

7 JULY
2023

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



Fairly heavy rainfall is predicted for the Sabaragamuwa, Western, Southern, Central provinces and less rainfall is predicted for the rest of the country during 6 - 12 July.

Monitored Rainfalls



During the last week, average daily rainfall over Sri Lanka was 4.8 mm and hydro catchment areas received 22.8 mm. Highest average rainfall of 12.0 mm/day received in Western region.

Monitored & Predicted Wind



From 27 Jun - 3 Jul, up to 15 m/s of northwest-westerly winds were at 850 mb (1.5 km). During 7 - 13 July, up to 15 m/s of northwest-westerly winds are expected at 850 mb (1.5 km).

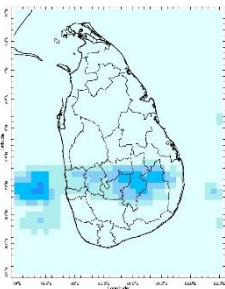
Monitored Sea & Land Temp



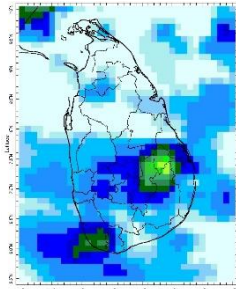
Sea surface temperature around Sri Lanka was 0.25 - 1.5°C above normal. Average maximum land temperature ranged from 29 - 32°C and minimum ranged from 24 - 25°C with a drop in the hills.

Monitoring Rainfall

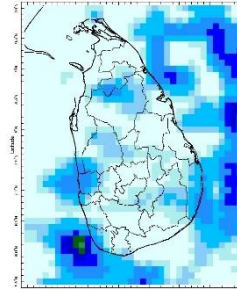
Daily Estimates for Rainfall from 28th June – 5th July 2023



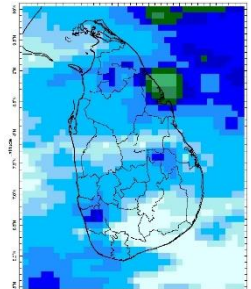
28 June



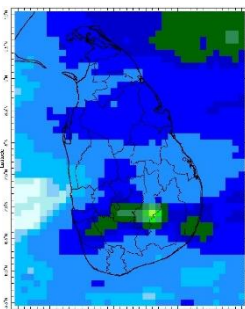
29 June



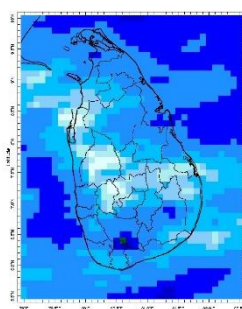
30 June



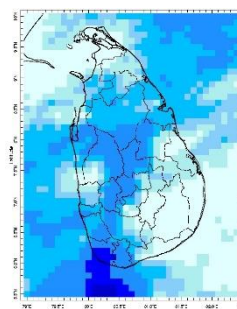
1 July



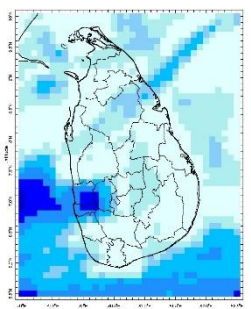
2 July



3 July



4 July



5 July



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Ocean State *(Text Courtesy IRI)*

Pacific sea state: July 3, 2023

El Niño Mode has set in now according to NOAA. Equatorial sea surface temperatures (SSTs) are above average across the east central and eastern Pacific Ocean early-July. El Niño conditions are expected to gradually strengthen into the Northern Hemisphere winter 2023-24.

Indian Ocean State

Sea surface temperature around Sri Lanka was 0.5° C above normal to the Western, Northern, and Eastern half of the country in 13th - 19th June, 2023. A positive Dipole Mode has set in across the Indian Ocean.

Predictions

Rainfall

7-day prediction: NOAA NCEP models

From 6th July – 12th July:

Total rainfall by Provinces:

Rainfall (mm)	Provinces
65	Sabaragamuwa, Western, Southern
55	Central
45	Uva
15	North Western
≤ 5	Northern, North Central, Eastern

MJO based OLR predictions

For the next 15 days:

MJO shall slightly enhance the rainfall during 6th - 20th July for Sri Lanka.

Interpretation

Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (28th June – 5th July) = 4.8 mm
Maximum Daily Rainfall: 93.2 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	0.1	32.9	26.7
Eastern	1.6	32.3	23.9
Western	12.0	28.7	23.7
Southern	1.0	32.5	25.4

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	22.8	157.1	0.0

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

Temperatures: The temperature anomalies were near normal for the country driven by the warm SST's.

Predictions

Rainfall: During the next week (6th July – 12th July), fairly heavy rainfall (≥ 55 mm) is predicted for the Sabaragamuwa, Western, Southern, and 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 Northern, Eastern, Uva, North Central, and Southern provinces and below normal for some parts of the Central province during 7th July – 13th July.

Teleconnections: A positive Dipole Mode has set in across the Indian Ocean.

MJO shall slightly enhance the rainfall during 6th - 20th July for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the July-August-September, 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, ¹ 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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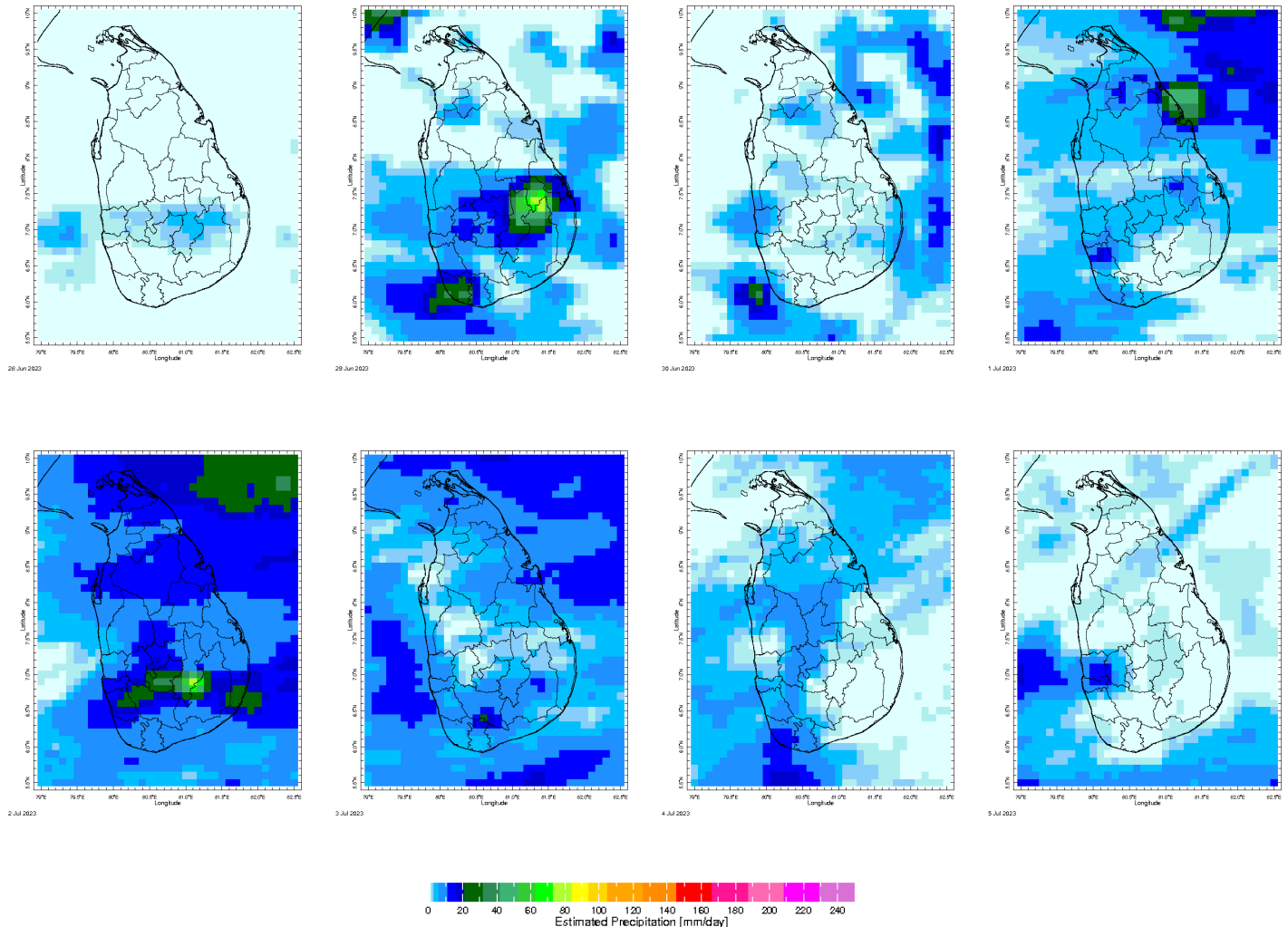
2. Predictions

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MONITORING

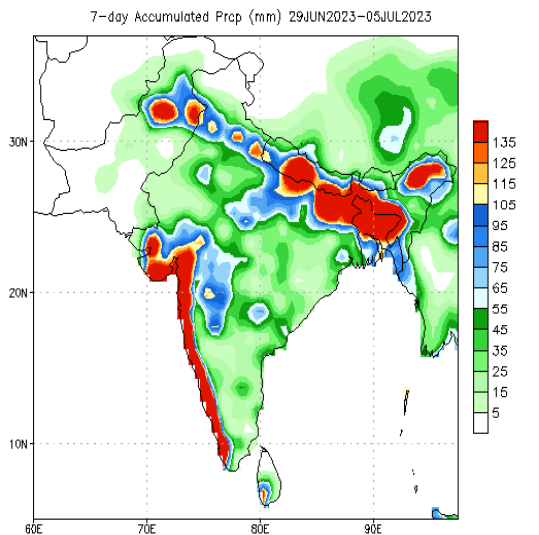
Daily Rainfall Monitoring

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

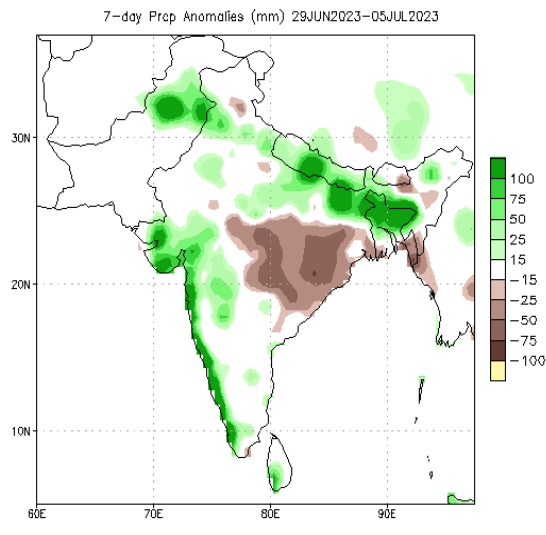


Weekly Rainfall Monitoring

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.



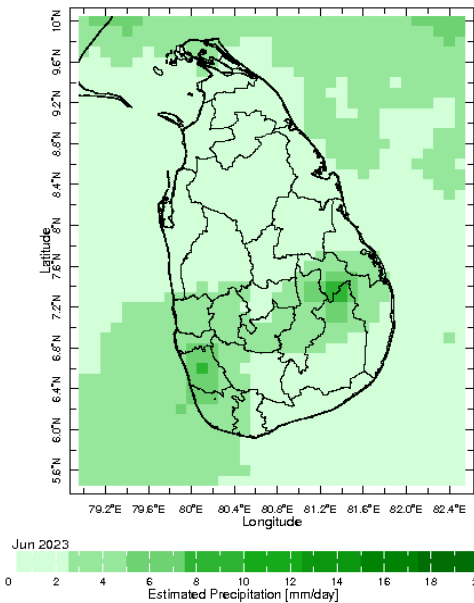
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



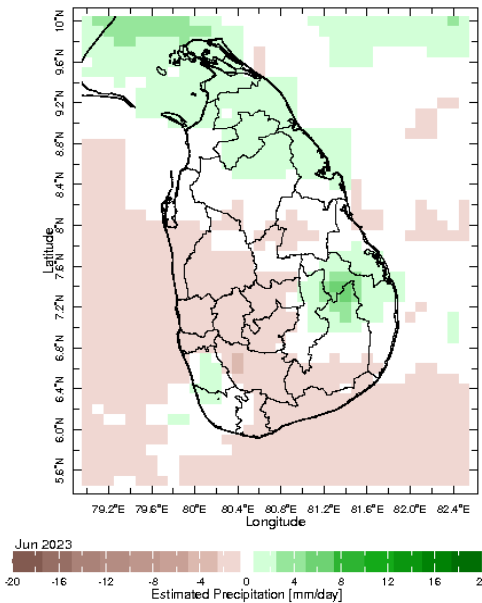
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

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

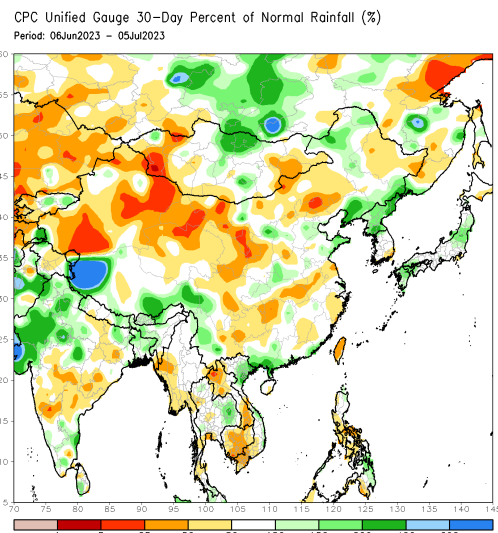
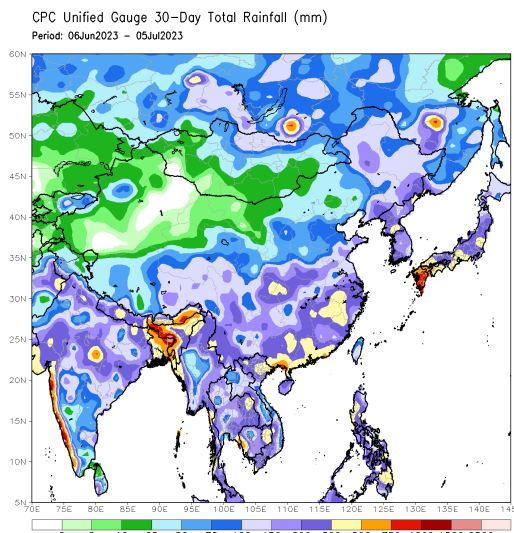


Monthly Average

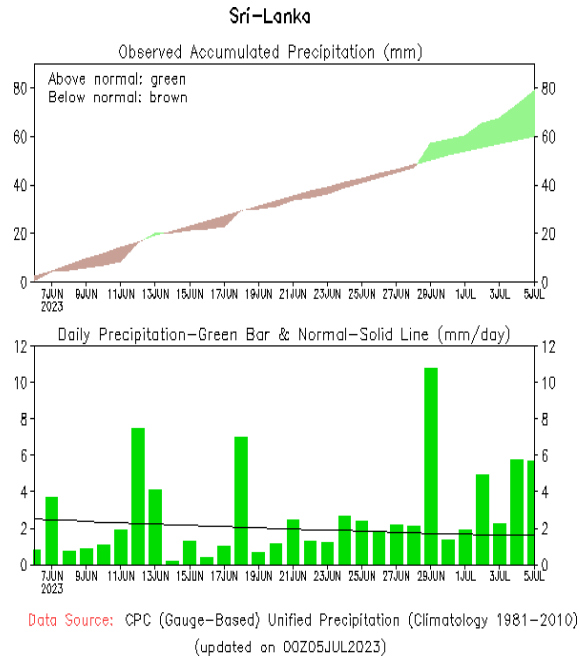


Monthly Anomaly

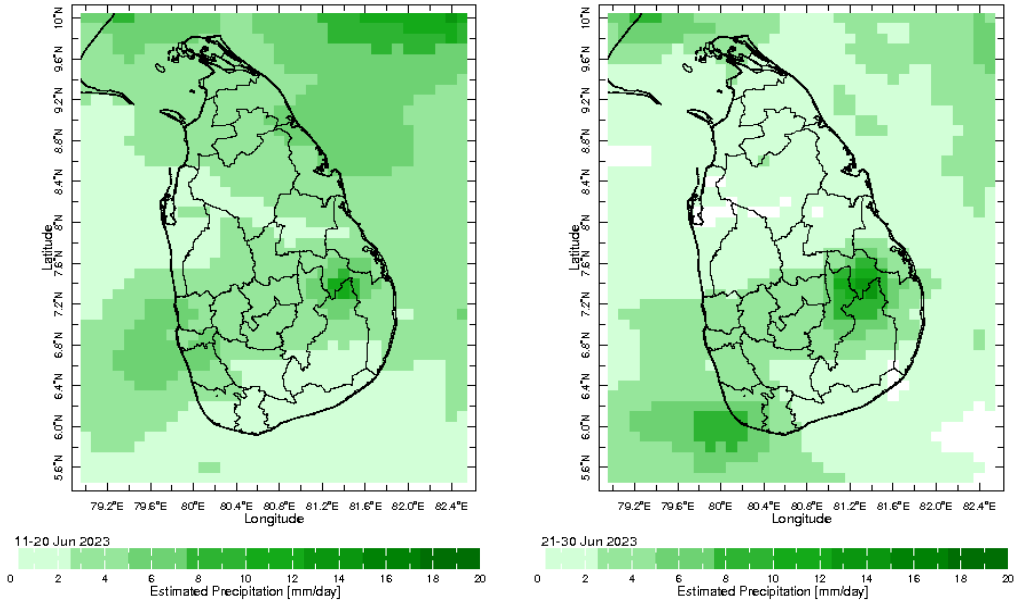
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



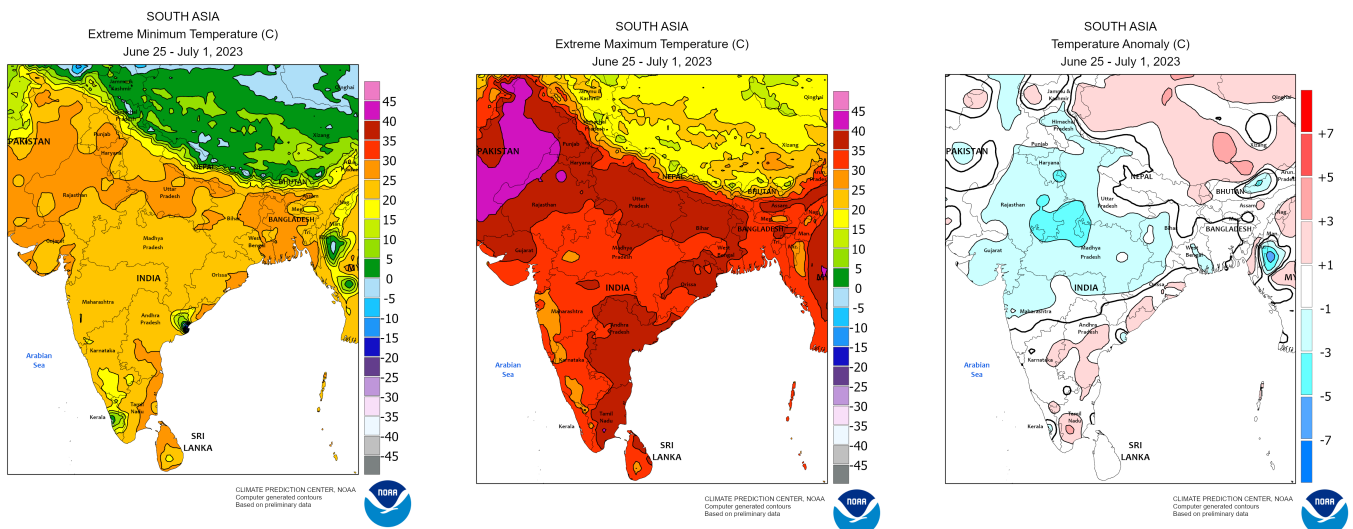
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

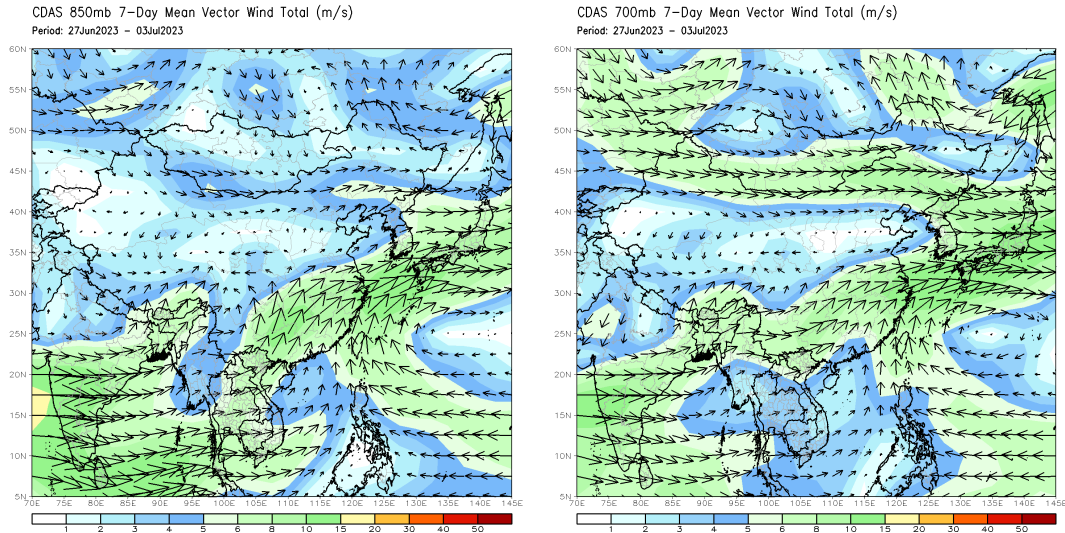


Weekly Temperature Monitoring



Weekly Wind Monitoring

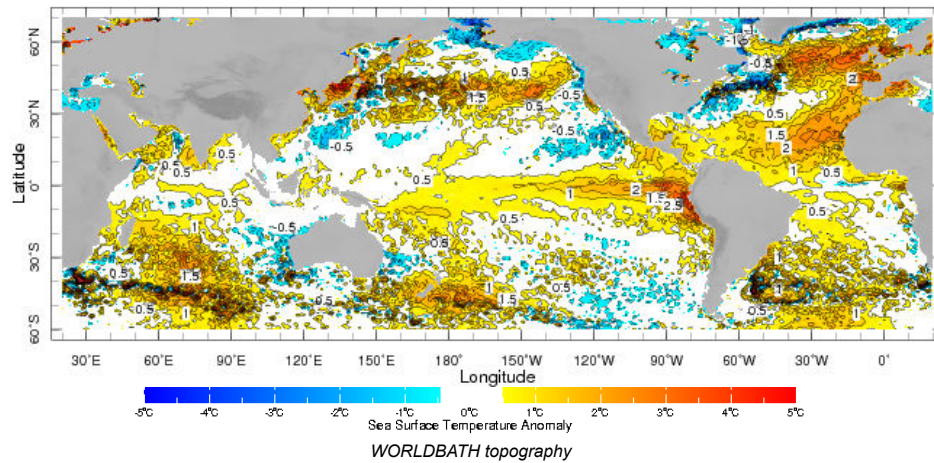
The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.



Weekly Average SST Anomalies

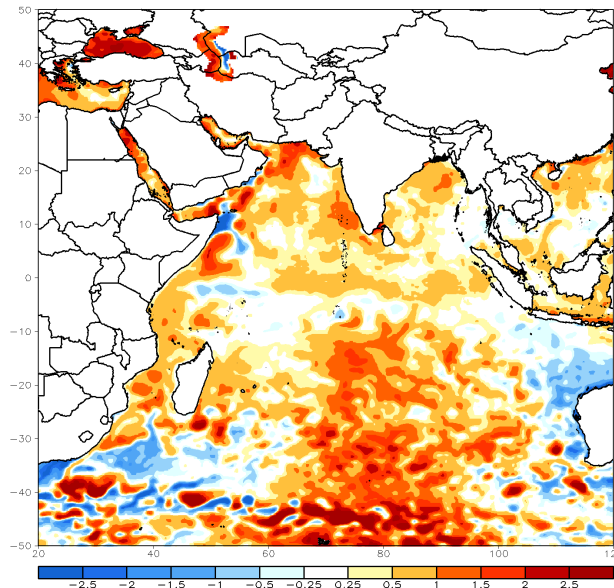
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

zlev 0.0 meters Time 13-19 Jun 2023

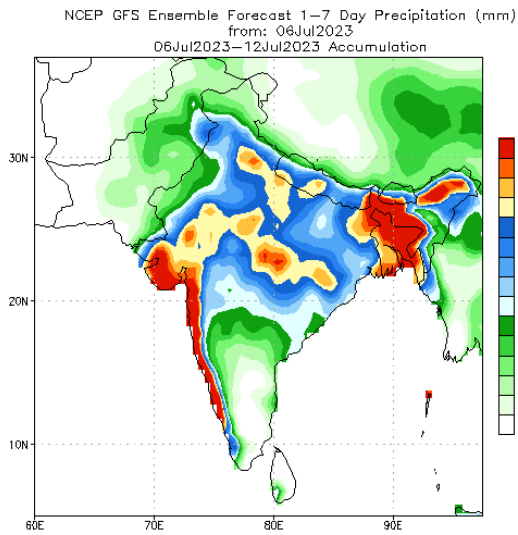


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

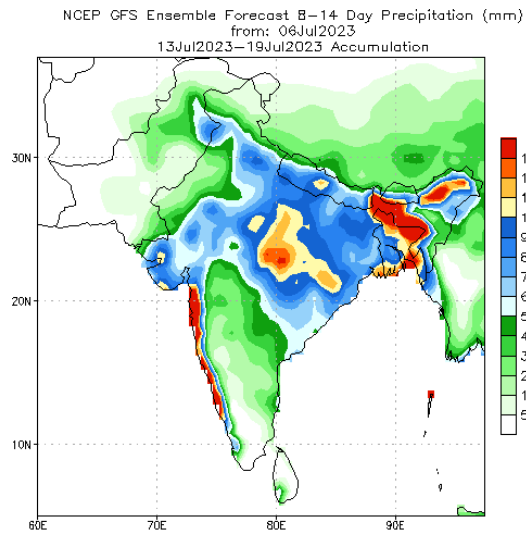
OI SST (v2) 7-Day Anomaly (C)
Period: 29Jun2023 - 05Jul2023



NCEP GFS 1- 14 Day prediction

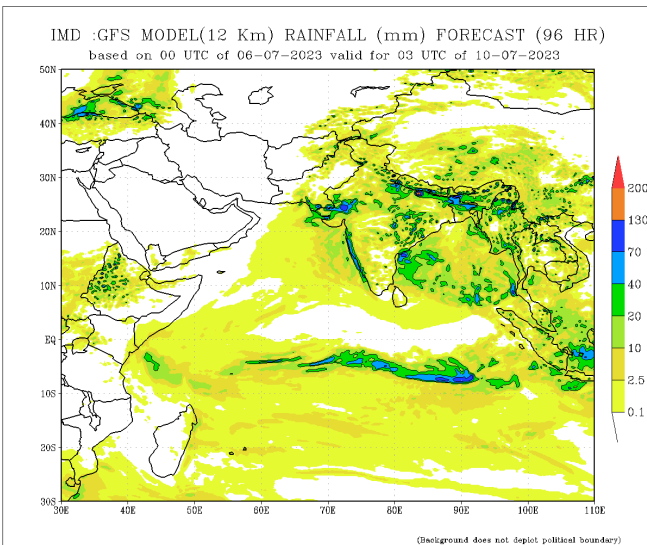
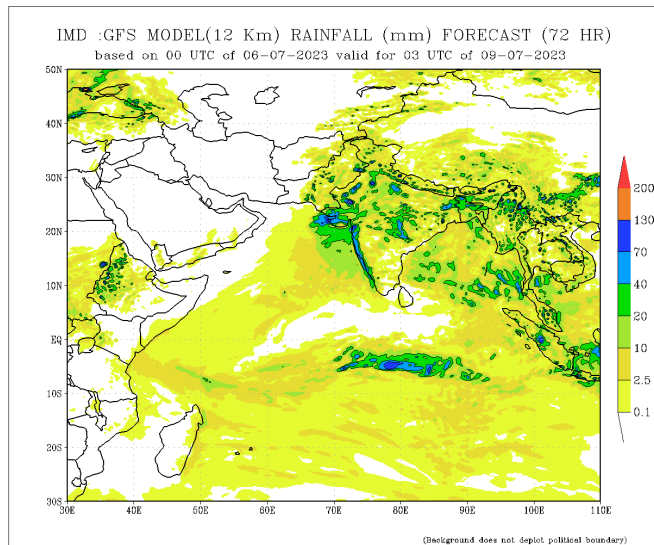
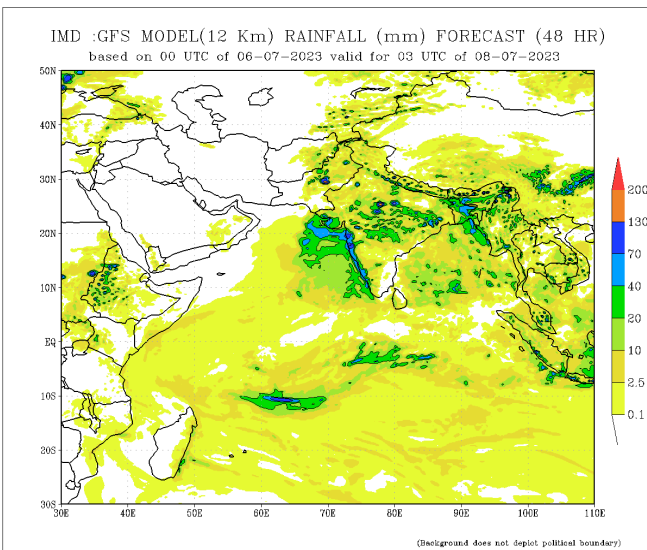
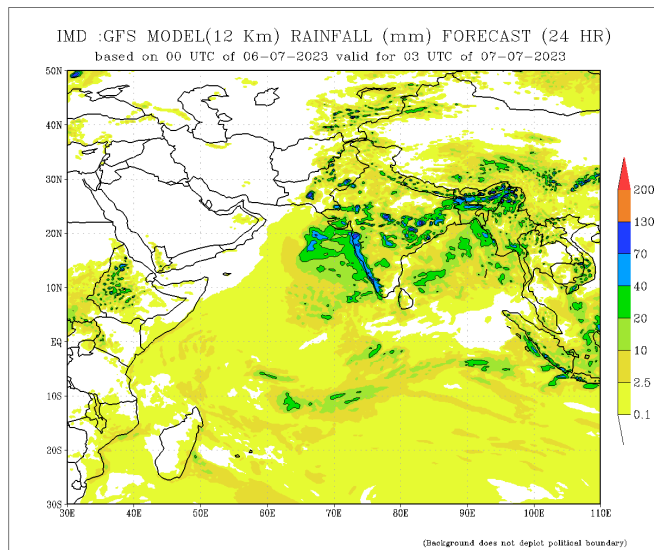


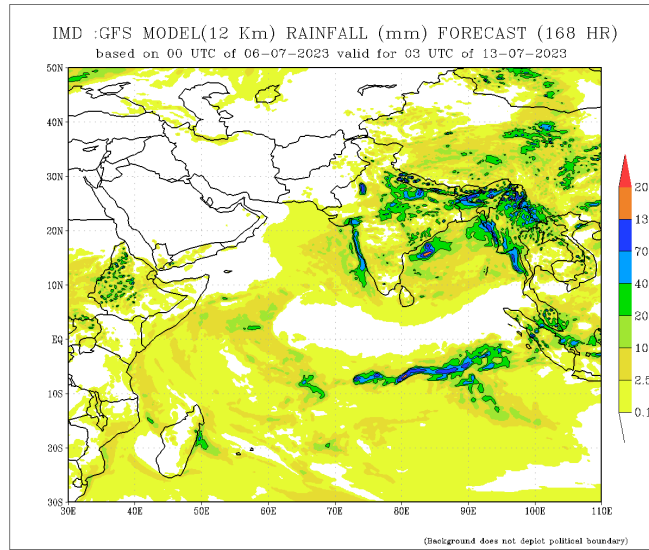
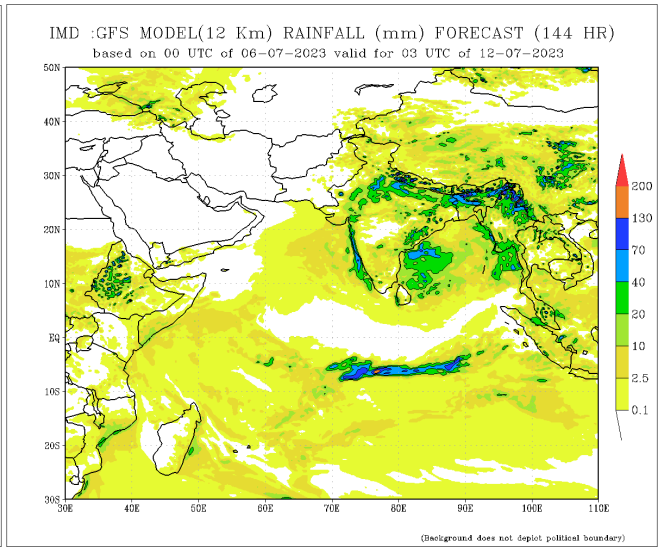
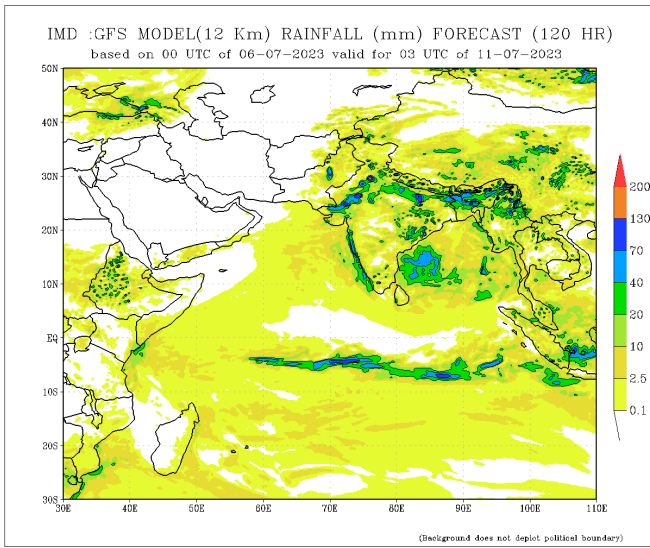
Bias correction based on last 30-day forecast error



Bias correction based on last 30-day forecast error

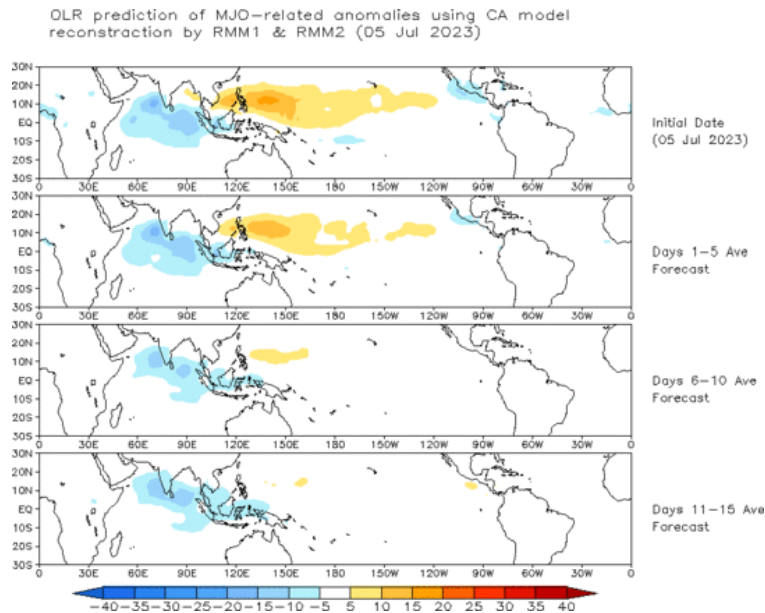
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India





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.

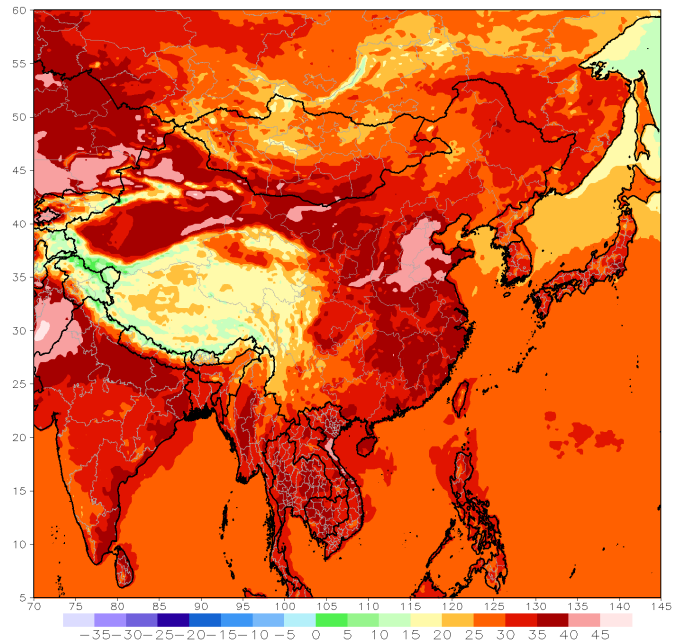


Weekly Temperature Forecast

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

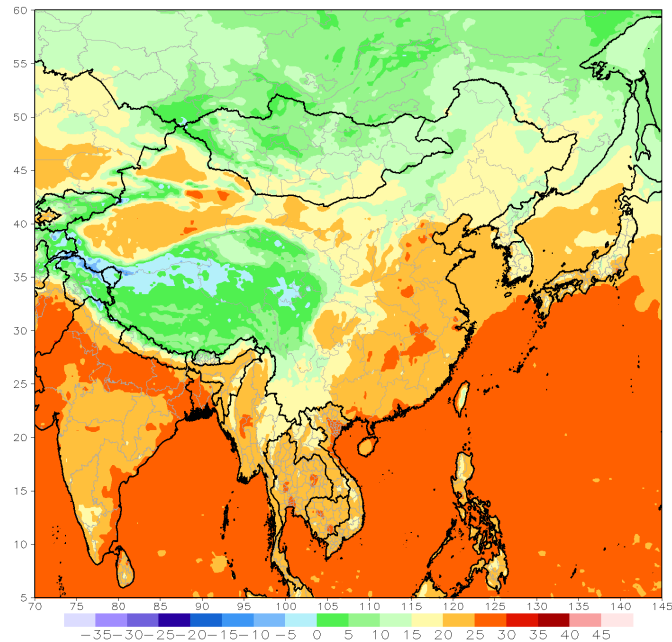
GFS week1 Temperature Max (C)

Period: 18z07Jul2023 - 18z13Jul2023



GFS week1 Temperature Min (C)

Period: 18z07Jul2023 - 18z13Jul2023

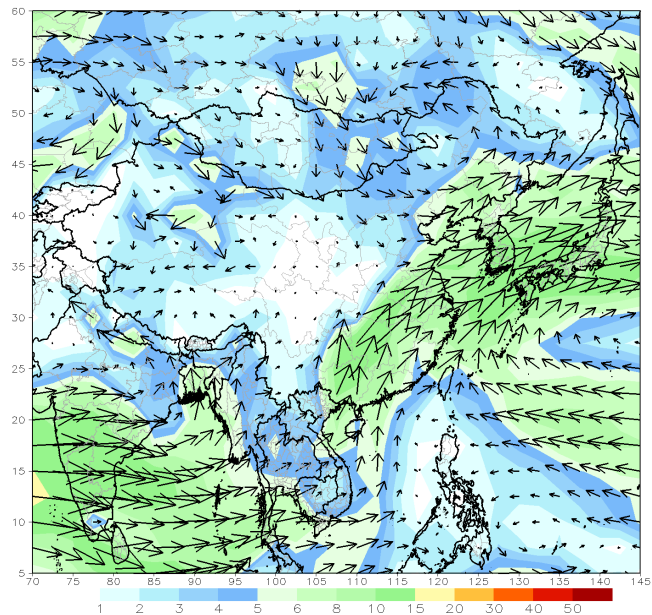


Weekly Wind Forecast

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

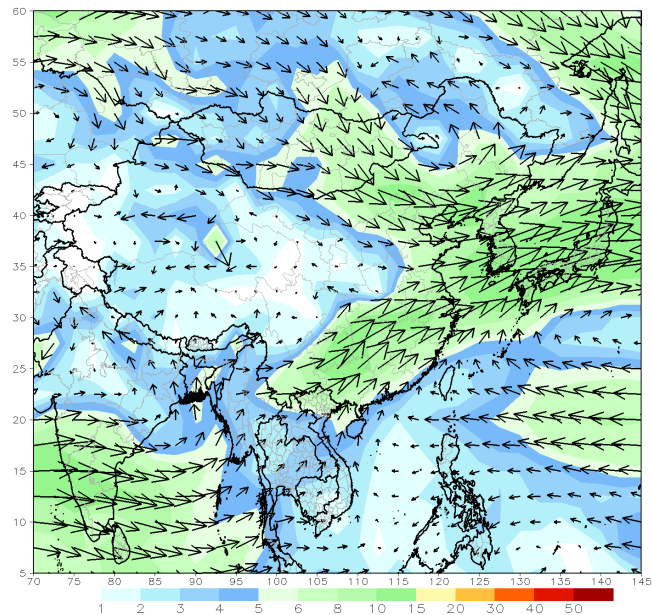
GFS 850mb week1 Mean Vector Wind Total (m/s)

Period: 18z07Jul2023 - 18z13Jul2023



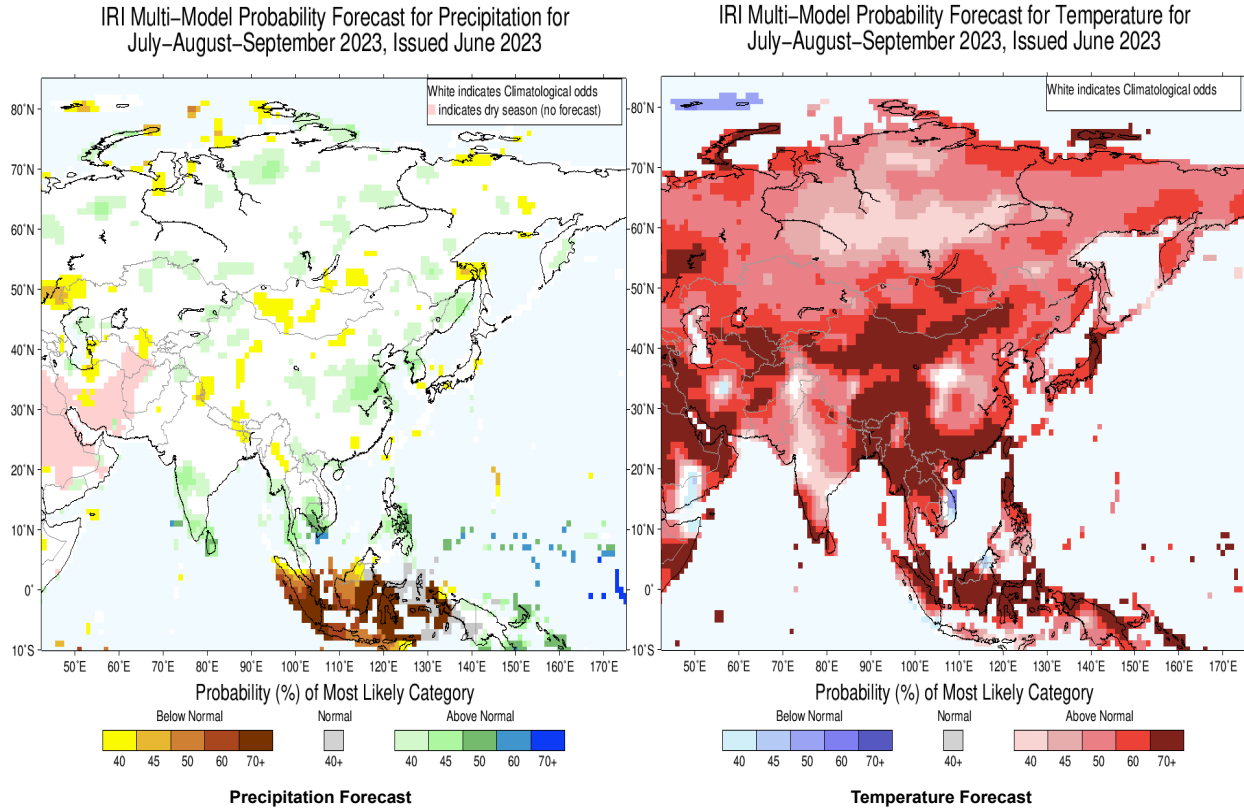
GFS 700mb week1 Mean Vector Wind Total (m/s)

Period: 18z07Jul2023 - 18z13Jul2023



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%).



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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