

## 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>)

8 March 2018

### Highlights

- The IRI weekly forecast predicts total rainfall between 75-100 mm in Ampara and Monaragala districts during 7<sup>th</sup>-12<sup>th</sup> Mar.
- Between 27 Feb- 5 Mar: up to 140 mm of rainfall was recorded in Batticaloa district on the 27<sup>th</sup>.
- From 25 Feb- 3 Mar: minimum temperature of 15 °C was recorded from Nuwara Eliya district while Kurunegala district recorded a maximum temperature between 35-40 °C.
- From 27 Feb- 5 Mar: up to 22 km/h, easterly winds were experienced by the entire island.
- Average sea surface temperature was observed in the seas around Sri Lanka.

### Monitoring

#### Rainfall

**Weekly Monitoring:** On February 27<sup>th</sup>, Batticaloa district received up to 140 mm of rainfall; Ampara and Badulla districts up to 100 mm; Trincomalee and Polonnaruwa districts up to 70 mm; Mullaitivu, Kalutara, Galle, Matara and Ratnapura districts up to 50 mm; Vavuniya, Anuradhapura, Hambantota and Kandy districts up to 30 mm; and Kilinochchi, Mannar, Kurunegala, Colombo, Kegalla and Nuwara Eliya districts up to 20 mm. On the 28<sup>th</sup>, Gampaha and Kegalla districts received up to 90 mm of rainfall; Colombo, district up to 50 mm; Trincomalee, Matale, Kurunegala and Kalutara districts up to 30 mm; and Puttalam, Polonnaruwa, Anuradhapura, Nuwara Eliya and Galle districts up to 20 mm. On March 1<sup>st</sup>, Nuwara Eliya and Badulla districts received up to 30 mm; and Ratnapura and Galle districts up to 20 mm. On the 2<sup>nd</sup>, Gampaha, Colombo, Kalutara, Galle, Matara, Kegalla, Ratnapura and several regions of Kurunegala and Nuwara Eliya districts received up to 10 mm of rainfall. On the 3<sup>rd</sup>, Colombo district received up to 70 mm of rainfall; Kalutara district up to 30 mm; and Gampaha, Kurunegala, Kegalla, Ratnapura and Galle districts up to 20 mm. On the 4<sup>th</sup>, Galle district received up to 30 mm of rainfall; and Matara, Ratnapura and Hambantota districts up to 20 mm. On the 6<sup>th</sup>, Kalutara and Galle districts received up to 30 mm of rainfall; and Ratnapura, Matara and several regions of Matale, Kandy, Nuwara Eliya and Kegalla districts received up to 10 mm.

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

**Monthly Monitoring:** During February - below average rainfall conditions were mainly experienced by northern and southeastern regions of the island. Jaffna, Vavuniya, Mullaitivu, Mannar, Trincomalee, Anuradhapura, Kandy, Nuwara Eliya and southern regions of Badulla, Monaragala and Ampara districts received up to 150 mm below average rainfall. Above average rainfall up to 150 mm was received by northern regions of Ampara, Badulla and Monaragala districts; and up to 120 mm by Gampaha, Batticaloa and Matara districts. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Matara, Ratnapura, Nuwara Eliya, Kegalla, Kurunegala, Polonnaruwa, Matale, Kandy, Badulla, Monaragala, Ampara and Gampaha districts; and up to ~75 mm in Mullaitivu, Anuradhapura, Puttalam, Colombo and Hambantota 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 seas around Sri Lanka.

**Predictions****Rainfall****14-day prediction:****NOAA NCEP models:**

From 7<sup>th</sup>-13<sup>th</sup> Mar: Total rainfall between 45-55 mm in Batticaloa and Ampara districts; between 35-45 mm in Trincomalee, Polonnaruwa and Monaragala districts; between 25-35 mm in Badulla, Hambantota, Galle and Matara districts; between 15-25 mm in Anuradhapura, Matale, Kandy, Nuwara Eliya, Ratnapura, Kalutara, Colombo and Gampaha districts; Up to 15 mm of total rainfall rest of the island.

From 14<sup>th</sup>-20<sup>th</sup> Mar: Total rainfall between 25-35 mm in Trincomalee and Batticaloa districts; between 15-25 mm in Polonnaruwa and Ampara districts; Up to 15 mm of total rainfall rest of the island.

**IMD WRF Forecast:**

9<sup>th</sup> Mar: Up to 7.6 mm of rainfall in Monaragala, Ampara and Hambantota districts; Up to 2.5 mm of rainfall in Jaffna, Mullaitivu, Mannar, Vavuniya, Trincomalee, Anuradhapura, Polonnaruwa, Batticaloa, Matara, Galle, Kalutara, Colombo, Gampaha, Puttalam and Kurunegala districts.

10<sup>th</sup> Mar: Up to 35.6 mm of rainfall in Ampara and Batticaloa districts; Up to 7.6 mm in Kilinochchi, Mullaitivu, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Matale, Kandy, Kegalle, Badulla, Monaragala and Hambantota districts; Up to 7.6 mm of rainfall in rest of the island.

**IRI Model Forecast:**

From 7<sup>th</sup>-12<sup>th</sup> Mar: Total rainfall between 75-100 mm in Ampara and Monaragala districts; between 50-75 mm in Batticaloa, Badulla, Hambantota, Ratnapura, Nuwara Eliya, Kandy, Kegalle, Gampaha, Colombo and Kalutara districts; between 25-50 mm in Trincomalee, Polonnaruwa, Matale, Kurunegala and Puttalam 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 in the next 5 days; shall not have an effect on the following 5 days; and shall suppress the rainfall in the next 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/>



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## Weekly Hydro- Meteorological Report for Sri Lanka

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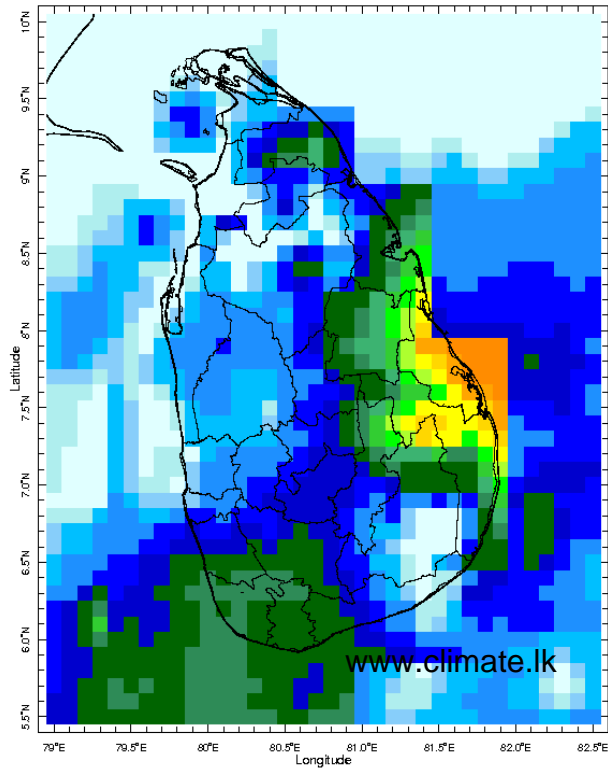
#### 2. Predictions

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- d. Seasonal Predictions from IRI

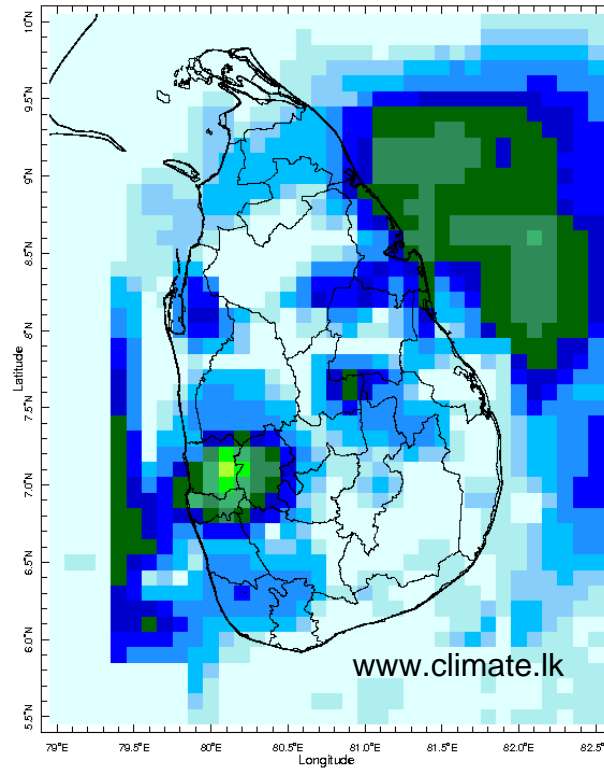
# MONITORING

## Daily Rainfall Monitoring

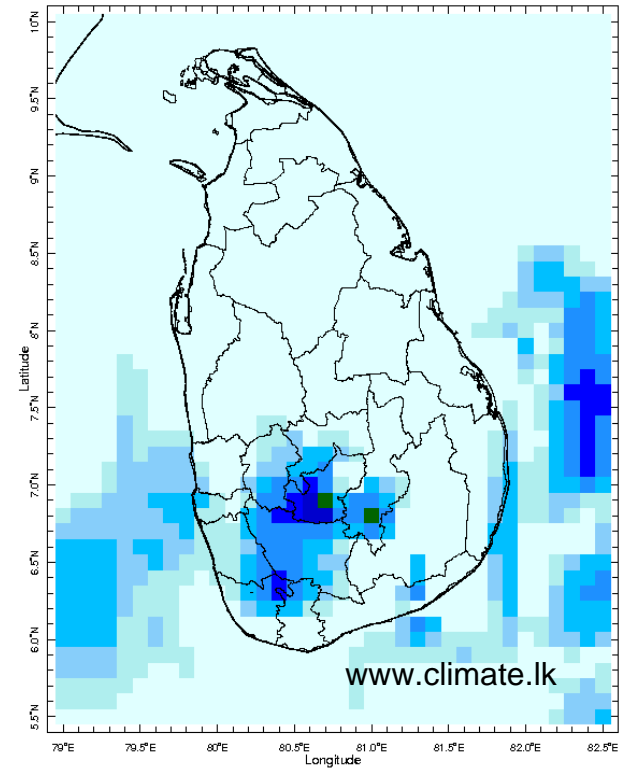
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



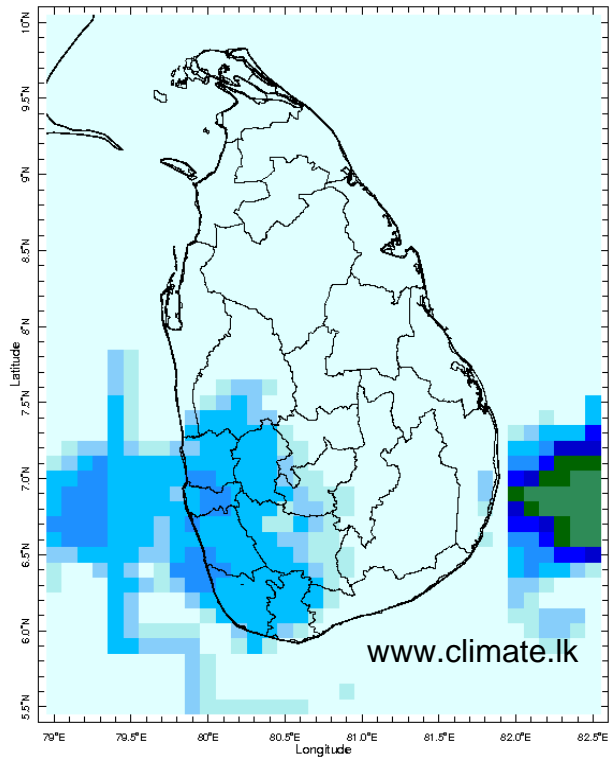
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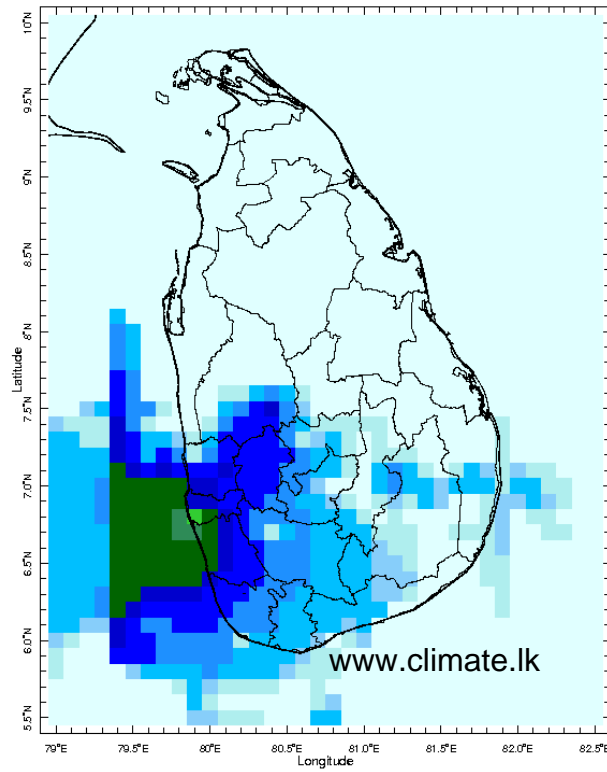
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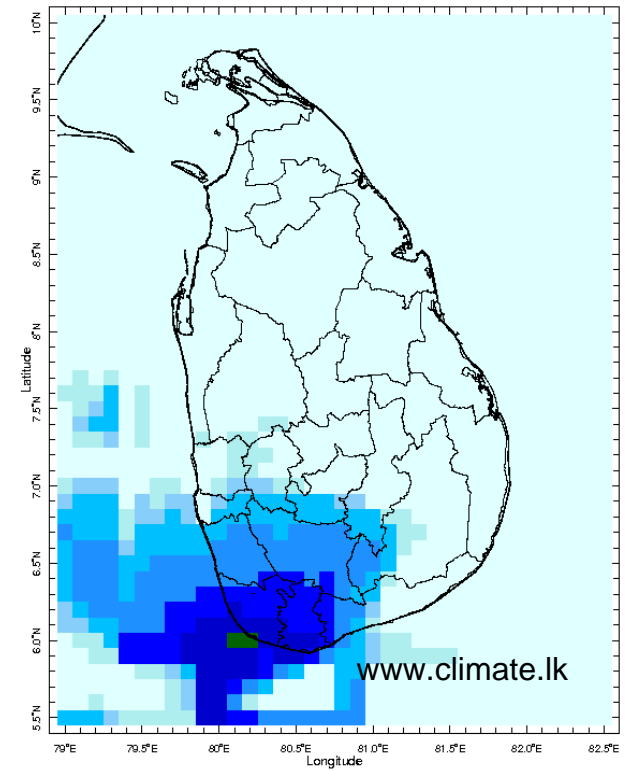
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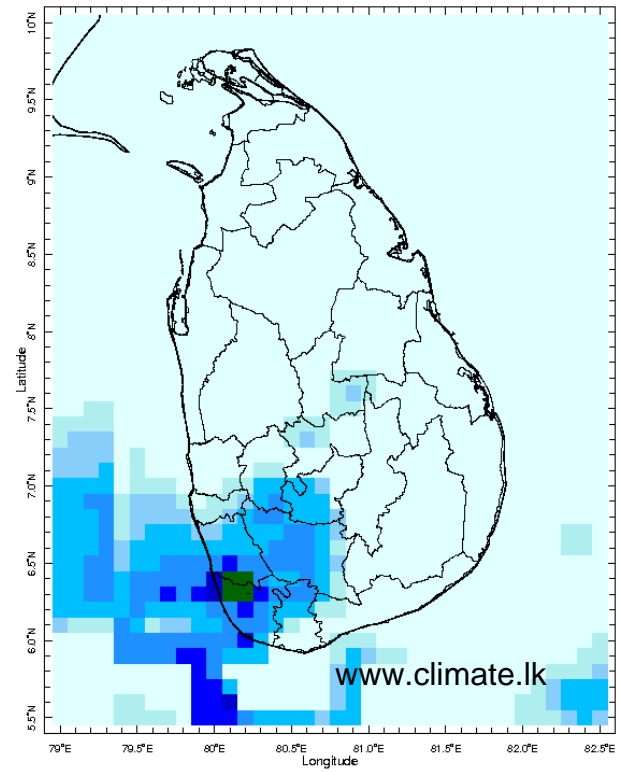
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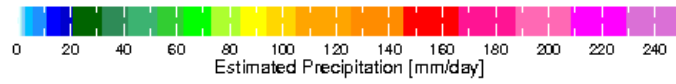
3 Mar 2018



4 Mar 2018

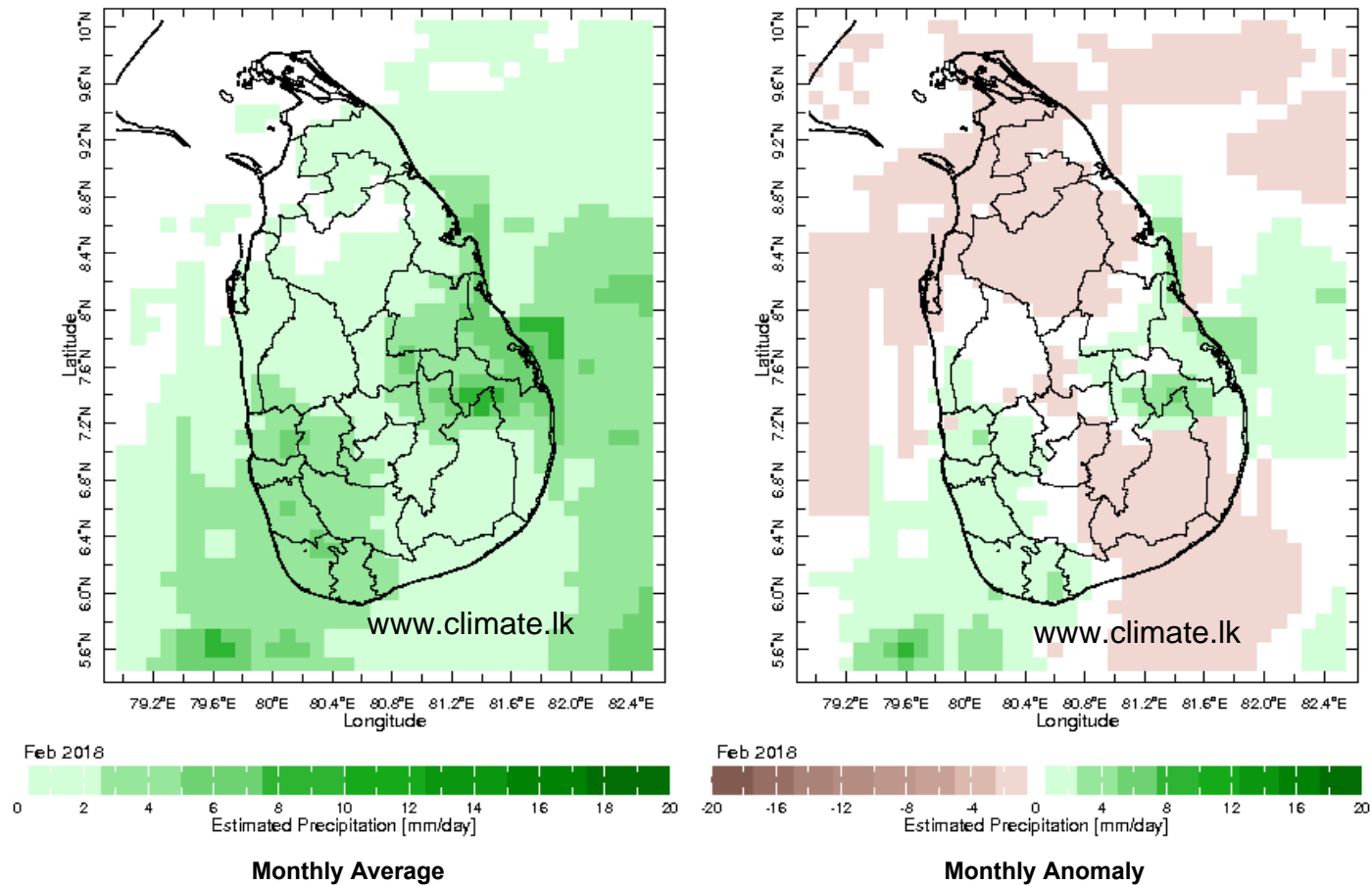


5 Mar 2018

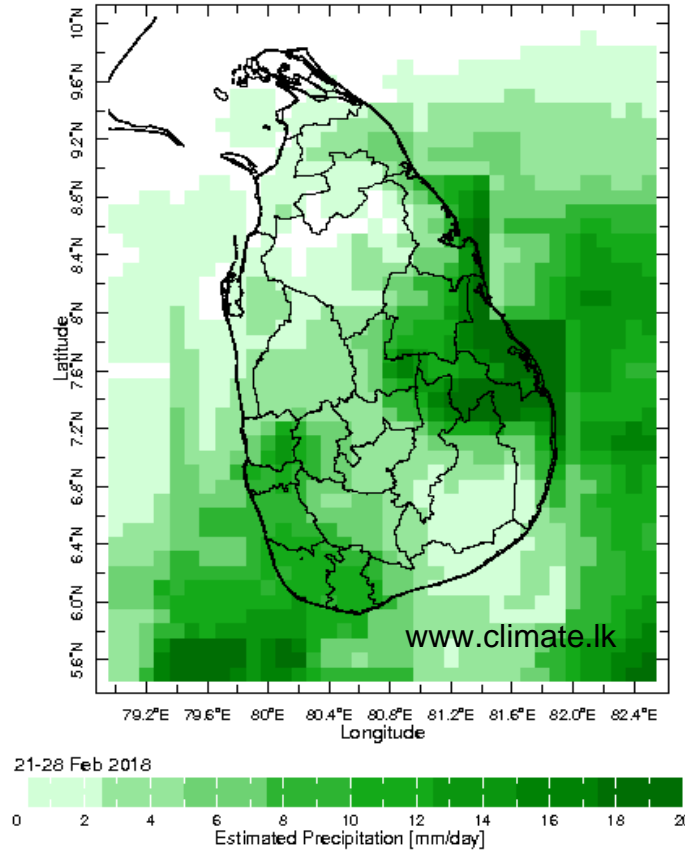
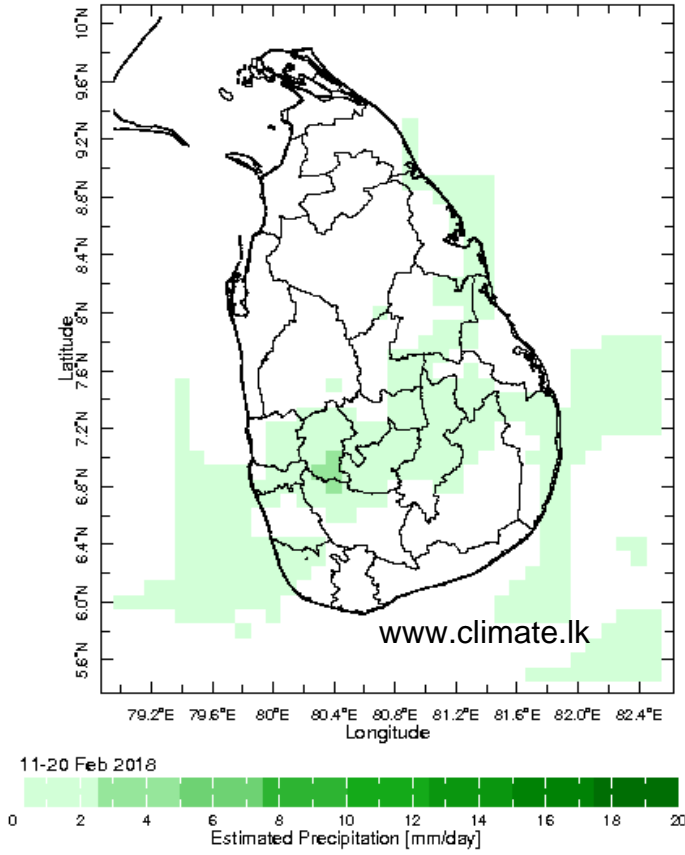


## Monthly Rainfall Monitoring

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



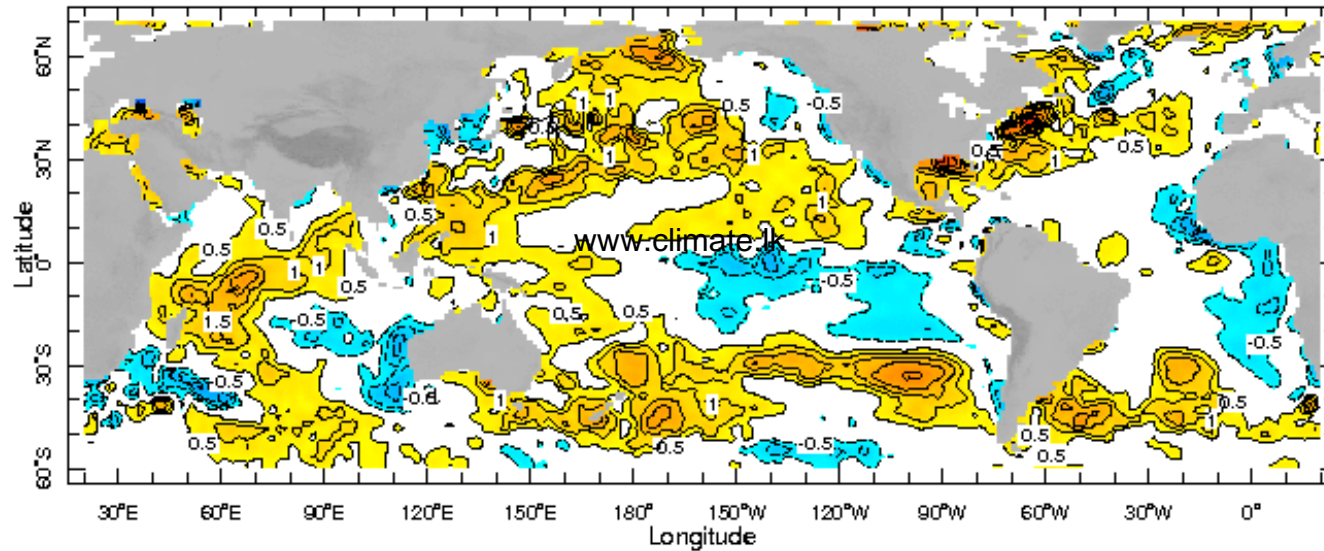
**Dekadal (10 Day) Satellite Derived Rainfall Estimates**





## Weekly Average SST Anomalies

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

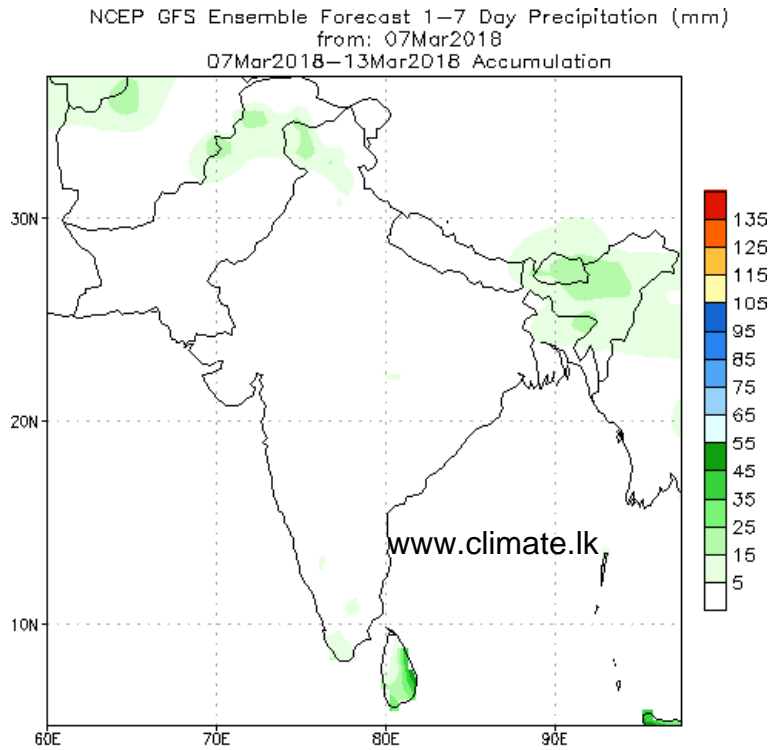


28 Feb 2018

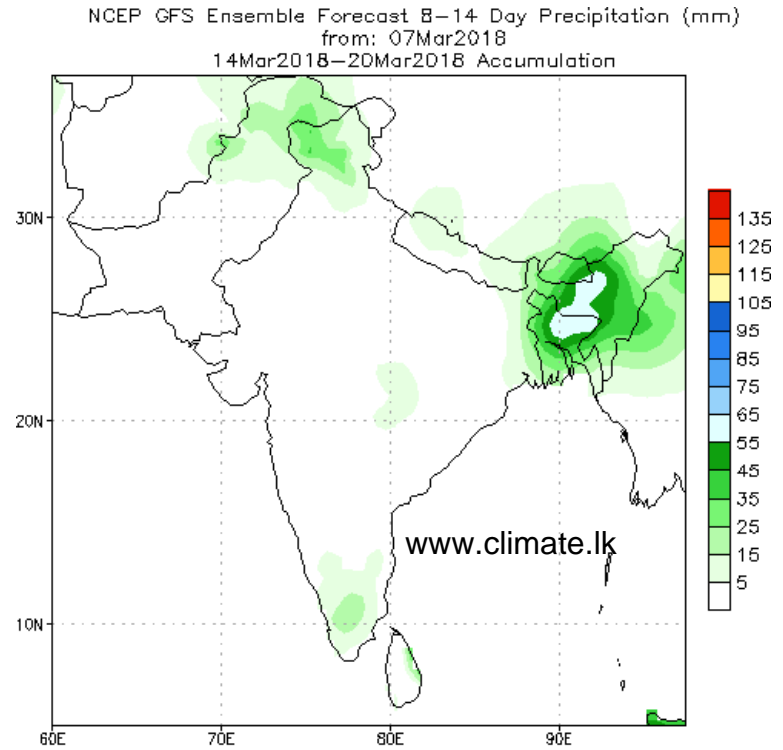


WORLDBATH topography

**NCEP GFS 1- 14 Day prediction**



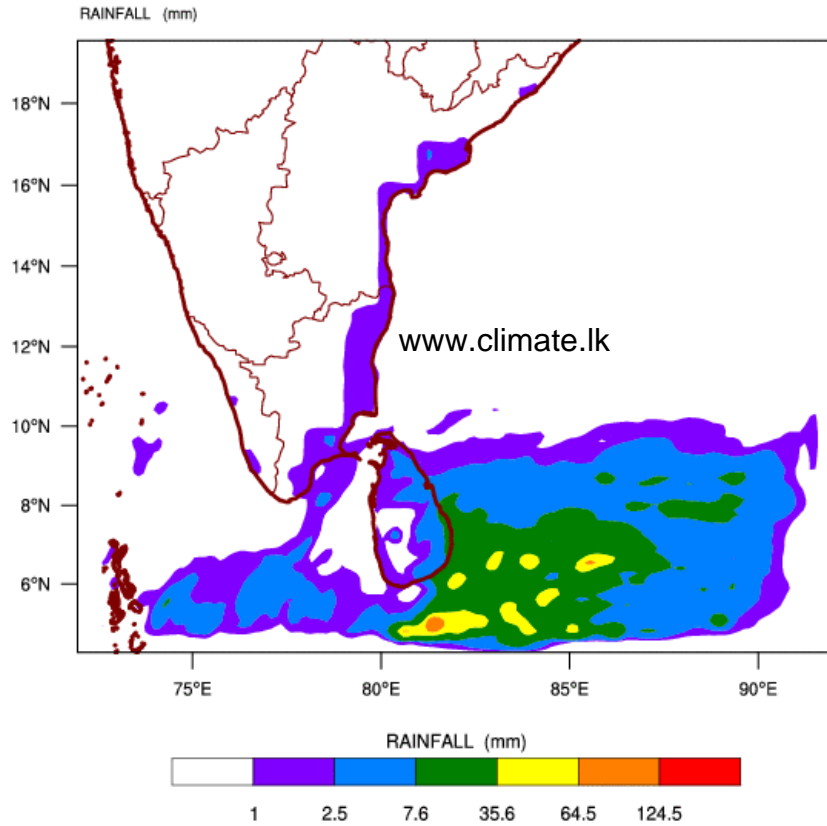
Bias correction based on last 30-day forecast error



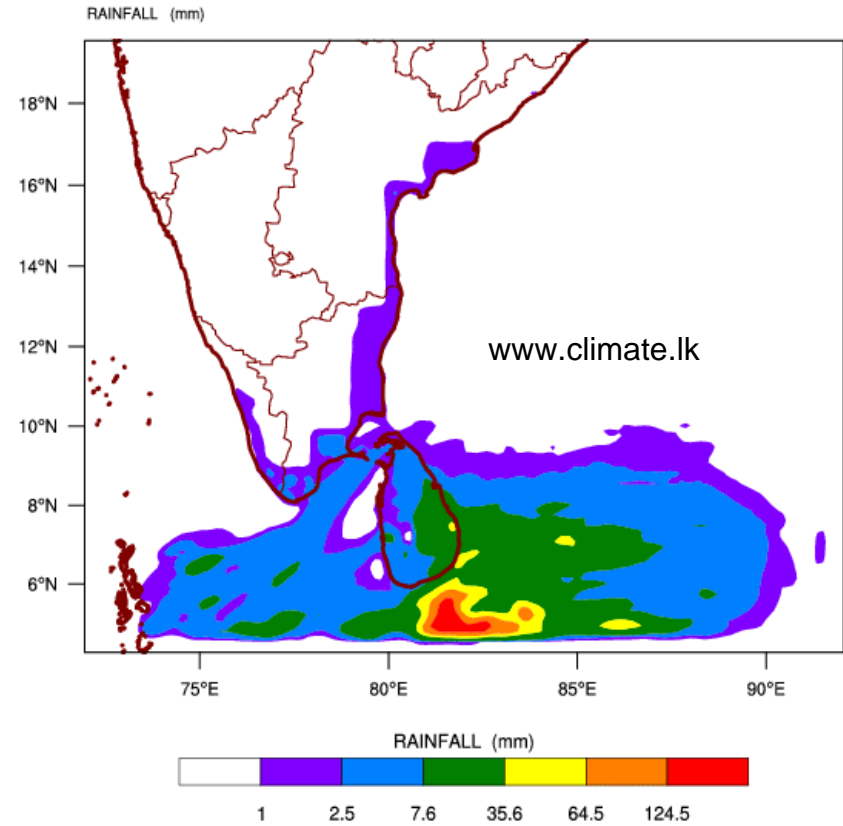
Bias correction based on last 30-day forecast error

## WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 08-03-2018 valid for 03 UTC of 10-03-2018

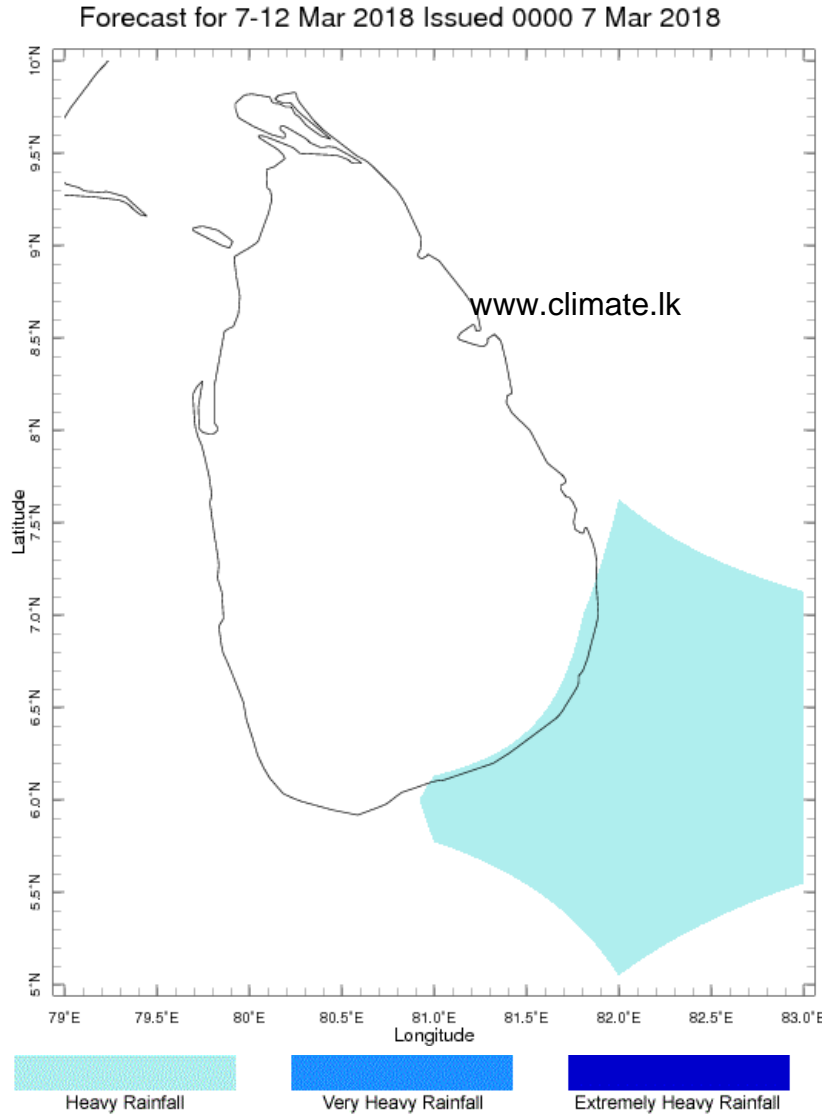


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 08-03-2018 valid for 03 UTC of 11-03-2018

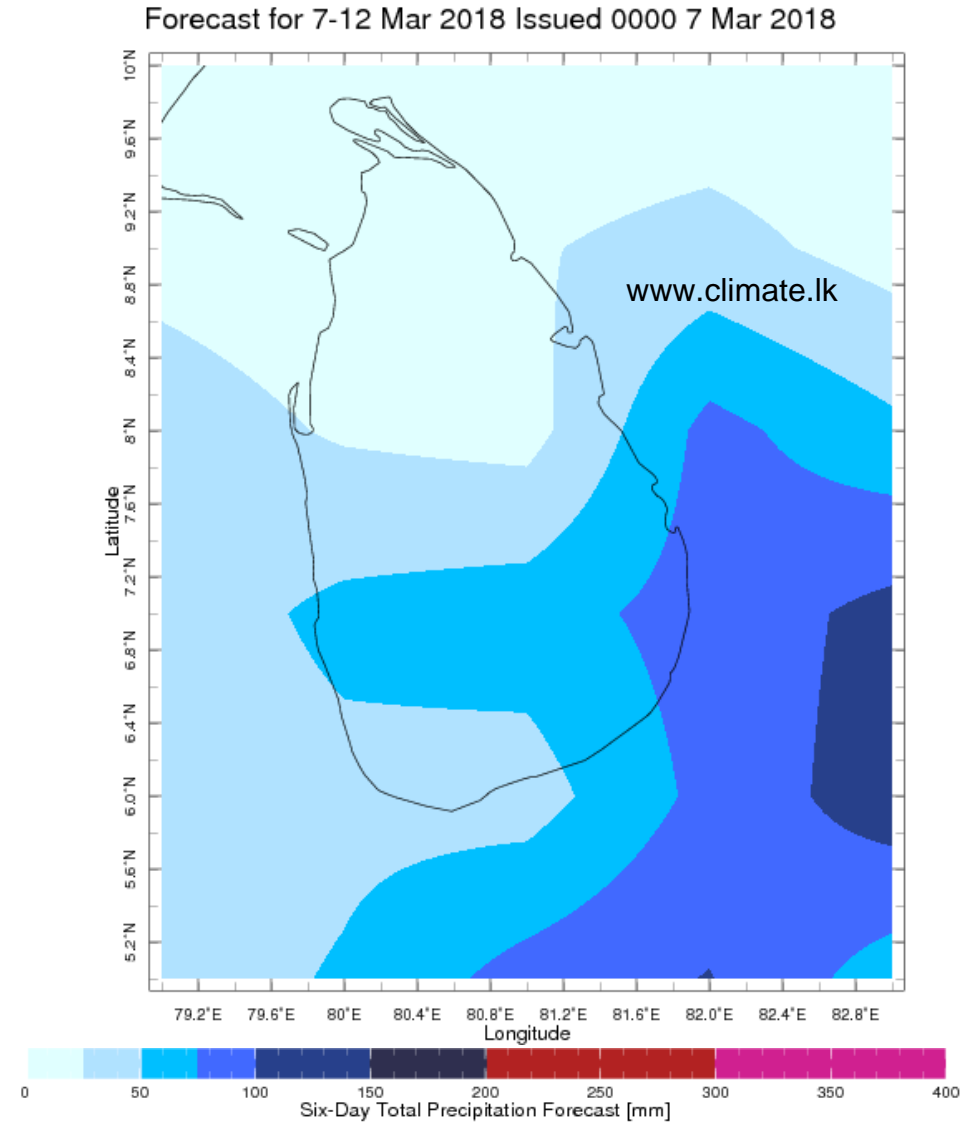


# Weekly Rainfall Forecast from IRI

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.



Extreme Rainfall Forecast



Total Six Day Precipitation Forecast