

24 MARCH
2023

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



- Moderate rainfall is predicted for the Eastern, Southern, Sabaragamuwa, and Western provinces and less rainfall is expected for rest of the country during the 23rd - 29th March.

Monitored Rainfalls



- During the last week, average daily rainfall over Sri Lanka was 7.0 mm and hydro catchment areas received 10.0 mm.

Monitored Wind



- From 14th - 20th Mar, up to 2 m/s of Easterly winds were experienced at 850 mb level over the island.
- During 24th - 30th March, up to 2m/s of North Easterly winds are expected for the country.

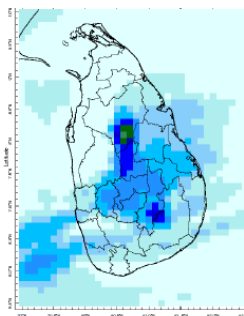
Monitored Sea & Land Temp



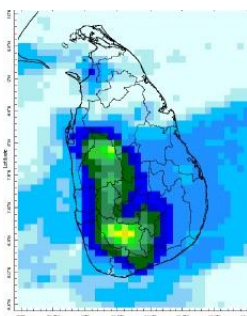
- Sea surface temperature around Sri Lanka was below normal for northern half of the island.
- Land surface temperature remained near normal.

Monitoring Rainfall

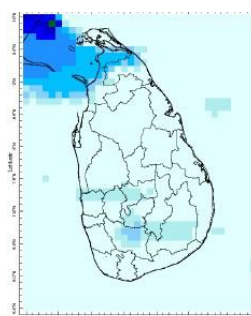
Daily Estimates for Rainfall from 15th March – 22nd March 2023



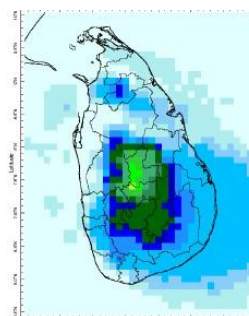
15 March



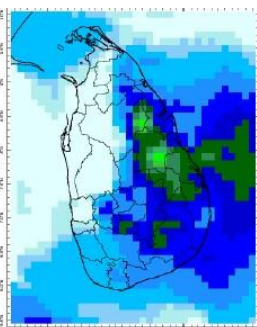
16 March



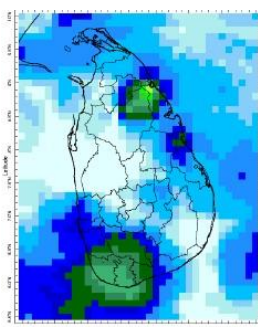
17 March



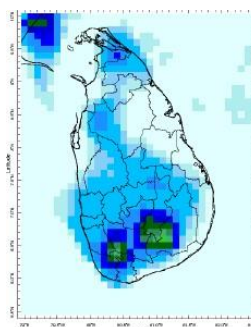
18 March



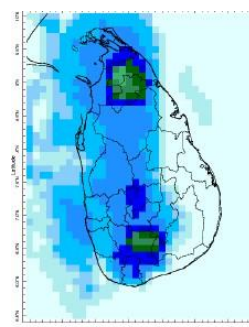
19 March



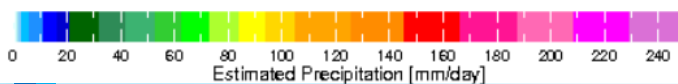
20 March



21 March



22 March



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Ocean State *(Text Courtesy IRI)*

Pacific sea state: March 20, 2023

Equatorial sea surface temperatures (SSTs) are near average across most of the Pacific Ocean mid - March. The tropical Pacific atmosphere is still consistent with a weak La Niña signal. A large majority of the models indicate ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring and early summer 2023.

Indian Ocean State

Sea surface temperature around Sri Lanka was below - 0.5 °C to the northern half of the country in 1st February, 2023. Across the Indian Ocean, a classical negative Indian Ocean Dipole prevails as is typical during a La Niña.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 23rd March – 29th March:

Total rainfall by Provinces:

Rainfall	Provinces
35 mm	Eastern, Southern, Western, Sabaragamuwa
25 mm	North Central, Central, Uva
15 mm	North Western
≤ 5 mm	Northern

From 30th March – 5th April:

Total rainfall by Provinces:

Rainfall	Provinces
65 mm	Southern
55 mm	Western, Eastern, Sabaragamuwa
45 mm	Uva
35 mm	North Western, North Central, Central
15 mm	Northern

MJO based OLR predictions

For the next 15 days:

MJO shall moderately enhance the rainfall during 23rd March – 1st April, and near neutral the rainfall during 2nd April – 6th April for Sri Lanka.

Interpretation

Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (15th March – 22nd March) = 7.0 mm

Maximum Daily Rainfall: 116.6 mm & Minimum Daily Rainfall: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	5.6 mm
Eastern	8.0 mm
Western	8.3 mm
Southern Plains	3.9 mm

The Hydro Catchment Areas recorded 10.0 mm of average rainfall for the last week

Maximum Daily Rainfall: 82.0 mm & Minimum Daily Rainfall: 0.0 mm.

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

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

Predictions

Rainfall: During the next week (23rd March – 29th March), moderate rainfall (35 mm) is predicted for the Eastern, Southern, Western, and Sabaragamuwa provinces and less rainfall is expected for rest of the country.

Temperatures: The temperature will remain above normal for some parts of the Northern, North Western, North Central, Southern and Uva provinces and below normal for some parts of the Central province during 24th March – 30st March.

Teleconnections: ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring and early summer 2023.

MJO shall moderately enhance the rainfall during 23rd March – 1st April, and near neutral the rainfall during 2nd April – 6th April for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the April-May-June 2023 season shows a higher tendency of below-normal precipitation for the country except Northern Province.

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

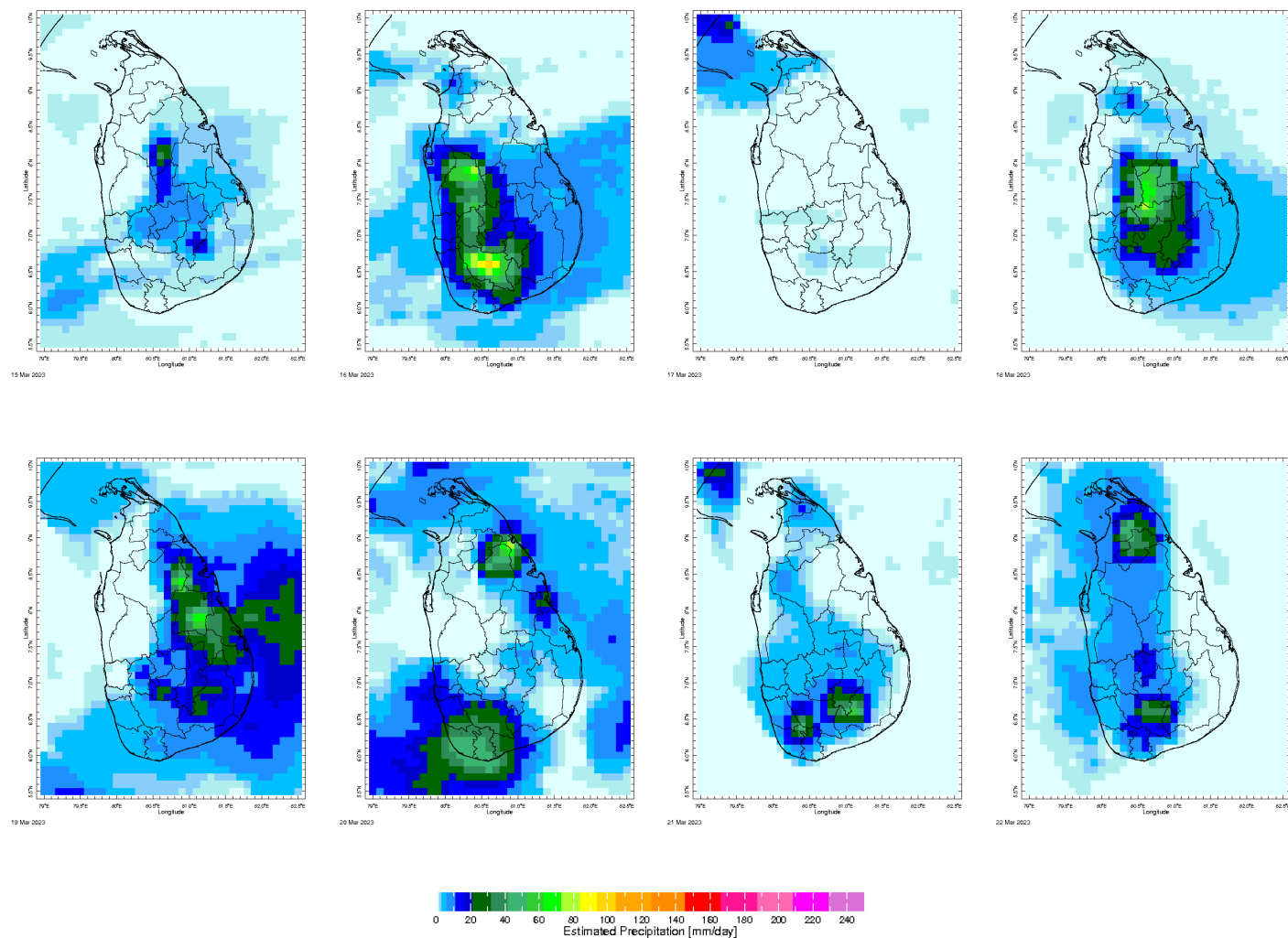
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- MJO Related OLR Forecast
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MONITORING

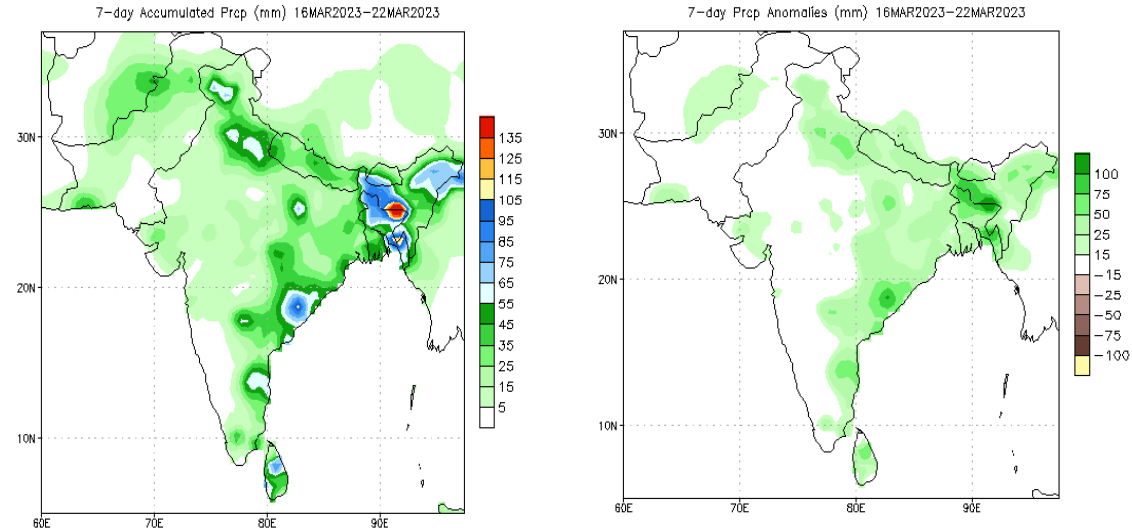
Daily Rainfall Monitoring

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



Weekly Rainfall Monitoring

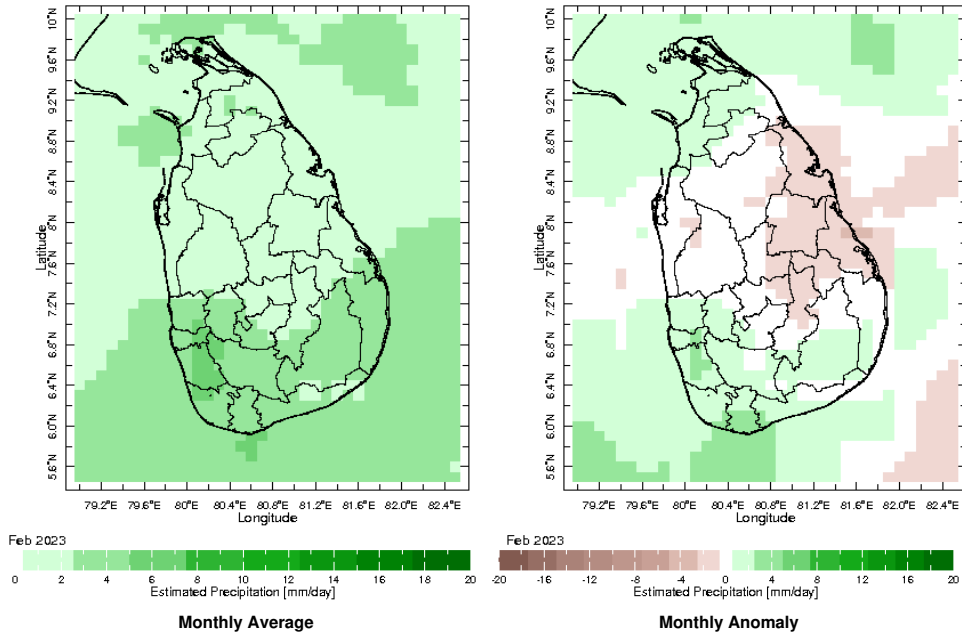
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite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



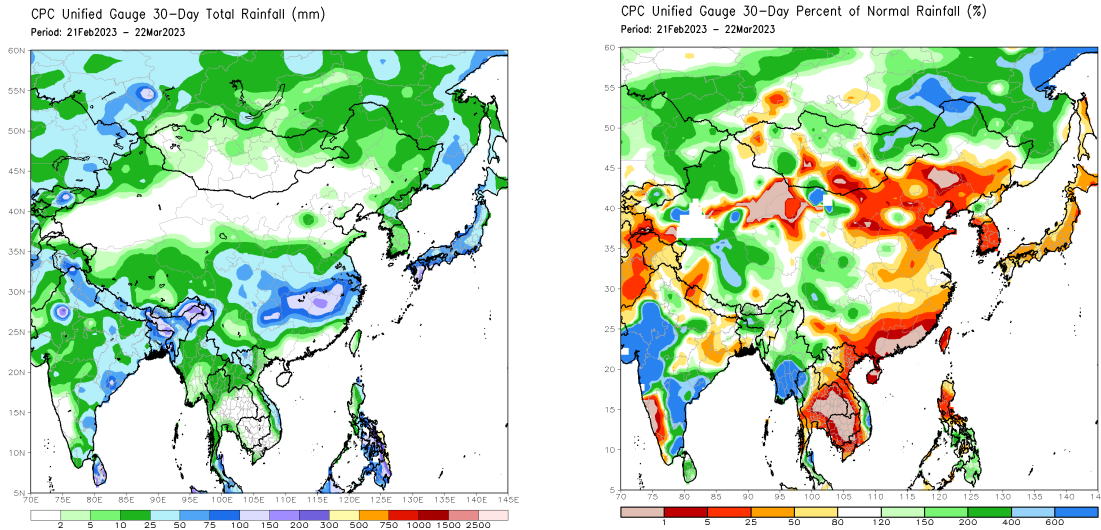
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

Monthly Rainfall Monitoring

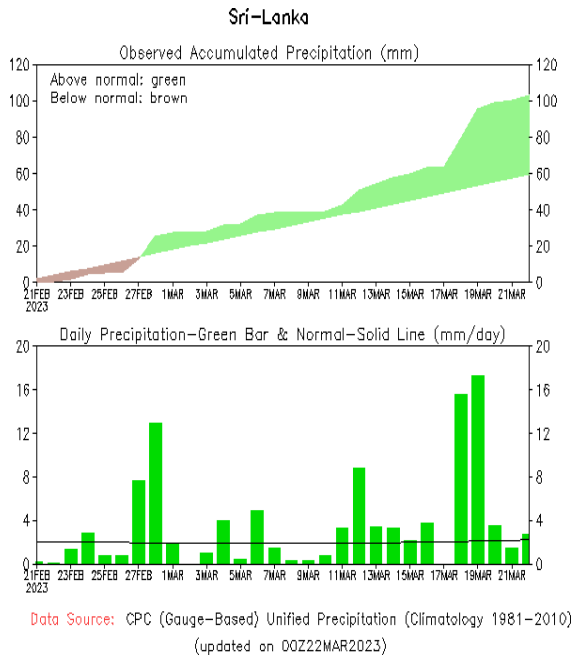
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



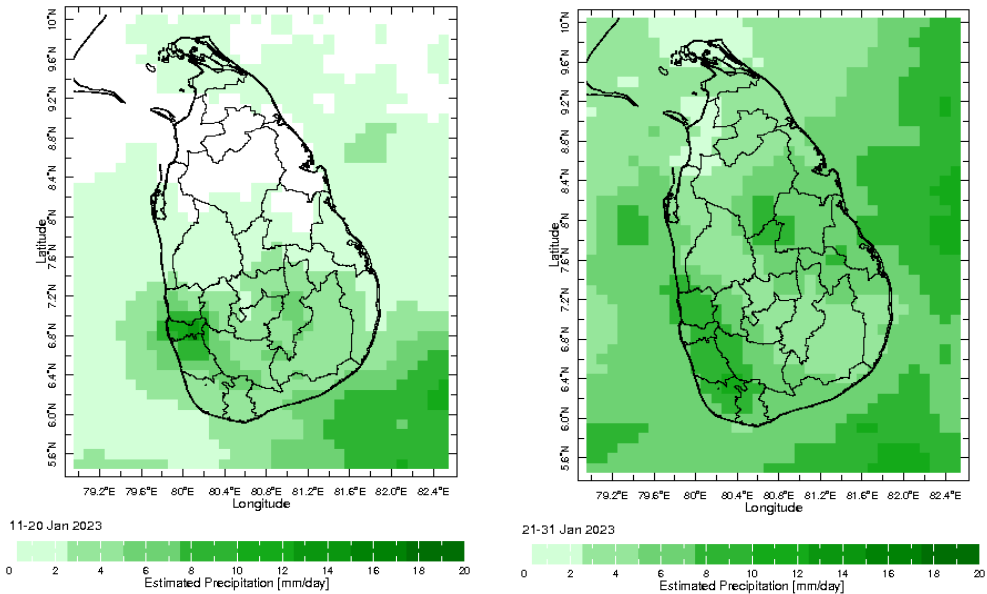
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



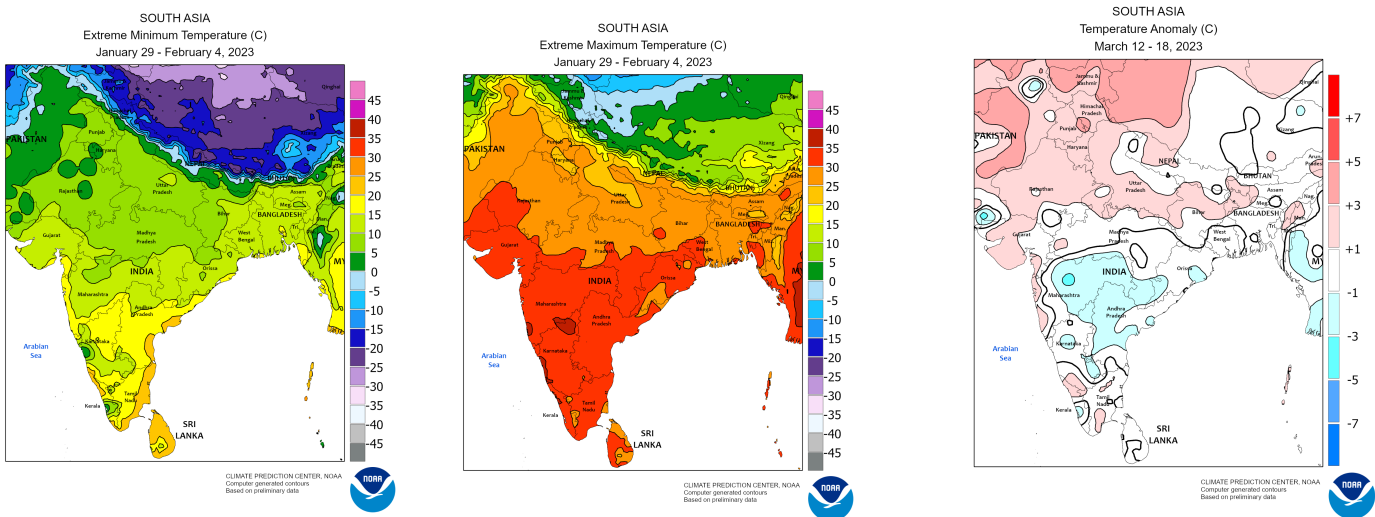
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

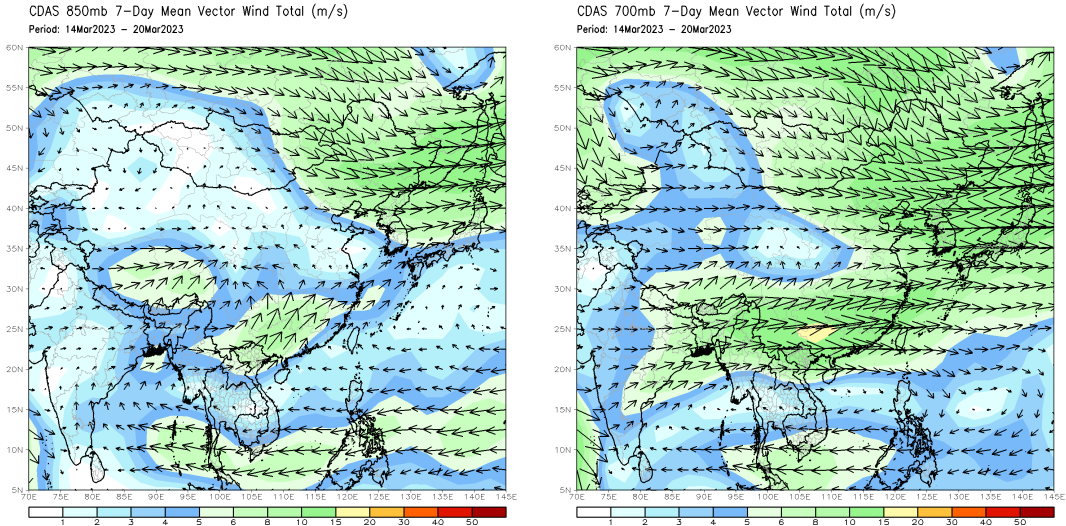


Weekly Temperature Monitoring



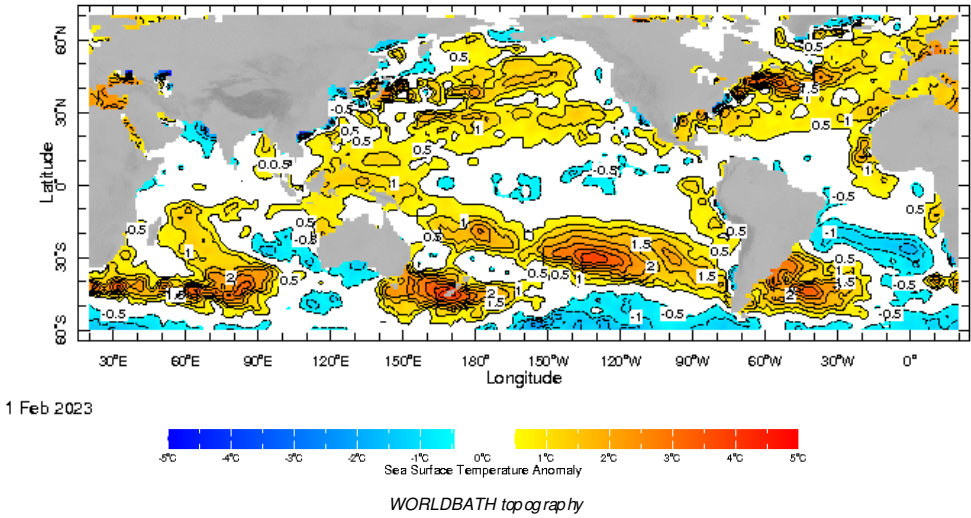
Weekly Wind Monitoring

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.

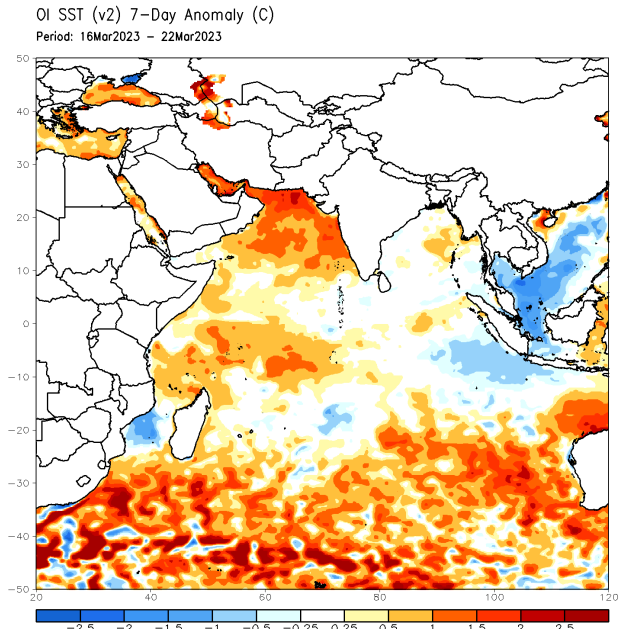


Weekly Average SST Anomalies

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

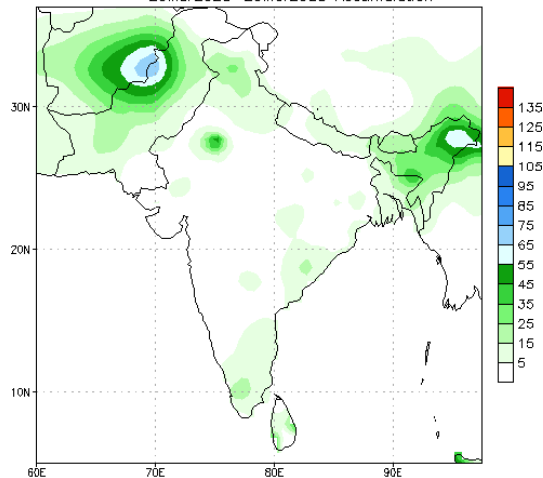


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



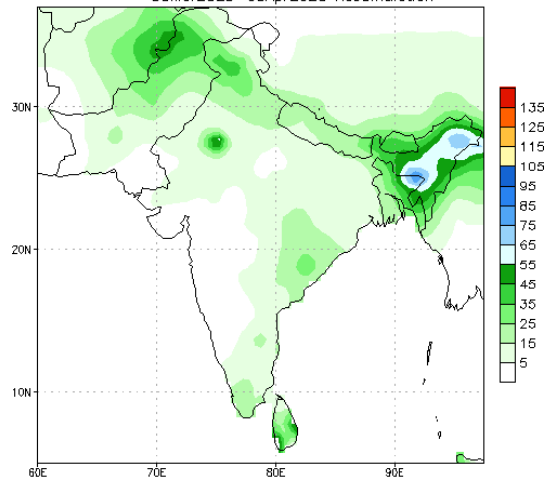
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 23Mar2023
23Mar2023-29Mar2023 Accumulation



Bias correction based on last 30-day forecast error

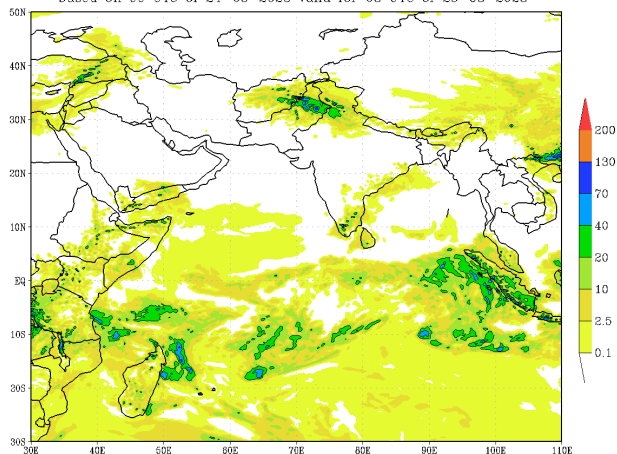
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 23Mar2023
30Mar2023-05Apr2023 Accumulation



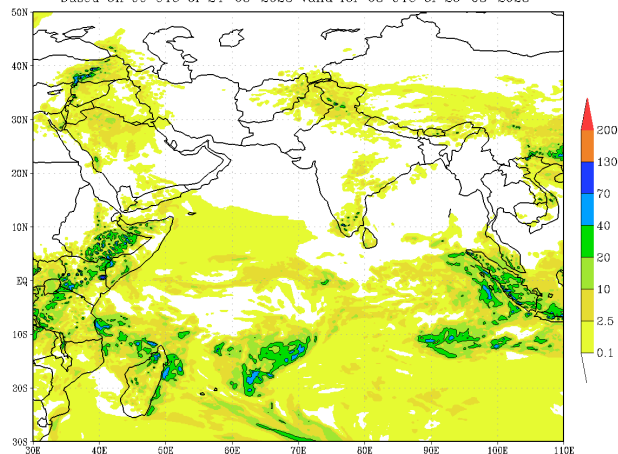
Bias correction based on last 30-day forecast error

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

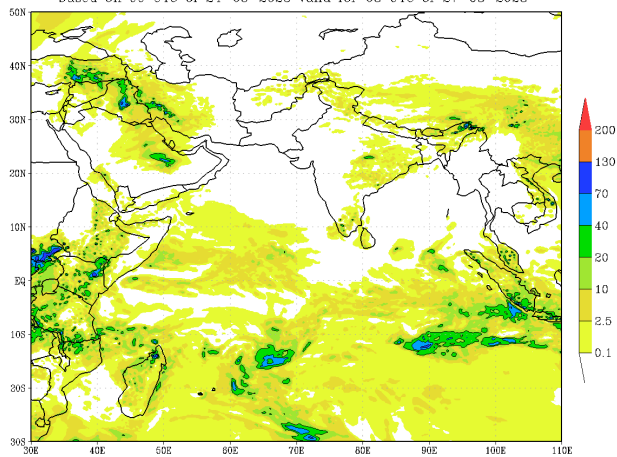
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 24-03-2023 valid for 03 UTC of 25-03-2023



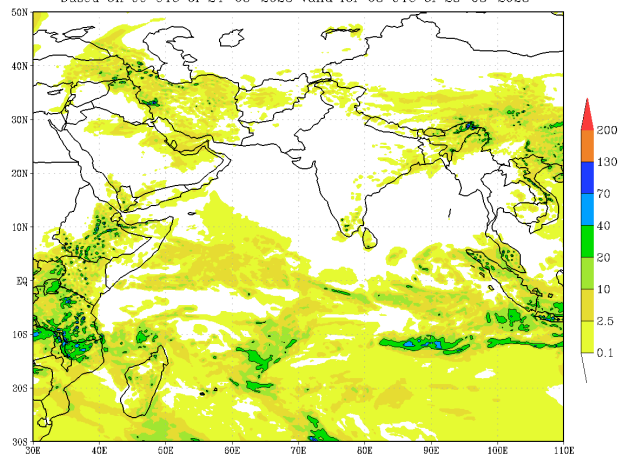
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 24-03-2023 valid for 03 UTC of 26-03-2023

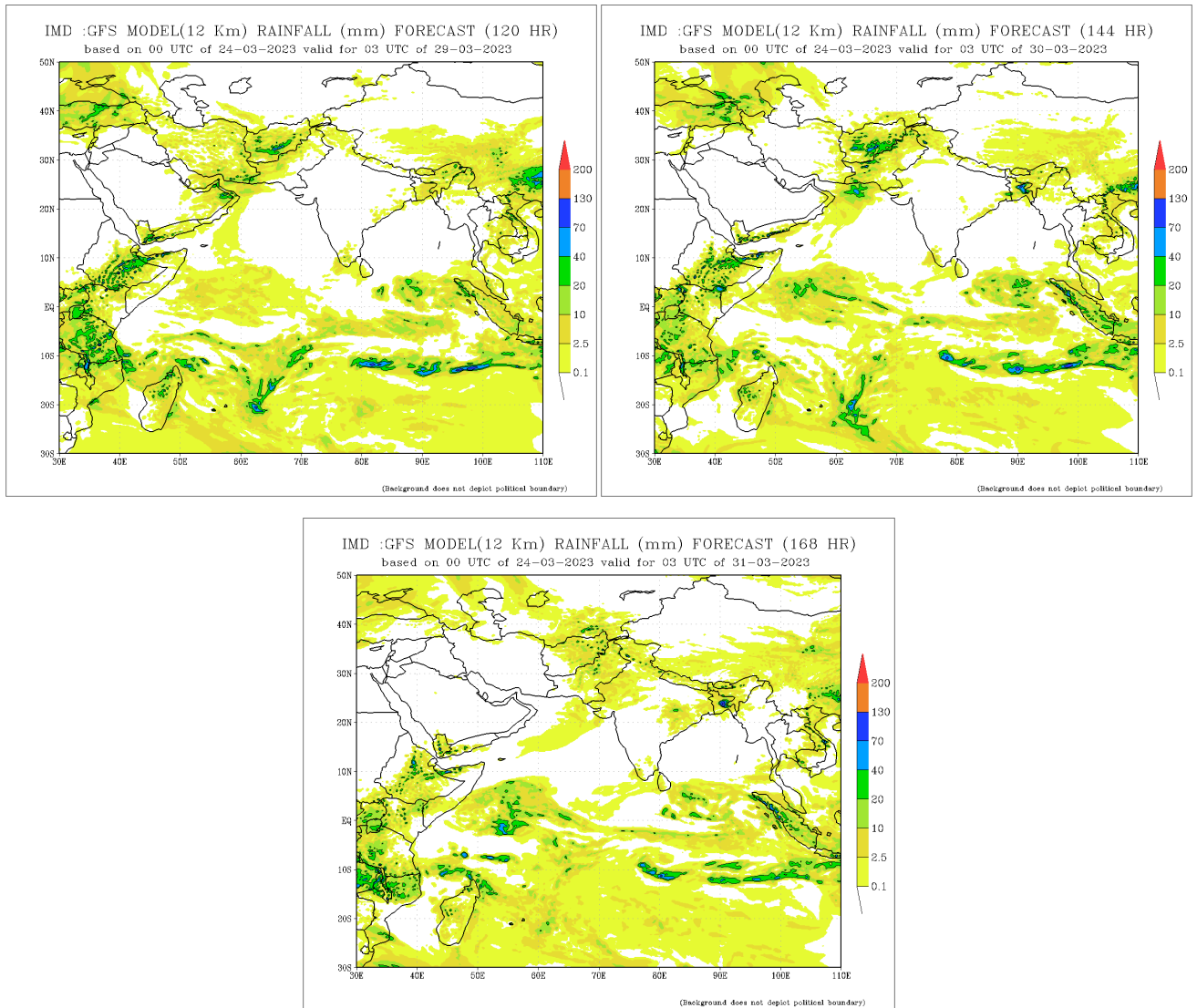


IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 24-03-2023 valid for 03 UTC of 27-03-2023



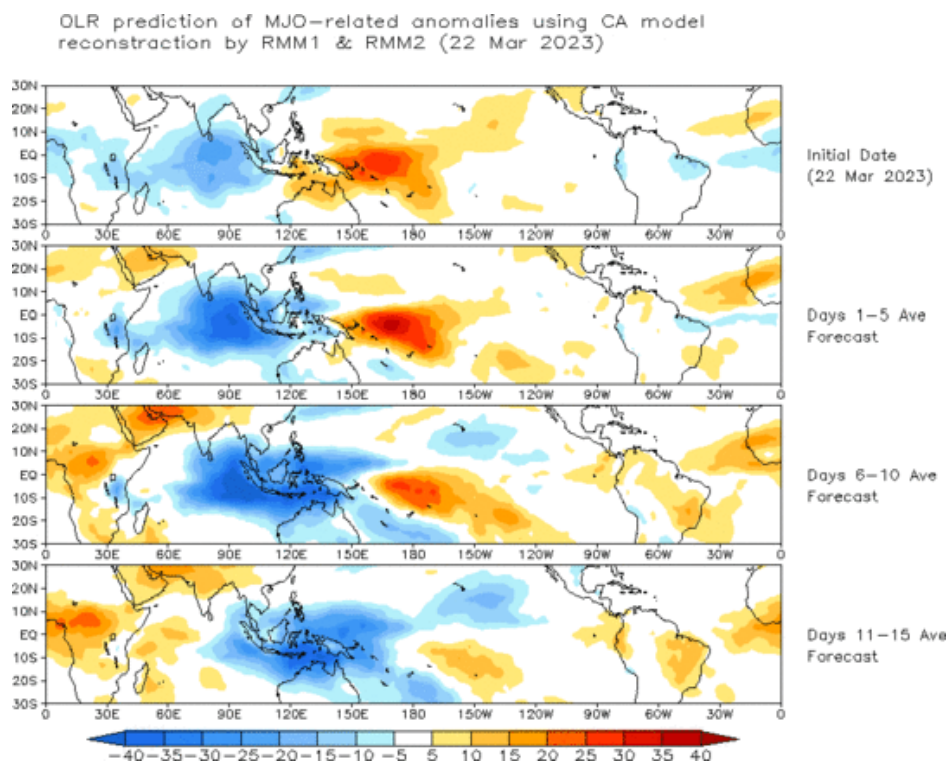
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 24-03-2023 valid for 03 UTC of 28-03-2023





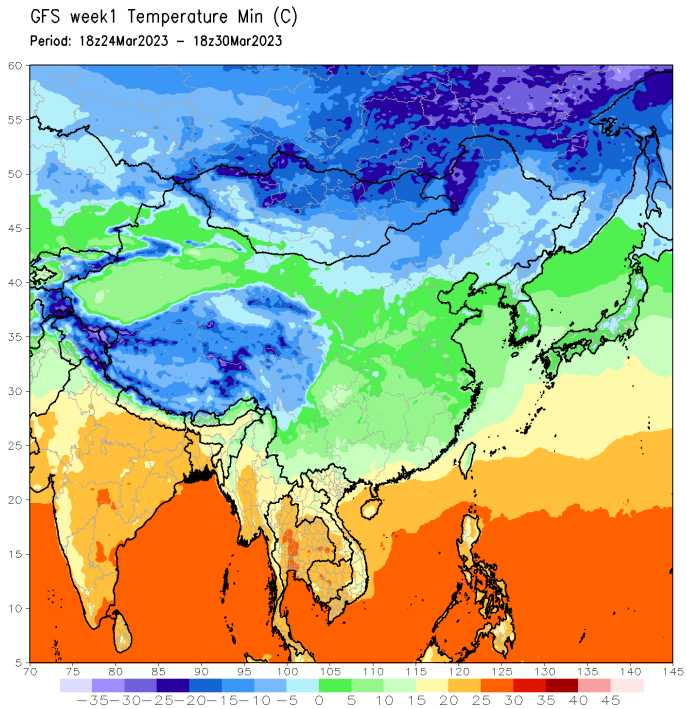
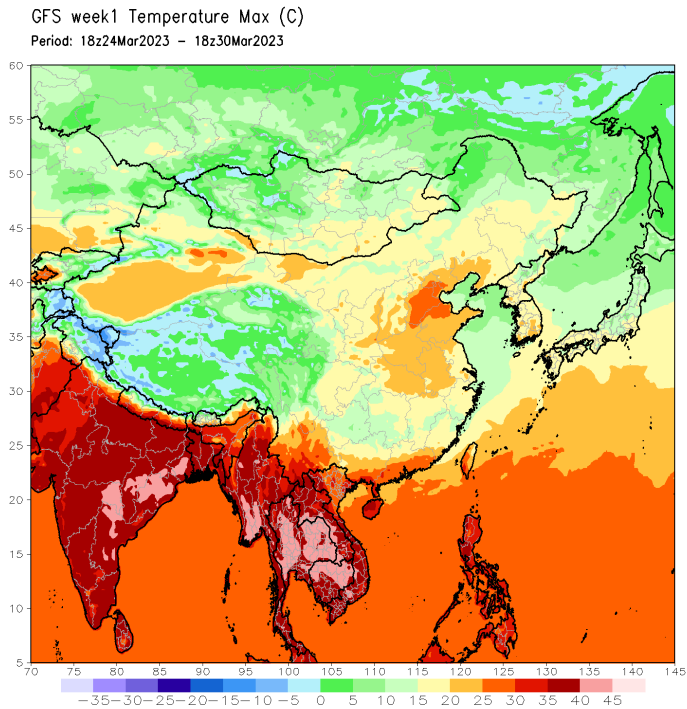
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



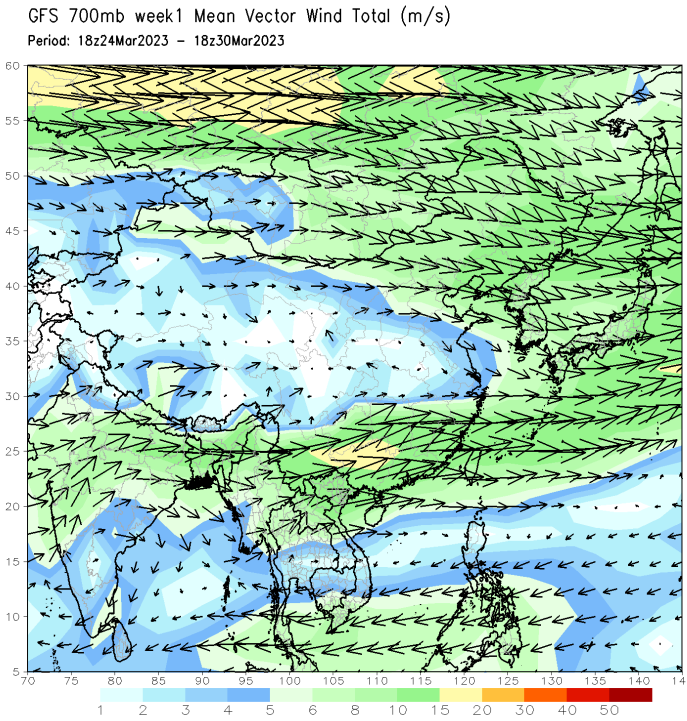
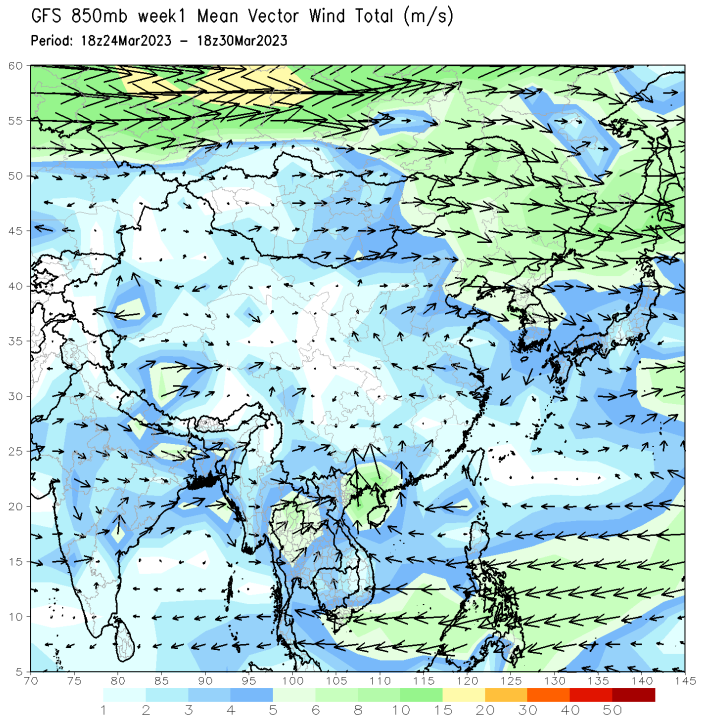
Weekly Temperature Forecast

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



Weekly Wind Forecast

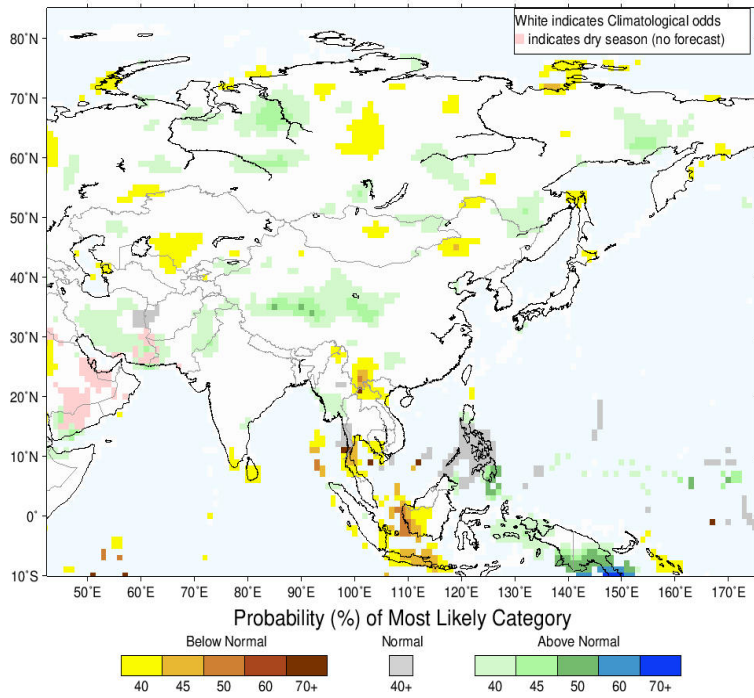
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



Seasonal Rainfall and Temperature Forecast

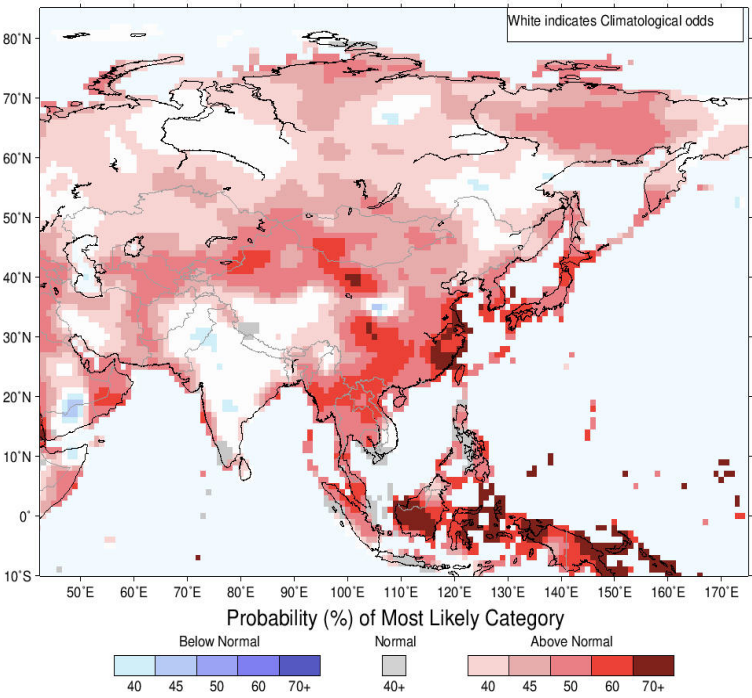
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant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



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for April-May-June 2023, Issued March 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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