

## 1. Review of Regional Weather Conditions for Second Fortnight of Sep 2018

1.1 Southwest Monsoon conditions continued to prevail in the second fortnight of September 2018. During the period, the northern ASEAN region experienced rainy weather on most days. The southward shift of the monsoon rainband brought an increase in rainfall in the equatorial region including southern Thailand, Peninsular Malaysia, northern Sumatra, Sabah and Sarawak, which is typical for this period of the year.

1.2 In southern Sumatra and Kalimantan, there were showers interspersed with brief periods of dry weather. The Java region continued to remain generally dry. Generally, the observed conditions were consistent with the [outlook provided](#) for the period.

1.3 The rainfall distribution and the percent of normal rainfall for the second fortnight of September 2018 are shown in Figure 1 and 2.

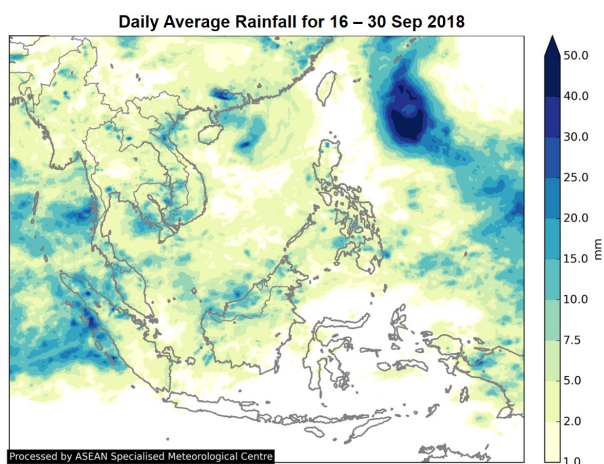


Figure 1: Daily average rainfall for the ASEAN region in the second fortnight of September 2018. (Source: JAXA Global Satellite Mapping of Precipitation)

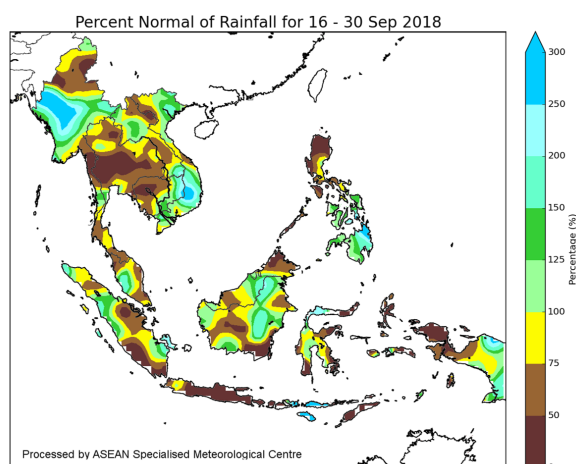


Figure 2: Percentage of Normal Rainfall for 16 – 31 September 2018. The rainfall data may be less representative for areas with a less dense rainfall network. (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

1.4 Light and variable winds prevailed over the northern ASEAN region. In the southern ASEAN region, prevailing winds blew generally from the southeast or south. There were no significant wind anomalies observed in the region during the review period. Figure 3 shows the average and anomalous winds at 5000 feet.

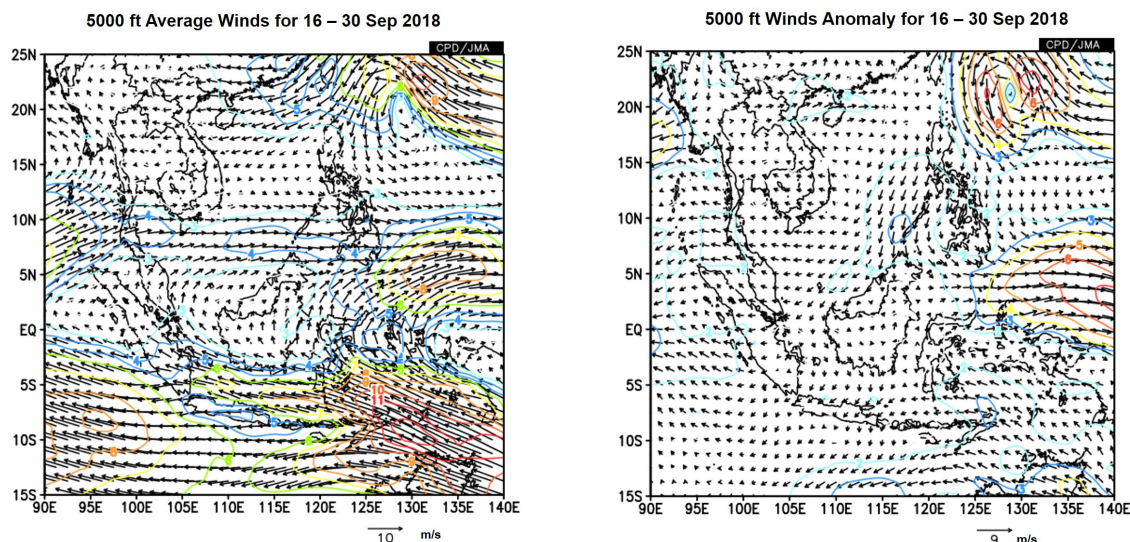


Figure 3: 5000 ft average winds (left) and anomaly (right) for 16 - 31 September 2018. (Source: JMA)

1.5 The sea surface temperatures of the eastern Pacific Ocean reflected neutral El Niño-Southern Oscillation (ENSO) conditions (neither El Niño nor La Niña). The key atmospheric indicators also suggested neutral conditions, although weak westerly low-level wind anomalies have developed recently.

1.6 The Madden Julian Oscillation (MJO)<sup>1</sup> was largely weak and non-discernible during the review period. Nonetheless, the MJO (Phase 8) began to strengthen and develop toward the end of the fortnight. The MJO had no significant influence on the weather in the region during this period.

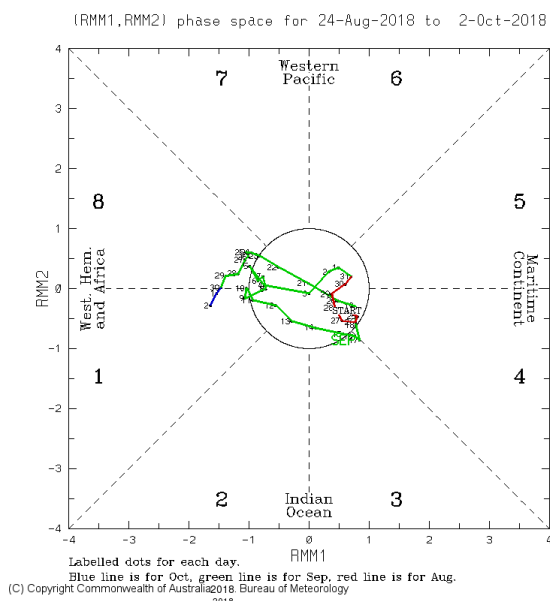


Figure 4: The MJO phase diagram for Sep 2018 (green). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of MJO. When the index falls within the circle, the MJO is considered weak or indiscernible. (Source: Bureau of Meteorology)

<sup>1</sup> 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. Review of Land/Forest Fires and Smoke Haze Situation

2.1 Hotspot activities were subdued in the northern ASEAN region due to rainy weather.

2.2 In the southern ASEAN region, rainy weather helped to subdue hotspot activities in the first half of the fortnight. In the second half of the fortnight, drier weather led to increased hotspot activities in the central and southern parts of Sumatra and Kalimantan. The haze situation in Kalimantan was more severe as compared to that in Sumatra. There were scattered hotspots with large extent of moderate smoke haze observed in Central and South Kalimantan which persisted until the end of September.

2.3 Figures 5 - 9 show the satellite images over the ASEAN region in the second fortnight of September 2018.

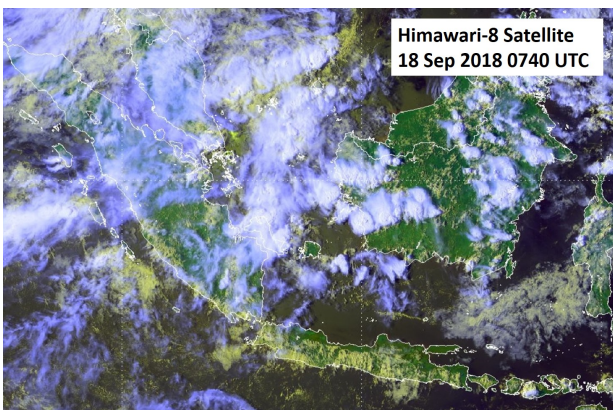


Figure 5: Himawari-8 satellite image on 18 Sep 2018 shows hotspot activities subdued by shower activities.

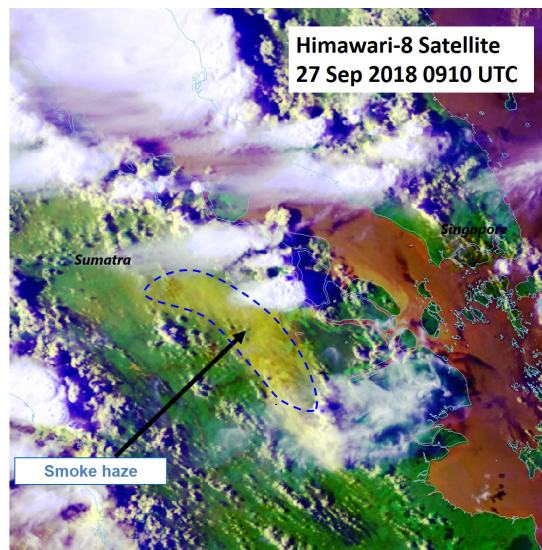
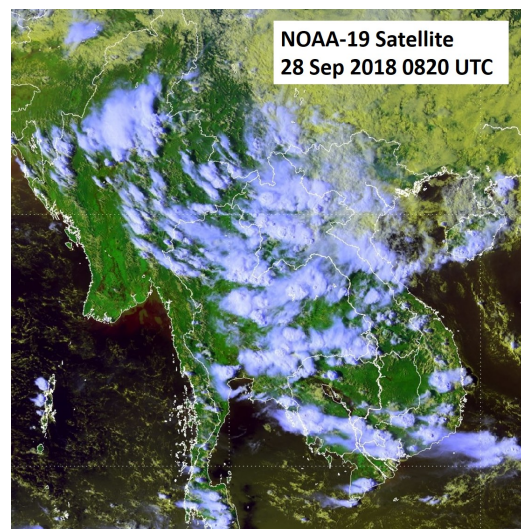
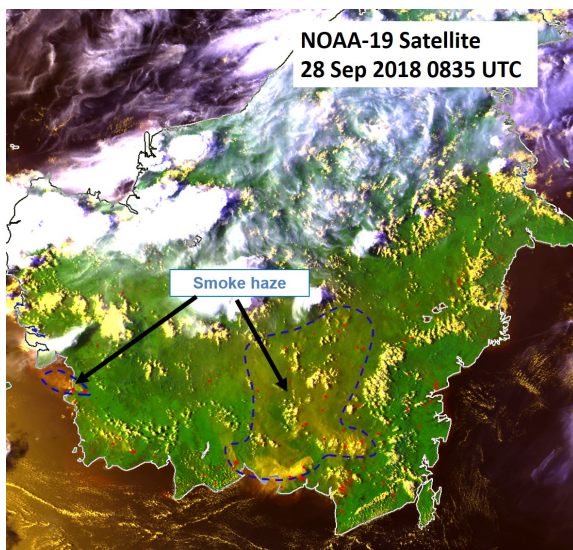


Figure 6: Himawari-8 satellite image on 27 Sep 2018 shows moderate smoke haze observed in central Sumatra during brief period of dry weather.



*Figure 7: NOAA-19 satellite image on 28 Sep 2018 shows hotspots and smoke haze detected in several parts of Kalimantan as dry weather persisted.*

*Figure 8: Himawari-8 satellite image on 28 Sep 2018 shows hotspot activities subdued by scattered showers in the northern ASEAN region.*