

## Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Chalani Malge, Janan Visvanathan,  
Lareef Zubair and Michael Bell<sup>1</sup> (FECT and IRI<sup>1</sup>)

28 September 2017

### Highlights

- The IRI weekly rainfall forecast predicts up to 50 mm of total rainfall in Kalutara and Galle districts during 27<sup>th</sup> Sep - 2<sup>nd</sup> Oct.
- Between 20 - 26 Sep: Rainfall up to 50 mm was recorded in Anuradhapura and Trincomalee districts on the 23<sup>rd</sup>.
- From 17 - 23 Sep: minimum temperature of 15 °C was recorded from Nuwara Eliya district while Ampara district recorded a maximum temperature between 35-40 °C.
- From 19 - 25 Sep: up to 54 km/h, northwesterly winds were experienced by the southern half of the country and up to 36 km/h in the northern half.
- 0.5 °C above average sea surface temperature was observed in the northern and eastern seas around Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** On September 20<sup>th</sup>, coastal regions of Colombo, Galle and Matara districts received up to 30 mm of rainfall; and several regions of Kegalla, Gampaha, Nuwara Eliya and Ratnapura districts up to 10 mm. On the 21<sup>st</sup> Kurunegala, Gampaha, Kandy, Nuwara Eliya, Badulla, Monaragala, Colombo, Kalutara, Galle and Matara districts received up to 10 mm of rainfall. On the 22<sup>nd</sup> Trincomalee district received up to 10 mm of rainfall. On the 23<sup>rd</sup> Anuradhapura and Trincomalee districts received up to 50 mm of rainfall; Mullaitivu, and Vavuniya districts received up to 20 mm of rainfall; and many northern parts of the island up to 10 mm. On the 25<sup>th</sup> Kalutara, Galle, Matara and Ratnapura districts up to 30 mm; and many parts of the island up to 10 mm. On the 26<sup>th</sup> Kalutara and Galle districts received up to 40 mm of rainfall; Jaffna, Kilinochchi, Gampaha, Colombo and Ratnapura districts up to 20 mm; and many parts of the island up to 10 mm.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall of 25-50 mm in Anuradhapura, Trincomalee, Gampaha, Kalutara, Ratnapura, Galle and Matara districts; and 10-25 mm in many parts of the island. It shows above average rainfall up to 25-50 mm in the northern regions of Anuradhapura district. It also shows below average rainfall up to and 25-50 mm in Colombo, Gampaha, Badulla and Batticaloa districts; and up to 10-25 mm in many central and southern parts of the island.

**Monthly Monitoring:** During August - below average rainfall conditions were experienced in the southern and western regions of the island and above average rainfall in northern and eastern regions. Gampaha, Colombo, Kalutara, Galle, Matara, Kegalla, Nuwara Eliya and Hambantota districts received up to 150 mm below average rainfall. Batticaloa, Ampara and Monaragala districts received up to 180 mm of above average rainfall; and Mannar, Anuradhapura, Polonnaruwa, Trincomalee, Ampara and northern regions of Puttalam and Badulla districts up to 150 mm. The CPC Unified Precipitation Analysis tool shows ~300 mm of total rainfall in Batticaloa, Polonnaruwa, Monaragala, Badulla, Ratnapura, Anuradhapura and Ampara districts; up to ~200 mm in Trincomalee, Puttalam, Matale, Kandy, Kalutara and Galle districts; up to 100 mm in Jaffna, Kilinochchi, Mullaitivu, Kurunegala, Matara and Hambantota districts; and up to 50 mm in many parts of the island.

#### Ocean State (Text Courtesy IRI)

##### **Pacific sea state: September 19, 2017**

In mid-September 2017, the tropical Pacific remained in an ENSO-neutral state, although SSTs in the east-central tropical Pacific have cooled to the threshold for La Niña while the atmosphere continues to maintain largely ENSO-neutral patterns. The collection of latest ENSO prediction models indicates coolish ENSO-neutral or weak La Niña as two possible scenarios during Northern Hemisphere fall and winter. The official CPC/IRI outlook slightly favors La Niña development, and carries a La Niña watch.

## **Indian Ocean State**

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

## **Predictions**

### **Rainfall**

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

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

From 27<sup>th</sup> Sep – 03<sup>rd</sup> Oct: Total rainfall between 35-45 mm in Colombo, Ratnapura and Galle districts; between 25-35 mm Gampaha and Kegalle districts; between 15-25 mm Puttalam, Kurunegala and Matara districts.

From 04<sup>th</sup> – 10<sup>th</sup> Oct: Total rainfall between 45-55 mm in Colombo, Ratnapura, Galle and Matara districts; and between 35-45 mm in Gampaha, Kegalla and Matara district; between 25-35 mm in Puttalam, Kurunegala, Kandy and Nuwara Eliya; between 15-25 mm in Anuradhapura, Matale, Badulla, Monaragala, Hambanthota, Jaffna, Kilinochchi and Mannar; Up to 15 mm rainfall in Vavuniya, Polonnaruwa, Trincomalee, Batticaloa and Ampara.

##### **IMD WRF Forecast:**

29<sup>th</sup> Sep: Up to 36 mm of rainfall in Mannar, Puttalam, Gampaha, Colombo, Kalutara and Galle districts; up to 8 mm in Matara, Hambanthota, Ratanapura, Kegalla, Kurunegala, Anuradhapura, Vavuniya, Mulativu and Trincomalee districts; and up to 3 mm rainfall in Ampara, Batticaloa, Polonnaruwa, Matale and Monaragala districts.

30<sup>th</sup> Sep: Up to 36 mm of rainfall in Mannar, Vavuniya, Anuradhapura Puttalam, Gampaha, Colombo, Kalutara and Galle districts; up to 8 mm in Matara, Hambanthota, Ratanapura, Kegalla, Kurunegala, Mulativu and Trincomalee districts; and up to 3 mm rainfall in Ampara, Batticaloa, Polonnaruwa, Matale and Monaragala districts.

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

27<sup>th</sup> Sep- 2<sup>nd</sup> Oct: Total rainfall up to 50 mm in Kalutara and Galle districts and up to 25 mm rest of the island.

### **MJO based OLR predictions**

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

MJO shall not have a significant impact on 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)



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

## 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

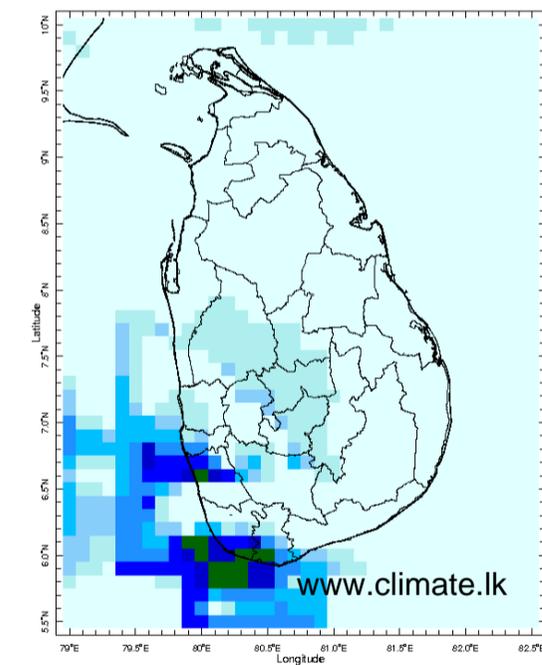
#### 2. Predictions

- 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

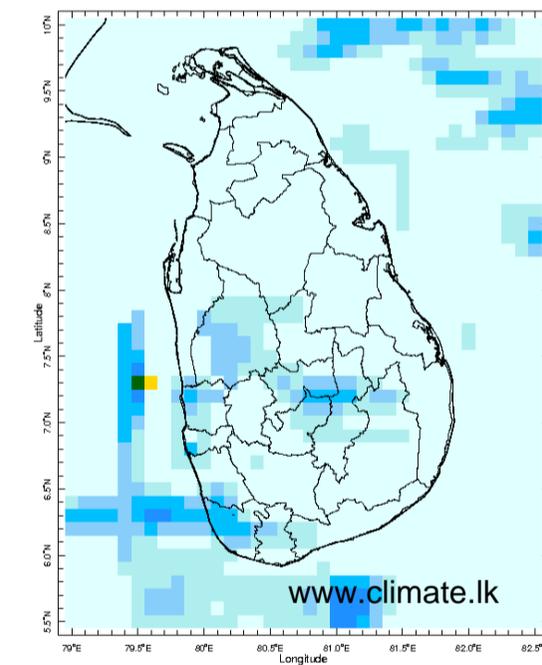
## MONITORING

### Daily Rainfall Monitoring

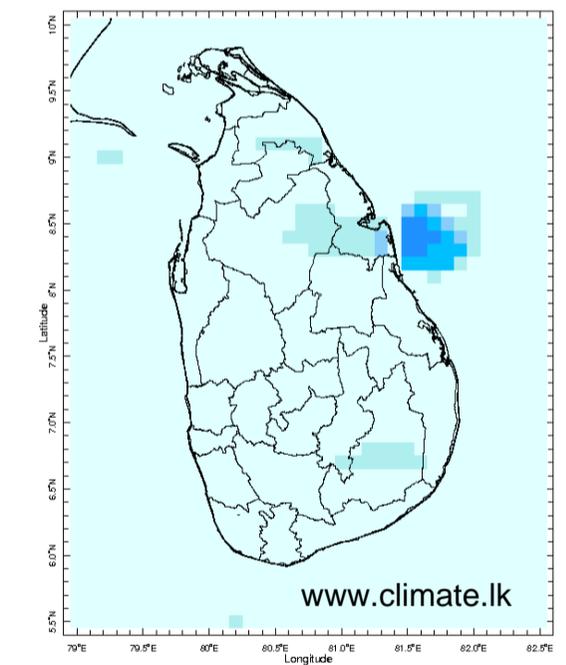
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



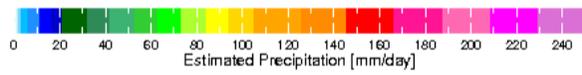
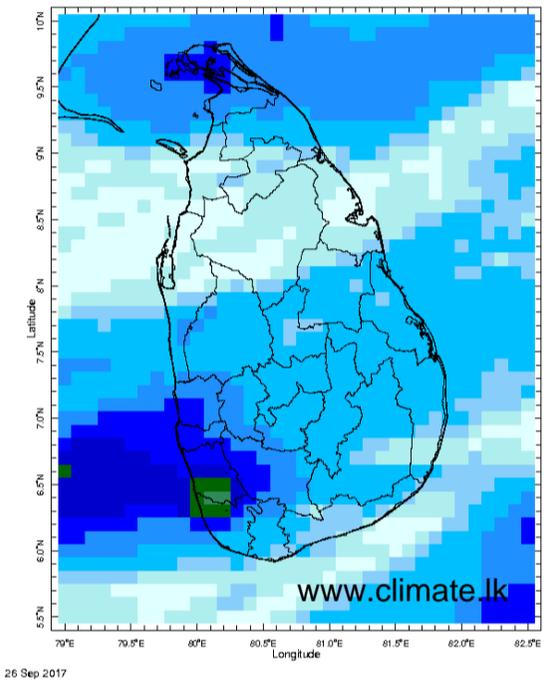
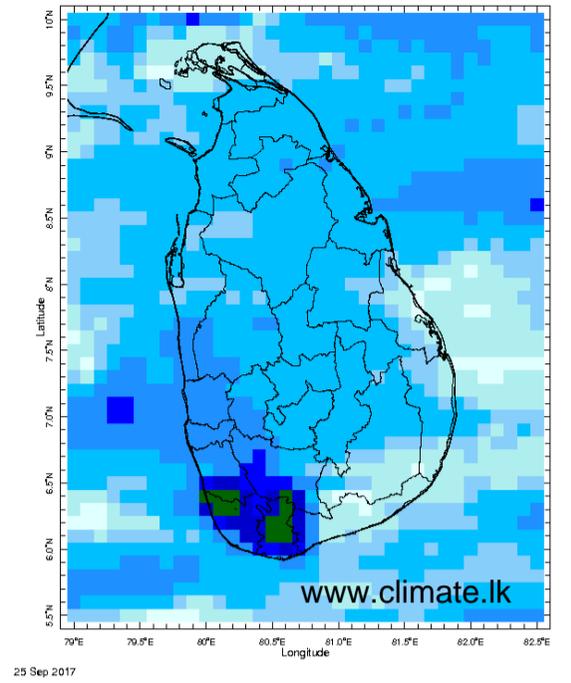
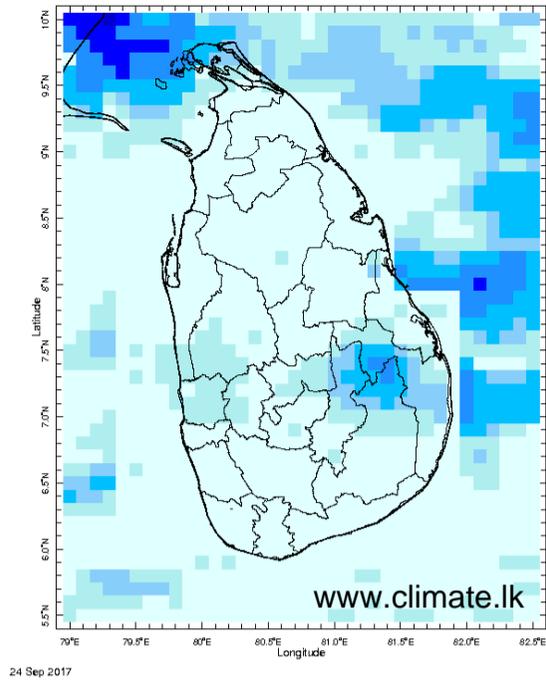
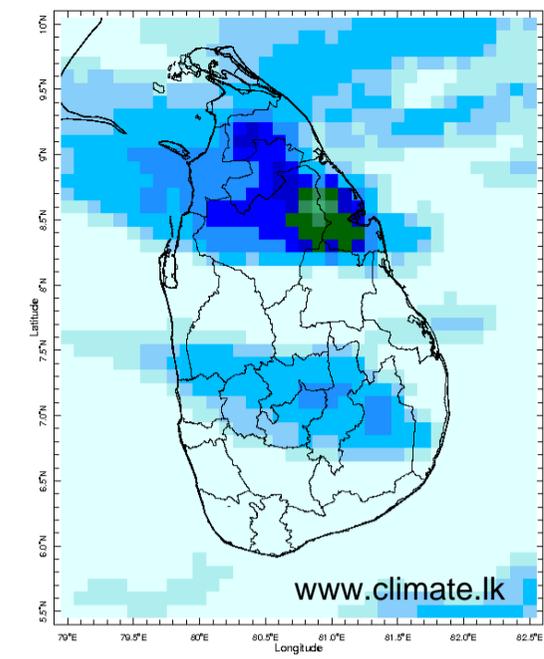
20 Sep 2017



21 Sep 2017

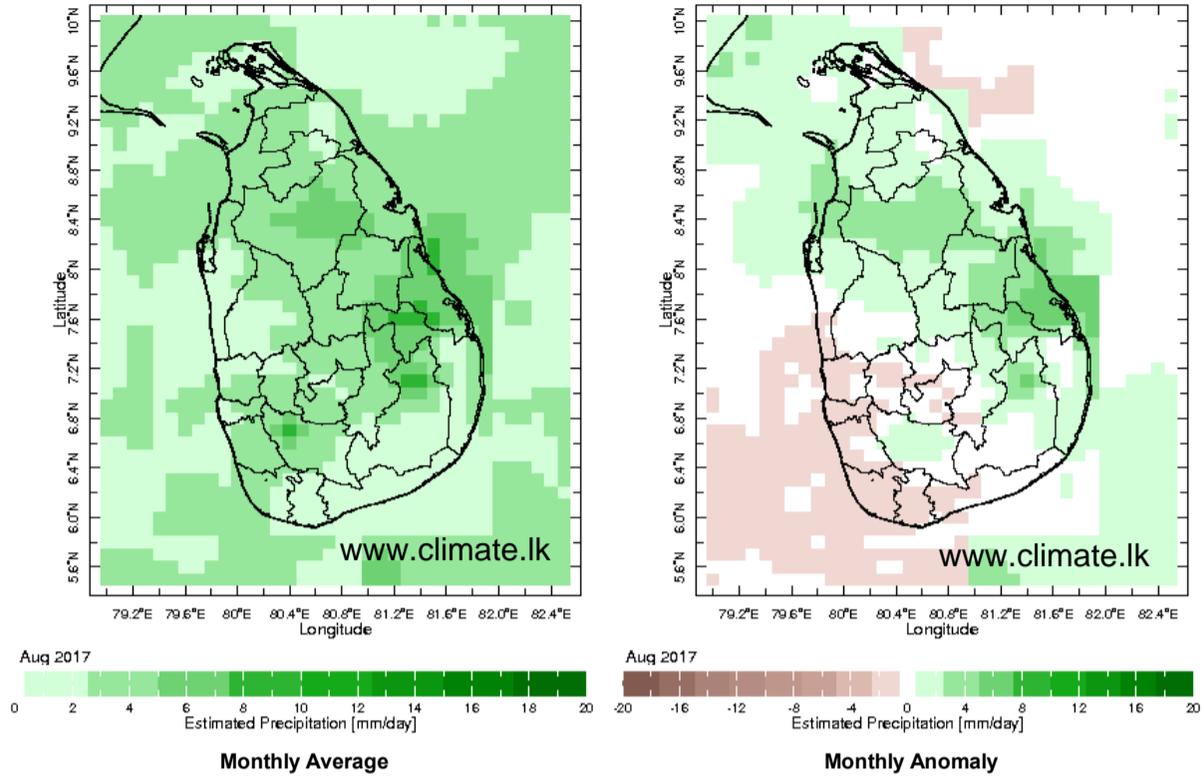


22 Sep 2017

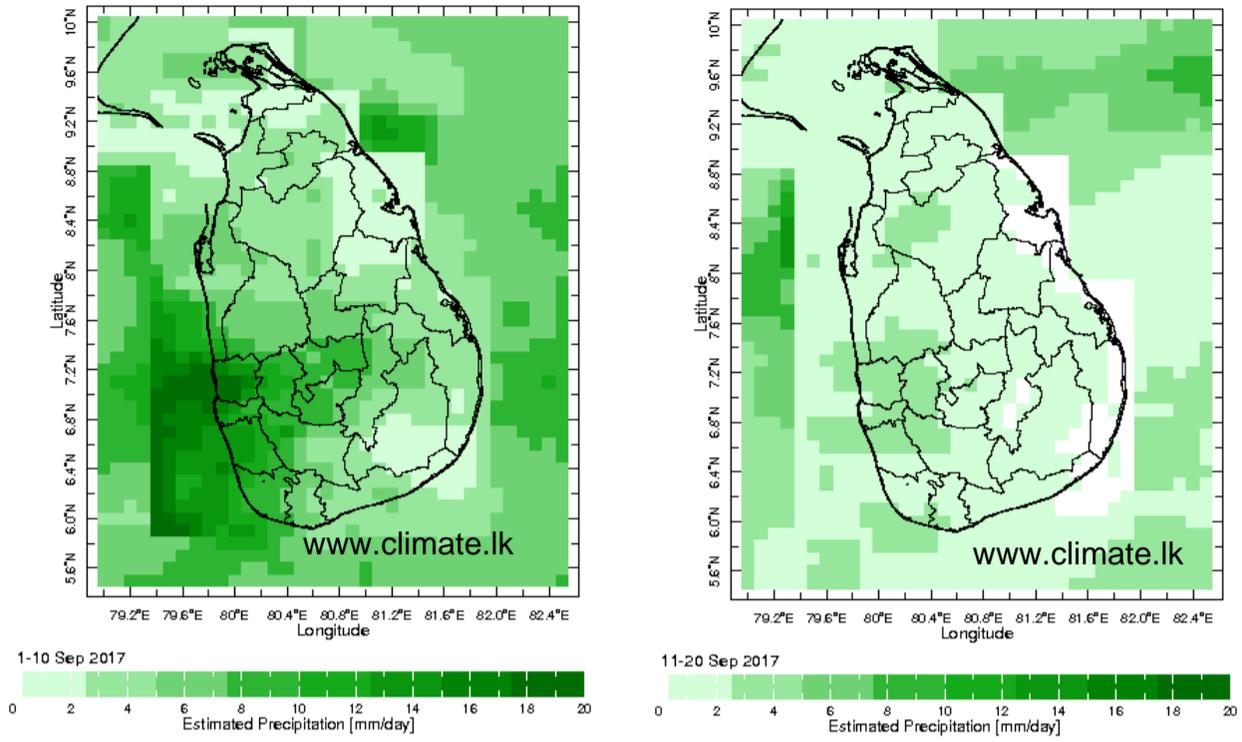


## Monthly Rainfall Monitoring

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

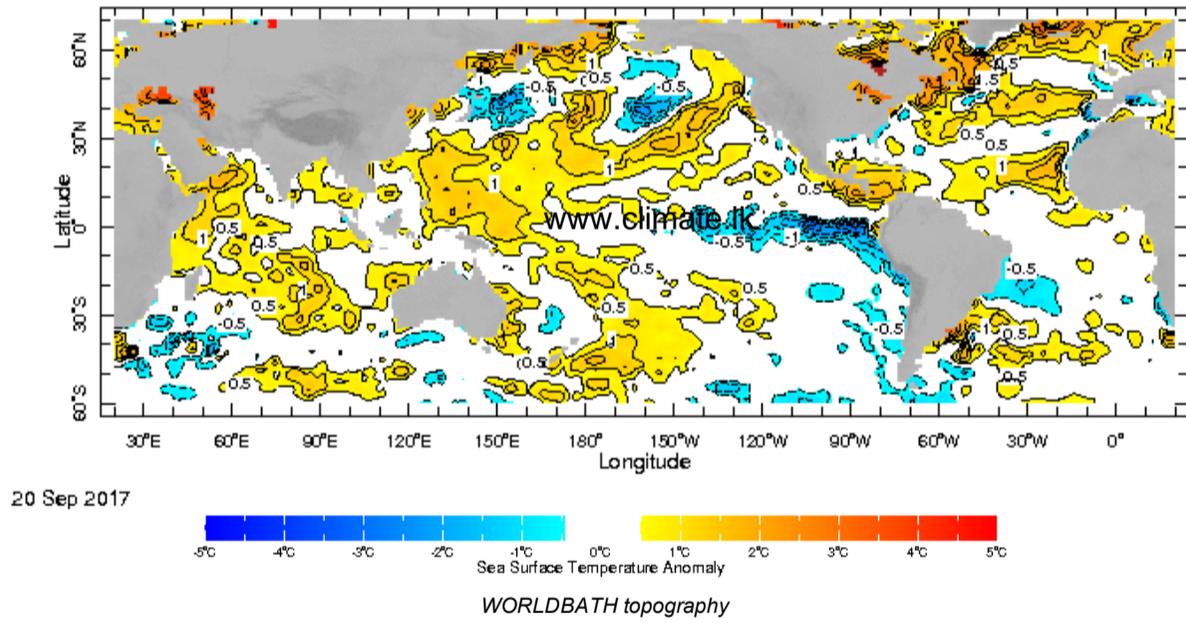


## Dekadal (10 Day) Satellite Derived Rainfall Estimates

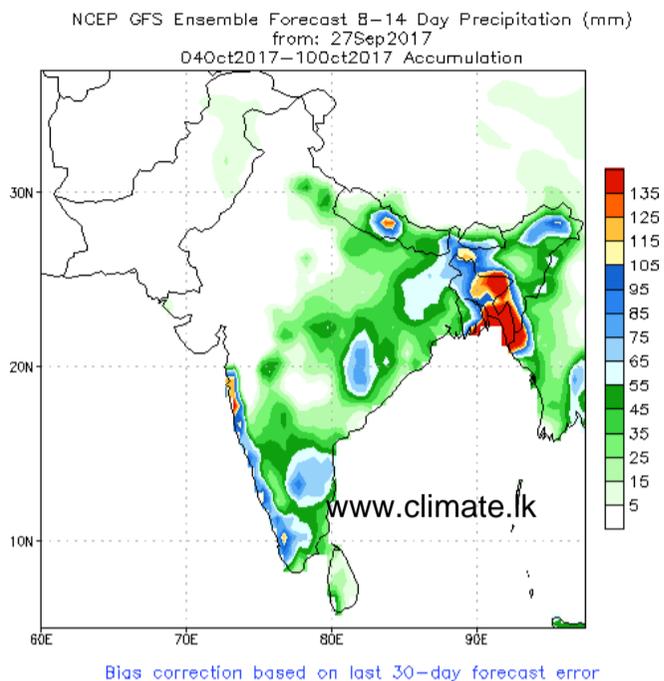
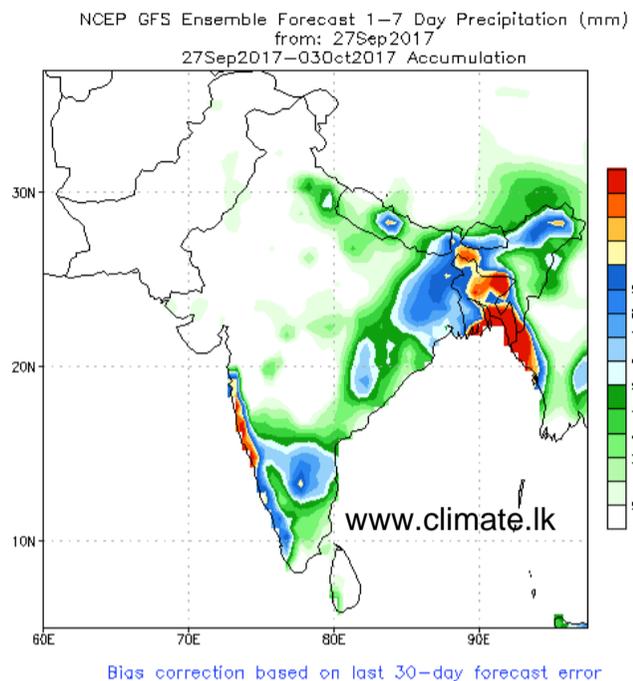


## Weekly Average SST Anomalies

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

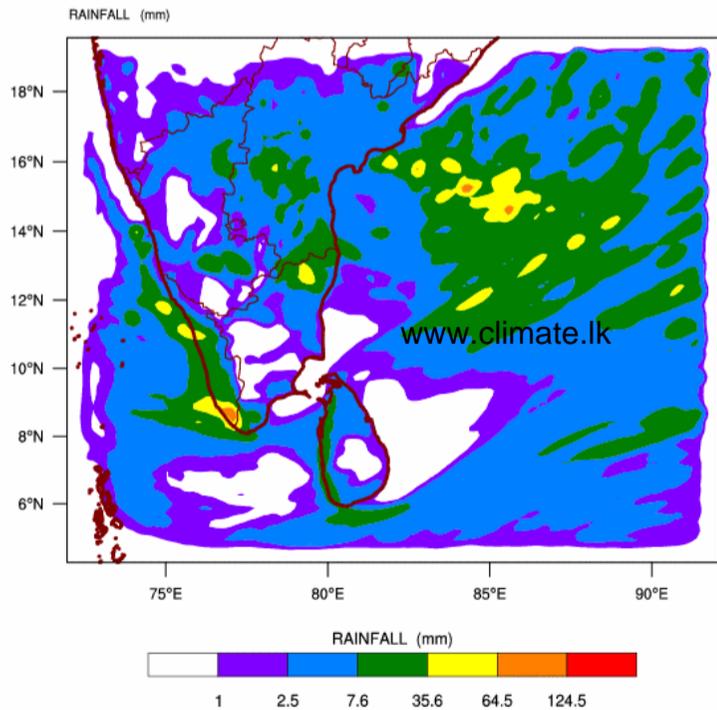


**NCEP GFS 1- 14 Day prediction**

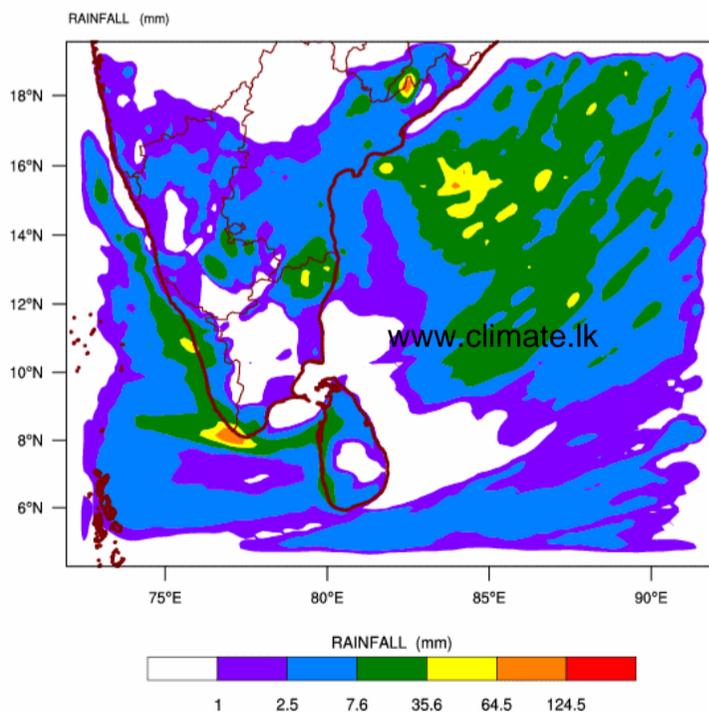


**WRF Model Forecast (from IMD Chennai)**

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-09-2017 valid for 03 UTC of 29-09-2017



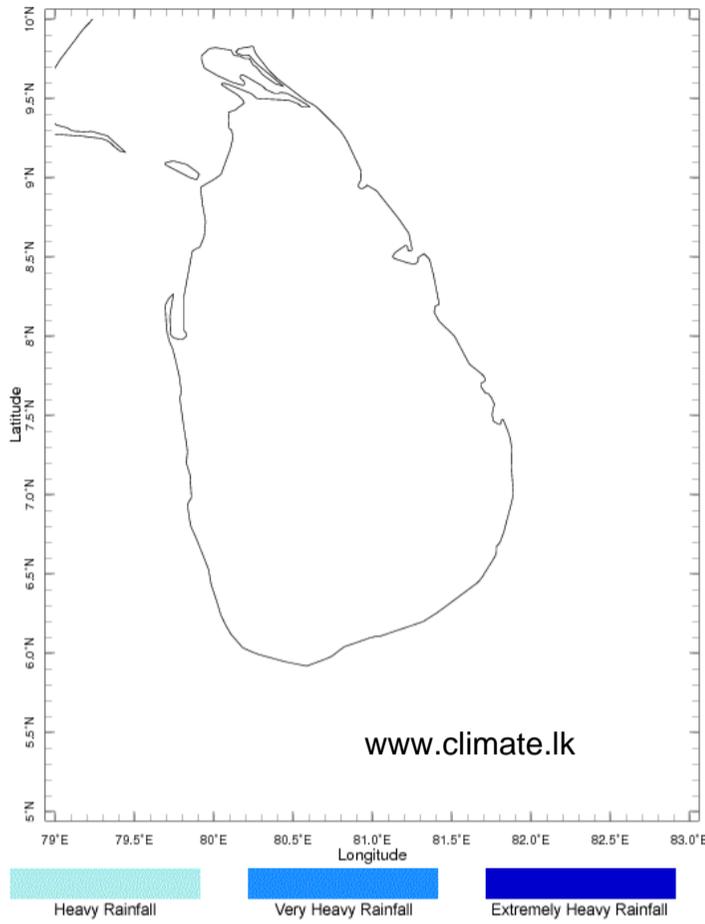
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-09-2017 valid for 03 UTC of 30-09-2017



## Weekly Rainfall Forecast from IRI

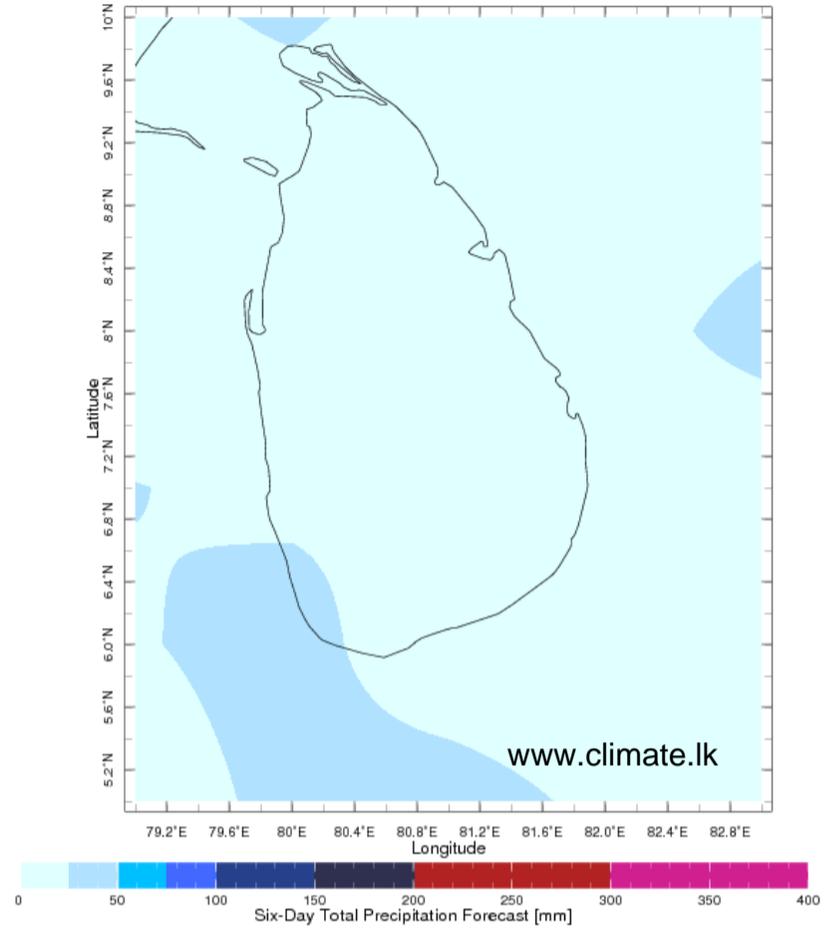
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 27 Sep 2017 - 2 Oct 2017 Issued 0000 27 Sep 2017



Extreme Rainfall Forecast

Forecast for 27 Sep 2017 - 2 Oct 2017 Issued 0000 27 Sep 2017



Total Six Day Precipitation Forecast

Subscribe to our Monthly Maldives Newsletter

email address

Subscribe

Follow @climate.lk  
 Contact Us  
 email: fectsl@gmail.com  
 phone: (+94) 81 2376746  
 blog: www.fectsl.blogspot.com

Foundation for Environment, Climate & Technology  
 C/O Mahaweli Authority of Sri Lanka,  
 Digana Village,  
 Rajawella,  
 SRI LANKA