

## Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Chalani Malge, Janan Visvanathan,  
Lareef Zubair and Michael Bell<sup>1</sup> (FECT and IRI<sup>1</sup>)

3 October 2019

### Highlights

- The IRI weekly rainfall forecast predicts up to 150 mm of total rainfall in Nuwara Eliya and Badulla districts during 25 - 30 Sep.
- Between 25 - 30 Sep: up to 70 mm of rainfalls were recorded in Puttalam district on the 29<sup>th</sup>.
- From 24 - 30 Sep: up to 18 km/h, southwesterly winds were experienced by the entire island.
- 0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

#### Monitoring

##### Rainfall

**Weekly Monitoring:** On September 25<sup>th</sup>, Batticaloa, Ampara and Monaragala districts received up to 60 mm of rainfall; Badulla, Nuwara Eliya and Polonnaruwa districts up to 50 mm; Matale, Kandy, Ratnapura, Galle and Matara districts up to 30 mm; and Trincomalee, Kurunegala, Kegalle, Gampaha, Colombo, Kalutara and Hambantota districts up to 20 mm. On the 26<sup>th</sup>, Badulla, Monaragala and Hambantota districts received up to 50 mm of rainfall; and Ratnapura and Nuwara Eliya districts up to 20 mm. On the 27<sup>th</sup>, Anuradhapura district received up to 30 mm of rainfall; Kurunegala and Batticaloa districts up to 20 mm; and most parts of the country up to 10 mm. On the 28<sup>th</sup>, Kalutara, Colombo, Monaragala and Hambantota districts received up to 50 mm; Puttalam, Kurunegala, Kalutara, Galle, Ratnapura, Badulla and Ampara districts up to 30 mm; and Matale, Kegalle, Nuwara Eliya and Matara districts up to 20 mm. On the 29<sup>th</sup> Puttalam district received up to 70 mm; Kurunegala, Anuradhapura districts up to 50 mm; Polonnaruwa and Matale districts up to 30 mm; and Mannar, Vavuniya and Gampaha districts up to 20 mm. On the 30<sup>th</sup>, Polonnaruwa district received up to 30 mm of rainfall; and Anuradhapura, Matale and Badulla districts up to 20 mm.

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

**Monthly Monitoring:** During August – 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: September 19, 2019

SSTs in the east-central Pacific maintained ENSO-neutral levels during September. Patterns in the key atmospheric variables are also showing ENSO-neutral conditions. Model forecasts generally favor ENSO-neutral through autumn, winter and into 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.

## Predictions

### Rainfall

#### 14-day prediction:

##### NOAA NCEP models:

From 2<sup>nd</sup> – 8<sup>th</sup> Oct: Total rainfall more than 125 mm in Gampaha, Colombo, Ratnapura, Galle and Matara districts; up to 95-105 mm in Hambantota district; and up to 85-95 mm in Puttalam, Kurunegala and Badulla districts.

From 9<sup>th</sup> – 15<sup>th</sup> Oct: Total rainfall more than 135 mm in Puttalam, Kurunegala, Gampaha, Colombo, Kegalle, Ratnapura, Galle and Matara districts; up to 95-105 mm Nuwara Eliya district; and up to 85-95 mm in Mannar, Kandy, Badulla, Monaragala and Hambantota districts.

##### IRI Model Forecast:

From 2<sup>nd</sup> – 7<sup>th</sup> Sep: Total rainfall up to 150 mm is expected in Matale, Kandy, Ampara, Monaragala, Nuwara Eliya and Badulla districts; up to 100 mm in Polonnaruwa, Batticaloa, Kegalle and Ratnapura districts; and up to 75 mm in Trincomalee, Anuradhapura, Kurunegala and Hambantota districts.

### MJO based OLR predictions

#### For the next 15 days:

MJO shall enhance the rainfall of 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.

### FECT BLOG

Past reports available at <http://fectsl.blogspot.com/> and <http://fectsl.wordpress.com/>

### FECT WEBSITES

<http://www.climate.lk> and <http://www.tropicalclimate.org/>



[www.fb.com/fectsl](http://www.fb.com/fectsl)



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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

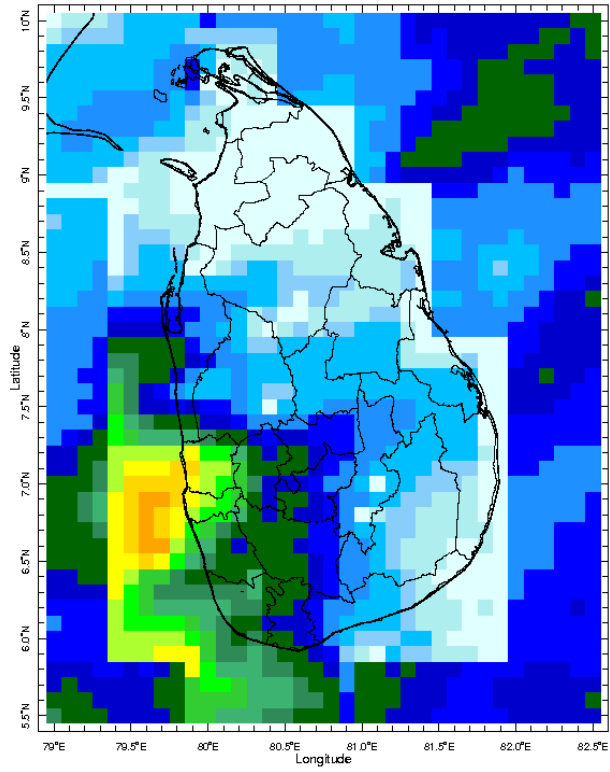
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

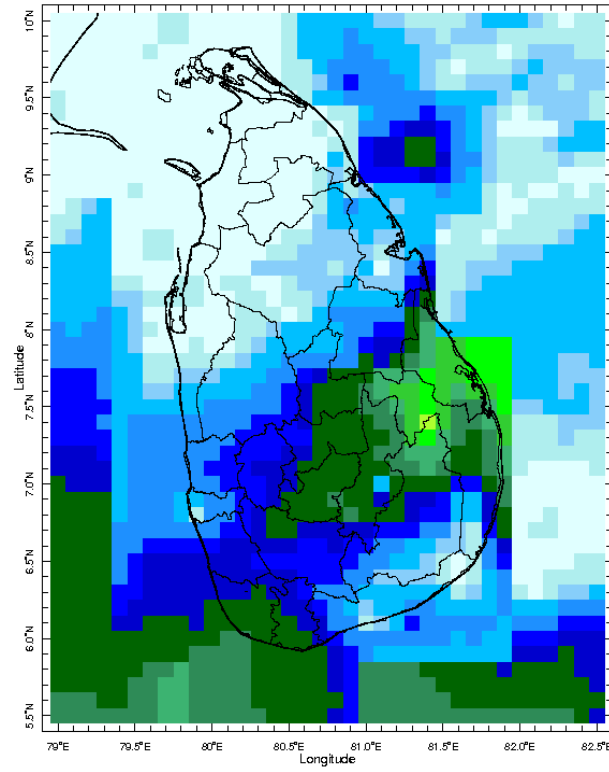
### Daily Rainfall Monitoring

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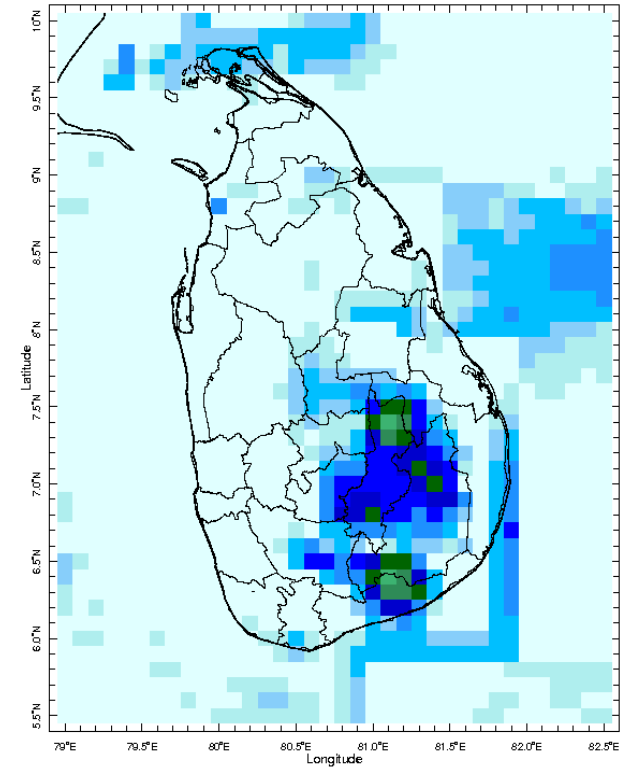
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



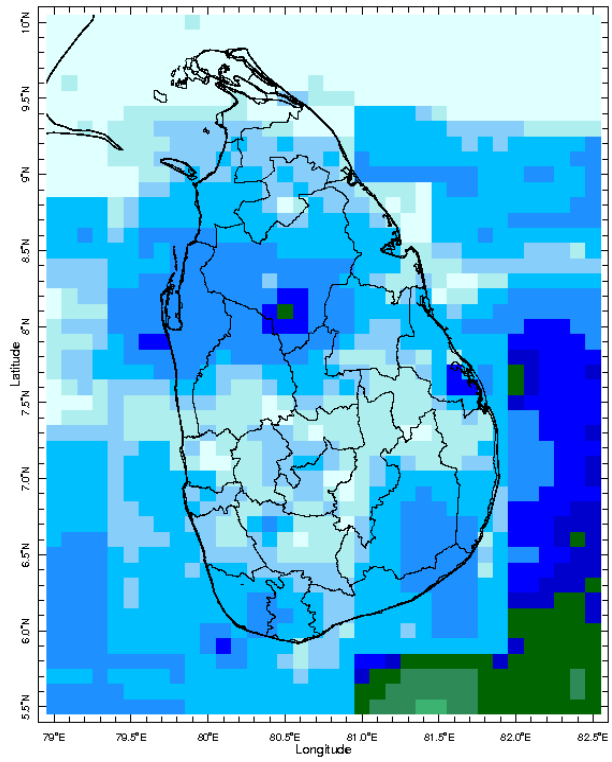
24 Sep 2019



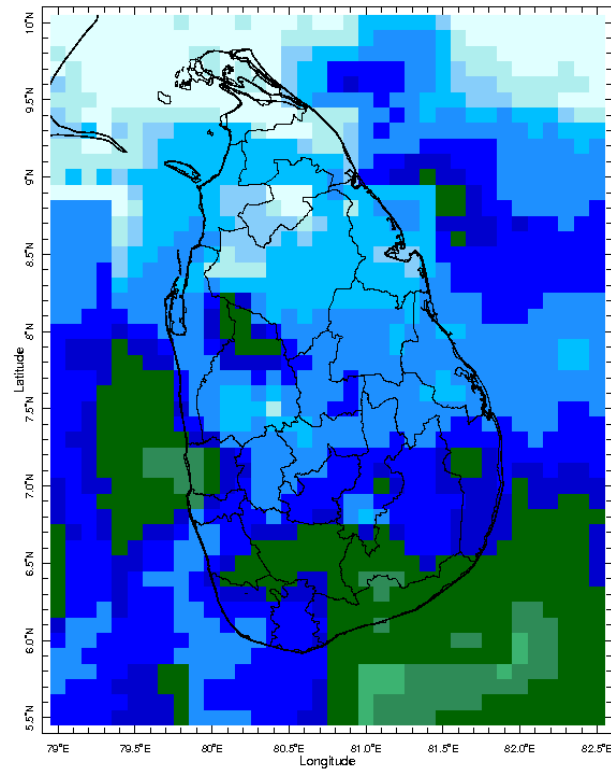
25 Sep 2019



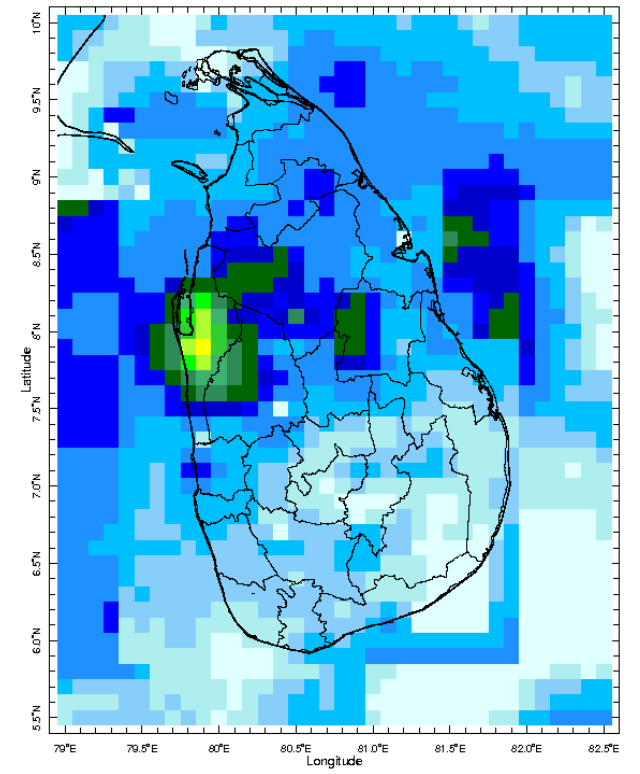
26 Sep 2019



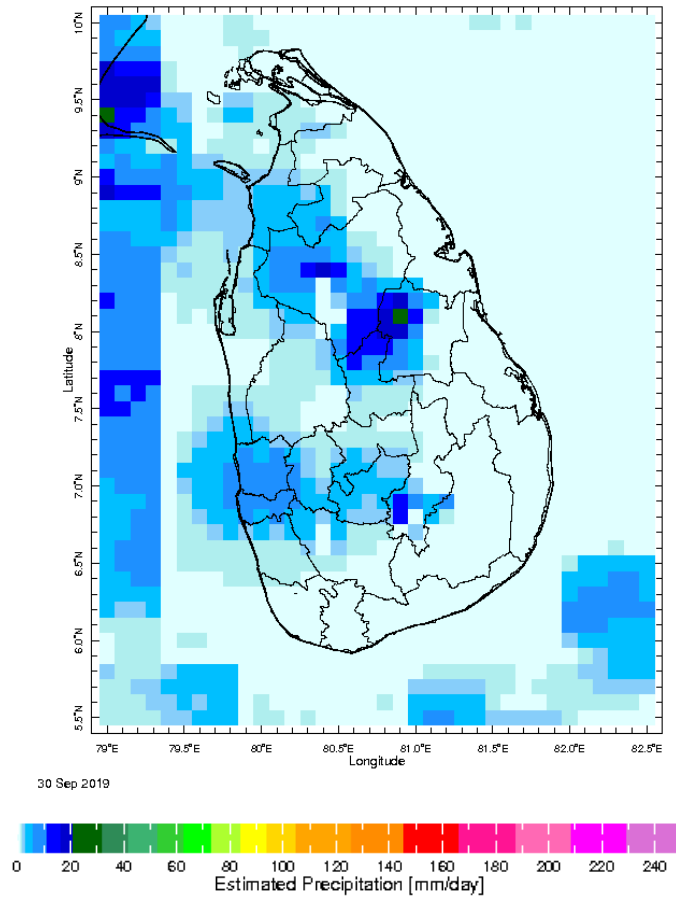
27 Sep 2019



28 Sep 2019

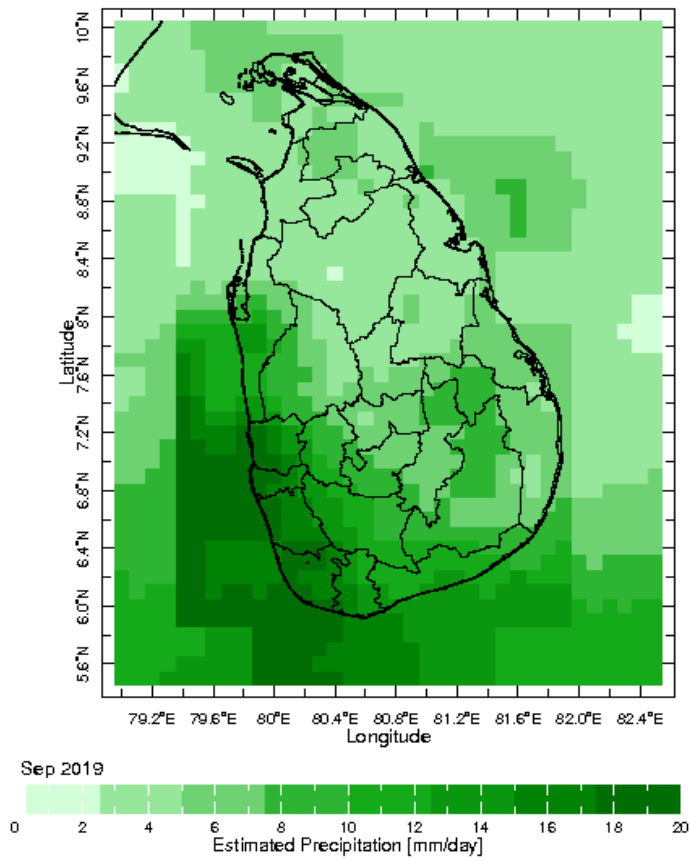


29 Sep 2019

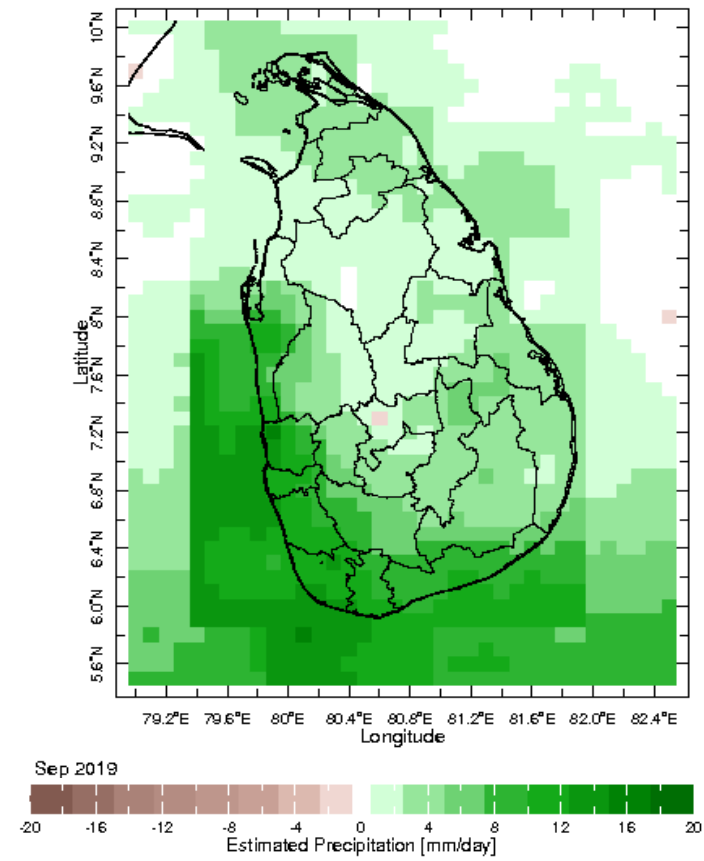


## Monthly Rainfall Monitoring

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

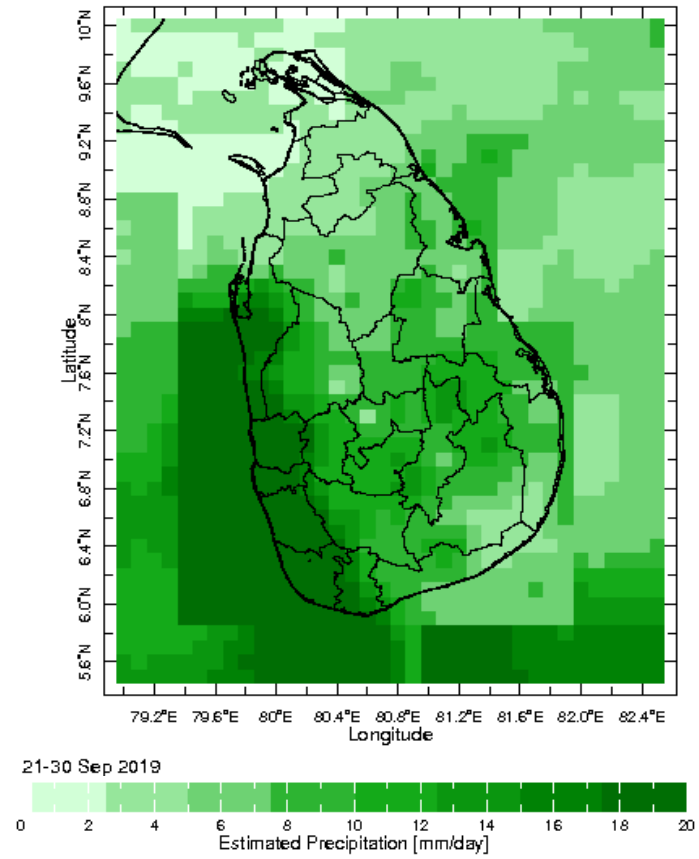
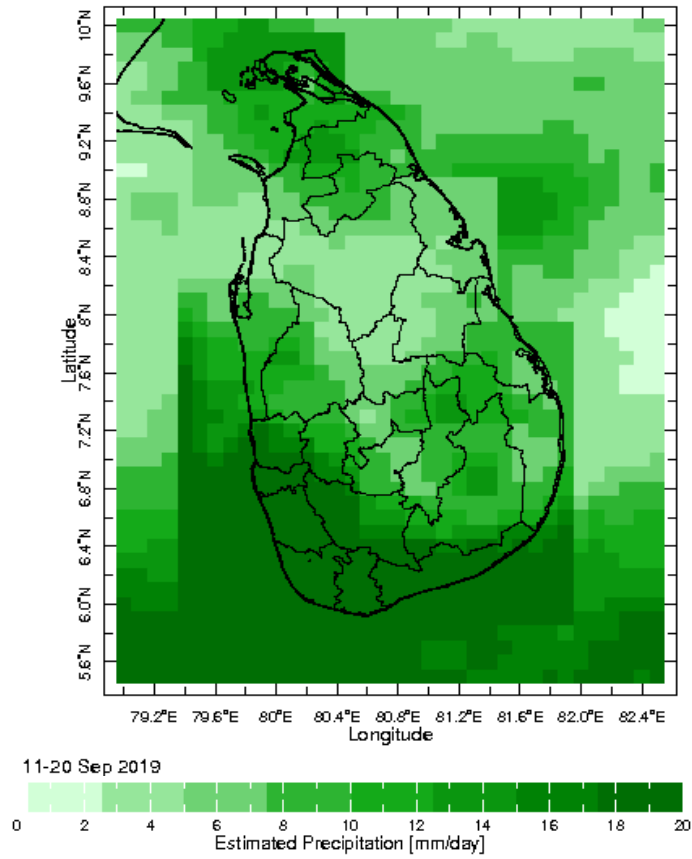


**Monthly Average**



**Monthly Anomaly**

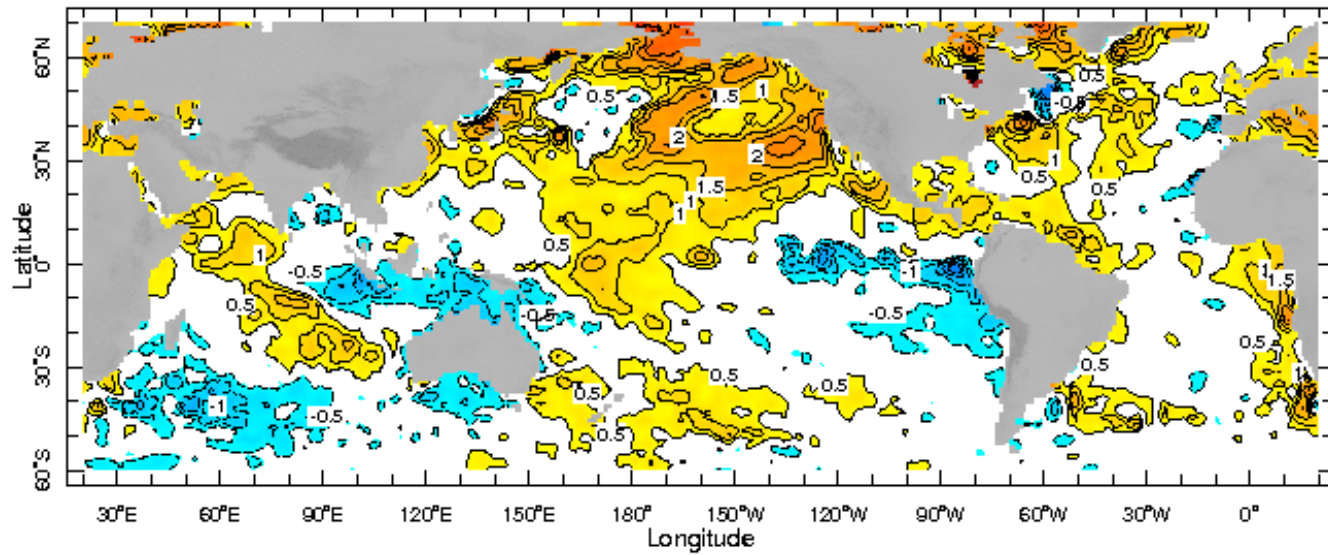
**Dekadal (10 Day) Satellite Derived Rainfall Estimates**



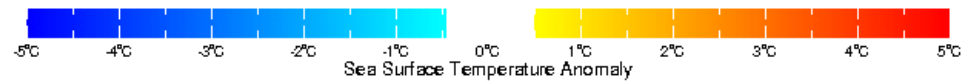
## Weekly Average SST Anomalies

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





18 Sep 2019

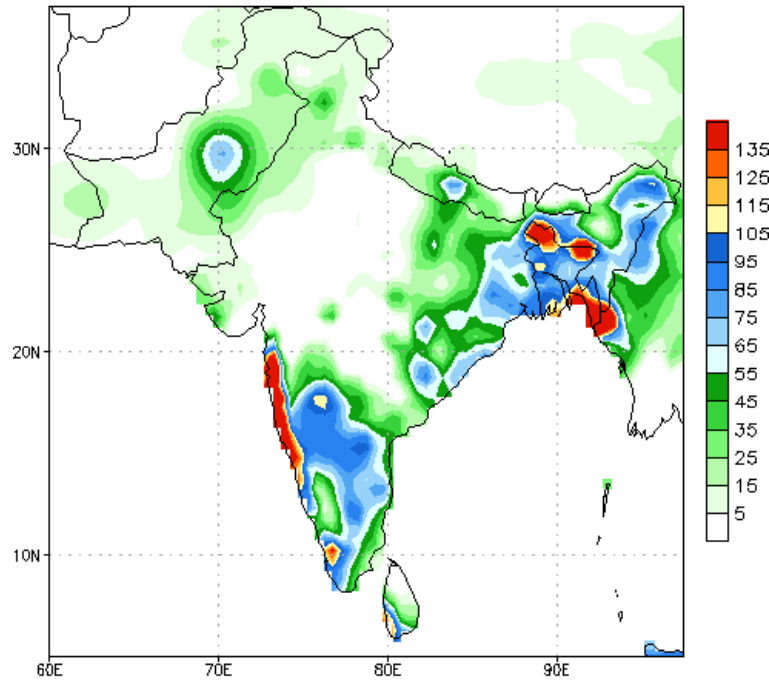


*WORLDBATH* topography

## PREDICTIONS

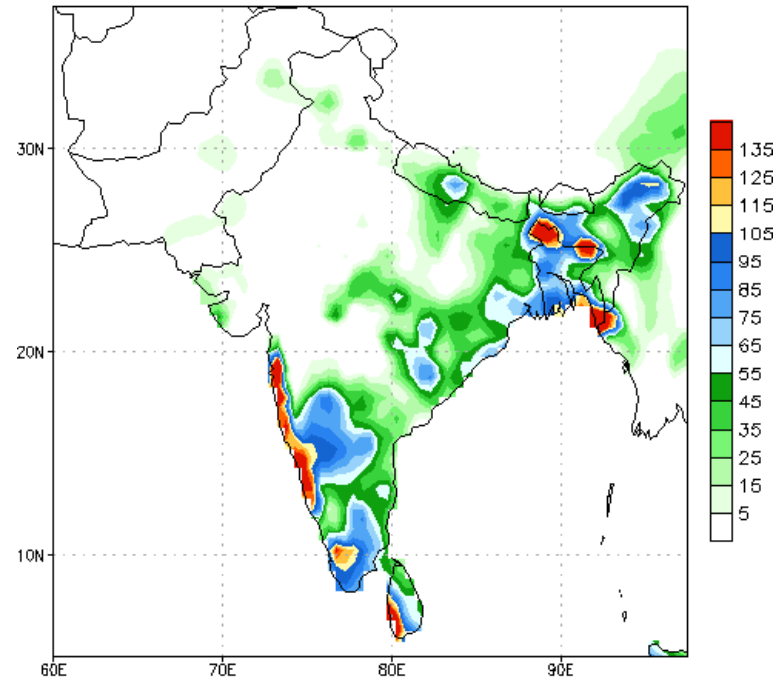
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 02Oct2019  
02Oct2019-08Oct2019 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 02Oct2019  
09Oct2019-15Oct2019 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.

