

# HIGHLIGHTS

**Rainfall Prediction**



- Heavy rainfall ( $\geq 115$  mm) is predicted for the Southern, Sabaragamuwa, Western, Uva, Central, Eastern, North Western provinces during 19 - 25 Oct.
- Fairly heavy rainfall ( $\geq 75$  mm) is predicted for the North Central and Northern provinces during 19 - 25 Oct.

**Monitored Rainfalls**



- During the last week, average daily rainfall over Sri Lanka was 17.1 mm and hydro catchment area received 19.6 mm.
- Extreme rainfall was recorded in Southern coast and extreme rainfall is predicted for Southern coast and districts.

**Monitored & Predicted Wind**



- From 10 - 16 Oct, up to 4 m/s of south westerly winds were at 850 mb (1.5 km).
- During 20 - 26 Oct, up to 3 m/s of north westerly winds are expected at 850 mb (1.5 km).

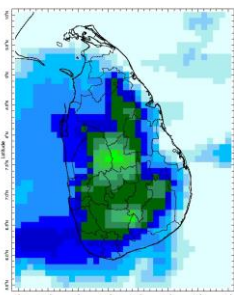
**Monitored Sea & Land Temp**



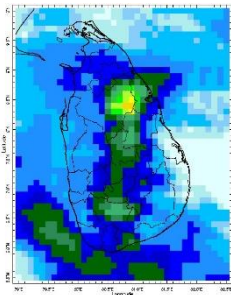
- Sea surface temperature around Sri Lanka was 1.0 - 1.5°C above normal.
- From 11 - 18 Oct, maximum daily temperature was recorded in Anuradhapura (34.5°C) and Polonnaruwa (34.3°C).

## Monitoring Rainfall

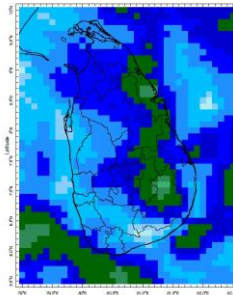
### Daily Estimates for Rainfall from 10<sup>th</sup> October - 17<sup>th</sup> October 2023



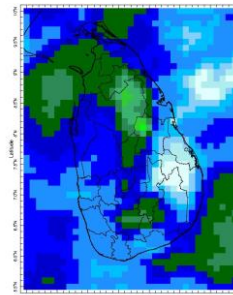
10 October



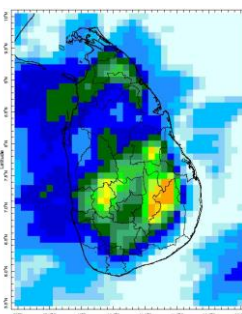
11 October



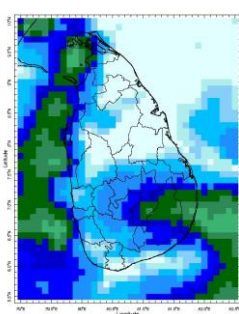
12 October



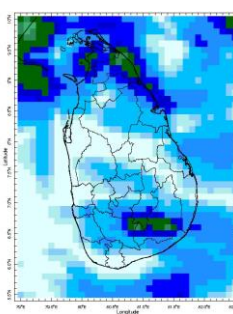
13 October



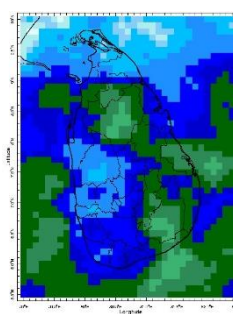
14 October



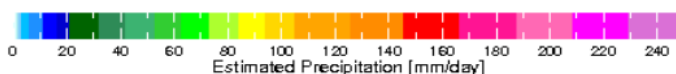
15 October



16 October



17 October



Federation for Environment, Climate & Technology

### Federation for Environment, Climate and Technology

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## Ocean State *(Text Courtesy IRI)*

### **Pacific sea state: October 16, 2023**

El Niño Mode has set in according to NOAA since 8<sup>th</sup> of June. Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean mid-October. El Niño conditions will anticipate to continue through the Northern Hemisphere spring (with an 80% chance during March-May 2024).

### **Indian Ocean State**

Sea surface temperature around Sri Lanka was 0.5 °C above normal to the Western and Southern half of the country in 26<sup>th</sup> September - 2<sup>nd</sup> October, 2023. A positive Dipole Mode has set in across the Indian Ocean since 8<sup>th</sup> of June.

## Predictions

### Rainfall

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

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

Total rainfall by Provinces:

Rainfall (mm)	Provinces
> 135	Southern, Sabaragamuwa, Western, Uva
135	Central
125	Eastern
115	North Western
95	North Central
75	Northern

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

Total rainfall by Provinces:

Rainfall (mm)	Provinces
> 135	Southern, Sabaragamuwa, Western, Uva
135	Central, Eastern
115	North Western
95	North Central
75	Northern

## MJO based OLR predictions

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

MJO shall slightly enhance the rainfall during 19<sup>th</sup> - 28<sup>th</sup> October and near neutral the rainfall during 29<sup>th</sup> October - 2<sup>nd</sup> November for Sri Lanka.

## Interpretation

### Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (11<sup>th</sup> October - 18<sup>th</sup> October) = 17.1 mm

Maximum Daily Rainfall: 92.4 mm & Minimum Daily Rainfall: 0.0 mm.

Region	Average rainfall for last 8 days (mm)	Average temperature for last 8 days (°C)	
		Maximum	Minimum
Northern plains	12.7	31.3	24.4
Eastern hills	18.3	25.9	18.6
Eastern plains	22.9	31.6	23.9
Western hills	19.1	26.8	19.3
Western plains	19.0	30.3	24.3
Southern plains	11.0	30.2	24.3

Region	Average rainfall for last 8 days (mm)	Daily maximum rainfall for last 8 days (mm)	Daily minimum rainfall for last 8 days (mm)
Hydro catchment	19.6	133.2	0.0

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

**Temperatures:** The temperature anomalies were above normal for some parts of the Sabaragamuwa and Central provinces of the country driven by the warm SST's.

## Predictions

**Rainfall:** During the next week (19<sup>th</sup> October - 25<sup>th</sup> October), heavy rainfall ( $\geq 115$  mm) is predicted for the Southern, Sabaragamuwa, Western, Uva, Central, Eastern, and North Western provinces and fairly heavy rainfall ( $\geq 75$  mm) is predicted for the Northern and North Central provinces.

**Temperatures:** The temperature will remain above normal for some parts of the Northern and Eastern provinces during 20<sup>th</sup> - 26<sup>th</sup> October.

**Teleconnections:** A positive Dipole Mode has set in across the Indian Ocean since 8<sup>th</sup> of June. MJO shall slightly enhance the rainfall during 19<sup>th</sup> - 28<sup>th</sup> October and near neutral the rainfall during 29<sup>th</sup> October - 2<sup>nd</sup> November for Sri Lanka.

**Seasonal Precipitation:** The precipitation forecast for the November-December-January, 2024 season shows a 40 - 45% tendency toward above normal precipitation.

## 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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## Weekly Climate Bulletin for Sri Lanka

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- e. Weekly Temperature Monitoring
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- g. Weekly Average SST Anomalies

#### 2. Predictions

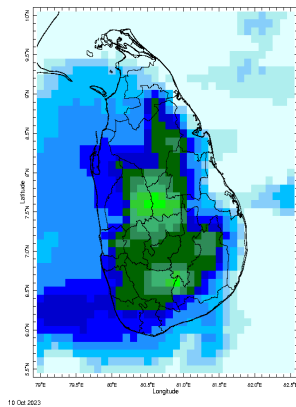
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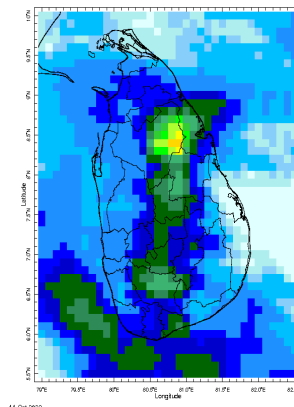
### MONITORING

#### Daily Rainfall Monitoring

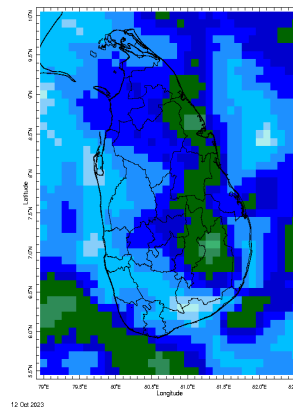
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



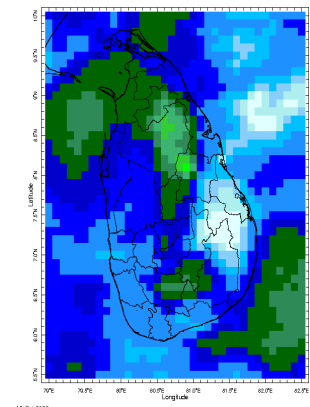
10 Oct 2023



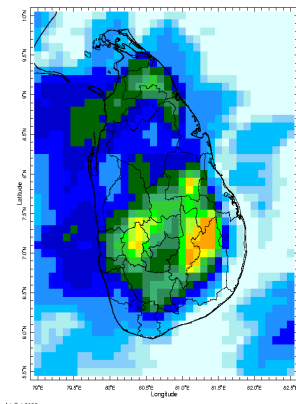
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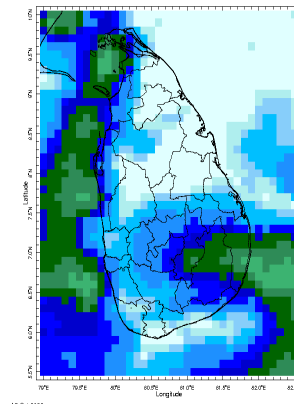
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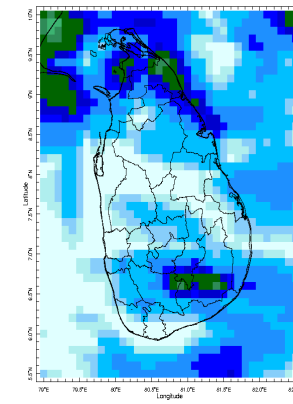
13 Oct 2023



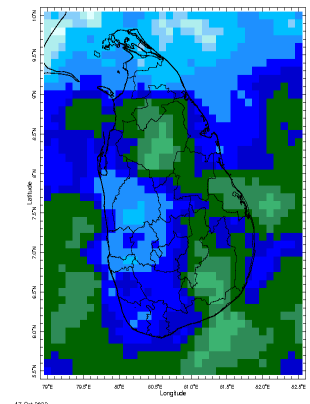
14 Oct 2023



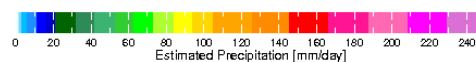
15 Oct 2023



16 Oct 2023



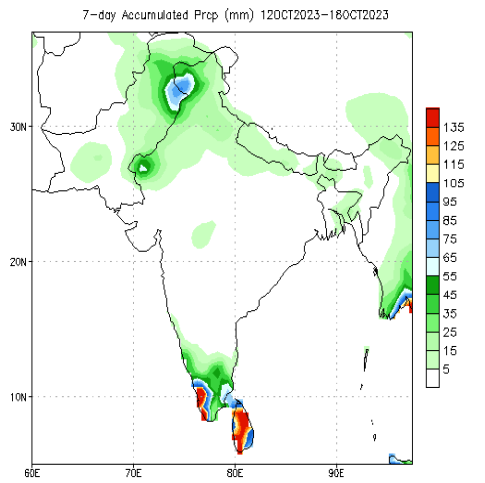
17 Oct 2023



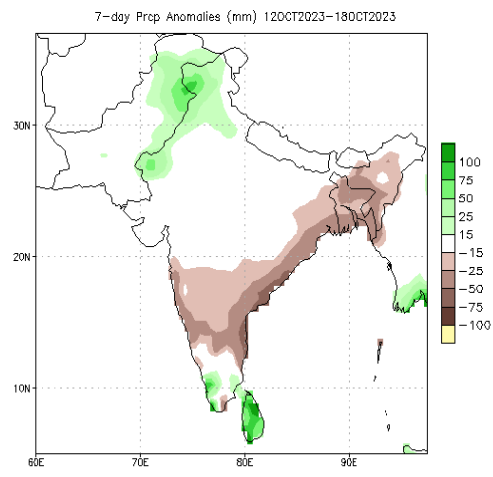


## Weekly Rainfall Monitoring

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.



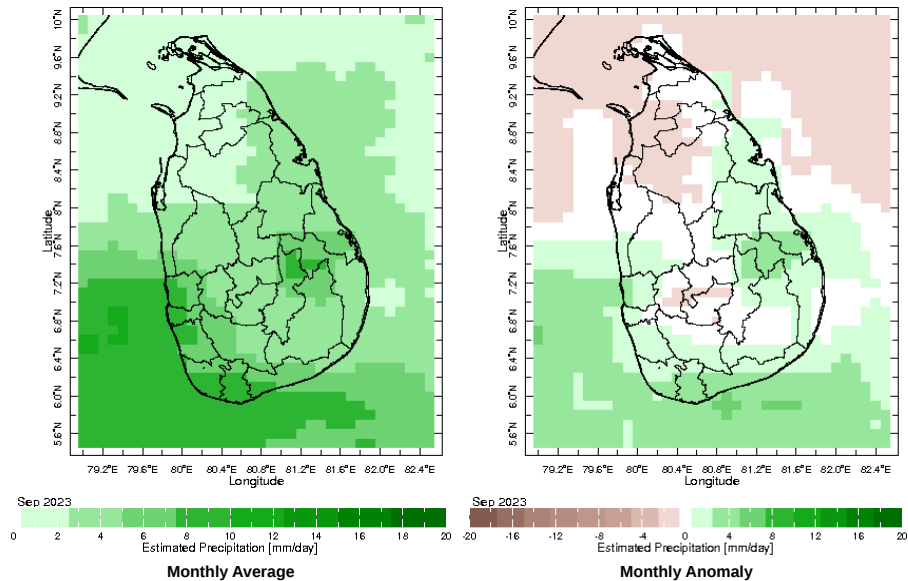
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



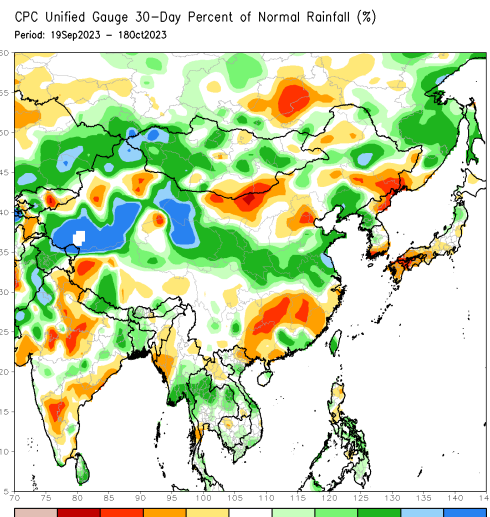
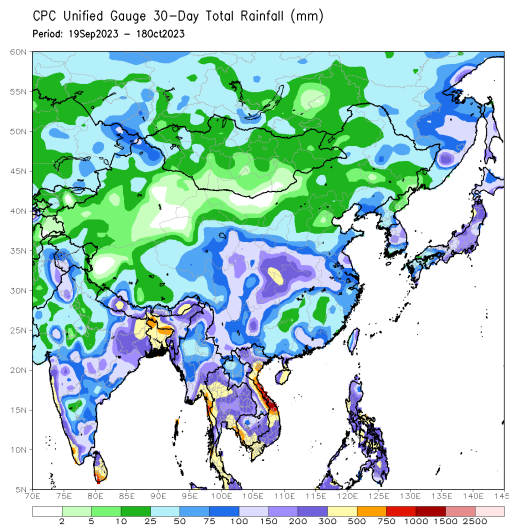
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

## Monthly Rainfall Monitoring

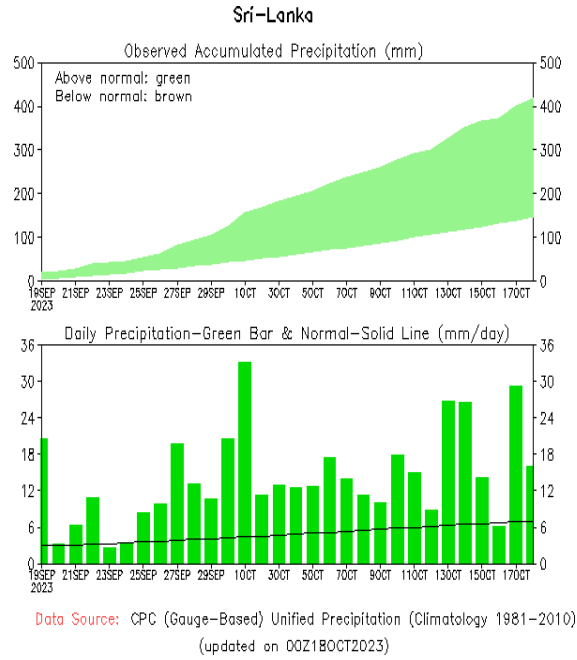
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



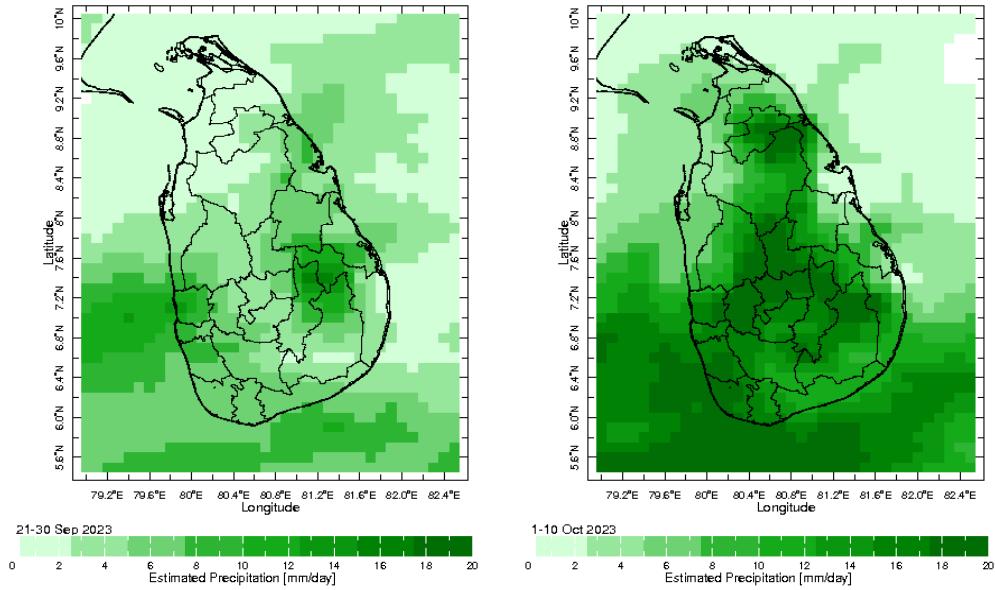
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



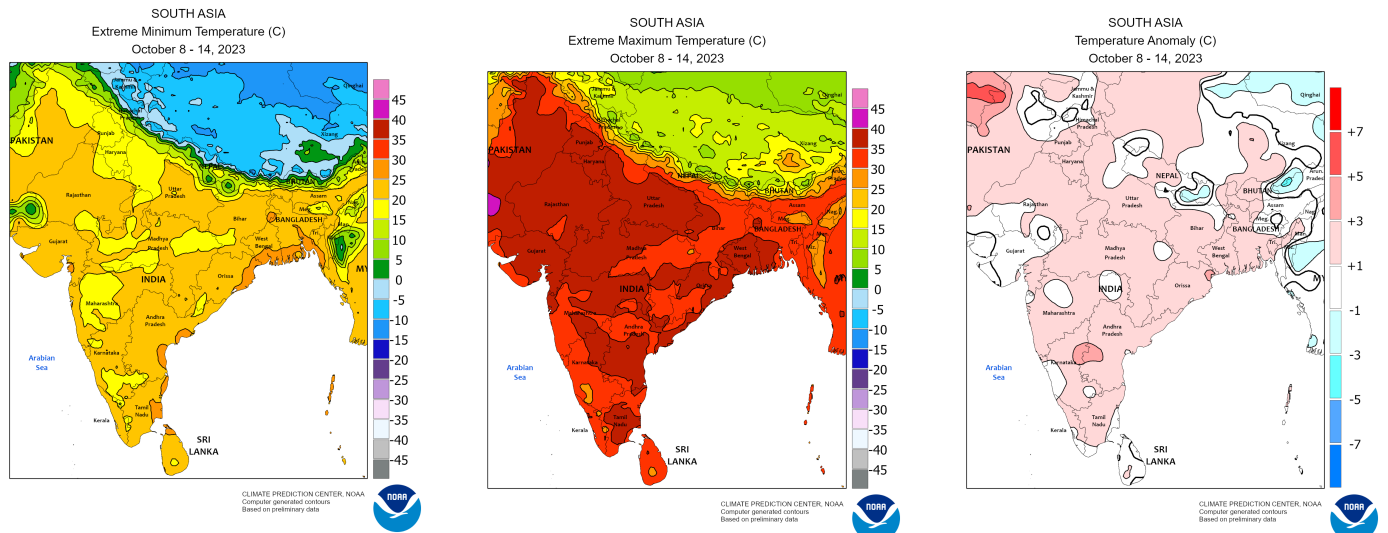
The following figure shows the observed accumulated rainfall (top) and daily observed (bottom) in Sri Lanka in the last 30 days.



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

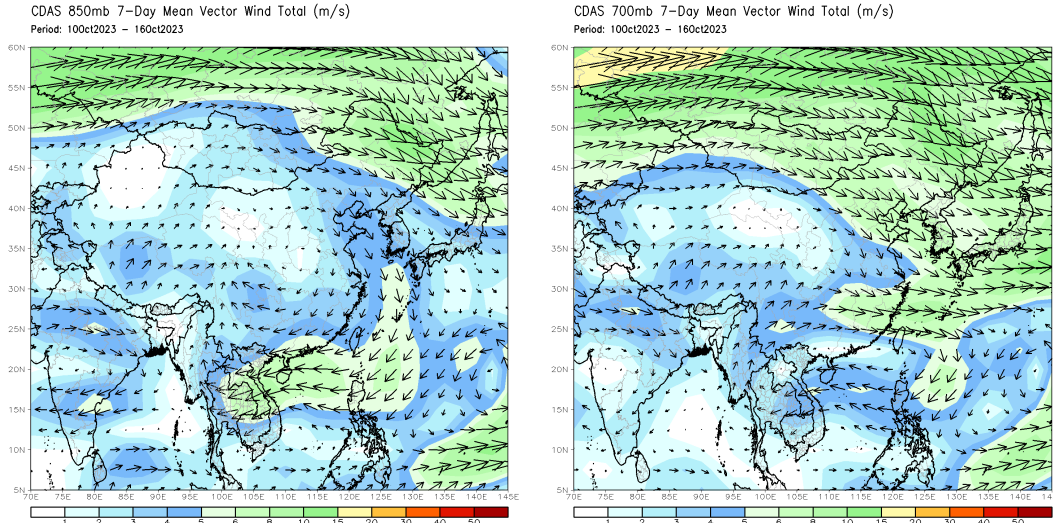


**Weekly Temperature Monitoring**



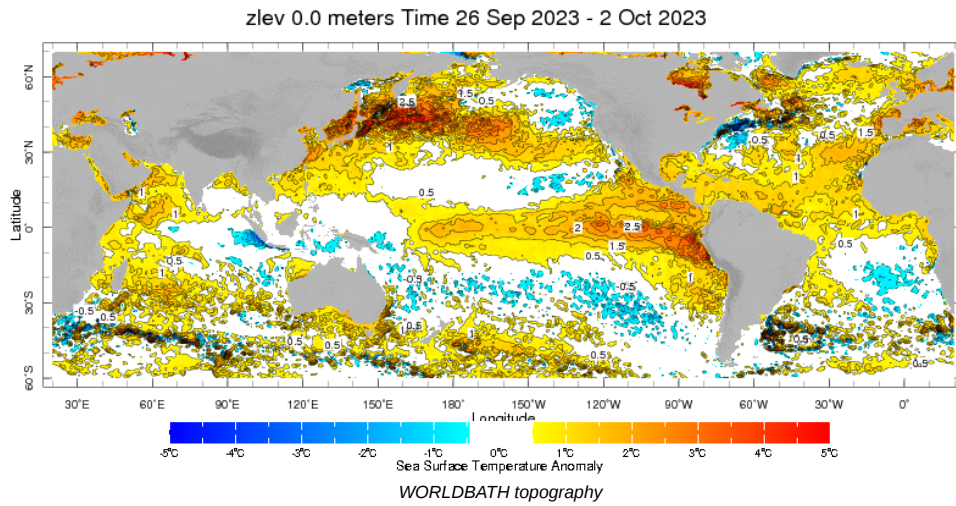
## Weekly Wind Monitoring

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.

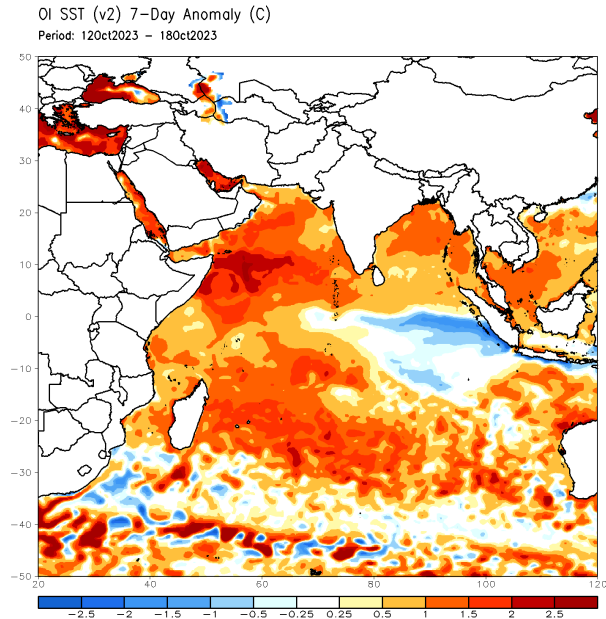


## Weekly Average SST Anomalies

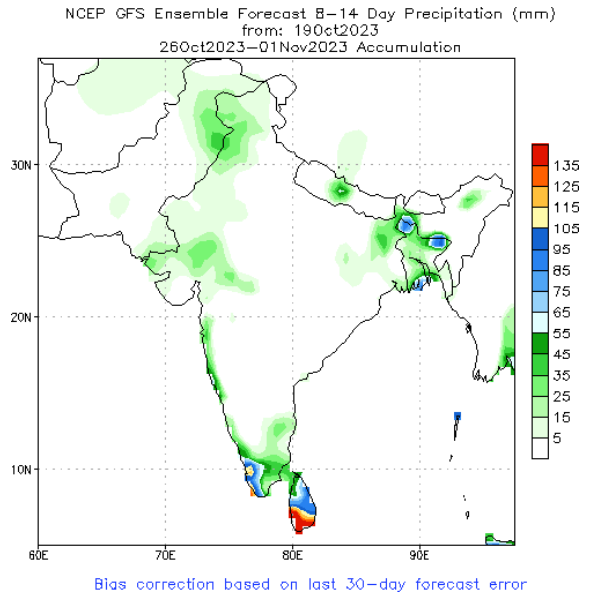
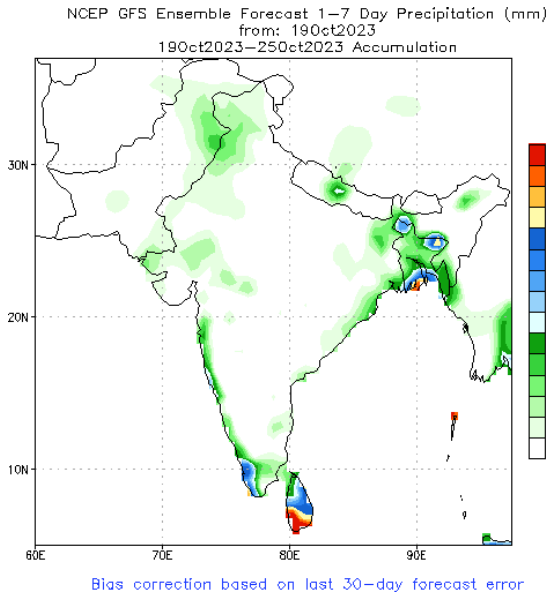
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



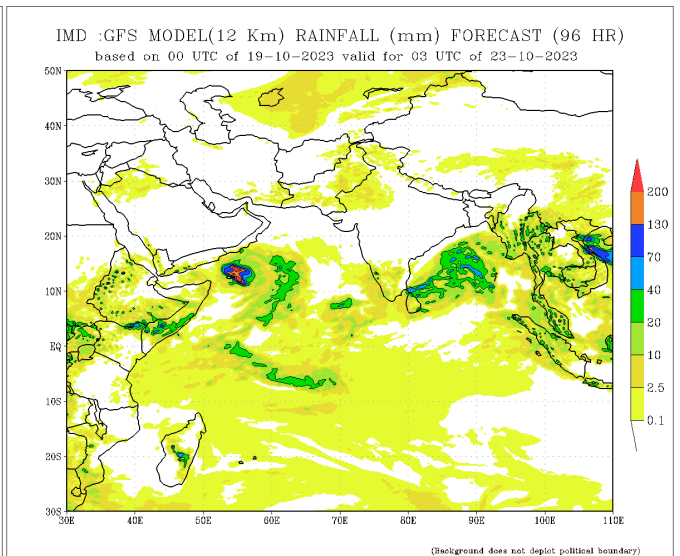
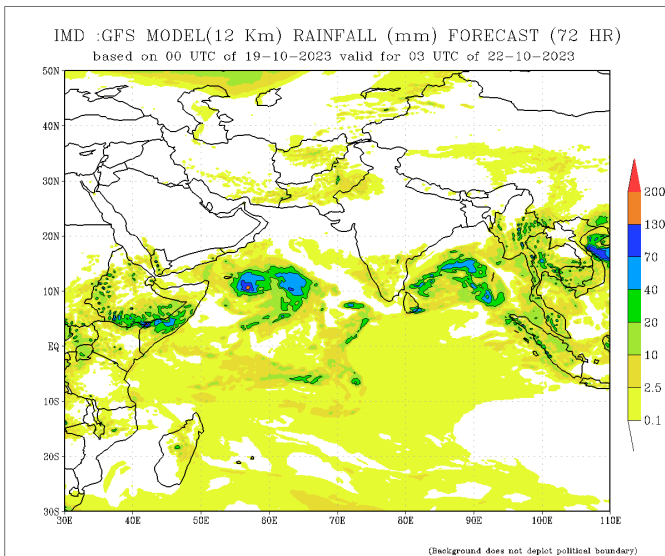
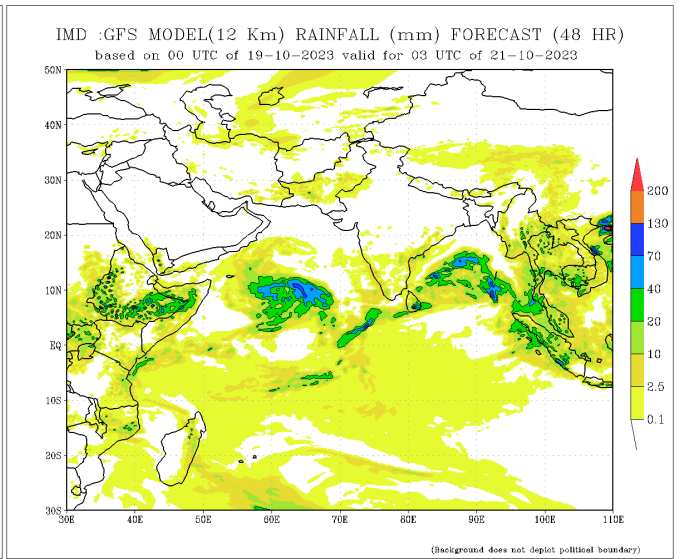
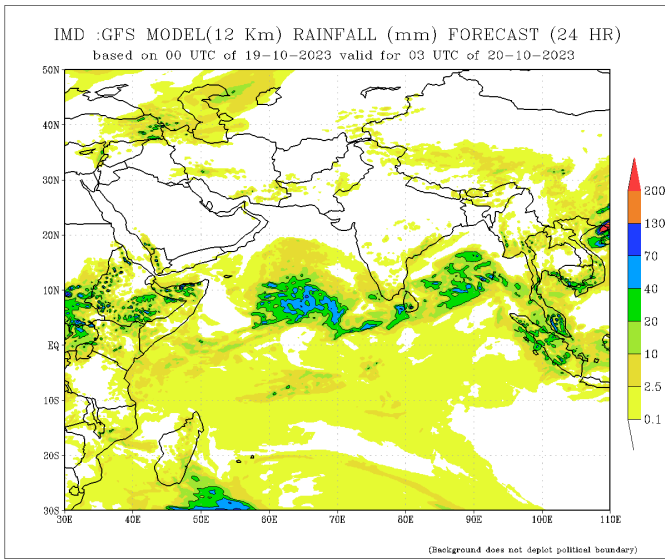
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



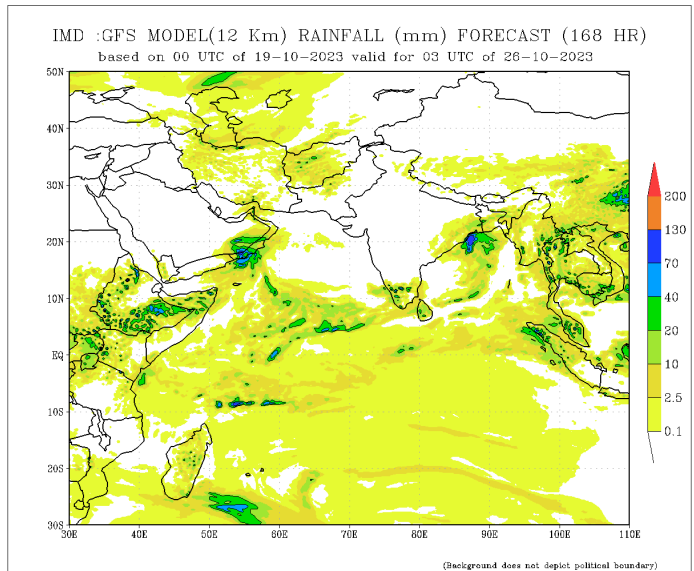
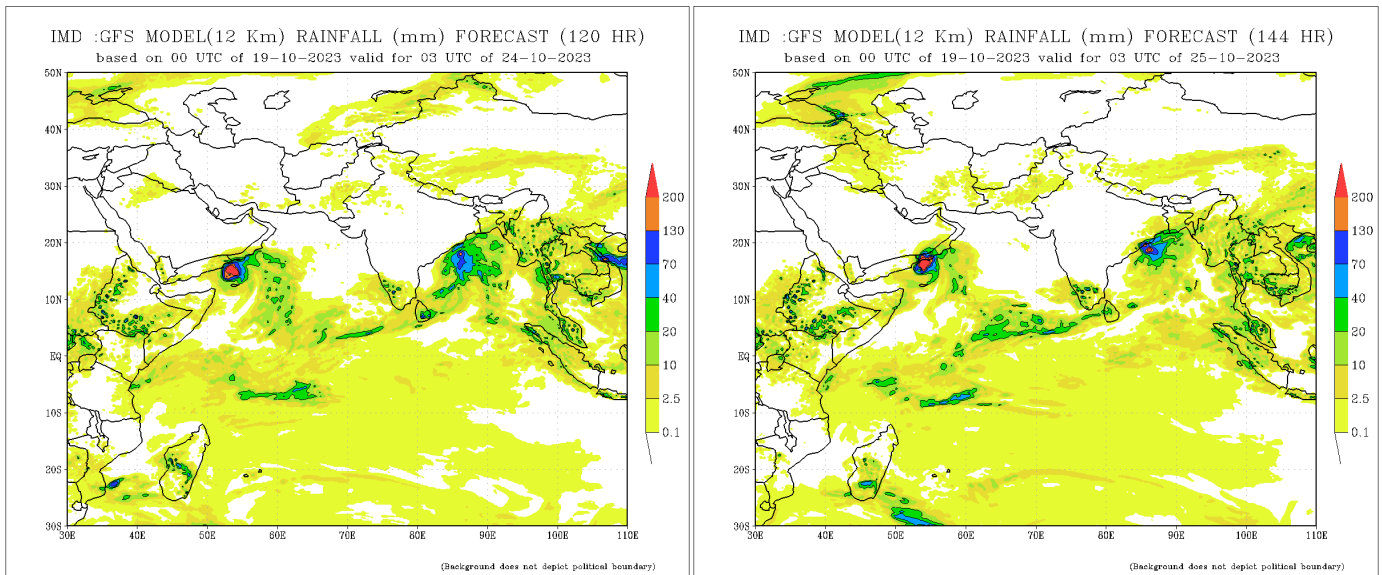
**NCEP GFS 1- 14 Day prediction**



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

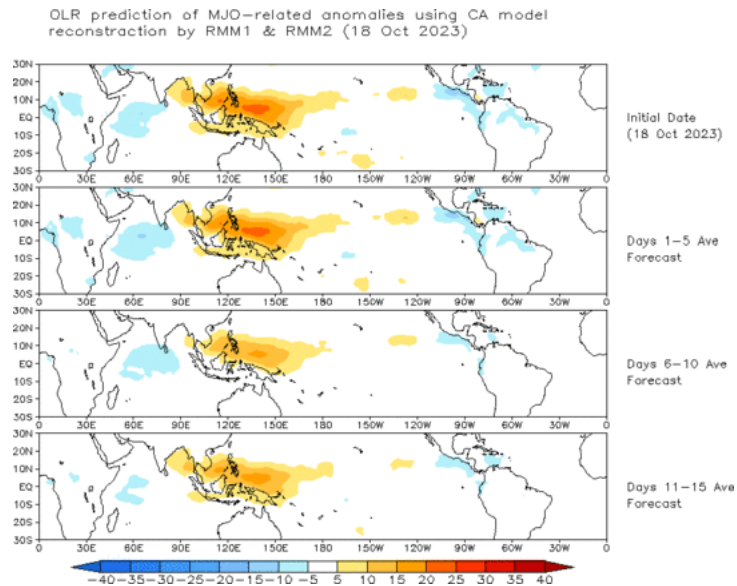






### Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.

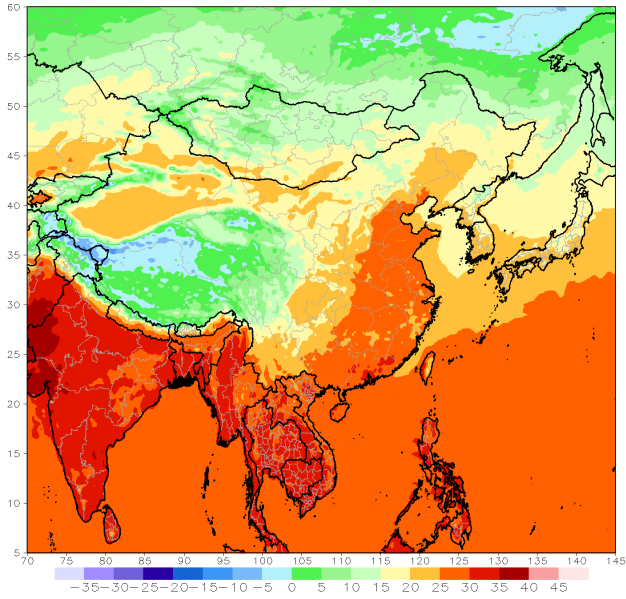




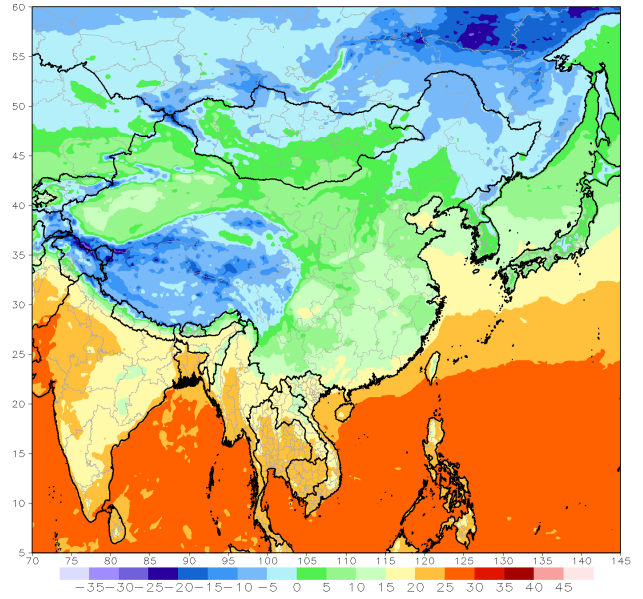
## Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)  
Period: 18z20Oct2023 - 18z26Oct2023



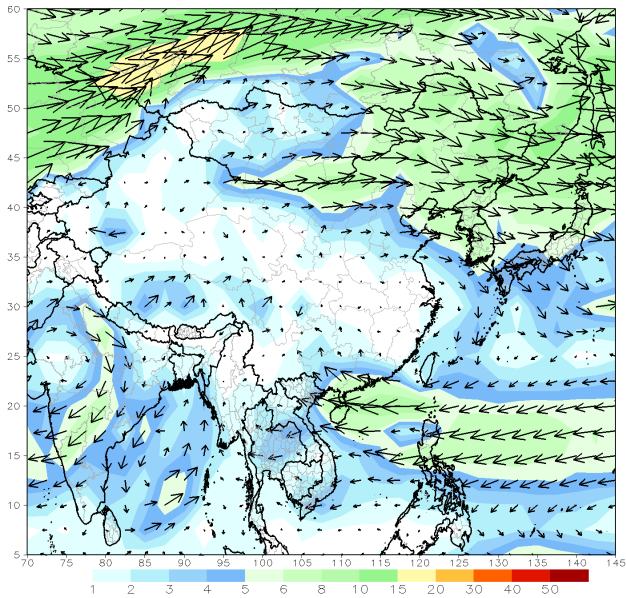
GFS week1 Temperature Min (C)  
Period: 18z20Oct2023 - 18z26Oct2023



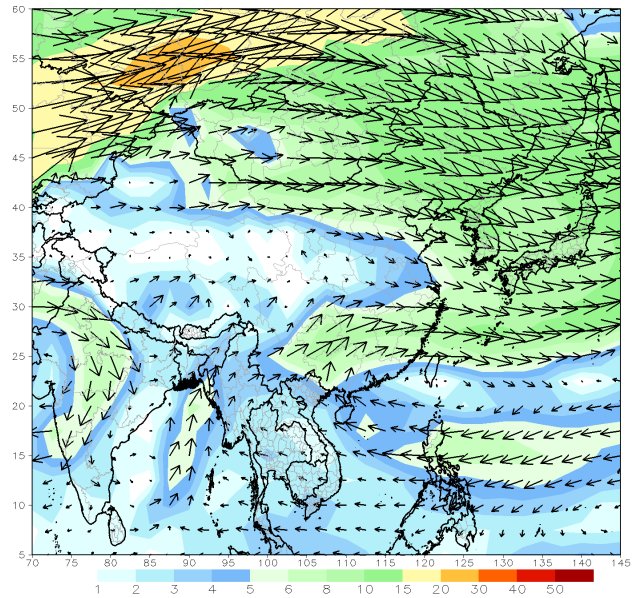
## Weekly Wind Forecast

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)  
Period: 18z20Oct2023 - 18z26Oct2023



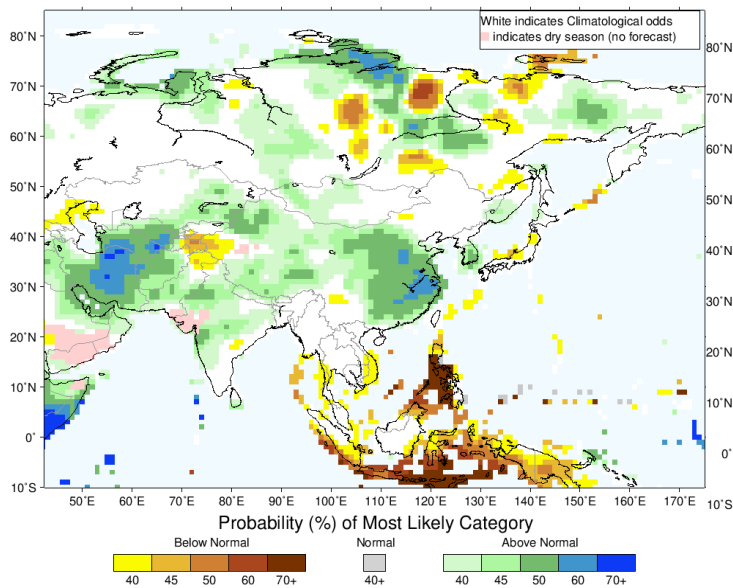
GFS 700mb week1 Mean Vector Wind Total (m/s)  
Period: 18z20Oct2023 - 18z26Oct2023



## Seasonal Rainfall and Temperature Forecast

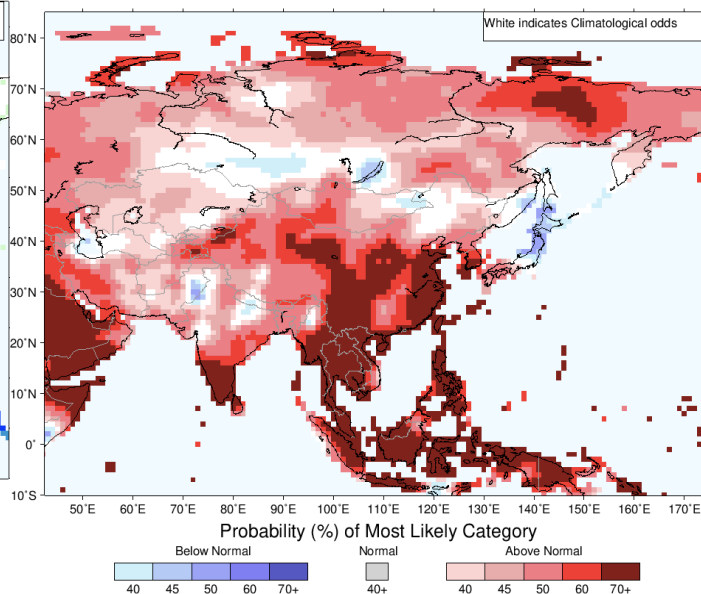
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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 2024, Issued October 2023



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for November-December-January 2024, Issued October 2023



Temperature Forecast

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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.

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