

1. Review of Regional Weather Conditions for First Fortnight of March 2019

1.1 In the first fortnight of March 2019, northeasterly winds prevailed over the Philippines and the southern ASEAN region, while winds over the Mekong sub-region were light and blew mainly from the southwest. No significant wind anomalies were observed over the ASEAN region during this period. There was a gradual weakening of the northeasterly monsoonal winds during the first fortnight of the month.

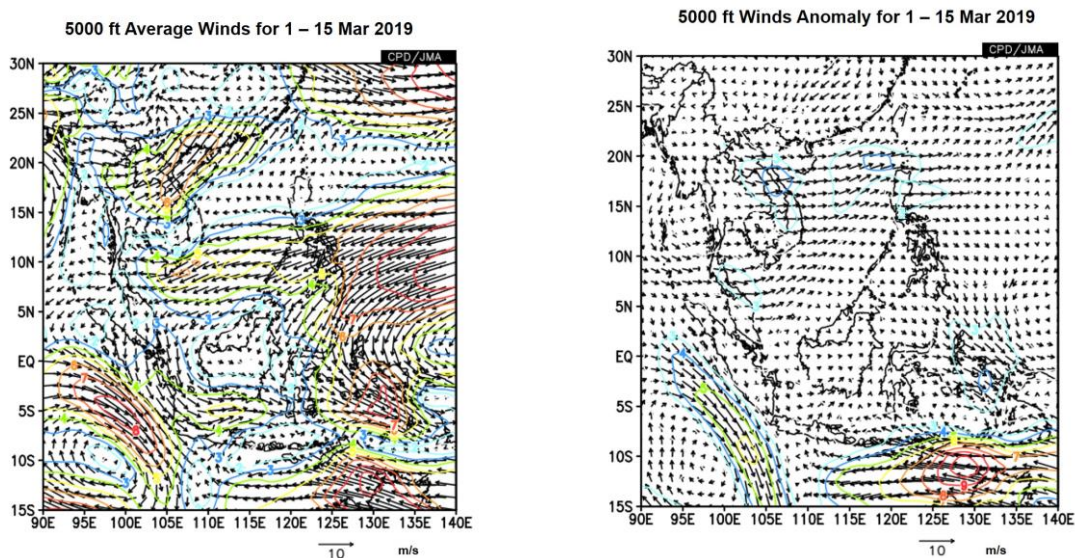


Figure 1: 5000 ft average winds (left) and winds anomaly (right) for 1 - 15 March 2019. (Source: JMA)

1.2 The dry air mass that has been extending from the Pacific Ocean to the Southeast Asia region since late-January continued to bring persistent dry weather over the northern ASEAN region, as well as over parts of Peninsular Malaysia, northern and central Sumatra, and northern Borneo in the first half of March 2019. Rainfall was below-average for these areas.

1.3 In the first fortnight of March 2019, most of the rainfall fell over areas south of the equator (Figure 2). Rainfall was near-average to above-average for areas including southern Sumatra, Kalimantan, Java and the eastern archipelago of Indonesia (Figure 3).

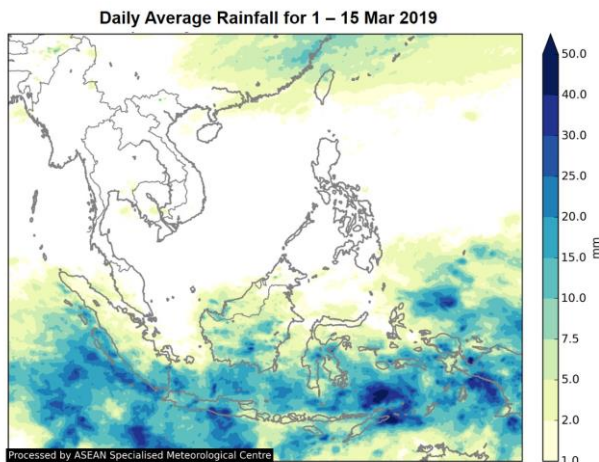


Figure 2: Daily average rainfall for the ASEAN region in the first fortnight of March 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

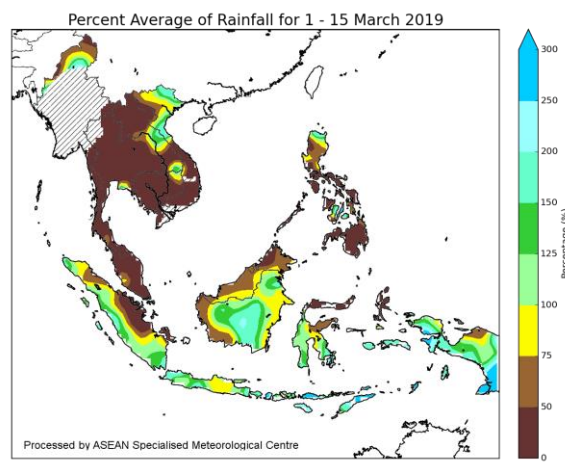


Figure 3: Percent of average rainfall for 1 – 15 March 2019. The rainfall data may be less representative for areas with a less dense rainfall network. Hatched areas indicate climatological dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.4 The Madden-Julian Oscillation (MJO) propagated through Phase 2 – 3 and contributed to increased rainfall activities observed over areas south of the equator, including southern Sumatra, Java and the eastern archipelago of Indonesia. Towards the end of the fortnight, the MJO reached Phase 4, where it rapidly weakened.

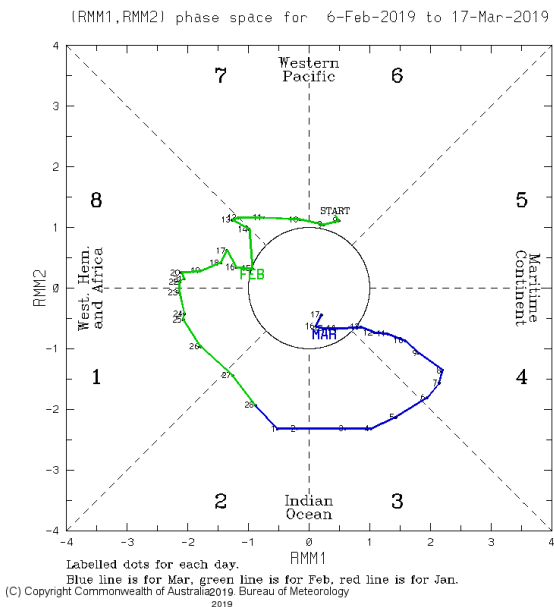


Figure 4: The MJO phase diagram for Mar 2019 (green). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index falls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

1.5 Slightly warm sea surface temperature anomalies over the Pacific Ocean are nearing El Niño levels. Sub-surface waters have become warmer than average. Nonetheless, there remained a lack of atmosphere-ocean coupling as atmospheric conditions remained largely neutral and inconsistent with El Niño conditions.

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

2.1 Dry conditions persisted over the northern ASEAN region, and widespread smoke haze continued to shroud many parts of the Mekong sub-region. The haze situation was on occasions exacerbated by confluence of prevailing winds with dense smoke haze from persistent hotspot activities extending over eastern Myanmar, northern and northeastern Thailand, and northern Lao PDR. Some of the smoke haze were also blown to northern Viet Nam by the southwesterly winds.

2.2 In the southern ASEAN region, dry weather over northern and central Sumatra, and Peninsular Malaysia led to the emergence of isolated but persistent hotspots with localised smoke plumes in Pahang, Peninsular Malaysia and Riau, Sumatra in the latter part of the fortnight.

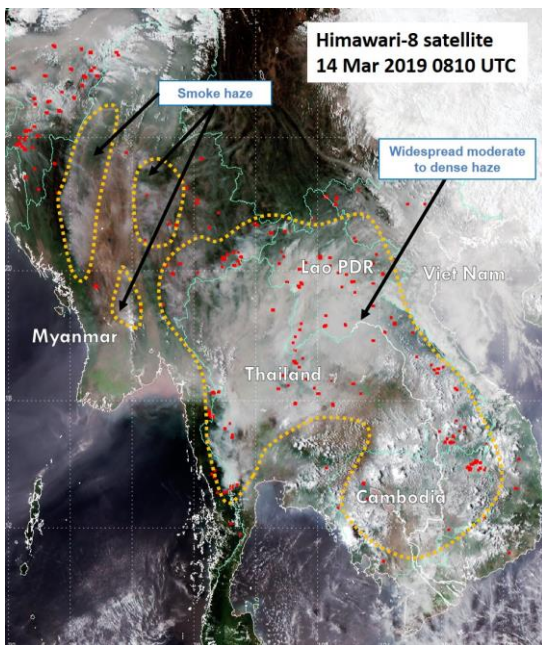


Figure 5: Himawari-8 satellite image on 14 March 2019 shows widespread smoke haze over the Mekong sub-region.

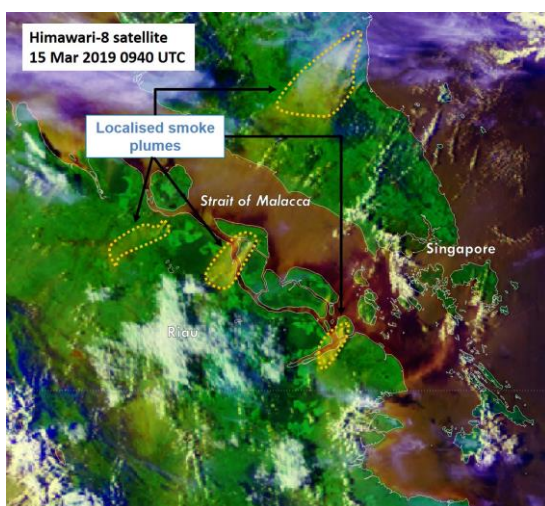


Figure 6: Himawari-8 satellite image on 15 March 2019 shows isolated hotspots with smoke plumes in Peninsular Malaysia and central Sumatra.