

Characterization of heat waves: a case study for Peninsular Malaysia

ABSTRACT

The present work aims to investigate the characteristics of heat waves in Peninsular Malaysia based on the Excess Heat Factor (EHF) Index. This index was calculated based on the daily maximum and minimum temperatures over nine meteorological stations in Peninsular Malaysia during the period 2001 to 2010. The selected station is representing all of the states in Peninsular Malaysia. Statistical analysis found that the highest of the EHF happened at the Kuala Lumpur station in 2002 with an index of 9.1°C^2 and the lowest was in Alor Setar in 2006 with an index of 0.1°C^2 . The EHF moderate was found at Kuantan with an index of 4.2°C^2 . Moreover, the longest heat wave with 24 days has happened in Ipoh, Perak with amplitude of $29.4^{\circ}\text{C} - 33.0^{\circ}\text{C}$. Most of the heat wave characterized in Malaysia occurred during the El Nino events especially moderate El Nino in 2002 until 2005, and 2010. The Southeast, northeast and west part of Malaysia experience the highest average heat wave activity. These results indicated that the heat wave conditions in Peninsular Malaysia are anxious and this requires immediate investigation because it has a direct impact on agriculture, particularly health, economic, and human being.