

## HIGHLAND CLIMATOLOGICAL STATION AT TANAH RATA, CAMERON HIGHLANDS, MALAYSIA

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Located 1545.0 meters above mean sea level, Malaysia's only highland climatological station is sited on a mountain range near the highland resort town of Tanah Rata, Cameron Highlands in the state of Pahang. The original station (latitude 04° 28' N, longitude 101° 23' E, altitude 1,471.6 meters) was established in 1925 by the then Federated Malay States Meteorological Service under the Museums Department at a site close to Tanah Rata town. This station was the first of several "hospital stations" built in highland areas and utilizes dressers from the nearest hospitals to carry out meteorological observations of temperature and rainfall.

When the Malaysian Meteorological Service was formed in 1965, the station became one of the 17 principal meteorological stations in the national network.

The meteorological observations at Tanah Rata include daily and hourly rainfall, hourly air temperature and relative humidity, maximum and minimum temperatures, hourly wind, sunshine hours, solar radiation, evaporation and atmospheric pressure. The station is manned by a Station Head assisted by four meteorological assistants and is operated from dawn to dusk. In 1975, the Malaysian Meteorological Service established an Environmental Studies Division to make systematic, long-term observations of atmospheric composition and environmental conditions at local, regional and global levels for detecting critical changes and providing early warnings of environmental emergencies and disasters. To support the activities of the division, a network of air pollution monitoring stations was established. It was decided that the Tanah Rata station would be an ideal site for making background measurements of air pollution and the data collected would be submitted to the World Meteorological Organization Background Air Pollution Monitoring Network (BAPMoN). Data from the BAPMoN network are particularly essential in understanding the relationship between changing atmospheric composition and human-induced changes in global and regional climate. Subsequently, on the recommendation of a visiting WMO expert, the station was shifted to its present site (latitude 04° 28' N, longitude 101° 22' E, altitude 1545.0 meters) on top of an adjacent hill which has better exposure and a larger land area for future expansion. Meteorological and air quality measurements started at this new site in 1983. The air quality parameters monitored include:



- Rainwater chemical composition
- Reactive gases (SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>)
- Aerosol load and chemical composition
- Surface ozone
- Greenhouse gases

In 2001, this station was renamed as the Malaysian Regional Global Atmospheric Watch (GAW) Station following the decision of the World Meteorological Organization to integrate a number of existing monitoring activities in the field of atmospheric environment. The Tanah Rata Regional GAW station is strategically located in the tropical Southeast Asian region where reliable, comprehensive observations of the chemical composition and selected physical characteristics of the atmosphere on a regional scale is still scarce. Due to its strategic location, the Malaysian Meteorological Service is often invited to participate in collaborative projects with international scientists that require measurements at a remote tropical site. This station is also one of two sites in Malaysia which contributes data to the East Asian Acid Deposition Monitoring Network (EANET), a regional initiative to promote better understanding of the acid deposition issue in the East Asian region.



With data dating back to 1925, the Tanah Rata station has one of the longest climatological records in the national network. The Malaysian Meteorological Service allocates a large budget each year to maintain this highland station as it recognizes the importance of the meteorological and air quality observations from Tanah Rata. The data have been used for documenting climate and air quality trends, climate change studies, supporting highland agricultural activities and to investigate the effects of topography on meteorology. In recent times, due to rapid development of highland areas in the country, the Malaysian government has set

up a committee that monitors development in highland areas to ensure sustainable economic development. Meteorological data from the Tanah Rata station will form part of the database used in the formulation of a local district plan.

The scenic beauty and mild climate in Cameron Highlands makes Tanah Rata a popular holiday destination and the Malaysian Regional GAW Station attracts a few hundred visitors each year including government officials, school children and even holiday-makers. The Malaysian Meteorological Service makes every effort to brief all its visitors on its observation programme while, at the same time, promoting environmental awareness.

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