

**7 November  
2019**

## EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

By: Ruchira Lokuhetti, Divaskar Shayendra, Chayana Gunathilake, Lareef Zubair and Michael Bell<sup>1</sup> (FECT and IRI<sup>1</sup>)

## HIGHLIGHTS

### Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 75 mm of total rainfall in Kandy, Nuwara Eliya, Badulla and Monaragala district during 6 – 11 Nov.

### Monitored Rainfalls



- Between 29 Oct - 4 Nov: up to 210 mm of rainfall was recorded in Jaffna district on the 1<sup>st</sup>.

### Monitored Wind



- From 29 Oct - 4 Nov: up to 10 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   |
|--------------------------------|--|
| <b>29<sup>th</sup> October</b> | Up to 70 mm in Hambantota district; up to 60 mm in Ampara and Matara districts; up to 50 mm in Jaffna, Puttalam, Monaragala, Ratnapura and Galle districts; up to 30 mm in Mannar, Kalutara, Badulla, Batticaloa, Mullaitivu and Kilinochchi districts; and up to 20 mm in rest of the island. |
| <b>30<sup>th</sup> October</b> | Up to 175 mm in Kilinochchi district; up to 100 mm in Jaffna district; up to 70 mm in Mannar and Mullaitivu districts; up to 50 mm in Vavuniya district; and up to 20 mm in Puttalam, Anuradhapura and Colombo districts.  |
| <b>31<sup>st</sup> October</b> | Up to 150 mm in Jaffna district; up to 60 mm in Mannar district; up to 30 mm in Puttalam and Anuradhapura districts; and up to 20 mm in Mullaitivu and Vavuniya districts.   |
| <b>1<sup>st</sup> November</b> | Up to 210 mm in Jaffna districts; up to 50 mm in Kilinochchi, Mullaitivu and Mannar districts; and up to 20 mm Monaragala district.  |



## Foundation for Environment, Climate and Technology

c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.

Phone (+94) 81-2376746, 2300415 E-mail: [fectsl@gmail.com](mailto:fectsl@gmail.com)

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| Date                           | Rainfall   |
|--------------------------------|--|
| <b>2<sup>nd</sup> November</b> | Up to 100 mm in Gampaha district; up to 70 mm in Kegalle district; up to 50 mm in Puttalam, Kurunegala, Colombo, Kalutara, Ratnapura, Matara and Hambantota districts; up to 30 mm in Matale, Kandy, Badulla and Monaragala districts; and up to 20 mm in Mannar, Anuradhapura and Nuwara Eliya districts. |
| <b>3<sup>rd</sup> November</b> | Up to 60 mm in Colombo and Badulla districts; up to 50 mm in Puttalam, Gampaha, Kalutara and Ampara districts; up to 30 mm in Kurunegala, Kegalle, Ratanapura, Kandy, Nuwara Eliya and Monaragala districts; and up to 20 mm in Anuradhapura, Polonnaruwa, Matale, Galle, Matara and Hambantota districts. |
| <b>4<sup>th</sup> November</b> | Up to 20 mm in Kurunegala, Gampaha, Kegalle, Kandy, Badulla and Monaragala districts.  |

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

The RFE 2.0 tool shows total up to 70-100 mm in Mullaitivu, Kilinochchi, Mannar, Gampaha, Colombo, Kalutara, Kegalle, Matara, Ratnapura and Hambantota districts; up to 50-75 mm in Jaffna, Vavuniya, Puttalam, Kurunegala, Kandy, Nuwara Eliya, Badulla, Monaragala and Ampara districts; and up to 25-50 mm in Anuradhapura, Polonnaruwa, Matale and Batticaloa districts. Above average rainfall up to 50-100 mm is shown for Jaffna and Kilinochchi districts; and up to 25-50 mm in Vavuniya, Mannar, Puttalam, Gampaha, Colombo, Kalutara, Galle, Matara and Hambantota districts. Below average rainfall up to 50-100 mm is shown for Trincomalee, Anuradhapura and Kurunegala districts; up to 25-50 mm in Mullaitivu, Matale, Polonnaruwa and Ampara districts; and up to 10-25 mm in Kandy, Nuwara Eliya and Monaragala districts.

### ***Monthly Monitoring***

During October – Above average rainfall conditions up to 360 mm were experienced by Kilinochchi, Ratnapura, Vavuniya, Anuradhapura, Kurunegala, Matara and Hambantota districts; up to 300 mm in Jaffna district; and up to 240 mm in rest of the island. The CPC Unified Precipitation Analysis tool shows up to 750 mm were experienced by Colombo and Ratnapura districts; and up to 500 mm in most parts of the island.

## **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.

### ***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 6<sup>th</sup> – 12<sup>th</sup> Nov:** Total rainfall more than 85 mm in Ratnapura and Galle districts; up to 65-75 mm in Puttalam, Kurunegala, Gampaha, Kegalle, Matara and Hambantota districts; and up to 55-65 mm in Matale, Kandy, Nuwara Eliya, Colombo and Kalutara districts.

**From 13<sup>th</sup> – 19<sup>th</sup> Nov:** Total rainfall up to 115 mm in Kalutara, Ratnapura, Galle, Matara and Hambantota districts; up to 85-95 mm Kegalle, Puttalam, Gampaha and Kurunegala districts; and up to 75-85 mm in Jaffna, Kilinochchi, Mannar, Matale, Kandy and Nuwara Eliya districts.

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

**From 6<sup>th</sup> – 11<sup>th</sup> Nov:** Total rainfall up to 75 mm is expected in Kandy, Nuwara Eliya, Badulla and Monaragala districts; and up to 50 mm in Mullaitivu, Vavuniya, Anuradhapura, Polonnaruwa, Matale, Kegalle, Ratnapura, Hambantota, Ampara, Batticaloa and Trincomalee 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
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

#### 2. Predictions

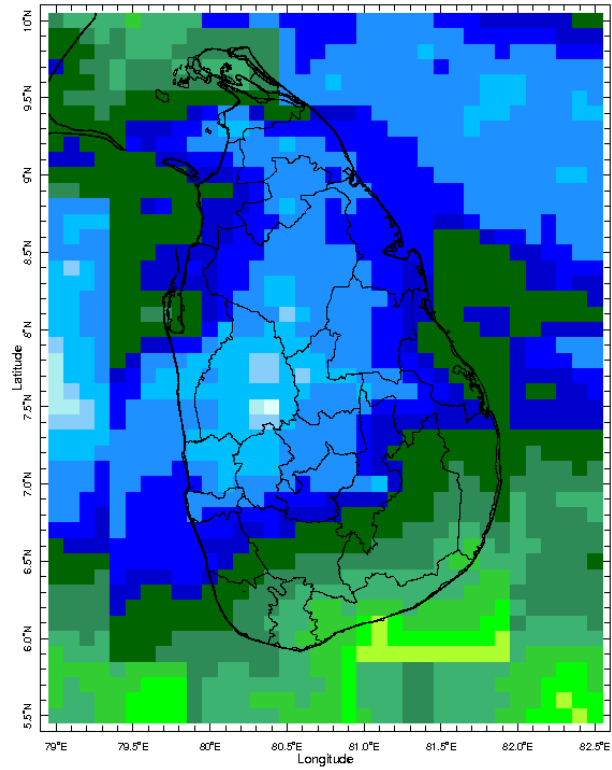
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

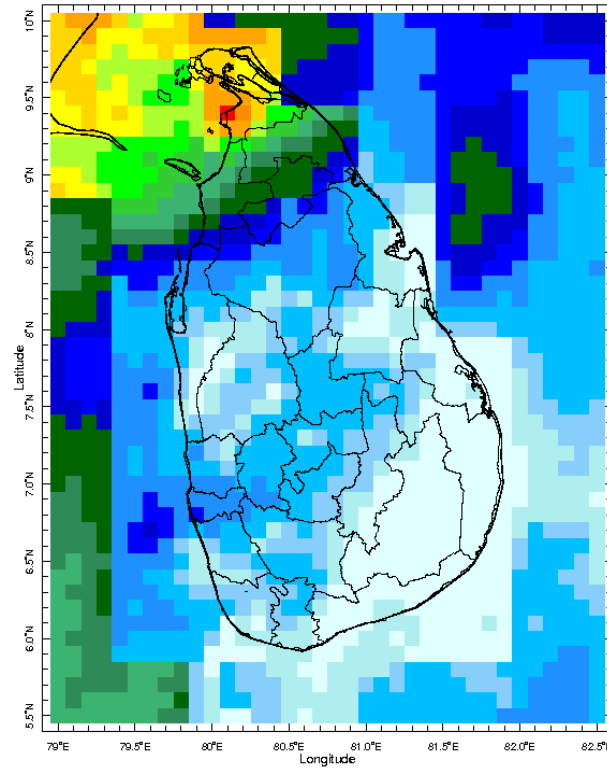
### Daily Rainfall Monitoring

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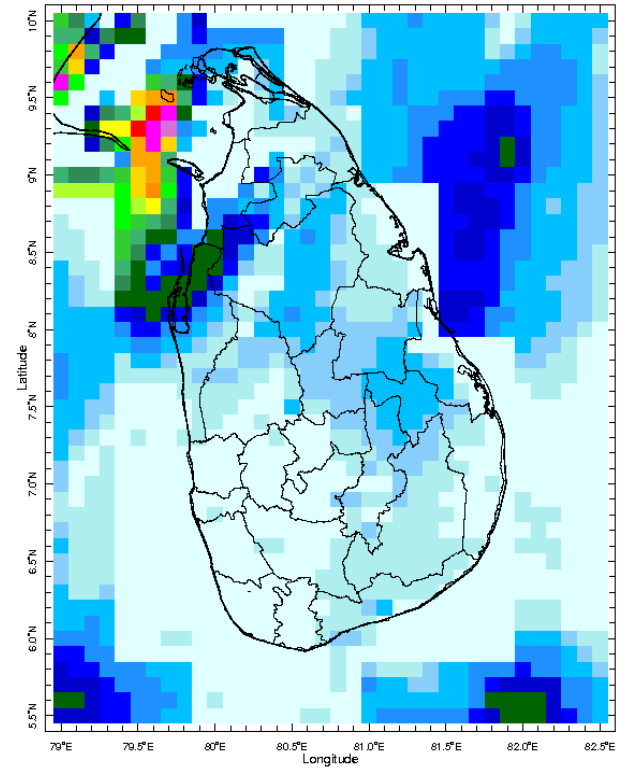
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



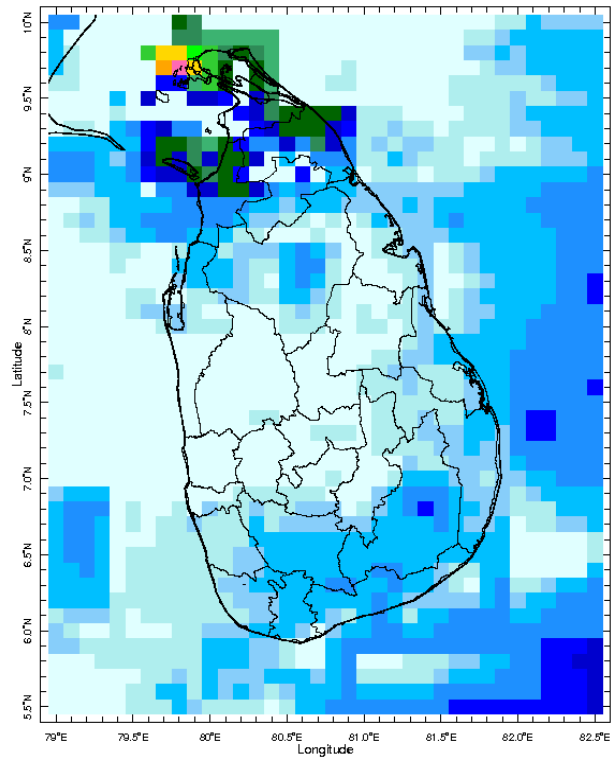
29 Oct 2019



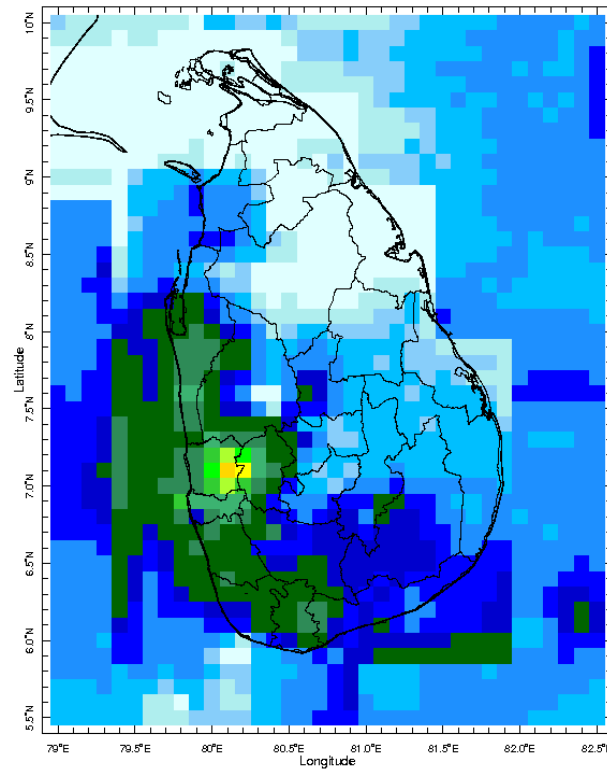
30 Oct 2019



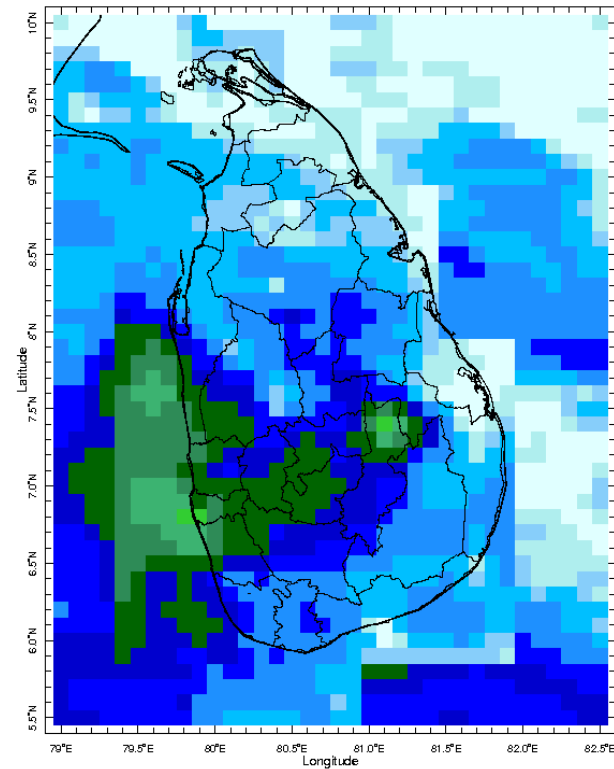
31 Oct 2019



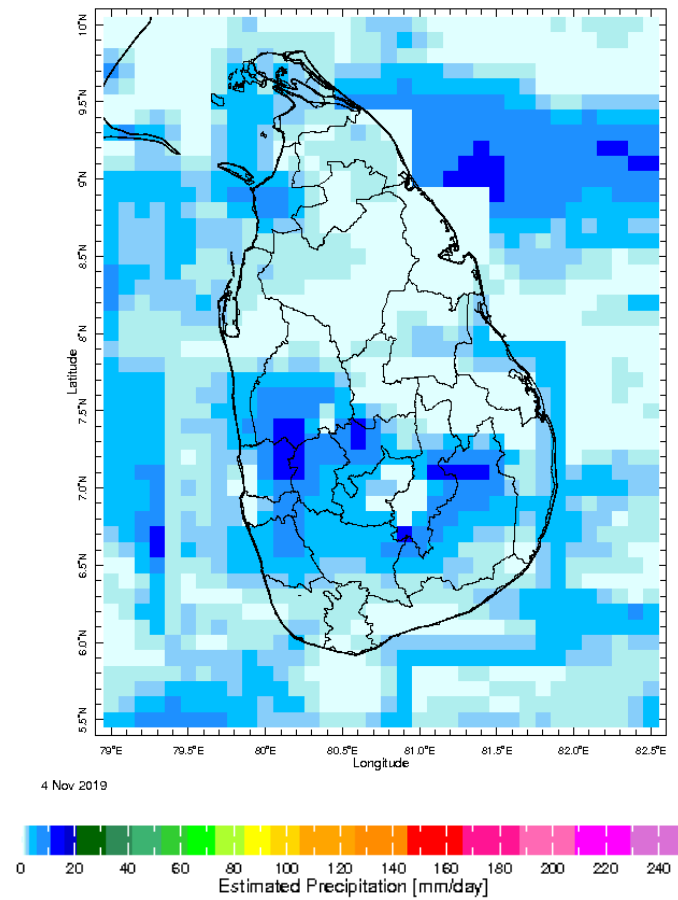
1 Nov 2019



2 Nov 2019

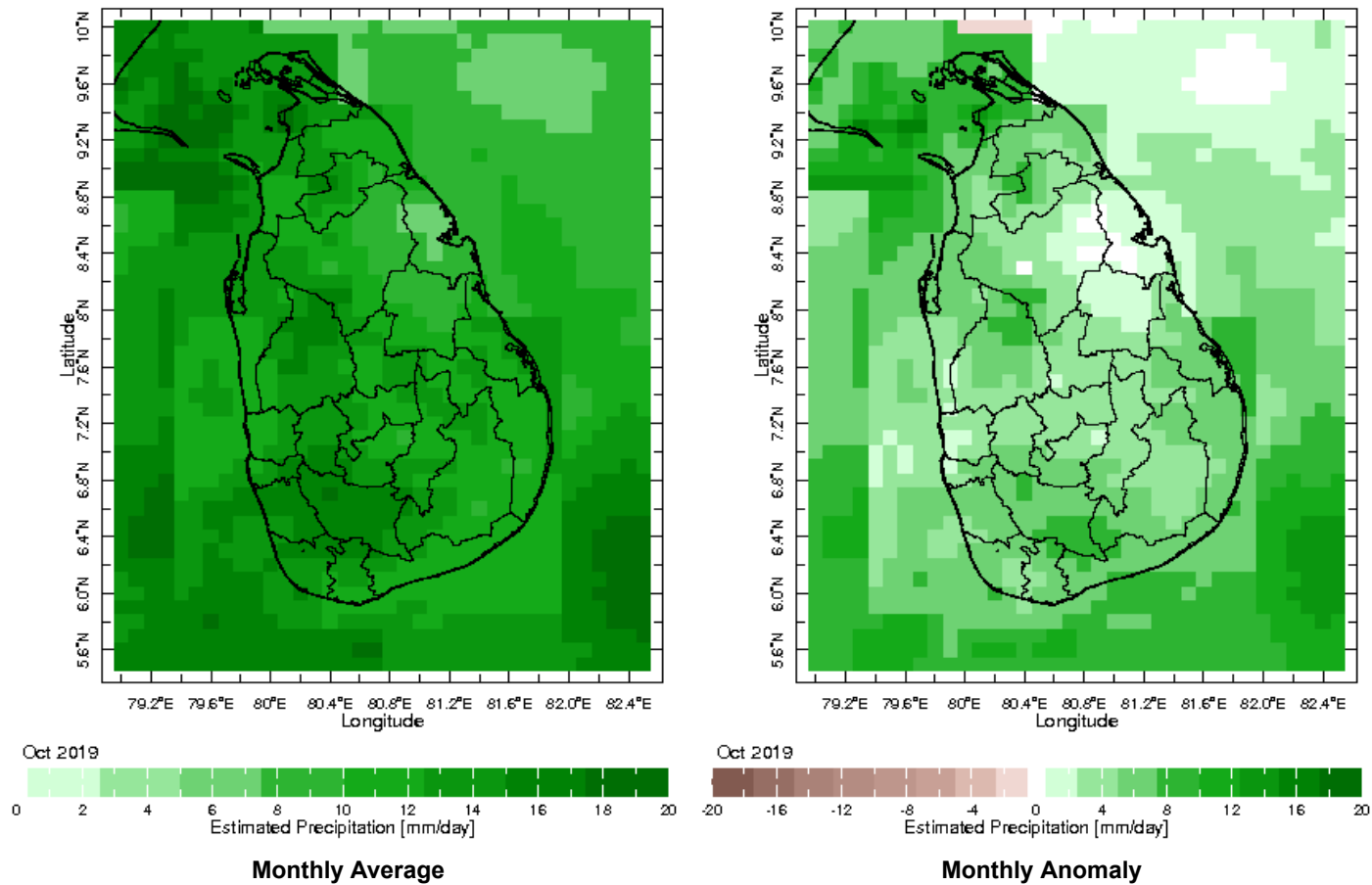


3 Nov 2019



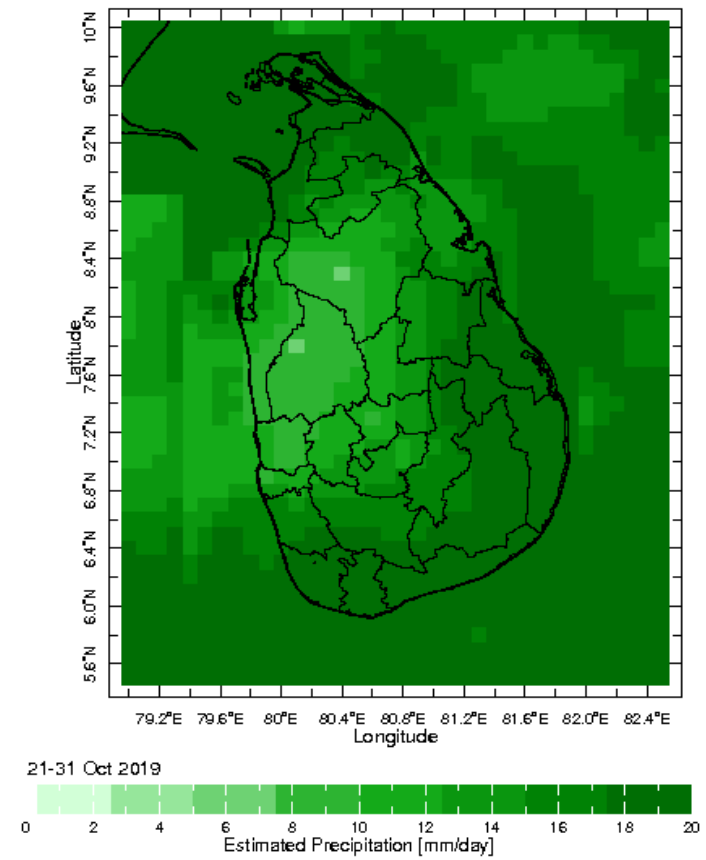
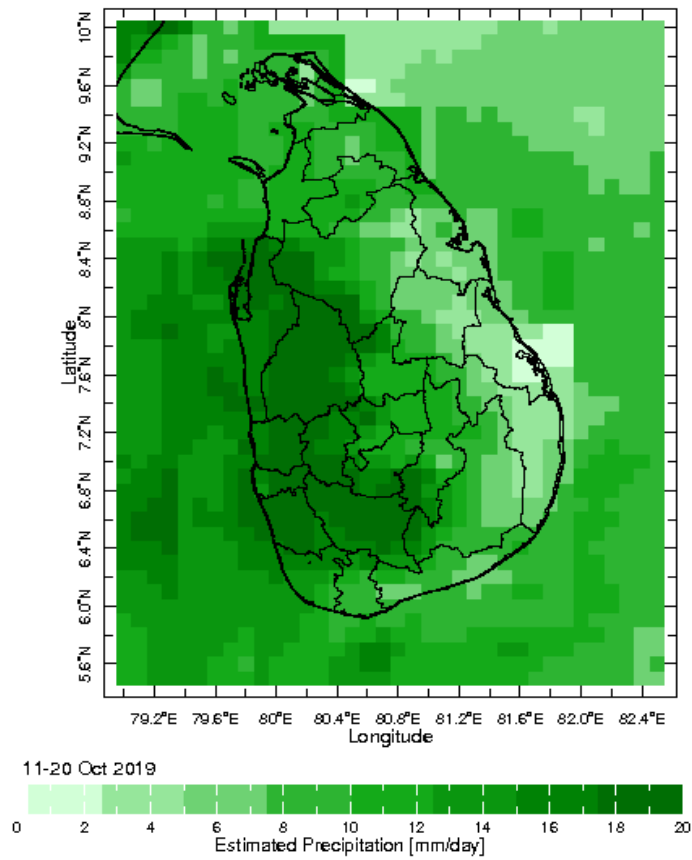
## Monthly Rainfall Monitoring

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



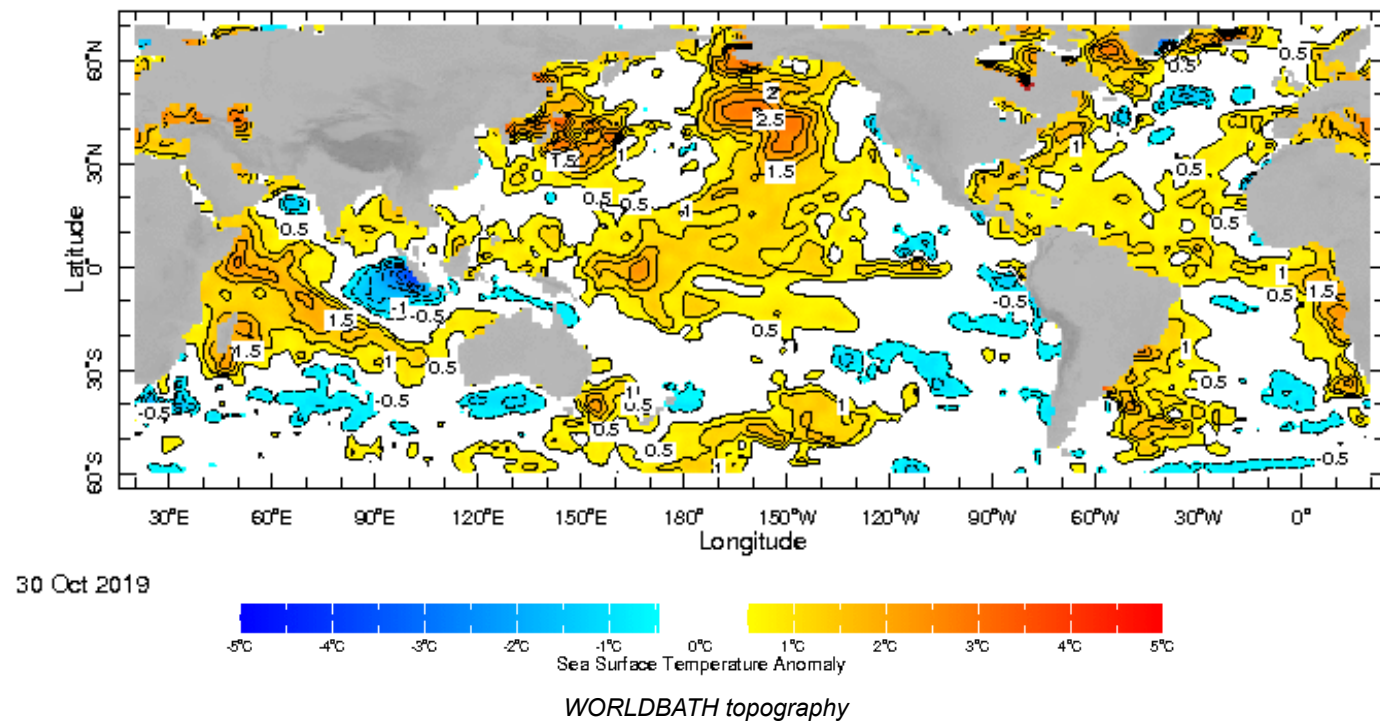
## Dekadal (10 Day) Satellite Derived Rainfall Estimates





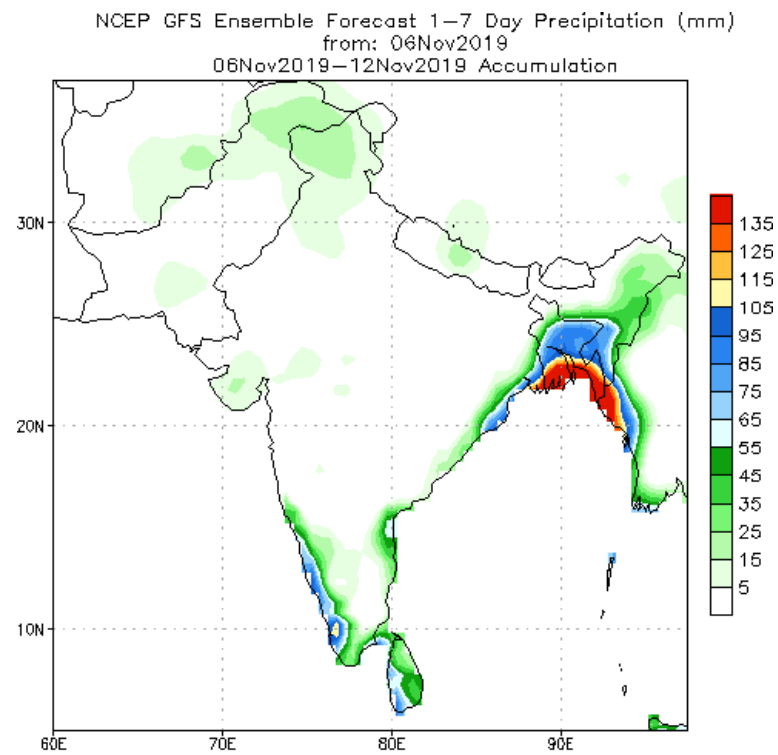
## Weekly Average SST Anomalies

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

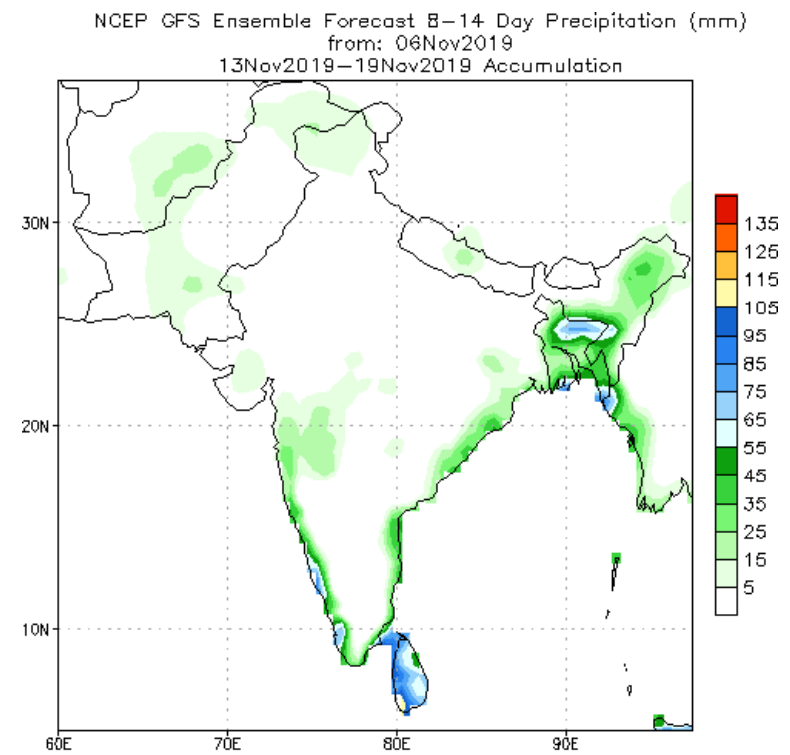


## PREDICTIONS

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.

