Week of
24 Dec - 31 Dec
2021

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction

- *Heavy rainfall is predicted for Eastern, North Central and Uva provinces from 25th Dec – 28th Dec. Greater likelihood of wet tendency is predicted for Sri Lanka from Jan - Mar.*

Monitored Rainfalls

- *Fairly heavy rainfall was experienced in Eastern, Northern, North Central, Sabaragamuwa, Southern and Western provinces with max of 95.3 mm in Hambantota district on 16th Dec.*

Monitored Wind

- *From 14th Dec - 21st Dec, up to 45 km/h Northeasterlies were experienced across the island.*

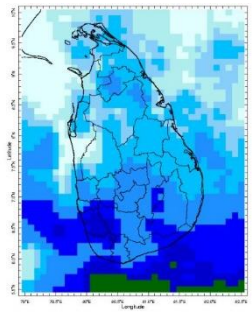
Monitored Sea Surface

- *Sea surface temperatures were above 0.5^{0}C around the entire island.*

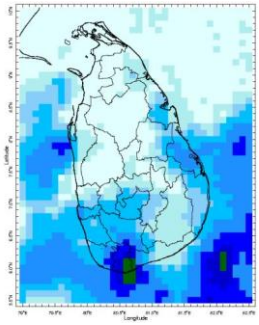
Monitoring

Rainfall

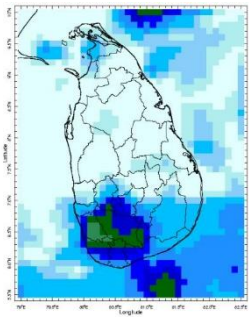
Daily Estimates for Rainfall from 14th December – 21st December



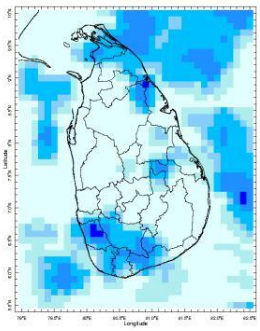
14 December



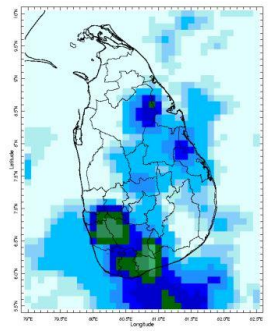
15 December



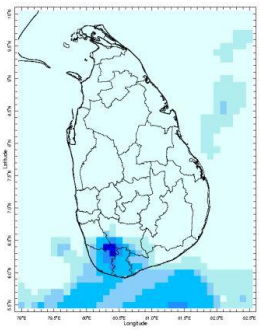
16 December



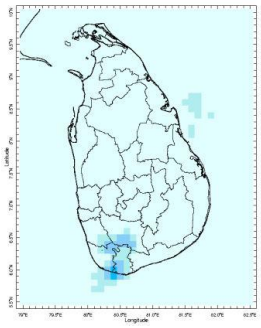
17 December



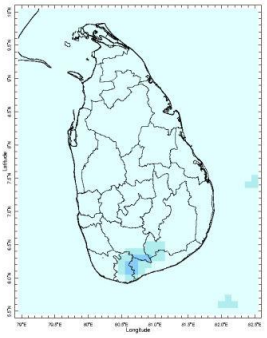
18 December



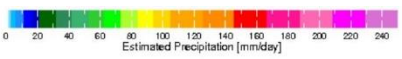
19 December



20 December



21 December



Federation for Environment, Climate & Technology

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Ocean State *(Text Courtesy IRI)*

Pacific sea state: December 15, 2021

Equatorial sea surface temperatures (SSTs) are below average across the central and east-central Pacific Ocean in the mid-December. The tropical Pacific atmosphere is consistent with La Niña conditions. A large majority of the model forecasts indicates very high probabilities of La Niña during the Northern Hemisphere winter, weakening gradually, and likely to dissipate in Mar-May 2022.

Indian Ocean State

Sea surface temperatures were above 0.5^0C around the entire island.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 25th December – 28th December:

Total rainfall by Provinces:

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

From 29th December – 4th January 2022:

Total rainfall by Provinces:

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

MJO based OLR predictions

For the next 15 days:

MJO shall be active during 25th December – 5th January 2022 giving severely suppressed rainfall from 25th December – 26th December, significantly suppressed rainfall from 27th December – 31st December and sightly suppressed rainfall from 1st January 2022 – 5th January 2022 for the entire island.

Interpretation

Monitoring

Rainfall: During the last two weeks, there had been fairly heavy rainfall over the following provinces: Eastern, Northern, North Central, Sabaragamuwa, Southern and Western.

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

Temperatures: The temperature anomalies were 1^0C - 3^0C above neutral for some parts of Central, Sabaragamuwa and Western provinces last week, driven by the warm SST's.

Predictions

Rainfall: During the next week (25th December – 28th December) heavy rainfall is predicted for Eastern, North Central and Uva provinces.

Temperatures: The temperature remains normal during 25th December – 31st December for the entire island.

Teleconnections:

La Nina - The SST forecast indicates that La Niña is favored to continue through the Northern Hemisphere winter.

MJO shall be active during 25th December – 5th January 2022 giving severely suppressed rainfall from 25th December – 26th December, significantly suppressed rainfall from 27th December – 31st December and sightly suppressed rainfall from 1st January 2022 – 5th January 2022 for the entire island.

Seasonal Precipitation:

The precipitation forecast for the Jan-Mar season show enhanced probabilities of above-normal precipitation over Sri Lanka.

Understanding the Forecast

	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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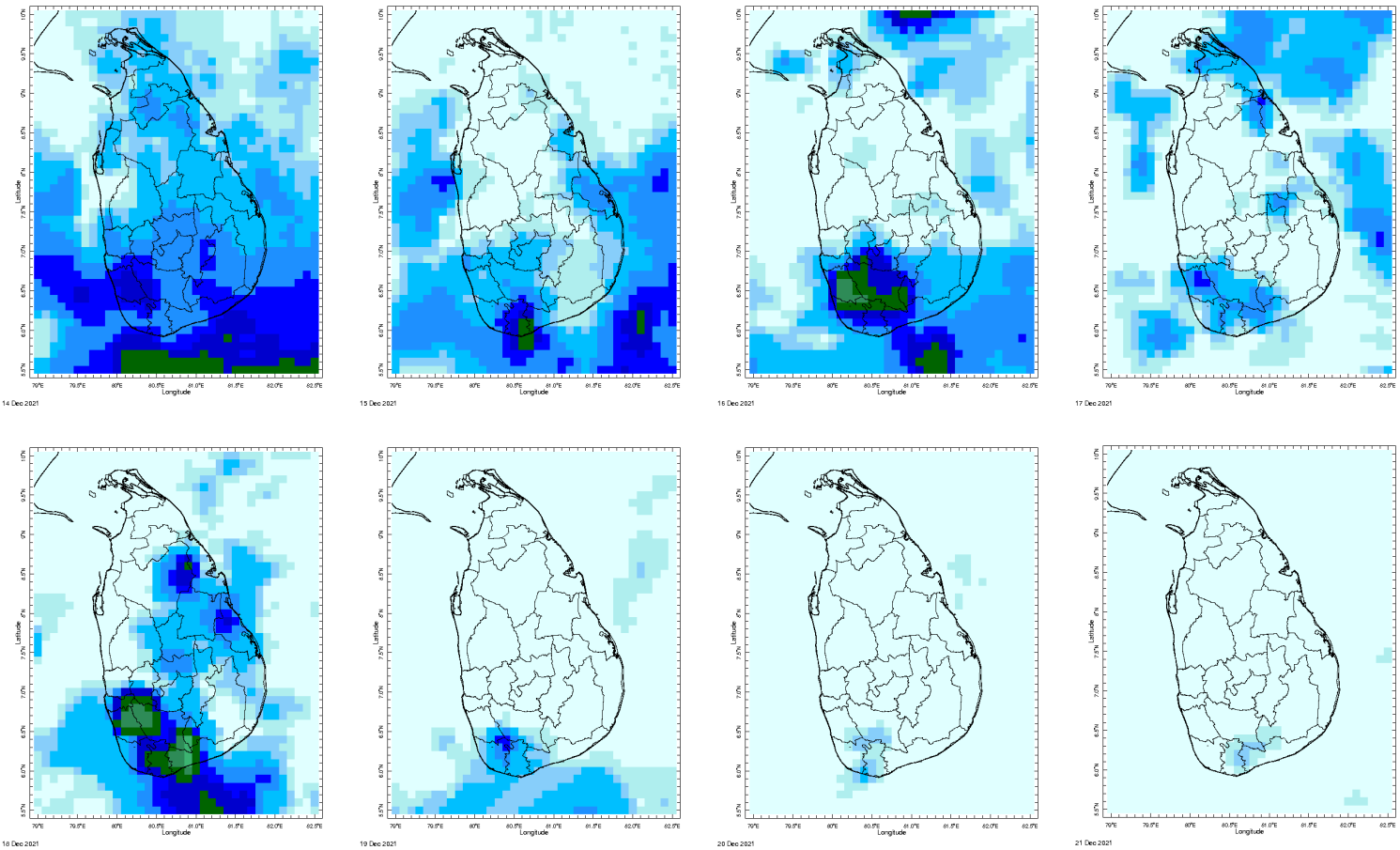
MONITORING

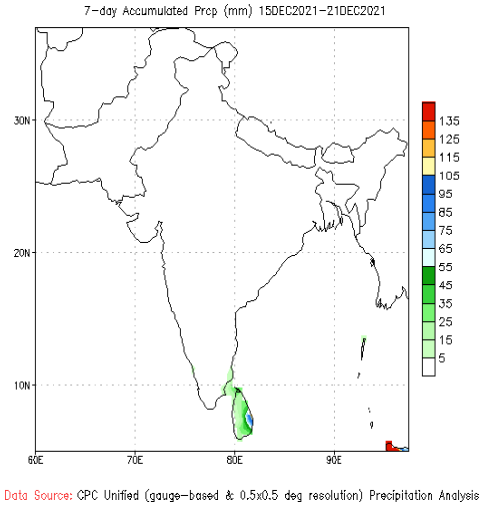
Daily Rainfall Monitoring

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

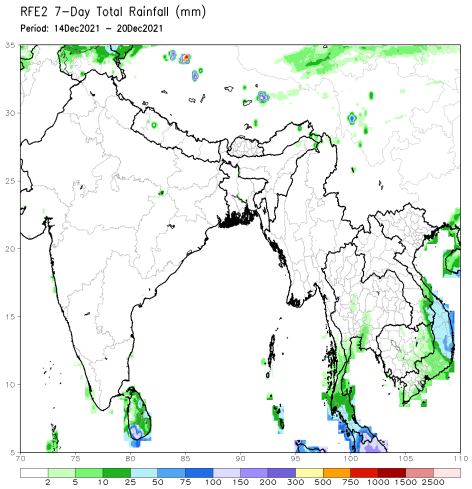


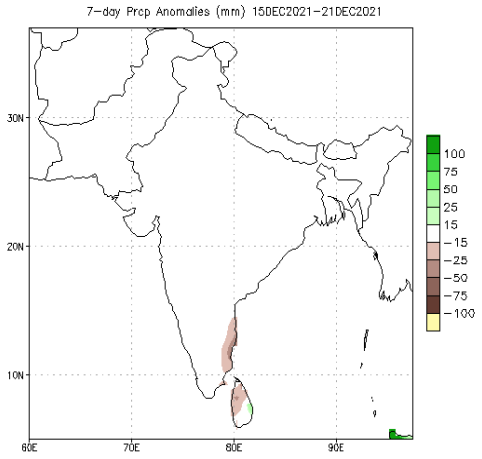
Weekly Rainfall Monitoring

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.

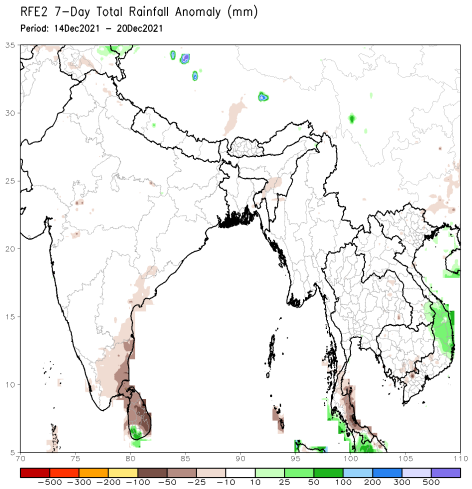


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



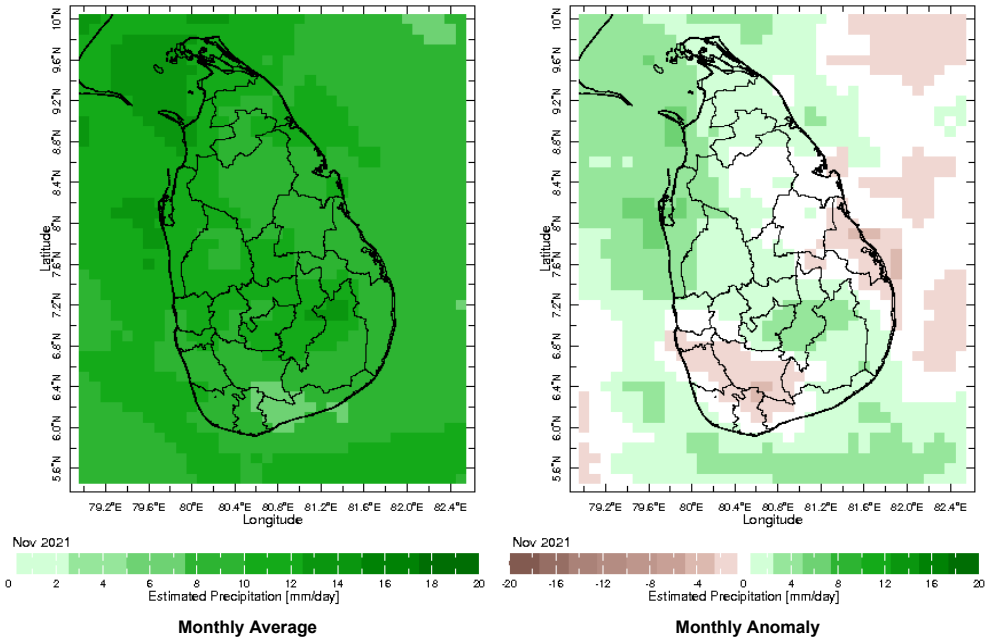


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)



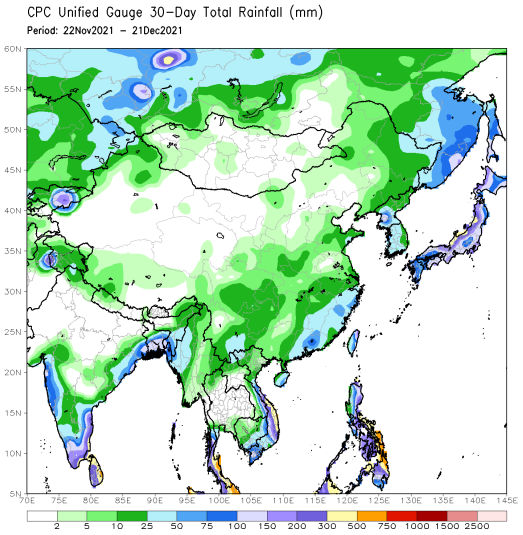
Monthly Rainfall Monitoring

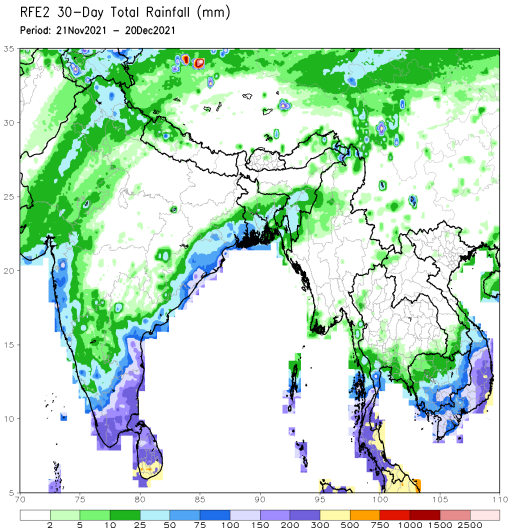
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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

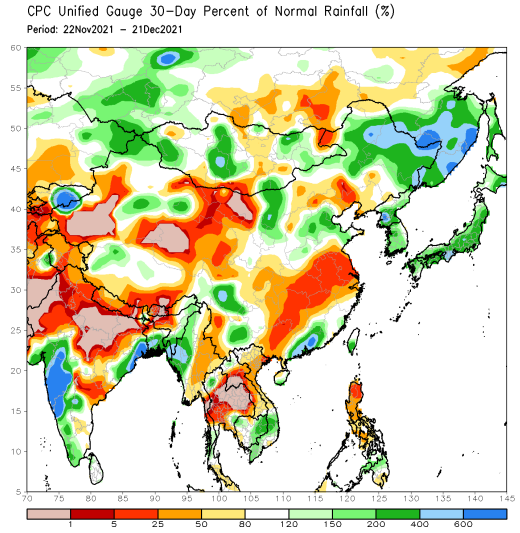


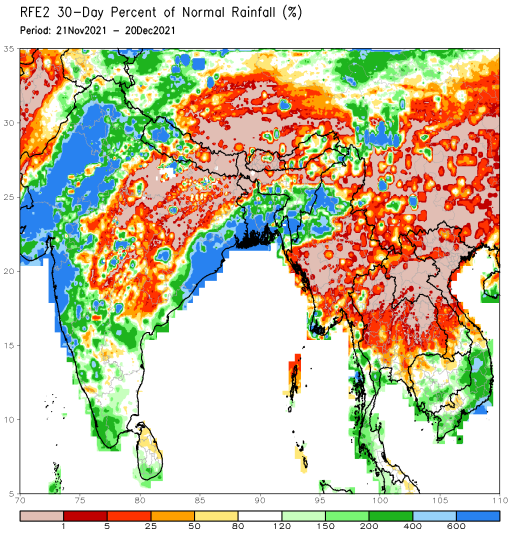
Monthly Average **Monthly Anomaly**

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.

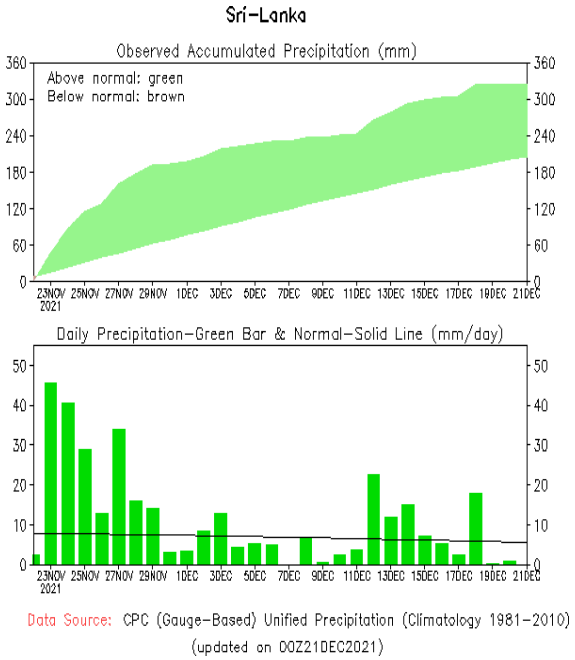




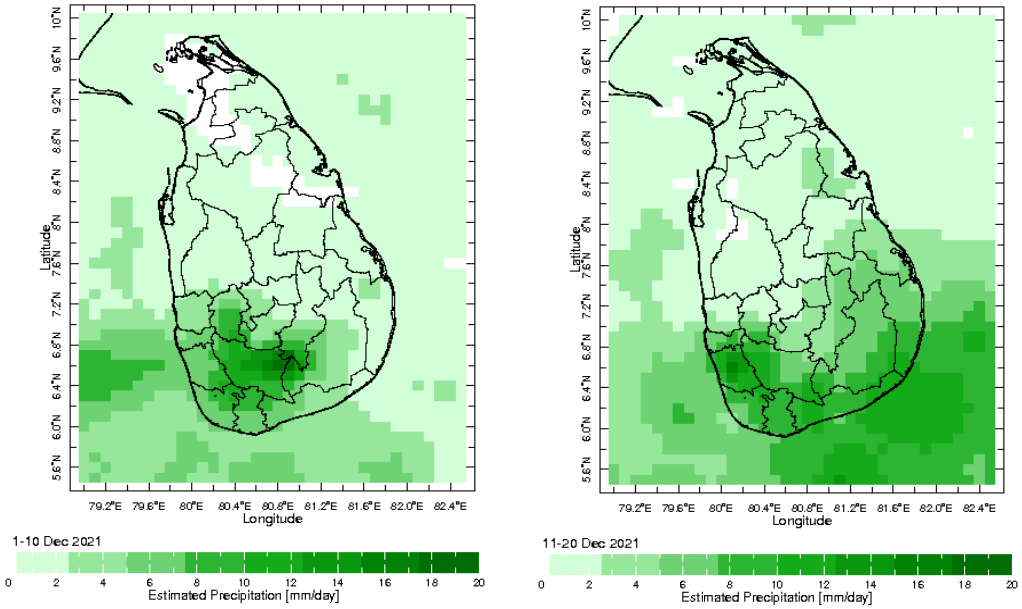




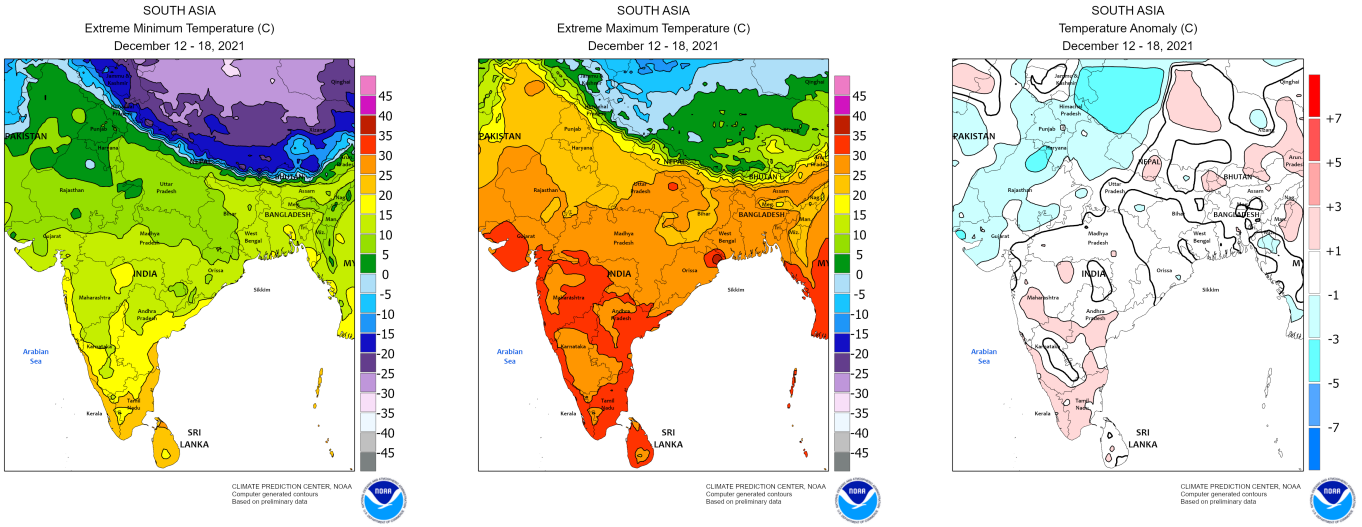
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

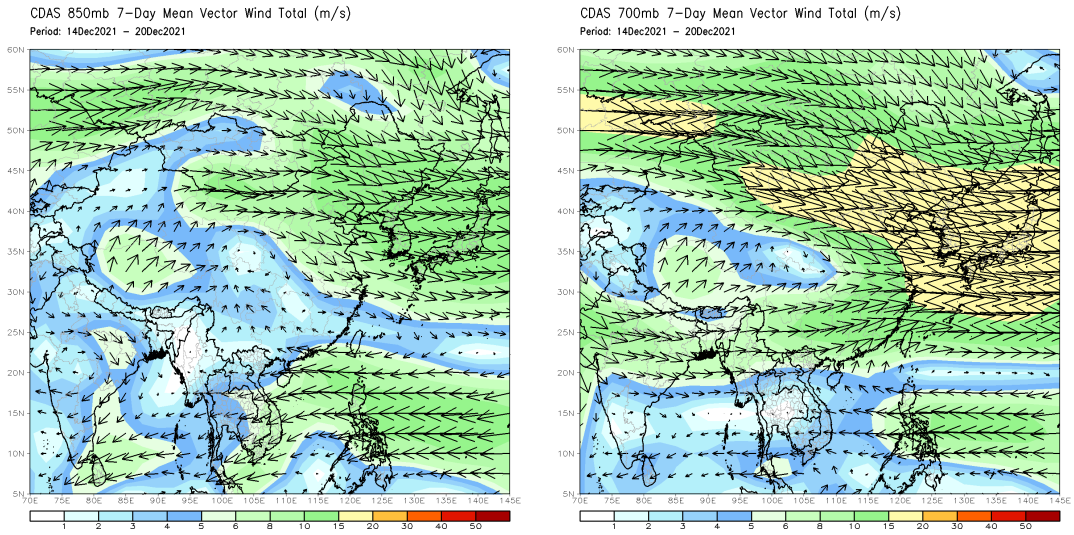


Weekly Temperature Monitoring



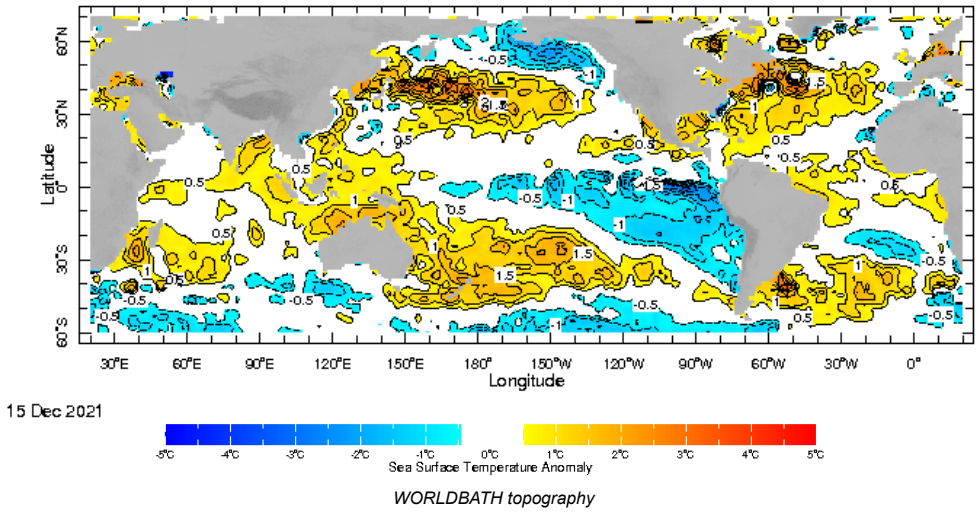
Weekly Wind Monitoring

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.

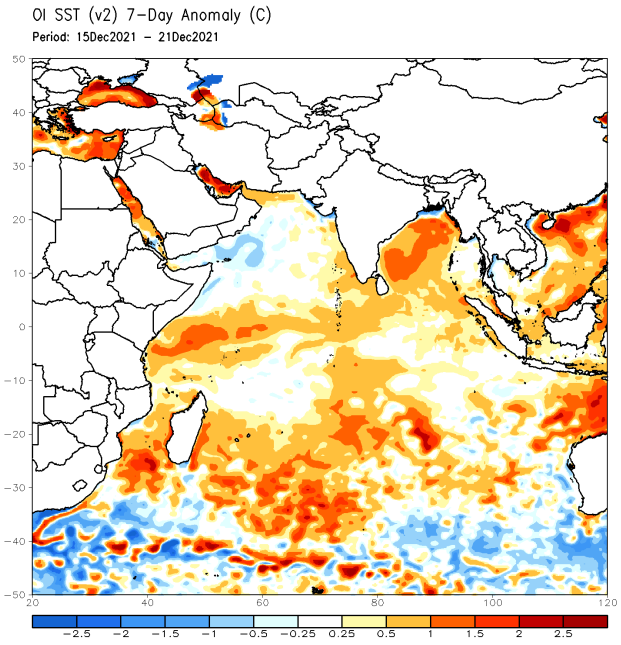


Weekly Average SST Anomalies

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

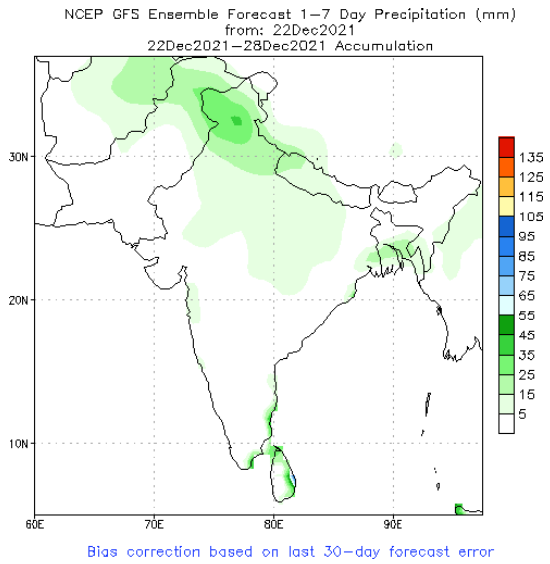


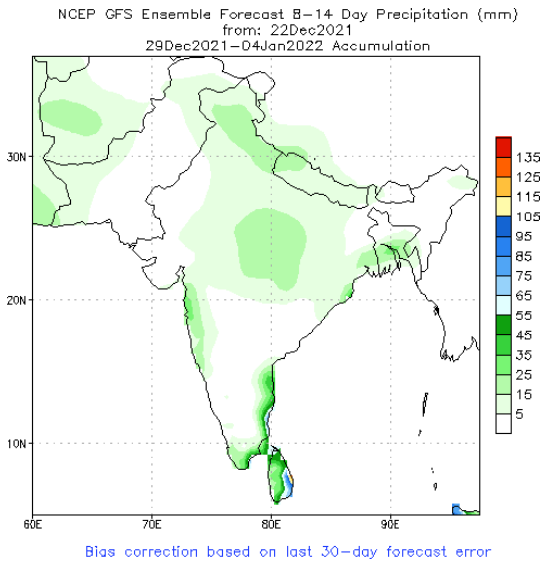
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



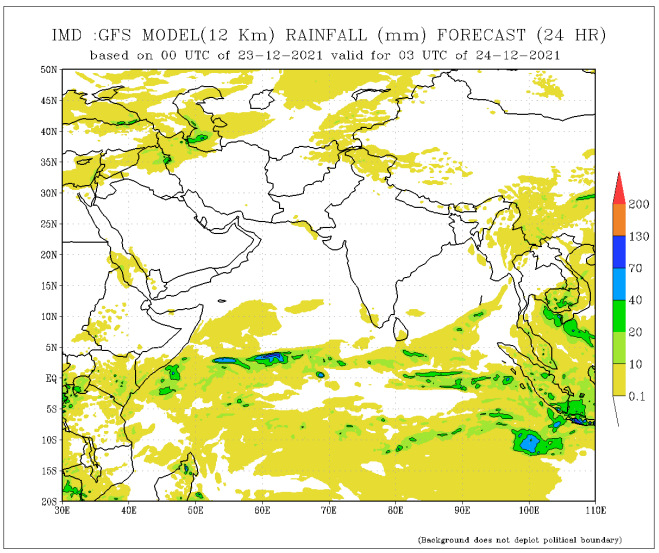
PREDICTIONS

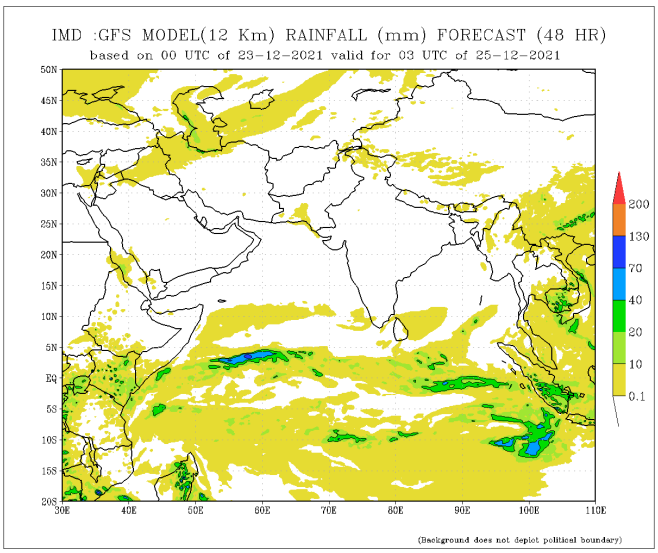
NCEP GFS 1- 14 Day prediction

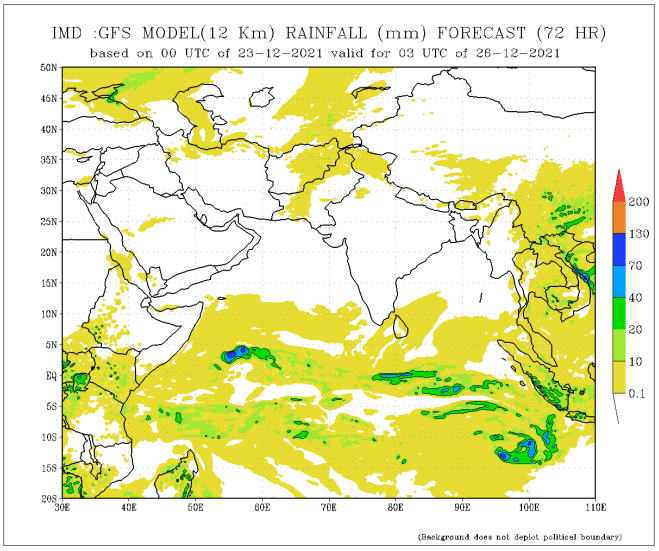


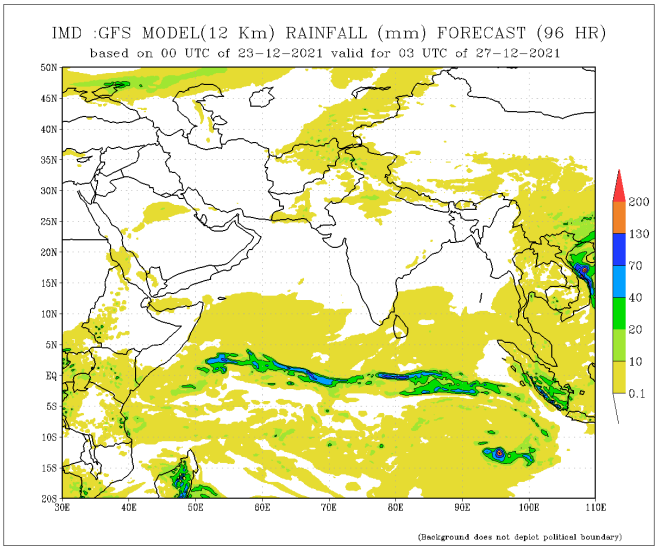


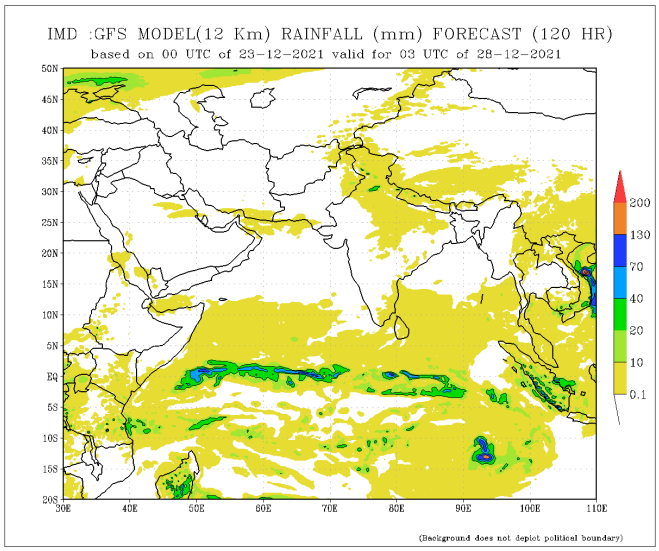
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

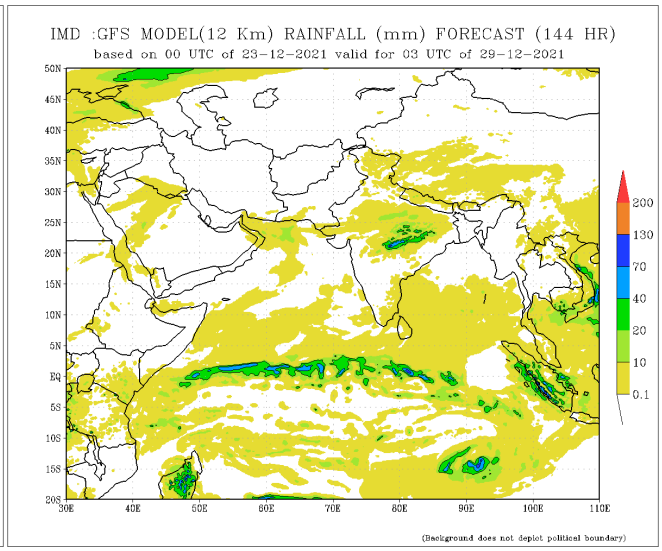


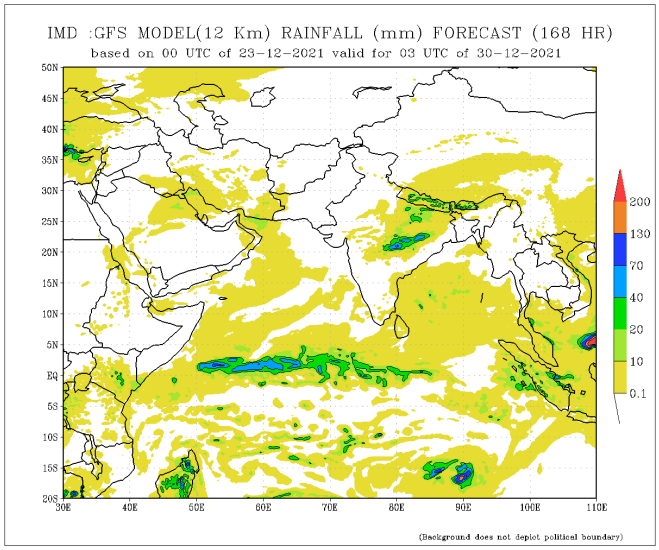






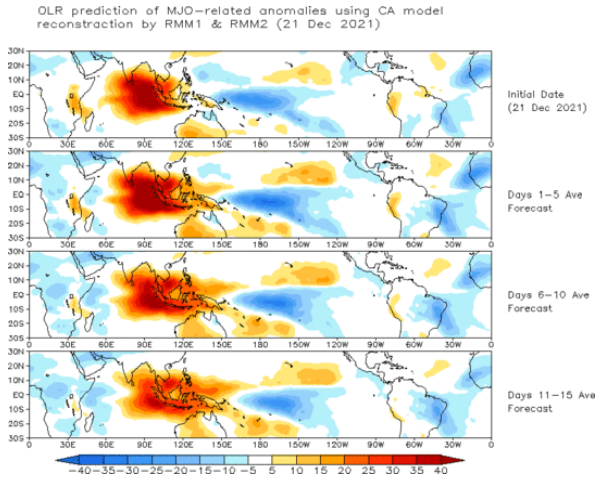






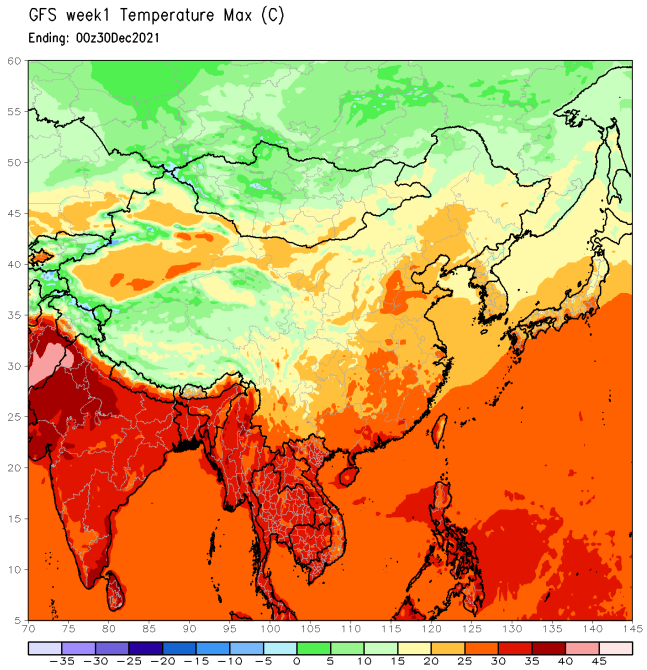
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

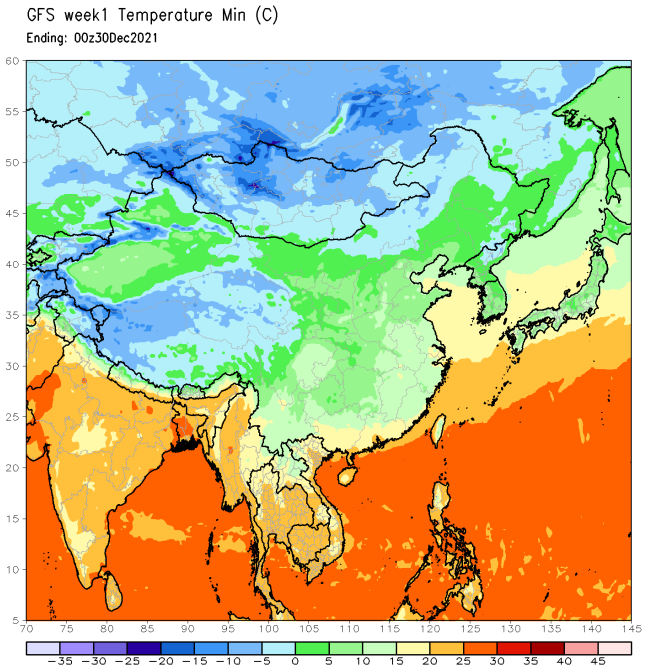
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



Weekly Temperature Forecast

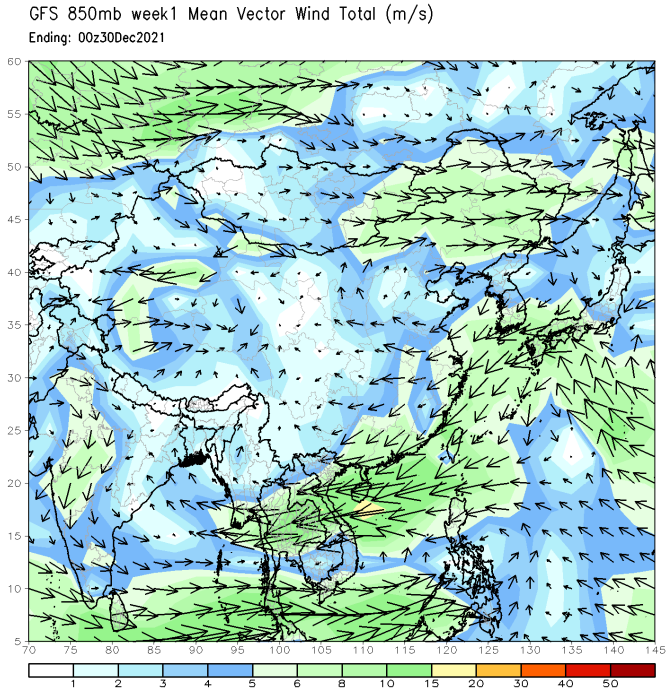
Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)

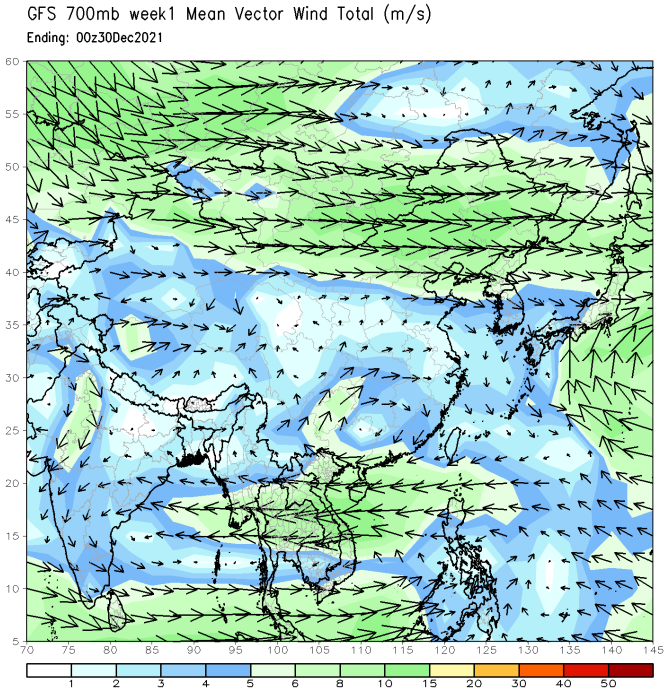




Weekly Wind Forecast

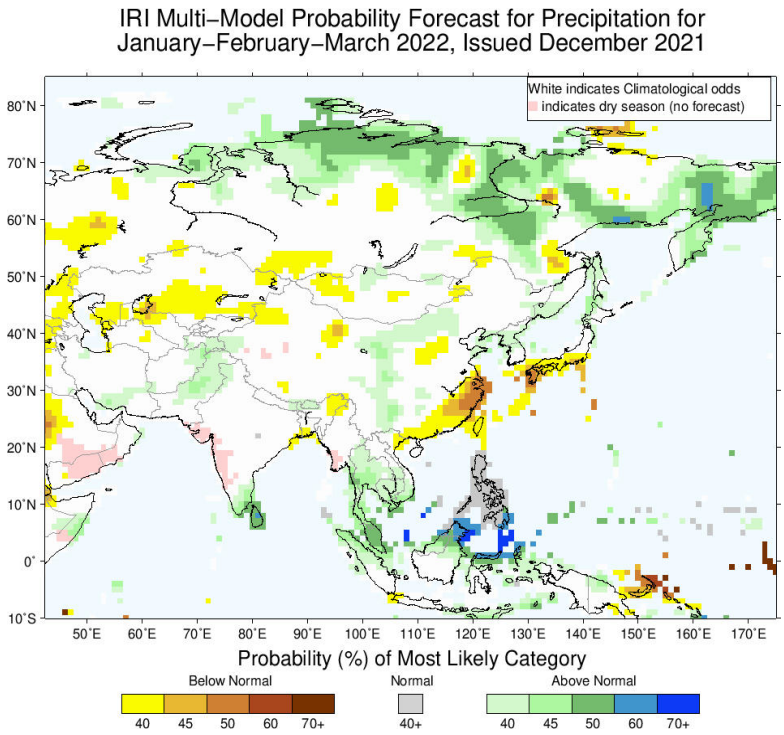
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



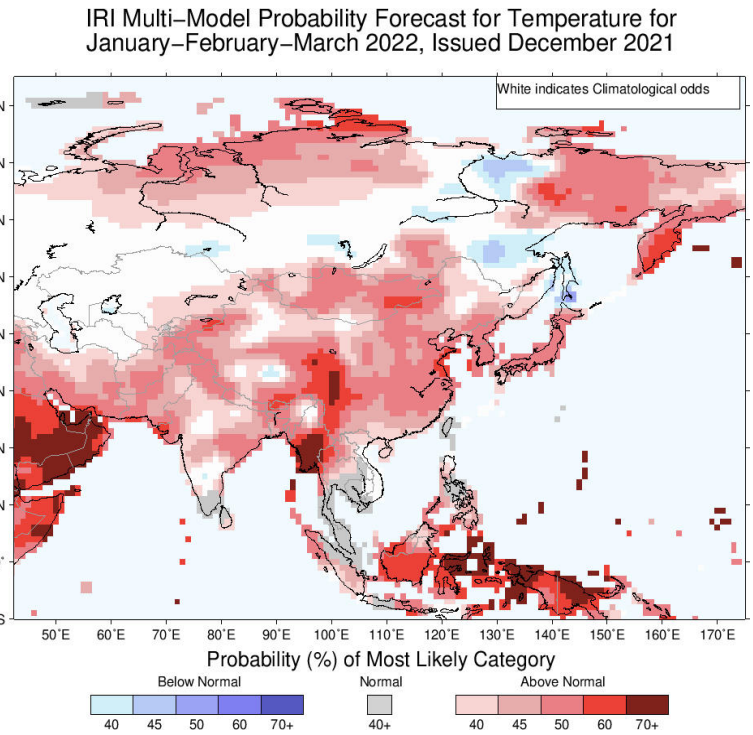


Seasonal Rainfall and Temperature Forecast

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%).



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.

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