Federation for Environment, Climate and Technology

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EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

By: Ruchira Lokuhetti, Divaskar Sathyendra, Chayana Gunathilake, Lareef Zubair and Michael Bell[1] (FECT and IRI[1])

HIGHLIGHTS

Rainfall Forecast

- *The NOAA weekly rainfall forecast predicts up to 25 mm of total rainfall in most parts of the island during 24 - 29 Mar.*

Monitored Rainfalls

- *Between 18 - 23 Mar: up to 20 mm of rainfalls were recoreded in Colombo and Polonnaruwa districts on the 18th and 20th respectively.*

Monitored Wind

- *From 17 - 23 Mar: up to 18 km/h, easterly winds were experienced by the entire island.*

Monitored Sea Surface

- *0.5 ^{0}C above average sea surface temperature was observed in the seas around Sri Lanka.*

Monitoring

Rainfall

Weekly Monitoring

Date	Rainfall
18th March	Up to 20 mm in Colombo district; and up to 10 mm in Kurunegala, Gampaha, Matale, Ampara and Badulla districts.
19th March	Up to 10 mm in Ratnapura, Kalutara and Galle districts; up to 5 mm in Kurunegala, Matale, Kegalle, Nuwara Eliya, Badulla, Monaragala, Matara and Hambantota districts.
20th March	Up to 20 mm in Polonnaruwa district; and up to 10 mm in Kurunegala, Vavuniya, Anuradhapura, Puttalam, Colombo, Kalutara, Ratnapura, Galle and Badulla districts.
21st March	Up to 5 mm in Ratnapura, Galle, Matara and Hambantota districts.
22nd March	Up to 10 mm in Anuradhapura, Matale and Kurunegala districts; and up to 5 mm in Puttalam, Kegalle, Kandy, Nuwara Eliya and Hambantota districts.
23rd March	No Rainfall.

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Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 10-25 mm in Kurunegala, Colombo, Kalutara, Matara, Anuradhapura, po and Mataledistricts; up to 5-10 mm in Kegalle, Ratnapura, Nuwara Eliya, Puttalam, Gampaha Galle and Hambantota districts. Below average rainfall up to 25-50 mm is shown for Ratnapura, Nuwara Eliya Badulla and Galle districts; and up to 10-25 mm in most parts of the island.

Monthly Monitoring

During February – Above average rainfall conditions up to 150 mm were experienced by several regions of Mannar district. Below average rainfall conditions up to 240 mm were experienced by Polonnaruwa, Batticaloa, Ampara, Monaragala, Nuwara Eliya, Kegalle, Ratnapura, Gampaha, Colombo, Kalutara and Galle districts; and up to 150 mm in rest of the island. The CPC Unified Precipitation Analysis tool shows up to 75 mm were experienced by Mannar, Anuradhapura, Batticaloa and Ampara districts; and up to 50 mm in Polonnaruwa, Monaragala, Hambantota, Galle and Kalutara 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 ^{0}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 25th – 31st Mar: No Rainfall.

From 1st – 7th Apr: No Rainfall.

NOAA Model Forecast:

From 24th – 29th Mar: Total rainfall up to 25 mm is expected in most parts of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall enhance the rainfall in Sri Lanka in next 5 days; shall not have an impact in the following 5 days and shall suppress in the next 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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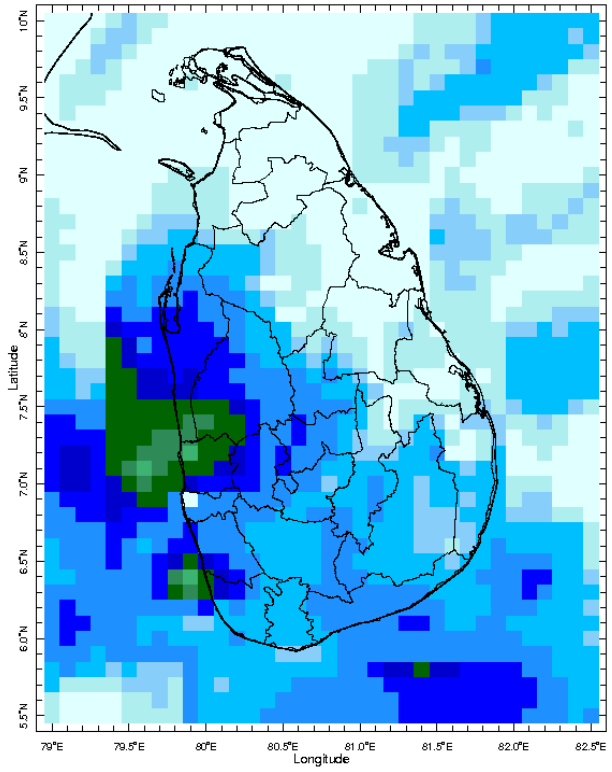
Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

MONITORING

Daily Rainfall Monitoring

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



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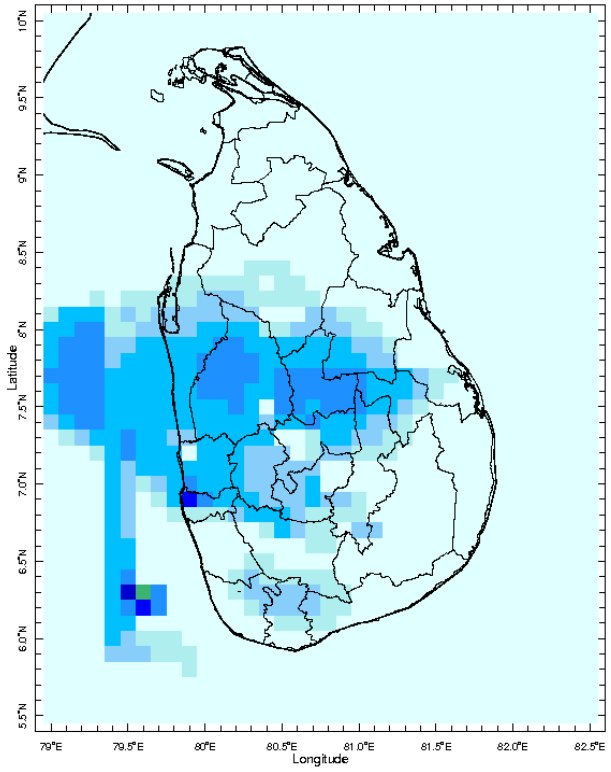
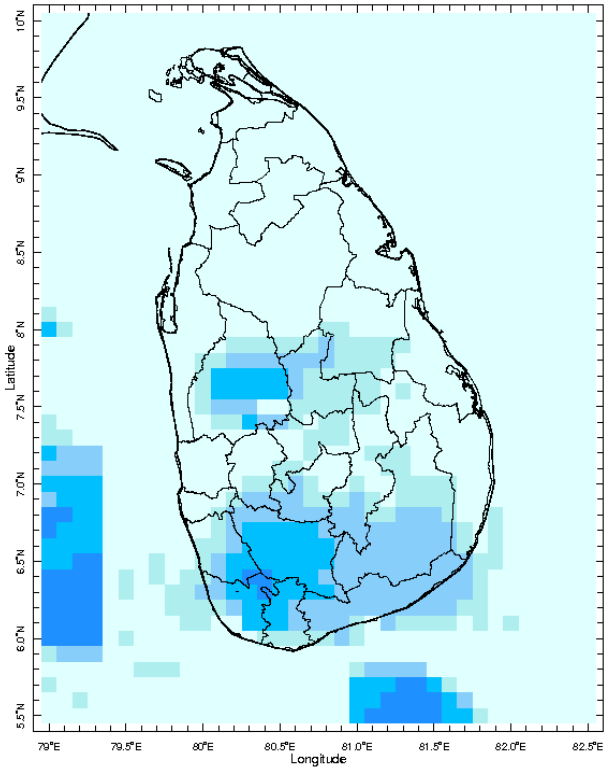


18 Mar 2020



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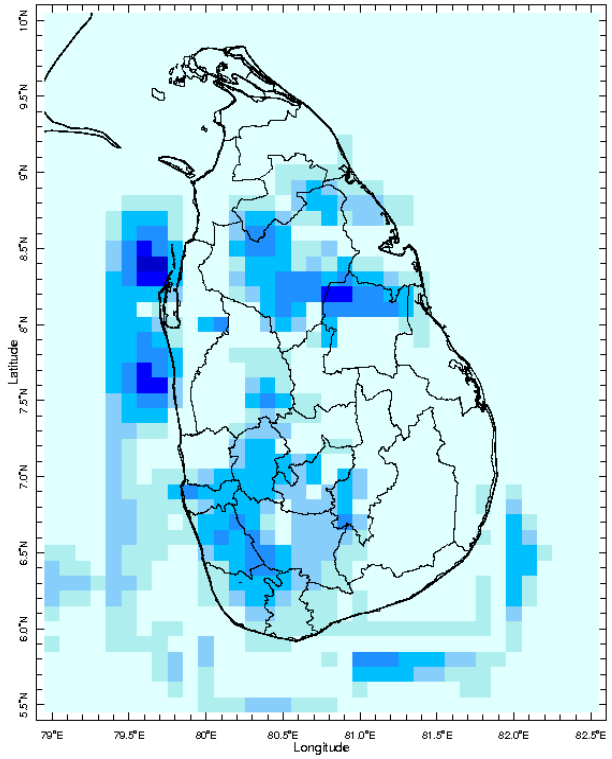

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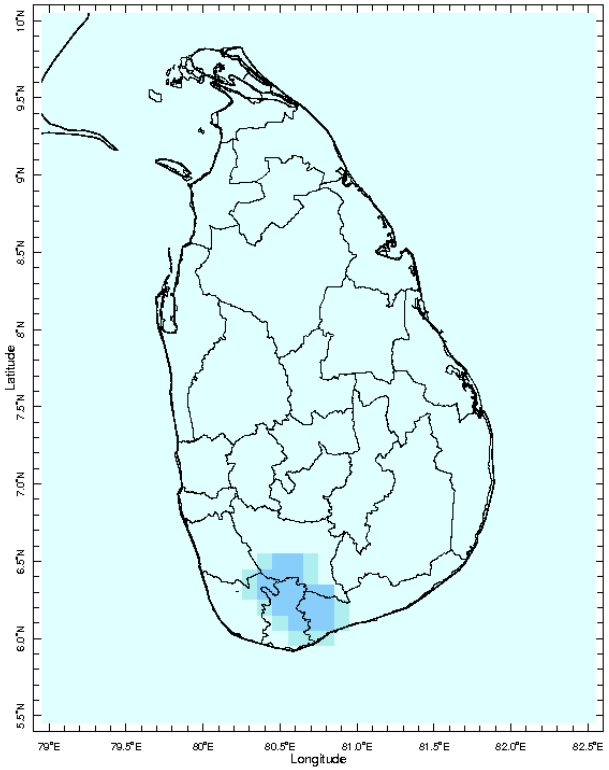
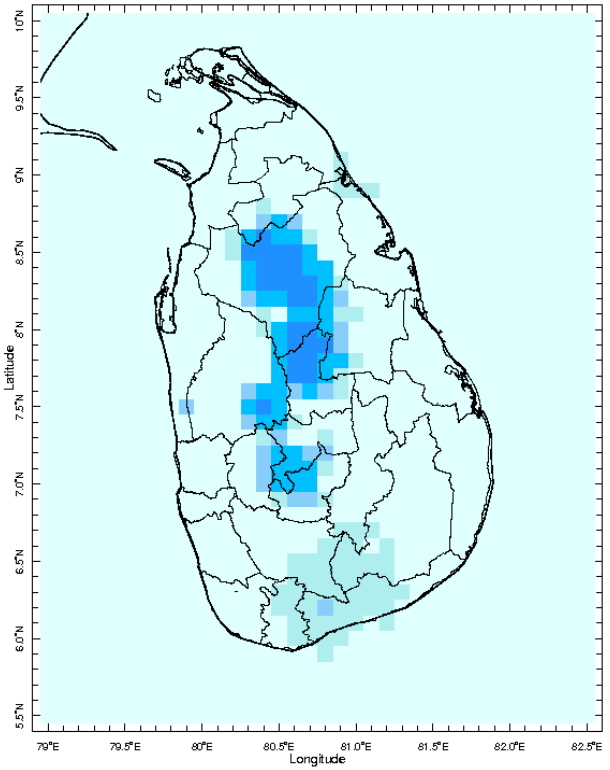
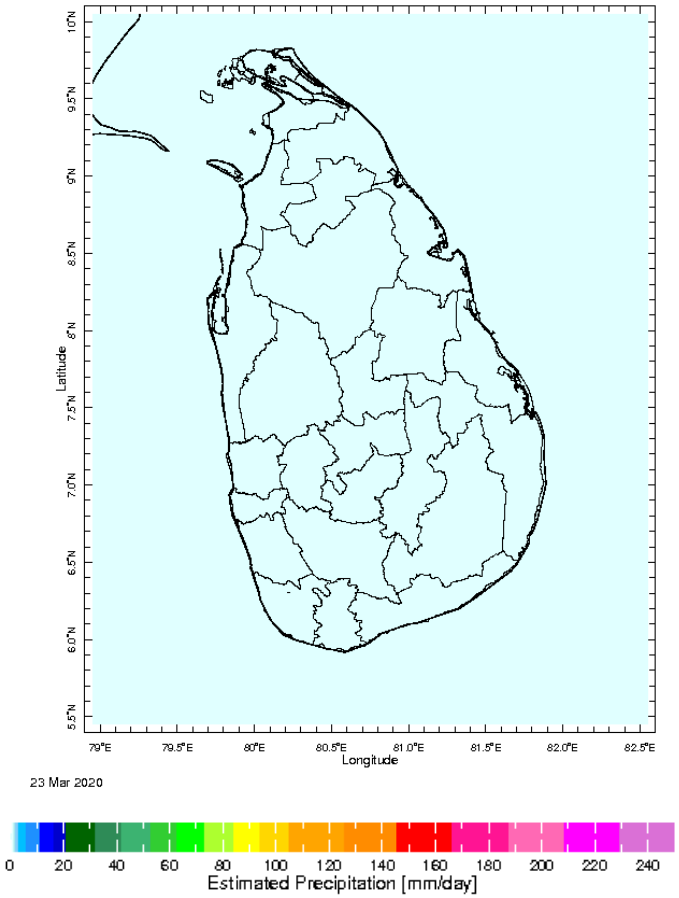


21 Mar 2020

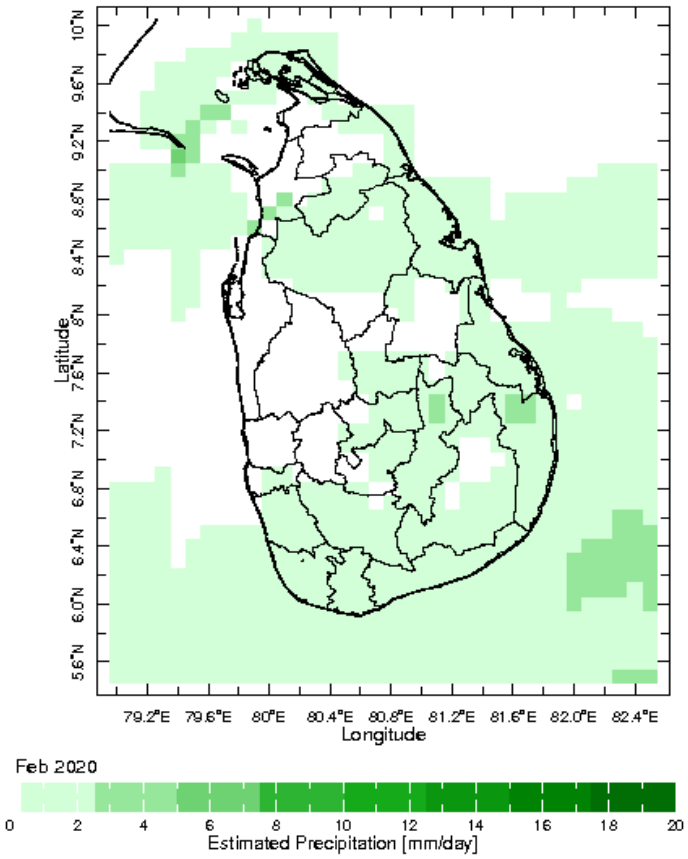


22 Mar 2020

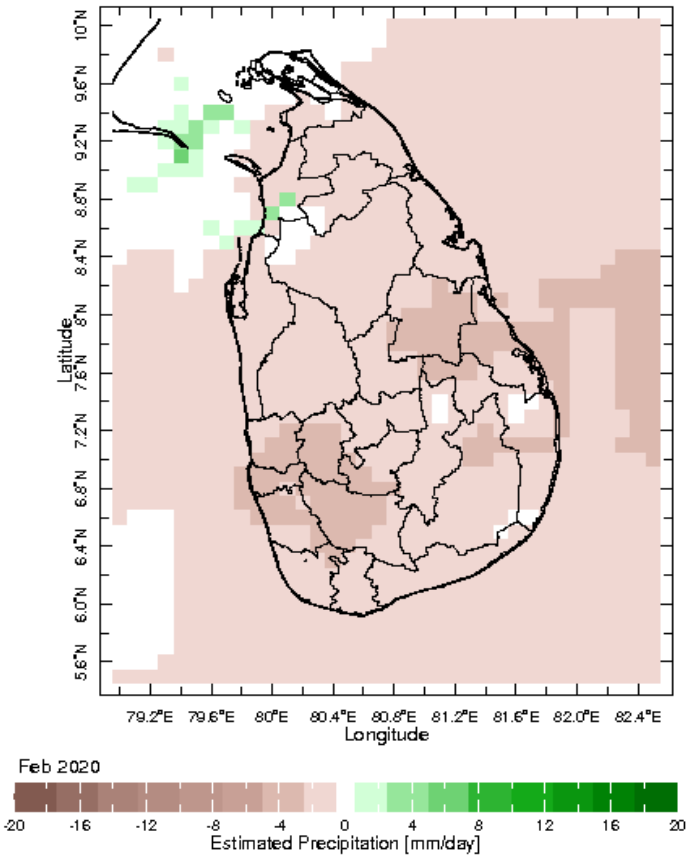


Monthly Rainfall Monitoring

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

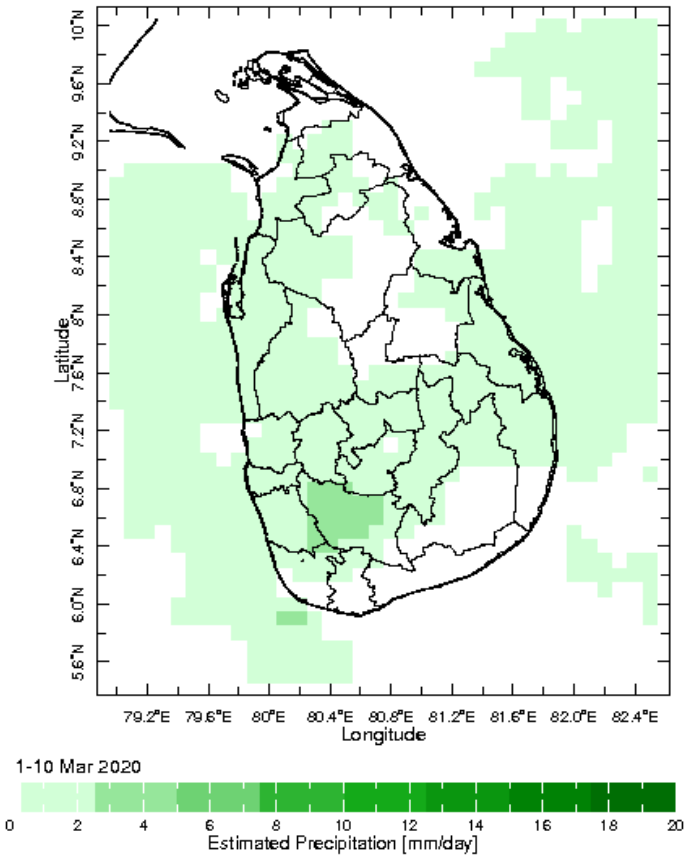


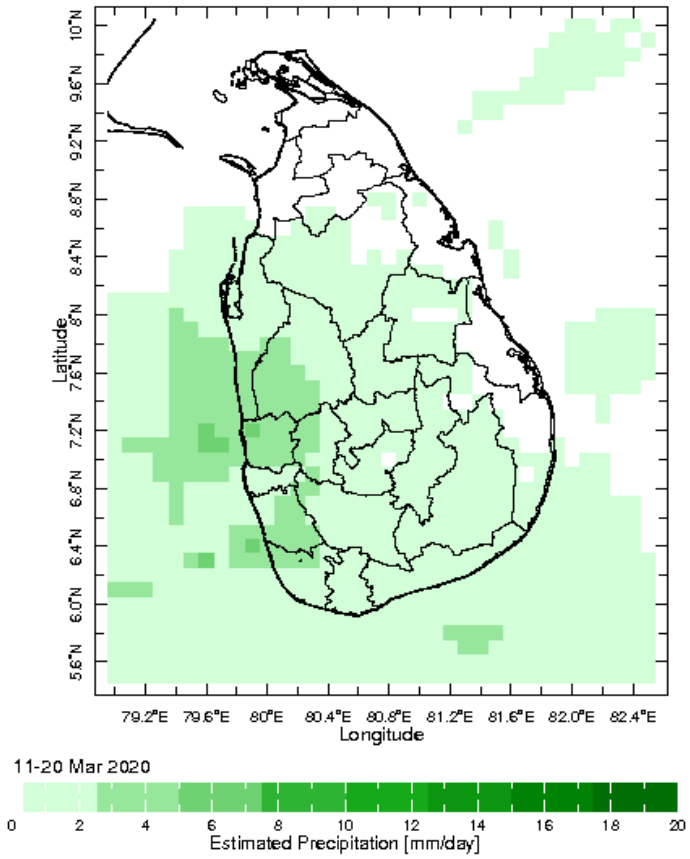
Monthly Average



Monthly Anomaly

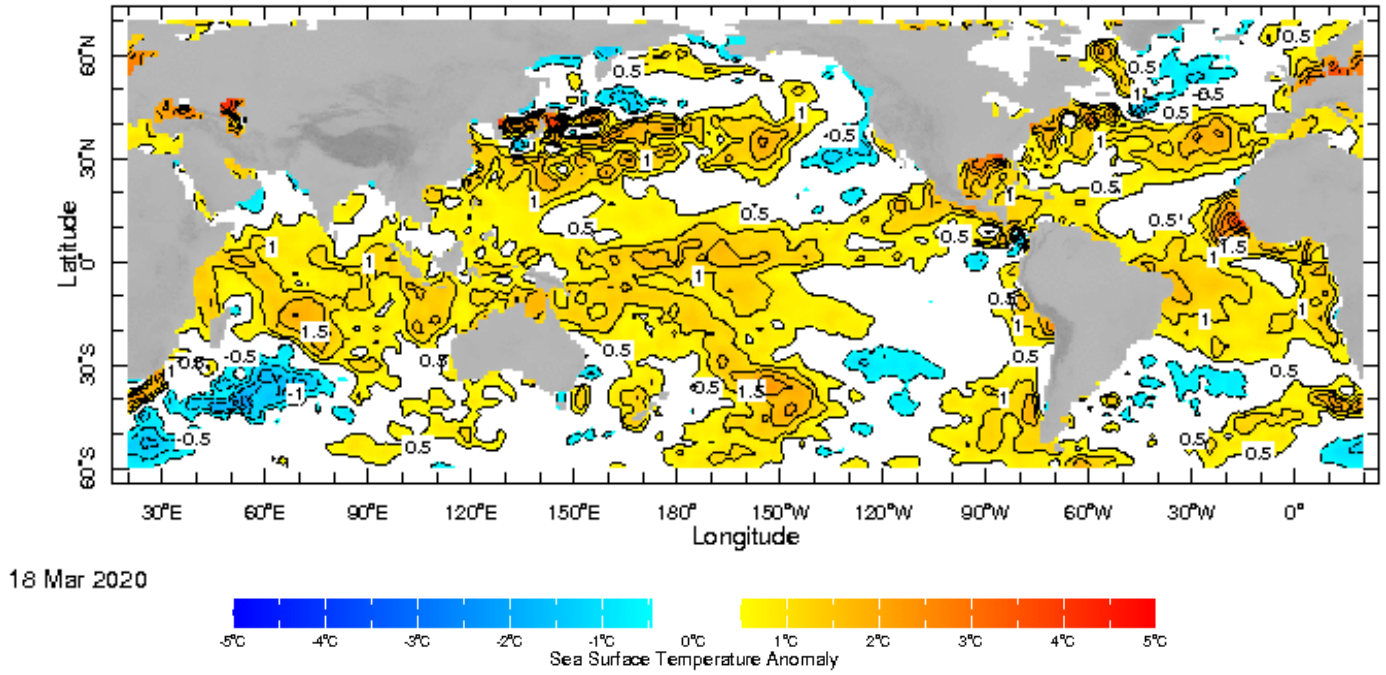
Dekadal (10 Day) Satellite Derived Rainfall Estimates





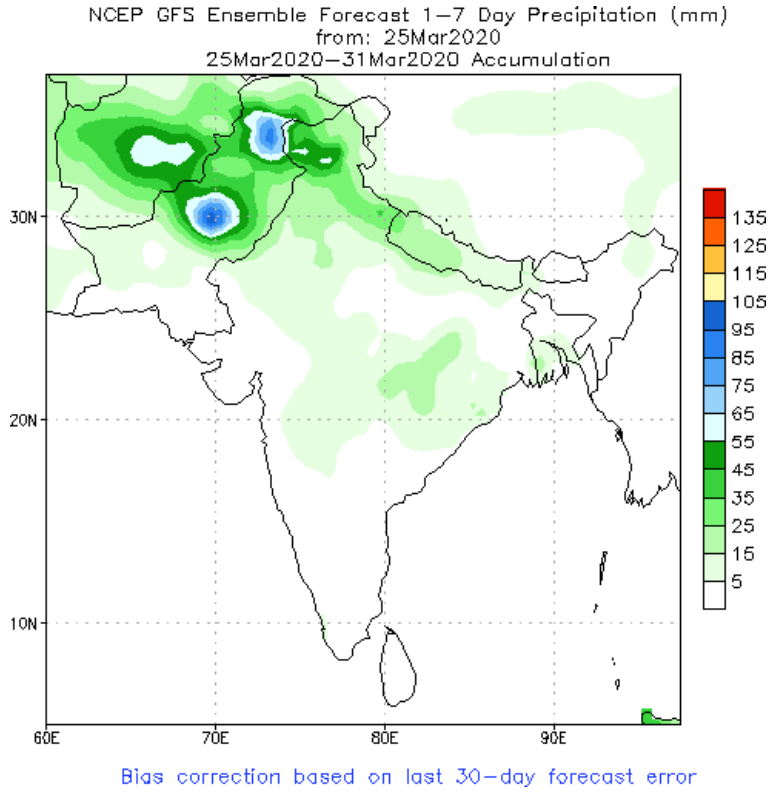
Weekly Average SST Anomalies

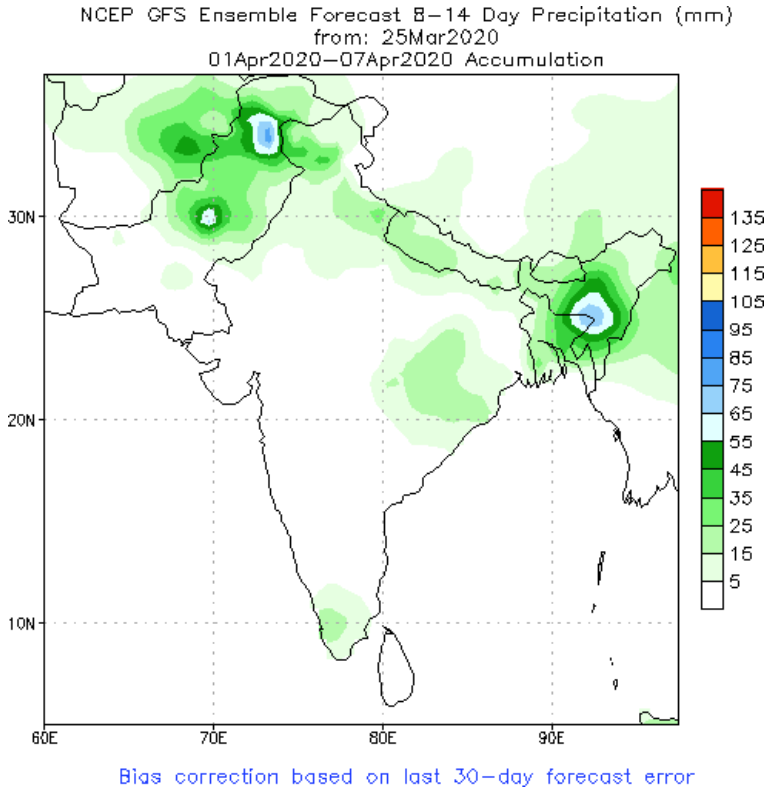
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



PREDICTIONS

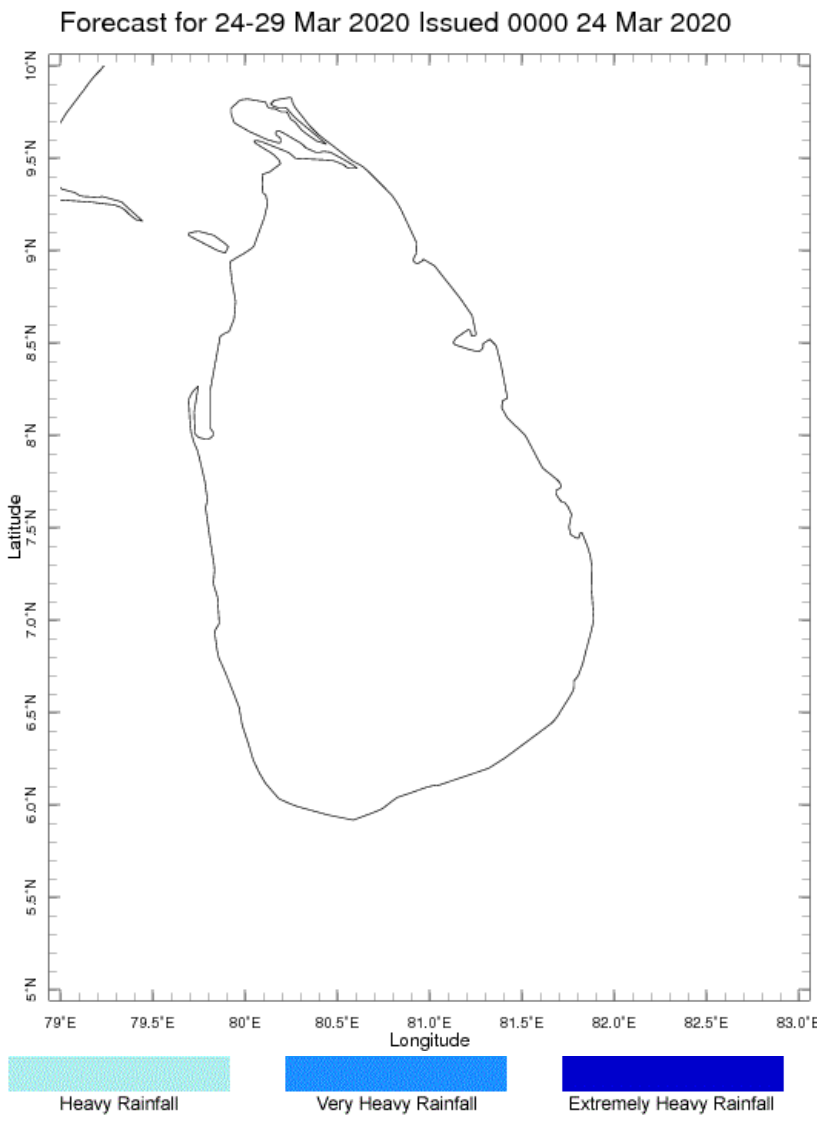
NCEP GFS 1- 14 Day prediction



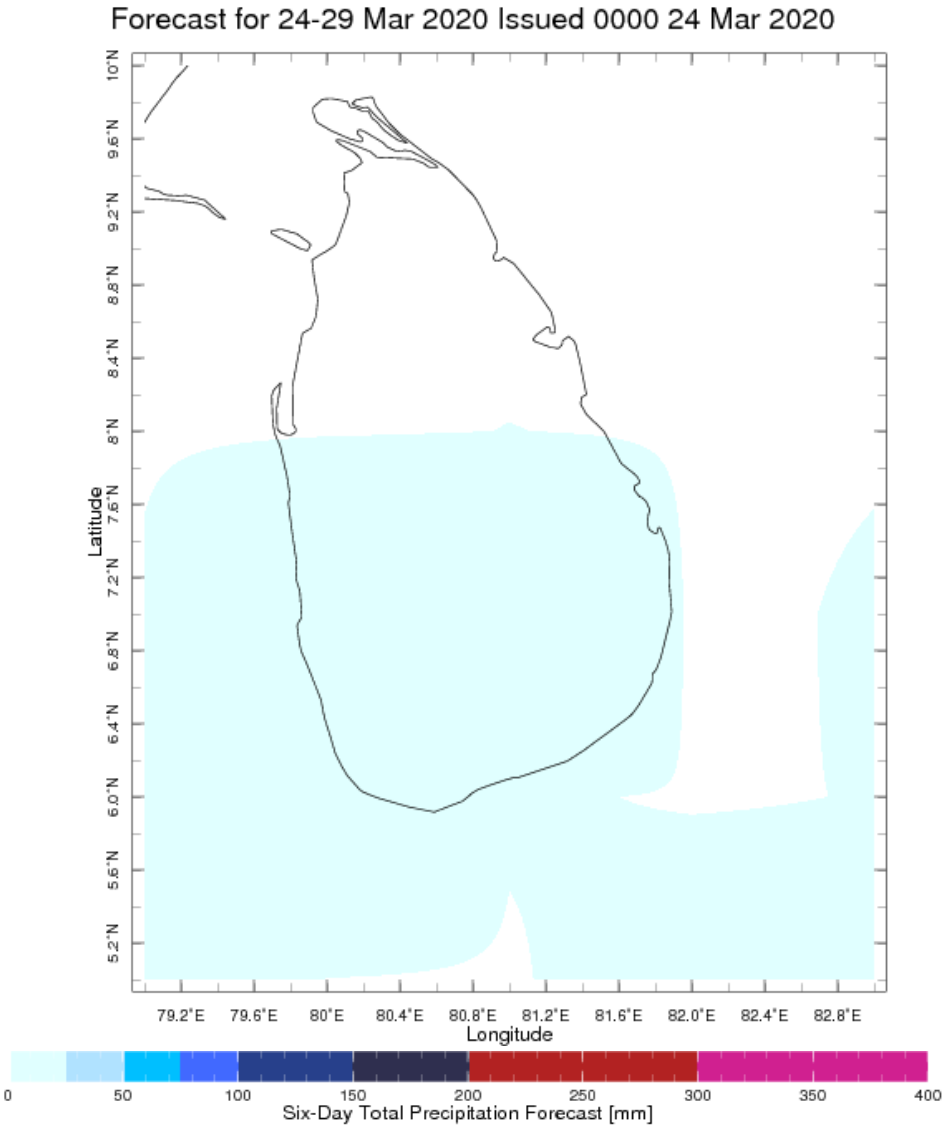


WRF Model Forecast (from IMD Chennai)

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