### UPDATE OF REGIONAL WEATHER AND SMOKE HAZE February 2016

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

1.1 The Northeast Monsoon conditions prevailed in the region in January 2016. With the monsoon rain belt located between the Equator and 10 S, areas such as western Kalimantan, southern Sumatra and the Java Islands have been experiencing shower activities on most days in January 2016.

1.2 In the third week of January 2016, the northern ASEAN region experienced very cold weather conditions due to a surge of cold air from the Arctic that pushed south over East Asia and the northern ASEAN region. The very cold air outbreak brought record low temperatures to places in Vietnam and Thailand. Cities such as Hanoi and Bangkok recording recorded low of 6 degrees Celsius and 17.5 degrees Celsius respectively, which are well below the respective long-term climatological mean minimum temperatures of 15.4 and 23.9 degrees Celsius. Sa Pa, a city in the northern Vietnamese province of Lao Cai, received snowfall on 24 January 2016. In addition, the surge of cold air brought rough sea conditions in the Gulf of Thailand and Gulf of Tonkin.

1.3 Under the prevailing strong El Niño conditions, drier than usual conditions were observed in the eastern parts of ASEAN region. In near-equatorial region, including parts of Peninsular Malaysia, Sabah and Sarawak received below-normal rainfall. Most parts of Philippines also experienced drier than usual conditions. For the Mekong sub-region, near-normal to above-normal rainfall was received. The regional rainfall distribution for January 2016 is shown in Figure 1A.



Figure 1A: Percentage of Normal Rainfall for January 2016

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

2.1 In the southern ASEAN region, hotspot activities remained subdued under the prevailing wet weather conditions. However, some localised smoke haze was observed to emanate from East Kalimantan around end-January 2016.

2.2 The northern ASEAN region has entered its traditional dry season. As compared to December 2016, further escalations of hotspot activities were observed, in particular in Myanmar, Thailand, Cambodia and Vietnam. In addition, high number of hotspots was detected in Nakhon Sawan and Uthaithani in the central Thai province of Kamphaeng-Phet, and in the eastern Cambodian provinces of Ratanakiri and Mondulkiri. While these hotspots were mostly related to localised burning activities, the persistent dry weather conditions during the second half of January had led to gradual accumulation of smoke haze near the hotspot areas.



Figure 2A: AQUA satellite image on 1 January 2016 shows isolated hotspots detected mostly near the borders between Cambodia and Vietnam.



Figure 2B: AQUA satellite picture on 10 January 2016 shows localised hotspots in central Sumatra.



Figure 2C: AQUA satellite image on 21 January 2016 shows isolated hotspots in the central provinces of Thailand, and scattered hotspots in Cambodia.



Figure 2D: AQUA satellite image on 26 January 2016 shows increased hotspot activities over Cambodia as compared to that observed in early-January (see Figure 2A).



Figure 2E: AQUA satellite picture on 27 January 2016 shows localised hotspot activities in East Kalimantan.

- 2.3 The hotspot charts for January 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 January 2016



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

# 3. Status of El Niño/La Niña

3.1 The tropical Pacific Ocean is at strong El Niño conditions in January 2016, with the sea-surface temperatures closely similar to that of the 1982-83 and 1997-98 strong El Niño events.

3.2 Large-scale rainfall response to the El Niño in terms of widespread drier than usual conditions were still observed over the Southeast Asia region in January 2016. The consensus forecast based on assessments from international climate models and expert opinion suggests that the current El Niño conditions to continue through the first quarter of 2016, and is likely to weaken to Neutral conditions by around mid-2016.

3.3 The region is currently in the Northeast Monsoon season (late Nov - Mar), and the impact of El Niño is usually less pronounced as compared to the Southwest Monsoon season (Jun – Sep). Typically, El Niño will bring drier than average rainfall conditions over to the southern and eastern parts of the region but less significant impact to the northern and western parts of the region during November to March. More locally-specific impact differs from place to place and for different seasons.

# 4. Outlook

4.1 In the northern ASEAN region, the dry and cool conditions will persist. Further escalation of hotspot activities can be expected as the season progresses. Vigilance should be maintained for any escalation of fire activities during this period.

4.2 For the southern ASEAN region, the monsoon rain belt is expected to be located south of equator, around the Java Island region. Wet weather conditions can be expected for the southern parts of Indonesia including southern Sumatra, Java and the eastern Indonesian Archipelago. For the near-equatorial region of Malaysia, Singapore and Brunei, the wet phase of the Northeast Monsoon is forecast to transit to the dry phase of the Northeast Monsoon by late February. Dry, windy and cool conditions can be expected. In the coming months, occasional hotspot activities may emerge during the extended period of dry weather conditions especially in Sumatra and Kalimantan.

4.3 The Northeast Monsoon season for the ASEAN region is expected to gradually transition to the Inter-Monsoon season in the second half of March. The Inter-Monsoon season is typically characterised by light winds and afternoon shower activities.

4.4 For the coming season, El Niño is likely to remain one of the key drivers of the weather in the ASEAN region, despite the expectations of a weakening El Niño. Slightly below-normal to below-normal rainfall is forecast for Peninsular Malaysia, Singapore, Brunei, Philippines and eastern Borneo. Slightly below-normal to near-normal rainfall are expected for the northern ASEAN region (except Philippines). For most parts of Indonesia, near-normal to slightly above-normal rainfall are forecast. The rainfall outlook for the ASEAN region from February 2016 to April 2016 is shown in Figures 4A – 4C.







	<ul> <li>Above Normal (67<sup>th</sup> to 100<sup>th</sup> percentile)</li> </ul>
0	- Slightly Above Normal (50 <sup>th</sup> to 83 <sup>rd</sup> percentile)

- igntly Normal (33<sup>rd</sup> to 67<sup>th</sup> percentile)
- Slightly Below Normal (17<sup>th</sup> to 50<sup>th</sup> percentile)
- Below Normal (0 to 33<sup>rd</sup> percentile)

Figure 4: Rainfall Outlook for the ASEAN Region – February 2016 (top left), March 2016 (top right), and April 2016 (bottom left)