

Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Himash Rashmika, Janan Visvanathan,

Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

24 August 2017

Highlights

- The WRF model predicts up to 64 mm of rainfall in Colombo and Kalutara districts on 26th of August.
- Between 16-22 Aug: Rainfall up to 90 mm was recorded in Ratnapura district on the 18th.
- From 13-19 Aug: minimum temperature of 20 °C was recorded from Nuwara Eliya district while southeastern regions of the island recorded a maximum temperature between 30-35 °C.
- From 15-21 Aug: up to 36 km/h, northwesterly winds were experienced by the entire country.
- 0.5 °C above average sea surface temperature was observed in the Northern and Southern seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring: On August 16th, No significant rainfalls were recorded in any part of the island. On the 17th Ratnapura and Matara districts received up to 50 mm of rainfall; Gampaha, Kegalla, Kalutara, Galle and several regions of Kurunegala and Monaragala districts up to 30 mm; Colombo, Kandy and several regions of Badulla and Matale districts up to 20 mm. On the 18th Ratnapura district received up to 90 mm of rainfall; Nuwara Eliya district up to 50 mm; Polonnaruwa and Badulla districts up to 90 mm; Jaffna, Kilinochchi, Mannar, Vavuniya, Puttalam, Kurunegala, Matale and Kandy districts up to 50 mm; Kurunegala, Gampaha, Kegalla, Kandy, Colombo, Kalutara, Badulla, Monaragala, Galle and Matara districts up to 30 mm; and Puttalam, Matale and Hambantota districts up to 20 mm. On 19th Gampaha and Colombo districts received up to 20 mm of rainfall. On 20th Bentota region of Galle district received up to 20 mm of rainfall. On the 21st Colombo and several regions of Gampaha and Kegalla districts received up to 30 mm of rainfall; and several regions of Kalutara, Ratnapura and Hambantota districts received up to 20 mm. On the 22nd Ratnapura districts received up to 20 mm.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 75-100 mm in Gampaha, Kegalla, Ratnapura, Kalutara and Matara districts; and up to 50-75 mm in Colombo and Nuwara Eliya districts; and 25-50 mm in Puttalam, Matale, Kandy and Hambantota districts. It shows above average rainfall up to and 50-100 mm in Ratnapura, Galle and Matara districts; and up to 25-50 mm Gampaha, Colombo, Kegalla and Kalutara districts. It also shows below average rainfalls 25-50 mm in Kilinochchi, Trincomalee, Mannar, Vavuniya, Mullaitivu, Anuradhapura, Matale, Kandy, Ampara and Badulla districts; and up to 10-25 mm Jaffna, Trincomalee and Batticaloa districts.

Monthly Monitoring: During July - below average rainfall conditions were experienced in the southern and western regions of the island and above average rainfall in eastern regions. Colombo, Kegalla and Nuwara Eliya districts received up to 150 mm below average rainfall; and Puttalam, Kurunegala, Gampaha, Kandy, Badulla, Monaragala, Hambantota, Ratnapura, Matara and Kalutara districts received up to 120 mm. Trincomalee, Polonnaruwa, Batticaloa and Ampara districts received up to 60 mm of above average rainfall. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Batticaloa, Polonnaruwa and Ampara districts; up to ~75 mm Trincomalee, Anuradhapura, Kurunegala, Matale, Kandy, Ratnapura, Kalutara and Galle district; and up to 50 mm in many parts of the island.

Ocean State (Text Courtesy IRI)

Pacific sea state: August 18, 2017

In mid-August 2017, the tropical Pacific remained in an ENSO-neutral state, with near-average SSTs in the east-central tropical Pacific and the atmosphere also maintaining ENSO-neutral patterns. The collection of latest ENSO prediction models indicates ENSO-neutral as the most likely condition through Northern Hemisphere fall and into winter with chances for El Niño or La Niña development less than one-half that for neutral.

Indian Ocean State

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

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 23th – 29th Aug: Total rainfall between 35-45 mm in Batticaloa and Ampara districts; between 25-35 mm in Polonnaruwa, Badulla and Monaragala districts; and between 15-25 mm in Mullaitivu, Anuradhapura and Trincomalee districts.

From 30th Aug – 5th Sep: Total rainfall between 35-45 mm in Polonnaruwa, Badulla, Monaragala and Ampara districts; and between 25-35 mm in Trincomalee district.

IMD WRF & IRI Model Forecast:

25th Aug: Up to 36 mm of rainfall in Puttalam, Kurunegala, Gampaha, Colombo, Kalutara, Galle, Matara, Kegalla and Ratnapura districts; and up to 8 mm in many parts of the island.

26th Aug: Up to 64 mm of rainfall in Colombo and Kalutara districts; up to 36 mm Puttalam, Kurunegala, Gampaha, Kalutara, Galle, Matara, Kegalla and Ratnapura districts; and up to 8 mm of rainfall in many parts of the island.

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.

¹ 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



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

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

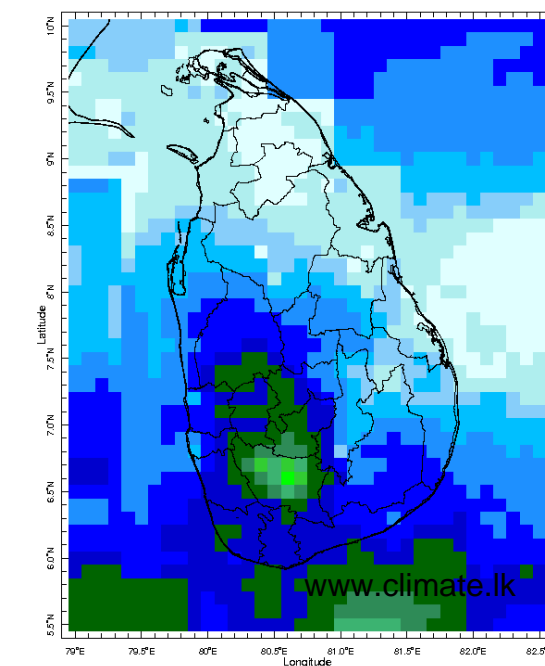
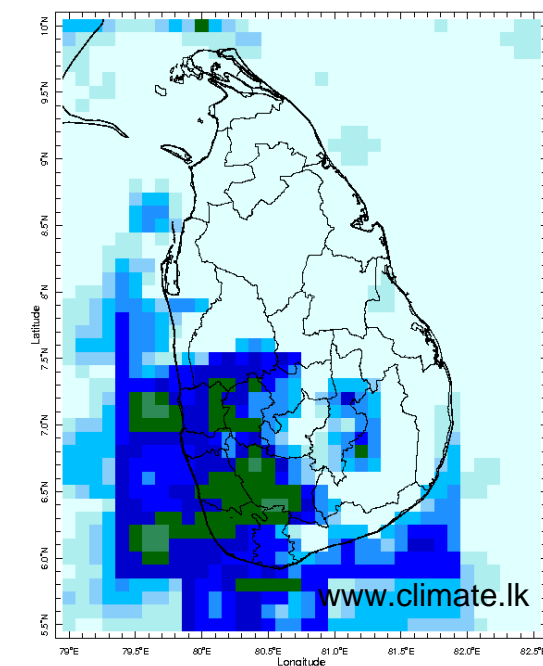
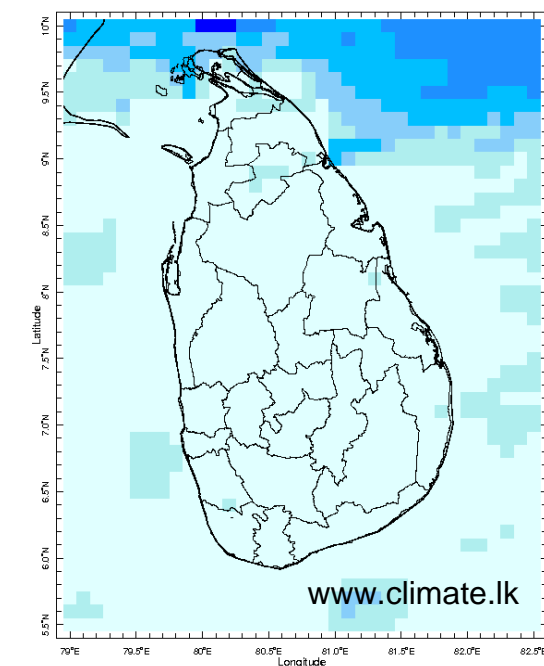
2. Predictions

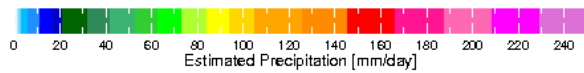
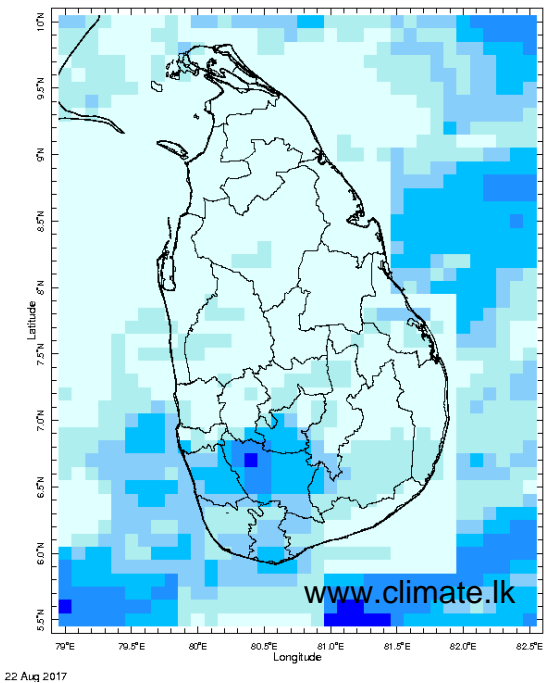
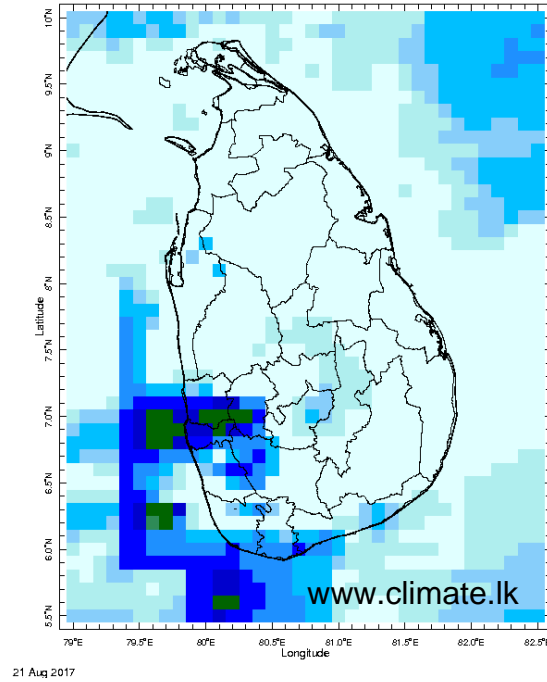
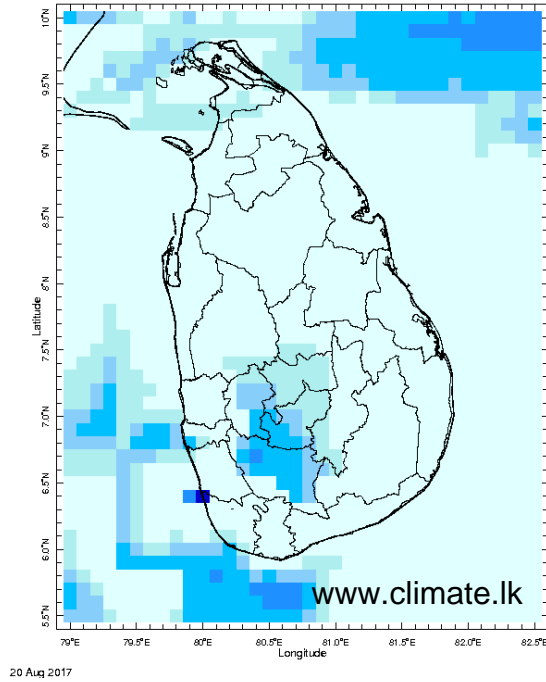
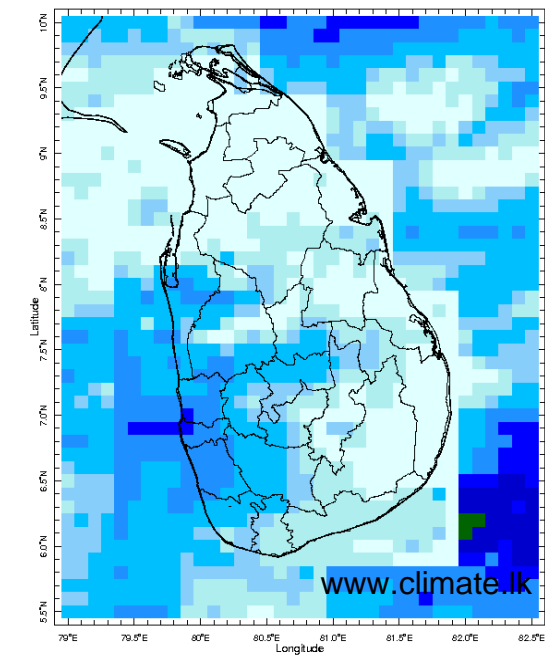
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

MONITORING

Daily Rainfall Monitoring

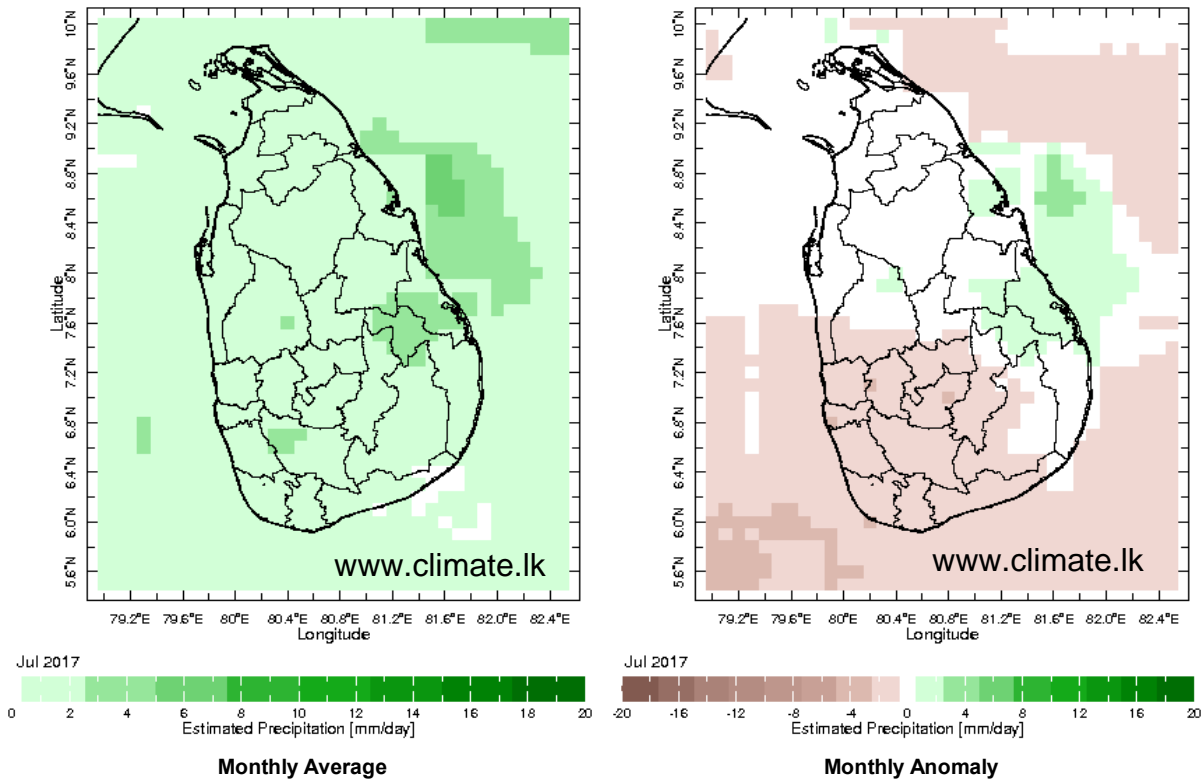
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



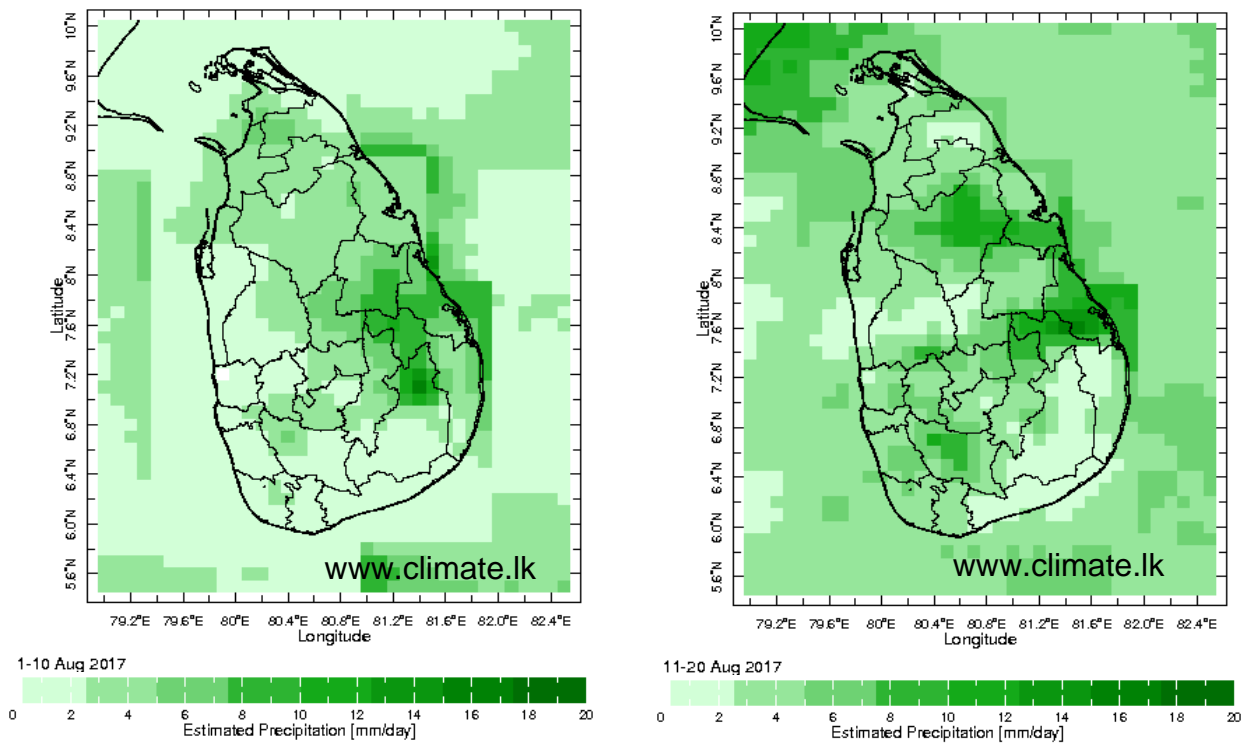


Monthly Rainfall Monitoring

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

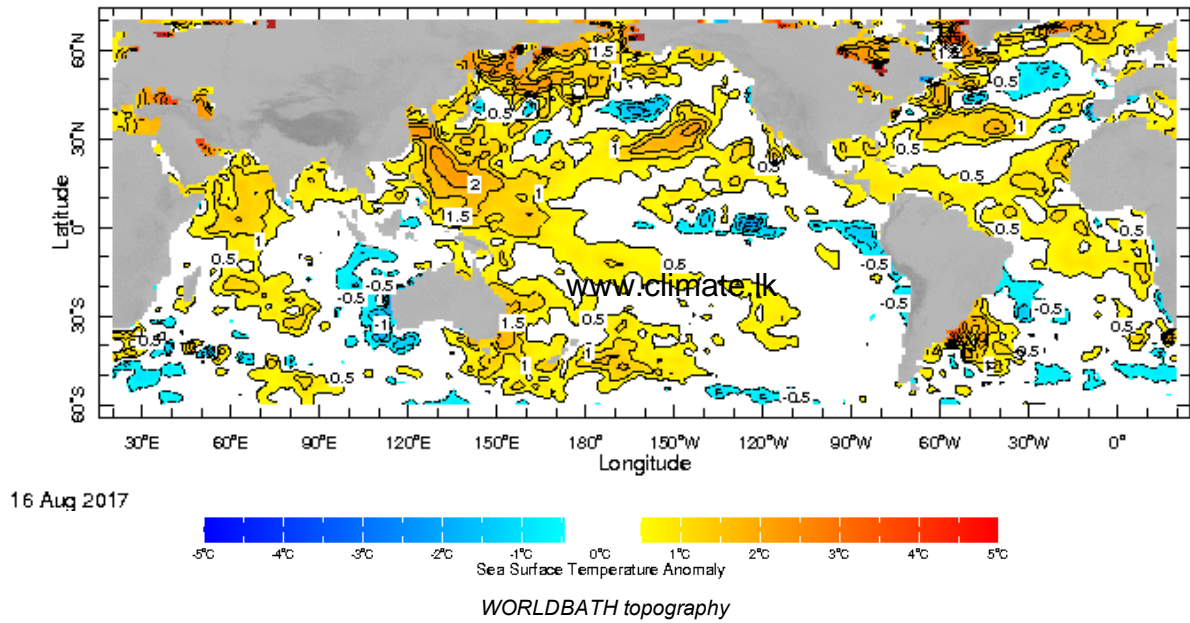


Dekadal (10 Day) Satellite Derived Rainfall Estimates

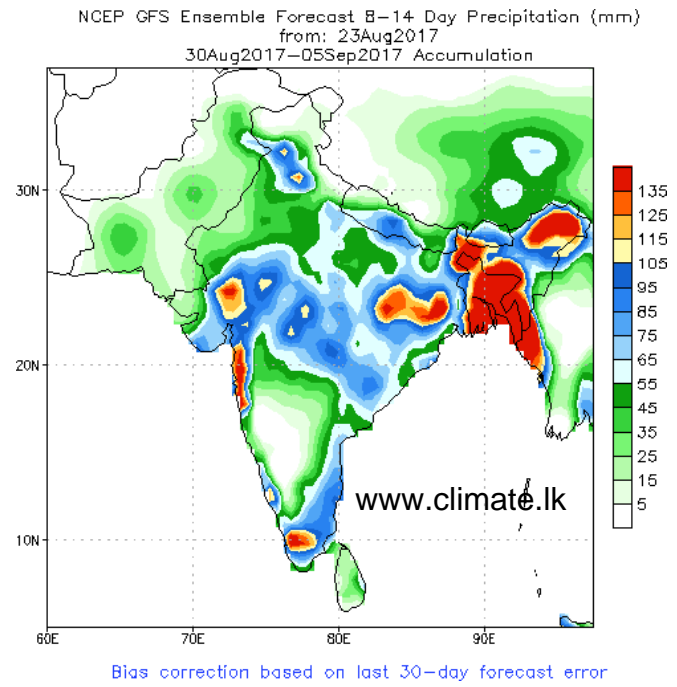
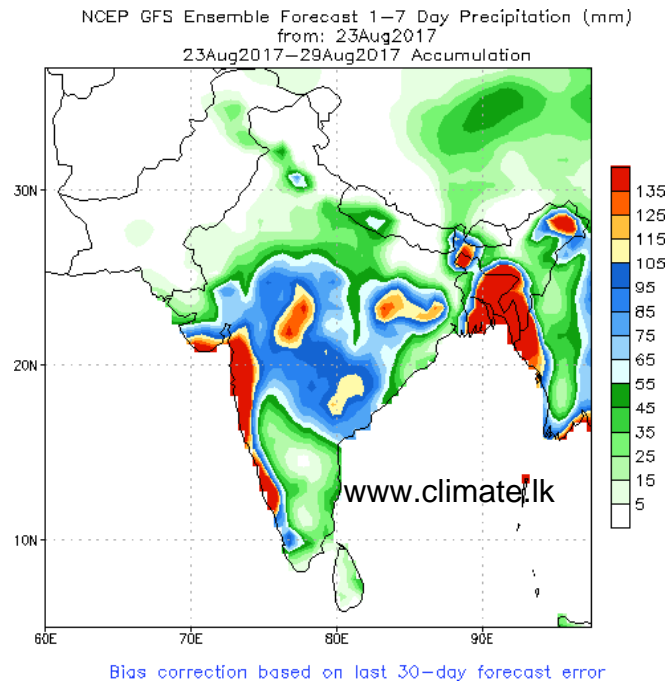


Weekly Average SST Anomalies

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

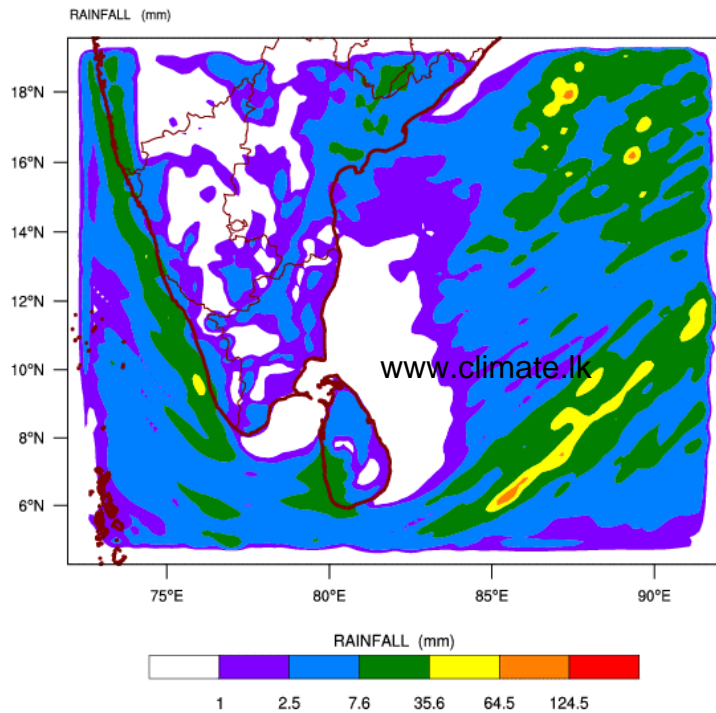


NCEP GFS 1- 14 Day prediction

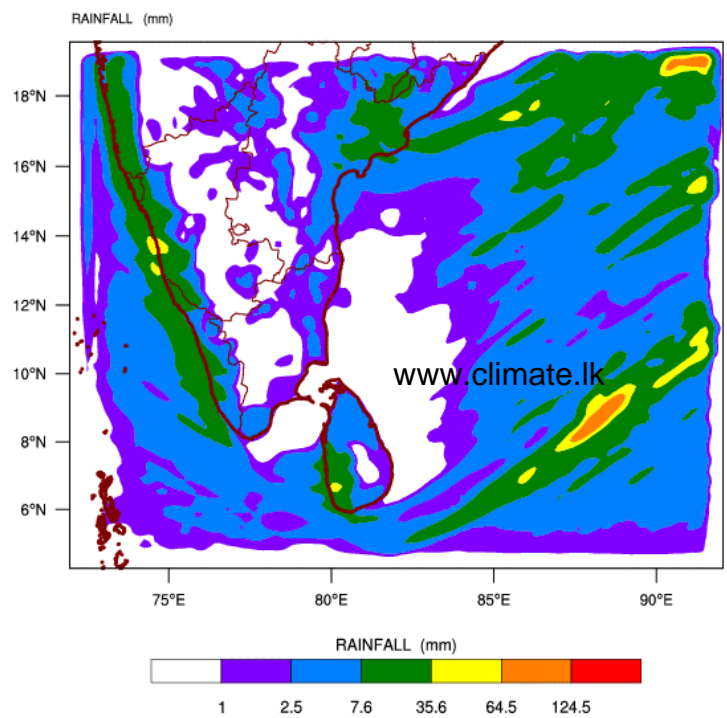


WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 23-08-2017 valid for 03 UTC of 25-08-2017

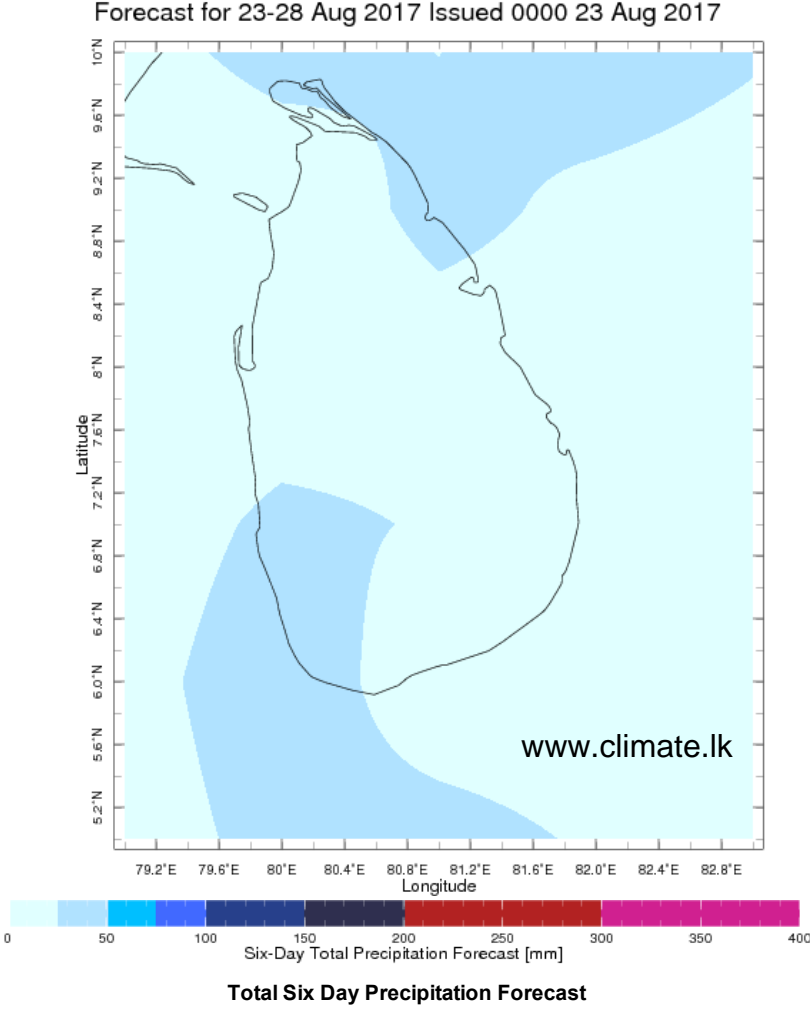
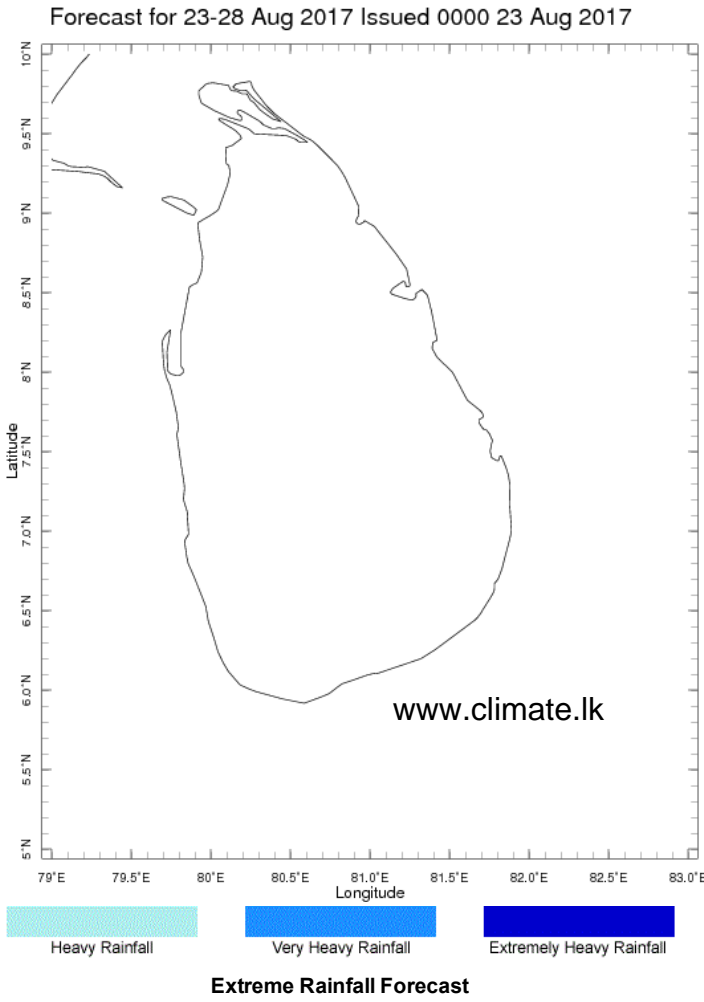


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 23-08-2017 valid for 03 UTC of 26-08-2017



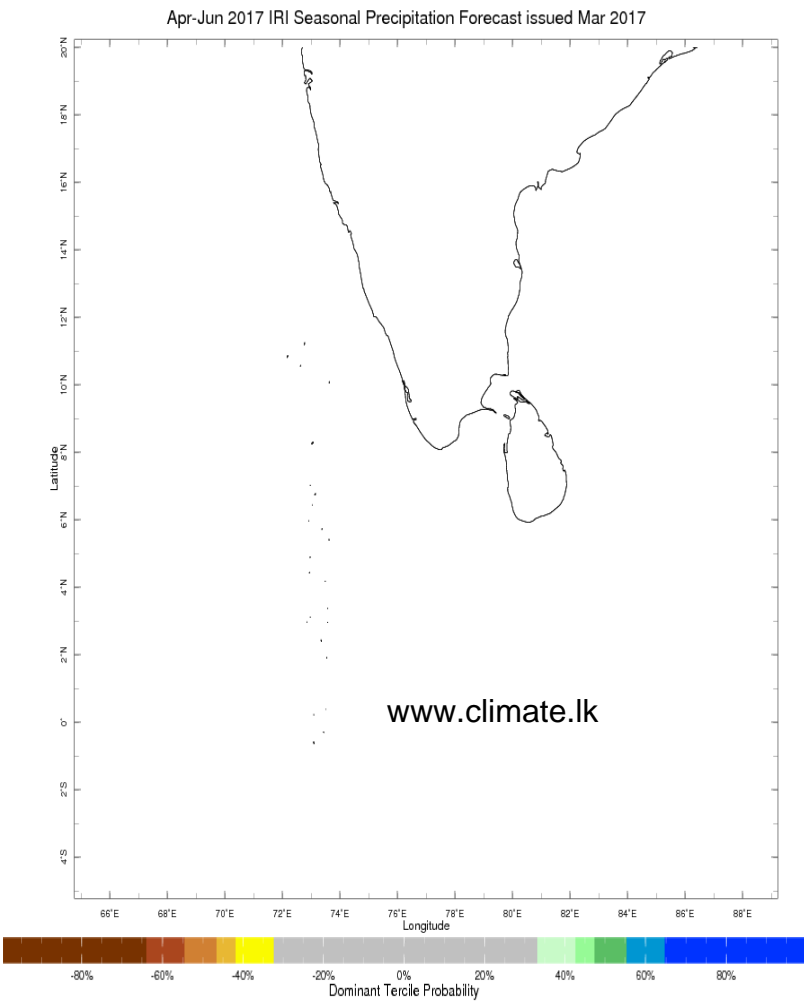
Weekly Rainfall Forecast from IRI

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.

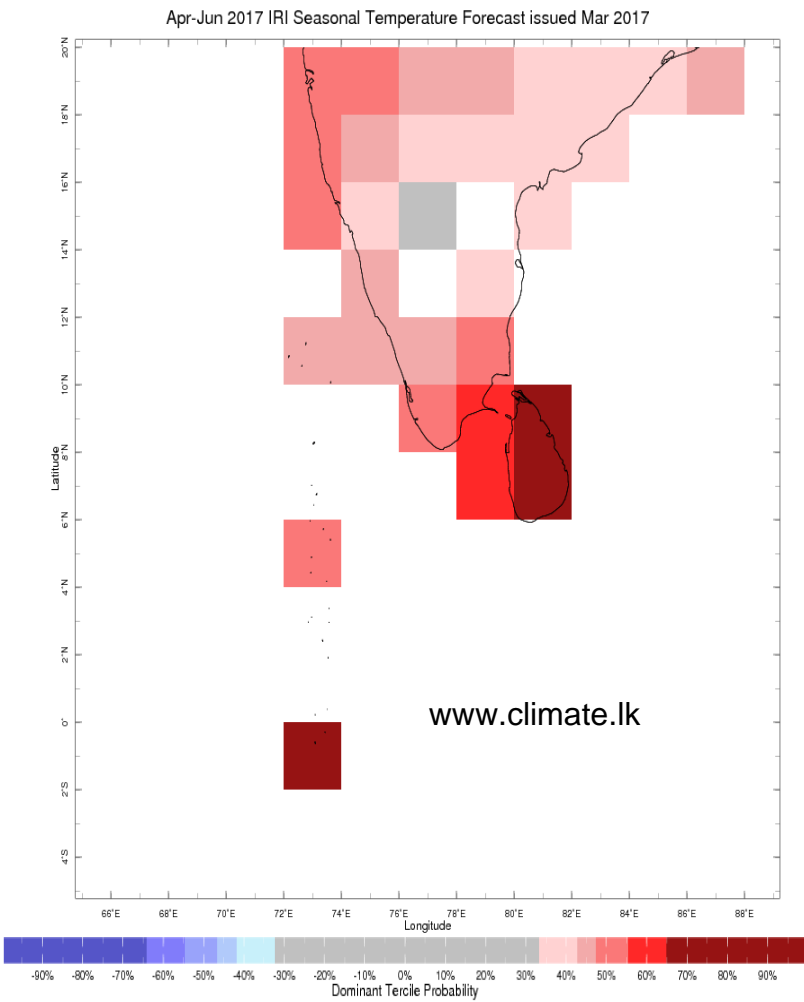


Seasonal Rainfall and Temperature Forecast

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

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