

## HIGHLIGHTS

**Rainfall Prediction**



- Very heavy rainfall (>135mm) is predicted for the Southern Province: heavy rainfall (>100mm) is predicted for Sabaragamuwa, Western, Uva, Central and Eastern provinces from 31 Aug - 6 Sept.

**Monitored Rainfalls**



- During the last week, average daily rainfall over Sri Lanka was 'light' (2.6 mm) and hydro catchment areas received 'light' (4.9 mm) showers. Overall, 33% drop in rainfall during the August.

**Monitored & Predicted Wind**



- From 15 - 21 Aug, up to 8 m/s of southwesterly winds were at 850 mb (1.5 km).
- During 1 - 7 Sept, up to 15 m/s of westerly - southwesterly winds are expected at 850 mb (1.5 km).

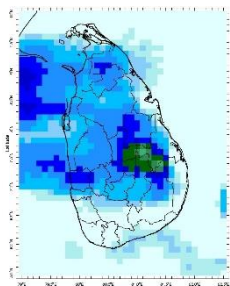
**Monitored Sea & Land Temp**



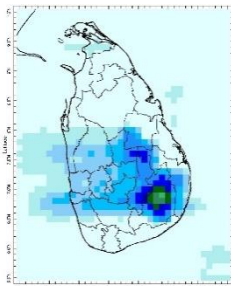
- Sea surface temperature around Sri Lanka was 0.5 - 2°C above normal.
- From 22 - 29 Aug, maximum daily temperature was recorded in Vavuniya (38.3°C), and Polonnaruwa (37.7°C)

## Monitoring Rainfall

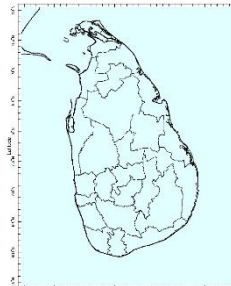
### Daily Estimates for Rainfall from 22<sup>nd</sup> August – 29<sup>th</sup> August 2023



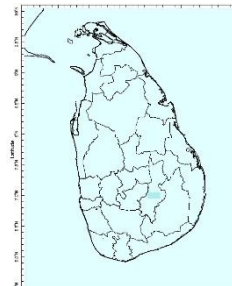
22 August



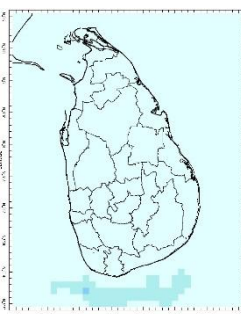
23 August



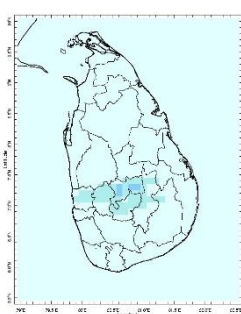
24 August



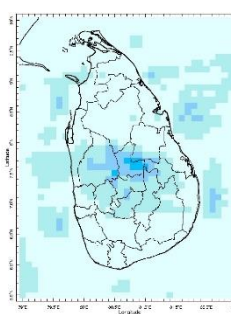
25 August



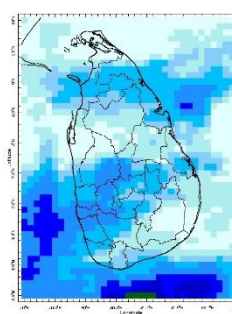
26 August



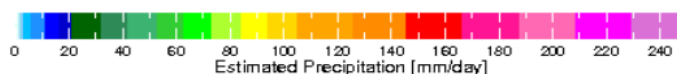
27 August



28 August



29 August



Federation for  
Environment, Climate  
& Technology

## Federation for Environment, Climate and Technology

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## Ocean State *(Text Courtesy IRI)*

### **Pacific sea state: August 28, 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. El Niño is anticipated to continue through the Northern Hemisphere winter (with greater than a 95% chance through December 2023-February 2024).

### **Indian Ocean State**

Sea surface temperature around Sri Lanka was 1.0 °C above normal to the South and 0.5 °C to the West of the country in 8<sup>th</sup> - 14<sup>th</sup> August, 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 31<sup>st</sup> August - 6<sup>th</sup> September:**

Total rainfall by Provinces

Rainfall (mm)	Provinces
≥135	Southern
125	Sabaragamuwa
115	Western, Uva
105	Central, Eastern
85	North Western
55	North Central
45	Northern

**From 7<sup>th</sup> September - 13<sup>th</sup> September:**

Total rainfall by Provinces:

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

### **MJO based OLR predictions**

**For the next 15 days:**

MJO shall near neutral the rainfall during 31<sup>st</sup> August - 14<sup>th</sup> September for Sri Lanka.

## Interpretation

### Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (22<sup>th</sup> August - 29<sup>th</sup> August) = 2.6 mm

Maximum Daily Rainfall: 101.3 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	0.4	34.7	26.2
Eastern hills	5.4	29.4	18.3
Eastern plains	1.4	35.4	25.4
Western hills	9.4	29.7	19.2
Western plains	3.7	32.5	25.9
Southern plains	0.0	33.6	25.7

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	4.9	63.0	0.0

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

**Temperatures:** The temperature anomalies were above normal for the entire island and except for some parts of the northern province of the country driven by the warm SST's.

## Predictions

**Rainfall:** During the next week (31<sup>st</sup> August - 6<sup>th</sup> September), very heavy rainfall ( $\geq 135$ mm) is predicted for the Southern Province; heavy rainfall ( $>100$ mm) is predicted for Sabaragamuwa, Western, Uva, Central and Eastern provinces; fairly heavy rainfall (55-85 mm) is for North Western and North Central provinces and less rainfall is predicted for the rest of the country.

**Temperatures:** The temperature will remain above normal for some parts of the Eastern, Uva, Northern, and North Central provinces and below normal for Nuwara Eliya district during 1<sup>st</sup> September - 10<sup>th</sup> September.

**Teleconnections:** A positive Dipole Mode has set in across the Indian Ocean since 8<sup>th</sup> of June. MJO shall near neutral the rainfall during 31<sup>st</sup> August - 14<sup>th</sup> September for Sri Lanka

**Seasonal Precipitation:** The precipitation forecast for the September-October-November, 2023 season shows above normal precipitation for 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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## Weekly Climate Bulletin for Sri Lanka

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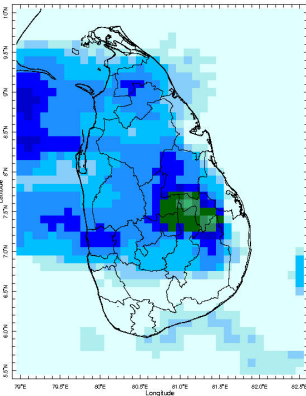
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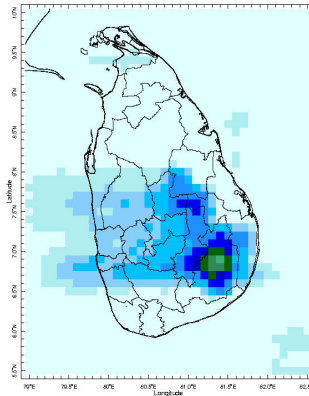
## MONITORING

### Daily Rainfall Monitoring

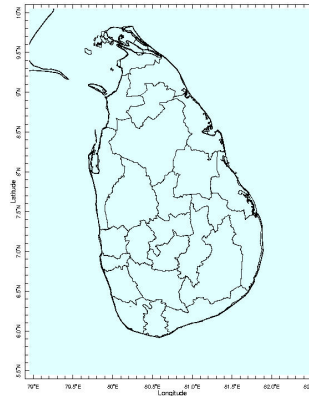
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



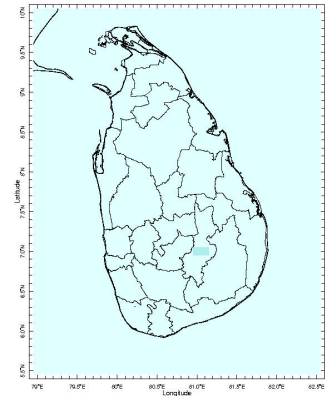
22 Aug 2023



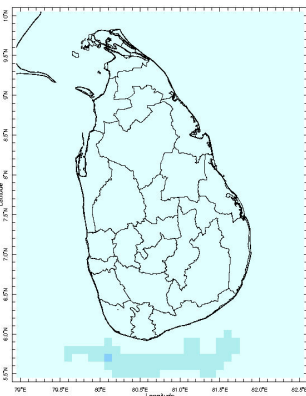
23 Aug 2023



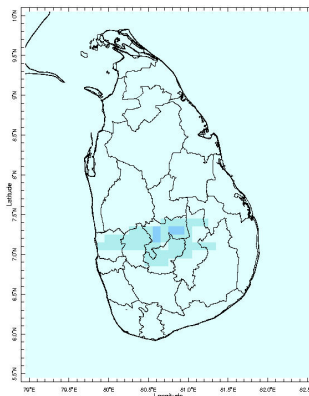
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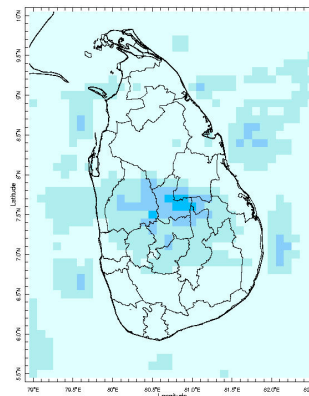
25 Aug 2023



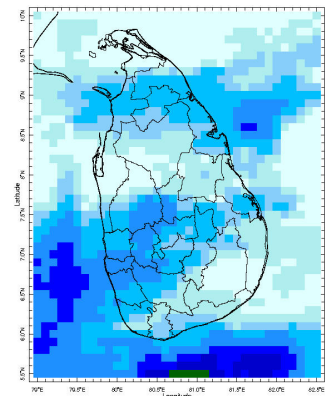
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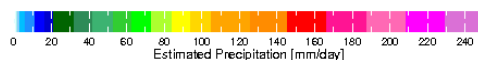
27 Aug 2023



28 Aug 2023

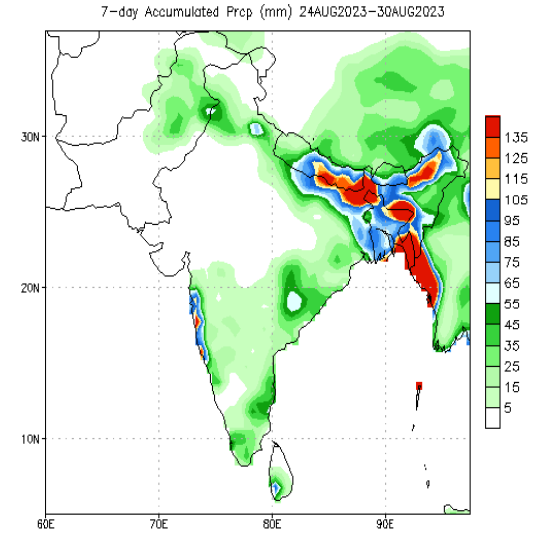


29 Aug 2023

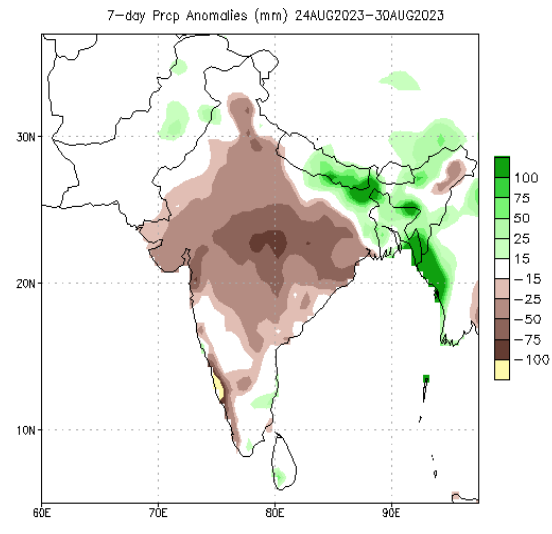
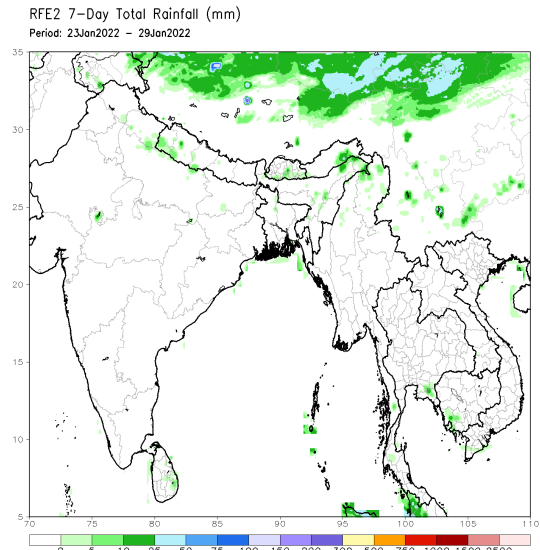


## Weekly Rainfall Monitoring

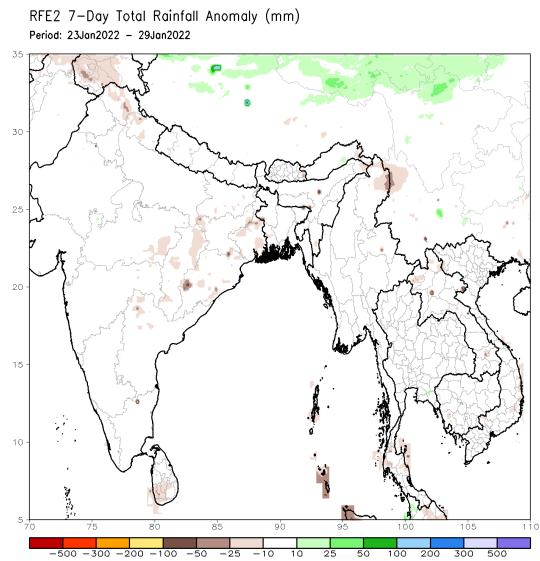
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite Rainfall Estimates. The bottom two figures are the respective anomalies.



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

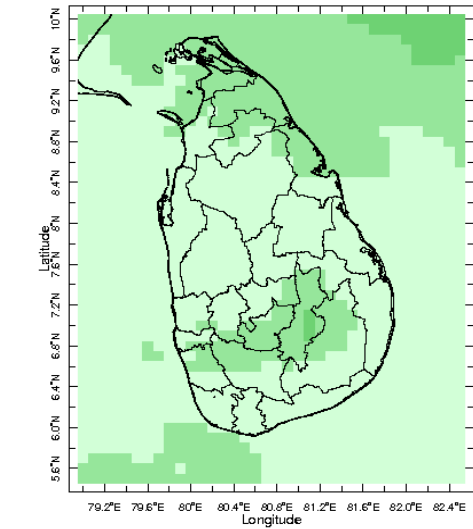


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

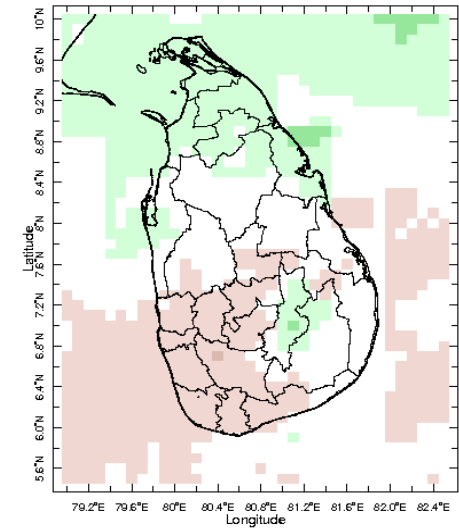


## Monthly Rainfall Monitoring

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



Jul 2023  
Estimated Precipitation [mm/day]

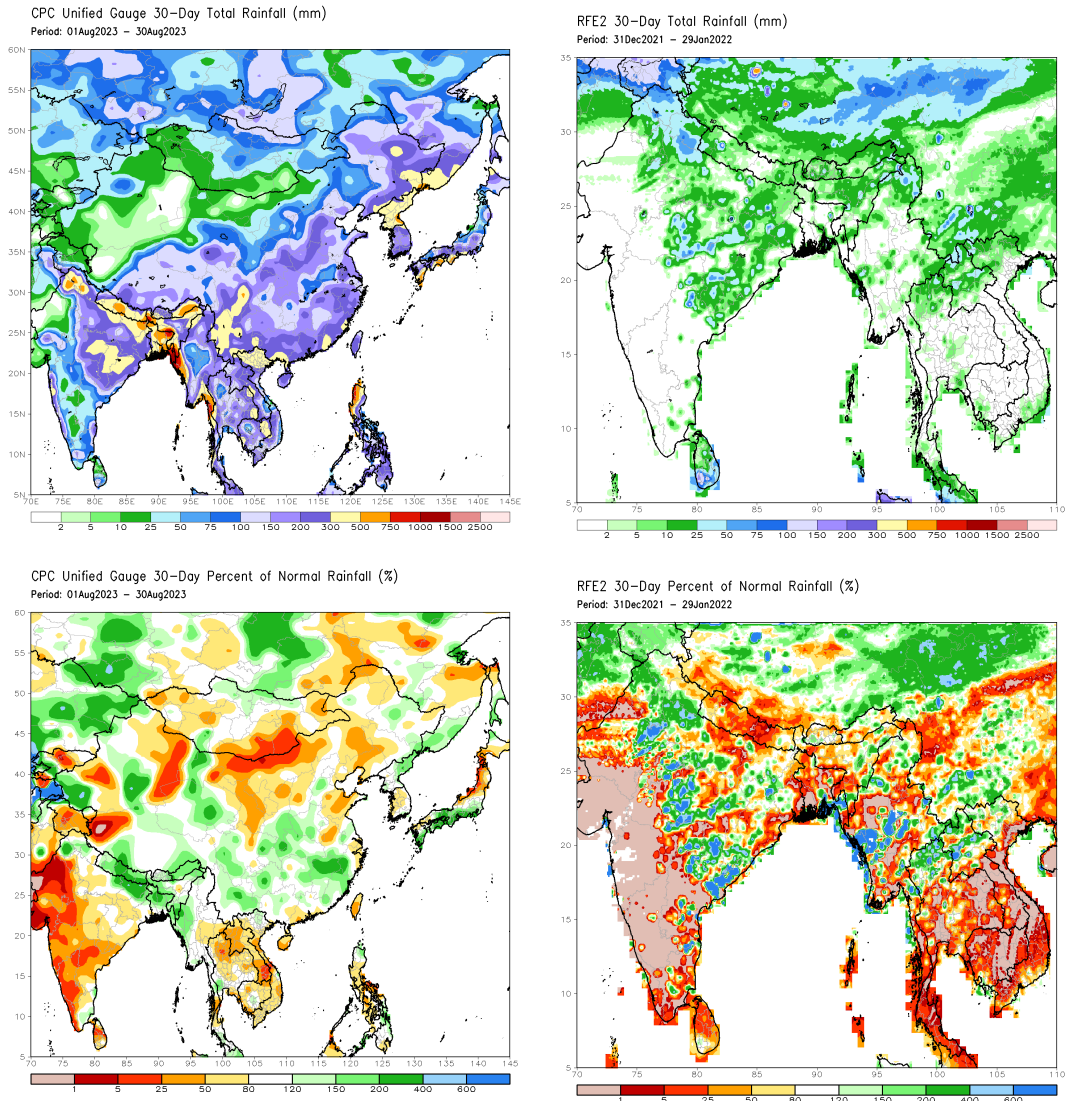


Jul 2023  
Estimated Precipitation [mm/day]

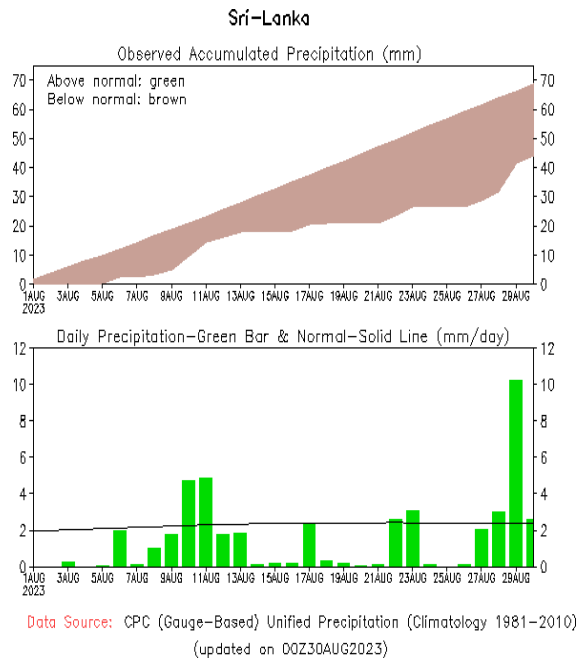
Monthly Average

Monthly Anomaly

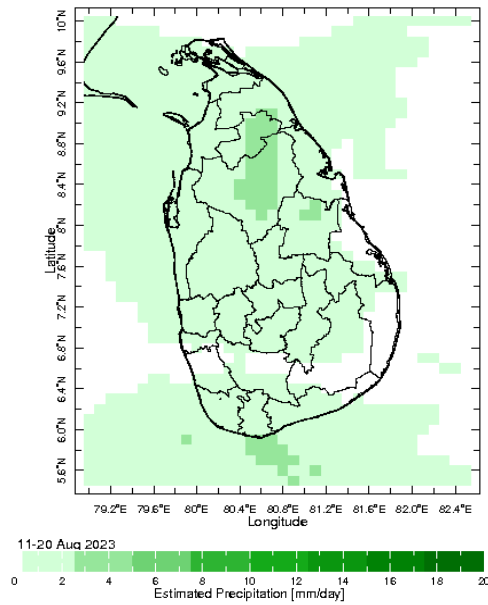
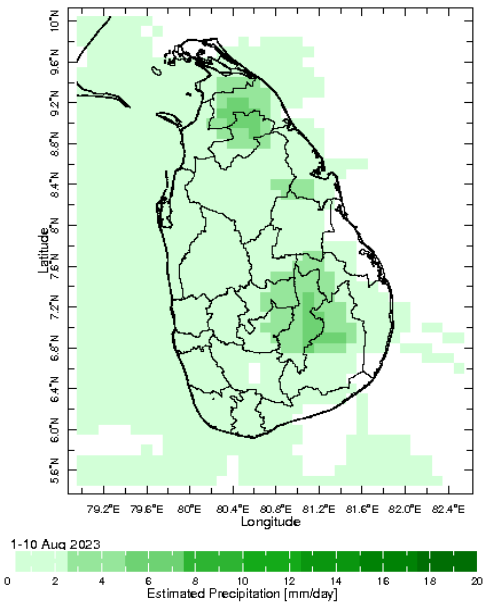
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



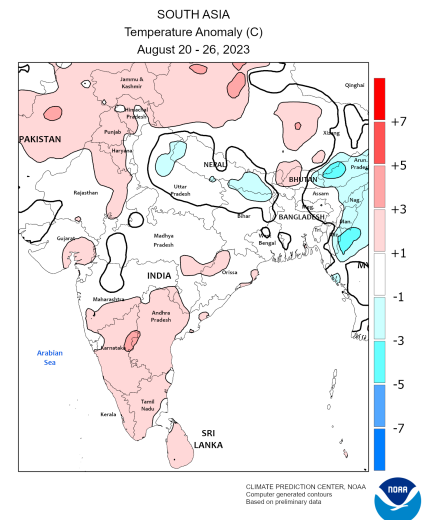
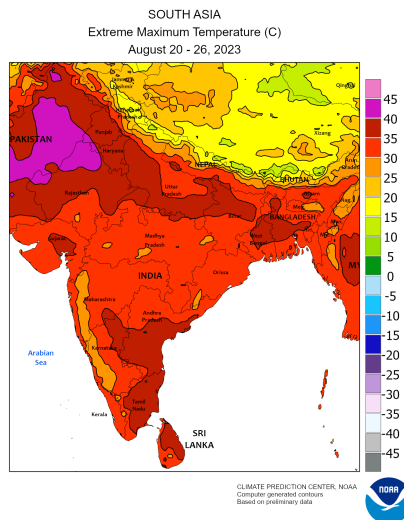
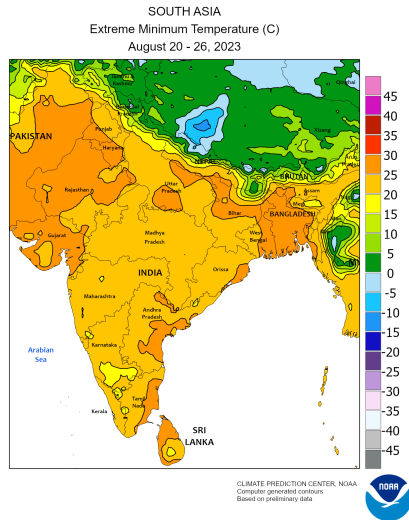
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



# Dekadal (10 Day) Satellite Derived Rainfall Estimates

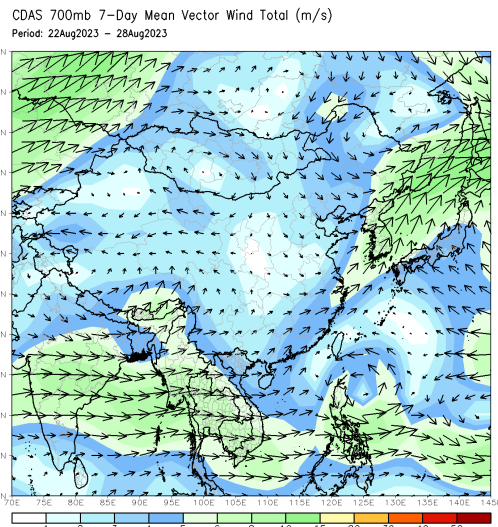
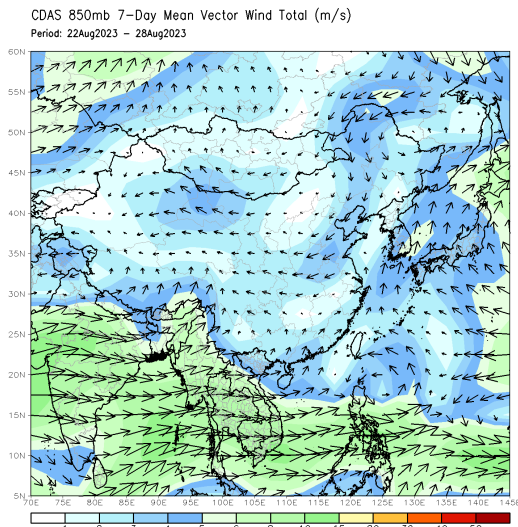


## Weekly Temperature Monitoring



## Weekly Wind Monitoring

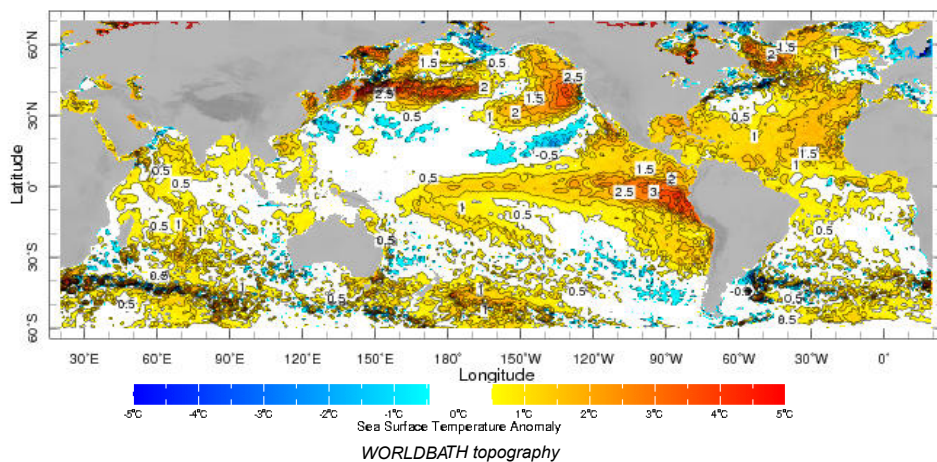
The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.



# Weekly Average SST Anomalies

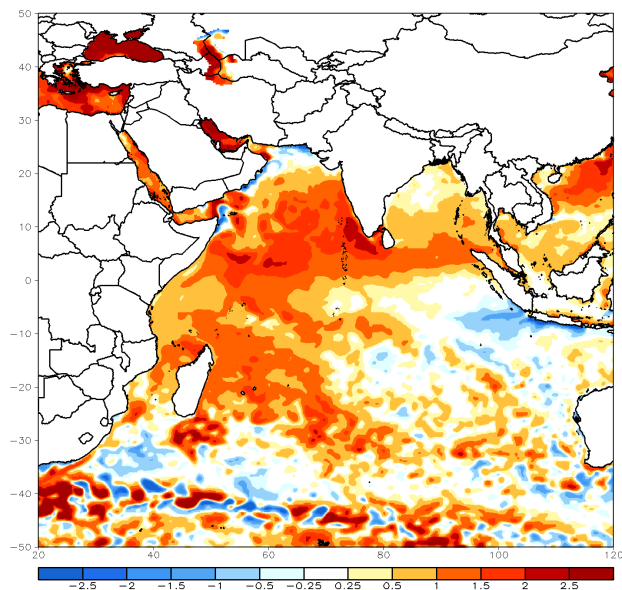
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

zlev 0.0 meters Time 8-14 Aug 2023



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

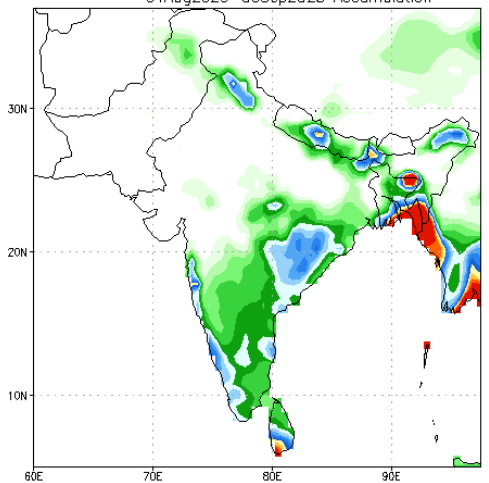
OI SST (v2) 7-Day Anomaly (C)  
Period: 24Aug2023 - 30Aug2023



## PREDICTIONS

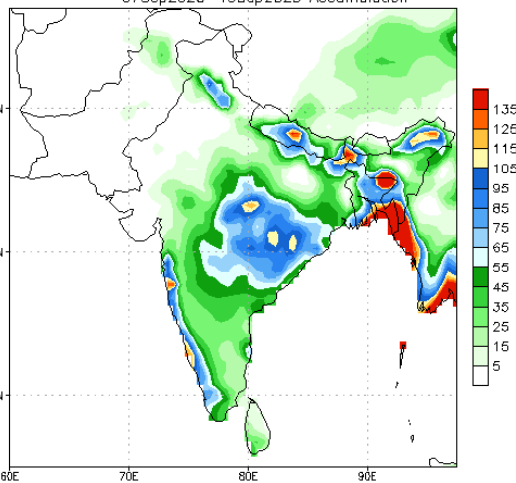
### NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 31Aug2023  
31Aug2023-06Sep2023 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 31Aug2023  
07Sep2023-13Sep2023 Accumulation

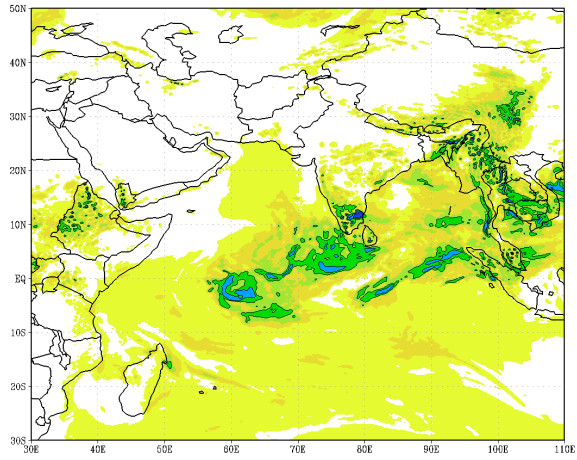


Bias correction based on last 30-day forecast error

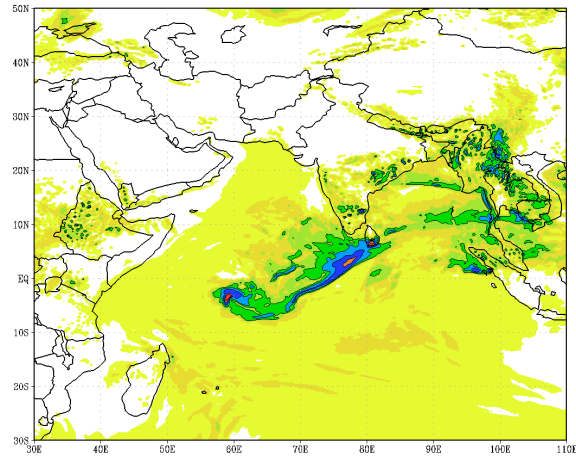


# IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

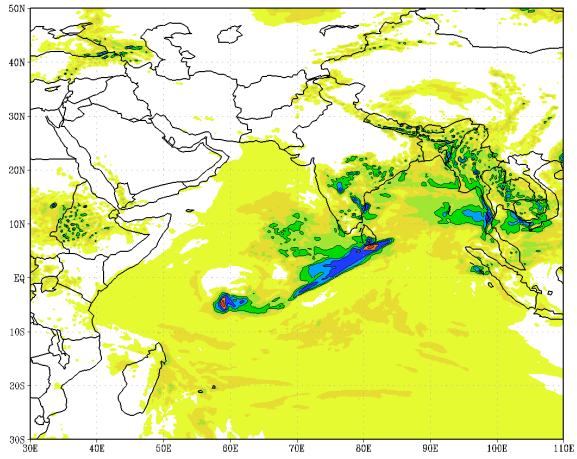
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 01-09-2023



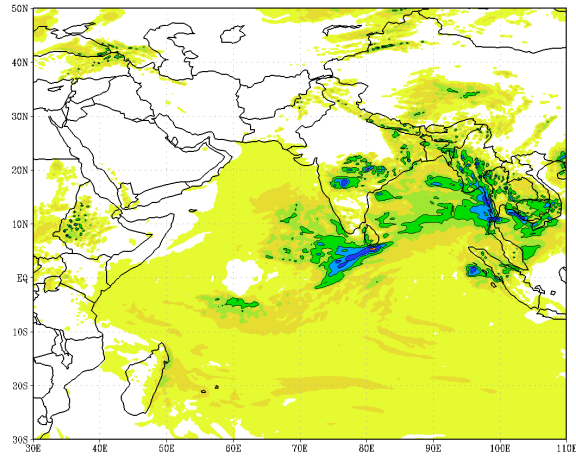
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 02-09-2023



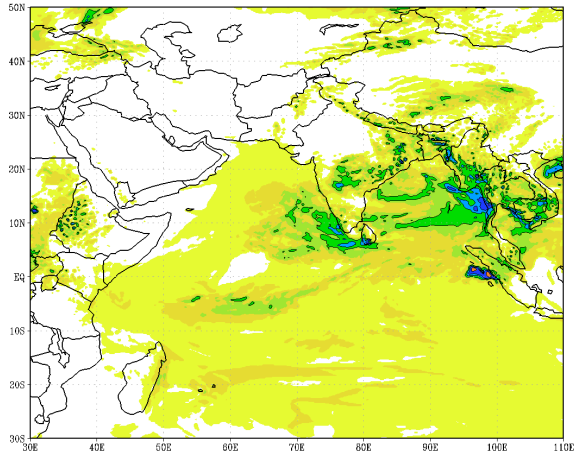
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 03-09-2023



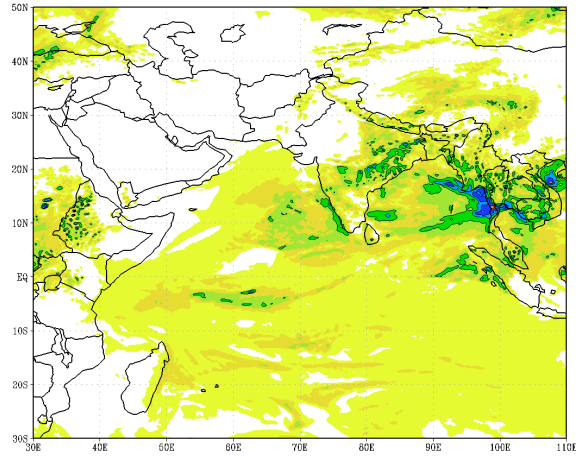
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 04-09-2023

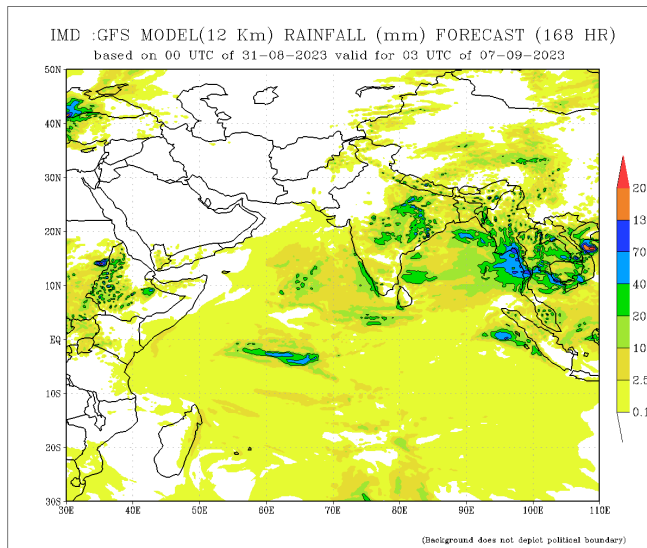


IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 05-09-2023



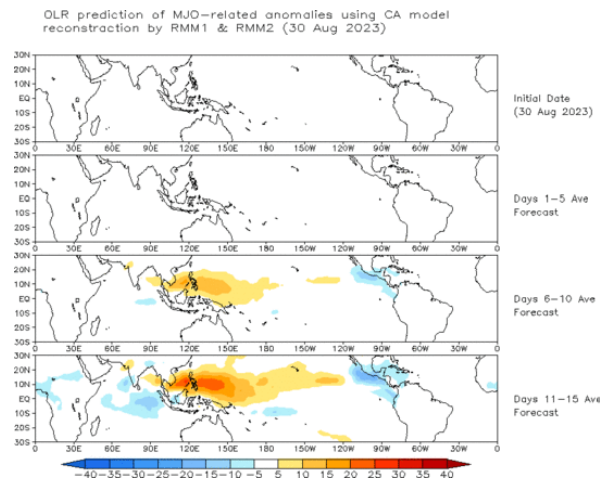
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (144 HR)  
based on 00 UTC of 31-08-2023 valid for 03 UTC of 06-09-2023





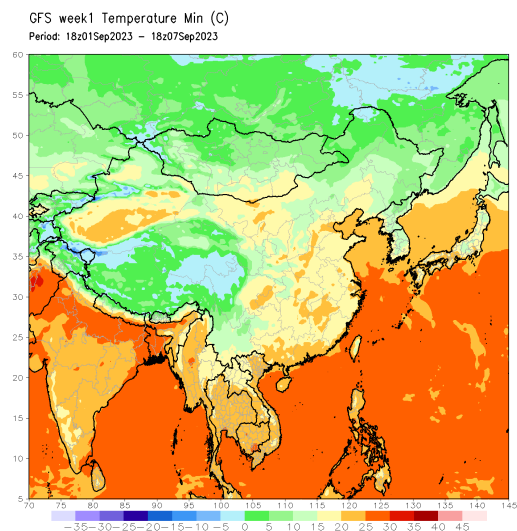
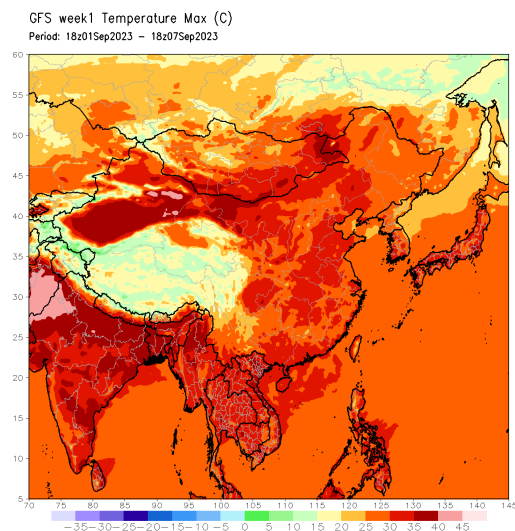
## Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



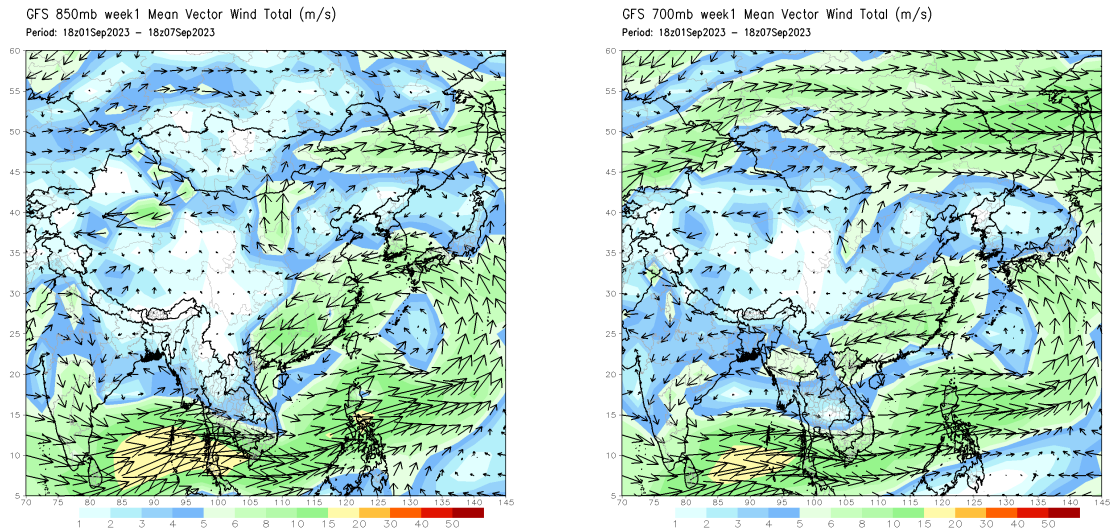
## Weekly Temperature Forecast

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



# Weekly Wind Forecast

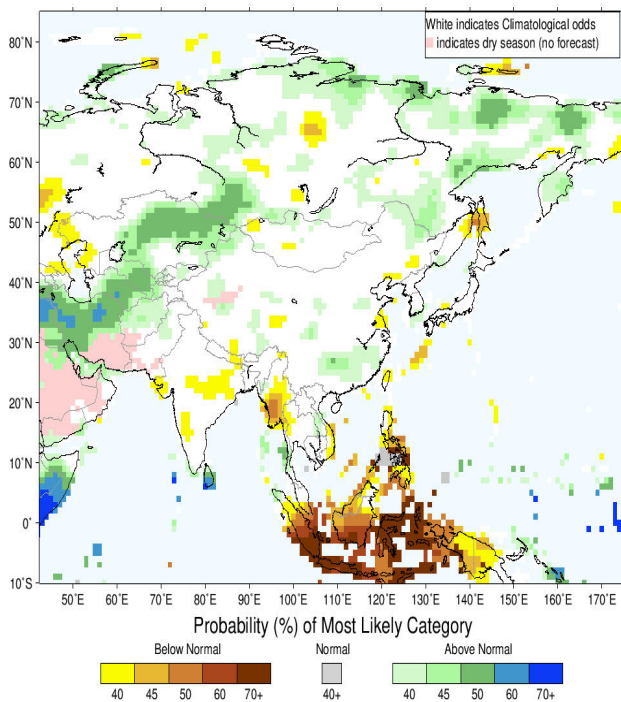
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



## Seasonal Rainfall and Temperature Forecast

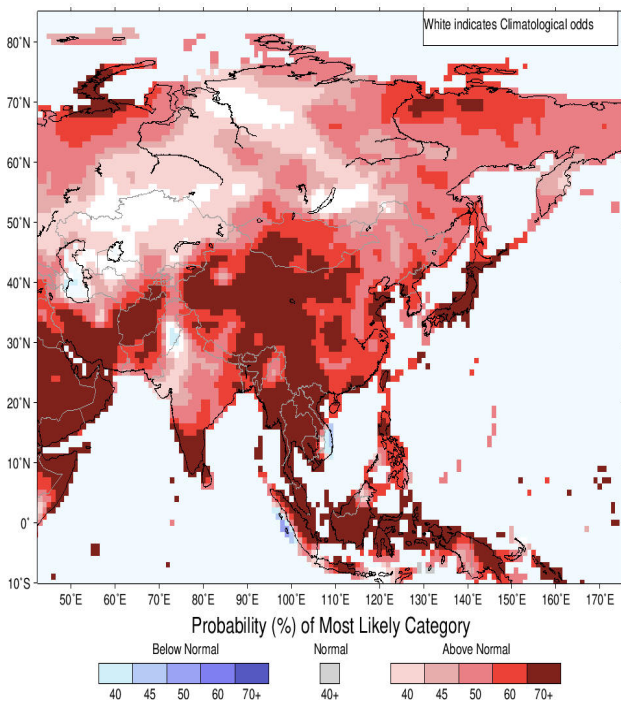
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant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



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for September–October–November 2023, Issued August 2023



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.

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