

UPDATE OF REGIONAL WEATHER AND SMOKE HAZE FOR APRIL 2015

1. Review of Regional Weather Conditions in March 2015

1.1 In the last week of March 2015, weak to moderate Northeast Monsoon conditions gave way to Inter-Monsoon conditions, and prevailing winds gradually weakened to become light and variable. The traditional dry season in the northern ASEAN region continued to prevail in the first half of the month, with drier weather conditions experienced mostly over northern Thailand and Myanmar. By late March 2015, a return of showers activities brought some respite to the dry weather conditions experienced in the past few months in the near-equatorial and northern ASEAN regions.

1.2 In March 2015, less than 50% of normal rainfall was received in most parts of the northern ASEAN region while in parts of central Thailand, Lao PDR and Vietnam received more than 125% of normal rainfall. In the southern ASEAN region, below normal rainfall was recorded over Peninsular Malaysia, Sabah, Sarawak and Kalimantan. The regional rainfall distribution for March 2015 is shown in Fig. 1A.

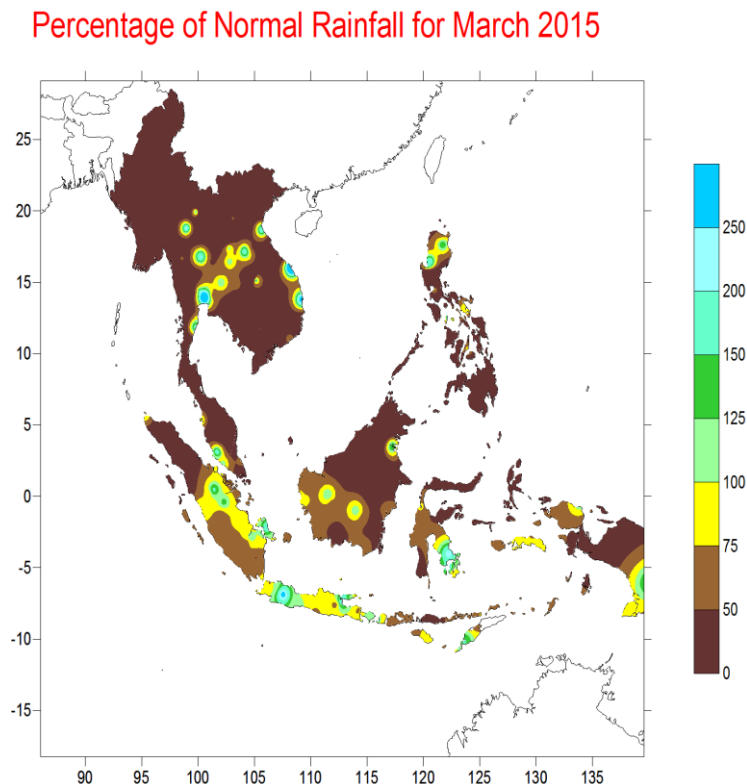


Fig. 1A: Percentage of Normal Rainfall for March 2015

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

2.1 In March 2015, hotspot activities over northern Thailand, Myanmar and Cambodia remained elevated under the prevailing dry weather conditions. Parts of Myanmar and the northern provinces of Thailand were shrouded in occasional moderate haze for an extended period of time. In particular, elevated levels of PM¹⁰ were reported in several provinces in northern Thailand, namely- Chiang Mai, Maehongsorn and Lampung. The haze situation in northern Thailand and Myanmar improved with an increase in shower activities in late March 2015.

2.2 In the southern ASEAN region, hotspot activities were generally subdued in most parts of March 2015. During brief periods of drier weather, isolated hotspots with localised smoke haze were observed in central Sumatra. Satellite images depicting some of the hotspot activities over the ASEAN region in March 2015 are shown in Figs. 2A to 2E.

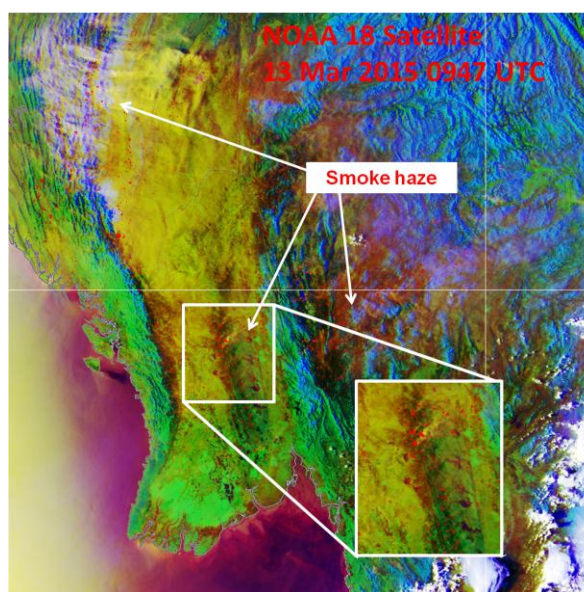


Fig. 2A: NOAA-18 satellite picture on 13 March 2015 shows widespread hotspots and dense smoke haze over Myanmar

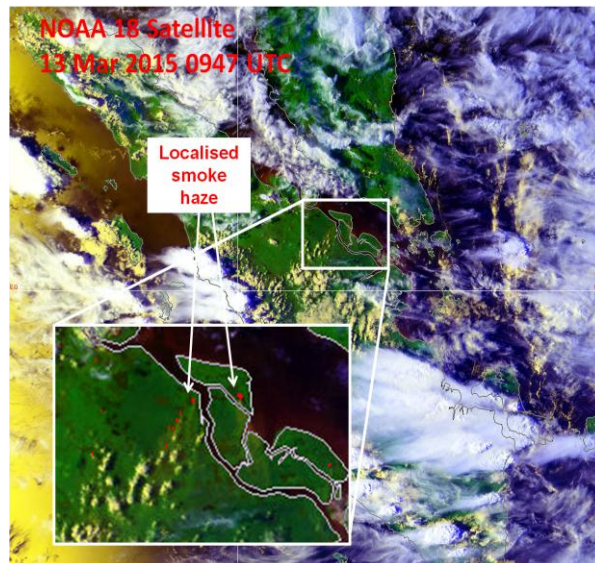


Fig. 2B: NOAA-18 satellite picture on 13 March 2015 shows isolated hotspot with localised smoke haze over central Sumatra

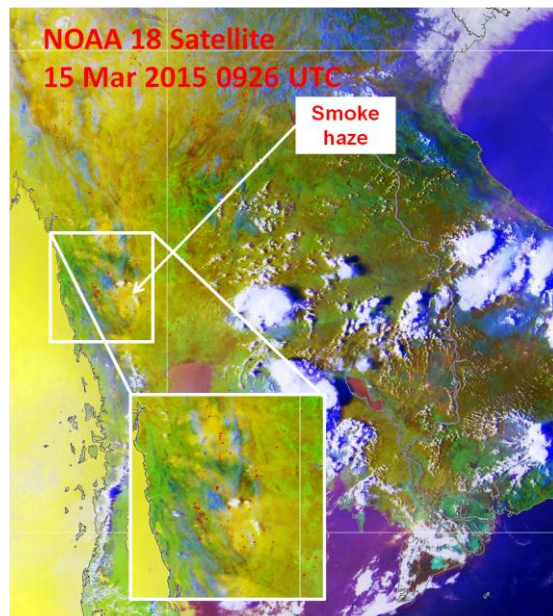


Fig. 2C: NOAA-18 satellite picture on 15 March 2015 shows scattered hotspot and smoke haze near the Myanmar-northern-Thailand borders.

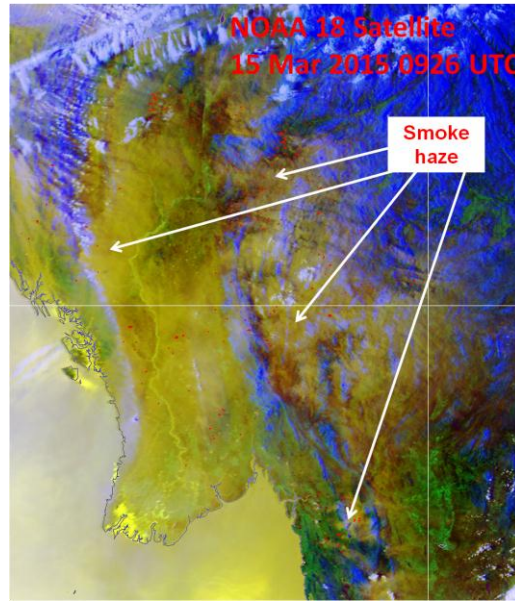


Fig. 2D: NOAA-18 satellite picture on 15 March 2015 shows that dense smoke haze continues to accumulate over different parts of Myanmar under the prevailing dry weather conditions

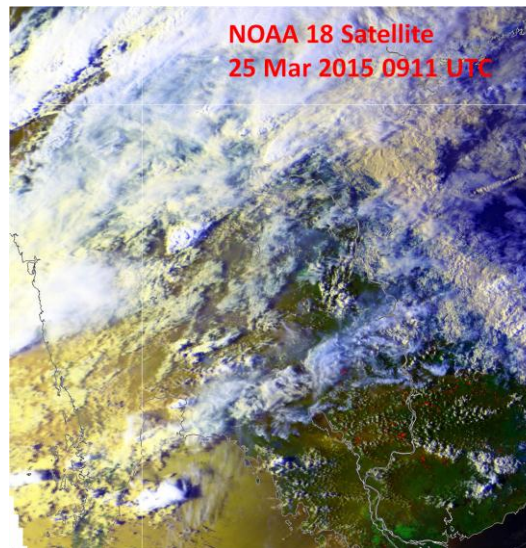


Fig. 2E: NOAA-18 satellite picture on 18 March 2015 shows the return of shower activities over northern ASEAN region

2.3 The hotspot charts for March 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.

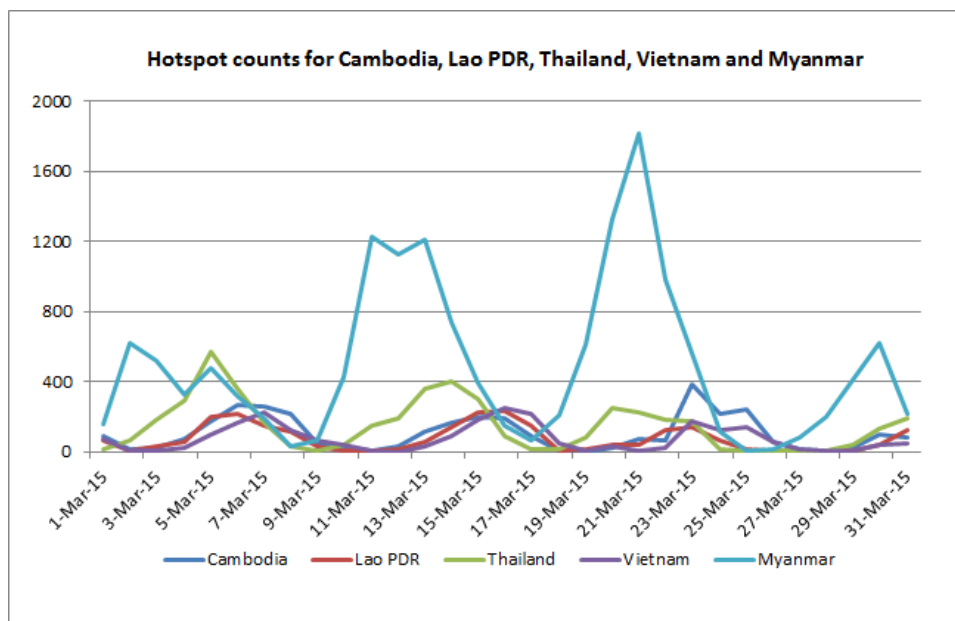


Fig. 2F: Hotspot Counts in Cambodia, Lao PDR, Thailand, Vietnam, Myanmar for March 2015

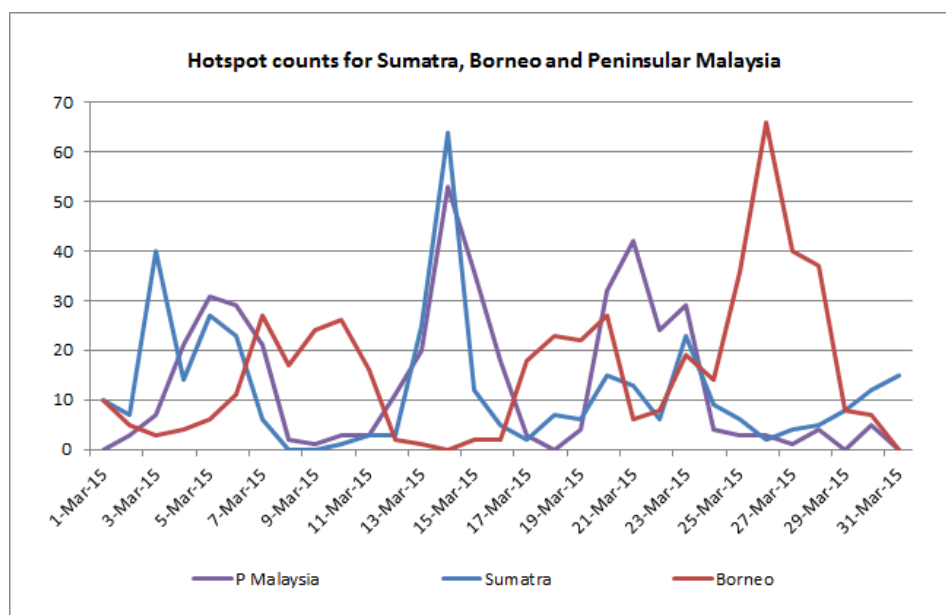


Fig 2G: Hotspot Counts in Sumatra, Borneo and Peninsular Malaysia for March 2015

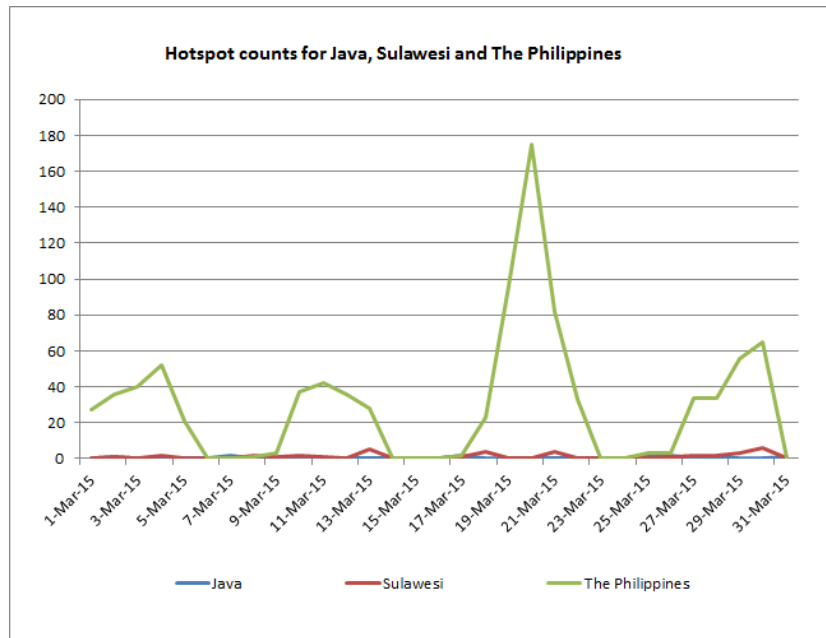


Fig. 2H: Hotspot Counts in Java, Sulawesi, Philippines for March 2015

3. Status of El Niño/La Niña*

3.1 Sea-surface temperatures (SST) over the tropical Pacific Ocean continue to warm steadily in March 2015, showing signs of weak El Niño conditions developing (Figure 3A). The Niño3.4 index for March 2015 is 0.64 (Figure 3B) and the latest 3-month average value dropped marginally from 0.69 to 0.61 (comparable to El Niño events within the ‘weak’ category). The atmospheric pattern over the tropical Pacific Ocean has also been showing gradual (but still weak) response to the warming in terms of westerly low-level wind and positive convection anomalies just west of the dateline. Historically, however, El Niño does not always develop from the Pacific Ocean trends, such as those currently observed, in this time of the year

3.2 Assessment of international climate model outlooks reveals a likelihood of between 50% – 70% of El Niño conditions to develop in the next few months (Figure 3C). The wide range of model outlooks (Figure 3D) is consistent with the known lower level of accuracy of model outlooks at this time of the year, which is the traditional El Niño–Southern Oscillation (ENSO) transition period. Hence, caution should be exercised when using model outlooks to predict the El Niño during this time.

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

3.4 The region is now in the inter-monsoon season (Apr – May), where El Niño is not known to have widespread or significant impact (dryness) on the western part of the Maritime Continent. Thus if there is a possibility of a weak El Niño developing in

this Mar-Apr-May (MAM) season (Figure 3F), 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](#).

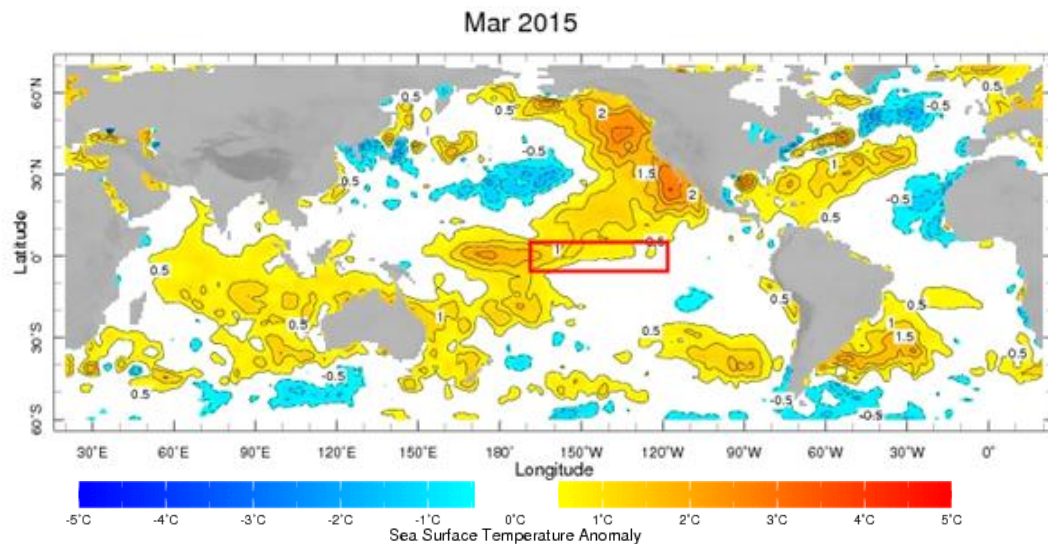


Fig. 3A: Warming of the tropical Pacific Ocean continued over the Niño3.4 region (red box, 120°W-170°W and 5°S-5°N) for March 2015 (image credit: IRI Map Room). Yellow shades show regions of relative warming, while blue shades show regions of relative cooling with respect to 1971-2000 climatology for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

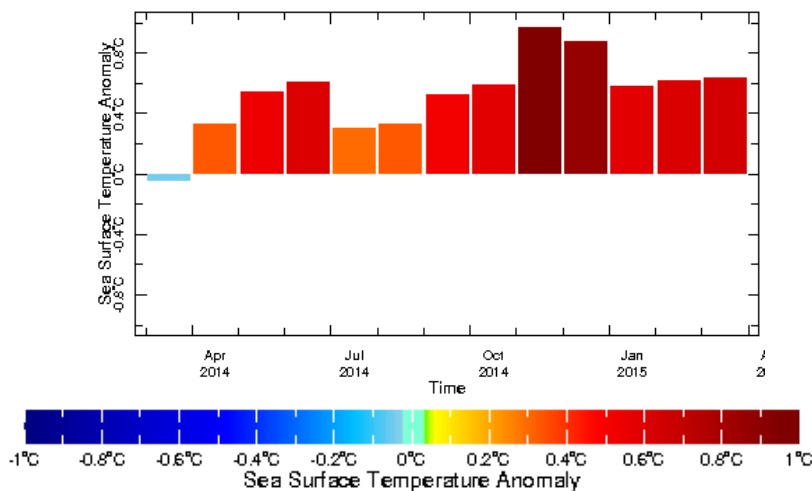


Fig. 3B: Monthly sea-surface temperature anomaly over the Niño3.4 region (120°W-170°W and 5°S-5°N) over the tropical Pacific Ocean from March 2014 (left) to March 2015 (right) (image credit: IRI Map Room). Sustained warming has been observed since Apr 2014 and the warming has steadied recently. The running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

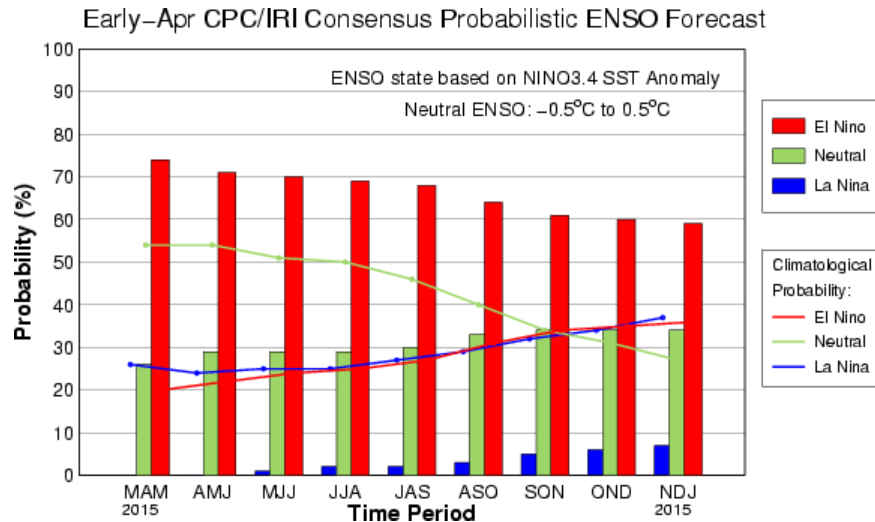


Fig. 3C: Probability of El Niño (red), La Niña (blue) and neutral conditions (green) for 2015. For the next few seasons, there is around 50% - 70% chance of El Niño developing based on model predictions showing El Niño conditions and expert assessment (image credit: IRI-CPC).

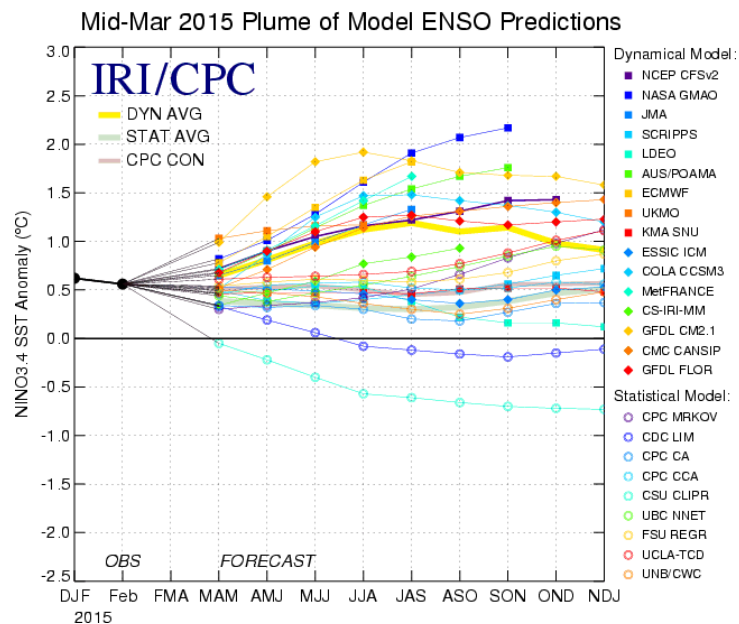


Fig. 3D: Forecasts of El Niño strength (in terms of the Niño3.4 index) for 2015 from various seasonal prediction models of international climate centres. Temperature anomalies above 0.5°C indicate El Niño conditions, below -0.5°C indicate La Niña conditions, and in between indicate neutral conditions, 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 lower skill of predictions made at this time of year (image credit: IRI-CPC).

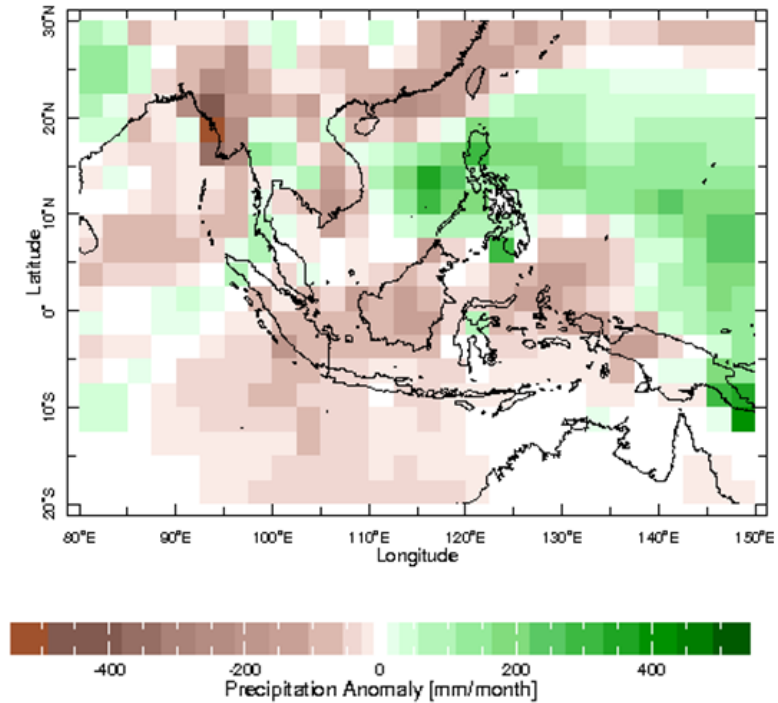


Fig. 3E: June to October rainfall anomaly composite for El Niño years (1982, 1986, 1987, 1991, 1994, 1997, 2002, 2004, 2006, and 2009) showing drier than average conditions (brown shades) mostly in the southern half of the region (image credit: IRI Data Library).

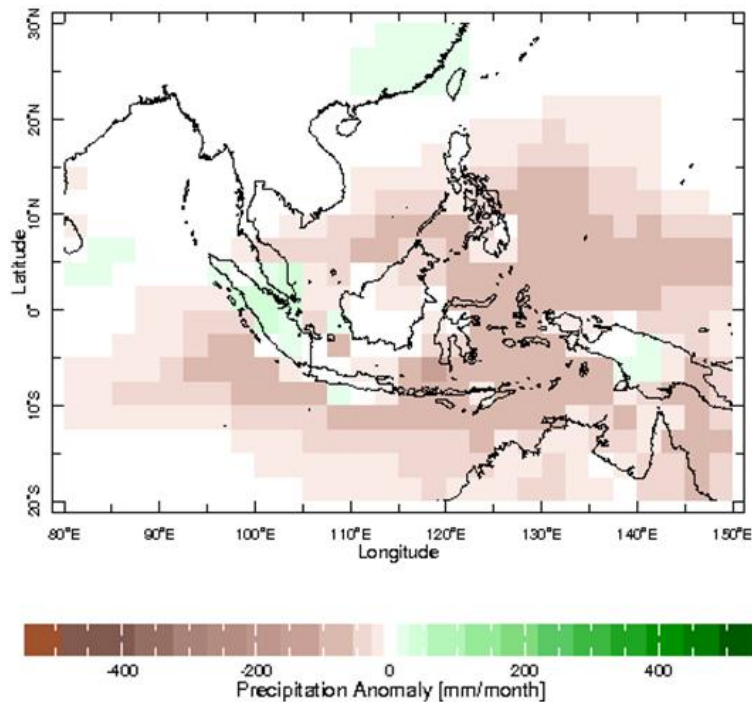


Figure 3F: December to February rainfall anomaly composite for El Niño years (1982, 1986, 1987, 1991, 1994, 1997, 2002, 2004, 2006, and 2009) showing drier than average conditions (brown shades) constrained to mostly the southern and eastern Maritime Continent (image credit: IRI Data Library).

4. Outlook

4.1 In April and May 2015 Inter-monsoon conditions will prevail and gradually transit into Southwest Monsoon in June 2015. The Inter-monsoon conditions are typically characterised by diurnal afternoon and early evening shower activities.

4.1 During this Inter-Monsoon season, the expected increase in shower activities would help alleviate the hotspot situation in the northern ASEAN region. In the southern ASEAN region, hotspot activities are expected to be generally subdued by occurrence of showers. However, isolated hotspot activities may still emerge in fire-prone areas during brief periods of drier weather conditions.

4.2 Near-normal rainfall is expected from April to May over the southern ASEAN region. In the northern ASEAN region, slightly below-normal to below-normal rainfall can be expected for the next 3 months, particularly for Thailand and Vietnam. The rainfall outlooks for the ASEAN region from April 2015 to June 2015 are shown in Figs. 4A – 4C.

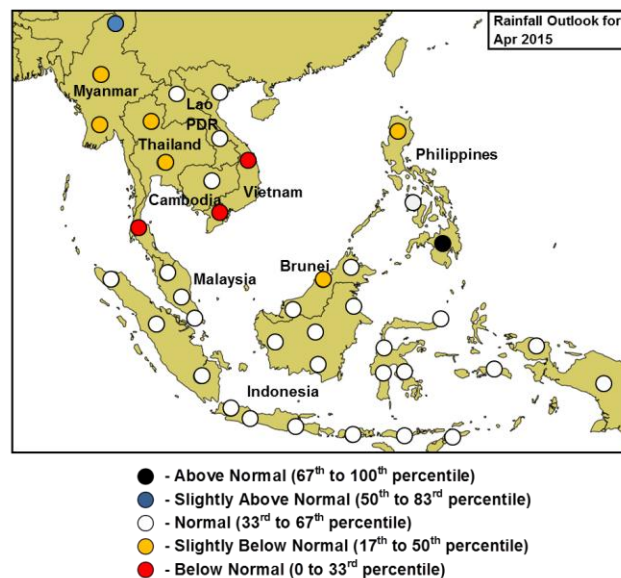


Fig. 4A: Rainfall Outlook for the ASEAN Region (Apr 2015)

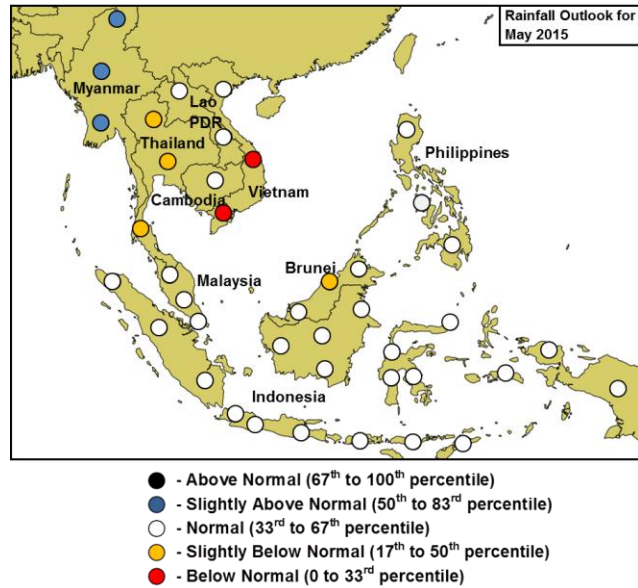


Fig. 4B: Rainfall Outlook for the ASEAN Region (May 2015)

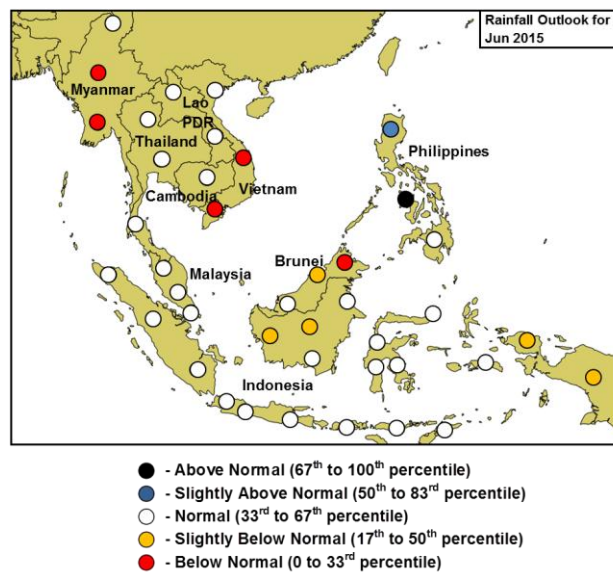


Fig. 4C: Rainfall Outlook for the ASEAN Region (June 2015)