

**Week of  
19 - 26 Mar  
2021**

**CLIMATE MONITORING AND PREDICTION FOR SRI LANKA**

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**HIGHLIGHTS**

**Rainfall Prediction**



• Showers of 65 mm expected in Eastern, Sabaragamuwa, Uva & Southern provinces during 20<sup>th</sup>-24<sup>th</sup> March.

**Monitored Rainfalls**



• Heavy rainfall was experienced in Western & Sabaragamuwa provinces during 10<sup>th</sup> - 16<sup>th</sup> March.

**Monitored Wind**



• From 9<sup>th</sup> - 15<sup>th</sup> March: up to 8 km/h Northeasterly winds were experienced around along Sri Lanka.

**Monitored Sea Surface**

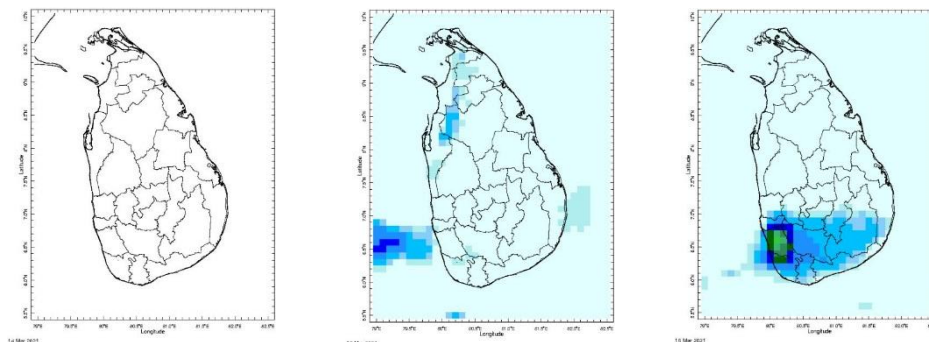
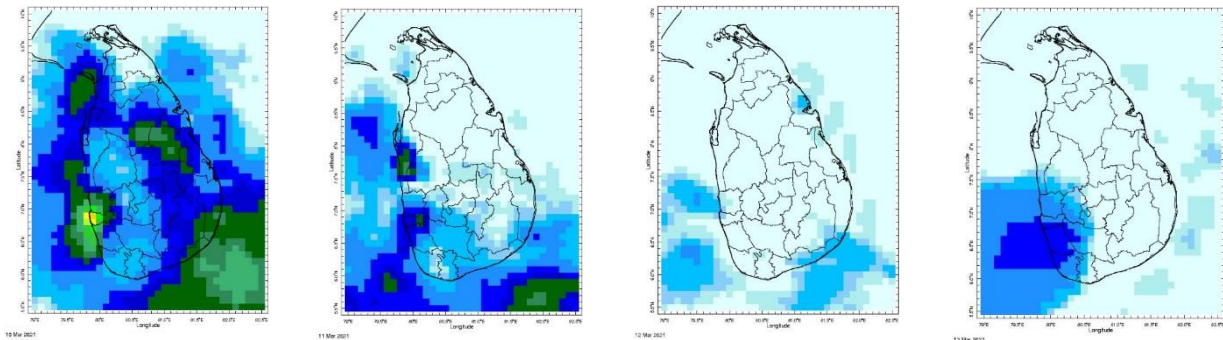


• SST was observed around 1.5°C above average in Southern & some parts of the Northeast Indian Ocean.

**Monitoring**

**Rainfall**

**Daily Estimates for Rainfall from 10<sup>th</sup> – 16<sup>th</sup> March**





## 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
100 – 150 mm	Gampaha, Colombo, Kalutara
75 – 100 mm	Kegalle, Ratnapura
50 – 75 mm	Galle
25 – 50 mm	Anuradhapura, Polonnaruwa, Batticaloa, Ampara, Puttalam, Kurunegala, Matale, Kandy, Nuwara Eliya, Moneragala, Hambantota, Matara, Mannar
10 – 25 mm	Vavuniya, Trincomalee, Badulla
5 – 10 mm	Mullaitivu
2 – 5 mm	Kilinochchi, Jaffna

Weekly Rainfall Anomalies by Districts:

#### Rainfall Excess

Rainfall	Districts
100 – 200 mm	Colombo
50 – 100 mm	Gampaha, Kalutara
25 – 50 mm	Kegalle, Ratnapura, Galle
10 – 25 mm	Anuradhapura, Ampara, Hambanthota, Moneragala, Puttalam, Mannar

#### Rainfall Deficit

Rainfall	Districts
50 – 100 mm	Kurunegala
25 – 50 mm	Matale, Kandy, Nuwara Eliya, Matara, Badulla
10 – 25 mm	Jaffna, Kilinochchi, Mullaitivu, Vavuniya, Polonnaruwa, Trincomalee, Batticaloa

### Monthly Monitoring

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

#### 21<sup>st</sup> – 28<sup>th</sup> February:

Rainfall	Districts
6 mm	Kalutara, Galle, Ratnapura
4 mm	Nuwara Eliya, Colombo, Matara, Kegalle
2 mm	Puttalam, Kurunegala, Ampara, Badulla, Moneragala, Matale, Kandy, Gampaha, Hambantota



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### 1<sup>st</sup> – 10<sup>th</sup> March:

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

### Ocean State *(Text Courtesy IRI)*

#### ***Pacific sea state: March 10, 2021***

Equatorial SSTs were mostly below average from the west-central to the eastern Pacific Ocean in mid-March and most key atmospheric variables were either ENSO –Neutral or consistent with continued La Niña conditions.

#### ***Indian Ocean State***

Sea surface temperature was observed around 1.5°C above average in Southern and some parts of the Northeast Indian Ocean.

## Prediction

### Rainfall

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

#### **From 17<sup>th</sup> – 23<sup>rd</sup> March:**

Total rainfall by Provinces:

Rainfall	Provinces
65 mm	Eastern, Sabaragamuwa, Southern, Uva
55 mm	Central, Western
35 mm	North central, North western
25 mm	Northern



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### From 24<sup>th</sup> – 30<sup>th</sup> March:

Total rainfall by Provinces:

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

### MJO based OLR predictions

#### For the next 15 days:

MJO shall neutral the rainfall during 16<sup>th</sup> – 20<sup>th</sup> Mar and significantly enhanced during 21<sup>st</sup>– 30<sup>th</sup> Mar.

## Interpretation

### Monitoring

**Rainfall:** During the last two weeks, there had been high rainfall over the following provinces: Western & Sabaragamuwa.

**Wind:** As is typical for March the Northeasterly winds prevailed in the sea area and around the island.

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

### Predictions

**Rainfall:** During the next week (20<sup>th</sup>–24<sup>th</sup> Mar), showers is predicted for the Eastern, Sabaragamuwa, Southern & Uva Provinces. A drop in rainfall is predicted over the rest of the country.

**Temperatures:** The temperature remains slightly above normal for March. During 19<sup>th</sup>–24<sup>th</sup> Mar, the temperature remains high especially the Northern, Uva, North central, and North western provinces.

#### Teleconnections:

- MJO shall neutral the rainfall during 16<sup>th</sup> – 20<sup>th</sup> Mar and significantly enhanced during 21<sup>st</sup>– 30<sup>th</sup> Mar.
- La Niña - The SST forecast is for La Niña conditions to continue through April weakening through June. So, the La Niña is expected to be moderate to strong in coming seasons.

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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- d. Dekadal (10 Day) Satellite Derived Rainfall Estimates
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#### 2. Predictions

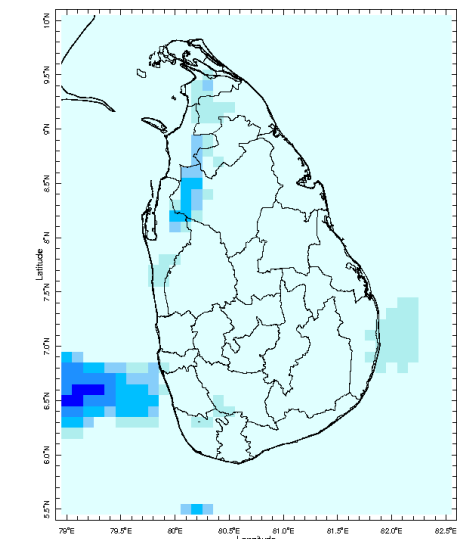
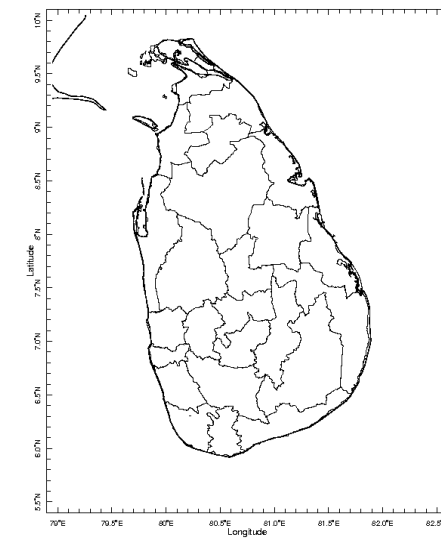
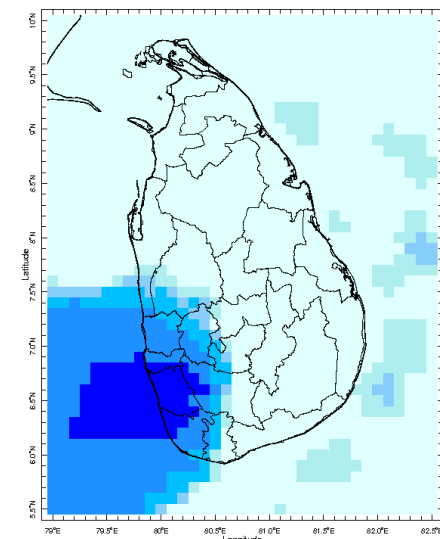
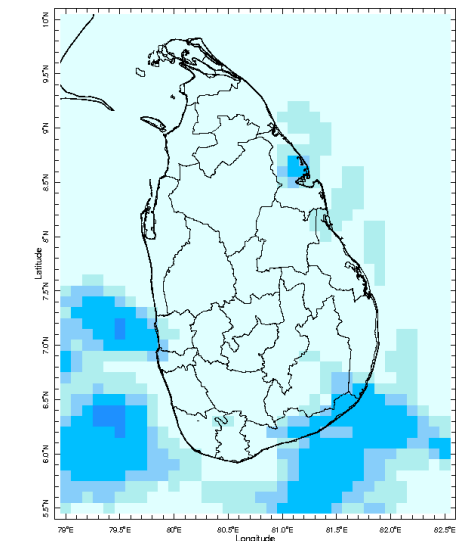
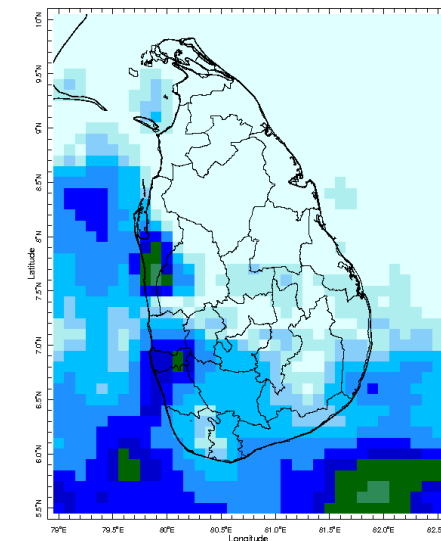
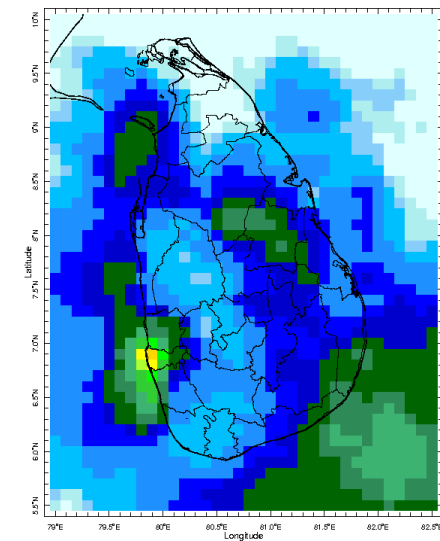
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
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- c. MJO Related OLR Forecast
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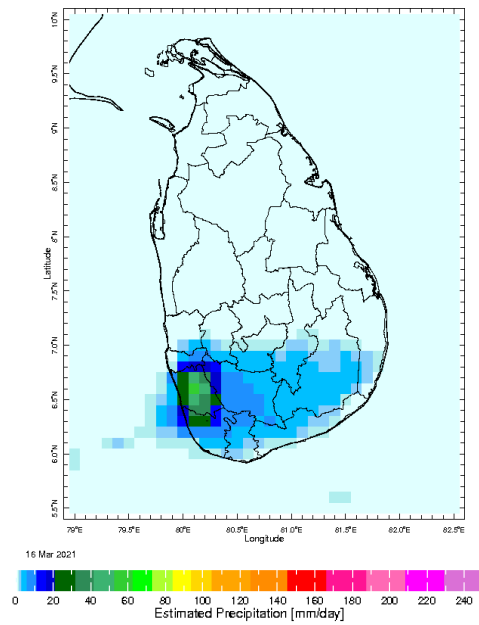


### MONITORING

#### Daily Rainfall Monitoring

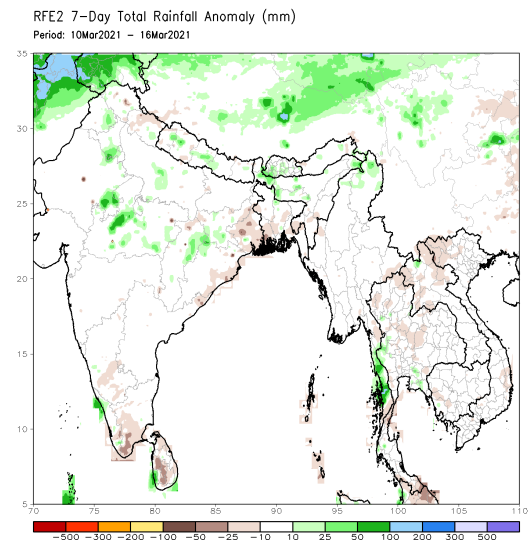
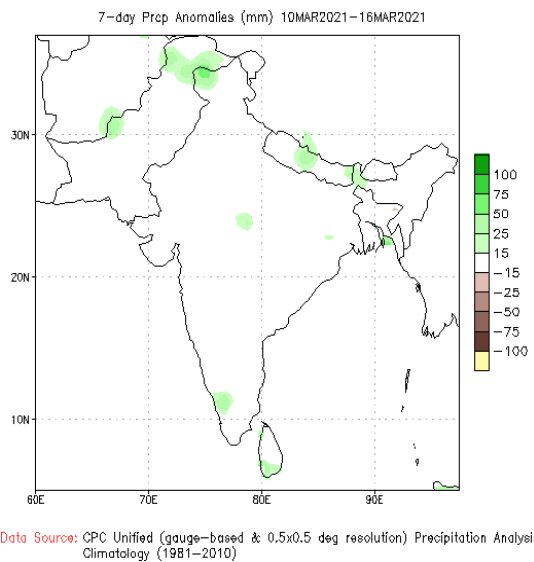
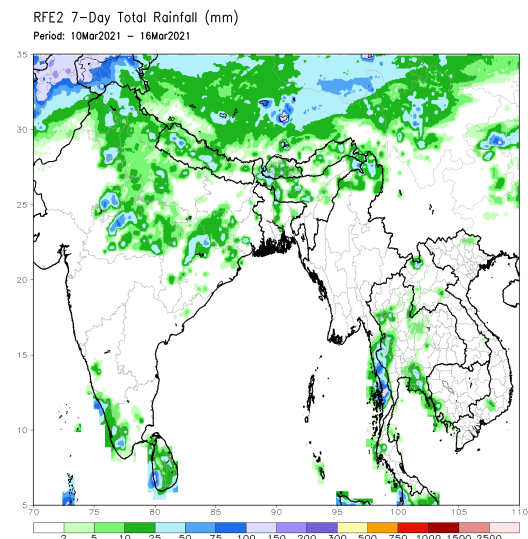
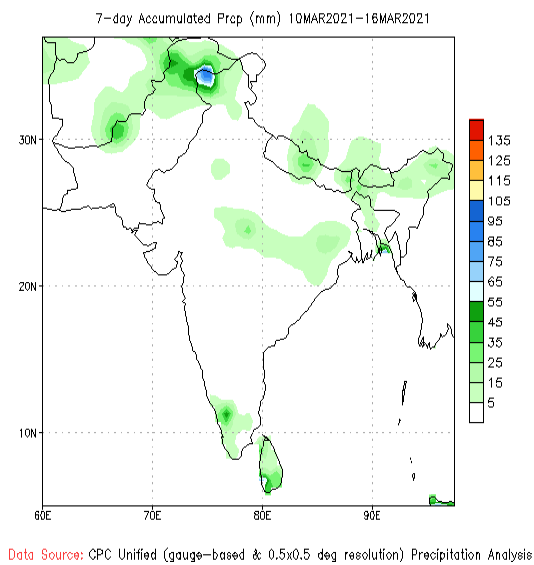
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.





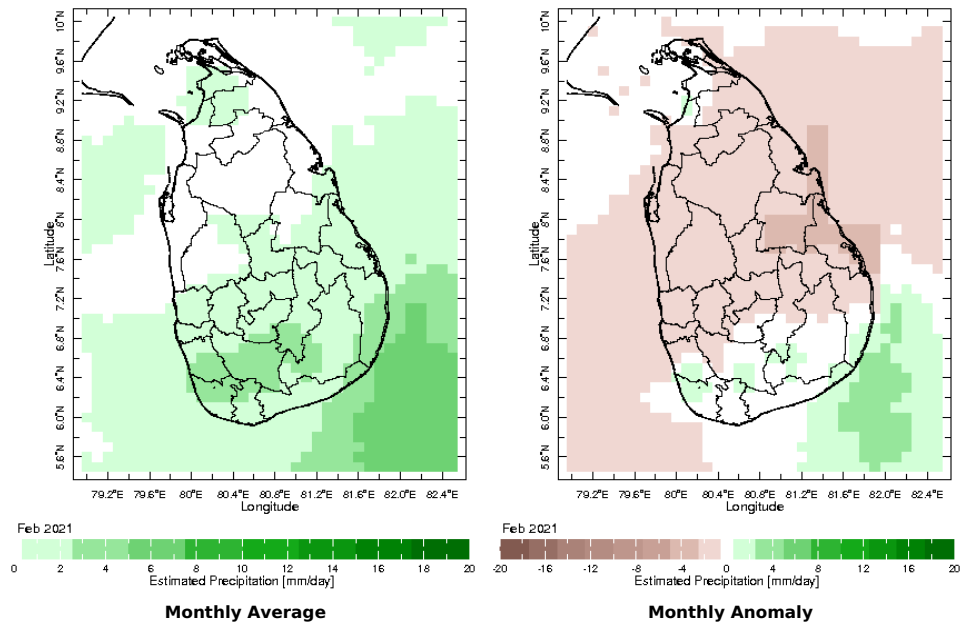
## Weekly Rainfall Monitoring

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.

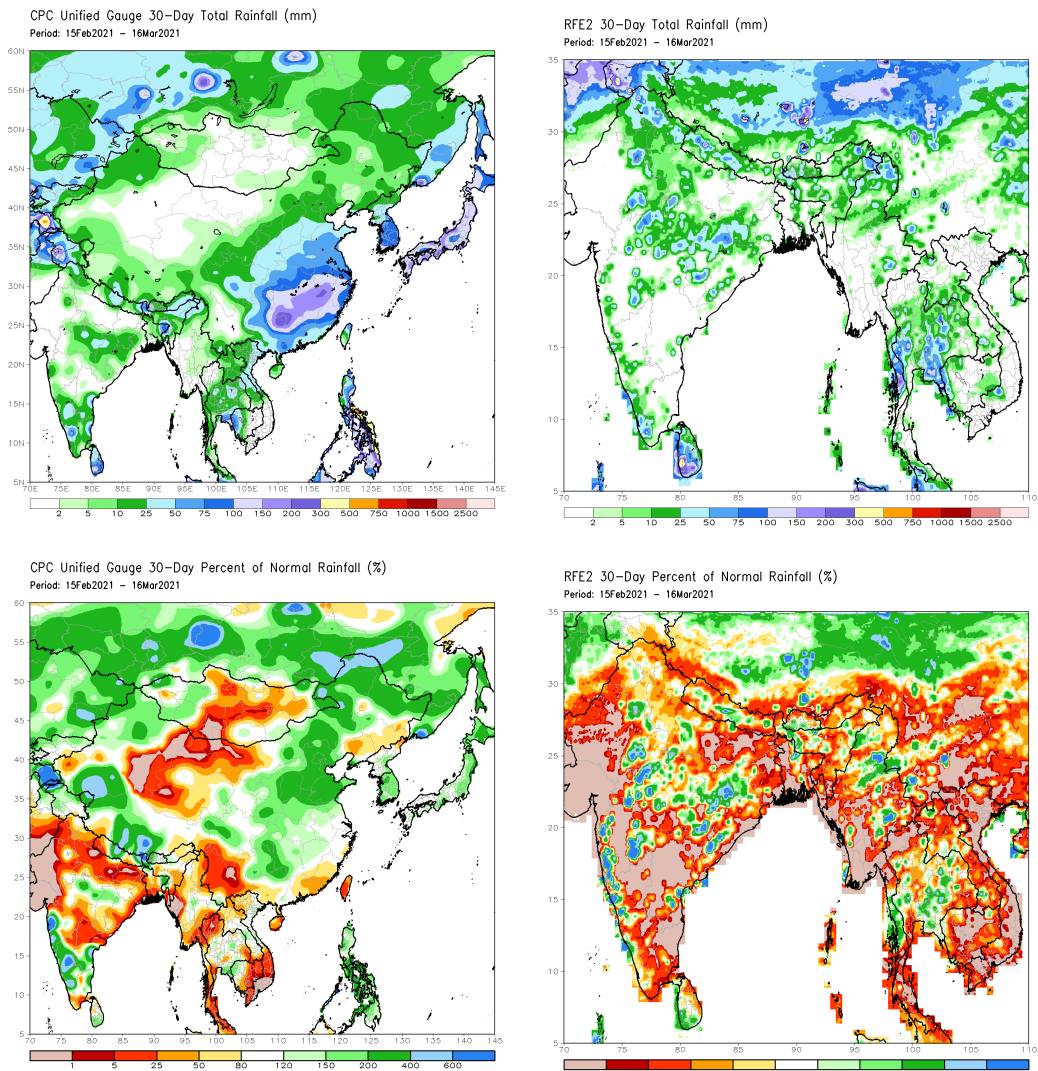


## Monthly Rainfall Monitoring

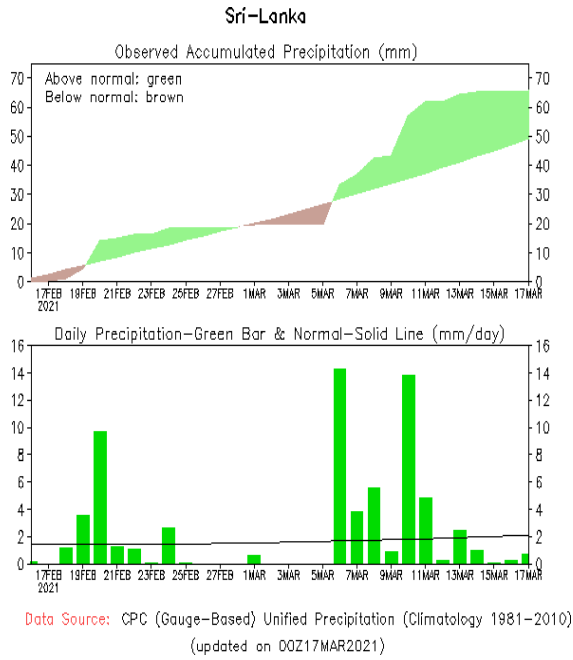
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



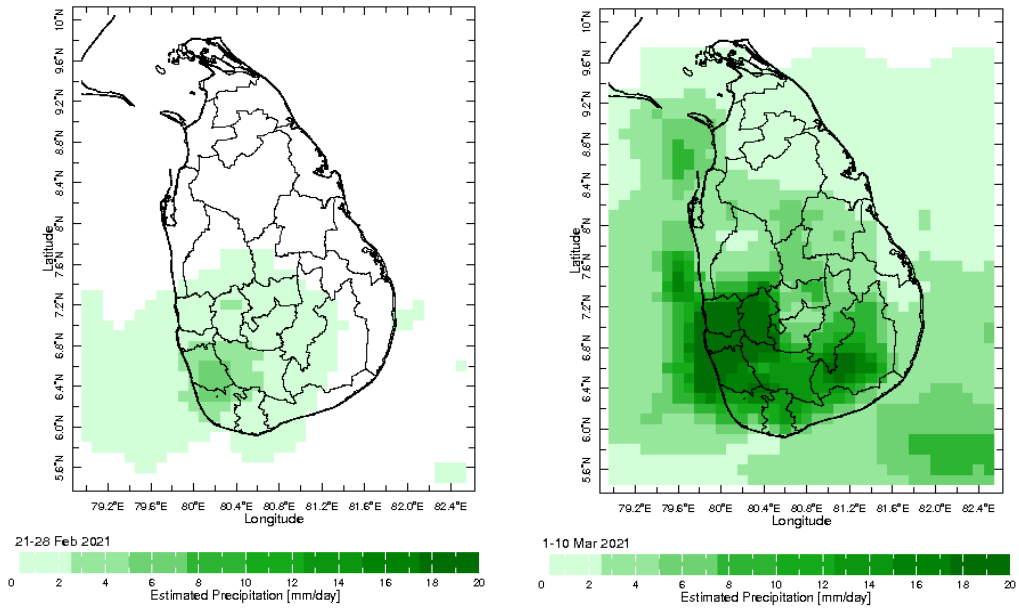
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



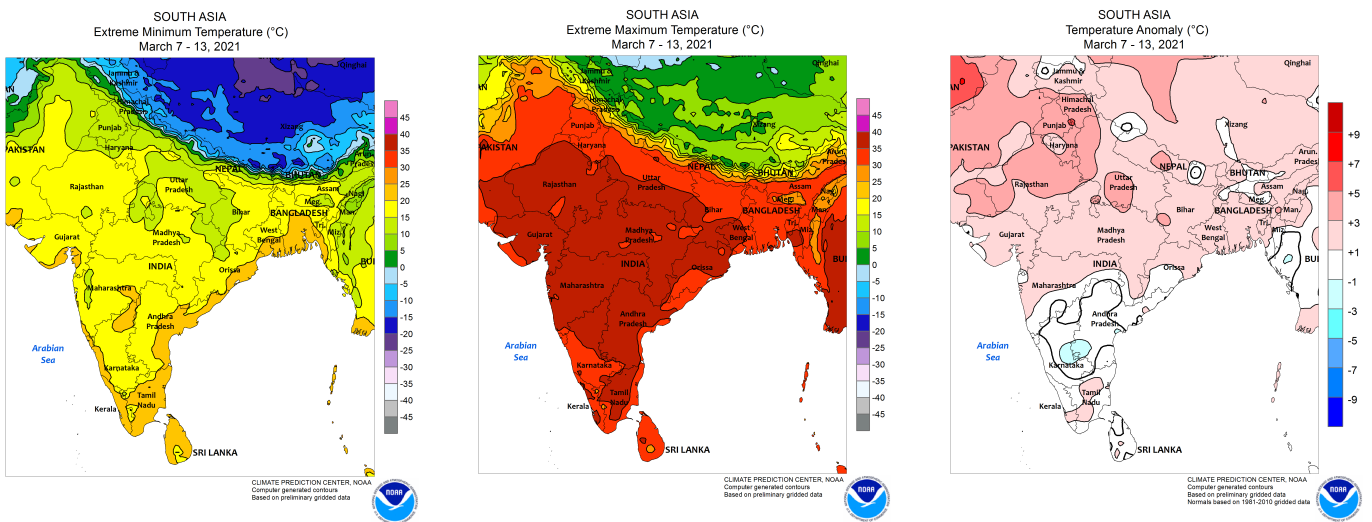
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



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



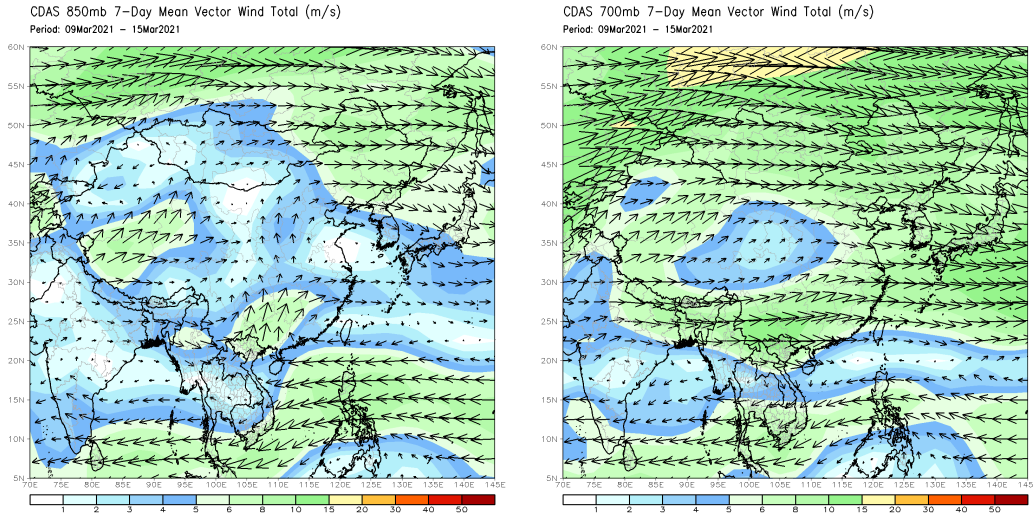
**Weekly Temperature Monitoring**





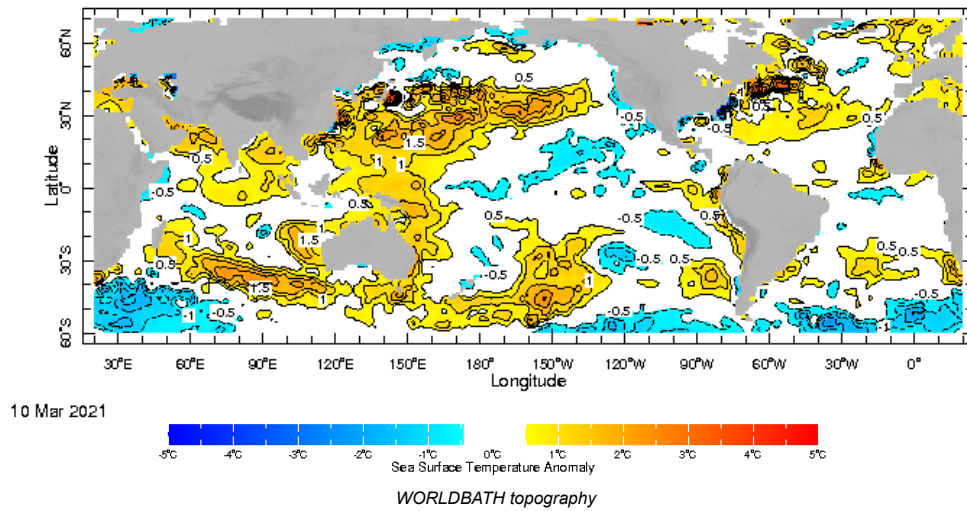
## Weekly Wind Monitoring

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.

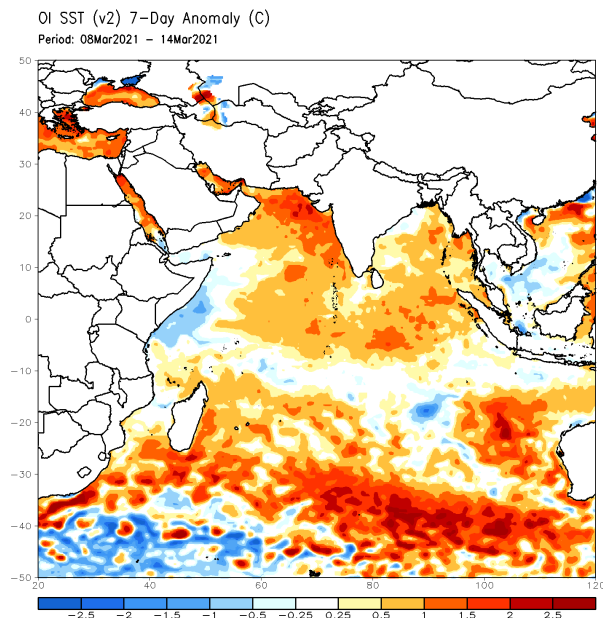


## Weekly Average SST Anomalies

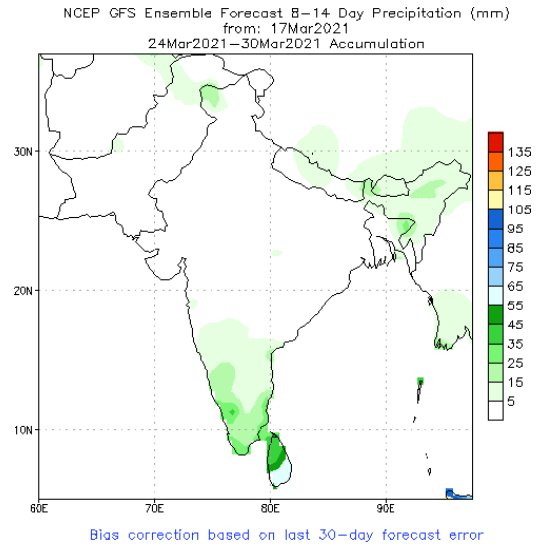
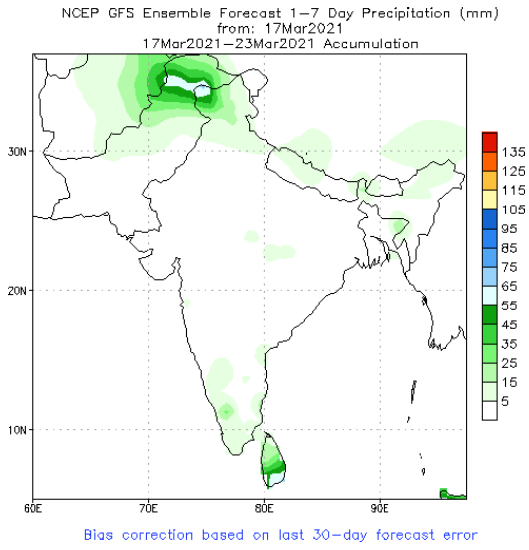
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



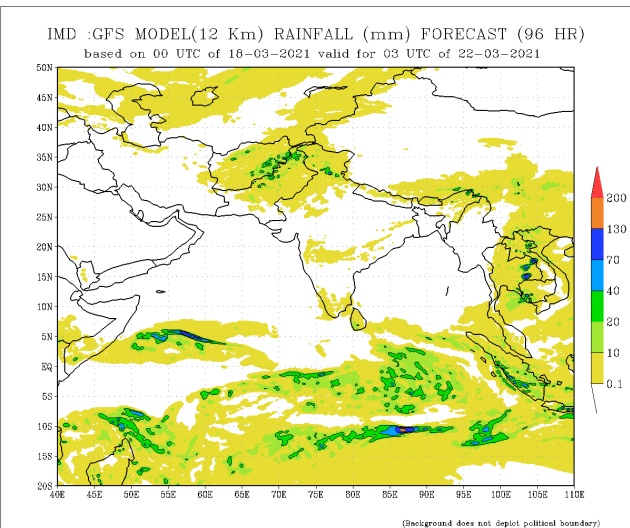
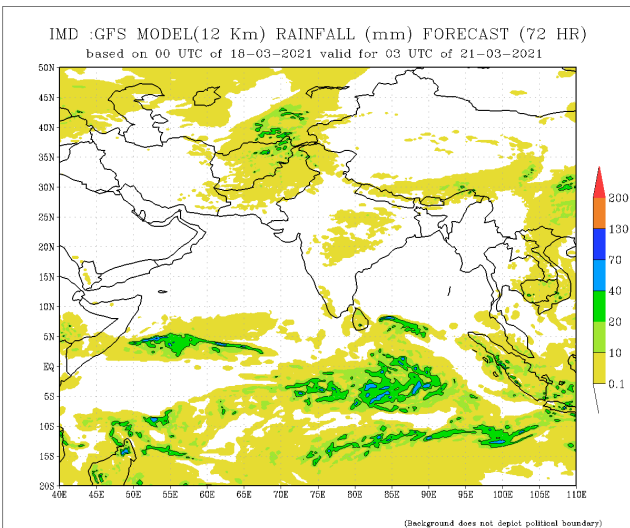
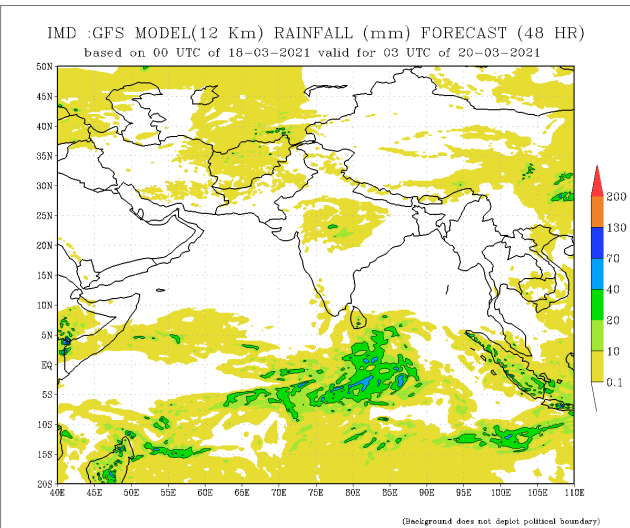
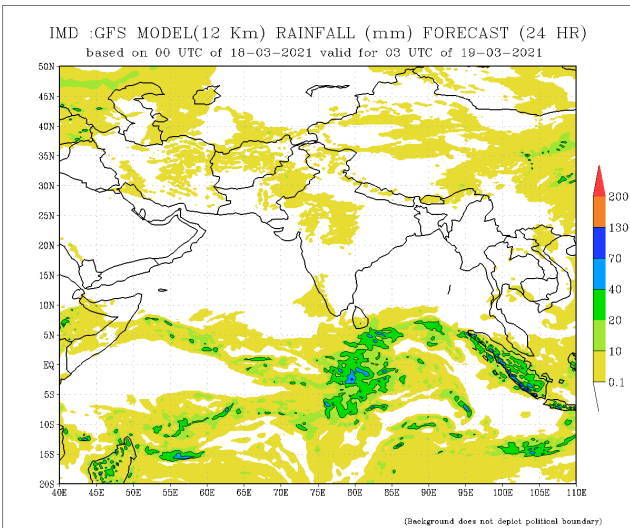
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

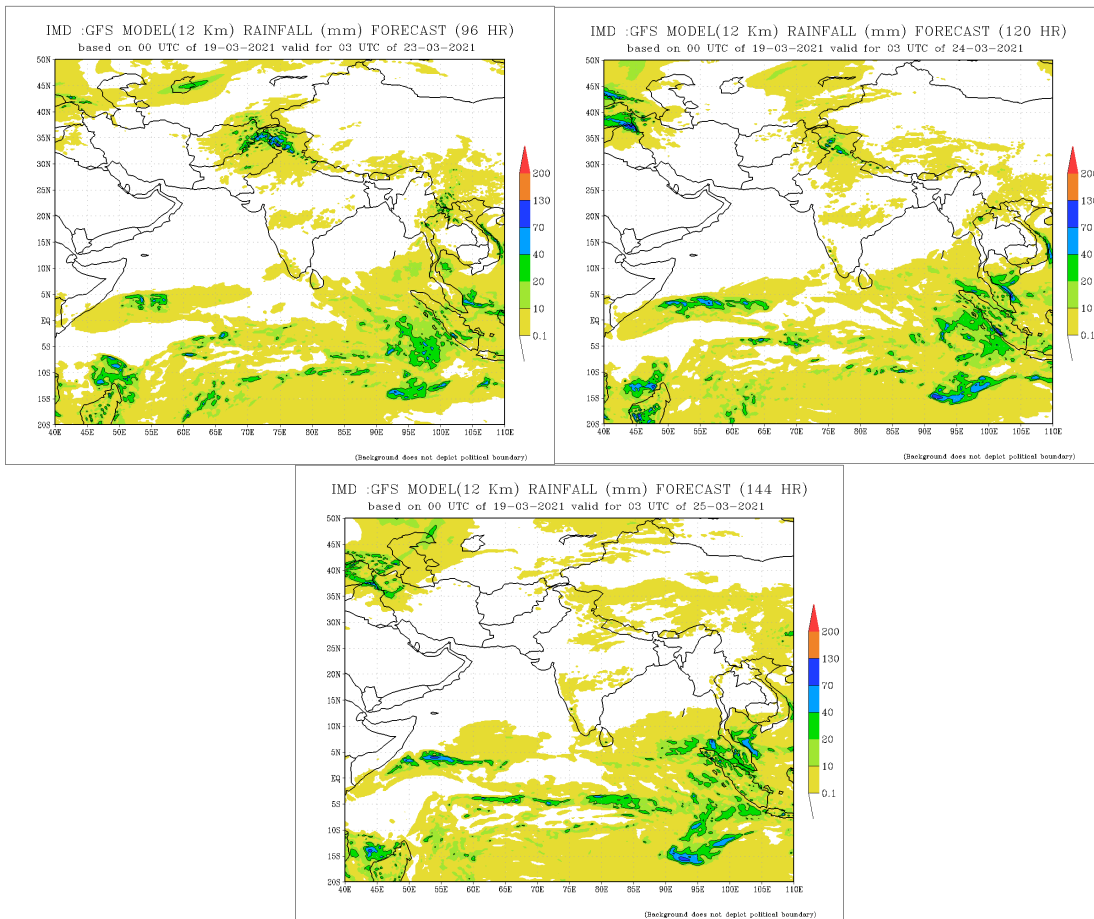


**NCEP GFS 1- 14 Day prediction**



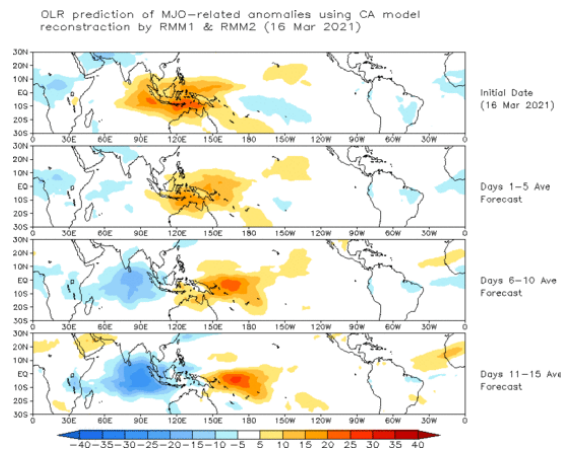
**IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India**





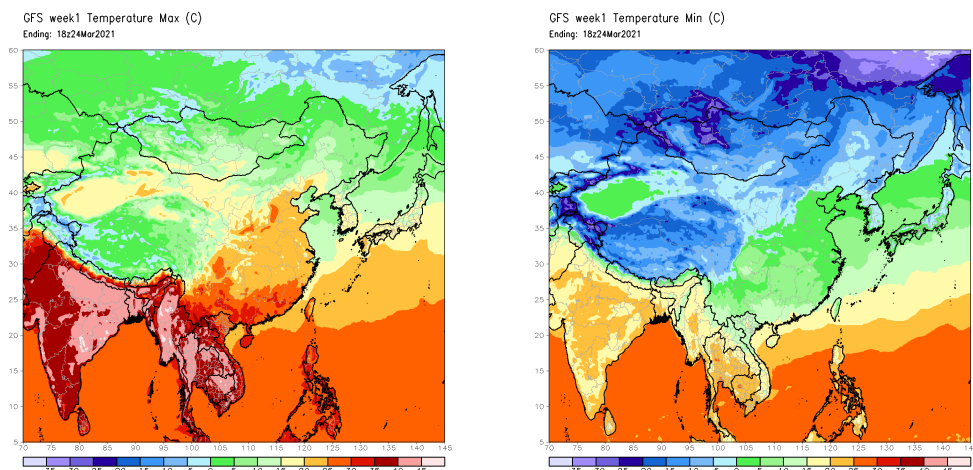
### Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



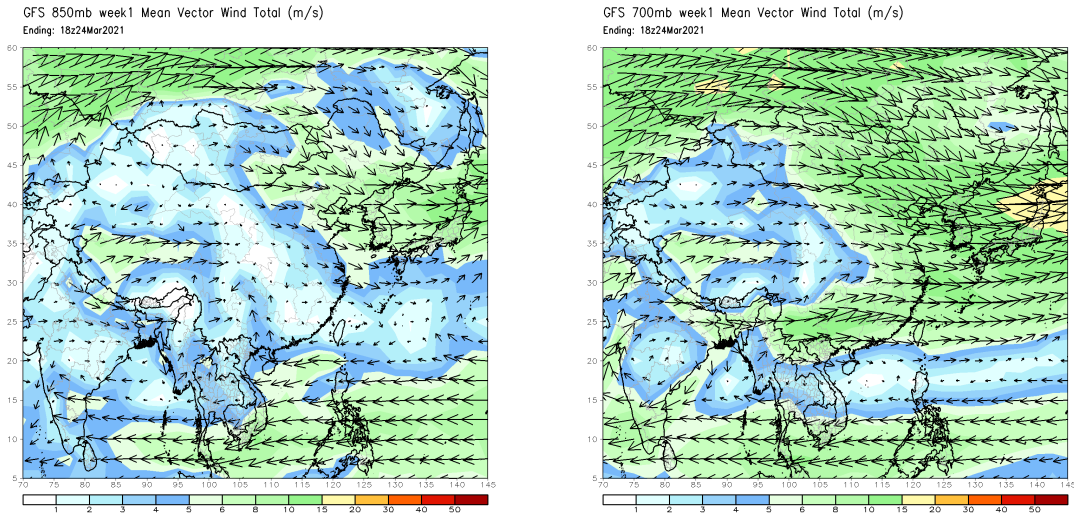
### Weekly Temperature Forecast

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



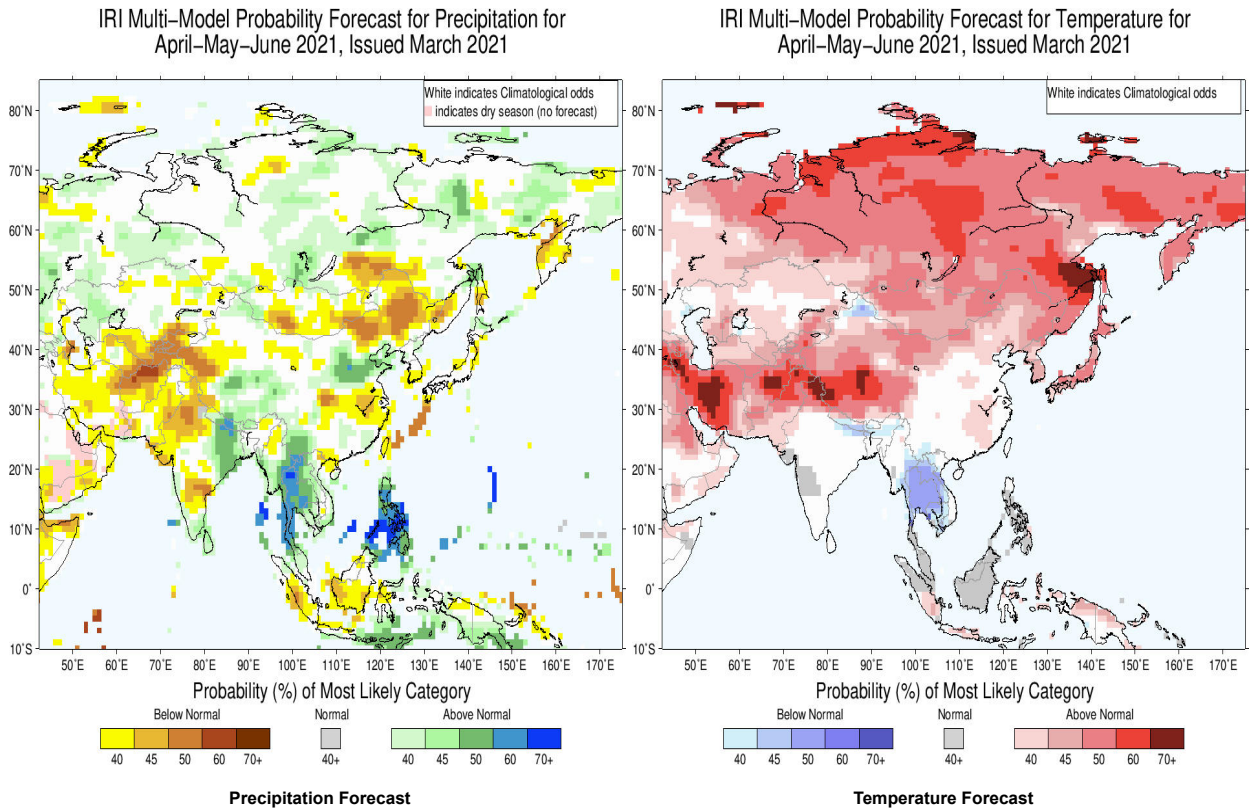
# Weekly Wind Forecast

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%).



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