

## Experimental Climate Monitoring and Prediction

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### Highlights

- The NCEP weekly forecast predicts total rainfall between 105-115 mm in Ampara district during 30<sup>th</sup> Jan-05<sup>th</sup> Feb.
- Between 24-30 Jan: up to 50 mm of rainfall was recorded in Nuwara Eliya on the 29<sup>th</sup> and in Badulla on the 30<sup>th</sup>.
- From 21-27 Jan: minimum temperature of 15 °C was recorded from Nuwara Eliya district while western and southern parts of the island recorded a maximum temperature between 30-35 °C.
- From 23-29 Jan: 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 24<sup>th</sup>- 28<sup>th</sup> Jan. On January 29<sup>th</sup> Nuwara Eliya district received up to 50 mm of rainfall; Kandy district up to 40 mm; Badulla and Monaragala districts up to 30 mm; Batticaloa, Ampara, Kegalla, Ratnapura, Galle, Hambantota and Matale districts up to 20 mm; and up to 10 mm in most parts of the island. On the 30<sup>th</sup>, Badulla district received up to 50 mm of rainfall; Nuwara Eliya and Ampara districts up to 40 mm; Nuwara Eliya, Monaragala and Hambantota districts up to 30 mm; and Kegalla, Ratnapura, Hambantota, Matale, and Batticaloa districts up to 20 mm.

**Total Rainfall for the Past Week:** The RFE 2.0 tool shows total rainfall of 75-100 mm in Nuwara Eliya district; Kandy, Badulla, Monaragala and Ampara districts up to 50-75 mm; and Hambantota, Kegalla and Ratnapura districts up to 25-50 mm. It also shows above average rainfall up to 50-100 mm in Nuwara Eliya and Badulla districts; up to 25-50 mm in Kandy, Matale, Monaragala and Ampara districts. Below average rainfall up to 10-25 mm is shown for Mullaitivu, Kurunegala, Gampaha, Colombo and Kalutara districts.

**Monthly Monitoring:** During December - below average rainfall conditions were experienced by the entire island except for several regions of Ratnapura, Badulla, Monaragala and Hambantota districts. Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa and Ampara districts received up to 180 mm below average rainfall; and Gampaha, Jaffna, Kilinochchi, Mannar, Puttalam, Kurunegala, Kandy and Galle districts received up to 150 mm. The CPC Unified Precipitation Analysis tool shows ~300 mm of total rainfall in Badulla, Monaragala and Ratnapura districts; up to ~200 mm in Nuwara Eliya and Ratnapura districts; and Anuradhapura, Puttalam, Kurunegala, Gampaha, Kegalla, Matale, Galle, Matara, Polonnaruwa, Trincomalee and Ampara districts up to 100 mm.

#### Ocean State (Text Courtesy IRI)

##### Pacific sea state: January 19, 2018

In mid-January 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 atmosphere variables showing patterns suggestive of La Niña conditions. The collection of latest ENSO prediction models indicates weak La Niña continuing through the Northern Hemisphere winter and early spring, followed by a return to neutral conditions during spring. This scenario is consistent with the official CPC/IRI outlook, which continues its La Niña advisory.

##### 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 30<sup>th</sup> Jan–05<sup>th</sup> Feb: Total rainfall between 105-115 mm in Ampara district; between 95-105 mm in Batticaloa and Monaragala districts; between 85-95 mm in Badulla and Hambantota districts; between 75-85 mm in Polonnaruwa, Kandy, Nuwara Eliya and Ratnapura districts; between 65-75 mm in Matale and Matara districts; between 55-65 mm in Trincomalee, Kegalle, Kalutara and Galle districts; between 45-55 mm in Anuradhapura, Kurunegala, Gampaha and Colombo districts; between 25-35 mm in Vavuniya and Puttalam districts; Up to 25 mm total rainfall rest of the island.

From 06<sup>th</sup> – 12<sup>th</sup> Feb: Total rainfall between 5-15 mm in Puttalam, Kurunegala, Kegalla, Gampaha, Colombo, Ratnapura, Galle and Matara districts; Up to 5 mm of total rainfall rest of the island.

#### IMD WRF Forecast:

02<sup>nd</sup> Feb: Up to 7.6 mm of rainfall in Ampara, Monaragala, Hambantota and Kegalla districts; Up to 2.5 mm in Kilinochchi, Mullaitivu, Mannar, Vavuniya, Puttalam, Kurunegala, Anuradhapura, Trincomalee, Polonnaruwa, Batticaloa, Badulla, Matara, Galle, Kalutara and Colombo districts.

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

#### IRI Model Forecast:

From 31<sup>st</sup> Jan - 05<sup>th</sup> Feb: Total rainfall between 50-75 mm in Batticaloa, Ampara, Monaragala, Nuwara Eliya, Ratnapura, Galle, Kalutara, Colombo, Gampaha and Kegalle districts; between 25-50 mm in Trincomalee, Polonnaruwa, Puttalam, Kurunegala, Matale, Kandy, Badulla, Hambantota and Matara 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.

<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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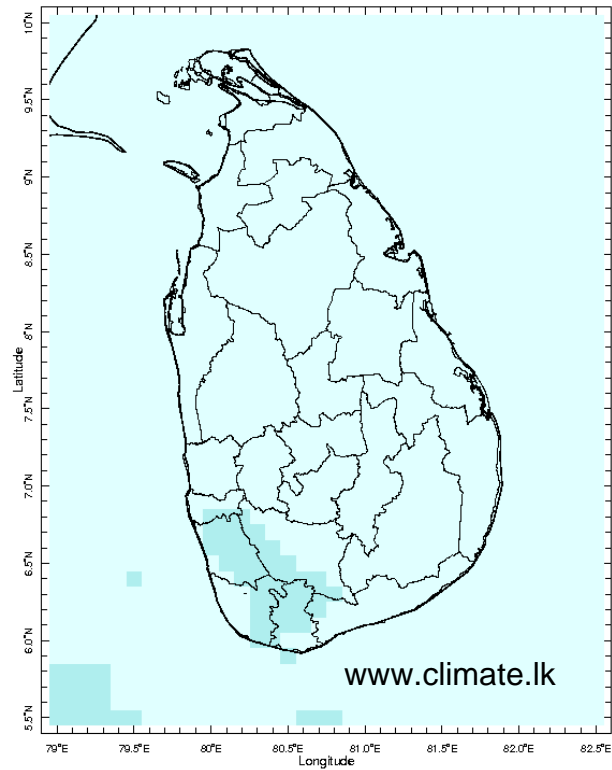
#### 2. Predictions

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- b. WRF Model Rainfall Forecast from IMD Chennai
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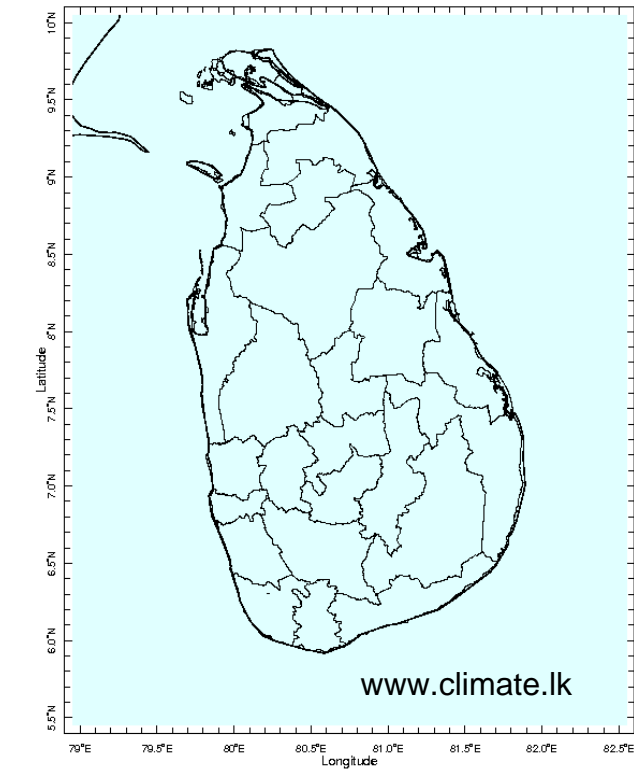
## MONITORING

### Daily Rainfall Monitoring

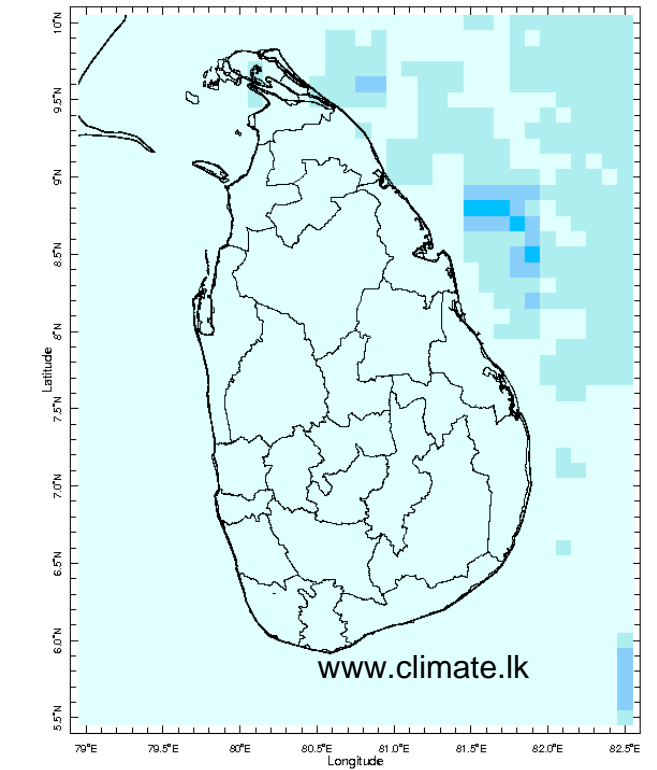
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



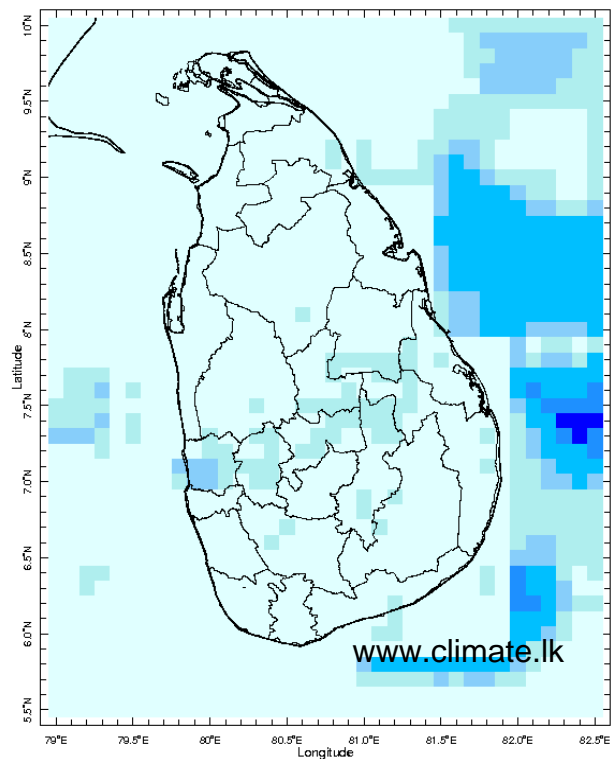
24 Jan 2018



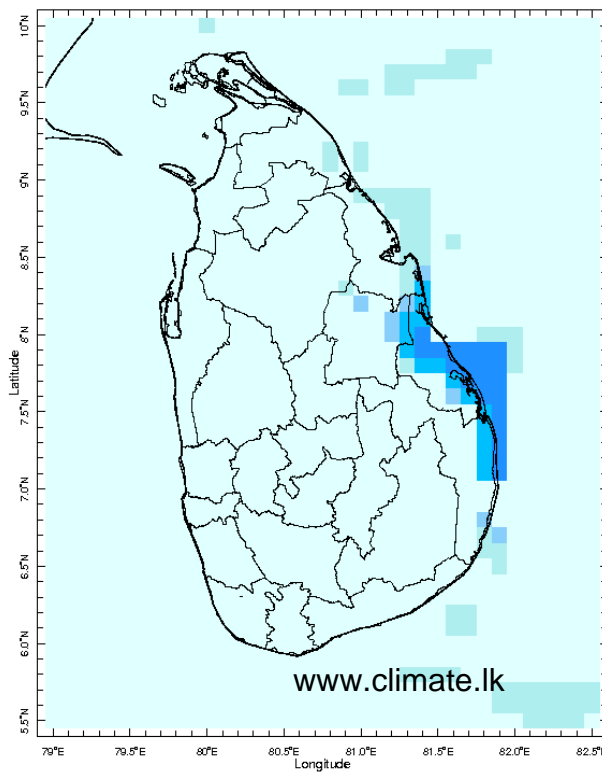
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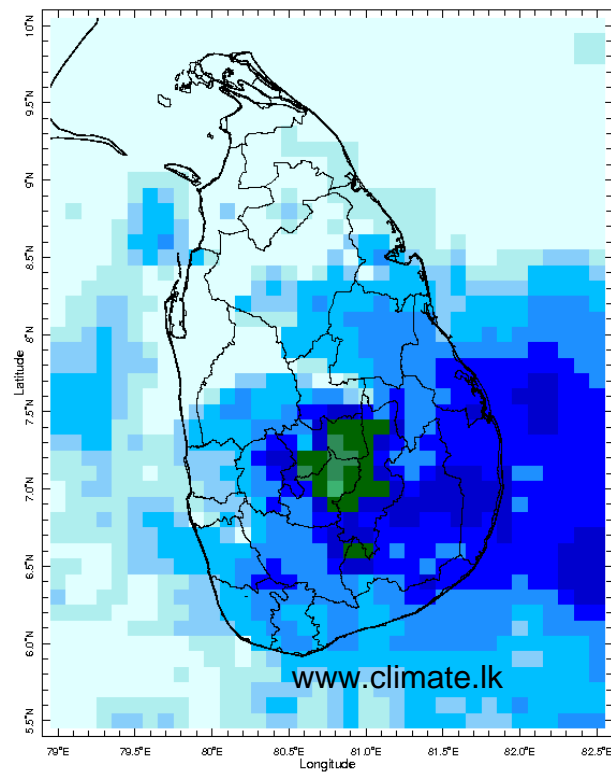
26 Jan 2018



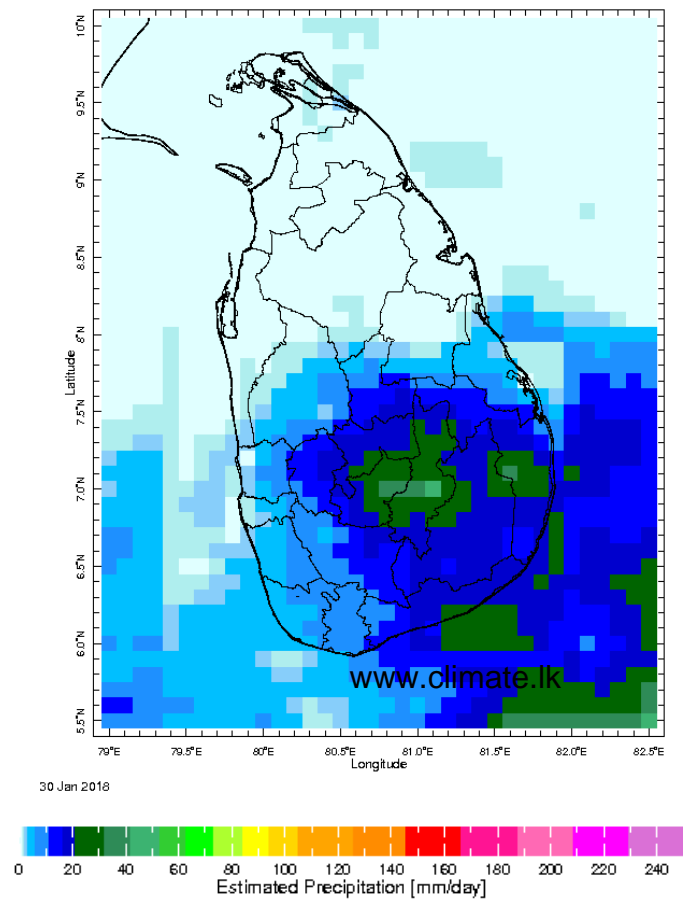
27 Jan 2018



28 Jan 2018

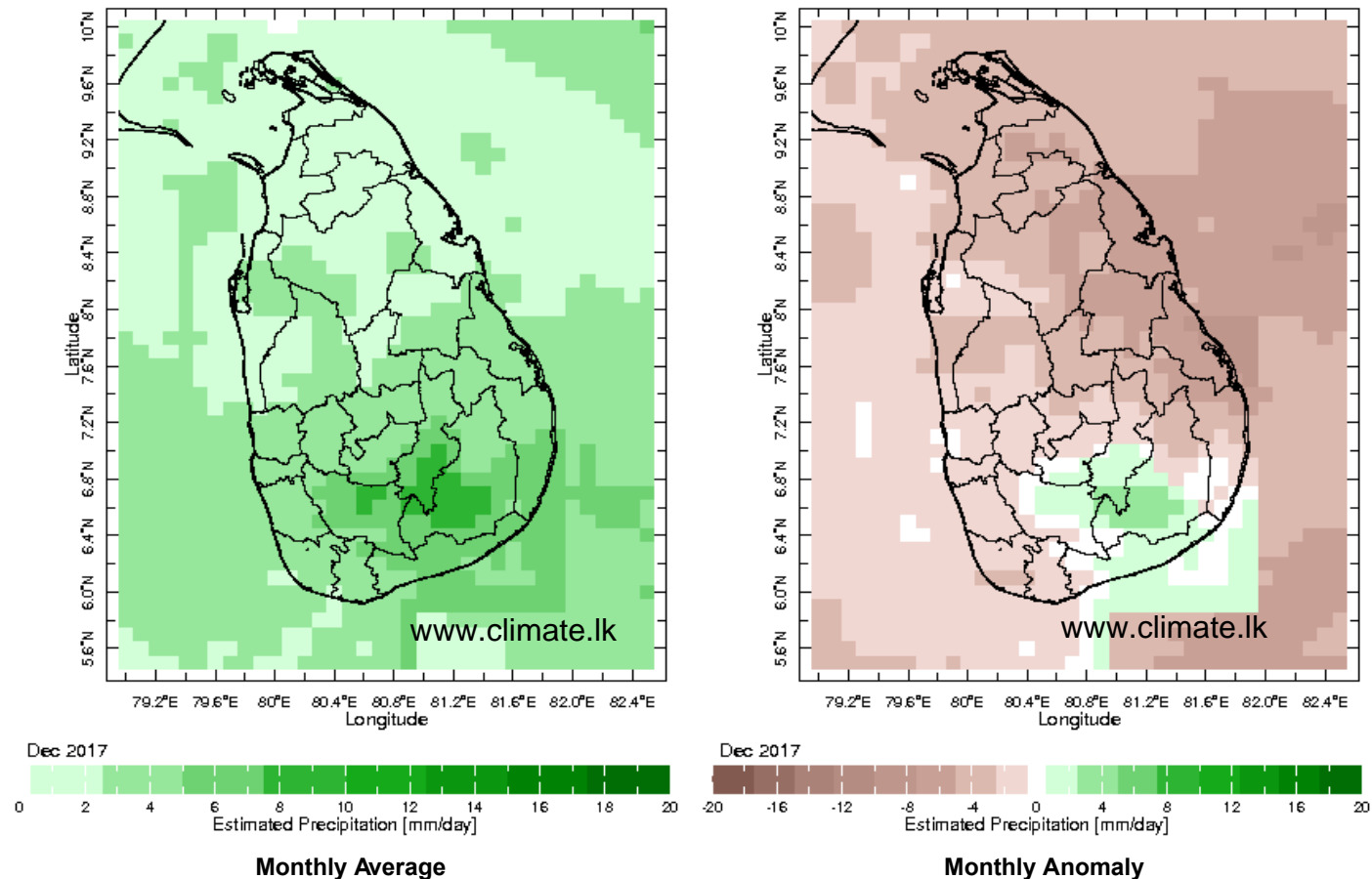


29 Jan 2018

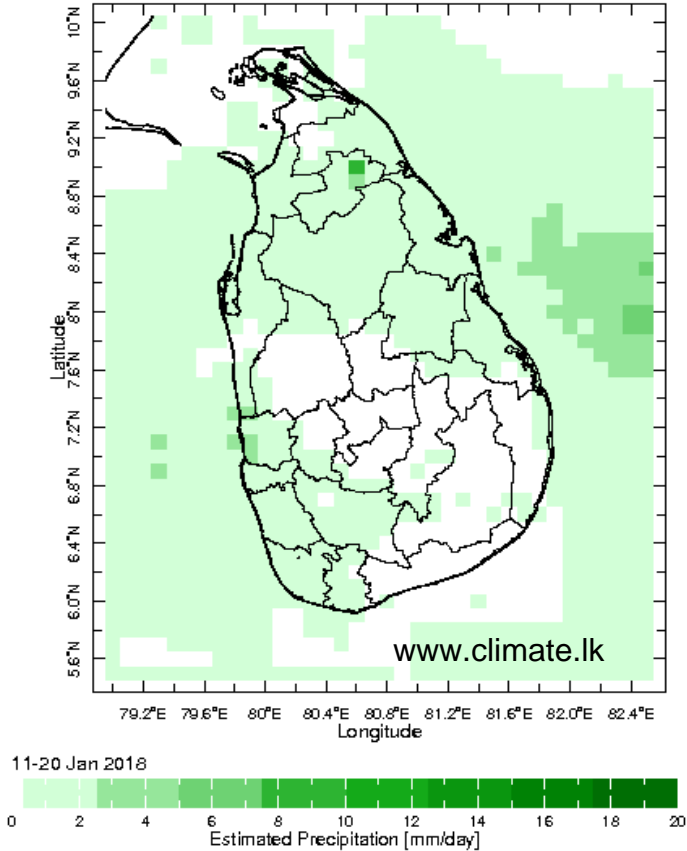
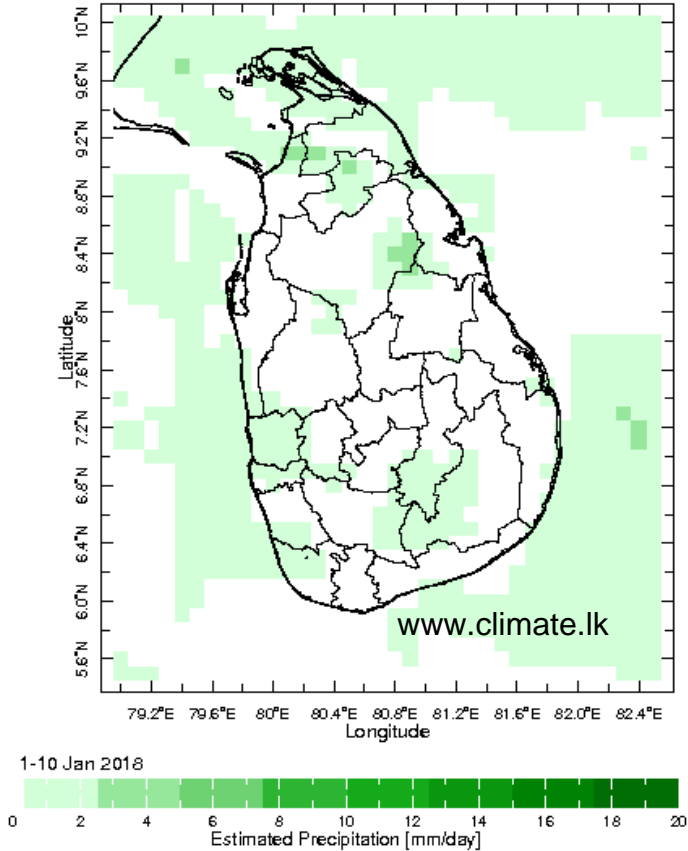


## Monthly Rainfall Monitoring

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



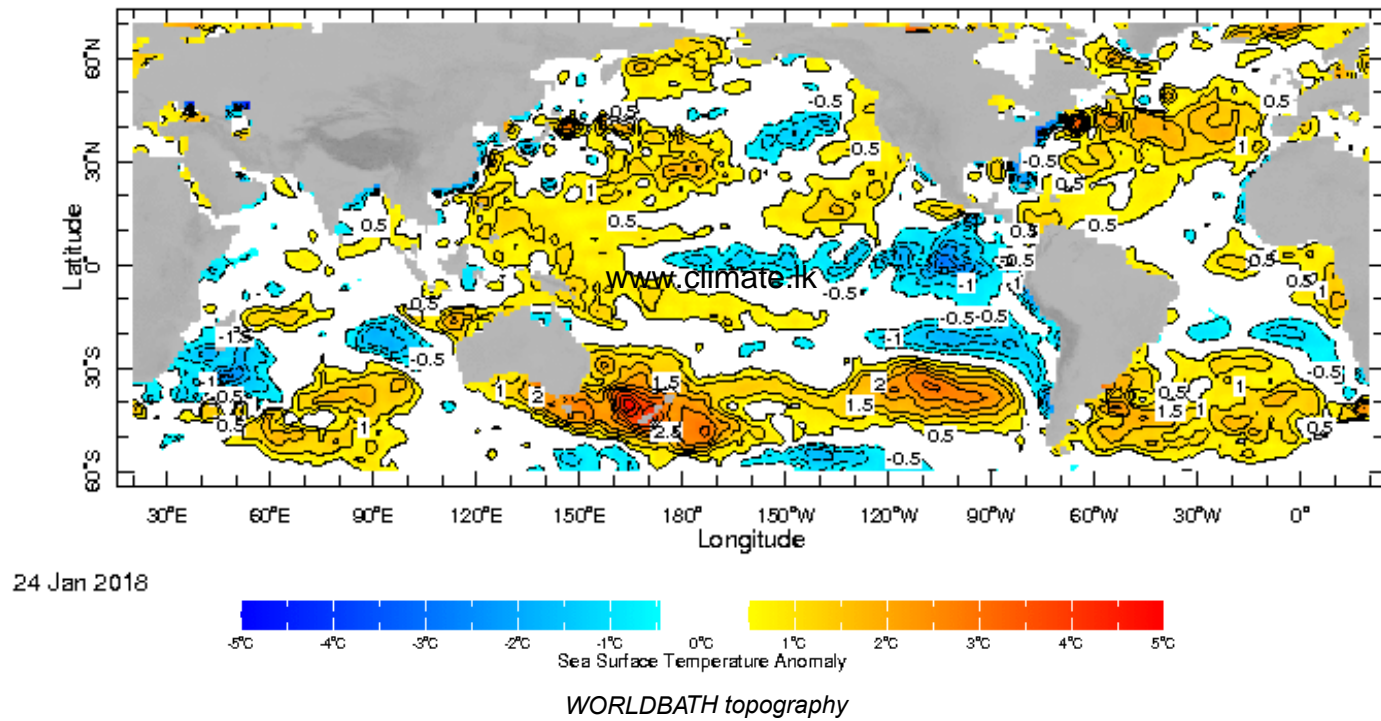
Dekadal (10 Day) Satellite Derived Rainfall Estimates





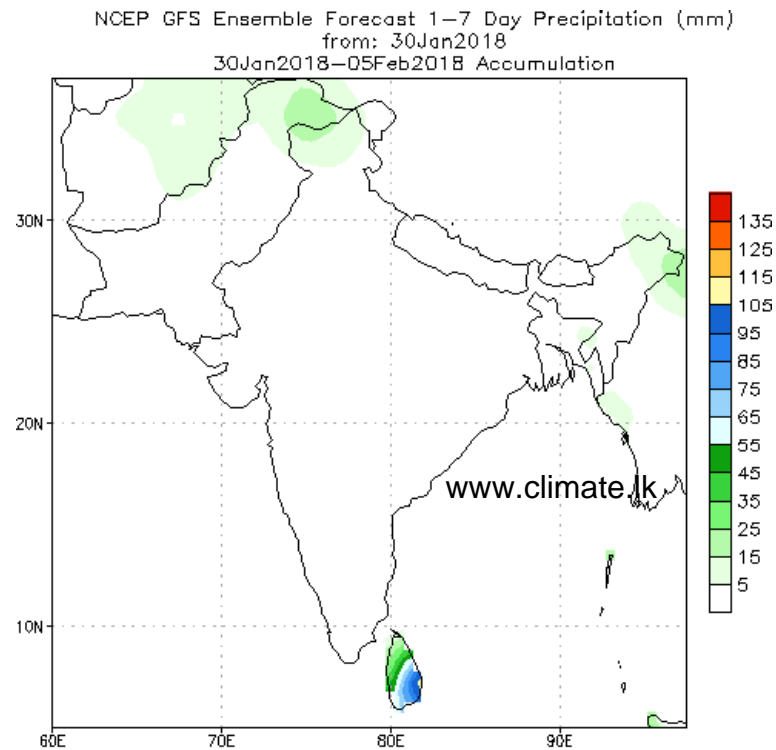
## Weekly Average SST Anomalies

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

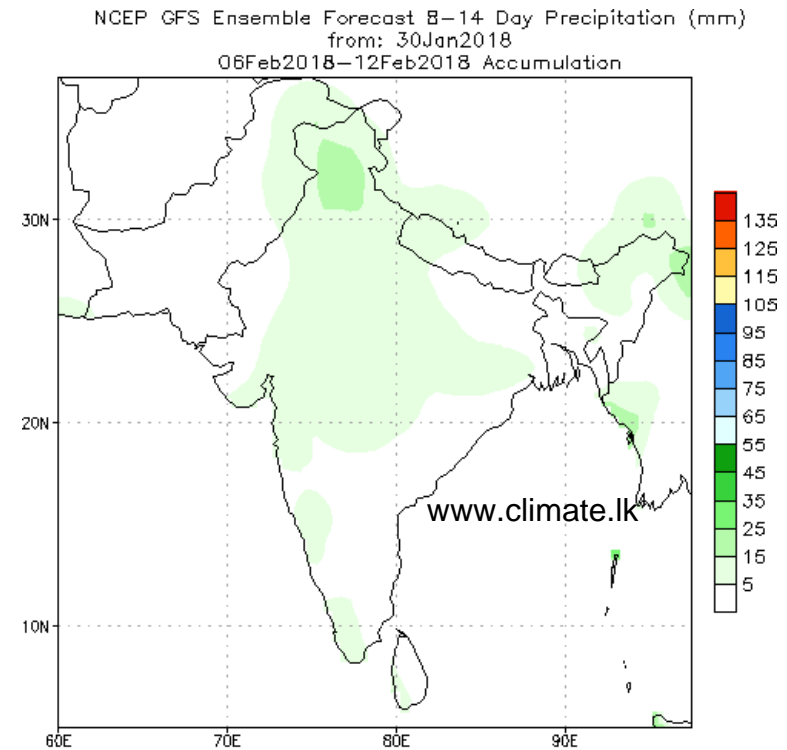


## PREDICTIONS

### NCEP GFS 1- 14 Day prediction



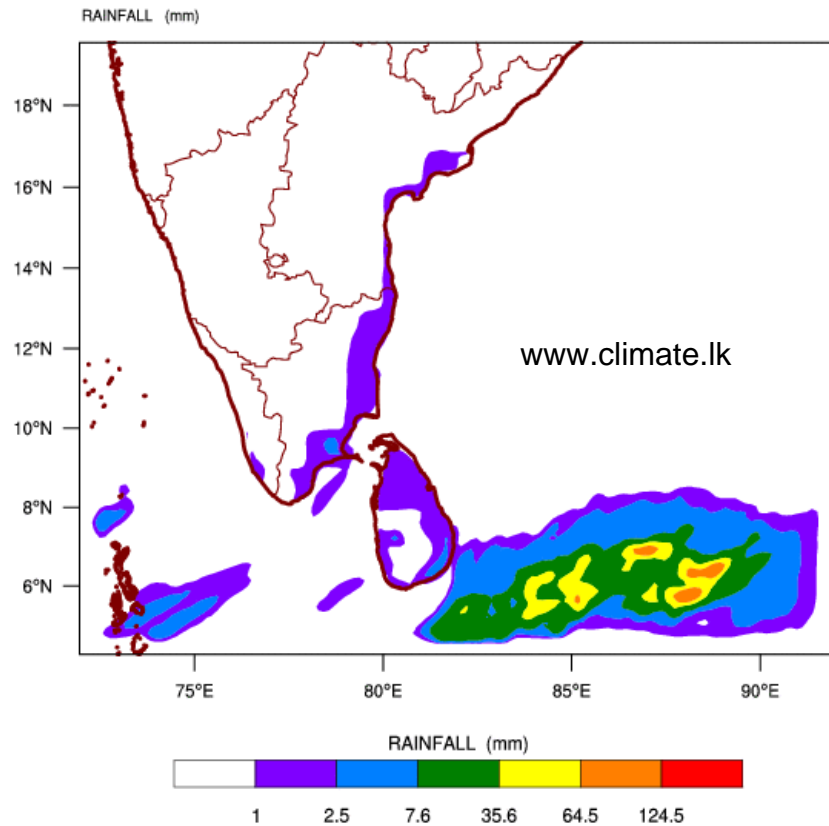
Bias correction based on last 30-day forecast error



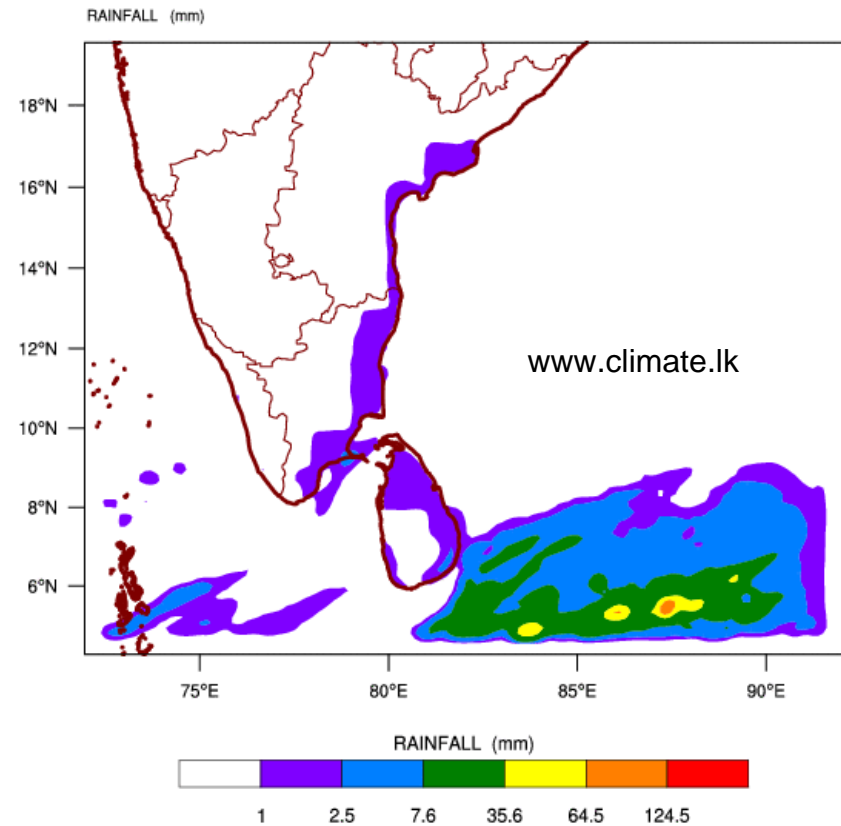
Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 31-01-2018 valid for 03 UTC of 02-02-2018



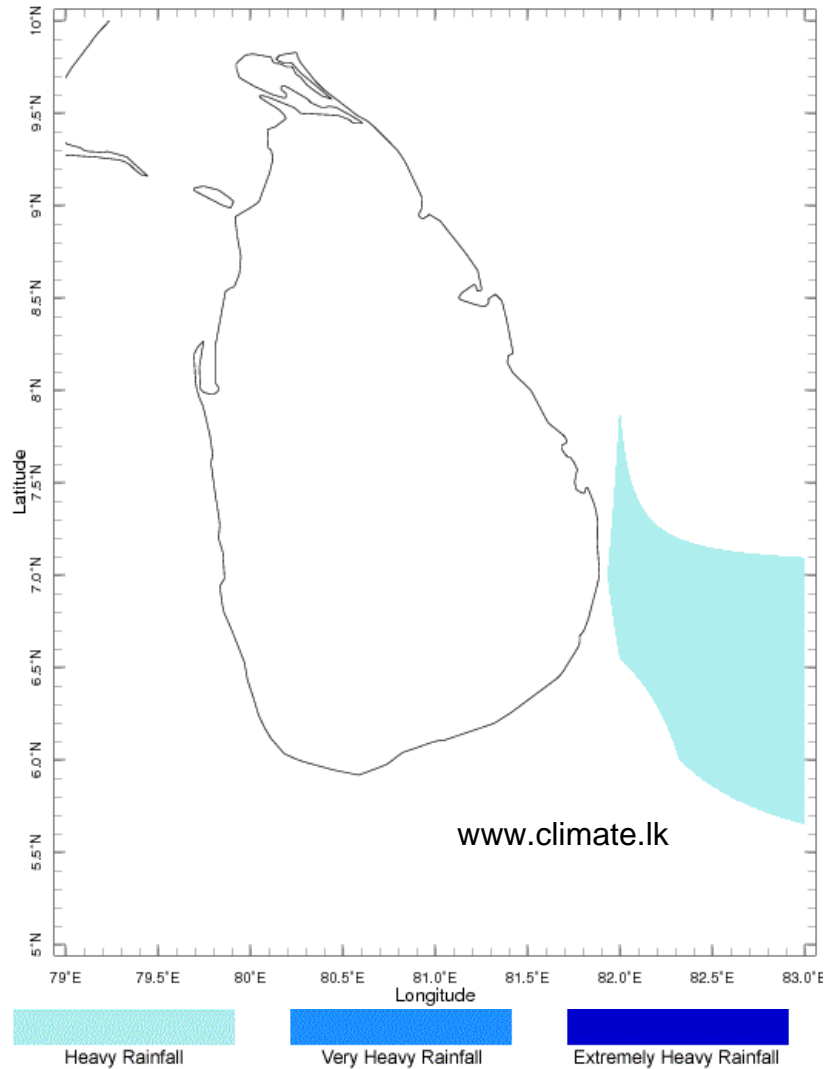
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 31-01-2018 valid for 03 UTC of 03-02-2018



## Weekly Rainfall Forecast from IRI

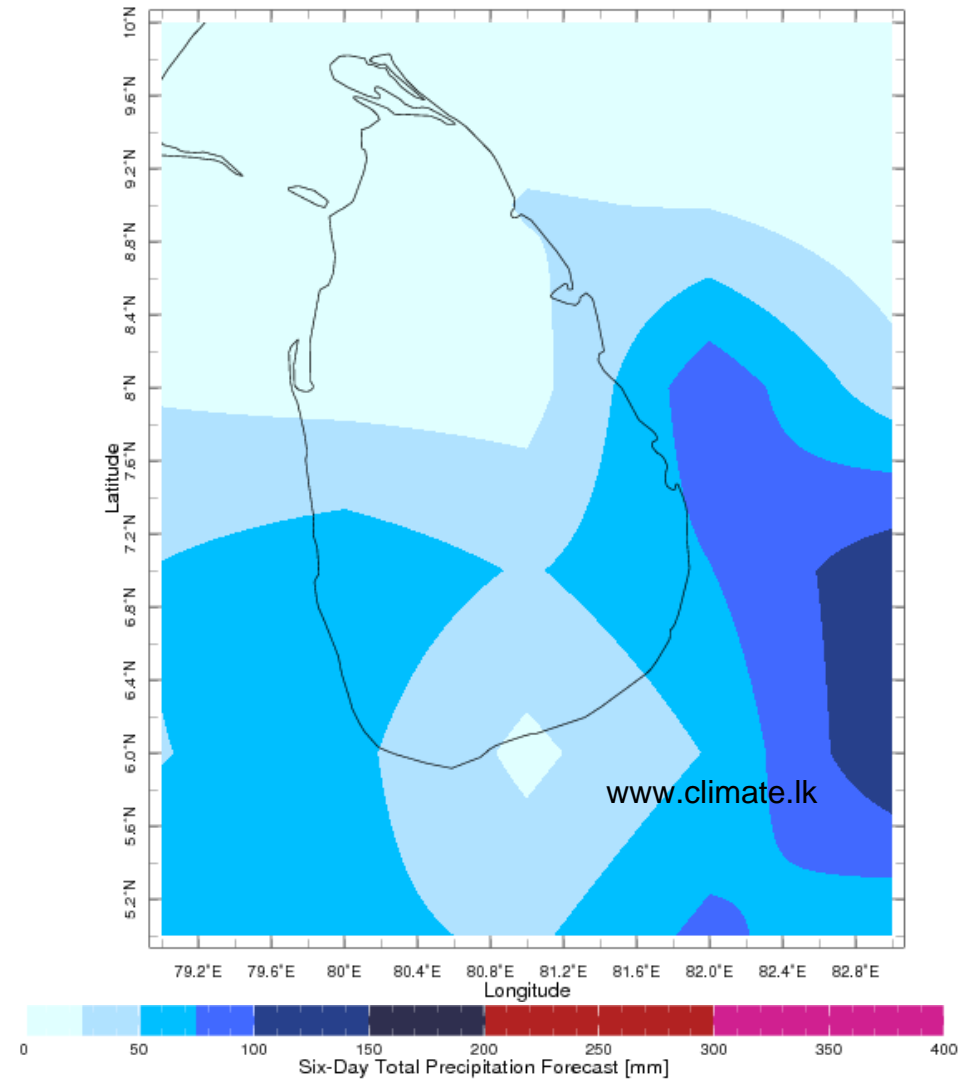
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 31 Jan 2018 - 5 Feb 2018 Issued 0000 31 Jan 2018



Extreme Rainfall Forecast

Forecast for 31 Jan 2018 - 5 Feb 2018 Issued 0000 31 Jan 2018



Total Six Day Precipitation Forecast