

**20 February  
2020**

**EXPERIMENTAL CLIMATE MONITORING AND PREDICTION**

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**HIGHLIGHTS**

**Rainfall Forecast**



- The NOAA weekly rainfall forecast predicts up to 100 mm of total rainfall in Batticaloa and Ampara districts during 19 - 24 Feb.

**Monitored Rainfalls**



- Between 11 - 16 Feb: up to 30 mm of rainfall was recorded in Galle district on the 15<sup>th</sup>.

**Monitored Wind**



- From 11 - 17 Feb: up to 18 km/h, northeasterly 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
11 <sup>th</sup> February	Up to 20 mm in Monaragala and Hambantota districts; and up to 10 mm in Matale, Kandy, Nuwara Eliya, Badulla and Ampara districts.
12 <sup>th</sup> February	Up to 30 mm in Kalutara and Colombo districts and up to 20 mm in Ratnapura, Kandy and Nuwara Eliya districts.
13 <sup>th</sup> February	Up to 10 mm in Kalutara, Ratnapura, Galle, Matara, Monaragala and Hambantota districts.
14 <sup>th</sup> February	No Rainfall.
15 <sup>th</sup> February	Up to 30 mm in Galle district; and up to 20 mm in Kalutara district.
16 <sup>th</sup> February	No Rainfall.
17 <sup>th</sup> February	No Rainfall.
18 <sup>th</sup> February	No Rainfall.



## Federation for Environment, Climate and Technology

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### ***Total Rainfall for the Past Week***

The RFE 2.0 tool shows total up to 10-25 mm in Nuwara Eliya, Colombo, Ratnapura, Galle, Matara, Hambantota and Monaragala districts. Below average rainfall up to 25-50 mm is shown for Ampara district; and up to 10-25 mm in Polonnaruwa, Batticaloa, Monaragala, Kegalle and Ratnapura districts.

### ***Monthly Monitoring***

During January – Above average rainfall conditions up to 120 mm were experienced by Gampaha, Colombo, Kalutara and southern regions of Kegalle and northern regions of Ratnapura districts. Below average rainfall conditions up to 240 mm were experienced by Trincomalee, Anuradhapura, Polonnaruwa Matale, Kandy, Badulla, Monaragala, Batticaloa and Ampara districts; and up to 150 mm in rest of the island. The CPC Unified Precipitation Analysis tool shows up to 100 mm were experienced by Ratnapura and Kalutara districts; up to 50-75 mm in Galle and Matara districts; and up to in Badulla, Monaragala, Ampara, Hambantota, Nuwara Eliya and Kegalle districts.

### ***Ocean State (Text Courtesy IRI)***

#### ***Pacific sea state: February 13, 2020***

SSTs in the east-central Pacific were near the borderline of weak El Niño levels during early February. Patterns in atmospheric variables are split between neutral and weak El Niño conditions. Most model forecasts favor near-borderline El Niño SST conditions during late winter, returning to ENSO-neutral by spring and beyond. The official CPC/IRI outlook is consistent with these model forecasts, stating that overall conditions are neutral.

#### ***Indian Ocean State***

0.5 °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 19<sup>th</sup> – 25<sup>th</sup> Feb:** Total rainfall up to 55 mm in Polonnaruwa, Matale, Kandy, Ampara, Badulla and Monaragala districts; up to 35-45 mm in Hambantota, Batticaloa, Anuradhapura, Kurunegala, Kegalle and Ratnapura districts; and up to 25-35 mm in Colombo, Gampaha, Puttalam, Gampaha and Matara districts.

**From 26<sup>th</sup> Feb - 3<sup>rd</sup> Mar:** Total rainfall up to 35 mm in Colombo, Gampaha, Kegalle, Ratnapura, Kandy, Nuwara Eliya Galle and Matara districts; and up to 15-25 mm in most parts of the island.

#### **NOAA Model Forecast:**

**From 19<sup>th</sup> – 24<sup>th</sup> Feb:** Total rainfall up to 100 mm is expected in Batticaloa and Ampara districts; and up to Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Badulla, Monaragala, Hambantota, Kandy, Nuwara Eliya, Kegalle, Ratnapura, Kurunegala, Puttalam, Gampaha, Colombo, Kalutara and Galle districts.

### MJO based OLR predictions

#### **For the next 15 days:**

MJO shall suppress the rainfall in Sri Lanka.

<sup>1</sup> 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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- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
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- d. Weekly Average SST Anomalies

#### 2. Predictions

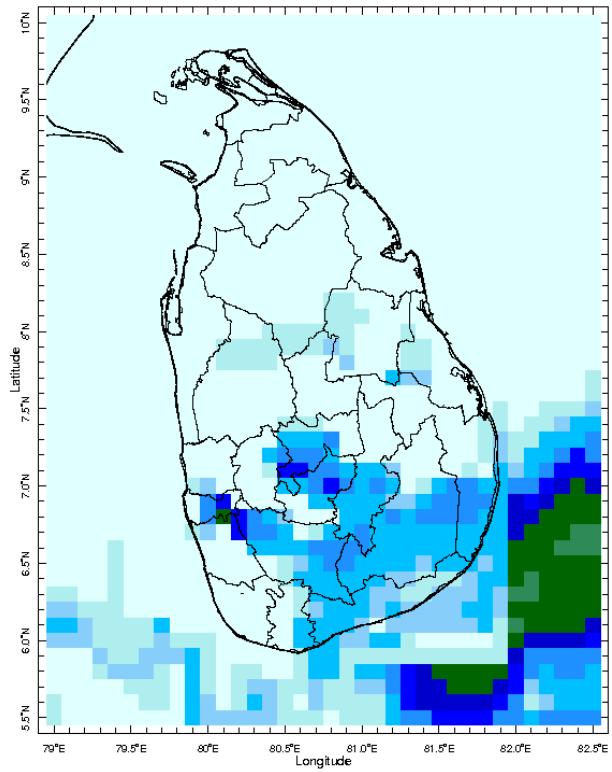
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

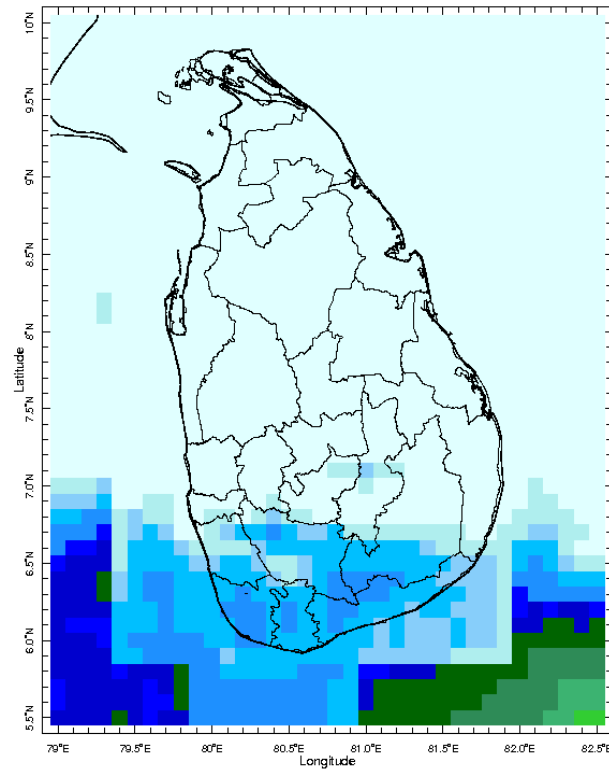
### Daily Rainfall Monitoring

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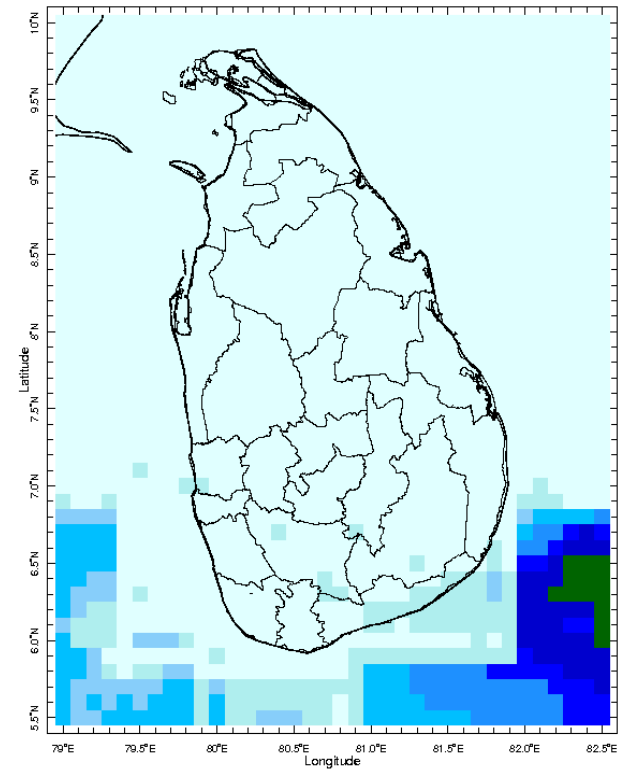
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



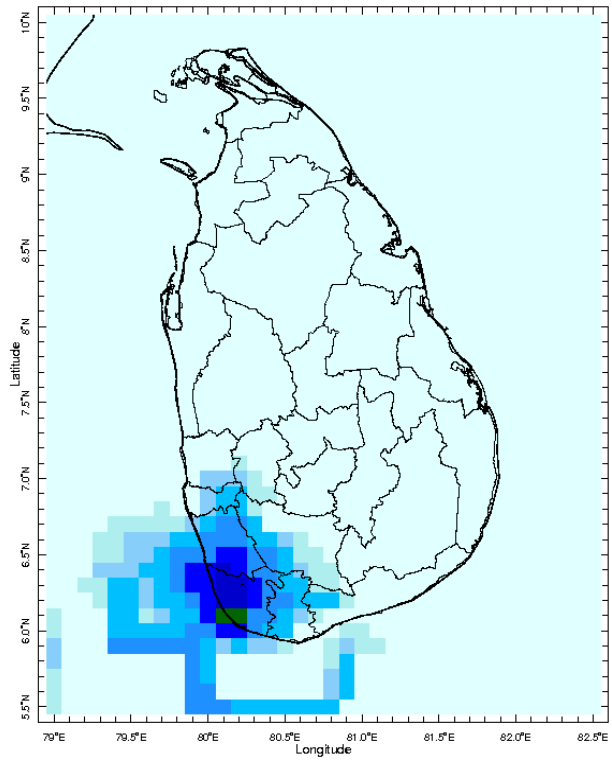
12 Feb 2020



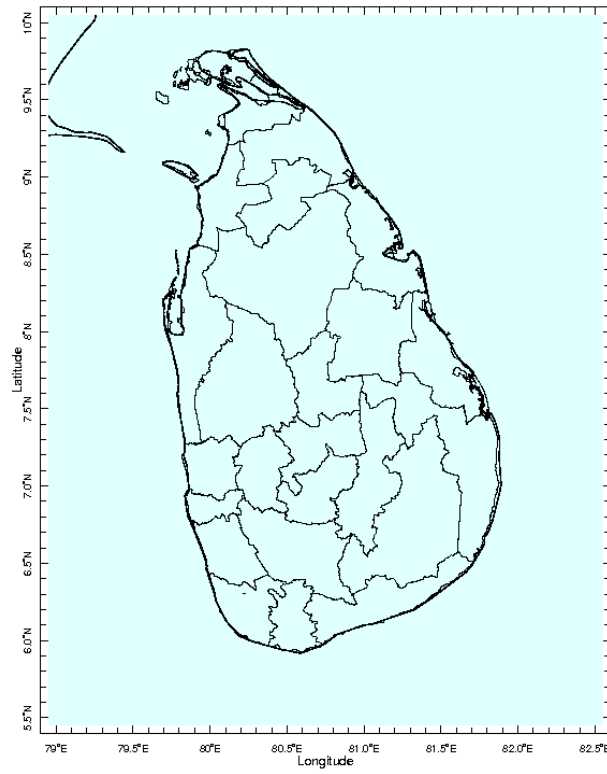
13 Feb 2020



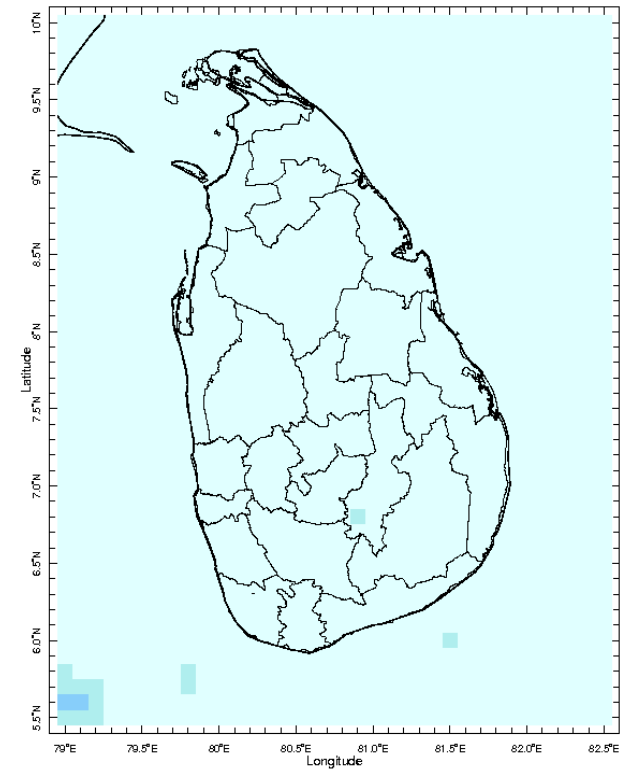
14 Feb 2020



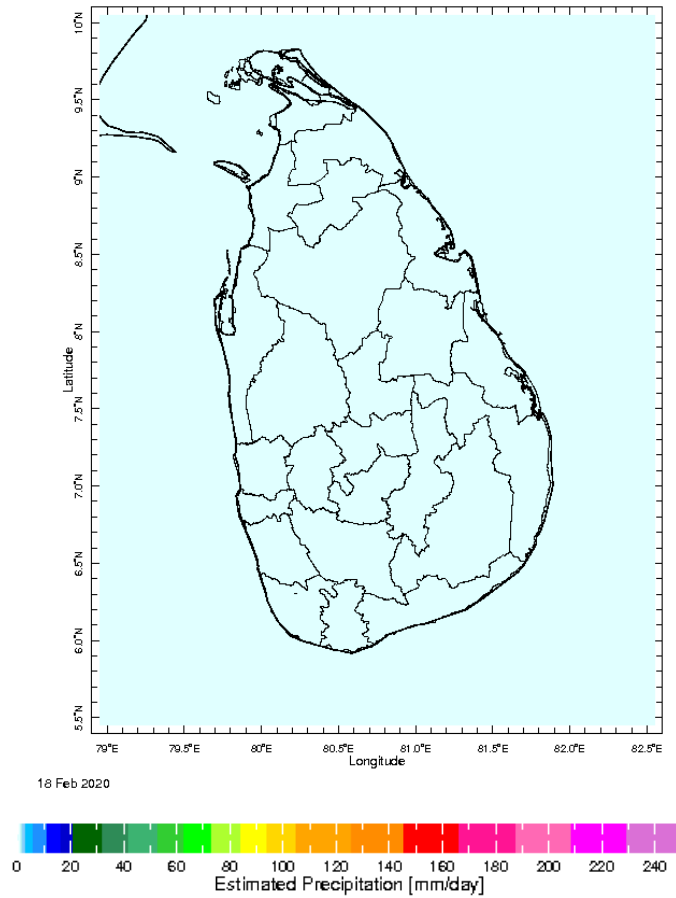
15 Feb 2020



16 Feb 2020

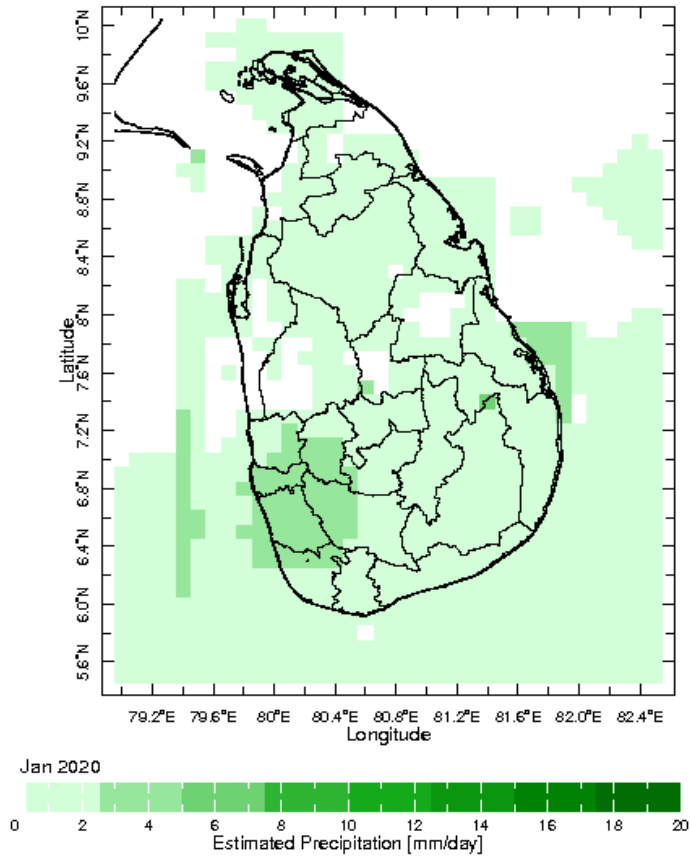


17 Feb 2020

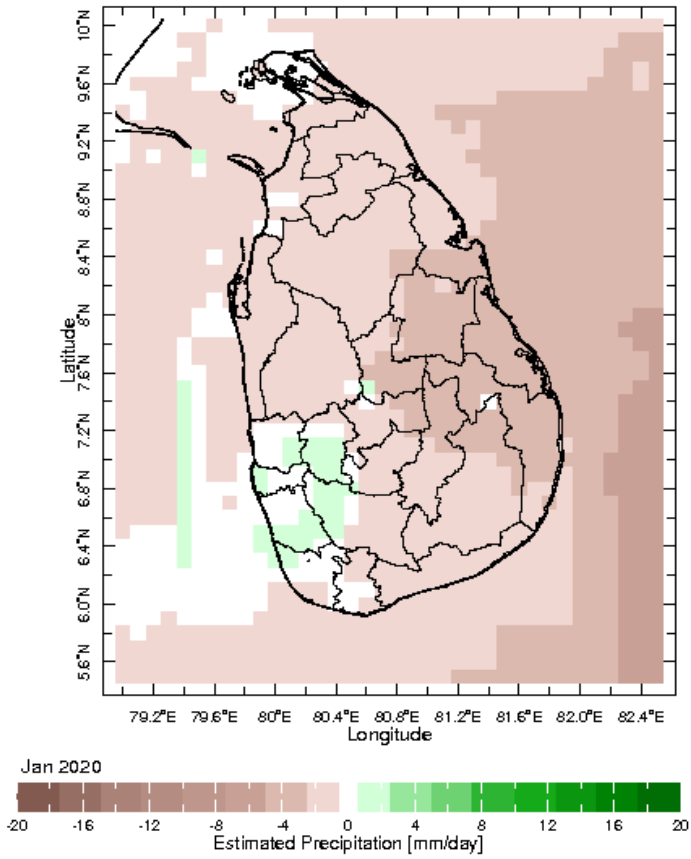


## Monthly Rainfall Monitoring

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



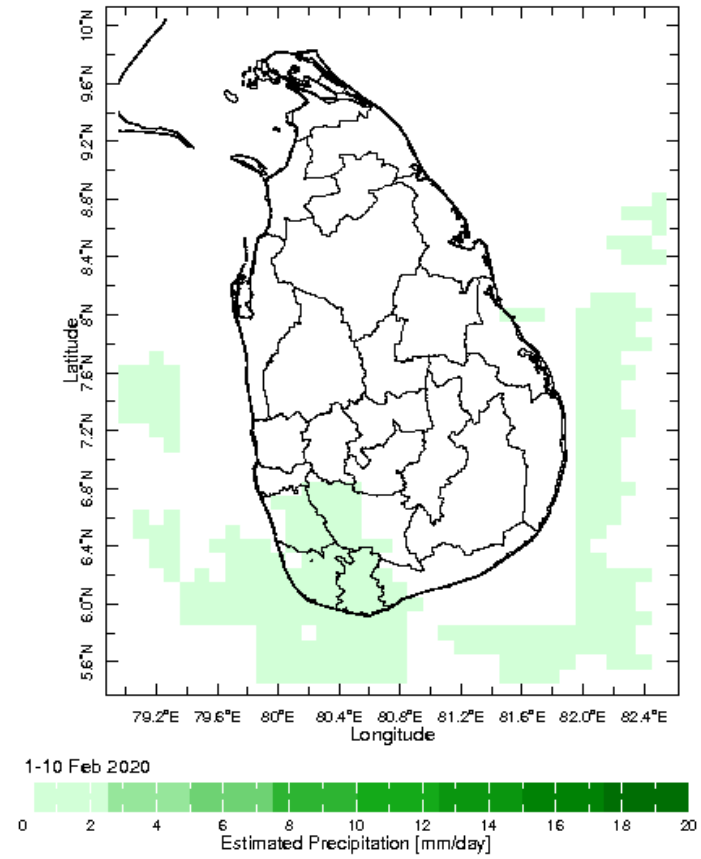
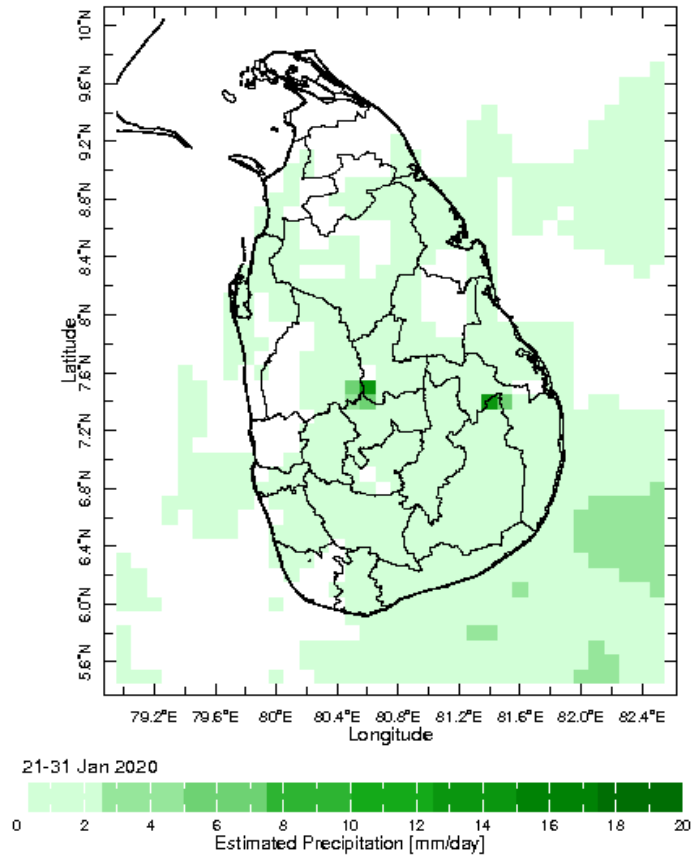
**Monthly Average**



**Monthly Anomaly**

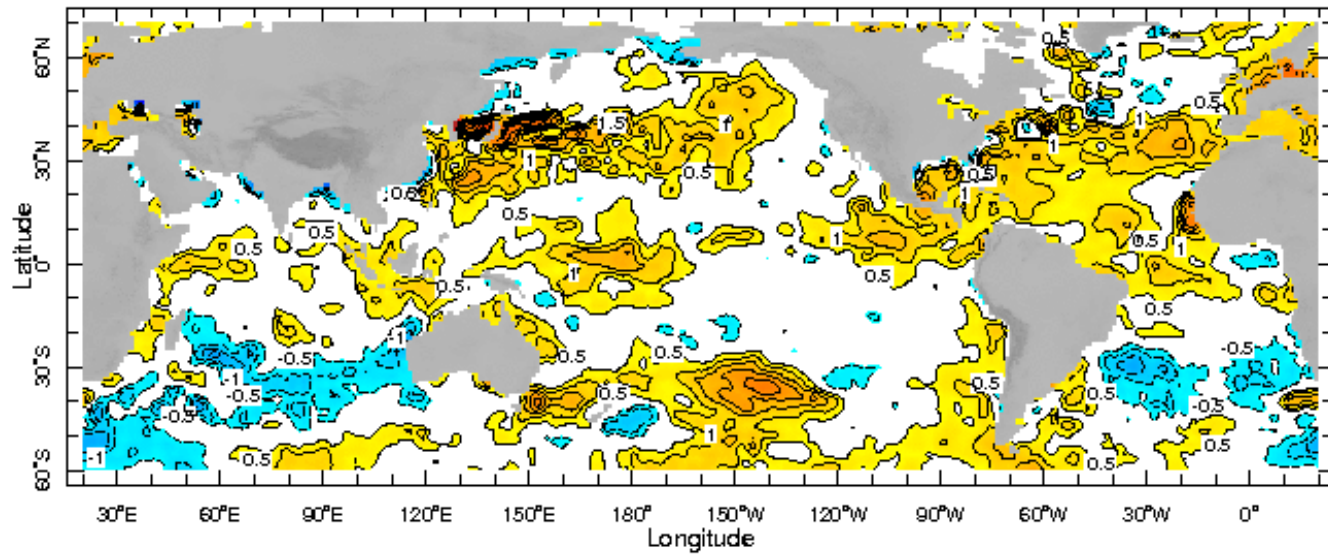
**Dekadal (10 Day) Satellite Derived Rainfall Estimates**



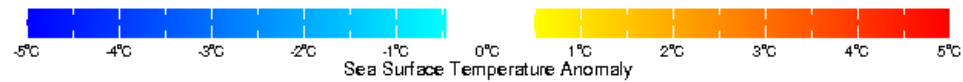


## Weekly Average SST Anomalies

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



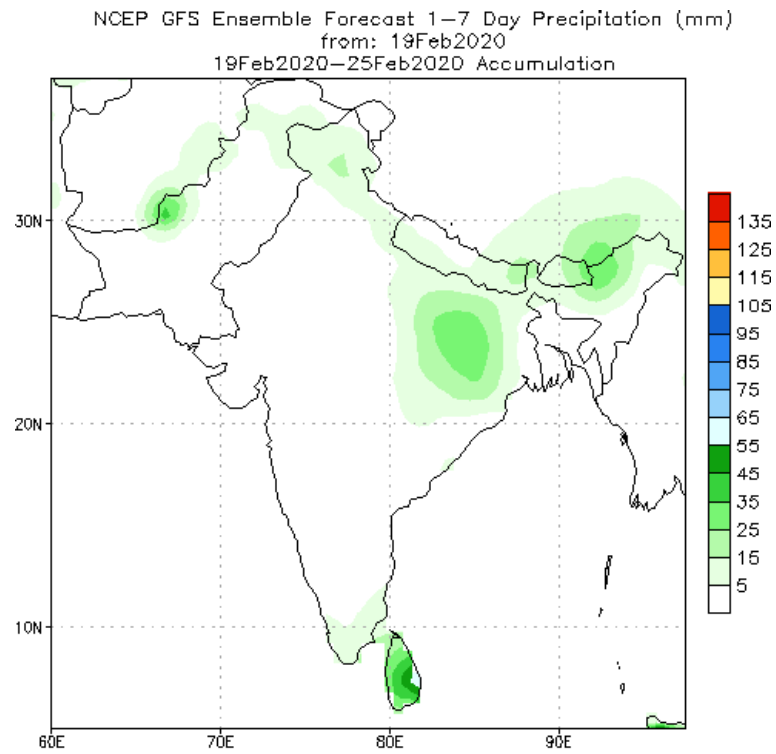
12 Feb 2020



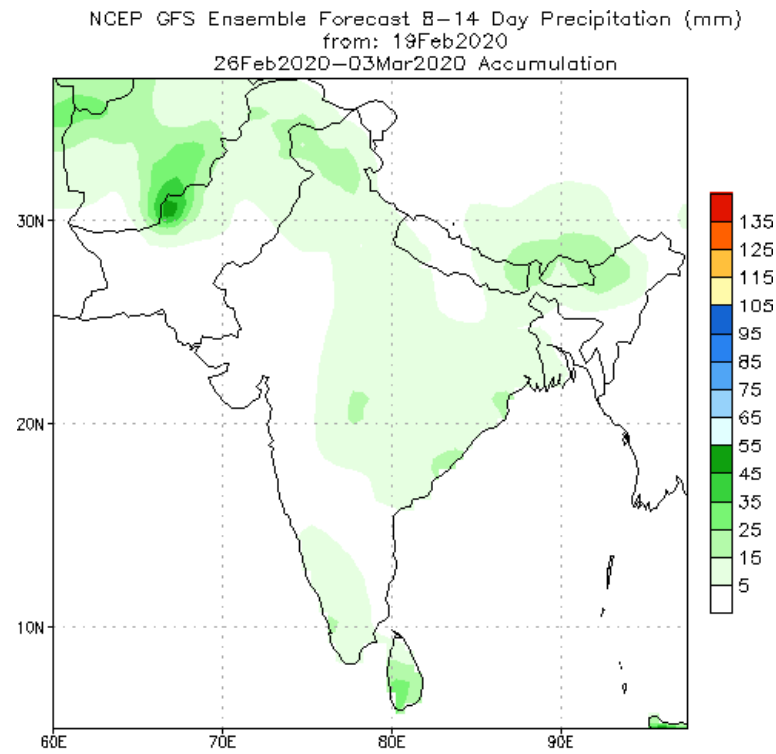
*WORLDBATH* topography

## PREDICTIONS

NCEP GFS 1- 14 Day prediction



Bias correction based on last 30-day forecast error

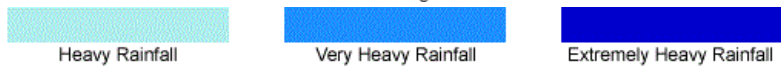
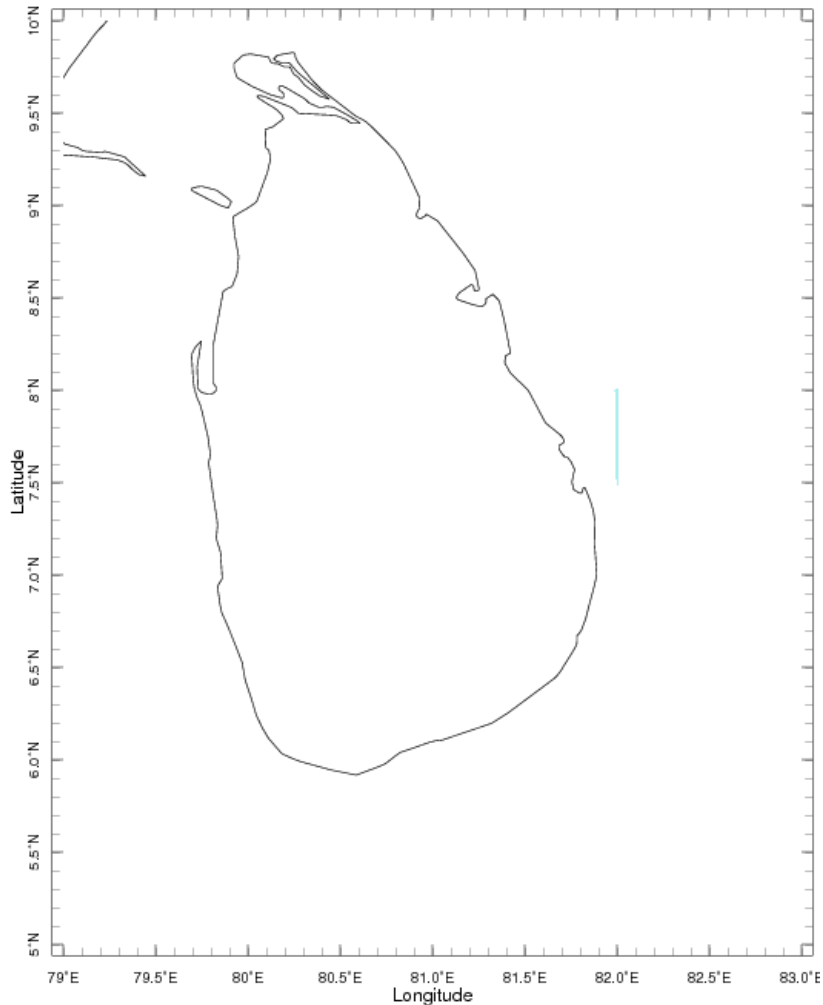


Bias correction based on last 30-day forecast error

**WRF Model Forecast (from IMD Chennai)**

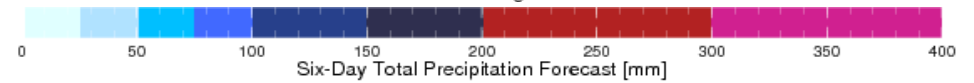
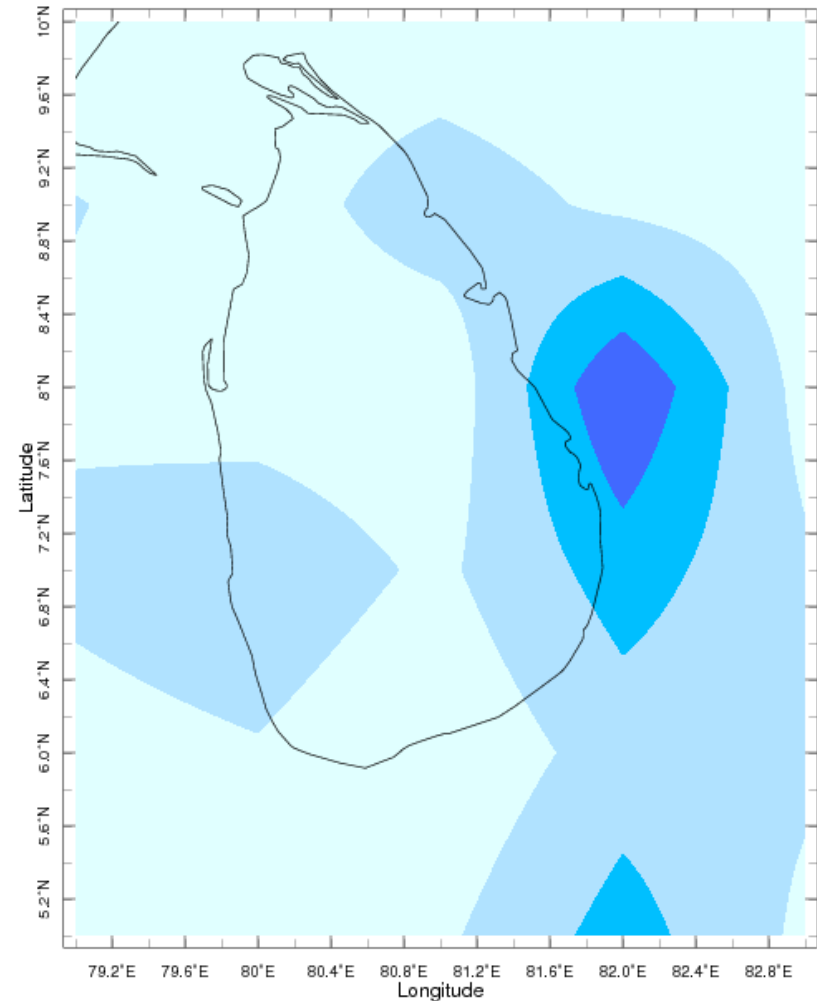
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 19-24 Feb 2020 Issued 0000 19 Feb 2020



Extreme Rainfall Forecast

Forecast for 19-24 Feb 2020 Issued 0000 19 Feb 2020



Total Six Day Precipitation Forecast