

The 7th Monsoon Forum and EWS Assessment
3-4 June 2019, Phnom Penh.

Seasonal Outlook

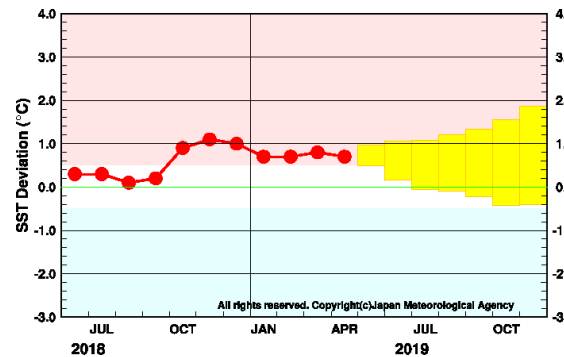
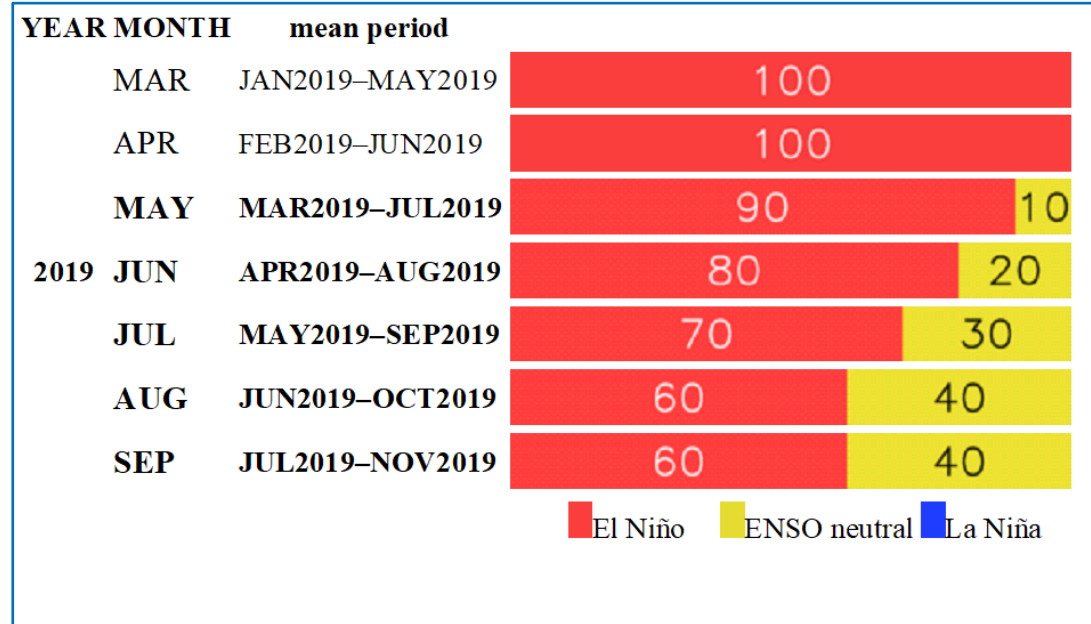
Department of Meteorology
Cambodia

Current Atmospheric Condition (Observed) and Prediction

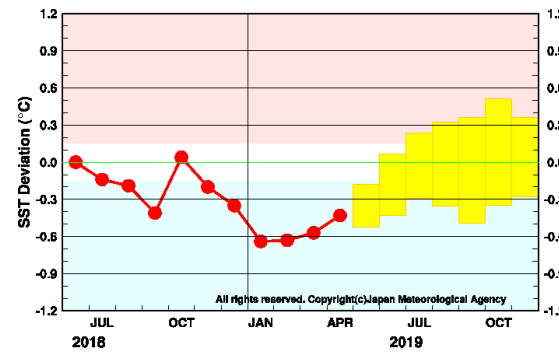
El Niño Outlook, 2019

El Niño conditions are likely (80%) to continue until boreal summer. It is more likely that El Niño conditions will continue until boreal autumn (60%) than that ENSO neutral conditions will return (40%).

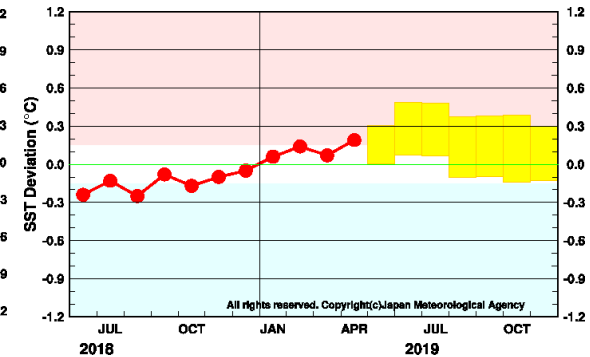
- The NINO.WEST SST is likely to gradually approach near normal from boreal spring to summer and to be near normal in autumn.
- The IOBW SST is likely to be above normal or near normal from boreal spring to autumn.



NINO.3



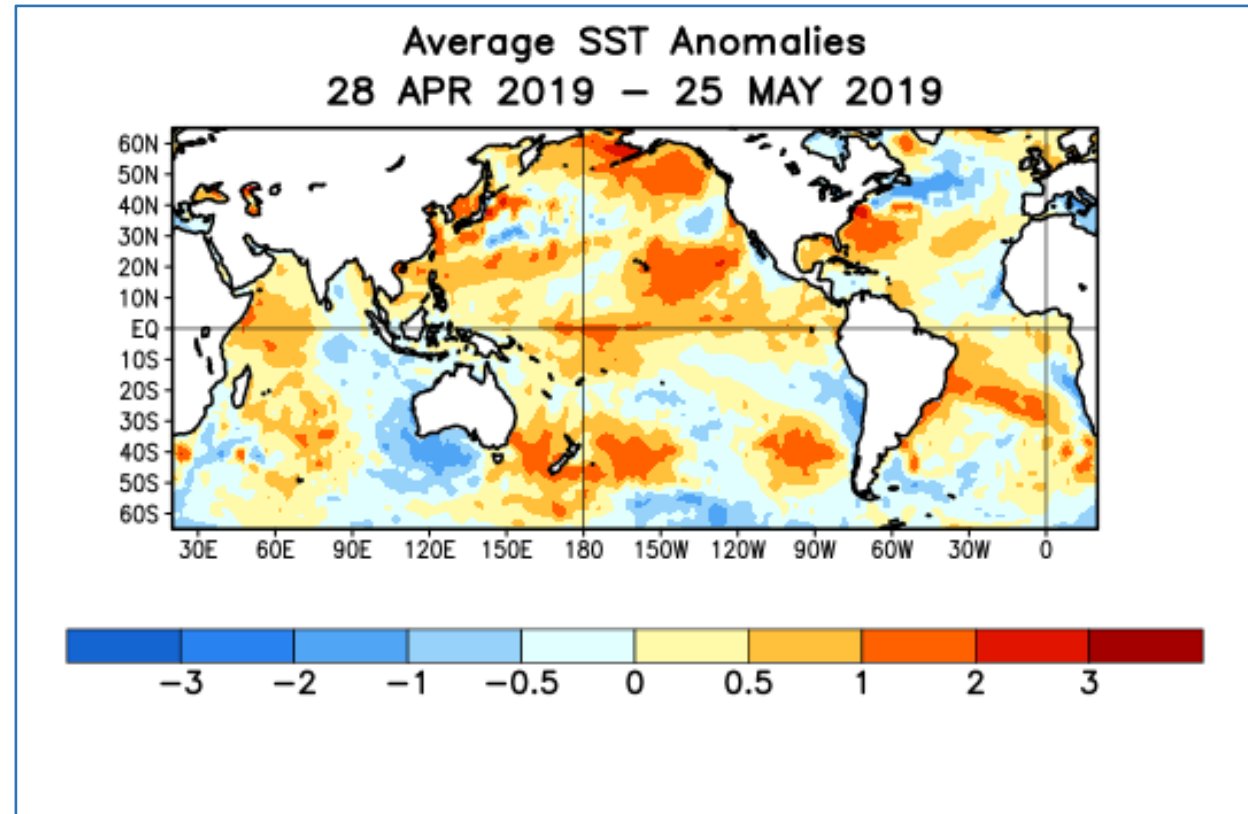
NINO.WEST



IOBW

Global SST Departures (oC) During the Last Four Weeks

During the last four weeks, equatorial SSTs were above average across most of the Pacific Ocean and western Indian Ocean. SSTs were near-to-below average near Indonesia and the eastern Indian Ocean.

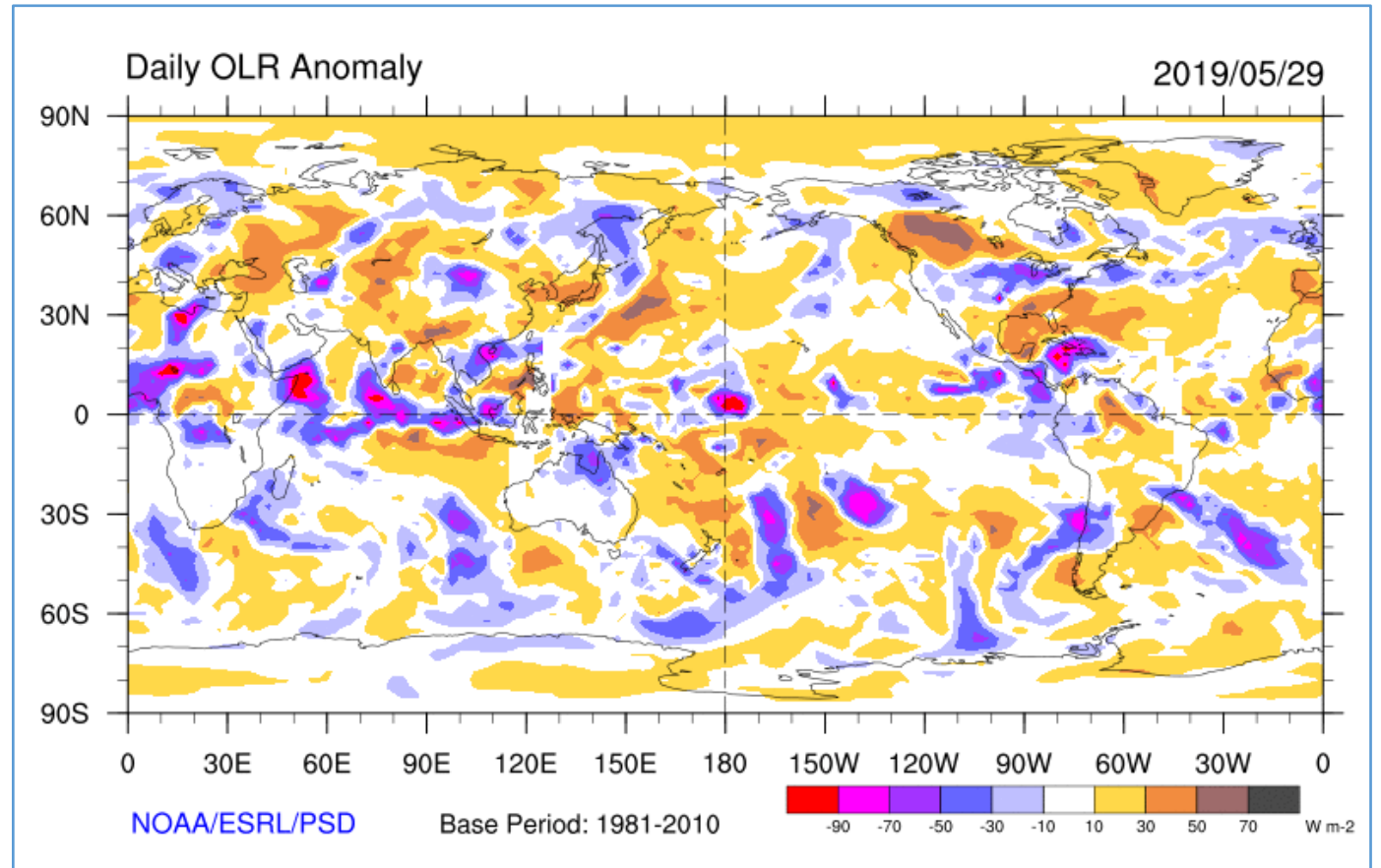


Outgoing Longwave Radiation (OLR) Observation (Temperature Observe from Space)

Daily Average OLR Anomaly in 29 May 2019 :

The Negative LOR is indicative of enhanced active convection and hence more cloud coverage over Cambodia, Viet Nam, Lao PDR, Thailand and Golf of Thailand.

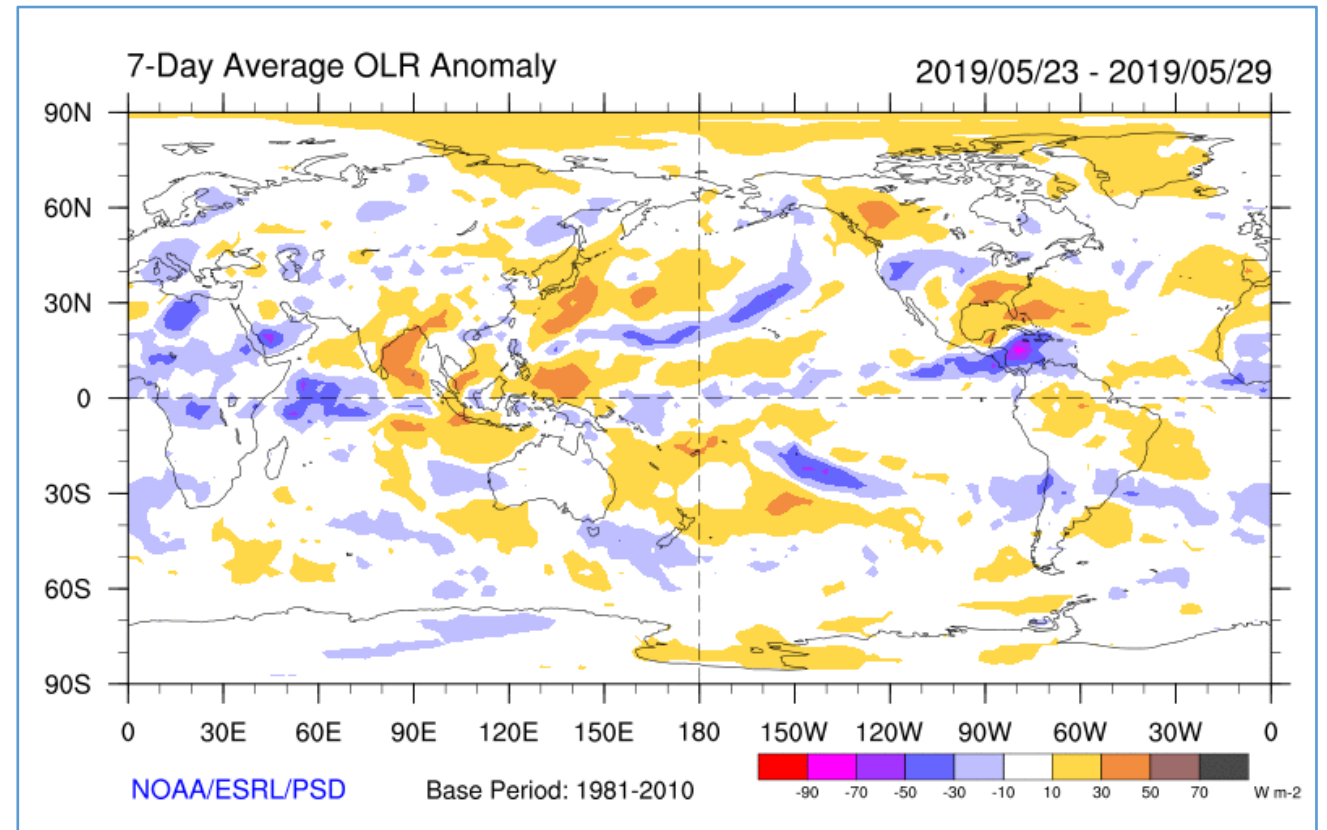
And the Positive LOR suppress convection (Cloud) over South China sea.



Outgoing Longwave Radiation (OLR) Observation (Temperature Observe from Space)

7 Days Average OLR Anomaly 23-29 May 2019 :

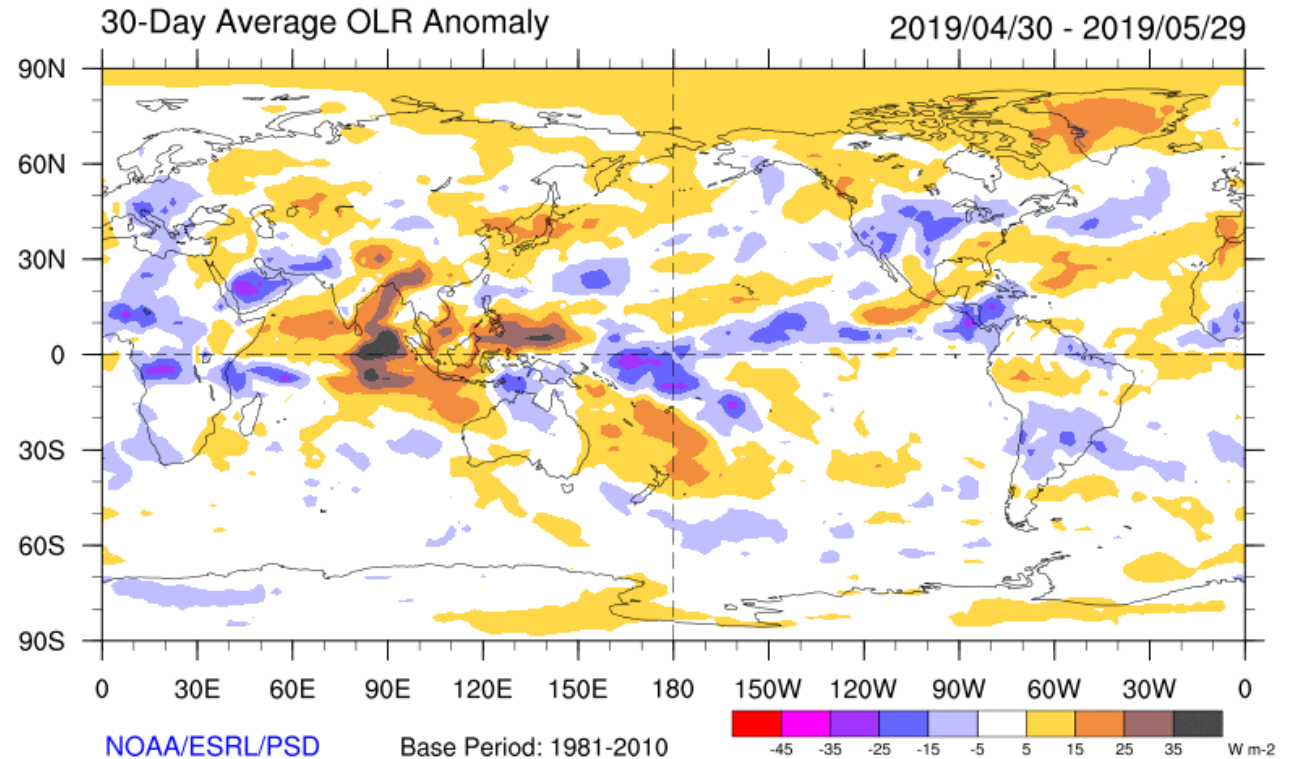
- The neutral LOR indicated Convective activity is in the normal condition over Cambodia, North part of Viet Nam, Lao PDR, Thailand, Andaman Sea and Gulf of Thailand.
- And the Positive LOR suppress convection (Cloud) over South China sea.



Outgoing Longwave Radiation (OLR) Observation (Temperature Observe from Space)

30 Days Average OLR Anomaly 30 April – 29 May, 2019 :

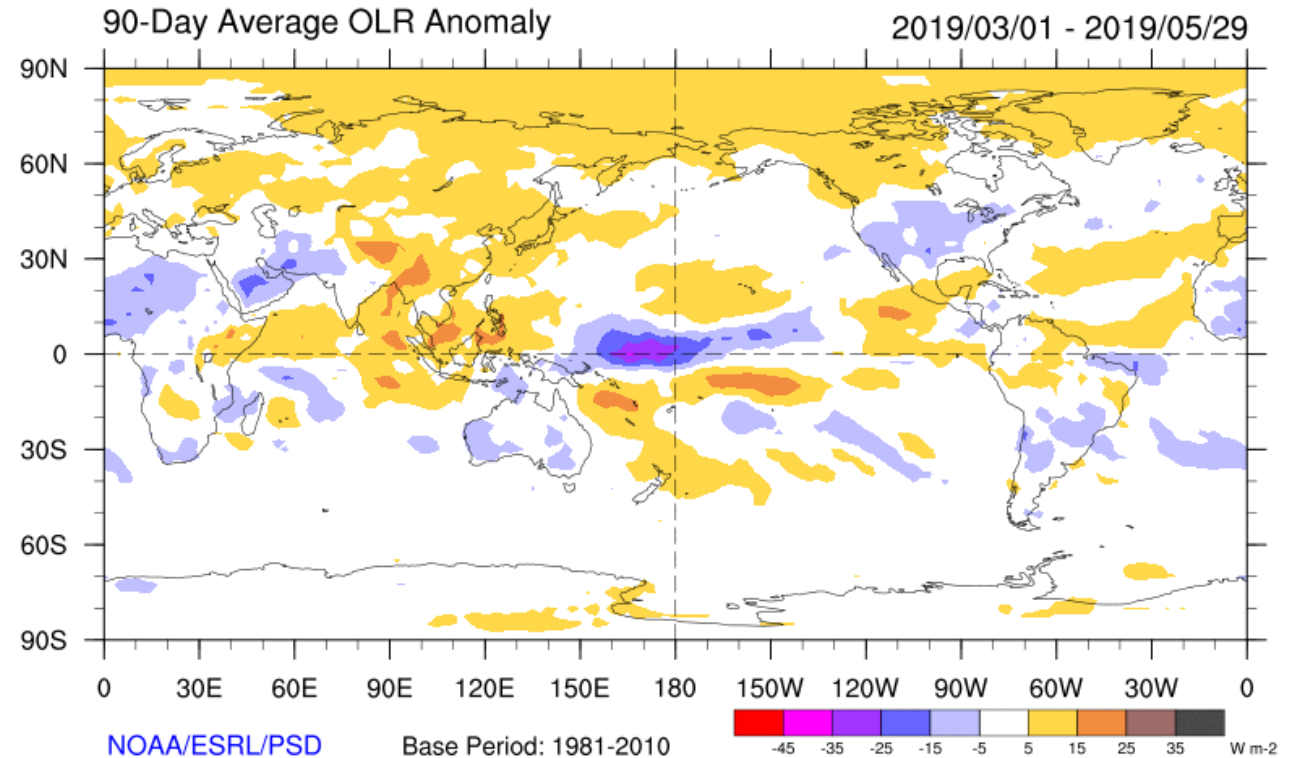
- The neutral LOR indicated Convective activity is in the normal condition over Northwest part of Cambodia, North part of Viet Nam, Lao PDR, Thailand, and Andaman Sea.
- And the Positive LOR suppress convection (Cloud) over South China sea and Gulf of Thailand.



Outgoing Longwave Radiation (OLR) Observation (Temperature Observe from Space)

30 Days Average OLR Anomaly 30 April – 29 May, 2019 :

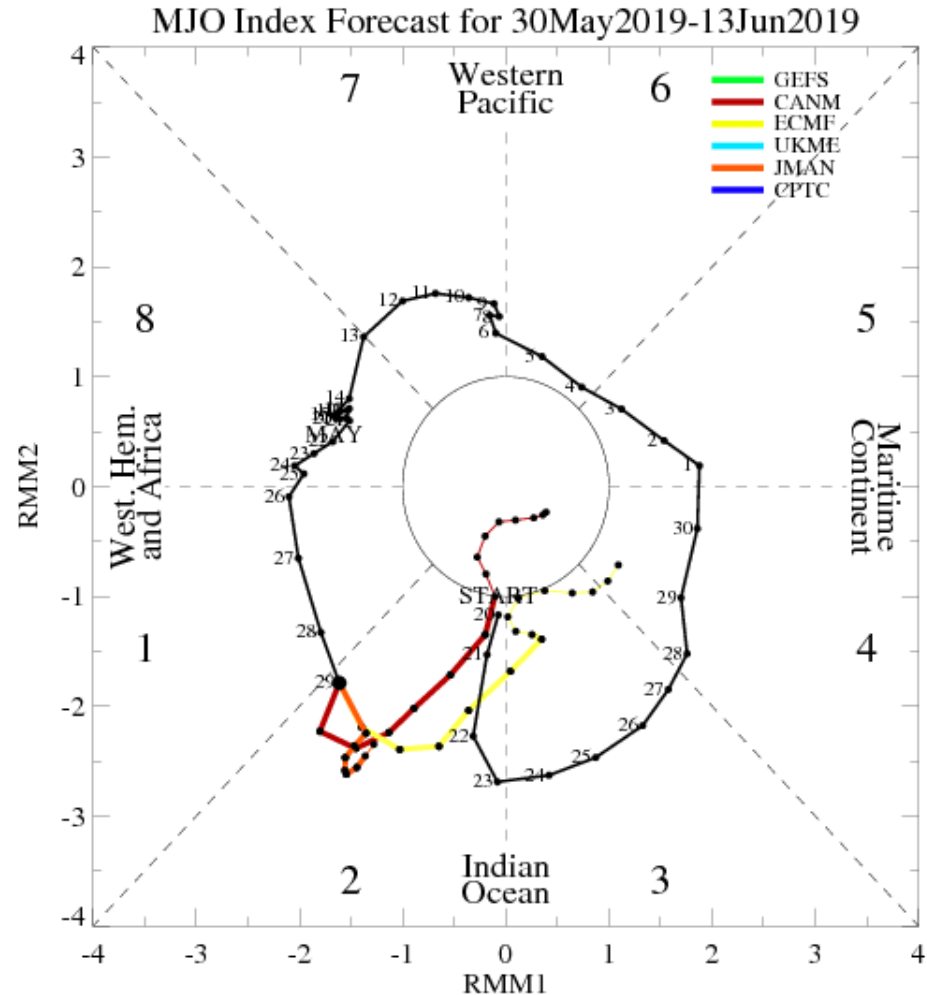
- The neutral LOR indicated Convective activity is in the normal condition over Northwest part of Cambodia, North part of Viet Nam, Lao PDR, Thailand, and Andaman Sea.
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Madden-Julian Oscillation (MJO) Status

Madden-Julian Oscillation (MJO)
Status:

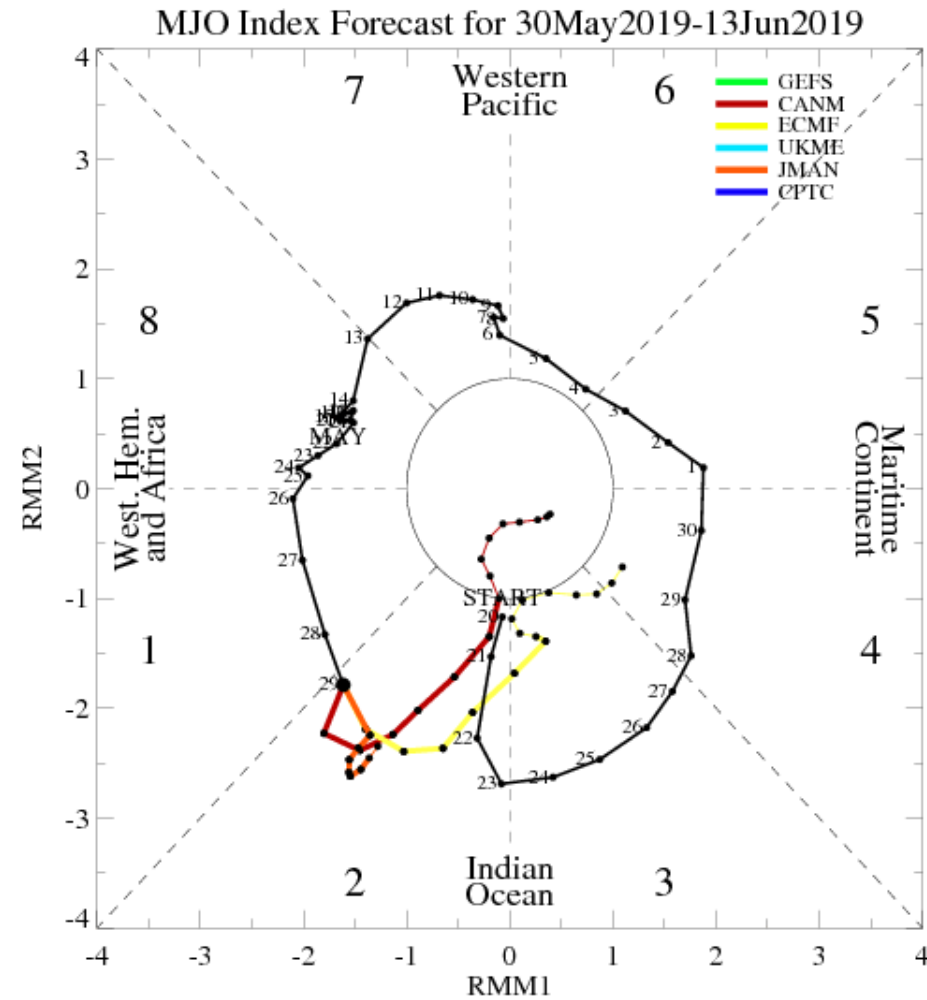
- Since 29 April to 29 May the Madden-Julian Oscillation (MJO) is stat in phase 4, 5, 6,7, 8 and phase 1 enhanced convection (rainfall) over Maritime continent Indonesia and over the western Pacific Region (Cambodia, Lao PDR, Vietnam, Philippines, Japan, China, Malaysia, Australia, Brunei Darussalam, Cook Islands, Fiji, Kiribati, Marshal Islands, Micronesia, Mongolia, Nauru, New zealand, Ninue, Palau, Papua New Guinea, Republic of Korea, Samoa, Singapore, Solomon Islands, Tokelau, Tonga, and Tuvalu), and the Western Indian Ocean.



Sources : Climate Prediction Centre NOAA

Madden-Julian Oscillation (MJO) Status

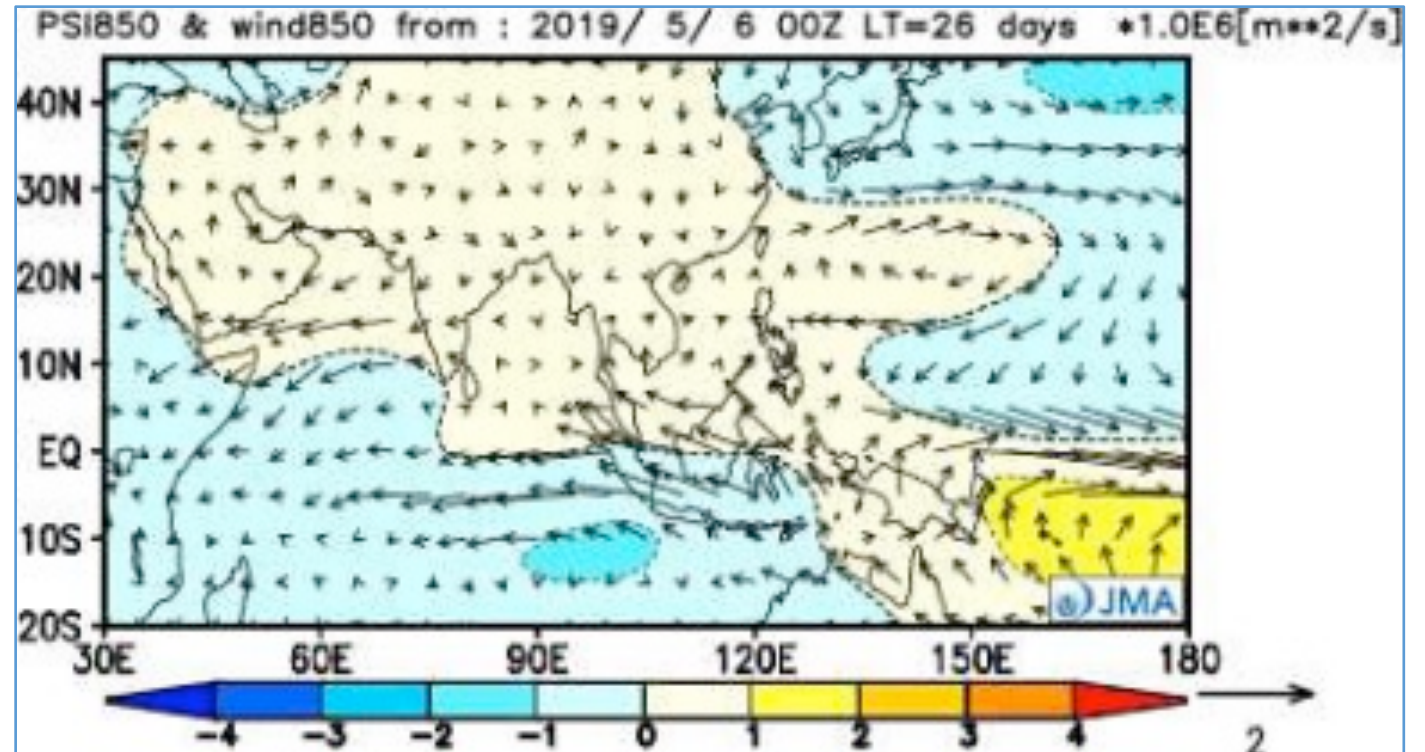
In 2019, June 01- 11, MJO will move slowly eastwards to phase 2 and 3 enhance convection (rainfall) over Africa, the Indian Ocean and part of the Indian Subcontinent, and will move forward to phase 4 from in 12 June enhance convection (Rainfall) over the Philippines, and Papua New Guinea.



Sources : Climate Prediction Centre NOAA

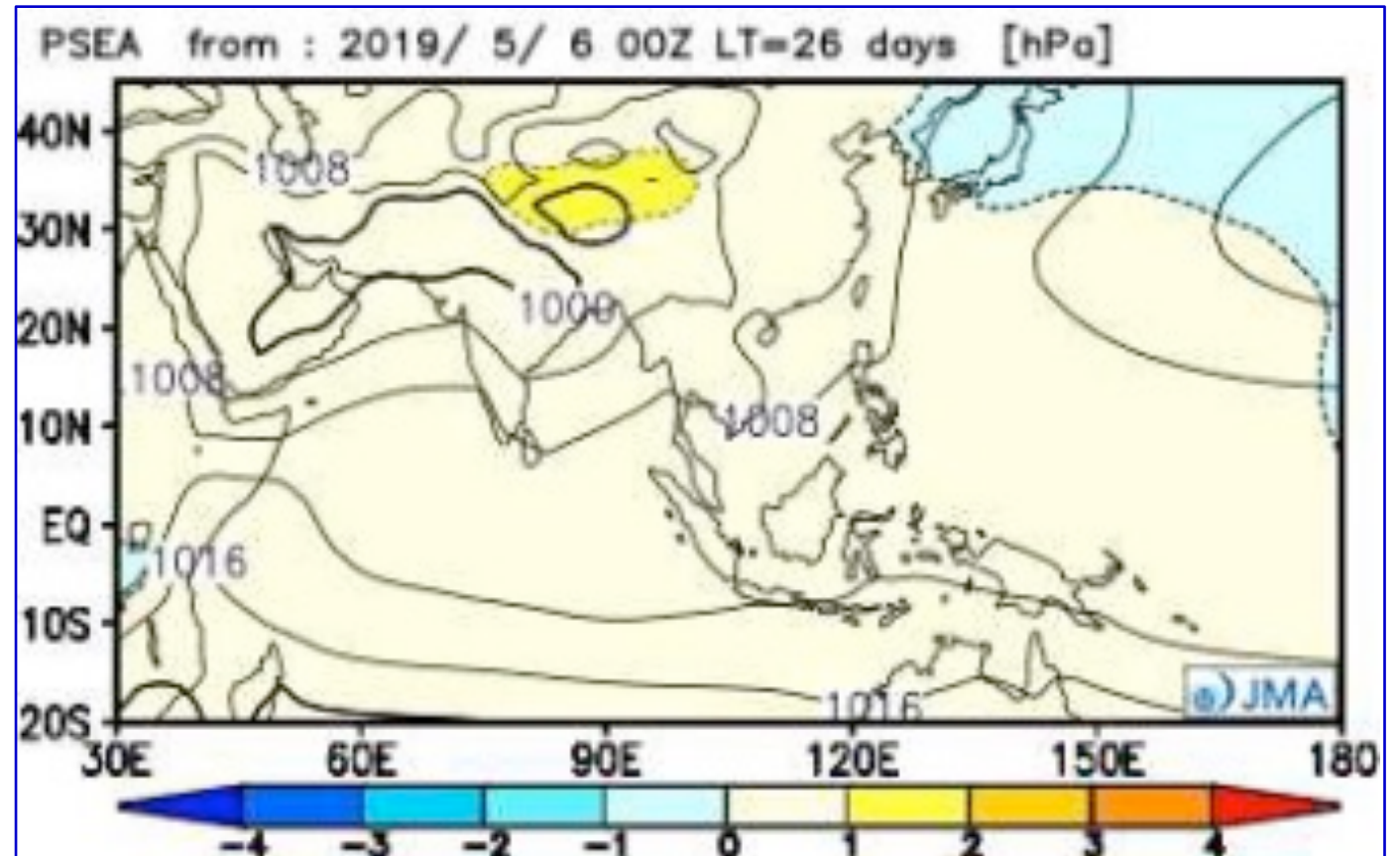
June-July-August 2019 Asian Circulation

In the 850-hPa stream function field, anti-cyclonic anomalies straddling the equator are predicted over the eastern tropical Indian Ocean. Anti-cyclonic anomalies are also predicted over the seas east of the Philippines.



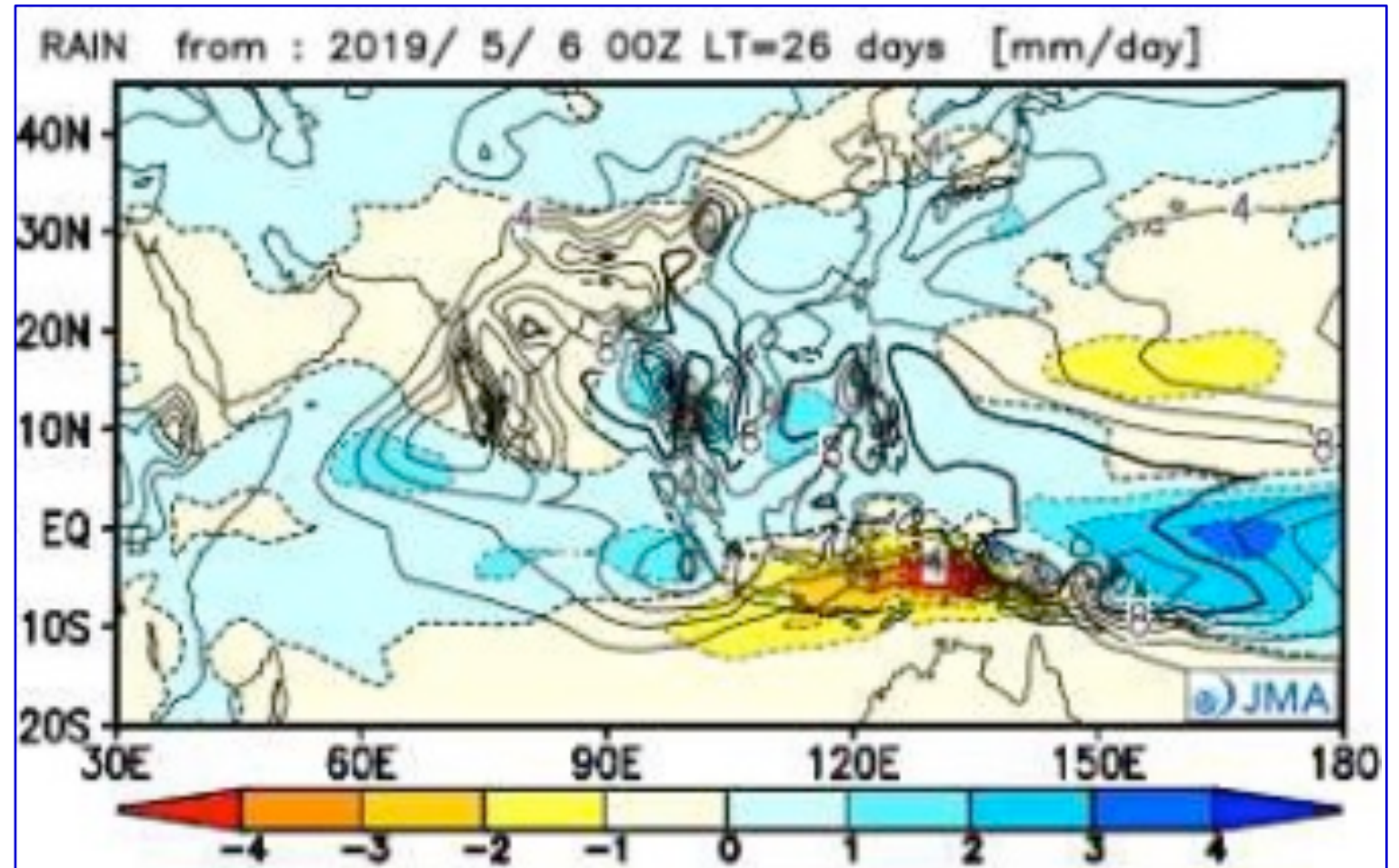
June-July-August 2019 Asian Circulation

In the sea level pressure field, positive anomalies are predicted over a large part from the Indian Ocean to the western tropical Pacific.



June-July-August 2019 Asian Circulation

- Above-normal precipitation is predicted over the seas east of New Guinea and from the northern part of Southeast Asia to the southeastern part of East Asia.
- Below-normal precipitation is predicted over the southern part of Southeast Asia and over the seas east of the Philippines.

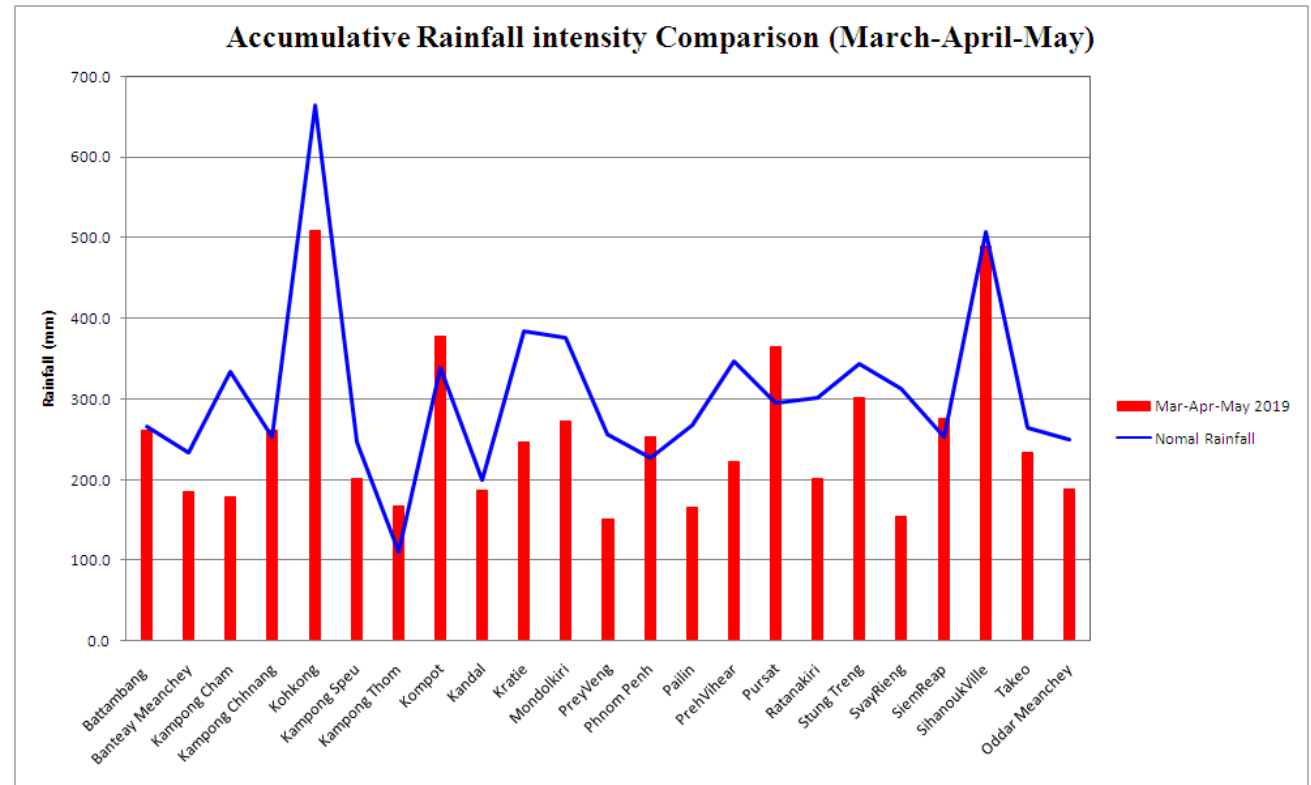


Accumutive Rainfall Comparison Mar-April-May Between Observation and Normal Rainfall

March-April-May 2019

-Above Normal : 5 provinces (town) such as Kampot, Kampong Thom, Phnom Penh, Pursat, and Siemreap.

- Below Normal : Koh Kong, Sihanouk Vill, Kampong Speu, Oddar Meanchey, Banteay Meanchey, Pailin, Battambang, Kampong Chhnang, Takeo, Kandal, Prey veng, Svay Rieng, Kampong Cham, Tbong Khmum, Kratie, Mondul Kiri, Rattana Kiri, Stung Treng and Preah Vihear.



Rainfall Climatology of Cambodia during the month of June

Base on the average of rainfall data for **June** from 30 years' climatological data (1985-2015) indicate that:

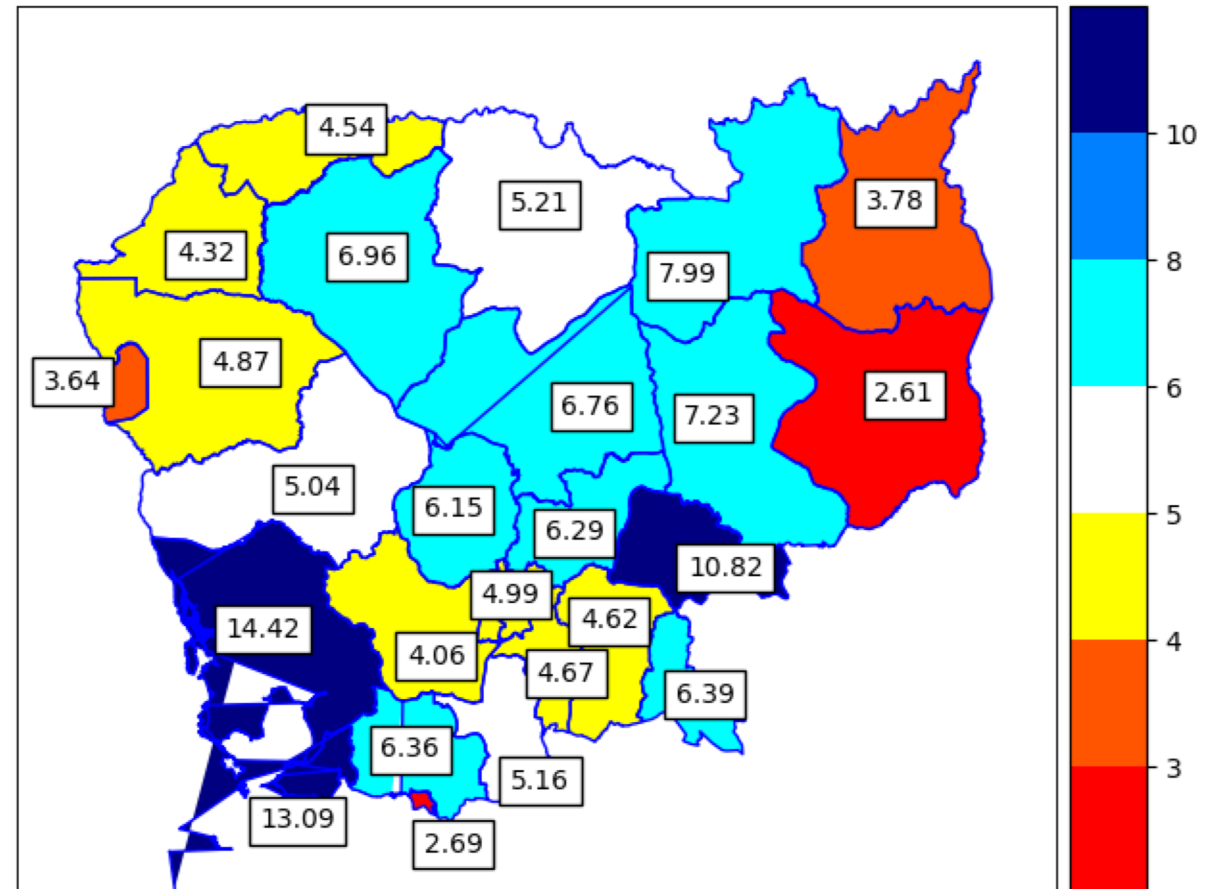
- Heavy to very heavy rain is generally occurring over most of the southern provinces such Koh Kong, Preah Sihanouk Ville, Tbong Khmum.

- Moderate to Heavy rain in Kampot, Svay rieng, Kampong cham, Kampong chhnang, Kampong Thom, Kratie, Stung Treng, Preah Vihear, Siem Reap, Pursat and Takeo.

- Moderate rain in Kampong Speu, Kandal, Phnom Penh, Prey Veng, Battam Bang, Banteay Meanchey and Oddar Meanchey.

Less rain in Pailin, Kep, Mondul Kiri and Rattanak Kiri.

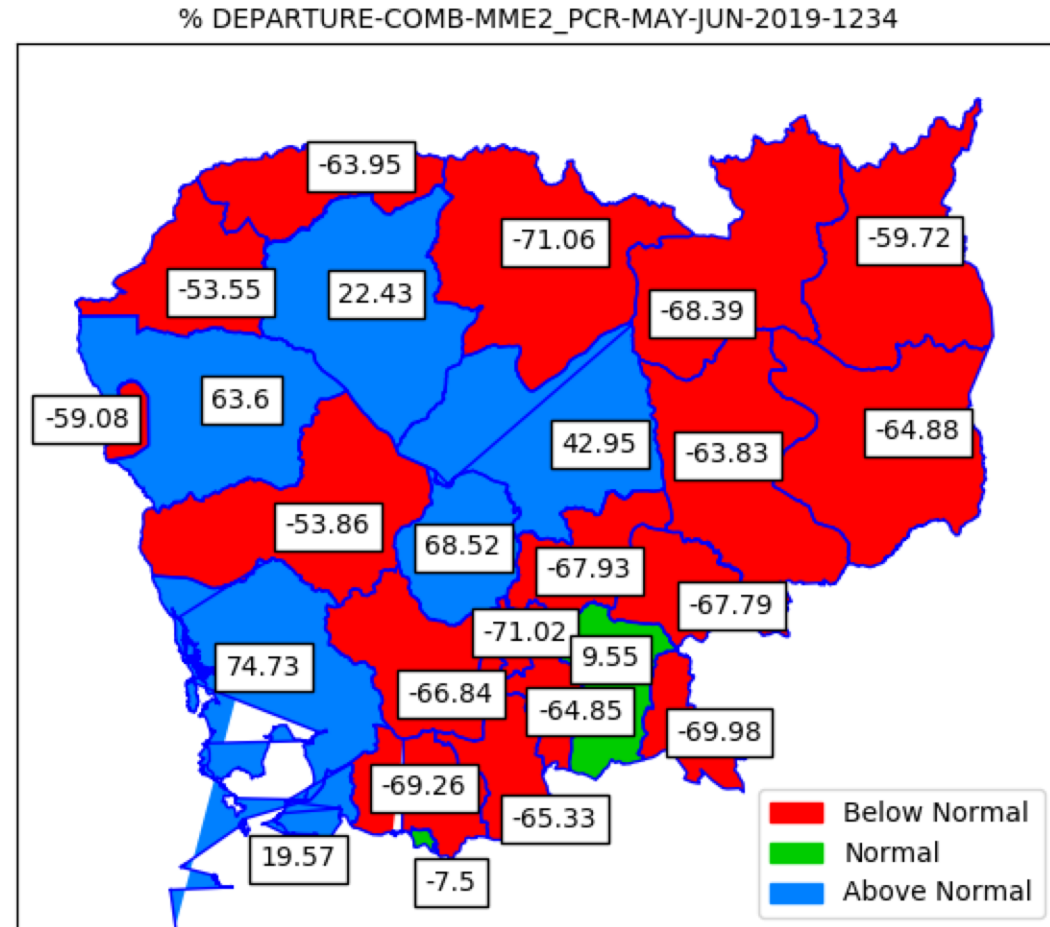
OBS-CLIMATOLOGY-MAY-JUN-1985-2015



Departure/Deterministic forecast for June

From the climatological rainfall mean, we expected that during **June 2019** the rainfall situation is likely to be:

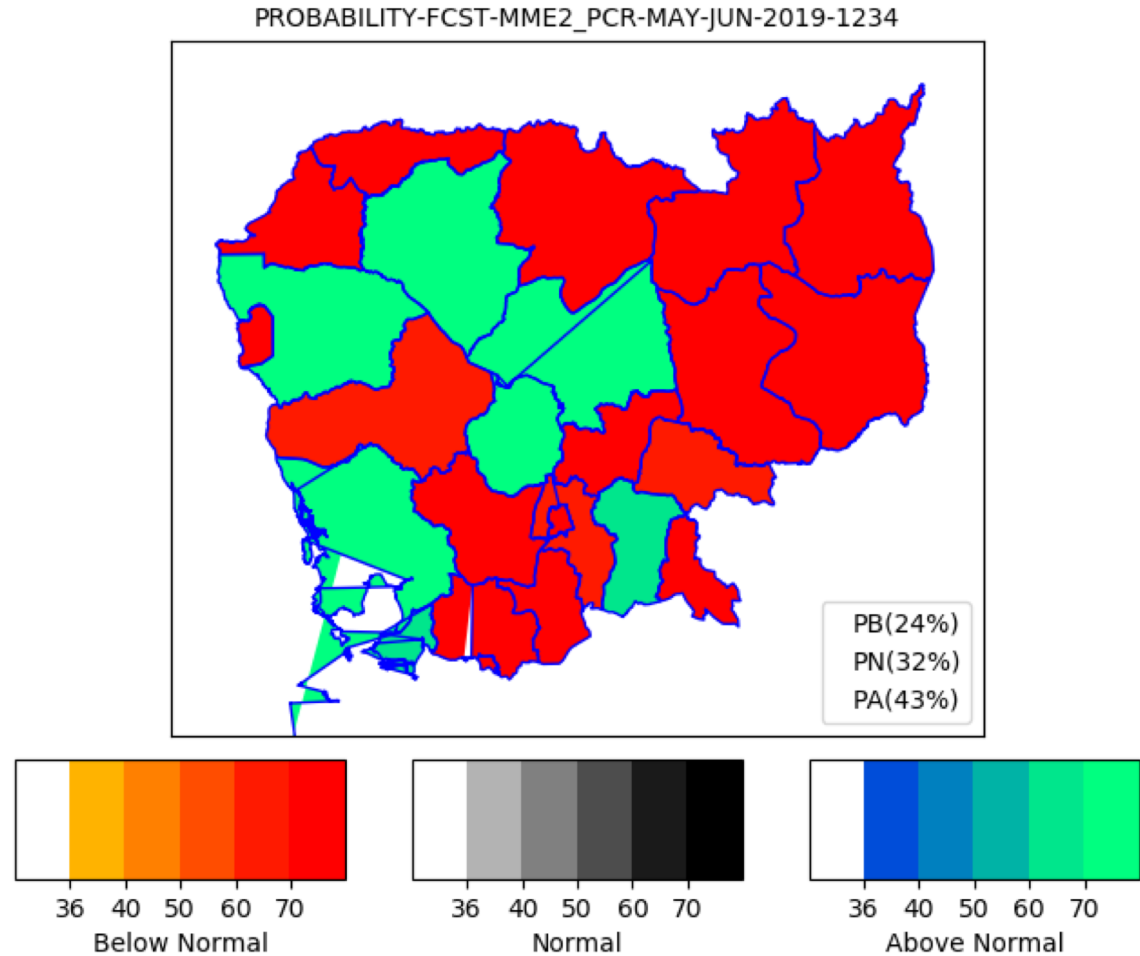
- **Wetter than normal** in Koh Kong, Sihanouk Vill, Kampong Chhnang, Kampong Thom, Siem Reap and Battambang
- **Normal** rain in Prey Veng and Kep
- **Dryer than normal** in Pailin, Pursat, Kampong Speu, Kampot, Takeo, Phnom Penh, Kandal, Kampong Cham, Tbong Khmum, Svay Rieng, Kratie, Rattanak Kiri, Mondol Kiri, Stung Treng Preah Vihear, Oddar Meanchey and Banteay Meanchey



Probabilistic forecast for June (Based on the MME Forecast)

Above Normal for Koh Kong, Sihanouk Ville, Prey Veng, Kampong Chhnang, Kampong Thom, Siem Reap and Battambang.

Below Normal for Kam pot Kep, Takeo, Kampong Chhnang, Pursat, Pailin, Phnom Penh, Kandal, Svay Rieng, Kampong Cham, Tbong Khmum, Kratie, Mondol Kiri, Stung Treng, Rattanak Kiri, Preah Vihear, Oddar Meanchey and Banteay Meanchey.



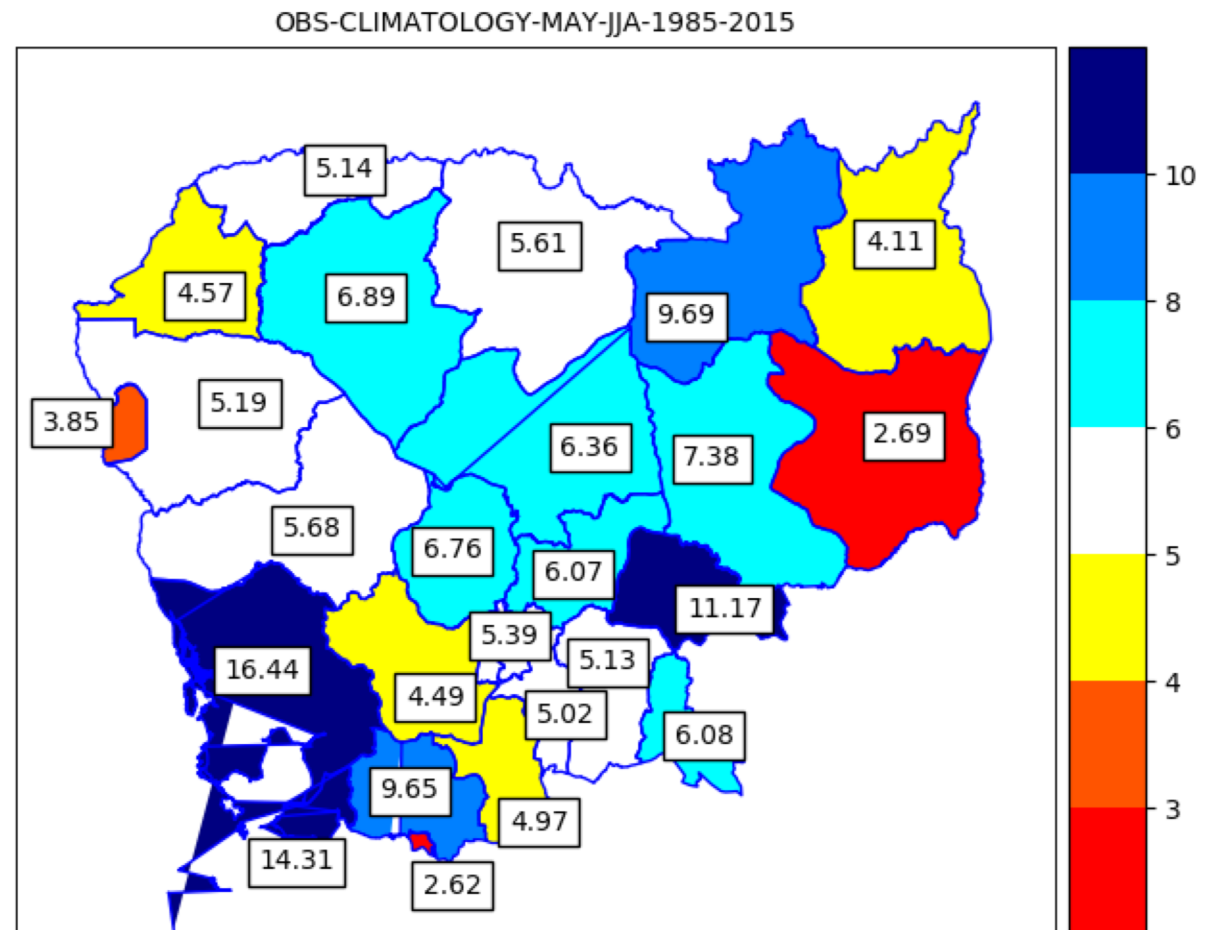
Seasonal Outlook for June-July-August

Climatology for June-July-August (JJA)

During the period of June-July and August, coastal area normally receives maximum rainfall which contributes approximately about 50% of total annual rainfall for the region, in the influence of the southwest monsoon.

Other provinces including low land area receives significant amount of rain during this period as well, with the combined influence of the Inter tropical convergence zone (ITCZ) and the SW monsoon during July and August.

Dry spells, normally occur during July and continues till August.



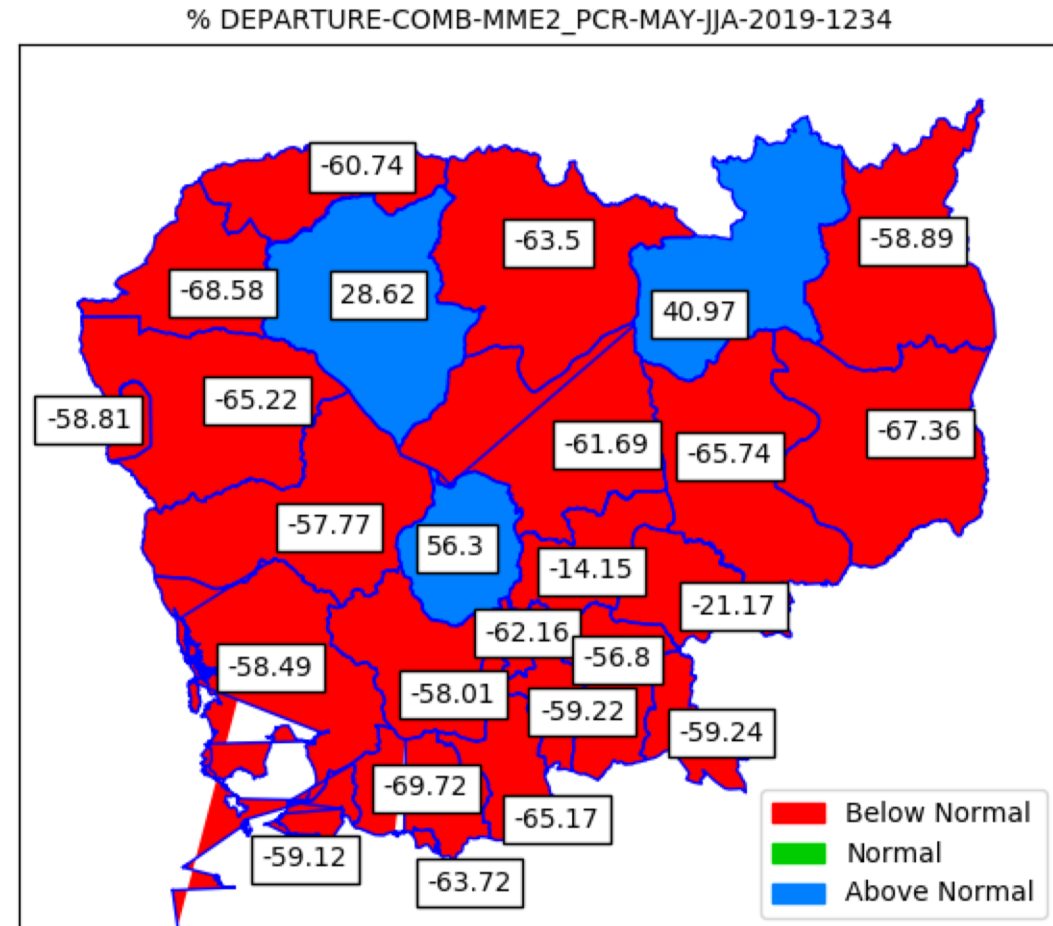
Departure/Deterministic forecast for June-July-August

From the climatological rainfall mean, we expected that during **JJA 2019** the rainfall situation is likely to be:

Wetter than normal

condition for Siem Reap, Kampong Chhnang and Stung Treng

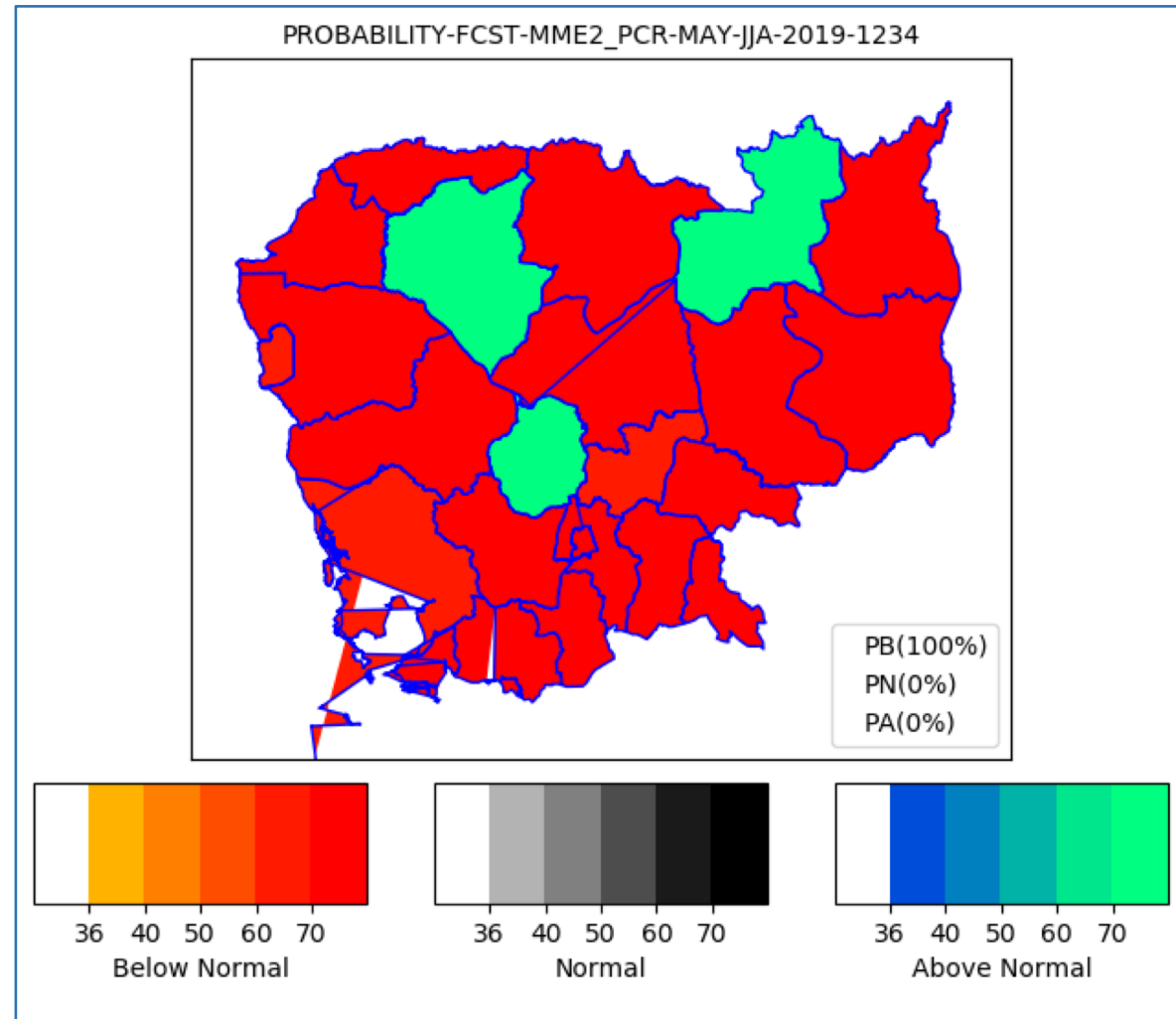
Drier than Normal for most of the other part of the country.



Probabilistic forecast for June-July-August (JJA)

From the probabilistic forecast product, forecast that rainfall amount over the country during JJA, 2019 is likely to be:

- **Above Normal** for Siam Reap, Kampong Chhnang and Stung Treng.
- **Below Normal** for Kam pot Kep, Takeo, Pursat, Pailin, Phnom Penh, Kandal, Svay Rieng, Kampong Cham, Tbong Khmum, Kratie, Mondol Kiri, Stung Treng, Rattanak Kiri, Preah Vihear, Oddar Meanchey, Koh Kong, Sihanouk Ville, Prey Veng, Kampong Thom, Battambang and Banteay Meanchey.



Summary

- El Niño conditions are likely (80%) to continue until boreal summer. It is more likely that El Niño conditions will continue until boreal autumn (60%) than that ENSO neutral conditions will return (40%).
- During the last four weeks, equatorial **SSTs were above average across most of the Pacific Ocean and western Indian Ocean**. SSTs were near-to-below average near Indonesia and the eastern Indian Ocean.
- The Negative Outgoing Longwave Radiation (Temperature Observe from Space) indicated **active convection (Active Cloud)** over Cambodia, Viet Nam, Lao PDR, Thailand, Golf of Thailand during last 4 weeks of May 2019.

Prediction for June-July-August 2019 (JJA 2019)

- In June, the convection (rainfall) will enhance over Africa, the Indian Ocean and part of the Indian Subcontinent, A high probability of above-normal precipitation is predicted over the western tropical Indian Ocean, eastern equatorial Indian Ocean, and the seas east of New Guinea. A high probability of below-normal precipitation is predicted over the southern part of Southeast Asia and over the seas east of the Philippines.

- In Cambodia :

-Temperature will be warmer than normal in June, July and August 2019.

Prediction for June, 2019 :

- Above Normal Rainfall :

Koh Kong, Sihanouk Vill, Oddar Meanchey, Banteay Mean Chey, Siem Reap, Battambang,

- Normal Rain fall :

Pailin, Pursat, Kampong Speu, Takeo, Phnom Penh, Kandal, Prey Veng, Svay Rieng, Kampong Thom,

Tbong Khmum, Kampong Cham, Kratie, Mondul Kiri, Kep, Kampot,

- Below Normal : Preah Vihear, Stung Treng, Rattana Kiri,

Prediction for June-July-August 2019 (JJA 2019)

- Normal Rainfall in July, and
- Dry spell will occur in the third week of July due to expect that weak monsoon and low convection over Indochina Peninsula.
- Above Normal in August 2019.
- Thunderstorm will increase in June, July, and August 2019.

RECOMMENDATION

- Please find the update seasonal prediction and information every month on [MOWRAM Facebook](#) and Meteorology Website : cambodiameteo.com
- Agriculture and Water Resources Sectors are advised to take necessary actions during dry spell period, and Flash Flood event.
- Health Sectors are advised to take a necessary prevention from heat impact and Flood event.
- All Sectors related should take consideration and fast action during the sever weather event.

**Thank You
For Your Attention!**