30 DECEMBER 2022

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction

- *Moderately heavy rainfall is predicted for Eastern province and less rainfall is predicted for rest of the country during 29th December - 4th January.*
- *Seasonal forecast shows higher tendency for above normal precipitation to the country for January - March, 2023.*

Monitored Rainfalls

- *During the last week, maximum daily rainfall over Sri Lanka was 106.5 mm & hydro catchment areas received 77.5 mm on maximum.*
- *Due to storm (98B), floods and landslides were experienced on 25th Dec in the Kandy district & rainfall in Akurana of 121 mm recieved till 930 AM was among the highest.*

Monitored Wind

- *From 20th - 26th Dec, up to 10m/s of north easterly winds were experienced at 850 mb level over the island.*
- *During the last week, strong winds and rough seas were experienced due to storm (98B) over southwest Bay of Bengal.*

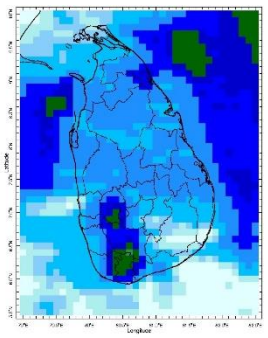
Monitored Sea & Land Temp

- *Sea surface temperature around Sri Lanka was near neutral to the whole country.*
- *Land surface temperature remained near normal.*

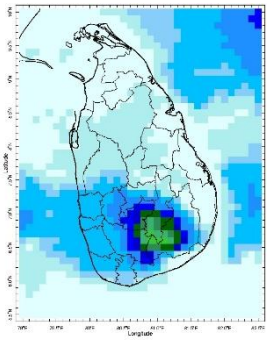
Monitoring

Rainfall

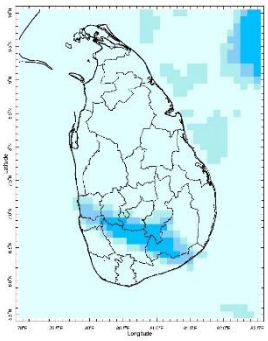
Daily Estimates for Rainfall from 21st December – 28th December 2022



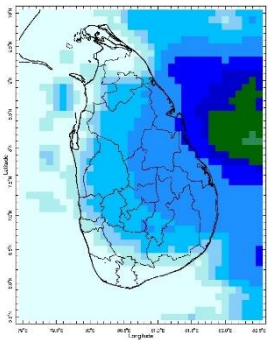
21 December



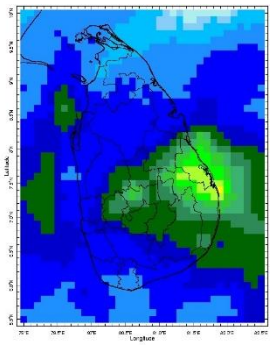
22 December



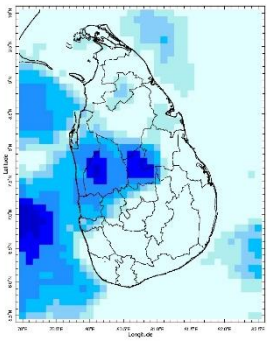
23 December



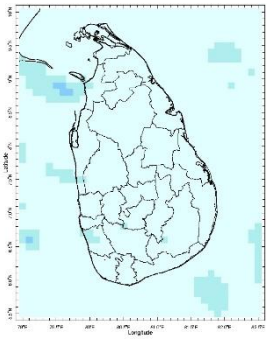
24 December



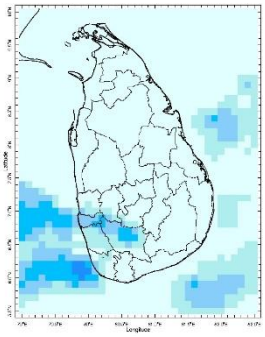
25 December



26 December



27 December



28 December

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

FB: www.facebook.com/fectlk TW: www.twitter.com/fectlk

Ocean State *(Text Courtesy IRI)*

Pacific sea state: December 27, 2022

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean late - December. 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 to the whole country in 21st December, 2022. 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 29th December – 4th January:

Total rainfall by Provinces:

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

From 5th January – 11th January:

Total rainfall by Provinces:

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

MJO based OLR predictions

For the next 15 days:

MJO shall moderately suppress the rainfall during 29th December – 2nd January, slightly suppress the rainfall during 3rd – 7th January, and near neutral the rainfall during 8th – 12th January for Sri Lanka.

Interpretation

Monitoring

Rainfall: During the last two weeks, there had been heavy rainfall over the following areas: Batticaloa, Kegalle, Puttalam

Daily Average Rainfall in the Met stations for previous week of (21st December – 28th December) = 10.1 mm

Rmax: 106.5 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	10.5 mm
Eastern	10.2 mm
Western	13.3 mm
Southern Plains	3.2 mm

The Hydro Catchment Areas recorded 12.3 mm of average rainfall for the last week

Rmax: 77.5 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 above normal for some parts of the Sabaragamuwa province, driven by the warm SST's.

Storm: The storm '98B' originated as a low pressure area over the southwest Bay of Bengal and intensified into the depression (D) on 22nd December. Then it moved west-southwestwards and centered at Southwest Bay of Bengal close to east coast of Sri Lanka. Then it cut across the island on 25th December, causing heavy rainfall over Eastern, Central, and Western provinces of Sri Lanka.

Observed & forecast track of storm '98B' over the BoB during 22nd - 25th December, 2022: IMD

Predictions

Rainfall: During the next week (29th Dec – 4th Jan), moderately heavy rainfall is predicted for the Eastern province; and less rainfall is expected for the rest of the country.

Temperatures: The temperature will remain below normal for some parts of the Central, and Uva provinces during 30th December – 5th 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 moderately suppress the rainfall during 29th December – 2nd January, slightly suppress the rainfall during 3rd – 7th January, and near neutral the rainfall during 8th – 12th January for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the January-February-March 2023 season shows a higher tendency for above-normal precipitation to 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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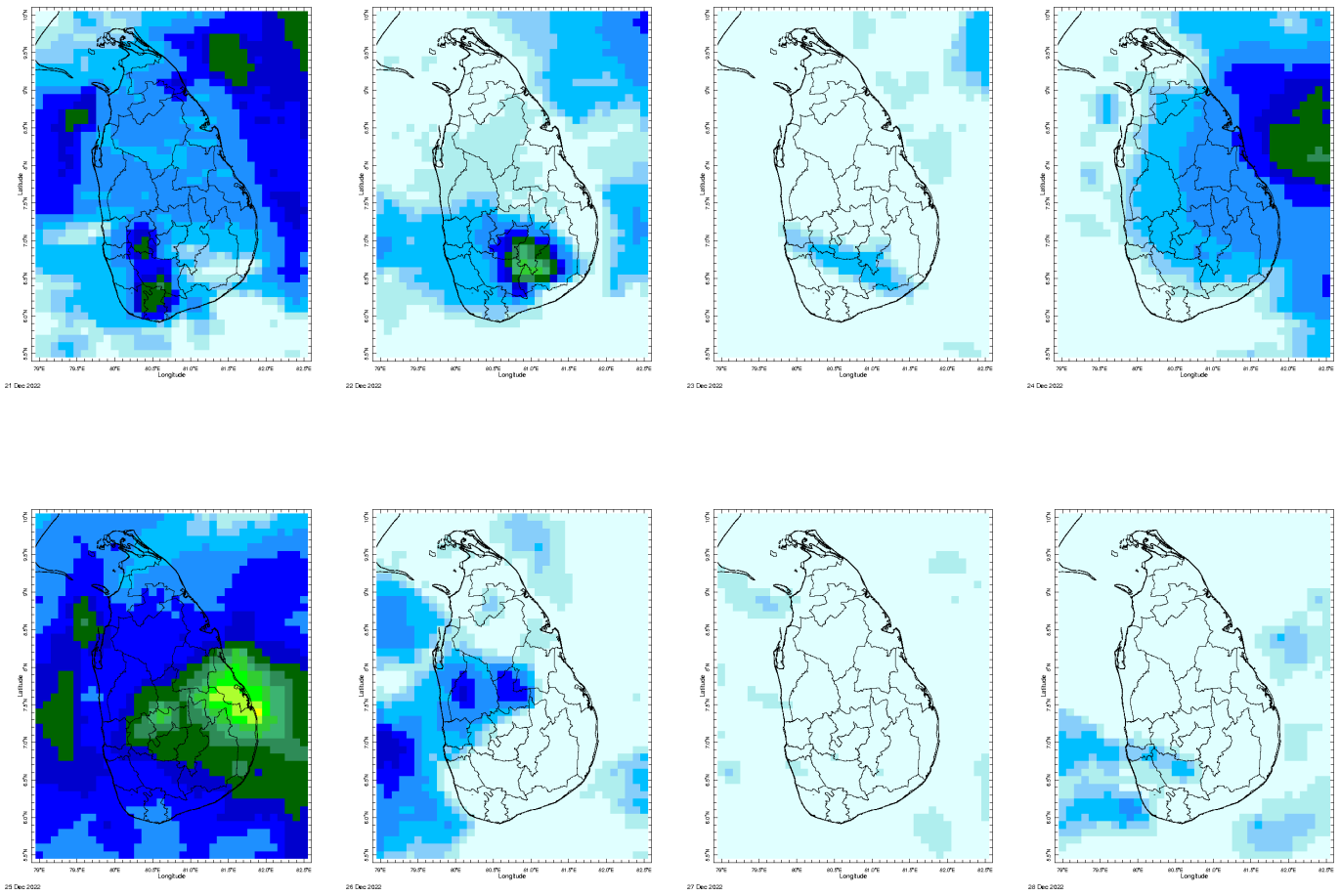
MONITORING

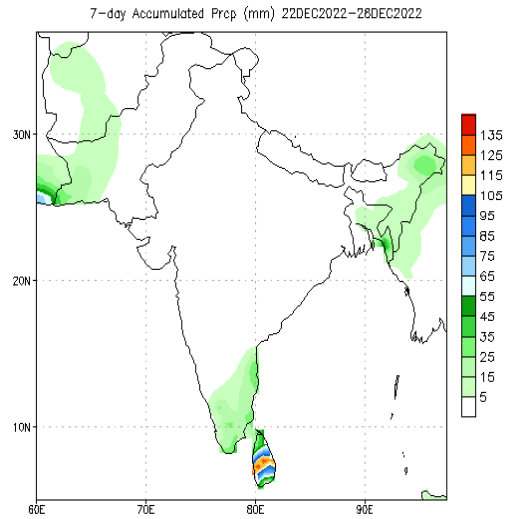
Daily Rainfall Monitoring

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

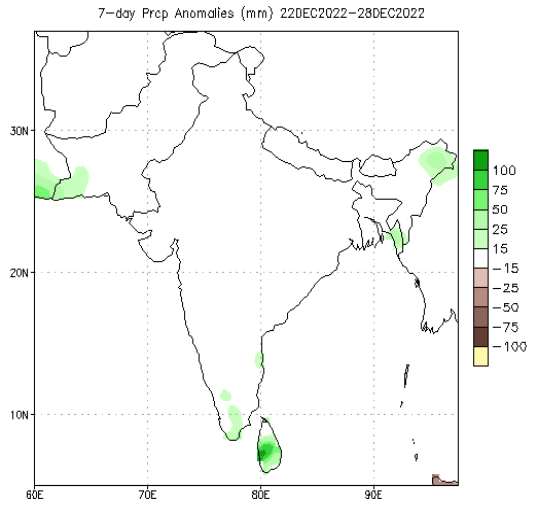


Weekly Rainfall Monitoring

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.



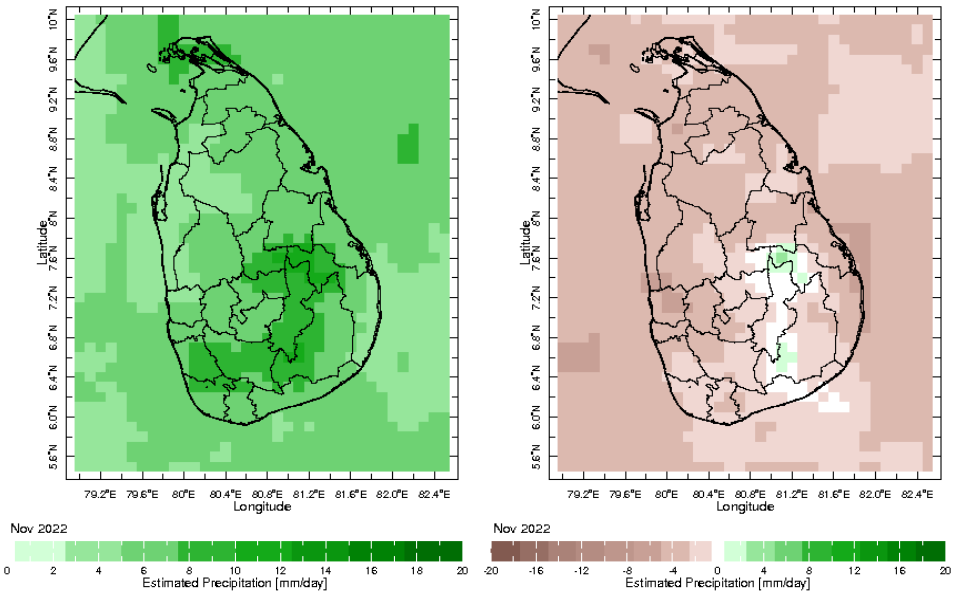
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



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

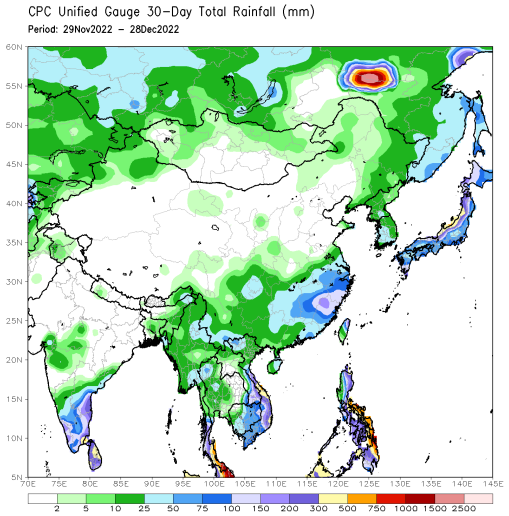
Monthly Rainfall Monitoring

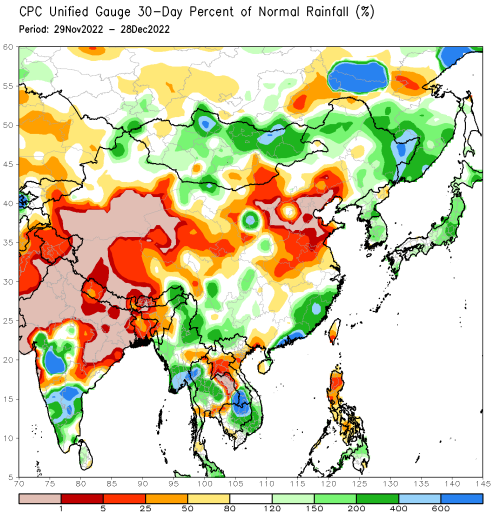
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



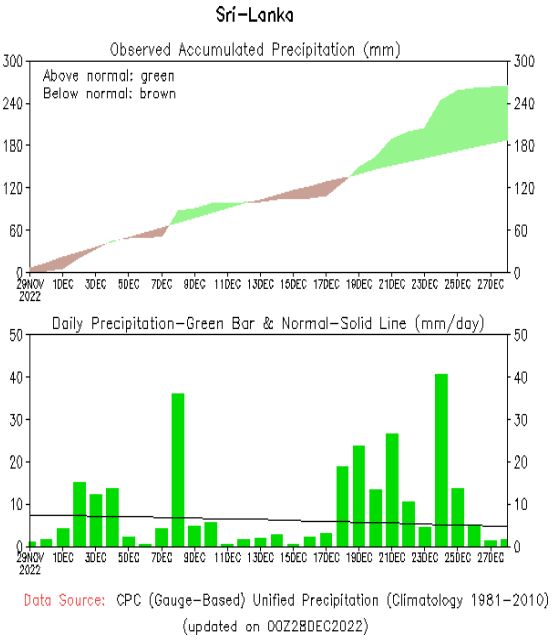
Monthly Average **Monthly Anomaly**

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.

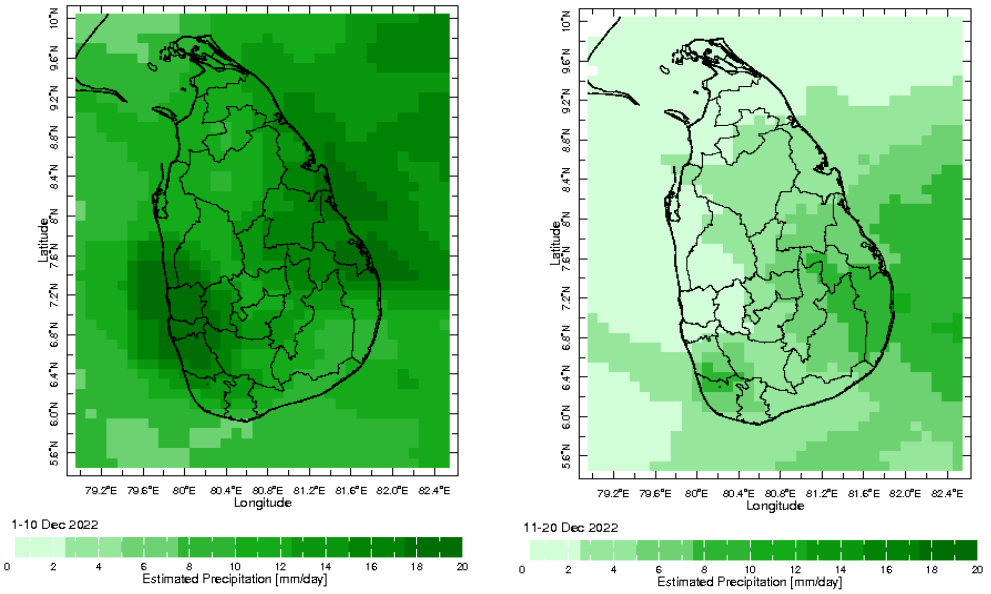




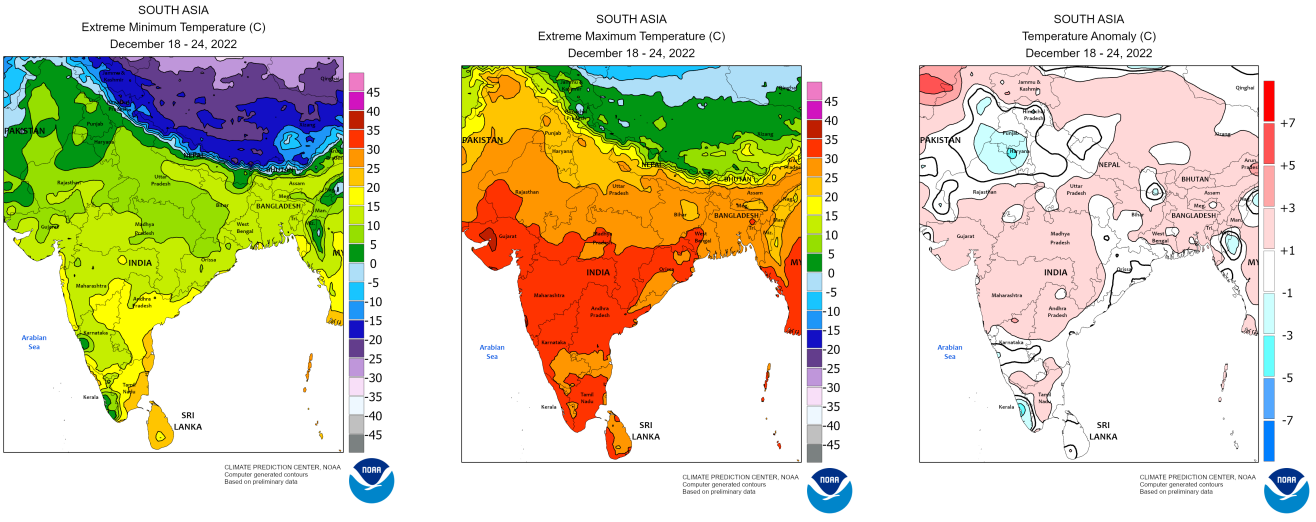
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

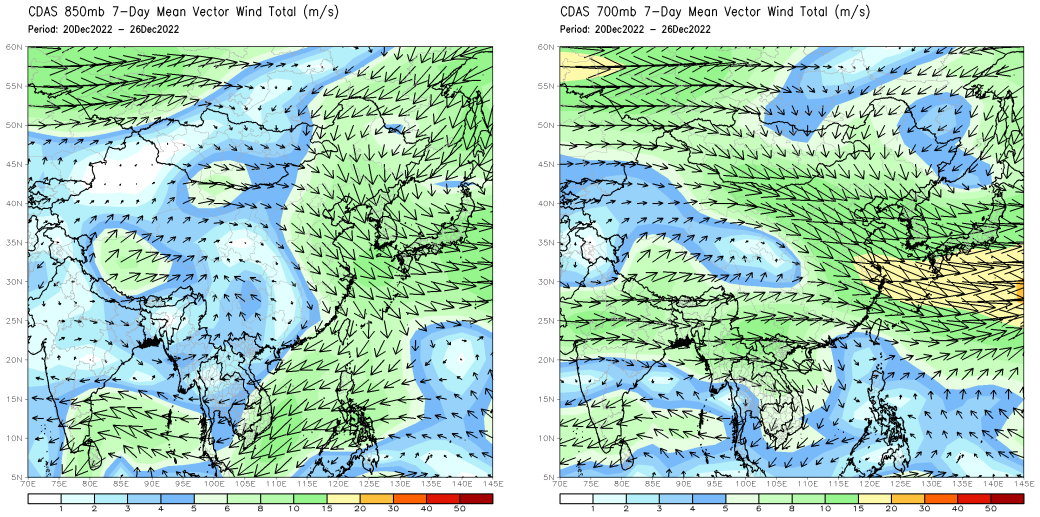


Weekly Temperature Monitoring



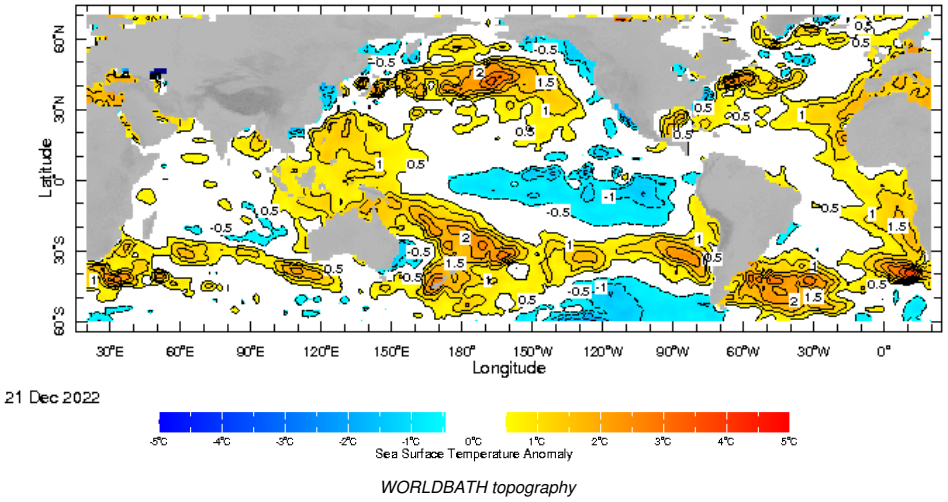
Weekly Wind Monitoring

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.



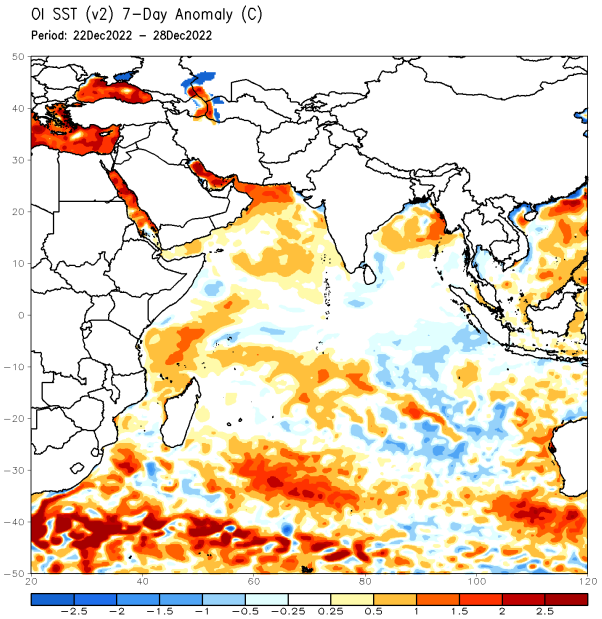
Weekly Average SST Anomalies

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



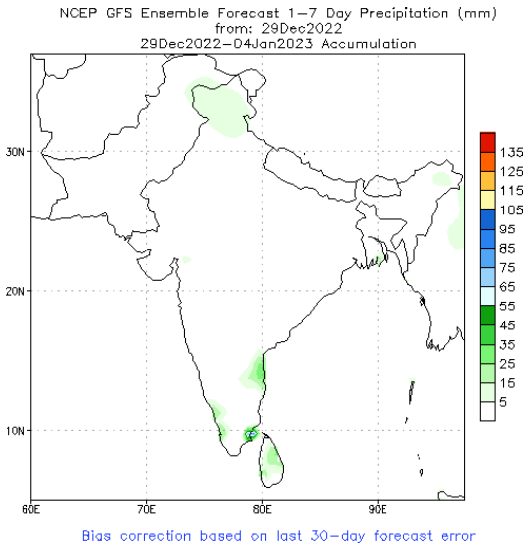
WORLDBATH topography

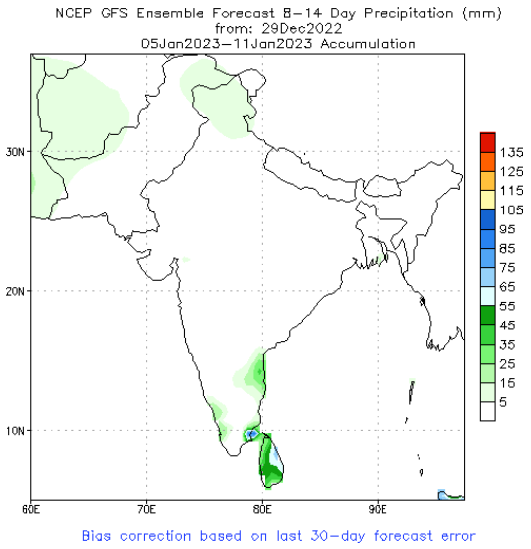
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



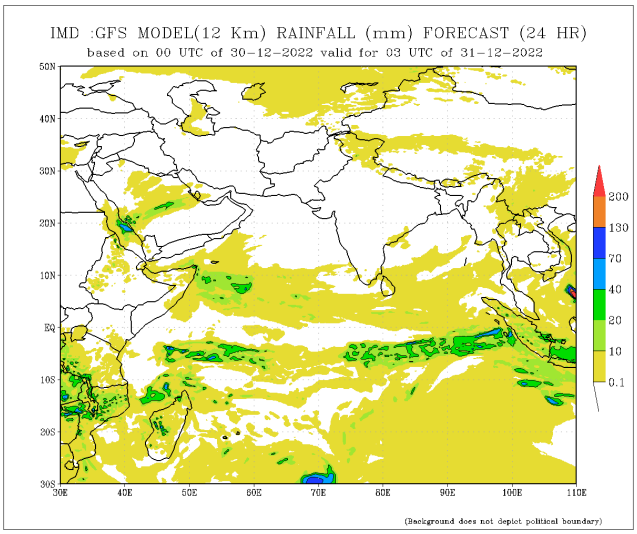
PREDICTIONS

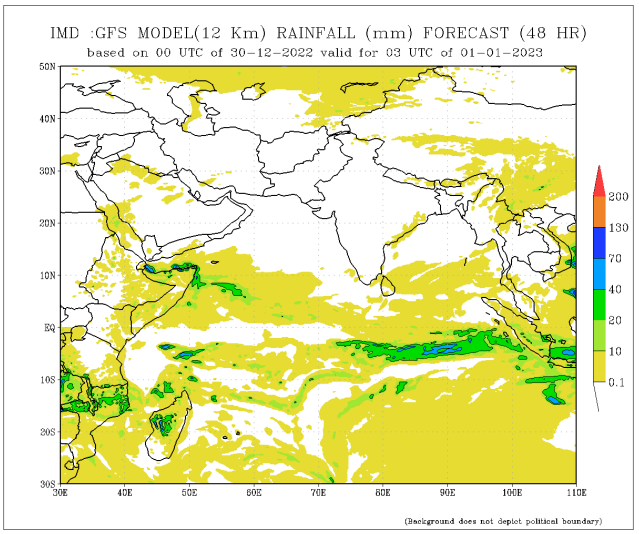
NCEP GFS 1- 14 Day prediction

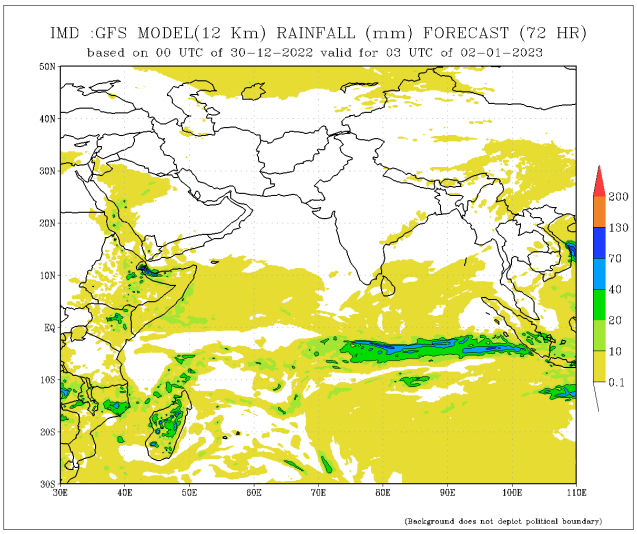


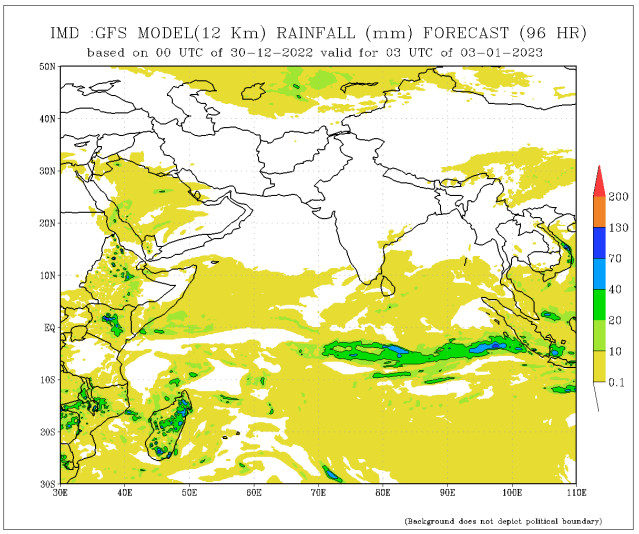


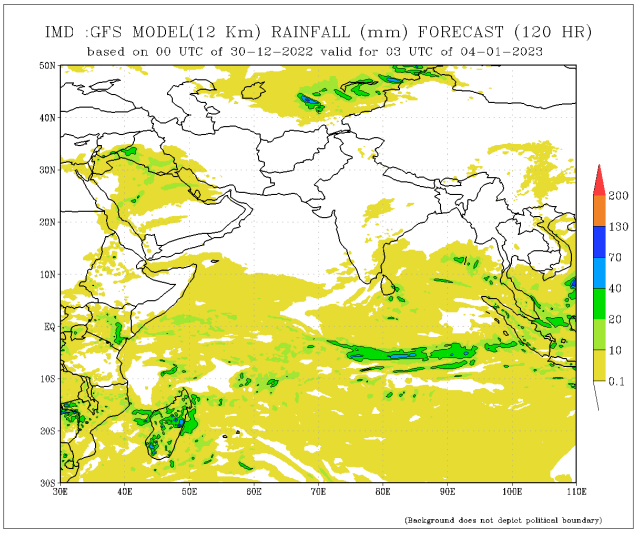
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

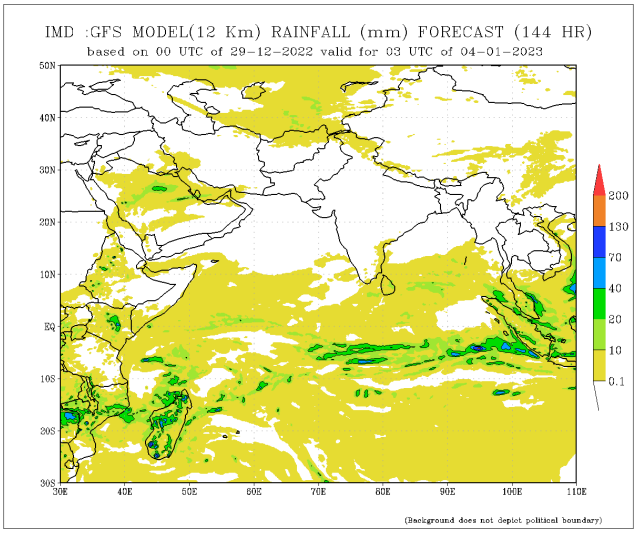


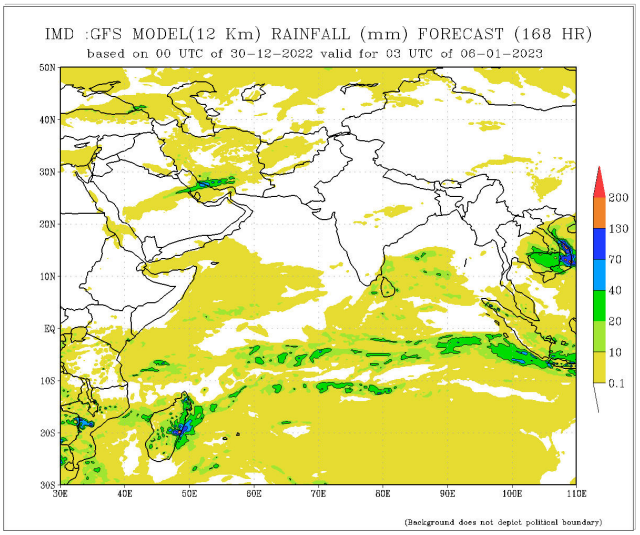






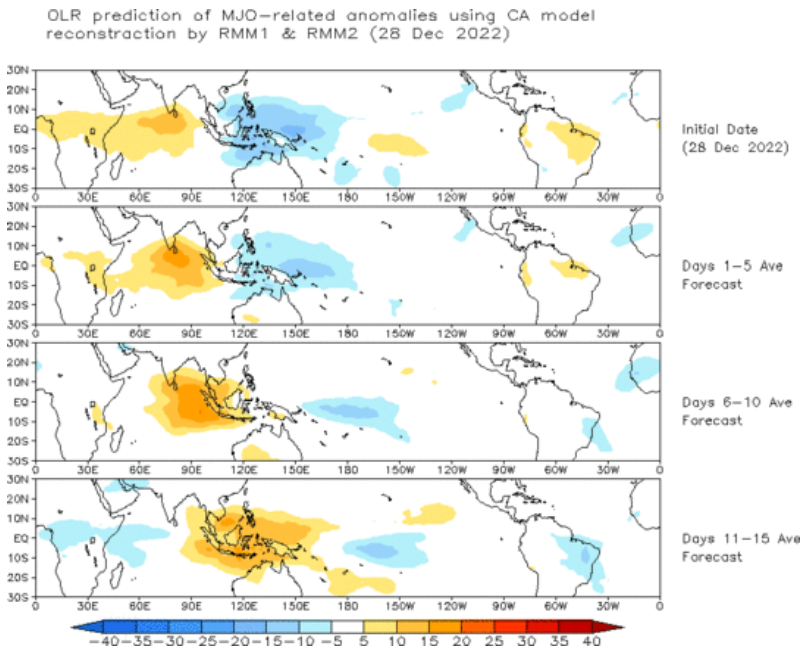






Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

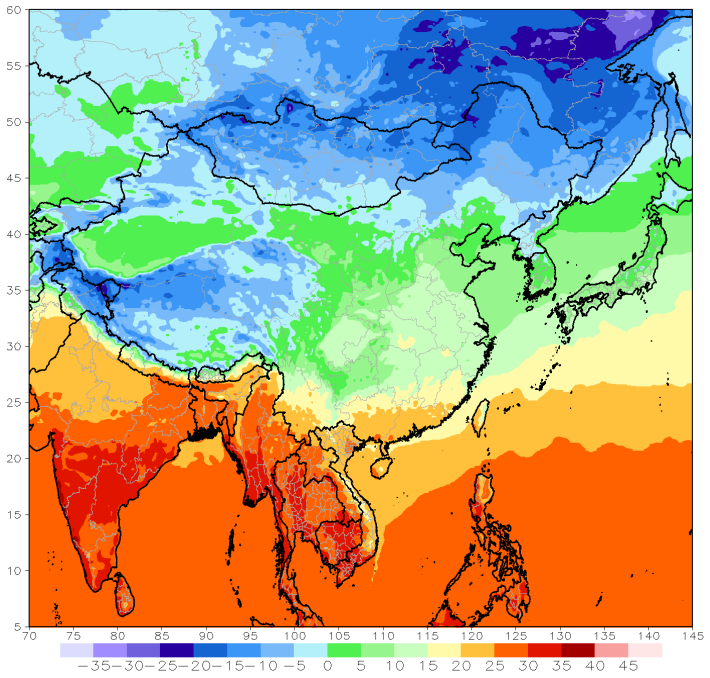
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



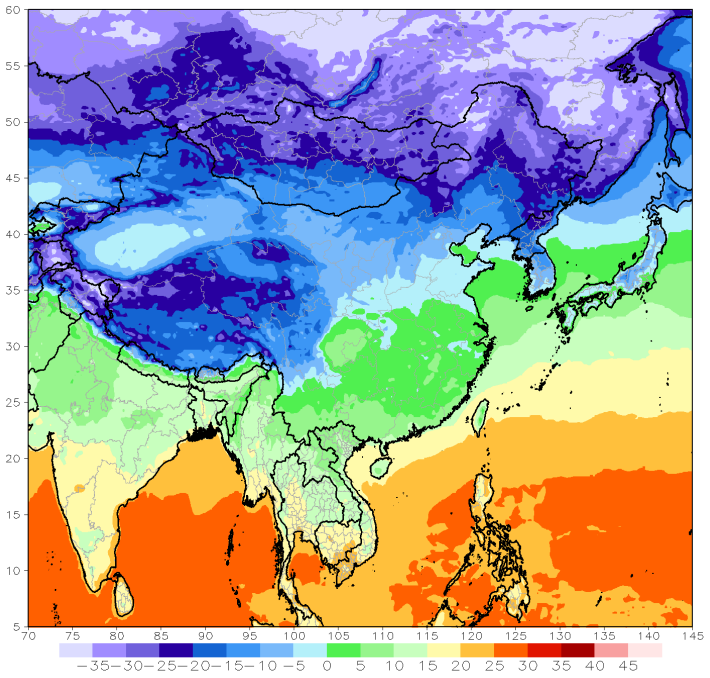
Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)
Period: 18z30Dec2022 – 18z05Jan2023



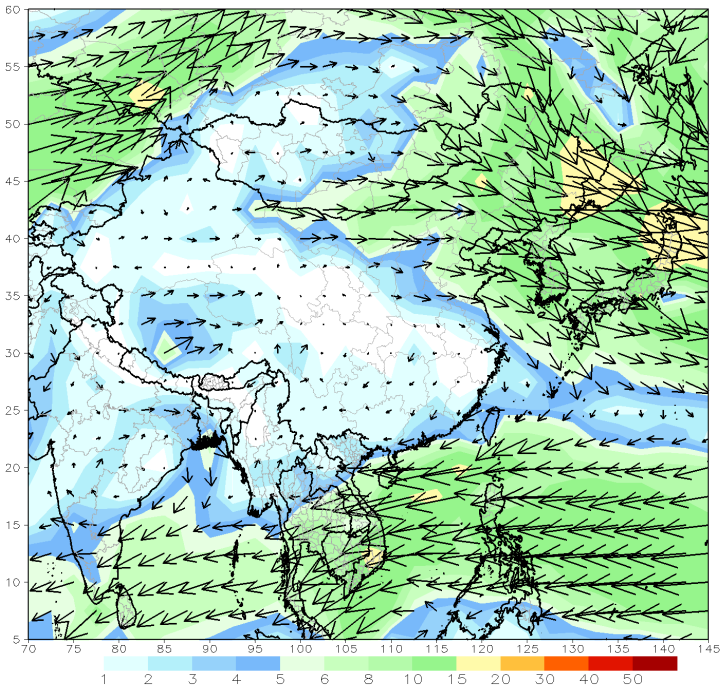
GFS week1 Temperature Min (C)
Period: 18z30Dec2022 – 18z05Jan2023



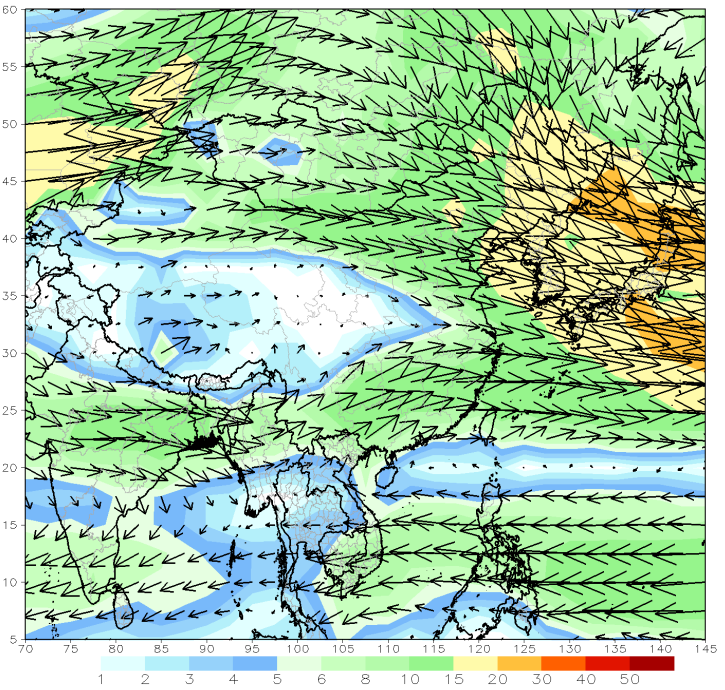
Weekly Wind Forecast

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: 18z30Dec2022 – 18z05Jan2023

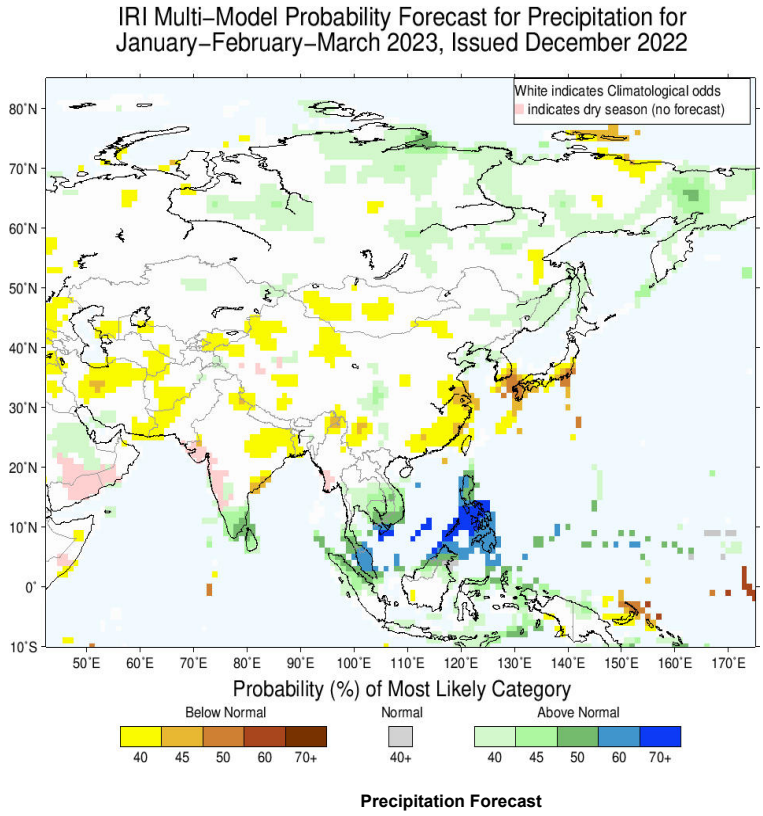


GFS 700mb week1 Mean Vector Wind Total (m/s)
Period: 18z30Dec2022 – 18z05Jan2023

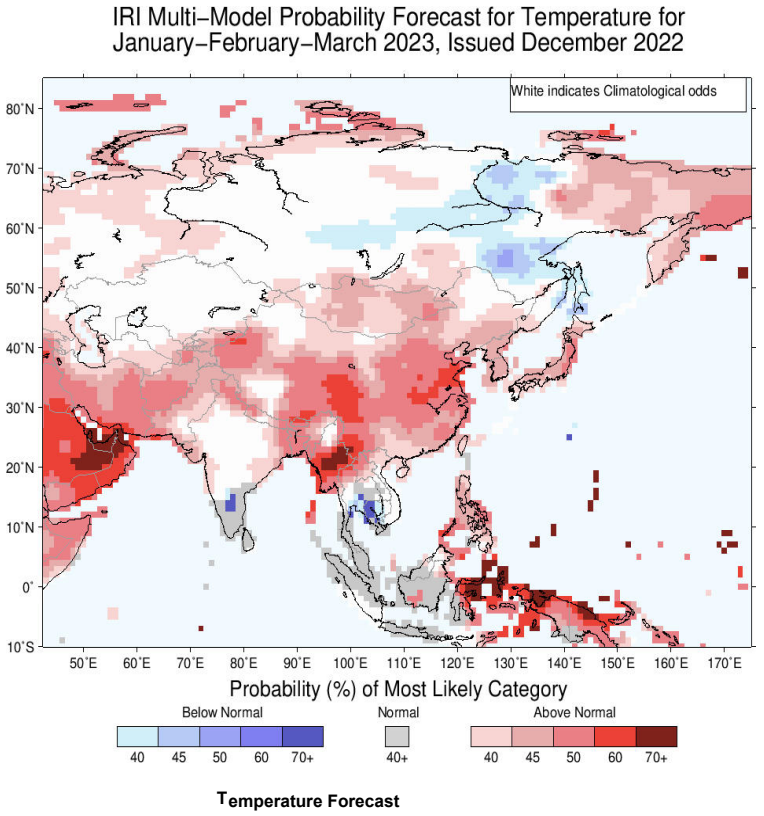


Seasonal Rainfall and Temperature Forecast

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%).



Precipitation Forecast



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

Federation for Environment, Climate & Technology
76/2 Matale Road, Akurana
Kandy
KY20850
SRI LANKA

email: info@fect.lk
phone: (+94) 81 2376746

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