

## UPDATE OF REGIONAL WEATHER AND SMOKE HAZE September 2016

### 1. Review of Regional Weather Conditions in August 2016

1.1 Southwest Monsoon conditions continued to prevail in August 2016, with prevailing winds in the region blowing from the southeast or southwest. In early-August, Tropical Storm Nida made landfall over parts of Cagayan province, Philippines bringing scattered showers there before steering westward toward Guangdong province, China.

1.2 During the first half of August 2016, the monsoon rain belt persisted in the northern ASEAN region and brought widespread showers particularly over coastal areas of Myanmar and north-western parts of Philippines. Drier weather conditions were experienced across most parts of the southern ASEAN region.

1.3 In the second half of August, with the southward migration of the monsoon rain belt towards the equatorial region, there was an increase in rainfall observed over most parts of the southern ASEAN region.

1.4 For August 2016, near-normal to above-normal rainfall was received in the Mekong sub-region. In the Philippines, near-normal to above-normal rainfall prevailed in the northern and southern parts, while the central parts received below-normal rainfall. In the southern ASEAN region, near-normal rainfall was received in most parts of the near-equatorial region, except in central Sumatra and West Kalimantan where below-normal rainfall prevailed. Southern Sumatra and Java received above-normal rainfall. The regional rainfall distribution for August 2016 is shown in Figure 1.

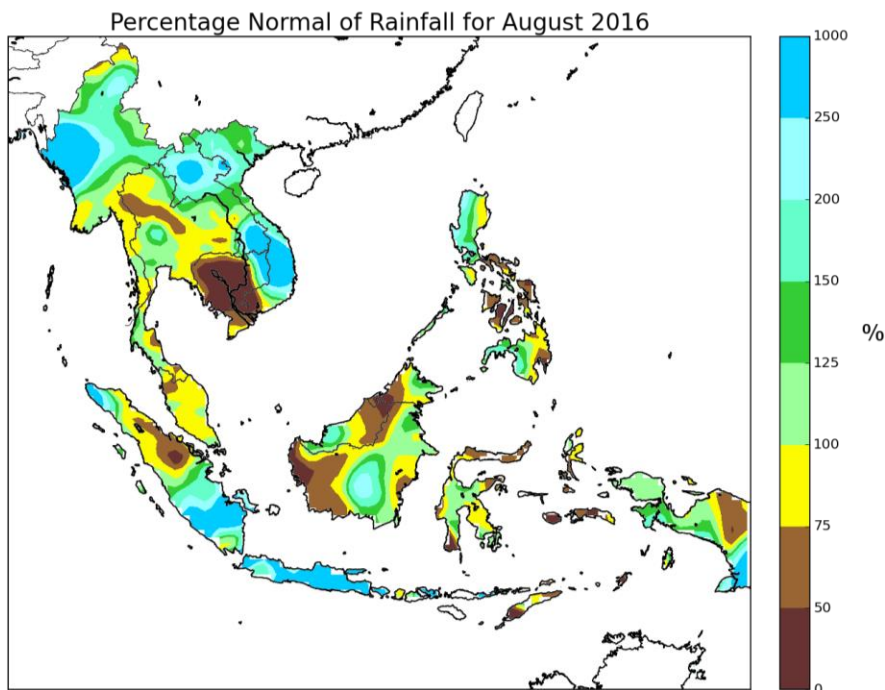


Figure 1: Percentage of Normal Rainfall for August 2016. The rainfall data may be less representative for areas with low density of rainfall network.

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

2.1 In August 2016, shower activities persisted on most days over the northern ASEAN region. This helped to subdue hotspot activities there.

2.2 Drier weather conditions in first half of August led to an escalation of hotspot activities over central Sumatra and West Kalimantan. Hotspots detected in central Sumatra were mostly localised, and slight hazy conditions were observed to have spread to the Strait of Malacca on a few days. In Kalimantan, widespread hotspot activities in excess of 100 hotspots with smoke haze were observed on a few days, particularly over West Kalimantan in mid-August 2016.

2.3 In the second half of August, an increase in shower activities over Kalimantan helped to ease the fire situation there. Showers fell over most parts of Sumatra, except in central Sumatra, where dry weather conditions with isolated hotspot activities were observed. The haze situation in Riau, central Sumatra deteriorated rapidly between 25 and 26 August 2016 and persisted until 29 August 2016 under dry weather and strong winds conditions. Moderate to dense smoke haze from the fires in Riau were blown by the southwesterly to westerly winds over the Strait of Malacca to central Peninsular Malaysia and Singapore, where the air quality deteriorated to Unhealthy levels.

2.4 The haze situation improved by 29 August 2016 with the return of shower activities over central Sumatra for the next few days. Hotspot activities over parts of the ASEAN region during August 2016 are shown in Figures 2A – 2E.

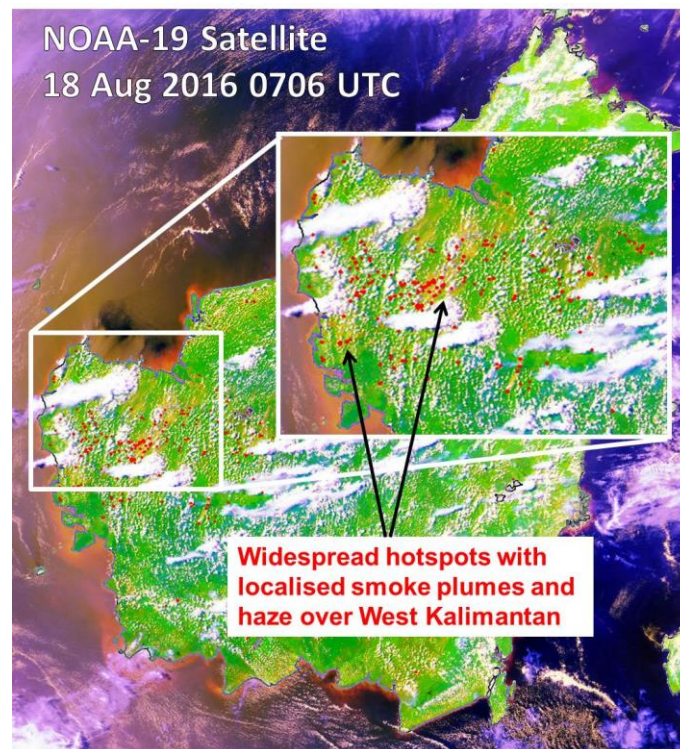


Figure 2A: NOAA-19 satellite image on 18 August 2016 shows widespread hotspots with localised smoke plumes and haze detected in West Kalimantan due to dry weather conditions.

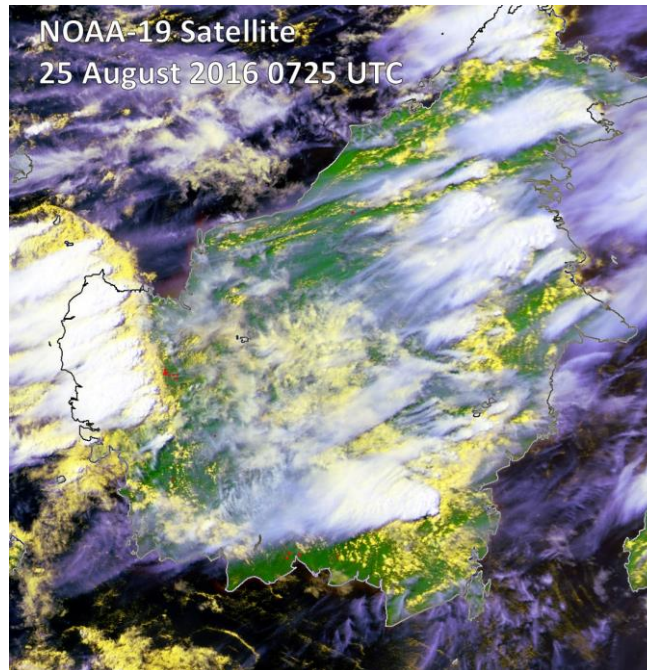


Figure 2B: NOAA-19 satellite image on 25 August 2016 shows hotspot activities subdued by returning shower activities over Kalimantan.



Figure 2C: NOAA-19 satellite image on 22 August 2016 shows shower activities persisting in the northern ASEAN region.



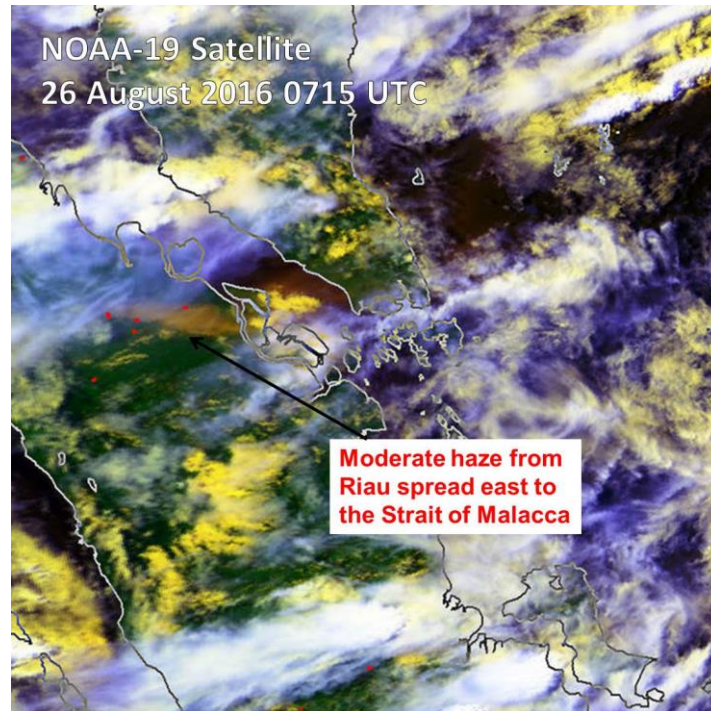


Figure 2D: NOAA-19 satellite image on 26 August 2016 shows moderate smoke haze from Riau spreading east to the Strait of Malacca.

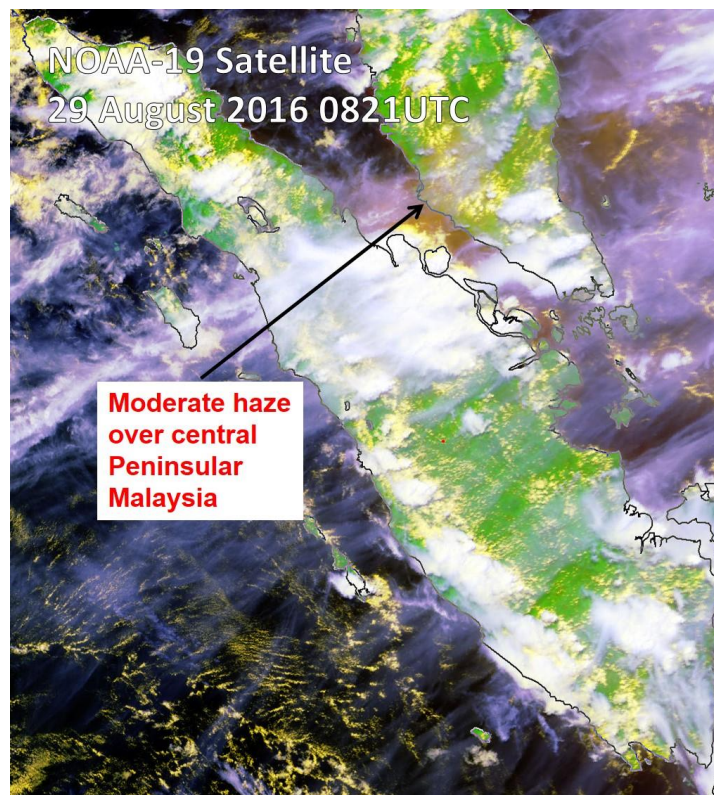


Figure 2E: NOAA-19 satellite image on 29 August 2016 shows shower activities over Riau. Some moderate haze observed over central Peninsular Malaysia.

- 2.5 The hotspot charts for August 2016 for
- a) Cambodia, Myanmar, Thailand, Lao PDR and Vietnam;
  - b) Sumatra, Borneo and Peninsular Malaysia;
- are shown in Figures 2F to 2G respectively.

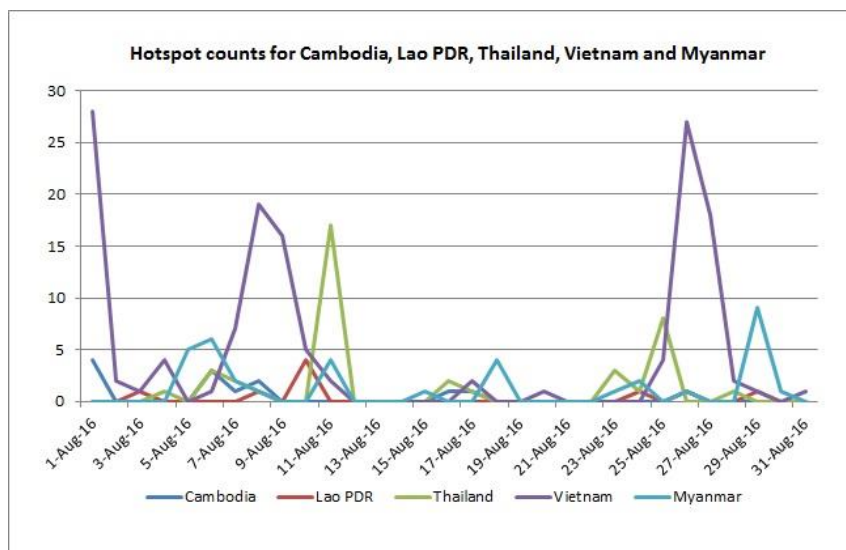


Figure 2F: Hotspot Counts in Cambodia, Lao PDR, Thailand, Vietnam, Myanmar for August 2016.

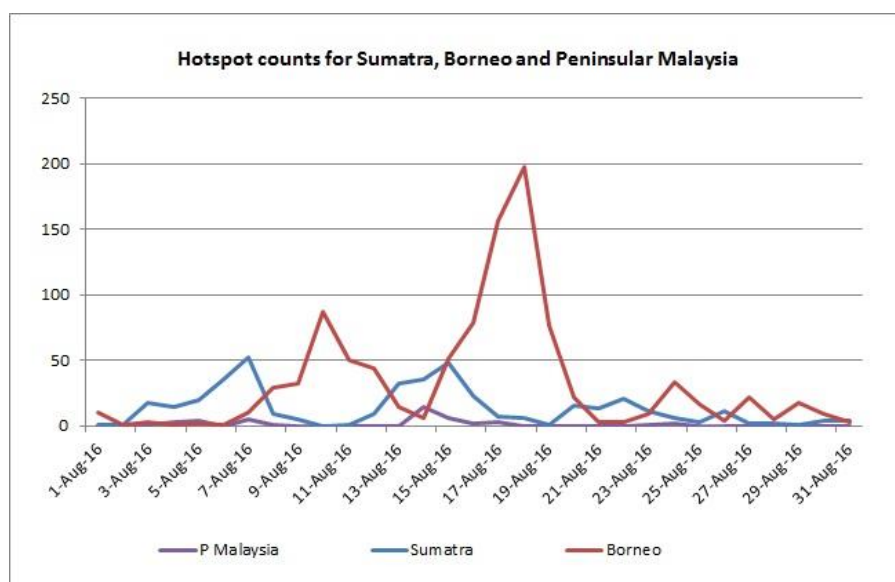


Fig 2G: Hotspot Counts in Sumatra, Borneo and Peninsular Malaysia for August 2016.

### 3. Status of El Niño/La Niña

3.1 In August 2016, a weak cool sea surface temperature (SST) anomaly near La Niña thresholds was observed in the equatorial Pacific Ocean. However, key atmospheric variables (cloud and wind patterns) over the equatorial Pacific have yet to respond to the cooling of the SSTs.

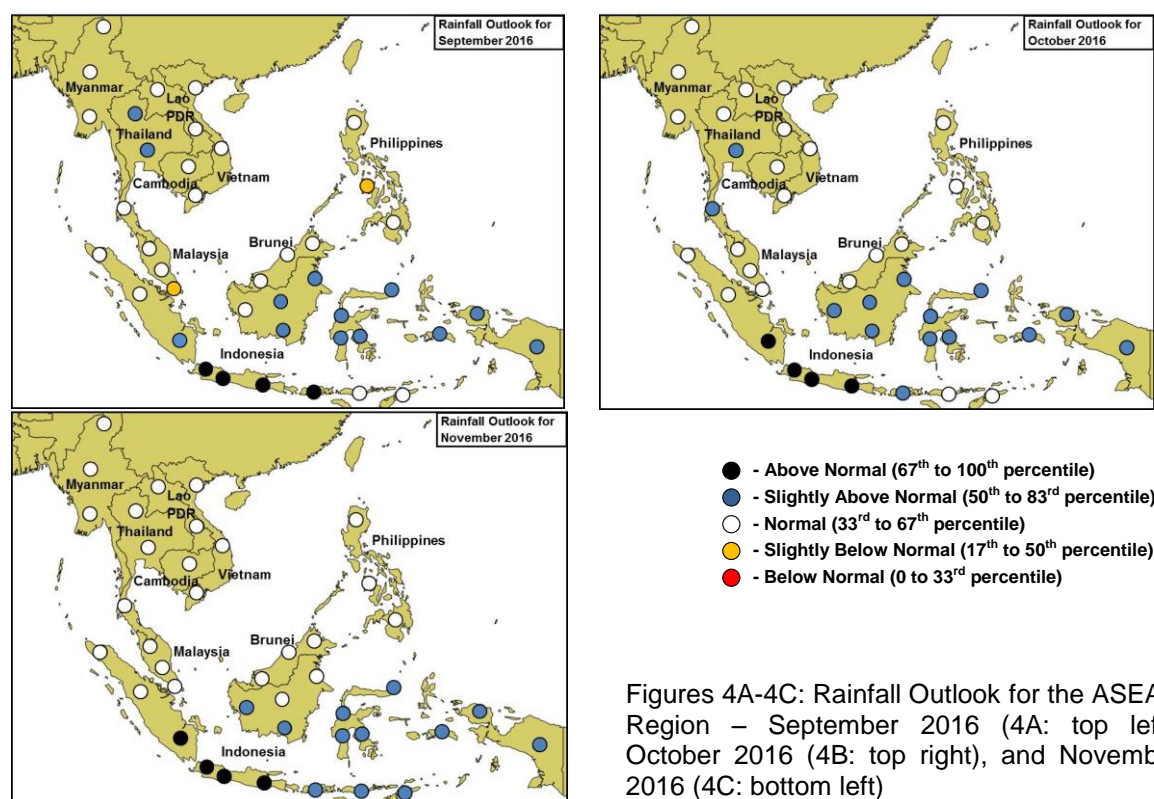
3.2 Neutral conditions are expected prevail in the equatorial Pacific in September 2016. Experts' assessment of international climate models suggests that there is a 60% chance of weak La Niña conditions developing in the October – December season.

3.3 The ASEAN region is currently in the Southwest Monsoon season (June-September/early October), where the La-Niña is known to have considerable impact (wetness) on the western part of the Maritime Continent.

#### 4. Outlook

4.1 The prevailing traditional dry season of the southern ASEAN region is expected to peak in September 2016, and gradually give way to Inter-monsoon conditions around early October 2016. The Inter-Monsoon season is characterised by light wind and shower activities interspersed with brief periods of dry weather conditions. During this period, there could be occasional occurrences of hotspot activities.

4.2 For the upcoming September-October-November season, near-normal rainfall is expected for most parts of the northern ASEAN region, except in parts of Thailand where above-normal rainfall is forecast. For the near-equatorial region including Malaysia, Singapore, Brunei and northern parts of Sumatra, near-normal rainfall is expected. With La Nina conditions expected in 4Q2016, above-normal rainfall is forecast for most parts of Indonesia in. The rainfall outlooks for the ASEAN region for September 2016, October 2016 and November 2016 are shown in Figures 4A – 4C.



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