

## Experimental Climate Monitoring and Prediction

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11 July 2019

### Highlights

- The IRI weekly rainfall forecast predicts up to 100 mm of total rainfall in Badulla district during 10 – 15 Jul.
- Between 2 – 8 Jul: up to 10 mm of rainfall was recorded in Kurunegala and Gampaha districts on the 2<sup>nd</sup>.
- From 2 – 8 Jul: up to 54 km/h, westerly winds were experienced by the entire island.
- 1 °C above average sea surface temperature was observed in the seas around Sri Lanka.

#### Monitoring

##### Rainfall

**Weekly Monitoring:** On July 2<sup>nd</sup>, Kurunegala and Gampaha districts received up to 10 mm of rainfall; and Puttalam, Matale, Kegalle, Kandy, Colombo and Ratnapura districts up to 5 mm. On the 3<sup>rd</sup>, Hambantota, Monaragala and Ampara districts received up to 5 mm of rainfall. No significant rainfalls were recorded in any part of the island during the period 4<sup>th</sup> - 5<sup>th</sup>. On the 6<sup>th</sup>, Mannar, Mullaitivu and Kilinochchi districts received up to 5 mm of rainfall. No significant rainfalls were recorded in any part of the island on the 7<sup>th</sup>. On the 8<sup>th</sup>, Badulla and Monaragala districts received up to 5 mm of rainfall.

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

**Monthly Monitoring:** During May – Above average rainfall conditions up to 60 mm were experienced by Puttalam, Kurunegala, Gampaha, Kalutara, Galle and southern parts of the Ratnapura district. Below average rainfall conditions up to 150 mm were experienced by Kandy and Nuwara Eliya districts; and up to 90 mm in Mannar, Vavuniya, Mullaitivu, Anuradhapura, Polonnaruwa, Batticaloa, Matale, Ampara, Badulla, Monaragala, Hambantota, Kegalle and Colombo districts. The CPC Unified Precipitation Analysis tool shows up to 200 mm of total rainfall in Puttalam, Gampaha, Colombo, Kalutara, Ratnapura and Galle districts; up to 150 mm in Kurunegala, Kegalle, Nuwara Eliya and Matara districts; up to 100 mm in Badulla and Ampara districts; and up to 75 mm in Batticaloa, Hambantota, Monaragala, Matale and Kandy districts.

#### Ocean State (Text Courtesy IRI)

##### **Pacific sea state: June 19, 2019**

SSTs in the tropical Pacific maintained a weak El Niño level during May and early June, and temperature anomalies of subsurface waters were slightly above average. Some patterns in the atmosphere show intermittent El Niño conditions. Collective model forecasts show a continuation of at least weak El Niño-level SSTs lasting through 2019. The official CPC/IRI outlook, with an El Niño advisory, calls for a 66% chance of El Niño continuing during Jun-Aug, decreasing to 50-55% for continuing through fall and winter.

##### **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 10<sup>th</sup> - 16<sup>th</sup> Jul: Total rainfall up to 35 mm Jaffna, Kilinochchi, Vavuniya, Mannar and Mullaitivu districts; up to 15-25 mm in Puttalam, Anuradhapura, Polonnaruwa, Trincomalee, Batticaloa, Matale, Badulla, Monaragala, Ampara and Ratnapura districts; and up to 5-15 mm in rest of the island.

From 17<sup>th</sup> – 23<sup>rd</sup> Jul: Total rainfall up to 35 mm in Jaffna, Gampaha, Kegalle, Ratnapura, Galle and Matara districts; and up to 15-25 mm Kilinochchi, Vavuniya, Mannar, Anuradhapura, Mullaitivu, Trincomalee, Puttalam, Kurunegala, Kandy, Nuwara Eliya, Badulla and Monaragala districts.

##### IMD NCMWRF Forecast:

12<sup>th</sup> Jul: Not Available

13<sup>th</sup> Jul: Not Available

##### IRI Model Forecast:

From 10<sup>th</sup> – 15<sup>th</sup> Jul: Total rainfall up to 100 mm is expected in Badulla district; up to 75 mm in Matale, Kandy, Nuwara Eliya, Monaragala and Ampara districts; and up to 50 mm in Mullaitivu, Vavuniya, Anuradhapura, Matale, Kurunegala, Kegalle, Ratnapura, Hambantota, Batticaloa, Polonnaruwa and Trincomalee districts.

### 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 enhance 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.

### 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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#### 2. Predictions

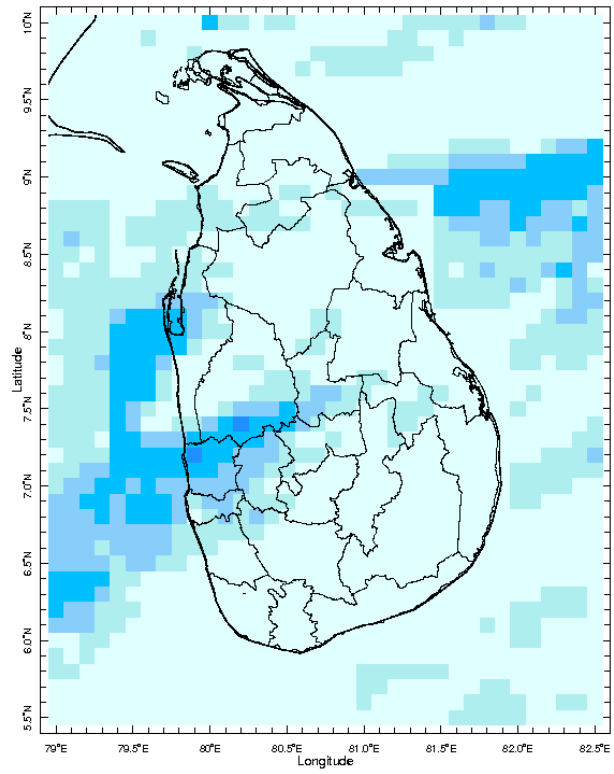
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## MONITORING

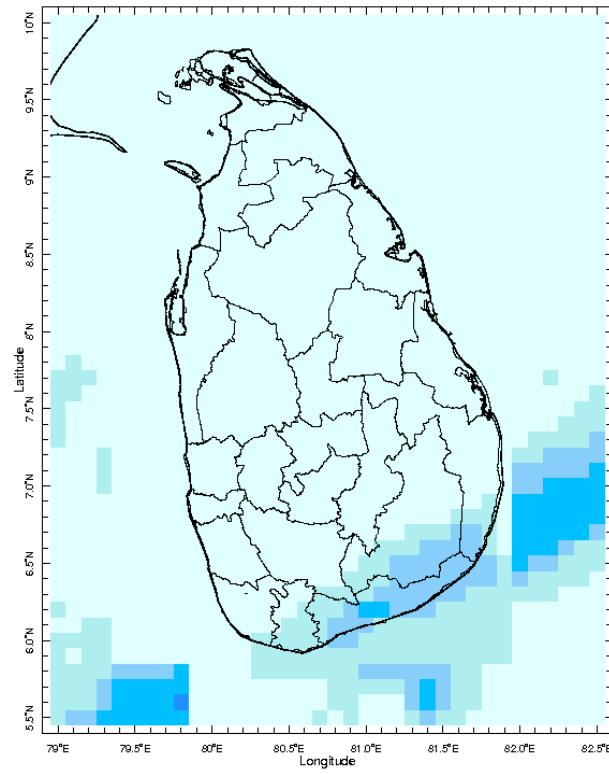
### Daily Rainfall Monitoring

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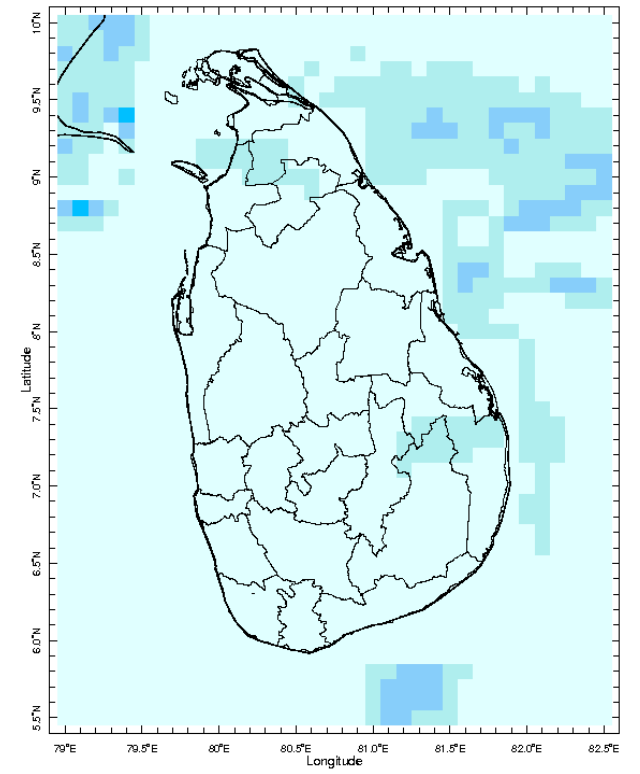
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



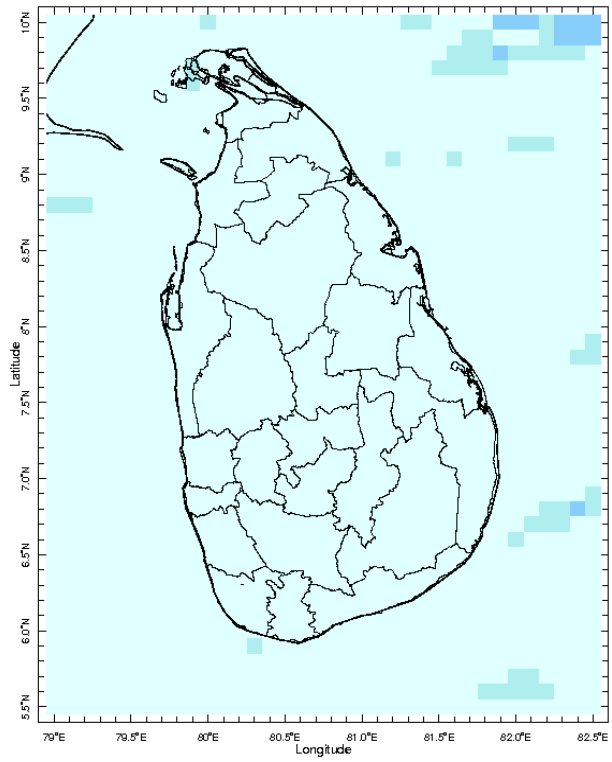
2 Jul 2019



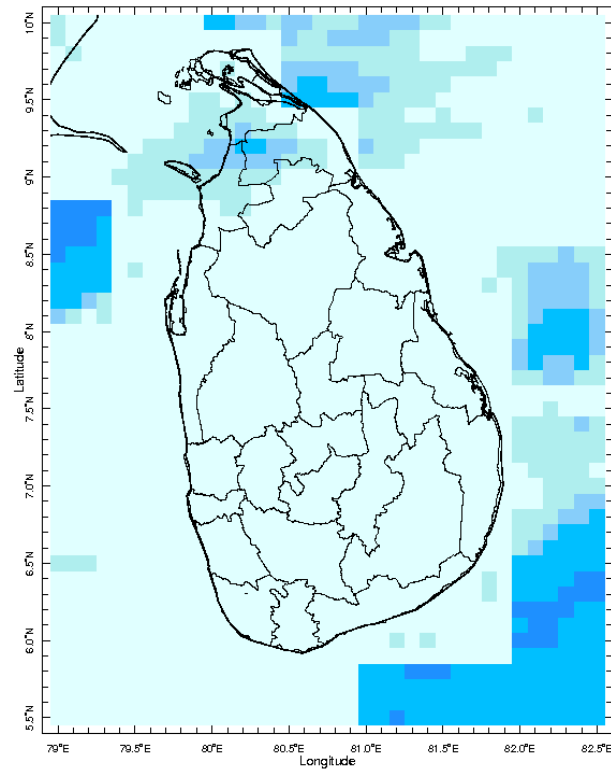
3 Jul 2019



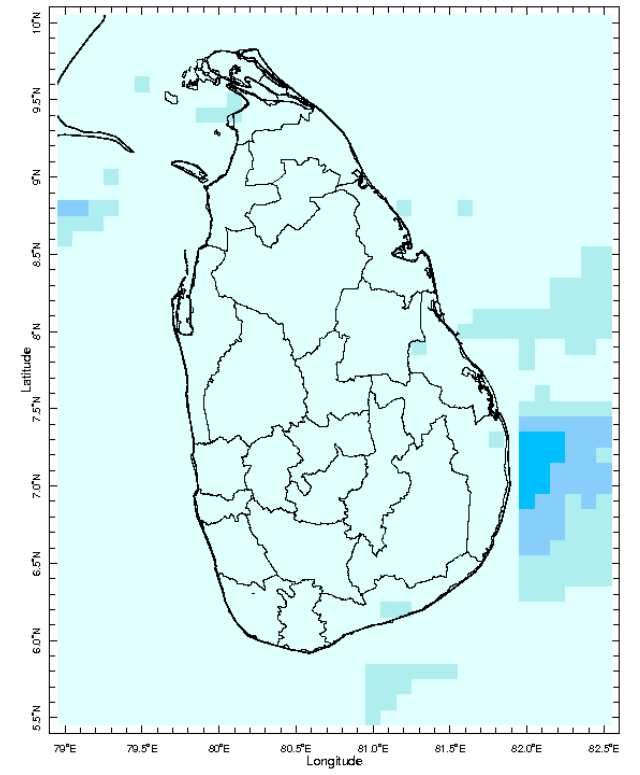
4 Jul 2019



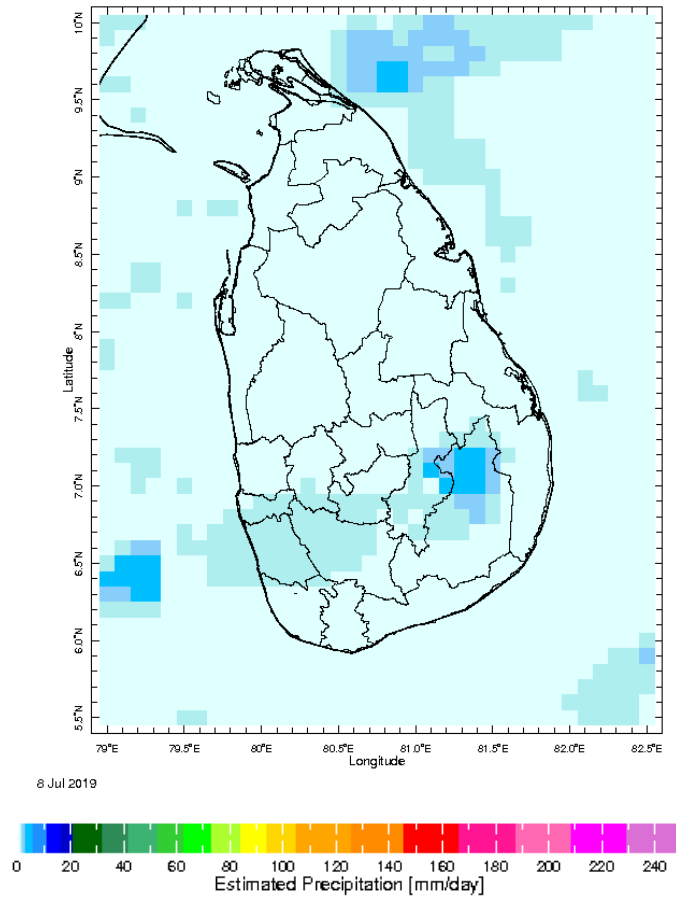
5 Jul 2019



6 Jul 2019

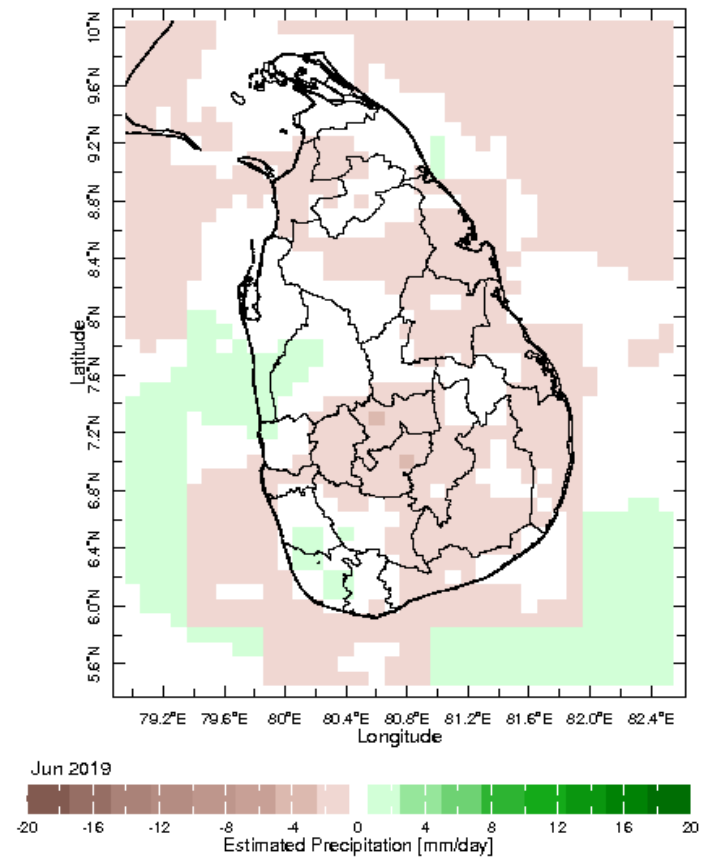
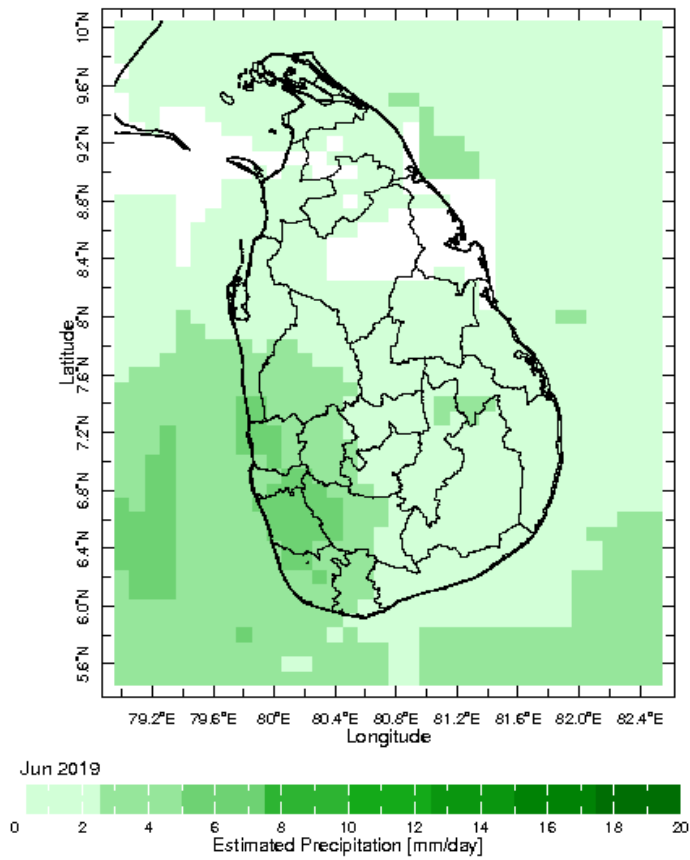


7 Jul 2019

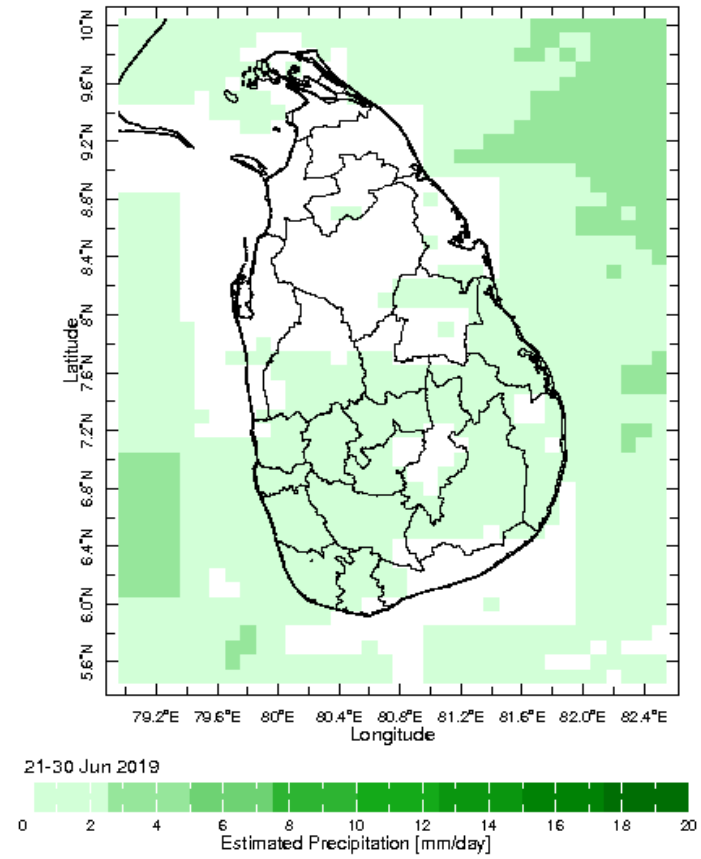
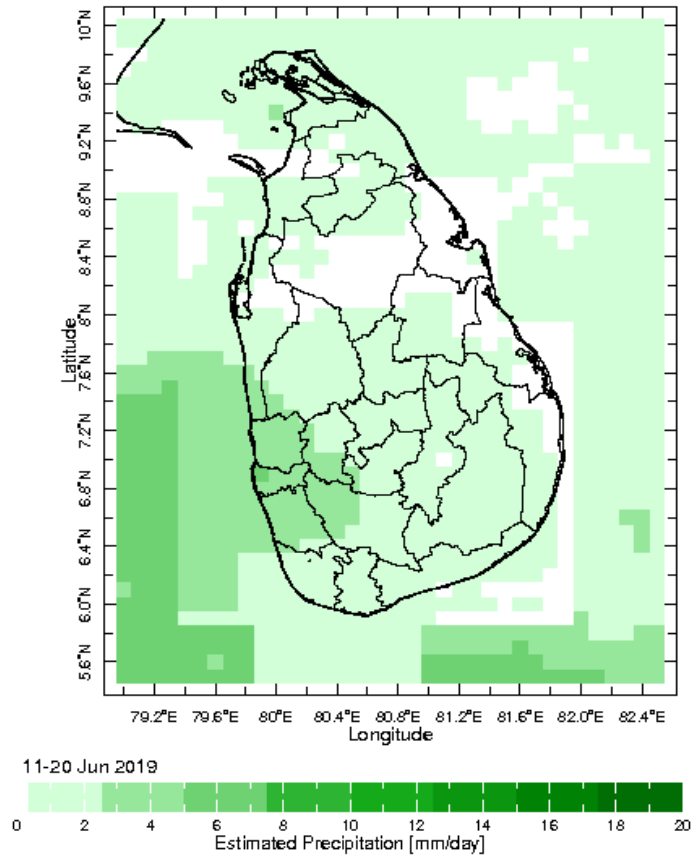


## Monthly Rainfall Monitoring

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



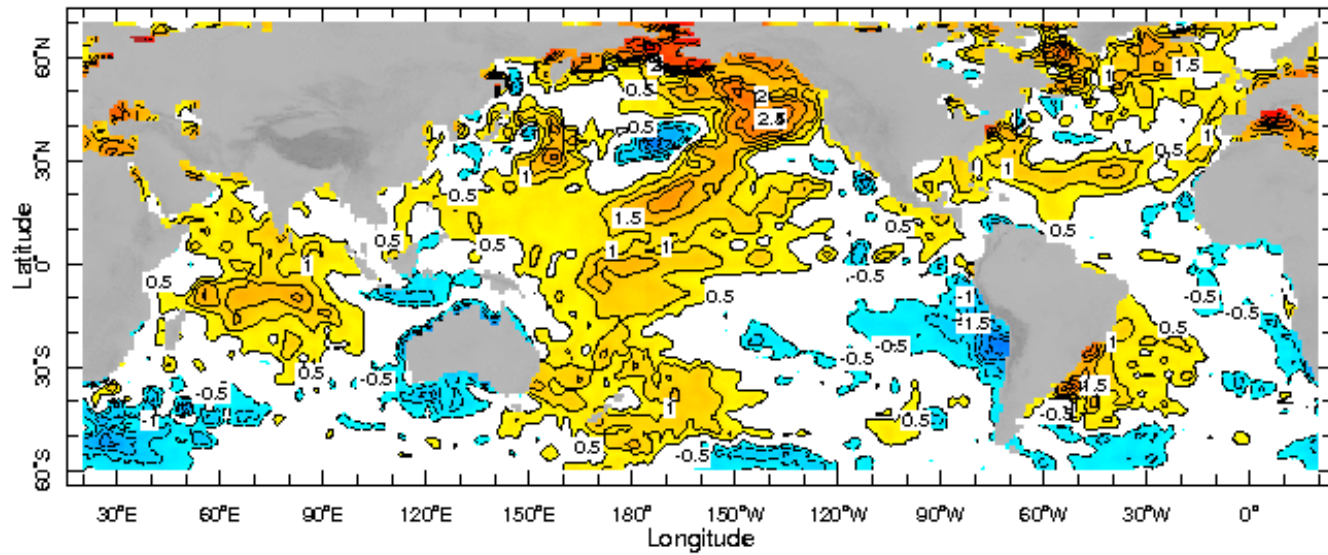
**Dekadal (10 Day) Satellite Derived Rainfall Estimates**



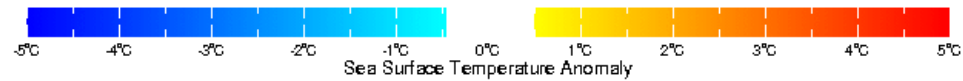
## Weekly Average SST Anomalies

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





3 Jul 2019

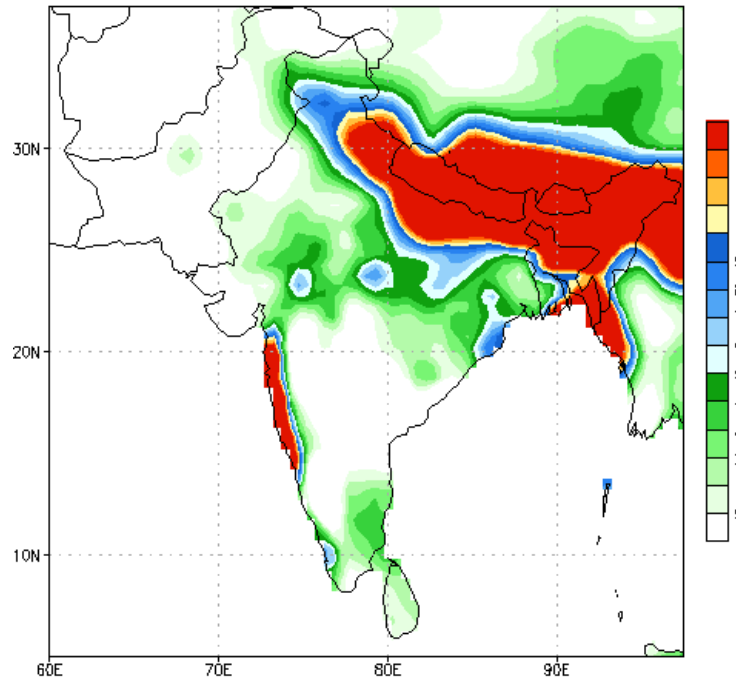


*WORLDBATH topography*

## PREDICTIONS

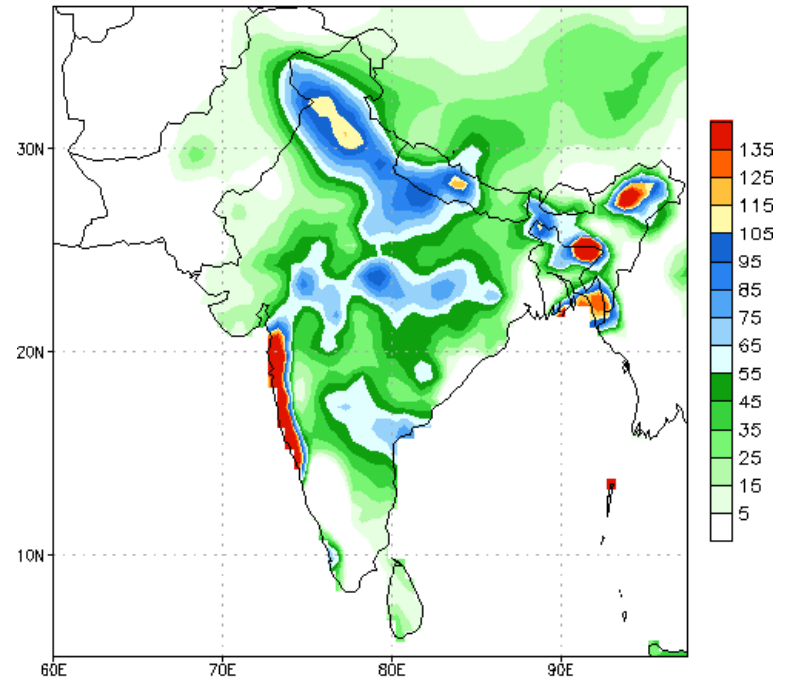
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 10Jul2019  
10Jul2019-16Jul2019 Accumulation



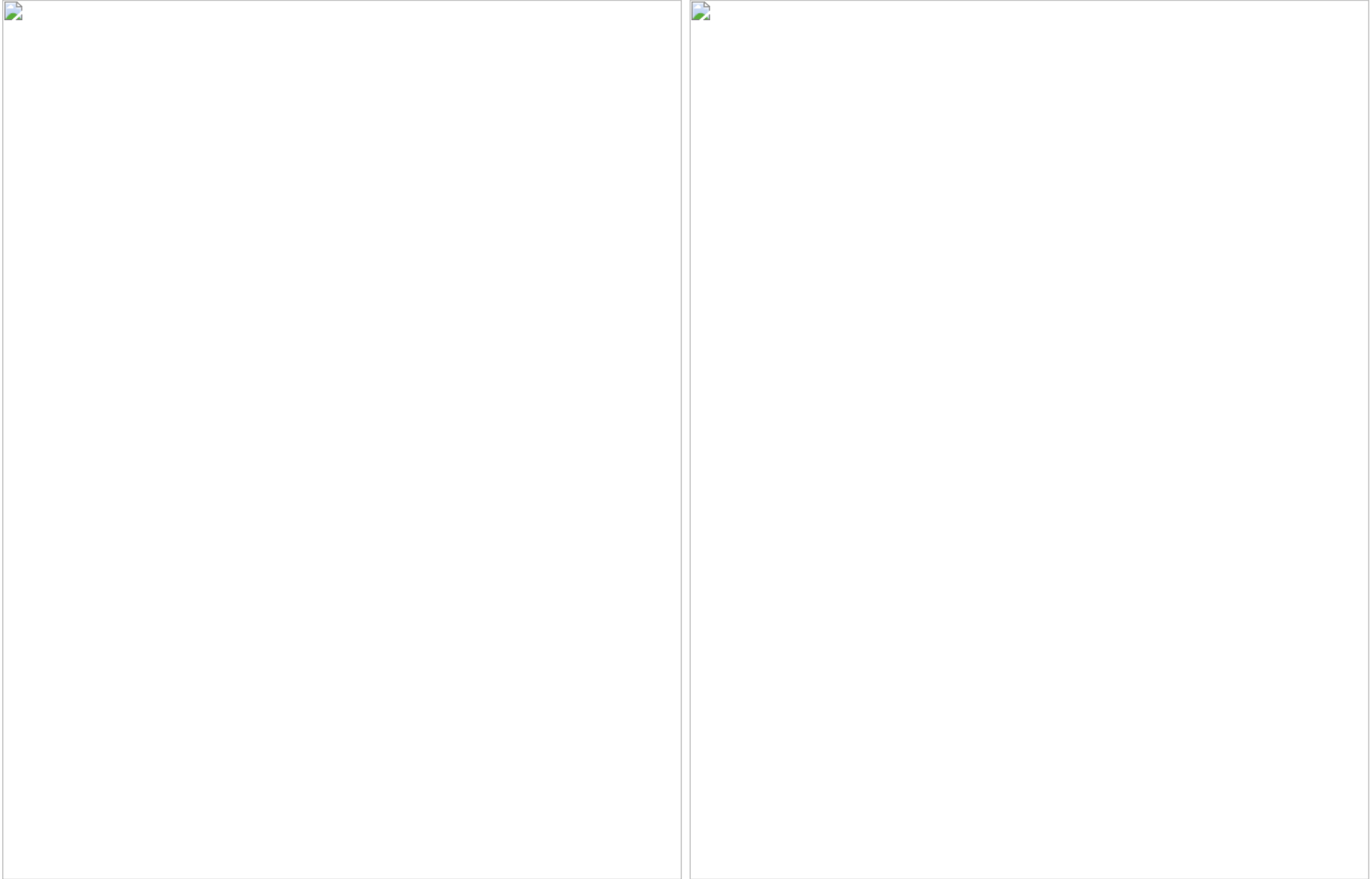
Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 10Jul2019  
17Jul2019-23Jul2019 Accumulation



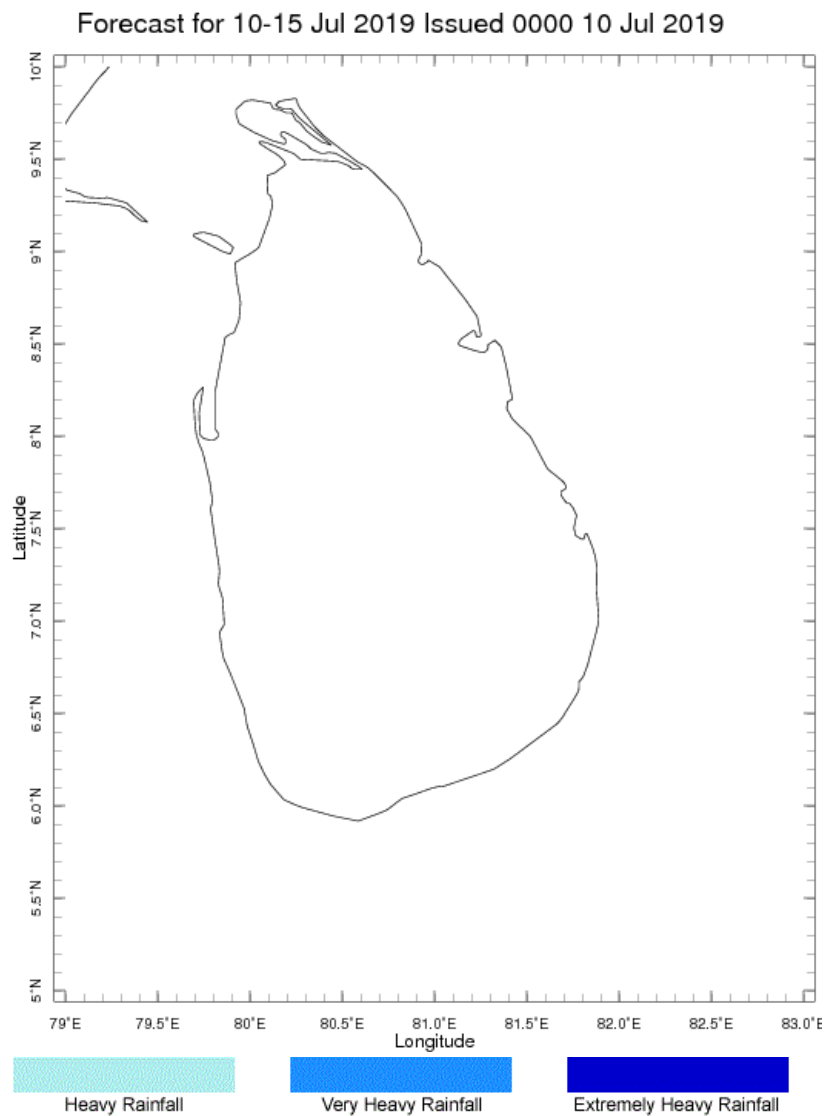
Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

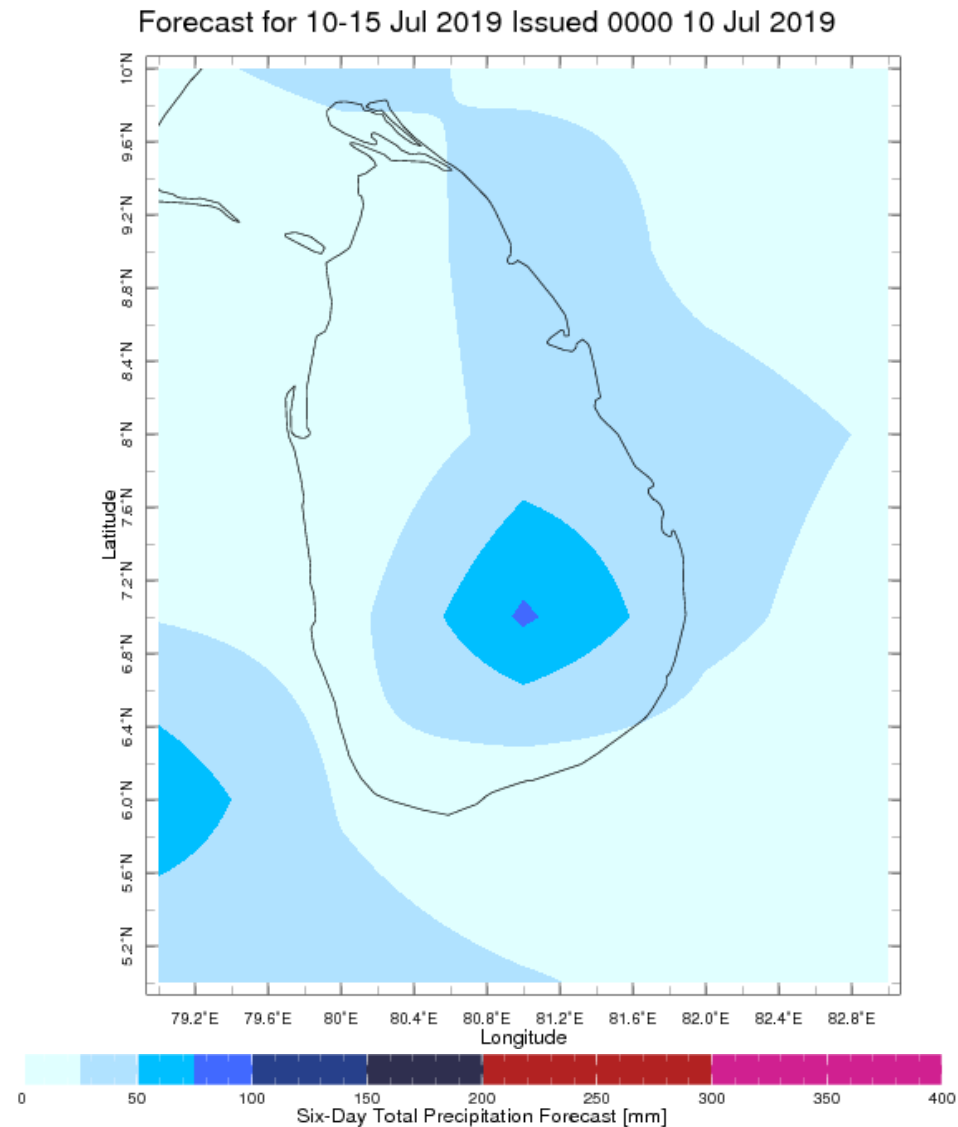


Weekly Rainfall Forecast from IRI

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.



**Extreme Rainfall Forecast**



**Total Six Day Precipitation Forecast**