

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

1.1 Northeast Monsoon conditions prevailed over the region in the first half of December 2019. A monsoon surge brought strong northeasterly winds over the South China Sea and rainy weather to the equatorial ASEAN region. Parts of Malaysia, Singapore, Sumatra and Kalimantan recorded above-average rainfall. Tropical Storm 'Kammuri' made landfall over the Philippines in early December and contributed to the above-average rainfall recorded there. In contrast, dry weather prevailed over the Mekong sub-region.

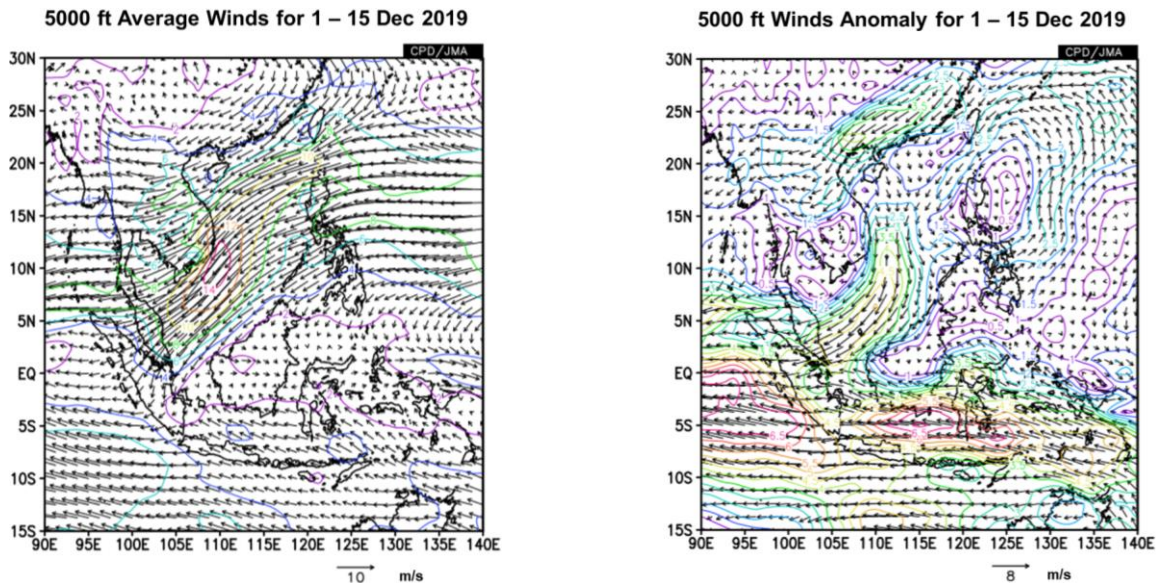


Figure 1: 5000 ft average winds (left) and anomalies (right) for 1 – 15 Dec 2019 (Source: JMA)

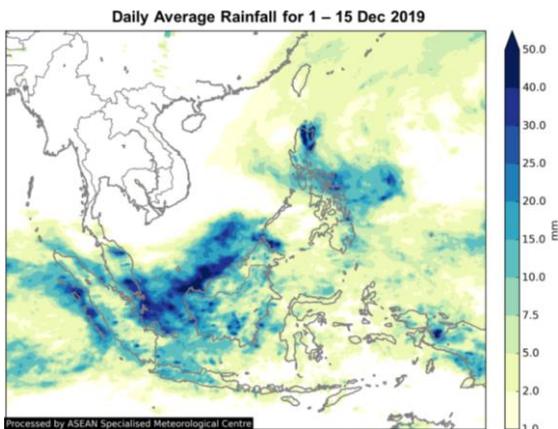


Figure 2: Daily average rainfall for the ASEAN region in the first fortnight of December 2019. (Source: JAXA Global Satellite Mapping of Precipitation)

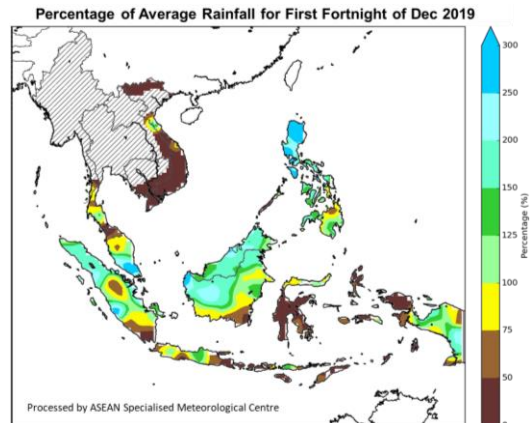


Figure 3: Percentage of average rainfall in the first fortnight of December 2019. The rainfall data may be less representative for areas with a less dense rainfall network. (Source: IRI NOAA/NCEP CPC Unified Precipitation Analyses)

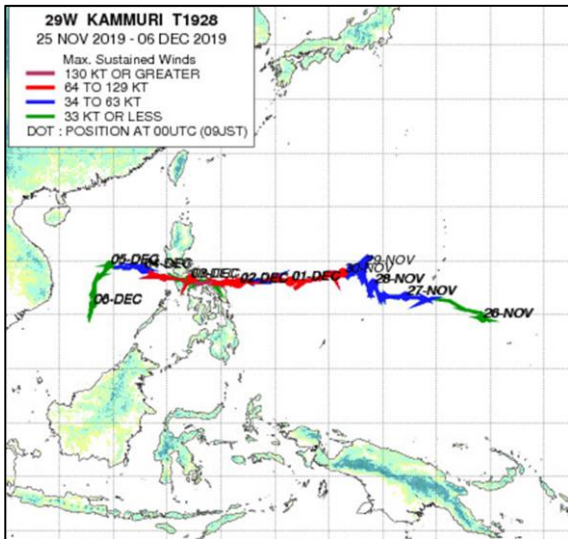


Figure 4: Track of Tropical Storm Kammuri (Source: JAXA)

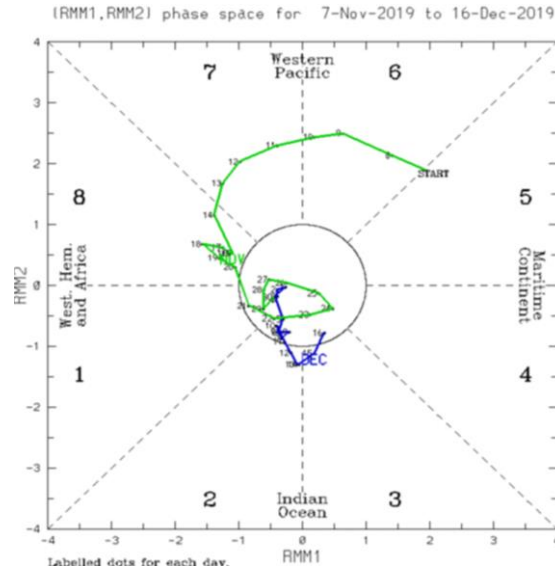


Figure 5: The MJO phase diagram (blue for December 2019). The diagram illustrates the movement of the MJO through different phases, which correspond to different locations along the equator. The distance of the index from the centre of the diagram correlates with the strength of MJO. MJO is weak or indiscernible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

1.2 The Madden – Julian Oscillation’s (MJO) signal was indiscernible for much of the fortnight, and was weak in Phases 2 and 3 over the last few days of the fortnight. Its contributions to the wetter conditions over the region during this period was therefore limited.

1.3 The El Niño – Southern Oscillation (ENSO) remained in its neutral state, while the positive Indian Ocean Dipole (IOD) continued to weaken over the fortnight.

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

2.1 Following the onset of the dry season in the Mekong sub-region, there has been a gradual increase in the hotspot activities. Isolated hotspots with localised smoke plumes were detected in many areas in the Mekong sub-region. In Thailand, smoke haze from persistent hotspots in central Thailand was blown towards the southwest by the prevailing winds. Air quality at “Very Unhealthy” levels were reported in the Samut Sakhon and Saraburi provinces on occasions.

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

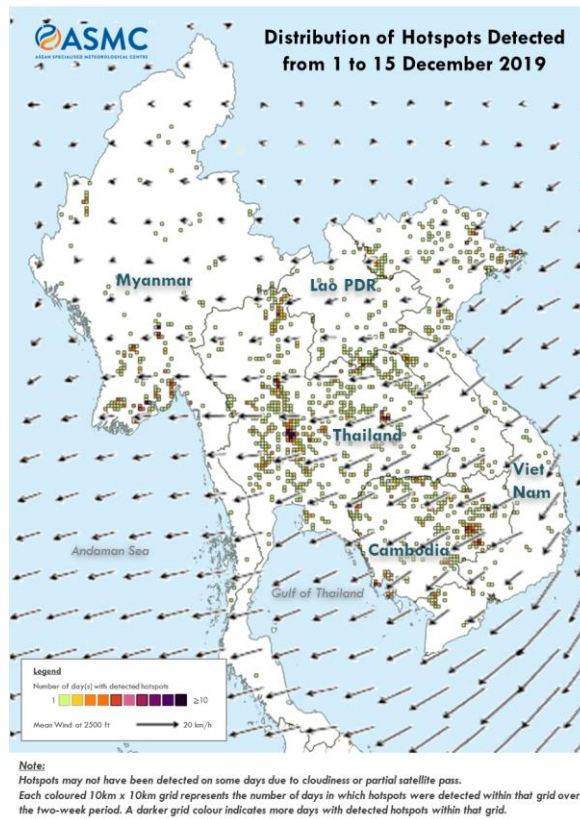


Figure 6: Hotspots detected in many parts of the Mekong sub-region during the period of review. There were persistent hotspots detected in central Thailand.

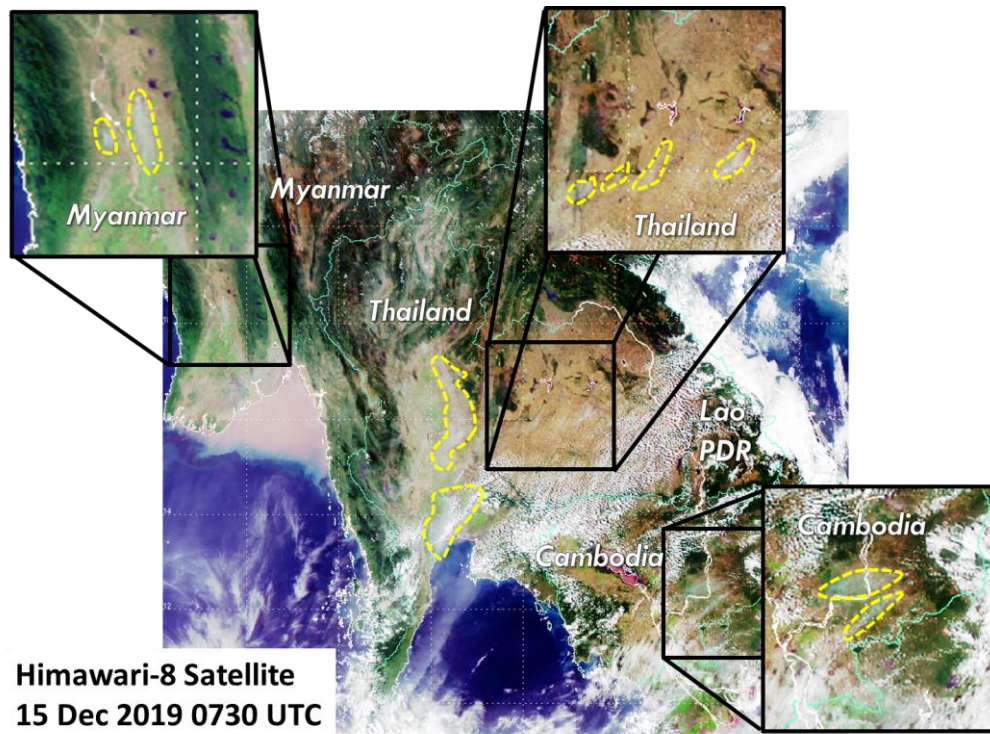


Figure 7: Image from Himawari-8 satellite showing smoke haze from persistent hotspots in central Thailand and localised plumes from isolated hotspots in Cambodia, Myanmar and northeastern Thailand