

Climate summary on below-normal precipitation in Southeast Asia since spring 2015 and related atmospheric circulation

Please note that the discussion in this summary should not be deemed as constituting seasonal prediction or outlook for any individual country.

1. Climate characteristics

Anomalously low precipitation and related impacts were reported in Southeast Asia since spring 2015. The Indochina peninsula had below-normal precipitation especially in the beginning of the 2015 rainy season, while precipitation amounts over the eastern part of the Kalimantan Island and the southern part of the Philippines from December 2015 to March 2016, when in normal years large amount of precipitation would be expected in these regions, were exceptionally low at 40% of normal.

As seen in Figure 1, twelve-month precipitation totals from April 2015 to March 2016 are less than 60% of the normal in parts of the Kalimantan Island, while over parts of the Indochina Peninsula, precipitation totals range from 60 to 70 % of the normal. Cumulative precipitation starting from April 2015 averaged over the Indochina Peninsula and the southern part of the Philippines evolves at the slowest pace since 2000 (Figure 2).

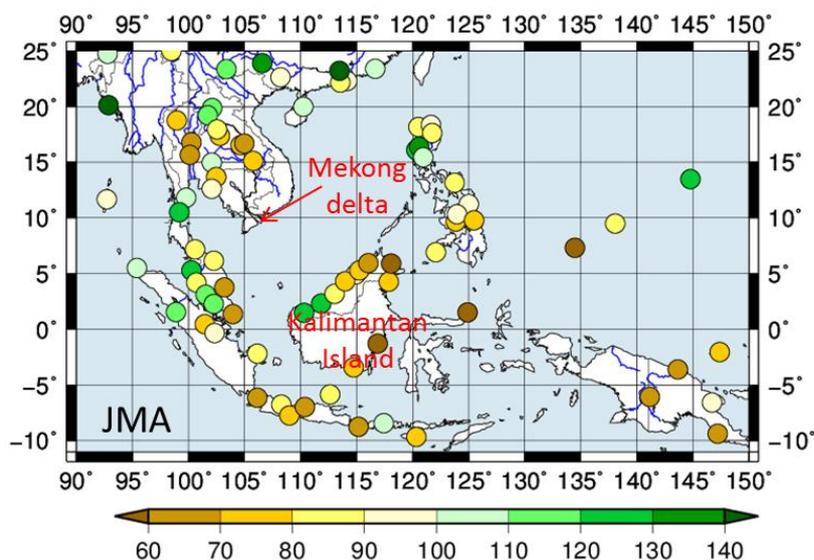


Figure 1 Twelve-month precipitation amount in Southeast Asia

Spatial distribution of twelve-month precipitation ratios (%) from April 2015 to March 2016 compared to the normal (30-year average from 1981 to 2010).

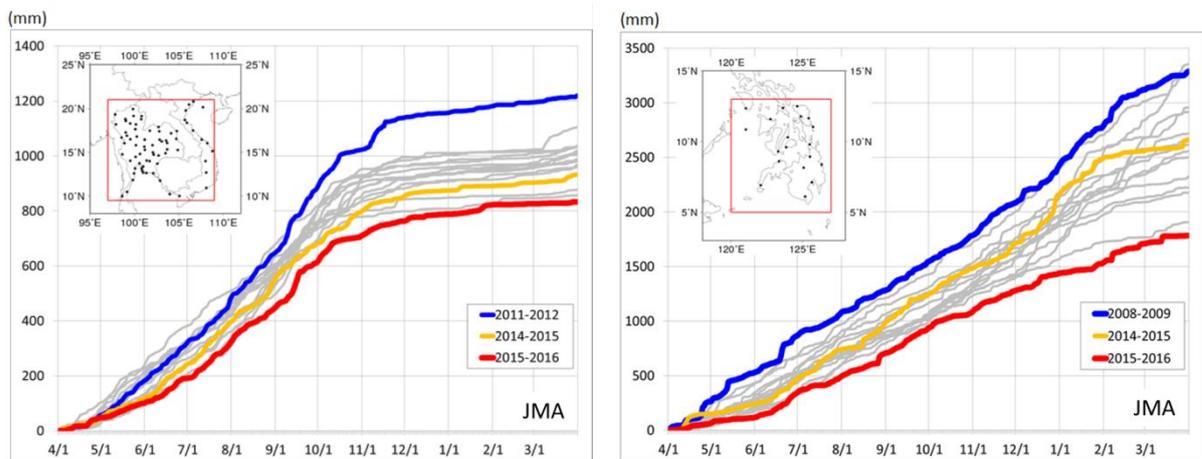


Figure 2 Areal average of cumulative precipitation evolution for the Indochina Peninsula (left) and the southern part of the Philippines (right)

The red and yellow lines indicate cumulative precipitation from April 1 to March 31 of 2015/2016 and 2014/2015, respectively. The blue lines indicate that for the wettest year since 2000/2001 and grey lines for other years.

2. Atmospheric circulation related to below-normal precipitation

The El Niño conditions, which had emerged in summer 2014 but remained relatively weak during the following months, started to renew its strength in spring 2015. In association, convective activity was enhanced over the equatorial central to eastern Pacific and suppressed over the equatorial Southeast Asia.

During the summer monsoon season in 2015, anticyclonic circulation anomalies in the lower troposphere remained pronounced over the northern part of Southeast Asia, and the monsoonal wet southwesterly flow was weaker than normal. In relation, convective activity was suppressed and precipitation amount averaged over the region was below normal. On the ground that the atmospheric circulation anomalies described above resemble those observed in the past El Niño events, it can be deduced that below-normal precipitation over the northern part of Southeast Asia in the 2015 summer monsoon season was also related to the El Niño conditions.

3. Remarks on the latest results from JMA's ensemble prediction system

The El Niño conditions, which have lasted since the boreal summer 2014, will likely dissipate by the beginning of this summer. Meanwhile, the sea surface temperatures (SSTs) in the tropical Indian Ocean are predicted to remain above normal all through the summer (see the latest [El Niño Outlook](#) updated on April 11).

According to the latest results from the JMA seasonal ensemble prediction system driven by the expected SST anomalies including those mentioned above, during the first half of the summer monsoon season anticyclonic circulation anomalies in the lower troposphere are predicted to be dominant over the northern part of Southeast Asia, indicating weaker-than-normal southwest monsoon circulation (see [the Tokyo Climate Center Monthly Discussion on Seasonal Climate Outlooks No. 26](#) updated on April 25).