

**31 October  
2019**

## EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

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## HIGHLIGHTS

### Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 200 mm of total rainfall in Jaffna district during 23 – 28 Oct.

### Monitored Rainfalls



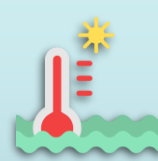
- Between 23 – 28 Oct: up to 100 mm of rainfall was recorded in Batticaloa district on the 28<sup>th</sup>.

### Monitored Wind



- From 22 – 28 Oct: up to 18 km/h, southeasterly 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
<b>23<sup>rd</sup> October</b>	Up to 70 mm in Jaffna district; up to 50 mm in Kilinochchi, Mullaitivu, Puttalam, Gampaha, Colombo, Kalutara, Batticaloa, Galle, Matara and Hambantota districts; up to 30 mm in Mannar, Vavuniya, Kurunegala, Kegalle, Kandy, Ratnapura, Badulla, Monaragala, Ampara and Polonnaruwa districts; and up to 20 mm in rest of the island.
<b>24<sup>th</sup> October</b>	Up to 60 mm in Galle district; up to 50 mm in Ratnapura district; up to 30 mm in Kalutara, Matara, Hambantota, Nuwara Eliya, Monaragala and Ampara districts; and up to 20 mm in Kurunegala, Matale, Ampara, Kandy, Badulla, Kegalle, Gampaha and Colombo districts.
<b>25<sup>th</sup> October</b>	Up to 30 mm in Mullaitivu district; and up to 20 mm in Jaffna, Kilinochchi, Anuradhapura and Trincomalee districts.
<b>26<sup>th</sup> October</b>	Up to 70 mm in Batticaloa and Ampara districts; up to 50 mm in Polonnaruwa and Monaragala districts; up to 30 mm in Badulla district; and up to 20 mm Trincomalee, Matale and Kandy districts.



## Foundation for Environment, Climate and Technology

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Date	Rainfall
27 <sup>th</sup> October	Up to 70 mm in Trincomalee, Batticaloa, Ampara, Badulla and Monaragala districts; up to 60 mm in Mullaitivu, Vavuniya, Anuradhapura, Polonnaruwa, Nuwara Eliya and Hambantota districts; up to 50 mm in Jaffna, Kilinochchi, Mannar, Puttalam, Kurunegala, Matale, Kandy, Ratnapura and Matara districts; up to 30 mm in Kegalle, Colombo, Kalutara and Galle districts; and up to 20 mm Gampaha district.
28 <sup>th</sup> October	Up to 100 mm in Batticaloa district; up to 70 mm in Polonnaruwa, Trincomalee, Ampara, Monaragala, Hambantota and Galle districts; up to 60 mm in Anuradhapura, Ratnapura and Matara districts; up to 50 mm in Mullaitivu, Badulla and Kalutara districts; up to 30 mm in Jaffna, Kilinochchi, Vavuniya, Matale, Kandy and Nuwara Eliya districts; and up to 20 mm in rest of the island.

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

The RFE 2.0 tool shows total up to 150-200 mm in Trincomalee, Polonnaruwa, Ampara, Monaragala, Badulla, Hambantota and Matara districts; up to 100-150 mm in Kilinochchi, Vavuniya, Mannar, Mullaitivu, Anuradhapura, Matale, Kandy, Nuwara Eliya, Ratnapura, Kalutara and Galle districts; and up to 75-100 mm in Kurunegala and Kegalle. Above average rainfall up to 100-200 mm is shown for Batticaloa, Ampara, Hambantota and Monaragala district; up to 50-100 mm in Jaffna, Kilinochchi, Mullaitivu, Trincomalee, Polonnaruwa, Badulla, Nuwara Eliya, Ratnapura, Matara and Galle districts; and up to 25-50 mm in Kalutara, Kandy, Matale, Mannar and eastern regions of Anuradhapura district. Below average rainfall up to 25-50 mm is shown for Gampaha, Kurunegala, Puttalam and western regions of Anuradhapura district; and up to 10-25 mm in Colombo and Kegalle districts.

### ***Monthly Monitoring***

During September – Above average rainfall conditions up to 450 mm were experienced by Gampaha district; up to 360 mm in Puttalam, Colombo, Kalutara, Galle, Matara, Hambantota, Monaragala and Ratnapura districts; up to 240 mm in Kurunegala, Kegalle, Jaffna, Kilinochchi, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, Badulla, Ampara, Kandy and Nuwara Eliya districts; and up to 120 mm in rest of the island. The CPC Unified Precipitation Analysis tool shows up to 750 mm of total rainfall in Gampaha, Colombo, Kalutara and Galle districts; up to 500 mm in Kurunegala, Puttalam, Kegalle, Ratnapura, Matara, Hambantota and Monaragala districts; up to 300 mm in Nuwara Eliya and Badulla districts; and up to 200 mm in Kandy, Matale, Ampara and Batticaloa districts.

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

#### ***Pacific sea state: October 18, 2019***

SSTs in the east-central Pacific maintained ENSO-neutral levels during September and early October, despite some warming in October. Patterns in some atmospheric variables show weak El Niño conditions, but this is attributed to intraseasonal variability and the collective assessment is for ENSO-neutral conditions. Model forecasts generally favor ENSO-neutral through autumn, winter and spring, with slightly higher chances for El Niño than La Niña. The official CPC/IRI outlook is consistent with these model forecasts.



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### Indian Ocean State

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

## Predictions

### Rainfall

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

**From 30<sup>th</sup> Oct – 5<sup>th</sup> Nov:** Total rainfall more than 115 mm in Puttalam and Kurunegala districts; up to 85-95 mm in Mannar, Kilinochchi, Gampaha, Kegalle, Matale and Ratnapura districts; and up to 75-85 mm in Jaffna, Vavuniya, Anuradhapura, Kandy, Colombo and Kalutara districts.

**From 6<sup>th</sup> – 12<sup>th</sup> Nov:** Total rainfall more than 105 mm in Ratnapura, Galle and Matara districts; up to 85-95 mm Gampaha, Kegalle, Puttalam and Kurunegala districts; and up to 65-75 mm in Matale, Kandy, Badulla and Monaragala districts.

#### NOAA Model Forecast:

**From 30<sup>th</sup> Oct – 4<sup>th</sup> Nov:** Total rainfall up to 150 mm is expected in Badulla district; up to 100 mm in Matale, Kandy, Nuwara Eliya, Ratnapura and Monaragala districts; up to 75 mm in Polonnaruwa, Kurunegala, Kegalle, Hambantota, Ampara, Batticaloa and Jaffna districts; and up to 50 mm in rest of the island.

### MJO based OLR predictions

#### For the next 15 days:

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

<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

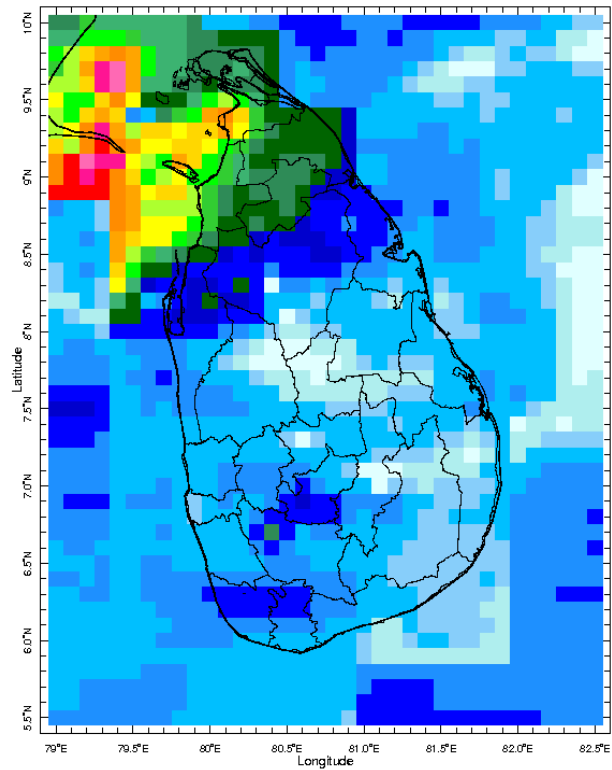
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

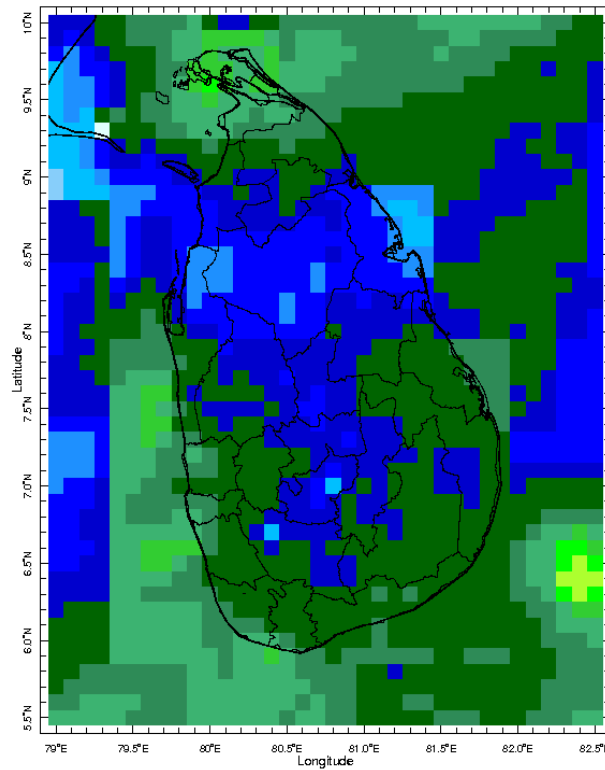
### Daily Rainfall Monitoring

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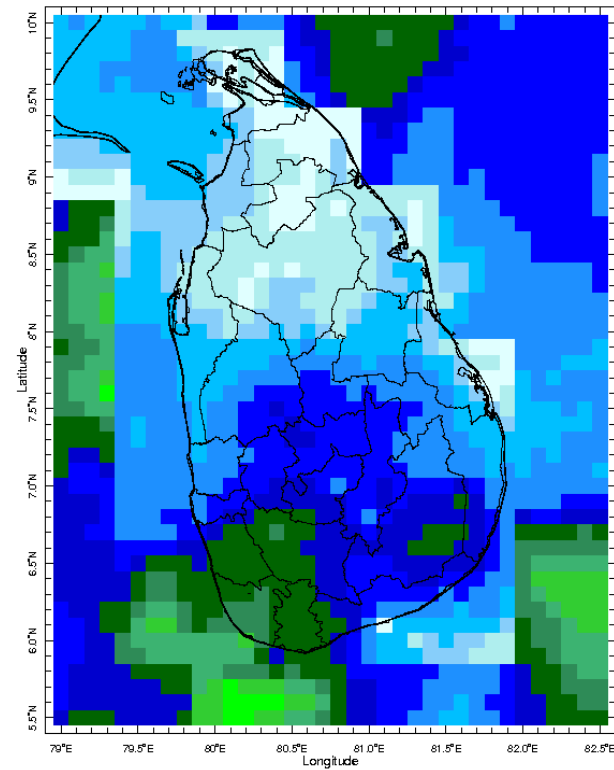
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



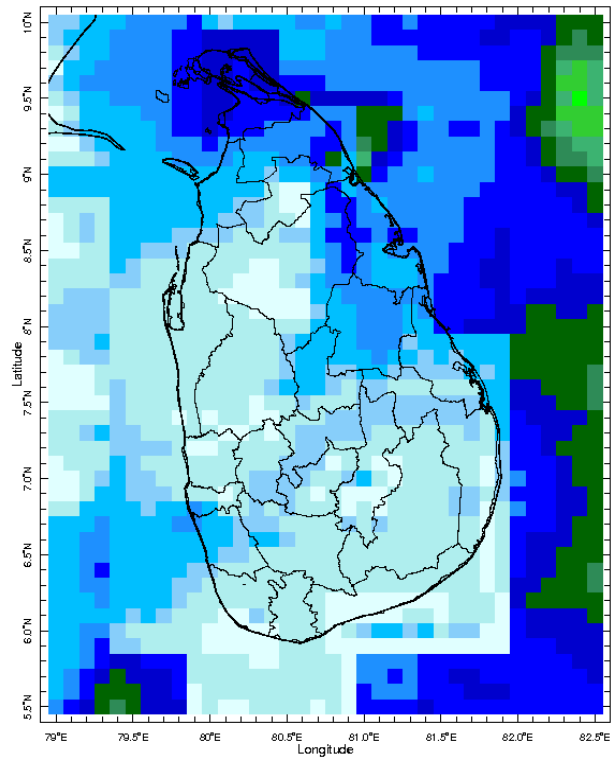
22 Oct 2019



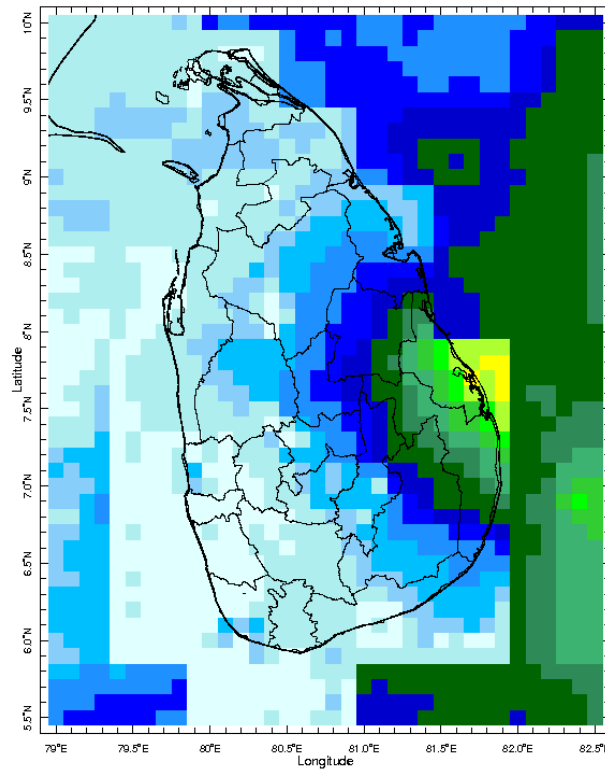
23 Oct 2019



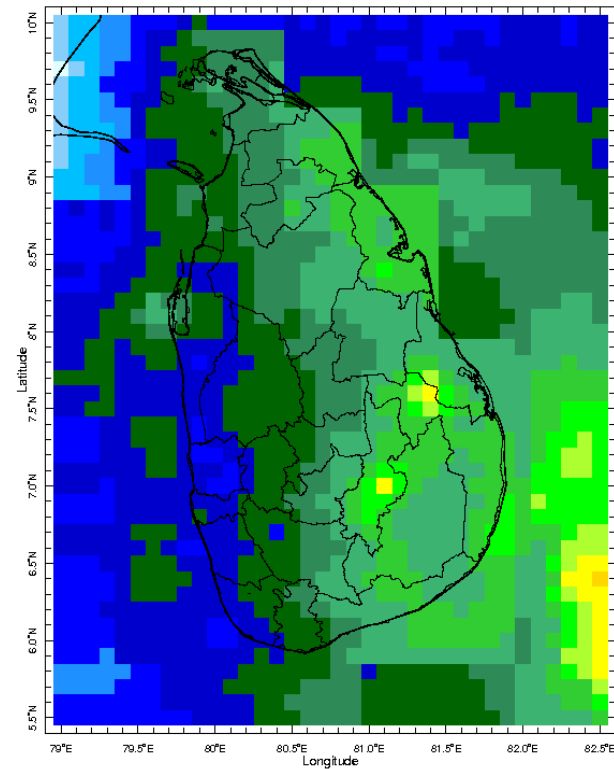
24 Oct 2019



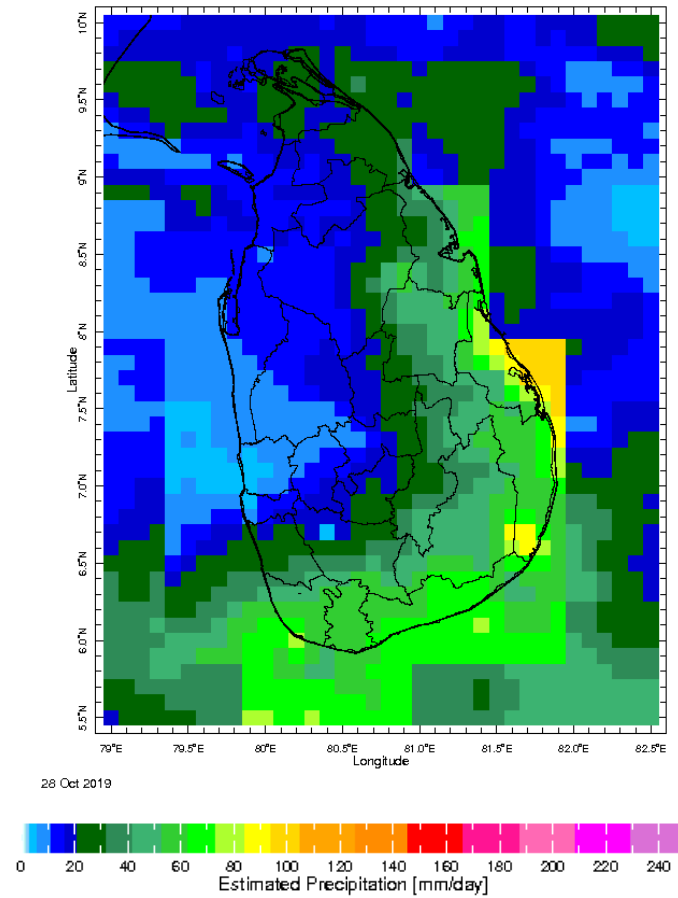
25 Oct 2019



26 Oct 2019

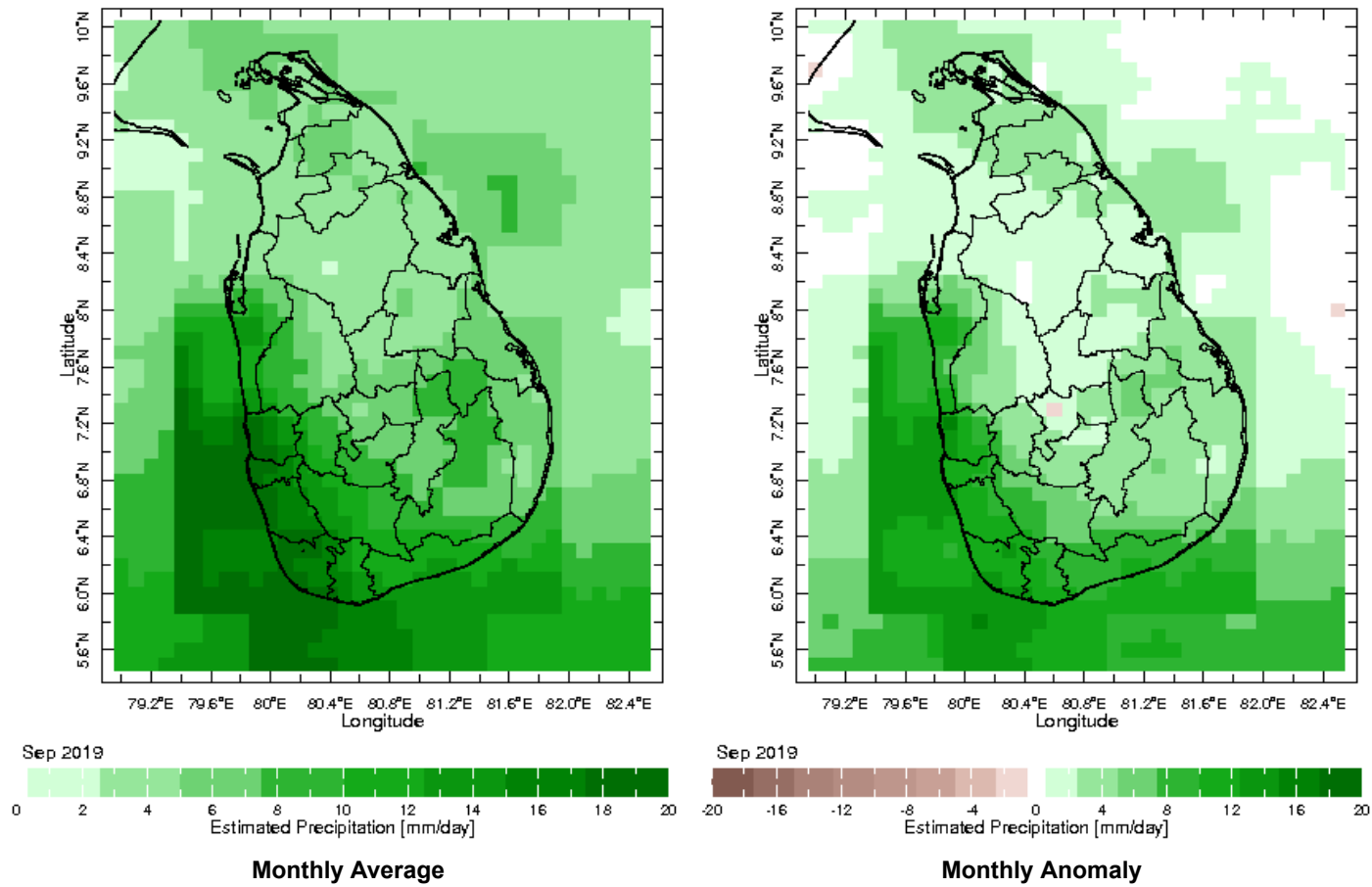


27 Oct 2019



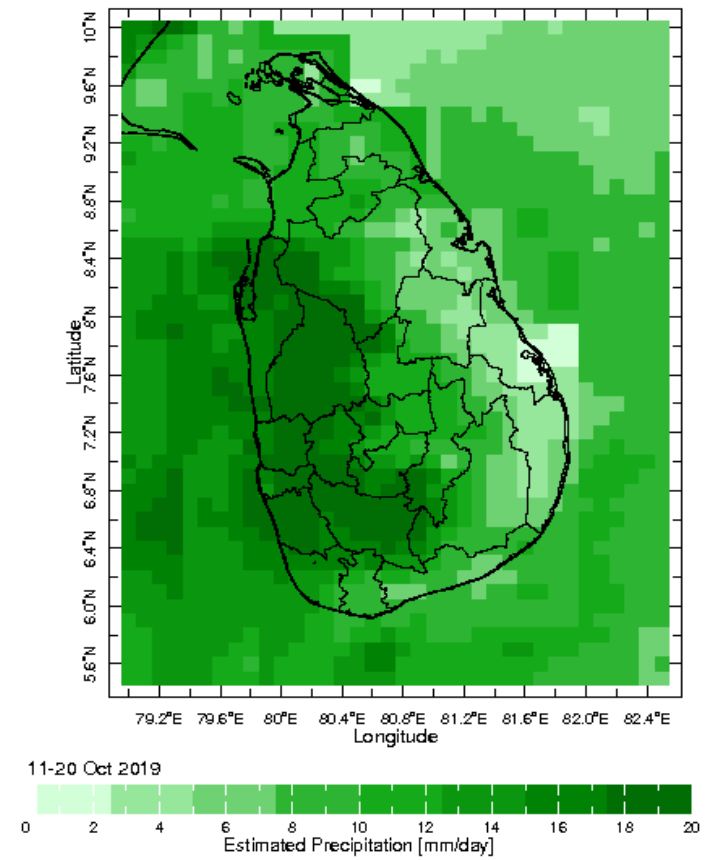
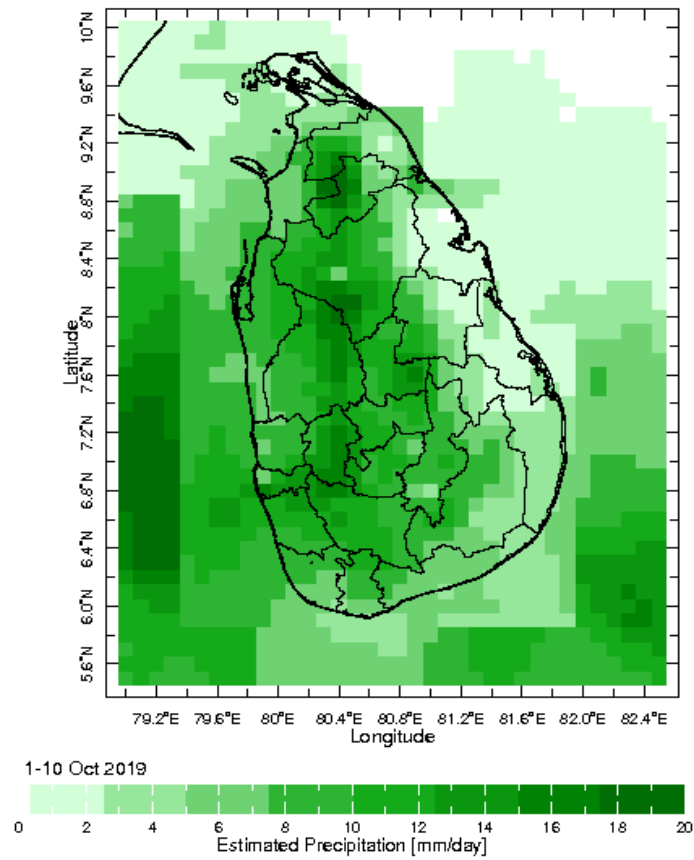
## Monthly Rainfall Monitoring

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



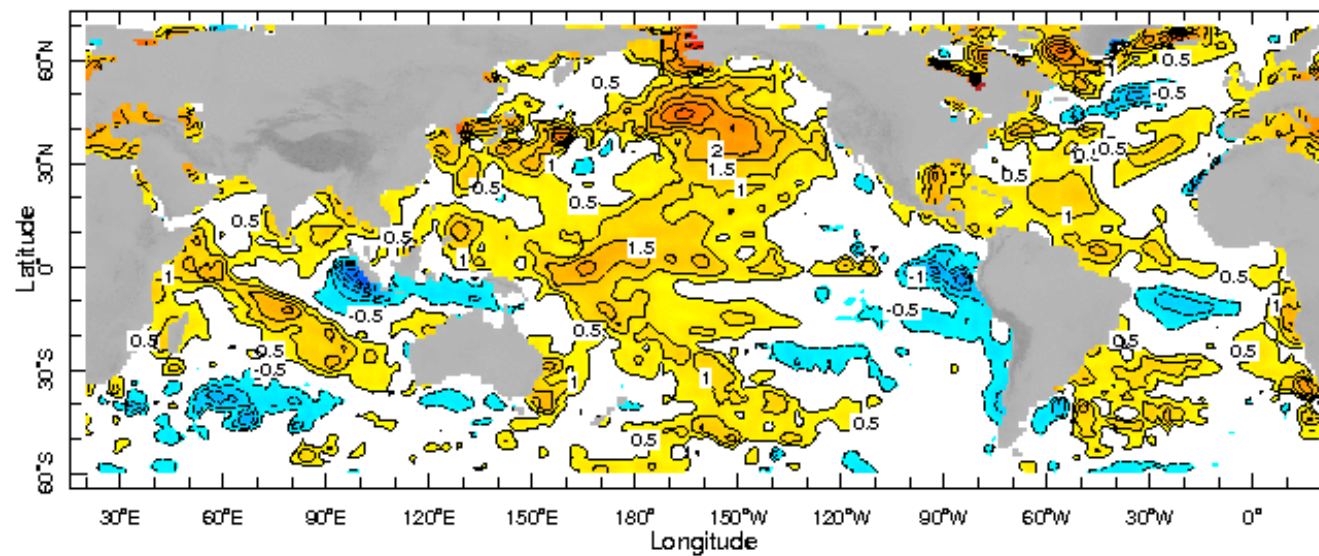
## Dekadal (10 Day) Satellite Derived Rainfall Estimates



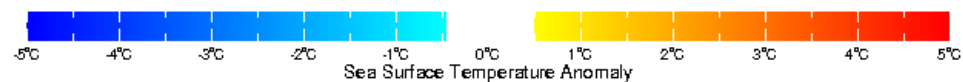


## Weekly Average SST Anomalies

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



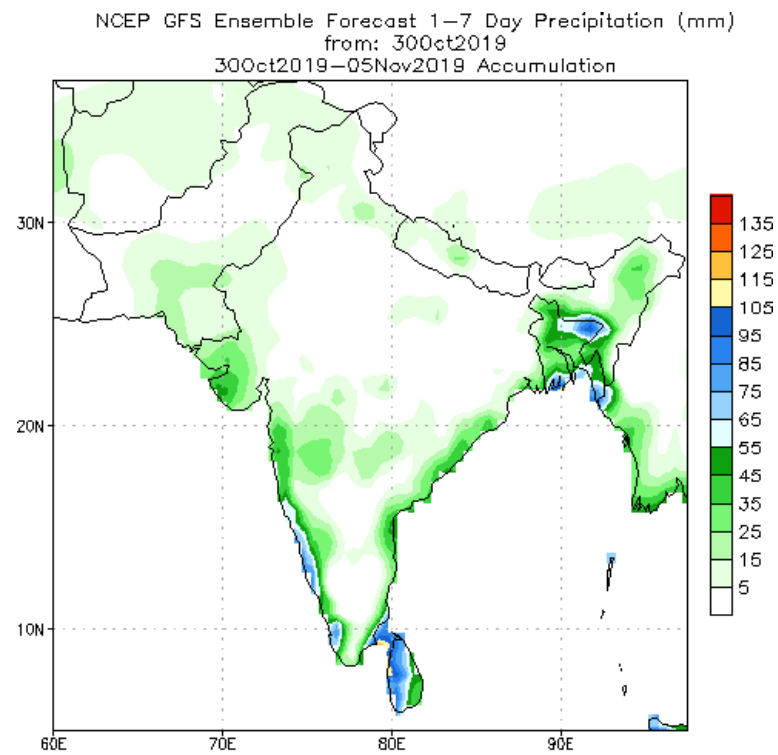
23 Oct 2019



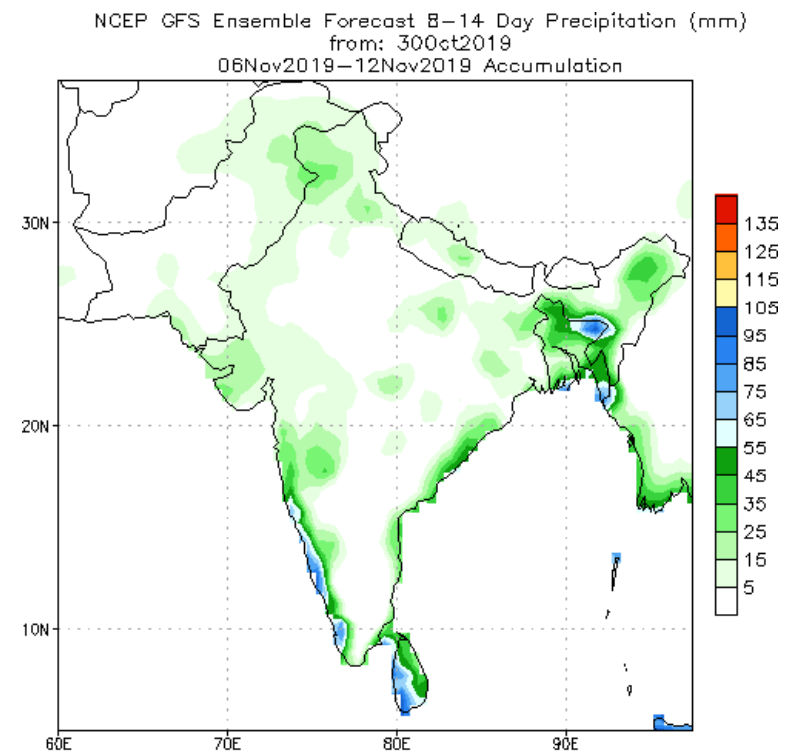
*WORLDBATH topography*

## PREDICTIONS

NCEP GFS 1- 14 Day prediction



Bias correction based on last 30-day forecast error



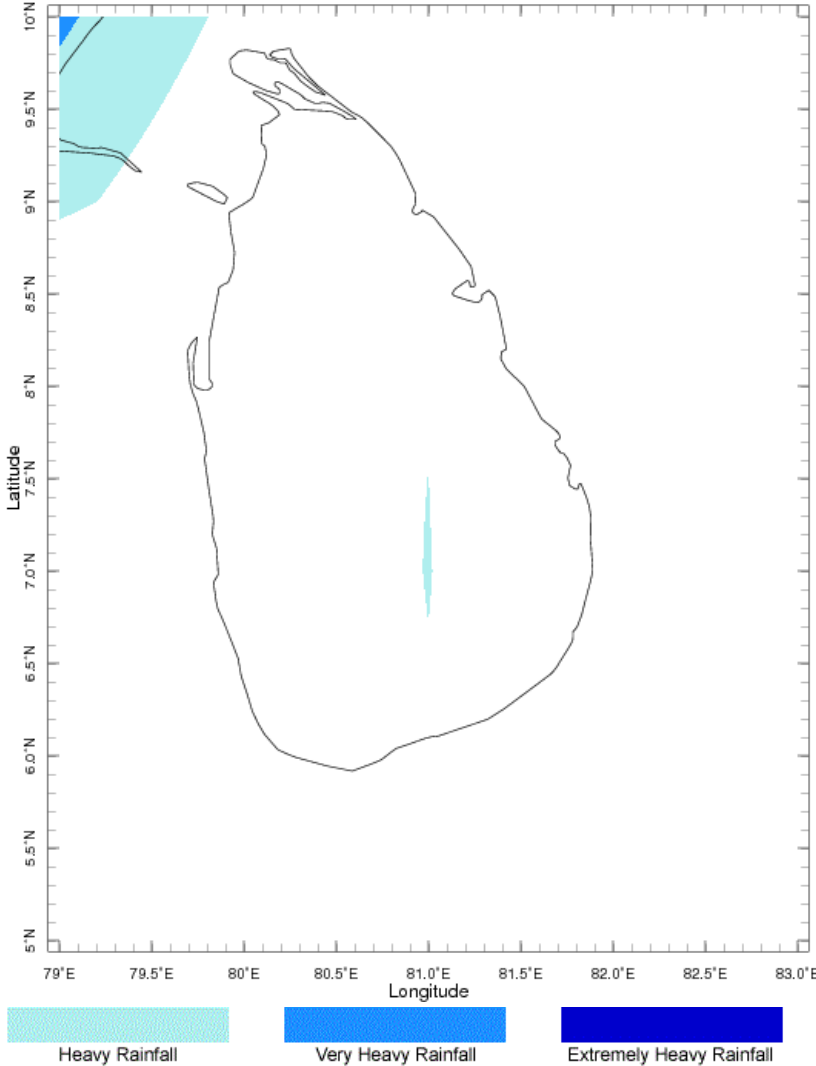
Bias correction based on last 30-day forecast error

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

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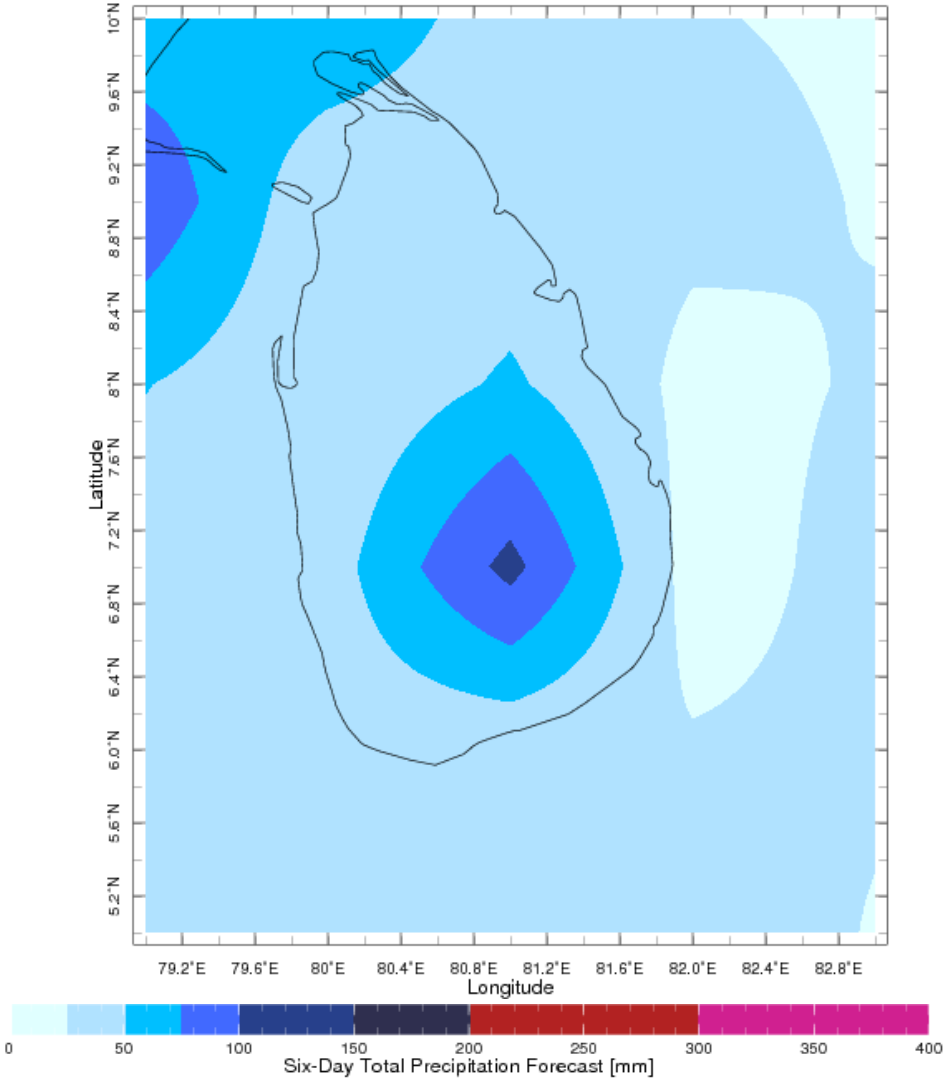
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 30 Oct 2019 - 4 Nov 2019 Issued 0000 30 Oct 2019



Extreme Rainfall Forecast

Forecast for 30 Oct 2019 - 4 Nov 2019 Issued 0000 30 Oct 2019



Total Six Day Precipitation Forecast