

1. Review of Regional Weather Conditions for First Fortnight of August 2018

1.1 Southwest Monsoon conditions prevailed in the first fortnight of August 2018. The monsoon trough was located north of the Equator, and this brought rainy weather over the northern ASEAN region. In the southern ASEAN region, the dry weather conditions prevailed.

1.2 Most parts of the ASEAN region experienced drier than average conditions, in particular over Indonesia, Malaysia, and Thailand. Parts of the Mekong sub-region, including Lao PDR, Myanmar, and Viet Nam received above average rainfall.

1.3 The daily average rainfall and the percentage normal of rainfall for the first fortnight of August 2018 are shown in Figure 1 and Figure 2.

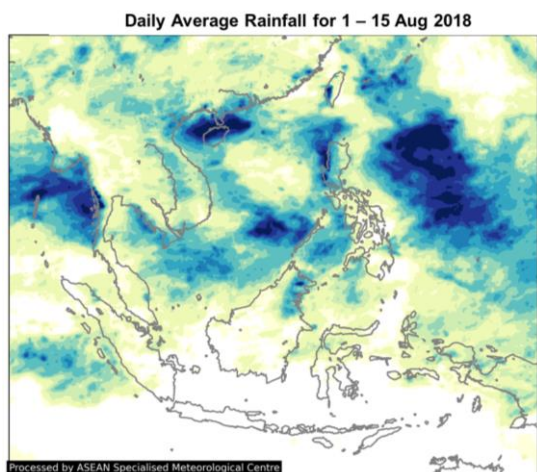


Figure 1 Daily average rainfall for the ASEAN region in the first fortnight of August 2018. (Source: JAXA Global Satellite Mapping of Precipitation)

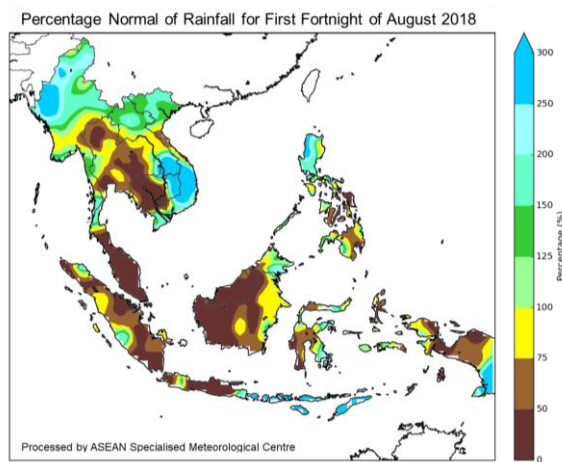


Figure 2 Percentage Normal of Rainfall for 1 - 15 August 2018. The rainfall data may be less representative for areas with less dense rainfall networks. (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.4 On 13 August 2018, a tropical depression that developed over the South China Sea intensified into Tropical Storm Bebinca and tracked westward. The rain band associated with the storm brought heavy rainfall to the northern parts of Viet Nam and Lao PDR.

1.5 Driven by the monsoon trough which persisted over the northern ASEAN region and the development of the Tropical Storm Bebinca, broad-scale southwesterly and westerly winds were observed over the region (as shown in Figure 3). For the southern ASEAN region, the winds were predominantly from the southeast.

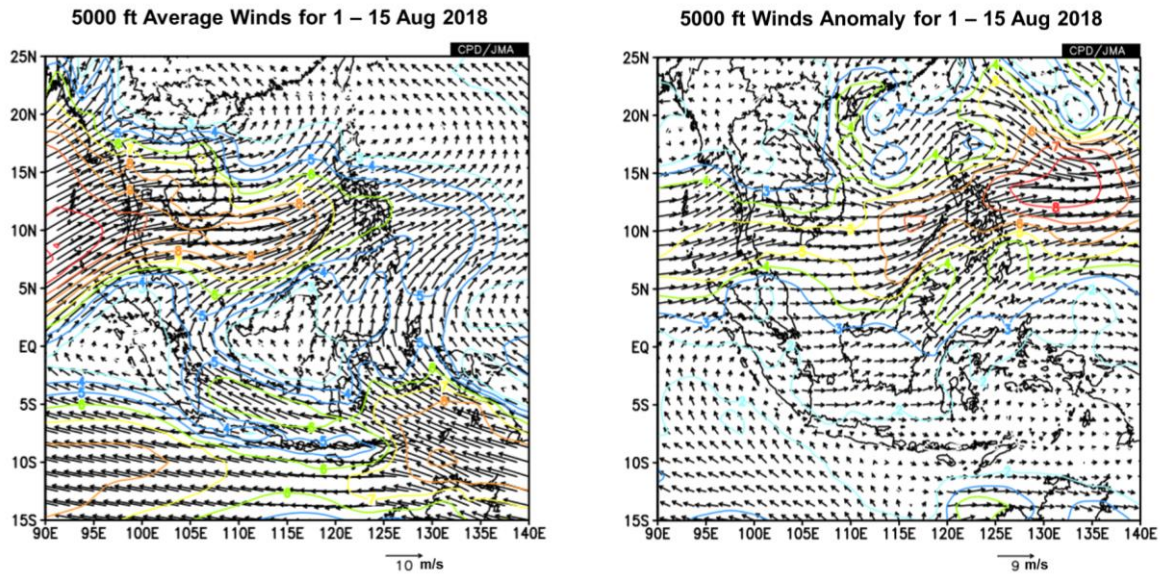


Figure 3: 5000 ft average winds (left) and anomalies (right) for 1 - 15 August 2018. (Source: JMA)

1.6 El Niño-Southern Oscillation (ENSO) conditions remained neutral. There are signs of warming following a brief cooling of the sea surface temperatures (SSTs) over the past weeks in the central and eastern tropical Pacific Ocean.

1.7 The Madden-Julian Oscillation (MJO)¹ remained quasi-stationary between Phase 6 and Phase 7 during the review period, and weakened toward the end of the fortnight. MJO Phases 6² would typically bring wetter weather over the Northwestern Pacific Ocean, while Phases 6 and 7 would bring drier weather over the Maritime Continent. The regional rainfall pattern reflected drier weather conditions, especially over the southern ASEAN 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.

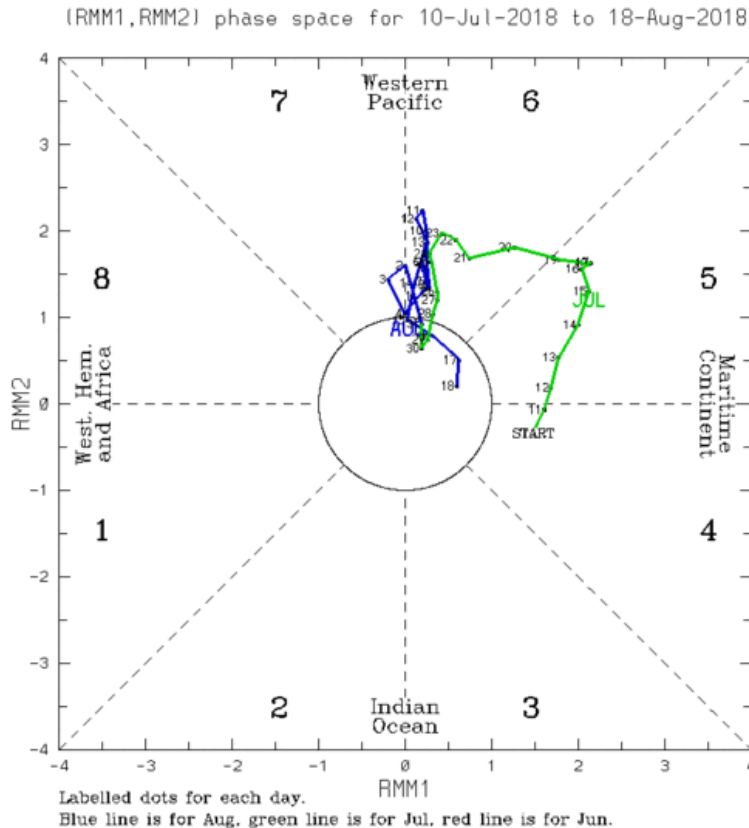


Figure 4 The MJO phase diagram for July-August 2018 (green for July). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When 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 In the northern ASEAN region, no significant hotspot activities were observed.

2.2 In contrast, the dry weather conditions prevailed in the southern ASEAN region. An extended period of drier weather in the latter half of the first fortnight of August led to increased hotspot activities in central Sumatra, Sarawak and Kalimantan. Clusters of hotspots were detected in northern Riau, central Sumatra, and smoke haze from these hotspots were blown across the Strait of Malacca by the prevailing winds, bringing hazy conditions and reduced visibility to parts of the west coast of Peninsular Malaysia. Persistent hotspots detected in West, Central and South Kalimantan emitted smoke haze that was transported northward by prevailing southeasterly and southwesterly winds. In particular, moderate to dense smoke haze from hotspots over peatlands in West Kalimantan was observed. The northward transport of smoke haze resulted in a deterioration of air quality in west Sarawak. Isolated hotspots with localised smoke plumes were also detected in central Sarawak on a few days.

2.3 Figures 5 and 6 show satellite images over the ASEAN region in the first fortnight of August 2018.

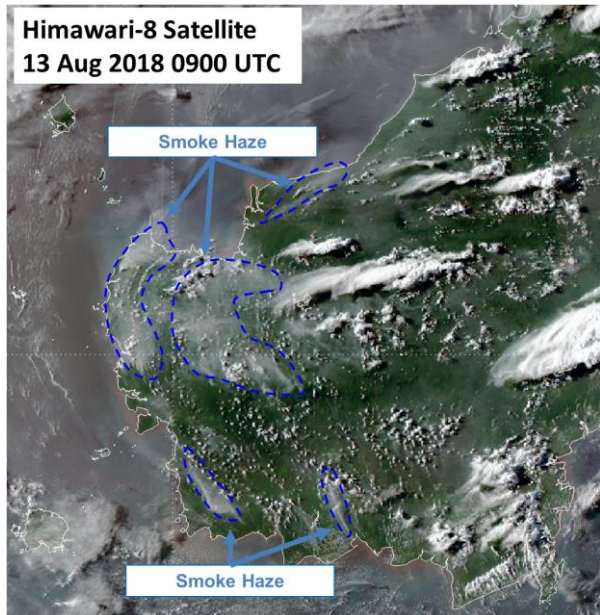
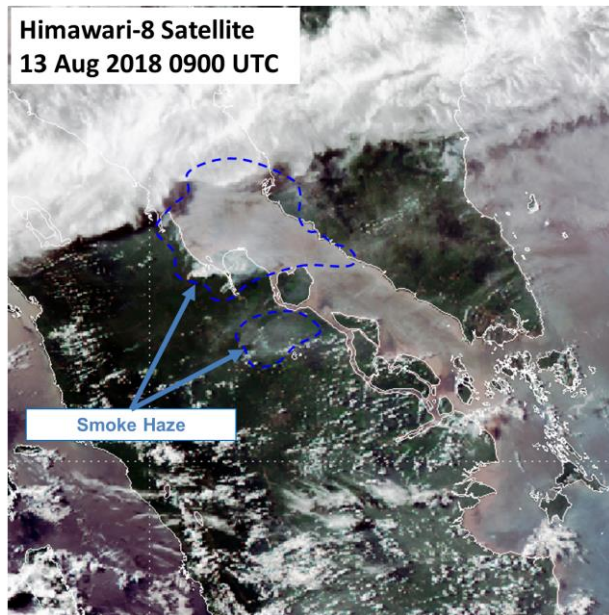


Figure 5 Smoke plumes (marked by blue dotted lines) observed around hotspot clusters detected in northern Riau, Kalimantan and Sarawak.

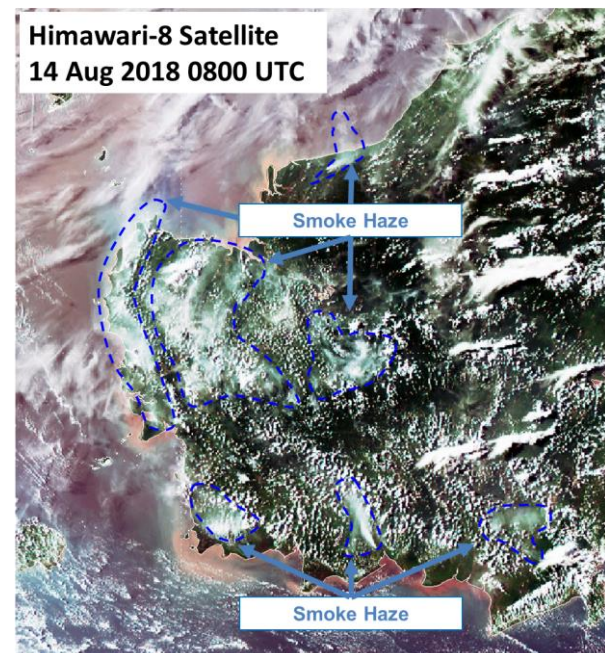
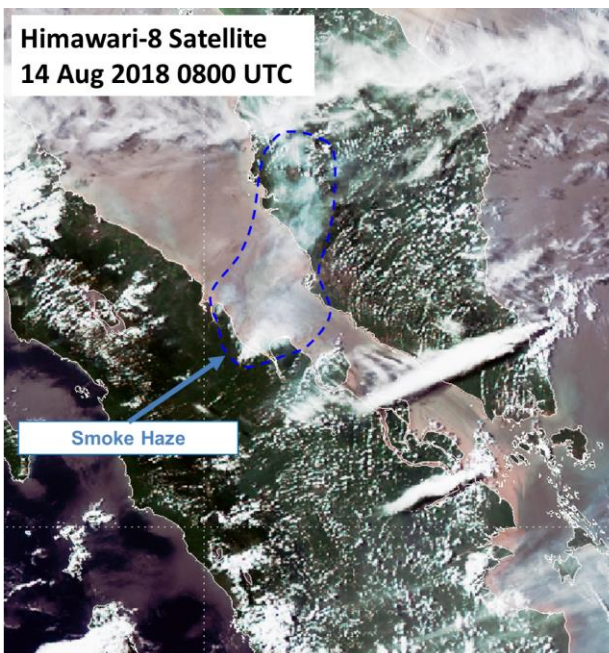


Figure 6 Smoke plumes (marked by blue dotted lines) observed around hotspot clusters detected in northern Riau, has been blown by the prevailing winds toward Peninsular Malaysia (left) and in western Kalimantan and Sarawak (right).