

Week of  
26 Nov - 3 Dec  
2021

## CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

### HIGHLIGHTS

#### Rainfall Prediction



- Heavy rainfall is predicted for Central, Northern, North Central, North Western, Sabaragamuwa, Southern and Western provinces from 27<sup>th</sup> Nov - 1<sup>st</sup> Dec.

#### Monitored Rainfalls



- Very heavy rainfall was experienced in Sabaragamuwa province with max of 219.0 mm in Ratnapura district on 24<sup>th</sup> Nov.

#### Monitored Wind



- From 17<sup>th</sup> Nov - 23<sup>rd</sup> Nov, up to 40 km/h Northerlies and Northeasterlies were experienced across the island.

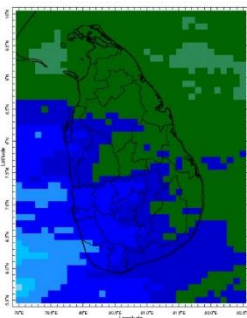
#### Monitored Sea Surface



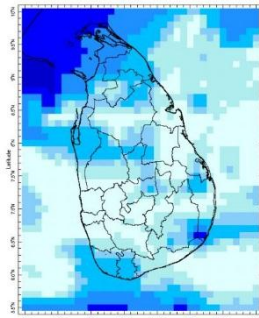
- Sea surface temperatures were neutral around the entire island.

### Monitoring Rainfall

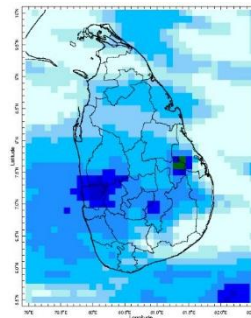
#### Daily Estimates for Rainfall from 17<sup>th</sup> November – 24<sup>th</sup> November



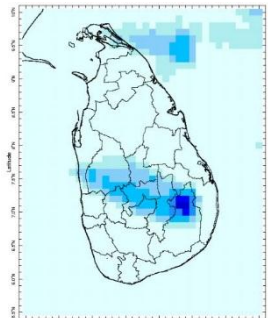
17 November



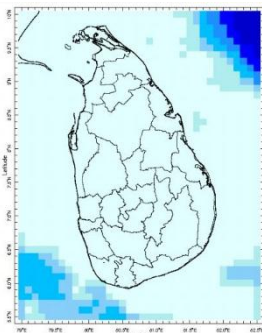
18 November



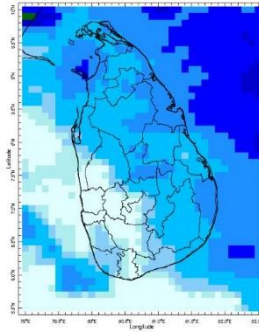
19 November



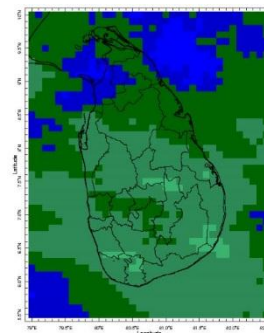
20 November



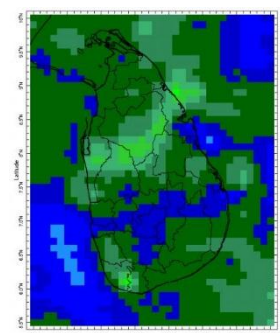
21 November



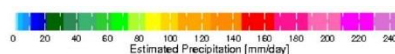
22 November



23 November



24 November



Federation for  
Environment, Climate  
& Technology

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## Ocean State (Text Courtesy IRI)

### ***Pacific sea state: November 17, 2021***

Equatorial SSTs were near-to-below average across most of the equatorial Pacific Ocean and were above average in the western Pacific Ocean in the mid-November. A large majority of the model forecasts predict a transition from ENSO-neutral to La Niña is favored in the next couple of months and La Niña to continue through the Northern Hemisphere fall and winter.

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

Sea surface temperatures were neutral around the entire island.

## Predictions

### Rainfall

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

**From 25<sup>th</sup> November – 1<sup>st</sup> December:**

Total rainfall by Provinces:

Rainfall	Provinces
>135 mm	Central, Northern, North Central, North Western, Sabaragamuwa, Southern, Western
135 mm	Eastern
125 mm	Uva

**From 2<sup>nd</sup> December – 8<sup>th</sup> December:**

Total rainfall by Provinces:

Rainfall	Provinces
>135 mm	Northern
125 mm	North Western, Western
115 mm	Sabaragamuwa
105 mm	Central, North Central, Southern
95 mm	Eastern
85 mm	Uva

### MJO based OLR predictions

#### ***For the next 15 days:***

MJO shall be active during 25<sup>th</sup> November – 29<sup>th</sup> November giving slightly enhanced rainfall. MJO shall be neutral during 30<sup>th</sup> November – 4<sup>th</sup> December and active during 5<sup>th</sup> December – 9<sup>th</sup> December giving slightly suppressed rainfall.

# Interpretation

## Monitoring

**Rainfall:** During the last two weeks, there had been very heavy rainfall over the Sabaragamuwa Province.

**Wind:** Northerly and Northeasterly winds prevailed in the sea area and around the island last week.

**Temperatures:** The temperature anomalies were above normal by 1°C – 3°C in some parts of Southern province and near-neutral for the rest of the island last week, driven by the warm SST's.

## Predictions

**Rainfall:** During the next week (27<sup>th</sup> November – 1<sup>st</sup> December) heavy rainfall is predicted for the following provinces: Central, Northern, North Central, North Western, Sabaragamuwa, Southern and Western.

**Temperatures:** The temperature remains normal during 27<sup>th</sup> November – 5<sup>th</sup> December for the entire island.

### Teleconnections:

La Nina -The SST forecast indicates that ENSO-neutral are present and a transition from ENSO-neutral to La Niña is favored in the next couple of months.

MJO shall be active during 25th November – 29th November giving slightly enhanced rainfall. MJO shall be neutral during 30th November – 4th December and active during 5th December – 9th December giving slightly suppressed rainfall.

### Seasonal Precipitation:

The precipitation forecast for the Dec-Feb season show enhanced probabilities of above-normal precipitation over Sri Lanka.

### Understanding the Forecast

	Rainfall (During 24 hours of period)
Light Showers	Less than 12.5 mm
Light to Moderate	Between 12.5 mm and 25 mm
Moderate	Between 25 mm and 50 mm
Fairly Heavy	Between 50 mm and 100 mm
Heavy	Between 100 mm and 150 mm
Very Heavy	More than 150 mm

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

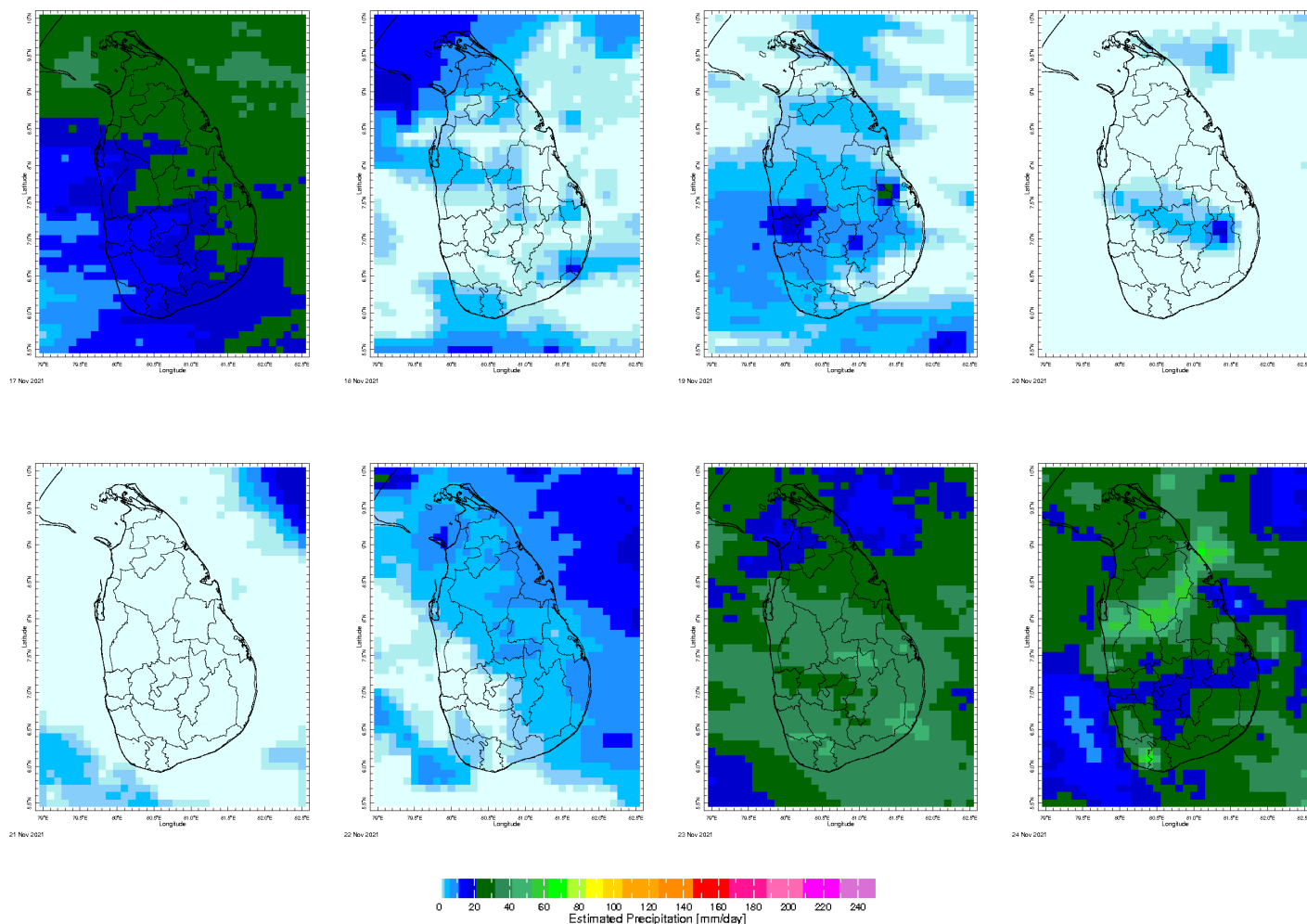
- NCEP GFS Ensemble 1-14 day Rainfall Predictions
- GFS (T574) Model Rainfall Forecast from RMSC New Delhi
- MJO Related OLR Forecast
- Weekly Temperature Forecast
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### MONITORING

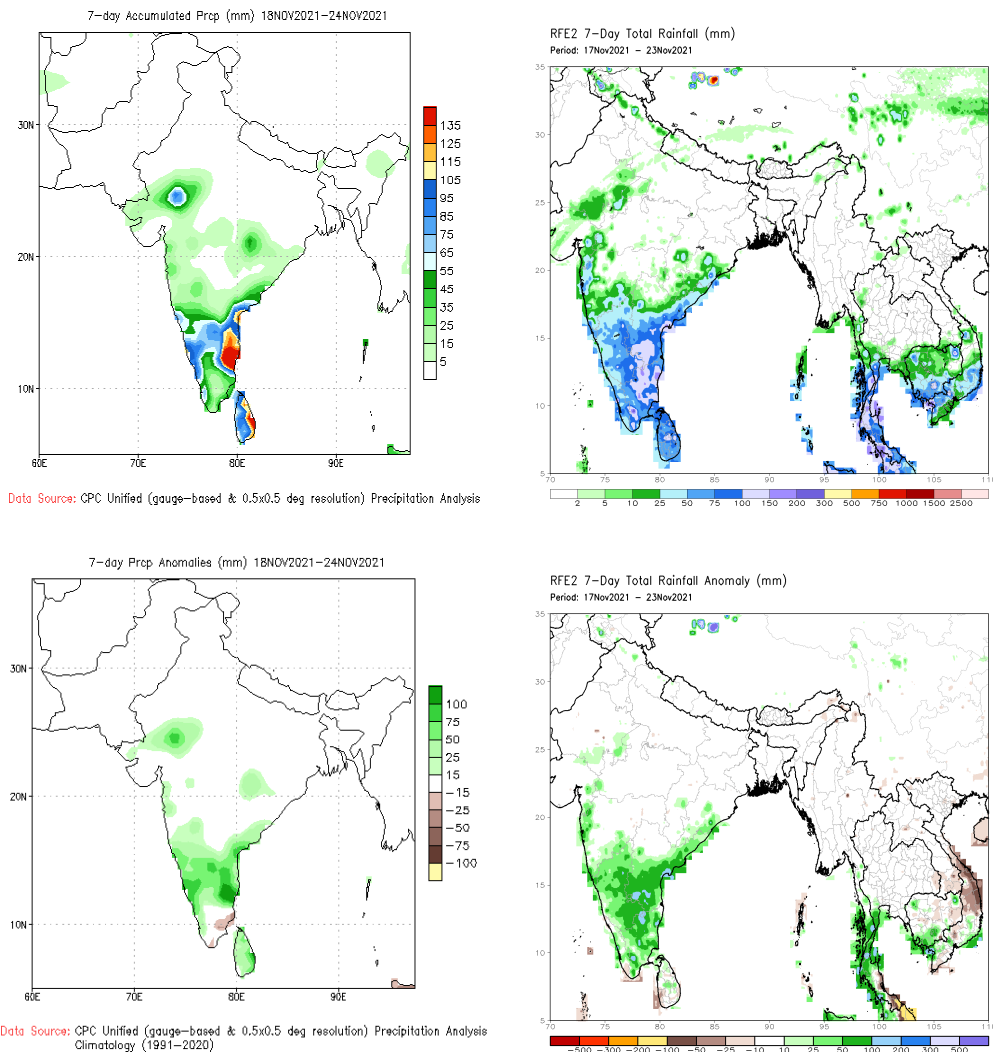
#### Daily Rainfall Monitoring

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



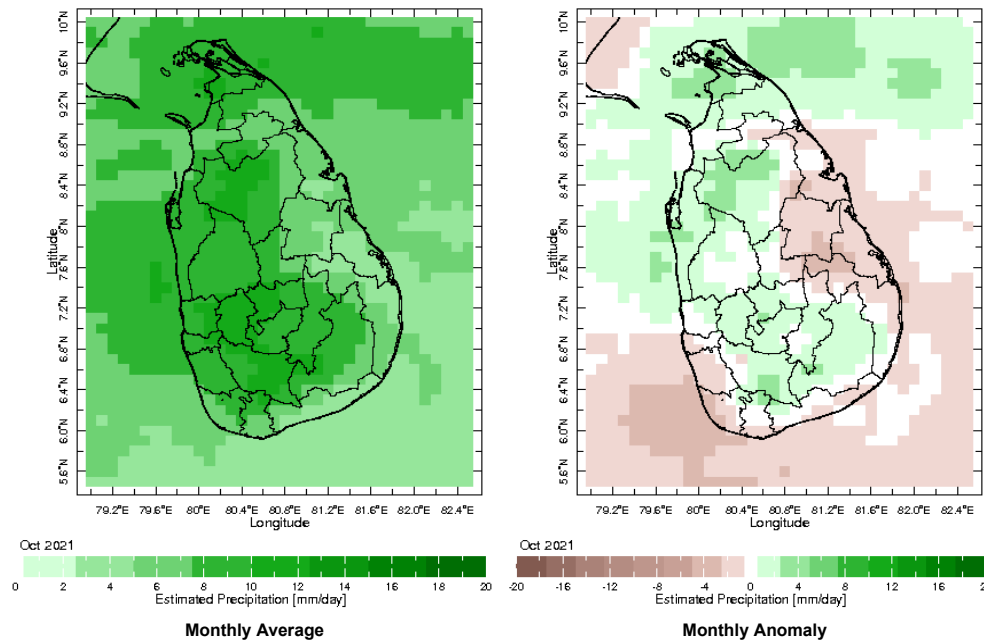
## Weekly Rainfall Monitoring

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.



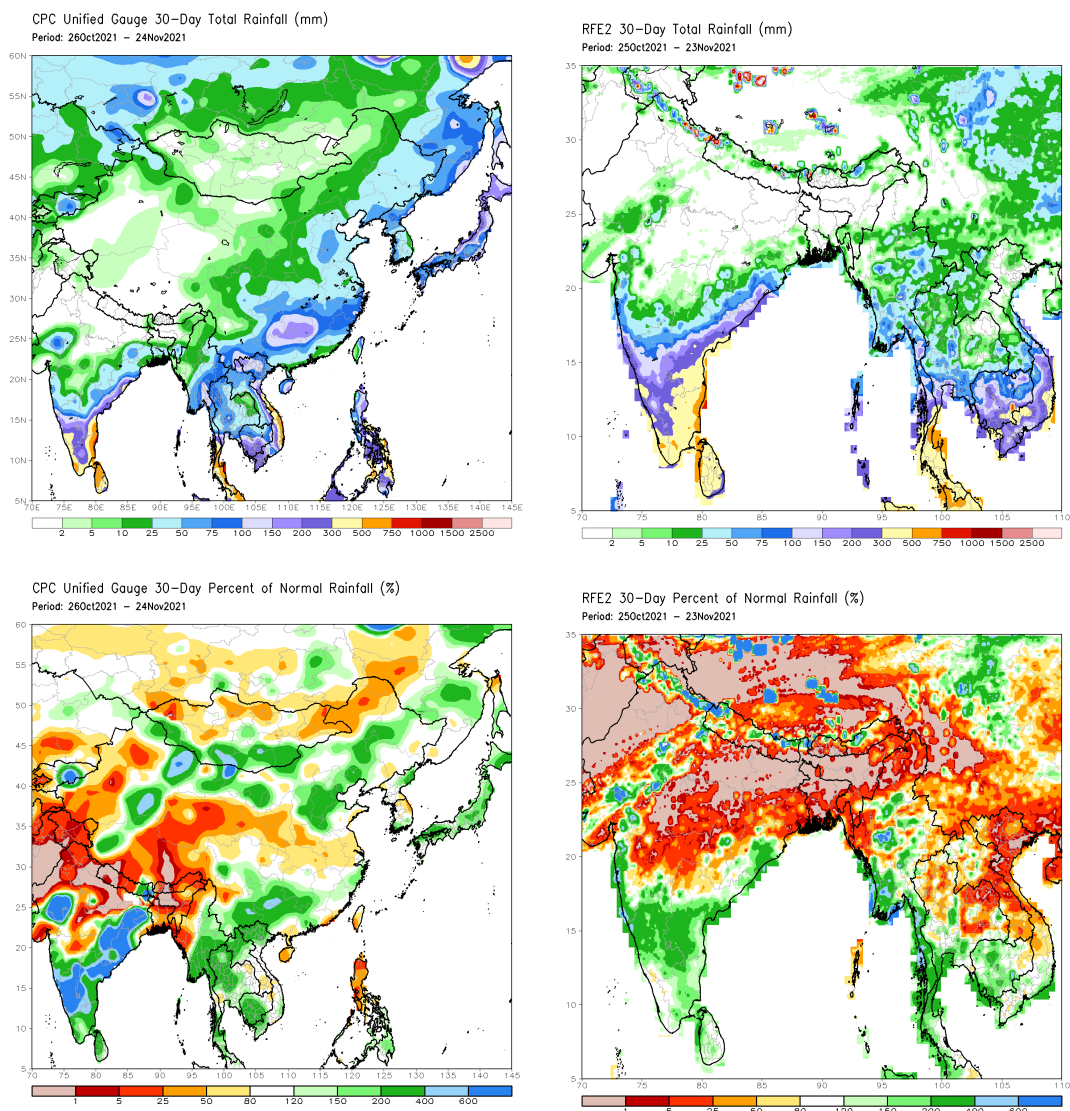
## Monthly Rainfall Monitoring

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

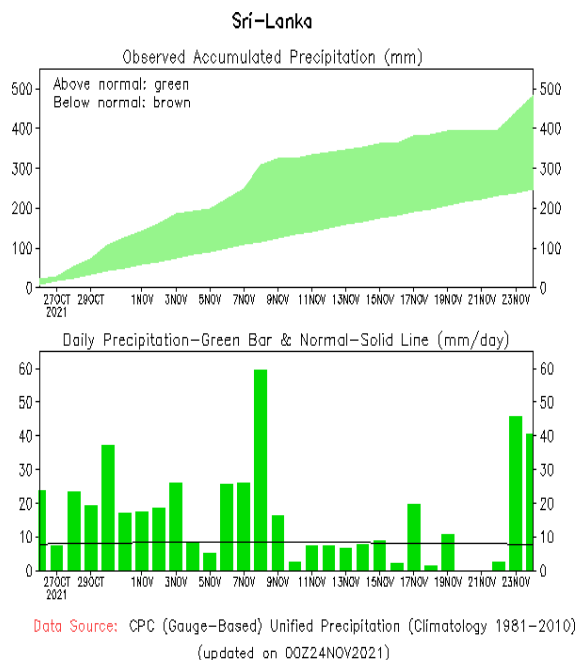




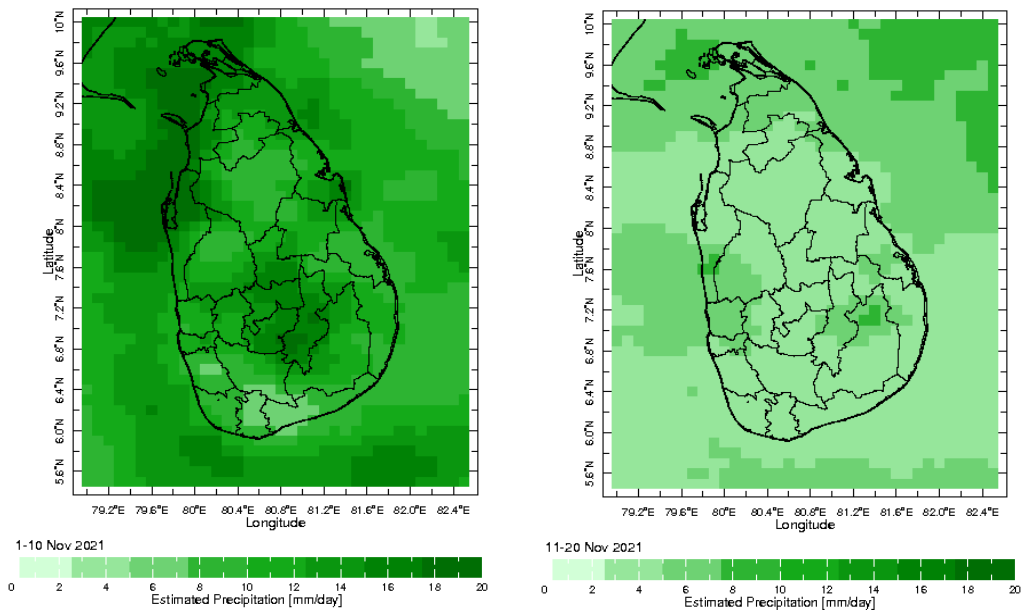
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



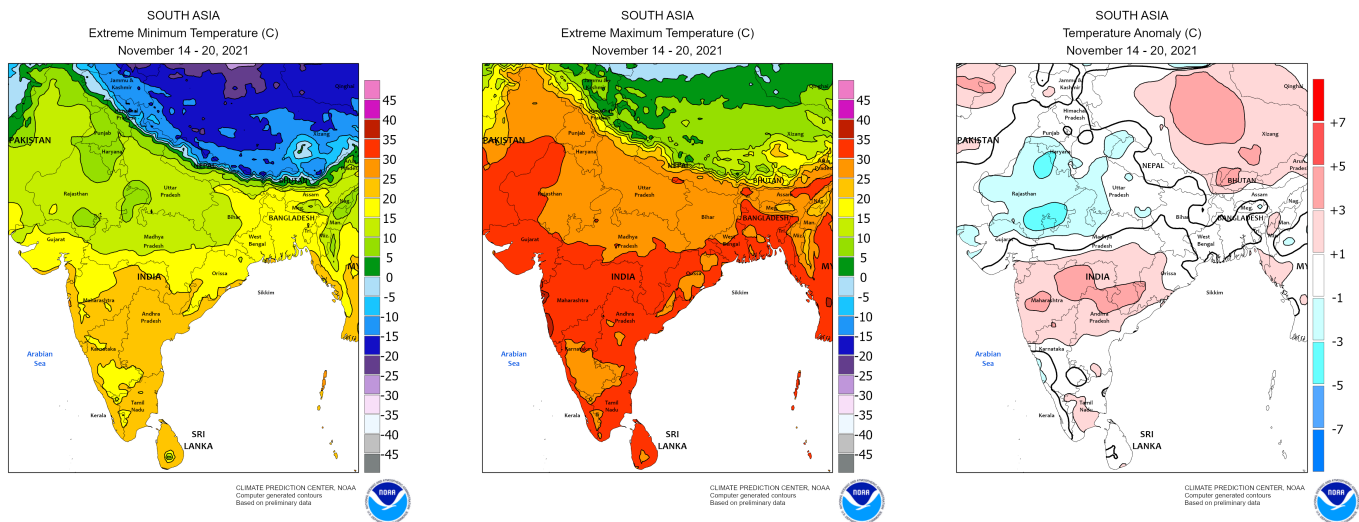
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



## Dekadal (10 Day) Satellite Derived Rainfall Estimates

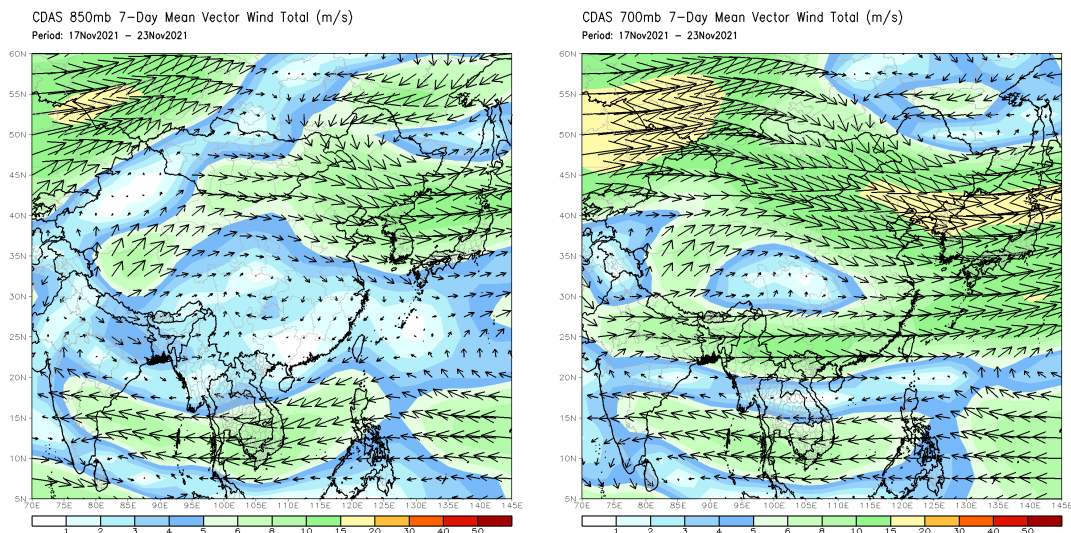


## Weekly Temperature Monitoring



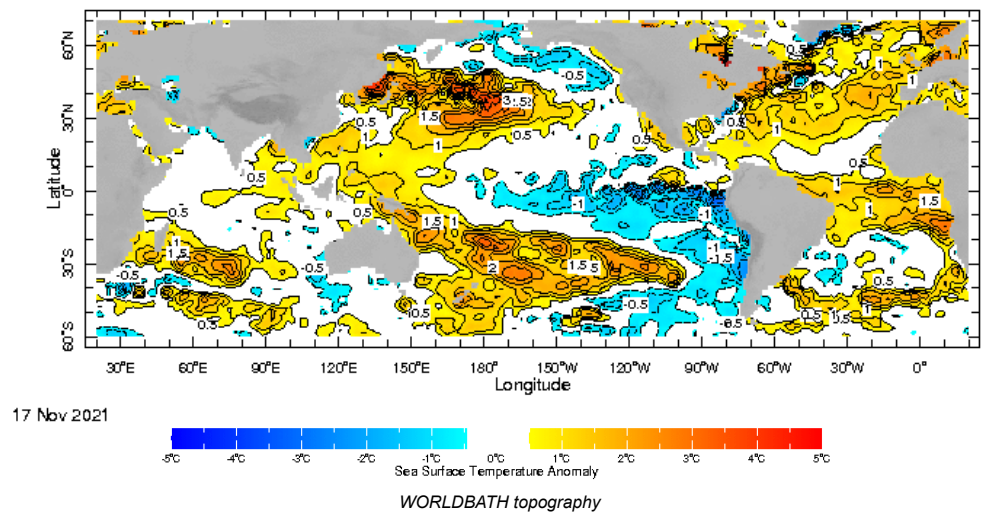
## Weekly Wind Monitoring

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.

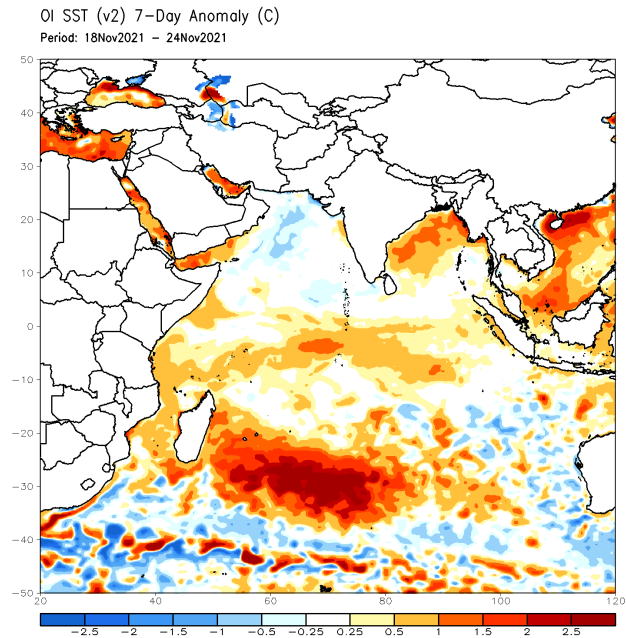


**Weekly Average SST Anomalies**

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

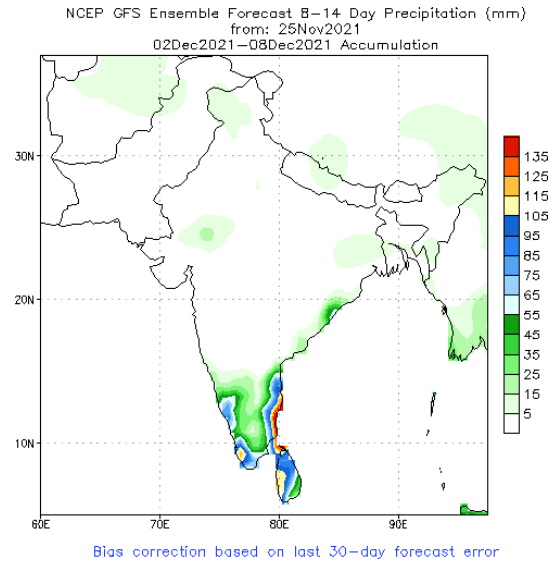
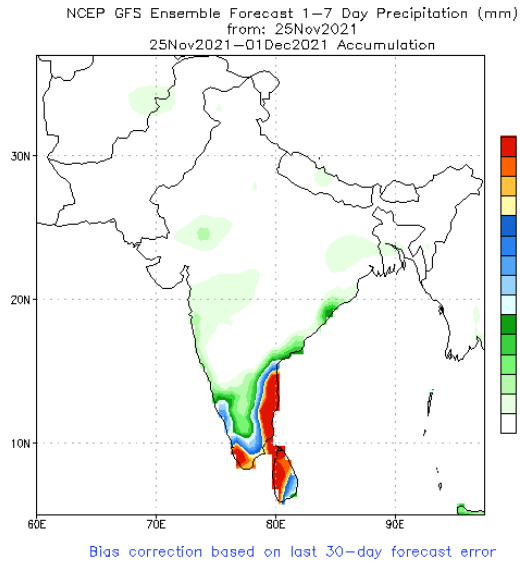


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

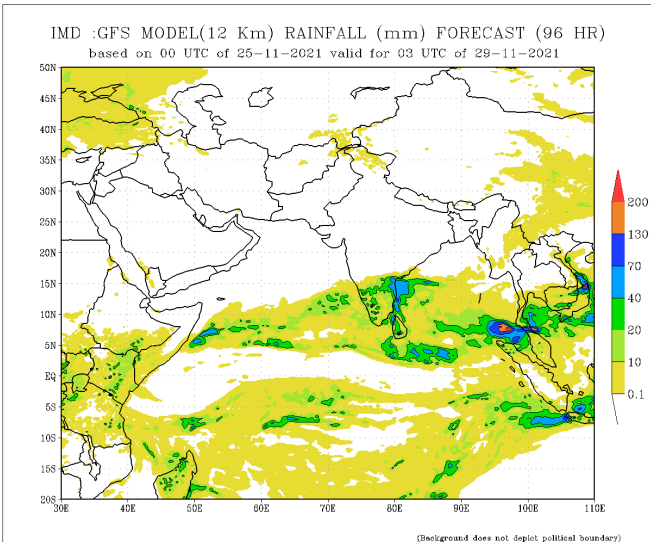
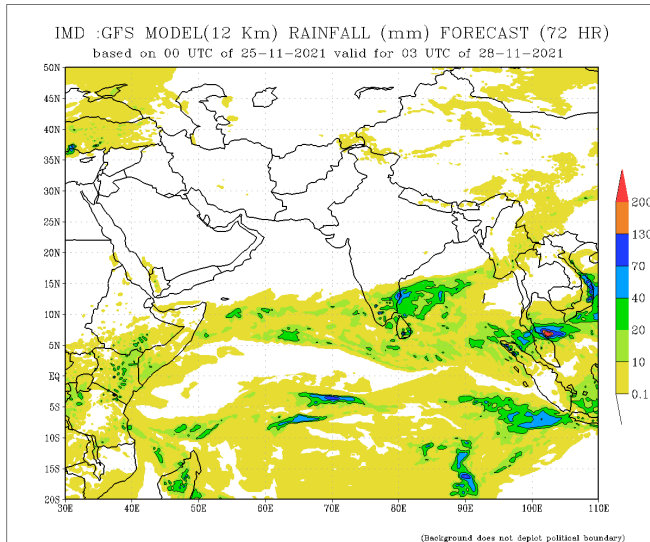
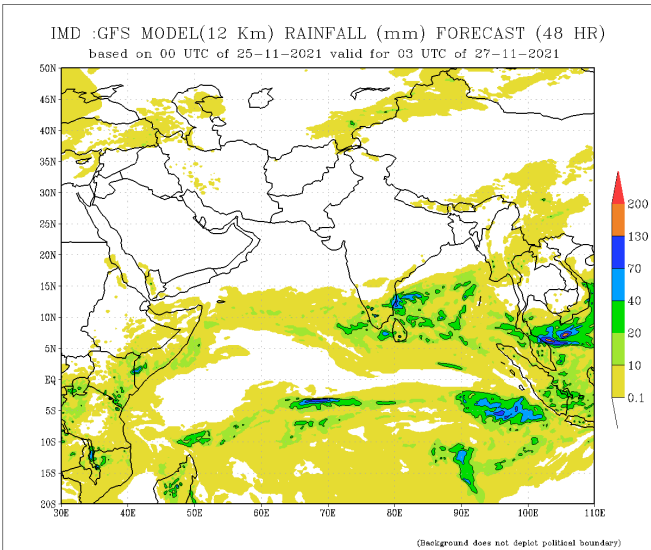
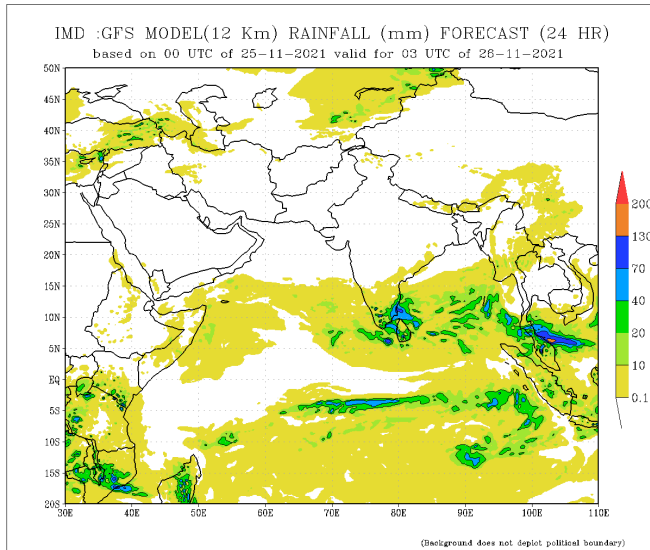


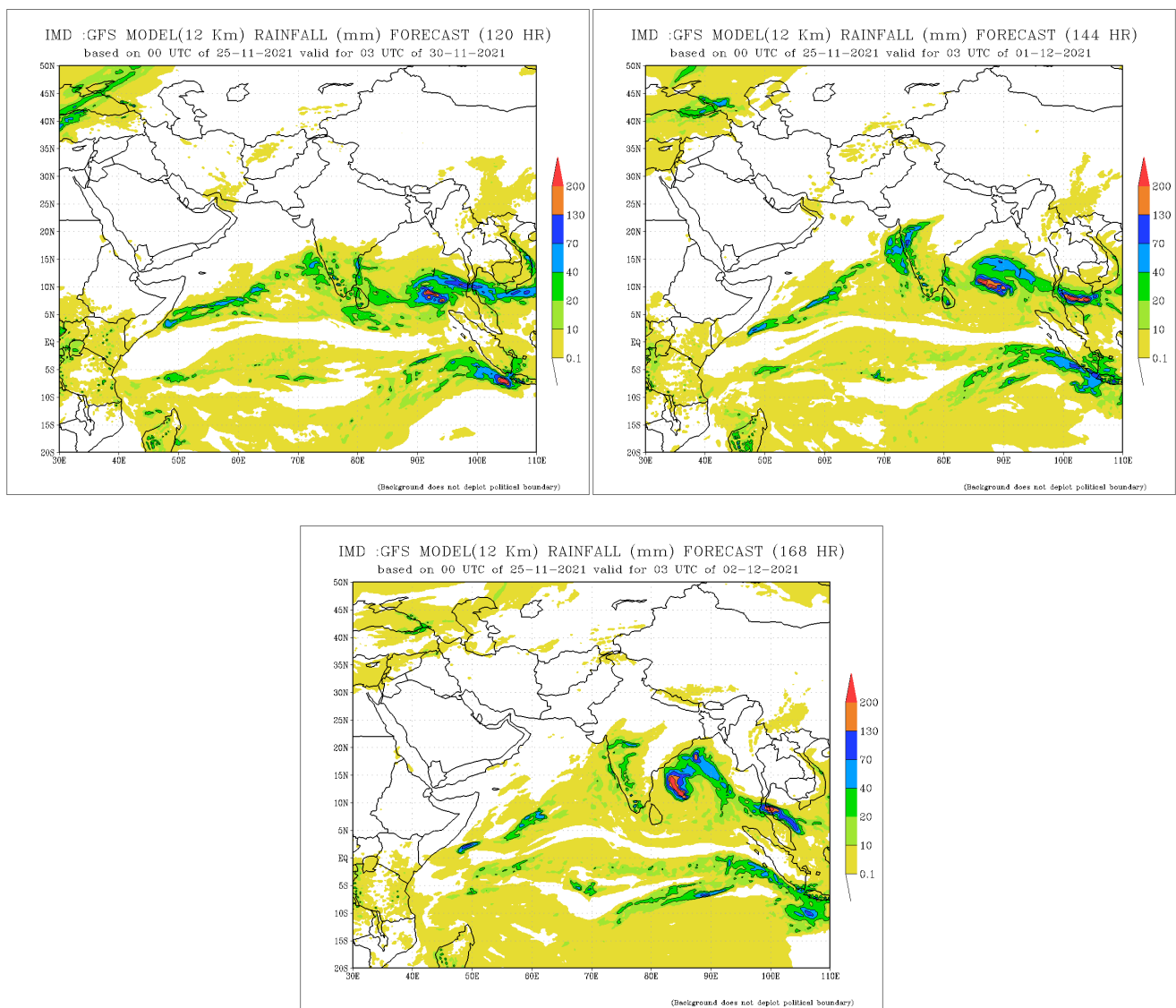


## NCEP GFS 1- 14 Day prediction



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

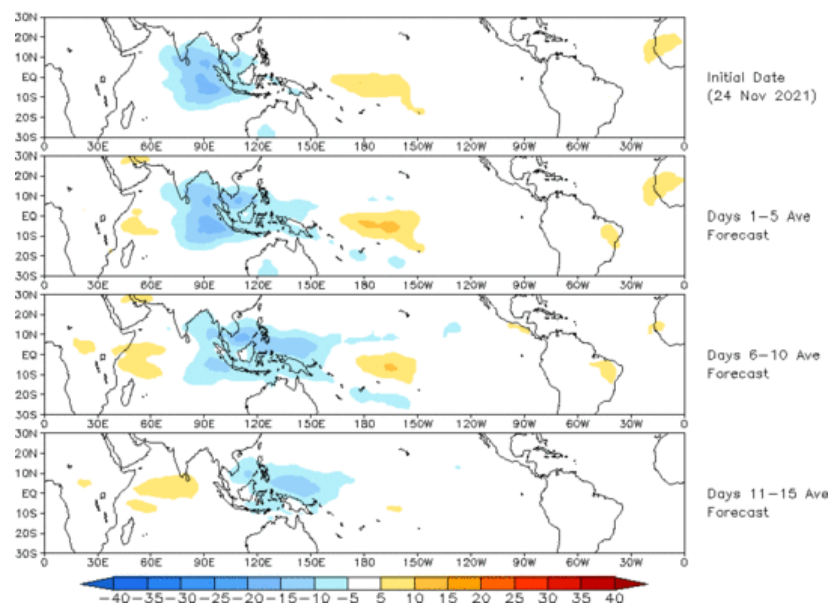




## Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.

OLR prediction of MJO-related anomalies using CA model reconstruction by RMM1 & RMM2 (24 Nov 2021)

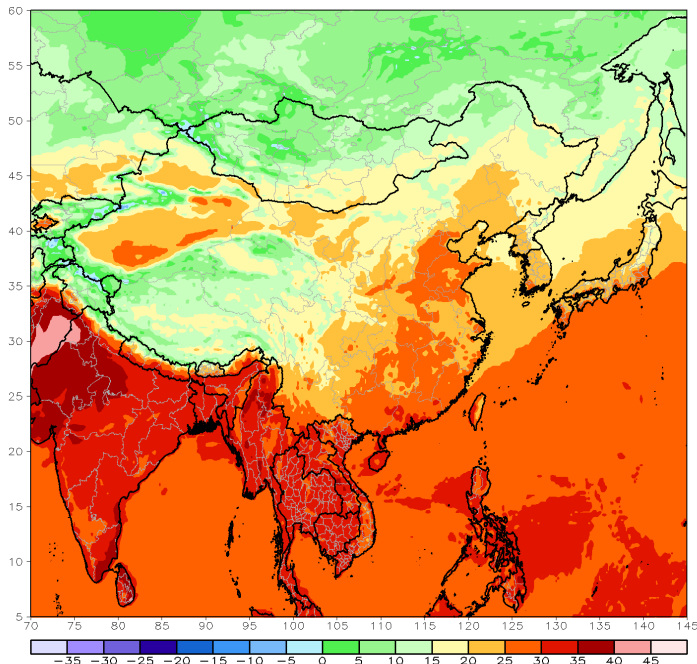


## Weekly Temperature Forecast

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

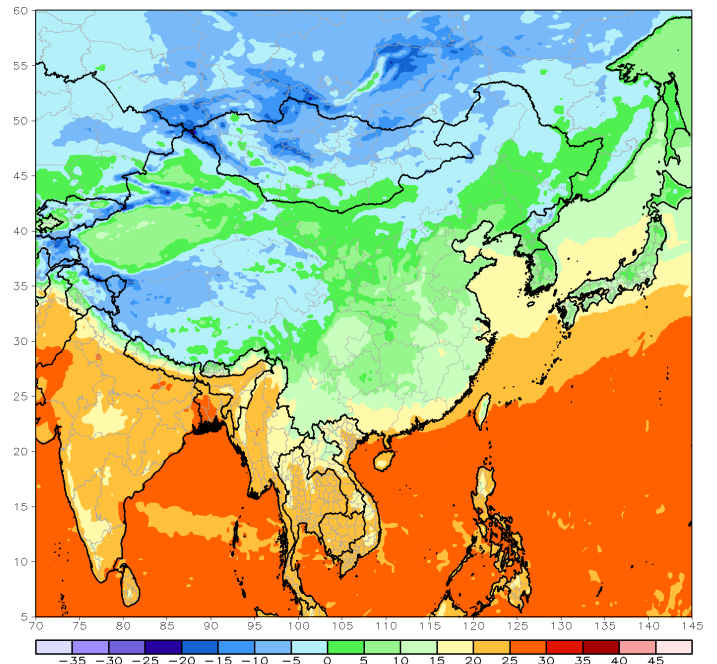
GFS week1 Temperature Max (C)

Ending: 18z02Dec2021



GFS week1 Temperature Min (C)

Ending: 18z02Dec2021

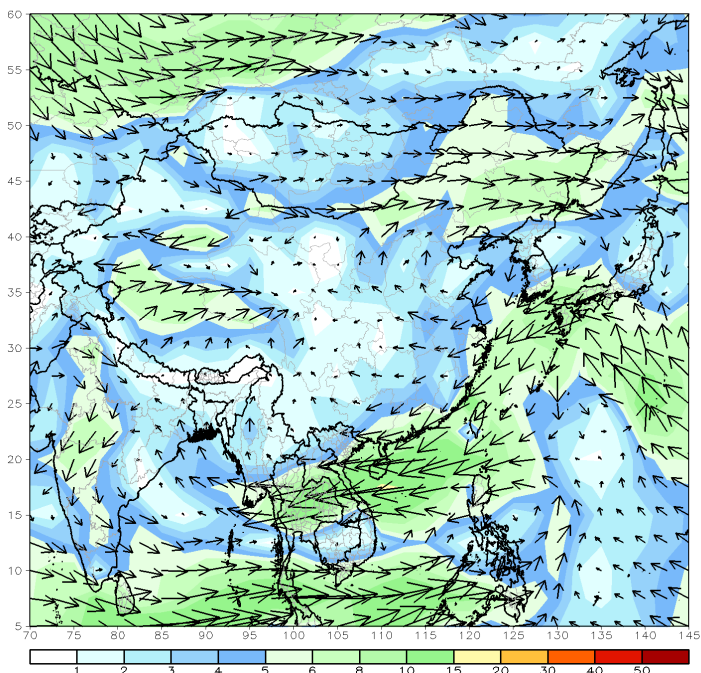


## Weekly Wind Forecast

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

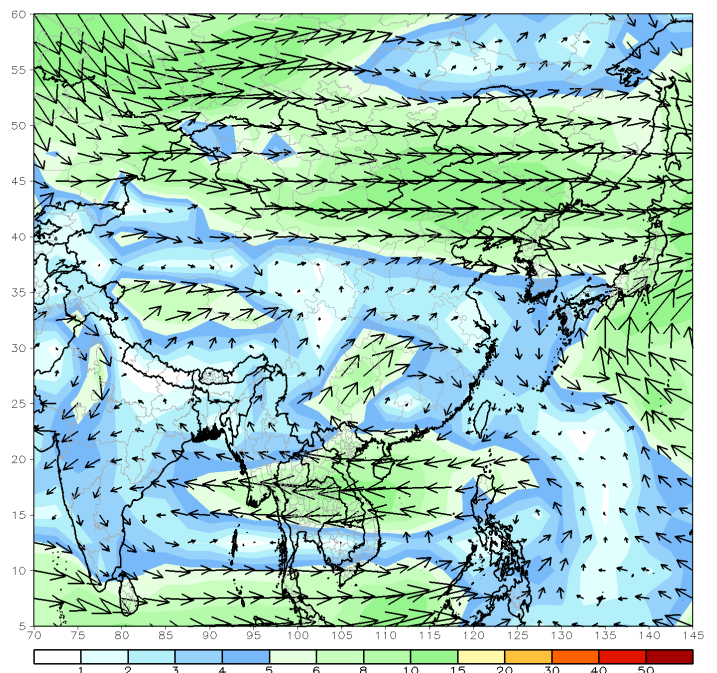
GFS 850mb week1 Mean Vector Wind Total (m/s)

Ending: 18z02Dec2021



GFS 700mb week1 Mean Vector Wind Total (m/s)

Ending: 18z02Dec2021

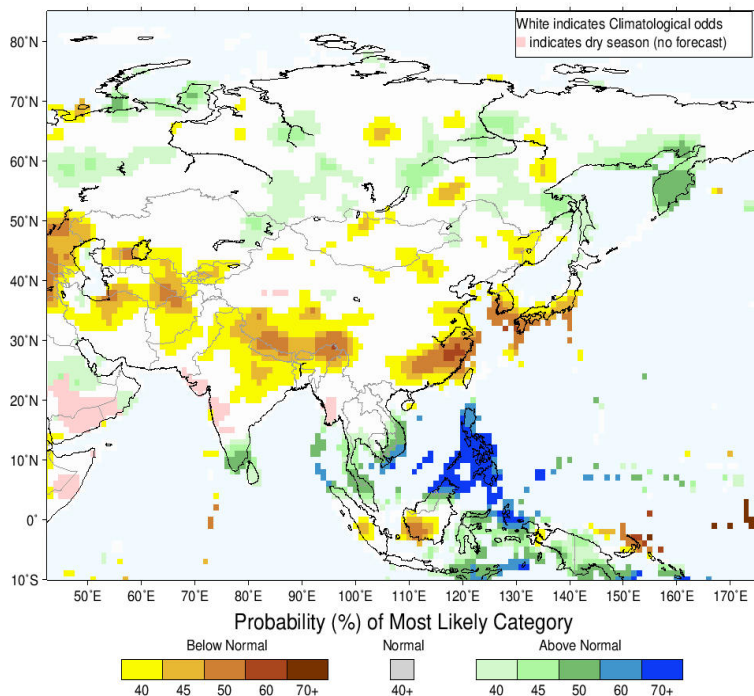




## Seasonal Rainfall and Temperature Forecast

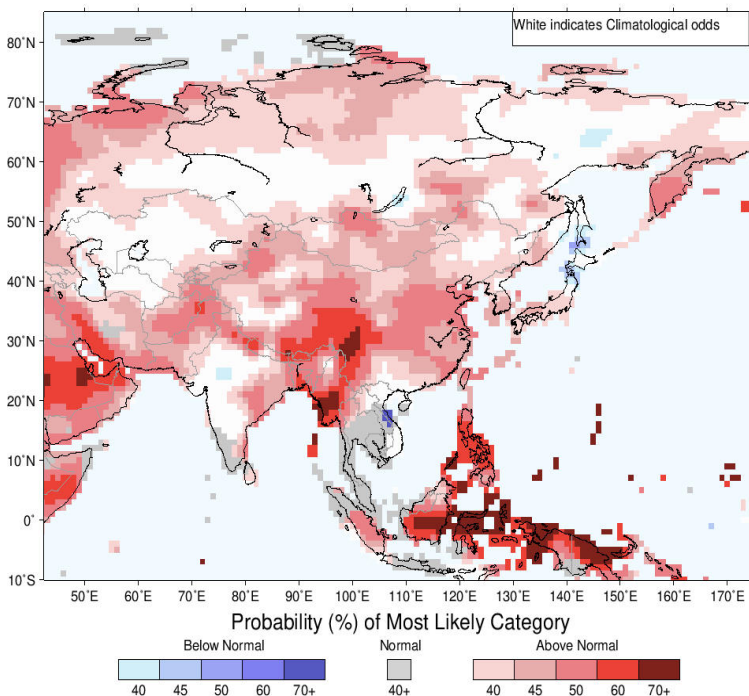
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile - that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile 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 December-January-February 2022, Issued November 2021



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for December-January-February 2022, Issued November 2021



Temperature Forecast

### About us

FECT is a federation of 7 organizations registered in four countries which works in countries across the Indian Ocean Islands and its littoral. Over the last 20 years, we have had operations in Africa, South Asia, South-East Asia but now it is mostly in the Indian Ocean Islands.

### Contact us

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