

UPDATE OF REGIONAL WEATHER AND SMOKE HAZE FOR MARCH 2015

1. Review of Regional Weather Conditions in February 2015

1.1 Northeast Monsoon conditions continued to prevail in February 2015. The northern ASEAN region is in the midst of the traditional dry season. Dry and warm weather conditions continued to prevail in the region interspersed with a few brief periods of shower activities. In the southern ASEAN region, a strengthening of the northeast monsoonal flow and the southward shift of the monsoon rain belt over the Java Sea areas brought dry weather conditions to Malaysia, Singapore and Sumatra but heavy rainfall over western Java, causing widespread flooding in Jakarta.

1.2 In February 2015, less than 50% of normal rainfall was received in the northern ASEAN region except in parts of northern Thailand and Lao PDR, where more than 125% of normal rainfall was received. In parts of the southern ASEAN region such as Peninsular Malaysia and Sumatra, less than 50 to 75% of normal rainfall was received. The regional rainfall distribution for February 2015 is shown in Fig. 1A.

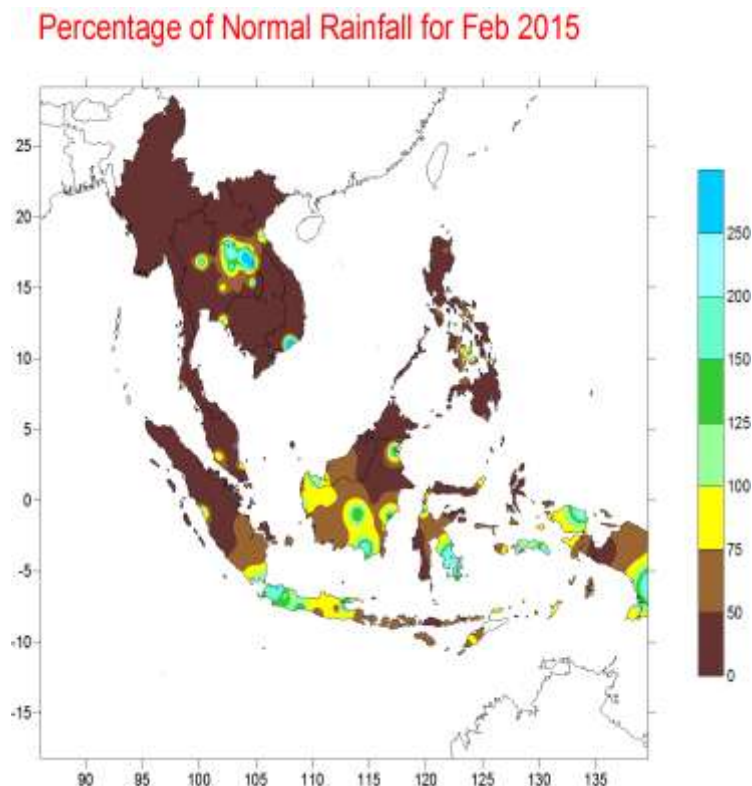


Fig. 1A: Percentage of Normal Rainfall for February 2015

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

2.1 In February 2015, hotspot activities continued to stay elevated under the prevailing drier weather, particularly over northern Thailand, Cambodia, Lao PDR and Myanmar. The northern provinces of Thailand were shrouded in haze for an extended period of time. Dense haze affected a few provinces in northern Thailand such as Chiang Mai and Lampung on a several days. Shower activities over the northern ASEAN region were brief and did not bring much relief to the haze situation.

2.2 In the southern ASEAN region, isolated hotspot activities emerged especially over central Sumatra and Peninsular Malaysia during periods of drier weather. Satellite images depicting some of the hotspot activities over the ASEAN region in February 2015 are shown in Figs. 2A to 2E.

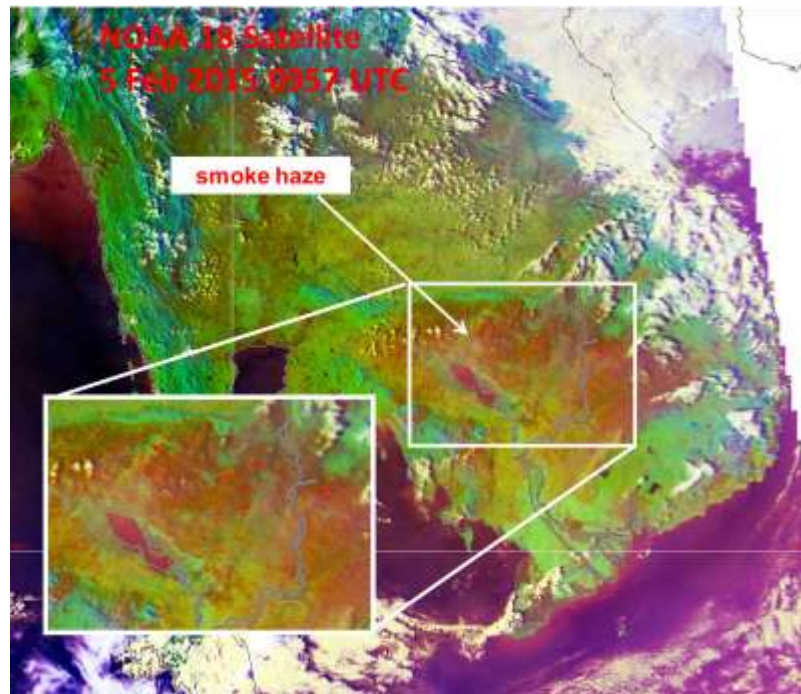


Fig. 2A: NOAA-18 satellite picture on 5 February 2015 shows clusters of hotspots and smoke haze over Cambodia

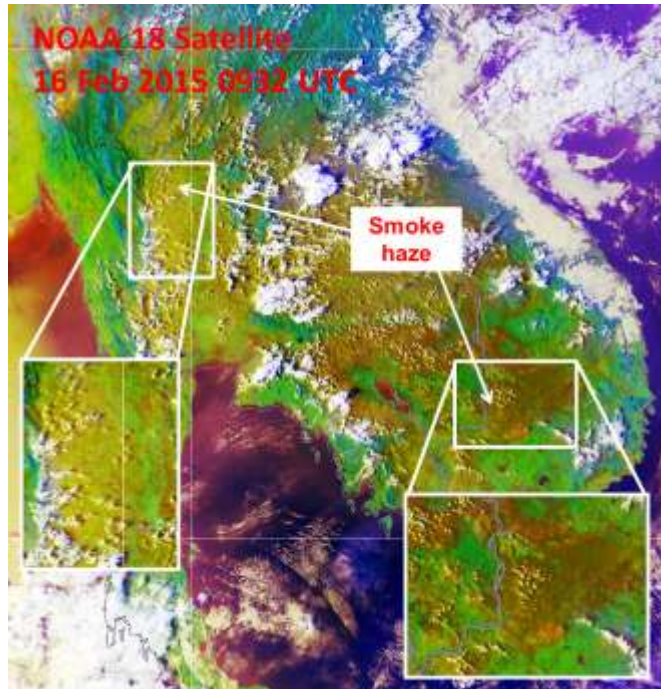


Fig. 2B: NOAA-18 satellite picture on 16 February 2015 shows slight to moderate haze especially over northern Thailand and Cambodia

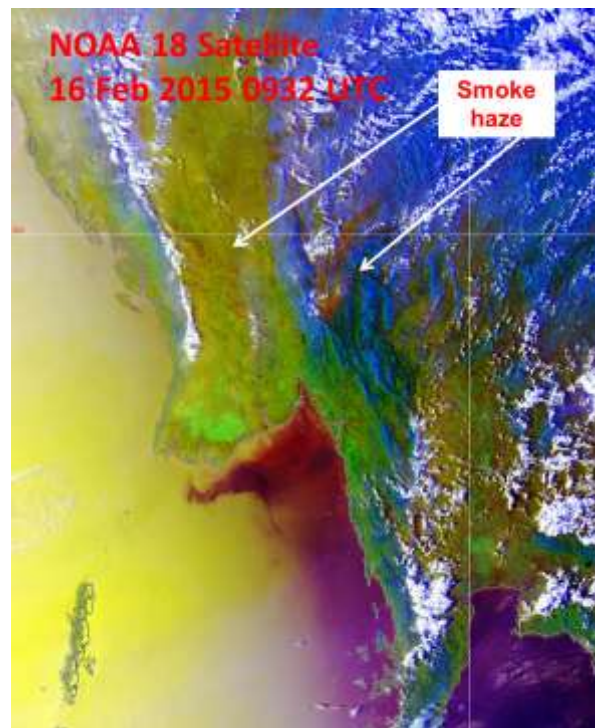


Fig. 2C: NOAA-18 satellite picture on 16 February 2015 shows cluster of hotspots with smoke haze over Myanmar

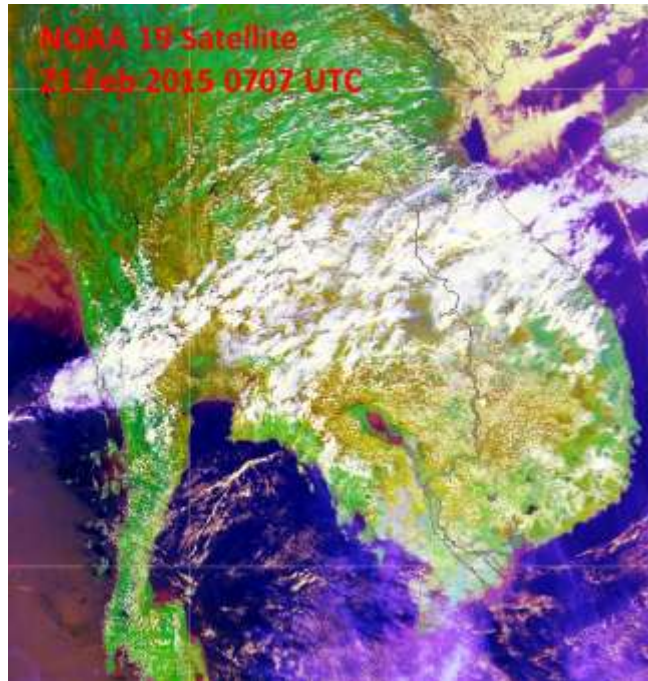


Fig. 2D: NOAA-19 satellite picture on 21 February 2015 shows hotspot activities were temporarily subdued by brief periods of shower activities over north-eastern Thailand

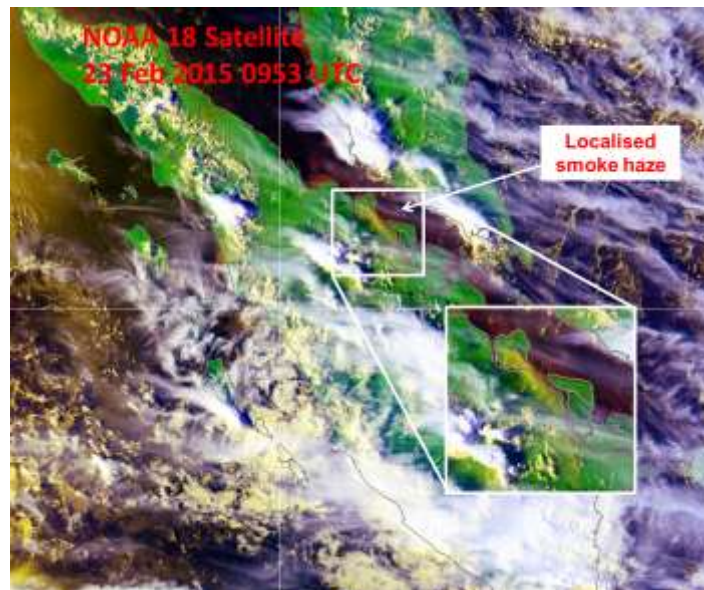


Fig. 2E: NOAA-18 satellite picture on 23 February 2015 shows smoke plumes emanating from localised hotspots over central Sumatra

2.3 The hotspot charts for February 2015 for
a) Cambodia, Myanmar, Thailand, Lao PDR and Vietnam;
b) Sumatra, Borneo and Peninsular Malaysia; and
c) Java, Sulawesi and the Philippines
are shown in Figs. 2F to 2H respectively.

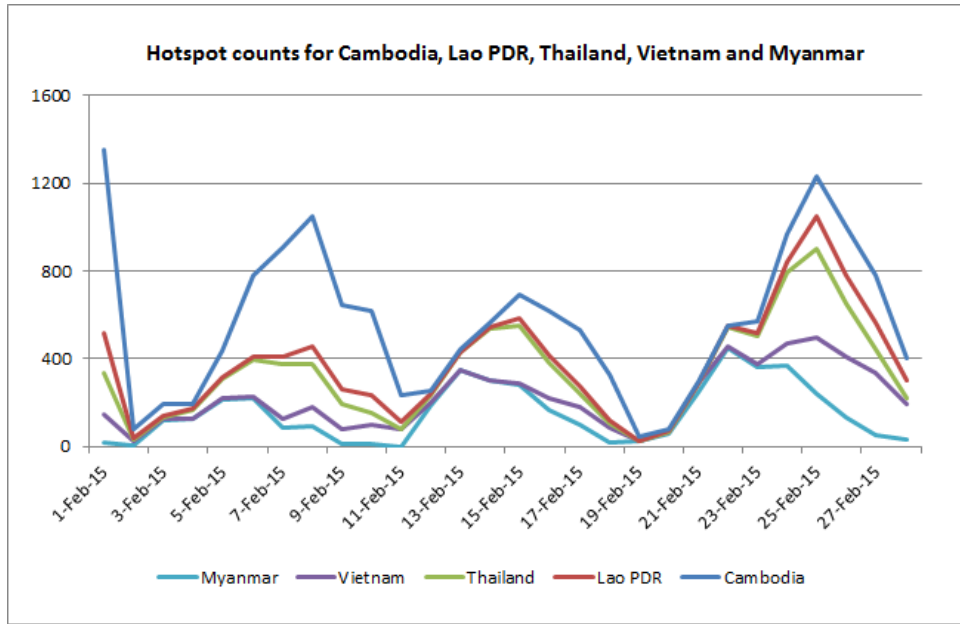


Fig. 2F: Hotspot Counts in Cambodia, Lao PDR, Thailand, Vietnam, Myanmar for February 2015

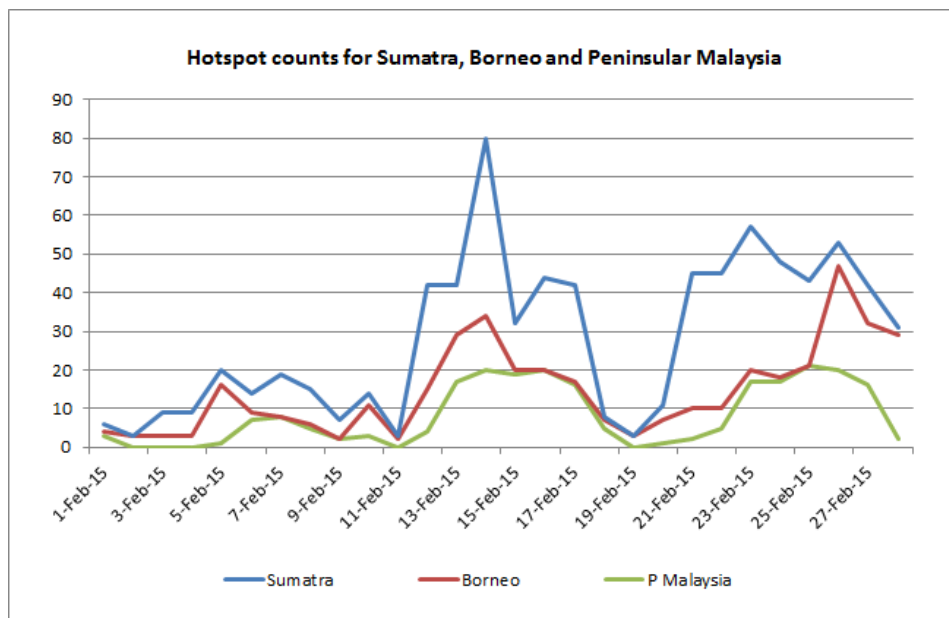


Fig 2G: Hotspot Counts in Sumatra, Borneo and Peninsular Malaysia for February 2015

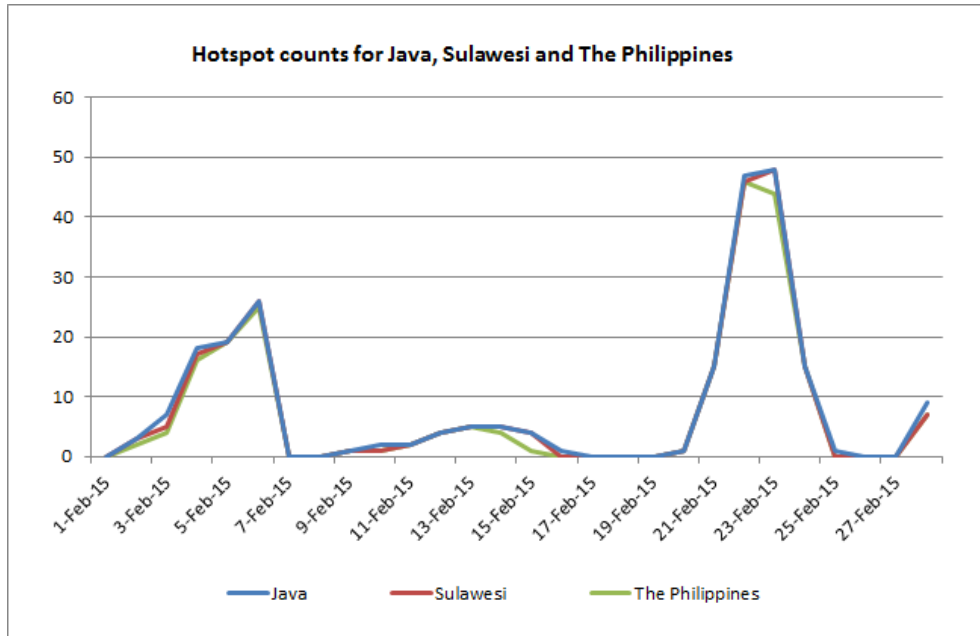


Fig. 2H: Hotspot Counts in Java, Sulawesi, Philippines for February 2015

3. Status of El Niño/La Niña*

3.1 In February 2015, warm anomalies of sea-surface temperatures (SST) continue to be observed over the Niño3.4 region of the tropical Pacific Ocean (Figure 3A). The Niño3.4 index for February 2015 is 0.62 (Figure 3B) and the latest 3-month average value dropped from 0.81 to 0.69 (comparable to El Niño events within the ‘weak’ category). Despite the persistent warm anomalies of the Niño3.4 SST in the last few months, the atmospheric responses such as large-scale rainfall patterns have not been well-defined so far.

3.2 In the coming months, there is a wide spread of climate model outlooks (by major climate centres) for the tropical Pacific Ocean SST (Figure 3C), which is consistent with the known period of lower skill predictions made at this time of year. This spread is expected to narrow from the middle of the year as skill levels increase and only then can possible re-emergence of El Niño be better assessed. At this point, the probability of El Niño conditions developing in the coming seasons is around 50% (Figure 3D).

3.3 Typically, the impact from El Niño for the Southeast Asia region is drier than average rainfall conditions, especially for the southern parts of the region during June to October (Figure 3E). More locally-specific impact differs from place to place and for different seasons.

3.4 The region is transiting into the inter-monsoon season (March onwards), where El Niño is not known to have widespread or significant impact (dryness) on the western part of the Maritime Continent (Figure F). Thus if there is a possibility of a weak El Niño developing in the next 1-2 months, it is not expected to pose

significant risks of extended periods of drier and warmer conditions in this part of Southeast Asia.

* For El Niño/La Niña updates, ASMC assesses information provided by the World Meteorological Organization (WMO) and various international climate centres, such as the Climate Prediction Center (CPC) US, the Bureau of Meteorology (BoM) Australia, as well information from the International Research Institute for Climate and Society (IRI) which contains model outputs from various other centres around the world. For more information on El Niño/La Niña, please refer to the [FAQs website](#).

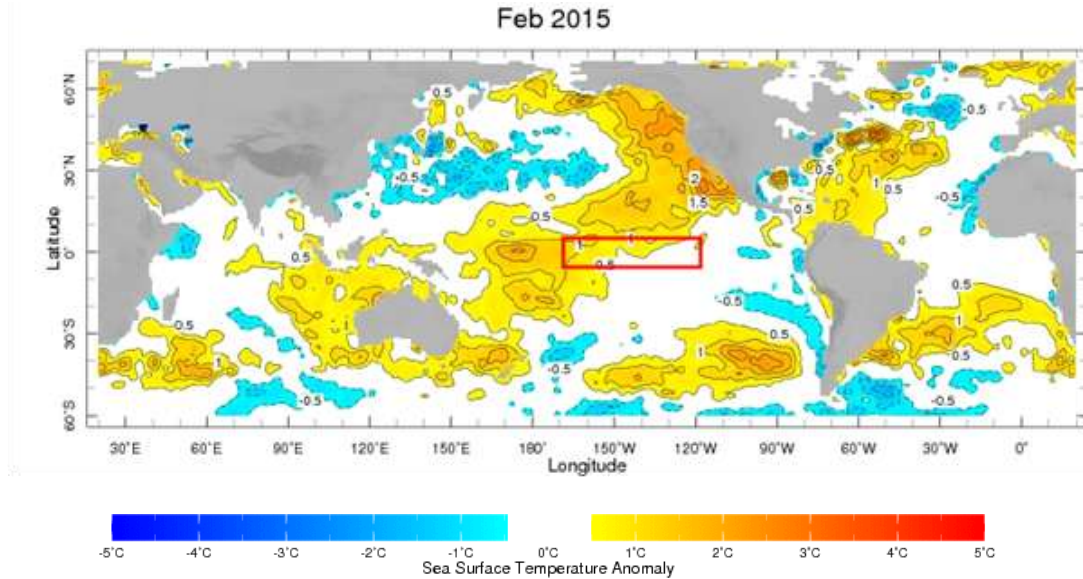


Fig. 3A: Warming of the tropical Pacific Ocean continued over the Niño3.4 region (red box, 120°W-170°W and 5°S-5°N) for February 2015 (image credit: IRI Map Room). Yellow shades show regions of relative warming, while blue shades show regions of relative cooling with respect to 1971-2000 climatology for that month

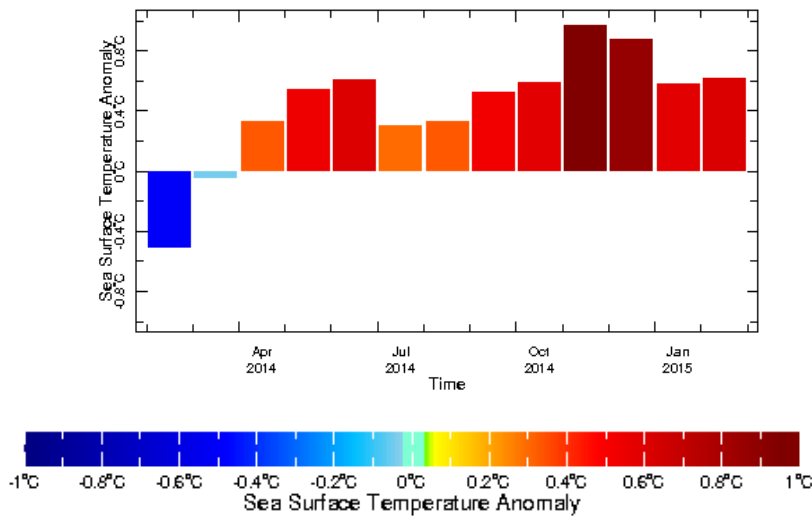


Fig. 3B: Monthly sea-surface temperature anomaly over the Niño3.4 region (120°W-170°W and 5°S-5°N) over the tropical Pacific Ocean from Feb 2014 (left) to Feb 2015 (right) (image credit: IRI Map Room). Sustained warming has been observed since Apr 2014, but the warming has steadied recently. The running 3-month average value has hit above 0.5, which is a threshold set to indicate El Niño conditions, for four consecutive months

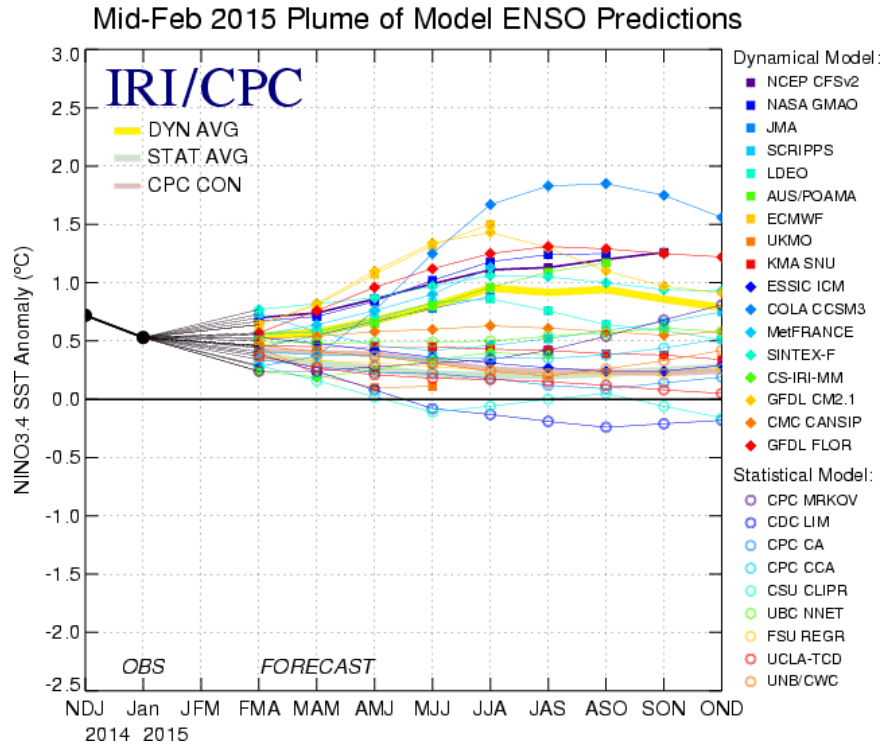


Fig. 3C: Forecasts of El Niño strength (in terms of the Niño3.4 index) for 2015 from various seasonal prediction models of international climate centres. Temperature anomalies above 0.5°C indicate El Niño conditions, below -0.5°C indicate La Niña conditions, and in between indicate neutral conditions, i.e. neither El Niño nor La Niña. In the coming months, there is a wide spread of climate model outlooks for tropical Pacific Ocean SST, which is consistent with the known period of lower skill predictions made at this time of year (image credit: IRI-CPC)

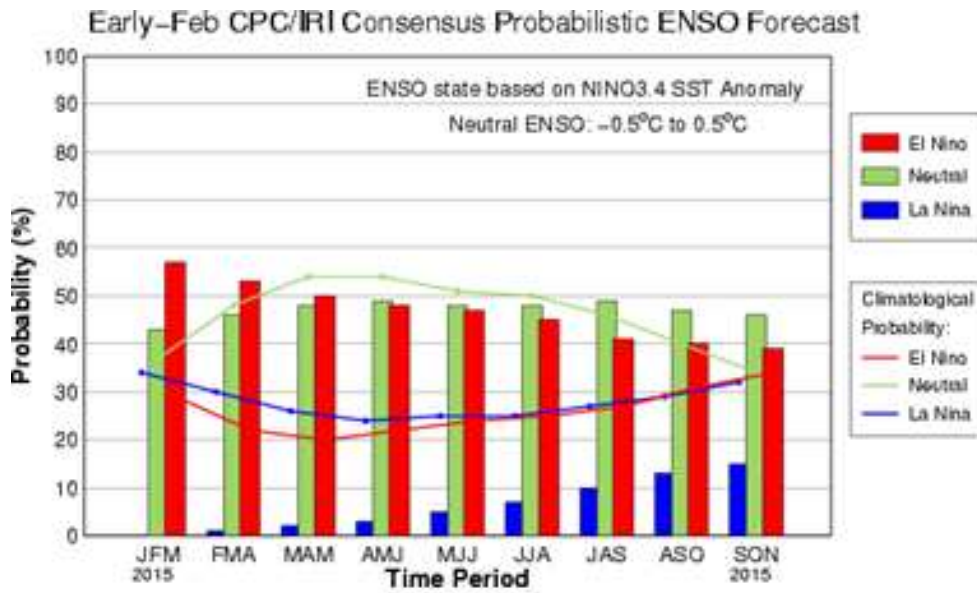


Fig. 3D: Probability of El Niño (red), La Niña (blue) and neutral conditions (green) for 2015. For the next few seasons, there is only about 50% chance of El Niño developing based on model predictions showing El Niño conditions and expert assessment (image credit: IRI-CPC)

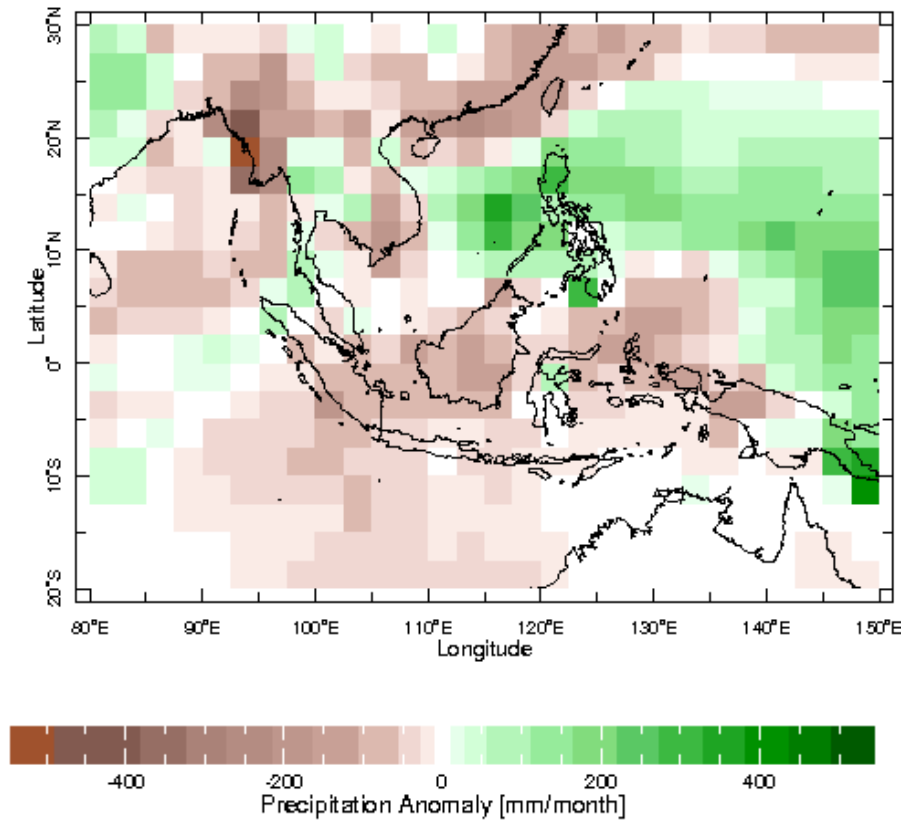
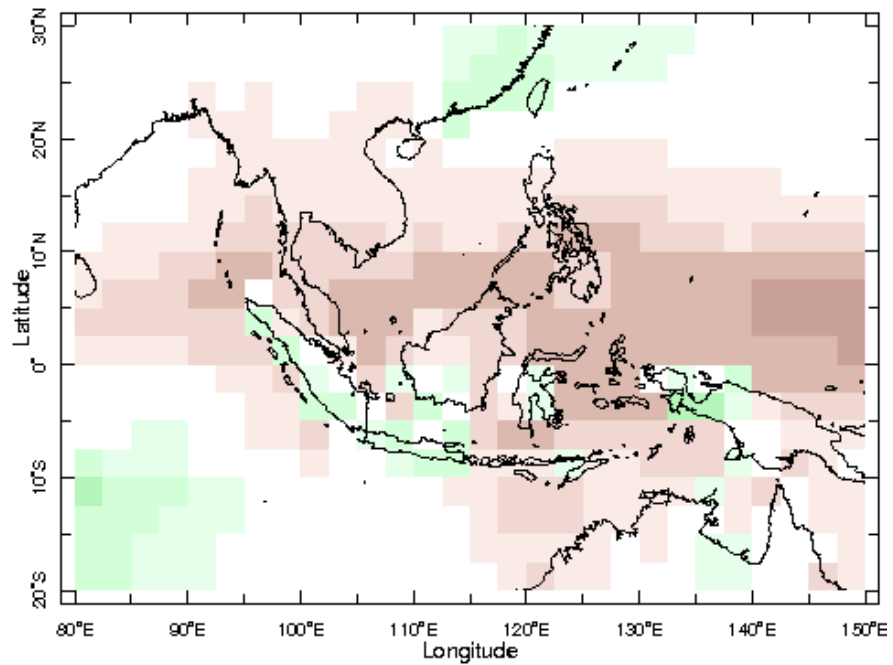


Figure 3A: June to October rainfall anomaly composite for El Niño years (1982, 1986, 1991, 1994, 1997, 2002, and 2009) showing drier than average conditions (brown shades) mostly in the southern half of the region (image credit: IRI Data Library).



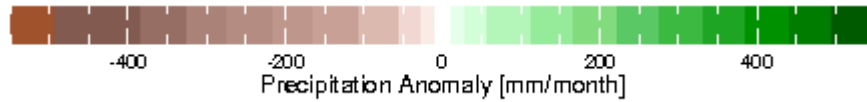


Figure 3B: February to April rainfall anomaly composite for El Niño years (1983, 1987, 1992, 1995, 1998, and 2010) showing drier than average conditions (brown shades) constrained mostly to the eastern Maritime Continent and to the north of the equator (image credit: IRI Data Library).

4. Outlook

4.1 The prevailing Northeast Monsoon conditions are expected to gradually transition around late March to Inter-Monsoon conditions. The Inter-Monsoon season is typically characterised by light and variable winds with afternoon shower activities.

4.2 With the transition into Inter-Monsoon season, an increase of shower activities can be expected and this will help to alleviate hotspot activities especially over the northern ASEAN region. In the southern ASEAN region, isolated hotspot activities may still emerge in fire-prone areas of Sumatra and Kalimantan during brief periods of drier weather conditions.

4.3 Below normal rainfall conditions are expected from March to May over the southern ASEAN region, in particular over the near-equatorial areas. Rainfall for Kalimantan, Java Islands and eastern part of the Indonesian Archipelago are likely to experience normal rainfall conditions. In the northern ASEAN region, slightly below normal to normal rainfall can be expected for the next 3 months. The rainfall outlooks for the ASEAN region from March 2015 to May 2015 are shown in Figs. 4A – 4C.

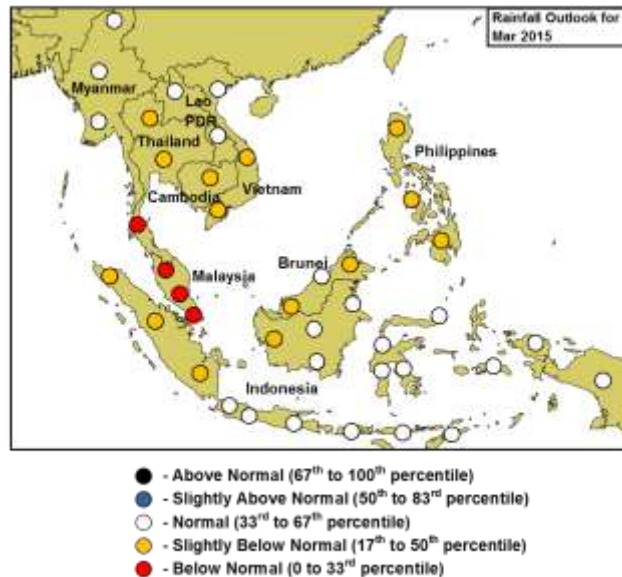


Fig. 4A: Rainfall Outlook for the ASEAN Region (Mar 2015)

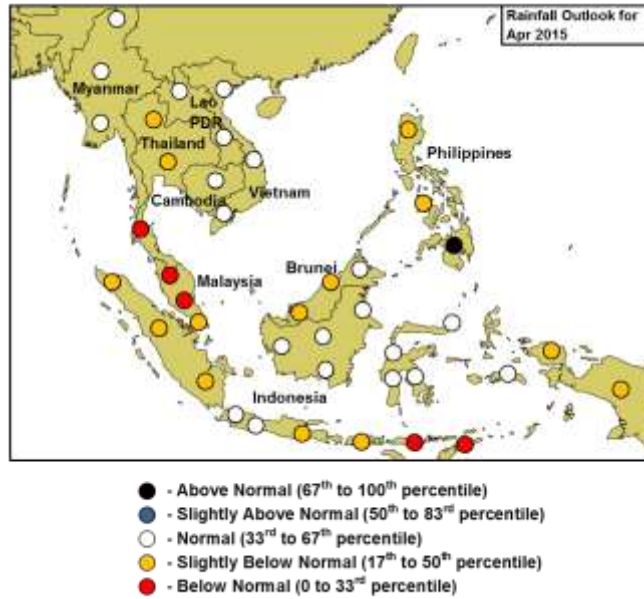


Fig. 4B: Rainfall Outlook for the ASEAN Region (Apr 2015)

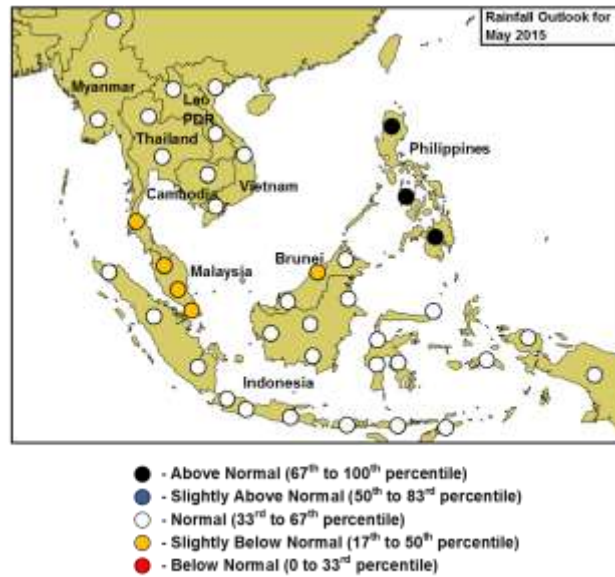


Fig. 4C: Rainfall Outlook for the ASEAN Region (May 2015)