

Experimental Climate Monitoring and Prediction

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Highlights

- The NCEP weekly rainfall forecast predicts total rainfall between 65-75 mm in Ratnapura, Kalutara and Colombo districts during 27th Jun- 3rd Jul.
- Between 20-25 Jun: up to 30 mm of rainfall was recorded in Kurunegala, Gampaha, Kegalla, Colombo and Kalutara districts on the 23rd.
- From 17-23 Jun: minimum temperature of 20 °C was recorded from Nuwara Eliya and Badulla districts while Ampara district recorded a maximum temperature between 35-40 °C.
- From 19-25 Jun: up to 36 km/h, northwesterly 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 on June 20th. On the 21st, Puttalam, Kurunegala, Gampaha, Kalutara, Galle and Hambantota districts received up to 20 mm of rainfall; and Kegalla, Nuwara Eliya, Ratnapura and Matara districts up to 10 mm. On the 22nd, Gampaha and Galle districts received up to 20 mm of rainfall. On the 23rd, Kurunegala, Gampaha, Kegalla, Colombo and Kalutara districts received up to 30 mm of rainfall; and Ratnapura and Galle districts received up to 20 mm. On the 24th, Gampaha, Kegalla, Colombo and Ratnapura districts received up to 20 mm of rainfall. On the 25th, Polonnaruwa, Gampaha, Colombo, Kegalla, Kandy, Nuwara Eliya and several regions of Kurunegala and Monaragala districts received up to 20 mm of rainfall.

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

Monthly Monitoring: During May - above average rainfall conditions were experienced by the entire island. Puttalam, Kurunegala, Anuradhapura, Matale and Polonnaruwa districts received up to 360 mm above average rainfall; Vavuniya, Trincomalee, Gampaha, Colombo, Kegalla, Ratnapura, Galle, Matara, Kandy, Badulla and Ampara districts up to 300 mm; and rest of the country up to 120 mm. The CPC Unified Precipitation Analysis tool shows ~750 mm of total rainfall in Kurunegala, Kegalla, Colombo, Kalutara and Ratnapura districts; up to 500 mm Puttalam, Gampaha, Galle, Matara, Hambantota, Nuwara Eliya, Kandy, Matale, Anuradhapura, Polonnaruwa, Ampara, Badulla and Monaragala districts; up to ~300 mm Mullaitivu and Trincomalee districts; and up to 200 mm in rest of the country.

Ocean State (Text Courtesy IRI)

Pacific sea state: June 19, 2018

In mid-June 2018, the east-central tropical Pacific waters reflected ENSO-neutral conditions, as did all key atmospheric variables. The subsurface water temperature continued to be above-average, and this strengthened further during May. The official CPC/IRI outlook calls for neutral conditions through northern summer season, with a 50% chance of El Niño development during fall, rising to 65% during winter 2018-19. An El Niño watch has been issued. The latest forecasts of statistical and dynamical models collectively favor weak El Niño development during late summer, growing to possibly moderate strength during fall and winter; forecasters are largely buying into this scenario as the spring barrier is now mostly passed.

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 27th Jun- 3rd Jul: Total rainfall between 65-75 mm in Ratnapura, Kalutara and Colombo districts; between 45-55 mm in Kegalle and Nuwara Eliya districts; between 35-45 mm in Gampaha district; between 25-35 mm in Puttalam, Kurunegala, Kandy, Galle and Matara districts.

From 04th – 10th Jul: Total rainfall between 65-75 mm in Kegalle, Ratnapura and Kalutara districts; between 45-55 mm in Gampaha, Colombo and Nuwara Eliya districts; between 35-45 mm in Kurunegala, Kandy districts; between 25-35 mm in Puttalam and Matale districts; between 15-25 mm in Galle, Matara, Badulla, Polonnaruwa and Anuradhapura districts.

IMD NCMWRF Forecast:

29th Jun: Up to 20 mm of rainfall in Monaragala, Ampara, Galle, Matara and Hambantota districts; Up to 10 mm in Nuwara Eliya district.

30th Jun: Up to 40 mm of rainfall in Galle, Matara and Monaragala districts; Up to 20 mm in Puttalam, Kurunegala, Kalutara, Ratnapura, Hambantota and Ampara districts.

IRI Model Forecast:

From 27th Jun- 2nd Jul: Total rainfall between 25-50 mm in Kegalle, Kandy, Nuwara Eliya and Badulla 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 an impact on the rainfall 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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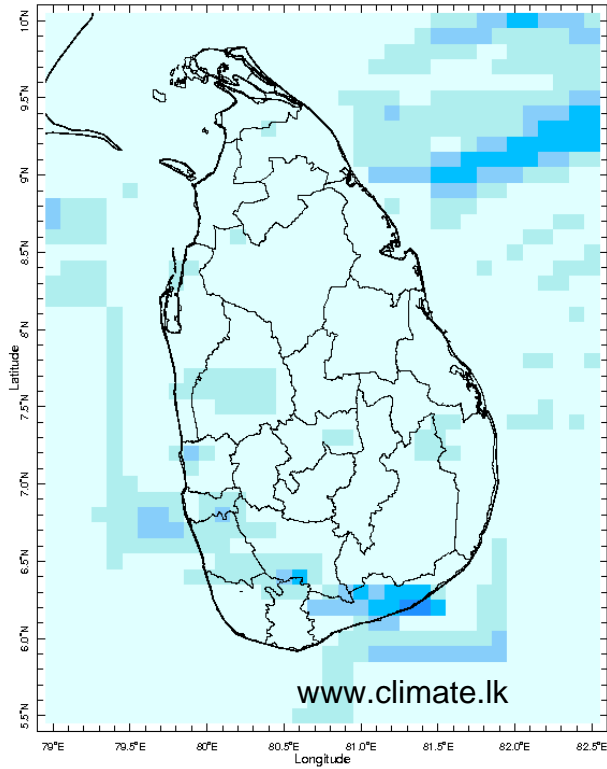
- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

2. Predictions

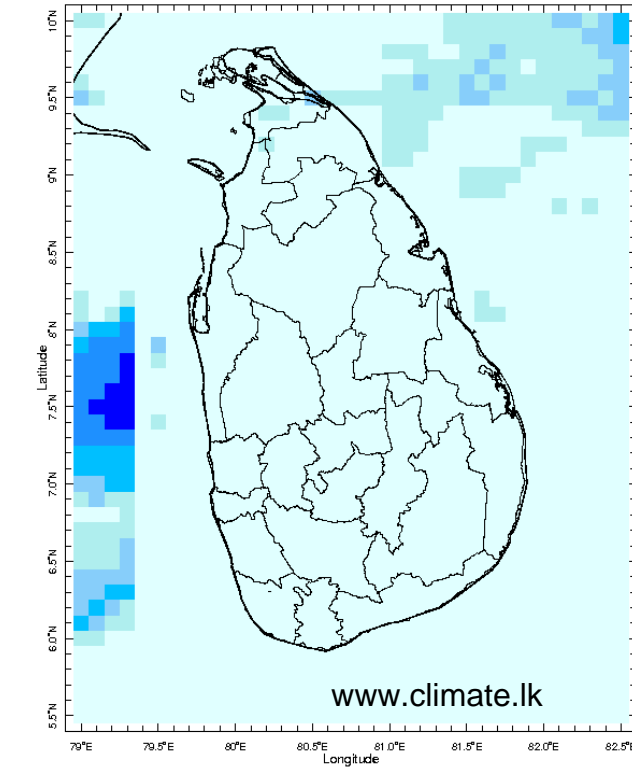
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

Daily Rainfall Monitoring

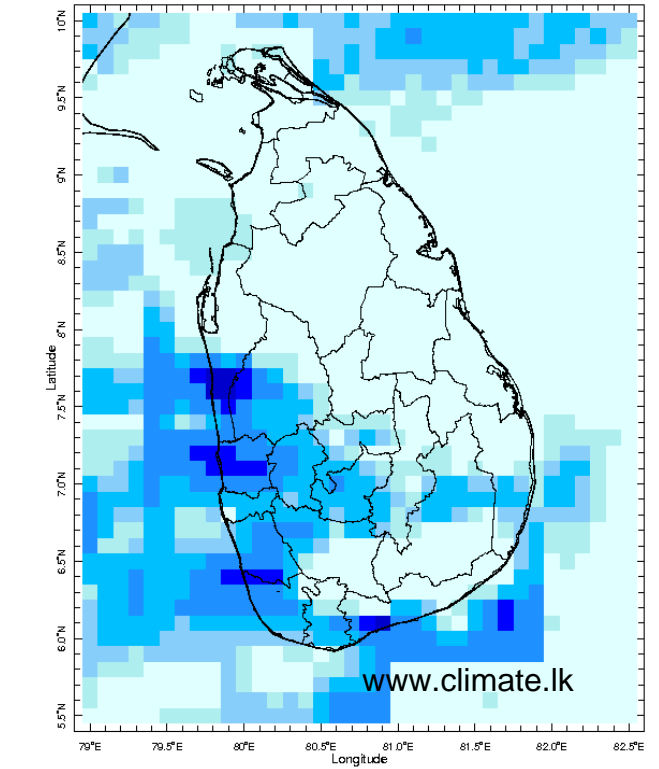
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



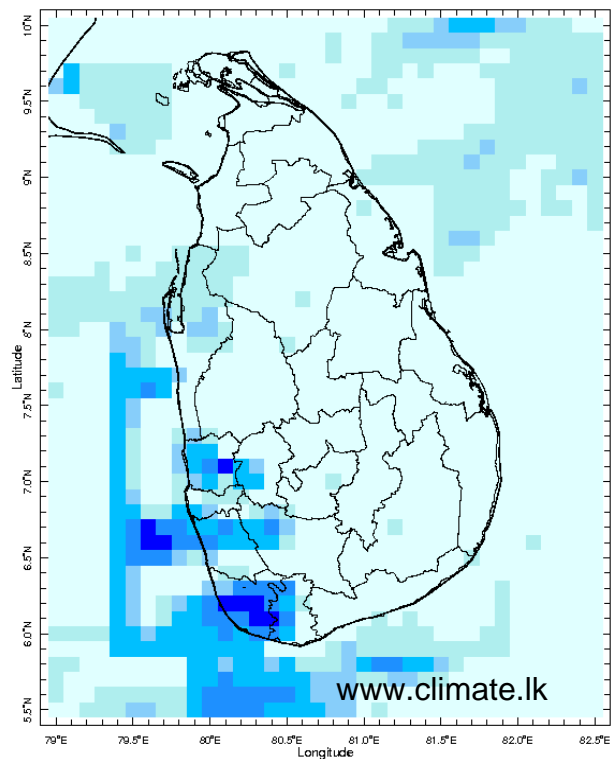
19 Jun 2018



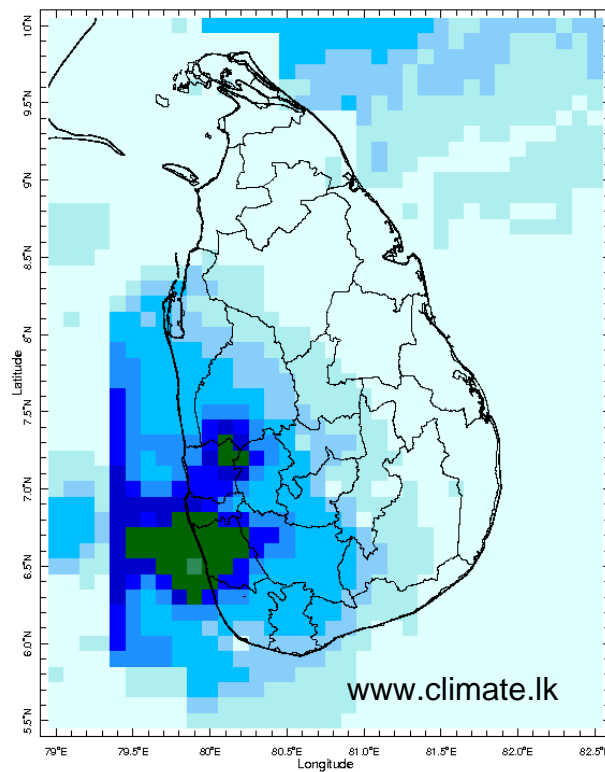
20 Jun 2018



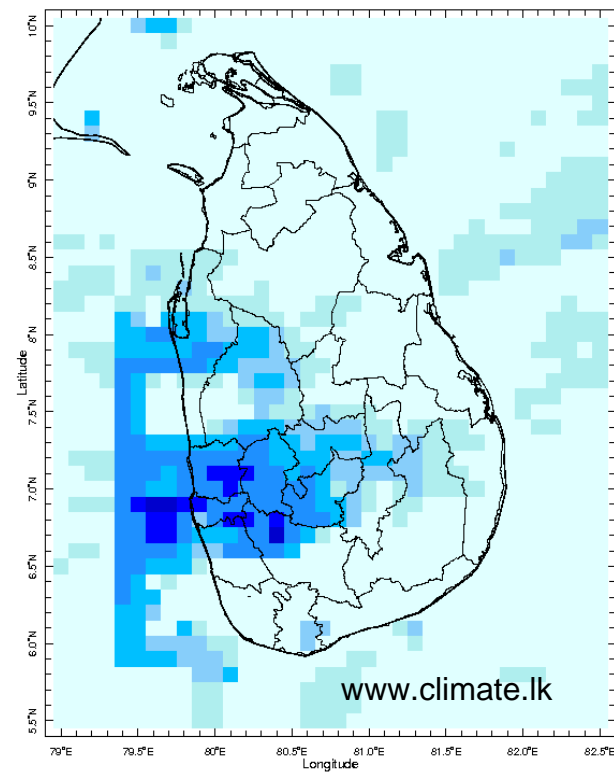
21 Jun 2018



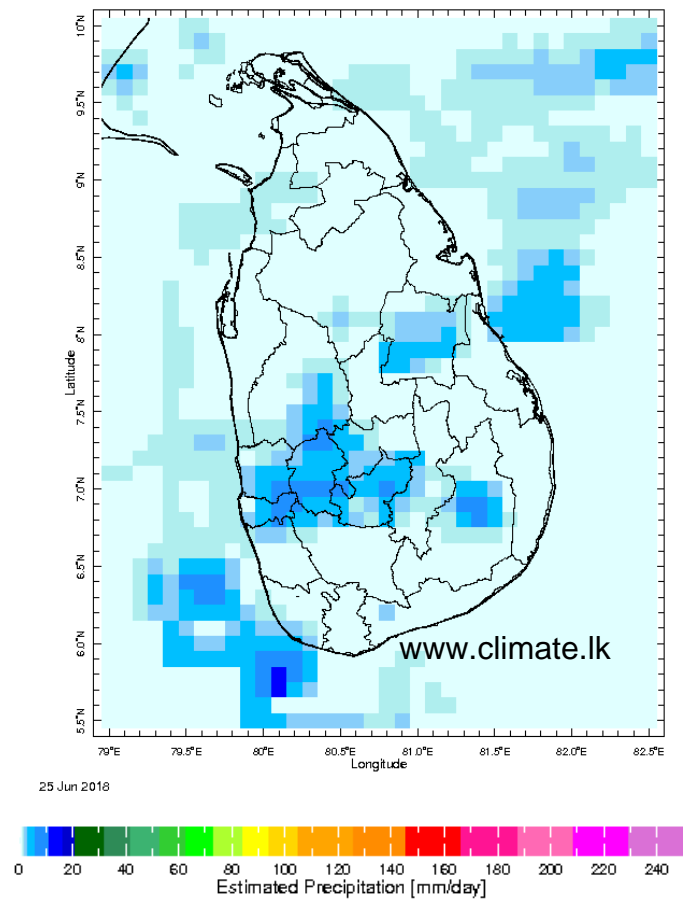
22 Jun 2018



23 Jun 2018

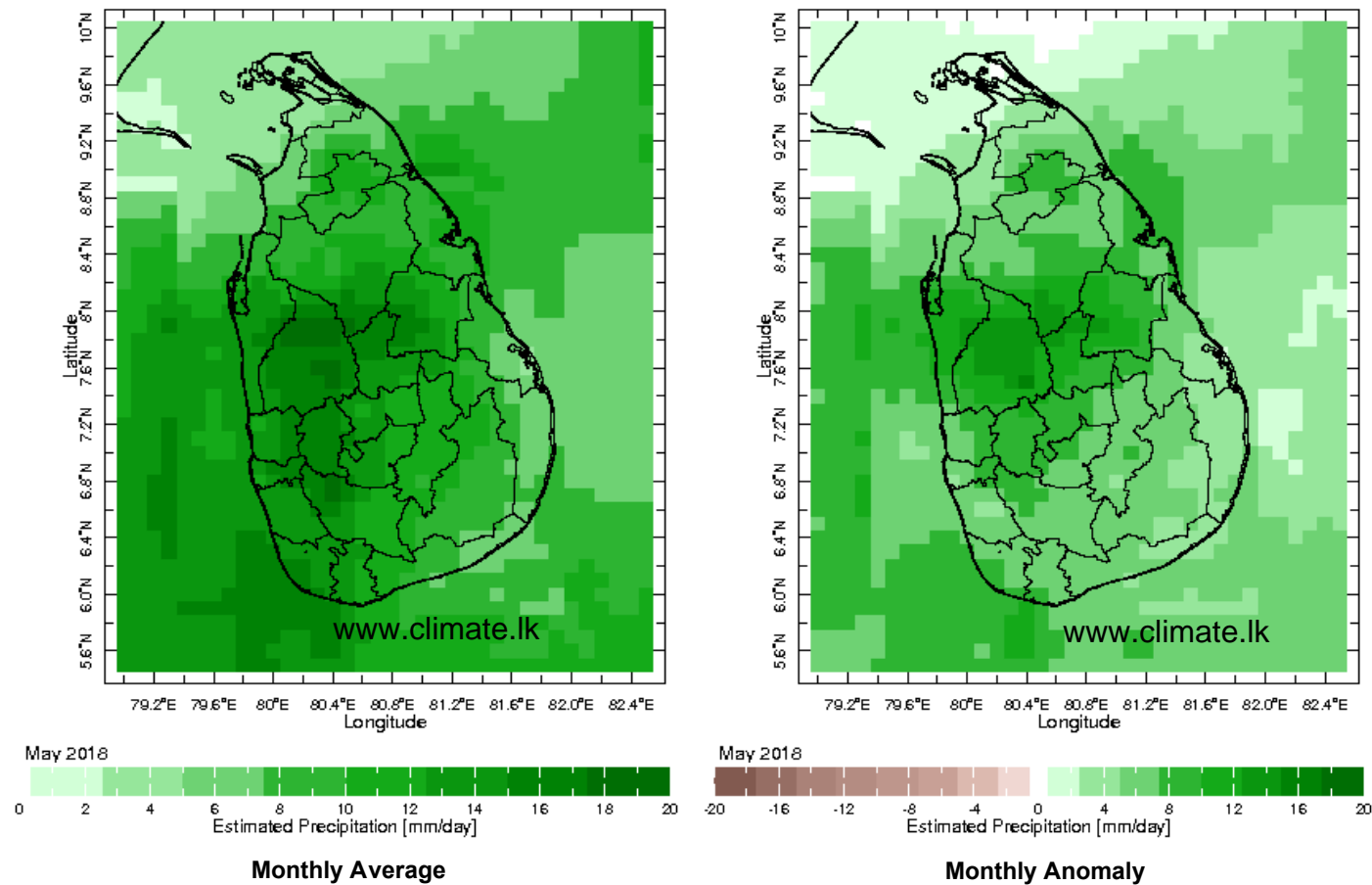


24 Jun 2018

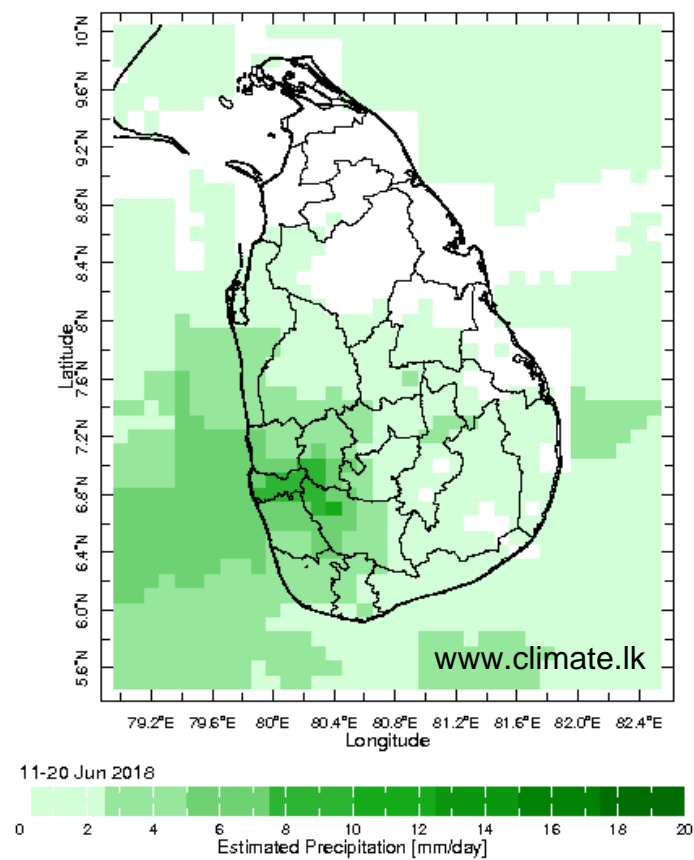
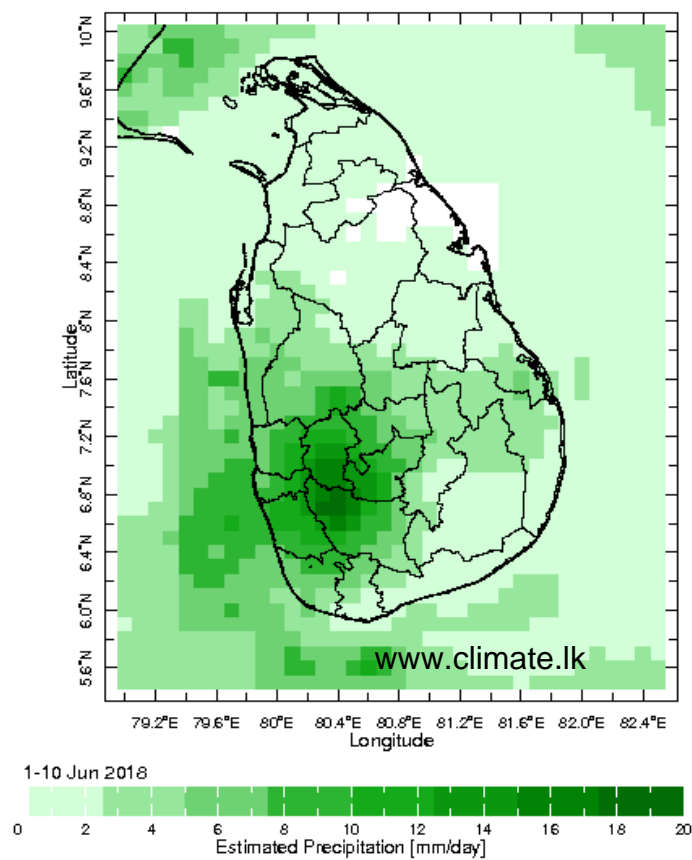


Monthly Rainfall Monitoring

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

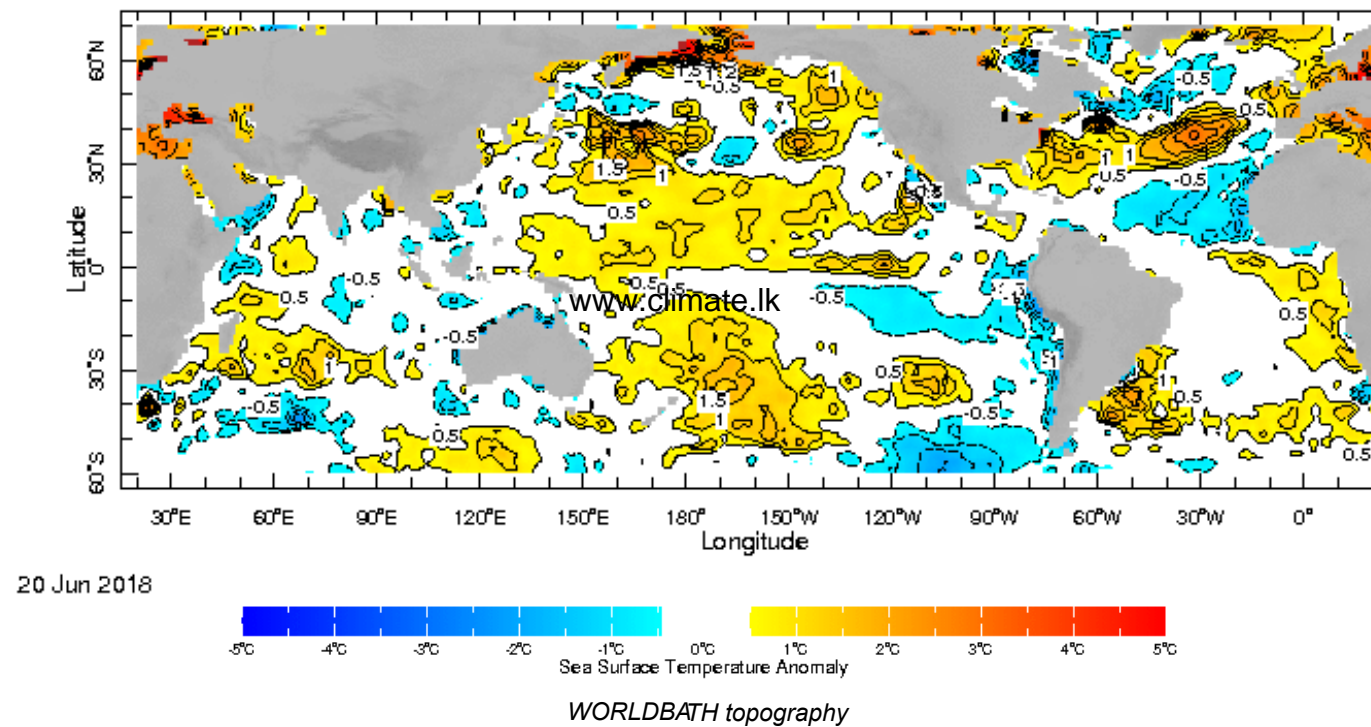


Dekadal (10 Day) Sate lite Derived Rainfal Estimates



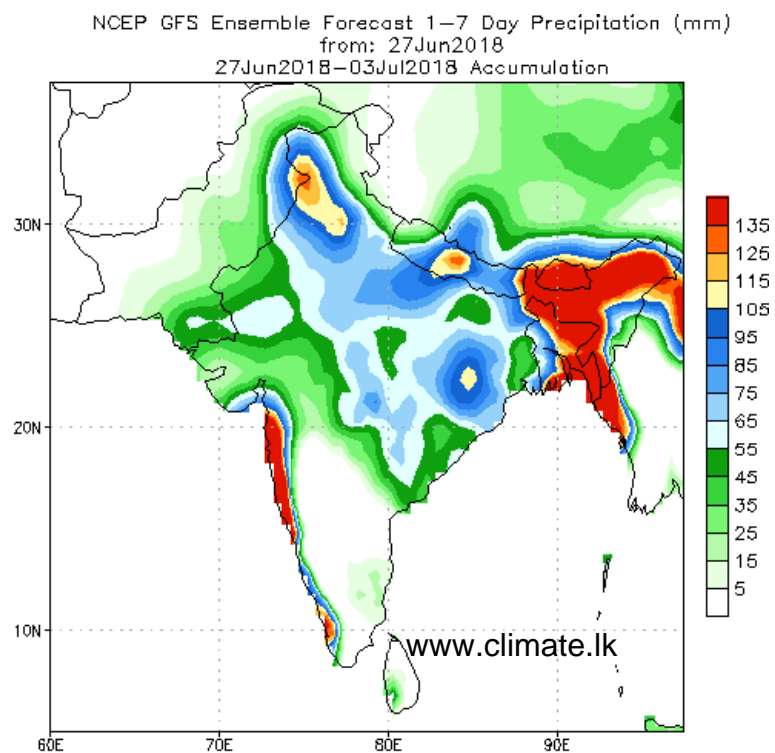
Weekly Average SST Anomalies

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

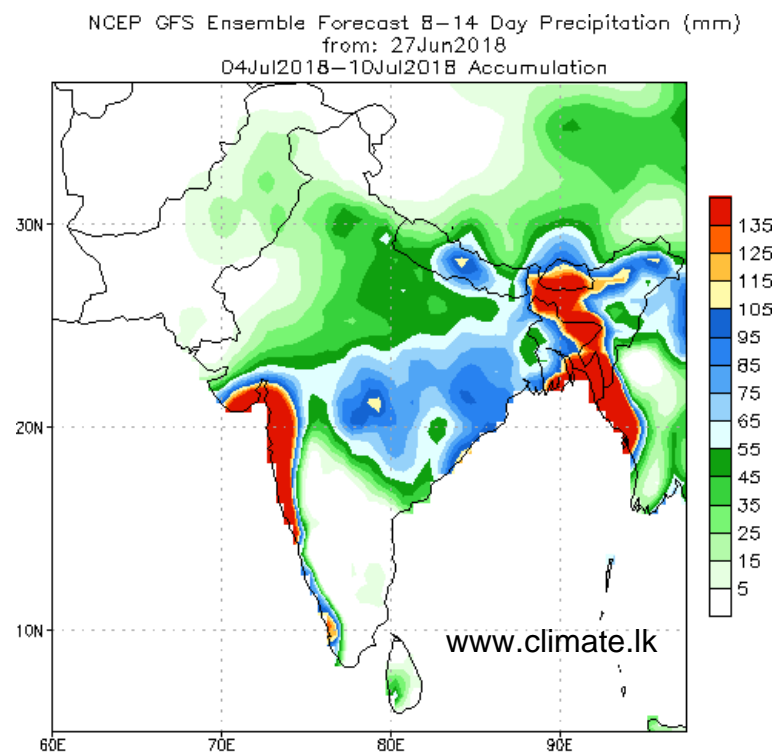


PREDICTIONS

NCEP GFS 1- 14 Day prediction



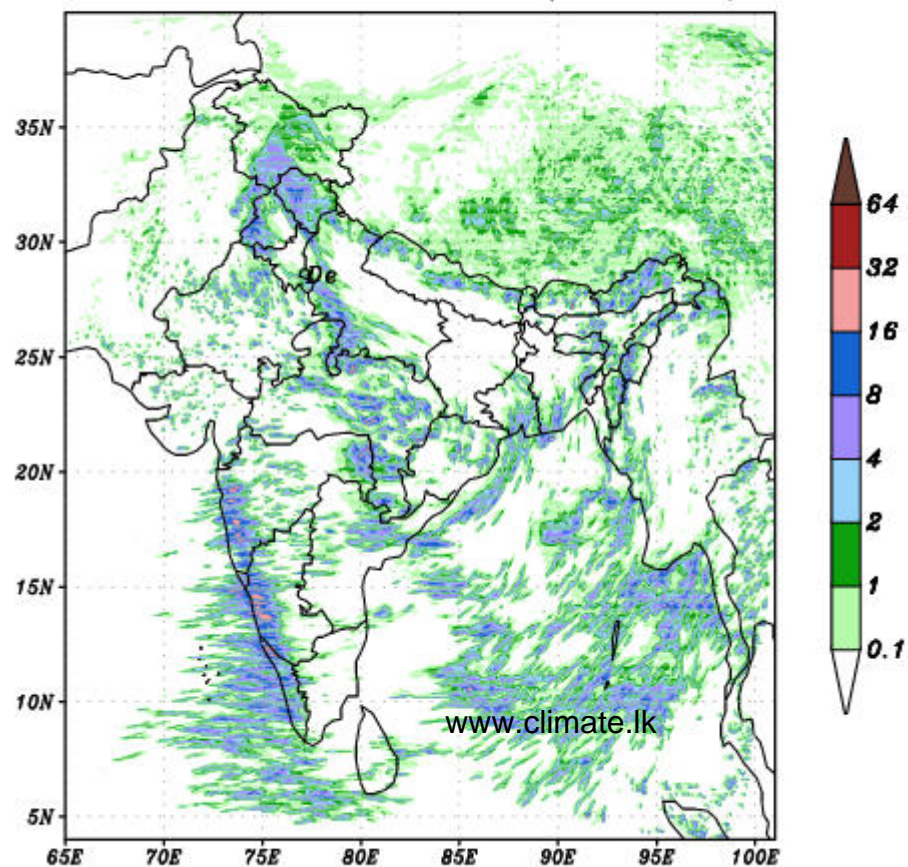
Bias correction based on last 30-day forecast error



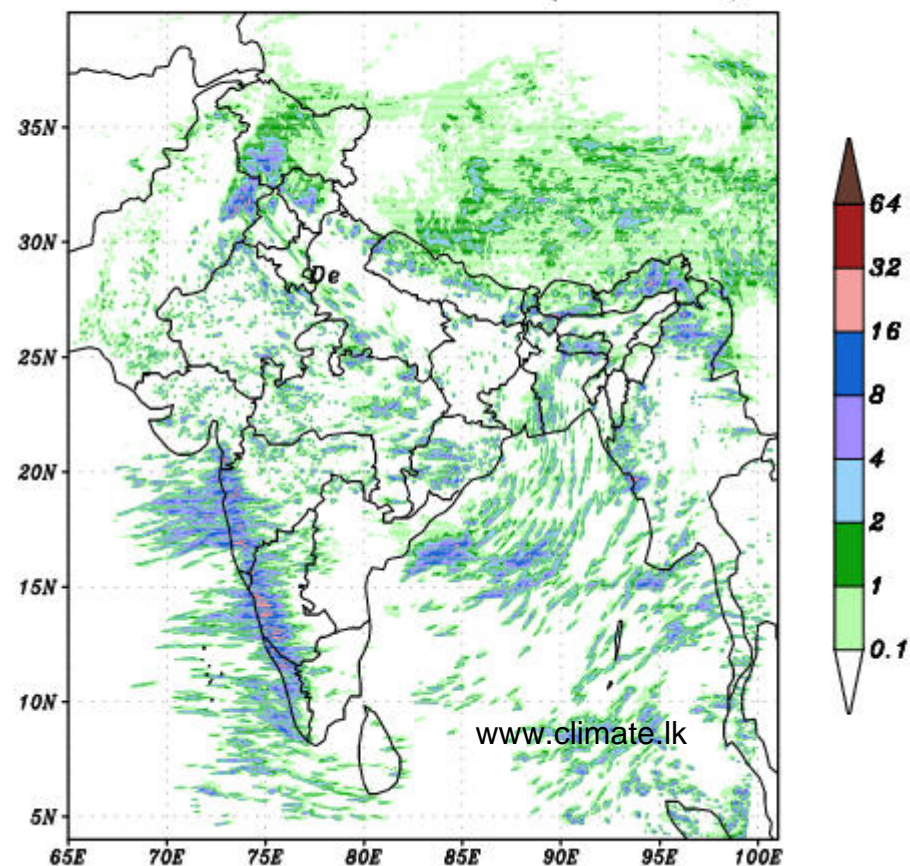
Bias correction based on last 30-day forecast error

WRF Mode Forecast (from MD Chennai)

DAY 2 FORECAST VALID ON 00Z29JUN2018
Total Precipitation(cm) CI=0.1,1,2,4,8,...
NCMRWF UNIFIED MODEL (REG-4Km)



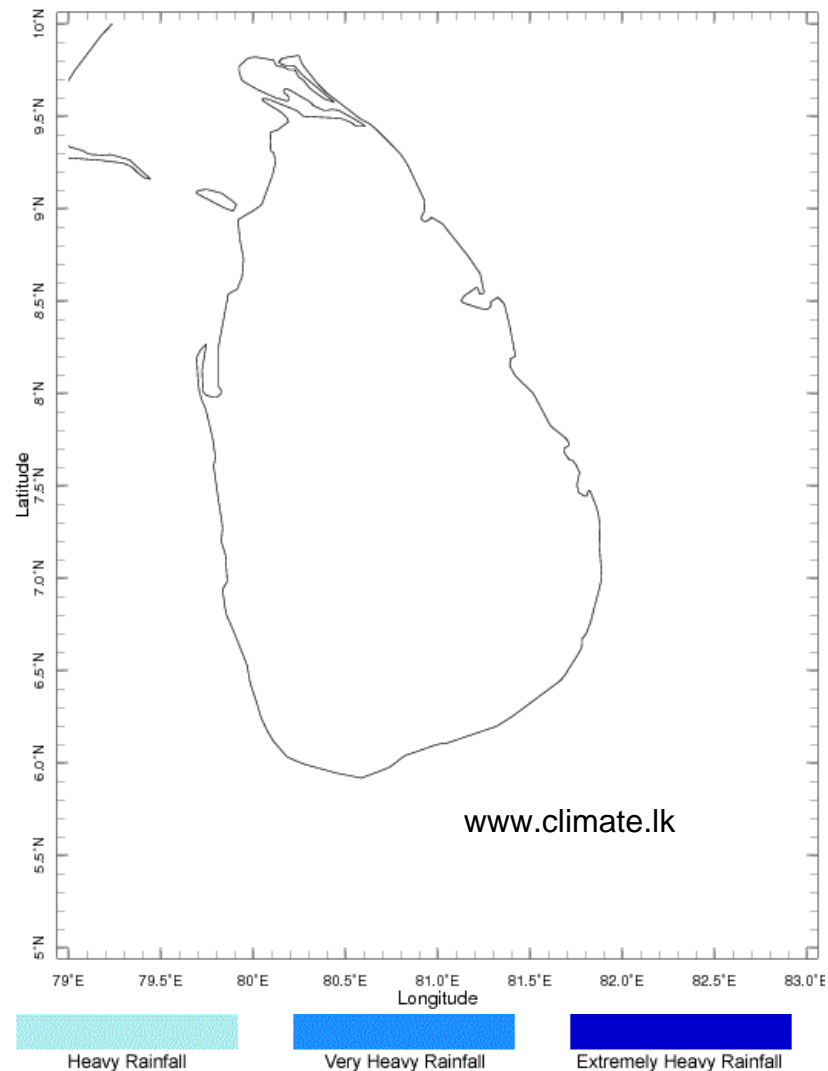
DAY 3 FORECAST VALID ON 00Z30JUN2018
Total Precipitation(cm) CI=0.1,1,2,4,8,...
NCMRWF UNIFIED MODEL (REG-4Km)



Weekly Rainfall Forecast from IRI

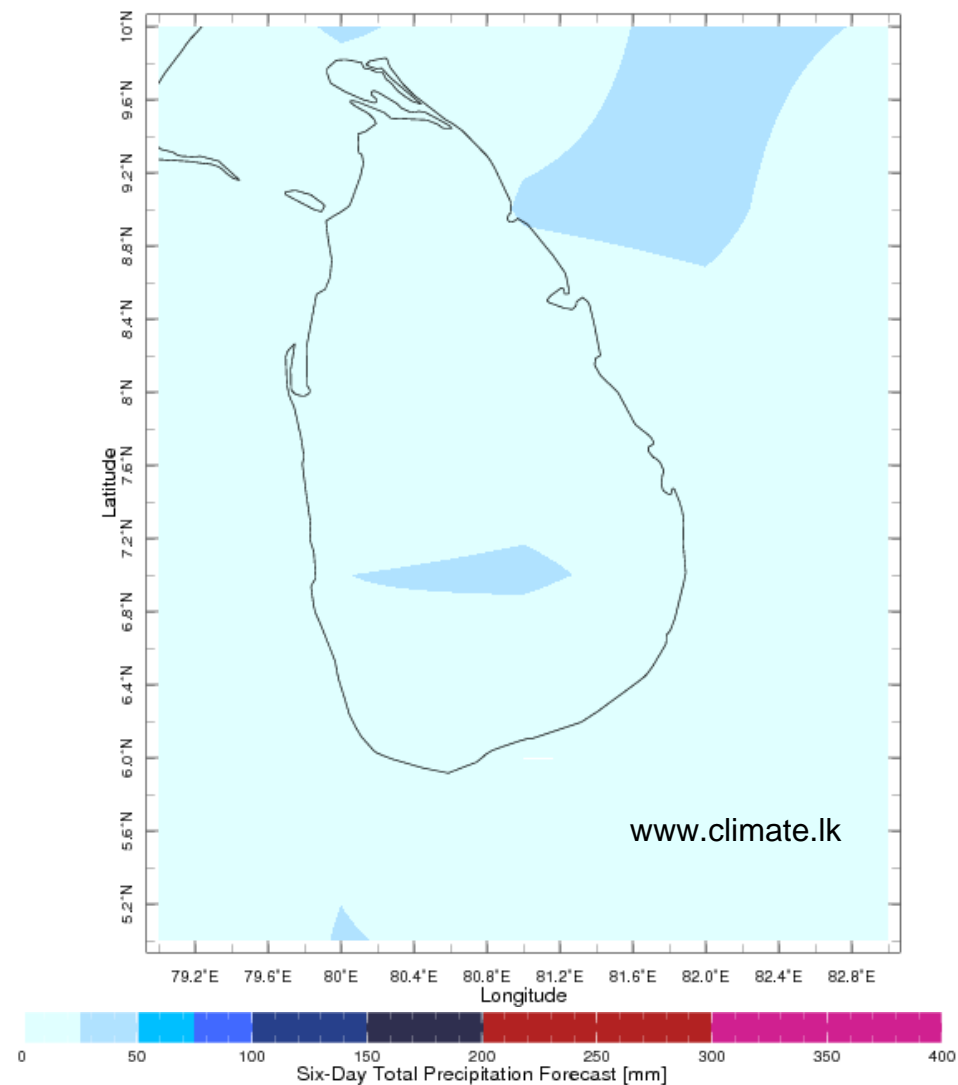
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 27 Jun 2018 - 2 Jul 2018 Issued 0000 27 Jun 2018



Extreme Rainfall Forecast

Forecast for 27 Jun 2018 - 2 Jul 2018 Issued 0000 27 Jun 2018



Total Six Day Precipitation Forecast