

3 MARCH
2023

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



- Fairly heavy rainfall is predicted for the Southern, Eastern, Sabaragamuwa, and Uva provinces and moderately heavy rainfall is expected for rest of the country during 2nd – 8th March.

Monitored Rainfalls



- During the last week, maximum daily rainfall over Sri Lanka was 120 mm in Matale and hydro catchment areas received 52.5 mm.
- Highest average rainfall 5.3 mm/day was received to Eastern plains.

Monitored Wind



- From 21st - 27th Feb, up to 6 m/s of north easterly winds were experienced at 850 mb level over the island.
- During 3rd - 9th Mar easterly winds are expected for the country.

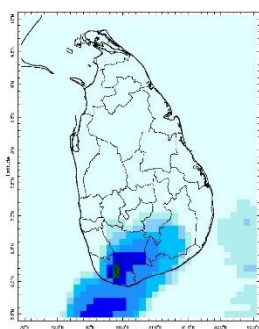
Monitored Sea & Land Temp



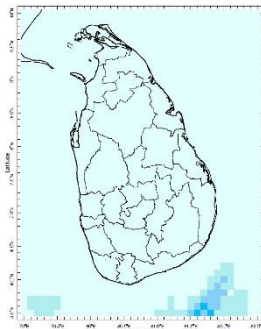
- Sea surface temperature around Sri Lanka was below normal for northern half of the island.
- Land surface temperature remained near normal.

Monitoring Rainfall

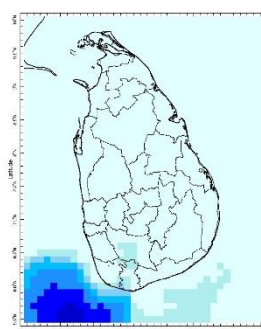
Daily Estimates for Rainfall from 21st February – 28th February 2023



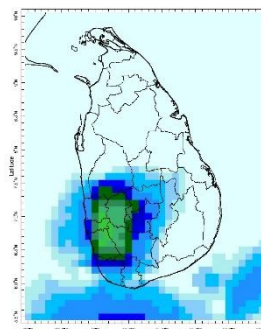
21 February



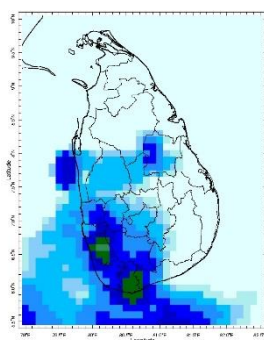
22 February



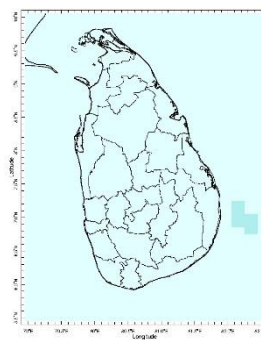
23 February



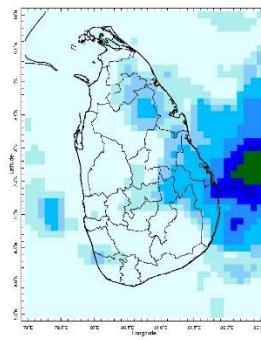
24 February



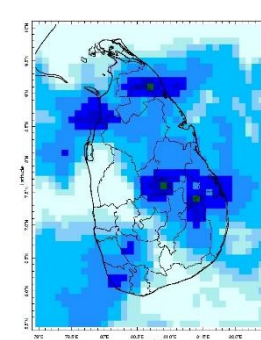
25 February



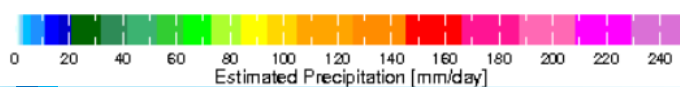
26 February



27 February



28 February



Federation for
Environment, Climate
& Technology

Federation for Environment, Climate and Technology

c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.

Phone (+94) 81-2376746, (+94) 81-2300415

Web Site: www.fect.lk

E mail: info@fect.lk

LI: www.linkedin.com/in/fectlk

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Ocean State *(Text Courtesy IRI)*

Pacific sea state: February 27, 2023

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean late - February. The tropical Pacific atmosphere is consistent with La Niña. A large majority of the models indicate ENSO-neutral conditions will begin within the next couple of months, and persist through the Northern Hemisphere spring and early summer.

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 2nd March – 8th March:

Total rainfall by Provinces:

Rainfall	Provinces
85 mm	Southern
65 mm	Eastern
55 mm	Sabaragamuwa, Uva
45 mm	Western, Northern, North Central, Central
≤ 25 mm	North Western

From 9th March – 15th March:

Total rainfall by Provinces:

Rainfall	Provinces
105 mm	Southern
85 mm	Sabaragamuwa
75 mm	Eastern, Uva
65 mm	Western, Central, North Central, Northern
45 mm	North Western

MJO based OLR predictions

For the next 15 days:

MJO shall slightly suppress the rainfall during 2nd March – 6th March, and moderately suppress the rainfall during 7th March – 16th March for Sri Lanka.

Interpretation

Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (22nd February – 1st March) = 3.2 mm

Rmax: 55.8 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	1.2 mm
Eastern	5.3 mm
Western	3.0 mm
Southern Plains	3.0 mm

The Hydro Catchment Areas recorded 3.5 mm of average rainfall for the last week

Rmax: 52.5 mm & Rmin: 0.0 mm.

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

Temperatures: The temperature anomalies were below normal for some parts of the Northern and North Central provinces, driven by the warm SST's.

Predictions

Rainfall: During the next week (2nd March – 8th March), fairly heavy rainfall (≥ 55 mm) is predicted for the Southern, Eastern, Sabaragamuwa, and Uva provinces, and moderately heavy rainfall is expected for rest of the country.

Temperatures: The temperature will remain above normal for some parts of the Uva, Sabaragamuwa, North Western and Northern provinces and below normal for some parts of the Central province during 3rd March – 9th March.

Teleconnections: ENSO-neutral conditions will begin within the next couple of months, and persist through the Northern Hemisphere spring and early summer.

MJO shall slightly suppress the rainfall during 2nd March – 6th March, and moderately suppress the rainfall during 7th March – 16th March for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the March-April-May 2023 season shows a higher tendency of above-normal precipitation for southern half of 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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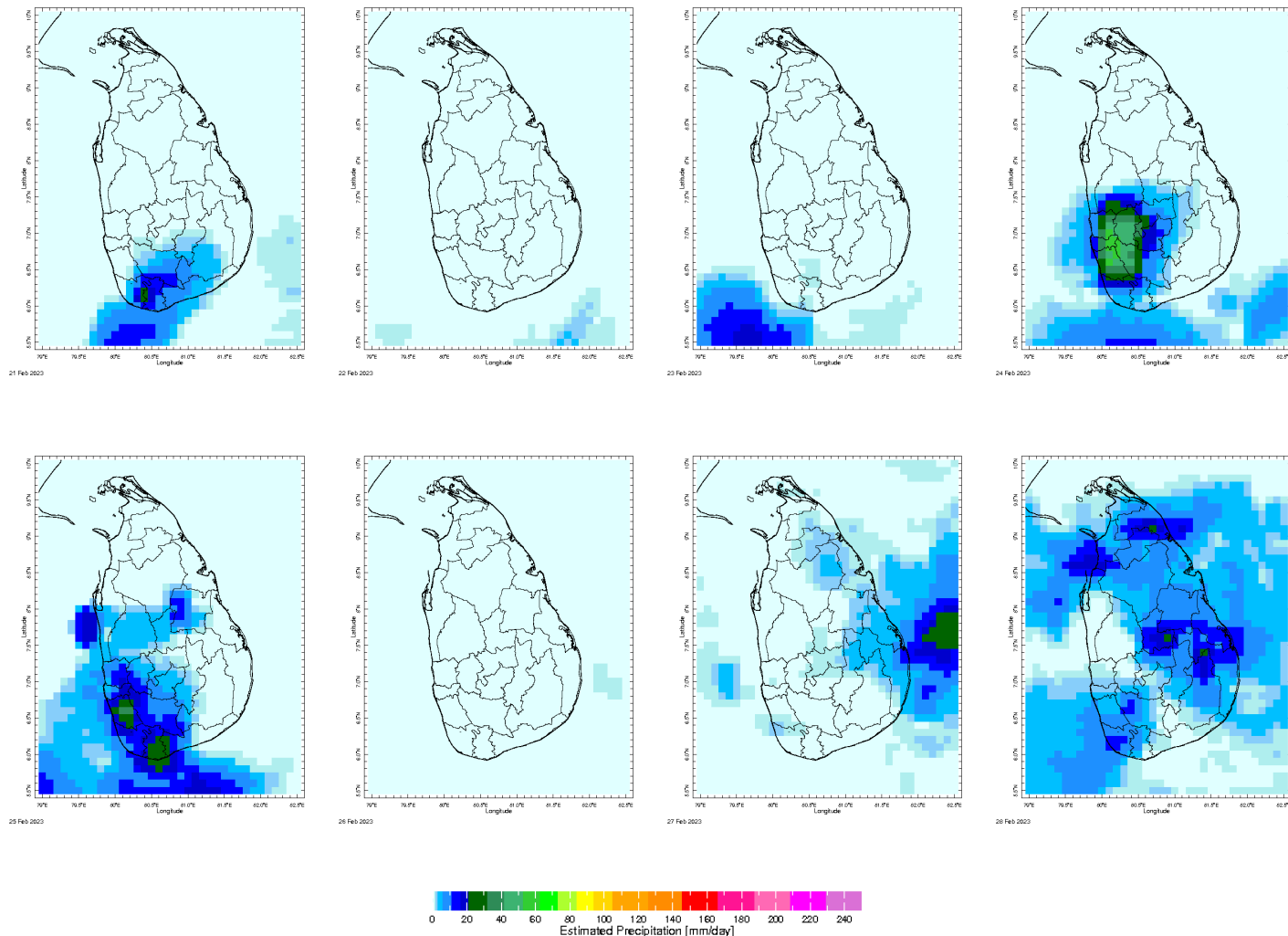
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MONITORING

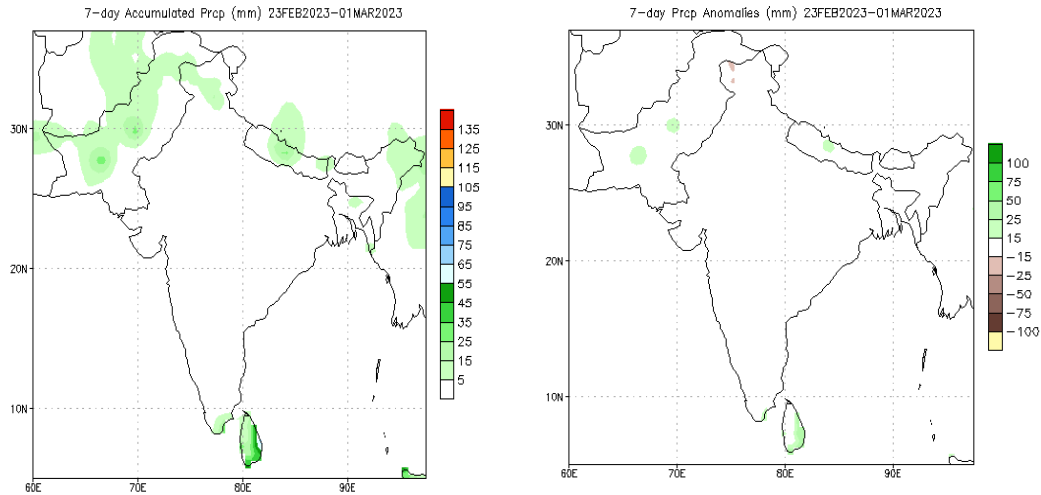
Daily Rainfall Monitoring

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.

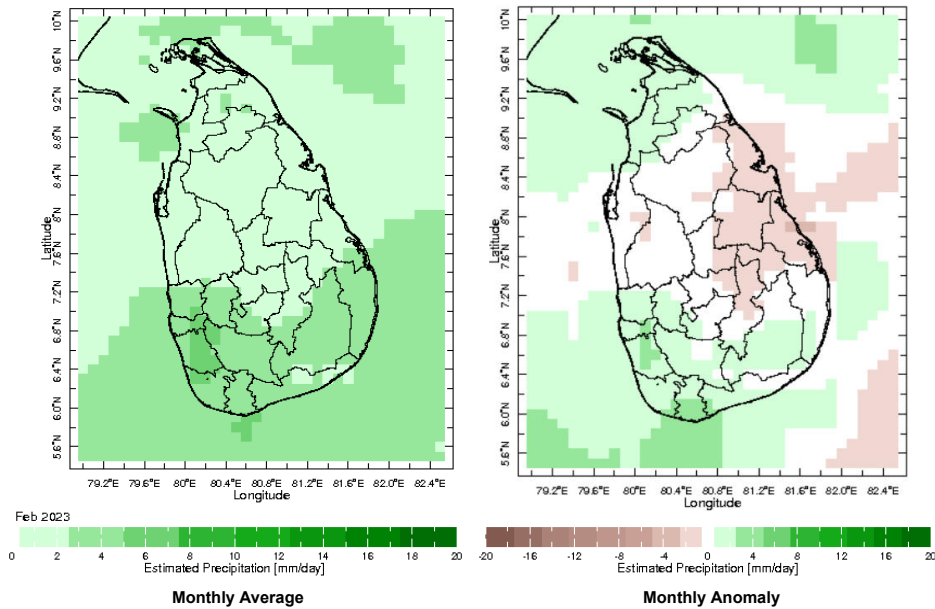


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis

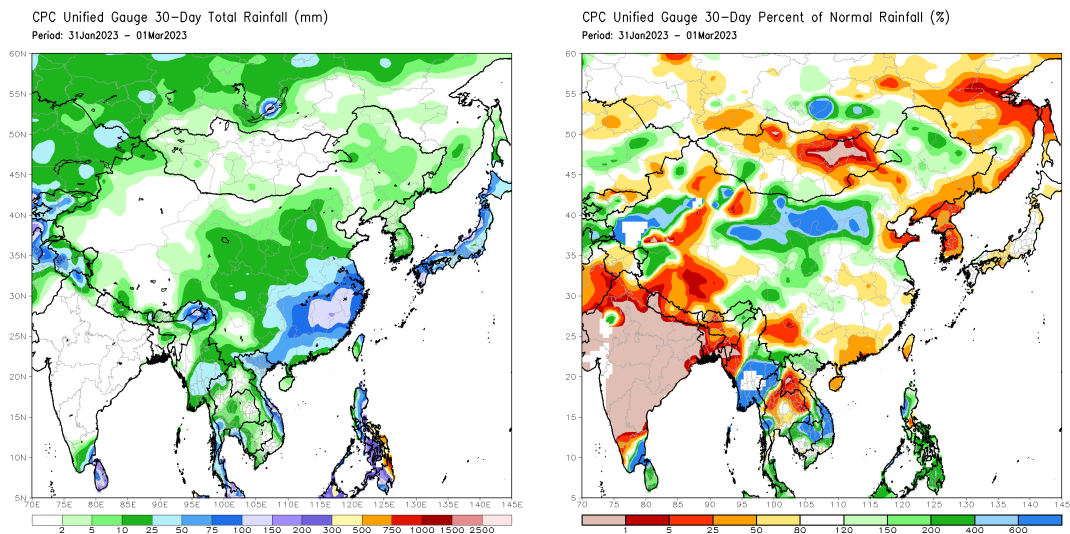
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1991-2020)

Monthly Rainfall Monitoring

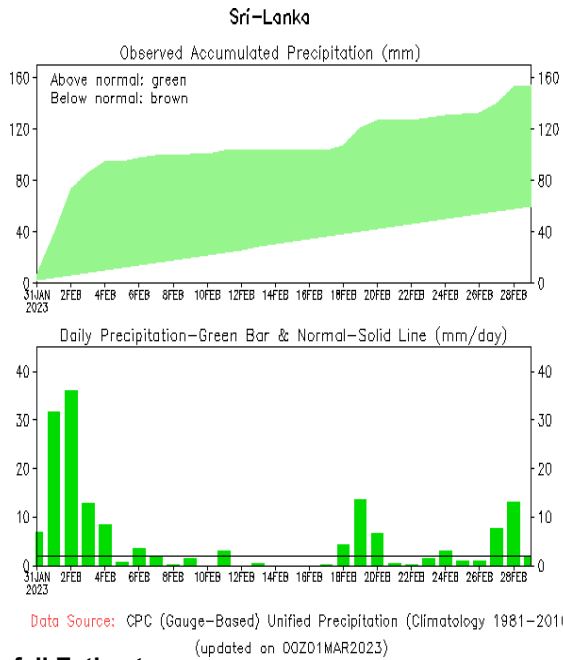
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



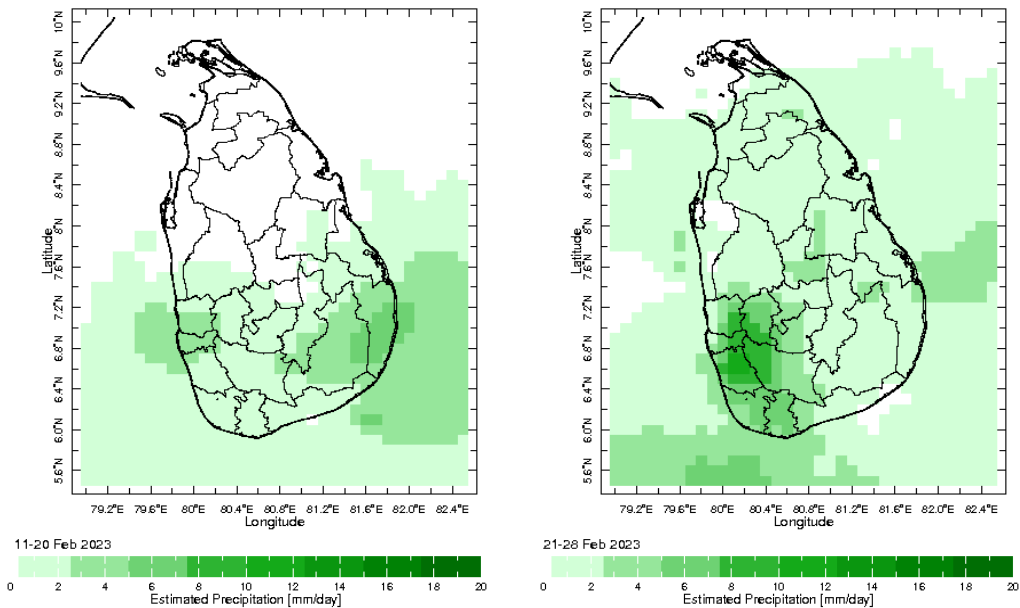
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



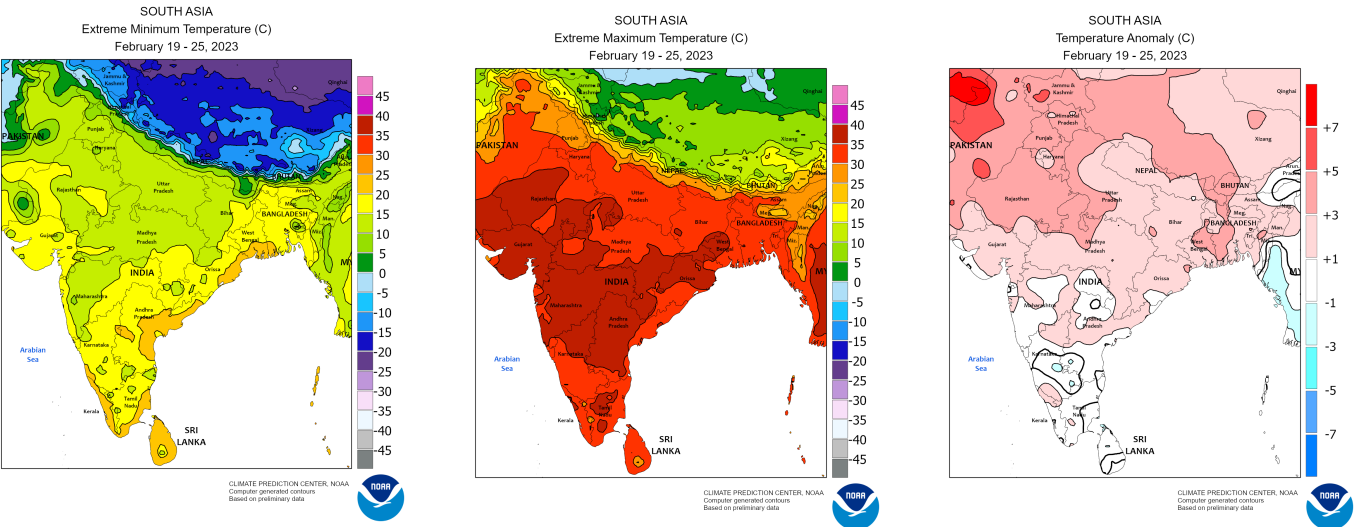
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

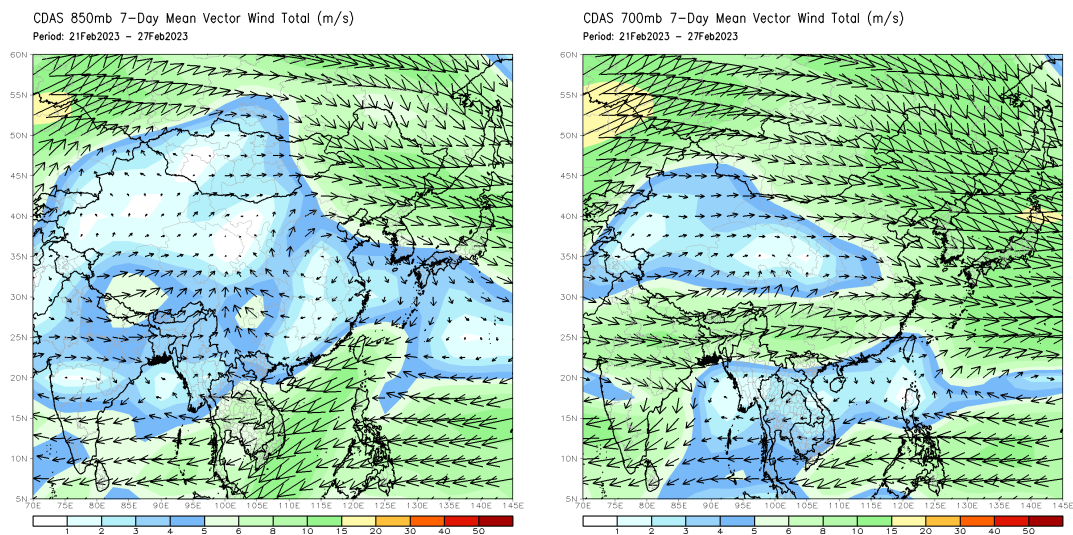


Weekly Temperature Monitoring



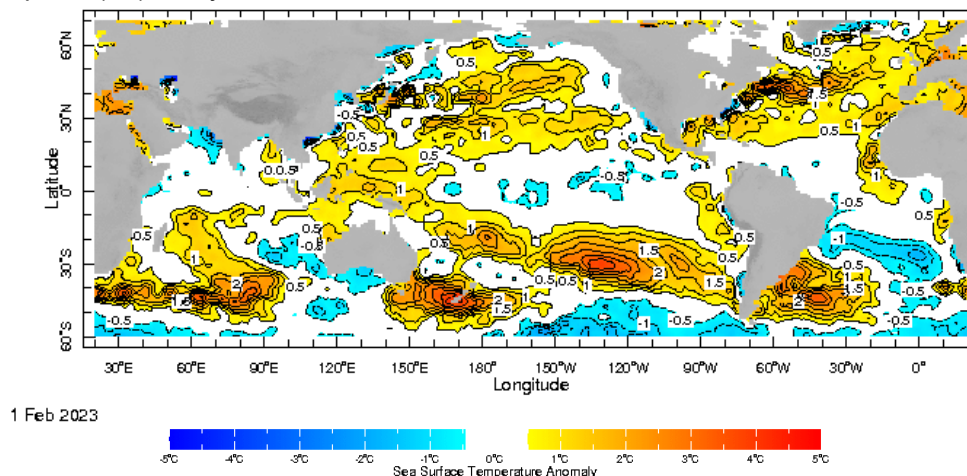
Weekly Wind Monitoring

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.



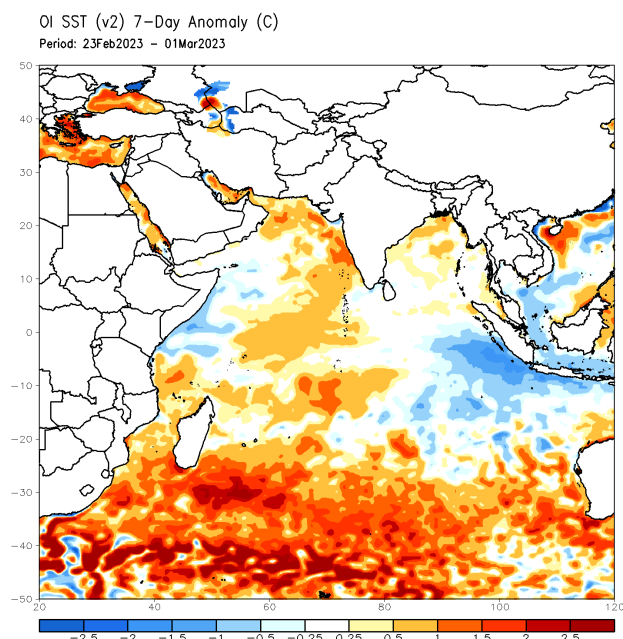
Weekly Average SST Anomalies

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



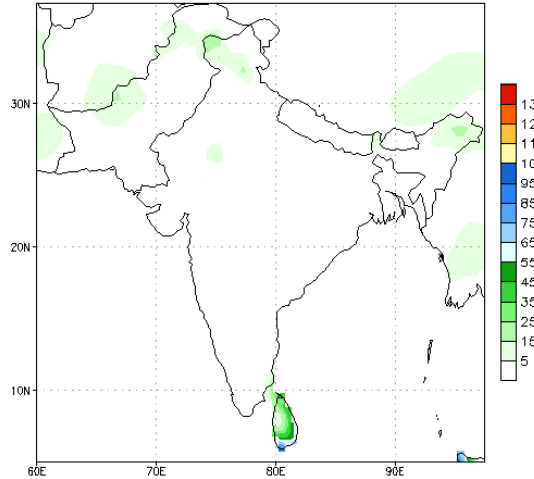
WORLD BATH topography

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



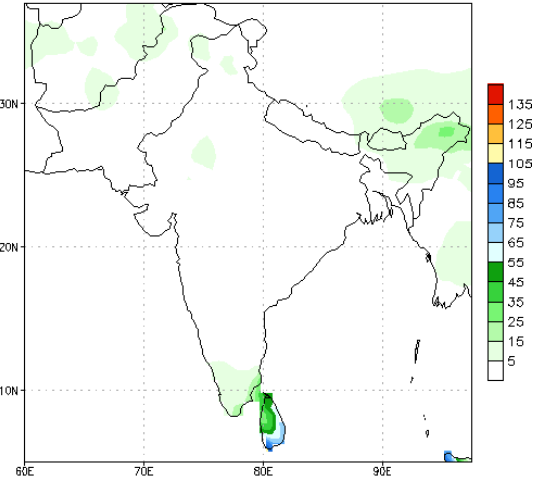
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 02Mar2023
02Mar2023-08Mar2023 Accumulation



Bias correction based on last 30-day forecast error

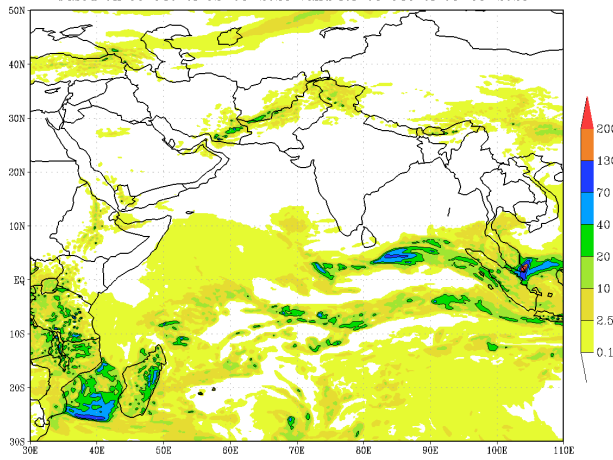
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 02Mar2023
09Mar2023-15Mar2023 Accumulation



Bias correction based on last 30-day forecast error

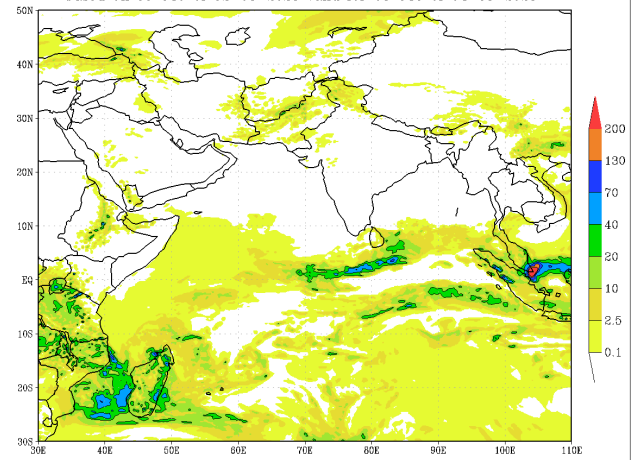
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 02-03-2023 valid for 03 UTC of 03-03-2023



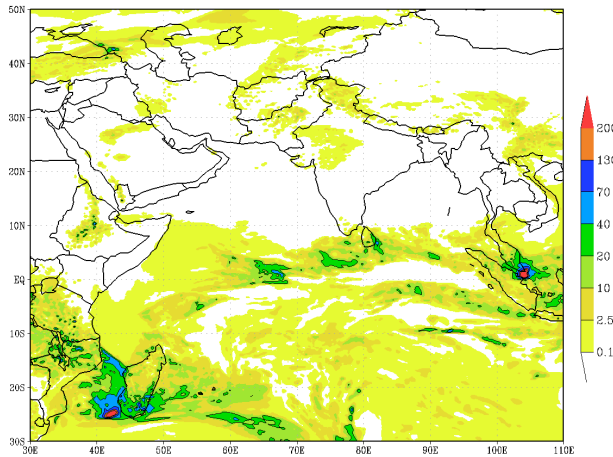
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 02-03-2023 valid for 03 UTC of 04-03-2023



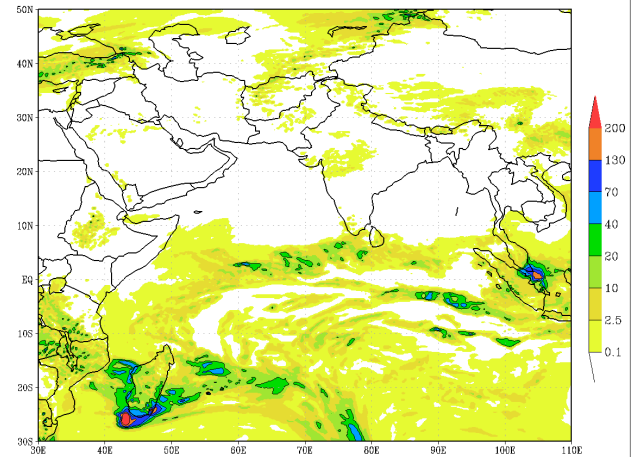
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IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 02-03-2023 valid for 03 UTC of 05-03-2023

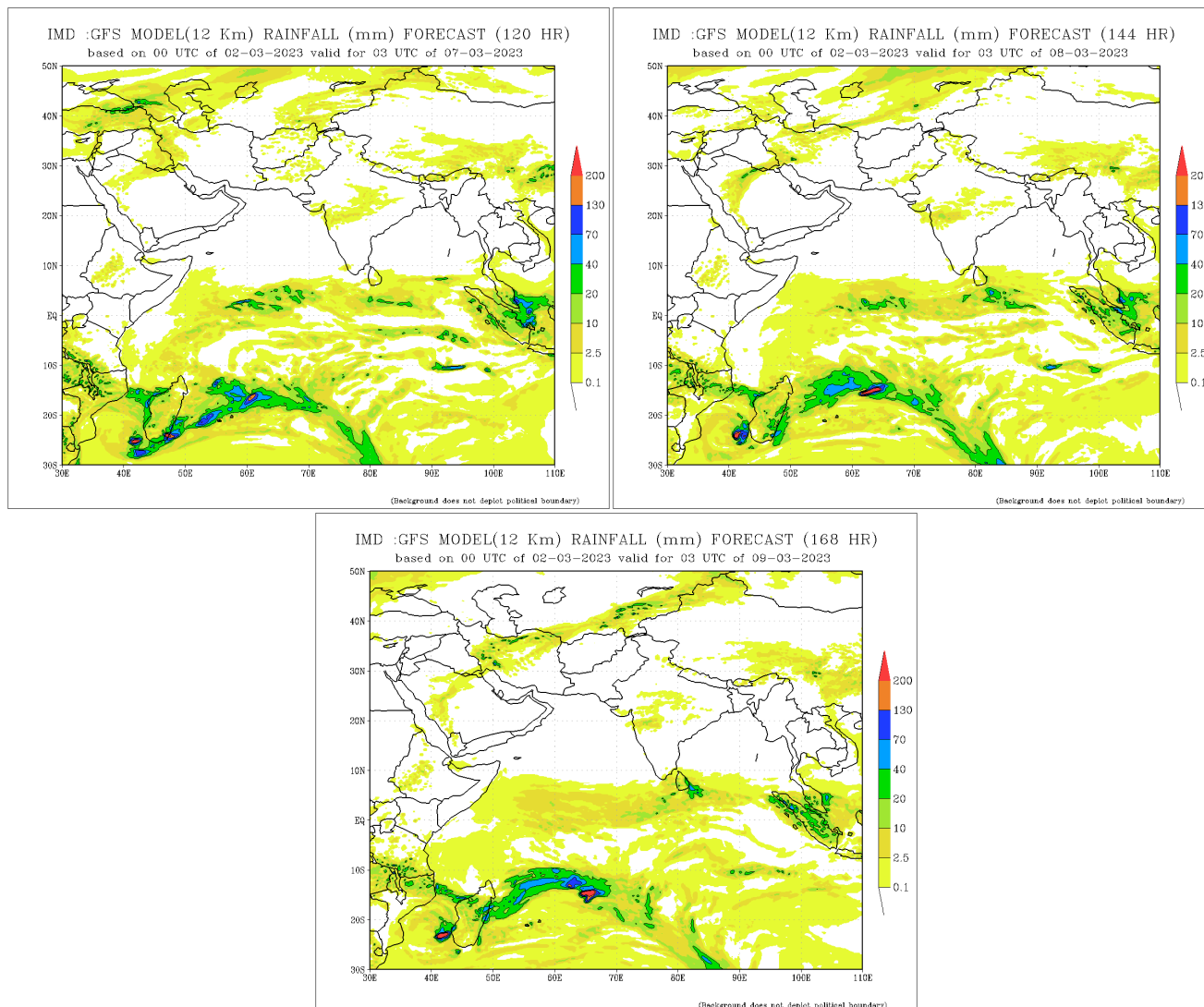


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IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 02-03-2023 valid for 03 UTC of 06-03-2023

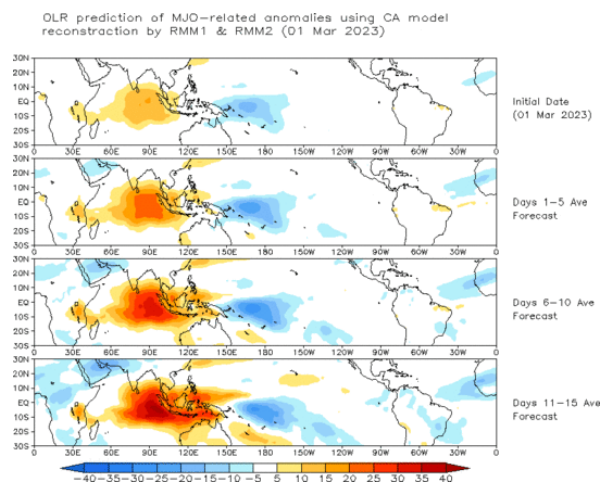


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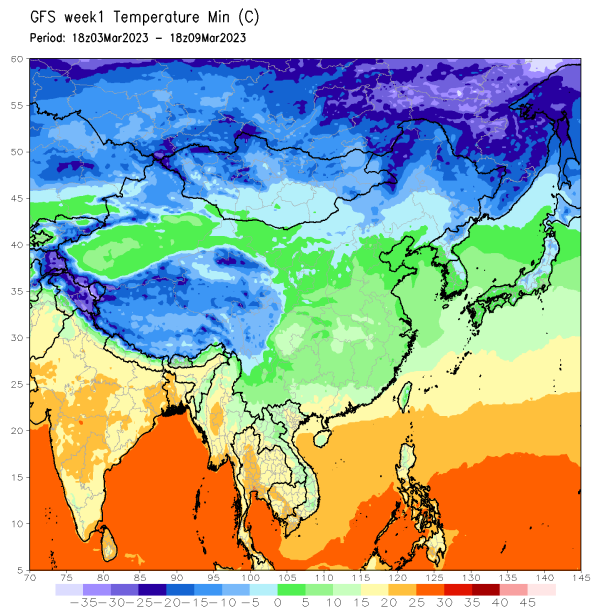
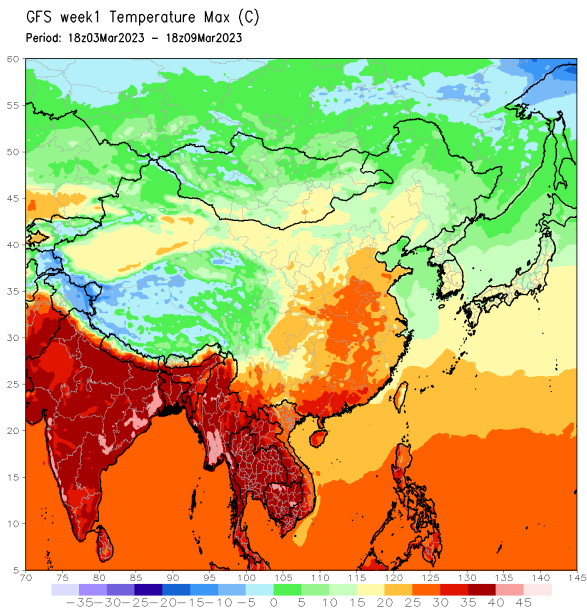
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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 anomolous OLR for the next 15 days from the Constructed Analogue (CA) model forecasts.



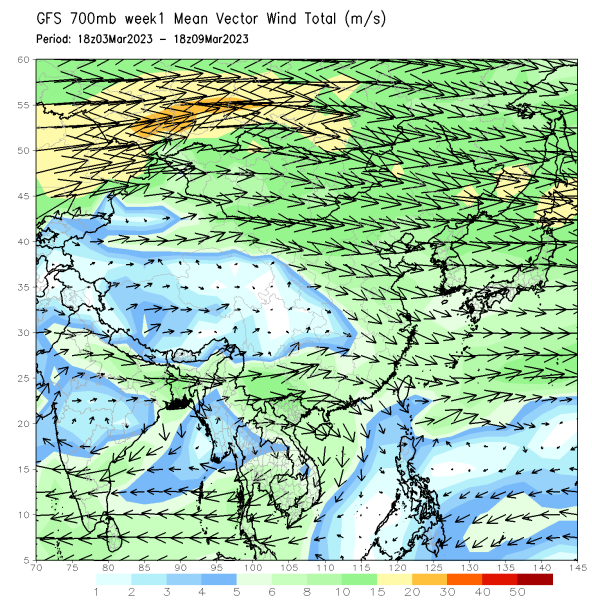
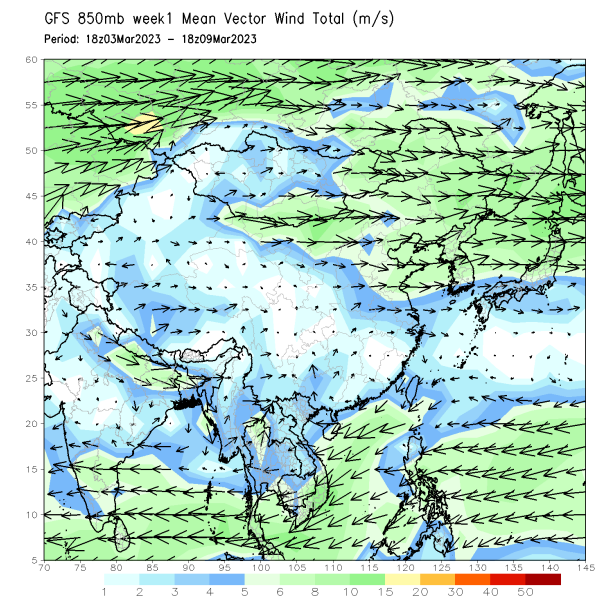
Weekly Temperature Forecast

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



Weekly Wind Forecast

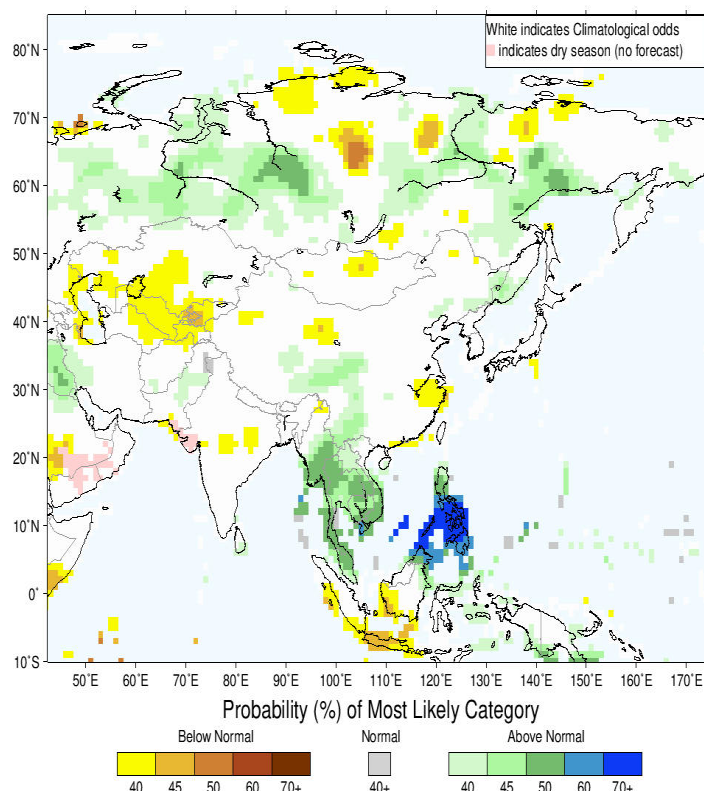
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



Seasonal Rainfall and Temperature Forecast

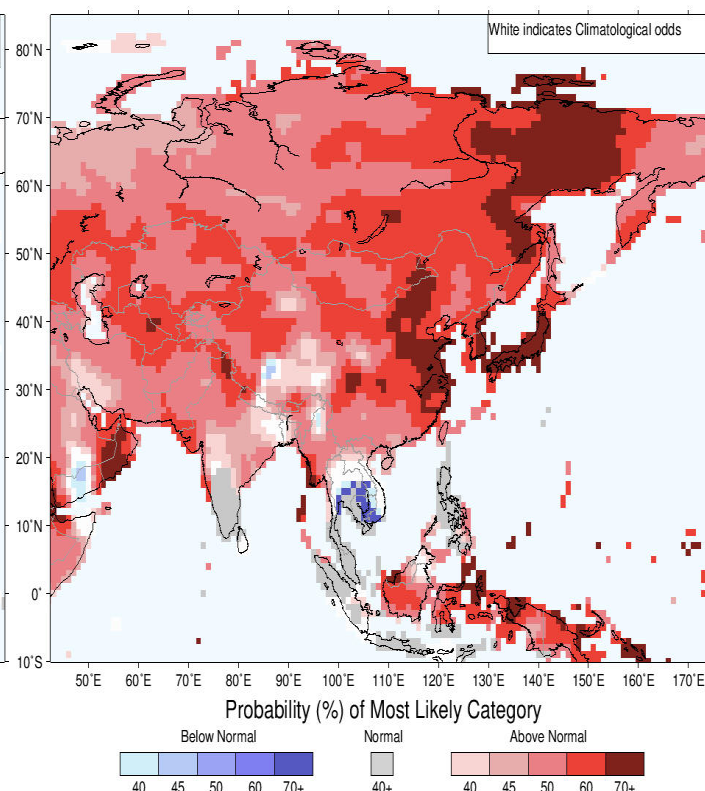
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant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



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for March–April–May 2023, Issued February 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.

Contact us

Digana Village, Rajawella, KY20180, Sri Lanka.
76/2 Matala Road, Akurana, KY 20850, Sri Lanka.

+94 81 230 0415
+94 81 237 6746

info@fect.lk

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