

## Experimental Climate Monitoring and Prediction

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17 May 2018

### Highlights

- The IRI weekly forecast predicts between 100-150 mm of rainfall in Galle and Kalutara districts during 16–21 May.
- Between 8-14 May: up to 140 mm of rainfall was recorded in Galle and Matara districts on the 12<sup>th</sup>.
- From 6-12 May: minimum temperature of 15 °C was recorded from Nuwara Eliya district while most parts of the country recorded a maximum temperature between 30-35 °C.
- From 8-14 May: 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 northern and eastern seas of Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** On May 8<sup>th</sup>, Galle district received up to 60 mm of rainfall; Matara district up to 50 mm; Hambantota district up to 40 mm; Kalutara, Ratnapura and Monaragala districts up to 30 mm; and Nuwara Eliya, Badulla, Monaragala, Anuradhapura, Polonnaruwa and Trincomalee districts up to 20 mm. On the 9<sup>th</sup>, Anuradhapura district received up to 50 mm of rainfall; Kurunegala, Matale and Polonnaruwa districts up to 30 mm; Jaffna, Kilinochchi, Vavuniya, Puttalam, Kandy, Nuwara Eliya, Ratnapura, Galle and Matara districts up to 20 mm; and rest of the country up to 10 mm. On the 10<sup>th</sup>, Kurunegala district received up to 80 mm of rainfall; Anuradhapura and Ampara districts up to 50 mm; Polonnaruwa, Puttalam, Gampaha, Kegalla, Ratnapura, Matale, Kandy, Nuwara Eliya, Badulla and Monaragala districts up to 30 mm; Batticaloa, Kalutara, Galle, Matara and Hambantota districts up to 20 mm; and rest of the country up to 10 mm. On the 11<sup>th</sup>, Kurunegala district received up to 60 mm; Anuradhapura district up to 50 mm; Kegalla, Puttalam, Matale, Kandy and Polonnaruwa districts up to 30 mm; Mullaitivu, Vavuniya, Trincomalee, Ampara, Badulla, Monaragala, Gampaha, Colombo and Nuwara Eliya districts up to 20 mm; and rest of the country up to 10 mm. On the 12<sup>th</sup>, Galle and Matara districts received up to 140 mm of rainfall; Kalutara and Ratnapura districts up to 80 mm; Colombo, Badulla and Monaragala districts up to 60 mm; Kegalla, Kurunegala and Hambantota districts up to 50 mm; Gampaha, Kandy and Nuwara Eliya districts up to 30 mm; Puttalam, Vavuniya, Matale and Ampara districts up to 20 mm; and rest of the country up to 10 mm. On the 13<sup>th</sup>, Badulla district received up to 30 mm of rainfall; Monaragala district up to 20 mm; and rest of the country up to 10 mm. On the 14<sup>th</sup>, Vavuniya, Anuradhapura, Polonnaruwa, Matale, Badulla, Monaragala, Nuwara Eliya, Kegalla and Ratnapura districts received up to 30 mm of rainfall; Mullaitivu, Trincomalee, Batticaloa, Ampara, Galle, Kalutara, Colombo, Kalutara, Kandy, Kurunegala and Gampaha districts up to 20 mm; and rest of the country up to 10 mm.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall 150-200 mm of total rainfall in Anuradhapura, Kurunegala and Galle districts; up to 100-150 mm in Matale, Kegalla, Ratnapura, Matara, Kalutara, Gampaha and Puttalam districts; and 75-100 mm in Vavuniya, Polonnaruwa, Kandy, Nuwara Eliya, Badulla and Monaragala districts. Above average rainfall up to 100-200 mm is shown for Anuradhapura, Matale, Kurunegala, Ratnapura, Galle and Matara districts; and up to 50-100 mm for most parts of the country.

**Monthly Monitoring:** During April - above average rainfall conditions were experienced by southwestern regions of the island; and rest of the country experienced below average rainfall. Vavuniya and Jaffna districts received up to 150 mm below average rainfall; and Kilinochchi, Mullaitivu, Anuradhapura, Trincomalee, Anuradhapura, Polonnaruwa, Batticaloa, Ampara, Badulla, Monaragala, Matale, Kandy and Kurunegala districts up to 90 mm. Galle and Matara districts received above average rainfall up to 150 mm; and Gampaha, Colombo, Kalutara, Kegalla, Ratnapura and Nuwara Eliya districts up to 90 mm. The CPC Unified Precipitation Analysis tool shows ~500 mm of total rainfall in Kurunegala, Kegalla, Ratnapura, Gampaha, Colombo, Kalutara, Galle and Matara districts; up to 300 mm Puttalam, Kurunegala, Kandy, Badulla, and Monaragala districts; up to ~200 mm in Anuradhapura, Matale and Hambantota districts; and up to 150 mm in Mannar, Polonnaruwa and Ampara districts.

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

### **Pacific sea state: May 10, 2018**

In early May 2018, the east-central tropical Pacific waters warmed to ENSO-neutral levels. While most key atmospheric variables also indicated neutral conditions, the precipitation pattern and the upper level wind anomalies continued to show lingering weak La Niña conditions. 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 call for weak El Niño development, but forecasters hedge due to low confidence at this time of year.

### **Indian Ocean State**

0.5 °C above average sea surface temperature was observed in the northern and eastern seas of Sri Lanka.

## **Predictions**

### **Rainfall**

#### **14-day prediction:**

#### **NOAA NCEP models:**

From 16<sup>th</sup> – 22<sup>nd</sup> May: Total rainfall between 115-105 mm in Galle district; between 105-95 mm in Kalutara, Ratnapura and Matara districts; between 95-85 mm in Colombo, Kegalle, Nuwara Eliya and Hambantota districts; between 85-75 mm in Gampaha, Kurunegala, Kandy, Badulla and Monaragala districts; between 75-65 mm in Puttalam, Kurunegala, Anuradhapura, Polonnaruwa and Matale districts.

From 23<sup>rd</sup> – 29<sup>th</sup> May: Total rainfall between 125-115 mm in Galle and Matara districts; between 115-105 mm in Kalutara and Ratnapura districts; between 105-95 mm in Colombo, Kegalle and Hambantota districts; between 95-85 mm in Gampaha, Kegalle, Kandy, Nuwara Eliya and Monaragala districts; between 85-75 mm in Kurunegala, Matale, Badulla and Hambantota districts; between 75-65 mm in Puttalam, Anuradhapura, Polonnaruwa and Ampara districts.

**IMD WRF Forecast:** Not Available

#### **IRI Model Forecast:**

From 16<sup>th</sup> – 21<sup>st</sup> May: Total rainfall between 100-150 mm in Galle and Kalutara districts; between 75-100 mm in Gampaha, Colombo, Ratnapura and Matara districts; between 50-75 mm in Puttalam, Kurunegala, Kegalle, Kandy, Nuwara Eliya, Badulla and Hambantota districts; between 25-50 mm in Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Matale, Batticaloa, Ampara and Monaragala districts; Up to 25 mm total rainfall rest of the island.

### **MJO based OLR predictions**

#### **For the next 15 days:**

MJO shall enhance 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.

## **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
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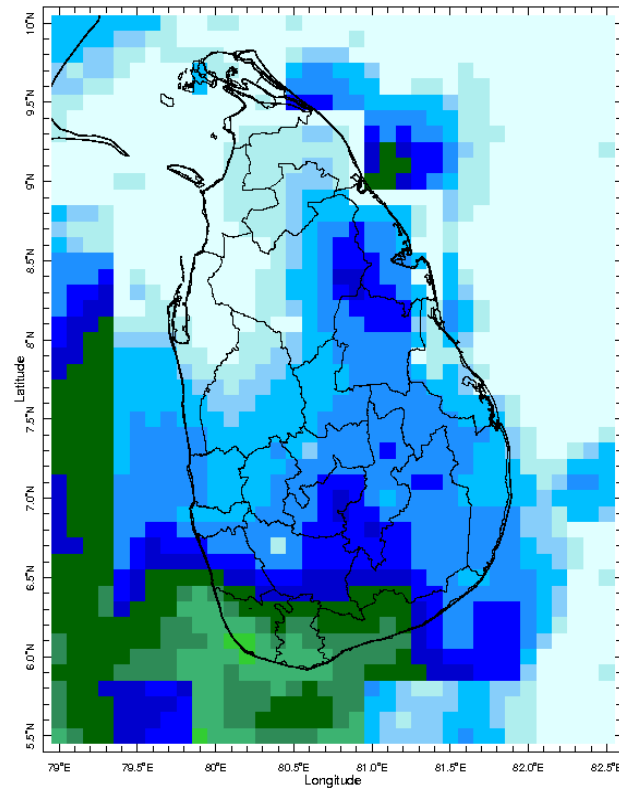
#### 2. Predictions

- 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

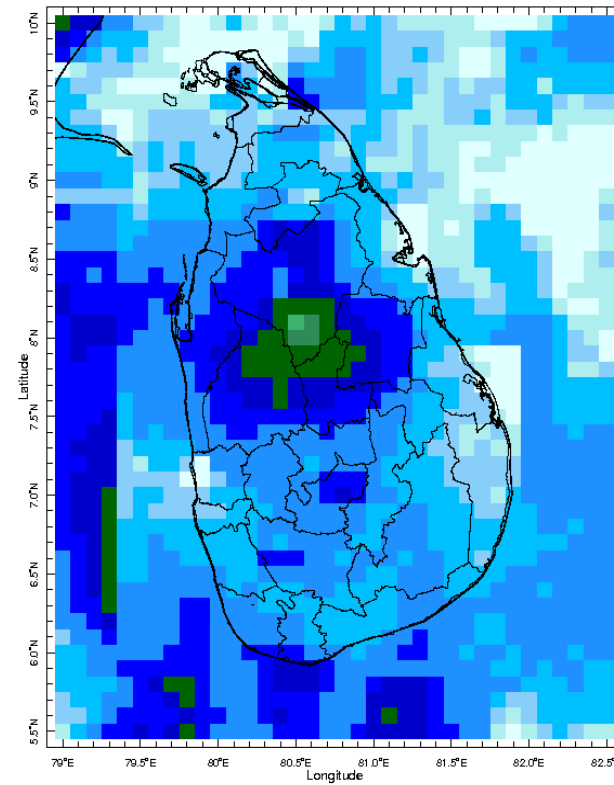
## MONITORING

### Daily Rainfall Monitoring

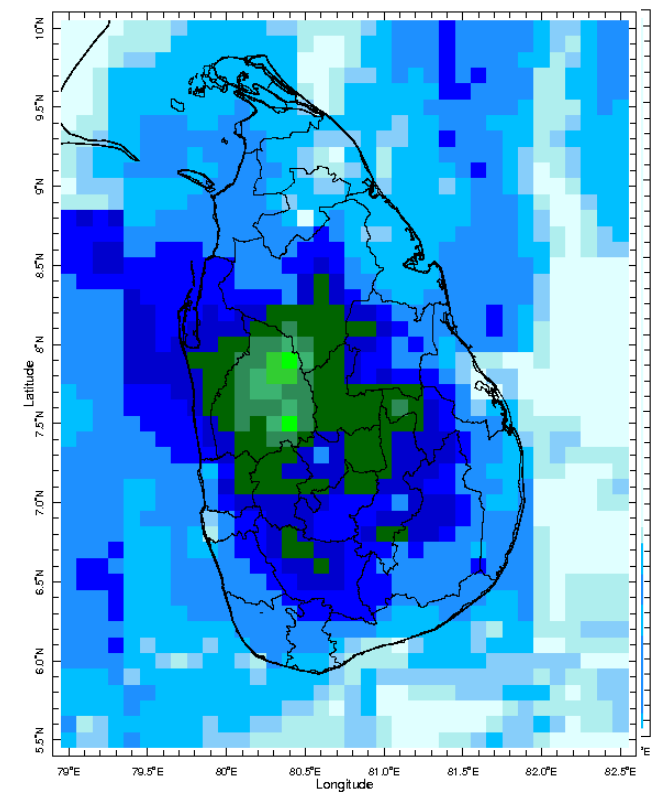
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



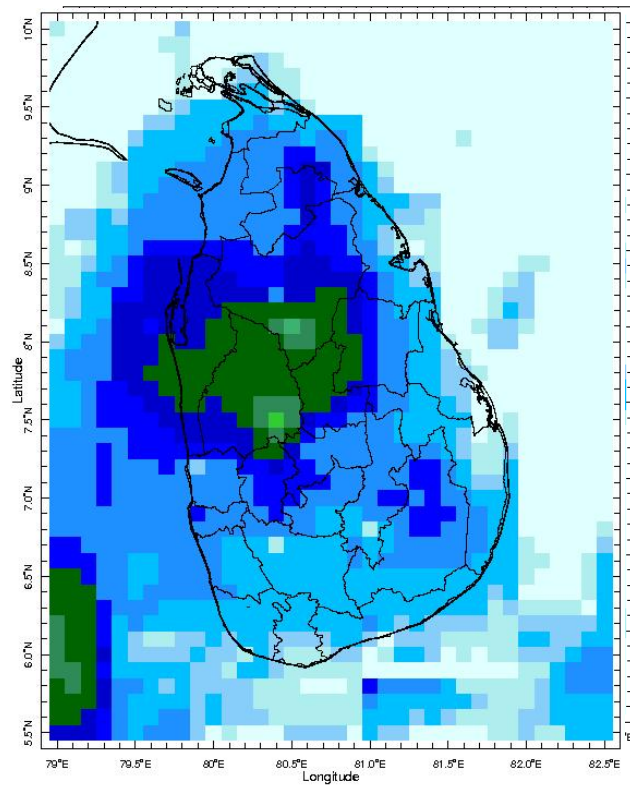
8 May 2018



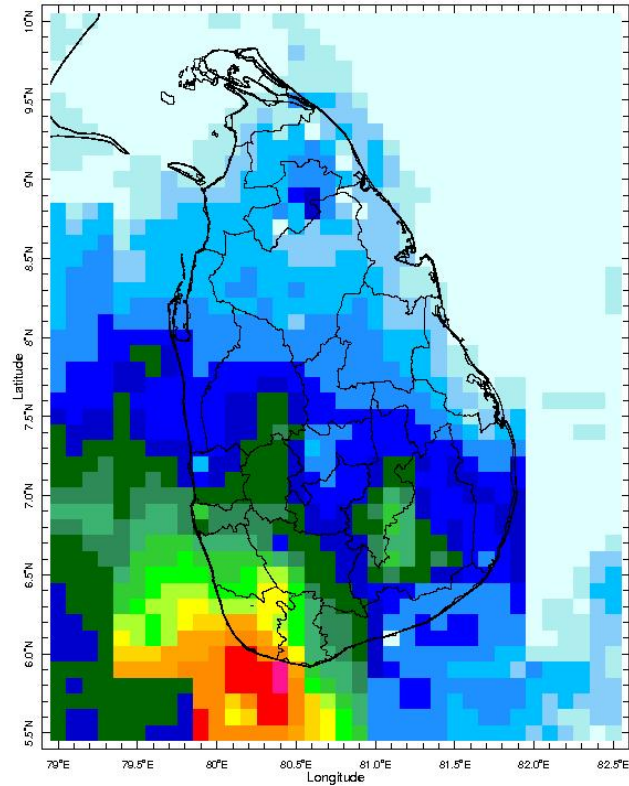
9 May 2018



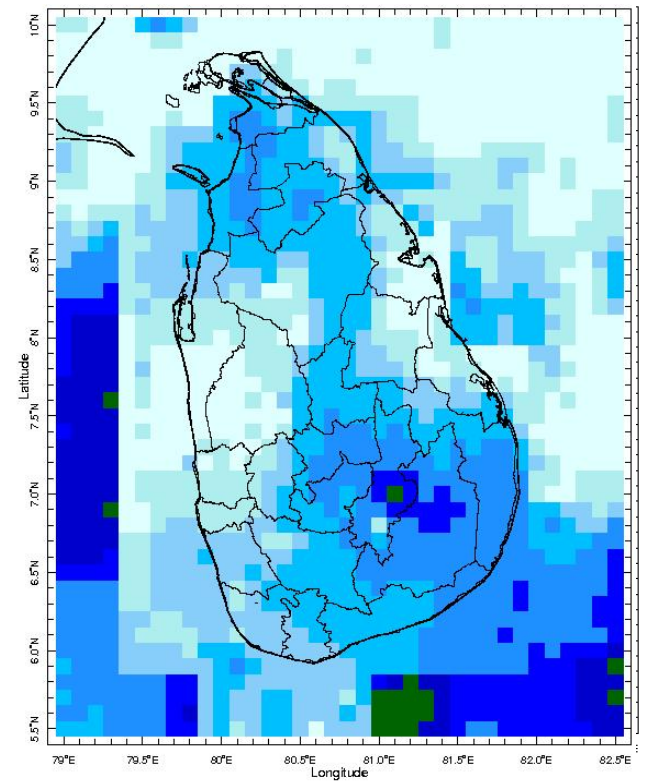
10 May 2018



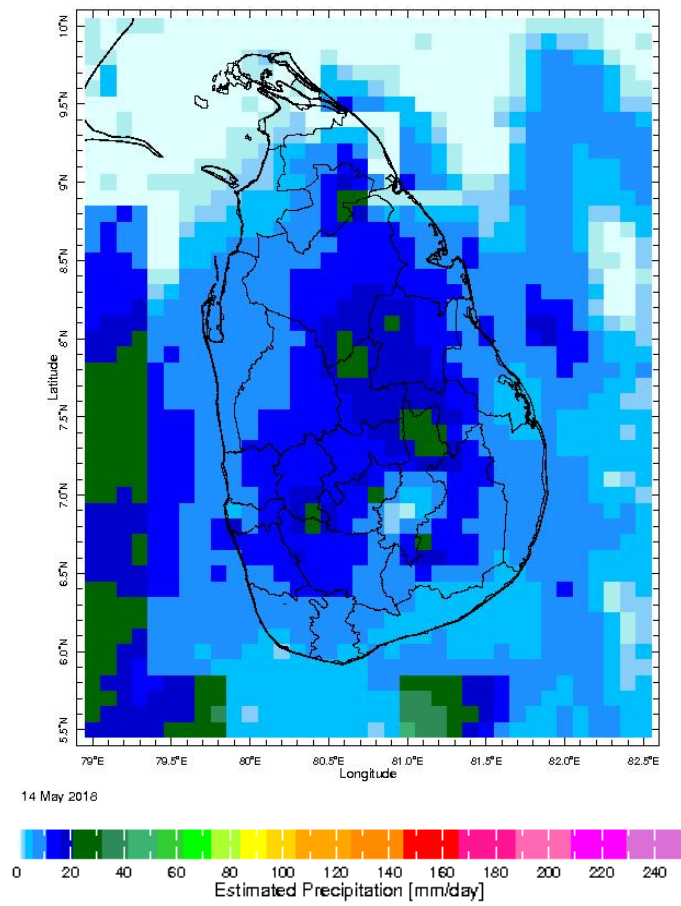
11 May 2018



12 May 2018

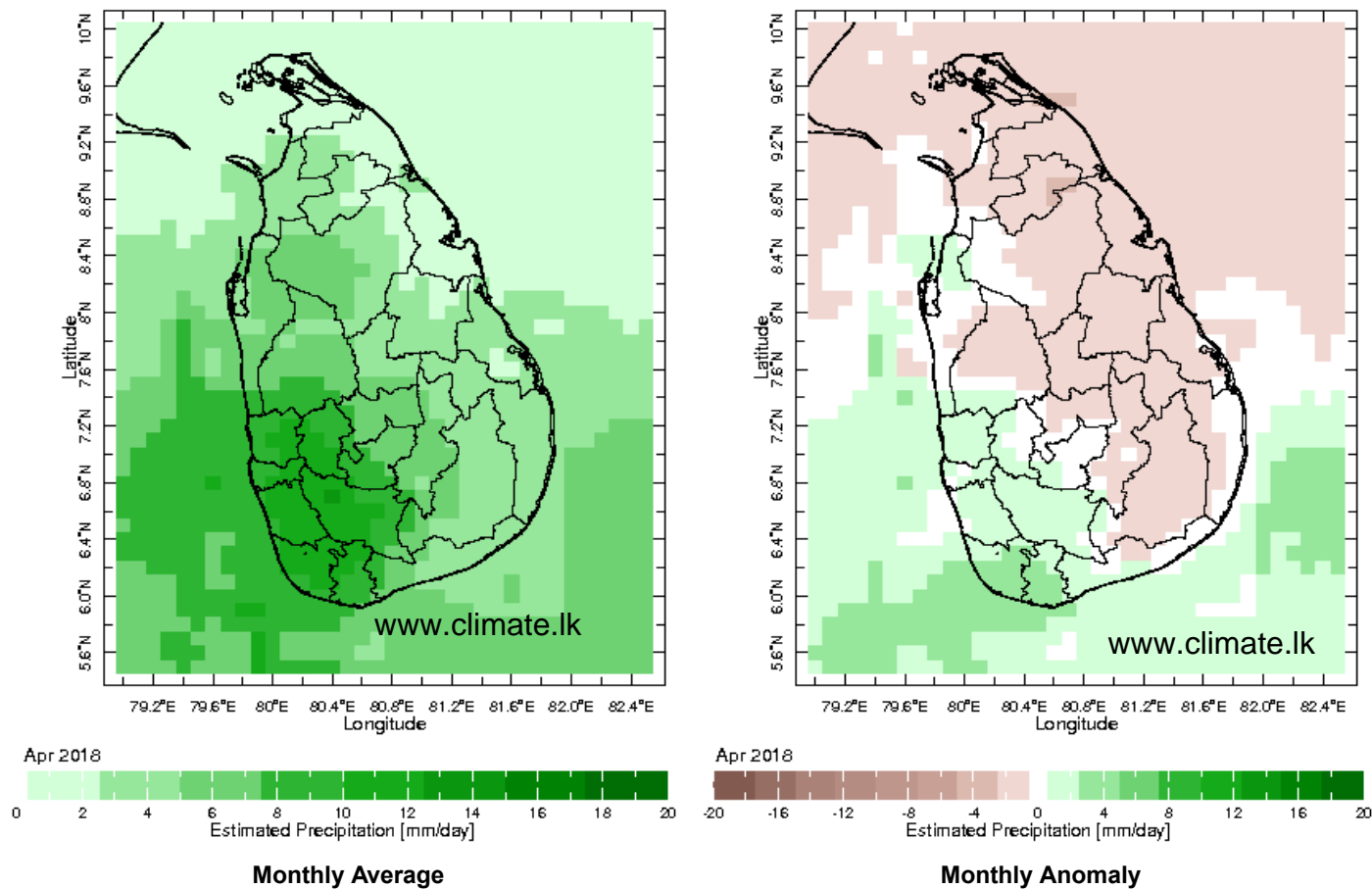


13 May 2018



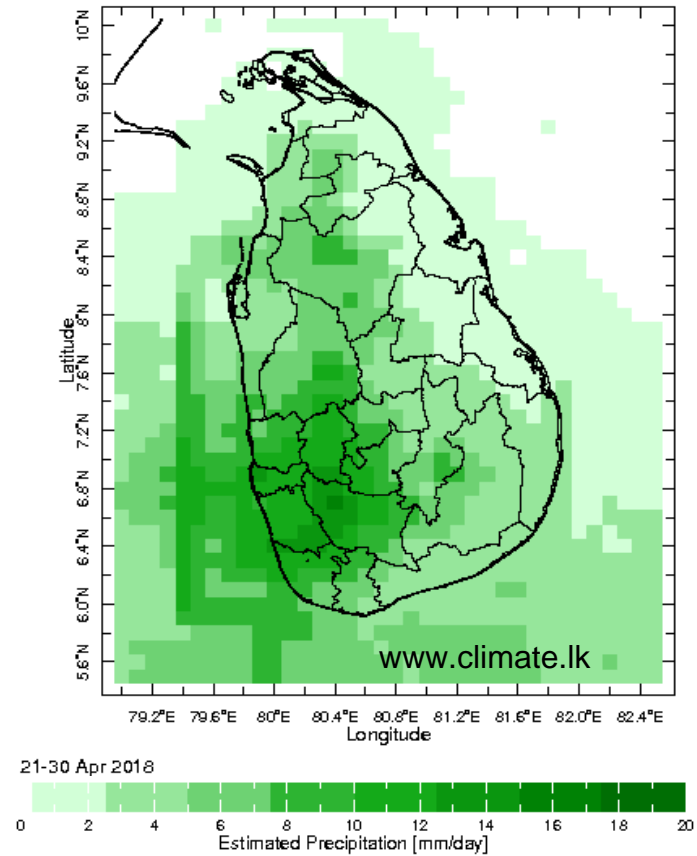
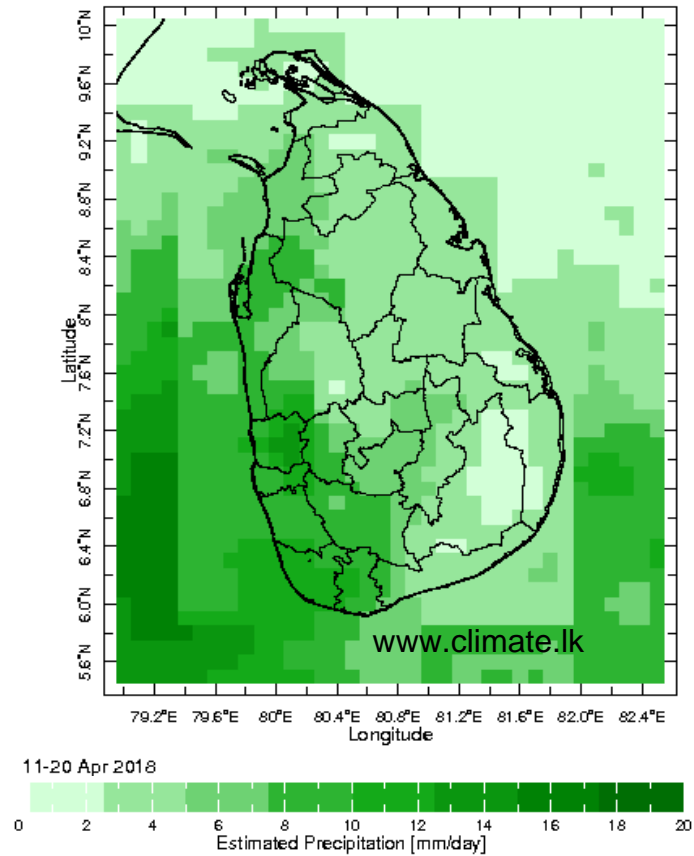
# Monthly Rainfall Monitoring

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





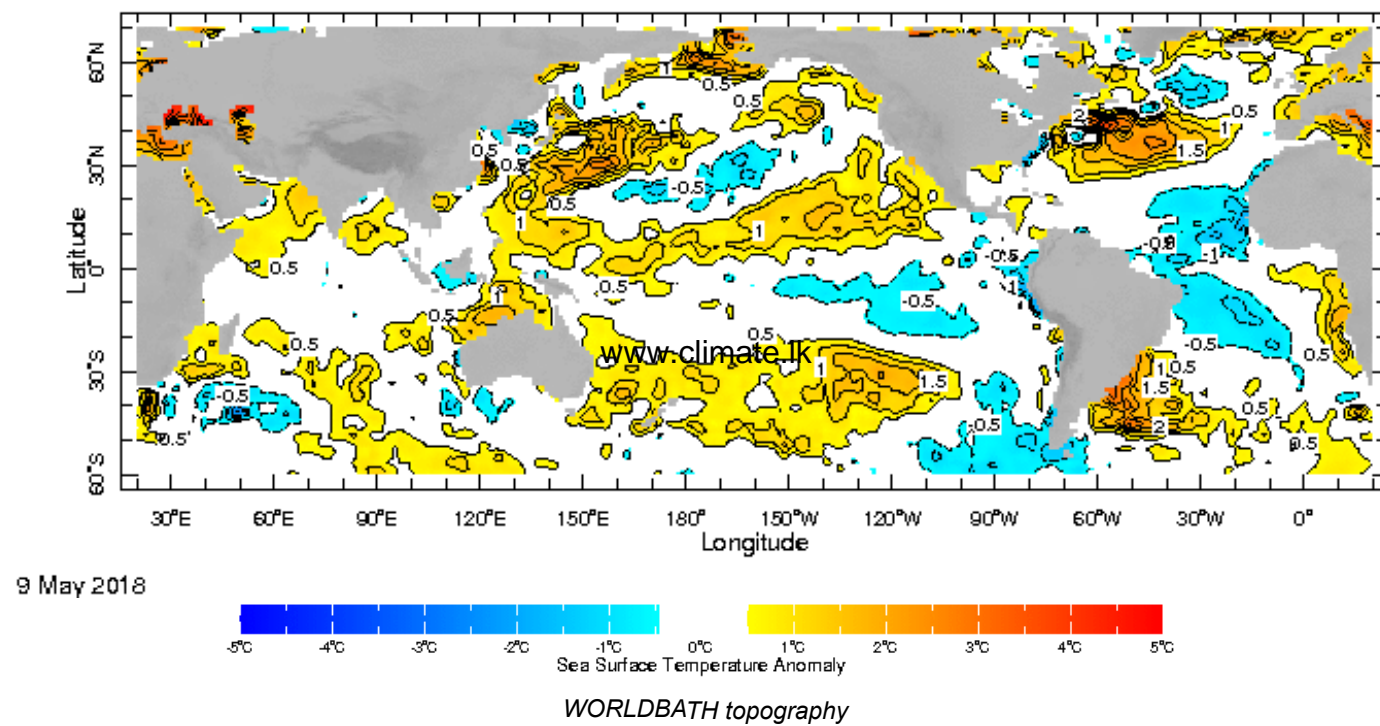
## Dekadal (10 Day) Satellite Derived Rainfall Estimates





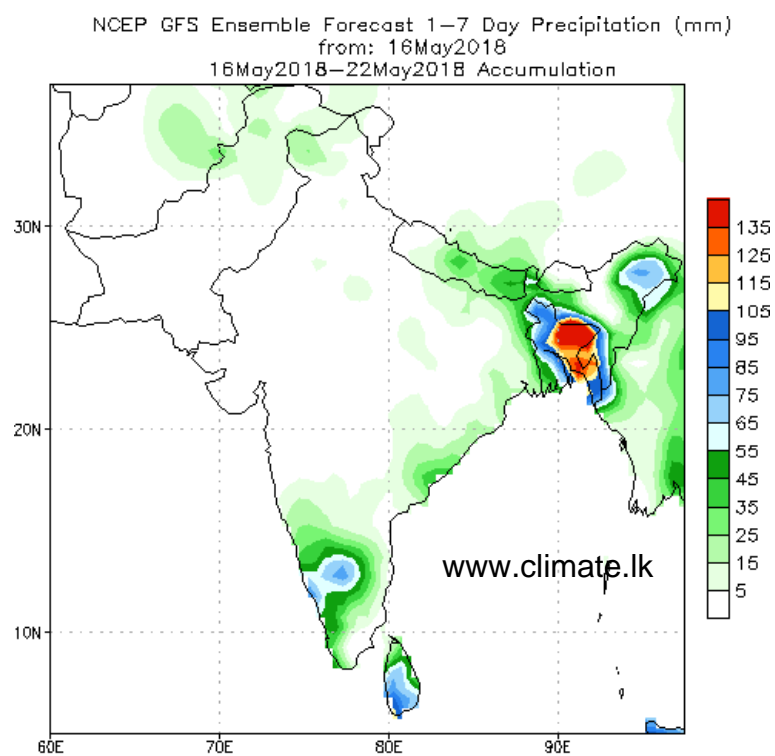
## Weekly Average SST Anomalies

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

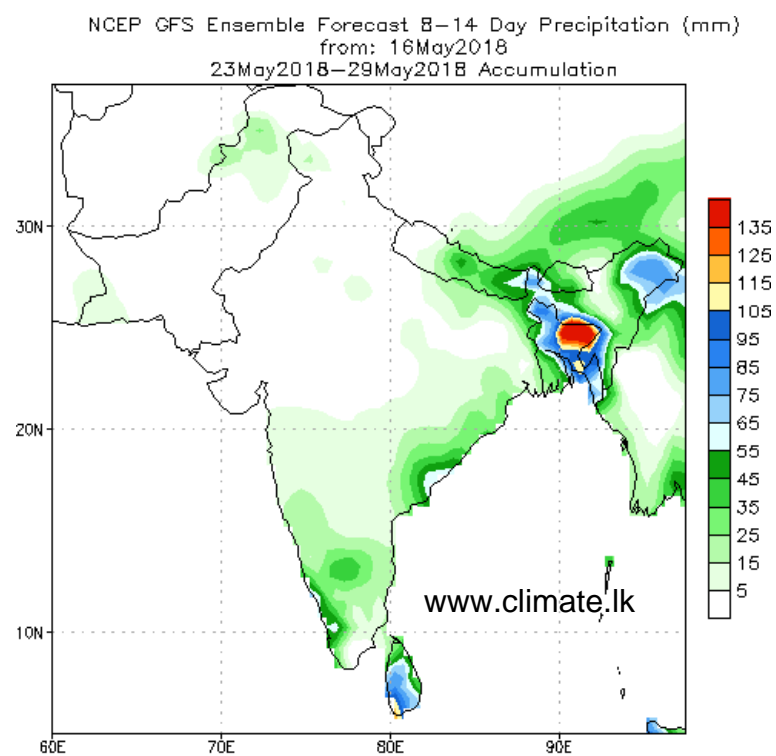


## PREDICTIONS

### NCEP GFS 1- 14 Day prediction



Bias correction based on last 30-day forecast error



Bias correction based on last 30-day forecast error

# 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.

