

**15 May  
2020**

**EXPERIMENTAL CLIMATE MONITORING AND PREDICTION**

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**HIGHLIGHTS**

*Rainfall Forecast*



- The NCEP GFS weekly rainfall forecast predicts up to 75 mm of total rainfall in southwestern regions of the island during 14-19 May.

*Monitored Rainfalls*



- Between 7 - 12 May: up to 180 mm of rainfall was recorded in Anuradhapura district on the 7<sup>th</sup>.

*Monitored Wind*



- From 6 - 12 May: up to 18 km/h, southeasterly winds were experienced by the southern regions 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**

Date	Rainfall
7 <sup>th</sup> May	Up to 180 mm in Anuradhapura district; up to 100 mm in Vavuniya district; up to 70 mm in Mullaitivu, Trincomalee, Mannar, Matale and Ampara districts; up to 60 mm in Kandy, Nuwara Eliya, Badulla and Monaragala districts; up to 50 mm in Kilinochchi, Puttalam, Kurunegala and Polonnaruwa districts; up to 30 mm in Ratnapura and Matara districts; and up to 20 mm in Galle, Gampaha and Kegalle districts.
8 <sup>th</sup> May	Up to 60 mm in Polonnaruwa district; up to 50 mm in Kurunegala, Matale, Kandy, Ampara, Badulla and Monaragala districts; up to 30 mm in Anuradhapura, Nuwara Eliya, Kegalle and Ratnapura districts; and up to 20 mm in Vavuniya, Trincomalee, Puttalam and Batticaloa districts.
9 <sup>th</sup> May	Up to 100 mm in Badulla and Monaragala districts; up to 90 mm in Kilinochchi, Mannar, Mullaitivu, Vavuniya, Anuradhapura, Polonnaruwa, Matale and Ratnapura districts; up to 50 mm in Trincomalee, Kurunegala, Kegalle, Kandy and Nuwara Eliya



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Date	Rainfall
	districts; up to 30 mm in Puttalam, Gampaha, Kalutara, Galle, Matara and Hambantota districts; and up to 20 mm in Colombo, Jaffna and Batticaloa districts.
10 <sup>th</sup> May	Up to 120 mm in Kurunegala and Kegalle districts; up to 100 mm in Vavuniya district; up to 90 mm in Mullaitivu, Mannar, Anuradhapura, Kandy, Matale, Nuwara Eliya and Ratnapura districts; up to 60 mm in Polonnaruwa, Ampara, Monaragala, Gampaha and Colombo districts; up to 50 mm in Puttalam, Kalutara and Badulla districts; up to 30 mm in Kilinochchi, Trincomalee, Batticaloa and Galle districts; and up to 20 mm in Matara district.
11 <sup>th</sup> May	Up to 50 mm in Anuradhapura, Trincomalee, Polonnaruwa and Batticaloa districts; up to 30 mm in Matale, Kilinochchi and Mannar districts; and up to 20 mm in Jaffna, Mullaitivu, Vavuniya, Puttalam, Kurunegala, Gampaha, Colombo, Kalutara, Gampaha, Matara, Ratnapura, Hambantota and Ampara districts.
12 <sup>th</sup> May	Up to 170 mm in Ratnapura and Monaragala districts; up to 100 mm in Kandy, Kegalle, Nuwara Eliya and Badulla districts; up to 90 mm in Matara and Hambantota districts; up to 60 mm in Kalutara district; up to 50 mm in Kurunegala, Matara, Gampaha, Colombo and Galle districts; up to 30 mm in Ampara districts; and up to 20 mm in Jaffna, Kilinochchi, Polonnaruwa, and Batticaloa districts.
13 <sup>th</sup> May	Up to 50 mm in Vavuniya, Anuradhapura, Polonnaruwa, Matale, Gampaha, Kurunegala, Ratnapura and Monaragala districts; up to 30 mm in Mullaitivu, Mannar, Kalutara, Matara, Hambantota, Ampara and Kegalle districts; up to 20 mm in most parts of the island.

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

The RFE 2.0 tool shows total up to 200-300 mm in Anuradhapura, Vavuniya, Matara, Kegalle, Ratnapura and Monaragala districts; up to 150-200 mm in Mannar, Kurunegala, Kegalle, Nuwara Eliya, Kandy and Ampara districts; up to 100-150 mm in most parts of the island. Above average rainfall up to 200-300 mm is shown for in Anuradhapura, Ratnapura and Monaragala districts; up and to 100-200 mm in Mannar, Mullaitivu, Vavuniya, Kurunegala, Kegalle, Matara, Kandy, Nuwara Eliya, Nuwara Eliya, Kegalle, Badulla, Polonnaruwa and Ampara districts; and up to 50-100 mm in rest of the island.

### ***Monthly Monitoring***

During April – Above average rainfall conditions up to 360 mm were experienced by Ratnapura, Badulla and Monaragala districts; up to 240 mm in Anuradhapura, Kegalle, Kandy and Matara districts; and up to 120 mm in Vavuniya, Matara, Nuwara Eliya, Colombo, Kalutara, Galle and Hambantota. Below average rainfall conditions up to 240 mm were experienced by Jaffna, Kilinochchi, Mullaitivu and Gampaha districts; and up to 120 mm in Badulla, Polonnaruwa and Trincomalee districts. The CPC Unified Precipitation Analysis tool shows up to 750 mm of total rainfall in Kegalle, Ratnapura and Monaragala districts; and up to 500 mm in Anuradhapura, Kurunegala, Matale, Kandy, Nuwara Eliya, Colombo, Kalutara, Colombo, Galle and Matara districts.



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

#### **Pacific sea state: May 14, 2020**

SSTs in the east-central Pacific were near-average in early May, and many of the atmospheric variables were either ENSO-neutral or leaning slightly in the cool-ENSO direction. Most model forecasts favor neutral SST conditions continuing into summer, becoming below-average but not necessarily into La Nina territory by fall. The official CPC/IRI outlook is consistent with these model forecasts, calling for a likely continuation of ENSO-neutral in summer, becoming cool-neutral by fall.

#### **Indian Ocean State**

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

## Predictions

### Rainfall

#### **14-day prediction: NOAA NCEP models**

**From 14<sup>th</sup> - 20<sup>th</sup> May:** Total rainfall up to 75 mm in Kurunegala and Kegalle districts; up to 65 mm in Matara, Kandy, Gampaha and Ratnapura districts; up to 55 mm in Puttalam, Anuradhapura, Nuwara Eliya, Colombo, Matara and Galle districts; and up to 45 mm in Badulla, Monaragala and Hambantota districts.

**From 21<sup>st</sup> - 27<sup>th</sup> May:** Total rainfall up to 95 mm in Galle and Matara districts; up to 85 mm in Ratnapura district; and up to 75 mm in Badulla, Monaragala, Kurunegala, Gampaha, Colombo and Kegalle districts.

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

**From 14<sup>th</sup> – 19<sup>th</sup> May:** Total rainfall up to 75 mm in Gampaha, Colombo, Kalutara, Gampaha, Kegalle and Ratnapura districts; and up to 50 mm in Puttalam, Kurunegala, Kandy, Nuwara Eliya, Badulla, Matara and Hambantota districts.

### MJO based OLR predictions

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

MJO shall enhance 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

### Inside This Issue

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#### 1. Monitoring

- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

#### 2. Predictions

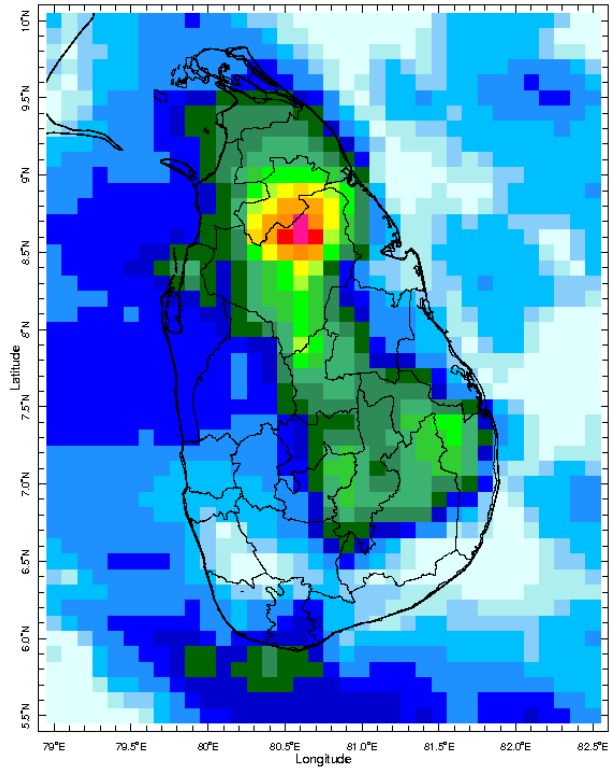
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

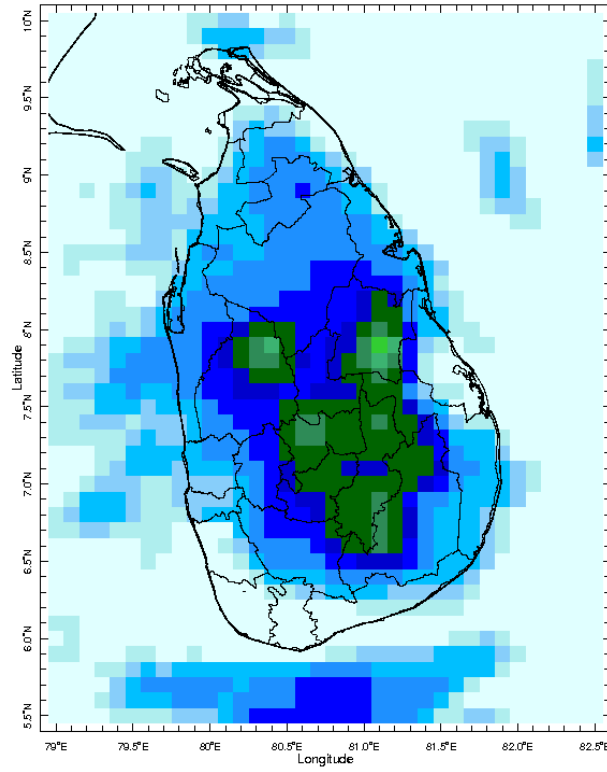
### Daily Rainfall Monitoring

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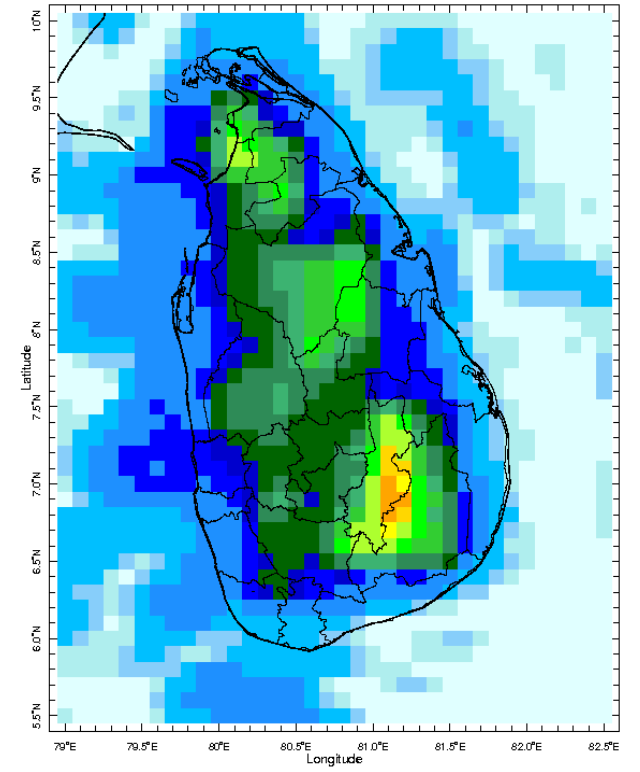
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



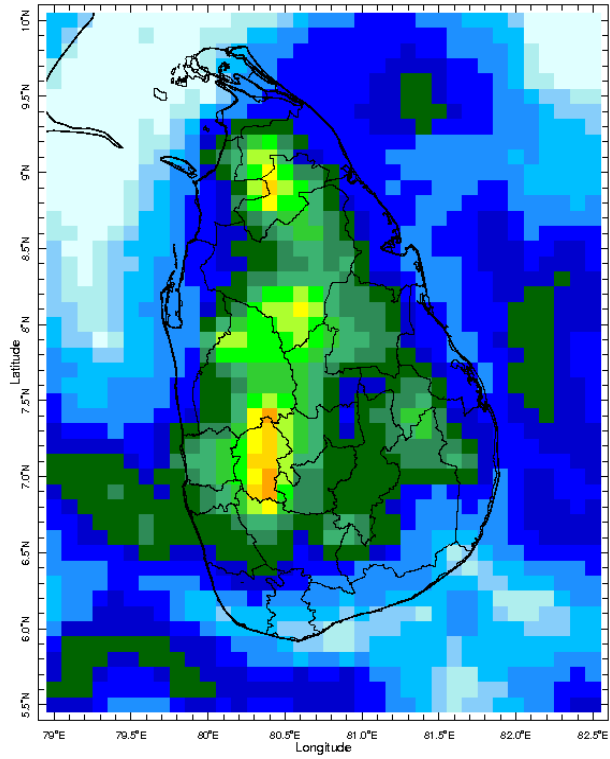
7 May 2020



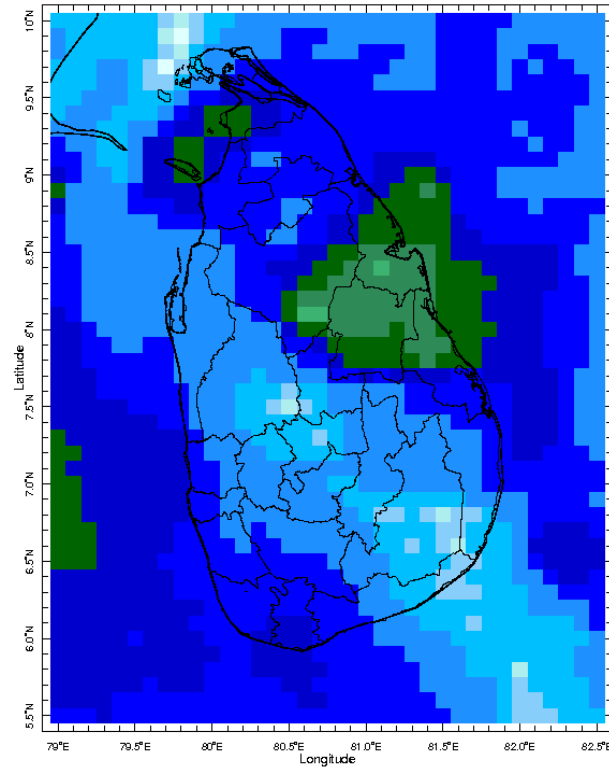
8 May 2020



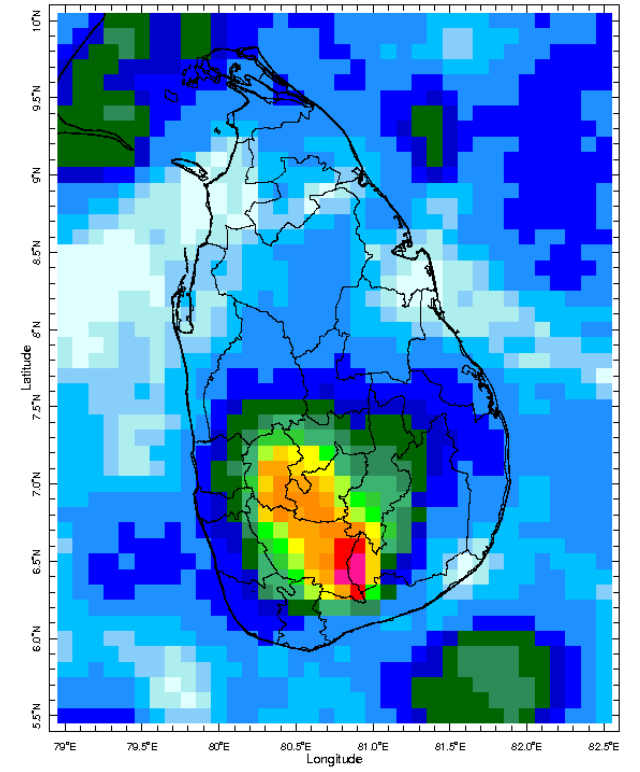
9 May 2020



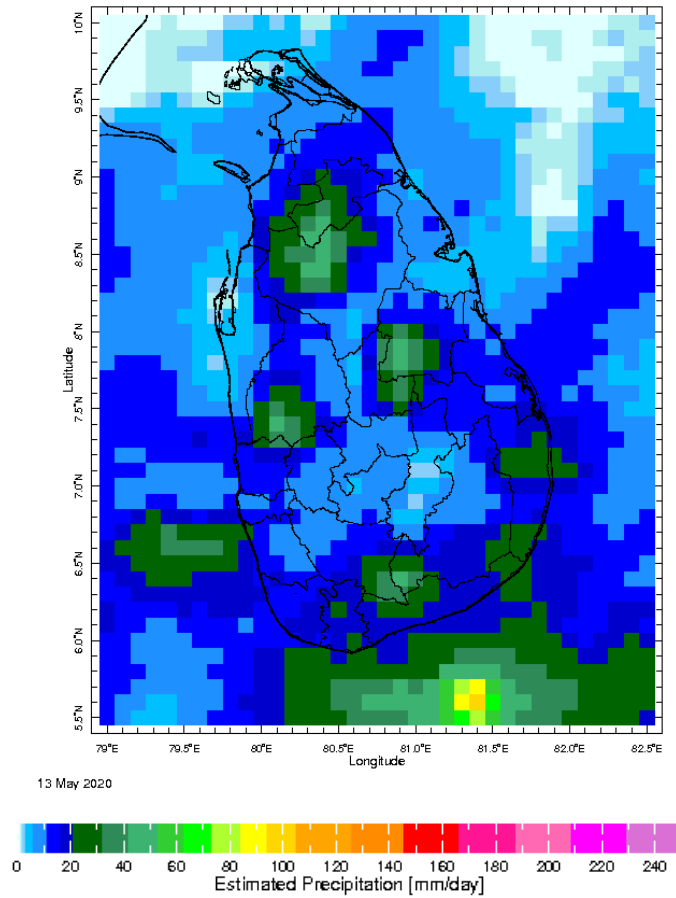
10 May 2020



11 May 2020

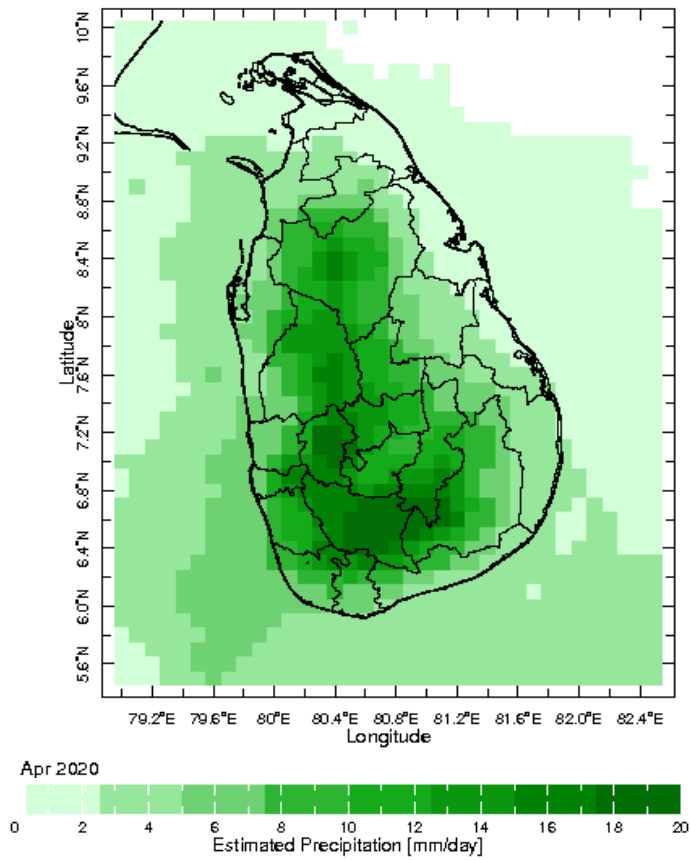


12 May 2020

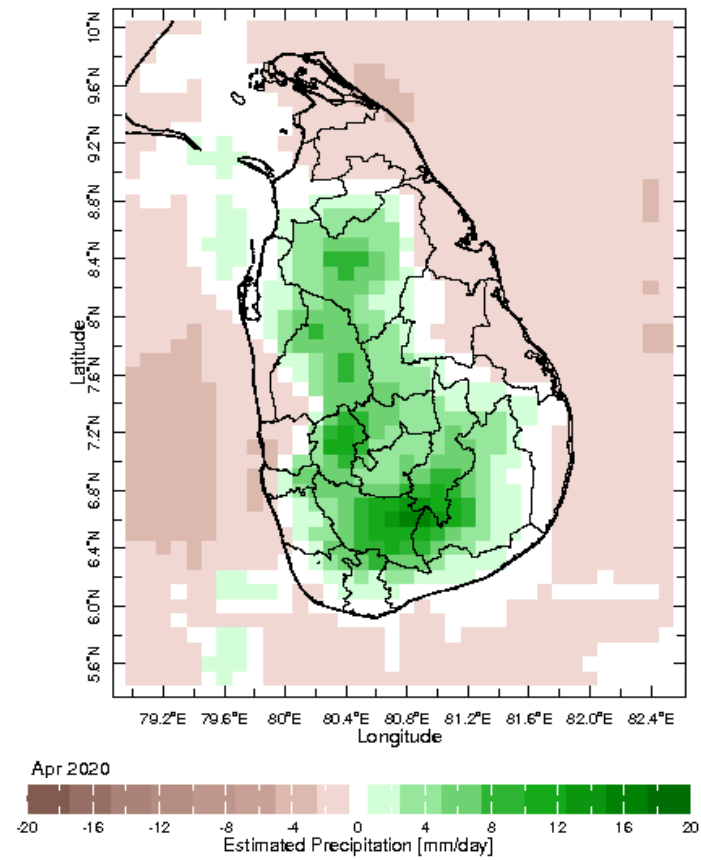


## Monthly Rainfall Monitoring

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



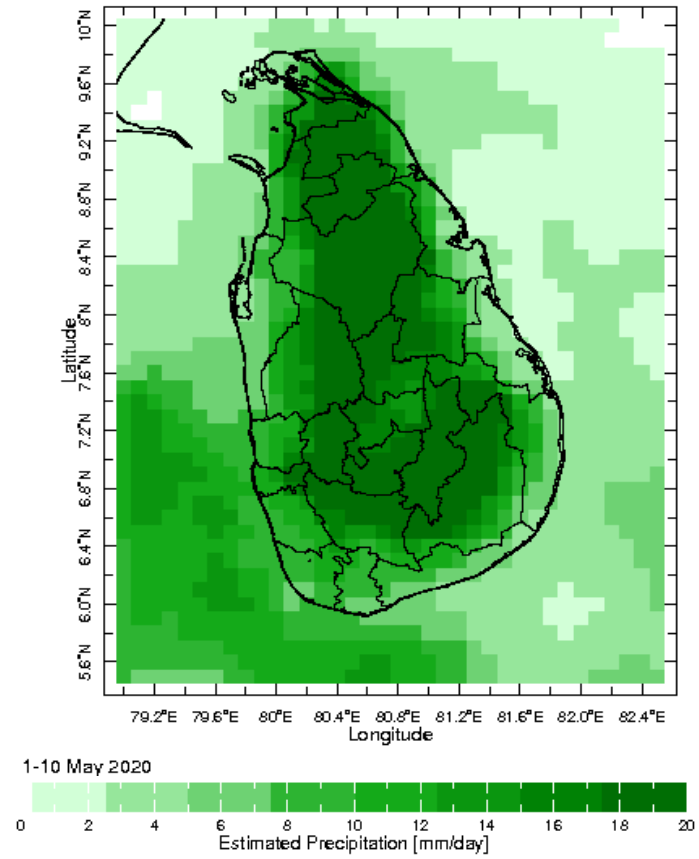
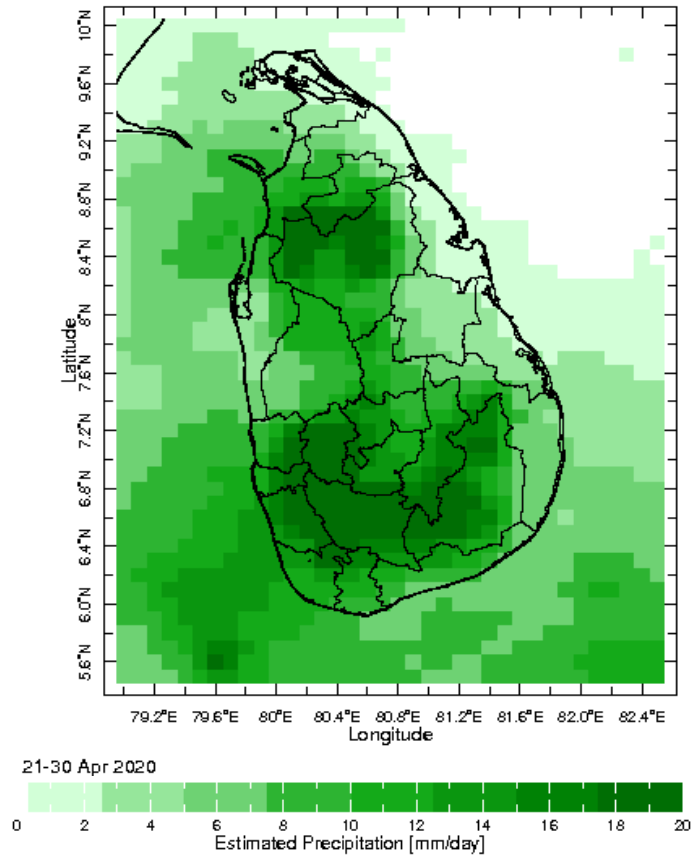
**Monthly Average**



**Monthly Anomaly**

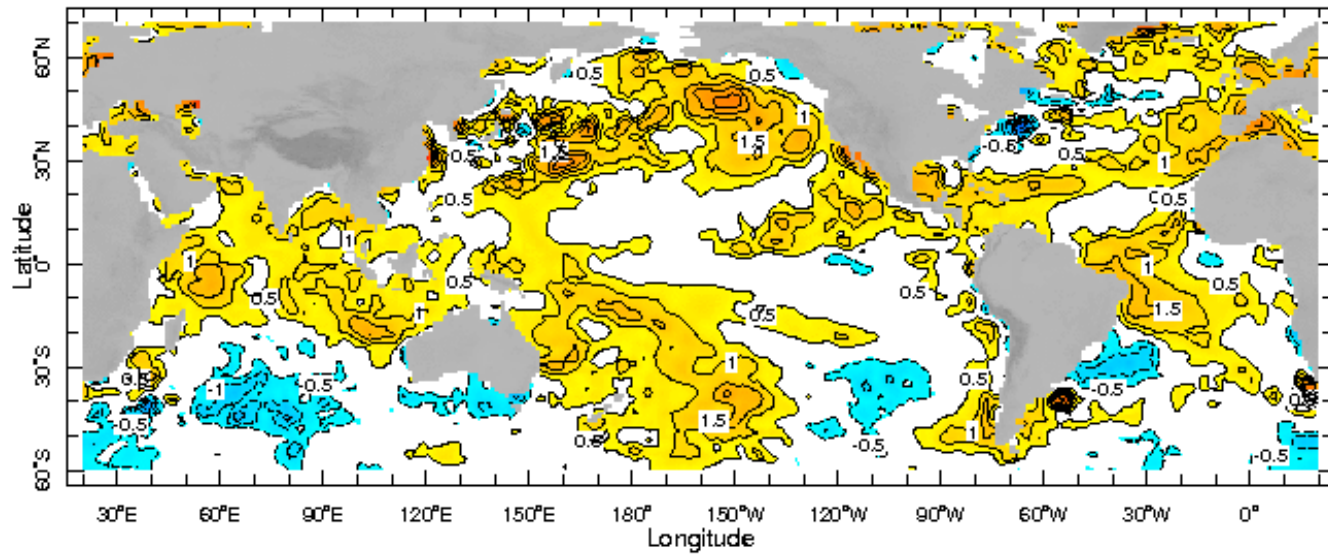
**Dekadal (10 Day) Satellite Derived Rainfall Estimates**



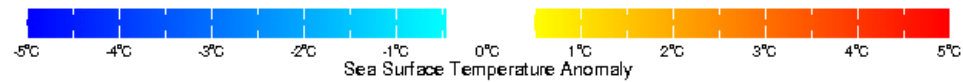


## Weekly Average SST Anomalies

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



6 May 2020

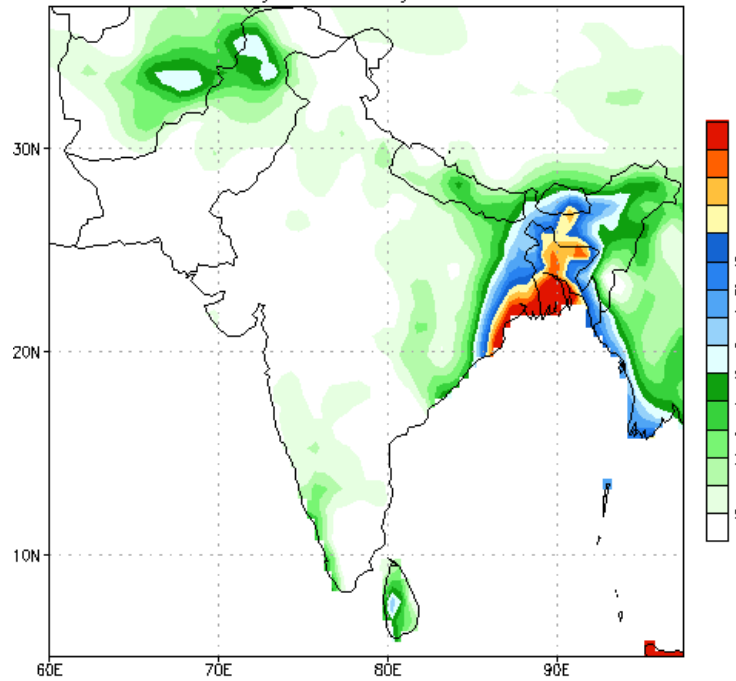


*WORLDBATH topography*

## PREDICTIONS

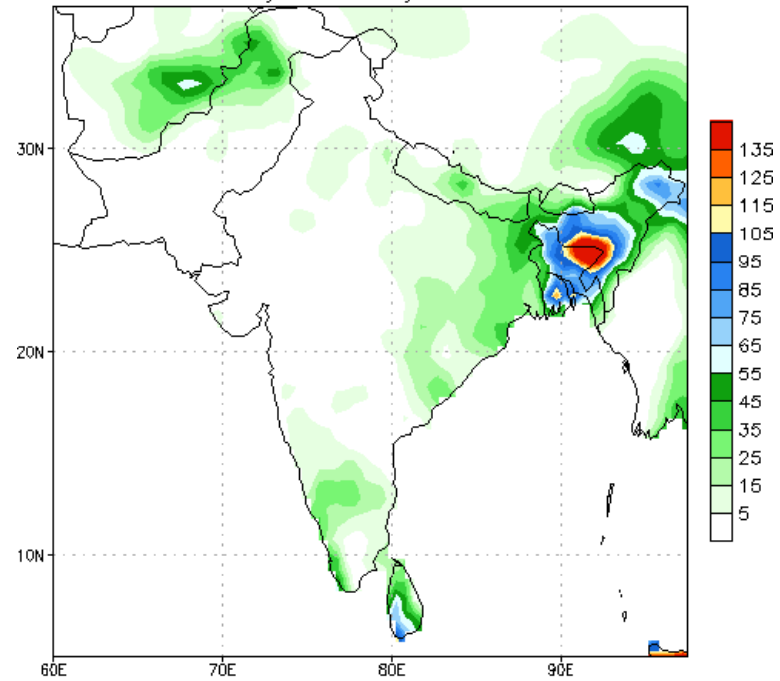
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 14May2020  
14May2020-20May2020 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 14May2020  
21May2020-27May2020 Accumulation

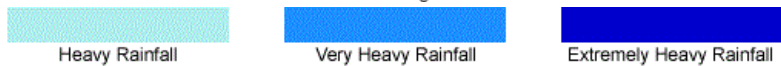
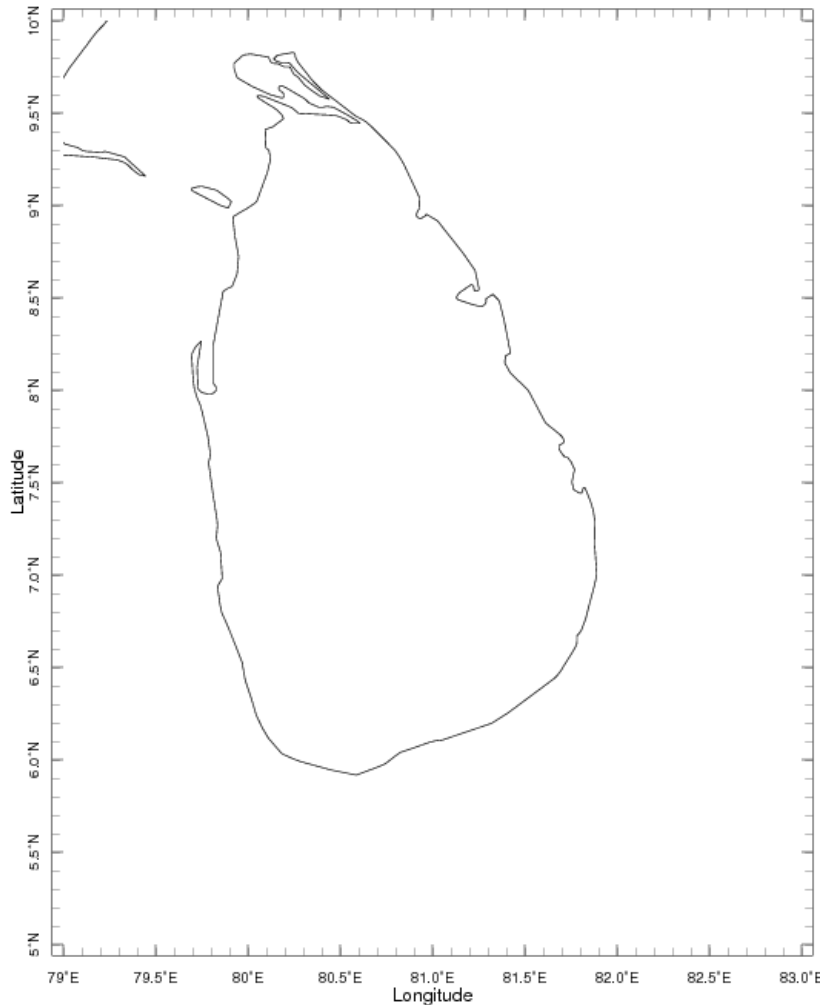


Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

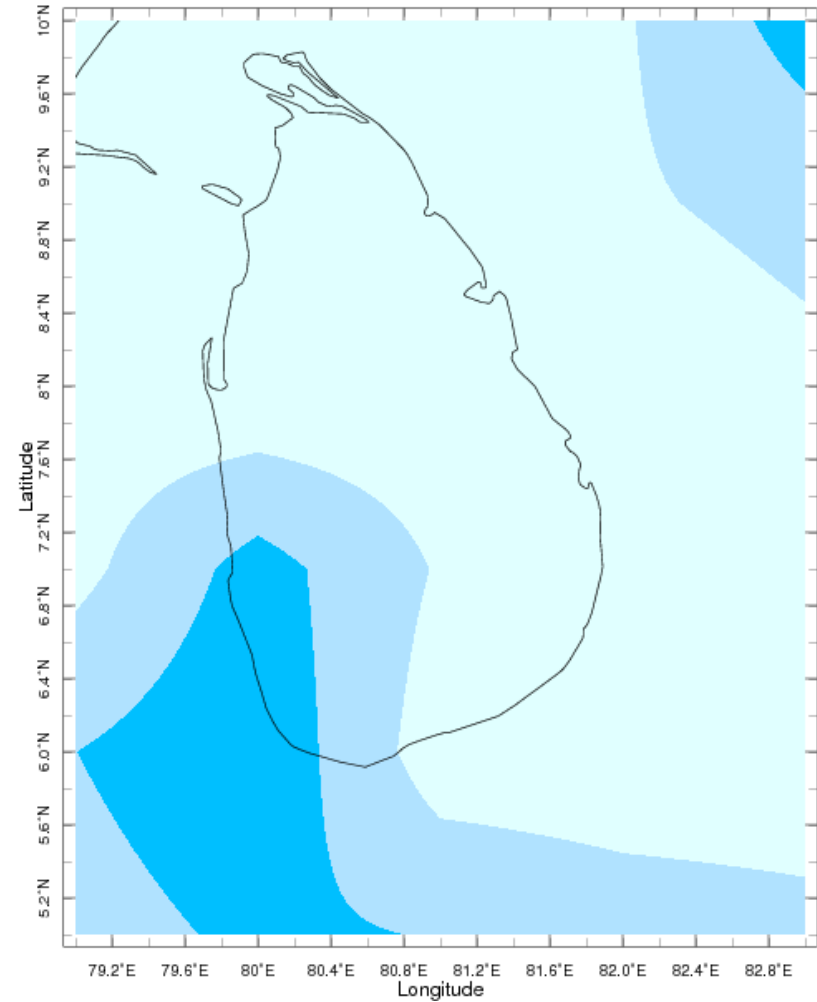
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 14-19 May 2020 Issued 0000 14 May 2020



Extreme Rainfall Forecast

Forecast for 14-19 May 2020 Issued 0000 14 May 2020



Total Six Day Precipitation Forecast