

9 JUNE
2023

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



- Heavy rainfall is predicted for the Sabaragamuwa, Southern and Western provinces and fairly heavy rainfall is predicted for the Central and Uva provinces of the country during 8 - 14 June.

Monitored Rainfalls



- During the last week, average daily rainfall over Sri Lanka was 3.0 mm and hydro catchment areas received 6.7 mm.
- Highest average rainfall 8.1 mm/day received to Western plains.

Monitored & Predicted Wind



- From 30 May - 5 June, up to 8 m/s of westerly winds were at 850 mb (1.5 km).
- During 9 - 15 June, up to 15 m/s of north westerly winds are expected at 850 mb (1.5 km).

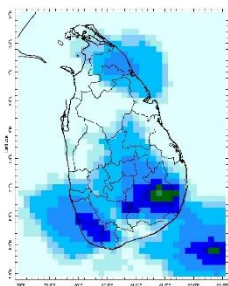
Monitored Sea & Land Temp



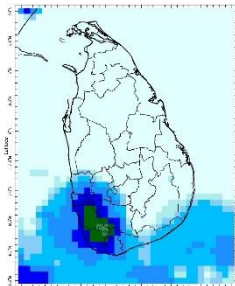
- Sea surface temperature around Sri Lanka was 0.5 - 1.5°C above normal.
- Average maximum land temperature ranged from 32-33°C and minimum ranged from 24 - 25°C with a drop in the hills.

Monitoring Rainfall

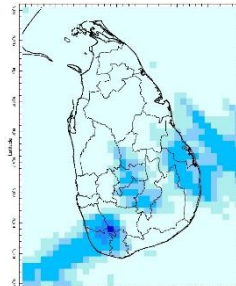
Daily Estimates for Rainfall from 31st May – 7th June 2023



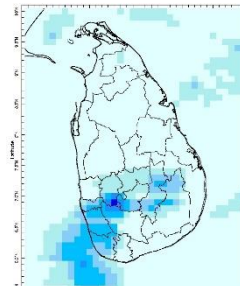
31 May



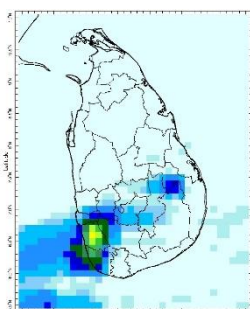
1 June



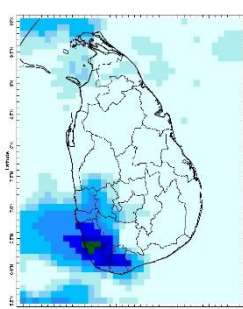
2 June



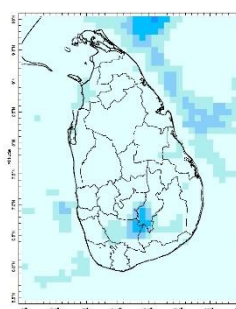
3 June



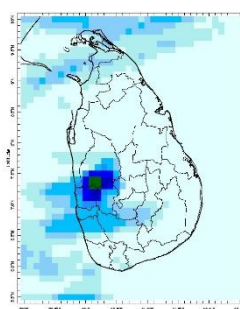
4 June



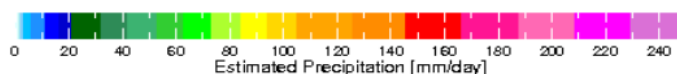
5 June



6 June



7 June



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Ocean State *(Text Courtesy IRI)*

Pacific sea state: June 8, 2023

Equatorial sea surface temperatures (SSTs) are above average across most of the Pacific Ocean early-June. The tropical Pacific atmosphere is consistent with El Niño conditions. A large majority of the models indicate a El Niño to continue into the winter.

Indian Ocean State

Sea surface temperature around Sri Lanka was 0.5° C above normal to the Western half of the country in 16th – 22nd May, 2023.

Predictions

Rainfall

7-day prediction: NOAA NCEP models

From 8th June – 14th June:

Total rainfall by Provinces:

Rainfall (mm)	Provinces
125	Sabaragamuwa
115	Southern, Western
85	Central
75	Uva
45	North Western
35	North Central, Eastern
≤ 25	Northern

MJO based OLR predictions

For the next 15 days:

MJO shall slightly enhance the rainfall during 8th – 22nd June for Sri Lanka.

Interpretation

Monitoring

Rainfall: During the last two weeks, there had been very heavy rainfall over the following areas: Ratnapura, Galle

Daily Average Rainfall in the Met stations for previous week of (31th May - 7th June) = 3.0 mm
Maximum Daily Rainfall: 183.2 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	0.0	34.0	27.7
Eastern	1.6	33.3	24.1
Western	8.1	30.7	24.5
Southern	0.1	33.0	26.2

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 Areas	6.7	97.0	0.0

Wind: 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 Western, Sabaragamuwa, Central, North Western, Uva, and Southern provinces and near normal for rest of the country driven by the warm SST's.

Cyclone: The cyclonic storm 'Biparjoy' originated as a low-pressure area over the east central Arabian Sea and moved north-northeastwards. Then it intensified into a 'very severe cyclonic storm (VSCS)' on 7th June and lay centered at 14.8 N, 66.4 E on 9th June, maintaining a 6 kmph wind speed.

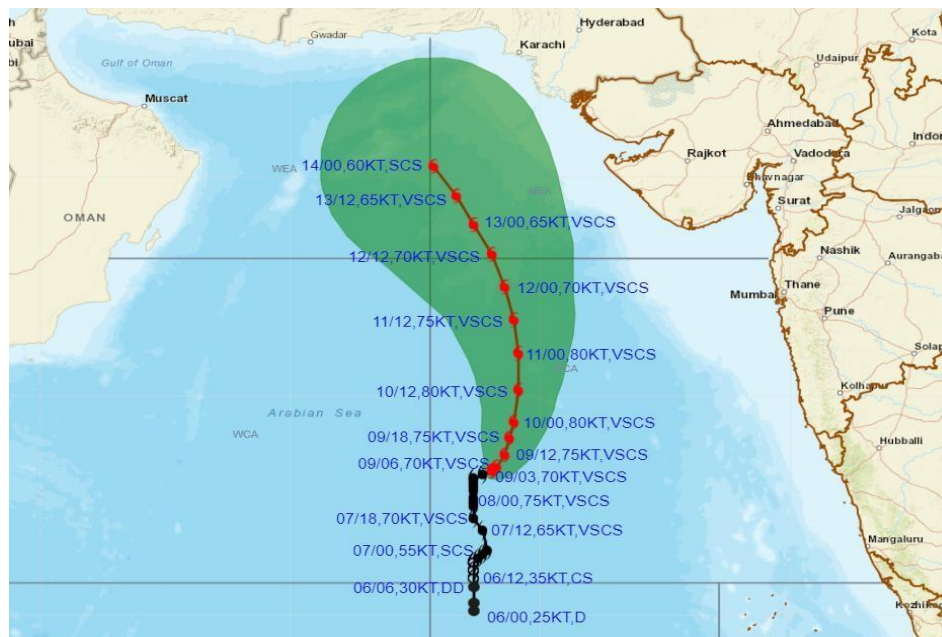


Figure: Observed and forecast track of cyclone 'Biparjoy' on June 9, 2023 (Source: IMD)

Predictions

Rainfall: During the next week (8th June - 14th June), heavy rainfall (≥ 115 mm) is predicted for the Sabaragamuwa, Southern, and Western provinces and fairly heavy rainfall (≥ 75 mm) is predicted for the Central and Uva provinces and less rainfall is predicted for rest of the country.

Temperatures: The temperature will remain above normal for some parts of the Eastern, Northern, Uva, and Southern provinces during 9th June - 15th June.

Teleconnections: A large majority of the models indicate a El Niño to continue into the winter. MJO shall slightly enhance the rainfall during 8th - 22nd June for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the June-July-August, 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

Inside This Issue

1. Monitoring

- a. Daily Rainfall Monitoring
- b. Weekly Rainfall Monitoring
- c. Monthly Rainfall Monitoring
- d. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- e. Weekly Temperature Monitoring
- f. Weekly Wind Monitoring
- g. Weekly Average SST Anomalies

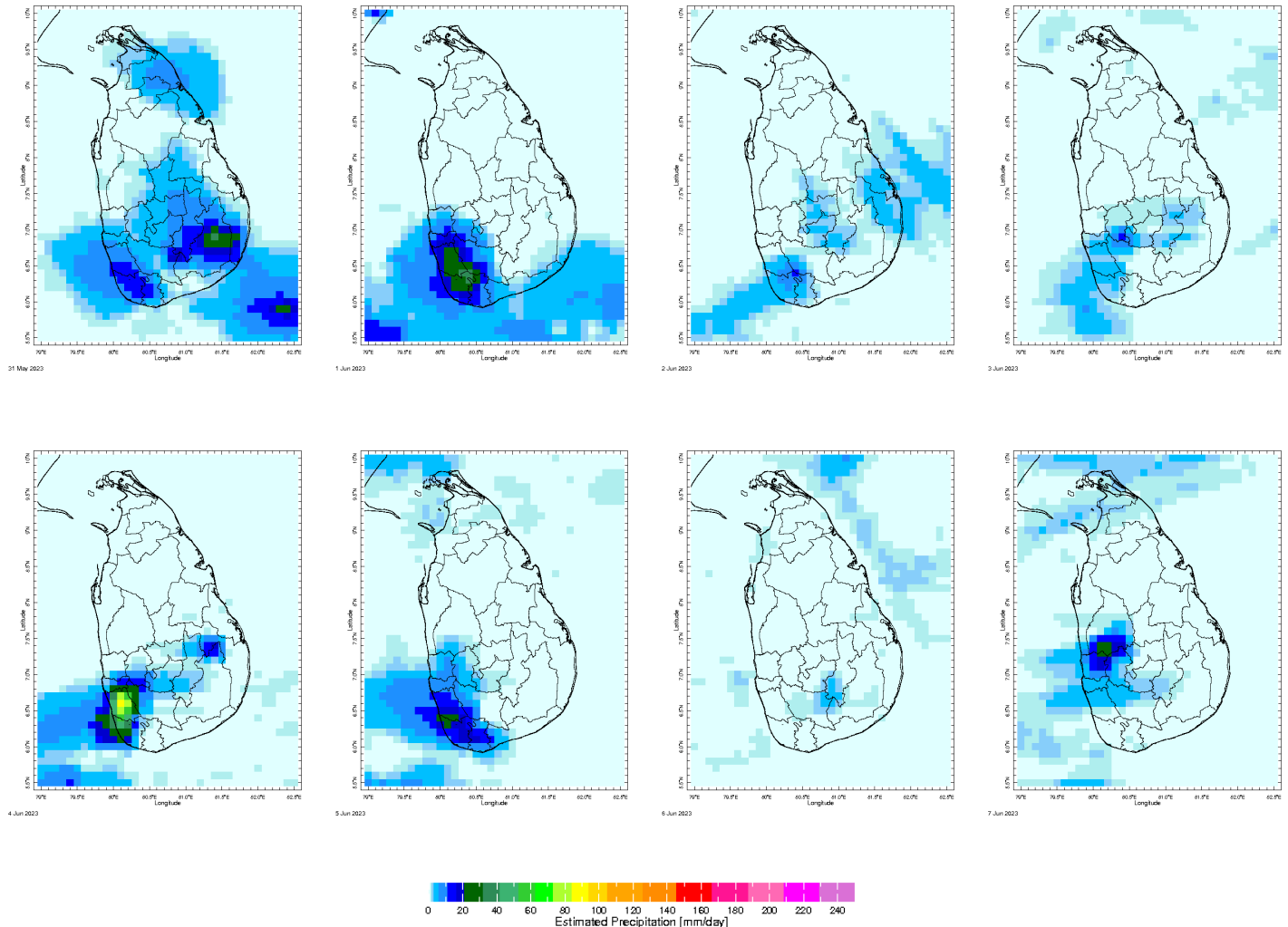
2. Predictions

- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. GFS (T574) Model Rainfall Forecast from RMSC New Delhi
- c. MJO Related OLR Forecast
- d. Weekly Temperature Forecast
- e. Weekly Wind Forecast
- f. Seasonal Predictions from IRI

MONITORING

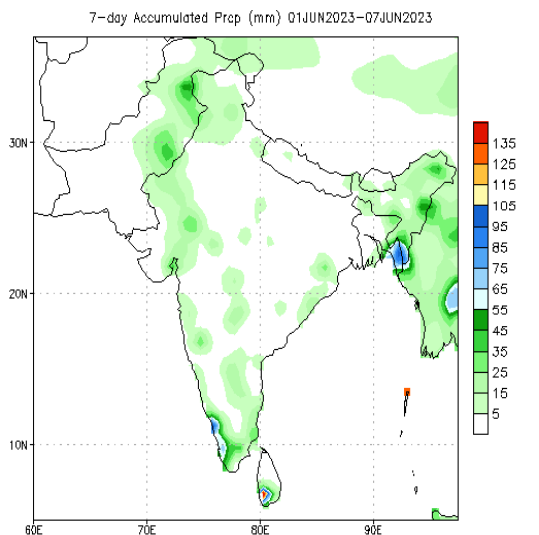
Daily Rainfall Monitoring

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

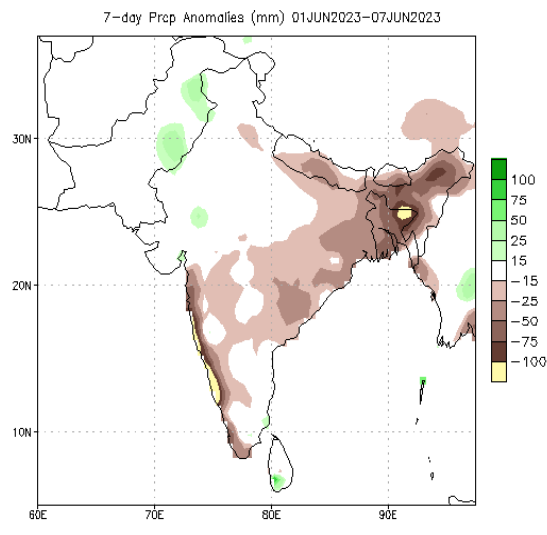


Weekly Rainfall Monitoring

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.



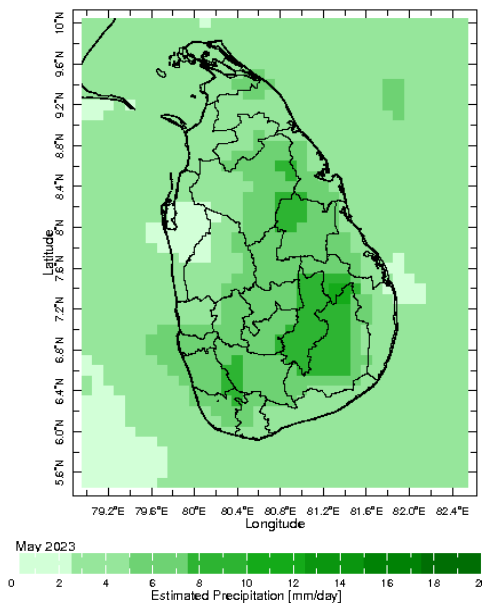
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



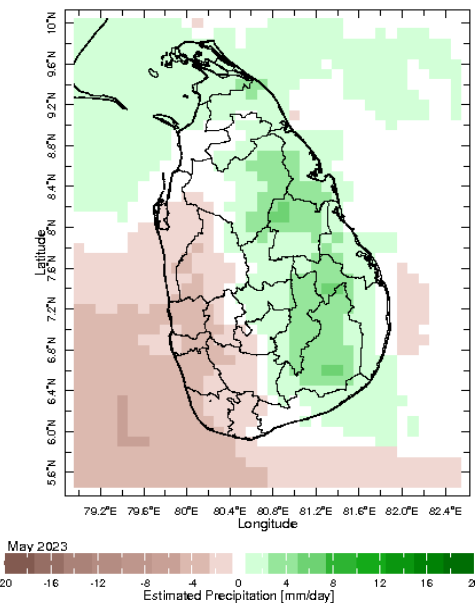
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

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

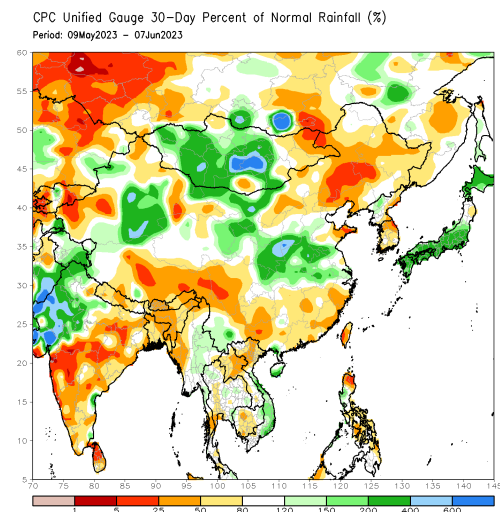
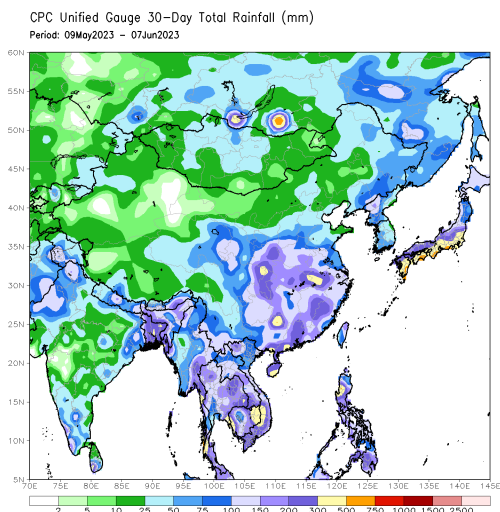


Monthly Average

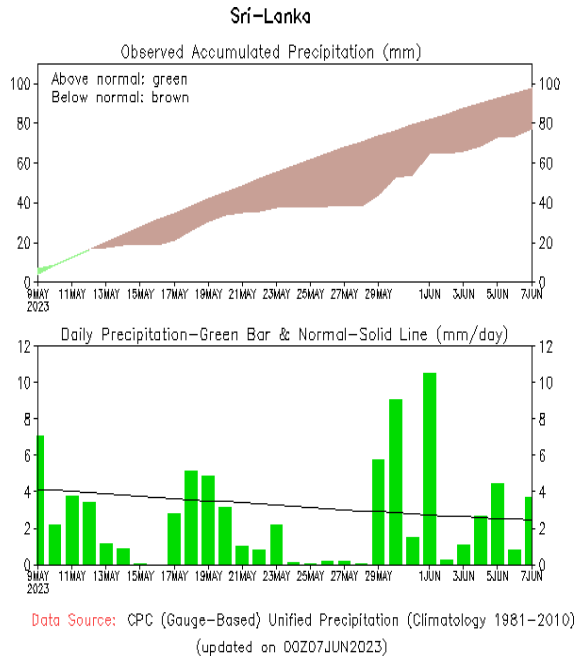


Monthly Anomaly

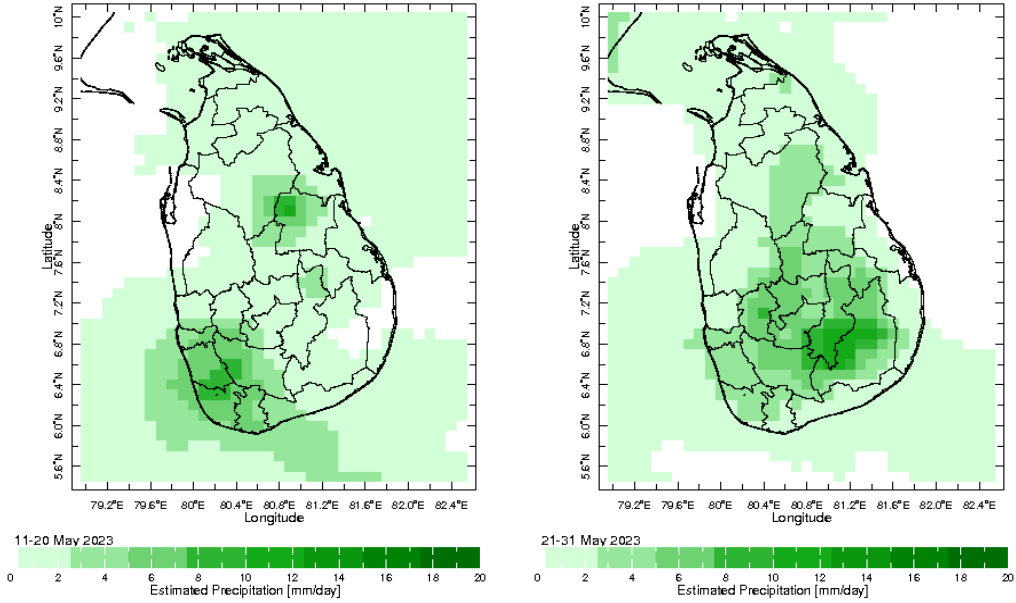
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



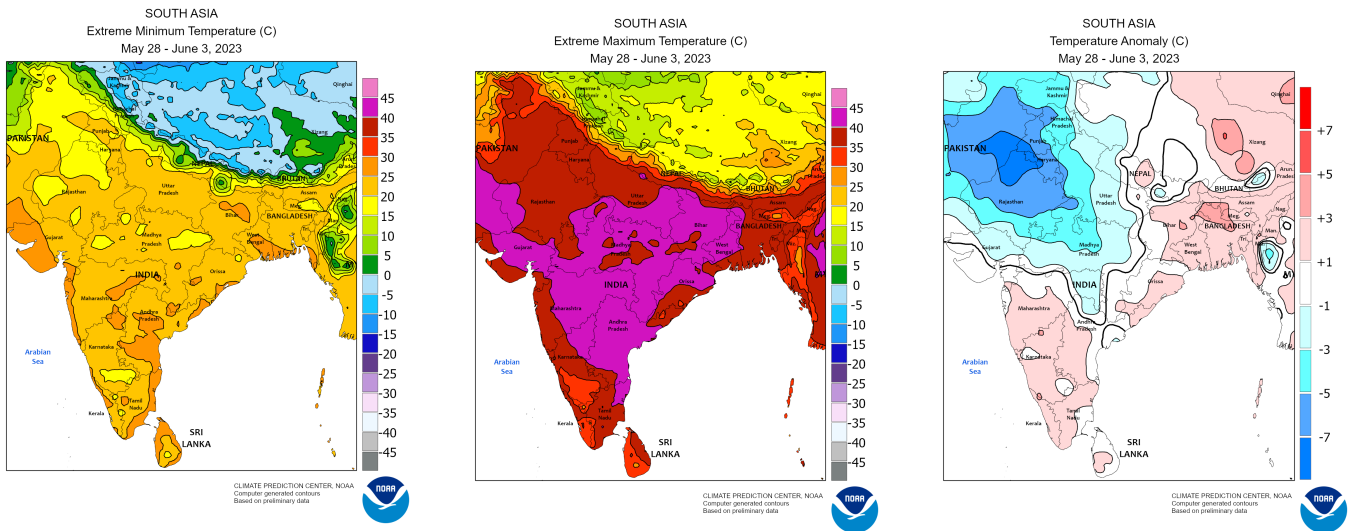
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

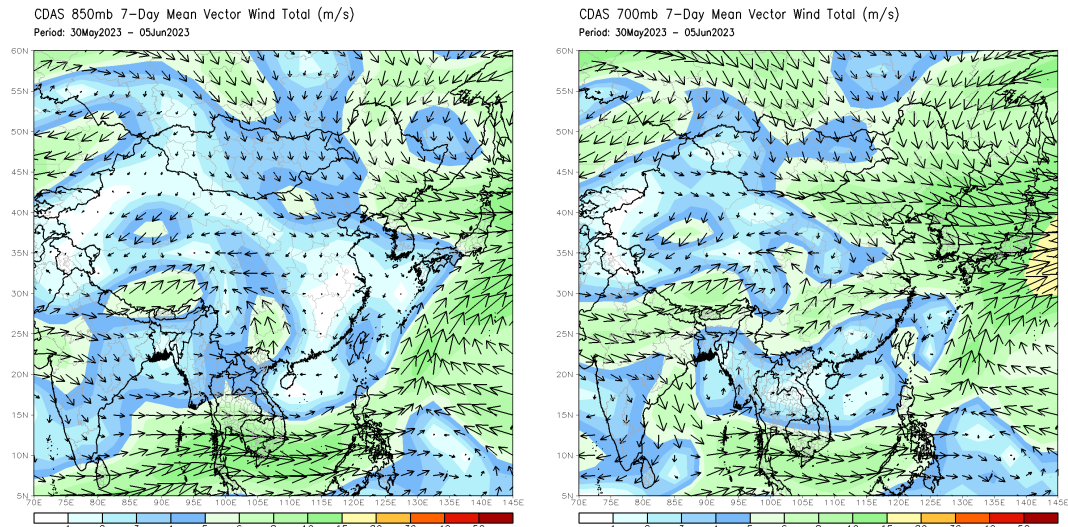


Weekly Temperature Monitoring



Weekly Wind Monitoring

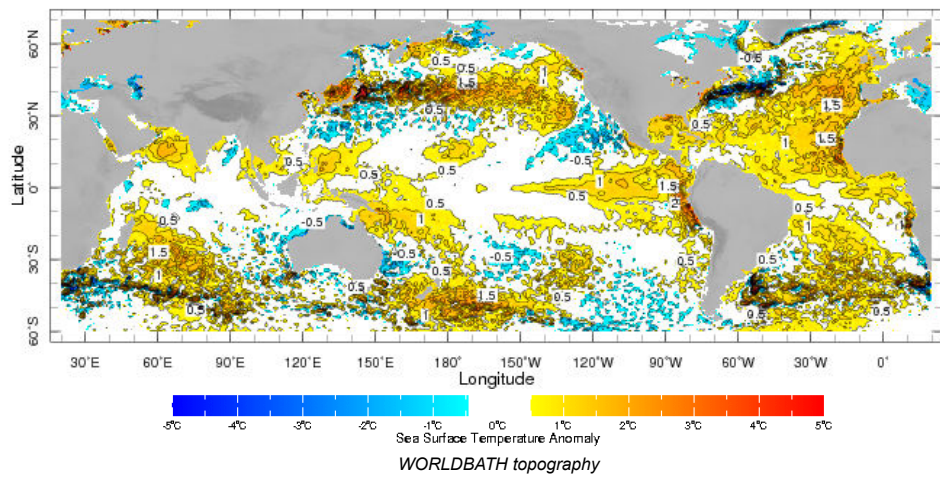
The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.



Weekly Average SST Anomalies

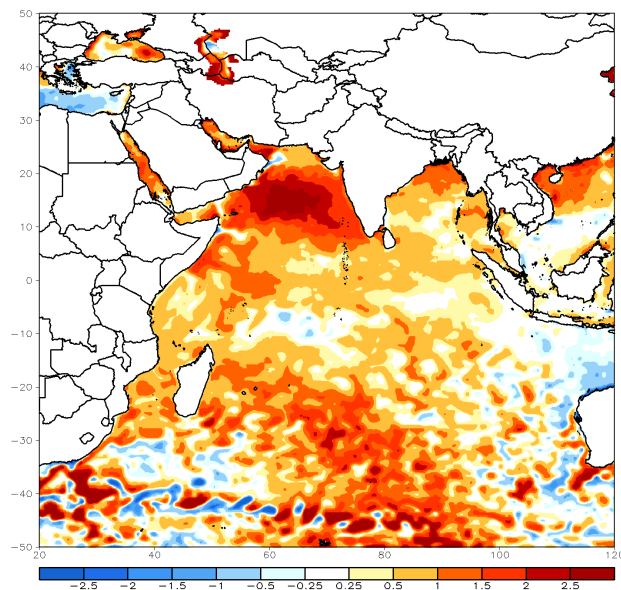
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

zlev 0.0 meters Time 16-22 May 2023



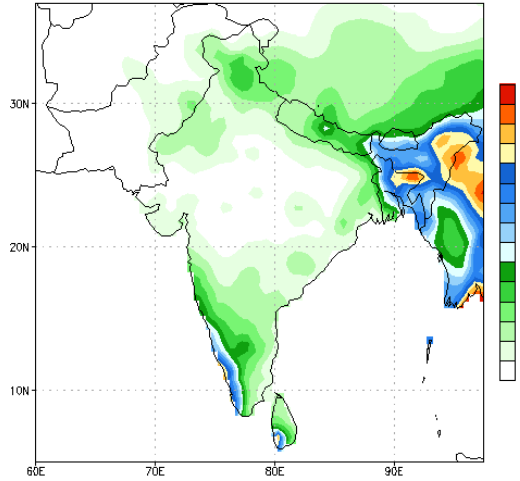
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

OI SST (v2) 7-Day Anomaly (C)
Period: 01Jun2023 - 07Jun2023



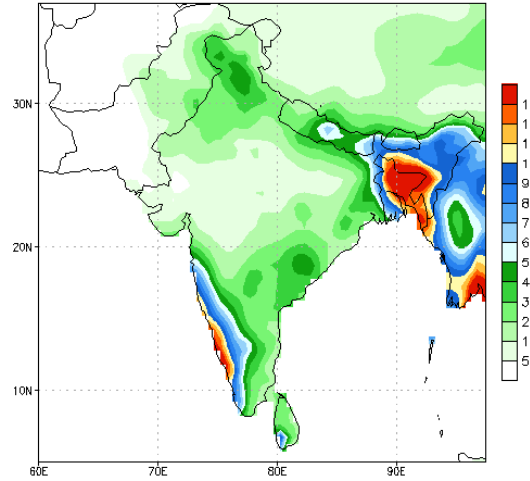
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 08Jun2023
08Jun2023-14Jun2023 Accumulation



Bias correction based on last 30-day forecast error

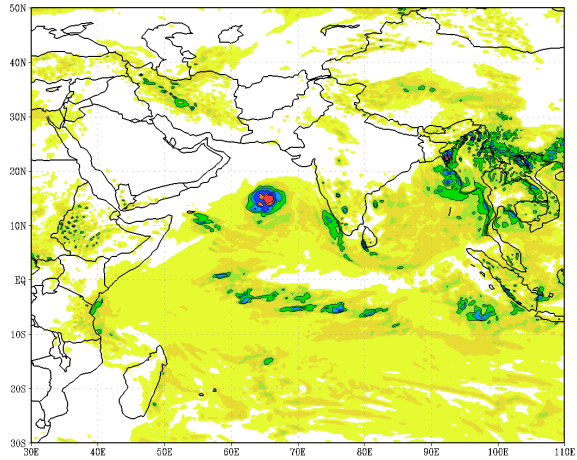
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 08Jun2023
15Jun2023-21Jun2023 Accumulation



Bias correction based on last 30-day forecast error

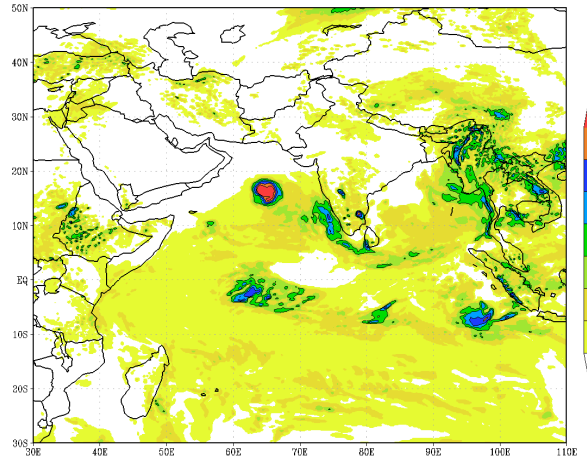
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 08-06-2023 valid for 03 UTC of 09-06-2023



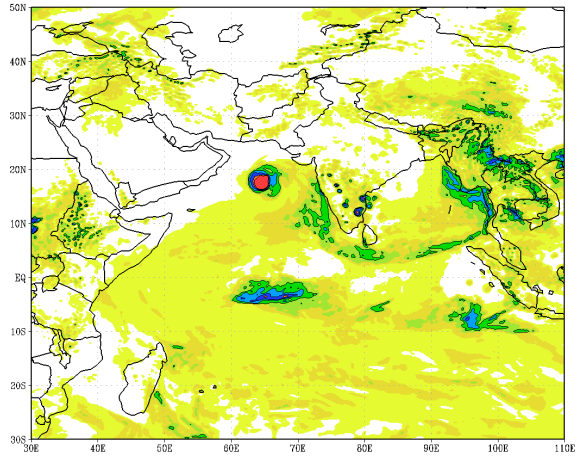
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 08-06-2023 valid for 03 UTC of 10-06-2023



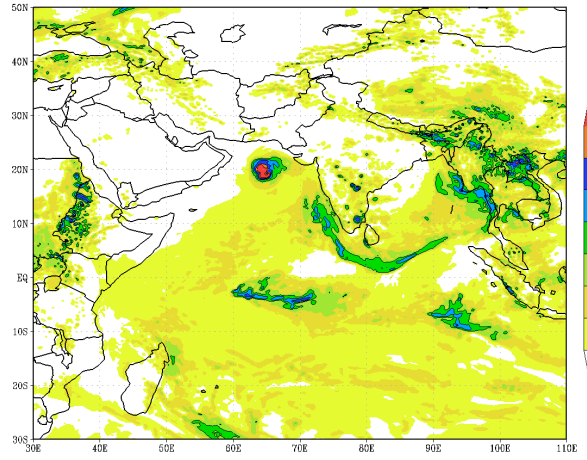
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 08-06-2023 valid for 03 UTC of 11-06-2023

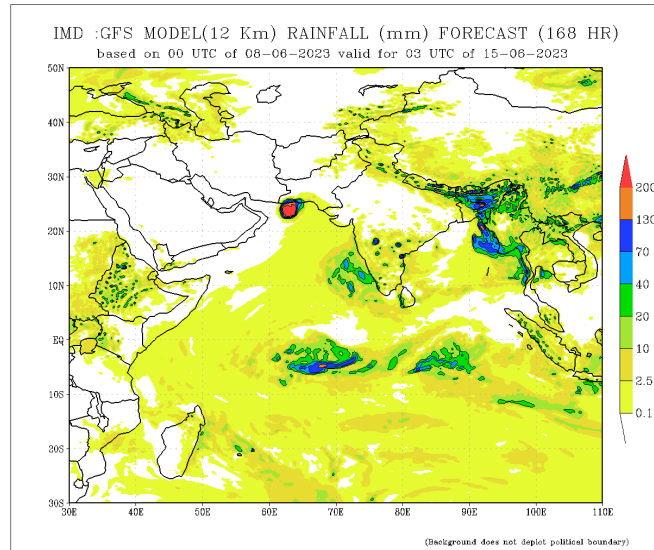
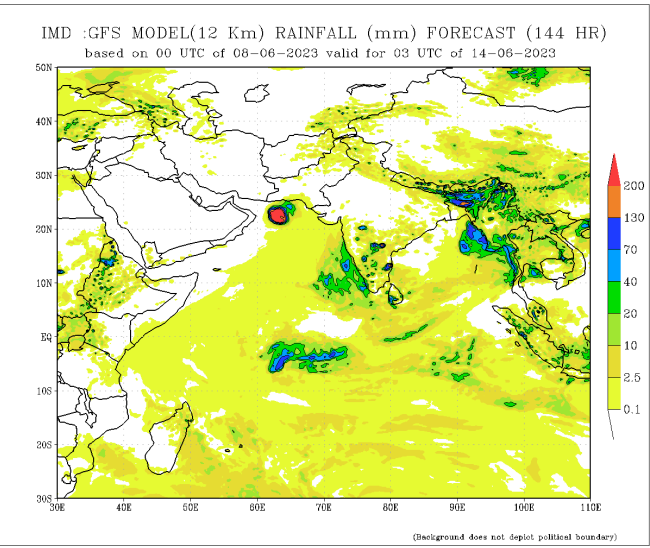
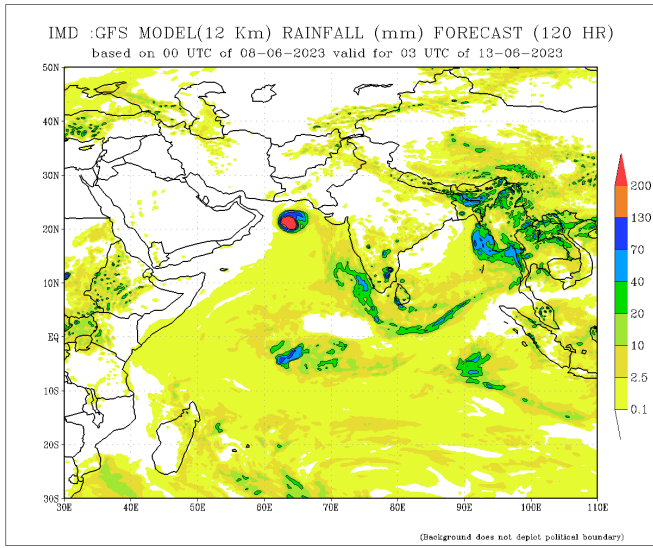


(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 08-06-2023 valid for 03 UTC of 12-06-2023

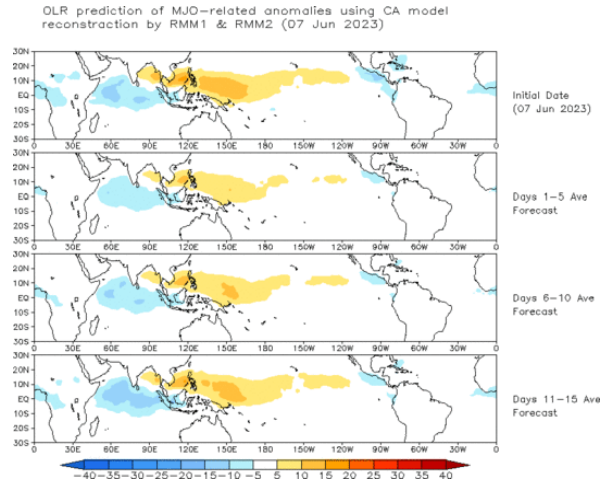


(Background does not depict political boundary)



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.

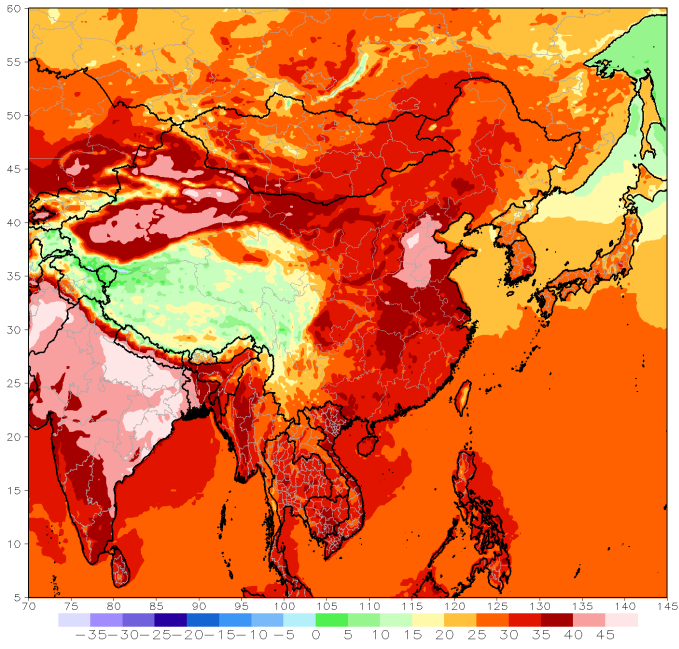


Weekly Temperature Forecast

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

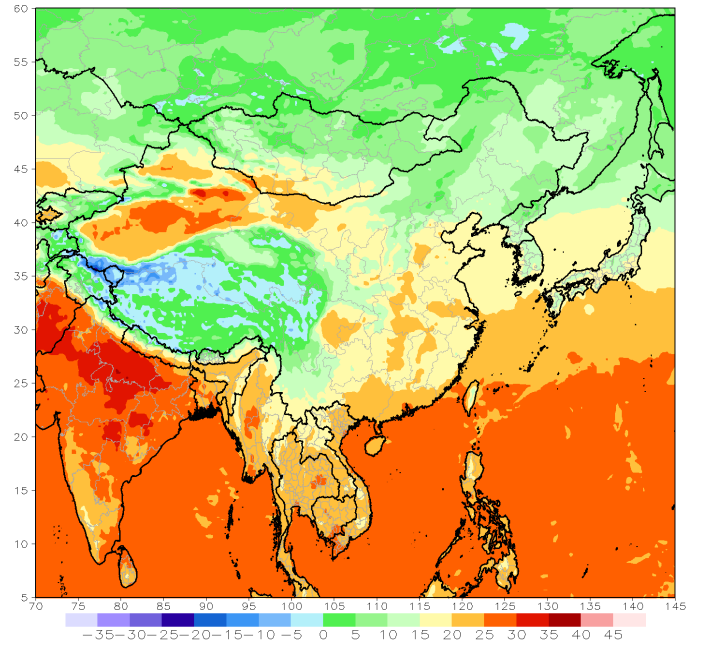
GFS week1 Temperature Max (C)

Period: 18z09Jun2023 - 18z15Jun2023



GFS week1 Temperature Min (C)

Period: 18z09Jun2023 - 18z15Jun2023

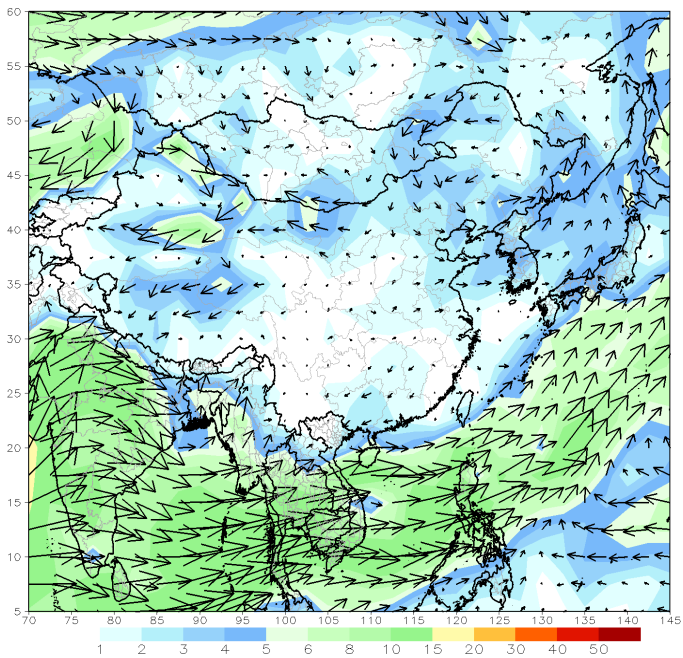


Weekly Wind Forecast

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

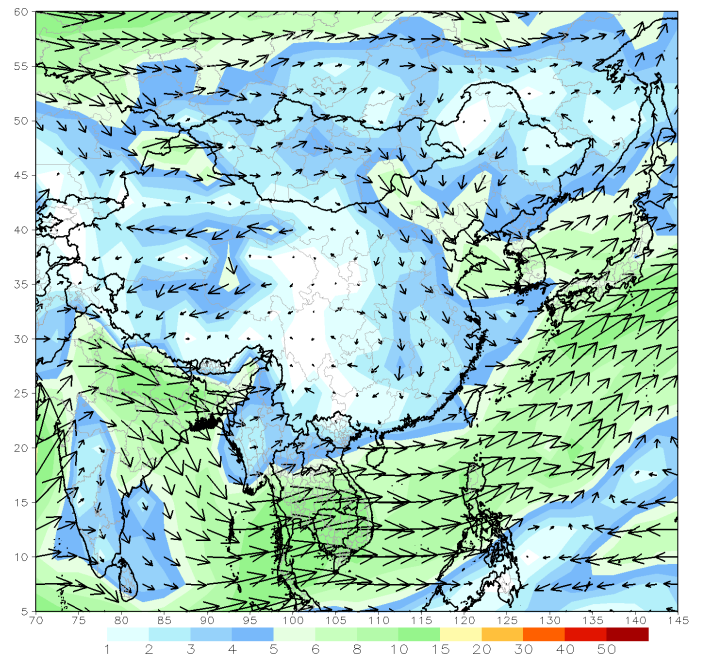
GFS 850mb week1 Mean Vector Wind Total (m/s)

Period: 18z09Jun2023 - 18z15Jun2023



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

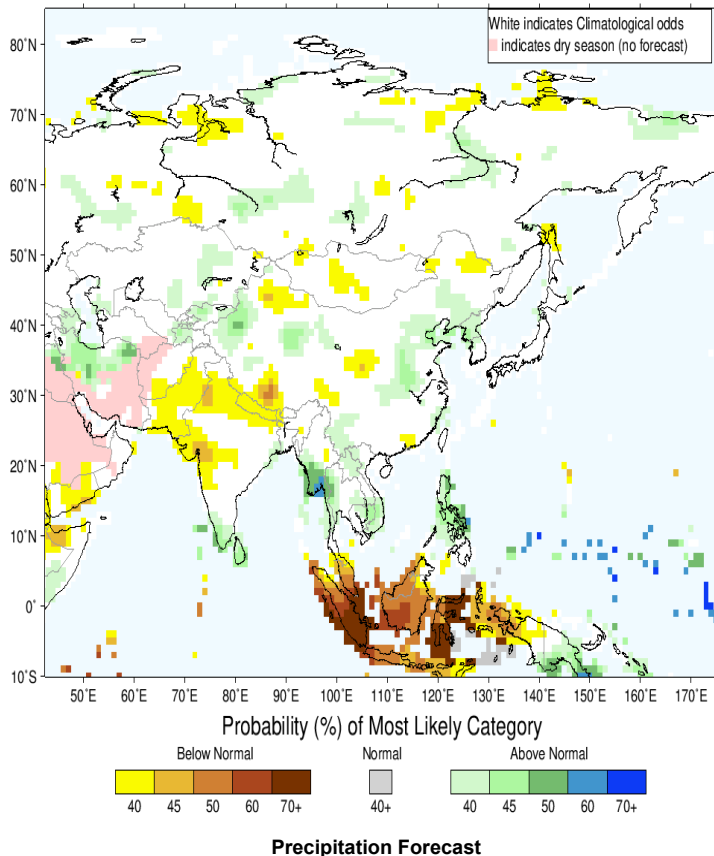
Period: 18z09Jun2023 - 18z15Jun2023



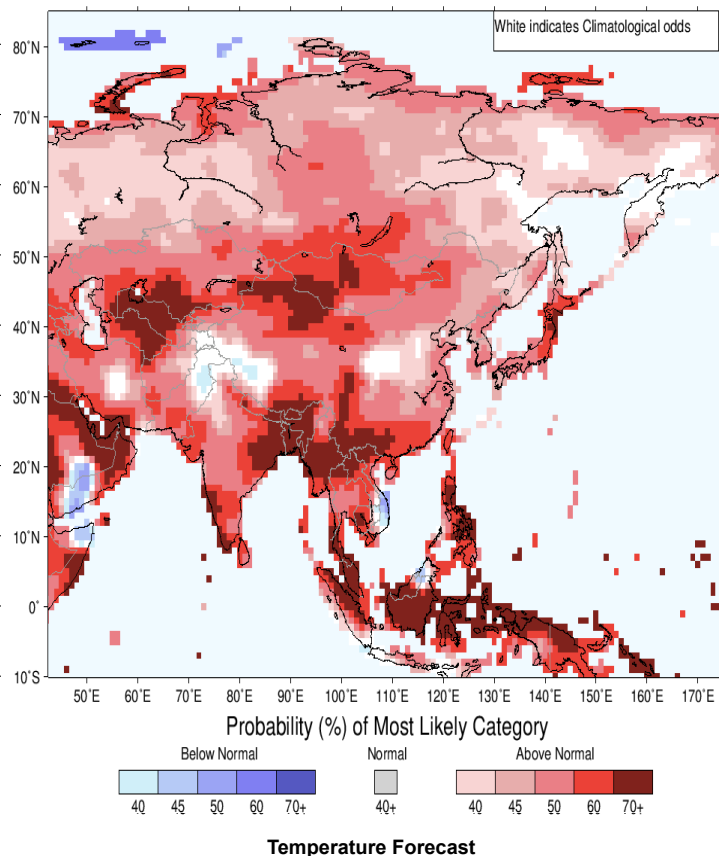
Seasonal Rainfall and Temperature Forecast

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 June–July–August 2023, Issued May 2023



IRI Multi-Model Probability Forecast for Temperature for June–July–August 2023, Issued May 2023



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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