

**Week of
23 - 30 April
2021**

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

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HIGHLIGHTS

Rainfall Prediction



- Showers of 55 mm expected in Central, Western, Sabaragamuwa, Uva provinces during 28th Apr-04th May with a drop in rainfall elsewhere

Monitored Rainfalls



- Thunder shower with lightning was experienced in Sabaragamuwa province with a maximum of 132.5 mm in Kegalle on 14th Apr.

Monitored Wind



- From 13th - 19th Apr: up to 4 km/h Southwesterly winds were experienced by Southern half of the island.

Monitored Sea Surface

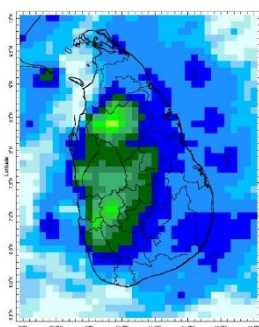


- Sea surface temperature was observed around 0.5 °C above average in Southern, Eastern and Western parts of around Sri Lanka.

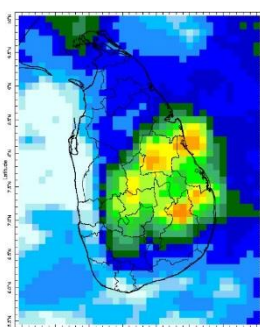
Monitoring

Rainfall

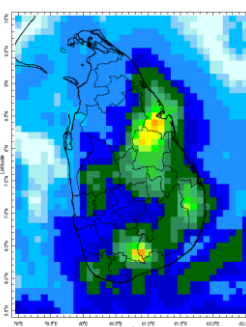
Daily Estimates for Rainfall from 14th – 20th Apr



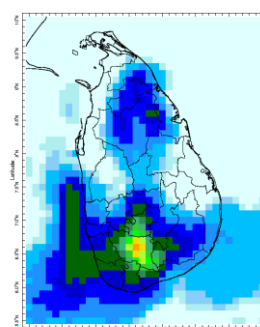
14th April



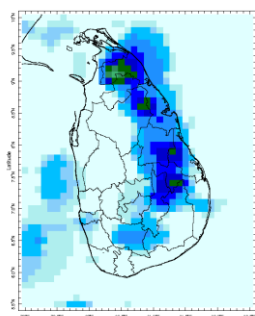
15th April



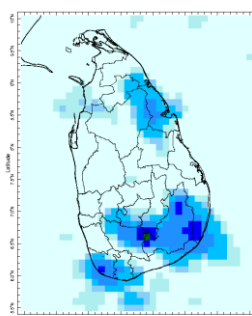
16th April



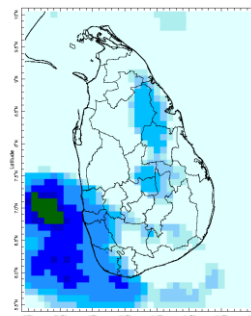
17th April



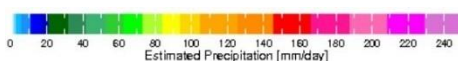
18th April



19th April



20th April





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 |
|--------------|--|
| 200 – 300 mm | Polonnaruwa, Matale, Ratnapura |
| 150 – 200 mm | Anuradhapura, Trincomalee, Kurunegala, Batticaloa, Ampara, Kandy, Nuwara Eliya, Kegalle, Badulla, Moneragala |
| 100 – 150 mm | Gampaha, Colombo, Kalutara, Galle, Matara, Hambantota |
| 75 – 100 mm | Mullaitivu, Vavuniya |
| 50 – 75 mm | Kilinochchi, Mannar, Puttalam |
| 25 – 50 mm | Jaffna |

Weekly Rainfall Anomalies by Districts:

Rainfall Excess

| Rainfall | Districts |
|--------------|---|
| 100 – 200 mm | Anuradhapura, Polonnaruwa, Trincomalee, Batticaloa, Ampara, Matale, Kandy, Nuwara Eliya, Ratnapura, Badulla, Moneragala |
| 50 – 100 mm | Kurunegala, Kegalle, Galle, Matara, Hambantota |
| 25 – 50 mm | Jaffna, Mullaitivu, Vavuniya, Gampaha, Colombo, Kalutara |
| 10 – 25 mm | Kilinochchi, Mannar, Puttalam |

Monthly Monitoring

During middle and late March, Dekadal Rainfall (mm/day) by Districts:

1st– 10th April:

| Rainfall | Districts |
|----------|---|
| 8 mm | Mullaitivu, Vavuniya, Mannar, Moneragala |
| 6 mm | Anuradhapura, Nuwara Eliya, Kalutara, Matara, Kegalle, Ratnapura, Badulla, Ampara |
| 4 mm | Kurunegala, Polonnaruwa, Batticaloa, Matale, Kandy, Colombo, Galle, Hambantota |
| 2 mm | Jaffna, Kilinochchi, Trincomalee, Puttalam, Gampaha |

11th– 20th April:

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



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| | |
|------|-------------|
| 6 mm | Kilinochchi |
| 4 mm | Jaffna |

Ocean State (Text Courtesy IRI)

Pacific sea state: April 14, 2021

Equatorial SSTs were mostly below average from the east to the Middle West Pacific Ocean in mid-April and most key atmospheric variables were either ENSO –Neutral or consistent with continued La Niña conditions. A large majority of the model forecasts predict SSTs to be cooler than the threshold of La Niña SST conditions through the winter, dissipating during spring.

Indian Ocean State

Sea surface temperature was observed around 0.5°C above average in Southern, Eastern and Western parts of around Sri Lanka.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 23rd – 27th April:

Total rainfall by Provinces:

| Rainfall | Provinces |
|----------|---|
| 45 mm | Central, Sabaragamuwa, Western |
| 35 mm | Uva |
| 25 mm | North Central, Eastern, Southern, North Western |
| 15 mm | Northern |

From 28th April – 04th May:

Total rainfall by Provinces:

| Rainfall | Provinces |
|----------|---------------------------------------|
| 55 mm | Central, Western, Sabaragamuwa, Uva |
| 45 mm | Southern |
| 35 mm | North Central, North Western, Eastern |
| 25 mm | Northern |

MJO based OLR predictions

For the next 15 days:

MJO shall significantly suppress the rainfall during 23rd – 24th April, slightly suppressed during 25th– 29th April and slightly enhanced during 30th April – 4th May.



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Interpretation

Monitoring

Rainfall: During the last two weeks, there had been high rainfall over the following provinces: North Central, Uva, Eastern, Central

Wind: Southwesterly winds prevailed in the sea area and around the island.

Temperatures: The temperature anomalies were slightly above normal for the Western & Sabaragamuwa provinces the last – driven by the warm SST's.

Predictions

Rainfall: During the next week (23th – 28th Apr), showers is predicted for the Central, Western, Sabaragamuwa, Uva region. A drop in rainfall is predicted over the rest of the country.

Temperatures: The temperature remains slightly above in Northern, North Central, Eastern and Southern.

Teleconnections:

- MJO shall significantly suppress the rainfall during 23rd – 24th April, slightly suppressed during 25th– 29th April and slightly enhanced during 30th April – 4th May.
- La Nina - The SST forecast is for La Nina conditions to continue through April weakening through June. So, the La Niña is expected to be moderate to strong in coming season.

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

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2. Predictions

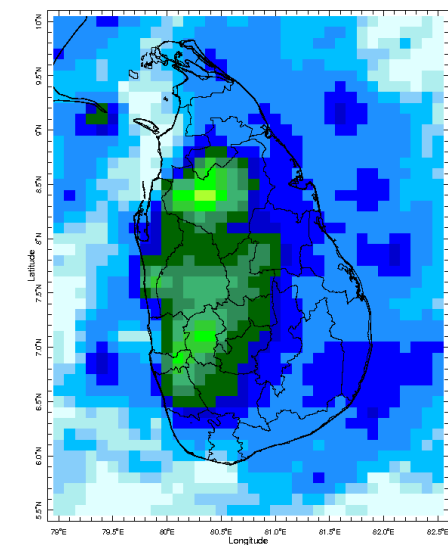
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
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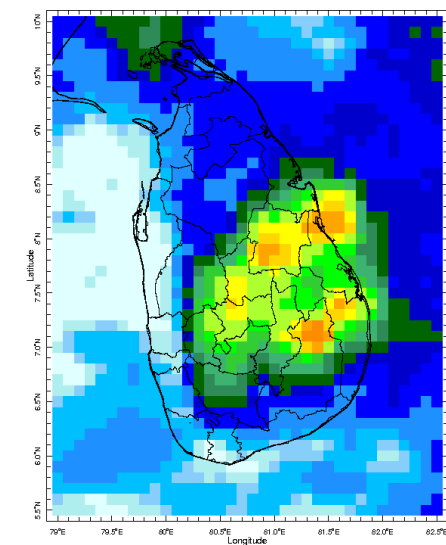
MONITORING

Daily Rainfall Monitoring

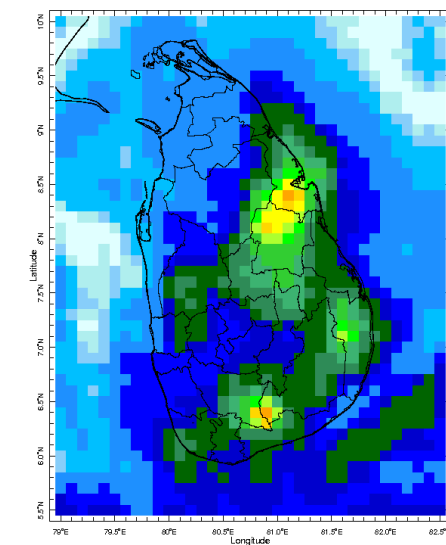
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



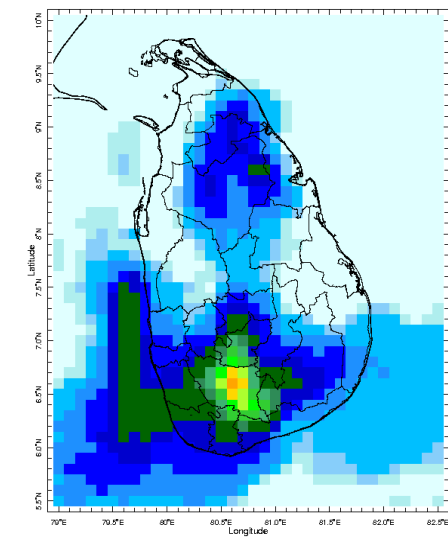
14 Apr 2021



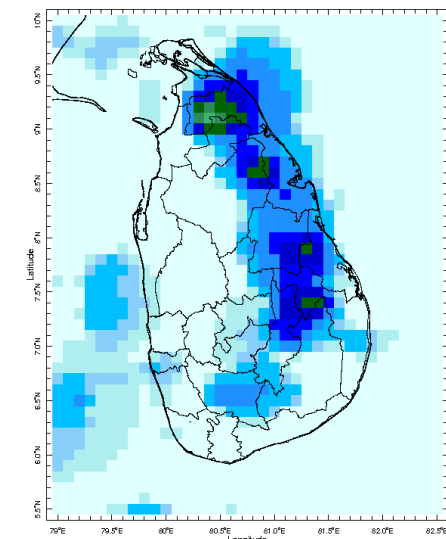
15 Apr 2021



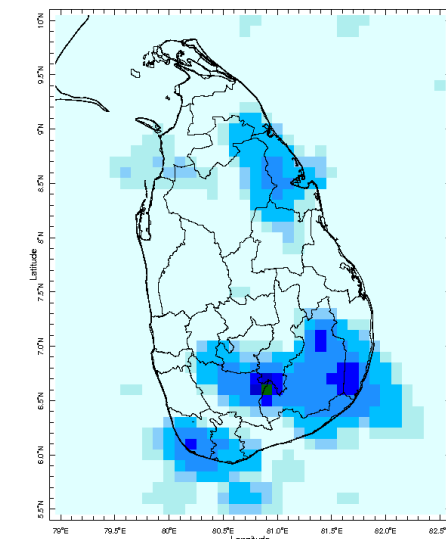
16 Apr 2021



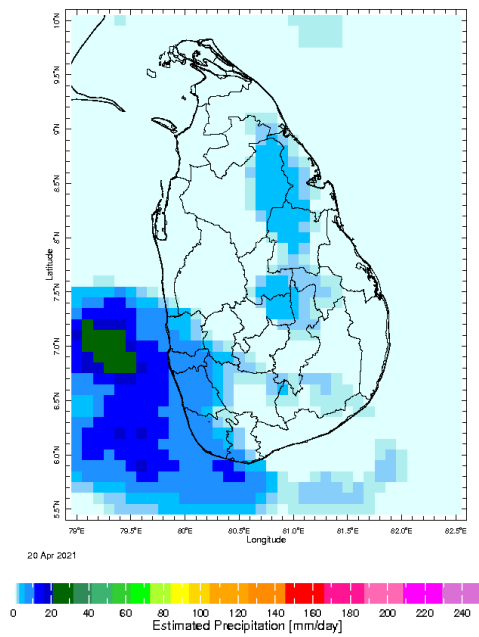
17 Apr 2021



18 Apr 2021

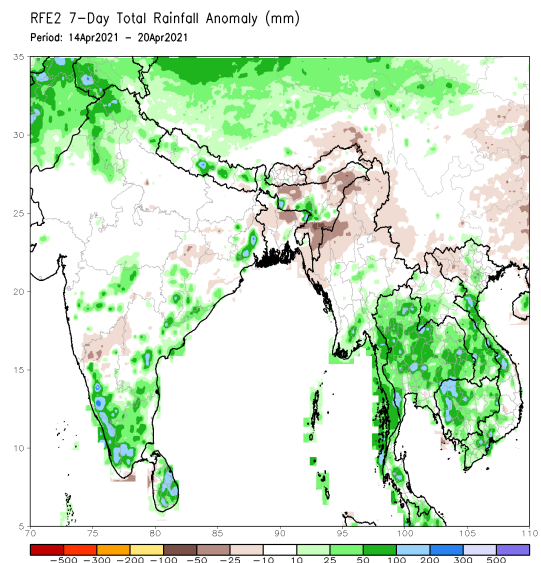
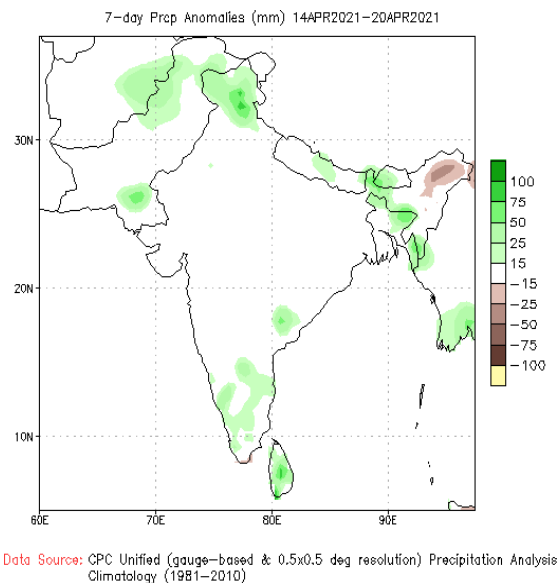
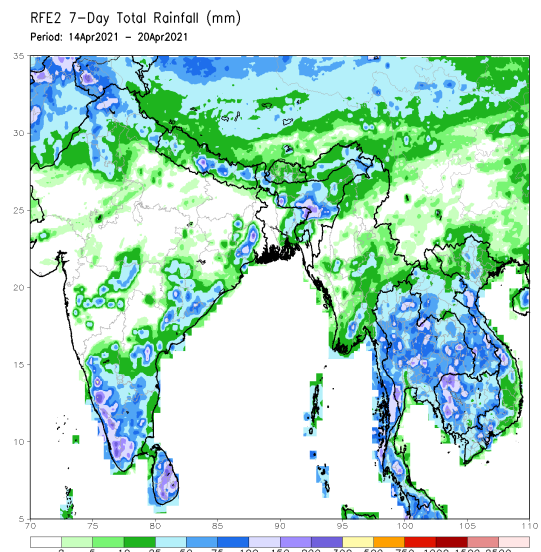
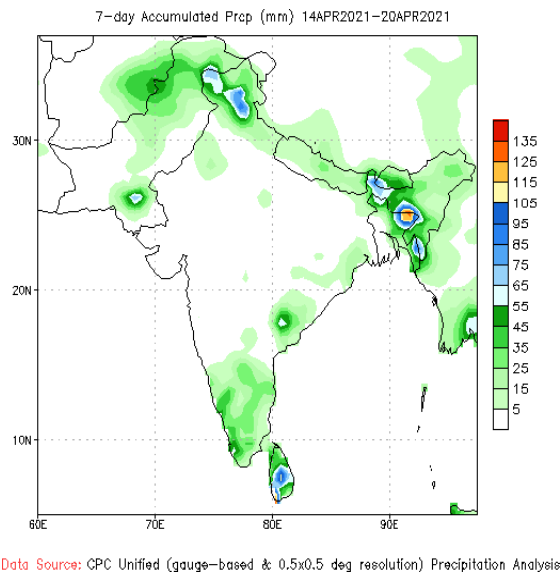


19 Apr 2021



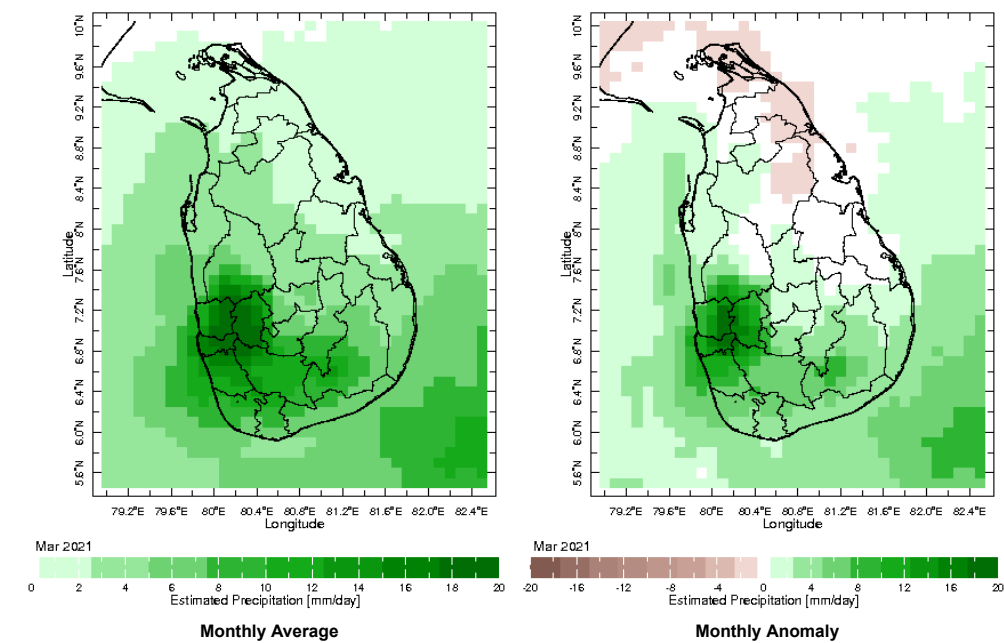
Weekly Rainfall Monitoring

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.

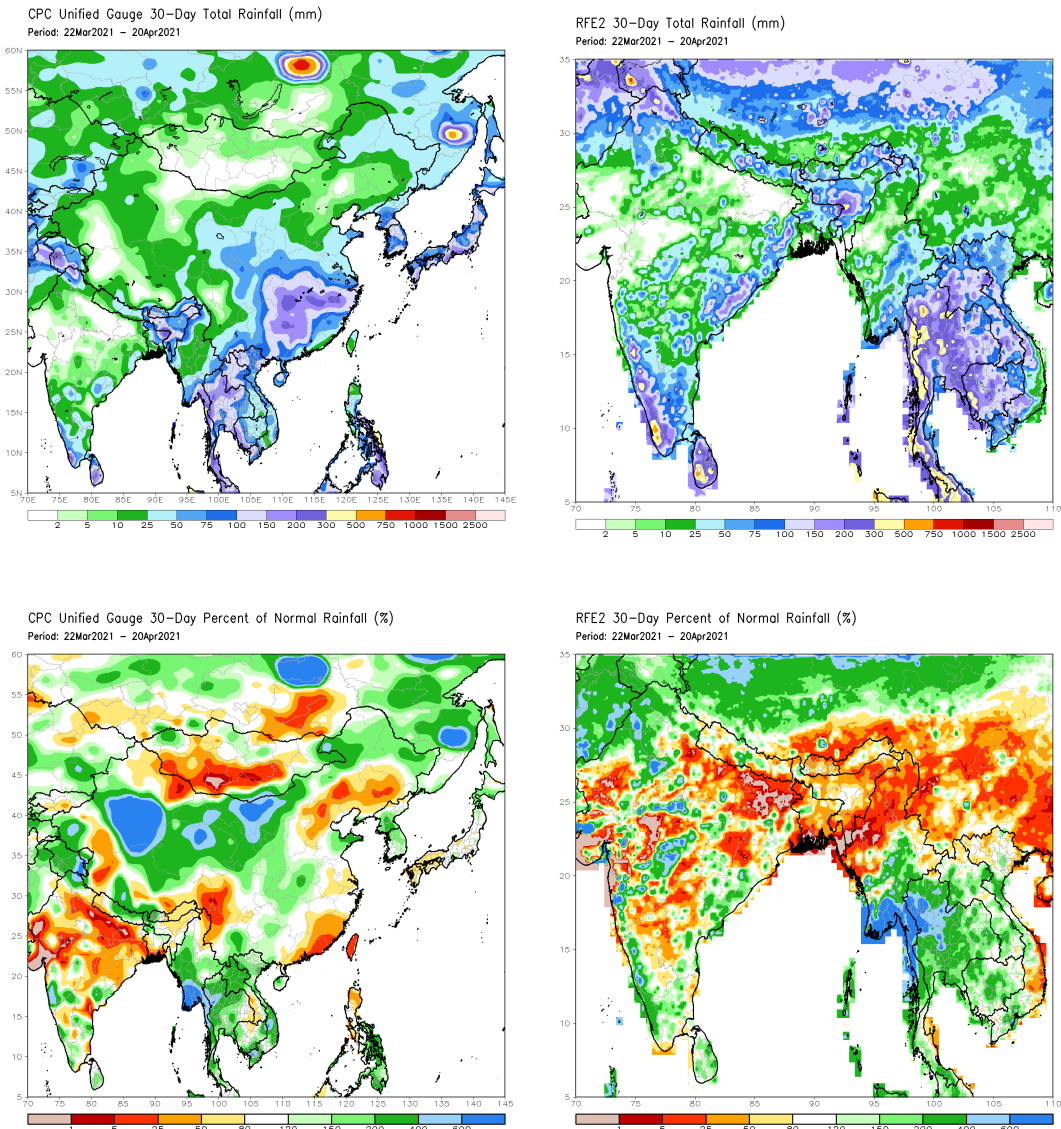


Monthly Rainfall Monitoring

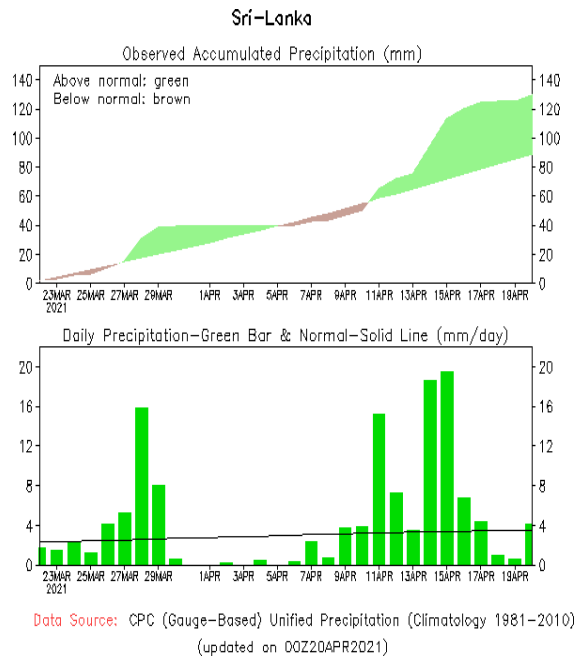
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



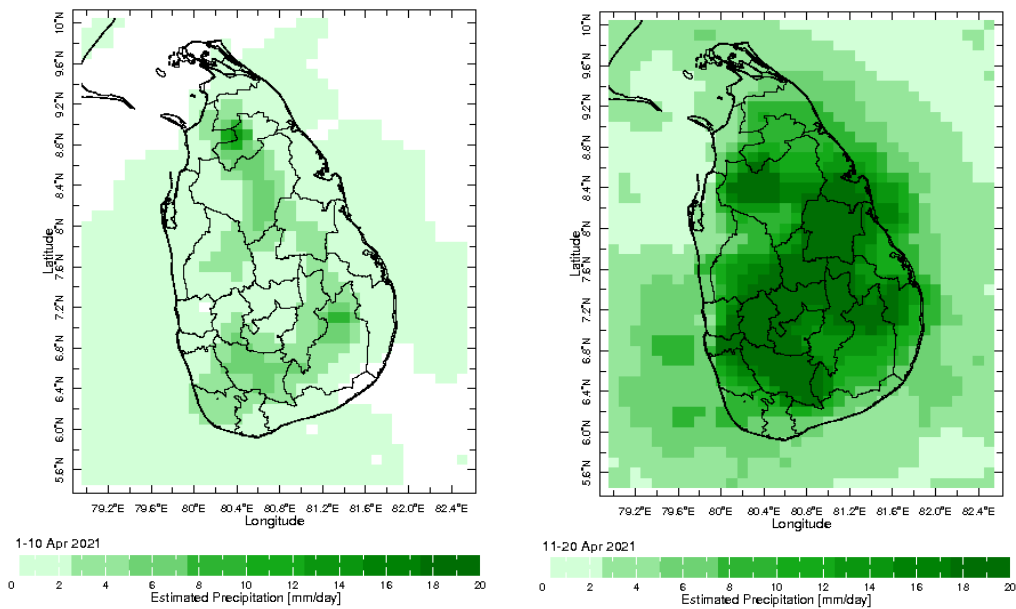
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



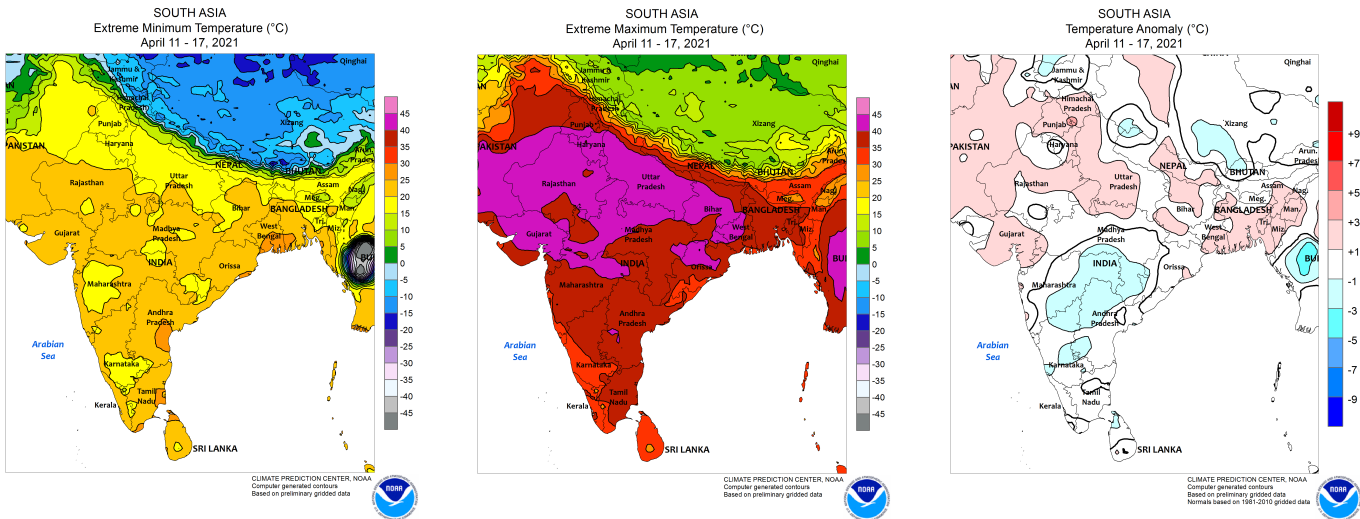
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

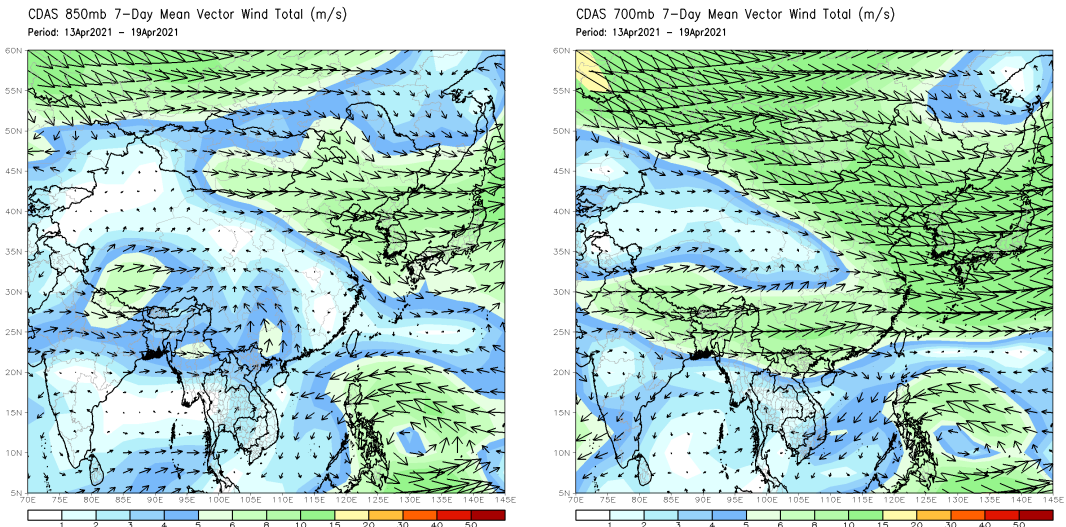


Weekly Temperature Monitoring



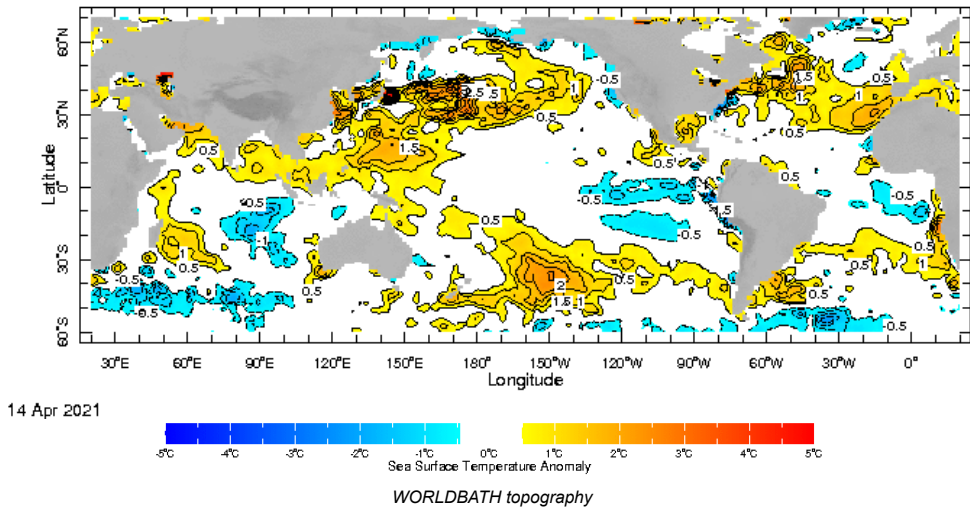
Weekly Wind Monitoring

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.

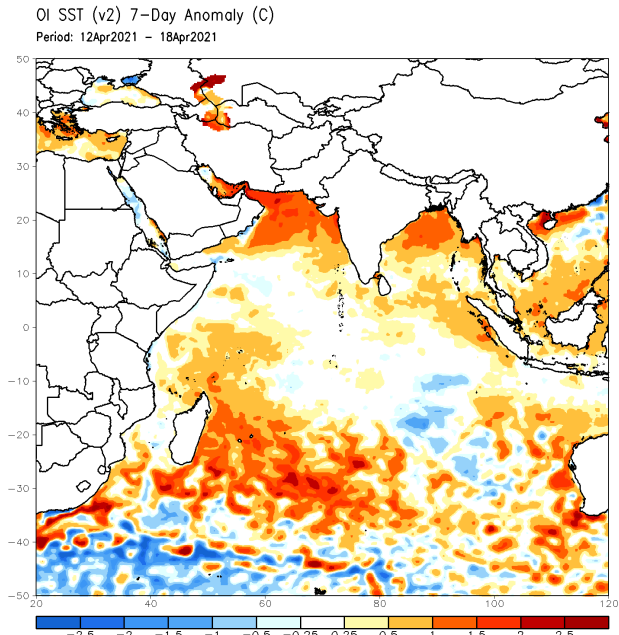


Weekly Average SST Anomalies

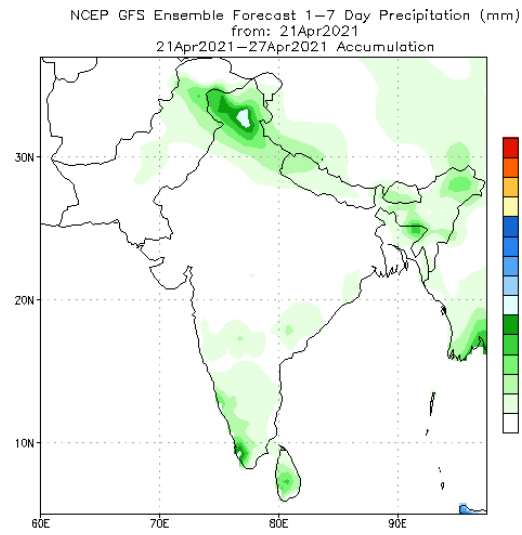
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



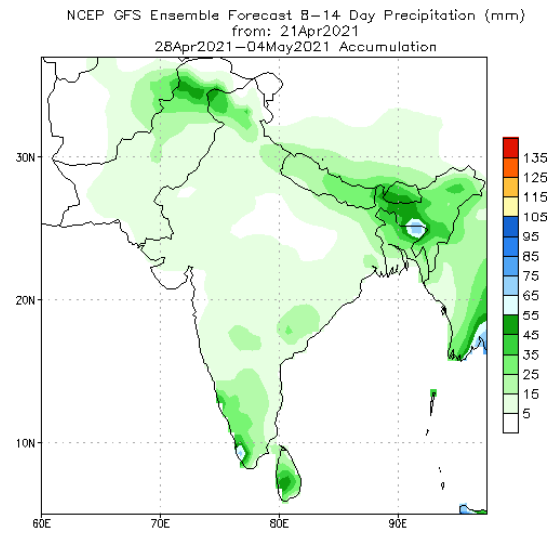
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



NCEP GFS 1- 14 Day prediction

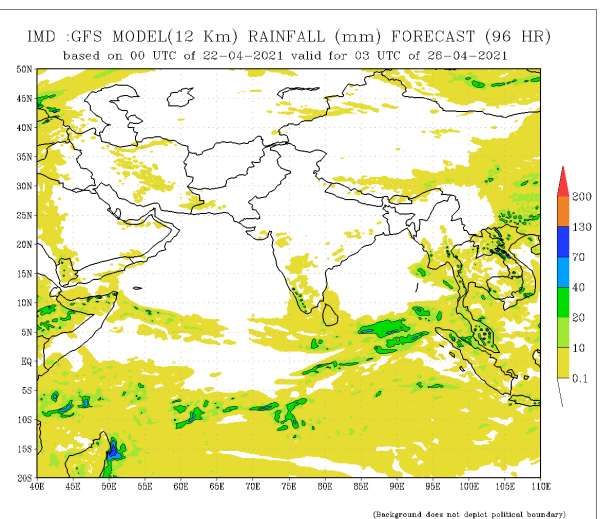
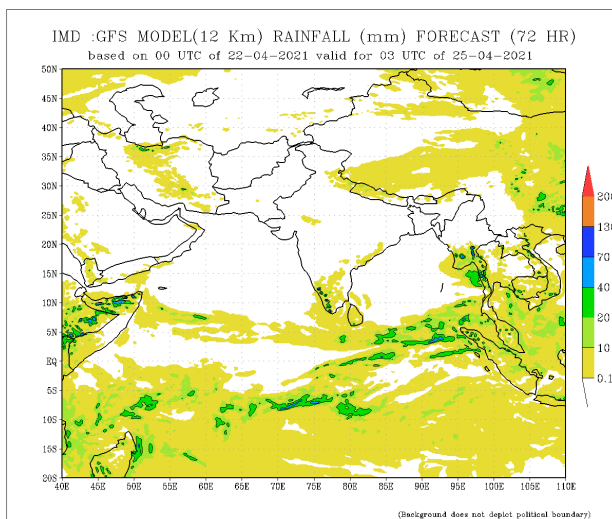
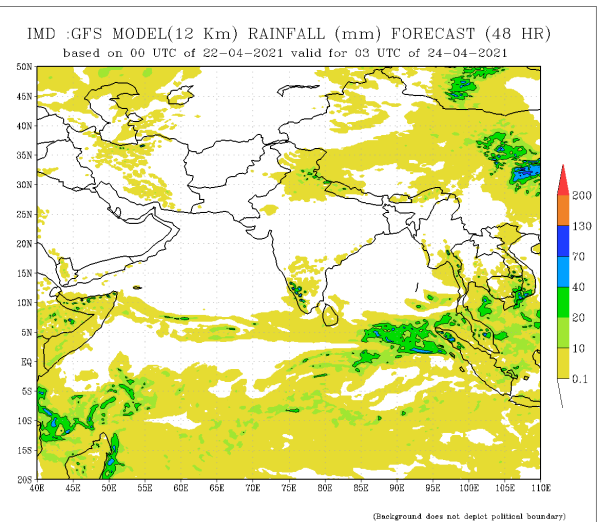
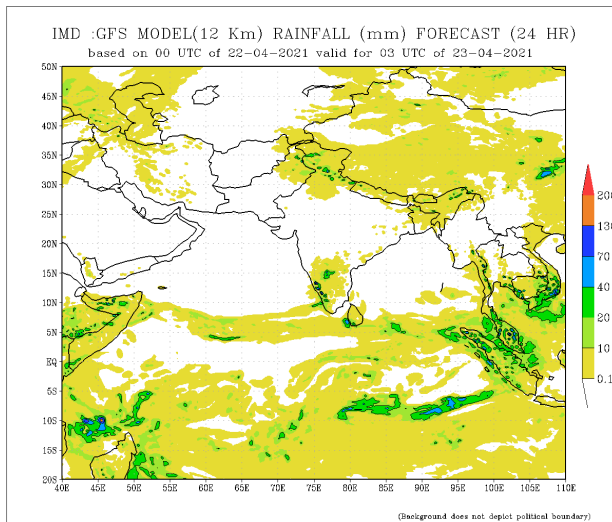


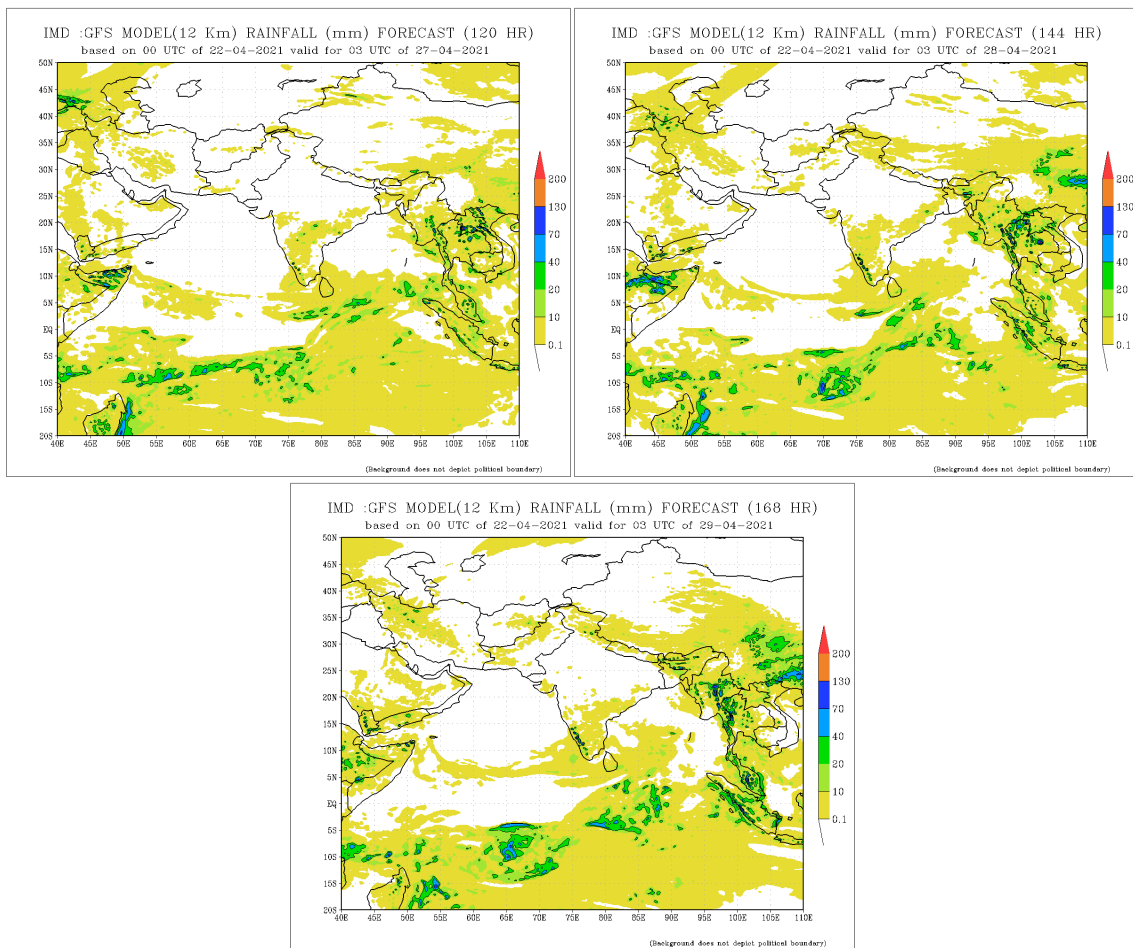
Bias correction based on last 30-day forecast error



Bias correction based on last 30-day forecast error

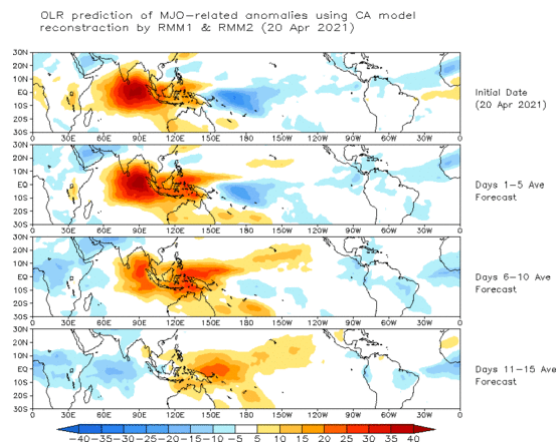
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India





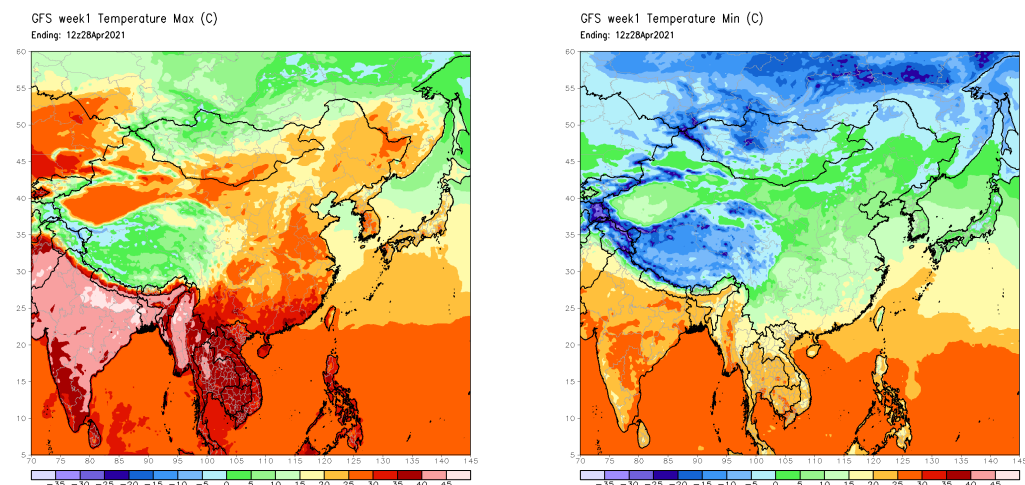
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



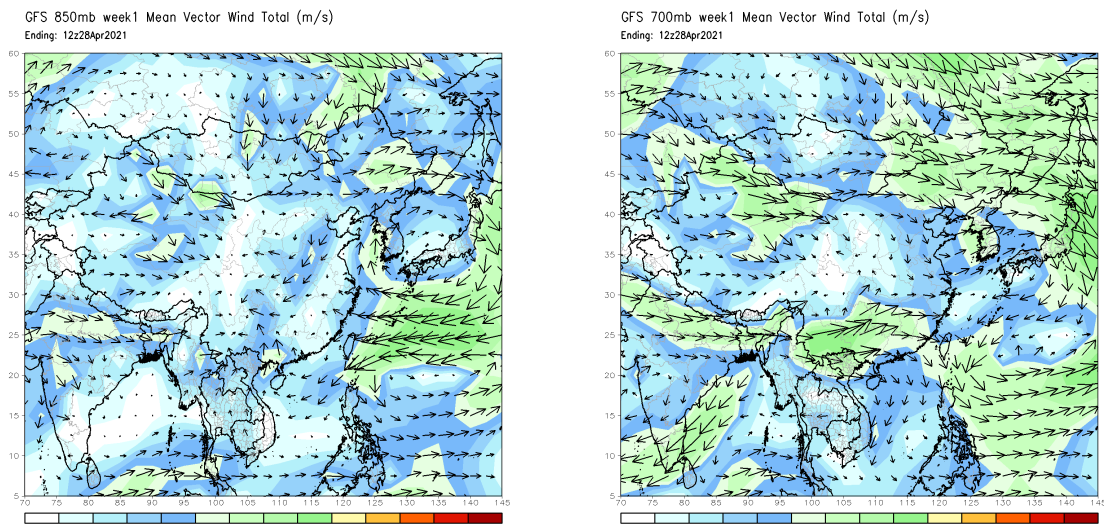
Weekly Temperature Forecast

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



Weekly Wind Forecast

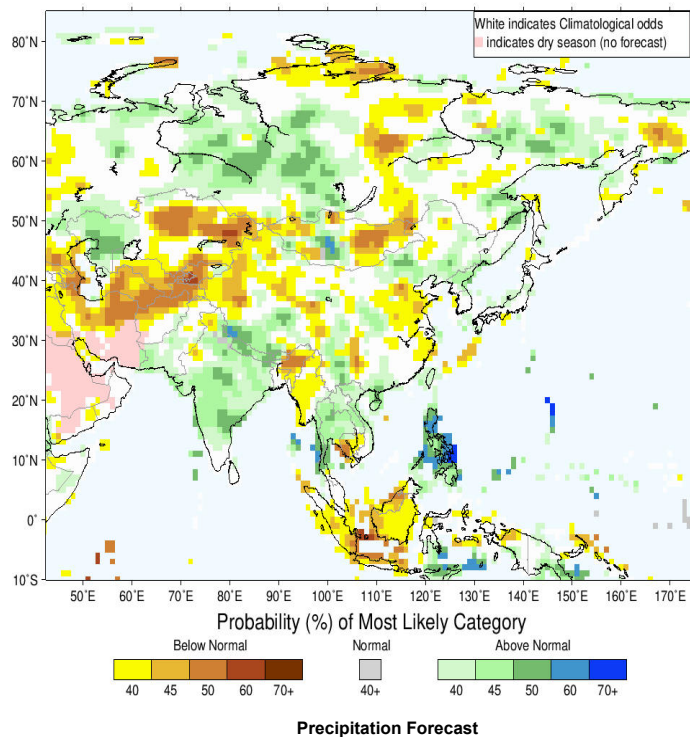
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



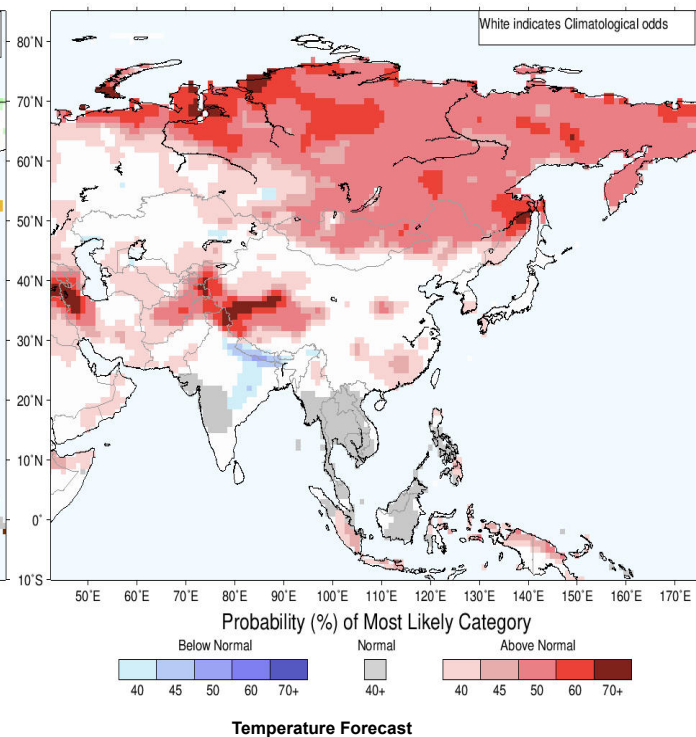
Seasonal Rainfall and Temperature Forecast

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 May-June-July 2021, Issued April 2021



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



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