

**Experimental Climate Monitoring and Prediction**

by: Ruchira Lokuhetti, Prabodha Agalawatte, Himash Rashmika, Zeenas Yahiya,  
Lareef Zubair and Michael Bell<sup>1</sup> (FECT and IRI<sup>1</sup>)

**23 March 2017****Highlights**

- The NOAA NCEP model predicts up to 35 mm of total rainfall in Kandy district during 22<sup>nd</sup>-28<sup>th</sup>.
- Between 15-21 Mar: highest rainfall of 60 mm was recorded on the 15<sup>th</sup> in Gampaha district.
- From 12-18 Mar: minimum temperature of 15 °C was recorded from Nuwara Eliya district while many parts of the island recorded a maximum temperature between 30-35 °C.
- From 14-20 Mar: up to 11 km/h, northeasterly winds were experienced by the entire island.
- 0.5 °C above average sea surface temperature was observed in the north and eastern seas of Sri Lanka.

**Monitoring****Rainfall**

**Weekly Monitoring:** On March 15<sup>th</sup> Gampaha district received up to 60 mm of rainfall; Puttalam, Kurunegala and Colombo districts up to 50 mm; Kegalla, Ratnapura and Kalutara districts up to 30 mm; Kandy and Galle districts up to 20 mm; and many parts of the island up to 10 mm. On the 16<sup>th</sup> Badulla district received up to 30 mm of rainfall; and Puttalam, Gampaha, Kegalla, Colombo, Ratnapura, Galle, Matara, Hambantota, Nuwara Eliya and Monaragala districts up to 20 mm. On the 17<sup>th</sup> several regions of Kalutara, Ratnapura, Galle and Monaragala districts received up to 5 mm of rainfall. No significant rainfalls were recorded in any part of the island on the 18<sup>th</sup>. On the 19<sup>th</sup> several regions of Ratnapura, Galle, and Matara districts received up to 5 mm of rainfall. On the 20<sup>th</sup> Ratnapura district received up to 50 mm of rainfall; Mullaitivu, Vavuniya, Kalutara and Galle districts up to 30 mm; and Mannar and several areas of Puttalam and Anuradhapura districts received up to 20 mm. No significant rainfalls were recorded in any part of the island on the 21<sup>st</sup>.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall up to 75 mm for Gampaha, Colombo and Ratnapura districts; up to 50 mm for Vavuniya, Puttalam, Kurunegala, Kegalla, Kalutara, Badulla, Galle and Matara districts; and up to 25 mm for Mannar, Anuradhapura, Kandy, Matale, Nuwara Eliya, Monaragala and Hambantota Colombo districts. It shows above average rainfall of 25-50 mm for Gampaha and Colombo districts; 10-25 mm for Vavuniya, Mannar and Ratnapura districts. Below average rainfall of 10-25 mm Trincomalee, Batticaloa, Matale, Nuwara Eliya, Badulla and Matara districts.

**Monthly Monitoring:** During February - above average rainfall conditions were experienced in Jaffna, Badulla, Hambantota and several regions of Kilinochchi, Vavuniya, and Anuradhapura districts. These regions received up to 90 mm above average rainfall. Batticaloa district received below average rainfall up to 150 mm; and many parts of the island received up to 120 mm below average rainfall. Monthly average rainfall for Anuradhapura, Vavuniya, Kandy, Nuwara Eliya, Badulla, Monaragala and Hambantota districts amounted to 150 mm/month; and 90 mm/month for many parts of the island. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Vavuniya, Anuradhapura, Matale, Kurunegala, Nuwara Eliya, Badulla, Monaragala and Hambantota districts; up to ~75 mm in Kandy, Ratnapura, Ampara, Polonnaruwa, Kalutara and Matara districts; and up to ~50 mm Puttalam, Gampaha, Colombo, Kegalla, Galle and Batticaloa districts.

**Ocean State** (Text Courtesy IRI)**Pacific sea state: March 16, 2017**

During mid-March 2017 the tropical Pacific SST anomaly was mainly in the ENSO-neutral range, but warmer than average SST was observed in the eastern one-third of the basin. Although most of the atmospheric variables across the tropical Pacific are now approximately ENSO-neutral, the pattern of cloudiness, rainfall and winds in the central and western tropical Pacific continues to suggest a borderline La Niña condition. The collection of ENSO prediction models indicates SSTs are likely to remain neutral through spring 2017, with an increasing chance for El Niño development during summer or fall.

## **Indian Ocean State**

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

## **Predictions**

### **Rainfall**

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

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

From 22<sup>nd</sup> – 28<sup>th</sup> Mar: Total rainfall between 5-15 mm in Gampaha, Kurunegala, Anuradhapura, Vavuniya, Mullaitivu, Polonnaruwa, Ampara, Monaragala and Ratnapura districts; total rainfall between 15-25 mm in Trincomalee, Badulla, Nuwara Eliya, Kegalla and Matale districts; total rainfall between 25-35mm in Kandy district.

From 29<sup>th</sup> Mar – 4<sup>th</sup> April: Total rainfall between 5-15mm in Gampaha, Puttalam and Ratnapura districts and North province; total rainfall between 15-25mm in Anuradhapura, Polonnaruwa, Kurunegala, Kegalla, Nuwara Eliya, Monaragala and Ampara districts; total rainfall between 25-35mm in Matale, Kandy and Badulla districts.

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

24<sup>th</sup> Mar: Up to 3 mm of Rainfall in Galle district.

25<sup>th</sup> Mar: Up to 3 mm of Rainfall in Galle district.

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

April to June: the total 3-month precipitation shall be climatological for the whole country. The 3-month temperature has more than 60-70% likelihood in the western coastal regions and 70-80% likelihood in the rest of the island of being in the above-normal tercile.

### **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)



[@climatek](https://twitter.com/climatek)

## Weekly Hydro- Meteorological Report for Sri Lanka

### Inside This Issue

#### 1. Monitoring

- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

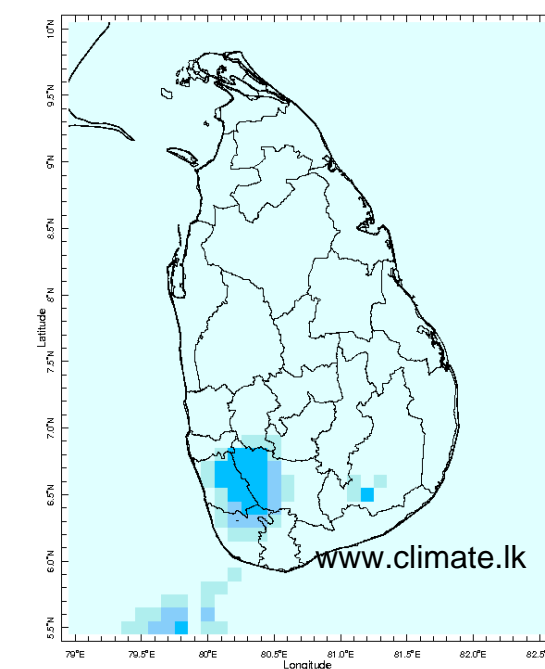
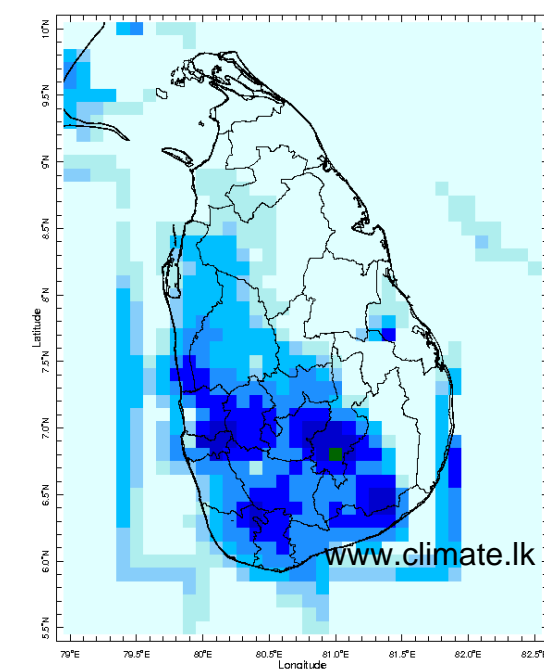
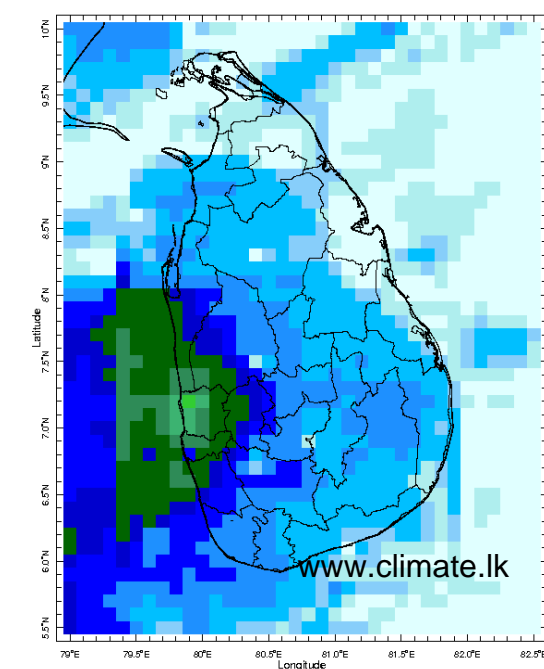
#### 2. Predictions

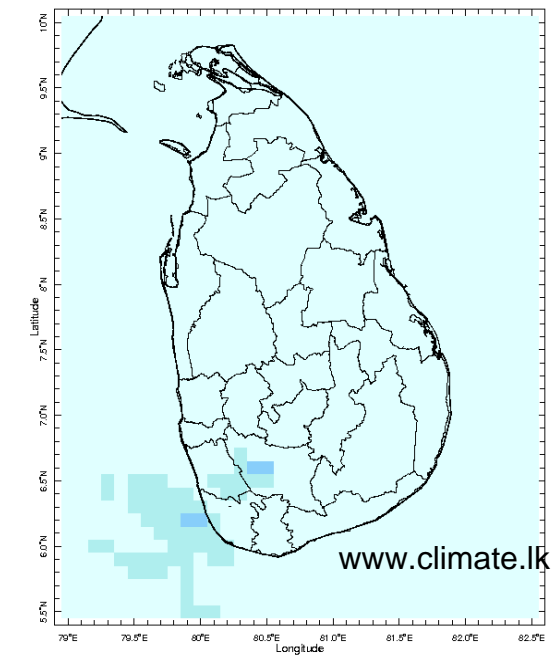
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

### MONITORING

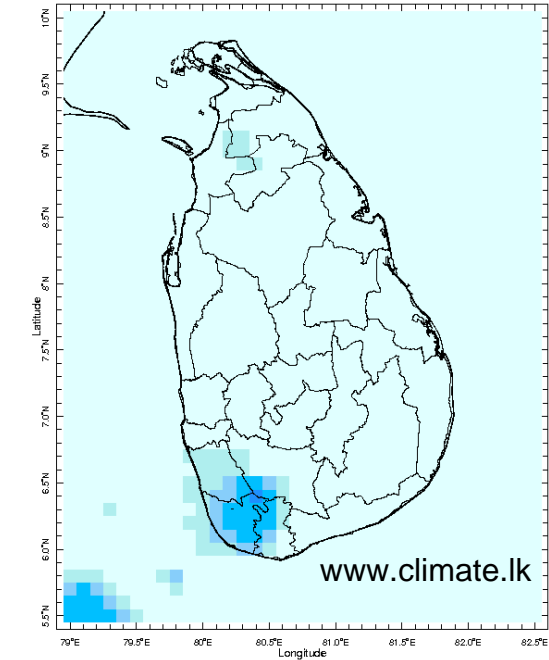
#### Daily Rainfall Monitoring

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

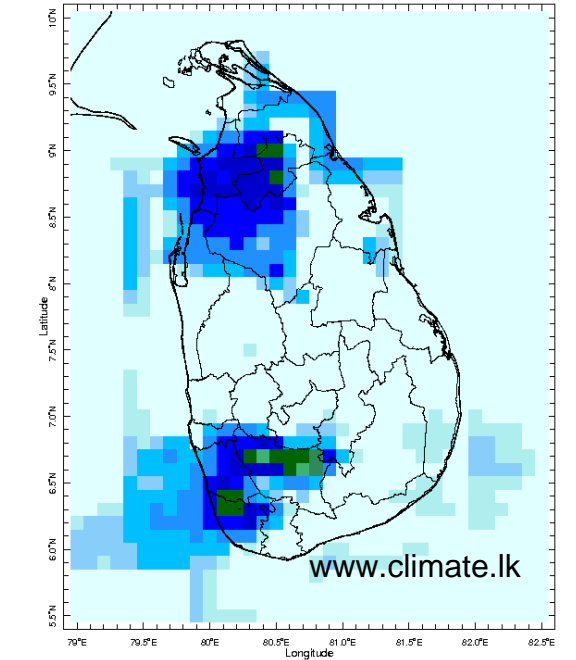




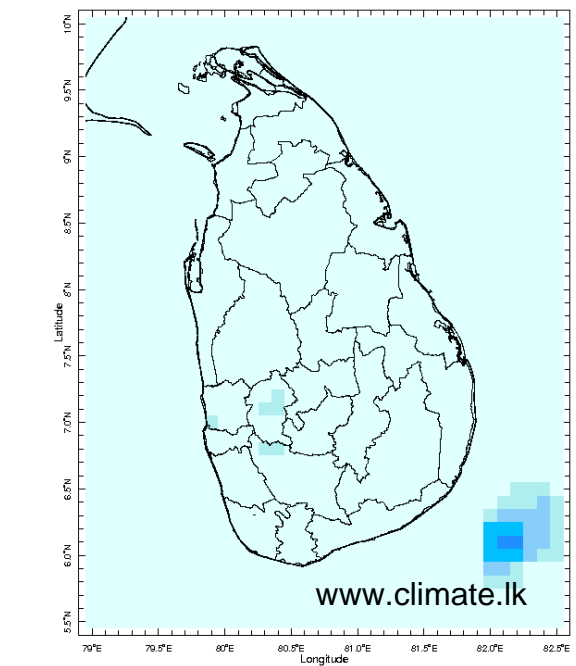
18 Mar 2017



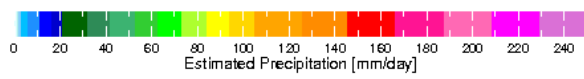
19 Mar 2017



20 Mar 2017

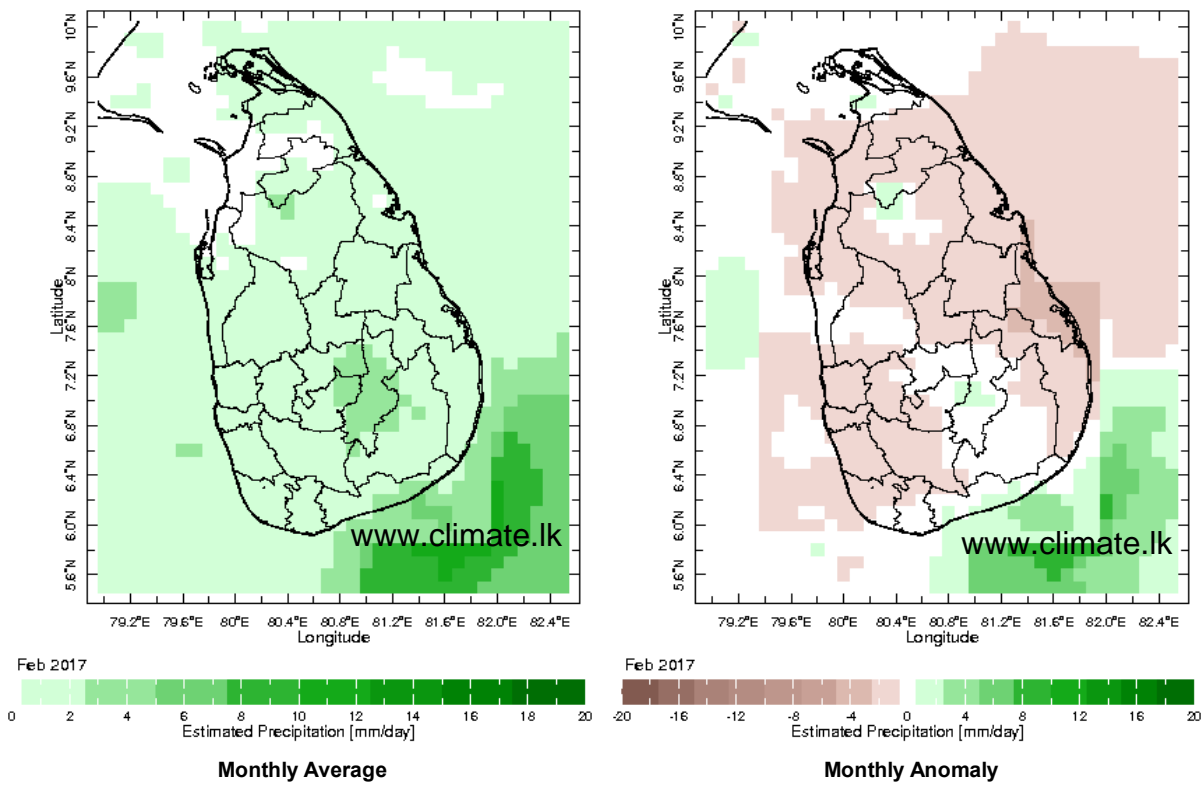


21 Mar 2017

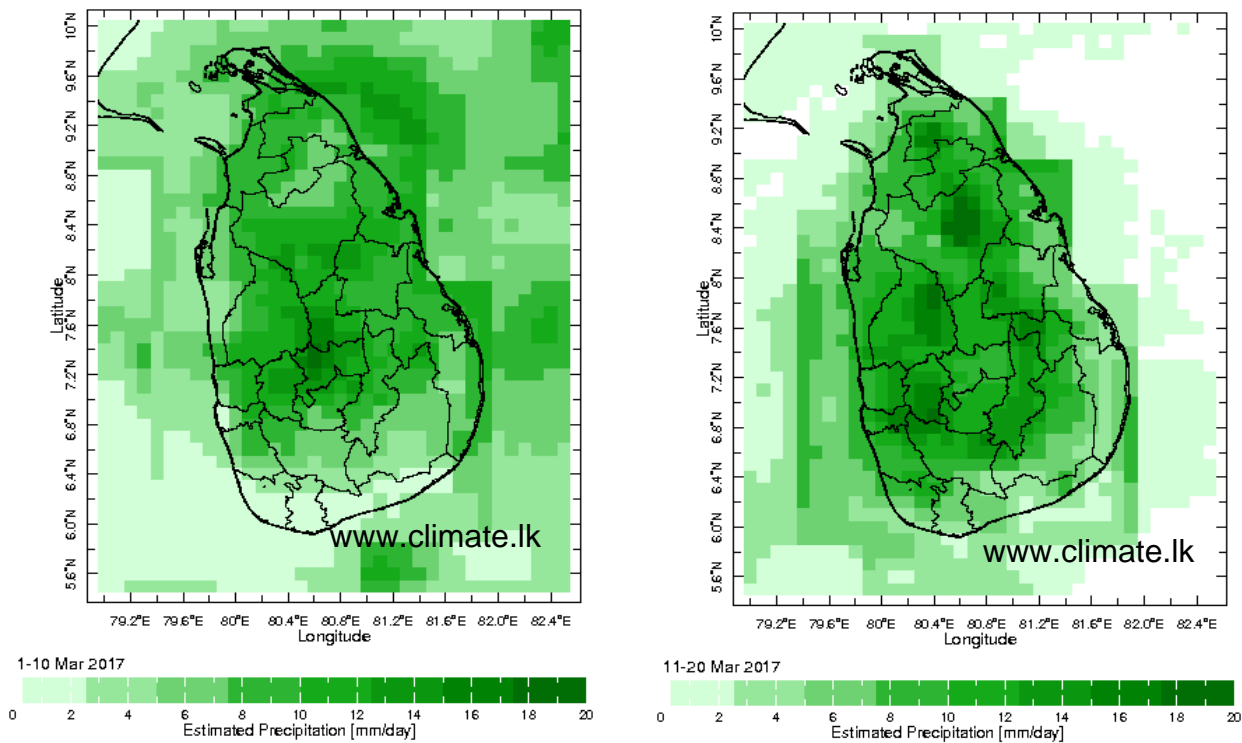


Monthly Rainfall Monitoring

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

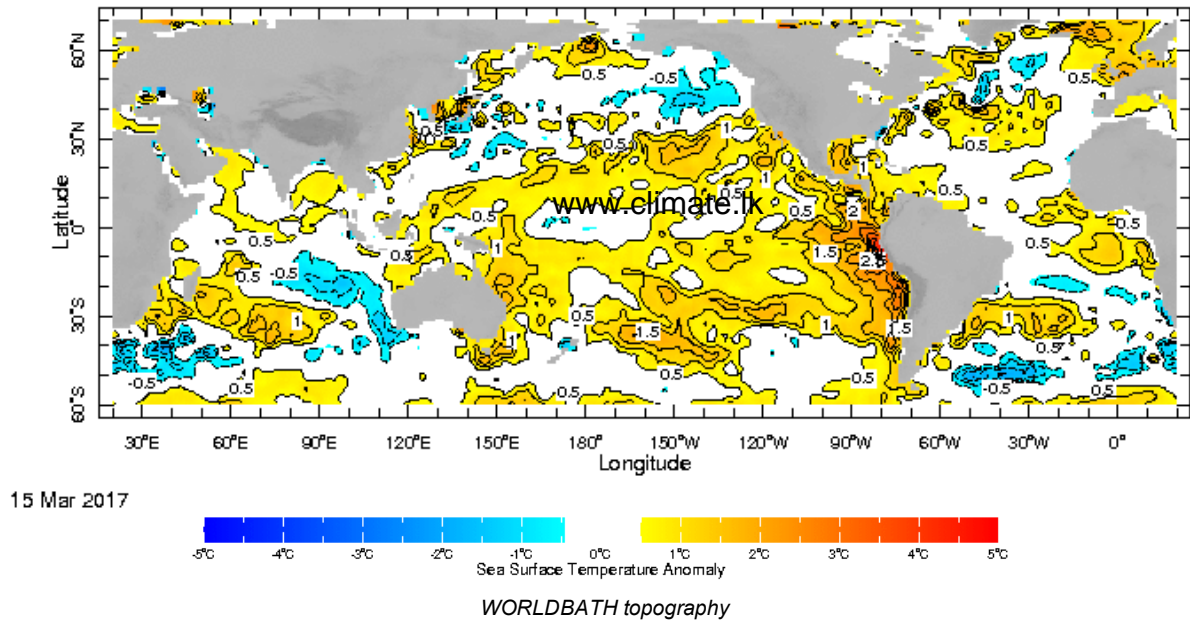


**Dekadal (10 Day) Satellite Derived Rainfall Estimates**

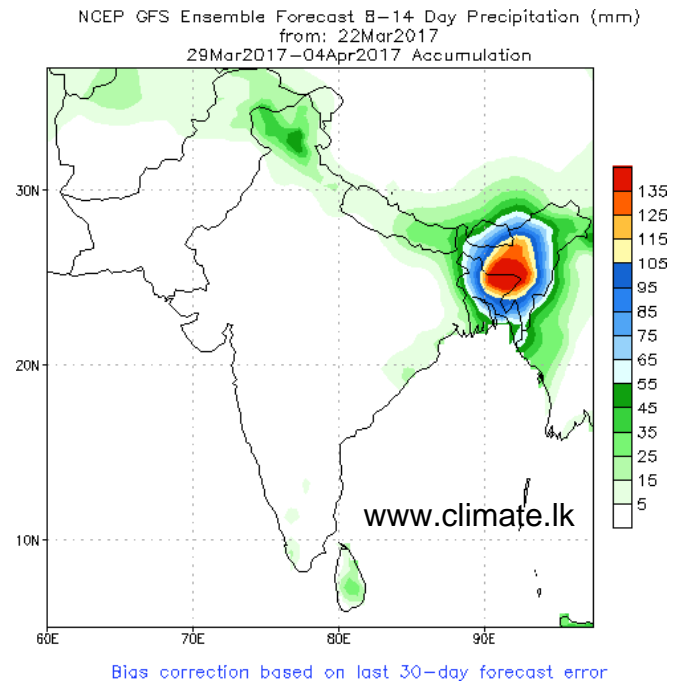
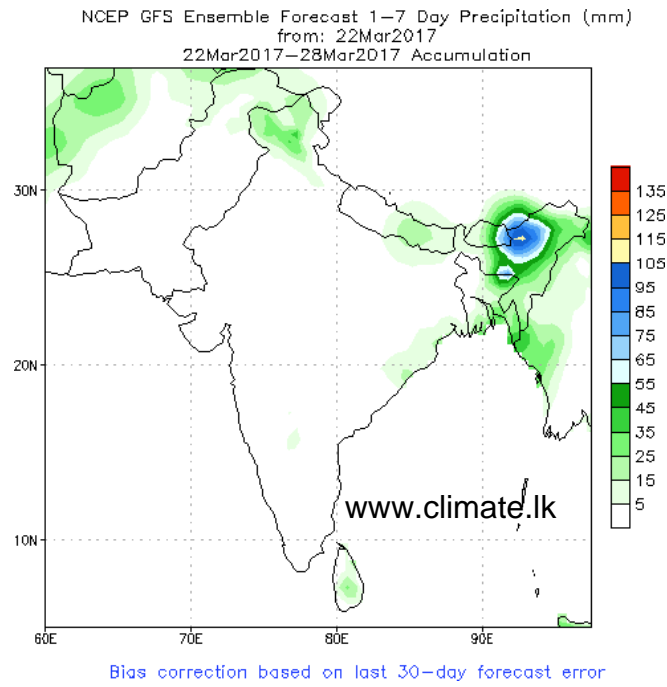


**Weekly Average SST Anomalies**

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

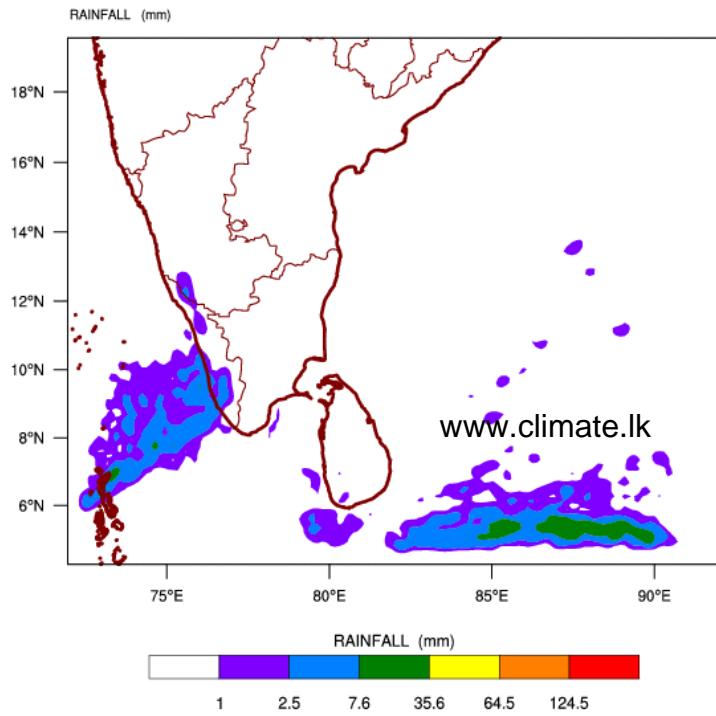


## NCEP GFS 1- 14 Day prediction

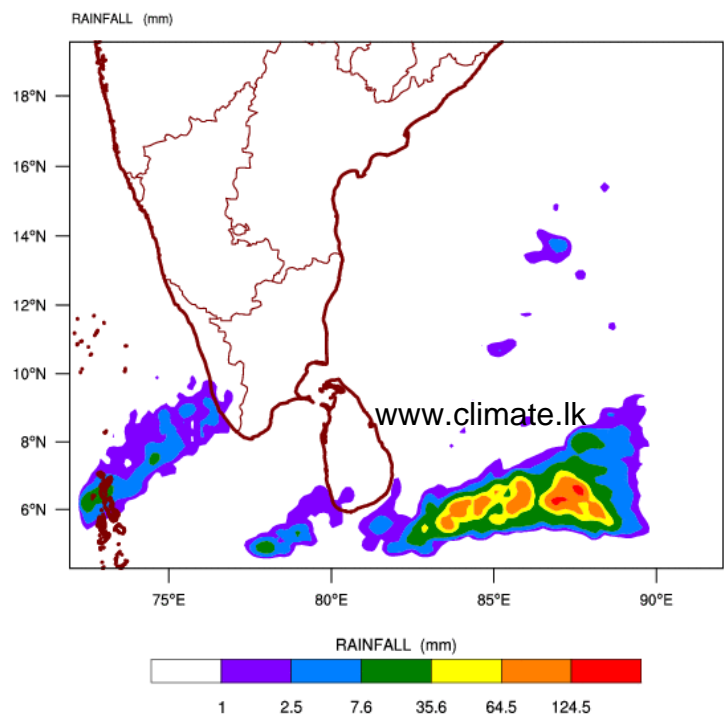


## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 22-03-2017 valid for 03 UTC of 24-03-2017

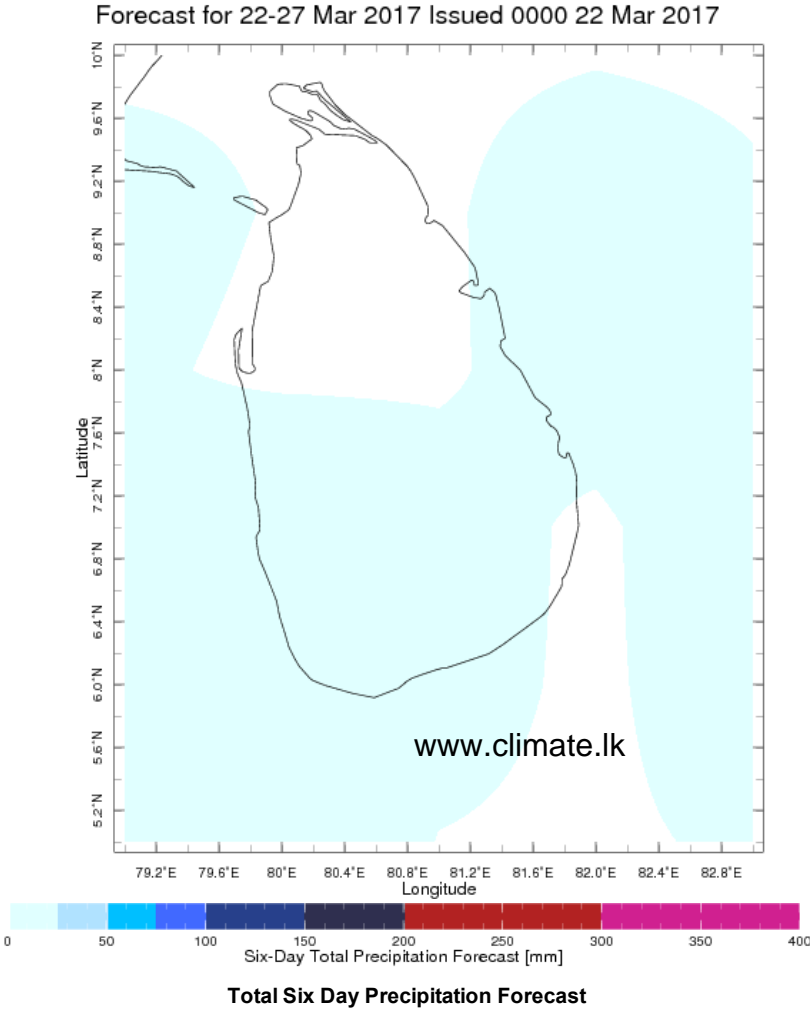
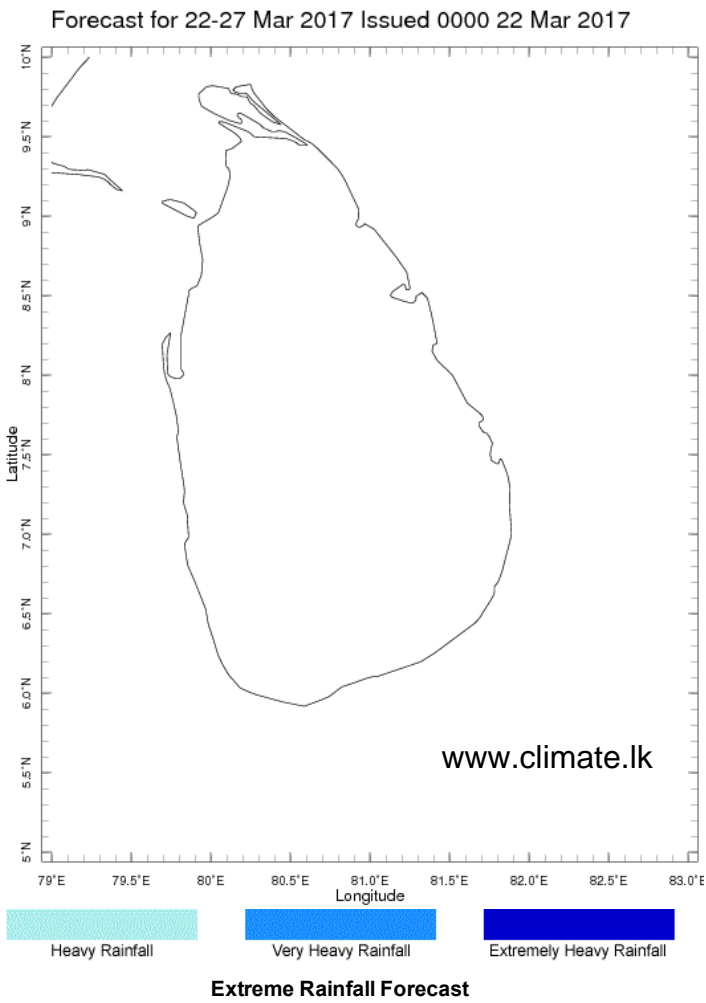


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 22-03-2017 valid for 03 UTC of 25-03-2017



Weekly Rainfall Forecast from IRI

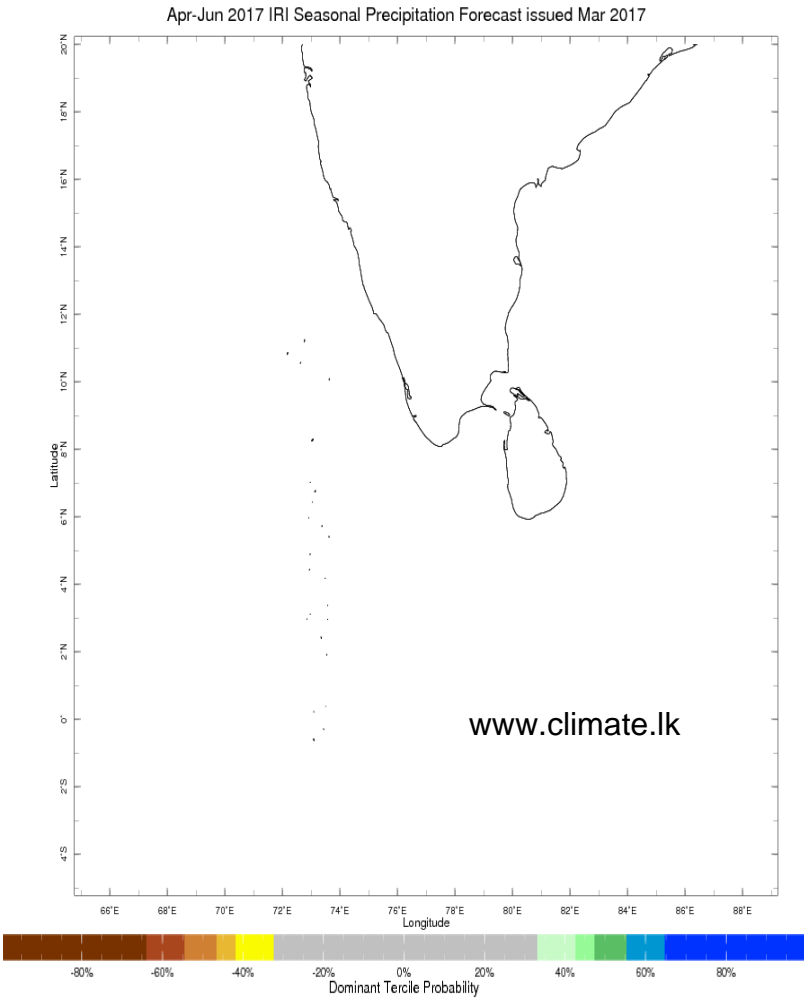
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.



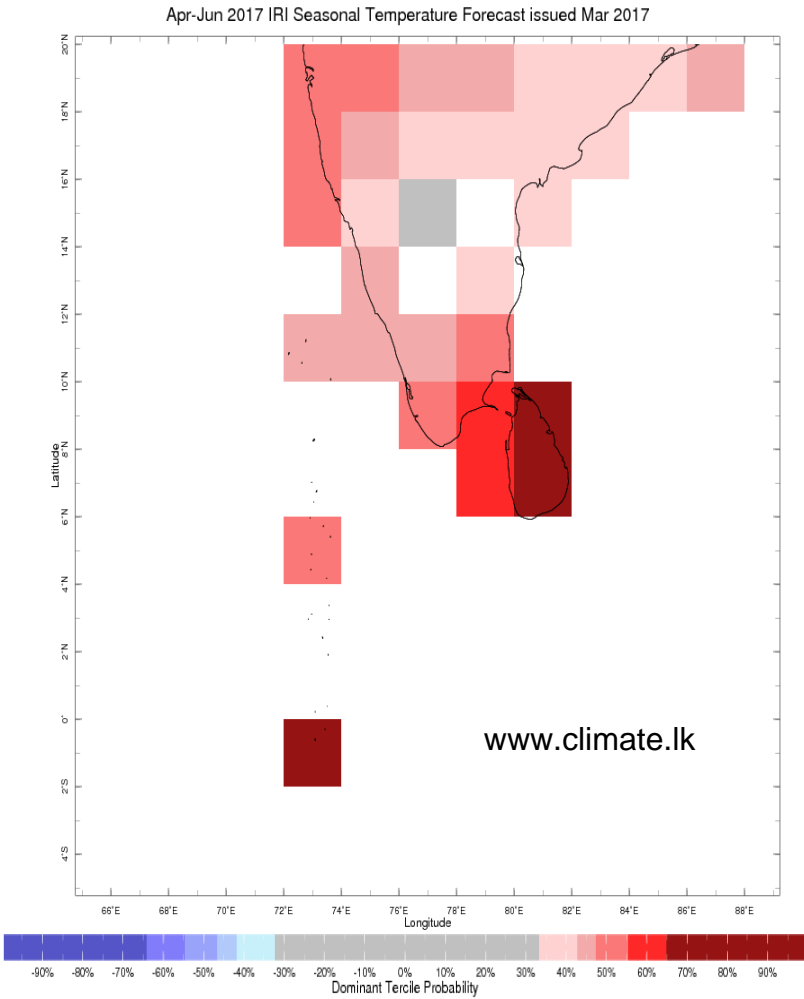


Seasonal Rainfall and Temperature Forecast

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

Subscribe to our Monthly Maldives Newsletter

Subscribe

[Follow @climate.lk](#)

**Contact Us**

email: [fectsl@gmail.com](mailto:fectsl@gmail.com)

phone: (+94) 81 2376746

blog: [www.fectsl.blogspot.com](http://www.fectsl.blogspot.com)

Foundation for Environment, Climate & Technology

C/O Mahaweli Authority of Sri Lanka,

Digana Village,

Rajawella,

SRI LANKA