

# HIGHLIGHTS

Rainfall Prediction



• Heavy rainfall ( $\geq 105$  mm) is predicted for the Sabaragamuwa, Western, Southern, North western and Central provinces; and fairly heavy rainfall ( $\geq 75$  mm) is expected for the rest of the country during 19<sup>th</sup> - 25<sup>th</sup> October.

Monitored Rainfalls



• During the last week, the average daily rainfall over Sri Lanka was 16.6 mm and hydro catchment areas received 18.7 mm on average.

Monitored Wind



• From 21<sup>st</sup> -27<sup>th</sup> October, up to 6m/s of north-westerly winds were experienced at 850 mb level over the island. North westerly winds are expected next week.

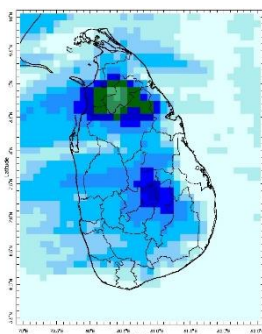
Monitored Sea & Land Temp



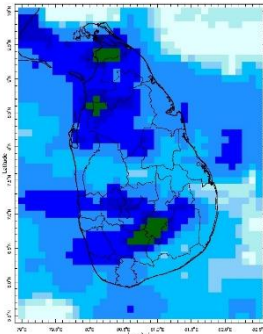
• Sea surface temperature around Sri Lanka was above normal to the north and east of the country. Land surface temperature remained near normal.

## Monitoring Rainfall

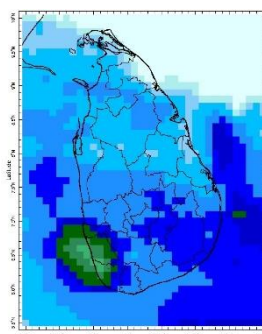
### Daily Estimates for Rainfall from 10<sup>th</sup> October –17<sup>th</sup> October 2022



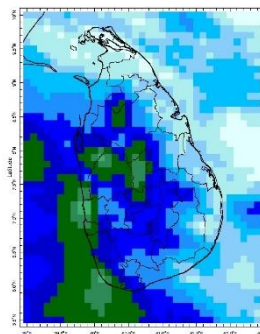
10 October



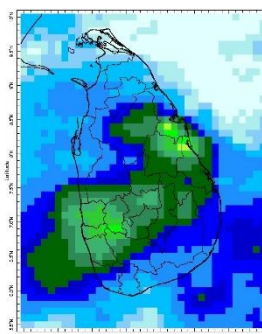
11 October



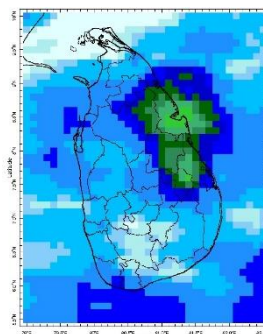
12 October



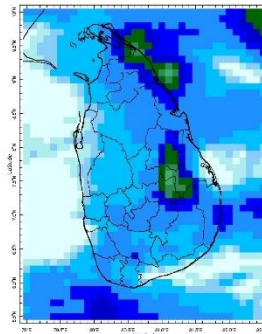
13 October



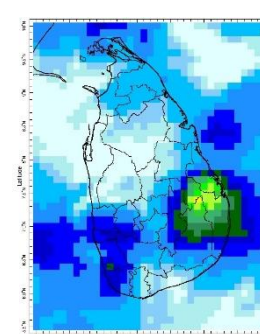
14 October



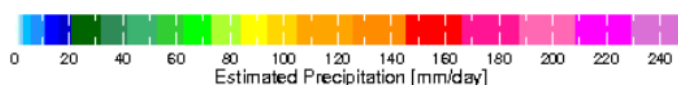
15 October



16 October



17 October



Federation for  
Environment, Climate  
& Technology

### Federation for Environment, Climate and Technology

c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.

Phone (+94) 81-2376746, (+94) 81-2300415

Web Site: [www.fect.lk](http://www.fect.lk)

E mail: [info@fect.lk](mailto:info@fect.lk)

LI: [www.linkedin.com/in/fectlk](https://www.linkedin.com/in/fectlk)

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## Ocean State *(Text Courtesy IRI)*

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### **Pacific sea state: October 17, 2022**

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean mid - October. The tropical Pacific atmosphere is consistent with La Niña. A large majority of the models indicate La Niña is favored to continue through Northern Hemisphere winter (December-February) 2022-23, with a 54% chance for ENSO-neutral in February-April 2023.

### **Indian Ocean State**

Sea surface temperature around Sri Lanka was above 0.5°C to the North and East of the country. Across the Indian Ocean, a classical negative Indian Ocean Dipole prevails as is typical during a La Niña.

## Predictions

### Rainfall

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

**From 19<sup>th</sup> October – 25<sup>th</sup> October:**

Total rainfall by Provinces:

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

**From 26<sup>th</sup> October – 1<sup>st</sup> November:**

Total rainfall by Provinces:

Rainfall	Provinces
95 mm	Sabaragamuwa
85 mm	Southern, Western
65 mm	Central, Uva
55 mm	Northern, North Western
45 mm	Eastern, North Central

### MJO based OLR predictions

**For the next 15 days:**

MJO shall slightly suppress the rainfall during 19<sup>th</sup>– 23<sup>rd</sup> October; slightly enhance the rainfall during 24<sup>th</sup> – 28<sup>th</sup> October and near neutral during 29<sup>th</sup> – 2<sup>nd</sup> November for Sri Lanka.

## Interpretation

### Monitoring

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**Rainfall:** During the last two weeks, there had been very heavy rainfall over the following area: Kaluthara

Daily Average Rainfall in the Met stations for previous week of (11<sup>th</sup> - 18<sup>th</sup> October) = 16.6 mm  
Rmax: 168.6 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	8.7 mm
Eastern	11.9 mm
Western	31.3 mm
Southern Plains	1.7 mm

The Hydro Catchment Areas recorded 18.7 mm of average rainfall for the last week  
Rmax: 124.0 mm & Rmin: 0.0 mm.

**Wind:** North-westerly winds prevailed in the sea area and around the island last week.

**Temperatures:** The temperature anomalies were below normal for the North Central province, driven by the warm SST's.

## Predictions

**Rainfall:** During the next week (19<sup>th</sup> - 25<sup>th</sup> October) heavy rainfall ( $\geq 105$  mm) is predicted for the Western, Sabaragamuwa, Southern, North western and Central provinces; and fairly heavy rainfall ( $\geq 75$  mm) is expected for the rest of the country.

**Temperatures:** The temperature will remain above normal to the north, north central and east of the country during 21<sup>th</sup> – 27<sup>th</sup> October.

**Teleconnections:** La Niña is favored to continue through Northern Hemisphere winter (December-February) 2022-23, with a 54% chance for ENSO-neutral in February-April 2023.

MJO shall slightly suppress the rainfall during 19<sup>th</sup>– 23<sup>rd</sup> October; slightly enhance the rainfall during 24<sup>th</sup> – 28<sup>th</sup> October and near neutral during 29<sup>th</sup> – 2<sup>nd</sup> November for Sri Lanka.

**Seasonal Precipitation:** The precipitation forecast for the November-December-January 2023 season shows a higher tendency for above-normal precipitation in the north half of the country.

## Terminology for Rainfall Ranges

	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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- d. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- e. Weekly Temperature Monitoring
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### 2. Predictions

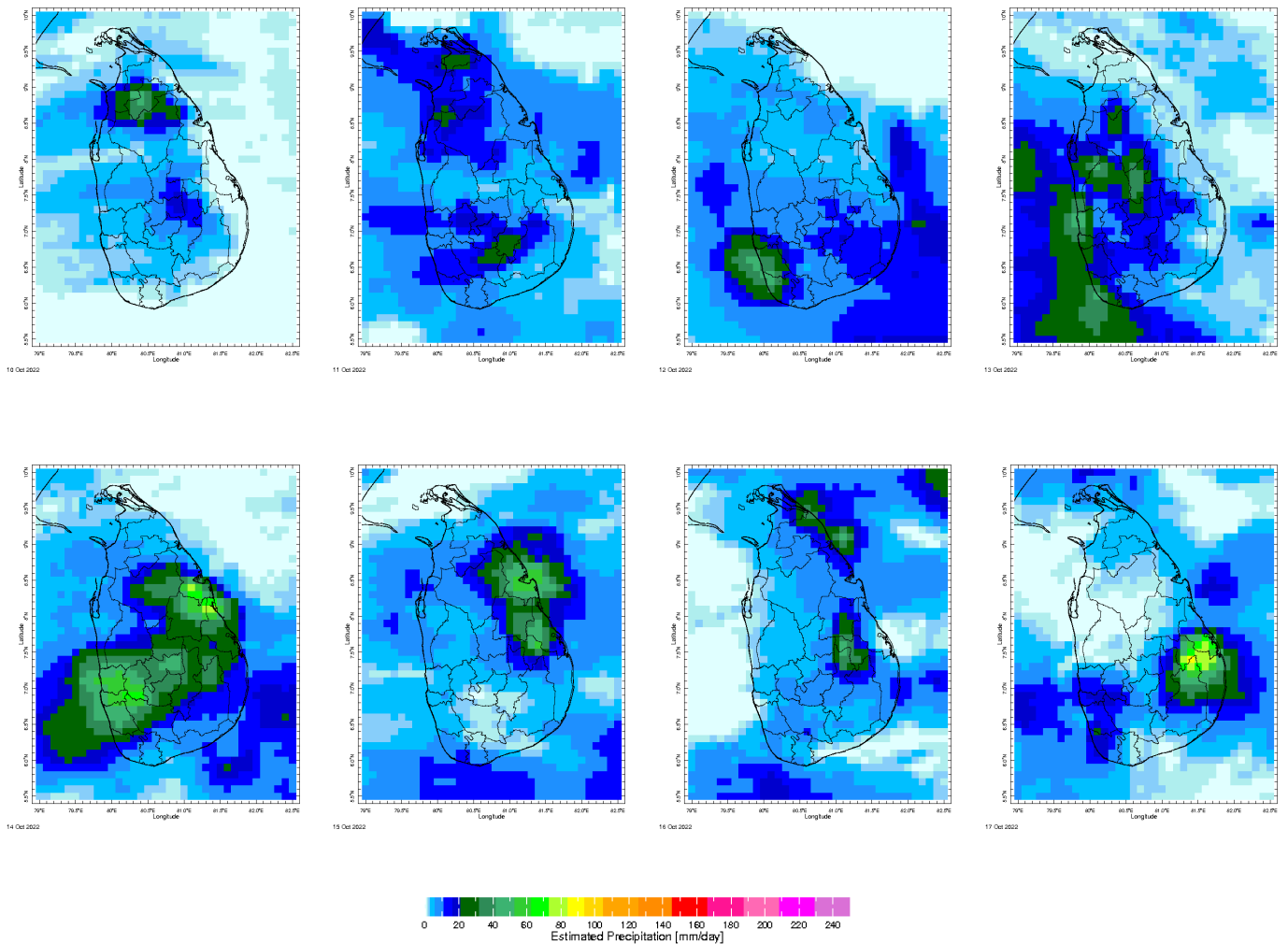
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
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## MONITORING

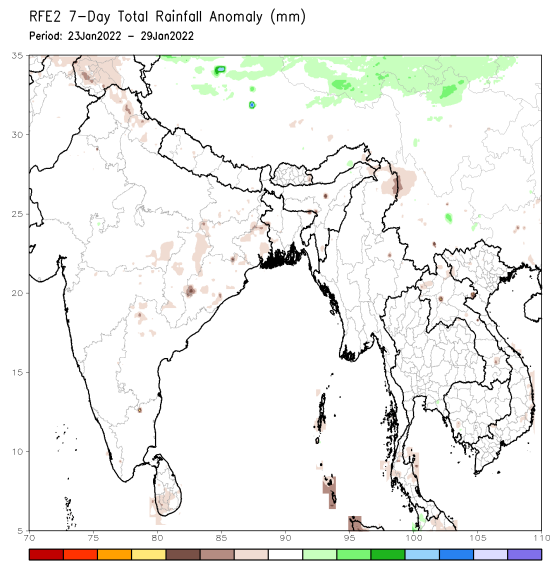
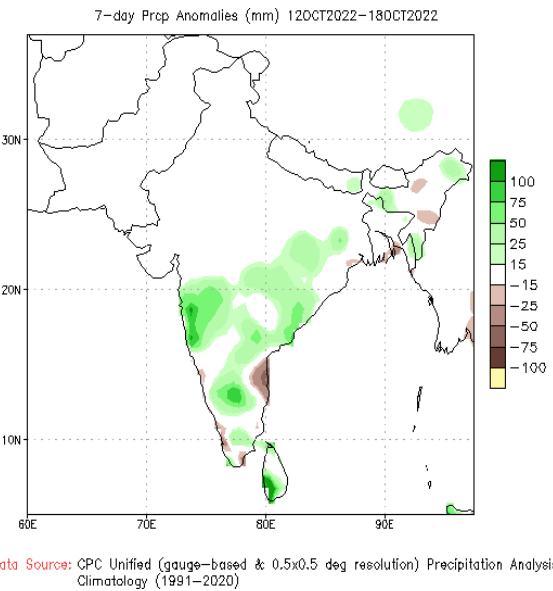
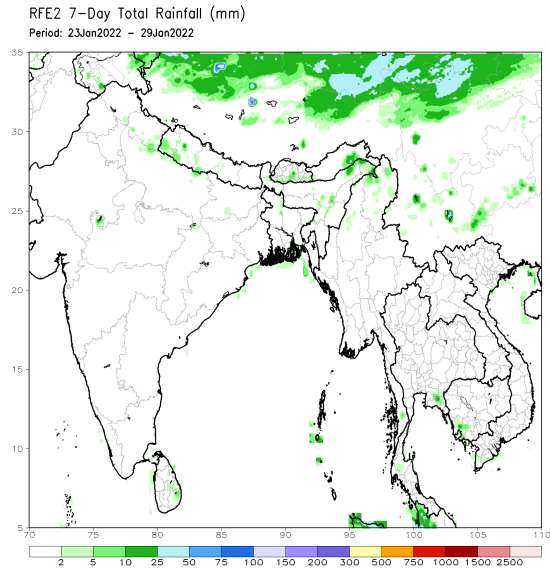
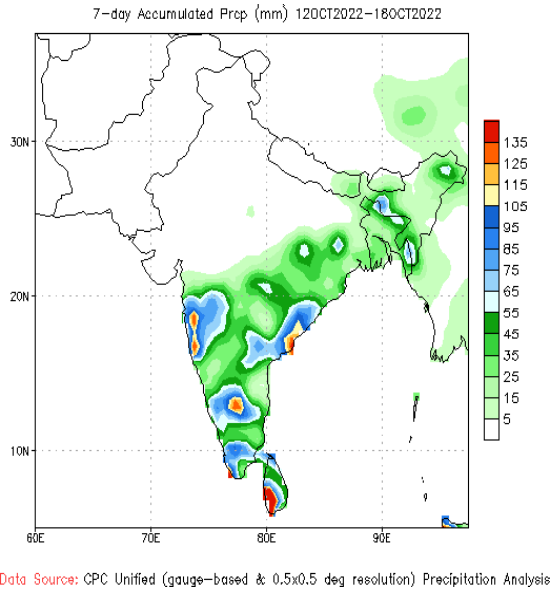
### Daily Rainfall Monitoring

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



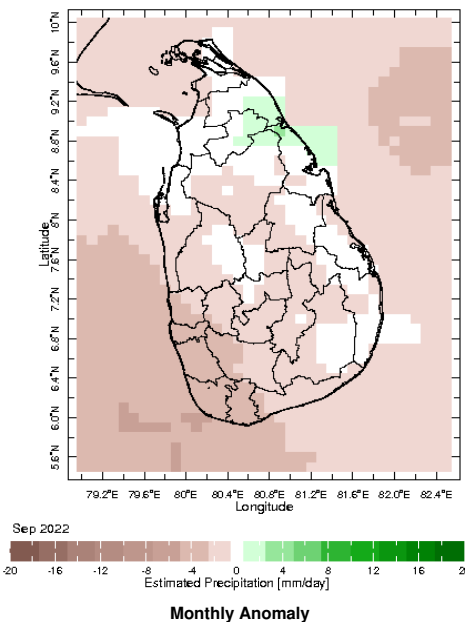
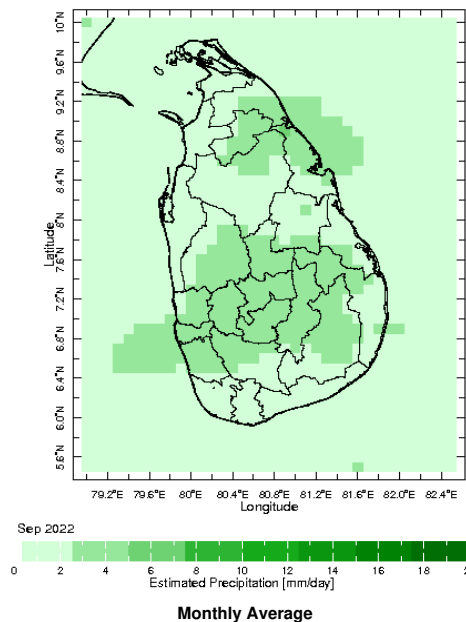
## Weekly Rainfall Monitoring

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.

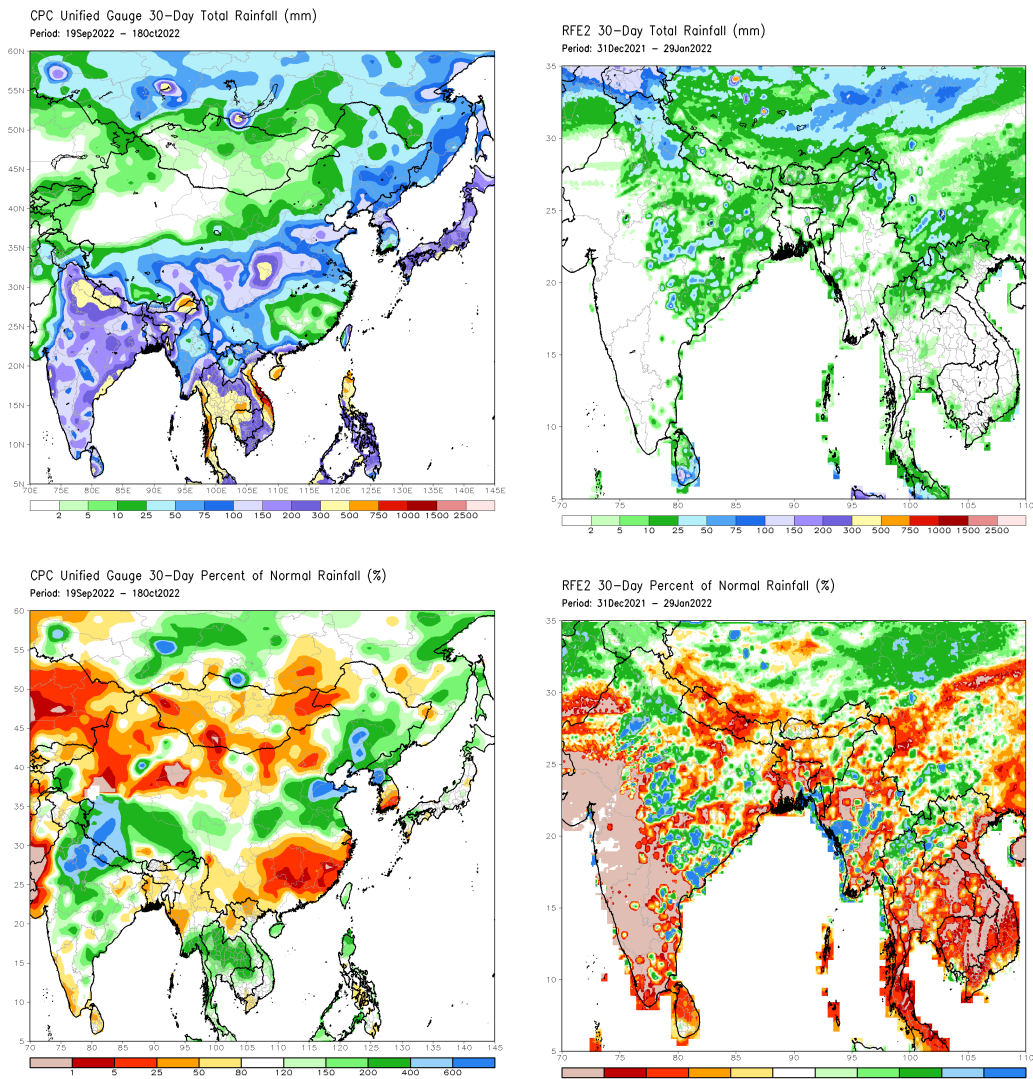


## Monthly Rainfall Monitoring

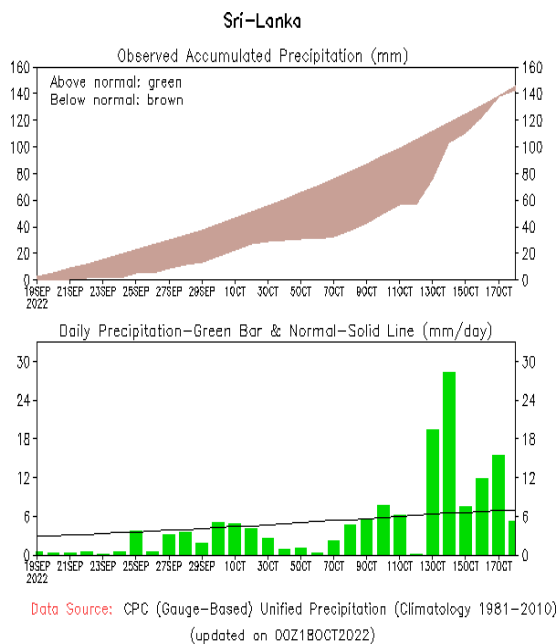
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



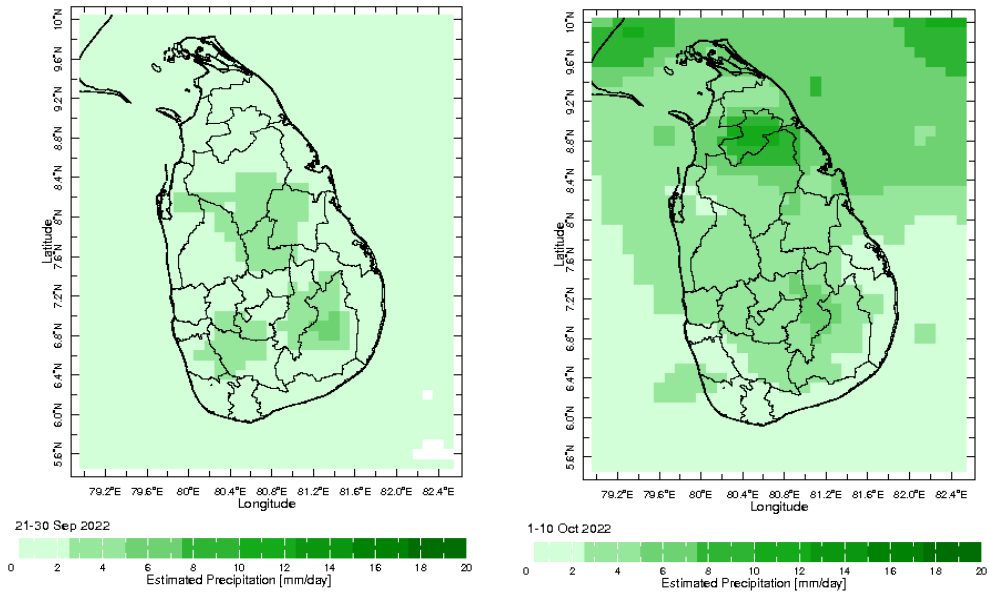
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



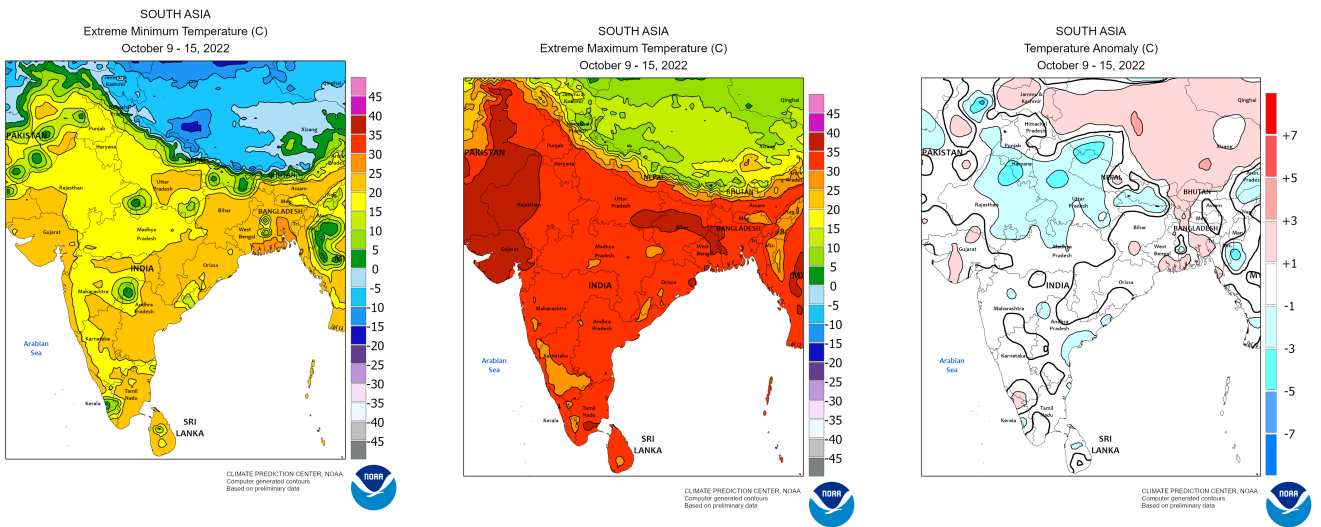
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



## Dekadal (10 Day) Satellite Derived Rainfall Estimates

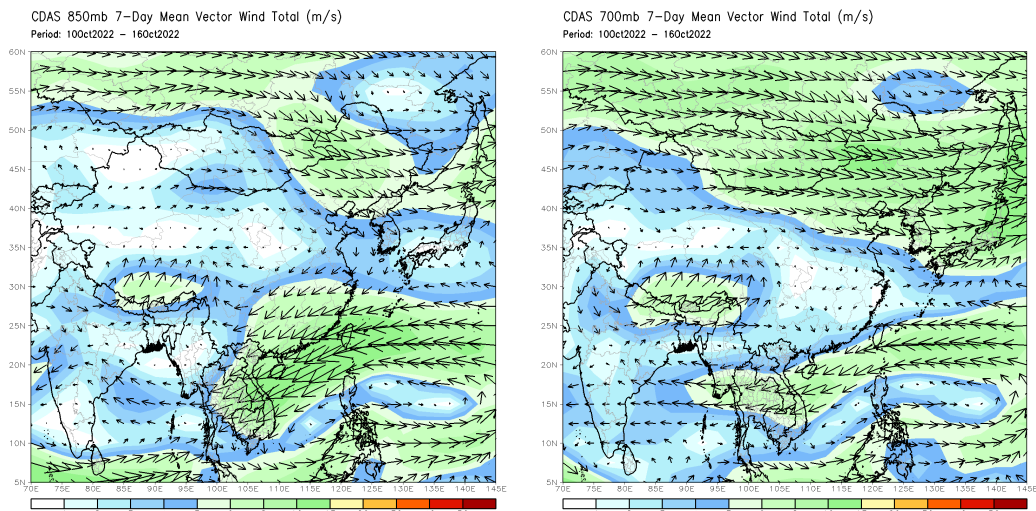


## Weekly Temperature Monitoring



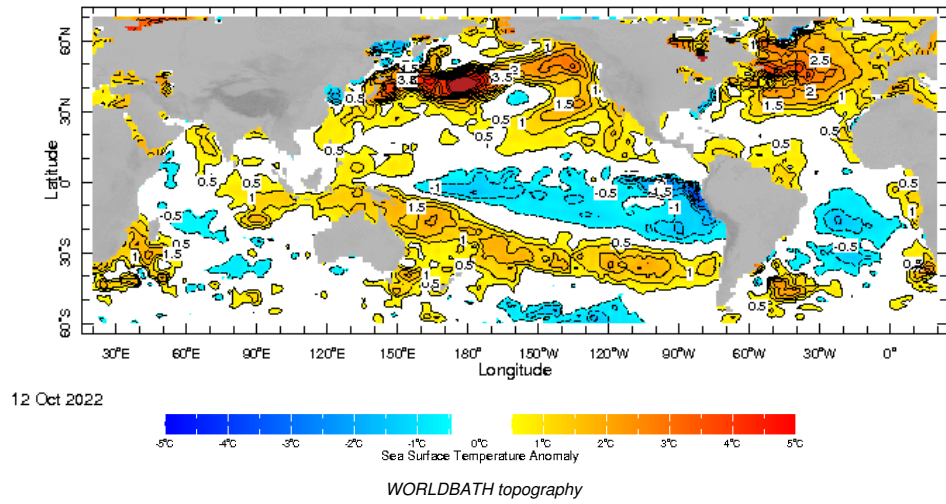
## Weekly Wind Monitoring

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.



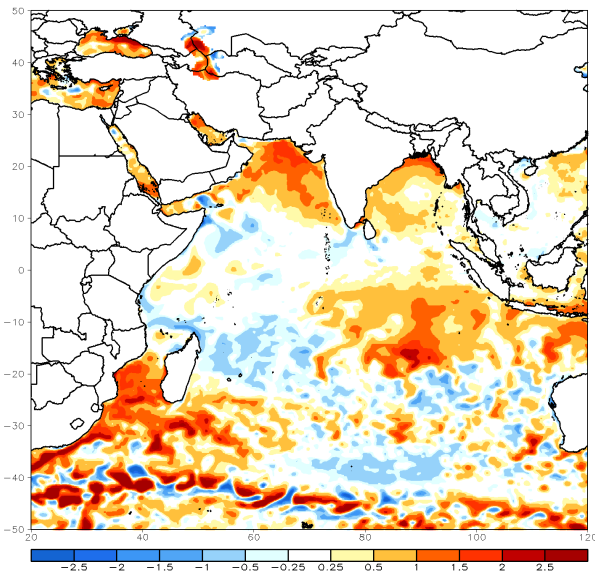
## Weekly Average SST Anomalies

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



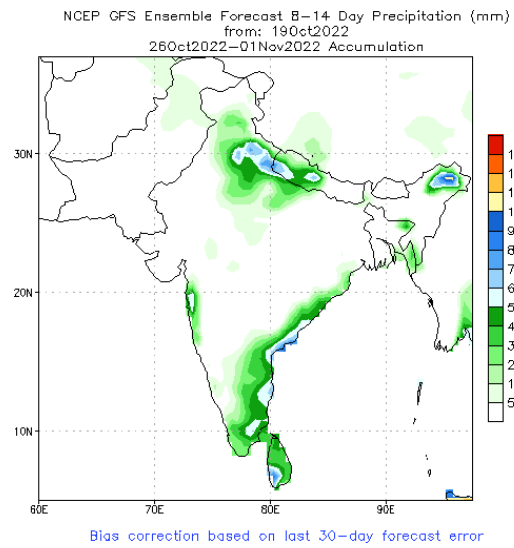
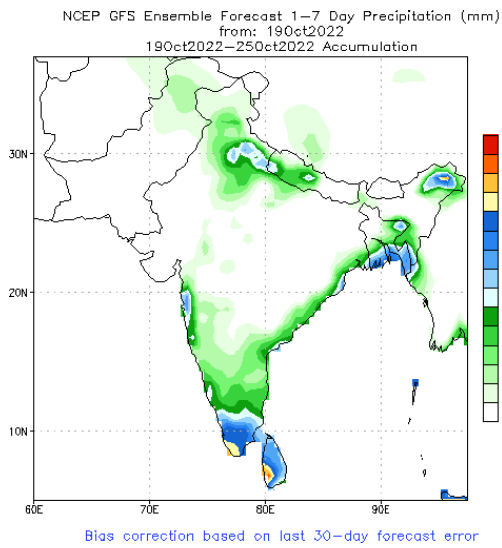
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

OI SST (v2) 7-Day Anomaly (C)  
Period: 12Oct2022 - 18Oct2022

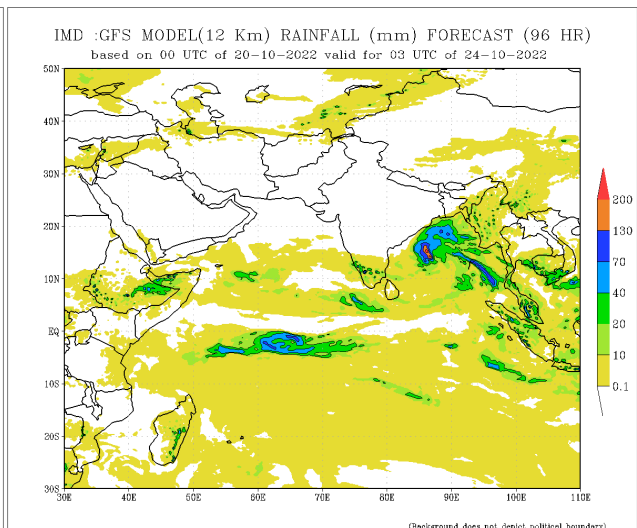
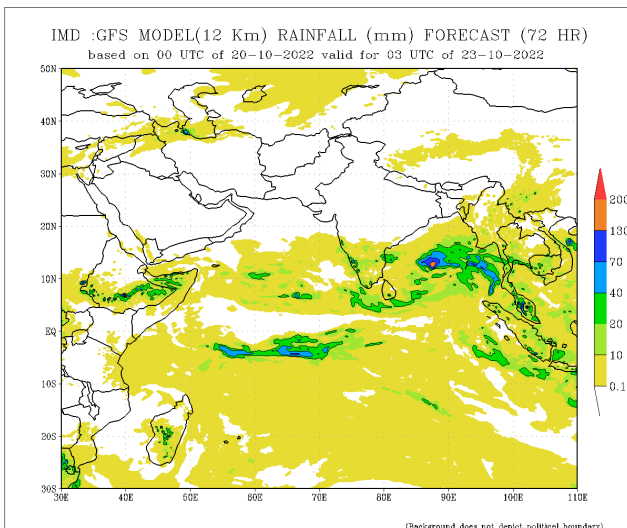
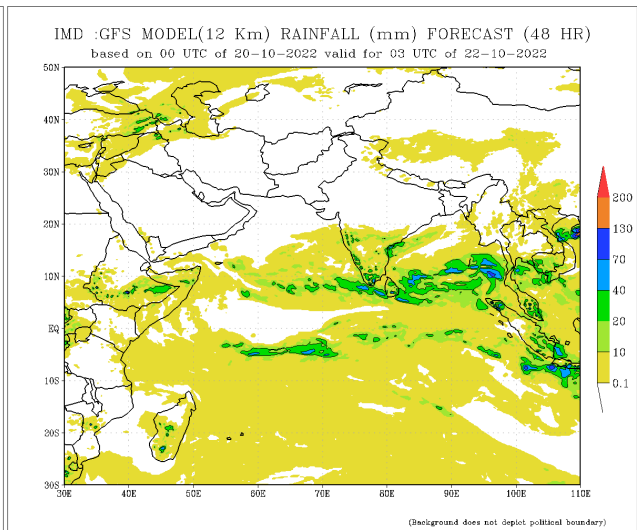
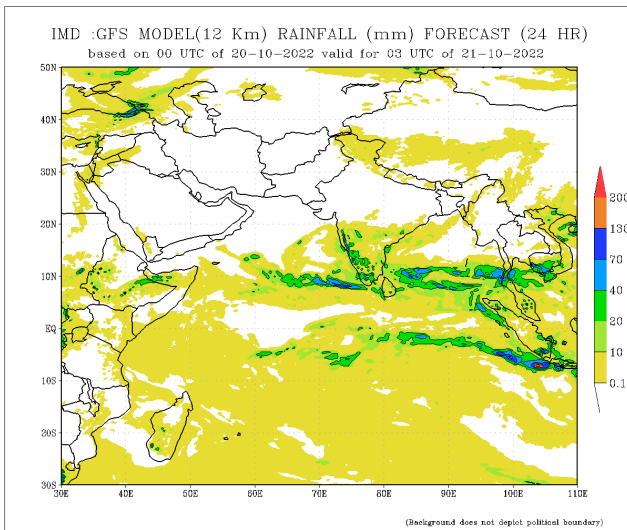


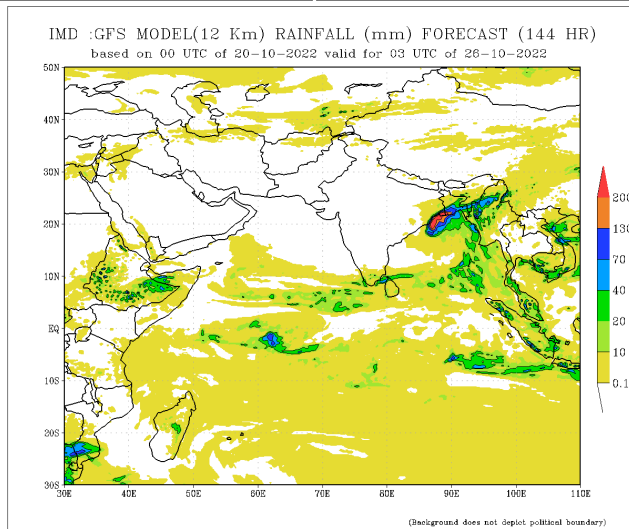
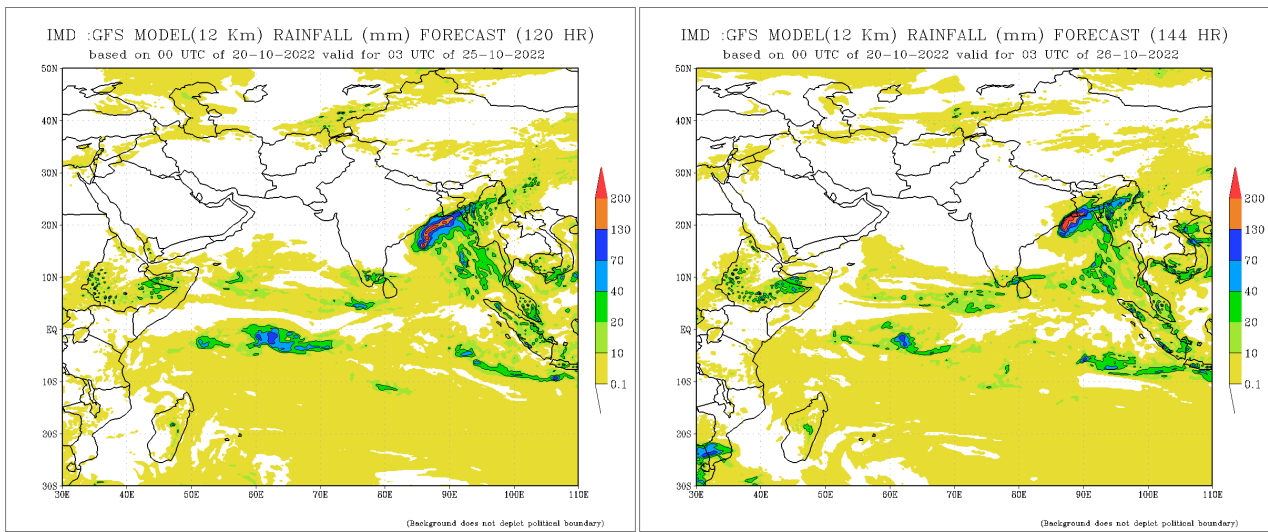


**NCEP GFS 1- 14 Day prediction**



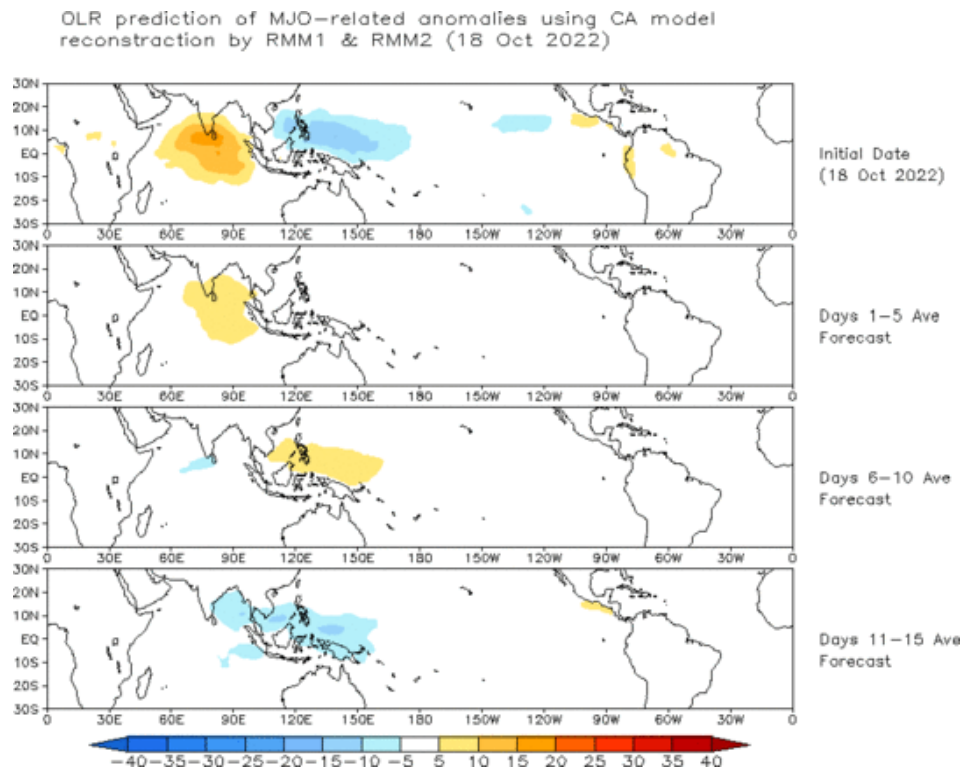
**IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India**





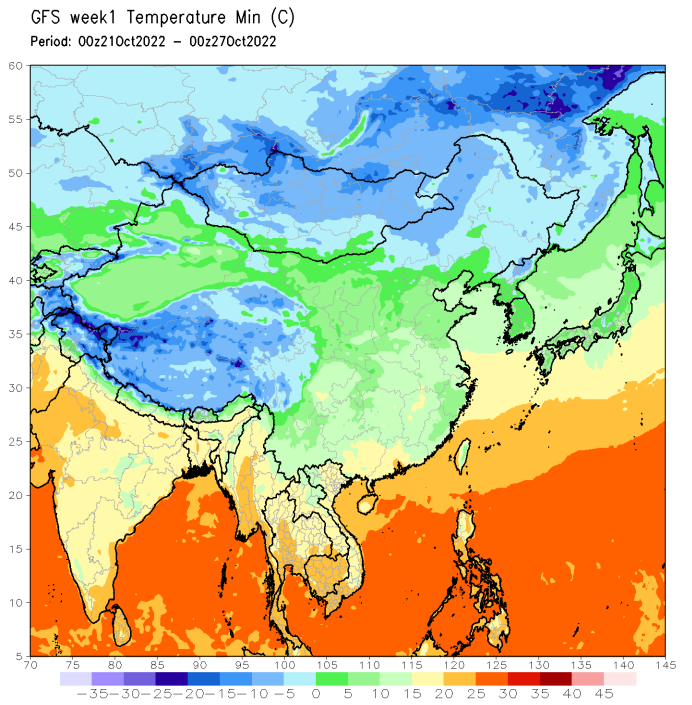
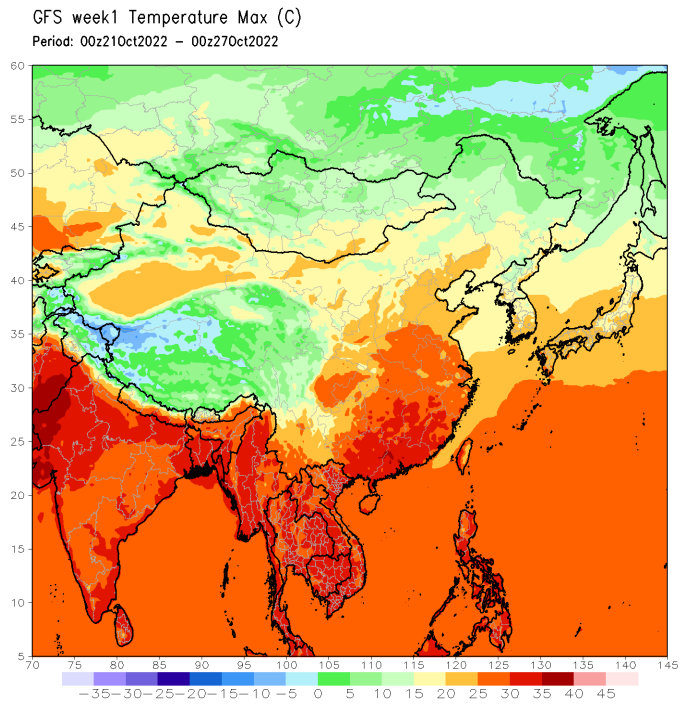
### Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



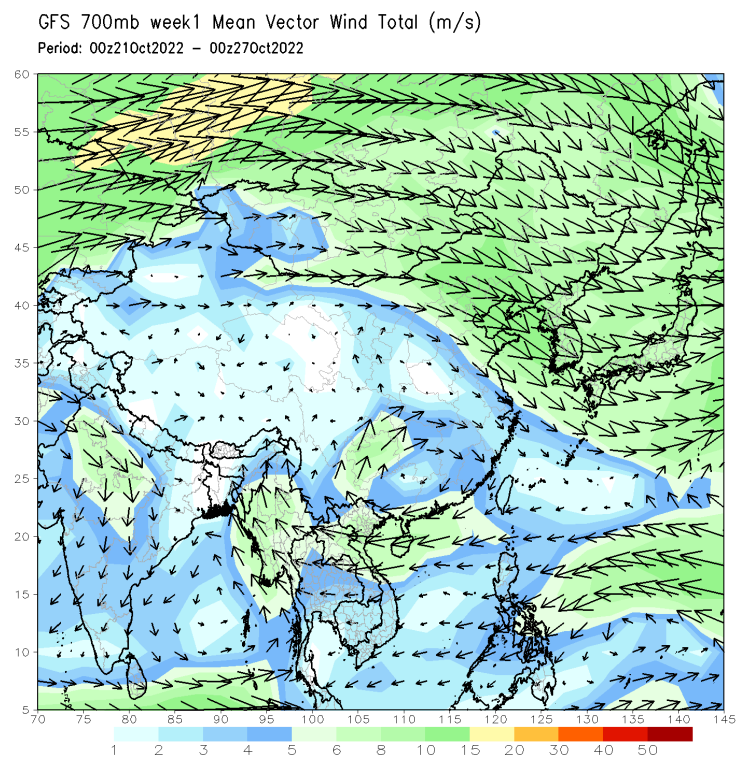
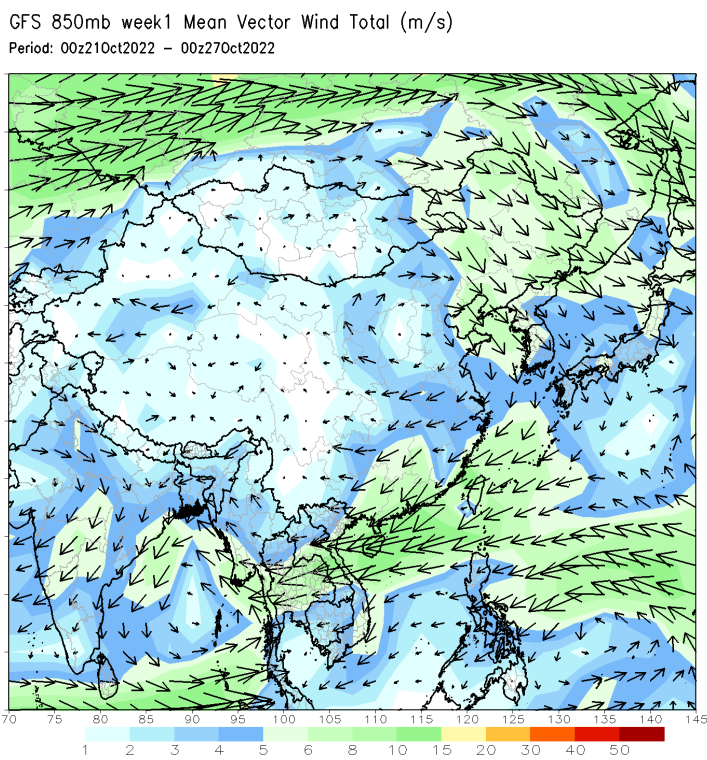
## Weekly Temperature Forecast

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



## Weekly Wind Forecast

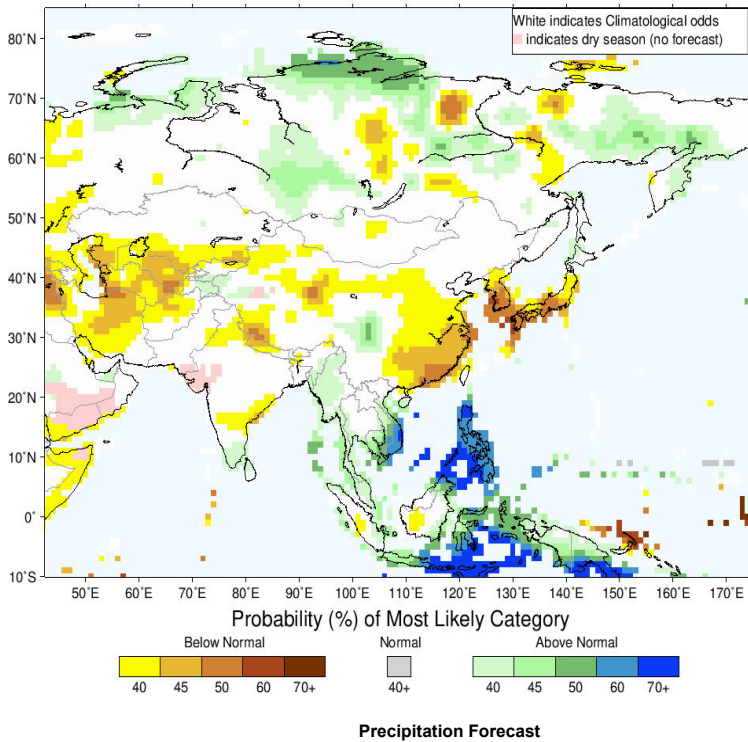
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



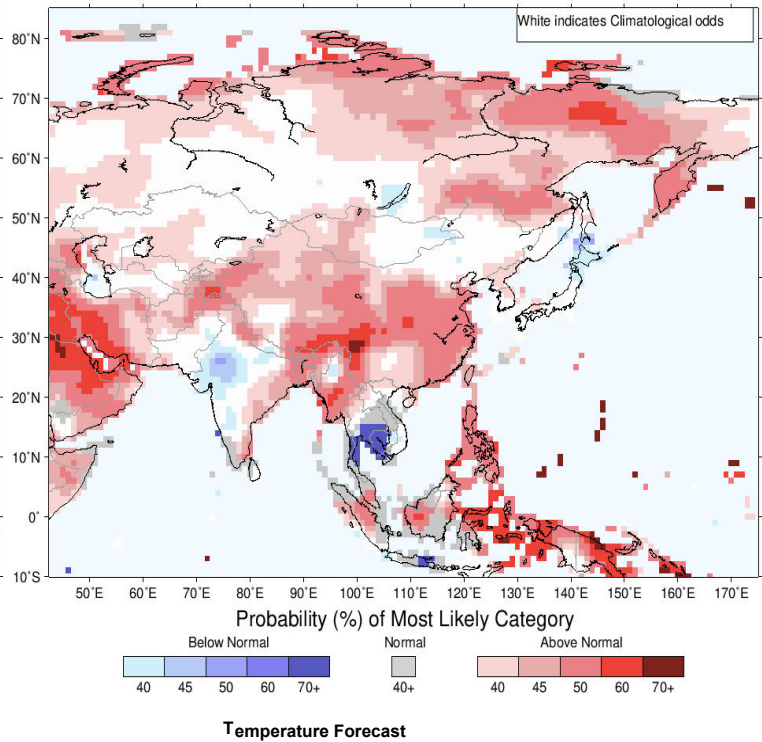
## Seasonal Rainfall and Temperature Forecast

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%).

IRI Multi-Model Probability Forecast for Precipitation for November-December-January 2023, Issued October 2022



IRI Multi-Model Probability Forecast for Temperature for November-December-January 2023, Issued October 2022



### 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

Federation for Environment, Climate & Technology  
76/2 Matala Road, Akurana  
Kandy  
KY20850  
SRI LANKA

email: [info@fect.lk](mailto:info@fect.lk)  
phone: (+94) 81 2376746

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