

Week of
1 - 8 Oct
2021

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



- Heavy rainfall is predicted in Central, North Western, Sabaragamuwa, Southern, Uva and Western provinces during 1st-5th Oct. Greater likelihood of dry tendency than normal is predicted for southern Sri Lanka from Oct to Dec.

Monitored Rainfalls



- Very heavy rainfall was experienced in Central and Sabaragamuwa provinces with max of 210.2 mm in Kandy district on 24th Sept.

Monitored Wind



- From 21st - 27th Sept, up to 50 km/h Southwesterlies were experienced across the island.

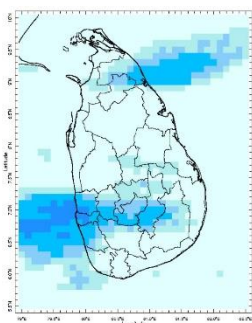
Monitored Sea Surface



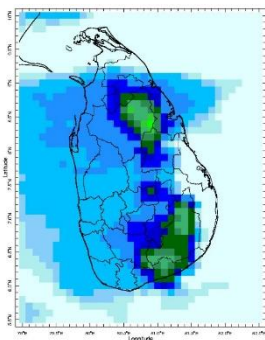
- Sea surface temperature was observed above 0.5 °C to the East, South and 1.0 °C to the North, West of Sri Lanka.

Monitoring Rainfall

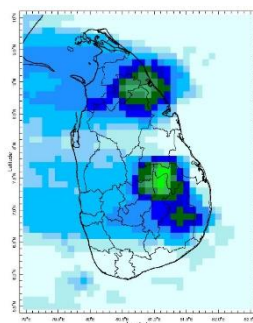
Daily Estimates for Rainfall from 21st – 27th September



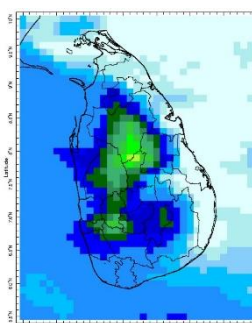
21 September



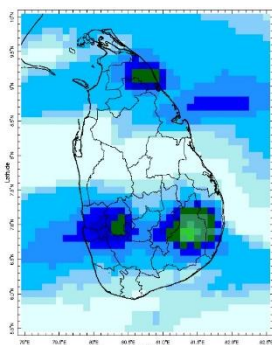
22 September



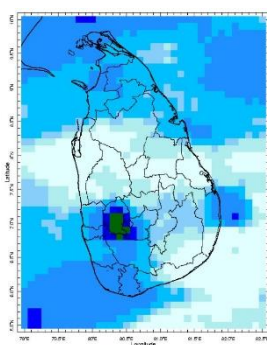
23 September



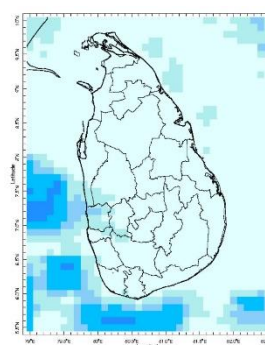
24 September



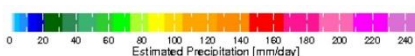
25 September



26 September



27 September



Estimated Precipitation [mm/day]



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Ocean State *(Text Courtesy IRI)*

Pacific sea state: September 22, 2021

Equatorial SSTs were near-to-below average across most of the equatorial Pacific Ocean, and were above average in the western Pacific Ocean in the late-September. A large majority of the model forecasts predict a transition from ENSO-neutral to La Niña is favored in the next couple of months and La Niña to continue through the Northern Hemisphere fall and winter.

Indian Ocean State

Sea surface temperature was observed above 0.5°C to the East, South and 1.0°C to the North, West of Sri Lanka.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 29th September – 5th October:

Total rainfall by Provinces:

Rainfall	Provinces
135 mm	Sabaragamuwa, Western
115 mm	Central, North-Western, Southern
105 mm	Uva
85 mm	Eastern, North-Central
75 mm	Northern

From 6th - 12th October:

Total rainfall by Provinces:

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

MJO based OLR predictions

For the next 15 days:

MJO shall be active, thus giving slightly enhanced rainfall during 1st – 13th October.

Interpretation

Monitoring

Rainfall: During the last two weeks, there had been very heavy rainfall over the following Provinces: Sabaragamuwa and Central.

Wind: South westerly winds prevailed in the sea area and around the island during last week.

Temperatures: The temperature anomalies were in between 1°C – 3°C in Central, Sabaragamuwa, North-Central, North-Western, Southern and Western provinces while near-neutral for the rest of the country last week, driven by the warm SST's.

Predictions

Rainfall: During the next week (1st – 5th October) heavy rainfall is predicted for Central, North Western, Sabaragamuwa, Southern, Uva and Western provinces.

Temperatures: The temperature remains slightly normal for October. During 1st – 9th October, the temperature remains high especially in the Eastern, Southern and Uva provinces and low in Central province.

Teleconnections:

La Nina -The SST forecast indicates that ENSO-neutral are present and a transition from ENSO-neutral to La Niña is favored in the next couple of months.

MJO shall be active, thus giving slightly enhanced rainfall during 1st – 13th October.

Seasonal Precipitation:

October to December is the main rainfall season in Sri Lanka. The consensus predictions have switched from neutral to favoring a dry tendency. A dry tendency can hurt agricultural production and it adds to farmer difficulties due to the fertilizer bans. However, since this is the wet season the impact will not be as severe.

However, the bigger impact shall be that it shall reduce the generated hydropower in the coming months. This can hurt the economy due to the scarcity in Foreign Exchange within the country due to the Central Bank regulations.

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

Inside This Issue

1. Monitoring

- Daily Rainfall Monitoring
- Weekly Rainfall Monitoring
- Monthly Rainfall Monitoring
- Dekadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Temperature Monitoring
- Weekly Wind Monitoring
- Weekly Average SST Anomalies

2. Predictions

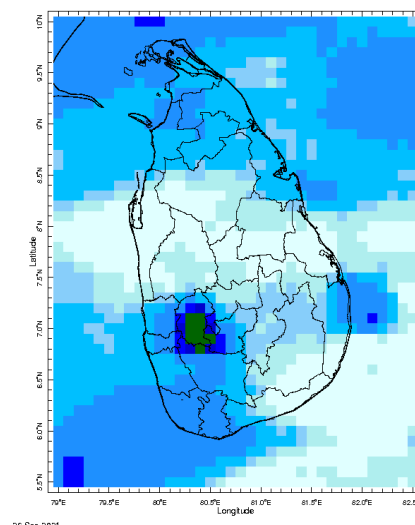
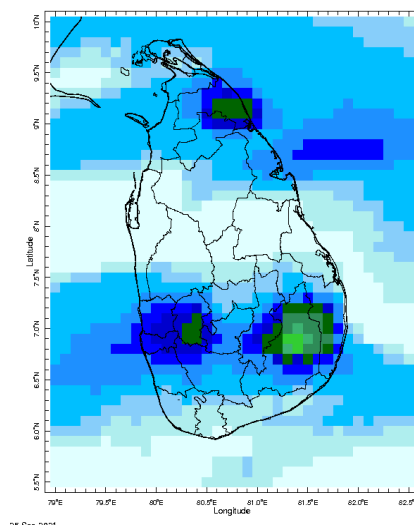
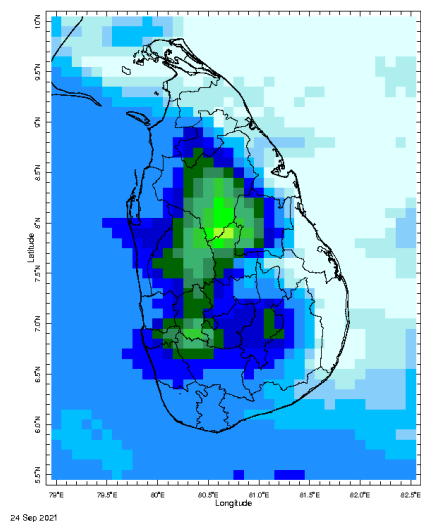
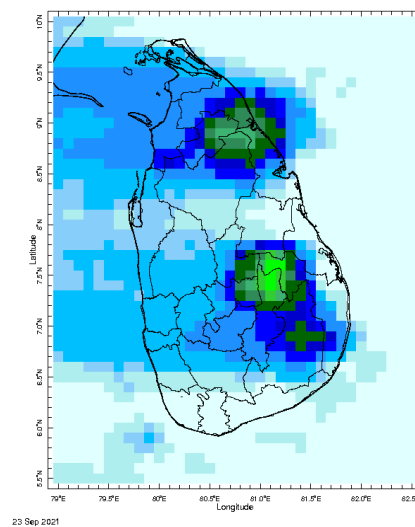
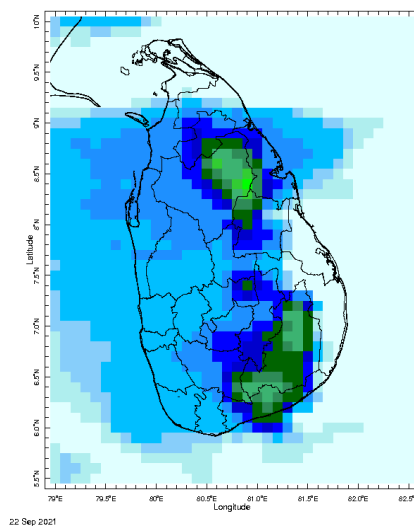
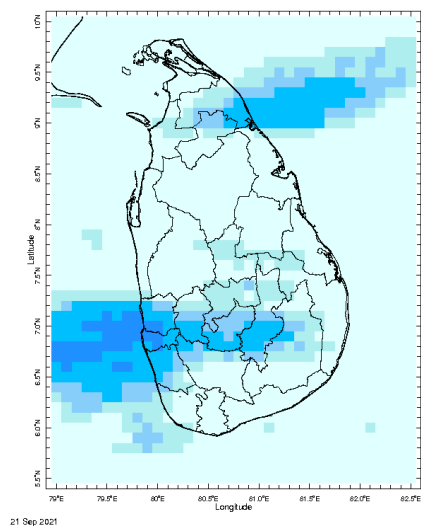
- NCEP GFS Ensemble 1-14 day Rainfall Predictions
- GFS (T574) Model Rainfall Forecast from RMSC New Delhi
- MJO Related OLR Forecast
- Weekly Temperature Forecast
- Weekly Wind Forecast
- Seasonal Predictions from IRI

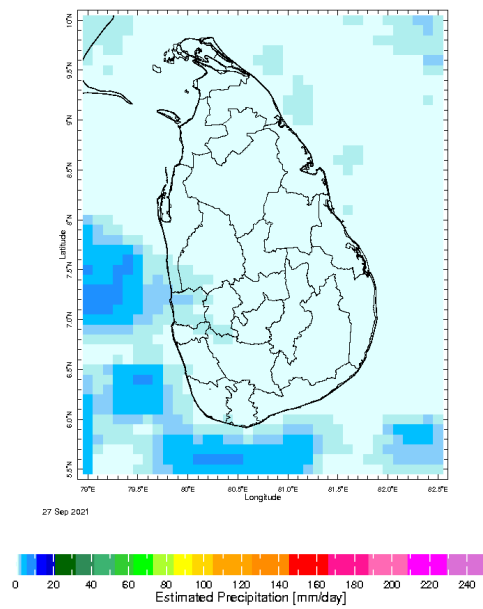


MONITORING

Daily Rainfall Monitoring

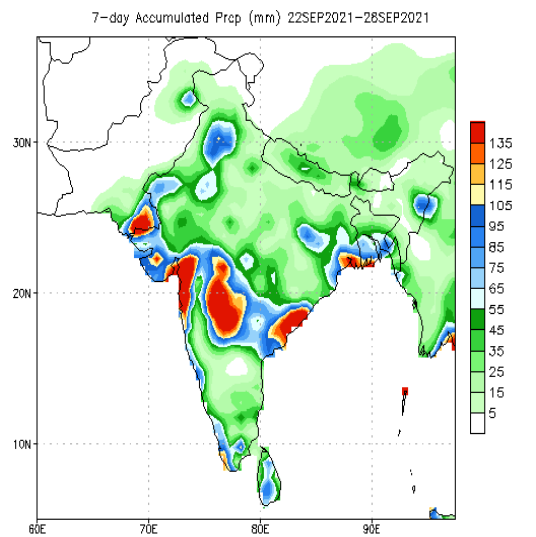
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



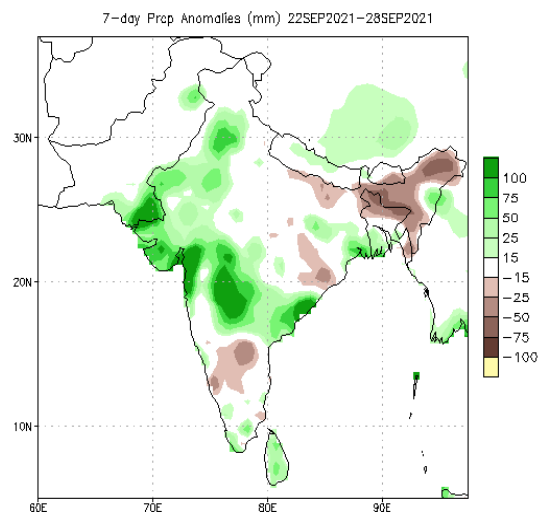
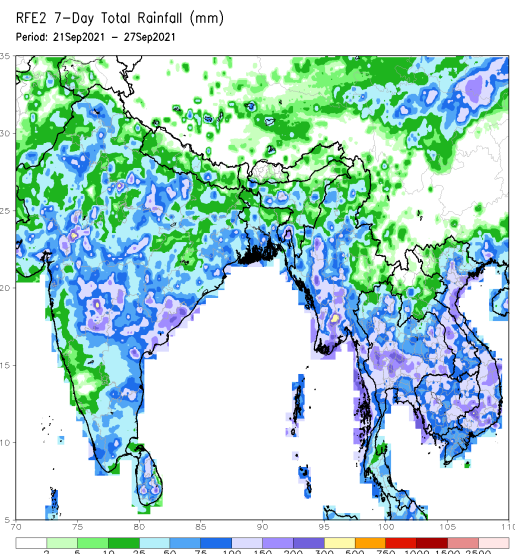


Weekly Rainfall Monitoring

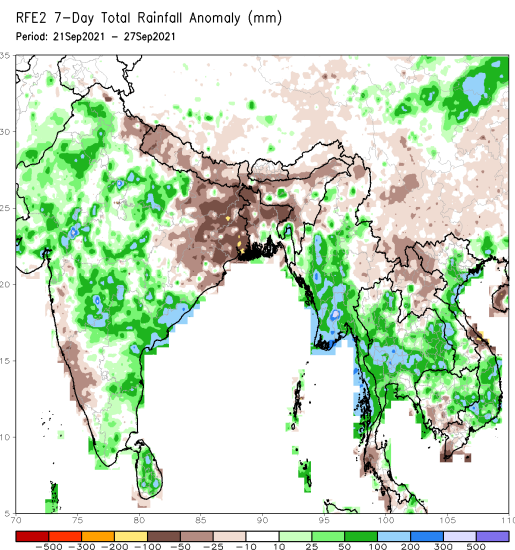
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite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



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

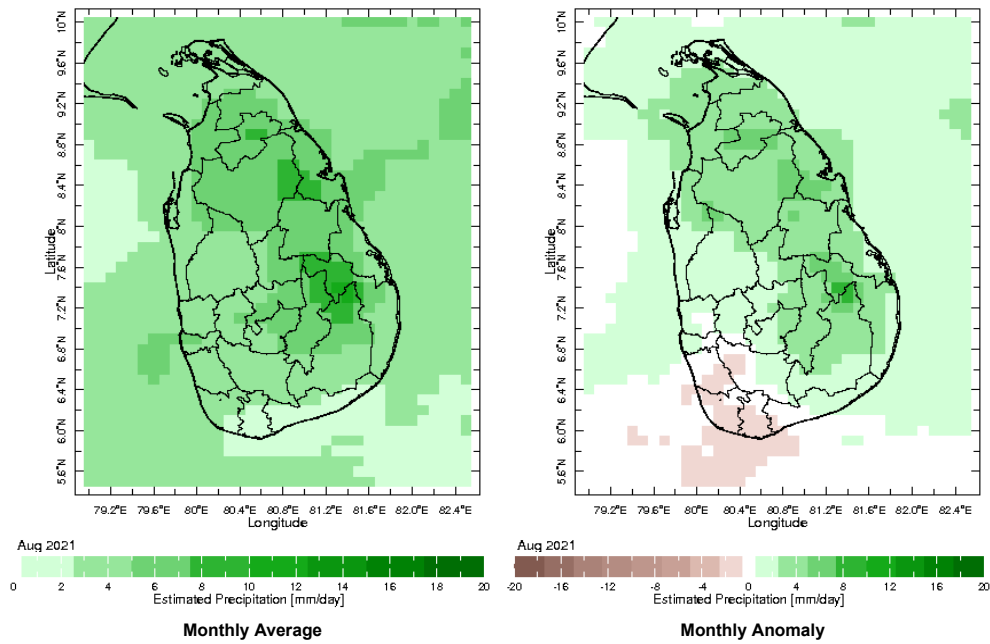


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991–2020)

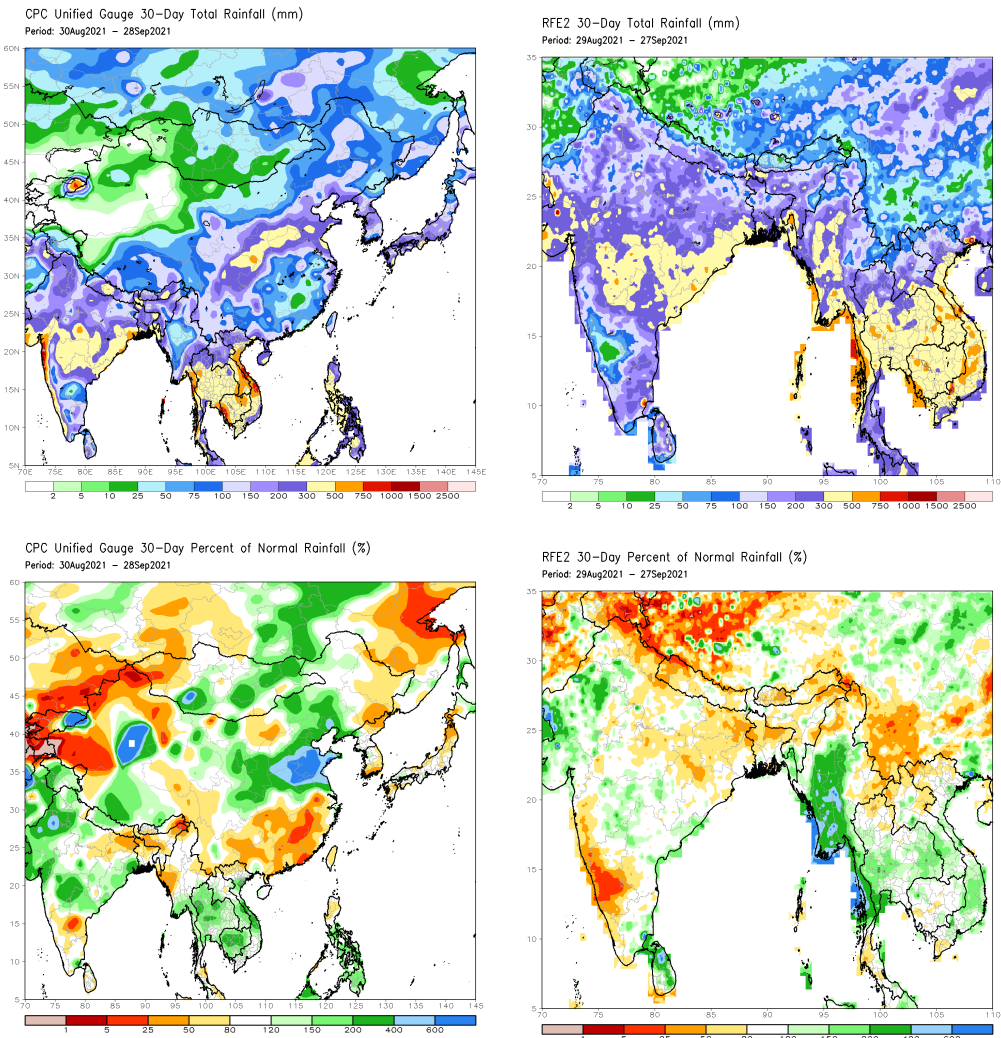


Monthly Rainfall Monitoring

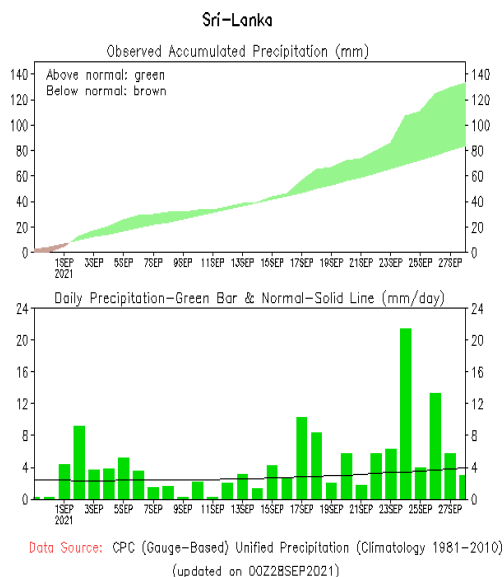
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



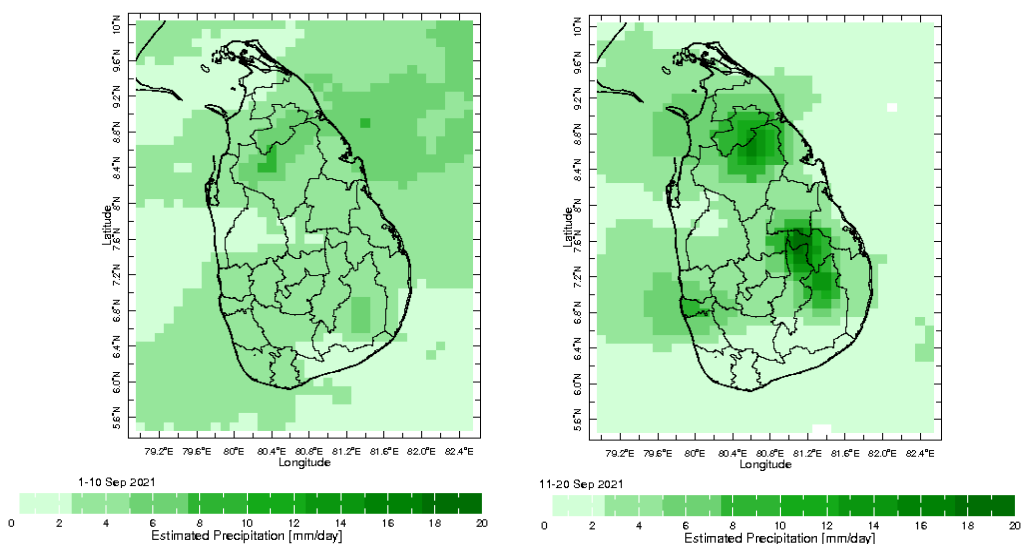
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



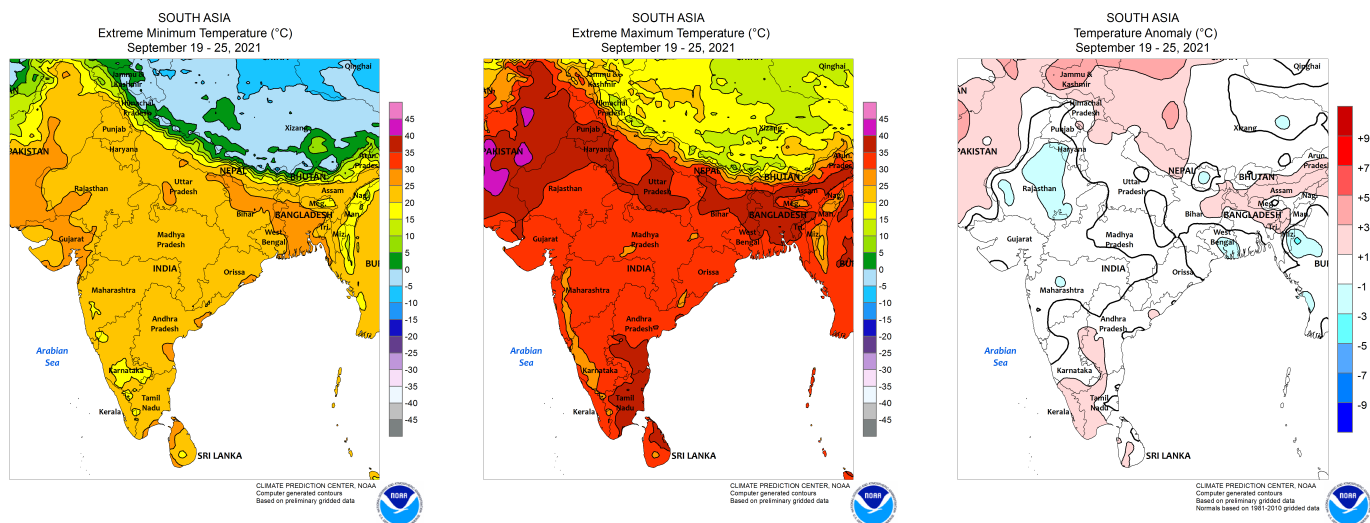
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

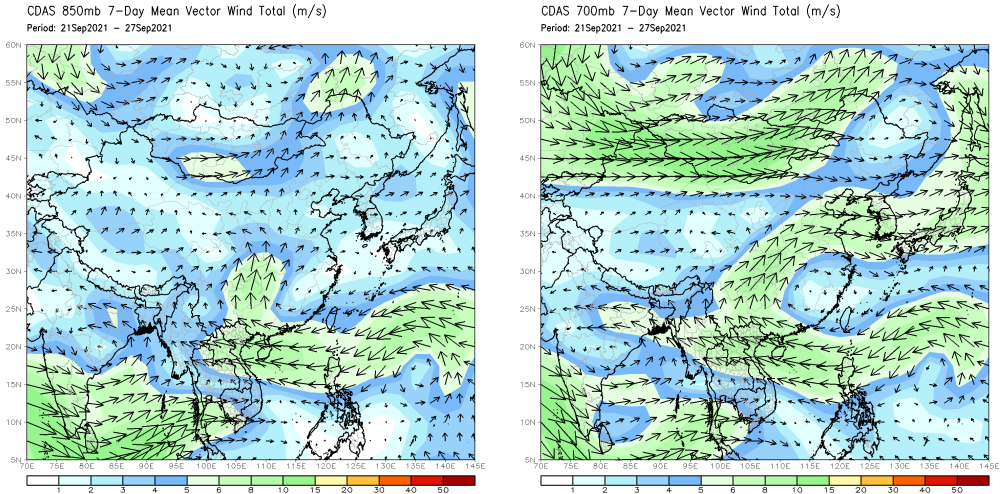


Weekly Temperature Monitoring



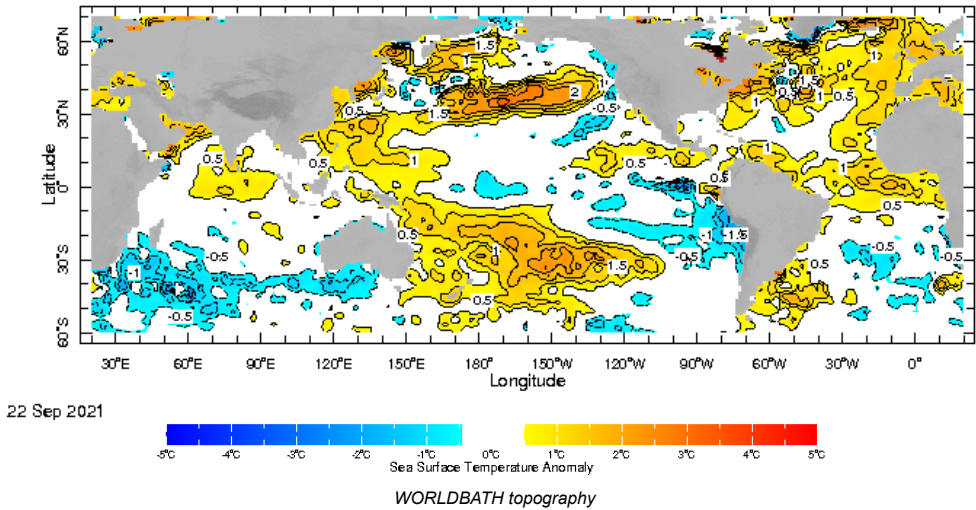
Weekly Wind Monitoring

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.

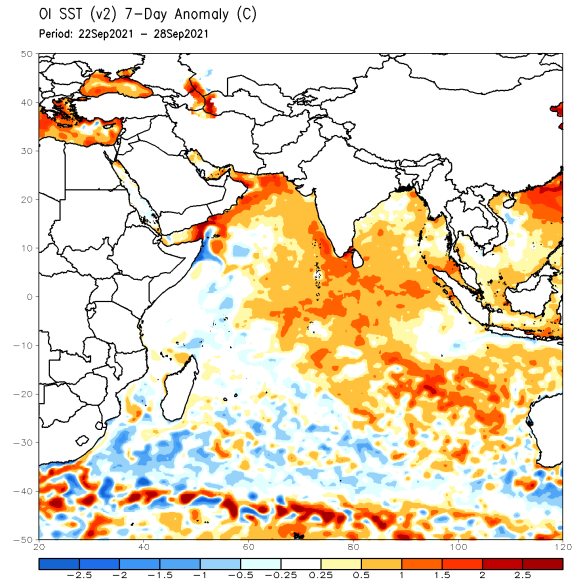


Weekly Average SST Anomalies

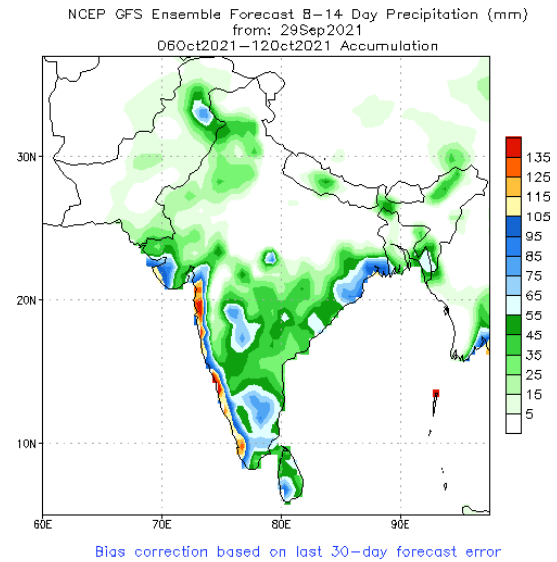
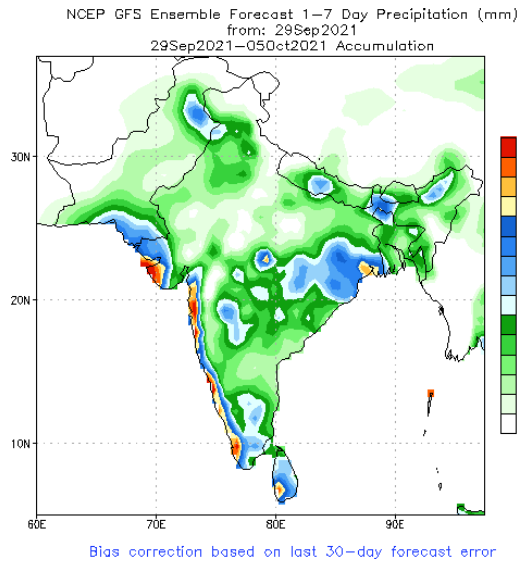
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



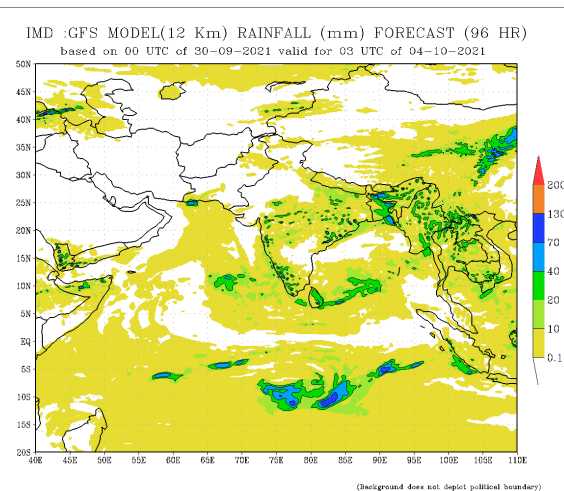
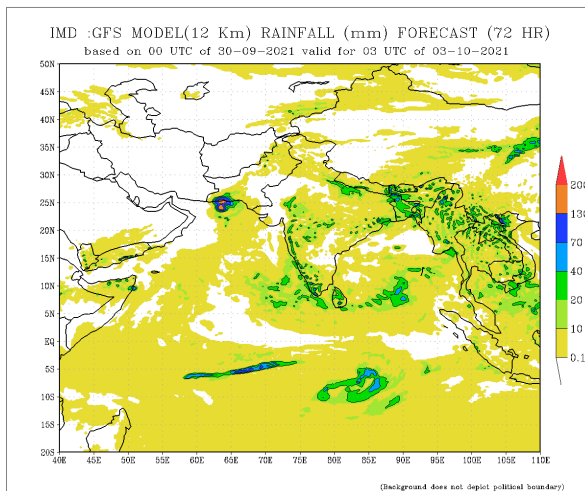
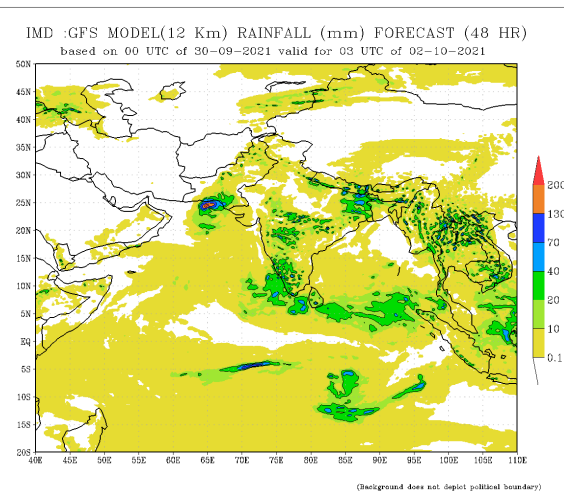
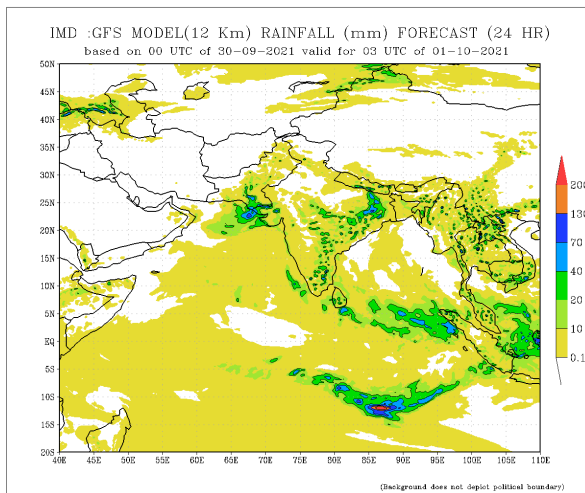
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

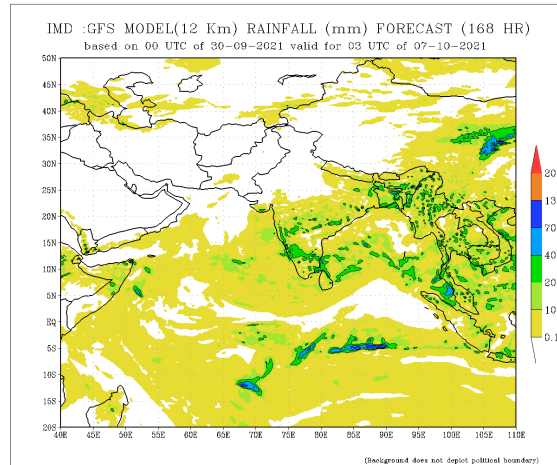
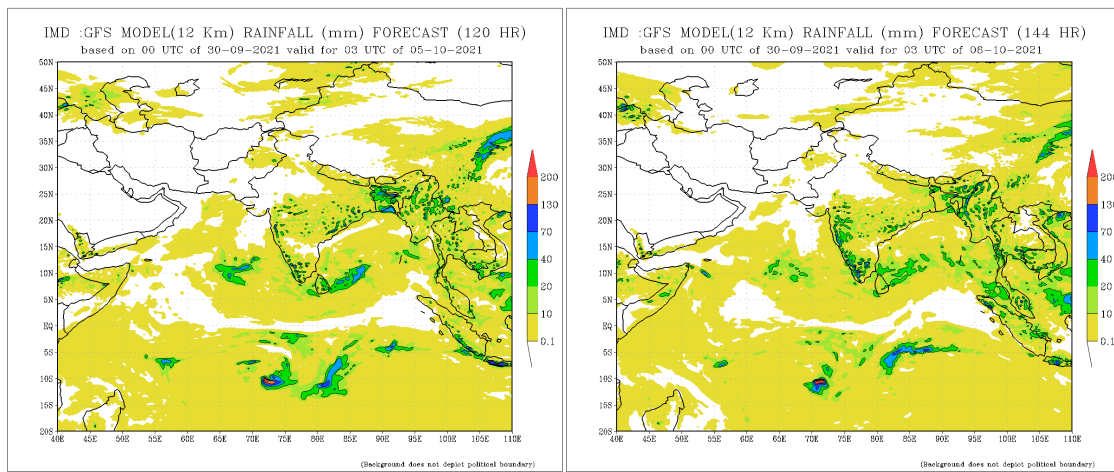


NCEP GFS 1- 14 Day prediction



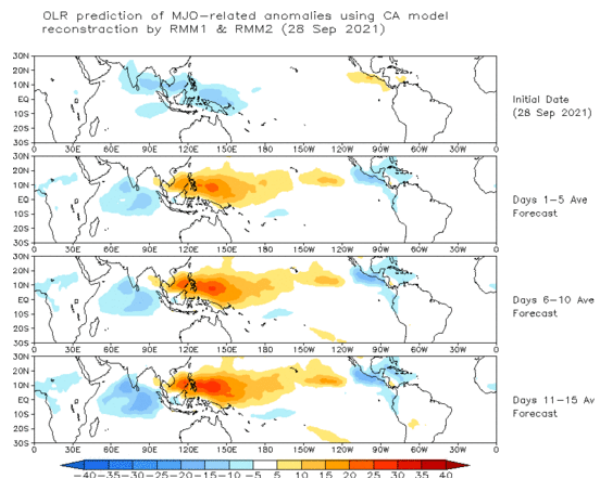
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India





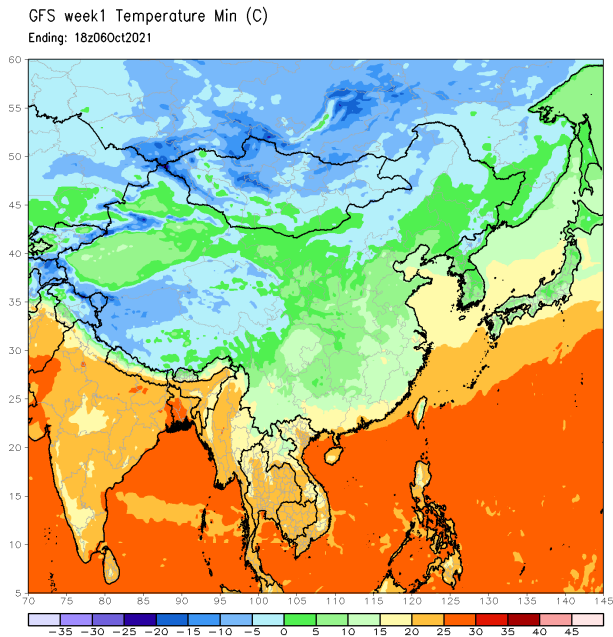
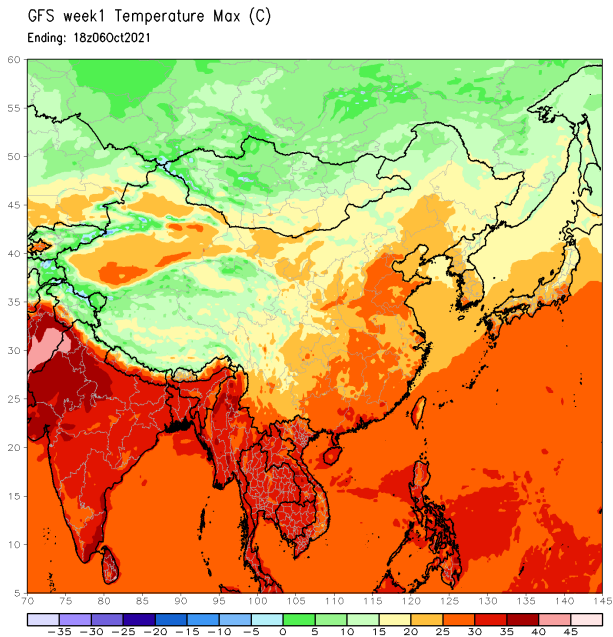
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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



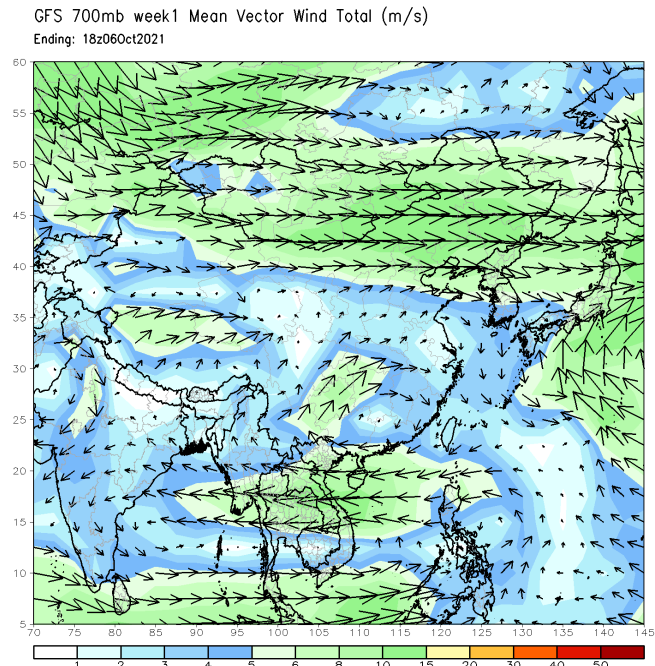
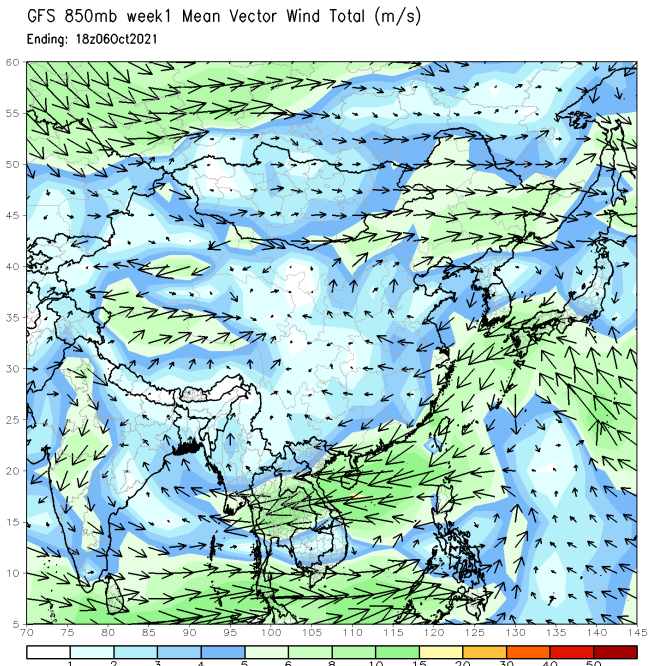
Weekly Temperature Forecast

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



Weekly Wind Forecast

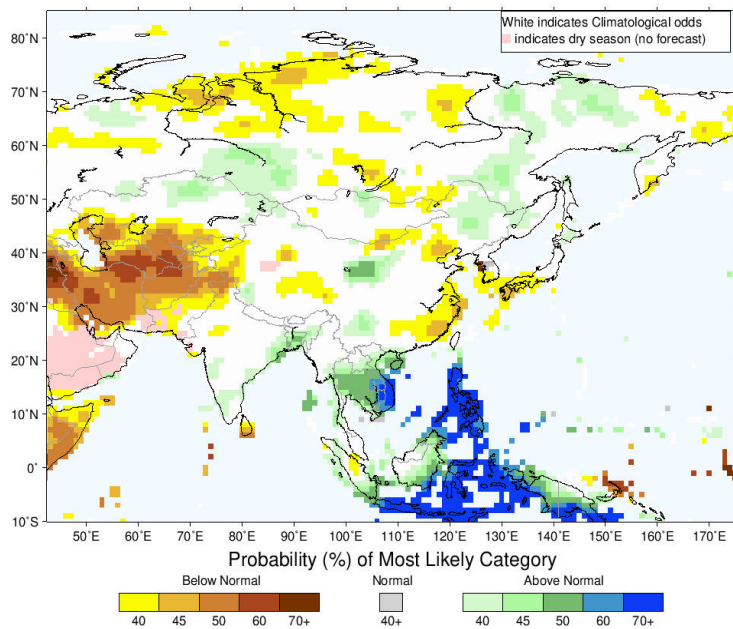
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



Seasonal Rainfall and Temperature Forecast

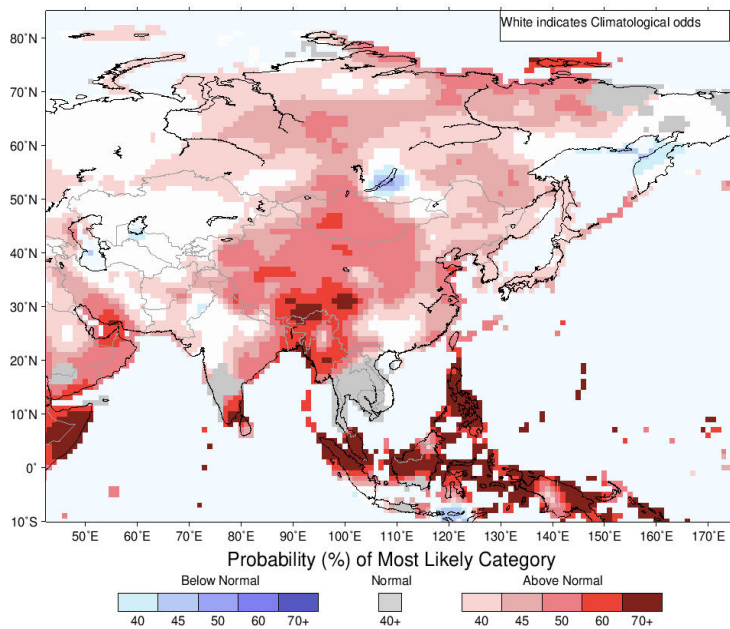
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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 October–November–December 2021, Issued September 2021



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for October–November–December 2021, Issued September 2021



Temperature Forecast

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