

UPDATE OF REGIONAL WEATHER AND SMOKE HAZE FOR OCTOBER 2014

1. Review of Regional Weather Conditions in September 2014

1.1 Weak Southwest Monsoon conditions continued to prevail in the ASEAN region in September 2014 with low level winds blowing mostly between the southeast or southwest.

1.2 The Northwestern Pacific Ocean experienced a total of 6 tropical cyclones in September 2014. Two of these tropical cyclones, namely Typhoon “Kalmaegi” and Tropical Storm “Fung-Wong” affected the northern ASEAN region. Typhoon “Kalmaegi” which developed to the northeast of Palau on 10 September 2014 intensified rapidly as it tracked westwards across Luzon, the Philippines before eventually making landfall over Hainan island on 16 September 2014. Typhoon “Kalmaegi” brought strong winds and heavy rainfall to the areas along its path which resulted in several dozens of flight delays and cancellations in Hong Kong and China, and floods in parts of Philippines and Vietnam. Tropical Storm “Fung-Wong” developed to the west of the Philippines on 17 September 2014. It tracked northwestwards and made landfall over northern Luzon in the Philippines and intensified as it continued its track northwest over the South China Sea. “Fung-Wong” weakened as it made landfall over Shanghai on 23 September 2014.

1.3 The presence of tropical cyclones in the surrounding region enhanced convective activities in the northern ASEAN region with 125% of normal rainfall received in some parts of the Philippines, Laos PDR and Thailand. In contrast, the southern ASEAN region experienced mostly dry weather conditions interspersed with occasional shower activities for September 2014. Many areas in the southern ASEAN region received less than 50% of normal rainfall. The regional rainfall pattern for September 2014 is shown in Fig. 1A.

Percentage of Normal Rainfall for September 2014

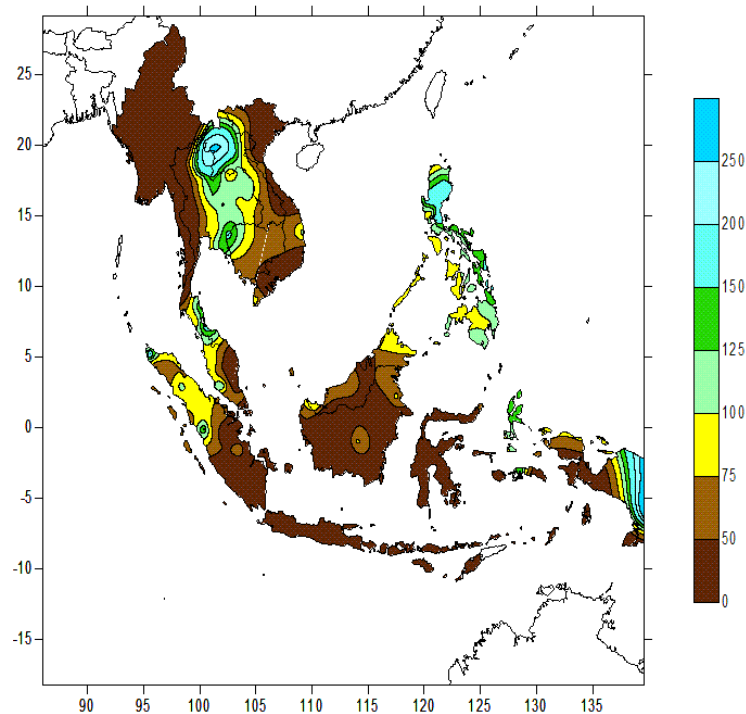


Fig. 1A: Percentage of Normal Rainfall for September 2014

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

2.1 In the northern ASEAN region, hotspot activities were generally subdued due to wet weather conditions. Sporadic hotspots were detected in Thailand and Vietnam during occasional brief periods of drier weather.

2.2 In the southern ASEAN region, dry weather conditions, in particular in the southern half of Sumatra and Kalimantan led to escalations in hotspot activities during the month. Persistent hotspots with smoke plumes and moderate to dense smoke haze were observed mostly over southern Sumatra and Kalimantan on several days. The widespread smoke haze from these fires led to a deterioration in the air quality and visibility in parts of central and southern Sumatra, and Kalimantan. In addition, the smoke haze was transported by the prevailing low level winds to affect Peninsular and East Malaysia and Singapore on several occasions in September 2014, with air quality in the unhealthy range on some days. Satellite images depicting some of the hotspot activities in the ASEAN region in September 2014 are shown in Figs. 2A to 2E.

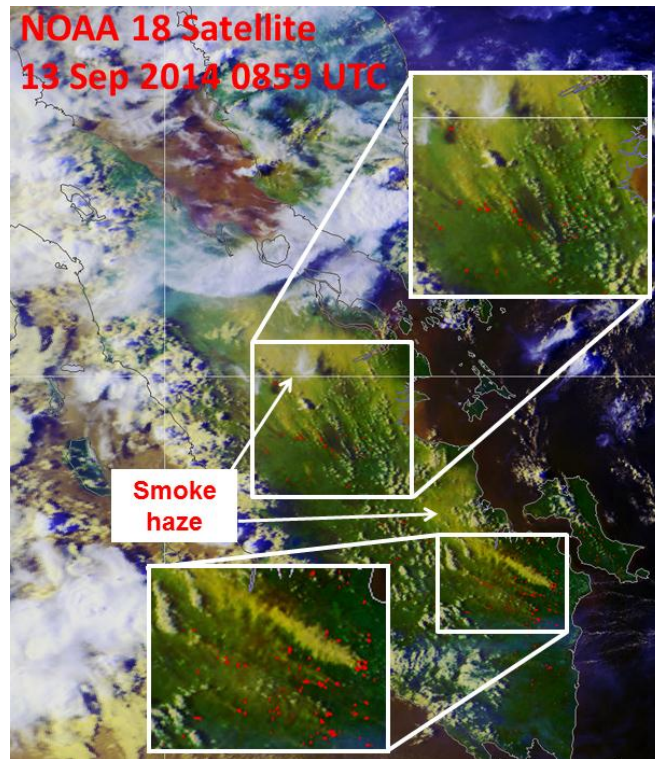


Fig. 2A: NOAA-18 satellite picture on 13 September 2014 showing hotspot activities and smoke haze in southern Sumatra.

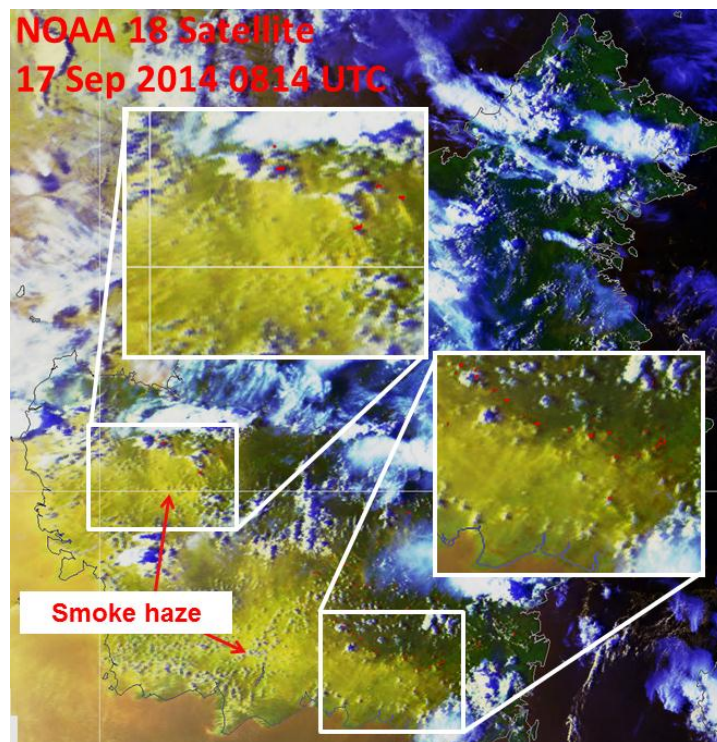


Fig. 2B: NOAA-18 satellite picture on 17 September 2014 showing moderate to dense smoke haze in parts of Kalimantan

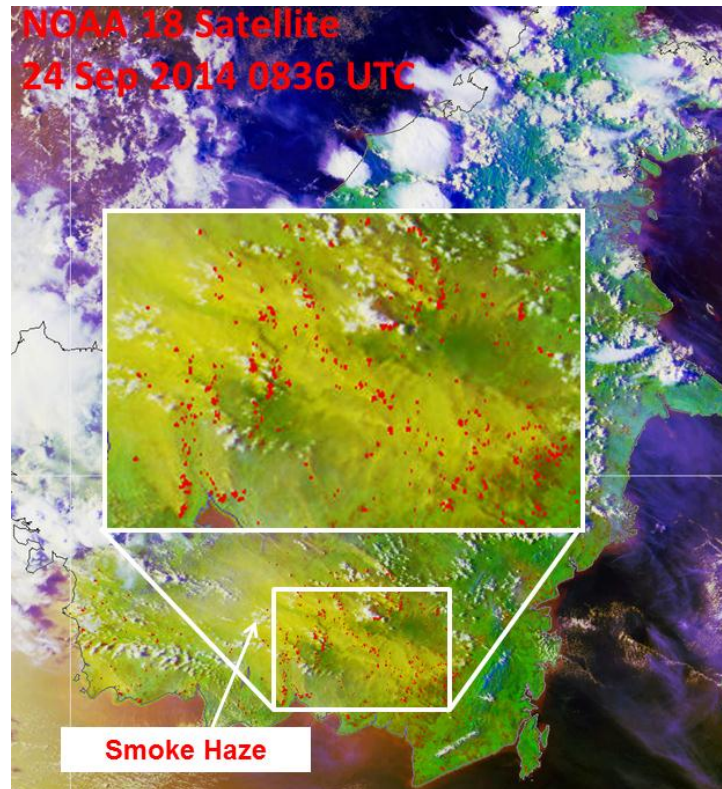


Fig. 2C: NOAA-18 satellite picture on 24 September 2014 showing widespread smoke haze emanating from clusters of hotspots in southern Kalimantan

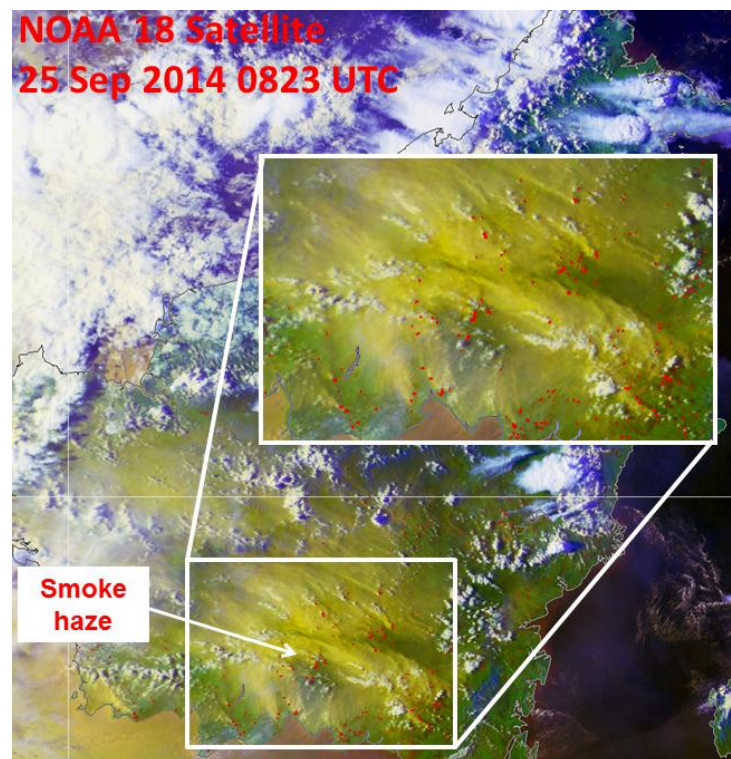


Fig. 2D: NOAA-18 satellite picture on 25 September 2014 showing widespread moderate to dense smoke haze in southern Sumatra

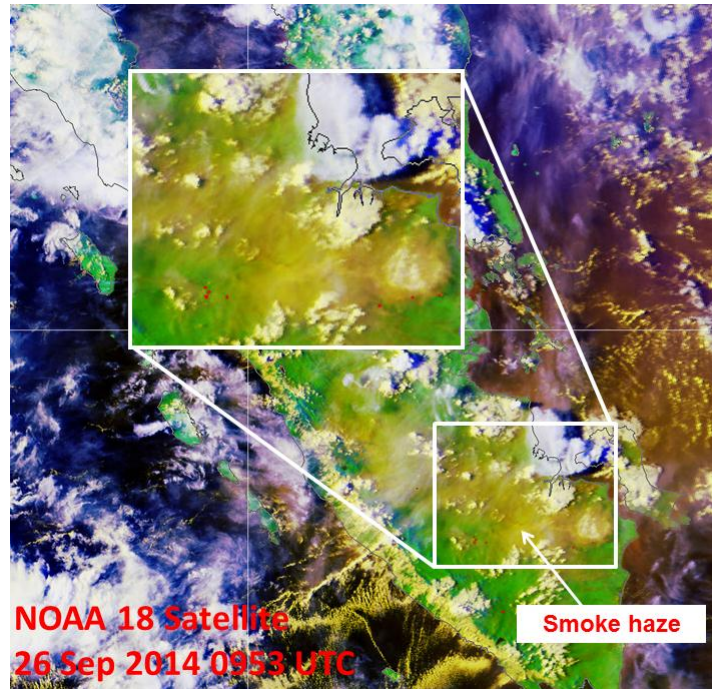


Fig. 2E: NOAA-18 satellite picture on 26 September 2014 showing widespread smoke haze in southern Sumatra.

2.3 The hotspot charts for September 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.

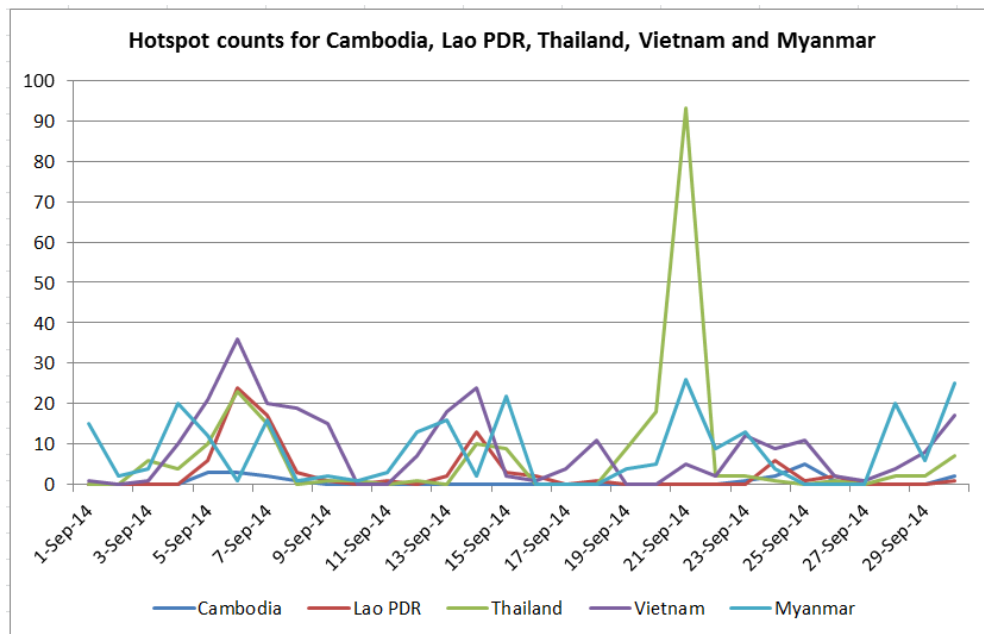


Fig. 2F: Hotspot Counts in Cambodia, Lao PDR, Thailand, Vietnam, Myanmar for September 2014

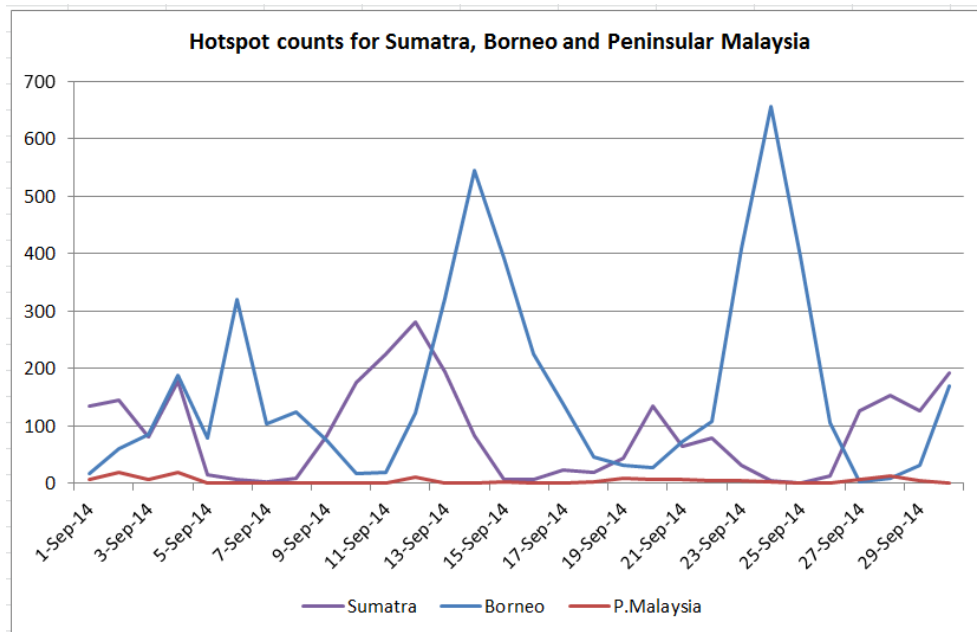


Fig 2G: Hotspot Counts in Sumatra, Borneo and Peninsular Malaysia for September 2014

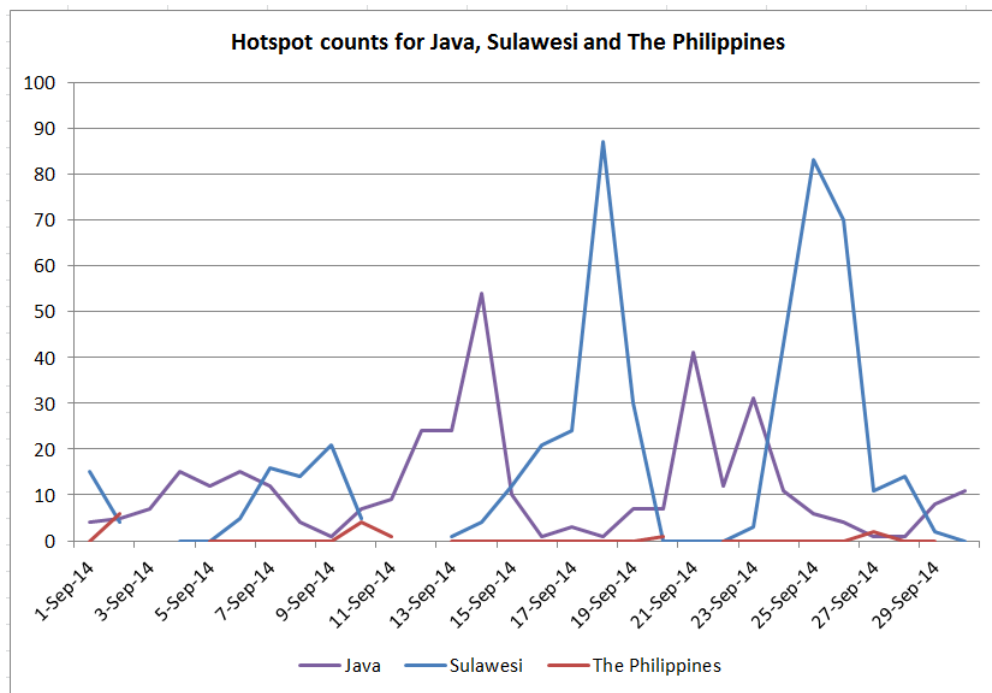


Fig. 2H: Hotspot Counts in Java, Sulawesi, Philippines for September 2014

3. Status of El Niño/La Niña*

3.1 The tropical Pacific Ocean is currently in neutral (neither El Niño nor La Niña) conditions. However, renewed signs of warming of sea surface temperatures there have been observed in September (Figure 3A) following the easing in July (Figure

3B). With most global climate models forecasting the continued warming of the tropical Pacific Ocean in the coming months (Figure 3C), a weak El Niño is still likely to develop towards the end of the year. There is now about 60% chance of El Niño occurring in October-November-December season (Figure 3D) and this is down from 70-80% stated in earlier predictions.

3.2 Typically the impact from El Niño for the Southeast Asia region is drier than average rainfall conditions, especially for the southern and eastern parts during June to October (Figure 3E). More locally-specific impact differs from place to place and for different seasons. As we are entering the inter-monsoon season in October, and with the possibility of a weak El Niño developing in the last quarter of 2014, the risks of occasional extended periods of drier and warmer conditions cannot yet be ruled out.

** 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](#).*

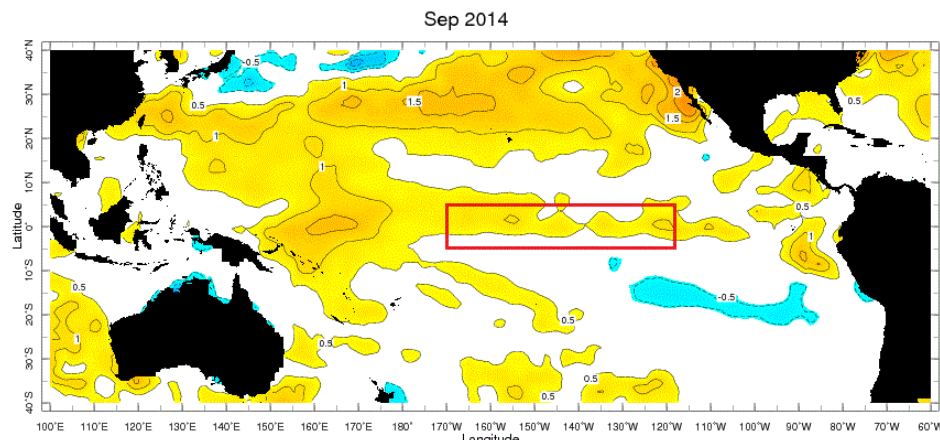


Figure 3A: Signs of warming have re-emerged in September over the Niño3.4 region (red box) following the slowdown in July (image credit: IRI Map Room). Yellow shades show regions of relative warming, while blue shades show regions of relative cooling with respect to 1971-2000 climatology for that month.

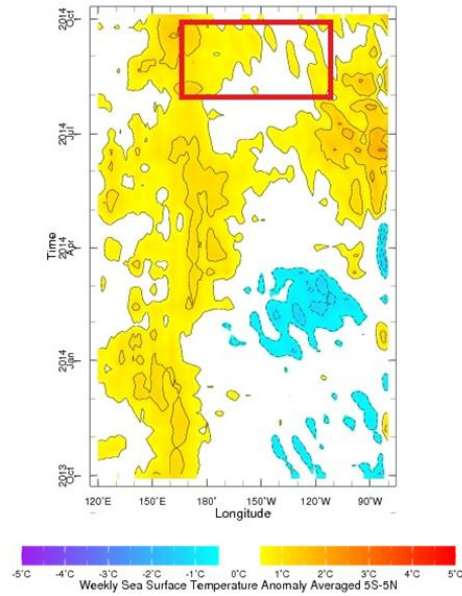


Fig. 3B: Time evolution of sea-surface temperature anomaly over the tropical Pacific Ocean (120E-90W, 5S-5N) from Oct 2013 (bottom) to Oct 2014 (top) (image credit: IRI Map Room). Notice the warming has re-emerged in September 2014 (red box). Yellow shades show regions of relative warming, while blue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

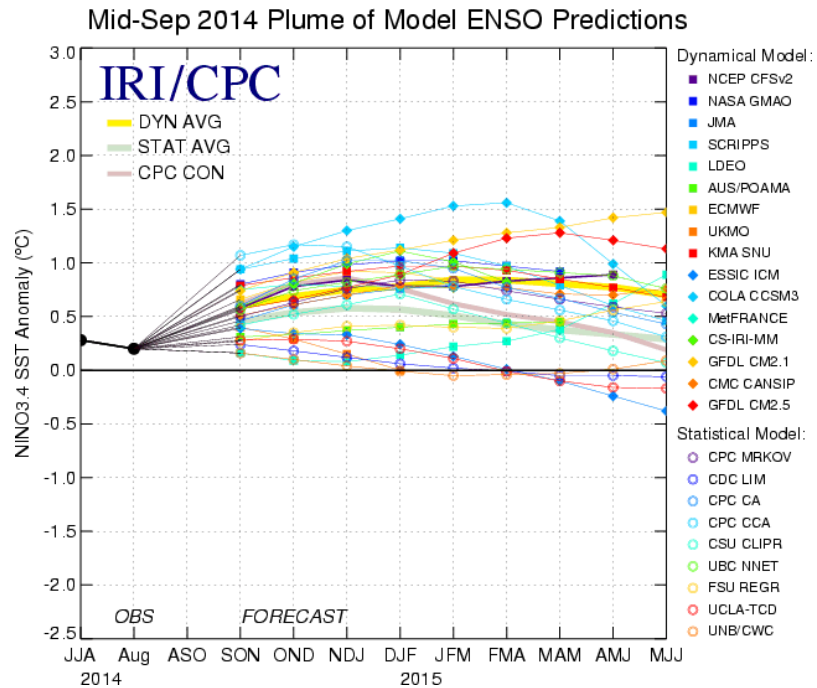


Fig. 3C: Forecasts of El Niño strength (in terms of the Niño3.4 index) for the remaining 3-month seasons of 2014 and 1st half of 2015 from various seasonal prediction models of international climate centres. Temperature anomalies above 0.5°C indicate El Niño conditions, below -0.5°C indicate La Niña 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).

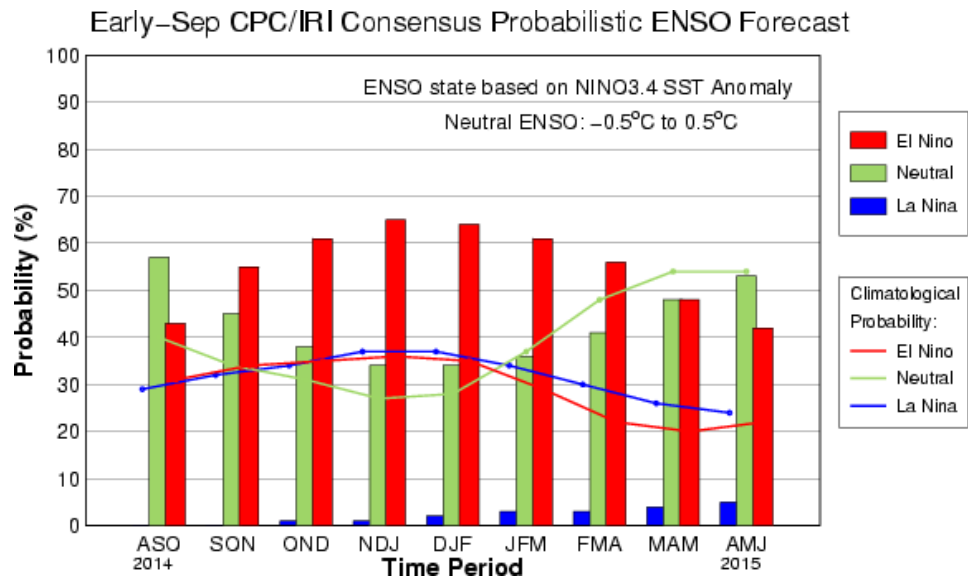


Fig. 3D: Probability of El Niño (red), La Niña (blue) and neutral conditions (green) in the remaining 3-month seasons of 2014 and 1st half of 2015. For OND (October-December) season, there is about 60% chance of El Niño developing based on the percentage of models showing El Niño conditions. Likelihood increases slightly as we approach the beginning of 2015 (image credit: IRI-CPC).

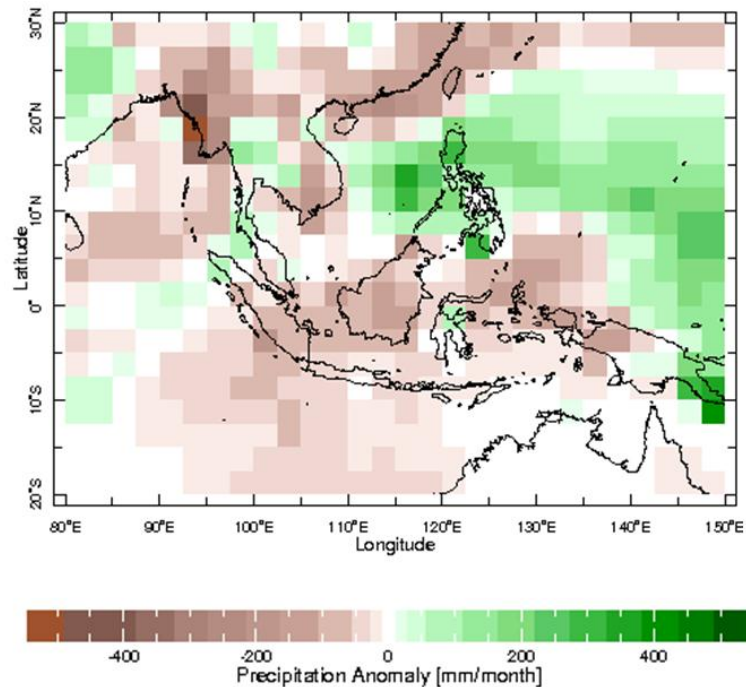


Fig. 3E: Rainfall anomaly composite for El Niño years (1965, 1972, 1982, 1987, 1991, 1993, 1994, 1997, 2002, 2004, 2006, and 2009) showing drier than average conditions (brown shades) mostly in the southern half of the region for the months June to October (image credit: IRI Data Library).

4. Outlook

4.1 The prevailing Southwest Monsoon conditions are expected to transition to Inter-Monsoon conditions in the second half of October 2014 before the onset of the Northeast Monsoon in late November/early December 2014.

4.2 In the northern ASEAN region, the current rainy season is expected to ease gradually in the coming weeks, and hotspot activities are likely to remain subdued. However, with the onset of the Northeast Monsoon season in the later part of the year, an increase in hotspot activities can be expected.

4.3 In the southern ASEAN region, dry weather conditions interspersed with periods of showers can be experienced during the Inter-Monsoon period, and hotspot activities can still be expected in the fire-prone provinces of Sumatra and Kalimantan which could lead to transboundary smoke haze during extended periods of drier weather. As the Northeast Monsoon or traditional wet season of the southern ASEAN region draws near, the hotspot activities are expected to gradually be subdued by wet weather conditions.

4.4 With a weak El Niño expected in the last quarter of 2014, most parts of the ASEAN region except central Vietnam are expected to receive slightly below average to average rainfall for the next three months. Below average rainfall is expected for Central and southern Philippines and East Malaysia in October 2014 and December 2014 respectively. The rainfall outlook for the ASEAN region for October to December 2014 is shown in Figs. 4A – 4C.

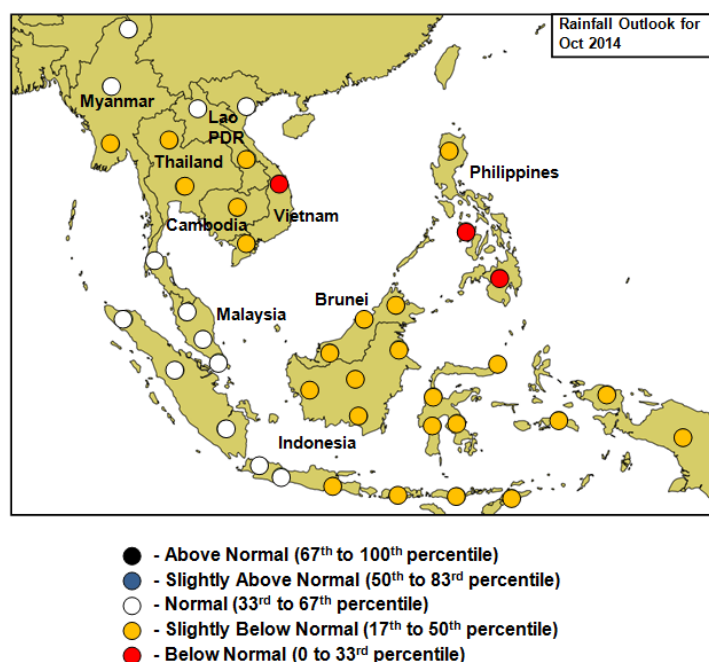


Fig. 4A: Rainfall Outlook for the ASEAN Region (Oct 2014)

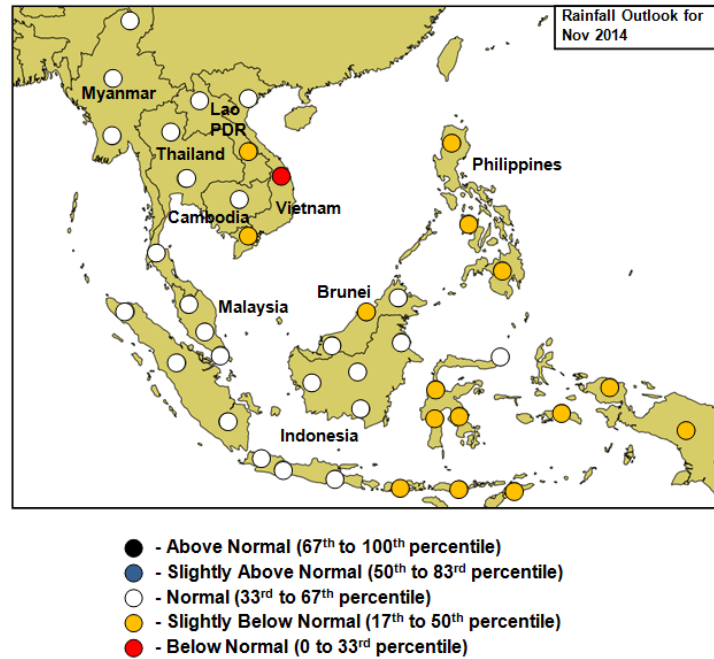


Fig. 4B: Rainfall Outlook for the ASEAN Region (Nov 2014)

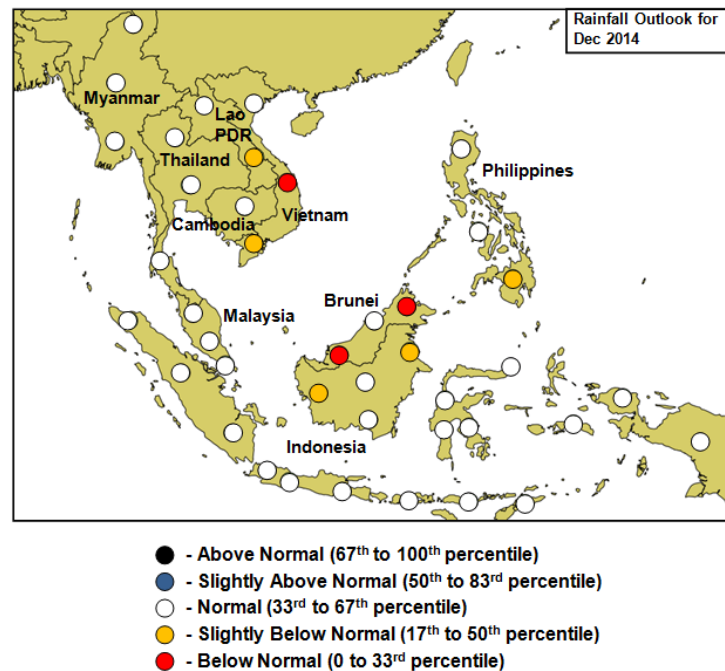


Fig. 4C: Rainfall Outlook for the ASEAN Region (Dec 2014)