

## Experimental Climate Monitoring and Prediction

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### Highlights

- The NCEP model predicts total rainfall between 25-35 mm in Kandy, Badulla, Nuwara Eliya, Colombo, Kalutara, Kegalle and Ratnapura districts during 20-26 Feb.
- Between 12-18 Feb: up to 50 mm of rainfall was recorded in Kegalla and Ratnapura districts on the 15<sup>th</sup>.
- From 11-17 Feb: minimum temperature of 15 °C was recorded from Nuwara Eliya district while Kurunegala district recorded a maximum temperature between 30-35 °C.
- From 11-17 Feb: up to 20 km/h, northeasterly winds were experienced by the entire island.
- 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 12-13. On February 14<sup>th</sup>, Welikanda region of Polonnaruwa district received up to 20 mm of rainfall; and coastal regions of Mullaitivu, Trincomalee and Batticaloa districts up to 10 mm. On the 15<sup>th</sup>, Pussella in Ratnapura district and Eheliyagoda region in Kegalla district received up to 50 mm of rainfall; Nuwara Eliya district up to 30 mm; Gampaha, Colombo, Kandy, Badulla and Monaragala districts up to 20 mm; and Matale Ampara, Kalutara and Galle districts up to 10 mm. No significant rainfalls were recorded in any part of the island during 16-18.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall of 25-50 mm in Kegalla, Ratnapura, and Matara districts; and up to 10-25 mm in Polonnaruwa, Badulla, Gampaha and Colombo districts. It also shows above average rainfall up to 10-25 mm in Kegalla, Ratnapura, and Matara districts. Below average rainfall up to 25-50 mm is shown for Ampara district; and up to 10-25 mm in Batticaloa, Colombo, Kalutara, Galle, Hambantota and Monaragala districts.

**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**

Average sea surface temperature was observed in the northern seas of Sri Lanka.

## Predictions

### Rainfall

#### 14-day prediction:

#### NOAA NCEP models:

From 20<sup>th</sup>-26<sup>th</sup> Feb: Total rainfall between 25-35 mm in Kandy, Badulla, Nuwara Eliya, Colombo, Kalutara, Kegalle and Ratnapura districts; between 15-25 mm in Mannar, Vavuniya, Anuradhapura, Puttalam, Kurunegala, Matale, Polonnaruwa, Ampara, Monaragala and Gampaha districts; Up to 15 mm of total rainfall rest of the island.

From 27<sup>th</sup> Feb-5<sup>th</sup> Mar: Total rainfall between 5-15 mm in Gampaha, Colombo, Kegalle, Kandy, Nuwara Eliya, Badulla, Ratnapura and Kalutara districts; Up to 5 mm total rainfall rest of the island.

#### IMD WRF Forecast:

23<sup>rd</sup> Feb: Up to 7.6 mm of rainfall in Batticaloa, Ampara and Monaragala districts; Up to 2.5 mm in Kilinochchi, Mullaitivu, Mannar, Vavuniya, Puttalam, Anuradhapura, Trincomalee, Polonnaruwa, Badulla, Hambantota and Colombo districts.

24<sup>th</sup> Feb: Up to 7.6 mm of rainfall in Kilinochchi, Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, Ampara, Monaragala and Hambantota districts; Up to 2.5 mm in Jaffna, Mannar, Puttalam, Kurunegala, Matale, Kandy, Badulla, Gampaha, Colombo and Kalutara districts.

#### IRI Model Forecast:

From 21<sup>st</sup>-26<sup>th</sup> Feb: Total rainfall between 25-50 mm in Kilinochchi, Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, Ampara, Monaragala, Hambantota, Badulla, Ratnapura, Nuwara Eliya, Kandy, Matale, Kurunegala, Kegalle, Gampaha, Colombo and Kalutara districts; Up to 25 mm total rainfall rest of the island.

### MJO based OLR predictions

#### For the next 15 days:

MJO shall suppress the rainfall in Sri Lanka in the next 10 days and shall enhance 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/>



[www.fb.com/fectsl](http://www.fb.com/fectsl)



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## Weekly Hydro- Meteorological Report for Sri Lanka

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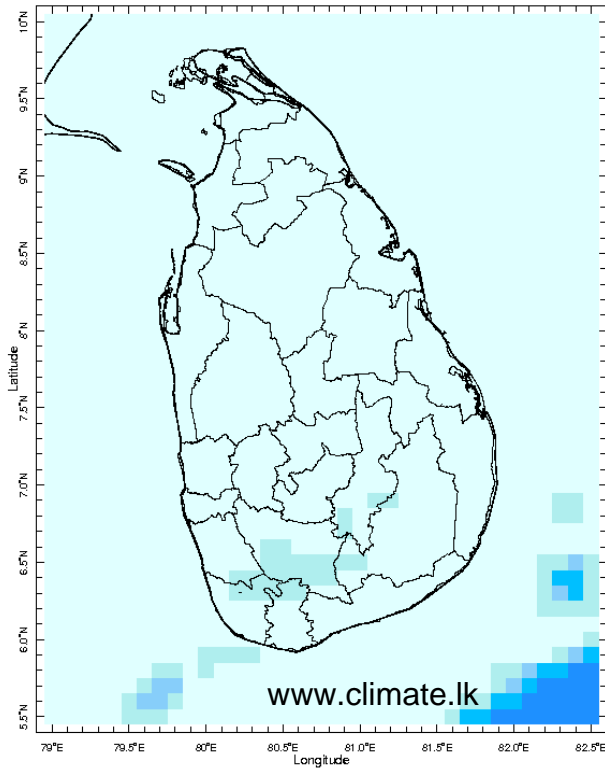
#### 2. Predictions

- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
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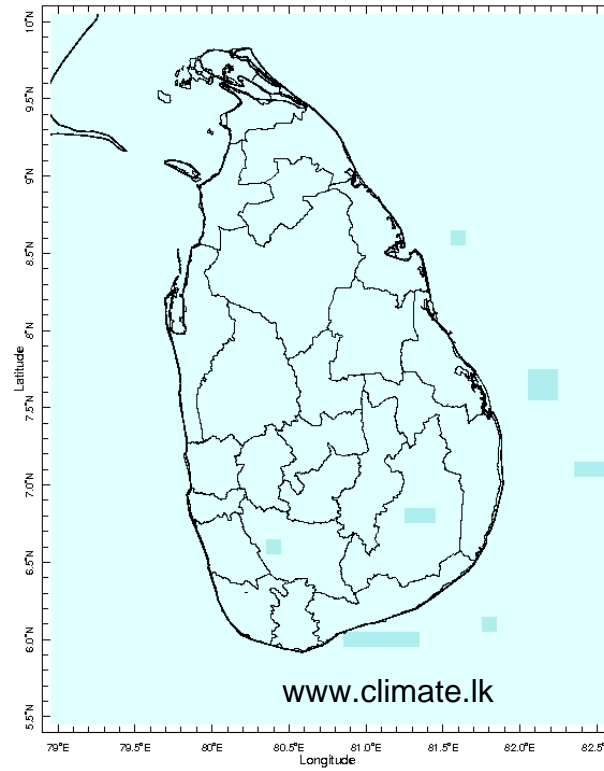
# MONITORING

## Daily Rainfall Monitoring

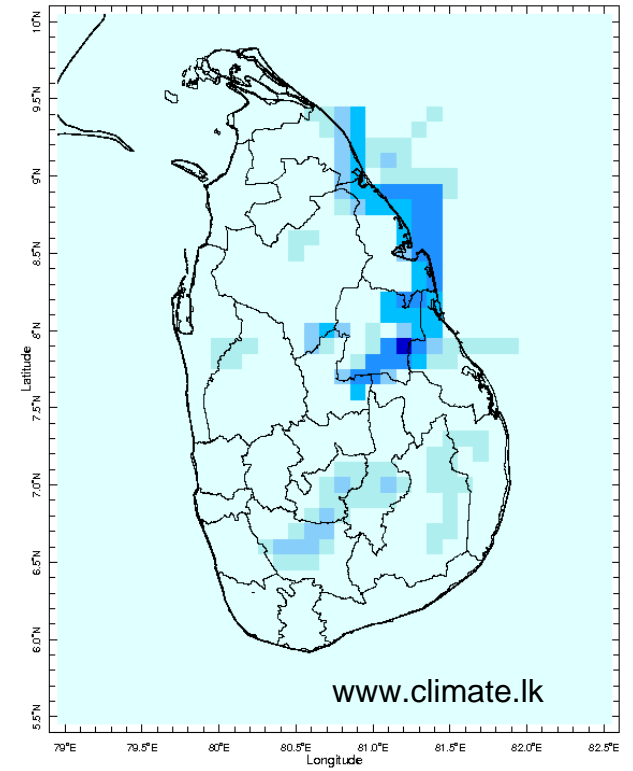
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



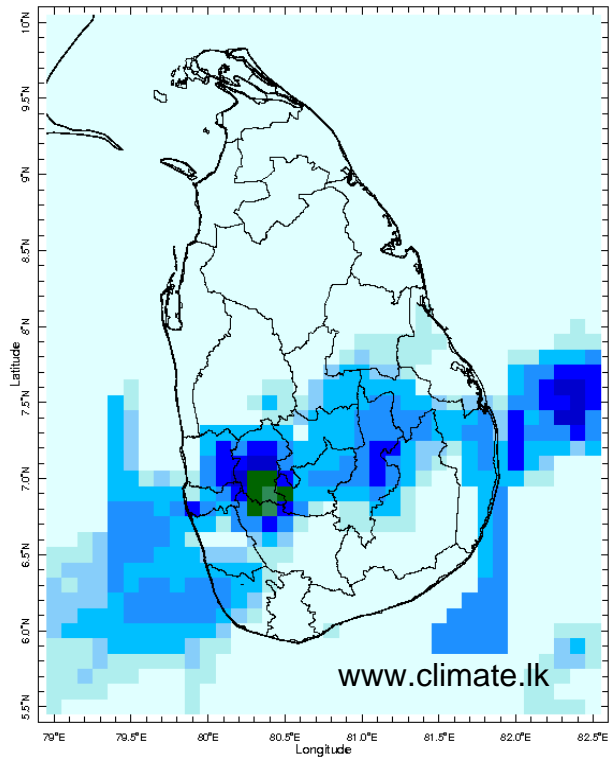
12 Feb 2018



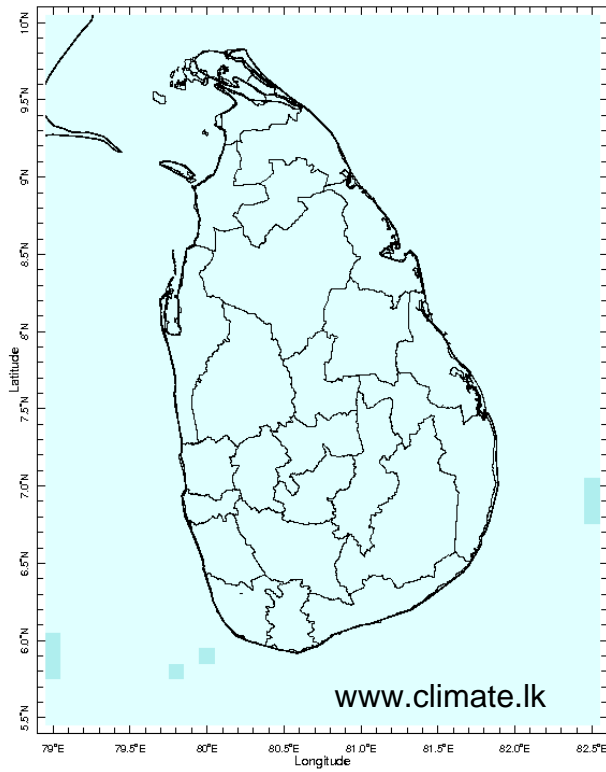
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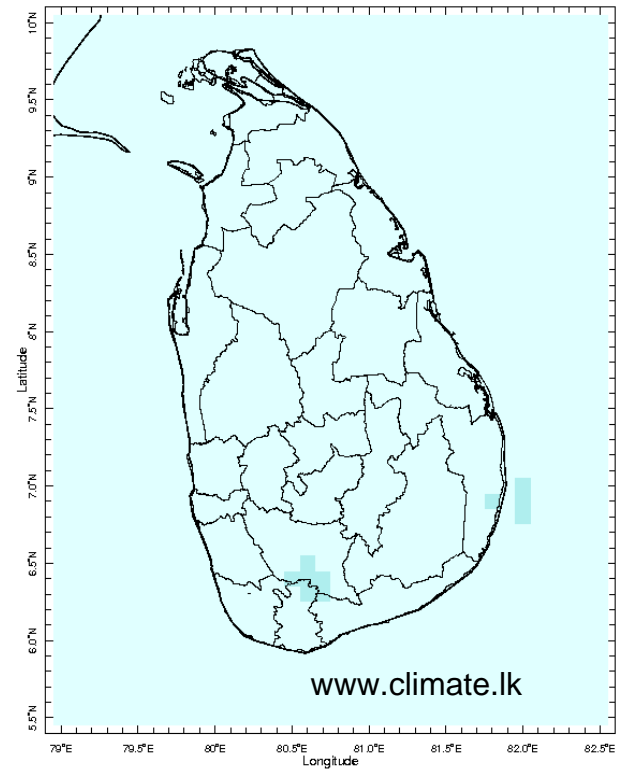
14 Feb 2018



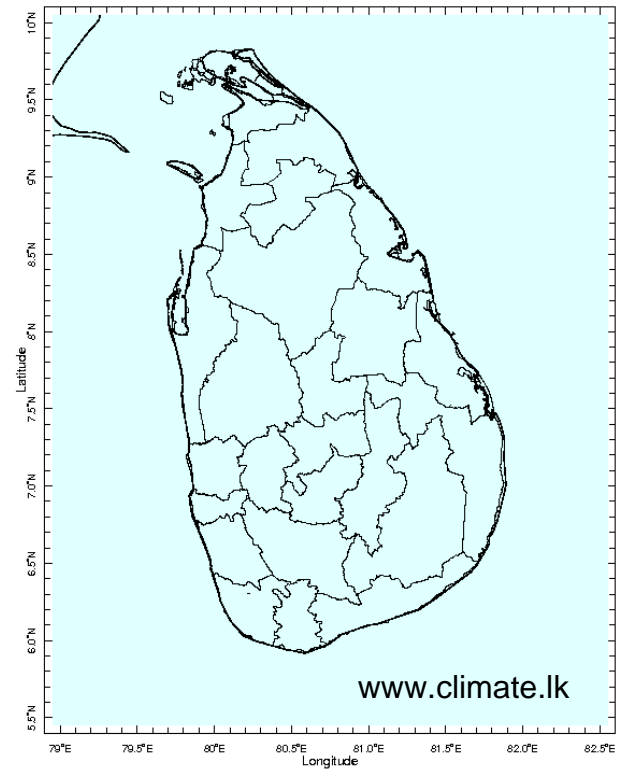
15 Feb 2018



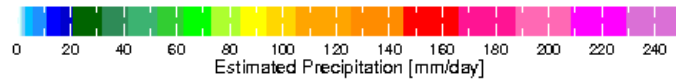
16 Feb 2018



17 Feb 2018

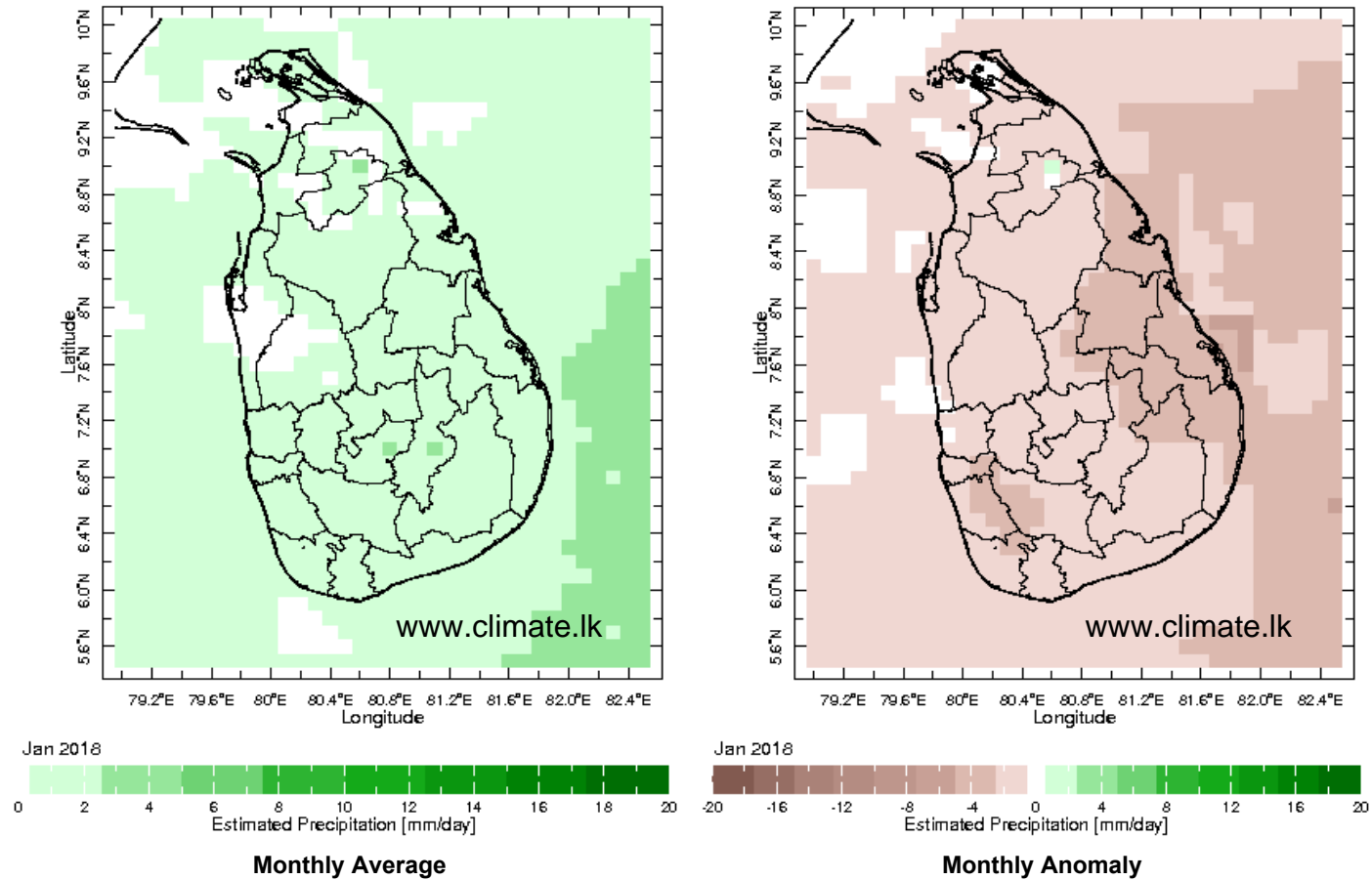


18 Feb 2018

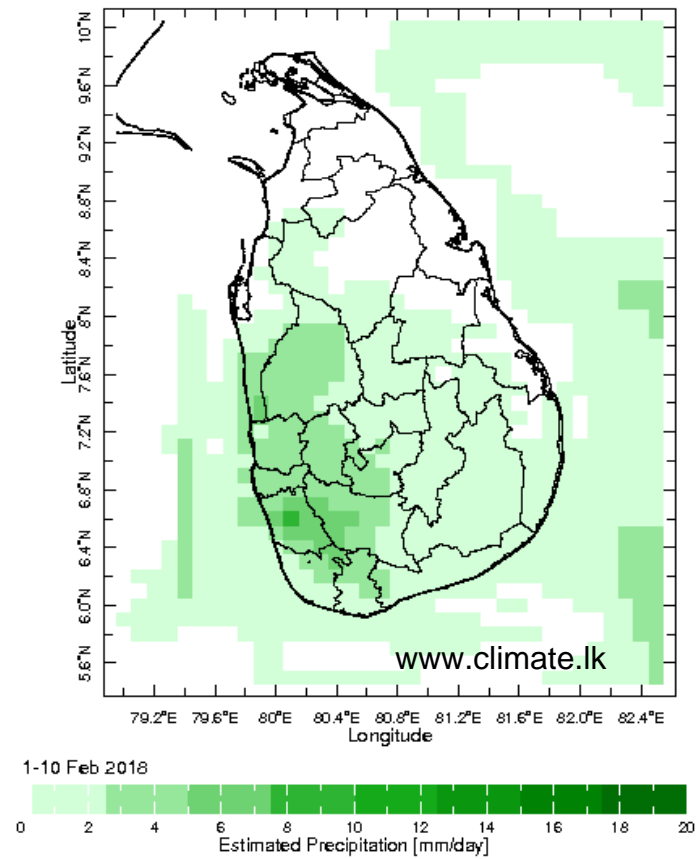
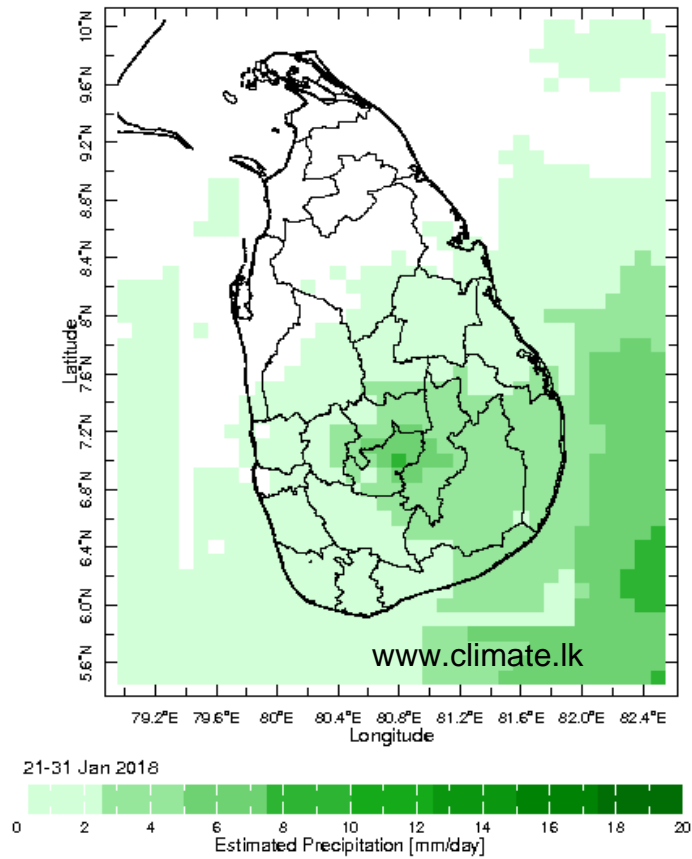


## Monthly Rainfall Monitoring

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



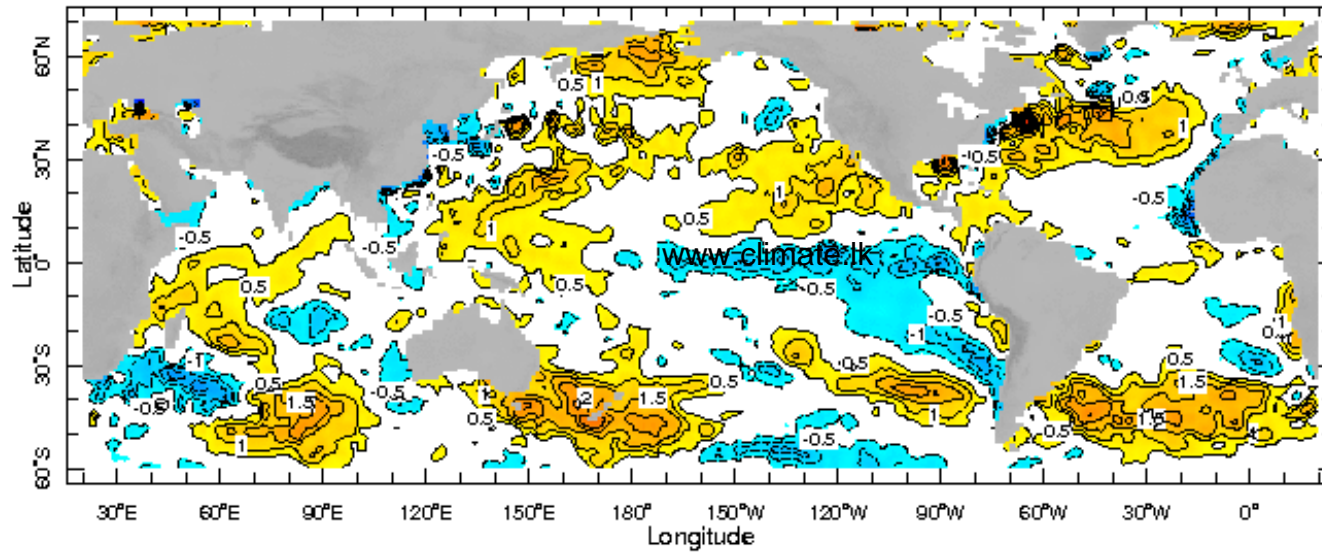
## Dekadal (10 Day) Satellite Derived Rainfall Estimates





## Weekly Average SST Anomalies

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



14 Feb 2018

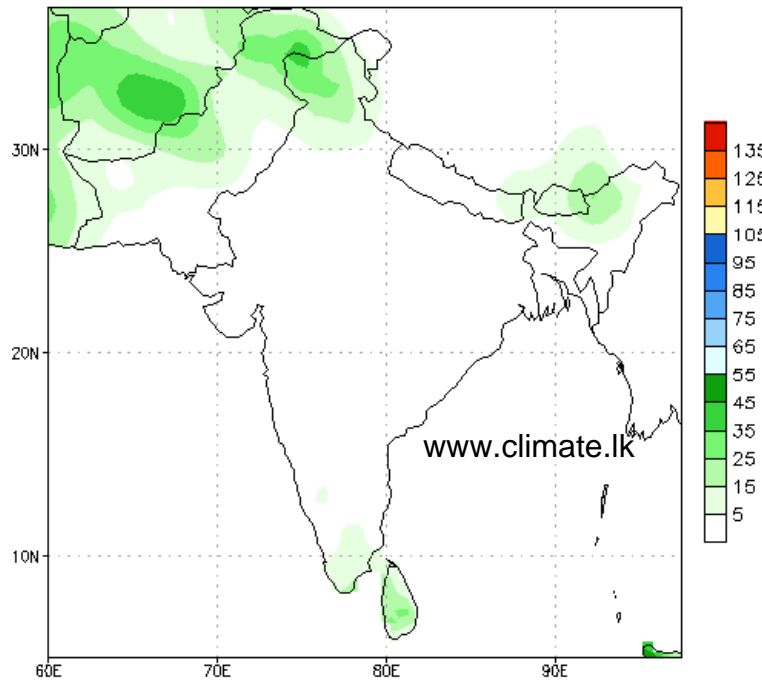


*WORLDBATH topography*

# PREDICTIONS

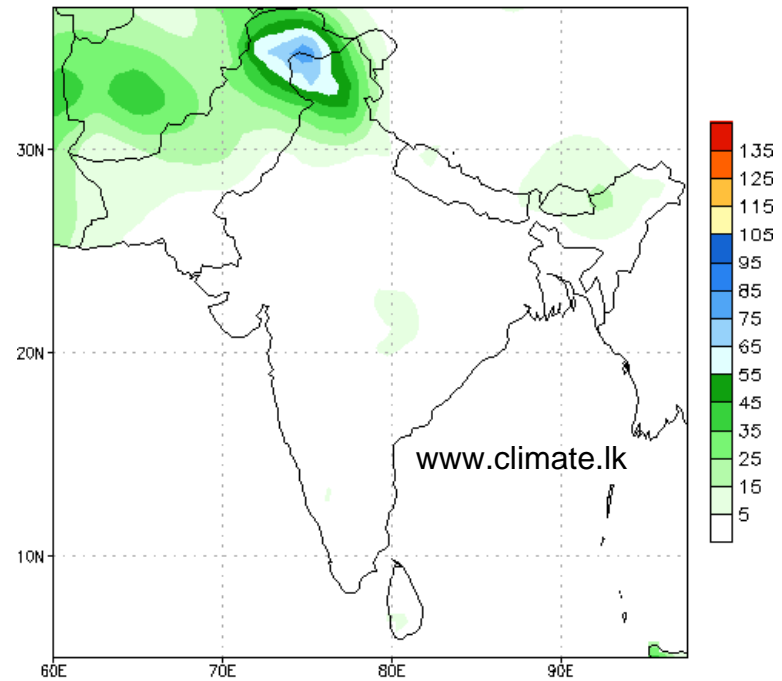
## NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 20Feb2018  
20Feb2018-26Feb2018 Accumulation



Bias correction based on last 30-day forecast error

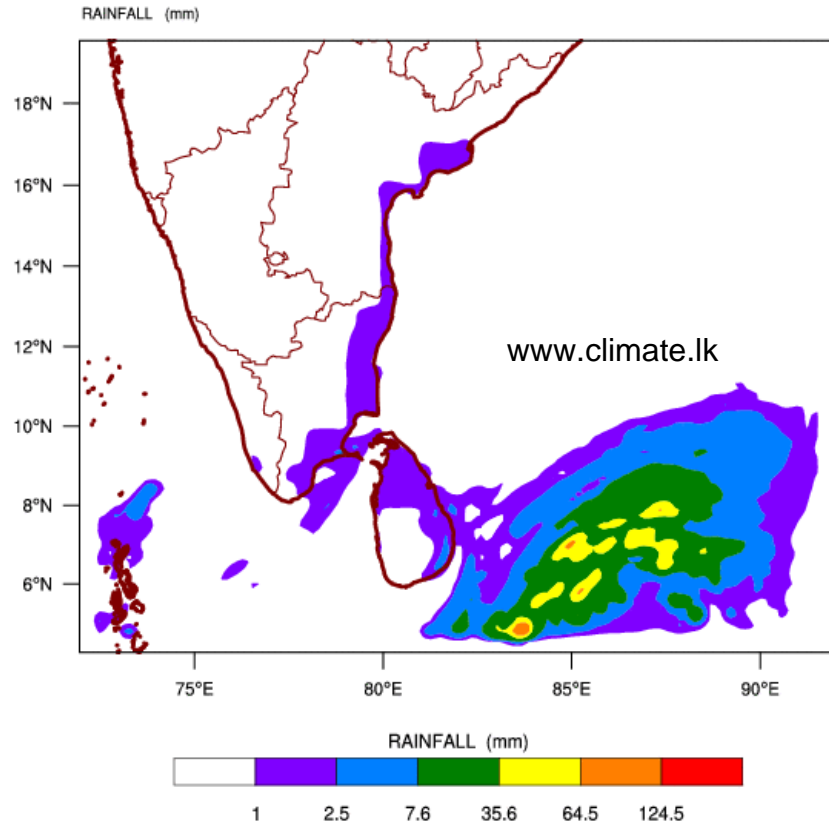
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 20Feb2018  
27Feb2018-05Mar2018 Accumulation



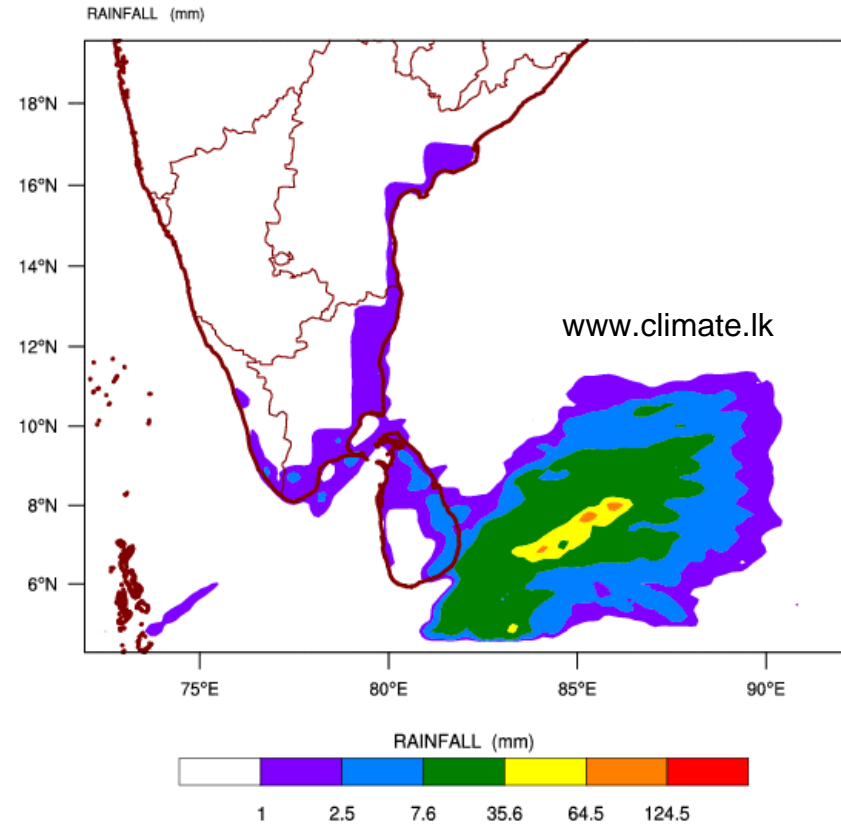
Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 21-02-2018 valid for 03 UTC of 23-02-2018



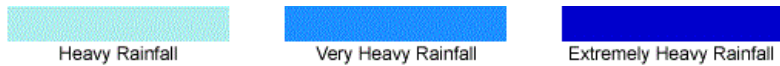
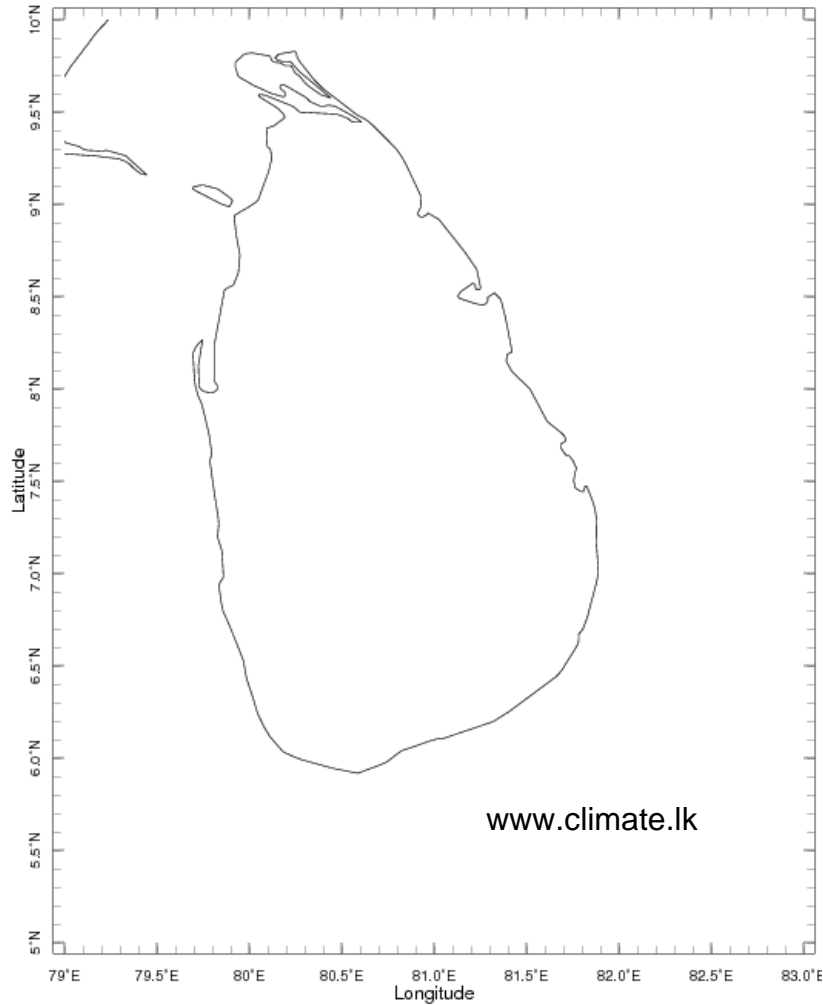
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 21-02-2018 valid for 03 UTC of 24-02-2018



# Weekly Rainfall Forecast from IRI

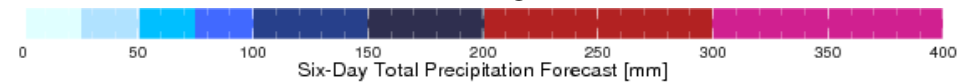
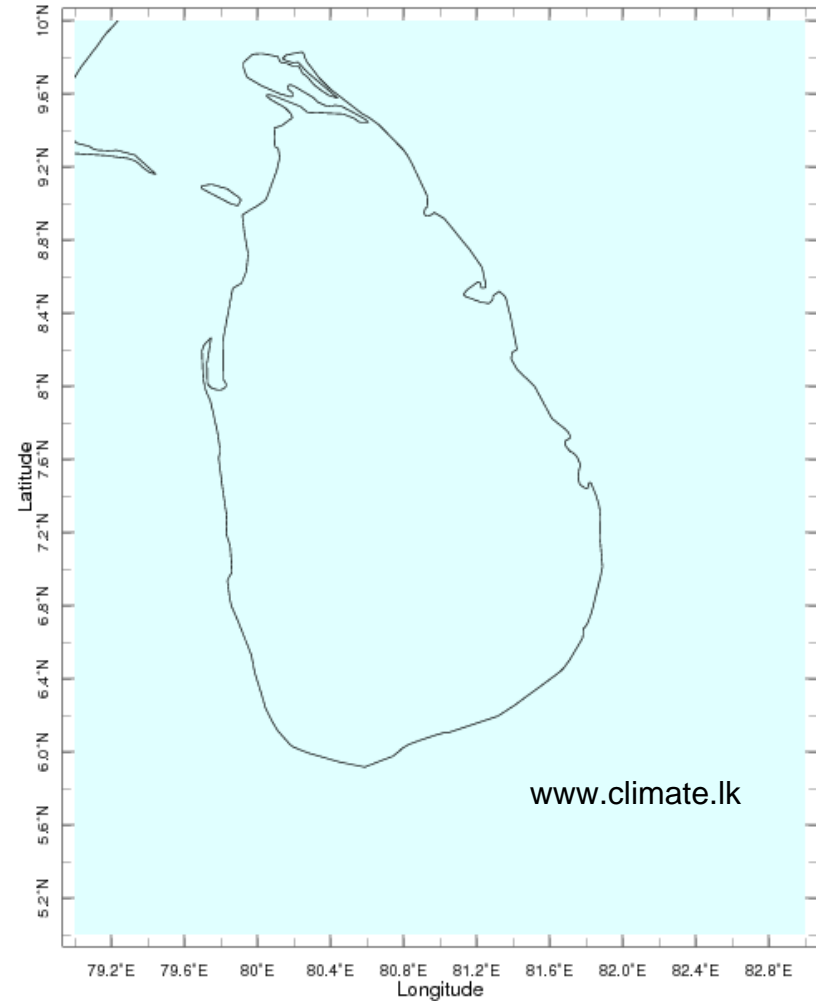
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 19-24 Feb 2018 Issued 0000 19 Feb 2018



Extreme Rainfall Forecast

Forecast for 19-24 Feb 2018 Issued 0000 19 Feb 2018



Total Six Day Precipitation Forecast