

**Week of
15 - 22 January
2021**

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

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HIGHLIGHTS

Rainfall Prediction



• Dangerously heavy rainfall of 140 mm expected in Eastern province during 14th – 20th Jan.

Monitored Rainfalls



• Heavy rainfall was experienced in Northern & Eastern provinces. Up to 154 mm max rainfall in Mullaitivu district on 11th Jan.

Monitored Wind



• From 5th - 11th Jan: up to 6 km/h Northeasterly winds were experienced by the northern half of the island.

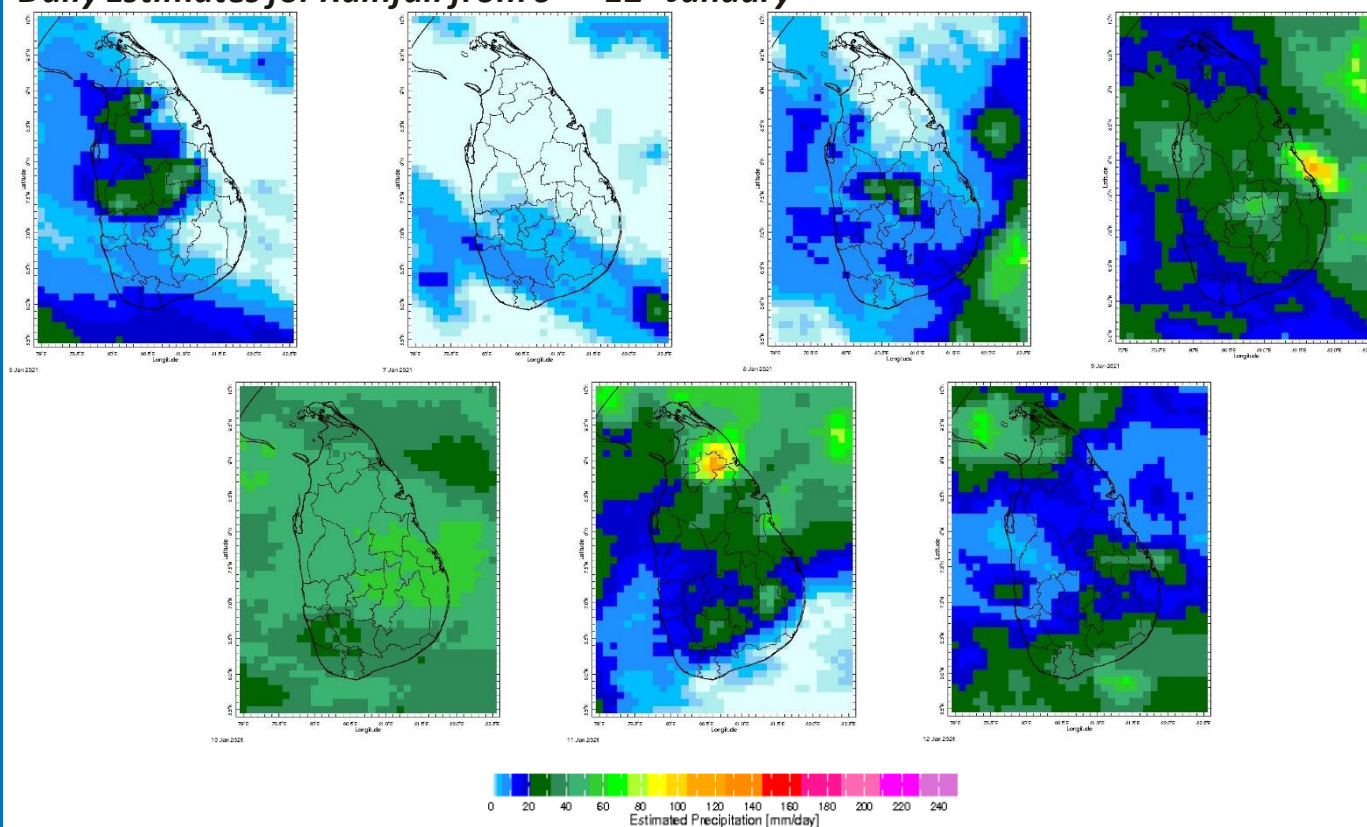
Monitored Sea Surface



• 0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring Rainfall

Daily Estimates for Rainfall from 6th – 12th January





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Total Rainfall for the Past Week

The RFE 2.0 tool shows 7-day total Cumulative rainfall by Districts:

Rainfall	Districts
150 – 200 mm	Jaffna, Kilinochchi, Mullaitivu, Trincomalee, Vavuniya
100 – 150 mm	Mannar, Anuradhapura, Polonnaruwa, Kurunegala, Nuwara Eliya, Moneragala, Ampara, Puttalam, Gampaha, Colombo, Kalutara, Kegalle, Ratnapura, Galle, Matara, Hambantota, Kandy, Matale, Batticaloa, Badulla

Weekly Rainfall Anomalies by Districts:

Rainfall Excess

Rainfall	Districts
100 – 200 mm	Jaffna, Kilinochchi, Mullaitivu, Mannar, Vavuniya
50 – 100 mm	Trincomalee, Anuradhapura, Polonnaruwa, Gampaha, Colombo, Kalutara, Ratnapura, Hambantota, Nuwara Eliya, Galle, Matara, Moneragala, Batticaloa, Kegalle, Ampara, Badulla, Matale, Kandy, Kurunegala, Puttalam

Monthly Monitoring

During December, Dekadal Rainfall (mm/day) by Districts:

21st – 31st December:

Rainfall	Districts
16 mm	Batticaloa, Polonnaruwa, Colombo, Gampaha
14 mm	Ampara, Matale, Trincomalee
12 mm	Anuradhapura, Kalutara, Badulla
10 mm	Vavuniya, Ratnapura, Galle, Matara
8 mm	Kegalle, Hambantota, Moneragala, Kandy, Kurunegala, Mannar, Mullaitivu

1st – 10th January:

Rainfall	Districts
16 mm	Batticaloa, Polonnaruwa, Anuradhapura, Ampara, Matale, Trincomalee, Kandy, Kurunegala, Kegalle, Badulla, Moneragala, Vavuniya, Mannar, Gampaha
14 mm	Hambantota, Nuwara Eliya, Colombo, Puttalam, Mullaitivu
12 mm	Kalutara, Ratnapura, Galle
10 mm	Matara, Kilinochchi
8 mm	Jaffna



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Ocean State (Text Courtesy IRI)

Pacific sea state: January 6, 2021

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

Indian Ocean State

0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 14th – 20th January:

Total rainfall by Provinces:

Rainfall	Provinces
140 mm	Eastern
105 mm	Uva
85 mm	Central
75 mm	Northern, North-central
55 mm	Western, North-western, Sabaragamuwa, Southern

From 21st – 27th January:

Total rainfall by Provinces:

Rainfall	Provinces
140 mm	Eastern
75 mm	Northern
45 mm	North-central
35 mm	Western, Central
25 mm	Uva, Sabaragamuwa
15 mm	Southern, North-western

MJO based OLR predictions

For the next 15 days:

MJO shall significantly enhance the rainfall during 13th – 27th January.



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Interpretation

Monitoring

Rainfall: During the last two weeks, there had been high rainfall over the following provinces: Northern and Eastern.

Wind: As is typical for January the Northeasterly winds prevailed in the sea area and around the island.

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

Predictions

Rainfall: During the next week (January 14-20), extreme rainfall is predicted for the Eastern coastal region. A drop in rainfall is predicted over the rest of the country. The amount of rainfall is significantly high and thus caution is warranted.

Temperatures: The temperature remains slightly above normal for January.

Teleconnections:

- MJO shall significantly enhance the rainfall during 13th – 27th January.
- La Nina - The SST forecast is for La Nina conditions to continue through April weakening through June. So, the La Niña is expected to be moderate to strong in coming seasons.

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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2. Predictions

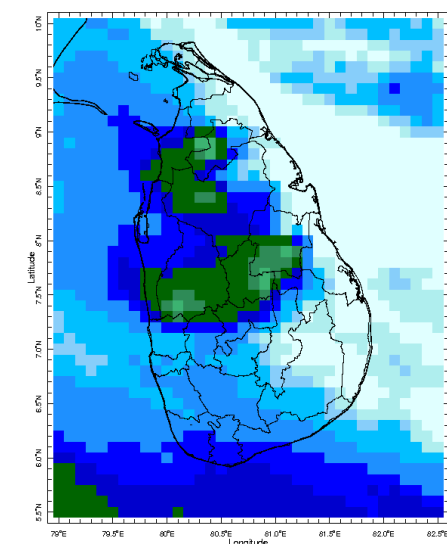
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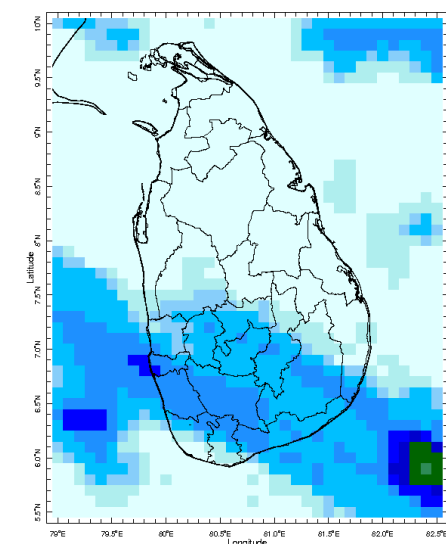
MONITORING

Daily Rainfall Monitoring

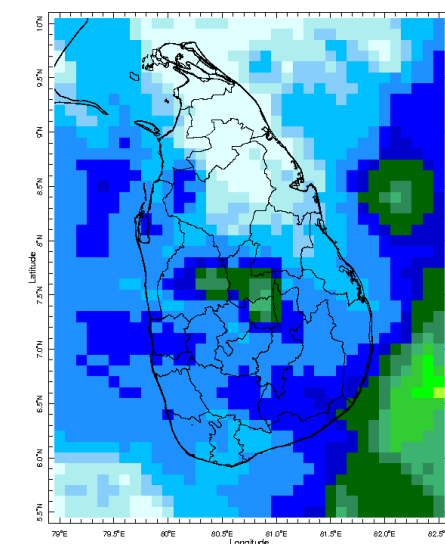
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



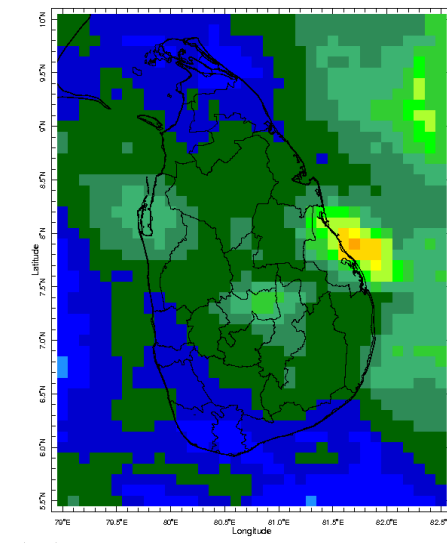
6 Jan 2021



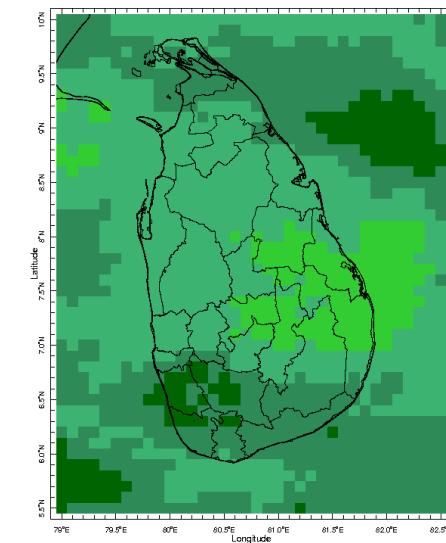
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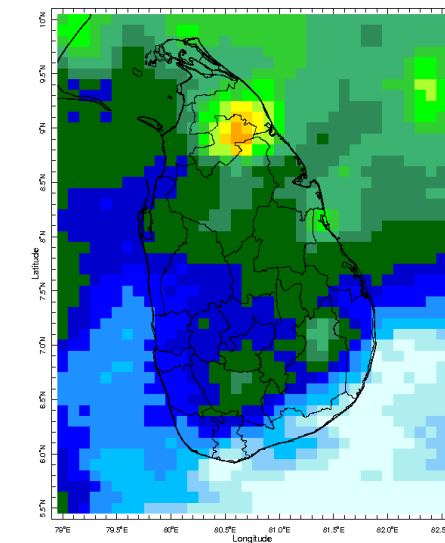
8 Jan 2021



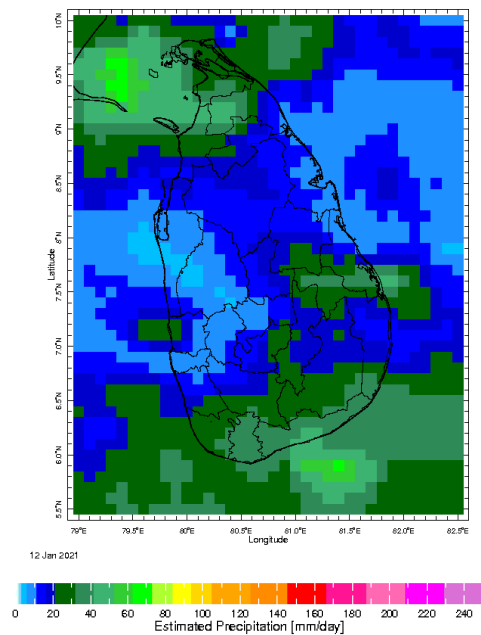
9 Jan 2021



10 Jan 2021

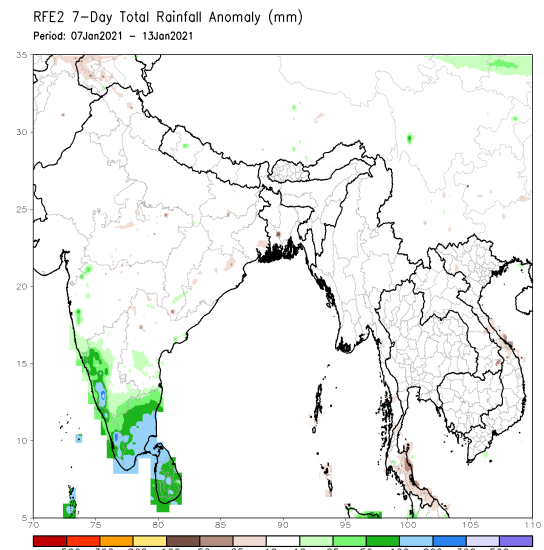
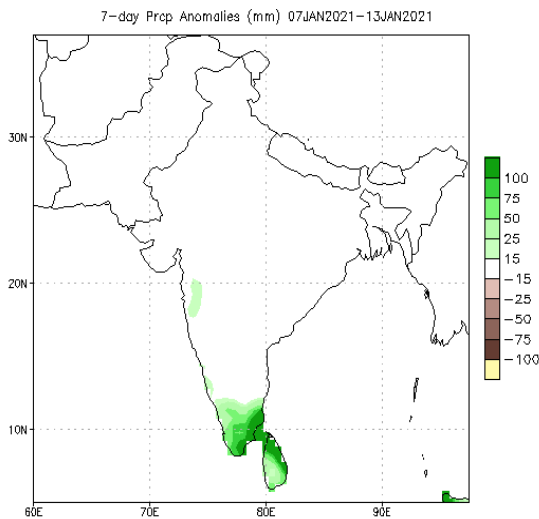
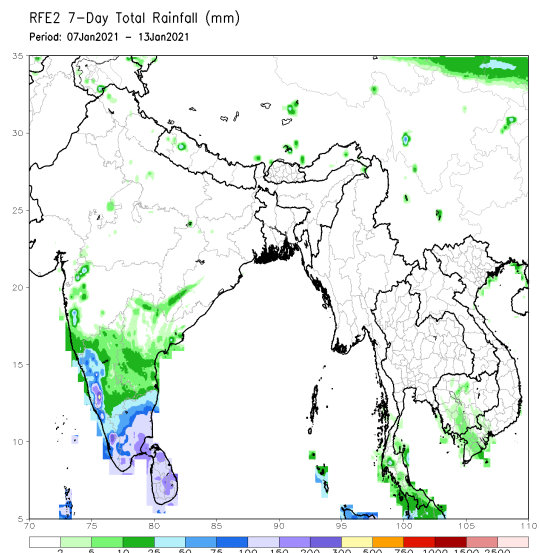
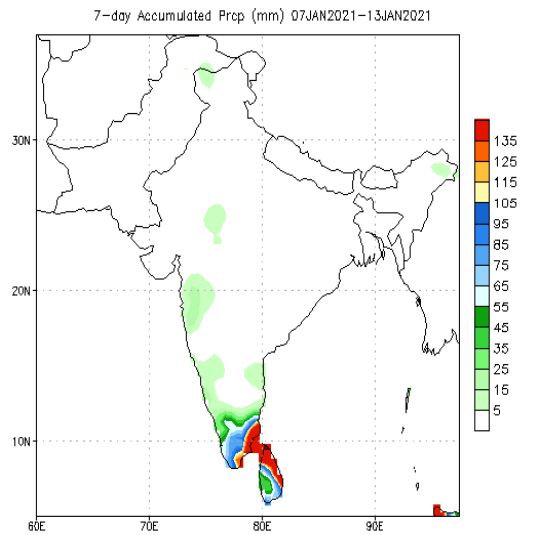


11 Jan 2021



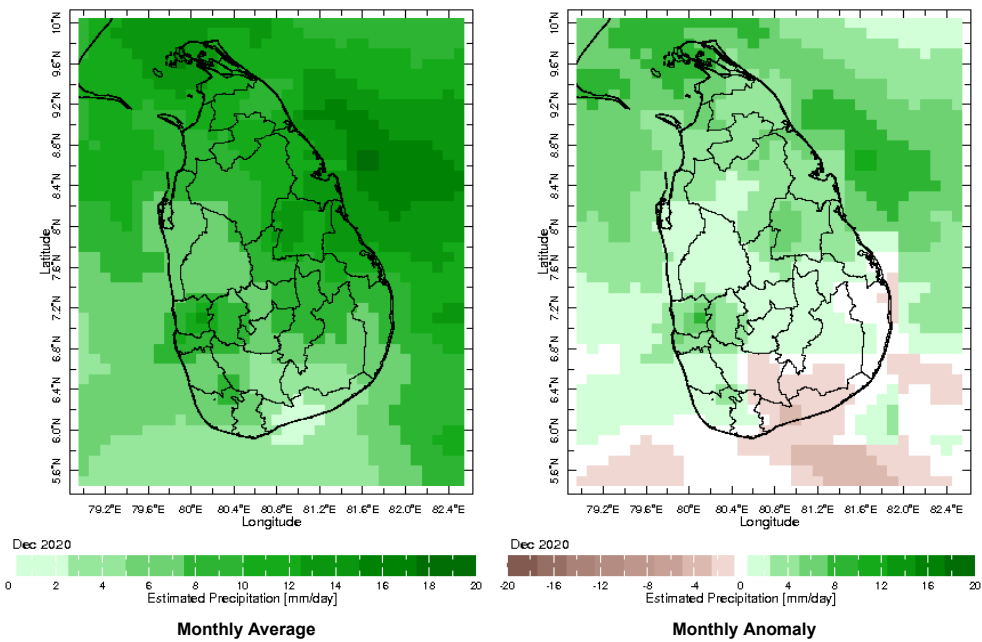
Weekly Rainfall Monitoring

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.

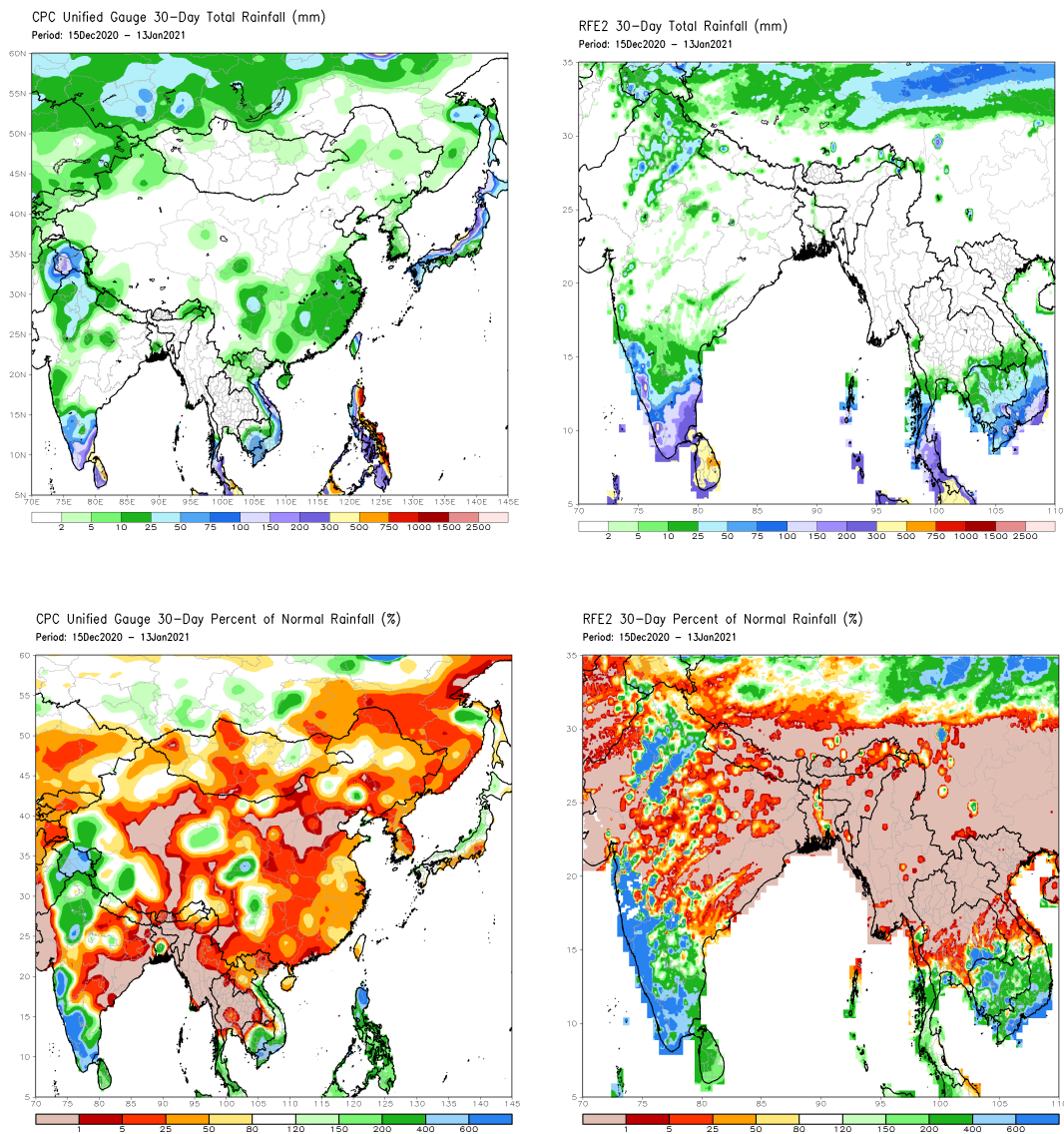


Monthly Rainfall Monitoring

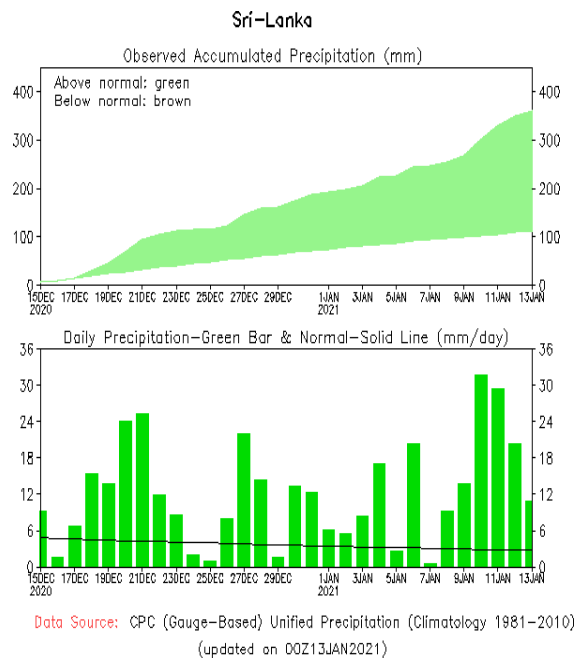
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



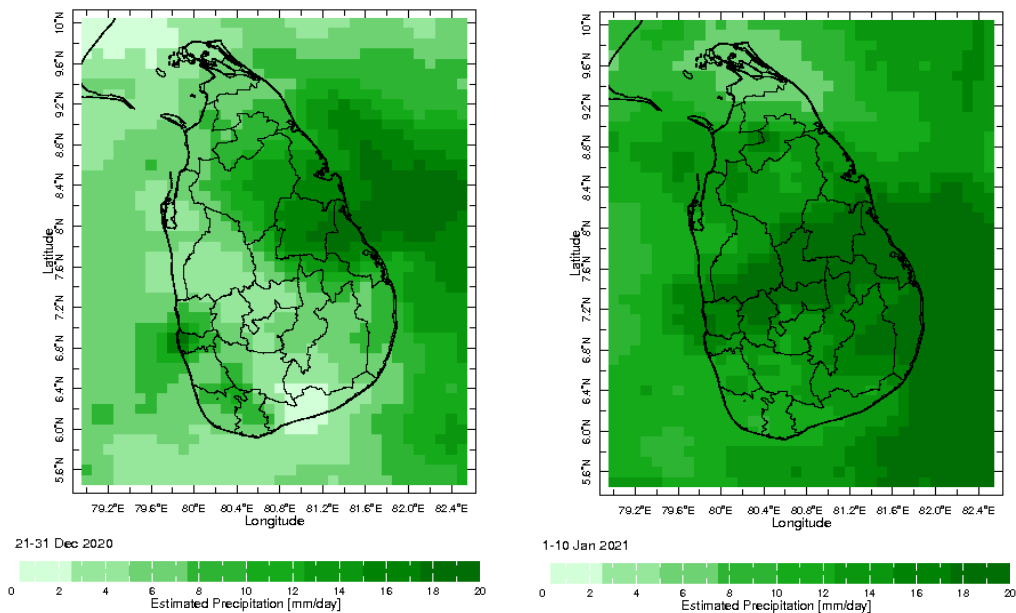
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



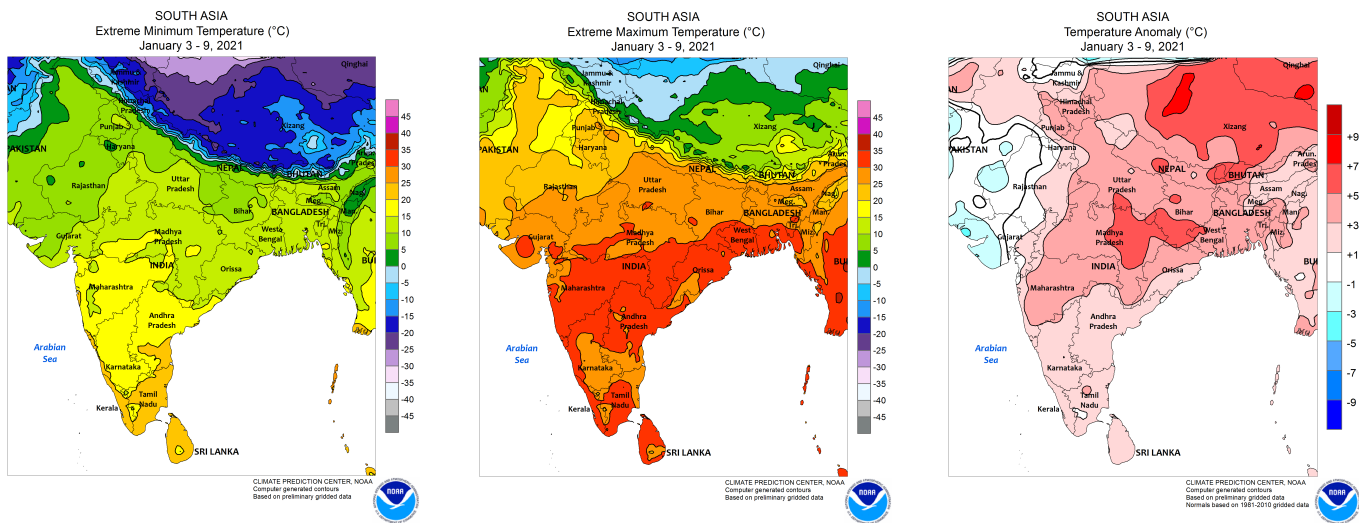
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

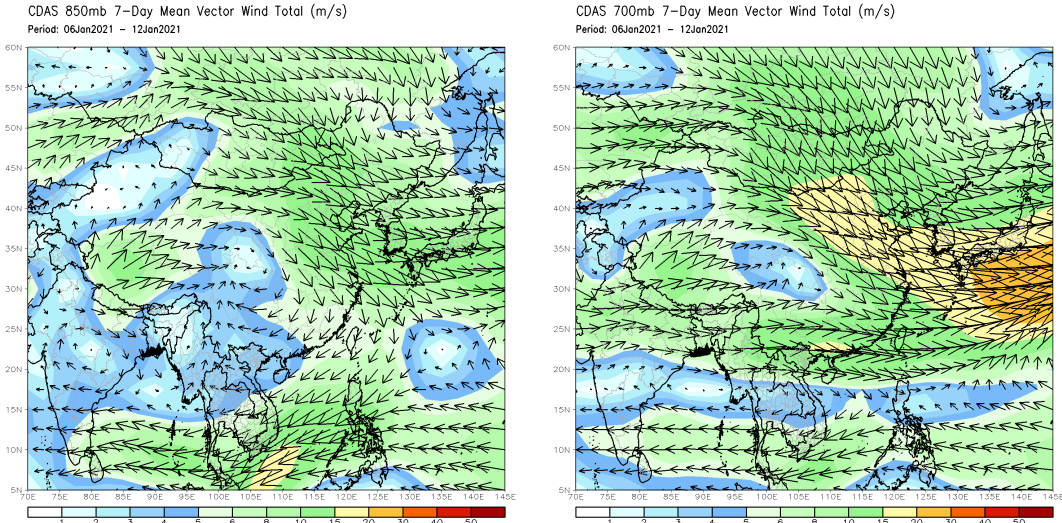


Weekly Temperature Monitoring



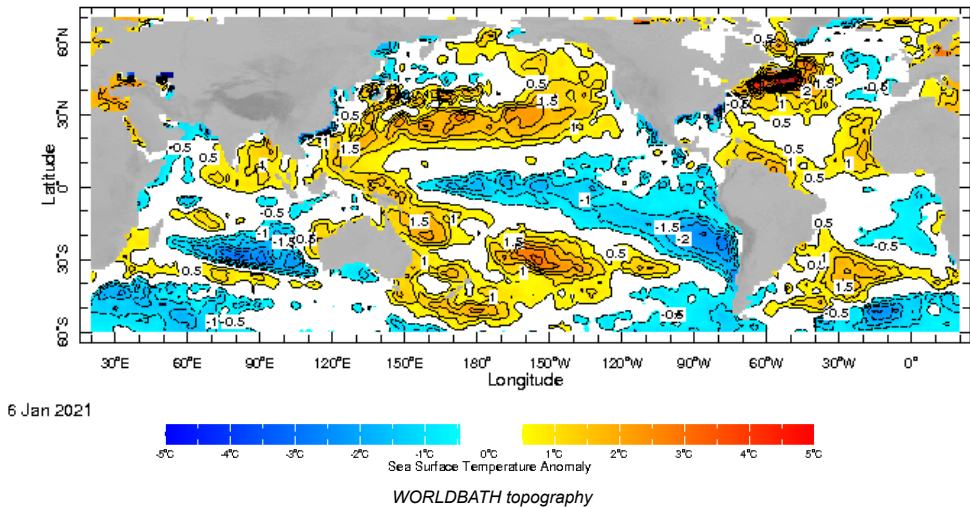
Weekly Wind Monitoring

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.

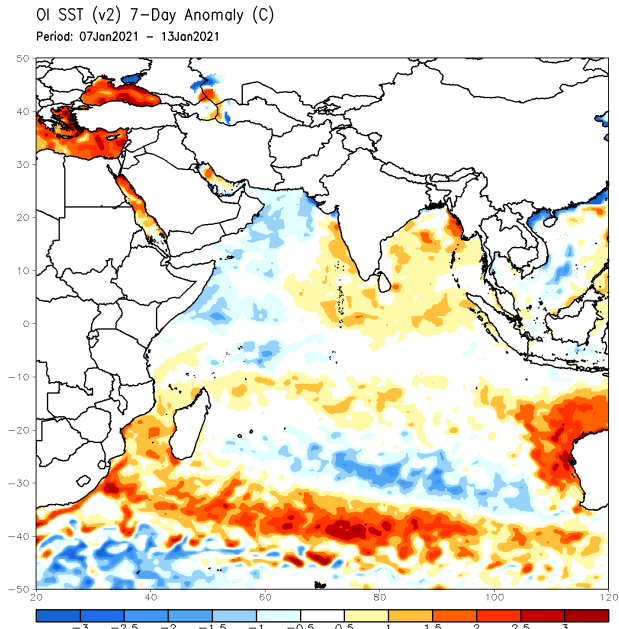


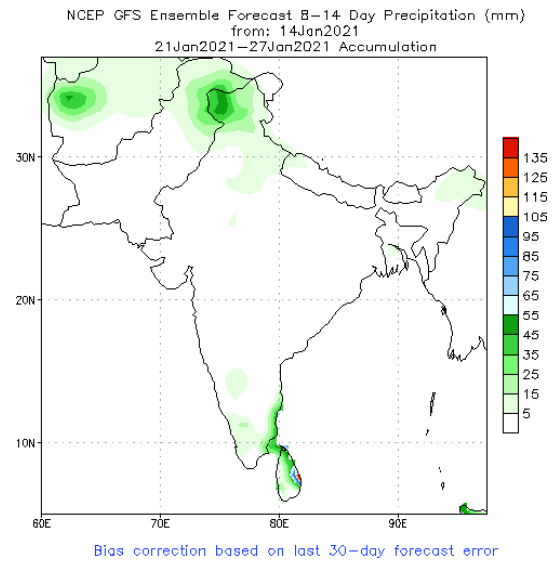
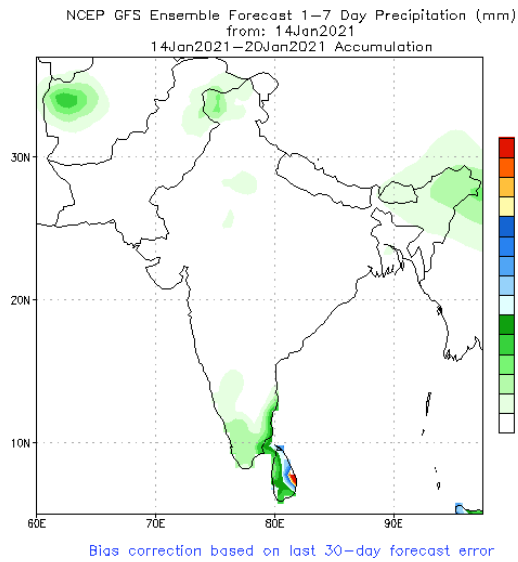
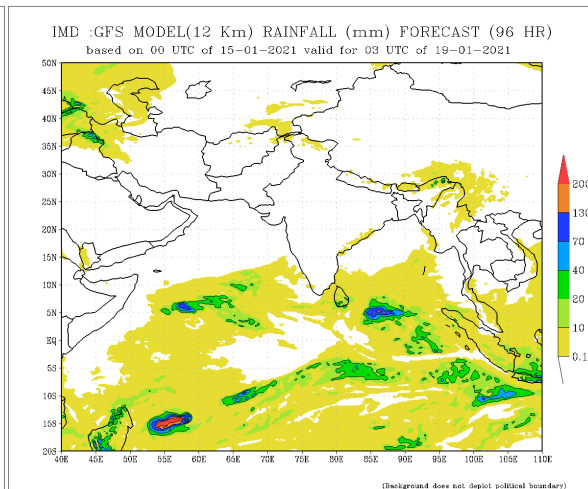
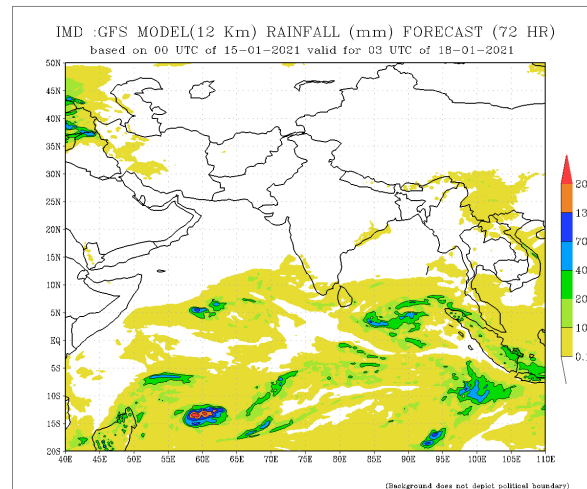
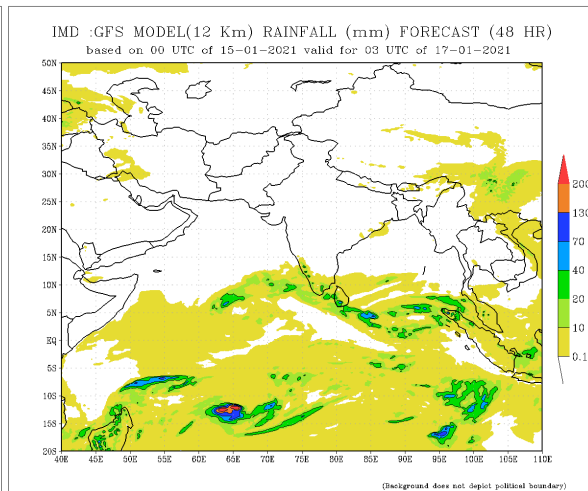
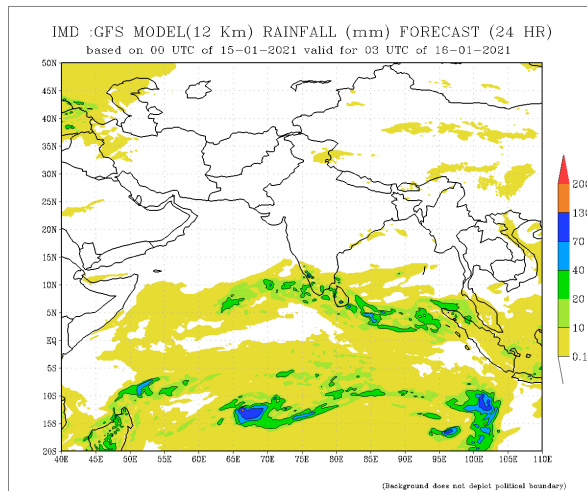
Weekly Average SST Anomalies

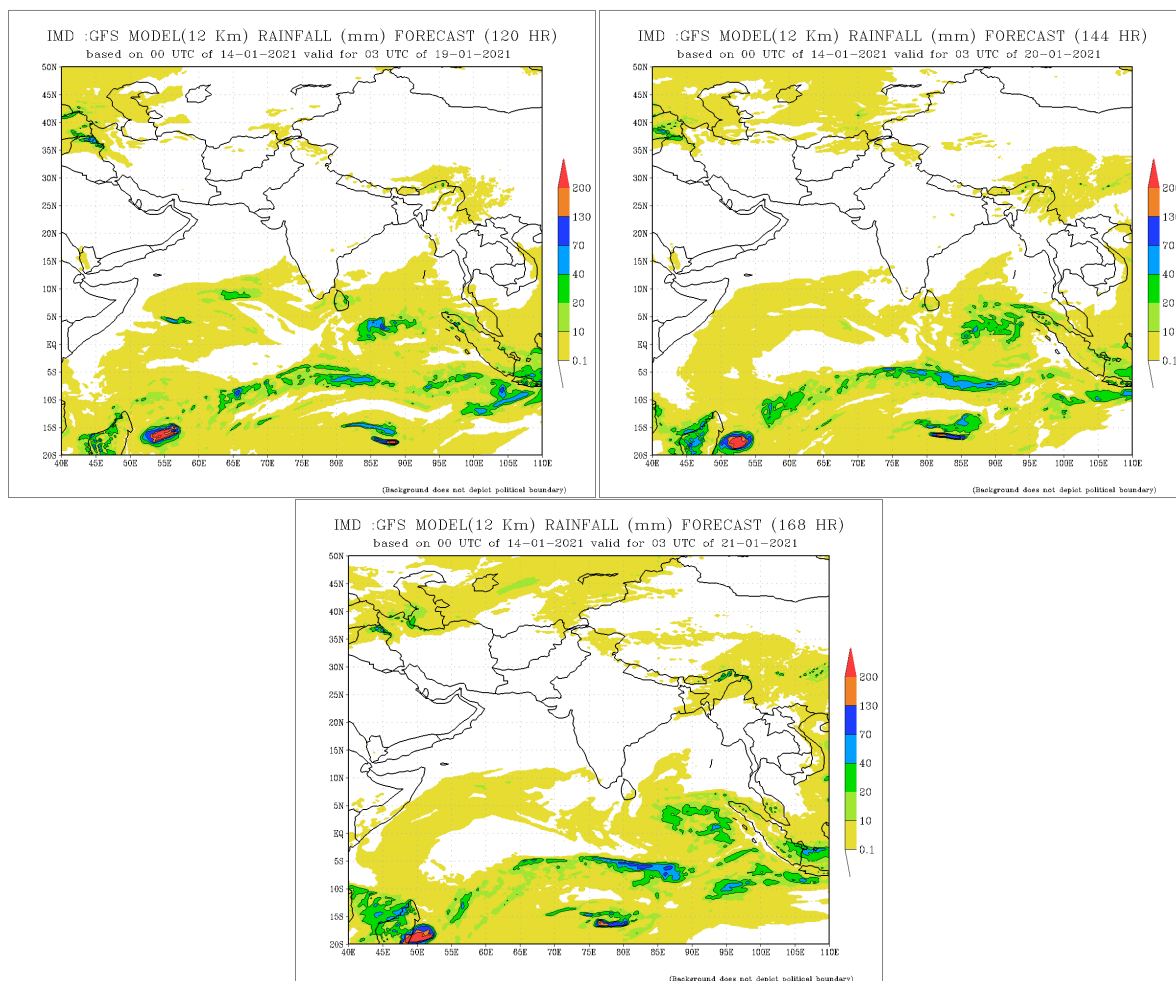
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



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

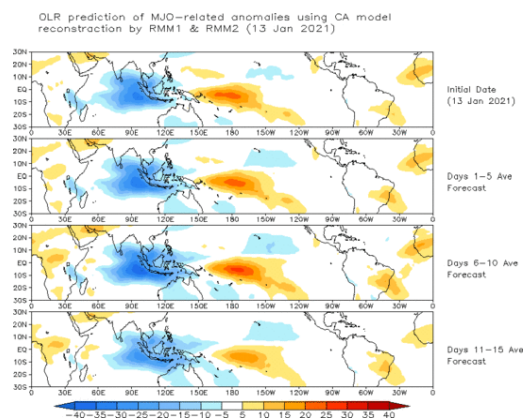


NCEP GFS 1- 14 Day prediction**IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India**



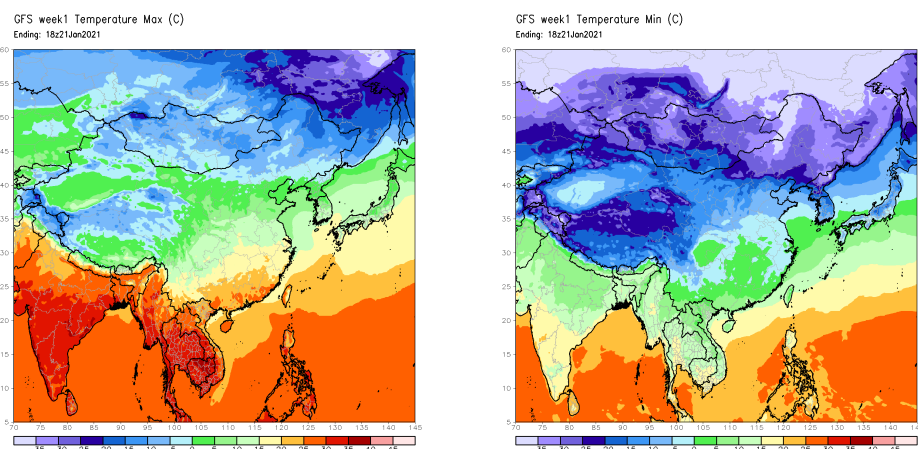
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.



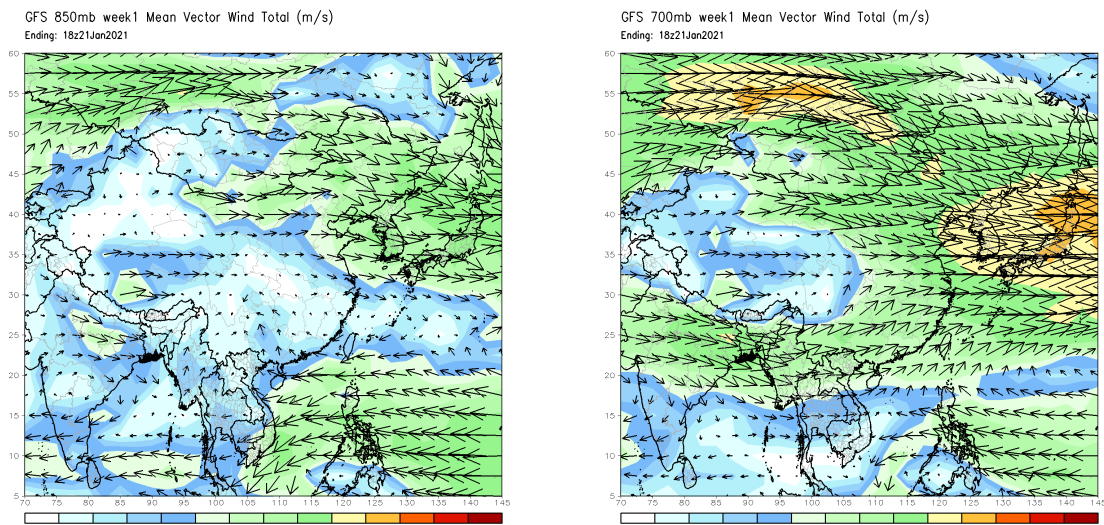
Weekly Temperature Forecast

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



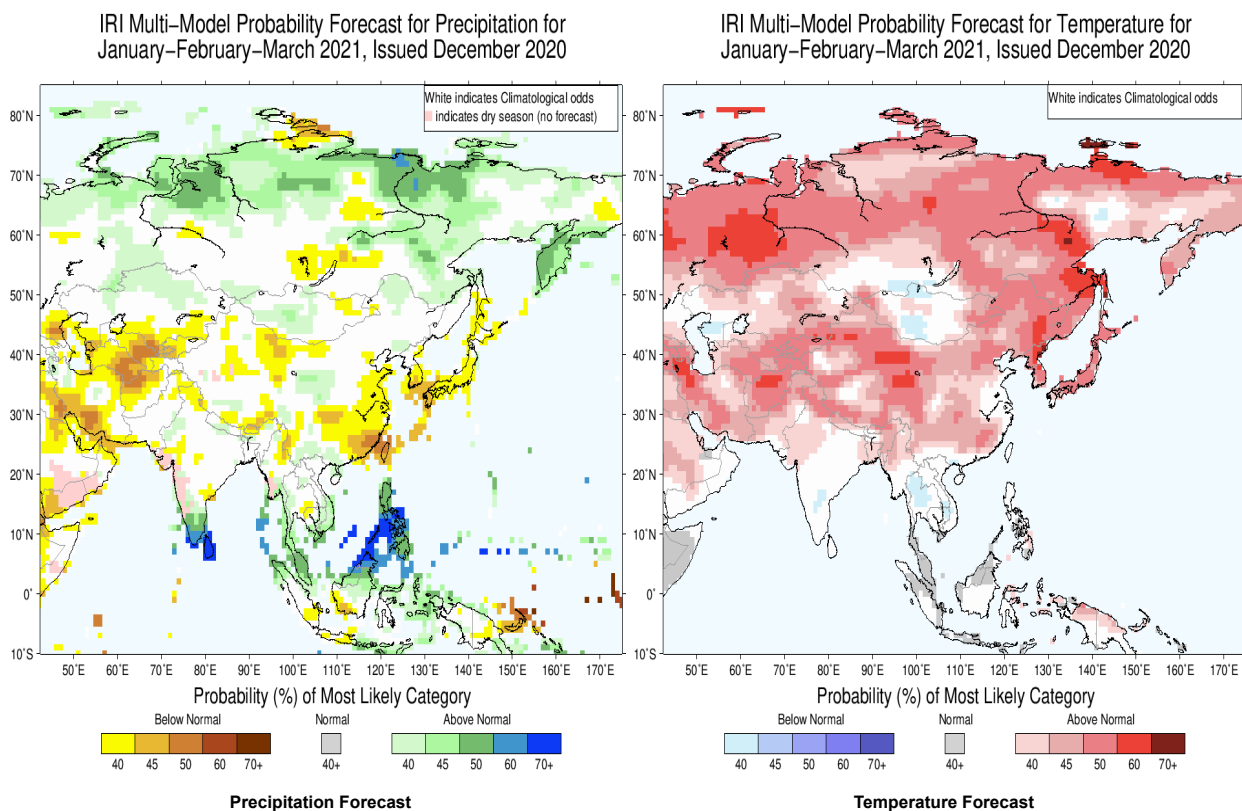
Weekly Wind Forecast

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%).



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