

## Experimental Climate Monitoring and Prediction

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28 February 2018

### Highlights

- The IRI weekly forecast predicts total rainfall between 75-100 mm in Nuwara Eliya, Badulla and Kandy districts during 27<sup>th</sup> Feb - 4<sup>th</sup> Mar.
- Between 20-26 Feb: up to 90 mm of rainfall was recorded in Matara district on the 26<sup>th</sup>.
- From 18-24 Feb: minimum temperature of 15 °C was recorded from Nuwara Eliya district while Gampaha, Kurunegala and Colombo districts recorded a maximum temperature between 35-40 °C.
- From 19-25 Feb: up to 18 km/h, northeasterly winds were experienced by the entire island.
- 0.5 °C below average sea surface temperature was observed in the northern seas of Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** No significant rainfalls were recorded in any part of the island during February 20-23. On February 24<sup>th</sup>, Ampara district and northern regions of Monaragala district received up to 80 mm of rainfall; Badulla district received up to 50 mm; Batticaloa district up to 30 mm; and several regions of Kandy, Trincomalee and Polonnaruwa districts up to 20 mm. On the 25<sup>th</sup>, Ampara and Polonnaruwa districts received up to 50 mm of rainfall; Colombo, Kalutara, Badulla, Trincomalee, Batticaloa and Matale districts up to 30 mm; Mullaitivu, Gampaha, Kandy and Monaragala districts up to 20 mm; and many central and southern regions of the island up to 10 mm. On the 26<sup>th</sup>, Matara district received up to 90 mm of rainfall; Hambantota district up to 60 mm; Kalutara, Galle, Matale and Polonnaruwa districts received up to 50 mm; Batticaloa district up to 40 mm; Ampara and Ratnapura districts up to 30 mm; Trincomalee, Puttalam, Gampaha, Colombo, Kalutara, Kandy, Nuwara Eliya and Monaragala districts up to 20 mm.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall of 75-100 mm in Polonnaruwa, Matale, Ampara, Badulla and Monaragala districts; up to 50-75 mm in Trincomalee, Batticaloa, Galle and Matara districts; and up to 25-50 mm in Colombo, Kalutara, Ratnapura, Kandy, Anuradhapura, Kurunegala and Hambantota districts. It also shows above average rainfall up to 50-100 mm in Matale, Polonnaruwa, Anuradhapura, Badulla, Monaragala, Ampara, Galle and Matara districts; and up to 25-50 mm in Colombo, Kalutara and Kandy districts. Below average rainfall up to 25-50 mm is shown for Kurunegala district.

**Monthly Monitoring:** During January - below average rainfall conditions were experienced by the entire island. Trincomalee, Polonnaruwa, Batticaloa, Matale, Colombo, Kalutara, Galle, Ratnapura, Badulla, Monaragala and Ampara districts received up to 180 mm below average rainfall; and rest of the island up to 120 mm. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Puttalam, Kalutara, Nuwara Eliya and Badulla districts; and up to ~75 mm in Anuradhapura, Kurunegala, Gampaha, Kegalla, Ratnapura, Galle, Matara, Matale, Kandy, Monaragala and Ampara districts.

#### Ocean State (Text Courtesy IRI)

##### **Pacific sea state: February 19, 2018**

In mid-February 2018, the tropical Pacific reflected La Niña conditions, with SSTs in the east-central tropical Pacific in the range of weak to moderate La Niña and most key atmospheric variables showing patterns suggestive of La Niña conditions. The official CPC/IRI outlook calls for La Niña continuing through at least early spring, followed by a likely return to neutral conditions around mid-spring. Support for this scenario is provided by the latest forecasts of statistical and dynamical models.

##### **Indian Ocean State**

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

## Predictions

### Rainfall

#### 14-day prediction:

#### NOAA NCEP models:

From 27<sup>th</sup> Feb – 05<sup>th</sup> Mar: Total rainfall between 45-55 mm in Colombo, Kegalle, Kandy, Nuwara Eliya, Badulla, Monaragala, Ratnapura, Galle and Matara districts; between 35-45 mm in Gampaha, Kurunegala, Matale, Ampara and Hambantota districts; between 25-35 mm in Puttalam, Polonnaruwa and Batticaloa districts; between 15-25 mm in Anuradhapura and Trincomalee districts; Up to 15 mm of total rainfall rest of the island.

From 06<sup>th</sup> – 12<sup>th</sup> Mar: Total rainfall between 35-45 mm in Badulla, Ampara and Monaragala districts; between 25-35 mm in Polonnaruwa, Matale, Batticaloa, Kandy, Nuwara Eliya, Ratnapura, Kegalle, Gampaha and Colombo districts; Up to 15 mm total rainfall rest of the island.

#### IMD WRF Forecast:

1<sup>st</sup> Mar: Up to 35.6 mm of rainfall in Ampara and Batticaloa districts; Up to 7.6 mm of rainfall in Mullaitivu, Vavuniya, Trincomalee, Anuradhapura, Polonnaruwa, Monaragala, Hambantota, Galle, Badulla, Kandy and Matale districts; Up to 2.5 mm in Jaffna, Mannar, Puttalam, Gampaha, Colombo, Kalutara, Matara, Ratnapura and Nuwara Eliya districts.

2<sup>nd</sup> Mar: Up to 35.6 mm of rainfall in Ampara, Monaragala and Hambantota districts; Up to 7.6 mm in Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, Galle, Kurunegala, Kegalle and Kandy districts; Up to 7.6 mm of rainfall in rest of the island.

#### IRI Model Forecast:

From 27<sup>th</sup> Feb – 4<sup>th</sup> Mar: Total rainfall between 75-100 mm in Nuwara Eliya, Badulla and Kandy districts; between 50-75 mm in Puttalam, Kurunegala, Matale, Ampara, Monaragala, Ratnapura, Kalutara, Colombo, Gampaha and Kegalle districts; between 25-50 mm in Anuradhapura, Polonnaruwa, Trincomalee, Batticaloa, Hambantota, Matara and Galle 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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#### 1. Monitoring

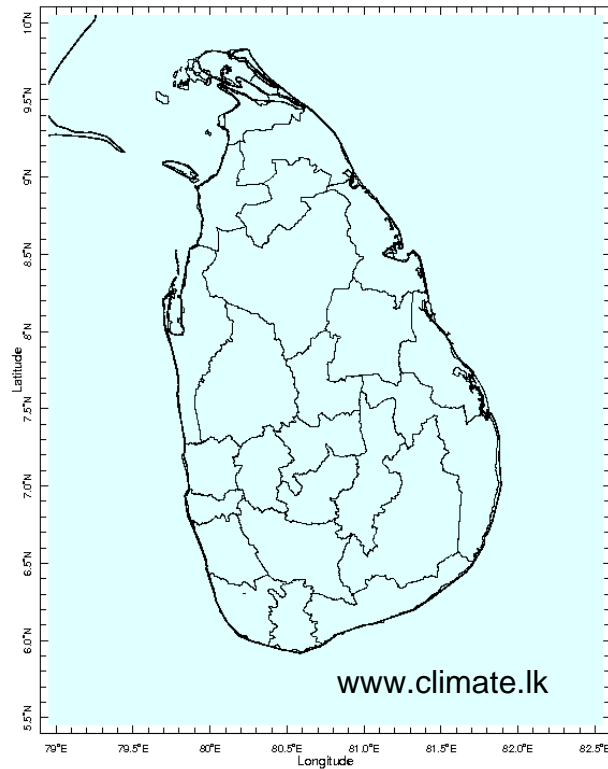
- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

#### 2. Predictions

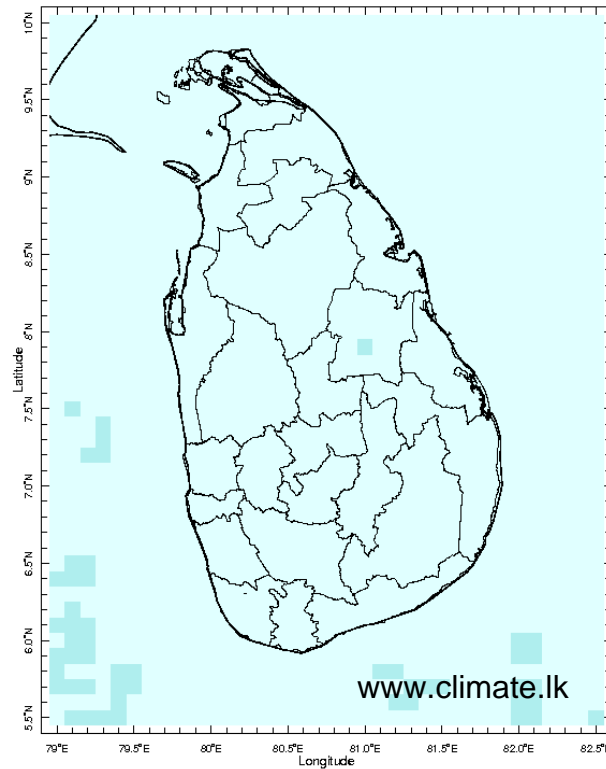
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

## Daily Rainfall Monitoring

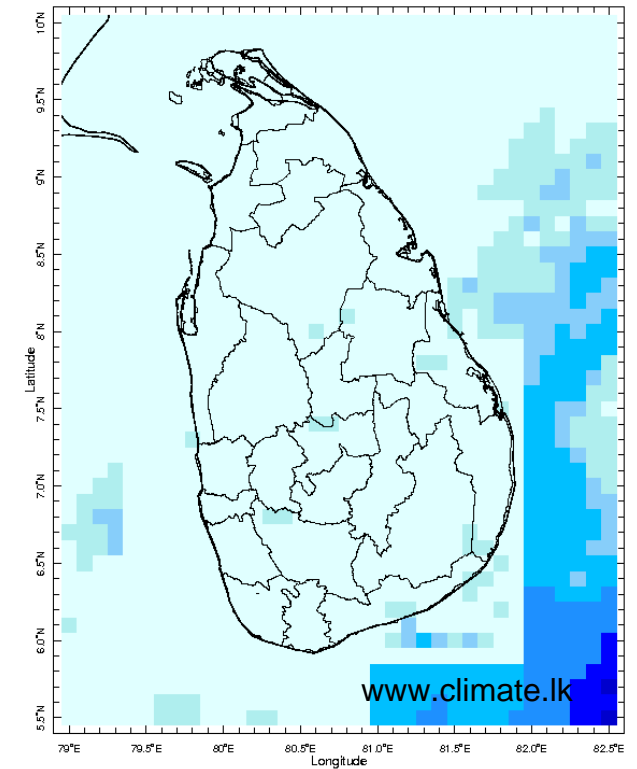
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



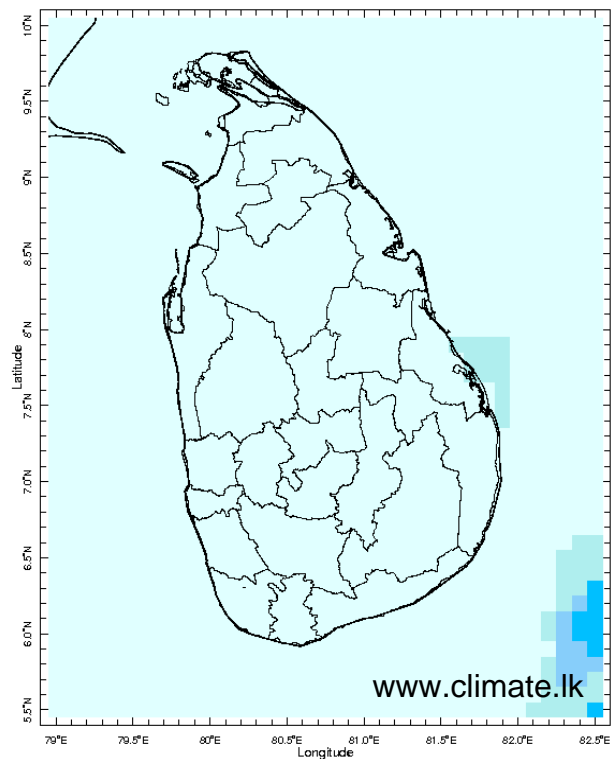
20 Feb 2018



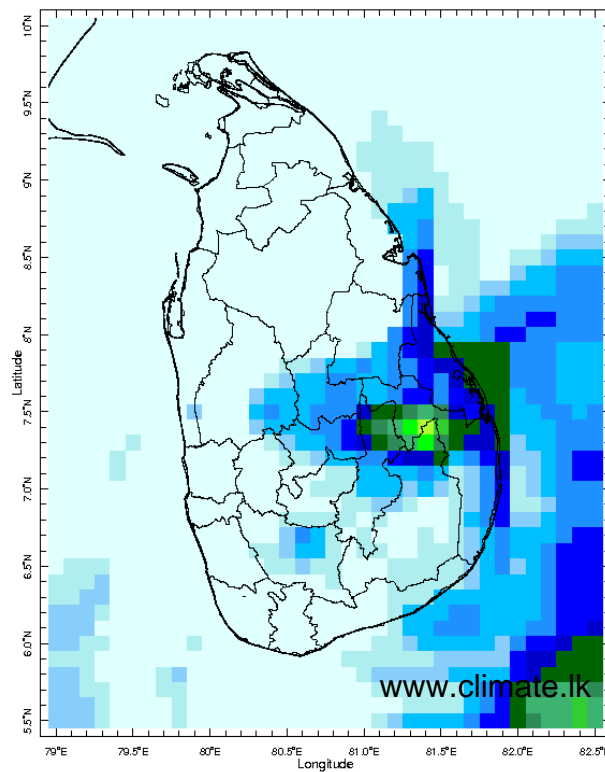
21 Feb 2018



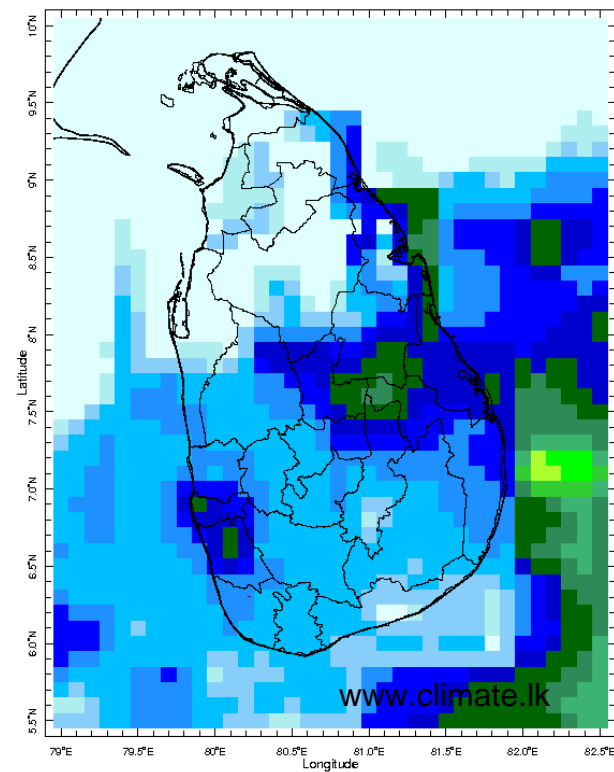
22 Feb 2018



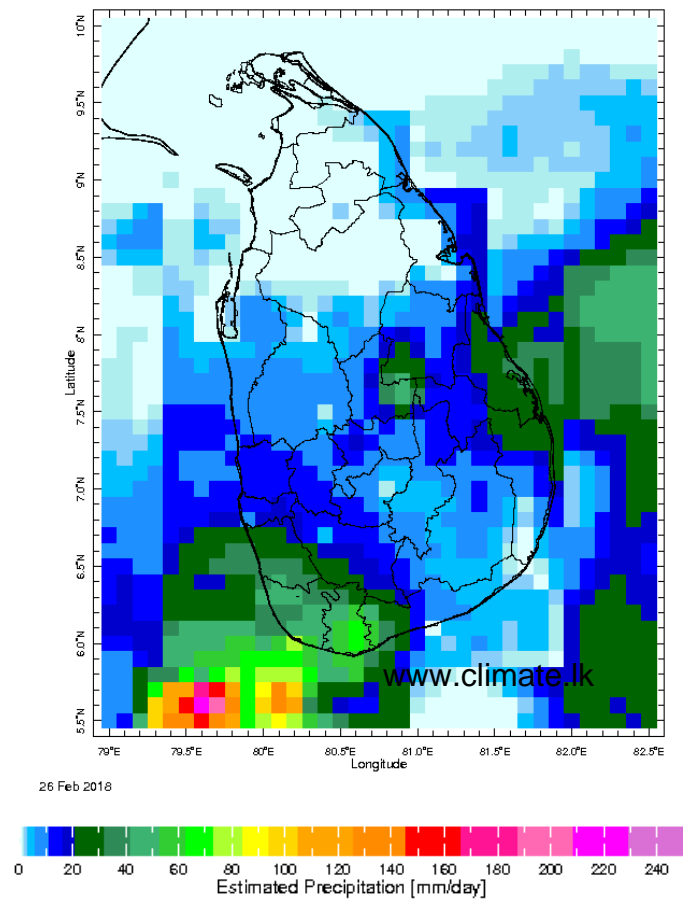
23 Feb 2018



24 Feb 2018

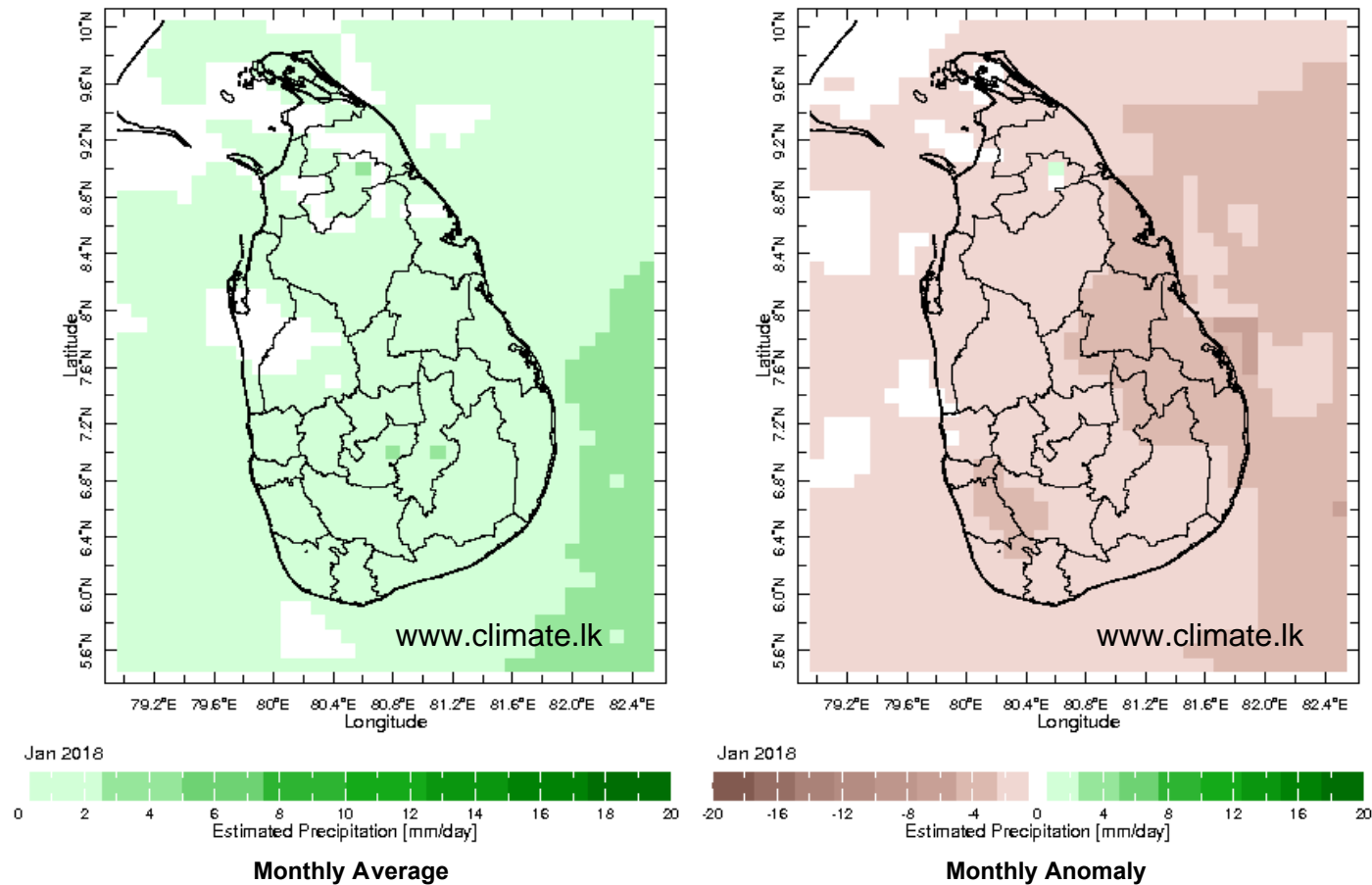


25 Feb 2018

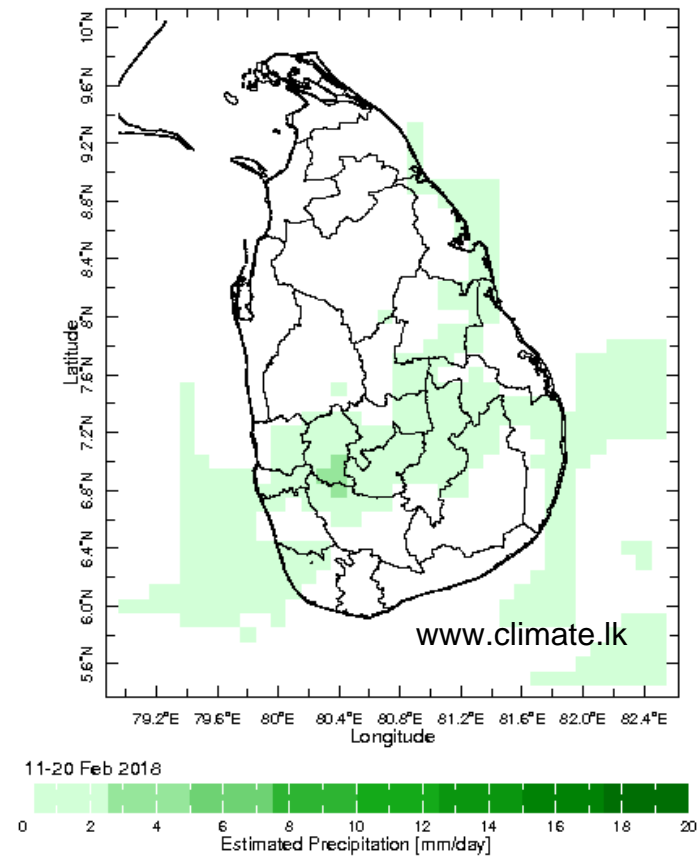
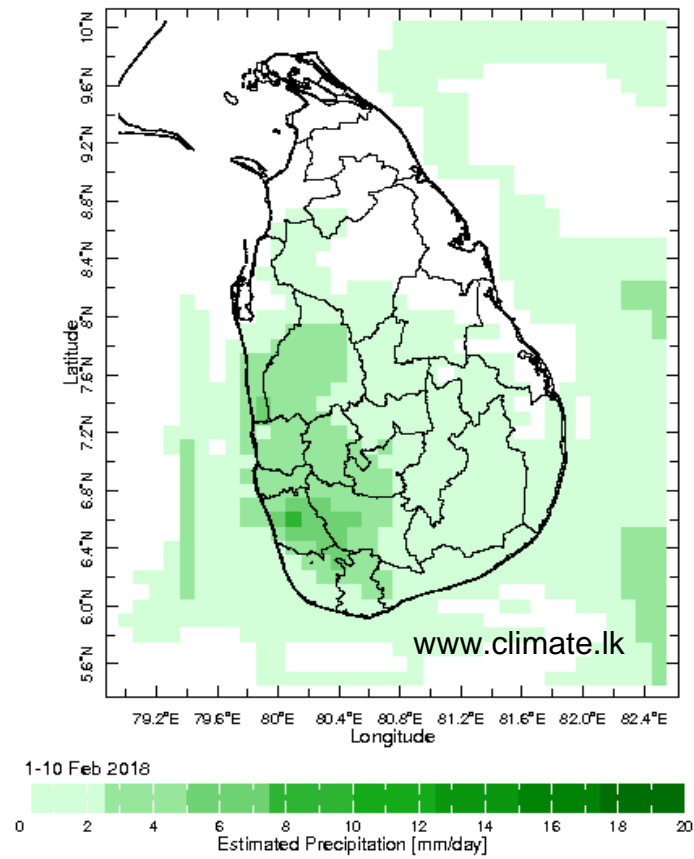


## Monthly Rainfall Monitoring

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



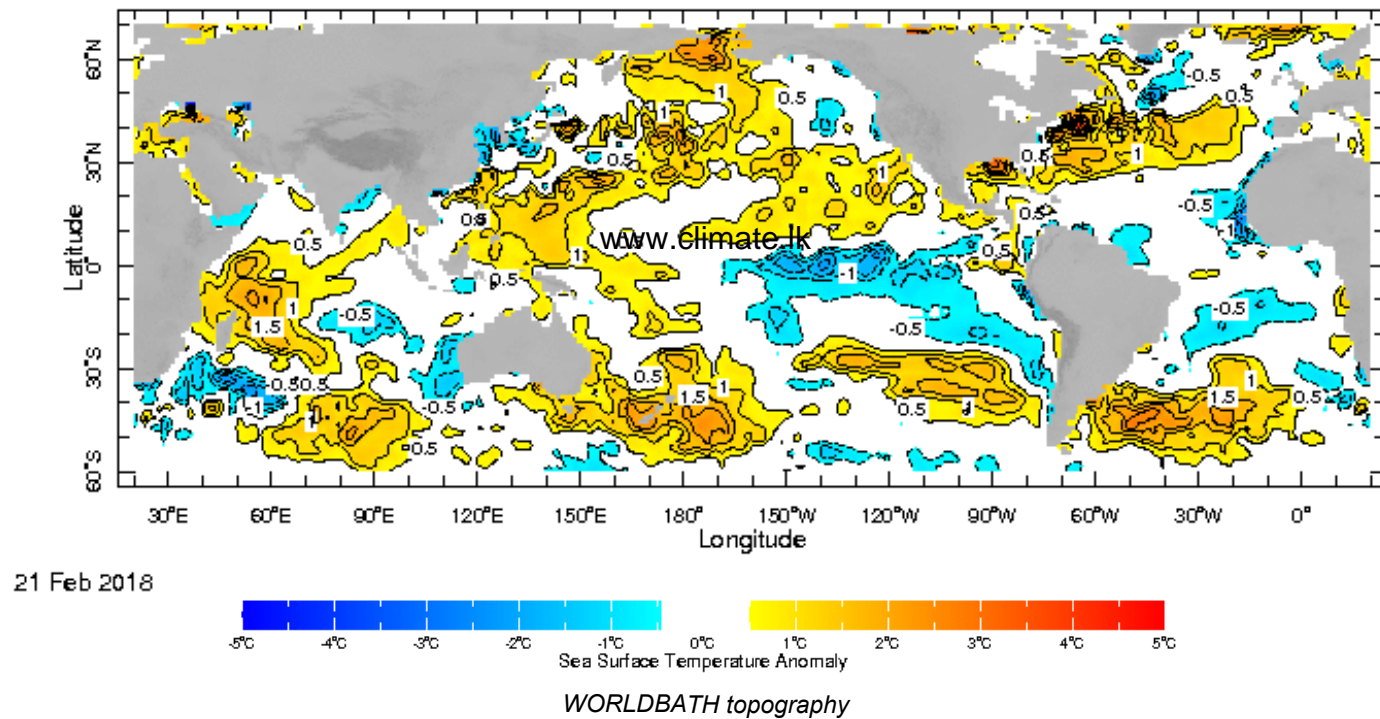
Dek adal (10 Day) Satell te Derived Rainfall Est mates





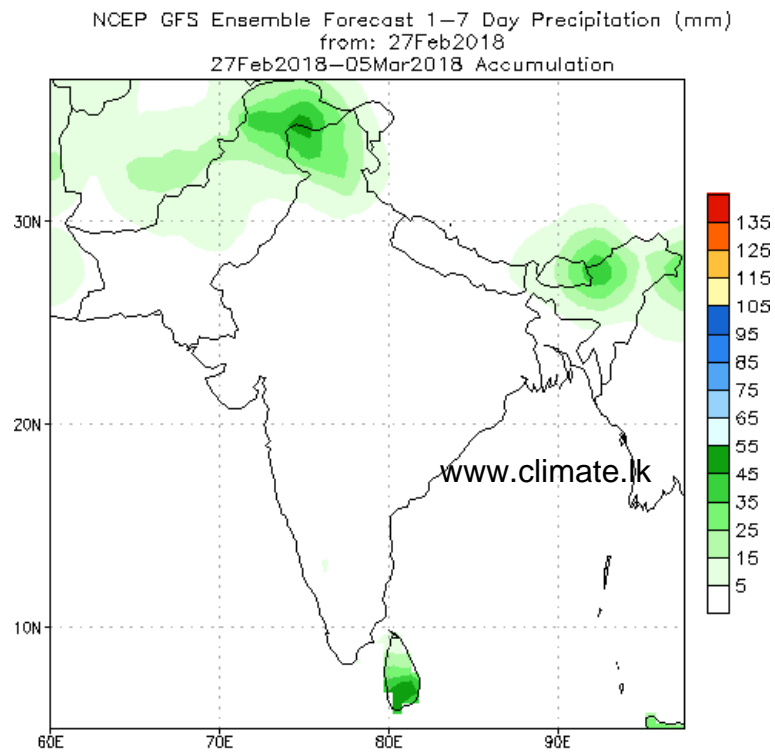
## Weekly Average SST Anomalies

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

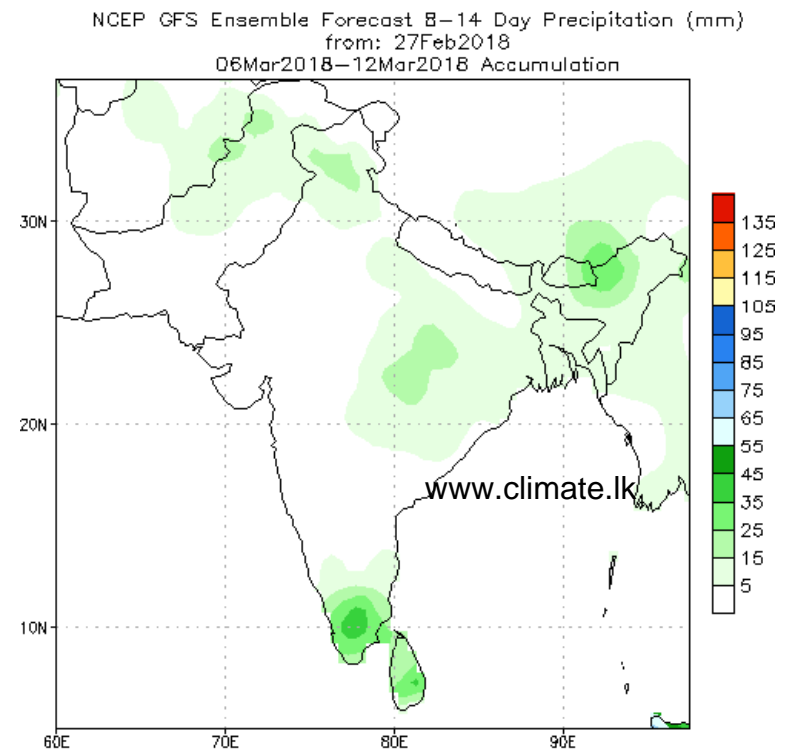


## PREDICTIONS

### NCEP GFS 1- 14 Day prediction



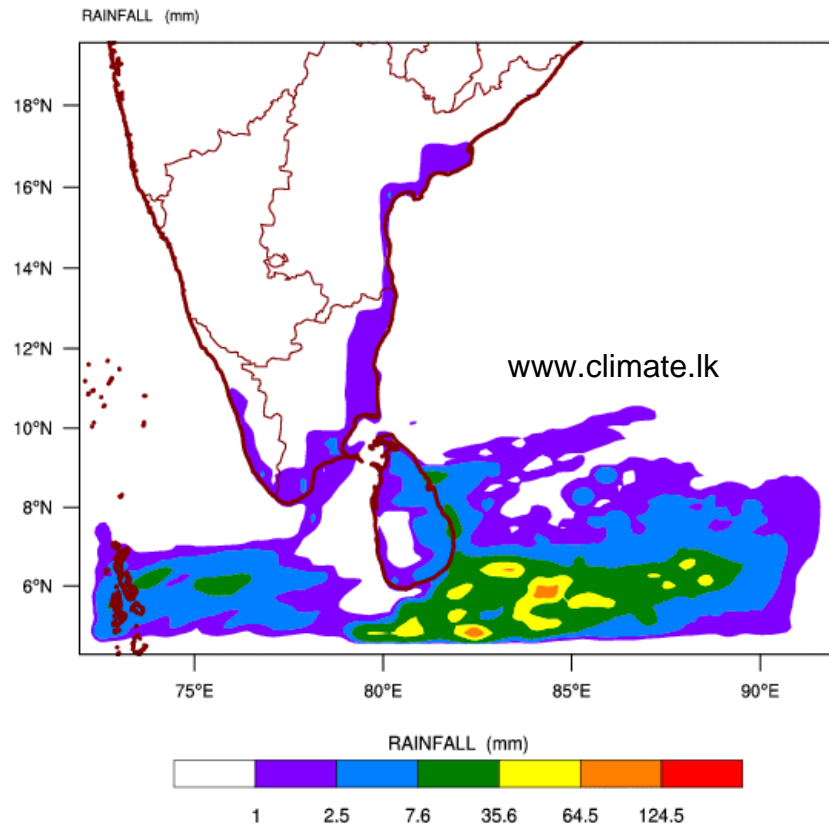
Bias correction based on last 30-day forecast error



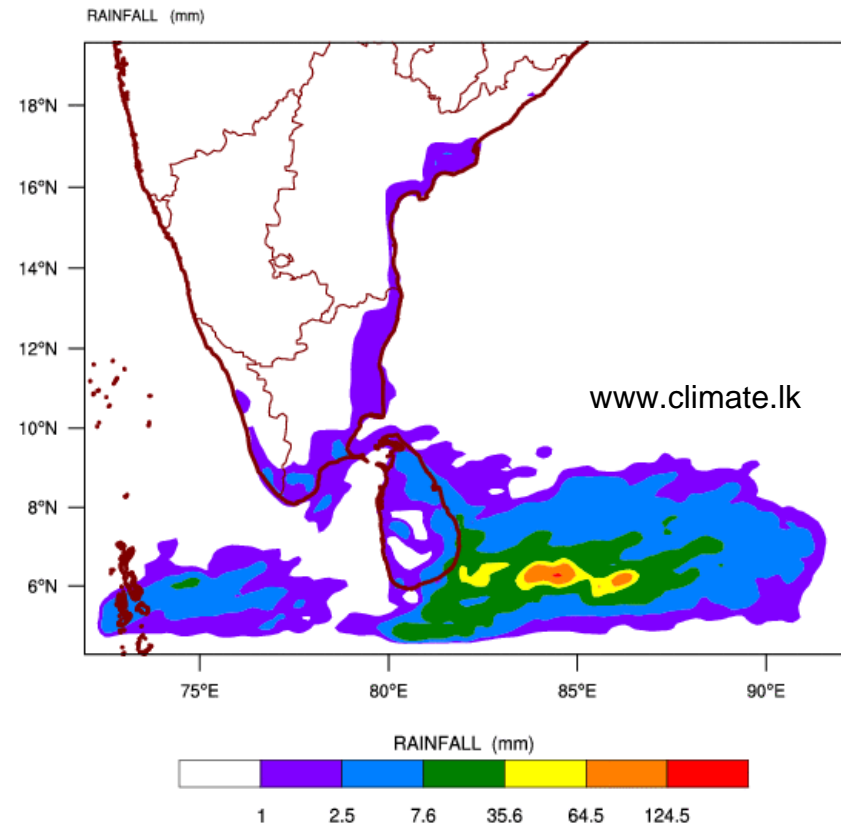
Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-02-2018 valid for 03 UTC of 01-03-2018



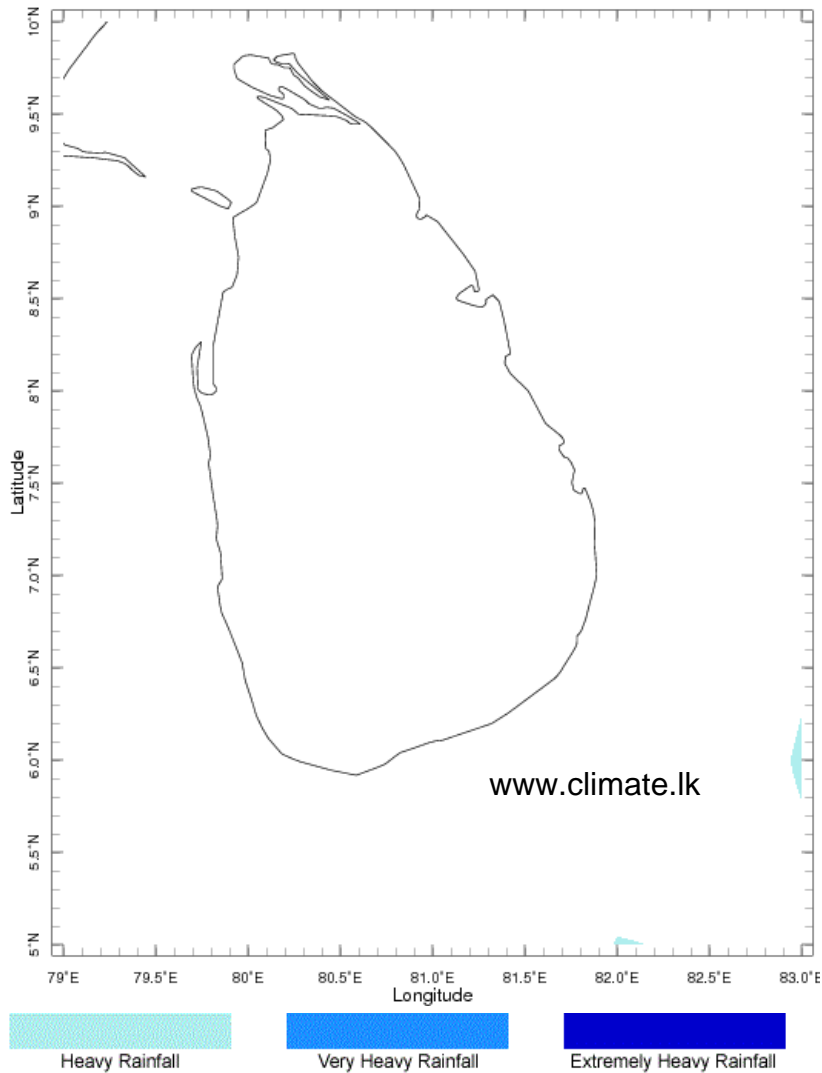
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-02-2018 valid for 03 UTC of 02-03-2018



# Weekly Rainfall Forecast from IRI

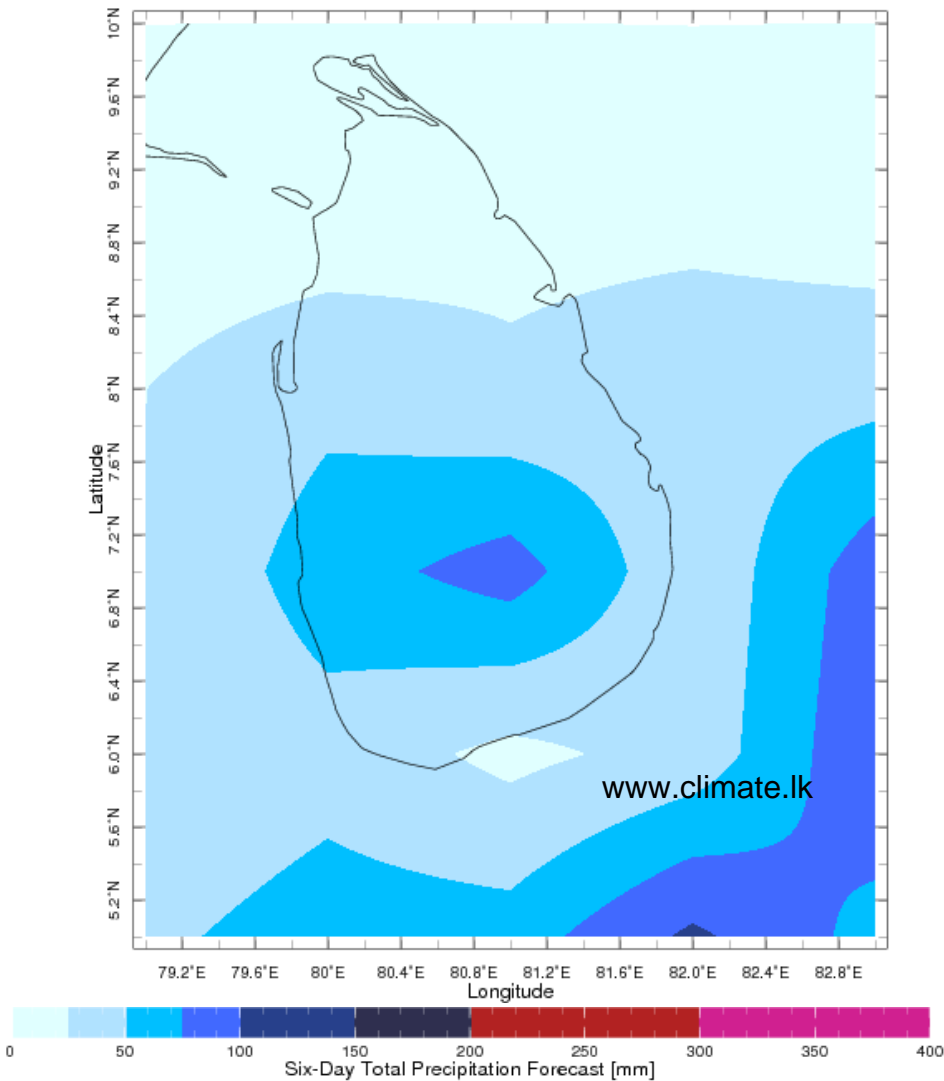
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 27 Feb 2018 - 4 Mar 2018 Issued 0000 27 Feb 2018



Extreme Rainfall Forecast

Forecast for 27 Feb 2018 - 4 Mar 2018 Issued 0000 27 Feb 2018



Total Six Day Precipitation Forecast