

**1. Review of Regional Weather Conditions for First Fortnight of February 2019**

1.1 Northeast Monsoon conditions prevailed over the ASEAN region during the first fortnight of February 2019.

1.2 The Mekong sub-region continued to experience dry conditions, which is typical over the region during this period. The dry conditions were exacerbated by the influence of an extensive dry air mass over the northern ASEAN region. Pockets of drier than usual conditions were observed mainly over parts of Viet Nam, and the eastern and southern parts of Thailand. The Philippines also observed below-average rainfall due to the influence of the dry air mass.

1.3 In the southern ASEAN region, scattered showers fell over most parts of the region. However, well below-average rainfall was recorded around the equatorial region over northern Sumatra, East Kalimantan, Singapore and most parts of Malaysia. This drier than normal conditions were partly due to the southward extension of the dry air mass from the northern ASEAN region. Elsewhere in the southern ASEAN region, above-average rainfall was observed.

1.4 The rainfall distribution and the percent of average rainfall for the first fortnight of February 2019 are shown in Figure 1 and 2.

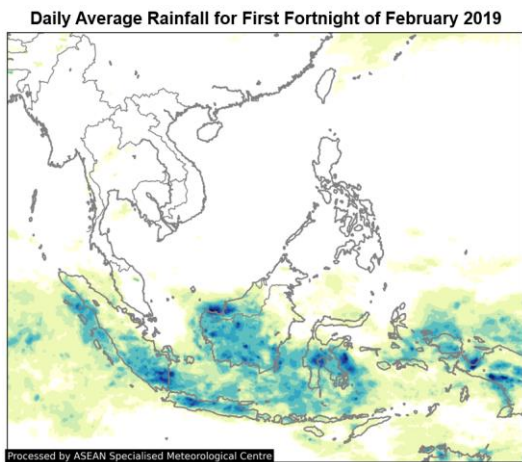


Figure 1: Daily average rainfall for the ASEAN region in the first fortnight of February 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

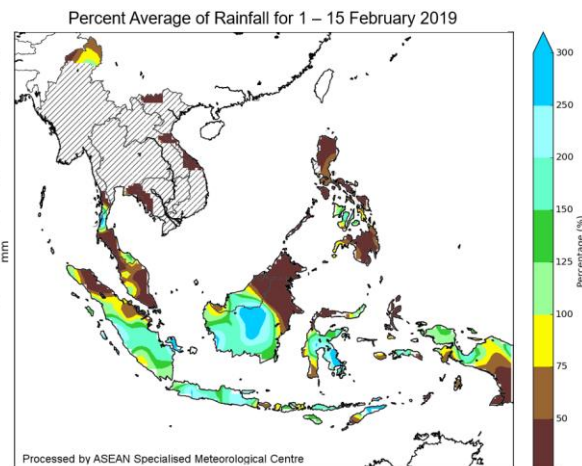
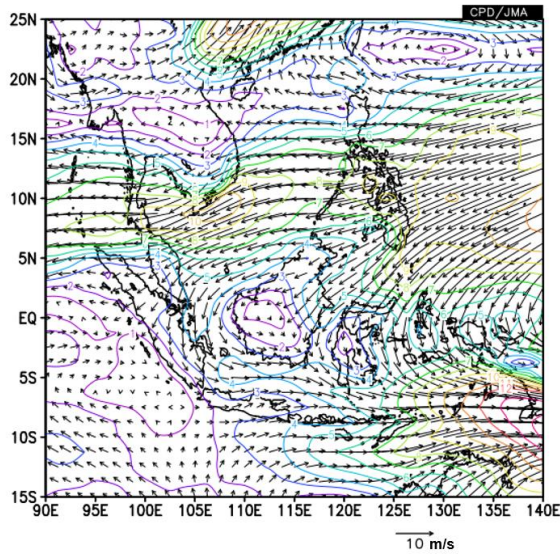


Figure 2: Percent of average rainfall for 1 – 15 February 2019. The rainfall data may be less representative for areas with a less dense rainfall network. Grey shades indicate climatology dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.5 During the fortnight, prevailing winds in the northern ASEAN region were generally blowing from the northeast or east, except for Myanmar where the winds were from the southwest or west. In the southern ASEAN region, westerly or northwesterly winds prevailed, except for the region west of southern Sumatra where southeasterly anomalies were observed.

5000 ft Average Winds for First Fortnight of February 2019



5000 ft Wind Anomaly for First Fortnight of February 2019

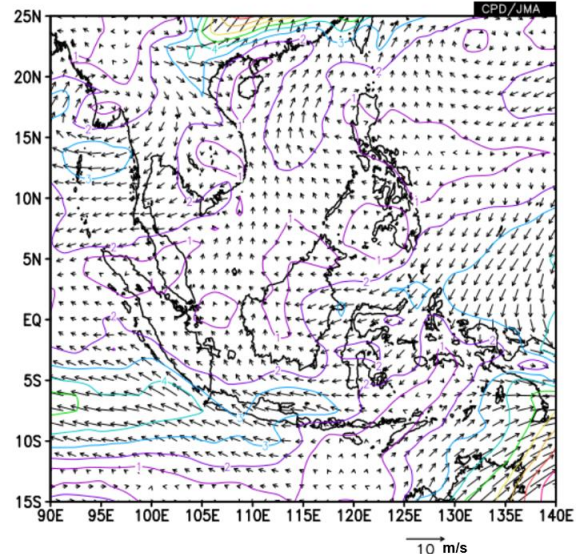


Figure 3: 5000 ft average winds (left) and wind anomaly (right) for 1 - 15 February 2019. (Source: JMA)

1.6 The El Niño Southern Oscillation (ENSO) continued to remain neutral (neither El Niño nor La Niña). However, the sea surface temperatures (SSTs) over the tropical Pacific Ocean was observed to have warmed slightly during the fortnight, aided by the westerly wind anomalies in the presence of the MJO. Consequently, trade winds in the western Pacific Ocean were also observed to have weakened.

1.7 During the fortnight, the MJO propagated through Phase 7 - 8. The MJO in Phases 7 and 8 usually brings drier conditions over most parts of the southern ASEAN region and equatorial South China Sea. During this period, the MJO might have contributed to the drier conditions over the equatorial region.

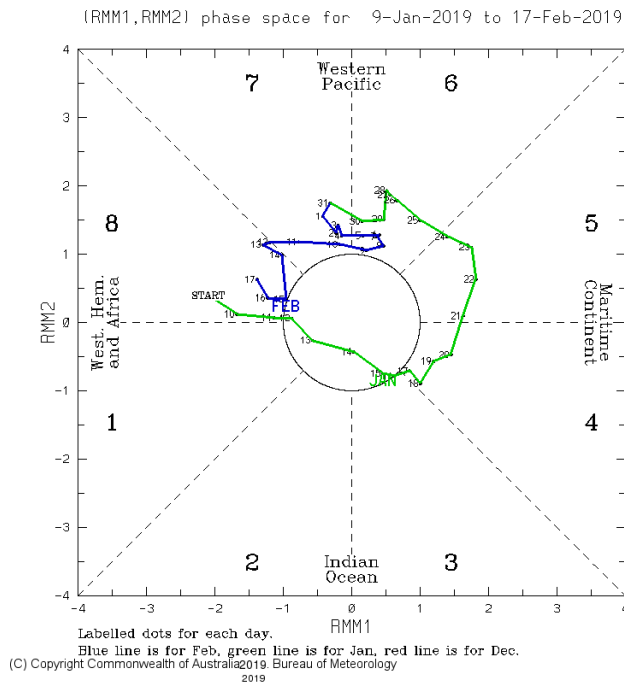


Figure 4: The MJO phase diagram for February 2019 (blue). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the Equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index 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 Mekong sub-region, the hotspot and smoke haze activities remained elevated under the prevailing prolonged dry conditions. The smoke haze observed from hotspot clusters in Cambodia in January 2019 continued to persist into the first fortnight of February. In addition, moderate to dense smoke haze was observed over most parts of Thailand, and isolated hotspots with smoke plumes were observed in other parts of the Mekong sub-region. In the southern ASEAN region, shower fell over most parts of the region. However, isolated hotspots with localized smoke plumes were detected in parts of Sumatra during brief periods of dry conditions.

2.2 Figures 5 and 6 show satellite images over the ASEAN region in the first fortnight of February 2019.

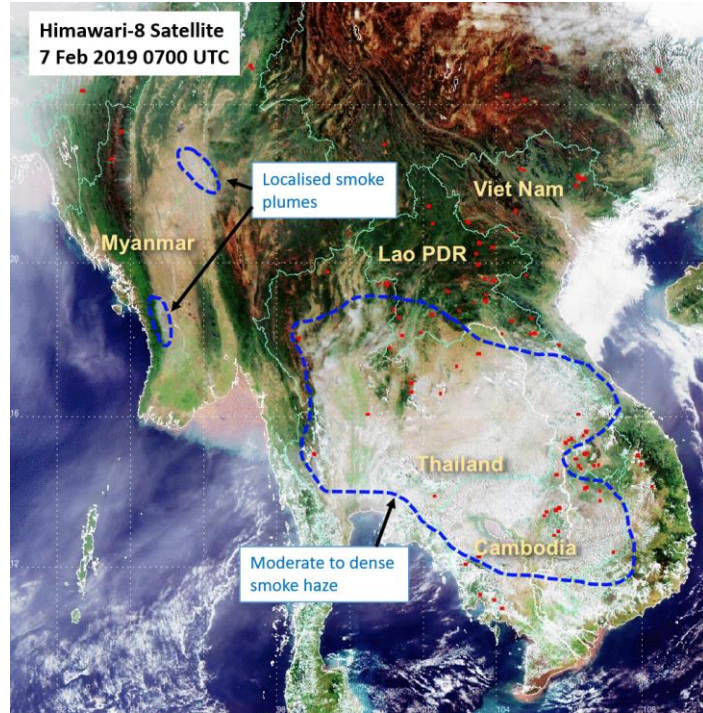


Figure 5: Himawari-8 satellite image on 7 February 2019 shows moderate to dense smoke haze observed in Cambodia, Thailand, and parts of southern Lao PDR. Localised smoke plumes were observed in Myanmar.

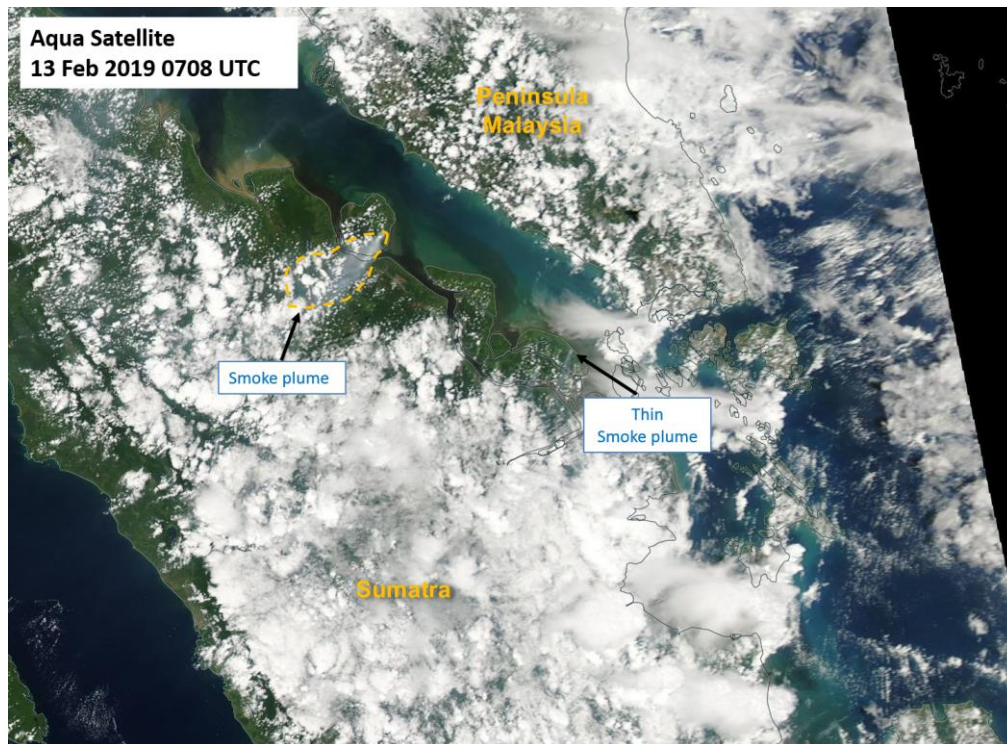


Figure 6: AQUA satellite image on 13 February 2019 shows smoke plumes observed in parts of Sumatra.

