

## Experimental Climate Monitoring and Prediction

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### Highlights

- The WRF model predicts up to 36 mm of rainfall in Western regions of the country on 14<sup>th</sup> and 15<sup>th</sup> of July.
- Between 5- 11 Jul: Rainfall up to 50 mm was recorded in Batticaloa district on the 8<sup>th</sup>.
- From 2-8 Jul: minimum temperature of 20 °C was recorded from Nuwara Eliya district while Northern and Eastern regions of the island recorded a maximum temperature between 30-35 °C.
- From 4-10 Jul: up to 54 km/h, northwesterly winds were experienced by the central and southern regions of the island; and up to 36 km/h winds in the northern region.
- 0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** On July 5<sup>th</sup>, Trincomalee district received up to 20 mm of rainfall; and several regions of Vavuniya, Anuradhapura and Batticaloa districts up to 10 mm. No significant rainfalls were recorded in any part of the island on the 6<sup>th</sup>. On the 7<sup>th</sup> Galle, Kalutara and Monaragala districts received up to 10 mm of rainfall. On July 8<sup>th</sup> Batticaloa district received up to 50 mm of rainfall; Trincomalee, Polonnaruwa, Ampara and Ratnapura districts up to 30 mm; Jaffna, Mullaitivu, Anuradhapura, Matale, Badulla, Monaragala, Kalutara, Galle and Matara districts up to 20 mm; and rest of the island up to 10 mm. On the 9<sup>th</sup> Batticaloa, Ampara, Ratnapura, Badulla, Monaragala and Kalutara districts received up to 30 mm of rainfall; and Kurunegala, Kegalla, Kandy, Gampaha, Galle and polonnaruwa districts received up to 20 mm. On the 10<sup>th</sup> several regions of Galle, Kalutara and Ratnapura districts received up to 20 mm of rainfall. No significant rainfalls were recorded in any part of the island on the 11<sup>th</sup>.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall of 50-75 mm in Ratnapura and Batticaloa districts; up to 25-50 mm in Trincomalee, Polonnaruwa, Ampara, Badulla, Monaragala, Nuwara Eliya, Colombo, Kalutara and Galle districts. It shows above average rainfall up to 50 mm Ratnapura, Batticaloa and Ampara districts; up to 10-25 mm in Trincomalee, Polonnaruwa, Badulla, Monaragala, Kalutara and Galle districts; and below average rainfall up to and 10-25 mm in Colombo district.

**Monthly Monitoring:** During June - below average rainfall conditions were experienced in the entire island except for northern regions of Monaragala and adjacent regions of Ampara district. Ratnapura, Kalutara and Galle districts received up to 240 mm below average rainfall; and Colombo and Nuwara Eliya districts received up to 150 mm; and most parts of the island up to 120 mm. The CPC Unified Precipitation Analysis tool shows ~200 mm of total rainfall in Monaragala and Ampara districts; up to ~150 mm Badulla district; and up to ~100 mm Kurunegala, Gampaha, Colombo, Kalutara, Nuwara Eliya, Kandy, Kegalla, Ratnapura and Galle districts; up to 75 mm in Puttalam, Matale and Matara districts.

#### Ocean State (Text Courtesy IRI)

#### Pacific sea state: June 15, 2017

In mid-June 2017, the tropical Pacific remained in an ENSO-neutral state, with SSTs not far from the El Niño threshold in the east-central tropical Pacific but the atmosphere maintaining ENSO-neutral patterns. The collection of latest ENSO prediction models indicates ENSO-neutral as the most likely condition during summer, with chances for El Niño development rising to about 40-45% during fall and early winter.

## **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 12<sup>th</sup> – 18<sup>th</sup> Jul: Total rainfall between 25-35 mm in Kegalla, Ratnapura, Kurunegala and Gampaha districts; and between 15-25 mm in Jaffna and Mullaitivu districts.

From 19<sup>th</sup> – 25<sup>th</sup> Jul: Total rainfall between 35-45 mm in Kegalla and Ratnapura districts; and 25-35 mm in Puttalam, Kurunegala, Gampaha, Matale, Kandy, Nuwara Eliya and Matara districts..

#### **IMD WRF & IRI Model Forecast:**

14<sup>th</sup> Jul: Up to 36 mm of rainfall in Puttalam, Kurunegala, Gampaha, Kegalla, Colombo, Kalutara, Ratnapura and Galle districts; and up to 8 mm of rainfall in Matale, Kandy, Nuwara Eliya, Matara, Monaragala and Ampara districts.

15<sup>th</sup> Jul: Up to 36 mm of rainfall in Puttalam, Kurunegala, Gampaha, Kegalla, Colombo, Kalutara, Ratnapura and Galle districts; and up to 8 mm of rainfall in Mannar, Anuradhapura, Matale, Kandy, Nuwara Eliya, Matara, Monaragala and Ampara districts.

#### **Seasonal Prediction:** IRI Multi Model Probability Forecast

Apr to Jun: the total 3-month precipitation shall be climatological for the whole country. The 3-month temperature has more than 70-80% likelihood in the whole of the island of being in the above-normal tercile.

### **MJO based OLR predictions**

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

MJO shall not have a significant impact on the rainfall in Sri Lanka in the next 10 days and shall suppress the rainfall 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/>



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## Weekly Hydro- Meteorological Report for Sri Lanka

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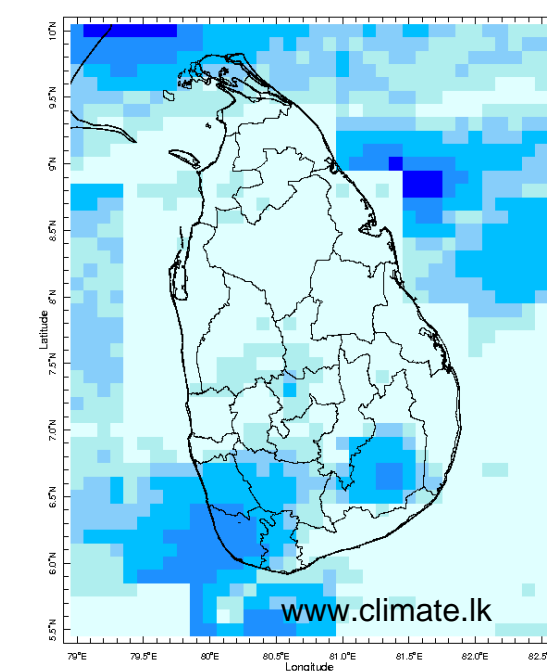
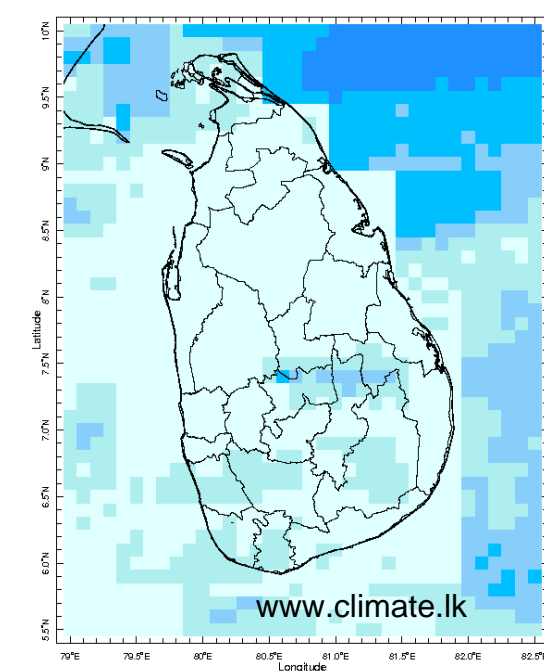
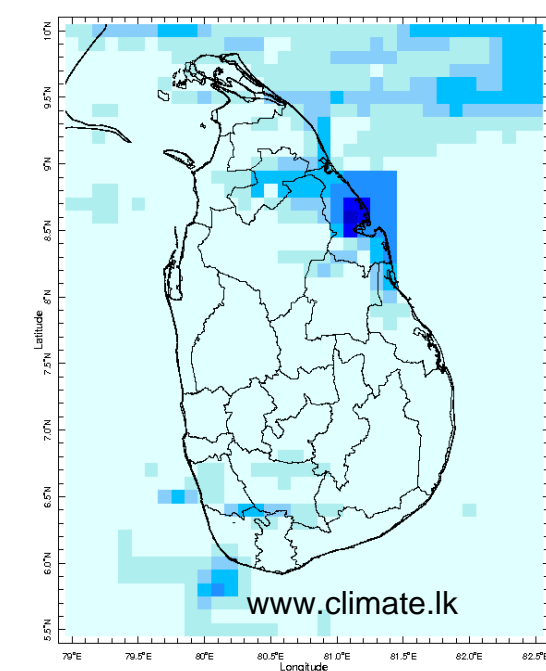
#### 2. Predictions

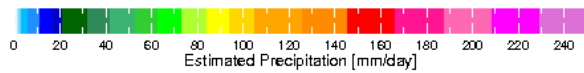
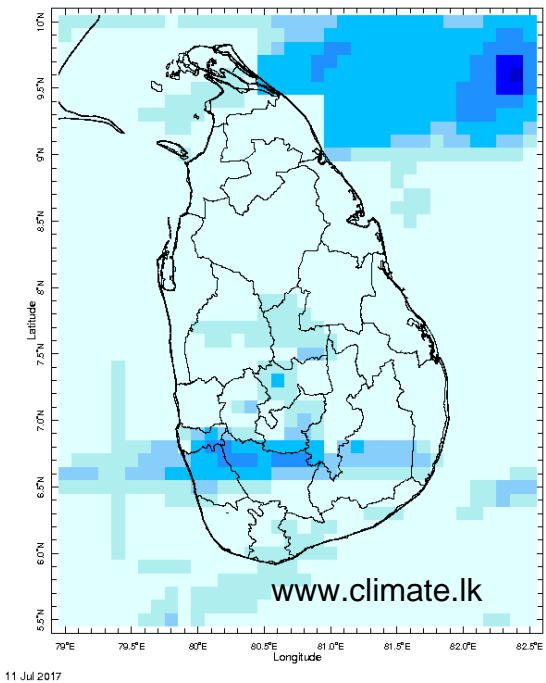
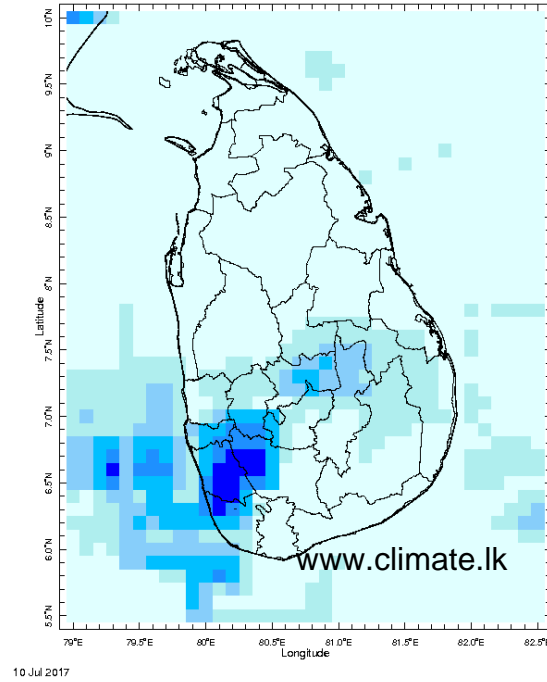
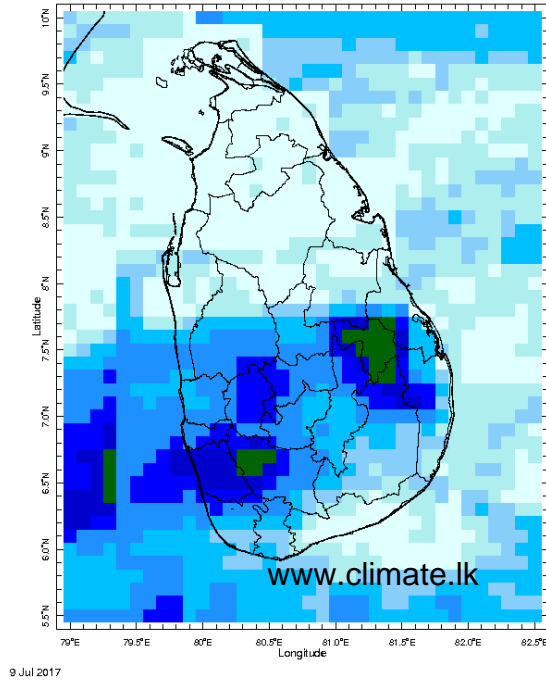
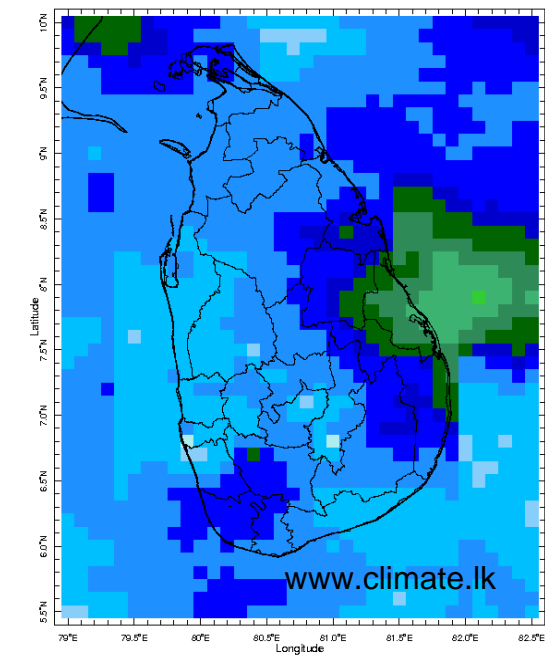
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

### MONITORING

#### Daily Rainfall Monitoring

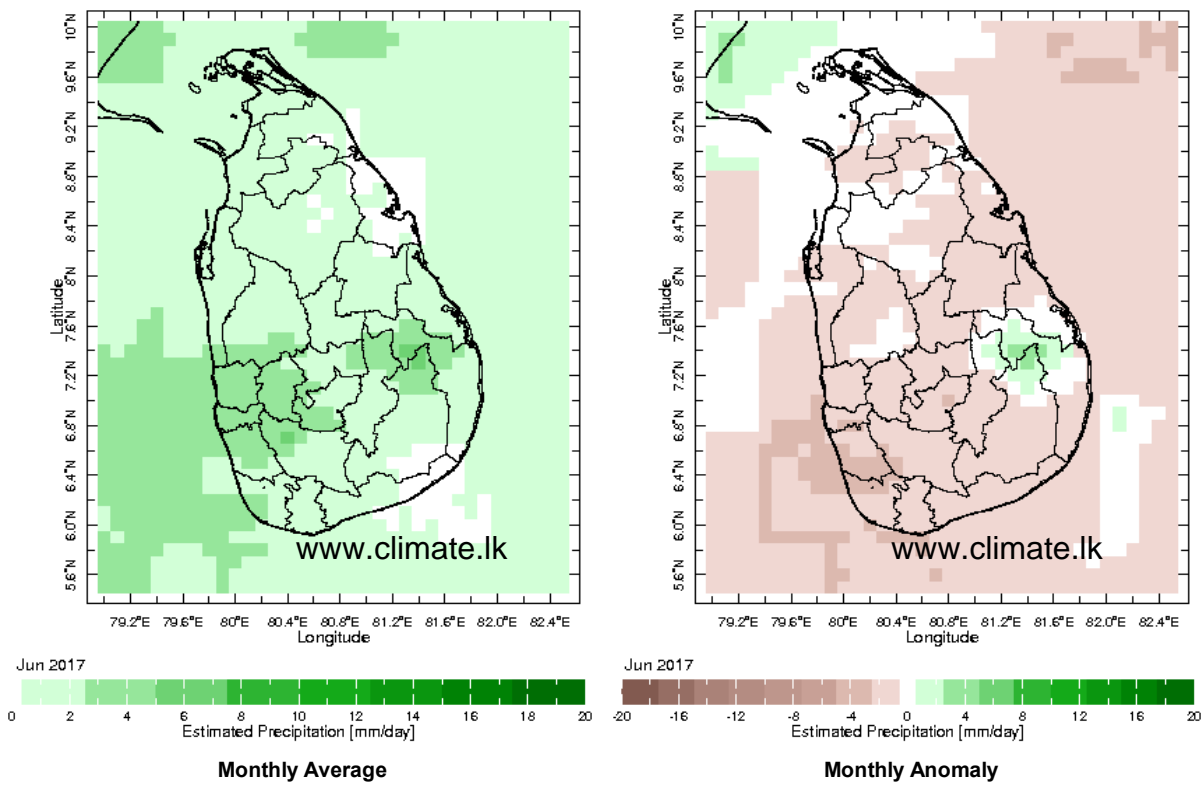
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



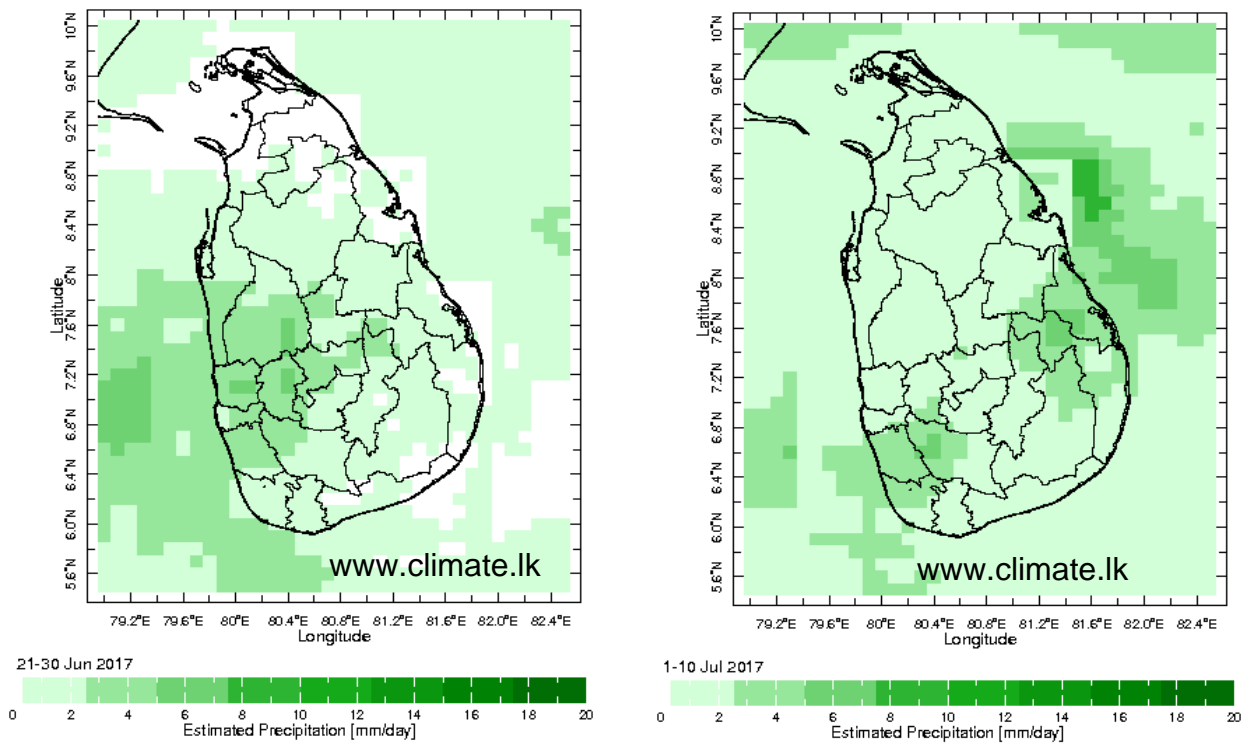


Monthly Rainfall Monitoring

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

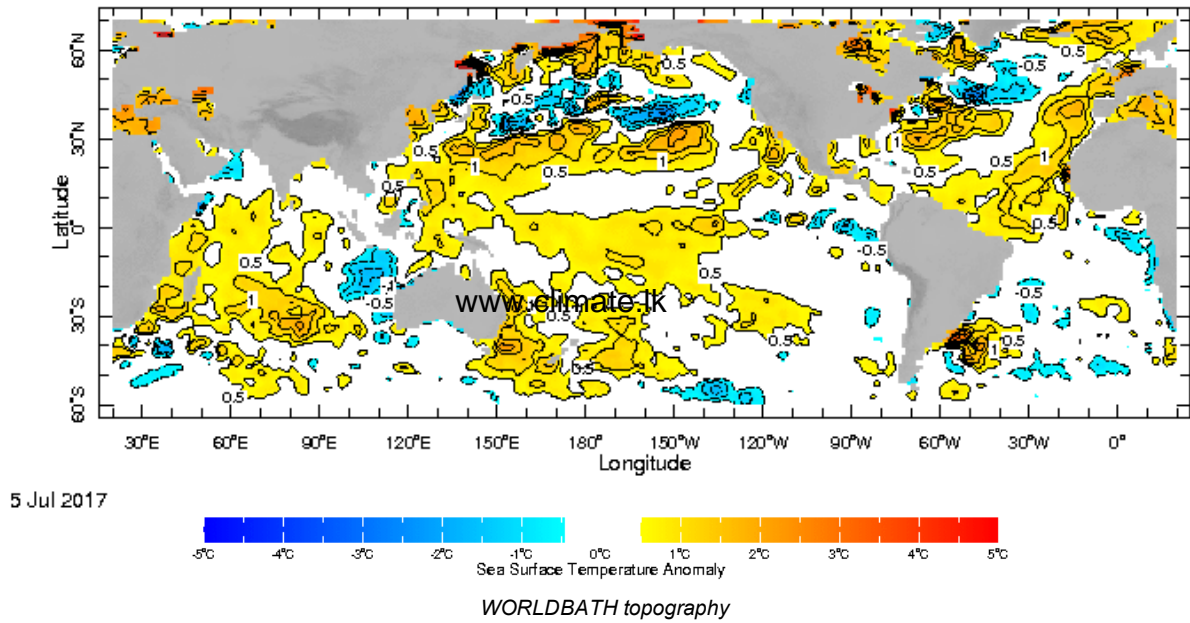


**Dekadal (10 Day) Satellite Derived Rainfall Estimates**

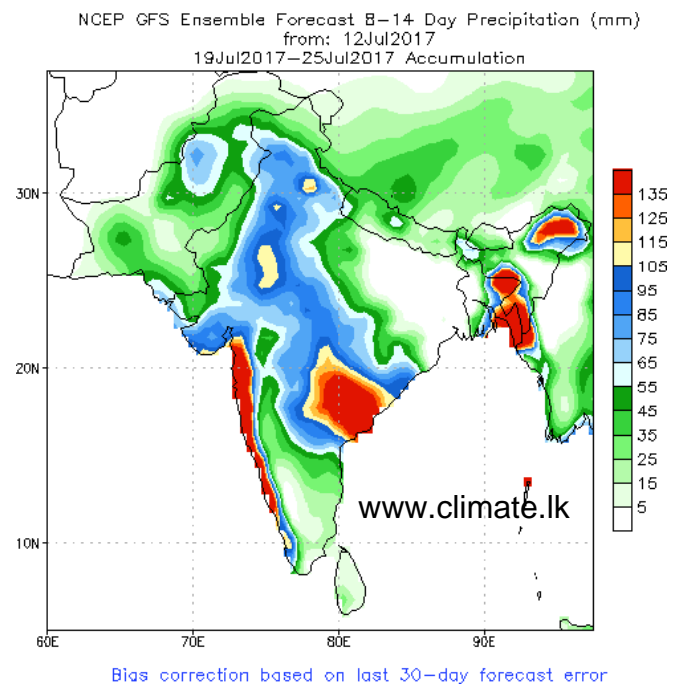
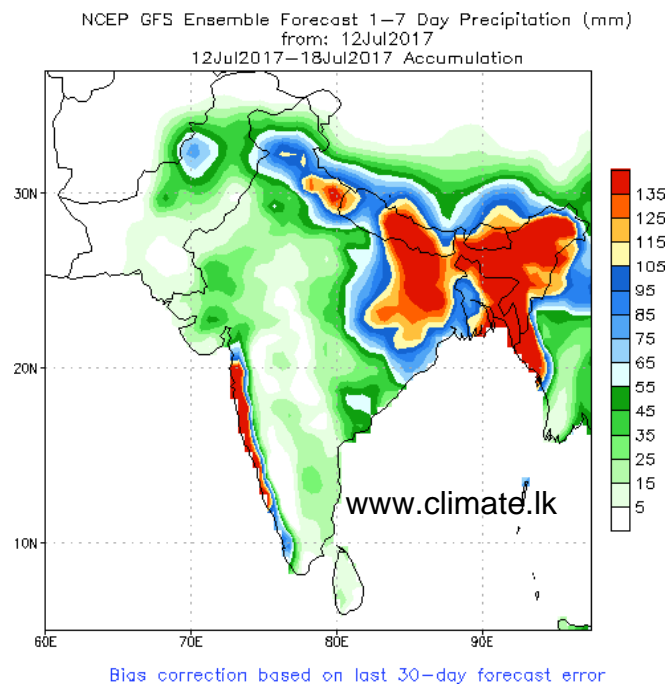


**Weekly Average SST Anomalies**

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

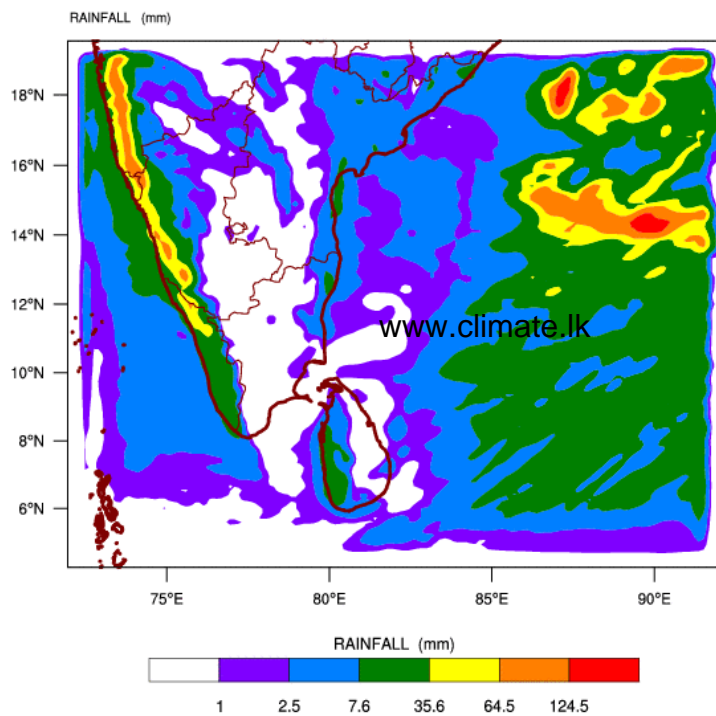


## NCEP GFS 1- 14 Day prediction

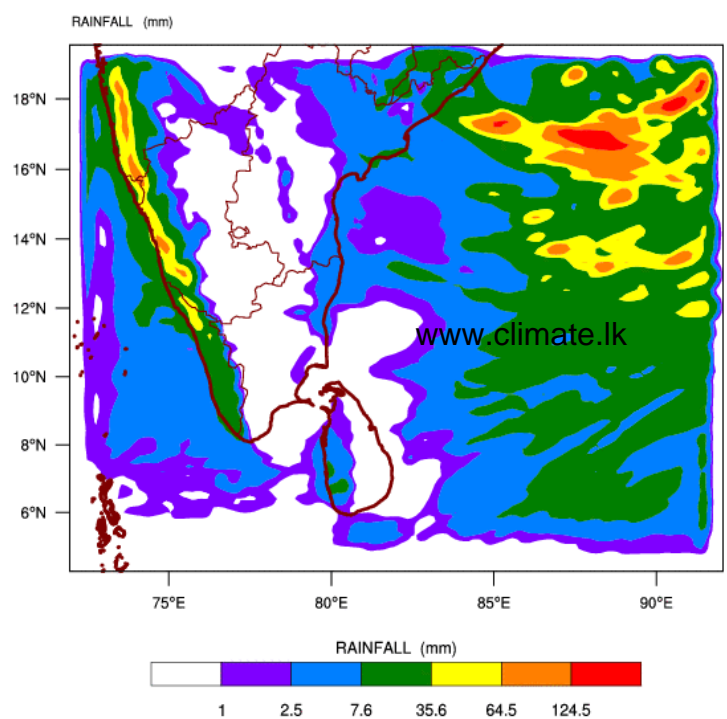


## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 13-07-2017 valid for 03 UTC of 15-07-2017

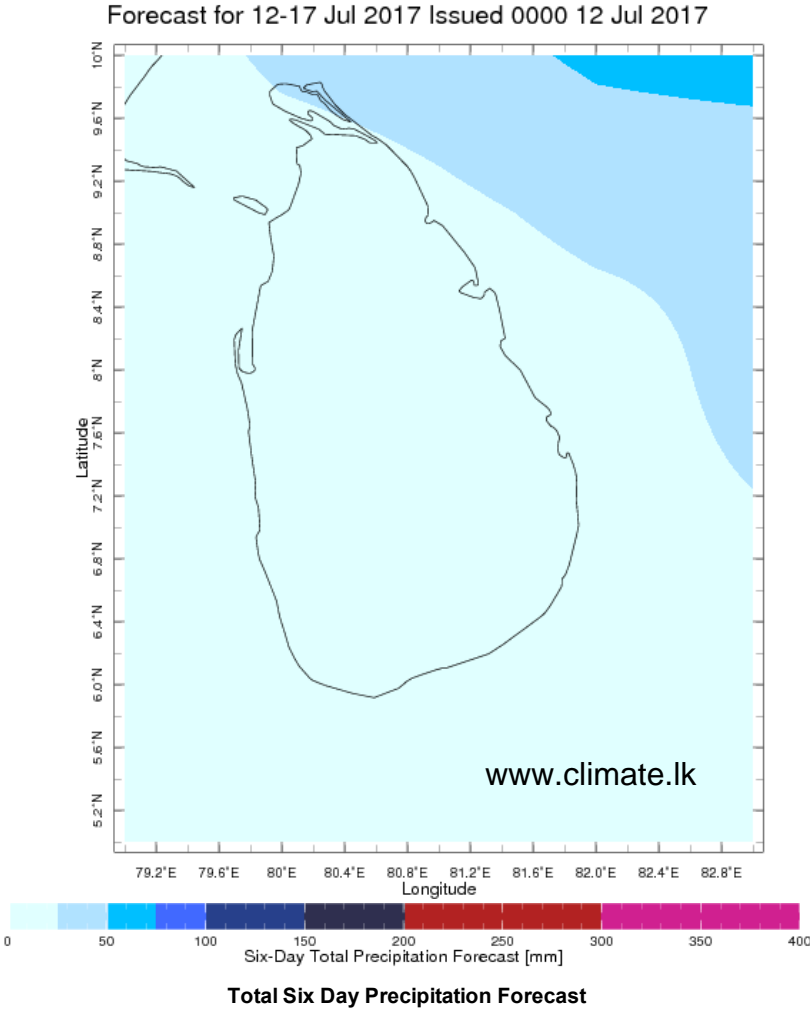
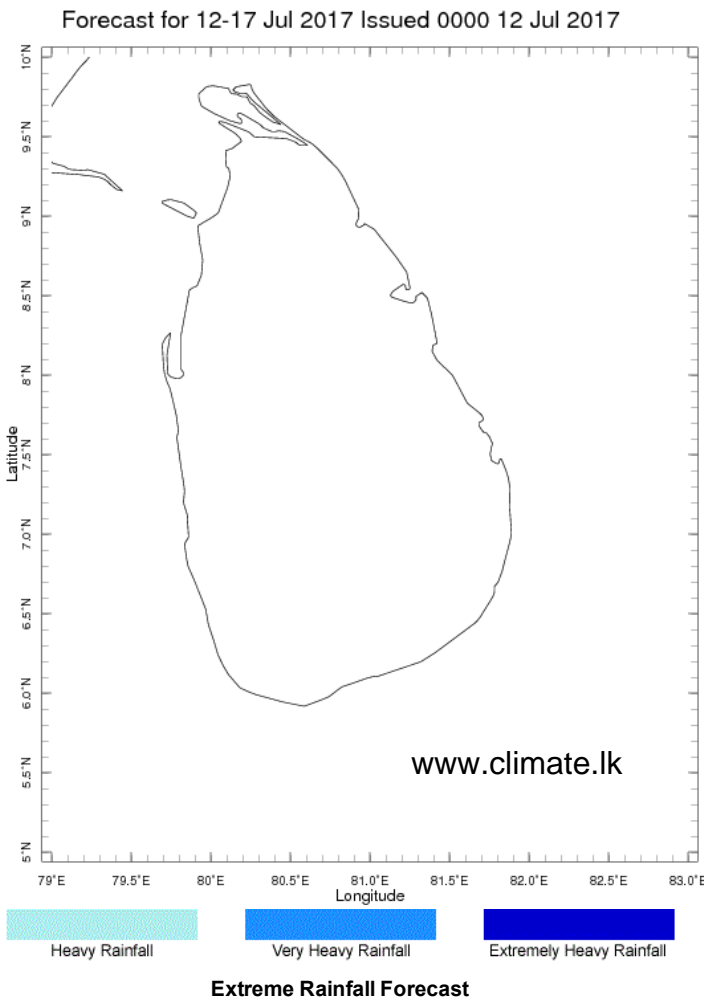


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 13-07-2017 valid for 03 UTC of 16-07-2017



Weekly Rainfall Forecast from IRI

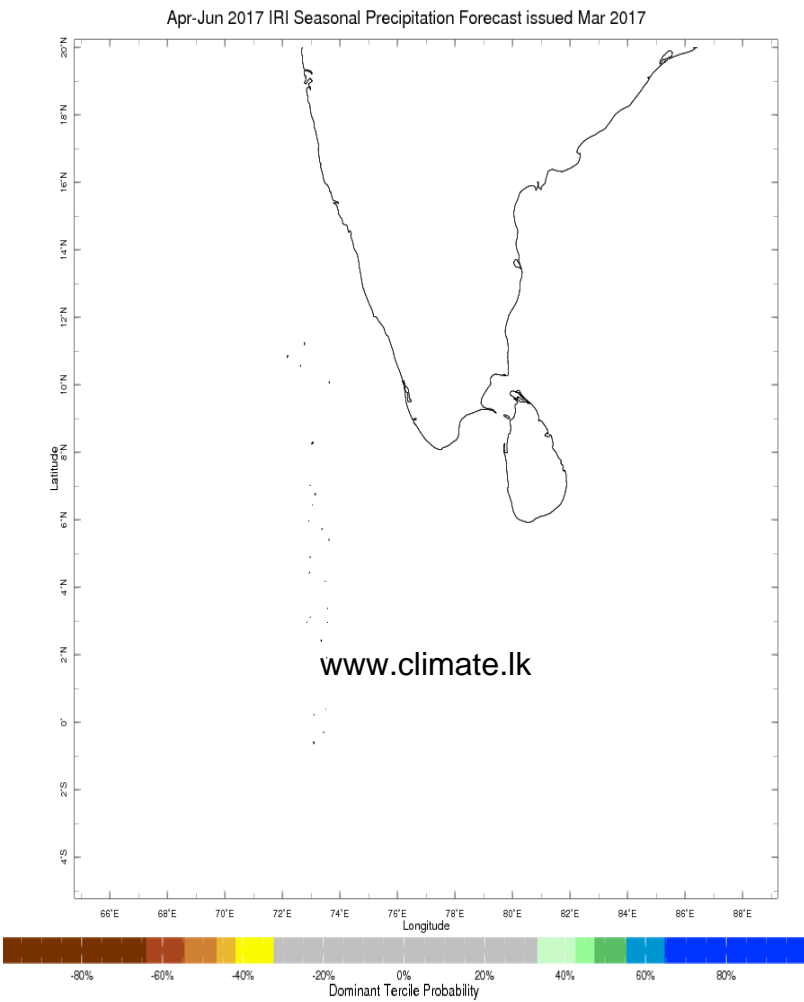
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.



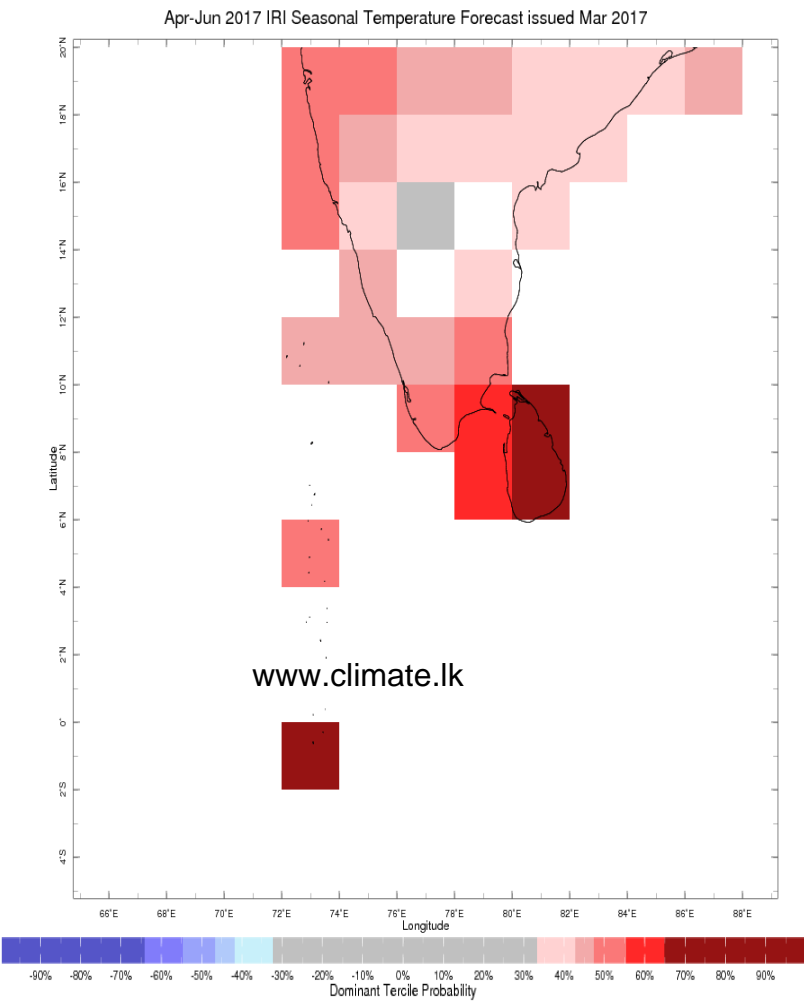


Seasonal Rainfall and Temperature Forecast

Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%).



Precipitation Forecast



Temperature Forecast

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Foundation for Environment, Climate & Technology

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