

## Experimental Climate Monitoring and Prediction

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### Highlights

- The NCEP weekly rainfall forecast predicts total rainfall between 95-105 mm in Kegalle, Ratnapura and Kalutara districts during 13<sup>th</sup> – 19<sup>th</sup> June.
- Between 6-12 Jun: up to 50 mm of rainfall was recorded in Ratnapura, Kalutara, Matara and Galle districts on the 6<sup>th</sup>.
- From 3-9 Jun: minimum temperature of 20 °C was recorded from Nuwara Eliya and Badulla districts while eastern coastal areas of the island recorded a maximum temperature between 35-40 °C.
- From 5-11 Jun: up to 36 km/h, westerly winds were experienced by the entire island.
- Average sea surface temperature was observed in the seas around Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** On June 6<sup>th</sup>, Ratnapura, Kalutara, Matara and Galle districts received up to 50 mm of rainfall; Jaffna, Kegalla, Nuwara Eliya and Gampaha districts up to 30 mm; and Kilinochchi, Mullaitivu, Kurunegala, Kandy, Colombo, Hambantota, Badulla and Monaragala districts up to 20 mm. On the 7<sup>th</sup>, Kurunegala, Matale, Kandy, Badulla, Kegalla, Nuwara Eliya and Ratnapura received up to 30 mm of rainfall; and Puttalam, Gampaha, Colombo, Kalutara, Galle, Matara, Polonnaruwa, Hambantota and Ampara up to 20 mm. On the 8<sup>th</sup>, several regions of Kegalla, Kalutara and Ratnapura districts received up to 20 mm of rainfall. On the 9<sup>th</sup>, Kurunegala, Puttalam, Nuwara Eliya and Ratnapura districts received up to 20 mm. On the 10<sup>th</sup>, several regions of Anuradhapura and Puttalam districts received up to 15 mm of rainfall. No significant rainfalls were recorded in any part of the island during 11<sup>th</sup> and 12<sup>th</sup>.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall 75-100 mm of total rainfall in Ratnapura district; up to 50-75 mm in Kurunegala, Kegalla, Kalutara, Galle, Nuwara Eliya and Kandy districts; and 25-50 mm in Puttalam, Anuradhapura, Matale, Polonnaruwa, Ampara, Monaragala, Badulla, Hambantota and Matara districts. Above average rainfall up to 50-100 mm is shown for Ratnapura district and below average rainfall up to 25-50 mm is shown for Badulla and Monaragala districts.

**Monthly Monitoring:** During May - above average rainfall conditions were experienced by the entire island. Puttalam, Kurunegala, Anuradhapura, Matale and Polonnaruwa districts received up to 360 mm above average rainfall; Vavuniya, Trincomalee, Gampaha, Colombo, Kegalla, Ratnapura, Galle, Matara, Kandy, Badulla and Ampara districts up to 300 mm; and rest of the country up to 120 mm. The CPC Unified Precipitation Analysis tool shows ~750 mm of total rainfall in Kurunegala, Kegalla, Colombo, Kalutara and Ratnapura districts; up to 500 mm Puttalam, Gampaha, Galle, Matara, Hambantota, Nuwara Eliya, Kandy, Matale, Anuradhapura, Polonnaruwa, Ampara, Badulla and Monaragala districts; up to ~300 mm Mullaitivu and Trincomalee districts; and up to 200 mm in rest of the country.

#### Ocean State (Text Courtesy IRI)

##### **Pacific sea state: May 18, 2018**

In mid-May 2018, the east-central tropical Pacific waters reflected ENSO-neutral conditions. Most key atmospheric variables also indicated neutral conditions, although the upper level wind anomalies show remnants of La Niña. The subsurface water temperature continued to be above-average. The official CPC/IRI outlook calls for neutral conditions through the September-November season, with a nearly 50% chance of El Niño development by year's end. The latest forecasts of statistical and dynamical models collectively favor weak El Niño development by year's end, but forecasters hedge on this due to low confidence at this time of year.

##### **Indian Ocean State**

Average sea surface temperature was observed in the seas around Sri Lanka.

## Predictions

### Rainfall

#### 14-day prediction:

##### NOAA NCEP models:

From 13<sup>th</sup> -19<sup>th</sup> Jun: Total rainfall between 95-105 mm in Kegalle, Ratnapura and Kalutara districts; between 75-85 mm in Colombo, Gampaha and Galle districts; between 65-75 mm in Kurunegala, Kandy and Nuwara Eliya districts; between 55-65 mm in Puttalam and Matara districts; between 35-45 mm in Matale, Badulla and Hambantota districts; between 15-25 mm in Anuradhapura, Polonnaruwa, Monaragala and Hambantota districts.

From 20<sup>th</sup> - 26<sup>th</sup> Jun: Total rainfall between 115-125 mm in Ratnapura and Kegalle districts; between 105-115 mm in Colombo and Kalutara districts; between 95-105 mm in Gampaha and Galle districts; between 85-95 mm in Kurunegala, Kandy, Nuwara Eliya, Ratnapura and Matara districts; between 65-75 mm in Puttalam, Matale, Badulla and Hambantota districts; between 45-55 mm in Anuradhapura, Polonnaruwa and Monaragala districts.

##### IMD NCMWRF Forecast:

15<sup>th</sup> Jun: Up to 40 mm of rainfall expected in Gampaha, Colombo, Kegalle, Kandy, Matale, Nuwara Eliya, Ampara, Monaragala, Ratnapura, Hambantota and Matara districts; Up to 20 mm in Mannar, Vavuniya, Anuradhapura, Trincomalee, Puttalam, Polonnaruwa, Batticaloa, Kurunegala, Badulla and Galle districts.

16<sup>th</sup> Jun: Up to 40 mm of rainfall expected in Kurunegala, Kalutara, Galle, Matara, Hambantota and Monaragala districts; Up to 20 mm in Mannar, Anuradhapura, Polonnaruwa, Puttalam, Matale, Nuwara Eliya, Badulla and Ratnapura districts.

##### IRI Model Forecast:

13<sup>th</sup> -18<sup>th</sup> Jun: Total rainfall between 25-50 mm in Gampaha, Colombo, Kalutara, Galle, Ratnapura and Kegalle districts; Up to 25 mm total rainfall 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 10 days and shall suppress in the following 5 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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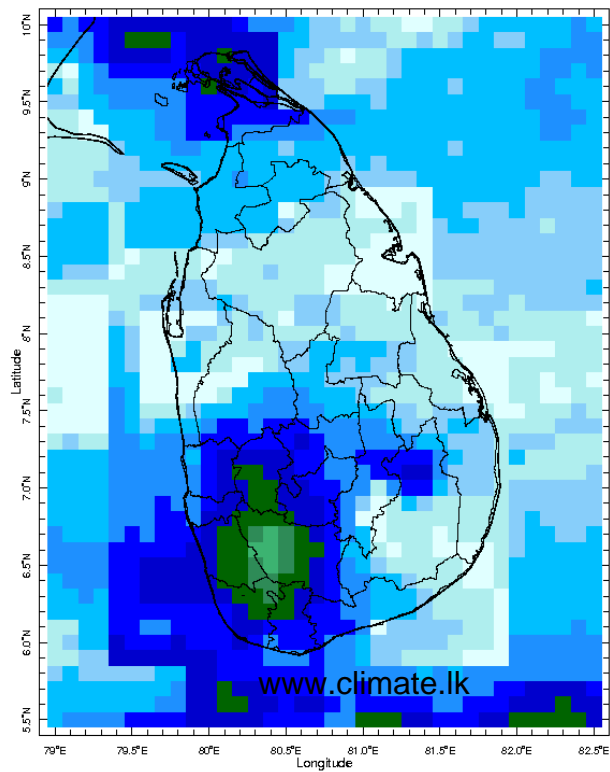
#### 2. Predictions

- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
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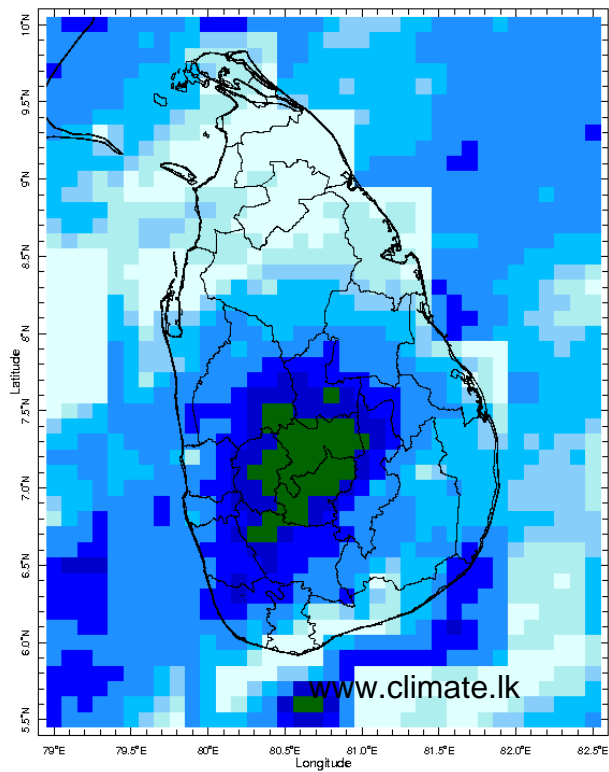
## MONITORING

### Daily Rain fall Monitoring

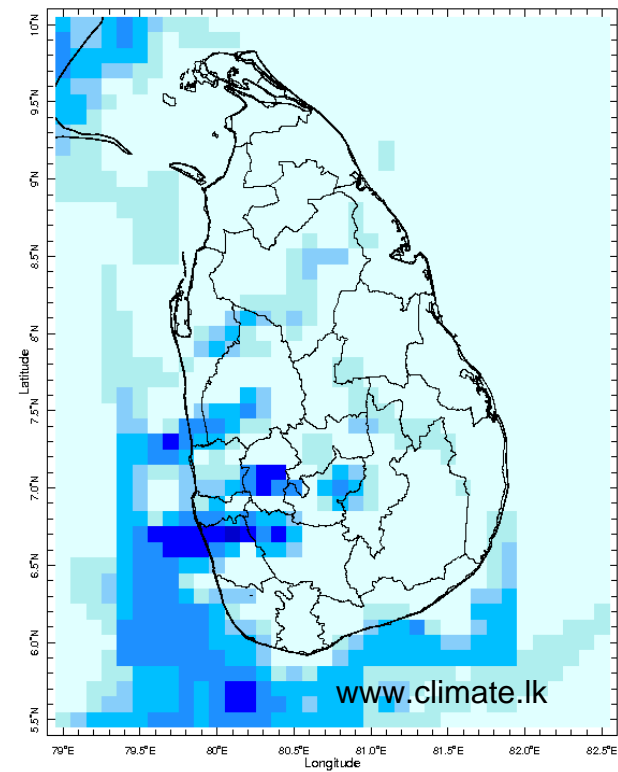
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



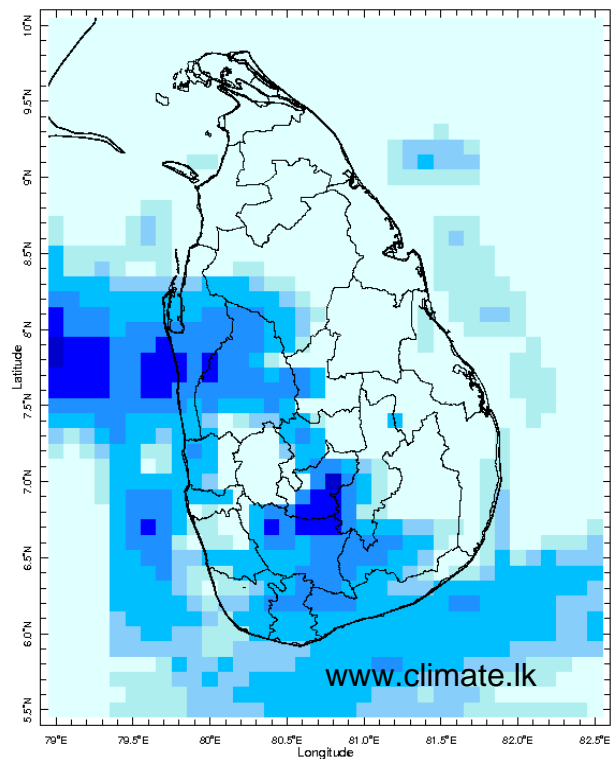
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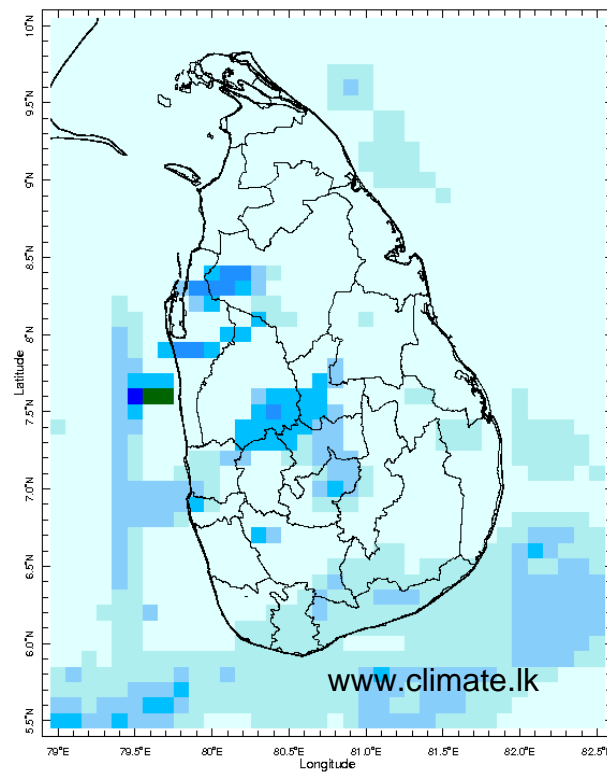
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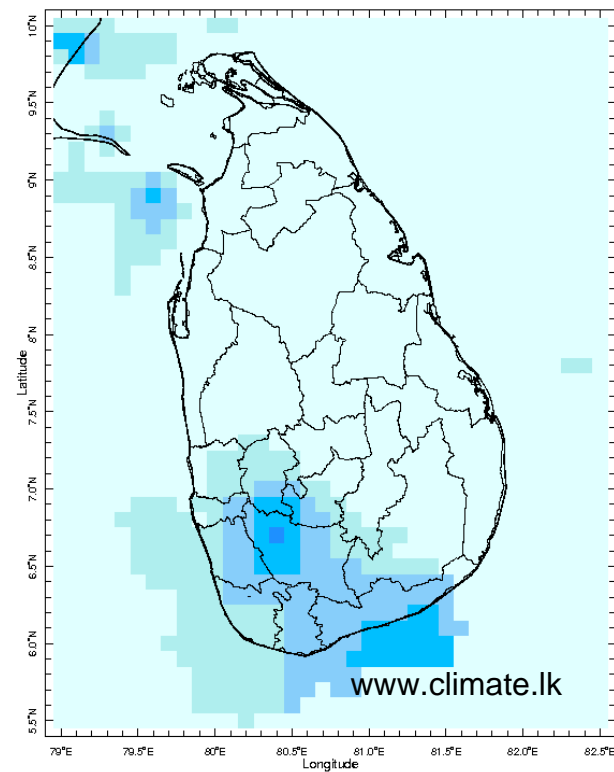
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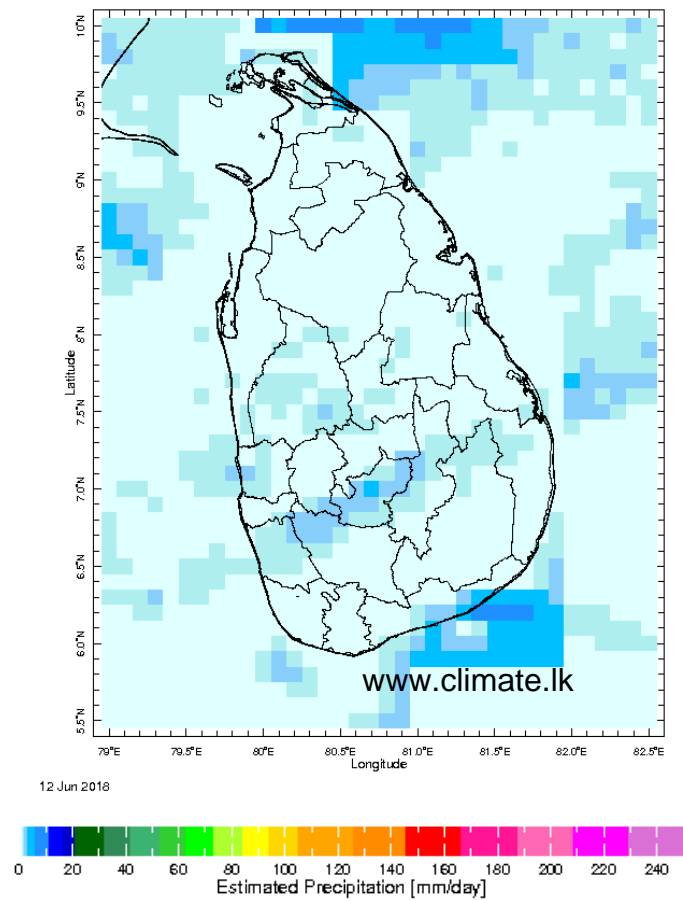
9 Jun 2018



10 Jun 2018

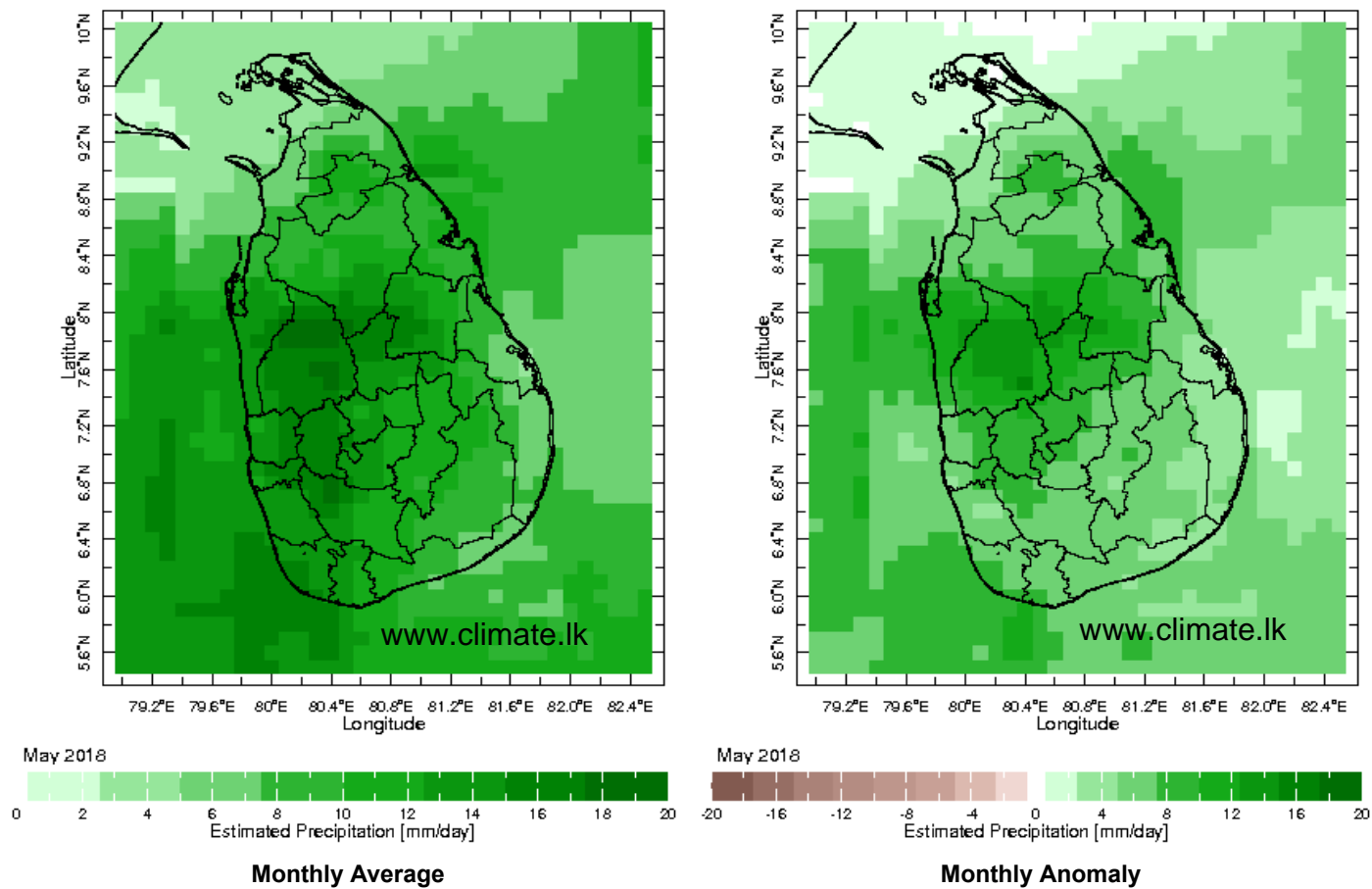


11 Jun 2018

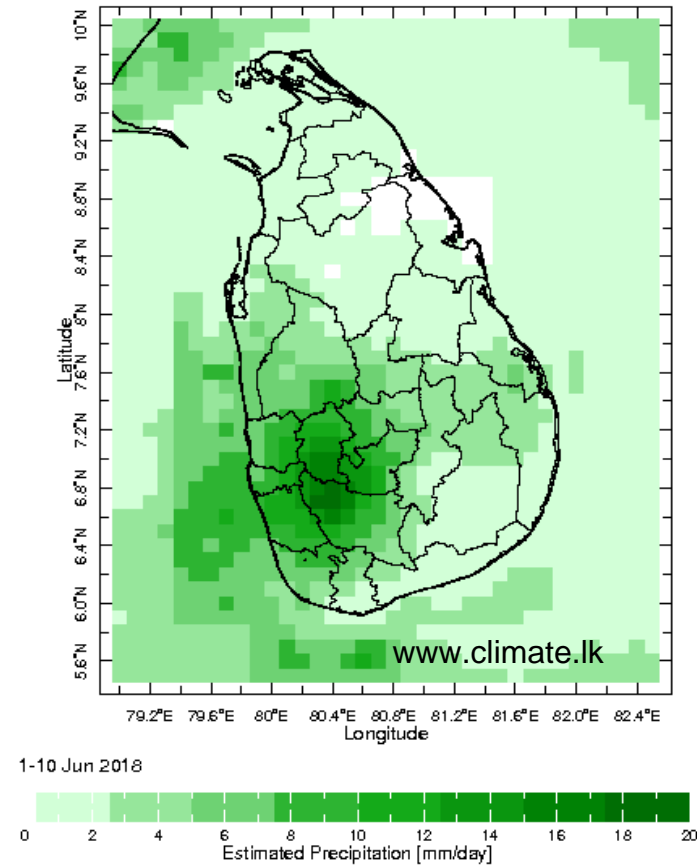
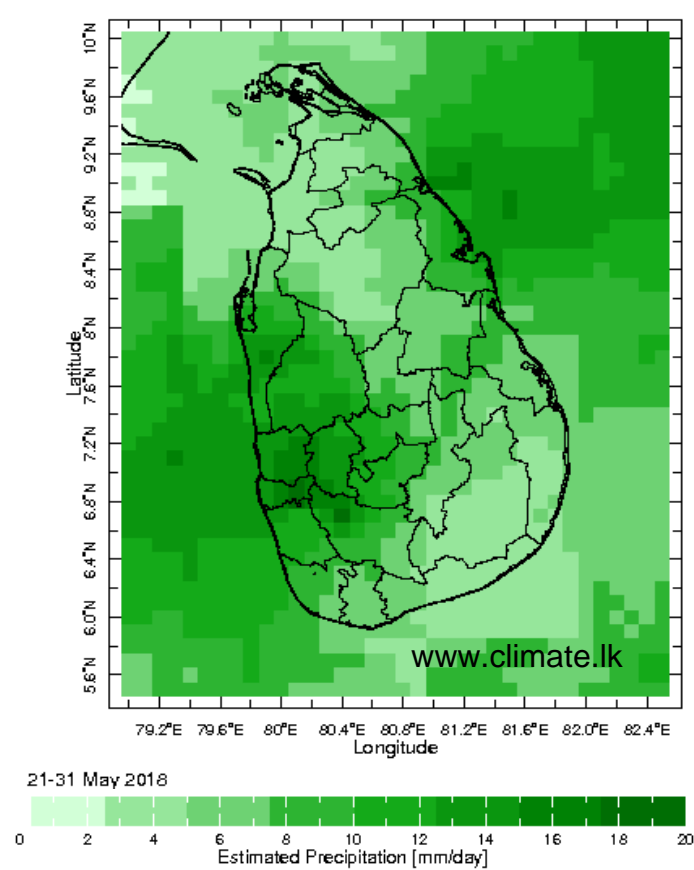


# Monthly Rainfall Monitoring

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



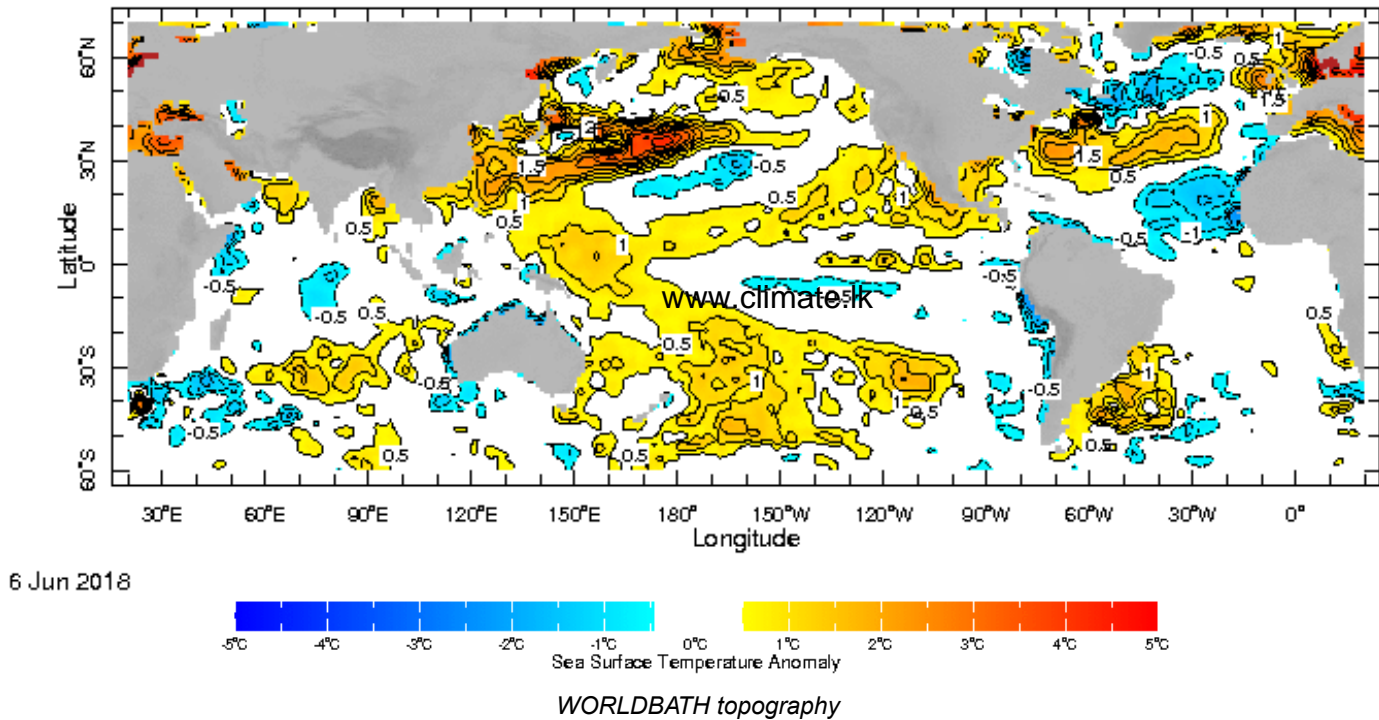
Dekadal (10 Day) Satellite Derived Rainfall Estimates



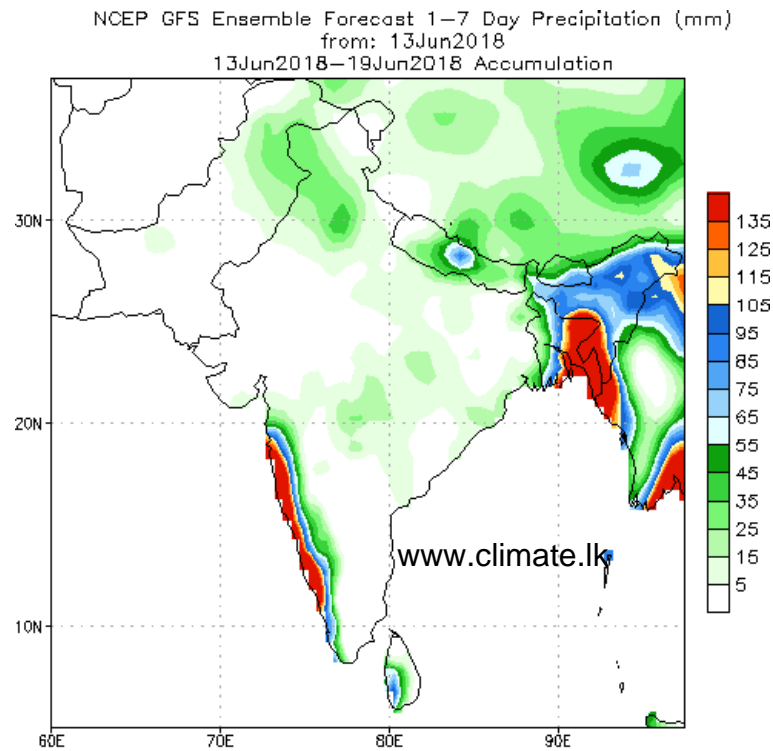


Weekly Average SST Anomalies

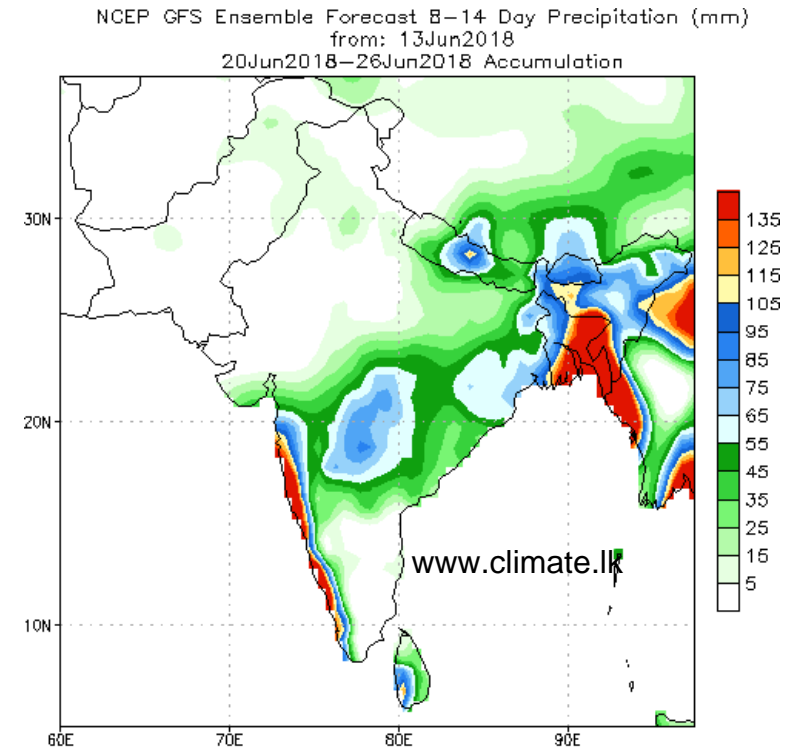
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



## NCEP GFS 1- 14 Day prediction

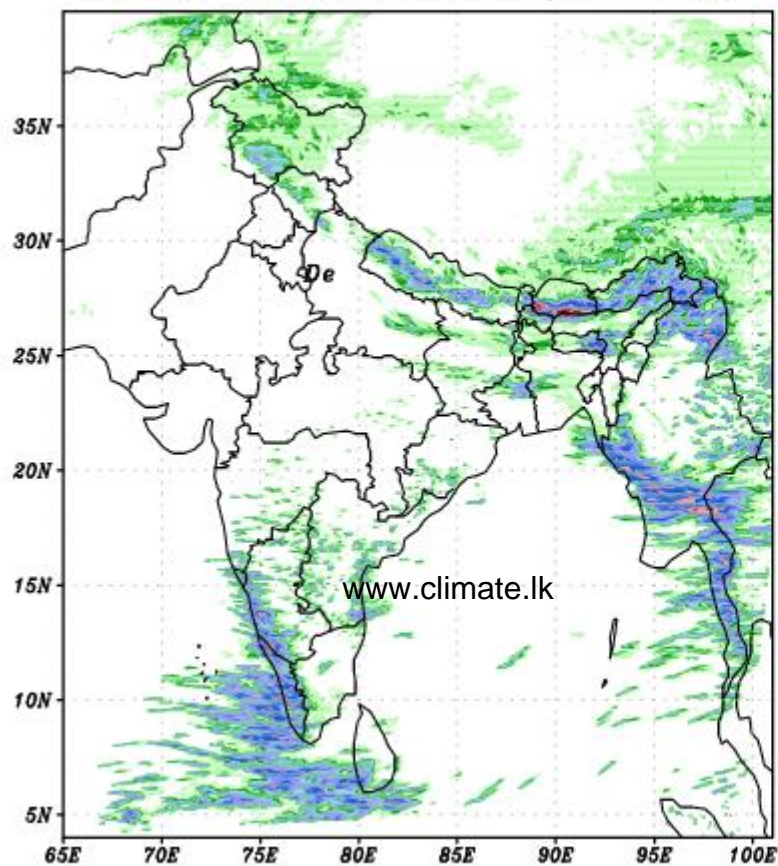


Bias correction based on last 30-day forecast error

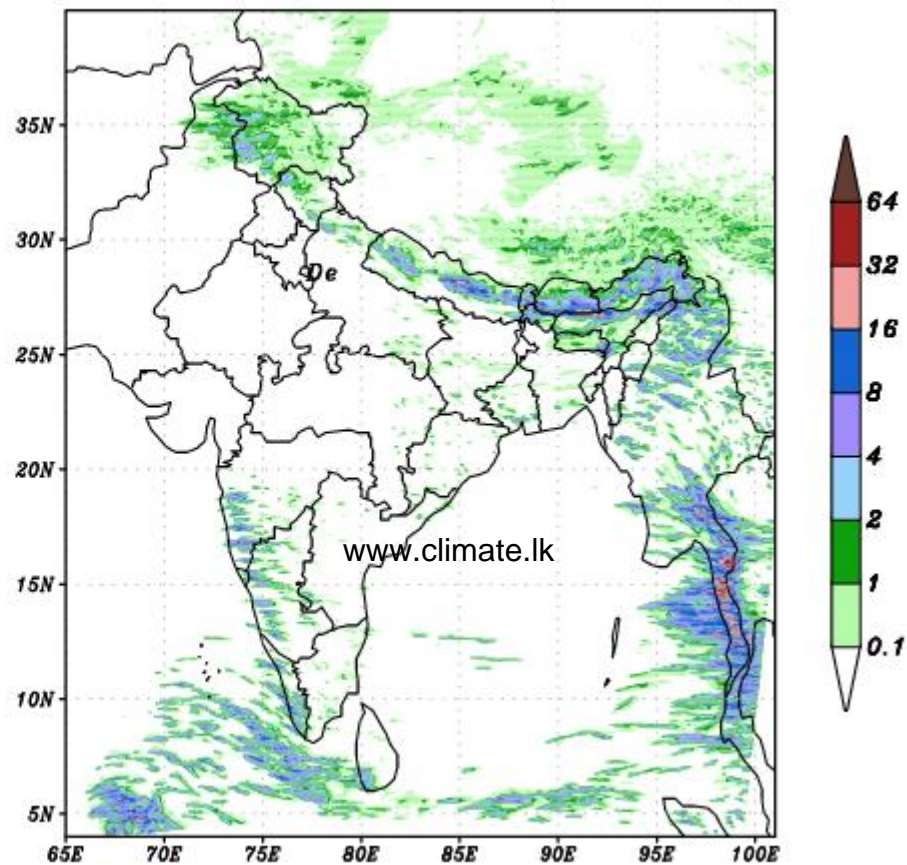


Bias correction based on last 30-day forecast error

**DAY 2 FORECAST VALID ON 00Z16JUN2018**  
Total Precipitation(cm) CI=0.1,1,2,4,8,...  
NCMRWF UNIFIED MODEL (REG-4Km)



**DAY 3 FORECAST VALID ON 00Z17JUN2018**  
Total Precipitation(cm) CI=0.1,1,2,4,8,...  
NCMRWF UNIFIED MODEL (REG-4Km)



## 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.

