

Metadata

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This Sahara Dust Haze Index Forecasts and Air Quality Index forecasts products have been designed, tailored to the needs of the society and are generated by the Meteorological Services Division of Trinidad and Tobago, in collaboration with the Caribbean Institute of Meteorology and Hydrology (CIMH).

Forecast and warning levels are generated and computed from the CIMH advanced WRF-Chem regional numerical model prediction system working on a 25 km grid resolution. The forecast represents the air quality without localized sources of pollution, such as bushfires. The Sahara Dust Haze Index is determined from the PM₁₀ µg/m³ maximum concentration over Trinidad and Tobago in 24 hours. The Air Quality Index is determined from the PM_{2.5} µg/m³ maximum concentration over Trinidad and Tobago in 24 hours.

Know Your Sahara Dust and Air Quality Risks

Saharan Dust Haze is a mixture of sand and dust from the Sahara Desert. It has attracted increasing attention due to dust outbreaks, which can have a strong effect on local air quality that have caused health impacts due to the high levels of Particulate Matter (PM_{2.5}, PM₁₀) and aerosols.

Sahara Dust Haze plumes affect air pollution, pollution levels and represent a serious human health and environmental problem for Trinidad and Tobago. Impacts on health include respiratory, cardio-vascular problems, and eye infections. Impacts on the environment include absorption of both long and shortwave radiation which can contribute to localized heating by directly warming the dust-laden atmospheric.

Saharan dust is relatively common in Trinidad and Tobago, usually occurring relatively often throughout the year; but is most frequent from April to October, usually peaking in June. As a result, the MSD has taken the initiative to provide Sahara dust and air quality forecasts for Trinidad and Tobago.

Sahara Dust Index Forecasts and Air Quality Index Forecasts

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The Sahara Dust Index (SDI) Forecasts and Air Quality Index (AQI) Forecasts are generated – to anticipate specific hazardous conditions and are important public communication tools to advise the public, provide relevant, easily understandable, and reliable information to inform actions that can keep the population healthy. These products will help citizens plan activities, avoid exercise and strenuous work outside when the air quality is poor and can help the public health system prepare accordingly for a potential increase of patients with cardiovascular and respiratory complications.

Sahara Dust Haze Index (SDHI) Forecast

The Sahara Dust Haze Index (SDHI) is based on the concentration of PM10 particles with a diameter of 10 micrometers (0.01 mm) or smaller, including PM2.5 and finer, usually found in dust and smoke that enters the respiratory tract.

The SDHI is a simple, color-coded, unit-less index that is an effective way to communicate Sahara Dust Haze concentrations to the general public. It provides an indication of the risk levels posed by the forecast concentration of Sahara Dust Haze in a 24-hour period. It mirrors the air quality standards of the WHO for PM10 concentration over 24 hours.

The Sahara Dust Haze Index (SDHI) Forecast is used for forecasting Sahara Dust Haze risk levels. The SDHI is determined by maximum pollutant concentrations over the forecast periods. The maximum concentrations were specifically selected on the basis of epidemiology studies concerning the short-term impacts of air pollution.


The SDHI take into consideration the latest research evidence on the health impacts of air pollutants based on the WMO most recent Air Quality Guidelines of 2021, the national standard and other global standards. The WHO states that “compared to 15 years ago, when the previous edition of these guidelines was published, there is now a much stronger body of evidence to show how air pollution affects different aspects of health at even lower concentrations than previously understood.”

Dust Risk Levels	Colour	Sahara Dusk Indicator value	RGB & Hexadecimal colour #ffffff0	Dust Concentration Levels Break Points
Negligible		0-50	Ivory RGB 255, 255, 251	54 µg/m ³ or less
Moderate		51-100	Yellow RGB 255, 255, 251	55 to 154 µg/m ³
High		101-150	Burnt Orange RGB 255, 255, 251	155 - 254 µg/m ³
Very high		151-200	Red RGB 255, 255, 251	255 to 354 µg/m ³
Extreme		201-300	Extra Red RGB 142, 0, 0	355 to 424 µg/m ³

Dangerous		301 -500	Dark Pink RGB 219 , 145, 154 #CD919E	425 µg/m ³ or greater
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AIR QUALITY INDEX FORECASTS (Based on PM2.5)

The Air Quality Index Forecast is used for forecasting air quality with the colour used as the key communication tool. The forecast index ranges from 0 to 500 (no units) and provides an indicator of the quality of the air and its health effects. A forecast index of 101 or greater typically corresponds to the air quality levels that violates the World Health Organization standards. AQI forecast of category Orange, Red, Purple or Maroon indicate an air quality day that is likely to violate the air quality standards for human health.



Outdoor Air Quality Indicator Category	Air Quality Indicator Value	Break Points for PM 2.5 (µg/m ³ , 24-hour average)
Good	0-50	0-15.4
Moderate	51-100	15.5 – 40.4
Unhealthy for Sensitive Groups	101-150	40.5 – 65.4
Unhealthy	151-200	65.5 – 150.4
Very Unhealthy	201-300	150.5 – 250.4
Hazardous	301-500	250.5 – 500

Daily Air Quality Standard

Health Advice to Accompany the Sahara Dust Index Forecast and Air Quality Forecast

Breathing in PM2.5 and PM10 particles can affect your health because these particles are small enough to go deeply into your lungs, possibly entering the bloodstream.

People who are sensitive to Sahara Dust Haze might experience symptoms when the SDI and AQI levels are high. This includes people with heart, lung or respiratory conditions or sensitive eyes. Symptoms can include:

- Wheezing
- Coughing
- Sneezing
- Chest tightness
- Difficulty breathing

- Teary, itchy or infected eyes

If SDI and AQI levels are high, you can:

- Avoid being outside in the dust, reduce strenuous physical exertion, particularly outdoors, and particularly if you experience symptoms.
- Close your windows and doors
- If you are experiencing discomfort such as sore eyes, cough or sore throat consider reducing activity, particularly outdoors.
- If you have asthma, follow your asthma action plan
- If you have a heart or lung condition, avoid strenuous physical activity, follow your treatment plan