

**Week of  
4 - 11 June  
2021**

**CLIMATE MONITORING AND PREDICTION FOR SRI LANKA**

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**HIGHLIGHTS**

**Rainfall Prediction**



- Extremely heavy rainfall of 145 mm expected in Western & Sabaragamuwa provinces during 3<sup>rd</sup> – 9<sup>th</sup> June.

**Monitored Rainfalls**



- Dangerously heavy rainfall was experienced in Western, Sabaragamuwa & Central provinces with a max of 327 mm in Kalutara on 3<sup>rd</sup> June.

**Monitored Wind**



- From 19<sup>th</sup> - 25<sup>th</sup> May: up to 15 km/h from the West and South were experienced.

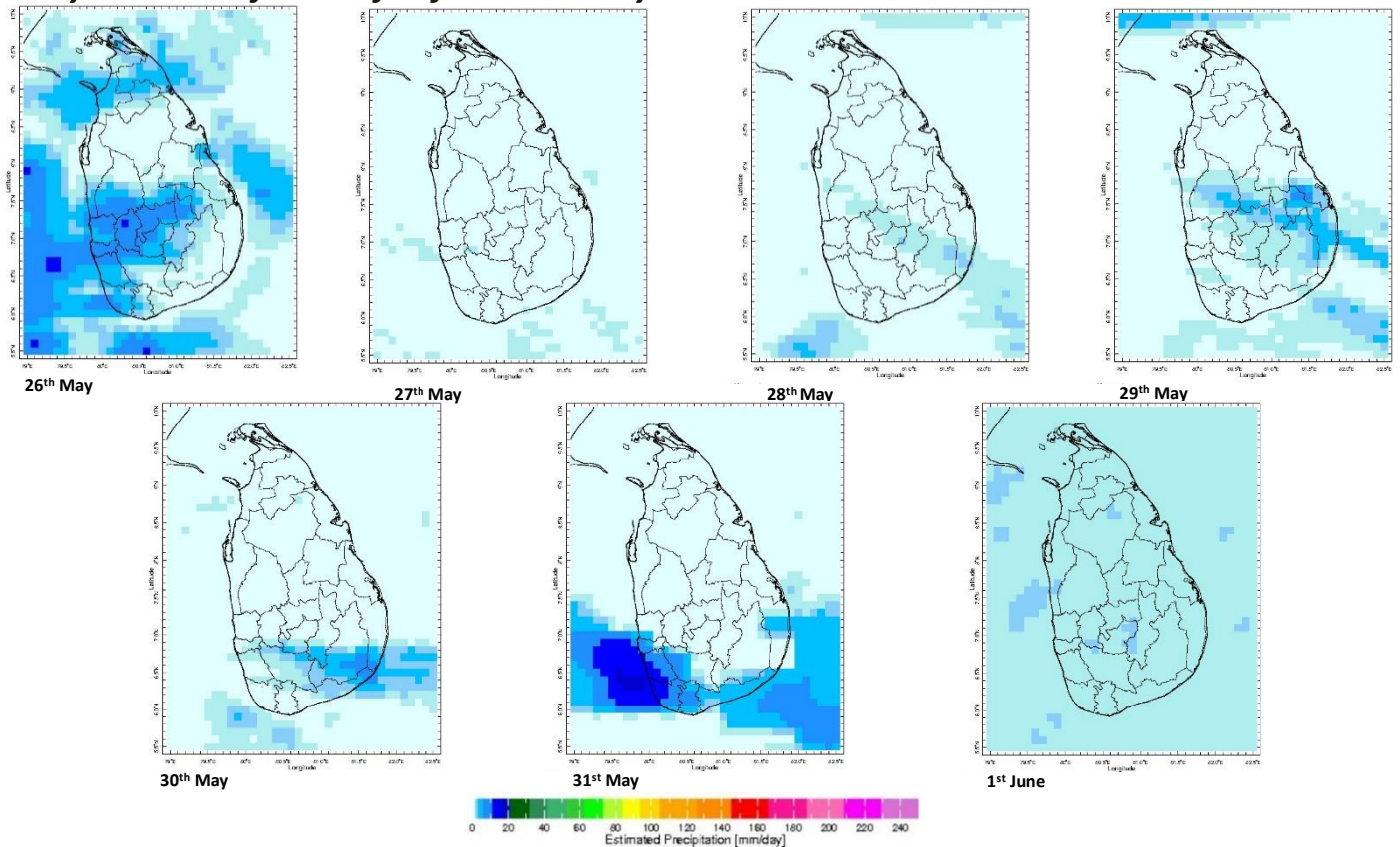
**Monitored Sea Surface**



- Sea surface temperature was observed above 0.5 °C to the south of Sri Lanka and neutral to the north.

**Monitoring  
Rainfall**

**Daily Estimates for Rainfall from 26<sup>th</sup> May – 1<sup>st</sup> June**





## Federation for Environment, Climate and Technology

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### Total Rainfall for the Past Week

The RFE 2.0 tool shows 7-day total Cumulative rainfall by Districts:

Rainfall	Districts
25 – 50 mm	Ratnapura, Colombo, Kalutara, Kegalle, Nuwara Eliya, Galle, Matara
10 – 25 mm	Gampaha, Kandy, Matale, Kurunegala, Puttalam, Hambantota, Badulla, Moneragala, Ampara, Anuradhapura, Kilinochchi, Vavuniya, Mullaitivu, Mannar
5 – 10 mm	Polonnaruwa, Batticaloa, Trincomalee, Jaffna

Weekly Rainfall Anomalies by Districts:

#### Rainfall Excess

Rainfall	Districts
10 – 25 mm	Mullaitivu

#### Rainfall Deficit

Rainfall	Districts
25 – 50 mm	Kalutara, Colombo, Gampaha, Galle, Puttalam, Kurunegala, Ratnapura, Kegalle, Nuwara Eliya, Kandy
10 – 25 mm	Matara, Hambantota, Moneragala, Badulla, Ampara, Polonnaruwa, Batticaloa

There was no rainfall throughout the week in the remaining districts.

### Monthly Monitoring

During early and middle of the May, Dekadal Rainfall (mm/day) by Districts:

#### 11<sup>th</sup>– 20<sup>th</sup> May:

Rainfall	Districts
14 mm	Puttalam, Kurunegala, Gampaha, Colombo
12 mm	Kalutara, Ratnapura, Kegalle
10 mm	Galle, Matara
8 mm	Jaffna, Kilinochchi, Polonnaruwa, Trincomalee, Batticaloa, Ampara, Badulla, Moneragala, Kandy, Nuwara Eliya, Hambantota
6 mm	Mullaitivu, Vavuniya, Anuradhapura, Matale
4 mm	Mannar

#### 21<sup>st</sup>– 31<sup>st</sup> May:

Rainfall	Districts
12 mm	Puttalam, Kurunegala, Gampaha, Colombo, Kurunegala, Kegalle, Ratnapura,
10 mm	Galle, Matara, Nuwara Eliya, Kandy,
6 mm	Badulla, Moneragala, Hambantota, Matale, Jaffna, Kilinochchi
4 mm	Polonnaruwa, Anuradhapura, Ampara, Batticaloa



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### Ocean State (Text Courtesy IRI)

#### **Pacific sea state: May 26, 2021**

Equatorial SSTs were below average in parts of the eastern Pacific Ocean and near average across the rest of the Pacific Ocean in late May and most key atmospheric variables were ENSO –Neutral condition. A large majority of the model forecasts predict ENSO-neutral likely to continue through the Northern Hemisphere summer.

#### **Indian Ocean State**

Sea surface temperature was observed above 0.5°C to the south of Sri Lanka and neutral to the north.

## Predictions

### Rainfall

#### **14-day prediction: NOAA NCEP models**

**From 3<sup>rd</sup> – 9<sup>th</sup> June:**

Total rainfall by Provinces:

Rainfall	Provinces
145 mm	Western, Sabaragamuwa
115 mm	Southern, North western
105 mm	Central
75 mm	Uva
65 mm	North central
55 mm	Eastern
45 mm	Northern

**From 10<sup>th</sup> – 16<sup>th</sup> June:**

Total rainfall by Provinces:

Rainfall	Provinces
125 mm	Western, Sabaragamuwa
105 mm	North Western
95 mm	Southern
55 mm	Central, Uva
35 mm	North Central, Eastern
25 mm	Northern

### MJO based OLR predictions

**For the next 15 days:**

MJO shall suppress the rainfall during 4<sup>th</sup>–11<sup>th</sup> June and neutral during 12<sup>th</sup>– 16<sup>th</sup> June.



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## Interpretation Monitoring

**Rainfall:** During the last two weeks, there had been extremely heavy rainfall over the following provinces: Western, Sabaragamuwa and Central

**Wind:** West and South winds prevailed in the sea area and around the island. Due to a deep depression located in East Central Bay of Bengal that intensified into a cyclonic storm ("YAAS") on May 24<sup>th</sup> around 05:30 a.m.

**Temperatures:** The temperature anomalies were slightly above normal for the northern province the last – driven by the warm SST's.

## Predictions

**Rainfall:** During the next week (3<sup>rd</sup> – 9<sup>th</sup> June) extremely heavy rainfalls are predicted for Western, Sabaragamuwa and central provinces and; Galle and Matara districts. Heavy showers or thundershowers with a sudden increase in wind speed in sea areas around the island during the next week.

**Temperatures:** The temperature remains slightly normal for June. During 5<sup>th</sup> – 13<sup>th</sup> June, the temperature remains high especially the Northern, Eastern and Uva provinces and Hambantota District.

### Teleconnections:

- MJO shall suppress the rainfall during 4<sup>th</sup>–11<sup>th</sup> June and neutral during 12<sup>th</sup>– 16<sup>th</sup> June.
- La Nina -The SST forecast indicates that the La Niña event has transitioned to ENSO-neutral and will likely remain so through the boreal summer.

Tropical Climate Guarantee, Federation of Environment, Climate and Technology, Columbia University Water Center, <sup>1</sup> International Research Institute for Climate and Society, , Earth Institute at Columbia University, New York.



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## Weekly Climate Bulletin for Sri Lanka

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#### 2. Predictions

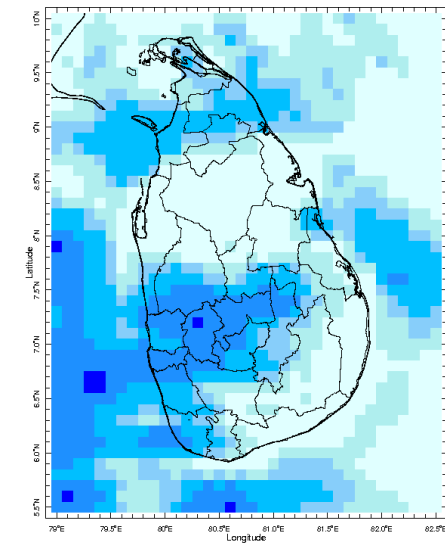
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
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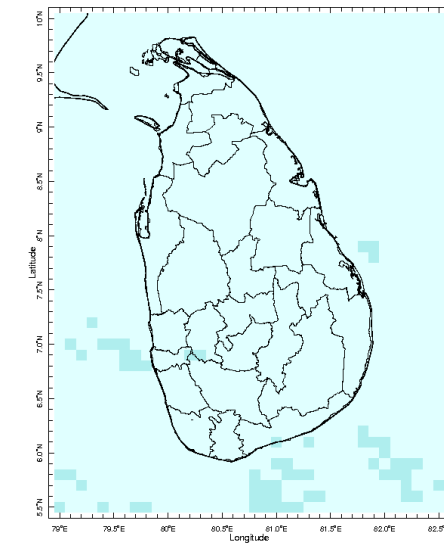
### MONITORING

#### Daily Rainfall Monitoring

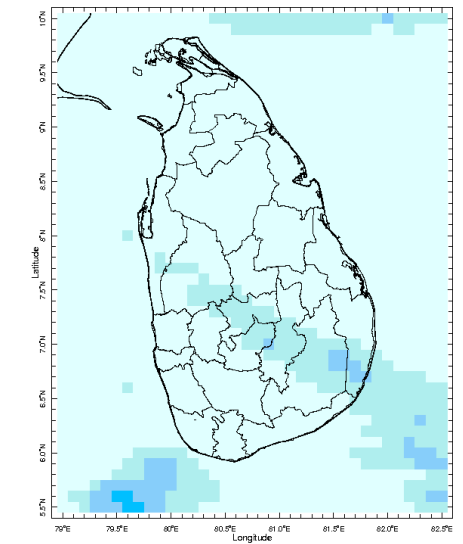
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



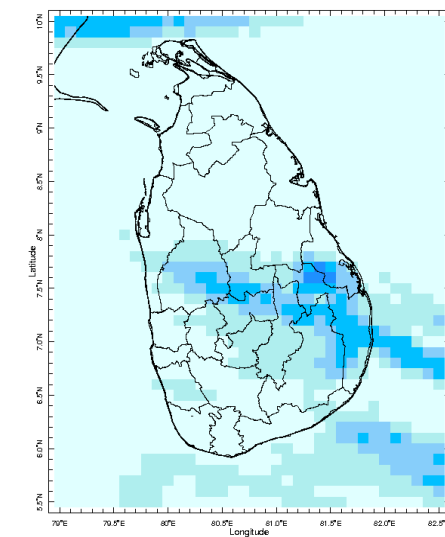
26 May 2021



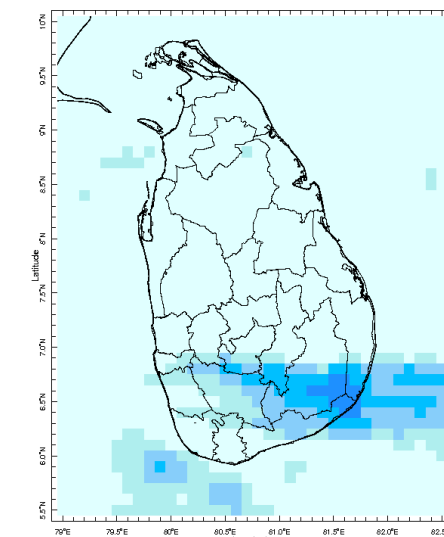
27 May 2021



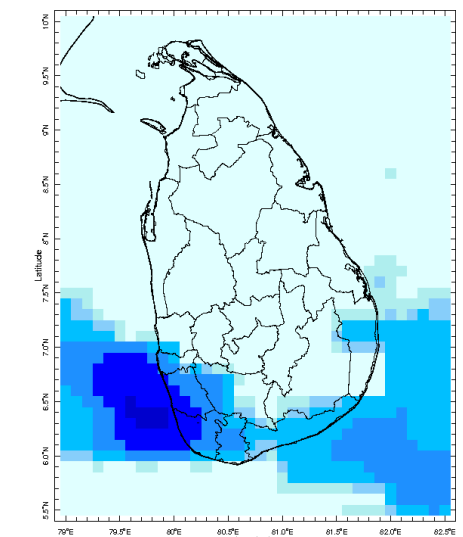
28 May 2021



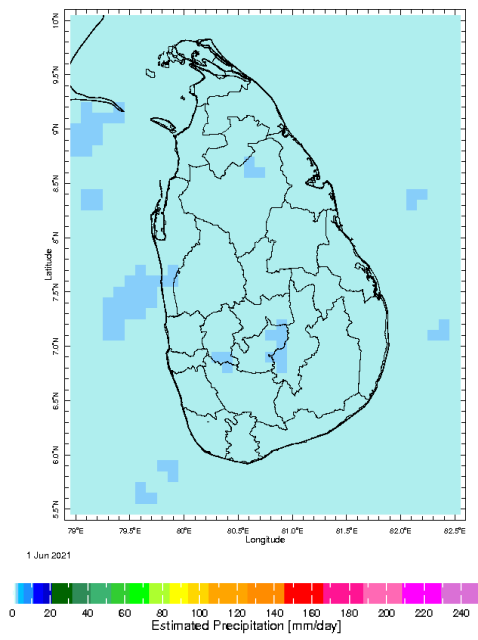
29 May 2021



30 May 2021

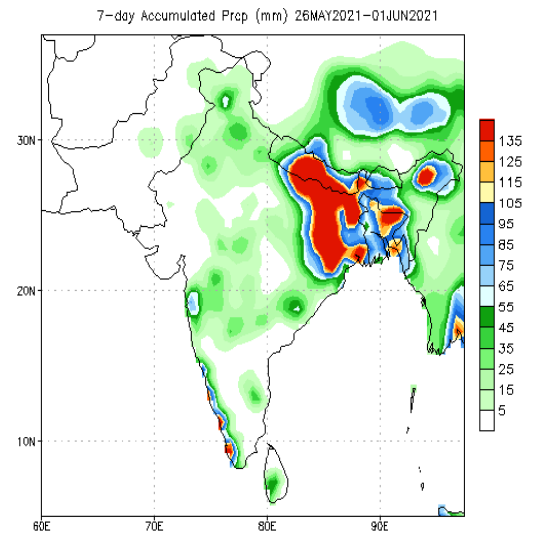


31 May 2021

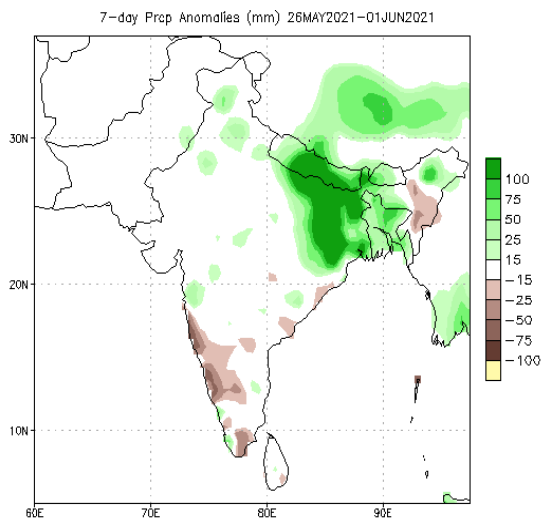
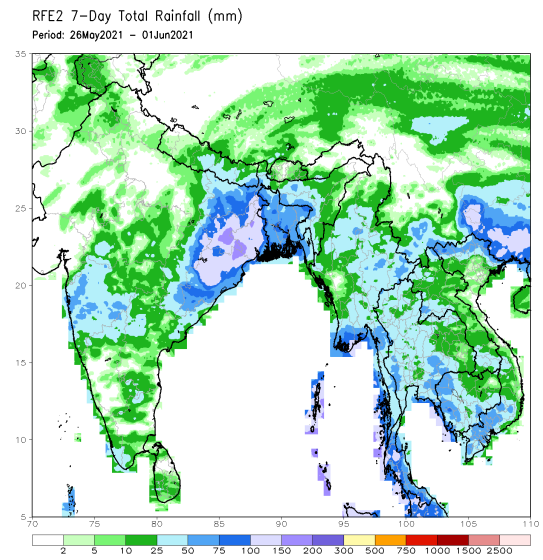


## Weekly Rainfall Monitoring

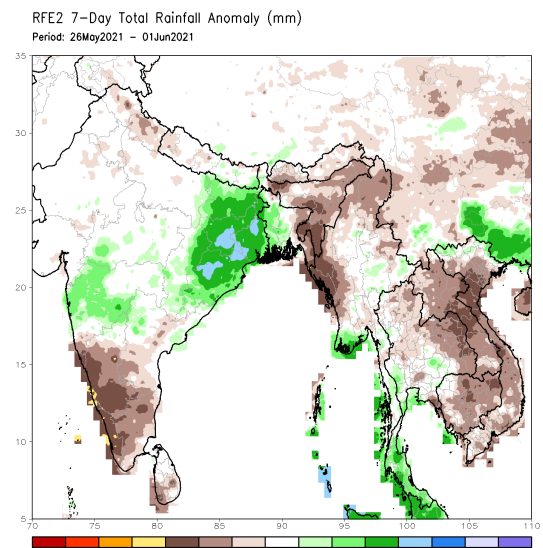
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite Rainfall Estimates. The bottom two figures are the respective anomalies.



Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



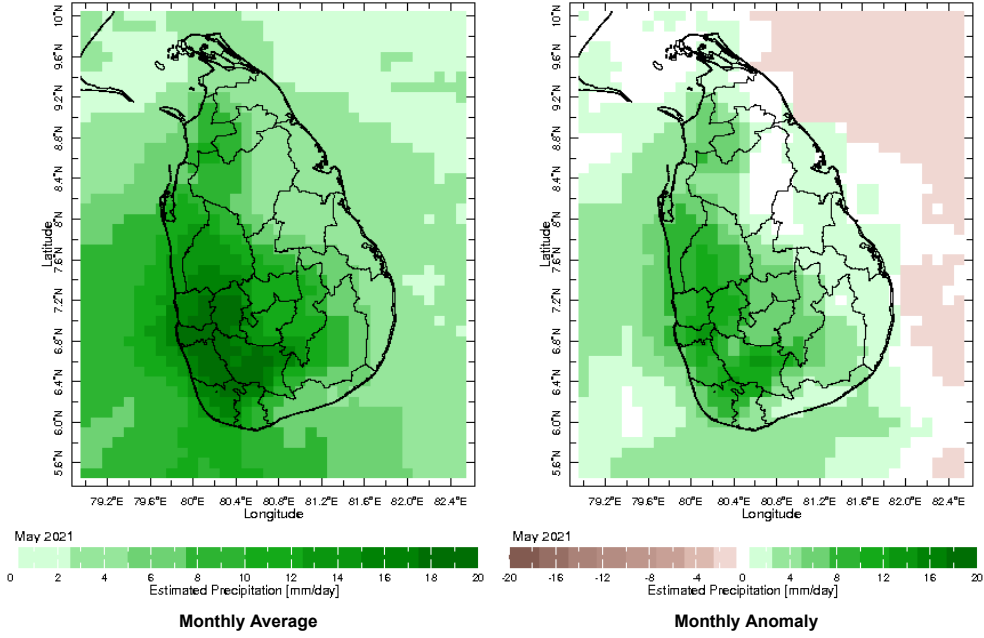
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1981-2010)



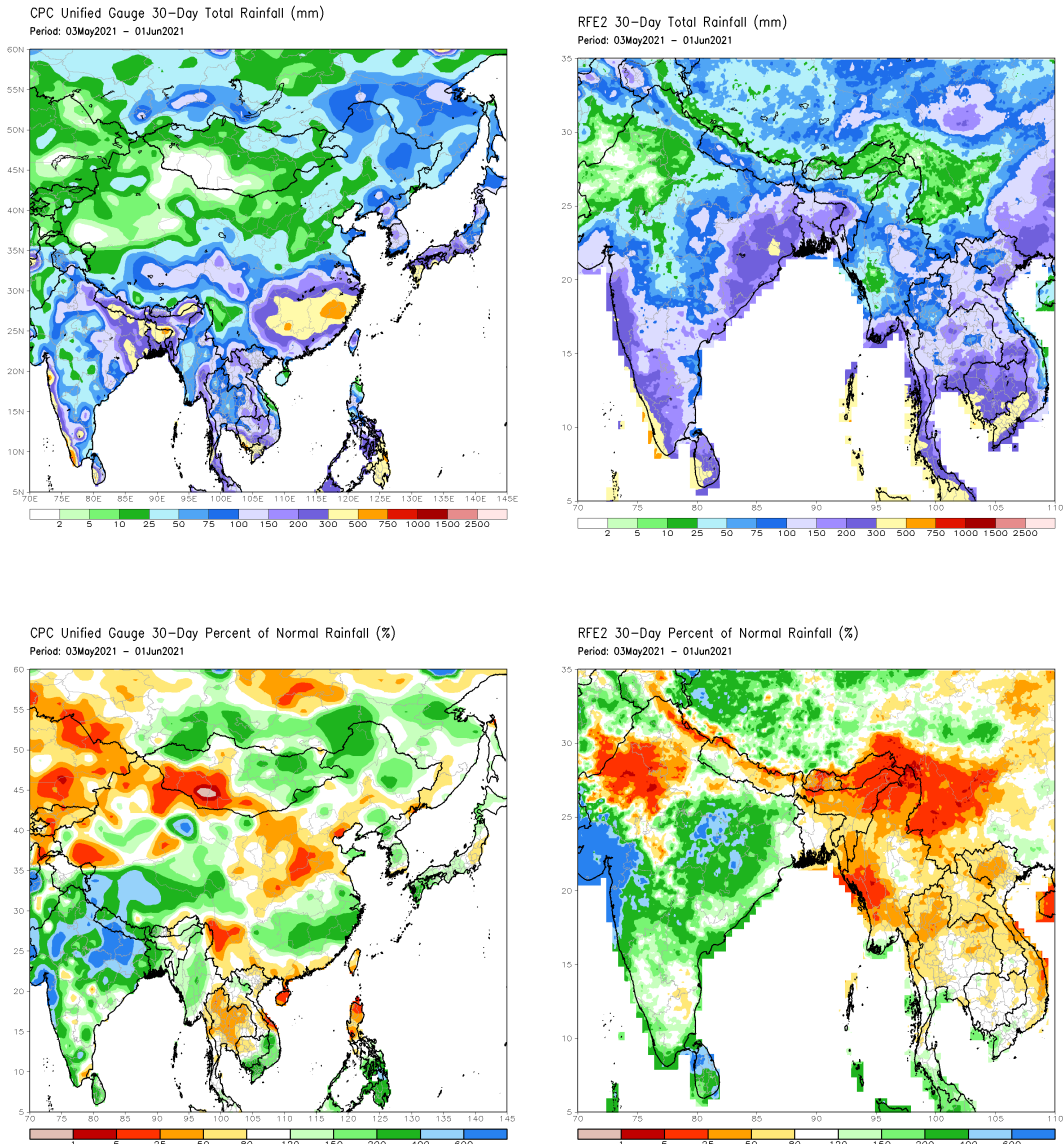


# Monthly Rainfall Monitoring

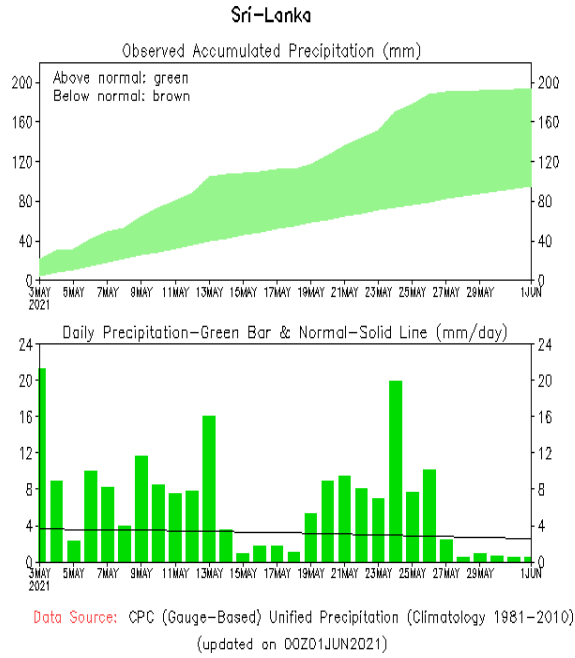
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places with above average rainfall. Darker shades show higher magnitudes in rainfall



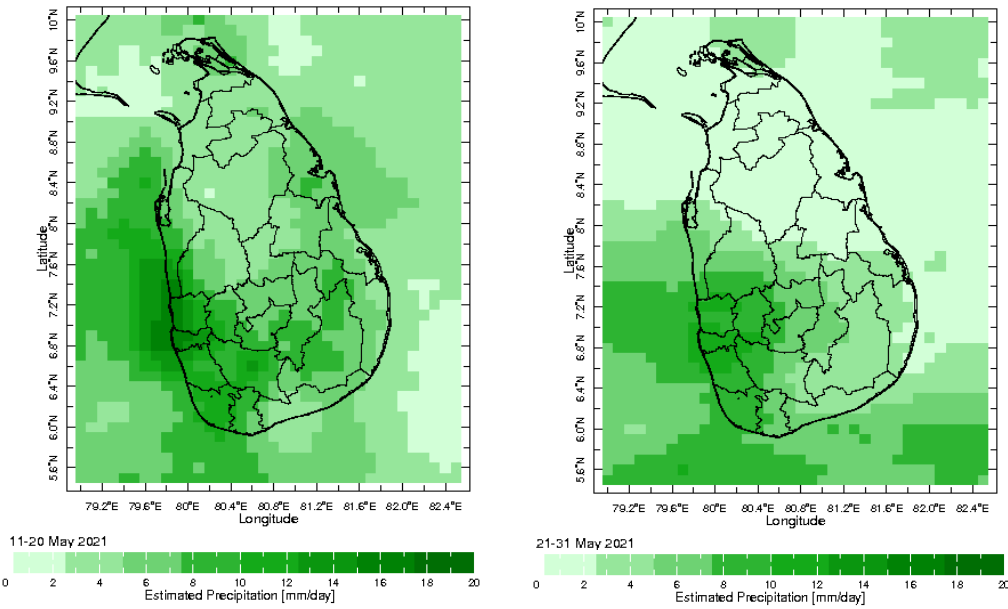
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in the past 30 days compared to normal rainfall in this period.



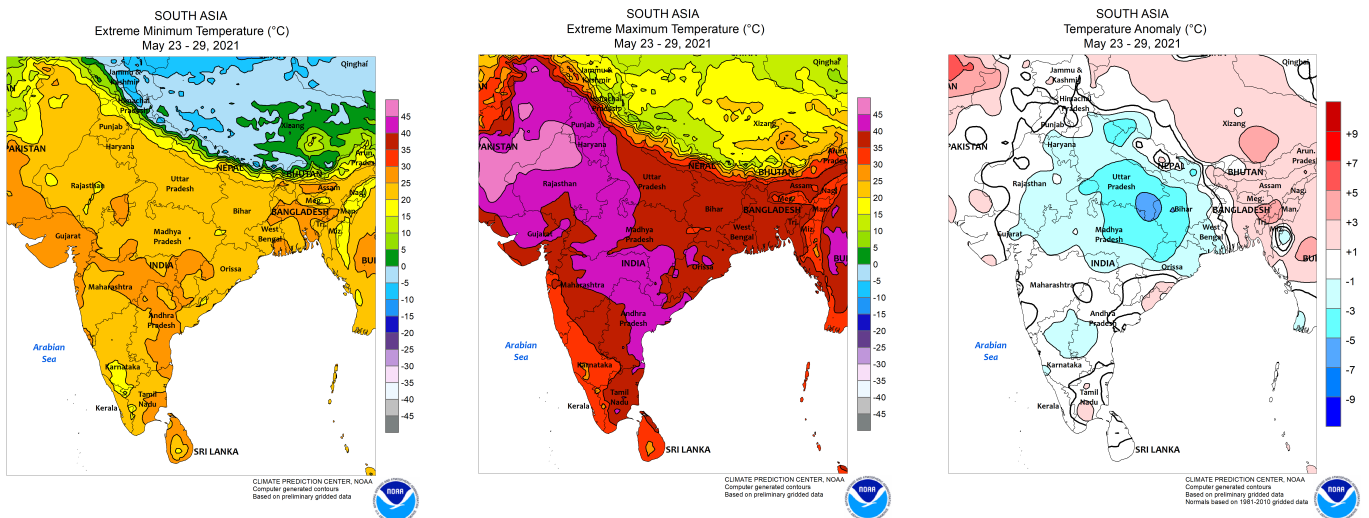
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



### Dekadal (10 Day) Satellite Derived Rainfall Estimates



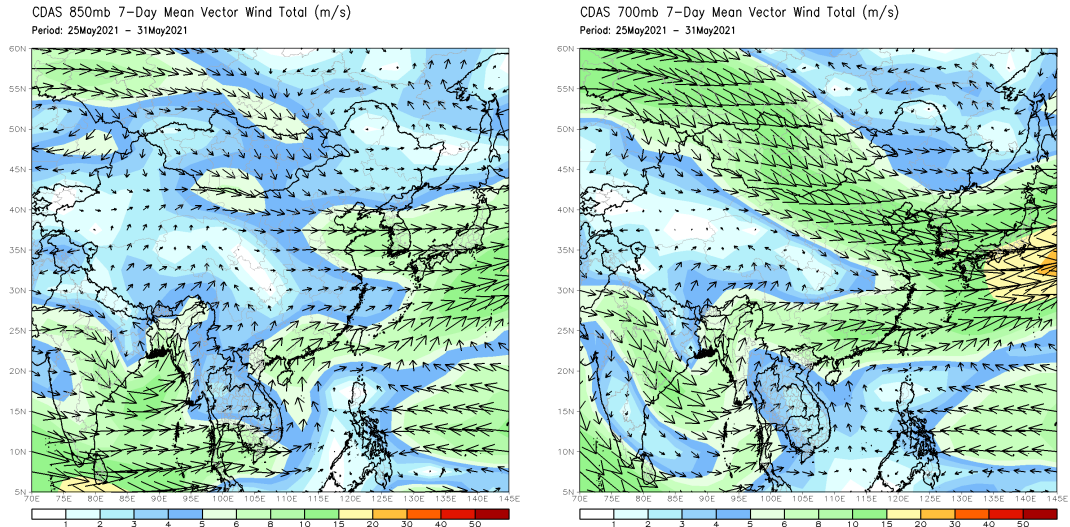
### Weekly Temperature Monitoring





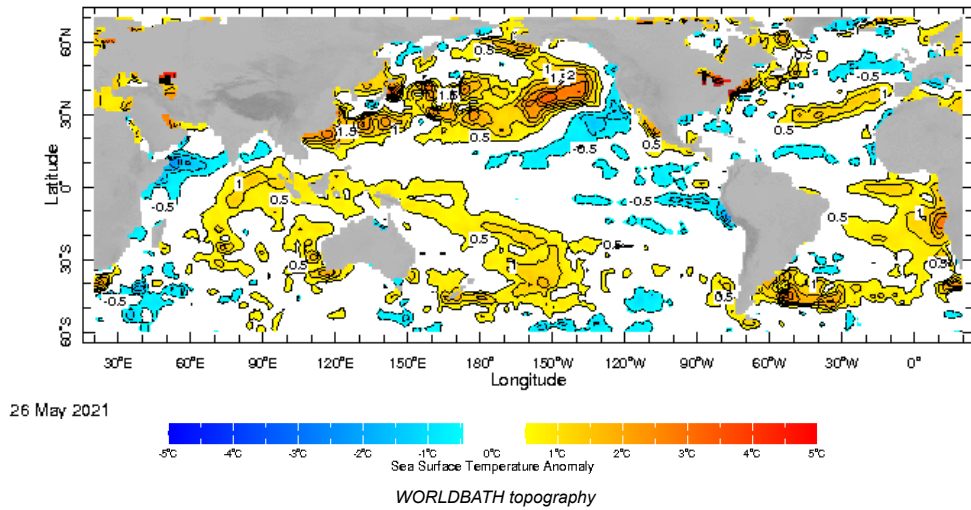
## Weekly Wind Monitoring

The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.

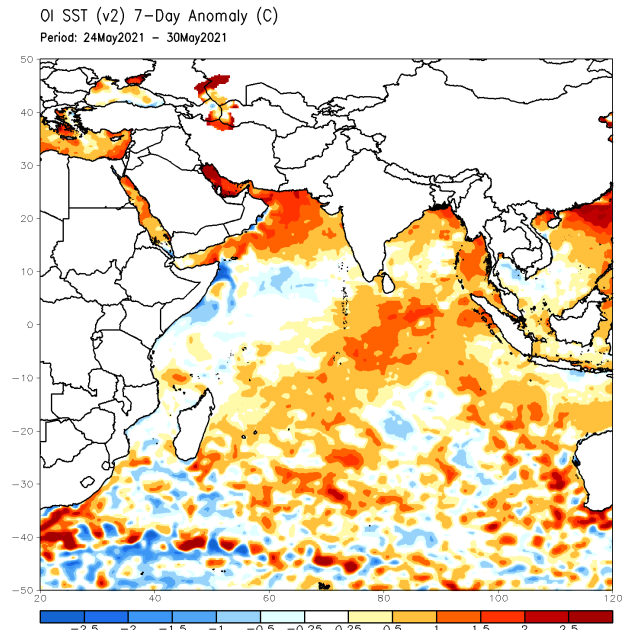


## Weekly Average SST Anomalies

Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

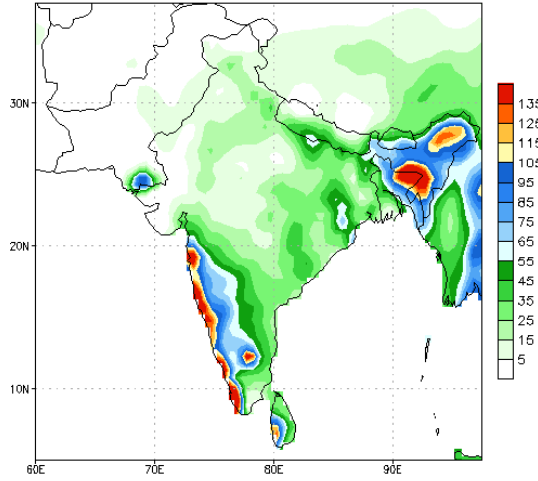


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



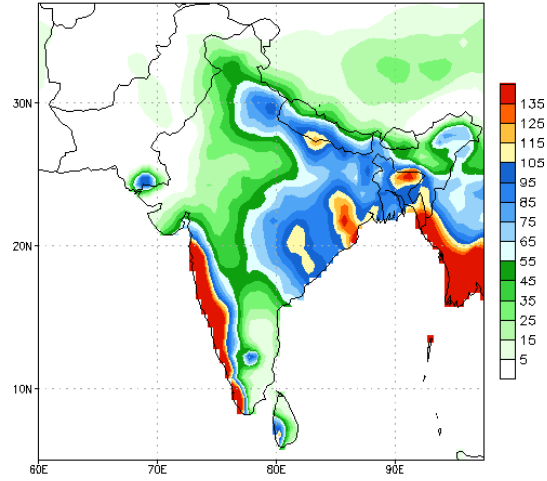
**NCEP GFS 1- 14 Day prediction**

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 02Jun2021  
02Jun2021-08Jun2021 Accumulation



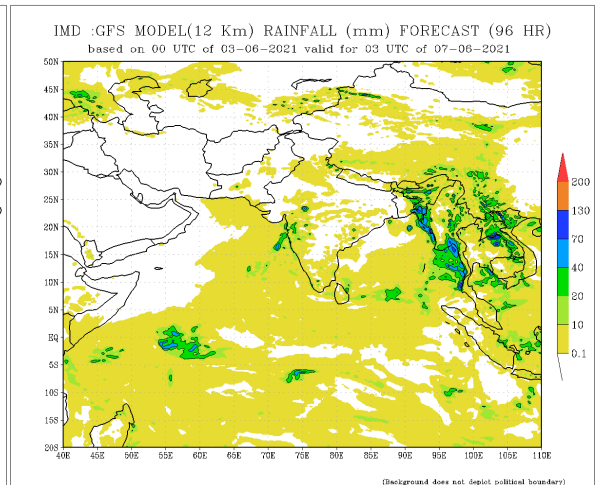
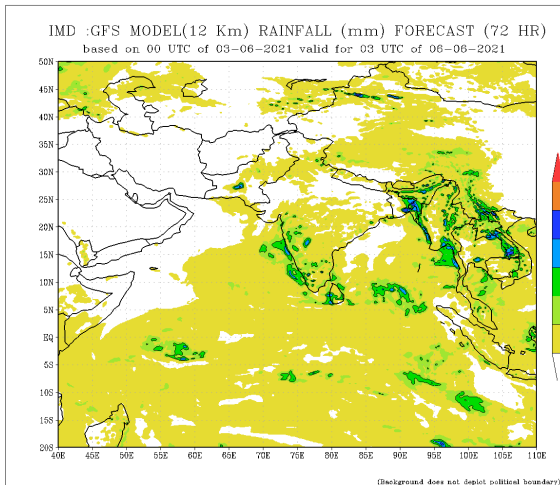
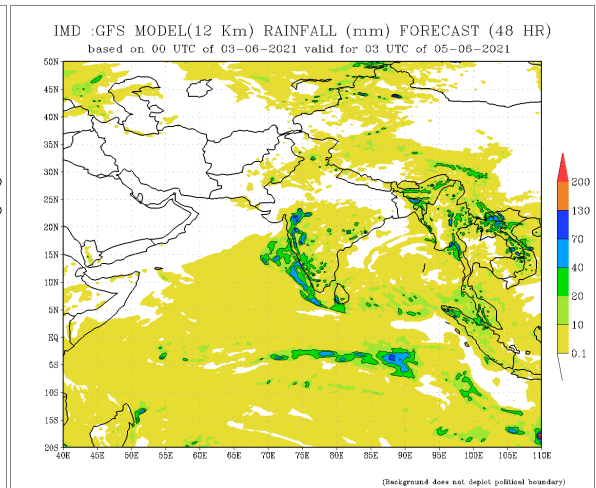
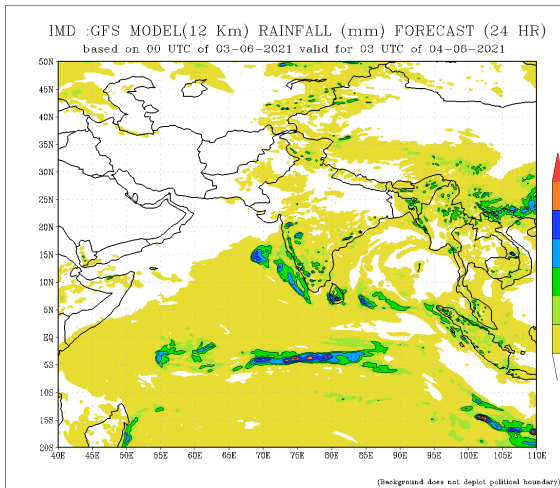
Bias correction based on last 30-day forecast error

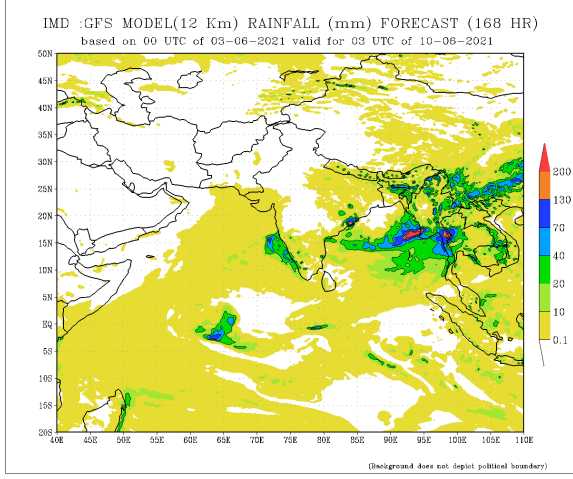
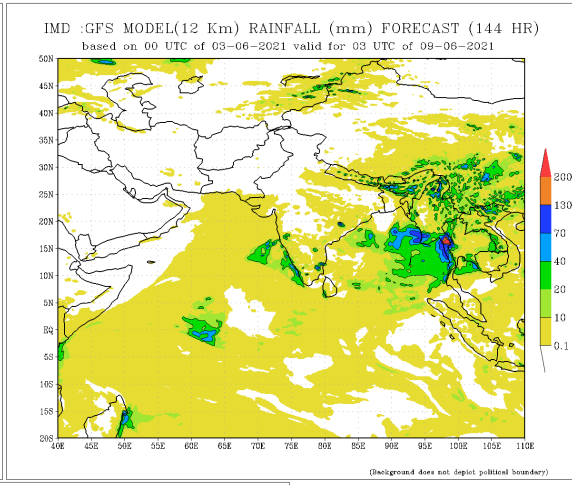
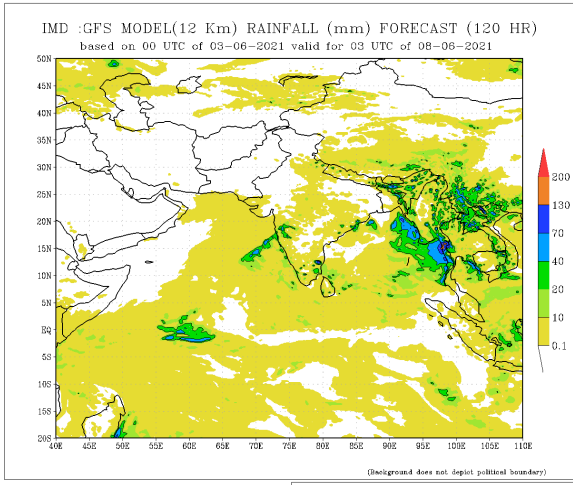
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 02Jun2021  
09Jun2021-15Jun2021 Accumulation



Bias correction based on last 30-day forecast error

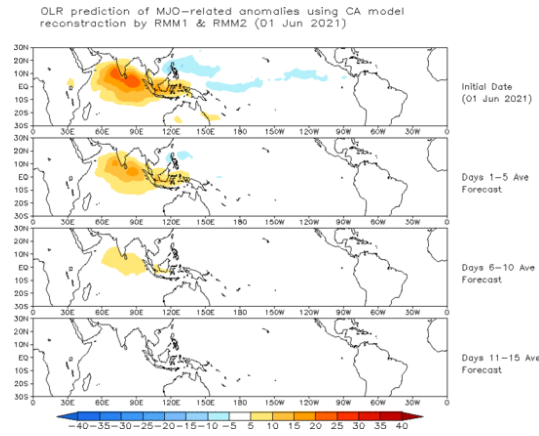
**IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India**





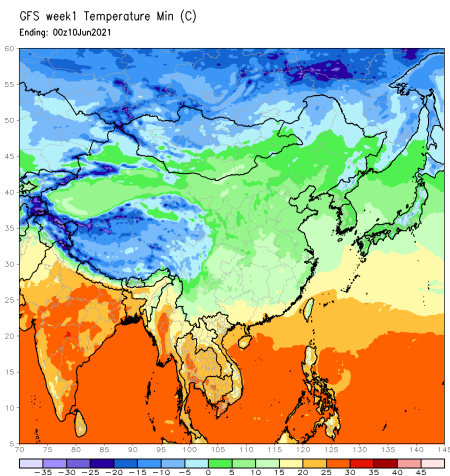
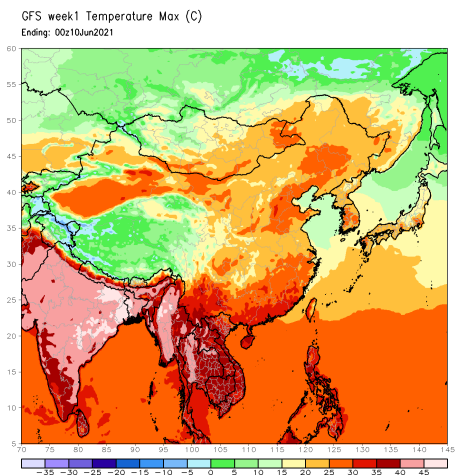
### Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated anomalous OLR for the next 15 days from the Constructed Analogue (CA) model forecasts.



### Weekly Temperature Forecast

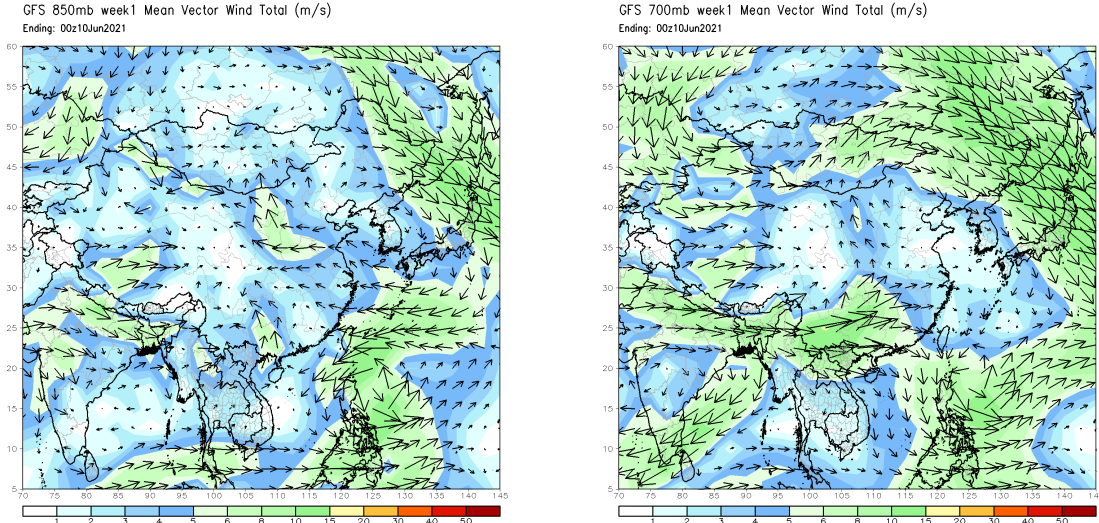
Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)





# Weekly Wind Forecast

Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)

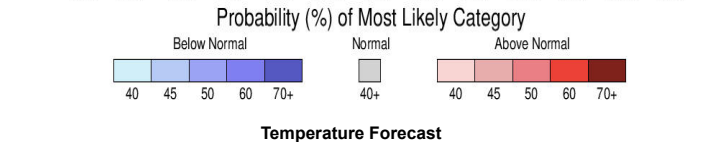
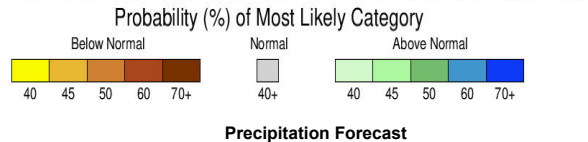
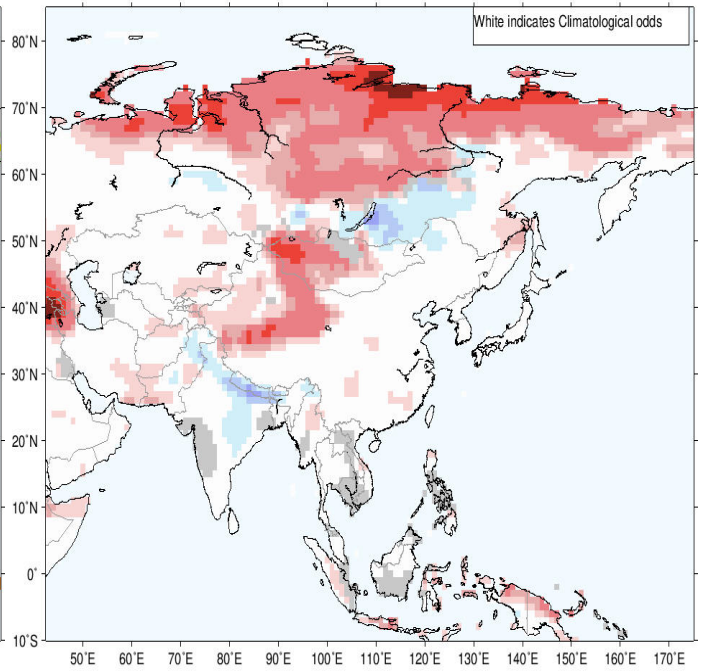
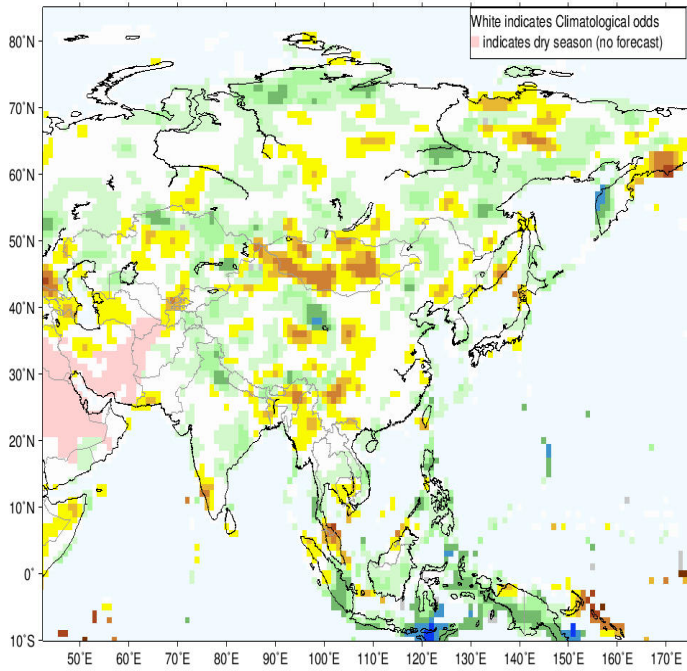


## Seasonal Rainfall and Temperature Forecast

Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%).

IRI Multi-Model Probability Forecast for Precipitation for June–July–August 2021, Issued May 2021

IRI Multi-Model Probability Forecast for Temperature for June–July–August 2021, Issued May 2021



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