

1. Review of Regional Weather Conditions

1.1 Under inter-monsoon conditions, the monsoon trough hovered around the equatorial region, bringing light and variable winds to many areas. However, the development of low pressure systems over the Indian Ocean (which subsequently intensified into tropical cyclone Lorna and Fani) in the later part of the fortnight contributed to a strengthening of winds. Away from the Equator, winds were generally blowing mainly from the east or southeast over the Java Sea area and from the southwest or west over the Mekong sub-region.

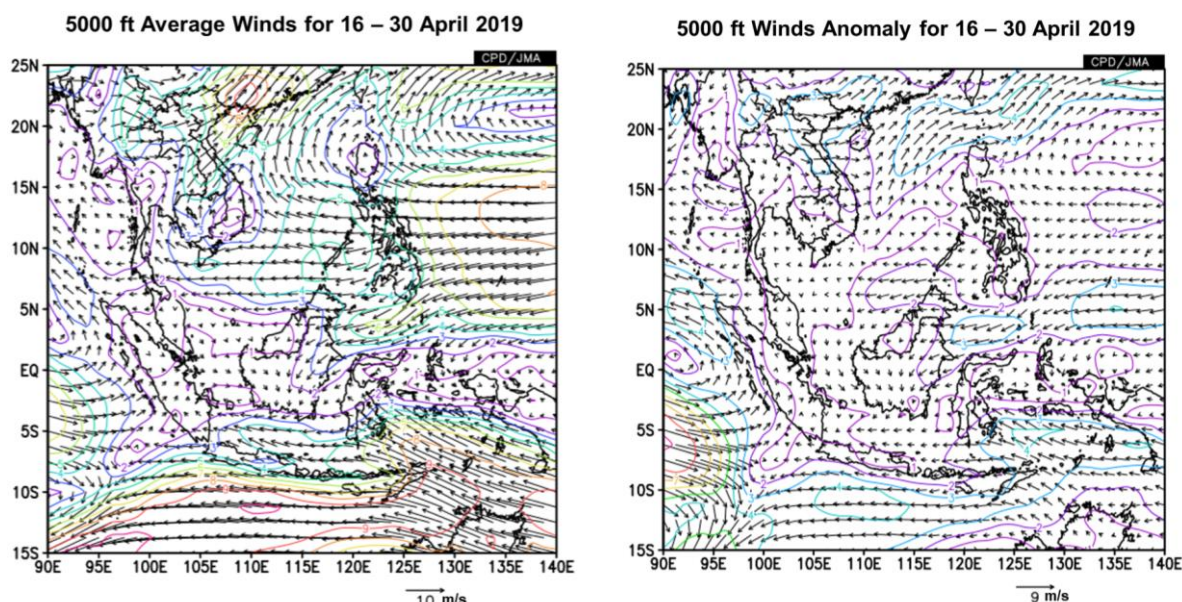


Figure 1 5000 ft average winds (left) and anomalies (right) for 16 - 30 Apr 2019. (Source: JMA)

1.2 Over the Mekong sub-region, there was an increase in shower activities over the southern areas but dry weather prevailed in the northern parts. In the southern ASEAN region, there were scattered shower activities over the fortnight. The areas south of the equator generally received above-average rainfall, but drier-than-average conditions were observed over Peninsular Malaysia, northern and central Sumatra, Sabah and the eastern parts of Kalimantan.

1.3 The daily average rainfall and the percentage of average rainfall for the second fortnight of April 2019 are shown in Figures 2 and 3 respectively.

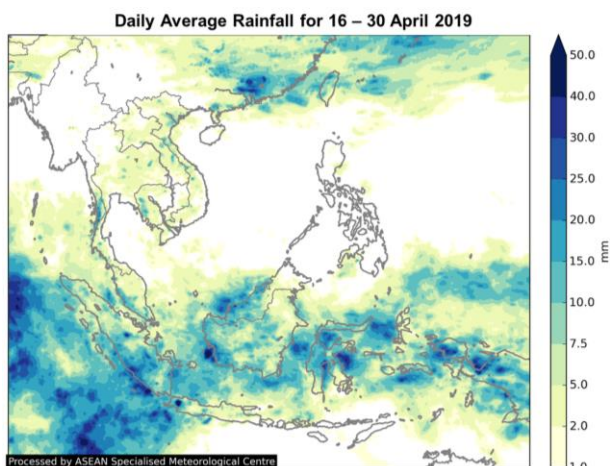


Figure 2 Daily average rainfall for the ASEAN region in the second fortnight of April 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

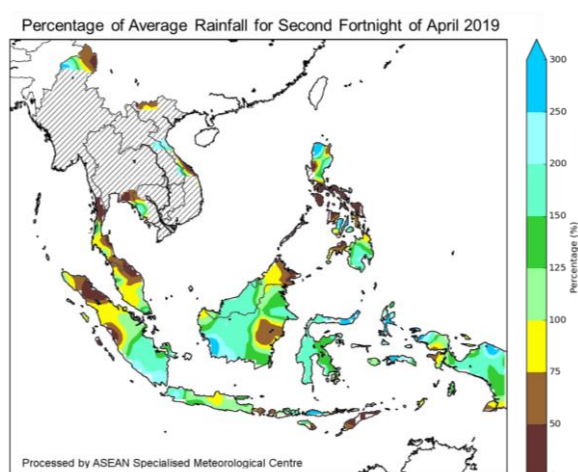


Figure 3 Percent of average rainfall for 16 – 30 April 2019. The rainfall data may be less representative for areas with a less dense rainfall network. Hatched areas indicate climatology dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.4 The sea surface and sub-surface temperatures over the tropical Pacific Ocean were warmer than average, although both cooled slightly in April. The atmosphere-ocean coupling remained inconsistent, with trade winds remaining close to average conditions.

1.5 The Madden Julian Oscillation (MJO)¹ strengthened and propagated through Phases 2 - 4² during the fortnight. MJO Phases 3 and 4 typically bring wetter weather over most parts of the Maritime Continent and drier conditions over parts of the northern ASEAN region. The MJO phases coincides with rainfall pattern in the Southeast Asia region.

¹ The MJO is characterised by an eastward propagation of clouds and rainfall over the tropics with an average cycle of 30 to 60 days. The MJO is more prominent between the Indian and western Pacific Ocean, and consists of two phases – an enhanced rainfall (convection) phase and a suppressed rainfall phase.

² Based on the Average Outgoing Longwave Radiation (OLR) information by the Bureau of Meteorology, Australia.

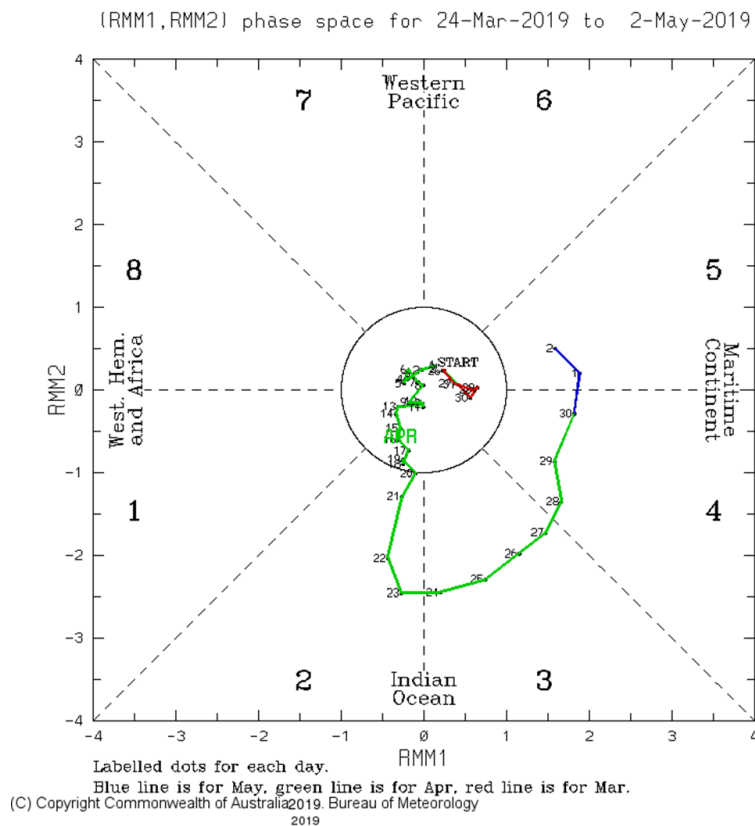


Figure 4 The MJO phase diagram for March 2019-May 2019 (green for April). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index falls within the circle, the MJO is considered weak or indiscernible. (Source: Bureau of Meteorology)

2. Review of Land/Forest Fires and Smoke Haze Situation

2.1 During the fortnight, hotspot activities and hazy conditions persisted in the northern Mekong sub-region. Dense smoke haze continued to be observed over parts of Myanmar, and northern Thailand and Lao PDR. Some smoke haze was blown to northern Viet Nam by the prevailing southwesterly winds. In the southern ASEAN region, hotspot activities were generally subdued except for isolated hotspots with localized smoke plumes along the east coast of Peninsular Malaysia in the first week of the fortnight.

2.2 Figures 5, 6 and 7 show satellite images over the ASEAN region in the second fortnight of April 2019.

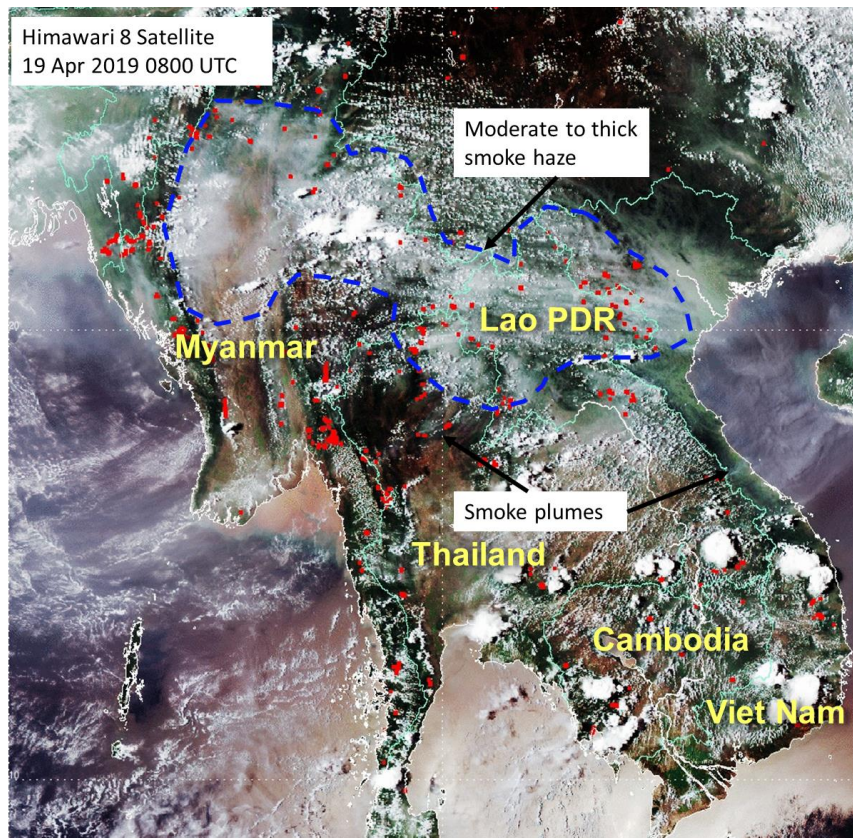


Figure 5 Smoke haze from persistent hotspots in northern Mekong sub-region (marked by blue dotted lines)

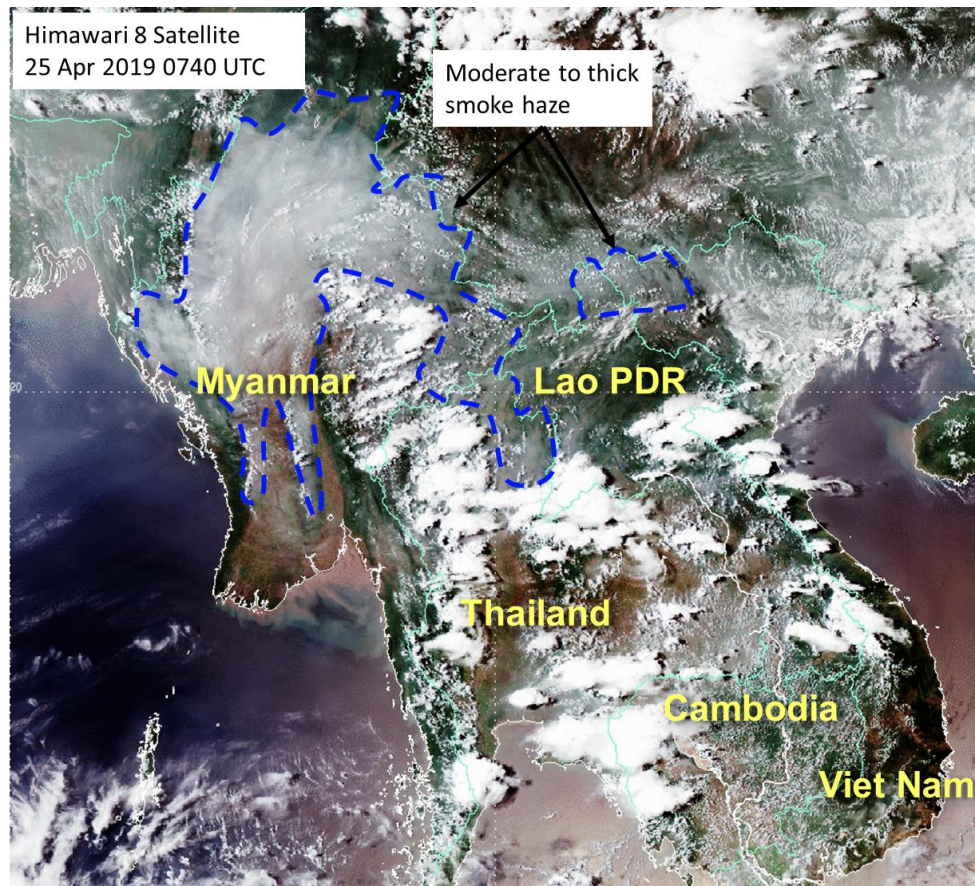


Figure 6 Smoke haze from persistent hotspots in Mekong sub-region (marked by blue dotted lines)

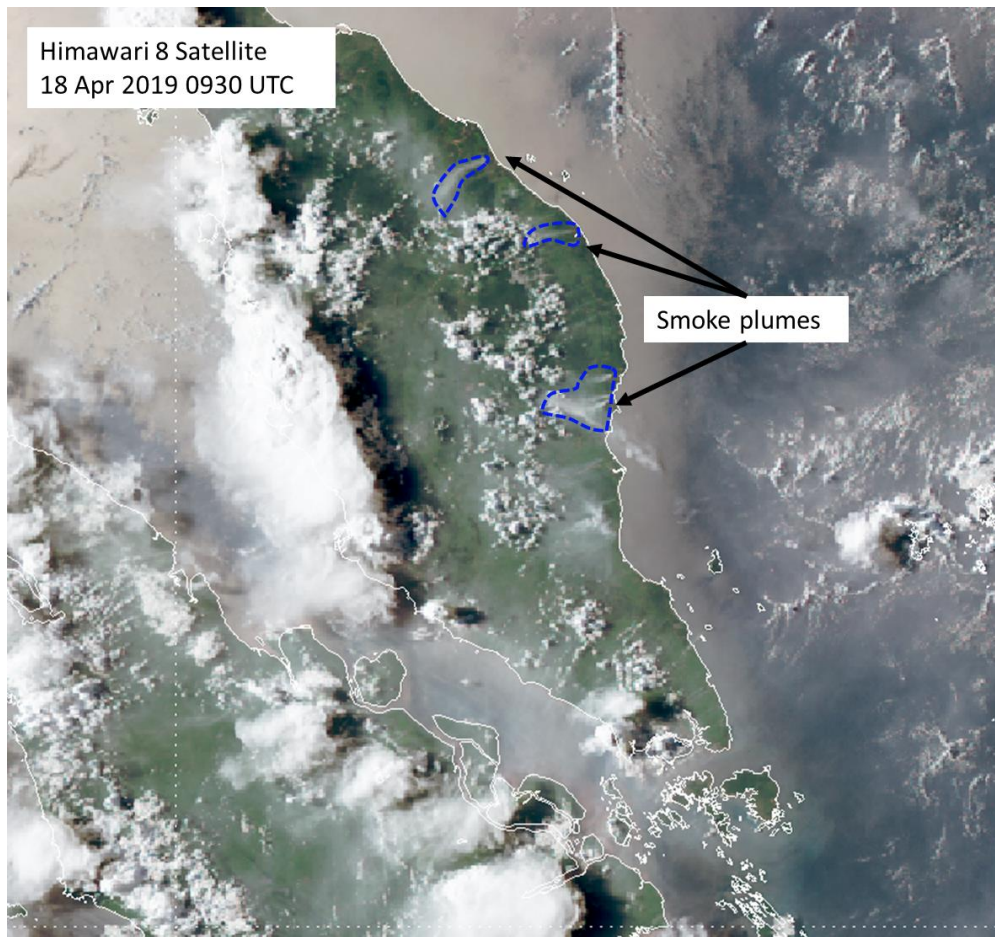


Figure 7 Isolated hotspots with localised smoke plumes along east coast of Peninsular Malaysia (marked by blue dotted lines)