



Federation for Environment, Climate and Technology

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9 April
2020

EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

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HIGHLIGHTS

Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 50 mm of total rainfall in central and western regions of the island during 8 - 13 Apr.

Monitored Rainfalls



- Between 1 - 6 Apr: up to 120 mm of rainfalls were recorded in Puttalam and Kurunegala districts on the 4th.

Monitored Wind



- From 31 Mar - 6 Apr: up to 18 km/h, easterly winds were experienced by the entire island.

Monitored Sea Surface



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

Monitoring

Rainfall

Weekly Monitoring

Date	Rainfall
1 st April	Up to 5 mm in Mannar, Gampaha, Colombo, Kalutara, Matara, Hambantota, Monaragala and Ratnapura districts.
2 nd April	No Rainfall.
3 rd April	Up to 5 mm in Gampaha, Colombo and Kalutara districts.
4 th April	Up to 120 mm in Puttalam and Kurunegala districts; up to 60 mm in Polonnaruwa district; up to 50 mm in Anuradhapura, Matale, Gampaha, Colombo and Kegalle districts; up to 30 mm in Kalutara and Ratnapura districts; and up to 20 mm in Mannar, Trincomalee, Ampara, Badulla and Kandy districts.
5 th April	Up to 30 mm in Kurunegala district; and up to 20 mm in Mannar, Puttalam and Anuradhapura districts.
6 th April	Up to 5 mm in Mullaitivu, Vavuniya, Mannar, Anuradhapura, Nuwara Eliya, Badulla, Ratnapura, Kalutara and Matara districts.



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Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 75-100 mm in Kurunegala district; up to 50-75 mm in Puttalam district; up to 25-50 mm in Mannar, Anuradhapura, Polonnaruwa, Matale, Gampaha and Colombo and up to 10-25 mm in Vavuniya, Kandy, Kegalle and Kalutara districts. Above average rainfall up to 25-50 mm is shown for in Puttalam and Kurunegala districts. Below average rainfall up to 50-100 mm is shown for in Ratnapura district; and up to 25-50 mm in Ampara, Monaragala, Badulla, Hambantota, Matara, Nuwara Eliya, Galle, Kalutara, Colombo and Gampaha districts.

Monthly Monitoring

During March – Below average rainfall conditions up to 240 mm were experienced by Anuradhapura, Kurunegala, Matale, Polonnaruwa, Ampara, Badulla, Monaragala, Kandy, Nuwara Eliya, Kegalle, Ratnapura, Colombo, Kalutara, Galle, Matara and Hambantota districts; and up to 150 mm in rest of the island. The CPC Unified Precipitation Analysis tool shows up to 100 mm of total rainfall in Kurunegala, Kegalle, Ratnapura, Nuwara Eliya, Kalutara, Galle and Matara districts; and up to 75 mm in Puttalam, Gampaha, Colombo, Badulla and Kandy districts.

Ocean State *(Text Courtesy IRI)*

Pacific sea state: March 19, 2020

SSTs in the east-central Pacific were neutral, but above average during mid-March. Patterns in atmospheric variables are split between neutral and borderline El Niño conditions. Most model forecasts favor warm-neutral SST conditions during spring, cooling to average by early summer. The official CPC/IRI outlook is consistent with these model forecasts, calling for continuation of ENSO-neutral.

Indian Ocean State

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

Predictions

Rainfall



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14-day prediction: NOAA NCEP models

From 8th – 14th Apr: Total rainfall up to 35 mm in Gampaha, Puttalam, Kurunegala, Kegalle, Ratnapura and Nuwara Eliya districts; up to 25 mm in Anuradhapura, Matale, Kandy, Galle and Matara districts; and up to 15 mm is expected in most parts of the island.

From 15th – 22nd Apr: Total rainfall up to 35 mm in Gampaha, Kegalle and Ratnapura districts; up to 25 mm in Puttalam, Kurunegala, Polonnaruwa, Anuradhapura, Matale, Kandy, Galle and Matara districts; and up to 15 mm is expected in most parts of the island.

NOAA Model Forecast:

From 8th – 13th Apr: Total rainfall up to 50 mm in Gampaha, Colombo, Kegalle, Ratnapura, Kandy, Nuwara Eliya, Monaragala, and Badulla districts; and up to 25 mm is expected in most parts of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall suppress the rainfall in Sri Lanka in next 10 days; and shall not have an impact in the following 5 days.

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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Weekly Hydro- Meteorological Report for Sri Lanka

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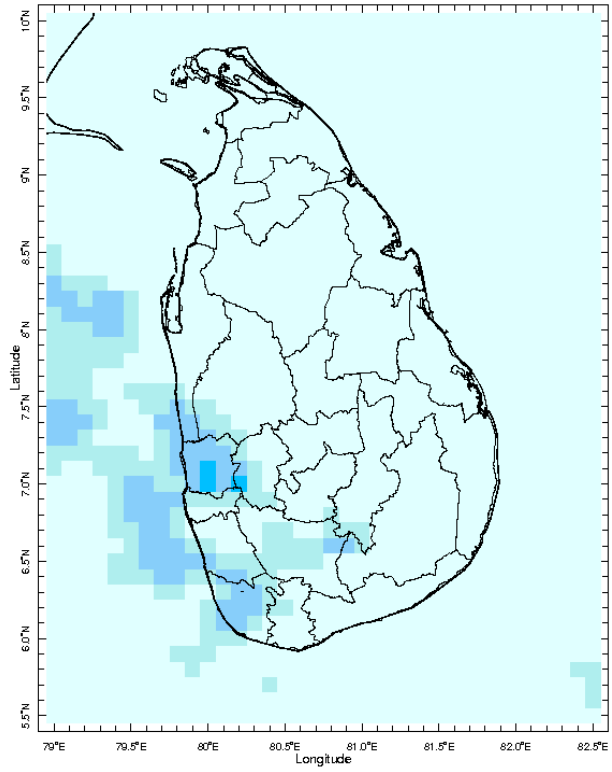
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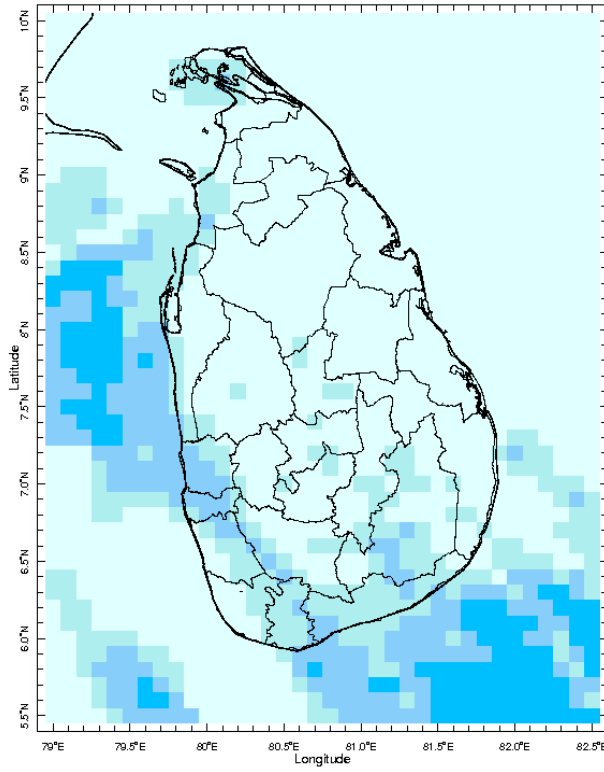
MONITORING

Daily Rainfall Monitoring

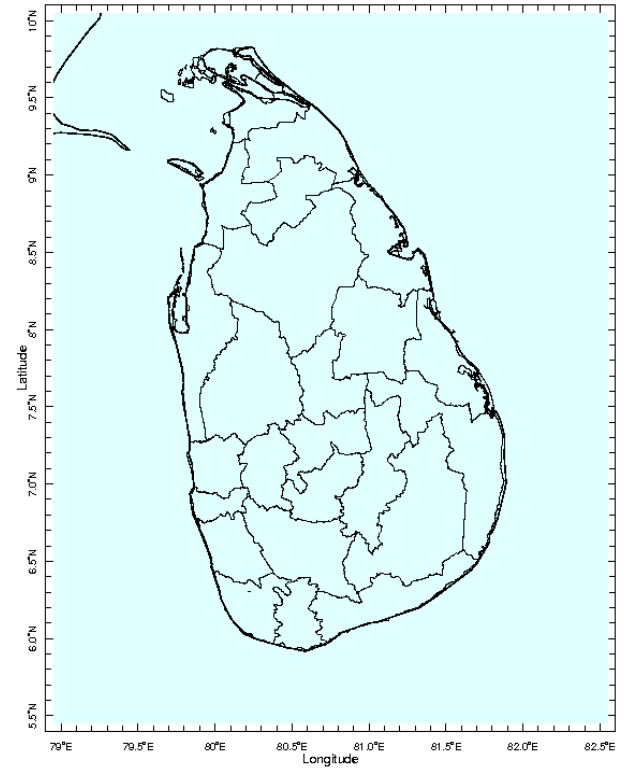
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



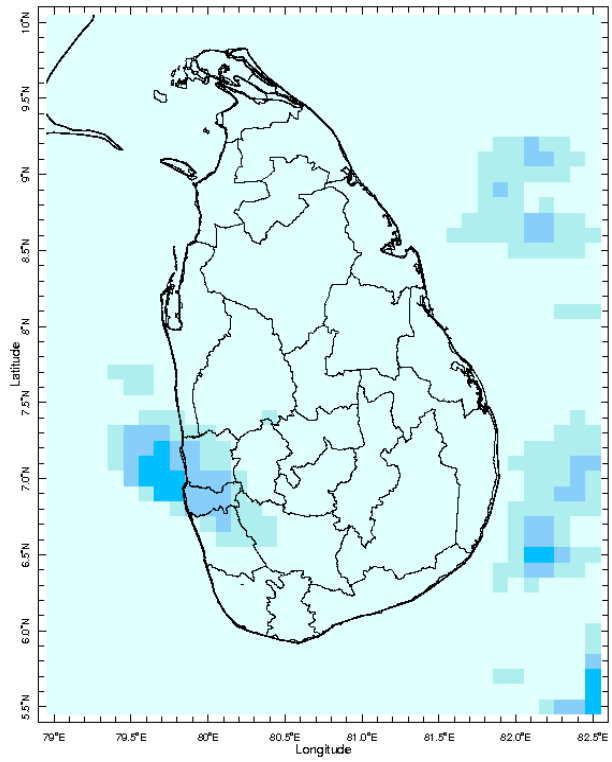
31 Mar 2020



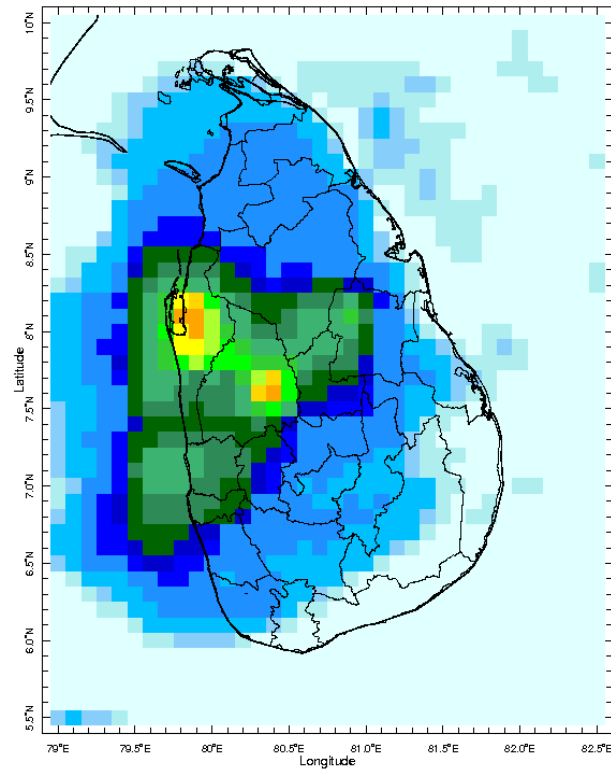
1 Apr 2020



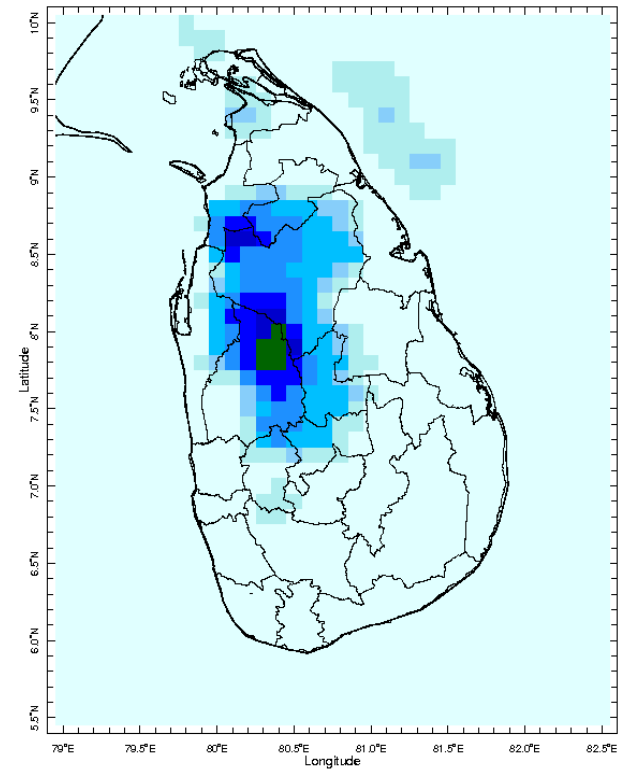
2 Apr 2020



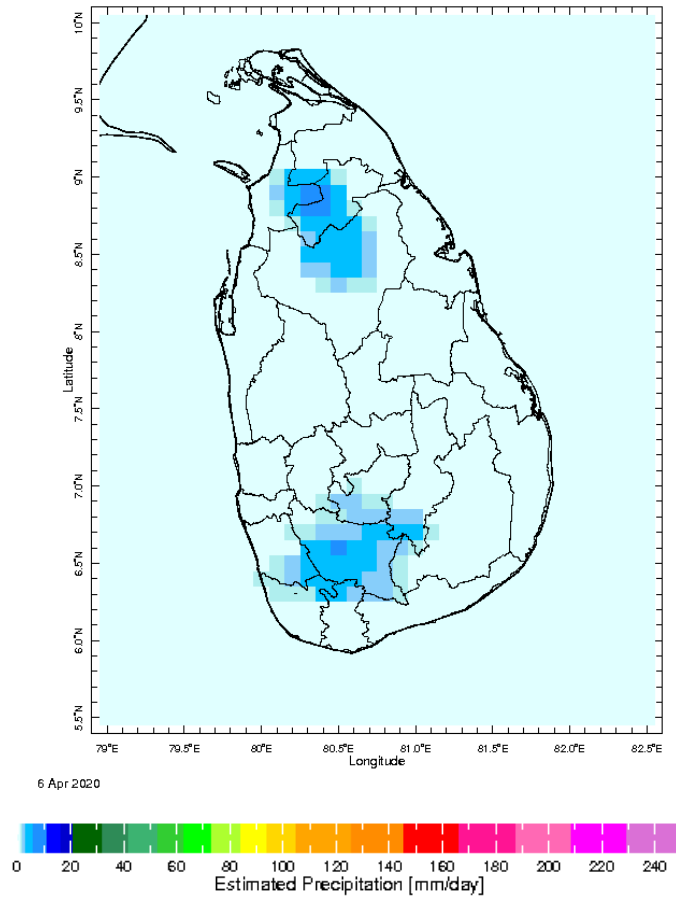
3 Apr 2020



4 Apr 2020

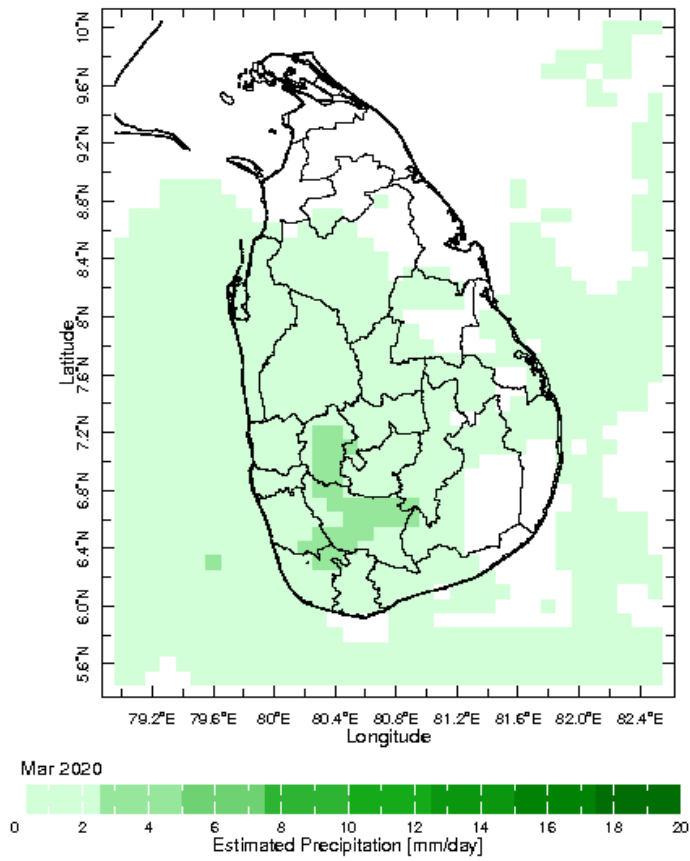


5 Apr 2020

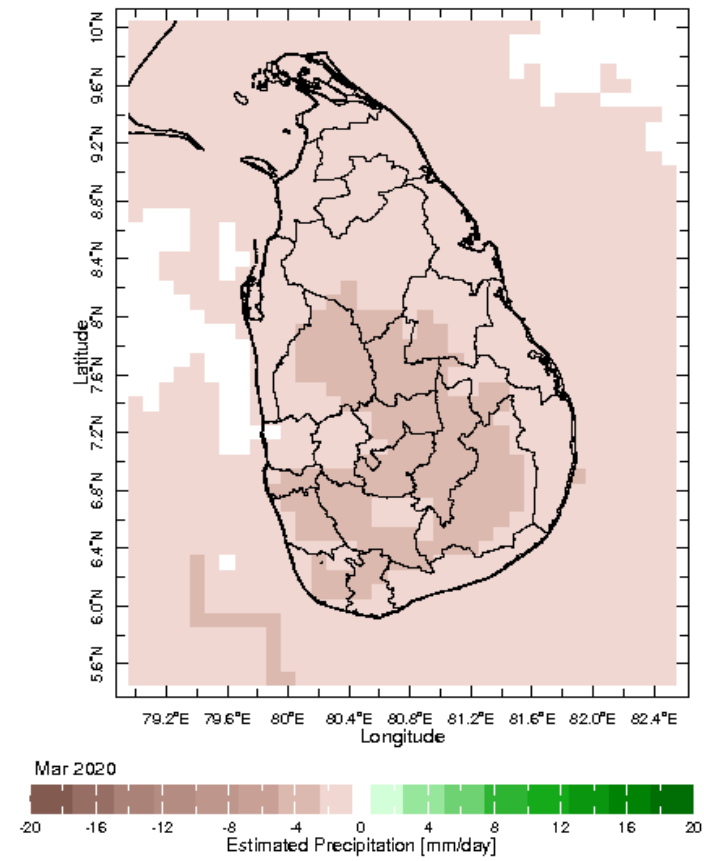


Monthly Rainfall Monitoring

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

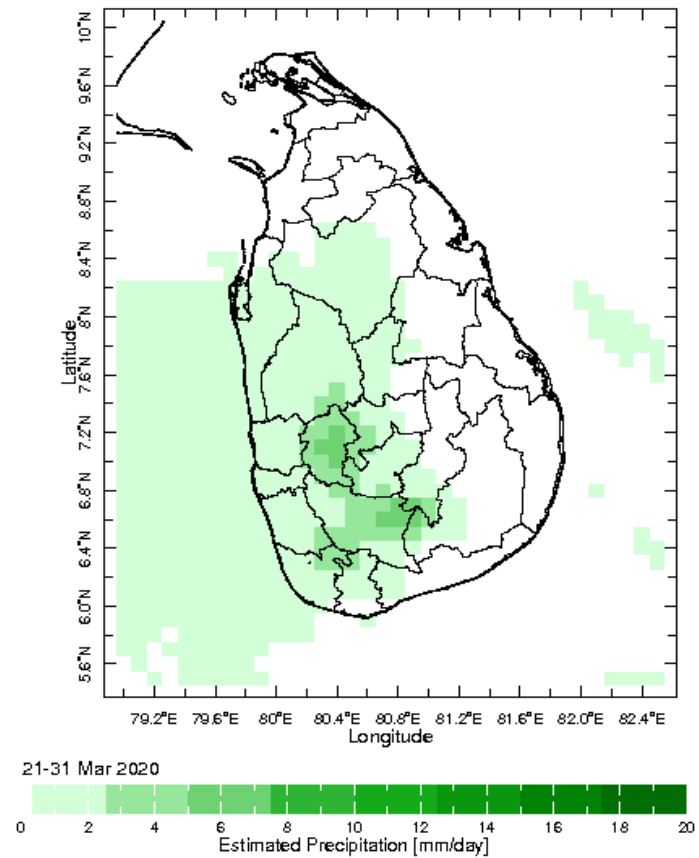
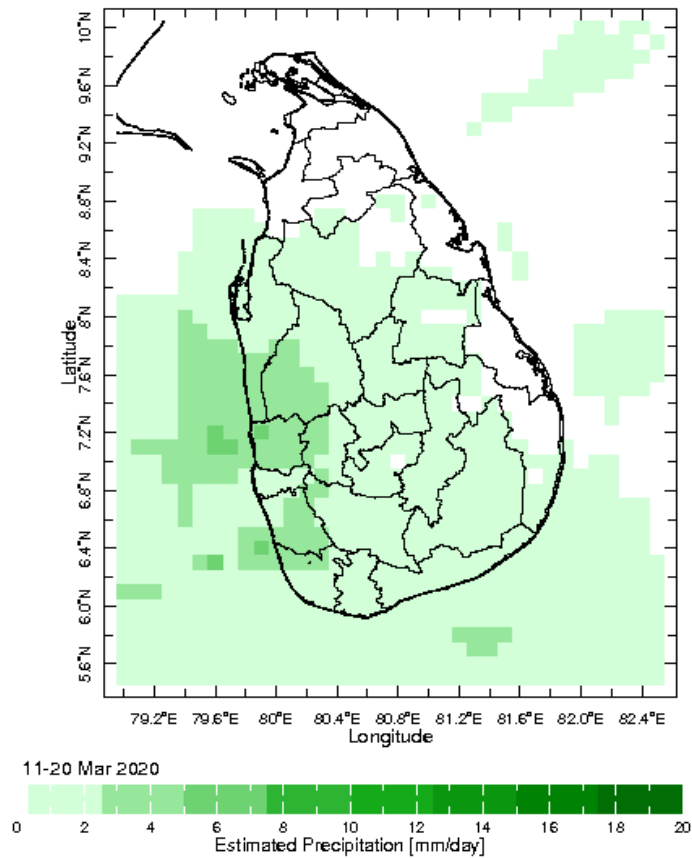


Monthly Average



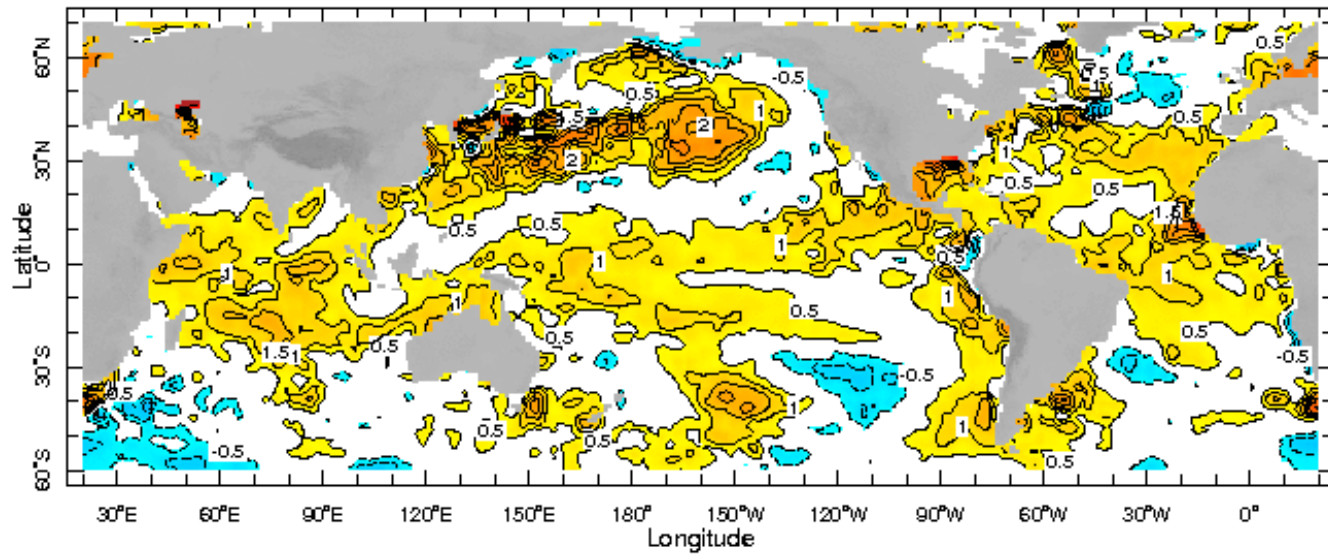
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

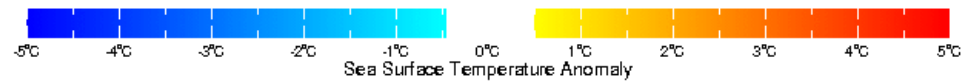


Weekly Average SST Anomalies

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



1 Apr 2020

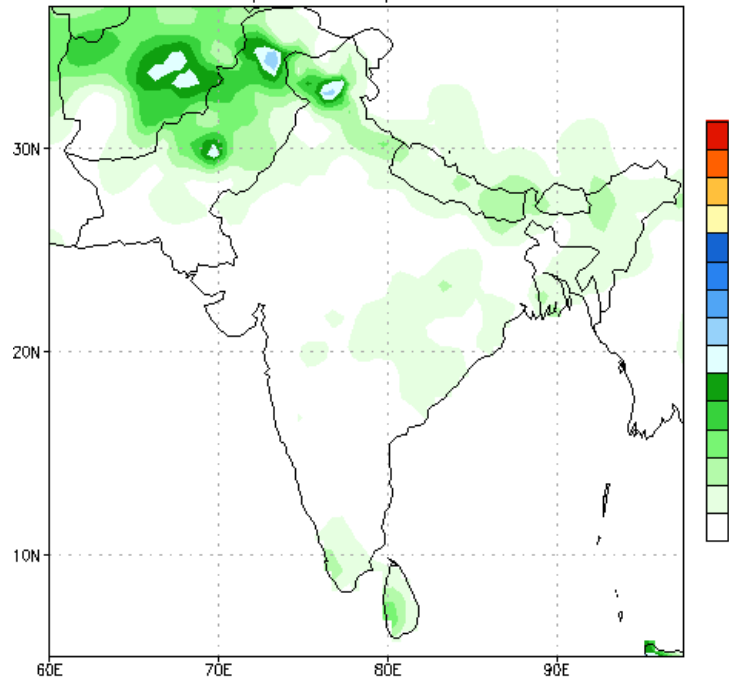


WORLDBATH topography

PREDICTIONS

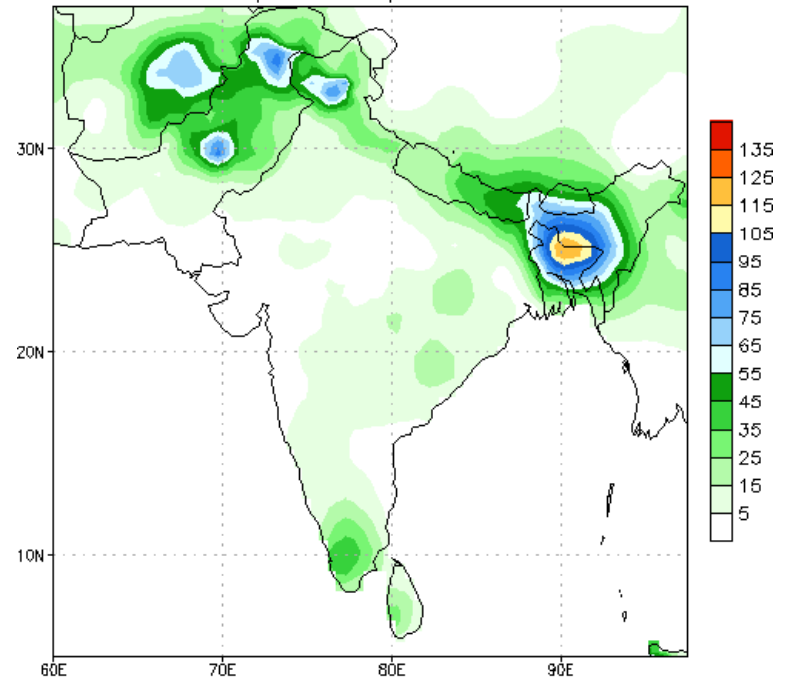
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 08Apr2020
08Apr2020-14Apr2020 Accumulation



Bias correction based on last 30-day forecast error

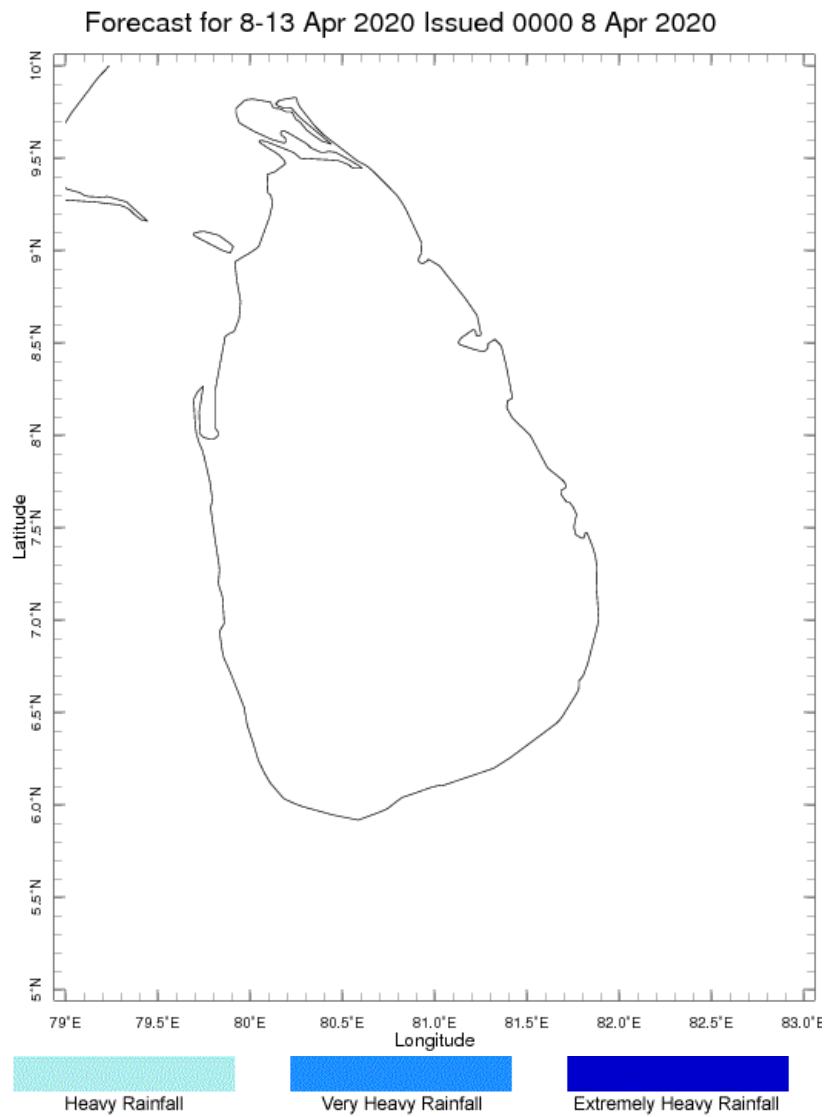
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 08Apr2020
15Apr2020-21Apr2020 Accumulation



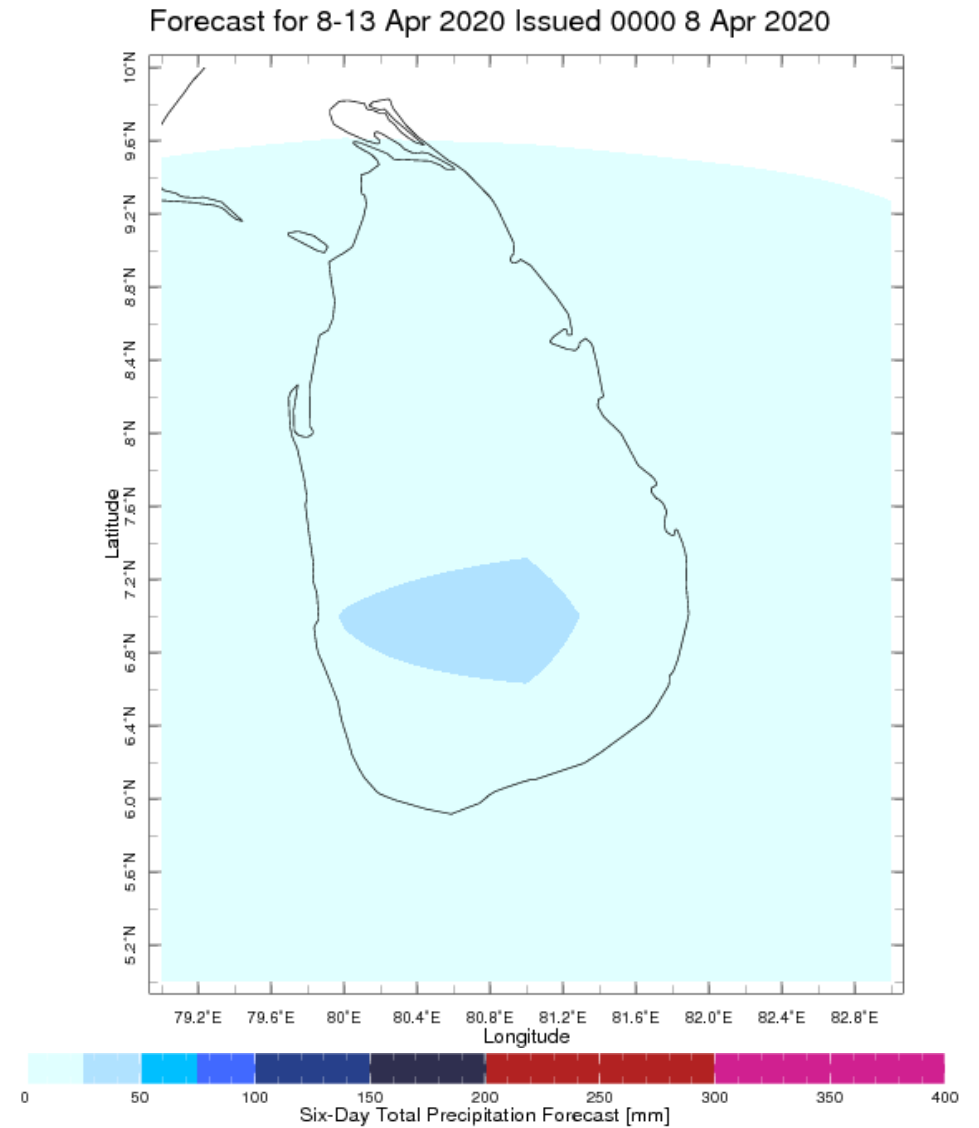
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

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