Federation for Environment, Climate and Technology

c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.
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Web Site http://www.climate.lk

Week of 25 June - 2 July 2021

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

By: Nipuni Alahakoon, Ushan Adithya, Azra Munas, Sanduni Gammanpila, Tuan Hadgie, Lareef Zubair and Michael Bell[1] (FECT and IRI[1])

HIGHLIGHTS

Rainfall Prediction

- *Extremely heavy rainfall is predicted in Western provinces during 24th - 30th June. Also, from the 1st- 7th July for the same regions.*

Monitored Rainfalls

- *Showers were experienced in Eastern, Sabaragamuwa & Southern provinces with a max of 58 mm in Ratnapura on 23rd June.*

Monitored Wind

- *From 16th- 22nd June: up to 10 km/h from the West and South were experienced over the island.*

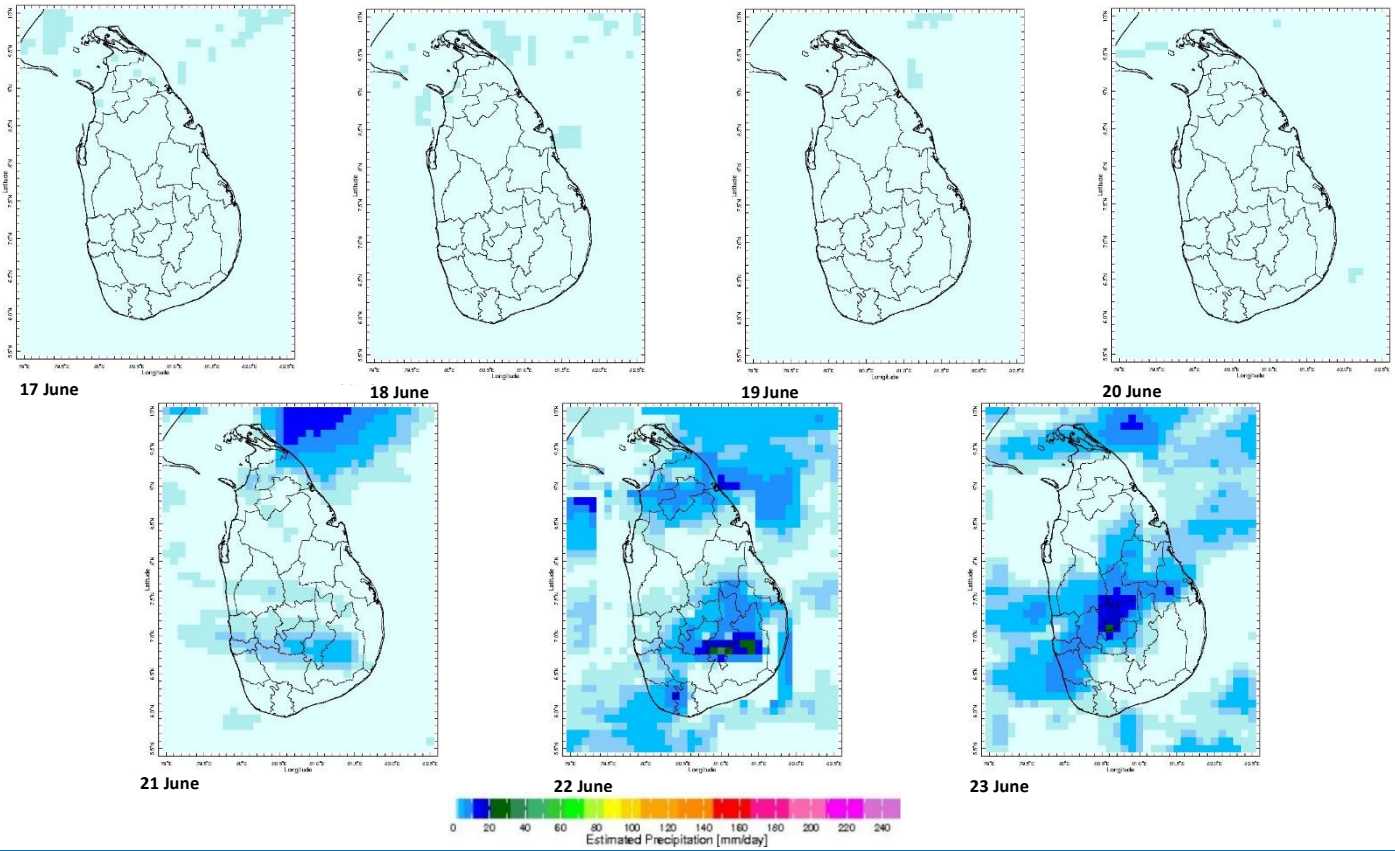
Monitored Sea Surface

- *Sea surface temperature was observed neutral in the seas around Sri Lanka.*

Monitoring

Rainfall

Daily Estimates for Rainfall from 17th – 23rd June



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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
10 – 25 mm	Colombo, Gampaha, Kalutara, Galle, Ratnapura, Kegalle, Nuwara Eliya, Kandy, Matale, Kurunegala, Puttalam, Polonnaruwa, Batticaloa, Ampara, Badullla, Anuradhapura, Trincomalee, Kilinochchi, Mullaitivu, Mannar, Vavuniya, Jaffna
2 – 5 mm	Moneragala, Hambantota

Weekly Rainfall Anomalies by Districts:

Rainfall Excess

Rainfall	Districts
10 – 25 mm	Kilinochchi, Mullaitivu, Mannar, Vavuniya, Jaffna

Rainfall Deficit

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

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

Monthly Monitoring

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

1st– 10th June:

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

11th– 20th June:

Rainfall	Districts
4 mm	Gampaha, Colombo, Kalutara, Kegalle, Ratnapura, Mullaitivu, Kilinochchi
2 mm	Galle, Matara, Hambantota, Nuwara Eliya, Kandy, Matale, Badullla, Moneragala, Puttalam, Kurunegala, Anuradhapura, Trincomalee, Polonnaruwa, Mannar, Vavuniya, Jaffna

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Ocean State *(Text Courtesy IRI)*

Pacific sea state: June 16, 2021

Equatorial SSTs were below average in parts of the eastern Pacific Ocean and near average across the rest of the Pacific Ocean in mid-June 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 neutral in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 24th – 30th June:

Total rainfall by Provinces:

Rainfall	Provinces
115 mm	Western, Sabaragamuwa
75 mm	Southern, North western
65 mm	Central
35 mm	Uva, North Central
25 mm	Eastern

From 01st – 7th July:

Total rainfall by Provinces:

Rainfall	Provinces
125 mm	Western, Sabaragamuwa
105 mm	North western
85mm	Central, Southern
45 mm	Uva, North Central
25 mm	Northern
15 mm	Eastern

MJO based OLR predictions

For the next 15 days:

MJO shall slightly suppress the rainfall during 23rd- 27th Jun; slightly enhance during 28th Jun – 2nd Jul and significantly enhance during 3rd – 7th Jul.

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Interpretation

Monitoring

Rainfall: During the last two weeks, there had been showers over the following provinces: Eastern, Sabaragamuwa and Southern

Wind: West and South winds prevailed in the sea area and around the island during last week.

Temperatures: The temperature anomalies were near neutral during last week.

Predictions

Rainfall: During the next week (24^{th} – 30^{th} June) heavy rainfall are predicted for Sabaragamuwa and Western provinces. And showers will occur Southern, North-western and central provinces; and in Galle and Matara districts.

Temperatures: The temperature remains slightly normal for June. During 26^{th} Jun – 4^{th} July, the temperature remains high especially the Eastern and Uva provinces.

Teleconnections:

- MJO shall slightly suppress the rainfall during 23^{rd}- 27^{th} Jun; slightly enhance during 28^{th} Jun – 2^{nd} Jul and significantly enhance during 3^{rd} – 7^{th} Jul.
- 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, [1] International Research Institute for Climate and Society, , Earth Institute at Columbia University, New York.

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Weekly Climate Bulletin for Sri Lanka

Inside This Issue

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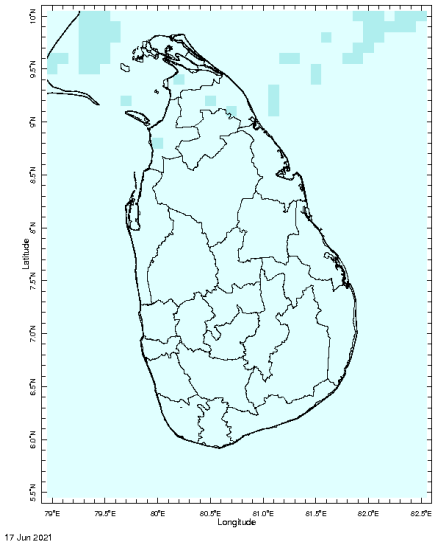
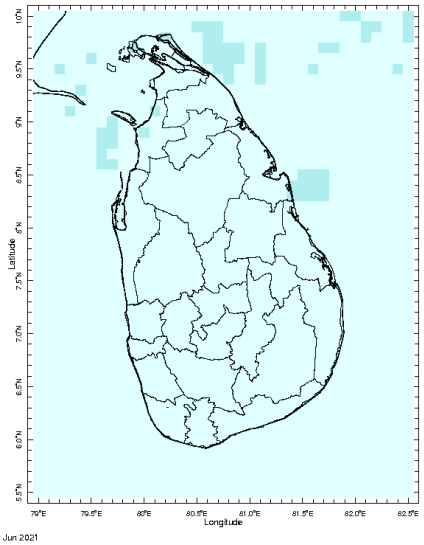
MONITORING

Daily Rainfall Monitoring

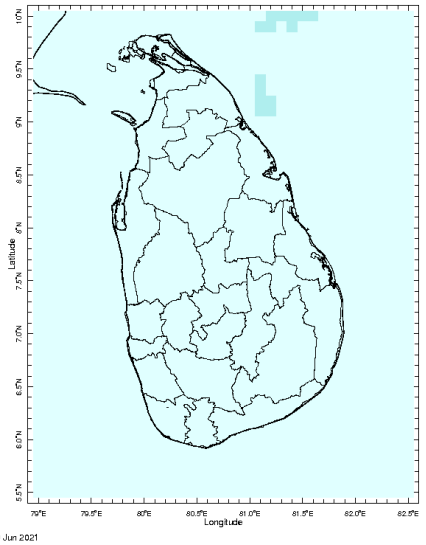
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



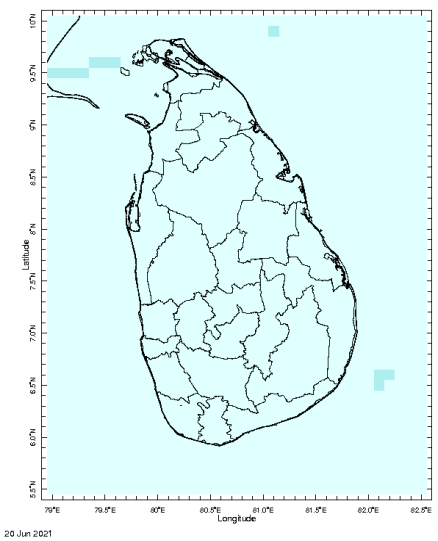
17 Jun 2021



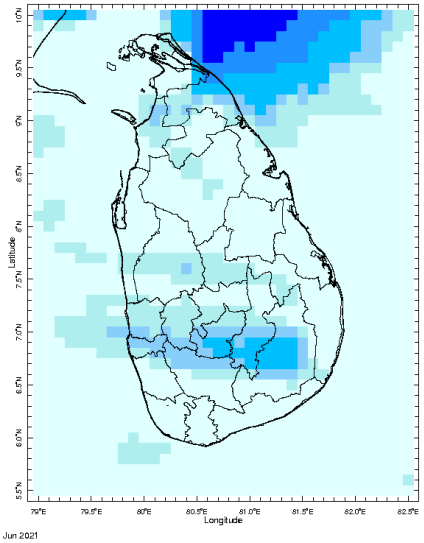
18 Jun 2021



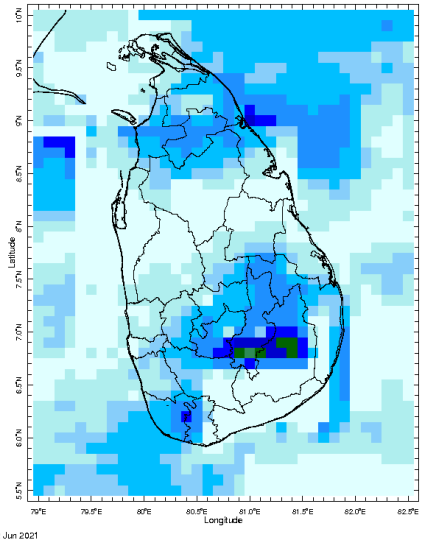
19 Jun 2021



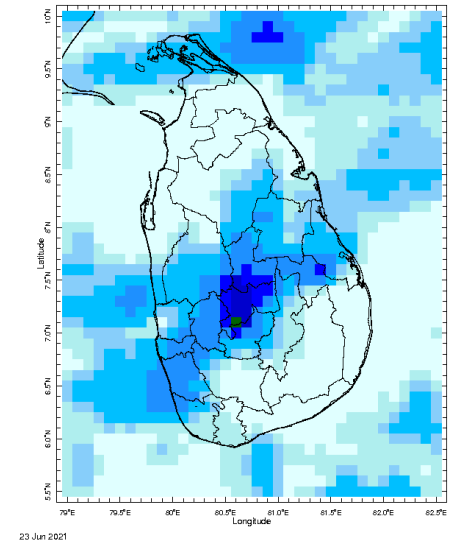
20 Jun 2021



21 Jun 2021

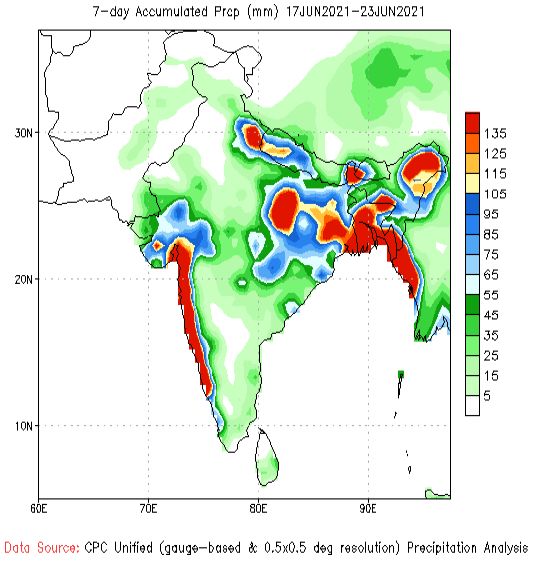


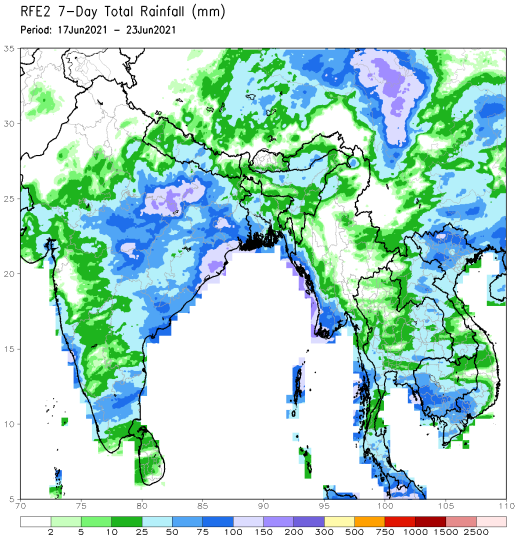
22 Jun 2021

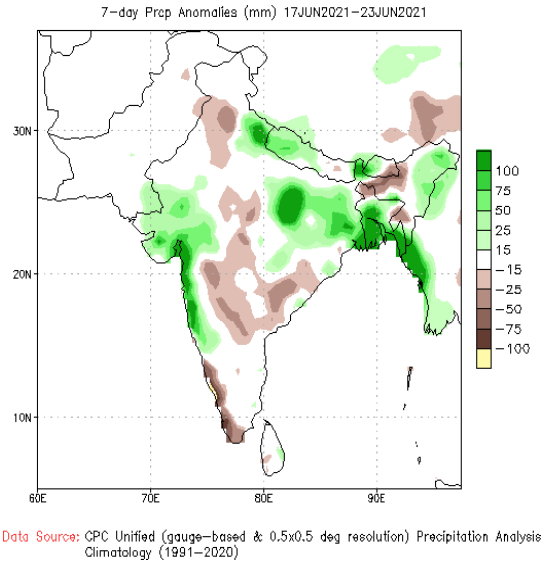


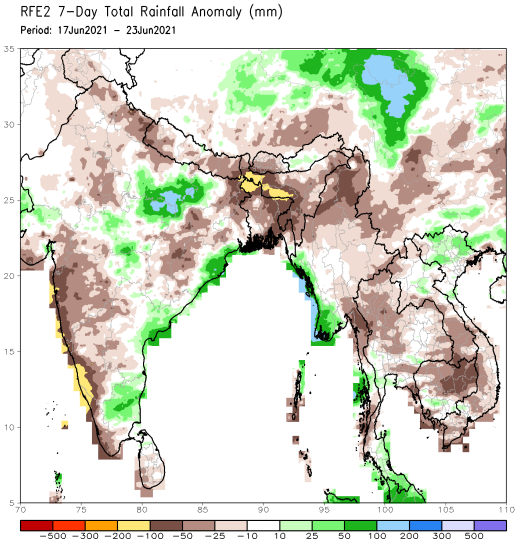
Weekly Rainfall Monitoring

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.



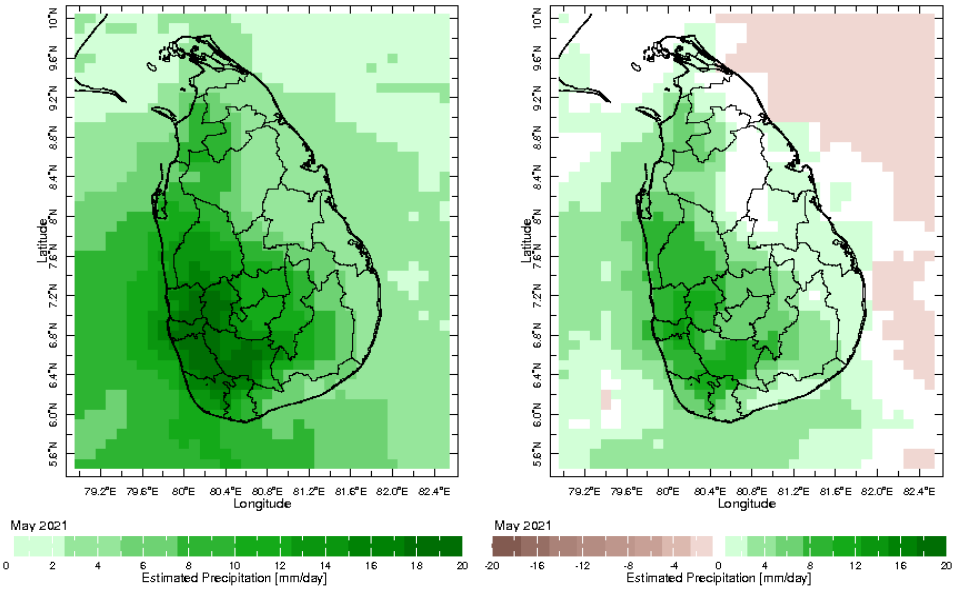






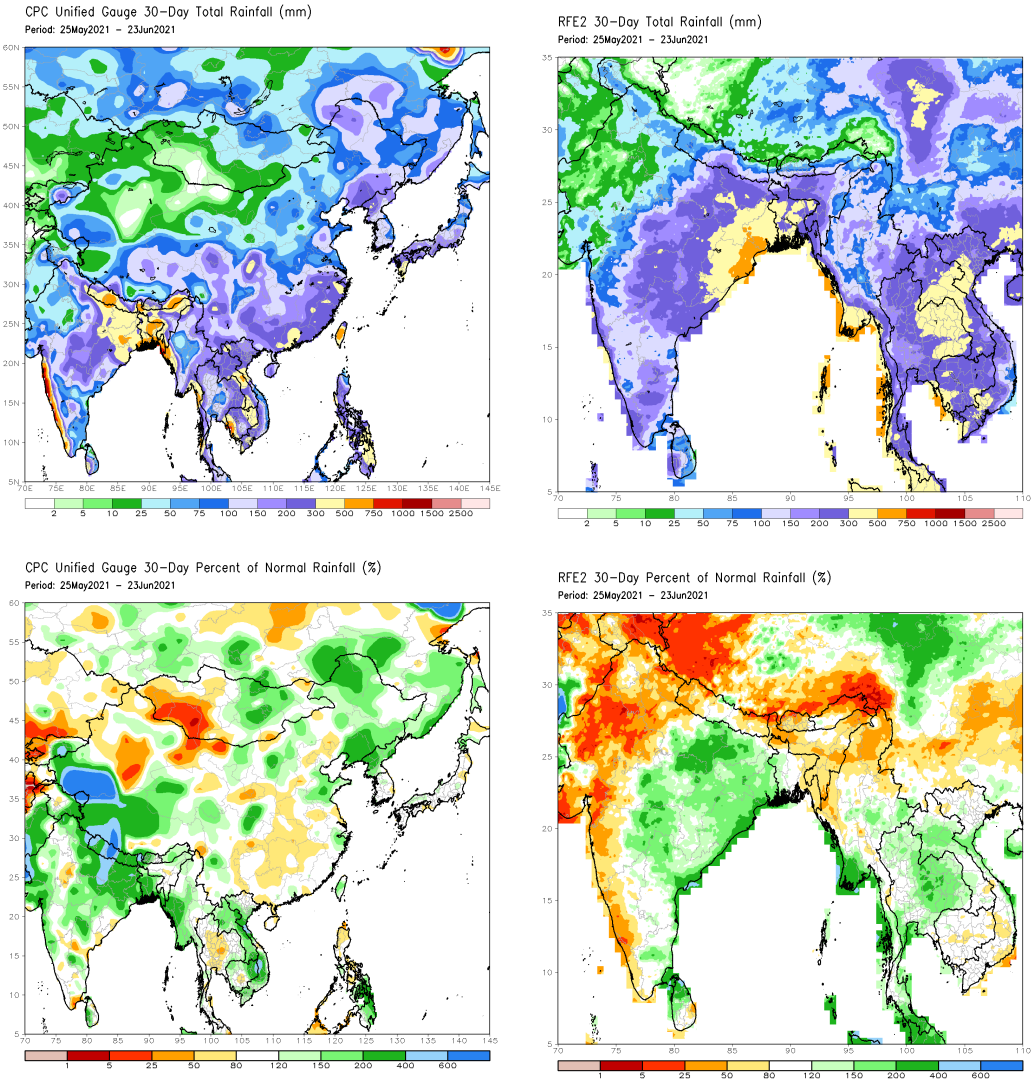
Monthly Rainfall Monitoring

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

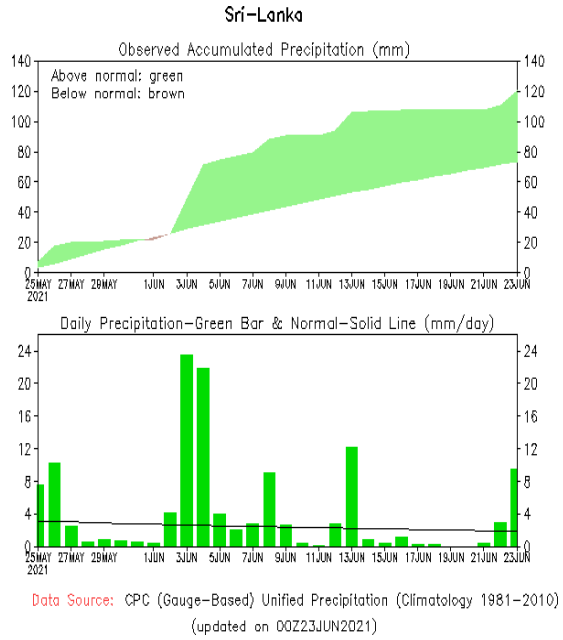


Monthly Average **Monthly Anomaly**

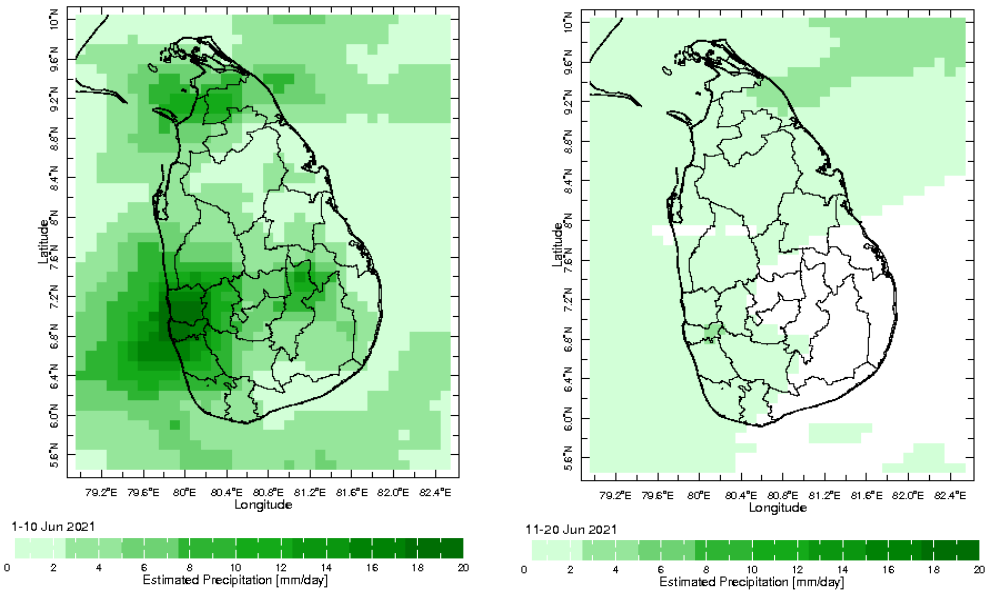
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



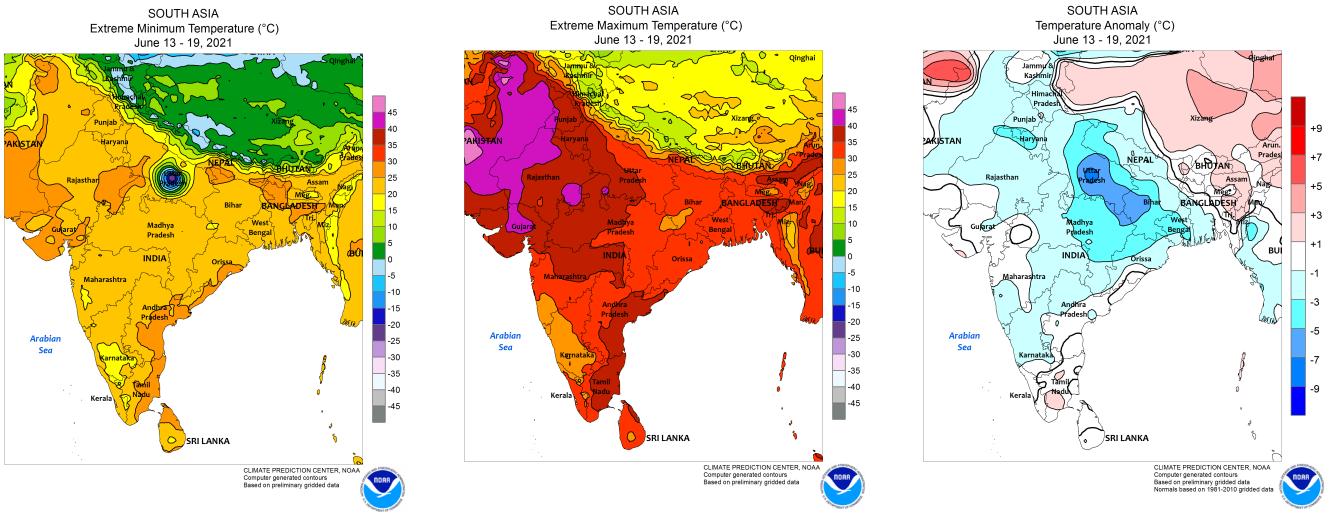
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

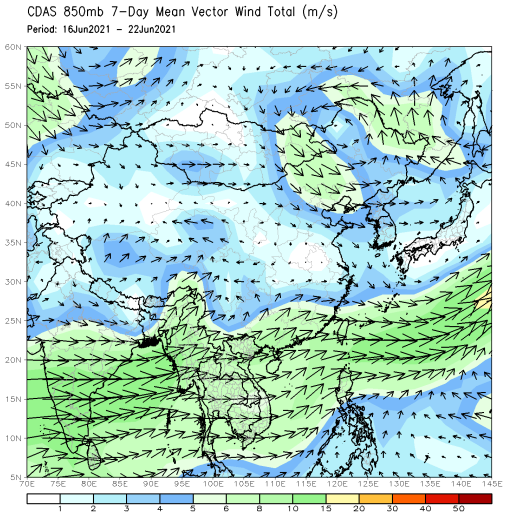


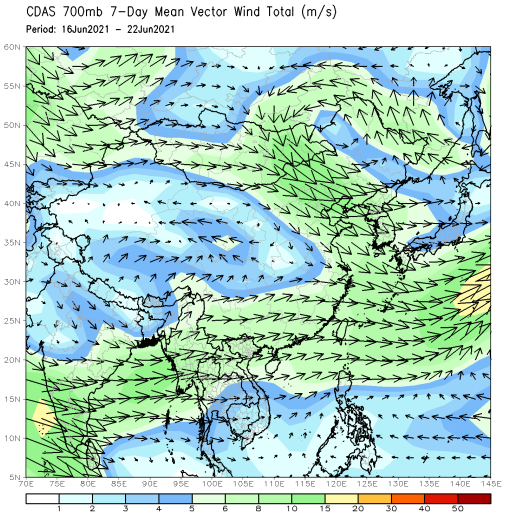
Weekly Temperature Monitoring



Weekly Wind Monitoring

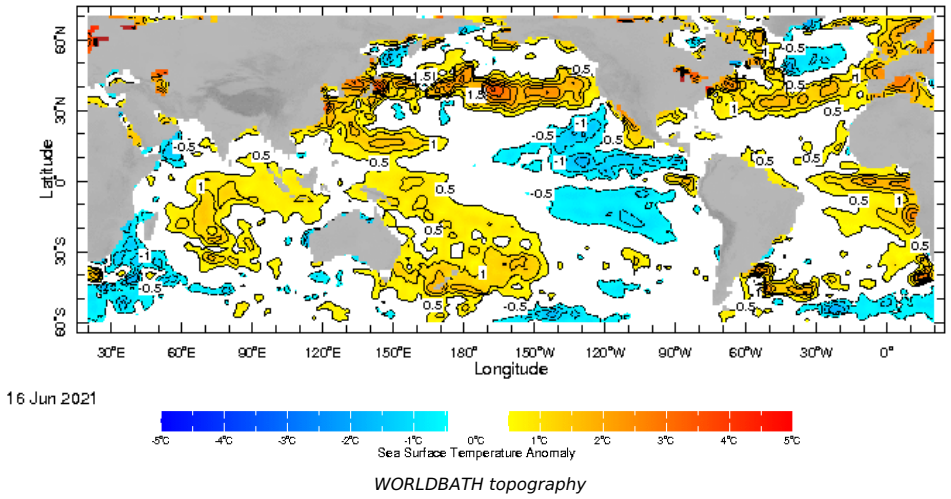
The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.





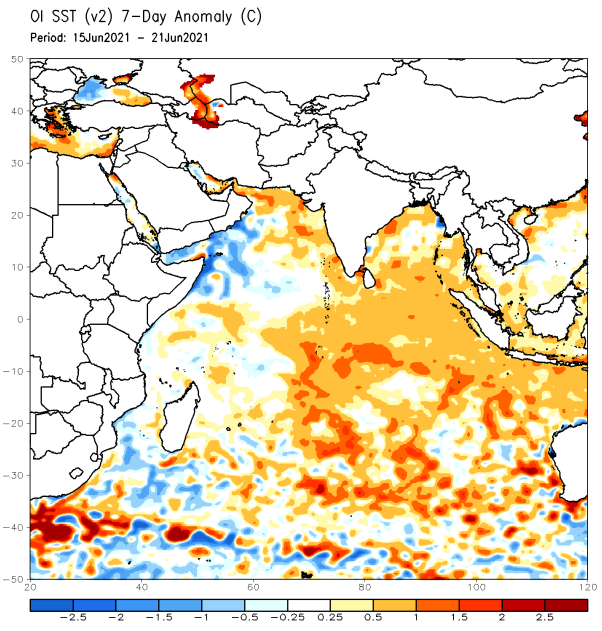
Weekly Average SST Anomalies

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



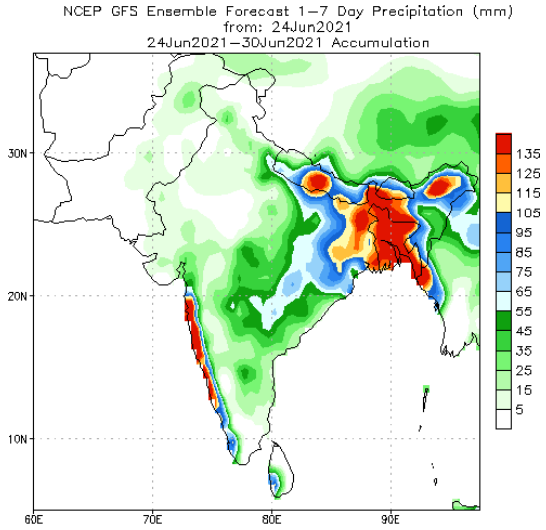
WORLDBATH topography

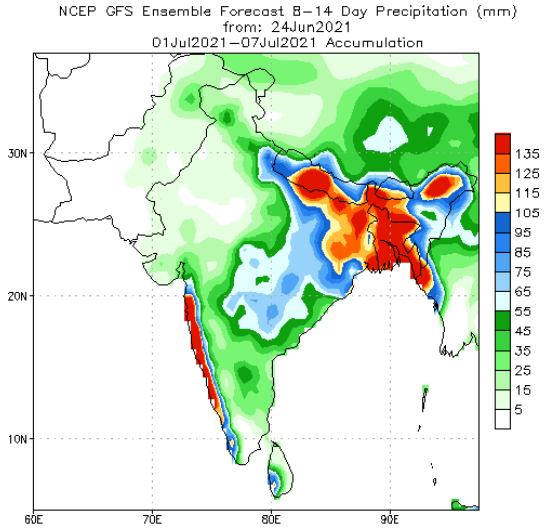
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



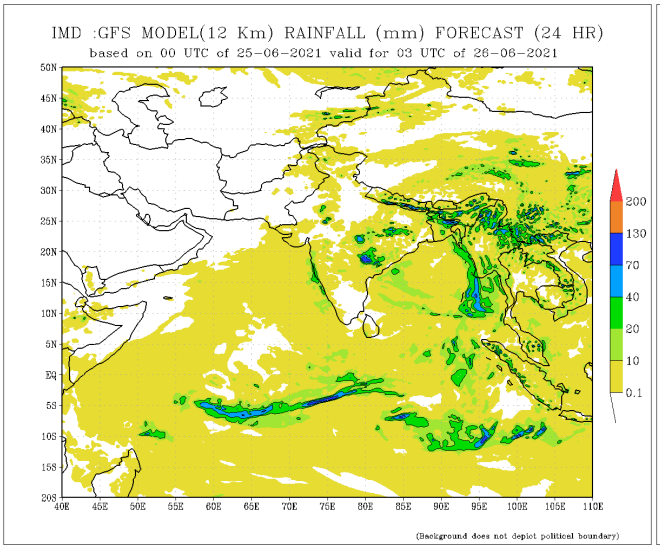
PREDICTIONS

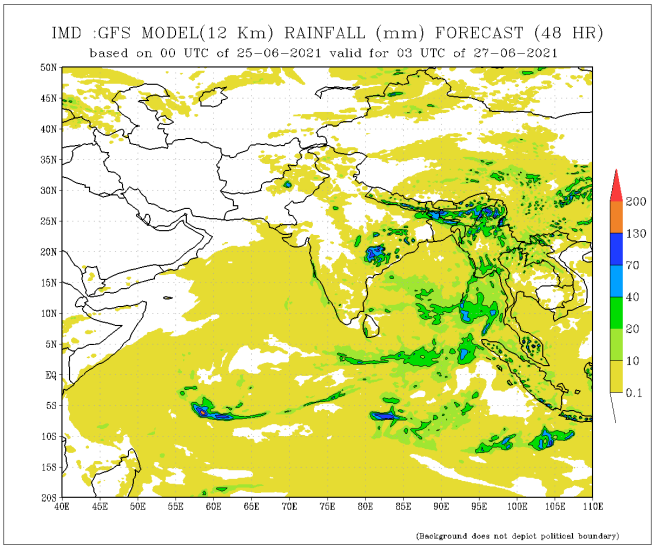
NCEP GFS 1- 14 Day prediction

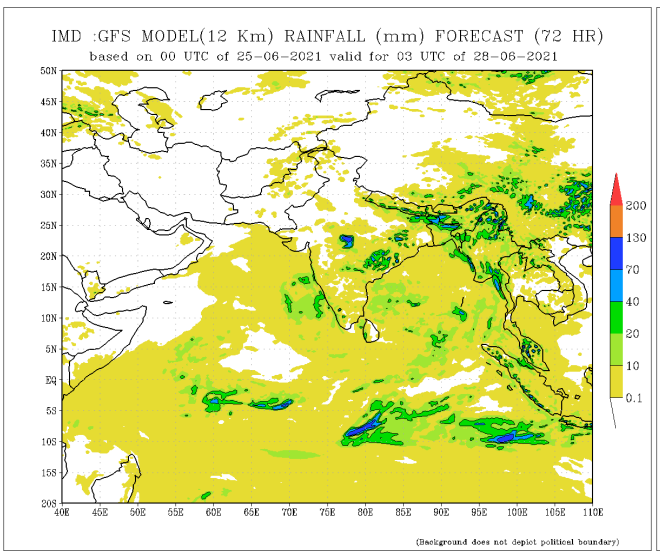


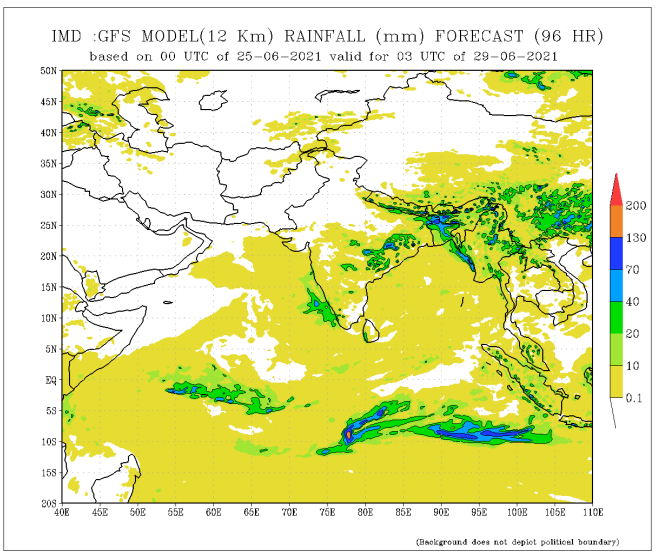


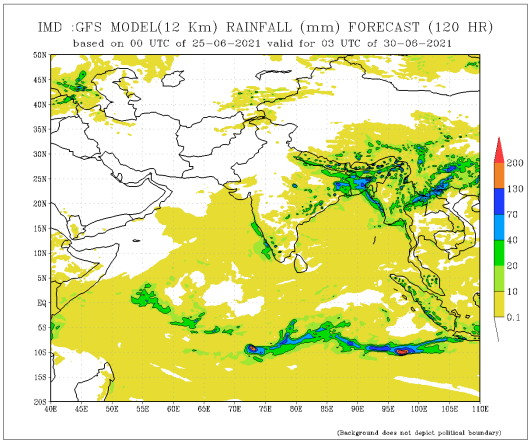
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

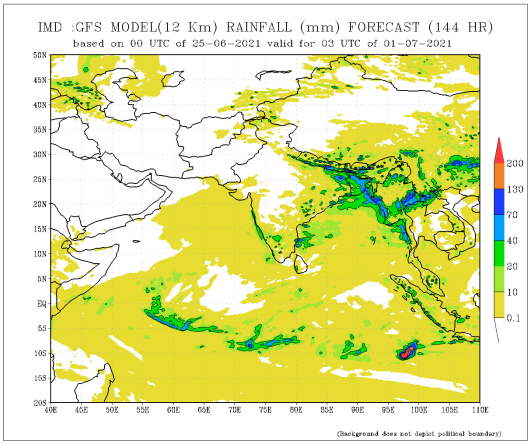


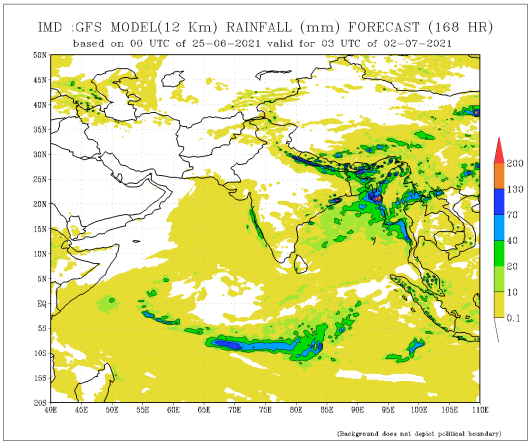






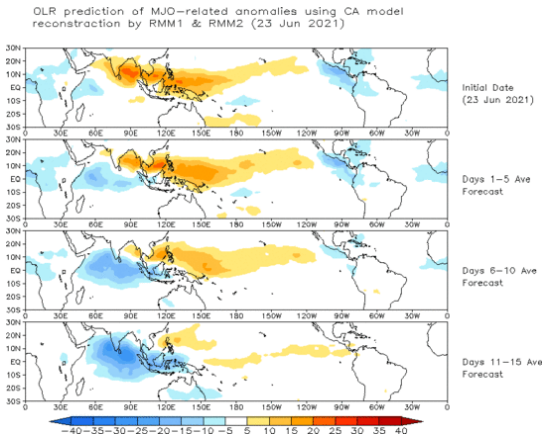






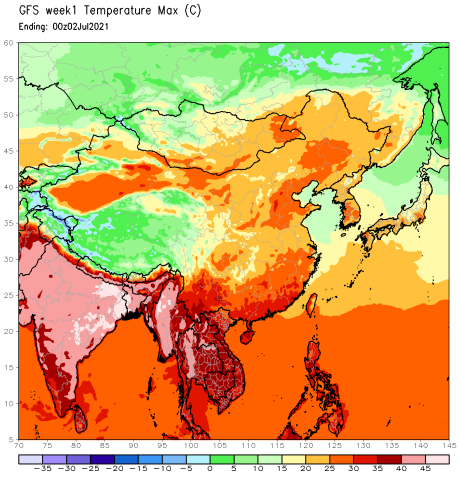
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

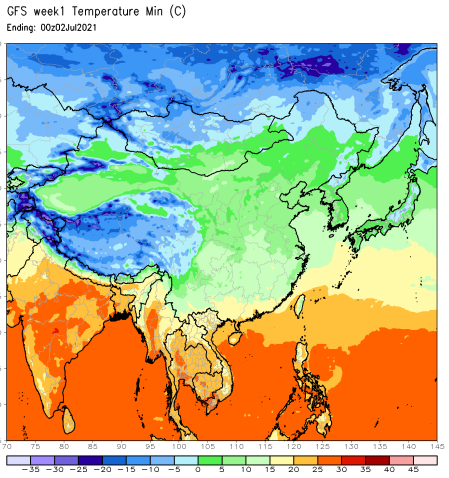
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



Weekly Temperature Forecast

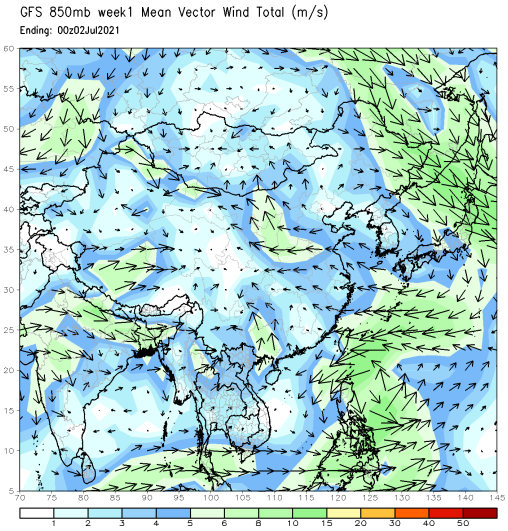
Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)

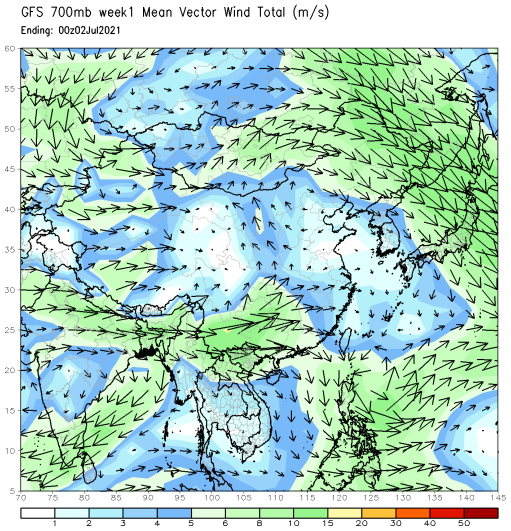




Weekly Wind Forecast

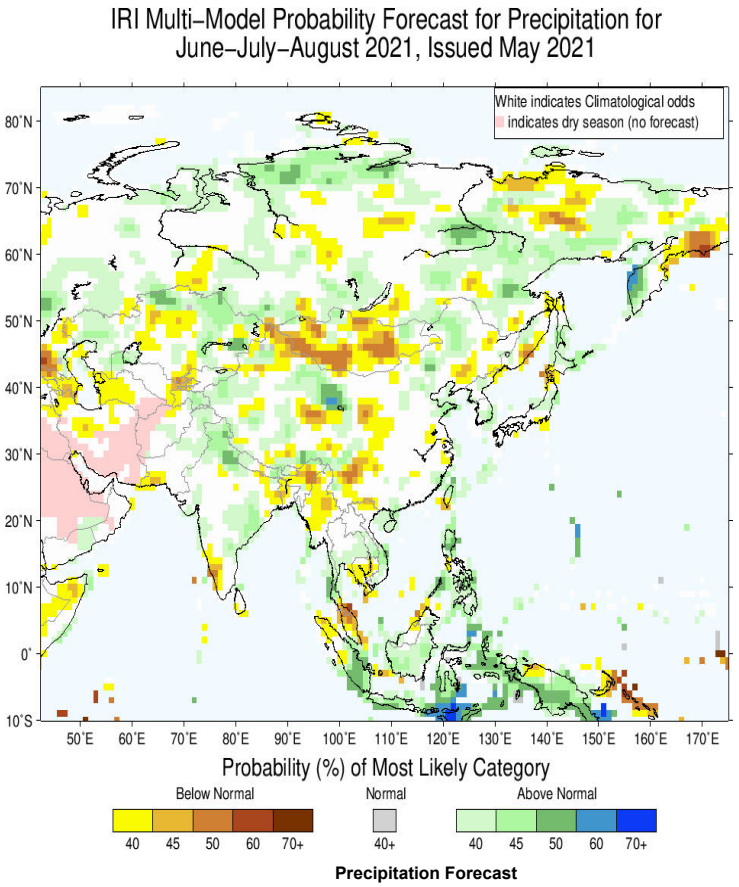
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



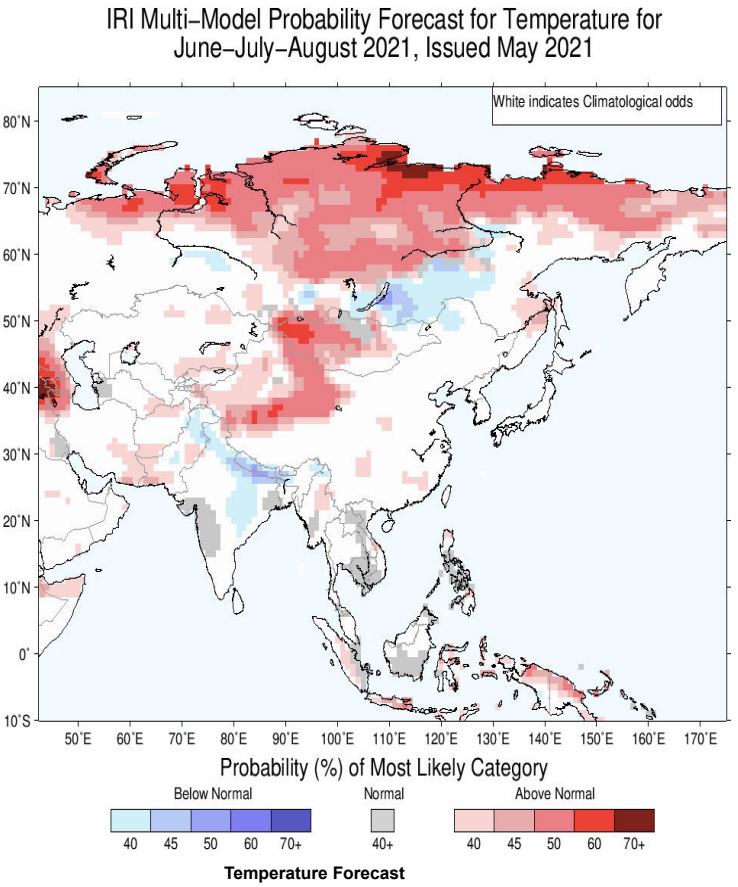


Seasonal Rainfall and Temperature Forecast

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%).



Precipitation Forecast



Temperature Forecast

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