

**25 September
2020**

EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

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HIGHLIGHTS

Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 75 mm in Jaffna district during 23th -29th September.

Monitored Rainfalls



- Between 16th-22th September: up to 50 mm in Nuwara Eliya district 18th September.

Monitored Wind



- From 25th Sep-2th Oct: up to 10 km/h, North westerly winds were experienced by the southern half of the island.

Monitored Sea Surface

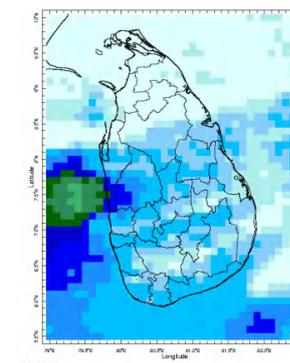
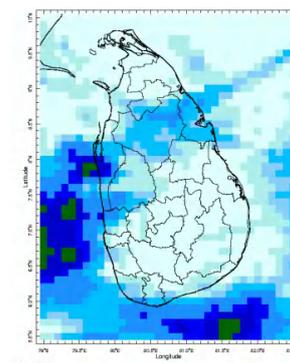
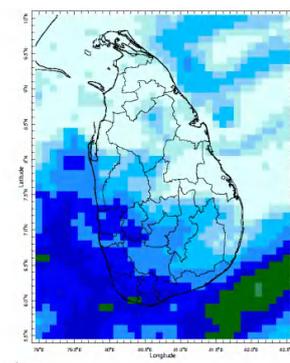
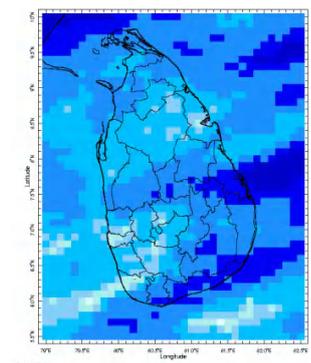
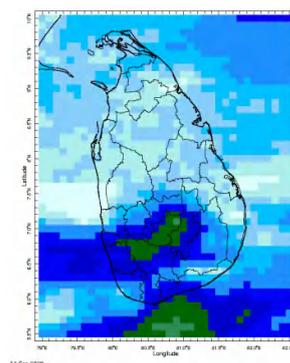
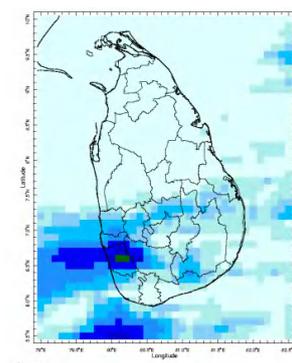
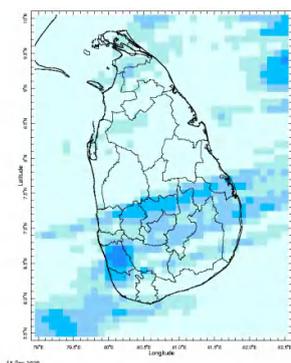


- 1°C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring





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Date	Rainfall
16 th September	Up to 10 mm in Kalutara and Ratnapura districts.
17 th September	Up to 30 mm in Ratnapura district.
18 th September	Up to 50 mm in Nuwara Eliya district and up to 30 mm in Kandy, Badulla, Ratnapura, Kegalle, Colombo and Kalutara districts.
19 th September	Up to 20 mm in Batticaloa district.
20 th September	Up to 30 mm in Galle and Matara districts.
21 st September	Up to 30 mm in Puttalam district.
22 nd September	Up to 30 mm in Puttalam district.

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 25 – 50 mm in Colombo, Gampaha, Kalutara, Galle, Matara, Hambantota, Ratnapura, Kegalle, Kandy, Nuwara Eliya, Badulla, Kurunegala and Puttalam districts; up to 10 – 25 mm in Mannar, Anuradhapura, Trincomalee, Polonnaruwa, Matale, Ampara, Moneragala, and Batticaloa districts and up to 5 – 10 mm in Jaffna, Kilinochchi, Mullaitivu, Vavuniya districts.

Above rainfall average up to 10 – 25 mm in Hambantota and Matara districts; Below rainfall average up to 10 – 25 mm in Galle, Ratnapura, Gampaha, Colombo, Kalutara, Kegalle, Matale, Kandy, Moneragala, Badulla, Ampara, Batticaloa, Polonnaruwa, Anuradhapura, Trincomalee, Vavuniya and Mullaitivu districts.

Monthly Monitoring

During August – Above average rainfall conditions up to 4 mm in Moneragala, Badulla and Ampara districts; and up to 3 mm in Hambantota, Ratnapura, Nuwara Eliya, Kandy, Matale, Polonnaruwa, Batticaloa, Anuradhapura, Gampaha, Kurunegala, Puttalam, Trincomalee, Vavuniya, Mullaitivu, Mannar, Kilinochchi and Jaffna districts. Below average rainfall conditions up to 3 mm in Kegalle, Colombo, Kalutara, Galle and Matara.

Ocean State (Text Courtesy IRI)

Pacific sea state: September 16, 2020

Equatorial Eastern Pacific SST decreased to near the La Niña threshold in Early-September, and the atmospheric variables were either ENSO-neutral or indicative of weak La Niña conditions. The average of the forecasts of many models just short of the borderline of weak La Niña SST conditions through fall, becoming slightly weaker beginning in early winter. The official CPC/IRI outlook is somewhat similar to these model forecasts, calling for a likely continuation of ENSO-neutral in summer, with approximately equal chances of ENSO-neutral or La Niña for fall and winter.

Indian Ocean State

1 °C above average sea surface temperature was observed in the seas around Sri Lanka.



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Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 23th September – 29rd September: Total rainfall up to 75 mm in Jaffna district; up to 65 mm in Kilinochchi district; up to 55 mm in Mullaitivu, Mannar and Vavuniya districts; up to 45 mm in Anuradhapura, Trincomalee, Polonnaruwa, Kegalle, Gampaha and Ratnapura districts; up to 35 mm in Galle, Matara, Badulla, Moneragala, Ampara, Batticaloa, Matale, Kandy, Nuwara Eliya, Kurunegala and Puttalam districts and up to 25 mm in Hambantota district.

From 30th September – 6th October: Total rainfall up to 35 mm in Ratnapura, Kegalle, Gampaha, Colombo, Galle, Kandy and Nuwara Eliya districts; up to 25 mm in Matara, Badulla, Moneragala, Ampara, Matale, Kurunegala and Puttalam districts; and up to 15 mm in Hambantota, Batticaloa, Polonnaruwa, Anuradhapura, Trincomalee, Vavuniya, Mullaitivu, Kilinochchi and Jaffna districts.

NOAA Model Forecast:

From 24th – 29th September: Total rainfall up to 75 mm in Badulla district; up to 50 mm in Ampara, Moneragala, Ratnapura, Nuwara Eliya, Kandy, Matale, Polonnaruwa, Anuradhapura, Batticaloa, Trincomalee, Vavuniya, Mullaitivu, Kilinochchi and Jaffna districts; and up to 25 mm in Mannar, Puttalam, Kurunegala, Kegalle, Gampaha, Colombo, Kalutara, Galle, Matara and Hambantota districts.

MJO based OLR predictions

For the next 15 days:

MJO shall slightly suppress during 23rd -27th September and shall significantly suppress during 28th September – 7th October.

¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.



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<http://www.tropicalclimate.org/>



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Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

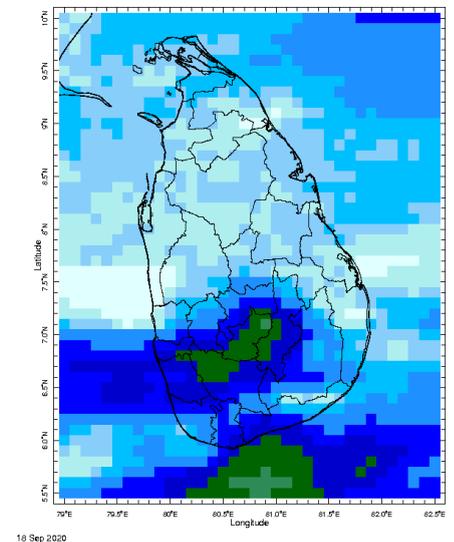
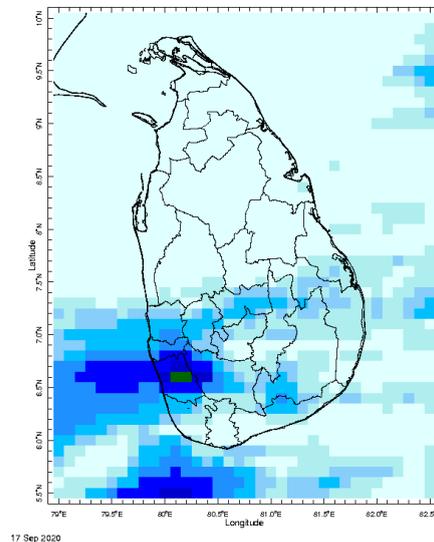
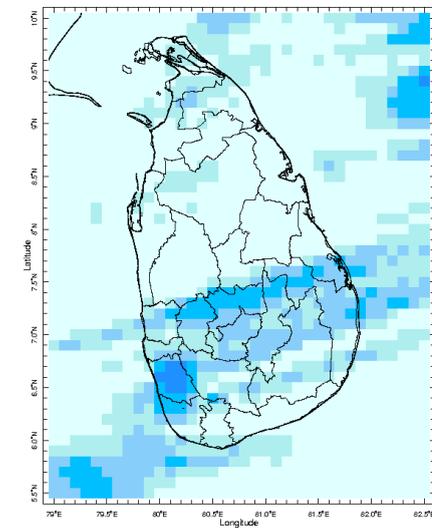
1. **Monitoring**
 - a. Daily Rainfall Monitoring
 - b. Weekly Rainfall Monitoring
 - c. Monthly Rainfall Monitoring
 - d. Dekadal (10 Day) Satellite Derived Rainfall Estimates
 - e. Weekly Temperature Monitoring
 - f. Weekly Wind Monitoring
 - g. Weekly Average SST Anomalies
2. **Predictions**
 - a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
 - b. GFS (T574) Model Rainfall Forecast from RMSC New Delhi
 - c. WRF Model Rainfall Forecast from IMD Chennai
 - d. MJO Related OLR Forecast
 - e. Weekly Precipitation Forecast from IRI
 - f. Weekly Temperature Forecast
 - g. Weekly Wind Forecast
 - h. Seasonal Predictions from IRI

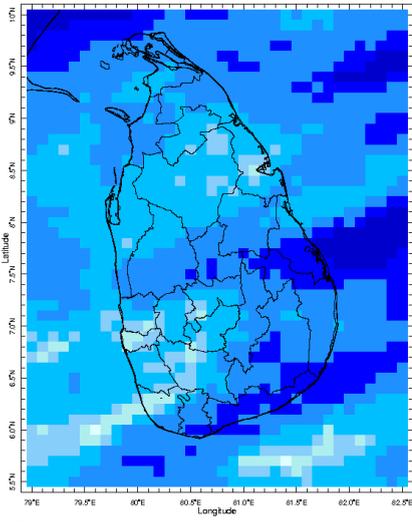


MONITORING

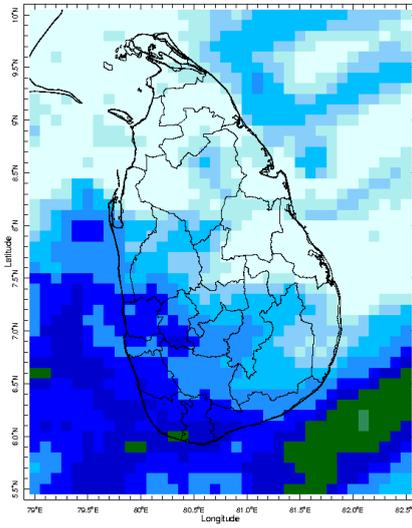
Daily Rainfall Monitoring

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

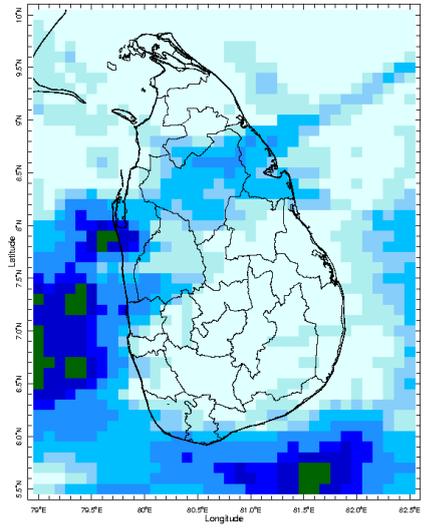




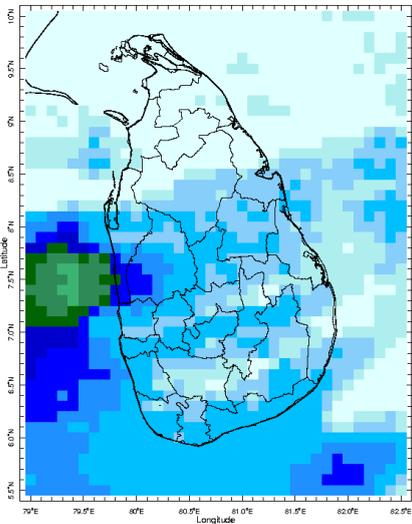
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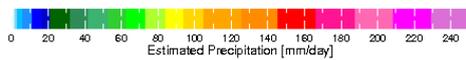
20 Sep 2020



21 Sep 2020

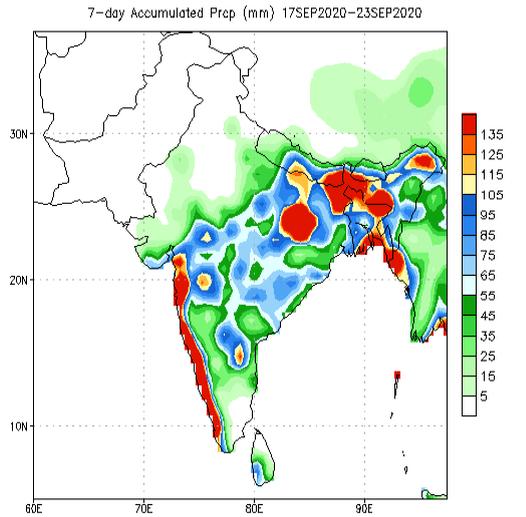


22 Sep 2020

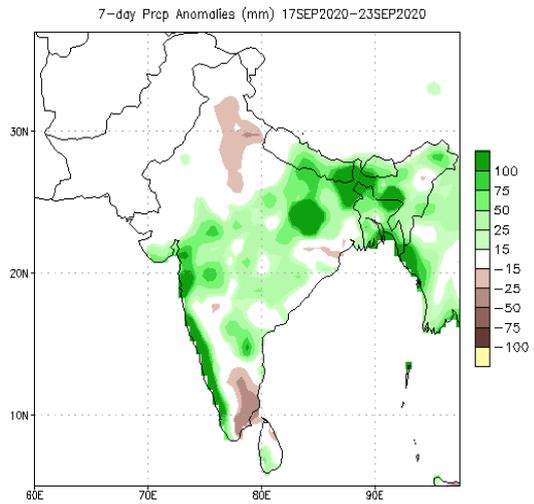
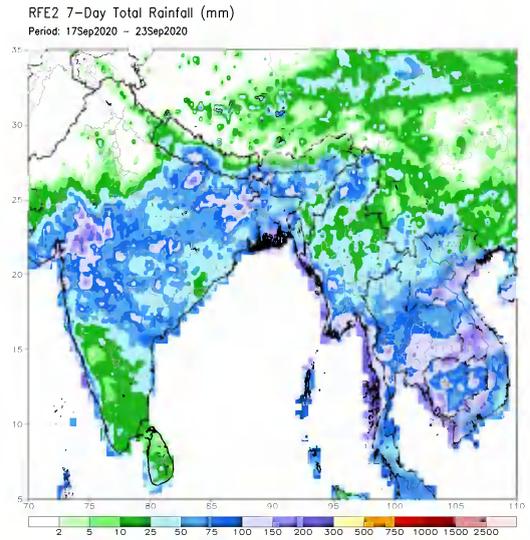


Weekly Rainfall Monitoring

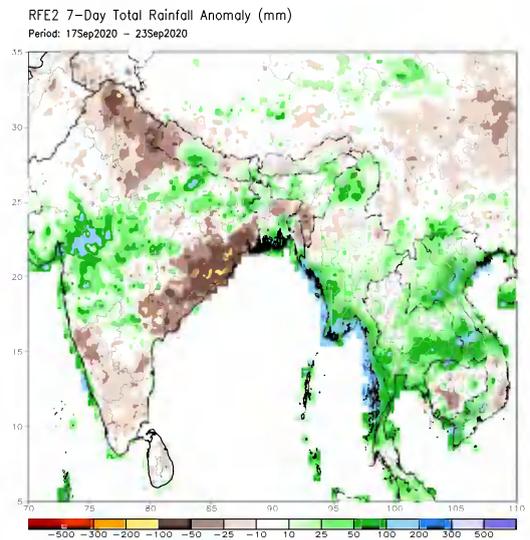
The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite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



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

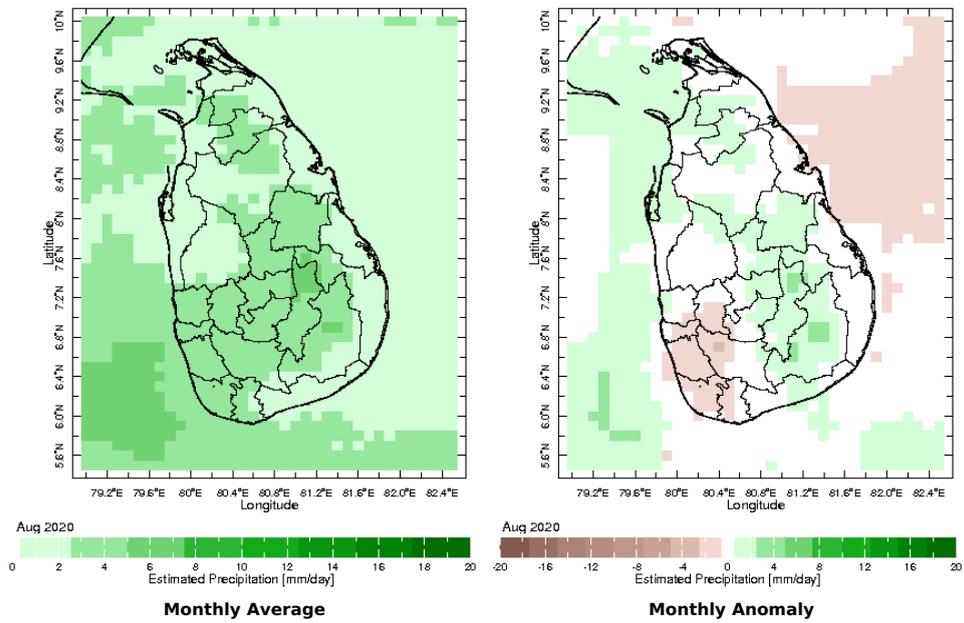


Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1981-2010)

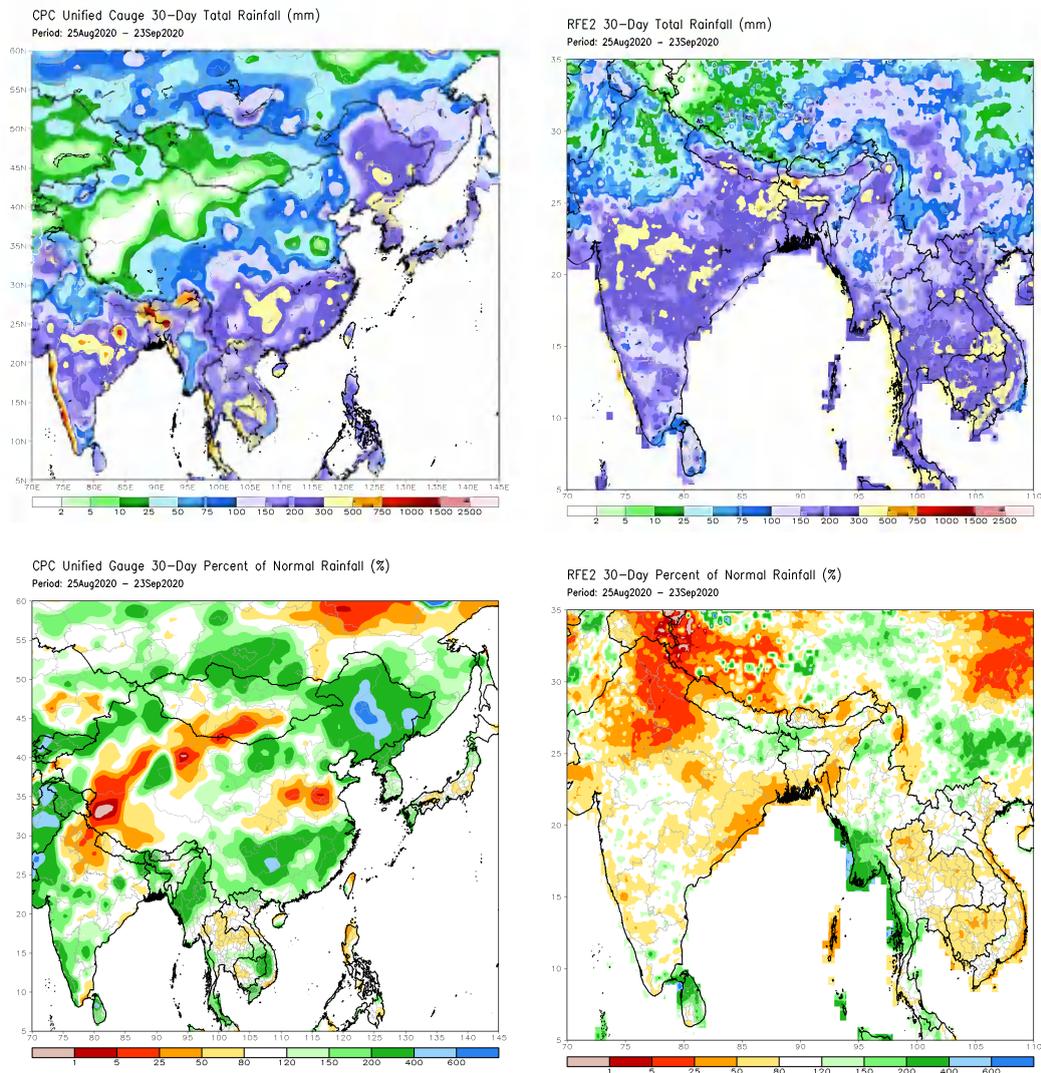


Monthly Rainfall Monitoring

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

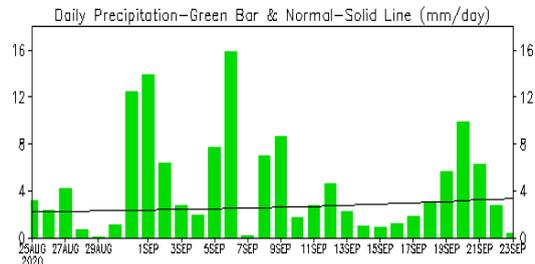
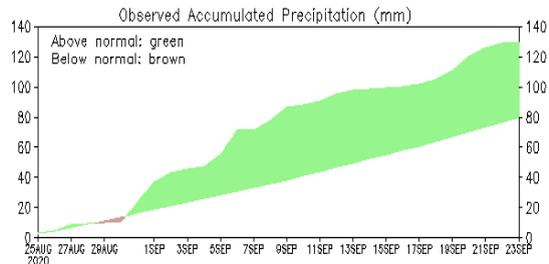


The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



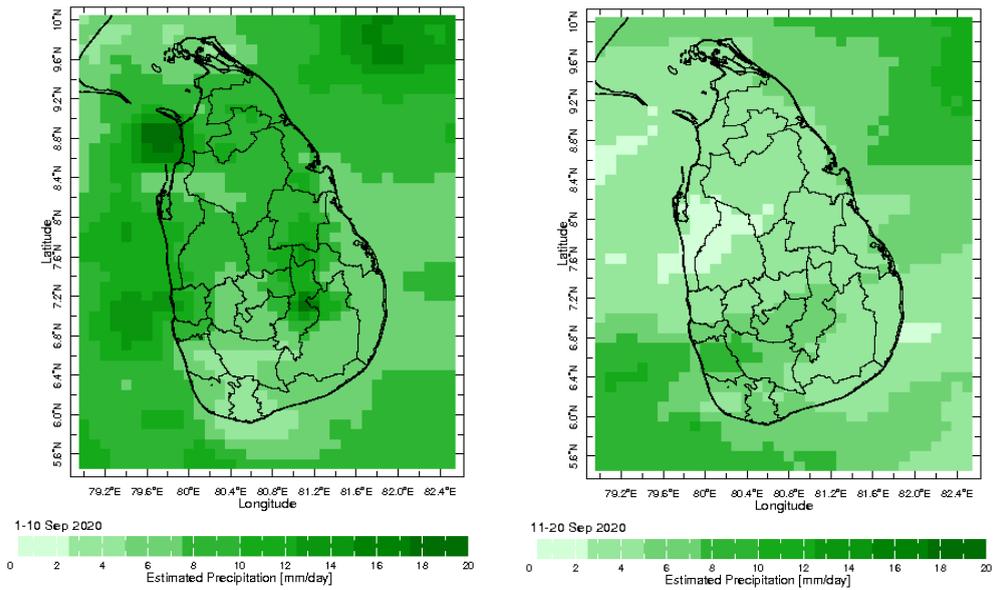
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.

Sri-Lanka

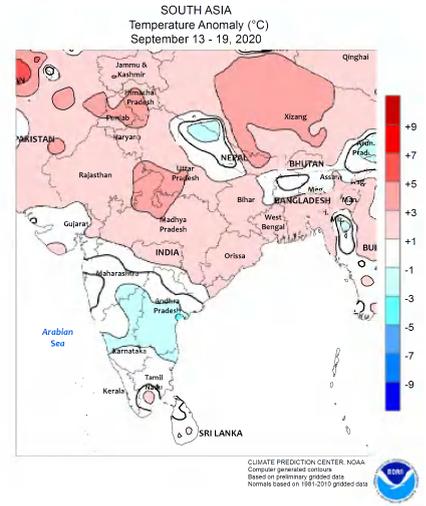
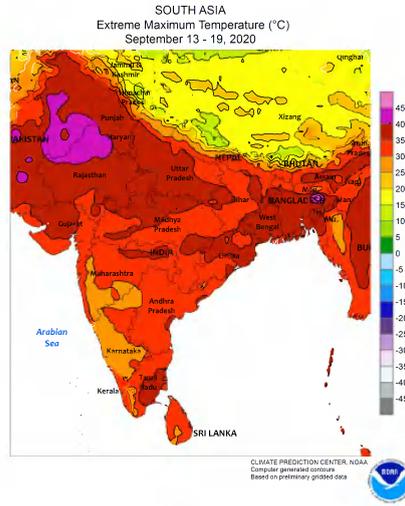
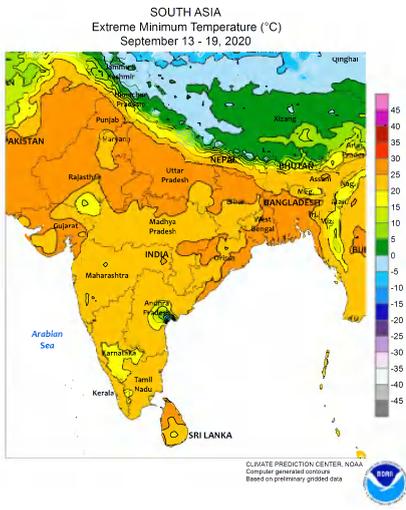


Data Source: CPC (Gauge-Based) Unified Precipitation (Climatology 1981–2010)
(updated on 00Z23SEP2020)

Dekadal (10 Day) Satellite Derived Rainfall Estimates



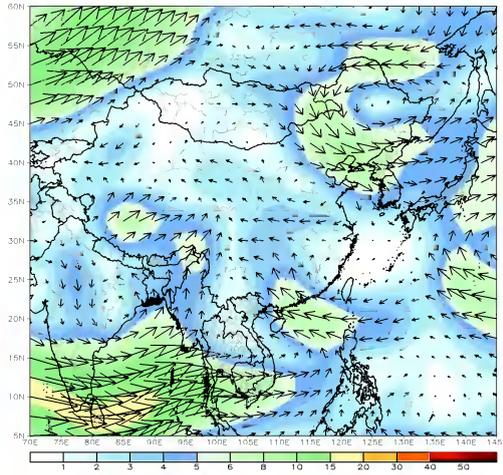
Weekly Temperature Monitoring



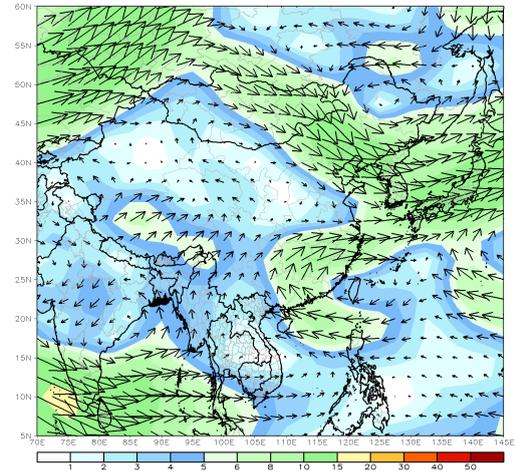
Weekly Wind Monitoring

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.

CDAS 850mb 7-Day Mean Vector Wind Total (m/s)
 Period: 16Sep2020 - 22Sep2020

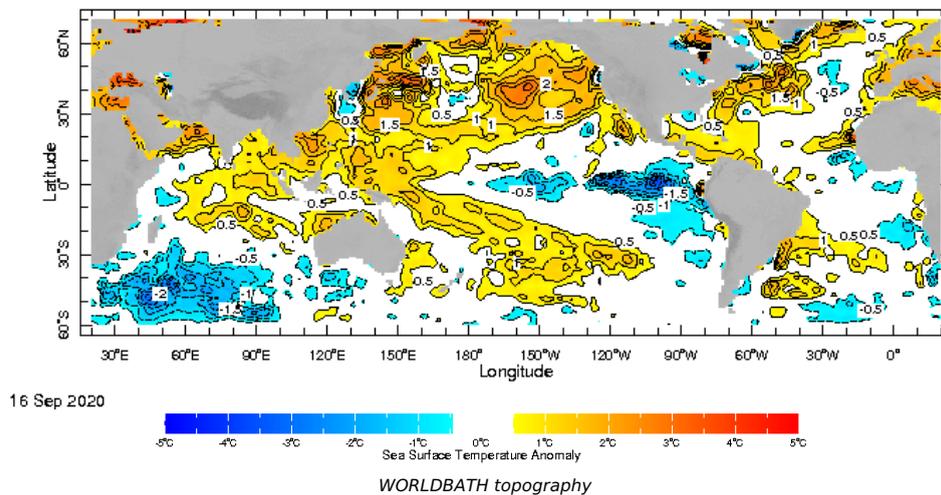


CDAS 700mb 7-Day Mean Vector Wind Total (m/s)
 Period: 16Sep2020 - 22Sep2020



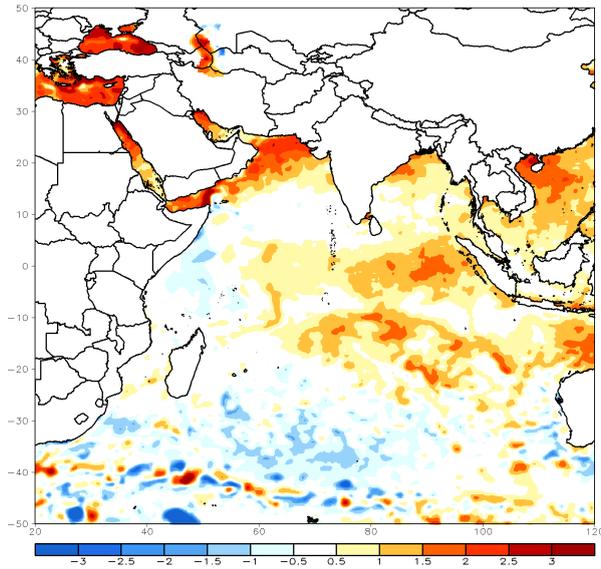
Weekly Average SST Anomalies

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

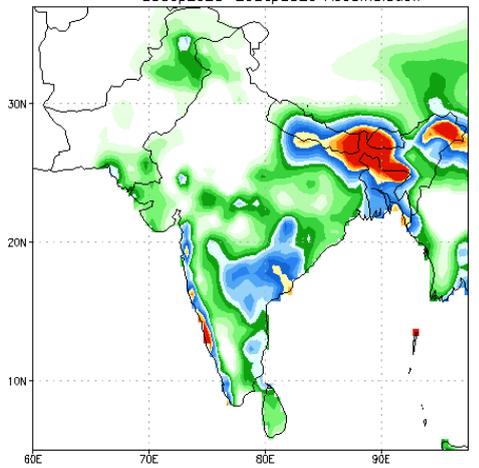
OI SST (v2) 7-Day Anomaly (C)
Period: 17Sep2020 - 23Sep2020



PREDICTIONS

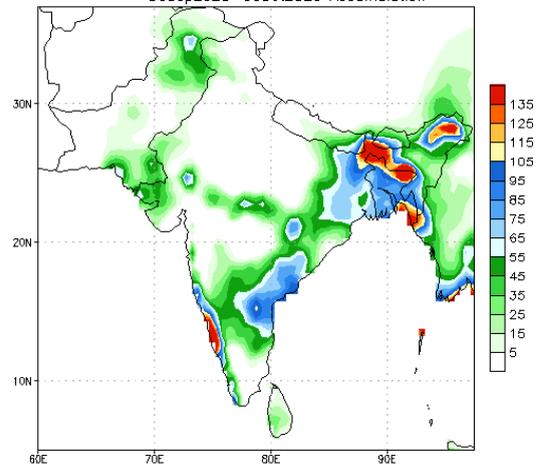
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 23Sep2020
23Sep2020-29Sep2020 Accumulation



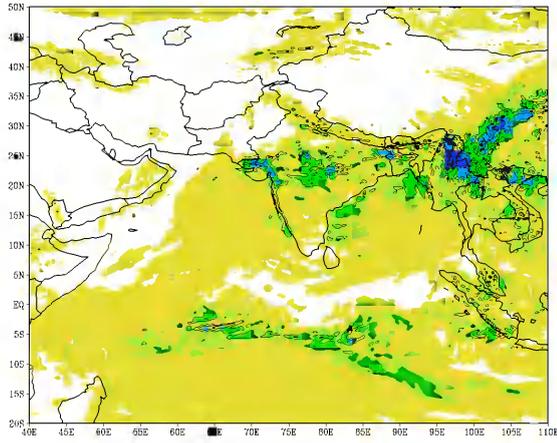
Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 23Sep2020
30Sep2020-06Oct2020 Accumulation



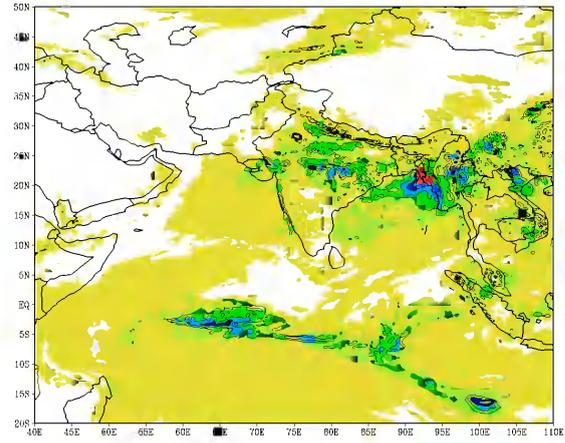
Bias correction based on last 30-day forecast error

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 18-08-2020



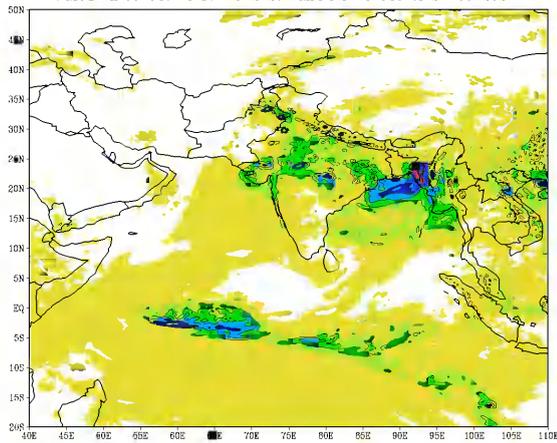
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 19-08-2020



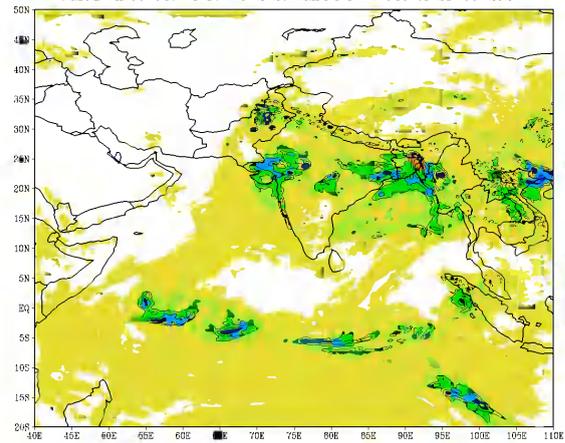
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IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 20-08-2020



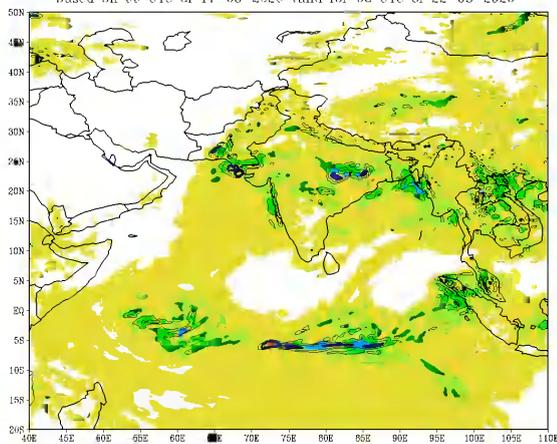
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IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 21-08-2020



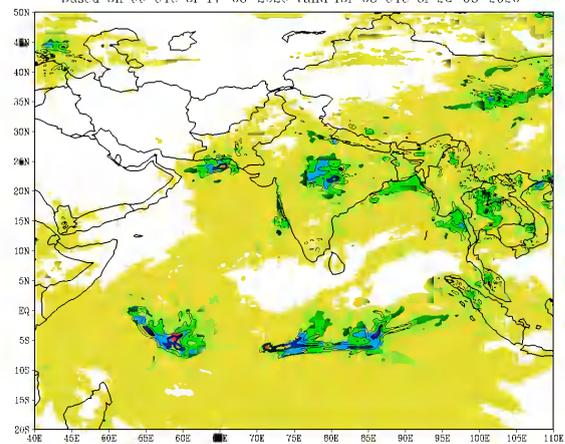
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IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 22-08-2020

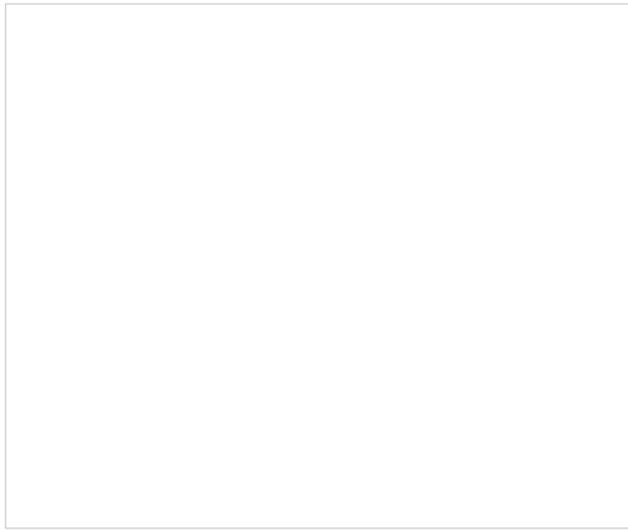


(Background does not depict political boundary)

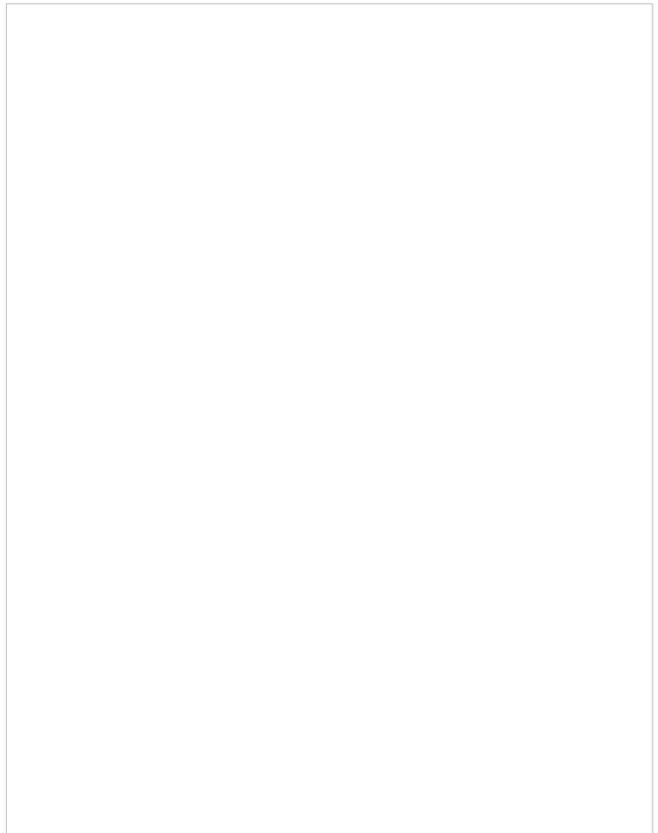
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (144 HR)
based on 00 UTC of 17-08-2020 valid for 03 UTC of 23-08-2020



(Background does not depict political boundary)



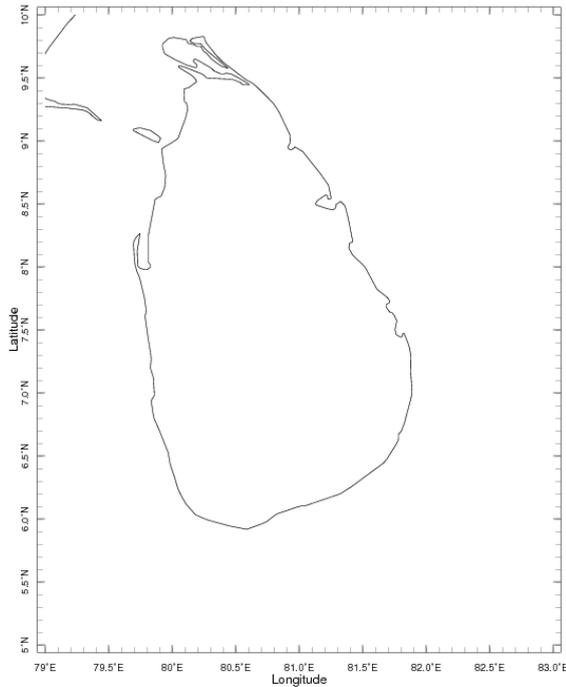
WRF Model Forecast (from IMD Chennai)



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.

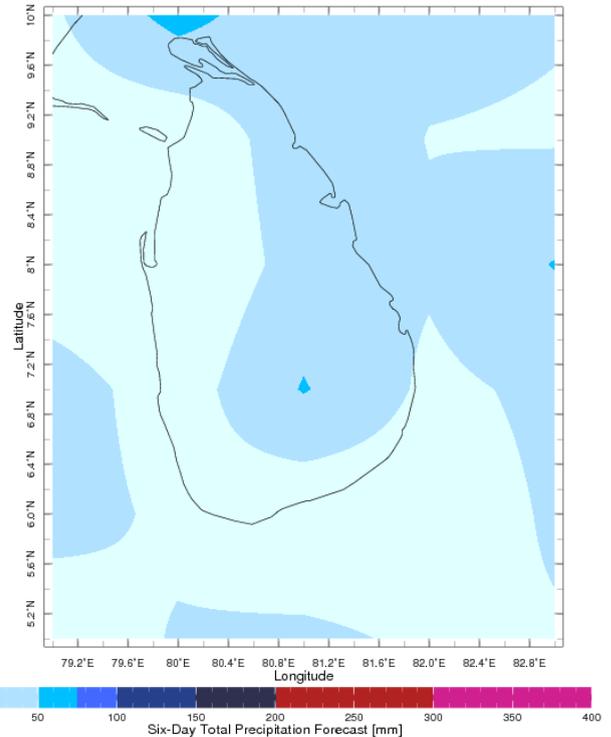
Forecast for 24-29 Sep 2020 Issued 0000 24 Sep 2020



Heavy Rainfall Very Heavy Rainfall Extremely Heavy Rainfall

Extreme Rainfall Forecast

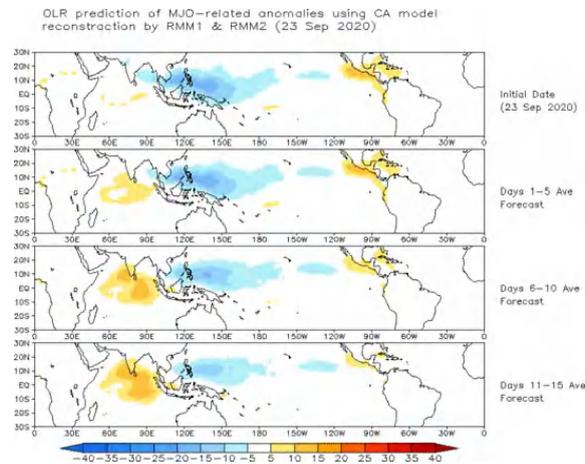
Forecast for 24-29 Sep 2020 Issued 0000 24 Sep 2020



Total Six Day Precipitation Forecast

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

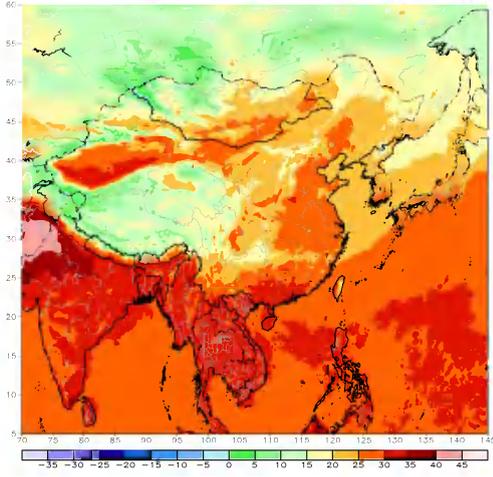
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



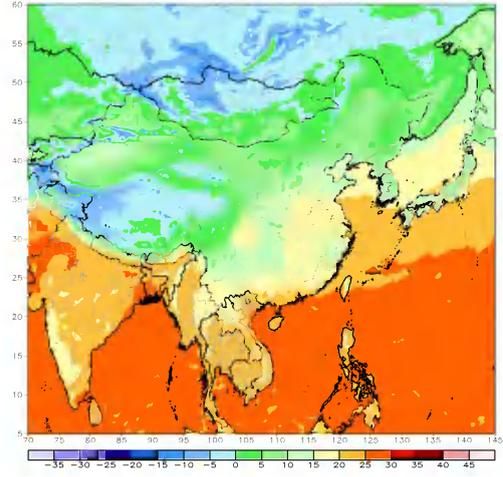
Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)
Ending: 12z01Oct2020



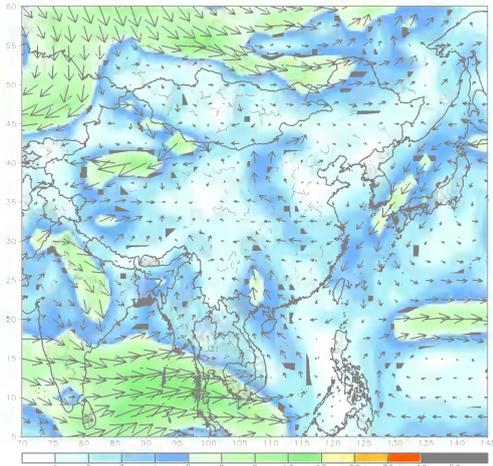
GFS week1 Temperature Min (C)
Ending: 12z01Oct2020



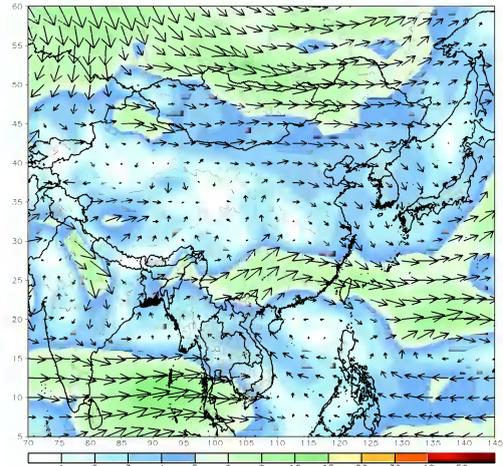
Weekly Wind Forecast

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: 12z01Oct2020



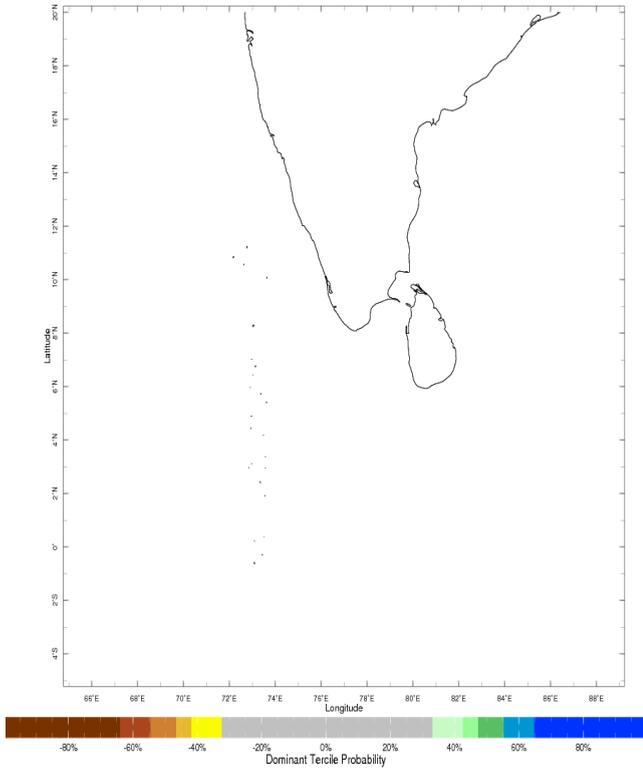
GFS 700mb week1 Mean Vector Wind Total (m/s)
Ending: 12z01Oct2020



Seasonal Rainfall and Temperature Forecast

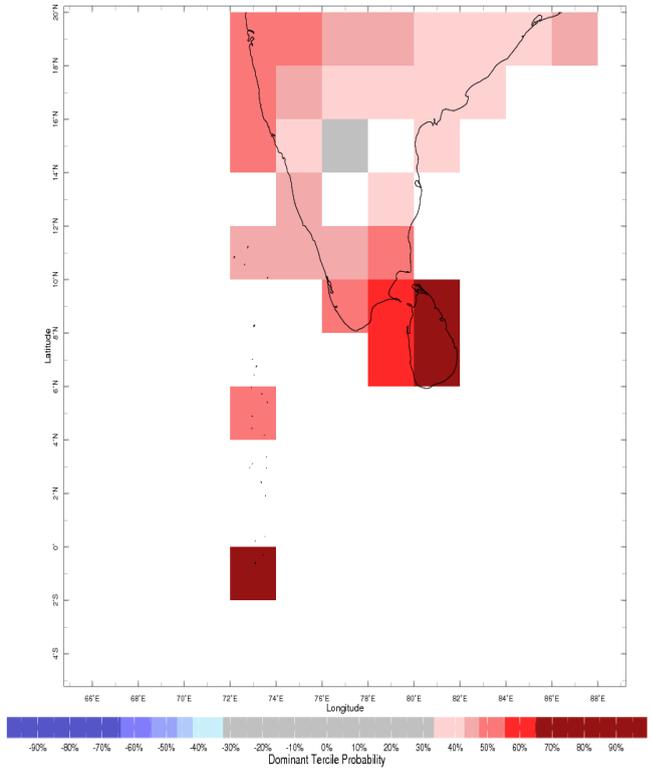
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant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

Apr-Jun 2017 IRI Seasonal Precipitation Forecast issued Mar 2017



Precipitation Forecast

Apr-Jun 2017 IRI Seasonal Temperature Forecast issued Mar 2017



Temperature Forecast

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