

**Week of
18 - 25 Dec
2020**

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

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HIGHLIGHTS

Rainfall Prediction



• Between 17th-23rd Dec; up to 140 mm rainfall will be experienced by the Northern province.

Monitored Rainfalls



• Between 10th - 16th Dec: up to 100 mm in Jaffna district on 15th Dec.

Monitored Wind



• From 9th - 15th Dec: up to 5 km/h Northeasterly winds were experienced the northern of the island.

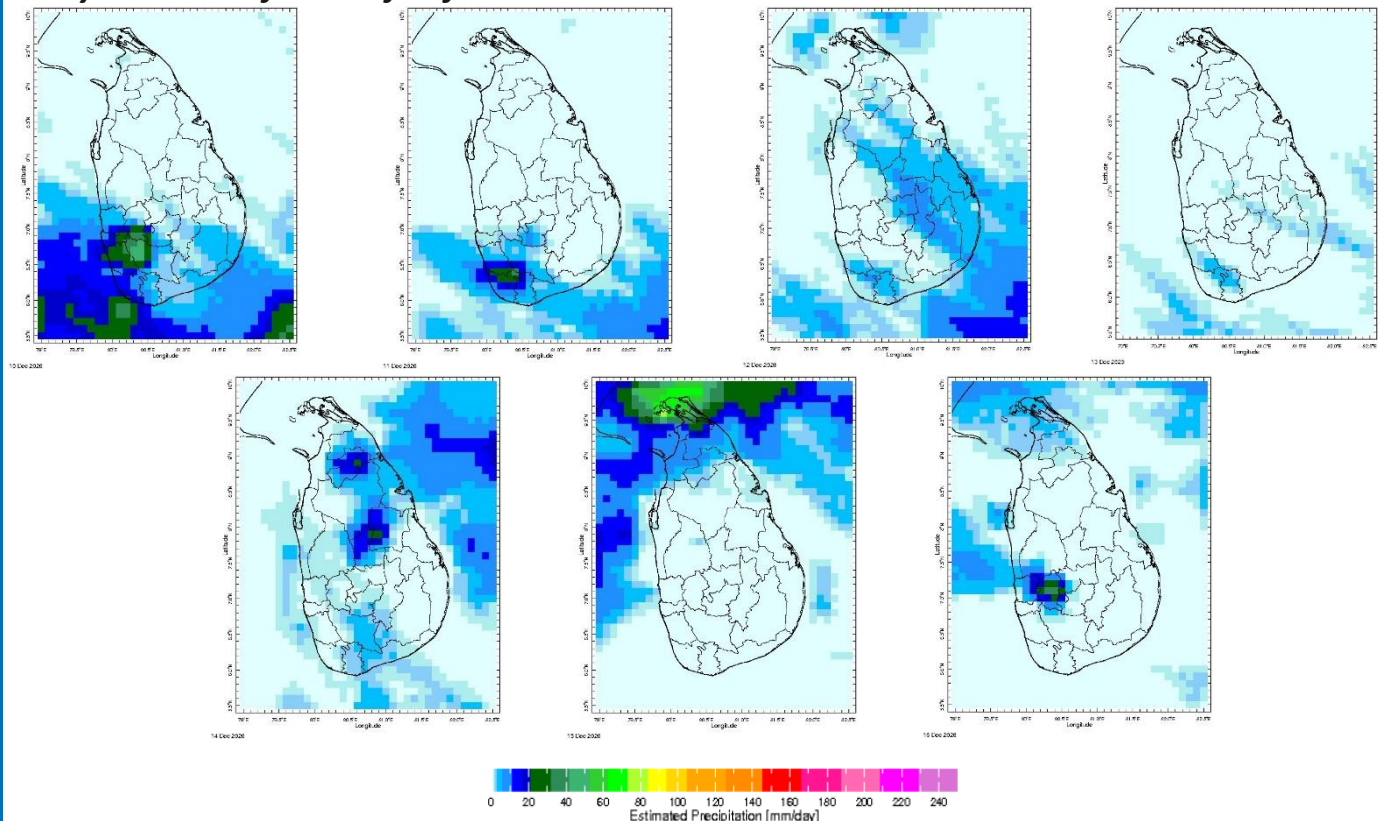
Monitored Sea Surface



• Sea surface temperature was observed above 0.5°C to the West of Sri Lanka and neutral to the East.

**Monitoring
Rainfall**

Daily Estimates for Rainfall from 10th – 16th December





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Total Rainfall for the Past Week

The RFE 2.0 tool shows Cumulative rainfall by Districts:

50 – 75 mm: Jaffna, Ratnapura, Kegalle, Galle, Kalutara

25 – 50 mm: Colombo, Gampaha, Matara, Nuwara Eliya, Kandy, Matale, Polonnaruwa, Vavuniya, Kilinochchi

10 - 25 mm: Mullaitivu, Mannar, Anuradhapura, Puttalam, Kurunegala, Moneragala, Hambantota, Ampara, Badulla

5 – 10 mm: Batticaloa Trincomalee

Rainfall excess by Districts:

25 – 50 mm: Jaffna

Rainfall deficit by Districts:

100 – 200mm: Ampara, Moneragala, Batticaloa

50 – 100mm: Mullaitivu, Vavuniya, Anuradhapura, Polonnaruwa, Trincomalee, Kurunegala, Matale, Kandy, Nuwara Eliya, Ratnapura, Badulla, Hambantota

25 – 50 mm : Kilinochchi, Mannar, Puttalam, Kegalle, Gampaha, Colombo, Kalutara, Galle, Matara

Monthly Monitoring

November is usually the wettest month in Sri Lanka. In Nov 2020, there was a deficit overall which was overcome by the cyclone induced rainfall in the Northern half and the Western Slopes.

During November; Rainfall excess conditions by Districts:

8 mm : Kurunegala, Puttalam, Badulla, Moneragala, Colombo, Gampaha, Ratnapura

6 mm : Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Kegalle, Galle, Matara, Kalutara

4 mm : Jaffna, Kilinochchi, Mannar, Matale, Kandy, Nuwara Eliya, Hambantota, Polonnaruwa

2 mm : Ampara

Rainfall deficit rainfall by Districts:

4 mm : Batticaloa

Ocean State (Text Courtesy IRI)

Pacific sea state: December 9, 2020

Equatorial Eastern Pacific SST reached La Niña threshold in early-December, and the atmospheric variables were either ENSO-neutral or indicative of weak La Niña conditions.

Indian Ocean State

Sea surface temperature was observed above 0.5 °C to the West of Sri Lanka and neutral to the East.



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Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 17th – 23rd December:

Total rainfall by Provinces:

140 mm : Northern

135 mm : Eastern

105 mm : North-central

95 mm : Central Southern Uva

85 mm : North-western, Western, Sabaragamuwa

From 24th – 30th December:

Total rainfall by Provinces:

135 mm : Northern

55 mm : Eastern

25 mm : Norther-western, Western

NOAA Model Forecast:

From 24th – 29th September - Cumulative rainfall by Districts:

75 mm: Badulla

50 mm: Ampara, Moneragala, Ratnapura, Nuwara Eliya, Kandy, Matale, Polonnaruwa,
Anuradhapura, Batticaloa, Trincomalee, Vavuniya, Mullaitivu, Kilinochchi, Jaffna

25 mm: Mannar, Puttalam, Kurunegala, Kegalle, Gampaha, Colombo, Kalutara, Galle, Matara,
Hambantota

MJO based OLR predictions

For the next 15 days:

MJO shall significantly suppress the rainfall during 16th – 30th over Sri Lanka.

Interpretation

Monitoring

Rainfall: During the last two weeks, here had been high rainfall over the following provinces:

Northern, Sabaragamuwa, North-central and Western.



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Wind: As is typical for December the northeasterly winds prevailed. At the start of December, the Cyclone Burevi Track influenced the North-eastern and North-western coast of Sri Lanka most and there was contrasting wind directions across the islands

Temperatures: Cooled from November – still the temperature anomalies were slightly above normal for the Southern half the last – driven by the warm SST's

Predictions

Rainfall: During the next two weeks, extreme rainfall predicted on the Northern and Eastern part and heavy rainfall over the rest of the country.

Temperatures: During 18th–24th Dec, the temperature remains slightly above normal for December especially along the S-W of SL.

Teleconnections: MJO- is in phases significantly suppress the rainfall during 16th– 30th over Sri Lanka. La Nina- has set in as assessed by IRI on October 20.

The SST in the Indian Ocean is still warmer by 0.5 degrees than is seasonable to the West of Sri Lanka but near seasonable on the Eastern. Usually, with La Nina, the rainfall from October to December is suppressed and the rainfall has been suppressed but the colonic storms additions has masked some of the deficits.

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Weekly Climate Bulletin for Sri Lanka

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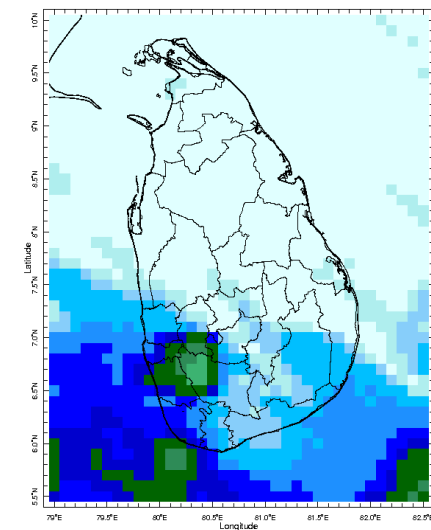
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 - c. Monthly Rainfall Monitoring
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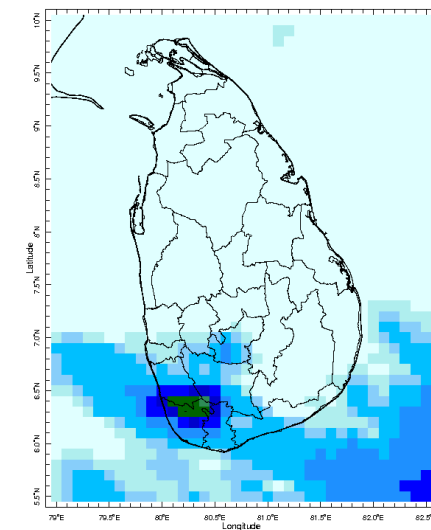
MONITORING

Daily Rainfall Monitoring

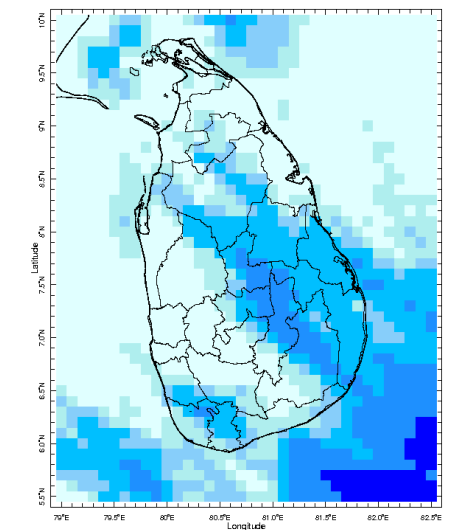
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



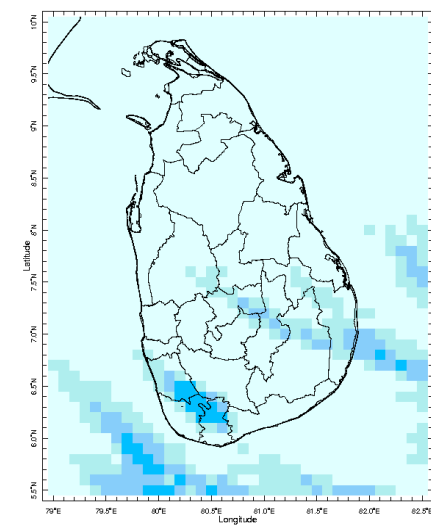
10 Dec 2020



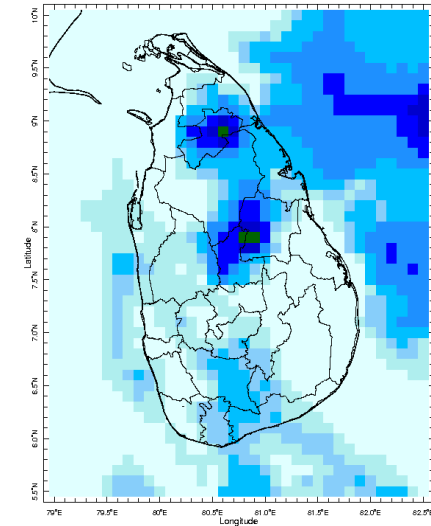
11 Dec 2020



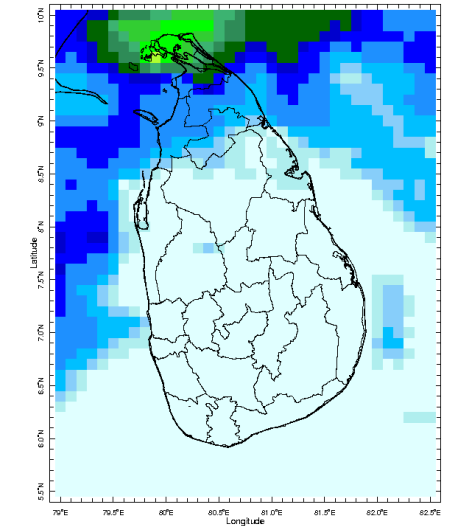
12 Dec 2020



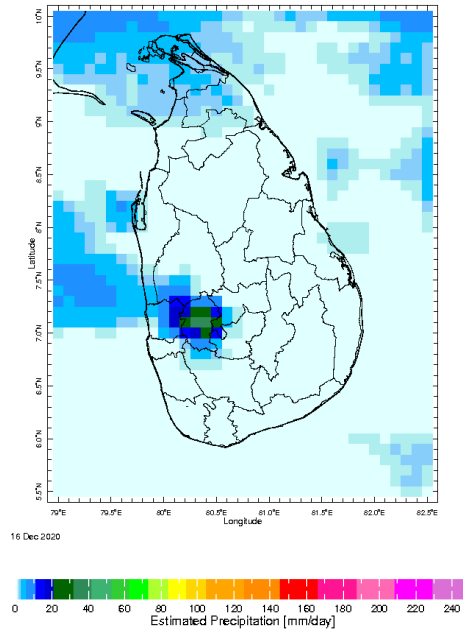
13 Dec 2020



14 Dec 2020

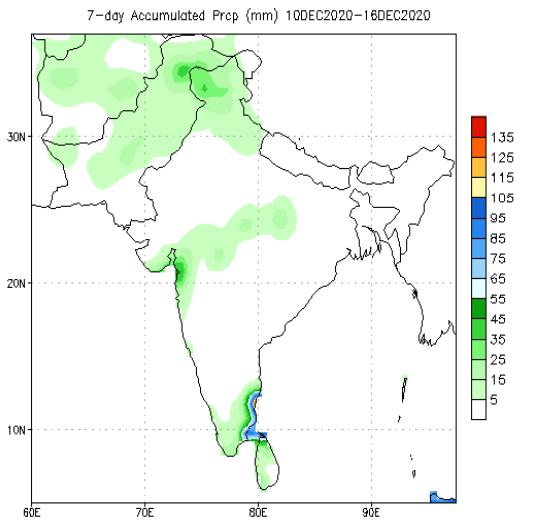


15 Dec 2020

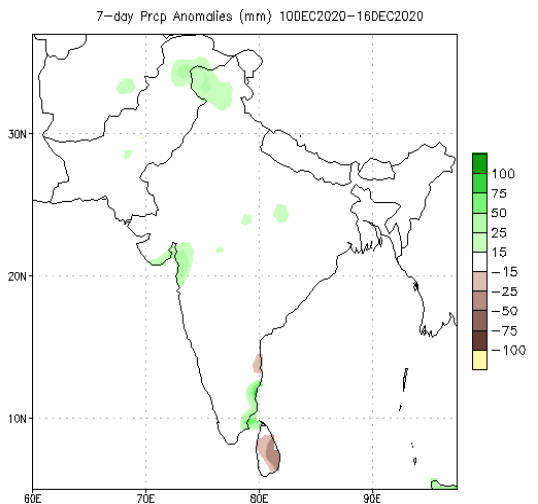
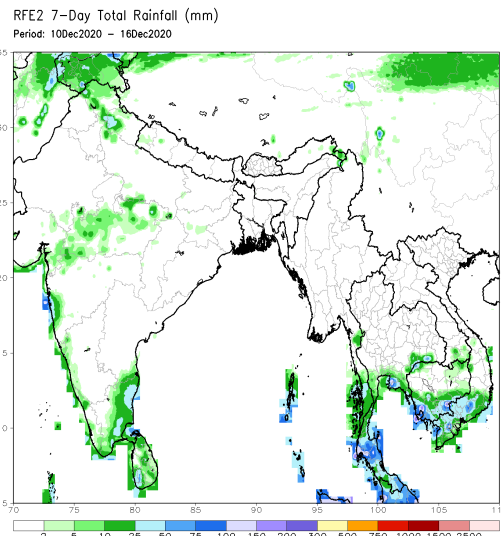


Weekly Rainfall Monitoring

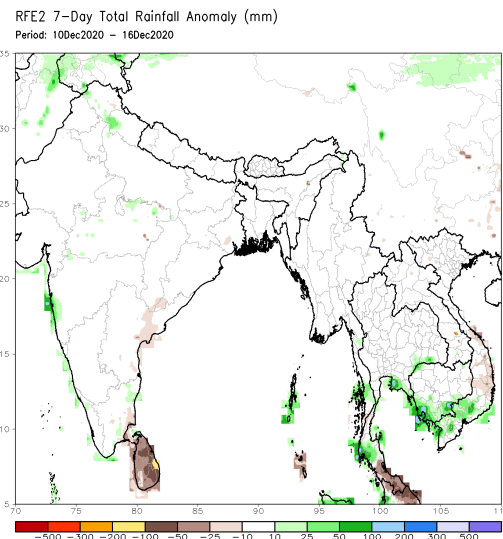
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite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



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

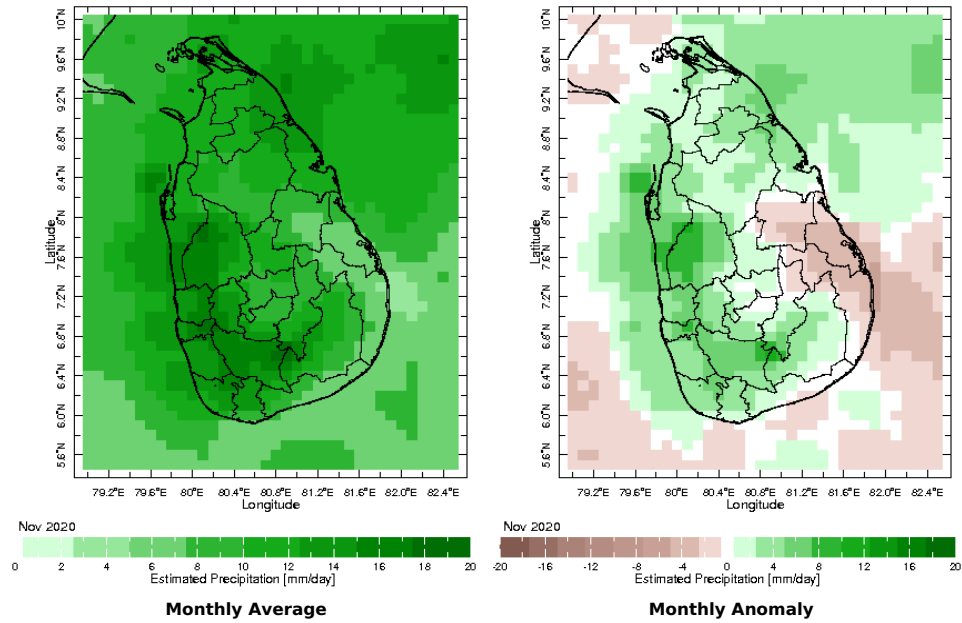


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Climatology (1981-2010)

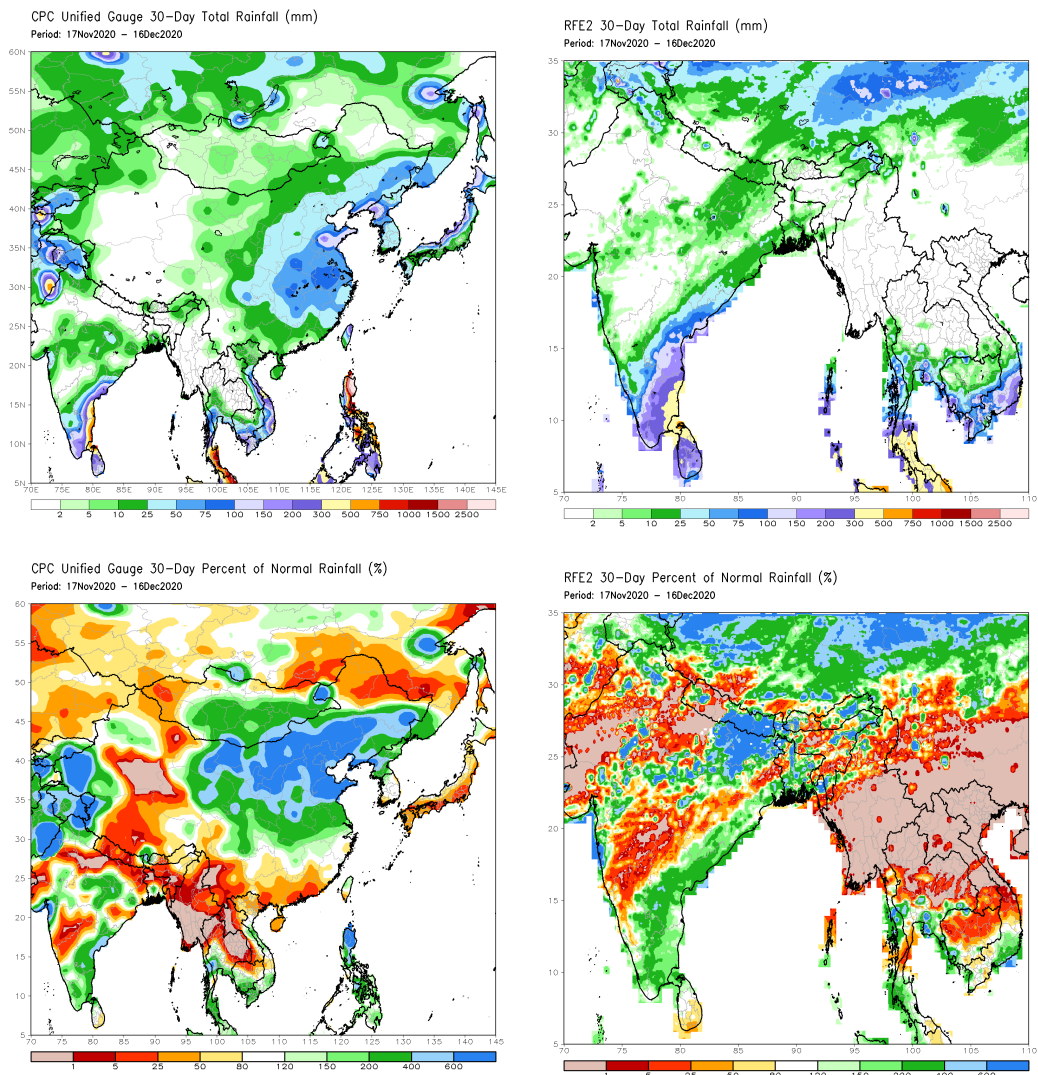


Monthly Rainfall Monitoring

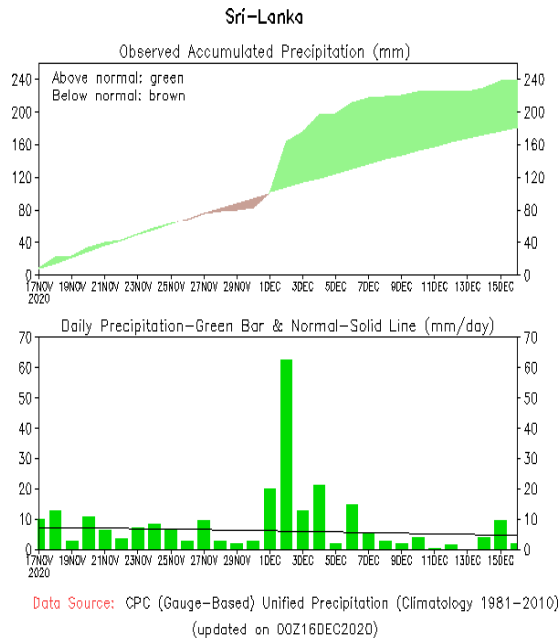
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



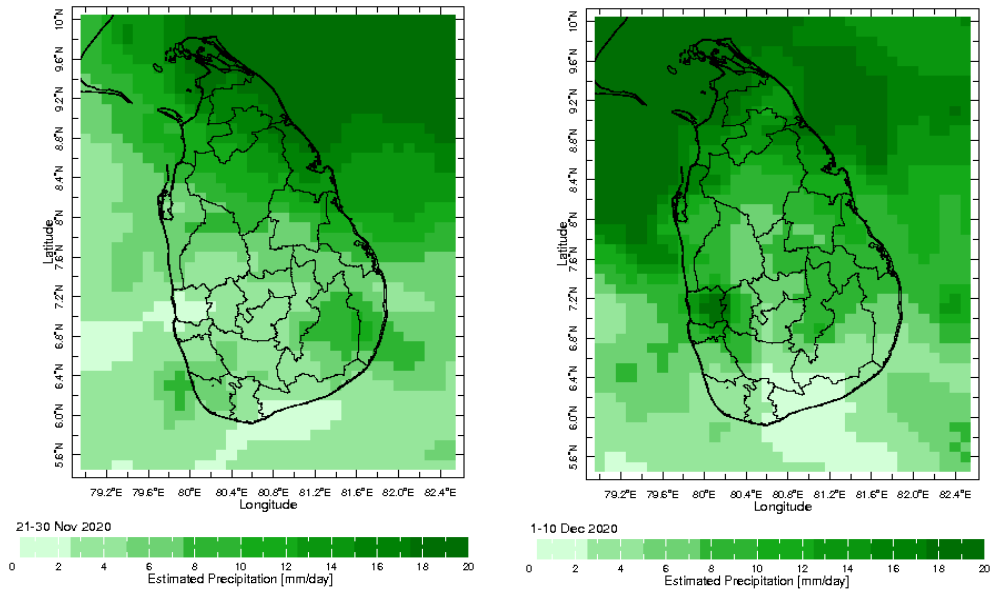
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



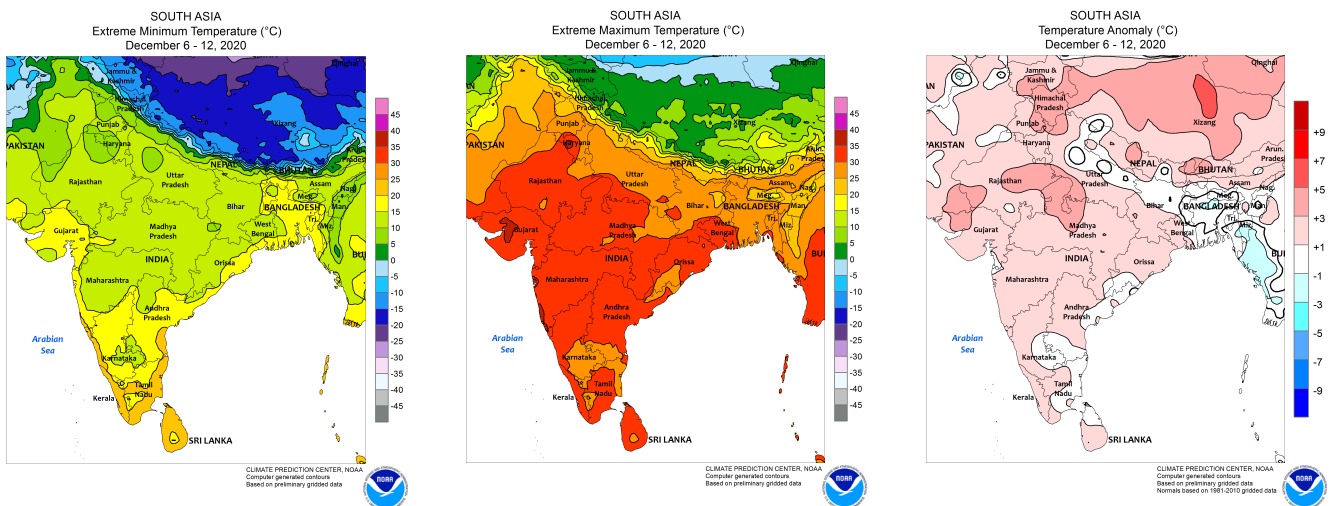
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

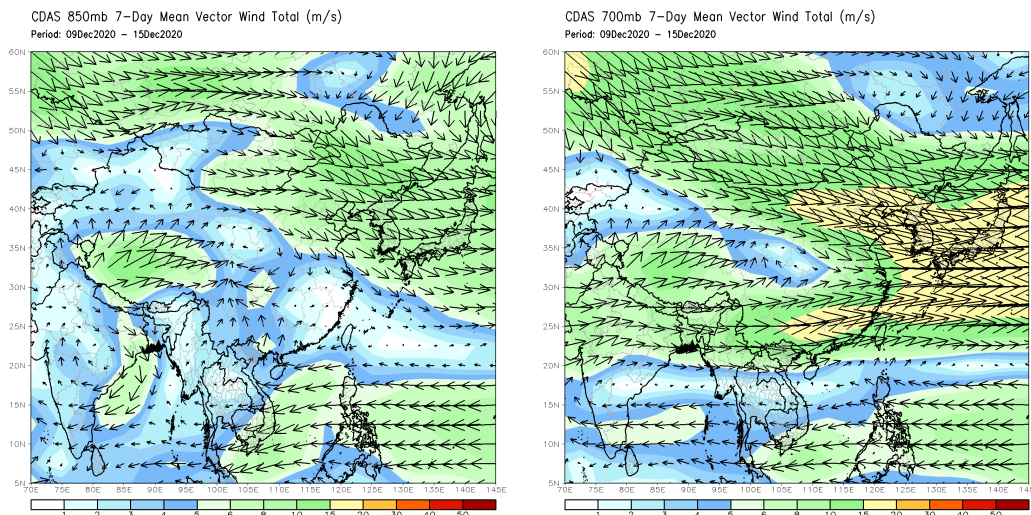


Weekly Temperature Monitoring



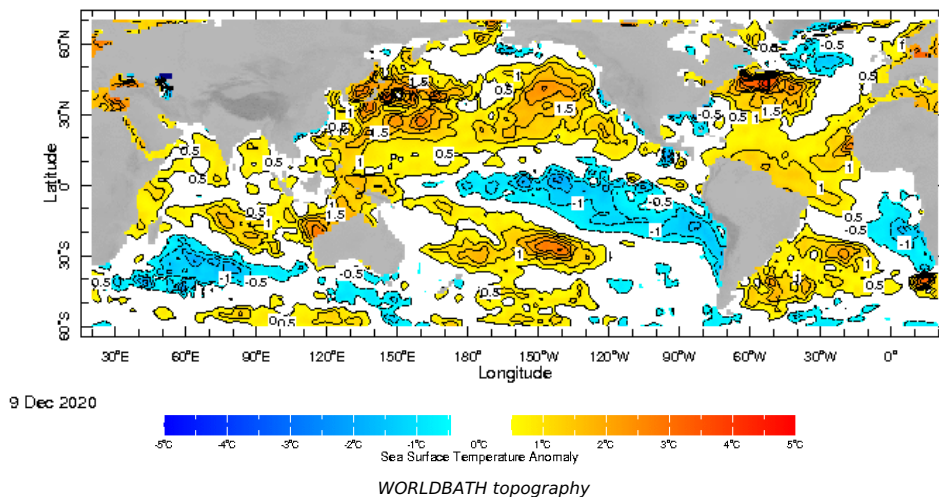
Weekly Wind Monitoring

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.

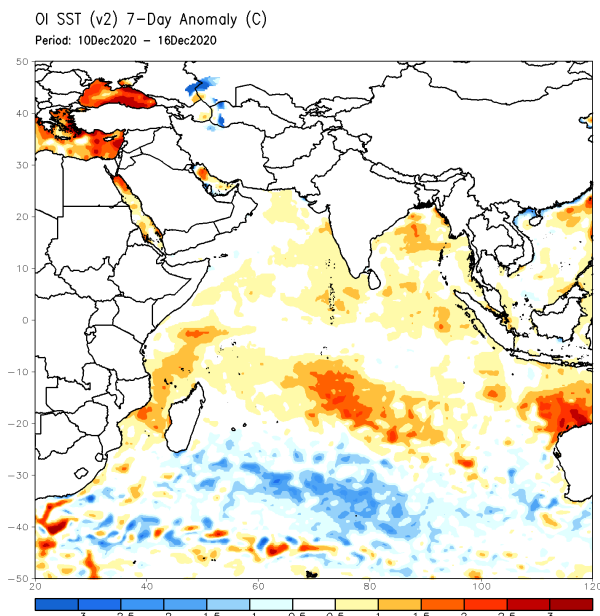


Weekly Average SST Anomalies

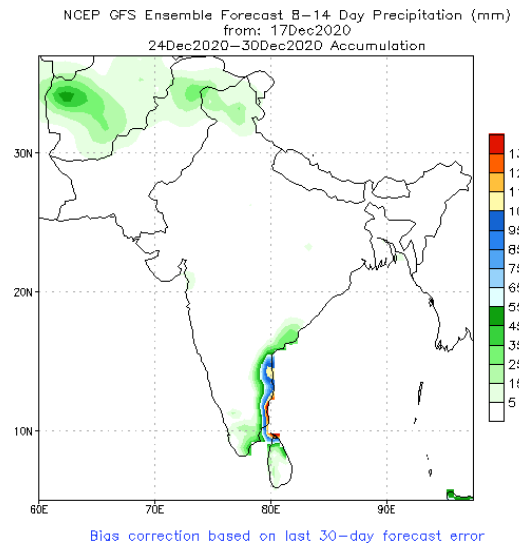
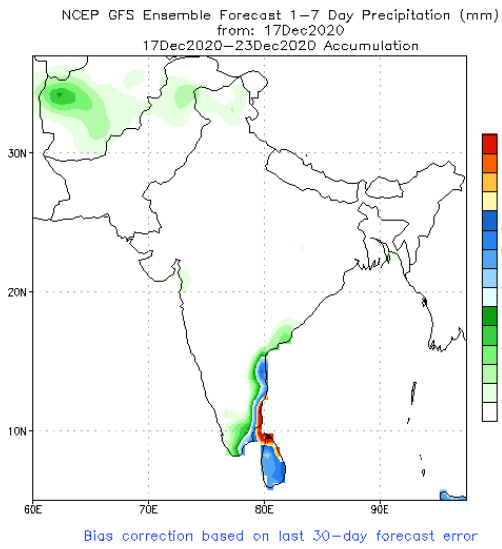
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



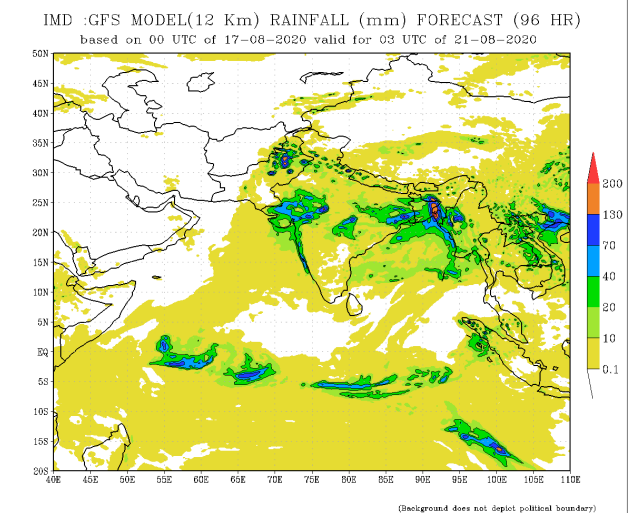
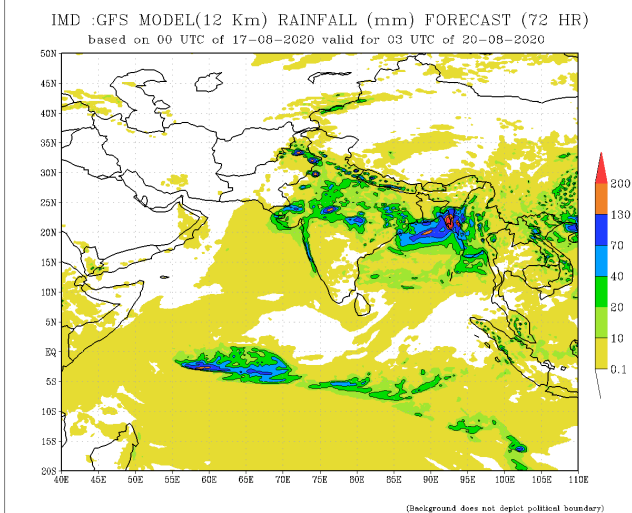
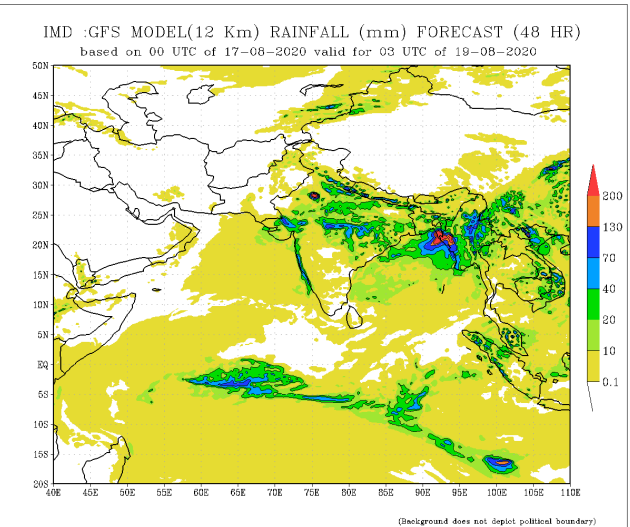
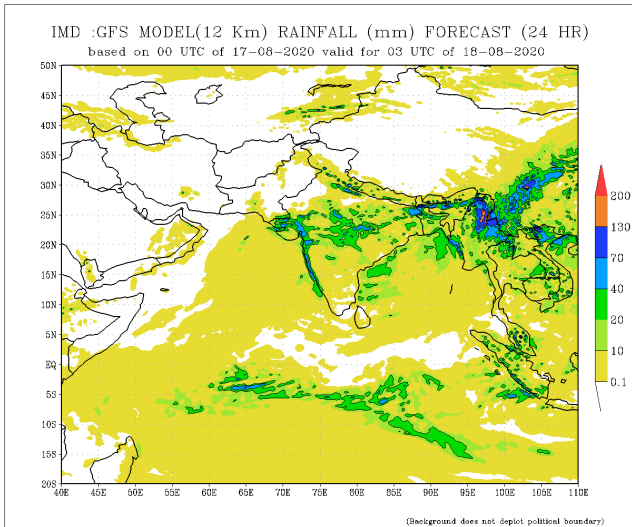
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

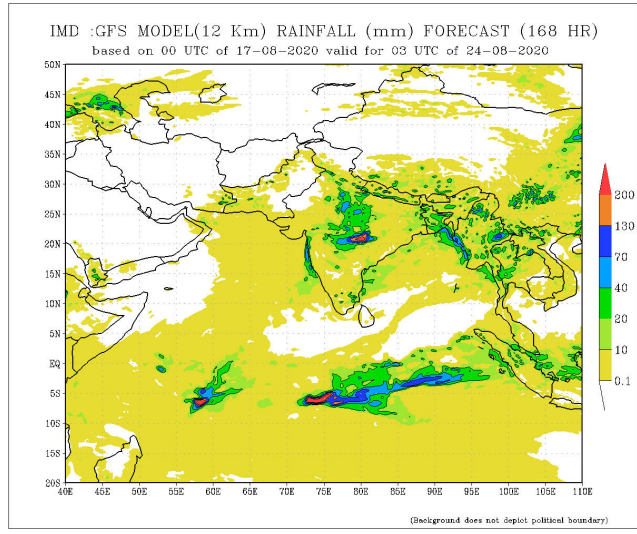
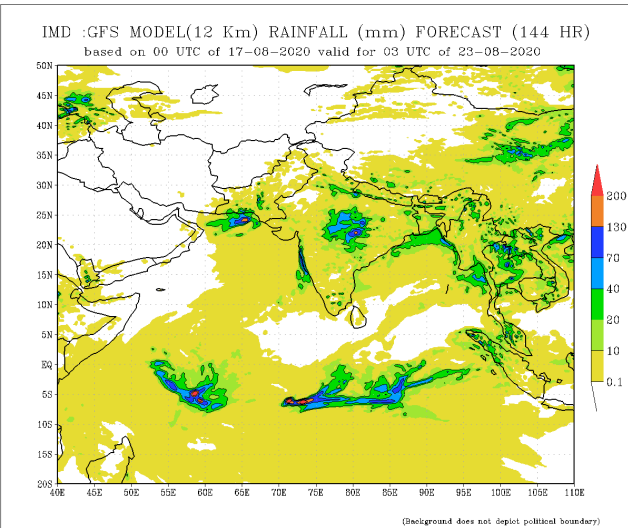
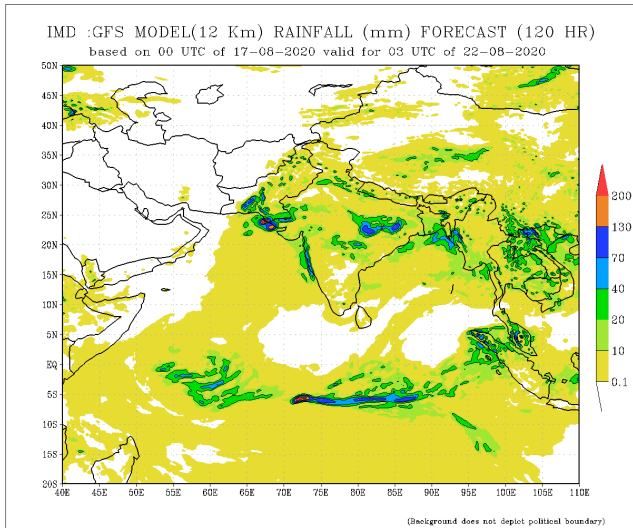


NCEP GFS 1- 14 Day prediction



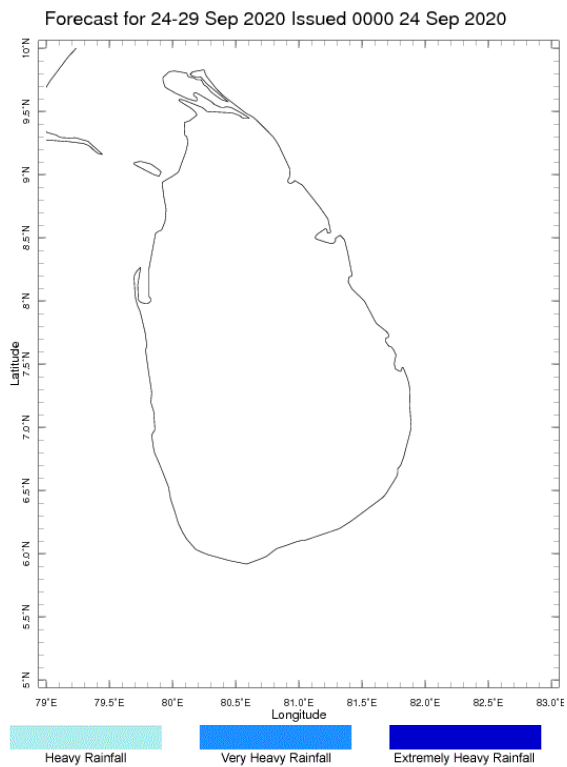
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India



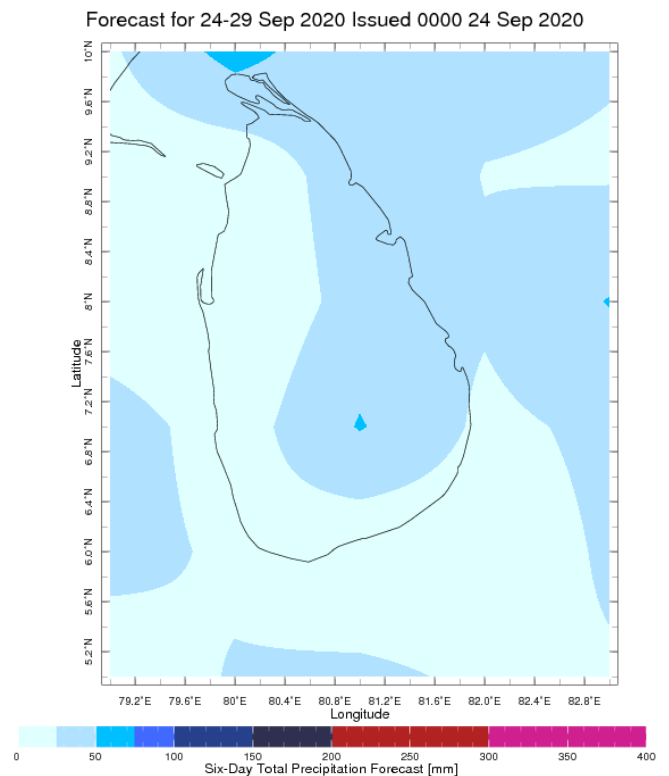


Weekly Rainfall Forecast from IRI

Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.



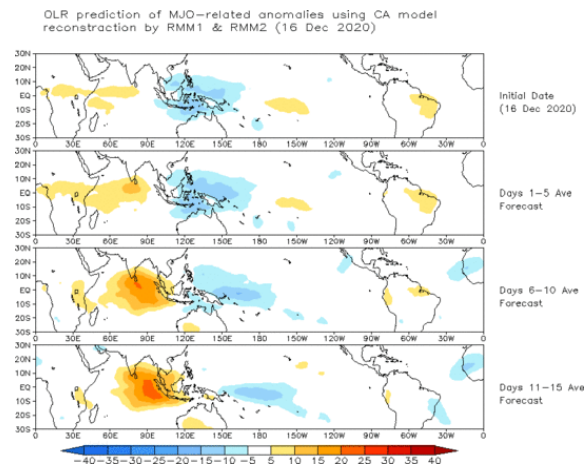
Extreme Rainfall Forecast



Total Six Day Precipitation Forecast

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

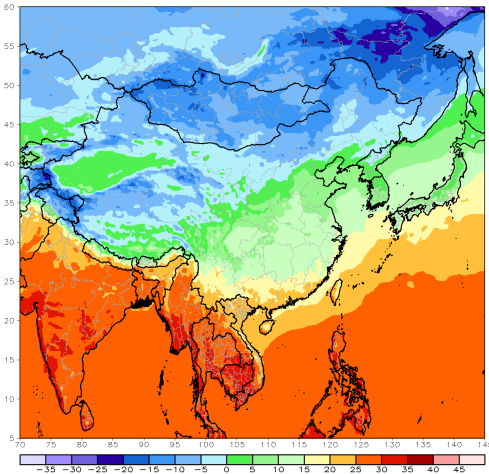
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



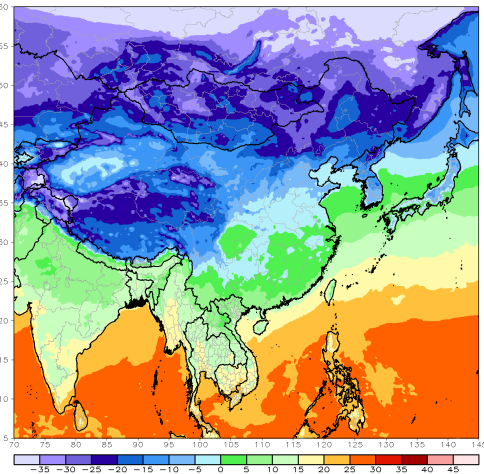
Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)
Ending: 18z24Dec2020



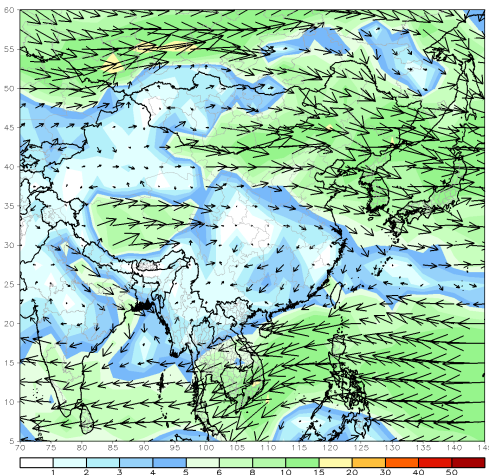
GFS week1 Temperature Min (C)
Ending: 18z24Dec2020



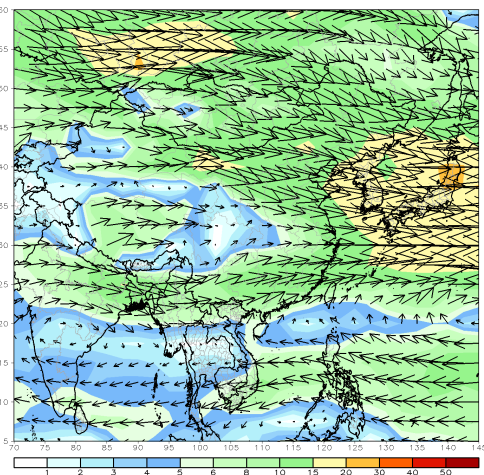
Weekly Wind Forecast

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)
Ending: 18z24Dec2020



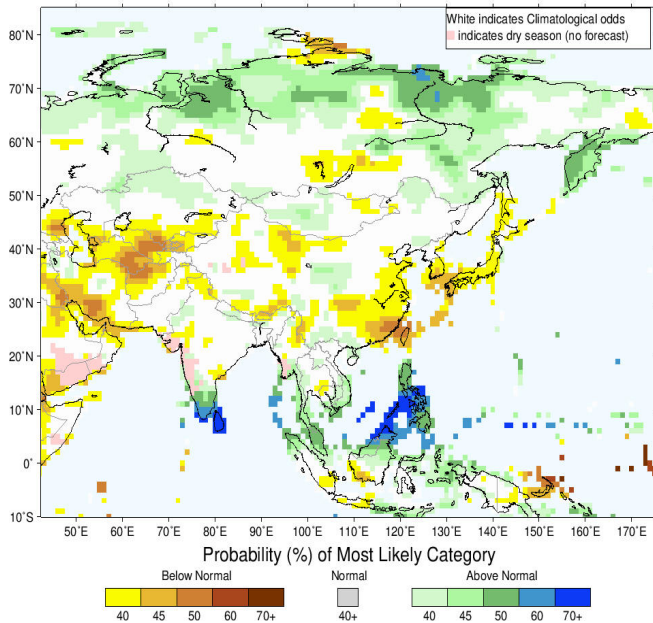
GFS 700mb week1 Mean Vector Wind Total (m/s)
Ending: 18z24Dec2020



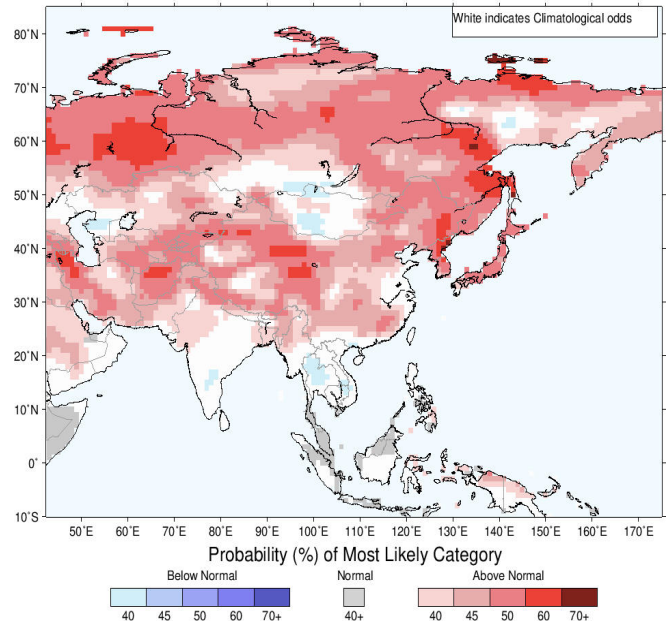
Seasonal Rainfall and Temperature Forecast

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 2021, Issued December 2020



IRI Multi-Model Probability Forecast for Temperature for January–February–March 2021, Issued December 2020



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