



مركز الإحصاء
STATISTICS CENTRE

Climate Statistics Methodology

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Overview

Climate Statistics are one of the main topics and an important component in the compilation of environmental statistics.

Importance

Climate Statistics represent an important tool in the measurement of climate change over long periods. They also help to provide essential information on one of the important water resources, i.e. rainfall, besides other indicators of interest to decision makers in the utilization natural resources to support economic development and clean energy generation, such as generating solar and wind energy.

Objectives

- Describing the climate in accordance with the main stations and the annual and monthly averages pertaining to some climate elements; and
- Providing a database on the climate elements time series.

Concepts and Definitions

Climate Change: A change in climate conditions that can be determined using statistical tests of changes in the average values and / or the variations in the climate characteristics over an extended period, typically decades or longer. Climate change may be due to natural internal processes or external factors, or to persistent anthropogenic changes in the composition of the atmosphere or in land use, as well as due to Climate variability.

Climate: Climate is the condition of the weather at a particular location or region over a long period of time that can be a month, a year, a season, or several years. It is the long-term conditions in the atmosphere resulting from the elements, such as temperature, solar radiation, humidity, rainfall, atmospheric pressure, wind speed and direction, and their variations.

Absolute Maximum Temperature: Highest air temperature recorded during a specific month, measured in (°C).

Absolute Minimum Temperature: Lowest air temperature recorded during a specific month, measured in (°C).

Mean Maximum Daily Temperature for a Month: Average daily highest air temperature recorded daily during a specific month, measured in (°C).

Mean Minimum Daily Temperature for a Month: Average daily lowest air temperature recorded daily during a specific month, measured in (°C).

Mean Daily Temperature: Average air temperature over the course of 24 hours, as recorded during consecutive equivalent periods, measured in (°C).

Mean Maximum Monthly Temperature: Average monthly highest air temperature recorded during a specific month, throughout a specific number of years.

Mean Minimum Monthly Temperature: Average monthly lowest air temperature recorded during a specific month, throughout a specific number of years, measured in (°C).

Precipitation: Rainfall quantity recorded over the course of 24 hours, measured in (millimetres).

Maximum Relative Humidity: Highest relative humidity recorded during a specific month, measured in (percentage).

Mean Maximum Relative Humidity: Average daily highest relative humidity recorded daily during a specific month.

Mean Minimum Relative Humidity: Average daily lowest relative humidity recorded daily during a specific month, measured in (percentage).

Mean Atmospheric Pressure: Average atmospheric pressure, as adjusted as per the sea level, recorded over the course of 24 hours, during consecutive equivalent periods, measured in (hectopascal).

Mean Maximum Atmospheric Pressure: Highest atmospheric pressure recorded daily, throughout a specific month (as adjusted as per the sea level), measured in (hectopascal).

Mean 'Minimum Atmospheric Pressure: Lowest atmospheric pressure recorded daily, throughout a specific month (as adjusted as per the sea level), measured in (hectopascal).

Wind Velocity: Wind flow speed over the earth surface, being the vertical movement of such flow, measured as of 10 meters above the surface upon using an anemometer, measured in (knots).

Mean Total Daily Sunshine Hours: Average total for the periods of time during which peak sun hours are recorded in a manner that would be sufficient for casting shadows, measured in (hours).

Maximum Total Daily Sunshine Hours: Highest total for the periods of time during which peak sun hours are recorded in a manner that would be sufficient for casting shadows, measured in (hours).

Mean Total Daily Solar Radiation: Average daily total of global solar radiation time for a specific period, measured in (Wh/m²).

Maximum Wind Speed: Highest wind speed measured in an open space over the course of 10 minutes, at a height of 10 meters above the surface.

Fog: Invisible tiny liquid water droplets suspended in the air that may impact horizontal visibility when dropping to less than 1 kilometre above the surface.

Thunderstorm: Sudden electrical discharges, featuring lightning and thunder, associated with cumulonimbus clouds, and often accompanied by precipitation in the form of rainfall, snow, or hail.

Dust Storm / Sandstorm: particles of dust or sand lifted to high altitudes by a strong and turbulent wind. Dust storms and sandstorms impact horizontal visibility.

Geographical Coverage

The Emirate of Abu Dhabi, including the region of Abu Dhabi, Al Ain, and Al Dhafra.

Frequency

Quarterly

Classifications

Not applicable

Main Data Sources

National Center of Meteorology

Questionnaires

Not Applicable

Sample Design

Not Applicable

Data Collection

Administrative Records

Data Editing

Office Editing

Indicators Calculation

Indicator name in English Sub	Calculation procedures
Annual average air temperature	The annual average of the monthly mean air temperature in AD Emirate (calculated from 23 different stations)
Average air temperature by month	The monthly mean of the daily (24 hour) air temperature in AD Emirate (calculated from 23 different stations) by month
Average air temperature by region	The monthly mean of the daily (24 hour) air temperature by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual average maximum air temperature	The annual average of the monthly mean of the maximum daily air temperature in AD Emirate (calculated from 23 different stations)
Average maximum air temperature by month	The monthly mean of the maximum daily air temperature in AD Emirate (calculated from 23 different stations) by month
Average maximum air temperature by region	The monthly mean of the maximum daily air temperature by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual average minimum air temperature	The annual average of the monthly mean of the minimum daily air temperature in AD Emirate (calculated from 23 different stations)
Average minimum air temperature by month	The monthly mean of the minimum daily air temperature in AD Emirate (calculated from 23 different stations) by month
Average minimum air temperature by region	The monthly mean of the minimum daily air temperature by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual absolute maximum air temperature	The annual highest value of air temperature recorded in AD Emirate
Absolute maximum air temperature by month	The highest value of air temperature recorded in AD Emirate by month
Absolute maximum air temperature by region	The highest value of air temperature recorded by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual absolute minimum air temperature	The annual lowest value of air temperature recorded in AD Emirate
Absolute minimum air temperature by month	The lowest value of air temperature recorded in AD Emirate (calculated from 23 different stations) by month
Absolute minimum air temperature by region	The lowest value of air temperature recorded by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual average rainfall	Annual average amount of precipitation (includes other forms such as snow) calculated from 23 different stations) in Abu Dhabi Emirate
Average rainfall by month	Average amount of precipitation (includes other forms such as snow) calculated from 23 different stations) by month
Average rainfall by region	Average amount of precipitation (includes other forms such as snow) calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Monthly total rainfall by region	Total amount of precipitation (includes other forms such as snow) recorded in AD Emirate (calculated from 23 different stations) by month
Annual total rainfall by region	Total amount of precipitation (includes other forms such as snow) measured in Abu Dhabi Emirate by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Heaviest fall in one day	The annual Heaviest value of the monthly Annual Heaviest fall in one day in AD Emirate

Heaviest fall in one day by region	Maximum amount of precipitation fall in one day (includes other forms such as snow) measured in Abu Dhabi Emirate by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Heaviest fall in one day by month	Maximum amount of precipitation fall in one day (includes other forms such as snow) measured in Abu Dhabi Emirate by month
Annual average relative humidity	The annual average value of the monthly average relative humidity in AD Emirate
Average relative humidity by month	Average value of relative humidity in AD Emirate (calculated from 23 different stations) by month
Average relative humidity by region	Average maximum value of relative humidity in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual average maximum relative humidity	The annual average maximum value of the monthly average maximum relative humidity in AD Emirate
Average maximum relative humidity by month	Average maximum value of relative humidity in AD Emirate (calculated from 23 different stations) by month
Average maximum relative humidity by region	Average maximum value of relative humidity in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual average minimum relative humidity	The annual average minimum value of the monthly average minimum relative humidity in AD Emirate
Average minimum relative humidity by month	Average minimum value of relative humidity in AD Emirate (calculated from 23 different stations) by month
Average minimum relative humidity by region	Average minimum value of relative humidity in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Absolute maximum relative humidity by month	The highest value of relative humidity measured in all 23 stations in Abu Dhabi Emirate by month
Absolute maximum relative humidity by region	The highest value of relative humidity measured in all 23 stations in Abu Dhabi Emirate by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Absolute maximum relative humidity	The Annual Absolute maximum value of relative humidity measured in all 23 stations in Abu Dhabi Emirate
Absolute minimum relative humidity by month	The lowest value of relative humidity in AD Emirate (calculated from 23 different stations) by month
Absolute minimum relative humidity by region	The lowest value of relative humidity measured in all 22 stations in Abu Dhabi Emirate by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Absolute minimum relative humidity	The Annual Absolute minimum value of relative humidity measured in all 23 stations in Abu Dhabi Emirate
Annual average atmospheric pressure	The annual average value of the monthly average atmospheric pressure in AD Emirate
Average atmospheric pressure by month	Average value of atmospheric pressure in AD Emirate (calculated from 23 different stations) by month
Average atmospheric pressure by region	Average value of atmospheric pressure in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Maximum Air Pressure	Maximum Air Pressure in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)

Minimum Air Pressure	Minimum Air Pressure in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)
Average wind speed by month	Average horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month
Average wind speed by region	Average horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Average wind speed	Annual average horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Average maximum wind speed by month	Average maximum horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month
Average maximum wind speed by region	Average maximum horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Absolute maximum wind speed by month	Annual maximum of horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month
Absolute maximum wind speed by region	Annual maximum of horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Absolute maximum wind speed	Annual maximum of horizontal movement of wind per unit of time in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Average daily sunshine hours by month	Average number of sunny hours measured in the one day in Abu Dhabi Emirate by month
Average daily sunshine hours by region	Average number of sunny hours measured in the one day by region (ABU Dhabi and Al Ain)
Annual Average daily sunshine hours	Annual average number of sunny hours measured in the one day by region (ABU Dhabi and Al Ain)
Average daily total global solar radiation by month	Average of the daily values of total global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month.
Average daily total global solar radiation by region	Average of the daily values of total global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Annual Average daily total global solar radiation	Annual average of the daily values of total global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Islands)
Maximum daily total solar radiation by month	Maximum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month.
Maximum daily total solar radiation by region	Maximum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)
Annual Maximum daily total solar radiation	Annual maximum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)
Minimum daily total solar radiation by month	Minimum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month

Minimum daily total solar radiation by region	Minimum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)
Annual Minimum daily total solar radiation	Annual Minimum daily values of global solar radiation in a specified period in AD Emirate (calculated from 23 different stations) by month and region (Abu Dhabi, Al Ain, Al Dhafra, and The Island)
Number of days with fog (Vis. Less Than 1000 m)	Number of days of fog by station by month

Timeliness

Two months after the end of the quarter during the reference period

Dissemination

Statistics Centre's website and statistical newsletters



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