

UPDATE OF REGIONAL WEATHER AND SMOKE HAZE FOR NOVEMBER 2014

1. Review of Regional Weather Conditions in October 2014

1.1 The Southwest Monsoon season continued to prevail in the first half of October 2014 and gradually transitioned to the Inter-Monsoon season in the second half of the month.

1.2 Two typhoons and one tropical storm affected the north-western Pacific Ocean in October 2014, namely Typhoon Phanfone, Typhoon Vongfong and Tropical Storm Nuri. Typhoon Phanfone, developed in the last week of September 2014 and made landfall over Honshu, Japan on 04 October 2014 resulting in seven deaths and more than 62 injured. Shortly after Typhoon Phanfone made landfall, the wrath of Typhoon Vongfong swept across the islands of Kyushu and Honshu, Japan on 13 and 14 October 2014 respectively, bringing strong winds and heavy rainfall to islands. In addition, Typhoon Vongfong led to the cancellation of a few hundred flights to and from Japan.

1.3 The presence of the monsoon trough over the northern ASEAN region during the first fortnight of October 2014 enhanced convective activities there and brought more than 100% of normal rainfall to parts of the Philippines, Laos PDR, Thailand and Vietnam.

1.4 Generally wet conditions affected the southern ASEAN region during the month. Brief periods of drier weather condition were observed in parts of southern ASEAN region, in particular, in Java island, southern Kalimantan and southern Sumatra. Less than 75% of normal rainfall was received in southern parts of Kalimantan and Sumatra, Java Island and Sulawesi while more than 125% of normal rainfall was felt in northern Sumatra, Peninsular Malaysia and Sabah in East Malaysia. The regional rainfall distribution for October 2014 is shown in Fig. 1A.

Percentage of Normal Rainfall for October 2014

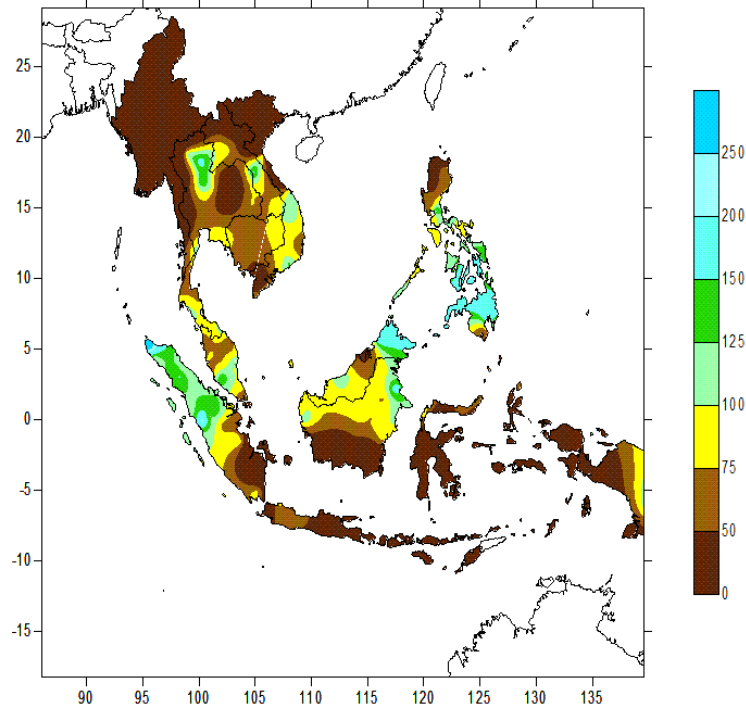


Fig. 1A: Percentage of Normal Rainfall for October 2014

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

2.1 In the northern ASEAN region, wet weather conditions continued to keep the hotspot activities subdued. In the southern ASEAN region, dry weather conditions affected mainly the southern half of Sumatra and Kalimantan during the first two weeks of October 2014 and again in the last week of October 2014. Persistent hotspots with smoke plumes and moderate to dense smoke haze were observed emanating from the hotspots in southern Sumatra and Kalimantan. The widespread smoke haze was blown by the prevailing winds which led to the deterioration in the air quality and visibility in parts of central and southern Sumatra, and Kalimantan. Smoke haze was also transported by the prevailing winds to affect parts of Peninsular Malaysia and Singapore on some days in October 2014. Satellite images depicting some of the hotspot activities in the ASEAN region in October 2014 are shown in Figs. 2A to 2E.

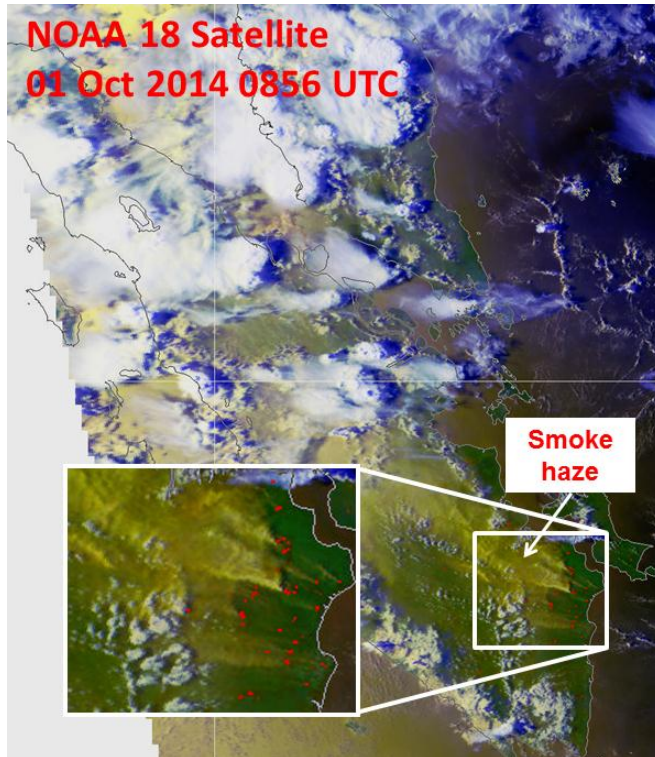


Fig. 2A: NOAA-18 satellite picture on 01 October 2014 showing hotspots in southern Sumatra. Smoke plumes were visible in the satellite imagery

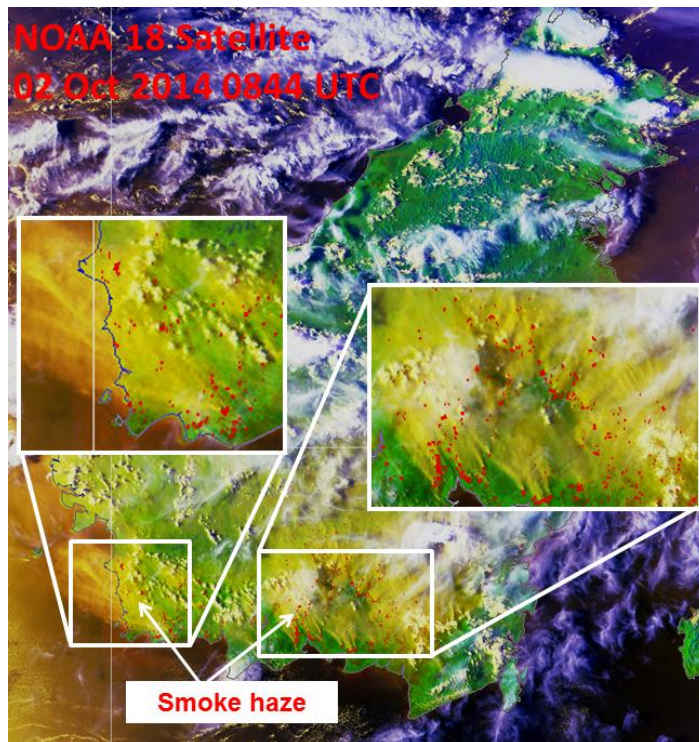


Fig. 2B: NOAA-18 satellite picture on 02 October 2014 showing widespread moderate to dense smoke haze emanating from clusters of hotspots in Kalimantan

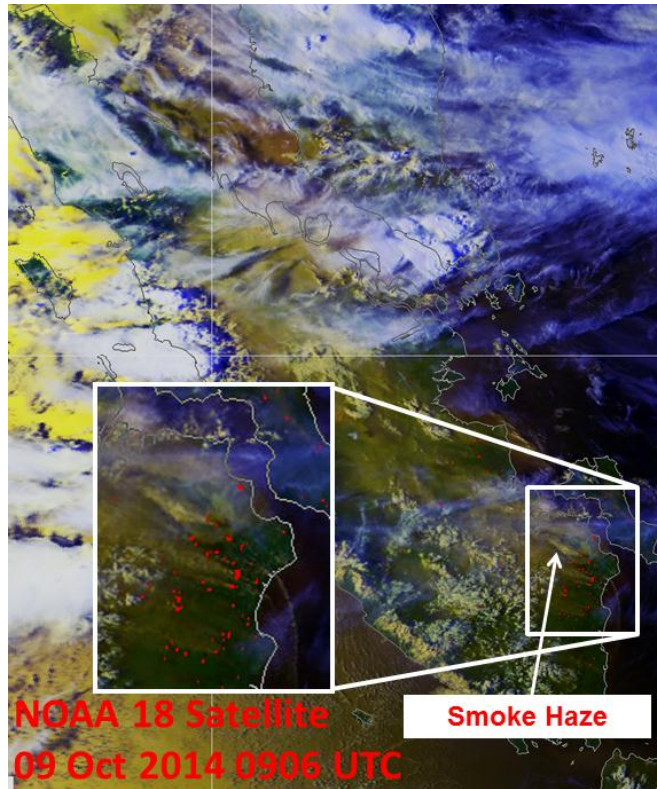


Fig. 2C: NOAA-18 satellite picture on 09 October 2014 showing persistent smoke haze from hotspots in southern Sumatra

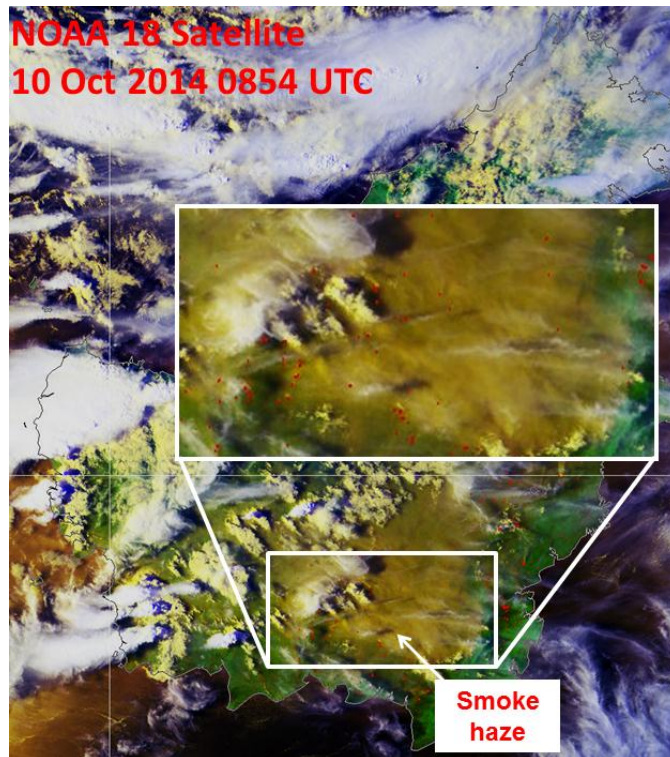


Fig. 2D: NOAA-18 satellite picture on 10 October 2014 showing widespread smoke haze in southern Kalimantan

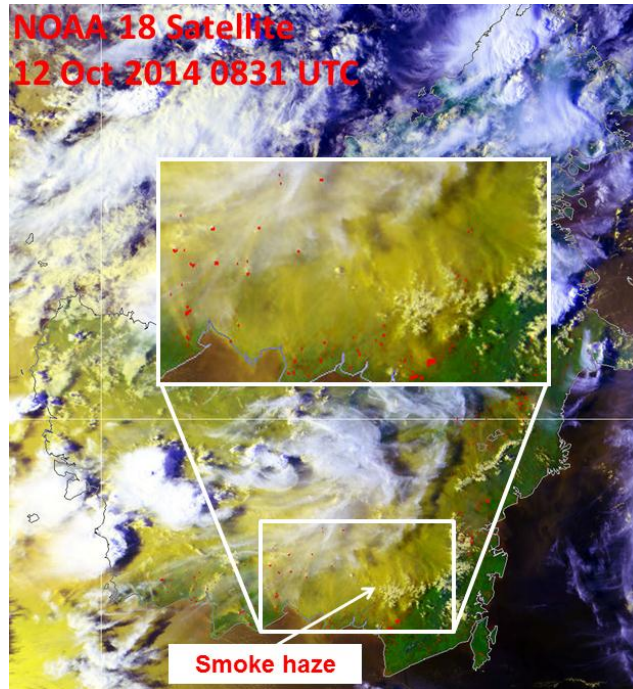


Fig. 2E: NOAA-18 satellite picture on 12 October 2014 showing widespread smoke haze affecting most parts of Kalimantan.

2.2 The hotspot charts for October 2014 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.

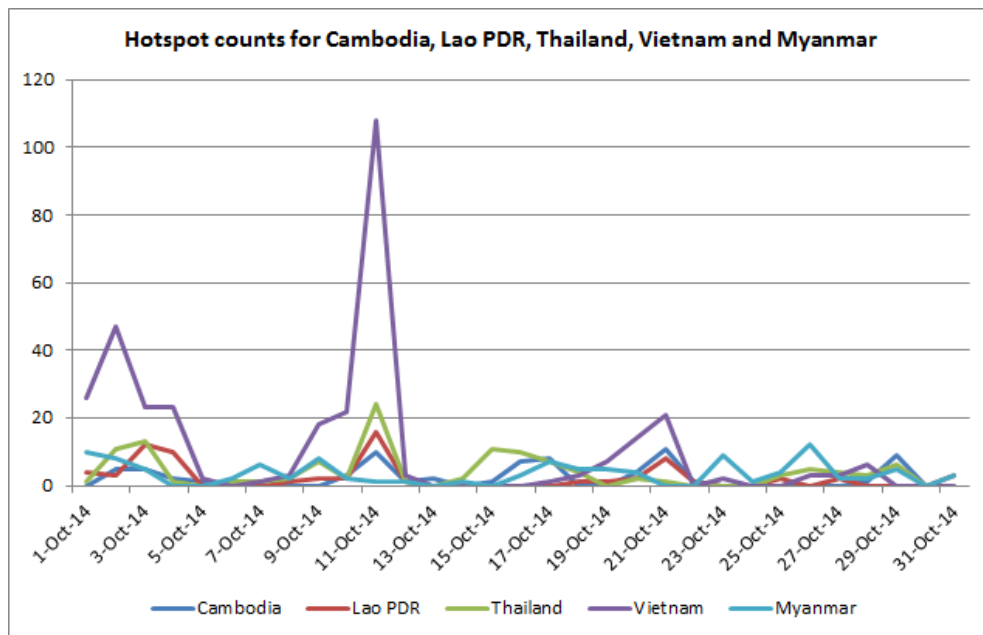


Fig. 2F: Hotspot Counts in Cambodia, Lao PDR, Thailand, Vietnam, Myanmar for October 2014

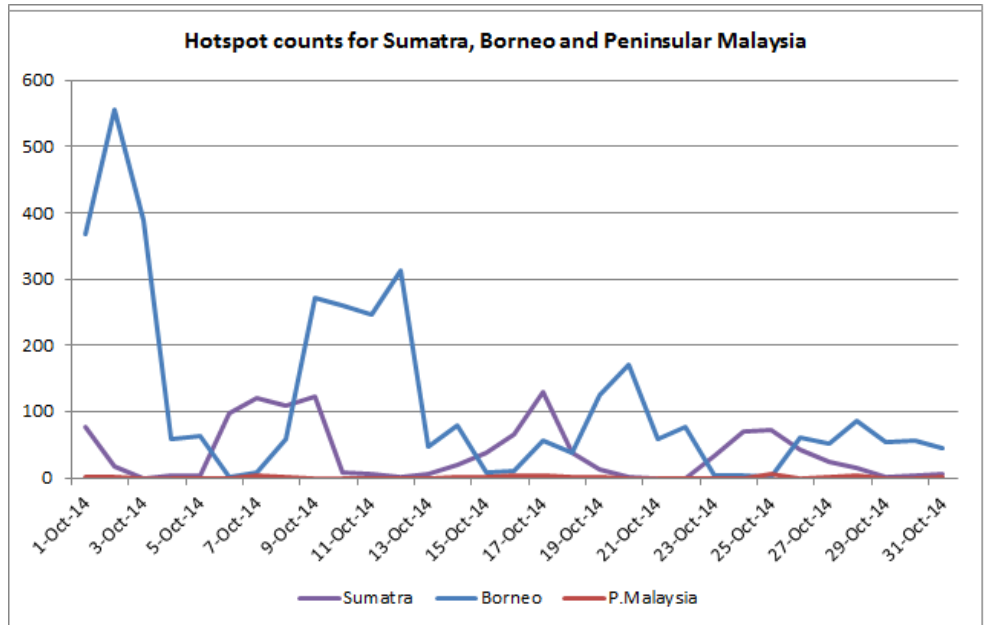


Fig 2G: Hotspot Counts in Sumatra, Borneo and Peninsular Malaysia for October 2014

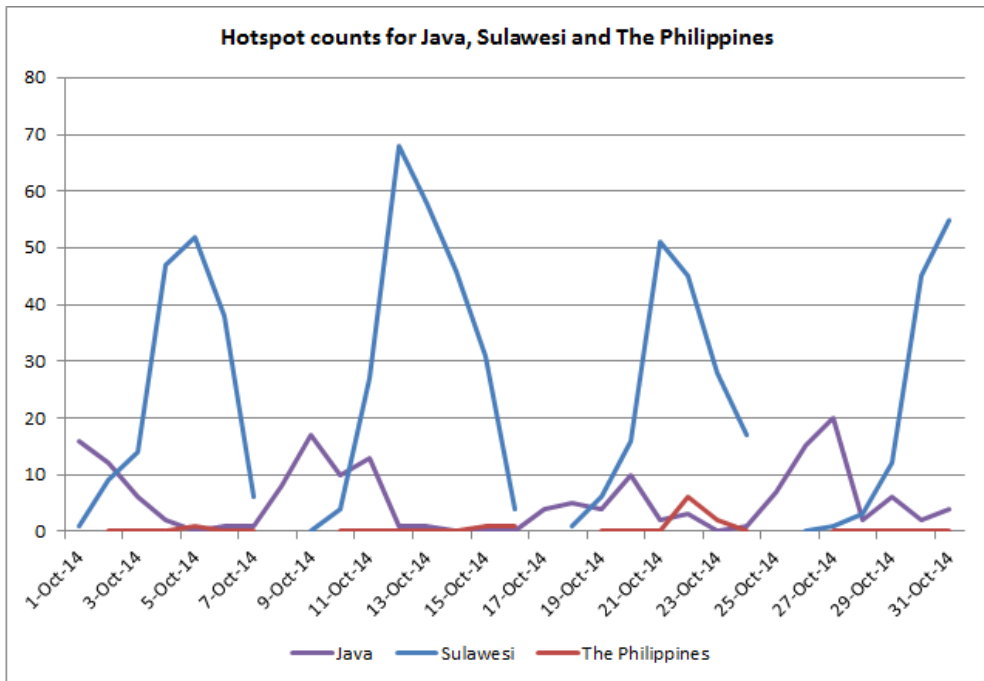


Fig. 2H: Hotspot Counts in Java, Sulawesi, Philippines for October 2014

3. Status of El Niño/La Niña*

3.1 The tropical Pacific Ocean continues to be in neutral (neither El Niño nor La Niña) conditions, and warmer than average sea surface temperatures have been observed in October 2014 (Figure 3A and 3B). With most global climate models are showing a continued warming of the tropical Pacific Ocean in the coming months (Figure 3C), there is still a possibility of a weak El Niño developing in the next one to two months. Model forecasts indicate that there is a 60% chance of an El Niño occurring in the November-December-January season (Figure 3D) and into early 2015.

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

3.3 During the Northeast Monsoon season, the El Niño is known to have little impact in the western part of the Maritime Continent (Figure 3F), the possibility of a weak El Niño developing in the next one to two months is not expected to pose significant risks of extended periods of drier and warmer conditions in the ASEAN region.

* 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](#).

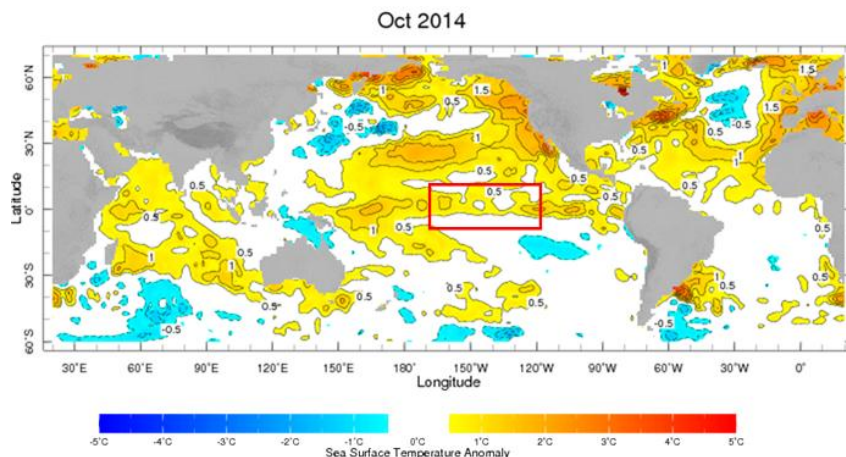


Figure 3A: Warming of the tropical Pacific Ocean is sustained over the Niño3.4 region (red box) for October (image credit: IRI Map Room). Yellow shades show regions of relative warming, while blue shades show regions of relative cooling with respect to 1971-2000 climatology for that month.

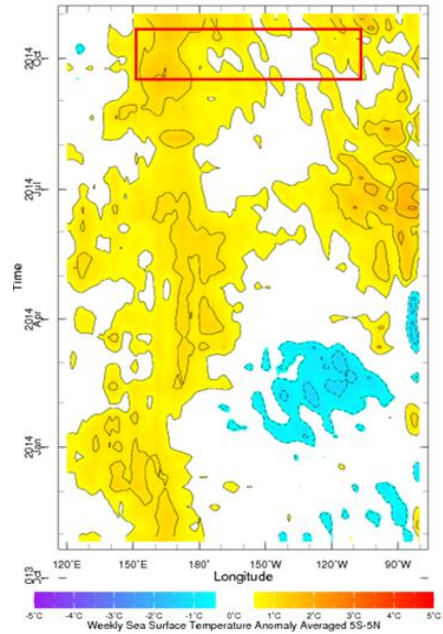


Fig. 3B: Time evolution of weekly sea-surface temperature anomaly over the tropical Pacific Ocean (120E-90W, 5S-5N) from Oct 2013 (bottom) to Nov 2014 (top) (image credit: IRI Map Room). Sustained warming has been observed in October 2014 (red box). Yellow shades show regions of relative warming, while blue shades show regions of relative cooling with respect to 1971-2000 mean for that week of the year.

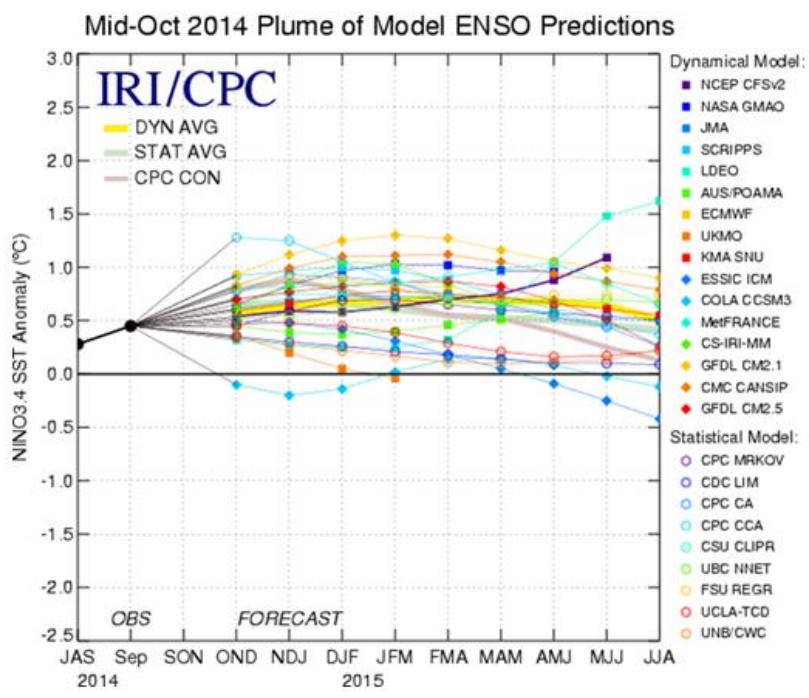


Fig. 3C: Forecasts of El Niño strength (in terms of the Niño3.4 index) for the remaining 3-month seasons of 2014 and 1st half of 2015 from various seasonal prediction models of international climate centres. Temperature anomalies above 0.5°C indicate El Niño conditions, below -0.5°C indicate La Niña conditions, and in between indicate neutral conditions, i.e. neither El Niño nor La Niña. Model outlooks and expert opinions suggest a weak El Niño strength to be likely if it occurs (image credit: IRI-CPC).

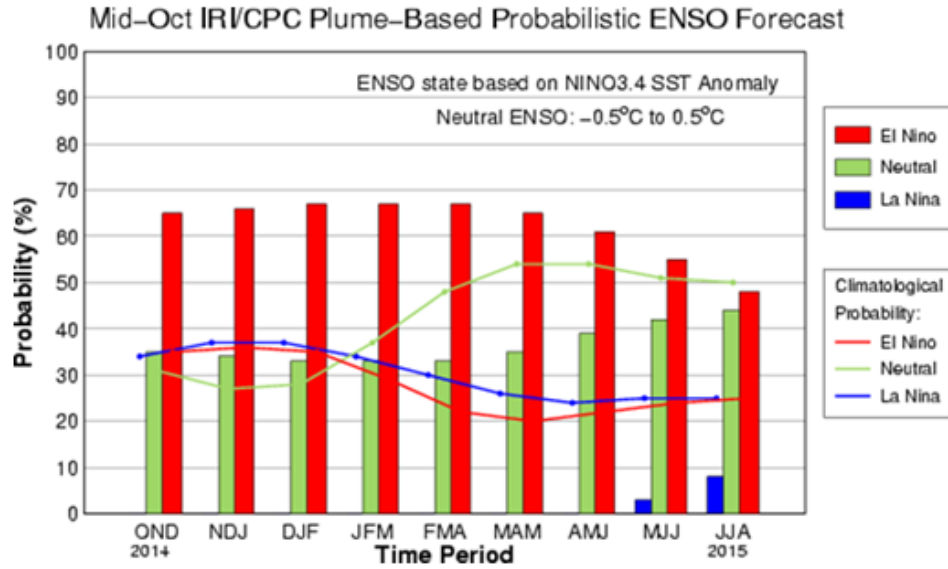


Fig. 3D: : Probability of El Niño (red), La Niña (blue) and neutral conditions (green) in the remaining 3-month seasons of 2014 and 1st half of 2015. For NJD (November-January) season, there is about 60% chance of El Niño developing based on the percentage of models showing El Niño conditions. The likelihood is sustained at that level for the first part of 2015 (image credit: IRI-CPC).

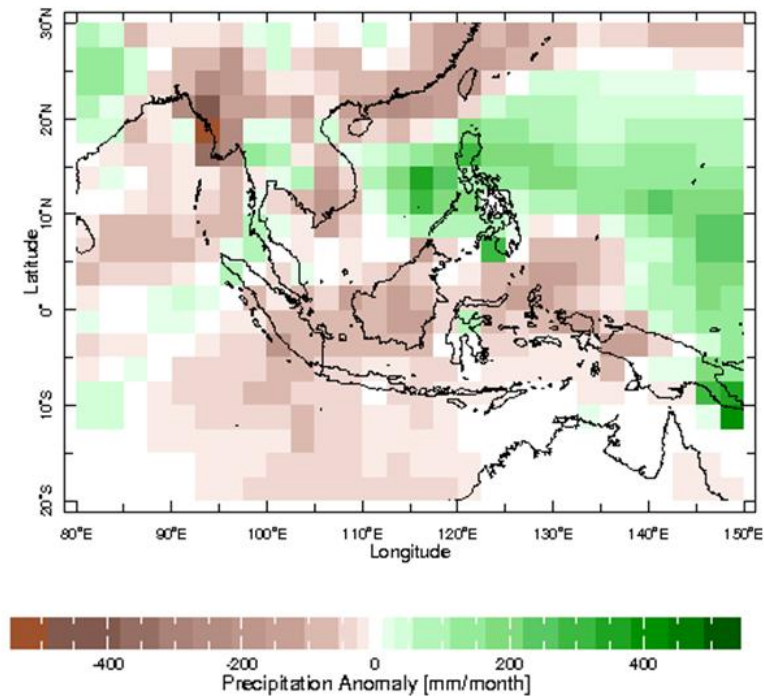


Fig. 3E: Rainfall anomaly composite for El Niño years (1982, 1986, 1987, 1991, 1994, 1997, 2002, 2004, 2006, and 2009) showing drier than average conditions (brown shades) mostly in the southern half of the region for the months June to October (image credit: IRI Data Library).

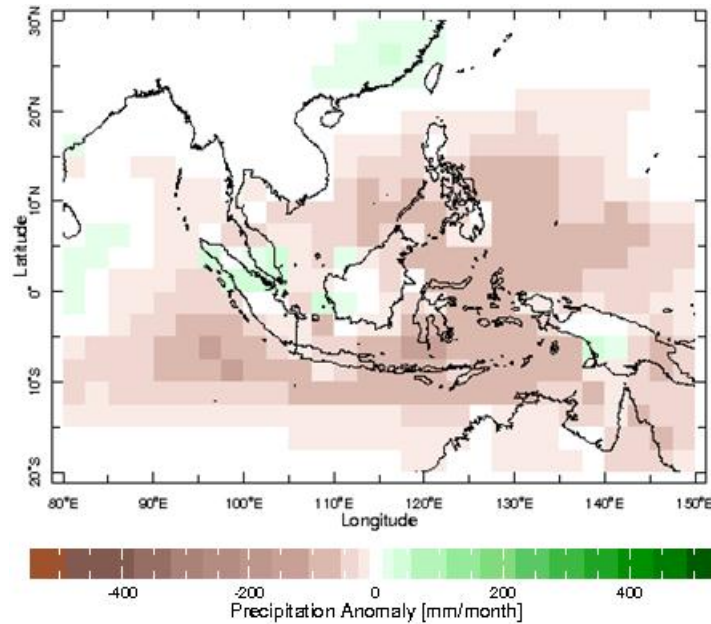


Figure 3F: Rainfall anomaly composite for El Niño years (1982, 1986, 1987, 1991, 1994, 1997, 2002, 2004, 2006, and 2009) showing drier than average conditions (brown shades) constrained to mostly the southern and eastern Maritime Continent for the months November to January (image credit: IRI Data Library).

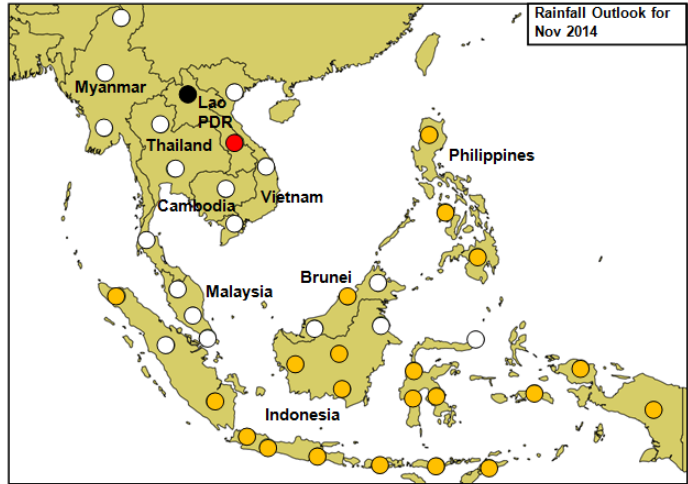
4. Outlook

4.1 The prevailing Inter-Monsoon conditions are expected to persist for the rest of November 2014 before the onset of the Northeast Monsoon in later part of November. This signals the onset of the dry season in the northern ASEAN region and the wet season in the southern ASEAN region.

4.2 In the northern ASEAN region, drier weather conditions can be expected with the onset of the traditional dry season towards the end of the year. Hotspot activities are likely to be generally subdued in November 2014 and activities are expected to gradually increase as the traditional dry season establishes itself later in the year.

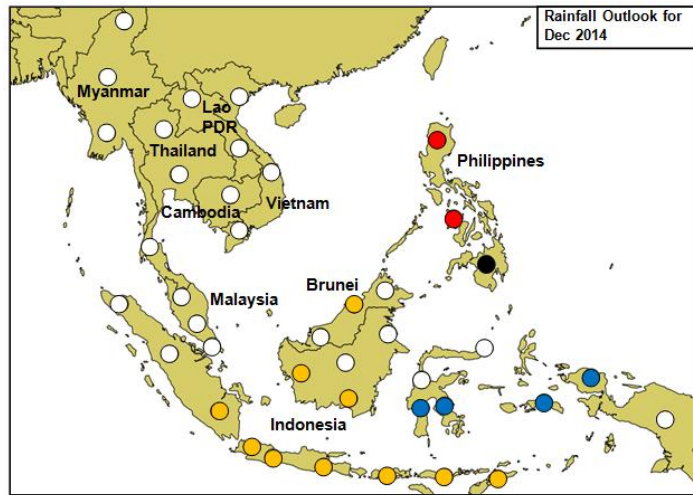
4.3 In contrast, the southern ASEAN region can expect occasional spells of prolonged moderate to heavy rain and windy conditions. The increase in rainfall over the next few months are expected to keep the hotspot activities generally subdued. However, brief dry periods during the transition to the Northeast Monsoon season could bring a brief spike in hotspot activities in the region.

4.4 For November 2014 and the following 2 months, most parts of the ASEAN region can expect slightly below average to average rainfall. The only exceptions are southern Philippines and Sulawesi where slightly above average to above average rainfall are expected for December 2014 and January 2015. Below average rainfall are also expected for central and southern Philippines and East Malaysia in December 2014. The rainfall outlook for the ASEAN region for November 2014 to January 2015 is shown in Figs. 4A – 4C.



- - Above Normal (67th to 100th percentile)
- - Slightly Above Normal (50th to 83rd percentile)
- - Normal (33rd to 67th percentile)
- - Slightly Below Normal (17th to 50th percentile)
- - Below Normal (0 to 33rd percentile)

Fig. 4A: Rainfall Outlook for the ASEAN Region (Nov 2014)



- - Above Normal (67th to 100th percentile)
- - Slightly Above Normal (50th to 83rd percentile)
- - Normal (33rd to 67th percentile)
- - Slightly Below Normal (17th to 50th percentile)
- - Below Normal (0 to 33rd percentile)

Fig. 4B: Rainfall Outlook for the ASEAN Region (Dec 2014)

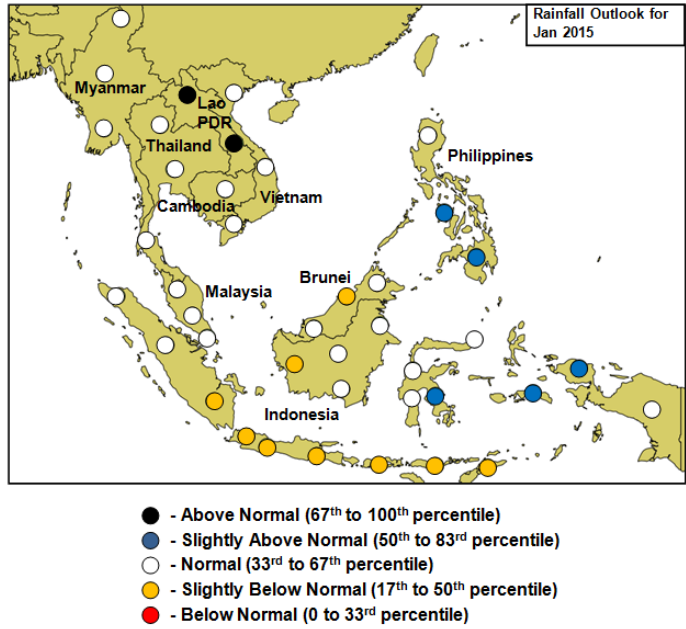


Fig. 4C: Rainfall Outlook for the ASEAN Region (Jan 2015)