

## 1. Review of Regional Weather Conditions for Second Fortnight of June 2019

1.1 In the second fortnight of June 2019, moderate to strong southwesterly or westerly winds prevailed over the northern ASEAN region. In the southern ASEAN region, winds continued to blow from the southeast or southwest. No significant wind anomalies were observed during this period.

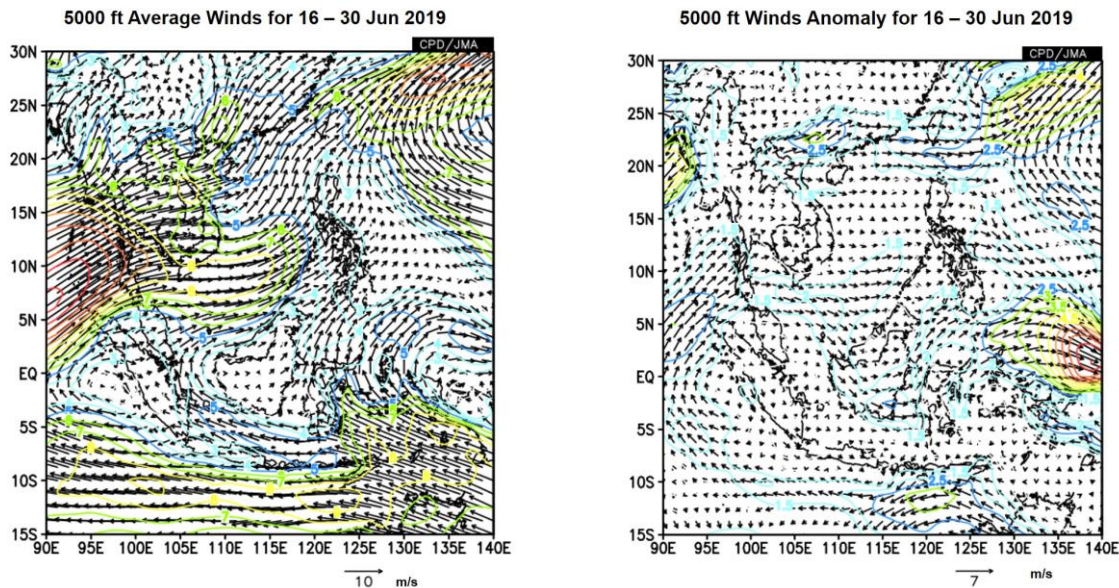


Figure 1: 5000 ft average winds (left) and winds anomaly (right) for 16 - 30 June 2019. (Source: JMA)

1.2 In the second half of June 2019, the monsoon rain band brought widespread showers over parts of the northern ASEAN region, in particular over the coastal regions. In the southern ASEAN region, most of the rain/showers fell over the equatorial region including Malaysia, Sumatra and Kalimantan. Over Java and the southern parts of Sumatra and Kalimantan, dry weather prevailed and rainfall was below-average.

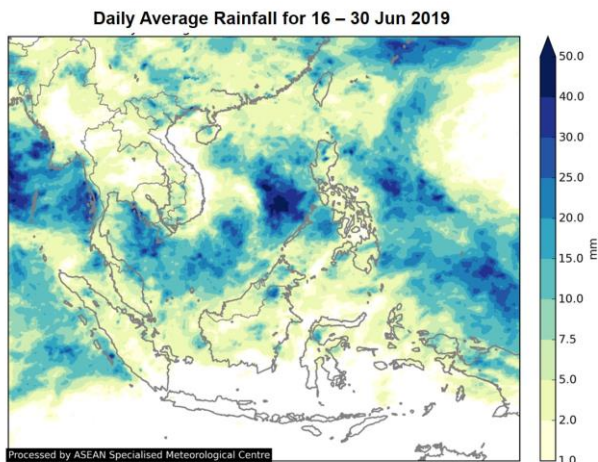


Figure 2: Daily average rainfall for the ASEAN region in the second fortnight of June 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

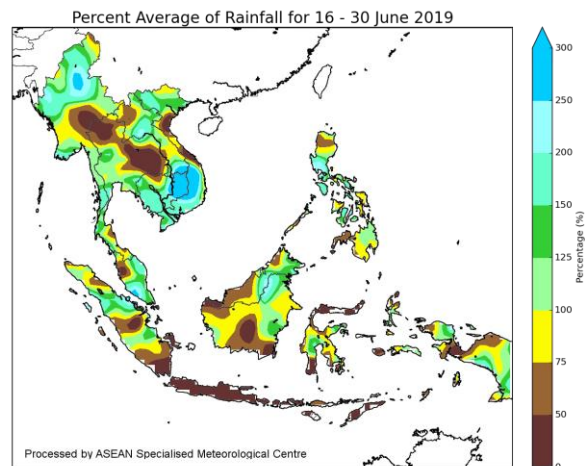


Figure 3: Percent of average rainfall for 16 – 30 June 2019. The rainfall data is less representative for areas with a less dense rainfall network. Hatched areas indicate climatology dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.3 In the early half of the fortnight, the Madden-Julian Oscillation (MJO) was in the Maritime Continent but weakened in the later part of the fortnight. There were no clear MJO signals during the period as shown in Figure 4.

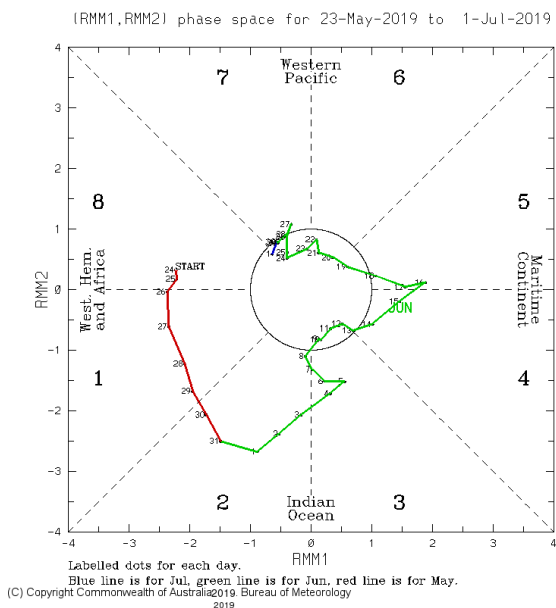


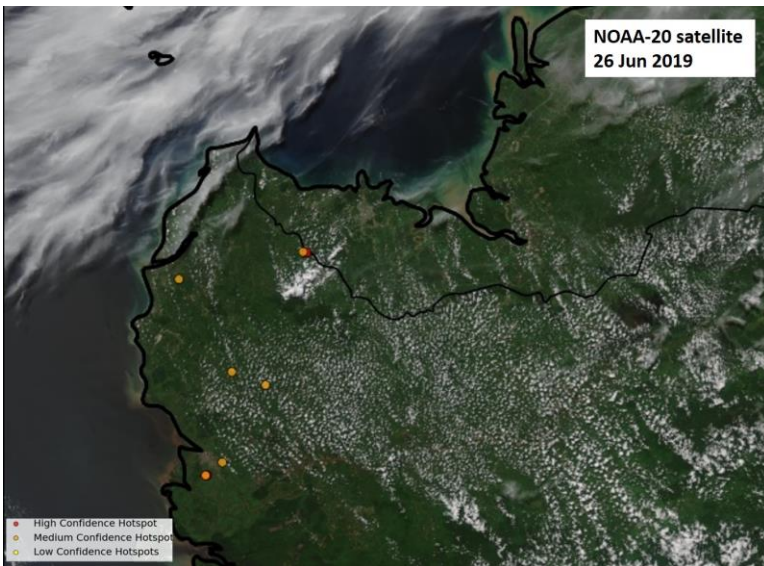
Figure 4: The MJO phase diagram for June 2019 (green). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index falls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

1.4 The El-Nino Southern Oscillation (ENSO) is currently in the neutral state. Sea-surface temperature (SST) anomalies remained slightly warmer than average in the central eastern Pacific.

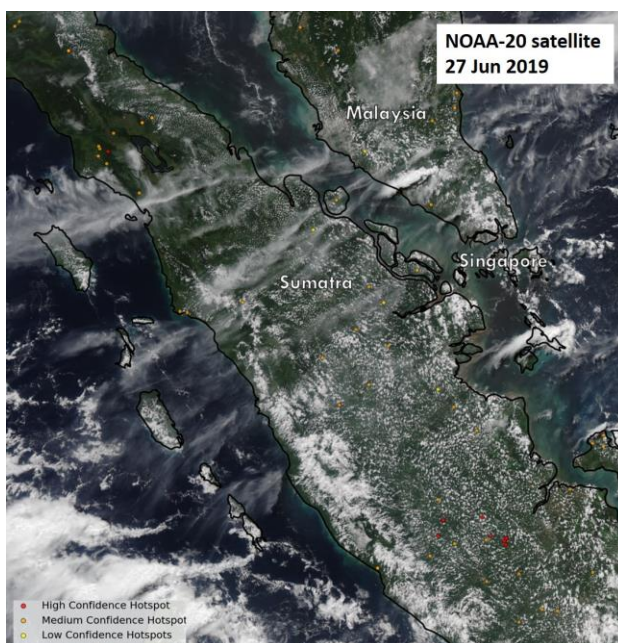
## 2. Review of Land/Forest Fires and Smoke Haze Situation

2.1 In the second half of June 2019, hotspot activities in the Mekong sub-region were generally subdued due to rainy weather.

2.2 In the southern ASEAN region, dry weather prevailed over Sumatra and Kalimantan. An increase in hotspot activities were observed toward the end of the fortnight, and occasional smoke plumes were detected in parts of Sumatra and West Kalimantan on a few days.



*Figure 5: Isolated hotspots detected in West Kalimantan based on NOAA-20 on 26 Jul 2019*



*Figure 6: Isolated hotspots detected in Sumatra based on image from NOAA-20 satellite on 27 Jun 2019*