13 JANUARY 2023

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction

- *Fairly heavy rainfall is predicted for the Southern province and moderately heavy rainfall is predicted for the rest of the country during 12th - 18th January.*
- *The seasonal forecast shows a higher tendency for above-normal precipitation from January - March, 2023.*

Monitored Rainfalls

- *During the last week, maximum daily rainfall over Sri Lanka was 80.0 mm and hydro catchment areas received 53.7 mm.*

Monitored Wind

- *From 3rd - 9th Jan, up to 10m/s of north easterly winds were experienced at 850 mb level over the island.*
- *During 13th - 19th Jan, easterly winds are expected for the country.*

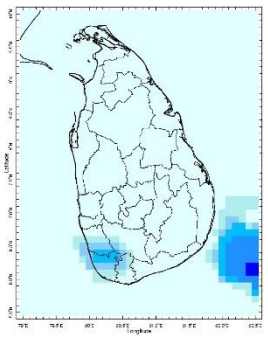
Monitored Sea & Land Temp

- *Sea surface temperature around Sri Lanka was near-neutral for the entire island.*
- *Land surface temperature remained near normal.*

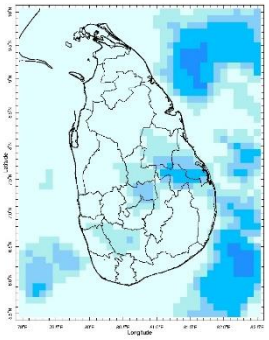
Monitoring

Rainfall

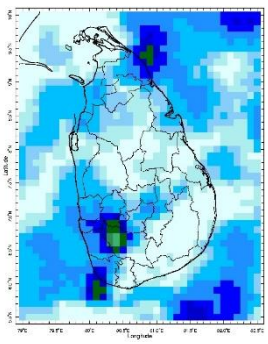
Daily Estimates for Rainfall from 4th January – 11th January 2023



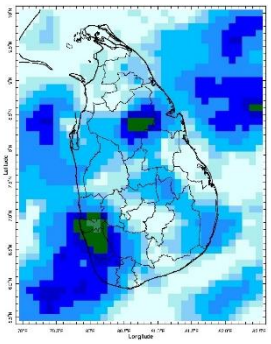
4 January



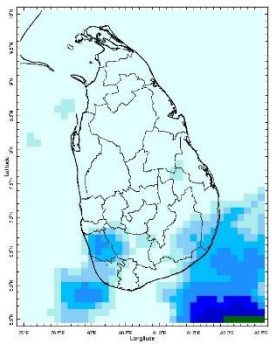
5 January



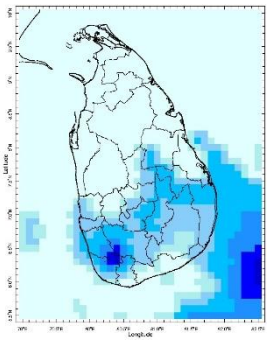
6 January



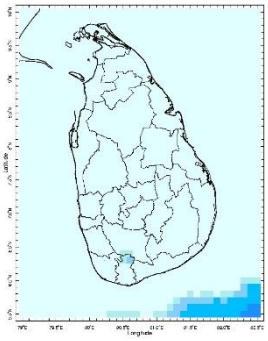
7 January



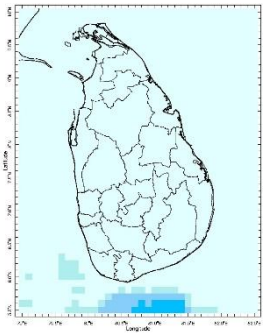
8 January



9 January



10 January



11 January

Federation for Environment, Climate & Technology

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Ocean State *(Text Courtesy IRI)*

Pacific sea state: January 9, 2023

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean early - January. The tropical Pacific atmosphere is consistent with La Niña. A large majority of the models indicate La Niña is favored to continue into the winter, with equal chances of La Niña and ENSO-neutral during January-March 2023. In February-April 2023, there is a 71% chance of ENSO-neutral.

Indian Ocean State

Sea surface temperature around Sri Lanka was near neutral for the whole country in 4th January, 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 12th January – 18th January:

Total rainfall by Provinces:

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

From 19th January – 25th January:

Total rainfall by Provinces:

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

MJO based OLR predictions

For the next 15 days:

MJO shall slightly enhance the rainfall during 12th – 16th January, moderately enhance the rainfall during 17th – 21st January, and highly enhance the rainfall during 22nd – 26th January for Sri Lanka.

Interpretation

Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (4th January – 11th January) = 4.3 mm

Rmax: 80.0 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	6.0 mm
Eastern	4.0 mm
Western	3.9 mm
Southern Plains	0.4 mm

The Hydro Catchment Areas recorded 5.3 mm of average rainfall for the last week

Rmax: 53.7 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 Central, North Western, and North Central provinces, driven by the warm SST's.

Predictions

Rainfall: During the next week (12th – 18th January), fairly heavy rainfall (≥ 55 mm) is predicted for the Southern province; and moderately heavy rainfall is expected for the Sabaragamuwa, Eastern, Central, Uva, Western, North Central and less rainfall is expected for rest of the country.

Temperatures: The temperature will remain below normal for some parts of the Central, Uva, and Sabaragamuwa provinces during 13th – 19th January.

Teleconnections: La Niña is favored to continue into the winter, with equal chances of La Niña and ENSO-neutral during January-March 2023.

MJO shall slightly enhance the rainfall during 12th – 16th January, moderately enhance the rainfall during 17th – 21st January, and highly enhance the rainfall during 22nd – 26th January for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the January-February-March 2023 season shows a higher tendency of 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.

Federation for Environment, Climate & Technology

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Weekly Climate Bulletin for Sri Lanka

Inside This Issue

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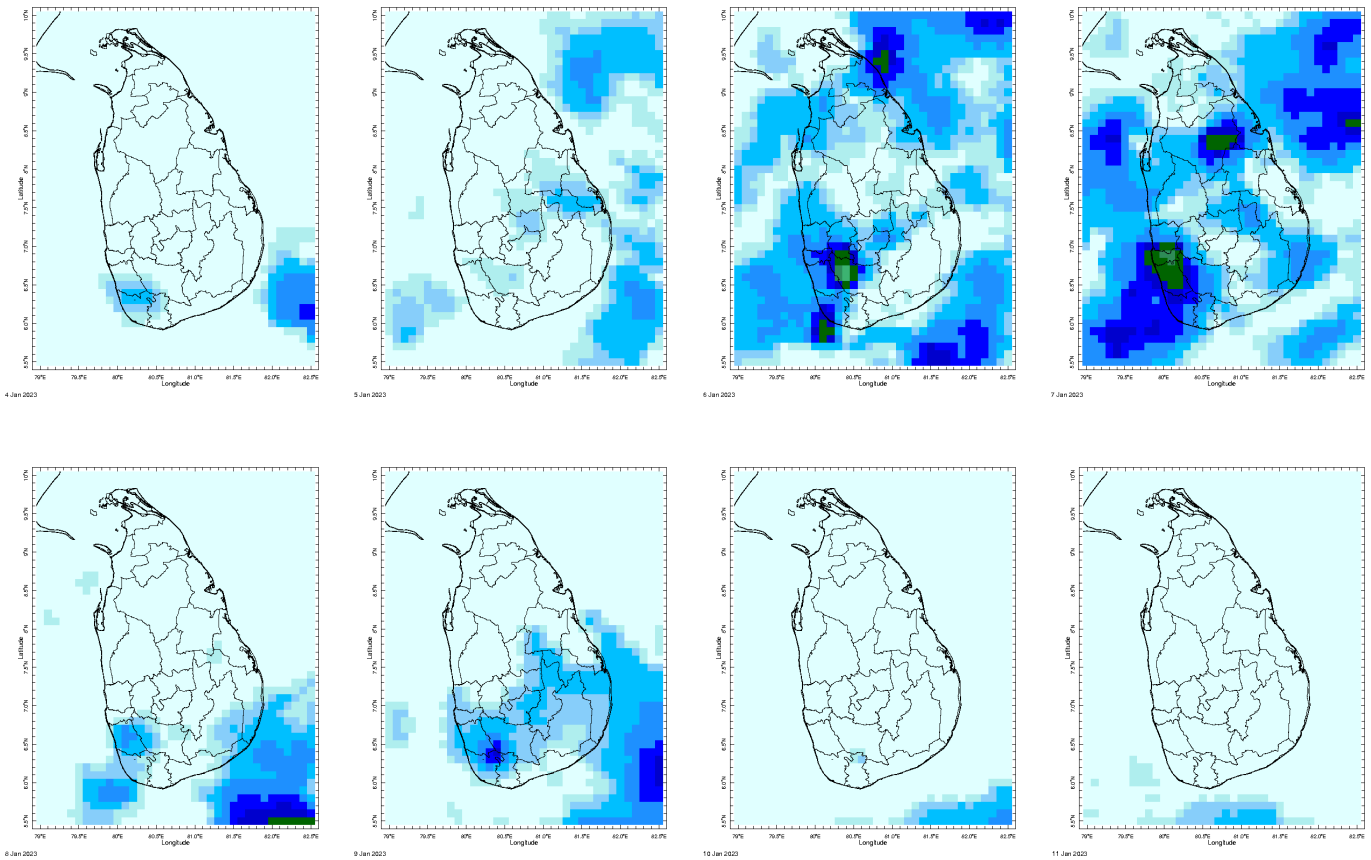
MONITORING

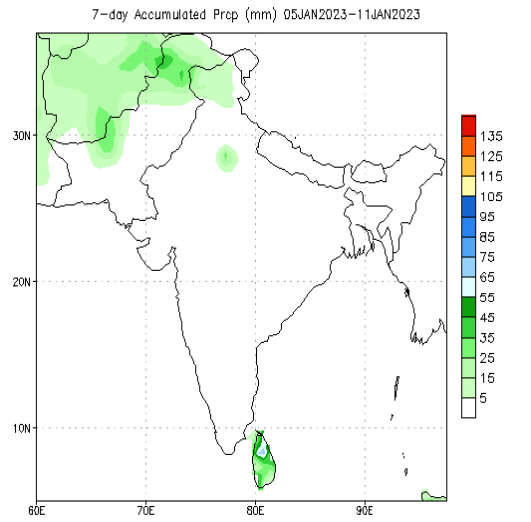
Daily Rainfall Monitoring

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

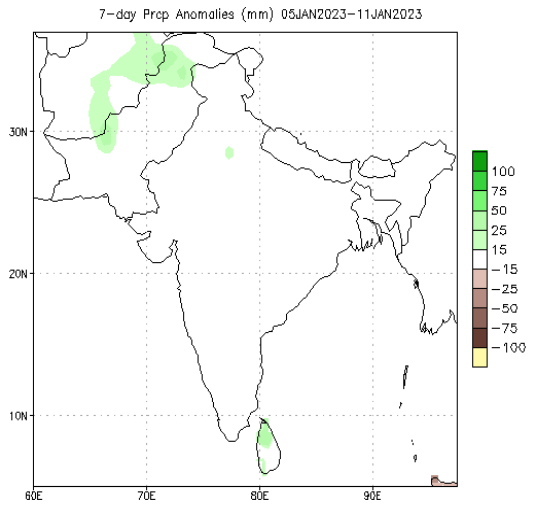


Weekly Rainfall Monitoring

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.



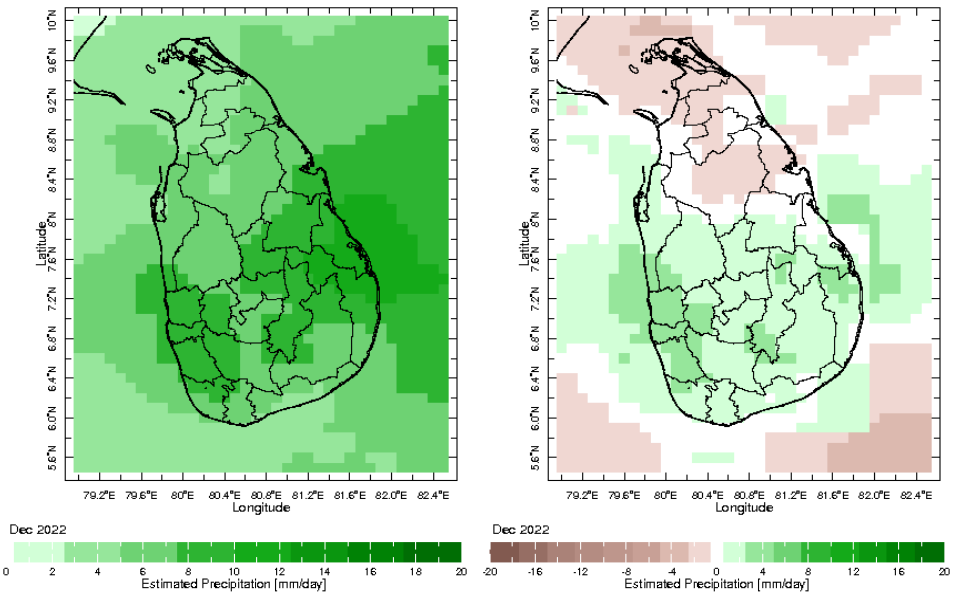
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



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

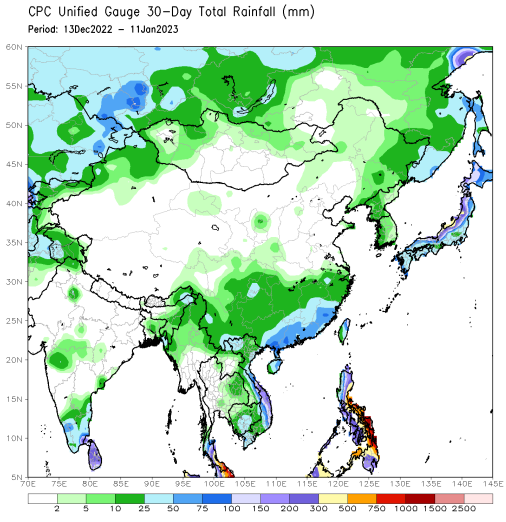
Monthly Rainfall Monitoring

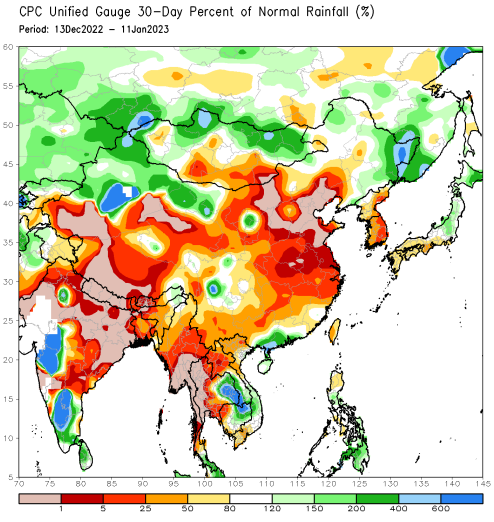
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



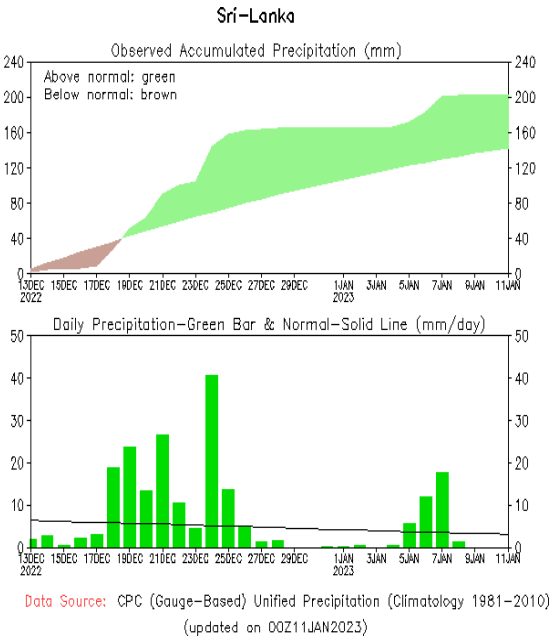
Monthly Average **Monthly Anomaly**

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.

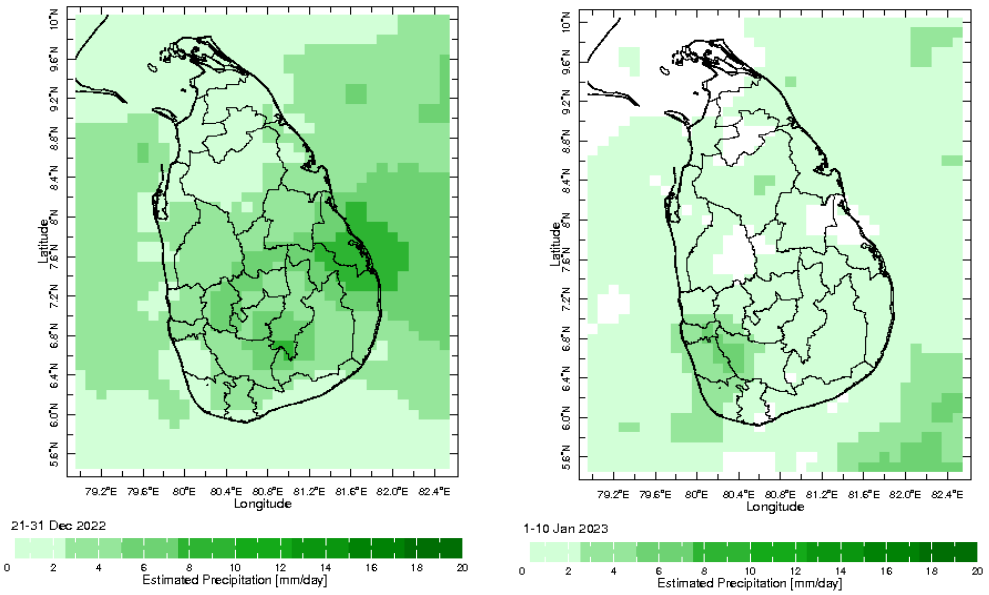




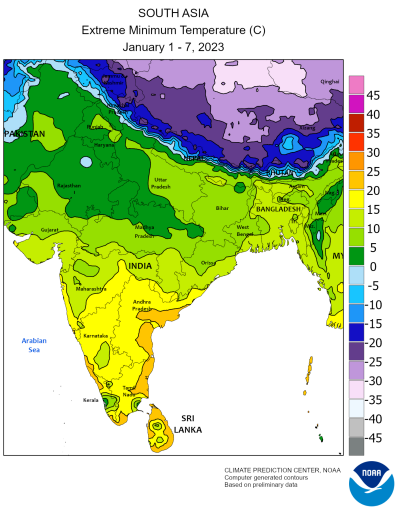
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.

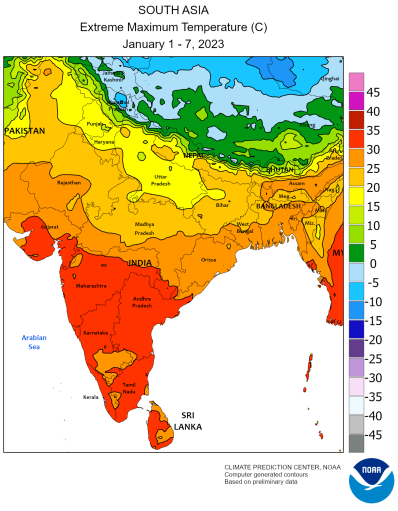


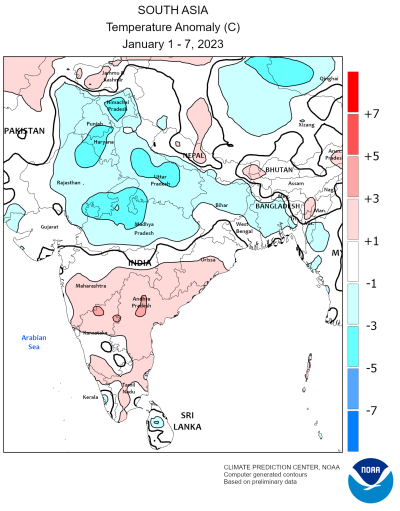
Dekadal (10 Day) Satellite Derived Rainfall Estimates



Weekly Temperature Monitoring

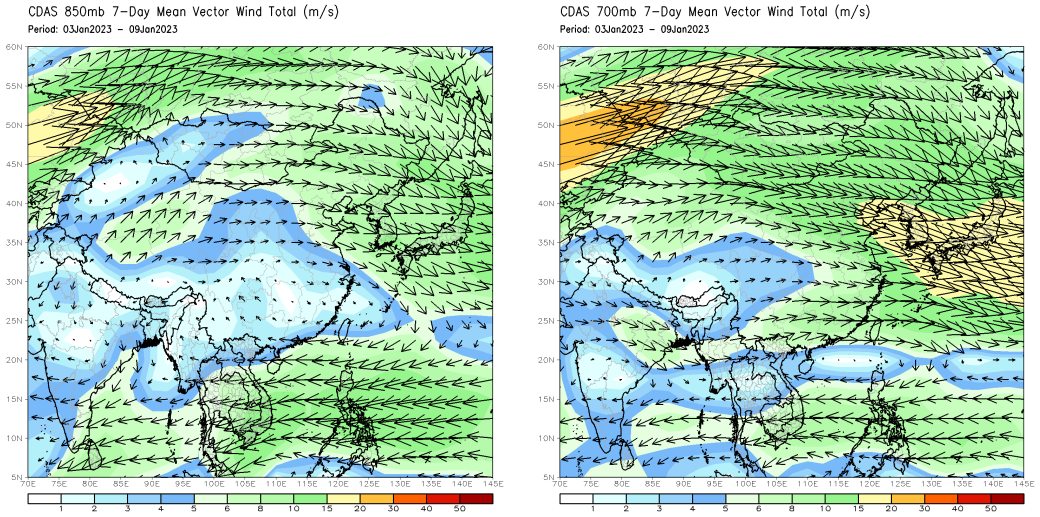






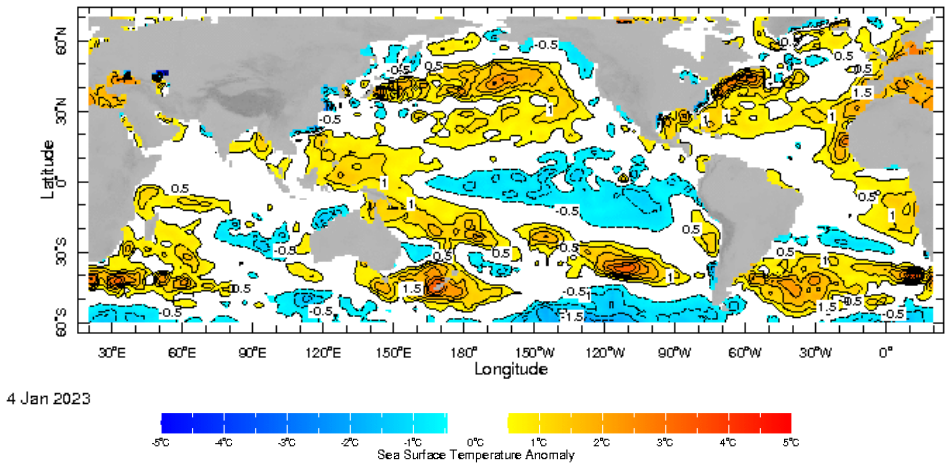
Weekly Wind Monitoring

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.



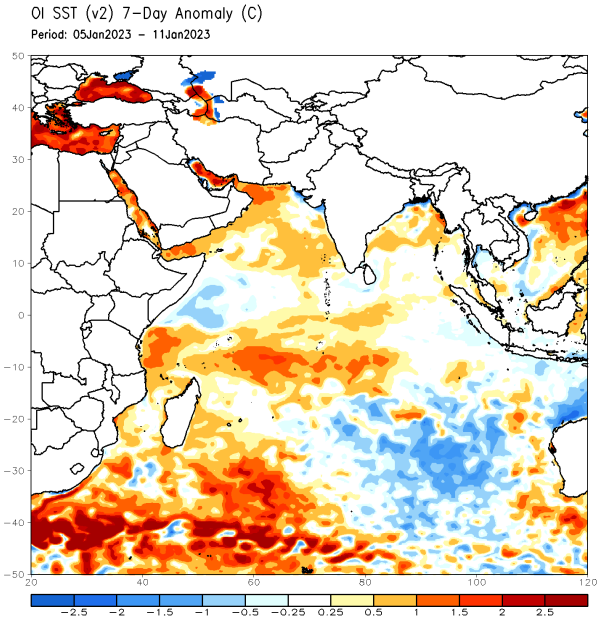
Weekly Average SST Anomalies

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



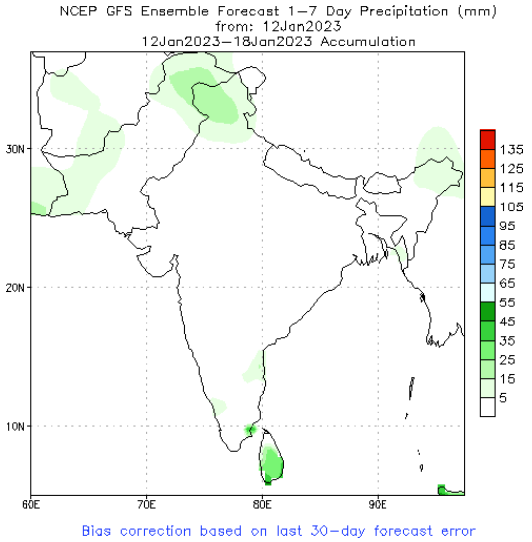
WORLDBATH topography

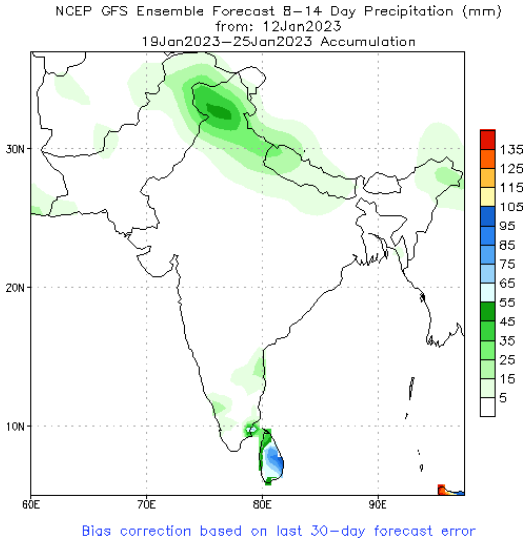
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



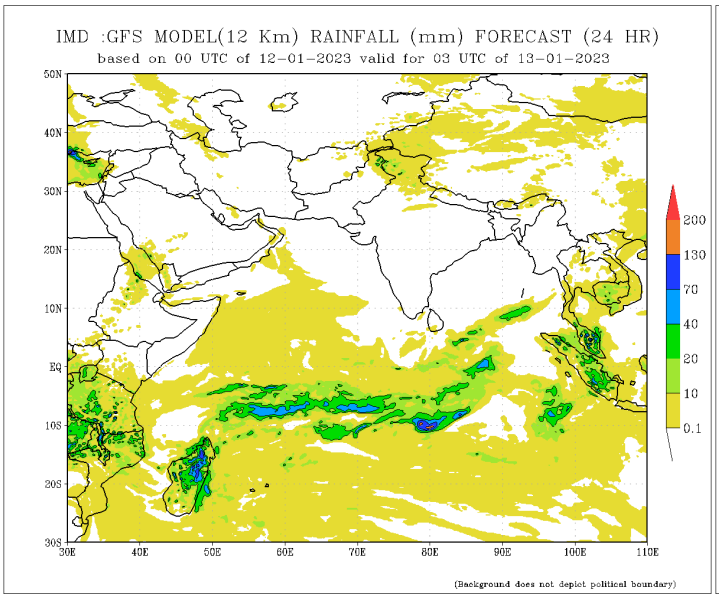
PREDICTIONS

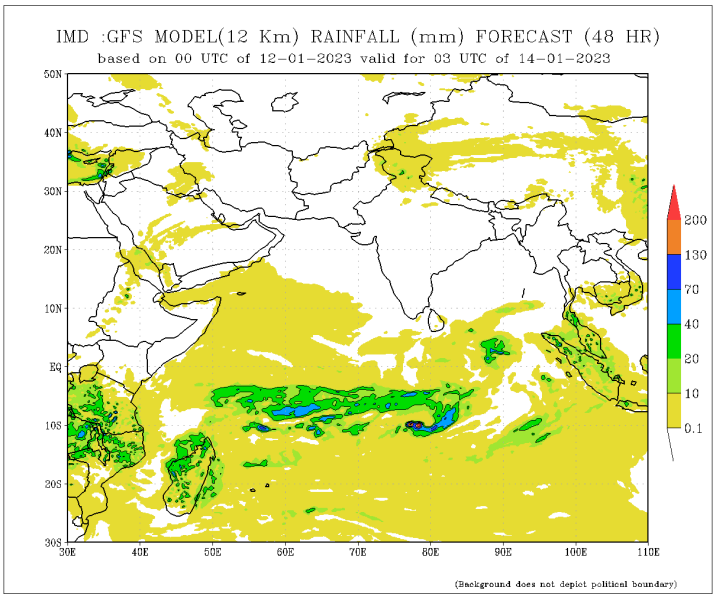
NCEP GFS 1- 14 Day prediction

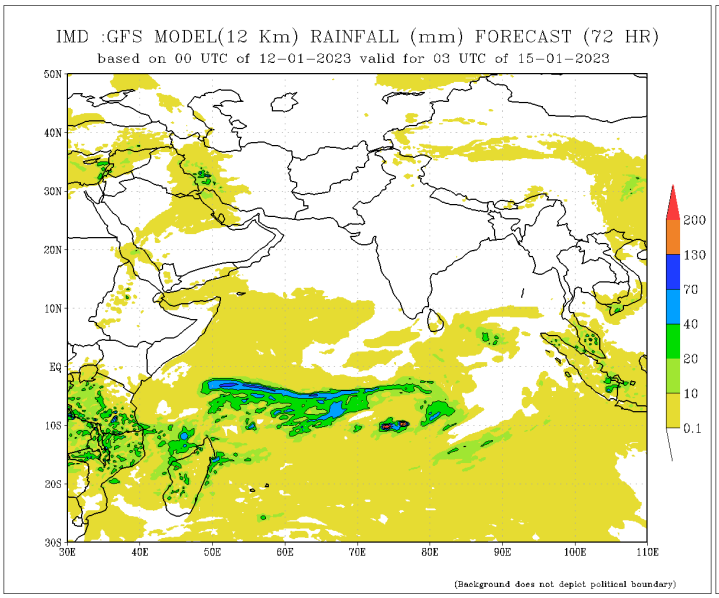


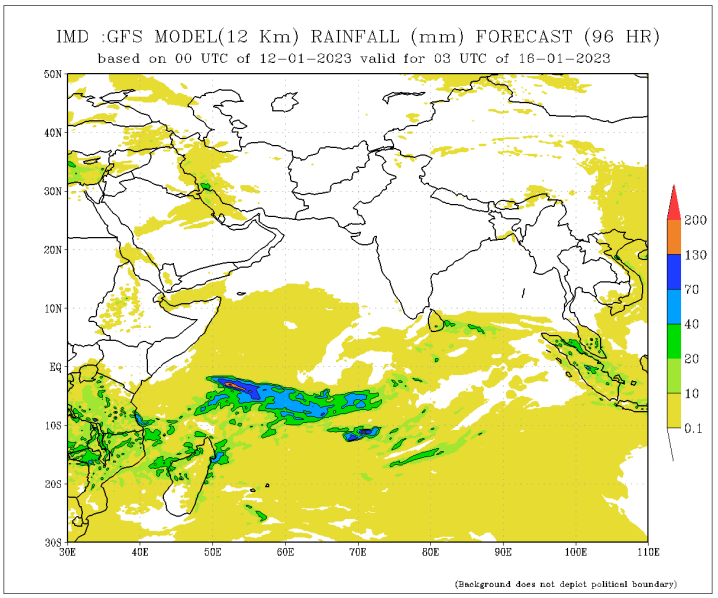


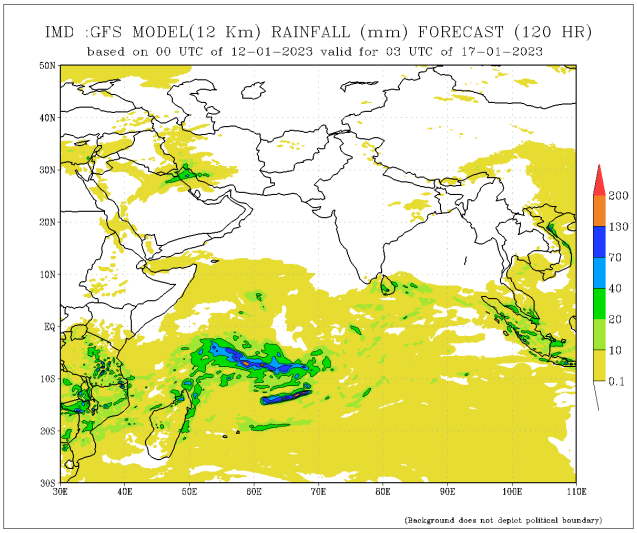
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

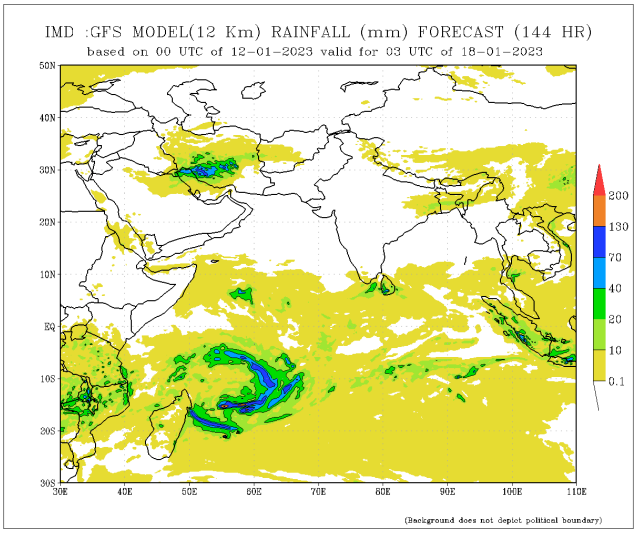


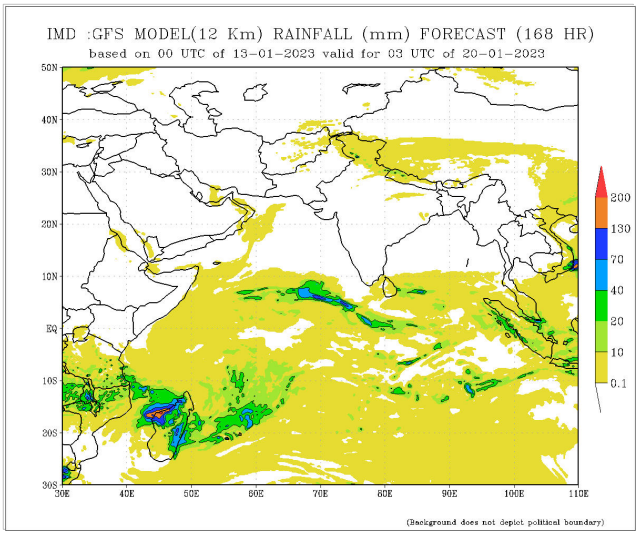






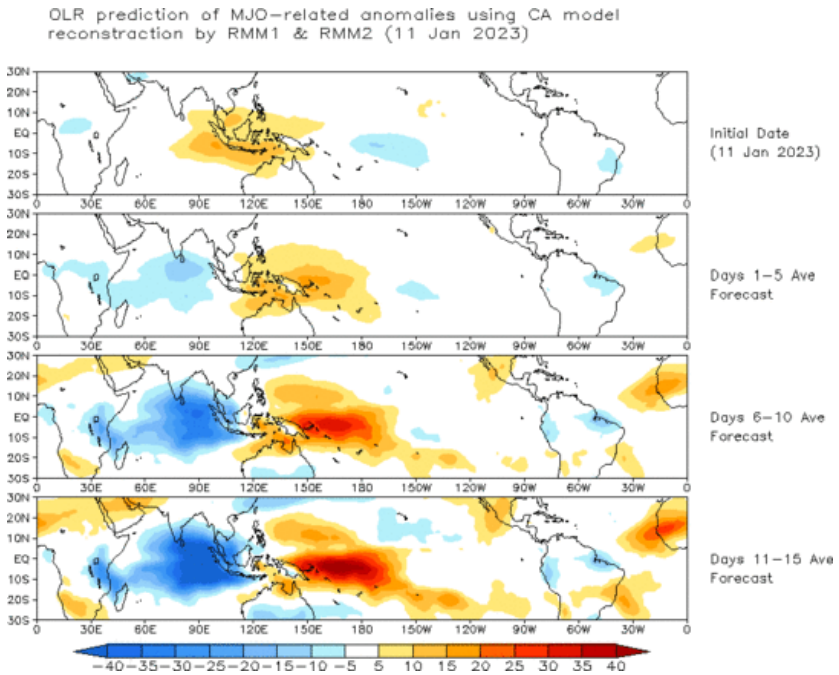






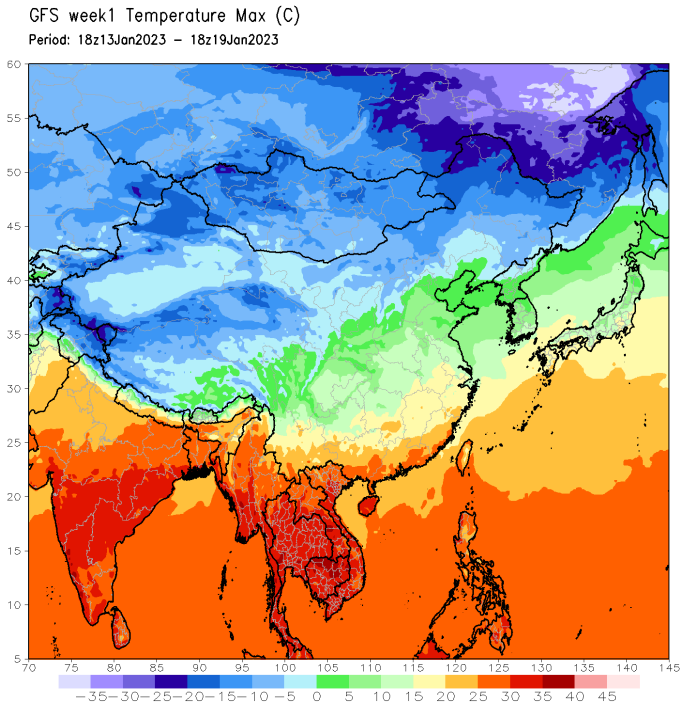
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

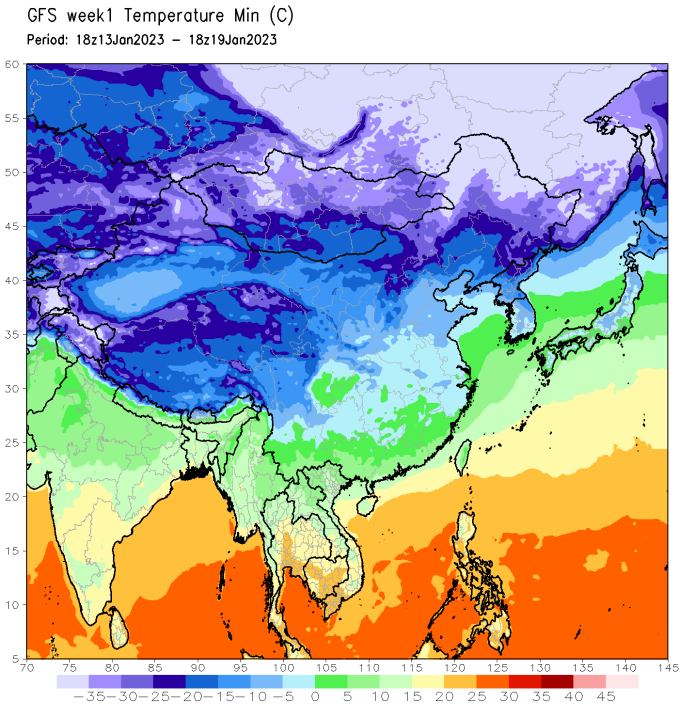
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated anomolous OLR for the next 15 days from the Constructed Analogue (CA) model forecasts.



Weekly Temperature Forecast

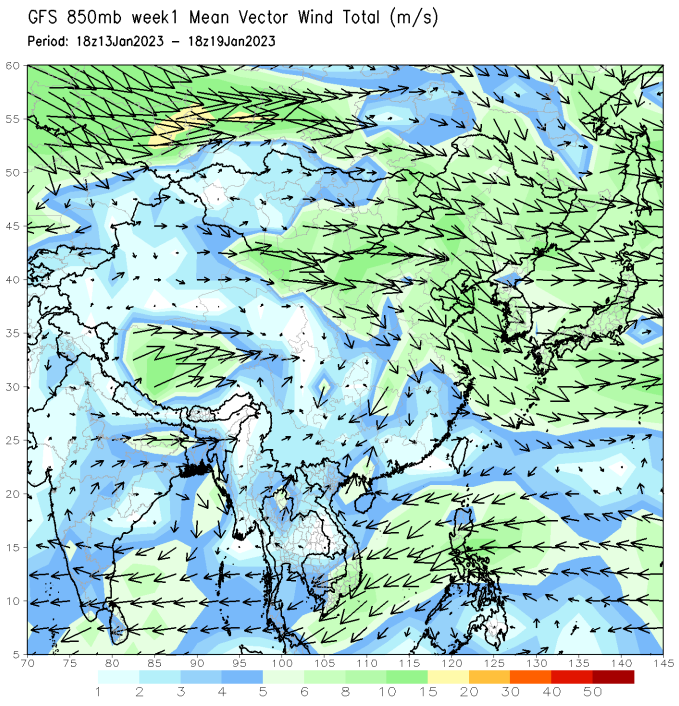
Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)

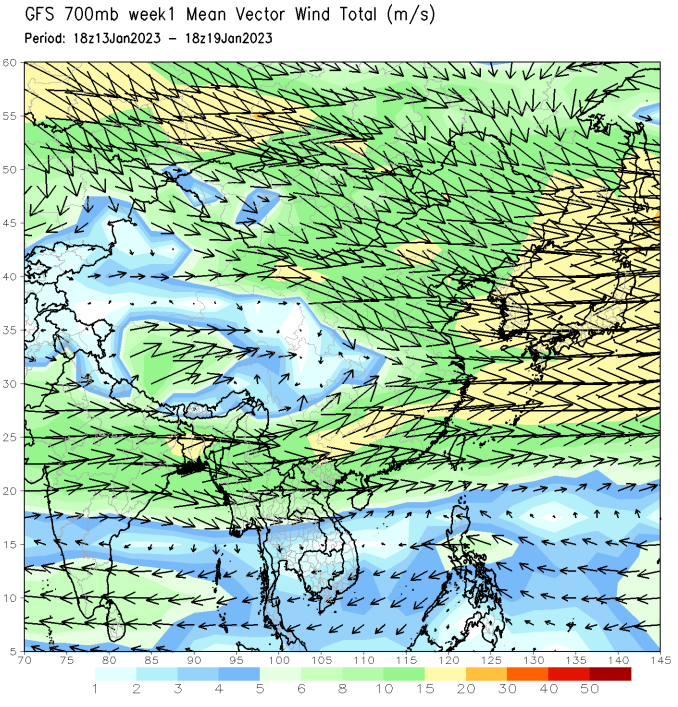




Weekly Wind Forecast

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

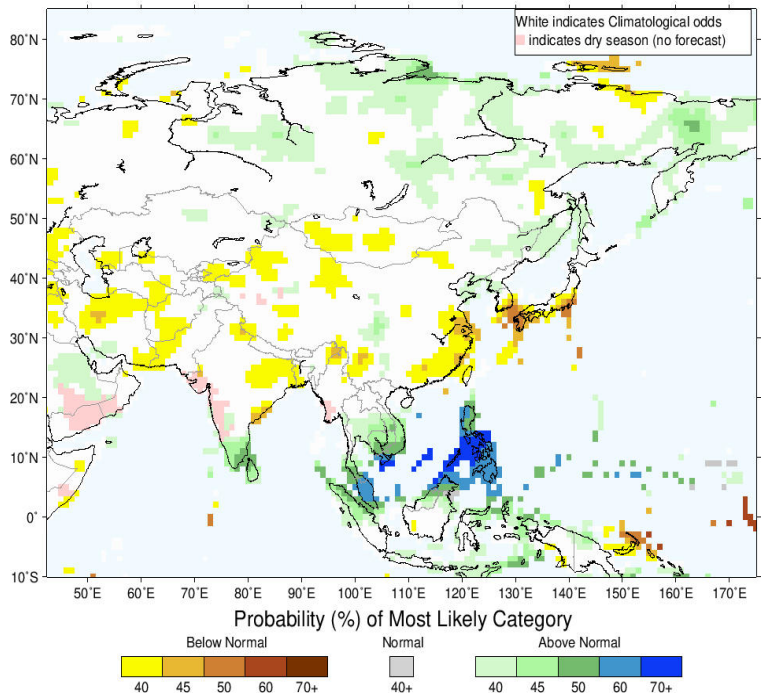




Seasonal Rainfall and Temperature Forecast

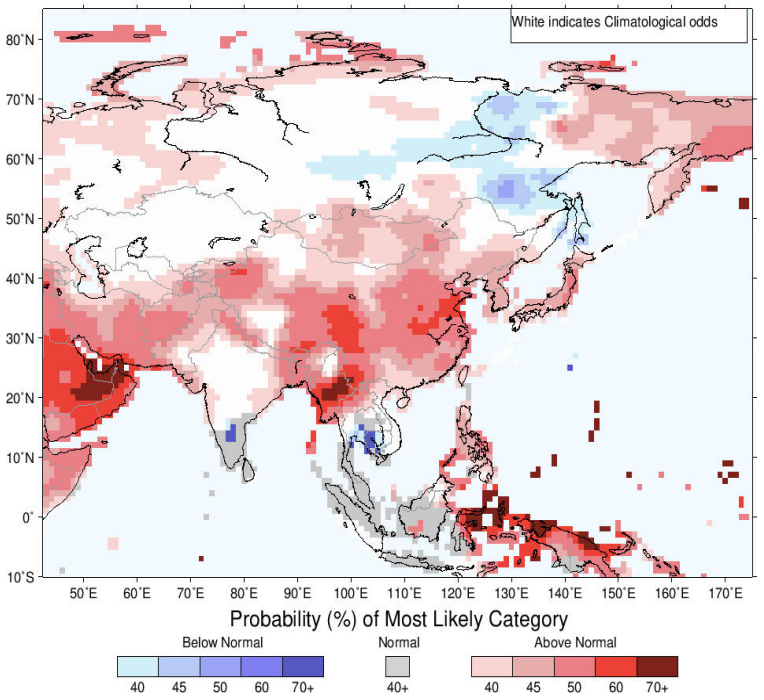
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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 January–February–March 2023, Issued December 2022



Precipitation Forecast

IRI Multi–Model Probability Forecast for Temperature for January–February–March 2023, Issued December 2022



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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