UPDATE OF REGIONAL WEATHER AND SMOKE HAZE (Second Fortnight of August 2019)

1. Review of Regional Weather Conditions for Second Fortnight of August 2019

1.1 Southwest Monsoon conditions prevailed. There were anomalously strong southwesterly winds over the northern ASEAN region in the second fortnight of August 2019. In the southern ASEAN region, winds were blowing mainly from the southeast

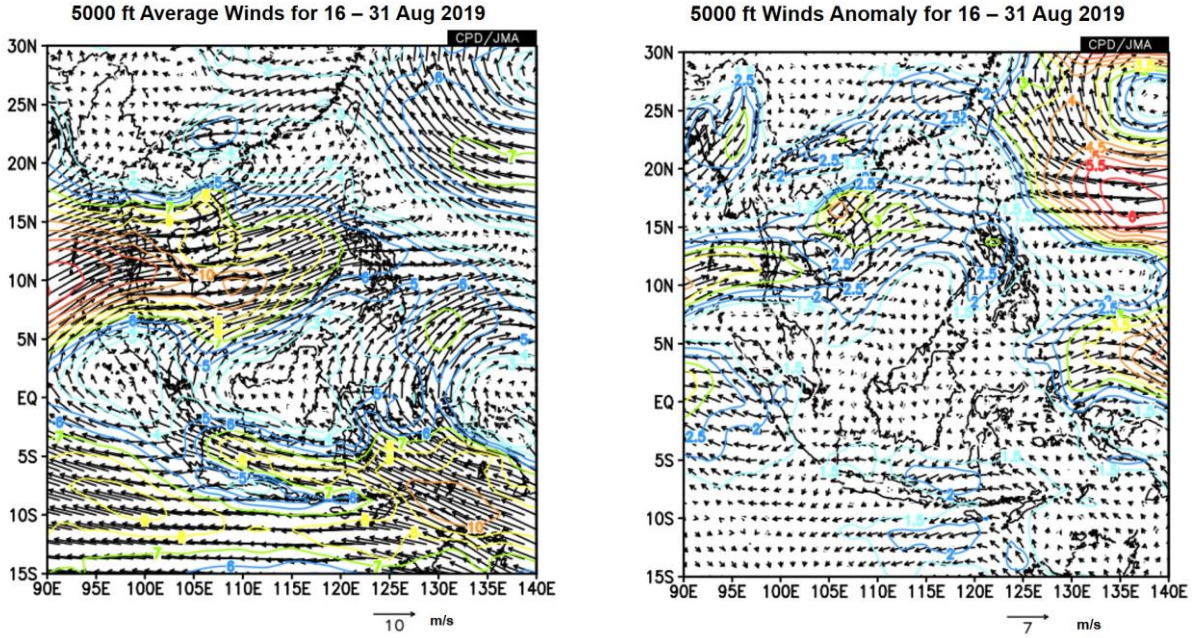

Figure 1: 5000 ft average winds (left) and winds anomaly (right) for 16 - 31 August 2019. (Source: JMA)

1.2 In the second half of August 2019, rainfall was generally above average, except in Cambodia, and the southern parts of Thailand and Viet Nam. Tropical Storm Podul, which formed over the Western Pacific Ocean, made landfall in Luzon, the Philippines on 28 August 2019 before tracking westward across the South China Sea. Tropical Storm Podul weakened rapidly after making landfall at northern Viet Nam on 30 August 2019, and the storm contributed to stronger monsoon winds and above-average rainfall over the Mekong sub-region and the Philippines.

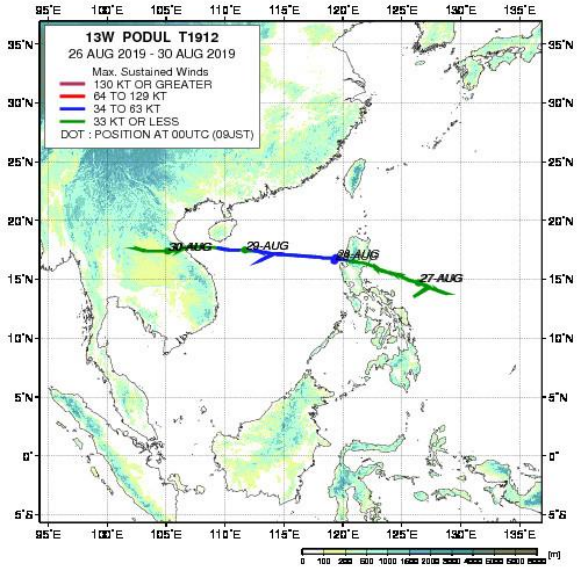

Figure 2: Historical track of Tropical Storm Podul. (Source: JAXA)

1.3 In the southern ASEAN region, drier-than-average conditions were observed over many parts of Sumatra, west coast of Peninsular Malaysia, eastern Borneo and Java. The drier-than-average conditions could be partly attributed to the presence of Indian Ocean Dipole in the positive phase.

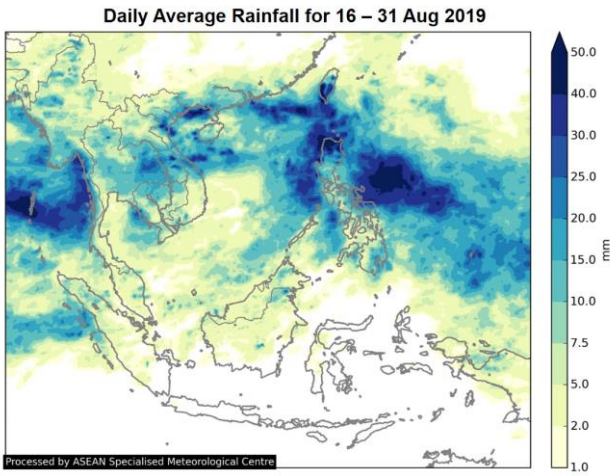

Figure 3: Daily average rainfall for the ASEAN region in the second fortnight of August 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

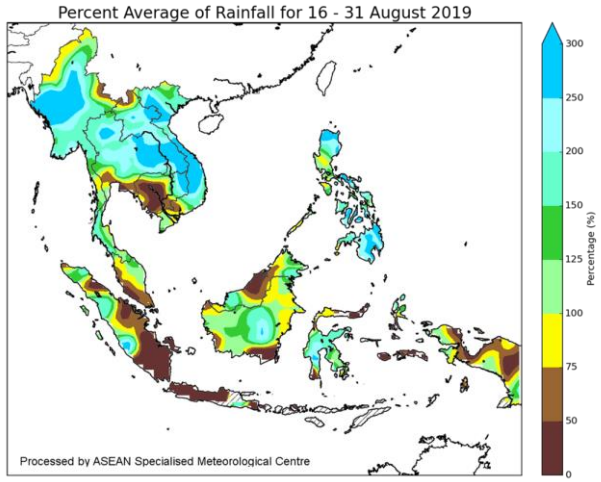

Figure 4: Percent of average rainfall for 16 – 31 August 2019. The rainfall data is less representative for areas with a less dense rainfall network. Hatched areas indicate climatology dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.4 During the review period, the Madden-Julian Oscillation (MJO) propagated through the Indian Ocean and Western Maritime Continent. Although the signal was not strong (Figure 4), it might have influenced rainfall over parts of the northern ASEAN region.

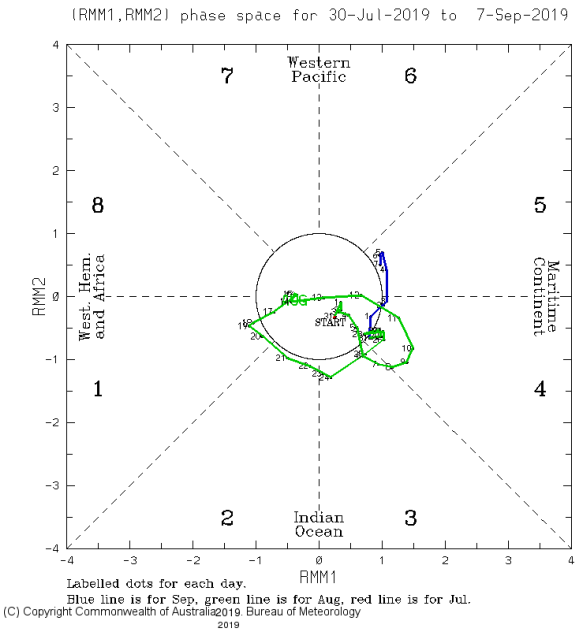

Figure 5: The MJO phase diagram for August 2019 (green). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index falls within the circle, the MJO is considered weak or indiscernible. (Source: Bureau of Meteorology)

1.5 The El-Niño Southern Oscillation (ENSO) continued to remain in the neutral state (i.e neither El Niño nor La Niña conditions).

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

2.1 During the second fortnight of August 2019, dry weather over Sumatra and Kalimantan was interspersed with occasional shower activities. In Sumatra, there were persistent clusters of hotspots detected in the central and southern parts of the island, particularly the provinces of Riau and Jambi. Moderate to dense smoke haze was observed to emanate from some of these hotspots.

2.2 In Kalimantan, significant smoke haze from persistent hotspot activities in Central Kalimantan resulted in widespread hazy conditions over the province. Hotspots with smoke haze were also detected in West, South and East Kalimantan. On a few days, some of the smoke haze from persistent hotspots in West Kalimantan was blown by the prevailing winds toward western Sarawak by the prevailing winds.

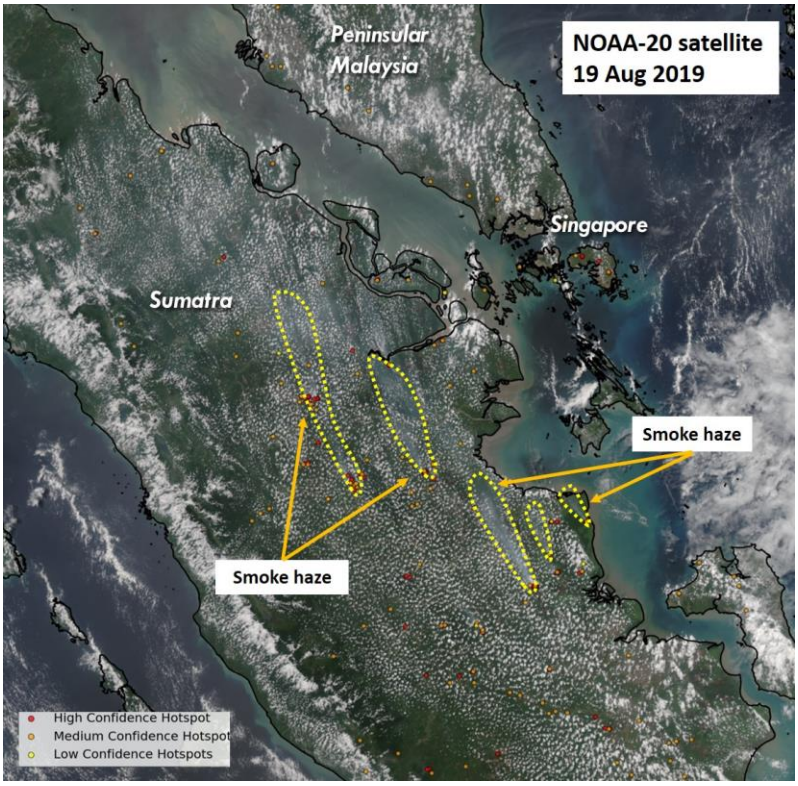

Figure 6: Hotspots with smoke haze detected in Riau, Jambi and South Sumatra based on NOAA-20 on 19 Aug 2019

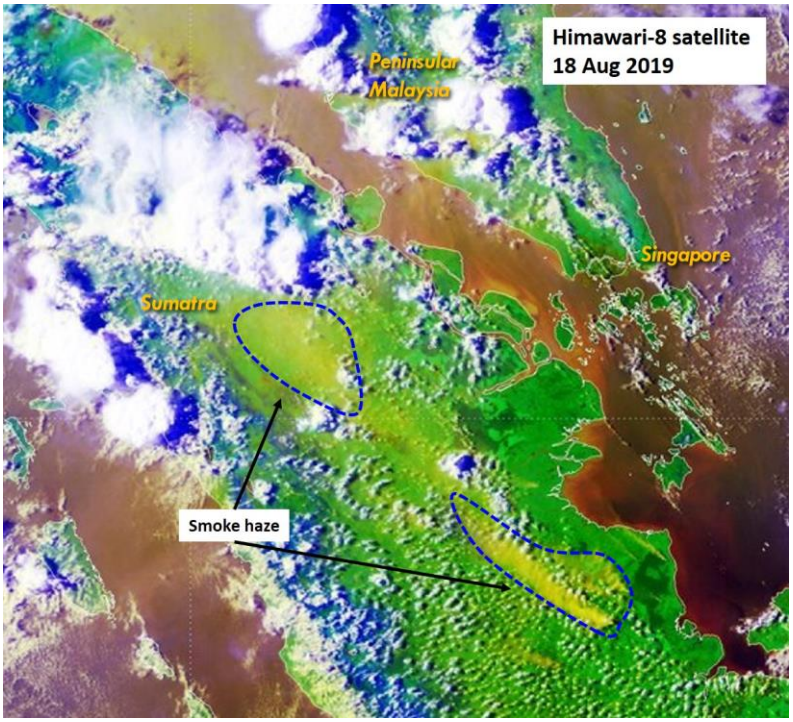

Figure 7: Moderate to dense smoke haze detected in Riau and Jambi, Sumatra based on image from Himawari-8 satellite on 18 August 2019

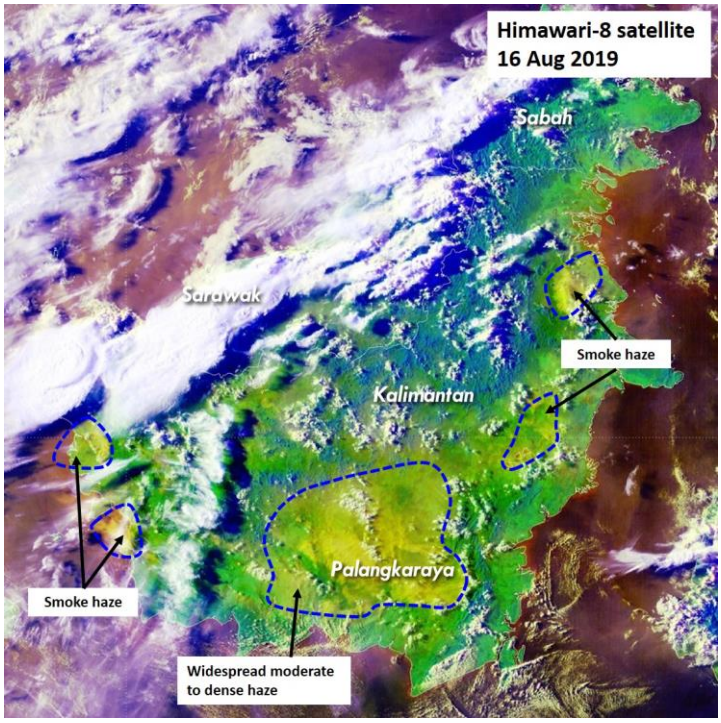

Figure 6: Widespread moderate to dense smoke haze detected in Central Kalimantan. Hotspots with smoke haze were also observed in West and East Kalimantan. Image based on Himawari-8 satellite on 16 August 2019.