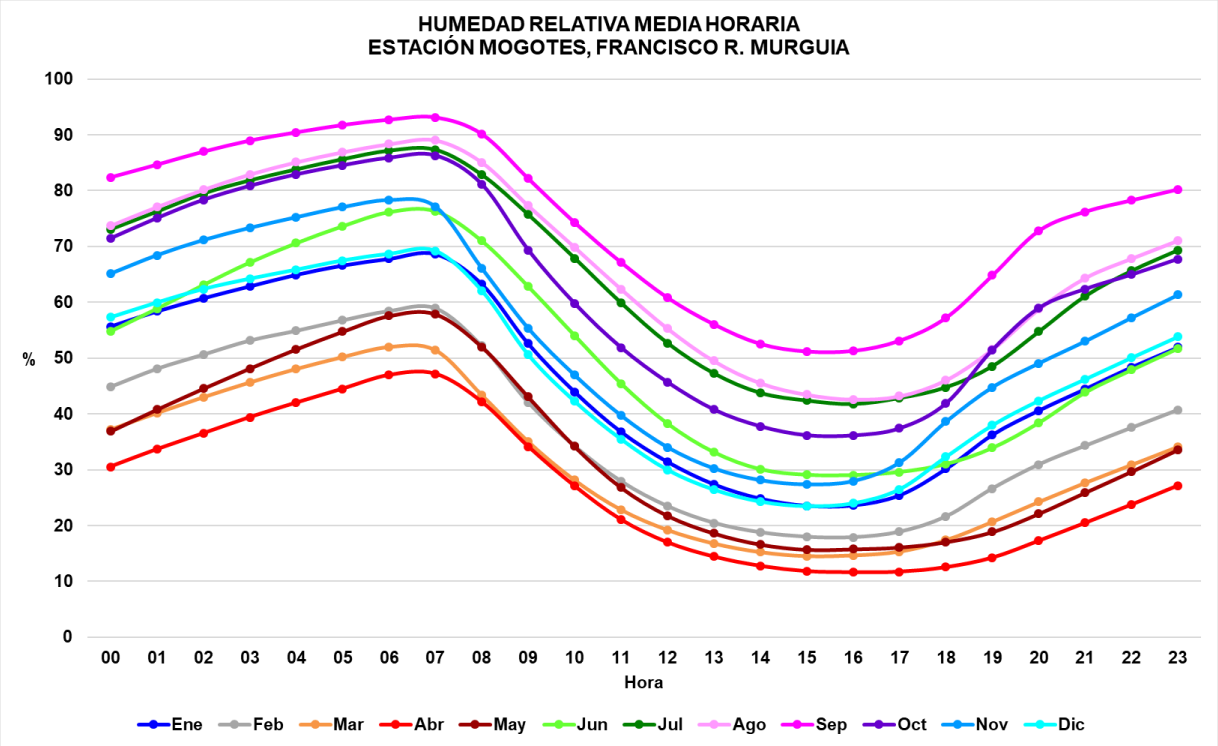


Figura 404. Humedad relativa media (%) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 449. Humedad relativa mínima minimorum (%) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	11.0	8.7	8.0	8.0	14.0	18.0	29.0	22.0	24.0	15.0	14.0	8.0
01	14.0	13.0	11.0	10.0	9.0	14.0	27.0	27.0	25.0	25.0	15.0	15.0	9.0
02	12.0	14.0	10.7	11.0	11.0	16.0	30.0	30.0	29.0	28.0	15.0	16.0	10.7
03	12.0	15.0	11.0	11.3	11.0	17.0	34.0	44.0	46.0	30.0	15.0	13.0	11.0
04	11.0	15.0	12.0	12.6	10.0	19.0	39.0	49.0	41.0	35.0	18.0	13.0	10.0
05	13.0	15.0	11.5	13.0	11.0	20.0	40.0	49.0	44.0	36.0	17.0	15.0	11.0
06	12.0	16.0	12.6	14.0	11.0	20.0	38.0	58.0	51.0	33.0	16.0	13.0	11.0
07	13.0	16.0	12.0	12.7	11.0	22.0	35.0	61.0	54.0	31.0	18.0	16.0	11.0
08	11.0	11.0	7.0	8.2	9.0	16.0	34.0	53.4	44.0	23.0	14.0	13.0	7.0
09	10.0	10.0	5.0	6.8	7.0	10.0	27.0	41.9	33.0	20.0	10.0	10.3	5.0
10	7.0	7.0	4.0	5.0	5.0	7.0	21.0	30.9	28.0	13.7	9.0	7.0	4.0
11	6.0	5.0	4.0	3.4	4.0	6.0	18.0	24.6	21.0	11.6	6.4	6.0	3.4
12	5.0	4.5	2.7	3.0	4.0	6.0	16.0	23.0	19.0	10.0	5.7	5.0	2.7
13	5.0	4.0	2.6	2.8	4.0	5.0	17.0	21.0	16.0	9.0	5.0	4.0	2.6
14	5.0	4.0	2.9	2.8	4.0	5.0	13.0	19.3	15.0	9.0	5.0	3.0	2.8
15	5.0	4.0	3.0	2.9	4.0	5.0	13.0	18.0	15.0	8.0	4.8	3.0	2.9
16	4.0	4.0	3.2	2.8	3.0	4.0	11.0	15.0	13.0	8.0	5.2	3.0	2.8
17	5.0	5.0	3.4	2.8	3.7	4.0	12.0	15.0	14.0	7.0	6.0	4.0	2.8
18	4.0	5.0	3.9	2.8	3.2	4.0	13.0	16.0	14.0	8.0	7.0	6.0	2.8
19	6.0	7.0	5.0	3.2	3.7	4.0	12.4	15.0	15.0	10.0	9.0	8.0	3.2
20	7.0	8.0	6.0	3.9	5.0	5.0	14.0	16.0	19.0	11.0	10.0	10.0	3.9
21	8.0	10.0	6.8	4.7	6.0	7.0	13.0	21.0	21.0	18.5	11.0	11.0	4.7
22	8.0	10.0	7.7	6.5	7.0	8.0	13.0	23.0	22.0	16.1	13.0	12.0	6.5
23	11.0	11.0	8.1	7.0	8.0	11.0	14.0	28.0	22.0	17.7	13.0	13.0	7.0
Mín.	4.0	4.0	2.6	2.8	3.0	4.0	11.0	15.0	13.0	7.0	4.8	3.0	2.6

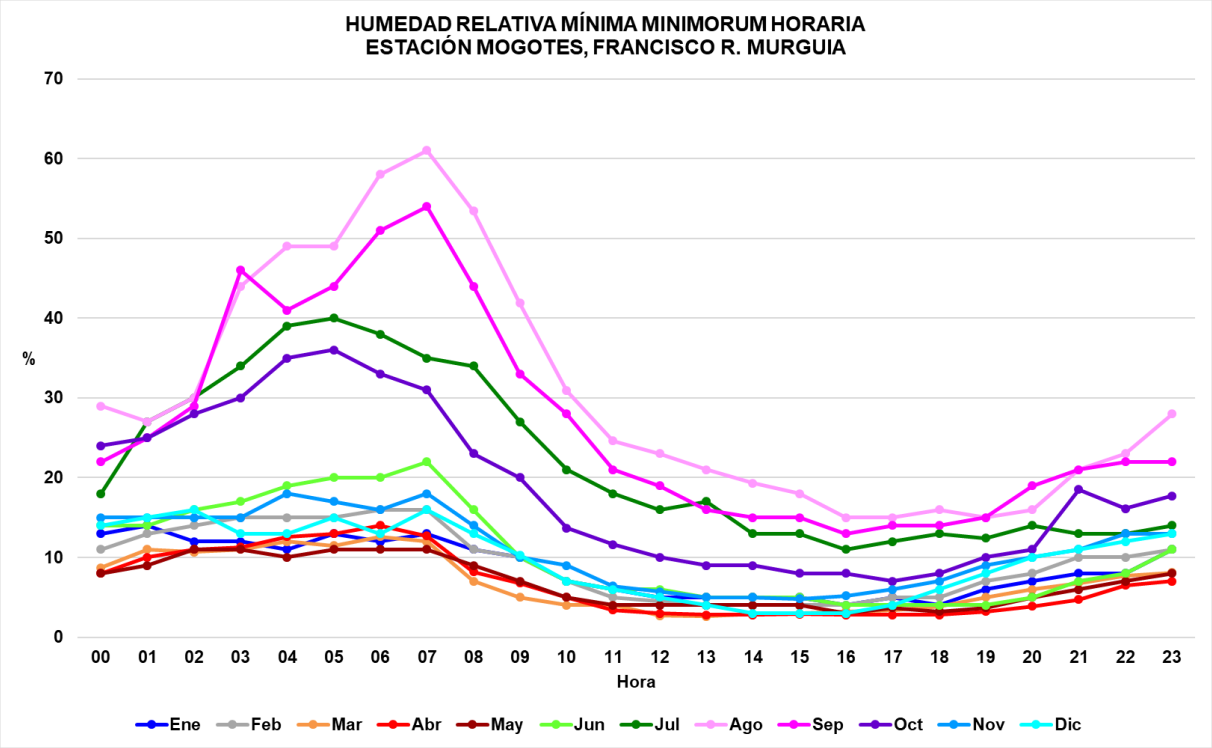


Figura 405. Humedad relativa mínima minimorum (%) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 450. Radiación solar global media horaria (W/m2) de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	17	8	12	11	5	1	0	2	5	1	5
07	52	100	329	212	247	224	151	109	68	84	223	88	157
08	518	751	1163	924	980	907	737	677	529	582	932	633	778
09	1265	1622	2070	1841	1885	1785	1554	1528	1293	1432	1697	1390	1613
10	1977	2404	2833	2685	2712	2578	2353	2346	2073	2224	2359	2022	2380
11	2505	2956	3377	3364	3387	3192	2980	3022	2709	2836	2800	2495	2969
12	2799	3274	3655	3820	3811	3578	3394	3437	3102	3156	2953	2716	3308
13	2788	3257	3594	3941	3912	3661	3453	3531	3153	3236	2807	2638	3331
14	2467	2939	3257	3708	3619	3347	3249	3281	2986	2967	2399	2306	3044
15	1946	2394	2619	3212	3146	2907	2779	2845	2552	2471	1802	1738	2534
16	1301	1679	1872	2563	2483	2367	2292	2349	2005	1826	1073	1052	1905
17	581	886	1074	1783	1791	1783	1662	1689	1306	1100	362	365	1198
18	79	213	336	1000	1078	1078	1044	977	633	410	15	18	573
19	0	2	11	315	428	469	459	340	146	39	0	0	184
20	0	0	0	18	47	72	70	29	2	0	0	0	20
21	0	0	0	0	0	0	1	0	0	0	0	0	0
22	0	0	0	0	0	0	1	0	0	0	0	0	0
23	0	0	0	0	0	0	1	0	0	0	0	0	0
Media/día/mes	18277	22478	26208	29396	29539	27960	26183	26164	22557	22366	19428	17460	24001

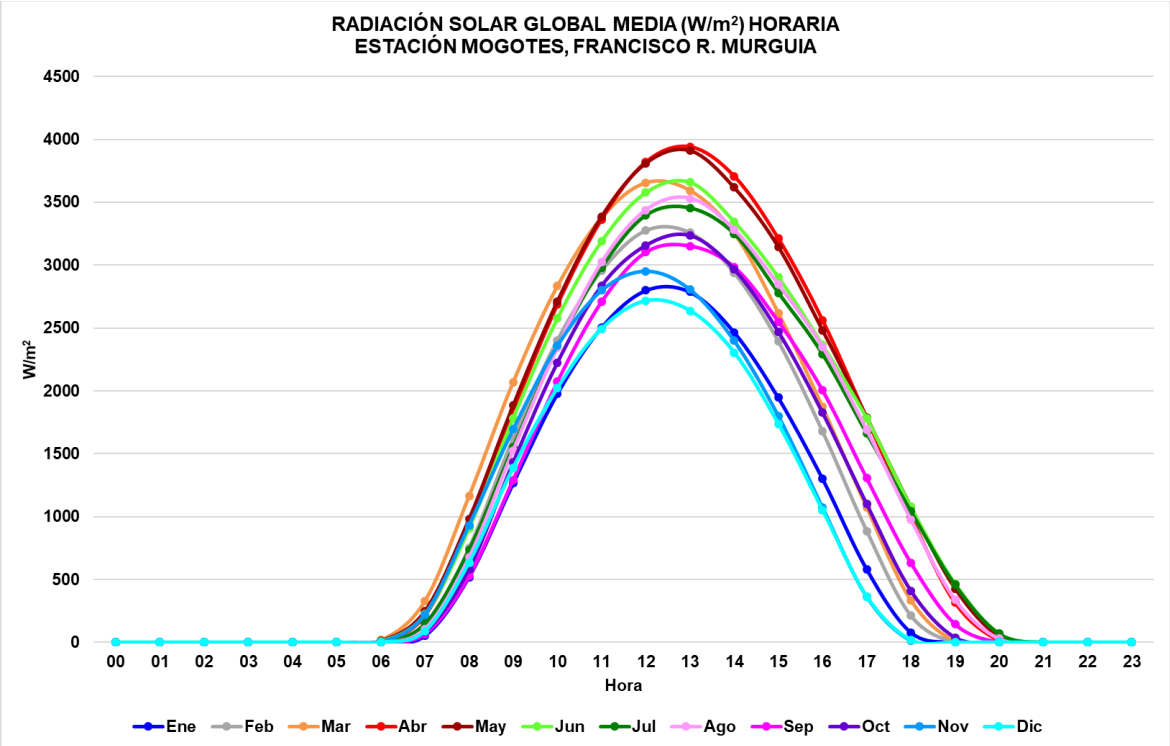


Figura 406. Radiación solar global media horaria (W/m2) de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 451. Radiación solar global media horaria (kWh/m2) de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.06	0.06	0.04	0.03	0.02	0.02	0.06	0.02	0.04
08	0.13	0.19	0.29	0.23	0.25	0.23	0.18	0.17	0.13	0.15	0.23	0.16	0.19
09	0.32	0.41	0.52	0.46	0.47	0.45	0.39	0.38	0.32	0.36	0.42	0.35	0.40
10	0.49	0.60	0.71	0.67	0.68	0.64	0.59	0.59	0.52	0.56	0.59	0.51	0.60
11	0.63	0.74	0.84	0.84	0.85	0.80	0.75	0.76	0.68	0.71	0.70	0.62	0.74
12	0.70	0.82	0.91	0.95	0.95	0.89	0.85	0.86	0.78	0.79	0.74	0.68	0.83
13	0.70	0.81	0.90	0.99	0.98	0.92	0.86	0.88	0.79	0.81	0.70	0.66	0.83
14	0.62	0.73	0.81	0.93	0.90	0.84	0.81	0.82	0.75	0.74	0.60	0.58	0.76
15	0.49	0.60	0.65	0.80	0.79	0.73	0.69	0.71	0.64	0.62	0.45	0.43	0.63
16	0.33	0.42	0.47	0.64	0.62	0.59	0.57	0.59	0.50	0.46	0.27	0.26	0.48
17	0.15	0.22	0.27	0.45	0.45	0.45	0.42	0.42	0.33	0.27	0.09	0.09	0.30
18	0.02	0.05	0.08	0.25	0.27	0.27	0.26	0.24	0.16	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.08	0.11	0.12	0.11	0.08	0.04	0.01	0.00	0.00	0.05
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.57	5.62	6.55	7.35	7.38	6.99	6.55	6.54	5.64	5.59	4.86	4.36	6.00

Cuadro 452 Radiación solar global media horaria (Mj/m2/s) de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.05	0.09	0.30	0.19	0.22	0.20	0.14	0.10	0.06	0.08	0.20	0.08	0.14
08	0.47	0.68	1.05	0.83	0.88	0.82	0.66	0.61	0.48	0.52	0.84	0.57	0.70
09	1.14	1.46	1.86	1.66	1.70	1.61	1.40	1.38	1.16	1.29	1.53	1.25	1.45
10	1.78	2.16	2.55	2.42	2.44	2.32	2.12	2.11	1.87	2.00	2.12	1.82	2.14
11	2.25	2.66	3.04	3.03	3.05	2.87	2.68	2.72	2.44	2.55	2.52	2.25	2.67
12	2.52	2.95	3.29	3.44	3.43	3.22	3.05	3.09	2.79	2.84	2.66	2.44	2.98
13	2.51	2.93	3.23	3.55	3.52	3.29	3.11	3.18	2.84	2.91	2.53	2.37	3.00
14	2.22	2.65	2.93	3.34	3.26	3.01	2.92	2.95	2.69	2.67	2.16	2.08	2.74
15	1.75	2.15	2.36	2.89	2.83	2.62	2.50	2.56	2.30	2.22	1.62	1.56	2.28
16	1.17	1.51	1.69	2.31	2.23	2.13	2.06	2.11	1.80	1.64	0.97	0.95	1.71
17	0.52	0.80	0.97	1.60	1.61	1.60	1.50	1.52	1.18	0.99	0.33	0.33	1.08
18	0.07	0.19	0.30	0.90	0.97	0.97	0.94	0.88	0.57	0.37	0.01	0.02	0.52
19	0.00	0.00	0.01	0.28	0.39	0.42	0.41	0.31	0.13	0.03	0.00	0.00	0.17
20	0.00	0.00	0.00	0.02	0.04	0.06	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.45	20.23	23.59	26.46	26.58	25.16	23.56	23.55	20.30	20.13	17.48	15.71	21.60

Cuadro 453. Velocidad del viento media (km/h) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.8	7.0	7.6	8.8	9.2	9.7	7.2	6.6	4.6	4.9	4.9	5.5	6.8
01	5.7	6.5	7.1	7.8	8.3	8.6	6.9	6.4	4.2	4.4	4.7	5.3	6.3
02	5.7	6.3	6.5	7.3	7.6	7.9	6.7	5.8	3.7	4.0	4.5	5.2	5.9
03	5.5	6.0	6.3	6.7	6.8	7.0	6.4	5.3	3.6	3.8	4.6	5.1	5.6
04	5.5	5.9	5.9	6.3	6.2	6.4	6.1	5.2	3.6	3.8	4.4	5.1	5.4
05	5.4	5.6	5.8	5.9	5.7	6.0	5.9	5.0	3.6	3.8	4.3	5.2	5.2
06	5.3	5.5	5.6	5.5	5.3	5.7	5.7	4.9	3.5	3.7	4.2	5.3	5.0
07	5.3	5.3	5.4	5.4	5.2	6.0	5.9	4.8	3.6	3.6	4.3	5.0	5.0
08	5.3	5.5	6.6	6.1	6.4	7.9	7.7	6.2	4.6	4.3	5.6	5.2	5.9
09	7.1	8.1	9.3	8.7	8.6	9.1	9.3	8.6	6.8	6.4	7.6	7.4	8.1
10	9.7	10.7	11.2	11.0	9.5	8.6	8.8	8.8	7.6	7.5	9.0	9.7	9.3
11	11.5	13.1	12.8	12.4	10.1	8.3	8.2	8.2	7.7	8.0	9.9	11.5	10.1
12	12.8	14.9	14.2	14.0	10.7	9.0	8.2	8.2	7.6	8.5	10.4	13.0	11.0
13	14.2	16.2	15.4	15.3	11.7	10.3	9.1	8.6	7.7	8.7	10.7	13.9	11.8
14	14.8	17.2	16.4	16.3	12.5	11.8	10.6	9.7	8.1	8.9	11.1	14.4	12.6
15	15.1	17.9	17.2	17.3	13.5	13.0	11.9	10.9	8.7	9.2	11.2	14.6	13.4
16	15.3	18.1	17.4	18.0	14.2	13.6	12.6	11.4	9.1	9.1	11.3	14.3	13.7
17	14.7	17.7	17.5	18.7	14.6	13.7	12.7	11.7	9.2	9.0	10.6	12.8	13.6
18	11.4	15.1	16.7	19.1	14.9	14.0	12.7	12.2	8.7	8.0	7.4	9.1	12.4
19	9.2	11.0	13.2	17.5	15.0	14.4	12.2	11.3	7.0	6.0	6.8	8.1	11.0
20	8.3	9.9	11.5	14.8	13.4	13.2	10.7	8.8	5.7	5.5	6.7	7.5	9.7
21	7.5	9.2	10.6	13.0	11.7	11.1	8.9	7.9	5.6	5.6	6.5	6.9	8.7
22	6.7	8.7	9.6	11.8	11.4	10.7	8.1	7.5	5.4	5.7	5.9	6.2	8.1
23	6.2	7.8	8.5	10.2	10.4	10.4	7.8	7.0	5.0	5.4	5.3	5.9	7.5
Media	8.9	10.4	10.8	11.6	10.1	9.8	8.8	8.0	6.0	6.2	7.2	8.4	8.8

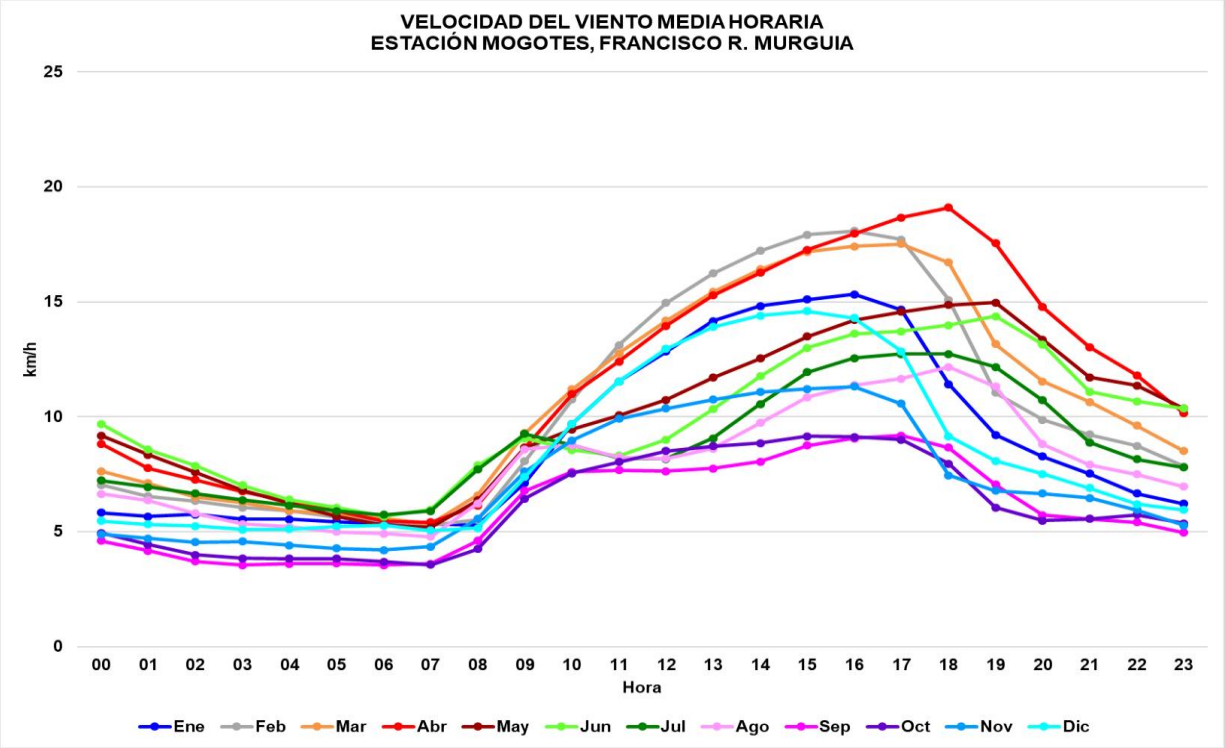


Figura 407. Velocidad del viento media (km/h) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 454. Velocidad del viento máxima maximorum (km/h) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	51.0	35.7	39.5	40.6	49.9	39.9	32.4	33.0	24.1	25.1	31.2	29.5	51.0
01	45.5	36.6	35.6	35.6	40.2	39.8	28.7	26.4	22.0	26.2	29.9	34.5	45.5
02	41.8	41.3	37.8	32.1	32.2	33.0	28.9	27.9	16.5	23.1	30.1	33.4	41.8
03	32.9	45.0	44.6	28.1	35.0	29.0	27.8	25.7	18.5	24.2	34.5	37.9	45.0
04	31.2	35.5	56.6	34.5	26.8	28.2	29.0	25.9	20.3	21.2	34.9	33.6	56.6
05	29.8	37.9	61.4	34.6	33.1	23.2	23.0	21.1	17.6	26.0	32.7	33.4	61.4
06	35.4	39.1	45.1	41.3	30.5	24.0	24.7	22.6	17.0	22.2	28.7	39.8	45.1
07	33.5	34.8	51.6	28.8	27.5	30.2	24.8	20.2	16.6	20.9	29.9	45.8	51.6
08	30.9	38.6	47.5	37.6	27.6	29.4	27.8	21.5	22.1	21.3	36.8	50.3	50.3
09	39.5	54.9	51.7	40.7	29.3	29.3	28.3	27.2	23.7	27.2	41.4	52.7	54.9
10	51.7	62.0	51.2	46.7	36.0	26.5	33.2	28.3	24.4	27.3	43.9	60.2	62.0
11	53.3	62.1	52.5	54.2	38.8	27.3	34.6	31.1	25.3	36.5	48.0	60.6	62.1
12	55.5	57.5	56.2	61.1	43.3	28.9	34.1	27.7	22.3	39.2	53.3	57.7	61.1
13	64.3	62.7	54.0	55.0	44.0	46.7	36.1	25.3	21.2	33.7	52.7	57.8	64.3
14	62.5	68.5	52.6	58.3	48.8	38.9	38.1	28.3	25.4	34.8	51.0	58.0	68.5
15	62.0	70.6	56.5	63.2	54.9	40.4	37.3	36.0	34.4	38.3	52.7	53.7	70.6
16	60.2	61.8	57.9	62.0	51.6	43.2	36.4	34.9	33.0	37.2	49.9	50.4	62.0
17	55.9	58.1	58.2	60.2	45.3	48.2	40.7	40.7	28.3	35.7	44.2	48.4	60.2
18	52.0	50.5	48.7	54.4	44.2	41.3	39.4	41.8	30.0	30.5	38.0	40.0	54.4
19	39.4	37.9	43.6	48.1	46.5	44.6	42.6	42.1	28.0	47.2	39.0	43.3	48.1
20	43.2	36.8	44.4	50.0	43.4	40.9	43.0	38.6	30.4	33.1	33.1	40.0	50.0
21	37.8	36.8	48.8	35.5	40.9	38.5	38.7	38.8	34.4	28.8	32.5	31.7	48.8
22	43.3	38.2	46.0	39.8	40.0	41.7	33.4	30.6	26.9	26.1	34.9	31.7	46.0
23	41.2	39.1	41.1	36.4	38.9	44.4	34.7	27.7	25.2	27.0	30.1	34.5	44.4
Máx.	64.3	70.6	61.4	63.2	54.9	48.2	43.0	42.1	34.4	47.2	53.3	60.6	70.6

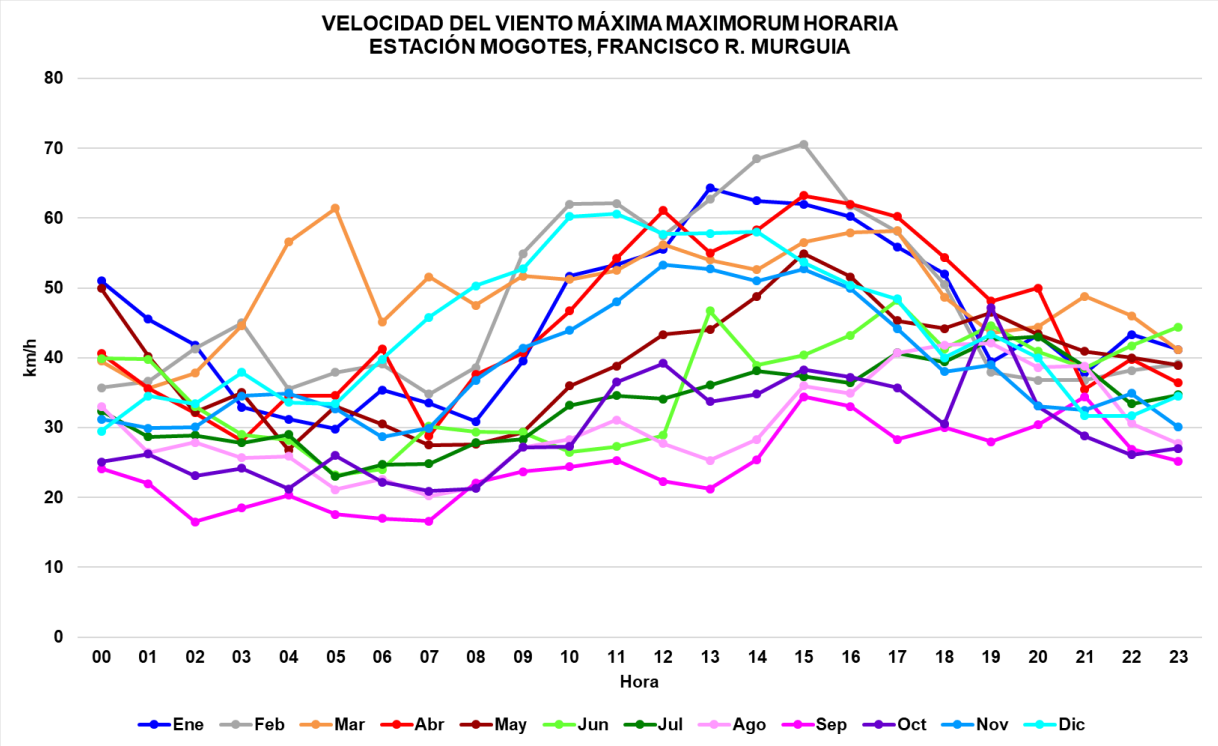


Figura 408. Velocidad del viento máxima maximorum (km/h) horaria de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 455. Frecuencia de velocidad del viento (%) mensual de la estación Mogotes, Francisco R. Murguía (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	36.1	29.0	24.4	20.2	23.1	23.9	28.4	32.4	46.8	46.5	42.7	39.8	32.9
5.1 a 10.0	33.7	34.0	35.8	34.1	35.5	32.2	33.9	36.6	35.3	36.2	34.7	32.6	34.5
10.1 a 15.0	13.8	16.0	17.6	18.9	21.0	23.9	23.6	21.3	14.2	13.1	13.7	12.6	17.5
15.1 a 20.0	7.4	7.8	9.3	11.7	10.8	13.4	10.2	8.0	3.3	3.3	5.2	6.8	8.1
20.1 a 25.0	4.0	5.5	5.6	6.7	5.5	4.9	3.1	1.4	0.4	0.6	2.2	3.6	3.6
25.1 a 30.0	2.4	3.4	3.0	4.4	2.6	1.3	0.7	0.3	0.0	0.2	0.8	2.2	1.7
30.1 a 35.0	1.3	2.0	2.0	2.3	1.0	0.3	0.1	0.0	0.0	0.0	0.5	1.2	0.9
35.1 a 40.0	0.6	1.3	1.3	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.7	0.4
40.1 a 45.0	0.4	0.6	0.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2
45.1 a 50.0	0.1	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
>50	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

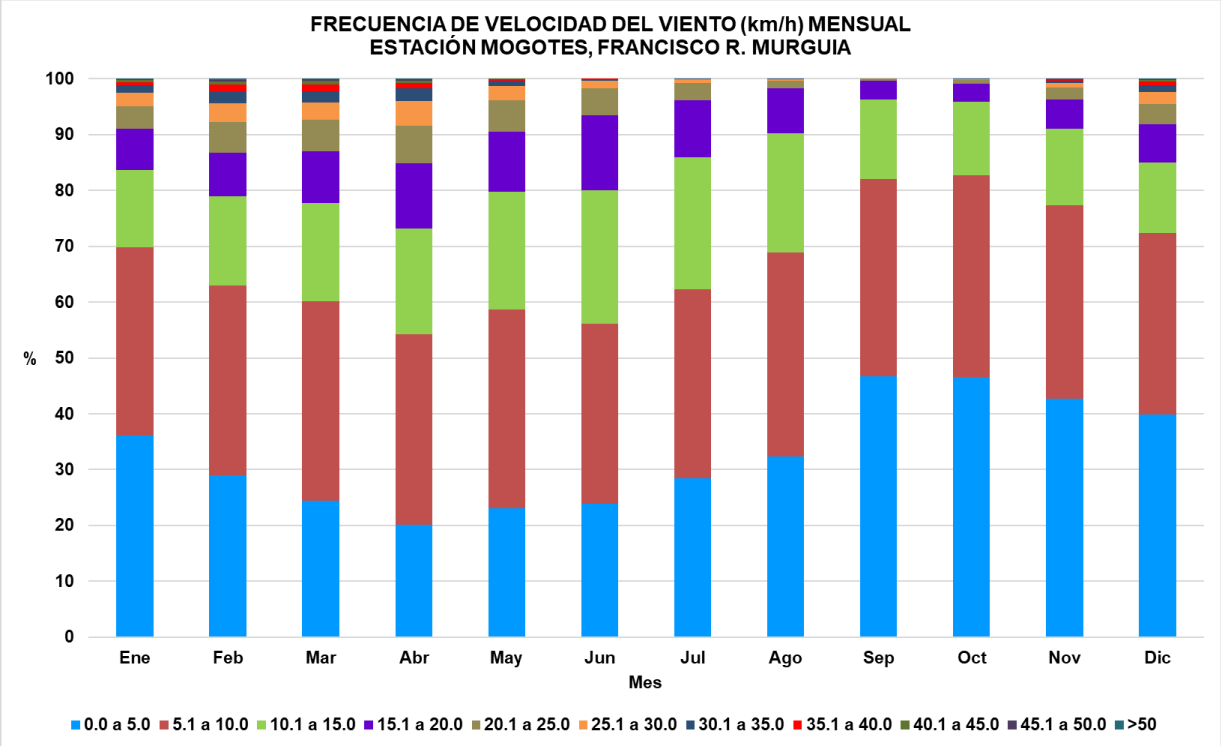


Figura 409. Frecuencia de velocidad del viento (%) mensual de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 456. Frecuencia de dirección del viento (%) mensual de la estación Mogotes, Francisco R. Murguía (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	17.4	15.1	13.8	10.3	10.9	12.6	7.4	10.2	15.5	17.2	17.0	17.1	13.7
NNE	6.4	5.2	5.0	4.3	5.9	9.3	6.5	7.9	7.9	9.2	7.3	5.5	6.7
NE	4.1	3.5	3.4	3.2	4.8	8.8	7.7	8.7	7.9	7.6	6.1	4.2	5.9
ENE	4.6	3.8	3.8	3.4	5.3	10.1	10.8	11.3	10.2	9.2	7.7	4.6	7.1
E	6.1	4.6	4.7	4.5	7.2	15.7	19.1	17.8	14.3	11.0	9.6	5.5	10.1
ESE	7.0	5.0	5.3	4.6	6.6	13.1	17.9	16.3	12.5	9.8	8.4	5.9	9.5
SE	4.5	3.7	3.2	2.9	3.5	4.7	6.6	6.0	5.6	4.9	4.5	4.1	4.5
SSE	3.2	3.2	2.7	2.4	2.5	2.4	2.9	2.5	2.6	3.0	2.9	3.6	2.8
S	4.5	4.8	3.8	3.5	2.7	1.9	2.1	1.8	1.7	2.4	2.9	5.5	3.1
SSO	5.5	6.2	5.4	5.9	3.8	1.5	1.6	1.2	1.3	2.0	3.2	6.8	3.7
SO	7.0	8.7	9.5	11.8	7.6	1.7	1.8	1.4	1.3	2.3	4.7	8.7	5.4
OSO	6.2	9.1	10.1	12.2	8.8	2.3	2.1	1.8	1.5	2.7	5.0	6.7	5.6
O	4.9	6.8	7.4	8.6	8.2	2.8	2.5	2.4	2.2	3.0	4.0	4.5	4.7
ONO	5.0	5.8	6.7	7.8	7.7	3.7	3.3	3.0	3.4	3.6	4.0	4.5	4.8
NO	5.9	6.5	7.2	7.0	7.3	4.4	4.0	3.7	5.0	4.9	5.1	5.2	5.5
NNO	7.9	7.9	8.0	7.5	7.2	5.0	3.8	4.2	7.0	7.2	7.7	7.4	6.7
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

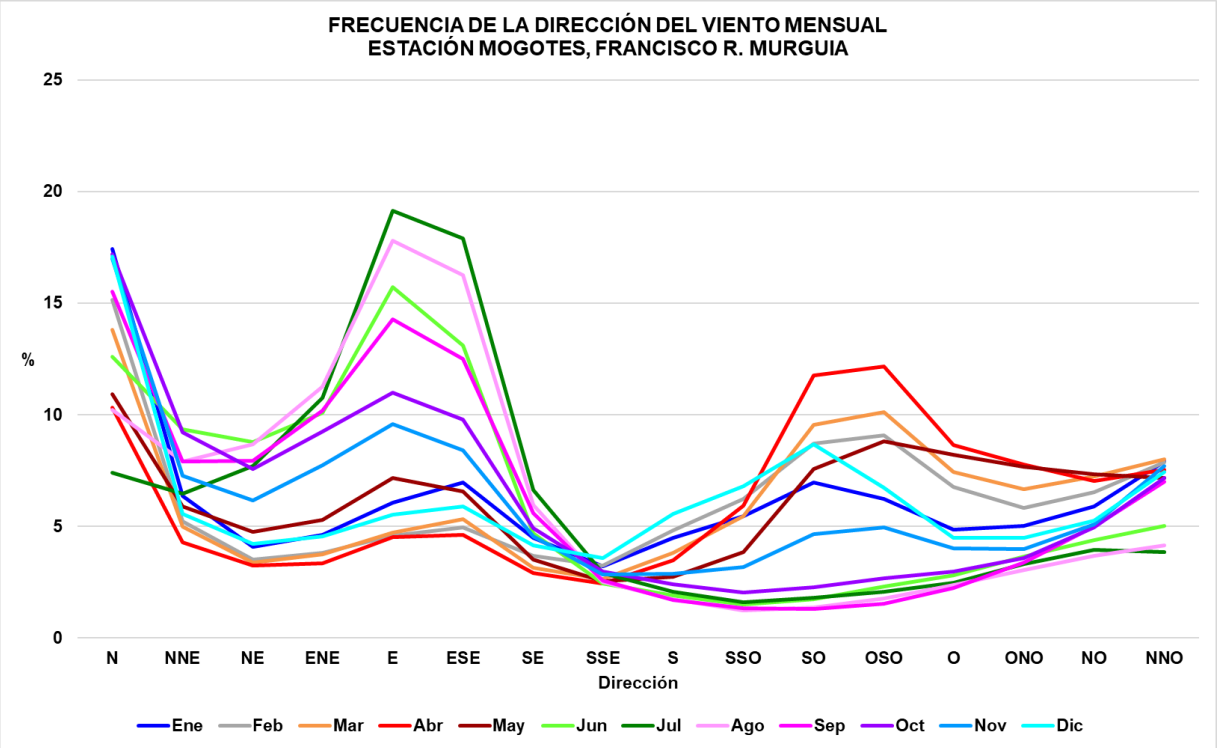
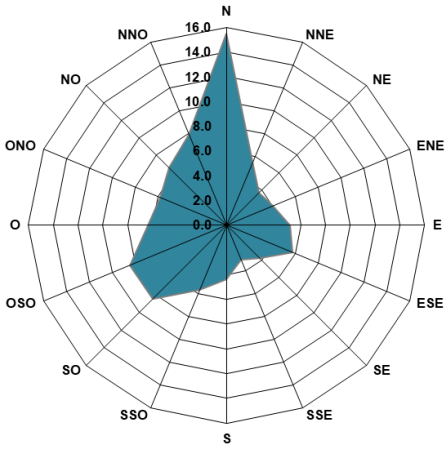


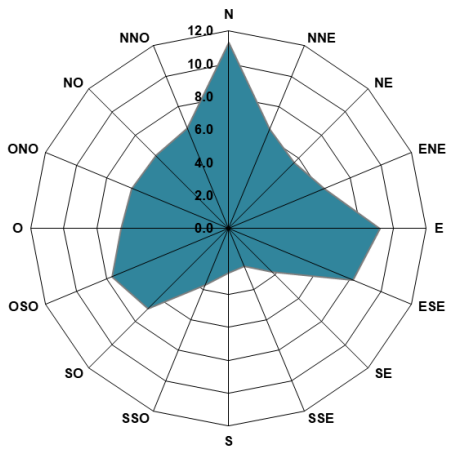
Figura 410. Frecuencia de dirección del viento (%) mensual de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 457. Frecuencia de dirección del viento (%) trimestral de la estación Mogotes, Francisco R. Murguía (2005-2022).

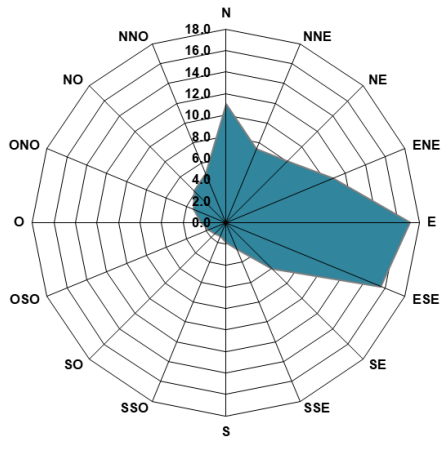
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	15.5	11.3	11.0	17.1	13.7
NNE	5.5	6.5	7.4	7.3	6.7
NE	3.7	5.6	8.1	6.0	5.9
ENE	4.1	6.3	10.7	7.2	7.1
E	5.1	9.2	17.1	8.7	10.1
ESE	5.8	8.1	15.6	8.0	9.5
SE	3.8	3.7	6.1	4.5	4.5
SSE	3.0	2.5	2.7	3.1	2.8
S	4.4	2.7	1.8	3.6	3.1
SSO	5.7	3.7	1.4	4.0	3.7
SO	8.4	6.9	1.5	5.2	5.4
OSO	8.5	7.7	1.8	4.8	5.6
O	6.3	6.5	2.4	3.8	4.7
ONO	5.8	6.4	3.2	4.0	4.8
NO	6.6	6.2	4.2	5.1	5.5
NNO	7.9	6.6	5.0	7.4	6.7
Suma	100.0	100.0	100.0	100.0	100.0



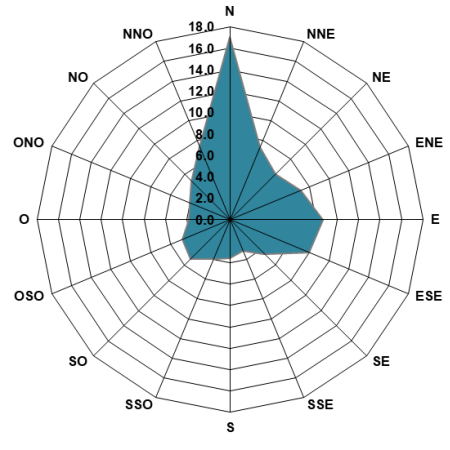
Ene-Mar



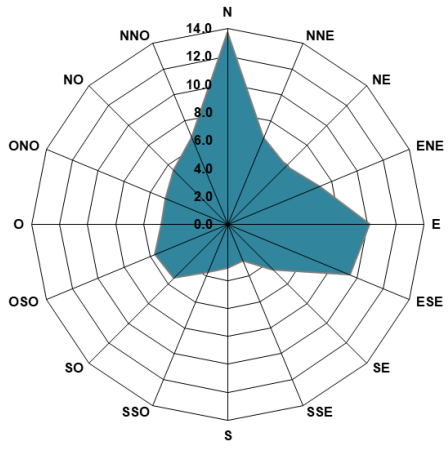
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 411. Frecuencia de dirección del viento (%) trimestral de la estación Mogotes, Francisco R. Murguía (2005-2022).

Cuadro 458. Estadísticas climatológicas mensuales de la estación Mogotes, Francisco R. Murguía (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.7	22.5	24.9	27.8	29.1	28.4	26.2	26.1	24.3	24.3	22.2	20.5	24.7
Temperatura máxima maximorum (°C)	26.4	31.7	33.1	32.9	35.3	34.2	31.6	30.7	30.5	30.0	29.2	26.9	35.3
Temperatura mínima media (°C)	1.9	3.4	5.3	8.0	11.1	13.6	13.5	13.3	12.1	8.6	4.8	2.6	8.2
Temperatura mínima minimorum (°C)	-7.8	-9.1	-12.0	-1.3	2.6	7.5	9.4	9.5	1.7	-2.5	-9.7	-12.5	-12.5
Temperatura media (°C)	10.4	12.9	15.4	18.5	20.6	21.0	19.3	19.2	17.5	16.1	13.1	11.1	16.3
Oscilación térmica (°C)	17.8	19.0	19.5	19.8	18.0	14.8	12.7	12.8	12.1	15.7	17.4	17.9	16.5
Precipitación acumulada media (mm)	10.3	7.4	5.1	2.3	15.5	51.1	99.0	84.7	107.6	34.3	12.0	7.0	436.2
Precipitación máxima maximorum en 24 horas (mm)	24.4	22.4	24.4	6.8	17.6	25.6	67.8	55.4	81.4	32.2	23.6	13.4	81.4
Número de días promedio con lluvia	4.1	3.3	2.6	2.3	4.4	9.7	16.2	14.9	15.6	7.6	4.6	3.2	88.4
Evapotranspiración acumulada potencial media (mm)	112.6	137.2	182.3	212.0	216.7	189.4	165.8	164.9	129.6	137.9	116.3	110.8	1875.4
Humedad máxima media (%)	73.9	63.8	57.1	52.2	62.7	80.3	90.4	91.7	94.9	89.1	82.1	74.8	76.1
Humedad máxima maximorum (%)	100.0	100.0	100.0	98.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.4	15.7	12.7	9.9	12.9	23.6	34.7	36.2	44.3	32.1	24.9	20.9	24.0
Humedad mínima minimorum (%)	4.0	4.0	2.6	2.8	3.0	4.0	11.0	15.0	13.0	7.0	4.8	3.0	2.6
Humedad media (%)	46.2	37.1	31.2	26.7	33.3	50.4	64.8	66.5	74.1	62.0	53.2	46.8	49.4
Radiación global media día/mes (W/m^2)	18283.6	22486.4	26208.0	29392.2	29538.6	27960.2	26183.1	26164.5	22564.8	22365.9	19427.7	17460.0	24002.9
Radiación global media día/mes (kWh/m^2)	4.6	5.6	6.6	7.3	7.4	7.0	6.5	6.5	5.6	5.6	4.9	4.4	6.0
Radiación global media día/mes ($Mj/m^2/s$)	16.5	20.2	23.6	26.5	26.6	25.2	23.6	23.5	20.3	20.1	17.5	15.7	21.6
Velocidad del viento máxima media (km/h)	22.8	25.6	26.0	27.8	25.9	25.3	23.8	21.7	16.8	15.9	18.2	21.5	22.6
Velocidad del viento máxima maximorum (km/h)	64.3	70.6	61.4	63.2	54.9	48.2	43.0	42.1	34.4	47.2	53.3	60.6	70.6
Velocidad del viento media (km/h)	8.9	10.4	10.8	11.6	10.1	9.8	8.8	8.0	6.0	6.2	7.2	8.4	8.8
Dirección dominante del viento	N	N	N	OSO	N	E	E	E	N	N	N	N	N

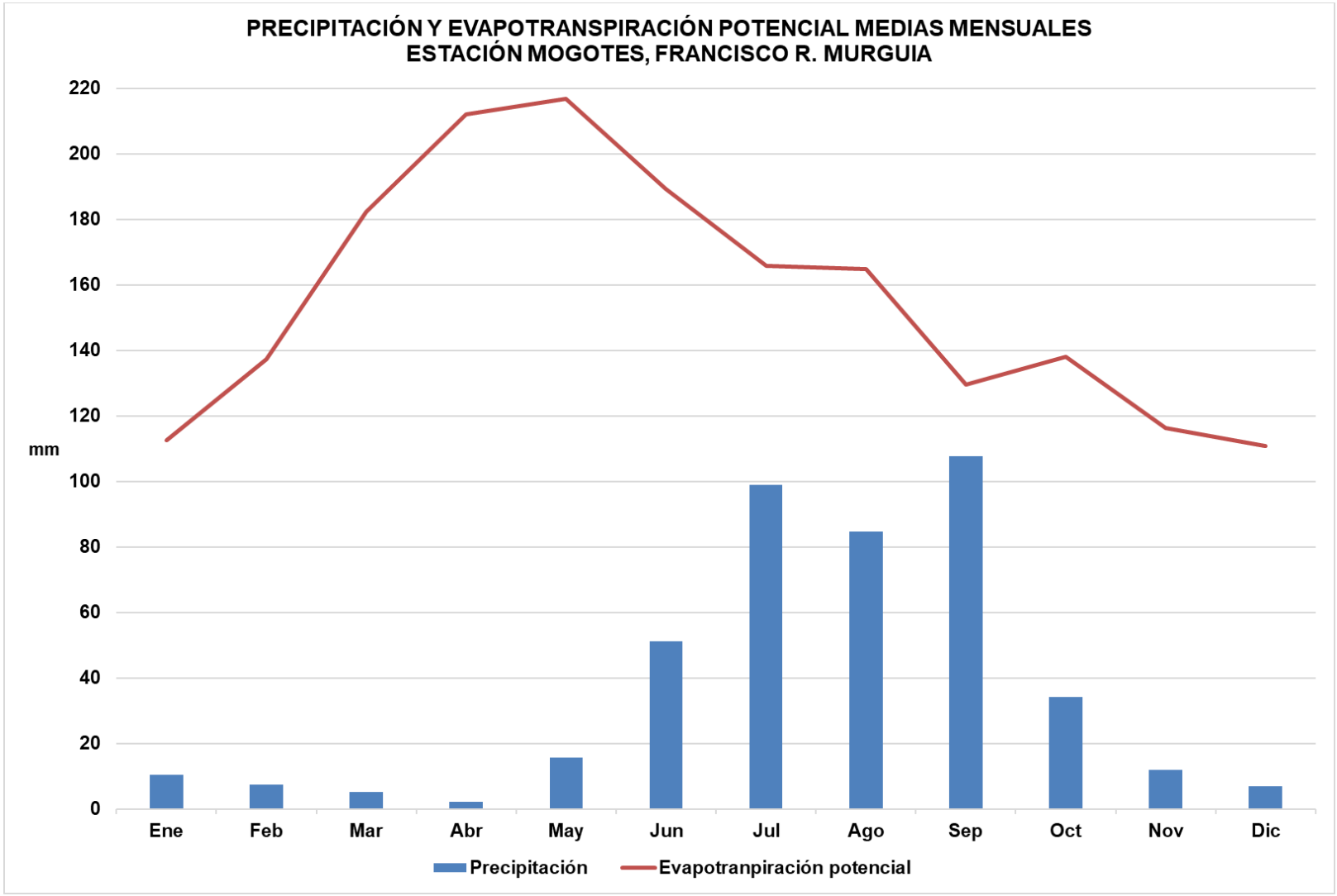


Figura 412. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Mogotes, Francisco R. Murguía (2005-2022).

7.25. Estación: Momax, Momax

Cuadro 459. Temperatura máxima media (˚C) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.4	7.8	10.2	13.7	17.5	20.5	18.3	18.0	16.9	13.9	8.5	5.8	13.1
01	5.5	6.7	9.0	12.0	15.9	19.6	17.7	17.4	16.4	13.2	7.6	5.0	12.2
02	4.6	5.8	7.8	10.6	14.6	18.7	17.3	16.9	15.9	12.5	6.8	4.2	11.3
03	3.9	5.0	6.8	9.4	13.4	17.9	16.9	16.5	15.5	11.8	6.1	3.5	10.6
04	3.2	4.2	5.9	8.4	12.5	17.2	16.5	16.0	15.0	11.2	5.4	2.9	9.9
05	2.4	3.4	5.1	7.4	11.6	16.4	16.1	15.7	14.7	10.7	4.8	2.3	9.2
06	1.8	2.8	4.4	6.5	10.7	15.7	15.8	15.3	14.4	10.2	4.3	1.8	8.6
07	1.7	2.8	6.5	7.3	11.3	16.0	15.8	15.3	14.3	10.3	5.7	2.0	9.1
08	6.6	9.2	13.5	13.0	16.5	19.0	17.6	17.2	16.4	13.2	11.9	7.8	13.5
09	11.8	14.6	18.6	18.6	21.1	21.9	19.9	19.8	19.4	17.6	16.6	12.7	17.7
10	16.3	18.9	22.6	23.1	24.9	24.3	22.1	22.3	22.2	21.2	20.3	17.0	21.3
11	19.7	22.2	25.3	26.3	27.6	26.4	23.9	24.3	24.3	23.8	23.1	20.5	23.9
12	22.0	24.3	27.0	28.4	29.6	28.1	25.4	25.7	25.9	25.8	24.9	22.7	25.8
13	23.4	25.6	28.1	29.8	31.1	29.5	26.5	26.8	26.9	27.1	25.9	24.0	27.0
14	24.1	26.3	28.7	30.7	32.1	30.4	27.5	27.5	27.5	27.8	26.4	24.7	27.8
15	24.4	26.5	28.9	31.2	32.6	31.0	27.9	27.9	27.7	28.1	26.5	24.8	28.1
16	24.1	26.3	28.7	31.2	32.7	30.9	27.8	27.9	27.4	28.0	26.0	24.4	27.9
17	23.2	25.6	28.1	30.9	32.3	30.2	27.0	27.2	26.5	27.2	24.7	23.2	27.2
18	21.0	24.1	26.7	30.0	31.4	29.0	25.9	26.1	25.2	25.6	21.0	19.7	25.5
19	16.6	20.4	23.6	28.2	30.0	27.6	24.5	24.4	23.2	22.4	16.2	14.8	22.7
20	13.1	16.5	20.1	25.4	27.7	25.8	22.7	22.2	20.5	18.6	13.6	11.9	19.9
21	10.7	13.6	17.0	22.3	25.1	23.9	20.7	20.2	18.9	16.7	11.9	9.7	17.6
22	8.9	11.1	14.1	19.0	22.6	22.5	19.7	19.2	18.0	15.5	10.6	8.0	15.8
23	7.5	9.3	11.9	16.1	20.0	21.4	18.9	18.5	17.3	14.6	9.4	6.8	14.3
Media	12.6	14.7	17.4	20.0	22.7	23.5	21.3	21.2	20.4	18.6	14.9	12.5	18.3

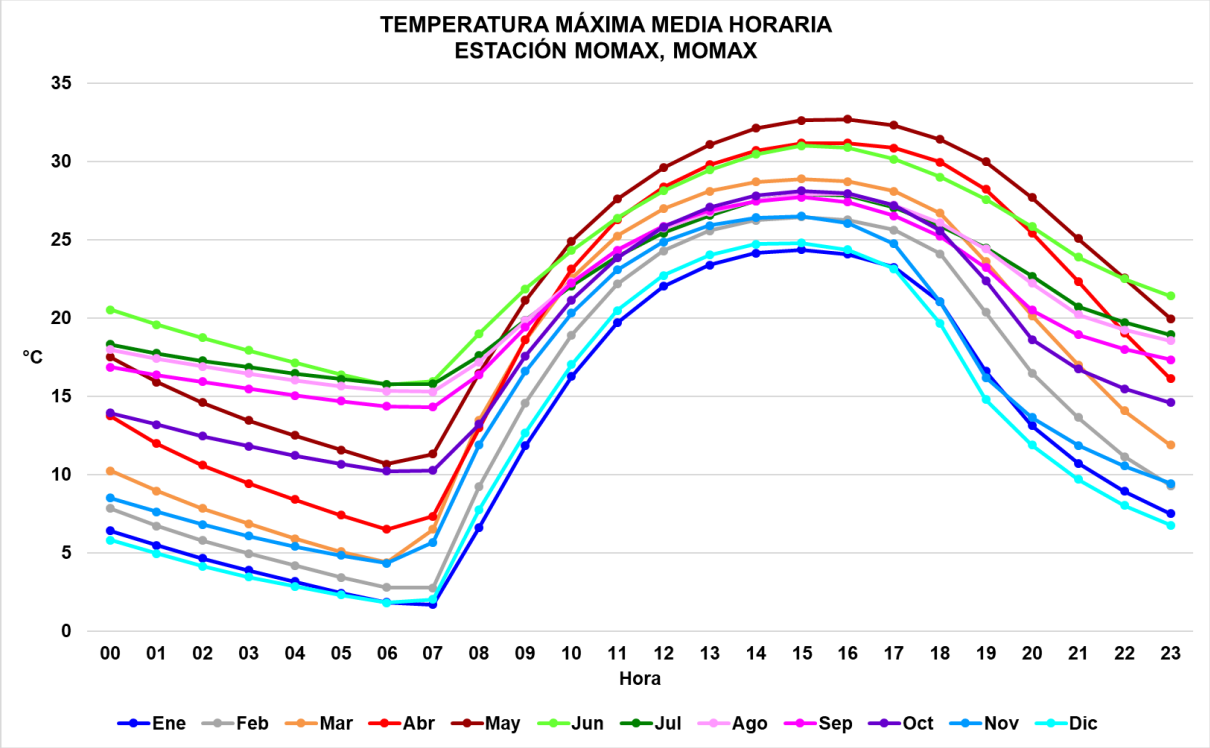


Figura 413 Temperatura máxima media (˚C) horaria de la estación Momax, Momax (2005-2022).

Cuadro 460. Temperatura máxima maximorum (˚C) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	19.0	21.2	21.1	25.9	26.6	28.1	25.2	24.8	23.0	23.8	19.1	19.2	28.1
01	17.7	17.6	19.6	25.7	26.2	27.4	23.3	24.5	22.0	22.9	18.2	16.6	27.4
02	16.6	17.2	18.3	23.5	25.3	26.2	23.6	23.1	20.5	21.9	17.7	16.4	26.2
03	16.1	15.5	17.7	21.4	23.6	25.9	23.3	22.4	20.7	20.5	18.3	16.4	25.9
04	14.9	15.5	16.8	20.6	21.9	23.5	21.1	22.0	19.6	19.0	18.6	16.4	23.5
05	14.6	14.7	17.1	19.3	21.3	22.7	20.8	21.7	21.4	18.6	18.6	16.4	22.7
06	13.8	14.1	18.1	18.7	21.0	22.5	20.6	21.3	20.7	18.6	18.4	16.4	22.5
07	13.9	14.8	17.5	20.7	21.5	20.6	21.1	21.0	21.1	18.7	18.1	16.4	21.5
08	14.8	17.7	22.8	23.8	26.6	25.7	22.6	23.1	22.8	20.3	19.3	18.3	26.6
09	19.4	22.1	26.5	27.0	28.3	27.8	24.8	25.0	25.5	24.1	23.3	23.2	28.3
10	22.6	25.8	28.1	32.3	31.2	30.6	26.9	26.8	26.9	27.0	26.6	24.8	32.3
11	25.3	29.5	30.7	32.5	34.3	32.7	28.7	28.1	30.0	29.8	28.9	26.8	34.3
12	27.8	32.8	32.8	34.1	35.4	34.6	30.7	29.8	31.0	30.3	30.8	29.2	35.4
13	29.5	33.4	34.4	35.2	36.7	36.3	31.3	30.9	31.5	32.1	31.5	30.8	36.7
14	30.4	34.5	35.2	36.6	37.8	37.7	32.9	32.2	32.3	32.5	32.4	31.5	37.8
15	31.0	34.4	35.3	36.9	38.2	38.7	32.9	32.6	32.6	33.5	32.5	31.2	38.7
16	30.7	34.3	35.2	36.9	38.9	38.7	34.4	33.9	32.7	33.0	32.2	30.5	38.9
17	30.3	33.6	34.5	36.3	39.2	38.6	34.3	34.0	32.4	32.3	31.3	29.5	39.2
18	27.9	32.7	33.3	35.5	38.3	37.6	33.7	34.4	31.4	32.1	27.2	26.3	38.3
19	24.5	28.4	30.0	33.6	37.6	36.9	33.2	33.6	30.5	30.1	23.1	22.9	37.6
20	21.1	25.7	26.8	31.9	35.5	34.7	31.3	31.3	27.1	25.5	23.7	20.1	35.5
21	20.2	23.5	25.1	28.2	32.1	31.5	27.5	27.2	24.7	24.3	22.3	20.6	32.1
22	18.3	21.7	26.0	27.5	30.2	29.9	26.0	26.3	24.5	23.9	21.6	20.1	30.2
23	19.9	19.4	25.6	27.2	27.5	29.1	24.8	25.3	23.7	24.7	21.5	19.6	29.1
Máx.	31.0	34.5	35.3	36.9	39.2	38.7	34.4	34.4	32.7	33.5	32.5	31.5	39.2

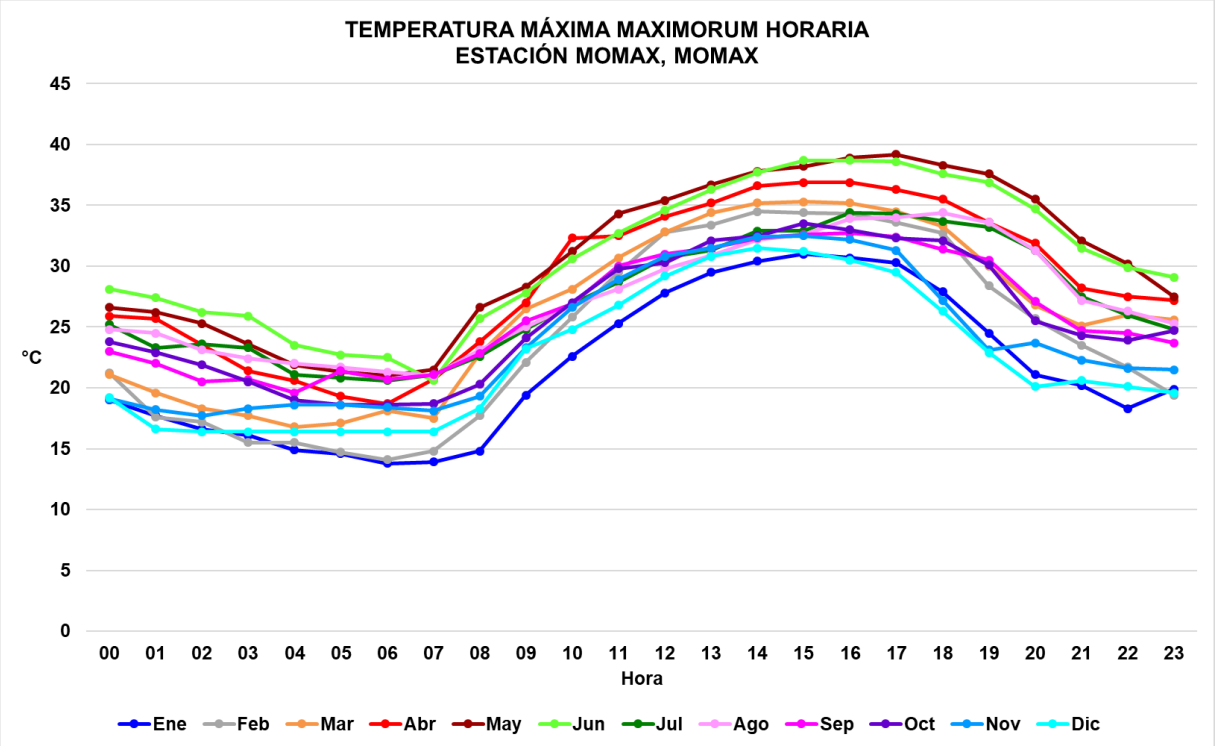


Figura 414. Temperatura máxima maximorum (˚C) horaria de la estación Momax, Momax (2005-2022).

Cuadro 461. Temperatura mínima media (˚C) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.4	6.7	9.0	12.2	16.0	19.4	17.6	17.2	16.2	13.0	7.6	4.9	12.1
01	4.6	5.7	7.8	10.6	14.6	18.6	17.1	16.7	15.7	12.3	6.8	4.1	11.2
02	3.7	4.9	6.8	9.5	13.5	17.8	16.7	16.2	15.3	11.7	6.1	3.4	10.5
03	3.1	4.1	5.9	8.4	12.5	17.1	16.3	15.8	14.9	11.1	5.4	2.8	9.8
04	2.4	3.4	5.0	7.5	11.6	16.3	15.9	15.4	14.5	10.5	4.8	2.2	9.1
05	1.7	2.7	4.3	6.5	10.7	15.6	15.6	15.1	14.1	10.0	4.2	1.7	8.5
06	1.2	2.1	3.6	5.7	9.8	15.0	15.2	14.8	13.8	9.6	3.8	1.2	8.0
07	0.8	1.7	3.7	5.3	9.6	14.9	15.1	14.6	13.7	9.3	3.7	1.0	7.8
08	2.0	3.6	8.4	8.0	12.3	16.5	15.9	15.3	14.3	10.4	7.4	2.9	9.7
09	8.0	10.7	14.8	14.5	17.8	19.8	18.1	17.8	17.1	14.4	13.1	9.1	14.6
10	13.0	15.7	19.7	19.8	22.1	22.5	20.4	20.4	20.1	18.5	17.6	13.8	18.6
11	17.1	19.8	23.3	24.0	25.6	24.7	22.4	22.8	22.7	21.8	21.0	18.0	21.9
12	20.3	22.7	25.6	26.8	28.0	26.7	24.1	24.5	24.5	24.2	23.5	21.0	24.3
13	22.2	24.5	27.0	28.6	29.9	28.2	25.4	25.6	25.7	25.9	24.8	22.9	25.9
14	23.2	25.4	27.9	29.7	31.0	29.2	26.2	26.3	26.2	26.7	25.5	23.8	26.8
15	23.6	25.7	28.1	30.3	31.6	29.6	26.5	26.6	26.2	27.0	25.7	24.0	27.1
16	23.1	25.5	27.9	30.4	31.7	29.4	26.2	26.4	25.8	26.7	25.0	23.4	26.8
17	21.7	24.5	27.0	30.0	31.2	28.5	25.4	25.7	24.9	25.8	22.4	20.9	25.7
18	17.6	21.5	24.6	28.7	30.1	27.5	24.4	24.5	23.6	23.2	17.1	15.8	23.2
19	13.7	17.2	20.8	26.2	28.3	26.1	23.0	22.7	21.1	19.2	14.0	12.3	20.4
20	11.0	14.0	17.4	22.9	25.5	24.2	20.9	20.4	19.0	16.9	11.9	10.0	17.9
21	9.0	11.5	14.5	19.7	22.9	22.4	19.6	19.1	17.9	15.4	10.5	8.2	15.9
22	7.5	9.4	12.1	16.5	20.3	21.2	18.8	18.3	17.1	14.4	9.4	6.9	14.3
23	6.4	8.0	10.4	14.1	18.0	20.2	18.1	17.7	16.6	13.6	8.4	5.8	13.1
Media	10.9	13.0	15.7	18.2	21.0	22.1	20.2	20.0	19.2	17.2	13.3	10.8	16.8

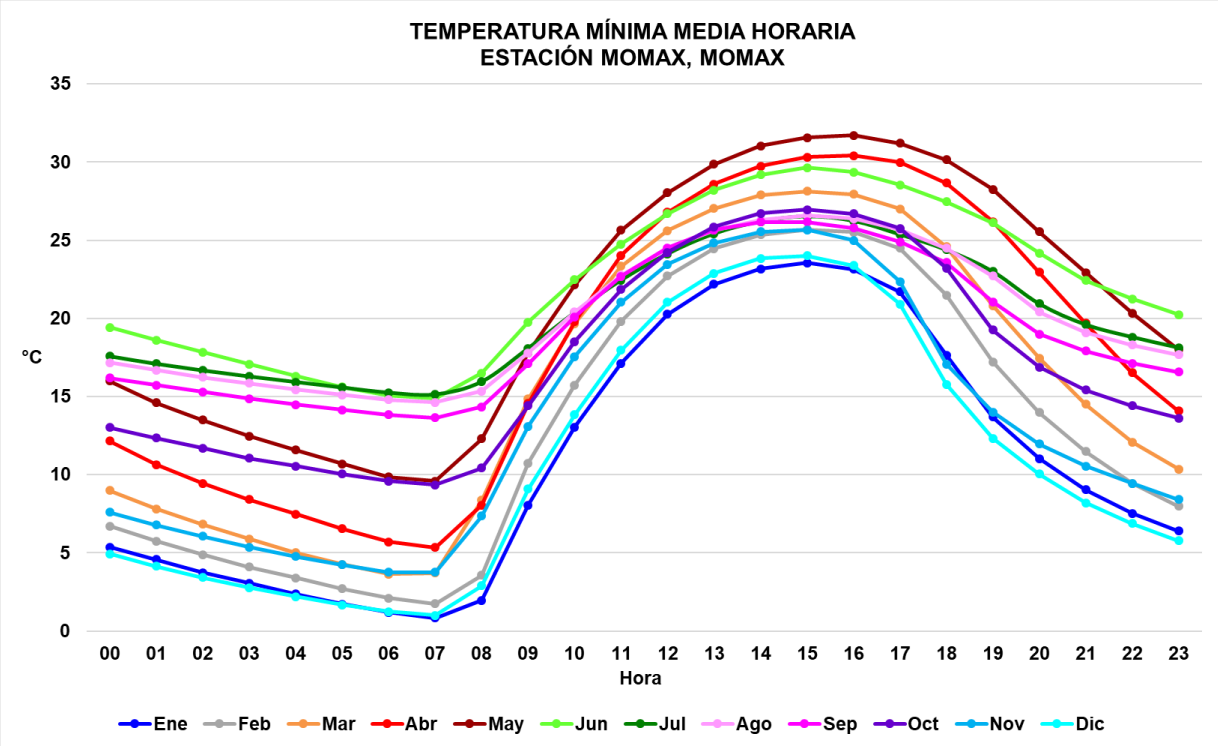


Figura 415. Temperatura mínima media (˚C) horaria de la estación Momax, Momax (2005-2022).

Cuadro 462. Temperatura mínima minimorum (˚C) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.4	-2.0	0.5	4.6	8.4	11.7	12.8	13.1	10.1	1.0	-4.4	-3.5	-4.4
01	-5.0	-3.4	-0.6	2.8	5.9	9.8	11.8	12.6	9.3	-0.6	-5.8	-4.4	-5.8
02	-6.6	-4.7	-1.8	1.1	4.5	8.5	11.1	11.6	8.7	-0.8	-7.2	-5.8	-7.2
03	-7.6	-5.9	-3.0	0.1	3.1	6.9	11.0	11.4	8.0	-1.3	-7.7	-6.6	-7.7
04	-8.8	-7.1	-3.5	-1.2	1.7	6.6	10.1	10.5	6.8	-2.1	-8.8	-7.2	-8.8
05	-9.3	-7.7	-4.8	-2.1	0.7	5.3	10.1	10.3	6.1	-3.0	-9.4	-7.6	-9.4
06	-10.1	-8.5	-5.8	-2.9	0.0	4.7	9.3	9.5	5.4	-3.3	-9.8	-8.0	-10.1
07	-10.9	-8.9	-6.4	-3.4	-0.4	3.9	9.0	9.6	4.8	-3.2	-10.2	-8.2	-10.9
08	-11.1	-8.7	-3.6	-1.3	-0.1	5.7	9.5	9.7	5.0	-2.9	-7.7	-7.9	-11.1
09	-3.6	1.4	4.1	3.0	8.8	13.6	13.9	13.7	9.9	1.8	1.3	-0.2	-3.6
10	4.2	5.1	4.8	13.2	14.4	15.8	15.6	14.9	14.7	10.6	6.6	5.4	4.2
11	3.1	10.2	5.8	17.2	16.4	16.9	15.8	16.6	16.9	14.8	11.0	9.1	3.1
12	2.6	10.9	6.1	17.7	15.0	18.4	16.7	17.0	17.9	16.2	12.9	8.9	2.6
13	3.5	10.6	8.4	19.3	20.2	16.7	18.3	17.2	18.3	17.1	13.1	9.0	3.5
14	2.9	9.8	10.3	21.1	14.6	15.3	17.7	16.6	17.6	16.3	11.5	9.1	2.9
15	3.5	8.6	11.8	18.2	14.1	15.8	16.1	15.8	14.5	16.8	11.5	9.1	3.5
16	4.3	10.0	11.2	13.2	18.0	14.8	15.4	15.9	13.9	15.0	11.1	7.3	4.3
17	4.9	10.0	10.8	14.2	15.1	15.1	14.4	15.9	15.2	14.7	11.1	6.4	4.9
18	4.5	9.7	9.2	16.6	16.1	13.6	14.3	15.0	14.6	13.6	7.8	5.3	4.5
19	4.6	6.0	7.4	16.3	14.9	13.4	14.6	15.3	14.8	9.9	5.2	4.3	4.3
20	3.9	5.0	7.4	13.4	14.9	15.1	13.5	15.4	12.0	6.6	1.5	2.2	1.5
21	1.8	2.9	3.9	11.3	14.9	14.7	13.7	14.1	11.4	5.3	-0.2	-0.2	-0.2
22	-0.3	0.5	3.6	8.5	12.7	14.3	14.3	14.0	10.4	4.1	-1.5	-1.7	-1.7
23	-1.2	-1.0	2.7	6.4	9.8	14.6	13.7	13.8	9.6	2.3	-3.2	-2.7	-3.2
Mín.	-11.1	-8.9	-6.4	-3.4	-0.4	3.9	9.0	9.5	4.8	-3.3	-10.2	-8.2	-11.1

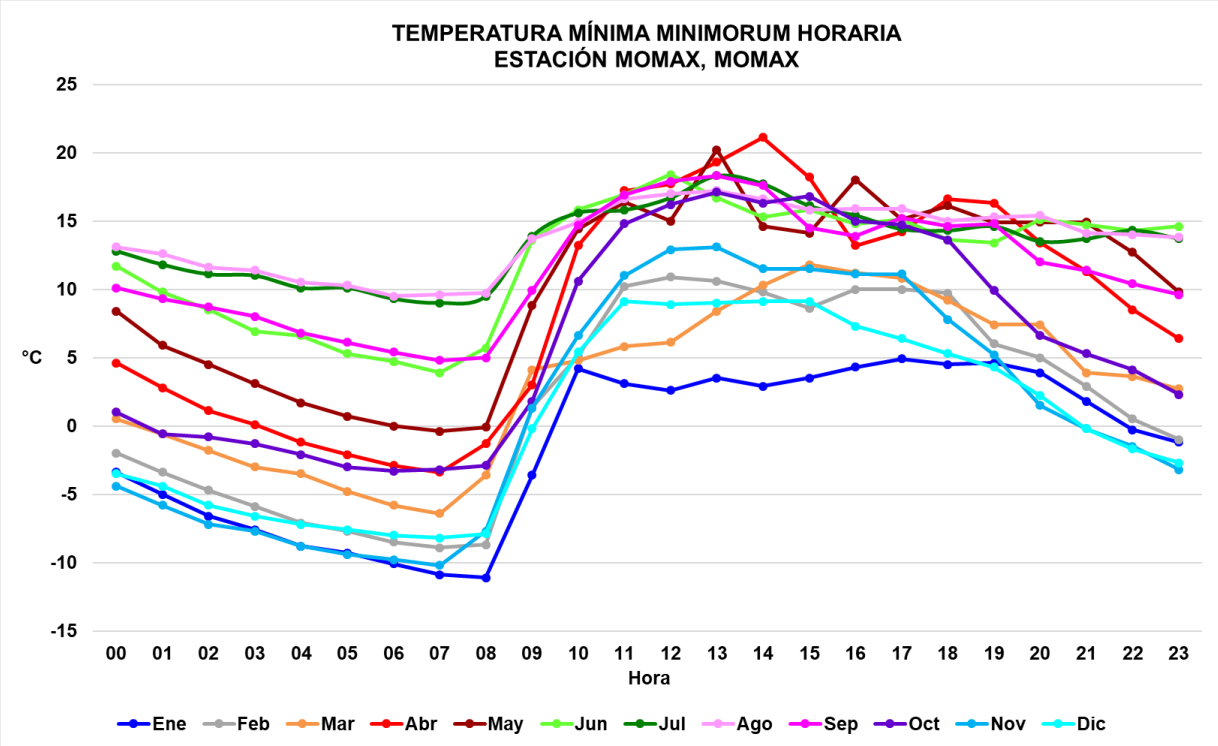


Figura 416. Temperatura mínima minimorum (˚C) horaria de la estación Momax, Momax (2005-2022).

Cuadro 463. Temperatura media (˚C) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.9	7.3	9.6	12.9	16.7	20.0	17.9	17.6	16.5	13.5	8.1	5.4	12.6
01	5.0	6.2	8.4	11.3	15.2	19.1	17.4	17.0	16.0	12.8	7.2	4.5	11.7
02	4.2	5.3	7.3	10.0	14.0	18.3	17.0	16.6	15.6	12.1	6.4	3.8	10.9
03	3.5	4.5	6.4	8.9	13.0	17.5	16.6	16.1	15.2	11.4	5.7	3.1	10.2
04	2.8	3.8	5.5	7.9	12.0	16.7	16.2	15.7	14.8	10.9	5.1	2.5	9.5
05	2.1	3.1	4.7	7.0	11.1	16.0	15.8	15.4	14.4	10.4	4.5	2.0	8.9
06	1.5	2.4	4.0	6.1	10.2	15.4	15.5	15.1	14.1	9.9	4.0	1.5	8.3
07	1.2	2.2	4.9	6.2	10.4	15.4	15.4	14.9	14.0	9.8	4.5	1.4	8.3
08	4.2	6.4	11.0	10.5	14.4	17.7	16.7	16.2	15.3	11.7	9.7	5.3	11.6
09	10.0	12.7	16.7	16.6	19.5	20.8	19.0	18.8	18.2	16.0	14.9	10.9	16.2
10	14.7	17.3	21.2	21.5	23.6	23.4	21.2	21.4	21.2	19.9	19.0	15.5	20.0
11	18.4	21.0	24.3	25.2	26.6	25.6	23.2	23.5	23.5	22.9	22.1	19.2	23.0
12	21.2	23.5	26.3	27.6	28.8	27.4	24.8	25.1	25.2	25.0	24.2	21.9	25.1
13	22.8	25.0	27.6	29.2	30.5	28.9	26.0	26.2	26.3	26.5	25.4	23.5	26.5
14	23.7	25.8	28.3	30.2	31.6	29.8	26.8	26.9	26.8	27.3	26.0	24.3	27.3
15	24.0	26.1	28.5	30.8	32.1	30.3	27.2	27.3	26.9	27.5	26.1	24.4	27.6
16	23.6	25.9	28.3	30.8	32.2	30.1	27.1	27.2	26.6	27.4	25.5	23.9	27.4
17	22.5	25.1	27.6	30.4	31.8	29.3	26.2	26.4	25.7	26.5	23.7	22.1	26.4
18	19.4	22.9	25.7	29.3	30.8	28.2	25.1	25.3	24.4	24.4	19.0	17.7	24.3
19	15.1	18.8	22.2	27.2	29.1	26.9	23.8	23.6	22.2	20.8	15.0	13.5	21.5
20	12.1	15.2	18.8	24.2	26.6	25.0	21.8	21.3	19.7	17.7	12.8	10.9	18.8
21	9.9	12.5	15.7	21.0	24.0	23.1	20.1	19.7	18.4	16.1	11.2	8.9	16.7
22	8.2	10.3	13.1	17.8	21.4	21.9	19.2	18.8	17.5	14.9	10.0	7.4	15.0
23	6.9	8.6	11.1	15.1	19.0	20.8	18.5	18.1	16.9	14.1	8.9	6.3	13.7
Media	11.8	13.8	16.5	19.1	21.9	22.8	20.8	20.6	19.8	17.9	14.1	11.7	17.6

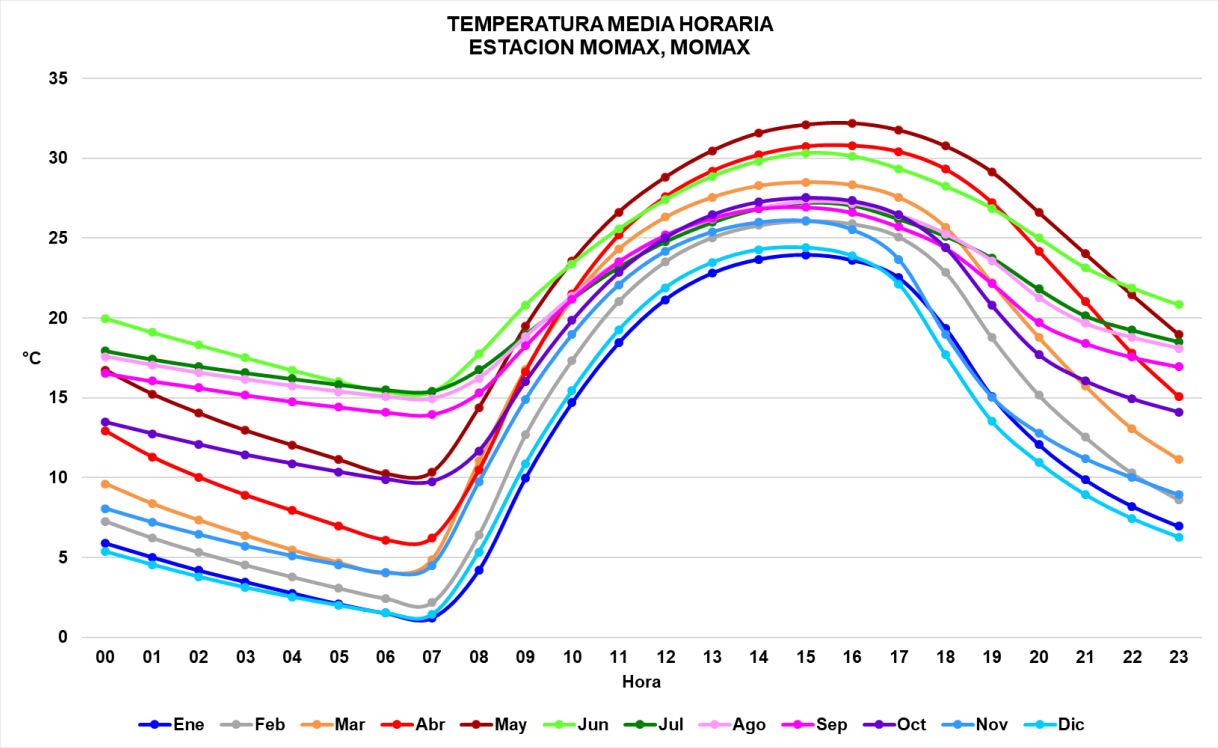


Figura 417. Temperatura media (˚C) horaria de la estación Momax, Momax (2005-2022).

Cuadro 464. Precipitación media (mm) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.6	0.3	0.1	0.1	0.9	6.2	13.3	16.4	5.6	1.6	0.2	0.8	46.2
01	0.3	0.7	0.0	0.0	0.4	6.7	13.3	10.1	5.0	1.5	0.2	0.7	38.9
02	0.6	0.6	0.0	0.0	0.4	5.1	10.0	9.9	5.4	1.4	0.3	0.3	34.0
03	0.5	0.7	0.1	0.0	0.4	3.0	7.0	8.2	6.2	1.7	0.3	0.3	28.4
04	0.5	0.6	0.0	0.0	0.4	3.0	6.4	6.1	4.6	1.4	0.2	0.7	24.1
05	0.4	0.3	0.0	0.0	0.1	4.0	3.8	4.6	2.0	0.9	0.5	0.5	17.0
06	0.2	0.2	0.0	0.0	0.1	1.3	2.9	3.2	1.7	1.2	0.5	0.6	11.9
07	0.1	0.2	0.0	0.0	0.2	0.9	2.9	2.0	1.9	1.5	0.2	0.4	10.5
08	0.1	0.2	0.1	0.0	0.1	0.5	4.2	2.0	0.9	0.6	0.3	0.6	9.5
09	0.1	0.3	0.2	0.0	0.1	0.1	1.8	0.7	0.7	0.5	0.3	0.4	5.3
10	0.2	0.5	0.4	0.0	0.1	0.1	0.6	0.2	0.4	0.4	0.2	0.5	3.5
11	0.2	0.3	0.2	0.0	0.0	0.5	0.3	0.1	0.2	0.3	0.2	0.4	2.8
12	0.3	0.4	0.1	0.0	0.0	1.1	0.6	0.4	0.2	0.1	0.4	0.5	4.2
13	0.2	0.5	0.5	0.0	0.0	0.4	0.3	1.3	0.5	0.3	1.2	0.6	5.8
14	0.3	0.7	0.4	0.0	0.0	1.5	2.4	1.8	2.0	2.2	1.0	0.6	12.8
15	1.1	0.8	0.4	0.8	1.2	2.8	4.8	4.7	5.4	2.1	0.8	1.0	25.9
16	1.4	0.7	0.4	1.9	0.6	5.6	8.2	6.6	7.3	4.0	1.7	0.9	39.5
17	0.5	0.7	0.6	0.0	1.1	13.6	11.5	7.9	9.3	4.7	1.6	0.8	52.4
18	0.5	0.8	0.6	0.6	3.1	13.5	12.4	11.4	7.6	3.8	1.7	0.8	56.8
19	0.4	0.5	0.5	0.7	3.6	9.9	9.0	10.0	8.5	1.6	0.7	0.9	46.4
20	0.3	0.3	0.8	0.5	3.0	7.4	16.4	11.8	6.5	0.7	0.6	0.6	49.1
21	0.6	0.3	0.8	0.3	2.4	7.0	19.0	12.1	9.8	0.7	0.7	0.4	54.0
22	0.4	0.4	0.1	0.0	0.7	5.0	14.6	9.1	9.0	1.0	0.7	0.4	41.4
23	0.9	0.3	0.1	0.0	0.6	8.7	16.3	16.8	8.5	1.4	1.1	0.4	55.0
Suma	10.6	11.7	6.5	5.1	19.5	107.9	181.9	157.2	109.1	35.7	15.5	14.4	675.3

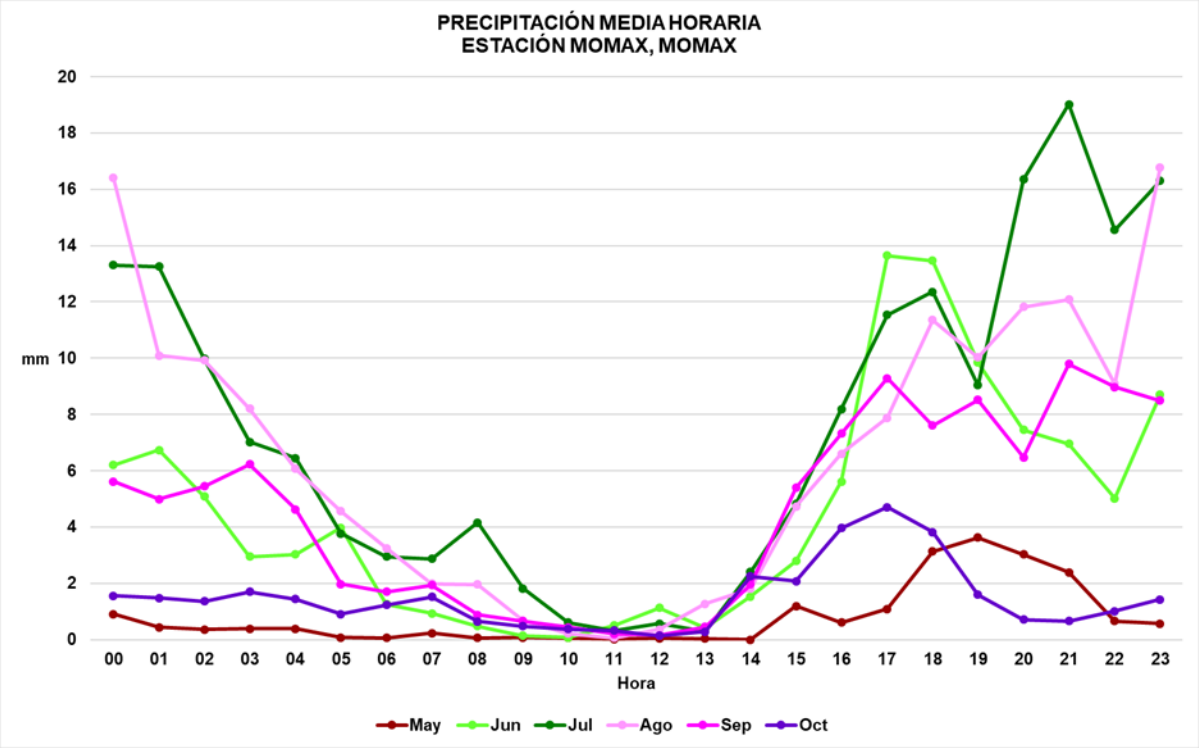


Figura 418. Precipitación media (mm) horaria de la estación Momax, Momax (2005-2022).

Cuadro 465. Precipitación máxima maximorum (mm) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.2	3.2	1.4	2.0	4.2	8.4	19.2	21.6	11.6	8.0	1.0	4.0	21.6
01	1.2	7.0	0.2	0.0	2.8	27.8	27.6	19.4	16.2	7.8	1.4	4.6	27.8
02	3.4	6.0	0.2	0.0	2.6	19.2	19.4	41.2	16.6	4.6	2.8	1.6	41.2
03	3.6	2.8	0.8	0.0	3.8	11.8	15.8	19.8	23.8	3.6	1.6	1.6	23.8
04	4.8	3.4	0.6	0.0	5.0	10.2	16.6	12.6	19.4	6.0	1.0	6.0	19.4
05	2.4	2.8	0.4	0.0	1.2	31.0	10.8	8.4	10.8	4.2	5.4	1.6	31.0
06	0.8	2.2	0.4	0.4	1.2	7.6	11.0	8.8	4.2	3.8	4.4	3.4	11.0
07	0.4	2.0	0.4	0.4	3.8	5.4	8.2	6.4	11.0	8.4	1.4	2.4	11.0
08	0.6	1.2	1.6	0.0	1.0	2.4	23.0	13.0	3.2	4.2	1.4	3.2	23.0
09	1.2	2.4	4.0	0.0	1.4	1.4	14.6	3.0	3.8	2.6	2.4	3.8	14.6
10	1.0	3.2	5.4	0.0	1.0	0.8	4.2	0.8	2.4	3.2	1.8	3.6	5.4
11	1.4	3.0	1.2	0.0	0.4	7.8	2.4	1.2	1.4	1.8	1.8	2.8	7.8
12	2.6	4.2	0.6	0.2	0.4	18.4	3.0	2.6	1.8	0.8	2.6	3.0	18.4
13	1.8	3.6	5.6	0.0	0.6	3.2	1.4	6.8	2.6	2.0	5.0	4.4	6.8
14	2.0	4.0	2.8	0.0	0.0	16.2	14.4	18.2	23.0	10.8	8.0	3.0	23.0
15	12.2	3.8	3.4	6.2	8.4	12.4	12.6	19.6	25.0	9.6	4.8	3.2	25.0
16	10.6	2.8	5.0	34.4	3.4	15.6	17.6	15.0	23.0	10.2	17.6	3.0	34.4
17	3.6	3.8	10.6	0.2	14.6	54.0	28.4	14.6	15.4	20.0	13.0	4.6	54.0
18	3.8	6.2	9.0	5.8	14.8	29.6	30.4	22.2	11.2	18.2	15.4	4.8	30.4
19	4.2	3.2	6.8	9.6	23.2	18.0	26.8	23.6	37.0	5.8	4.4	3.8	37.0
20	1.6	3.0	7.2	6.8	21.0	31.6	30.8	40.2	12.6	4.2	2.2	4.2	40.2
21	2.4	3.6	6.6	5.4	8.8	17.8	23.4	49.4	19.0	3.2	3.2	2.8	49.4
22	1.8	2.8	1.0	0.2	4.0	15.8	53.4	23.6	18.6	14.2	2.6	2.0	53.4
23	9.4	1.8	0.8	0.0	6.4	23.8	45.0	20.4	12.0	10.8	6.0	3.4	45.0
Máx.	12.2	7.0	10.6	34.4	23.2	54.0	53.4	49.4	37.0	20.0	17.6	6.0	54.0

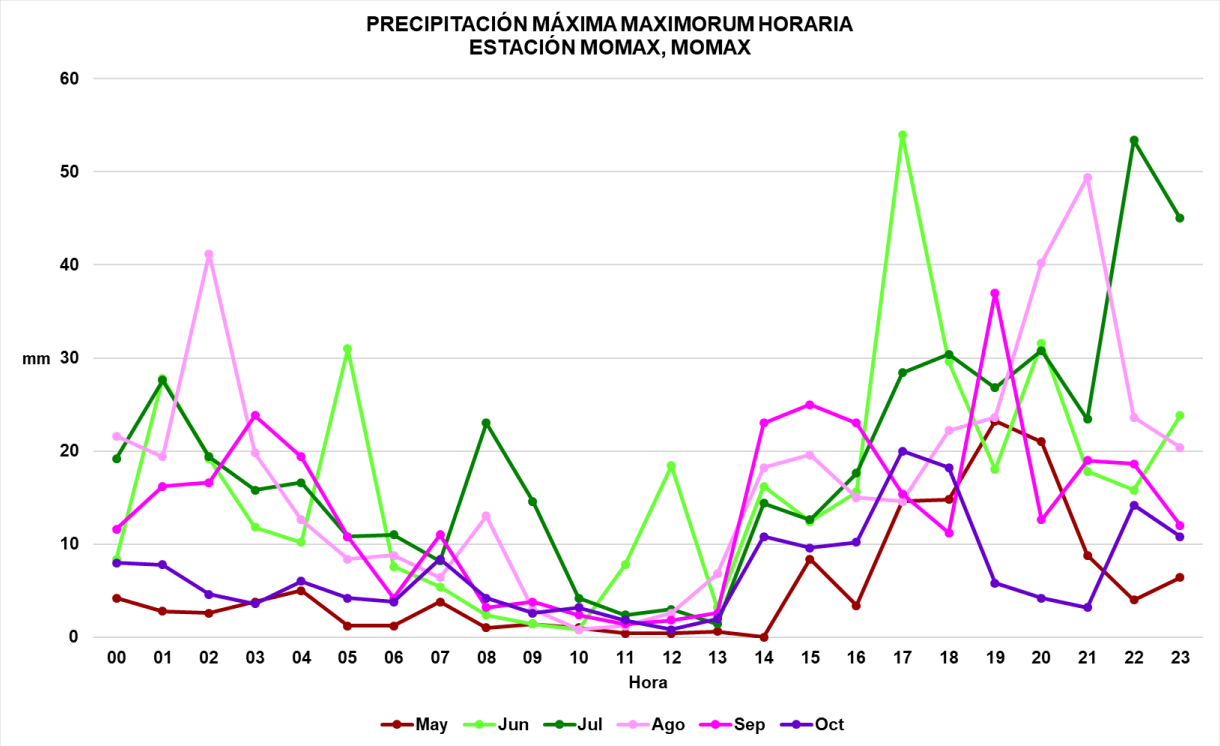


Figura 419. Precipitación máxima maximorum (mm) horaria de la estación Momax, Momax (2005-2022).

Cuadro 466. Evapotranspiración potencial media (mm) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.03	0.07	0.03	0.04	0.04	0.02	0.01	0.01	0.01	0.04	0.01	0.03
09	0.10	0.15	0.23	0.15	0.17	0.17	0.12	0.12	0.10	0.10	0.17	0.11	0.14
10	0.23	0.30	0.41	0.33	0.36	0.33	0.27	0.28	0.25	0.27	0.33	0.24	0.30
11	0.36	0.45	0.57	0.52	0.54	0.50	0.44	0.45	0.42	0.43	0.46	0.37	0.46
12	0.47	0.57	0.69	0.67	0.68	0.63	0.57	0.59	0.56	0.56	0.54	0.47	0.58
13	0.53	0.63	0.75	0.77	0.79	0.72	0.66	0.68	0.63	0.63	0.57	0.51	0.66
14	0.53	0.63	0.74	0.82	0.84	0.74	0.68	0.69	0.64	0.64	0.54	0.51	0.67
15	0.48	0.57	0.68	0.80	0.82	0.70	0.65	0.66	0.59	0.59	0.46	0.44	0.62
16	0.39	0.48	0.57	0.73	0.74	0.60	0.57	0.57	0.50	0.48	0.34	0.35	0.53
17	0.27	0.35	0.42	0.61	0.61	0.47	0.45	0.44	0.35	0.35	0.19	0.21	0.39
18	0.13	0.18	0.25	0.46	0.46	0.33	0.29	0.30	0.22	0.22	0.08	0.11	0.25
19	0.04	0.08	0.14	0.35	0.34	0.18	0.14	0.19	0.12	0.10	0.01	0.02	0.14
20	0.01	0.03	0.06	0.20	0.22	0.12	0.08	0.07	0.03	0.01	0.00	0.00	0.07
21	0.00	0.01	0.02	0.09	0.11	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.03
22	0.00	0.00	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
23	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día	3.58	4.46	5.61	6.56	6.78	5.65	4.96	5.06	4.42	4.40	3.75	3.35	4.88

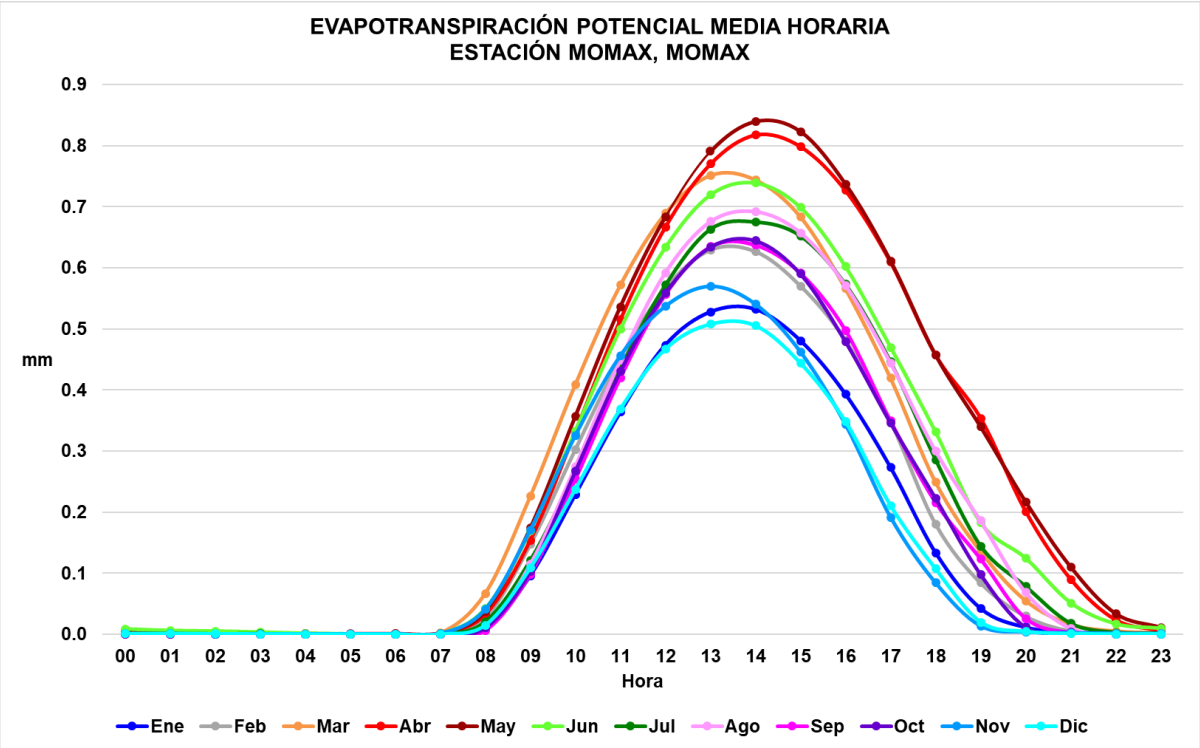


Figura 420. Evapotranspiración potencial media (mm) horaria de la estación Momax, Momax (2005-2022).

Cuadro 467. Humedad relativa media (%) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	69.3	61.5	48.6	40.0	43.7	65.1	86.4	88.8	92.2	86.7	81.9	78.0	70.2
01	72.4	65.2	52.9	44.8	47.9	68.6	88.5	90.6	93.4	88.8	84.7	80.9	73.2
02	75.6	68.6	56.8	49.0	52.0	71.7	90.3	92.1	94.4	90.6	87.2	83.5	76.0
03	78.2	71.7	60.6	52.9	55.9	74.7	91.6	93.2	95.2	92.2	89.2	85.6	78.4
04	80.6	74.5	64.1	56.6	59.6	77.7	92.8	94.2	95.8	93.3	90.9	87.4	80.6
05	82.8	77.2	67.2	60.3	63.0	80.3	93.8	94.9	96.2	94.3	92.2	89.0	82.6
06	84.6	79.5	70.0	63.8	66.2	82.4	94.5	95.3	96.5	95.0	93.3	90.3	84.3
07	85.6	80.5	67.8	64.0	66.3	82.4	94.4	95.6	96.6	95.2	92.4	90.5	84.3
08	76.7	67.9	51.4	53.2	56.2	74.7	89.7	92.0	93.8	90.7	76.9	78.6	75.1
09	59.9	50.8	37.7	39.2	43.8	63.9	80.0	81.8	83.5	76.9	60.2	62.0	61.6
10	46.1	38.6	28.1	28.4	33.4	53.9	69.7	70.8	70.9	62.2	47.6	48.5	49.9
11	36.2	29.7	21.5	20.8	25.8	45.5	61.0	61.6	61.0	51.2	38.7	38.4	41.0
12	29.3	24.2	17.9	16.5	21.0	39.4	54.6	55.6	54.5	43.8	32.6	31.6	35.1
13	25.4	21.1	15.9	14.0	17.6	34.6	49.8	51.7	50.5	39.0	29.5	27.5	31.4
14	23.2	19.6	14.8	12.6	15.6	31.6	46.5	49.1	48.2	36.3	27.7	25.4	29.2
15	22.4	19.2	14.4	12.1	14.9	30.0	45.2	47.5	47.9	35.4	27.2	24.8	28.4
16	23.0	19.3	14.3	12.0	15.0	30.6	45.9	48.1	49.3	35.9	28.2	25.6	28.9
17	25.1	20.6	15.0	12.3	15.6	33.7	49.4	50.9	53.1	38.6	33.1	29.3	31.4
18	31.1	23.9	17.1	13.2	17.2	37.2	53.6	55.7	58.5	46.1	46.2	39.9	36.7
19	40.9	31.0	21.6	15.4	19.6	41.5	59.8	63.5	69.3	59.8	58.4	51.4	44.3
20	49.1	38.6	27.3	18.9	23.5	47.2	69.2	74.2	80.5	71.5	65.8	59.3	52.1
21	55.6	45.3	33.2	23.6	28.5	53.7	76.9	81.2	86.0	77.7	71.1	65.7	58.2
22	61.1	51.5	39.1	29.2	33.9	58.5	80.9	84.8	89.0	81.5	74.9	70.7	62.9
23	65.5	56.6	44.0	34.8	39.3	62.8	84.0	87.2	90.9	84.0	78.4	74.8	66.9
Media	54.2	47.4	37.5	32.8	36.5	55.9	72.9	75.0	77.0	69.4	62.8	59.9	56.8

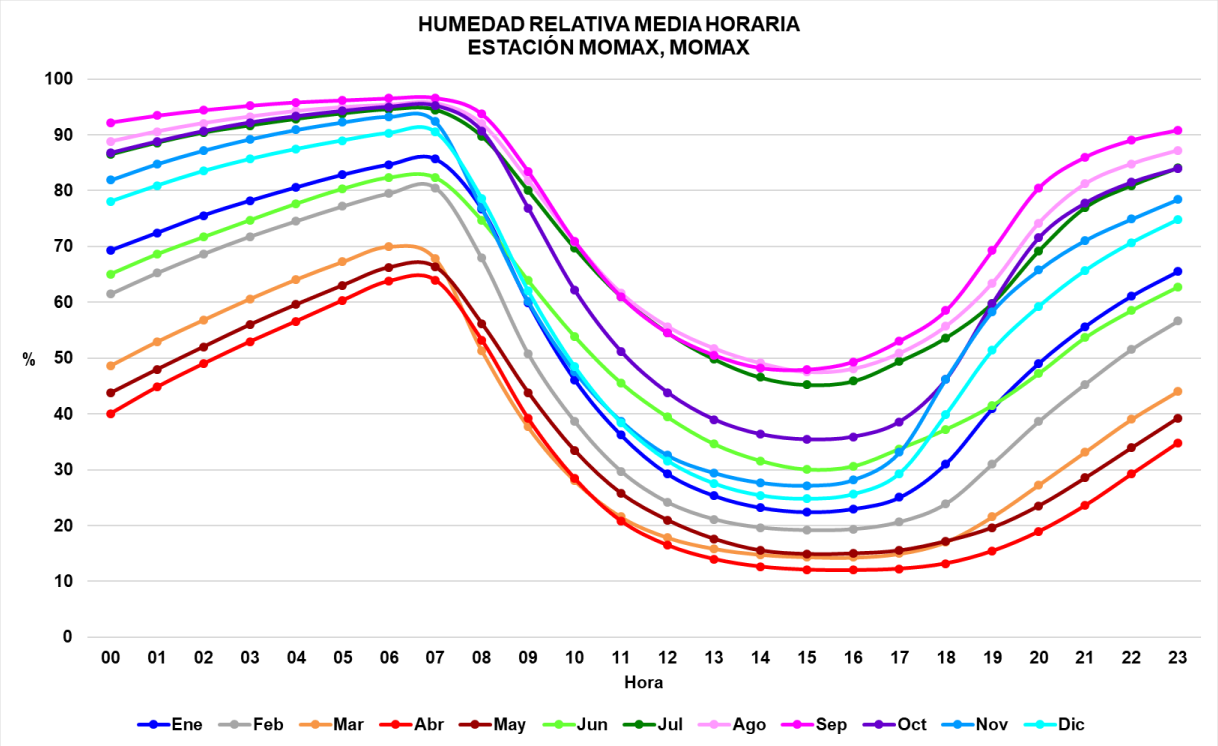


Figura 421. Humedad relativa media (%) horaria de la estación Momax, Momax (2005-2022).

Cuadro 468. Humedad relativa mínima minimorum (%) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	18.0	15.0	9.0	12.0	12.0	16.0	35.0	35.0	32.0	26.0	20.0	18.2	9.0
01	20.0	16.0	9.0	16.0	14.0	18.0	32.0	44.0	35.0	31.4	21.0	19.1	9.0
02	23.0	18.0	11.0	18.0	14.0	17.0	25.0	49.1	52.0	33.0	24.0	22.8	11.0
03	21.0	20.0	13.0	17.0	17.0	16.0	31.0	50.0	60.0	36.6	25.0	29.1	13.0
04	26.0	25.0	13.0	20.0	15.0	32.0	43.0	51.6	60.0	35.8	24.0	40.0	13.0
05	28.0	29.0	14.0	13.0	17.0	33.0	55.0	55.0	60.0	35.5	24.0	41.4	13.0
06	31.0	29.0	15.0	13.0	21.0	36.0	62.0	57.0	63.0	36.0	24.0	41.4	13.0
07	30.0	28.0	16.0	17.0	24.0	31.0	63.0	62.0	62.0	39.0	26.0	41.4	16.0
08	25.0	17.0	11.7	15.0	19.0	24.0	53.0	56.0	59.0	27.0	20.0	31.0	11.7
09	20.0	14.0	6.9	12.0	15.0	21.0	40.0	47.0	48.9	19.0	16.0	19.0	6.9
10	13.0	9.0	5.3	7.0	9.0	14.0	32.8	36.6	39.0	16.0	12.0	14.0	5.3
11	8.0	7.0	5.2	5.0	6.1	11.0	28.0	30.0	31.0	14.0	8.0	11.0	5.0
12	7.0	6.0	4.3	4.5	4.9	7.0	20.0	27.0	19.0	11.8	7.0	7.0	4.3
13	6.0	5.0	4.0	4.0	4.0	6.0	18.3	26.0	19.0	11.0	6.0	7.0	4.0
14	6.0	5.0	4.0	4.0	3.0	6.0	17.1	20.0	17.0	10.0	5.0	7.7	3.0
15	6.0	4.0	4.0	4.0	4.0	5.0	17.2	19.0	16.0	9.8	5.0	5.0	4.0
16	6.0	5.0	4.0	4.0	3.0	6.0	13.0	19.0	15.0	9.0	5.0	6.0	3.0
17	6.0	4.0	4.0	4.0	3.0	5.0	12.0	15.0	14.0	9.0	5.0	7.0	3.0
18	7.0	4.0	4.0	4.0	3.0	5.0	14.0	14.0	15.0	9.0	8.0	10.0	3.0
19	11.0	8.0	6.0	4.0	4.0	5.0	14.0	17.0	16.0	13.0	11.0	14.0	4.0
20	13.0	10.0	7.0	5.0	5.0	8.0	15.0	22.0	22.0	20.0	13.0	19.7	5.0
21	17.0	12.0	8.0	6.0	8.0	10.0	30.0	30.0	36.7	19.0	13.0	16.6	6.0
22	16.0	16.0	9.0	9.0	10.0	11.0	33.0	37.0	38.5	27.3	14.0	16.4	9.0
23	17.0	17.0	10.0	12.0	11.0	13.0	35.0	33.0	32.0	26.0	18.0	17.6	10.0
Mín.	6.0	4.0	4.0	4.0	3.0	5.0	12.0	14.0	14.0	9.0	5.0	5.0	3.0

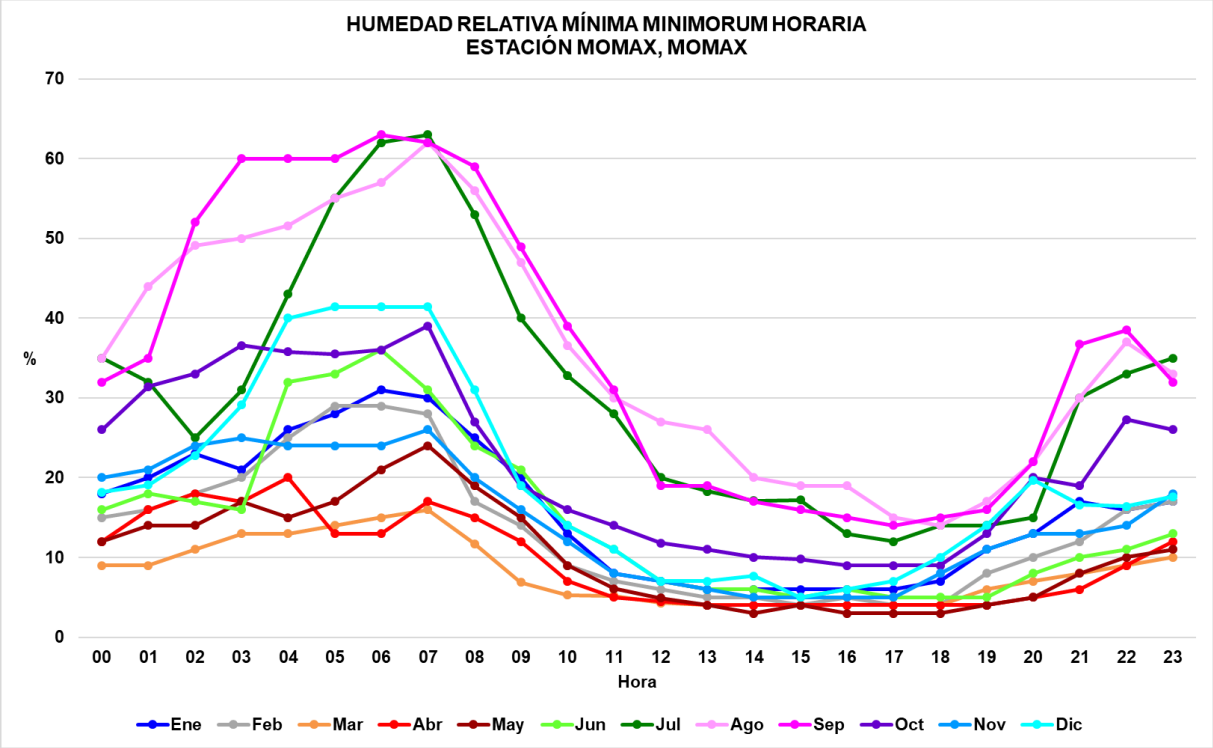


Figura 422. Humedad relativa mínima minimorum (%) horaria de la estación Momax, Momax (2005-2022).

Cuadro 469. Radiación solar global media horaria (W/m2) de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	1	0
01	0	0	0	0	0	0	0	0	0	0	0	2	0
02	0	0	0	0	0	0	0	0	0	0	0	2	0
03	0	0	0	0	0	0	0	0	0	0	0	2	0
04	0	0	0	0	0	0	0	0	0	0	0	2	0
05	0	0	0	0	0	0	0	0	0	0	0	2	0
06	0	1	16	4	6	6	4	2	0	2	3	2	4
07	48	92	331	179	201	169	113	77	55	72	228	97	139
08	627	857	1267	907	926	773	610	546	499	562	1061	766	783
09	1467	1761	2203	1859	1854	1582	1372	1372	1312	1424	1889	1550	1637
10	2181	2516	2961	2716	2687	2411	2221	2240	2159	2262	2540	2213	2425
11	2670	3052	3479	3389	3355	3075	2912	2978	2799	2906	2904	2645	3014
12	2875	3303	3698	3787	3786	3481	3357	3371	3186	3252	3004	2782	3323
13	2823	3254	3630	3894	3925	3538	3419	3442	3175	3239	2842	2674	3321
14	2513	2902	3291	3712	3724	3304	3285	3242	2920	2953	2437	2333	3051
15	1999	2389	2688	3271	3255	2838	2847	2879	2521	2418	1828	1791	2560
16	1325	1713	1941	2642	2654	2165	2226	2267	1914	1795	1107	1110	1905
17	621	910	1088	1864	1866	1466	1451	1563	1244	1067	401	408	1162
18	87	214	326	1001	1085	852	852	879	620	404	29	23	531
19	0	2	10	305	397	327	338	299	136	46	2	0	155
20	0	0	0	19	41	49	50	25	3	0	0	0	16
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19236	22967	26930	29549	29764	26037	25055	25180	22546	22402	20275	18405	24029

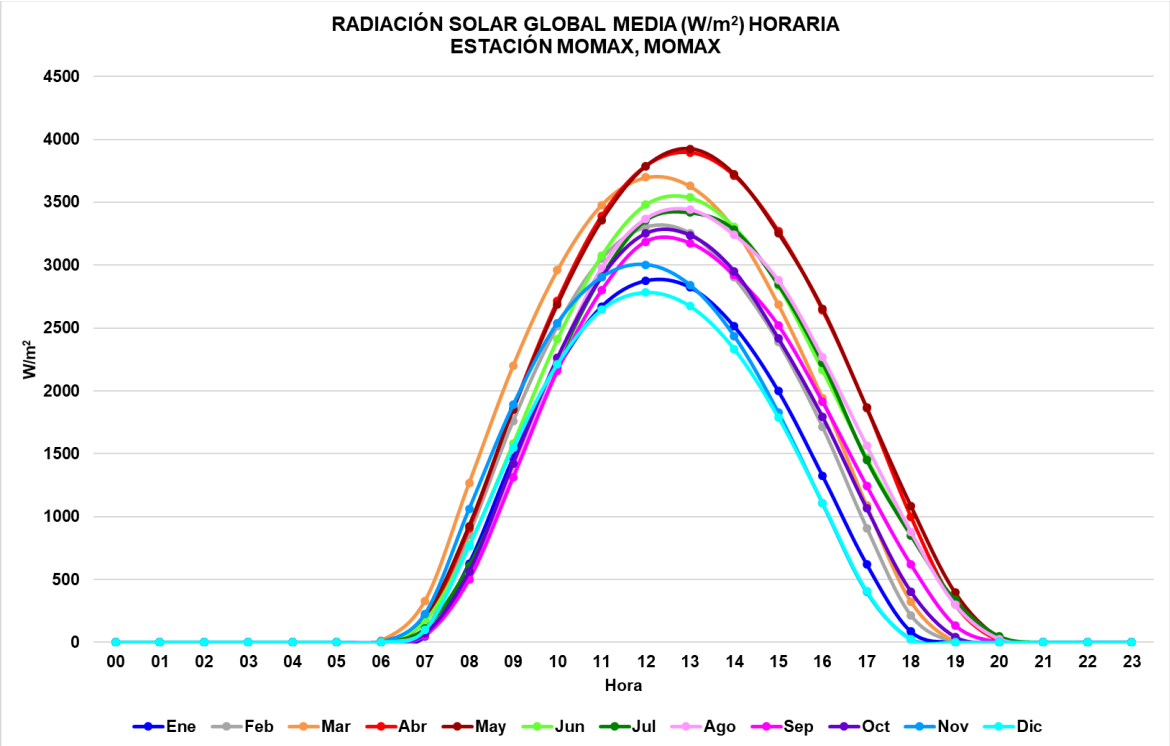


Figura 423. Radiación solar global media horaria (W/m2) de la estación Momax, Momax (2005-2022).

Cuadro 470. Radiación solar global media horaria (kWh/m2) de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.08	0.04	0.05	0.04	0.03	0.02	0.01	0.02	0.06	0.02	0.03
08	0.16	0.21	0.32	0.23	0.23	0.19	0.15	0.14	0.12	0.14	0.27	0.19	0.20
09	0.37	0.44	0.55	0.46	0.46	0.40	0.34	0.34	0.33	0.36	0.47	0.39	0.41
10	0.55	0.63	0.74	0.68	0.67	0.60	0.56	0.56	0.54	0.57	0.63	0.55	0.61
11	0.67	0.76	0.87	0.85	0.84	0.77	0.73	0.74	0.70	0.73	0.73	0.66	0.75
12	0.72	0.83	0.92	0.95	0.95	0.87	0.84	0.84	0.80	0.81	0.75	0.70	0.83
13	0.71	0.81	0.91	0.97	0.98	0.88	0.85	0.86	0.79	0.81	0.71	0.67	0.83
14	0.63	0.73	0.82	0.93	0.93	0.83	0.82	0.81	0.73	0.74	0.61	0.58	0.76
15	0.50	0.60	0.67	0.82	0.81	0.71	0.71	0.72	0.63	0.60	0.46	0.45	0.64
16	0.33	0.43	0.49	0.66	0.66	0.54	0.56	0.57	0.48	0.45	0.28	0.28	0.48
17	0.16	0.23	0.27	0.47	0.47	0.37	0.36	0.39	0.31	0.27	0.10	0.10	0.29
18	0.02	0.05	0.08	0.25	0.27	0.21	0.21	0.22	0.16	0.10	0.01	0.01	0.13
19	0.00	0.00	0.00	0.08	0.10	0.08	0.08	0.07	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.81	5.74	6.73	7.39	7.44	6.51	6.26	6.29	5.64	5.60	5.07	4.60	6.01

Cuadro 471. Radiación solar global media horaria (Mj/m2/s) de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.08	0.30	0.16	0.18	0.15	0.10	0.07	0.05	0.06	0.21	0.09	0.12
08	0.56	0.77	1.14	0.82	0.83	0.70	0.55	0.49	0.45	0.51	0.95	0.69	0.71
09	1.32	1.58	1.98	1.67	1.67	1.42	1.23	1.24	1.18	1.28	1.70	1.40	1.47
10	1.96	2.26	2.66	2.44	2.42	2.17	2.00	2.02	1.94	2.04	2.29	1.99	2.18
11	2.40	2.75	3.13	3.05	3.02	2.77	2.62	2.68	2.52	2.62	2.61	2.38	2.71
12	2.59	2.97	3.33	3.41	3.41	3.13	3.02	3.03	2.87	2.93	2.70	2.50	2.99
13	2.54	2.93	3.27	3.50	3.53	3.18	3.08	3.10	2.86	2.91	2.56	2.41	2.99
14	2.26	2.61	2.96	3.34	3.35	2.97	2.96	2.92	2.63	2.66	2.19	2.10	2.75
15	1.80	2.15	2.42	2.94	2.93	2.55	2.56	2.59	2.27	2.18	1.65	1.61	2.30
16	1.19	1.54	1.75	2.38	2.39	1.95	2.00	2.04	1.72	1.62	1.00	1.00	1.71
17	0.56	0.82	0.98	1.68	1.68	1.32	1.31	1.41	1.12	0.96	0.36	0.37	1.05
18	0.08	0.19	0.29	0.90	0.98	0.77	0.77	0.79	0.56	0.36	0.03	0.02	0.48
19	0.00	0.00	0.01	0.27	0.36	0.29	0.30	0.27	0.12	0.04	0.00	0.00	0.14
20	0.00	0.00	0.00	0.02	0.04	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.31	20.67	24.24	26.59	26.79	23.43	22.55	22.66	20.29	20.16	18.25	16.56	21.63

Cuadro 472. Velocidad del viento media (km/h) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.0	0.9	1.1	1.1	1.5	2.4	1.8	1.3	0.7	0.7	0.7	0.6	1.1
01	0.9	0.9	1.0	0.9	1.3	2.2	1.6	1.0	0.5	0.7	0.6	0.6	1.0
02	0.7	0.9	1.0	0.9	1.2	2.1	1.3	0.8	0.5	0.6	0.5	0.5	0.9
03	0.6	0.9	0.9	0.8	1.0	1.8	1.1	0.7	0.4	0.5	0.4	0.5	0.8
04	0.5	0.8	0.8	0.7	1.0	1.5	1.0	0.6	0.3	0.4	0.4	0.4	0.7
05	0.5	0.7	0.6	0.6	0.8	1.3	0.8	0.5	0.3	0.4	0.4	0.4	0.6
06	0.5	0.6	0.6	0.5	0.6	1.1	0.6	0.4	0.3	0.3	0.4	0.4	0.5
07	0.4	0.5	0.5	0.4	0.5	1.1	0.6	0.4	0.3	0.3	0.4	0.4	0.5
08	0.5	0.7	1.0	0.6	0.9	1.4	1.1	0.7	0.5	0.6	0.7	0.5	0.8
09	1.2	1.7	2.1	1.4	1.8	2.1	1.7	1.5	1.2	1.2	1.4	1.1	1.5
10	2.3	2.8	3.4	2.7	2.7	2.8	2.2	2.1	1.9	2.1	2.3	2.0	2.5
11	3.6	4.3	5.4	4.2	4.1	3.7	2.8	2.7	2.5	2.9	3.3	3.0	3.5
12	5.0	6.4	7.5	6.2	5.8	4.7	3.5	3.2	3.1	3.7	4.5	4.4	4.8
13	6.7	8.2	9.4	8.3	7.3	5.6	3.9	3.7	3.6	4.5	5.4	6.0	6.1
14	7.8	9.6	10.3	10.0	8.5	6.5	4.4	4.1	4.0	4.9	5.9	7.0	6.9
15	8.5	10.3	10.8	10.9	9.4	7.1	4.9	4.4	4.2	4.9	6.1	7.6	7.4
16	8.6	10.3	11.0	11.4	9.8	7.5	5.3	4.6	4.1	4.9	6.0	7.4	7.6
17	7.5	9.4	10.4	11.4	10.0	7.8	5.5	4.7	3.9	4.5	4.3	5.5	7.1
18	3.9	6.3	8.1	10.9	9.8	7.3	5.1	4.1	3.1	3.1	1.6	2.2	5.5
19	2.3	3.3	4.7	9.0	8.9	6.2	3.9	2.9	1.9	1.6	1.4	1.7	4.0
20	1.8	2.4	3.1	5.7	6.8	4.6	2.8	1.8	1.2	1.2	1.0	1.2	2.8
21	1.2	1.6	2.0	3.3	4.2	3.4	2.2	1.4	1.0	0.9	0.9	0.8	1.9
22	1.0	1.1	1.4	2.0	2.6	2.7	2.1	1.4	0.9	0.9	0.8	0.6	1.5
23	1.0	1.0	1.2	1.4	1.9	2.5	1.9	1.4	0.8	0.8	0.7	0.6	1.3
Media	2.8	3.6	4.1	4.4	4.3	3.7	2.6	2.1	1.7	1.9	2.1	2.3	3.0

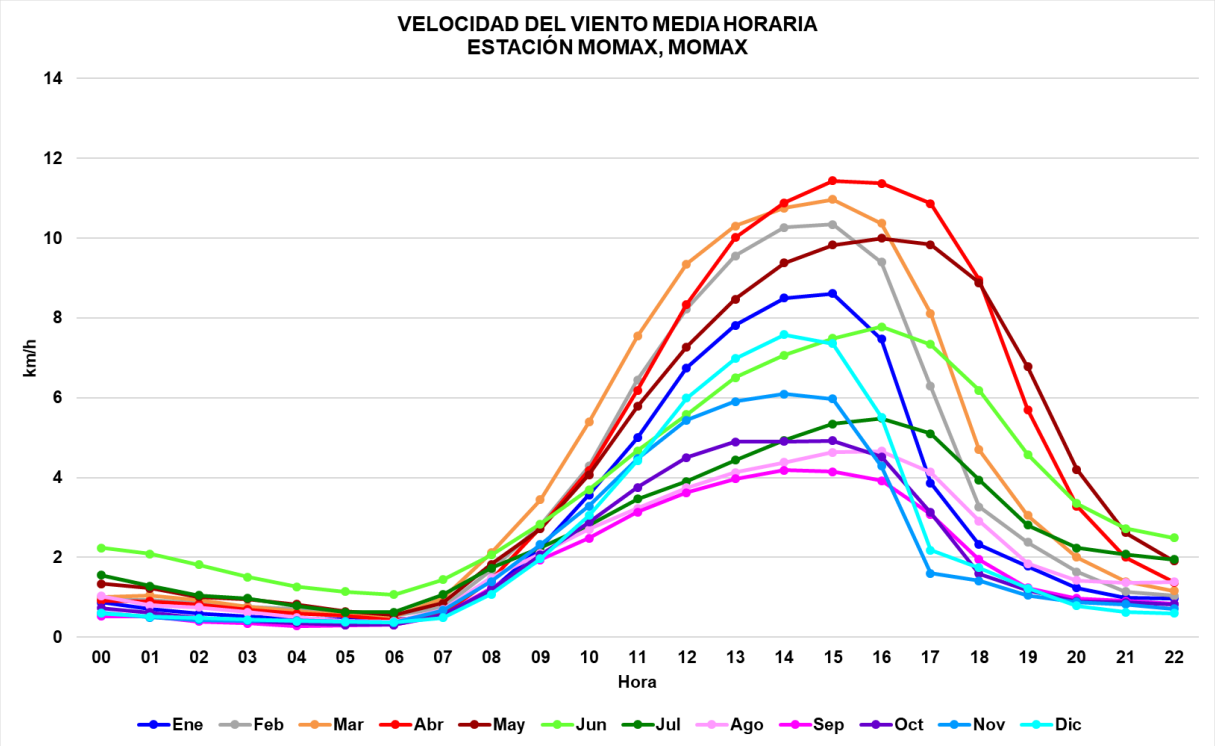


Figura 424. Velocidad del viento media (km/h) horaria de la estación Momax, Momax (2005-2022).

Cuadro 473. Velocidad del viento máxima maximorum (km/h) horaria de la estación Momax, Momax (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	18.3	18.8	25.8	16.8	24.8	20.0	18.6	20.0	12.3	13.0	19.0	15.3	25.8
01	18.5	17.4	19.0	16.9	23.0	18.0	19.3	22.1	13.6	14.0	16.0	14.1	23.0
02	16.3	13.9	21.5	14.7	12.7	19.6	14.0	13.1	9.2	14.7	15.4	14.8	21.5
03	15.7	15.1	19.3	14.4	11.0	12.7	13.3	12.3	9.3	14.8	15.0	14.9	19.3
04	13.6	13.6	19.7	13.0	13.1	17.0	17.3	14.5	8.9	12.4	21.0	14.2	21.0
05	15.9	13.7	17.5	10.8	14.5	14.7	10.4	9.3	7.7	10.4	22.0	15.4	22.0
06	12.9	16.3	16.6	13.1	18.7	13.2	10.0	8.6	10.0	11.5	22.0	14.0	22.0
07	14.7	16.4	18.0	12.3	11.5	12.1	11.4	7.8	9.2	10.0	18.0	14.2	18.0
08	15.4	18.2	19.6	12.0	14.4	16.5	11.1	8.1	9.5	11.2	25.1	14.9	25.1
09	18.8	20.6	20.5	13.4	14.6	14.0	11.8	11.8	13.1	15.8	22.0	18.7	22.0
10	22.9	19.4	21.6	19.3	15.2	18.5	13.0	15.4	14.7	19.0	23.0	19.7	23.0
11	25.9	21.8	25.4	22.4	18.6	18.8	14.6	14.9	14.2	21.0	23.0	21.9	25.9
12	23.9	25.0	30.1	23.4	24.0	22.3	14.9	14.9	15.0	21.0	25.0	24.9	30.1
13	27.2	27.0	24.9	23.4	21.7	27.4	15.6	15.0	15.2	20.1	27.0	28.1	28.1
14	25.5	29.8	30.8	23.9	21.3	24.1	17.4	15.0	14.0	17.1	27.0	23.3	30.8
15	31.2	27.0	28.8	25.5	31.0	25.2	34.1	24.2	21.5	21.1	25.0	26.2	34.1
16	22.4	24.3	27.3	25.3	25.2	34.0	28.1	23.3	22.0	19.0	23.8	23.1	34.0
17	21.8	23.4	26.8	26.8	30.0	29.2	28.0	21.4	28.0	18.4	22.2	24.8	30.0
18	18.4	17.9	25.0	30.9	39.0	31.5	26.4	26.3	16.9	16.0	16.8	15.7	39.0
19	15.4	15.0	19.9	23.8	30.0	28.1	26.1	21.0	23.8	17.7	16.1	17.9	30.0
20	18.1	15.8	24.4	17.3	29.4	28.6	30.6	20.6	22.4	16.1	13.6	23.0	30.6
21	22.6	16.7	20.5	36.1	31.7	32.7	24.1	18.0	13.7	18.3	12.0	17.2	36.1
22	22.1	19.9	22.0	25.0	22.0	23.4	29.6	32.3	15.9	15.3	14.4	13.1	32.3
23	19.1	16.6	21.8	21.1	21.9	22.5	22.1	16.2	17.5	14.4	21.0	12.9	22.5
Máx.	31.2	29.8	30.8	36.1	39.0	34.0	34.1	32.3	28.0	21.1	27.0	28.1	39.0

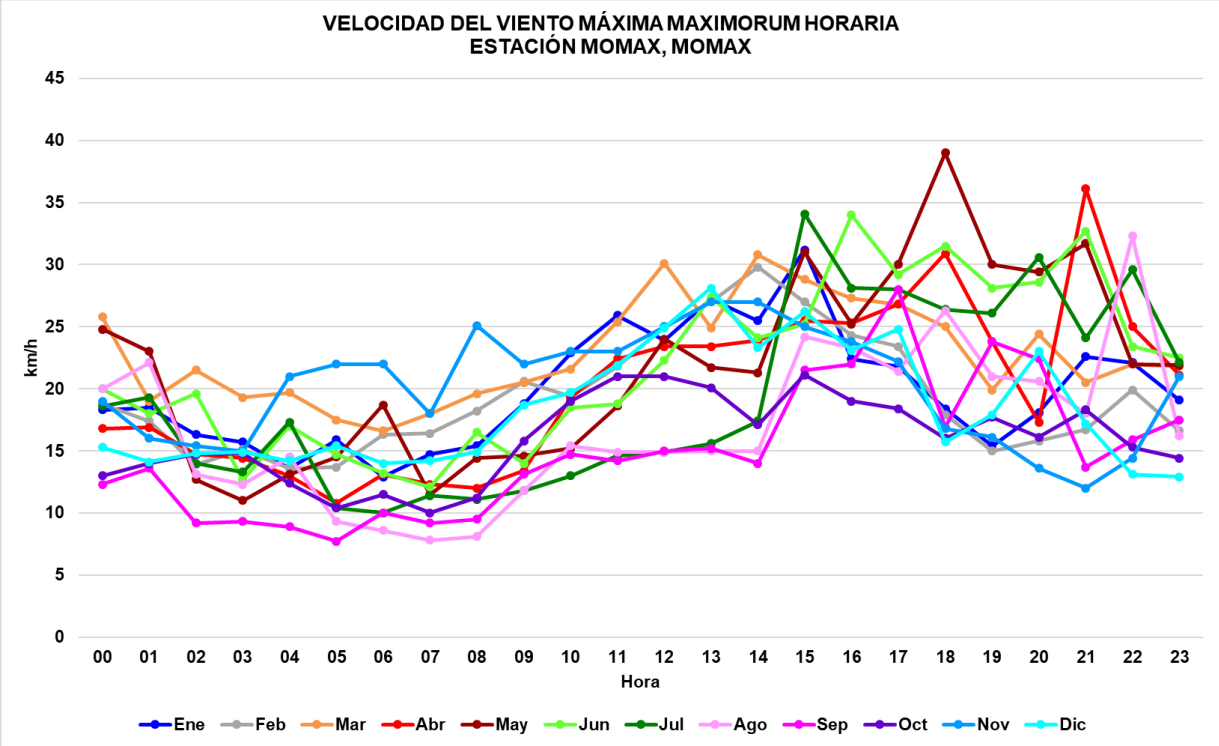


Figura 425. Velocidad del viento máxima maximorum (km/h) horaria de la estación Momax, Momax (2005-2022).

Cuadro 474. Frecuencia de velocidad del viento (%) mensual de la estación Momax, Momax (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	79.9	73.2	68.1	65.4	63.7	69.6	83.4	88.7	91.7	88.4	86.5	83.8	78.7
5.1 a 10.0	12.6	15.2	18.0	18.0	23.7	24.5	14.9	10.6	7.9	10.3	10.6	11.1	14.7
10.1 a 15.0	6.0	8.4	9.9	13.6	10.8	5.2	1.5	0.7	0.4	1.2	2.5	4.0	5.3
15.1 a 20.0	1.4	2.9	3.7	2.9	1.7	0.7	0.1	0.0	0.0	0.1	0.3	0.9	1.2
20.1 a 25.0	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
25.1 a 30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.1 a 35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

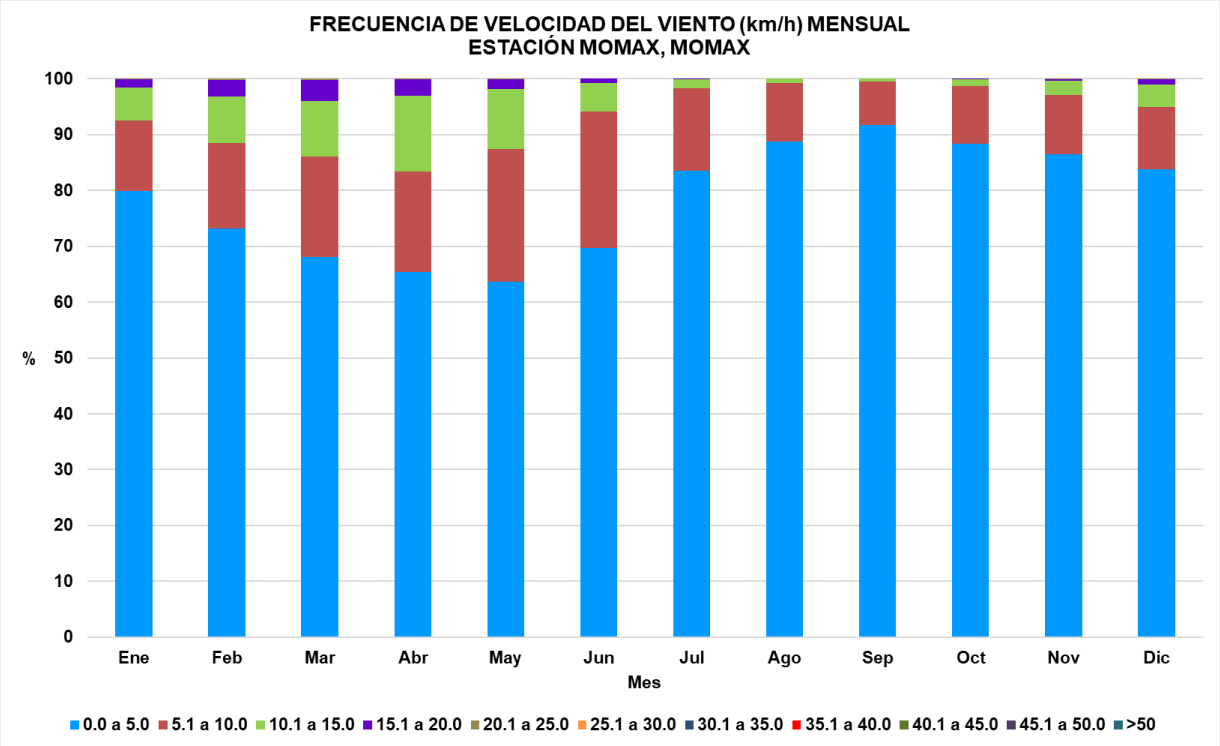


Figura 426. Frecuencia de velocidad del viento (%) mensual de la estación Momax, Momax (2005-2022).

Cuadro 475. Frecuencia de dirección del viento (%) mensual de la estación Momax, Momax (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	8.8	9.1	9.0	9.5	9.4	8.0	7.8	8.2	9.0	8.4	9.4	8.6	8.8
NNE	13.4	13.0	12.8	11.6	11.0	8.5	7.6	8.1	8.9	10.7	13.5	12.7	10.9
NE	13.6	12.3	12.1	11.9	9.9	7.7	7.0	7.5	7.8	12.1	15.5	15.0	11.0
ENE	6.6	6.9	6.5	5.9	5.3	5.4	5.1	5.6	5.3	7.2	7.1	7.0	6.1
E	4.3	3.8	3.4	3.3	3.3	3.9	3.7	3.9	4.2	4.9	4.2	3.9	3.9
ESE	3.0	2.7	2.7	2.5	2.8	4.4	4.7	4.4	4.6	4.5	3.5	2.8	3.6
SE	3.3	3.1	3.0	2.9	4.6	7.8	7.8	8.1	7.6	6.1	3.8	3.7	5.2
SSE	3.3	3.3	3.3	3.2	5.3	9.3	8.1	7.4	6.8	5.4	3.4	3.8	5.3
S	4.0	3.7	3.7	3.8	5.2	7.7	7.2	7.1	5.9	4.9	4.1	4.2	5.1
SSO	4.3	4.2	4.3	4.5	4.8	5.6	5.5	4.7	4.4	4.0	3.7	3.9	4.5
SO	5.9	6.2	6.1	6.7	5.8	4.7	5.0	4.6	3.9	3.8	4.5	5.1	5.2
OSO	7.1	7.8	7.8	8.6	6.9	4.6	4.8	4.1	3.9	4.5	5.8	6.4	6.0
O	6.1	7.2	7.8	8.3	7.7	5.0	5.5	5.1	4.6	4.9	5.4	6.5	6.1
ONO	6.1	6.0	6.5	6.7	6.8	6.0	7.2	7.1	7.3	6.3	5.5	5.4	6.4
NO	5.2	5.6	5.9	5.7	6.1	6.2	7.2	7.8	8.7	6.1	5.2	4.8	6.2
NNO	5.0	5.2	5.3	4.8	5.2	5.3	5.9	6.3	7.0	6.2	5.3	6.1	5.6
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

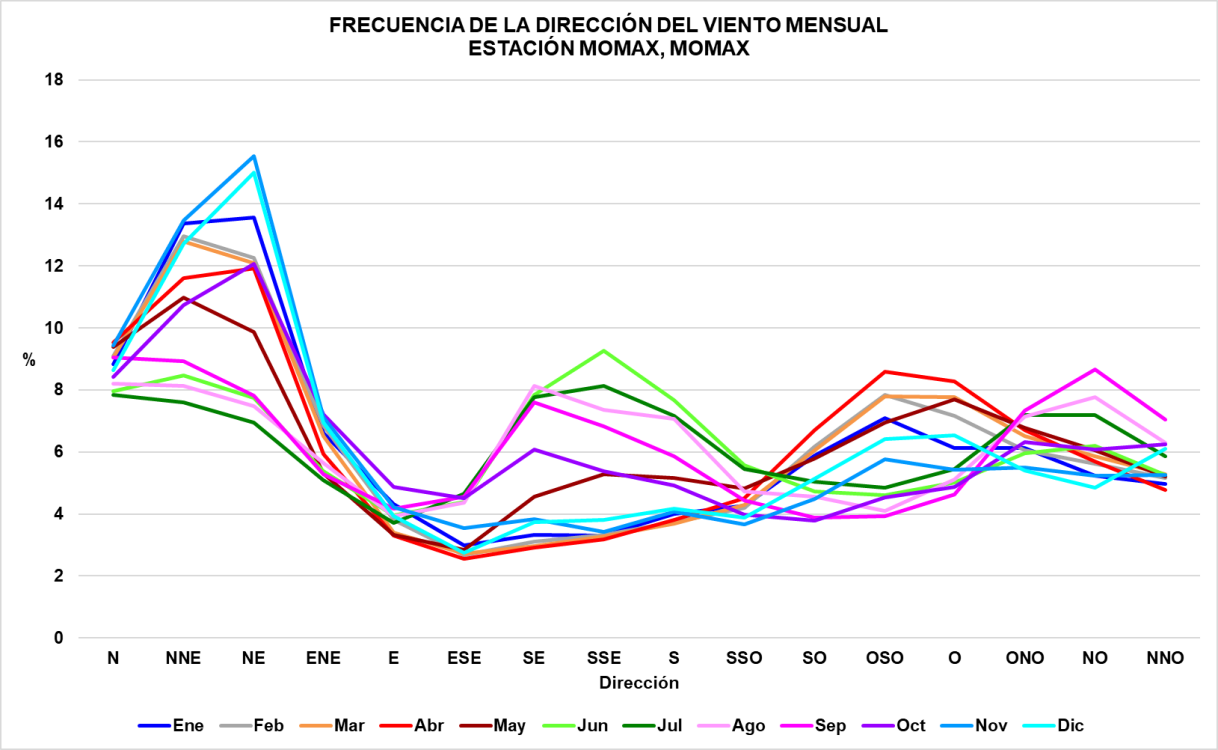
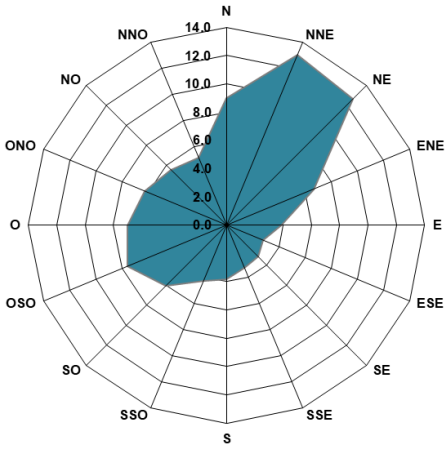


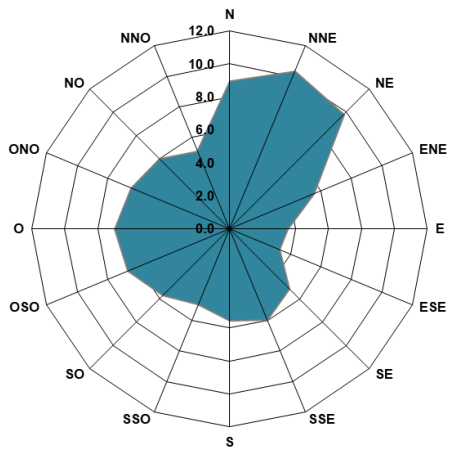
Figura 427. Frecuencia de dirección del viento (%) mensual de la estación Momax, Momax (2005-2022).

Cuadro 476. Frecuencia de dirección del viento (%) trimestral de la estación Momax, Momax (2005-2022).

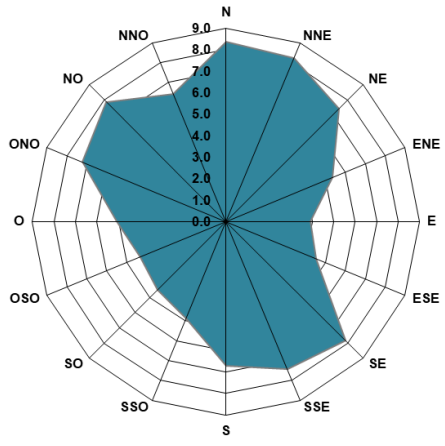
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	9.0	9.0	8.4	8.8	8.8
NNE	13.0	10.3	8.2	12.3	10.9
NE	12.6	9.8	7.4	14.2	11.0
ENE	6.7	5.5	5.3	7.1	6.1
E	3.8	3.5	3.9	4.3	3.9
ESE	2.8	3.3	4.5	3.6	3.6
SE	3.1	5.1	7.8	4.6	5.2
SSE	3.3	6.0	7.4	4.2	5.3
S	3.8	5.6	6.7	4.4	5.1
SSO	4.3	5.0	4.9	3.8	4.5
SO	6.0	5.7	4.5	4.5	5.2
OSO	7.6	6.7	4.3	5.6	6.0
O	7.0	7.0	5.1	5.6	6.1
ONO	6.2	6.5	7.2	5.7	6.4
NO	5.6	6.0	7.9	5.4	6.2
NNO	5.1	5.1	6.4	5.9	5.6
Suma	100.0	100.0	100.0	100.0	100.0



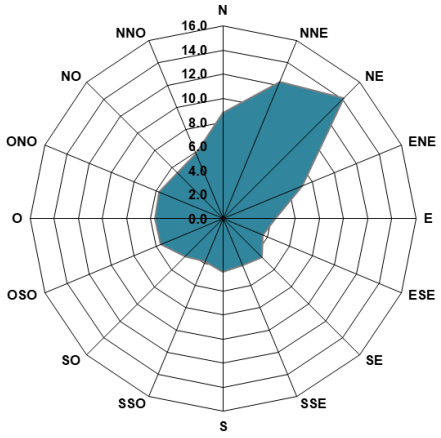
Ene-Mar



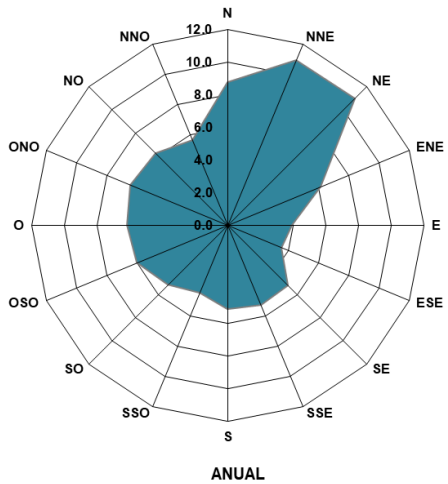
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 428. Frecuencia de dirección del viento (%) trimestral de la estación Momax, Momax (2005-2022).

Cuadro 477. Estadísticas climatológicas mensuales de la estación Momax, Momax (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	24.7	26.8	29.2	31.5	33.1	31.8	28.9	28.9	28.6	28.7	26.9	25.2	28.7
Temperatura máxima maximorum (°C)	31.0	34.5	35.3	36.9	39.2	38.7	34.4	34.4	32.7	33.5	32.5	31.5	39.2
Temperatura mínima media (°C)	0.5	1.5	3.2	5.1	9.4	14.6	14.8	14.4	13.3	9.0	3.4	0.6	7.5
Temperatura mínima minimorum (°C)	-11.1	-8.9	-6.4	-3.4	-0.4	3.9	9.0	9.5	4.8	-3.3	-10.2	-8.2	-11.1
Temperatura media (°C)	11.8	13.8	16.5	19.1	21.9	22.8	20.8	20.6	19.8	17.9	14.1	11.7	17.6
Oscilación térmica (°C)	24.2	25.4	26.0	26.4	23.8	17.2	14.0	14.5	15.2	19.7	23.5	24.6	21.2
Precipitación acumulada media (mm)	11.2	12.4	6.9	5.4	19.5	107.9	181.9	157.2	109.1	35.7	15.5	14.4	677.3
Precipitación máxima maximorum en 24 horas (mm)	23.0	36.8	50.4	41.2	52.6	59.2	57.6	70.6	49.6	31.6	38.8	32.6	70.6
Número de días promedio con lluvia	3.7	3.7	6.0	2.3	4.9	13.1	21.0	19.1	16.9	6.5	3.6	3.3	103.9
Evapotranspiración acumulada potencial media (mm)	115.4	134.4	180.6	199.2	212.1	171.7	160.2	161.5	137.6	142.1	119.4	111.2	1845.3
Humedad máxima media (%)	87.9	82.9	73.0	68.1	70.4	86.0	96.5	97.2	98.0	97.1	95.0	92.9	87.1
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	19.6	16.6	12.4	10.4	12.4	24.8	37.5	40.4	40.9	30.6	24.2	21.9	24.3
Humedad mínima minimorum (%)	6.0	4.0	4.0	4.0	3.0	5.0	12.0	14.0	14.0	9.0	5.0	5.0	3.0
Humedad media (%)	54.1	47.4	37.5	32.9	36.5	56.0	72.9	75.0	77.0	69.4	62.8	59.9	56.8
Radiación global media día/mes (W/m^2)	19246.6	22976.9	26930.2	29550.3	29763.5	26029.2	25055.3	25179.7	22537.6	22402.4	20295.3	18404.6	24031.0
Radiación global media día/mes (kWh/m^2)	4.8	5.7	6.7	7.4	7.4	6.5	6.3	6.3	5.6	5.6	5.1	4.6	6.0
Radiación global media día/mes ($Mj/m^2/s$)	17.3	20.7	24.2	26.6	26.8	23.4	22.5	22.7	20.3	20.2	18.3	16.6	21.6
Velocidad del viento máxima media (km/h)	12.9	14.6	15.5	15.9	15.7	15.2	12.6	10.5	9.2	9.1	9.8	11.3	12.7
Velocidad del viento máxima maximorum (km/h)	31.2	29.8	30.8	36.1	39.0	34.0	34.1	32.3	28.0	21.1	27.0	28.1	39.0
Velocidad del viento media (km/h)	2.8	3.6	4.1	4.4	4.3	3.7	2.6	2.1	1.7	1.9	2.1	2.3	3.0
Dirección dominante del viento	NE	NNE	NNE	NE	NNE	SSE	SSE	N	N	NE	NE	NE	NE

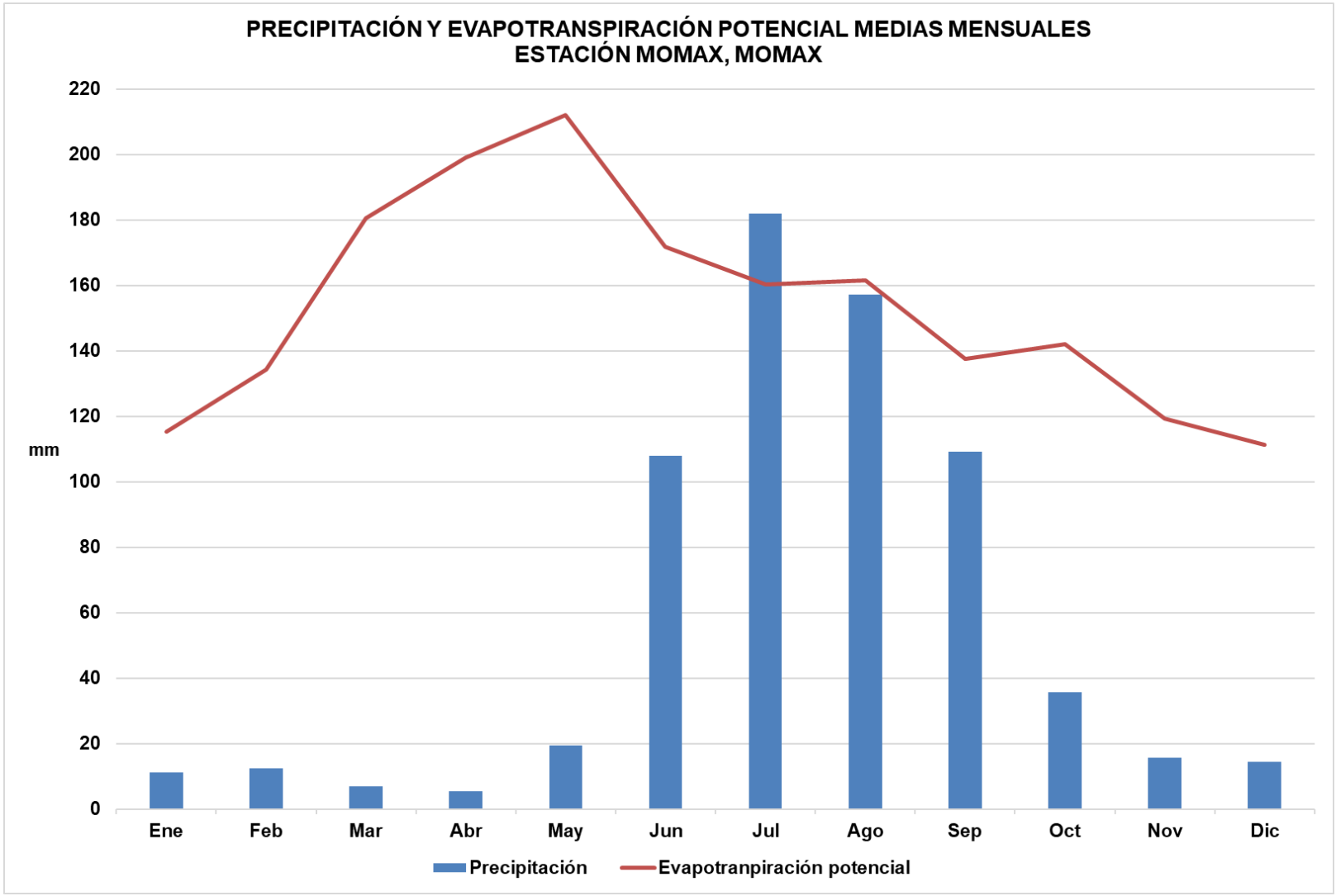


Figura 429. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Momax, Momax (2005-2022).

7.26. Estación: Providencia, Sombrerete

Cuadro 478. Temperatura máxima media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.1	8.9	10.8	14.1	16.3	16.7	15.2	15.0	13.7	11.7	8.9	7.5	12.1
01	6.7	8.5	10.1	13.2	15.5	16.0	14.8	14.6	13.3	11.3	8.5	7.2	11.6
02	6.4	8.2	9.7	12.6	14.8	15.4	14.3	14.1	12.9	10.8	8.1	6.9	11.2
03	6.1	7.8	9.3	12.1	14.1	14.7	13.9	13.7	12.6	10.4	7.8	6.7	10.8
04	5.9	7.5	8.8	11.5	13.4	14.2	13.4	13.3	12.3	10.1	7.5	6.5	10.4
05	5.6	7.2	8.4	11.1	12.9	13.7	13.0	12.9	12.0	9.8	7.2	6.2	10.0
06	5.4	7.0	8.1	10.7	12.5	13.3	12.7	12.5	11.7	9.5	7.0	6.0	9.7
07	5.6	7.4	10.1	11.5	13.6	14.3	13.1	12.6	11.8	9.8	8.6	6.4	10.4
08	8.9	11.2	13.9	14.9	17.3	17.4	15.7	15.0	13.9	13.1	13.1	10.3	13.7
09	11.6	13.6	16.1	17.4	19.4	19.2	17.4	17.0	16.1	16.0	15.2	13.0	16.0
10	13.5	15.4	17.8	19.4	21.2	20.9	18.8	18.5	17.7	17.7	16.9	14.7	17.7
11	15.0	17.0	19.4	21.2	22.7	22.4	20.1	20.0	19.0	19.1	18.2	16.1	19.2
12	16.1	18.2	20.7	22.6	24.1	23.6	21.3	21.2	20.0	20.2	19.2	17.2	20.4
13	16.9	19.1	21.5	23.7	25.2	24.6	22.1	22.0	20.6	21.0	19.8	17.9	21.2
14	17.3	19.5	22.0	24.5	26.0	25.1	22.5	22.5	21.1	21.4	20.1	18.3	21.7
15	17.3	19.6	22.0	24.7	26.3	25.3	22.5	22.6	21.1	21.5	19.9	18.2	21.8
16	16.9	19.3	21.7	24.7	26.2	25.1	22.4	22.4	20.8	21.4	19.3	17.6	21.5
17	15.9	18.4	20.9	24.2	25.9	24.6	21.9	22.0	20.2	20.7	18.0	16.3	20.8
18	13.7	16.8	19.4	23.3	25.1	23.9	21.3	21.1	19.3	19.4	14.7	13.1	19.3
19	10.7	13.6	16.7	21.7	23.8	23.0	20.2	20.0	17.9	16.8	12.1	10.7	17.3
20	9.6	12.0	14.5	19.2	21.8	21.4	18.8	18.3	16.0	14.3	11.3	9.8	15.6
21	8.8	11.1	13.5	17.2	19.5	19.5	17.2	16.7	14.9	13.4	10.6	9.1	14.3
22	8.1	10.3	12.5	16.1	18.3	18.3	16.3	15.9	14.4	12.7	9.9	8.5	13.4
23	7.5	9.6	11.6	15.1	17.3	17.3	15.8	15.4	14.0	12.1	9.3	8.0	12.7
Media	10.7	12.8	15.0	17.8	19.7	19.6	17.7	17.5	16.1	15.2	13.0	11.3	15.5

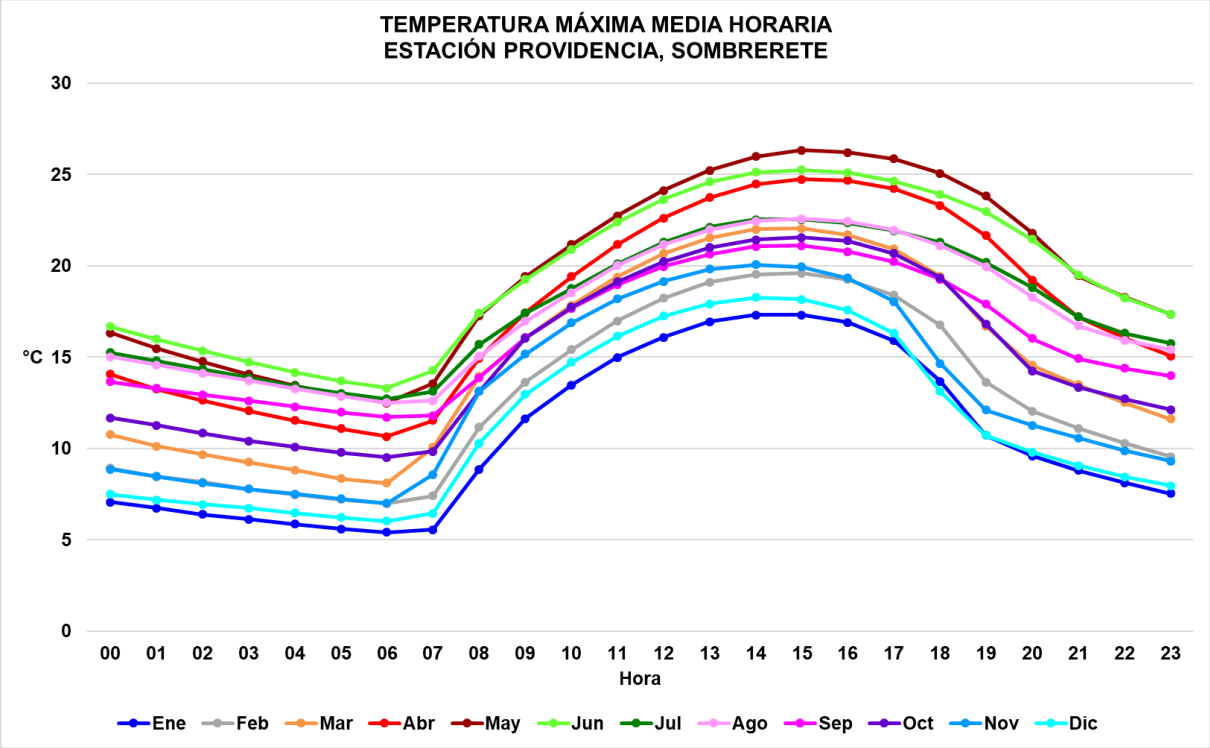


Figura 430. Temperatura máxima media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 479. Temperatura máxima maximorum (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.8	17.8	18.1	20.2	23.3	23.7	21.4	20.0	18.0	17.2	16.4	13.8	23.7
01	13.2	16.7	18.5	19.2	22.6	22.2	20.7	19.3	17.8	16.8	14.6	14.4	22.6
02	12.8	16.1	17.7	18.9	22.2	21.3	19.0	18.1	17.6	16.2	14.4	14.3	22.2
03	12.8	15.2	17.7	19.0	21.0	20.9	18.3	17.4	16.2	15.6	14.6	13.4	21.0
04	12.8	15.3	16.9	18.9	20.9	20.3	17.2	16.5	15.6	15.7	14.2	13.5	20.9
05	13.5	14.8	16.2	18.9	20.7	20.2	17.7	16.6	15.8	15.4	14.3	13.6	20.7
06	13.5	14.4	16.3	18.8	20.8	19.5	17.2	17.0	15.3	14.7	14.3	13.3	20.8
07	13.8	15.4	18.5	19.8	21.8	21.7	19.5	16.6	16.6	16.6	16.1	15.0	21.8
08	17.3	20.8	24.0	21.9	24.6	24.1	21.4	20.4	19.6	20.6	21.8	19.2	24.6
09	19.1	22.8	25.0	23.7	27.4	26.3	23.8	21.9	21.5	22.7	23.3	20.8	27.4
10	21.3	25.3	26.8	25.2	28.4	28.4	24.9	23.4	23.1	23.6	24.2	23.9	28.4
11	22.6	26.9	28.9	26.8	30.1	29.9	26.6	25.5	24.5	24.5	25.3	24.7	30.1
12	23.4	28.0	30.1	27.9	31.2	30.4	27.7	27.0	25.1	25.3	26.3	25.8	31.2
13	24.2	28.6	30.7	28.6	32.1	31.8	28.7	28.3	25.8	26.9	27.1	26.4	32.1
14	23.6	29.1	31.0	30.3	33.3	31.9	28.6	29.0	26.6	27.0	27.2	25.8	33.3
15	23.3	28.5	30.5	30.9	33.9	32.5	29.4	29.0	27.4	27.8	26.4	25.3	33.9
16	23.1	28.1	30.5	30.3	33.3	32.6	29.3	29.2	27.2	27.8	26.3	24.3	33.3
17	22.6	26.3	30.5	30.3	33.3	32.3	29.9	28.8	27.6	26.5	24.6	22.5	33.3
18	20.6	25.3	29.4	29.7	32.9	31.8	29.3	28.2	26.3	25.1	21.3	19.3	32.9
19	17.3	22.0	24.9	28.3	32.2	31.1	28.4	27.3	25.2	23.8	19.0	17.2	32.2
20	16.6	20.4	23.1	25.3	30.2	29.3	26.7	24.7	23.1	23.0	19.1	16.0	30.2
21	15.9	19.0	20.4	22.7	27.2	25.9	23.9	22.8	20.9	20.1	18.0	15.3	27.2
22	14.4	18.2	20.3	21.5	25.9	24.8	23.5	21.6	19.4	18.9	16.5	15.5	25.9
23	14.6	18.0	19.9	21.2	24.7	23.6	21.8	20.4	18.1	17.9	16.5	14.8	24.7
Máx.	24.2	29.1	31.0	30.9	33.9	32.6	29.9	29.2	27.6	27.8	27.2	26.4	33.9

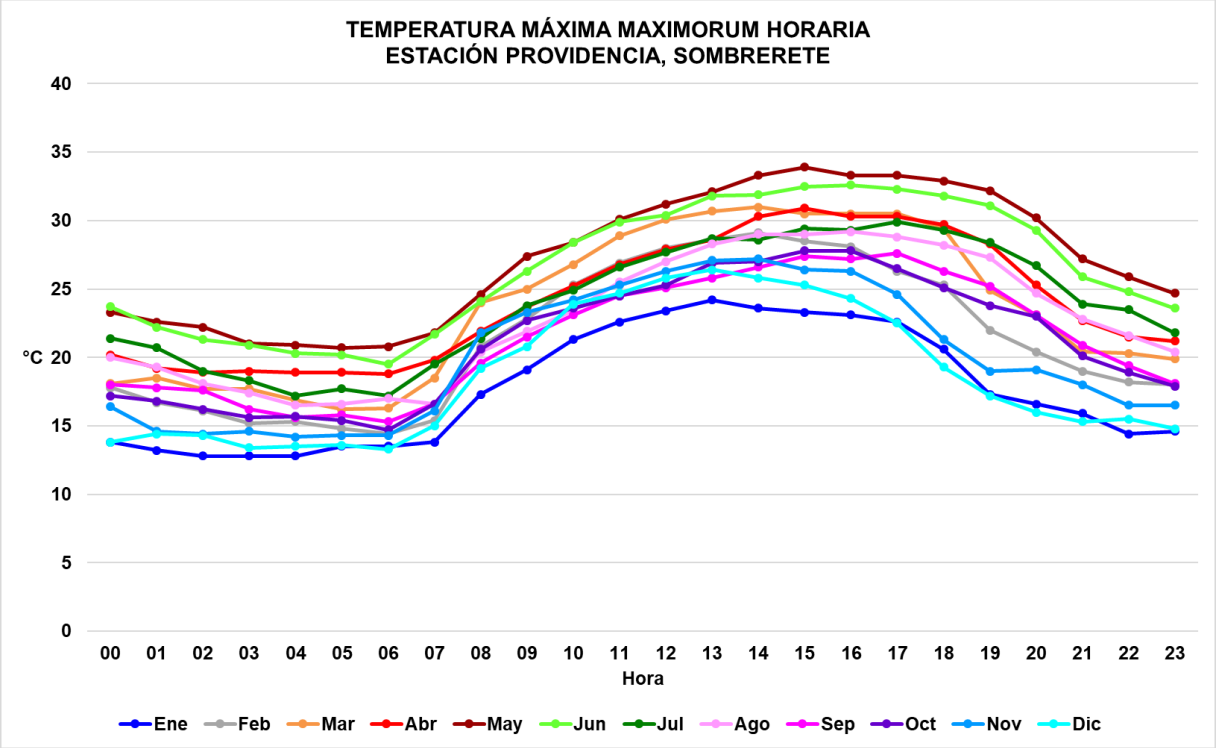


Figura 431. Temperatura máxima maximorum (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 480. Temperatura mínima media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.1	8.0	9.8	13.0	15.3	15.8	14.6	14.4	13.1	10.9	7.9	6.5	11.3
01	5.7	7.5	9.2	12.3	14.5	15.2	14.2	13.9	12.7	10.5	7.5	6.2	10.8
02	5.4	7.1	8.6	11.6	13.8	14.6	13.7	13.5	12.4	10.1	7.1	5.9	10.3
03	5.1	6.7	8.2	11.0	13.0	14.0	13.3	13.1	12.1	9.7	6.8	5.7	9.9
04	4.8	6.5	7.7	10.4	12.5	13.4	12.8	12.7	11.8	9.4	6.5	5.4	9.5
05	4.5	6.2	7.3	10.0	11.9	12.9	12.5	12.3	11.5	9.1	6.2	5.2	9.1
06	4.4	5.9	7.0	9.6	11.4	12.6	12.2	12.0	11.2	8.8	6.0	5.0	8.8
07	4.4	5.9	7.5	9.6	11.6	12.7	12.1	11.8	11.1	8.6	6.2	5.0	8.9
08	5.6	8.0	11.2	12.0	14.4	15.0	13.6	12.9	11.9	10.1	9.8	6.8	10.9
09	9.7	11.9	14.5	15.7	17.8	17.8	16.1	15.5	14.5	14.0	13.7	11.1	14.4
10	12.0	14.0	16.5	17.9	19.8	19.6	17.6	17.3	16.4	16.4	15.5	13.4	16.4
11	13.7	15.7	18.1	19.8	21.5	21.2	19.0	18.8	17.8	18.0	17.1	15.0	18.0
12	15.0	17.1	19.6	21.5	23.0	22.5	20.2	20.1	18.9	19.2	18.2	16.2	19.3
13	16.0	18.2	20.6	22.7	24.1	23.4	21.0	21.0	19.6	20.0	18.9	17.1	20.2
14	16.6	18.8	21.2	23.5	24.9	23.9	21.2	21.3	19.9	20.5	19.3	17.6	20.7
15	16.6	18.9	21.3	23.9	25.3	24.0	21.2	21.4	19.9	20.6	19.2	17.5	20.8
16	16.1	18.4	20.9	23.9	25.2	23.9	21.1	21.2	19.6	20.3	18.4	16.6	20.5
17	14.4	17.2	19.8	23.3	24.9	23.5	20.6	20.6	19.1	19.5	15.9	14.2	19.4
18	11.1	14.5	17.5	22.1	24.0	22.8	20.0	19.9	18.0	17.5	12.3	10.9	17.5
19	9.5	12.1	14.8	19.8	22.3	21.7	19.0	18.6	16.4	14.5	11.1	9.7	15.8
20	8.6	11.1	13.5	17.5	19.8	19.9	17.4	16.9	15.0	13.2	10.3	8.9	14.3
21	7.8	10.1	12.5	16.2	18.3	18.3	16.3	15.8	14.2	12.5	9.6	8.1	13.3
22	7.1	9.3	11.5	15.1	17.3	17.2	15.6	15.2	13.8	11.9	8.9	7.5	12.5
23	6.5	8.6	10.6	14.1	16.4	16.4	15.1	14.7	13.4	11.3	8.3	7.0	11.9
Media	9.5	11.6	13.7	16.5	18.5	18.4	16.7	16.4	15.2	14.0	11.7	10.1	14.4

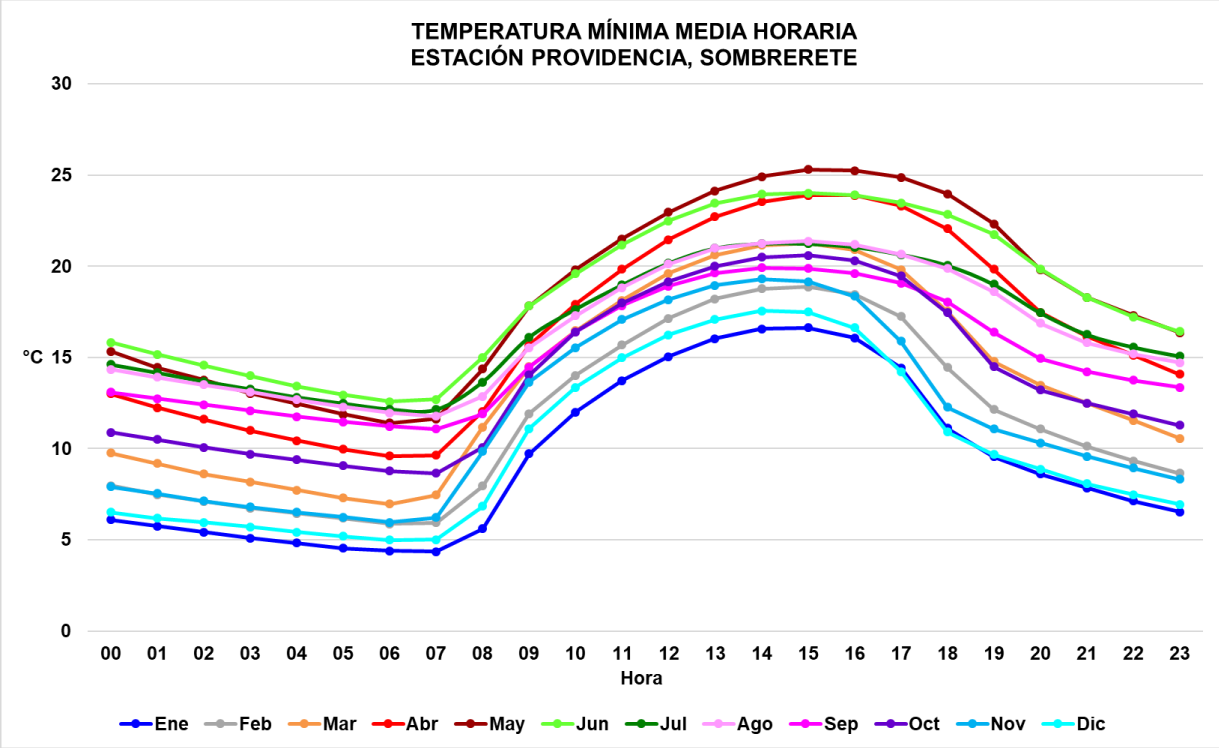


Figura 432. Temperatura mínima media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 481. Temperatura mínima minimorum (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.6	-3.9	-4.5	0.7	5.8	9.6	10.6	10.3	5.8	-0.4	-5.1	-7.7	-7.7
01	-4.0	-4.6	-3.8	1.0	5.3	8.9	10.3	10.0	5.4	0.5	-6.6	-8.7	-8.7
02	-4.8	-5.6	-4.8	0.9	4.2	9.1	10.6	9.8	5.0	0.2	-7.2	-8.5	-8.5
03	-5.3	-6.1	-5.3	1.1	5.1	7.9	10.2	8.9	4.3	-0.8	-6.9	-9.4	-9.4
04	-5.9	-6.6	-5.9	1.1	4.4	7.4	9.5	8.3	4.2	-1.8	-7.2	-9.6	-9.6
05	-7.1	-6.9	-6.3	0.1	3.6	7.4	8.7	8.0	3.7	-0.8	-8.8	-8.0	-8.8
06	-8.1	-6.7	-6.4	0.1	2.4	6.6	8.5	8.3	3.3	-2.0	-9.0	-8.1	-9.0
07	-8.9	-6.7	-6.6	0.1	1.9	7.5	8.4	7.6	2.7	-1.1	-8.5	-8.9	-8.9
08	-9.0	-4.3	-2.6	1.2	3.0	9.4	10.2	8.5	4.6	1.7	-3.4	-7.6	-9.0
09	-4.4	-1.1	-0.6	5.2	7.2	11.0	11.2	10.1	5.1	3.8	-0.8	-5.2	-5.2
10	-1.3	0.3	-0.2	7.0	7.8	12.3	12.1	11.8	9.7	4.6	0.7	-5.3	-5.3
11	0.8	3.8	0.7	9.6	8.4	12.5	12.3	12.3	11.1	6.8	2.5	-5.7	-5.7
12	0.8	3.1	1.7	12.4	10.5	12.7	12.7	12.6	12.5	9.1	2.9	-5.2	-5.2
13	2.8	3.4	1.9	13.8	12.4	12.2	12.7	12.7	12.2	9.4	4.1	-4.6	-4.6
14	2.8	4.1	2.0	15.0	11.6	10.4	11.7	12.1	12.8	9.4	4.8	-3.2	-3.2
15	2.3	4.8	1.4	12.6	10.3	11.4	10.0	12.0	10.8	10.1	5.9	-1.6	-1.6
16	0.4	4.8	-0.9	13.0	10.0	12.6	11.9	11.7	11.6	10.0	5.1	-0.9	-0.9
17	0.6	4.8	-1.0	11.9	10.6	12.4	10.4	11.1	11.6	9.9	2.5	-2.4	-2.4
18	-0.1	3.8	-1.2	10.6	10.7	11.8	10.4	11.0	11.6	8.5	-0.2	-4.9	-4.9
19	-0.8	1.7	-2.4	9.5	11.7	11.6	10.4	9.9	10.7	6.0	-2.0	-6.5	-6.5
20	-2.4	0.0	-3.2	7.1	10.1	11.6	12.0	11.8	9.8	3.6	-3.6	-8.4	-8.4
21	-1.6	-1.9	-3.5	3.4	9.5	11.0	11.3	11.5	8.8	2.8	-4.0	-8.3	-8.3
22	-2.2	-2.6	-3.7	2.1	8.3	11.0	11.0	11.4	7.7	2.1	-5.4	-8.3	-8.3
23	-3.0	-3.6	-4.4	0.5	7.1	10.8	11.1	11.4	6.5	0.7	-5.1	-8.1	-8.1
Mín.	-9.0	-6.9	-6.6	0.1	1.9	6.6	8.4	7.6	2.7	-2.0	-9.0	-9.6	-9.6

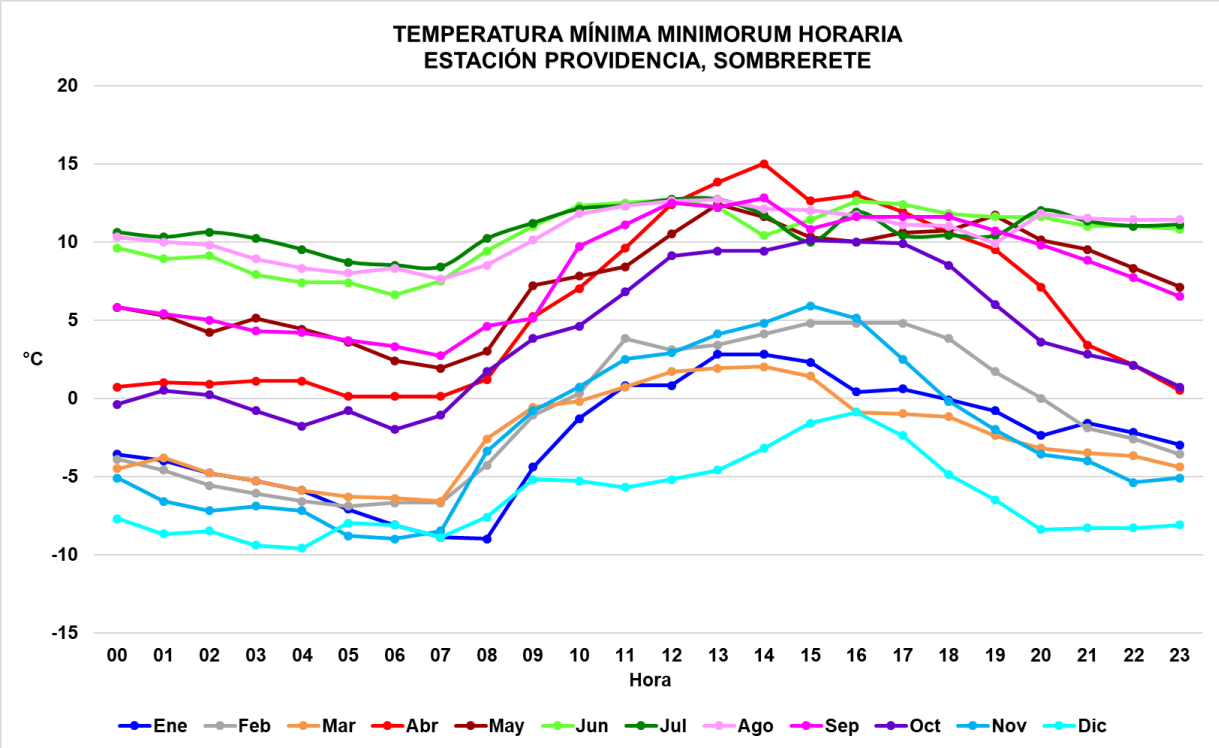


Figura 433. Temperatura mínima minimorum (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 482. Temperatura media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	8.5	10.3	13.5	15.8	16.2	14.9	14.7	13.4	11.3	8.4	7.0	11.7
01	6.3	8.0	9.7	12.8	15.0	15.6	14.5	14.2	13.0	10.9	8.0	6.7	11.2
02	5.9	7.6	9.2	12.1	14.3	15.0	14.0	13.8	12.7	10.4	7.6	6.4	10.8
03	5.6	7.3	8.7	11.5	13.5	14.4	13.6	13.4	12.3	10.1	7.3	6.2	10.3
04	5.3	7.0	8.3	11.0	13.0	13.8	13.1	13.0	12.0	9.7	7.0	6.0	9.9
05	5.1	6.7	7.8	10.5	12.4	13.3	12.8	12.6	11.7	9.4	6.8	5.7	9.6
06	4.9	6.4	7.5	10.1	11.9	12.9	12.4	12.2	11.5	9.1	6.5	5.5	9.3
07	4.9	6.6	8.6	10.5	12.5	13.4	12.6	12.2	11.4	9.2	7.3	5.7	9.6
08	7.2	9.6	12.7	13.5	15.9	16.3	14.7	14.0	12.8	11.5	11.6	8.6	12.4
09	10.7	12.8	15.3	16.6	18.6	18.5	16.8	16.3	15.3	15.1	14.4	12.1	15.2
10	12.7	14.7	17.1	18.7	20.5	20.2	18.2	17.9	17.0	17.1	16.2	14.1	17.0
11	14.4	16.3	18.8	20.5	22.1	21.8	19.5	19.4	18.4	18.6	17.6	15.6	18.6
12	15.6	17.7	20.1	22.1	23.5	23.1	20.7	20.6	19.4	19.7	18.7	16.7	19.8
13	16.5	18.7	21.1	23.2	24.7	24.0	21.6	21.5	20.1	20.5	19.4	17.5	20.7
14	16.9	19.2	21.6	24.0	25.5	24.5	21.9	21.9	20.5	21.0	19.7	17.9	21.2
15	17.0	19.2	21.7	24.3	25.8	24.6	21.9	22.0	20.5	21.1	19.6	17.8	21.3
16	16.5	18.9	21.3	24.3	25.7	24.5	21.7	21.8	20.2	20.8	18.9	17.1	21.0
17	15.2	17.8	20.4	23.8	25.4	24.1	21.3	21.3	19.7	20.1	17.1	15.4	20.1
18	12.4	15.7	18.5	22.7	24.5	23.4	20.7	20.5	18.7	18.4	13.3	11.9	18.4
19	10.1	12.8	15.7	20.8	23.1	22.4	19.6	19.3	17.1	15.6	11.6	10.2	16.5
20	9.1	11.6	14.0	18.3	20.8	20.7	18.1	17.6	15.5	13.7	10.8	9.3	15.0
21	8.3	10.6	13.0	16.7	18.9	18.9	16.7	16.2	14.6	12.9	10.1	8.6	13.8
22	7.6	9.8	12.0	15.6	17.8	17.7	15.9	15.5	14.1	12.3	9.4	8.0	13.0
23	7.0	9.1	11.1	14.6	16.9	16.9	15.4	15.1	13.7	11.7	8.8	7.5	12.3
Media	10.1	12.2	14.4	17.2	19.1	19.0	17.2	17.0	15.6	14.6	12.3	10.7	14.9

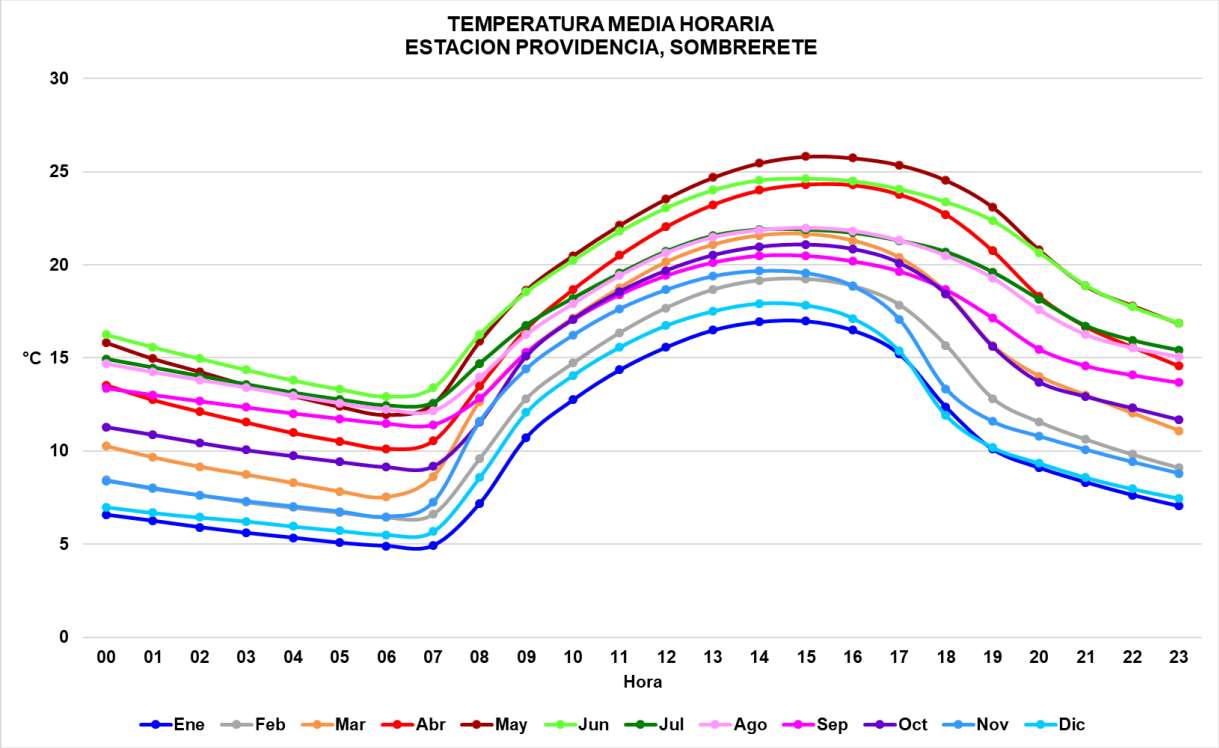


Figura 434. Temperatura media (˚C) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 483. Precipitación media (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.6	0.9	0.4	0.1	0.5	4.4	4.2	7.0	6.9	2.1	0.3	0.4	27.9
01	0.6	0.6	0.4	0.1	0.8	2.2	5.7	5.3	7.8	1.4	0.3	0.1	25.4
02	0.4	0.4	0.4	0.1	0.2	2.8	5.2	4.0	5.0	1.5	0.6	0.2	20.6
03	0.3	0.6	0.1	0.2	0.1	2.1	3.7	2.5	3.6	1.9	0.4	0.3	15.8
04	0.3	0.4	0.1	0.1	0.2	1.5	2.5	2.5	2.2	0.9	0.4	0.3	11.6
05	0.4	0.6	0.1	0.0	0.1	0.4	2.8	1.8	2.1	1.3	1.0	0.7	11.3
06	0.8	0.4	0.1	0.0	0.3	0.2	2.6	0.6	1.3	1.2	0.7	0.5	8.5
07	0.8	0.4	0.2	0.0	0.1	0.2	1.3	0.6	1.5	0.7	0.3	0.4	6.6
08	0.5	0.5	0.2	0.0	0.0	0.3	0.8	0.5	0.7	0.7	0.3	0.5	4.9
09	0.3	0.5	0.1	0.0	0.0	0.2	0.8	0.4	1.0	0.4	0.4	0.3	4.4
10	0.5	0.7	0.0	0.0	0.0	0.2	0.9	0.3	0.7	0.7	0.3	0.5	4.8
11	0.5	0.6	0.4	0.0	0.0	0.2	0.7	0.3	1.0	1.5	0.3	0.6	6.1
12	0.8	0.5	0.3	0.0	0.1	0.8	1.8	0.8	1.8	1.1	0.3	1.0	9.3
13	0.5	0.6	0.2	0.0	0.1	1.6	2.2	3.7	3.0	2.1	1.4	0.6	16.1
14	0.4	0.6	0.4	0.0	0.3	4.3	10.8	8.5	3.0	2.0	0.5	0.1	30.9
15	0.6	0.6	0.5	0.1	0.6	5.5	10.0	9.6	10.8	2.1	1.3	0.3	41.8
16	1.6	0.7	0.6	0.1	0.8	3.7	10.7	14.1	11.5	5.8	1.4	0.4	51.5
17	0.6	0.6	0.5	0.4	1.2	3.3	11.9	9.8	7.2	5.0	1.0	0.7	42.3
18	0.6	0.4	0.5	0.3	0.7	5.2	10.1	9.9	6.6	4.3	1.1	0.6	40.3
19	0.7	0.5	0.8	0.2	0.4	4.3	11.2	7.8	10.1	3.4	1.1	0.4	40.5
20	0.8	0.5	0.4	0.5	2.9	4.6	7.1	8.8	6.8	5.2	0.8	0.6	38.9
21	0.5	0.2	0.1	0.0	1.9	4.6	9.5	8.4	9.1	3.1	0.9	0.5	38.7
22	0.6	0.5	0.1	0.0	0.3	4.6	6.0	7.5	10.1	3.6	0.7	0.7	34.6
23	0.5	0.7	0.1	0.0	0.4	5.2	6.3	7.7	7.0	3.5	0.5	0.5	32.6
Suma	14.2	12.8	6.9	2.3	11.9	62.5	128.9	122.2	120.9	55.5	16.2	11.3	565.4

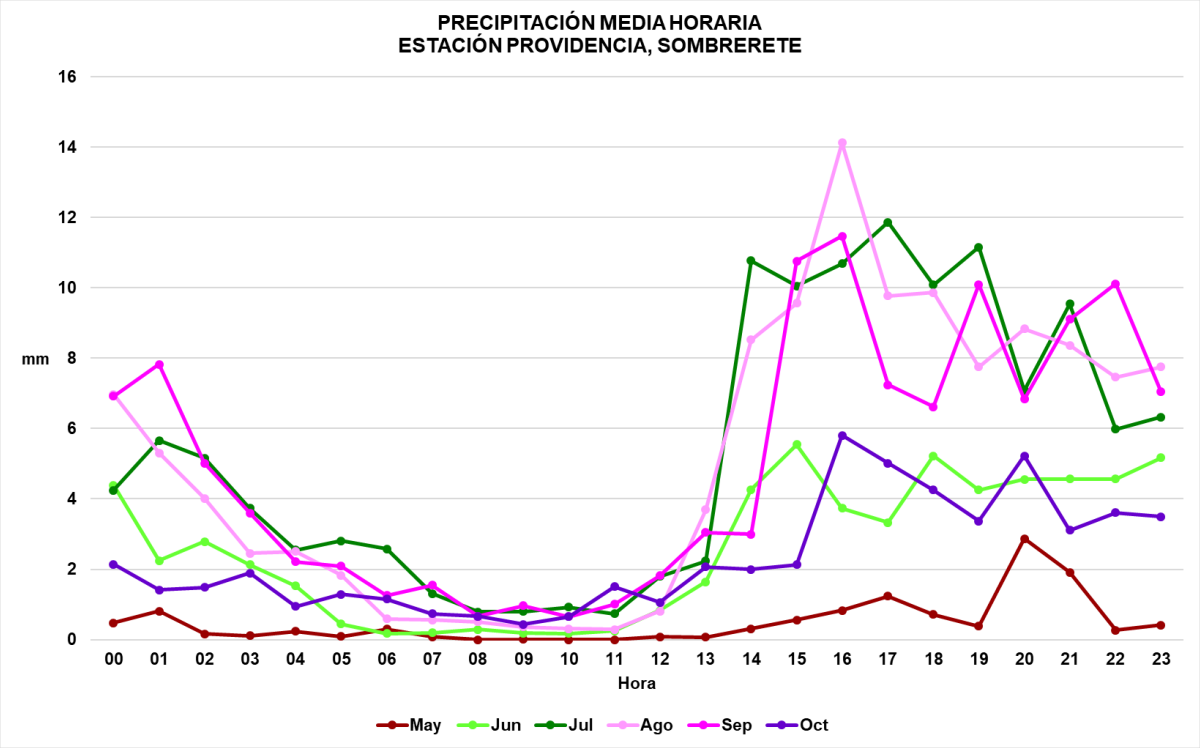


Figura 435. Precipitación media (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 484. Precipitación máxima maximorum (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.0	7.4	3.1	2.7	3.7	11.3	9.7	20.0	10.8	9.5	2.2	2.2	20.0
01	3.0	5.2	3.8	1.8	14.0	5.0	27.2	8.0	25.4	8.2	2.9	1.8	27.2
02	2.0	5.0	4.0	2.9	3.0	9.0	18.3	6.7	10.5	7.1	6.0	1.2	18.3
03	2.0	4.6	1.2	3.4	0.8	8.0	12.1	8.6	10.1	10.4	4.3	3.3	12.1
04	3.0	4.2	2.1	2.4	2.8	9.6	5.6	8.0	5.8	5.0	3.1	1.9	9.6
05	4.0	4.3	1.0	0.9	1.7	2.0	12.2	11.4	7.1	11.8	4.0	5.1	12.2
06	7.4	2.0	1.1	0.1	3.0	1.0	15.4	3.0	2.7	6.1	5.4	3.2	15.4
07	5.0	2.4	3.6	0.1	1.0	1.3	4.6	3.3	7.8	4.2	2.9	2.7	7.8
08	5.0	4.2	2.1	0.0	0.0	3.5	5.2	3.5	5.0	4.2	2.4	3.2	5.2
09	2.3	4.4	1.0	0.0	0.2	1.0	3.4	3.0	9.4	2.3	3.2	2.3	9.4
10	3.0	3.8	0.4	0.0	0.0	2.0	8.2	3.4	7.8	3.6	2.2	2.2	8.2
11	4.0	3.6	5.2	0.0	0.0	2.8	5.8	2.5	8.6	8.4	2.4	5.8	8.6
12	4.0	2.7	1.8	0.0	1.7	13.4	11.8	6.2	18.8	5.2	2.1	4.2	18.8
13	5.0	4.6	2.8	0.0	1.0	23.2	9.6	22.0	16.0	10.0	16.8	2.5	23.2
14	2.4	1.8	4.5	0.4	5.0	24.0	33.6	22.4	6.4	8.9	3.3	0.8	33.6
15	3.1	2.6	3.0	1.0	4.0	15.3	16.7	19.2	15.9	7.5	6.9	4.1	19.2
16	5.8	3.2	3.1	1.0	5.3	15.2	18.2	30.5	32.8	17.7	10.6	3.0	32.8
17	2.8	2.1	3.6	3.8	9.2	4.4	19.2	22.2	15.0	18.7	4.9	3.4	22.2
18	2.2	3.0	5.3	3.2	3.6	18.8	38.6	19.0	16.2	15.4	5.7	6.3	38.6
19	3.0	4.1	4.1	2.8	2.2	14.2	26.8	15.0	21.0	9.2	6.3	2.5	26.8
20	3.8	3.2	2.3	5.4	26.5	11.6	16.1	13.8	12.0	26.4	5.3	4.2	26.5
21	2.0	1.4	1.2	0.7	10.7	11.5	26.4	17.0	18.2	15.0	4.0	2.1	26.4
22	3.3	4.5	1.0	0.1	2.5	11.0	19.9	14.5	25.9	17.0	3.4	7.4	25.9
23	3.0	6.2	1.1	0.3	5.5	8.2	11.0	14.0	8.0	17.8	4.6	3.8	17.8
Máx.	7.4	7.4	5.3	5.4	26.5	24.0	38.6	30.5	32.8	26.4	16.8	7.4	38.6

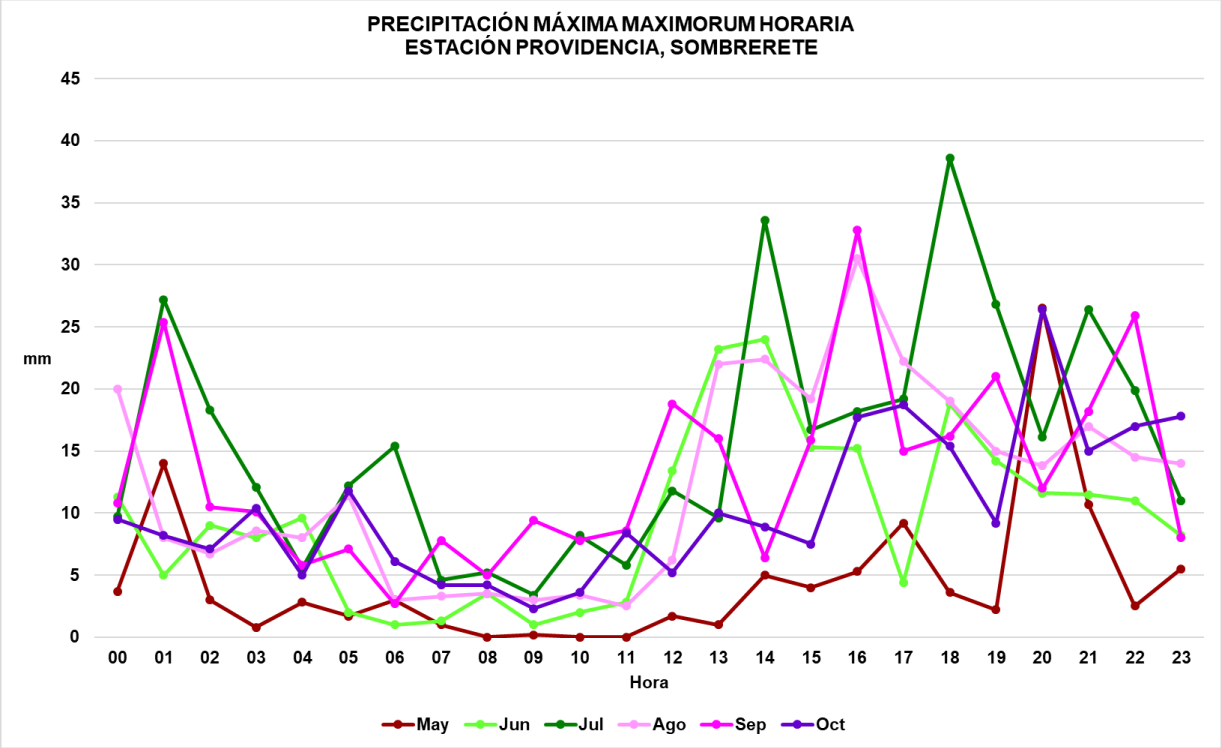


Figura 436. Precipitación máxima maximorum (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 485. Evapotranspiración potencial media (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.04	0.10	0.08	0.11	0.10	0.07	0.08	0.03	0.02	0.02	0.04	0.04	0.06
01	0.04	0.11	0.08	0.09	0.09	0.05	0.07	0.02	0.03	0.03	0.05	0.04	0.06
02	0.04	0.12	0.08	0.08	0.07	0.04	0.04	0.02	0.05	0.05	0.06	0.05	0.06
03	0.04	0.12	0.09	0.06	0.06	0.03	0.03	0.02	0.07	0.08	0.07	0.05	0.06
04	0.06	0.11	0.08	0.05	0.05	0.03	0.02	0.01	0.08	0.11	0.09	0.07	0.06
05	0.06	0.09	0.07	0.05	0.04	0.03	0.02	0.02	0.10	0.13	0.10	0.08	0.07
06	0.07	0.08	0.07	0.05	0.04	0.04	0.02	0.03	0.10	0.14	0.10	0.09	0.07
07	0.08	0.08	0.08	0.06	0.05	0.07	0.04	0.04	0.11	0.14	0.11	0.10	0.08
08	0.09	0.10	0.13	0.10	0.09	0.11	0.07	0.07	0.11	0.14	0.13	0.12	0.10
09	0.14	0.17	0.22	0.19	0.19	0.20	0.14	0.15	0.14	0.18	0.20	0.17	0.17
10	0.21	0.26	0.33	0.30	0.31	0.31	0.24	0.26	0.22	0.25	0.28	0.24	0.27
11	0.29	0.35	0.42	0.41	0.42	0.41	0.34	0.37	0.30	0.32	0.34	0.30	0.36
12	0.34	0.41	0.49	0.50	0.50	0.49	0.42	0.45	0.35	0.37	0.37	0.34	0.42
13	0.37	0.44	0.53	0.55	0.55	0.53	0.46	0.49	0.37	0.39	0.38	0.36	0.45
14	0.36	0.44	0.52	0.57	0.57	0.52	0.44	0.48	0.37	0.39	0.36	0.35	0.45
15	0.33	0.40	0.48	0.56	0.55	0.48	0.40	0.44	0.35	0.36	0.31	0.31	0.41
16	0.27	0.33	0.40	0.51	0.50	0.42	0.35	0.38	0.29	0.30	0.23	0.25	0.35
17	0.20	0.24	0.30	0.45	0.43	0.36	0.30	0.31	0.22	0.22	0.15	0.19	0.28
18	0.12	0.14	0.20	0.37	0.35	0.30	0.24	0.22	0.15	0.15	0.08	0.13	0.21
19	0.08	0.10	0.15	0.32	0.27	0.22	0.18	0.15	0.10	0.08	0.05	0.10	0.15
20	0.07	0.08	0.12	0.23	0.22	0.18	0.16	0.09	0.04	0.03	0.04	0.09	0.11
21	0.06	0.07	0.10	0.19	0.17	0.13	0.11	0.04	0.01	0.01	0.04	0.08	0.09
22	0.06	0.08	0.09	0.16	0.14	0.09	0.10	0.03	0.01	0.01	0.04	0.07	0.07
23	0.04	0.10	0.08	0.14	0.12	0.07	0.09	0.03	0.01	0.01	0.04	0.06	0.07
Media/día /mes	3.47	4.52	5.19	6.08	5.88	5.17	4.37	4.13	3.58	3.91	3.66	3.69	4.47

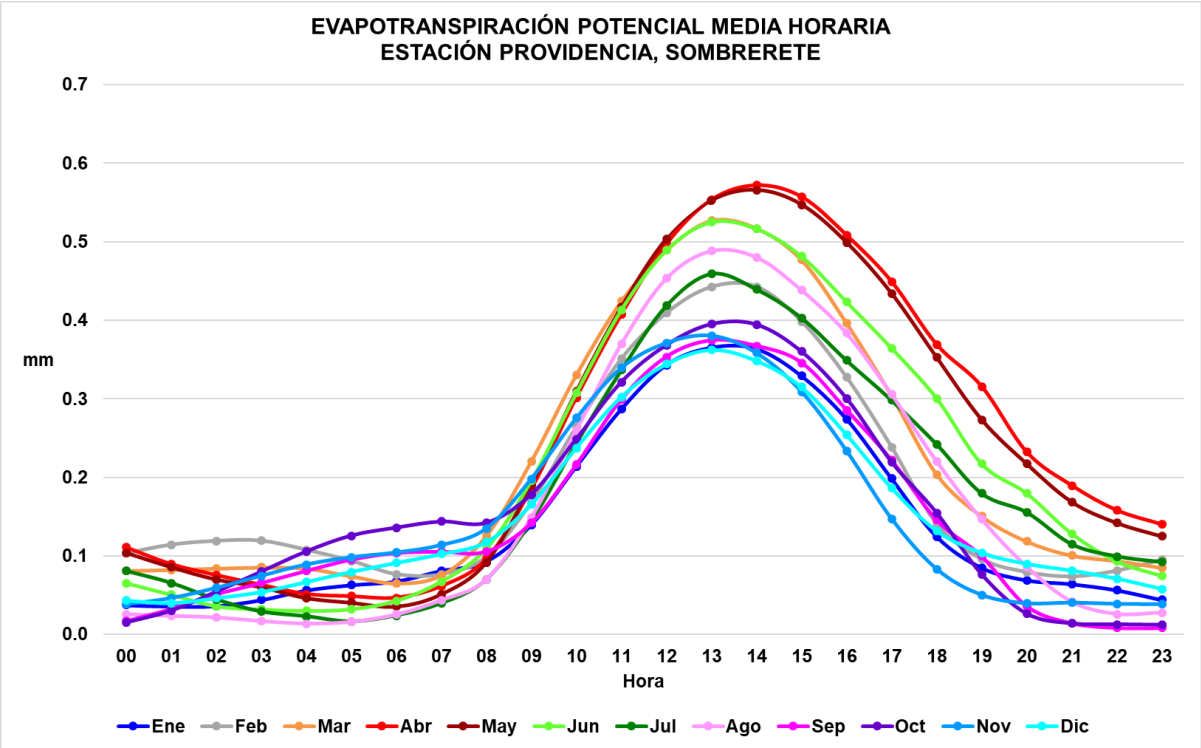


Figura 437. Evapotranspiración potencial media (mm) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 486. Humedad relativa media (%) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	54.3	45.2	38.1	32.8	39.3	58.8	77.1	78.6	85.6	75.1	63.0	53.6	58.4
01	54.9	46.3	39.4	34.2	41.8	61.6	79.1	80.6	86.9	76.5	64.3	54.3	60.0
02	55.6	46.9	40.1	35.1	43.8	64.4	80.9	82.4	87.9	77.9	65.5	54.6	61.3
03	56.1	47.7	40.7	35.8	45.8	67.0	82.7	83.8	88.8	79.2	66.3	55.0	62.4
04	56.5	48.3	41.4	36.8	47.1	69.4	84.5	85.4	89.9	80.0	67.0	55.5	63.5
05	57.1	48.9	42.0	37.3	48.3	71.4	85.8	86.8	90.8	80.9	67.3	55.6	64.4
06	57.6	49.6	42.7	37.8	49.2	72.8	86.9	88.0	91.5	81.7	68.1	56.0	65.2
07	57.7	49.2	40.9	36.7	47.7	72.0	86.6	88.5	91.8	81.6	66.1	55.7	64.6
08	52.6	42.8	33.6	31.8	40.6	64.3	80.1	83.5	88.3	75.0	54.5	48.9	58.0
09	43.7	35.3	27.8	26.1	33.6	56.6	72.2	75.1	79.9	64.1	45.9	40.2	50.0
10	37.9	30.8	23.7	22.1	28.4	50.0	66.2	68.9	72.8	57.0	40.2	34.8	44.4
11	33.6	27.2	20.7	18.9	24.4	43.7	60.2	62.7	67.3	51.3	35.9	31.0	39.7
12	30.4	24.5	18.4	16.5	21.3	38.5	54.9	57.2	62.9	47.0	32.8	28.3	36.1
13	28.1	22.7	16.9	14.8	19.1	34.9	51.1	53.3	59.5	43.9	30.6	26.5	33.4
14	26.8	21.7	16.1	13.8	17.6	33.1	49.2	51.4	57.9	42.1	29.7	25.5	32.1
15	26.6	21.4	16.0	13.4	17.1	33.1	49.0	50.4	57.7	41.5	29.7	25.3	31.8
16	27.2	21.6	16.4	13.4	17.4	33.5	49.5	50.8	58.6	42.0	31.1	26.5	32.3
17	29.9	23.2	17.4	14.0	17.9	35.0	51.1	52.4	60.7	43.9	35.6	30.4	34.3
18	36.5	27.1	20.0	15.3	19.3	36.7	53.1	55.4	64.7	49.6	45.8	38.7	38.5
19	42.4	32.9	24.8	17.6	21.3	39.2	57.3	60.2	71.4	59.7	50.7	43.3	43.4
20	45.8	36.5	28.8	21.5	25.6	44.1	63.2	67.2	78.3	66.1	53.8	46.2	48.1
21	48.7	39.4	31.8	25.2	30.0	49.7	69.2	72.3	81.3	68.5	56.6	49.0	51.8
22	50.8	41.6	34.3	28.1	33.6	53.8	72.5	75.1	82.9	70.6	59.0	51.0	54.4
23	52.7	43.5	36.4	30.6	36.9	57.2	74.7	77.1	84.1	72.9	61.1	52.3	56.6
Media	44.3	36.4	29.5	25.4	32.0	51.7	68.2	70.3	76.7	63.7	50.9	43.2	49.4

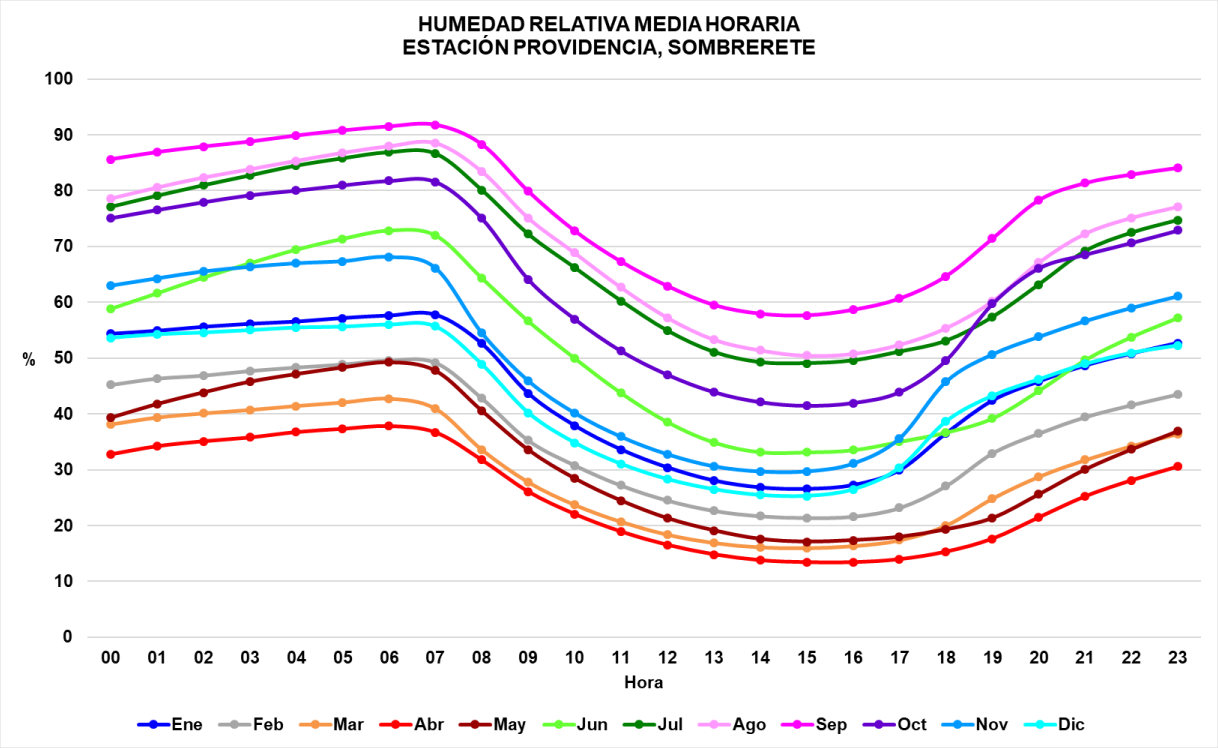


Figura 438. Humedad relativa media (%) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 487. Humedad relativa mínima minimorum (%) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.0	10.0	6.6	8.3	8.0	12.0	22.0	36.4	38.0	22.0	12.0	6.0	6.0
01	9.0	8.0	6.4	8.0	7.6	13.0	22.0	37.2	34.0	15.7	12.0	6.0	6.0
02	9.0	8.0	7.0	8.6	8.5	10.0	29.0	37.2	38.0	9.1	12.0	6.0	6.0
03	7.0	6.0	6.8	5.0	8.0	10.0	39.3	42.1	41.0	13.7	9.0	6.0	5.0
04	7.0	6.0	6.0	5.0	8.0	10.0	36.0	42.0	46.6	11.9	9.0	8.0	5.0
05	8.0	5.0	4.3	4.0	4.9	9.0	30.0	44.0	50.0	12.8	10.0	7.0	4.0
06	6.0	6.0	2.7	4.0	7.0	10.0	32.0	47.0	48.0	16.8	8.0	6.0	2.7
07	5.0	7.0	2.7	4.0	6.0	11.0	32.0	43.0	50.7	19.0	8.0	8.0	2.7
08	4.0	6.0	1.9	4.0	4.1	9.0	32.0	43.0	41.6	12.8	9.0	9.0	1.9
09	3.0	5.6	2.0	3.7	4.1	7.0	24.0	29.0	26.2	9.5	6.0	7.0	2.0
10	3.0	5.1	2.8	3.3	3.0	6.0	24.0	25.0	23.9	8.3	5.0	5.0	2.8
11	3.0	5.3	3.0	3.9	3.5	6.0	18.0	22.8	20.9	8.0	5.0	5.0	3.0
12	3.0	4.9	2.7	3.6	2.7	5.0	15.0	21.1	18.9	10.1	5.0	5.0	2.7
13	3.0	4.6	1.8	3.2	2.2	5.0	16.0	18.7	16.6	10.0	4.0	5.0	1.8
14	3.0	4.0	1.8	2.7	2.5	5.0	15.0	18.1	17.6	9.6	5.0	5.0	1.8
15	3.0	3.6	2.3	2.2	3.0	4.0	12.0	18.6	18.0	9.4	4.0	4.9	2.2
16	3.0	4.4	2.6	2.2	3.3	4.0	10.0	14.2	17.0	9.5	5.0	4.8	2.2
17	3.0	4.9	2.9	2.7	3.0	4.0	10.0	14.7	18.3	9.9	5.0	6.0	2.7
18	4.0	6.2	3.9	3.0	4.0	4.0	12.0	15.3	17.8	11.0	8.0	6.0	3.0
19	7.0	7.0	4.0	3.8	5.0	4.0	13.0	16.1	21.0	17.0	11.0	7.0	3.8
20	7.0	8.3	6.8	4.0	6.7	5.0	14.0	20.7	25.0	23.0	11.0	8.0	4.0
21	7.0	10.1	5.9	6.9	7.0	9.0	18.0	25.0	32.0	24.0	10.0	7.0	5.9
22	8.0	12.0	5.8	7.0	8.0	10.0	22.0	30.3	33.0	24.0	10.0	8.0	5.8
23	8.0	11.0	8.2	8.1	7.0	12.0	23.0	31.5	32.0	24.8	12.0	8.0	7.0
Mín.	3.0	3.6	1.8	2.2	2.2	4.0	10.0	14.2	16.6	8.0	4.0	4.8	1.8

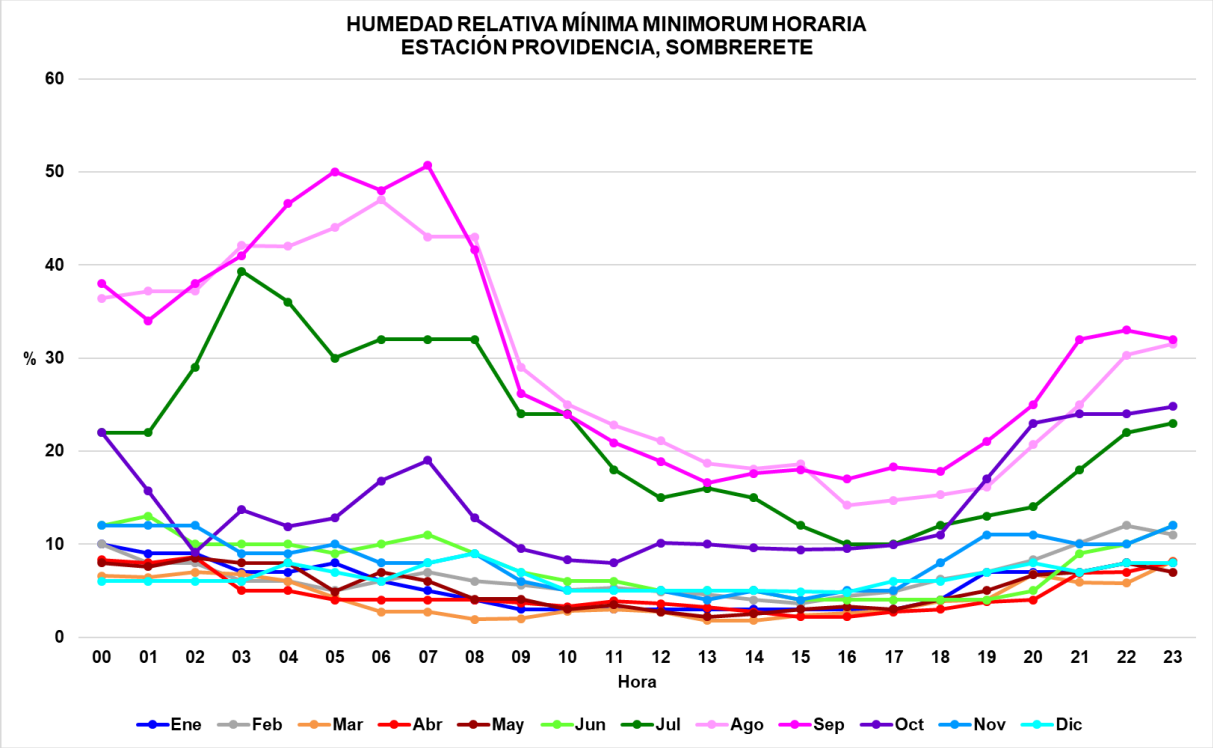


Figura 439. Humedad relativa mínima minimorum (%) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 488. Radiación solar global media horaria (W/m2) de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	1	2	3	2	1	0	0	0	0	1
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	7	3	7	7	3	1	0	1	1	0	3
07	25	57	180	97	136	131	86	45	26	44	111	31	81
08	360	523	870	588	662	614	503	381	298	339	654	408	517
09	1042	1320	1747	1384	1447	1345	1172	1046	902	981	1379	1070	1236
10	1743	2101	2550	2207	2248	2095	1882	1815	1655	1717	2029	1714	1980
11	2296	2707	3157	2922	2926	2733	2518	2507	2254	2346	2515	2239	2593
12	2617	3082	3534	3453	3406	3124	2909	2988	2641	2733	2773	2563	2985
13	2701	3214	3597	3746	3583	3235	3005	3137	2796	2922	2800	2656	3116
14	2503	3047	3345	3695	3531	3120	2868	3010	2767	2852	2553	2476	2981
15	2081	2559	2858	3402	3265	2810	2610	2732	2495	2544	2071	2020	2620
16	1458	1897	2193	2887	2751	2366	2177	2309	2069	2069	1410	1391	2081
17	764	1133	1387	2198	2161	1860	1706	1734	1501	1420	701	696	1438
18	210	412	612	1420	1435	1296	1163	1150	897	778	236	243	821
19	98	134	181	693	746	719	623	609	375	308	161	156	400
20	61	84	116	306	304	281	245	248	167	178	83	80	179
21	23	39	61	196	185	155	115	141	85	99	15	13	94
22	0	3	11	109	111	89	78	70	38	29	0	0	45
23	0	0	0	32	40	35	26	22	5	1	0	0	13
Media/día/mes	17983	22313	26405	29338	28946	26018	23692	23944	20970	21360	19493	17758	23185

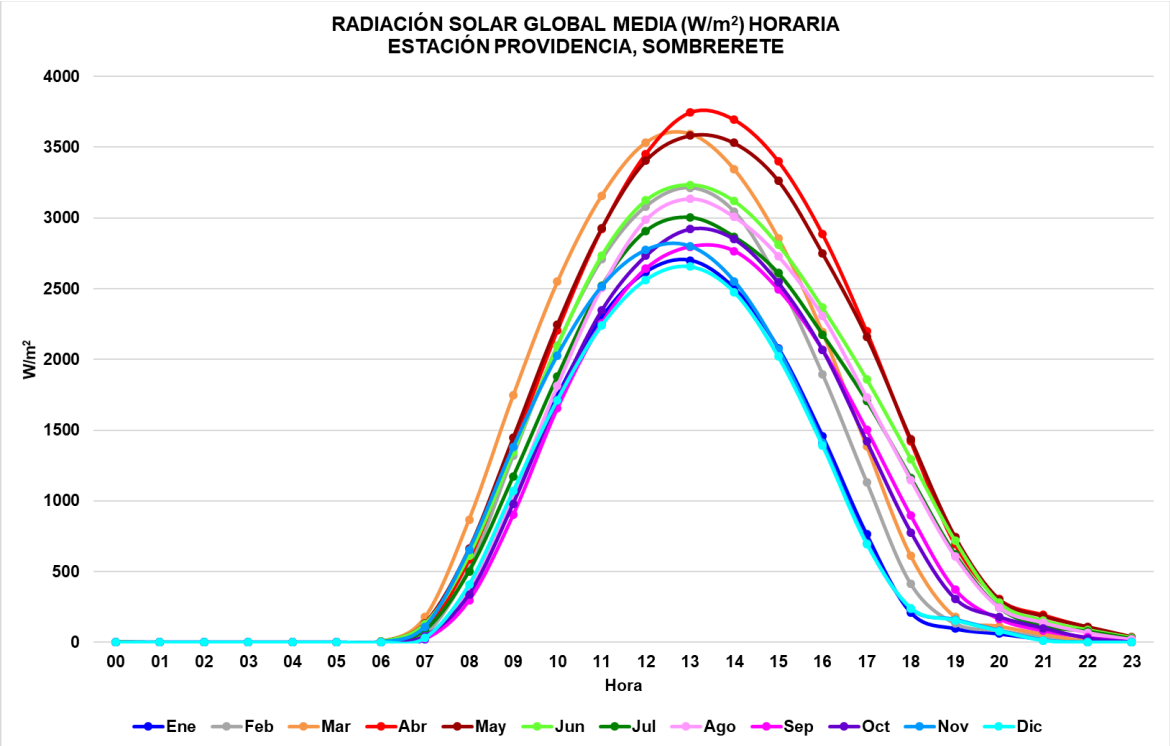


Figura 440. Radiación solar global media horaria (W/m2) de la estación Providencia, Sombrerete (2002-2022).

Cuadro 489. Radiación solar global media horaria (kWh/m2) de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.04	0.02	0.03	0.03	0.02	0.01	0.01	0.01	0.03	0.01	0.02
08	0.09	0.13	0.22	0.15	0.17	0.15	0.13	0.10	0.07	0.08	0.16	0.10	0.13
09	0.26	0.33	0.44	0.35	0.36	0.34	0.29	0.26	0.23	0.25	0.34	0.27	0.31
10	0.44	0.53	0.64	0.55	0.56	0.52	0.47	0.45	0.41	0.43	0.51	0.43	0.49
11	0.57	0.68	0.79	0.73	0.73	0.68	0.63	0.63	0.56	0.59	0.63	0.56	0.65
12	0.65	0.77	0.88	0.86	0.85	0.78	0.73	0.75	0.66	0.68	0.69	0.64	0.75
13	0.68	0.80	0.90	0.94	0.90	0.81	0.75	0.78	0.70	0.73	0.70	0.66	0.78
14	0.63	0.76	0.84	0.92	0.88	0.78	0.72	0.75	0.69	0.71	0.64	0.62	0.75
15	0.52	0.64	0.71	0.85	0.82	0.70	0.65	0.68	0.62	0.64	0.52	0.50	0.66
16	0.36	0.47	0.55	0.72	0.69	0.59	0.54	0.58	0.52	0.52	0.35	0.35	0.52
17	0.19	0.28	0.35	0.55	0.54	0.46	0.43	0.43	0.38	0.35	0.18	0.17	0.36
18	0.05	0.10	0.15	0.35	0.36	0.32	0.29	0.29	0.22	0.19	0.06	0.06	0.21
19	0.02	0.03	0.05	0.17	0.19	0.18	0.16	0.15	0.09	0.08	0.04	0.04	0.10
20	0.02	0.02	0.03	0.08	0.08	0.07	0.06	0.06	0.04	0.04	0.02	0.02	0.04
21	0.01	0.01	0.02	0.05	0.05	0.04	0.03	0.04	0.02	0.02	0.00	0.00	0.02
22	0.00	0.00	0.00	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.01
23	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.50	5.58	6.60	7.33	7.24	6.50	5.92	5.99	5.24	5.34	4.87	4.44	5.80

Cuadro 490. Radiación solar global media horaria (Mj/m2/s) de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.05	0.16	0.09	0.12	0.12	0.08	0.04	0.02	0.04	0.10	0.03	0.07
08	0.32	0.47	0.78	0.53	0.60	0.55	0.45	0.34	0.27	0.31	0.59	0.37	0.46
09	0.94	1.19	1.57	1.25	1.30	1.21	1.05	0.94	0.81	0.88	1.24	0.96	1.11
10	1.57	1.89	2.30	1.99	2.02	1.89	1.69	1.63	1.49	1.55	1.83	1.54	1.78
11	2.07	2.44	2.84	2.63	2.63	2.46	2.27	2.26	2.03	2.11	2.26	2.02	2.33
12	2.36	2.77	3.18	3.11	3.07	2.81	2.62	2.69	2.38	2.46	2.50	2.31	2.69
13	2.43	2.89	3.24	3.37	3.22	2.91	2.70	2.82	2.52	2.63	2.52	2.39	2.80
14	2.25	2.74	3.01	3.33	3.18	2.81	2.58	2.71	2.49	2.57	2.30	2.23	2.68
15	1.87	2.30	2.57	3.06	2.94	2.53	2.35	2.46	2.25	2.29	1.86	1.82	2.36
16	1.31	1.71	1.97	2.60	2.48	2.13	1.96	2.08	1.86	1.86	1.27	1.25	1.87
17	0.69	1.02	1.25	1.98	1.95	1.67	1.54	1.56	1.35	1.28	0.63	0.63	1.29
18	0.19	0.37	0.55	1.28	1.29	1.17	1.05	1.03	0.81	0.70	0.21	0.22	0.74
19	0.09	0.12	0.16	0.62	0.67	0.65	0.56	0.55	0.34	0.28	0.14	0.14	0.36
20	0.06	0.08	0.10	0.28	0.27	0.25	0.22	0.22	0.15	0.16	0.07	0.07	0.16
21	0.02	0.04	0.05	0.18	0.17	0.14	0.10	0.13	0.08	0.09	0.01	0.01	0.08
22	0.00	0.00	0.01	0.10	0.10	0.08	0.07	0.06	0.03	0.03	0.00	0.00	0.04
23	0.00	0.00	0.00	0.03	0.04	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.01
Media/día/mes	16.18	20.08	23.76	26.40	26.05	23.42	21.32	21.55	18.87	19.22	17.54	15.98	20.87

Cuadro 491. Velocidad del viento media (km/h) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.5	10.3	9.7	10.0	9.1	6.5	5.9	5.3	3.9	4.7	6.2	8.4	7.4
01	8.5	10.3	9.6	9.6	8.4	6.1	5.6	4.9	4.0	4.7	6.1	8.6	7.2
02	8.4	10.2	9.4	9.1	8.1	5.9	5.2	4.7	3.9	4.6	6.0	8.6	7.0
03	8.3	10.2	9.3	8.8	7.5	5.4	4.8	4.4	3.8	4.6	5.9	8.6	6.8
04	8.3	10.1	9.1	8.4	7.1	5.1	4.5	4.1	3.7	4.6	5.8	8.4	6.6
05	8.0	9.9	8.7	8.2	6.7	4.8	4.3	4.0	3.5	4.5	5.8	8.3	6.4
06	8.1	9.6	8.6	7.9	6.4	4.7	4.1	3.8	3.6	4.4	5.6	8.1	6.2
07	8.1	9.5	8.3	7.5	6.1	4.4	3.9	3.6	3.6	4.3	5.3	8.1	6.1
08	7.9	9.8	9.0	8.1	6.4	4.8	4.3	3.8	3.6	3.9	5.1	7.7	6.2
09	9.4	12.4	12.2	10.8	9.1	7.0	6.0	5.5	4.9	4.7	7.6	9.5	8.3
10	11.9	14.9	14.4	13.4	11.0	8.3	7.3	7.0	6.6	6.6	9.7	12.0	10.3
11	13.5	16.3	15.6	14.9	12.0	9.3	8.0	8.0	7.7	7.9	10.7	13.4	11.4
12	14.3	16.7	16.3	15.6	12.4	10.6	8.8	8.9	8.4	8.7	11.1	14.0	12.2
13	14.7	17.2	16.9	16.3	12.7	11.8	10.0	9.9	8.9	9.0	11.2	14.5	12.7
14	15.0	17.4	17.1	16.7	13.2	12.7	11.2	10.7	9.2	9.2	11.1	14.4	13.2
15	14.6	17.2	17.1	16.8	13.7	13.0	11.8	11.3	9.5	9.1	10.8	14.0	13.2
16	13.9	16.7	16.9	16.9	13.9	13.0	12.0	11.5	9.3	8.8	10.0	13.1	13.0
17	12.5	15.7	16.3	16.7	13.9	13.0	11.9	11.4	9.0	8.2	8.5	11.2	12.3
18	10.4	13.5	14.8	16.2	13.4	12.6	11.4	10.7	8.0	6.8	6.9	9.6	11.2
19	10.0	12.4	13.4	15.3	13.4	12.2	10.3	9.0	5.6	5.1	7.0	9.8	10.3
20	9.9	12.2	13.2	14.5	12.3	10.7	8.4	6.8	4.2	4.9	7.0	9.7	9.5
21	9.4	11.4	12.3	14.0	11.7	8.7	6.8	5.5	4.2	5.0	6.8	9.4	8.8
22	8.8	11.0	11.2	12.8	11.2	7.6	6.4	5.3	4.1	5.0	6.4	9.0	8.2
23	8.5	10.4	10.1	11.3	10.2	7.0	6.2	5.3	4.1	4.8	6.1	8.8	7.7
Media	10.4	12.7	12.5	12.5	10.4	8.5	7.5	6.9	5.7	6.0	7.6	10.3	9.3

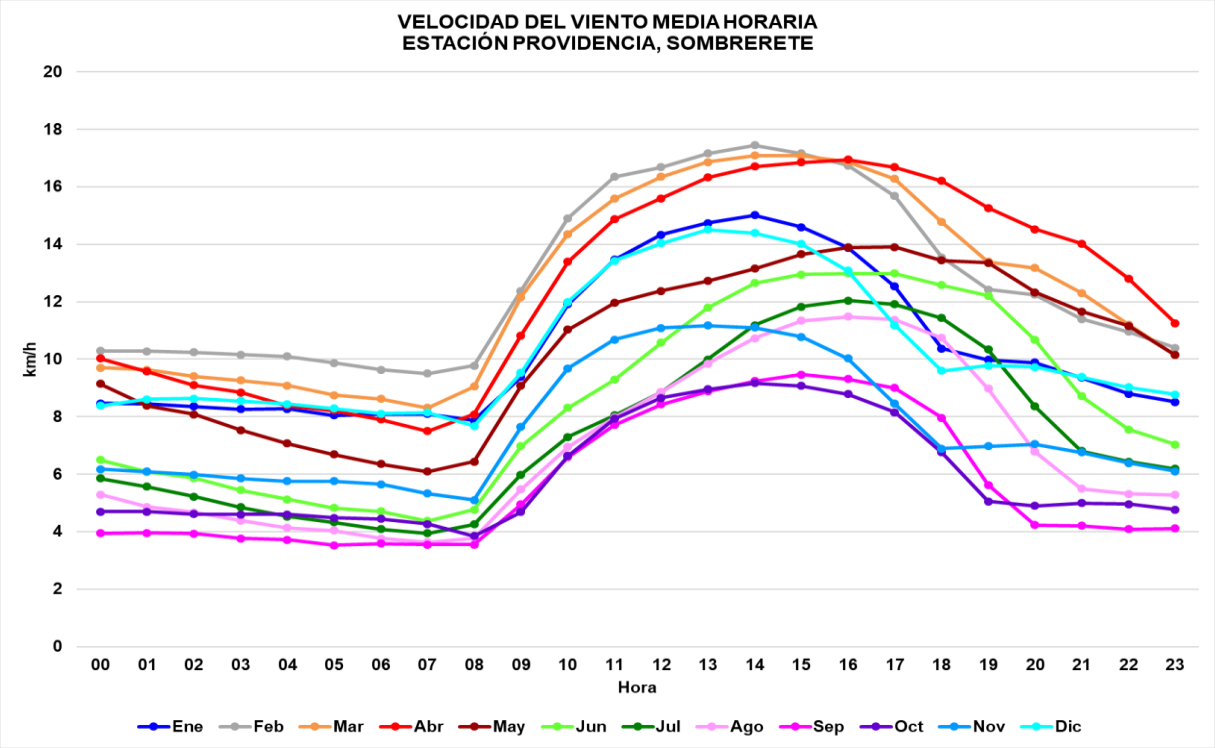


Figura 441. Velocidad del viento media (km/h) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 492. Velocidad del viento máxima maximorum (km/h) horaria de la estación Providencia, Sombrerete (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	42.7	45.4	54.0	40.5	35.0	32.0	23.5	31.4	21.6	28.5	34.0	42.0	54.0
01	41.9	47.0	60.0	40.9	32.0	32.0	25.3	24.0	22.0	28.4	37.0	43.1	60.0
02	43.5	49.0	51.0	40.2	33.0	31.0	24.3	21.6	20.6	31.7	35.0	50.8	51.0
03	43.5	46.4	51.0	43.1	33.0	31.0	24.0	23.3	16.6	32.6	32.9	42.8	51.0
04	48.8	41.1	51.2	47.3	35.0	28.0	23.0	17.9	21.3	27.5	32.9	45.2	51.2
05	41.2	38.5	55.0	50.3	34.5	32.0	24.3	21.9	18.7	38.2	44.0	45.5	55.0
06	41.0	40.2	54.0	46.0	32.0	26.0	23.8	21.4	20.7	44.6	46.0	49.2	54.0
07	46.3	41.0	47.0	46.6	36.0	23.5	22.0	19.0	15.9	39.6	38.0	57.1	57.1
08	46.7	48.3	48.0	42.8	43.0	26.2	25.3	22.0	19.0	41.2	41.0	58.5	58.5
09	50.5	47.7	58.0	45.2	50.0	30.9	27.0	27.0	20.5	40.0	41.4	56.0	58.0
10	47.9	47.0	56.0	49.2	50.0	30.0	30.0	31.0	24.0	43.6	44.0	56.0	56.0
11	48.0	45.1	57.0	49.4	50.0	30.0	32.0	32.0	24.5	40.9	43.6	50.9	57.0
12	48.0	46.4	53.0	54.4	44.0	32.3	26.3	29.0	25.0	36.1	40.8	49.4	54.4
13	45.0	46.7	47.0	45.6	38.6	35.4	29.2	29.0	22.8	35.2	45.9	52.2	52.2
14	47.9	49.0	49.0	47.7	43.9	40.0	32.0	29.0	25.5	34.1	47.0	44.4	49.0
15	49.0	49.0	49.0	44.6	42.1	38.1	33.0	30.0	25.0	45.1	45.2	46.0	49.0
16	48.1	48.3	49.0	49.0	43.1	34.3	34.0	32.2	24.0	34.5	43.5	45.6	49.0
17	42.0	44.6	47.0	46.2	36.2	36.2	32.0	34.9	27.0	26.0	39.0	45.0	47.0
18	42.4	39.6	41.0	42.6	35.0	35.0	38.0	32.6	24.1	26.0	39.6	41.3	42.6
19	52.5	42.0	45.0	38.6	40.5	35.6	35.0	33.7	22.1	20.6	32.1	46.7	52.5
20	48.8	45.0	42.0	34.3	40.6	33.6	35.9	30.3	22.0	24.4	35.0	42.9	48.8
21	46.7	42.7	38.0	37.1	39.7	30.2	29.0	26.1	26.0	23.0	32.0	45.2	46.7
22	44.5	44.8	42.0	41.0	34.0	35.0	28.0	27.0	19.6	23.5	37.0	48.9	48.9
23	41.1	45.8	43.0	43.5	30.0	31.0	28.7	27.0	20.0	23.4	30.0	42.6	45.8
Máx.	52.5	49.0	60.0	54.4	50.0	40.0	38.0	34.9	27.0	45.1	47.0	58.5	60.0

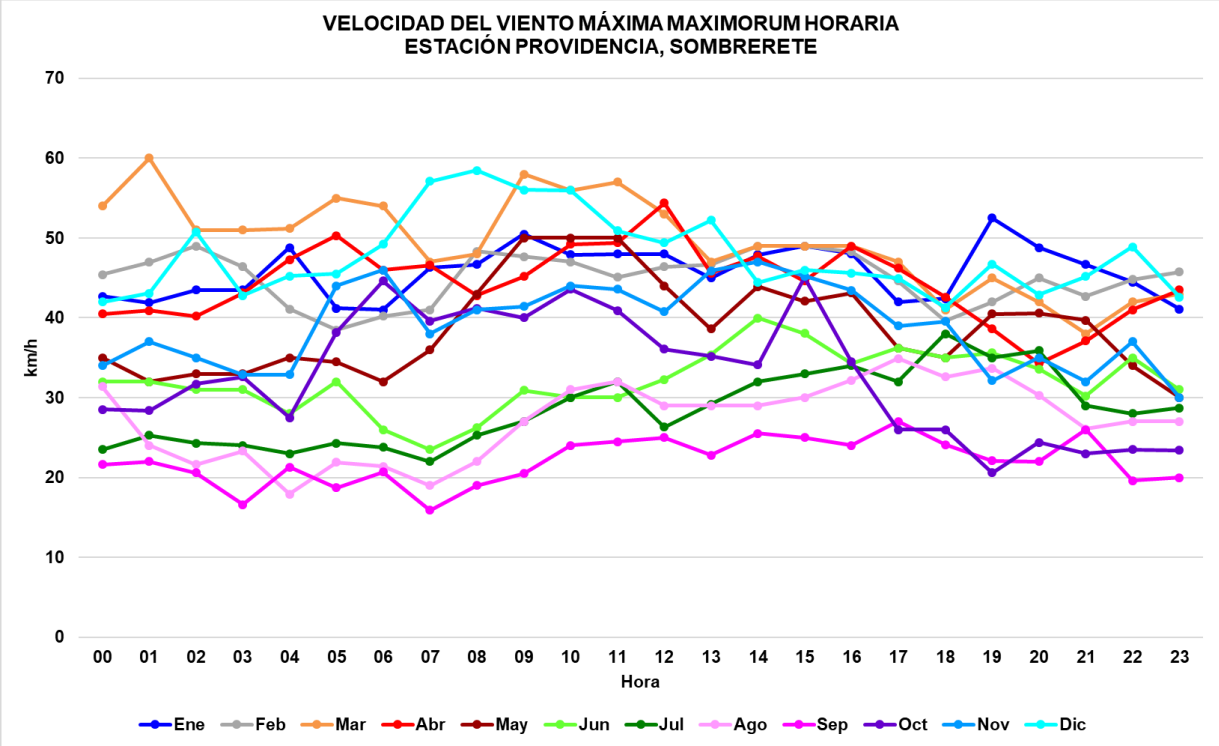


Figura 442. Velocidad del viento máxima maximorum (km/h) horaria de la estación Providencia, Sombrerete (2002-2022).

Cuadro 493. Frecuencia de velocidad del viento (%) mensual de la estación Providencia, Sombrerete (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	22.7	14.9	14.7	16.0	19.3	29.1	35.6	40.7	50.1	46.4	33.6	22.4	29.1
5.1 a 10.0	38.2	32.4	31.6	27.8	34.5	36.7	37.4	36.0	35.0	39.5	42.1	39.3	36.0
10.1 a 15.0	18.5	20.5	21.7	23.1	24.4	21.4	18.9	17.3	12.8	11.8	16.5	18.7	18.7
15.1 a 20.0	10.1	13.8	16.0	18.0	14.8	10.0	6.4	5.0	1.9	1.8	5.4	9.2	9.2
20.1 a 25.0	5.2	9.1	9.1	9.4	5.4	2.3	1.4	0.8	0.2	0.3	1.5	4.8	4.1
25.1 a 30.0	3.0	5.1	4.3	3.6	1.3	0.4	0.2	0.1	0.0	0.1	0.5	2.7	1.7
30.1 a 35.0	1.5	2.9	1.7	1.3	0.2	0.1	0.0	0.0	0.0	0.0	0.2	1.8	0.8
35.1 a 40.0	0.6	0.9	0.7	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.3
40.1 a 45.0	0.2	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
45.1 a 50.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

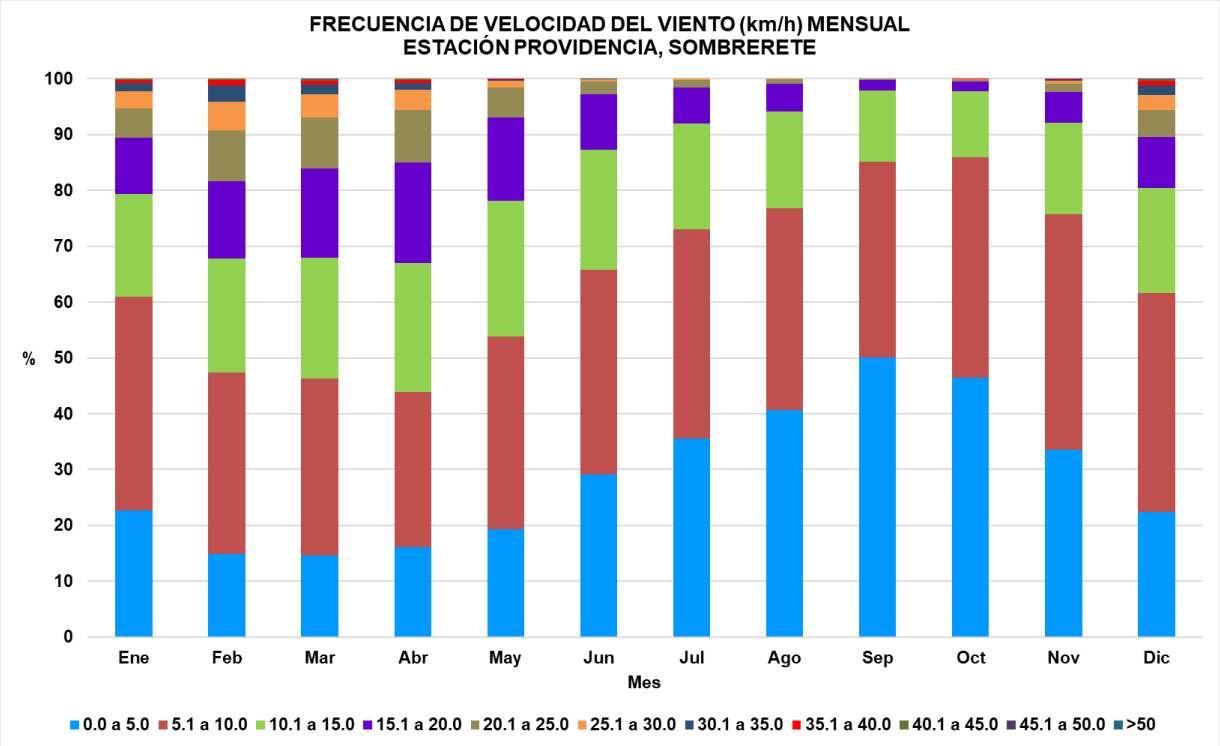


Figura 443. Frecuencia de velocidad del viento (%) mensual de la estación Providencia, Sombrerete (2002-2022).

Cuadro 494. Frecuencia de dirección del viento (%) mensual de la estación Providencia, Sombrerete (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	4.2	5.4	5.7	5.0	5.6	6.1	4.8	5.1	6.4	3.9	3.3	3.5	4.9
NNE	3.0	2.5	2.6	2.4	4.0	6.5	4.5	4.9	6.5	4.2	3.4	2.1	3.9
NE	2.9	2.3	2.4	2.3	4.1	8.0	6.7	7.2	8.1	5.2	3.8	2.1	4.6
ENE	3.1	2.3	2.2	2.5	3.6	8.6	9.1	9.7	9.6	6.2	4.2	2.4	5.4
E	3.6	2.8	2.5	2.4	3.4	8.1	10.3	11.3	10.7	7.1	4.8	2.9	5.9
ESE	3.8	2.9	2.7	2.8	3.0	7.1	8.5	9.2	8.6	6.2	4.5	3.0	5.2
SE	4.3	3.5	3.1	3.5	3.6	5.9	7.3	7.4	7.4	6.2	4.6	3.8	5.1
SSE	6.1	4.8	4.3	4.8	4.2	5.9	6.5	6.8	6.7	7.4	7.2	6.1	5.9
S	10.9	9.8	7.8	7.5	6.8	6.6	7.2	7.4	8.0	11.7	12.7	12.3	9.1
SSO	21.3	20.1	18.0	15.0	12.9	9.7	10.2	9.9	10.8	18.3	20.6	24.4	16.0
SO	13.9	17.1	16.2	16.4	12.2	6.0	6.1	5.8	5.0	7.9	11.7	15.0	11.0
OSO	7.5	10.3	11.6	13.3	11.5	5.3	4.9	3.9	2.7	4.3	6.7	8.2	7.4
O	5.8	6.2	8.0	9.0	9.8	5.9	5.0	4.0	3.0	4.1	4.9	5.5	5.8
ONO	4.1	4.2	5.6	5.6	6.7	4.1	3.6	2.8	2.3	3.0	3.4	3.8	4.1
NO	2.8	3.0	3.9	4.1	4.7	3.0	2.7	2.3	1.9	2.2	2.3	2.7	2.9
NNO	2.7	2.7	3.3	3.3	4.0	3.1	2.7	2.3	2.4	2.0	1.9	2.4	2.7
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

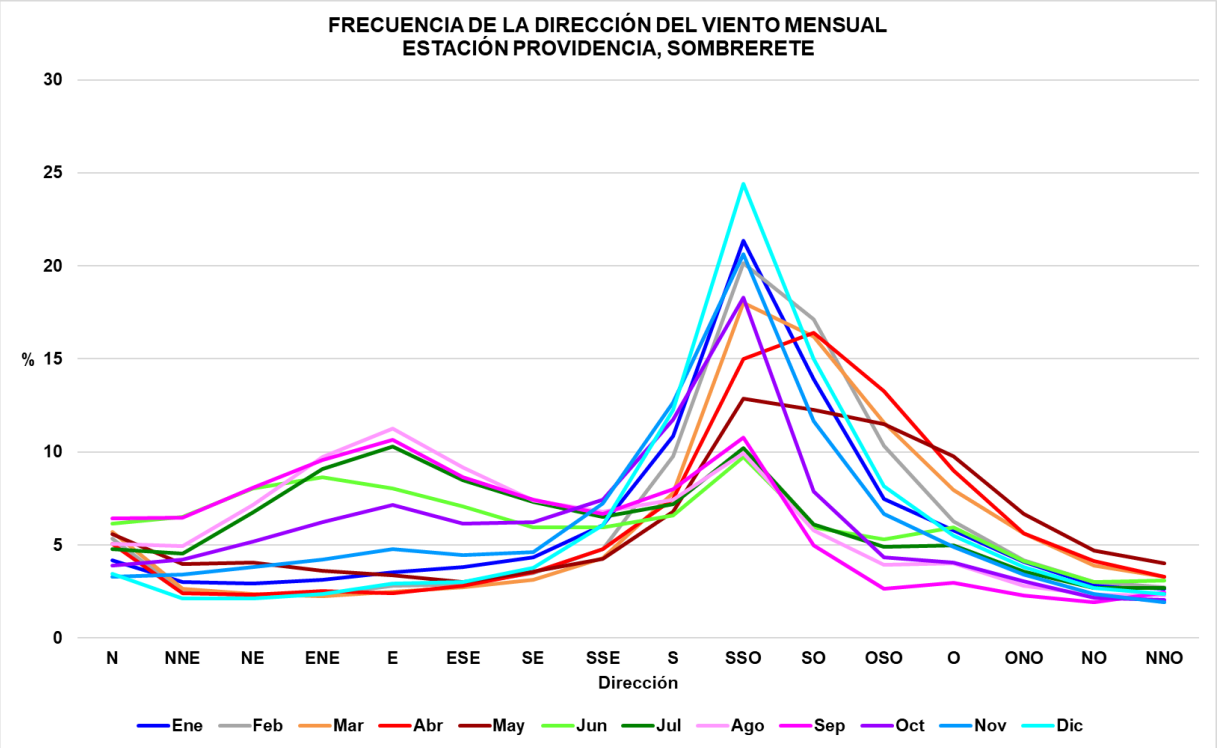
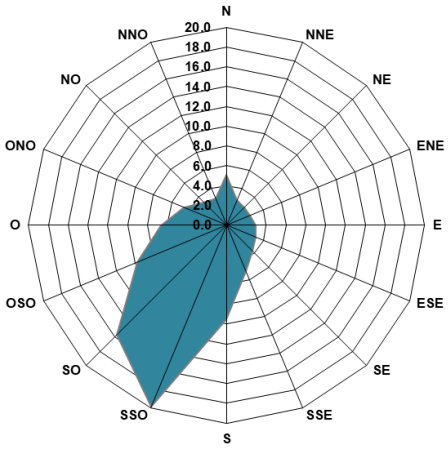


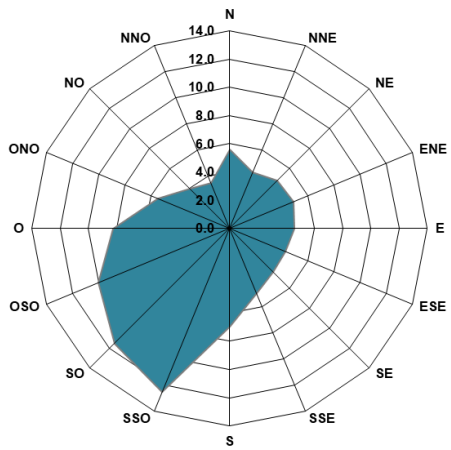
Figura 444. Frecuencia de dirección del viento (%) mensual de la estación Providencia, Sombrerete (2002-2022).

Cuadro 495 Frecuencia de dirección del viento (%) trimestral de la estación Providencia, Sombrerete (2002-2022).

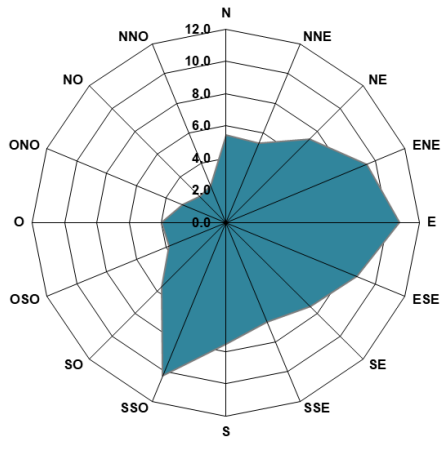
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.1	5.6	5.4	3.6	4.9
NNE	2.7	4.3	5.3	3.2	3.9
NE	2.5	4.8	7.3	3.7	4.6
ENE	2.6	4.9	9.5	4.3	5.4
E	2.9	4.6	10.7	4.9	5.9
ESE	3.2	4.3	8.8	4.5	5.2
SE	3.7	4.3	7.4	4.9	5.1
SSE	5.1	5.0	6.7	6.9	5.9
S	9.5	6.9	7.5	12.2	9.1
SSO	19.9	12.5	10.3	21.1	16.0
SO	15.7	11.5	5.6	11.5	11.0
OSO	9.8	10.0	3.8	6.4	7.4
O	6.7	8.3	4.0	4.8	5.8
ONO	4.6	5.5	2.9	3.4	4.1
NO	3.3	3.9	2.3	2.4	2.9
NNO	2.9	3.5	2.5	2.1	2.7
Suma	100.0	100.0	100.0	100.0	100.0



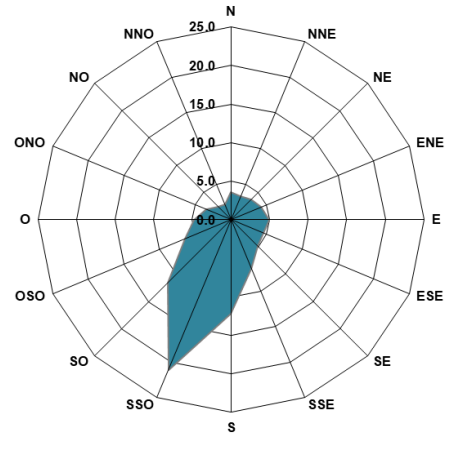
Ene-Mar



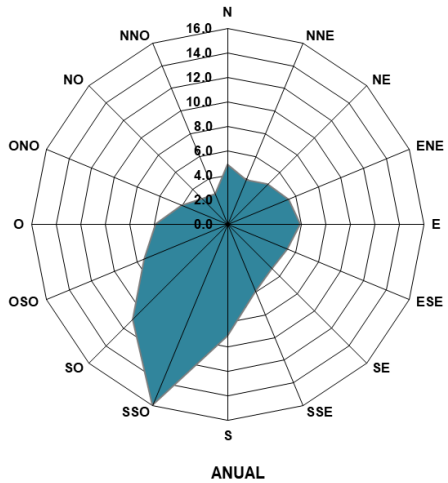
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 445. Frecuencia de dirección del viento (%) trimestral de la estación Providencia, Sombrerete (2002-2022).

Cuadro 496. Estadísticas climatológicas mensuales de la estación Providencia, Sombrerete (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	17.8	20.0	22.5	25.2	26.9	26.2	23.6	23.5	21.9	22.1	20.4	18.6	22.4
Temperatura máxima maximorum (°C)	24.2	29.1	31.0	30.9	33.9	32.6	29.9	29.2	27.6	27.8	27.2	26.4	33.9
Temperatura mínima media (°C)	3.1	4.7	6.2	8.7	10.8	12.2	11.8	11.5	10.8	8.1	5.1	3.6	8.0
Temperatura mínima minimorum (°C)	-9.0	-6.9	-6.6	0.1	1.9	6.6	8.4	7.6	2.7	-2.0	-9.0	-9.6	-9.6
Temperatura media (°C)	10.1	12.2	14.4	17.1	19.1	19.0	17.2	17.0	15.6	14.6	12.3	10.7	14.9
Oscilación térmica (°C)	14.7	15.3	16.3	16.5	16.1	14.0	11.8	11.9	11.1	14.0	15.4	15.0	14.3
Precipitación acumulada media (mm)	14.9	13.5	7.3	2.4	12.5	65.6	135.3	122.2	120.9	55.5	16.2	11.3	577.4
Precipitación máxima maximorum en 24 horas (mm)	25.0	47.7	49.8	14.2	37.8	39.9	62.4	44.0	65.1	61.0	36.5	25.4	65.1
Número de días promedio con lluvia	4.4	3.6	4.0	1.9	4.1	11.0	18.0	17.9	15.8	8.0	4.7	3.5	96.8
Evapotranspiración acumulada potencial media (mm)	132.1	136.5	160.8	174.1	167.5	138.9	132.3	140.7	133.1	150.4	135.0	136.7	1738.1
Humedad máxima media (%)	68.9	59.4	51.8	46.8	57.0	79.1	91.4	92.3	94.3	87.1	76.5	67.9	72.7
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.4	18.3	13.5	11.4	14.3	26.5	39.9	42.4	50.2	36.2	26.2	22.0	26.9
Humedad mínima minimorum (%)	3.0	3.6	1.8	2.2	2.2	4.0	10.0	14.2	16.6	8.0	4.0	4.8	1.8
Humedad media (%)	44.3	36.4	29.5	25.5	32.0	51.7	68.2	70.3	76.8	63.7	50.9	43.2	49.4
Radiación global media día/mes (W/m^2)	17990.5	22312.8	26404.6	29354.5	28946.3	26017.6	23692.0	23943.5	20963.6	21360.3	19492.8	17758.3	23186.4
Radiación global media día/mes (kWh/m^2)	4.5	5.6	6.6	7.3	7.2	6.5	5.9	6.0	5.2	5.3	4.9	4.4	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.2	20.1	23.8	26.4	26.1	23.4	21.3	21.5	18.9	19.2	17.5	16.0	20.9
Velocidad del viento máxima media (km/h)	21.2	24.3	24.5	24.9	22.3	21.1	19.1	18.0	14.5	14.0	16.2	20.5	20.0
Velocidad del viento máxima maximorum (km/h)	52.5	49.0	60.0	54.4	50.0	40.0	38.0	34.9	27.0	45.1	47.0	58.5	60.0
Velocidad del viento media (km/h)	10.4	12.7	12.5	12.5	10.4	8.5	7.5	6.9	5.7	6.0	7.6	10.3	9.3
Dirección dominante del viento	SSO	SSO	SSO	SO	SSO	SSO	E	E	SSO	SSO	SSO	SSO	SSO

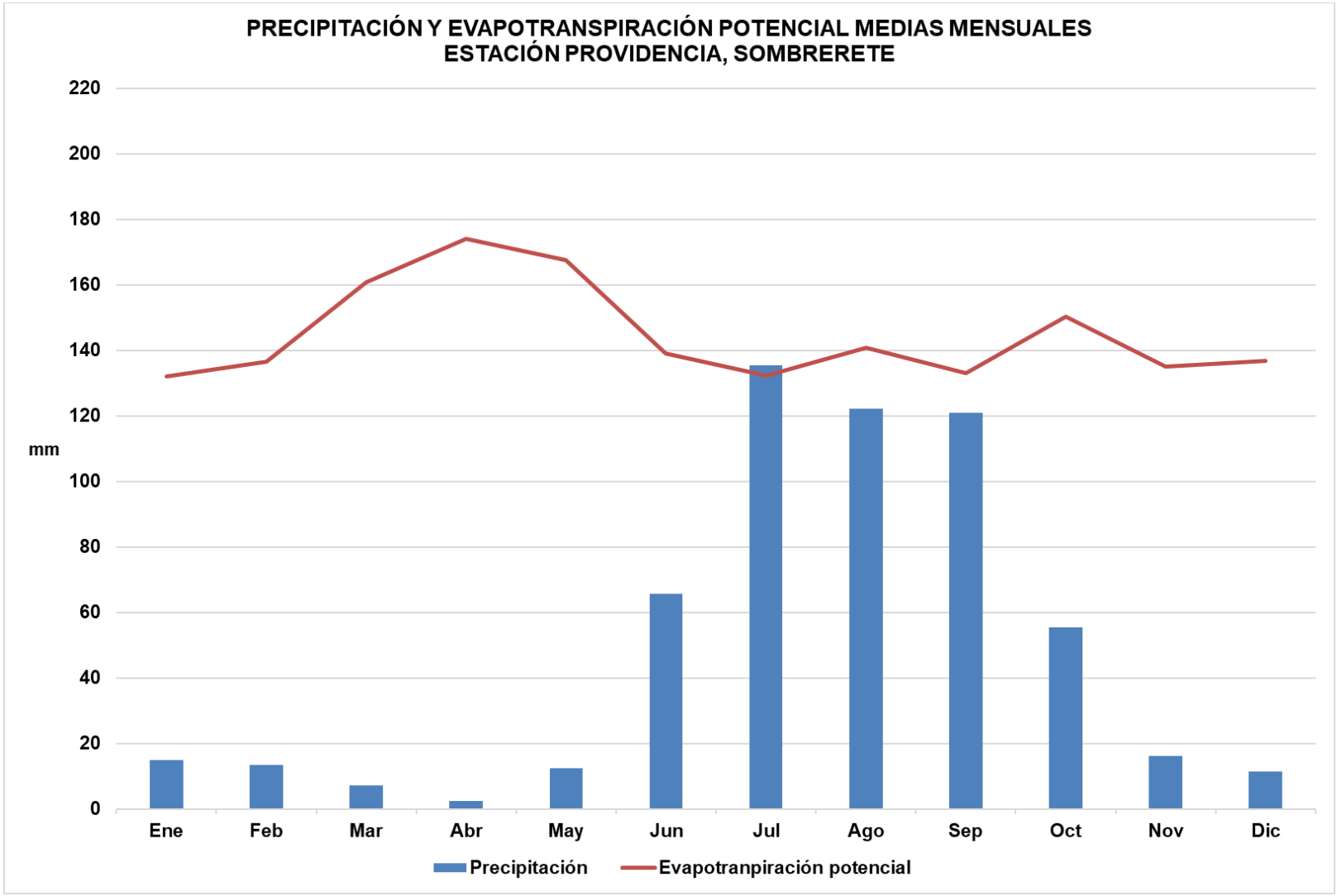


Figura 446. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Providencia, Sombrerete (2002-2022).

7.27. Estación: Rancho Grande, Fresnillo

Cuadro 497. Temperatura máxima media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.2	9.9	12.2	15.7	18.3	19.0	17.4	17.1	15.5	13.5	10.0	8.2	13.7
01	7.4	9.0	11.2	14.6	17.3	18.1	16.7	16.5	15.0	12.7	9.2	7.4	12.9
02	6.7	8.3	10.3	13.6	16.3	17.2	16.1	16.0	14.5	12.0	8.4	6.8	12.2
03	6.0	7.6	9.5	12.8	15.4	16.5	15.5	15.4	14.1	11.4	7.7	6.1	11.5
04	5.4	6.9	8.7	11.9	14.5	15.8	15.1	14.9	13.7	10.9	7.1	5.6	10.9
05	5.0	6.3	8.0	11.1	13.7	15.1	14.6	14.4	13.3	10.4	6.6	5.2	10.3
06	4.6	5.8	7.5	10.5	13.0	14.6	14.2	14.0	13.0	9.9	6.2	4.8	9.8
07	4.5	6.0	8.8	10.8	13.3	14.8	14.3	14.0	13.0	10.0	7.4	4.9	10.1
08	7.2	9.5	12.8	13.9	16.4	17.1	16.0	15.7	14.6	12.5	11.3	8.2	12.9
09	10.7	13.2	16.3	17.4	19.5	19.5	18.0	17.8	16.8	15.8	14.8	11.9	16.0
10	13.7	16.2	19.2	20.4	22.3	21.7	19.9	19.8	18.8	18.5	17.7	15.0	18.6
11	16.2	18.7	21.4	22.9	24.6	23.6	21.7	21.6	20.5	20.7	19.7	17.4	20.8
12	18.0	20.4	23.1	24.8	26.3	25.3	23.2	23.1	21.8	22.3	21.2	19.1	22.4
13	19.2	21.6	24.2	26.2	27.7	26.5	24.4	24.4	22.8	23.4	22.1	20.2	23.6
14	19.9	22.2	24.8	27.1	28.6	27.3	25.3	25.2	23.5	24.1	22.7	20.8	24.3
15	20.1	22.4	25.0	27.6	29.1	27.8	25.7	25.7	23.8	24.5	22.7	21.0	24.6
16	19.8	22.3	24.8	27.7	29.2	27.8	25.7	25.7	23.8	24.3	22.2	20.6	24.5
17	19.0	21.6	24.2	27.3	28.9	27.5	25.4	25.3	23.2	23.8	21.2	19.5	23.9
18	17.1	20.1	22.8	26.5	28.2	26.8	24.6	24.5	22.1	22.5	18.3	16.8	22.5
19	14.1	17.1	20.2	25.0	27.0	25.7	23.5	23.2	20.5	19.9	15.3	13.9	20.4
20	12.2	14.8	17.7	22.6	25.0	24.1	21.9	21.2	18.3	17.3	13.6	12.1	18.4
21	10.9	13.2	15.9	20.3	22.6	22.2	20.1	19.5	17.2	15.9	12.4	10.8	16.8
22	9.9	12.0	14.5	18.4	20.9	20.9	18.9	18.5	16.5	14.9	11.6	9.9	15.6
23	9.0	10.9	13.3	16.9	19.5	19.9	18.1	17.8	15.9	14.2	10.7	9.1	14.6
Media	11.9	14.0	16.5	19.4	21.6	21.5	19.8	19.6	18.0	16.9	14.2	12.3	17.1

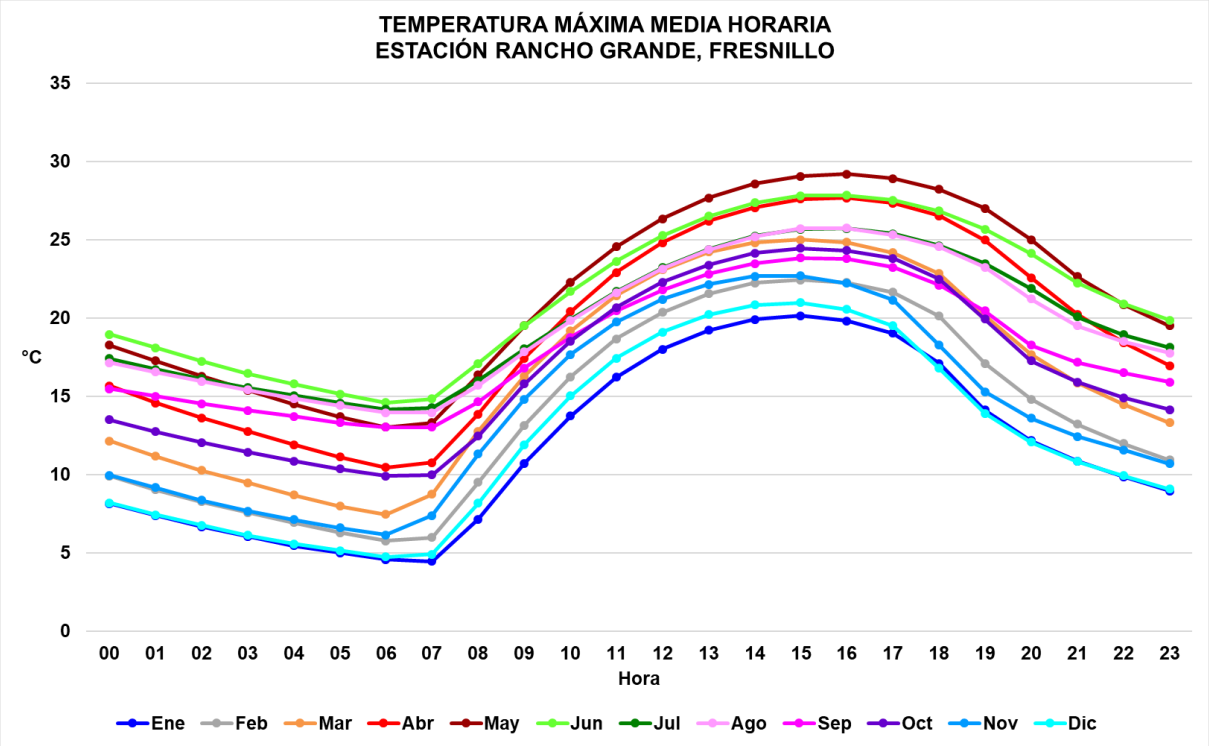


Figura 447. Temperatura máxima media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 498. Temperatura máxima maximorum (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.7	17.2	20.6	24.1	26.4	24.9	23.3	22.8	21.0	18.6	16.4	14.1	26.4
01	13.5	16.4	18.6	21.2	24.4	23.3	21.7	21.9	19.7	18.0	15.7	14.2	24.4
02	13.1	15.1	18.6	21.0	23.4	21.8	20.9	21.0	19.1	17.6	15.0	13.9	23.4
03	12.8	15.0	16.7	19.9	22.2	20.8	20.1	19.9	18.0	17.3	14.3	13.9	22.2
04	12.7	14.7	16.1	18.5	20.4	20.1	19.6	18.9	17.9	16.5	14.6	13.7	20.4
05	12.5	13.9	16.1	17.1	18.9	19.2	18.8	18.3	17.8	16.8	16.1	13.9	19.2
06	12.4	12.5	15.7	16.8	18.2	18.4	17.8	17.9	17.0	16.8	15.7	14.0	18.4
07	12.5	13.5	17.1	18.4	19.2	19.8	17.5	17.6	16.8	16.5	15.0	14.0	19.8
08	15.7	17.5	20.4	22.2	23.7	22.3	20.4	19.8	19.0	18.9	18.4	16.8	23.7
09	18.6	21.5	24.0	24.4	26.6	25.9	22.6	22.3	21.4	22.9	21.6	20.3	26.6
10	22.7	24.8	28.4	27.4	29.6	28.6	25.7	24.5	23.8	26.5	24.8	24.0	29.6
11	25.1	27.8	30.1	29.3	31.4	29.9	26.9	26.9	26.3	27.8	26.9	26.0	31.4
12	25.9	29.7	31.1	30.7	32.9	31.7	28.5	28.6	27.7	28.8	28.1	27.2	32.9
13	26.6	30.8	32.1	32.1	33.7	33.2	29.8	29.4	28.8	29.1	28.8	27.9	33.7
14	27.6	31.0	33.1	32.5	34.7	33.2	31.5	30.0	29.5	30.6	29.3	28.1	34.7
15	27.4	31.0	33.1	33.1	35.0	34.0	31.8	30.6	30.3	30.3	29.2	28.1	35.0
16	27.0	30.5	33.0	33.5	35.9	34.6	31.9	31.3	30.0	30.6	29.0	27.3	35.9
17	25.7	29.7	32.3	33.3	35.5	35.2	32.0	30.7	30.0	30.3	27.9	25.5	35.5
18	24.0	28.0	31.7	32.1	35.4	34.1	31.3	30.5	29.0	29.4	23.9	23.1	35.4
19	20.9	25.0	28.7	30.8	34.3	32.8	30.5	29.7	28.3	27.2	21.1	19.6	34.3
20	18.2	22.7	25.9	28.6	32.9	31.3	28.7	28.3	25.2	23.8	19.2	19.6	32.9
21	17.9	21.8	23.9	26.9	29.9	28.5	26.6	26.7	23.9	23.4	18.4	17.9	29.9
22	16.1	18.7	22.7	25.2	27.6	27.9	25.3	25.2	22.9	21.4	17.9	17.4	27.9
23	15.1	18.5	22.4	23.7	27.4	26.5	24.4	23.9	22.7	20.6	16.8	14.7	27.4
Máx.	27.6	31.0	33.1	33.5	35.9	35.2	32.0	31.3	30.3	30.6	29.3	28.1	35.9

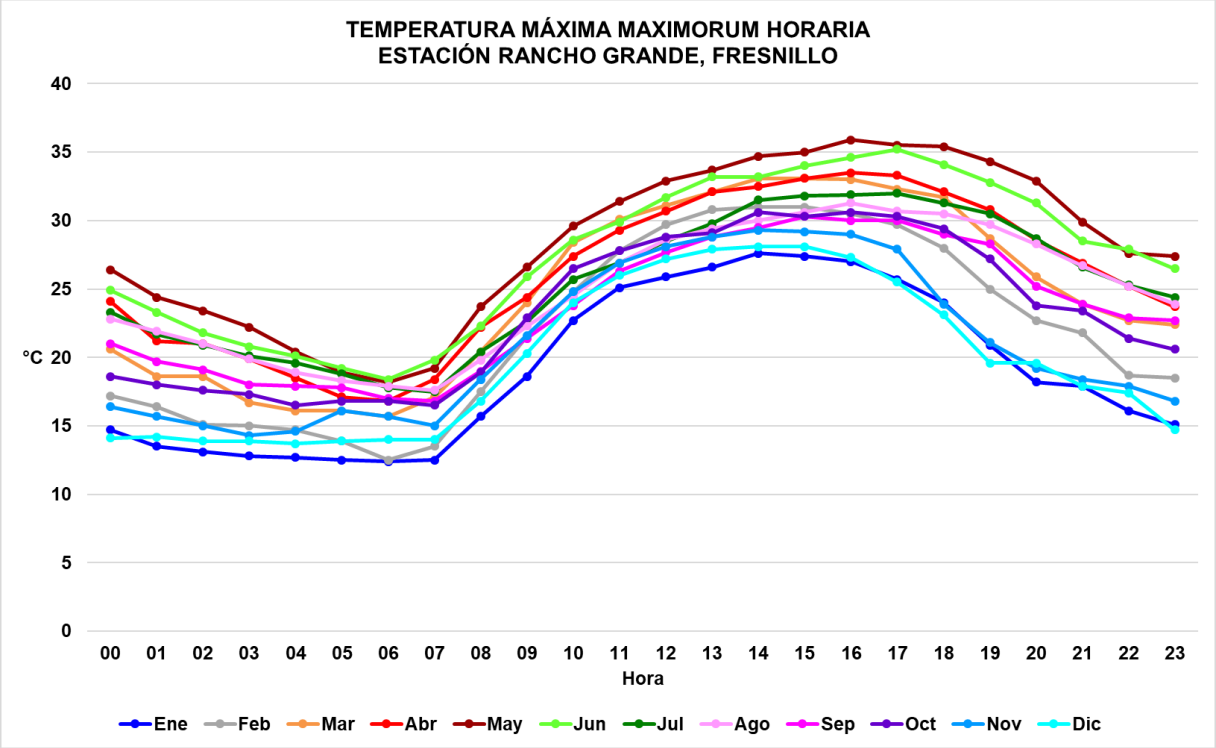


Figura 448. Temperatura máxima maximorum (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 499. Temperatura mínima media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.1	8.8	11.1	14.5	17.2	18.1	16.7	16.4	14.8	12.6	8.9	7.2	12.8
01	6.4	8.0	10.1	13.5	16.3	17.2	16.1	15.8	14.3	11.9	8.2	6.4	12.0
02	5.7	7.2	9.2	12.6	15.3	16.5	15.5	15.3	13.9	11.2	7.4	5.7	11.3
03	5.1	6.6	8.5	11.8	14.4	15.7	14.9	14.8	13.5	10.7	6.8	5.2	10.7
04	4.5	5.9	7.7	10.9	13.6	15.1	14.5	14.3	13.1	10.1	6.2	4.6	10.0
05	4.1	5.3	7.1	10.2	12.8	14.5	14.1	13.8	12.8	9.6	5.7	4.2	9.5
06	3.7	4.8	6.5	9.5	12.2	14.0	13.7	13.4	12.5	9.2	5.3	3.8	9.0
07	3.4	4.7	6.7	9.3	12.1	13.9	13.6	13.2	12.3	8.9	5.5	3.7	8.9
08	4.4	6.5	9.7	11.1	13.8	15.3	14.5	14.1	13.1	10.0	8.3	5.3	10.5
09	8.1	10.5	13.7	14.8	17.2	17.7	16.5	16.2	15.1	13.3	12.2	9.2	13.7
10	11.5	14.0	17.1	18.2	20.2	20.0	18.4	18.3	17.2	16.5	15.5	12.7	16.6
11	14.3	16.9	19.8	21.1	22.8	22.2	20.3	20.2	19.1	19.1	18.2	15.7	19.1
12	16.6	19.0	21.8	23.4	25.0	23.9	22.0	21.9	20.6	21.0	20.0	17.8	21.1
13	18.2	20.6	23.2	25.1	26.6	25.4	23.3	23.2	21.7	22.4	21.2	19.3	22.5
14	19.1	21.5	24.0	26.1	27.5	26.3	24.2	24.1	22.4	23.2	21.9	20.1	23.4
15	19.4	21.8	24.3	26.7	28.1	26.7	24.6	24.5	22.6	23.6	22.0	20.4	23.7
16	19.1	21.6	24.1	26.9	28.3	26.7	24.6	24.5	22.5	23.4	21.3	19.7	23.5
17	17.7	20.5	23.1	26.4	28.0	26.4	24.2	24.1	21.9	22.6	19.2	17.7	22.7
18	14.7	17.9	21.0	25.3	27.2	25.7	23.4	23.3	20.7	20.6	15.7	14.4	20.8
19	12.5	15.2	18.1	23.2	25.5	24.4	22.2	21.6	18.6	17.6	13.8	12.3	18.7
20	10.9	13.3	16.1	20.6	23.0	22.5	20.3	19.6	17.1	16.0	12.3	10.7	16.9
21	9.7	12.0	14.5	18.7	21.1	21.0	18.9	18.4	16.4	14.8	11.3	9.7	15.5
22	8.8	10.8	13.3	17.1	19.5	19.8	18.1	17.6	15.7	13.9	10.5	8.9	14.5
23	7.9	9.8	12.2	15.8	18.3	18.8	17.3	17.0	15.2	13.2	9.7	8.0	13.6
Media	10.5	12.6	15.1	18.0	20.3	20.3	18.8	18.6	17.0	15.6	12.8	10.9	15.9

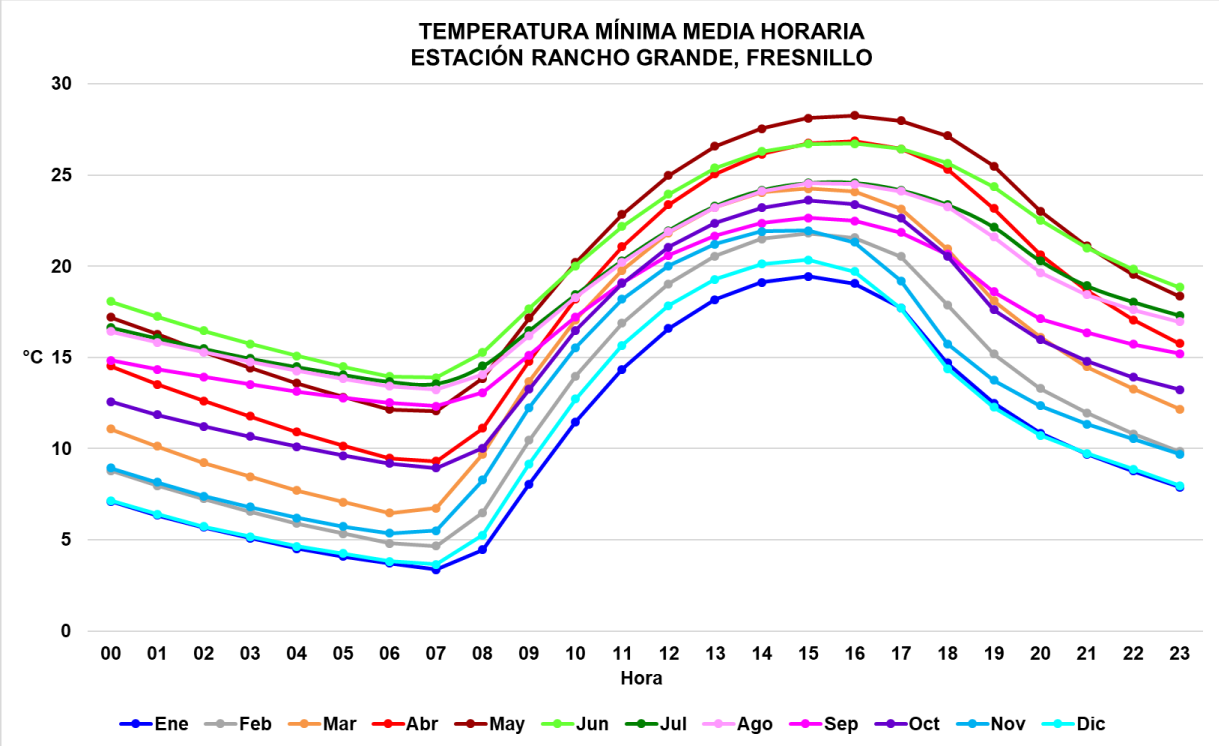


Figura 449. Temperatura mínima media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 500. Temperatura mínima minimorum (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-1.9	-1.4	-0.7	4.6	10.0	11.9	12.2	12.4	4.7	2.8	-5.2	-7.3	-7.3
01	-5.6	-4.2	-1.4	3.8	9.6	10.8	12.2	11.9	4.8	3.4	-4.5	-7.3	-7.3
02	-5.0	-4.8	-1.3	3.0	8.1	10.7	11.4	11.3	3.2	1.7	-6.1	-8.2	-8.2
03	-5.7	-3.0	-2.3	1.7	7.4	10.6	10.5	10.6	2.3	1.1	-8.2	-10.2	-10.2
04	-7.2	-6.0	-2.8	0.1	6.7	9.0	10.1	9.8	2.9	0.8	-8.1	-10.1	-10.1
05	-7.5	-5.6	-3.6	-0.4	5.2	7.7	9.3	9.3	1.3	-0.6	-8.2	-10.8	-10.8
06	-7.6	-7.3	-6.9	0.3	4.2	6.6	9.0	9.3	0.8	-2.0	-9.5	-11.4	-11.4
07	-7.8	-7.3	-7.2	-1.2	4.0	6.4	9.2	9.3	0.7	-2.5	-9.8	-11.5	-11.5
08	-7.0	-4.1	-3.0	-0.1	5.3	10.6	10.4	9.7	1.8	-0.2	-6.3	-9.7	-9.7
09	-2.5	-0.2	0.7	5.9	8.4	12.8	13.0	11.9	4.7	3.5	-0.9	-4.3	-4.3
10	-0.4	2.4	0.7	8.9	9.6	14.6	13.9	13.5	7.7	5.3	2.2	-3.0	-3.0
11	2.2	4.8	3.0	10.9	10.4	15.6	15.0	14.5	8.2	5.3	3.2	-2.9	-2.9
12	3.6	5.9	5.3	13.0	11.5	16.0	14.1	14.2	8.5	5.6	3.7	-2.7	-2.7
13	5.2	6.9	5.1	13.9	13.6	14.4	14.5	15.0	9.3	6.4	4.7	-2.4	-2.4
14	6.0	6.9	5.7	16.2	14.2	15.4	14.8	15.3	9.4	9.6	5.2	-1.7	-1.7
15	4.9	7.3	5.7	16.7	14.0	14.3	14.7	14.0	9.3	11.8	5.5	-1.8	-1.8
16	6.2	6.6	5.6	13.8	15.4	13.0	14.9	14.8	8.9	12.0	6.3	-0.6	-0.6
17	5.3	6.4	5.8	13.8	12.8	13.1	14.5	14.5	9.1	11.1	4.2	-0.7	-0.7
18	2.8	6.0	5.0	11.9	11.4	13.7	13.9	13.4	8.8	8.4	1.7	-2.3	-2.3
19	1.9	4.2	2.4	11.6	11.5	14.1	13.5	14.2	6.6	6.9	0.7	-4.4	-4.4
20	1.8	2.6	1.9	10.9	12.9	14.1	13.8	13.9	6.7	7.2	-0.7	-6.3	-6.3
21	0.9	1.8	0.3	7.8	10.5	14.1	13.7	13.5	6.1	6.9	-2.1	-6.3	-6.3
22	0.3	-0.7	0.5	7.2	11.1	12.5	13.7	13.6	5.0	5.7	-2.9	-7.0	-7.0
23	-1.9	-0.6	0.1	5.9	11.3	11.9	13.8	13.0	5.4	4.2	-3.5	-7.7	-7.7
Mín.	-7.8	-7.3	-7.2	-1.2	4.0	6.4	9.0	9.3	0.7	-2.5	-9.8	-11.5	-11.5

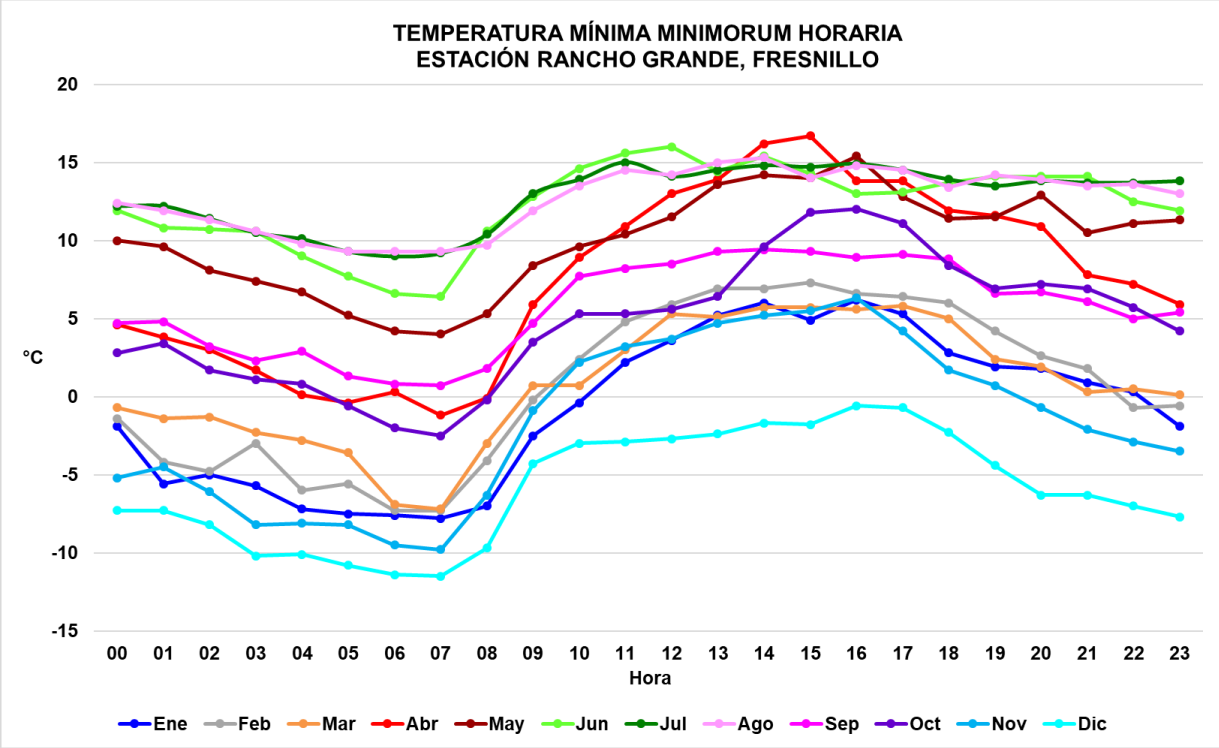


Figura 450. Temperatura mínima minimorum (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 501. Temperatura media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.6	9.4	11.6	15.1	17.7	18.5	17.0	16.8	15.2	13.0	9.4	7.7	13.3
01	6.9	8.5	10.7	14.0	16.8	17.7	16.4	16.2	14.7	12.3	8.7	6.9	12.5
02	6.2	7.8	9.7	13.1	15.8	16.8	15.8	15.6	14.2	11.6	7.9	6.2	11.7
03	5.6	7.1	9.0	12.3	14.9	16.1	15.2	15.1	13.8	11.0	7.2	5.7	11.1
04	5.0	6.4	8.2	11.4	14.0	15.4	14.8	14.6	13.4	10.5	6.7	5.1	10.5
05	4.5	5.8	7.5	10.6	13.3	14.8	14.3	14.1	13.0	10.0	6.2	4.7	9.9
06	4.1	5.3	7.0	10.0	12.6	14.3	13.9	13.7	12.8	9.5	5.7	4.3	9.4
07	3.9	5.3	7.6	10.0	12.6	14.3	13.9	13.6	12.7	9.4	6.3	4.2	9.5
08	5.8	8.0	11.3	12.5	15.1	16.2	15.3	14.9	13.8	11.2	9.8	6.7	11.7
09	9.4	11.8	15.0	16.1	18.3	18.6	17.2	17.0	16.0	14.5	13.5	10.6	14.8
10	12.6	15.1	18.2	19.3	21.3	20.9	19.2	19.1	18.0	17.5	16.6	13.9	17.6
11	15.3	17.8	20.6	22.0	23.7	22.9	21.0	20.9	19.8	19.9	19.0	16.6	20.0
12	17.3	19.7	22.5	24.1	25.7	24.6	22.6	22.5	21.2	21.7	20.6	18.5	21.8
13	18.7	21.1	23.7	25.6	27.1	26.0	23.8	23.8	22.3	22.9	21.7	19.8	23.0
14	19.5	21.9	24.4	26.6	28.1	26.8	24.7	24.6	22.9	23.7	22.3	20.5	23.8
15	19.8	22.1	24.6	27.2	28.6	27.3	25.1	25.2	23.3	24.1	22.3	20.7	24.2
16	19.4	21.9	24.5	27.3	28.7	27.3	25.2	25.1	23.1	23.9	21.8	20.1	24.0
17	18.4	21.1	23.7	26.9	28.5	27.0	24.8	24.7	22.6	23.2	20.3	18.7	23.3
18	15.9	19.1	21.9	25.9	27.7	26.3	24.0	23.9	21.4	21.6	16.9	15.5	21.7
19	13.3	16.1	19.1	24.1	26.3	25.0	22.8	22.4	19.5	18.7	14.5	13.1	19.6
20	11.5	14.0	16.9	21.6	24.0	23.3	21.1	20.4	17.7	16.6	13.0	11.4	17.6
21	10.3	12.6	15.2	19.5	21.9	21.6	19.5	19.0	16.8	15.4	11.9	10.3	16.1
22	9.3	11.4	13.9	17.8	20.2	20.4	18.5	18.1	16.1	14.4	11.1	9.4	15.0
23	8.4	10.4	12.7	16.4	18.9	19.3	17.7	17.4	15.6	13.7	10.2	8.5	14.1
Media	11.2	13.3	15.8	18.7	20.9	20.9	19.3	19.1	17.5	16.3	13.5	11.6	16.5

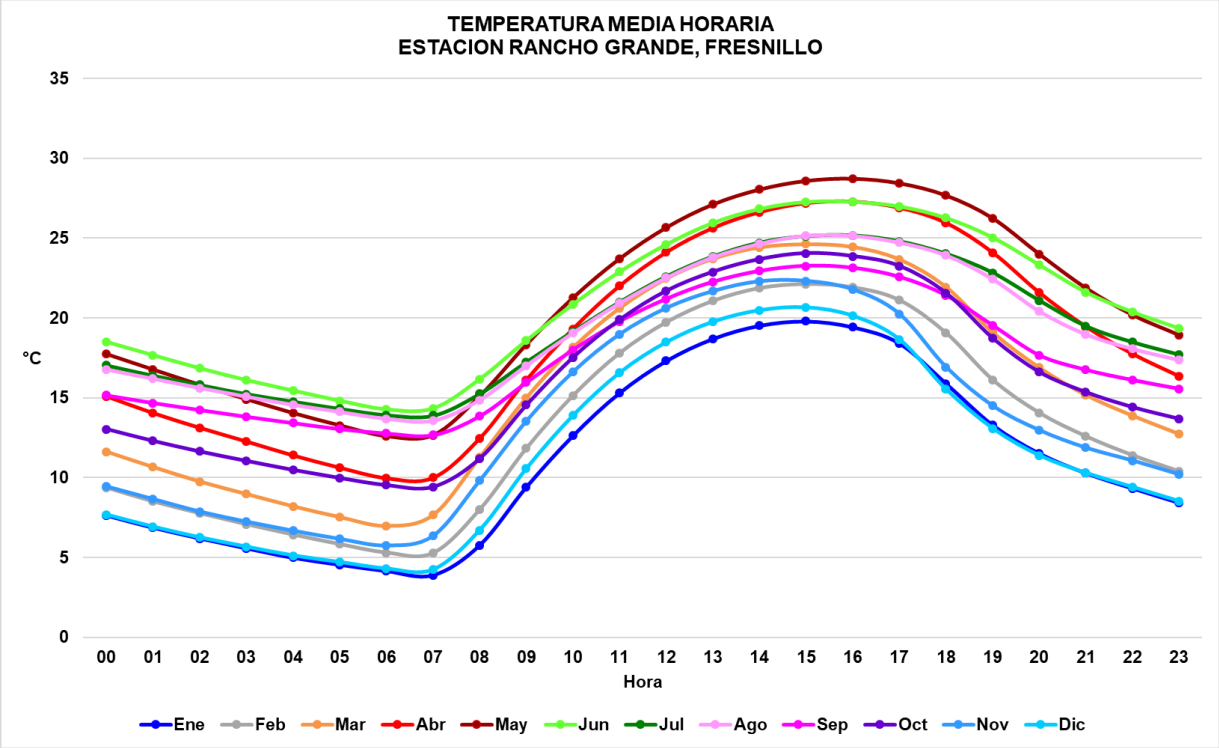


Figura 451. Temperatura media (˚C) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 502. Precipitación media (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.5	0.2	0.0	0.6	4.1	4.5	6.3	5.0	2.9	0.3	0.6	25.3
01	0.3	0.4	0.3	0.0	0.3	2.8	5.9	6.2	6.9	1.1	0.5	0.7	25.5
02	0.4	0.2	0.2	0.0	0.3	1.9	4.0	5.2	5.0	0.6	0.2	0.6	18.6
03	0.4	0.3	0.2	0.0	0.2	1.8	2.1	3.5	4.0	0.9	0.3	0.3	14.0
04	0.5	0.4	0.1	0.0	0.1	2.1	1.5	3.5	2.0	0.9	0.1	0.2	11.2
05	0.3	0.3	0.0	0.0	0.2	0.9	1.8	2.8	1.4	0.4	0.1	0.3	8.5
06	0.2	0.2	0.1	0.0	0.2	1.0	1.5	1.1	1.0	0.7	0.1	0.3	6.4
07	0.2	0.3	0.2	0.0	0.1	0.6	1.7	0.5	0.7	0.2	0.1	0.4	5.0
08	0.1	0.4	0.0	0.0	0.0	0.2	1.0	0.6	0.6	0.3	0.4	0.4	4.0
09	0.2	0.3	0.0	0.0	0.0	0.1	0.9	0.6	0.8	0.2	0.2	0.6	4.0
10	0.1	0.6	0.0	0.0	0.0	0.1	0.6	0.2	0.6	0.2	0.3	0.9	3.7
11	0.1	0.7	0.0	0.0	0.0	0.4	0.3	0.1	0.5	0.1	0.2	0.3	2.7
12	0.2	0.7	0.0	0.0	0.0	0.4	2.5	0.3	0.2	0.2	0.3	0.3	5.3
13	0.1	0.7	0.0	0.0	0.0	0.1	1.6	0.7	0.7	0.4	0.3	0.4	5.0
14	0.2	0.7	0.1	0.1	0.4	0.9	1.9	1.9	2.2	0.5	1.1	0.6	10.4
15	0.2	0.4	1.1	0.1	0.7	1.9	5.7	1.6	1.8	1.2	0.6	0.4	15.7
16	0.4	0.6	0.7	0.2	1.0	5.2	3.3	2.6	5.6	2.5	0.8	0.4	23.2
17	0.4	0.7	0.4	0.1	1.6	3.9	3.8	4.6	7.2	3.2	0.5	0.4	26.8
18	1.4	0.7	0.4	0.0	0.6	3.5	7.6	4.9	6.1	2.3	0.4	0.4	28.4
19	0.8	0.6	0.3	0.0	0.1	5.4	7.1	10.2	7.9	1.5	0.8	0.4	35.0
20	1.0	0.5	0.3	0.2	0.4	3.0	6.4	7.7	6.3	1.6	0.7	0.5	28.7
21	0.4	0.5	0.3	0.0	0.5	2.6	5.2	7.2	5.2	1.9	0.2	0.2	24.1
22	0.4	0.3	0.4	0.0	0.7	3.7	5.4	5.5	6.3	1.4	0.3	0.2	24.6
23	0.4	0.5	0.2	0.0	0.6	4.6	4.5	6.1	5.7	1.7	0.3	0.4	24.9
Suma	8.9	11.6	5.4	0.8	8.6	51.0	80.6	83.8	84.1	27.0	9.0	10.1	380.9

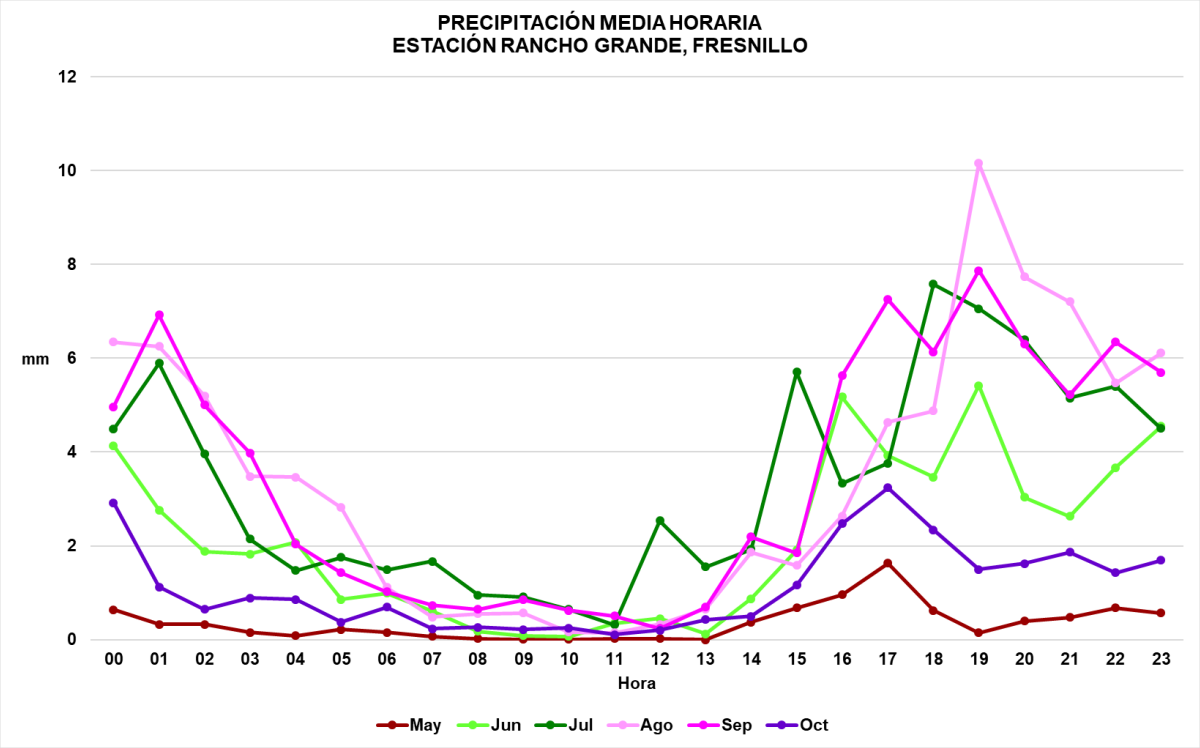


Figura 452. Precipitación media (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 503. Precipitación máxima maximorum (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.2	3.0	3.2	0.2	4.0	11.8	13.6	26.2	13.4	17.6	3.0	4.6	26.2
01	2.4	5.0	2.8	0.0	2.0	8.4	35.6	59.2	27.8	4.4	3.2	3.4	59.2
02	2.0	2.0	2.6	0.0	4.2	6.8	30.2	11.4	21.4	3.4	1.4	6.8	30.2
03	2.2	3.6	1.6	0.0	2.4	6.8	9.4	6.2	17.2	4.2	2.2	1.8	17.2
04	3.0	2.4	0.6	0.0	1.0	15.6	4.4	8.4	8.0	4.8	1.2	2.0	15.6
05	1.4	1.2	0.4	0.0	3.0	4.8	12.8	16.6	3.4	2.8	1.2	3.0	16.6
06	1.6	1.8	0.8	0.0	1.4	3.4	13.4	3.8	4.4	7.8	0.8	1.6	13.4
07	1.4	1.8	1.2	0.0	0.6	4.4	10.4	2.4	4.2	1.2	0.8	2.6	10.4
08	1.4	2.2	0.2	0.0	0.2	1.6	7.4	3.4	7.6	1.2	3.4	2.8	7.6
09	1.4	2.0	0.4	0.0	0.2	0.4	6.8	4.2	9.0	1.0	2.8	7.2	9.0
10	0.6	5.0	0.4	0.2	0.2	0.6	8.2	1.6	6.4	3.8	3.4	13.4	13.4
11	2.4	3.0	0.0	0.0	0.4	7.2	1.2	1.0	5.8	0.8	2.0	1.8	7.2
12	1.6	2.8	0.2	0.0	0.4	4.4	40.2	4.8	3.6	2.0	2.0	3.8	40.2
13	0.8	3.4	0.0	0.0	0.0	1.2	12.4	7.0	5.0	4.6	1.8	2.6	12.4
14	3.0	4.2	1.0	0.8	3.0	6.8	10.6	8.8	15.4	5.4	10.0	6.8	15.4
15	1.4	1.8	9.8	0.8	9.6	11.6	40.6	11.8	6.6	9.2	3.0	2.6	40.6
16	2.0	2.4	10.0	1.6	6.8	16.8	12.6	4.6	15.8	8.4	5.2	2.6	16.8
17	1.6	3.0	6.8	1.0	15.8	34.0	7.6	13.0	21.8	14.0	1.6	2.4	34.0
18	8.0	3.8	5.6	0.4	3.4	13.8	23.6	17.8	9.4	16.4	2.6	2.2	23.6
19	5.4	5.0	2.0	0.2	1.2	20.6	25.8	27.2	19.0	4.8	4.8	2.2	27.2
20	6.0	4.0	3.6	4.2	3.2	8.6	20.8	30.0	19.4	6.6	4.8	5.6	30.0
21	2.6	5.6	1.6	0.8	5.8	14.4	7.2	13.6	13.6	4.8	2.2	1.4	14.4
22	2.0	2.0	3.2	0.2	7.8	11.8	12.2	12.6	25.4	5.6	2.6	1.6	25.4
23	1.6	3.2	1.6	0.0	4.4	12.2	14.2	19.2	19.0	8.8	2.6	2.8	19.2
Máx.	8.0	5.6	10.0	4.2	15.8	34.0	40.6	59.2	27.8	17.6	10.0	13.4	59.2

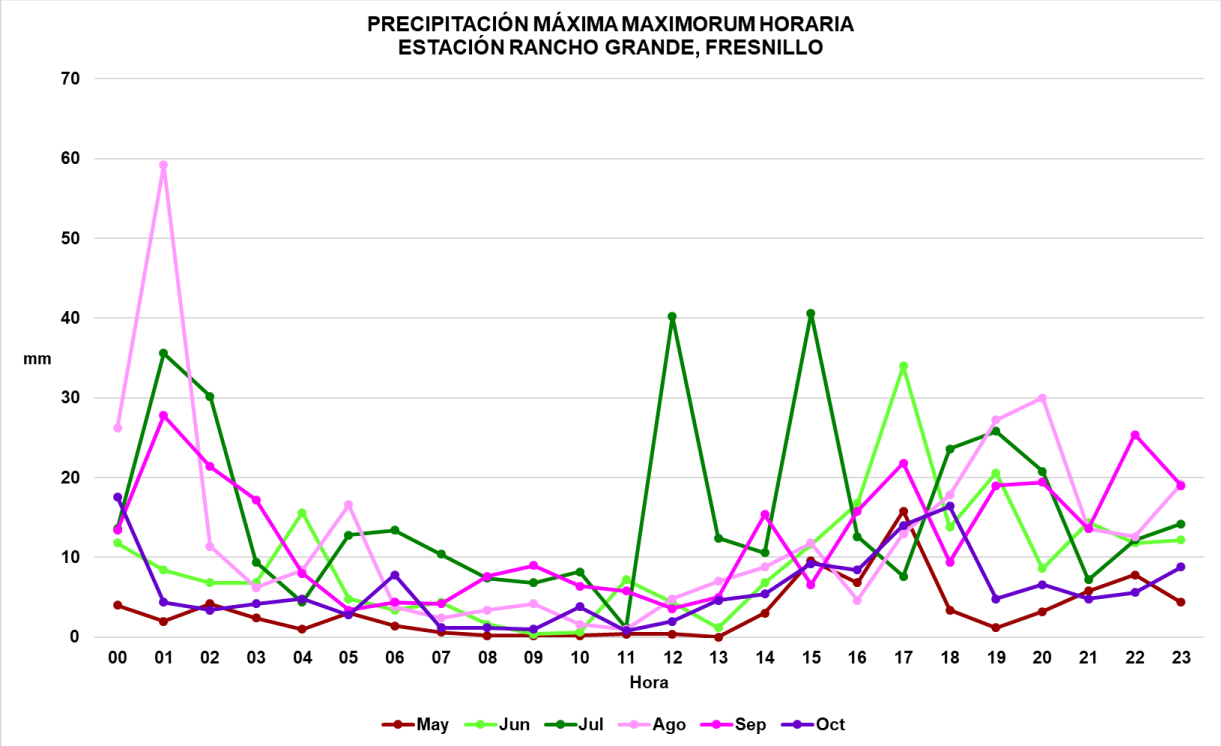


Figura 453. Precipitación máxima maximorum (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 504. Evapotranspiración potencial media (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.02	0.04	0.06	0.10	0.10	0.07	0.03	0.02	0.01	0.01	0.02	0.02	0.04
01	0.02	0.03	0.05	0.09	0.08	0.05	0.02	0.02	0.00	0.01	0.01	0.02	0.03
02	0.02	0.03	0.04	0.07	0.07	0.04	0.02	0.01	0.00	0.01	0.01	0.02	0.03
03	0.02	0.02	0.03	0.06	0.05	0.03	0.01	0.01	0.00	0.00	0.01	0.01	0.02
04	0.01	0.02	0.03	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.02
05	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
06	0.01	0.02	0.02	0.04	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.02	0.02	0.03	0.05	0.04	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.02
08	0.03	0.05	0.10	0.09	0.09	0.07	0.04	0.03	0.02	0.02	0.06	0.03	0.05
09	0.10	0.16	0.24	0.21	0.22	0.19	0.14	0.13	0.10	0.12	0.16	0.12	0.16
10	0.21	0.29	0.38	0.36	0.37	0.33	0.27	0.27	0.22	0.25	0.29	0.23	0.29
11	0.32	0.41	0.52	0.51	0.52	0.47	0.40	0.41	0.36	0.38	0.40	0.34	0.42
12	0.41	0.51	0.61	0.63	0.64	0.58	0.51	0.52	0.45	0.49	0.48	0.42	0.52
13	0.46	0.56	0.66	0.71	0.72	0.66	0.58	0.59	0.51	0.55	0.50	0.46	0.58
14	0.46	0.57	0.65	0.74	0.74	0.68	0.60	0.61	0.52	0.55	0.47	0.46	0.59
15	0.42	0.52	0.59	0.72	0.71	0.65	0.58	0.59	0.49	0.52	0.41	0.41	0.55
16	0.35	0.44	0.50	0.65	0.63	0.57	0.52	0.52	0.42	0.43	0.31	0.32	0.47
17	0.25	0.33	0.38	0.54	0.53	0.48	0.43	0.42	0.33	0.31	0.19	0.21	0.37
18	0.15	0.20	0.25	0.43	0.41	0.37	0.33	0.31	0.21	0.22	0.11	0.14	0.26
19	0.09	0.13	0.18	0.36	0.31	0.25	0.21	0.22	0.14	0.11	0.05	0.07	0.18
20	0.06	0.09	0.12	0.23	0.23	0.20	0.16	0.12	0.05	0.04	0.03	0.05	0.11
21	0.04	0.07	0.09	0.16	0.15	0.12	0.08	0.06	0.02	0.02	0.03	0.04	0.07
22	0.04	0.06	0.08	0.13	0.12	0.09	0.05	0.03	0.01	0.02	0.03	0.03	0.06
23	0.03	0.05	0.07	0.11	0.11	0.08	0.04	0.03	0.01	0.02	0.02	0.03	0.05
Media/día /mes	3.55	4.62	5.73	7.08	6.96	6.04	5.04	4.92	3.87	4.09	3.60	3.49	4.92

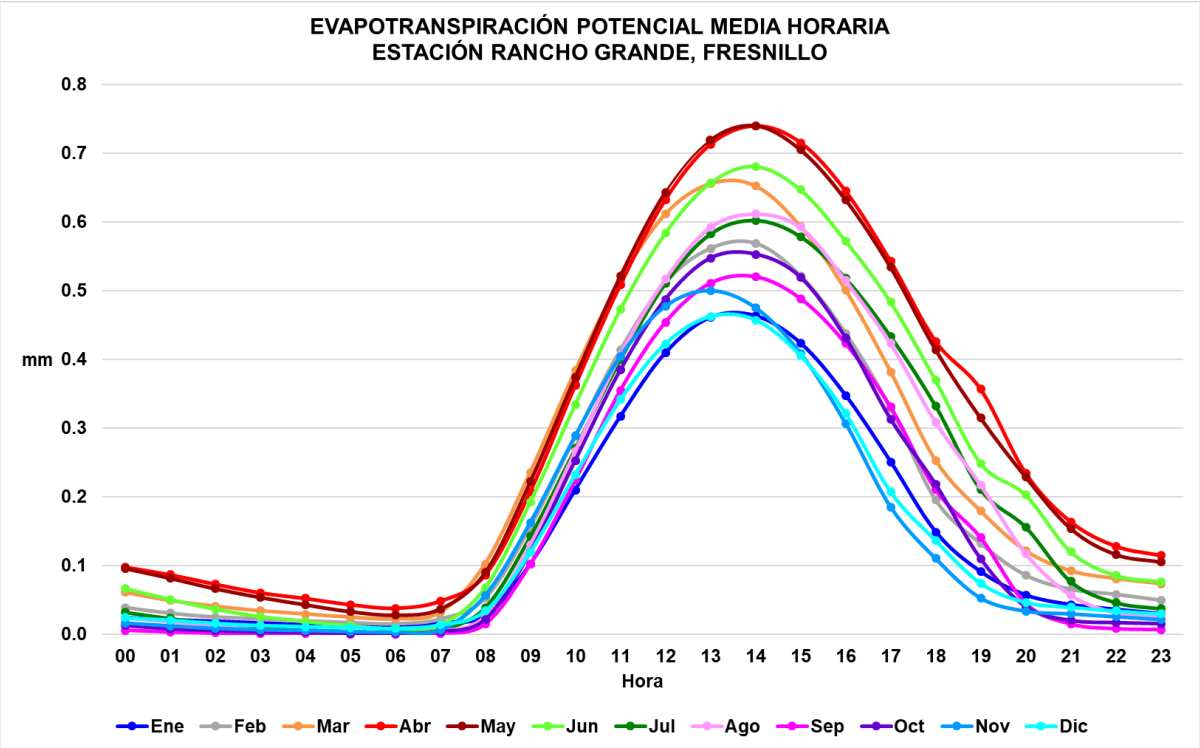


Figura 454. Evapotranspiración potencial media (mm) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 505. Humedad relativa media (%) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	59.4	50.7	41.8	35.1	42.0	60.2	76.0	78.0	86.4	76.6	68.8	59.9	61.2
01	62.5	53.8	44.9	38.8	46.3	64.6	79.1	80.9	88.5	79.9	72.1	63.2	64.5
02	65.2	56.7	48.1	41.6	50.4	68.9	81.8	83.7	90.2	82.4	75.3	66.1	67.5
03	67.6	59.5	50.9	44.4	53.9	72.6	84.2	86.0	91.8	85.0	77.9	68.6	70.2
04	69.9	62.0	53.7	47.4	57.4	75.8	86.1	88.1	93.1	87.2	80.4	70.9	72.7
05	71.6	64.3	56.2	50.1	60.4	78.5	87.8	89.8	94.2	89.0	82.4	72.7	74.7
06	73.2	66.3	58.2	52.2	62.9	80.6	89.4	91.3	94.9	90.6	84.0	74.4	76.5
07	74.1	66.8	57.0	52.0	63.0	80.8	89.8	91.9	95.2	91.1	82.6	75.0	76.6
08	68.8	59.4	48.0	46.3	55.7	74.7	85.1	88.0	92.3	86.3	72.0	67.9	70.4
09	58.0	48.1	38.1	37.2	45.4	65.1	76.5	79.0	84.0	74.7	59.3	56.2	60.1
10	48.0	38.4	29.8	29.1	35.7	55.4	67.5	69.6	74.3	62.7	48.4	45.8	50.4
11	39.1	30.9	23.7	22.5	27.9	46.7	58.8	61.1	66.1	52.8	39.6	37.1	42.2
12	32.5	25.7	19.7	18.1	22.4	39.5	51.4	53.8	59.6	45.4	33.7	31.0	36.1
13	28.3	22.5	17.0	15.3	18.9	34.2	45.9	48.0	54.8	40.4	30.0	27.1	31.9
14	25.8	20.6	15.7	13.8	17.1	31.0	42.3	44.3	51.5	37.2	27.9	24.9	29.3
15	24.8	19.8	15.3	13.0	16.0	29.7	40.8	42.2	49.9	35.4	27.3	23.9	28.2
16	25.5	19.8	15.4	12.8	15.8	29.8	40.5	42.0	50.3	35.7	28.3	24.5	28.4
17	27.4	21.1	16.0	13.1	16.3	30.6	42.0	43.3	52.7	37.5	32.1	27.3	30.0
18	32.8	24.5	18.1	14.0	17.5	33.0	45.0	46.3	57.6	43.2	40.2	33.8	33.8
19	38.9	29.7	22.3	16.3	19.9	36.7	49.7	52.7	66.5	53.2	46.8	39.7	39.4
20	44.2	34.5	26.3	19.6	24.0	41.8	56.7	61.2	75.0	60.4	52.3	44.9	45.1
21	48.5	38.8	30.4	23.4	28.7	47.1	63.7	67.5	79.1	65.3	57.0	48.9	49.9
22	52.3	42.9	34.5	27.3	33.4	51.8	68.4	71.9	81.8	69.3	60.9	52.8	53.9
23	56.0	46.7	38.3	31.1	37.9	56.9	72.1	75.4	84.0	72.7	64.8	56.6	57.7
Media	49.8	41.8	34.1	29.8	36.2	53.6	65.9	68.2	75.6	64.8	56.0	49.7	52.1

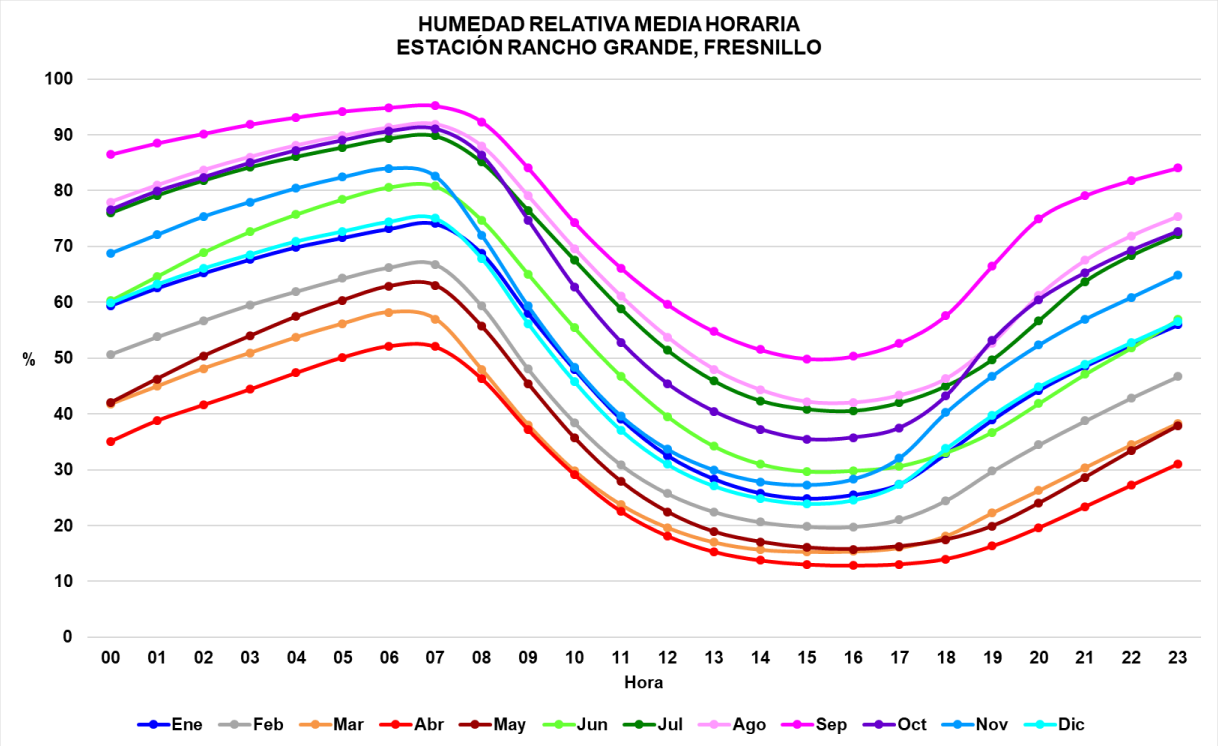


Figura 455. Humedad relativa media (%) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 506. Humedad relativa mínima minimorum (%) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.0	11.0	8.0	10.6	9.0	17.0	26.0	32.0	29.0	27.0	15.0	12.0	8.0
01	17.0	12.0	10.0	10.8	11.0	18.0	31.0	38.0	39.0	30.0	19.0	14.0	10.0
02	15.0	14.0	10.0	12.0	11.0	23.0	36.0	46.0	43.0	29.0	22.0	14.0	10.0
03	16.0	17.0	12.0	12.0	13.0	27.0	44.0	42.0	49.0	28.0	23.0	16.0	12.0
04	15.0	17.0	12.9	13.0	15.0	29.0	41.0	49.0	48.0	30.0	21.0	20.0	12.9
05	16.0	16.0	11.4	11.0	16.0	30.0	40.0	46.0	59.0	31.0	22.0	18.0	11.0
06	17.0	17.0	10.9	12.0	17.7	31.0	50.0	54.0	60.0	30.0	31.0	17.0	10.9
07	14.0	17.0	9.7	10.2	15.0	30.0	50.0	59.0	63.0	26.0	31.0	19.0	9.7
08	12.0	12.0	9.0	7.9	10.0	23.0	44.0	52.6	54.0	22.0	17.0	14.0	7.9
09	10.0	10.0	6.2	7.9	9.0	17.0	29.0	43.0	39.0	19.0	12.0	12.0	6.2
10	10.0	8.4	4.6	6.0	6.0	10.0	20.0	32.0	28.8	16.0	10.0	10.0	4.6
11	6.0	6.0	4.4	5.0	6.0	8.0	18.0	21.0	22.0	13.3	8.0	8.0	4.4
12	6.0	5.0	4.1	4.5	5.0	5.0	15.0	20.0	18.0	11.0	5.0	6.0	4.1
13	4.0	5.0	4.0	3.9	4.0	5.0	14.0	18.0	15.0	11.0	5.0	5.0	3.9
14	4.0	4.0	3.0	3.7	4.0	5.0	14.0	16.0	14.0	9.0	4.0	5.0	3.0
15	3.0	4.0	3.0	3.0	4.0	4.0	13.0	15.0	14.0	8.0	4.0	4.0	3.0
16	3.0	5.0	3.0	3.0	4.0	4.0	12.0	15.0	14.0	8.0	5.0	4.0	3.0
17	3.0	5.0	4.0	3.8	4.0	4.0	12.0	15.0	14.0	8.0	5.0	4.0	3.0
18	4.0	6.0	4.0	3.0	4.0	4.0	13.0	16.0	14.0	8.0	7.0	6.0	3.0
19	5.0	7.0	6.0	4.0	4.0	5.0	12.0	16.0	15.0	9.0	11.0	6.0	4.0
20	6.0	9.0	6.0	6.0	5.0	6.0	17.0	19.0	25.0	13.0	11.0	8.0	5.0
21	8.0	10.0	6.9	6.7	8.0	9.0	18.0	26.0	25.0	17.0	12.0	9.0	6.7
22	11.0	11.0	7.9	7.2	9.0	11.0	23.0	27.0	27.0	22.0	11.0	11.0	7.2
23	11.0	11.0	8.0	9.0	9.0	13.0	25.0	28.0	26.0	24.0	11.0	12.0	8.0
Mín.	3.0	4.0	3.0	3.0	4.0	4.0	12.0	15.0	14.0	8.0	4.0	4.0	3.0

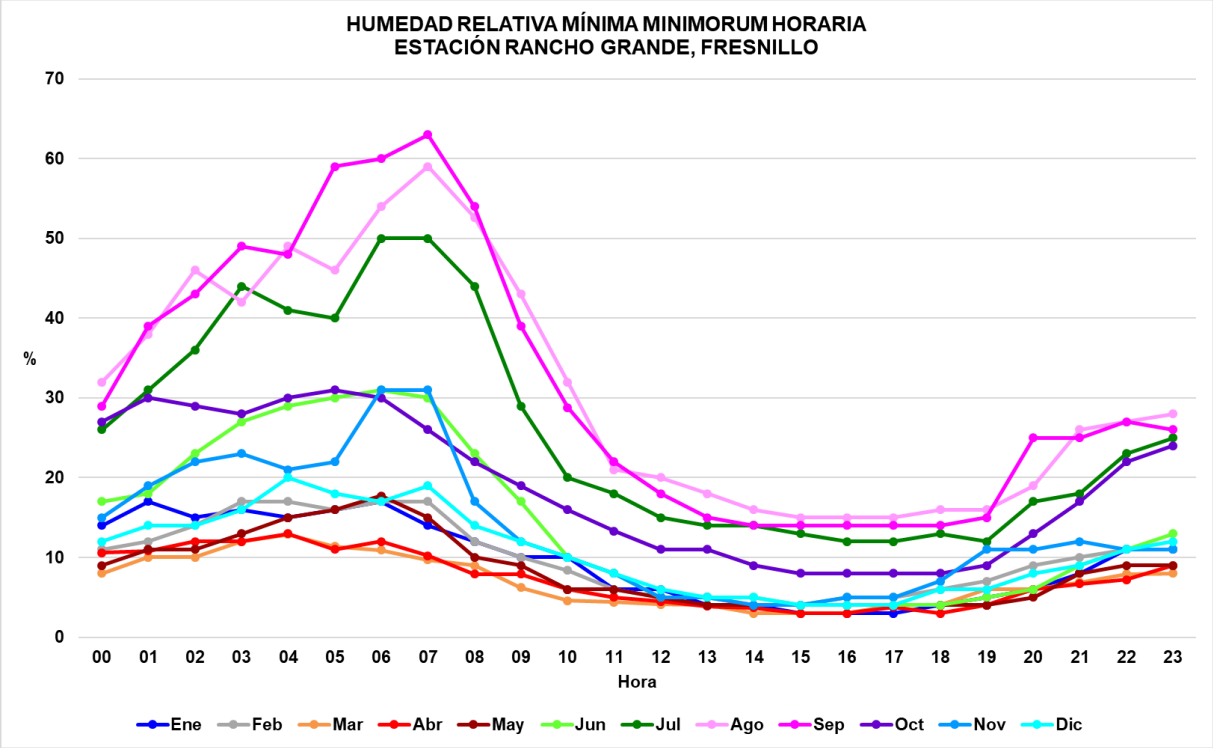


Figura 456. Humedad relativa mínima minimorum (%) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 507. Radiación solar global media horaria (W/m2) de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	18	9	10	9	4	1	0	2	7	1	5
07	61	127	333	197	222	213	145	92	57	86	239	100	156
08	545	769	1148	864	928	882	726	616	479	568	937	643	759
09	1285	1614	2033	1752	1802	1717	1515	1415	1221	1373	1715	1394	1570
10	1974	2366	2800	2573	2616	2503	2276	2218	1980	2136	2393	2055	2324
11	2511	2920	3355	3260	3266	3112	2901	2882	2614	2711	2807	2502	2903
12	2768	3202	3597	3680	3701	3510	3304	3290	2980	3066	2920	2692	3226
13	2734	3192	3523	3791	3796	3609	3393	3425	3050	3081	2775	2612	3248
14	2426	2902	3163	3597	3569	3334	3209	3262	2888	2887	2389	2267	2991
15	1894	2342	2567	3137	3097	2919	2779	2844	2521	2444	1779	1721	2504
16	1246	1641	1824	2489	2517	2343	2272	2271	1962	1766	1059	1033	1869
17	538	845	998	1731	1829	1702	1685	1612	1294	1061	360	360	1168
18	71	194	297	927	1067	1033	1035	959	643	400	17	20	555
19	0	1	9	290	394	423	445	335	152	44	0	0	174
20	0	0	0	17	42	64	70	30	3	0	0	0	19
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18056	22118	25664	28313	28854	27373	25760	25253	21844	21625	19396	17400	23471

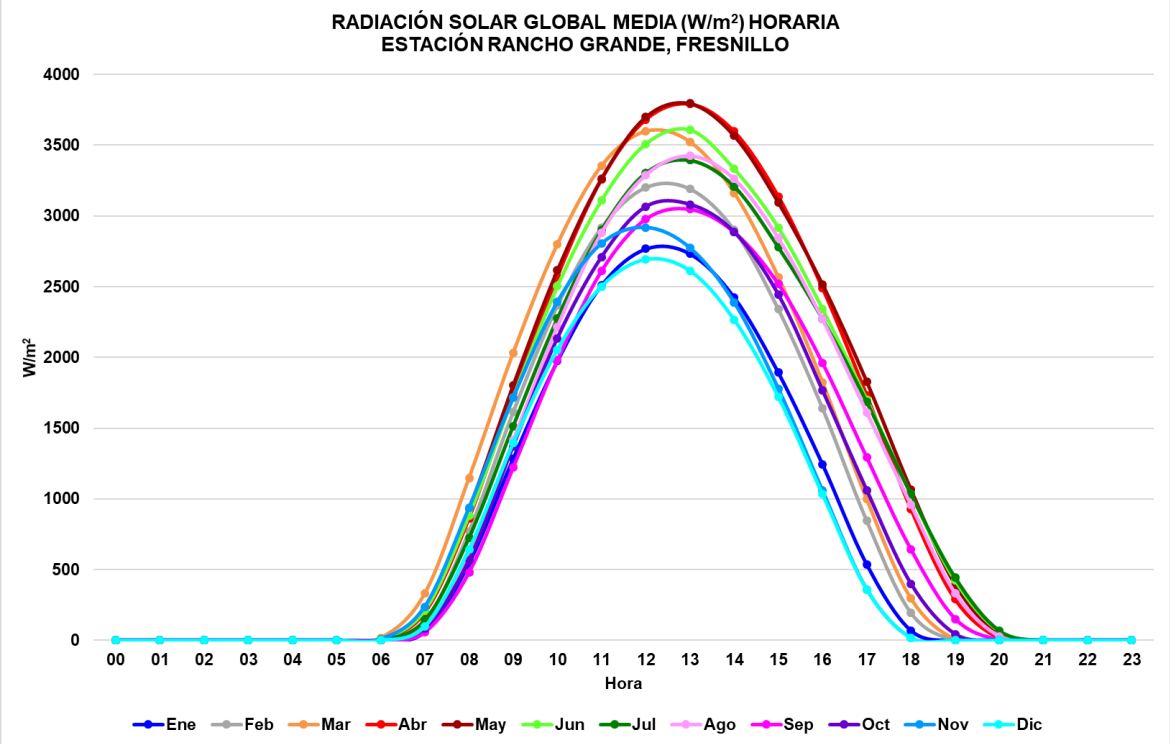


Figura 457. Radiación solar global media horaria (W/m2) de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 508. Radiación solar global media horaria (kWh/m2) de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.03	0.08	0.05	0.06	0.05	0.04	0.02	0.01	0.02	0.06	0.02	0.04
08	0.14	0.19	0.29	0.22	0.23	0.22	0.18	0.15	0.12	0.14	0.23	0.16	0.19
09	0.32	0.40	0.51	0.44	0.45	0.43	0.38	0.35	0.31	0.34	0.43	0.35	0.39
10	0.49	0.59	0.70	0.64	0.65	0.63	0.57	0.55	0.49	0.53	0.60	0.51	0.58
11	0.63	0.73	0.84	0.82	0.82	0.78	0.73	0.72	0.65	0.68	0.70	0.63	0.73
12	0.69	0.80	0.90	0.92	0.93	0.88	0.83	0.82	0.74	0.77	0.73	0.67	0.81
13	0.68	0.80	0.88	0.95	0.95	0.90	0.85	0.86	0.76	0.77	0.69	0.65	0.81
14	0.61	0.73	0.79	0.90	0.89	0.83	0.80	0.82	0.72	0.72	0.60	0.57	0.75
15	0.47	0.59	0.64	0.78	0.77	0.73	0.69	0.71	0.63	0.61	0.44	0.43	0.63
16	0.31	0.41	0.46	0.62	0.63	0.59	0.57	0.57	0.49	0.44	0.26	0.26	0.47
17	0.13	0.21	0.25	0.43	0.46	0.43	0.42	0.40	0.32	0.27	0.09	0.09	0.29
18	0.02	0.05	0.07	0.23	0.27	0.26	0.26	0.24	0.16	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.07	0.10	0.11	0.11	0.08	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.51	5.53	6.42	7.08	7.21	6.84	6.44	6.31	5.46	5.41	4.85	4.35	5.87

Cuadro 509. Radiación solar global media horaria (Mj/m2/s) de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.06	0.11	0.30	0.18	0.20	0.19	0.13	0.08	0.05	0.08	0.21	0.09	0.14
08	0.49	0.69	1.03	0.78	0.84	0.79	0.65	0.55	0.43	0.51	0.84	0.58	0.68
09	1.16	1.45	1.83	1.58	1.62	1.55	1.36	1.27	1.10	1.24	1.54	1.25	1.41
10	1.78	2.13	2.52	2.32	2.35	2.25	2.05	2.00	1.78	1.92	2.15	1.85	2.09
11	2.26	2.63	3.02	2.93	2.94	2.80	2.61	2.59	2.35	2.44	2.53	2.25	2.61
12	2.49	2.88	3.24	3.31	3.33	3.16	2.97	2.96	2.68	2.76	2.63	2.42	2.90
13	2.46	2.87	3.17	3.41	3.42	3.25	3.05	3.08	2.74	2.77	2.50	2.35	2.92
14	2.18	2.61	2.85	3.24	3.21	3.00	2.89	2.94	2.60	2.60	2.15	2.04	2.69
15	1.70	2.11	2.31	2.82	2.79	2.63	2.50	2.56	2.27	2.20	1.60	1.55	2.25
16	1.12	1.48	1.64	2.24	2.27	2.11	2.04	2.04	1.77	1.59	0.95	0.93	1.68
17	0.48	0.76	0.90	1.56	1.65	1.53	1.52	1.45	1.16	0.95	0.32	0.32	1.05
18	0.06	0.17	0.27	0.83	0.96	0.93	0.93	0.86	0.58	0.36	0.02	0.02	0.50
19	0.00	0.00	0.01	0.26	0.35	0.38	0.40	0.30	0.14	0.04	0.00	0.00	0.16
20	0.00	0.00	0.00	0.02	0.04	0.06	0.06	0.03	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.25	19.91	23.10	25.48	25.97	24.64	23.18	22.73	19.66	19.46	17.46	15.66	21.12

Cuadro 510. Velocidad del viento media (km/h) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	9.3	10.3	12.6	12.6	11.4	9.5	7.4	4.8	5.5	6.2	7.8	8.8
01	7.4	8.6	9.5	11.8	11.8	10.5	8.8	6.8	4.3	4.9	5.7	7.4	8.1
02	7.2	8.4	8.9	10.7	10.7	9.6	7.8	5.9	4.0	4.4	5.2	7.2	7.5
03	7.0	7.9	8.5	9.9	9.6	8.5	7.0	5.3	3.7	4.1	5.1	6.9	6.9
04	6.8	7.7	7.9	9.0	8.8	7.6	6.5	5.1	3.4	3.9	4.7	6.7	6.5
05	6.7	7.5	7.5	8.4	7.9	6.8	6.1	4.8	3.2	3.7	4.5	6.7	6.1
06	6.6	7.2	7.1	8.1	7.5	6.3	5.9	4.5	3.2	3.5	4.6	6.4	5.9
07	6.4	7.2	7.3	7.8	7.4	6.6	5.9	4.3	3.0	3.4	4.7	6.2	5.8
08	7.2	9.0	10.0	9.2	9.4	9.2	8.0	5.8	4.1	4.3	6.7	7.4	7.5
09	10.1	11.4	12.0	11.8	10.9	10.7	10.1	8.3	6.6	6.4	8.7	10.1	9.8
10	12.0	12.8	12.9	12.4	10.6	10.1	10.0	9.1	8.1	7.6	9.7	11.6	10.6
11	13.0	14.2	13.8	12.9	10.5	9.6	9.2	8.6	8.3	8.0	10.4	12.5	10.9
12	14.0	15.7	15.1	14.1	11.1	9.9	9.2	8.5	8.3	8.6	11.2	13.5	11.6
13	14.8	16.7	16.5	15.4	12.2	11.1	9.9	9.0	8.5	9.2	11.6	14.3	12.4
14	15.8	17.7	17.5	16.8	13.2	12.6	11.1	9.9	8.9	9.6	11.8	14.8	13.3
15	16.1	18.4	18.2	18.0	14.2	13.5	12.5	10.7	9.1	9.8	11.8	14.9	13.9
16	16.1	18.5	18.2	18.7	15.1	14.0	13.3	11.4	9.4	9.7	11.7	14.6	14.2
17	15.1	17.9	18.2	19.3	15.7	14.4	14.0	11.9	9.4	9.3	10.4	12.9	14.0
18	11.7	14.9	16.6	19.2	16.1	15.1	14.3	11.7	8.7	7.7	7.3	9.5	12.7
19	9.6	11.5	13.3	17.6	15.4	15.1	13.2	10.2	6.6	5.6	7.1	8.5	11.1
20	9.2	10.7	12.1	14.9	13.4	13.2	11.1	8.2	5.1	5.2	7.6	8.3	9.9
21	9.1	11.0	11.5	13.9	12.7	11.9	9.9	7.5	4.9	5.5	7.9	8.5	9.5
22	8.7	10.7	11.6	13.5	12.8	12.1	9.9	7.7	5.1	6.0	7.8	8.5	9.5
23	8.3	10.0	11.2	13.3	12.8	12.4	10.1	7.6	5.2	6.0	7.0	8.1	9.3
Media	10.3	11.9	12.3	13.3	11.8	10.9	9.7	7.9	6.1	6.3	7.9	9.7	9.8

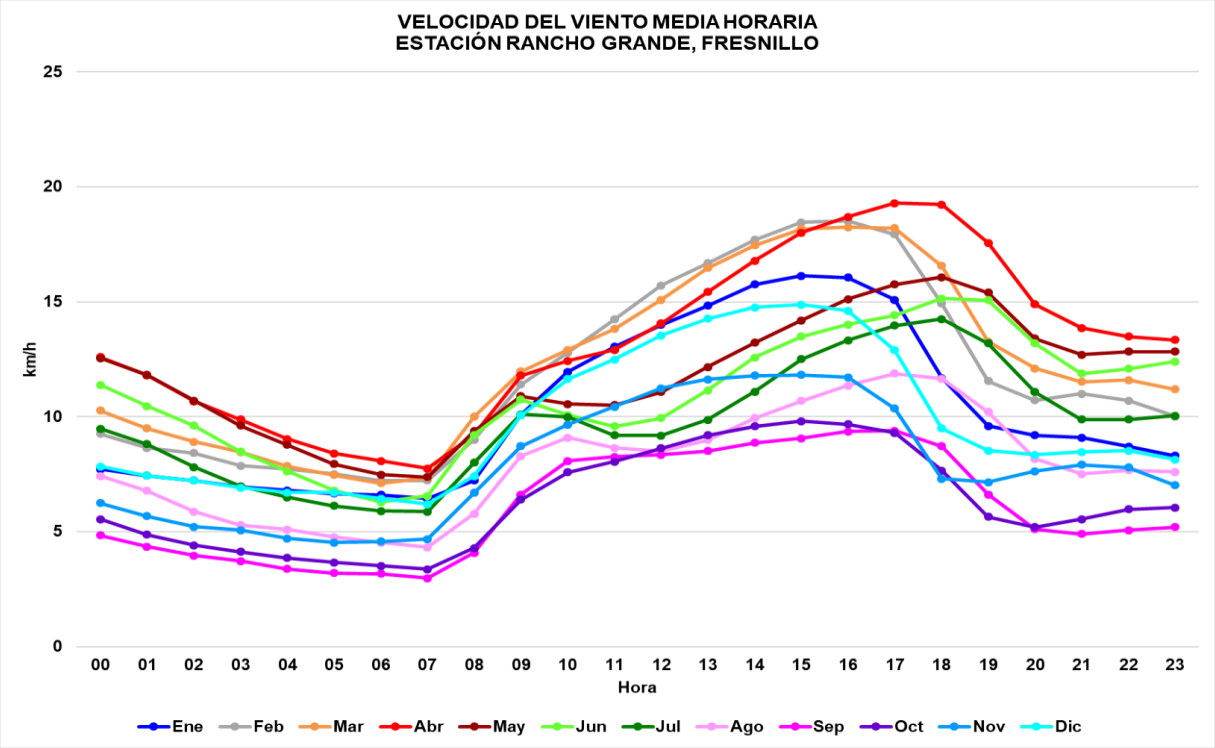


Figura 458. Velocidad del viento media (km/h) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 511. Velocidad del viento máxima maximorum (km/h) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	44.2	53.1	54.0	47.7	46.3	48.9	42.5	35.5	23.7	26.1	36.0	59.2	59.2
01	55.5	39.2	46.6	42.4	38.5	49.6	45.1	40.7	21.0	22.7	34.0	52.0	55.5
02	46.3	53.2	49.0	42.8	35.9	40.2	50.6	33.6	20.3	26.2	32.9	37.8	53.2
03	51.0	39.0	55.0	41.3	35.0	33.4	31.0	24.0	20.2	19.3	33.1	46.0	55.0
04	54.0	41.0	52.0	38.2	34.0	33.0	27.3	27.8	22.3	20.3	44.0	46.0	54.0
05	36.8	40.3	57.0	37.8	36.5	32.0	26.3	26.5	20.3	28.5	43.0	48.0	57.0
06	38.0	38.0	66.0	39.1	31.0	28.4	24.1	25.6	20.2	30.2	46.0	49.0	66.0
07	38.0	40.0	58.1	35.5	30.0	30.9	26.7	22.0	17.0	30.9	47.0	42.0	58.1
08	36.6	47.7	65.9	43.4	31.0	31.6	25.2	26.0	23.4	29.1	45.0	44.0	65.9
09	42.1	48.0	67.0	51.0	34.7	37.7	31.8	29.9	25.4	38.4	31.0	55.0	67.0
10	52.5	54.7	75.0	59.4	38.9	34.8	33.0	38.3	31.1	41.5	39.1	53.0	75.0
11	55.0	59.9	71.0	62.2	40.0	36.7	36.0	39.6	46.2	40.4	43.0	58.0	71.0
12	59.1	64.4	64.0	60.7	45.1	39.2	39.2	31.3	34.4	43.5	52.5	57.0	64.4
13	65.4	58.4	69.0	57.5	46.3	41.7	39.5	32.8	30.9	39.5	48.0	59.0	69.0
14	77.2	58.6	66.0	54.7	47.0	47.0	33.7	32.9	35.6	45.5	52.0	63.2	77.2
15	74.0	53.6	62.0	56.6	48.2	42.0	37.5	33.8	33.7	44.2	47.0	56.0	74.0
16	68.9	53.4	62.0	54.5	65.7	55.2	43.0	39.4	31.6	41.0	45.0	60.0	68.9
17	70.0	48.1	57.0	53.5	51.2	59.8	38.3	53.1	42.0	41.9	40.0	55.0	70.0
18	60.7	48.0	54.0	58.4	45.8	54.5	49.8	39.0	32.0	33.0	36.5	49.9	60.7
19	48.0	45.0	46.2	57.0	54.1	55.4	51.6	39.9	31.7	28.8	36.9	43.1	57.0
20	45.0	49.8	47.7	46.9	45.6	50.0	39.0	44.4	29.3	26.4	41.0	44.9	50.0
21	49.0	52.6	46.0	51.3	48.9	51.3	35.3	44.2	39.8	29.5	38.0	51.0	52.6
22	43.0	60.8	48.2	47.4	64.5	49.3	37.7	48.3	30.5	27.6	34.0	50.5	64.5
23	41.0	47.6	47.9	39.4	45.2	52.2	45.4	37.4	29.9	29.3	32.0	48.2	52.2
Máx.	77.2	64.4	75.0	62.2	65.7	59.8	51.6	53.1	46.2	45.5	52.5	63.2	77.2

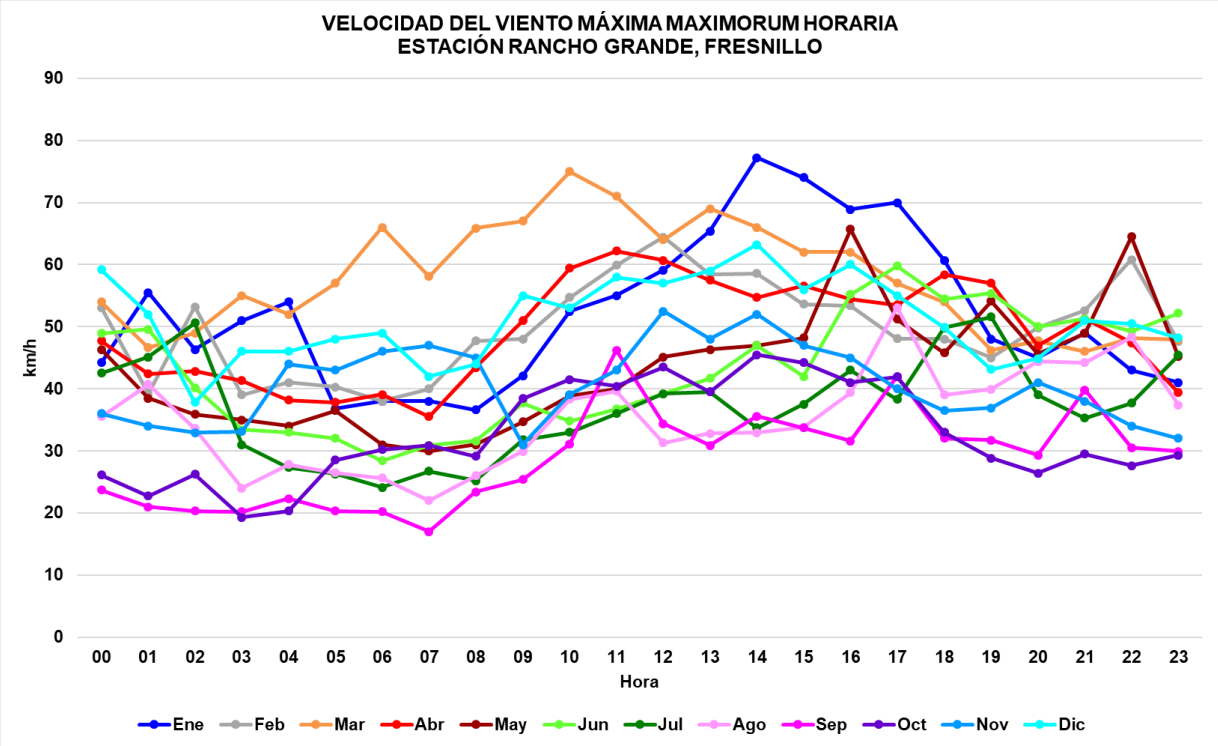


Figura 459. Velocidad del viento máxima maximorum (km/h) horaria de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 512. Frecuencia de velocidad del viento (%) mensual de la estación Rancho Grande, Fresnillo (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	31.3	22.7	19.4	16.3	17.4	19.1	25.2	34.3	48.2	47.3	37.9	31.9	29.3
5.1 a 10.0	29.5	30.4	30.9	27.5	31.7	31.8	32.5	35.4	33.7	33.9	34.0	31.3	31.9
10.1 a 15.0	17.2	18.7	20.3	21.0	22.8	24.9	24.3	20.7	14.3	13.3	15.9	17.1	19.2
15.1 a 20.0	9.9	11.4	12.3	15.4	15.6	15.0	12.2	7.5	3.0	4.0	7.5	9.7	10.3
20.1 a 25.0	5.9	7.0	7.7	9.6	7.9	6.4	4.3	1.8	0.7	1.0	3.0	4.7	5.0
25.1 a 30.0	3.1	4.5	4.4	5.6	3.3	1.9	1.3	0.3	0.2	0.2	1.1	2.5	2.3
30.1 a 35.0	1.6	2.8	2.5	2.8	0.9	0.6	0.2	0.1	0.0	0.1	0.4	1.4	1.1
35.1 a 40.0	0.8	1.3	1.3	1.1	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.8	0.5
40.1 a 45.0	0.4	0.8	0.6	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.2
45.1 a 50.0	0.3	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
>50	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

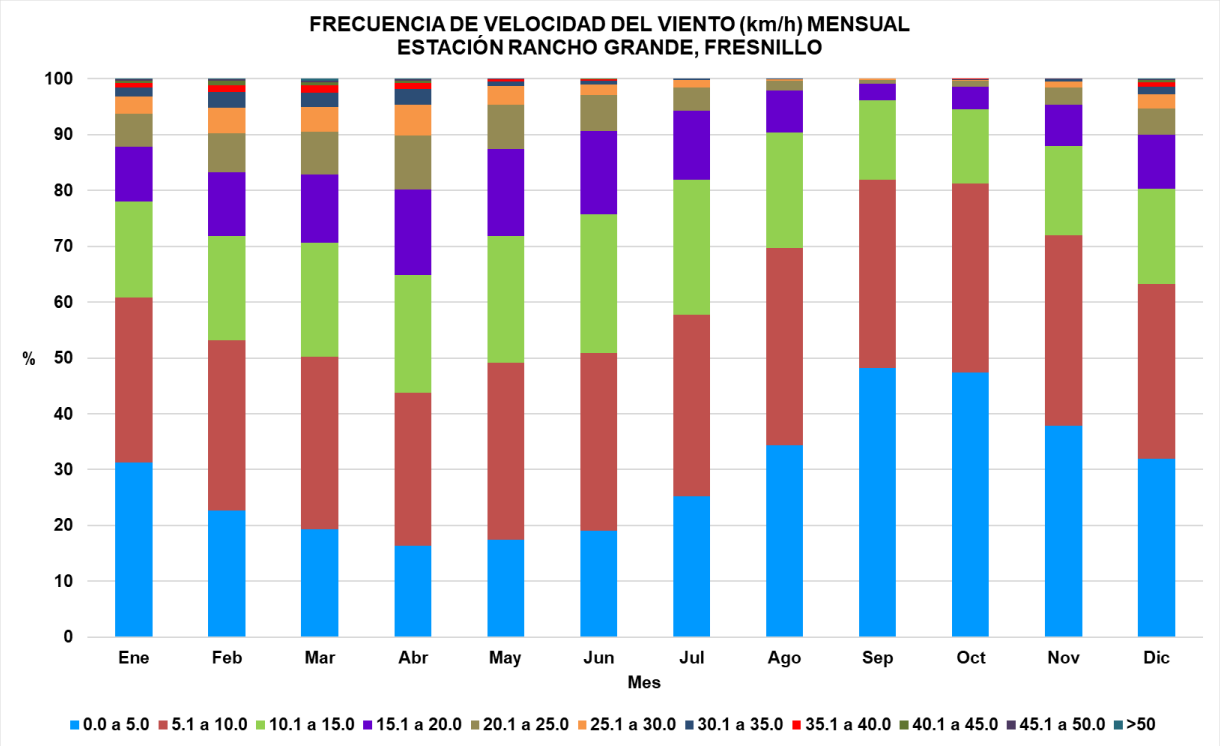


Figura 460. Frecuencia de velocidad del viento (%) mensual de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 513. Frecuencia de dirección del viento (%) mensual de la estación Rancho Grande, Fresnillo (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	5.6	5.1	5.3	4.9	5.7	7.8	4.0	5.4	8.0	7.5	6.1	4.6	5.8
NNE	3.1	2.9	2.9	2.6	3.9	6.3	4.1	5.2	6.6	5.5	4.0	3.0	4.2
NE	2.9	2.5	2.7	2.4	3.8	6.6	6.0	6.9	7.8	6.3	3.8	2.8	4.6
ENE	3.4	2.8	2.9	2.6	4.3	8.0	8.7	9.6	9.5	7.4	4.8	3.0	5.6
E	5.1	3.9	4.3	3.4	5.4	12.0	14.9	15.6	13.7	10.0	7.4	4.4	8.4
ESE	6.4	5.0	5.0	4.1	6.6	14.3	17.7	17.3	12.7	10.2	8.9	5.6	9.6
SE	5.8	4.8	4.4	3.9	6.4	9.1	10.9	10.0	8.3	7.7	7.5	5.4	7.1
SSE	5.3	4.6	4.2	4.1	4.8	5.2	6.2	5.4	4.9	5.3	5.9	5.6	5.1
S	9.7	9.5	9.3	8.7	7.7	4.8	5.4	4.4	4.2	6.3	8.8	11.4	7.5
SSO	21.1	22.5	22.1	23.5	17.7	7.2	7.0	5.2	5.0	10.8	16.3	23.9	15.1
SO	12.6	14.7	14.5	16.7	12.4	5.0	4.6	3.5	3.5	6.8	9.7	12.9	9.7
OSO	5.7	7.7	7.3	8.4	6.5	3.0	2.3	2.1	2.1	3.3	4.6	5.3	4.8
O	2.7	3.7	3.6	4.5	3.5	1.8	1.5	1.5	1.8	2.1	2.3	2.5	2.6
ONO	2.4	2.8	2.9	3.1	3.1	2.0	1.7	1.8	2.4	2.2	2.0	2.3	2.4
NO	3.6	3.3	4.0	3.4	3.9	3.0	2.4	2.8	4.2	3.9	3.4	3.0	3.4
NNO	4.6	4.1	4.6	3.9	4.5	4.0	2.6	3.3	5.2	4.8	4.7	4.3	4.2
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

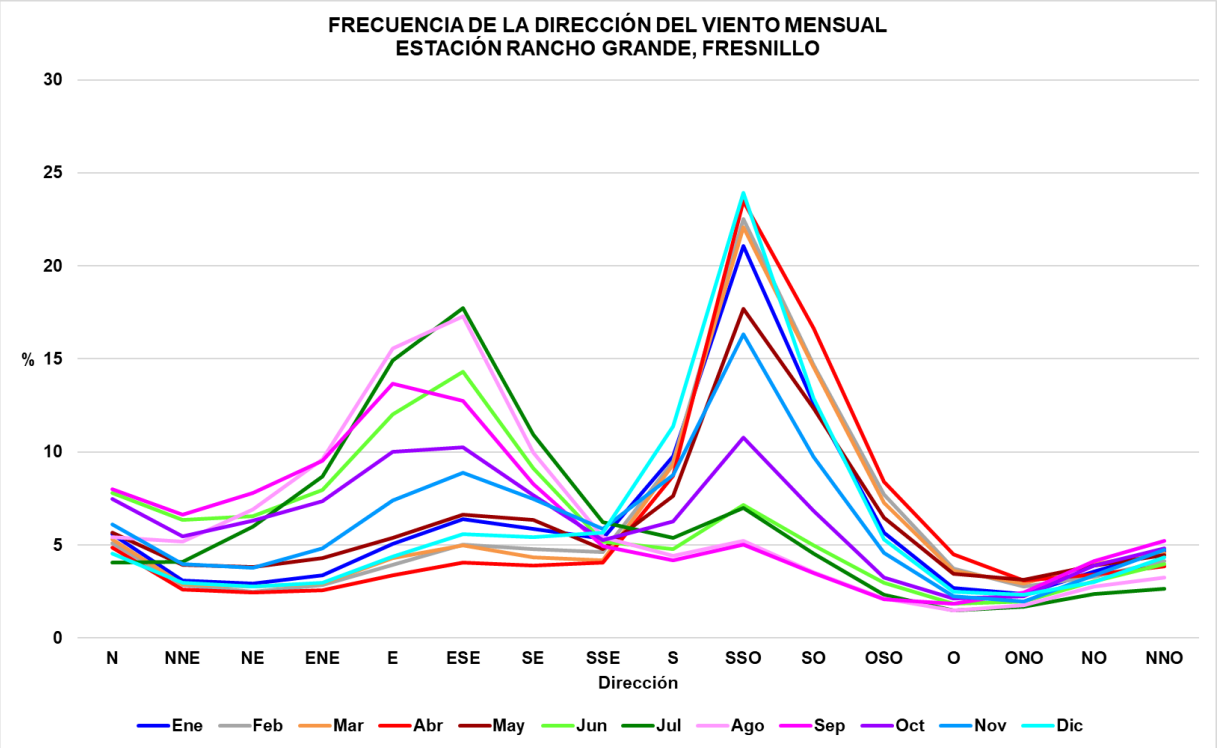


Figura 461. Frecuencia de dirección del viento (%) mensual de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 514. Frecuencia de dirección del viento (%) trimestral de la estación Rancho Grande, Fresnillo (2003-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.3	6.1	5.8	6.0	5.8
NNE	2.9	4.3	5.3	4.1	4.2
NE	2.7	4.3	6.9	4.3	4.6
ENE	3.0	5.0	9.3	5.1	5.6
E	4.4	6.9	14.7	7.3	8.4
ESE	5.5	8.3	15.9	8.2	9.6
SE	5.0	6.5	9.7	6.9	7.1
SSE	4.7	4.7	5.5	5.6	5.1
S	9.5	7.1	4.7	8.8	7.5
SSO	21.9	16.1	5.7	17.0	15.1
SO	13.9	11.3	3.9	9.8	9.7
OSO	6.9	5.9	2.2	4.4	4.8
O	3.3	3.3	1.6	2.3	2.6
ONO	2.7	2.7	1.9	2.2	2.4
NO	3.6	3.4	3.1	3.4	3.4
NNO	4.5	4.1	3.7	4.6	4.2
Suma	100.0	100.0	100.0	100.0	100.0

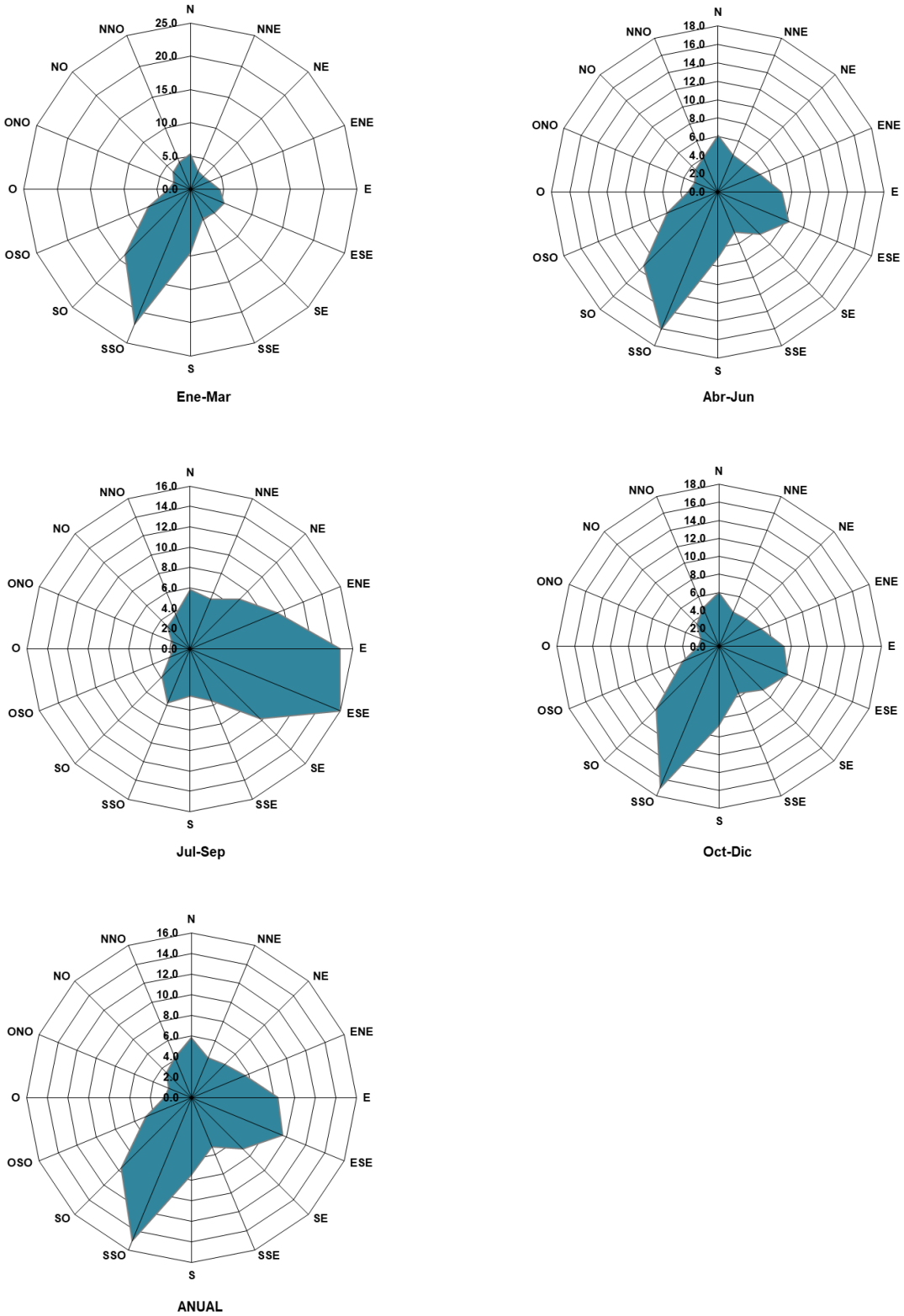


Figura 462. Frecuencia de dirección del viento (%) trimestral de la estación Rancho Grande, Fresnillo (2003-2022).

Cuadro 515. Estadísticas climatológicas mensuales de la estación Rancho Grande, Fresnillo (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	20.4	22.7	25.3	28.0	29.6	28.5	26.5	26.4	24.5	24.9	23.0	21.3	25.1
Temperatura máxima maximorum (°C)	27.6	31.0	33.1	33.5	35.9	35.2	32.0	31.3	30.3	30.6	29.3	28.1	35.9
Temperatura mínima media (°C)	2.8	4.1	6.0	8.9	11.8	13.7	13.4	13.0	12.1	8.6	4.8	2.9	8.5
Temperatura mínima minimorum (°C)	-7.8	-7.3	-7.2	-1.2	4.0	6.4	9.0	9.3	0.7	-2.5	-9.8	-11.5	-11.5
Temperatura media (°C)	11.2	13.3	15.8	18.7	20.9	20.9	19.3	19.1	17.5	16.3	13.5	11.6	16.5
Oscilación térmica (°C)	17.6	18.6	19.3	19.1	17.9	14.8	13.2	13.4	12.4	16.3	18.2	18.3	16.6
Precipitación acumulada media (mm)	9.9	12.8	5.9	0.9	9.0	53.6	84.6	88.0	88.3	28.4	9.5	10.6	401.4
Precipitación máxima maximorum en 24 horas (mm)	21.2	33.0	44.8	4.4	18.6	42.8	52.4	93.2	62.8	28.2	24.4	37.8	93.2
Número de días promedio con lluvia	4.2	3.4	3.6	1.5	4.1	9.9	13.4	14.7	14.0	6.9	4.4	2.9	82.9
Evapotranspiración acumulada potencial media (mm)	110.5	132.6	178.8	203.9	208.9	181.2	160.6	154.5	121.5	127.4	112.6	109.6	1802.0
Humedad máxima media (%)	79.0	72.0	63.6	58.0	68.0	84.4	92.3	94.1	96.8	93.4	87.4	79.6	80.7
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.8	17.4	13.1	10.8	13.2	24.5	33.7	35.3	43.6	31.4	24.8	21.5	24.2
Humedad mínima minimorum (%)	3.0	4.0	3.0	3.0	4.0	4.0	12.0	15.0	14.0	8.0	4.0	4.0	3.0
Humedad media (%)	49.7	41.8	34.1	29.8	36.2	53.6	65.8	68.1	75.6	64.8	56.0	49.7	52.1
Radiación global media día/mes (W/m^2)	18075.7	22123.3	25663.7	28336.2	28797.7	27373.3	25806.9	25242.3	21843.9	21620.1	19395.9	17400.0	23473.3
Radiación global media día/mes (kWh/m^2)	4.5	5.5	6.4	7.1	7.2	6.8	6.5	6.3	5.5	5.4	4.8	4.4	5.9
Radiación global media día/mes ($Mj/m^2/s$)	16.3	19.9	23.1	25.5	25.9	24.6	23.2	22.7	19.7	19.5	17.5	15.7	21.1
Velocidad del viento máxima media (km/h)	23.8	26.3	26.8	28.9	27.3	27.0	23.9	20.9	17.0	16.2	18.5	21.7	23.2
Velocidad del viento máxima maximorum (km/h)	77.2	64.4	75.0	62.2	65.7	59.8	51.6	53.1	46.2	45.5	52.5	63.2	77.2
Velocidad del viento media (km/h)	10.3	11.9	12.3	13.3	11.7	10.9	9.7	7.9	6.1	6.3	7.9	9.7	9.8
Dirección dominante del viento	SSO	SSO	SSO	SSO	SSO	ESE	ESE	ESE	E	SSO	SSO	SSO	SSO

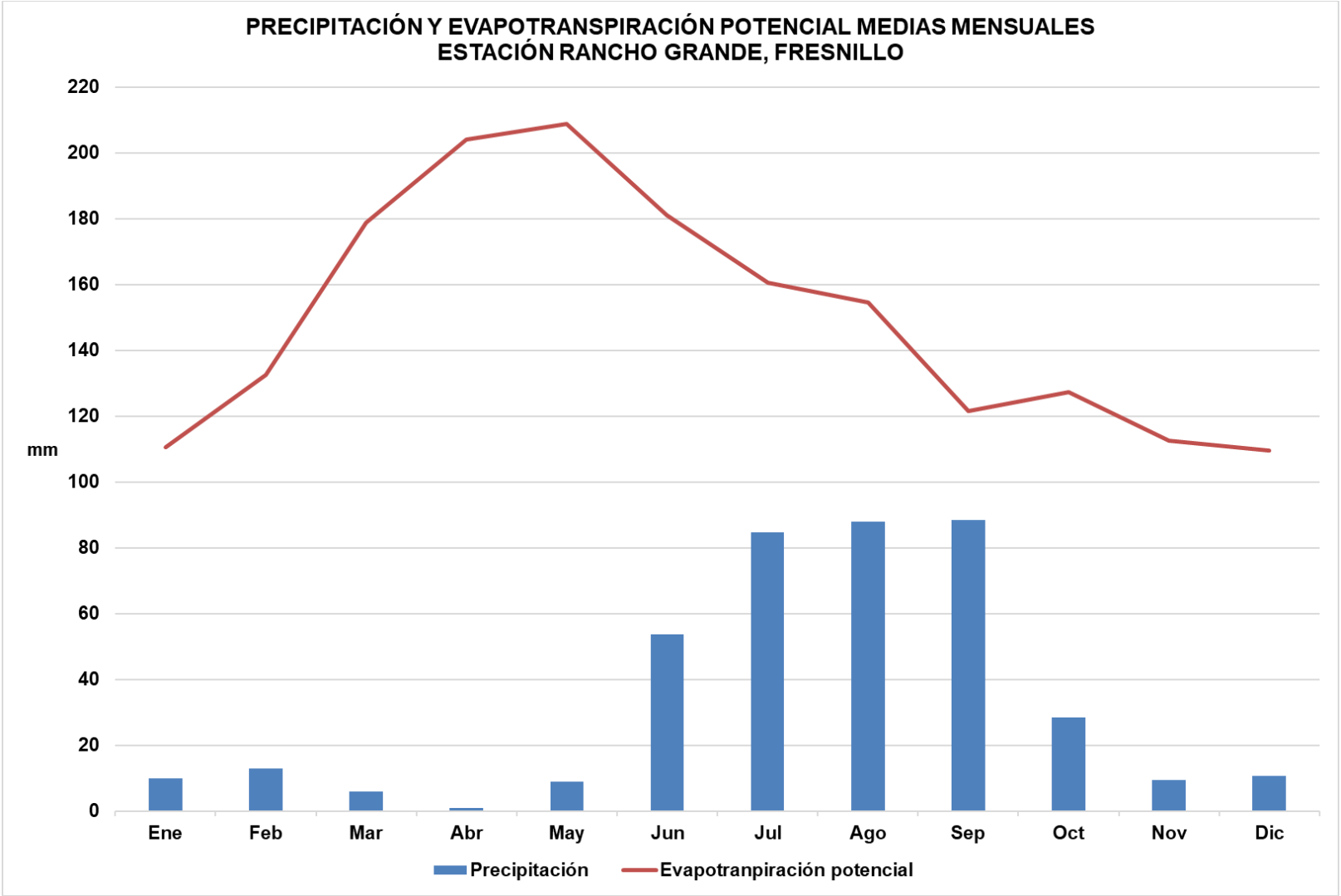


Figura 463. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Rancho Grande, Fresnillo (2003-2022).

7.28. Estación: Santa Fe, Jerez

Cuadro 516. Temperatura máxima media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	9.0	11.5	14.7	17.4	18.7	16.9	16.6	15.7	13.3	8.9	6.7	13.0
01	6.0	7.8	9.9	13.2	16.0	17.7	16.2	15.9	15.1	12.4	8.1	5.8	12.0
02	5.2	6.7	8.6	11.7	14.6	16.8	15.6	15.3	14.6	11.6	7.3	5.1	11.1
03	4.4	5.8	7.5	10.4	13.3	16.0	15.0	14.8	14.2	11.0	6.6	4.5	10.3
04	3.8	5.1	6.6	9.1	12.2	15.2	14.6	14.3	13.8	10.5	6.0	3.9	9.6
05	3.2	4.4	5.8	8.0	11.1	14.5	14.2	14.0	13.5	10.1	5.6	3.4	9.0
06	2.7	3.8	5.2	7.1	10.2	14.0	13.9	13.7	13.2	9.7	5.2	3.0	8.5
07	2.7	4.2	7.5	7.9	11.2	14.5	14.1	13.8	13.3	9.9	6.5	3.3	9.1
08	6.7	9.0	13.2	13.1	16.2	17.9	16.5	16.1	15.5	12.8	11.8	7.9	13.0
09	12.0	14.3	17.6	18.1	20.4	20.7	19.1	19.0	18.3	16.8	16.5	13.1	17.2
10	15.9	18.0	20.7	21.4	23.2	22.8	21.2	21.2	20.5	20.1	19.5	16.9	20.1
11	18.2	20.3	22.9	23.8	25.5	24.7	22.7	22.9	22.3	22.3	21.4	19.2	22.2
12	19.8	21.9	24.3	25.6	27.2	26.4	24.1	24.2	23.8	23.8	22.7	20.6	23.7
13	20.9	22.9	25.2	26.8	28.5	27.7	25.2	25.4	24.7	24.9	23.5	21.6	24.8
14	21.5	23.4	25.7	27.6	29.3	28.5	26.0	26.1	25.3	25.5	23.8	22.0	25.4
15	21.5	23.6	25.8	27.9	29.5	28.8	26.2	26.2	25.4	25.7	23.8	22.0	25.5
16	21.2	23.4	25.6	27.9	29.5	28.4	25.8	25.7	24.9	25.4	23.3	21.6	25.2
17	20.3	22.7	24.9	27.5	29.1	27.8	25.0	25.1	24.1	24.8	22.1	20.5	24.5
18	18.3	21.0	23.3	26.6	28.2	26.9	24.0	24.1	23.0	23.2	19.0	17.7	22.9
19	14.9	17.7	20.4	25.0	26.8	25.6	22.8	22.8	21.2	20.5	15.8	14.5	20.7
20	12.9	15.2	17.6	22.3	24.6	23.8	21.0	20.8	18.9	17.9	14.2	12.6	18.5
21	11.3	13.8	16.1	19.7	22.1	22.0	19.4	19.0	17.6	16.4	12.7	10.8	16.7
22	9.7	12.4	14.8	18.0	20.4	20.7	18.3	18.0	16.8	15.2	11.2	9.2	15.4
23	8.3	10.8	13.1	16.5	19.0	19.6	17.5	17.3	16.2	14.1	10.0	7.8	14.2
Media	12.0	14.0	16.4	18.7	21.1	21.6	19.8	19.7	18.8	17.4	14.4	12.2	17.2

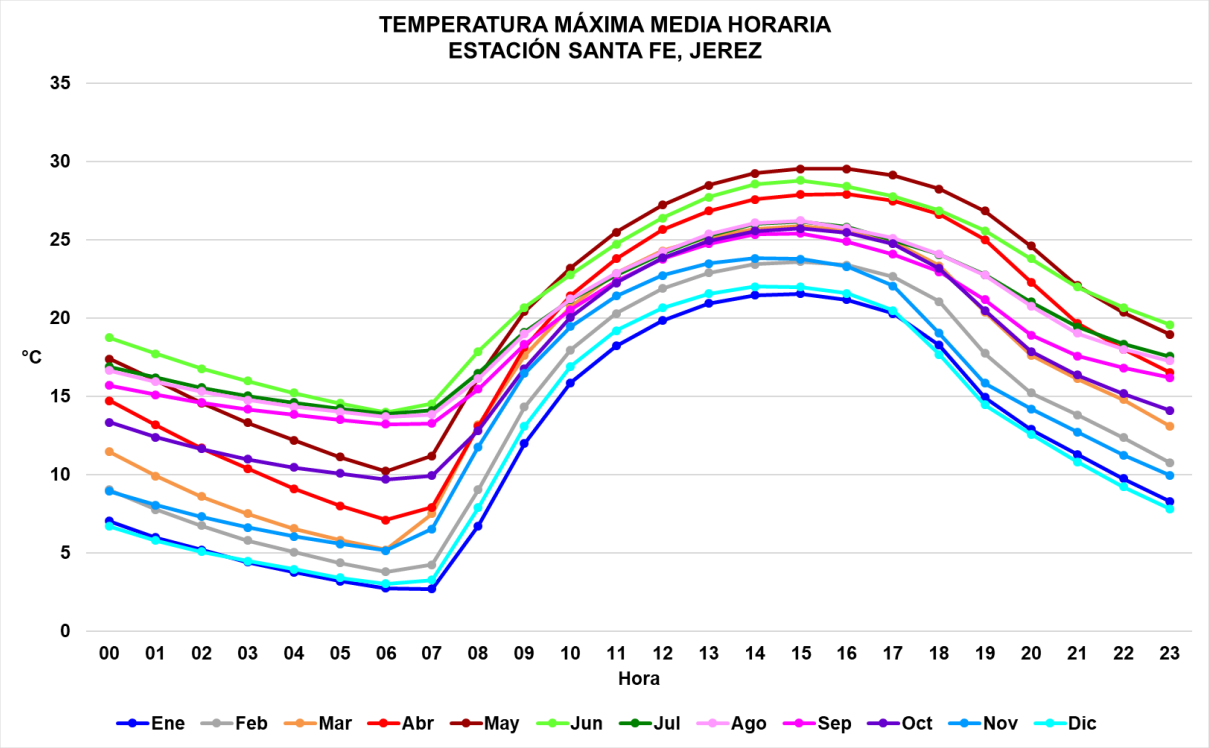


Figura 464. Temperatura máxima media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 517. Temperatura máxima maximorum (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.6	15.9	19.4	21.7	26.9	24.2	23.2	22.2	19.6	19.3	17.6	15.5	26.9
01	13.9	15.8	17.2	20.2	24.8	23.1	21.5	21.5	18.9	18.1	16.7	14.4	24.8
02	13.6	14.8	15.8	18.3	24.4	22.8	20.5	19.3	18.7	17.1	16.6	14.6	24.4
03	13.0	13.6	14.7	18.7	23.7	20.6	19.7	18.9	19.0	17.0	16.6	14.6	23.7
04	12.6	13.3	14.5	17.4	21.1	20.2	18.9	18.6	18.3	16.8	16.8	14.6	21.1
05	13.0	12.9	14.0	17.2	19.4	19.9	19.0	18.6	17.6	17.6	16.7	14.4	19.9
06	12.5	11.6	13.9	15.5	21.2	19.1	19.0	18.7	17.3	17.5	16.3	14.5	21.2
07	12.3	13.5	16.0	18.0	20.6	19.6	19.4	18.3	17.4	17.0	15.9	14.2	20.6
08	14.6	17.8	20.0	22.0	24.3	22.6	21.2	20.6	19.5	19.3	19.4	17.2	24.3
09	19.0	23.0	23.9	24.9	27.4	26.1	24.2	23.3	22.6	23.2	23.7	20.6	27.4
10	23.5	25.4	26.8	27.9	29.3	29.5	26.1	25.2	24.7	25.5	26.9	24.9	29.5
11	25.3	28.3	30.2	29.7	31.7	31.6	27.6	26.9	26.6	27.8	28.8	27.0	31.7
12	27.7	29.2	32.2	31.2	33.9	33.1	29.3	28.1	27.8	29.1	29.8	27.6	33.9
13	29.6	30.0	33.5	32.5	35.2	33.7	30.9	30.0	29.0	29.8	31.4	28.8	35.2
14	29.4	30.2	33.7	33.5	36.4	35.4	31.9	30.9	29.7	30.9	31.2	29.3	36.4
15	29.2	30.8	34.2	33.3	37.1	36.6	32.8	31.3	30.5	31.2	31.2	28.6	37.1
16	29.0	30.6	34.0	33.7	37.6	36.0	33.1	31.9	30.9	30.8	30.4	28.1	37.6
17	27.8	30.3	34.1	33.2	37.1	35.8	33.0	31.3	30.7	30.1	29.5	27.1	37.1
18	24.8	29.0	32.4	32.4	36.9	34.8	32.6	30.8	30.8	30.2	24.5	24.5	36.9
19	21.5	25.3	26.5	31.2	35.8	33.4	32.0	30.1	27.9	27.0	22.1	20.8	35.8
20	20.0	22.7	24.2	28.3	30.6	30.7	30.2	28.1	25.2	23.6	20.7	18.8	30.7
21	18.7	22.0	24.5	26.0	28.9	28.7	26.9	25.9	24.0	22.5	19.4	16.8	28.9
22	18.4	19.8	22.8	26.3	27.4	26.8	25.8	24.6	22.4	21.3	18.4	16.1	27.4
23	15.5	19.1	21.0	23.3	27.1	25.5	25.5	23.7	20.8	21.6	18.0	15.3	27.1
Máx.	29.6	30.8	34.2	33.7	37.6	36.6	33.1	31.9	30.9	31.2	31.4	29.3	37.6

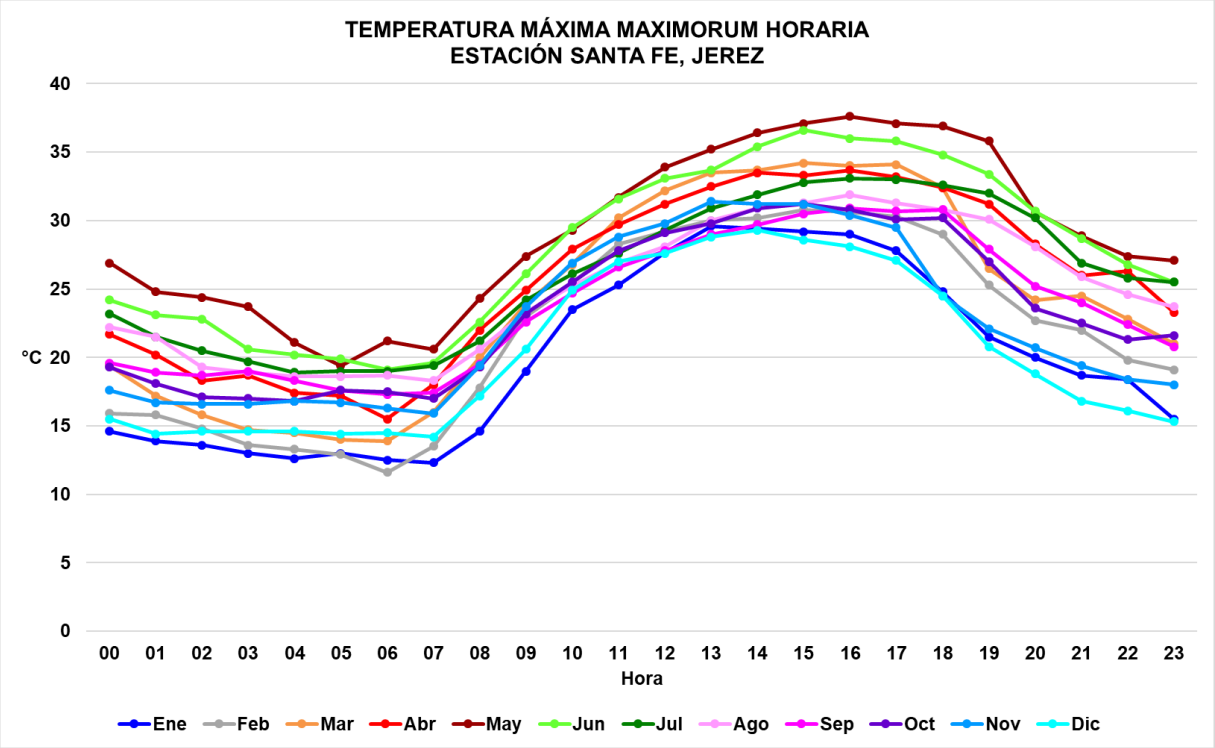


Figura 465. Temperatura máxima maximorum (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 518. Temperatura mínima media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.9	7.7	9.9	13.1	16.0	17.7	16.2	15.9	15.0	12.4	7.9	5.7	12.0
01	5.0	6.6	8.5	11.6	14.6	16.8	15.6	15.3	14.5	11.6	7.2	4.9	11.0
02	4.3	5.7	7.4	10.3	13.2	15.9	15.0	14.7	14.1	10.9	6.5	4.3	10.2
03	3.6	4.9	6.4	9.0	12.1	15.2	14.5	14.2	13.7	10.3	5.9	3.7	9.5
04	3.0	4.2	5.6	7.9	11.0	14.5	14.1	13.9	13.3	9.9	5.4	3.2	8.8
05	2.4	3.6	4.9	6.9	10.1	13.9	13.8	13.5	13.1	9.5	4.9	2.7	8.3
06	2.0	3.0	4.3	6.1	9.3	13.3	13.4	13.2	12.7	9.1	4.5	2.3	7.8
07	1.7	2.8	4.6	5.9	9.3	13.3	13.3	13.1	12.6	9.0	4.6	2.1	7.7
08	3.0	5.1	8.9	8.7	12.2	15.3	14.5	14.1	13.5	10.1	7.7	4.0	9.8
09	8.1	10.4	14.5	14.5	17.4	18.6	17.2	16.9	16.2	13.8	13.1	9.2	14.2
10	13.1	15.4	18.5	19.1	21.2	21.2	19.6	19.6	18.9	17.6	17.3	14.2	18.0
11	16.5	18.6	21.3	22.0	23.8	23.2	21.5	21.6	20.9	20.6	20.0	17.5	20.6
12	18.6	20.6	23.2	24.3	25.9	25.0	22.9	23.0	22.5	22.6	21.6	19.5	22.5
13	20.0	22.0	24.3	25.9	27.4	26.5	24.1	24.2	23.7	23.9	22.7	20.7	23.8
14	20.8	22.8	25.0	26.8	28.3	27.3	24.8	24.9	24.2	24.6	23.1	21.3	24.5
15	20.9	23.0	25.2	27.2	28.6	27.4	24.7	24.7	24.0	24.7	23.0	21.4	24.6
16	20.4	22.7	24.8	27.2	28.5	27.0	24.2	24.2	23.4	24.4	22.3	20.8	24.2
17	18.9	21.5	23.7	26.7	28.1	26.5	23.5	23.5	22.7	23.4	20.0	18.6	23.1
18	15.6	18.6	21.2	25.4	27.0	25.6	22.7	22.8	21.5	21.2	16.4	15.0	21.1
19	13.1	15.6	18.1	23.0	25.2	24.2	21.4	21.2	19.4	18.3	14.3	12.8	18.9
20	11.4	13.7	16.0	20.1	22.5	22.3	19.7	19.2	17.7	16.5	12.7	10.9	16.9
21	9.8	12.3	14.7	18.0	20.4	20.7	18.4	18.0	16.7	15.2	11.4	9.3	15.4
22	8.3	10.9	13.2	16.5	18.9	19.6	17.5	17.1	16.1	14.0	10.0	7.8	14.2
23	7.0	9.2	11.5	14.9	17.5	18.6	16.8	16.5	15.6	13.1	8.9	6.6	13.0
Media	10.6	12.5	14.8	17.1	19.5	20.4	18.7	18.6	17.7	16.1	13.0	10.8	15.8

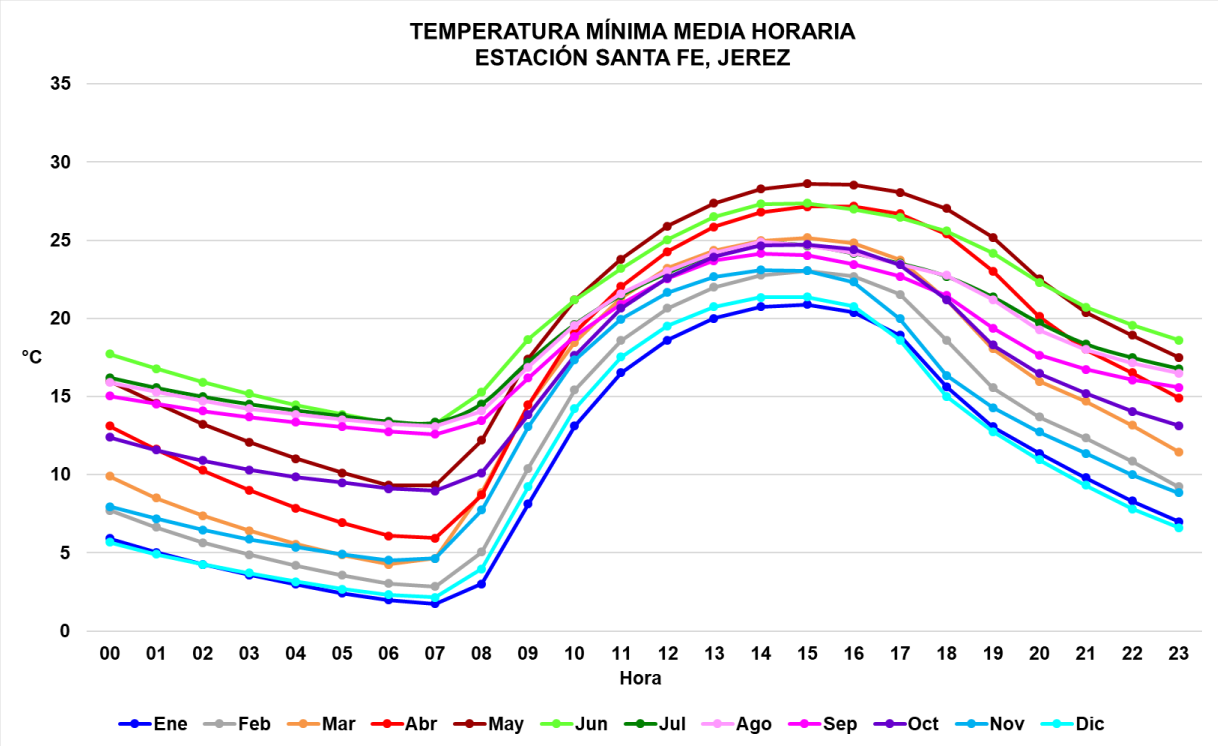


Figura 466. Temperatura mínima media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 519. Temperatura mínima minimorum (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.8	-1.3	0.7	4.0	6.7	12.2	12.4	11.2	9.1	4.2	-2.4	-2.3	-3.8
01	-4.3	-1.9	-0.4	2.5	5.8	11.4	10.8	10.3	7.8	3.5	-3.9	-3.5	-4.3
02	-5.4	-3.2	-1.2	0.5	4.2	9.8	9.6	9.4	7.3	2.0	-3.8	-4.4	-5.4
03	-5.5	-3.9	-2.3	0.3	3.3	8.2	8.9	9.0	6.2	0.6	-6.4	-4.2	-6.4
04	-6.8	-4.0	-2.8	-0.9	2.8	7.4	8.5	9.0	5.9	-0.1	-7.0	-4.9	-7.0
05	-6.8	-5.2	-3.5	-1.8	1.6	6.3	8.3	8.0	5.2	-0.2	-7.8	-5.5	-7.8
06	-7.0	-6.2	-4.4	-2.7	0.6	4.4	8.2	7.3	4.6	-0.8	-8.3	-6.0	-8.3
07	-8.7	-5.8	-4.8	-3.3	0.3	4.2	8.7	7.2	4.3	-0.9	-8.9	-6.0	-8.9
08	-8.4	-4.1	-1.9	-1.0	2.4	6.2	10.3	8.3	4.9	-0.6	-5.5	-5.9	-8.4
09	-1.8	1.0	1.9	6.8	9.4	13.3	13.3	12.6	9.9	4.1	1.8	0.0	-1.8
10	0.1	5.6	3.3	11.1	13.0	14.4	14.6	14.7	14.9	11.3	3.1	4.7	0.1
11	0.2	8.0	4.5	15.4	13.7	12.8	15.6	15.6	15.6	13.6	6.6	2.7	0.2
12	1.1	7.2	4.9	16.9	14.1	14.5	13.7	15.8	16.9	14.6	8.9	2.1	1.1
13	3.5	7.4	5.8	18.3	15.8	16.3	14.0	14.3	16.8	14.2	10.0	2.4	2.4
14	6.2	7.3	5.9	10.5	15.9	14.9	11.3	14.9	14.9	14.1	10.0	1.3	1.3
15	4.4	7.5	8.3	11.4	15.7	15.1	11.8	15.2	13.7	13.7	9.7	1.4	1.4
16	4.8	8.0	7.8	13.8	15.8	13.5	13.3	13.7	14.1	13.7	9.1	2.1	2.1
17	5.3	7.9	7.3	14.1	14.0	14.1	13.7	13.9	13.2	13.1	7.1	2.0	2.0
18	4.2	7.9	6.0	13.5	14.7	14.6	13.2	14.1	14.2	11.9	5.6	1.0	1.0
19	2.8	6.7	3.4	13.8	14.3	14.9	14.4	14.5	14.0	12.0	4.3	0.7	0.7
20	2.4	4.7	1.5	12.1	13.2	14.4	13.5	13.3	12.6	10.6	3.0	0.4	0.4
21	0.6	2.3	1.0	9.2	12.6	12.8	13.0	12.8	11.8	7.8	0.7	-0.2	-0.2
22	-0.3	1.3	1.8	7.7	11.2	13.1	12.5	11.4	10.2	5.3	-0.5	-2.1	-2.1
23	-2.1	-0.1	1.3	5.9	8.2	12.8	12.8	10.7	8.8	5.3	-1.1	-3.4	-3.4
Mín.	-8.7	-6.2	-4.8	-3.3	0.3	4.2	8.2	7.2	4.3	-0.9	-8.9	-6.0	-8.9

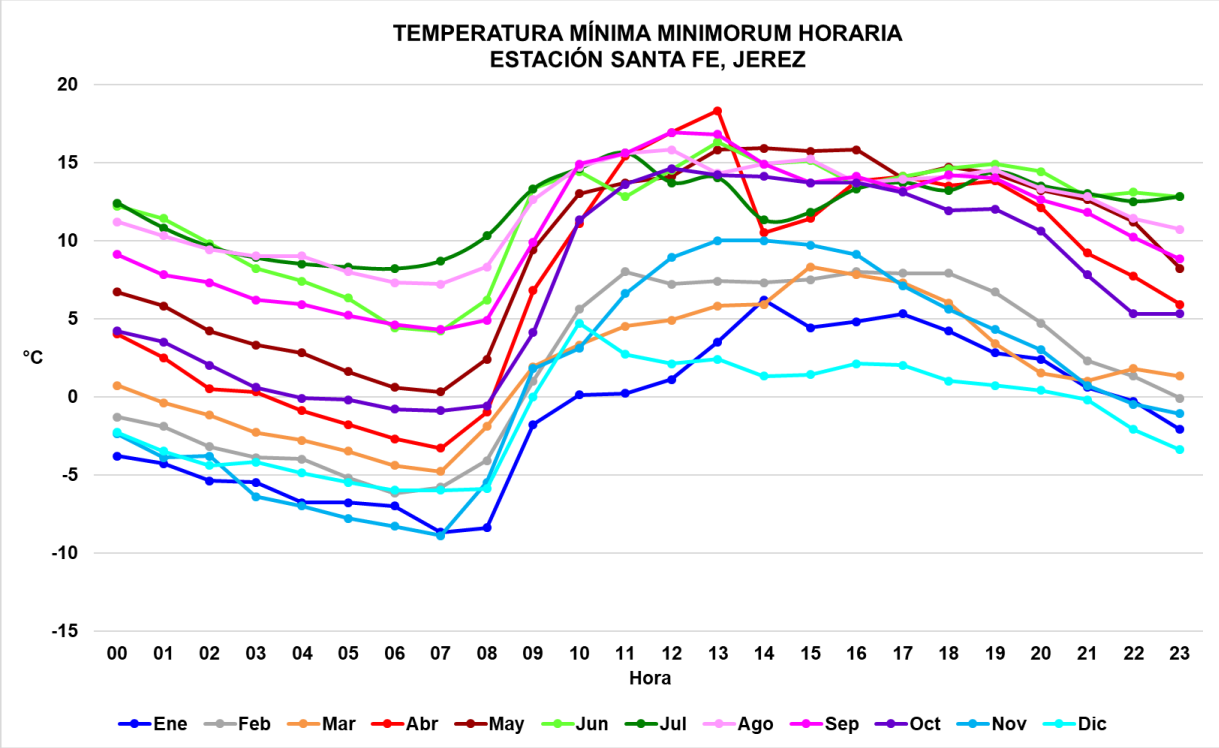


Figura 467. Temperatura mínima minimorum (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 520. Temperatura media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.4	10.7	13.9	16.7	18.2	16.5	16.3	15.4	12.9	8.4	6.2	12.5
01	5.5	7.2	9.2	12.4	15.3	17.2	15.9	15.6	14.8	12.0	7.6	5.3	11.5
02	4.7	6.2	8.0	11.0	13.9	16.3	15.3	15.0	14.3	11.3	6.9	4.7	10.6
03	4.0	5.3	7.0	9.7	12.7	15.6	14.8	14.5	13.9	10.6	6.2	4.1	9.9
04	3.4	4.6	6.0	8.5	11.6	14.8	14.4	14.1	13.6	10.2	5.7	3.6	9.2
05	2.8	4.0	5.3	7.5	10.6	14.2	14.0	13.8	13.3	9.8	5.2	3.0	8.6
06	2.4	3.4	4.7	6.6	9.8	13.6	13.6	13.5	13.0	9.4	4.8	2.7	8.1
07	2.2	3.4	5.9	6.9	10.2	13.8	13.7	13.4	12.9	9.4	5.4	2.6	8.3
08	4.8	7.0	11.1	10.8	14.2	16.6	15.5	15.1	14.4	11.4	9.7	5.9	11.4
09	10.1	12.4	16.1	16.3	19.0	19.7	18.2	17.9	17.3	15.3	14.8	11.2	15.7
10	14.5	16.7	19.6	20.3	22.2	22.0	20.4	20.4	19.7	18.9	18.4	15.6	19.1
11	17.4	19.5	22.1	22.9	24.6	24.0	22.1	22.2	21.6	21.5	20.7	18.4	21.4
12	19.2	21.3	23.8	25.0	26.6	25.7	23.5	23.6	23.2	23.2	22.2	20.1	23.1
13	20.5	22.4	24.8	26.4	27.9	27.1	24.7	24.8	24.2	24.4	23.1	21.2	24.3
14	21.1	23.1	25.3	27.2	28.8	27.9	25.4	25.5	24.8	25.1	23.5	21.7	24.9
15	21.2	23.3	25.5	27.5	29.1	28.1	25.4	25.5	24.7	25.2	23.4	21.7	25.1
16	20.8	23.0	25.2	27.5	29.0	27.7	25.0	25.0	24.2	24.9	22.8	21.2	24.7
17	19.6	22.1	24.3	27.1	28.6	27.1	24.3	24.3	23.4	24.1	21.1	19.6	23.8
18	17.0	19.9	22.3	26.0	27.7	26.2	23.4	23.4	22.2	22.2	17.6	16.3	22.0
19	14.0	16.6	19.2	24.0	26.1	24.9	22.1	22.0	20.3	19.4	15.0	13.6	19.8
20	12.1	14.5	16.8	21.2	23.6	23.0	20.4	20.0	18.3	17.2	13.5	11.8	17.7
21	10.5	13.1	15.4	18.8	21.2	21.3	18.9	18.5	17.2	15.8	12.0	10.1	16.1
22	9.0	11.6	14.0	17.3	19.6	20.1	17.9	17.6	16.4	14.6	10.6	8.5	14.8
23	7.6	10.0	12.3	15.7	18.2	19.1	17.2	16.9	15.9	13.6	9.4	7.2	13.6
Media	11.3	13.3	15.6	17.9	20.3	21.0	19.3	19.1	18.3	16.8	13.7	11.5	16.5

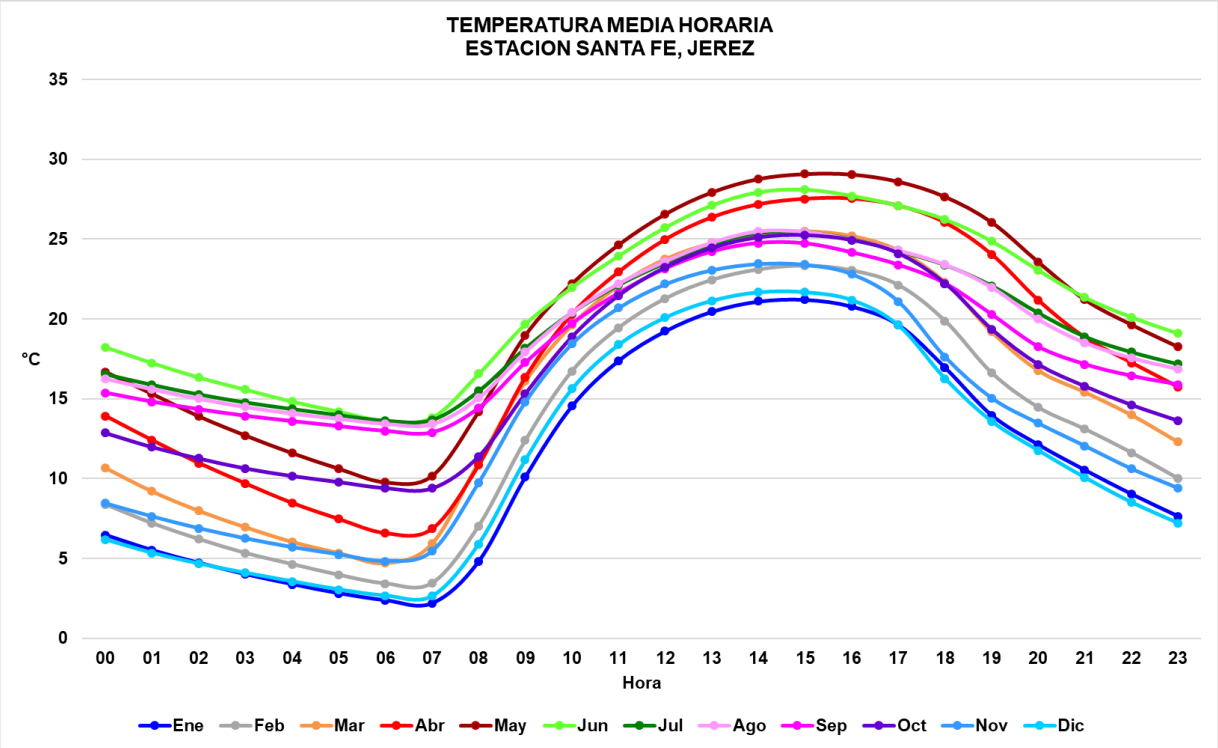


Figura 468. Temperatura media (˚C) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 521. Precipitación media (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.9	0.5	0.1	0.0	0.9	4.9	5.2	9.6	8.0	1.7	0.2	0.6	32.8
01	0.6	0.9	0.0	0.0	0.5	3.5	5.5	4.4	7.0	2.1	0.2	0.9	25.5
02	0.7	0.6	0.2	0.0	0.3	4.7	4.3	3.1	4.7	1.9	0.2	0.8	21.4
03	0.8	0.9	0.1	0.0	0.1	3.3	3.5	3.2	4.9	4.1	0.1	0.8	21.8
04	0.6	0.7	0.1	0.0	0.1	3.0	5.1	2.4	4.4	2.2	0.1	0.6	19.2
05	0.4	0.2	0.0	0.0	0.3	2.8	2.0	4.1	3.0	1.7	0.1	0.7	15.2
06	0.5	0.3	0.0	0.0	0.3	3.3	1.5	1.7	3.6	2.3	0.2	0.7	14.4
07	0.4	0.6	0.1	0.0	0.0	2.0	1.0	1.5	1.3	2.0	0.3	0.8	10.0
08	0.5	0.7	0.1	0.0	0.0	0.7	0.8	1.2	0.5	0.6	0.2	0.6	5.8
09	0.3	0.5	0.1	0.0	0.0	1.5	0.8	0.5	0.2	0.4	0.3	0.6	5.1
10	0.1	0.5	0.1	0.0	0.0	0.4	0.2	0.2	0.1	0.4	0.4	0.3	2.7
11	0.1	0.7	0.1	0.0	0.1	0.6	0.4	2.1	0.2	0.2	0.5	0.4	5.4
12	0.3	1.2	0.1	0.0	0.0	0.2	1.3	0.4	0.2	0.2	0.6	0.3	4.9
13	1.1	0.7	0.1	0.0	0.0	0.5	2.2	2.0	0.9	0.1	0.7	0.4	8.7
14	0.4	0.8	0.3	1.4	0.2	0.8	7.5	2.3	1.7	0.5	0.8	0.4	17.0
15	0.4	0.7	0.3	0.6	0.3	3.0	9.1	7.1	7.3	3.4	0.8	0.6	33.4
16	1.0	0.6	0.3	0.3	0.9	8.0	11.6	10.9	7.8	2.3	1.0	0.8	45.6
17	0.7	1.0	0.4	0.1	1.0	7.8	12.2	11.9	5.9	1.6	0.7	0.7	44.0
18	0.6	0.8	0.6	0.1	0.3	3.9	9.2	8.6	5.2	3.0	0.8	0.5	33.8
19	1.1	0.8	0.8	0.0	0.3	3.2	7.8	5.3	5.4	2.1	1.1	0.7	28.3
20	0.7	0.8	0.6	0.0	0.5	7.1	7.0	6.5	6.1	2.6	1.0	0.5	33.3
21	0.4	1.3	0.4	0.9	1.0	7.4	10.1	7.7	8.0	1.4	1.2	0.4	40.2
22	0.4	0.9	0.5	0.1	1.2	7.6	7.4	9.7	6.2	1.4	1.0	0.7	37.1
23	0.8	0.9	0.1	0.1	1.1	5.5	4.5	9.0	4.5	2.1	0.8	0.9	30.3
Suma	13.7	17.5	5.4	3.7	9.4	85.5	120.0	115.2	97.0	40.3	13.3	14.8	535.9

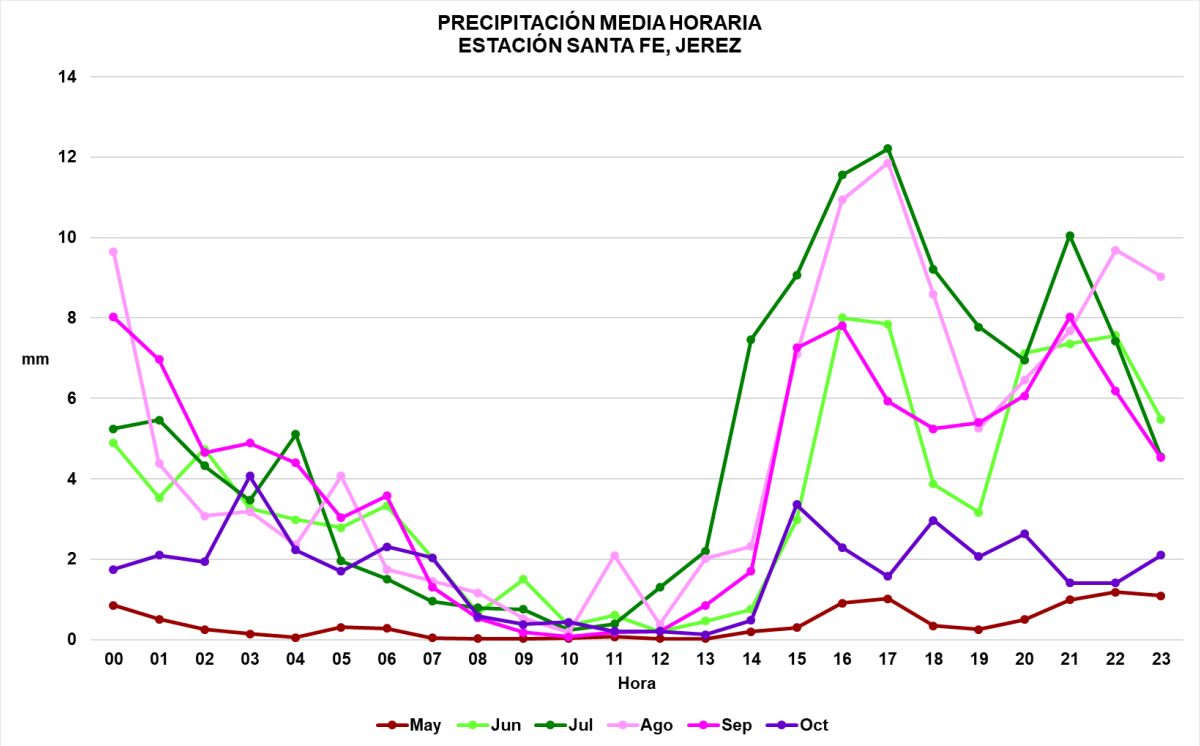


Figura 469. Precipitación media (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 522. Precipitación máxima (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.8	3.2	0.4	0.2	5.2	13.6	21.4	24.0	24.0	9.6	1.4	2.2	24.0
01	4.2	9.2	0.4	0.0	2.8	5.6	13.0	8.2	29.6	6.8	1.0	5.2	29.6
02	3.6	2.2	1.6	0.0	2.8	10.4	14.4	14.0	9.6	10.2	0.8	5.4	14.4
03	7.4	3.2	1.0	0.0	2.0	6.4	9.0	15.4	11.8	33.0	0.8	4.6	33.0
04	3.2	3.2	2.0	0.0	0.6	13.8	12.6	16.2	13.8	16.4	0.4	2.6	16.4
05	1.6	0.8	0.2	0.0	3.8	13.6	6.0	20.6	8.8	7.6	1.0	4.2	20.6
06	3.0	1.6	0.4	0.0	3.0	25.6	4.8	6.8	11.2	10.6	1.4	2.8	25.6
07	2.6	4.4	0.8	0.0	0.4	9.6	2.2	4.4	5.4	13.8	1.2	4.0	13.8
08	3.8	4.8	0.4	0.0	0.2	4.6	6.0	3.6	2.0	3.6	0.8	2.8	6.0
09	2.0	2.2	1.4	0.0	0.4	20.2	5.4	5.8	0.6	3.4	1.2	3.4	20.2
10	1.0	3.2	1.2	0.0	0.6	3.0	1.2	2.4	0.4	3.2	2.0	1.4	3.2
11	1.2	4.8	1.0	0.2	1.2	7.0	1.8	35.2	0.8	2.2	4.0	2.4	35.2
12	4.2	6.2	0.8	0.0	0.2	2.2	8.4	2.8	1.6	2.6	3.0	1.6	8.4
13	15.4	3.8	1.0	0.0	0.2	4.2	18.0	27.6	3.4	2.2	3.6	2.4	27.6
14	3.2	3.6	1.8	25.4	2.8	2.4	33.8	7.2	11.0	3.8	3.6	2.0	33.8
15	1.8	4.0	3.8	6.6	3.2	10.2	28.2	14.8	26.4	19.2	4.4	2.2	28.2
16	14.8	2.6	4.8	3.0	9.2	18.4	20.0	23.8	18.6	14.6	5.8	3.0	23.8
17	6.4	5.0	5.0	1.0	9.6	25.6	31.8	44.4	19.4	8.2	2.6	2.0	44.4
18	6.2	5.6	5.2	2.2	3.4	11.8	32.6	35.2	18.0	17.8	4.2	2.8	35.2
19	6.6	6.0	5.2	0.6	2.8	9.2	23.6	14.8	14.0	12.4	5.2	3.0	23.6
20	6.6	6.0	5.0	0.4	3.4	41.8	11.4	22.4	11.6	21.2	4.2	2.4	41.8
21	1.8	5.8	2.6	16.8	3.2	47.4	17.6	19.6	23.0	7.4	4.2	2.6	47.4
22	1.4	3.6	3.8	1.6	5.4	25.2	15.2	30.2	17.8	4.2	9.4	3.0	30.2
23	6.6	3.6	1.0	1.0	5.4	29.6	7.2	23.8	8.8	16.8	5.0	4.8	29.6
Máx.	15.4	9.2	5.2	25.4	9.6	47.4	33.8	44.4	29.6	33.0	9.4	5.4	47.4

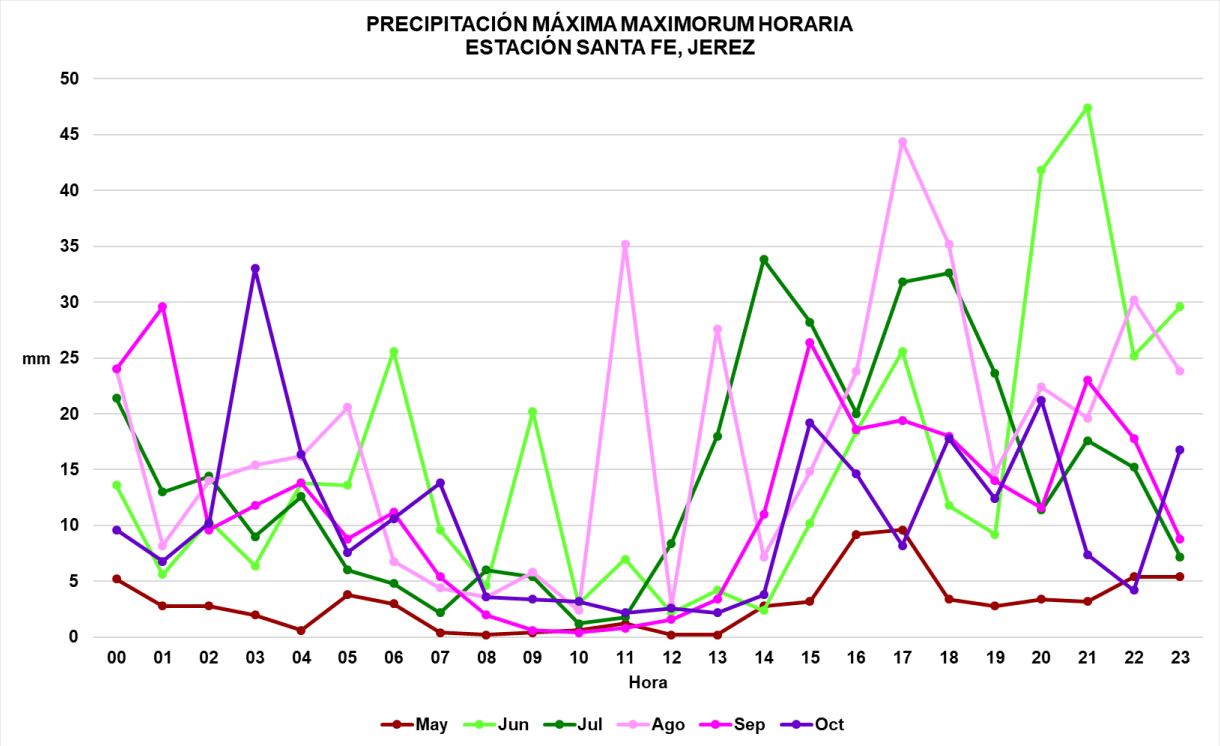


Figura 470. Precipitación máxima (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 523. Evapotranspiración potencial media (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.03	0.08	0.04	0.05	0.05	0.03	0.02	0.01	0.01	0.05	0.02	0.03
09	0.09	0.14	0.22	0.17	0.19	0.17	0.13	0.12	0.10	0.11	0.16	0.11	0.14
10	0.21	0.28	0.38	0.33	0.36	0.33	0.27	0.27	0.24	0.25	0.29	0.23	0.29
11	0.33	0.42	0.53	0.50	0.53	0.47	0.41	0.42	0.38	0.39	0.41	0.34	0.43
12	0.42	0.52	0.63	0.63	0.66	0.60	0.52	0.54	0.49	0.51	0.49	0.43	0.54
13	0.47	0.57	0.68	0.72	0.74	0.67	0.60	0.62	0.56	0.57	0.51	0.46	0.60
14	0.48	0.57	0.67	0.75	0.76	0.70	0.64	0.65	0.57	0.58	0.48	0.45	0.61
15	0.43	0.52	0.61	0.72	0.72	0.65	0.59	0.60	0.53	0.54	0.41	0.39	0.56
16	0.34	0.43	0.50	0.65	0.63	0.56	0.49	0.49	0.44	0.44	0.30	0.30	0.47
17	0.24	0.31	0.36	0.53	0.53	0.45	0.39	0.38	0.32	0.32	0.17	0.18	0.35
18	0.11	0.15	0.20	0.39	0.38	0.32	0.27	0.27	0.20	0.21	0.08	0.09	0.22
19	0.05	0.08	0.11	0.30	0.27	0.18	0.14	0.18	0.13	0.09	0.02	0.02	0.13
20	0.02	0.03	0.05	0.15	0.15	0.12	0.09	0.08	0.03	0.02	0.01	0.01	0.06
21	0.01	0.01	0.02	0.06	0.07	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.02
22	0.01	0.01	0.01	0.02	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.01
23	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01
Media/día /mes	3.24	4.09	5.07	6.03	6.10	5.40	4.63	4.67	4.00	4.04	3.40	3.07	4.48

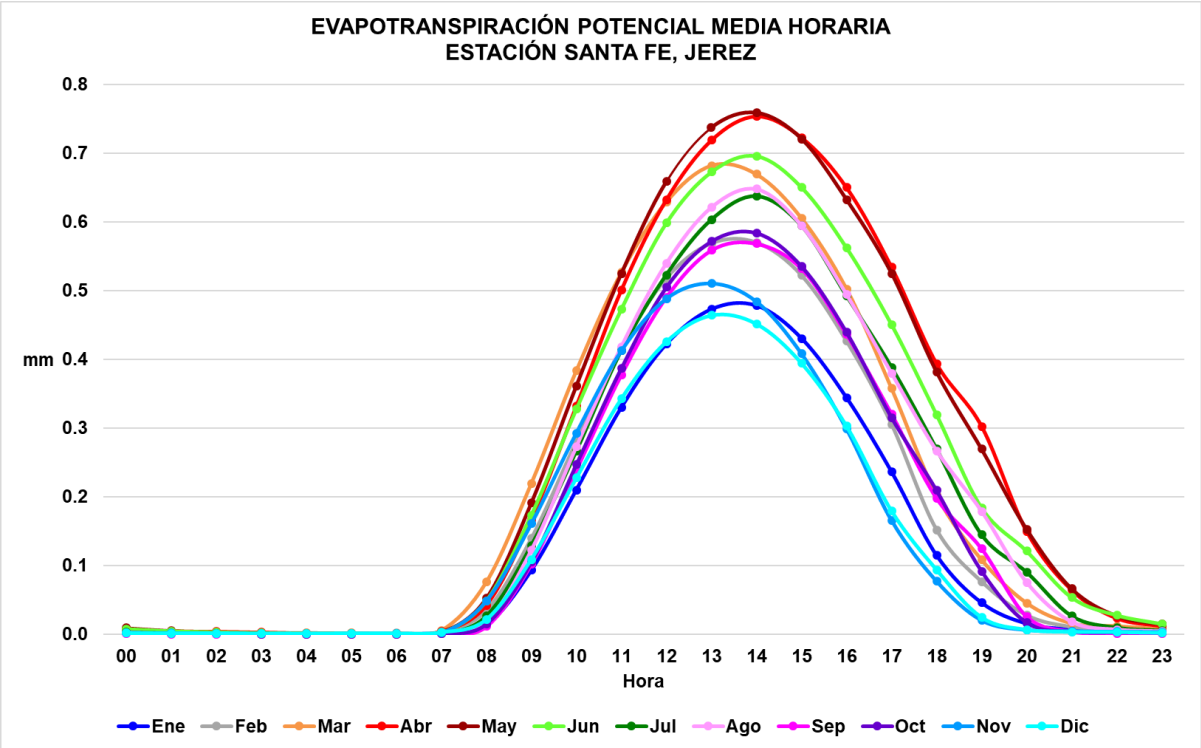


Figura 471. Evapotranspiración potencial media (mm) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 524. Humedad relativa media (%) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	63.3	55.5	45.8	38.1	43.2	63.5	82.5	84.1	87.8	79.7	74.6	68.8	65.6
01	66.7	59.4	50.6	42.8	47.7	67.5	85.3	86.9	89.7	83.0	77.3	71.7	69.1
02	69.6	63.0	54.5	47.2	52.4	71.0	87.6	89.3	91.2	85.4	79.9	74.3	72.1
03	72.2	66.3	58.0	51.4	56.6	74.0	89.4	91.0	92.4	87.5	82.2	76.4	74.8
04	74.4	69.0	61.2	55.4	60.5	76.9	90.7	92.0	93.3	89.1	84.1	78.6	77.1
05	76.5	71.7	63.9	58.8	63.7	79.4	91.7	92.8	94.0	90.1	85.7	80.4	79.0
06	78.2	74.0	66.5	61.7	66.6	81.2	92.5	93.4	94.6	91.2	87.1	81.9	80.7
07	79.1	74.5	63.8	61.5	66.0	80.7	92.4	93.5	94.8	91.4	85.9	82.4	80.5
08	72.0	64.8	50.8	52.2	55.6	72.6	86.8	89.0	90.7	85.9	73.2	73.1	72.2
09	56.7	49.7	38.4	39.5	43.6	62.1	75.8	78.0	80.5	73.0	57.0	58.0	59.4
10	44.5	38.3	30.0	30.6	35.3	53.6	65.8	67.1	69.6	59.5	45.9	45.8	48.8
11	36.4	31.2	24.3	24.3	28.5	46.4	58.4	59.5	61.4	49.9	38.4	37.7	41.4
12	30.9	26.6	20.9	20.0	23.7	39.9	53.0	54.0	55.2	43.6	33.5	32.4	36.1
13	27.4	23.8	18.9	17.4	20.6	35.1	48.2	49.5	50.9	39.1	30.6	29.1	32.5
14	25.5	22.1	17.8	16.1	18.8	32.1	45.5	46.6	48.7	36.4	29.0	27.2	30.5
15	24.8	21.3	17.2	15.5	18.1	31.4	45.3	46.7	48.8	35.8	28.6	26.6	30.0
16	25.1	21.5	17.2	15.3	18.0	32.6	47.2	48.6	51.1	36.5	29.5	27.3	30.8
17	27.0	22.6	18.0	15.3	18.5	34.3	50.0	51.4	54.0	38.8	33.5	30.3	32.8
18	32.1	25.9	20.2	16.0	19.6	36.6	53.2	54.5	58.7	44.2	42.2	37.3	36.7
19	38.7	31.6	24.6	17.7	21.4	40.1	58.1	59.9	67.1	53.7	49.5	44.0	42.2
20	44.0	36.2	29.0	21.5	25.3	45.4	64.8	68.0	75.8	61.5	54.9	49.8	48.0
21	49.0	39.9	32.0	25.6	30.4	51.5	71.2	74.4	80.6	66.9	60.6	55.6	53.1
22	54.2	44.6	35.9	29.0	34.7	56.5	76.0	78.7	83.4	71.7	66.3	61.0	57.7
23	59.0	49.9	40.8	33.0	39.2	60.8	79.5	81.6	85.3	75.9	70.7	65.4	61.8
Media	51.1	45.1	37.5	33.6	37.8	55.2	70.5	72.1	75.0	65.4	58.3	54.8	54.7

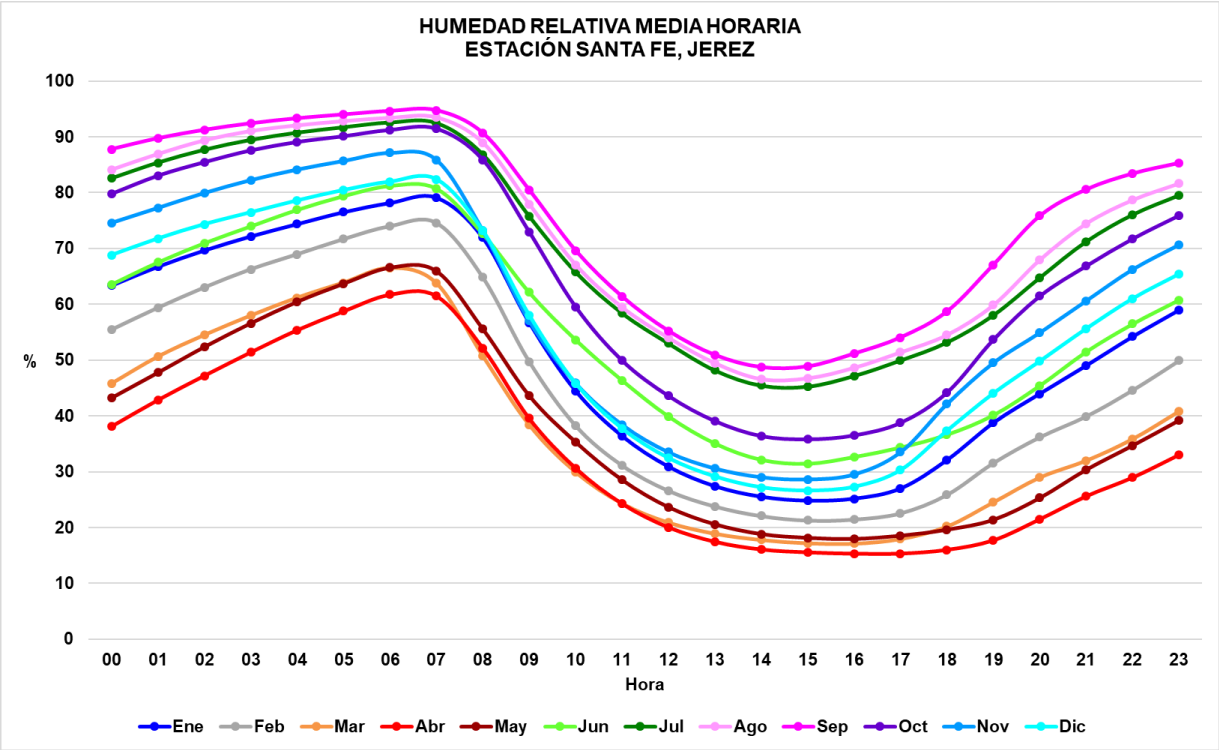


Figura 472. Humedad relativa media (%) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 525. Humedad relativa mínima minimorum (%) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	19.0	15.0	13.0	13.0	12.0	18.0	33.0	32.0	42.0	27.0	22.0	21.0	12.0
01	20.0	15.0	14.0	15.0	14.0	17.0	37.0	41.0	46.3	26.0	24.0	22.0	14.0
02	22.0	18.0	17.0	13.0	16.0	21.0	48.0	41.0	49.5	25.0	24.0	25.0	13.0
03	25.0	19.0	18.0	15.0	21.0	27.0	49.0	42.0	55.0	24.0	25.0	23.0	15.0
04	25.0	20.0	17.0	14.0	22.0	29.0	55.0	42.0	55.0	24.0	28.0	22.0	14.0
05	25.0	20.0	21.0	14.0	27.0	32.0	56.0	47.0	58.0	23.0	32.0	21.0	14.0
06	25.0	18.0	22.2	17.0	27.0	33.0	62.0	57.1	62.0	23.0	32.0	22.0	17.0
07	27.0	21.0	14.2	17.0	25.0	34.0	64.0	63.0	62.0	24.0	31.0	26.0	14.2
08	23.0	21.0	13.3	16.0	16.0	29.0	51.0	51.0	55.0	21.0	18.0	19.0	13.3
09	14.1	13.0	10.5	13.0	14.0	21.0	32.0	34.0	43.0	18.0	14.0	15.4	10.5
10	10.0	8.0	8.3	9.0	11.0	15.0	29.0	31.0	35.0	15.0	9.0	12.0	8.0
11	7.0	8.0	6.7	8.0	8.0	9.0	23.0	26.0	27.0	13.0	7.0	11.0	6.7
12	6.0	7.0	7.0	7.0	8.0	8.0	22.0	25.0	23.0	11.0	6.0	9.0	6.0
13	6.0	7.0	6.0	6.0	5.0	8.0	19.0	21.0	18.0	10.0	4.0	7.0	4.0
14	7.0	6.0	6.0	5.9	6.0	8.0	17.4	18.0	18.8	9.0	5.0	7.0	5.0
15	6.0	7.0	5.0	5.9	6.0	6.0	13.0	15.0	18.0	9.0	5.0	8.0	5.0
16	6.0	6.0	6.0	5.6	6.0	6.0	13.0	15.0	17.0	8.0	4.0	7.0	4.0
17	6.0	6.0	6.0	5.6	6.0	7.0	13.0	14.0	17.0	9.0	5.0	7.0	5.0
18	7.0	7.0	6.0	6.0	6.0	6.0	14.0	15.0	18.0	10.9	6.0	9.0	6.0
19	8.0	9.0	7.0	6.0	6.0	7.0	15.0	17.0	20.0	12.8	9.0	11.0	6.0
20	10.0	10.0	8.0	6.0	8.0	10.0	16.0	18.0	28.0	19.0	10.0	14.0	6.0
21	13.0	10.0	9.0	8.0	8.0	11.0	17.0	22.0	35.0	22.8	12.0	17.0	8.0
22	13.0	13.0	9.0	10.0	10.0	12.0	23.0	24.0	28.0	25.0	18.0	17.0	9.0
23	17.0	14.0	11.0	11.0	11.0	14.0	27.3	29.0	32.0	25.0	18.0	21.0	11.0
Mín.	6.0	6.0	5.0	5.6	5.0	6.0	13.0	14.0	17.0	8.0	4.0	7.0	4.0

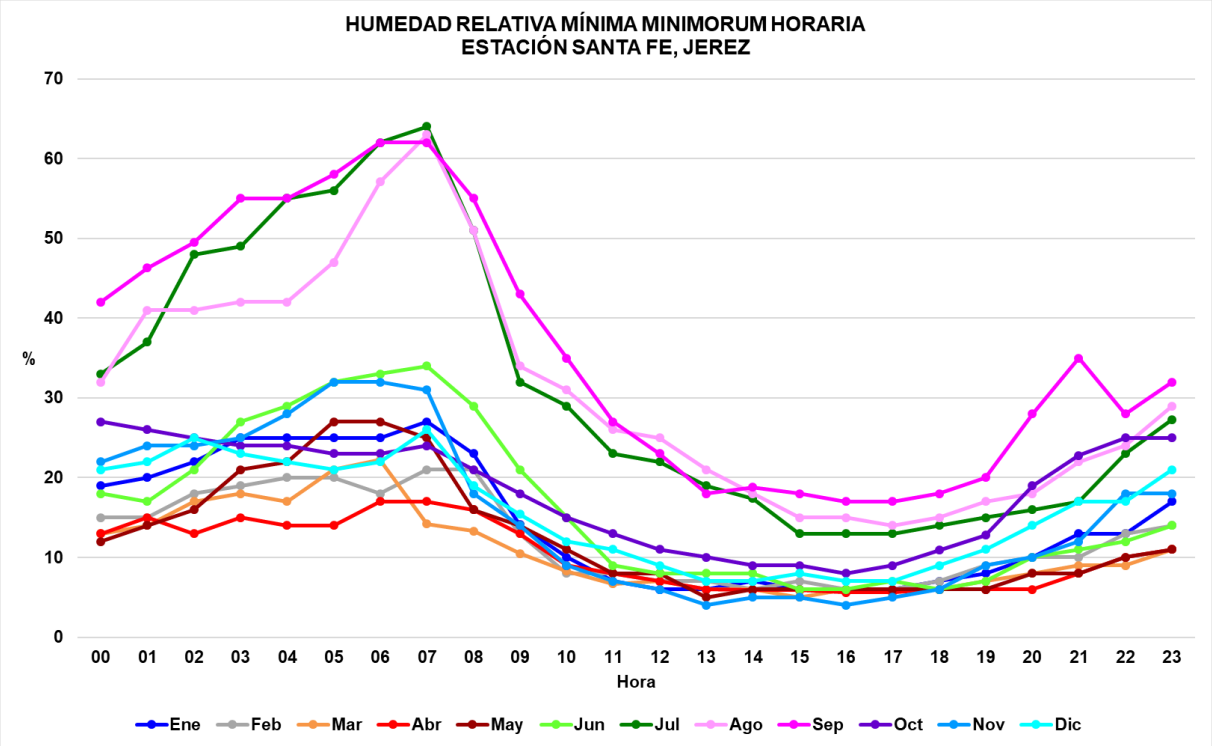


Figura 473. Humedad relativa mínima minimorum (%) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 526. Radiación solar global media horaria (W/m2) de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	16	5	10	9	5	2	0	2	6	1	5
07	56	117	328	192	228	199	132	92	67	84	234	92	152
08	555	772	1183	894	962	839	668	602	520	570	962	663	766
09	1339	1659	2141	1836	1891	1683	1454	1441	1326	1399	1762	1421	1613
10	2059	2450	2950	2740	2770	2491	2265	2270	2125	2220	2439	2103	2407
11	2587	3048	3520	3457	3470	3164	2920	2959	2770	2856	2879	2580	3018
12	2864	3343	3807	3914	3934	3607	3356	3414	3161	3209	3015	2784	3367
13	2870	3350	3751	4051	4021	3712	3547	3610	3232	3287	2880	2707	3418
14	2584	3089	3438	3884	3773	3463	3336	3340	2995	3043	2484	2394	3152
15	2041	2558	2873	3438	3292	2939	2782	2781	2534	2516	1855	1826	2620
16	1364	1820	2076	2843	2694	2336	2185	2165	1915	1839	1130	1138	1959
17	623	981	1180	2031	1969	1669	1592	1557	1275	1113	393	413	1233
18	85	223	352	1128	1174	1018	961	936	621	401	16	22	578
19	0	1	10	354	422	378	389	337	135	33	0	0	172
20	0	0	0	16	35	44	42	25	2	0	0	0	14
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19028	23412	27626	30785	30644	27553	25635	25531	22679	22573	20055	18145	24472

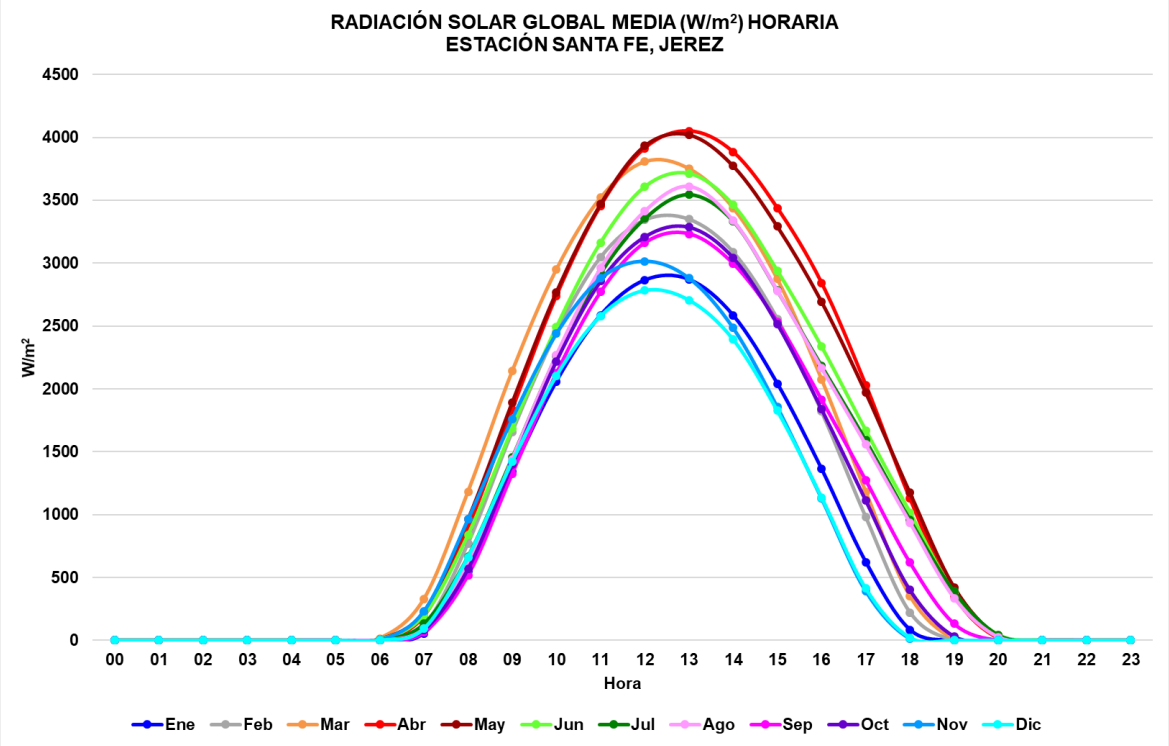


Figura 474 Radiación solar global media horaria (W/m2) de la estación Santa Fe, Jerez (2005-2022).

Cuadro 527. Radiación solar global media horaria (kWh/m2) de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.06	0.05	0.03	0.02	0.02	0.02	0.06	0.02	0.04
08	0.14	0.19	0.30	0.22	0.24	0.21	0.17	0.15	0.13	0.14	0.24	0.17	0.19
09	0.33	0.41	0.54	0.46	0.47	0.42	0.36	0.36	0.33	0.35	0.44	0.36	0.40
10	0.51	0.61	0.74	0.68	0.69	0.62	0.57	0.57	0.53	0.55	0.61	0.53	0.60
11	0.65	0.76	0.88	0.86	0.87	0.79	0.73	0.74	0.69	0.71	0.72	0.65	0.75
12	0.72	0.84	0.95	0.98	0.98	0.90	0.84	0.85	0.79	0.80	0.75	0.70	0.84
13	0.72	0.84	0.94	1.01	1.01	0.93	0.89	0.90	0.81	0.82	0.72	0.68	0.85
14	0.65	0.77	0.86	0.97	0.94	0.87	0.83	0.83	0.75	0.76	0.62	0.60	0.79
15	0.51	0.64	0.72	0.86	0.82	0.73	0.70	0.70	0.63	0.63	0.46	0.46	0.65
16	0.34	0.45	0.52	0.71	0.67	0.58	0.55	0.54	0.48	0.46	0.28	0.28	0.49
17	0.16	0.25	0.30	0.51	0.49	0.42	0.40	0.39	0.32	0.28	0.10	0.10	0.31
18	0.02	0.06	0.09	0.28	0.29	0.25	0.24	0.23	0.16	0.10	0.00	0.01	0.14
19	0.00	0.00	0.00	0.09	0.11	0.09	0.10	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.76	5.85	6.91	7.70	7.66	6.89	6.41	6.38	5.67	5.64	5.01	4.54	6.12

Cuadro 528. Radiación solar global media horaria (Mj/m2/s) de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.11	0.30	0.17	0.20	0.18	0.12	0.08	0.06	0.08	0.21	0.08	0.14
08	0.50	0.69	1.06	0.80	0.87	0.75	0.60	0.54	0.47	0.51	0.87	0.60	0.69
09	1.21	1.49	1.93	1.65	1.70	1.52	1.31	1.30	1.19	1.26	1.59	1.28	1.45
10	1.85	2.21	2.66	2.47	2.49	2.24	2.04	2.04	1.91	2.00	2.19	1.89	2.17
11	2.33	2.74	3.17	3.11	3.12	2.85	2.63	2.66	2.49	2.57	2.59	2.32	2.72
12	2.58	3.01	3.43	3.52	3.54	3.25	3.02	3.07	2.84	2.89	2.71	2.51	3.03
13	2.58	3.01	3.38	3.65	3.62	3.34	3.19	3.25	2.91	2.96	2.59	2.44	3.08
14	2.33	2.78	3.09	3.50	3.40	3.12	3.00	3.01	2.70	2.74	2.24	2.15	2.84
15	1.84	2.30	2.59	3.09	2.96	2.65	2.50	2.50	2.28	2.26	1.67	1.64	2.36
16	1.23	1.64	1.87	2.56	2.42	2.10	1.97	1.95	1.72	1.66	1.02	1.02	1.76
17	0.56	0.88	1.06	1.83	1.77	1.50	1.43	1.40	1.15	1.00	0.35	0.37	1.11
18	0.08	0.20	0.32	1.01	1.06	0.92	0.87	0.84	0.56	0.36	0.01	0.02	0.52
19	0.00	0.00	0.01	0.32	0.38	0.34	0.35	0.30	0.12	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.13	21.07	24.86	27.71	27.58	24.80	23.07	22.98	20.41	20.32	18.05	16.33	22.02

Cuadro 529. Velocidad del viento media (km/h) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.4	2.3	2.6	2.5	2.9	3.6	2.7	2.6	2.1	2.2	2.0	2.0	2.5
01	2.3	2.3	2.3	2.2	2.4	3.0	2.2	2.0	1.8	2.0	2.0	2.1	2.2
02	2.3	2.2	2.1	2.0	2.1	2.5	1.9	1.7	1.6	1.9	1.9	2.1	2.0
03	2.2	2.2	2.0	1.7	1.7	2.3	1.8	1.6	1.6	1.8	1.9	2.2	1.9
04	2.1	2.2	2.0	1.5	1.6	2.0	1.5	1.5	1.6	1.8	1.9	2.2	1.8
05	2.1	2.2	2.0	1.4	1.5	1.8	1.4	1.6	1.5	1.9	1.9	2.2	1.8
06	2.1	2.1	1.9	1.3	1.3	1.6	1.3	1.4	1.4	1.7	1.9	2.2	1.7
07	2.1	2.2	2.1	1.4	1.4	1.6	1.3	1.4	1.5	1.8	2.1	2.2	1.8
08	2.8	3.0	3.4	2.0	2.0	2.4	2.0	1.9	2.0	2.5	3.4	2.9	2.5
09	4.4	4.5	4.5	3.1	3.0	3.4	3.1	3.3	3.6	3.9	4.3	4.1	3.8
10	5.7	6.1	6.5	5.0	4.5	4.3	3.3	3.7	4.3	4.6	5.1	5.1	4.9
11	7.4	8.4	8.6	7.3	6.0	5.1	3.8	4.1	4.9	5.4	6.5	7.1	6.2
12	9.0	10.2	10.2	9.1	7.4	6.0	4.6	4.8	5.6	6.3	7.6	8.7	7.5
13	10.4	11.5	11.5	10.8	8.7	7.0	5.4	5.4	6.1	7.0	8.3	9.8	8.5
14	11.1	12.2	12.2	11.9	9.6	8.3	6.5	6.2	6.5	7.4	8.5	10.3	9.2
15	11.1	12.3	12.4	12.5	10.1	9.2	7.4	6.9	7.0	7.6	8.4	10.1	9.6
16	10.8	12.1	12.1	12.5	10.4	9.5	7.8	7.1	7.1	7.5	7.9	9.5	9.5
17	9.3	10.9	11.3	12.2	10.4	9.4	7.8	6.8	6.6	7.0	6.3	7.5	8.8
18	6.1	8.2	9.3	11.5	10.1	8.9	7.1	6.1	5.6	5.7	3.9	4.3	7.2
19	4.2	4.9	6.1	9.4	9.2	8.3	6.3	5.0	3.8	3.9	3.4	3.2	5.7
20	3.4	3.8	4.4	6.7	6.9	7.0	4.9	3.9	2.6	3.2	3.0	2.6	4.4
21	3.1	3.4	3.9	4.7	5.3	6.1	4.1	3.5	2.4	3.0	2.7	2.5	3.7
22	2.9	3.1	3.4	3.7	4.3	5.7	3.8	3.5	2.3	2.8	2.4	2.2	3.3
23	2.6	2.7	2.9	3.1	3.6	4.7	3.2	3.2	2.2	2.5	2.1	2.0	2.9
Media	5.1	5.6	5.8	5.8	5.3	5.2	4.0	3.7	3.6	4.0	4.1	4.5	4.7

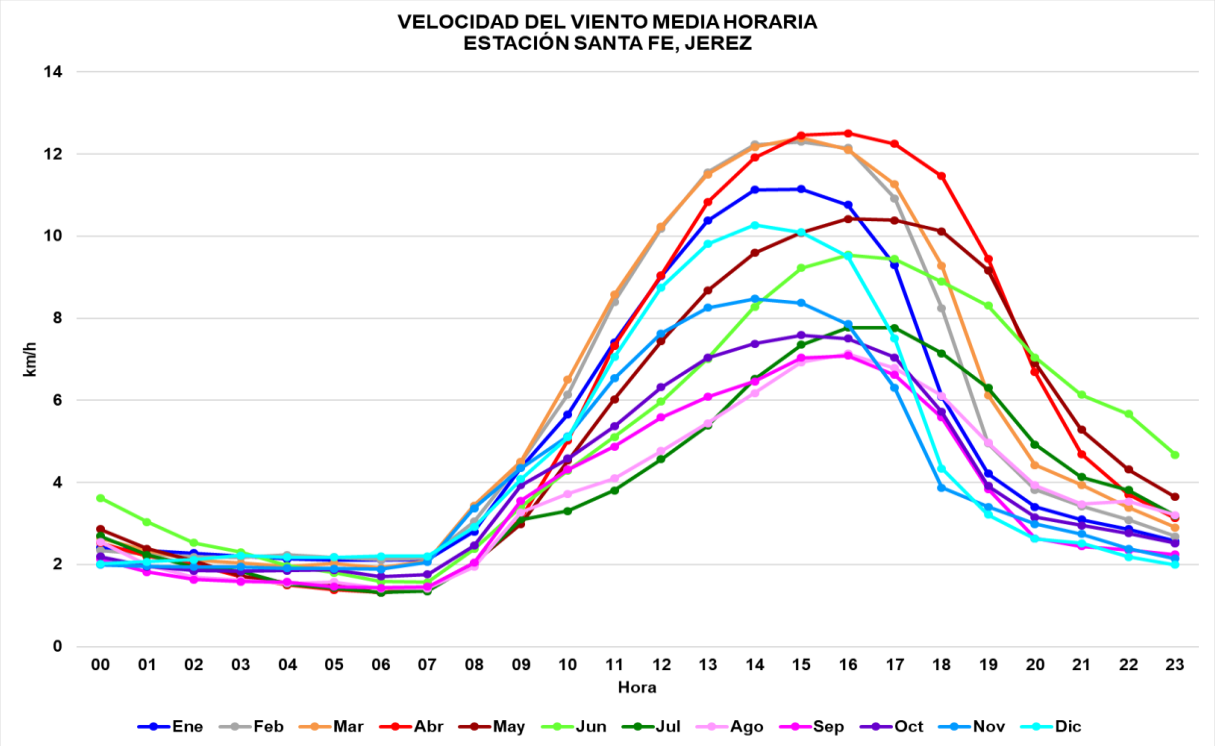


Figura 475. Velocidad del viento media (km/h) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 530. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santa Fe, Jerez (2005-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	18.7	21.3	20.7	20.7	30.8	27.2	21.8	26.8	22.3	24.3	22.4	22.8	30.8
01	25.5	16.8	20.8	19.0	27.6	23.0	17.7	21.5	17.4	16.8	22.0	25.0	27.6
02	16.5	24.1	20.2	18.3	28.9	21.3	16.8	20.9	17.3	18.4	23.9	24.8	28.9
03	16.6	22.2	26.4	19.9	15.6	19.3	18.2	24.3	16.8	20.1	25.2	22.4	26.4
04	17.8	23.0	27.1	21.5	14.4	19.4	15.6	19.7	15.3	22.8	25.3	18.8	27.1
05	17.8	24.2	27.5	17.2	16.0	21.9	14.5	19.3	10.8	26.7	27.4	19.9	27.5
06	18.9	25.7	28.2	13.0	14.6	18.1	21.9	18.1	13.2	29.0	26.4	20.0	29.0
07	17.4	24.3	26.8	18.7	19.7	18.4	13.6	11.5	11.2	27.1	27.8	21.0	27.8
08	21.0	20.4	29.0	17.8	18.6	16.6	16.8	14.7	11.3	32.7	24.4	20.6	32.7
09	21.5	25.2	37.5	21.3	20.5	16.3	16.7	15.6	16.1	28.7	27.4	24.8	37.5
10	23.8	30.4	37.7	27.6	19.6	21.6	18.9	19.3	18.6	25.7	25.7	35.6	37.7
11	27.2	32.8	40.0	31.2	25.2	21.3	21.5	19.4	20.2	22.6	29.2	35.4	40.0
12	31.5	31.6	37.9	31.8	24.1	24.5	22.5	20.9	20.1	25.6	28.7	35.8	37.9
13	38.1	31.7	39.5	31.8	23.9	27.1	22.3	21.2	22.1	23.0	30.2	40.7	40.7
14	34.3	31.0	37.1	31.5	30.4	29.7	26.2	22.0	20.4	23.1	32.1	37.3	37.3
15	32.0	35.8	41.3	30.7	30.8	34.8	25.2	26.9	26.2	25.4	29.6	36.2	41.3
16	32.7	32.5	36.5	30.9	34.9	33.3	29.9	33.5	23.0	31.3	31.4	36.0	36.5
17	31.0	33.8	30.3	32.7	34.2	34.4	27.8	48.7	23.8	21.7	27.7	34.7	48.7
18	28.7	27.4	29.9	31.3	31.3	27.3	29.0	26.1	24.3	24.4	22.1	26.8	31.3
19	25.2	22.4	34.5	32.7	30.3	35.5	35.3	25.0	23.8	21.5	22.4	27.3	35.5
20	24.5	21.7	25.8	29.0	31.8	36.7	25.8	24.8	24.1	24.2	24.3	28.0	36.7
21	22.6	22.6	29.9	32.6	36.2	34.9	27.1	30.5	30.3	21.5	18.0	19.6	36.2
22	23.8	19.2	26.6	26.5	36.7	35.7	29.7	41.9	27.6	25.0	16.7	19.6	41.9
23	23.1	20.9	20.1	24.4	29.9	31.4	31.7	30.8	24.9	23.8	19.6	19.9	31.7
Máx.	38.1	35.8	41.3	32.7	36.7	36.7	35.3	48.7	30.3	32.7	32.1	40.7	48.7

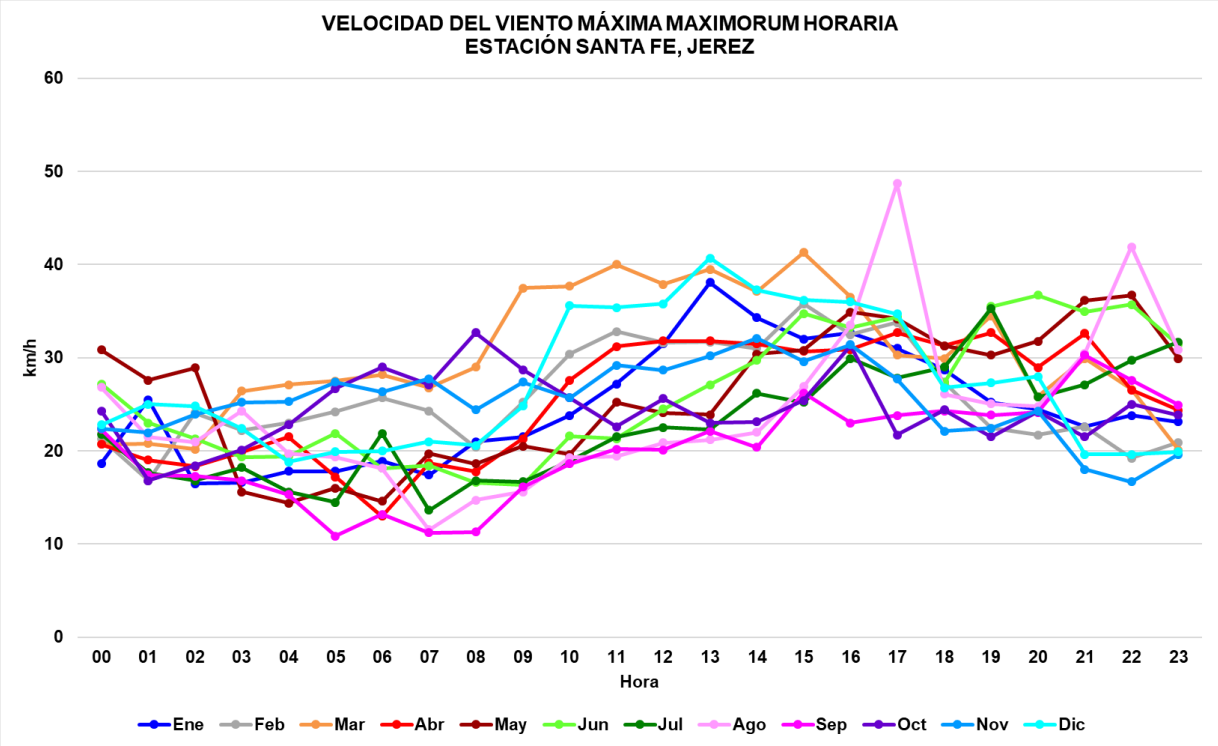


Figura 476. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santa Fe, Jerez (2005-2022).

Cuadro 531. Frecuencia de velocidad del viento (%) mensual de la estación Santa Fe, Jerez (2005-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	64.2	60.3	58.6	57.2	58.6	58.7	69.7	72.5	72.7	70.0	69.4	68.6	65.2
5.1 a 10.0	18.4	18.6	20.4	19.9	24.0	25.9	22.3	20.4	21.2	21.7	20.2	17.1	20.9
10.1 a 15.0	11.4	13.1	12.3	15.5	13.1	12.0	6.7	6.0	5.5	6.7	8.0	10.0	9.9
15.1 a 20.0	4.7	5.8	6.2	6.3	3.6	2.7	1.1	0.9	0.5	1.3	1.8	3.3	3.1
20.1 a 25.0	1.2	1.7	1.9	1.0	0.5	0.6	0.2	0.2	0.0	0.2	0.4	0.7	0.7
25.1 a 30.0	0.2	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.2
30.1 a 35.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

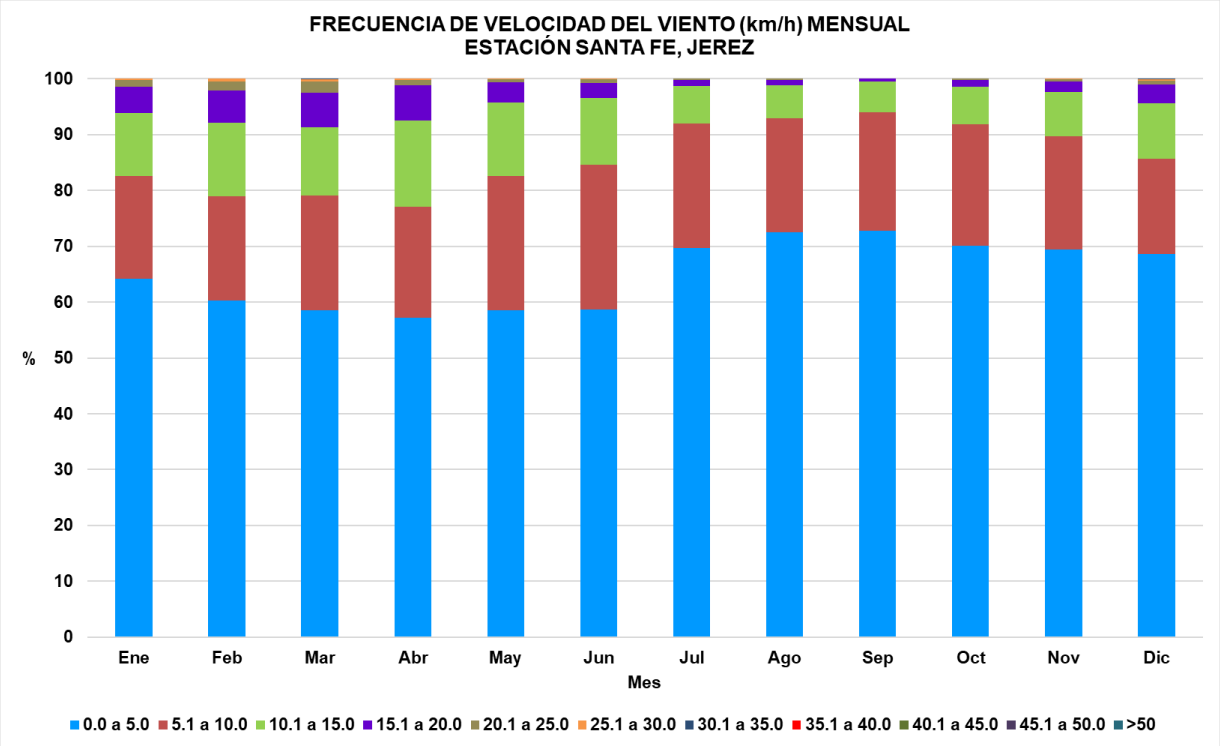


Figura 477. Frecuencia de velocidad del viento (%) mensual de la estación Santa Fe, Jerez (2005-2022).

Cuadro 532. Frecuencia de dirección del viento (%) mensual de la estación Santa Fe, Jerez (2005-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	17.8	14.6	12.1	9.3	10.0	13.3	12.9	14.5	18.2	18.5	19.3	17.4	14.9
NNE	11.3	9.3	8.8	6.5	7.2	10.7	9.8	11.0	14.1	14.5	13.5	10.8	10.7
NE	5.1	3.9	3.9	3.6	4.7	9.0	8.0	9.1	10.8	9.8	7.0	4.4	6.6
ENE	2.0	1.8	1.9	1.7	2.9	6.8	6.3	7.0	6.7	5.9	3.8	1.8	4.1
E	1.0	1.0	1.2	1.0	2.1	4.0	4.0	4.2	3.7	2.9	1.8	1.1	2.4
ESE	1.0	1.1	1.3	1.3	1.9	2.6	2.9	2.8	2.5	1.7	1.4	1.0	1.8
SE	2.2	2.5	2.9	3.1	3.9	4.0	4.6	4.0	3.7	2.7	2.4	2.2	3.2
SSE	5.0	6.0	6.3	7.6	8.0	7.7	8.4	7.8	5.7	4.6	5.4	5.5	6.5
S	7.3	8.3	8.5	9.3	8.8	7.0	7.8	6.8	5.4	5.2	6.1	7.6	7.3
SSO	10.7	12.4	11.6	12.5	10.1	6.9	7.7	6.2	5.0	5.6	7.2	11.1	8.8
SO	10.2	12.1	12.6	13.9	10.4	5.4	5.5	4.5	3.4	4.2	6.5	10.0	8.1
OSO	5.5	7.3	8.8	10.3	8.2	3.9	4.0	3.6	2.4	3.1	4.3	5.1	5.5
O	4.4	4.9	5.9	6.7	6.8	4.4	4.2	4.0	3.2	3.5	3.5	4.3	4.6
ONO	2.8	2.7	3.2	3.2	4.1	3.1	2.9	2.9	2.5	2.5	2.5	2.7	2.9
NO	4.3	4.1	4.1	4.1	4.7	4.4	4.1	4.1	4.2	4.6	5.0	4.6	4.4
NNO	9.4	7.9	7.0	6.0	6.3	7.0	7.1	7.3	8.5	10.6	10.5	10.3	8.2
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

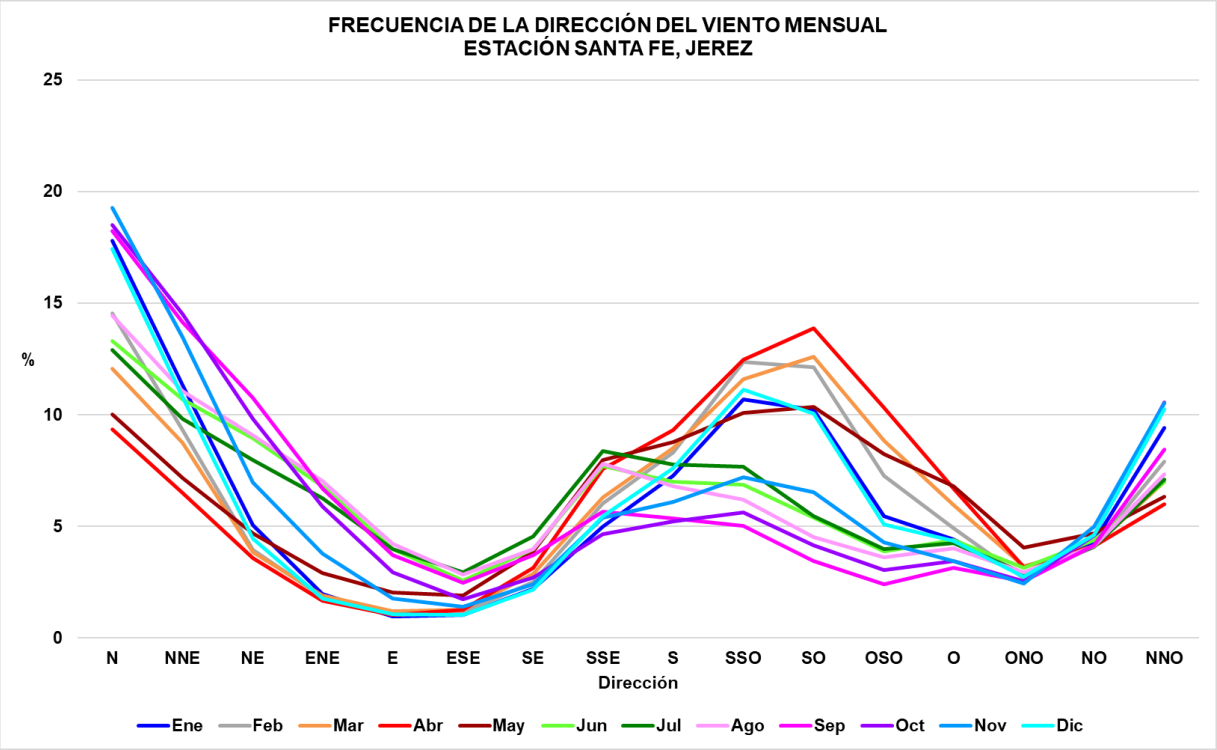


Figura 748. Frecuencia de dirección del viento (%) mensual de la estación Santa Fe, Jerez (2005-2022).

Cuadro 533. Frecuencia de dirección del viento (%) trimestral de la estación Santa Fe, Jerez (2005-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	14.8	10.9	15.2	18.4	14.9
NNE	9.8	8.1	11.7	12.9	10.7
NE	4.3	5.8	9.3	7.1	6.6
ENE	1.9	3.8	6.7	3.8	4.1
E	1.1	2.4	4.0	1.9	2.4
ESE	1.1	1.9	2.8	1.4	1.8
SE	2.5	3.7	4.1	2.4	3.2
SSE	5.8	7.8	7.3	5.2	6.5
S	8.0	8.4	6.6	6.3	7.3
SSO	11.5	9.8	6.3	8.0	8.8
SO	11.6	9.8	4.5	6.9	8.1
OSO	7.2	7.4	3.3	4.2	5.5
O	5.1	6.0	3.8	3.8	4.6
ONO	2.9	3.5	2.8	2.6	2.9
NO	4.2	4.4	4.1	4.7	4.4
NNO	8.1	6.4	7.6	10.4	8.2
Suma	100.0	100.0	100.0	100.0	100.0

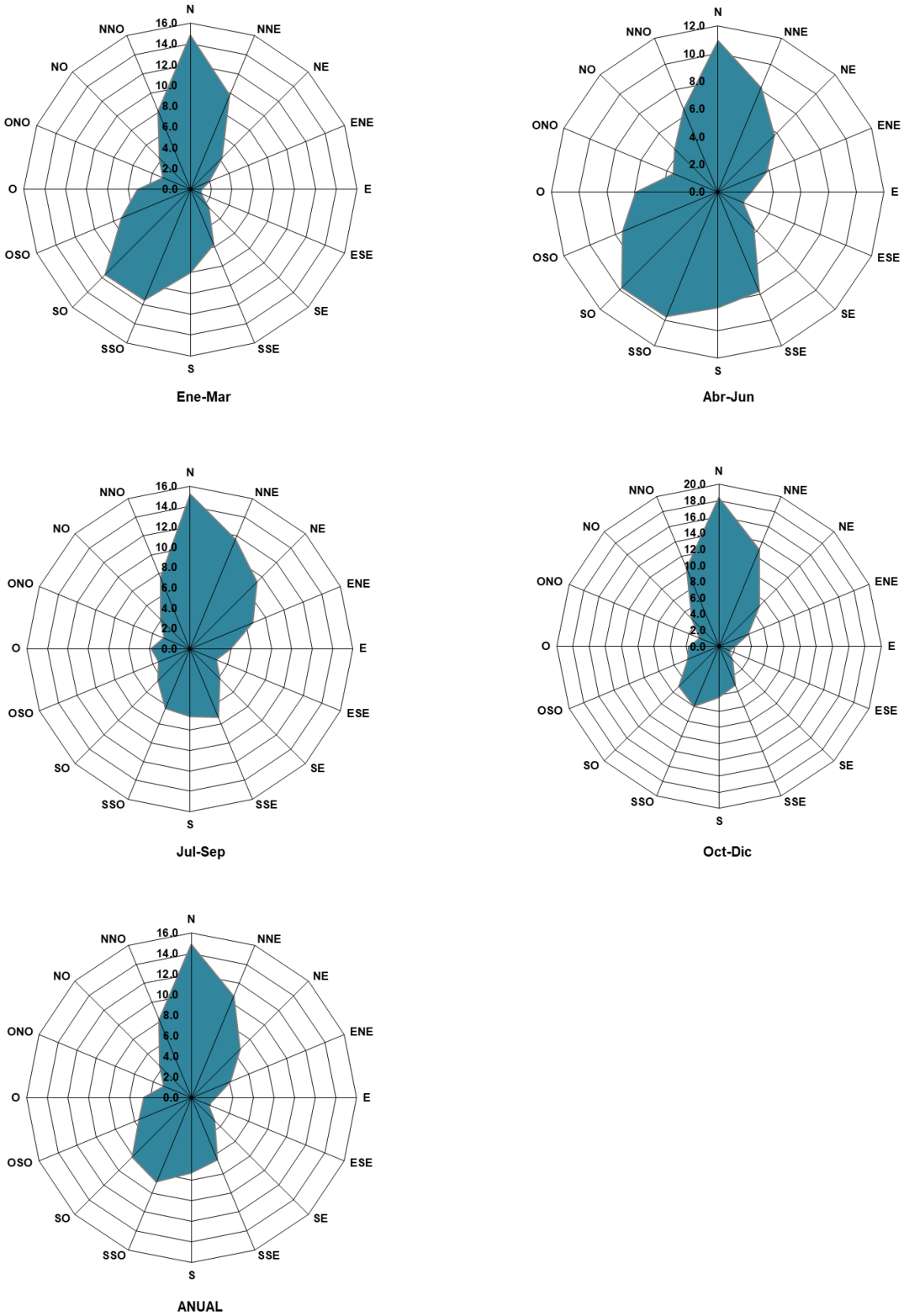


Figura 479. Frecuencia de dirección del viento (%) trimestral de la estación Santa Fe, Jerez (2005-2022).

Cuadro 534. Estadísticas climatológicas mensuales de la estación Santa Fe, Jerez (2005-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.8	23.8	26.1	28.2	30.1	29.6	27.1	27.1	26.1	26.2	24.1	22.3	26.1
Temperatura máxima maximorum (°C)	29.6	30.8	34.2	33.7	37.6	36.6	33.1	31.9	30.9	31.2	31.4	29.3	37.6
Temperatura mínima media (°C)	1.3	2.5	3.9	5.6	8.9	12.9	13.0	12.8	12.3	8.5	4.1	1.6	7.3
Temperatura mínima minimorum (°C)	-8.7	-6.2	-4.8	-3.3	0.3	4.2	8.2	7.2	4.3	-0.9	-8.9	-6.0	-8.9
Temperatura media (°C)	11.3	13.3	15.6	17.9	20.3	21.0	19.3	19.1	18.3	16.8	13.7	11.5	16.5
Oscilación térmica (°C)	20.5	21.4	22.2	22.7	21.2	16.7	14.0	14.3	13.8	17.6	20.0	20.7	18.8
Precipitación acumulada media (mm)	14.5	18.6	5.7	3.9	9.4	85.5	120.0	115.2	97.0	40.3	13.3	14.8	538.3
Precipitación máxima maximorum en 24 horas (mm)	43.2	59.0	37.0	29.4	12.4	76.6	55.2	48.4	52.4	65.4	45.0	24.0	76.6
Número de días promedio con lluvia	3.8	3.9	4.4	1.4	4.2	11.3	17.6	16.7	14.6	7.1	3.9	3.9	92.8
Evapotranspiración acumulada potencial media (mm)	107.1	125.3	166.5	187.7	193.9	166.3	149.7	151.1	126.9	130.4	111.2	102.9	1719.0
Humedad máxima media (%)	82.9	78.8	71.5	68.4	72.6	85.4	95.2	95.8	96.7	93.8	89.8	86.2	84.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	98.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.0	18.9	15.0	13.0	15.0	25.5	37.2	38.9	42.2	31.4	25.8	23.9	25.7
Humedad mínima minimorum (%)	6.0	6.0	5.0	5.6	5.0	6.0	13.0	14.0	17.0	8.0	4.0	7.0	4.0
Humedad media (%)	51.1	45.1	37.5	33.6	37.8	55.2	70.4	72.1	75.0	65.3	58.3	54.8	54.7
Radiación global media día/mes (W/m^2)	19028.3	23420.9	27634.3	30786.4	30648.4	27552.5	25672.6	25531.3	22679.2	22599.1	20055.2	18145.0	24479.5
Radiación global media día/mes (kWh/m^2)	4.8	5.9	6.9	7.7	7.7	6.9	6.4	6.4	5.7	5.6	5.0	4.5	6.1
Radiación global media día/mes ($Mj/m^2/s$)	17.1	21.1	24.9	27.7	27.6	24.8	23.1	23.0	20.4	20.3	18.0	16.3	22.0
Velocidad del viento máxima media (km/h)	15.7	16.6	17.2	17.4	16.6	17.3	15.1	13.9	12.8	12.5	12.8	14.1	15.2
Velocidad del viento máxima maximorum (km/h)	38.1	35.8	41.3	32.7	36.7	36.7	35.3	48.7	30.3	32.7	32.1	40.7	48.7
Velocidad del viento media (km/h)	5.1	5.6	5.8	5.8	5.3	5.2	4.0	3.7	3.6	4.0	4.1	4.5	4.7
Dirección dominante del viento	N	N	SO	SO	SO	N	N	N	N	N	N	N	N

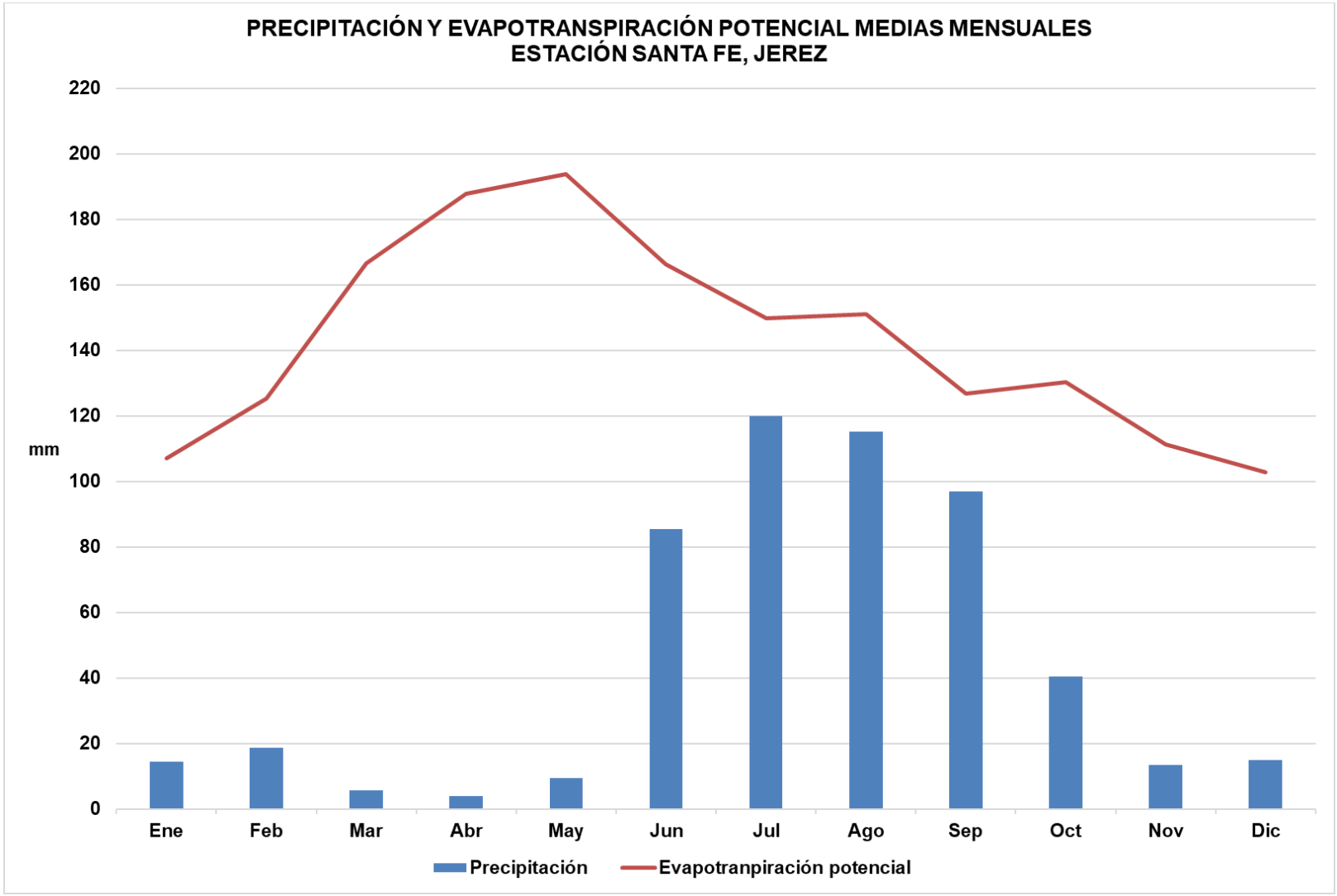


Figura 480. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Santa Fe, Jerez (2005-2022).

7.29. Estación: Santa Rita, Jerez

Cuadro 535. Temperatura máxima media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	8.9	11.2	15.1	17.8	18.8	17.1	16.9	15.7	13.2	8.9	6.5	13.1
01	6.0	7.8	9.9	13.5	16.6	18.0	16.4	16.3	15.2	12.4	8.0	5.6	12.1
02	5.3	6.8	8.6	12.1	15.3	17.1	15.9	15.7	14.7	11.7	7.2	5.0	11.3
03	4.7	6.0	7.6	10.8	14.0	16.3	15.4	15.2	14.3	11.1	6.7	4.4	10.5
04	4.1	5.3	6.8	9.6	12.9	15.6	14.9	14.7	13.9	10.6	6.3	4.0	9.9
05	3.7	4.7	6.0	8.6	11.9	14.9	14.5	14.2	13.6	10.2	5.9	3.6	9.3
06	3.3	4.2	5.5	7.7	11.0	14.3	14.1	13.9	13.3	9.9	5.5	3.2	8.8
07	3.5	5.0	8.2	8.7	12.1	14.8	14.3	14.0	13.4	10.3	7.4	3.9	9.6
08	7.8	10.0	13.9	13.7	16.7	17.8	16.5	16.3	15.5	13.4	12.7	8.8	13.6
09	12.4	14.6	17.7	18.4	20.4	20.3	18.7	18.8	18.1	17.2	16.6	13.4	17.2
10	15.6	17.6	20.5	21.5	23.1	22.3	20.6	20.7	20.1	19.9	19.2	16.6	19.8
11	17.9	19.9	22.8	24.0	25.4	24.2	22.2	22.4	21.7	21.9	21.1	18.9	21.9
12	19.6	21.7	24.4	26.0	27.4	25.9	23.6	23.8	23.0	23.4	22.4	20.4	23.5
13	20.7	22.8	25.5	27.5	28.8	27.2	24.8	24.9	24.0	24.5	23.3	21.4	24.6
14	21.4	23.5	26.1	28.4	29.7	28.0	25.4	25.6	24.6	25.1	23.7	22.0	25.3
15	21.4	23.6	26.2	28.8	30.2	28.4	25.7	25.7	24.7	25.3	23.7	22.0	25.5
16	21.1	23.3	25.9	28.8	30.1	28.1	25.3	25.6	24.3	25.1	23.1	21.5	25.2
17	20.0	22.4	25.1	28.3	29.7	27.6	24.7	25.1	23.6	24.3	21.7	20.2	24.4
18	17.7	20.6	23.5	27.4	28.8	26.8	24.0	24.3	22.6	22.8	18.6	17.1	22.8
19	14.2	17.1	20.3	25.6	27.3	25.5	22.8	23.0	20.8	20.1	15.1	13.5	20.5
20	12.1	14.6	17.4	22.6	25.0	23.8	21.2	21.1	18.6	17.3	13.3	11.5	18.2
21	10.6	13.0	15.6	19.9	22.3	21.9	19.5	19.3	17.4	15.9	12.0	10.0	16.4
22	9.3	11.6	14.2	18.2	20.6	20.6	18.4	18.3	16.7	14.8	10.9	8.8	15.2
23	8.1	10.2	12.7	16.7	19.2	19.6	17.7	17.6	16.2	14.0	9.7	7.6	14.1
Media	12.0	14.0	16.5	19.2	21.5	21.6	19.7	19.7	18.6	17.3	14.3	12.1	17.2

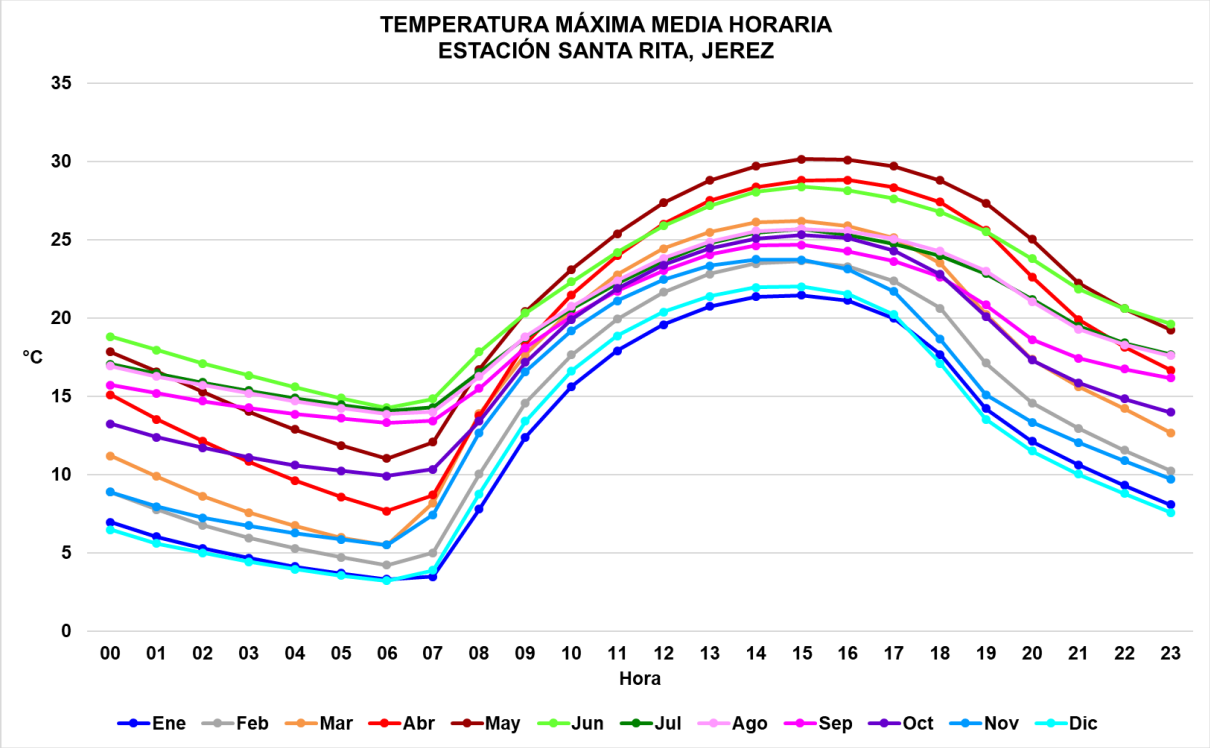


Figura 481. Temperatura máxima media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 536. Temperatura máxima maximorum (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.3	16.8	19.3	22.5	25.9	24.8	22.6	22.1	21.0	19.3	17.2	15.2	25.9
01	14.5	16.6	17.4	22.2	25.2	24.2	21.1	20.8	19.9	18.3	17.1	13.9	25.2
02	14.1	14.8	17.9	21.2	23.7	22.8	20.3	21.1	19.5	17.4	16.2	13.9	23.7
03	13.4	14.3	17.9	19.1	22.0	21.9	19.9	20.2	18.9	17.1	16.4	14.1	22.0
04	12.4	14.4	16.4	17.9	20.6	21.7	18.7	19.5	18.7	17.0	16.3	14.0	21.7
05	12.0	13.4	13.9	16.8	22.3	20.7	18.6	18.6	17.6	17.1	16.2	13.8	22.3
06	11.9	13.2	13.9	16.3	21.8	19.2	18.7	18.6	16.9	16.7	15.9	14.0	21.8
07	12.3	13.9	16.3	17.0	21.6	19.5	18.8	17.6	17.7	17.4	15.5	13.7	21.6
08	15.1	19.4	20.7	22.0	24.8	22.9	21.4	20.7	20.1	20.1	19.7	17.2	24.8
09	19.6	23.4	24.9	25.4	27.5	25.9	24.1	23.7	22.6	23.9	24.2	21.5	27.5
10	23.1	26.5	28.0	28.4	30.2	28.7	25.5	25.3	25.0	26.7	26.5	25.8	30.2
11	25.8	28.0	30.9	31.0	32.4	31.4	27.3	27.3	27.0	28.5	28.4	27.3	32.4
12	27.9	30.0	32.5	32.4	34.2	32.7	29.7	28.6	28.7	29.6	29.3	28.9	34.2
13	29.0	31.5	33.7	33.1	35.3	33.1	30.5	30.5	29.2	30.0	29.8	29.1	35.3
14	29.7	31.7	34.5	34.1	35.8	34.7	31.2	31.4	29.6	31.0	30.3	29.7	35.8
15	29.6	31.7	34.4	34.7	36.2	35.1	32.6	31.7	29.9	31.4	30.4	29.3	36.2
16	29.5	31.5	33.9	35.0	36.0	34.8	33.1	31.4	29.9	31.7	30.5	28.2	36.0
17	27.4	30.0	34.0	34.1	36.6	34.8	33.7	31.6	29.8	30.0	28.1	27.3	36.6
18	24.1	28.7	32.2	33.5	35.7	34.1	32.0	30.9	29.5	29.8	25.1	24.0	35.7
19	21.2	24.8	27.7	32.0	34.5	33.7	31.2	29.5	28.4	28.5	21.5	19.8	34.5
20	20.0	24.2	24.5	29.7	32.4	33.1	28.7	27.7	26.4	23.2	20.6	18.6	33.1
21	18.0	22.3	24.6	27.2	28.9	29.2	26.2	25.4	23.0	21.6	21.0	17.3	29.2
22	16.8	20.2	22.1	25.5	27.5	27.8	25.3	23.3	21.5	21.2	17.9	16.8	27.8
23	15.4	18.5	21.3	24.3	27.8	26.4	23.6	22.5	21.8	21.1	17.4	16.0	27.8
Máx.	29.7	31.7	34.5	35.0	36.6	35.1	33.7	31.7	29.9	31.7	30.5	29.7	36.6

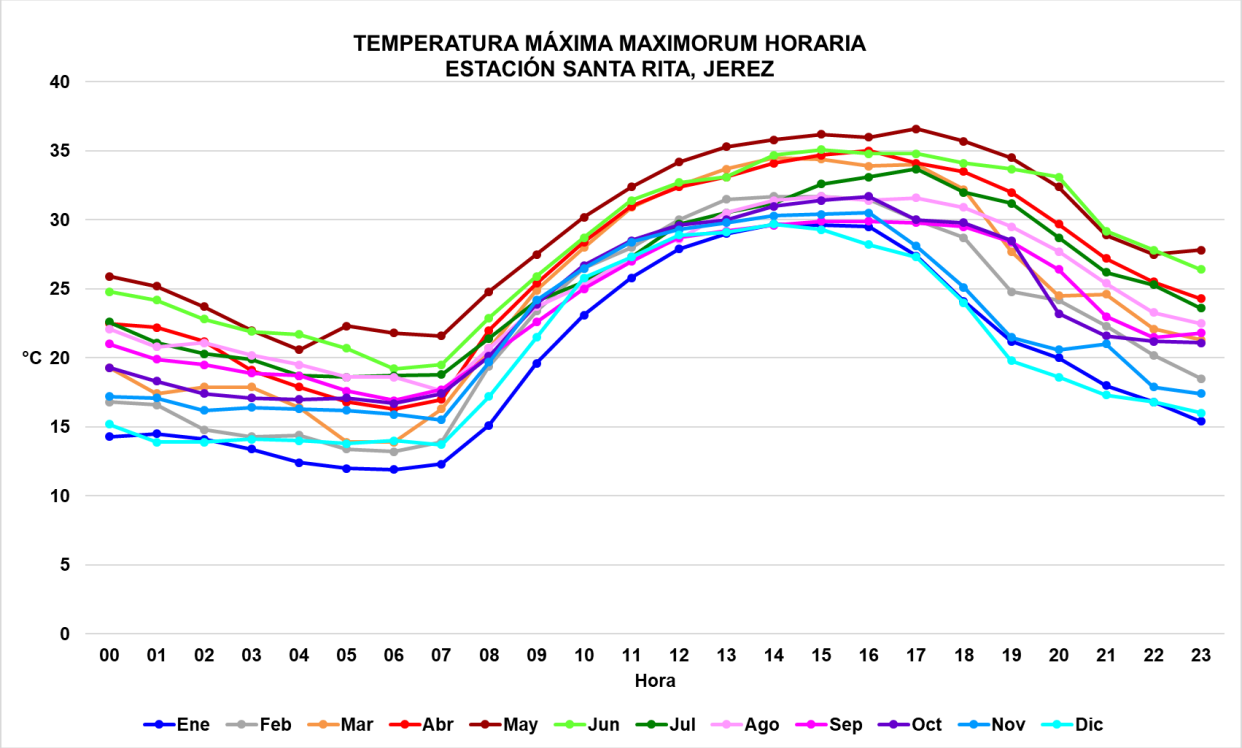


Figura 482. Temperatura máxima maximorum (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 537. Temperatura mínima media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.8	7.6	9.8	13.5	16.4	17.9	16.3	16.1	15.0	12.2	7.8	5.3	12.0
01	5.0	6.5	8.5	12.0	15.2	17.0	15.7	15.5	14.5	11.4	7.0	4.6	11.1
02	4.2	5.7	7.3	10.7	13.9	16.2	15.2	15.0	14.1	10.8	6.3	4.0	10.3
03	3.7	4.9	6.4	9.5	12.8	15.5	14.7	14.5	13.6	10.3	5.8	3.5	9.6
04	3.2	4.3	5.6	8.4	11.7	14.8	14.3	14.1	13.3	9.8	5.4	3.0	9.0
05	2.7	3.7	4.9	7.4	10.8	14.1	13.9	13.6	13.0	9.5	5.0	2.7	8.5
06	2.4	3.3	4.4	6.6	10.0	13.5	13.5	13.3	12.7	9.2	4.7	2.3	8.0
07	2.2	3.2	5.0	6.5	10.1	13.5	13.5	13.2	12.6	9.1	4.9	2.3	8.0
08	3.9	5.9	9.6	9.5	13.1	15.5	14.6	14.2	13.5	10.5	8.8	4.7	10.3
09	9.0	11.3	15.0	15.1	17.8	18.5	17.1	16.9	16.1	14.4	13.8	10.0	14.6
10	13.3	15.4	18.4	19.2	21.1	20.7	19.2	19.3	18.5	17.9	17.3	14.3	17.9
11	16.2	18.2	21.1	22.1	23.7	22.7	20.9	21.1	20.4	20.4	19.6	17.2	20.3
12	18.2	20.3	23.1	24.5	25.8	24.5	22.4	22.6	21.8	22.1	21.3	19.2	22.2
13	19.6	21.8	24.5	26.2	27.6	25.9	23.6	23.7	22.9	23.4	22.4	20.4	23.5
14	20.4	22.6	25.2	27.3	28.6	26.8	24.2	24.3	23.4	24.0	22.9	21.1	24.2
15	20.6	22.9	25.4	27.8	29.0	27.0	24.2	24.3	23.3	24.3	22.9	21.2	24.4
16	20.1	22.4	25.0	27.9	29.0	26.7	23.9	24.1	22.8	23.9	22.0	20.5	24.0
17	18.3	21.1	23.9	27.3	28.5	26.2	23.3	23.7	22.3	22.9	19.6	18.1	22.9
18	14.9	18.1	21.2	26.0	27.5	25.5	22.7	22.9	21.1	20.7	15.5	14.1	20.9
19	12.3	14.9	17.8	23.4	25.6	24.1	21.4	21.5	19.0	17.7	13.4	11.6	18.6
20	10.5	12.9	15.6	20.3	22.7	22.2	19.7	19.4	17.4	15.9	11.8	9.9	16.5
21	9.1	11.4	14.1	18.1	20.6	20.6	18.4	18.2	16.5	14.6	10.7	8.6	15.1
22	7.9	10.1	12.5	16.5	19.2	19.6	17.5	17.3	15.9	13.7	9.5	7.4	13.9
23	6.8	8.8	11.1	15.1	17.8	18.6	16.9	16.7	15.4	12.9	8.5	6.3	12.9
Media	10.4	12.4	14.8	17.5	19.9	20.3	18.6	18.5	17.5	15.9	12.8	10.5	15.8

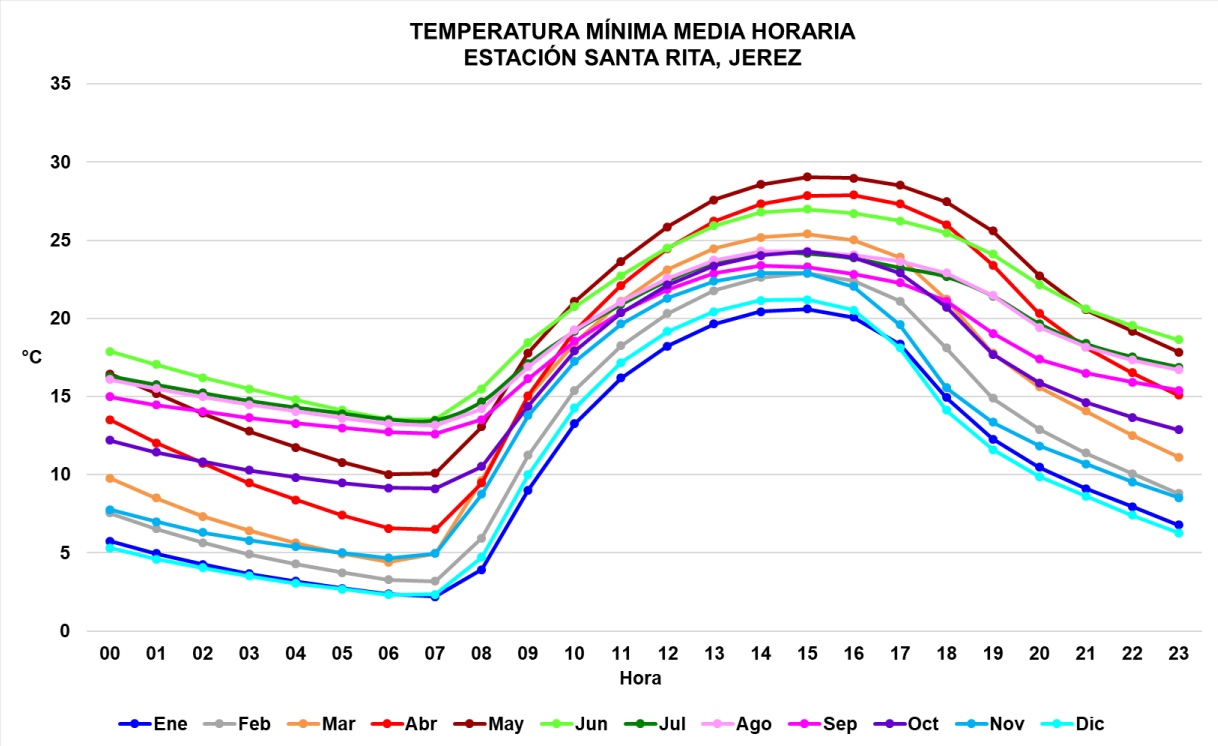


Figura 483. Temperatura mínima media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 538. Temperatura mínima minimorum (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.2	-2.1	0.8	5.0	7.6	12.3	11.2	12.3	8.8	3.7	-4.3	-4.2	-4.3
01	-5.2	-2.5	0.0	3.6	6.4	12.3	10.5	11.1	8.4	2.4	-4.4	-4.3	-5.2
02	-5.9	-4.2	-1.6	1.6	5.3	10.1	9.4	11.0	7.9	1.6	-4.8	-4.8	-5.9
03	-6.1	-4.7	-2.5	0.0	3.2	9.9	9.1	9.8	6.1	1.3	-5.8	-5.9	-6.1
04	-6.2	-5.7	-3.4	-1.2	1.6	8.5	8.5	9.4	5.9	0.0	-6.7	-5.8	-6.7
05	-6.9	-6.2	-4.8	-1.4	1.1	6.7	8.3	8.8	4.9	0.0	-9.0	-5.7	-9.0
06	-7.1	-7.4	-6.7	-1.9	0.0	5.5	8.3	7.7	4.8	-1.0	-9.0	-6.4	-9.0
07	-7.1	-7.7	-5.7	-2.3	0.5	5.0	8.4	7.7	4.4	-0.6	-8.4	-6.4	-8.4
08	-6.3	-4.8	-0.9	0.0	2.7	8.5	10.0	9.0	6.1	-0.9	-2.2	-4.5	-6.3
09	1.0	1.7	1.1	7.2	8.7	13.7	13.6	13.3	11.7	6.3	0.7	-0.6	-0.6
10	0.4	4.3	3.2	12.1	10.0	13.9	14.2	14.4	13.9	9.5	2.0	0.5	0.4
11	0.7	6.3	4.2	14.1	11.1	13.9	14.9	14.1	14.9	10.3	4.8	-0.2	-0.2
12	1.8	8.0	4.9	16.4	13.1	14.3	15.7	14.8	15.0	10.5	7.2	-0.8	-0.8
13	2.5	7.1	5.7	17.4	15.0	15.9	14.3	14.5	16.1	12.0	7.7	-0.9	-0.9
14	5.7	6.7	6.3	14.4	14.9	13.6	11.6	14.9	14.7	13.4	9.2	-0.2	-0.2
15	6.1	7.3	7.9	16.9	14.8	13.6	12.9	11.5	14.3	12.6	9.1	0.4	0.4
16	5.6	7.4	7.5	14.1	16.3	14.8	13.6	13.1	14.3	12.3	7.7	1.2	1.2
17	5.6	7.1	7.4	13.4	13.2	14.6	13.4	13.0	13.3	10.6	5.8	0.4	0.4
18	4.9	6.2	5.5	13.4	13.5	13.4	12.7	13.2	13.6	9.0	4.4	-0.4	-0.4
19	2.4	5.5	3.3	13.6	12.6	13.9	13.7	14.3	13.4	8.5	3.2	-1.0	-1.0
20	1.9	4.1	2.2	12.3	13.5	13.9	12.4	13.2	11.5	7.4	0.9	-1.9	-1.9
21	-0.3	2.3	1.7	9.5	12.0	12.0	12.6	12.5	10.4	6.4	-1.4	-2.6	-2.6
22	-1.1	0.9	1.3	7.7	11.7	12.1	12.4	12.6	8.9	4.5	-1.7	-3.5	-3.5
23	-2.9	-0.7	1.1	7.1	9.6	12.6	12.2	12.9	7.8	4.1	-3.1	-4.1	-4.1
Mín.	-7.1	-7.7	-6.7	-2.3	0.0	5.0	8.3	7.7	4.4	-1.0	-9.0	-6.4	-9.0

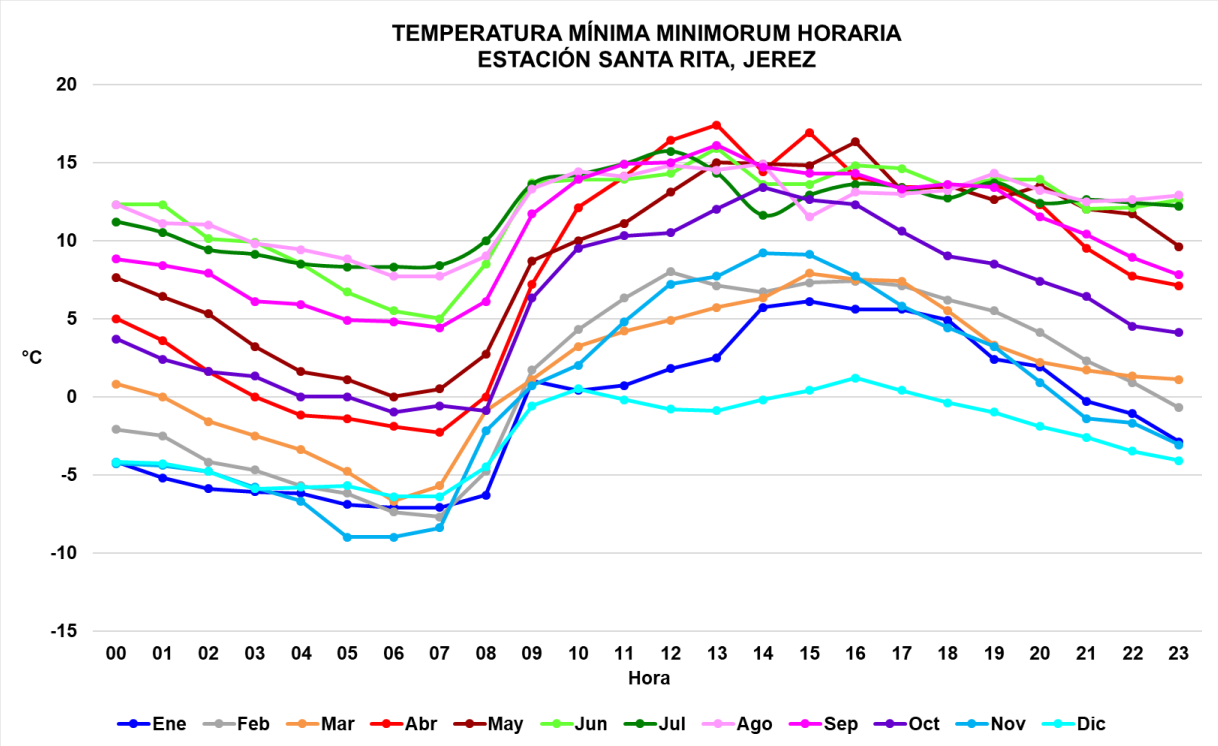


Figura 484. Temperatura mínima minimorum (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 539. Temperatura media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.4	8.2	10.5	14.3	17.2	18.3	16.7	16.5	15.4	12.7	8.3	5.9	12.5
01	5.5	7.1	9.2	12.8	15.9	17.5	16.1	15.9	14.8	11.9	7.5	5.1	11.6
02	4.8	6.2	8.0	11.4	14.6	16.7	15.6	15.3	14.4	11.3	6.8	4.5	10.8
03	4.2	5.4	7.0	10.1	13.4	15.9	15.0	14.8	13.9	10.7	6.3	4.0	10.1
04	3.6	4.8	6.2	9.0	12.3	15.2	14.6	14.4	13.6	10.2	5.8	3.5	9.4
05	3.2	4.2	5.4	8.0	11.3	14.5	14.2	13.9	13.3	9.9	5.4	3.1	8.9
06	2.8	3.7	4.9	7.1	10.5	13.9	13.8	13.6	13.0	9.5	5.1	2.8	8.4
07	2.8	4.0	6.4	7.5	11.0	14.1	13.8	13.5	13.0	9.7	6.0	3.0	8.7
08	5.8	8.0	11.8	11.6	14.9	16.7	15.6	15.2	14.5	11.9	10.7	6.7	12.0
09	10.7	13.0	16.4	16.8	19.1	19.4	17.9	17.9	17.1	15.8	15.2	11.7	15.9
10	14.5	16.5	19.5	20.3	22.1	21.5	19.9	20.0	19.3	18.9	18.2	15.5	18.9
11	17.1	19.1	21.9	23.0	24.5	23.5	21.5	21.7	21.1	21.1	20.4	18.0	21.1
12	18.9	21.0	23.8	25.2	26.6	25.2	23.0	23.2	22.4	22.8	21.9	19.8	22.8
13	20.2	22.3	25.0	26.9	28.2	26.6	24.2	24.3	23.5	23.9	22.9	20.9	24.1
14	20.9	23.0	25.7	27.9	29.1	27.4	24.8	24.9	24.0	24.6	23.3	21.6	24.8
15	21.0	23.3	25.8	28.3	29.6	27.7	24.9	25.0	24.0	24.8	23.3	21.6	24.9
16	20.6	22.9	25.4	28.3	29.5	27.4	24.6	24.8	23.6	24.5	22.6	21.0	24.6
17	19.2	21.8	24.5	27.8	29.1	26.9	24.0	24.4	23.0	23.6	20.7	19.2	23.7
18	16.3	19.4	22.4	26.7	28.1	26.1	23.3	23.6	21.9	21.8	17.0	15.5	21.9
19	13.2	16.0	18.9	24.5	26.5	24.8	22.2	22.2	19.9	18.9	14.2	12.6	19.5
20	11.3	13.7	16.5	21.4	23.9	23.0	20.4	20.2	18.0	16.6	12.6	10.7	17.4
21	9.9	12.2	14.9	19.0	21.4	21.2	18.9	18.7	17.0	15.2	11.4	9.3	15.8
22	8.6	10.8	13.4	17.3	19.9	20.1	18.0	17.8	16.3	14.3	10.2	8.1	14.6
23	7.4	9.5	11.9	15.9	18.5	19.1	17.3	17.1	15.8	13.4	9.1	6.9	13.5
Media	11.2	13.2	15.6	18.4	20.7	20.9	19.2	19.1	18.0	16.6	13.5	11.3	16.5

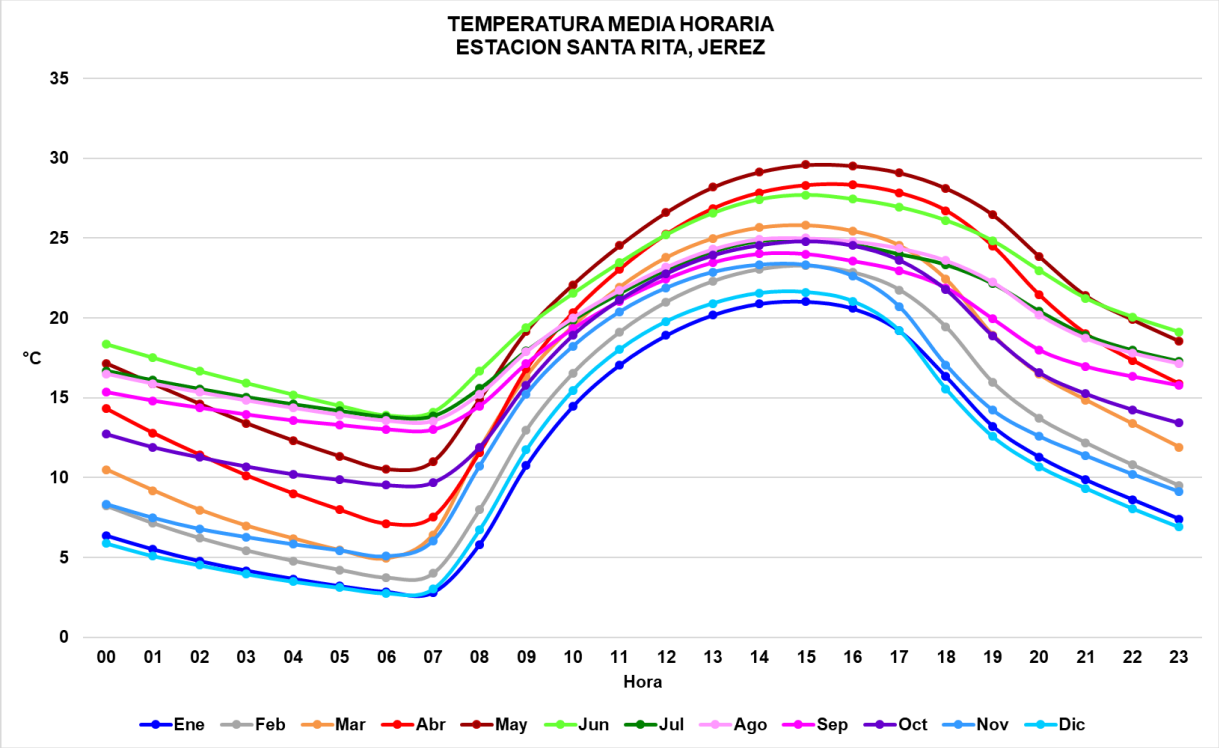


Figura 485. Temperatura media (˚C) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 540. Precipitación media (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.9	0.5	0.2	0.0	0.6	3.3	4.3	4.4	6.7	0.9	0.6	0.9	23.3
01	0.6	0.8	0.1	0.0	0.4	2.9	2.9	2.6	5.7	1.2	0.3	1.0	18.3
02	0.5	0.6	0.4	0.0	0.3	3.0	3.3	2.5	4.8	1.2	0.4	0.7	17.6
03	0.8	0.9	0.2	0.0	0.1	3.6	2.9	1.2	6.0	1.6	0.2	0.7	18.3
04	0.6	0.8	0.1	0.0	0.1	2.0	2.7	3.1	3.0	1.4	0.1	0.5	14.4
05	0.6	0.4	0.1	0.0	0.1	1.7	1.2	1.7	1.9	1.5	0.1	0.5	9.9
06	0.4	0.3	0.1	0.0	0.0	1.6	1.0	1.3	1.5	1.4	0.2	0.8	8.6
07	0.6	0.2	0.2	0.0	0.0	0.6	0.7	1.0	1.0	1.8	0.3	0.7	7.2
08	0.5	0.6	0.2	0.0	0.0	0.6	0.4	0.6	0.4	0.5	0.3	0.7	4.9
09	0.3	0.7	0.2	0.0	0.0	0.7	0.1	0.5	0.3	0.3	0.2	0.6	3.9
10	0.2	0.4	0.1	0.0	0.1	1.1	0.3	0.2	0.3	0.5	0.2	0.3	3.6
11	0.2	0.7	0.1	0.0	0.1	0.4	0.6	1.3	0.1	0.6	0.5	0.5	5.1
12	0.1	0.8	0.0	0.0	0.0	0.0	0.4	1.8	0.3	0.7	0.8	0.6	5.6
13	0.6	0.8	0.1	0.0	0.1	0.6	1.4	0.6	0.2	1.2	1.0	0.8	7.4
14	0.4	0.8	0.2	0.4	0.4	1.2	4.5	5.0	1.4	1.2	0.6	0.4	16.6
15	1.3	0.8	0.4	0.1	0.6	6.7	6.4	12.6	5.5	1.1	1.3	0.4	37.1
16	0.9	0.7	0.3	0.6	0.4	4.4	8.7	6.6	8.2	3.3	0.7	0.8	35.5
17	0.7	1.0	0.4	0.0	1.0	4.4	10.4	7.1	5.4	2.5	0.7	0.7	34.4
18	0.6	1.1	0.3	0.1	0.9	5.5	8.5	5.6	4.8	2.5	0.9	0.4	31.2
19	0.6	0.8	0.7	0.0	1.1	3.6	7.4	4.1	5.7	1.3	1.0	0.6	26.8
20	0.7	0.6	0.6	0.3	0.1	6.3	11.4	6.3	5.9	2.4	0.9	0.6	36.0
21	0.9	1.2	1.0	0.1	1.4	5.7	7.8	7.8	8.5	1.6	0.7	0.4	37.1
22	0.7	1.3	1.1	0.1	0.9	4.8	9.7	6.5	6.1	2.8	0.4	0.6	34.9
23	0.5	0.8	0.6	0.0	0.7	4.8	5.0	5.0	5.1	1.2	0.3	0.5	24.5
Suma	14.2	17.6	7.6	1.7	9.4	69.6	102.2	89.3	88.9	34.6	12.5	14.5	462.1

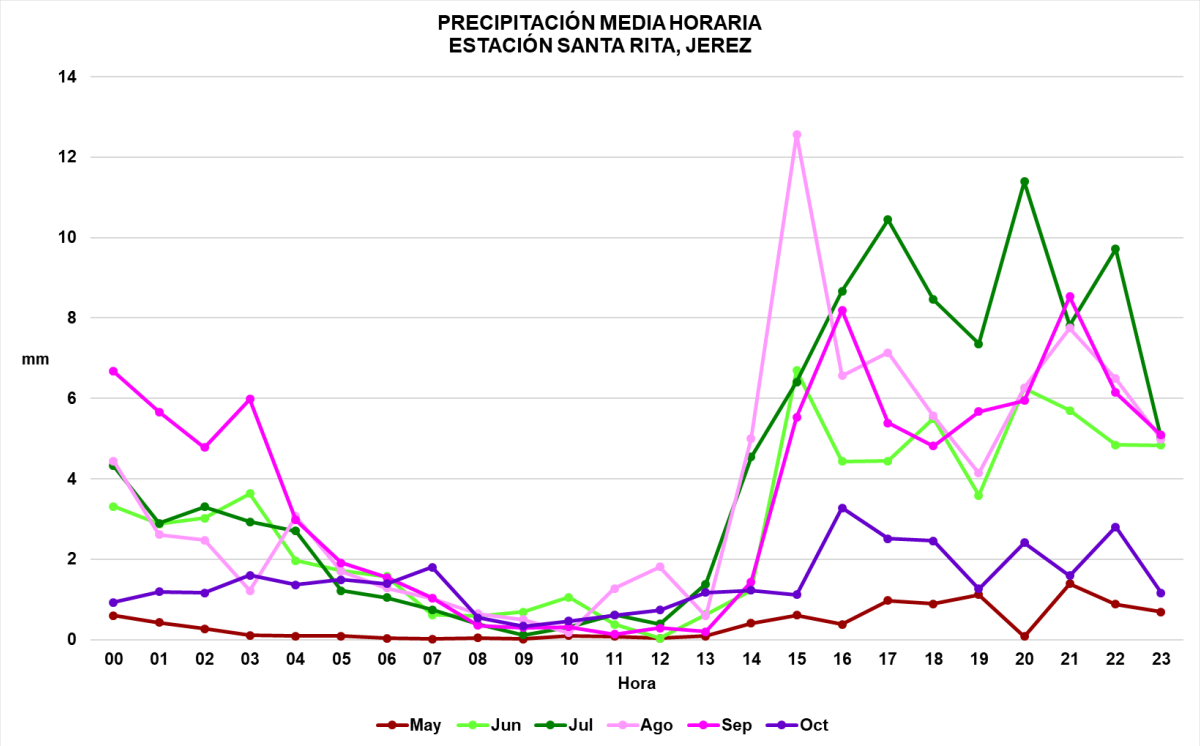


Figura 486. Precipitación media (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 541. Precipitación máxima (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.4	2.6	1.3	0.0	4.4	11.6	16.2	12.1	14.0	4.0	4.1	4.9	16.2
01	5.2	8.8	0.6	0.0	2.0	6.8	5.6	5.3	16.2	6.5	1.2	4.2	16.2
02	3.1	3.6	2.5	0.0	3.0	7.2	8.0	13.0	12.6	4.4	2.4	7.2	13.0
03	7.6	2.5	1.6	0.0	0.7	18.1	13.5	5.0	24.6	6.0	0.9	5.4	24.6
04	3.8	3.0	2.4	0.0	1.8	9.1	11.5	19.1	6.9	7.4	0.3	3.4	19.1
05	3.0	1.8	1.0	0.0	1.7	6.5	3.8	13.5	4.9	9.0	0.8	3.9	13.5
06	2.2	1.4	2.0	0.0	0.8	5.8	5.6	5.4	11.0	6.2	2.0	4.5	11.0
07	2.0	0.8	2.0	0.0	0.2	3.8	3.4	7.6	4.0	18.2	2.0	3.5	18.2
08	3.0	3.0	4.0	0.0	0.9	7.2	1.6	5.7	1.9	3.2	3.4	4.5	7.2
09	2.2	3.6	2.0	0.0	0.4	8.0	0.6	4.6	2.0	3.4	1.2	4.9	8.0
10	1.2	2.9	1.1	0.0	1.0	9.4	3.4	2.0	4.4	3.5	1.8	1.6	9.4
11	1.8	6.9	2.4	0.0	1.6	3.3	5.6	16.0	2.6	3.4	3.5	2.1	16.0
12	0.9	5.3	0.4	0.0	0.6	0.3	3.2	25.0	3.6	10.0	5.0	3.7	25.0
13	6.0	4.4	0.6	0.2	1.2	10.7	9.4	6.0	2.0	13.0	6.0	8.1	13.0
14	2.6	3.4	1.9	6.0	5.0	6.9	21.0	17.0	8.3	6.2	4.3	1.8	21.0
15	8.0	3.2	5.7	1.3	4.8	23.6	21.0	23.3	39.4	5.2	5.4	1.5	39.4
16	12.0	2.7	6.2	4.0	1.9	11.0	18.2	15.6	21.1	18.4	4.4	5.5	21.1
17	3.4	5.3	5.1	0.4	9.4	18.0	19.8	23.0	23.0	12.8	2.0	3.0	23.0
18	3.6	5.2	3.1	2.8	5.0	23.0	52.0	17.4	14.5	8.4	5.2	3.2	52.0
19	2.4	4.4	5.2	0.2	7.0	7.0	20.0	12.0	18.0	7.0	8.6	4.4	20.0
20	5.0	3.2	8.2	2.2	0.5	21.7	17.0	20.0	22.4	18.4	6.0	5.2	22.4
21	4.0	5.2	15.0	1.0	12.8	11.6	11.2	25.1	31.2	4.9	3.2	2.0	31.2
22	4.0	9.3	13.0	0.8	9.7	15.4	40.0	13.2	20.6	13.0	3.2	4.0	40.0
23	2.4	3.8	5.0	0.0	3.9	28.8	9.7	15.1	24.0	6.3	1.3	3.2	28.8
Máx.	12.0	9.3	15.0	6.0	12.8	28.8	52.0	25.1	39.4	18.4	8.6	8.1	52.0

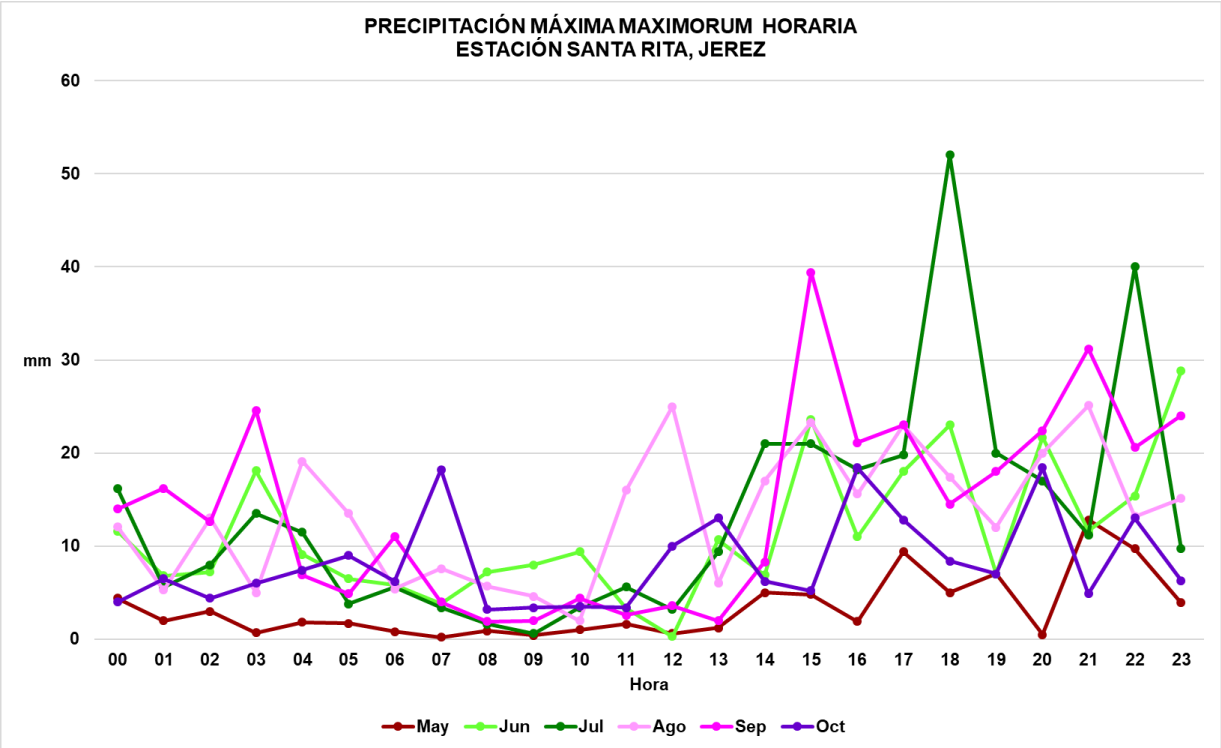


Figura 487. Precipitación máxima (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 542. Evapotranspiración potencial media (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.01	0.01	0.02	0.02	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.01
01	0.00	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
02	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.03	0.07	0.04	0.04	0.04	0.02	0.02	0.01	0.02	0.05	0.02	0.03
09	0.09	0.13	0.21	0.15	0.17	0.15	0.11	0.10	0.09	0.10	0.16	0.10	0.13
10	0.20	0.27	0.36	0.31	0.33	0.29	0.24	0.24	0.22	0.23	0.28	0.22	0.27
11	0.32	0.40	0.50	0.47	0.49	0.43	0.38	0.39	0.35	0.37	0.39	0.33	0.40
12	0.41	0.50	0.61	0.61	0.62	0.55	0.49	0.51	0.46	0.48	0.47	0.41	0.51
13	0.46	0.56	0.66	0.70	0.71	0.63	0.57	0.58	0.52	0.54	0.49	0.45	0.57
14	0.47	0.56	0.65	0.73	0.72	0.64	0.59	0.59	0.53	0.55	0.47	0.44	0.58
15	0.42	0.51	0.59	0.71	0.69	0.62	0.54	0.55	0.48	0.51	0.40	0.38	0.53
16	0.34	0.42	0.49	0.63	0.61	0.54	0.46	0.47	0.40	0.42	0.29	0.29	0.45
17	0.23	0.30	0.36	0.51	0.49	0.44	0.36	0.37	0.31	0.30	0.16	0.17	0.33
18	0.12	0.15	0.21	0.37	0.37	0.32	0.26	0.27	0.20	0.20	0.08	0.09	0.22
19	0.06	0.09	0.12	0.30	0.26	0.20	0.16	0.19	0.13	0.09	0.03	0.03	0.14
20	0.02	0.03	0.06	0.16	0.17	0.16	0.11	0.09	0.03	0.03	0.01	0.01	0.07
21	0.01	0.01	0.02	0.08	0.08	0.08	0.04	0.04	0.01	0.01	0.01	0.01	0.03
22	0.01	0.01	0.02	0.03	0.04	0.05	0.02	0.02	0.00	0.01	0.01	0.00	0.02
23	0.01	0.01	0.02	0.02	0.03	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Media/día	3.18	4.03	4.99	5.89	5.89	5.25	4.40	4.46	3.75	3.85	3.30	2.97	4.33

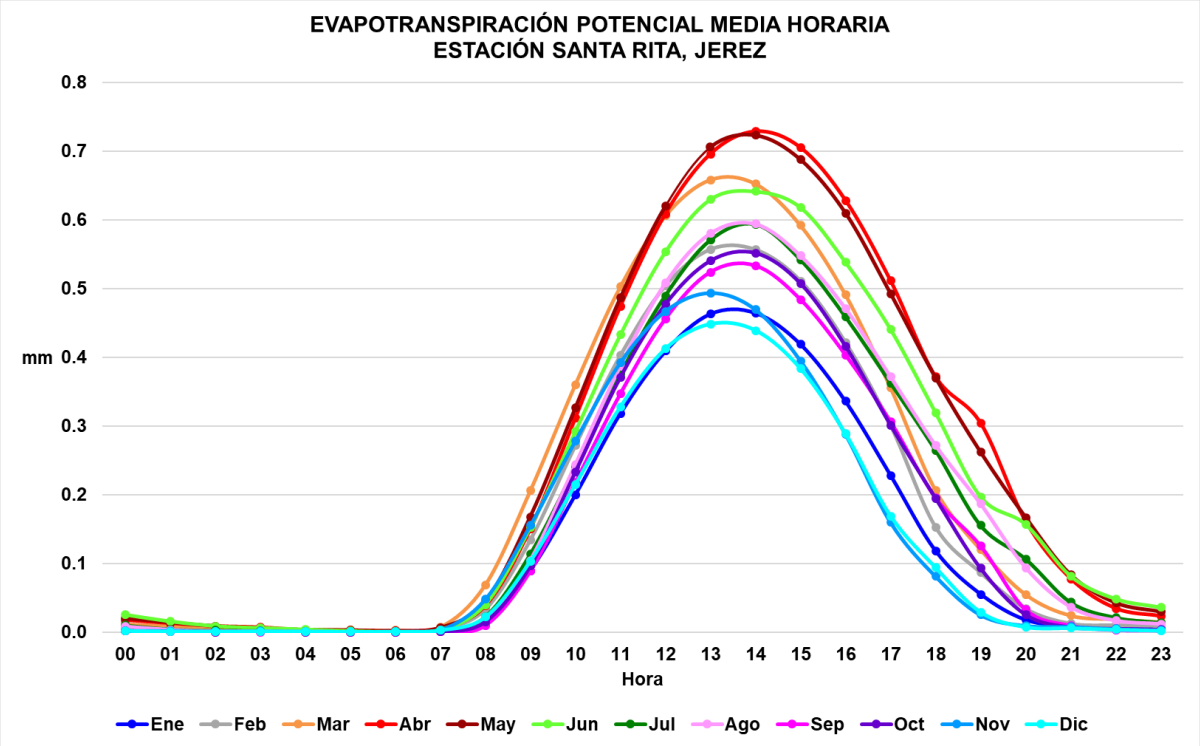


Figura 488. Evapotranspiración potencial media (mm) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 543. Humedad relativa media (%) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	64.1	56.1	43.4	35.1	41.2	62.5	79.9	81.0	87.3	80.5	74.0	68.2	64.4
01	67.5	60.1	47.6	39.4	45.0	66.1	82.9	83.7	89.4	83.7	77.4	71.4	67.8
02	70.4	63.8	51.6	43.6	49.3	69.7	85.3	86.1	91.0	86.2	80.1	73.8	70.9
03	72.8	66.9	55.3	47.5	53.5	72.9	87.3	88.3	92.5	88.1	82.0	76.0	73.6
04	74.8	69.8	58.6	51.5	57.5	76.0	89.1	89.9	93.5	89.7	83.7	77.9	76.0
05	76.5	72.0	61.5	55.3	61.4	78.9	90.6	91.4	94.2	90.7	85.1	79.4	78.1
06	78.1	74.2	64.0	58.7	64.6	81.2	91.7	92.4	94.7	91.9	86.5	80.8	79.9
07	78.8	74.0	60.4	58.1	63.8	80.7	91.5	92.6	94.6	91.3	83.9	80.6	79.2
08	70.2	62.4	46.3	48.1	53.3	71.9	84.8	86.7	90.2	84.7	69.3	69.7	69.8
09	55.2	47.7	35.4	35.7	42.1	61.8	74.2	75.3	79.3	70.7	54.3	54.7	57.2
10	44.1	37.7	27.9	27.6	33.8	53.5	65.3	65.5	69.0	58.4	44.4	43.7	47.6
11	36.3	30.6	22.4	21.5	27.0	45.9	58.0	58.1	61.4	49.8	37.2	36.0	40.4
12	30.8	26.0	18.7	17.4	21.9	39.3	51.8	52.1	55.8	43.5	32.3	30.7	35.0
13	27.1	23.0	16.5	14.9	18.4	34.4	47.0	47.4	51.6	39.0	29.2	27.3	31.3
14	25.1	21.1	15.3	13.5	16.6	31.3	44.5	44.9	49.4	36.5	27.7	25.2	29.2
15	24.4	20.3	14.8	12.8	16.0	30.5	44.2	45.0	49.5	35.4	27.2	24.4	28.7
16	24.7	20.6	14.9	12.6	15.9	31.5	45.5	45.8	51.4	35.9	28.1	25.0	29.3
17	27.0	21.9	15.6	12.8	16.4	33.3	48.2	47.4	53.7	38.4	32.2	28.3	31.3
18	32.7	25.4	17.9	13.6	17.8	35.7	50.7	50.1	58.0	44.3	41.6	36.1	35.3
19	40.2	31.7	22.6	15.7	20.1	39.3	55.2	55.3	66.5	54.7	50.1	44.0	41.3
20	46.2	37.0	27.2	19.2	24.1	45.1	62.7	64.0	75.7	63.6	56.2	50.1	47.6
21	51.1	41.7	31.1	23.2	29.2	50.9	69.3	70.8	80.3	69.3	61.2	55.0	52.8
22	55.7	46.3	35.0	27.0	33.7	55.3	73.6	75.2	83.0	73.5	66.0	59.8	57.0
23	60.0	50.9	39.2	30.8	37.9	59.9	77.0	78.2	85.2	76.9	70.3	64.3	60.9
Media	51.4	45.0	35.1	30.7	35.8	54.5	68.8	69.5	74.9	65.7	57.5	53.4	53.5

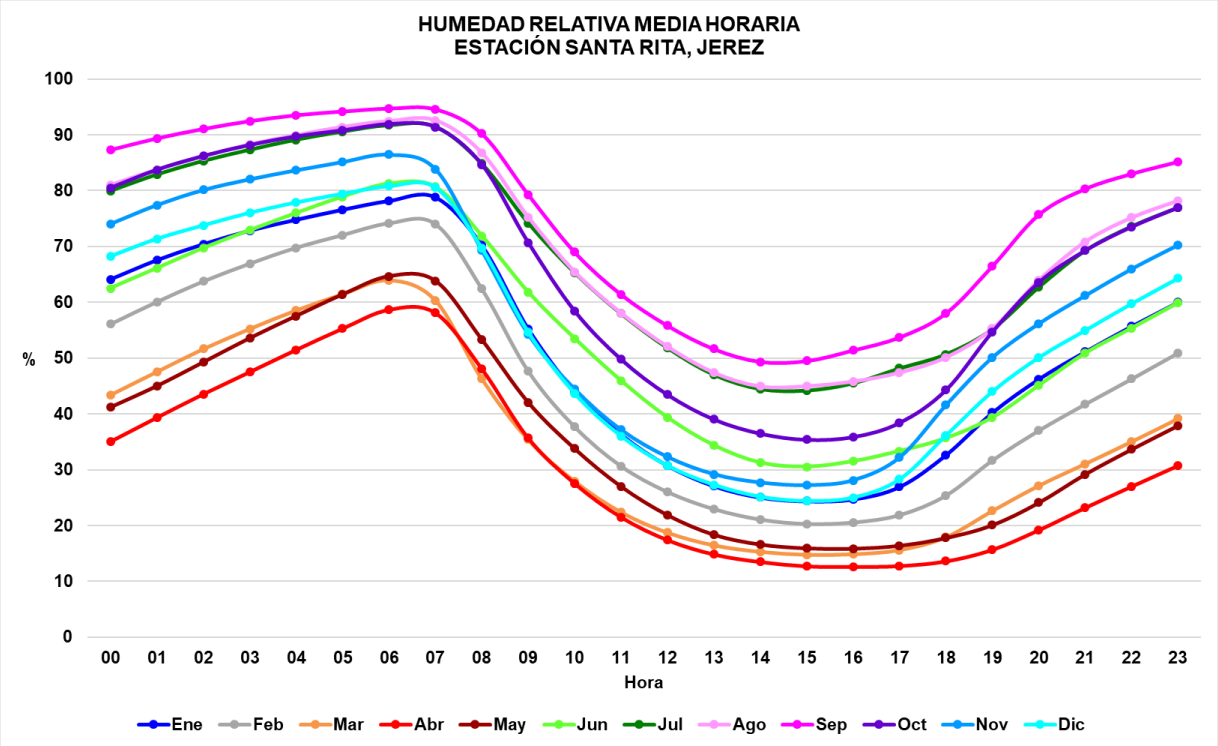


Figura 489. Humedad relativa media (%) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 544. Humedad relativa mínima minimorum (%) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	19.0	15.0	10.0	10.6	10.0	11.0	32.0	33.0	41.3	30.0	18.0	19.0	10.0
01	18.0	14.0	11.0	11.9	13.0	20.0	41.0	38.0	39.0	31.0	19.0	18.0	11.0
02	21.0	15.0	11.8	10.0	12.0	23.0	48.0	43.5	44.0	32.0	23.0	19.0	10.0
03	24.0	14.0	13.0	9.0	13.0	17.0	44.0	48.0	51.0	31.0	22.0	19.0	9.0
04	24.0	19.0	13.0	14.0	15.0	16.0	46.0	52.0	66.0	33.0	24.0	21.0	13.0
05	22.0	17.0	11.0	14.0	18.0	16.0	57.0	60.0	59.0	33.0	22.0	20.0	11.0
06	26.0	16.0	13.0	15.0	20.0	27.0	58.0	54.0	60.5	33.0	24.0	23.0	13.0
07	26.0	18.0	11.0	14.7	19.0	32.0	59.6	47.0	55.1	27.0	26.0	21.0	11.0
08	17.0	16.0	10.0	12.4	12.0	26.0	46.0	45.3	41.0	19.0	15.0	16.0	10.0
09	11.6	12.0	7.4	8.5	10.0	15.0	31.0	32.1	31.0	17.0	9.0	9.0	7.4
10	7.0	7.0	4.9	8.0	7.0	12.0	24.0	28.0	31.0	14.0	7.0	8.0	4.9
11	5.0	7.0	4.6	6.0	5.5	10.0	19.6	25.6	23.3	11.0	6.0	6.0	4.6
12	5.0	6.0	3.8	4.0	5.0	7.0	17.7	22.3	20.8	10.0	5.0	4.0	3.8
13	4.0	5.0	3.0	3.0	5.0	4.0	13.8	20.5	19.2	9.0	4.0	3.0	3.0
14	3.0	5.0	3.0	3.0	5.0	4.0	14.0	18.8	17.6	9.0	4.0	3.0	3.0
15	3.0	4.0	4.0	3.0	4.6	5.0	11.0	18.7	17.0	8.0	4.0	4.0	3.0
16	4.0	4.0	3.0	3.0	3.3	5.0	13.0	17.0	18.0	8.0	4.0	4.0	3.0
17	4.0	5.0	3.0	2.0	3.5	4.0	13.0	16.0	17.0	8.0	4.0	5.0	2.0
18	5.0	6.0	4.0	3.0	4.0	4.0	12.0	15.0	16.0	10.0	7.0	7.0	3.0
19	6.0	8.0	5.0	3.0	4.0	4.0	13.0	16.0	20.2	13.0	11.0	10.0	3.0
20	10.0	10.0	5.0	5.0	5.0	4.0	14.0	19.0	31.0	15.0	13.0	12.0	4.0
21	12.0	12.0	7.0	8.0	7.0	8.0	18.0	24.0	25.0	23.0	15.0	12.0	7.0
22	12.0	13.0	7.0	9.0	9.0	9.0	24.0	22.0	26.0	23.9	19.0	12.0	7.0
23	16.0	13.0	8.0	9.0	9.0	9.0	29.0	27.0	32.0	23.7	17.0	17.0	8.0
Mín.	3.0	4.0	3.0	2.0	3.3	4.0	11.0	15.0	16.0	8.0	4.0	3.0	2.0

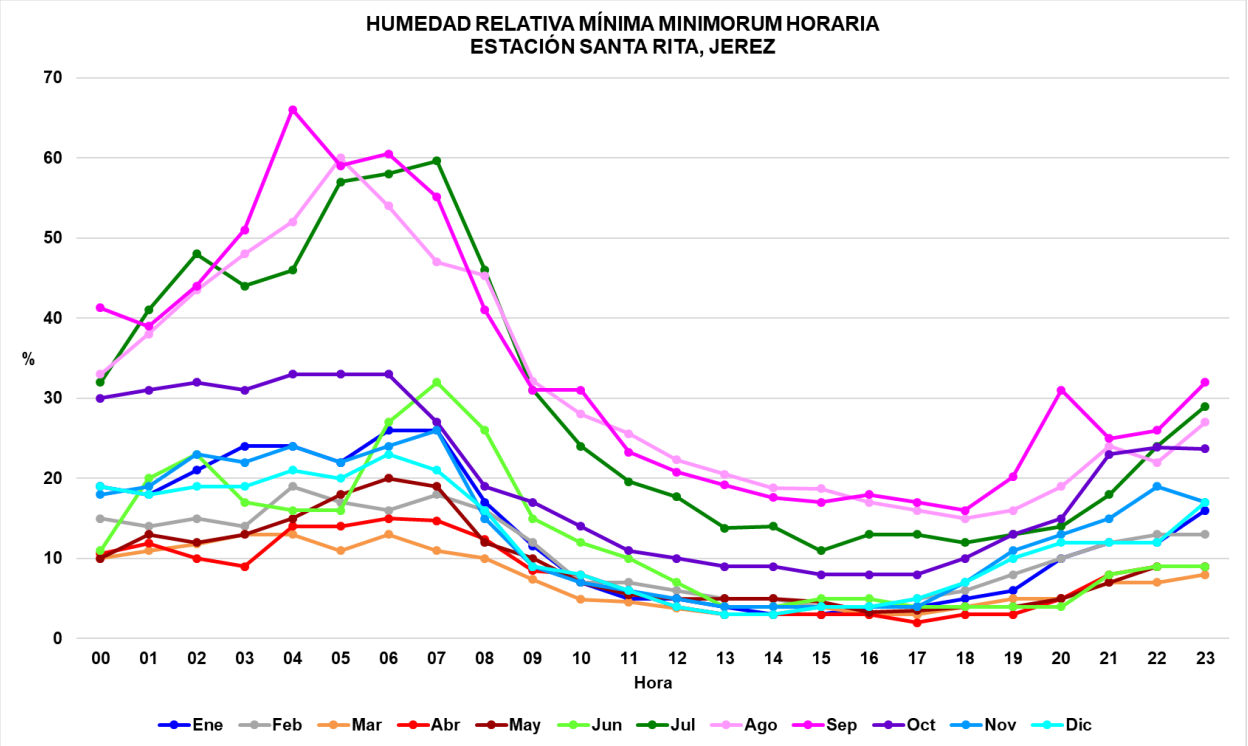


Figura 490. Humedad relativa mínima minimorum (%) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 545. Radiación solar global media horaria (W/m2) de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	12	5	8	7	6	3	1	3	5	1	4
07	55	99	260	148	169	148	117	86	64	78	189	77	124
08	528	675	1042	732	771	694	606	534	472	502	820	545	660
09	1321	1562	1965	1620	1657	1504	1363	1309	1222	1276	1592	1288	1473
10	2044	2344	2774	2499	2527	2311	2172	2130	2001	2084	2276	1978	2262
11	2594	2940	3357	3220	3260	2995	2859	2843	2651	2737	2759	2480	2891
12	2882	3248	3658	3705	3737	3470	3319	3299	3085	3138	2965	2718	3269
13	2865	3231	3627	3851	3863	3533	3449	3391	3171	3218	2846	2689	3311
14	2556	2948	3290	3681	3626	3308	3210	3145	2932	2975	2478	2390	3045
15	2025	2412	2706	3257	3173	2854	2709	2641	2426	2517	1892	1847	2538
16	1331	1672	1912	2624	2538	2274	2150	2082	1911	1864	1159	1191	1892
17	591	865	1061	1818	1832	1652	1532	1512	1292	1127	446	489	1185
18	74	179	307	1009	1062	989	962	890	649	454	85	91	563
19	1	1	8	313	401	399	379	327	165	78	19	14	175
20	0	0	0	17	41	55	53	31	9	4	1	0	18
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18867	22178	25977	28499	28664	26194	24885	24222	22050	22056	19533	17799	23410

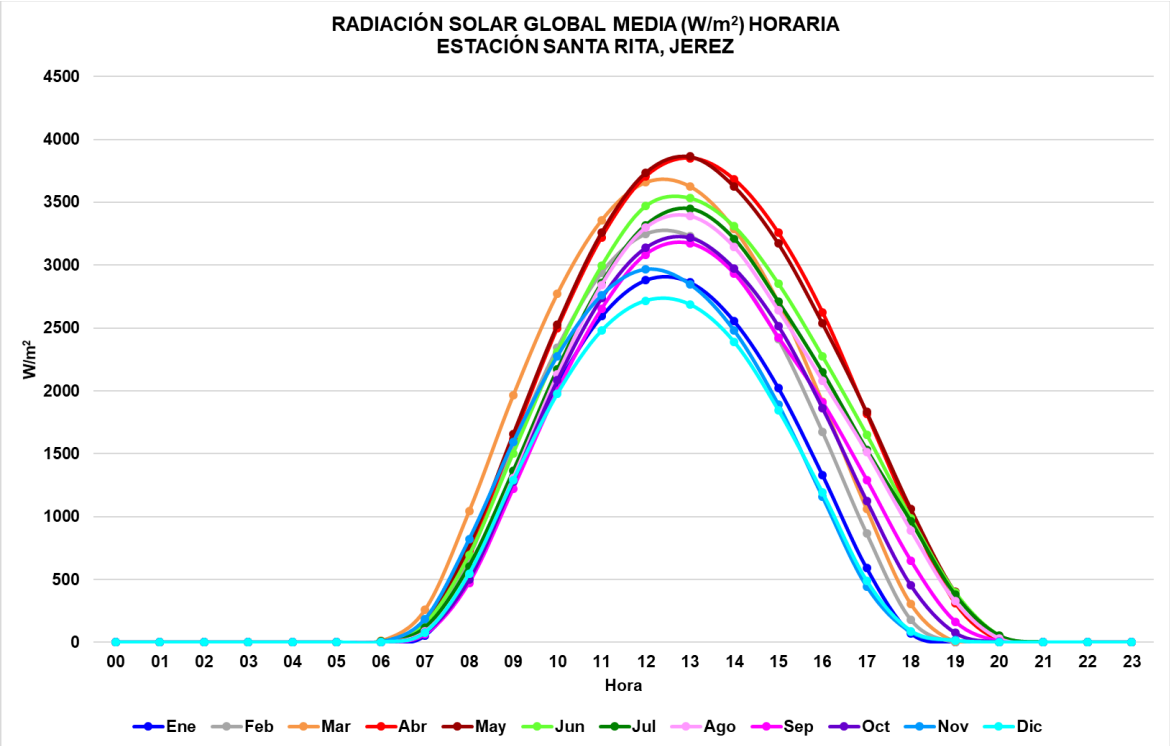


Figura 491. Radiación solar global media horaria (W/m2) de la estación Santa Rita, Jerez (2002-2022).

Cuadro 546. Radiación solar global media horaria (kWh/m2) de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.07	0.04	0.04	0.04	0.03	0.02	0.02	0.02	0.05	0.02	0.03
08	0.13	0.17	0.26	0.18	0.19	0.17	0.15	0.13	0.12	0.13	0.21	0.14	0.17
09	0.33	0.39	0.49	0.40	0.41	0.38	0.34	0.33	0.31	0.32	0.40	0.32	0.37
10	0.51	0.59	0.69	0.62	0.63	0.58	0.54	0.53	0.50	0.52	0.57	0.49	0.57
11	0.65	0.73	0.84	0.81	0.81	0.75	0.71	0.71	0.66	0.68	0.69	0.62	0.72
12	0.72	0.81	0.91	0.93	0.93	0.87	0.83	0.82	0.77	0.78	0.74	0.68	0.82
13	0.72	0.81	0.91	0.96	0.97	0.88	0.86	0.85	0.79	0.80	0.71	0.67	0.83
14	0.64	0.74	0.82	0.92	0.91	0.83	0.80	0.79	0.73	0.74	0.62	0.60	0.76
15	0.51	0.60	0.68	0.81	0.79	0.71	0.68	0.66	0.61	0.63	0.47	0.46	0.63
16	0.33	0.42	0.48	0.66	0.63	0.57	0.54	0.52	0.48	0.47	0.29	0.30	0.47
17	0.15	0.22	0.27	0.45	0.46	0.41	0.38	0.38	0.32	0.28	0.11	0.12	0.30
18	0.02	0.04	0.08	0.25	0.27	0.25	0.24	0.22	0.16	0.11	0.02	0.02	0.14
19	0.00	0.00	0.00	0.08	0.10	0.10	0.09	0.08	0.04	0.02	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.72	5.54	6.49	7.12	7.17	6.55	6.22	6.06	5.51	5.51	4.88	4.45	5.85

Cuadro 547. Radiación solar global media horaria (Mj/m2/s) de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
07	0.05	0.09	0.23	0.13	0.15	0.13	0.11	0.08	0.06	0.07	0.17	0.07	0.11
08	0.48	0.61	0.94	0.66	0.69	0.62	0.55	0.48	0.42	0.45	0.74	0.49	0.59
09	1.19	1.41	1.77	1.46	1.49	1.35	1.23	1.18	1.10	1.15	1.43	1.16	1.33
10	1.84	2.11	2.50	2.25	2.27	2.08	1.95	1.92	1.80	1.88	2.05	1.78	2.04
11	2.33	2.65	3.02	2.90	2.93	2.70	2.57	2.56	2.39	2.46	2.48	2.23	2.60
12	2.59	2.92	3.29	3.33	3.36	3.12	2.99	2.97	2.78	2.82	2.67	2.45	2.94
13	2.58	2.91	3.26	3.47	3.48	3.18	3.10	3.05	2.85	2.90	2.56	2.42	2.98
14	2.30	2.65	2.96	3.31	3.26	2.98	2.89	2.83	2.64	2.68	2.23	2.15	2.74
15	1.82	2.17	2.44	2.93	2.86	2.57	2.44	2.38	2.18	2.27	1.70	1.66	2.28
16	1.20	1.51	1.72	2.36	2.28	2.05	1.93	1.87	1.72	1.68	1.04	1.07	1.70
17	0.53	0.78	0.95	1.64	1.65	1.49	1.38	1.36	1.16	1.01	0.40	0.44	1.07
18	0.07	0.16	0.28	0.91	0.96	0.89	0.87	0.80	0.58	0.41	0.08	0.08	0.51
19	0.00	0.00	0.01	0.28	0.36	0.36	0.34	0.29	0.15	0.07	0.02	0.01	0.16
20	0.00	0.00	0.00	0.02	0.04	0.05	0.05	0.03	0.01	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.98	19.96	23.38	25.65	25.80	23.57	22.40	21.80	19.84	19.85	17.58	16.02	21.07

Cuadro 548. Velocidad del viento media (km/h) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.6	3.0	3.5	3.5	3.7	4.6	3.2	2.6	2.0	1.7	2.0	2.2	2.9
01	2.4	2.8	3.1	3.0	3.2	3.8	2.7	1.9	1.7	1.6	2.1	2.1	2.5
02	2.4	2.7	2.6	2.6	2.7	3.3	2.7	1.9	1.5	1.6	2.0	2.3	2.4
03	2.3	2.5	2.6	2.2	2.3	2.9	2.3	1.7	1.4	1.6	2.0	2.2	2.2
04	2.2	2.5	2.5	2.0	2.0	2.4	1.9	1.6	1.4	1.5	1.9	2.1	2.0
05	2.2	2.4	2.4	1.8	1.8	2.0	1.7	1.5	1.4	1.5	2.0	2.1	1.9
06	2.2	2.3	2.3	1.6	1.7	1.7	1.5	1.4	1.4	1.5	2.0	2.1	1.8
07	2.3	2.2	2.3	1.6	1.7	1.7	1.6	1.4	1.5	1.7	2.2	2.2	1.9
08	2.6	3.0	3.4	2.0	2.1	2.6	2.3	2.0	2.1	2.3	3.2	2.7	2.5
09	4.0	4.5	4.9	3.2	3.1	3.5	2.9	3.0	3.3	3.2	3.9	3.6	3.6
10	5.4	6.6	7.6	5.6	4.9	4.5	3.5	3.8	4.2	4.1	5.3	5.0	5.0
11	7.4	9.3	9.8	8.0	6.3	5.5	4.2	4.5	5.1	5.4	6.8	7.1	6.6
12	9.2	11.2	11.7	9.9	7.7	6.6	5.1	5.4	5.9	6.6	7.8	8.7	8.0
13	10.4	12.4	13.1	11.6	9.2	8.0	6.2	6.3	6.5	7.3	8.5	9.7	9.1
14	11.1	13.3	13.8	12.9	10.3	9.4	7.5	7.5	7.1	7.8	8.7	10.2	10.0
15	11.4	13.6	14.4	13.8	11.0	10.5	8.6	8.2	7.6	7.9	8.7	10.2	10.5
16	11.0	13.4	14.2	13.9	11.4	10.9	9.3	8.5	7.7	7.8	8.3	9.7	10.5
17	9.9	12.4	13.4	13.8	11.5	10.9	9.1	8.3	7.3	7.4	7.0	8.1	9.9
18	6.7	9.5	11.0	13.0	11.1	10.7	8.8	7.8	6.4	6.0	4.0	4.5	8.3
19	3.9	5.3	6.9	11.0	9.8	10.1	7.8	6.5	4.3	4.0	3.1	2.8	6.3
20	3.1	3.7	5.0	7.4	7.6	8.5	6.3	4.9	2.8	3.0	2.9	2.6	4.8
21	3.0	3.4	4.3	5.2	5.9	6.8	5.2	4.0	2.6	2.6	2.5	2.4	4.0
22	2.9	3.3	3.9	4.3	5.3	6.4	4.7	3.7	2.5	2.2	2.2	2.3	3.7
23	2.8	3.2	3.6	3.9	4.3	5.6	4.1	3.2	2.3	2.0	2.0	2.2	3.3
Media	5.1	6.2	6.8	6.6	5.9	6.0	4.7	4.2	3.8	3.8	4.2	4.5	5.1

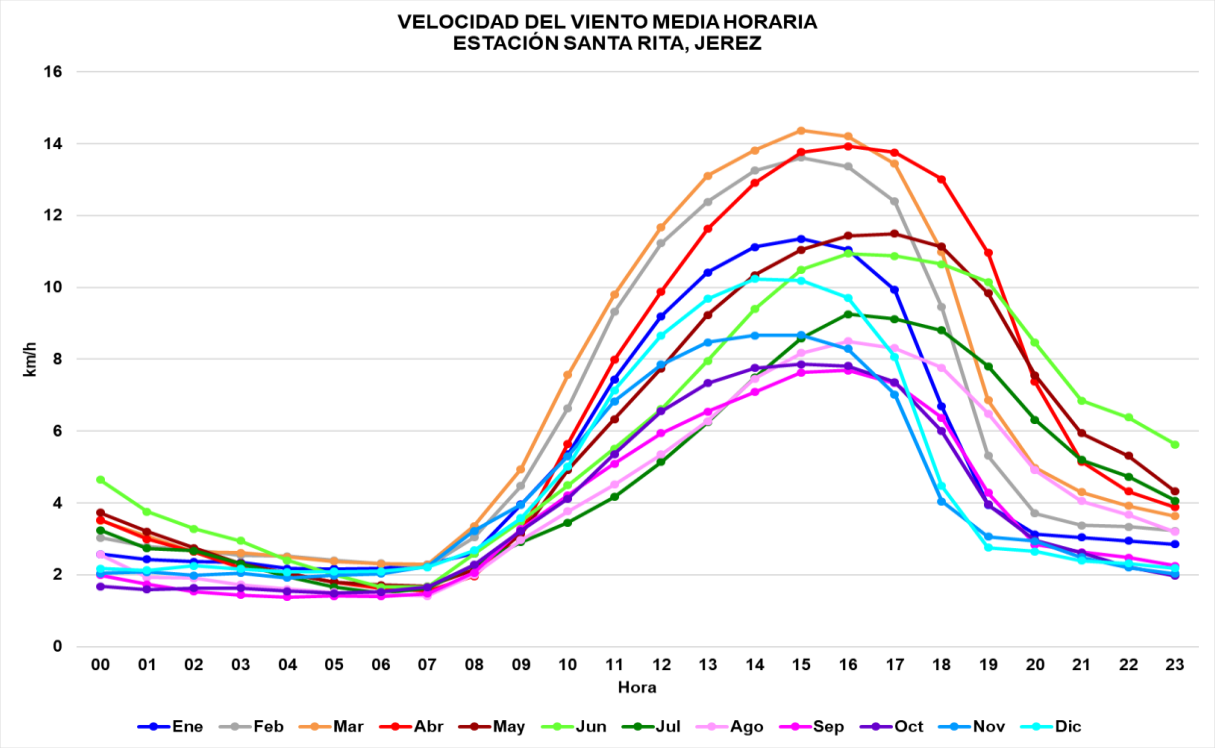


Figura 492. Velocidad del viento media (km/h) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 549. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santa Rita, Jerez (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	23.7	27.5	29.2	23.0	25.6	29.3	22.1	30.0	19.8	19.0	22.5	20.1	30.0
01	23.4	28.0	27.7	28.0	26.0	24.6	20.4	17.9	18.6	17.0	23.4	20.7	28.0
02	21.7	31.2	25.0	27.0	25.0	24.0	24.8	15.2	19.7	14.0	27.0	21.0	31.2
03	21.8	23.6	27.0	17.0	24.1	22.0	19.9	17.3	12.3	17.3	30.1	22.0	30.1
04	17.6	22.1	26.0	19.1	21.8	17.0	15.8	17.0	14.0	21.0	30.6	24.0	30.6
05	22.0	20.0	38.0	18.0	23.0	20.0	15.2	17.5	13.9	15.5	25.9	29.0	38.0
06	19.1	20.9	37.0	18.0	19.0	14.0	15.0	15.3	11.3	18.0	24.0	23.0	37.0
07	18.6	26.1	34.0	18.0	20.0	14.0	19.2	14.0	12.2	17.0	20.9	25.0	34.0
08	21.0	23.4	32.0	28.0	21.0	19.2	19.1	16.3	15.0	20.0	23.8	24.0	32.0
09	26.0	24.9	38.0	34.0	24.0	23.2	19.8	20.5	18.0	26.0	27.0	28.3	38.0
10	30.0	31.4	53.0	30.0	27.0	22.7	22.7	25.0	20.0	23.0	26.0	32.0	53.0
11	35.0	36.0	52.0	29.0	27.0	24.7	25.0	34.7	20.0	24.0	30.1	37.6	52.0
12	34.2	34.1	45.0	32.0	29.8	25.4	24.2	23.2	20.1	25.0	31.0	40.7	45.0
13	35.0	35.0	42.0	33.0	33.4	27.3	32.0	27.8	19.8	23.4	34.0	44.0	44.0
14	39.0	40.0	41.0	39.0	37.1	27.9	27.7	31.1	20.6	23.8	38.0	40.0	41.0
15	37.0	39.0	39.0	39.1	33.3	33.6	31.6	32.2	27.0	28.0	36.0	39.0	39.1
16	38.0	39.2	39.0	36.0	33.7	36.0	30.1	30.1	23.8	31.0	37.0	39.0	39.2
17	37.0	35.4	36.0	45.3	32.2	38.0	32.0	26.4	23.0	27.0	37.0	38.0	45.3
18	31.0	32.8	36.0	34.0	33.8	32.6	40.0	32.3	25.0	28.0	28.0	32.0	40.0
19	27.0	23.8	31.0	40.7	36.2	33.8	28.8	30.0	25.1	25.0	26.0	28.0	40.7
20	26.0	23.8	36.0	38.1	48.1	41.0	32.0	29.0	19.2	23.0	24.0	21.0	48.1
21	29.0	23.0	34.0	38.9	40.7	38.1	31.7	35.0	24.9	28.0	18.0	22.0	40.7
22	25.0	24.0	26.0	35.4	33.1	30.4	29.9	35.5	21.2	23.0	22.0	26.0	35.5
23	20.9	21.1	26.2	28.0	29.0	29.1	28.7	22.9	26.0	20.0	18.0	31.0	31.0
Máx.	39.0	40.0	53.0	45.3	48.1	41.0	40.0	35.5	27.0	31.0	38.0	44.0	53.0

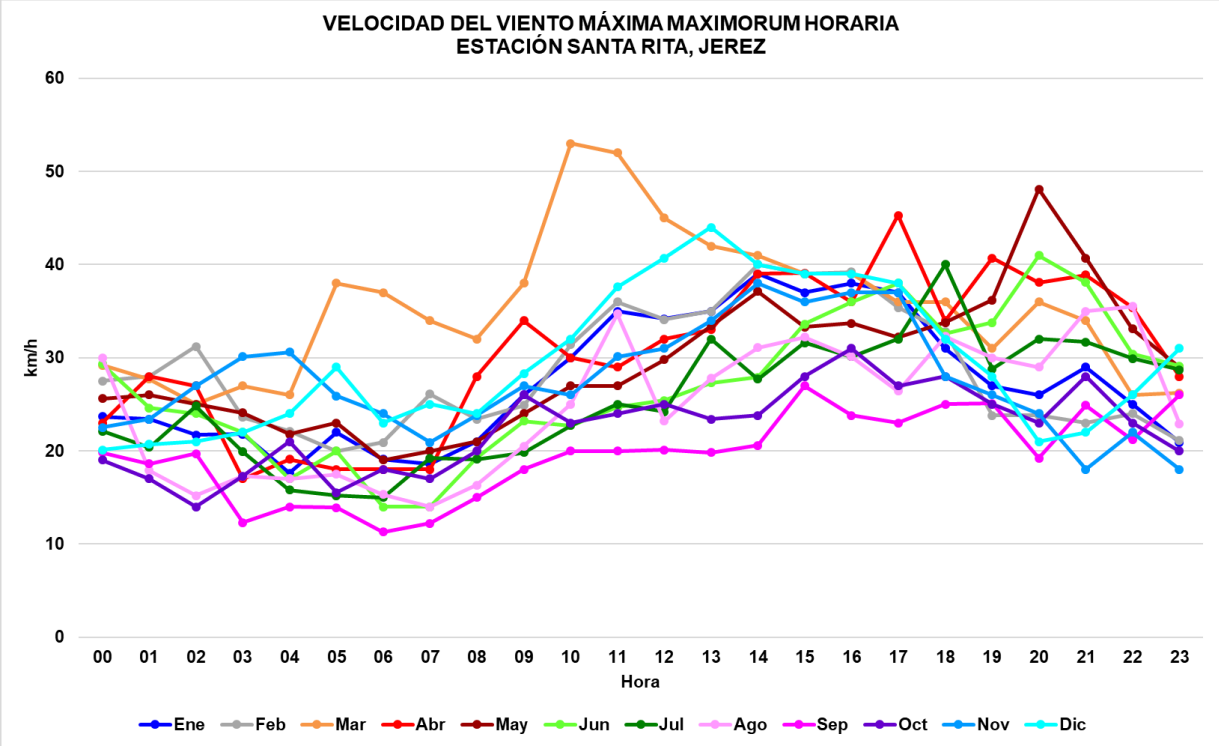


Figura 493. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santa Rita, Jerez (2002-2022).

Cuadro 550. Frecuencia de velocidad del viento (%) mensual de la estación Santa Rita, Jerez (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	63.5	58.0	54.8	53.1	55.4	53.8	63.3	66.9	70.5	70.0	67.8	67.3	62.1
5.1 a 10.0	19.0	18.8	19.7	20.7	23.7	24.3	22.6	21.6	21.1	21.1	20.4	17.9	20.9
10.1 a 15.0	10.5	11.9	11.5	14.2	13.6	14.8	11.2	9.7	7.8	7.4	8.6	9.4	10.8
15.1 a 20.0	4.9	7.0	8.6	8.6	5.8	5.8	2.6	1.5	0.5	1.3	2.4	3.7	4.4
20.1 a 25.0	1.4	2.9	3.5	2.8	1.5	1.1	0.2	0.2	0.0	0.2	0.7	1.1	1.3
25.1 a 30.0	0.6	1.1	1.4	0.5	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.4	0.4
30.1 a 35.0	0.1	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
35.1 a 40.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

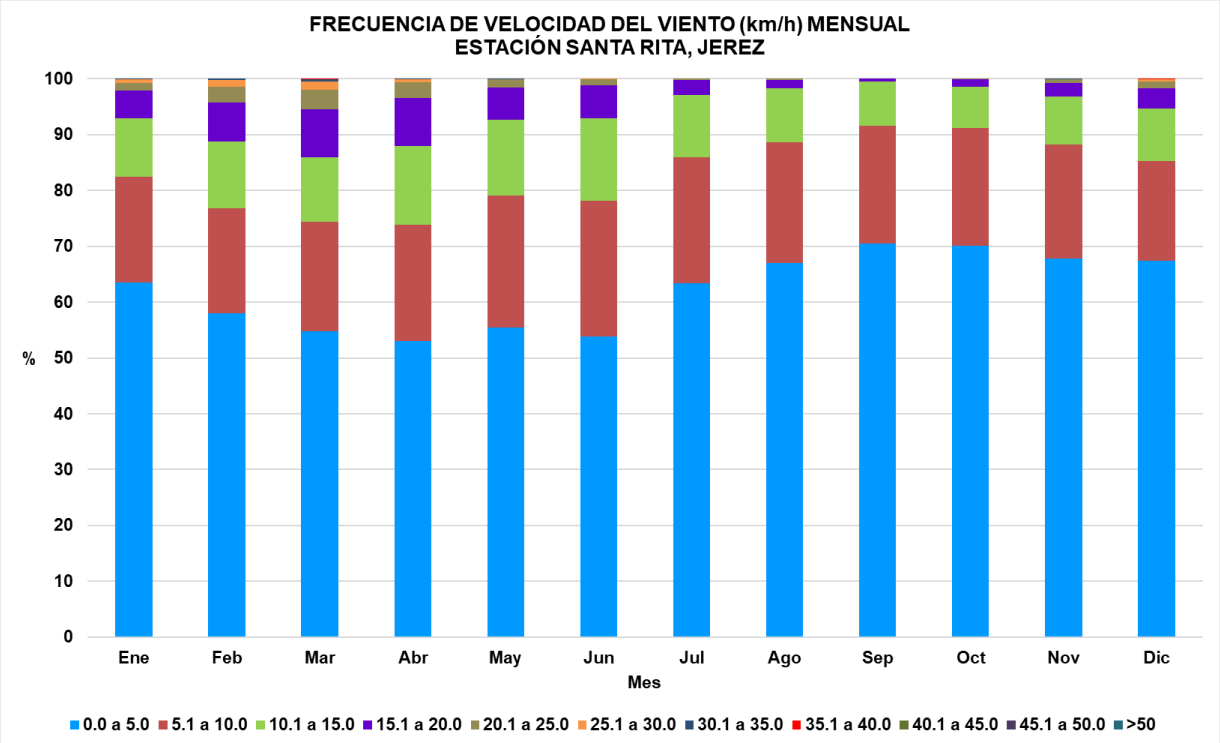


Figura 494. Frecuencia de velocidad del viento (%) mensual de la estación Santa Rita, Jerez (2002-2022).

Cuadro 551. Frecuencia de dirección del viento (%) mensual de la estación Santa Rita, Jerez (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	9.6	7.9	8.0	7.5	6.9	7.3	6.0	6.3	8.9	9.5	10.0	9.4	8.1
NNE	11.6	9.2	8.5	6.9	7.2	8.1	6.1	7.2	10.0	11.1	12.2	11.0	9.1
NE	8.1	6.5	6.1	5.1	5.8	7.9	6.7	7.9	8.6	9.1	9.0	8.0	7.4
ENE	5.1	4.0	4.1	3.4	4.7	7.5	7.9	9.0	9.1	8.3	6.2	4.6	6.2
E	5.0	4.6	4.6	4.3	5.7	9.4	9.9	10.7	9.6	8.2	6.5	4.9	7.0
ESE	5.0	4.8	4.8	4.6	5.9	8.1	8.8	9.1	7.3	6.7	6.3	4.8	6.4
SE	5.1	5.1	4.8	5.1	5.9	6.4	7.3	7.4	6.4	6.4	5.8	5.2	5.9
SSE	5.2	5.4	5.4	5.8	5.8	5.7	6.4	6.0	5.4	5.1	5.3	5.5	5.6
S	9.4	10.7	10.2	10.6	10.1	7.9	9.3	7.5	7.0	7.0	8.5	10.4	9.0
SSO	14.4	16.0	15.1	16.0	13.5	9.7	10.7	9.0	7.9	8.9	11.1	15.8	12.3
SO	9.9	12.3	13.0	13.4	10.7	7.2	7.2	6.2	5.1	6.0	7.5	9.4	9.0
OSO	4.2	5.7	6.9	7.8	6.6	4.1	4.0	3.8	3.3	3.5	3.4	3.8	4.7
O	1.9	2.1	2.8	3.4	3.5	2.7	2.6	2.6	2.5	2.3	1.8	1.7	2.5
ONO	1.3	1.4	1.5	1.8	2.3	2.0	1.9	2.0	1.9	1.7	1.4	1.2	1.7
NO	1.4	1.5	1.7	1.6	2.2	2.4	2.1	2.2	2.4	2.2	1.7	1.4	1.9
NNO	2.9	2.7	2.6	2.7	3.2	3.6	3.3	3.2	4.6	4.0	3.3	2.9	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

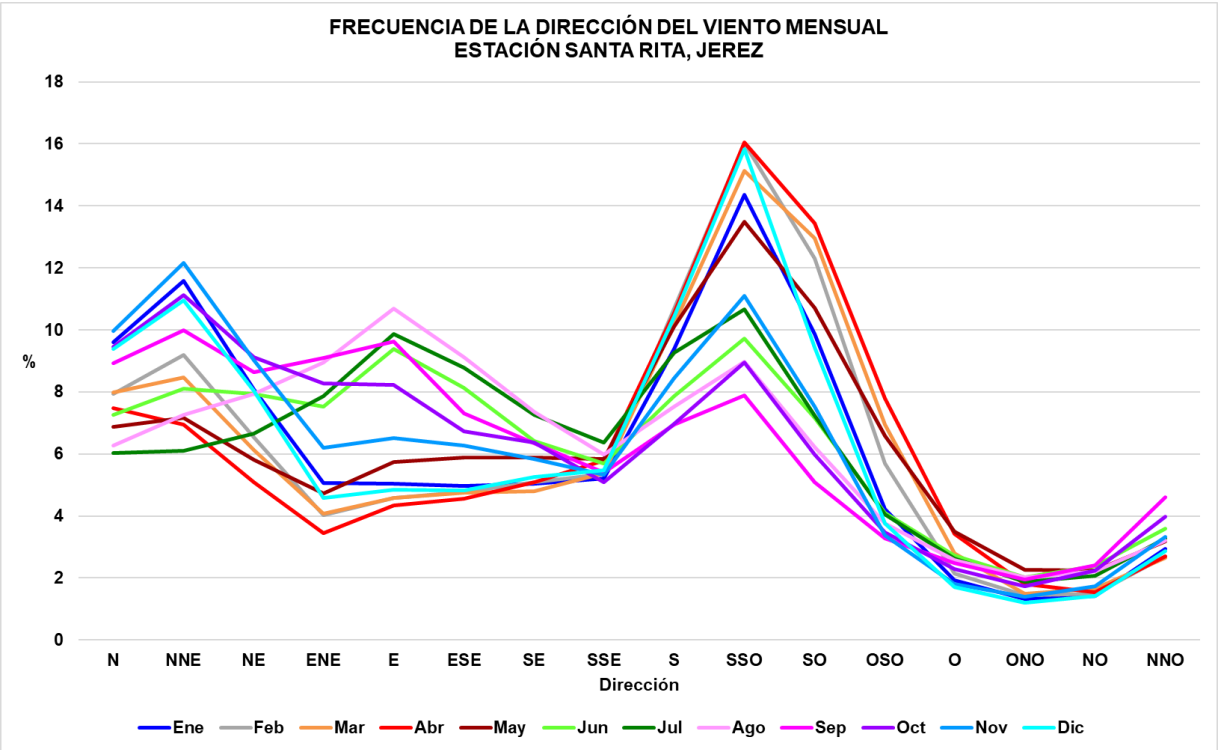
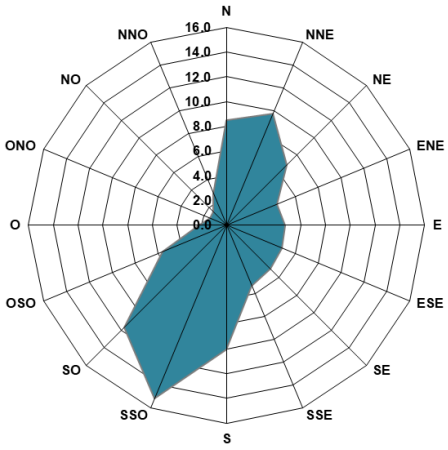


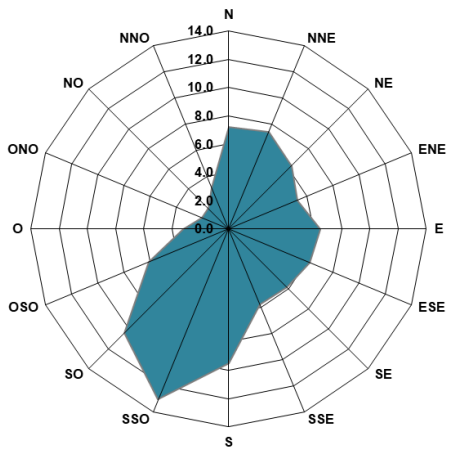
Figura 495. Frecuencia de dirección del viento (%) mensual de la estación Santa Rita, Jerez (2002-2022).

Cuadro 552. Frecuencia de dirección del viento (%) trimestral de la estación Santa Rita, Jerez (2002-2022).

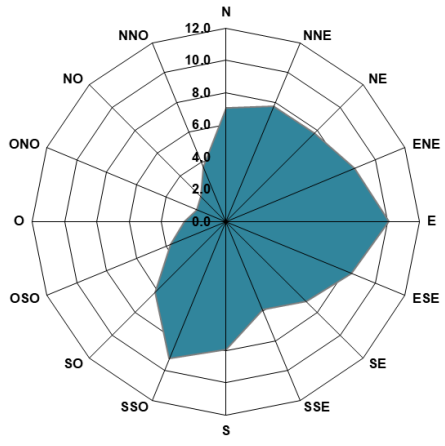
	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	8.5	7.2	7.1	9.6	8.1
NNE	9.8	7.4	7.8	11.4	9.1
NE	6.9	6.3	7.7	8.7	7.4
ENE	4.4	5.3	8.6	6.4	6.2
E	4.7	6.5	10.1	6.5	7.0
ESE	4.8	6.2	8.4	5.9	6.4
SE	5.0	5.8	7.0	5.8	5.9
SSE	5.3	5.8	5.9	5.3	5.6
S	10.1	9.5	7.9	8.6	9.0
SSO	15.2	13.1	9.2	12.0	12.3
SO	11.7	10.4	6.2	7.6	9.0
OSO	5.6	6.1	3.7	3.5	4.7
O	2.3	3.2	2.6	1.9	2.5
ONO	1.4	2.0	1.9	1.4	1.7
NO	1.5	2.1	2.2	1.8	1.9
NNO	2.8	3.2	3.7	3.4	3.3
Suma	100.0	100.0	100.0	100.0	100.0



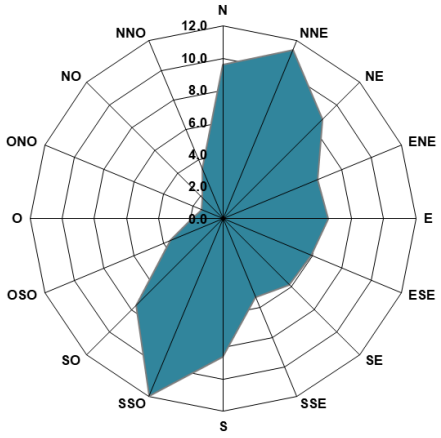
Ene-Mar



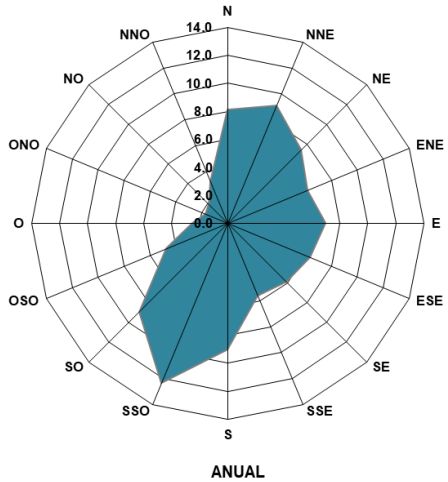
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 496. Frecuencia de dirección del viento (%) trimestral de la estación Santa Rita, Jerez (2002-2022).

Cuadro 553. Estadísticas climatológicas mensuales de la estación Santa Rita, Jerez (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.9	24.0	26.6	29.3	30.7	29.2	26.7	26.7	25.5	25.8	24.1	22.4	26.1
Temperatura máxima maximorum (°C)	29.7	31.7	34.5	35.0	36.6	35.1	33.7	31.7	29.9	31.7	30.5	29.7	36.6
Temperatura mínima media (°C)	1.6	2.6	4.0	6.0	9.6	13.2	13.2	12.8	12.3	8.5	4.1	1.6	7.5
Temperatura mínima minimorum (°C)	-7.1	-7.7	-6.7	-2.3	0.0	5.0	8.3	7.7	4.4	-1.0	-9.0	-6.4	-9.0
Temperatura media (°C)	11.2	13.2	15.6	18.4	20.7	20.9	19.2	19.1	18.0	16.6	13.5	11.3	16.5
Oscilación térmica (°C)	20.2	21.3	22.6	23.2	21.1	16.0	13.5	13.9	13.2	17.3	20.0	20.8	18.6
Precipitación acumulada media (mm)	14.9	18.5	8.0	1.8	9.9	73.1	107.3	93.7	93.3	34.6	13.1	15.2	483.4
Precipitación máxima maximorum en 24 horas (mm)	31.0	49.2	42.0	6.4	26.4	57.8	59.0	42.0	49.8	42.5	39.6	36.5	59.0
Número de días promedio con lluvia	4.3	3.8	3.9	1.8	4.4	10.6	17.0	14.4	13.4	6.8	3.6	3.5	87.3
Evapotranspiración acumulada potencial media (mm)	106.7	124.1	167.8	185.9	191.3	163.5	147.9	147.3	122.1	124.8	111.7	102.0	1695.1
Humedad máxima media (%)	83.3	79.2	68.4	63.9	69.8	85.5	94.9	95.6	97.2	94.6	89.7	85.6	84.0
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	21.3	17.8	12.9	10.8	13.2	24.9	36.1	36.9	42.6	31.2	24.4	21.8	24.5
Humedad mínima minimorum (%)	3.0	4.0	3.0	2.0	3.3	4.0	11.0	15.0	16.0	8.0	4.0	3.0	2.0
Humedad media (%)	51.4	45.0	35.1	30.7	35.8	54.5	68.8	69.5	74.9	65.6	57.5	53.4	53.5
Radiación global media día/mes (W/m^2)	18870.5	22187.1	25977.0	28499.0	28664.1	26194.0	24884.5	24221.9	22049.8	22050.6	19533.1	17798.8	23410.9
Radiación global media día/mes (kWh/m^2)	4.7	5.5	6.5	7.1	7.2	6.5	6.2	6.1	5.5	5.5	4.9	4.4	5.9
Radiación global media día/mes ($Mj/m^2/s$)	17.0	20.0	23.4	25.6	25.8	23.6	22.4	21.8	19.8	19.8	17.6	16.0	21.1
Velocidad del viento máxima media (km/h)	16.3	18.6	20.0	19.8	18.9	19.5	17.5	15.7	13.3	12.7	13.2	14.4	16.6
Velocidad del viento máxima maximorum (km/h)	39.0	40.0	53.0	45.3	48.1	41.0	40.0	35.5	27.0	31.0	38.0	44.0	53.0
Velocidad del viento media (km/h)	5.1	6.2	6.8	6.6	5.9	6.0	4.7	4.2	3.8	3.8	4.2	4.5	5.1
Dirección dominante del viento	SSO	SSO	SSO	SSO	SSO	SSO	SSO	E	NNE	NNE	NNE	SSO	SSO

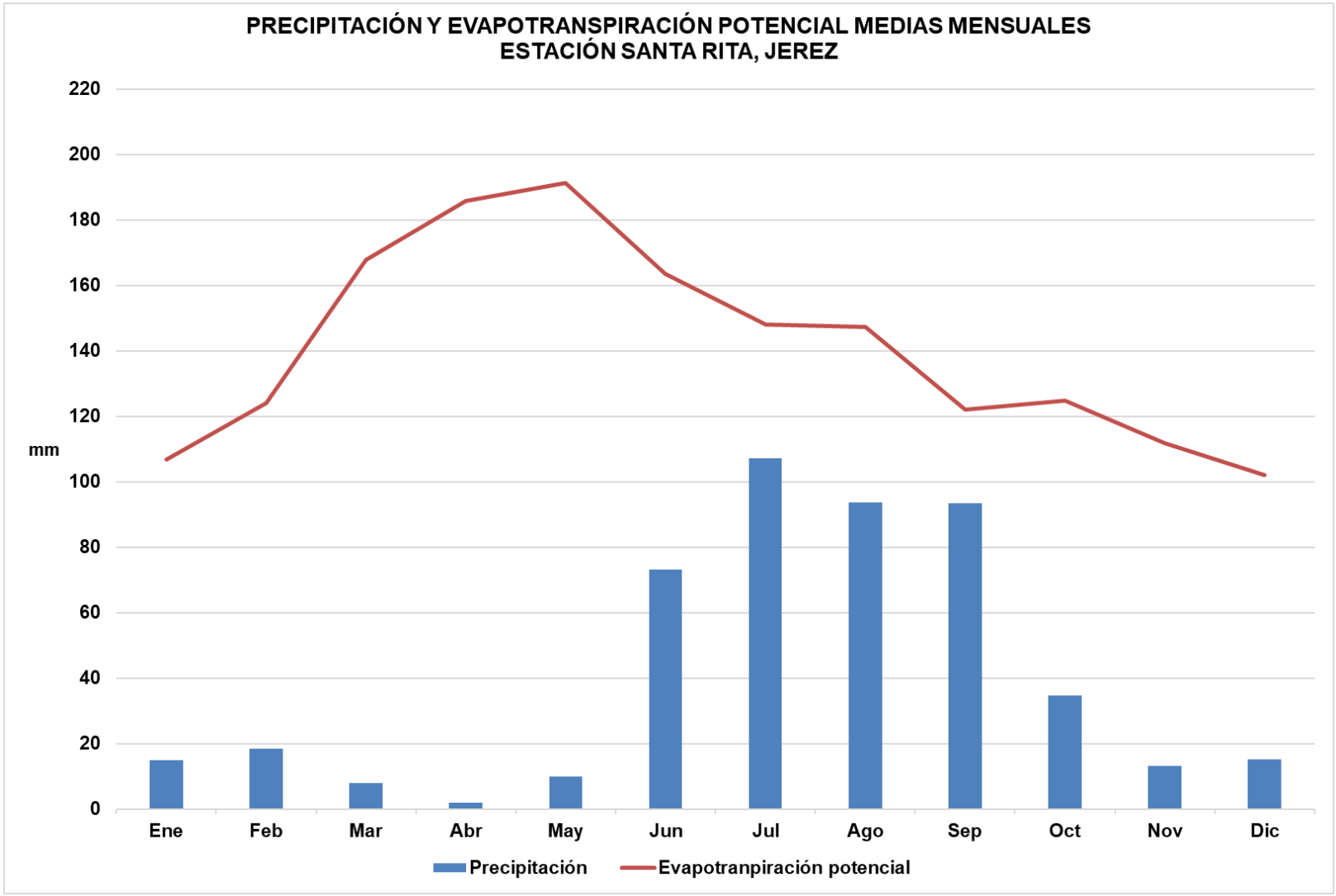


Figura 497. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Santa Rita, Jerez (2002-2022).

7.30. Estación: Santo Domingo, Jalpa

Cuadro 554. Temperatura máxima media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.4	16.3	18.8	22.0	23.5	22.5	19.8	19.5	19.1	18.4	15.8	14.2	18.7
01	13.4	15.3	17.8	20.8	22.5	21.7	19.2	19.0	18.7	17.6	14.9	13.3	17.8
02	12.7	14.4	16.8	19.8	21.6	20.9	18.7	18.5	18.2	16.9	14.1	12.4	17.1
03	11.9	13.5	15.8	18.8	20.6	20.3	18.2	18.1	17.8	16.3	13.3	11.7	16.4
04	11.1	12.7	14.8	17.9	19.8	19.6	17.8	17.7	17.4	15.7	12.7	11.0	15.7
05	10.5	11.9	13.9	16.8	18.8	19.1	17.5	17.4	17.1	15.2	12.1	10.4	15.1
06	9.9	11.2	13.2	15.9	18.0	18.6	17.2	17.1	16.8	14.7	11.5	9.9	14.5
07	9.8	11.3	14.5	16.1	18.1	18.8	17.3	17.2	16.8	14.8	12.9	10.1	14.8
08	12.4	14.4	17.6	18.8	21.0	20.8	19.0	18.8	18.6	17.2	16.0	13.2	17.3
09	15.2	17.3	20.6	21.7	23.4	22.7	20.8	20.8	20.7	19.8	19.1	16.1	19.8
10	18.1	20.2	23.4	24.4	25.8	24.7	22.7	22.8	22.9	22.3	21.6	18.9	22.3
11	20.7	22.6	25.7	26.9	28.1	26.6	24.4	24.5	24.6	24.4	24.0	21.7	24.5
12	22.7	24.7	27.6	29.1	30.2	28.4	26.0	26.1	26.0	26.1	25.6	23.6	26.3
13	24.1	26.2	29.0	30.8	31.8	29.9	27.2	27.2	27.2	27.5	26.7	24.9	27.7
14	24.9	27.1	29.8	31.9	33.0	31.0	28.2	28.1	28.0	28.4	27.3	25.6	28.6
15	25.2	27.4	30.0	32.4	33.6	31.5	28.7	28.7	28.4	28.7	27.4	25.8	29.0
16	25.0	27.2	29.8	32.5	33.7	31.6	28.8	28.8	28.3	28.7	27.0	25.5	28.9
17	24.1	26.5	29.1	32.1	33.3	31.1	28.4	28.3	27.6	28.0	25.5	24.1	28.2
18	22.1	24.9	27.7	31.2	32.4	30.2	27.6	27.3	26.4	26.3	22.5	21.5	26.7
19	19.5	22.1	25.1	29.6	31.1	28.8	25.9	25.6	24.4	23.6	20.5	19.4	24.6
20	18.4	20.8	23.6	27.4	29.1	27.0	23.8	23.2	22.1	21.5	19.5	18.2	22.9
21	17.4	19.7	22.5	26.0	27.3	25.3	22.1	21.6	21.0	20.6	18.5	17.2	21.6
22	16.3	18.6	21.2	24.8	26.1	24.1	21.1	20.8	20.3	19.7	17.7	16.2	20.6
23	15.4	17.6	20.0	23.4	24.8	23.1	20.4	20.1	19.7	19.0	16.7	15.1	19.6
Media	17.3	19.3	22.0	24.6	26.2	24.9	22.5	22.4	22.0	21.3	19.3	17.5	21.6

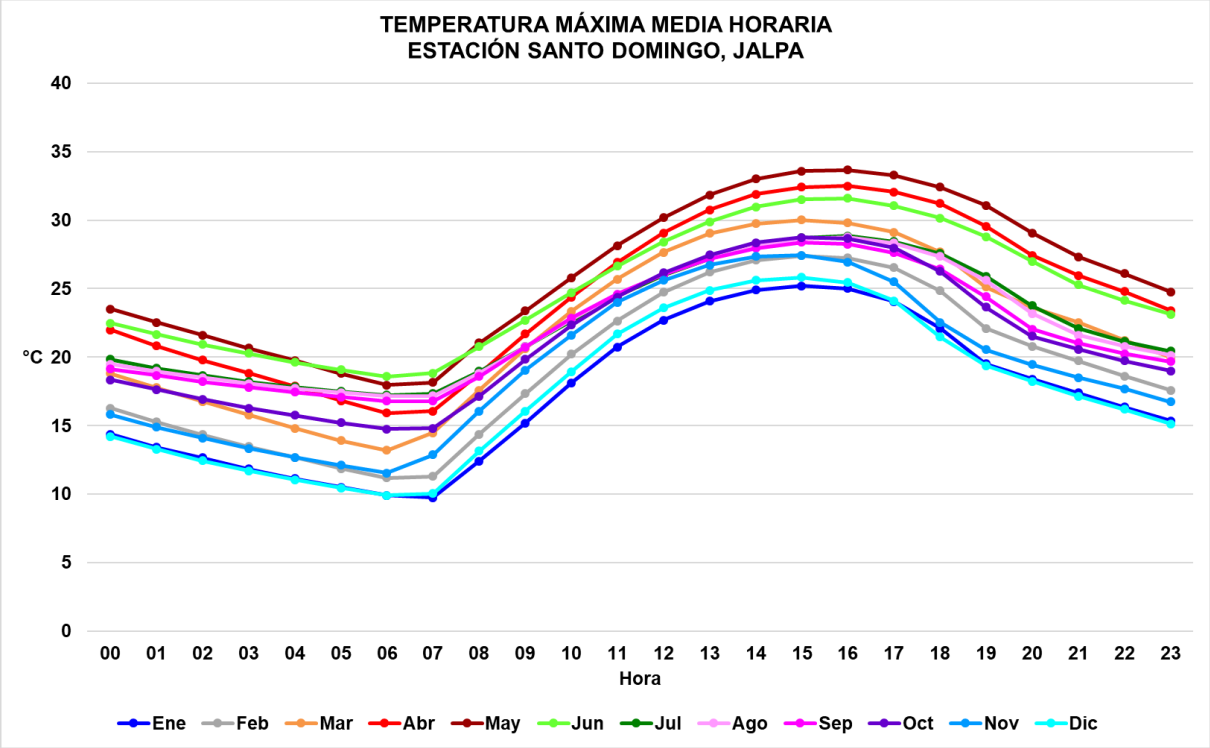


Figura 498. Temperatura máxima media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 555. Temperatura máxima maximorum (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	20.2	22.0	24.1	27.0	29.0	29.5	26.9	26.2	24.2	22.9	21.6	20.7	29.5
01	18.8	22.0	23.3	26.4	28.0	28.0	25.7	25.3	22.9	22.4	21.0	20.0	28.0
02	18.1	20.4	22.5	25.5	26.9	26.7	25.2	25.1	22.8	21.6	20.4	19.6	26.9
03	17.6	19.4	21.3	24.4	25.8	25.9	23.2	23.2	22.7	21.5	19.9	18.6	25.9
04	16.9	18.9	20.4	23.1	25.1	24.2	22.2	22.8	22.8	21.3	19.2	18.8	25.1
05	16.7	18.3	19.6	22.0	24.2	23.4	21.6	22.0	22.5	21.0	19.0	18.5	24.2
06	16.4	17.9	18.6	21.1	23.6	22.7	21.6	21.4	22.1	21.1	19.0	17.1	23.6
07	16.5	18.2	20.4	22.1	24.1	23.3	21.3	20.8	21.7	20.8	19.8	17.6	24.1
08	18.4	20.9	24.2	24.2	27.0	25.7	24.1	23.2	23.3	22.8	22.1	20.2	27.0
09	21.3	24.2	27.1	27.9	28.9	28.0	25.7	25.4	25.3	24.8	25.8	23.0	28.9
10	23.3	27.4	29.2	31.0	31.1	30.5	28.2	26.9	27.0	27.3	27.7	25.4	31.1
11	26.5	30.0	31.5	32.7	33.5	32.8	29.4	28.9	29.0	29.5	30.0	27.7	33.5
12	29.3	32.4	34.0	35.0	35.3	35.4	31.1	29.6	30.2	31.7	31.5	30.2	35.4
13	30.7	33.9	36.2	36.0	37.4	36.6	32.6	31.3	31.7	32.6	32.3	31.8	37.4
14	31.3	34.3	36.8	38.5	37.6	37.3	33.9	32.5	32.9	33.5	33.0	32.3	38.5
15	31.5	34.4	37.1	38.7	38.8	37.7	34.7	33.6	33.7	33.9	33.7	32.6	38.8
16	31.5	34.2	37.2	38.5	39.0	37.9	34.9	34.2	33.7	33.6	33.7	31.2	39.0
17	30.3	34.2	37.2	38.4	38.8	38.0	35.1	34.1	34.0	33.2	31.2	29.3	38.8
18	28.6	33.0	35.0	36.4	38.5	37.4	34.8	33.8	33.2	32.7	27.5	27.7	38.5
19	25.2	30.6	31.1	35.3	37.7	36.3	33.8	33.8	32.2	30.1	27.1	25.7	37.7
20	24.0	27.1	30.0	33.1	35.8	34.6	31.7	32.0	27.1	27.7	25.3	24.3	35.8
21	23.7	26.7	30.1	30.5	32.8	32.5	29.4	28.3	25.8	25.5	23.7	22.0	32.8
22	23.0	25.2	28.2	29.5	31.8	31.3	28.9	28.0	25.5	25.0	23.0	22.0	31.8
23	21.6	24.2	26.4	28.3	30.3	30.0	27.8	27.0	25.0	24.3	21.7	20.9	30.3
Máx.	31.5	34.4	37.2	38.7	39.0	38.0	35.1	34.2	34.0	33.9	33.7	32.6	39.0

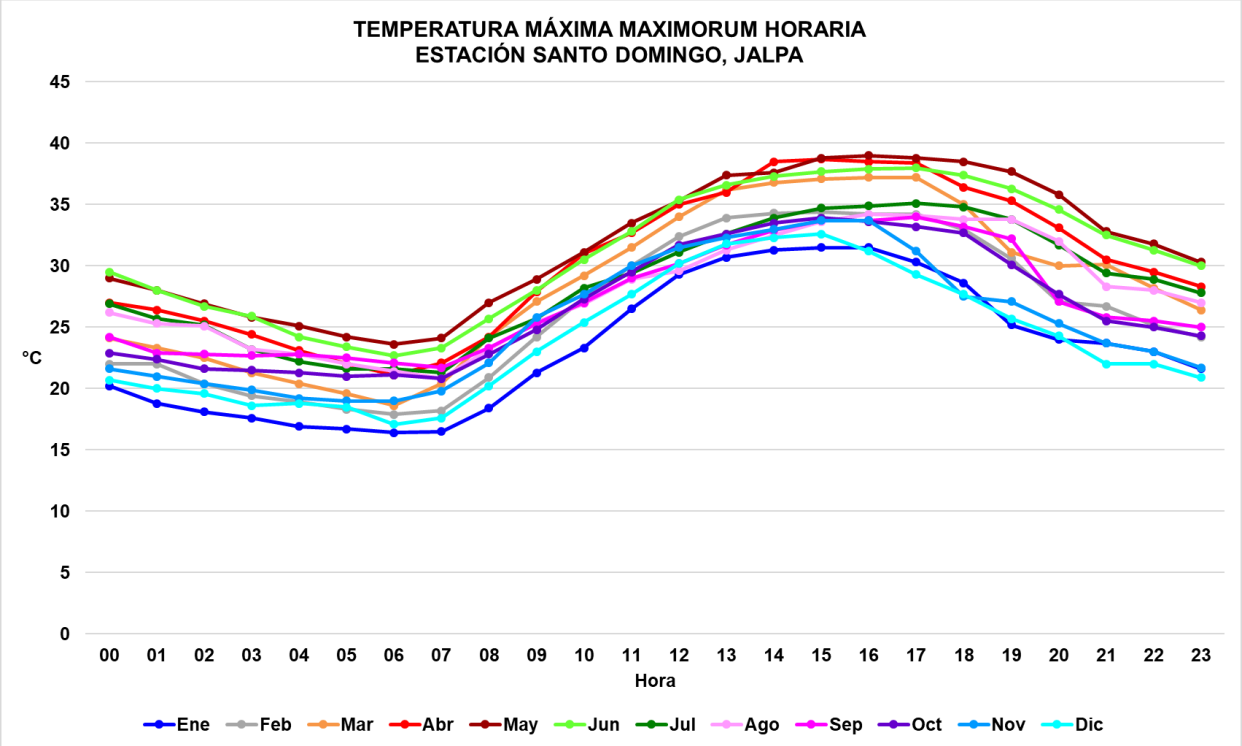


Figura 499. Temperatura máxima maximorum (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 556. Temperatura mínima media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.3	15.1	17.6	20.8	22.4	21.6	19.1	18.8	18.6	17.5	14.8	13.1	17.7
01	12.4	14.2	16.6	19.7	21.6	20.9	18.6	18.4	18.1	16.8	13.9	12.2	16.9
02	11.6	13.3	15.7	18.7	20.6	20.2	18.1	17.9	17.7	16.1	13.2	11.4	16.2
03	10.9	12.4	14.7	17.8	19.7	19.6	17.7	17.6	17.3	15.6	12.5	10.7	15.5
04	10.2	11.6	13.7	16.8	18.8	19.0	17.4	17.2	17.0	15.1	11.8	10.1	14.9
05	9.6	10.9	12.9	15.8	17.9	18.5	17.1	17.0	16.6	14.5	11.2	9.5	14.3
06	9.0	10.2	12.2	14.8	17.1	18.1	16.8	16.7	16.4	14.1	10.7	9.0	13.8
07	8.6	9.9	12.3	14.4	16.8	17.9	16.7	16.6	16.2	13.8	10.8	8.8	13.6
08	9.8	11.8	15.3	16.2	18.7	19.2	17.5	17.3	16.8	14.8	13.8	10.6	15.1
09	13.0	15.0	18.3	19.5	21.6	21.2	19.3	19.2	19.1	17.9	16.7	13.8	17.9
10	15.9	18.1	21.3	22.4	24.0	23.2	21.2	21.2	21.2	20.4	19.7	16.8	20.5
11	18.7	20.8	24.0	25.0	26.4	25.1	23.1	23.2	23.2	22.8	22.2	19.6	22.9
12	21.2	23.2	26.1	27.5	28.6	27.0	24.8	24.9	24.9	24.8	24.4	22.2	25.0
13	22.9	25.0	27.9	29.4	30.5	28.7	26.1	26.1	26.1	26.4	25.8	23.8	26.6
14	24.0	26.2	28.9	30.9	31.9	29.9	27.1	27.1	26.9	27.4	26.6	24.8	27.6
15	24.5	26.7	29.3	31.6	32.6	30.5	27.6	27.6	27.3	27.9	26.7	25.2	28.1
16	24.2	26.5	29.1	31.7	32.7	30.3	27.7	27.6	27.0	27.7	25.8	24.5	27.9
17	22.7	25.3	28.0	31.2	32.2	29.8	27.2	27.1	26.3	26.6	23.5	22.3	26.9
18	19.9	22.7	25.8	29.9	31.2	28.9	26.1	25.8	24.8	24.3	20.6	19.5	25.0
19	18.3	20.8	23.7	27.9	29.6	27.3	24.2	23.8	22.5	21.7	19.4	18.2	23.1
20	17.2	19.7	22.5	26.1	27.6	25.5	22.2	21.8	21.1	20.5	18.3	17.0	21.6
21	16.2	18.5	21.3	24.9	26.2	24.2	21.1	20.7	20.2	19.6	17.4	16.0	20.5
22	15.2	17.4	19.9	23.5	24.9	23.1	20.3	20.0	19.5	18.9	16.6	15.0	19.5
23	14.2	16.3	18.7	22.1	23.6	22.3	19.7	19.3	19.0	18.1	15.6	14.0	18.6
Media	16.0	18.0	20.7	23.3	24.9	23.8	21.5	21.4	21.0	20.1	18.0	16.2	20.4

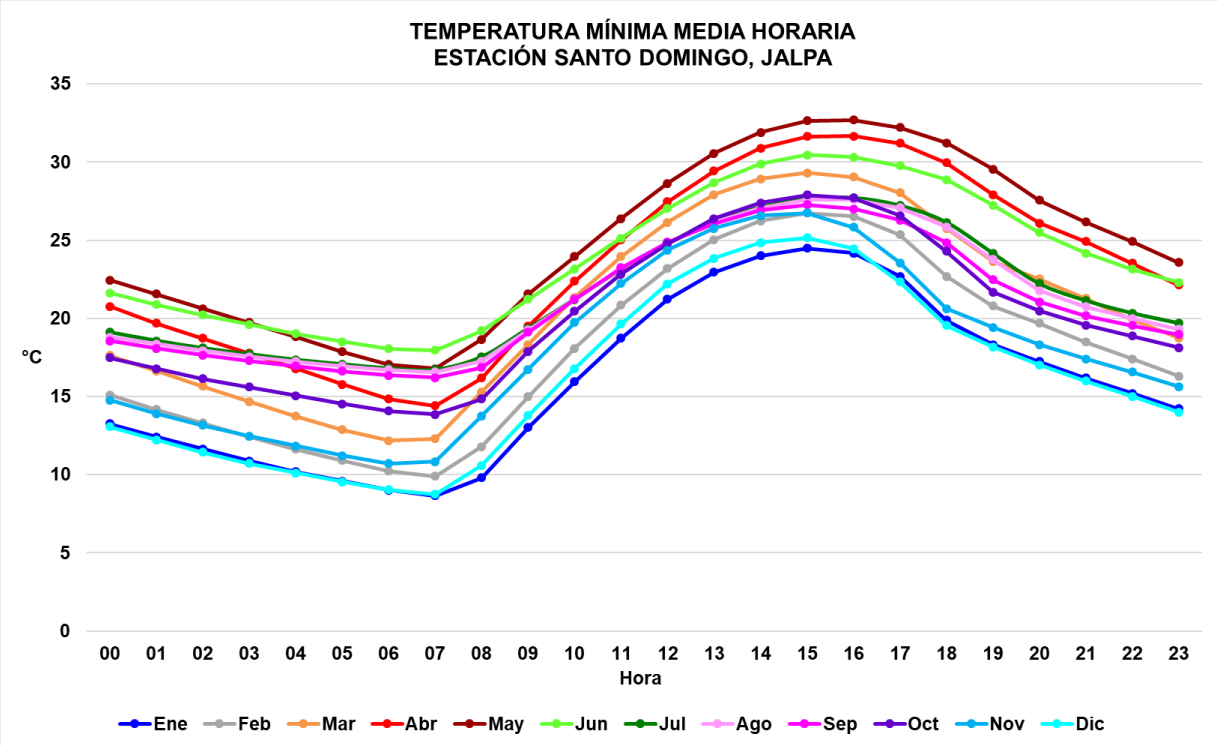


Figura 500. Temperatura mínima media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 557. Temperatura mínima minimorum (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.9	7.1	4.0	13.2	15.2	14.5	14.0	14.7	13.7	10.3	5.1	4.2	2.9
01	2.9	6.2	4.3	12.7	15.3	14.6	14.6	14.5	13.6	8.8	3.2	4.2	2.9
02	2.1	5.3	3.8	12.2	14.5	14.4	14.8	14.2	13.0	7.6	2.5	3.4	2.1
03	1.5	4.3	3.5	10.5	13.8	13.5	14.2	13.8	12.2	6.2	3.1	2.9	1.5
04	1.6	3.9	3.8	9.7	12.9	13.4	13.9	13.3	10.6	4.8	1.4	2.1	1.4
05	2.0	2.0	2.4	8.9	11.6	13.7	13.7	13.2	9.8	4.1	1.0	1.0	1.0
06	0.5	2.1	2.3	7.4	10.9	14.0	13.1	12.9	9.9	3.6	0.2	-0.5	-0.5
07	0.8	2.1	2.7	7.2	10.2	14.2	13.4	12.9	9.9	5.3	-0.4	-0.8	-0.8
08	1.8	3.5	4.1	8.8	11.8	15.0	14.0	13.4	9.9	4.8	3.8	1.7	1.7
09	5.3	7.8	7.6	13.0	15.0	15.4	14.7	14.8	15.1	11.0	7.5	4.7	4.7
10	6.7	10.0	8.8	15.0	15.4	16.8	15.4	16.6	16.0	14.2	11.1	7.1	6.7
11	8.6	11.5	9.1	15.1	15.5	17.1	15.3	17.2	16.8	16.4	13.2	10.2	8.6
12	7.0	12.0	6.7	16.2	16.7	17.8	17.3	18.7	16.9	17.4	13.6	10.3	6.7
13	6.4	11.5	8.4	18.2	18.3	18.9	18.0	19.0	17.7	17.6	14.0	10.0	6.4
14	5.5	11.0	10.7	20.4	20.7	18.3	18.1	18.9	16.9	17.9	13.9	9.7	5.5
15	5.7	9.8	12.0	21.5	16.9	17.1	15.9	18.1	17.6	17.3	14.2	9.8	5.7
16	5.5	9.7	12.5	20.4	16.7	17.1	16.5	15.6	17.5	16.6	12.3	7.9	5.5
17	5.8	9.8	12.7	20.1	17.6	15.5	15.7	16.4	16.5	16.9	12.2	7.1	5.8
18	5.7	9.9	9.6	19.5	15.5	15.3	15.6	16.6	16.9	16.2	11.1	6.5	5.7
19	5.7	9.2	7.2	18.7	16.0	15.3	15.3	16.5	16.5	15.8	10.5	6.6	5.7
20	5.7	8.9	5.3	16.0	15.6	15.5	14.4	15.8	16.6	14.3	9.5	7.1	5.3
21	4.9	7.7	5.0	16.2	14.9	14.7	15.3	14.6	14.5	13.1	8.7	6.5	4.9
22	3.9	8.0	4.7	16.3	15.5	14.4	14.8	14.8	14.2	12.7	7.8	6.0	3.9
23	3.2	7.8	3.9	14.9	15.4	14.2	14.2	14.9	14.3	11.5	5.6	5.2	3.2
Mín.	0.5	2.0	2.3	7.2	10.2	13.4	13.1	12.9	9.8	3.6	-0.4	-0.8	-0.8

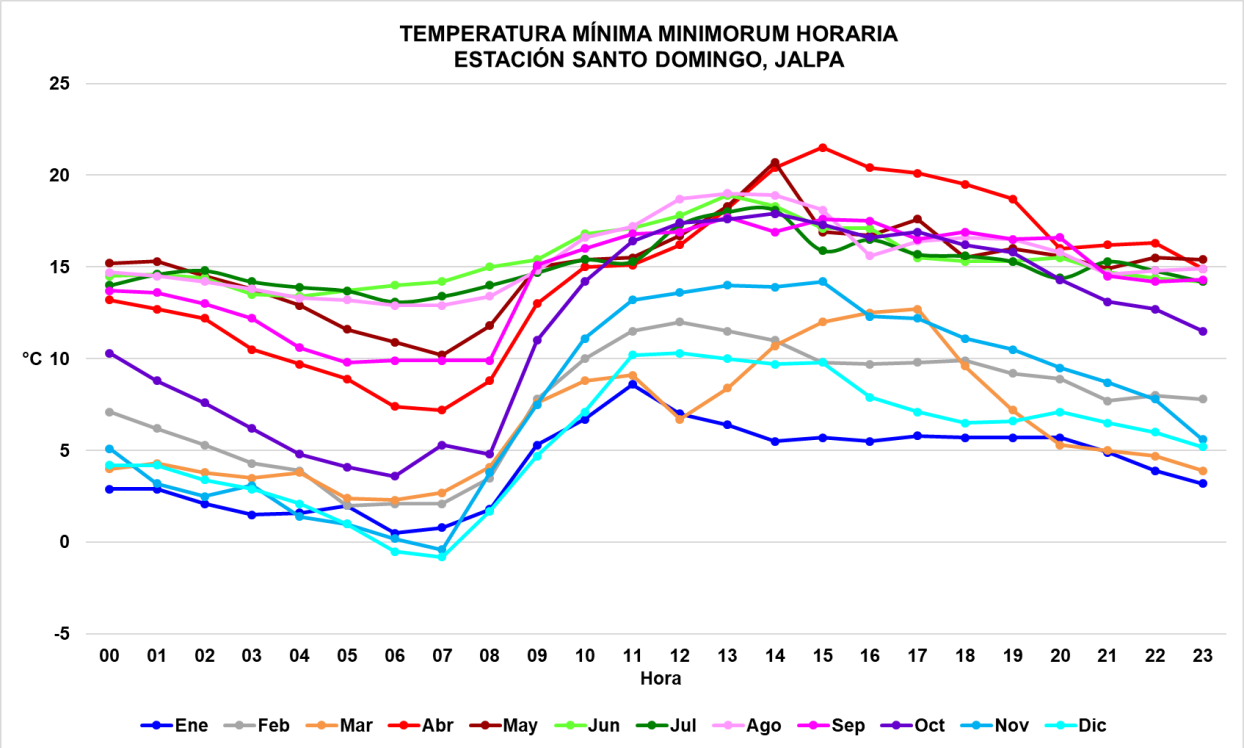


Figura 501. Temperatura mínima minimorum (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 558. Temperatura media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.8	15.7	18.2	21.4	23.0	22.1	19.5	19.1	18.8	17.9	15.3	13.6	18.2
01	12.9	14.7	17.2	20.2	22.0	21.3	18.9	18.7	18.4	17.2	14.4	12.8	17.4
02	12.1	13.8	16.2	19.3	21.1	20.6	18.4	18.2	17.9	16.5	13.6	11.9	16.6
03	11.4	13.0	15.2	18.3	20.2	19.9	18.0	17.8	17.5	15.9	12.9	11.2	15.9
04	10.7	12.2	14.3	17.3	19.3	19.3	17.6	17.5	17.2	15.4	12.3	10.6	15.3
05	10.1	11.4	13.4	16.3	18.3	18.8	17.3	17.2	16.9	14.9	11.7	10.0	14.7
06	9.5	10.7	12.7	15.4	17.5	18.3	17.0	16.9	16.6	14.4	11.1	9.5	14.1
07	9.2	10.6	13.3	15.2	17.4	18.3	17.0	16.9	16.5	14.3	11.7	9.4	14.1
08	11.1	13.1	16.5	17.5	19.9	20.0	18.2	18.0	17.7	15.9	14.9	11.9	16.2
09	14.1	16.2	19.5	20.6	22.5	22.0	20.0	20.0	19.9	18.9	17.9	14.9	18.9
10	17.0	19.2	22.4	23.4	24.9	23.9	21.9	22.0	22.1	21.4	20.7	17.9	21.4
11	19.7	21.7	24.8	26.0	27.3	25.9	23.8	23.9	23.9	23.6	23.1	20.7	23.7
12	22.0	24.0	26.9	28.3	29.4	27.7	25.4	25.5	25.5	25.5	25.0	22.9	25.7
13	23.5	25.6	28.5	30.1	31.2	29.3	26.7	26.7	26.6	26.9	26.3	24.4	27.1
14	24.5	26.7	29.3	31.4	32.5	30.4	27.6	27.6	27.4	27.9	27.0	25.2	28.1
15	24.8	27.1	29.7	32.0	33.1	31.0	28.2	28.1	27.8	28.3	27.1	25.5	28.6
16	24.6	26.9	29.4	32.1	33.2	31.0	28.3	28.2	27.6	28.2	26.4	25.0	28.4
17	23.4	26.0	28.6	31.6	32.7	30.4	27.8	27.7	27.0	27.3	24.6	23.3	27.5
18	21.0	23.8	26.8	30.6	31.8	29.5	26.9	26.6	25.7	25.3	21.5	20.4	25.8
19	18.9	21.4	24.4	28.8	30.3	28.0	25.0	24.7	23.4	22.6	20.0	18.8	23.9
20	17.8	20.3	23.1	26.7	28.3	26.2	23.0	22.4	21.5	21.0	18.9	17.6	22.2
21	16.8	19.1	21.9	25.5	26.8	24.7	21.6	21.2	20.6	20.1	18.0	16.6	21.1
22	15.8	18.0	20.6	24.2	25.5	23.6	20.7	20.4	19.9	19.3	17.1	15.6	20.1
23	14.8	16.9	19.4	22.8	24.2	22.7	20.1	19.7	19.3	18.6	16.2	14.6	19.1
Media	16.6	18.7	21.3	24.0	25.5	24.4	22.0	21.9	21.5	20.7	18.6	16.8	21.0

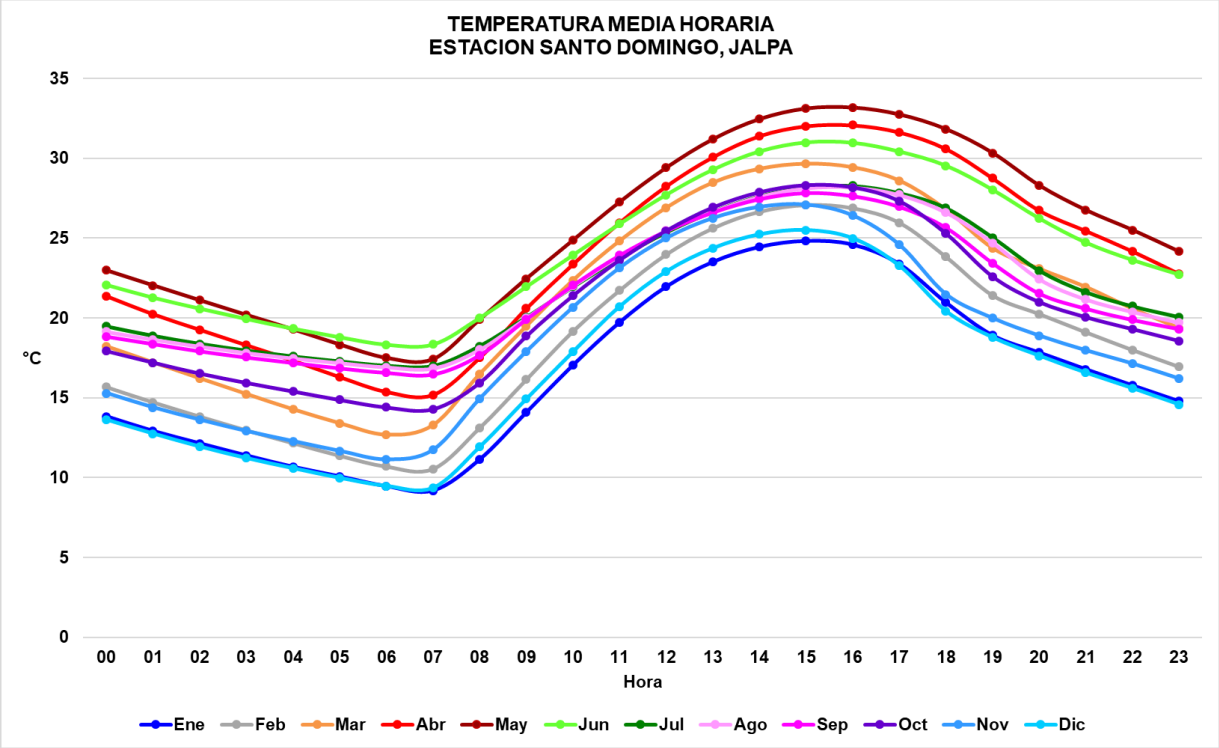


Figura 502. Temperatura media (˚C) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 559. Precipitación media (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.6	0.6	0.0	0.0	0.6	7.9	16.5	11.7	9.3	4.5	0.2	0.5	52.4
01	0.5	0.6	0.0	0.2	0.4	6.5	16.9	9.9	5.9	4.0	0.1	0.3	45.3
02	0.5	1.0	0.0	0.2	0.8	5.4	9.6	10.1	7.9	2.1	0.3	0.2	38.1
03	0.6	0.9	0.0	0.2	0.2	6.7	10.5	12.9	7.3	1.3	0.3	0.4	41.4
04	0.6	0.5	0.0	0.0	0.1	6.1	6.7	6.5	5.1	1.9	0.3	0.5	28.3
05	0.6	0.7	0.0	0.0	0.0	5.0	4.9	5.6	3.4	1.9	0.2	0.8	23.0
06	0.5	0.5	0.0	0.0	0.1	4.3	3.0	3.3	2.7	1.4	0.2	0.6	16.7
07	0.4	0.5	0.1	0.1	0.4	1.9	2.5	2.8	2.1	0.5	0.2	0.7	12.2
08	0.4	0.5	0.1	0.0	0.3	1.4	1.5	1.5	3.0	0.4	0.2	0.7	9.9
09	0.2	0.6	0.1	0.0	0.1	1.1	1.8	0.8	1.5	0.5	0.4	0.4	7.6
10	0.1	0.4	0.0	0.0	0.1	0.4	1.2	0.6	0.8	0.2	0.1	0.3	4.1
11	0.2	0.3	0.0	0.0	0.0	0.2	0.4	0.1	0.5	0.3	0.2	0.3	2.3
12	0.2	0.4	0.1	0.0	0.0	0.1	0.3	0.0	0.4	0.1	0.2	0.5	2.3
13	0.6	0.6	0.1	0.0	0.0	0.1	0.9	0.5	0.2	0.2	0.3	0.6	4.2
14	0.6	0.8	0.3	0.0	0.0	0.3	0.9	0.3	1.3	0.6	1.1	0.2	6.3
15	0.4	0.8	0.1	0.0	0.7	0.8	1.0	0.6	1.4	0.4	0.2	0.2	6.7
16	0.5	0.7	0.2	0.1	0.3	1.8	3.2	3.2	4.3	0.7	0.7	0.4	16.3
17	0.6	0.6	0.4	0.0	1.5	3.8	7.6	3.7	5.8	1.5	0.4	0.5	26.2
18	1.3	0.9	0.9	0.1	1.3	5.3	4.5	4.9	2.7	1.9	0.5	0.8	25.0
19	1.1	0.9	0.6	0.0	0.3	6.6	12.7	6.0	3.6	2.7	0.3	0.6	35.3
20	0.6	0.8	1.1	0.2	0.9	6.4	8.7	11.1	4.9	2.4	0.6	0.2	37.9
21	1.1	0.4	0.4	0.0	2.2	9.6	11.0	12.5	7.7	3.1	0.5	0.5	49.0
22	1.1	0.8	0.3	0.0	2.1	10.4	13.3	13.2	9.2	2.7	0.9	0.4	54.2
23	1.1	0.8	0.3	0.0	1.7	14.6	20.1	19.5	8.7	3.2	0.5	0.5	70.8
Suma	14.4	15.5	5.0	1.1	14.1	106.6	159.6	141.3	99.8	38.4	8.8	10.9	615.6

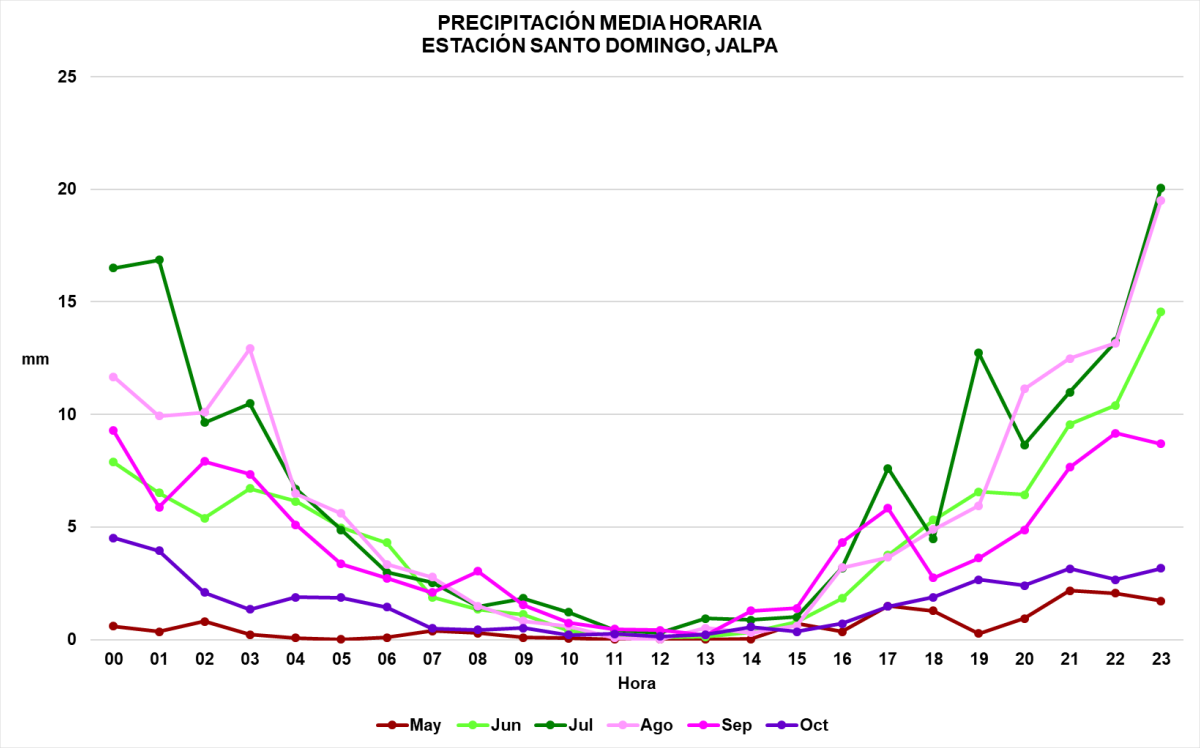


Figura 503. Precipitación media (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 560. Precipitación máxima (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	2.4	3.4	0.0	0.0	2.6	18.0	37.0	34.6	40.2	18.6	1.6	6.4	40.2
01	5.4	5.0	0.2	3.6	1.6	11.0	21.4	29.0	12.0	21.8	0.8	3.2	29.0
02	6.0	7.8	0.0	4.2	10.0	19.4	20.2	27.4	24.4	4.8	1.6	1.8	27.4
03	2.4	6.4	0.2	3.2	1.2	22.6	19.6	41.8	21.0	3.0	1.4	4.2	41.8
04	4.8	2.4	0.4	0.0	0.8	12.0	14.8	9.4	12.6	6.8	1.6	3.0	14.8
05	5.6	3.0	0.4	0.0	0.2	37.2	19.6	18.2	11.4	13.2	1.0	5.0	37.2
06	3.6	3.6	0.6	0.6	0.8	18.4	7.6	14.0	8.4	11.8	2.0	4.0	18.4
07	3.6	3.8	0.6	2.2	7.0	3.8	5.4	11.6	10.0	2.6	1.2	6.4	11.6
08	3.8	2.2	0.4	0.2	4.6	5.2	7.2	5.0	14.4	4.2	1.8	4.2	14.4
09	2.4	3.4	1.4	0.0	1.6	4.8	10.6	3.2	8.2	4.2	3.6	4.2	10.6
10	1.2	2.0	0.2	0.0	1.2	2.4	6.6	4.6	3.6	1.6	0.6	2.8	6.6
11	2.4	1.6	0.2	0.0	0.4	1.4	2.8	0.6	3.0	2.1	1.2	1.8	3.0
12	2.2	2.6	0.6	0.0	0.4	1.0	3.0	0.4	2.8	1.2	2.0	4.2	4.2
13	4.0	4.0	1.2	0.0	0.2	1.0	10.8	6.8	2.6	2.2	1.8	5.0	10.8
14	4.4	3.0	1.8	0.0	0.4	5.2	5.2	2.6	9.0	7.2	12.2	1.2	12.2
15	4.4	4.0	1.2	0.2	11.2	3.4	7.6	2.3	11.0	1.6	2.8	0.8	11.2
16	6.2	4.6	2.2	3.0	3.8	11.6	18.4	17.2	14.2	3.4	5.4	1.8	18.4
17	3.8	3.6	3.2	0.0	16.8	13.4	34.8	11.2	19.2	11.2	2.2	1.6	34.8
18	14.4	4.8	14.6	0.6	14.4	23.6	20.2	16.2	7.4	9.4	2.2	6.8	23.6
19	5.8	3.4	6.8	0.6	2.0	35.0	22.6	10.8	15.0	16.8	2.4	6.4	35.0
20	3.2	4.6	8.8	1.0	6.6	14.6	12.8	24.2	12.8	26.0	2.6	1.8	26.0
21	5.8	2.6	6.2	0.4	13.4	47.2	19.2	26.4	20.4	18.8	3.0	2.8	47.2
22	4.6	3.8	3.2	0.2	17.2	42.8	26.4	23.0	27.0	14.2	8.6	1.8	42.8
23	6.6	5.8	1.6	0.0	8.2	41.6	43.6	24.8	20.8	15.4	2.8	4.2	43.6
Máx.	14.4	7.8	14.6	4.2	17.2	47.2	43.6	41.8	40.2	26.0	12.2	6.8	47.2

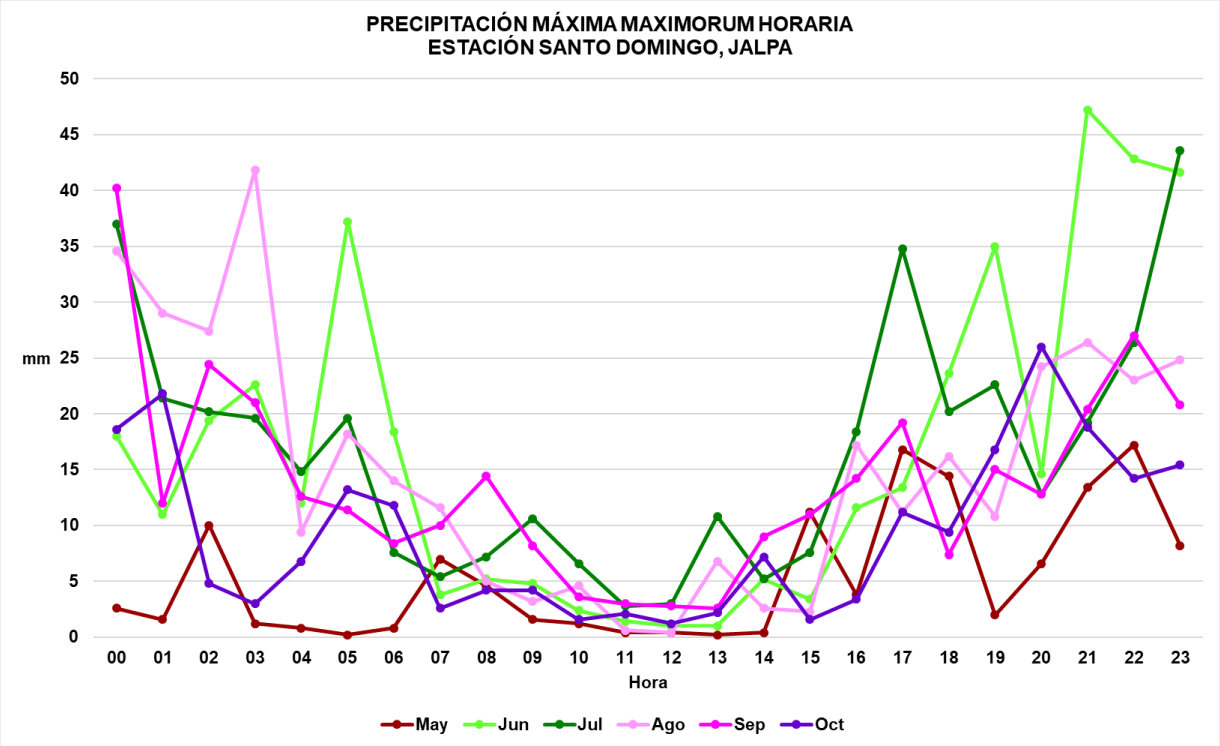


Figura 504. Precipitación máxima (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 561. Evapotranspiración potencial media (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.01	0.02	0.02	0.02	0.03	0.00	0.00	0.00	0.01	0.01	0.01	0.01
01	0.01	0.01	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00	0.01
02	0.01	0.01	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
03	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01
08	0.02	0.05	0.10	0.06	0.06	0.05	0.03	0.02	0.02	0.02	0.07	0.04	0.04
09	0.12	0.17	0.25	0.19	0.20	0.17	0.12	0.12	0.11	0.12	0.19	0.14	0.16
10	0.24	0.31	0.41	0.36	0.37	0.32	0.26	0.26	0.25	0.26	0.32	0.26	0.30
11	0.36	0.44	0.56	0.53	0.53	0.46	0.41	0.43	0.41	0.41	0.44	0.37	0.44
12	0.45	0.55	0.66	0.66	0.66	0.59	0.54	0.55	0.53	0.53	0.52	0.46	0.56
13	0.51	0.60	0.71	0.74	0.74	0.68	0.62	0.65	0.61	0.59	0.54	0.49	0.62
14	0.51	0.59	0.70	0.78	0.78	0.71	0.67	0.68	0.62	0.61	0.51	0.47	0.63
15	0.45	0.53	0.62	0.75	0.74	0.67	0.65	0.65	0.59	0.56	0.43	0.41	0.59
16	0.35	0.43	0.50	0.65	0.64	0.57	0.58	0.56	0.50	0.45	0.30	0.30	0.49
17	0.23	0.29	0.35	0.52	0.50	0.44	0.45	0.43	0.36	0.32	0.15	0.16	0.35
18	0.09	0.13	0.18	0.35	0.35	0.29	0.30	0.28	0.21	0.19	0.08	0.08	0.21
19	0.06	0.08	0.12	0.28	0.26	0.16	0.15	0.17	0.12	0.08	0.04	0.04	0.13
20	0.04	0.06	0.10	0.16	0.17	0.13	0.08	0.07	0.04	0.03	0.02	0.02	0.08
21	0.02	0.04	0.08	0.14	0.13	0.07	0.03	0.02	0.01	0.01	0.02	0.01	0.05
22	0.02	0.02	0.04	0.11	0.10	0.05	0.01	0.00	0.00	0.01	0.02	0.01	0.03
23	0.01	0.01	0.02	0.05	0.06	0.03	0.01	0.00	0.00	0.01	0.01	0.01	0.02
Media/día /mes	3.52	4.35	5.48	6.42	6.42	5.51	4.92	4.91	4.39	4.24	3.68	3.30	4.76

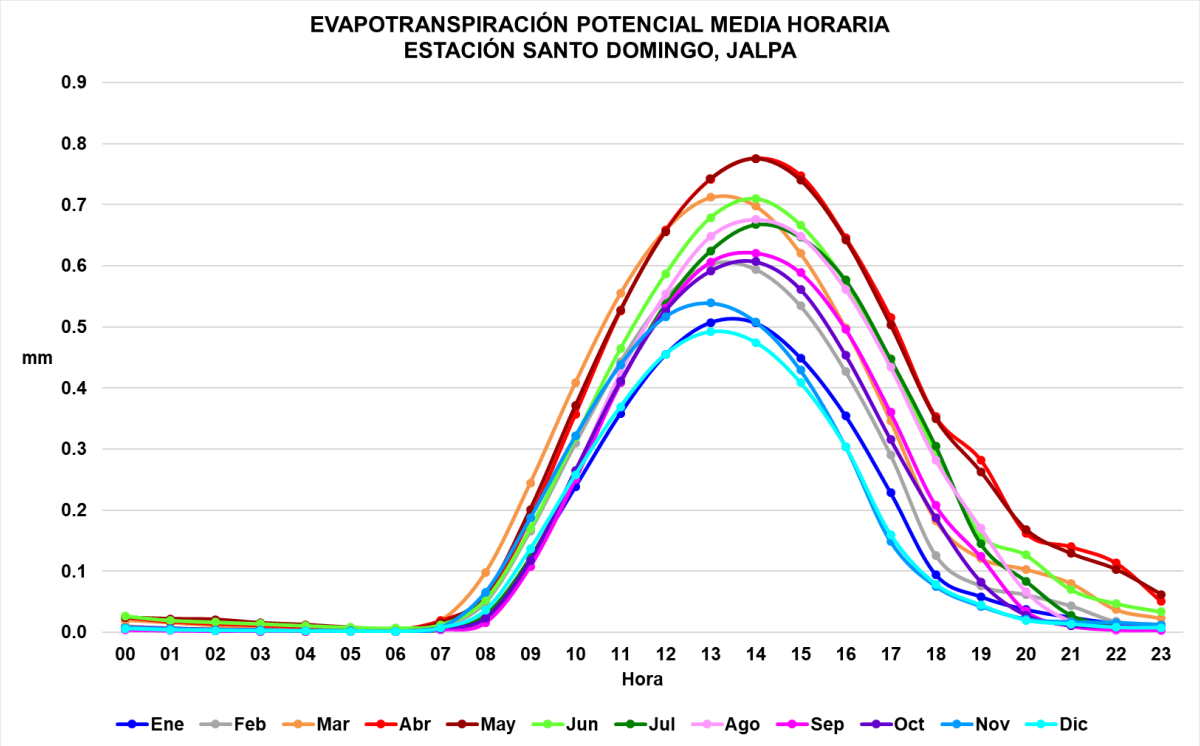


Figura 505. Evapotranspiración potencial media (mm) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 562. Humedad relativa media (%) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	47.2	40.8	31.5	25.6	33.2	59.1	79.8	81.7	81.4	68.3	57.4	50.9	54.7
01	50.1	43.7	34.3	28.4	36.2	62.7	82.3	83.7	83.2	71.2	60.5	53.8	57.5
02	52.5	46.7	37.1	31.2	39.3	65.9	84.6	85.4	85.0	73.8	63.4	56.5	60.1
03	55.2	49.6	39.9	34.0	42.4	68.9	86.0	86.8	86.2	75.9	65.9	59.0	62.5
04	57.7	52.4	42.6	36.5	45.3	71.7	87.3	87.9	87.3	78.0	68.2	61.3	64.7
05	59.9	55.0	45.2	39.2	48.0	73.7	88.2	88.8	88.3	79.8	70.4	63.5	66.7
06	62.2	57.2	47.4	41.7	50.4	75.4	88.8	89.4	89.0	81.5	72.5	65.5	68.4
07	63.4	57.9	46.7	42.6	51.2	75.5	88.7	89.5	89.2	82.0	70.9	66.2	68.7
08	58.1	51.2	39.5	38.2	46.0	70.4	84.5	86.0	85.7	77.1	60.6	58.8	63.0
09	49.6	43.7	33.7	32.7	40.1	63.3	77.0	78.3	77.2	66.7	51.0	49.7	55.2
10	42.1	37.3	28.6	28.2	34.3	55.3	68.5	69.7	68.6	57.8	43.6	42.2	48.0
11	36.1	31.7	23.7	23.0	28.3	47.7	60.6	61.6	60.7	50.3	37.5	36.2	41.5
12	31.1	27.0	20.0	18.7	23.6	41.4	54.1	55.3	54.8	44.3	32.8	31.5	36.2
13	27.5	23.6	17.4	15.8	20.0	36.2	49.4	51.2	50.7	39.8	29.7	28.2	32.5
14	25.1	21.3	15.9	13.8	17.6	32.5	46.1	47.9	47.8	36.8	27.7	25.8	29.9
15	23.8	20.1	15.0	12.7	16.2	30.9	44.1	46.0	46.5	35.3	27.0	24.7	28.5
16	23.6	20.0	14.7	12.3	15.8	30.7	43.7	45.9	47.1	35.2	27.8	25.1	28.5
17	25.1	20.7	15.2	12.3	16.0	32.0	45.4	47.8	49.6	37.6	31.6	27.6	30.1
18	29.2	23.4	16.5	12.9	17.1	34.4	49.1	52.2	54.8	43.7	38.1	32.6	33.7
19	33.1	26.7	19.0	14.2	18.5	38.5	56.5	60.1	63.4	51.6	41.4	35.8	38.2
20	35.7	29.1	21.0	16.2	21.2	43.5	64.4	68.1	70.1	56.0	44.7	38.7	42.4
21	38.6	31.7	23.3	18.2	24.4	48.7	69.7	73.0	73.7	59.4	47.8	41.8	45.9
22	41.5	34.3	26.1	20.3	27.5	53.4	74.1	76.6	76.7	62.3	50.6	44.8	49.0
23	44.4	37.2	28.7	22.8	30.8	57.2	77.2	79.6	79.0	65.2	53.9	47.9	52.0
Media	42.2	36.8	28.5	24.6	31.0	52.9	68.8	70.5	70.7	59.6	49.0	44.5	48.2

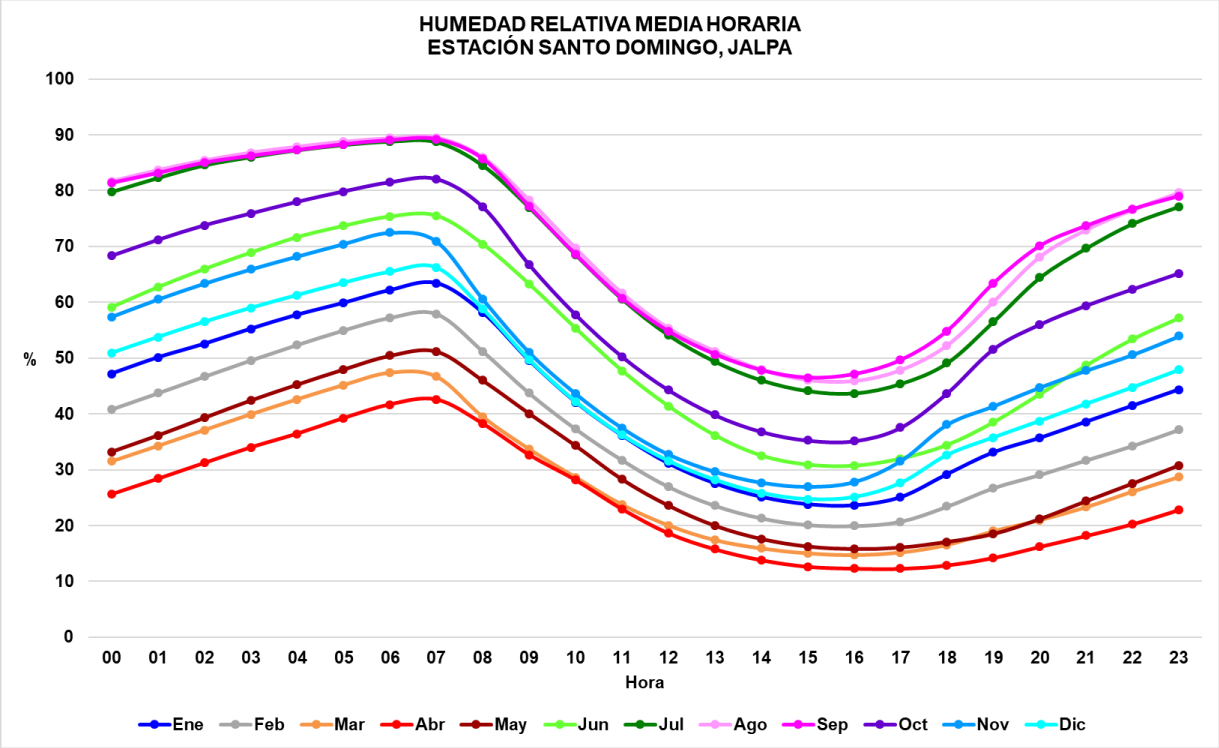


Figura 506. Humedad relativa media (%) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 563. Humedad relativa mínima minimorum (%) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.0	11.0	7.0	8.0	9.0	10.0	30.7	28.0	40.0	25.0	12.0	15.0	7.0
01	14.0	13.0	7.0	8.0	10.0	12.0	31.0	27.0	41.0	27.0	14.0	18.0	7.0
02	15.0	13.0	9.0	10.0	11.0	13.0	31.0	27.0	44.8	29.2	13.0	19.0	9.0
03	15.0	14.0	11.0	10.0	12.0	13.0	39.0	33.0	49.0	27.0	14.0	22.0	10.0
04	15.0	17.0	12.9	11.0	13.0	16.0	42.0	32.0	53.0	30.5	14.0	23.0	11.0
05	13.9	18.0	12.9	12.0	14.0	17.0	44.0	39.0	53.8	30.0	15.0	24.0	12.0
06	16.0	20.0	13.9	12.0	16.0	18.0	48.0	47.0	60.3	29.0	14.0	25.0	12.0
07	18.0	18.0	12.0	11.0	18.0	20.0	46.0	43.0	57.0	29.0	14.0	25.0	11.0
08	15.0	17.0	10.0	12.0	15.5	18.0	36.0	39.0	52.9	26.0	12.0	18.0	10.0
09	16.0	14.0	8.0	9.0	13.0	16.0	31.0	33.0	41.7	18.0	11.0	14.0	8.0
10	10.0	11.0	6.4	8.0	11.3	13.0	27.0	28.0	33.4	18.0	8.0	12.0	6.4
11	7.0	9.0	5.1	7.2	9.8	12.0	24.0	24.0	27.7	15.0	8.0	9.0	5.1
12	5.0	7.0	5.0	6.3	6.0	11.0	19.0	21.0	21.7	12.1	7.0	8.0	5.0
13	5.0	6.0	4.0	4.8	5.4	8.0	17.0	19.0	22.0	11.0	6.0	7.0	4.0
14	5.0	6.0	4.0	5.0	5.0	7.0	15.0	20.0	18.9	10.0	5.0	6.0	4.0
15	5.7	6.0	3.0	4.0	5.0	5.0	14.7	16.0	16.6	9.0	5.0	6.0	3.0
16	6.0	5.0	3.0	4.0	4.6	6.0	13.4	16.0	16.0	10.0	5.0	5.0	3.0
17	6.0	5.0	3.0	4.0	4.0	6.0	11.0	16.0	14.6	10.0	5.0	6.0	3.0
18	7.0	6.0	4.0	4.0	4.8	6.0	10.0	16.0	16.5	10.0	9.0	9.0	4.0
19	9.0	7.0	4.0	4.0	5.0	6.0	13.0	16.0	20.0	13.0	9.0	9.0	4.0
20	10.0	8.0	5.0	4.0	5.0	6.0	15.0	20.0	28.5	16.2	9.0	9.0	4.0
21	10.0	10.0	6.0	5.0	6.0	8.0	21.0	27.0	31.0	19.1	11.0	9.0	5.0
22	13.0	10.0	7.0	6.0	7.0	8.0	22.0	33.0	37.0	21.0	11.0	10.0	6.0
23	13.0	11.0	7.0	8.0	8.0	9.0	26.0	24.0	38.0	24.0	11.0	10.0	7.0
Mín.	5.0	5.0	3.0	4.0	4.0	5.0	10.0	16.0	14.6	9.0	5.0	5.0	3.0

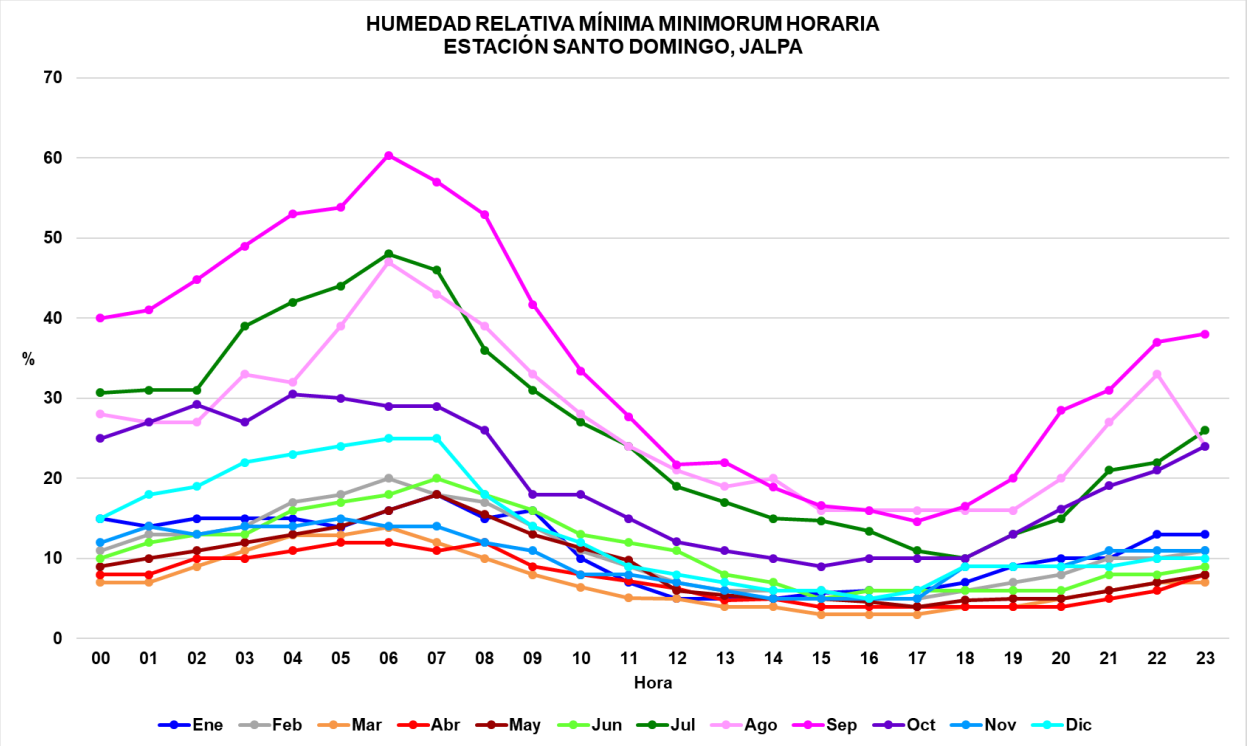


Figura 507. Humedad relativa mínima minimorum (%) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 564. Radiación solar global media horaria (W/m2) de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	1	4	20	8	10	8	4	2	1	4	12	3	6
07	76	142	337	194	205	163	110	85	64	93	264	110	154
08	623	824	1209	855	878	722	586	533	492	565	1022	716	752
09	1436	1736	2187	1809	1790	1545	1356	1321	1273	1390	1868	1507	1601
10	2190	2544	3008	2717	2670	2382	2231	2216	2178	2258	2547	2192	2428
11	2705	3125	3576	3434	3386	3088	2979	2980	2873	2916	2990	2653	3059
12	2953	3405	3827	3853	3826	3583	3456	3510	3309	3303	3104	2858	3416
13	2906	3338	3757	3987	3985	3781	3663	3690	3438	3372	2931	2735	3465
14	2529	2978	3330	3812	3759	3581	3585	3566	3238	3119	2487	2340	3194
15	1960	2394	2673	3273	3250	3045	3170	3133	2818	2582	1820	1753	2656
16	1248	1627	1872	2578	2509	2336	2508	2493	2118	1852	993	1006	1928
17	472	781	999	1734	1697	1545	1740	1696	1336	1041	287	288	1135
18	59	149	271	911	947	875	987	906	618	351	14	18	509
19	0	1	7	262	327	319	347	295	128	36	0	0	143
20	0	0	0	12	29	41	45	21	2	0	0	0	13
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	19158	23049	27074	29441	29268	27015	26767	26448	23887	22883	20338	18178	24459

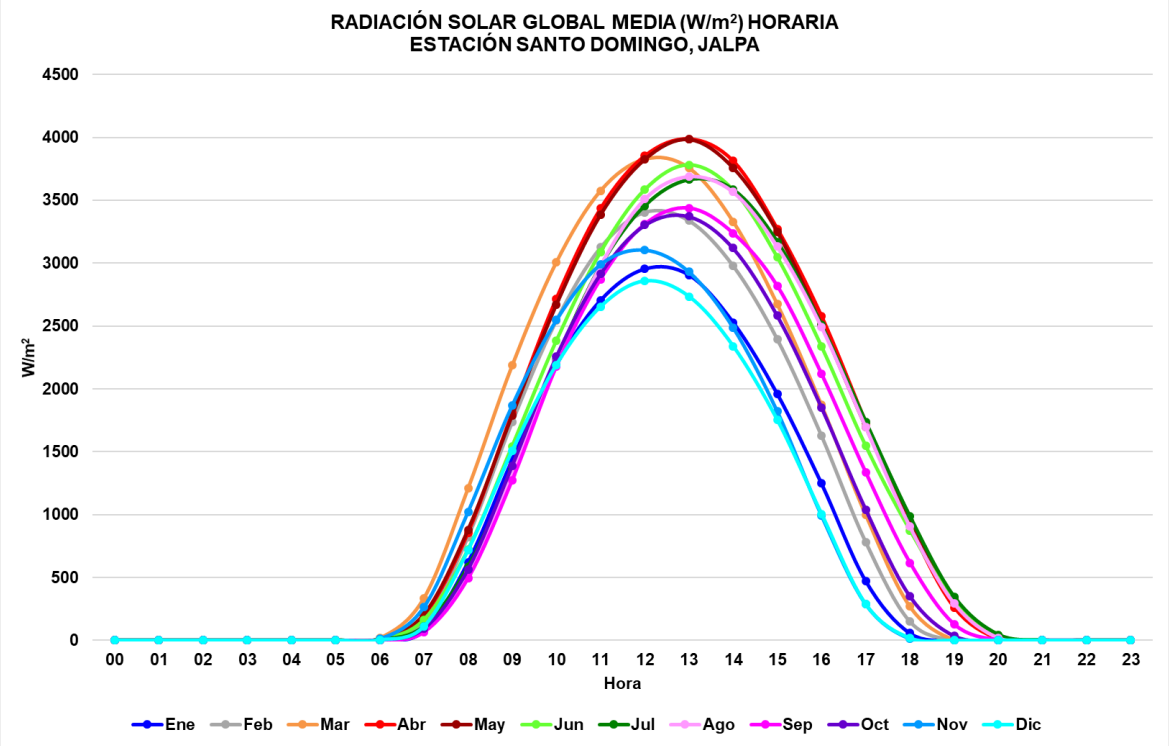


Figura 508. Radiación solar global media horaria (W/m2) de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 565. Radiación solar global media horaria (kWh/m2) de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.04	0.08	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.07	0.03	0.04
08	0.16	0.21	0.30	0.21	0.22	0.18	0.15	0.13	0.12	0.14	0.26	0.18	0.19
09	0.36	0.43	0.55	0.45	0.45	0.39	0.34	0.33	0.32	0.35	0.47	0.38	0.40
10	0.55	0.64	0.75	0.68	0.67	0.60	0.56	0.55	0.54	0.56	0.64	0.55	0.61
11	0.68	0.78	0.89	0.86	0.85	0.77	0.74	0.75	0.72	0.73	0.75	0.66	0.76
12	0.74	0.85	0.96	0.96	0.96	0.90	0.86	0.88	0.83	0.83	0.78	0.71	0.85
13	0.73	0.83	0.94	1.00	1.00	0.95	0.92	0.92	0.86	0.84	0.73	0.68	0.87
14	0.63	0.74	0.83	0.95	0.94	0.90	0.90	0.89	0.81	0.78	0.62	0.58	0.80
15	0.49	0.60	0.67	0.82	0.81	0.76	0.79	0.78	0.70	0.65	0.46	0.44	0.66
16	0.31	0.41	0.47	0.64	0.63	0.58	0.63	0.62	0.53	0.46	0.25	0.25	0.48
17	0.12	0.20	0.25	0.43	0.42	0.39	0.43	0.42	0.33	0.26	0.07	0.07	0.28
18	0.01	0.04	0.07	0.23	0.24	0.22	0.25	0.23	0.15	0.09	0.00	0.00	0.13
19	0.00	0.00	0.00	0.07	0.08	0.08	0.09	0.07	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.79	5.76	6.77	7.36	7.32	6.75	6.69	6.61	5.97	5.72	5.08	4.54	6.11

Cuadro 566. Radiación solar global media horaria (Mj/m2/s) de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
07	0.07	0.13	0.30	0.17	0.18	0.15	0.10	0.08	0.06	0.08	0.24	0.10	0.14
08	0.56	0.74	1.09	0.77	0.79	0.65	0.53	0.48	0.44	0.51	0.92	0.64	0.68
09	1.29	1.56	1.97	1.63	1.61	1.39	1.22	1.19	1.15	1.25	1.68	1.36	1.44
10	1.97	2.29	2.71	2.45	2.40	2.14	2.01	1.99	1.96	2.03	2.29	1.97	2.19
11	2.43	2.81	3.22	3.09	3.05	2.78	2.68	2.68	2.59	2.62	2.69	2.39	2.75
12	2.66	3.06	3.44	3.47	3.44	3.23	3.11	3.16	2.98	2.97	2.79	2.57	3.07
13	2.62	3.00	3.38	3.59	3.59	3.40	3.30	3.32	3.09	3.03	2.64	2.46	3.12
14	2.28	2.68	3.00	3.43	3.38	3.22	3.23	3.21	2.91	2.81	2.24	2.11	2.87
15	1.76	2.15	2.41	2.95	2.93	2.74	2.85	2.82	2.54	2.32	1.64	1.58	2.39
16	1.12	1.46	1.68	2.32	2.26	2.10	2.26	2.24	1.91	1.67	0.89	0.91	1.74
17	0.42	0.70	0.90	1.56	1.53	1.39	1.57	1.53	1.20	0.94	0.26	0.26	1.02
18	0.05	0.13	0.24	0.82	0.85	0.79	0.89	0.82	0.56	0.32	0.01	0.02	0.46
19	0.00	0.00	0.01	0.24	0.29	0.29	0.31	0.27	0.12	0.03	0.00	0.00	0.13
20	0.00	0.00	0.00	0.01	0.03	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	17.24	20.74	24.37	26.50	26.34	24.31	24.09	23.80	21.50	20.59	18.30	16.36	22.01

Cuadro 567. Velocidad del viento media (km/h) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.0	3.7	4.7	4.7	5.4	6.4	4.7	3.8	3.6	4.0	3.6	3.5	4.3
01	3.8	3.6	4.5	4.4	5.1	5.9	4.2	3.4	3.3	3.6	3.5	3.4	4.1
02	3.6	3.4	4.2	4.1	4.8	5.6	3.7	3.2	2.9	3.4	3.3	3.3	3.8
03	3.5	3.3	3.9	3.8	4.6	5.3	3.5	3.1	2.9	3.3	3.1	3.1	3.6
04	3.2	3.1	3.5	3.5	4.0	4.8	3.2	2.8	2.7	3.1	3.1	2.9	3.3
05	3.0	3.0	3.3	3.1	3.6	4.2	2.9	2.8	2.4	2.9	2.8	2.7	3.1
06	2.7	2.8	3.1	2.9	3.2	3.7	2.8	2.6	2.5	2.7	2.7	2.6	2.9
07	2.5	2.7	2.7	2.6	2.8	3.3	2.7	2.5	2.4	2.4	2.4	2.5	2.6
08	2.4	2.7	3.3	2.8	3.5	4.0	2.9	2.4	2.4	2.5	3.0	2.2	2.9
09	3.8	4.4	5.1	4.5	5.4	5.5	3.9	3.3	3.4	3.7	4.1	3.7	4.2
10	5.1	5.8	6.6	6.4	6.4	5.9	4.6	4.3	4.5	4.8	4.9	4.6	5.3
11	6.4	7.3	7.9	7.6	6.7	6.0	5.0	4.7	5.0	5.3	5.7	5.8	6.1
12	8.0	8.8	9.1	8.6	7.4	6.6	5.2	4.8	5.0	5.7	6.7	7.4	7.0
13	9.3	10.0	10.2	9.9	8.4	7.4	5.8	5.2	5.4	6.4	7.5	8.7	7.8
14	10.1	10.7	11.0	11.2	9.5	8.2	6.6	5.5	5.8	6.8	7.9	9.3	8.6
15	10.2	11.1	11.5	11.9	10.4	9.1	6.9	5.9	5.9	6.9	7.7	9.3	8.9
16	9.7	11.0	11.5	12.3	10.8	9.6	7.2	6.2	6.0	6.8	7.3	8.6	8.9
17	8.4	9.9	10.7	12.2	11.1	9.7	7.3	6.1	5.6	6.2	6.0	6.9	8.3
18	6.3	7.7	9.3	12.0	11.1	9.6	7.2	5.8	5.1	5.4	5.5	5.6	7.6
19	6.1	7.1	8.8	11.1	10.6	9.5	6.6	5.4	4.3	4.7	5.2	5.3	7.1
20	5.4	7.2	9.9	11.6	10.6	8.6	6.0	4.7	3.9	4.3	4.6	4.2	6.8
21	4.7	5.3	7.4	12.3	11.5	8.3	5.6	4.2	3.9	4.2	4.6	3.9	6.3
22	4.6	4.4	5.3	8.6	9.2	7.9	5.1	4.2	3.8	4.3	4.4	3.8	5.5
23	4.4	4.1	5.1	5.5	6.1	7.0	5.0	4.3	3.6	4.2	3.9	3.7	4.7
Media	5.5	6.0	6.8	7.4	7.2	6.8	4.9	4.2	4.0	4.5	4.7	4.9	5.6

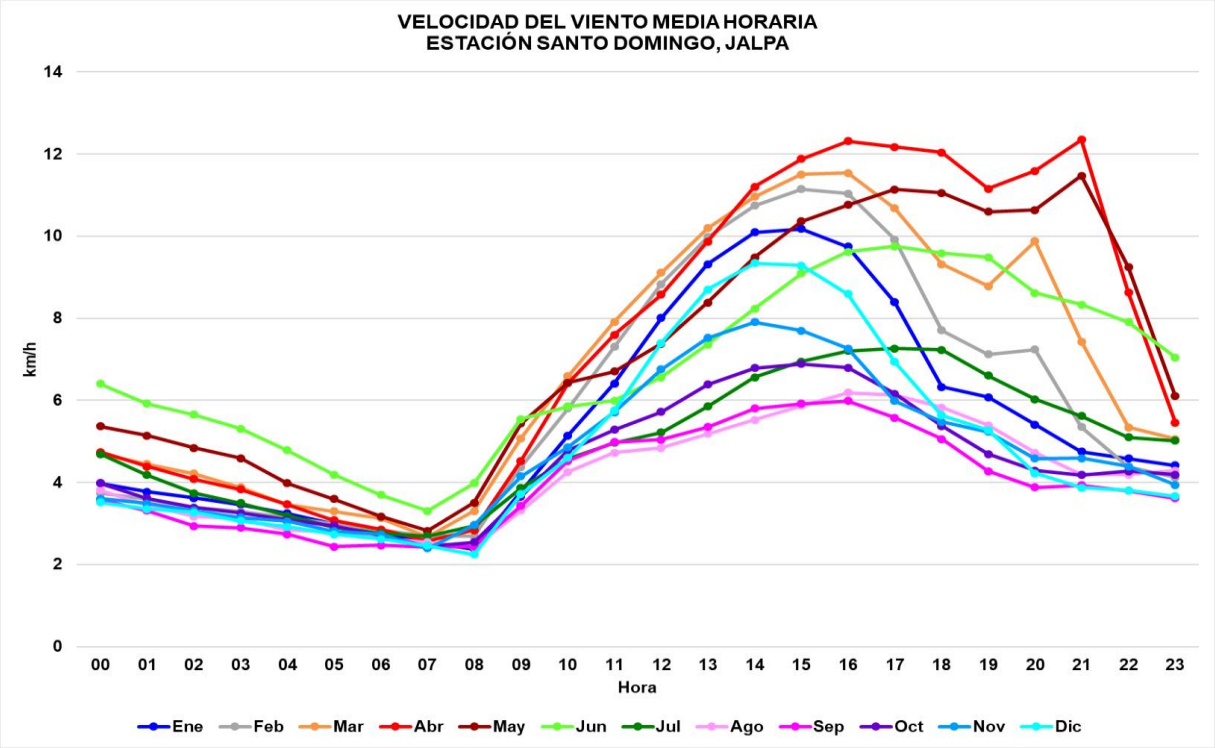


Figura 509. Velocidad del viento media (km/h) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 568. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	22.0	20.3	28.4	47.5	27.0	41.4	45.3	31.2	21.0	27.8	21.0	20.6	47.5
01	22.6	22.4	30.4	26.0	26.8	41.0	24.4	31.2	25.3	23.9	21.1	23.3	41.0
02	22.2	21.2	26.2	25.0	20.0	29.6	29.6	25.0	22.0	23.5	21.5	23.9	29.6
03	21.0	21.6	30.1	23.3	19.2	24.1	23.6	40.6	26.1	19.3	21.3	25.5	40.6
04	21.5	21.6	32.1	25.9	18.7	27.5	22.2	20.0	26.0	22.4	32.5	21.8	32.5
05	22.2	21.7	26.9	18.0	19.0	30.3	19.4	29.6	24.3	23.8	31.5	20.7	31.5
06	18.1	24.8	27.2	18.0	16.2	25.2	38.1	21.7	19.7	23.8	30.2	22.4	38.1
07	17.2	24.5	28.8	17.0	18.5	30.0	30.7	26.4	20.4	28.5	31.0	23.2	31.0
08	25.5	28.9	26.9	21.0	22.9	37.7	31.0	29.1	22.6	32.9	24.8	23.2	37.7
09	33.3	21.3	30.0	20.0	25.4	28.0	27.0	23.5	25.0	30.2	28.9	23.2	33.3
10	24.3	24.1	35.0	19.2	23.3	21.5	23.6	28.5	26.0	37.9	25.2	26.2	37.9
11	26.7	29.5	35.0	21.8	23.9	23.7	26.0	34.1	24.9	34.3	28.0	33.2	35.0
12	30.0	32.4	37.0	28.4	27.2	25.0	25.2	22.9	18.8	30.8	28.0	33.4	37.0
13	33.0	34.0	36.2	36.0	28.2	26.3	19.9	22.6	19.0	24.0	28.0	40.2	40.2
14	31.5	33.6	35.2	28.5	26.3	38.1	24.2	25.6	18.0	24.2	30.3	39.4	39.4
15	29.5	41.5	32.9	35.0	35.8	31.6	41.8	28.2	21.9	23.5	30.2	37.5	41.8
16	26.0	37.0	38.3	34.3	29.9	38.1	33.5	28.8	24.0	26.0	34.1	35.6	38.3
17	26.0	28.0	32.0	34.7	32.6	43.0	31.0	35.6	34.7	26.7	32.8	32.6	43.0
18	37.5	33.0	39.7	49.9	31.0	46.0	31.7	40.3	32.8	33.8	32.7	24.3	49.9
19	36.1	33.6	30.4	33.1	36.6	39.8	34.7	35.1	25.2	33.5	32.0	26.6	39.8
20	31.9	31.3	36.0	34.0	41.4	38.5	41.4	31.4	28.4	33.1	33.2	35.1	41.4
21	35.8	32.9	39.7	33.0	34.8	35.6	48.8	28.2	32.9	30.2	34.1	30.2	48.8
22	31.9	27.3	31.0	40.0	32.7	48.8	37.7	34.8	26.9	35.3	23.7	30.7	48.8
23	27.4	19.8	31.9	33.4	28.4	43.4	37.3	34.5	24.5	29.4	19.0	26.4	43.4
Máx.	37.5	41.5	39.7	49.9	41.4	48.8	48.8	40.6	34.7	37.9	34.1	40.2	49.9

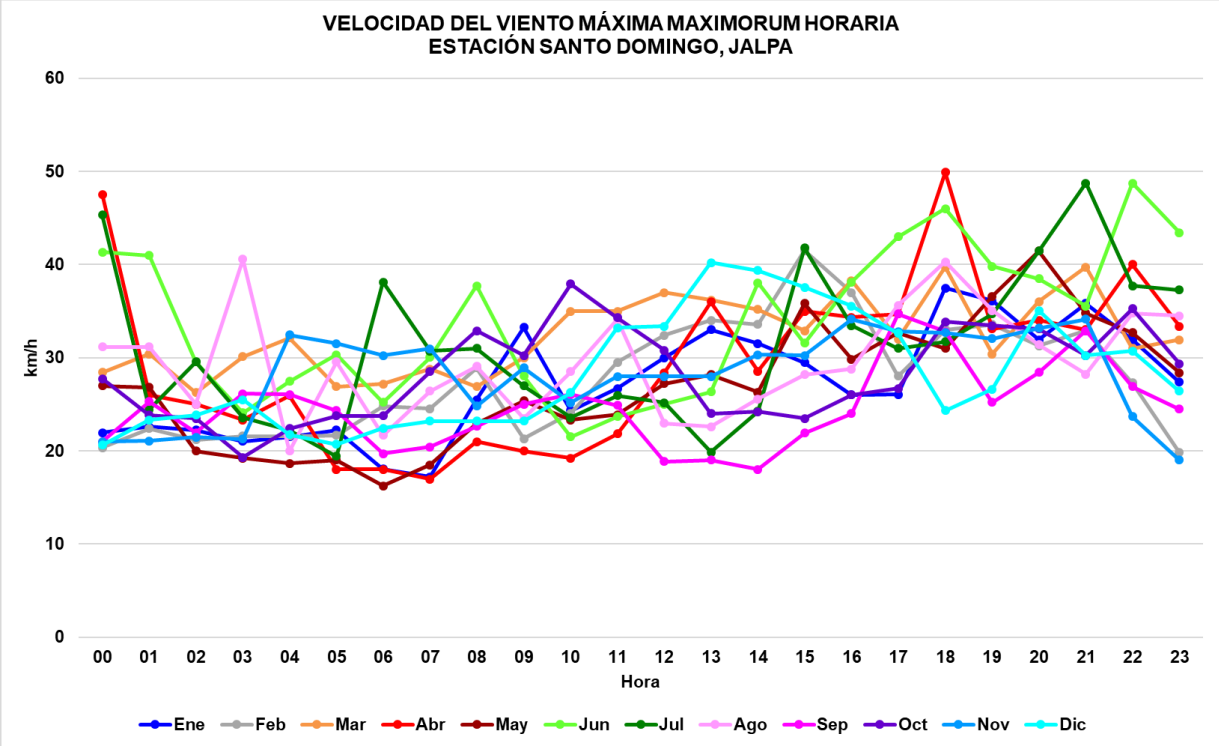


Figura 510. Velocidad del viento máxima maximorum (km/h) horaria de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 569. Frecuencia de velocidad del viento (%) mensual de la estación Santo Domingo, Jalpa (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	60.8	56.0	47.6	43.5	40.9	42.9	60.3	68.9	70.0	67.3	65.4	67.1	57.6
5.1 a 10.0	23.6	25.5	29.1	27.6	34.2	36.2	30.3	25.4	24.6	24.9	25.0	21.4	27.3
10.1 a 15.0	11.2	12.7	15.3	18.4	16.8	14.8	7.7	4.8	4.8	6.1	7.6	8.6	10.7
15.1 a 20.0	3.5	4.7	6.2	7.7	5.9	4.6	1.3	0.7	0.5	1.3	1.5	2.2	3.3
20.1 a 25.0	0.8	0.8	1.6	2.3	1.9	1.1	0.3	0.2	0.1	0.3	0.4	0.5	0.9
25.1 a 30.0	0.1	0.3	0.2	0.3	0.3	0.3	0.1	0.0	0.0	0.1	0.1	0.2	0.2
30.1 a 35.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

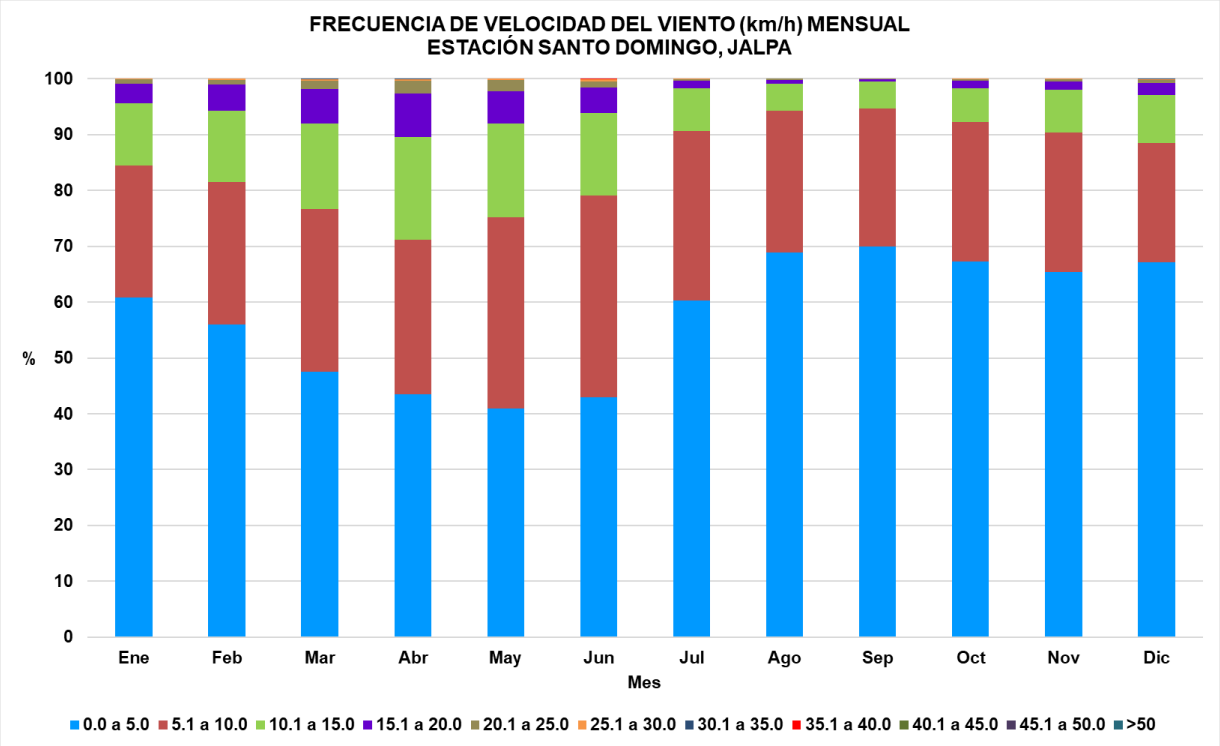


Figura 511. Frecuencia de velocidad del viento (%) mensual de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 570. Frecuencia de dirección del viento (%) mensual de la estación Santo Domingo, Jalpa (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.9	4.9	4.5	3.3	4.7	8.8	9.1	10.0	11.2	9.7	9.1	5.8	7.4
NNE	4.7	3.6	3.4	2.6	3.7	7.4	6.9	7.7	8.8	7.6	6.3	4.0	5.6
NE	4.3	3.5	3.2	2.5	3.5	5.7	5.7	6.0	6.5	6.3	5.0	4.1	4.7
ENE	3.7	3.3	3.1	2.4	2.9	4.4	4.8	4.7	4.7	4.4	4.2	3.6	3.9
E	3.0	3.1	2.8	2.7	3.2	3.5	4.0	3.7	3.6	3.5	3.2	3.3	3.3
ESE	2.7	2.9	2.8	3.1	3.8	3.6	3.7	3.3	3.2	2.8	2.7	3.0	3.1
SE	2.9	3.5	3.7	4.2	4.9	4.2	3.9	3.5	3.0	2.8	2.8	3.3	3.6
SSE	4.9	5.9	6.7	7.6	7.5	6.1	5.9	5.0	4.3	4.1	4.3	5.1	5.6
S	9.5	10.2	11.4	12.0	11.8	11.6	10.6	9.0	7.3	7.2	6.9	9.3	9.7
SSO	8.5	10.5	11.5	12.4	13.4	13.1	10.6	8.9	6.7	6.8	6.0	8.1	9.7
SO	6.1	7.7	8.9	10.2	9.2	7.2	5.8	5.4	4.2	4.5	4.2	5.6	6.6
OSO	8.3	9.6	10.2	11.2	8.1	4.7	4.5	4.3	4.3	5.6	7.1	8.8	7.2
O	13.4	13.1	12.6	12.8	9.6	5.1	6.0	6.6	7.3	10.2	13.1	14.5	10.3
ONO	8.3	7.9	6.7	6.5	6.0	4.2	5.5	6.4	6.9	7.9	8.8	9.1	7.0
NO	6.9	5.9	4.8	3.9	4.3	5.1	6.7	7.8	9.3	8.8	8.7	7.3	6.6
NNO	5.8	4.3	3.7	2.7	3.3	5.2	6.5	7.5	8.9	8.0	7.5	5.1	5.7
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

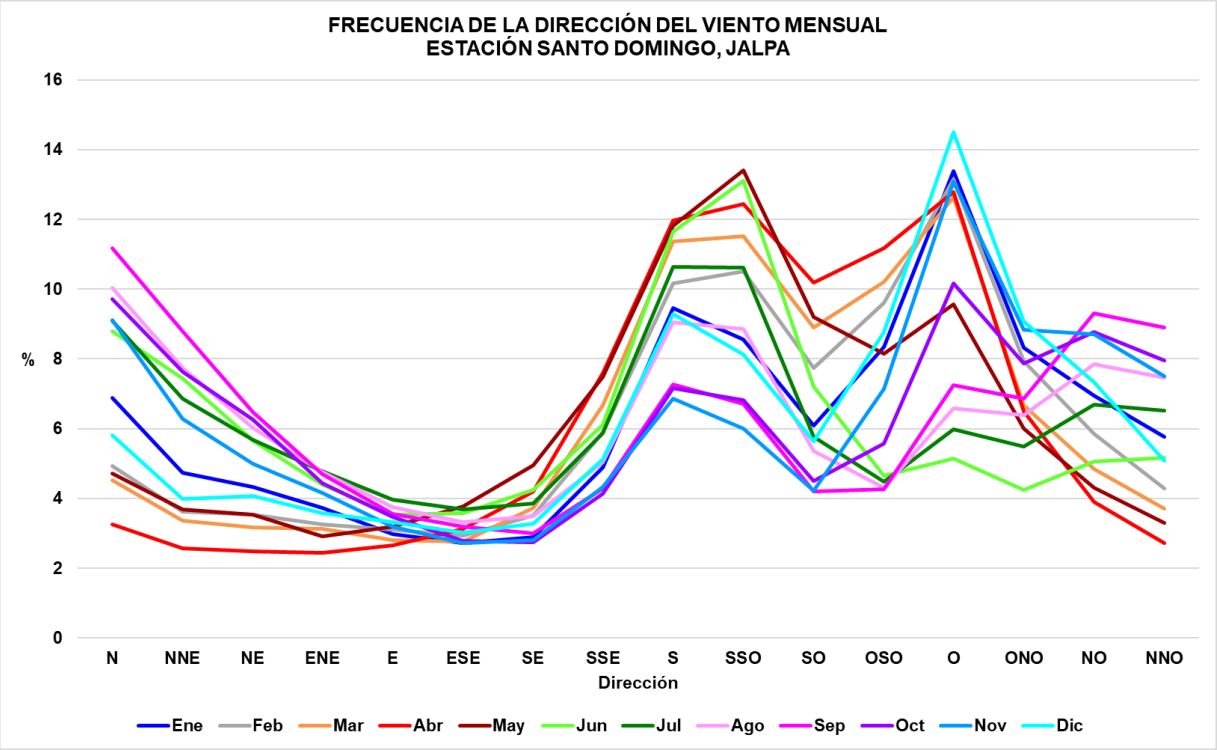
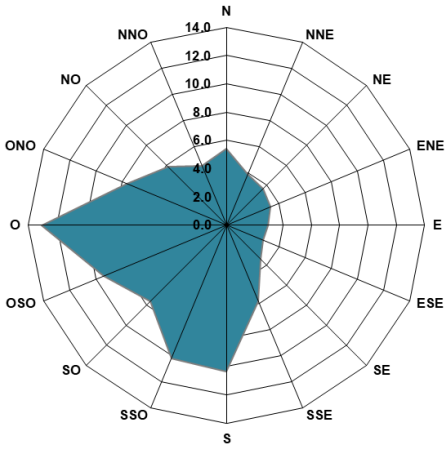


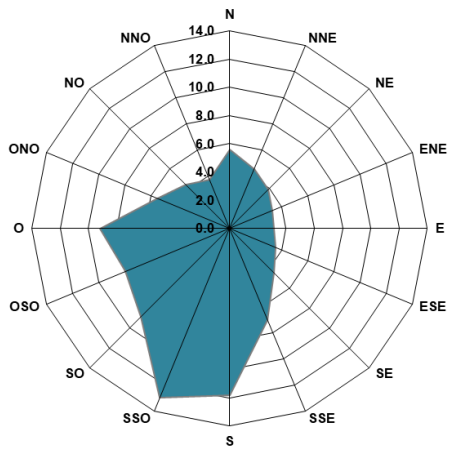
Figura 512. Frecuencia de dirección del viento (%) mensual de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 571. Frecuencia de dirección del viento (%) trimestral de la estación Santo Domingo, Jalpa (2003-2022).

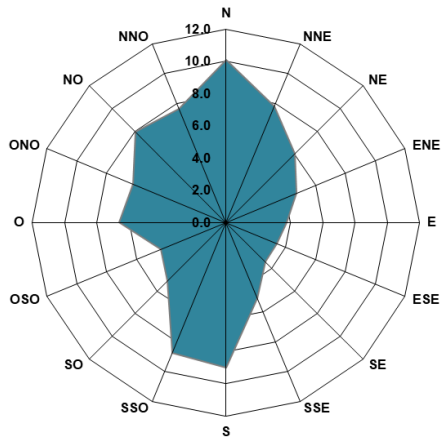
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.4	5.6	10.1	8.2	7.4
NNE	3.9	4.6	7.8	6.0	5.6
NE	3.7	3.9	6.1	5.1	4.7
ENE	3.4	3.3	4.7	4.1	3.9
E	3.0	3.1	3.8	3.3	3.3
ESE	2.8	3.5	3.4	2.8	3.1
SE	3.4	4.5	3.5	3.0	3.6
SSE	5.8	7.1	5.1	4.5	5.6
S	10.4	11.8	9.0	7.8	9.7
SSO	10.2	13.0	8.8	7.0	9.7
SO	7.6	8.9	5.1	4.8	6.6
OSO	9.4	8.0	4.4	7.1	7.2
O	13.0	9.2	6.6	12.6	10.3
ONO	7.6	5.6	6.2	8.6	7.0
NO	5.9	4.4	7.9	8.3	6.6
NNO	4.6	3.7	7.6	6.8	5.7
Suma	100.0	100.0	100.0	100.0	100.0



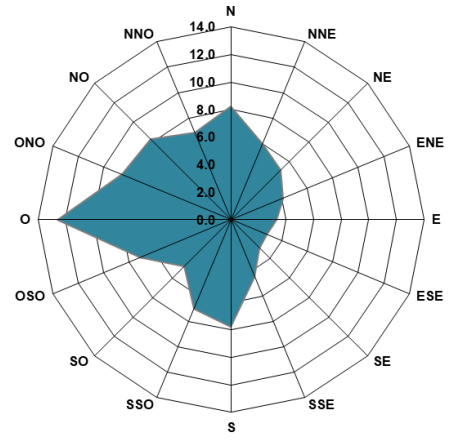
Ene-Mar



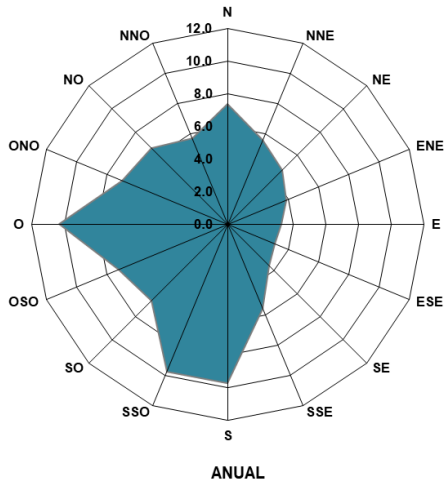
Abr-Jun



Jul-Sep



Oct-Dic



ANUAL

Figura 513. Frecuencia de dirección del viento (%) trimestral de la estación Santo Domingo, Jalpa (2003-2022).

Cuadro 572. Estadísticas climatológicas mensuales de la estación Santo Domingo, Jalpa (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	25.5	27.6	30.3	32.8	34.1	32.3	29.6	29.5	29.0	29.2	27.7	26.1	29.5
Temperatura máxima maximorum (°C)	31.5	34.4	37.2	38.7	39.0	38.0	35.1	34.2	34.0	33.9	33.7	32.6	39.0
Temperatura mínima media (°C)	8.4	9.7	11.8	14.2	16.5	17.6	16.4	16.3	16.0	13.6	10.4	8.5	13.3
Temperatura mínima minimorum (°C)	0.5	2.0	2.3	7.2	10.2	13.4	13.1	12.9	9.8	3.6	-0.4	-0.8	-0.8
Temperatura media (°C)	16.6	18.7	21.3	23.9	25.5	24.4	22.0	21.9	21.5	20.7	18.6	16.8	21.0
Oscilación térmica (°C)	17.1	17.9	18.5	18.6	17.6	14.7	13.1	13.1	13.0	15.6	17.3	17.6	16.2
Precipitación acumulada media (mm)	15.1	15.5	5.0	1.1	14.1	106.6	159.6	141.3	99.8	38.4	8.8	10.9	616.4
Precipitación máxima maximorum en 24 horas (mm)	40.2	44.8	49.2	12.2	23.6	87.4	63.0	53.2	82.4	38.0	27.0	36.8	87.4
Número de días promedio con lluvia	3.6	3.5	3.1	1.3	4.2	12.9	18.7	17.9	13.9	6.2	2.9	2.5	90.7
Evapotranspiración acumulada potencial media (mm)	113.4	127.7	178.9	194.3	202.8	174.6	164.0	159.8	141.7	139.7	121.6	106.4	1825.0
Humedad máxima media (%)	67.2	61.9	51.2	46.3	55.4	80.1	93.3	93.7	92.8	85.4	76.0	69.5	72.7
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.9	17.6	12.9	10.7	13.4	26.0	38.0	39.9	41.2	31.5	24.5	22.1	24.9
Humedad mínima minimorum (%)	5.0	5.0	3.0	4.0	4.0	5.0	10.0	16.0	14.6	9.0	5.0	5.0	3.0
Humedad media (%)	42.1	36.9	28.5	24.7	31.0	52.9	68.8	70.5	70.7	59.3	49.0	44.2	48.2
Radiación global media día/mes (W/m^2)	19168.2	23035.4	27073.6	29448.0	29268.0	27014.7	26766.9	26427.6	23886.6	22891.4	20337.7	18204.7	24460.2
Radiación global media día/mes (kWh/m^2)	4.8	5.8	6.8	7.4	7.3	6.8	6.7	6.6	6.0	5.7	5.1	4.6	6.1
Radiación global media día/mes ($Mj/m^2/s$)	17.3	20.7	24.4	26.5	26.3	24.3	24.1	23.8	21.5	20.6	18.3	16.4	22.0
Velocidad del viento máxima media (km/h)	15.6	16.8	19.1	21.2	21.2	20.8	17.4	14.9	12.9	12.6	13.0	13.9	16.6
Velocidad del viento máxima maximorum (km/h)	37.5	41.5	39.7	49.9	41.4	48.8	48.8	40.6	34.7	37.9	34.1	40.2	49.9
Velocidad del viento media (km/h)	5.5	5.9	6.8	7.4	7.2	6.8	4.9	4.2	4.0	4.5	4.7	4.8	5.6
Dirección dominante del viento	O	O	O	O	SSO	SSO	S	N	N	O	O	O	O

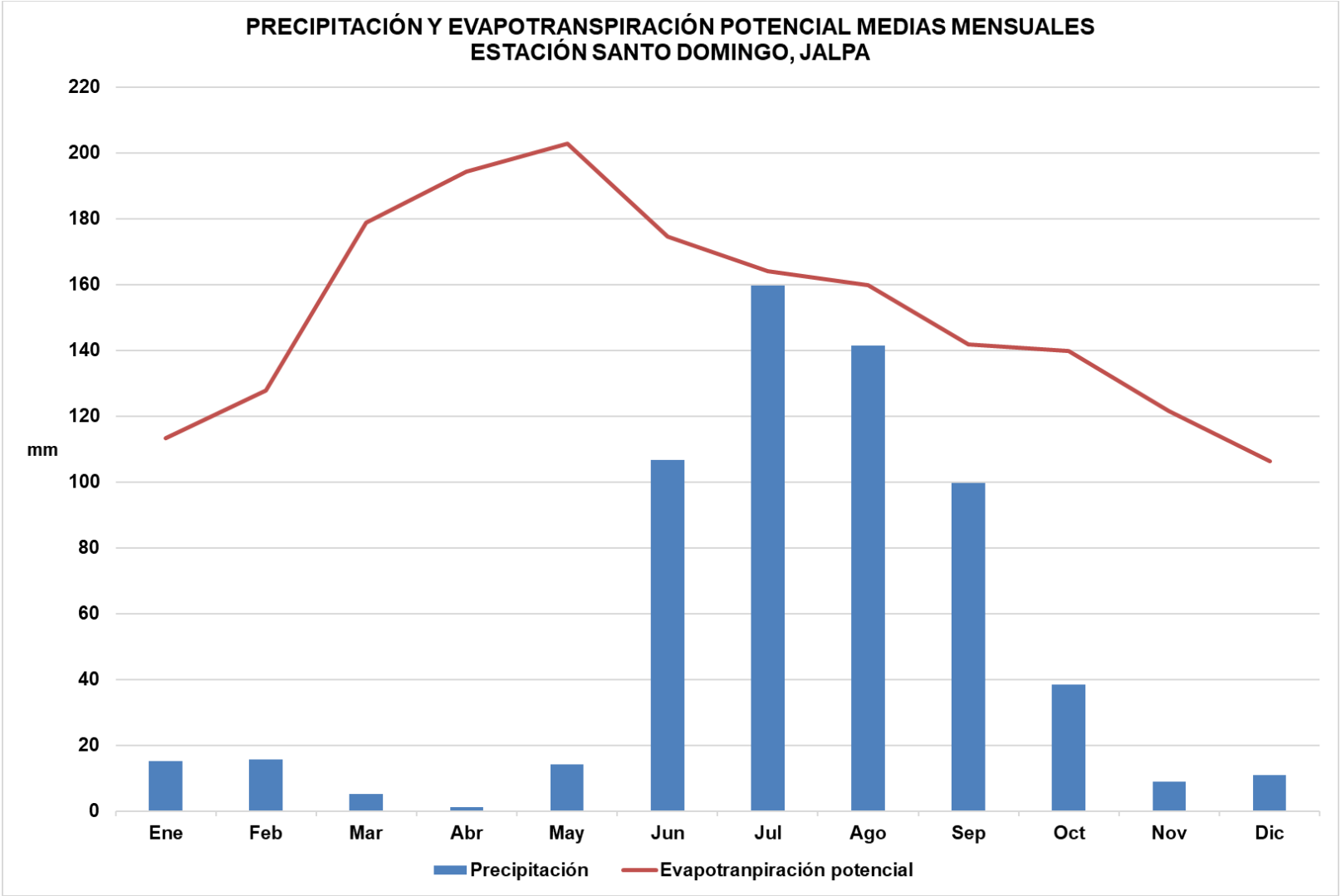


Figura 514. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Santo Domingo, Jalpa (2003-2022).

7.31. Estación: Sierra Vieja, Villa de Cos

Cuadro 573. Temperatura máxima media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	10.3	12.9	16.8	19.0	19.0	17.8	18.0	16.6	14.2	9.9	7.6	14.1
01	6.6	9.1	11.6	15.5	17.8	18.1	17.0	17.2	16.0	13.3	8.8	6.4	13.1
02	5.7	7.9	10.5	14.2	16.6	17.2	16.3	16.5	15.4	12.5	8.0	5.6	12.2
03	4.9	7.0	9.4	12.9	15.5	16.5	15.7	15.8	14.9	11.7	7.2	4.8	11.4
04	4.2	6.1	8.4	11.8	14.4	15.8	15.2	15.3	14.5	11.1	6.6	4.2	10.6
05	3.6	5.3	7.5	10.8	13.5	15.1	14.7	14.7	14.2	10.6	6.1	3.6	10.0
06	3.1	4.6	6.9	9.8	12.6	14.6	14.3	14.3	13.9	10.2	5.7	3.1	9.4
07	3.1	5.1	8.8	10.5	13.3	15.2	14.6	14.3	13.8	10.4	7.2	3.5	10.0
08	6.7	9.5	13.0	14.5	16.9	17.6	16.6	16.5	15.6	13.0	11.1	7.6	13.2
09	10.1	13.0	16.3	17.9	19.9	19.8	18.5	18.7	17.7	16.0	14.3	11.2	16.1
10	13.3	16.2	19.4	21.0	22.7	22.0	20.5	20.7	19.7	18.7	17.3	14.4	18.8
11	16.1	18.9	21.9	23.6	25.2	24.2	22.4	22.7	21.5	21.0	19.8	17.3	21.2
12	18.3	20.9	23.7	25.6	27.2	26.0	24.1	24.4	23.0	22.9	21.6	19.4	23.1
13	19.7	22.3	24.9	27.0	28.6	27.4	25.4	25.9	24.3	24.2	22.8	20.7	24.4
14	20.5	23.1	25.6	28.0	29.6	28.5	26.5	26.9	25.1	25.1	23.3	21.4	25.3
15	20.8	23.4	25.9	28.6	30.1	29.1	27.0	27.5	25.5	25.5	23.5	21.7	25.7
16	20.6	23.3	25.8	28.7	30.2	29.2	27.0	27.6	25.4	25.4	23.0	21.4	25.6
17	19.8	22.6	25.2	28.4	29.9	28.8	26.7	27.2	24.9	24.9	21.8	20.4	25.0
18	17.8	21.2	23.9	27.7	29.2	28.1	25.9	26.3	24.0	23.6	19.0	17.6	23.7
19	14.7	18.2	21.2	26.2	27.9	26.8	24.7	24.9	22.4	21.2	16.0	14.5	21.6
20	12.6	15.7	18.6	23.6	25.8	24.8	22.9	22.8	20.2	18.6	14.4	12.5	19.4
21	11.2	14.2	17.0	21.2	23.2	22.7	21.0	21.0	18.9	17.1	13.2	11.2	17.6
22	10.0	12.9	15.6	19.6	21.6	21.3	19.7	19.8	18.0	16.1	12.1	9.9	16.4
23	8.8	11.6	14.2	18.3	20.3	20.1	18.7	18.8	17.2	15.1	10.9	8.7	15.2
Media	11.7	14.3	17.0	20.1	22.1	22.0	20.5	20.7	19.3	17.6	14.3	12.0	17.6

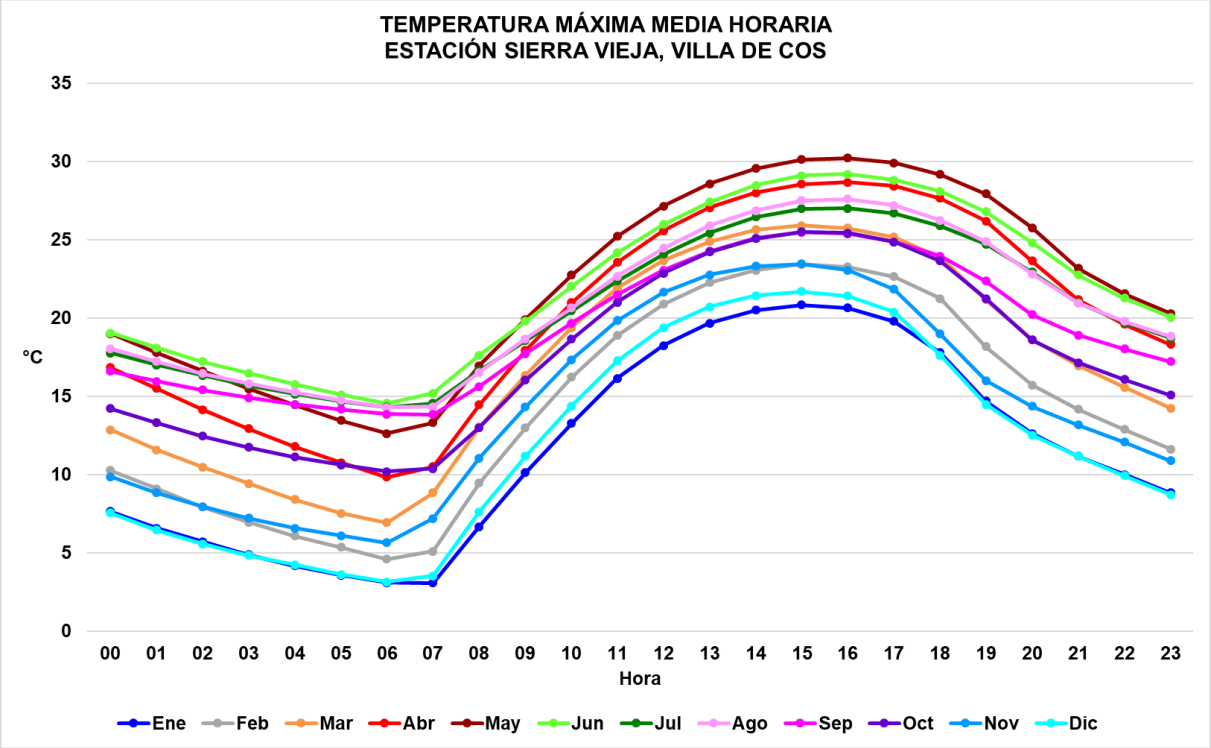


Figura 515. Temperatura máxima media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 574. Temperatura máxima maximorum (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	15.3	17.8	20.5	24.3	26.6	26.5	23.1	23.9	21.4	21.6	17.0	15.3	26.6
01	14.7	17.7	19.8	23.4	25.1	26.0	21.6	21.5	20.4	20.6	16.1	15.4	26.0
02	13.8	15.9	18.1	21.3	24.3	22.8	20.9	21.1	20.8	20.0	15.5	14.2	24.3
03	13.9	14.8	17.6	21.0	22.7	21.0	20.4	20.0	20.0	18.6	15.4	14.0	22.7
04	13.4	14.2	17.0	19.5	20.7	20.3	19.4	19.6	18.9	17.4	15.2	13.7	20.7
05	12.5	13.6	15.5	18.6	19.5	19.3	18.9	18.6	18.4	16.9	14.7	13.7	19.5
06	12.0	13.0	15.3	17.8	18.9	18.6	18.7	18.6	17.9	16.7	13.9	13.2	18.9
07	12.4	12.5	18.9	17.1	21.7	20.1	18.4	18.6	17.4	16.8	15.4	12.9	21.7
08	14.4	17.8	22.5	22.9	25.8	23.8	21.6	20.7	19.5	20.0	18.9	15.6	25.8
09	18.2	21.7	25.4	25.9	29.2	25.9	24.1	23.0	21.9	23.0	22.1	19.1	29.2
10	22.4	25.3	28.8	29.1	31.5	28.4	26.1	25.5	24.1	25.9	25.0	23.1	31.5
11	25.9	29.3	30.4	30.5	33.2	30.5	28.6	27.9	26.9	27.6	27.4	26.0	33.2
12	26.8	31.3	32.5	32.2	34.0	32.1	30.2	29.9	28.8	29.2	29.2	27.4	34.0
13	27.3	32.7	33.5	32.8	35.6	33.4	32.2	31.1	30.1	30.4	29.9	28.5	35.6
14	28.4	33.0	34.5	33.9	36.0	34.0	33.4	32.8	30.5	30.6	30.6	28.9	36.0
15	28.3	32.7	34.7	34.3	36.5	35.2	33.7	33.1	32.4	31.0	30.9	28.9	36.5
16	28.4	32.7	34.4	34.8	37.0	35.5	33.8	33.4	32.1	30.7	30.5	28.4	37.0
17	27.0	31.7	33.9	34.4	37.1	34.9	33.8	33.7	31.8	30.5	29.5	26.6	37.1
18	25.0	29.8	33.1	33.9	36.5	34.4	33.7	32.7	32.1	30.4	24.3	24.3	36.5
19	22.2	26.3	29.2	32.6	35.9	33.7	32.2	31.1	30.6	29.8	22.0	20.4	35.9
20	21.0	23.8	26.3	29.3	32.3	32.5	30.1	29.8	27.1	26.5	21.1	19.0	32.5
21	21.2	22.4	25.2	28.2	30.0	30.7	28.0	27.4	25.5	24.4	19.6	18.4	30.7
22	19.6	21.7	23.8	26.1	30.3	28.3	26.0	26.6	24.9	22.6	19.2	17.1	30.3
23	17.3	19.1	22.2	25.5	28.4	26.8	25.0	26.1	23.0	21.6	18.1	16.1	28.4
Máx.	28.4	33.0	34.7	34.8	37.1	35.5	33.8	33.7	32.4	31.0	30.9	28.9	37.1

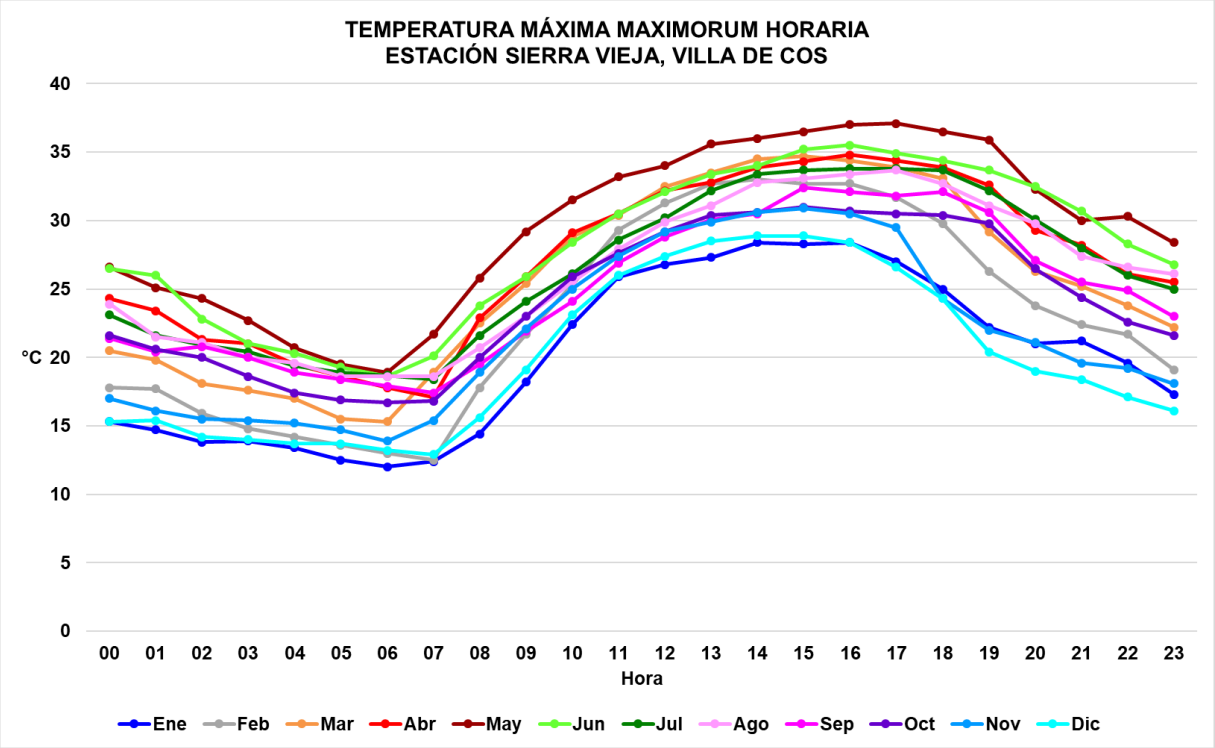


Figura 516. Temperatura máxima maximorum (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 575. Temperatura mínima media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.6	9.1	11.6	15.6	17.9	18.2	17.1	17.3	16.0	13.3	8.8	6.4	13.1
01	5.5	7.9	10.4	14.2	16.7	17.3	16.4	16.6	15.4	12.4	7.8	5.4	12.2
02	4.7	6.9	9.3	13.0	15.6	16.6	15.7	15.9	14.9	11.7	7.0	4.6	11.3
03	4.0	5.9	8.4	11.8	14.5	15.8	15.2	15.3	14.4	11.0	6.3	3.9	10.5
04	3.3	5.1	7.4	10.7	13.5	15.2	14.6	14.7	14.0	10.4	5.8	3.3	9.8
05	2.8	4.3	6.6	9.7	12.6	14.5	14.2	14.2	13.7	10.0	5.3	2.8	9.2
06	2.3	3.7	5.9	8.8	11.8	14.0	13.9	13.8	13.4	9.5	4.9	2.4	8.7
07	2.0	3.6	6.3	8.6	11.8	14.0	13.8	13.6	13.2	9.3	5.1	2.3	8.6
08	3.4	5.9	10.0	11.2	14.2	15.8	15.0	14.6	13.9	10.5	8.3	4.2	10.6
09	7.6	10.4	13.9	15.4	17.7	18.2	17.1	17.1	16.2	13.8	11.9	8.6	14.0
10	10.9	13.8	17.1	18.7	20.6	20.3	19.0	19.1	18.2	16.7	15.1	12.0	16.8
11	14.0	16.9	20.1	21.7	23.4	22.5	20.9	21.1	20.1	19.2	18.0	15.1	19.4
12	16.7	19.4	22.3	24.1	25.7	24.5	22.7	23.1	21.8	21.4	20.3	17.8	21.7
13	18.5	21.1	23.9	25.9	27.4	26.2	24.3	24.7	23.1	23.0	21.8	19.6	23.3
14	19.7	22.2	24.8	27.1	28.5	27.4	25.3	25.8	24.0	24.1	22.5	20.7	24.3
15	20.2	22.8	25.2	27.7	29.1	28.0	25.8	26.3	24.3	24.6	22.8	21.1	24.8
16	19.9	22.6	25.0	27.9	29.1	28.0	25.8	26.3	24.1	24.6	22.1	20.6	24.7
17	18.4	21.7	24.2	27.6	28.9	27.7	25.4	25.8	23.7	23.8	19.9	18.5	23.8
18	15.4	19.0	22.0	26.5	28.1	26.8	24.7	24.9	22.6	21.9	16.5	15.1	22.0
19	13.0	16.1	19.1	24.3	26.4	25.2	23.3	23.3	20.7	19.0	14.5	12.8	19.8
20	11.3	14.3	17.1	21.6	23.6	23.1	21.3	21.2	19.0	17.3	13.2	11.2	17.9
21	10.0	12.9	15.7	19.7	21.6	21.4	19.9	19.9	18.0	16.1	12.1	10.0	16.4
22	8.8	11.7	14.3	18.3	20.3	20.2	18.8	18.9	17.3	15.0	11.0	8.7	15.3
23	7.7	10.4	13.0	17.1	19.2	19.1	17.9	18.1	16.5	14.1	9.8	7.5	14.2
Media	10.3	12.8	15.6	18.6	20.8	20.8	19.5	19.6	18.3	16.4	13.0	10.6	16.4

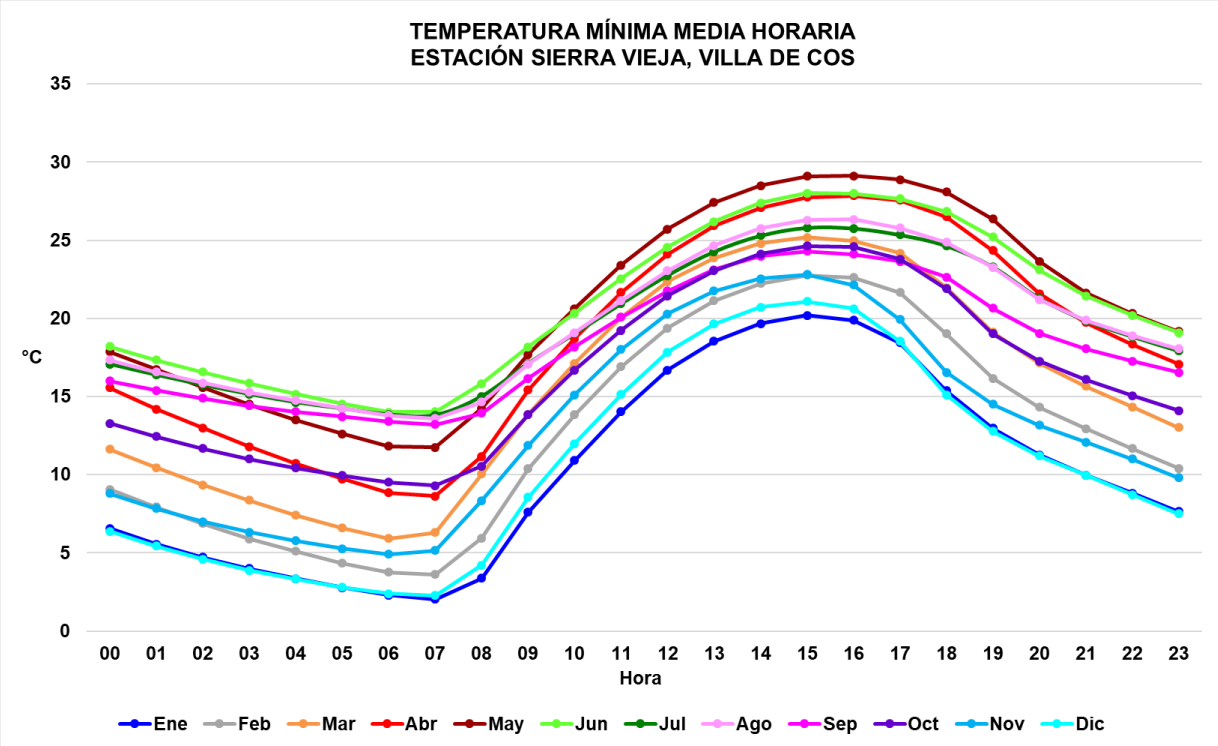


Figura 517. Temperatura mínima media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 576. Temperatura mínima minimorum (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-4.8	-2.9	-0.2	5.9	10.7	11.8	13.2	13.0	9.4	2.3	-5.0	-8.6	-8.6
01	-6.7	-3.3	-2.4	4.2	9.5	11.7	11.4	12.4	8.5	1.2	-6.6	-9.3	-9.3
02	-8.0	-4.5	-3.3	2.3	8.3	10.0	10.7	11.6	7.4	1.2	-7.6	-10.3	-10.3
03	-9.7	-4.8	-4.6	0.5	6.4	9.4	10.2	10.6	6.7	0.3	-8.4	-11.0	-11.0
04	-9.6	-4.7	-5.0	0.8	5.4	8.8	9.6	10.2	5.7	-1.6	-9.4	-11.0	-11.0
05	-11.3	-4.7	-6.1	0.8	4.2	7.5	8.8	9.5	4.9	-2.3	-10.4	-10.9	-11.3
06	-11.7	-5.3	-7.1	-1.0	3.3	7.0	8.1	9.1	4.5	-2.6	-11.0	-13.1	-13.1
07	-12.5	-5.7	-6.6	-1.4	3.0	7.0	8.3	9.5	4.0	-2.6	-11.6	-13.1	-13.1
08	-12.3	-5.5	-2.9	1.7	6.2	11.3	10.5	10.2	6.1	0.6	-6.0	-10.4	-12.3
09	-4.2	-1.6	0.3	7.7	9.2	14.2	13.9	12.9	10.7	1.4	-0.5	-5.3	-5.3
10	-0.7	2.4	3.0	9.9	11.0	14.7	14.6	14.6	12.1	3.2	2.5	-2.3	-2.3
11	1.0	5.2	1.3	11.6	11.7	15.1	14.8	14.8	14.7	4.6	3.2	-2.3	-2.3
12	4.2	7.3	1.3	13.0	13.2	15.0	15.7	15.3	14.9	7.2	3.7	-1.9	-1.9
13	5.3	6.8	2.3	15.2	14.4	15.6	16.1	16.2	15.0	8.4	3.9	-2.0	-2.0
14	6.2	6.4	6.0	15.0	16.4	15.2	16.3	15.4	15.7	9.7	4.9	-1.9	-1.9
15	6.6	7.2	6.7	14.4	15.7	16.8	14.0	15.5	13.4	10.1	5.6	-1.5	-1.5
16	2.9	7.2	7.1	14.6	12.0	15.6	14.6	14.2	13.6	11.1	5.8	-1.7	-1.7
17	4.8	7.1	6.9	14.3	14.7	13.9	13.3	15.7	14.1	9.7	4.7	-3.1	-3.1
18	4.0	6.7	6.2	11.3	14.0	14.7	13.5	15.2	15.2	7.1	2.2	-4.5	-4.5
19	2.2	5.6	4.9	11.6	12.6	13.2	14.3	14.3	13.4	8.8	0.7	-5.9	-5.9
20	0.5	3.8	3.3	10.7	12.6	14.4	13.7	14.5	12.6	7.1	-1.1	-7.1	-7.1
21	-1.9	1.3	1.2	9.5	12.7	13.6	14.0	14.4	11.4	5.6	-2.4	-7.1	-7.1
22	-2.4	-0.5	0.2	9.3	12.0	13.2	14.4	12.6	11.7	5.5	-3.6	-6.3	-6.3
23	-3.4	-1.6	0.0	8.0	11.1	12.4	14.3	13.6	10.6	3.7	-4.1	-7.4	-7.4
Mín.	-12.5	-5.7	-7.1	-1.4	3.0	7.0	8.1	9.1	4.0	-2.6	-11.6	-13.1	-13.1

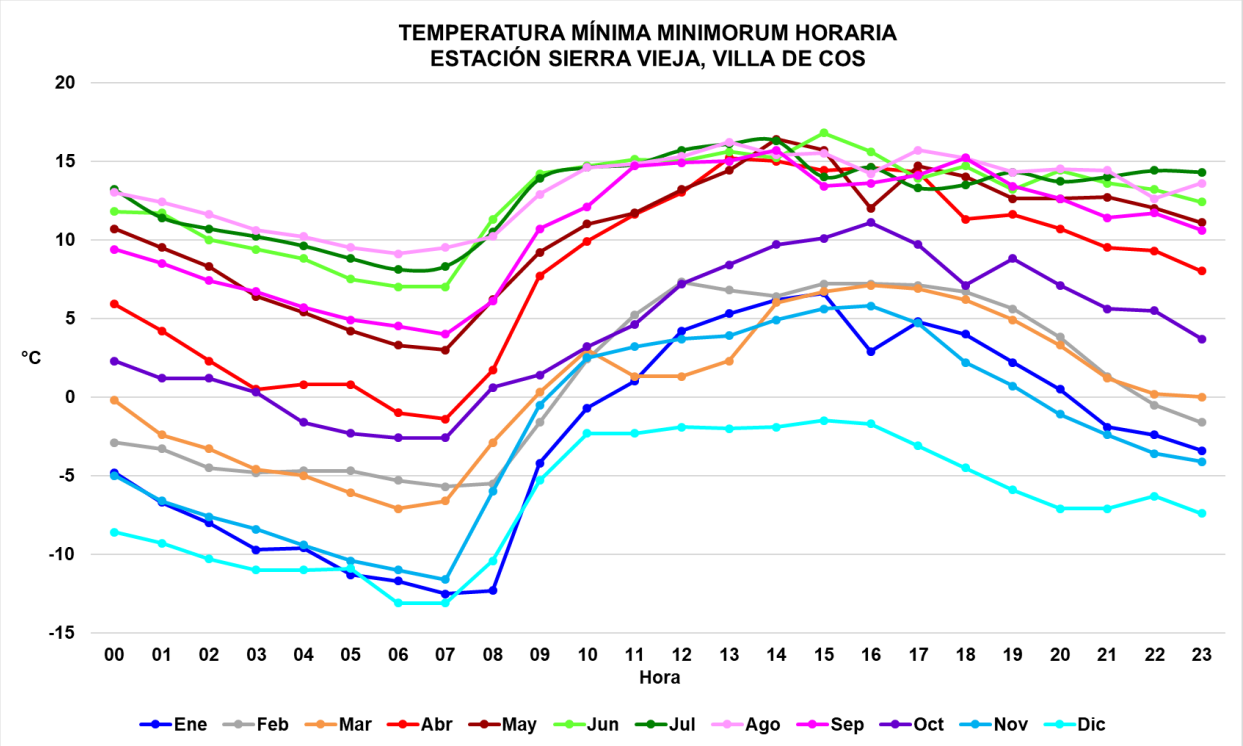


Figura 518. Temperatura mínima minimorum (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 577. Temperatura media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.1	9.7	12.2	16.2	18.4	18.6	17.4	17.7	16.3	13.8	9.3	7.0	13.6
01	6.1	8.5	11.0	14.8	17.3	17.7	16.7	16.9	15.7	12.9	8.3	5.9	12.7
02	5.2	7.4	9.9	13.6	16.1	16.9	16.0	16.2	15.1	12.1	7.5	5.1	11.8
03	4.4	6.4	8.9	12.4	15.0	16.2	15.4	15.5	14.7	11.4	6.8	4.4	10.9
04	3.8	5.6	7.9	11.2	14.0	15.5	14.9	15.0	14.3	10.8	6.2	3.8	10.2
05	3.2	4.8	7.1	10.2	13.0	14.8	14.5	14.5	13.9	10.3	5.7	3.2	9.6
06	2.7	4.2	6.4	9.3	12.2	14.3	14.1	14.0	13.6	9.9	5.3	2.8	9.1
07	2.5	4.3	7.4	9.5	12.5	14.5	14.1	13.9	13.5	9.8	6.0	2.8	9.2
08	5.0	7.7	11.6	12.8	15.6	16.7	15.8	15.6	14.7	11.7	9.7	6.0	11.9
09	8.9	11.7	15.1	16.7	18.8	19.0	17.8	17.9	16.9	14.9	13.1	9.9	15.1
10	12.1	15.0	18.3	19.8	21.7	21.2	19.7	19.9	18.9	17.7	16.2	13.2	17.8
11	15.1	17.9	21.0	22.6	24.3	23.4	21.6	21.9	20.8	20.1	18.9	16.2	20.3
12	17.5	20.1	23.0	24.8	26.4	25.3	23.4	23.8	22.4	22.2	21.0	18.6	22.4
13	19.1	21.7	24.4	26.5	28.0	26.8	24.8	25.3	23.7	23.6	22.3	20.2	23.9
14	20.1	22.6	25.2	27.5	29.0	27.9	25.9	26.3	24.5	24.6	22.9	21.1	24.8
15	20.5	23.1	25.5	28.1	29.6	28.6	26.4	26.9	24.9	25.1	23.1	21.4	25.3
16	20.3	22.9	25.4	28.3	29.7	28.6	26.4	27.0	24.8	25.0	22.6	21.0	25.2
17	19.2	22.2	24.7	28.0	29.4	28.2	26.0	26.5	24.3	24.3	21.0	19.5	24.4
18	16.6	20.2	23.0	27.1	28.6	27.5	25.3	25.6	23.3	22.8	17.7	16.3	22.8
19	13.8	17.1	20.1	25.3	27.2	26.0	24.0	24.1	21.5	20.1	15.2	13.6	20.7
20	11.9	15.0	17.9	22.6	24.7	24.0	22.1	22.0	19.6	17.9	13.8	11.9	18.6
21	10.6	13.5	16.3	20.4	22.4	22.1	20.4	20.4	18.5	16.6	12.6	10.6	17.0
22	9.4	12.3	15.0	19.0	20.9	20.7	19.3	19.3	17.6	15.6	11.5	9.3	15.8
23	8.3	11.0	13.6	17.7	19.7	19.6	18.3	18.4	16.9	14.6	10.4	8.1	14.7
Media	11.0	13.5	16.3	19.4	21.4	21.4	20.0	20.2	18.8	17.0	13.6	11.3	17.0

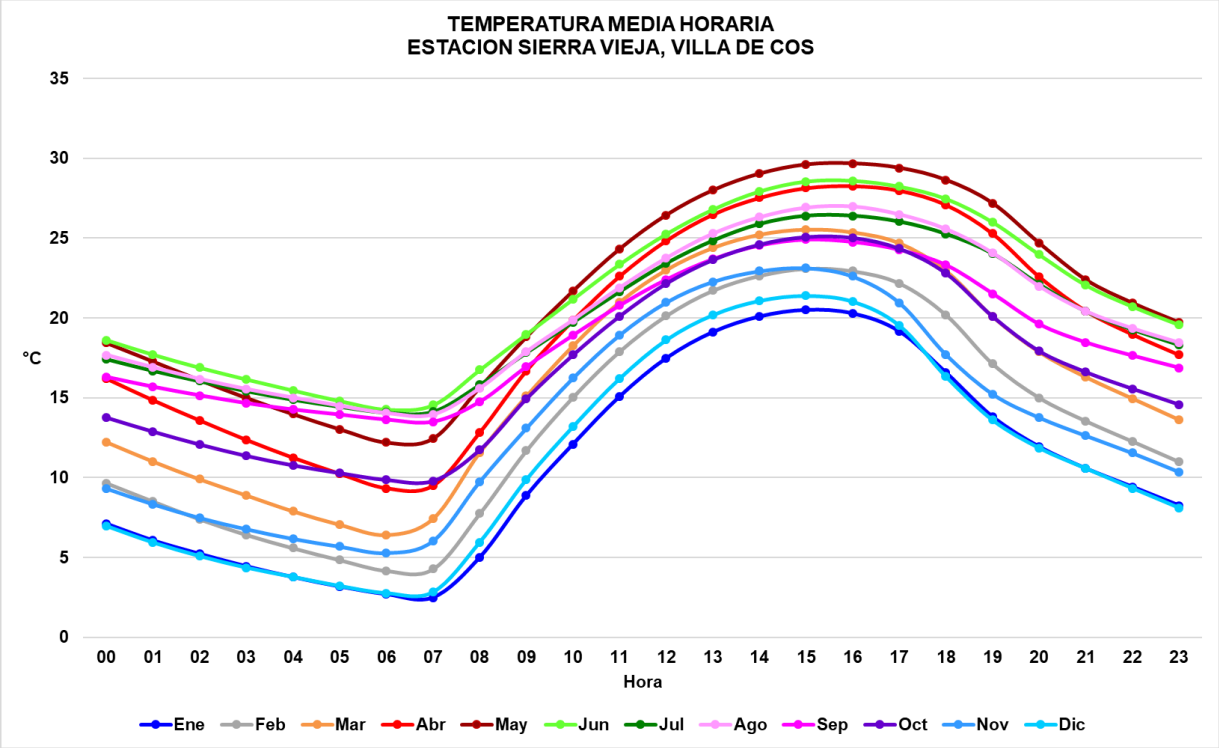


Figura 519. Temperatura media (˚C) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 578. Precipitación media (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.3	0.6	0.3	0.0	0.8	4.2	6.0	1.3	5.9	0.9	0.2	0.3	20.8
01	0.5	0.5	0.2	0.0	1.8	3.6	3.3	4.0	3.7	0.8	0.1	0.4	18.8
02	0.6	0.5	0.3	0.0	0.8	2.2	4.1	2.3	3.2	0.4	0.3	0.6	15.1
03	0.4	0.4	0.2	0.0	0.8	1.6	3.2	1.2	3.6	0.6	0.2	0.4	12.5
04	0.3	0.4	0.2	0.0	0.3	2.4	1.2	2.1	3.0	0.7	0.2	0.4	11.3
05	0.4	0.3	0.3	0.1	0.1	1.9	0.7	1.9	1.9	1.3	0.1	0.6	9.5
06	0.2	0.2	0.1	0.1	0.1	0.8	0.6	1.1	1.2	0.4	0.1	0.6	5.4
07	0.1	0.2	0.1	0.0	0.0	0.4	0.7	0.5	0.5	0.3	0.2	0.5	3.6
08	0.1	0.2	0.0	0.0	0.0	0.1	0.5	0.3	0.6	0.2	0.2	0.5	2.8
09	0.1	0.5	0.1	0.0	0.0	0.1	0.5	0.5	0.3	0.1	0.2	0.5	2.9
10	0.1	0.3	0.1	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.2	0.5	2.0
11	0.1	0.5	0.1	0.0	0.0	0.8	0.3	0.1	0.2	0.0	0.3	0.3	2.6
12	0.1	0.5	0.1	0.0	0.0	0.6	0.2	0.0	0.4	0.0	0.3	0.2	2.4
13	0.2	0.6	0.2	0.0	0.1	0.3	0.8	0.7	0.8	0.5	0.3	0.3	4.7
14	0.2	0.3	0.2	0.3	0.2	0.6	0.7	0.9	0.8	0.5	0.5	0.5	5.9
15	0.3	1.0	0.1	0.2	0.8	0.3	4.7	1.9	4.4	0.2	0.4	0.6	14.9
16	0.3	0.9	0.6	0.9	1.9	2.1	5.7	4.0	9.7	1.1	0.8	0.5	28.6
17	0.9	0.6	0.4	0.1	0.4	2.4	6.8	4.0	5.9	2.5	1.4	0.9	26.2
18	0.9	0.9	0.5	1.0	1.1	3.6	5.4	4.7	3.9	2.1	1.5	0.6	26.3
19	0.4	0.9	0.8	0.6	1.2	5.3	7.2	6.4	7.2	1.3	0.6	0.4	32.2
20	0.9	0.6	0.7	1.0	1.3	3.5	7.5	4.2	9.1	1.7	1.3	0.8	32.5
21	0.5	0.5	0.4	0.7	1.1	6.5	6.2	5.1	12.4	3.2	0.5	0.3	37.3
22	0.8	0.4	0.6	0.5	2.5	8.9	5.0	4.2	9.9	2.7	0.4	0.3	36.1
23	0.3	0.4	0.5	0.1	1.2	5.1	3.0	3.1	8.8	1.2	0.3	0.2	24.3
Suma	8.7	12.2	7.0	5.9	16.2	57.4	74.4	54.7	97.5	22.9	10.6	11.1	378.5

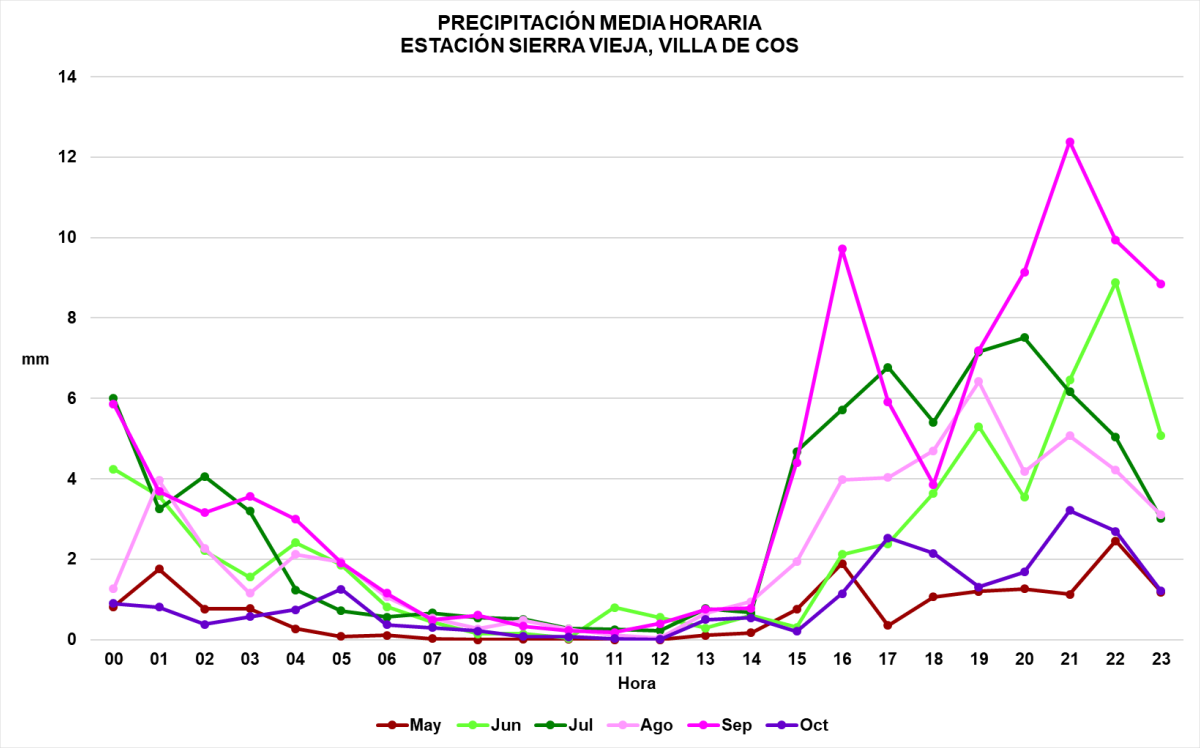


Figura 520. Precipitación media (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 579. Precipitación máxima (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.0	3.8	3.6	0.4	6.0	27.8	41.0	2.7	12.0	4.0	2.0	1.5	41.0
01	2.2	2.4	2.0	0.2	11.7	28.8	13.0	32.6	13.4	5.8	1.5	1.7	32.6
02	2.7	3.2	2.0	0.8	4.6	9.4	30.4	10.8	14.2	2.0	2.4	2.8	30.4
03	4.6	2.1	2.2	0.4	5.8	6.8	20.2	7.4	15.8	2.6	1.9	3.3	20.2
04	1.8	2.6	2.2	0.0	2.2	13.5	6.4	19.8	15.1	3.0	1.8	2.6	19.8
05	2.1	1.5	2.2	0.8	0.6	22.2	3.8	10.6	8.6	9.1	1.6	3.1	22.2
06	1.2	1.4	1.3	2.4	0.9	6.9	1.2	4.8	3.0	2.6	1.0	3.1	6.9
07	1.0	0.8	0.6	0.4	0.2	2.8	3.8	4.8	2.0	1.8	0.6	4.2	4.8
08	0.8	1.0	0.5	0.2	0.0	0.8	3.2	3.4	1.9	1.9	1.3	3.1	3.4
09	1.0	4.0	0.6	0.0	0.2	0.7	4.2	6.6	2.4	1.2	3.0	3.3	6.6
10	2.0	1.2	0.4	0.0	0.2	0.4	2.7	1.6	2.0	0.4	1.4	4.3	4.3
11	1.0	2.3	1.6	0.2	0.0	14.4	1.8	1.2	2.4	0.4	2.0	1.7	14.4
12	0.7	2.0	0.3	0.1	0.0	9.6	1.7	0.4	6.6	0.1	2.2	1.9	9.6
13	3.7	3.0	2.6	0.1	1.8	2.4	7.3	8.0	4.8	9.4	1.3	1.4	9.4
14	2.4	1.4	2.4	5.2	2.0	8.6	4.0	10.2	3.5	7.4	2.0	4.5	10.2
15	3.4	4.8	1.3	3.5	7.1	1.6	18.3	13.0	19.1	1.2	1.2	4.5	19.1
16	2.0	3.4	6.8	8.9	22.8	14.1	15.4	18.2	38.0	4.8	3.2	3.4	38.0
17	10.2	2.0	1.9	1.4	1.7	12.4	31.0	10.0	16.5	8.4	4.4	9.1	31.0
18	8.2	3.4	2.6	6.6	6.9	18.2	15.4	18.3	17.4	21.5	4.8	2.8	21.5
19	4.2	4.0	9.3	5.2	11.7	14.4	25.0	20.3	33.8	13.2	2.6	3.1	33.8
20	5.9	2.6	6.7	4.0	14.0	14.6	15.0	14.2	60.6	9.9	8.0	4.2	60.6
21	5.7	2.4	5.0	5.2	6.4	17.0	9.8	11.0	31.6	13.0	3.6	1.4	31.6
22	6.4	3.4	8.0	4.0	10.7	19.7	16.3	16.5	23.6	20.3	2.3	2.8	23.6
23	2.5	1.8	4.8	2.3	10.8	12.5	8.3	13.1	30.3	3.7	3.4	1.0	30.3
Máx.	10.2	4.8	9.3	8.9	22.8	28.8	41.0	32.6	60.6	21.5	8.0	9.1	60.6

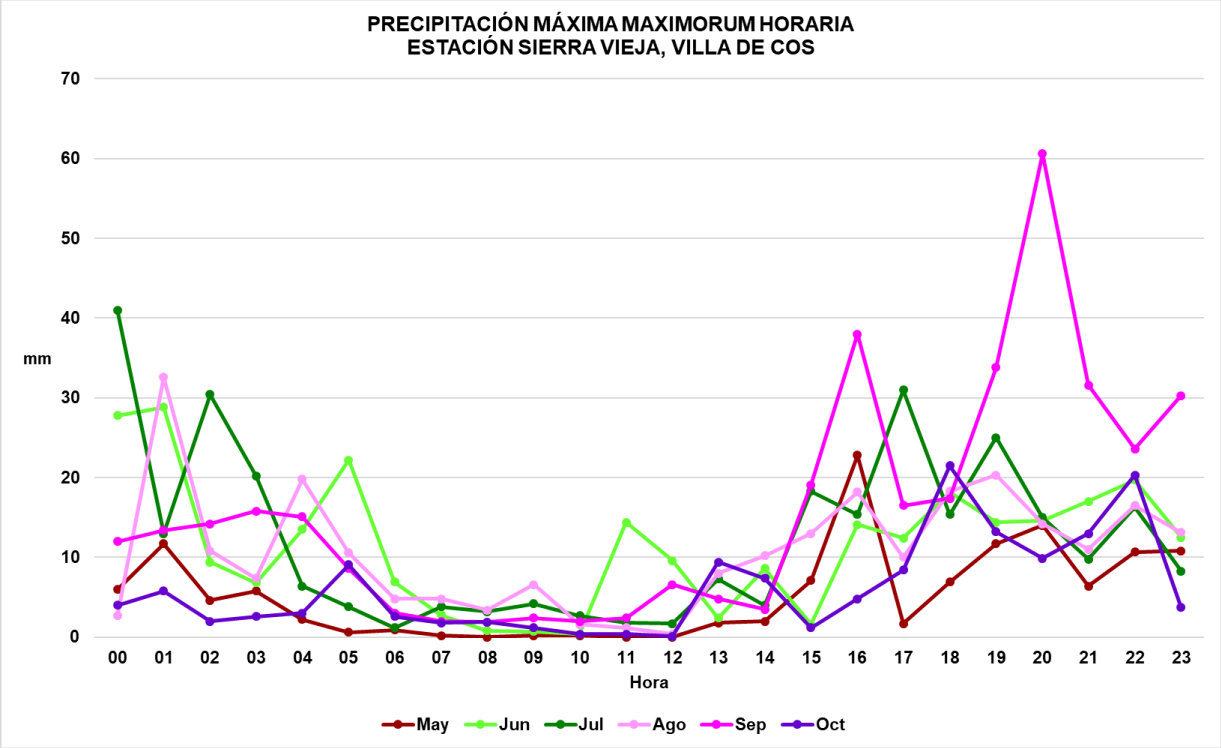


Figura 521. Precipitación máxima (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 580. Evapotranspiración potencial media (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.04	0.08	0.08	0.05	0.03	0.03	0.01	0.01	0.00	0.01	0.03
01	0.01	0.02	0.03	0.06	0.05	0.03	0.02	0.01	0.00	0.00	0.00	0.01	0.02
02	0.00	0.01	0.02	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01
04	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.03	0.07	0.04	0.05	0.05	0.03	0.02	0.01	0.01	0.04	0.02	0.03
09	0.08	0.12	0.20	0.16	0.17	0.16	0.12	0.11	0.09	0.09	0.13	0.09	0.13
10	0.18	0.25	0.35	0.32	0.33	0.29	0.24	0.24	0.21	0.22	0.25	0.19	0.26
11	0.28	0.38	0.48	0.47	0.49	0.44	0.37	0.38	0.33	0.35	0.36	0.30	0.39
12	0.39	0.48	0.59	0.61	0.62	0.56	0.49	0.52	0.44	0.46	0.45	0.39	0.50
13	0.44	0.54	0.64	0.70	0.71	0.63	0.58	0.61	0.52	0.53	0.48	0.44	0.57
14	0.45	0.55	0.64	0.73	0.74	0.67	0.62	0.65	0.55	0.56	0.47	0.44	0.59
15	0.42	0.51	0.58	0.71	0.70	0.66	0.61	0.62	0.52	0.53	0.40	0.39	0.55
16	0.34	0.42	0.48	0.63	0.62	0.59	0.54	0.56	0.44	0.44	0.30	0.30	0.47
17	0.24	0.30	0.36	0.51	0.51	0.48	0.45	0.45	0.34	0.33	0.17	0.18	0.36
18	0.13	0.16	0.22	0.38	0.38	0.37	0.33	0.32	0.22	0.22	0.09	0.11	0.25
19	0.07	0.11	0.15	0.32	0.28	0.25	0.21	0.23	0.16	0.11	0.04	0.05	0.16
20	0.05	0.07	0.10	0.18	0.19	0.19	0.16	0.14	0.06	0.04	0.03	0.03	0.10
21	0.03	0.06	0.08	0.12	0.11	0.11	0.08	0.07	0.03	0.03	0.02	0.03	0.06
22	0.02	0.05	0.07	0.10	0.09	0.08	0.05	0.04	0.02	0.02	0.02	0.02	0.05
23	0.02	0.04	0.06	0.10	0.09	0.06	0.04	0.03	0.01	0.01	0.01	0.01	0.04
Media/día /mes	3.18	4.14	5.20	6.31	6.28	5.72	4.99	5.04	3.96	3.96	3.28	3.04	4.59

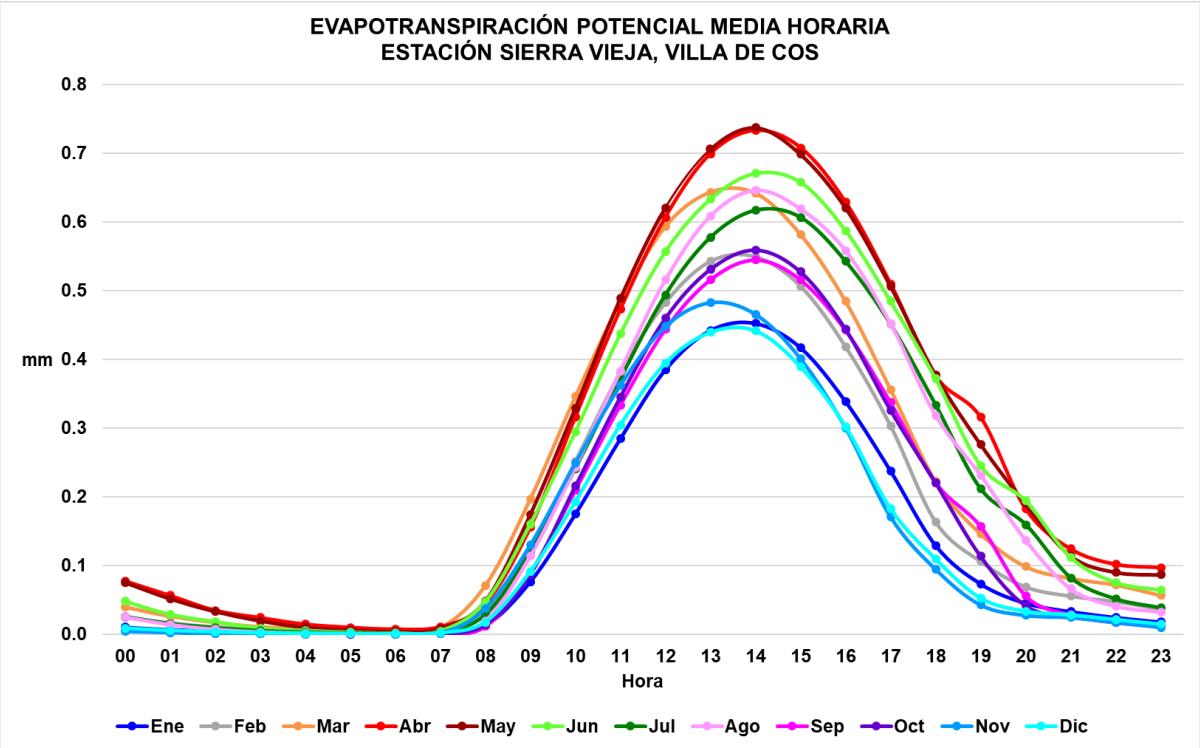


Figura 522. Evapotranspiración potencial media (mm) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 581. Humedad relativa media (%) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual	Ene
60.7	51.2	43.9	35.7	45.9	64.7	74.4	73.6	81.3	73.7	70.6	62.1	61.5	60.7
64.6	55.3	48.2	40.3	50.9	69.5	78.0	77.6	84.3	77.6	74.5	66.1	65.6	64.6
68.1	59.5	52.4	44.5	55.7	73.3	80.9	81.1	86.8	81.2	77.7	69.5	69.2	68.1
71.2	63.3	56.1	48.5	59.8	76.6	83.5	83.7	88.8	84.1	80.5	72.6	72.4	71.2
73.7	66.7	59.7	52.5	63.3	79.4	85.6	85.9	90.4	86.4	82.9	75.0	75.1	73.7
76.0	69.7	62.6	56.0	66.7	82.0	87.3	88.1	91.5	88.2	84.8	77.2	77.5	76.0
77.8	72.1	64.9	59.3	69.6	84.1	88.8	89.7	92.4	89.7	86.5	78.9	79.5	77.8
78.6	72.7	63.5	59.9	69.6	83.7	89.1	90.4	92.9	90.1	85.5	79.3	79.6	78.6
72.9	64.6	54.3	53.6	62.2	76.4	83.6	85.4	89.6	85.8	76.3	72.1	73.0	72.9
62.2	53.2	44.1	43.9	51.8	66.4	74.2	75.3	80.2	74.9	64.6	60.8	62.6	62.2
51.8	42.8	34.4	34.5	41.1	56.6	65.2	65.6	70.7	63.3	52.7	50.5	52.4	51.8
42.3	34.0	26.5	26.0	31.5	47.2	56.5	56.3	62.2	53.2	42.7	41.2	43.3	42.3
34.6	27.6	21.4	20.1	24.7	39.5	48.8	48.0	54.8	45.0	35.3	33.4	36.1	34.6
29.4	23.5	18.3	16.5	20.3	33.7	43.0	41.7	49.2	39.0	30.6	28.2	31.1	29.4
26.3	21.3	16.4	14.6	17.8	29.6	39.1	37.6	45.6	35.0	28.3	25.3	28.1	26.3
24.8	20.2	15.6	13.5	16.4	27.5	37.4	35.4	44.1	33.1	27.2	23.9	26.6	24.8
24.8	20.0	15.5	13.2	16.3	27.2	37.5	35.2	44.7	32.7	28.0	24.0	26.6	24.8
26.8	20.8	16.3	13.3	16.5	28.2	38.6	36.8	46.5	34.3	31.5	26.4	28.0	26.8
31.6	23.5	18.4	14.3	17.7	30.2	41.1	39.6	49.9	38.5	38.6	32.3	31.3	31.6
37.6	28.1	22.1	16.2	20.1	34.3	45.1	44.8	57.0	46.4	45.2	38.4	36.3	37.6
42.8	32.5	26.5	19.7	24.6	40.4	52.0	52.4	65.0	53.5	50.7	43.5	42.0	42.8
47.8	36.7	30.8	23.5	29.8	47.1	59.3	59.1	70.2	59.0	55.8	48.0	47.3	47.8
52.0	41.3	35.0	27.3	35.1	53.4	64.9	64.5	74.2	63.8	61.0	52.8	52.1	52.0
56.3	46.1	39.3	31.3	40.9	59.8	69.7	69.5	78.0	68.6	65.9	57.5	56.9	56.3
51.4	43.6	36.9	32.4	39.5	54.6	63.5	63.2	70.4	62.4	57.4	51.6	52.3	51.4

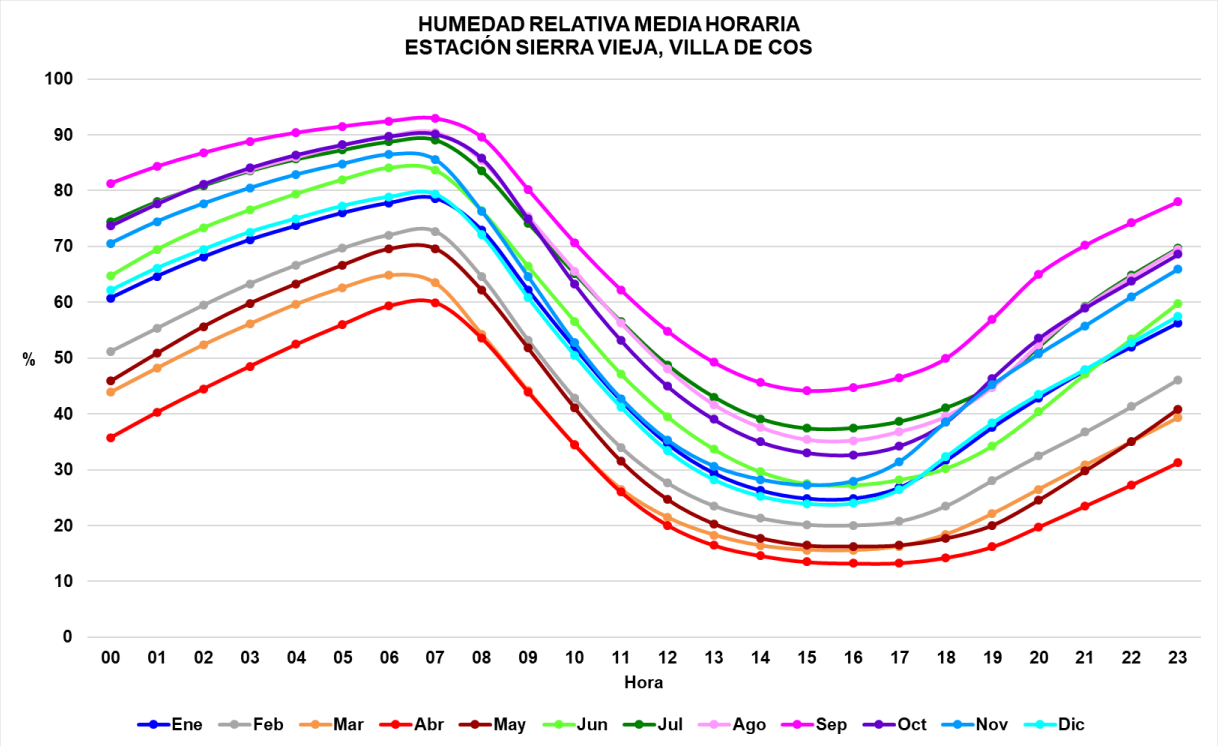


Figura 523. Humedad relativa media (%) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 582. Humedad relativa mínima minimorum (%) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	13.0	11.0	7.0	7.0	9.0	11.0	29.0	34.0	31.0	20.0	15.0	11.0	7.0
01	14.0	12.0	8.0	7.3	10.0	15.0	33.0	42.0	34.0	25.0	22.0	12.0	7.3
02	14.0	15.0	10.0	7.9	11.0	18.0	38.0	43.0	38.0	26.0	25.0	13.0	7.9
03	15.0	16.0	9.0	9.6	13.0	20.0	37.0	48.0	36.0	25.0	29.0	14.0	9.0
04	16.0	16.0	13.0	10.0	13.0	20.0	42.0	49.0	40.0	40.0	31.0	17.0	10.0
05	17.0	16.0	13.0	11.0	14.0	17.0	51.0	59.0	44.0	41.0	33.0	20.0	11.0
06	19.0	17.0	14.0	11.0	17.0	21.0	53.0	62.0	46.0	40.0	32.0	24.0	11.0
07	19.0	18.0	10.0	12.0	17.0	23.0	52.0	70.9	51.0	34.7	31.0	24.0	10.0
08	13.0	13.0	8.8	11.0	14.0	25.0	42.0	54.0	55.0	27.0	21.0	16.0	8.8
09	12.0	11.8	6.6	8.6	10.0	19.0	29.0	46.9	36.9	17.0	18.0	13.0	6.6
10	8.4	9.8	5.2	7.6	8.0	14.0	21.0	30.8	25.2	14.0	10.0	11.0	5.2
11	7.7	7.0	4.0	6.0	5.0	8.0	15.0	25.9	22.0	11.0	7.0	9.0	4.0
12	6.0	5.0	4.0	5.0	4.0	7.0	14.0	21.0	15.4	9.5	6.0	7.0	4.0
13	5.8	4.0	3.7	4.0	4.0	6.0	13.0	16.0	14.3	6.6	6.0	6.0	3.7
14	4.0	4.0	3.6	3.8	4.0	5.0	12.0	14.0	13.0	7.4	5.0	5.0	3.6
15	4.0	4.0	4.0	3.6	4.0	5.0	12.0	14.0	12.3	6.6	5.0	5.0	3.6
16	4.0	4.0	3.0	3.0	3.0	5.0	11.0	14.0	11.0	7.2	5.0	5.0	3.0
17	4.0	4.0	3.0	3.0	3.0	5.0	11.0	12.0	9.0	7.8	5.0	5.0	3.0
18	5.0	5.0	3.0	4.0	3.0	5.0	11.0	11.0	9.0	8.0	6.0	5.0	3.0
19	6.0	6.0	5.0	4.0	4.0	4.0	11.0	13.0	10.0	10.0	8.0	7.0	4.0
20	7.0	8.0	6.0	4.0	4.0	5.0	12.0	15.0	14.0	13.0	10.0	8.0	4.0
21	8.0	9.0	6.9	5.0	5.0	6.0	19.0	20.0	20.0	14.0	11.0	9.0	5.0
22	10.0	10.0	6.0	5.0	7.0	7.0	23.0	23.0	23.0	17.0	12.0	9.0	5.0
23	11.0	11.0	6.0	6.0	7.0	8.0	27.0	26.0	28.0	19.0	14.0	9.0	6.0
Mín.	4.0	4.0	3.0	3.0	3.0	4.0	11.0	11.0	9.0	6.6	5.0	5.0	3.0

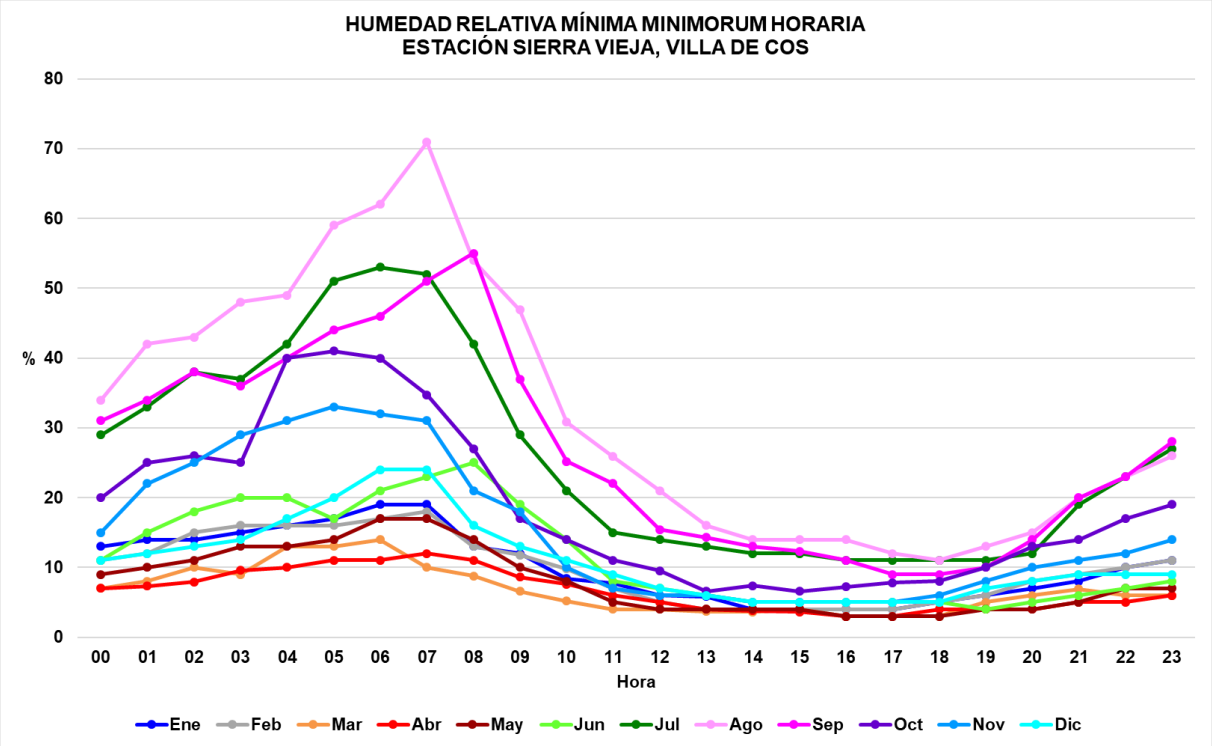


Figura 524. Humedad relativa mínima minimorum (%) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 583. Radiación solar global media horaria (W/m2) de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	14	6	9	9	5	2	0	2	5	1	5
07	46	96	257	155	180	178	124	85	55	70	175	73	124
08	432	619	962	719	772	730	598	529	441	461	760	507	627
09	1098	1398	1857	1570	1617	1505	1307	1293	1135	1197	1530	1196	1392
10	1809	2191	2658	2428	2429	2299	2074	2092	1900	1976	2224	1867	2162
11	2373	2767	3269	3110	3120	2931	2764	2824	2531	2631	2692	2371	2782
12	2675	3094	3554	3657	3658	3400	3253	3316	2942	3020	2877	2615	3172
13	2676	3143	3536	3824	3801	3560	3450	3506	3080	3147	2765	2576	3255
14	2413	2857	3183	3636	3588	3468	3362	3362	2932	2979	2376	2259	3035
15	1911	2329	2585	3177	3115	3060	2993	2952	2537	2520	1797	1721	2558
16	1242	1625	1826	2469	2490	2428	2398	2407	1976	1890	1062	1042	1905
17	549	844	1021	1702	1774	1755	1758	1665	1320	1121	353	365	1186
18	66	182	297	931	1049	1094	1082	959	645	419	12	17	563
19	0	1	7	276	395	449	468	348	142	43	0	0	177
20	0	0	0	12	36	61	70	27	2	0	0	0	17
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17290	21149	25024	27675	28034	26926	25707	25367	21637	21476	18626	16610	22960

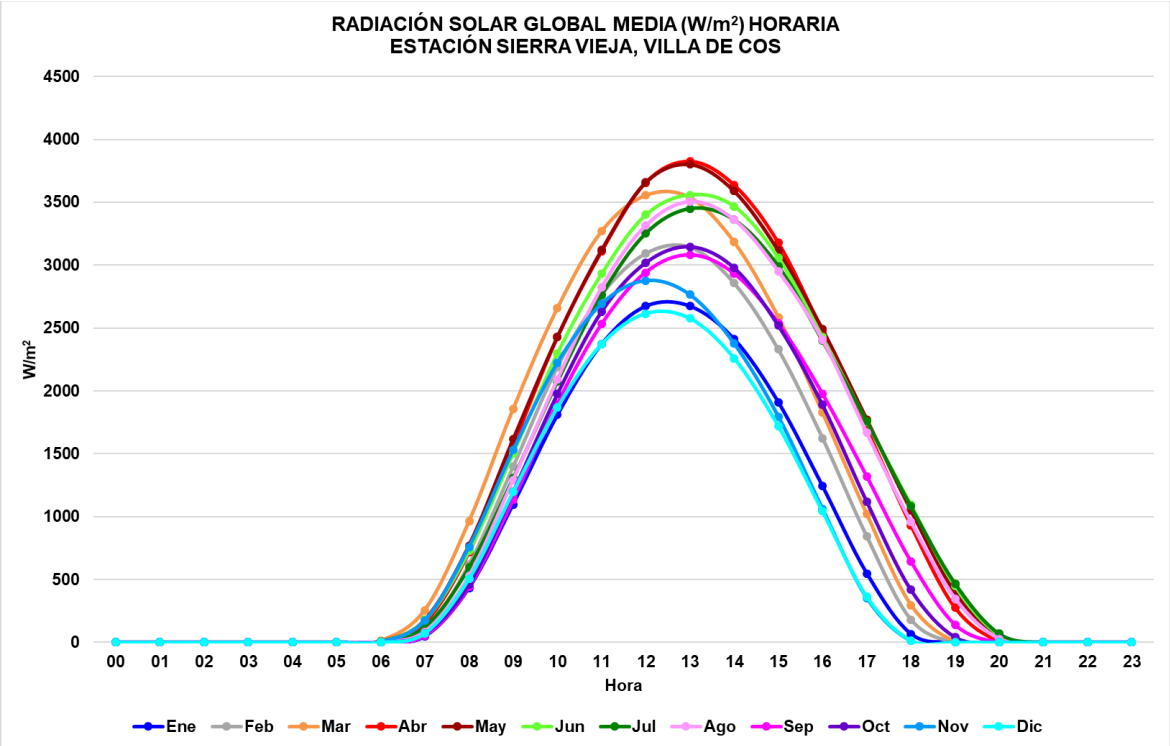


Figura 525. Radiación solar global media horaria (W/m2) de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 584. Radiación solar global media horaria (kWh/m2) de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.06	0.04	0.04	0.04	0.03	0.02	0.01	0.02	0.04	0.02	0.03
08	0.11	0.15	0.24	0.18	0.19	0.18	0.15	0.13	0.11	0.12	0.19	0.13	0.16
09	0.27	0.35	0.46	0.39	0.40	0.38	0.33	0.32	0.28	0.30	0.38	0.30	0.35
10	0.45	0.55	0.66	0.61	0.61	0.57	0.52	0.52	0.48	0.49	0.56	0.47	0.54
11	0.59	0.69	0.82	0.78	0.78	0.73	0.69	0.71	0.63	0.66	0.67	0.59	0.70
12	0.67	0.77	0.89	0.91	0.91	0.85	0.81	0.83	0.74	0.76	0.72	0.65	0.79
13	0.67	0.79	0.88	0.96	0.95	0.89	0.86	0.88	0.77	0.79	0.69	0.64	0.81
14	0.60	0.71	0.80	0.91	0.90	0.87	0.84	0.84	0.73	0.74	0.59	0.56	0.76
15	0.48	0.58	0.65	0.79	0.78	0.76	0.75	0.74	0.63	0.63	0.45	0.43	0.64
16	0.31	0.41	0.46	0.62	0.62	0.61	0.60	0.60	0.49	0.47	0.27	0.26	0.48
17	0.14	0.21	0.26	0.43	0.44	0.44	0.44	0.42	0.33	0.28	0.09	0.09	0.30
18	0.02	0.05	0.07	0.23	0.26	0.27	0.27	0.24	0.16	0.10	0.00	0.00	0.14
19	0.00	0.00	0.00	0.07	0.10	0.11	0.12	0.09	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.32	5.29	6.26	6.92	7.01	6.73	6.43	6.34	5.41	5.37	4.66	4.15	5.74

Cuadro 585. Radiación solar global media horaria (Mj/m2/s) de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.09	0.23	0.14	0.16	0.16	0.11	0.08	0.05	0.06	0.16	0.07	0.11
08	0.39	0.56	0.87	0.65	0.69	0.66	0.54	0.48	0.40	0.41	0.68	0.46	0.56
09	0.99	1.26	1.67	1.41	1.45	1.35	1.18	1.16	1.02	1.08	1.38	1.08	1.25
10	1.63	1.97	2.39	2.18	2.19	2.07	1.87	1.88	1.71	1.78	2.00	1.68	1.95
11	2.14	2.49	2.94	2.80	2.81	2.64	2.49	2.54	2.28	2.37	2.42	2.13	2.50
12	2.41	2.78	3.20	3.29	3.29	3.06	2.93	2.98	2.65	2.72	2.59	2.35	2.85
13	2.41	2.83	3.18	3.44	3.42	3.20	3.11	3.16	2.77	2.83	2.49	2.32	2.93
14	2.17	2.57	2.86	3.27	3.23	3.12	3.03	3.03	2.64	2.68	2.14	2.03	2.73
15	1.72	2.10	2.33	2.86	2.80	2.75	2.69	2.66	2.28	2.27	1.62	1.55	2.30
16	1.12	1.46	1.64	2.22	2.24	2.19	2.16	2.17	1.78	1.70	0.96	0.94	1.71
17	0.49	0.76	0.92	1.53	1.60	1.58	1.58	1.50	1.19	1.01	0.32	0.33	1.07
18	0.06	0.16	0.27	0.84	0.94	0.98	0.97	0.86	0.58	0.38	0.01	0.01	0.51
19	0.00	0.00	0.01	0.25	0.36	0.40	0.42	0.31	0.13	0.04	0.00	0.00	0.16
20	0.00	0.00	0.00	0.01	0.03	0.05	0.06	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.56	19.03	22.52	24.91	25.23	24.23	23.14	22.83	19.47	19.33	16.76	14.95	20.66

Cuadro 586. Velocidad del viento media (km/h) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.1	5.4	6.5	8.2	8.5	8.5	7.2	6.4	4.2	3.4	3.2	3.4	5.7
01	3.5	4.6	5.5	6.6	7.1	7.2	6.0	5.4	3.6	3.0	2.8	2.9	4.9
02	3.2	4.0	4.8	5.5	5.9	5.9	5.2	4.4	3.2	2.5	2.4	2.7	4.1
03	3.0	3.2	4.2	4.4	4.6	4.9	4.4	3.6	2.8	2.2	2.1	2.5	3.5
04	2.7	2.8	3.5	3.5	3.7	4.2	3.8	3.2	2.4	2.0	2.0	2.3	3.0
05	2.4	2.6	3.1	2.9	3.0	3.4	3.3	2.6	2.2	1.8	1.8	2.1	2.6
06	2.3	2.4	2.8	2.3	2.4	2.8	2.8	2.3	2.0	1.6	1.7	1.9	2.3
07	2.3	2.3	2.9	2.2	2.4	3.0	2.8	2.1	1.9	1.5	1.9	1.9	2.3
08	3.0	3.6	5.7	4.0	4.7	6.2	5.4	4.0	3.3	2.6	3.8	2.8	4.1
09	5.5	6.5	8.4	7.4	7.5	8.6	8.3	7.3	6.1	5.3	6.1	5.3	6.9
10	7.7	9.0	10.1	9.6	8.7	9.0	8.9	8.4	7.5	6.9	7.8	7.4	8.4
11	9.3	10.8	11.4	10.7	8.9	8.5	8.7	8.2	7.8	7.6	8.6	8.8	9.1
12	10.8	12.1	12.6	11.6	9.3	8.4	8.6	8.2	7.8	8.0	9.3	10.0	9.7
13	12.0	13.2	13.6	12.6	10.0	9.0	8.9	8.5	7.9	8.4	10.1	11.0	10.4
14	12.6	14.0	14.1	13.5	10.7	9.9	9.6	9.0	8.1	8.6	10.3	11.6	11.0
15	12.8	14.3	14.5	13.9	11.0	10.6	10.4	9.7	8.4	8.7	10.2	11.5	11.3
16	12.7	14.3	14.7	14.2	11.5	11.5	11.0	10.4	8.9	8.6	9.8	11.1	11.6
17	11.4	13.5	14.5	14.1	11.7	11.9	11.8	11.0	8.9	8.4	8.4	9.4	11.3
18	8.5	11.0	12.8	14.0	11.8	12.4	11.9	11.1	8.6	7.2	6.0	6.6	10.2
19	7.4	8.4	10.2	12.4	11.5	12.8	11.6	10.5	6.9	5.6	6.0	6.3	9.1
20	7.1	8.5	10.3	10.7	10.0	11.2	10.3	8.6	5.8	5.3	6.2	6.3	8.4
21	6.7	8.4	10.3	10.5	9.6	10.2	9.1	7.8	5.8	5.4	5.7	5.8	7.9
22	5.9	7.7	9.3	10.9	10.3	10.4	9.1	7.5	5.4	4.7	4.7	4.9	7.6
23	4.9	6.5	7.8	10.0	10.0	9.7	8.4	7.2	4.9	4.0	3.8	4.0	6.8
Media	6.7	7.9	8.9	9.0	8.1	8.3	7.8	7.0	5.6	5.1	5.6	5.9	7.2

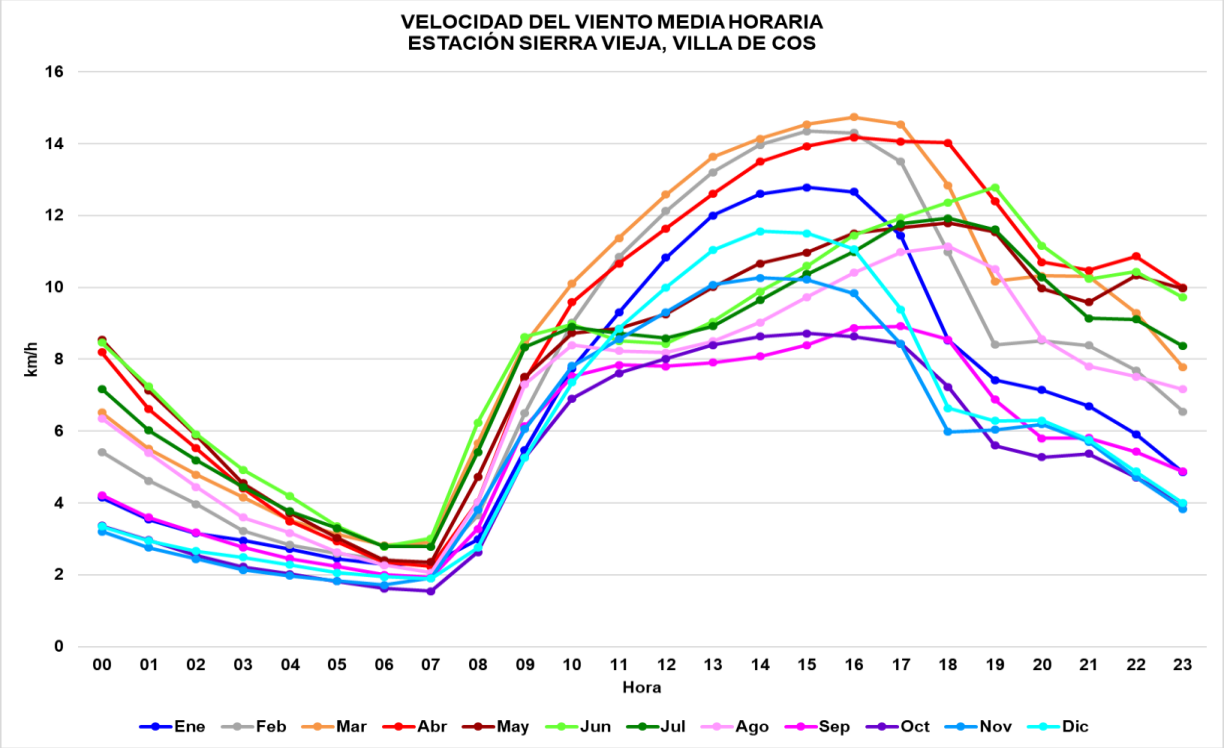


Figura 526. Velocidad del viento media (km/h) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 587. Velocidad del viento máxima maximorum (km/h) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	31.6	34.7	29.4	34.0	31.0	34.8	28.0	25.0	19.9	20.5	23.0	27.6	34.8
01	28.0	34.0	32.2	30.8	28.0	34.2	31.0	24.0	15.6	19.6	27.0	33.1	34.2
02	24.9	32.0	34.4	27.5	30.6	29.2	24.7	22.0	17.2	17.6	23.0	25.6	34.4
03	25.0	31.0	36.0	30.8	25.7	24.5	25.0	17.3	19.6	22.1	27.0	27.0	36.0
04	24.3	29.0	44.5	36.4	24.0	24.1	24.5	19.0	15.0	18.0	27.0	27.8	44.5
05	28.7	27.0	41.0	29.4	23.0	18.2	24.3	21.4	16.8	17.3	24.5	23.0	41.0
06	26.7	27.0	43.0	26.5	19.1	19.6	27.6	22.0	14.0	16.0	26.4	27.0	43.0
07	25.8	26.0	44.0	23.0	20.5	17.4	27.8	15.9	14.4	17.0	25.7	30.0	44.0
08	26.0	30.0	51.0	25.0	25.0	21.0	28.6	21.0	18.7	20.0	30.1	29.1	51.0
09	30.1	44.0	50.0	32.1	30.1	26.4	30.4	24.0	24.7	27.5	29.6	28.0	50.0
10	36.0	44.0	54.0	33.0	36.1	24.5	29.2	26.5	22.3	27.9	28.8	36.6	54.0
11	46.0	48.0	54.0	37.3	35.0	24.4	33.5	24.0	23.6	30.3	35.7	43.1	54.0
12	48.0	50.9	50.0	37.3	31.9	31.0	30.9	25.0	24.1	31.6	37.0	51.6	51.6
13	45.0	56.5	53.0	39.0	35.2	30.2	35.0	28.2	30.3	32.1	36.0	45.4	56.5
14	45.5	52.8	50.0	43.0	35.2	32.5	36.0	29.9	25.0	39.5	38.0	49.0	52.8
15	43.0	54.1	48.0	44.0	40.0	33.8	34.2	31.0	25.7	33.7	41.0	47.0	54.1
16	46.0	50.0	45.0	47.0	45.7	35.7	32.8	32.6	27.4	32.7	42.0	45.0	50.0
17	45.0	46.7	43.4	42.3	38.2	34.3	30.5	33.9	28.3	37.5	37.0	41.0	46.7
18	41.0	41.8	37.0	40.0	38.0	36.5	34.0	33.8	29.9	31.4	39.0	35.0	41.8
19	31.0	37.0	35.5	35.4	40.0	39.2	34.7	37.6	32.5	31.1	29.0	30.0	40.0
20	28.0	30.9	36.0	36.0	41.8	40.1	32.8	36.5	36.0	23.3	26.0	29.0	41.8
21	29.0	29.3	31.1	33.1	37.2	38.5	31.1	35.2	28.3	30.3	24.1	31.3	38.5
22	32.4	32.9	41.0	33.1	46.0	34.6	26.2	25.1	25.2	30.3	28.5	32.1	46.0
23	31.0	34.0	27.0	32.0	36.0	32.3	30.4	24.5	22.7	21.3	31.0	24.5	36.0
Máx.	48.0	56.5	54.0	47.0	46.0	40.1	36.0	37.6	36.0	39.5	42.0	51.6	56.5

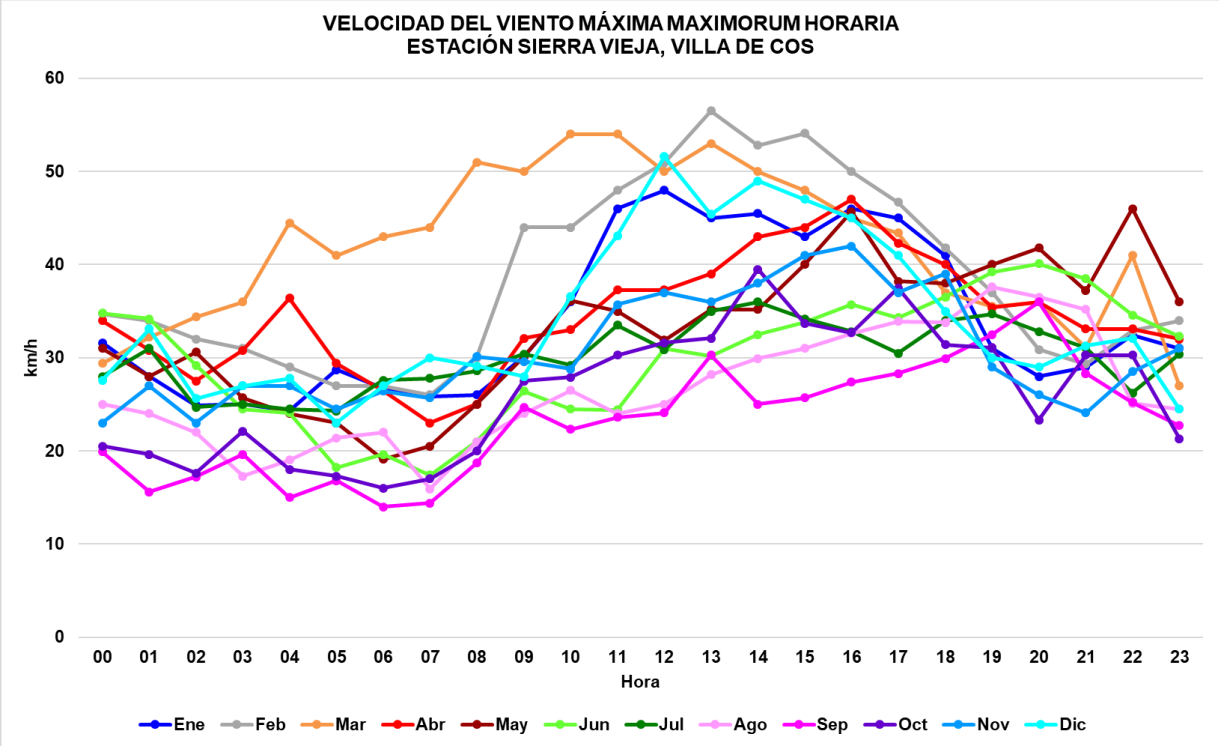


Figura 527. Velocidad del viento máxima maximorum (km/h) horaria de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 588. Frecuencia de velocidad del viento (%) mensual de la estación Sierra Vieja, Villa de Cos (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	54.8	45.4	36.7	35.3	34.5	30.2	37.8	42.6	54.2	59.7	58.0	59.2	45.8
5.1 a 10.0	22.2	24.5	27.2	26.8	33.1	35.5	32.8	33.9	31.2	27.2	25.7	22.1	28.5
10.1 a 15.0	12.0	14.5	17.4	19.4	20.5	23.0	20.3	17.6	12.5	10.2	10.7	10.3	15.7
15.1 a 20.0	6.4	8.3	10.2	11.4	8.4	8.6	7.3	5.0	1.9	2.5	3.9	5.0	6.6
20.1 a 25.0	2.7	4.0	5.1	5.2	2.8	2.3	1.5	0.8	0.3	0.2	1.3	2.1	2.3
25.1 a 30.0	1.2	2.1	2.2	1.5	0.6	0.3	0.3	0.1	0.0	0.2	0.3	0.7	0.8
30.1 a 35.0	0.4	0.8	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.3
35.1 a 40.0	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
40.1 a 45.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

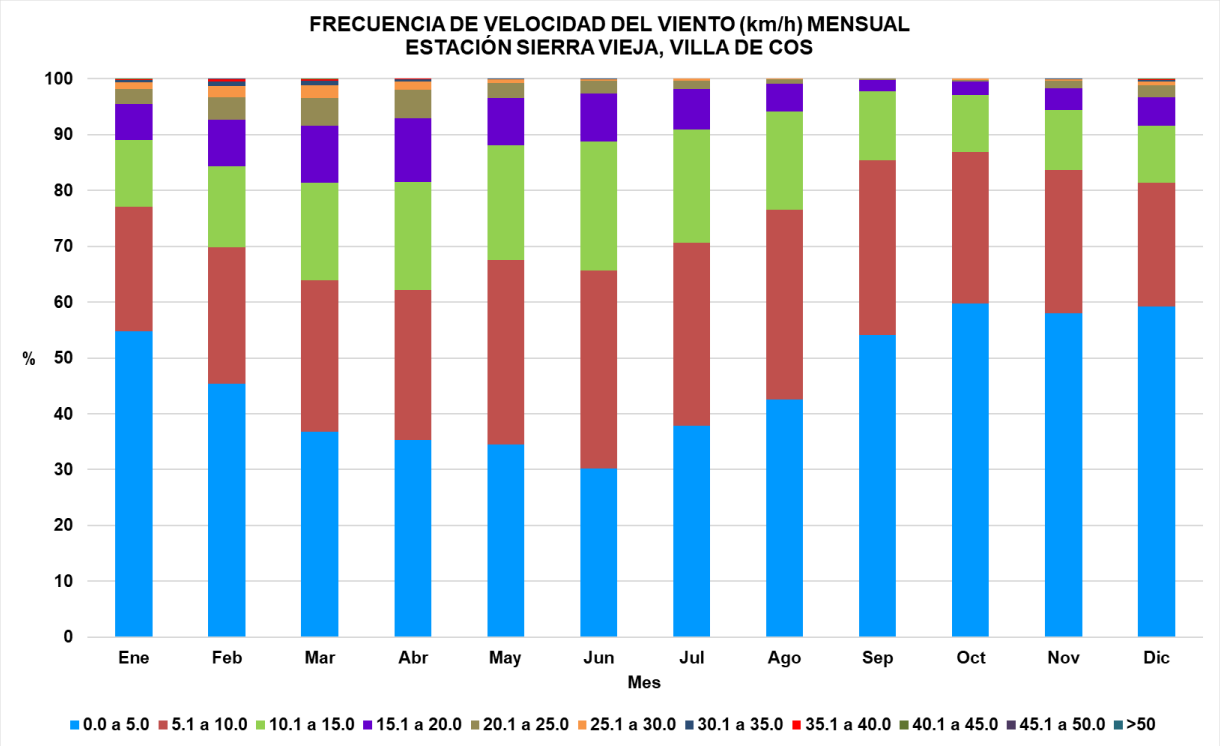


Figura 528. Frecuencia de velocidad del viento (%) mensual de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 589. Frecuencia de dirección del viento (%) mensual de la estación Sierra Vieja, Villa de Cos (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	8.2	7.2	5.9	5.3	5.3	5.2	3.5	4.7	7.2	8.3	8.5	8.6	6.5
NNE	4.0	3.7	3.4	3.1	3.9	4.6	3.7	4.9	5.8	5.7	4.8	4.1	4.3
NE	3.4	3.0	3.2	2.9	4.2	5.9	4.7	6.2	6.7	6.2	4.5	3.5	4.5
ENE	4.2	3.4	3.9	3.3	5.1	7.9	7.1	8.4	8.9	7.5	5.2	3.6	5.7
E	5.8	4.9	6.0	5.2	7.3	11.9	12.5	13.1	12.2	10.2	7.7	5.3	8.5
ESE	9.0	6.8	8.5	7.0	9.9	17.9	21.3	19.6	16.3	12.5	11.6	7.7	12.4
SE	8.5	6.9	7.4	6.7	9.7	16.0	19.0	17.1	13.6	11.4	10.7	7.7	11.2
SSE	5.9	5.9	5.6	5.4	7.2	8.7	9.0	8.3	7.1	6.8	6.6	6.3	6.9
S	6.1	6.6	6.0	6.5	7.1	5.8	5.5	4.6	4.6	5.1	5.7	7.0	5.9
SSO	7.3	9.1	8.1	8.6	7.2	3.6	3.4	3.0	3.1	4.2	5.4	8.3	5.9
SO	8.0	11.3	10.9	12.1	7.3	2.3	2.2	1.8	2.1	3.2	5.2	8.4	6.2
OSO	7.4	10.2	11.3	13.4	8.3	2.0	1.8	1.4	1.6	2.9	5.4	7.2	6.0
O	5.7	6.8	6.9	8.2	6.1	1.7	1.5	1.5	1.6	3.1	4.3	5.9	4.4
ONO	5.3	4.8	4.5	4.8	4.1	1.8	1.3	1.5	2.0	3.2	4.0	5.3	3.6
NO	5.2	4.4	3.9	3.8	3.6	2.0	1.6	1.7	2.8	3.9	4.4	5.3	3.5
NNO	6.0	5.0	4.3	3.7	3.7	2.9	1.9	2.2	4.4	5.9	6.1	5.8	4.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

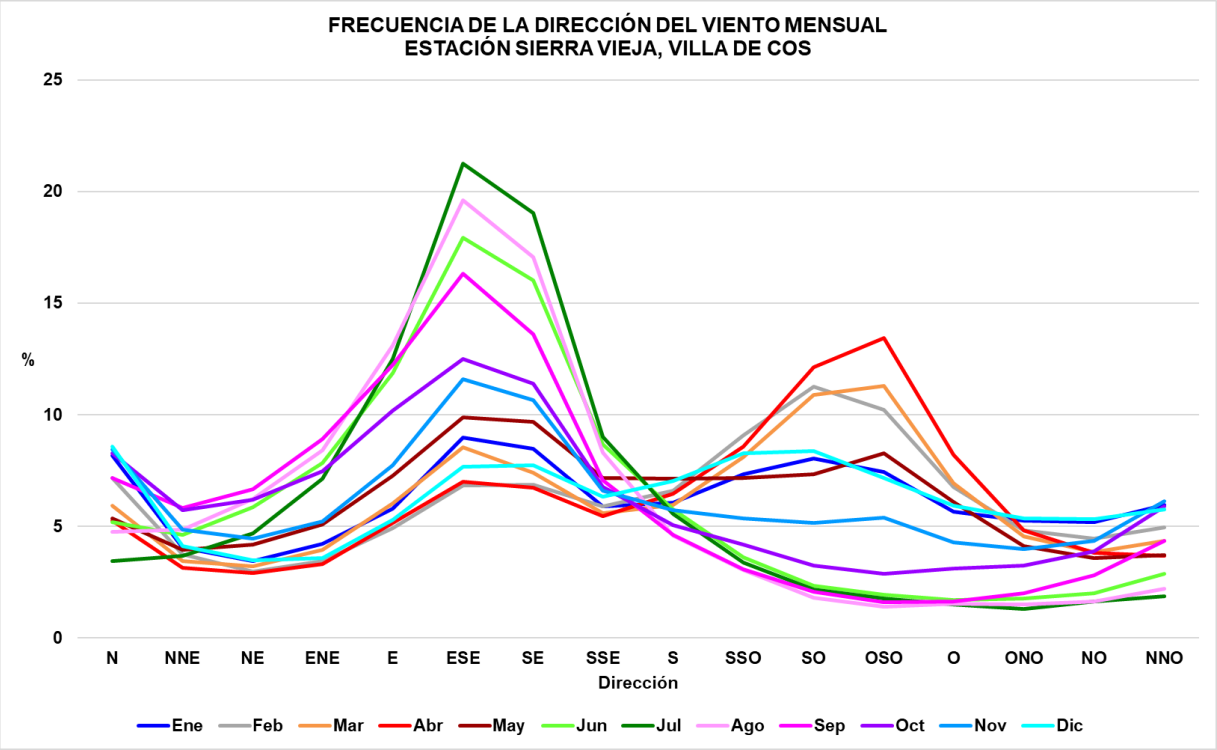
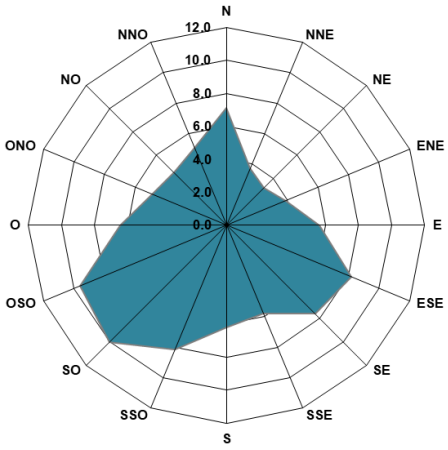


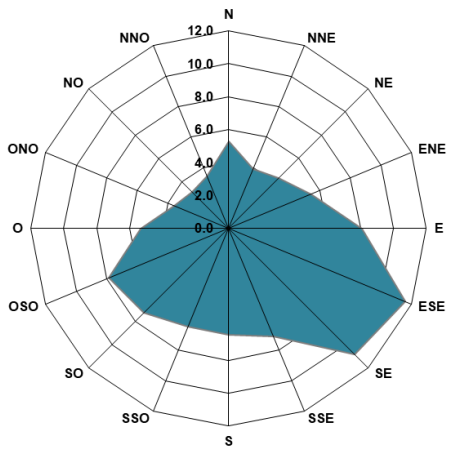
Figura 539. Frecuencia de dirección del viento (%) mensual de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 590. Frecuencia de dirección del viento (%) trimestral de la estación Sierra Vieja, Villa de Cos (2002-2022).

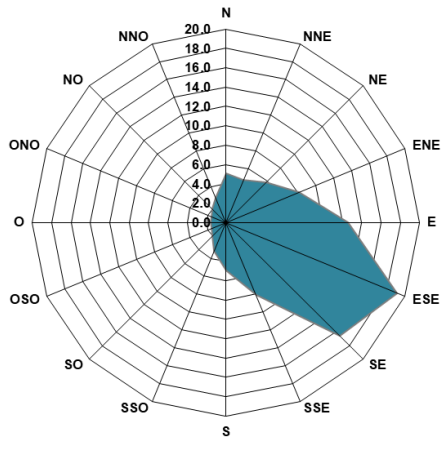
Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	7.1	5.3	5.1	8.4	6.5
NNE	3.7	3.9	4.8	4.9	4.3
NE	3.2	4.3	5.9	4.7	4.5
ENE	3.9	5.4	8.1	5.4	5.7
E	5.6	8.1	12.6	7.7	8.5
ESE	8.2	11.6	19.1	10.5	12.4
SE	7.6	10.8	16.6	9.9	11.2
SSE	5.8	7.1	8.1	6.6	6.9
S	6.2	6.5	4.9	6.0	5.9
SSO	8.1	6.5	3.2	6.0	5.9
SO	10.0	7.2	2.0	5.6	6.2
OSO	9.6	7.9	1.6	5.2	6.0
O	6.4	5.3	1.6	4.5	4.4
ONO	4.9	3.6	1.6	4.2	3.6
NO	4.5	3.1	2.0	4.5	3.5
NNO	5.1	3.4	2.8	5.9	4.3
Suma	100.0	100.0	100.0	100.0	100.0



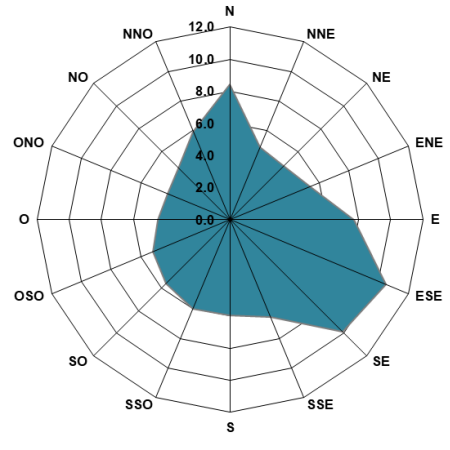
Ene-Mar



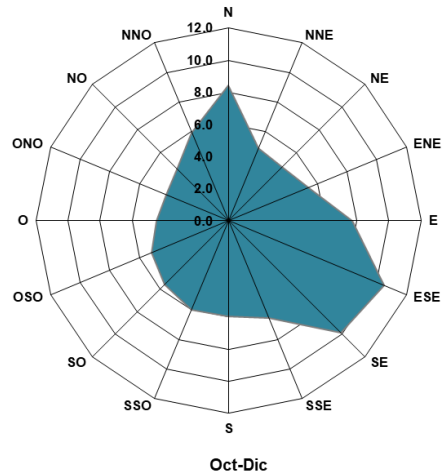
Abr-Jun



Jul-Sep



Oct-Dic



Oct-Dic

Figura 530. Frecuencia de dirección del viento (%) trimestral de la estación Sierra Vieja, Villa de Cos (2002-2022).

Cuadro 591. Estadísticas climatológicas mensuales de la estación Sierra Vieja, Villa de Cos (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.1	23.7	26.2	29.0	30.7	29.7	27.8	28.2	26.2	25.9	23.8	22.0	26.2
Temperatura máxima maximorum (°C)	28.4	33.0	34.7	34.8	37.1	35.5	33.8	33.7	32.4	31.0	30.9	28.9	37.1
Temperatura mínima media (°C)	1.4	3.1	5.5	8.2	11.4	13.7	13.6	13.4	12.9	8.9	4.2	1.5	8.2
Temperatura mínima minimorum (°C)	-12.5	-15.3	-7.1	-1.4	3.0	7.0	8.1	9.1	4.0	-2.6	-11.6	-13.1	-15.3
Temperatura media (°C)	11.0	13.6	16.3	19.3	21.4	21.4	20.0	20.2	18.8	17.0	13.6	11.3	17.0
Oscilación térmica (°C)	19.7	20.7	20.7	20.8	19.3	16.0	14.2	14.8	13.2	17.0	19.5	20.5	18.0
Precipitación acumulada media (mm)	9.1	12.8	7.4	6.2	17.0	60.3	78.1	57.4	102.4	24.0	11.2	11.1	396.9
Precipitación máxima maximorum en 24 horas (mm)	21.6	27.3	30.4	10.2	23.8	57.0	67.0	43.4	66.0	35.1	23.4	31.1	67.0
Número de días promedio con lluvia	3.7	3.1	3.8	2.4	5.8	10.3	12.2	11.9	12.8	5.8	4.3	3.3	79.2
Evapotranspiración acumulada potencial media (mm)	103.9	123.5	168.1	188.2	195.1	175.7	165.2	162.8	128.3	130.9	108.6	101.4	1751.8
Humedad máxima media (%)	82.6	76.9	69.9	65.3	74.7	87.2	91.6	92.3	94.7	92.3	89.5	83.2	83.3
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	22.1	17.5	13.6	11.3	13.7	23.2	31.2	29.7	37.9	29.3	24.8	21.5	23.0
Humedad mínima minimorum (%)	4.0	4.0	3.0	3.0	3.0	4.0	11.0	11.0	9.0	6.6	5.0	5.0	3.0
Humedad media (%)	51.4	43.6	36.9	32.5	39.5	54.6	63.5	63.2	70.4	62.4	57.4	51.6	52.3
Radiación global media día/mes (W/m^2)	17292.0	21154.9	25023.7	27685.5	28034.8	26925.7	25706.9	25367.5	21636.8	21476.5	18625.7	16609.6	22961.6
Radiación global media día/mes (kWh/m^2)	4.3	5.3	6.3	6.9	7.0	6.7	6.4	6.3	5.4	5.4	4.7	4.2	5.7
Radiación global media día/mes ($Mj/m^2/s$)	15.6	19.0	22.5	24.9	25.2	24.2	23.1	22.8	19.5	19.3	16.8	14.9	20.7
Velocidad del viento máxima media (km/h)	18.6	20.8	22.6	22.6	21.7	21.7	20.4	19.0	16.1	14.5	15.6	16.7	19.2
Velocidad del viento máxima maximorum (km/h)	48.0	56.5	54.0	47.0	46.0	40.1	36.0	37.6	36.0	39.5	42.0	51.6	56.5
Velocidad del viento media (km/h)	6.7	7.9	8.9	9.0	8.1	8.3	7.8	7.0	5.6	5.1	5.6	5.9	7.2
Dirección dominante del viento	ESE	SO	OSO	OSO	ESE	ESE	ESE	ESE	ESE	ESE	ESE	N	ESE

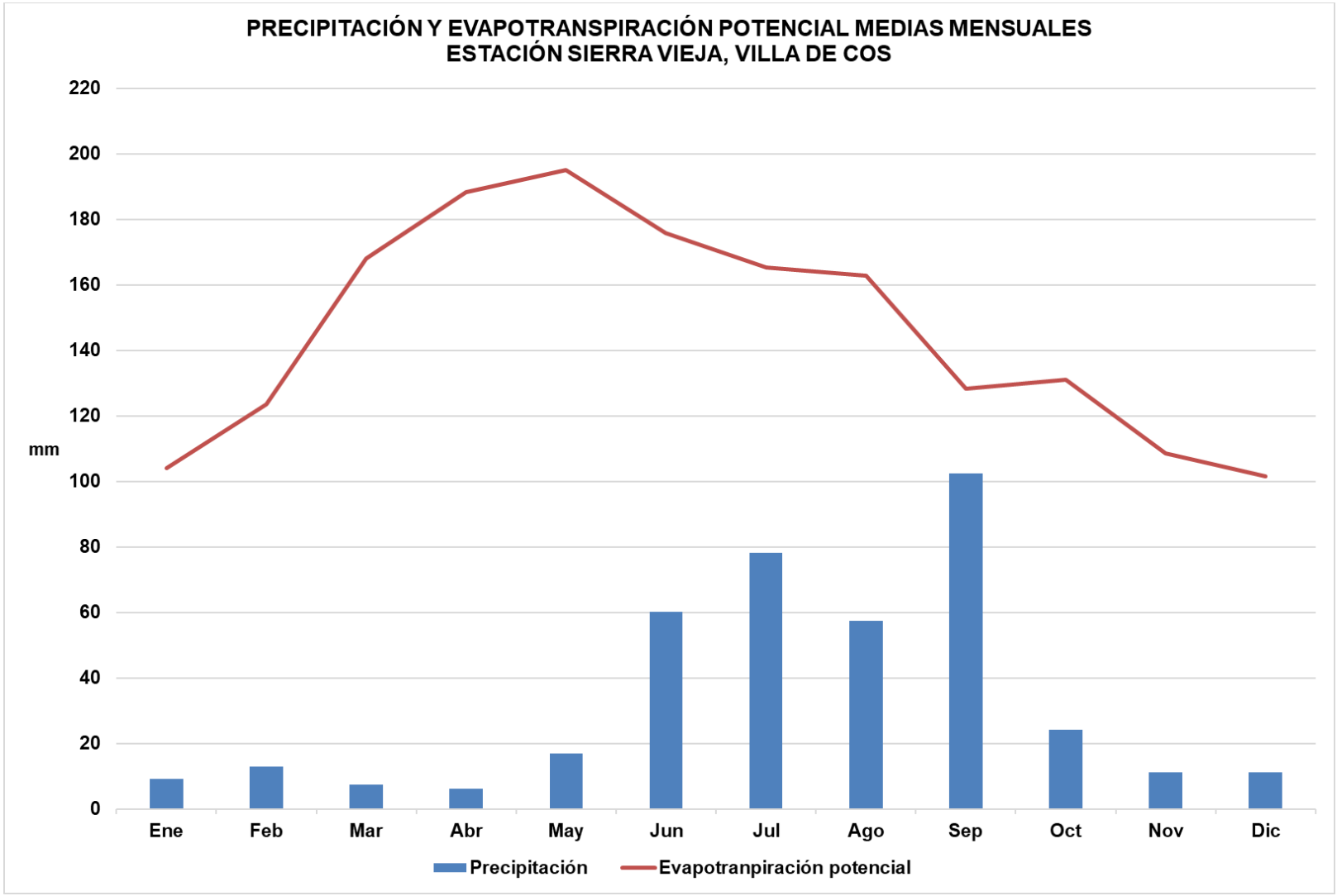


Figura 531. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Sierra Vieja, Villa de Cos (2002-2022).

7.32. Estación: Tanque de Hacheros, Mazapil

Cuadro 592. Temperatura máxima media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.3	9.8	12.7	16.2	18.7	19.8	19.0	19.0	17.5	14.6	9.7	7.4	14.3
01	6.3	8.7	11.6	14.9	17.8	18.8	18.1	18.1	16.8	13.7	8.8	6.5	13.3
02	5.5	7.7	10.5	13.8	16.8	17.8	17.2	17.3	16.2	12.9	8.1	5.7	12.5
03	4.8	6.8	9.4	12.8	15.7	16.9	16.5	16.6	15.5	12.1	7.4	5.0	11.6
04	4.2	6.0	8.4	11.7	14.7	16.0	15.8	15.8	14.9	11.4	6.8	4.5	10.9
05	3.6	5.4	7.6	10.6	13.7	15.2	15.1	15.2	14.4	10.9	6.3	4.0	10.2
06	3.2	4.8	7.1	9.8	12.9	14.6	14.5	14.6	14.0	10.4	5.9	3.6	9.6
07	3.4	5.5	9.6	11.0	14.3	15.7	15.0	14.7	14.1	10.7	7.9	4.2	10.5
08	7.7	10.9	14.8	15.9	18.6	19.0	17.8	17.7	16.4	14.0	12.9	9.2	14.6
09	12.2	15.2	18.2	19.9	21.8	21.6	20.2	20.4	19.1	17.8	16.2	13.7	18.0
10	15.1	17.8	20.8	22.6	24.4	23.8	22.3	22.4	21.2	20.4	18.7	16.5	20.5
11	17.3	20.0	22.8	24.8	26.5	25.7	24.1	24.3	23.0	22.4	20.6	18.6	22.5
12	18.9	21.6	24.3	26.5	28.2	27.3	25.6	25.9	24.4	24.0	21.9	20.0	24.1
13	20.1	22.7	25.4	27.8	29.5	28.5	26.8	27.1	25.5	25.1	23.0	21.2	25.2
14	20.8	23.5	26.2	28.8	30.4	29.3	27.6	28.0	26.3	26.0	23.6	21.8	26.0
15	21.2	23.8	26.5	29.3	30.8	29.7	28.0	28.4	26.6	26.4	23.7	22.0	26.4
16	21.0	23.8	26.3	29.4	30.8	29.8	28.0	28.5	26.4	26.2	23.3	21.7	26.3
17	20.2	23.2	25.6	29.0	30.4	29.3	27.6	28.0	25.9	25.7	22.2	20.6	25.6
18	18.0	21.6	24.2	28.1	29.6	28.5	26.8	27.3	24.9	24.4	19.1	17.4	24.2
19	14.4	18.1	21.2	26.5	28.2	27.4	25.7	25.8	23.3	22.1	15.9	14.1	21.9
20	12.2	15.4	18.3	23.5	25.9	25.6	24.0	23.8	21.2	19.3	14.1	12.1	19.6
21	10.7	13.7	16.5	20.6	22.9	23.4	22.0	21.9	20.0	17.8	12.8	10.6	17.7
22	9.5	12.3	15.3	18.8	21.1	21.9	20.8	20.8	19.1	16.6	11.6	9.4	16.4
23	8.3	11.1	13.9	17.6	19.9	20.8	19.9	19.9	18.2	15.5	10.6	8.3	15.3
Media	11.9	14.6	17.4	20.4	22.6	22.8	21.6	21.7	20.2	18.3	14.6	12.4	18.2

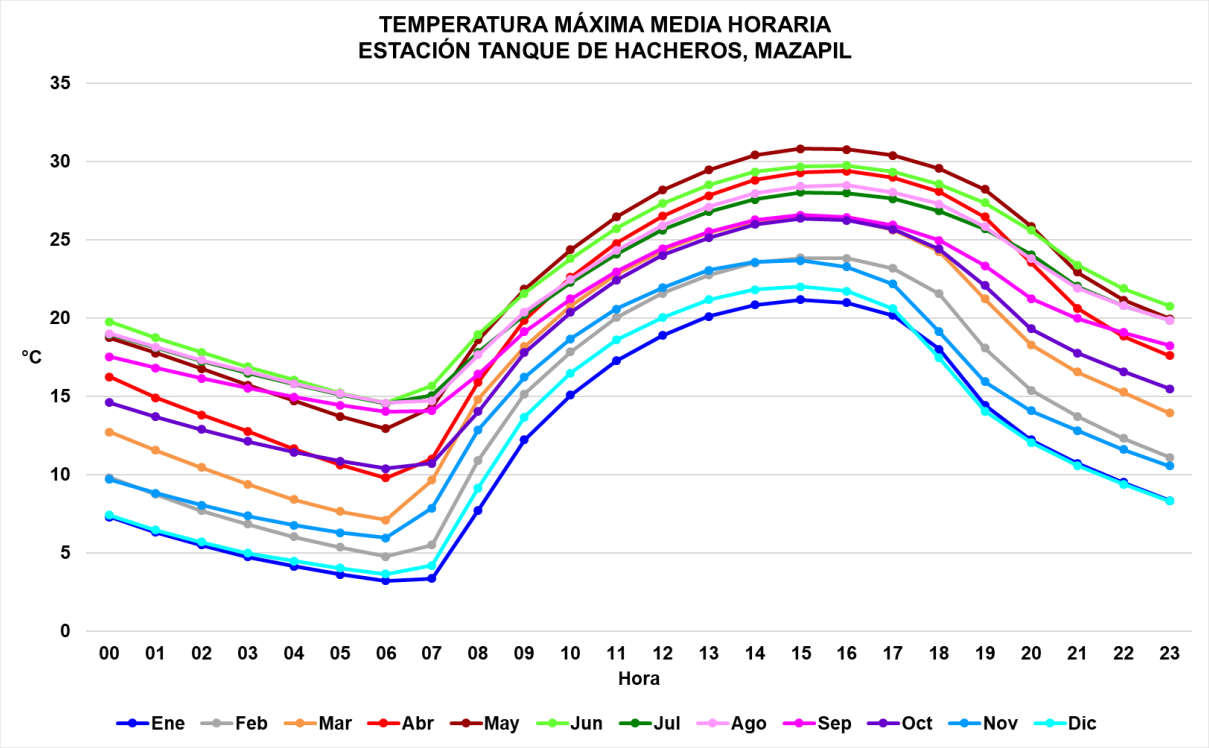


Figura 532. Temperatura máxima media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 593. Temperatura máxima maximorum (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.2	17.8	23.4	25.0	25.4	25.4	23.5	24.1	22.5	20.3	17.4	16.4	25.4
01	15.5	17.9	21.8	23.9	24.6	25.0	22.1	22.6	21.1	20.4	17.6	15.7	25.0
02	14.2	16.8	21.3	22.8	25.4	23.6	21.1	21.5	20.6	20.0	16.4	15.1	25.4
03	14.2	15.6	18.8	21.5	25.1	22.9	20.1	21.2	19.9	20.4	16.5	15.0	25.1
04	12.7	15.1	18.3	20.5	24.2	21.9	19.7	21.3	19.5	19.4	16.2	14.9	24.2
05	12.6	16.6	16.4	18.9	21.8	21.3	19.1	20.1	18.9	18.1	15.5	14.3	21.8
06	12.0	14.2	16.7	18.1	19.5	20.4	18.6	19.6	18.2	17.2	15.8	14.0	20.4
07	12.1	15.0	20.3	19.0	21.9	22.9	19.6	19.2	18.5	17.4	17.1	14.3	22.9
08	16.4	20.6	23.4	22.8	27.8	25.9	22.4	23.0	22.7	22.4	20.6	18.4	27.8
09	21.2	24.3	28.1	26.4	30.9	28.3	25.7	25.5	23.6	24.7	24.5	23.2	30.9
10	23.6	26.3	31.4	29.6	32.8	30.8	28.0	27.7	26.7	26.9	26.5	25.1	32.8
11	25.8	30.2	33.0	31.4	34.1	32.7	29.5	29.6	28.8	29.4	28.9	27.2	34.1
12	26.6	31.4	34.2	32.9	35.0	33.3	31.6	31.4	29.6	30.2	30.0	28.3	35.0
13	27.8	32.7	35.0	33.9	36.4	34.8	33.6	32.4	30.7	31.0	30.8	29.7	36.4
14	28.3	33.8	35.8	35.3	37.3	35.6	34.7	33.3	32.4	31.7	31.5	29.8	37.3
15	28.4	34.2	36.1	36.0	38.0	36.4	33.9	34.3	32.5	32.1	31.5	29.8	38.0
16	28.0	33.8	35.9	35.9	39.0	36.9	33.9	34.6	33.3	32.1	31.3	29.1	39.0
17	27.3	33.5	34.9	35.1	37.5	35.9	34.0	33.7	33.0	31.9	30.4	27.6	37.5
18	26.2	31.2	33.6	34.8	36.4	35.5	33.6	33.7	31.5	31.4	25.4	24.3	36.4
19	21.3	26.2	29.7	32.9	35.3	34.9	32.5	31.9	30.5	30.4	22.0	20.3	35.3
20	20.1	25.8	27.4	30.6	33.9	33.3	31.2	29.9	27.9	27.8	21.1	19.9	33.9
21	19.1	22.1	26.5	27.8	30.4	30.9	28.3	27.5	25.6	26.4	21.1	17.7	30.9
22	19.1	20.2	26.4	27.1	28.1	29.3	26.1	25.8	26.0	25.9	18.9	17.3	29.3
23	17.7	18.9	24.1	25.9	27.8	27.2	25.4	24.4	24.2	23.6	18.6	17.2	27.8
Máx.	28.4	34.2	36.1	36.0	39.0	36.9	34.7	34.6	33.3	32.1	31.5	29.8	39.0

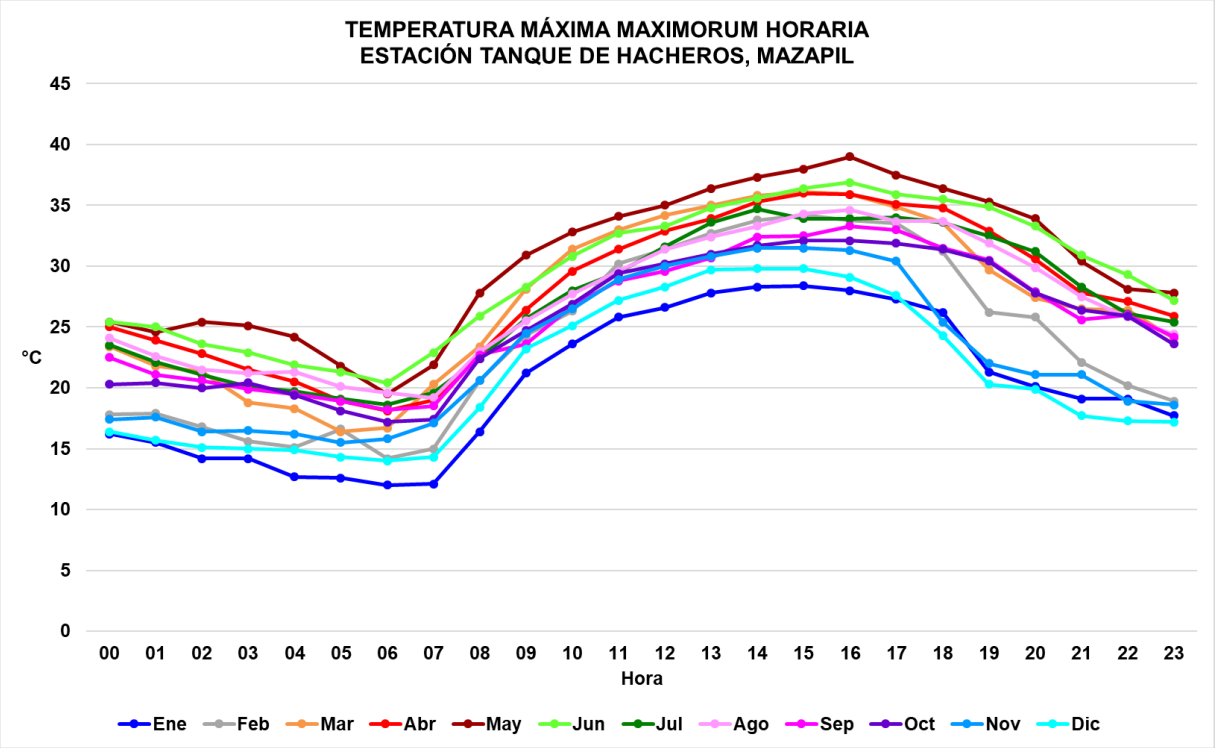


Figura 533. Temperatura máxima maximorum (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 594. Temperatura mínima media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.1	8.5	11.4	14.8	17.6	18.8	18.1	18.2	16.8	13.6	8.6	6.2	13.2
01	5.3	7.5	10.3	13.6	16.6	17.9	17.3	17.3	16.1	12.8	7.8	5.4	12.3
02	4.5	6.6	9.2	12.6	15.6	16.9	16.5	16.6	15.5	12.0	7.1	4.7	11.5
03	3.8	5.8	8.2	11.5	14.6	16.0	15.7	15.8	14.9	11.3	6.5	4.1	10.7
04	3.3	5.0	7.4	10.5	13.6	15.2	15.1	15.1	14.3	10.7	5.9	3.6	10.0
05	2.8	4.4	6.7	9.5	12.7	14.4	14.4	14.5	13.8	10.1	5.5	3.2	9.3
06	2.4	3.9	6.1	8.8	12.0	13.8	13.9	13.9	13.5	9.7	5.2	2.8	8.8
07	2.2	3.8	6.6	8.8	12.2	14.0	13.9	13.7	13.3	9.5	5.5	2.8	8.9
08	3.8	6.5	11.0	11.9	15.3	16.5	15.7	15.2	14.3	11.0	9.1	5.0	11.3
09	9.0	12.2	15.8	17.1	19.5	19.7	18.5	18.3	17.1	15.1	13.9	10.5	15.6
10	13.0	15.9	18.9	20.6	22.5	22.1	20.7	20.9	19.6	18.5	16.9	14.5	18.7
11	15.6	18.4	21.3	23.2	24.9	24.2	22.6	22.8	21.5	20.9	19.1	17.0	21.0
12	17.6	20.4	23.1	25.1	26.8	25.9	24.3	24.6	23.1	22.7	20.8	18.9	22.8
13	19.0	21.7	24.4	26.7	28.3	27.3	25.5	25.8	24.4	24.1	22.1	20.2	24.1
14	20.0	22.7	25.3	27.8	29.2	28.0	26.3	26.7	25.1	25.0	22.8	21.1	25.0
15	20.5	23.2	25.7	28.4	29.6	28.4	26.6	27.1	25.4	25.4	23.0	21.3	25.4
16	20.2	23.1	25.5	28.4	29.6	28.5	26.6	27.1	25.2	25.3	22.4	20.8	25.2
17	18.7	22.0	24.6	28.0	29.2	28.0	26.4	26.7	24.7	24.6	20.1	18.5	24.3
18	15.2	19.0	22.1	26.8	28.3	27.3	25.6	25.9	23.6	22.7	16.5	14.7	22.3
19	12.5	15.8	18.8	24.3	26.5	26.0	24.3	24.2	21.6	19.8	14.2	12.3	20.0
20	10.8	13.7	16.6	21.1	23.4	23.8	22.4	22.1	20.0	17.8	12.8	10.6	17.9
21	9.4	12.2	15.1	18.8	21.1	22.0	20.8	20.8	19.0	16.5	11.6	9.3	16.4
22	8.2	11.0	13.8	17.3	19.8	20.8	19.8	19.9	18.2	15.5	10.4	8.2	15.2
23	7.2	9.8	12.6	16.1	18.7	19.8	19.0	19.0	17.5	14.4	9.4	7.2	14.2
Media	10.5	13.0	15.8	18.8	21.2	21.5	20.4	20.5	19.1	17.0	13.2	11.0	16.8

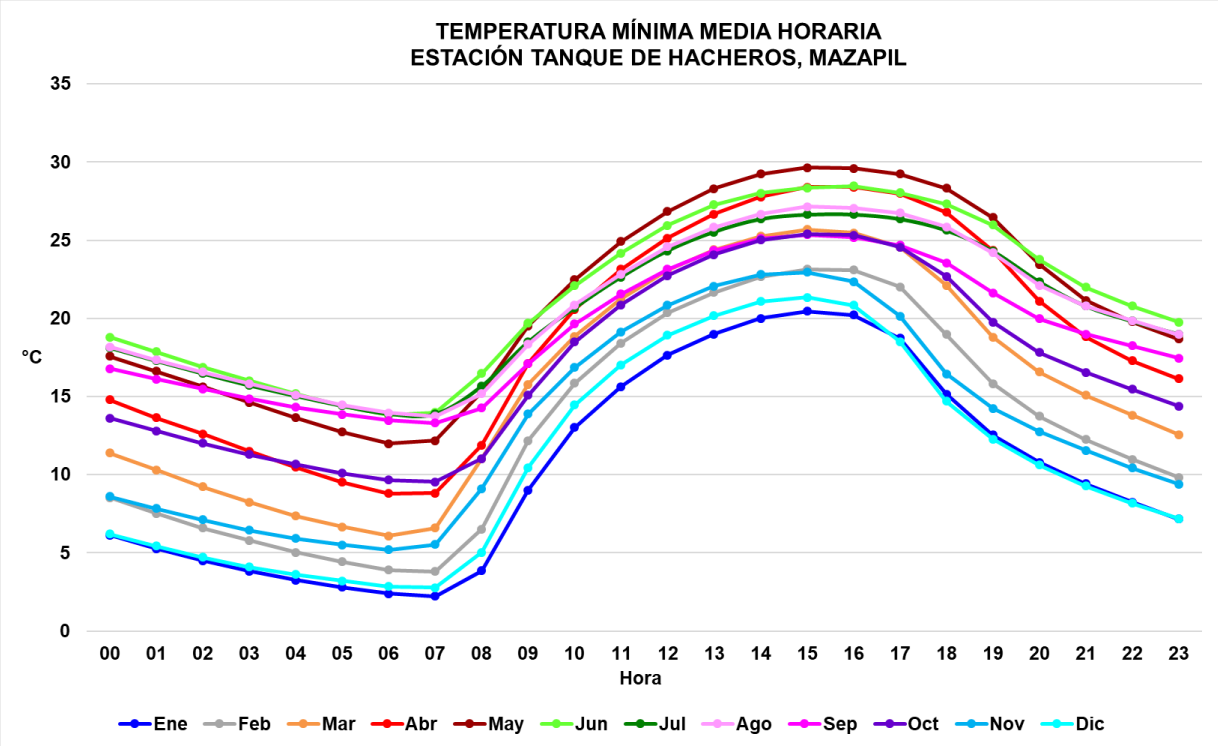


Figura 534. Temperatura mínima media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 595. Temperatura mínima minimorum (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-6.2	-6.7	-2.4	3.7	9.0	12.0	13.8	13.9	8.2	-0.4	-8.8	-8.8	-8.8
01	-6.0	-7.7	-3.2	2.2	7.5	10.6	12.8	12.7	7.7	-1.3	-9.6	-9.3	-9.6
02	-7.8	-7.6	-6.1	2.4	6.6	9.0	12.2	12.1	5.9	-1.8	-10.3	-10.5	-10.5
03	-7.8	-8.7	-6.1	1.2	4.7	8.3	11.5	10.9	5.8	-3.2	-11.4	-11.4	-11.4
04	-7.5	-9.0	-6.0	0.6	2.4	7.4	10.7	10.6	5.4	-3.7	-11.9	-11.5	-11.9
05	-7.6	-9.2	-6.9	-0.4	2.9	6.2	9.5	10.0	4.8	-3.8	-12.1	-11.4	-12.1
06	-8.0	-9.7	-8.5	-2.2	2.1	6.5	8.9	9.6	4.6	-4.4	-12.5	-12.3	-12.5
07	-8.0	-10.4	-8.7	-1.8	1.7	6.5	9.1	8.8	5.1	-4.5	-12.6	-12.5	-12.6
08	-7.2	-9.2	-4.8	-0.3	5.0	11.1	9.7	10.3	6.6	1.0	-8.2	-8.7	-9.2
09	-3.2	-6.4	1.5	8.4	10.9	14.6	13.6	14.5	11.8	6.2	1.1	-4.2	-6.4
10	-2.6	-3.3	1.6	10.2	11.8	15.8	15.4	15.1	14.8	8.2	3.6	-2.9	-3.3
11	-2.1	-0.6	3.4	11.3	15.3	16.4	16.3	15.8	15.1	11.7	4.4	-2.3	-2.3
12	-0.3	3.3	1.2	14.3	16.3	15.6	16.0	15.5	15.6	14.1	4.7	-2.1	-2.1
13	3.2	6.3	1.6	15.1	17.4	16.2	13.3	15.1	15.0	13.8	6.5	-2.3	-2.3
14	3.8	7.9	2.9	16.3	14.9	15.1	13.3	14.8	15.0	14.1	6.9	-2.2	-2.2
15	4.6	7.4	3.6	17.4	12.7	15.6	15.7	15.5	15.0	14.2	6.8	-1.8	-1.8
16	6.8	7.3	4.3	11.9	12.8	15.1	14.5	15.3	15.1	13.6	5.6	-1.5	-1.5
17	6.9	7.1	4.3	11.9	14.7	14.7	14.8	15.3	14.9	13.3	4.3	-1.8	-1.8
18	4.7	4.3	3.1	11.7	14.6	15.1	14.9	15.6	14.6	12.4	1.8	-4.0	-4.0
19	2.9	1.2	3.0	12.3	12.4	14.7	14.5	15.1	15.0	10.0	0.1	-5.3	-5.3
20	1.0	-1.3	3.0	12.4	10.2	14.0	14.2	15.1	13.7	7.3	-1.4	-6.0	-6.0
21	-0.7	-2.9	2.1	11.6	11.4	13.3	14.3	15.2	13.7	5.8	-4.1	-5.6	-5.6
22	-3.4	-4.2	0.4	7.6	12.0	13.0	14.6	15.1	11.5	2.6	-5.2	-7.0	-7.0
23	-5.6	-5.7	-0.3	5.2	10.8	13.2	14.4	14.5	9.5	1.7	-7.5	-7.7	-7.7
Mín.	-8.0	-10.4	-8.7	-2.2	1.7	6.2	8.9	8.8	4.6	-4.5	-12.6	-12.5	-12.6

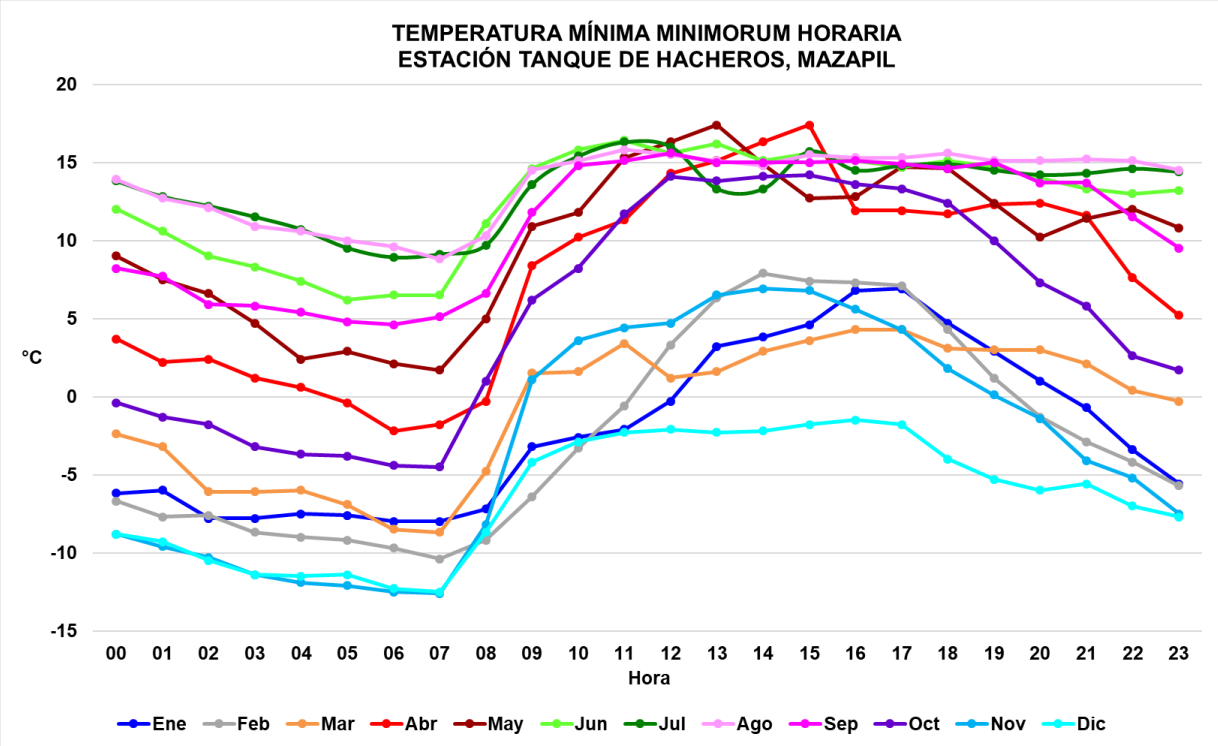


Figura 535. Temperatura mínima minimorum (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 596. Temperatura media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.7	9.2	12.1	15.5	18.2	19.3	18.5	18.6	17.2	14.1	9.1	6.8	13.8
01	5.8	8.1	10.9	14.3	17.2	18.3	17.7	17.7	16.5	13.2	8.3	5.9	12.8
02	5.0	7.1	9.8	13.2	16.2	17.4	16.9	16.9	15.8	12.4	7.6	5.2	12.0
03	4.3	6.3	8.8	12.1	15.2	16.4	16.1	16.2	15.2	11.7	6.9	4.5	11.2
04	3.7	5.5	7.9	11.1	14.2	15.6	15.4	15.5	14.6	11.1	6.3	4.0	10.4
05	3.2	4.9	7.1	10.1	13.2	14.8	14.8	14.8	14.1	10.5	5.9	3.6	9.8
06	2.8	4.3	6.6	9.3	12.4	14.2	14.2	14.3	13.8	10.0	5.6	3.2	9.2
07	2.7	4.6	8.0	9.8	13.1	14.7	14.4	14.2	13.7	10.1	6.5	3.4	9.6
08	5.7	8.7	13.0	13.9	17.0	17.7	16.7	16.4	15.3	12.5	11.0	7.1	12.9
09	10.7	13.8	17.0	18.5	20.7	20.7	19.4	19.4	18.1	16.5	15.1	12.1	16.8
10	14.1	16.9	19.8	21.6	23.4	22.9	21.5	21.7	20.4	19.4	17.8	15.5	19.6
11	16.5	19.2	22.0	24.0	25.7	24.9	23.4	23.6	22.3	21.6	19.9	17.8	21.7
12	18.3	21.0	23.7	25.8	27.5	26.6	25.0	25.2	23.8	23.4	21.4	19.5	23.4
13	19.5	22.2	24.9	27.2	28.9	27.9	26.2	26.5	24.9	24.6	22.6	20.7	24.7
14	20.4	23.1	25.7	28.3	29.8	28.7	27.0	27.3	25.7	25.5	23.2	21.5	25.5
15	20.8	23.5	26.1	28.8	30.2	29.0	27.3	27.8	26.0	25.9	23.3	21.7	25.9
16	20.6	23.5	25.9	28.9	30.2	29.1	27.3	27.8	25.8	25.8	22.8	21.3	25.7
17	19.5	22.6	25.1	28.5	29.8	28.7	27.0	27.4	25.3	25.1	21.3	19.6	25.0
18	16.6	20.3	23.2	27.5	29.0	27.9	26.2	26.6	24.3	23.6	17.7	16.0	23.2
19	13.5	16.9	20.0	25.4	27.4	26.7	25.0	25.0	22.5	20.9	15.1	13.1	21.0
20	11.5	14.5	17.4	22.3	24.6	24.7	23.2	22.9	20.6	18.6	13.4	11.3	18.8
21	10.1	13.0	15.8	19.7	22.0	22.7	21.4	21.3	19.5	17.2	12.2	9.9	17.1
22	8.9	11.6	14.5	18.0	20.5	21.3	20.3	20.3	18.7	16.0	11.0	8.8	15.8
23	7.7	10.5	13.2	16.9	19.3	20.3	19.4	19.4	17.8	14.9	10.0	7.7	14.8
Media	11.2	13.8	16.6	19.6	21.9	22.1	21.0	21.1	19.7	17.7	13.9	11.7	17.5

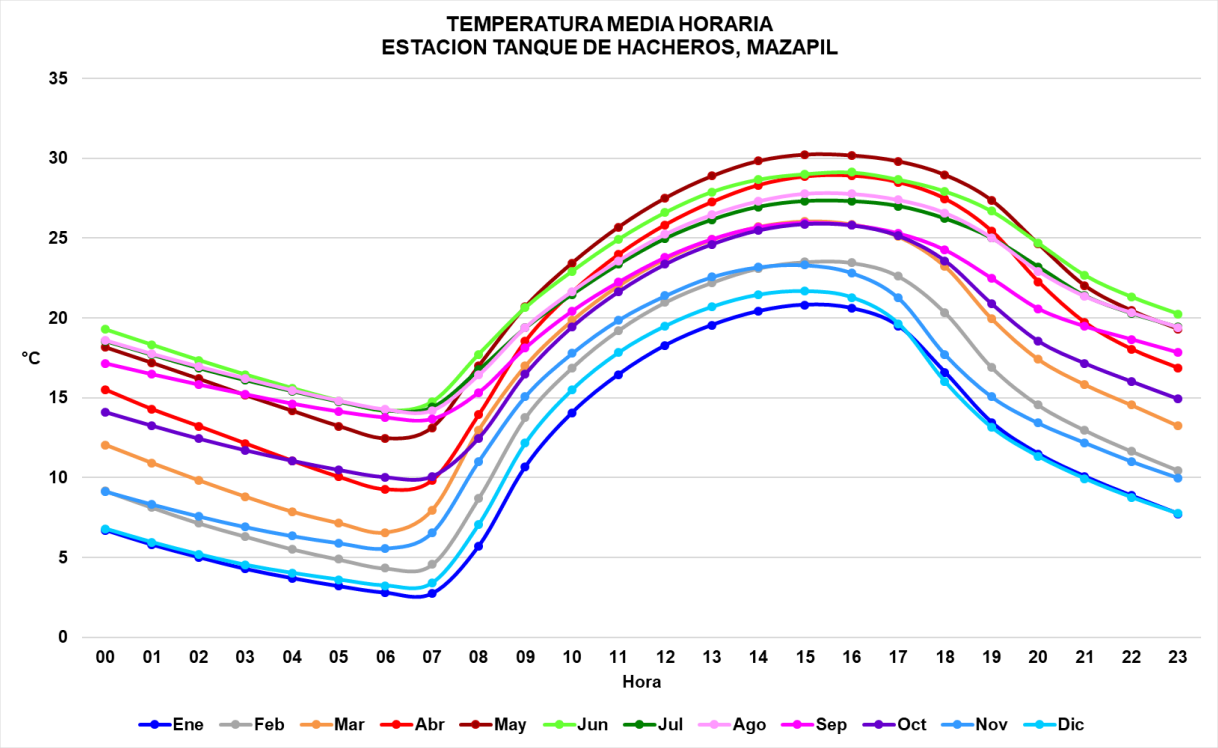


Figura 536. Temperatura media (˚C) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 597. Precipitación media (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.5	0.4	0.5	0.3	0.7	1.2	4.9	2.1	4.5	0.8	0.4	0.4	16.8
01	0.5	0.4	0.3	0.1	1.1	1.9	2.0	2.1	1.6	1.3	0.3	0.4	11.9
02	0.5	0.4	0.1	0.0	0.9	2.5	2.2	1.4	1.6	0.5	0.1	1.1	11.6
03	0.4	0.5	0.4	0.0	0.7	1.9	2.3	1.5	1.8	1.2	0.2	0.6	11.6
04	0.3	0.4	0.5	0.1	1.0	2.4	1.6	1.6	1.2	0.6	0.2	0.3	10.2
05	0.4	0.5	0.2	0.0	0.6	0.9	1.3	1.9	1.0	0.6	0.1	0.4	8.0
06	0.4	0.2	0.1	0.1	0.2	0.3	1.0	1.7	1.1	0.3	0.2	0.7	6.2
07	0.3	0.2	0.2	0.2	0.1	0.0	0.5	0.4	1.4	0.2	0.6	0.4	4.6
08	0.5	0.2	0.1	0.1	0.0	0.1	0.5	0.3	1.1	0.3	0.2	0.3	3.7
09	0.2	0.5	0.1	0.1	0.0	0.1	0.5	0.1	0.4	0.3	0.1	0.3	2.7
10	0.1	0.5	0.0	0.0	0.0	0.0	0.2	1.0	0.6	0.1	0.3	0.2	3.2
11	0.1	0.3	0.1	0.0	0.0	0.2	0.6	0.4	0.6	0.0	0.2	0.4	2.9
12	0.4	0.5	0.5	0.1	0.0	0.1	0.3	0.1	0.6	0.3	1.1	0.4	4.5
13	0.6	0.7	0.2	0.1	0.0	1.2	1.9	2.6	3.9	0.6	1.5	0.4	13.8
14	0.7	1.0	0.1	0.0	0.5	3.1	3.5	2.7	1.7	0.4	1.5	0.3	15.5
15	0.1	0.7	0.2	0.0	2.3	1.0	4.8	3.5	5.3	1.0	0.4	0.5	19.8
16	0.2	0.7	0.3	1.5	1.3	1.7	8.6	3.3	3.6	1.2	0.9	1.3	24.6
17	0.3	0.8	0.4	1.1	1.7	3.8	4.8	3.1	5.2	3.2	1.0	0.6	26.0
18	1.6	1.4	0.7	1.3	0.7	3.0	6.7	3.2	11.1	2.7	2.4	0.9	35.8
19	0.9	0.6	0.8	0.3	2.0	3.0	6.6	5.9	8.1	2.4	1.6	0.3	32.6
20	0.3	0.4	0.3	0.3	0.8	4.2	5.1	5.1	7.6	2.9	0.7	0.3	27.9
21	0.4	0.3	0.5	0.9	0.6	2.1	5.0	5.8	5.5	1.2	0.4	0.3	23.2
22	0.7	0.5	0.5	0.8	1.0	2.2	3.7	4.7	4.4	1.1	0.8	0.4	20.7
23	0.5	0.2	0.5	1.0	0.6	1.4	2.8	3.7	3.9	0.6	0.4	0.6	16.3
Suma	10.6	12.3	7.7	8.4	17.1	38.4	71.5	58.5	78.0	23.9	15.5	11.9	353.9

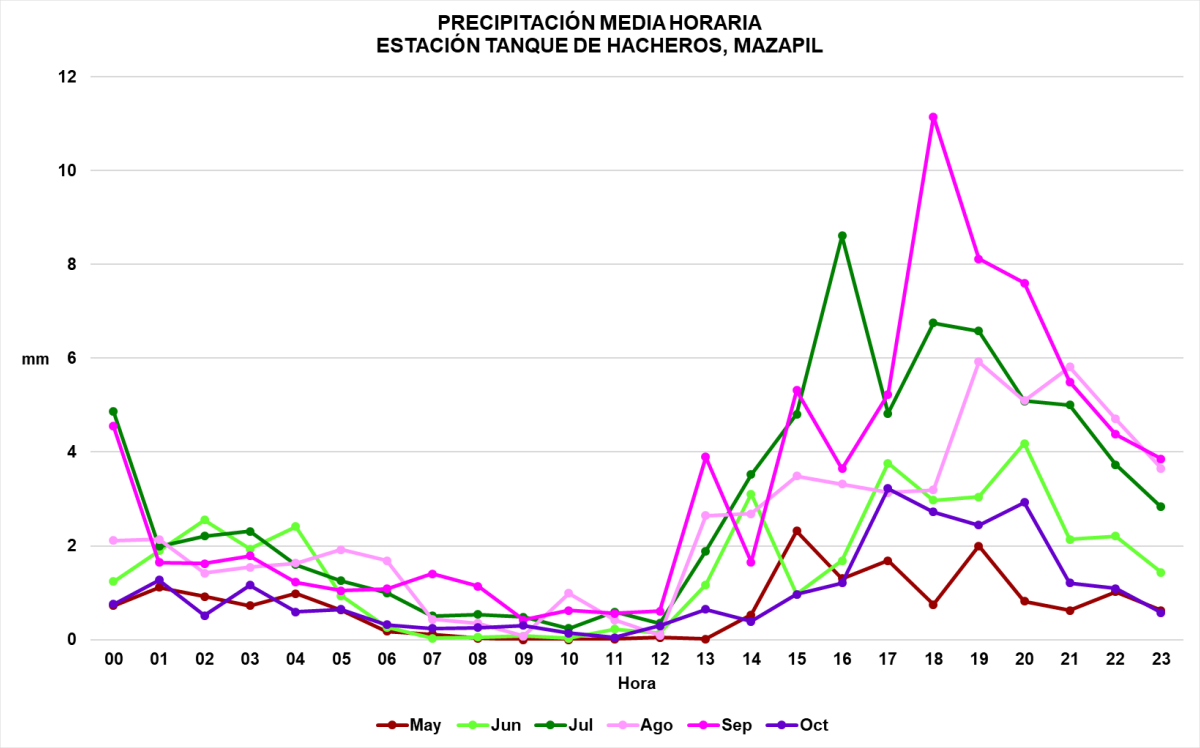


Figura 537. Precipitación media (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 598. Precipitación máxima (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.4	2.8	3.4	2.6	3.6	9.2	32.8	8.2	38.2	1.9	2.8	1.6	38.2
01	1.4	2.0	1.6	1.6	9.6	8.2	13.8	8.8	7.6	9.8	3.2	1.4	13.8
02	2.2	2.4	1.6	0.8	8.8	14.8	7.6	4.4	4.8	2.4	0.8	10.6	14.8
03	1.6	2.2	3.8	0.2	3.8	7.2	9.0	6.4	12.6	16.6	1.0	3.2	16.6
04	1.6	1.6	4.2	0.8	8.4	13.8	5.8	6.6	4.0	4.2	0.6	2.6	13.8
05	2.4	2.0	2.4	0.4	4.2	5.0	4.6	16.6	4.0	5.6	1.2	2.6	16.6
06	2.0	1.4	1.4	1.4	1.4	2.0	2.2	17.8	4.0	2.3	2.0	6.8	17.8
07	1.2	1.0	3.0	1.4	0.8	0.2	2.4	2.4	7.6	2.9	4.4	2.2	7.6
08	5.4	1.2	1.0	1.0	0.4	0.6	4.0	2.8	6.0	2.2	1.0	1.8	6.0
09	1.2	5.6	0.8	1.6	0.0	0.8	3.6	0.4	2.2	2.8	1.2	1.6	5.6
10	1.0	2.6	0.6	0.2	0.0	0.2	0.8	17.8	4.6	2.0	3.0	1.0	17.8
11	1.4	1.8	0.6	0.0	0.2	2.2	5.6	7.6	3.8	0.8	1.0	2.4	7.6
12	3.0	2.4	3.6	1.4	0.8	2.6	1.4	1.4	7.4	5.0	16.0	5.6	16.0
13	5.4	2.8	2.2	1.0	0.2	16.6	10.4	20.4	27.2	6.0	20.4	3.8	27.2
14	7.0	5.2	0.8	0.6	6.6	14.8	23.8	9.6	5.0	2.4	13.6	1.4	23.8
15	1.6	4.0	2.0	0.6	14.4	2.6	18.6	9.4	34.2	7.0	2.2	3.2	34.2
16	1.0	3.2	4.0	12.0	17.2	4.8	29.6	13.8	19.6	4.0	8.4	12.6	29.6
17	2.0	3.4	3.0	7.4	8.2	14.8	14.8	8.4	8.8	12.6	8.2	6.0	14.8
18	13.2	5.6	2.8	4.2	3.8	16.6	60.6	8.6	25.0	17.8	13.6	6.0	60.6
19	5.8	3.0	4.2	2.4	27.8	15.4	33.6	15.4	16.8	10.2	8.8	2.4	33.6
20	1.2	1.6	3.0	1.2	8.6	13.2	16.2	22.6	26.0	11.0	3.8	2.2	26.0
21	2.0	2.0	4.4	6.8	3.8	8.0	17.0	12.4	15.6	4.8	1.6	2.0	17.0
22	4.6	2.4	5.8	6.0	6.2	9.0	7.0	13.2	9.8	5.2	3.4	2.4	13.2
23	3.0	1.8	5.0	13.8	2.8	4.8	7.8	13.0	17.6	2.2	2.6	2.8	17.6
Máx.	13.2	5.6	5.8	13.8	27.8	16.6	60.6	22.6	38.2	17.8	20.4	12.6	60.6

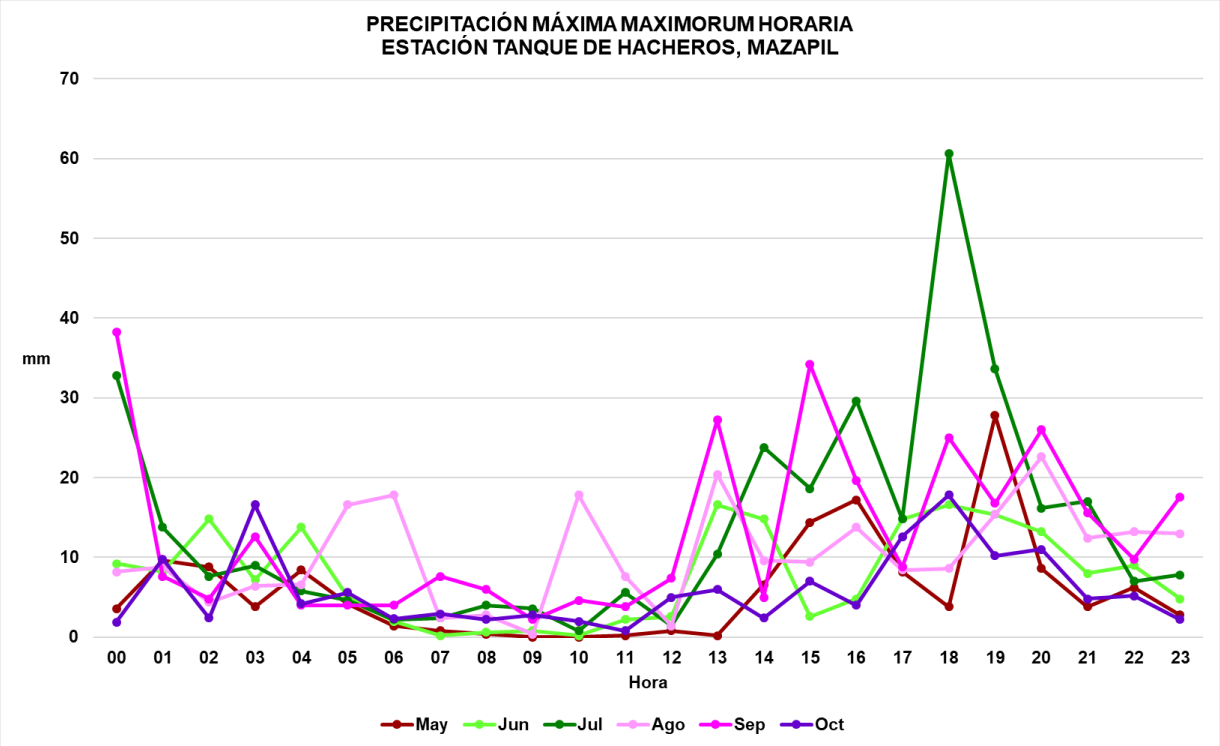


Figura 538. Precipitación máxima (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 599. Evapotranspiración potencial media (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.01	0.02	0.03	0.04	0.05	0.03	0.03	0.02	0.01	0.00	0.00	0.02
01	0.00	0.01	0.01	0.02	0.03	0.03	0.01	0.02	0.01	0.01	0.00	0.00	0.01
02	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
03	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.04	0.08	0.05	0.06	0.06	0.04	0.03	0.01	0.02	0.05	0.02	0.04
09	0.09	0.14	0.21	0.17	0.19	0.18	0.14	0.13	0.10	0.10	0.15	0.10	0.14
10	0.19	0.27	0.36	0.34	0.35	0.33	0.27	0.28	0.24	0.24	0.27	0.21	0.28
11	0.30	0.39	0.49	0.49	0.51	0.46	0.41	0.42	0.37	0.37	0.37	0.32	0.41
12	0.39	0.49	0.59	0.62	0.63	0.58	0.52	0.53	0.47	0.47	0.44	0.40	0.51
13	0.43	0.53	0.64	0.70	0.71	0.65	0.60	0.61	0.54	0.53	0.46	0.43	0.57
14	0.43	0.53	0.62	0.72	0.73	0.66	0.62	0.64	0.55	0.54	0.44	0.42	0.57
15	0.39	0.48	0.56	0.68	0.69	0.63	0.59	0.61	0.52	0.50	0.37	0.36	0.53
16	0.31	0.39	0.45	0.59	0.61	0.56	0.53	0.54	0.44	0.42	0.27	0.27	0.45
17	0.20	0.27	0.32	0.47	0.50	0.47	0.44	0.43	0.33	0.30	0.14	0.15	0.33
18	0.10	0.12	0.17	0.33	0.36	0.34	0.32	0.31	0.21	0.20	0.07	0.08	0.22
19	0.05	0.07	0.10	0.26	0.24	0.22	0.20	0.22	0.14	0.10	0.02	0.03	0.14
20	0.02	0.04	0.06	0.13	0.15	0.18	0.15	0.12	0.06	0.03	0.01	0.01	0.08
21	0.01	0.02	0.04	0.07	0.08	0.10	0.07	0.07	0.03	0.02	0.01	0.01	0.04
22	0.01	0.02	0.03	0.04	0.06	0.07	0.05	0.04	0.02	0.02	0.00	0.00	0.03
23	0.01	0.01	0.02	0.04	0.05	0.06	0.04	0.04	0.02	0.01	0.00	0.00	0.03
Media/día /mes	2.95	3.84	4.81	5.79	6.05	5.66	5.04	5.07	4.07	3.88	3.09	2.83	4.42

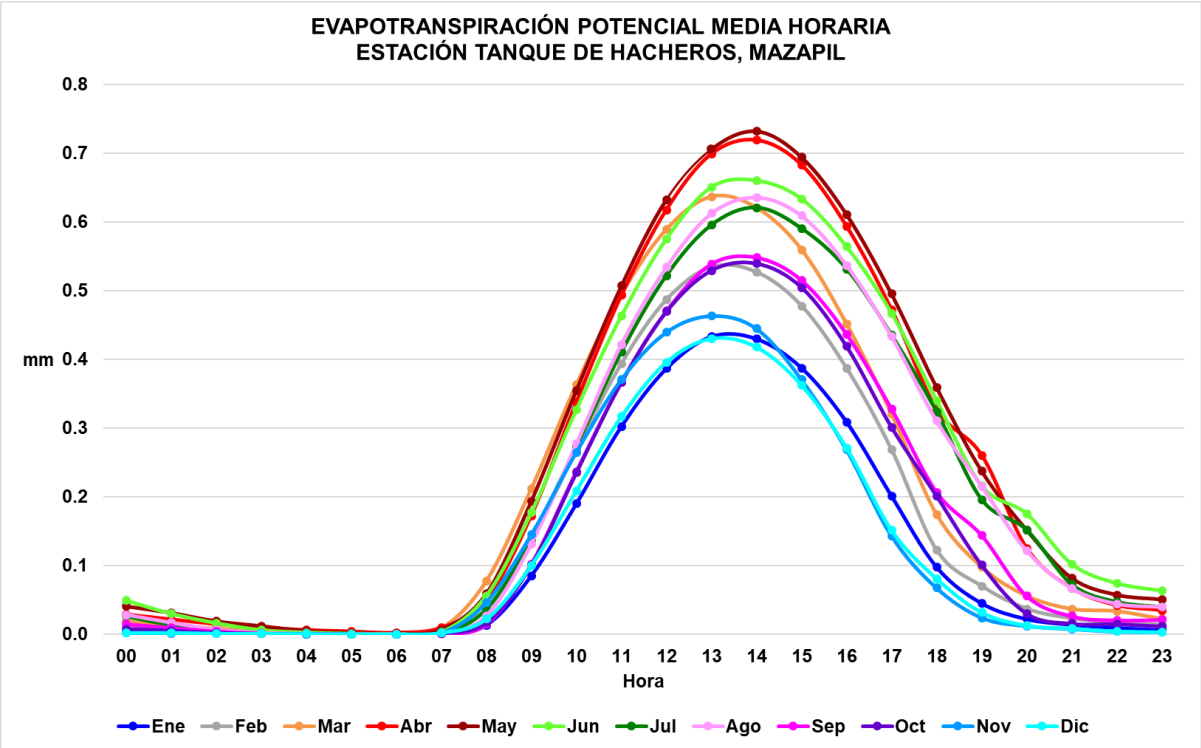


Figura 539. Evapotranspiración potencial media (mm) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 600. Humedad relativa media (%) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	62.1	51.9	45.2	39.5	48.6	62.4	71.3	71.4	79.3	71.2	70.3	64.5	61.5
01	65.6	55.5	49.5	43.9	53.5	66.9	75.2	75.5	82.5	75.2	73.8	67.7	65.4
02	68.5	59.0	53.8	48.0	58.2	71.5	79.0	79.3	85.5	78.9	77.0	70.6	69.1
03	71.4	62.3	57.4	52.3	62.5	75.5	82.5	82.9	88.1	82.2	79.8	73.2	72.5
04	73.7	65.3	60.8	56.3	66.7	79.1	85.6	86.3	90.5	85.1	82.4	75.6	75.6
05	75.7	68.2	63.7	59.6	70.3	82.4	88.3	89.0	92.5	87.6	84.5	77.5	78.3
06	77.7	70.7	66.2	62.3	73.0	84.9	90.4	91.0	93.9	89.6	86.1	79.4	80.4
07	78.6	71.3	64.1	61.8	72.0	83.7	90.2	91.5	94.3	89.9	84.6	79.9	80.1
08	71.8	61.7	52.3	53.5	61.7	73.9	81.6	84.2	89.7	84.0	73.2	71.2	71.6
09	59.0	48.6	41.2	42.0	49.2	62.3	70.0	71.7	78.7	70.9	60.3	57.8	59.3
10	48.5	39.6	32.7	33.1	39.2	52.7	60.6	61.5	68.1	59.4	50.5	47.5	49.4
11	40.5	33.0	26.7	26.3	31.4	44.5	52.8	53.2	59.6	50.7	43.0	39.8	41.8
12	34.7	28.1	22.6	21.7	25.8	38.0	46.3	46.2	52.8	43.9	37.4	34.3	36.0
13	30.6	24.9	19.8	18.5	21.8	33.3	41.8	41.3	47.9	38.9	33.2	30.4	31.9
14	28.0	22.8	18.0	16.3	19.5	30.7	39.0	38.2	44.7	35.4	30.8	28.0	29.3
15	26.5	21.7	17.0	15.1	18.5	29.6	37.7	36.3	43.5	33.7	29.8	26.8	28.0
16	26.2	21.2	16.8	14.9	18.4	29.1	37.7	36.2	44.0	33.6	30.5	26.9	28.0
17	27.8	22.0	17.6	15.4	18.7	30.4	38.4	37.3	45.9	34.9	33.4	29.7	29.3
18	33.5	25.4	20.2	16.7	19.9	32.0	40.7	39.6	49.5	38.4	40.9	36.7	32.8
19	40.5	30.8	24.7	18.8	22.3	35.3	44.6	44.6	56.2	45.7	47.7	43.2	37.9
20	45.8	35.6	29.1	22.7	27.1	40.9	50.7	52.4	63.6	52.7	53.2	48.3	43.5
21	50.3	39.8	32.9	27.0	33.2	47.6	57.6	58.7	68.0	57.6	57.7	52.9	48.6
22	54.4	43.6	36.7	30.8	38.9	53.4	62.4	63.4	72.0	62.2	62.2	57.0	53.1
23	58.1	47.6	40.8	35.0	44.2	58.3	66.7	67.9	75.7	66.5	66.6	60.8	57.3
Media	52.1	43.8	37.9	34.6	41.4	54.1	62.1	62.5	69.4	61.2	57.9	53.3	52.5

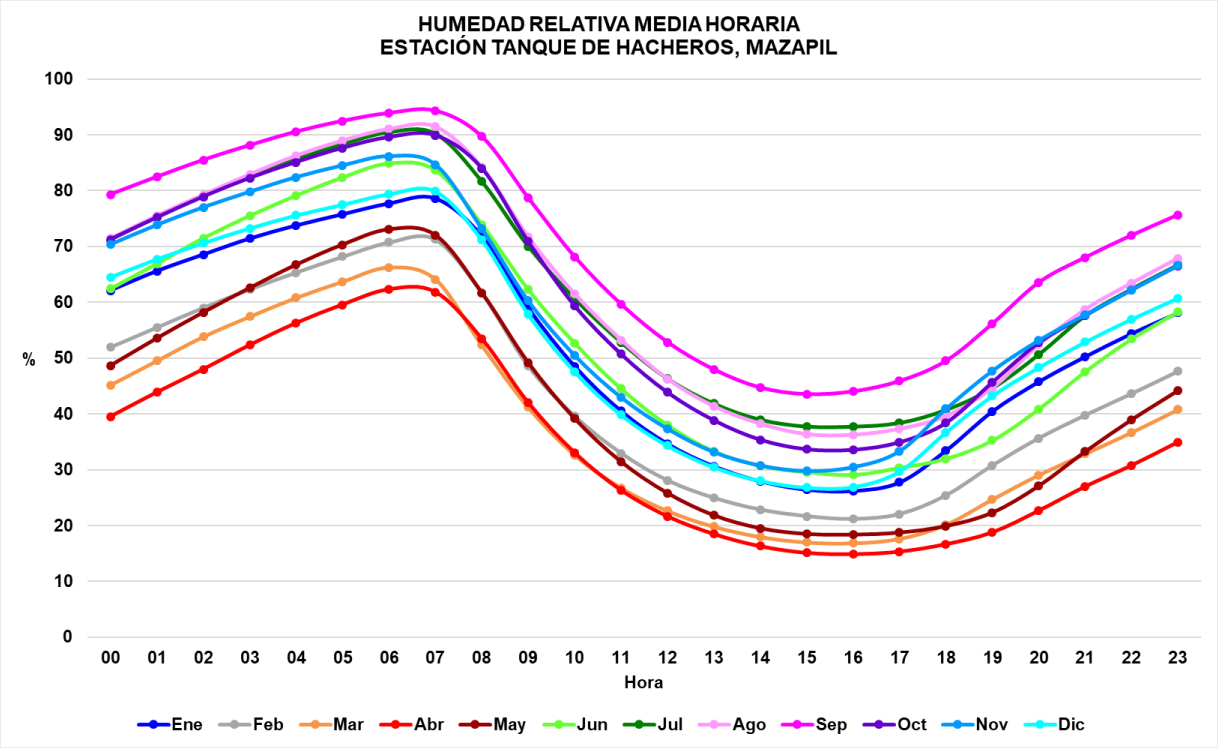


Figura 540. Humedad relativa media (%) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 601. Humedad relativa mínima minimorum (%) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	12.0	10.0	7.0	6.0	7.0	11.0	30.0	30.0	31.0	23.0	16.0	13.0	6.0
01	13.0	11.0	8.0	7.0	8.0	12.0	37.0	35.0	31.0	29.0	18.0	14.0	7.0
02	13.0	11.0	9.0	7.0	10.0	12.0	41.0	39.0	31.0	30.0	18.0	14.0	7.0
03	15.0	13.0	9.0	8.0	11.0	16.0	43.0	43.0	36.0	33.4	19.0	14.0	8.0
04	15.0	13.0	10.0	9.0	11.0	26.0	44.0	50.0	38.0	36.0	21.0	16.0	9.0
05	17.0	15.0	11.0	9.0	13.0	27.0	45.0	56.0	42.0	40.0	22.0	16.0	9.0
06	19.0	17.0	12.0	11.0	13.0	28.0	49.0	60.0	44.0	42.0	25.0	17.0	11.0
07	18.0	18.0	10.0	11.0	10.0	27.0	54.0	56.0	48.0	31.0	25.0	18.0	10.0
08	12.0	12.0	7.0	11.0	9.0	25.0	43.0	44.0	47.0	21.0	16.0	14.0	7.0
09	8.0	10.0	5.0	9.0	5.0	20.0	34.0	38.0	38.0	17.0	12.0	10.0	5.0
10	8.0	8.0	4.0	7.0	5.0	11.0	26.0	30.3	28.0	14.0	9.0	9.0	4.0
11	7.0	5.0	3.0	6.0	4.0	10.0	22.0	24.0	21.0	10.0	7.0	8.0	3.0
12	6.0	5.0	3.0	4.0	4.0	9.0	16.0	20.0	14.0	11.0	6.0	6.0	3.0
13	6.0	5.0	2.0	4.0	3.0	7.0	14.0	18.0	14.0	8.0	5.0	5.0	2.0
14	5.0	4.0	3.0	4.0	3.0	5.0	13.0	15.0	12.0	9.0	5.0	4.0	3.0
15	4.0	4.0	2.0	3.0	3.0	5.0	11.0	14.0	11.0	8.0	4.0	4.0	2.0
16	3.0	4.0	2.0	2.0	4.0	4.0	11.0	14.0	10.0	6.0	5.0	5.0	2.0
17	3.0	4.0	2.0	2.0	3.0	5.0	11.0	13.0	7.0	7.0	4.0	5.0	2.0
18	4.0	4.0	2.0	2.0	3.0	5.0	11.0	13.0	6.0	8.0	5.0	5.0	2.0
19	5.0	6.0	3.0	3.0	3.0	5.0	13.0	13.0	7.0	10.0	8.0	8.0	3.0
20	6.0	6.0	4.0	3.0	4.0	6.0	14.0	14.0	9.0	13.0	11.0	9.0	3.0
21	10.0	8.0	5.0	4.0	6.0	8.0	18.0	19.0	15.0	14.0	12.0	10.0	4.0
22	11.0	9.0	5.0	5.0	6.0	9.0	22.0	24.0	20.0	15.0	14.0	11.0	5.0
23	10.0	10.0	6.0	5.0	8.0	10.0	24.0	26.0	26.0	18.0	14.0	13.0	5.0
Mín.	3.0	4.0	2.0	2.0	3.0	4.0	11.0	13.0	6.0	6.0	4.0	4.0	2.0

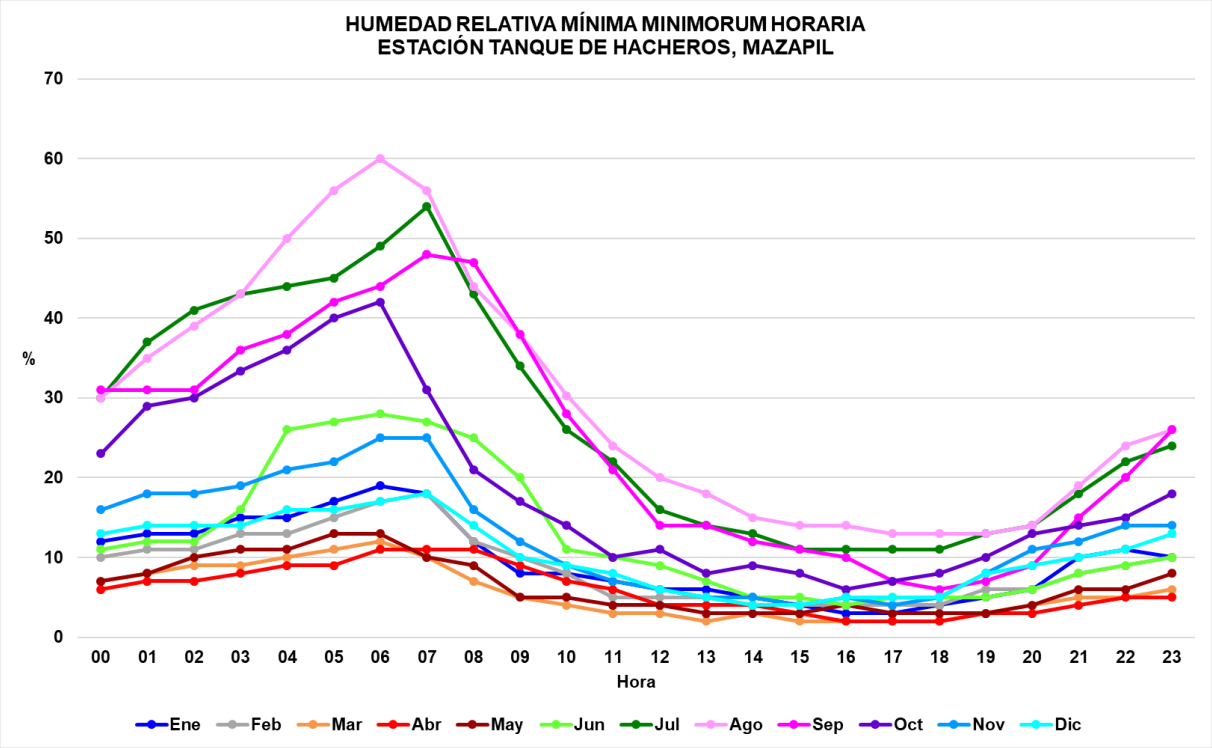


Figura 541. Humedad relativa mínima minimorum (%) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 602. Radiación solar global media horaria (W/m2) de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	18	9	13	14	7	3	1	2	6	1	6
07	52	109	302	189	230	227	154	110	69	81	203	81	151
08	476	660	1054	814	886	849	687	628	495	513	828	548	703
09	1164	1473	1916	1689	1735	1662	1460	1446	1254	1285	1570	1232	1491
10	1849	2194	2674	2522	2559	2427	2215	2241	2004	2057	2208	1874	2235
11	2353	2723	3199	3195	3244	3035	2854	2871	2580	2646	2612	2321	2803
12	2619	2996	3474	3627	3663	3437	3276	3286	2998	2985	2744	2513	3135
13	2584	2957	3405	3754	3763	3544	3392	3360	3065	3053	2637	2433	3162
14	2284	2679	3068	3555	3543	3321	3209	3214	2874	2834	2236	2124	2912
15	1798	2172	2480	3061	3065	2896	2858	2835	2467	2387	1646	1585	2437
16	1137	1493	1719	2400	2432	2412	2308	2283	1887	1758	958	929	1810
17	477	722	922	1632	1747	1718	1700	1631	1238	1034	291	295	1117
18	50	138	250	854	1013	1055	1033	926	600	379	8	9	526
19	0	0	4	248	366	452	429	307	129	33	0	0	164
20	0	0	0	11	36	60	59	23	1	0	0	0	16
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	16843	20317	24484	27560	28294	27107	25642	25164	21664	21049	17947	15944	22668

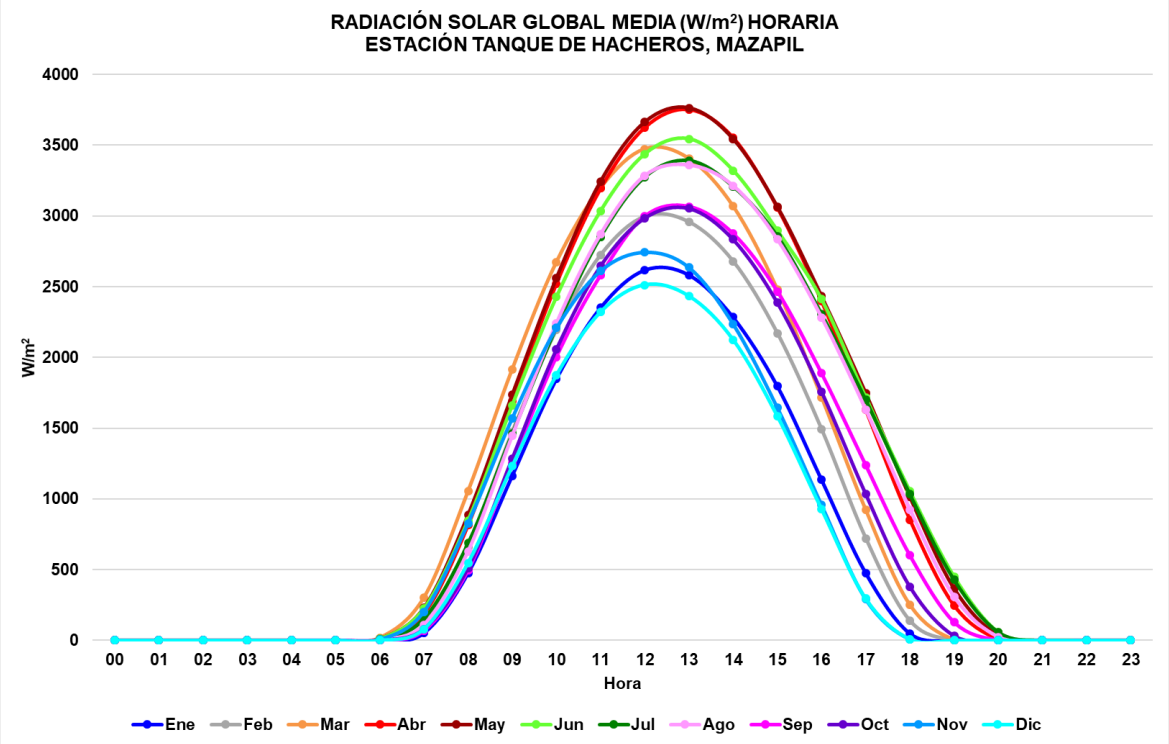


Figura 542. Radiación solar global media horaria (W/m2) de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 603. Radiación solar global media horaria (kWh/m2) de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.05	0.06	0.06	0.04	0.03	0.02	0.02	0.05	0.02	0.04
08	0.12	0.16	0.26	0.20	0.22	0.21	0.17	0.16	0.12	0.13	0.21	0.14	0.18
09	0.29	0.37	0.48	0.42	0.43	0.42	0.37	0.36	0.31	0.32	0.39	0.31	0.37
10	0.46	0.55	0.67	0.63	0.64	0.61	0.55	0.56	0.50	0.51	0.55	0.47	0.56
11	0.59	0.68	0.80	0.80	0.81	0.76	0.71	0.72	0.65	0.66	0.65	0.58	0.70
12	0.65	0.75	0.87	0.91	0.92	0.86	0.82	0.82	0.75	0.75	0.69	0.63	0.78
13	0.65	0.74	0.85	0.94	0.94	0.89	0.85	0.84	0.77	0.76	0.66	0.61	0.79
14	0.57	0.67	0.77	0.89	0.89	0.83	0.80	0.80	0.72	0.71	0.56	0.53	0.73
15	0.45	0.54	0.62	0.77	0.77	0.72	0.71	0.71	0.62	0.60	0.41	0.40	0.61
16	0.28	0.37	0.43	0.60	0.61	0.60	0.58	0.57	0.47	0.44	0.24	0.23	0.45
17	0.12	0.18	0.23	0.41	0.44	0.43	0.43	0.41	0.31	0.26	0.07	0.07	0.28
18	0.01	0.03	0.06	0.21	0.25	0.26	0.26	0.23	0.15	0.09	0.00	0.00	0.13
19	0.00	0.00	0.00	0.06	0.09	0.11	0.11	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.21	5.08	6.12	6.89	7.07	6.78	6.41	6.29	5.42	5.26	4.49	3.99	5.67

Cuadro 604. Radiación solar global media horaria (Mj/m2/s) de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01
07	0.05	0.10	0.27	0.17	0.21	0.20	0.14	0.10	0.06	0.07	0.18	0.07	0.14
08	0.43	0.59	0.95	0.73	0.80	0.76	0.62	0.57	0.45	0.46	0.75	0.49	0.63
09	1.05	1.33	1.72	1.52	1.56	1.50	1.31	1.30	1.13	1.16	1.41	1.11	1.34
10	1.66	1.97	2.41	2.27	2.30	2.18	1.99	2.02	1.80	1.85	1.99	1.69	2.01
11	2.12	2.45	2.88	2.88	2.92	2.73	2.57	2.58	2.32	2.38	2.35	2.09	2.52
12	2.36	2.70	3.13	3.26	3.30	3.09	2.95	2.96	2.70	2.69	2.47	2.26	2.82
13	2.33	2.66	3.06	3.38	3.39	3.19	3.05	3.02	2.76	2.75	2.37	2.19	2.85
14	2.06	2.41	2.76	3.20	3.19	2.99	2.89	2.89	2.59	2.55	2.01	1.91	2.62
15	1.62	1.95	2.23	2.75	2.76	2.61	2.57	2.55	2.22	2.15	1.48	1.43	2.19
16	1.02	1.34	1.55	2.16	2.19	2.17	2.08	2.06	1.70	1.58	0.86	0.84	1.63
17	0.43	0.65	0.83	1.47	1.57	1.55	1.53	1.47	1.11	0.93	0.26	0.27	1.01
18	0.05	0.12	0.23	0.77	0.91	0.95	0.93	0.83	0.54	0.34	0.01	0.01	0.47
19	0.00	0.00	0.00	0.22	0.33	0.41	0.39	0.28	0.12	0.03	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.16	18.29	22.04	24.80	25.46	24.40	23.08	22.65	19.50	18.94	16.15	14.35	20.40

Cuadro 605. Velocidad del viento media (km/h) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.5	4.0	5.1	6.1	7.9	8.3	6.4	6.3	5.4	4.0	2.9	2.9	5.2
01	3.2	3.5	4.5	5.3	6.7	6.4	5.0	4.9	4.7	3.6	2.7	2.7	4.4
02	3.0	3.1	3.8	4.8	5.4	4.8	4.0	3.7	3.8	3.0	2.4	2.7	3.7
03	3.0	3.0	3.4	3.8	4.4	3.7	3.3	2.8	3.0	2.5	2.3	2.5	3.1
04	3.0	2.9	3.1	3.1	3.6	2.8	2.7	2.2	2.5	2.2	2.4	2.7	2.8
05	3.0	2.9	3.2	2.7	3.0	2.6	2.3	1.9	2.2	2.1	2.4	2.7	2.6
06	3.0	3.0	3.2	2.7	2.8	2.4	2.1	1.8	2.1	2.1	2.7	2.8	2.6
07	3.2	3.0	3.8	2.8	3.1	2.8	2.6	2.0	2.2	2.3	3.2	2.8	2.8
08	3.8	3.8	5.6	4.2	4.8	4.7	4.3	3.5	3.5	3.4	4.8	3.5	4.2
09	5.7	6.1	7.6	6.7	6.3	5.5	5.3	4.8	5.2	5.2	6.4	5.3	5.9
10	7.4	8.0	8.6	8.4	7.1	6.1	6.0	5.5	5.8	6.1	7.3	6.9	6.9
11	8.6	9.4	9.7	9.3	7.5	6.6	6.6	6.2	6.4	6.7	7.9	8.1	7.7
12	9.7	10.4	10.7	10.1	8.1	7.4	7.1	6.9	6.9	7.3	8.3	9.2	8.5
13	10.4	11.1	11.5	11.0	8.8	8.4	7.9	7.8	7.4	7.8	8.7	9.9	9.2
14	10.8	11.7	12.1	11.7	9.7	9.3	8.8	8.5	7.8	8.1	8.9	10.2	9.8
15	11.0	11.8	12.4	12.3	10.4	10.2	9.7	9.2	8.2	8.3	8.8	10.0	10.2
16	10.6	11.6	12.2	12.4	10.9	10.6	10.1	9.8	8.4	8.4	8.5	9.6	10.3
17	9.3	10.8	11.6	12.2	11.0	10.8	10.3	9.9	8.4	8.0	6.8	7.7	9.7
18	6.4	7.8	9.6	11.5	10.9	11.1	10.5	10.0	8.0	7.0	4.5	4.9	8.5
19	5.6	5.5	7.1	9.5	10.0	11.3	10.6	9.7	6.8	5.1	4.7	4.9	7.6
20	5.5	5.4	6.9	7.5	8.5	10.9	9.3	8.7	5.7	5.0	4.5	4.4	6.9
21	4.9	5.0	6.6	7.2	8.7	10.5	8.9	8.6	6.1	5.4	4.0	3.8	6.6
22	4.3	4.8	6.0	6.9	9.4	10.8	8.8	8.6	6.7	5.0	3.6	3.3	6.5
23	3.8	4.5	5.7	6.7	9.0	10.0	7.8	7.7	6.0	4.5	3.2	3.1	6.0
Media	5.9	6.4	7.2	7.5	7.4	7.4	6.7	6.3	5.5	5.1	5.1	5.3	6.3

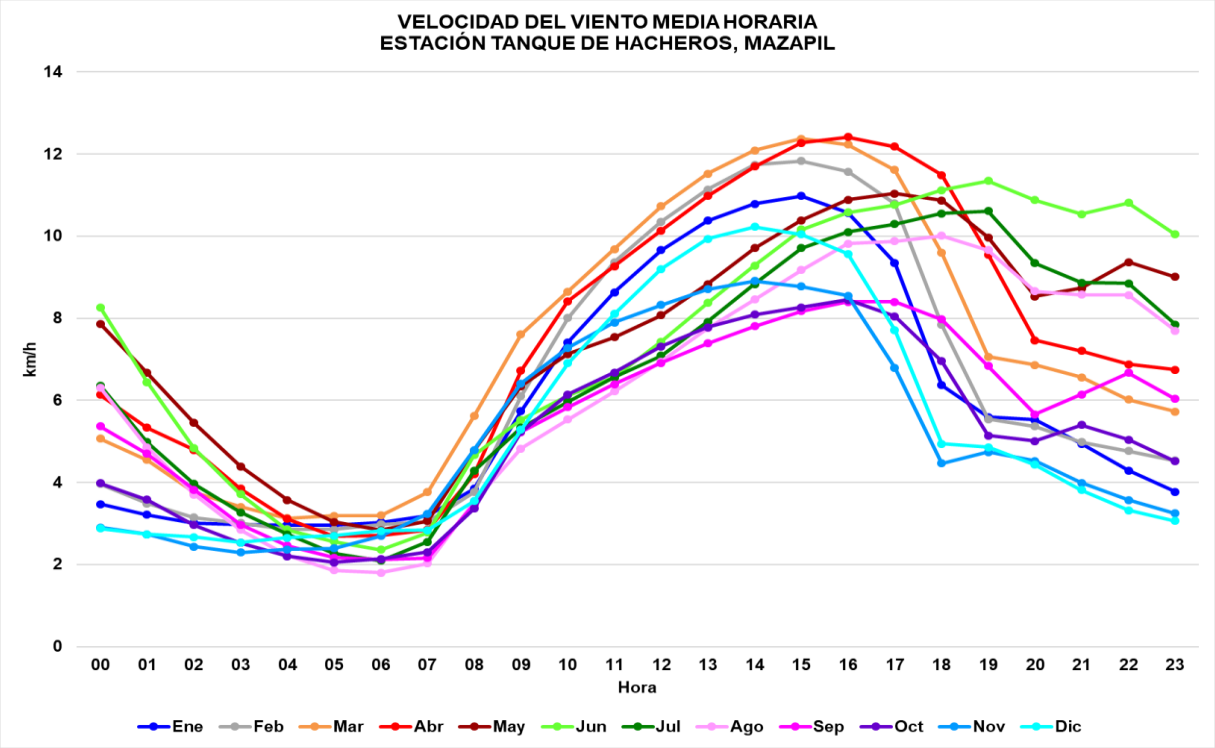


Figura 543 Velocidad del viento media (km/h) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 606. Velocidad del viento máxima maximorum (km/h) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	26.7	24.6	29.7	44.0	30.0	30.1	24.0	25.4	22.7	23.5	17.9	29.3	44.0
01	25.2	23.7	24.0	43.0	27.2	23.3	25.0	19.2	22.2	20.3	21.7	27.0	43.0
02	22.0	26.0	23.5	35.0	31.0	27.3	26.0	20.9	18.8	20.8	23.2	24.0	35.0
03	23.0	22.2	22.9	30.0	26.1	20.7	20.0	14.6	20.2	16.1	22.7	22.4	30.0
04	26.0	20.1	23.7	24.0	20.0	16.0	18.7	13.1	19.6	16.8	19.1	21.1	26.0
05	20.0	33.2	23.9	26.0	23.0	14.1	16.0	12.0	15.5	16.2	18.8	20.3	33.2
06	19.0	45.5	21.6	19.1	22.0	15.0	17.7	12.0	15.3	16.4	22.0	21.9	45.5
07	21.0	44.4	26.9	18.0	22.0	17.2	19.6	17.0	17.2	17.9	20.0	22.2	44.4
08	20.4	32.3	28.0	23.0	22.0	22.8	20.3	19.0	17.5	17.0	30.0	41.3	41.3
09	28.0	30.4	42.0	25.0	23.0	24.8	21.5	19.0	21.3	22.0	32.0	43.0	43.0
10	29.0	34.0	46.0	26.8	27.0	24.8	23.4	21.4	20.1	31.0	33.0	43.6	46.0
11	32.0	35.9	45.0	31.1	28.0	22.0	23.6	22.9	21.0	26.0	39.0	44.3	45.0
12	38.0	33.7	35.2	34.5	35.8	28.0	26.0	29.0	27.0	27.0	35.0	41.0	41.0
13	38.2	35.8	34.0	41.2	31.6	35.0	28.0	24.0	24.0	27.0	30.0	43.7	43.7
14	39.5	42.6	38.0	43.0	30.1	33.8	29.0	29.0	25.0	29.4	29.0	45.5	45.5
15	44.0	40.0	39.0	47.0	32.4	27.5	28.0	28.0	24.6	27.0	33.0	45.8	47.0
16	44.0	45.6	40.0	44.0	38.2	30.6	33.0	33.5	26.7	31.9	33.0	44.0	45.6
17	39.0	40.8	40.0	47.0	48.9	41.0	28.5	32.8	28.7	30.1	29.0	34.6	48.9
18	36.0	37.1	35.0	45.0	40.6	37.2	35.9	32.8	28.0	27.4	25.0	31.0	45.0
19	35.0	32.6	31.5	41.0	35.3	43.1	34.1	31.9	37.5	29.8	25.6	29.3	43.1
20	31.0	32.6	28.9	37.0	35.1	36.9	31.2	27.6	26.9	29.2	24.3	26.5	37.0
21	32.0	33.1	27.8	33.0	33.0	34.0	28.8	30.5	26.9	27.8	23.0	25.2	34.0
22	29.0	30.7	27.2	31.2	32.0	32.3	26.8	28.0	27.1	31.5	21.7	22.9	32.3
23	28.6	24.5	25.4	32.4	29.0	31.5	27.4	28.0	26.7	26.7	26.0	22.9	32.4
Máx.	44.0	45.6	46.0	47.0	48.9	43.1	35.9	33.5	37.5	31.9	39.0	45.8	48.9

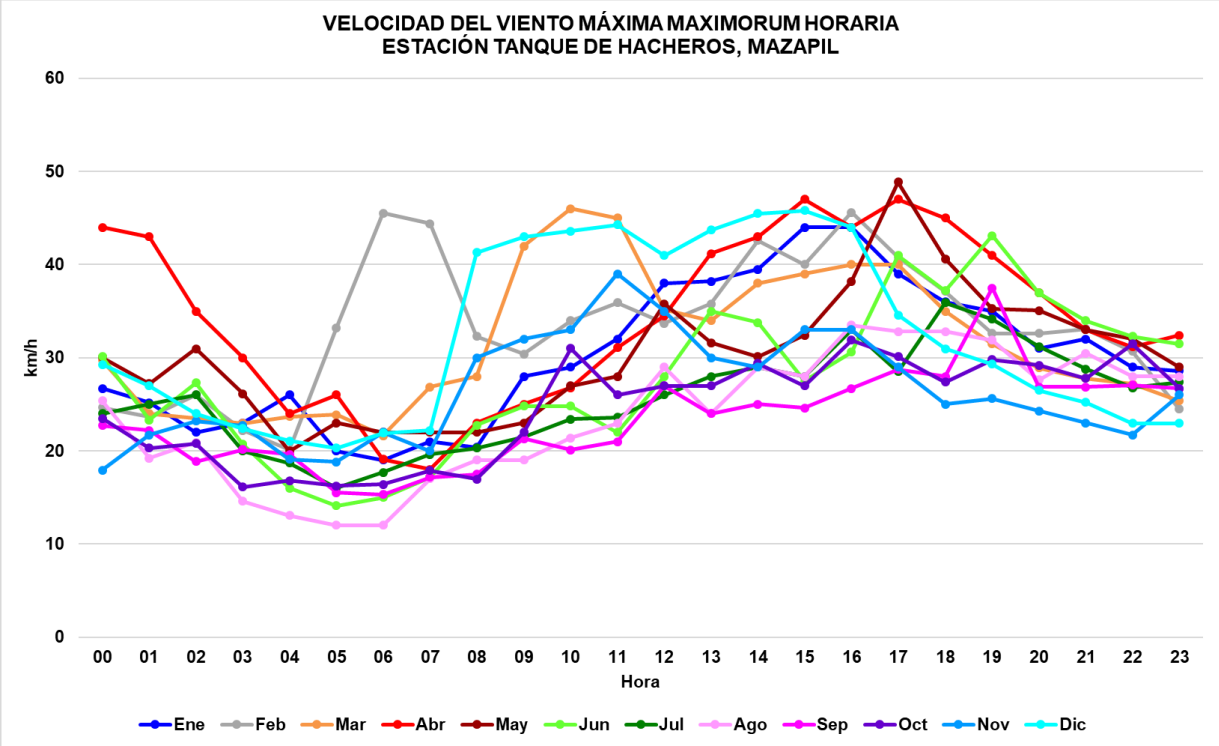


Figura 544. Velocidad del viento máxima maximorum (km/h) horaria de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 607. Frecuencia de velocidad del viento (%) mensual de la estación Tanque de Hacheros, Mazapil (2004-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	56.9	53.7	45.0	42.6	38.0	38.5	43.9	46.9	52.3	57.7	60.1	62.3	49.9
5.1 a 10.0	22.8	23.9	27.8	27.9	34.5	33.1	32.2	31.7	32.1	28.8	24.6	20.7	28.4
10.1 a 15.0	12.6	13.4	15.8	18.3	18.2	19.2	17.6	16.2	12.5	10.5	11.4	10.9	14.7
15.1 a 20.0	5.6	5.9	7.5	7.8	6.8	7.2	5.3	4.4	2.7	2.4	3.3	4.2	5.2
20.1 a 25.0	1.6	2.2	2.9	2.6	1.9	1.7	1.0	0.7	0.4	0.5	0.4	1.3	1.4
25.1 a 30.0	0.4	0.6	0.9	0.6	0.5	0.3	0.1	0.1	0.0	0.0	0.1	0.3	0.3
30.1 a 35.0	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
35.1 a 40.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

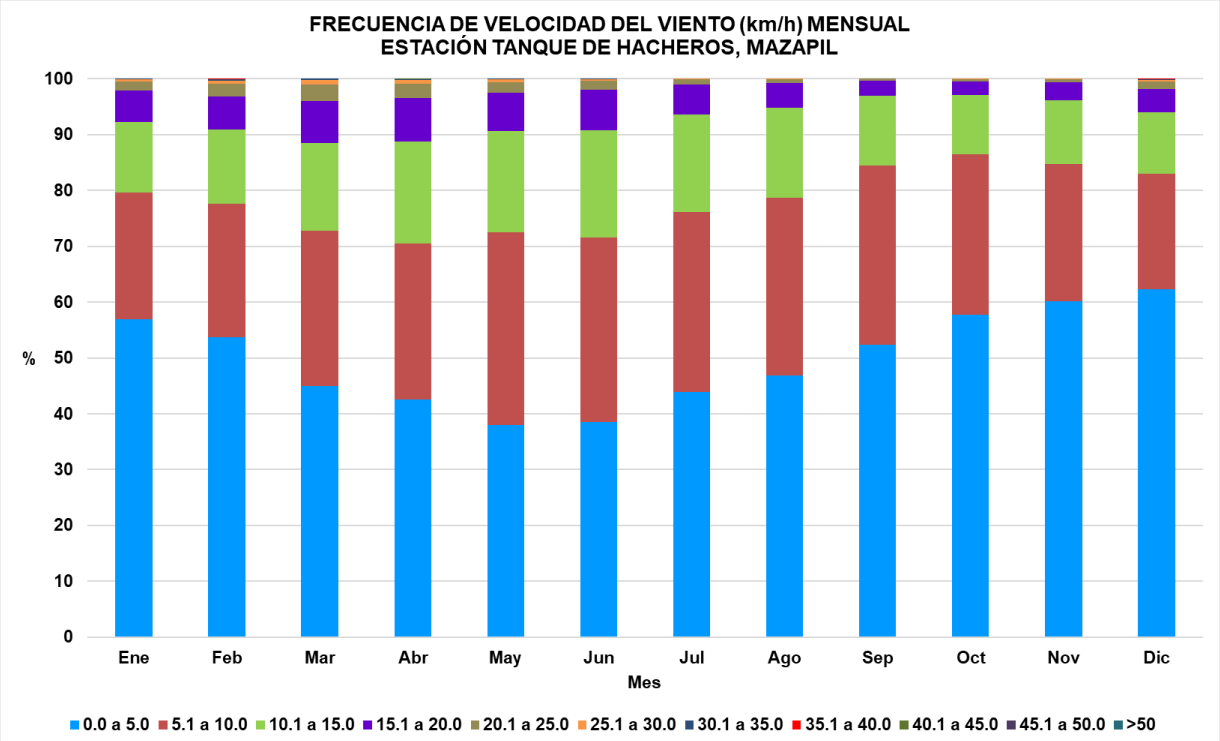


Figura 545. Frecuencia de velocidad del viento (%) mensual de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 608. Frecuencia de dirección del viento (%) mensual de la estación Tanque de Hacheros, Mazapil (2004-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	5.4	5.8	5.7	5.8	5.7	4.9	3.9	4.3	5.5	5.8	5.3	5.3	5.3
NNE	8.2	7.5	6.1	6.2	5.8	5.7	4.8	5.7	6.0	7.2	8.0	8.9	6.7
NE	11.9	10.3	7.9	7.3	7.7	8.5	8.4	9.4	9.6	10.6	12.4	13.0	9.8
ENE	14.2	12.2	11.3	10.4	12.6	16.1	15.6	17.4	17.3	16.4	16.9	14.3	14.6
E	13.4	11.1	13.0	12.8	16.5	23.6	23.2	24.0	23.6	19.7	16.6	12.3	17.6
ESE	5.1	4.6	5.2	5.5	7.3	12.7	14.2	13.0	11.2	9.2	6.7	4.5	8.3
SE	2.7	2.7	3.0	2.9	3.8	6.0	7.7	6.0	4.9	4.1	3.2	2.6	4.2
SSE	2.2	2.4	2.5	2.4	3.0	3.3	4.0	3.2	2.7	2.5	2.3	2.3	2.8
S	2.5	3.0	2.9	2.9	3.4	2.6	3.0	2.5	2.1	2.4	2.2	2.8	2.7
SSO	3.8	4.4	4.1	4.2	3.7	2.4	2.5	2.1	2.2	2.5	2.8	4.1	3.2
SO	6.0	7.5	6.8	7.0	4.8	2.3	2.3	2.3	2.2	3.1	4.0	6.4	4.5
OSO	7.2	8.5	9.1	9.3	6.1	2.3	2.2	2.0	2.5	3.5	5.0	7.2	5.3
O	6.3	7.0	8.2	8.3	6.2	2.4	2.0	1.9	2.3	3.5	4.5	6.1	4.8
ONO	4.4	5.2	5.5	6.0	4.9	2.1	1.7	1.8	2.2	3.2	3.6	4.1	3.7
NO	3.5	4.0	4.5	4.6	4.2	2.3	2.0	1.8	2.5	3.1	3.1	3.1	3.2
NNO	3.2	3.7	4.2	4.3	4.2	2.9	2.5	2.5	3.3	3.3	3.2	3.0	3.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

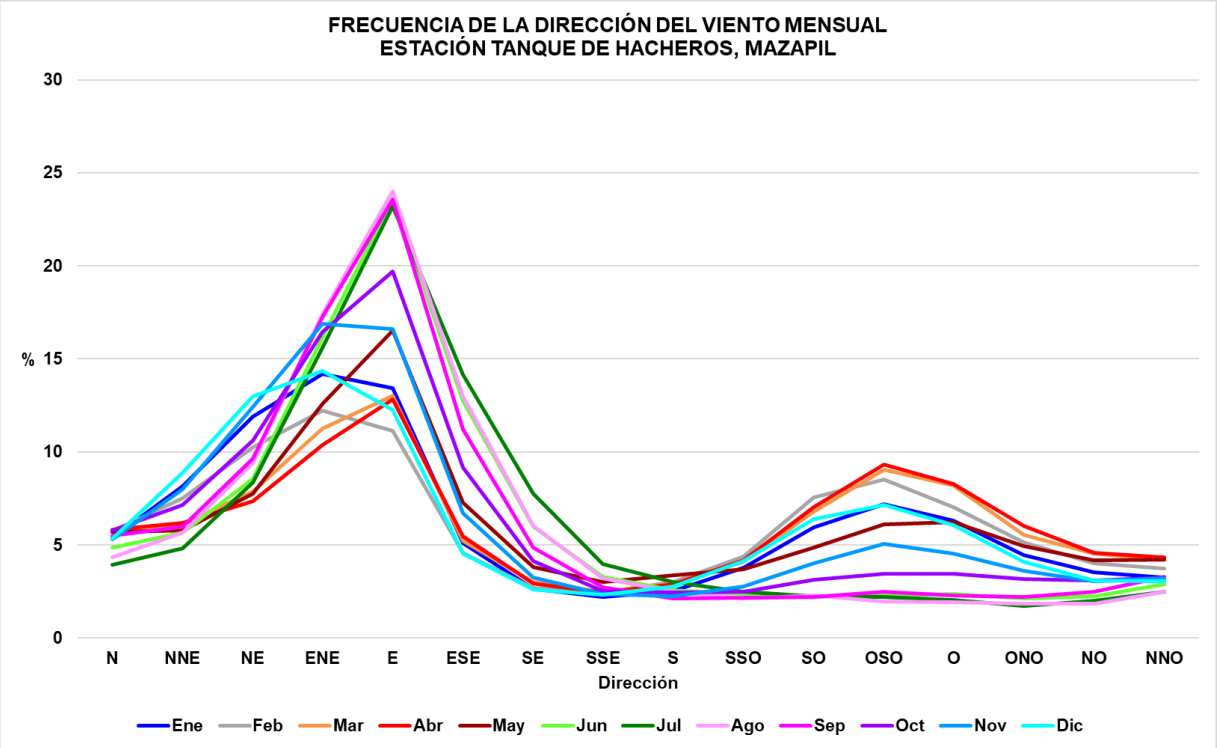


Figura 546. Frecuencia de dirección del viento (%) mensual de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 609. Frecuencia de dirección del viento (%) trimestral de la estación Tanque de Hacheros, Mazapil (2004-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.6	5.5	4.6	5.5	5.3
NNE	7.3	5.9	5.5	8.0	6.7
NE	10.0	7.9	9.1	12.0	9.8
ENE	12.6	13.1	16.8	15.9	14.6
E	12.6	17.7	23.6	16.2	17.6
ESE	5.0	8.6	12.8	6.8	8.3
SE	2.8	4.3	6.2	3.3	4.2
SSE	2.4	2.9	3.3	2.4	2.8
S	2.8	3.0	2.5	2.5	2.7
SSO	4.1	3.4	2.3	3.1	3.2
SO	6.7	4.7	2.3	4.5	4.5
OSO	8.2	5.8	2.2	5.2	5.3
O	7.2	5.6	2.1	4.7	4.8
ONO	5.0	4.3	1.9	3.6	3.7
NO	4.0	3.7	2.1	3.1	3.2
NNO	3.7	3.8	2.7	3.2	3.3
Suma	100.0	100.0	100.0	100.0	100.0

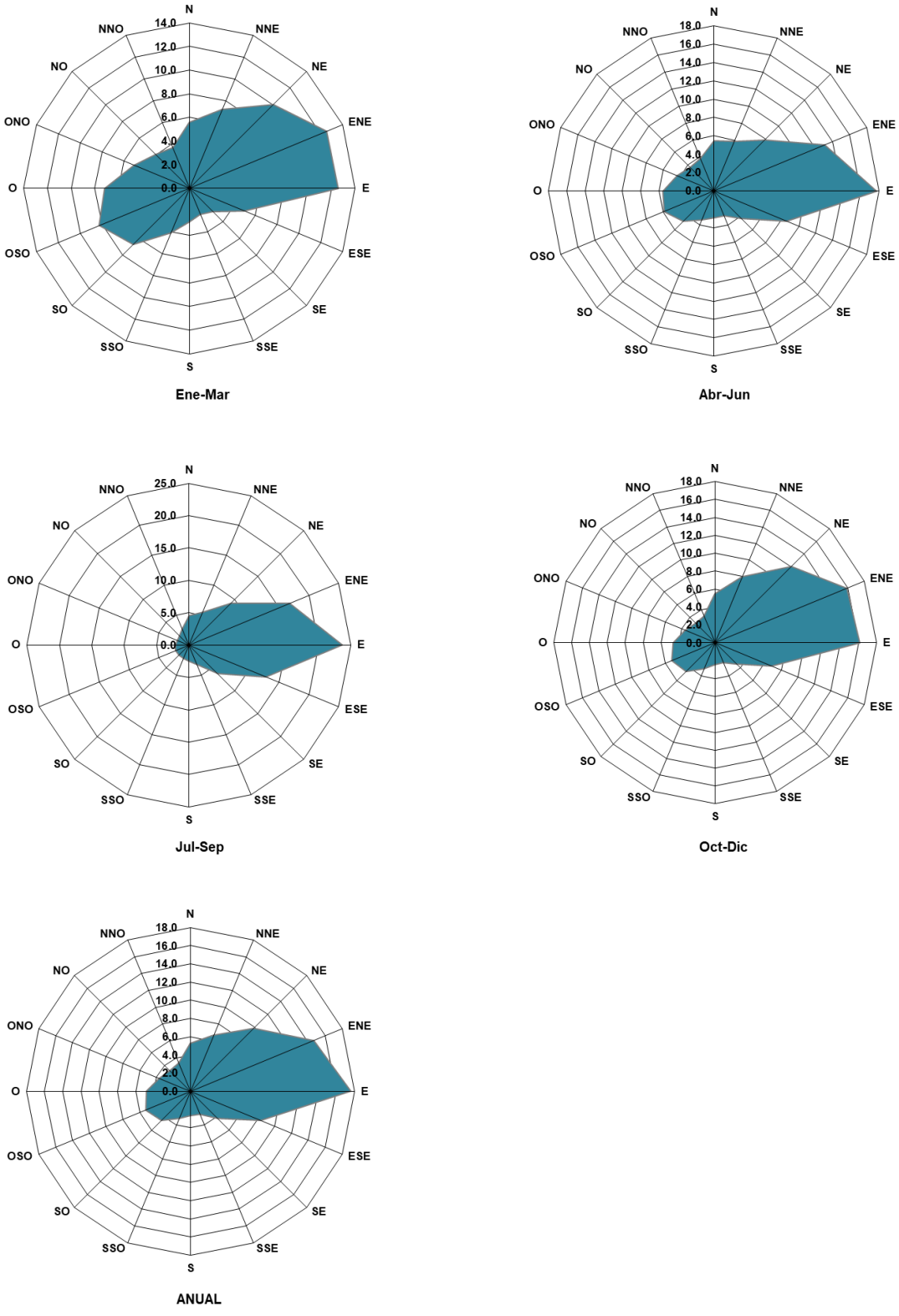


Figura 547. Frecuencia de dirección del viento (%) trimestral de la estación Tanque de Hacheros, Mazapil (2004-2022).

Cuadro 610. Estadísticas climatológicas mensuales de la estación Tanque de Hacheros, Mazapil (2004-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	21.5	24.2	26.8	29.8	31.5	30.5	28.9	29.3	27.3	26.8	24.0	22.3	26.9
Temperatura máxima maximorum (°C)	28.4	34.2	36.1	36.0	39.0	36.9	34.7	34.6	33.3	32.1	31.5	29.8	39.0
Temperatura mínima media (°C)	1.6	3.3	5.7	8.3	11.6	13.5	13.6	13.5	13.1	9.1	4.6	2.0	8.3
Temperatura mínima minimorum (°C)	-8.0	-10.4	-8.7	-2.2	1.7	6.2	8.9	8.8	4.6	-4.5	-12.6	-12.5	-12.6
Temperatura media (°C)	11.2	13.8	16.6	19.6	21.9	22.1	21.0	21.1	19.7	17.7	13.9	11.7	17.5
Oscilación térmica (°C)	19.8	20.9	21.1	21.5	19.8	17.0	15.3	15.7	14.3	17.7	19.3	20.3	18.6
Precipitación acumulada media (mm)	11.2	13.0	8.1	8.9	18.1	38.4	71.5	58.5	78.0	23.9	15.5	11.9	357.1
Precipitación máxima maximorum en 24 horas (mm)	30.6	23.4	18.4	16.2	40.2	43.8	129.0	49.2	54.4	46.8	36.6	22.6	129.0
Número de días promedio con lluvia	3.5	4.1	3.6	3.5	5.2	7.4	10.0	9.8	10.7	5.4	3.8	3.5	70.4
Evapotranspiración acumulada potencial media (mm)	96.2	112.2	154.9	176.8	190.2	175.2	163.9	161.7	127.7	126.2	99.2	91.7	1676.0
Humedad máxima media (%)	81.8	75.2	70.3	66.9	77.7	87.9	93.3	93.9	96.2	92.3	88.6	83.5	84.0
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	23.4	18.9	14.7	12.4	14.8	23.8	30.7	29.9	37.3	29.8	27.1	24.2	23.9
Humedad mínima minimorum (%)	3.0	4.0	2.0	2.0	3.0	4.0	11.0	13.0	6.0	6.0	4.0	4.0	2.0
Humedad media (%)	52.1	43.8	37.9	34.7	41.4	54.1	62.1	62.5	69.4	61.2	57.9	53.3	52.5
Radiación global media día/mes (W/m^2)	16842.8	20322.0	24484.5	27554.6	28293.9	27107.2	25640.4	25165.3	21664.0	21048.6	17947.4	15944.4	22667.9
Radiación global media día/mes (kWh/m^2)	4.2	5.1	6.1	6.9	7.1	6.8	6.4	6.3	5.4	5.3	4.5	4.0	5.7
Radiación global media día/mes ($Mj/m^2/s$)	15.2	18.3	22.0	24.8	25.5	24.4	23.1	22.6	19.5	18.9	16.2	14.3	20.4
Velocidad del viento máxima media (km/h)	16.7	17.9	19.4	20.2	20.7	20.7	19.1	18.7	16.2	14.5	14.4	15.4	17.8
Velocidad del viento máxima maximorum (km/h)	44.0	45.6	46.0	47.0	48.9	43.1	35.9	33.5	37.5	31.9	39.0	45.8	48.9
Velocidad del viento media (km/h)	5.9	6.4	7.2	7.5	7.4	7.4	6.7	6.3	5.5	5.1	5.1	5.3	6.3
Dirección dominante del viento	ENE	ENE	E	E	E	E	E	E	E	E	ENE	ENE	E

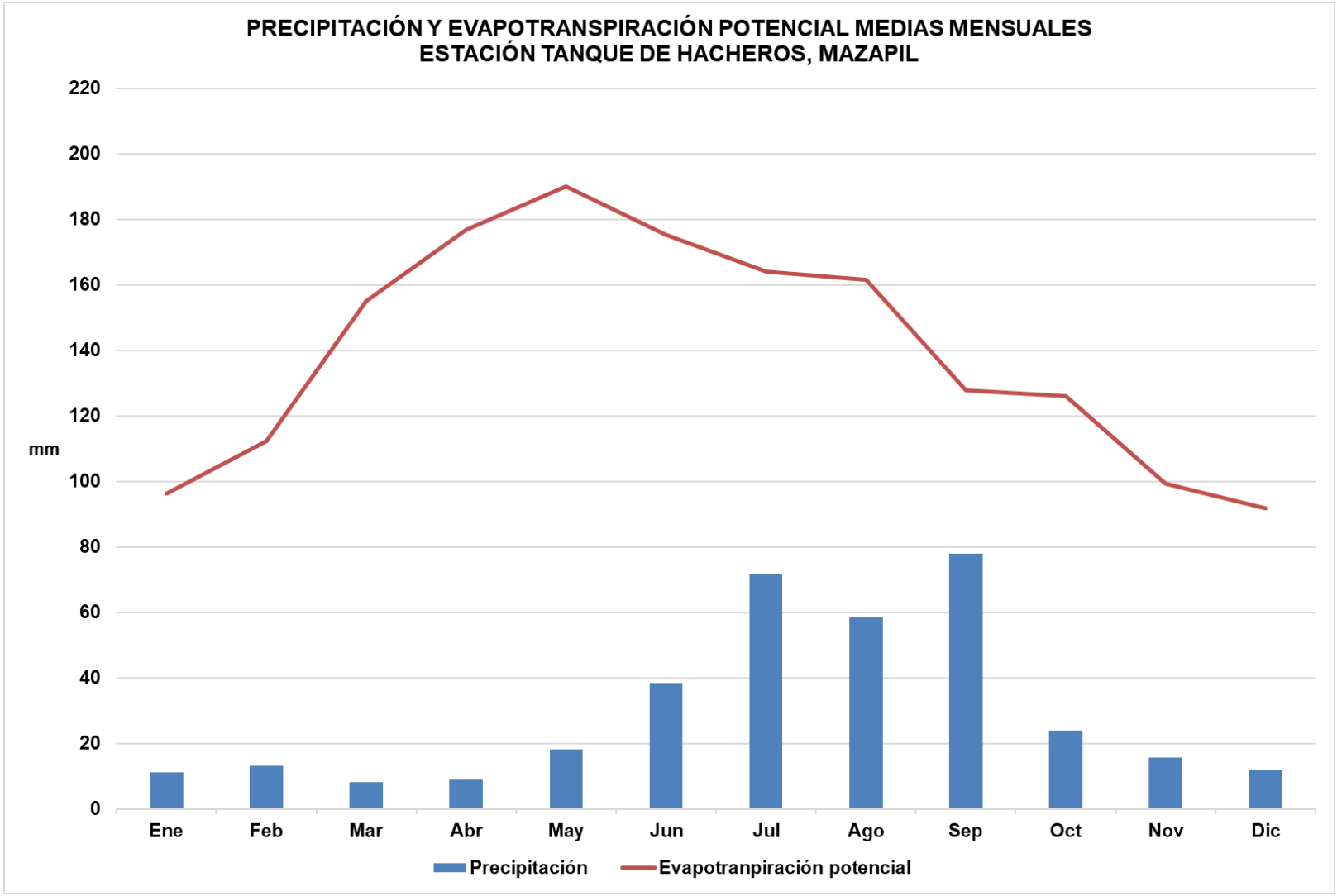


Figura 548. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Tanque de Hacheros, Mazapil (2004-2022).

7.33. Estación: Tierra Blanca, Tabasco

Cuadro 611. Temperatura máxima media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.6	12.6	15.5	19.5	22.2	22.6	19.7	19.5	18.9	17.2	12.4	9.9	16.7
01	9.5	11.4	14.0	17.6	20.7	21.7	19.2	19.0	18.4	16.3	11.4	9.0	15.7
02	8.6	10.3	12.7	15.9	19.2	21.0	18.7	18.4	17.9	15.3	10.4	8.1	14.7
03	7.8	9.4	11.5	14.6	18.0	20.2	18.1	18.0	17.4	14.5	9.6	7.3	13.9
04	7.0	8.5	10.4	13.3	16.9	19.5	17.6	17.5	16.8	13.8	8.8	6.6	13.1
05	6.3	7.6	9.4	12.2	15.9	18.7	17.2	17.1	16.4	13.1	8.2	6.0	12.4
06	5.7	6.9	8.6	11.3	14.9	18.1	16.8	16.7	16.0	12.5	7.5	5.4	11.7
07	5.2	6.5	9.0	11.2	14.7	17.8	16.6	16.4	15.8	12.2	7.7	5.1	11.5
08	7.9	10.3	14.6	14.9	18.3	20.0	18.3	17.9	17.2	14.1	13.0	9.0	14.6
09	13.8	16.3	20.0	20.3	22.7	22.5	20.7	20.5	20.0	18.5	18.3	14.8	19.0
10	18.1	20.0	23.1	23.9	25.5	24.6	22.7	22.7	22.4	21.9	21.6	18.8	22.1
11	20.7	22.5	25.5	26.5	27.8	26.5	24.5	24.5	24.4	24.2	23.8	21.3	24.3
12	22.5	24.5	27.3	28.6	29.9	28.2	25.9	25.9	25.9	26.0	25.5	23.2	26.1
13	23.8	25.8	28.6	30.2	31.5	29.7	27.2	27.1	27.0	27.3	26.5	24.4	27.4
14	24.6	26.7	29.3	31.3	32.6	30.7	28.1	28.0	27.7	28.2	27.1	25.1	28.3
15	24.9	27.1	29.6	31.9	33.2	31.3	28.5	28.5	28.0	28.6	27.2	25.3	28.7
16	24.8	27.0	29.5	32.0	33.3	31.2	28.5	28.4	27.9	28.6	26.9	25.1	28.6
17	24.1	26.4	28.9	31.8	33.0	30.7	28.1	27.9	27.3	27.9	25.6	24.0	28.0
18	22.2	24.9	27.6	31.0	32.2	29.9	27.2	27.1	26.1	26.5	22.8	21.4	26.6
19	19.4	22.1	24.9	29.5	30.9	28.6	25.9	25.5	24.2	24.0	20.3	18.5	24.5
20	17.4	20.1	22.8	27.0	28.9	27.0	24.0	23.5	22.1	21.8	18.2	16.2	22.4
21	15.1	18.0	21.2	25.0	26.9	25.4	22.2	21.9	20.9	20.2	16.2	13.9	20.6
22	13.1	16.0	19.2	23.5	25.5	24.4	21.3	21.0	20.1	19.0	14.6	12.2	19.2
23	11.8	14.2	17.3	21.6	24.0	23.4	20.4	20.2	19.3	17.9	13.5	10.9	17.9
Media	15.2	17.3	20.0	22.7	24.9	24.7	22.4	22.2	21.6	20.4	17.4	15.1	20.3

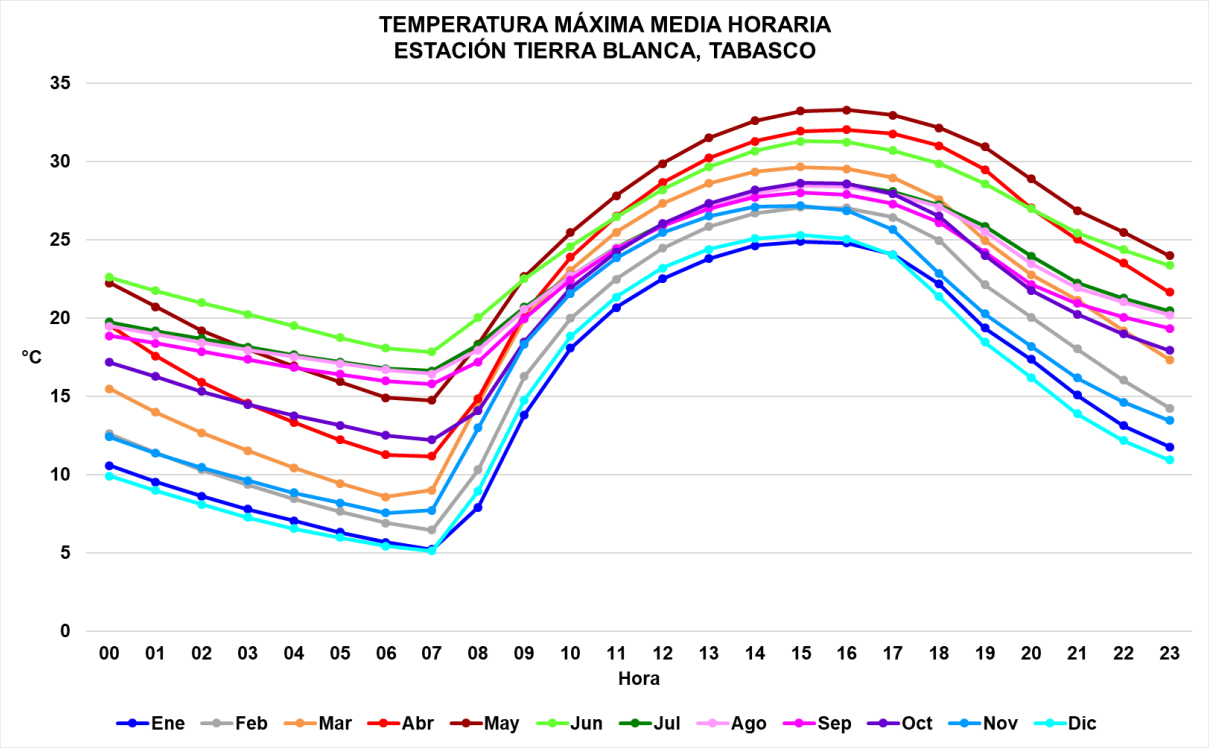


Figura 549. Temperatura máxima media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 612. Temperatura máxima maximorum (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	21.0	23.5	25.3	27.2	31.5	29.5	27.9	27.8	24.9	24.6	20.7	20.2	31.5
01	20.2	22.7	24.3	26.3	31.1	28.8	26.3	26.1	24.4	24.2	20.1	19.3	31.1
02	18.2	22.3	22.7	24.5	27.7	28.7	26.1	25.2	24.0	22.9	19.1	17.9	28.7
03	18.2	21.8	22.0	24.5	26.6	26.9	24.8	24.5	22.8	22.0	19.1	17.7	26.9
04	18.5	18.9	20.3	22.8	26.0	25.9	23.8	23.7	22.6	22.1	18.5	17.4	26.0
05	17.2	18.3	19.9	22.2	25.6	24.6	23.5	22.9	22.6	21.9	17.9	17.3	25.6
06	16.2	17.4	19.7	21.2	25.3	23.7	23.2	22.6	22.3	21.6	17.4	17.2	25.3
07	15.9	17.3	18.9	21.4	25.4	23.8	22.2	21.6	22.2	20.7	18.2	17.0	25.4
08	16.8	20.4	22.3	23.3	27.3	26.5	22.8	23.6	23.0	23.1	21.6	21.3	27.3
09	22.1	25.3	26.4	28.0	28.5	27.6	25.3	26.3	26.0	24.6	25.1	23.1	28.5
10	25.4	28.5	29.0	31.8	32.0	30.3	27.5	27.4	27.2	27.2	27.8	26.1	32.0
11	27.2	30.5	31.3	34.3	33.5	32.8	29.4	28.1	28.6	29.1	30.5	28.3	34.3
12	29.7	33.6	33.8	36.3	35.0	35.1	31.5	29.9	30.8	31.3	31.3	30.5	36.3
13	31.8	34.4	35.8	36.7	36.7	36.5	33.6	31.5	31.8	32.2	32.1	32.3	36.7
14	31.8	34.8	36.2	37.4	38.1	36.9	34.4	33.1	32.7	32.9	32.8	32.4	38.1
15	31.9	35.0	36.8	37.9	38.5	38.3	34.9	33.7	33.5	32.6	33.4	32.7	38.5
16	31.7	35.0	36.9	38.6	38.3	38.7	35.8	33.9	33.1	33.1	32.7	31.6	38.7
17	31.5	35.0	37.3	37.1	39.5	39.0	35.6	33.7	32.9	33.6	31.6	29.9	39.5
18	29.3	32.8	35.7	36.0	38.6	38.5	35.8	33.7	32.6	32.5	28.3	27.2	38.6
19	25.6	29.9	32.0	35.3	38.1	37.9	34.3	33.4	31.2	31.1	26.8	25.5	38.1
20	25.6	28.0	30.6	33.3	36.1	35.7	32.5	31.2	27.4	28.0	25.1	23.7	36.1
21	24.4	25.4	29.2	31.5	34.6	33.2	30.5	28.9	26.8	27.6	24.5	22.5	34.6
22	23.3	26.8	27.7	30.1	33.2	32.3	29.5	29.1	26.6	27.2	23.4	22.0	33.2
23	22.6	26.0	26.8	28.9	32.1	30.8	29.0	28.6	25.0	28.2	23.3	20.9	32.1
Máx.	31.9	35.0	37.3	38.6	39.5	39.0	35.8	33.9	33.5	33.6	33.4	32.7	39.5

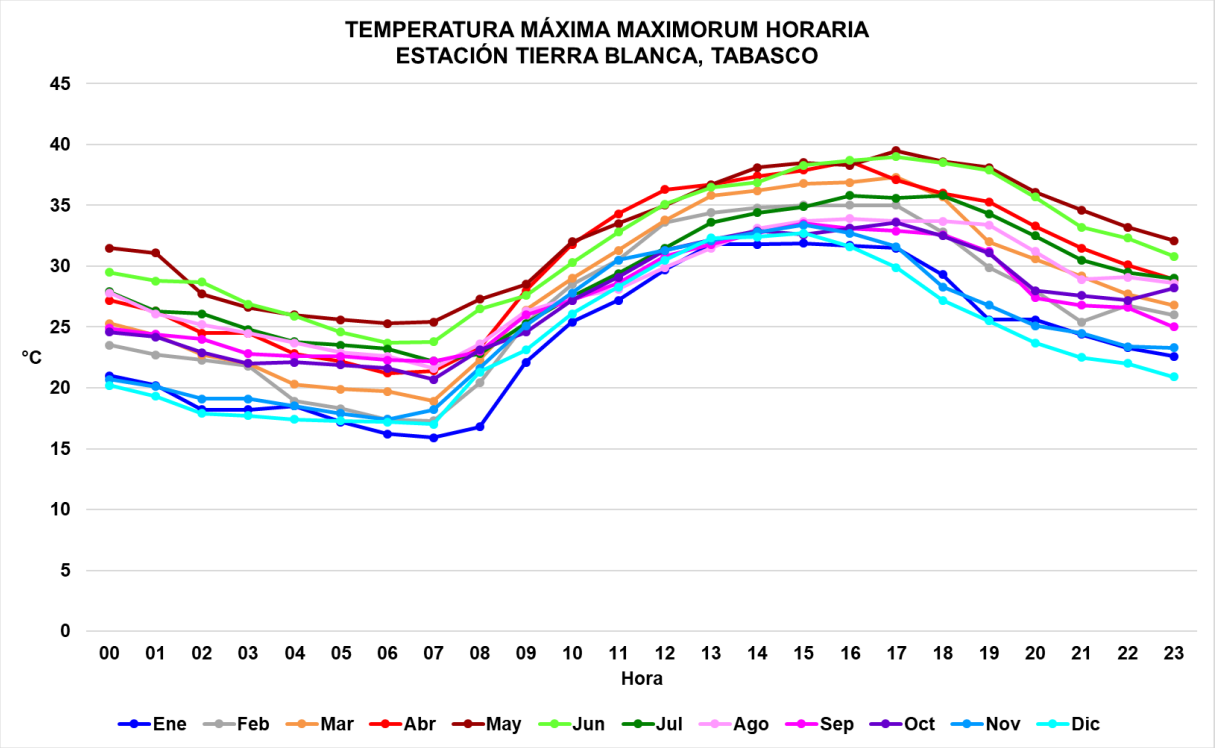


Figura 550. Temperatura máxima maximorum (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 613. Temperatura mínima media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.3	11.3	13.9	17.7	20.7	21.7	19.0	18.7	18.1	16.1	11.2	8.7	15.5
01	8.4	10.1	12.6	15.8	19.1	20.8	18.5	18.2	17.6	15.2	10.2	7.8	14.5
02	7.5	9.1	11.3	14.4	17.8	20.1	18.0	17.7	17.2	14.4	9.4	6.9	13.6
03	6.6	8.1	10.2	13.2	16.7	19.4	17.5	17.3	16.7	13.6	8.6	6.1	12.8
04	5.9	7.3	9.2	12.1	15.8	18.7	17.1	16.9	16.2	13.0	7.9	5.5	12.1
05	5.2	6.5	8.3	11.0	14.8	18.0	16.6	16.5	15.8	12.4	7.2	4.9	11.4
06	4.6	5.8	7.4	10.0	13.9	17.3	16.2	16.1	15.5	11.8	6.7	4.4	10.8
07	4.1	5.3	7.2	9.5	13.4	16.9	16.0	15.8	15.2	11.4	6.4	4.0	10.4
08	4.6	6.2	10.0	11.1	14.9	18.0	16.6	16.3	15.6	12.0	8.4	4.9	11.6
09	9.4	11.9	16.1	16.3	19.5	20.6	18.8	18.6	17.9	15.2	14.5	10.4	15.8
10	15.0	17.4	20.9	21.4	23.4	23.0	21.2	21.1	20.6	19.4	19.3	16.0	19.9
11	18.8	20.6	23.7	24.6	26.0	25.0	23.1	23.1	22.9	22.5	22.2	19.5	22.7
12	21.1	23.0	25.9	27.0	28.3	26.8	24.7	24.7	24.6	24.6	24.2	21.8	24.7
13	22.7	24.7	27.5	29.0	30.2	28.4	26.0	26.0	25.8	26.2	25.6	23.4	26.3
14	23.7	25.8	28.4	30.3	31.5	29.5	26.9	26.9	26.6	27.2	26.2	24.3	27.3
15	24.2	26.3	28.9	31.0	32.1	29.9	27.3	27.3	26.8	27.6	26.5	24.6	27.7
16	24.0	26.3	28.7	31.2	32.2	29.8	27.2	27.1	26.5	27.5	25.9	24.2	27.5
17	22.7	25.3	27.8	30.8	31.8	29.3	26.8	26.6	26.0	26.6	23.7	22.2	26.6
18	19.9	22.9	25.7	29.8	31.0	28.6	25.9	25.7	24.5	24.6	20.6	19.0	24.8
19	17.6	20.3	23.0	27.6	29.3	27.2	24.3	23.8	22.5	22.1	18.6	16.6	22.7
20	15.4	18.3	21.1	25.2	27.0	25.6	22.4	22.0	20.9	20.3	16.3	14.1	20.7
21	13.3	16.1	19.2	23.5	25.4	24.3	21.2	20.9	19.9	18.9	14.6	12.2	19.1
22	11.7	14.3	17.3	21.8	24.0	23.3	20.3	20.0	19.2	17.7	13.3	10.8	17.8
23	10.5	12.7	15.6	19.8	22.4	22.3	19.6	19.3	18.5	16.8	12.2	9.7	16.6
Media	13.6	15.6	18.3	21.0	23.4	23.5	21.3	21.1	20.5	19.0	15.8	13.4	18.9

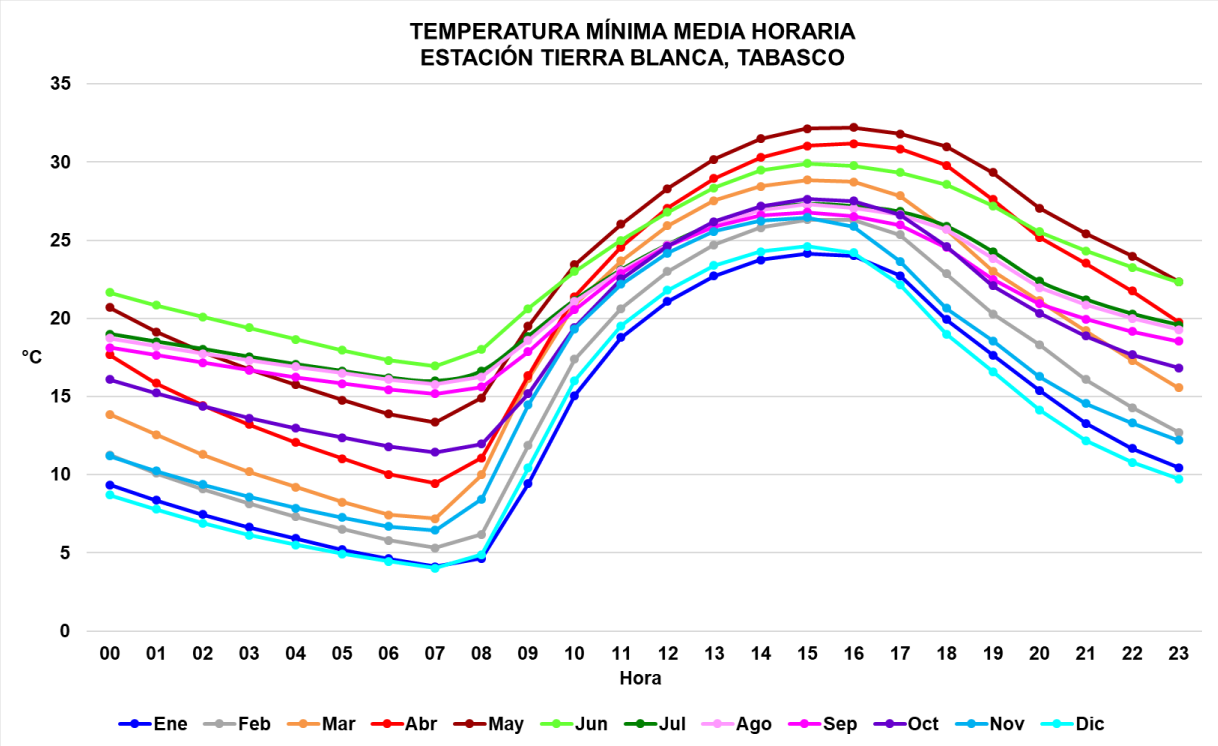


Figura 551. Temperatura mínima media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 614. Temperatura mínima minimorum (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.6	2.9	3.6	9.0	11.9	14.4	13.7	14.6	12.1	4.9	0.0	0.0	0.0
01	-1.4	1.7	2.3	7.9	9.8	15.6	13.1	13.9	9.9	3.3	0.0	-1.2	-1.4
02	-1.7	0.3	1.8	6.6	9.2	13.9	11.8	13.4	9.0	2.4	-2.7	-2.2	-2.7
03	-3.0	-0.1	0.7	5.7	8.0	12.2	11.4	13.1	8.5	1.7	-3.4	-2.5	-3.4
04	-4.1	-1.4	-0.7	5.0	6.7	12.0	10.7	12.6	8.2	0.9	-3.9	-3.2	-4.1
05	-6.2	-2.6	-1.5	3.1	5.9	10.7	9.8	11.8	7.7	0.0	-5.0	-3.6	-6.2
06	-6.2	-3.6	-1.8	2.2	4.9	8.5	9.3	11.2	6.5	-0.5	-5.2	-4.4	-6.2
07	-6.9	-3.9	-2.9	1.1	4.3	8.7	9.6	10.5	6.4	-0.2	-6.6	-4.8	-6.9
08	-7.2	-4.0	-2.5	2.4	4.5	10.1	11.1	10.7	7.1	1.0	-5.1	-4.4	-7.2
09	0.2	2.8	5.5	7.8	11.6	15.0	13.5	14.3	9.8	3.4	3.9	1.0	0.2
10	6.5	10.2	5.3	15.0	16.4	16.4	15.5	16.9	16.1	10.4	9.6	7.1	5.3
11	6.8	11.2	7.0	16.3	17.1	16.9	16.0	17.3	16.5	16.2	11.2	10.3	6.8
12	5.5	11.9	6.6	17.8	17.4	17.5	17.8	17.5	17.5	16.3	12.2	9.6	5.5
13	5.3	11.6	7.1	19.6	18.9	18.8	17.9	18.1	19.0	17.1	13.7	9.3	5.3
14	5.7	11.2	9.0	20.1	18.9	17.9	13.6	16.7	19.4	17.3	13.9	9.8	5.7
15	5.6	10.9	10.6	20.2	20.3	14.8	15.5	17.6	15.5	17.5	13.9	8.4	5.6
16	6.6	10.0	12.6	16.3	17.4	16.6	15.4	17.2	16.7	15.8	13.6	7.0	6.6
17	6.1	9.8	12.1	16.6	17.1	16.4	15.3	15.0	16.4	15.5	12.6	4.6	4.6
18	5.6	9.6	11.3	19.0	16.0	16.8	15.8	15.1	16.2	16.0	10.7	5.3	5.3
19	5.5	9.3	6.4	18.1	16.5	16.1	14.2	15.3	16.3	15.1	9.5	6.1	5.5
20	5.4	8.8	5.7	17.1	15.7	15.8	15.3	15.6	14.9	10.8	5.8	5.4	5.4
21	5.1	7.4	5.1	15.4	13.9	16.0	14.6	14.3	15.0	8.1	5.4	4.0	4.0
22	3.6	5.9	4.8	12.5	15.3	16.2	14.7	14.6	13.9	8.3	2.8	2.6	2.6
23	2.4	4.3	4.5	9.0	14.0	15.4	14.5	14.8	12.1	5.8	1.8	0.2	0.2
Mín.	-7.2	-4.0	-2.9	1.1	4.3	8.5	9.3	10.5	6.4	-0.5	-6.6	-4.8	-7.2

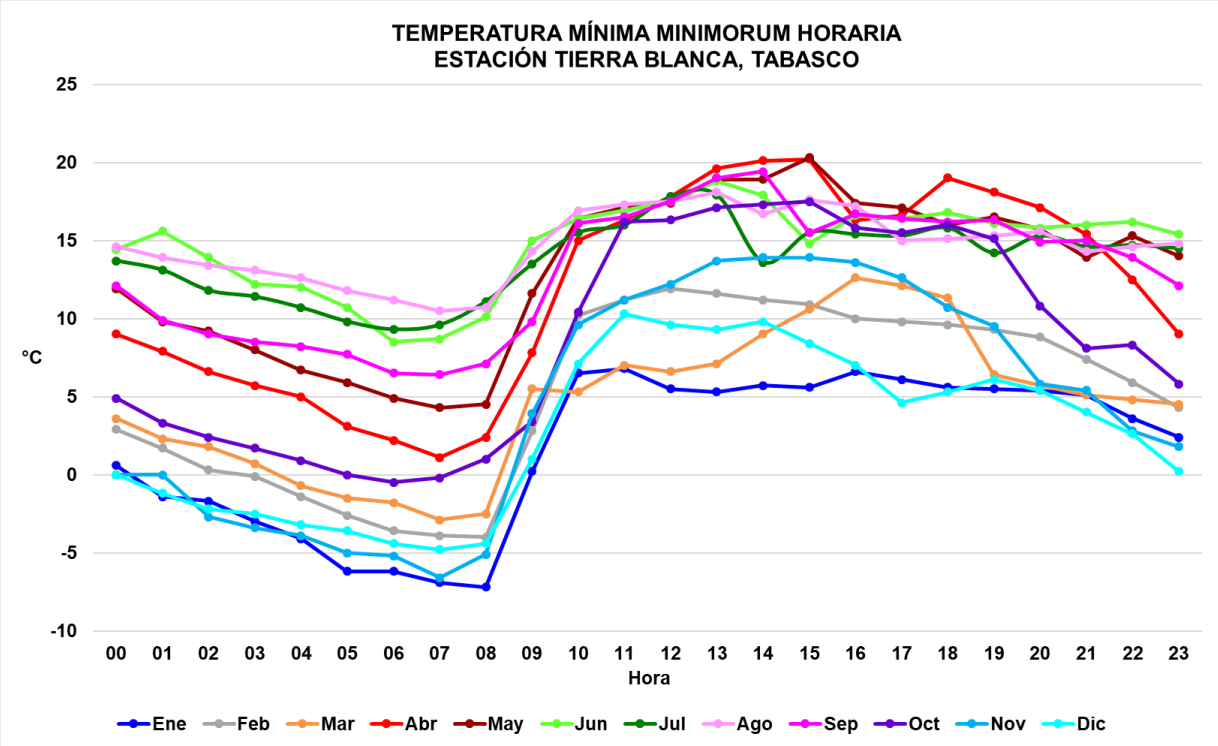


Figura 552. Temperatura mínima minimorum (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 615. Temperatura media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.9	11.9	14.7	18.6	21.5	22.1	19.4	19.1	18.5	16.6	11.8	9.3	16.1
01	8.9	10.7	13.3	16.7	19.9	21.3	18.8	18.6	18.0	15.7	10.8	8.4	15.1
02	8.0	9.7	12.0	15.2	18.5	20.5	18.4	18.1	17.5	14.8	9.9	7.5	14.2
03	7.2	8.7	10.8	13.9	17.4	19.8	17.8	17.6	17.0	14.0	9.1	6.7	13.3
04	6.5	7.9	9.8	12.7	16.3	19.1	17.3	17.2	16.5	13.4	8.3	6.0	12.6
05	5.7	7.1	8.8	11.6	15.3	18.3	16.9	16.8	16.1	12.7	7.7	5.4	11.9
06	5.1	6.3	8.0	10.6	14.4	17.7	16.5	16.4	15.7	12.1	7.1	4.9	11.2
07	4.6	5.9	8.0	10.2	14.0	17.4	16.3	16.1	15.5	11.8	7.0	4.5	10.9
08	6.1	8.1	12.3	12.9	16.6	19.0	17.4	17.0	16.3	12.9	10.7	6.8	13.0
09	11.6	14.1	18.1	18.4	21.1	21.6	19.8	19.6	18.9	16.8	16.5	12.6	17.4
10	16.6	18.7	22.0	22.7	24.5	23.8	21.9	21.9	21.5	20.7	20.5	17.5	21.0
11	19.7	21.6	24.6	25.6	26.9	25.7	23.8	23.8	23.7	23.4	23.0	20.4	23.5
12	21.8	23.7	26.6	27.9	29.1	27.5	25.3	25.3	25.3	25.3	24.8	22.5	25.4
13	23.3	25.3	28.1	29.6	30.8	29.0	26.6	26.6	26.4	26.8	26.0	23.9	26.9
14	24.2	26.3	28.9	30.8	32.0	30.1	27.5	27.5	27.2	27.7	26.7	24.7	27.8
15	24.5	26.7	29.3	31.5	32.7	30.6	27.9	27.9	27.4	28.1	26.8	25.0	28.2
16	24.4	26.6	29.1	31.6	32.7	30.5	27.9	27.7	27.2	28.0	26.4	24.6	28.1
17	23.4	25.9	28.4	31.3	32.4	30.0	27.5	27.3	26.6	27.3	24.7	23.2	27.3
18	21.1	23.9	26.7	30.4	31.6	29.2	26.6	26.4	25.3	25.6	21.7	20.1	25.7
19	18.5	21.2	24.0	28.6	30.2	27.9	25.1	24.7	23.3	23.0	19.4	17.5	23.6
20	16.4	19.2	22.0	26.1	27.9	26.3	23.1	22.7	21.5	21.1	17.2	15.2	21.6
21	14.2	17.1	20.2	24.3	26.1	24.9	21.7	21.4	20.4	19.6	15.4	13.0	19.8
22	12.4	15.1	18.3	22.6	24.7	23.8	20.8	20.5	19.6	18.3	14.0	11.5	18.5
23	11.1	13.4	16.4	20.7	23.2	22.9	20.0	19.7	18.9	17.4	12.8	10.3	17.2
Media	14.4	16.5	19.2	21.8	24.2	24.1	21.8	21.7	21.0	19.7	16.6	14.2	19.6

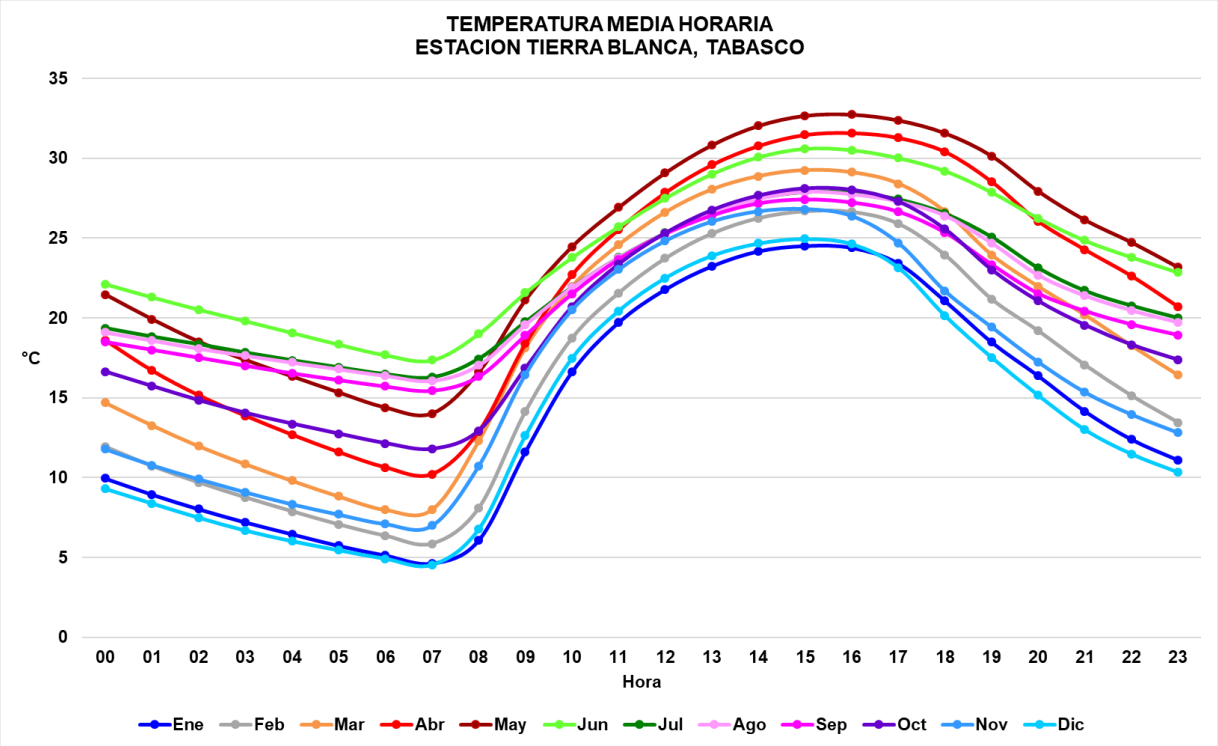


Figura 553. Temperatura media (˚C) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 616. Precipitación media (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.0	0.4	0.1	0.1	0.3	7.8	11.8	10.1	7.0	1.9	0.3	0.5	41.2
01	0.8	0.6	0.1	0.0	0.5	5.8	10.2	7.0	5.3	1.5	0.2	0.5	32.4
02	0.6	0.8	0.1	0.0	0.5	5.8	9.7	8.8	6.0	1.6	0.1	0.5	34.5
03	0.4	0.8	0.1	0.0	0.1	5.3	8.5	7.4	4.5	1.1	0.2	0.3	28.7
04	0.7	0.6	0.1	0.0	0.1	3.4	4.7	6.2	4.9	0.7	0.2	0.4	22.1
05	0.5	2.1	0.2	0.0	0.0	4.6	4.2	4.6	3.6	1.0	0.2	0.5	21.4
06	0.5	0.4	0.1	0.0	0.0	2.2	3.9	3.8	3.8	0.8	0.2	0.6	16.4
07	0.4	0.3	0.1	0.0	0.1	2.6	2.8	4.3	2.2	0.6	0.3	0.6	14.4
08	0.3	0.3	0.3	0.0	0.0	1.2	1.8	0.9	1.9	0.4	0.2	0.5	7.9
09	0.3	0.5	0.3	0.0	0.0	0.6	1.9	0.3	0.6	0.4	0.1	0.3	5.4
10	0.0	0.5	0.1	0.0	0.0	0.2	1.0	0.3	0.4	0.5	0.2	0.4	3.7
11	0.2	0.4	0.0	0.0	0.0	0.1	0.4	1.1	0.2	0.2	0.1	0.4	3.1
12	0.2	0.3	0.1	0.0	0.0	0.1	0.9	0.2	0.1	0.1	0.1	0.3	2.4
13	0.2	0.6	0.1	0.0	0.0	0.4	0.5	0.6	0.2	0.3	0.3	0.5	3.7
14	0.5	0.8	0.1	0.0	0.0	0.6	2.1	1.5	0.7	0.2	0.4	0.5	7.4
15	0.9	0.7	0.6	0.2	0.1	4.3	4.5	2.8	2.9	0.4	0.7	0.3	18.2
16	0.6	1.5	0.1	0.4	1.0	5.4	6.0	7.0	3.1	1.6	1.0	0.5	28.3
17	0.4	1.0	0.2	0.2	0.4	4.2	6.4	9.2	3.9	3.8	0.5	0.5	30.8
18	0.2	0.7	0.2	0.1	1.0	2.6	8.6	6.0	7.2	1.0	1.1	0.7	29.6
19	1.8	0.5	0.7	0.2	1.9	6.1	8.6	8.1	4.1	1.8	0.8	0.9	35.5
20	1.1	0.7	0.7	0.1	1.2	5.5	9.1	7.9	6.5	1.9	0.4	0.6	35.8
21	0.8	0.7	0.6	0.1	2.5	6.8	8.4	11.6	8.1	2.1	1.1	0.3	43.0
22	1.1	0.4	0.4	0.0	1.1	9.0	14.4	18.1	7.3	3.0	0.8	0.3	56.0
23	0.9	0.4	0.1	0.1	0.7	9.0	15.9	12.3	5.8	2.3	1.2	0.2	49.0
Suma	14.6	16.2	5.5	1.7	11.7	93.5	146.2	140.1	90.4	29.3	10.5	11.1	570.9

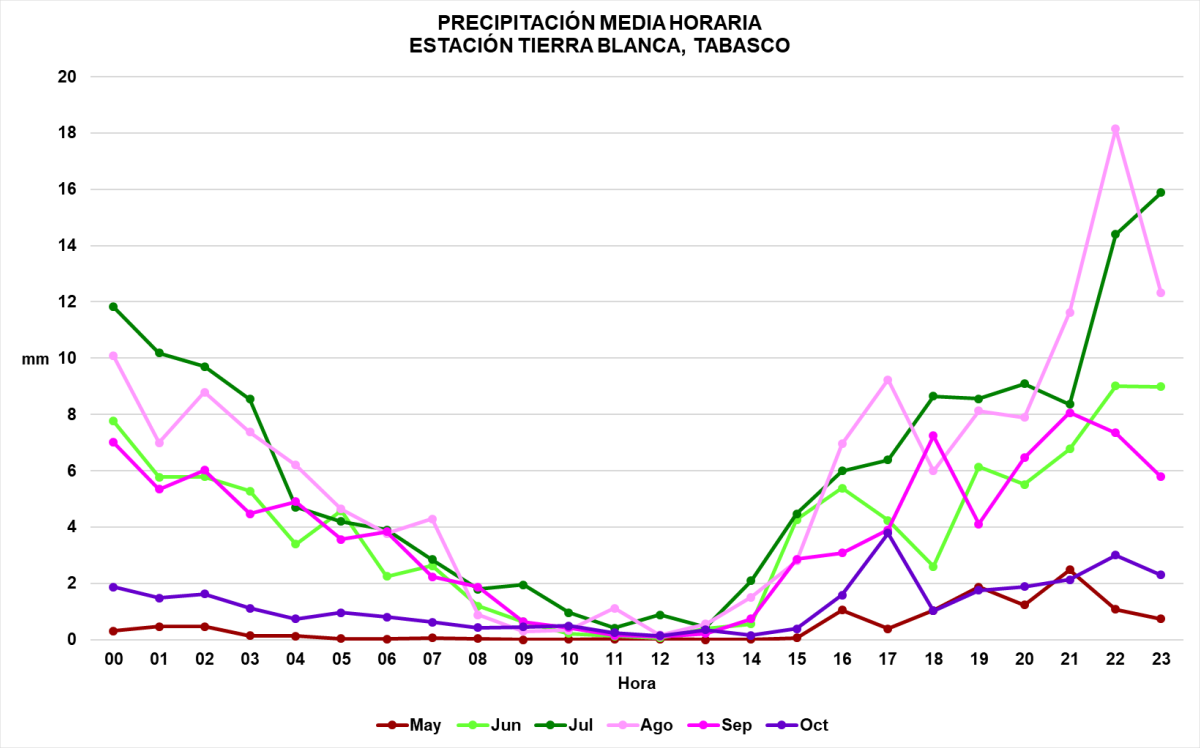


Figura 554. Precipitación media (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 617. Precipitación máxima (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	3.0	0.4	1.0	2.0	21.6	39.4	26.8	25.2	12.4	1.8	4.4	39.4
01	4.0	4.2	1.0	0.2	4.0	31.4	20.2	13.4	15.4	6.6	0.8	3.0	31.4
02	3.8	5.6	1.0	0.2	5.8	15.8	20.6	18.0	20.2	7.2	0.6	5.2	20.6
03	2.0	4.2	0.6	0.0	1.4	12.4	18.0	23.2	11.0	7.0	0.8	1.6	23.2
04	3.2	4.2	0.6	0.2	1.6	7.6	7.8	19.0	15.2	3.2	1.4	2.0	19.0
05	3.0	32.0	1.4	0.4	0.6	26.4	28.4	11.4	12.2	4.8	0.8	5.0	32.0
06	4.2	3.2	0.8	0.0	0.2	15.4	16.0	11.8	15.8	7.0	0.6	3.8	16.0
07	3.0	2.4	1.4	0.4	0.8	9.0	29.6	33.4	8.0	3.8	2.2	3.2	33.4
08	2.6	3.6	5.8	0.2	0.4	5.8	5.4	5.6	15.6	3.2	1.8	3.8	15.6
09	2.6	4.6	5.2	0.4	0.0	5.8	11.6	0.8	3.8	3.8	0.6	3.0	11.6
10	0.4	2.8	1.8	0.4	0.2	1.0	9.2	5.8	3.0	5.2	2.4	3.4	9.2
11	1.6	2.8	0.0	0.0	0.2	0.8	4.6	19.6	0.6	3.6	0.4	2.6	19.6
12	2.8	3.8	0.8	0.0	0.4	0.6	12.2	1.6	1.2	1.8	1.2	2.6	12.2
13	2.8	4.4	1.2	0.0	0.0	4.2	2.2	7.2	1.2	3.8	1.8	4.0	7.2
14	3.8	4.6	1.2	0.2	0.2	3.8	32.0	13.4	4.0	0.8	2.2	3.4	32.0
15	5.0	5.6	6.2	1.2	0.8	16.2	20.8	15.4	12.0	2.6	5.4	2.8	20.8
16	3.6	16.2	1.6	4.8	11.8	14.2	19.8	24.8	10.2	18.0	6.4	3.4	24.8
17	3.6	7.8	2.6	3.4	3.2	14.2	15.0	41.6	12.8	26.8	2.2	1.8	41.6
18	1.8	4.2	2.6	1.4	8.8	15.0	29.0	17.2	18.6	5.6	12.2	4.4	29.0
19	15.0	2.8	11.2	1.6	9.2	26.2	24.0	62.8	16.4	8.0	5.8	8.2	62.8
20	6.2	4.8	10.2	1.4	8.4	20.0	17.2	21.4	27.6	12.2	2.4	3.0	27.6
21	4.2	4.6	6.0	0.6	30.8	22.4	17.6	20.6	16.6	8.0	6.6	1.2	30.8
22	7.0	1.8	3.6	0.4	2.8	20.0	26.0	32.4	42.6	14.6	4.0	2.4	42.6
23	5.4	2.0	1.0	1.0	2.8	16.6	26.4	21.0	15.6	7.6	9.2	1.6	26.4
Máx.	15.0	32.0	11.2	4.8	30.8	31.4	39.4	62.8	42.6	26.8	12.2	8.2	62.8

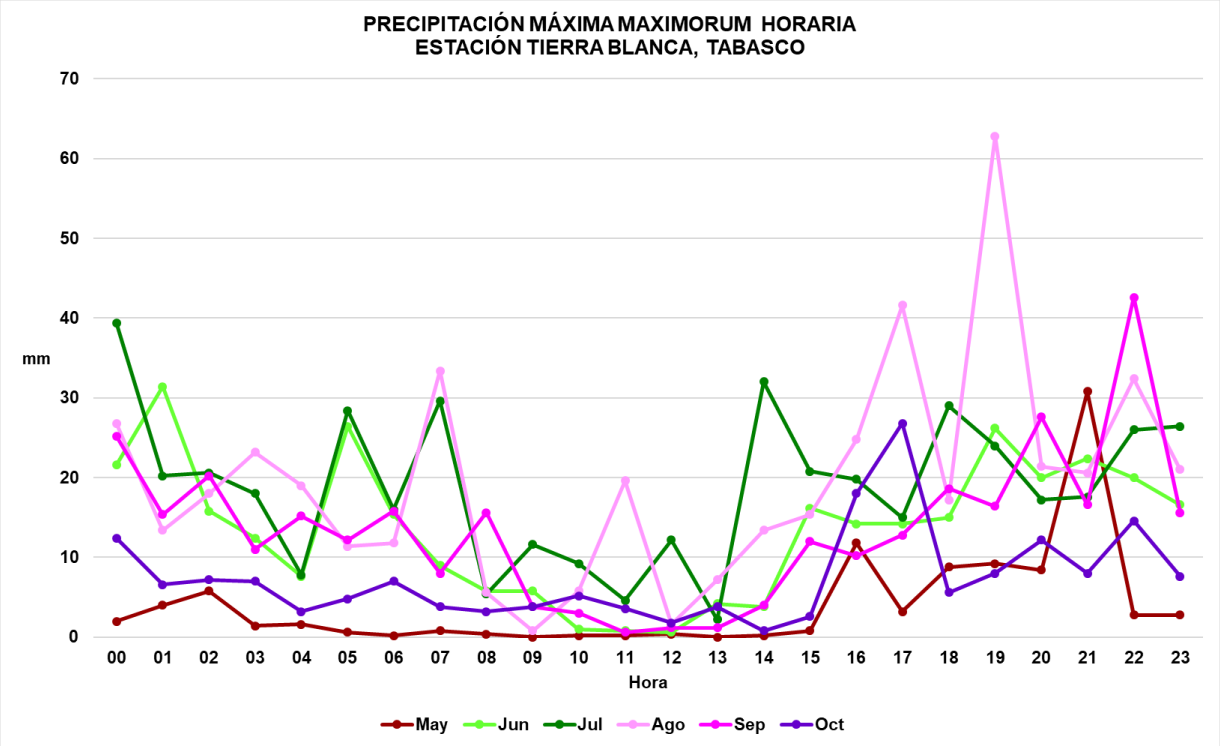


Figura 555. Precipitación máxima (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 618. Evapotranspiración potencial media (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.06	0.07	0.08	0.11	0.12	0.14	0.07	0.06	0.04	0.05	0.03	0.03	0.07
01	0.04	0.05	0.06	0.08	0.10	0.11	0.05	0.04	0.04	0.03	0.02	0.02	0.05
02	0.03	0.02	0.03	0.06	0.07	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.04
03	0.01	0.02	0.02	0.05	0.05	0.05	0.02	0.02	0.02	0.01	0.01	0.01	0.02
04	0.01	0.01	0.02	0.03	0.03	0.04	0.02	0.01	0.01	0.01	0.00	0.00	0.01
05	0.00	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
06	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
07	0.00	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01
08	0.01	0.02	0.05	0.03	0.04	0.04	0.02	0.01	0.01	0.01	0.03	0.01	0.02
09	0.07	0.11	0.17	0.12	0.14	0.13	0.10	0.10	0.08	0.08	0.14	0.09	0.11
10	0.17	0.23	0.31	0.26	0.27	0.24	0.21	0.22	0.21	0.21	0.26	0.20	0.23
11	0.28	0.34	0.43	0.40	0.41	0.37	0.34	0.36	0.34	0.35	0.37	0.31	0.36
12	0.37	0.43	0.52	0.52	0.52	0.47	0.46	0.48	0.45	0.45	0.44	0.39	0.46
13	0.41	0.48	0.57	0.59	0.59	0.54	0.54	0.55	0.52	0.52	0.47	0.42	0.52
14	0.41	0.49	0.56	0.62	0.63	0.57	0.56	0.58	0.54	0.54	0.45	0.41	0.53
15	0.37	0.44	0.51	0.60	0.61	0.56	0.56	0.57	0.51	0.50	0.38	0.35	0.50
16	0.29	0.36	0.43	0.54	0.54	0.48	0.49	0.49	0.43	0.41	0.28	0.27	0.42
17	0.21	0.27	0.32	0.44	0.45	0.40	0.40	0.40	0.33	0.31	0.16	0.16	0.32
18	0.12	0.16	0.22	0.35	0.35	0.32	0.30	0.28	0.21	0.21	0.10	0.10	0.23
19	0.10	0.12	0.17	0.31	0.30	0.24	0.18	0.20	0.14	0.12	0.07	0.06	0.17
20	0.08	0.10	0.14	0.20	0.23	0.22	0.14	0.11	0.07	0.08	0.06	0.04	0.12
21	0.08	0.10	0.13	0.16	0.18	0.19	0.10	0.08	0.06	0.07	0.06	0.05	0.10
22	0.08	0.09	0.12	0.14	0.16	0.17	0.09	0.07	0.05	0.06	0.05	0.04	0.10
23	0.08	0.08	0.11	0.13	0.15	0.16	0.08	0.06	0.05	0.06	0.04	0.04	0.09
Media/día /mes	3.29	4.01	4.98	5.77	5.98	5.57	4.79	4.77	4.16	4.11	3.44	3.03	4.49

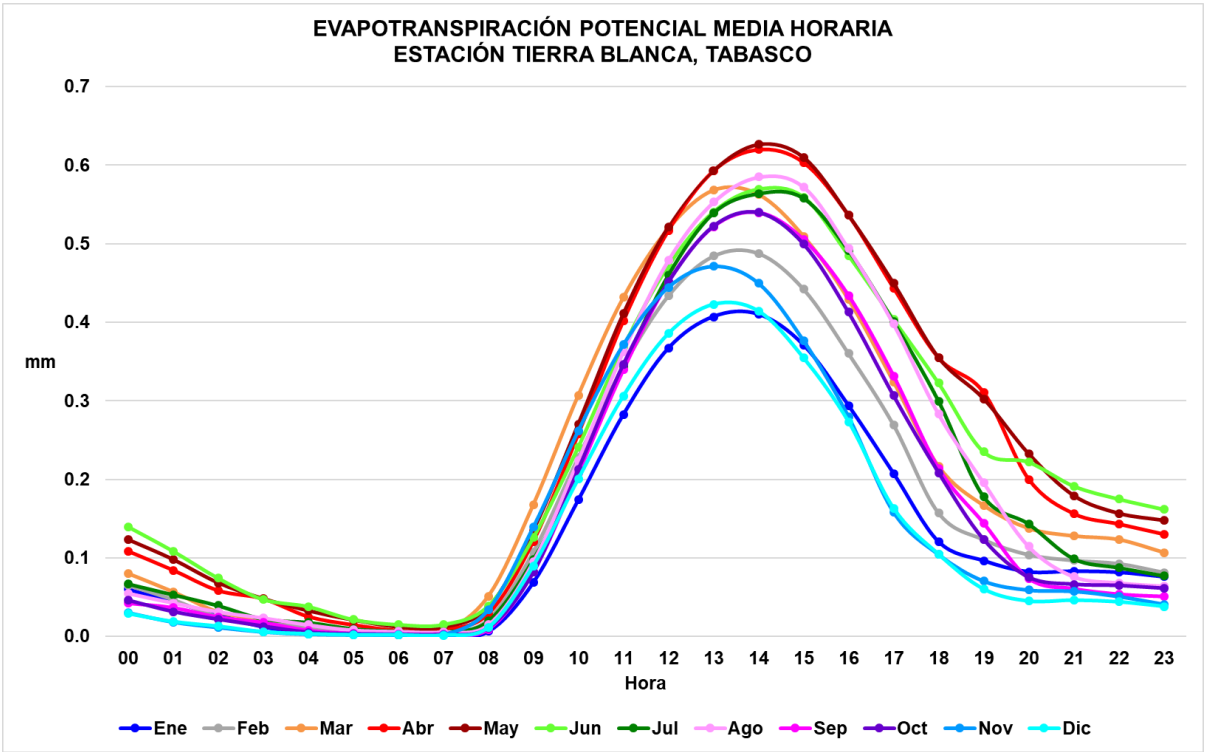


Figura 556. Evapotranspiración potencial media (mm) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 619. Humedad relativa media (%) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	60.5	51.8	40.1	31.2	35.8	57.9	79.2	81.0	82.9	73.6	70.5	66.6	60.9
01	63.9	55.6	43.9	35.8	40.2	61.4	81.2	82.9	84.5	77.0	73.9	69.8	64.2
02	67.1	59.3	47.9	39.9	44.5	64.5	83.0	84.9	86.2	80.5	77.1	73.0	67.3
03	70.2	62.8	51.6	43.5	48.2	67.7	85.2	86.4	88.0	83.5	80.1	76.0	70.3
04	72.9	66.0	55.2	47.0	51.6	70.8	87.0	87.9	89.6	86.0	82.7	78.5	72.9
05	75.7	69.2	58.9	50.6	55.1	73.9	88.6	89.5	91.0	88.2	85.0	80.5	75.5
06	78.0	72.0	62.1	54.1	58.4	76.6	90.1	90.7	92.3	90.1	87.0	82.4	77.8
07	79.8	74.0	62.9	56.0	60.2	77.9	91.1	92.0	93.1	91.4	87.6	83.8	79.1
08	75.3	67.5	51.2	50.0	54.3	73.0	88.0	89.8	91.1	88.2	74.9	76.5	73.3
09	57.6	49.7	36.9	37.9	43.2	63.9	78.3	79.9	81.7	74.2	55.8	57.4	59.7
10	43.4	38.3	29.2	29.1	35.1	55.0	68.0	69.1	70.2	59.5	43.8	43.4	48.7
11	35.8	31.6	24.0	23.4	28.9	47.8	59.8	60.9	60.8	49.9	37.1	36.1	41.4
12	30.8	26.7	20.1	18.9	23.9	41.7	54.2	55.4	54.8	43.8	32.4	31.4	36.2
13	27.3	23.5	17.6	16.1	20.1	36.5	49.6	51.2	50.9	39.4	29.2	27.8	32.4
14	24.9	21.5	16.0	14.3	17.8	33.2	46.0	47.9	48.0	36.5	27.5	25.9	30.0
15	23.9	20.4	15.2	13.3	16.5	31.5	44.4	46.3	47.2	34.8	27.0	24.9	28.8
16	23.7	20.1	15.1	12.9	16.3	31.6	44.5	46.9	47.9	34.8	27.5	25.0	28.9
17	25.0	20.7	15.3	13.0	16.7	32.9	45.9	48.5	49.8	36.7	30.9	27.4	30.2
18	28.8	23.1	16.8	13.5	17.6	34.7	49.1	51.9	55.2	41.6	37.3	33.0	33.5
19	34.1	27.4	19.7	14.9	19.1	38.4	54.5	58.5	62.7	48.9	43.3	39.0	38.4
20	39.7	31.1	22.8	17.2	22.0	43.0	62.2	66.0	69.6	55.5	50.9	46.6	43.9
21	46.7	36.6	26.3	19.7	25.3	47.7	68.2	71.2	74.4	61.3	58.1	54.3	49.1
22	52.6	42.2	30.9	22.5	28.7	51.8	72.8	75.3	78.1	66.6	63.0	59.6	53.7
23	56.8	47.0	35.5	26.4	32.5	55.7	76.4	78.5	80.8	70.3	66.6	63.1	57.5
Media	49.8	43.2	34.0	29.2	33.8	52.9	68.6	70.5	72.1	63.0	56.2	53.4	52.2

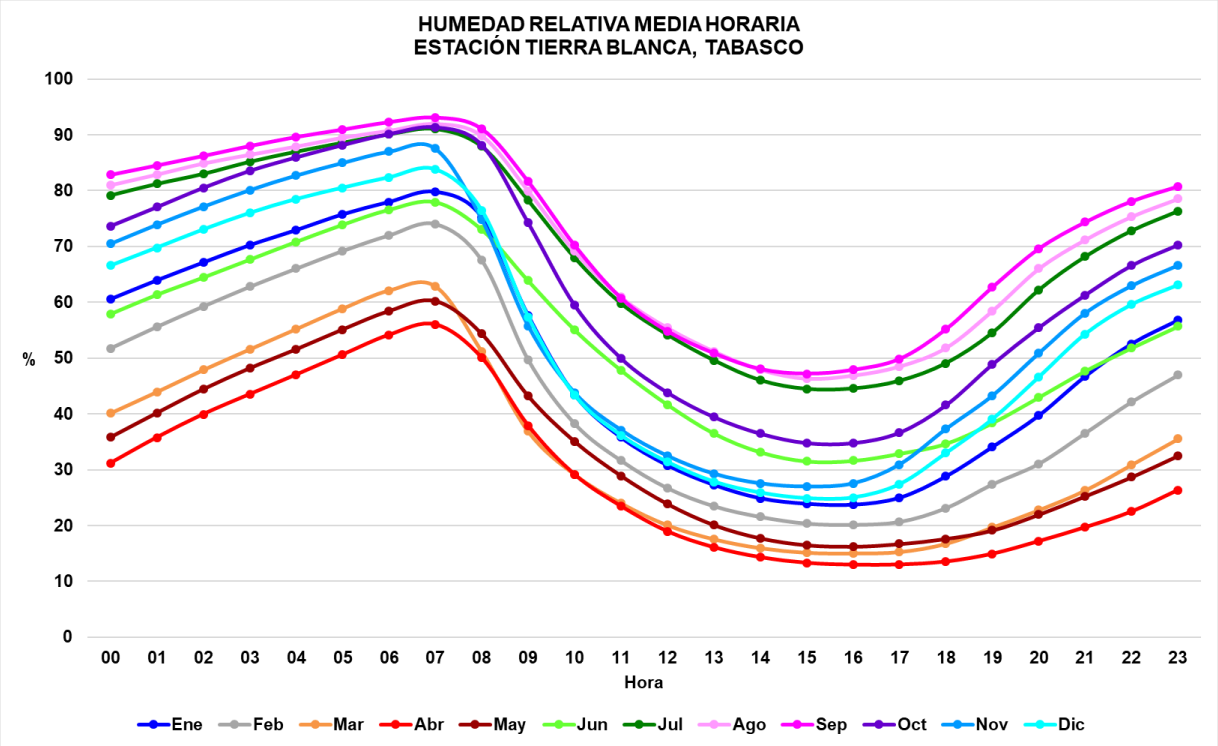


Figura 557. Humedad relativa media (%) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 620. Humedad relativa mínima minimorum (%) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	18.0	12.0	11.0	10.0	9.0	12.9	24.0	25.0	26.0	19.5	21.8	17.1	9.0
01	22.0	14.0	12.0	12.0	11.0	15.0	30.0	28.0	29.0	20.0	22.0	18.3	11.0
02	25.0	18.0	14.0	13.0	15.0	16.0	28.0	23.0	29.0	22.6	27.0	22.0	13.0
03	26.0	22.0	15.0	14.0	17.0	16.0	29.0	34.0	37.0	29.7	23.0	22.0	14.0
04	28.0	22.0	15.0	15.0	13.0	18.0	32.0	31.0	44.0	34.3	23.0	21.0	13.0
05	30.0	18.0	19.0	20.0	14.0	20.0	33.0	38.0	54.0	35.2	33.0	23.0	14.0
06	30.0	19.0	21.0	22.0	20.0	25.0	33.0	43.0	49.0	36.0	33.0	30.0	19.0
07	29.0	22.0	19.9	24.0	22.0	26.0	43.0	52.0	59.0	38.0	34.0	28.0	19.9
08	26.0	18.0	11.5	16.4	18.0	26.0	42.0	49.5	54.2	32.0	25.0	25.0	11.5
09	18.0	17.0	7.7	12.0	13.5	23.0	31.0	40.0	45.2	22.0	17.0	18.0	7.7
10	11.5	11.0	7.1	8.0	11.2	16.0	24.0	32.0	37.2	18.0	10.0	12.0	7.1
11	8.0	9.0	5.8	7.0	8.3	12.0	19.0	24.0	27.6	14.0	8.0	10.0	5.8
12	7.0	8.0	5.0	6.0	7.0	11.0	18.0	22.0	23.8	12.0	8.0	9.0	5.0
13	6.0	6.0	4.0	6.0	5.8	9.0	17.0	20.0	18.7	10.0	7.0	8.0	4.0
14	5.0	4.0	4.0	4.7	5.0	4.0	14.8	19.0	17.5	8.0	6.0	8.0	4.0
15	5.0	4.0	4.0	4.0	5.0	5.0	11.8	17.0	17.2	8.0	6.0	7.0	4.0
16	6.0	5.0	3.0	4.0	5.0	5.0	11.0	17.0	15.7	9.0	5.0	7.0	3.0
17	5.0	5.0	3.0	5.0	5.0	5.0	11.0	17.0	16.7	9.0	6.0	6.0	3.0
18	6.0	5.0	5.0	5.0	5.2	5.0	13.0	15.0	17.8	11.0	6.0	9.0	5.0
19	8.0	7.1	5.0	5.4	5.4	6.0	12.0	17.0	21.0	13.0	8.0	10.0	5.0
20	10.0	8.0	6.0	6.0	7.0	6.0	14.0	17.0	22.0	13.0	11.0	12.0	6.0
21	11.0	8.0	6.8	6.0	7.0	7.0	16.0	17.0	23.0	17.0	12.0	15.0	6.0
22	12.0	9.0	7.0	6.0	7.0	9.0	17.0	17.0	27.0	18.0	13.0	12.0	6.0
23	13.0	12.0	9.0	7.0	10.0	11.0	21.0	19.0	26.0	20.0	15.0	14.0	7.0
Mín.	5.0	4.0	3.0	4.0	5.0	4.0	11.0	15.0	15.7	8.0	5.0	6.0	3.0

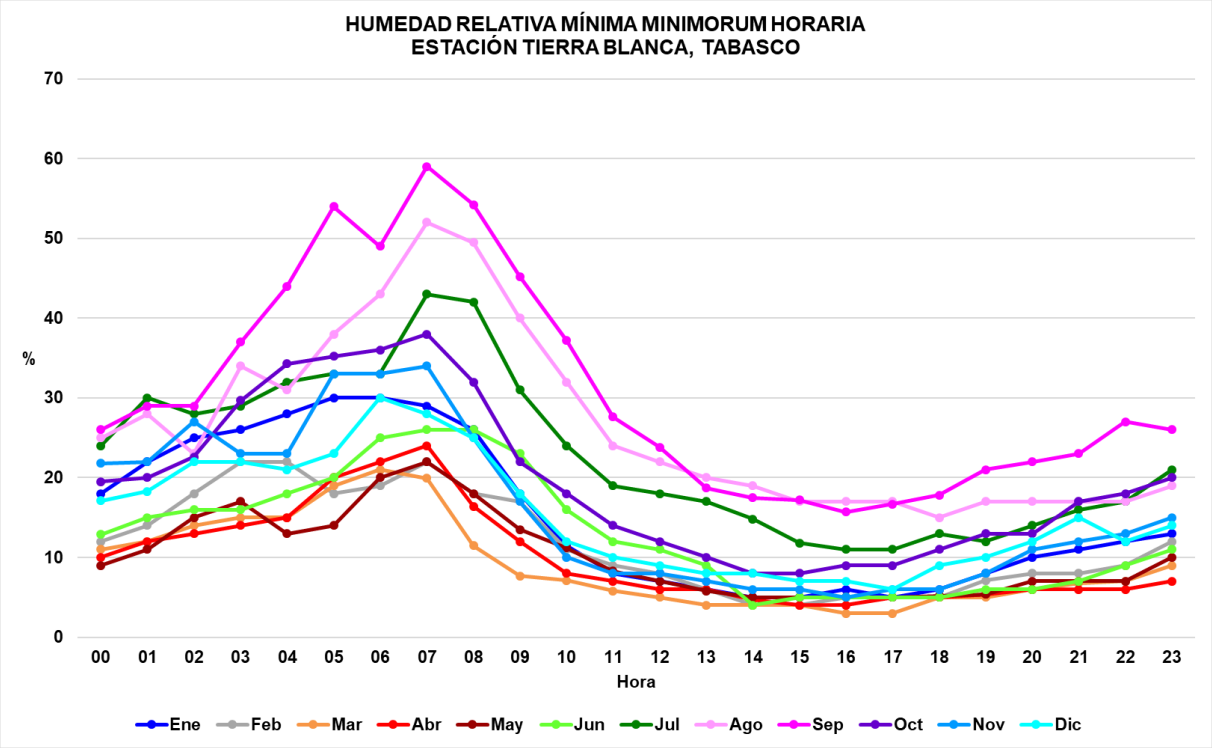


Figura 558. Humedad relativa mínima minimorum (%) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 621. Radiación solar global media horaria (W/m2) de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	1	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	7	4	6	6	3	1	0	1	3	1	3
07	29	57	201	121	137	123	84	57	39	47	126	46	89
08	428	615	1015	695	715	602	505	439	381	411	818	525	596
09	1224	1489	1942	1597	1552	1266	1201	1174	1098	1170	1626	1298	1386
10	1937	2227	2736	2480	2433	2052	2002	1979	1881	1975	2294	1954	2162
11	2471	2801	3324	3197	3150	2717	2711	2711	2564	2626	2763	2436	2789
12	2728	3144	3607	3681	3653	3167	3224	3187	3019	3052	2930	2667	3172
13	2719	3181	3596	3833	3850	3354	3432	3395	3148	3167	2829	2605	3259
14	2449	2870	3208	3696	3704	3296	3353	3344	3026	2961	2427	2270	3050
15	1915	2330	2642	3244	3192	2908	2953	2936	2619	2527	1829	1750	2570
16	1279	1629	1869	2548	2484	2330	2369	2318	2040	1873	1090	1092	1910
17	575	857	1043	1773	1729	1676	1729	1644	1322	1120	380	409	1188
18	78	195	303	981	1009	1053	1001	900	617	427	18	25	550
19	0	1	7	307	373	493	407	301	133	44	0	0	172
20	0	0	0	15	36	189	85	23	2	0	0	0	29
21	0	0	0	0	0	113	30	0	0	0	0	0	12
22	0	0	0	0	0	68	17	0	0	0	0	0	7
23	0	0	0	0	0	24	7	0	0	0	0	0	3
Media/día/mes	17831	21400	25499	28173	28022	25439	25113	24411	21890	21401	19133	17077	22949

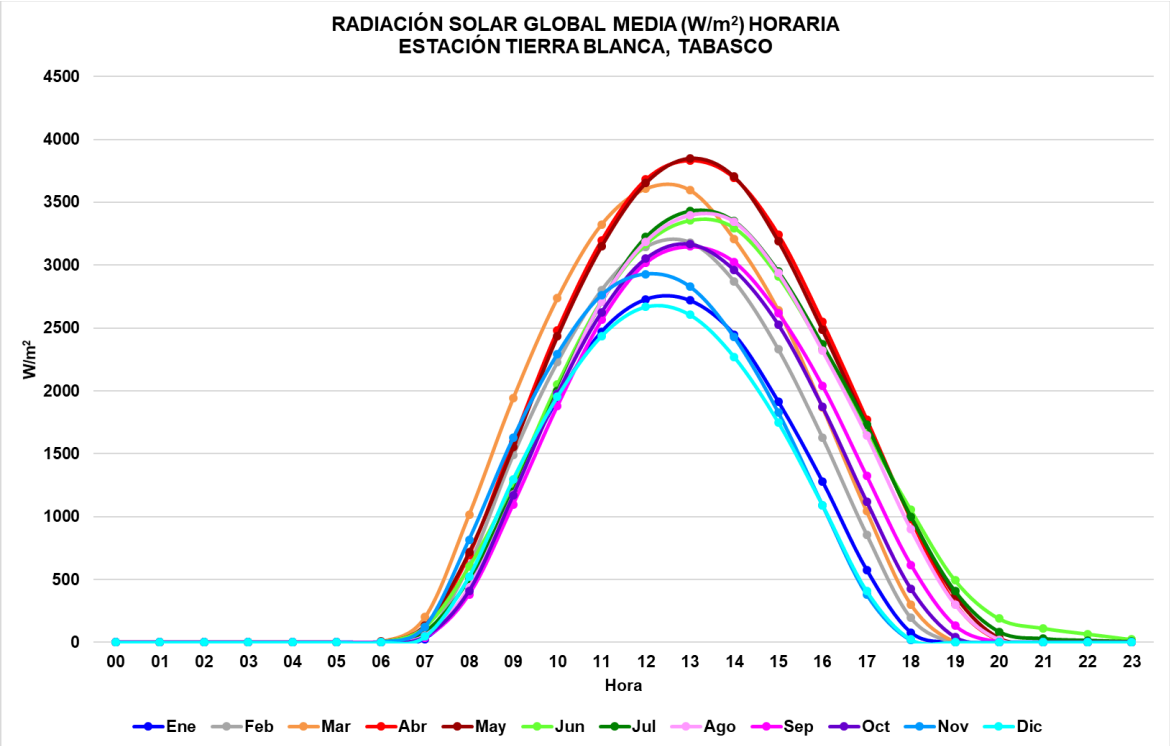


Figura 559 Radiación solar global media horaria (W/m2) de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 622. Radiación solar global media horaria (kWh/m2) de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.05	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.03	0.01	0.02
08	0.11	0.15	0.25	0.17	0.18	0.15	0.13	0.11	0.10	0.10	0.20	0.13	0.15
09	0.31	0.37	0.49	0.40	0.39	0.32	0.30	0.29	0.27	0.29	0.41	0.32	0.35
10	0.48	0.56	0.68	0.62	0.61	0.51	0.50	0.49	0.47	0.49	0.57	0.49	0.54
11	0.62	0.70	0.83	0.80	0.79	0.68	0.68	0.68	0.64	0.66	0.69	0.61	0.70
12	0.68	0.79	0.90	0.92	0.91	0.79	0.81	0.80	0.75	0.76	0.73	0.67	0.79
13	0.68	0.80	0.90	0.96	0.96	0.84	0.86	0.85	0.79	0.79	0.71	0.65	0.81
14	0.61	0.72	0.80	0.92	0.93	0.82	0.84	0.84	0.76	0.74	0.61	0.57	0.76
15	0.48	0.58	0.66	0.81	0.80	0.73	0.74	0.73	0.65	0.63	0.46	0.44	0.64
16	0.32	0.41	0.47	0.64	0.62	0.58	0.59	0.58	0.51	0.47	0.27	0.27	0.48
17	0.14	0.21	0.26	0.44	0.43	0.42	0.43	0.41	0.33	0.28	0.10	0.10	0.30
18	0.02	0.05	0.08	0.25	0.25	0.26	0.25	0.22	0.15	0.11	0.00	0.01	0.14
19	0.00	0.00	0.00	0.08	0.09	0.12	0.10	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.46	5.35	6.37	7.04	7.01	6.36	6.28	6.10	5.47	5.35	4.78	4.27	5.74

Cuadro 623. Radiación solar global media horaria (Mj/m2/s) de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.03	0.05	0.18	0.11	0.12	0.11	0.08	0.05	0.03	0.04	0.11	0.04	0.08
08	0.39	0.55	0.91	0.63	0.64	0.54	0.45	0.40	0.34	0.37	0.74	0.47	0.54
09	1.10	1.34	1.75	1.44	1.40	1.14	1.08	1.06	0.99	1.05	1.46	1.17	1.25
10	1.74	2.00	2.46	2.23	2.19	1.85	1.80	1.78	1.69	1.78	2.06	1.76	1.95
11	2.22	2.52	2.99	2.88	2.84	2.45	2.44	2.44	2.31	2.36	2.49	2.19	2.51
12	2.46	2.83	3.25	3.31	3.29	2.85	2.90	2.87	2.72	2.75	2.64	2.40	2.85
13	2.45	2.86	3.24	3.45	3.46	3.02	3.09	3.06	2.83	2.85	2.55	2.34	2.93
14	2.20	2.58	2.89	3.33	3.33	2.97	3.02	3.01	2.72	2.67	2.18	2.04	2.75
15	1.72	2.10	2.38	2.92	2.87	2.62	2.66	2.64	2.36	2.27	1.65	1.57	2.31
16	1.15	1.47	1.68	2.29	2.24	2.10	2.13	2.09	1.84	1.69	0.98	0.98	1.72
17	0.52	0.77	0.94	1.60	1.56	1.51	1.56	1.48	1.19	1.01	0.34	0.37	1.07
18	0.07	0.18	0.27	0.88	0.91	0.95	0.90	0.81	0.56	0.38	0.02	0.02	0.50
19	0.00	0.00	0.01	0.28	0.34	0.44	0.37	0.27	0.12	0.04	0.00	0.00	0.15
20	0.00	0.00	0.00	0.01	0.03	0.17	0.08	0.02	0.00	0.00	0.00	0.00	0.03
21	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.01
22	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.01
23	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.05	19.26	22.95	25.36	25.22	22.90	22.60	21.97	19.70	19.26	17.22	15.37	20.65

Cuadro 624. Velocidad del viento media (km/h) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.4	1.5	2.1	2.6	4.0	6.2	3.6	2.6	2.0	1.9	1.2	1.1	2.5
01	1.2	1.2	1.8	2.0	3.1	4.8	2.7	2.2	1.7	1.6	1.0	1.1	2.0
02	1.0	1.2	1.6	1.6	2.6	4.0	2.2	1.9	1.4	1.3	0.9	0.9	1.7
03	0.8	1.1	1.5	1.4	2.2	3.5	1.8	1.7	1.2	1.0	0.8	0.9	1.5
04	0.7	1.0	1.1	1.1	2.0	3.0	1.5	1.4	1.0	0.9	0.7	0.9	1.3
05	0.6	0.9	0.9	0.9	1.8	2.4	1.2	1.2	0.8	0.7	0.6	0.8	1.1
06	0.6	0.9	0.8	0.7	1.3	1.8	0.9	1.1	0.7	0.6	0.6	0.8	0.9
07	0.5	0.7	0.7	0.6	1.0	1.5	0.8	0.9	0.6	0.5	0.5	0.7	0.7
08	0.5	0.7	1.0	0.6	1.1	1.6	0.9	0.7	0.7	0.6	0.7	0.8	0.8
09	1.1	1.6	2.2	1.5	2.2	2.5	1.3	1.1	1.1	1.0	1.4	1.4	1.5
10	2.4	3.3	4.3	3.4	3.5	3.3	2.0	1.8	1.8	2.0	2.5	2.5	2.7
11	4.2	5.2	5.8	5.0	4.3	3.9	2.6	2.5	2.6	3.0	3.8	4.2	3.9
12	5.9	6.8	7.2	6.0	4.9	4.7	3.5	3.3	3.5	4.1	5.2	5.8	5.1
13	7.3	8.1	8.5	7.2	5.9	5.5	4.5	4.1	4.3	5.2	6.2	7.3	6.2
14	8.1	9.0	9.3	8.3	7.0	6.4	5.4	4.9	5.1	5.8	6.5	7.8	7.0
15	8.3	9.3	9.7	9.0	7.8	7.3	6.1	5.4	5.4	6.1	6.4	7.8	7.4
16	7.9	9.2	9.5	9.3	8.2	7.9	6.5	5.6	5.5	6.0	5.8	7.2	7.4
17	7.0	8.3	8.7	9.1	8.3	8.5	6.6	5.5	5.1	5.6	5.1	5.9	7.0
18	4.8	6.1	6.7	8.5	8.1	8.6	6.5	5.3	4.5	5.0	4.2	3.6	6.0
19	3.6	3.7	4.3	6.4	7.1	8.5	6.5	4.6	3.7	4.3	3.5	2.4	4.9
20	2.7	2.8	3.9	4.2	5.9	8.2	5.8	4.2	3.2	3.6	3.1	1.9	4.1
21	2.3	2.6	4.1	4.0	5.7	8.4	5.4	4.1	2.7	3.6	2.6	1.8	3.9
22	2.0	2.3	3.6	4.0	5.7	8.4	5.0	4.2	2.7	3.3	1.9	1.6	3.7
23	1.7	1.8	2.9	3.4	5.2	7.6	4.6	3.7	2.1	2.6	1.5	1.3	3.2
Media	3.2	3.7	4.3	4.2	4.6	5.4	3.7	3.1	2.6	2.9	2.8	2.9	3.6

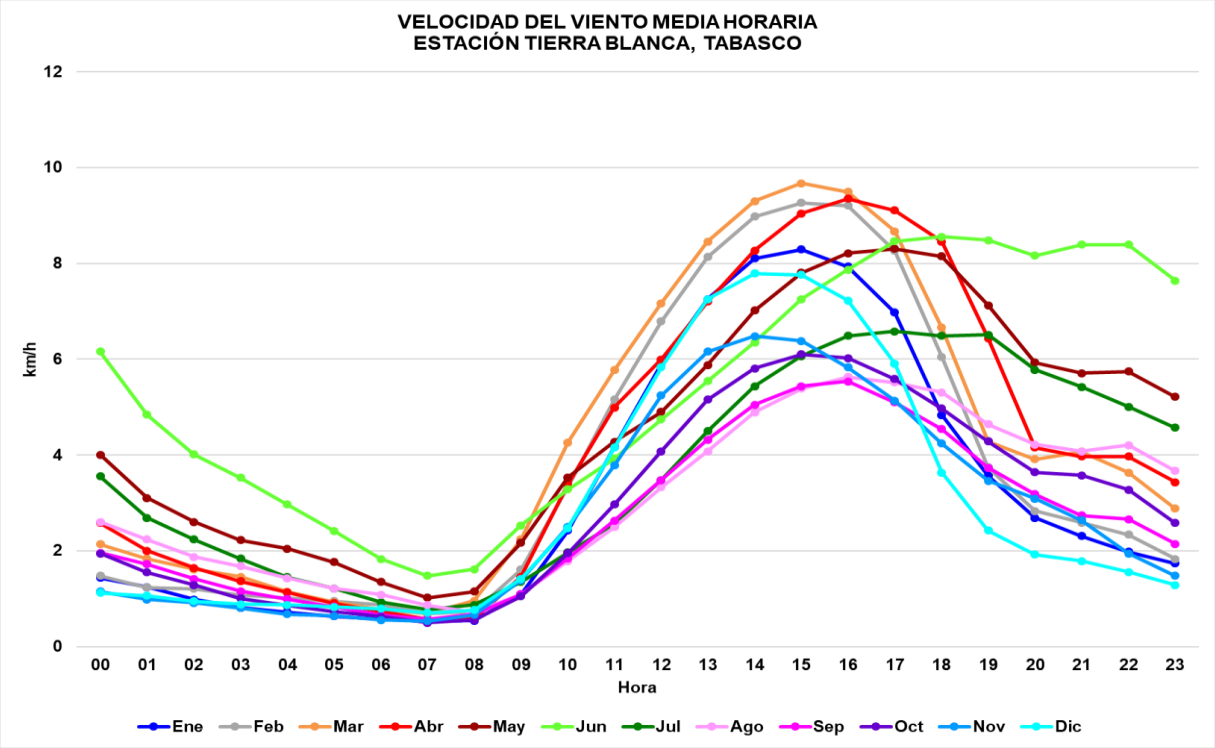


Figura 560. Velocidad del viento media (km/h) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 625. Velocidad del viento máxima maximorum (km/h) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	34.4	19.3	24.7	47.9	41.8	42.1	45.6	43.6	27.3	31.2	21.0	22.0	47.9
01	31.1	21.0	26.0	35.1	41.5	41.0	35.6	30.7	24.5	24.9	20.2	24.5	41.5
02	24.6	25.5	30.0	43.4	30.5	29.0	37.4	31.0	17.7	18.5	18.7	28.0	43.4
03	18.3	24.1	28.8	32.9	24.8	25.5	28.2	40.6	20.3	15.3	24.3	24.7	40.6
04	17.0	18.8	25.6	23.4	35.0	28.2	24.7	22.1	15.4	21.8	26.6	23.0	35.0
05	15.6	20.7	20.5	21.2	32.9	21.0	29.8	23.3	16.1	23.0	29.6	22.0	32.9
06	14.7	17.1	24.1	14.7	17.8	17.7	17.2	18.6	13.0	20.9	27.7	20.0	27.7
07	17.0	22.0	24.0	10.0	15.7	15.0	14.9	16.6	17.1	13.9	30.1	18.3	30.1
08	17.8	21.4	24.0	17.0	18.0	18.0	16.9	24.1	15.0	16.4	29.8	26.0	29.8
09	23.0	18.4	25.0	23.0	19.0	18.6	15.2	18.4	15.0	18.5	24.0	25.0	25.0
10	27.6	23.2	35.0	21.0	20.0	22.0	14.4	26.5	25.3	17.2	21.1	30.0	35.0
11	26.7	25.6	30.0	19.5	21.3	22.8	16.7	19.0	24.1	22.6	21.5	38.0	38.0
12	28.0	29.9	30.0	21.4	20.3	24.2	21.2	17.2	25.7	25.0	24.7	37.0	37.0
13	31.8	33.7	31.0	40.0	23.3	25.6	20.9	19.4	19.8	25.0	26.3	40.2	40.2
14	33.0	30.6	30.0	24.1	29.0	31.0	35.2	26.0	23.6	26.0	29.8	39.3	39.3
15	31.7	30.0	29.0	32.4	31.4	36.0	35.0	24.1	23.0	25.0	29.7	37.4	37.4
16	27.6	28.0	35.9	31.0	40.0	38.0	33.1	36.6	25.4	30.8	32.5	35.3	40.0
17	25.3	27.4	30.2	35.2	41.0	33.8	31.2	35.4	34.4	28.9	32.4	30.0	41.0
18	31.4	33.4	36.0	34.7	39.3	41.0	39.0	40.3	32.9	35.0	32.3	30.0	41.0
19	35.9	33.4	32.0	38.9	39.2	49.4	40.7	40.9	31.5	37.0	40.0	34.0	49.4
20	34.4	35.0	35.8	42.1	47.3	54.3	41.5	34.0	34.1	32.7	41.4	34.8	54.3
21	35.6	32.5	43.0	41.0	54.0	37.6	49.2	39.0	27.0	40.2	36.4	34.7	54.0
22	32.9	34.0	41.0	40.0	48.3	49.2	39.2	34.5	37.6	35.0	31.9	30.2	49.2
23	34.2	20.0	31.5	35.0	41.0	43.6	38.1	34.4	29.3	37.8	24.5	24.0	43.6
Máx.	35.9	35.0	43.0	47.9	54.0	54.3	49.2	43.6	37.6	40.2	41.4	40.2	54.3

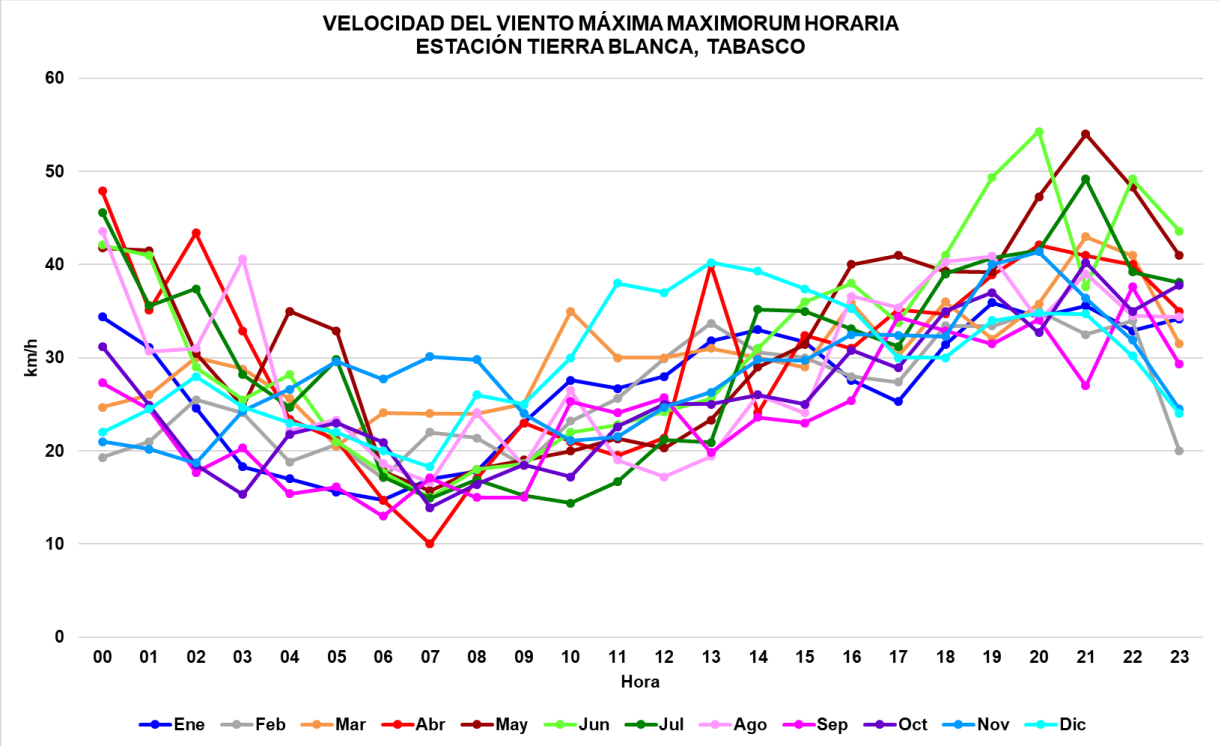


Figura 561. Velocidad del viento máxima maximorum (km/h) horaria de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 626 Frecuencia de velocidad del viento (%) mensual de la estación Tierra Blanca, Tabasco (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	78.7	73.4	68.8	67.9	64.9	60.1	73.7	79.2	81.9	80.2	81.8	81.1	74.3
5.1 a 10.0	11.8	15.3	18.2	20.9	23.9	24.3	18.3	15.5	14.5	14.2	12.3	10.9	16.7
10.1 a 15.0	6.5	7.9	9.0	8.6	7.9	9.4	5.7	4.0	3.0	4.0	4.0	5.5	6.3
15.1 a 20.0	2.2	2.9	2.9	2.0	2.0	3.4	1.4	0.9	0.5	1.0	1.1	1.7	1.8
20.1 a 25.0	0.6	0.5	0.9	0.3	0.8	1.6	0.6	0.2	0.1	0.5	0.5	0.5	0.6
25.1 a 30.0	0.2	0.1	0.2	0.2	0.3	0.7	0.2	0.1	0.0	0.2	0.3	0.2	0.2
30.1 a 35.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1
35.1 a 40.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

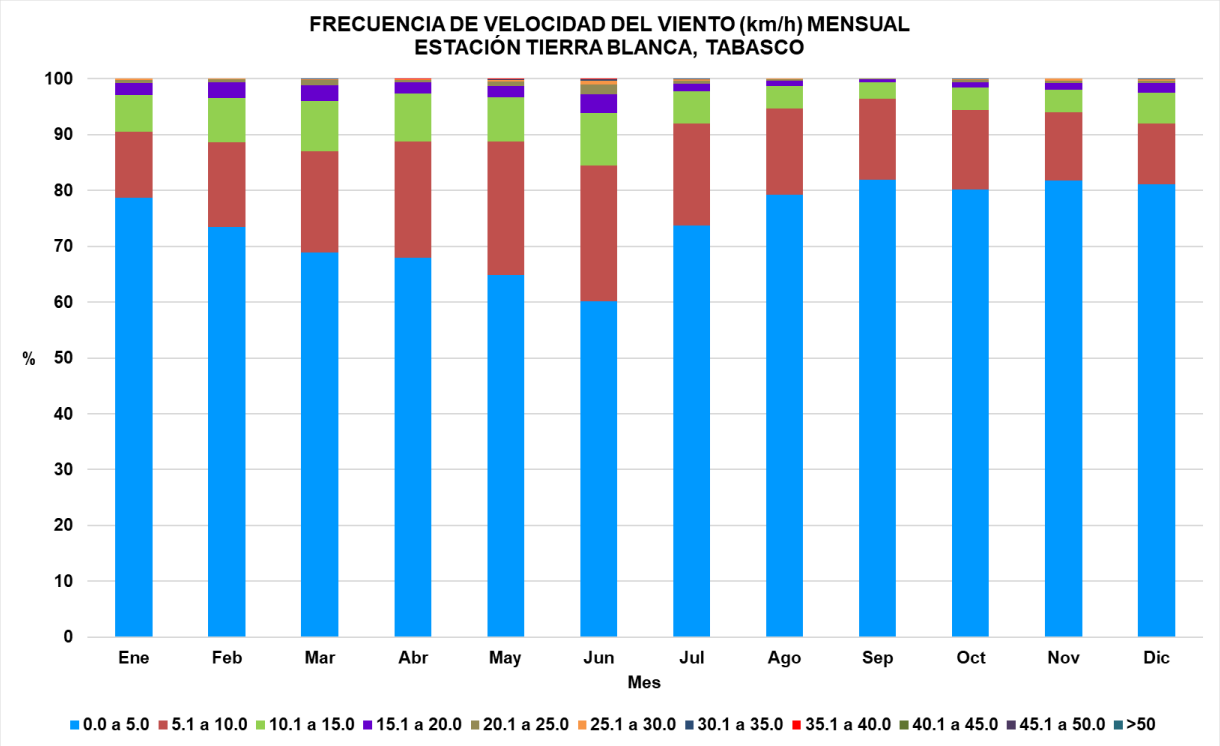


Figura 562. Frecuencia de velocidad del viento (%) mensual de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 627. Frecuencia de dirección del viento (%) mensual de la estación Tierra Blanca, Tabasco (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	10.7	10.1	9.3	8.3	8.0	8.5	9.4	9.4	11.0	9.9	11.1	10.9	9.7
NNE	7.0	6.6	6.4	5.8	5.6	6.1	6.2	6.8	8.0	7.4	7.3	6.6	6.7
NE	5.8	5.5	5.2	4.9	4.9	5.4	5.7	6.2	7.1	6.7	5.9	5.1	5.7
ENE	4.2	3.9	3.9	3.7	4.2	5.5	4.9	5.5	6.1	5.9	5.0	4.0	4.7
E	3.7	3.3	3.6	3.3	4.5	6.9	5.2	5.4	6.1	6.0	4.6	3.4	4.7
ESE	3.1	3.0	3.2	3.0	3.7	5.1	4.8	4.9	4.8	4.3	3.8	3.1	3.9
SE	3.4	3.3	3.3	3.5	3.6	3.8	4.7	4.9	4.8	3.8	3.8	3.3	3.9
SSE	4.5	4.6	4.6	4.7	4.7	4.9	5.9	5.9	5.2	4.6	4.2	4.2	4.8
S	8.7	9.1	8.5	8.5	9.1	10.9	10.5	9.7	8.0	7.5	7.2	8.4	8.9
SSO	10.7	11.1	11.2	11.4	12.3	13.2	12.7	11.1	9.0	9.4	8.9	11.1	11.0
SO	6.1	7.1	7.4	8.6	7.8	6.8	6.7	6.3	5.3	5.6	5.5	6.9	6.7
OSO	3.6	4.3	5.2	5.6	5.0	3.5	3.5	3.5	3.0	3.3	3.5	3.7	4.0
O	3.9	4.6	5.5	6.0	5.4	3.5	3.5	3.5	3.5	3.6	3.9	3.6	4.2
ONO	5.2	5.4	5.7	5.8	5.4	4.2	4.2	4.4	4.4	5.2	5.4	5.4	5.0
NO	8.7	8.4	7.8	7.8	7.4	5.2	5.1	5.4	5.9	7.4	8.9	9.2	7.3
NNO	10.6	9.8	9.3	9.1	8.2	6.6	6.9	7.1	7.8	9.5	10.9	11.1	8.9
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

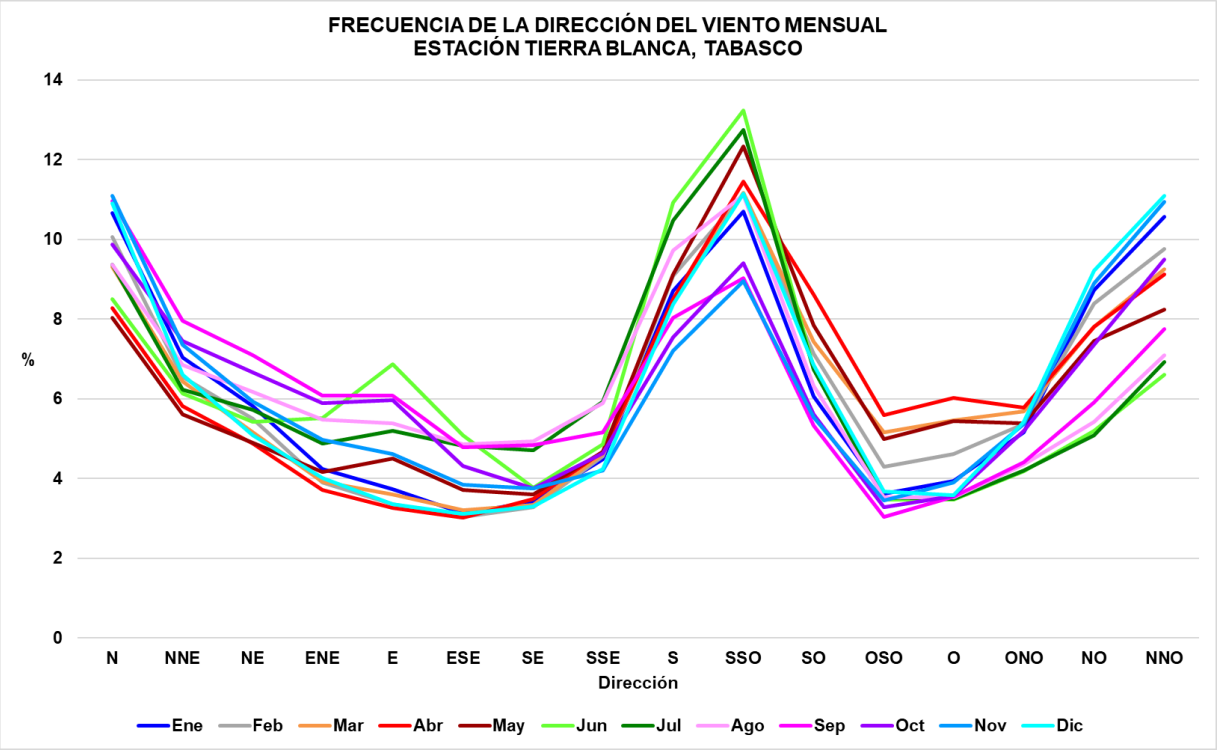


Figura 563. Frecuencia de dirección del viento (%) mensual de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 628. Frecuencia de dirección del viento (%) trimestral de la estación Tierra Blanca, Tabasco (2002-2022).

c	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	10.0	8.3	9.9	10.6	9.7
NNE	6.7	5.9	7.0	7.1	6.7
NE	5.5	5.1	6.3	5.9	5.7
ENE	4.0	4.5	5.5	5.0	4.7
E	3.6	4.9	5.5	4.7	4.7
ESE	3.1	3.9	4.8	3.8	3.9
SE	3.3	3.6	4.8	3.6	3.9
SSE	4.5	4.7	5.7	4.4	4.8
S	8.8	9.5	9.4	7.7	8.9
SSO	11.0	12.3	11.0	9.8	11.0
SO	6.9	7.7	6.1	6.0	6.7
OSO	4.4	4.7	3.4	3.5	4.0
O	4.7	5.0	3.5	3.7	4.2
ONO	5.4	5.1	4.3	5.3	5.0
NO	8.3	6.8	5.5	8.5	7.3
NNO	9.9	8.0	7.3	10.5	8.9
Suma	100.0	100.0	100.0	100.0	100.0

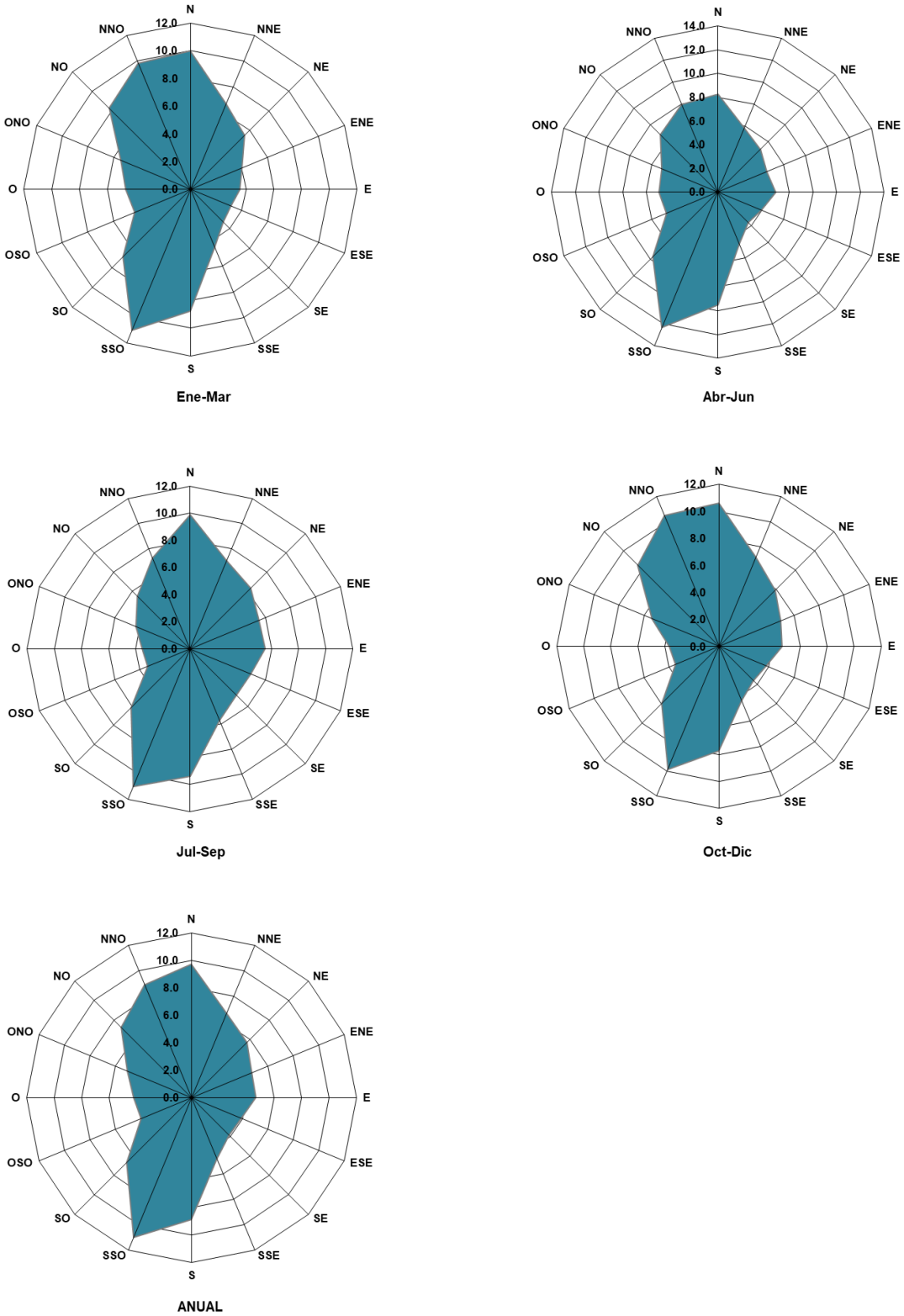


Figura 564. Frecuencia de dirección del viento (%) trimestral de la estación Tierra Blanca, Tabasco (2002-2022).

Cuadro 629. Estadísticas climatológicas mensuales de la estación Tierra Blanca, Tabasco (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	25.3	27.4	30.0	32.4	33.8	32.1	29.4	29.2	28.8	29.1	27.5	25.4	29.2
Temperatura máxima maximorum (°C)	31.9	35.0	37.3	38.6	39.5	39.0	35.8	33.9	33.5	33.6	33.4	32.7	39.5
Temperatura mínima media (°C)	3.8	5.1	6.9	9.2	13.1	16.7	15.7	15.5	14.9	11.1	6.2	3.7	10.2
Temperatura mínima minimorum (°C)	-7.2	-4.0	-2.9	1.1	4.3	8.5	9.3	10.5	6.4	-0.5	-6.6	-4.8	-7.2
Temperatura media (°C)	14.4	16.5	19.2	21.8	24.2	24.1	21.8	21.7	21.0	19.7	16.6	14.1	19.6
Oscilación térmica (°C)	21.4	22.3	23.1	23.2	20.7	15.5	13.7	13.7	13.8	18.0	21.3	21.8	19.0
Precipitación acumulada media (mm)	15.3	17.0	5.8	1.8	12.2	98.2	153.5	147.1	94.9	30.8	11.1	11.7	599.4
Precipitación máxima maximorum en 24 horas (mm)	25.6	42.6	39.8	8.2	35.4	52.4	79.0	101.2	57.8	37.2	30.6	30.0	101.2
Número de días promedio con lluvia	4.5	4.1	3.6	2.7	4.4	13.5	18.6	18.0	14.7	6.7	3.7	3.5	97.8
Evapotranspiración acumulada potencial media (mm)	108.6	123.9	168.1	182.4	193.8	172.7	157.1	154.7	130.6	132.4	114.4	100.6	1794.6
Humedad máxima media (%)	83.8	78.4	68.3	61.7	65.5	82.2	93.9	94.8	95.7	93.9	90.8	87.5	83.1
Humedad máxima maximorum (%)	100.0	100.0	100.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.8	17.6	13.0	11.1	13.6	25.6	37.5	39.9	41.0	30.6	24.3	22.1	24.7
Humedad mínima minimorum (%)	5.0	4.0	3.0	4.0	5.0	4.0	11.0	15.0	15.7	8.0	5.0	6.0	3.0
Humedad media (%)	49.8	43.4	34.0	29.3	33.8	52.9	68.6	70.5	72.1	62.9	56.2	53.2	52.2
Radiación global media día/mes (W/m^2)	17859.9	21347.7	25498.6	28167.8	28021.9	25439.2	25113.1	24410.8	21890.4	21417.9	19132.9	17083.7	22948.7
Radiación global media día/mes (kWh/m^2)	4.5	5.3	6.4	7.0	7.0	6.4	6.3	6.1	5.5	5.4	4.8	4.3	5.7
Radiación global media día/mes ($Mj/m^2/s$)	16.1	19.2	22.9	25.4	25.2	22.9	22.6	22.0	19.7	19.3	17.2	15.4	20.7
Velocidad del viento máxima media (km/h)	14.0	14.6	16.4	16.2	18.1	22.0	18.8	16.1	13.2	13.2	12.5	12.7	15.6
Velocidad del viento máxima maximorum (km/h)	35.9	35.0	43.0	47.9	54.0	54.3	49.2	43.6	37.6	40.2	41.4	40.2	54.3
Velocidad del viento media (km/h)	3.2	3.7	4.3	4.2	4.6	5.4	3.7	3.1	2.6	2.9	2.8	3.0	3.6
Dirección dominante del viento	SSO	SSO	SSO	SSO	SSO	SSO	SSO	SSO	N	N	N	SSO	SSO

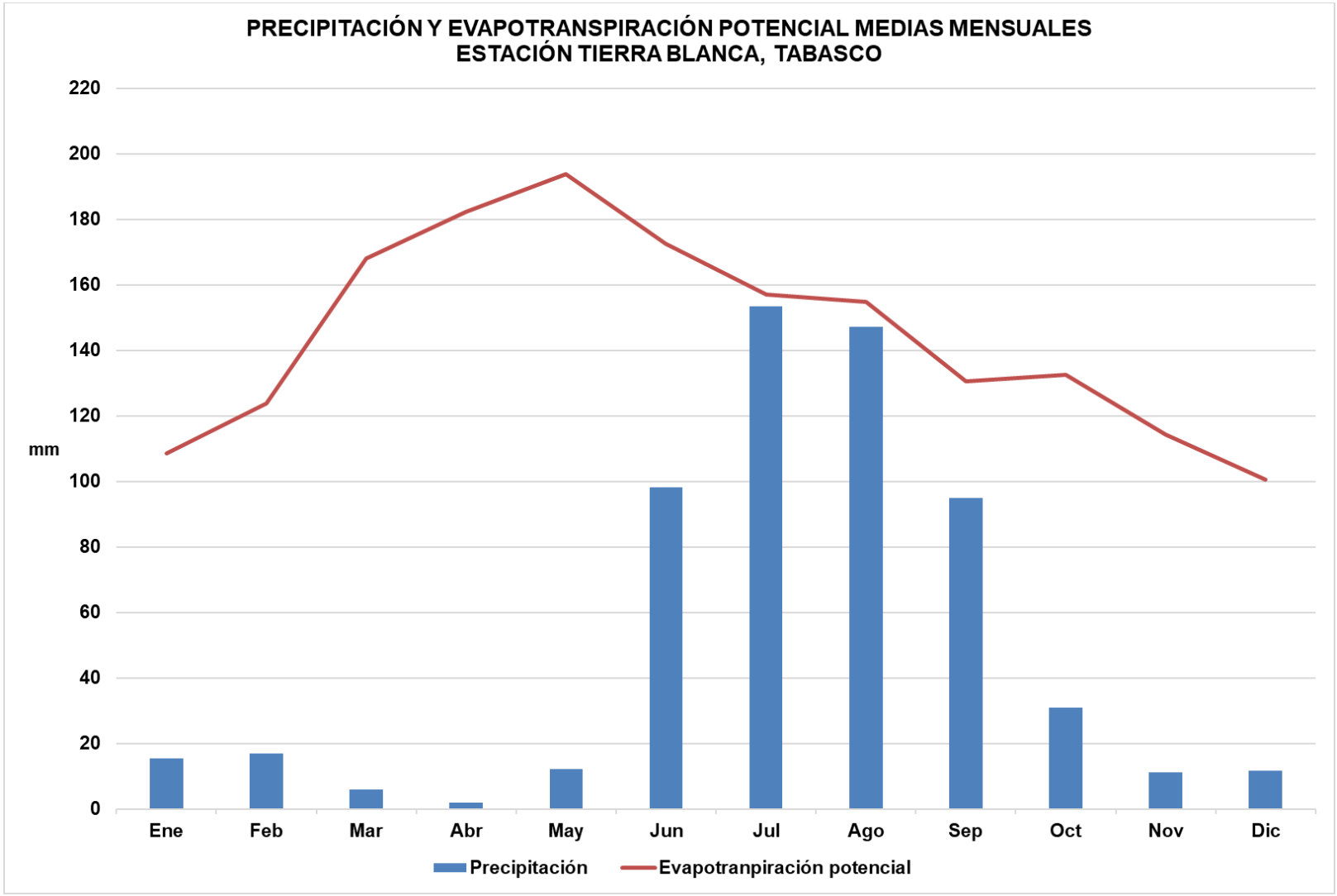


Figura 565. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Tierra Blanca, Tabasco (2002-2022).

7.34. Estación: U. A. Agronomía, Zacatecas

Cuadro 630. Temperatura máxima media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.5	9.1	11.3	14.7	17.2	17.8	16.2	16.3	15.1	13.2	9.7	7.5	13.0
01	6.8	8.4	10.3	13.6	16.2	17.0	15.6	15.8	14.7	12.6	9.0	6.8	12.2
02	6.2	7.7	9.5	12.6	15.3	16.3	15.1	15.3	14.2	12.0	8.3	6.3	11.6
03	5.7	7.0	8.7	11.7	14.4	15.7	14.6	14.7	13.8	11.4	7.8	5.7	10.9
04	5.2	6.5	8.0	11.0	13.6	15.0	14.1	14.2	13.5	10.9	7.2	5.1	10.4
05	4.8	6.0	7.4	10.3	12.8	14.5	13.8	13.8	13.1	10.4	6.8	4.7	9.9
06	4.5	5.7	7.0	9.7	12.1	14.0	13.4	13.4	12.9	10.0	6.4	4.4	9.5
07	4.6	6.2	9.1	10.5	12.9	14.4	13.6	13.5	12.9	10.3	8.1	4.9	10.1
08	8.4	10.5	13.7	14.5	16.7	16.8	15.6	15.5	14.7	13.1	12.6	9.5	13.5
09	11.9	13.8	16.5	17.7	19.4	18.9	17.6	17.6	16.8	16.2	15.5	13.0	16.3
10	14.3	16.1	18.8	20.1	21.7	20.8	19.2	19.4	18.6	18.5	17.7	15.4	18.4
11	16.1	17.9	20.5	22.1	23.7	22.6	20.7	21.0	20.1	20.2	19.3	17.1	20.1
12	17.4	19.3	21.9	23.7	25.3	24.1	22.0	22.2	21.3	21.5	20.4	18.4	21.5
13	18.4	20.4	22.9	24.9	26.5	25.2	23.0	23.2	22.1	22.5	21.2	19.2	22.4
14	19.0	21.0	23.5	25.7	27.3	25.9	23.6	23.9	22.7	23.0	21.6	19.7	23.1
15	19.2	21.3	23.7	26.2	27.7	26.2	23.8	24.2	22.8	23.3	21.6	19.9	23.3
16	18.9	21.1	23.6	26.2	27.7	26.2	23.8	24.1	22.8	23.2	21.2	19.5	23.2
17	18.1	20.5	22.9	25.9	27.4	25.9	23.5	23.9	22.2	22.6	20.2	18.6	22.7
18	16.3	19.1	21.7	25.1	26.7	25.2	22.8	23.2	21.3	21.3	17.5	16.0	21.3
19	13.3	16.1	19.1	23.7	25.4	24.1	21.7	21.9	19.8	19.0	14.6	12.9	19.3
20	11.6	14.0	16.6	21.2	23.4	22.4	20.1	20.0	17.8	16.6	13.3	11.5	17.4
21	10.4	12.6	15.1	18.9	21.0	20.7	18.6	18.5	16.8	15.5	12.2	10.2	15.9
22	9.3	11.3	13.8	17.4	19.5	19.5	17.7	17.7	16.2	14.7	11.2	9.2	14.8
23	8.3	10.2	12.5	16.1	18.4	18.6	17.0	17.0	15.6	13.8	10.3	8.3	13.8
Media	11.5	13.4	15.7	18.5	20.5	20.3	18.6	18.8	17.6	16.5	13.9	11.8	16.4

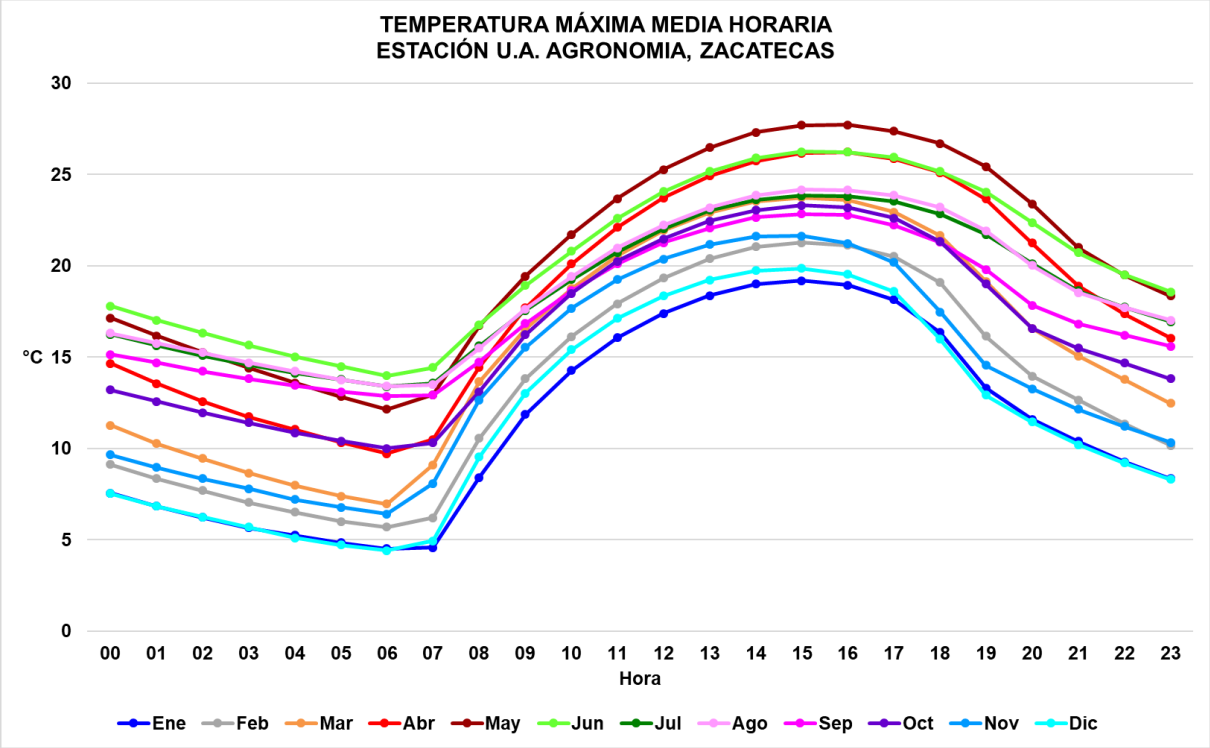


Figura 566. Temperatura máxima media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 631. Temperatura máxima maximorum (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.1	16.8	18.0	21.2	24.6	24.9	21.7	21.0	19.2	19.2	16.0	15.0	24.9
01	13.4	16.8	17.7	20.3	23.8	22.9	20.6	19.9	18.5	18.3	15.4	14.0	23.8
02	12.9	16.0	16.6	18.8	23.2	20.8	19.5	18.9	17.6	17.6	14.7	13.2	23.2
03	13.1	13.3	15.8	17.2	22.2	20.5	19.1	18.3	17.0	17.3	14.5	15.1	22.2
04	12.3	13.3	15.5	17.2	20.3	18.9	18.7	17.8	16.8	16.9	14.3	13.0	20.3
05	11.5	12.9	14.2	17.0	19.5	18.7	18.1	16.8	16.7	15.5	13.9	12.9	19.5
06	11.3	12.1	13.7	16.2	18.9	18.1	18.1	16.9	16.4	15.5	14.0	13.0	18.9
07	11.5	15.0	16.7	18.4	21.8	19.6	17.8	16.6	16.5	16.0	16.5	13.1	21.8
08	16.2	19.4	21.8	21.5	23.9	23.2	21.1	19.4	19.7	19.9	19.6	18.1	23.9
09	21.0	22.6	25.3	24.7	26.3	25.3	23.6	22.0	22.1	21.9	22.7	22.5	26.3
10	22.8	24.4	27.0	26.7	29.3	27.8	24.8	23.8	23.7	24.4	25.2	24.0	29.3
11	24.9	25.9	28.6	28.8	30.5	29.4	26.8	26.2	25.3	26.1	26.5	25.7	30.5
12	25.5	27.1	30.5	29.2	31.8	30.2	27.7	27.2	26.3	27.3	27.5	26.0	31.8
13	26.4	27.8	31.3	30.1	33.7	31.9	28.9	28.9	26.6	28.2	28.0	26.6	33.7
14	26.7	28.7	31.6	31.0	33.7	31.7	29.4	29.8	27.8	28.8	28.4	26.9	33.7
15	26.8	28.9	31.8	31.6	33.8	32.8	29.9	29.8	28.6	29.3	28.4	26.5	33.8
16	26.5	28.9	31.4	31.6	33.9	32.8	30.2	30.1	28.3	29.4	27.9	26.0	33.9
17	25.6	27.7	30.9	31.5	34.1	33.3	30.5	29.2	29.2	28.1	27.2	24.9	34.1
18	22.7	26.6	30.2	30.8	33.6	32.7	30.2	29.4	27.1	28.0	24.1	22.4	33.6
19	20.0	23.5	26.1	29.6	32.7	32.1	29.9	28.1	26.5	26.5	21.3	18.3	32.7
20	18.7	20.7	23.8	27.7	29.5	30.5	27.4	26.8	24.2	22.7	19.3	17.9	30.5
21	16.8	19.9	23.6	25.7	27.1	29.5	25.7	24.6	22.6	21.4	18.4	16.8	29.5
22	16.2	18.8	22.4	23.8	26.1	27.1	24.3	23.1	21.6	20.3	17.3	15.9	27.1
23	15.4	17.6	20.2	22.3	25.3	25.9	22.5	22.0	20.0	20.0	16.6	15.3	25.9
Máx.	26.8	28.9	31.8	31.6	34.1	33.3	30.5	30.1	29.2	29.4	28.4	26.9	34.1

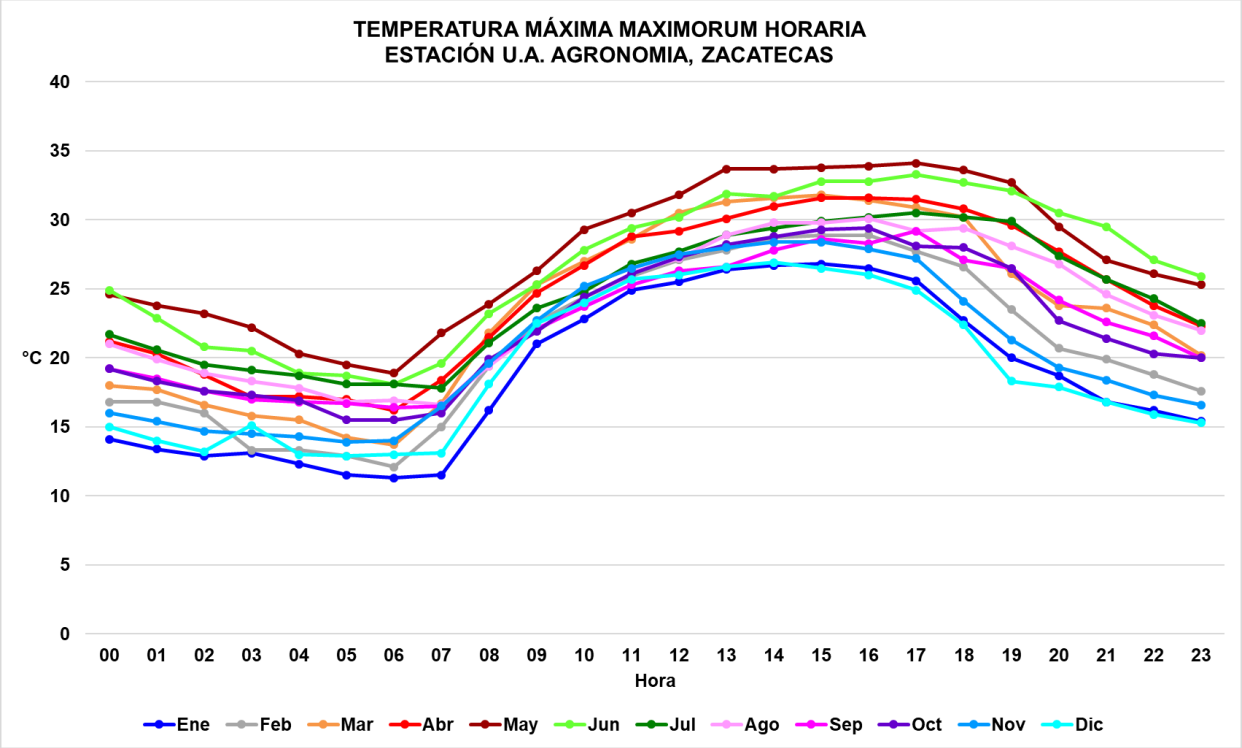


Figura 567. Temperatura máxima maximorum (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 632. Temperatura mínima media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	6.5	8.0	10.0	13.4	16.0	17.0	15.6	15.6	14.5	12.3	8.6	6.5	12.0
01	5.8	7.3	9.1	12.3	15.1	16.3	15.0	15.1	14.0	11.7	8.0	5.8	11.3
02	5.2	6.7	8.3	11.4	14.2	15.6	14.5	14.6	13.6	11.1	7.3	5.2	10.6
03	4.7	6.1	7.5	10.6	13.4	14.9	14.0	14.1	13.2	10.6	6.8	4.6	10.0
04	4.2	5.5	6.8	9.9	12.6	14.3	13.6	13.6	12.9	10.1	6.2	4.1	9.5
05	3.8	5.1	6.3	9.2	11.9	13.8	13.2	13.1	12.5	9.6	5.8	3.7	9.0
06	3.5	4.7	5.9	8.6	11.2	13.4	12.8	12.8	12.3	9.2	5.4	3.4	8.6
07	3.4	4.6	6.3	8.6	11.2	13.4	12.8	12.6	12.2	9.1	5.7	3.5	8.6
08	4.8	6.9	10.4	11.0	13.8	14.9	13.9	13.7	13.0	10.4	9.3	5.7	10.6
09	9.4	11.5	14.5	15.4	17.5	17.3	16.1	16.0	15.2	14.0	13.5	10.5	14.2
10	12.5	14.4	17.1	18.3	20.0	19.3	17.9	18.0	17.2	16.8	16.1	13.7	16.8
11	14.7	16.6	19.2	20.6	22.2	21.2	19.5	19.7	18.9	18.9	18.1	15.8	18.8
12	16.3	18.2	20.9	22.5	24.0	22.9	20.9	21.1	20.2	20.4	19.4	17.4	20.3
13	17.5	19.5	22.1	23.9	25.4	24.0	21.9	22.1	21.1	21.5	20.4	18.4	21.5
14	18.3	20.3	22.8	24.9	26.3	24.7	22.4	22.7	21.5	22.1	20.9	19.1	22.2
15	18.6	20.7	23.1	25.4	26.8	25.1	22.7	22.9	21.7	22.4	21.0	19.3	22.5
16	18.2	20.5	22.9	25.5	26.8	25.1	22.6	23.0	21.6	22.2	20.4	18.8	22.3
17	16.9	19.5	22.0	25.1	26.4	24.8	22.4	22.7	21.0	21.4	18.4	16.9	21.5
18	13.9	17.0	19.9	24.0	25.6	24.0	21.6	22.0	20.1	19.6	15.0	13.4	19.7
19	11.7	14.2	17.0	21.9	23.9	22.7	20.4	20.4	18.2	16.9	13.2	11.4	17.7
20	10.3	12.7	15.1	19.3	21.4	20.9	18.8	18.6	16.8	15.4	12.0	10.1	16.0
21	9.2	11.3	13.7	17.4	19.5	19.6	17.8	17.6	16.0	14.4	10.9	8.9	14.7
22	8.1	10.0	12.3	16.0	18.3	18.5	16.9	16.9	15.5	13.6	10.1	8.0	13.7
23	7.3	9.0	11.1	14.7	17.1	17.7	16.2	16.2	14.9	12.9	9.3	7.2	12.8
Media	10.2	12.1	14.3	17.1	19.2	19.2	17.6	17.7	16.6	15.3	12.6	10.5	15.2

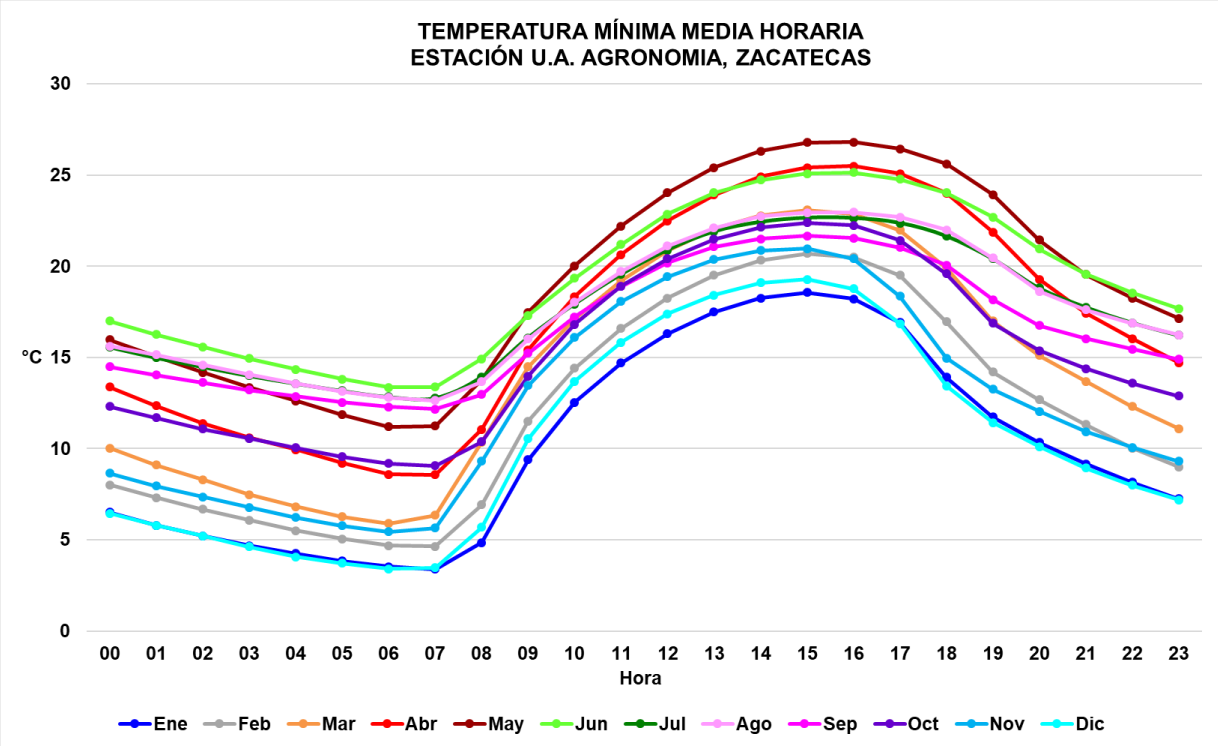


Figura 568. Temperatura mínima media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 633. Temperatura mínima minimorum (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-3.8	-1.7	0.8	5.6	8.7	11.4	11.4	11.7	6.8	2.5	-4.7	-5.8	-5.8
01	-4.4	-2.9	-2.2	4.3	6.6	11.1	10.8	11.6	5.8	1.6	-5.0	-7.7	-7.7
02	-4.5	-2.4	-1.7	3.2	5.5	10.2	10.5	11.2	5.5	1.7	-5.9	-7.9	-7.9
03	-5.2	-3.7	-2.5	2.2	5.6	8.4	10.3	9.9	5.2	-0.5	-8.0	-8.5	-8.5
04	-5.4	-4.1	-3.2	1.0	3.3	7.1	9.7	9.4	6.2	-0.7	-8.8	-8.9	-8.9
05	-7.7	-3.9	-5.0	0.0	2.4	6.3	8.7	9.0	4.9	-1.6	-9.2	-9.4	-9.4
06	-8.1	-4.5	-4.7	-1.1	2.3	5.7	8.5	7.8	3.9	-2.5	-9.6	-9.6	-9.6
07	-8.0	-4.9	-4.9	-1.4	1.9	5.6	8.3	7.4	3.5	-2.2	-9.4	-10.6	-10.6
08	-8.2	-3.2	-1.7	0.1	3.2	9.5	10.3	8.9	4.6	0.5	-4.2	-9.1	-9.1
09	-4.6	-0.2	1.3	5.3	8.4	12.8	12.2	12.3	10.2	5.8	-0.7	-2.4	-4.6
10	0.4	2.1	2.0	9.7	8.8	13.1	13.2	13.8	12.2	6.5	0.1	-1.7	-1.7
11	1.0	5.4	0.0	12.5	8.4	13.5	14.2	14.1	13.4	7.1	2.5	-2.9	-2.9
12	1.3	5.9	1.0	14.0	11.1	14.9	14.6	15.2	14.9	7.2	3.8	-3.2	-3.2
13	2.3	7.0	2.8	15.7	11.4	14.2	12.3	15.2	14.2	7.2	4.1	-3.1	-3.1
14	3.3	6.9	3.4	16.0	14.0	12.0	13.8	12.4	13.9	8.2	4.8	-2.7	-2.7
15	4.1	6.3	4.9	14.2	13.2	12.5	12.6	13.2	13.8	7.7	5.2	-2.6	-2.6
16	4.1	6.4	5.3	11.7	14.4	12.9	11.9	13.7	14.1	8.0	4.2	-2.3	-2.3
17	3.9	6.5	6.1	11.0	13.7	13.5	12.7	14.0	13.2	7.9	3.6	-2.2	-2.2
18	2.7	5.4	4.4	11.1	13.4	13.9	13.2	13.7	13.4	9.6	2.0	-3.3	-3.3
19	1.5	5.0	2.5	11.6	12.3	13.2	12.3	13.2	11.8	9.1	1.7	-3.6	-3.6
20	0.3	3.0	0.3	11.0	11.0	12.0	12.4	12.3	11.3	7.8	0.5	-3.8	-3.8
21	-0.7	1.3	0.2	10.1	10.4	10.8	12.1	12.7	10.0	6.0	-0.5	-3.9	-3.9
22	-3.2	-0.1	0.1	7.7	10.8	10.9	12.5	11.4	8.8	5.5	-1.3	-5.0	-5.0
23	-3.4	-0.5	0.6	6.6	10.3	12.3	12.1	10.5	7.5	5.3	-4.0	-5.7	-5.7
Mín.	-8.2	-4.9	-5.0	-1.4	1.9	5.6	8.3	7.4	3.5	-2.5	-9.6	-10.6	-10.6

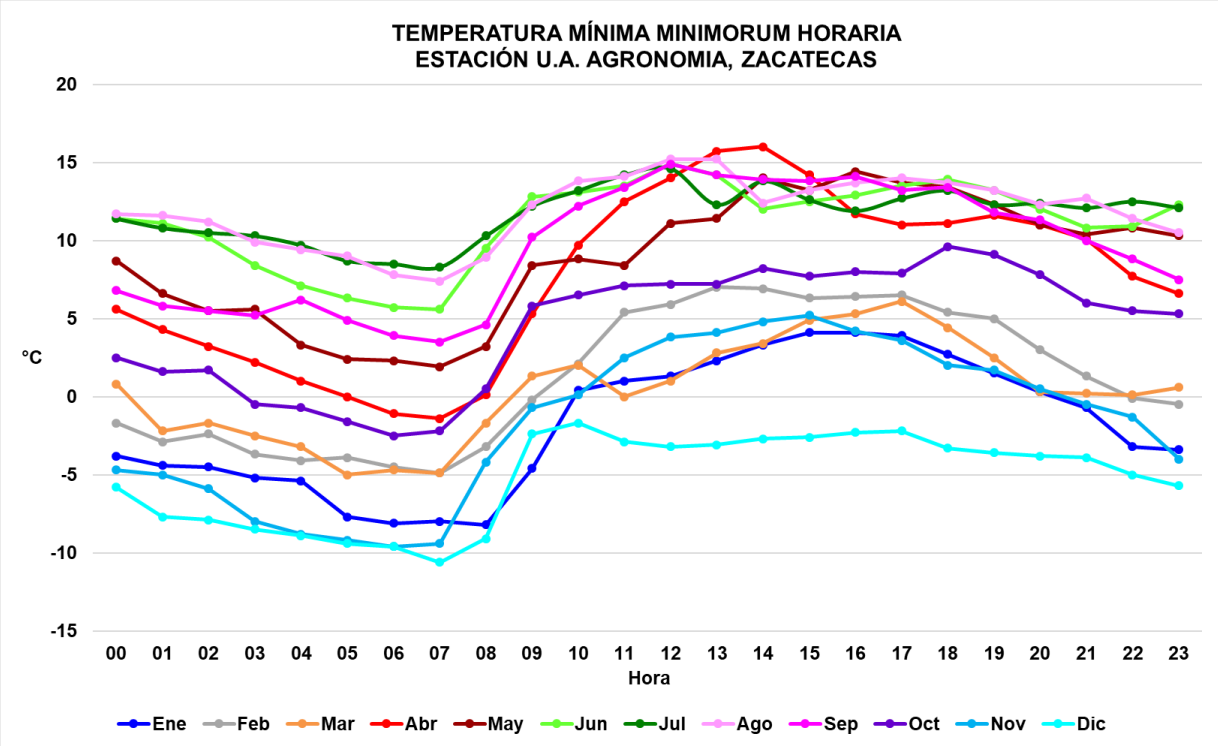


Figura 569. Temperatura mínima minimorum (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 634. Temperatura media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	8.6	10.6	14.0	16.6	17.4	15.9	16.0	14.8	12.8	9.2	7.0	12.5
01	6.3	7.8	9.7	12.9	15.6	16.6	15.3	15.5	14.4	12.1	8.5	6.3	11.8
02	5.7	7.2	8.9	12.0	14.7	15.9	14.8	14.9	13.9	11.5	7.8	5.7	11.1
03	5.2	6.6	8.1	11.2	13.9	15.3	14.3	14.4	13.5	11.0	7.3	5.2	10.5
04	4.7	6.0	7.4	10.5	13.1	14.7	13.9	13.9	13.2	10.5	6.7	4.6	9.9
05	4.3	5.5	6.8	9.8	12.3	14.2	13.5	13.5	12.8	10.0	6.3	4.2	9.4
06	4.0	5.2	6.4	9.1	11.7	13.7	13.1	13.1	12.6	9.6	5.9	3.9	9.0
07	3.9	5.3	7.6	9.5	12.0	13.8	13.1	13.0	12.5	9.6	6.7	4.1	9.3
08	6.6	8.8	12.1	12.7	15.3	15.9	14.8	14.6	13.8	11.7	11.1	7.6	12.1
09	10.7	12.7	15.5	16.6	18.5	18.1	16.8	16.8	16.0	15.1	14.5	11.8	15.3
10	13.4	15.3	18.0	19.2	20.9	20.1	18.6	18.7	17.9	17.7	16.9	14.6	17.6
11	15.4	17.3	19.9	21.4	22.9	21.9	20.1	20.4	19.5	19.6	18.7	16.5	19.5
12	16.9	18.8	21.4	23.1	24.7	23.5	21.5	21.7	20.7	20.9	19.9	17.9	20.9
13	17.9	19.9	22.5	24.4	25.9	24.6	22.5	22.7	21.6	22.0	20.8	18.8	22.0
14	18.6	20.7	23.2	25.3	26.8	25.3	23.0	23.3	22.1	22.6	21.3	19.4	22.6
15	18.9	21.0	23.4	25.8	27.2	25.7	23.2	23.6	22.3	22.9	21.3	19.6	22.9
16	18.6	20.8	23.2	25.9	27.3	25.7	23.2	23.6	22.2	22.7	20.8	19.2	22.8
17	17.6	20.0	22.5	25.5	26.9	25.4	23.0	23.3	21.6	22.0	19.3	17.8	22.1
18	15.1	18.1	20.8	24.6	26.2	24.6	22.3	22.6	20.7	20.5	16.1	14.7	20.5
19	12.5	15.1	18.0	22.8	24.7	23.4	21.1	21.2	19.0	17.9	13.9	12.2	18.5
20	11.0	13.3	15.8	20.2	22.4	21.7	19.5	19.3	17.3	16.0	12.7	10.8	16.7
21	9.8	12.0	14.4	18.2	20.3	20.1	18.2	18.1	16.4	14.9	11.5	9.6	15.3
22	8.7	10.7	13.0	16.7	18.9	19.0	17.3	17.3	15.8	14.1	10.6	8.6	14.2
23	7.8	9.6	11.8	15.4	17.8	18.1	16.6	16.6	15.2	13.4	9.8	7.8	13.3
Media	10.9	12.8	15.0	17.8	19.9	19.8	18.1	18.2	17.1	15.9	13.2	11.2	15.8

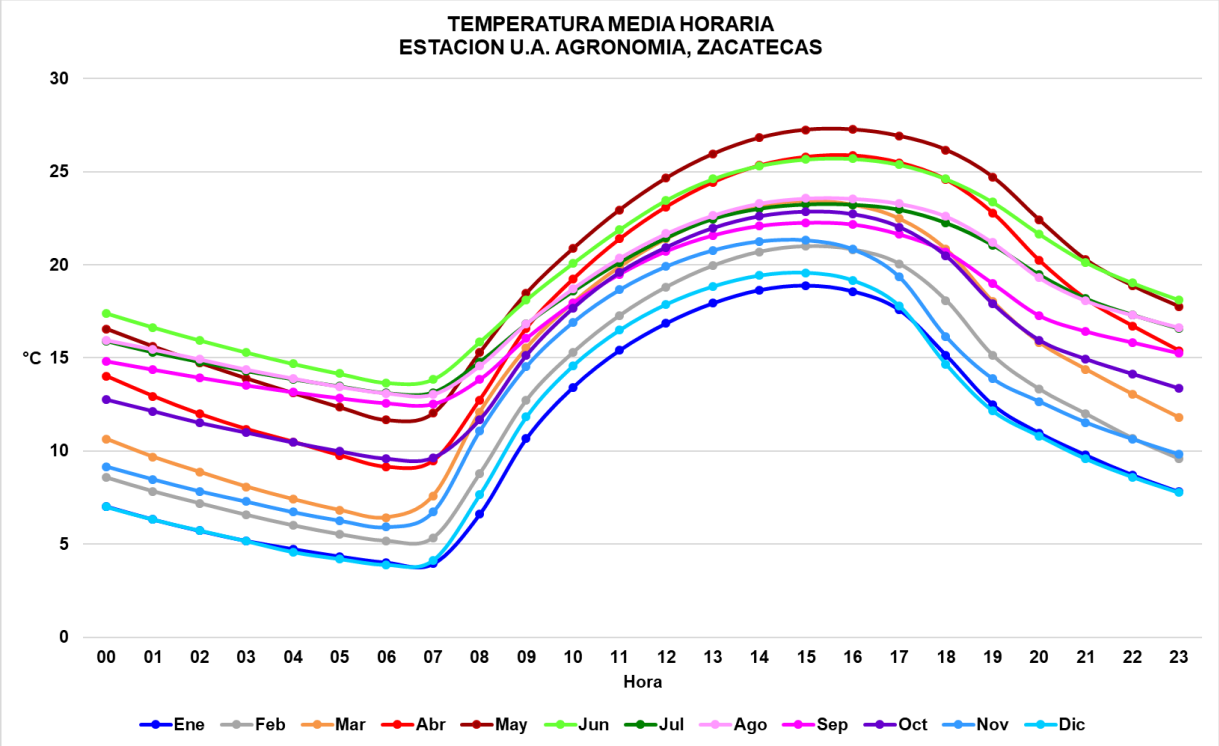


Figura 570. Temperatura media (˚C) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 635. Precipitación media (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.2	0.6	0.8	0.0	1.2	3.4	5.7	4.5	5.6	1.8	0.4	0.4	25.8
01	0.8	0.8	0.2	0.0	1.0	4.0	5.2	2.1	4.3	1.2	0.5	1.2	21.2
02	0.7	1.2	0.1	0.0	0.3	4.1	5.2	1.5	7.3	0.8	0.4	0.6	22.3
03	0.6	0.9	0.2	0.0	0.4	2.3	3.1	2.2	5.0	0.9	0.2	0.6	16.5
04	0.8	0.8	0.2	0.1	0.1	2.6	2.0	3.6	4.6	1.7	0.2	0.5	17.4
05	1.1	0.6	0.1	0.0	0.2	2.4	2.1	1.9	4.8	1.5	0.1	0.4	15.2
06	0.7	0.3	0.1	0.0	0.2	1.4	1.4	1.2	1.5	0.8	0.2	0.7	8.4
07	0.4	0.2	0.3	0.0	0.2	0.8	1.1	1.3	0.9	1.4	0.1	0.7	7.5
08	0.4	0.5	0.3	0.0	0.2	0.7	0.7	1.3	0.8	0.5	0.1	0.5	6.0
09	0.4	0.5	0.3	0.0	0.0	0.2	0.7	0.3	0.3	0.3	0.1	0.7	4.0
10	0.1	0.4	0.0	0.0	0.1	0.8	0.7	0.1	0.6	0.4	0.2	0.4	3.8
11	0.3	0.5	0.1	0.0	0.1	0.1	1.1	0.1	0.2	0.4	0.6	0.4	3.9
12	0.4	0.5	0.2	0.0	0.0	0.5	1.7	0.3	0.4	0.2	0.4	0.4	4.9
13	0.3	0.5	0.2	0.0	0.0	1.9	3.0	1.4	1.2	0.3	0.5	0.4	9.8
14	0.5	0.8	0.3	0.1	0.1	5.6	4.5	5.1	3.1	0.8	0.8	0.4	22.0
15	0.6	0.7	0.1	0.3	0.9	4.0	8.7	3.9	2.7	1.1	1.3	0.5	24.9
16	0.8	0.8	0.8	0.4	0.8	4.5	6.3	4.0	5.2	1.2	1.3	1.0	27.2
17	0.7	1.3	0.9	0.5	0.7	7.1	6.0	4.6	4.7	4.1	0.8	1.1	32.5
18	1.1	1.1	0.2	0.1	0.4	3.8	9.7	5.3	3.7	2.6	1.5	0.6	30.0
19	0.6	1.3	1.0	0.1	0.7	6.5	7.2	7.9	4.5	2.8	1.0	0.5	34.1
20	1.3	1.0	1.1	0.3	0.8	3.8	9.4	6.9	5.1	3.5	0.8	0.4	34.4
21	0.8	0.9	0.3	0.3	1.0	4.9	7.3	4.9	5.7	1.0	0.6	0.3	28.0
22	0.8	0.9	1.2	0.3	1.6	3.9	6.9	6.6	5.6	1.8	0.7	0.5	30.9
23	1.1	0.7	1.0	0.1	0.8	6.8	4.8	9.2	5.5	1.6	0.6	0.8	33.0
Suma	16.6	18.0	10.1	2.9	12.0	76.1	104.8	80.2	83.0	32.7	13.3	14.0	463.6

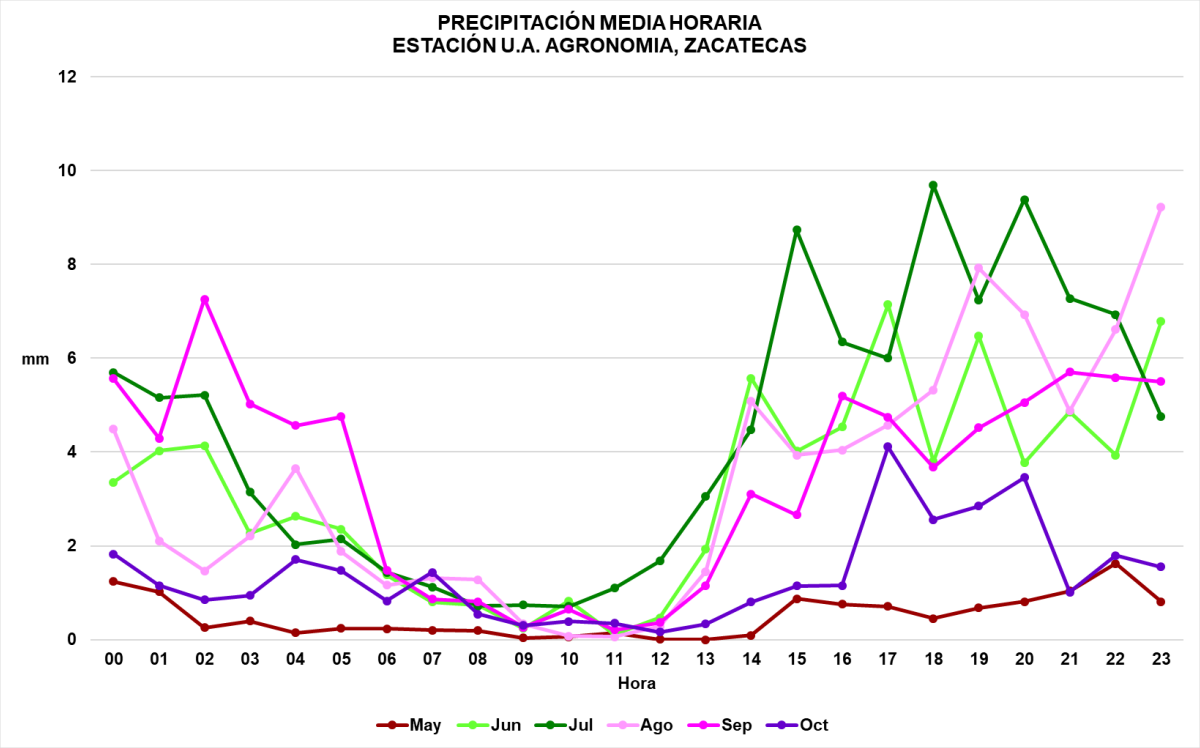


Figura 571. Precipitación media (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 636. Precipitación máxima (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	3.0	5.2	1.0	3.6	7.8	32.4	10.2	23.2	12.6	2.2	2.8	32.4
01	4.8	7.0	1.2	0.0	11.0	32.0	17.4	4.6	12.4	6.6	5.6	5.6	32.0
02	3.0	7.8	1.2	0.2	3.2	22.4	33.0	4.2	33.2	4.4	1.8	3.4	33.2
03	2.6	5.4	1.6	0.0	4.0	7.8	5.0	7.2	8.8	5.6	0.6	4.2	8.8
04	5.4	4.4	2.2	3.0	1.6	9.6	6.2	22.4	11.6	5.6	1.4	3.4	22.4
05	5.0	3.4	2.0	0.2	4.2	6.4	13.4	7.2	24.6	14.0	0.4	2.4	24.6
06	3.0	1.2	0.6	0.0	3.2	4.2	6.2	5.2	3.8	2.6	0.8	4.4	6.2
07	2.0	1.0	3.2	0.0	2.4	3.8	4.8	12.4	2.0	7.4	0.6	4.2	12.4
08	1.6	4.0	3.0	0.0	1.6	5.6	3.4	7.0	2.8	3.2	0.6	2.6	7.0
09	2.6	2.8	3.4	0.2	0.6	2.8	5.4	1.6	0.8	2.6	1.2	6.0	6.0
10	0.8	2.6	0.2	0.0	1.0	12.0	5.4	0.6	6.2	5.8	2.0	2.8	12.0
11	2.8	2.0	1.4	0.8	3.0	0.8	13.8	0.4	1.6	4.6	4.8	1.8	13.8
12	3.8	3.4	2.2	0.0	0.2	4.6	13.4	2.6	5.0	3.0	3.8	2.0	13.4
13	3.8	5.6	2.4	0.0	0.0	23.8	18.2	10.6	6.8	3.0	4.6	3.2	23.8
14	3.0	4.4	3.2	1.6	1.2	40.0	13.4	16.2	17.4	8.4	3.2	2.0	40.0
15	5.0	3.6	1.8	5.0	5.2	23.4	20.6	15.0	7.2	7.8	7.2	2.0	23.4
16	7.6	3.4	10.6	5.4	6.0	17.2	16.8	14.2	18.6	5.6	5.2	6.8	18.6
17	6.4	4.4	15.0	5.4	6.6	23.4	18.2	18.2	11.0	25.0	4.0	7.2	25.0
18	11.2	4.4	1.8	1.4	2.4	14.4	60.0	14.8	17.6	12.8	6.0	3.8	60.0
19	5.6	4.0	9.2	1.2	3.2	25.4	20.8	13.6	23.6	21.0	7.6	2.0	25.4
20	7.4	5.0	12.6	3.8	5.8	7.0	33.6	19.0	20.0	20.8	4.6	2.8	33.6
21	4.4	5.2	2.0	4.6	5.8	18.6	14.4	15.4	46.2	4.0	3.6	1.2	46.2
22	6.0	4.0	12.2	4.6	19.0	14.4	17.4	23.2	13.2	6.6	6.8	4.8	23.2
23	4.4	3.8	9.4	1.0	4.0	32.0	16.2	30.4	17.6	9.6	6.8	4.8	32.0
Máx.	11.2	7.8	15.0	5.4	19.0	40.0	60.0	30.4	46.2	25.0	7.6	7.2	60.0

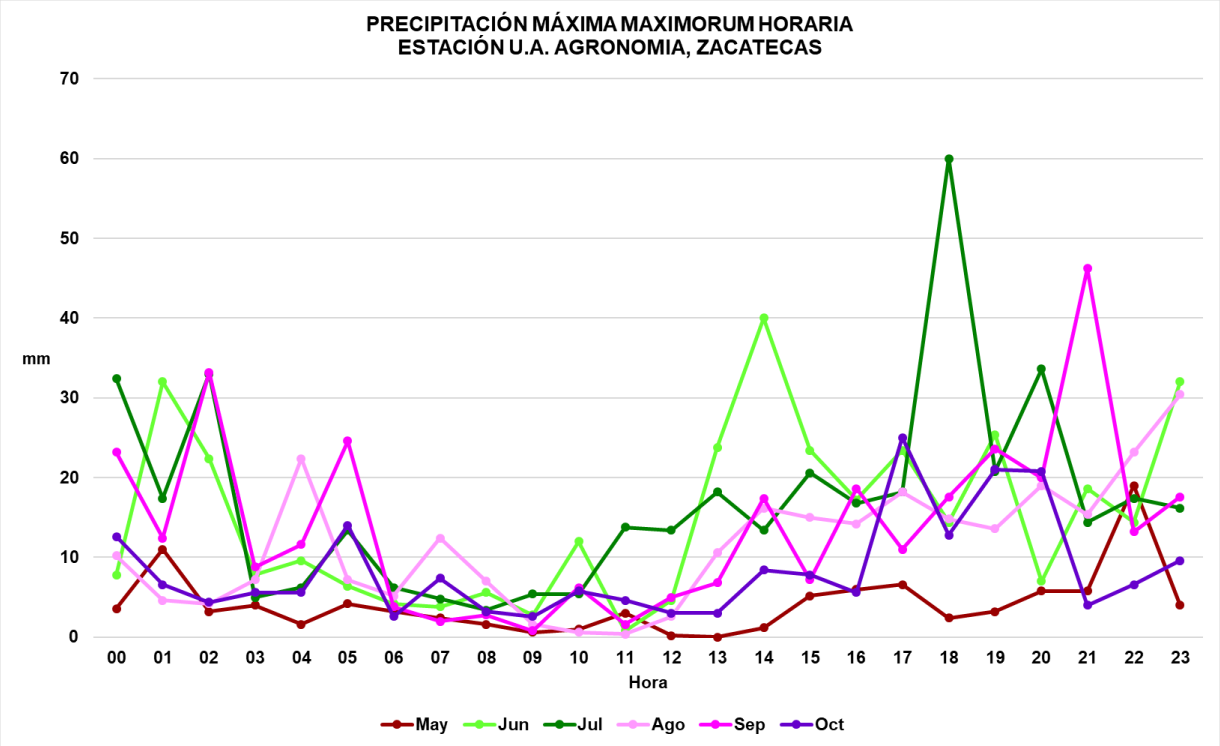


Figura 572. Precipitación máxima (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 637. Evapotranspiración potencial media (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.01	0.02	0.03	0.03	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.02
01	0.00	0.01	0.02	0.02	0.02	0.03	0.02	0.02	0.00	0.01	0.00	0.00	0.01
02	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.01
03	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
04	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
05	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
08	0.02	0.05	0.09	0.06	0.07	0.06	0.04	0.03	0.02	0.02	0.06	0.03	0.05
09	0.11	0.16	0.24	0.19	0.20	0.17	0.14	0.13	0.11	0.12	0.18	0.13	0.16
10	0.23	0.30	0.39	0.35	0.37	0.31	0.26	0.27	0.24	0.26	0.31	0.25	0.29
11	0.34	0.42	0.52	0.50	0.52	0.45	0.39	0.41	0.37	0.39	0.42	0.35	0.42
12	0.42	0.51	0.61	0.62	0.64	0.56	0.49	0.51	0.47	0.49	0.48	0.43	0.52
13	0.47	0.56	0.65	0.70	0.71	0.62	0.56	0.57	0.52	0.55	0.50	0.46	0.57
14	0.47	0.56	0.65	0.73	0.72	0.63	0.57	0.58	0.52	0.55	0.47	0.45	0.57
15	0.43	0.51	0.59	0.69	0.69	0.60	0.53	0.56	0.48	0.50	0.41	0.40	0.53
16	0.35	0.42	0.49	0.62	0.61	0.53	0.47	0.49	0.41	0.42	0.31	0.31	0.45
17	0.24	0.30	0.36	0.51	0.49	0.44	0.39	0.41	0.32	0.31	0.18	0.19	0.35
18	0.13	0.16	0.21	0.38	0.37	0.33	0.29	0.29	0.22	0.21	0.10	0.11	0.23
19	0.07	0.10	0.14	0.31	0.27	0.20	0.17	0.21	0.14	0.11	0.04	0.04	0.15
20	0.03	0.05	0.07	0.17	0.18	0.15	0.12	0.11	0.05	0.03	0.02	0.02	0.08
21	0.02	0.03	0.04	0.09	0.10	0.08	0.05	0.05	0.02	0.02	0.02	0.01	0.04
22	0.01	0.02	0.03	0.05	0.06	0.06	0.03	0.03	0.01	0.02	0.01	0.01	0.03
23	0.01	0.02	0.03	0.04	0.04	0.05	0.03	0.03	0.01	0.01	0.01	0.01	0.02
Media/día /mes	3.39	4.23	5.21	6.15	6.17	5.38	4.60	4.74	3.92	4.04	3.52	3.23	4.55

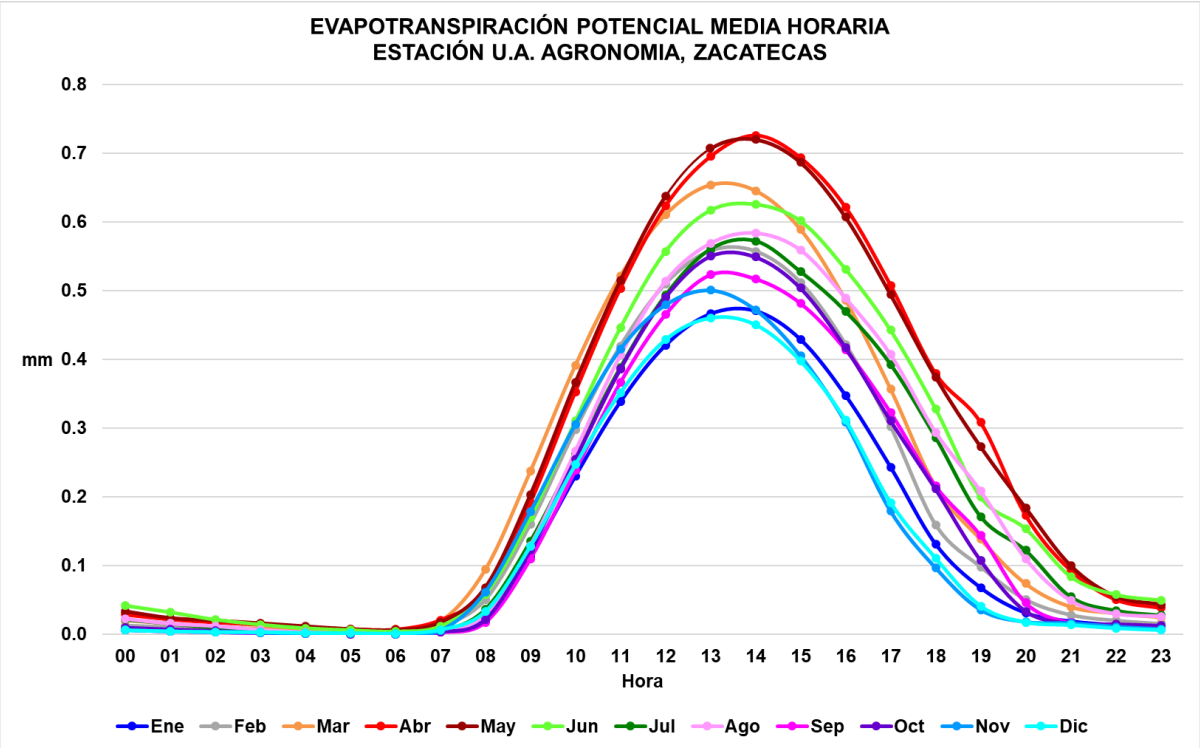


Figura 573. Evapotranspiración potencial media (mm) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 638. Humedad relativa media (%) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	59.4	52.2	41.5	35.0	42.5	63.5	77.6	77.5	84.3	75.4	68.3	61.0	61.5
01	62.0	55.1	44.5	38.2	46.1	67.2	80.5	79.9	86.1	78.0	71.4	63.8	64.4
02	64.6	57.8	47.2	41.1	49.4	70.4	82.6	82.3	87.7	80.6	73.8	66.2	67.0
03	66.8	60.3	50.0	43.9	52.8	73.0	84.6	84.5	89.3	82.6	76.1	68.6	69.4
04	68.7	62.8	52.5	46.6	56.1	75.5	86.2	86.3	90.5	84.5	78.2	70.8	71.6
05	70.4	64.8	54.9	49.6	58.8	77.6	87.5	88.0	91.5	86.1	80.2	72.5	73.5
06	71.9	66.5	56.9	51.9	61.4	79.5	88.7	89.3	92.2	87.3	81.8	73.9	75.1
07	72.7	66.6	55.3	51.9	61.1	79.4	88.8	89.6	92.3	87.4	80.0	73.7	74.9
08	66.3	58.4	45.8	45.6	53.5	73.4	83.4	84.9	88.6	81.5	67.6	64.6	67.8
09	55.4	47.4	37.1	36.3	44.3	64.9	75.2	75.9	80.3	69.9	55.8	53.3	58.0
10	46.2	39.3	30.3	29.0	36.0	56.7	67.3	67.4	72.0	60.0	46.6	44.4	49.6
11	39.0	33.0	25.2	23.4	29.2	49.1	60.4	60.3	65.0	51.8	39.9	37.5	42.8
12	33.9	28.7	21.7	19.5	24.3	42.9	54.7	54.5	59.7	46.1	35.2	32.7	37.8
13	30.3	25.6	19.2	17.1	21.0	38.4	50.5	50.3	56.1	41.8	32.1	29.4	34.3
14	28.0	23.6	17.8	15.6	19.0	35.7	48.2	47.7	53.8	39.2	30.3	27.3	32.2
15	27.0	22.6	17.1	14.9	18.2	34.4	47.2	46.5	53.0	38.1	29.7	26.5	31.3
16	27.4	22.7	17.2	14.6	18.1	34.2	47.2	46.3	53.4	38.3	30.5	26.9	31.4
17	29.2	23.8	17.8	15.0	18.7	34.9	47.9	47.1	55.4	40.1	33.9	29.5	32.8
18	34.2	27.1	19.7	15.8	19.7	37.1	50.4	49.2	58.8	44.9	41.8	35.8	36.2
19	40.4	32.3	23.7	17.6	22.3	41.0	54.9	54.2	65.6	53.3	48.3	42.0	41.3
20	45.1	36.6	27.6	20.8	26.5	46.1	61.1	61.5	72.8	60.2	53.2	46.6	46.5
21	49.2	40.6	31.0	24.4	31.3	51.5	66.5	67.1	76.4	64.4	57.8	51.1	50.9
22	53.1	44.6	34.7	27.8	35.2	56.1	70.5	71.1	79.1	68.1	61.6	54.8	54.7
23	56.5	48.3	38.2	31.4	38.9	60.7	74.0	74.4	81.8	71.9	65.0	58.0	58.3
Media	49.9	43.4	34.5	30.3	36.9	56.0	68.2	68.2	74.4	63.8	55.8	50.5	52.6

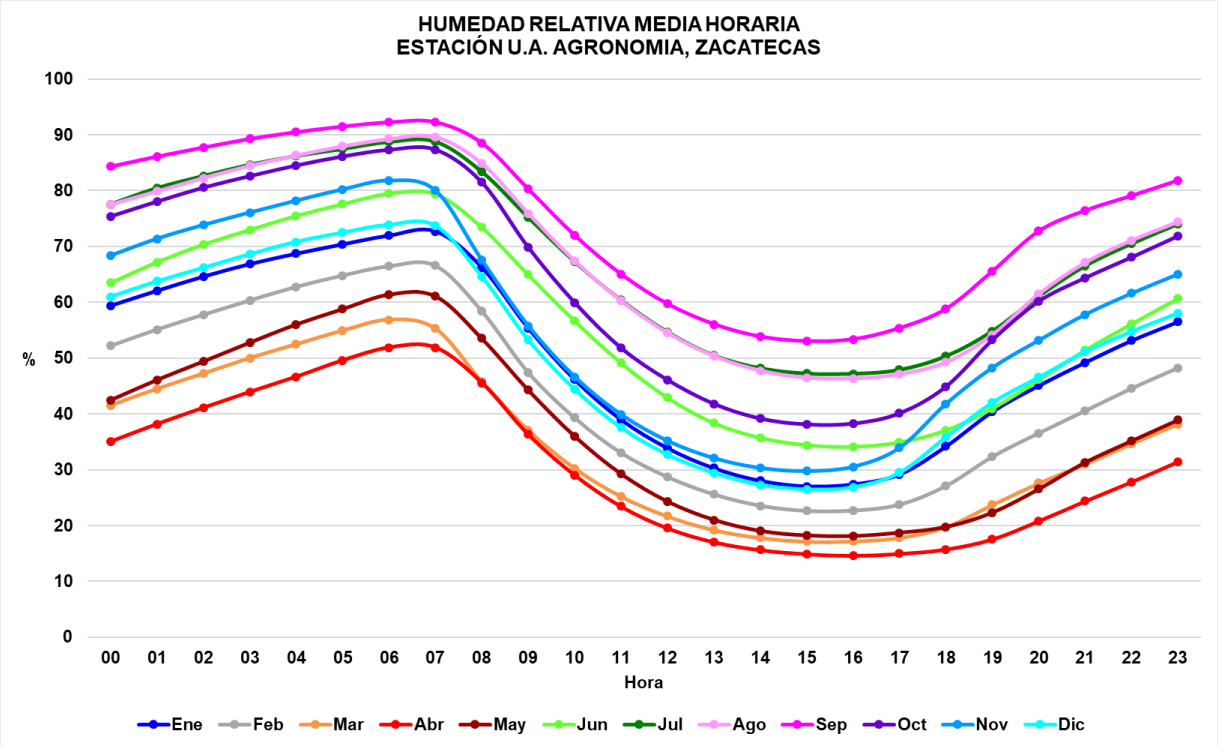


Figura 574. Humedad relativa media (%) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 639. Humedad relativa mínima minimorum (%) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	14.0	12.0	9.0	11.0	11.0	12.0	28.0	38.0	39.0	25.0	11.0	11.0	9.0
01	15.0	12.0	11.0	12.0	11.0	14.0	32.0	34.7	44.0	30.5	11.0	10.0	10.0
02	15.0	13.0	12.0	12.0	12.0	15.0	30.0	36.8	49.0	34.0	21.0	10.0	10.0
03	17.0	15.0	13.0	13.0	12.0	17.0	31.0	38.0	56.0	31.0	20.0	12.0	12.0
04	16.0	17.0	12.0	14.0	13.0	21.0	31.0	35.0	57.2	31.0	24.0	16.0	12.0
05	18.0	16.0	11.0	13.0	15.0	23.0	34.0	35.0	50.0	30.0	26.0	19.0	11.0
06	21.0	19.0	13.0	15.0	17.0	27.0	36.0	43.0	47.0	31.0	27.0	18.0	13.0
07	18.0	18.0	12.0	16.0	16.0	27.0	36.0	43.0	53.0	29.0	26.0	20.0	12.0
08	13.2	13.8	9.0	11.0	12.0	22.0	31.0	39.0	42.0	24.0	15.0	12.0	9.0
09	5.0	11.0	7.3	10.0	10.0	14.0	23.0	33.0	29.0	20.0	9.0	8.0	5.0
10	4.0	7.6	6.6	7.0	8.0	11.0	19.0	29.0	28.0	17.0	6.0	6.0	4.0
11	4.0	7.2	5.2	6.0	7.0	9.0	19.0	23.0	25.0	12.1	6.0	5.0	4.0
12	3.0	7.0	5.0	6.0	6.0	7.0	18.0	21.0	21.0	10.0	5.0	5.0	3.0
13	3.0	7.0	4.6	5.0	6.0	7.0	15.0	19.0	21.2	9.7	4.0	5.0	3.0
14	4.0	6.0	4.0	4.0	5.0	6.0	13.0	19.0	20.0	7.5	5.0	5.0	4.0
15	5.0	6.0	4.0	4.0	5.2	5.0	13.0	19.0	17.0	7.7	4.0	4.0	4.0
16	4.0	6.0	4.0	4.0	5.0	5.0	12.0	17.0	16.0	8.3	5.0	4.0	4.0
17	5.0	6.0	4.0	4.0	5.3	5.0	12.0	17.0	17.6	9.6	5.0	5.0	4.0
18	5.0	7.0	5.0	4.0	5.5	4.0	13.0	15.0	18.0	10.0	6.0	6.0	4.0
19	6.0	8.0	6.0	5.0	5.0	5.0	13.0	16.0	19.0	12.0	9.0	6.0	5.0
20	8.0	9.0	7.0	6.0	6.0	6.0	13.0	20.0	21.0	14.0	10.0	9.0	6.0
21	9.0	12.0	7.0	7.0	8.0	8.0	19.0	24.0	22.0	14.0	12.0	13.0	7.0
22	11.0	12.0	6.0	9.0	8.0	9.0	22.0	25.0	31.0	23.0	12.0	12.0	6.0
23	12.0	12.0	6.0	9.8	9.0	11.0	26.0	29.0	37.0	23.0	12.0	11.0	6.0
Mín.	3.0	6.0	4.0	4.0	5.0	4.0	12.0	15.0	16.0	7.5	4.0	4.0	3.0

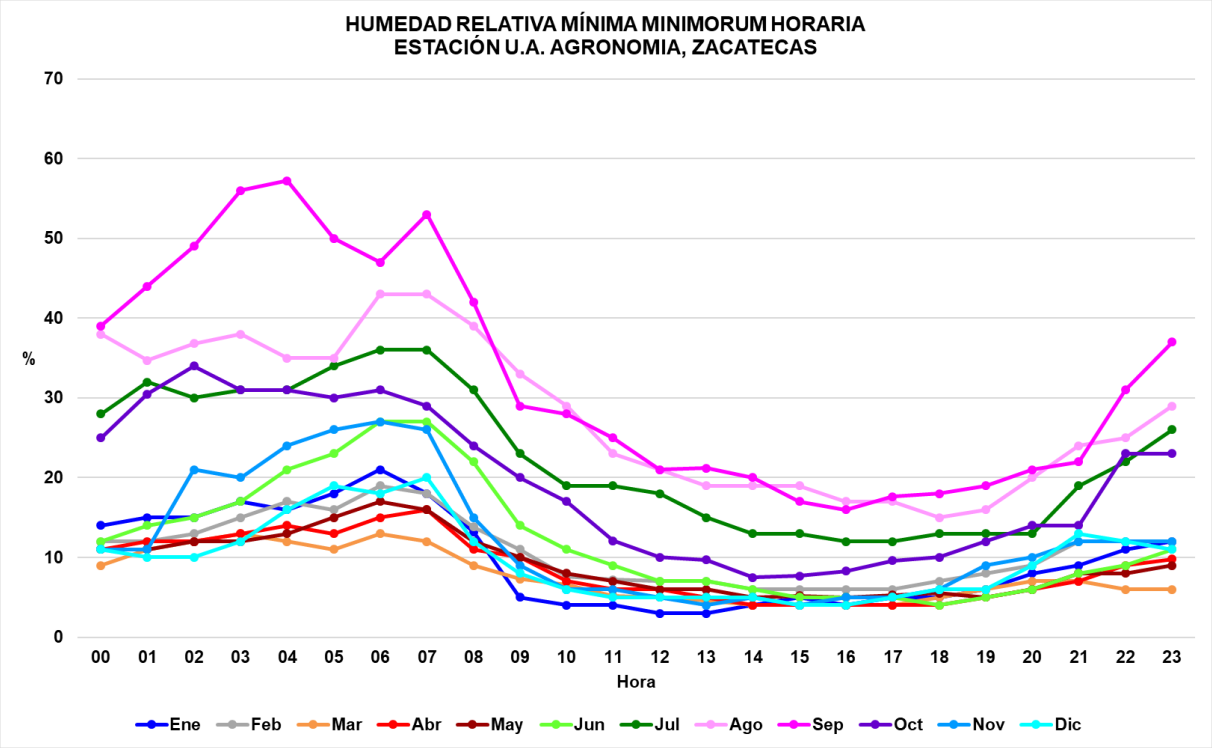


Figura 575. Humedad relativa mínima minimorum (%) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 640. Radiación solar global media horaria (W/m2) de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	15	6	9	8	4	2	0	2	6	1	5
07	56	119	302	178	199	173	122	87	60	81	232	96	142
08	553	745	1109	810	856	736	618	553	473	532	950	642	715
09	1325	1609	2015	1701	1703	1493	1331	1320	1214	1313	1735	1397	1513
10	2025	2373	2811	2549	2583	2290	2118	2132	1998	2103	2399	2072	2288
11	2551	2933	3373	3234	3202	2851	2671	2767	2591	2714	2818	2535	2853
12	2820	3239	3646	3676	3645	3329	3090	3097	2949	3041	2977	2719	3186
13	2804	3244	3611	3813	3777	3356	3194	3165	2958	3109	2826	2650	3209
14	2524	2975	3270	3637	3535	3174	2953	3027	2776	2848	2426	2350	2958
15	2003	2449	2695	3207	3107	2751	2592	2649	2395	2388	1856	1817	2492
16	1320	1715	1945	2566	2490	2270	2168	2179	1919	1798	1127	1118	1885
17	598	911	1105	1805	1786	1669	1602	1625	1299	1083	394	403	1190
18	79	209	334	1006	1062	1022	992	966	669	426	18	20	567
19	0	2	9	317	409	436	423	353	152	45	0	0	179
20	0	0	0	18	42	63	66	27	2	0	0	0	18
21	0	0	0	0	1	1	2	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18658	22524	26239	28523	28408	25621	23946	23949	21455	21483	19764	17821	23199

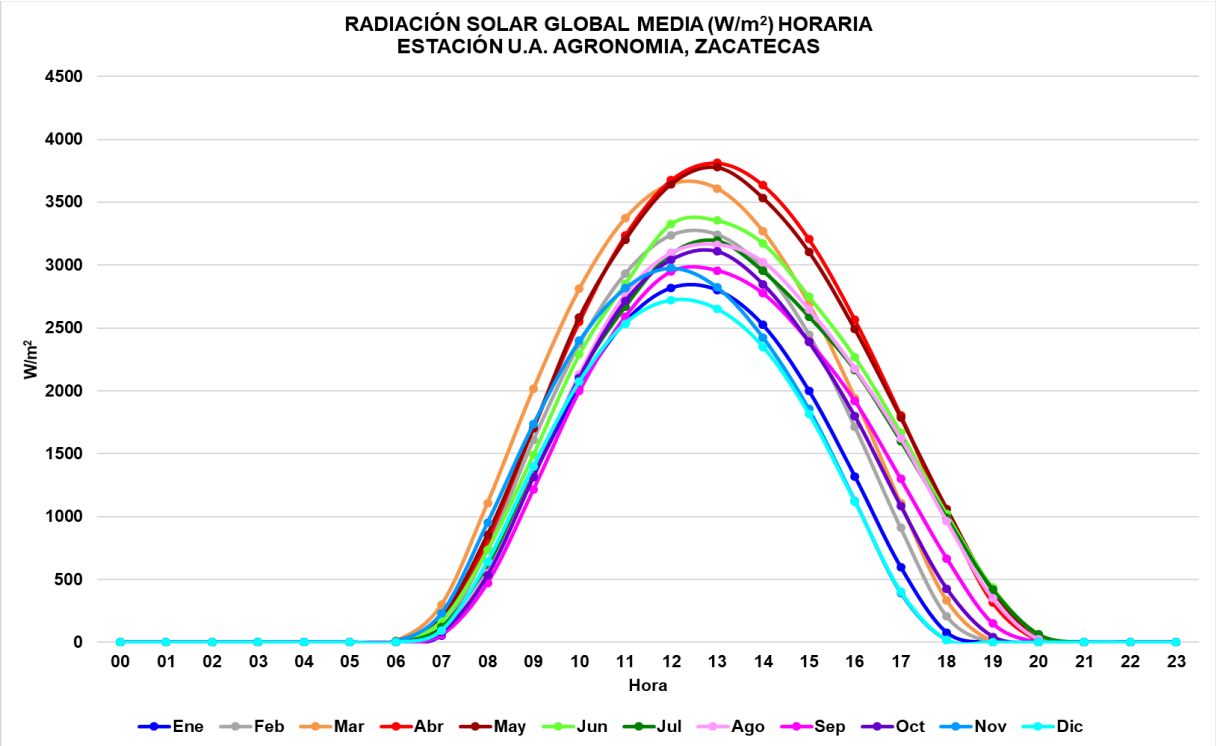


Figura 576. Radiación solar global media horaria (W/m2) de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 641. Radiación solar global media horaria (kWh/m2) de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.08	0.04	0.05	0.04	0.03	0.02	0.02	0.02	0.06	0.02	0.04
08	0.14	0.19	0.28	0.20	0.21	0.18	0.15	0.14	0.12	0.13	0.24	0.16	0.18
09	0.33	0.40	0.50	0.43	0.43	0.37	0.33	0.33	0.30	0.33	0.43	0.35	0.38
10	0.51	0.59	0.70	0.64	0.65	0.57	0.53	0.53	0.50	0.53	0.60	0.52	0.57
11	0.64	0.73	0.84	0.81	0.80	0.71	0.67	0.69	0.65	0.68	0.70	0.63	0.71
12	0.70	0.81	0.91	0.92	0.91	0.83	0.77	0.77	0.74	0.76	0.74	0.68	0.80
13	0.70	0.81	0.90	0.95	0.94	0.84	0.80	0.79	0.74	0.78	0.71	0.66	0.80
14	0.63	0.74	0.82	0.91	0.88	0.79	0.74	0.76	0.69	0.71	0.61	0.59	0.74
15	0.50	0.61	0.67	0.80	0.78	0.69	0.65	0.66	0.60	0.60	0.46	0.45	0.62
16	0.33	0.43	0.49	0.64	0.62	0.57	0.54	0.54	0.48	0.45	0.28	0.28	0.47
17	0.15	0.23	0.28	0.45	0.45	0.42	0.40	0.41	0.32	0.27	0.10	0.10	0.30
18	0.02	0.05	0.08	0.25	0.27	0.26	0.25	0.24	0.17	0.11	0.00	0.01	0.14
19	0.00	0.00	0.00	0.08	0.10	0.11	0.11	0.09	0.04	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.66	5.63	6.56	7.13	7.10	6.41	5.99	5.99	5.36	5.37	4.94	4.46	5.80

Cuadro 642. Radiación solar global media horaria (Mj/m2/s) de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.11	0.27	0.16	0.18	0.16	0.11	0.08	0.05	0.07	0.21	0.09	0.13
08	0.50	0.67	1.00	0.73	0.77	0.66	0.56	0.50	0.43	0.48	0.86	0.58	0.64
09	1.19	1.45	1.81	1.53	1.53	1.34	1.20	1.19	1.09	1.18	1.56	1.26	1.36
10	1.82	2.14	2.53	2.29	2.32	2.06	1.91	1.92	1.80	1.89	2.16	1.86	2.06
11	2.30	2.64	3.04	2.91	2.88	2.57	2.40	2.49	2.33	2.44	2.54	2.28	2.57
12	2.54	2.92	3.28	3.31	3.28	3.00	2.78	2.79	2.65	2.74	2.68	2.45	2.87
13	2.52	2.92	3.25	3.43	3.40	3.02	2.87	2.85	2.66	2.80	2.54	2.39	2.89
14	2.27	2.68	2.94	3.27	3.18	2.86	2.66	2.72	2.50	2.56	2.18	2.11	2.66
15	1.80	2.20	2.43	2.89	2.80	2.48	2.33	2.38	2.16	2.15	1.67	1.64	2.24
16	1.19	1.54	1.75	2.31	2.24	2.04	1.95	1.96	1.73	1.62	1.01	1.01	1.70
17	0.54	0.82	0.99	1.62	1.61	1.50	1.44	1.46	1.17	0.97	0.35	0.36	1.07
18	0.07	0.19	0.30	0.91	0.96	0.92	0.89	0.87	0.60	0.38	0.02	0.02	0.51
19	0.00	0.00	0.01	0.29	0.37	0.39	0.38	0.32	0.14	0.04	0.00	0.00	0.16
20	0.00	0.00	0.00	0.02	0.04	0.06	0.06	0.02	0.00	0.00	0.00	0.00	0.02
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.79	20.27	23.62	25.67	25.57	23.06	21.55	21.55	19.31	19.34	17.79	16.04	20.88

Cuadro 643. Velocidad del viento media (km/h) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	5.0	5.4	5.7	5.8	6.9	9.9	8.1	7.4	5.5	5.6	5.0	4.8	6.3
01	4.8	5.4	5.1	5.3	6.2	8.7	7.4	6.9	5.3	5.2	4.7	4.7	5.8
02	4.7	5.0	4.8	4.9	5.8	7.7	6.4	6.1	4.8	4.6	4.4	4.5	5.3
03	4.7	4.9	4.6	4.6	5.4	6.6	5.5	5.0	4.2	4.2	4.0	4.2	4.8
04	4.4	4.9	4.4	4.4	4.9	5.6	4.7	4.3	3.9	3.9	3.8	4.0	4.4
05	4.2	4.7	4.3	4.0	4.6	5.1	4.2	3.7	3.6	3.7	3.6	4.0	4.1
06	4.2	4.6	4.3	3.7	4.0	4.7	3.8	3.5	3.4	3.5	3.4	4.0	3.9
07	4.1	4.6	4.2	3.5	3.8	4.4	3.8	3.4	3.3	3.3	3.5	3.9	3.8
08	4.7	5.4	6.1	4.5	4.9	5.9	4.7	4.3	4.1	3.9	5.1	4.5	4.8
09	7.8	9.0	9.6	8.1	7.7	7.9	6.6	6.6	6.4	6.1	8.1	7.6	7.6
10	11.0	12.2	12.0	10.7	9.2	8.3	7.5	8.0	8.1	8.2	10.1	10.6	9.7
11	12.9	14.2	13.5	12.4	10.1	8.6	7.9	8.2	8.8	9.3	11.3	12.7	10.8
12	14.1	15.4	14.7	13.9	10.9	9.3	8.3	8.6	9.1	10.2	11.9	13.6	11.7
13	14.7	16.2	15.8	15.1	11.9	10.4	9.0	9.2	9.4	10.4	11.9	14.1	12.4
14	15.0	16.6	16.5	16.1	12.6	11.5	10.0	10.1	9.7	10.4	11.9	14.3	12.9
15	15.1	16.7	16.7	16.5	13.2	11.8	10.6	10.6	9.8	10.5	11.8	14.1	13.1
16	14.7	16.2	16.5	16.7	13.5	12.1	11.0	10.6	9.7	10.4	11.4	13.3	13.0
17	13.2	15.1	15.9	16.7	13.5	12.4	11.2	10.7	9.4	9.8	9.6	11.2	12.4
18	9.5	12.2	13.8	16.1	13.2	12.2	11.0	10.2	8.4	8.1	6.3	6.9	10.7
19	7.3	8.2	9.9	14.0	12.5	12.0	10.6	9.4	6.5	6.2	6.3	5.9	9.1
20	6.6	7.2	7.8	10.1	10.5	10.5	9.1	7.7	5.4	5.9	6.7	5.7	7.8
21	6.2	6.6	7.2	8.1	9.0	10.1	8.6	7.6	5.9	6.2	6.3	5.4	7.3
22	5.8	5.8	6.5	7.2	8.4	10.5	8.9	7.7	6.2	6.2	5.7	5.1	7.0
23	5.4	5.6	6.1	6.5	8.0	10.4	8.5	8.0	5.8	5.8	5.3	4.9	6.7
Media	8.3	9.3	9.4	9.5	8.8	9.0	7.8	7.4	6.5	6.7	7.2	7.7	8.1

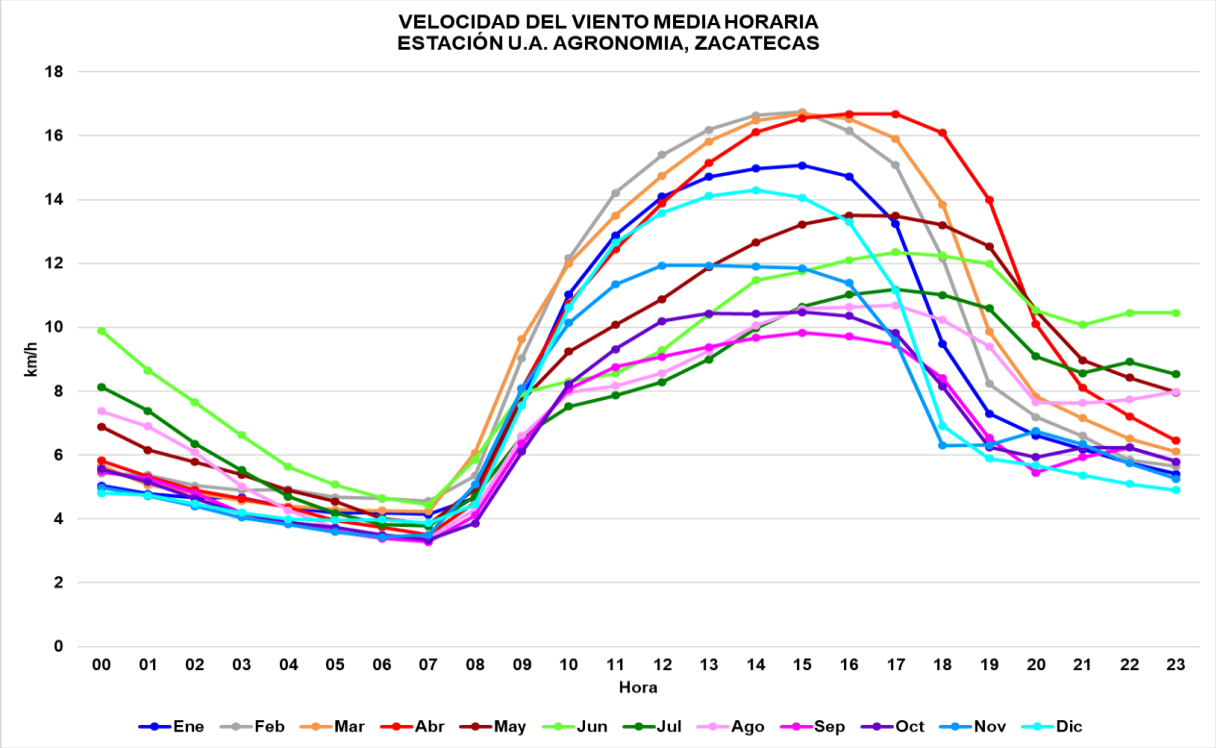


Figura 577. Velocidad del viento media (km/h) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 644. Velocidad del viento máxima maximorum (km/h) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	31.0	29.7	34.0	38.0	39.0	34.0	37.6	30.0	25.4	30.9	42.0	35.0	42.0
01	32.8	35.7	32.0	36.0	39.0	35.5	38.0	29.3	26.0	30.4	39.0	35.0	39.0
02	33.0	30.9	41.0	33.7	31.0	32.0	45.4	33.8	23.7	31.8	41.0	31.1	45.4
03	34.6	34.8	46.0	30.9	37.0	33.5	35.8	32.5	24.0	27.0	39.0	32.4	46.0
04	31.7	30.8	43.0	32.1	26.0	31.5	32.6	29.0	24.0	33.0	41.0	33.0	43.0
05	30.0	30.4	42.0	27.4	26.1	29.4	33.9	23.3	26.0	27.0	36.0	35.7	42.0
06	28.0	29.7	48.0	22.2	26.5	26.0	26.3	23.0	26.5	25.0	35.0	35.2	48.0
07	26.0	32.7	55.0	23.3	22.4	24.0	33.5	23.9	27.0	24.8	33.0	33.7	55.0
08	32.0	33.0	54.0	28.0	29.4	22.0	32.2	24.3	27.0	30.0	33.0	38.0	54.0
09	35.2	43.0	57.0	33.9	28.0	26.0	31.8	29.1	28.0	31.0	43.0	39.3	57.0
10	38.4	45.0	61.0	41.6	29.0	29.6	33.7	33.9	31.0	35.0	40.0	44.0	61.0
11	44.9	46.0	62.0	43.3	34.7	31.7	28.9	32.0	34.0	35.0	38.0	43.5	62.0
12	46.8	42.3	55.0	41.8	41.0	26.3	31.7	33.6	29.0	31.0	38.0	44.0	55.0
13	44.0	46.1	52.0	46.0	37.9	32.0	32.0	32.0	30.5	30.2	41.0	52.6	52.6
14	45.0	46.3	47.0	46.0	45.1	31.0	33.1	30.0	29.1	29.0	39.0	48.3	48.3
15	50.0	47.8	48.0	45.0	44.1	33.5	35.5	31.0	25.6	32.0	40.0	46.4	50.0
16	46.0	46.1	46.0	44.0	46.6	31.3	35.4	31.0	25.5	33.0	40.0	51.1	51.1
17	51.0	42.0	43.2	43.8	42.7	37.0	36.0	34.0	29.0	32.0	34.0	42.0	51.0
18	40.0	38.1	39.0	44.8	37.3	34.3	30.0	30.0	25.6	32.0	36.0	33.3	44.8
19	36.7	37.0	40.2	48.9	49.0	39.0	35.0	33.4	32.6	36.6	32.0	29.0	49.0
20	40.0	37.0	41.0	39.8	40.0	32.4	34.0	33.0	23.2	41.9	31.0	36.0	41.9
21	36.3	35.0	39.0	39.5	41.0	41.0	32.0	36.1	27.0	34.9	33.0	32.3	41.0
22	37.8	32.0	33.0	51.2	41.0	47.0	31.7	31.9	30.0	36.2	34.0	32.0	51.2
23	42.1	28.0	35.0	43.6	41.8	40.0	35.6	31.6	26.0	29.8	35.0	32.0	43.6
Máx.	51.0	47.8	62.0	51.2	49.0	47.0	45.4	36.1	34.0	41.9	43.0	52.6	62.0

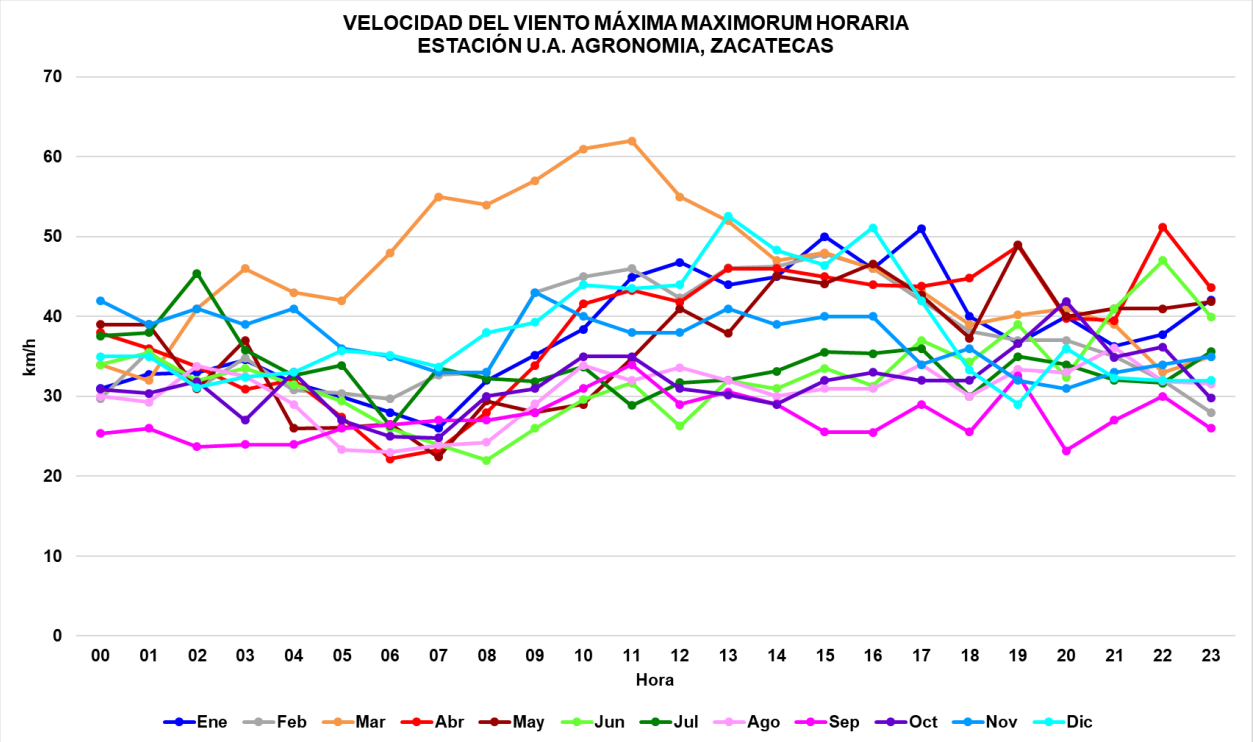


Figura 578. Velocidad del viento máxima maximorum (km/h) horaria de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 645. Frecuencia de velocidad del viento (%) mensual de la estación U. A. Agronomía, Zacatecas (2002-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	44.0	40.2	39.5	36.9	34.0	29.5	38.2	40.2	44.8	45.8	46.8	48.5	40.7
5.1 a 10.0	23.6	23.8	23.4	23.6	29.7	31.0	29.9	29.6	30.6	29.2	25.5	21.9	26.8
10.1 a 15.0	14.7	14.3	15.0	17.1	19.5	22.9	21.0	20.4	19.4	17.2	15.9	14.3	17.7
15.1 a 20.0	9.6	10.4	10.5	11.8	10.7	12.1	7.9	8.0	4.6	6.1	8.2	8.9	9.1
20.1 a 25.0	4.9	6.2	6.3	6.8	4.5	3.6	2.4	1.6	0.6	1.3	2.6	4.1	3.7
25.1 a 30.0	2.0	3.0	3.1	2.7	1.2	0.8	0.5	0.2	0.1	0.2	0.8	1.5	1.3
30.1 a 35.0	0.9	1.5	1.3	0.8	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.5	0.5
35.1 a 40.0	0.2	0.5	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
40.1 a 45.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

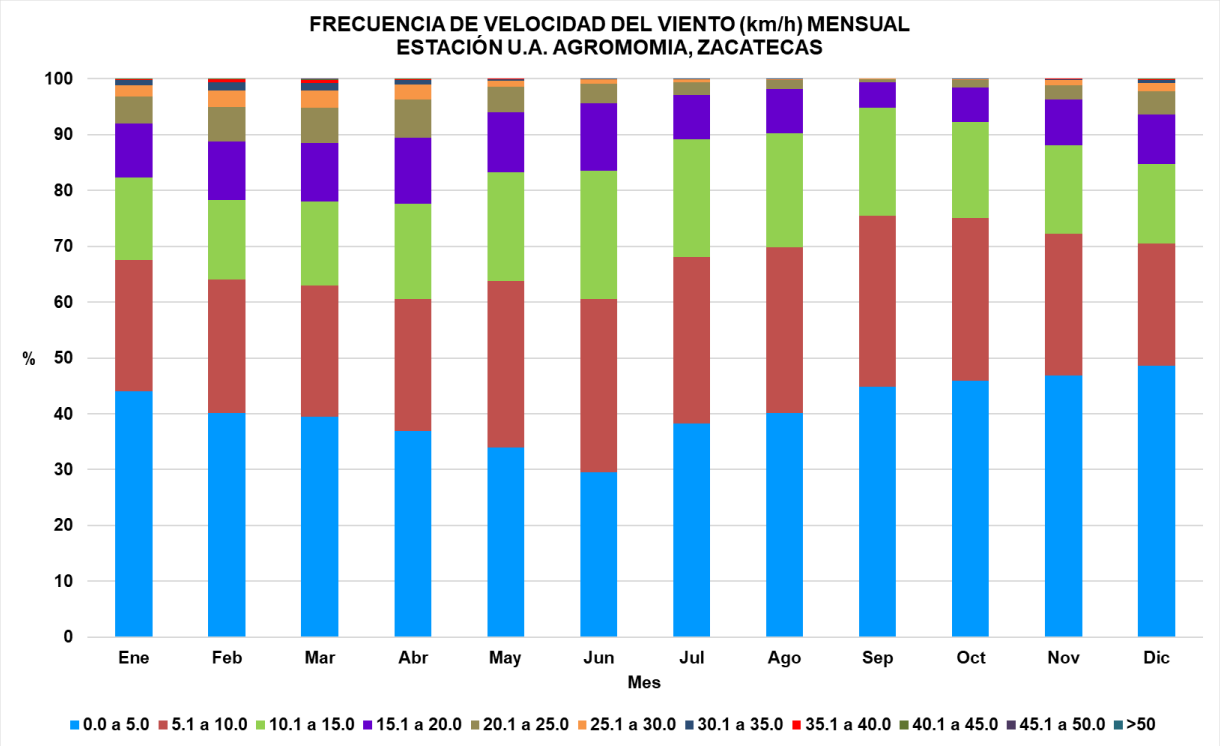


Figura 579. Frecuencia de velocidad del viento (%) mensual de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 646. Frecuencia de dirección del viento (%) mensual de la estación U. A. Agronomía, Zacatecas (2002-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	6.8	5.6	4.9	3.7	4.6	6.4	4.8	4.9	8.4	7.3	6.8	6.8	5.9
NNE	5.1	4.0	4.0	2.8	4.0	5.1	4.0	4.6	6.0	6.1	5.1	4.9	4.7
NE	6.0	5.2	4.8	3.5	4.4	6.4	5.3	6.5	7.8	8.0	6.5	6.3	5.9
ENE	5.6	4.8	5.2	4.2	5.5	7.8	8.0	9.5	10.2	9.4	7.5	5.9	7.0
E	6.6	5.9	5.8	5.2	6.5	10.7	12.9	14.8	14.7	12.5	9.7	6.9	9.4
ESE	8.7	7.4	7.4	6.5	8.4	12.8	14.7	15.8	14.2	12.8	11.3	8.7	10.7
SE	10.4	9.3	9.2	9.4	11.2	12.8	12.5	12.2	10.3	11.0	11.8	10.2	10.9
SSE	6.5	6.8	6.8	7.3	7.9	7.6	7.4	6.7	5.5	5.7	6.6	6.4	6.8
S	6.0	6.8	6.7	7.4	6.9	4.7	4.9	4.3	3.6	3.8	4.7	6.1	5.5
SSO	13.7	15.7	14.2	15.0	11.9	7.3	7.9	6.0	5.2	6.5	9.7	14.1	10.6
SO	12.0	14.8	14.0	15.2	10.5	6.0	6.8	5.1	4.3	5.6	8.7	11.8	9.5
OSO	5.2	6.5	8.2	9.8	7.3	3.5	3.4	3.0	2.4	3.2	4.2	4.7	5.1
O	2.0	2.2	3.0	4.1	3.7	2.4	2.0	1.9	1.4	1.8	1.8	1.8	2.3
ONO	1.5	1.5	1.9	2.3	2.5	1.7	1.7	1.4	1.4	1.6	1.5	1.5	1.7
NO	1.7	1.5	1.8	1.8	2.2	2.1	1.6	1.5	1.7	1.9	1.7	1.7	1.8
NNO	2.2	2.0	2.1	1.8	2.3	2.8	1.9	1.8	2.8	2.8	2.2	2.3	2.3
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

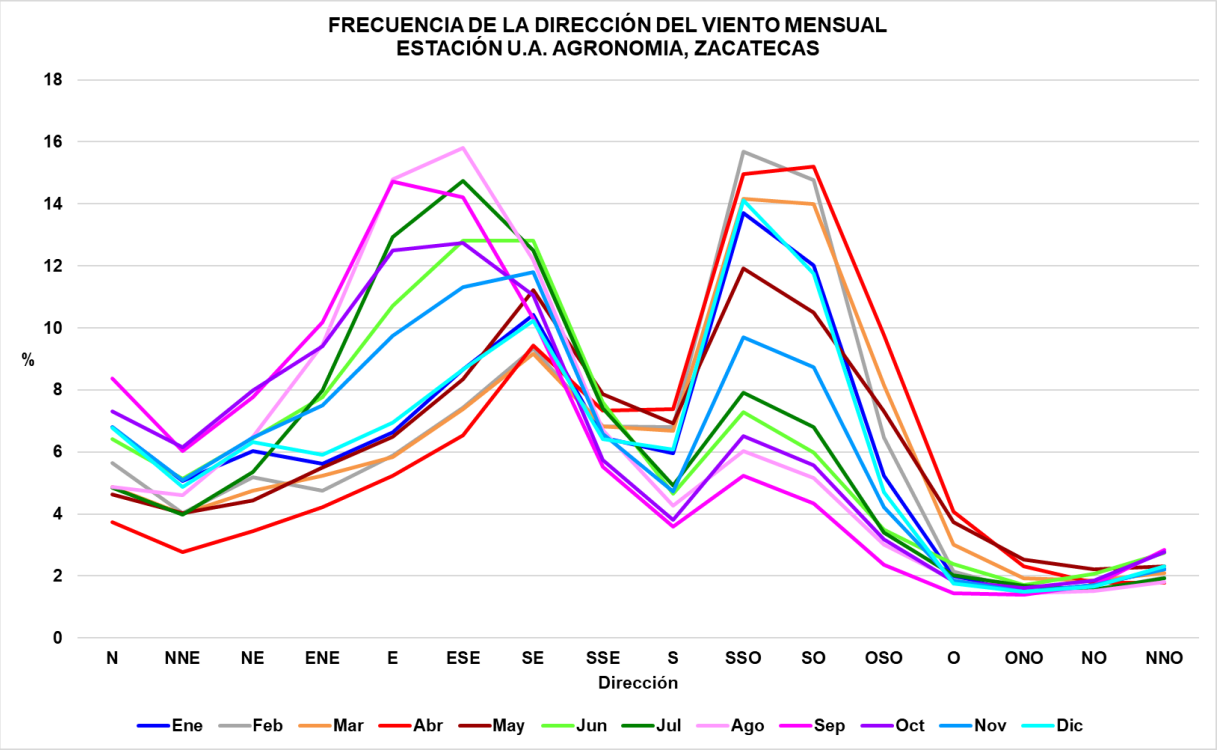


Figura 580. Frecuencia de dirección del viento (%) mensual de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 647. Frecuencia de dirección del viento (%) trimestral de la estación U. A. Agronomía, Zacatecas (2002-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.8	4.9	6.0	7.0	5.9
NNE	4.4	4.0	4.9	5.4	4.7
NE	5.3	4.8	6.5	6.9	5.9
ENE	5.2	5.8	9.2	7.6	7.0
E	6.1	7.5	14.2	9.7	9.4
ESE	7.8	9.2	14.9	10.9	10.7
SE	9.7	11.2	11.7	11.0	10.9
SSE	6.7	7.6	6.6	6.2	6.8
S	6.5	6.3	4.3	4.9	5.5
SSO	14.5	11.4	6.4	10.2	10.6
SO	13.6	10.6	5.4	8.7	9.5
OSO	6.6	6.8	2.9	4.0	5.1
O	2.4	3.4	1.8	1.8	2.3
ONO	1.7	2.2	1.5	1.5	1.7
NO	1.7	2.0	1.6	1.7	1.8
NNO	2.1	2.3	2.2	2.4	2.3
Suma	100.0	100.0	100.0	100.0	100.0

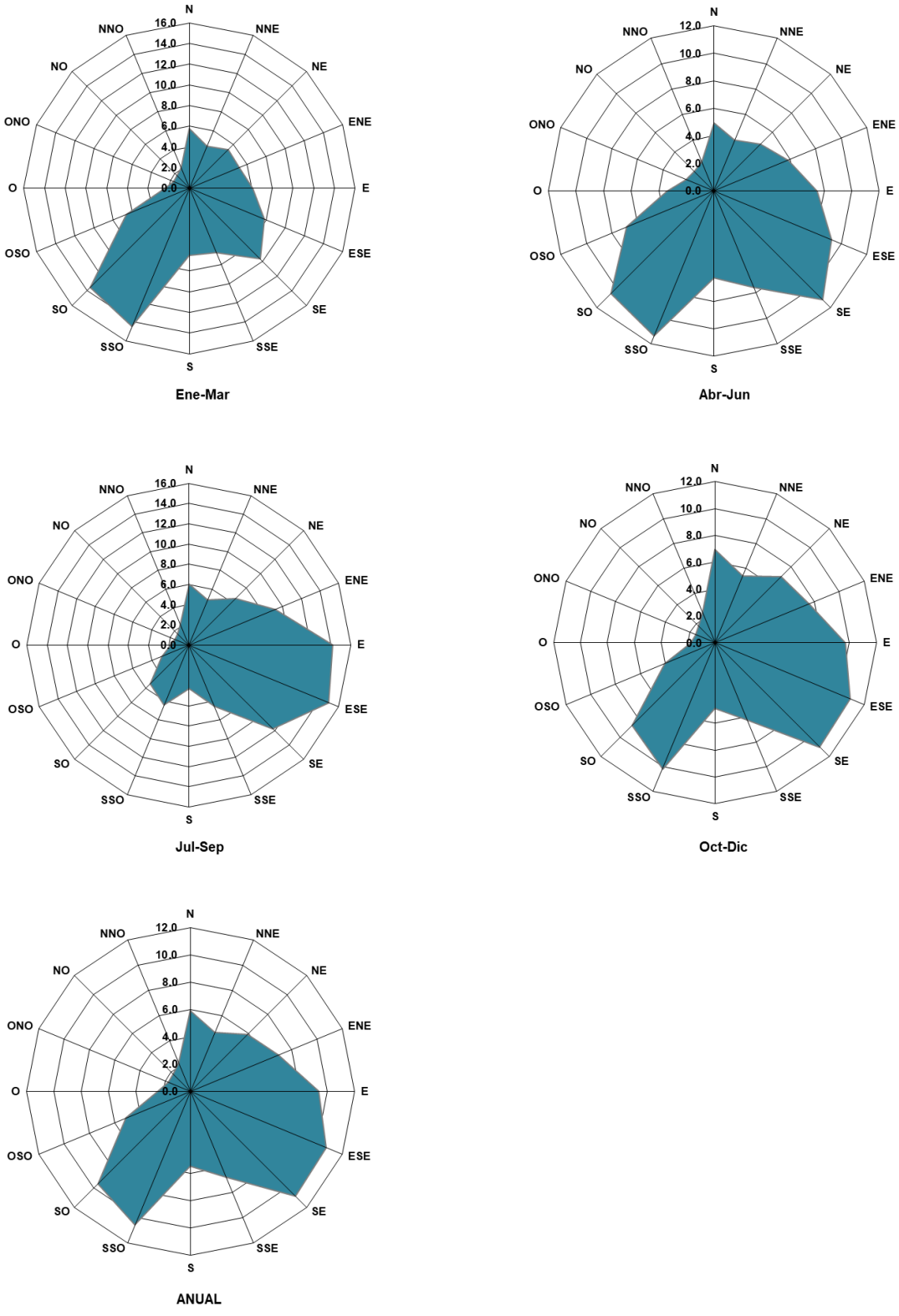


Figura 581. Frecuencia de dirección del viento (%) trimestral de la estación U. A. Agronomía, Zacatecas (2002-2022).

Cuadro 648. Estadísticas climatológicas mensuales de la estación U. A. Agronomía, Zacatecas (2002-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.5	21.5	24.0	26.5	28.2	27.0	24.8	25.0	23.6	23.8	21.9	20.1	23.8
Temperatura máxima maximorum (°C)	26.8	28.9	31.8	31.6	34.1	33.3	30.5	30.1	29.2	29.4	28.4	26.9	34.1
Temperatura mínima media (°C)	2.6	3.9	5.3	7.9	10.7	13.0	12.5	12.3	11.8	8.5	4.8	2.4	8.0
Temperatura mínima minimorum (°C)	-8.2	-4.9	-5.0	-1.4	1.9	5.6	8.3	7.4	3.5	-2.5	-9.6	-10.6	-10.6
Temperatura media (°C)	10.9	12.8	15.0	17.8	19.9	19.8	18.2	18.2	17.1	15.9	13.2	11.1	15.8
Oscilación térmica (°C)	16.8	17.6	18.7	18.6	17.5	14.0	12.4	12.7	11.8	15.2	17.2	17.6	15.8
Precipitación acumulada media (mm)	17.4	18.9	10.6	3.0	12.6	79.9	110.0	84.3	87.1	34.4	14.0	14.0	486.1
Precipitación máxima maximorum en 24 horas (mm)	27.2	58.6	46.2	8.4	28.6	95.2	60.0	54.2	51.8	70.6	49.8	25.8	95.2
Número de días promedio con lluvia	5.0	3.9	3.9	2.1	4.2	10.8	15.0	12.8	13.6	6.5	3.5	3.5	84.5
Evapotranspiración acumulada potencial media (mm)	111.3	128.8	172.1	189.0	197.0	166.7	149.0	152.0	123.9	130.7	114.5	105.1	1740.1
Humedad máxima media (%)	77.8	72.3	62.3	57.8	66.6	83.7	92.4	93.0	95.3	91.3	86.1	78.7	79.8
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	23.9	19.9	15.0	12.7	15.3	28.4	39.2	39.0	46.4	33.9	26.8	23.5	27.0
Humedad mínima minimorum (%)	3.0	6.0	4.0	4.0	5.0	4.0	12.0	15.0	16.0	7.5	4.0	4.0	3.0
Humedad media (%)	49.9	43.3	34.5	30.3	36.9	56.0	68.1	68.2	74.4	63.8	55.8	50.1	52.6
Radiación global media día/mes (W/m^2)	18658.9	22529.3	26239.1	28530.0	28407.8	25621.0	23975.4	23948.8	21455.3	21483.4	19763.8	17802.9	23201.3
Radiación global media día/mes (kWh/m^2)	4.7	5.6	6.6	7.1	7.1	6.4	6.0	6.0	5.4	5.4	4.9	4.5	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.8	20.3	23.6	25.7	25.6	23.1	21.6	21.6	19.3	19.3	17.8	16.0	20.9
Velocidad del viento máxima media (km/h)	21.4	22.7	23.6	23.8	22.5	22.5	20.4	19.1	16.7	16.8	18.2	19.7	20.6
Velocidad del viento máxima maximorum (km/h)	51.0	47.8	62.0	51.2	49.0	47.0	45.4	36.1	34.0	41.9	43.0	52.6	62.0
Velocidad del viento media (km/h)	8.3	9.3	9.4	9.6	8.8	9.0	7.8	7.4	6.5	6.7	7.2	7.6	8.1
Dirección dominante del viento	SSO	SSO	SSO	SO	SSO	ESE	ESE	ESE	E	ESE	SE	SSO	SE

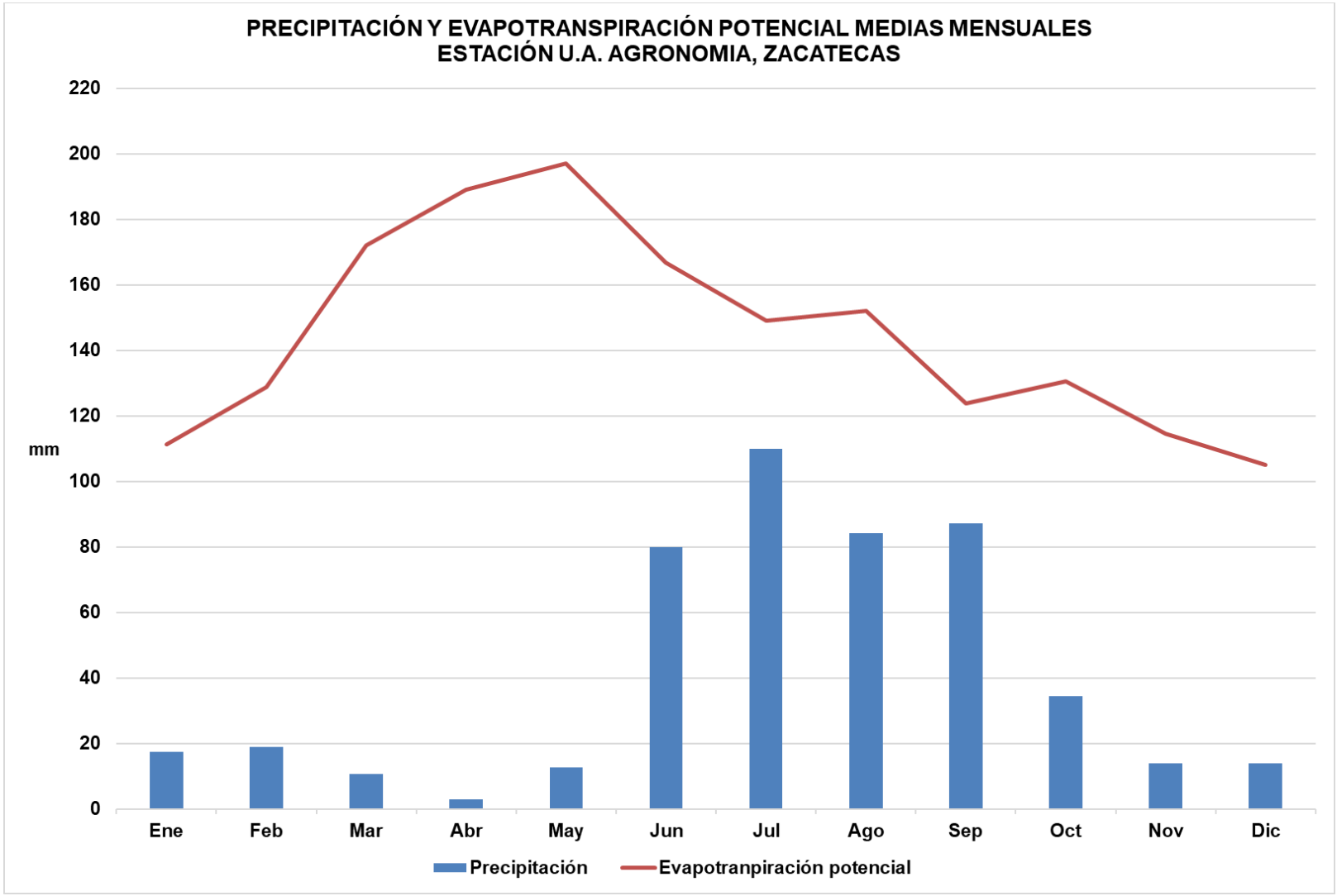


Figura 582. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación U. A. Agronomía, Zacatecas (2002-2022).

7.35. Estación: U. A. Biología, Guadalupe

Cuadro 649. Temperatura máxima media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.1	12.0	13.9	17.0	18.5	18.0	16.5	16.7	15.6	14.6	11.9	10.7	14.6
01	9.6	11.5	13.3	16.2	17.7	17.2	15.9	16.0	15.1	14.0	11.4	10.3	14.0
02	9.2	11.0	12.7	15.5	17.0	16.5	15.4	15.5	14.7	13.6	11.0	9.9	13.5
03	8.8	10.5	12.2	14.9	16.3	16.0	14.9	15.0	14.3	13.2	10.6	9.6	13.0
04	8.5	10.1	11.7	14.3	15.8	15.5	14.6	14.5	13.9	12.8	10.2	9.3	12.6
05	8.1	9.7	11.2	13.8	15.3	15.0	14.2	14.2	13.6	12.4	9.9	8.9	12.2
06	7.9	9.3	10.9	13.4	14.8	14.7	13.9	13.9	13.4	12.1	9.7	8.6	11.9
07	8.1	10.1	12.6	14.0	15.6	15.4	14.3	14.1	13.5	12.5	11.2	9.2	12.5
08	10.6	12.7	15.3	16.5	17.9	17.1	15.8	15.7	14.9	14.5	13.8	11.9	14.7
09	12.8	15.0	17.6	18.9	20.2	19.0	17.4	17.4	16.5	16.5	15.9	14.1	16.8
10	14.7	16.9	19.5	21.1	22.4	20.9	18.9	19.1	18.1	18.4	17.8	16.0	18.6
11	16.3	18.5	21.1	22.8	24.1	22.5	20.5	20.6	19.5	20.0	19.2	17.5	20.2
12	17.5	19.8	22.3	24.2	25.5	23.9	21.7	21.9	20.7	21.2	20.2	18.6	21.5
13	18.5	20.7	23.3	25.3	26.5	24.8	22.7	22.9	21.5	22.1	21.1	19.4	22.4
14	19.1	21.3	23.8	26.2	27.3	25.5	23.4	23.6	22.1	22.8	21.5	19.9	23.0
15	19.2	21.5	24.0	26.6	27.6	25.9	23.8	24.1	22.5	23.0	21.4	19.9	23.3
16	18.8	21.3	23.8	26.6	27.6	26.0	23.9	24.1	22.4	22.8	20.8	19.4	23.1
17	17.8	20.5	22.9	26.1	27.3	25.8	23.6	23.9	22.0	22.2	19.5	18.1	22.5
18	15.9	18.8	21.4	25.1	26.5	25.1	22.9	23.2	21.1	20.9	17.4	16.0	21.2
19	14.1	16.8	19.5	23.6	25.2	24.0	21.9	21.9	19.8	19.2	15.7	14.4	19.7
20	13.0	15.5	18.0	21.8	23.4	22.4	20.4	20.4	18.4	17.7	14.7	13.4	18.3
21	12.1	14.5	16.8	20.3	21.8	20.9	19.1	19.2	17.5	16.7	13.7	12.5	17.1
22	11.3	13.5	15.7	19.1	20.6	19.7	18.1	18.3	16.7	15.9	13.0	11.8	16.1
23	10.6	12.7	14.7	18.0	19.5	18.7	17.3	17.4	16.1	15.1	12.3	11.2	15.3
Media	13.0	15.2	17.4	20.1	21.4	20.4	18.8	18.9	17.7	17.3	15.2	13.8	17.4

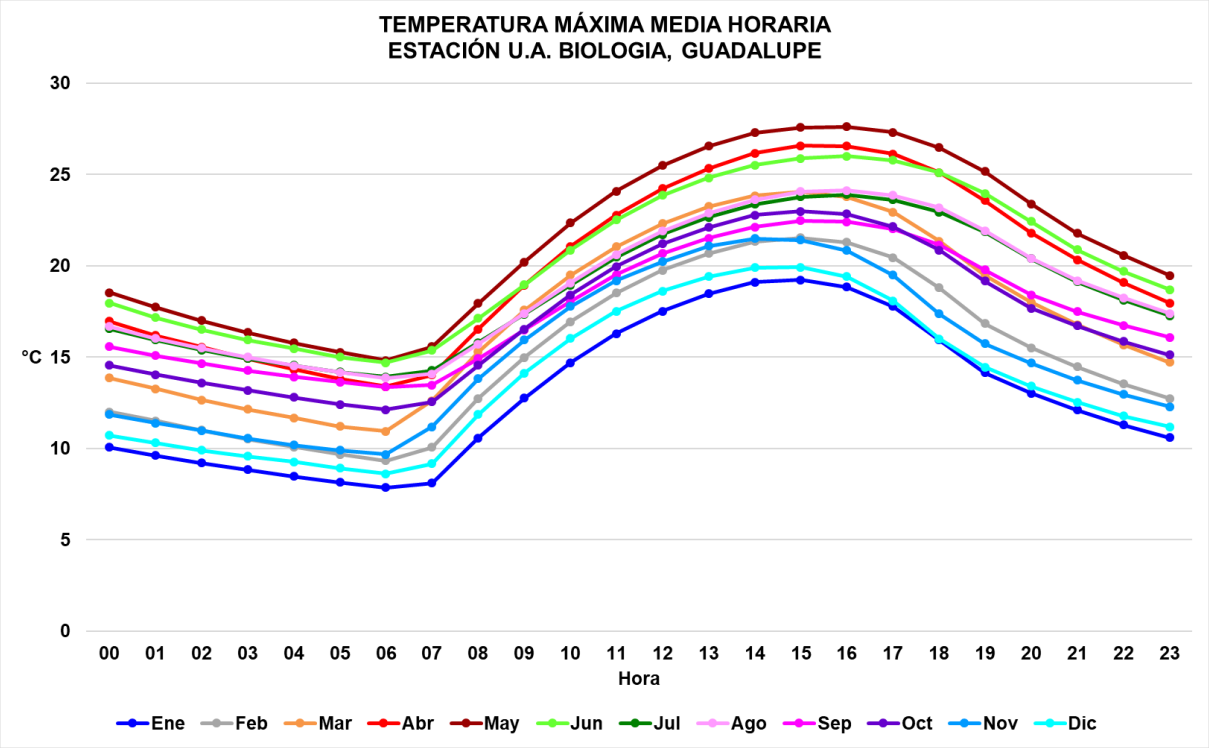


Figura 583. Temperatura máxima media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 650. Temperatura máxima maximorum (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	17.1	18.7	21.6	22.2	24.6	24.2	21.5	21.5	20.3	21.2	19.1	16.5	24.6
01	16.6	17.9	20.4	21.4	23.3	23.0	20.8	21.0	19.9	19.9	17.2	15.6	23.3
02	15.6	17.2	19.4	20.4	22.5	22.1	20.5	20.0	18.9	19.7	16.8	15.7	22.5
03	15.2	17.1	19.4	20.1	22.2	21.8	18.9	18.6	18.1	19.7	16.6	15.3	22.2
04	14.8	16.6	18.9	19.4	21.9	21.2	18.3	18.5	17.2	19.0	16.6	15.0	21.9
05	14.6	16.0	18.2	19.1	21.8	20.9	18.1	18.2	16.8	18.8	16.5	15.5	21.8
06	13.8	15.9	17.8	19.2	21.1	19.8	18.2	17.5	16.6	17.3	15.2	16.1	21.1
07	15.1	18.8	20.3	20.6	21.9	21.1	18.9	18.3	17.9	19.3	18.3	18.0	21.9
08	18.4	21.9	24.0	23.6	24.7	23.0	20.3	20.4	20.0	22.1	21.6	21.8	24.7
09	21.4	24.7	26.3	26.9	27.6	25.6	22.2	22.1	22.3	24.7	22.8	23.9	27.6
10	22.6	26.4	28.2	28.0	29.1	27.9	24.5	23.7	23.4	25.8	25.0	24.7	29.1
11	24.6	27.8	29.2	28.6	30.4	29.1	26.2	26.0	25.0	26.7	26.1	26.0	30.4
12	25.8	28.9	30.4	30.0	31.5	30.7	27.0	26.7	25.6	27.3	26.4	26.3	31.5
13	26.4	29.1	31.2	30.6	32.4	30.9	28.3	27.4	26.6	28.0	27.2	27.0	32.4
14	26.7	29.8	31.8	31.4	33.9	32.0	28.7	28.5	27.4	28.9	27.5	26.8	33.9
15	26.5	29.9	31.6	31.7	33.7	32.1	29.3	29.0	28.0	29.1	27.7	26.5	33.7
16	27.8	29.5	31.2	31.8	33.7	32.9	29.6	29.0	28.5	29.2	27.4	25.9	33.7
17	24.5	28.2	30.5	31.7	33.4	32.5	30.0	28.8	28.3	29.1	25.4	24.5	33.4
18	22.5	26.0	29.1	31.5	33.1	32.2	29.9	28.3	28.3	28.2	22.1	21.4	33.1
19	19.9	24.0	27.0	29.5	31.9	31.1	28.0	27.4	26.4	26.1	21.0	20.1	31.9
20	18.6	22.7	25.0	27.1	30.0	29.8	27.1	26.3	24.2	25.1	20.1	19.2	30.0
21	18.2	21.5	24.7	25.7	27.5	27.9	25.5	24.7	22.6	24.2	18.9	18.0	27.9
22	17.7	20.0	23.6	24.3	26.3	26.6	24.2	23.7	21.7	22.8	18.4	17.2	26.6
23	17.1	19.3	22.3	22.9	25.6	25.1	23.0	23.0	20.3	21.7	19.0	17.2	25.6
Máx.	27.8	29.9	31.8	31.8	33.9	32.9	30.0	29.0	28.5	29.2	27.7	27.0	33.9

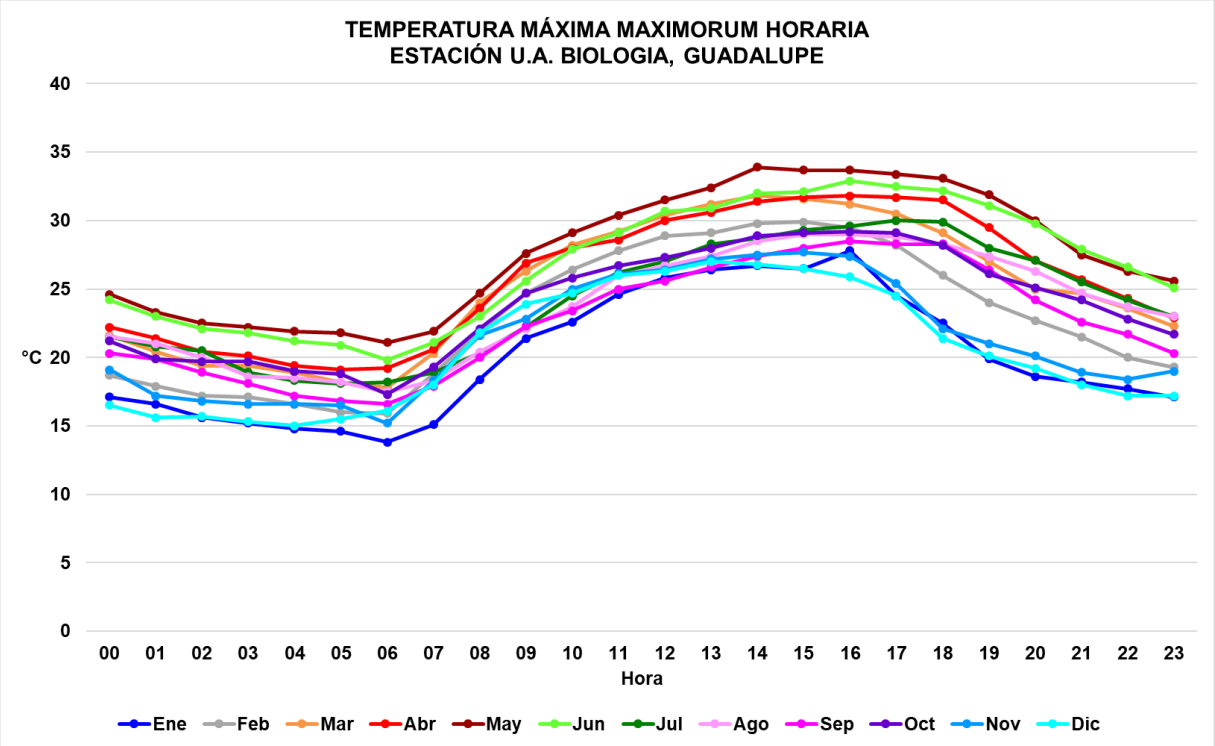


Figura 584. Temperatura máxima maximorum (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 651. Temperatura mínima media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.4	11.3	13.2	16.2	17.8	17.2	16.0	16.0	15.1	14.0	11.2	10.0	13.9
01	9.0	10.8	12.5	15.5	17.0	16.5	15.4	15.5	14.6	13.5	10.8	9.6	13.4
02	8.5	10.3	12.0	14.9	16.3	15.9	14.9	15.0	14.2	13.0	10.3	9.3	12.9
03	8.1	9.8	11.4	14.2	15.7	15.4	14.5	14.5	13.8	12.6	9.9	8.9	12.4
04	7.8	9.3	10.9	13.6	15.1	14.9	14.1	14.1	13.5	12.2	9.5	8.6	12.0
05	7.4	8.9	10.5	13.1	14.6	14.5	13.8	13.7	13.2	11.9	9.3	8.2	11.6
06	7.2	8.6	10.2	12.7	14.1	14.2	13.5	13.5	13.0	11.6	9.0	7.9	11.3
07	7.1	8.7	10.6	12.8	14.3	14.4	13.5	13.4	12.9	11.6	9.3	7.9	11.4
08	8.5	10.6	13.3	14.4	16.1	15.8	14.6	14.4	13.6	12.7	11.9	9.7	13.0
09	11.1	13.2	15.8	17.1	18.5	17.5	16.1	16.1	15.3	15.1	14.3	12.4	15.2
10	13.2	15.5	18.1	19.5	20.7	19.4	17.7	17.7	16.8	16.9	16.4	14.6	17.2
11	15.0	17.3	19.8	21.4	22.8	21.2	19.3	19.3	18.3	18.7	18.0	16.3	19.0
12	16.4	18.7	21.2	23.1	24.3	22.7	20.6	20.8	19.6	20.1	19.3	17.7	20.4
13	17.5	19.7	22.3	24.3	25.5	23.7	21.6	21.8	20.4	21.1	20.1	18.5	21.4
14	18.3	20.6	23.0	25.3	26.2	24.4	22.3	22.5	21.0	21.8	20.7	19.2	22.1
15	18.5	20.8	23.2	25.7	26.6	24.8	22.7	22.9	21.3	22.1	20.7	19.2	22.4
16	17.9	20.5	22.9	25.7	26.7	24.9	22.7	23.0	21.3	21.9	19.8	18.4	22.1
17	16.4	19.2	21.7	25.1	26.3	24.7	22.5	22.8	20.9	21.0	17.9	16.5	21.3
18	14.5	17.3	19.9	23.9	25.4	24.0	21.8	21.9	20.0	19.5	16.0	14.7	19.9
19	13.2	15.8	18.3	22.2	23.8	22.7	20.6	20.7	18.6	17.9	14.8	13.6	18.5
20	12.2	14.7	17.0	20.6	22.1	21.1	19.3	19.3	17.5	16.8	13.9	12.6	17.3
21	11.3	13.7	15.9	19.3	20.8	19.9	18.2	18.3	16.8	15.9	13.0	11.7	16.2
22	10.6	12.8	14.8	18.2	19.6	18.8	17.4	17.4	16.1	15.1	12.3	11.0	15.3
23	9.9	12.0	14.0	17.2	18.7	18.0	16.6	16.7	15.5	14.5	11.7	10.5	14.6
Media	12.0	14.2	16.4	19.0	20.4	19.4	17.9	18.0	16.8	16.3	14.2	12.8	16.4

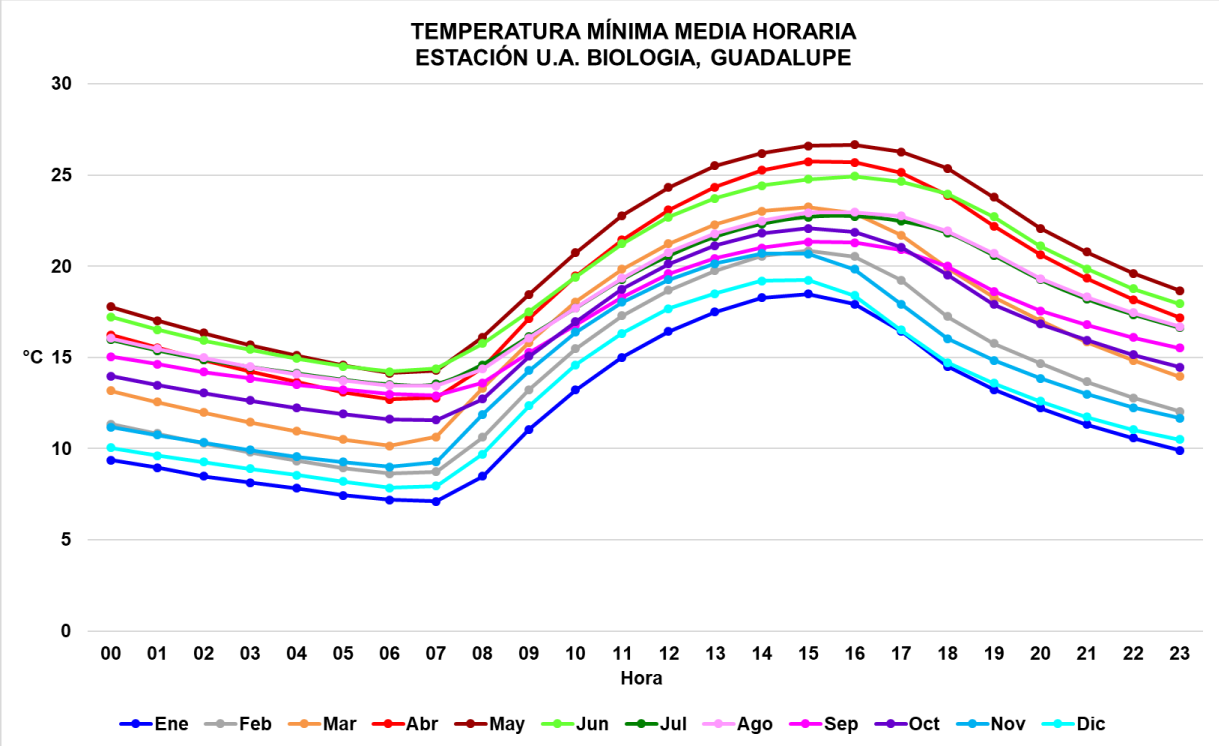


Figura 585. Temperatura mínima media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 652. Temperatura mínima minimorum (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-1.2	0.5	1.1	7.2	9.6	11.0	12.2	12.3	11.2	4.0	-1.7	-5.1	-5.1
01	-1.6	0.0	1.0	5.9	9.3	10.2	11.8	11.7	10.4	4.0	-2.3	-5.0	-5.0
02	-1.7	-0.2	0.4	5.3	9.0	10.0	11.5	11.4	9.4	3.3	-2.2	-5.2	-5.2
03	-2.1	-0.4	0.5	5.2	8.9	10.0	11.2	10.5	9.1	3.0	-2.4	-6.1	-6.1
04	-1.9	-1.0	-0.3	4.6	8.6	10.2	10.5	10.1	8.5	1.9	-3.1	-7.5	-7.5
05	-2.1	-1.8	0.2	3.6	8.1	10.6	10.3	9.6	8.3	1.6	-3.3	-8.2	-8.2
06	-2.4	-3.1	0.2	2.8	6.6	10.0	10.0	9.1	7.4	1.6	-3.3	-8.4	-8.4
07	-2.8	-3.2	-0.6	3.0	6.5	9.7	10.3	9.5	7.5	1.5	-2.8	-7.5	-7.5
08	-2.5	-2.2	2.1	4.4	7.5	10.8	11.4	11.0	8.3	4.9	-2.4	-4.6	-4.6
09	-2.0	0.8	2.7	5.5	8.1	12.4	11.8	12.7	9.1	7.1	-1.8	-1.0	-2.0
10	-0.5	2.1	3.1	9.1	8.1	13.2	12.0	13.2	9.8	9.0	-0.5	-2.0	-2.0
11	0.9	3.3	0.1	11.7	8.9	13.7	12.9	13.5	12.5	9.4	1.9	-3.2	-3.2
12	1.3	5.5	0.6	13.0	8.6	14.2	13.5	14.0	13.7	10.1	4.0	-3.3	-3.3
13	2.5	6.2	1.4	14.7	11.2	13.7	13.9	14.4	12.5	11.4	3.2	-3.5	-3.5
14	3.0	6.0	2.5	14.7	14.3	12.1	13.8	13.8	12.9	11.6	3.3	-3.5	-3.5
15	4.2	5.7	4.8	11.7	13.2	13.3	12.9	12.7	14.0	11.6	2.4	-3.1	-3.1
16	4.8	5.6	5.3	11.3	14.2	13.9	12.9	13.8	13.4	10.8	2.8	-3.0	-3.0
17	4.2	6.2	5.3	8.4	13.3	13.8	12.3	12.3	13.5	9.7	2.4	-2.7	-2.7
18	3.3	6.2	4.0	9.8	12.7	13.5	12.7	13.5	13.2	8.8	1.4	-3.2	-3.2
19	1.9	5.0	3.1	10.0	11.4	13.0	12.5	13.6	10.7	8.0	0.8	-2.9	-2.9
20	1.2	4.2	1.9	10.0	11.3	11.5	12.6	12.8	11.6	7.4	-0.2	-4.8	-4.8
21	0.5	3.0	1.6	9.8	11.4	11.8	11.9	12.6	11.8	7.3	-1.0	-5.6	-5.6
22	-0.5	2.0	1.3	9.4	10.4	11.8	11.7	11.8	10.9	6.4	-1.7	-6.8	-6.8
23	-0.8	1.6	1.4	8.3	9.8	11.8	12.1	12.0	10.5	5.2	-1.8	-7.1	-7.1
Mín.	-2.8	-3.2	-0.6	2.8	6.5	9.7	10.0	9.1	7.4	1.5	-3.3	-8.4	-8.4

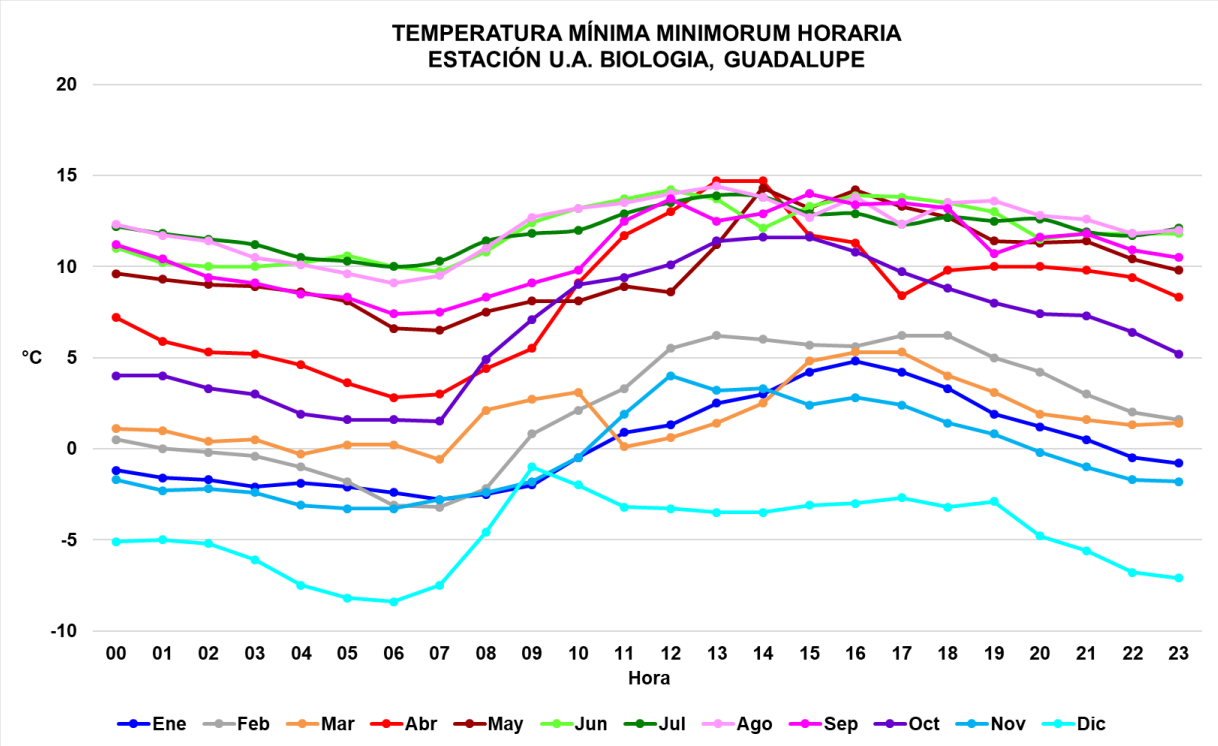


Figura 586. Temperatura mínima minimorum (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 653. Temperatura media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	9.7	11.7	13.5	16.6	18.2	17.6	16.3	16.4	15.3	14.3	11.5	10.4	14.3
01	9.3	11.2	12.9	15.9	17.4	16.8	15.7	15.7	14.9	13.8	11.1	10.0	13.7
02	8.9	10.6	12.3	15.2	16.7	16.2	15.1	15.2	14.4	13.3	10.7	9.6	13.2
03	8.5	10.2	11.8	14.6	16.0	15.7	14.7	14.7	14.1	12.9	10.3	9.2	12.7
04	8.2	9.7	11.3	14.0	15.4	15.2	14.3	14.3	13.7	12.5	9.9	8.9	12.3
05	7.8	9.3	10.9	13.5	14.9	14.8	14.0	14.0	13.4	12.2	9.6	8.6	11.9
06	7.5	9.0	10.5	13.0	14.5	14.5	13.7	13.7	13.2	11.9	9.3	8.2	11.6
07	7.6	9.3	11.6	13.4	14.9	14.8	13.9	13.7	13.2	12.0	10.1	8.5	11.9
08	9.6	11.7	14.3	15.5	17.0	16.4	15.2	15.1	14.3	13.6	12.9	10.8	13.9
09	11.9	14.1	16.7	18.1	19.3	18.2	16.7	16.7	15.9	15.8	15.1	13.2	16.0
10	14.0	16.2	18.8	20.3	21.6	20.1	18.3	18.4	17.4	17.7	17.1	15.3	17.9
11	15.7	17.9	20.5	22.1	23.4	21.9	19.9	20.0	18.9	19.4	18.6	16.9	19.6
12	17.0	19.2	21.8	23.7	24.9	23.3	21.1	21.3	20.1	20.7	19.8	18.1	20.9
13	18.0	20.2	22.8	24.8	26.0	24.3	22.1	22.3	21.0	21.6	20.6	19.0	21.9
14	18.7	21.0	23.4	25.7	26.8	25.0	22.8	23.1	21.6	22.3	21.1	19.5	22.6
15	18.9	21.2	23.6	26.2	27.1	25.3	23.2	23.5	21.9	22.5	21.1	19.6	22.8
16	18.4	20.9	23.3	26.1	27.1	25.5	23.3	23.6	21.9	22.4	20.3	18.9	22.6
17	17.1	19.9	22.3	25.6	26.8	25.2	23.1	23.3	21.5	21.6	18.7	17.3	21.9
18	15.2	18.0	20.6	24.5	25.9	24.5	22.4	22.6	20.6	20.2	16.7	15.3	20.6
19	13.7	16.3	18.9	22.9	24.5	23.3	21.2	21.3	19.2	18.5	15.3	14.0	19.1
20	12.6	15.1	17.5	21.2	22.7	21.8	19.8	19.9	18.0	17.3	14.3	13.0	17.8
21	11.7	14.1	16.3	19.8	21.3	20.4	18.7	18.7	17.1	16.3	13.4	12.1	16.7
22	10.9	13.2	15.3	18.6	20.1	19.2	17.7	17.8	16.4	15.5	12.6	11.4	15.7
23	10.2	12.4	14.3	17.6	19.1	18.3	16.9	17.0	15.8	14.8	12.0	10.8	14.9
Media	12.5	14.7	16.9	19.5	20.9	19.9	18.3	18.4	17.2	16.8	14.7	13.3	16.9

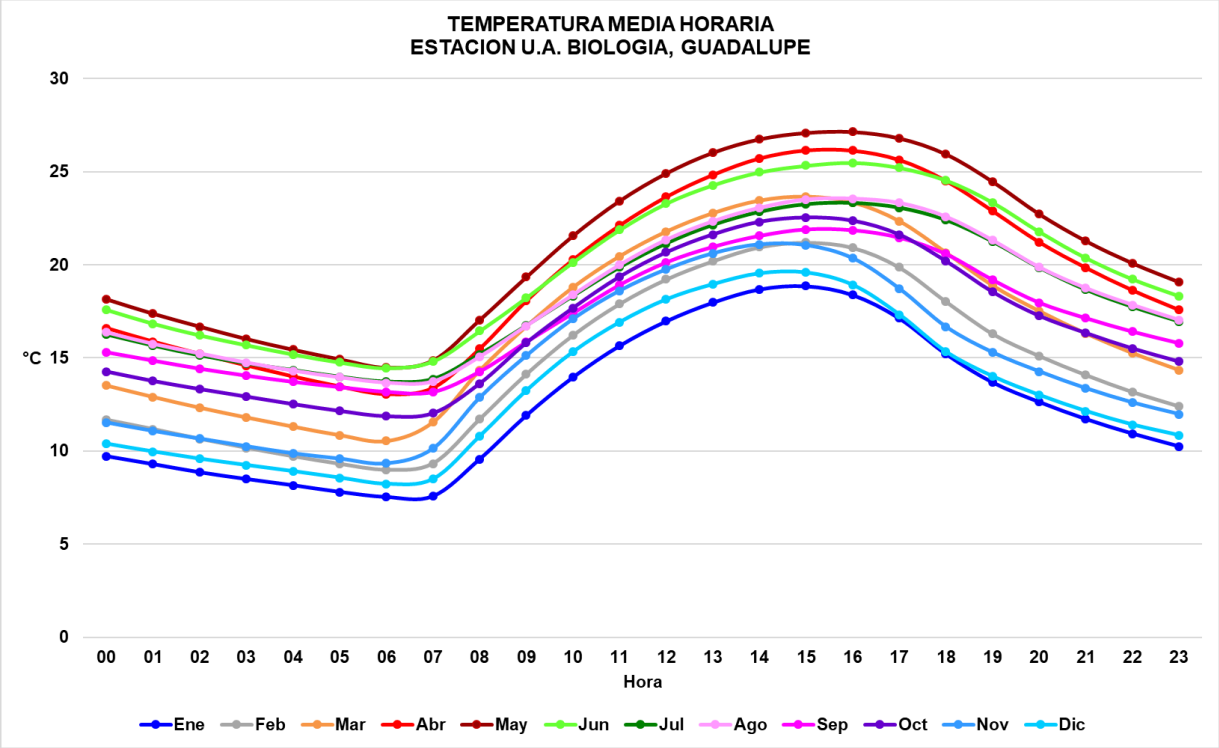


Figura 587. Temperatura media (˚C) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 654. Precipitación media (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.0	0.8	0.8	0.1	0.9	4.4	5.1	5.6	4.2	1.3	0.6	0.4	25.1
01	0.7	0.8	0.6	0.0	0.9	5.7	5.4	3.4	4.1	1.5	0.5	0.6	24.2
02	0.4	0.8	0.4	0.1	0.8	3.3	4.0	2.3	4.8	1.4	0.4	0.8	19.5
03	0.5	0.8	0.2	0.0	0.3	3.0	1.8	2.8	5.8	1.3	0.1	0.8	17.4
04	0.4	0.5	0.3	0.0	0.3	4.3	1.4	1.7	3.5	0.9	0.1	0.4	13.8
05	0.6	0.7	0.2	0.0	0.2	2.1	1.0	0.8	2.8	0.8	0.1	0.3	9.8
06	0.7	0.4	0.1	0.0	0.2	1.7	1.3	1.0	1.6	0.3	0.1	0.6	7.9
07	0.4	0.3	0.1	0.0	0.2	0.9	1.3	1.4	1.0	0.3	0.1	0.4	6.4
08	0.4	0.6	0.3	0.0	0.1	0.6	1.0	1.1	0.7	0.3	0.1	0.5	5.6
09	0.3	0.5	0.2	0.0	0.0	0.4	0.4	0.3	0.3	0.3	0.1	0.6	3.2
10	0.2	0.4	0.1	0.0	0.1	0.5	0.3	0.6	0.2	0.2	0.2	0.3	3.0
11	0.1	0.4	0.1	0.0	0.2	0.2	0.4	1.2	0.1	0.3	0.5	0.2	3.8
12	0.2	0.7	0.3	0.0	0.1	0.5	1.8	0.9	1.1	0.2	0.3	0.3	6.2
13	0.2	0.7	0.3	0.0	0.0	1.9	1.7	1.5	5.1	0.3	0.7	0.4	12.8
14	0.7	0.8	0.4	0.1	0.7	2.8	3.4	4.2	2.8	0.3	0.5	0.3	17.0
15	0.8	0.9	0.3	0.3	1.5	5.1	3.9	3.7	3.4	2.0	0.8	0.5	23.3
16	0.7	0.9	0.8	0.1	0.5	2.8	7.1	3.5	4.8	1.2	0.6	0.5	23.3
17	1.1	0.8	1.0	1.6	0.9	2.6	5.9	5.8	5.5	0.9	1.8	1.3	29.3
18	0.7	0.6	0.5	0.8	0.9	4.0	7.1	6.6	7.0	2.2	1.1	0.7	32.0
19	0.5	0.8	0.6	0.2	0.7	2.8	9.8	5.0	10.9	2.1	1.5	0.4	35.2
20	1.1	0.7	0.4	0.2	0.9	7.0	7.4	7.2	6.6	3.7	1.1	0.2	36.4
21	0.9	1.0	1.0	0.1	1.6	5.9	8.8	5.4	5.8	0.9	0.7	0.3	32.3
22	0.4	0.8	0.8	0.3	1.6	5.8	5.4	7.1	5.9	2.3	0.6	0.1	31.0
23	0.8	0.7	1.4	0.1	0.8	4.3	5.8	6.9	8.1	1.8	0.9	0.4	32.0
Suma	13.8	16.3	11.4	3.9	14.4	72.2	91.3	79.7	96.1	26.9	13.5	11.4	450.8

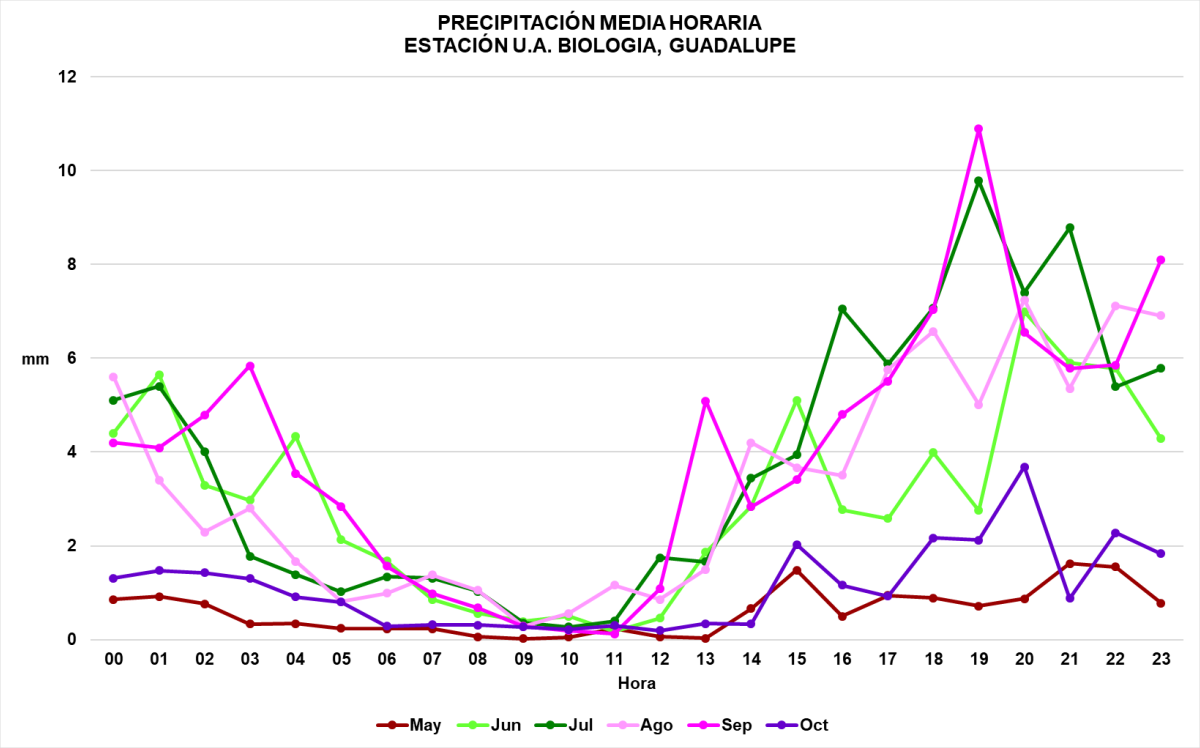


Figura 588. Precipitación media (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 655. Precipitación máxima (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	4.2	3.6	8.6	1.2	4.2	11.0	20.6	9.0	7.0	8.0	5.0	2.0	20.6
01	4.8	4.0	7.4	0.0	5.4	13.2	21.0	8.2	8.4	14.8	5.8	1.6	21.0
02	1.8	4.6	4.8	1.2	4.8	10.4	22.4	6.2	19.6	9.6	2.4	5.2	22.4
03	3.0	3.4	3.0	0.2	4.8	11.8	6.4	11.0	28.4	15.8	0.8	11.2	28.4
04	2.8	3.8	2.6	0.2	4.8	16.2	3.4	8.4	9.8	7.8	0.6	4.0	16.2
05	5.6	4.4	2.2	0.2	2.8	4.4	4.4	2.4	7.8	6.8	0.4	1.8	7.8
06	3.8	1.6	1.2	0.0	3.6	7.2	7.2	3.8	3.4	1.8	0.4	6.0	7.2
07	3.2	1.4	0.8	0.0	4.4	5.8	11.6	7.0	3.2	2.0	0.6	2.8	11.6
08	2.2	4.4	1.6	0.0	0.8	2.4	3.6	8.6	3.6	1.6	1.6	2.0	8.6
09	2.4	3.6	1.4	0.0	0.4	2.0	1.2	1.4	1.4	1.8	0.6	5.2	5.2
10	1.2	3.2	0.6	0.0	0.6	4.0	1.0	9.0	1.0	3.0	1.4	2.0	9.0
11	1.0	2.2	1.0	0.0	4.6	1.2	3.4	8.0	0.8	2.6	3.4	1.2	8.0
12	1.0	2.8	2.2	0.0	0.8	4.4	10.2	5.0	8.6	1.8	4.8	2.4	10.2
13	1.8	5.0	2.4	0.0	0.4	14.6	6.8	10.2	23.2	3.4	6.8	2.8	23.2
14	5.8	3.0	3.4	2.0	9.6	22.2	15.8	23.0	12.6	2.0	4.2	1.2	23.0
15	5.4	4.4	2.8	4.4	6.0	24.0	9.2	20.4	22.4	16.0	4.6	3.4	24.0
16	5.8	2.8	13.2	0.4	3.2	17.2	17.6	7.2	13.6	7.6	4.0	1.8	17.6
17	12.2	2.0	11.4	15.6	4.2	7.0	12.2	44.0	17.4	4.4	15.8	10.8	44.0
18	4.4	2.8	6.8	3.4	9.0	15.6	29.2	17.2	31.4	15.8	6.0	5.6	31.4
19	2.6	4.0	7.0	0.8	2.4	5.8	16.2	11.8	22.0	8.6	9.4	2.2	22.0
20	7.2	4.2	2.8	2.8	2.8	21.0	17.2	24.6	26.8	11.8	7.8	1.0	26.8
21	8.4	5.6	7.6	0.8	6.6	13.0	19.6	13.2	25.8	2.4	7.4	1.2	25.8
22	1.8	4.4	6.2	4.0	8.6	23.6	9.4	56.8	11.4	22.4	3.0	0.6	56.8
23	5.4	3.6	14.4	1.0	6.0	14.4	22.8	14.4	23.2	5.4	5.6	2.4	23.2
Máx.	12.2	5.6	14.4	15.6	9.6	24.0	29.2	56.8	31.4	22.4	15.8	11.2	56.8

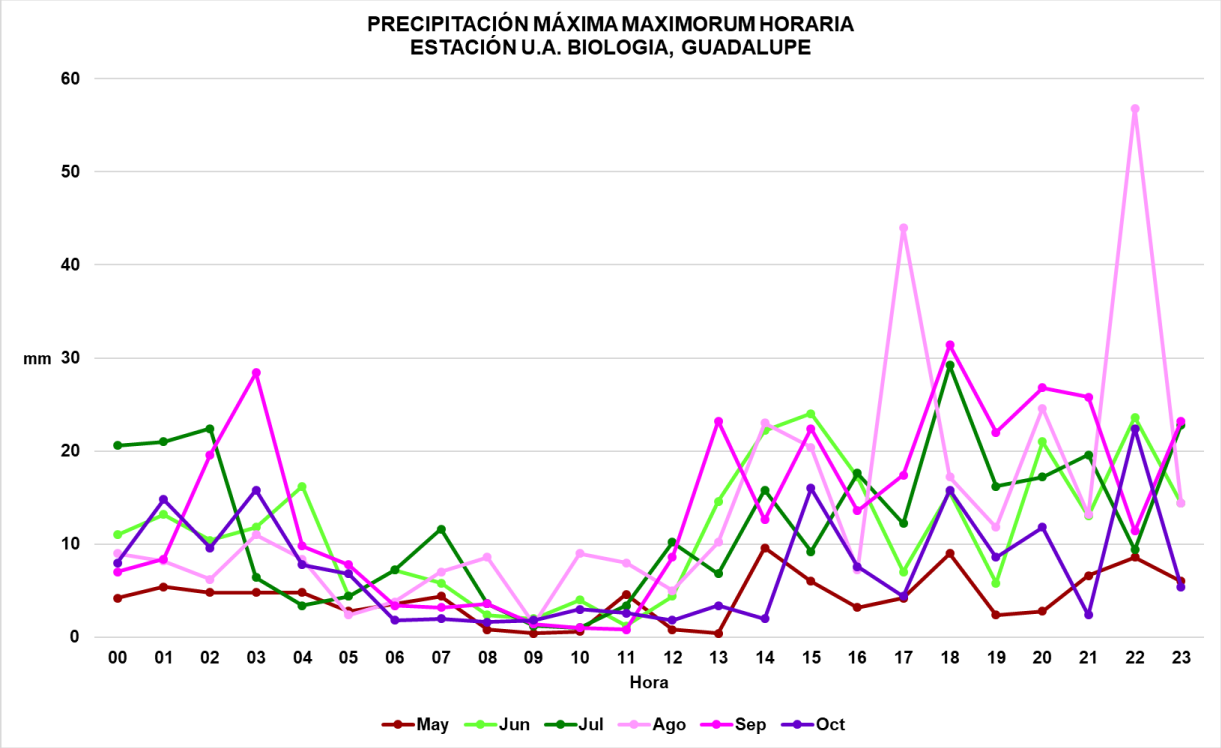


Figura 589. Precipitación máxima (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 656. Evapotranspiración potencial media (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.01	0.02	0.03	0.05	0.04	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.02
01	0.01	0.02	0.03	0.04	0.04	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.02
02	0.01	0.02	0.03	0.04	0.03	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01
03	0.01	0.02	0.02	0.04	0.03	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
04	0.01	0.02	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
05	0.01	0.01	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
06	0.01	0.01	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
07	0.01	0.02	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
08	0.03	0.05	0.10	0.07	0.07	0.05	0.03	0.02	0.01	0.02	0.05	0.03	0.05
09	0.11	0.16	0.23	0.20	0.21	0.16	0.12	0.12	0.09	0.11	0.16	0.12	0.15
10	0.22	0.29	0.38	0.35	0.36	0.30	0.24	0.25	0.20	0.23	0.28	0.23	0.28
11	0.32	0.41	0.51	0.50	0.51	0.43	0.37	0.38	0.33	0.36	0.38	0.33	0.40
12	0.39	0.50	0.59	0.61	0.63	0.55	0.48	0.50	0.43	0.45	0.44	0.41	0.50
13	0.44	0.53	0.64	0.68	0.70	0.60	0.55	0.56	0.48	0.51	0.46	0.43	0.55
14	0.44	0.53	0.62	0.71	0.71	0.61	0.57	0.58	0.48	0.52	0.44	0.41	0.55
15	0.39	0.48	0.55	0.68	0.66	0.58	0.54	0.55	0.46	0.48	0.36	0.35	0.51
16	0.30	0.38	0.44	0.58	0.58	0.52	0.48	0.49	0.39	0.39	0.26	0.26	0.42
17	0.19	0.25	0.30	0.46	0.45	0.43	0.39	0.40	0.30	0.28	0.13	0.13	0.31
18	0.07	0.10	0.14	0.31	0.32	0.31	0.29	0.28	0.19	0.18	0.06	0.07	0.19
19	0.04	0.06	0.09	0.23	0.21	0.18	0.16	0.19	0.13	0.08	0.02	0.03	0.12
20	0.02	0.03	0.05	0.11	0.12	0.13	0.11	0.10	0.04	0.03	0.01	0.01	0.06
21	0.02	0.03	0.04	0.07	0.07	0.07	0.05	0.05	0.02	0.01	0.01	0.01	0.04
22	0.01	0.03	0.04	0.06	0.05	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.02
23	0.02	0.03	0.03	0.05	0.04	0.03	0.01	0.01	0.00	0.01	0.01	0.01	0.02
Media/día /mes	3.09	3.99	4.95	5.95	5.89	5.05	4.45	4.51	3.58	3.68	3.12	2.93	4.27

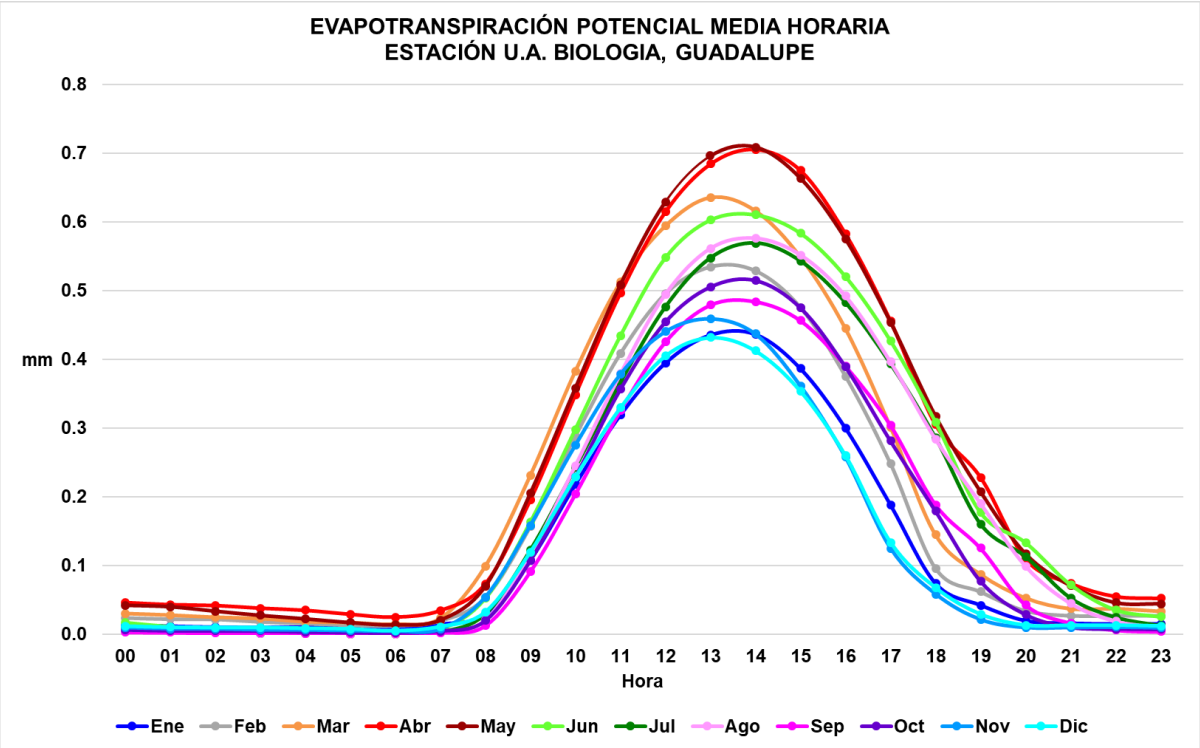


Figura 590. Evapotranspiración potencial media (mm) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 657. Humedad relativa media (%) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	50.1	41.7	35.8	30.1	38.9	59.3	70.6	70.5	76.8	65.4	58.5	49.6	53.9
01	51.9	43.6	37.8	32.3	42.2	63.3	73.7	73.5	79.0	67.7	60.5	51.3	56.4
02	53.6	45.6	39.9	34.4	44.9	66.1	76.2	76.0	81.0	69.6	62.1	52.7	58.5
03	55.2	47.3	41.6	36.6	47.6	68.5	77.7	78.2	82.7	71.6	63.9	54.2	60.4
04	56.5	48.9	43.2	38.6	49.6	70.8	79.2	80.2	84.1	73.2	65.6	55.7	62.1
05	57.8	50.1	44.5	40.3	51.2	72.7	80.8	81.8	85.3	74.8	66.8	57.1	63.6
06	58.7	51.0	45.4	41.6	52.9	73.9	81.9	83.2	86.4	75.9	67.9	58.5	64.8
07	58.9	50.5	43.6	40.9	51.9	72.9	81.5	83.2	86.6	75.4	65.8	58.2	64.1
08	53.3	44.5	37.3	36.1	45.9	67.2	76.6	78.4	82.8	70.2	57.1	51.8	58.4
09	46.5	38.1	31.5	29.9	39.1	60.3	70.2	71.7	76.4	62.7	49.4	44.6	51.7
10	40.0	32.4	26.3	24.4	31.7	52.4	63.4	64.4	69.7	55.8	42.4	38.2	45.1
11	34.6	28.2	22.5	20.1	25.9	45.3	56.7	57.2	62.9	49.3	37.2	33.3	39.4
12	30.6	25.0	19.6	17.1	21.8	39.5	50.9	51.2	57.6	43.8	32.9	29.5	35.0
13	27.6	22.6	17.5	15.1	19.2	35.5	46.6	46.8	53.8	39.8	30.1	26.9	31.8
14	25.6	20.9	16.2	13.7	17.7	32.9	43.7	43.6	51.0	37.1	28.3	25.1	29.6
15	24.9	20.1	15.6	13.1	17.2	31.7	41.8	41.6	49.3	36.0	28.1	24.7	28.7
16	25.4	20.2	15.8	13.0	16.8	30.9	41.4	41.1	48.9	36.1	29.1	25.4	28.7
17	27.4	21.5	16.7	13.5	17.1	31.3	42.1	41.5	50.0	37.5	32.5	28.1	29.9
18	31.5	24.2	18.4	14.4	18.3	33.0	44.1	43.6	52.9	41.0	37.6	32.3	32.6
19	35.5	27.4	21.2	15.9	20.6	36.2	48.2	47.8	58.1	46.1	42.0	35.9	36.3
20	39.0	30.5	24.2	18.1	24.2	41.2	53.5	53.3	63.4	50.9	46.3	39.5	40.3
21	42.4	33.4	27.5	21.0	27.9	46.5	58.4	58.2	67.1	54.8	50.2	42.7	44.2
22	45.3	36.4	30.6	24.2	31.8	51.7	62.7	62.8	70.7	58.7	53.5	45.6	47.8
23	48.0	39.0	33.3	27.2	35.7	56.1	66.7	67.3	73.8	62.1	56.2	47.8	51.1
Media	42.5	35.1	29.4	25.5	32.9	51.6	62.0	62.4	68.8	56.5	48.5	42.0	46.4

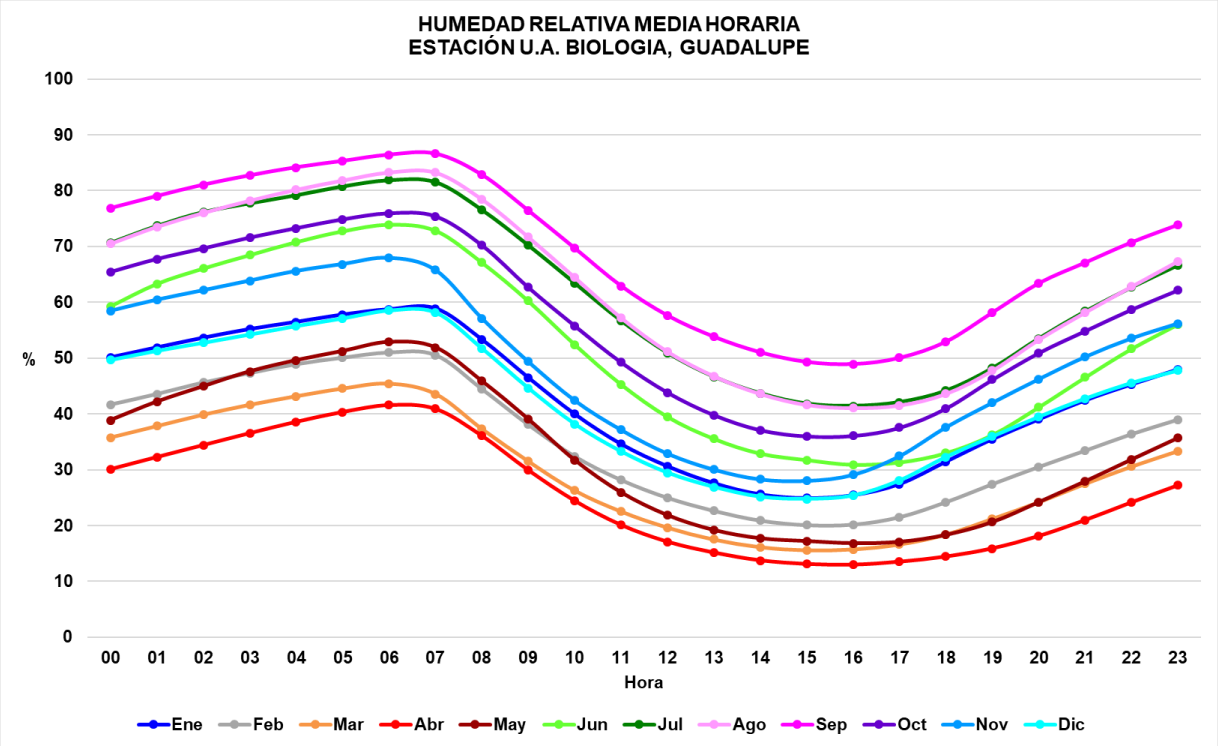


Figura 591. Humedad relativa media (%) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 658. Humedad relativa mínima minimorum (%) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	10.0	9.0	5.0	8.0	6.0	8.0	25.0	28.0	19.7	16.0	9.0	10.0	5.0
01	10.0	9.0	6.0	8.0	7.0	10.0	28.0	30.0	23.7	18.0	10.0	11.0	6.0
02	11.6	9.0	7.0	8.6	7.0	12.0	27.0	33.0	22.0	16.0	13.0	12.0	7.0
03	11.0	9.0	7.0	8.0	7.0	13.0	28.0	36.0	22.0	16.0	12.0	11.0	7.0
04	9.0	9.8	7.0	8.0	9.0	12.0	29.0	39.0	21.0	18.0	15.0	11.0	7.0
05	9.0	10.4	8.0	8.0	9.0	13.0	30.0	33.0	24.0	18.0	13.0	12.0	8.0
06	9.0	10.0	8.4	9.0	8.0	15.0	25.0	33.0	34.0	18.0	11.0	10.0	8.0
07	9.0	10.0	7.4	8.6	9.0	17.0	23.0	35.0	36.0	21.0	12.0	10.0	7.4
08	6.0	6.3	5.0	7.5	7.9	16.0	24.0	32.0	29.8	13.0	8.0	10.0	5.0
09	5.0	5.0	4.0	6.0	7.0	12.0	17.0	28.0	25.5	12.0	8.0	7.0	4.0
10	3.0	4.0	4.0	5.0	5.0	8.0	17.0	26.0	23.8	11.0	8.0	7.0	3.0
11	3.0	4.0	3.0	3.0	5.0	8.0	16.0	24.0	21.0	10.0	6.0	4.0	3.0
12	3.0	4.0	3.0	3.0	4.0	6.0	17.0	17.0	16.6	8.0	5.0	4.0	3.0
13	3.0	4.0	3.7	3.0	3.0	6.0	14.0	16.0	14.2	7.0	4.0	4.0	3.0
14	3.0	4.0	3.6	3.0	3.0	5.0	13.0	17.0	14.0	7.0	4.0	4.0	3.0
15	3.0	4.0	3.0	3.0	3.0	5.0	12.0	15.0	12.9	6.2	3.0	4.0	3.0
16	4.0	4.7	2.0	3.0	3.0	4.0	11.0	15.0	13.0	6.6	4.0	4.0	2.0
17	4.0	5.0	3.0	3.0	4.0	4.0	11.0	14.0	13.3	7.0	4.0	5.0	3.0
18	6.0	6.0	4.0	3.0	4.0	4.0	11.0	14.0	14.4	8.0	6.0	6.0	3.0
19	6.0	6.0	5.0	4.0	4.0	4.0	11.0	16.0	15.1	11.0	7.0	7.0	4.0
20	8.0	7.0	5.0	4.0	5.0	5.0	14.0	17.0	18.0	11.7	7.0	8.0	4.0
21	8.0	8.0	6.0	5.0	5.0	5.0	18.0	21.6	19.0	11.6	7.0	8.0	5.0
22	7.0	8.0	5.0	6.0	5.0	6.0	22.0	23.0	21.0	14.6	8.0	8.0	5.0
23	8.0	8.0	5.0	7.0	6.0	7.0	23.0	25.5	20.3	15.0	9.0	9.0	5.0
Mín.	3.0	4.0	2.0	3.0	3.0	4.0	11.0	14.0	12.9	6.2	3.0	4.0	2.0

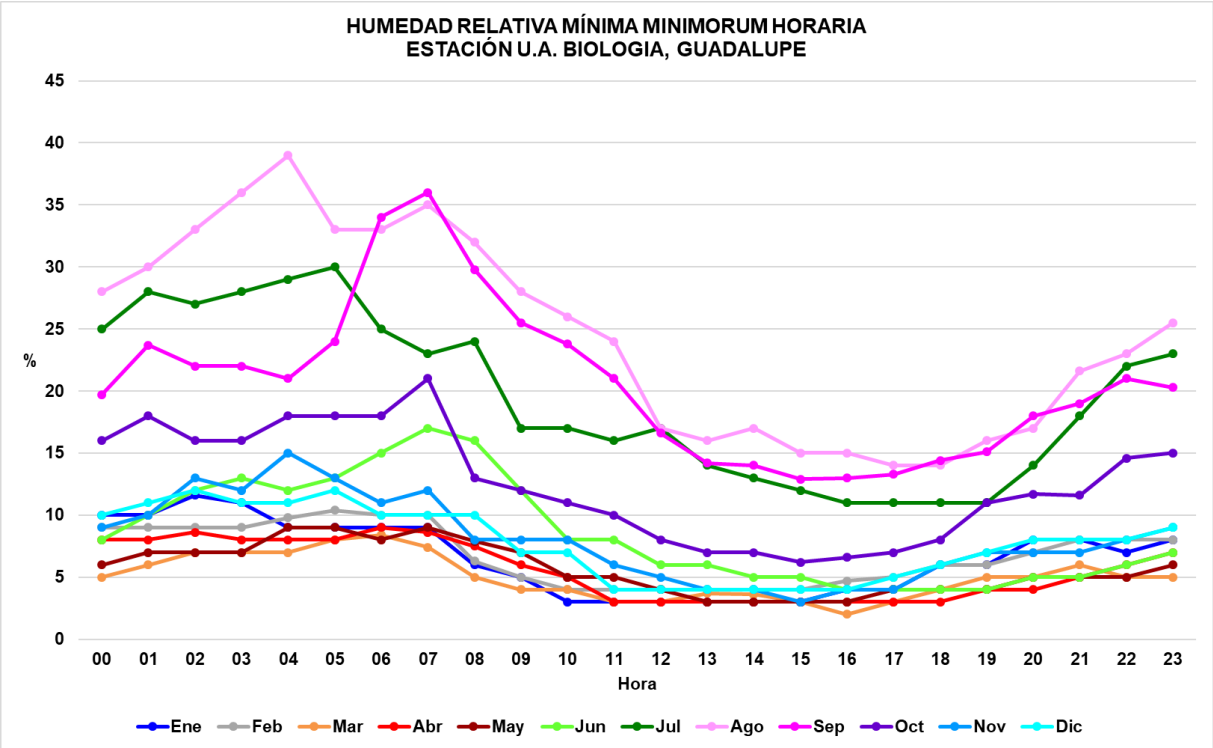


Figura 592. Humedad relativa mínima minimorum (%) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 659. Radiación solar global media horaria (W/m2) de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	2	15	7	10	10	5	2	1	2	6	1	5
07	52	105	277	172	197	179	124	84	54	74	195	81	133
08	480	668	1047	789	835	726	593	525	426	476	825	552	662
09	1202	1485	1936	1672	1713	1495	1321	1257	1081	1188	1563	1263	1432
10	1890	2251	2753	2532	2549	2273	2043	2020	1793	1949	2202	1900	2179
11	2406	2839	3315	3219	3241	2919	2668	2712	2420	2551	2613	2378	2773
12	2658	3137	3575	3685	3637	3300	3083	3126	2777	2886	2770	2601	3103
13	2691	3140	3533	3844	3743	3316	3228	3228	2816	2954	2667	2520	3140
14	2409	2880	3199	3689	3506	3160	3082	3106	2683	2740	2272	2210	2911
15	1902	2356	2632	3226	3071	2801	2754	2771	2336	2275	1698	1693	2460
16	1218	1643	1862	2549	2482	2322	2251	2213	1823	1692	990	985	1836
17	506	813	983	1748	1765	1695	1670	1620	1237	983	280	303	1134
18	48	130	222	910	1022	1021	999	923	596	302	10	12	516
19	0	1	6	234	333	412	393	300	110	26	0	0	151
20	0	0	0	11	26	50	49	20	3	0	0	0	13
21	0	0	0	0	0	0	1	1	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	17463	21449	25355	28287	28130	25678	24263	23906	20156	20101	18091	16499	22448

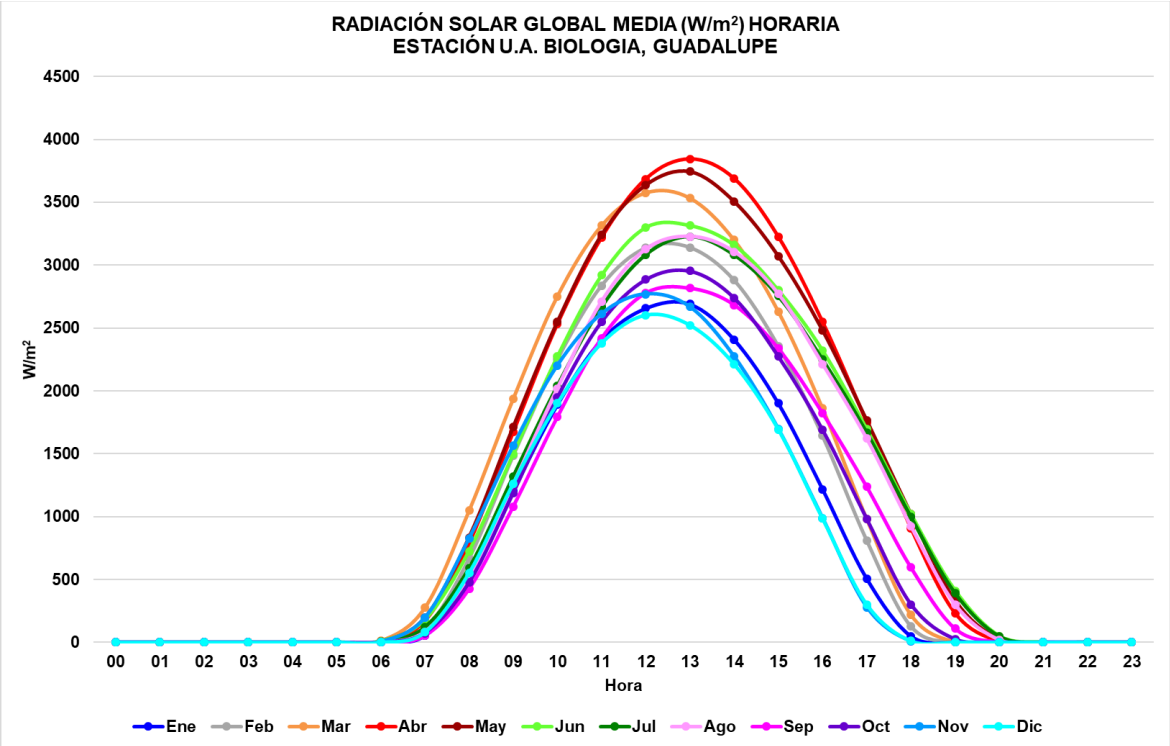


Figura 593. Radiación solar global media horaria (W/m2) de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 660. Radiación solar global media horaria (kWh/m2) de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.03	0.07	0.04	0.05	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.12	0.17	0.26	0.20	0.21	0.18	0.15	0.13	0.11	0.12	0.21	0.14	0.17
09	0.30	0.37	0.48	0.42	0.43	0.37	0.33	0.31	0.27	0.30	0.39	0.32	0.36
10	0.47	0.56	0.69	0.63	0.64	0.57	0.51	0.50	0.45	0.49	0.55	0.48	0.54
11	0.60	0.71	0.83	0.80	0.81	0.73	0.67	0.68	0.60	0.64	0.65	0.59	0.69
12	0.66	0.78	0.89	0.92	0.91	0.82	0.77	0.78	0.69	0.72	0.69	0.65	0.78
13	0.67	0.79	0.88	0.96	0.94	0.83	0.81	0.81	0.70	0.74	0.67	0.63	0.78
14	0.60	0.72	0.80	0.92	0.88	0.79	0.77	0.78	0.67	0.69	0.57	0.55	0.73
15	0.48	0.59	0.66	0.81	0.77	0.70	0.69	0.69	0.58	0.57	0.42	0.42	0.61
16	0.30	0.41	0.47	0.64	0.62	0.58	0.56	0.55	0.46	0.42	0.25	0.25	0.46
17	0.13	0.20	0.25	0.44	0.44	0.42	0.42	0.40	0.31	0.25	0.07	0.08	0.28
18	0.01	0.03	0.06	0.23	0.26	0.26	0.25	0.23	0.15	0.08	0.00	0.00	0.13
19	0.00	0.00	0.00	0.06	0.08	0.10	0.10	0.08	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.37	5.36	6.34	7.07	7.03	6.42	6.07	5.98	5.04	5.03	4.52	4.12	5.61

Cuadro 661. Radiación solar global media horaria (Mj/m2/s) de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
07	0.05	0.09	0.25	0.15	0.18	0.16	0.11	0.08	0.05	0.07	0.18	0.07	0.12
08	0.43	0.60	0.94	0.71	0.75	0.65	0.53	0.47	0.38	0.43	0.74	0.50	0.60
09	1.08	1.34	1.74	1.50	1.54	1.35	1.19	1.13	0.97	1.07	1.41	1.14	1.29
10	1.70	2.03	2.48	2.28	2.29	2.05	1.84	1.82	1.61	1.75	1.98	1.71	1.96
11	2.17	2.55	2.98	2.90	2.92	2.63	2.40	2.44	2.18	2.30	2.35	2.14	2.50
12	2.39	2.82	3.22	3.32	3.27	2.97	2.78	2.81	2.50	2.60	2.49	2.34	2.79
13	2.42	2.83	3.18	3.46	3.37	2.98	2.90	2.90	2.53	2.66	2.40	2.27	2.83
14	2.17	2.59	2.88	3.32	3.15	2.84	2.77	2.80	2.41	2.47	2.05	1.99	2.62
15	1.71	2.12	2.37	2.90	2.76	2.52	2.48	2.49	2.10	2.05	1.53	1.52	2.21
16	1.10	1.48	1.68	2.29	2.23	2.09	2.03	1.99	1.64	1.52	0.89	0.89	1.65
17	0.46	0.73	0.88	1.57	1.59	1.53	1.50	1.46	1.11	0.89	0.25	0.27	1.02
18	0.04	0.12	0.20	0.82	0.92	0.92	0.90	0.83	0.54	0.27	0.01	0.01	0.46
19	0.00	0.00	0.01	0.21	0.30	0.37	0.35	0.27	0.10	0.02	0.00	0.00	0.14
20	0.00	0.00	0.00	0.01	0.02	0.05	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	15.72	19.30	22.82	25.46	25.32	23.11	21.84	21.52	18.14	18.09	16.28	14.85	20.20

Cuadro 662. Velocidad del viento media (km/h) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.5	4.8	5.0	5.9	5.6	4.7	3.9	3.6	2.9	2.9	3.0	3.4	4.1
01	3.4	4.9	4.9	5.8	5.2	4.3	3.6	3.2	2.7	2.8	2.9	3.3	3.9
02	3.3	4.6	4.8	5.6	4.9	3.7	3.1	2.9	2.4	2.7	2.8	3.4	3.7
03	3.4	4.4	4.5	5.3	4.6	3.3	2.9	2.6	2.3	2.5	2.6	3.4	3.5
04	3.3	4.2	4.1	4.8	4.0	3.0	2.6	2.3	2.2	2.3	2.5	3.3	3.2
05	3.1	3.9	3.7	4.3	3.6	2.6	2.4	2.0	2.0	2.2	2.4	3.0	2.9
06	3.1	3.8	3.5	3.9	3.1	2.4	2.2	1.8	1.8	2.0	2.1	2.9	2.7
07	3.1	3.9	3.7	3.9	3.2	2.8	2.2	1.8	1.8	1.9	2.3	3.0	2.8
08	3.6	4.4	5.0	4.6	4.3	4.0	3.2	2.9	2.6	2.5	3.3	3.5	3.6
09	4.9	6.0	6.5	5.9	5.5	5.3	4.5	4.3	4.0	3.9	4.7	4.8	5.0
10	6.4	7.3	7.6	7.0	6.3	5.8	5.2	5.3	5.3	5.2	5.8	6.0	6.1
11	7.3	8.2	8.4	7.8	6.7	6.2	5.7	6.0	6.1	6.1	6.5	6.8	6.8
12	7.8	8.8	8.9	8.5	7.1	6.8	6.1	6.5	6.6	6.6	6.9	7.3	7.3
13	8.1	9.2	9.2	8.9	7.6	7.6	6.8	7.0	6.9	7.0	7.0	7.5	7.7
14	8.1	9.1	9.3	9.1	8.0	8.2	7.3	7.6	7.1	7.1	6.8	7.4	7.9
15	7.9	8.9	9.2	9.3	8.0	8.5	7.7	7.9	7.0	6.9	6.5	7.2	7.9
16	7.5	8.4	8.8	9.0	7.9	8.5	8.0	7.8	6.8	6.7	6.0	6.6	7.7
17	6.6	7.6	8.2	8.5	7.6	8.5	8.0	7.7	6.7	6.3	5.1	5.5	7.2
18	4.9	6.1	7.1	7.9	7.2	8.3	7.8	7.6	6.2	5.5	3.6	3.8	6.3
19	4.2	4.9	5.7	6.9	6.7	8.0	7.5	6.9	5.3	4.2	3.2	3.5	5.6
20	4.0	4.8	5.5	6.1	5.9	7.2	6.5	5.8	4.0	3.5	3.2	3.4	5.0
21	4.0	4.9	5.6	6.2	5.7	6.0	5.6	4.9	3.6	3.3	3.2	3.5	4.7
22	3.8	5.0	5.5	6.2	5.9	5.5	4.8	4.3	3.3	3.2	3.1	3.5	4.5
23	3.7	4.9	5.3	6.1	5.8	5.1	4.2	4.0	3.1	3.1	3.1	3.4	4.3
Media	5.0	6.0	6.2	6.6	5.8	5.7	5.1	4.9	4.3	4.2	4.1	4.6	5.2

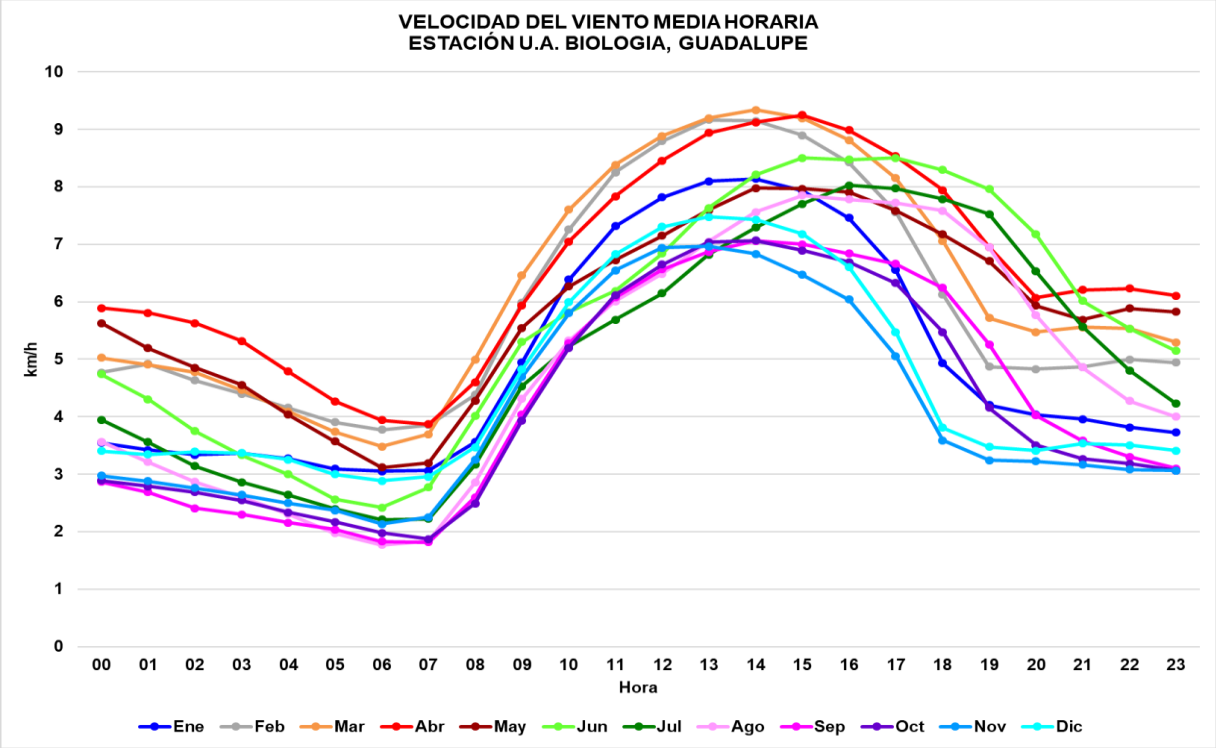


Figura 594. Velocidad del viento media (km/h) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 663. Velocidad del viento máxima maximorum (km/h) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	25.8	22.8	26.0	21.0	19.0	21.6	18.9	15.0	17.4	13.6	28.0	23.0	28.0
01	25.0	23.0	26.3	23.3	17.9	23.0	21.2	15.0	14.4	18.2	34.0	25.4	34.0
02	23.7	25.0	25.5	21.0	18.1	25.3	25.4	17.7	13.2	19.0	30.0	22.0	30.0
03	23.0	26.0	30.0	23.0	22.0	17.0	21.8	20.0	18.8	16.0	31.0	25.2	31.0
04	24.0	32.0	31.0	22.0	21.0	15.0	20.8	21.0	16.0	15.3	28.0	23.0	32.0
05	22.0	31.3	33.0	21.0	19.0	15.6	19.5	14.7	15.8	14.3	31.0	25.0	33.0
06	26.0	34.0	40.0	20.8	18.0	16.7	16.8	14.9	14.7	16.5	28.0	27.0	40.0
07	22.0	33.8	40.0	20.8	19.6	16.0	17.9	14.0	13.4	15.0	21.0	27.0	40.0
08	23.9	30.0	37.0	24.4	17.6	16.5	15.1	14.0	13.1	17.2	26.0	28.0	37.0
09	26.0	29.0	41.0	22.5	17.0	17.0	16.7	16.0	19.4	17.0	23.7	33.0	41.0
10	24.0	32.0	42.0	23.0	15.8	15.5	16.4	21.0	17.9	18.0	21.0	29.0	42.0
11	34.0	35.0	42.0	24.7	22.1	22.0	20.2	18.6	18.7	19.0	24.0	29.0	42.0
12	29.0	31.0	43.0	25.0	19.2	20.6	18.9	19.0	16.1	18.6	23.9	30.0	43.0
13	31.0	31.0	43.0	27.0	23.9	19.8	22.5	19.5	18.0	20.0	25.0	28.2	43.0
14	30.0	29.7	40.0	28.0	24.4	20.4	20.6	20.9	18.3	22.9	26.0	31.0	40.0
15	29.0	28.0	29.0	25.1	23.7	23.0	20.0	20.1	18.2	22.0	26.0	33.0	33.0
16	31.0	28.9	30.0	22.1	26.0	26.9	21.3	19.5	19.4	22.0	26.0	30.8	31.0
17	29.1	27.0	24.0	22.6	22.0	23.6	20.0	19.4	20.5	19.0	22.0	27.0	29.1
18	29.0	29.6	24.0	23.0	26.3	23.0	22.7	19.7	18.4	17.7	23.0	29.6	29.6
19	29.0	27.4	24.7	25.6	22.9	21.1	22.5	23.0	17.7	16.8	20.4	24.0	29.0
20	27.8	23.0	22.0	28.6	23.0	26.7	27.3	24.7	17.4	18.0	22.0	22.6	28.6
21	29.0	23.9	23.1	25.0	19.6	27.2	20.6	19.7	15.0	17.2	23.0	24.3	29.0
22	23.0	24.1	23.0	20.9	25.0	20.0	17.1	20.0	16.1	14.9	26.0	23.0	26.0
23	30.4	22.6	25.0	19.0	19.0	23.2	16.0	17.0	17.0	14.3	29.0	23.0	30.4
Máx.	34.0	35.0	43.0	28.6	26.3	27.2	27.3	24.7	20.5	22.9	34.0	33.0	43.0

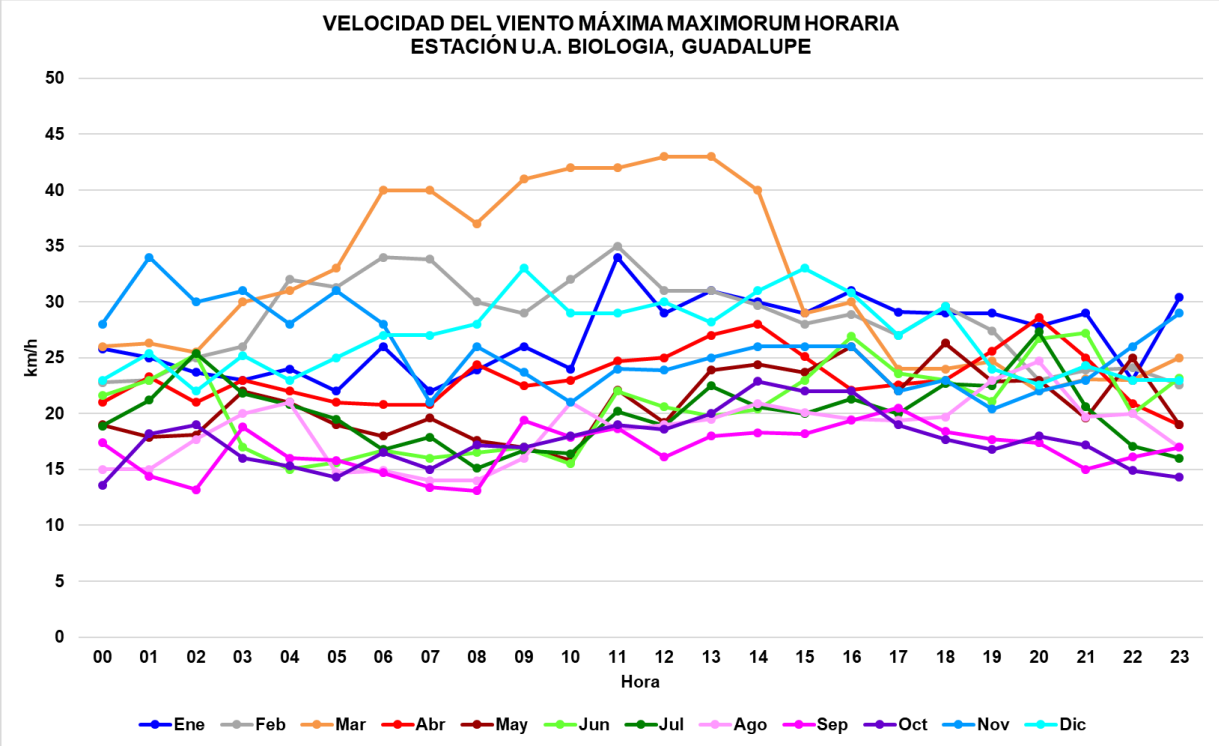


Figura 595. Velocidad del viento máxima maximorum (km/h) horaria de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 664. Frecuencia de velocidad del viento (%) mensual de la estación U. A. Biología, Guadalupe (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	58.1	46.9	42.7	36.9	42.2	47.2	53.8	56.2	61.7	63.3	65.2	61.5	53.1
5.1 a 10.0	31.5	37.2	40.4	46.1	47.0	40.7	37.8	36.4	34.5	31.8	29.5	29.6	36.8
10.1 a 15.0	7.9	11.7	13.4	14.8	10.2	11.4	8.0	7.1	3.7	4.7	4.7	7.1	8.7
15.1 a 20.0	1.8	3.4	2.8	2.0	0.6	0.7	0.4	0.3	0.1	0.2	0.4	1.3	1.2
20.1 a 25.0	0.5	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2
25.1 a 30.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
30.1 a 35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

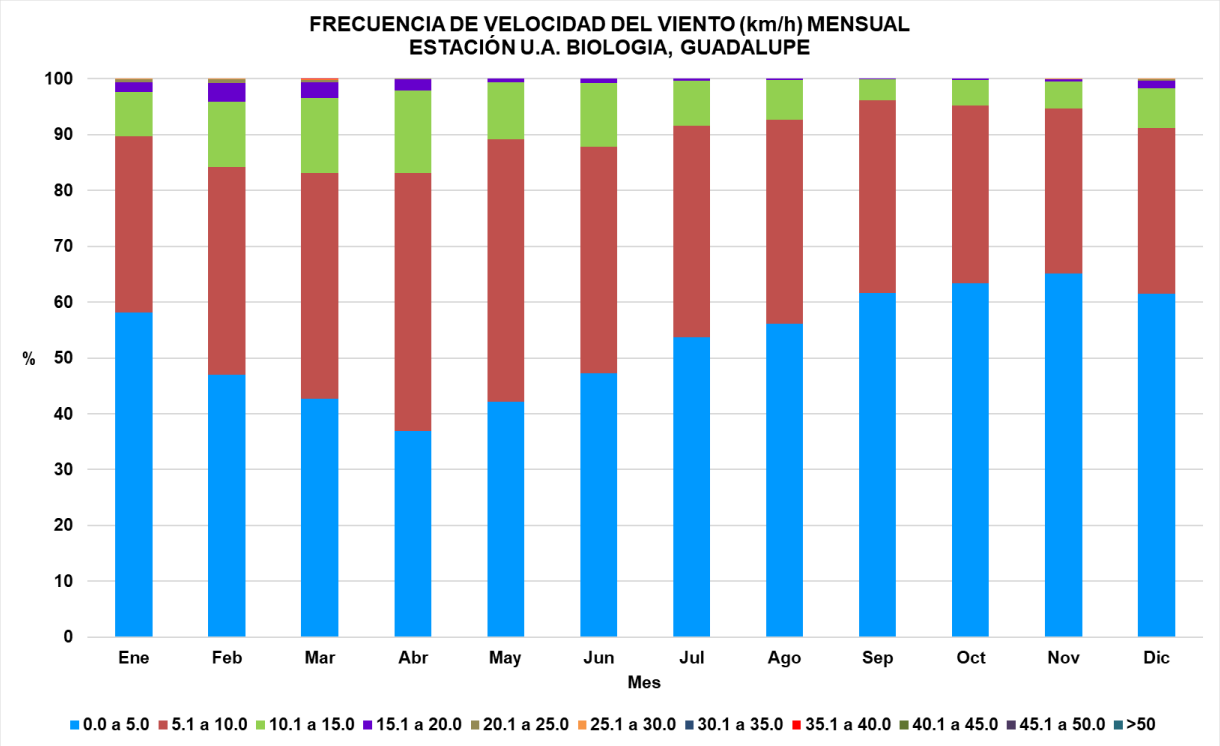


Figura 596. Frecuencia de velocidad del viento (%) mensual de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 665. Frecuencia de dirección del viento (%) mensual de la estación U. A. Biología, Guadalupe (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	2.6	2.5	2.5	2.0	2.7	2.2	1.6	1.8	2.6	2.9	3.3	2.8	2.5
NNE	2.2	2.0	1.8	1.6	2.4	3.3	2.6	2.9	3.9	3.4	2.9	2.2	2.6
NE	3.4	2.8	2.5	2.2	3.5	6.1	5.4	6.2	8.3	5.8	4.3	3.4	4.5
ENE	4.2	3.3	3.2	2.9	5.0	10.8	10.7	12.5	13.6	9.7	6.2	4.1	7.2
E	5.4	4.2	4.6	3.9	6.1	14.9	17.2	18.3	16.6	12.6	8.3	4.6	9.8
ESE	5.4	4.4	5.0	4.3	6.3	13.0	14.8	15.2	12.3	9.9	7.5	4.8	8.6
SE	6.0	4.5	5.0	4.4	6.4	10.2	10.9	11.1	9.1	7.9	6.6	4.6	7.2
SSE	5.6	4.8	4.9	4.4	7.0	9.1	9.3	8.8	7.1	7.0	6.1	5.2	6.6
S	7.4	7.3	7.0	6.6	7.8	7.9	7.6	6.5	6.2	7.6	7.5	8.3	7.3
SSO	12.9	14.8	13.0	12.4	9.3	4.9	4.8	3.7	4.1	7.1	9.6	13.9	9.2
SO	11.3	13.8	13.7	13.9	8.9	2.5	2.0	1.8	2.0	4.1	7.3	10.6	7.6
OSO	9.4	10.1	10.2	11.7	8.3	2.4	2.0	1.6	1.7	3.7	6.9	8.7	6.4
O	9.1	8.9	9.6	11.3	9.4	3.7	3.4	2.8	3.1	5.3	7.7	10.0	7.0
ONO	9.2	10.3	10.3	11.6	10.1	5.1	4.7	4.4	4.9	7.0	8.9	10.0	8.0
NO	3.7	3.9	4.4	4.5	4.0	2.2	1.8	1.5	2.7	3.6	4.2	4.1	3.4
NNO	2.2	2.2	2.3	2.3	2.6	1.6	1.1	1.0	1.8	2.4	2.7	2.7	2.1
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

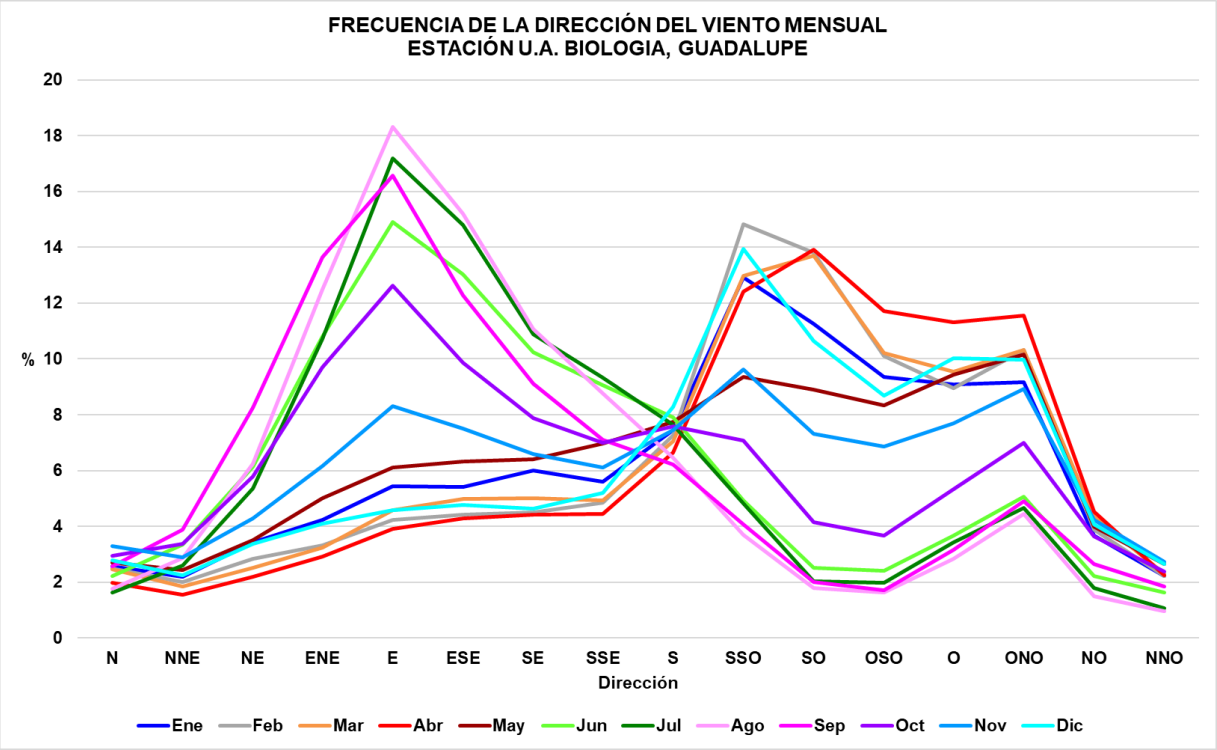


Figura 597. Frecuencia de dirección del viento (%) mensual de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 666. Frecuencia de dirección del viento (%) trimestral de la estación U. A. Biología, Guadalupe (2003-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	2.5	2.3	2.0	3.0	2.5
NNE	2.0	2.5	3.1	2.8	2.6
NE	2.9	4.0	6.6	4.5	4.5
ENE	3.6	6.2	12.3	6.6	7.2
E	4.8	8.3	17.4	8.5	9.8
ESE	4.9	7.9	14.1	7.3	8.6
SE	5.2	7.0	10.4	6.3	7.2
SSE	5.1	6.8	8.4	6.1	6.6
S	7.2	7.4	6.8	7.8	7.3
SSO	13.5	8.9	4.2	10.3	9.2
SO	12.9	8.4	1.9	7.4	7.6
OSO	9.9	7.5	1.8	6.4	6.4
O	9.2	8.1	3.1	7.7	7.0
ONO	9.9	8.9	4.7	8.7	8.0
NO	4.0	3.6	2.0	4.0	3.4
NNO	2.2	2.2	1.3	2.6	2.1
Suma	100.0	100.0	100.0	100.0	100.0

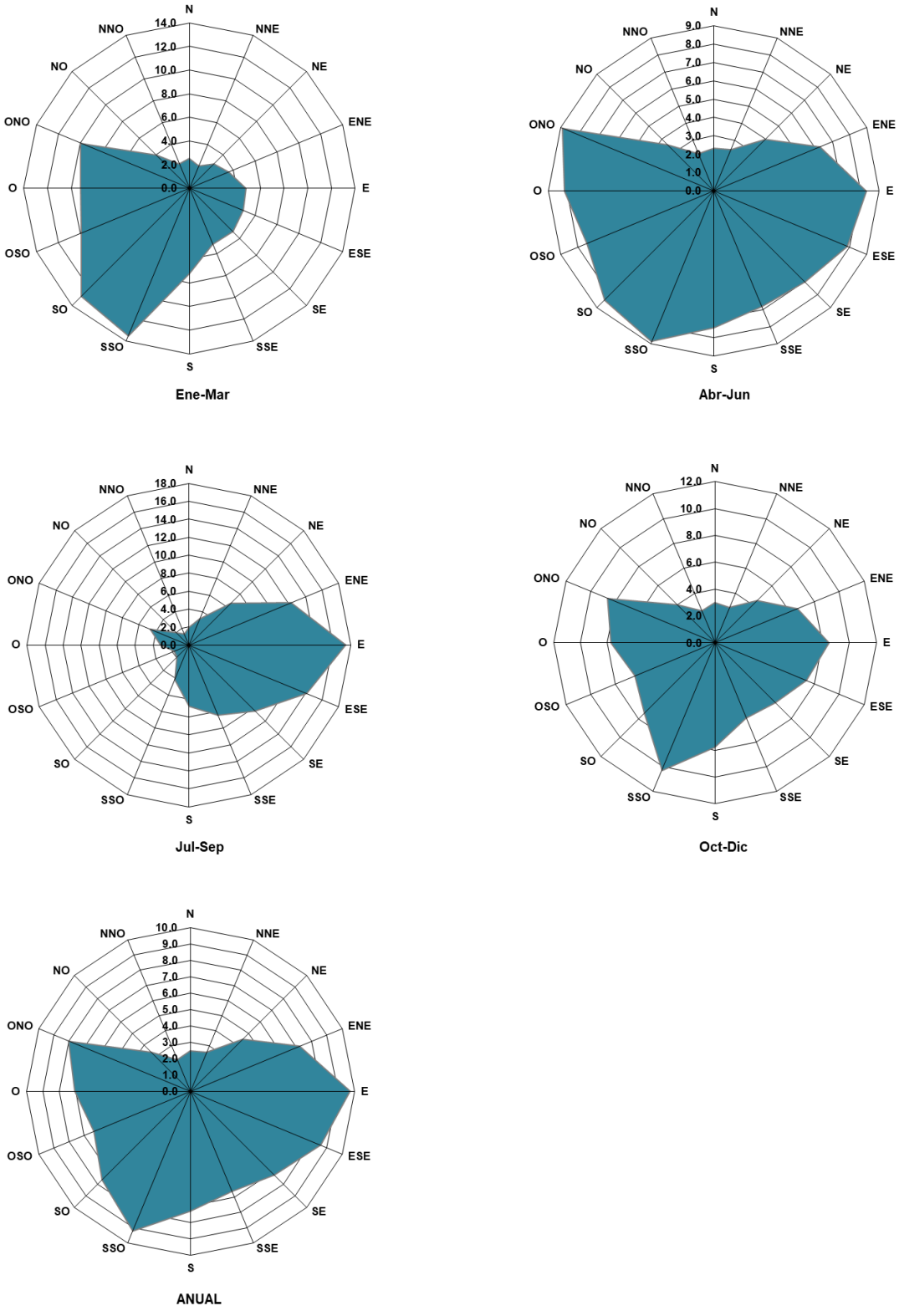


Figura 598. Frecuencia de dirección del viento (%) trimestral de la estación U. A. Biología, Guadalupe (2003-2022).

Cuadro 667. Estadísticas climatológicas mensuales de la estación U. A. Biología, Guadalupe (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	19.6	21.8	24.3	26.9	28.2	26.7	24.6	24.8	23.1	23.5	21.8	20.3	23.8
Temperatura máxima maximorum (°C)	27.8	29.9	31.8	31.8	33.9	32.9	30.0	29.0	28.5	29.2	27.7	27.0	33.9
Temperatura mínima media (°C)	6.4	8.0	9.7	12.2	13.7	13.9	13.2	13.2	12.7	11.2	8.4	7.1	10.8
Temperatura mínima minimorum (°C)	-2.8	-3.2	-0.6	2.8	6.5	9.7	10.0	9.1	7.4	1.5	-3.3	-8.4	-8.4
Temperatura media (°C)	12.5	14.7	16.9	19.5	20.9	19.9	18.3	18.4	17.2	16.8	14.7	13.3	16.9
Oscilación térmica (°C)	13.2	13.8	14.7	14.7	14.5	12.8	11.4	11.7	10.5	12.3	13.3	13.2	13.0
Precipitación acumulada media (mm)	14.5	17.2	12.0	4.1	15.1	76.0	96.1	83.9	101.1	28.3	14.3	11.4	473.9
Precipitación máxima maximorum en 24 horas (mm)	25.0	53.0	34.4	19.0	33.4	49.8	47.4	61.2	77.2	45.8	38.2	29.8	77.2
Número de días promedio con lluvia	3.9	3.7	3.9	2.2	4.8	10.7	14.4	12.5	12.4	6.2	3.9	3.4	82.1
Evapotranspiración acumulada potencial media (mm)	102.1	122.1	163.9	184.4	188.5	159.6	148.1	146.4	115.0	119.7	102.4	97.5	1649.8
Humedad máxima media (%)	67.0	58.2	52.5	48.0	59.4	78.9	86.5	87.6	89.9	80.6	74.2	65.9	70.7
Humedad máxima maximorum (%)	99.0	100.0	98.0	98.0	97.0	99.0	100.0	100.0	100.0	99.0	100.0	100.0	100.0
Humedad mínima media (%)	21.8	17.4	13.5	11.1	14.0	25.8	34.8	35.0	42.8	31.8	25.1	21.8	24.6
Humedad mínima minimorum (%)	3.0	4.0	2.0	3.0	3.0	4.0	11.0	14.0	12.9	6.2	3.0	4.0	2.0
Humedad media (%)	42.5	35.1	29.4	25.6	32.9	51.6	62.0	62.4	68.8	56.5	48.5	42.1	46.5
Radiación global media día/mes (W/m^2)	17469.7	21450.4	25354.6	28295.2	28130.4	25678.4	24263.5	23906.5	20155.6	20101.3	18091.4	16498.6	22449.6
Radiación global media día/mes (kWh/m^2)	4.4	5.4	6.3	7.1	7.0	6.4	6.1	6.0	5.0	5.0	4.5	4.1	5.6
Radiación global media día/mes ($Mj/m^2/s$)	15.7	19.3	22.8	25.5	25.3	23.1	21.8	21.5	18.1	18.1	16.3	14.8	20.2
Velocidad del viento máxima media (km/h)	12.5	13.8	14.3	14.5	14.1	14.2	13.1	12.6	11.2	11.0	11.0	11.6	12.8
Velocidad del viento máxima maximorum (km/h)	34.0	35.0	43.0	28.6	26.3	27.2	27.3	24.7	20.5	22.9	34.0	33.0	43.0
Velocidad del viento media (km/h)	5.0	6.0	6.2	6.6	5.8	5.7	5.1	4.9	4.3	4.2	4.1	4.6	5.2
Dirección dominante del viento	SSO	SSO	SO	SO	ONO	E	E	E	E	E	SSO	SSO	E

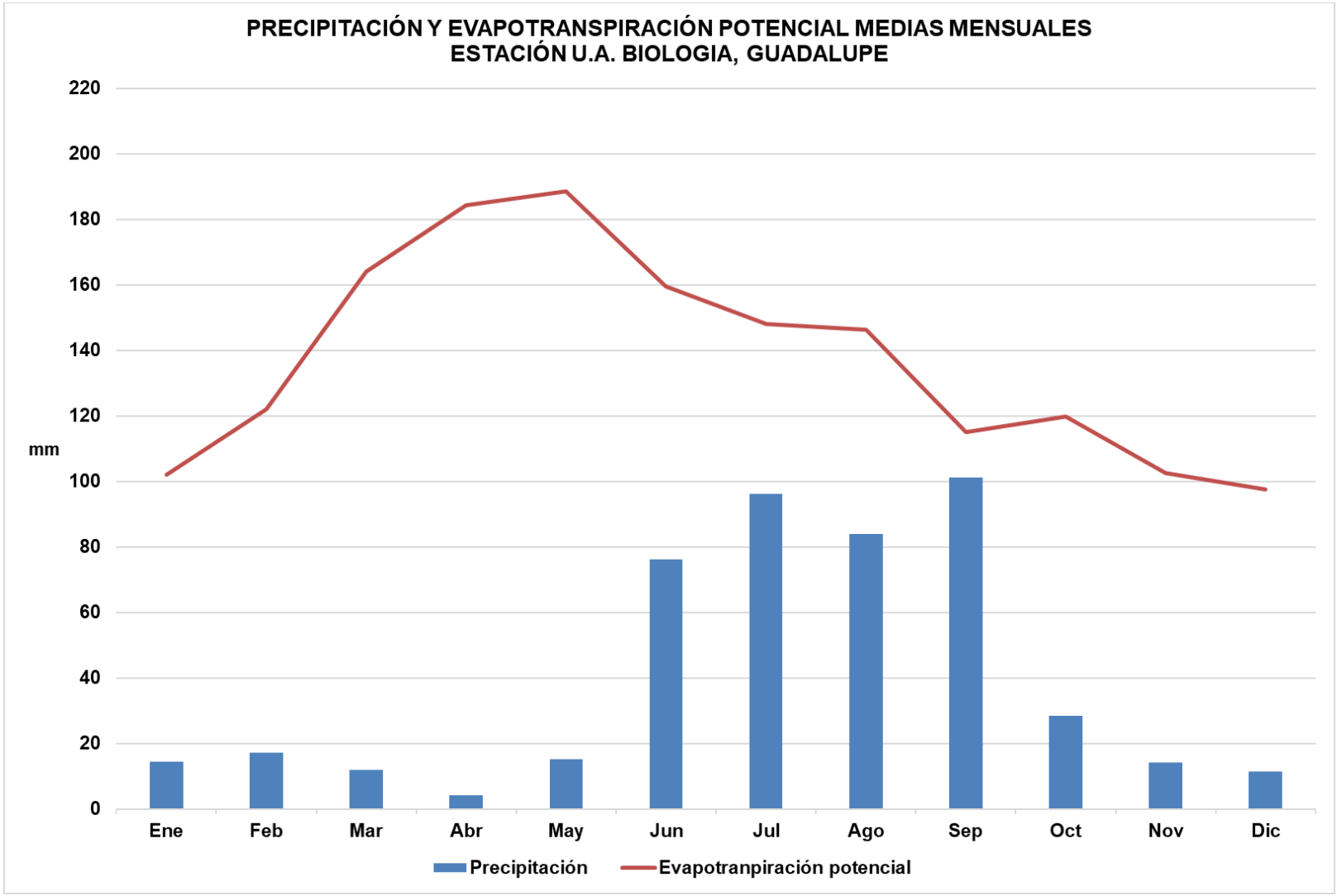


Figura 599. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación U. A. Biología, Guadalupe (2003-2022).

7.36. Estación: Villanueva, Villanueva

Cuadro 668. Temperatura máxima media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	8.3	10.5	13.0	16.9	19.4	20.0	17.8	17.7	16.5	14.3	9.8	7.8	14.3
01	7.2	9.2	11.6	15.3	18.1	19.1	17.1	16.9	15.8	13.3	8.7	6.7	13.3
02	6.2	8.0	10.2	13.8	16.9	18.2	16.5	16.3	15.2	12.3	7.8	5.7	12.3
03	5.3	7.0	9.1	12.5	15.6	17.4	16.0	15.7	14.7	11.6	6.8	4.8	11.4
04	4.5	6.1	8.0	11.2	14.4	16.6	15.5	15.1	14.3	10.9	6.1	4.1	10.6
05	3.8	5.2	7.1	10.0	13.4	15.9	15.0	14.6	13.8	10.3	5.4	3.4	9.8
06	3.1	4.5	6.3	9.0	12.4	15.2	14.5	14.2	13.5	9.7	4.8	2.7	9.2
07	2.8	4.6	7.9	9.2	12.7	15.4	14.5	14.1	13.4	9.8	6.0	2.8	9.4
08	6.5	9.0	13.1	13.3	16.7	18.2	16.7	16.2	15.3	12.6	11.0	7.1	13.0
09	11.2	13.8	17.9	18.5	20.9	21.0	19.2	18.9	18.1	16.4	15.6	11.8	16.9
10	15.4	17.9	21.4	22.4	24.0	23.1	21.3	21.3	20.7	19.8	19.5	16.1	20.3
11	18.6	20.8	23.8	25.0	26.4	25.1	23.0	23.2	22.7	22.5	22.0	19.5	22.7
12	20.6	22.6	25.3	26.9	28.3	26.8	24.5	24.6	24.0	24.3	23.5	21.4	24.4
13	21.7	23.8	26.4	28.2	29.7	28.1	25.6	25.6	25.1	25.5	24.4	22.4	25.5
14	22.3	24.4	27.0	29.1	30.7	28.9	26.3	26.3	25.6	26.2	24.9	22.9	26.2
15	22.5	24.6	27.2	29.6	31.1	29.2	26.3	26.5	25.6	26.4	24.9	23.0	26.4
16	22.2	24.4	27.0	29.7	31.0	29.0	26.1	26.4	25.3	26.2	24.4	22.6	26.2
17	21.3	23.7	26.3	29.2	30.6	28.5	25.8	25.8	24.5	25.5	23.1	21.5	25.5
18	19.3	22.0	24.8	28.4	29.8	27.7	24.9	25.0	23.4	23.7	20.0	18.5	24.0
19	15.9	18.8	21.9	26.7	28.4	26.3	23.4	23.5	21.7	21.2	17.0	15.4	21.7
20	14.0	16.4	19.1	24.1	26.2	24.5	21.7	21.3	19.4	18.7	15.4	13.5	19.5
21	12.5	14.9	17.5	21.5	23.7	22.8	20.1	19.8	18.4	17.4	14.0	12.0	17.9
22	11.1	13.4	16.0	19.9	22.2	21.7	19.2	19.0	17.7	16.3	12.6	10.6	16.7
23	9.7	12.1	14.6	18.5	20.9	20.8	18.5	18.3	17.0	15.3	11.1	9.1	15.5
Media	12.8	14.9	17.6	20.4	22.7	22.5	20.4	20.3	19.2	17.9	14.9	12.7	18.0

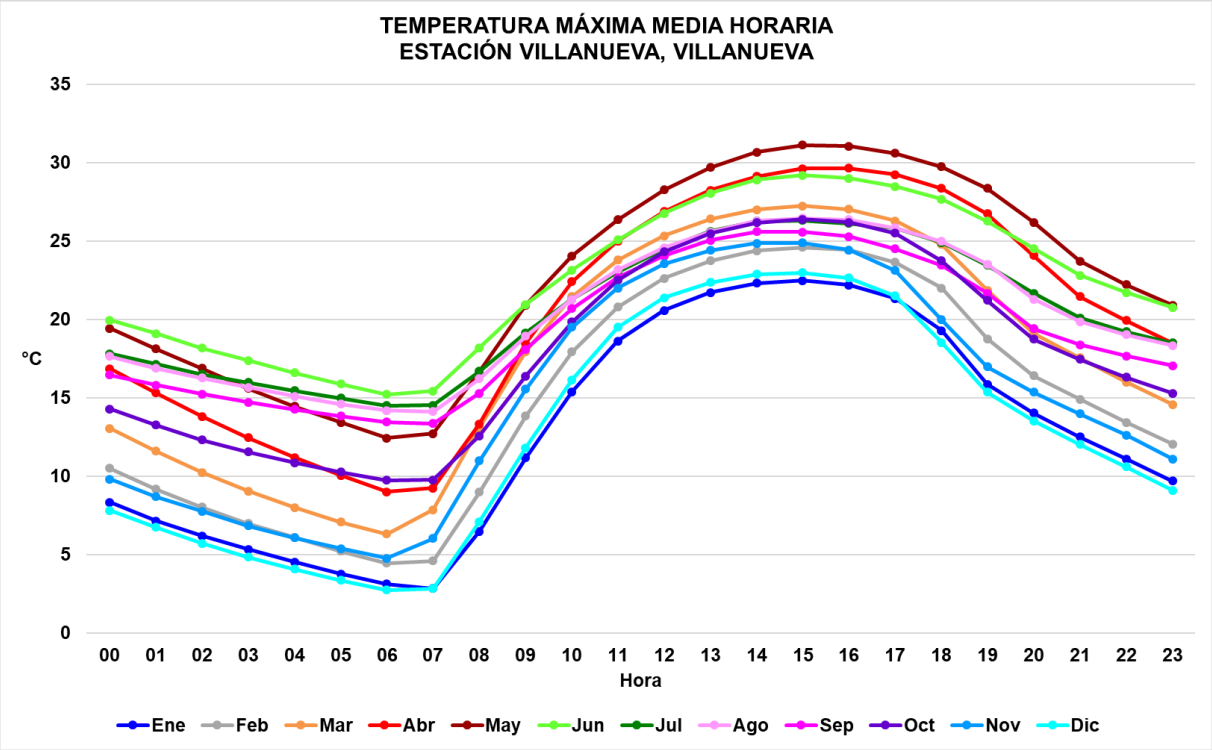


Figura 600. Temperatura máxima media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 669. Temperatura máxima maximorum (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	16.5	20.7	20.9	23.6	27.5	26.2	24.0	23.9	21.6	21.0	17.8	16.8	27.5
01	14.9	17.7	20.1	23.2	26.2	25.5	23.1	22.7	21.7	20.0	17.8	16.4	26.2
02	14.6	16.1	19.6	21.1	25.8	24.6	23.0	21.6	20.8	19.1	17.1	14.7	25.8
03	14.9	14.7	18.0	20.2	23.8	23.5	22.7	21.2	20.3	18.5	16.7	14.7	23.8
04	14.3	13.8	17.6	20.4	22.8	23.0	21.0	20.2	21.5	17.9	16.5	14.9	23.0
05	14.2	14.6	17.3	19.9	21.8	21.9	20.4	19.8	22.4	18.5	16.6	14.9	22.4
06	14.0	14.0	16.8	17.1	21.3	20.9	19.9	19.3	23.4	18.5	16.6	14.9	23.4
07	13.7	14.3	17.1	18.5	22.2	20.2	18.8	18.7	21.5	17.4	16.9	15.3	22.2
08	15.6	16.8	21.3	22.2	24.3	23.3	21.4	21.0	21.9	19.6	19.6	16.9	24.3
09	18.9	21.5	24.8	25.2	27.7	26.6	24.6	23.4	22.7	22.6	22.3	19.1	27.7
10	22.0	25.7	28.0	28.5	30.3	28.4	26.9	25.5	24.8	26.2	26.9	22.9	30.3
11	25.5	29.1	30.5	31.8	32.7	31.2	28.5	27.1	26.8	28.2	27.9	26.6	32.7
12	27.2	30.0	32.4	33.0	34.1	34.1	30.5	29.0	28.3	29.5	29.7	28.9	34.1
13	28.8	30.7	33.9	33.7	35.4	34.5	31.5	30.0	29.4	30.2	31.1	29.4	35.4
14	29.2	31.8	34.7	34.8	36.7	35.2	32.2	31.3	30.9	32.0	31.3	29.8	36.7
15	29.9	31.8	34.9	35.6	36.7	36.9	32.7	32.4	31.1	31.9	31.6	29.6	36.9
16	29.9	31.9	34.9	35.2	37.3	36.7	33.3	32.5	31.5	31.5	31.0	29.1	37.3
17	28.6	31.0	34.6	34.6	37.2	36.1	33.2	32.3	31.1	31.2	29.3	28.0	37.2
18	26.4	30.1	33.4	34.1	36.4	35.8	33.3	31.9	31.2	31.1	26.1	25.8	36.4
19	22.4	27.6	28.4	32.5	35.4	35.5	30.8	31.3	29.1	29.2	22.9	21.9	35.5
20	21.8	24.9	26.9	30.5	34.1	33.1	29.5	29.3	26.6	24.5	21.5	19.3	34.1
21	20.6	22.6	26.3	27.5	30.3	29.8	27.4	26.7	23.9	23.4	20.4	18.8	30.3
22	19.4	22.4	24.7	26.3	30.0	28.9	25.9	25.1	22.8	23.0	19.7	18.1	30.0
23	18.1	21.3	23.1	24.2	28.4	26.8	25.2	24.6	22.7	22.5	18.6	16.9	28.4
Máx.	29.9	31.9	34.9	35.6	37.3	36.9	33.3	32.5	31.5	32.0	31.6	29.8	37.3

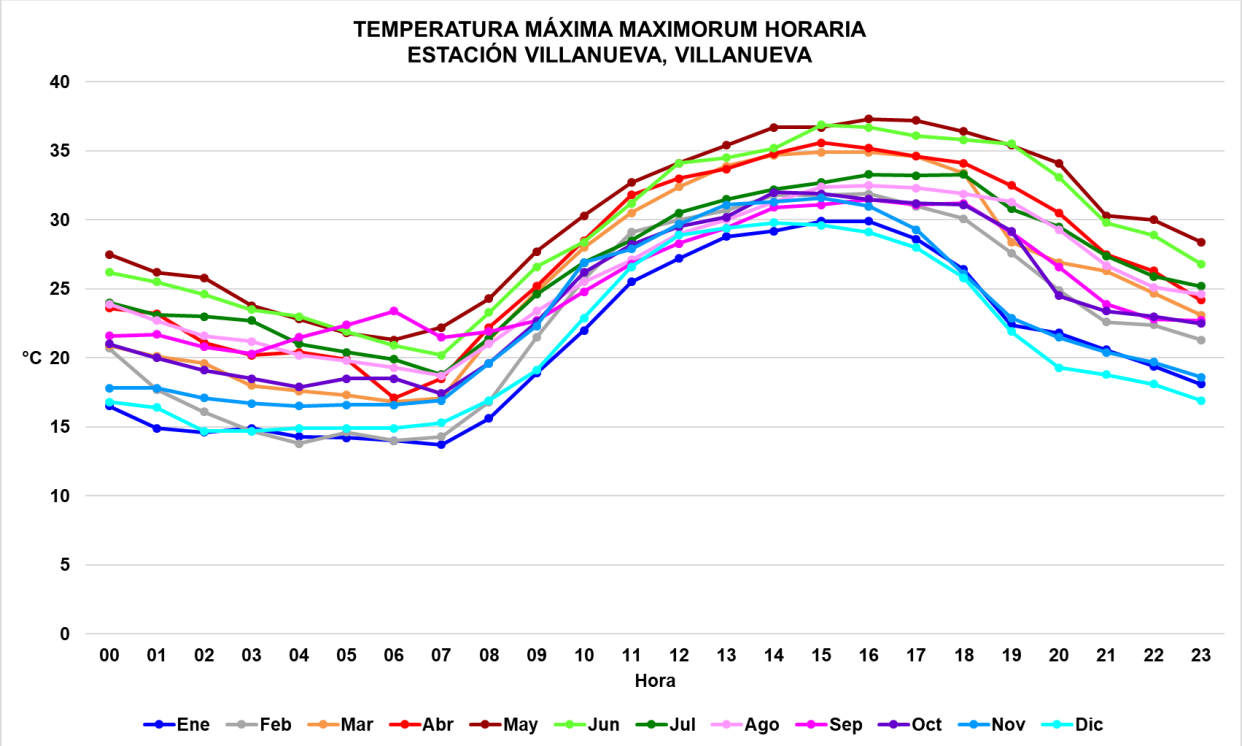


Figura 601. Temperatura máxima maximorum (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 670. Temperatura mínima media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.0	9.0	11.5	15.1	17.9	19.0	17.0	16.7	15.6	13.1	8.5	6.5	13.1
01	5.9	7.9	10.1	13.7	16.7	18.1	16.4	16.1	15.1	12.1	7.6	5.6	12.1
02	5.1	6.7	8.9	12.3	15.4	17.2	15.7	15.5	14.5	11.3	6.6	4.6	11.2
03	4.2	5.7	7.8	11.0	14.2	16.4	15.3	14.9	14.0	10.6	5.7	3.7	10.3
04	3.4	4.9	6.8	9.8	13.2	15.7	14.8	14.3	13.6	10.0	5.1	3.0	9.6
05	2.7	4.1	5.9	8.8	12.2	15.0	14.3	13.9	13.2	9.4	4.4	2.3	8.8
06	2.0	3.4	5.1	7.7	11.3	14.4	13.8	13.5	12.8	8.9	3.8	1.7	8.2
07	1.6	3.0	5.2	7.4	11.0	14.2	13.7	13.2	12.6	8.6	3.8	1.5	8.0
08	2.8	5.1	9.1	9.6	13.4	15.9	14.8	14.2	13.3	9.7	7.3	3.3	9.9
09	7.6	10.2	14.4	14.6	17.8	18.9	17.3	16.9	15.9	13.5	12.2	8.2	14.0
10	12.2	14.9	18.9	19.6	21.8	21.5	19.6	19.5	18.7	17.3	16.6	12.9	17.8
11	16.3	18.7	22.1	23.1	24.6	23.6	21.7	21.7	21.1	20.5	20.2	17.1	20.9
12	19.1	21.2	24.1	25.5	26.8	25.4	23.2	23.3	22.8	22.9	22.3	20.0	23.1
13	20.7	22.8	25.4	27.1	28.5	26.8	24.3	24.4	23.8	24.3	23.5	21.4	24.4
14	21.5	23.6	26.2	28.2	29.6	27.5	24.8	24.9	24.2	25.1	24.1	22.1	25.1
15	21.7	23.9	26.4	28.8	30.1	27.8	24.7	25.0	24.1	25.2	24.1	22.3	25.4
16	21.4	23.7	26.2	28.8	30.0	27.5	24.6	24.7	23.6	25.0	23.4	21.7	25.0
17	19.9	22.4	25.1	28.3	29.5	27.1	24.2	24.3	23.0	24.0	21.0	19.5	24.0
18	16.5	19.7	22.7	27.1	28.5	26.3	23.4	23.5	21.9	21.8	17.2	15.7	22.0
19	14.1	16.6	19.4	24.8	26.7	24.8	21.9	21.7	19.7	19.0	15.3	13.5	19.8
20	12.4	14.8	17.4	21.8	24.1	23.0	20.2	19.8	18.2	17.3	13.8	11.8	17.9
21	10.9	13.2	15.9	19.7	22.1	21.6	19.1	18.8	17.4	16.1	12.5	10.4	16.5
22	9.5	11.9	14.3	18.3	20.7	20.7	18.3	18.1	16.8	15.0	11.1	9.1	15.3
23	8.2	10.5	12.9	16.7	19.4	19.8	17.6	17.4	16.2	14.0	9.6	7.6	14.2
Media	11.1	13.2	15.9	18.7	21.1	21.2	19.2	19.0	18.0	16.5	13.3	11.1	16.5

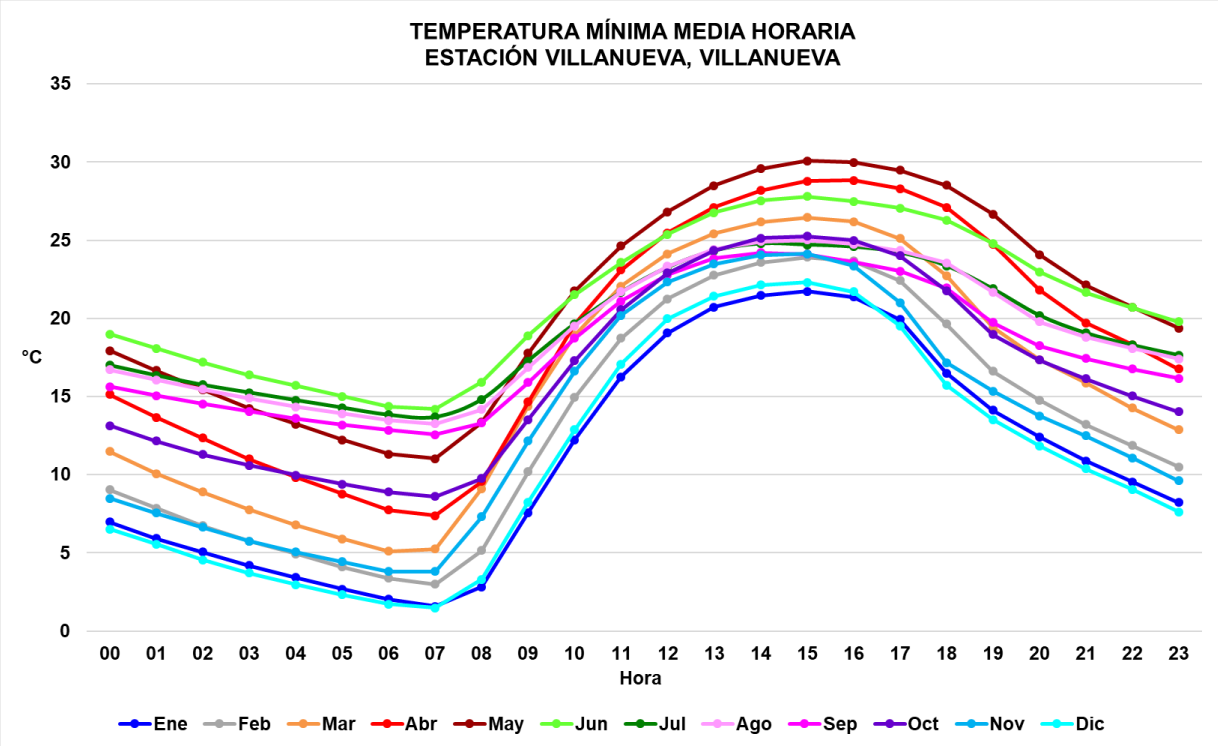


Figura 602. Temperatura mínima media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 671. Temperatura mínima minimorum (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	-2.2	1.0	2.0	7.3	10.1	13.4	12.4	12.6	8.0	5.0	-5.0	-3.1	-5.0
01	-4.6	-0.4	1.1	5.8	8.0	13.1	12.5	10.4	7.3	2.9	-6.8	-2.6	-6.8
02	-5.4	-1.6	0.7	3.7	7.1	11.5	9.8	9.4	6.6	1.3	-7.7	-4.4	-7.7
03	-5.8	-1.8	-0.9	1.7	6.0	11.4	9.3	8.4	5.9	0.0	-7.6	-5.1	-7.6
04	-6.2	-3.2	-1.2	0.2	4.2	10.3	9.4	8.2	5.1	0.6	-8.9	-7.2	-8.9
05	-9.4	-4.5	-2.9	-0.3	3.3	9.0	8.7	7.3	4.3	-0.2	-10.7	-8.4	-10.7
06	-9.6	-6.0	-5.0	-1.9	2.4	8.0	8.2	6.9	3.9	-1.9	-10.4	-7.9	-10.4
07	-9.5	-6.4	-4.5	-2.3	2.1	7.1	7.7	6.5	3.8	-2.2	-9.9	-9.1	-9.9
08	-9.4	-5.0	-0.5	1.1	4.5	8.6	9.4	8.1	4.8	-0.4	-6.1	-7.6	-9.4
09	-3.0	0.7	4.3	7.3	8.0	13.8	12.0	12.3	9.8	4.7	0.3	-0.9	-3.0
10	1.5	4.7	2.7	13.1	11.0	14.6	15.0	14.4	13.0	10.5	5.8	2.6	1.5
11	1.6	7.3	3.4	16.1	13.1	15.4	14.9	15.3	15.6	14.8	7.7	6.8	1.6
12	1.0	7.7	3.9	18.1	16.5	16.2	16.0	17.0	14.8	15.3	10.1	3.2	1.0
13	2.4	9.7	5.5	18.2	18.2	16.7	15.3	17.7	14.7	15.0	10.4	1.8	1.8
14	4.2	8.7	7.2	18.2	18.7	16.8	13.9	15.3	14.6	15.3	10.6	1.7	1.7
15	3.2	7.0	9.6	19.4	14.8	15.1	13.4	14.2	14.6	14.1	10.7	1.4	1.4
16	5.2	7.4	9.6	13.7	16.1	16.0	14.1	14.7	13.3	12.8	10.1	1.5	1.5
17	4.7	8.2	9.7	14.3	15.0	13.8	14.6	13.3	13.6	13.4	7.9	2.3	2.3
18	4.2	8.2	7.7	13.6	14.9	10.8	13.9	14.5	13.4	13.8	6.0	2.7	2.7
19	3.4	7.4	3.9	13.7	13.9	14.5	12.7	12.9	14.6	13.0	5.5	2.6	2.6
20	2.9	6.5	3.4	13.7	14.3	12.9	12.8	13.7	13.2	10.7	4.4	1.7	1.7
21	2.1	5.8	4.1	11.5	14.2	13.2	13.3	13.1	12.7	8.5	1.9	-0.2	-0.2
22	0.4	4.1	4.0	9.8	13.5	13.2	12.2	13.3	11.7	7.4	-0.8	-0.9	-0.9
23	-1.0	2.5	3.5	8.2	11.1	13.4	13.1	13.1	9.3	4.9	-1.7	-2.1	-2.1
Mín.	-9.6	-6.4	-5.0	-2.3	2.1	7.1	7.7	6.5	3.8	-2.2	-10.7	-9.1	-10.7

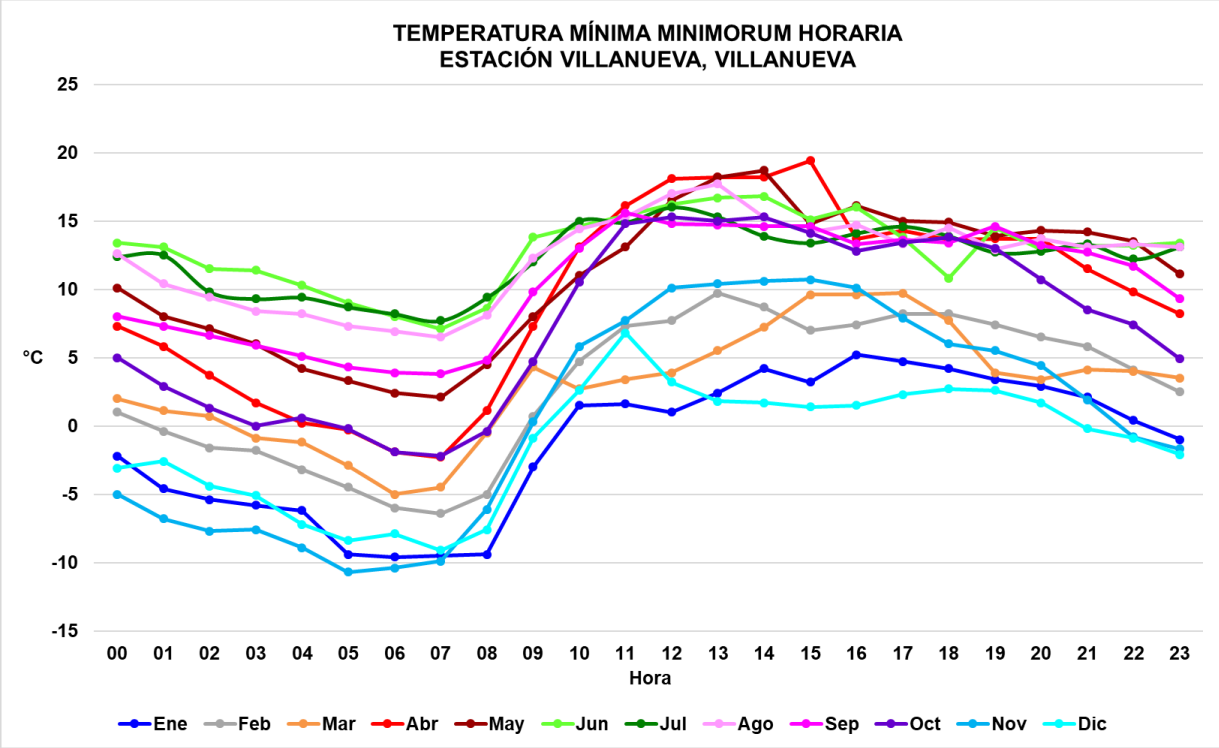


Figura 603. Temperatura mínima minimorum (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 672. Temperatura media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	7.7	9.8	12.3	16.0	18.7	19.5	17.4	17.2	16.0	13.7	9.2	7.2	13.7
01	6.5	8.5	10.8	14.5	17.4	18.6	16.8	16.5	15.4	12.7	8.1	6.2	12.7
02	5.6	7.4	9.6	13.1	16.2	17.7	16.1	15.9	14.9	11.8	7.2	5.1	11.7
03	4.8	6.4	8.4	11.7	14.9	16.9	15.6	15.3	14.4	11.1	6.3	4.3	10.8
04	4.0	5.5	7.4	10.5	13.8	16.1	15.1	14.7	13.9	10.4	5.6	3.5	10.1
05	3.2	4.7	6.5	9.4	12.8	15.4	14.6	14.3	13.5	9.8	4.9	2.8	9.3
06	2.6	3.9	5.7	8.4	11.9	14.8	14.2	13.8	13.2	9.3	4.3	2.2	8.7
07	2.2	3.7	6.4	8.3	11.8	14.8	14.1	13.7	12.9	9.1	4.8	2.1	8.7
08	4.7	7.1	11.1	11.4	15.0	17.1	15.7	15.2	14.3	11.1	9.2	5.2	11.4
09	9.4	12.0	16.2	16.6	19.4	19.9	18.2	17.9	17.0	15.0	13.9	10.0	15.5
10	13.8	16.5	20.2	21.1	22.9	22.3	20.5	20.4	19.7	18.6	18.1	14.5	19.1
11	17.5	19.8	22.9	24.1	25.5	24.3	22.4	22.4	21.9	21.5	21.1	18.3	21.8
12	19.8	22.0	24.7	26.2	27.5	26.1	23.9	23.9	23.4	23.6	22.9	20.7	23.7
13	21.2	23.3	25.9	27.7	29.1	27.4	25.0	25.0	24.4	24.9	24.0	21.9	25.0
14	21.9	24.0	26.6	28.7	30.1	28.2	25.5	25.6	24.9	25.7	24.5	22.5	25.7
15	22.1	24.3	26.9	29.2	30.6	28.5	25.5	25.7	24.9	25.8	24.5	22.6	25.9
16	21.8	24.1	26.6	29.2	30.5	28.2	25.4	25.6	24.4	25.6	23.9	22.2	25.6
17	20.7	23.1	25.7	28.8	30.0	27.8	25.0	25.1	23.8	24.8	22.1	20.6	24.8
18	17.9	20.9	23.8	27.7	29.1	27.0	24.1	24.3	22.7	22.8	18.5	17.1	23.0
19	15.0	17.6	20.6	25.8	27.5	25.5	22.7	22.6	20.7	20.0	16.2	14.5	20.7
20	13.2	15.6	18.2	22.9	25.1	23.8	20.9	20.5	18.8	18.0	14.6	12.7	18.7
21	11.7	14.1	16.7	20.6	22.9	22.2	19.6	19.3	17.9	16.8	13.2	11.2	17.2
22	10.3	12.7	15.2	19.1	21.5	21.2	18.8	18.6	17.2	15.7	11.8	9.9	16.0
23	9.0	11.3	13.7	17.7	20.2	20.3	18.1	17.9	16.6	14.6	10.4	8.4	14.8
Media	11.9	14.1	16.8	19.5	21.9	21.8	19.8	19.6	18.6	17.2	14.1	11.9	17.3

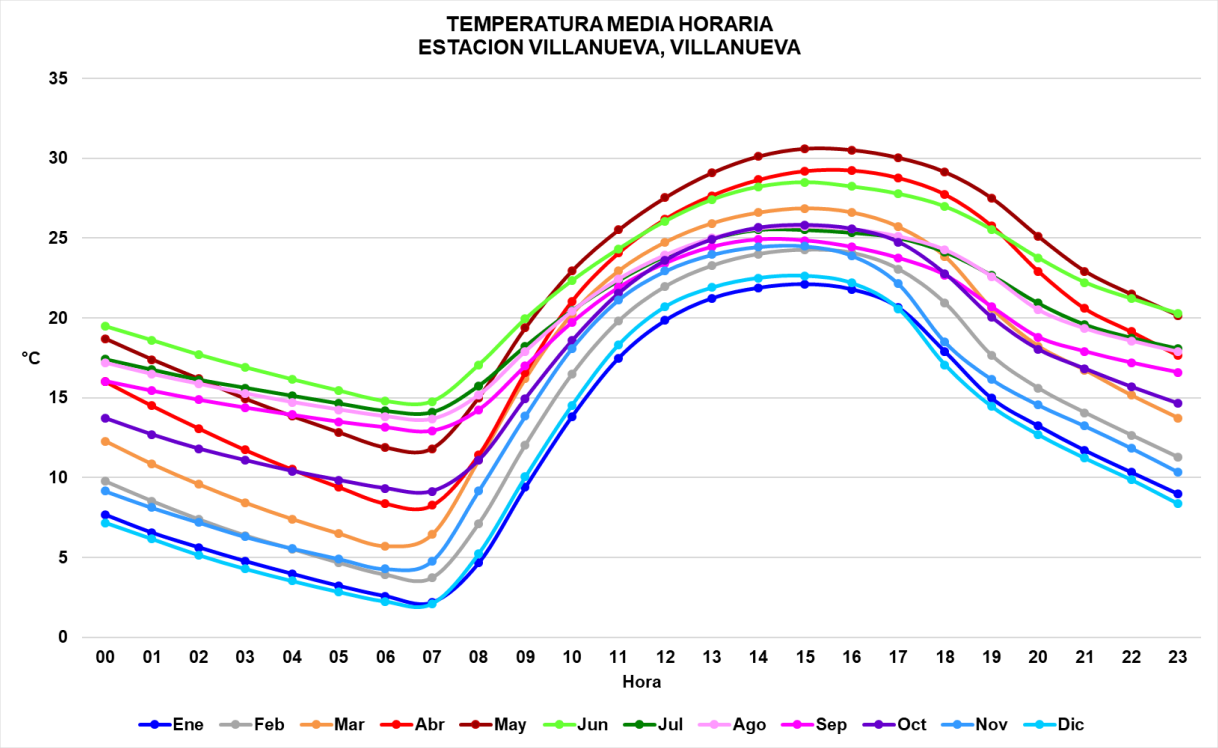


Figura 604. Temperatura media (˚C) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 673. Precipitación media (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.0	0.6	0.2	0.0	0.7	8.4	6.5	9.6	7.6	3.0	0.5	0.7	38.6
01	0.5	0.8	0.1	0.0	0.4	5.6	6.0	6.7	5.5	1.3	0.2	0.6	27.7
02	0.5	0.6	0.1	0.0	0.1	5.3	6.0	6.3	6.2	1.5	0.1	0.8	27.6
03	0.5	0.6	0.1	0.1	0.1	3.6	4.4	8.3	5.7	1.9	0.1	0.6	26.0
04	1.0	1.1	0.1	0.0	0.2	4.4	3.3	8.5	8.6	1.1	0.2	0.7	29.0
05	1.0	0.8	0.1	0.0	0.1	4.0	2.8	3.4	4.5	1.1	0.4	0.5	18.5
06	0.7	0.6	0.2	0.0	0.0	2.7	3.1	2.5	2.4	1.2	0.3	0.4	14.1
07	0.5	0.3	0.2	0.0	0.0	2.6	1.0	2.2	1.0	0.8	0.2	0.3	9.2
08	0.5	0.4	0.1	0.0	0.0	1.0	0.6	0.9	0.5	0.6	0.3	0.7	5.3
09	0.4	0.4	0.0	0.0	0.3	0.6	0.7	0.3	0.7	0.4	0.2	0.4	4.3
10	0.4	0.4	0.1	0.0	0.1	0.3	1.0	0.2	0.3	0.2	0.1	0.4	3.4
11	0.3	0.8	0.1	0.0	0.0	0.1	0.9	0.3	0.3	0.2	0.3	0.7	3.9
12	0.2	0.4	0.0	0.0	0.0	0.2	0.5	0.4	0.1	0.3	0.3	0.5	2.9
13	0.4	0.5	0.1	0.0	0.0	1.1	1.7	0.6	0.8	0.9	0.5	0.8	7.3
14	0.3	0.7	0.5	0.0	0.0	2.1	2.8	4.5	4.5	0.9	0.9	0.7	17.9
15	0.2	0.9	1.1	0.0	0.7	2.8	11.4	9.1	6.7	3.4	0.7	0.6	37.5
16	0.6	0.9	0.7	0.4	1.0	3.5	7.5	6.6	11.2	3.1	0.7	0.8	36.8
17	0.3	0.6	0.3	0.9	2.3	4.0	7.0	9.2	8.5	2.2	0.6	1.4	37.2
18	0.4	0.8	0.6	0.9	2.3	5.7	11.6	8.5	8.4	3.2	0.8	0.6	43.7
19	0.9	0.8	0.8	0.0	0.9	5.0	14.4	9.7	7.9	1.4	1.2	0.8	43.8
20	0.9	1.1	0.7	0.0	0.6	4.8	11.3	7.9	9.9	1.2	0.9	0.6	39.7
21	0.8	0.8	0.8	0.0	0.5	6.6	7.3	6.0	9.3	2.6	0.7	0.3	35.8
22	0.7	0.6	0.4	0.0	0.7	5.9	7.8	10.3	9.5	2.1	0.5	0.3	38.7
23	1.4	0.8	0.4	0.0	1.0	7.0	6.8	8.5	7.3	1.6	0.5	0.5	35.8
Suma	14.3	16.1	7.6	2.5	12.0	87.1	126.3	130.4	127.2	35.9	11.0	14.3	584.6

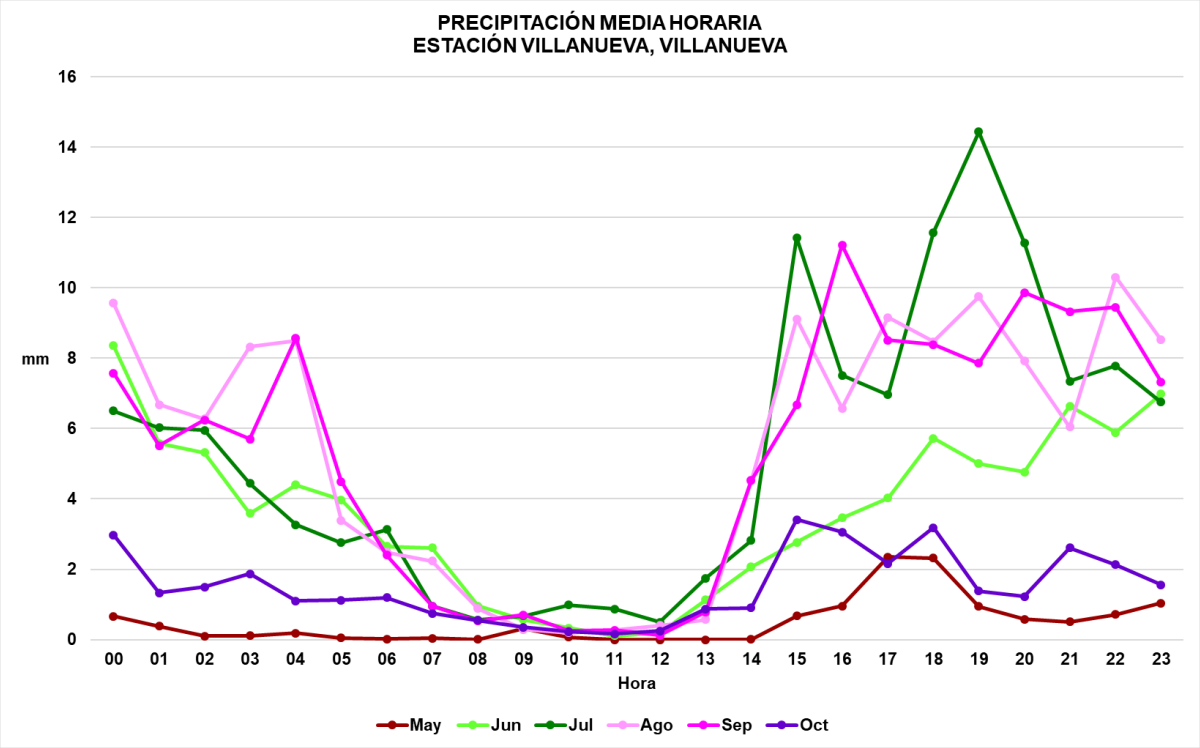


Figura 605. Precipitación media (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 674. Precipitación máxima (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	3.4	2.8	1.6	0.0	4.2	27.8	17.2	29.2	17.4	21.2	2.0	4.8	29.2
01	2.0	8.4	1.0	0.2	2.0	13.2	11.8	18.4	11.6	7.8	1.0	2.6	18.4
02	2.6	3.0	1.0	0.0	0.8	14.0	25.8	14.6	9.6	9.2	1.0	7.6	25.8
03	2.0	2.8	1.6	1.0	0.8	7.6	10.6	44.6	17.0	9.2	0.8	4.6	44.6
04	8.2	5.4	1.0	0.2	1.4	36.0	8.4	22.8	38.2	3.2	0.8	5.0	38.2
05	5.0	2.6	0.4	0.2	0.4	23.2	8.4	7.2	11.8	4.8	4.2	2.4	23.2
06	3.2	3.6	2.2	0.2	0.2	13.4	15.8	8.8	9.6	4.4	1.8	2.0	15.8
07	2.8	2.2	3.8	0.4	0.2	10.2	3.0	8.6	3.0	3.4	1.8	1.4	10.2
08	2.4	1.8	0.8	0.0	0.2	3.4	1.8	2.8	2.4	3.6	3.2	3.8	3.8
09	2.4	2.2	0.2	0.0	3.8	3.2	4.6	1.6	12.6	3.8	1.6	1.4	12.6
10	2.8	2.6	1.0	0.0	0.8	2.2	9.4	2.8	3.6	2.8	1.4	3.8	9.4
11	3.2	9.4	2.4	0.0	0.0	1.2	8.0	2.6	2.4	2.0	2.8	3.4	9.4
12	2.0	4.2	0.2	0.0	0.0	1.8	3.4	2.8	1.2	2.8	2.8	2.8	4.2
13	4.0	4.8	2.2	0.0	0.0	9.2	8.6	2.4	9.6	9.6	3.2	5.0	9.6
14	1.4	4.6	3.4	0.2	0.2	6.4	10.6	13.4	13.6	6.4	3.2	2.8	13.6
15	1.0	5.6	11.8	0.4	6.4	9.2	33.0	33.8	25.4	24.2	4.2	2.8	33.8
16	4.0	4.8	7.6	4.8	6.2	10.4	20.6	11.6	22.0	18.2	3.4	7.2	22.0
17	1.0	2.2	5.6	16.2	7.6	13.8	14.4	25.8	31.4	14.6	5.6	9.8	31.4
18	1.2	3.8	10.0	7.6	13.6	33.4	23.4	26.4	25.2	26.4	8.6	2.2	33.4
19	4.2	4.8	11.4	0.2	3.4	14.2	35.6	37.2	19.4	6.2	10.2	3.8	37.2
20	7.6	8.8	7.4	0.2	3.0	36.2	23.4	30.8	21.8	5.6	5.4	2.6	36.2
21	3.8	2.8	5.2	0.0	2.0	37.0	16.0	14.6	21.2	24.2	4.2	1.4	37.0
22	2.6	4.8	5.0	0.0	2.4	18.8	16.6	14.2	19.6	13.2	2.8	1.2	19.6
23	8.6	4.0	5.4	0.0	8.2	22.0	7.8	19.8	22.4	7.6	2.8	3.0	22.4
Máx.	8.6	9.4	11.8	16.2	13.6	37.0	35.6	44.6	38.2	26.4	10.2	9.8	44.6

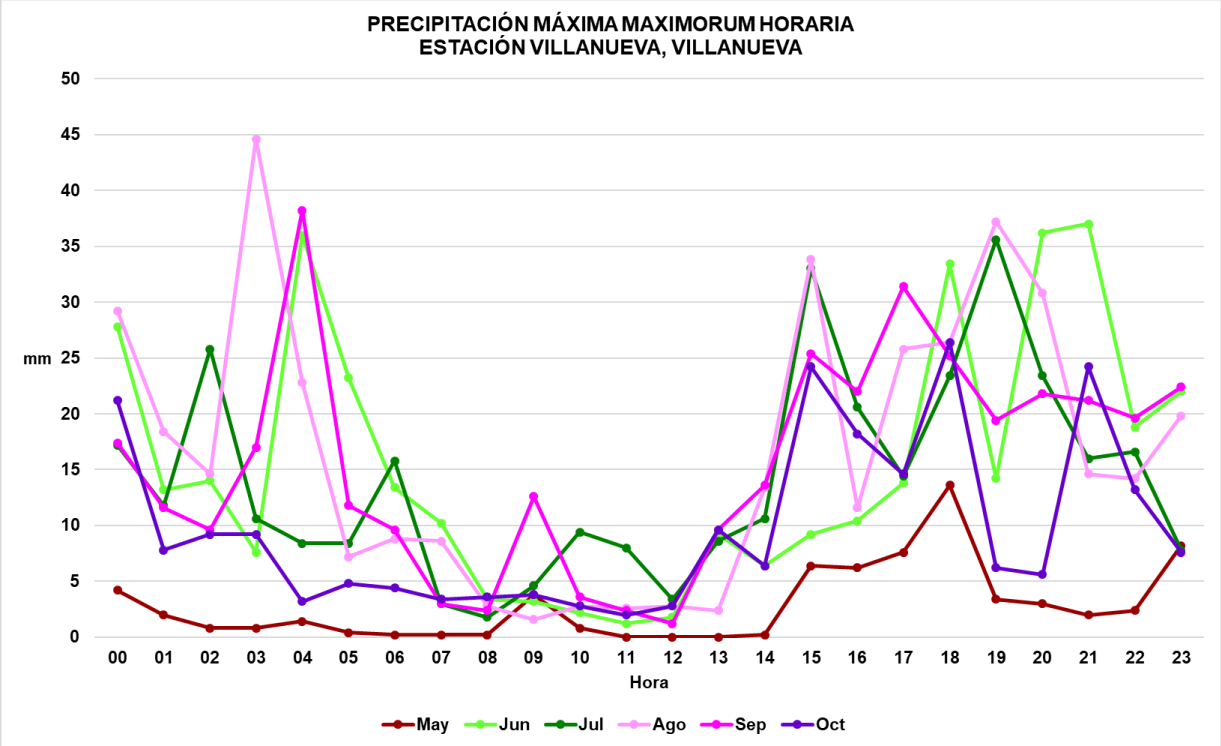


Figura 606. Precipitación máxima (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 675. Evapotranspiración potencial media (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.01	0.01	0.02	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.01
01	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	0.01	0.03	0.07	0.04	0.04	0.04	0.03	0.01	0.01	0.01	0.05	0.02	0.03
09	0.08	0.13	0.20	0.15	0.17	0.15	0.12	0.11	0.09	0.10	0.15	0.10	0.13
10	0.19	0.27	0.37	0.31	0.33	0.30	0.25	0.25	0.23	0.23	0.28	0.21	0.27
11	0.31	0.40	0.51	0.48	0.50	0.45	0.39	0.41	0.37	0.38	0.40	0.33	0.41
12	0.41	0.51	0.62	0.61	0.63	0.57	0.51	0.53	0.50	0.49	0.48	0.41	0.52
13	0.47	0.56	0.67	0.70	0.72	0.64	0.59	0.60	0.55	0.56	0.50	0.45	0.58
14	0.46	0.56	0.65	0.74	0.74	0.66	0.59	0.60	0.55	0.57	0.48	0.44	0.59
15	0.42	0.50	0.59	0.71	0.71	0.62	0.55	0.56	0.50	0.53	0.40	0.38	0.54
16	0.33	0.41	0.49	0.63	0.62	0.52	0.47	0.48	0.42	0.43	0.30	0.29	0.45
17	0.23	0.29	0.35	0.50	0.50	0.41	0.37	0.37	0.31	0.31	0.16	0.16	0.33
18	0.11	0.13	0.20	0.36	0.36	0.29	0.26	0.26	0.19	0.19	0.09	0.10	0.21
19	0.06	0.08	0.12	0.29	0.26	0.17	0.13	0.17	0.13	0.08	0.04	0.04	0.13
20	0.02	0.04	0.06	0.16	0.16	0.14	0.09	0.07	0.04	0.04	0.01	0.01	0.07
21	0.01	0.01	0.02	0.08	0.09	0.08	0.04	0.03	0.01	0.01	0.01	0.00	0.03
22	0.01	0.01	0.02	0.03	0.05	0.05	0.02	0.02	0.01	0.01	0.01	0.00	0.02
23	0.00	0.01	0.01	0.02	0.03	0.04	0.02	0.02	0.00	0.01	0.00	0.00	0.01
Media/día /mes	3.14	3.94	4.99	5.85	5.97	5.22	4.44	4.51	3.91	3.94	3.36	2.96	4.35

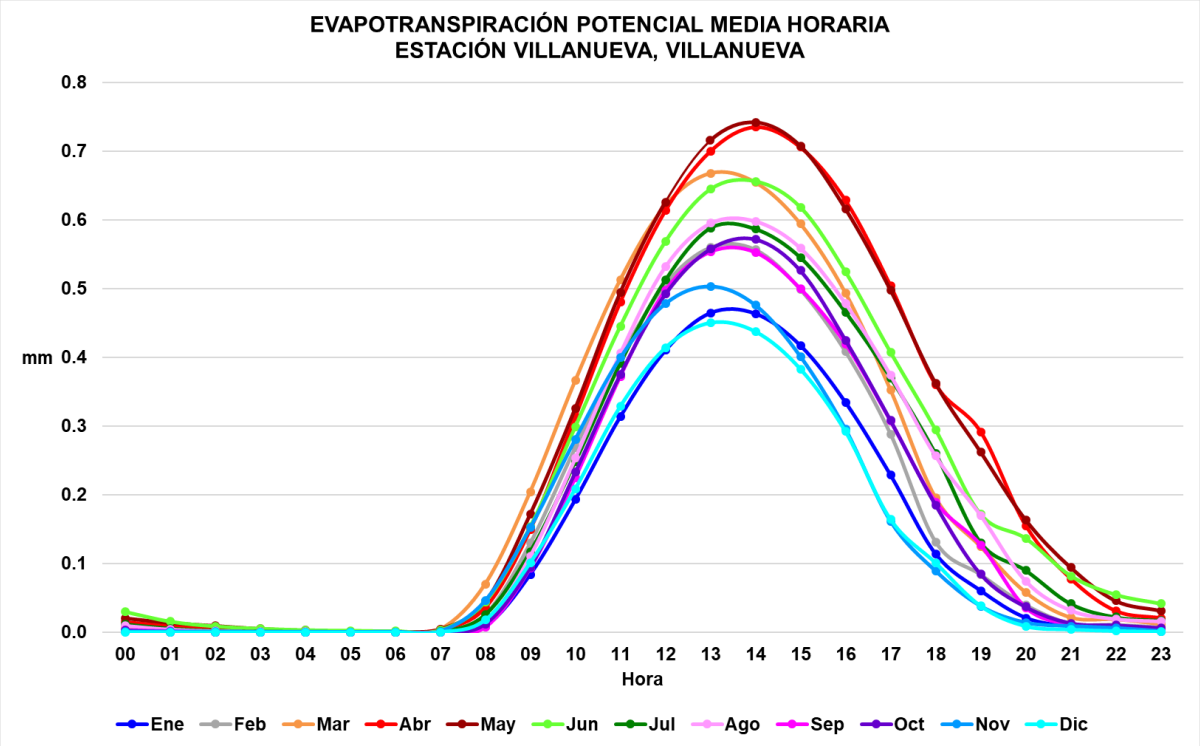


Figura 607. Evapotranspiración potencial media (mm) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 676. Humedad relativa media (%) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	61.7	52.4	40.5	31.6	38.6	61.0	79.9	81.3	87.0	78.5	72.5	66.1	62.6
01	65.7	56.6	44.5	35.6	42.6	64.5	82.8	84.3	89.4	82.6	76.3	69.8	66.2
02	68.9	60.7	48.3	39.6	46.1	67.8	85.3	86.9	91.5	86.0	79.7	73.4	69.5
03	72.1	64.3	52.2	43.4	50.0	70.9	87.3	89.2	93.1	88.7	83.0	76.6	72.6
04	74.8	67.4	55.6	47.1	53.5	73.6	89.3	91.2	94.4	90.9	85.6	79.2	75.2
05	77.4	70.6	58.9	50.5	57.0	76.5	90.9	92.8	95.4	92.6	87.8	81.6	77.7
06	79.7	73.4	61.8	54.0	60.4	79.2	92.4	93.9	96.1	94.0	89.7	83.6	79.9
07	81.0	74.3	60.3	54.7	61.0	79.4	92.9	94.6	96.5	94.5	88.6	84.3	80.2
08	73.4	64.4	47.6	46.9	52.3	71.7	87.5	90.5	93.6	89.1	73.8	74.2	72.1
09	58.7	49.7	35.7	35.3	41.6	61.9	76.7	79.4	83.5	75.6	58.1	58.9	59.6
10	45.8	37.9	27.3	26.4	33.1	53.2	66.5	68.0	71.3	61.7	45.6	46.1	48.6
11	36.1	29.7	21.7	20.4	26.5	45.6	58.1	59.1	61.5	50.8	36.6	36.4	40.2
12	29.7	24.7	18.3	16.5	21.6	39.4	51.8	53.1	55.2	43.3	31.3	30.1	34.6
13	26.2	21.8	16.3	14.4	18.3	34.7	47.8	49.0	51.2	38.7	28.4	26.8	31.1
14	24.5	20.2	15.2	13.1	16.2	32.2	46.0	47.1	49.6	36.1	26.9	25.1	29.3
15	23.5	19.7	14.6	12.3	15.4	31.2	46.4	46.8	50.2	35.6	26.4	24.5	28.9
16	23.8	19.9	14.6	12.3	15.7	32.0	47.1	47.6	51.9	36.2	27.2	25.1	29.4
17	25.7	21.2	15.4	12.7	16.5	33.3	48.2	49.2	54.7	38.1	30.9	27.9	31.2
18	31.0	24.3	17.4	13.6	17.7	35.6	51.3	52.2	58.9	43.8	39.8	35.0	35.1
19	37.7	29.7	21.5	15.2	20.0	39.6	57.1	58.8	67.0	52.6	46.3	41.6	40.6
20	42.7	34.2	25.3	18.1	23.5	44.9	64.1	67.3	74.8	59.5	51.9	47.3	46.1
21	47.8	38.5	28.7	21.4	27.8	50.1	69.8	72.2	78.7	64.4	57.0	52.3	50.7
22	52.4	42.7	32.6	24.3	31.5	54.4	73.5	75.5	81.7	69.2	62.1	56.9	54.7
23	57.1	47.0	36.4	27.6	35.3	58.5	76.8	78.6	84.4	73.7	67.5	62.0	58.7
Media	50.7	43.6	33.8	28.6	34.3	53.8	69.6	71.2	75.5	65.7	57.2	53.5	53.1

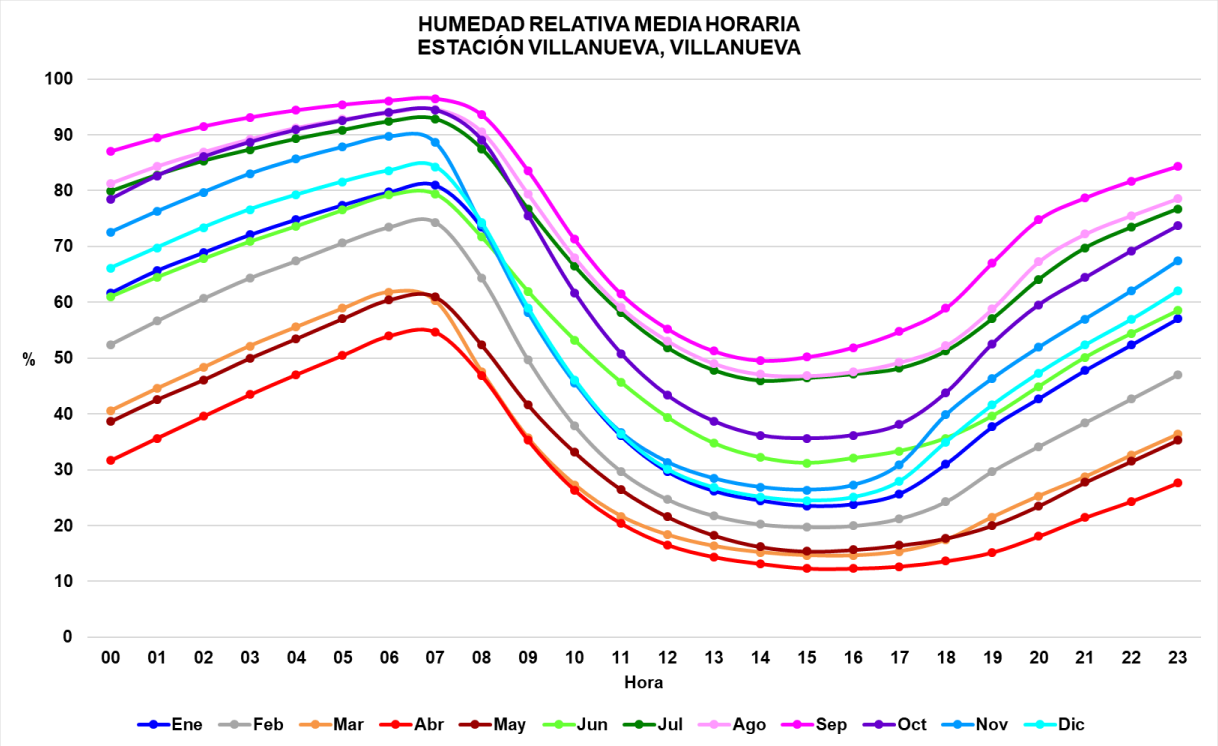


Figura 608. Humedad relativa media (%) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 677. Humedad relativa mínima minimorum (%) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	20.0	14.0	10.0	8.0	10.0	14.0	24.0	25.0	27.0	26.0	21.0	16.0	8.0
01	22.0	14.0	13.0	10.0	11.0	14.0	28.0	32.0	34.0	29.3	22.0	20.0	10.0
02	24.0	16.0	14.0	11.0	12.0	18.0	24.0	35.0	44.0	33.0	24.0	25.0	11.0
03	21.0	19.0	15.0	13.0	14.0	20.0	21.0	39.0	47.0	32.0	28.0	26.0	13.0
04	27.0	20.0	17.0	17.0	17.0	22.0	27.0	34.0	58.0	33.0	33.0	31.0	17.0
05	29.0	21.0	19.0	16.0	18.0	24.0	28.0	46.0	56.0	35.0	35.0	31.0	16.0
06	28.0	25.0	23.0	17.0	21.0	28.0	31.0	50.0	55.0	30.0	38.0	32.0	17.0
07	30.0	26.0	15.3	17.0	22.0	29.0	45.0	62.0	64.0	27.0	38.0	32.0	15.3
08	22.0	22.0	11.1	14.0	14.0	26.0	44.0	52.0	55.0	21.0	21.0	24.0	11.1
09	14.7	13.0	6.0	9.5	12.0	19.0	34.8	34.0	41.0	17.0	14.0	15.0	6.0
10	10.0	7.0	5.0	7.0	8.4	14.0	26.0	29.9	26.0	14.0	11.0	11.0	5.0
11	7.0	6.0	5.0	6.0	6.0	9.0	21.0	28.0	27.0	13.0	8.0	9.0	5.0
12	6.0	5.0	3.0	4.7	6.0	7.0	17.0	26.0	23.0	11.0	5.0	6.0	3.0
13	5.0	4.0	3.0	4.0	3.0	6.0	16.0	21.0	19.0	8.0	5.0	6.0	3.0
14	4.0	5.0	4.0	3.0	4.0	5.0	13.0	18.0	19.0	8.0	4.0	5.0	3.0
15	4.0	5.0	4.0	3.0	3.0	4.0	11.0	15.0	18.0	7.0	4.0	5.0	3.0
16	4.0	4.0	4.0	2.0	3.0	4.0	11.0	14.0	18.0	7.0	4.0	5.0	2.0
17	5.0	5.0	4.0	4.0	3.9	4.0	12.0	13.0	17.0	8.0	5.0	6.0	3.9
18	7.0	5.0	5.0	4.0	4.0	4.0	12.0	15.0	18.0	9.0	7.0	7.0	4.0
19	8.0	8.0	5.0	4.0	4.0	5.0	13.0	16.0	18.0	11.0	8.0	9.0	4.0
20	9.0	8.0	7.0	5.0	5.0	6.0	14.0	18.0	26.0	17.0	11.0	8.0	5.0
21	12.0	9.0	7.0	7.0	6.0	7.0	16.0	18.0	28.0	18.0	11.0	8.0	6.0
22	13.0	10.0	8.0	7.0	7.0	10.0	19.0	20.0	28.0	20.0	13.0	11.0	7.0
23	17.0	11.0	9.0	8.0	8.0	11.0	17.0	22.0	29.0	24.0	18.0	16.0	8.0
Mín.	4.0	4.0	3.0	2.0	3.0	4.0	11.0	13.0	17.0	7.0	4.0	5.0	2.0

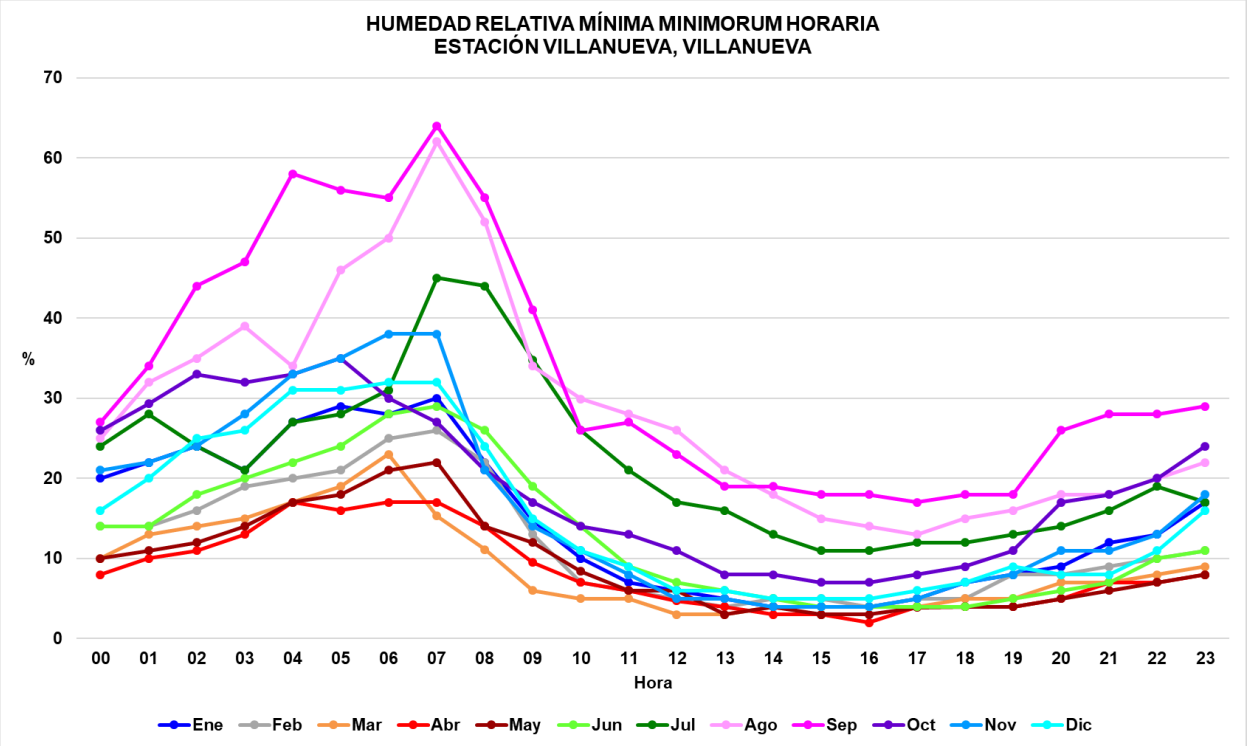


Figura 609. Humedad relativa mínima minimorum (%) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 678. Radiación solar global media horaria (W/m2) de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0
04	0	0	0	0	0	0	0	0	0	0	0	0	0
05	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	1	9	4	6	6	3	1	3	2	4	1	3
07	39	86	251	149	162	148	102	70	51	67	182	66	114
08	485	675	1045	744	772	684	568	501	439	480	865	579	653
09	1233	1511	1982	1640	1643	1473	1315	1270	1176	1261	1658	1304	1455
10	1958	2290	2802	2526	2510	2279	2138	2111	2023	2069	2341	1988	2253
11	2498	2874	3394	3233	3238	2986	2831	2837	2735	2743	2792	2458	2885
12	2764	3210	3668	3716	3727	3410	3303	3259	3095	3116	2949	2663	3240
13	2759	3232	3641	3883	3896	3476	3328	3312	3144	3170	2821	2577	3270
14	2449	2917	3287	3747	3708	3254	3064	3082	2829	2948	2417	2271	2998
15	1928	2379	2727	3313	3221	2763	2595	2645	2384	2416	1808	1735	2493
16	1261	1671	1939	2636	2539	2144	2092	2093	1795	1794	1066	1045	1840
17	556	767	1035	1819	1797	1538	1519	1494	1196	1026	339	373	1122
18	71	163	297	992	1043	927	874	872	594	311	17	21	515
19	0	2	9	302	341	349	336	286	127	38	0	0	149
20	0	0	0	15	34	48	43	20	2	0	0	0	13
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
Media/día/mes	18001	21776	26086	28718	28638	25485	24111	23855	21593	21441	19259	17080	23004

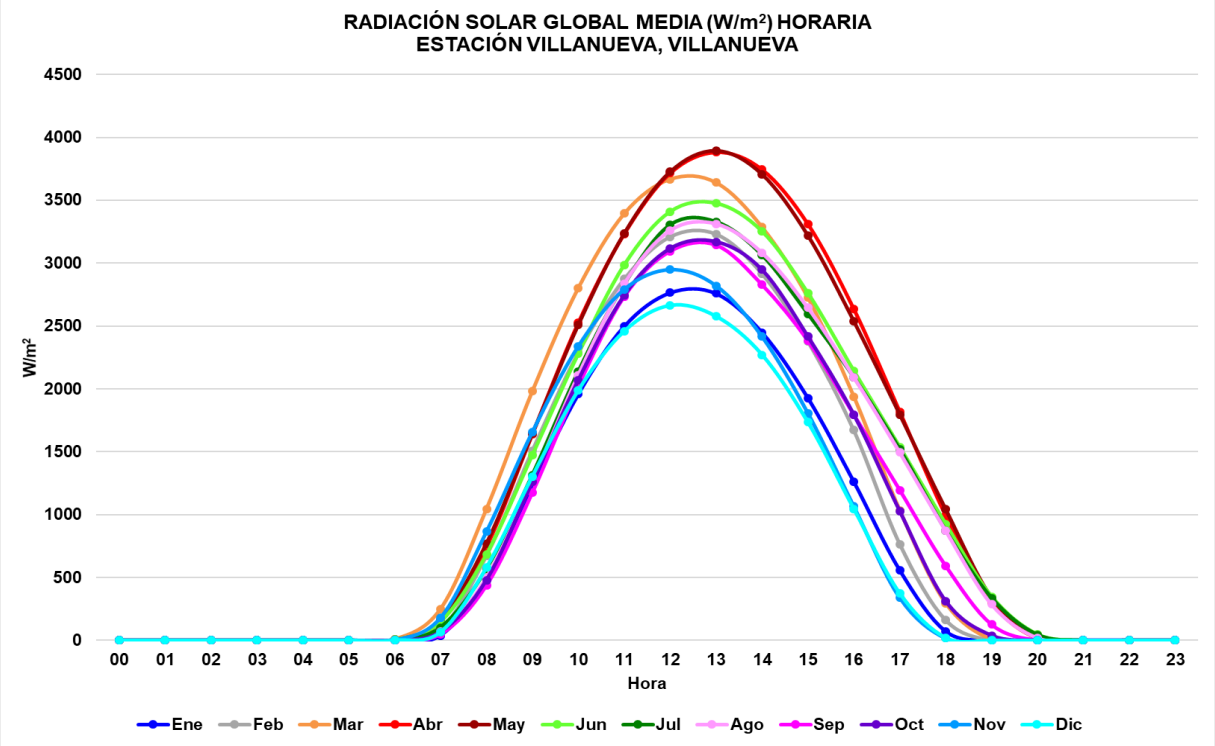


Figura 610. Radiación solar global media horaria (W/m2) de la estación Villanueva, Villanueva (2003-2022).

Cuadro 679. Radiación solar global media horaria (kWh/m2) de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.02	0.06	0.04	0.04	0.04	0.03	0.02	0.01	0.02	0.05	0.02	0.03
08	0.12	0.17	0.26	0.19	0.19	0.17	0.14	0.13	0.11	0.12	0.22	0.14	0.16
09	0.31	0.38	0.50	0.41	0.41	0.37	0.33	0.32	0.29	0.32	0.41	0.33	0.36
10	0.49	0.57	0.70	0.63	0.63	0.57	0.53	0.53	0.51	0.52	0.59	0.50	0.56
11	0.62	0.72	0.85	0.81	0.81	0.75	0.71	0.71	0.68	0.69	0.70	0.61	0.72
12	0.69	0.80	0.92	0.93	0.93	0.85	0.83	0.81	0.77	0.78	0.74	0.67	0.81
13	0.69	0.81	0.91	0.97	0.97	0.87	0.83	0.83	0.79	0.79	0.71	0.64	0.82
14	0.61	0.73	0.82	0.94	0.93	0.81	0.77	0.77	0.71	0.74	0.60	0.57	0.75
15	0.48	0.59	0.68	0.83	0.81	0.69	0.65	0.66	0.60	0.60	0.45	0.43	0.62
16	0.32	0.42	0.48	0.66	0.63	0.54	0.52	0.52	0.45	0.45	0.27	0.26	0.46
17	0.14	0.19	0.26	0.45	0.45	0.38	0.38	0.37	0.30	0.26	0.08	0.09	0.28
18	0.02	0.04	0.07	0.25	0.26	0.23	0.22	0.22	0.15	0.08	0.00	0.01	0.13
19	0.00	0.00	0.00	0.08	0.09	0.09	0.08	0.07	0.03	0.01	0.00	0.00	0.04
20	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	4.50	5.44	6.52	7.18	7.16	6.37	6.03	5.96	5.40	5.36	4.81	4.27	5.75

Cuadro 680. Radiación solar global media horaria (Mj/m2/s) de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.03	0.08	0.23	0.13	0.15	0.13	0.09	0.06	0.05	0.06	0.16	0.06	0.10
08	0.44	0.61	0.94	0.67	0.70	0.62	0.51	0.45	0.40	0.43	0.78	0.52	0.59
09	1.11	1.36	1.78	1.48	1.48	1.33	1.18	1.14	1.06	1.13	1.49	1.17	1.31
10	1.76	2.06	2.52	2.27	2.26	2.05	1.92	1.90	1.82	1.86	2.11	1.79	2.03
11	2.25	2.59	3.05	2.91	2.91	2.69	2.55	2.55	2.46	2.47	2.51	2.21	2.60
12	2.49	2.89	3.30	3.34	3.35	3.07	2.97	2.93	2.79	2.80	2.65	2.40	2.92
13	2.48	2.91	3.28	3.49	3.51	3.13	3.00	2.98	2.83	2.85	2.54	2.32	2.94
14	2.20	2.63	2.96	3.37	3.34	2.93	2.76	2.77	2.55	2.65	2.18	2.04	2.70
15	1.74	2.14	2.45	2.98	2.90	2.49	2.34	2.38	2.15	2.17	1.63	1.56	2.24
16	1.13	1.50	1.75	2.37	2.29	1.93	1.88	1.88	1.62	1.61	0.96	0.94	1.66
17	0.50	0.69	0.93	1.64	1.62	1.38	1.37	1.34	1.08	0.92	0.31	0.34	1.01
18	0.06	0.15	0.27	0.89	0.94	0.83	0.79	0.79	0.53	0.28	0.02	0.02	0.46
19	0.00	0.00	0.01	0.27	0.31	0.31	0.30	0.26	0.11	0.03	0.00	0.00	0.13
20	0.00	0.00	0.00	0.01	0.03	0.04	0.04	0.02	0.00	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Media/día/mes	16.20	19.60	23.48	25.85	25.77	22.94	21.70	21.47	19.43	19.30	17.33	15.37	20.70

Cuadro 681. Velocidad del viento media (km/h) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	1.9	2.2	2.8	3.4	4.0	5.0	3.4	3.1	2.1	2.0	1.6	1.7	2.8
01	1.7	1.9	2.3	2.7	3.4	3.9	2.7	2.3	1.7	1.7	1.4	1.6	2.3
02	1.5	1.8	2.0	2.3	2.8	3.3	2.4	2.0	1.5	1.5	1.3	1.5	2.0
03	1.4	1.6	1.7	1.9	2.1	2.9	2.0	1.8	1.3	1.3	1.2	1.5	1.7
04	1.4	1.6	1.5	1.5	1.7	2.4	1.7	1.6	1.3	1.3	1.1	1.4	1.5
05	1.4	1.5	1.4	1.2	1.5	2.1	1.5	1.4	1.1	1.2	1.1	1.4	1.4
06	1.4	1.4	1.4	1.1	1.3	1.8	1.2	1.3	1.0	1.1	1.1	1.4	1.3
07	1.4	1.3	1.3	1.0	1.1	1.7	1.2	1.2	1.0	1.1	1.1	1.4	1.2
08	1.5	1.7	1.8	1.2	1.3	1.9	1.4	1.3	1.1	1.2	1.5	1.5	1.5
09	2.3	2.7	3.0	2.1	2.2	2.8	2.1	1.9	1.8	2.0	2.3	2.2	2.3
10	3.7	4.2	5.1	3.9	3.7	3.9	2.8	2.7	2.8	2.9	3.5	3.2	3.5
11	5.6	6.4	7.5	6.2	5.5	5.0	3.8	3.7	3.9	4.1	5.0	4.9	5.1
12	7.5	8.7	9.5	8.3	6.9	5.9	4.6	4.7	4.9	5.3	6.6	6.9	6.6
13	9.2	10.6	11.0	10.1	8.2	7.1	5.3	5.3	5.5	6.3	7.5	8.5	7.9
14	10.1	11.5	11.9	11.5	9.3	8.5	6.4	6.1	6.1	6.9	8.0	9.2	8.8
15	10.5	12.0	12.4	12.2	10.1	9.6	7.3	6.7	6.5	7.2	7.9	9.3	9.3
16	10.4	11.9	12.5	12.6	10.6	9.9	7.5	7.0	6.7	7.2	7.7	9.1	9.4
17	9.5	11.2	12.0	12.7	10.7	9.5	7.3	6.8	6.2	6.8	6.8	7.7	8.9
18	6.5	8.8	10.2	12.3	10.8	9.5	7.1	6.1	5.4	6.0	4.9	5.0	7.7
19	4.6	5.2	6.7	10.6	10.1	9.3	6.6	5.5	4.1	4.7	4.4	3.8	6.3
20	3.9	4.1	4.9	7.4	8.4	8.5	5.7	4.8	3.4	3.9	3.9	3.2	5.2
21	3.4	3.8	4.5	5.2	6.8	7.7	5.1	4.2	2.9	3.5	3.4	2.8	4.5
22	3.0	3.5	4.0	4.5	5.8	7.3	4.9	4.4	2.7	3.0	2.5	2.3	4.0
23	2.4	2.8	3.5	3.9	5.0	6.4	4.1	3.8	2.4	2.5	1.9	1.8	3.4
Media	4.4	5.1	5.6	5.8	5.6	5.7	4.1	3.7	3.2	3.5	3.7	3.9	4.5

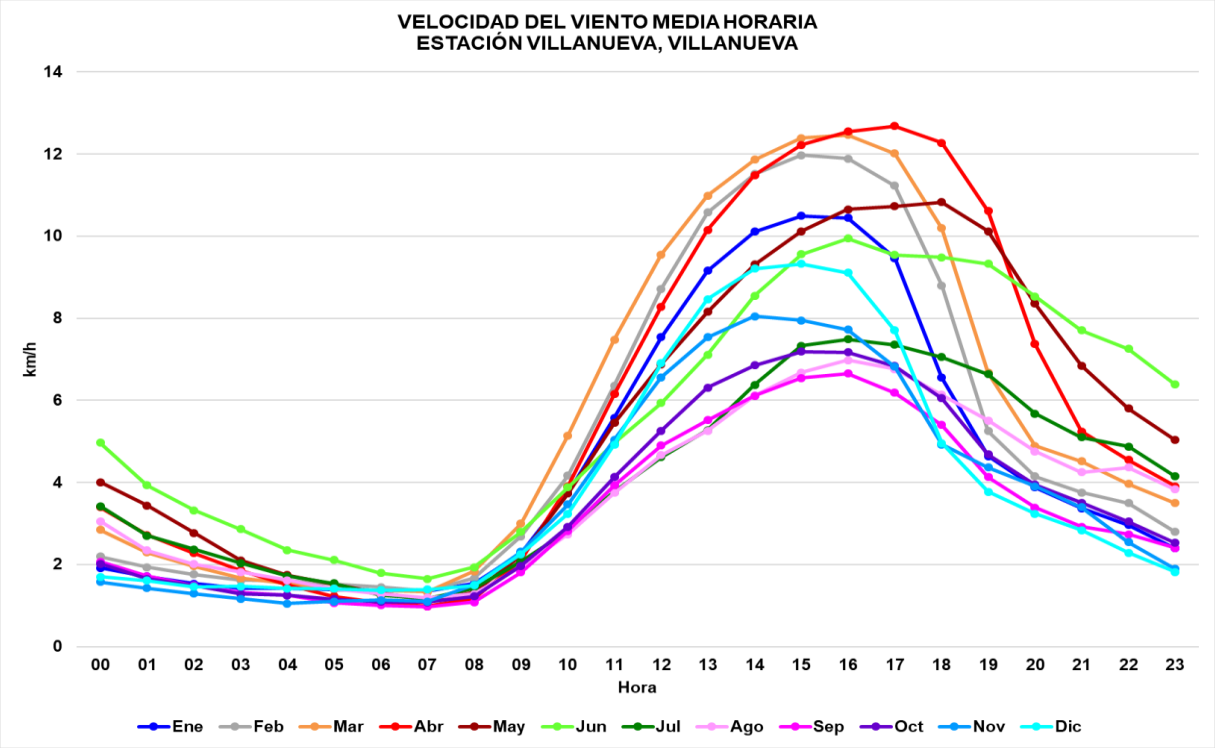


Figura 611. Velocidad del viento media (km/h) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 682. Velocidad del viento máxima maximorum (km/h) horaria de la estación Villanueva, Villanueva (2003-2022).

Hora	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
00	26.7	15.3	25.0	39.0	33.0	37.0	34.4	28.7	22.7	26.0	22.0	24.0	39.0
01	29.3	19.4	32.0	22.0	39.4	35.8	24.4	23.0	18.0	17.0	23.5	25.0	39.4
02	16.0	26.1	31.0	20.0	41.3	31.0	18.5	22.4	15.9	16.0	25.6	24.1	41.3
03	18.0	21.7	20.0	22.0	21.0	25.0	19.5	26.0	15.2	15.0	27.0	28.6	28.6
04	17.3	28.2	19.1	18.0	20.4	24.3	17.0	21.1	13.0	24.5	23.1	18.6	28.2
05	17.3	27.1	18.3	10.0	23.8	26.0	17.0	20.7	11.7	18.0	25.2	17.8	27.1
06	21.0	28.0	17.0	9.1	24.1	25.9	23.4	19.4	11.9	16.0	28.2	17.4	28.2
07	18.3	27.0	23.0	11.5	21.1	26.3	14.6	18.0	12.6	16.0	29.7	18.6	29.7
08	19.0	28.0	27.0	19.0	19.9	23.7	14.7	22.0	14.6	18.0	26.1	21.6	28.0
09	21.0	24.0	35.0	28.0	20.0	18.5	16.4	23.0	14.1	23.0	29.3	19.0	35.0
10	25.6	24.6	34.0	29.1	22.0	24.7	19.6	26.0	16.5	24.0	26.1	27.3	34.0
11	28.7	29.1	31.0	27.0	27.0	22.1	18.2	24.4	17.4	24.0	26.0	25.0	31.0
12	31.2	32.0	33.0	29.2	26.0	22.3	24.1	29.8	20.8	24.0	30.7	29.2	33.0
13	35.5	31.0	34.0	30.9	25.4	29.0	26.5	27.6	29.0	22.3	26.0	32.9	35.5
14	28.6	33.0	35.0	30.6	33.0	38.0	31.3	28.2	24.9	23.0	25.0	29.1	38.0
15	31.0	34.8	37.0	31.0	37.0	37.2	29.6	28.8	26.0	23.0	25.0	35.2	37.2
16	31.8	33.0	35.5	29.0	37.0	37.6	35.0	26.6	26.3	26.0	25.0	31.0	37.6
17	30.0	32.8	34.0	35.0	37.0	45.2	29.8	32.8	25.2	25.0	24.0	28.0	45.2
18	26.4	29.0	32.0	33.0	37.0	38.0	39.4	26.5	43.0	26.1	23.0	26.0	43.0
19	29.4	24.0	27.0	35.0	32.0	40.0	37.8	35.4	34.1	27.0	24.0	28.0	40.0
20	33.1	33.0	31.3	31.0	40.0	39.3	28.6	35.4	28.0	28.0	37.0	27.0	40.0
21	35.9	36.6	36.0	39.3	43.0	37.4	29.0	32.5	32.4	27.4	37.0	28.0	43.0
22	27.0	33.4	36.0	37.9	38.0	56.1	36.5	32.6	29.5	27.8	27.0	19.0	56.1
23	23.7	18.4	25.7	41.0	39.0	34.8	33.9	33.0	26.7	25.5	23.5	21.0	41.0
Máx.	35.9	36.6	37.0	41.0	43.0	56.1	39.4	35.4	43.0	28.0	37.0	35.2	56.1

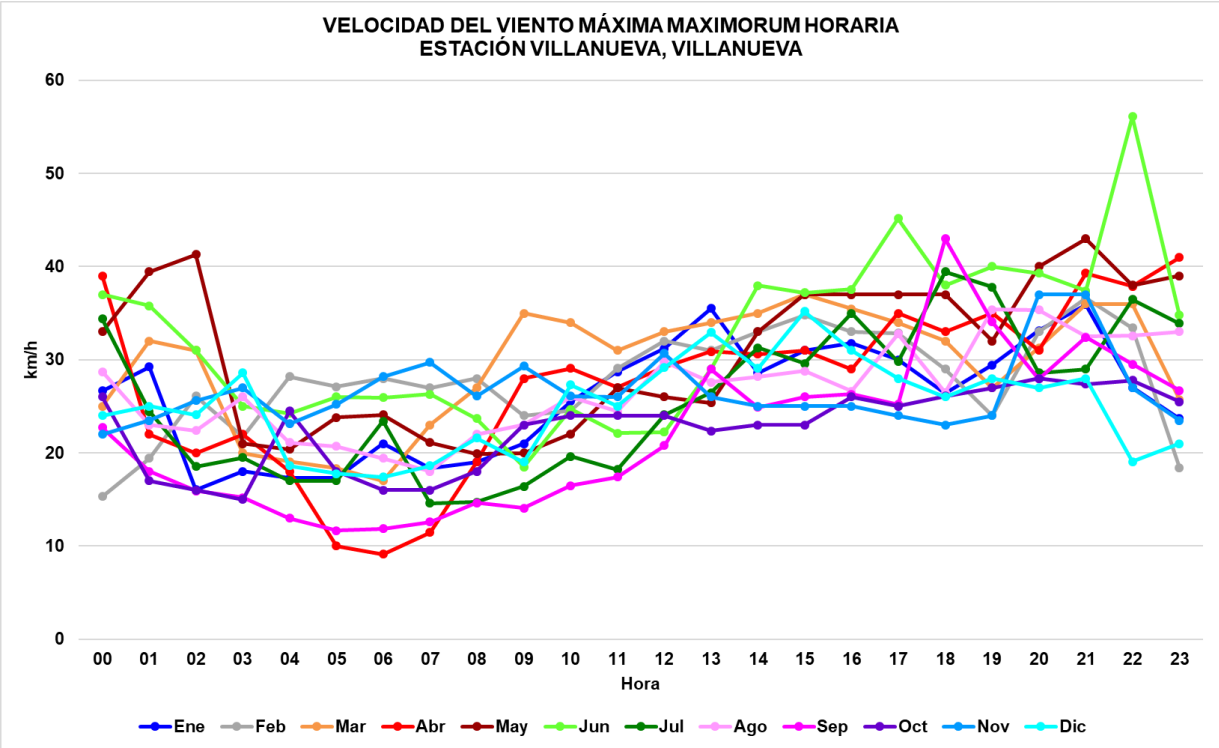


Figura 612. Velocidad del viento máxima maximorum (km/h) horaria de la estación Villanueva, Villanueva (2003-2022).

Cuadro 683. Frecuencia de velocidad del viento (%) mensual de la estación Villanueva, Villanueva (2003-2022).

km/hr	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
0.0 a 5.0	70.5	65.8	61.2	59.1	58.0	56.7	70.7	74.1	78.1	75.2	75.2	75.3	68.4
5.1 a 10.0	16.1	17.1	19.9	19.7	24.5	26.2	21.4	19.5	17.4	18.6	15.9	13.8	19.2
10.1 a 15.0	8.3	9.7	10.0	12.9	11.7	11.4	5.9	5.0	4.1	5.0	6.8	7.4	8.2
15.1 a 20.0	3.8	5.2	6.1	6.6	4.4	4.1	1.5	1.1	0.3	1.1	1.6	2.8	3.2
20.1 a 25.0	1.1	1.8	2.2	1.5	0.9	1.2	0.4	0.3	0.1	0.1	0.4	0.6	0.9
25.1 a 30.0	0.2	0.4	0.6	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.2
30.1 a 35.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.1 a 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.1 a 45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45.1 a 50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

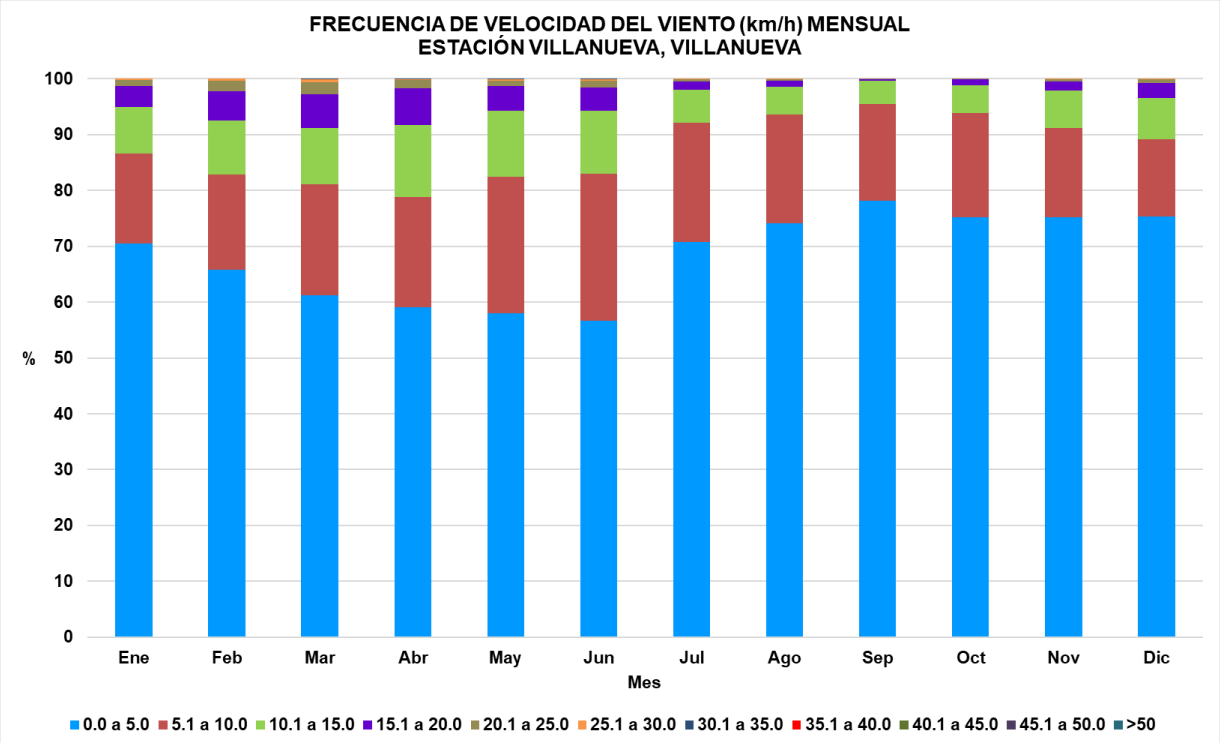


Figura 613. Frecuencia de velocidad del viento (%) mensual de la estación Villanueva, Villanueva (2003-2022).

Cuadro 684. Frecuencia de dirección del viento (%) mensual de la estación Villanueva, Villanueva (2003-2022).

Dirección	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
N	5.3	5.3	5.0	5.0	5.6	6.1	4.5	4.6	6.0	5.5	5.0	4.8	5.2
NNE	3.2	2.9	2.8	2.5	3.7	4.9	4.0	4.3	5.3	4.4	3.3	2.7	3.7
NE	2.7	2.5	2.7	2.4	3.4	5.6	4.5	4.9	5.7	4.9	3.5	2.4	3.8
ENE	3.3	3.0	3.2	2.9	3.9	6.8	6.0	6.5	6.9	6.5	4.1	3.0	4.7
E	4.4	3.6	3.8	3.4	4.8	8.0	7.7	7.9	7.6	7.7	5.9	4.1	5.8
ESE	4.8	4.4	4.5	3.7	4.7	6.9	6.9	7.1	7.1	6.5	6.1	5.3	5.7
SE	7.0	6.2	6.0	5.7	6.4	7.4	8.2	8.1	7.9	8.0	7.4	7.2	7.2
SSE	10.0	10.3	9.7	8.9	8.9	9.0	9.9	9.2	8.5	9.5	10.5	11.0	9.6
S	8.2	8.0	7.1	6.3	6.6	7.1	8.3	7.8	7.4	7.6	7.8	8.5	7.6
SSO	7.7	7.7	7.2	7.0	6.7	6.1	7.0	7.0	6.1	6.2	6.8	8.0	6.9
SO	12.4	12.9	12.2	13.1	10.7	7.7	8.8	8.5	8.1	8.8	10.7	11.9	10.4
OSO	11.4	12.7	13.4	15.0	11.7	6.4	7.2	7.0	6.9	7.9	10.0	11.1	9.9
O	7.7	8.3	9.1	10.8	8.6	5.4	5.6	5.4	5.2	5.6	7.0	8.2	7.2
ONO	5.1	5.4	6.0	6.1	6.0	4.7	4.5	4.7	4.2	4.1	4.9	5.3	5.0
NO	3.8	3.8	4.2	4.3	4.7	4.1	3.9	3.8	3.9	3.6	3.7	3.8	4.0
NNO	2.9	3.0	3.1	2.9	3.7	3.7	3.0	3.2	3.3	3.3	3.1	2.8	3.2
Suma	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

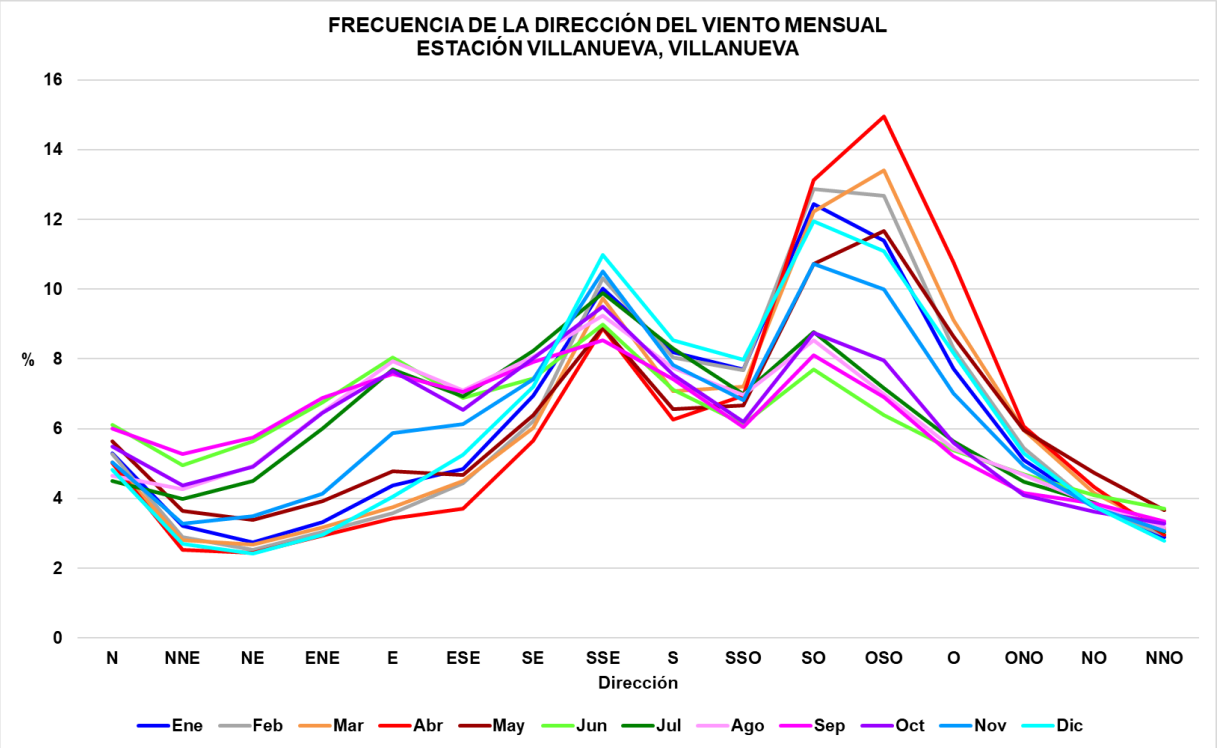


Figura 614. Frecuencia de dirección del viento (%) mensual de la estación Villanueva, Villanueva (2003-2022).

Cuadro 685. Frecuencia de dirección del viento (%) trimestral de la estación Villanueva, Villanueva (2003-2022).

Dirección	Ene-Mar	Abr-Jun	Jul-Sep	Oct-Dic	Anual
N	5.2	5.6	5.0	5.1	5.2
NNE	3.0	3.7	4.5	3.5	3.7
NE	2.7	3.9	5.1	3.6	3.8
ENE	3.2	4.6	6.4	4.5	4.7
E	3.9	5.5	7.7	5.9	5.8
ESE	4.6	5.1	7.0	6.0	5.7
SE	6.4	6.5	8.1	7.6	7.2
SSE	10.0	8.9	9.2	10.3	9.6
S	7.8	6.7	7.8	8.0	7.6
SSO	7.5	6.6	6.7	7.0	6.9
SO	12.5	10.5	8.5	10.5	10.4
OSO	12.5	10.9	7.0	9.7	9.9
O	8.4	8.2	5.4	6.9	7.2
ONO	5.5	5.6	4.4	4.8	5.0
NO	3.9	4.4	3.9	3.7	4.0
NNO	3.0	3.4	3.2	3.0	3.2
Suma	100.0	100.0	100.0	100.0	100.0

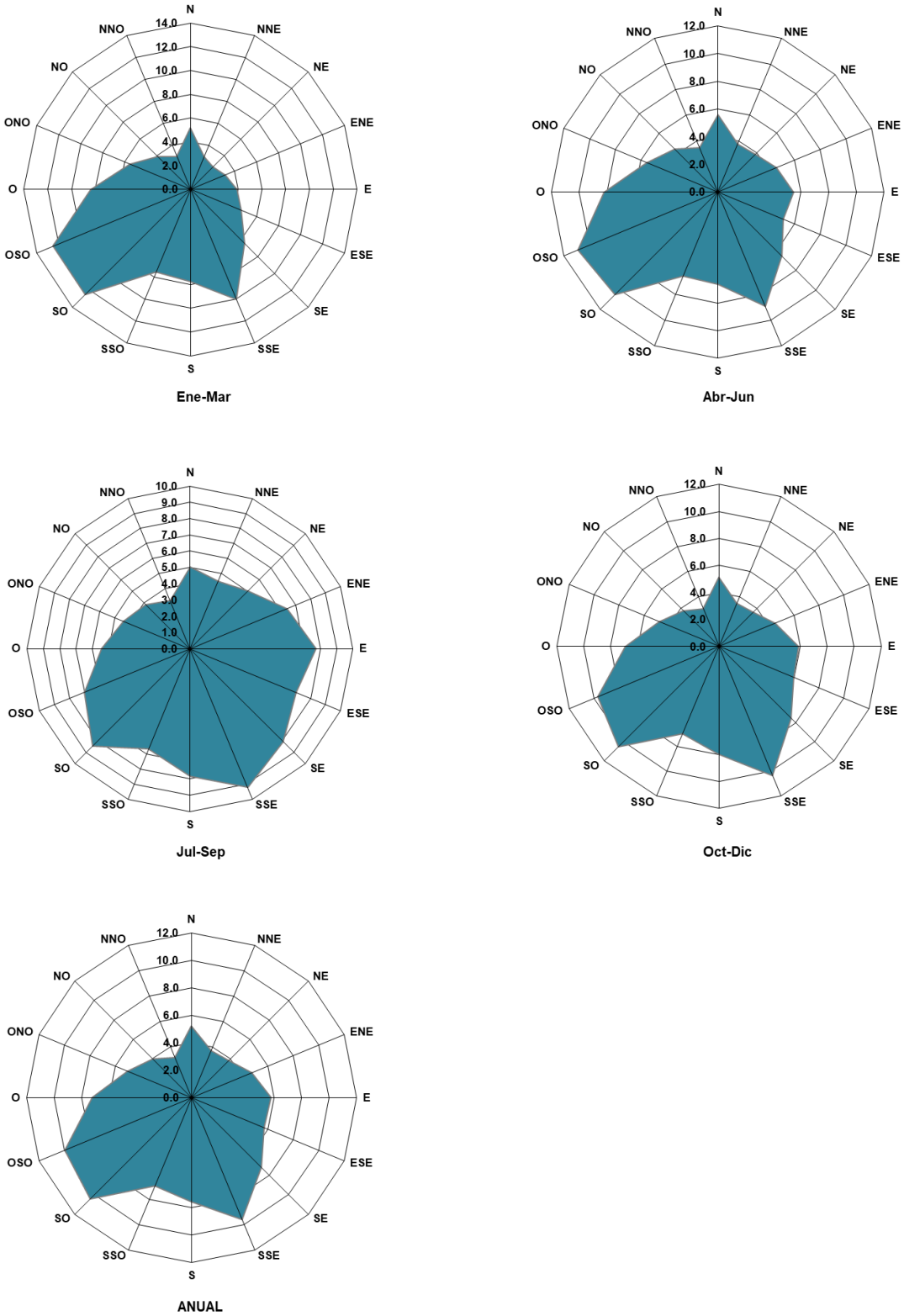


Figura 615. Frecuencia de dirección del viento (%) trimestral de la estación Villanueva, Villanueva (2003-2022).

Cuadro 686. Estadísticas climatológicas mensuales de la estación Villanueva, Villanueva (2003-2022).

Variable	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Anual
Temperatura máxima media (°C)	22.8	24.9	27.5	30.0	31.7	30.1	27.5	27.5	26.6	26.9	25.2	23.3	27.0
Temperatura máxima maximorum (°C)	29.9	31.9	34.9	35.6	37.3	36.9	39.7	32.5	31.5	32.0	31.6	29.8	39.7
Temperatura mínima media (°C)	1.2	2.7	4.6	7.1	10.7	13.9	13.4	13.0	12.3	8.2	3.4	1.0	7.6
Temperatura mínima minimorum (°C)	-9.6	-6.4	-5.0	-2.3	2.1	7.1	7.7	6.5	3.8	-2.2	-10.7	-9.1	-10.7
Temperatura media (°C)	11.9	14.1	16.8	19.5	21.9	21.8	19.8	19.6	18.6	17.2	14.1	11.9	17.3
Oscilación térmica (°C)	21.6	22.3	22.9	22.9	20.9	16.2	14.1	14.5	14.3	18.7	21.9	22.3	19.4
Precipitación acumulada media (mm)	15.1	16.9	8.0	2.5	12.0	87.1	126.3	130.4	127.2	35.9	11.0	14.3	586.6
Precipitación máxima maximorum en 24 horas (mm)	27.0	35.6	60.8	21.2	16.2	77.6	77.4	62.6	69.0	53.2	31.2	24.2	77.6
Número de días promedio con lluvia	4.4	3.5	3.9	1.6	4.9	12.4	18.3	17.5	16.0	7.1	3.1	3.3	95.7
Evapotranspiración acumulada potencial media (mm)	105.0	122.9	168.3	187.7	196.8	167.8	152.5	150.6	128.0	131.6	113.5	101.6	1726.4
Humedad máxima media (%)	85.1	79.1	67.5	60.4	66.8	83.9	95.4	96.7	98.1	96.8	92.8	88.2	84.2
Humedad máxima maximorum (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humedad mínima media (%)	20.8	17.3	12.7	10.6	12.9	25.4	37.4	39.1	42.3	31.0	23.8	21.8	24.6
Humedad mínima minimorum (%)	4.0	4.0	3.0	2.0	3.0	4.0	11.0	13.0	17.0	7.0	4.0	5.0	2.0
Humedad media (%)	50.7	43.5	33.8	28.7	34.2	53.8	69.6	71.2	75.5	65.7	57.2	53.5	53.1
Radiación global media día/mes (W/m^2)	18008.6	21789.1	26085.8	28714.3	28639.7	25485.2	24111.2	23855.4	21593.4	21436.7	19258.9	17079.7	23004.8
Radiación global media día/mes (kWh/m^2)	4.5	5.4	6.5	7.2	7.2	6.4	6.0	6.0	5.4	5.4	4.8	4.3	5.8
Radiación global media día/mes ($Mj/m^2/s$)	16.2	19.6	23.5	25.8	25.8	22.9	21.7	21.5	19.4	19.3	17.3	15.4	20.7
Velocidad del viento máxima media (km/h)	15.2	16.6	17.7	18.0	18.2	19.5	16.5	14.7	13.0	12.4	12.7	13.4	15.7
Velocidad del viento máxima maximorum (km/h)	35.9	36.6	37.0	41.0	43.0	56.1	39.4	35.4	43.0	28.0	37.0	35.2	56.1
Velocidad del viento media (km/h)	4.4	5.1	5.6	5.8	5.6	5.7	4.1	3.7	3.2	3.5	3.7	3.9	4.5
Dirección dominante del viento	SO	SO	OSO	OSO	OSO	SSE	SSE	SSE	SSE	SSE	SO	SO	SO

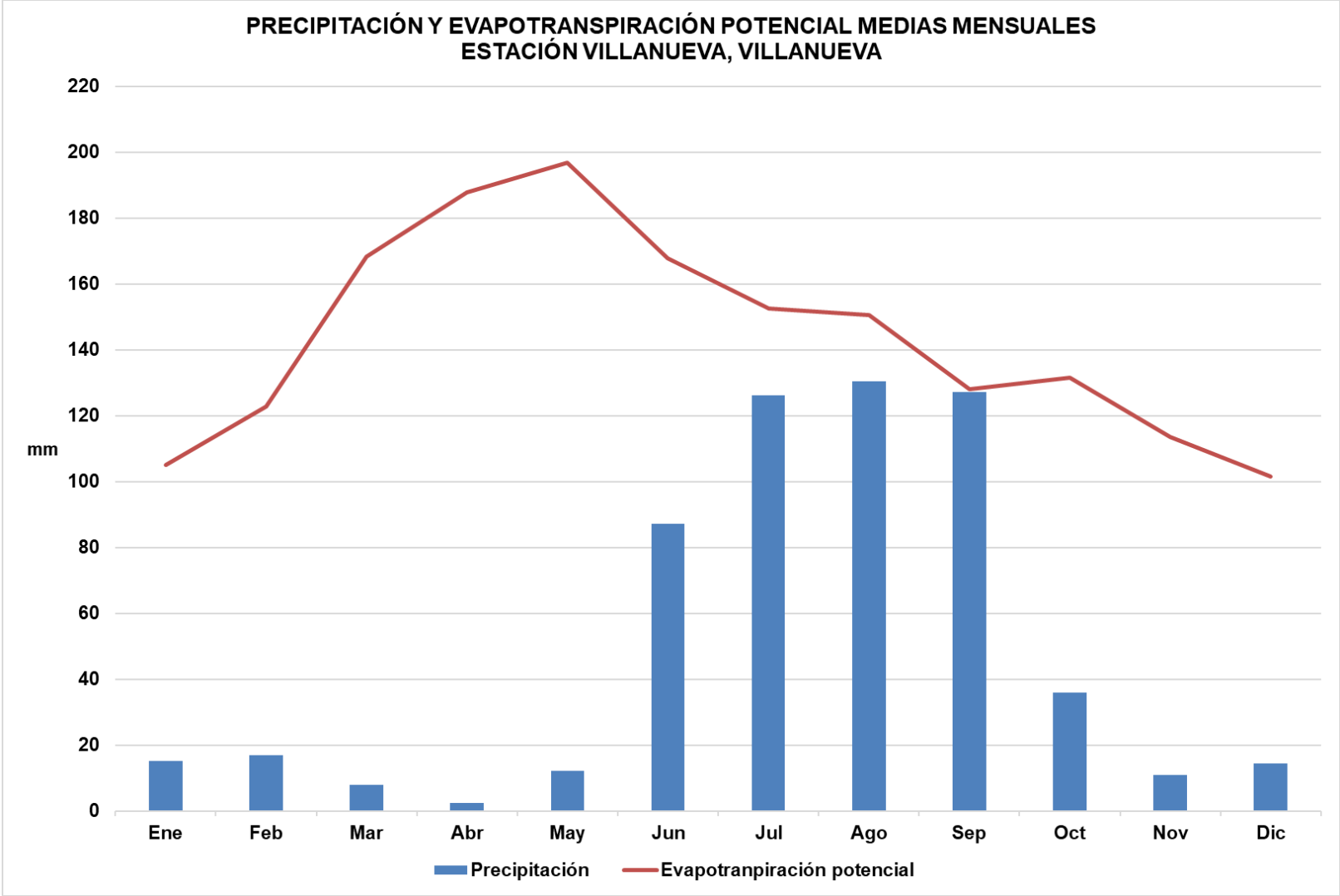


Figura 616. Precipitación y evapotranspiración potencial medias (mm) mensuales de la estación Villanueva, Villanueva (2003-2022).

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La necesidad de contar con estadísticas climatológicas actualizadas para apoyar el desarrollo agropecuario y forestal, la planeación, y la investigación, ha motivado la realización de la presente obra. La información que aquí se incluye tiene un amplio espectro de aplicación y constituye una herramienta de apoyo en cualquier campo del conocimiento. El presente documento contiene información proveniente de la Red de Estaciones Meteorológicas Automáticas del INIFAP en el estado de Zacatecas. La red cuenta con 38 estaciones que registran datos cada 15 minutos, aunque los datos presentados son horarios y mensuales. El periodo de datos corresponde a los años 2002 a 2022. Esta base de datos representa una actualización substancial de información de corte similar publicada con anterioridad, con la relevancia de que se incluyen datos de variables que no han sido publicadas anteriormente. Cabe resaltar que, desde su inicio de operación la red ha funcionado al 100%.

