

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

1.1 Northeast Monsoon conditions over the ASEAN region persisted into the second fortnight of December 2019. During the preview period, the prevailing winds blew from the northeast or east over the northern ASEAN region and from the northwest or northeast over most parts of equatorial ASEAN region.

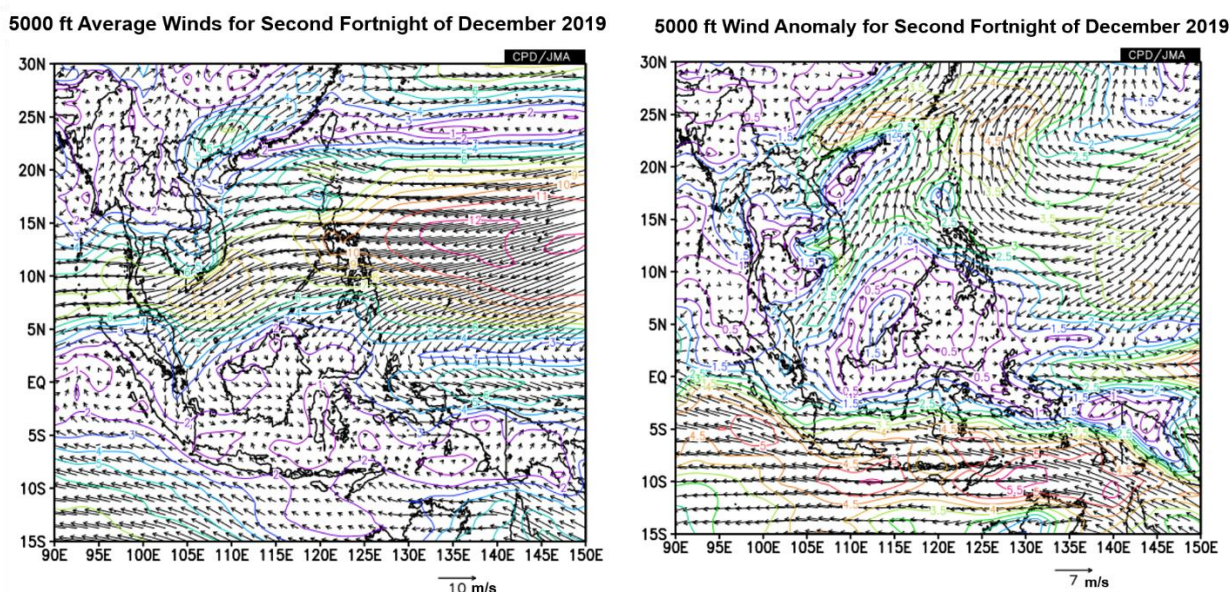


Figure 1: 5000ft average winds (left) and wind anomaly (right) for 16 - 31 December 2019. (Source: JMA)

1.2 Showers fell over many areas in the southern ASEAN region. East Malaysia, southern Sumatra, Kalimantan and Java recorded above-average rainfall while rainfall was below average in Peninsular Malaysia, and northern and central Sumatra. Parts of the Philippines received above-average rainfall due to the passage of Tropical Storm PHANFONE across central Philippines in late December 2019. Over the Mekong sub-region, dry weather persisted in the second fortnight of December 2019.

Daily Average Rainfall for Second Fortnight of December 2019

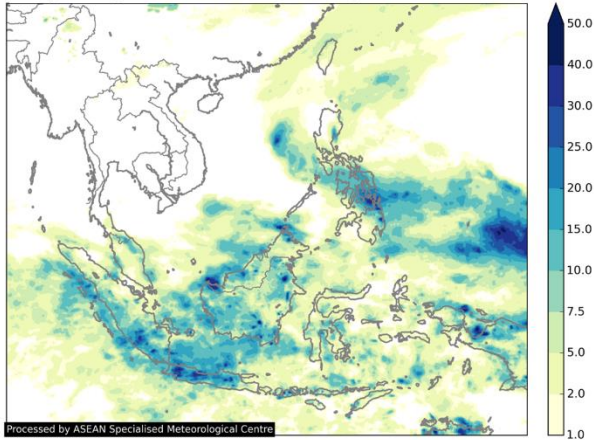


Figure 2: Daily average rainfall for the ASEAN region in the second fortnight of December 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

Percentage of Average Rainfall for Second Fortnight of December 2019

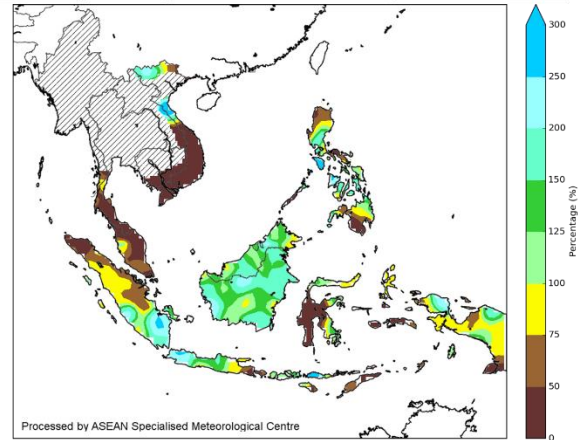


Figure 3: Percentage of average rainfall for 16 – 31 December 2019. The rainfall data is less representative for areas with a less dense rainfall network. Hatched areas indicate climatology dry mask (average daily rainfall below 1 mm). (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

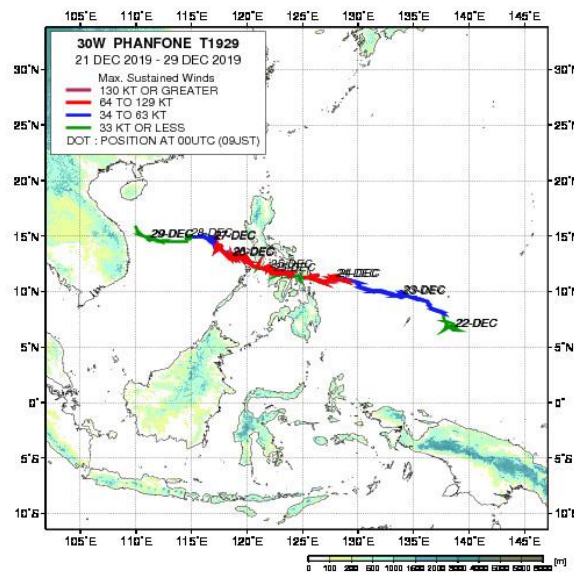


Figure 4: Historical track of Typhoon PHANFONE. (Source: JAXA)

1.3 Despite the strong Madden–Julian Oscillation (MJO) signal in Phases 6 and 7 in the last week of December 2019, its contribution to the rainfall in the eastern Maritime Continent was not discernible and could have been masked by the presence of Tropical Storm PHANFONE.

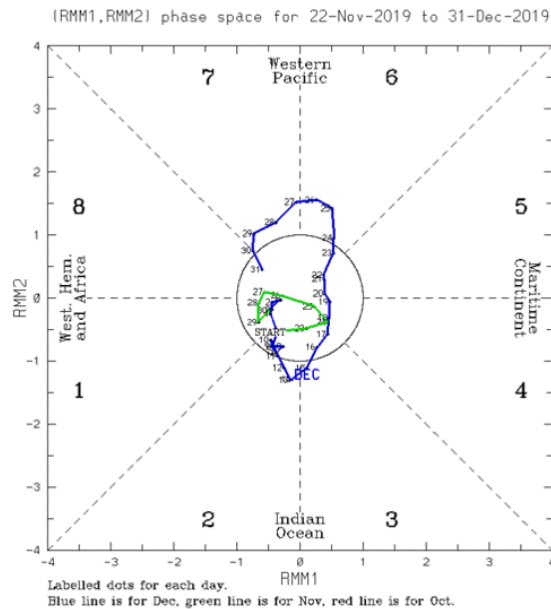


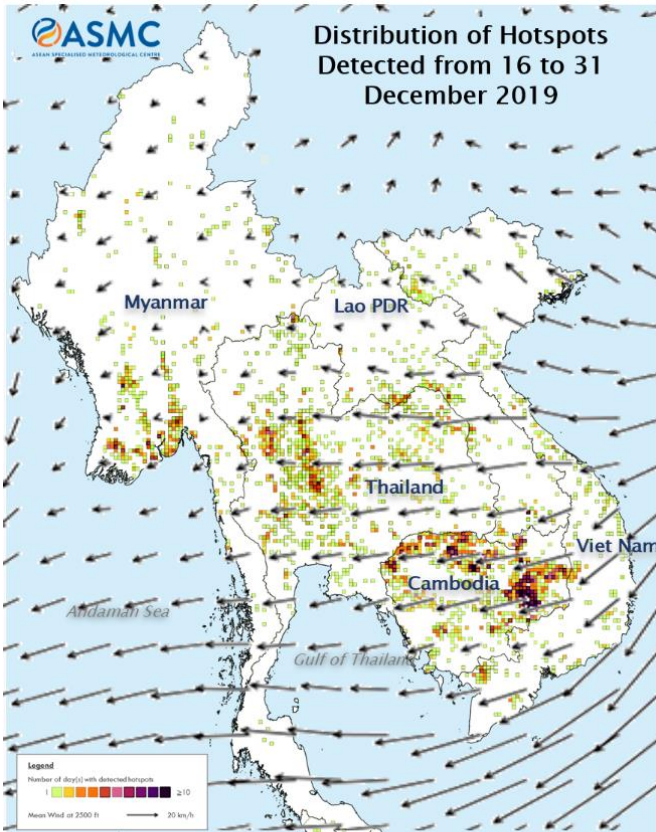
Figure 5: The MJO phase diagram for November (green) - December 2019 (blue). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram is correlated with the strength of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

1.4 The El-Niño Southern Oscillation (ENSO) remains neutral (i.e neither El Niño nor La Niña conditions). The Indian Ocean Dipole (IOD) is currently slightly positive but continues to weaken and a return to neutral state by early 2020 is likely.

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

2.1 Under the prevailing dry weather, hotspots with localised smoke plumes were detected in the Mekong sub-region. In particular, there was an increase in hotspot activities in Thailand and Cambodia, and the smoke haze from some of these hotspots brought hazy conditions to parts of Thailand and Cambodia. In central Thailand, smoke haze was blown by the prevailing winds to the southwest, and there were reports of Unhealthy to Very Unhealthy air quality on many days in Saraburi province.

2.2 In the southern ASEAN region, hotspot activities were mostly subdued due to the rainy weather.



Note:
Hotspots may not have been detected on some days due to cloudiness or partial satellite pass.
Each coloured 10km x 10km grid represents the number of days in which hotspots were detected within that grid over the two-week period. A darker grid colour indicates more days with detected hotspots within that grid.

Figure 6: Distribution of hotspots detected in the Mekong sub-region based on NOAA-20 satellite surveillance, and mean winds at 2500ft in the second fortnight of December 2019 (Source of wind data: JMA)

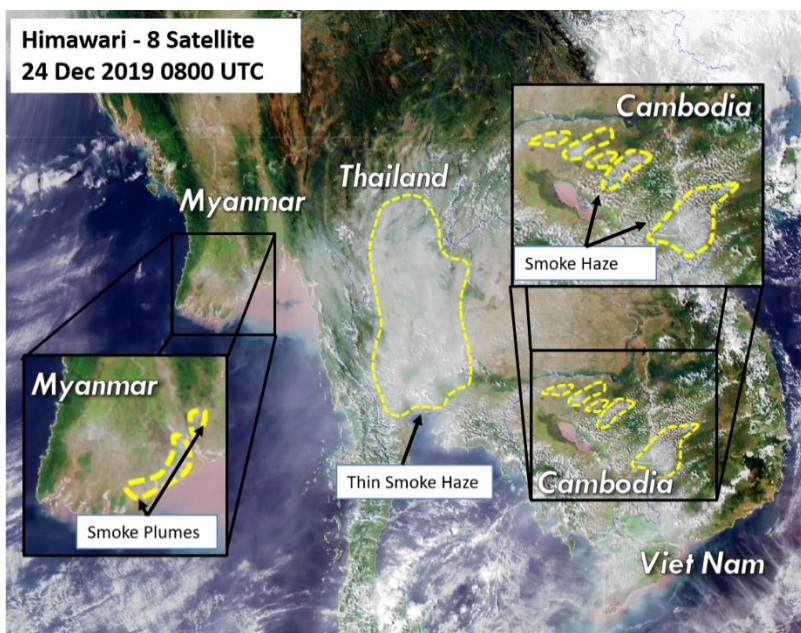


Figure 7: Himawari-8 satellite image shows smoke haze from hotspots in central Thailand and Cambodia, and localised plumes from isolated hotspots in Myanmar.