

Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Chalani Malge, Janan Visvanathan,
Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

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Highlights

- The NCEP weekly rainfall forecast predicts total rainfall between 55-65 mm in Galle and Kalutara districts during 19th - 25th Apr.
- Between 11-17 Apr: up to 90 mm of rainfall was recorded in Gampaha and Kegalla districts on April 12th.
- From 8-14 Apr: minimum temperature of 15 °C was recorded from Nuwara Eliya district while Puttalam and Kurunegala districts recorded a maximum temperature between 35-40 °C.
- From 10-16 Apr: up to 20 km/h, easterly winds were experienced by the entire island.
- 0.5 °C above average sea surface temperature was observed in the northern seas of Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring: On April 11th, Kalutara, Galle and Matara districts received up to 60 mm of rainfall; Ratnapura, Hambantota and Batticaloa districts up to 30 mm; Trincomalee, Polonnaruwa, Ampara, Monaragala, Nuwara Eliya, Kegalla, Kurunegala, Puttalam, Gampaha and Colombo districts up to 20 mm; and rest of the country up to 10 mm. On the 12th, Gampaha and Kegalla districts received up to 90 mm of rainfall; Colombo, Kalutara, Galle and Matara districts up to 50 mm; Puttalam, Anuradhapura, Kurunegala, Badulla, Ratnapura Nuwara Eliya and Hambantota districts up to 30 mm; Mullaitivu, Vavuniya, Polonnaruwa, Matale, Trincomalee, Batticaloa, Kandy and Ampara districts up to 20 mm; and rest of the island up to 10 mm. On the 13th, Jaffna, Mannar, Anuradhapura, Puttalam and Kurunegala districts received up to 30 mm of rainfall; Kilinochchi, Mullaitivu, Vavuniya and Trincomalee districts up to 20 mm; and most parts of the island up to 10 mm. On the 14th, Puttalam, Kandy and Nuwara Eliya district received up to 50 mm of rainfall; Anuradhapura, Kurunegala, Ratnapura, Matale and Badulla districts up to 30 mm; Kegalla, Gampaha, Kalutara, Galle and Matara districts up to 20 mm; and rest of the country up to 10 mm. On the 15th, Anuradhapura district received up to 50 mm; Kurunegala district up to 30 mm; Kilinochchi district up to 20 mm; and rest of the northern and central regions of the island up to 10 mm. On the 16th, Kurunegala district received up to 50 mm of rainfall; Gampaha district up to 30 mm; and Puttalam, Kegalla, Colombo, Kalutara, Galle, Matara, Hambantota, Ratnapura, Badulla and Monaragala districts up to 20 mm. On the 17th, western coastal regions of the island received up to 10 mm of rainfall.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 100-150 mm in Gampaha and Kurunegala districts; up to 75-100 mm in Puttalam, Anuradhapura, Colombo, Kegalla, Kalutara, Galle, Matara and Hambantota districts; up to 50-75 mm in Matale, Kandy and Nuwara Eliya districts; and up to 25-50 mm in rest of the island. It also shows above average rainfall up to 50-100 mm in Galle district; and up to 25-50 mm in Jaffna, Puttalam, Gampaha, Matara and Hambantota districts. Below average rainfall up to 50-100 mm is shown for Kurunegala district; and up to 25-50 mm in Anuradhapura, Matale, Kandy and Monaragala districts.

Monthly Monitoring: During March - below average rainfall conditions were mainly experienced by northern and central regions of the island. Vavuniya, Mullaitivu, Mannar, Trincomalee, Anuradhapura, Polonnaruwa, Kurunegala, Puttalam, Kandy, Nuwara Eliya, Ratnapura, Matara and Kegalla and western regions of Matale district received up to 120 mm below average rainfall. Above average rainfall up to 90 mm was received by Jaffna, Kilinochchi, Colombo, Galle, Hambantota, Badulla, Monaragala, Ampara and Trincomalee districts. The CPC Unified Precipitation Analysis tool shows ~300 mm of total rainfall in Kalutara, Galle and Ratnapura districts; up to 200 mm Kurunegala, Matale, Kegalla, Nuwara Eliya, Badulla and Monaragala; up to 100 mm Puttalam, Anuradhapura, Polonnaruwa, Trincomalee, Ampara and Hambantota districts; and up to ~75 mm in Jaffna, Kilinochchi and Vavuniya districts.

Ocean State (Text Courtesy IRI)

Pacific sea state: April 12, 2018

In early April 2018, the east-central tropical Pacific still reflected weak La Niña conditions. Most of the key atmospheric variables also show patterns suggestive of La Niña, but also only weakly, and the east Pacific subsurface water temperature has become above average. The official CPC/IRI outlook calls for a transition from La Niña to neutral conditions during the March-May season. The latest forecasts of statistical and dynamical models support this scenario.

Indian Ocean State

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

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 19th -25th Apr: Total rainfall between 55-65 mm in Kalutara and Galle districts; between 45-55 mm in Ratnapura, Matara and Hambantota districts; between 35-45 mm in Gampaha, Colombo, Kegalle, Nuwara Eliya and Monaragala districts; between 25-35 mm in Puttalam, Kurunegala, Kandy and Badulla districts; between 15-25 mm in Ampara district; between 5-15 mm in Anuradhapura, Matale, Polonnaruwa and Batticaloa districts; Up to 5 mm total rainfall rest of the island.

From 26th Apr – 02nd May: Total rainfall between 95-105 mm in Galle district; between 85-95 mm in Kalutara and Matara districts; between 75-85 mm in Ratnapura and Hambantota districts; between 65-75 mm in Colombo, Kegalle, Nuwara Eliya, Monaragala and Hambantota districts; between 55-65 mm in Gampaha, Kandy and Hambantota districts; between 45-55 mm in Ampara district; Up to 35 mm total rainfall rest of the island.

IMD WRF Forecast:

21st Apr: Up to 7.6 mm of rainfall in Mullaitivu, Vavuniya, Mannar, Anuradhapura, Puttalam, Polonnaruwa, Trincomalee, Galle and Hambantota districts; Up to 2.5 mm in Jaffna, Kilinochchi, Kurunegala, Matale, Batticaloa, Ampara, Badulla, Monaragala, Ratnapura, Matara, Kalutara, Colombo and Gampaha districts.

22nd Apr: Up to 7.6 mm of rainfall Mullaitivu, Mannar, Vavuniya, Anuradhapura, Puttalam, Polonnaruwa, Gampaha, Colombo, Kalutara, Galle, Matara, Hambantota and Ratnapura districts; Up to 2.5 mm in Jaffna, Kilinochchi, Trincomalee, Matale, Batticaloa, Ampara, Badulla and Monaragala districts.

IRI Model Forecast:

From 18th – 23rd Apr: Total rainfall between 25-50 mm in Matale, Kandy, Kegalle, Ratnapura, Nuwara Eliya, Badulla, Monaragala, Ampara and Hambantota 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 10 days and shall not have a impact in the following 5 days.

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/>



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Weekly Hydro- Meteorological Report for Sri Lanka

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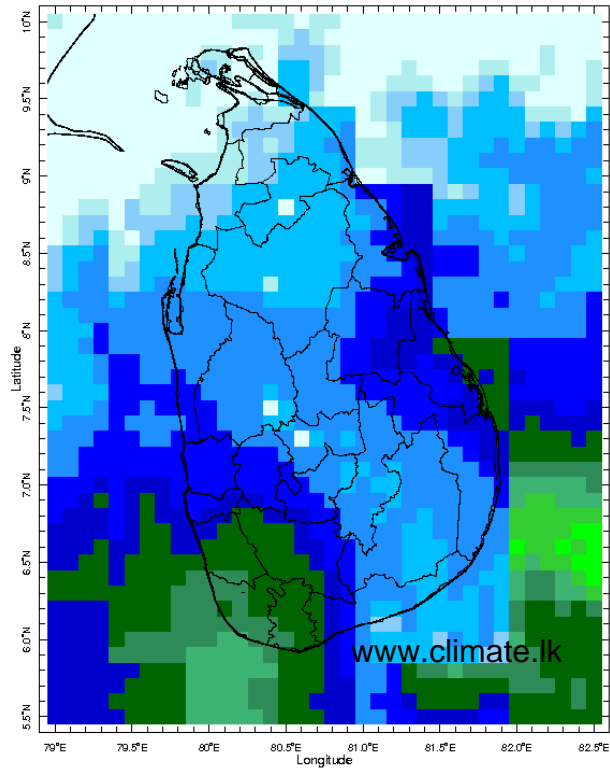
- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
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2. Predictions

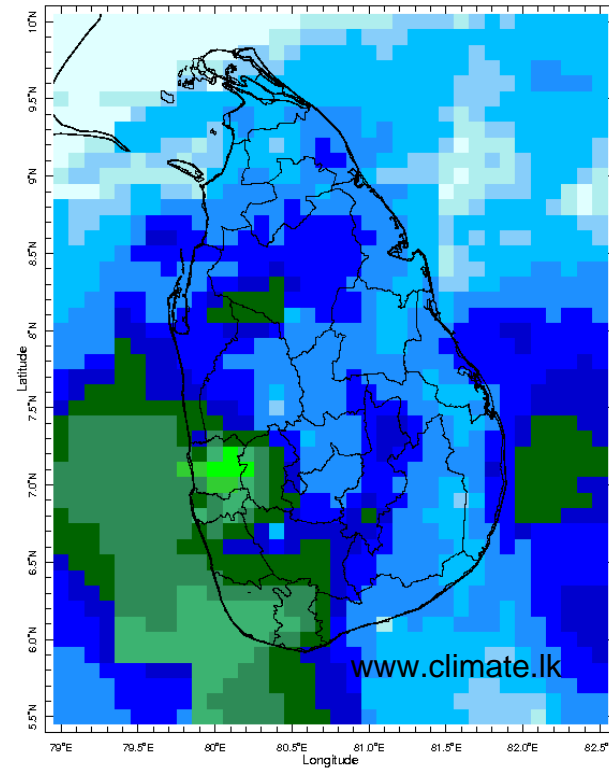
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
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Daily Rainfall Monitoring

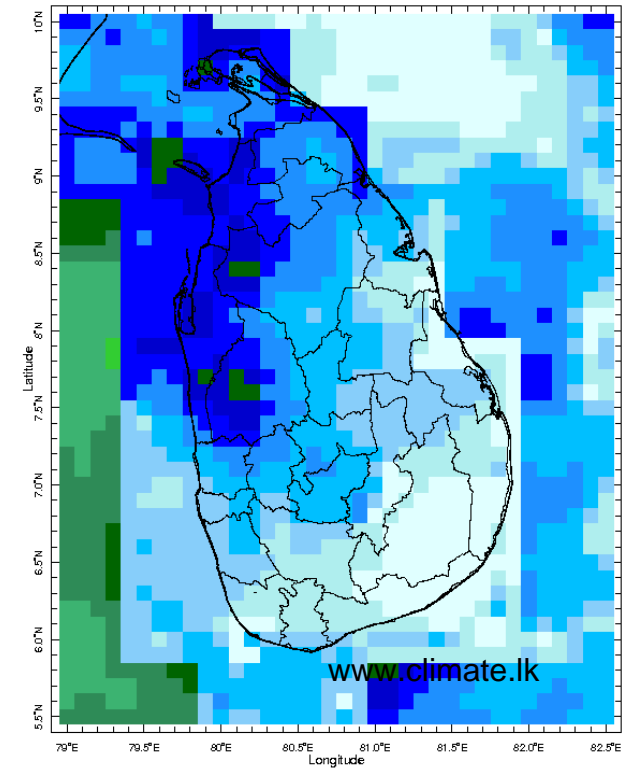
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



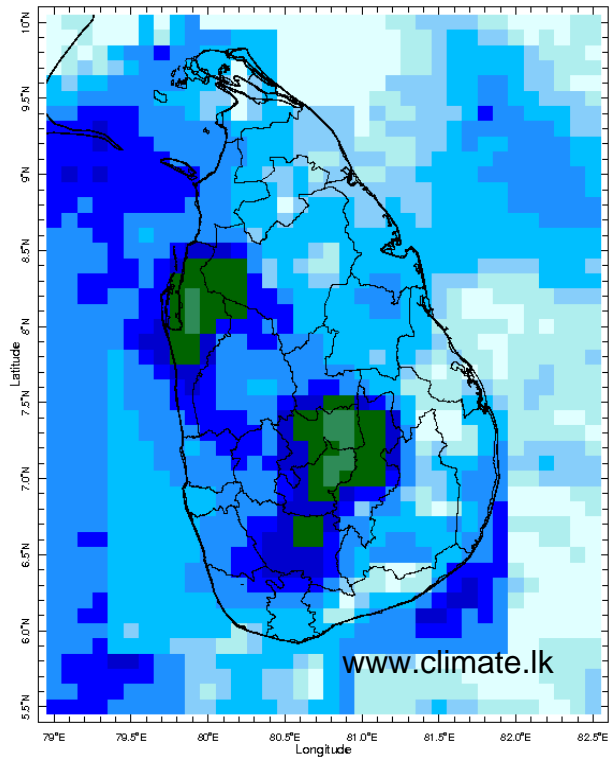
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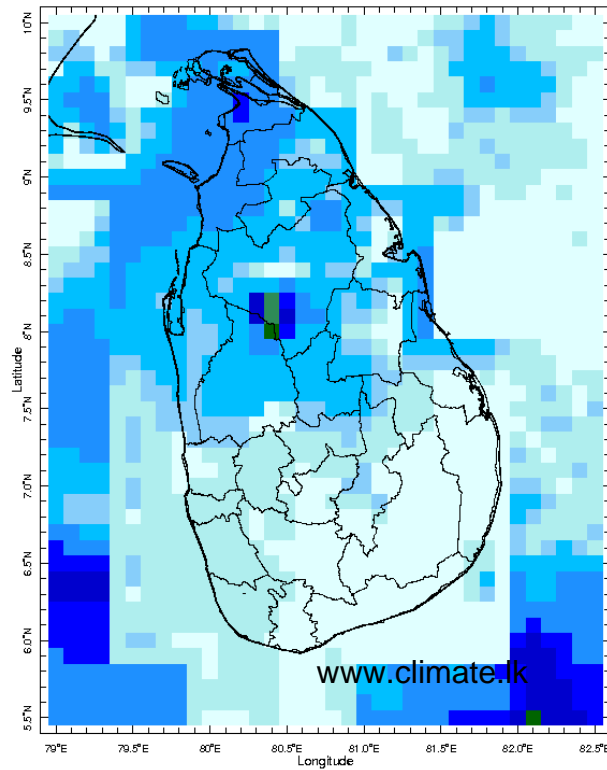
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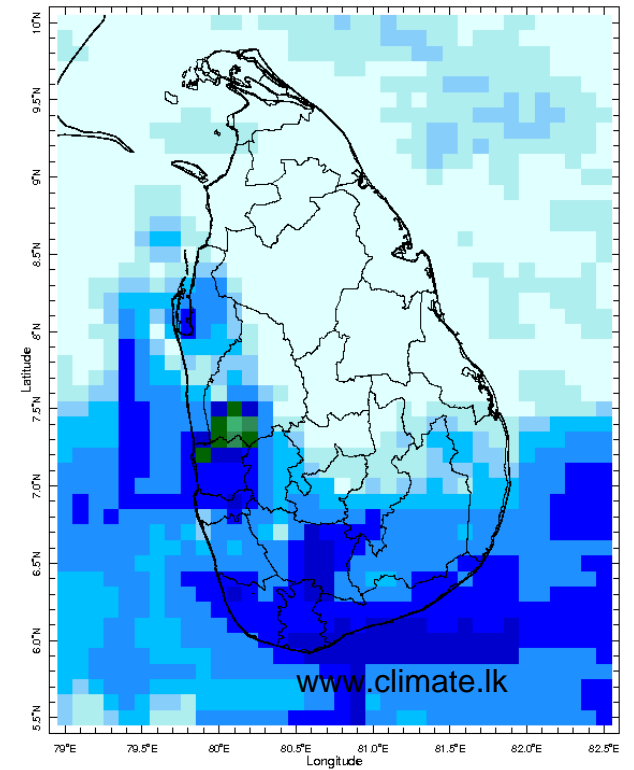
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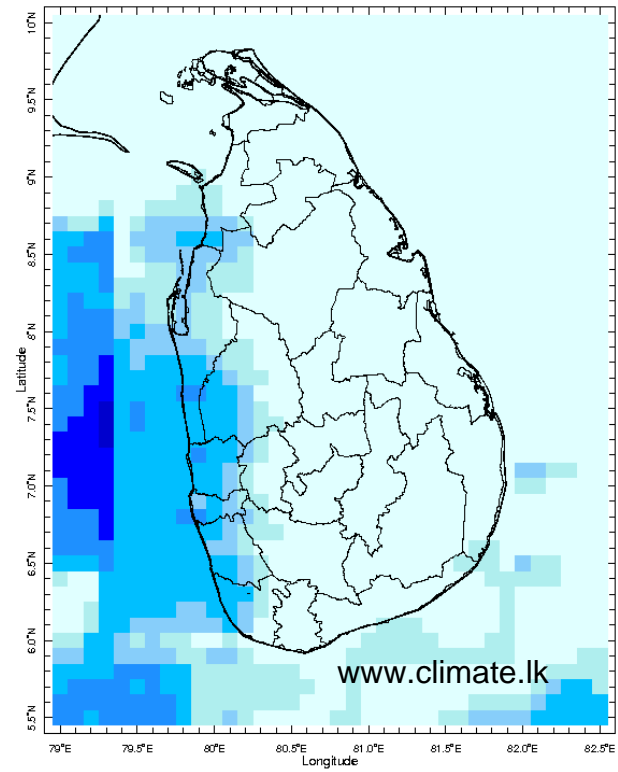
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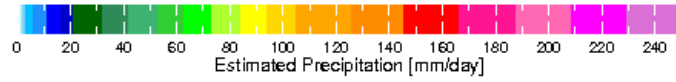
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16 Apr 2018

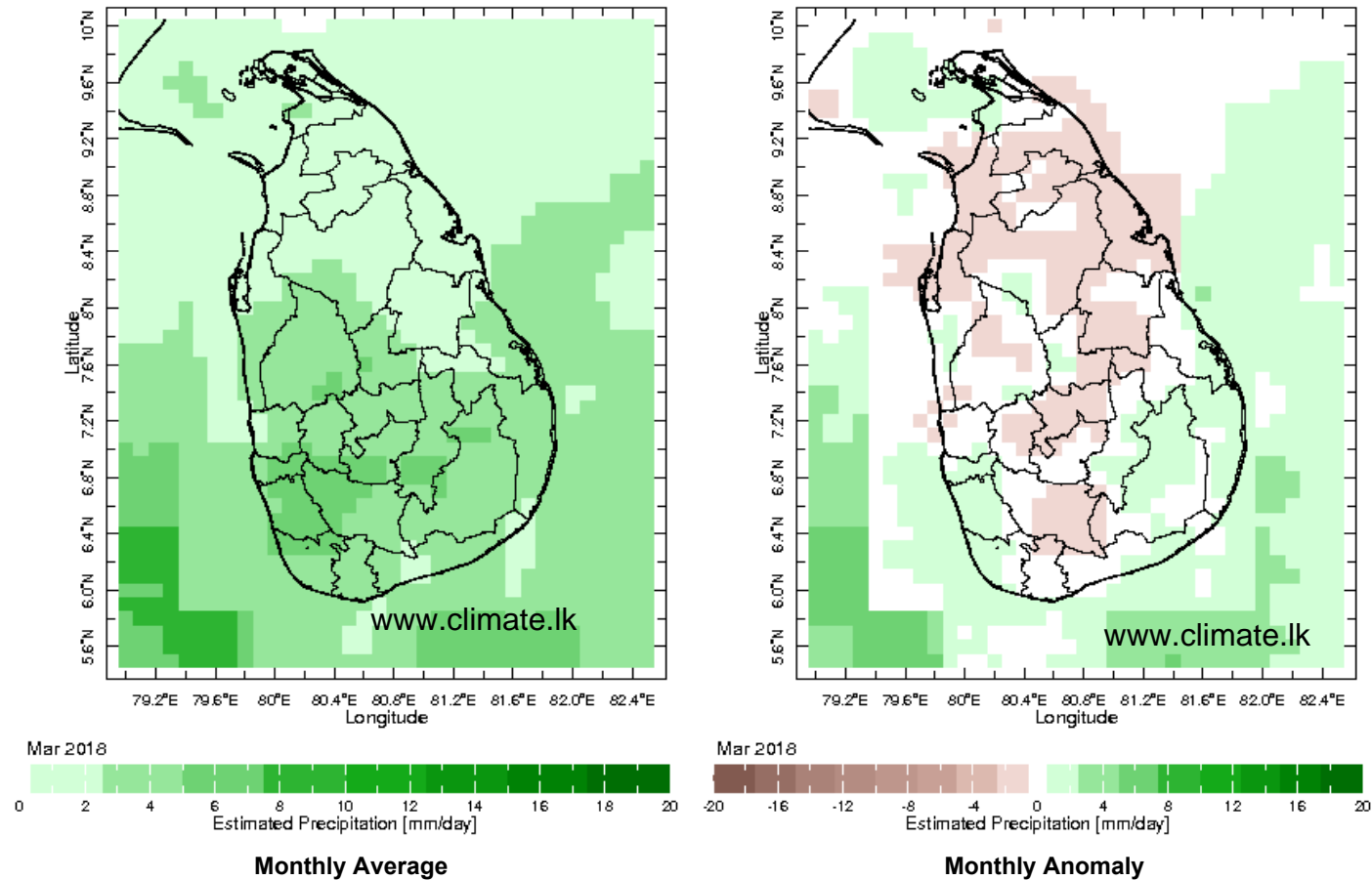


17 Apr 2018

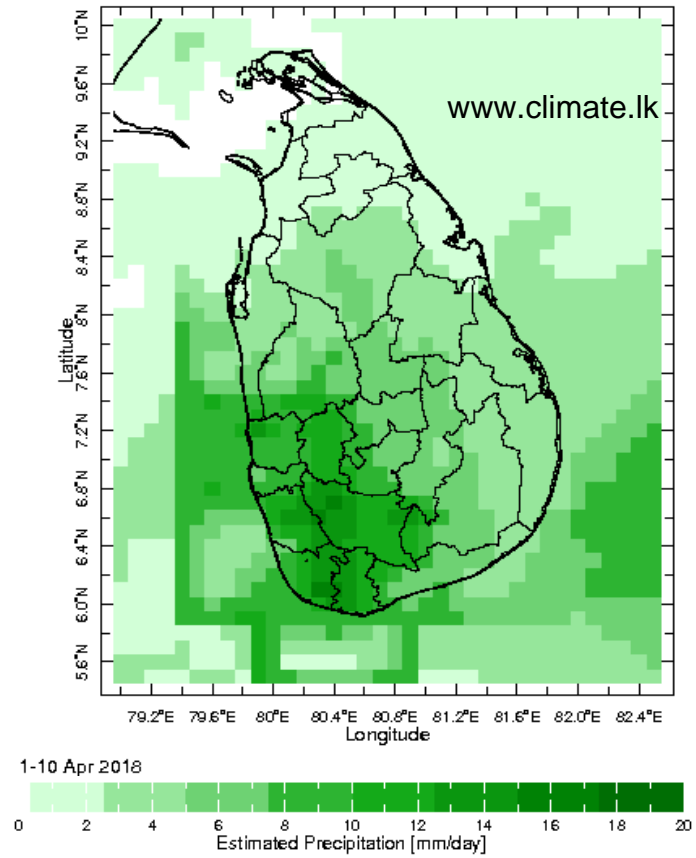
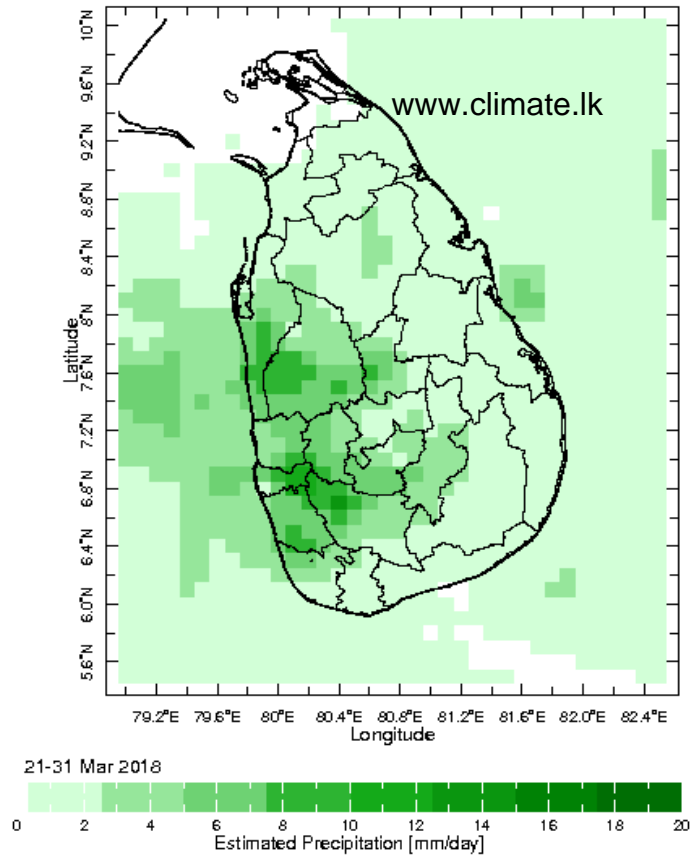


Monthly Rainfall Monitoring

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

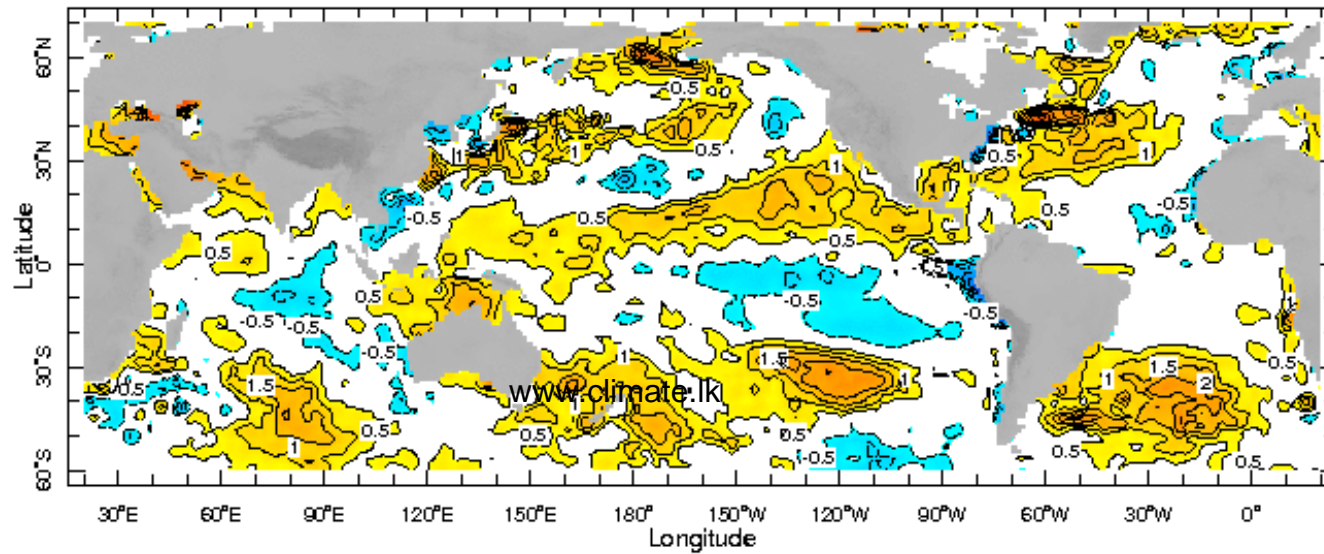


Dekadal (10 Day) Satellite Derived Rainfall Estimates

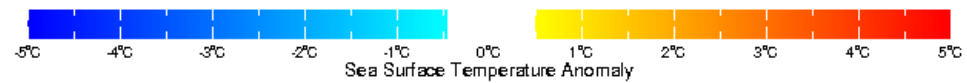


Weekly Average SST Anomalies

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

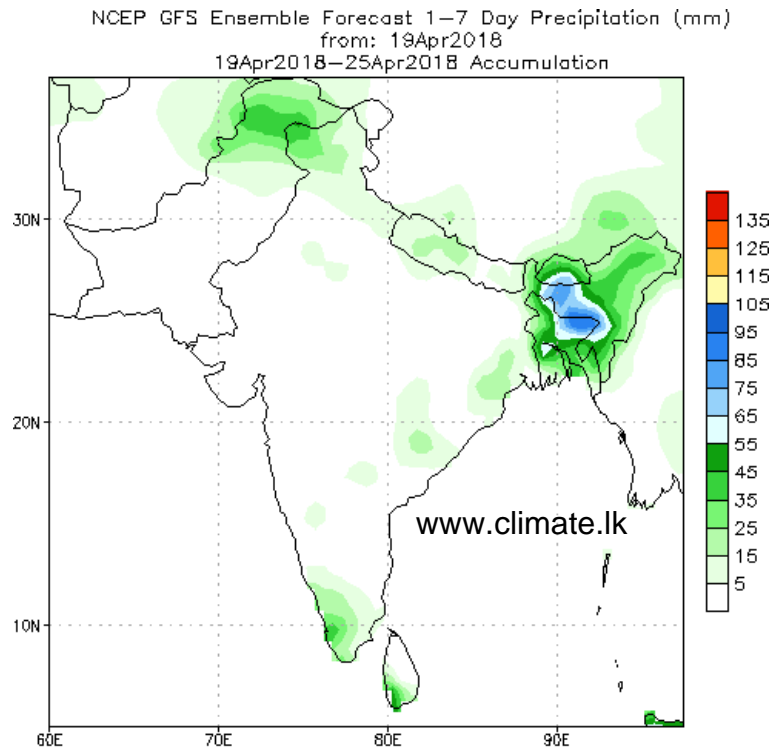


11 Apr 2018

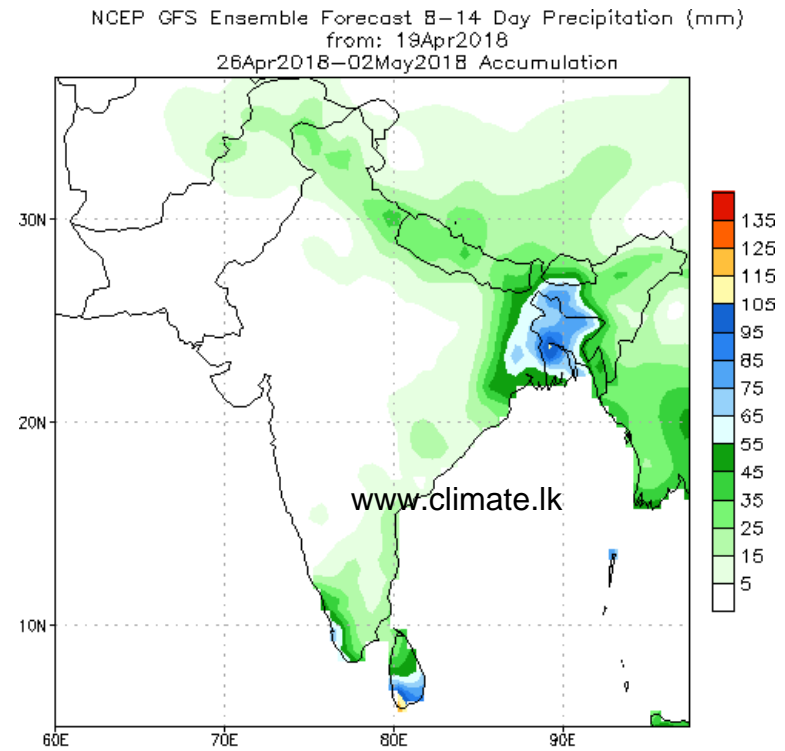


WORLDBATH topography

NCEP GFS 1- 14 Day prediction



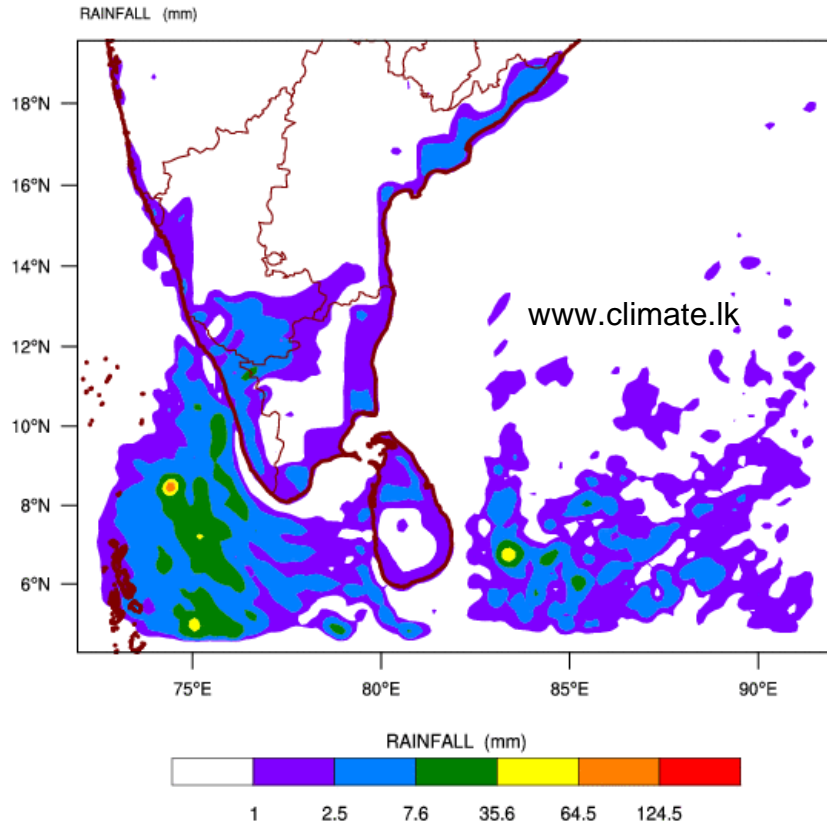
Bias correction based on last 30-day forecast error



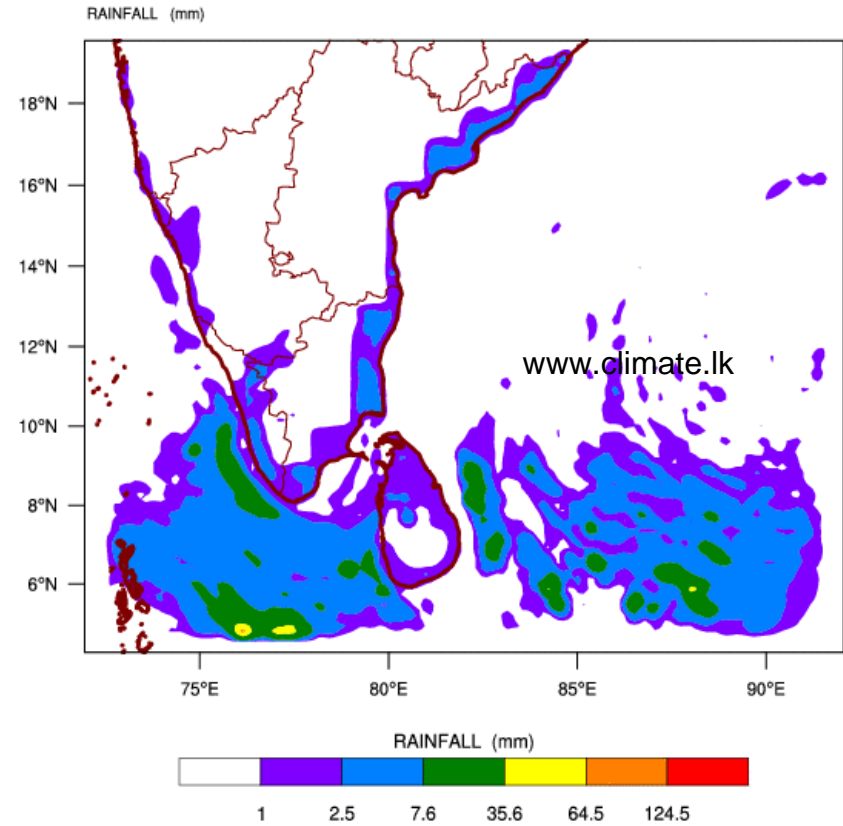
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 19-04-2018 valid for 03 UTC of 21-04-2018

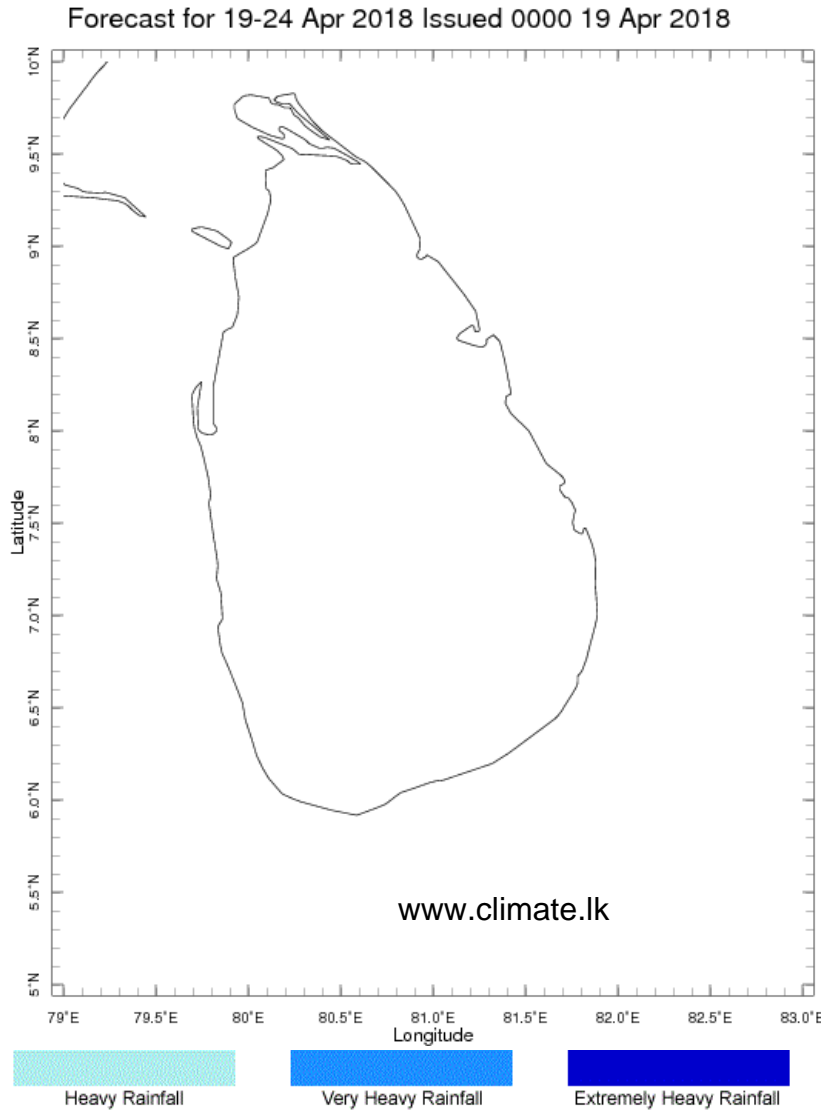


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 19-04-2018 valid for 03 UTC of 22-04-2018

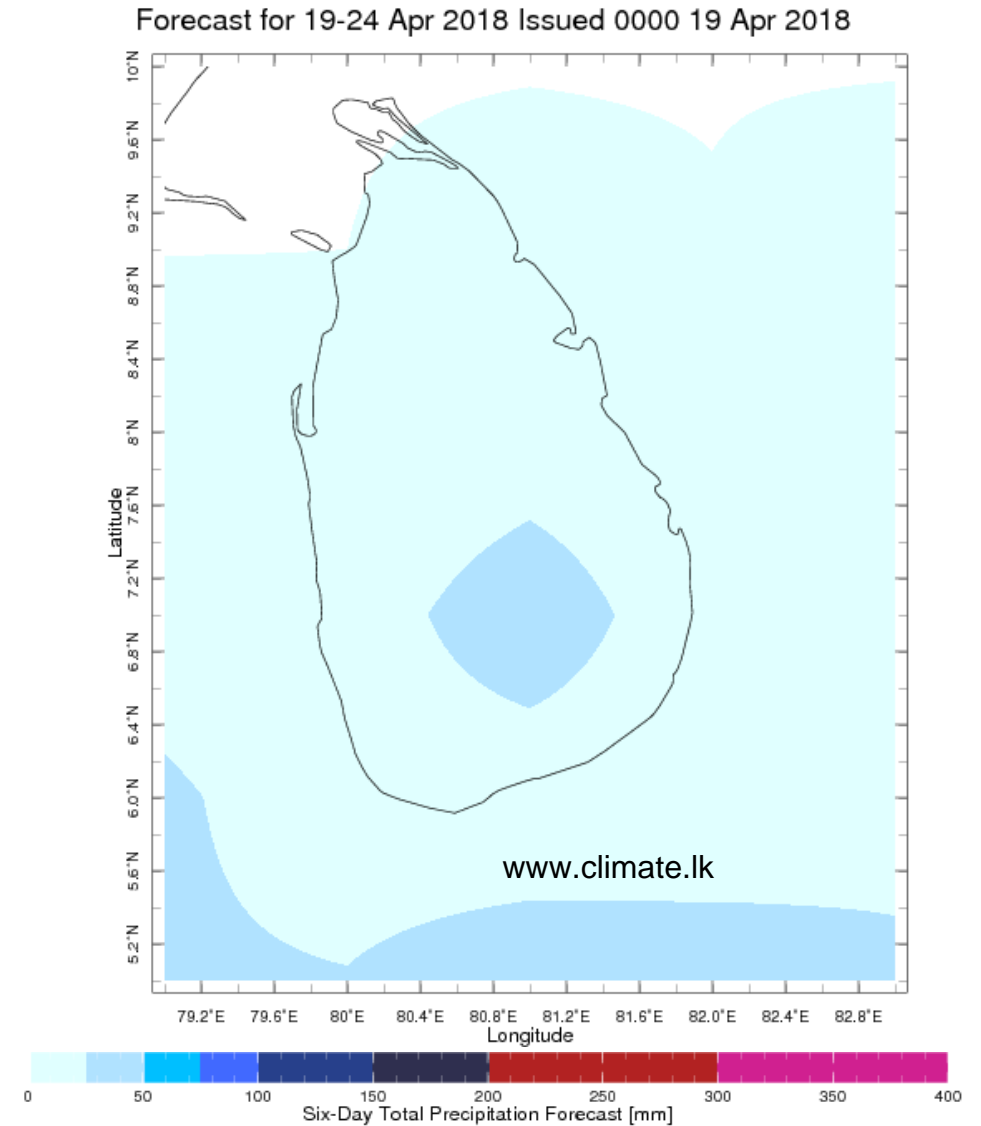


Weekly Rainfall Forecast from IRI

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