

Experimental Climate Monitoring and Prediction

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30 November 2017

Highlights

- The WRF rainfall forecast predicts up to 124.5 mm of rainfall in Gampaha, Colombo and Kalutara districts on December 1st.
- Between 22-27 Nov: Rainfall up to 120 mm was recorded in Batticaloa district on November 25th.
- From 19-25 Nov: minimum temperature of 15 °C was recorded from Nuwara Eliya district while most parts of the island recorded a maximum temperature between 30-35 °C.
- From 21-27 Nov: up to 36 km/h, northeasterly winds were experienced by the entire island.
- 0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring Rainfall

Weekly Monitoring: On November 22nd, the Batticaloa district received up to 50 mm of rainfall; Ampara and Hambantota districts up to 30 mm; Polonnaruwa, Matale, Kandy, Nuwara Eliya, Kalutara, Galle, Matara, Badulla and Monaragala districts up to 20 mm; and many southern and central regions of the island up to 10 mm. On the 23rd Galle district received up to 30 mm of rainfall; Kalutara, Ratnapura, Matara and Hambantota districts up to 20 mm. On the 24th, Jaffna, Mannar, Puttalam, Trincomalee, Polonnaruwa, Matale and Kandy districts received up to 10 mm of rainfall. On the 25th Batticaloa district received up to 120 mm of rainfall; Ampara district up to 90 mm; Polonnaruwa, Badulla and Monaragala districts up to 80 mm; Trincomalee, Anuradhapura, Kurunegala, Matale and Kandy districts up to 50 mm; Mullaitivu, Vavuniya, Puttalam and Nuwara Eliya up to 30 mm; and the rest of the island up to 20 mm. On the 26th, Trincomalee, Batticaloa and Polonnaruwa districts received up to 80 mm; Mullaitivu, Vavuniya, Mannar, Anuradhapura, Kandy, Nuwara Eliya, Badulla, Monaragala and Ampara districts received up to 50 mm; Jaffna, Kilinochchi, Puttalam, Kurunegala, Matale, and Hambantota districts up to 30 mm; and rest of the island up to 10 mm. On the 27th, Anuradhapura district received up to 60 mm; Puttalam, Mannar, Batticaloa, Ampara and Monaragala districts up to 50 mm; Jaffna, Vavuniya, Badulla and Polonnaruwa districts up to 30 mm; Kilinochchi, Mullaitivu, Matale, Kandy, Nuwara Eliya and Hambantota districts up to 20 mm; and rest of the island up to 10 mm.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 200-300 mm in Batticaloa and Ampara districts; up to 150-200 mm in Trincomalee, Polonnaruwa and Monaragala districts; up to 75-100 mm Kilinochchi, Mullaitivu, Vavuniya, Mannar, Anuradhapura, Puttalam, Kurunegala, Kegalla, Ratnapura, Nuwara Eliya, Badulla, Monaragala, Hambantota, Ratnapura and Matara districts. It shows above average rainfall up to 100-200 mm in Polonnaruwa, Batticaloa, Ampara and Monaragala districts; and up to 50 -100 mm in Trincomalee, Kandy, Nuwara Eliya and Badulla districts. It also shows below average rainfall up to 50-100 mm in Puttalam, Gampaha, Colombo, Kalutara and Ratnapura districts; and up to 25-50 mm in Kurunegala and Galle districts.

Monthly Monitoring: During October - below average rainfall conditions were experienced in the northern, western and southern regions of the island and above average rainfall in central and eastern regions. Puttalam and Galle districts received up to 180 mm below average rainfall; Jaffna, Mullaitivu, Kilinochchi, Mannar, Gampaha, Kalutara, Ratnapura, Matara and Hambantota districts up to 120 mm. The Polonnaruwa district received up to 240 mm of above average rainfall; Batticaloa, Trincomalee, Ampara, Badulla, Monaragala and Matale districts up to 150 mm; and Kandy, Kegalle and Nuwara Eliya districts up to 120 mm. The CPC Unified Precipitation Analysis tool shows ~360 mm of total rainfall in the Polonnaruwa district; up to ~300 mm in Anuradhapura, and Batticaloa, Trincomalee, Ampara, Badulla, Kurunegala, Kegalla, Ratnapura and Matale districts.

Ocean State (Text Courtesy IRI)

Pacific sea state: November 20, 2017

In mid-November 2017, the tropical Pacific reflected weak La Niña conditions, with SSTs in the east-central tropical Pacific past the threshold of La Niña and most atmosphere variables showing patterns suggestive of weak La Niña conditions. The collection of latest ENSO prediction models indicates a weak La Niña as the most likely scenario for the remainder of the Northern Hemisphere fall and for the winter. The official CPC/IRI outlook favours continuation of La Niña through winter, and carries a La Niña advisory.

Indian Ocean State

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

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 29th Nov – 05th Dec: Total rainfall between 75-85 mm in Jaffna district; between 65-75 mm in Kilinochchi and Mullaitivu districts; between 35-45 mm in Trincomalee, Ampara, Batticaloa, Monaragala and Galle districts; between 25-35 mm in Vavuniya, Mannar, Ratnapura, Matara and Badulla districts; between 15-25 mm in Anuradhapura, Polonnaruwa, Puttalam, Gampaha, Colombo, Kegalle and Nuwara Eliya districts; Up to 15 mm total rainfall for the rest of the island.

From 06th – 12th Dec : Total rainfall between 85-95 mm in Jaffna and Kilinochchi districts; between 65-75 mm in Mullaitivu and Trincomalee districts; between 55-65 mm in Mannar, Vavuniya, Anuradhapura, Polonnaruwa and Batticaloa districts; between 45-55 mm in Puttalam, Gampaha, Colombo, Kegalle, Ratnapura, Kurunegala, Matale, Badulla, Monaragala and Ampara districts; between 35-45 mm in Kandy, Nuwara Eliya and Galle districts; Up to 35 mm total rainfall for the rest of the island.

IMD WRF Forecast:

01st Dec: Up to 124.5 mm of rainfall in Gampaha, Colombo and Kalutara districts; Up to 64.5 mm in Puttalam, Kurunegala, Kegalle and Ratnapura districts; Up to 35.6 mm in Anuradhapura, Polonnaruwa, Trincomalee, Matale, Nuwara Eliya, Badulla, Monaragala, Ampara, Hambantota, Matara and Galle districts. Up to 7.6 mm rainfall for the rest of the island.

02nd Dec: Up to 35.6 mm of rainfall in Jaffna, Kilinochchi, Colombo, Kalutara, Ratnapura and Galle districts; Up to 7.6 mm in Mullaitivu, Anuradhapura, Polonnaruwa, Matale, Badulla, Ampara, Monaragala, Hambantota, Matara, Nuwara Eliya, Colombo and Kegalle districts; Up to 2.5 mm rainfall for the rest of the island.

IRI Model Forecast:

29th Nov – 04th Dec: Total rainfall between 100-150 mm in Jaffna, Kilinochchi, Mullaitivu, Trincomalee, Kalutara, Galle and Matara districts; between 75-100 mm in Mannar, Vavuniya, Anuradhapura, Gampaha, Colombo, Ratnapura, Hambantota, Monaragala and Ampara districts; between 50-75 mm in Puttalam, Kurunegala, Kegalle, Kandy, Nuwara Eliya, Badulla, Batticaloa and Polonnaruwa districts; Up to 50 mm total rainfall for the rest of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall not have a significant impact on the rainfall in Sri Lanka in the next 5 days and shall suppress the rainfall in the following 10 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.

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Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

1. Monitoring

- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

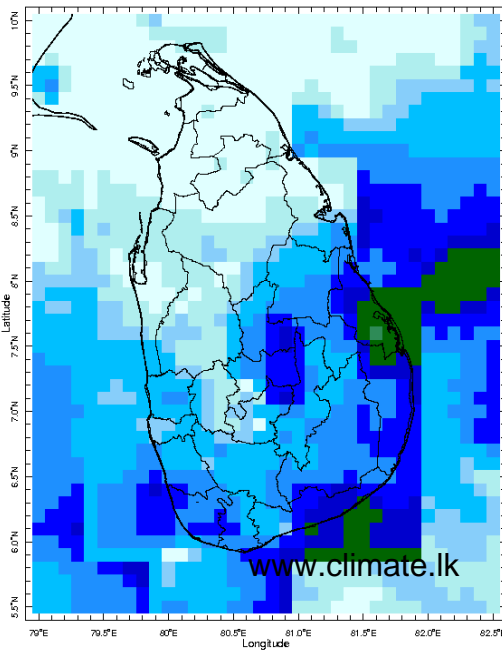
2. Predictions

- 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

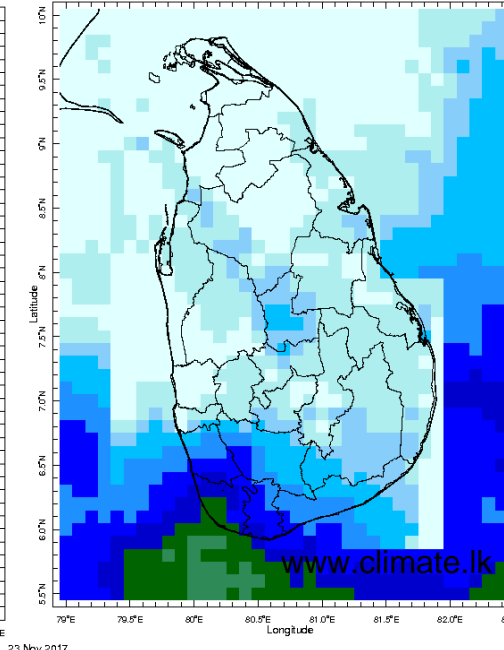
MONITORING

Daily Rainfall Monitoring

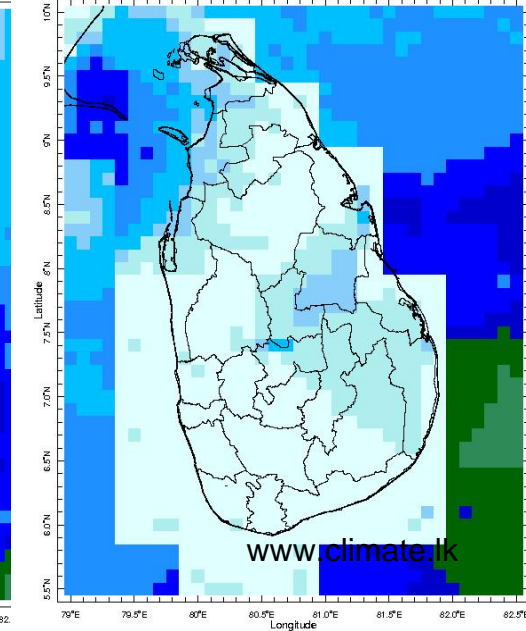
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



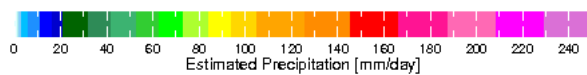
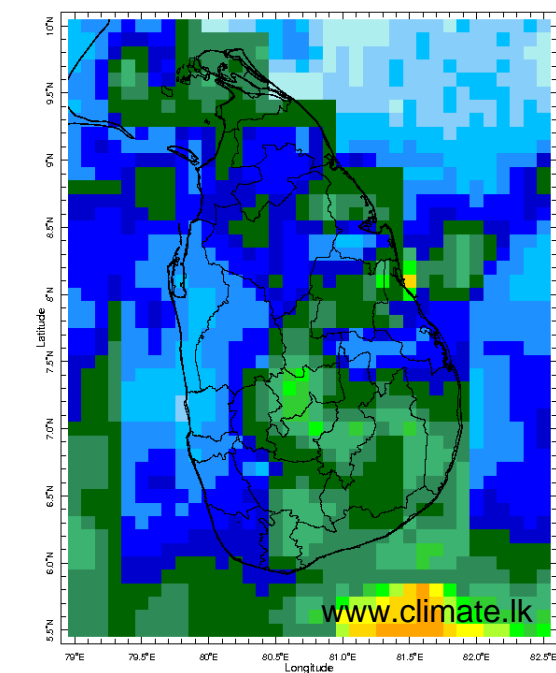
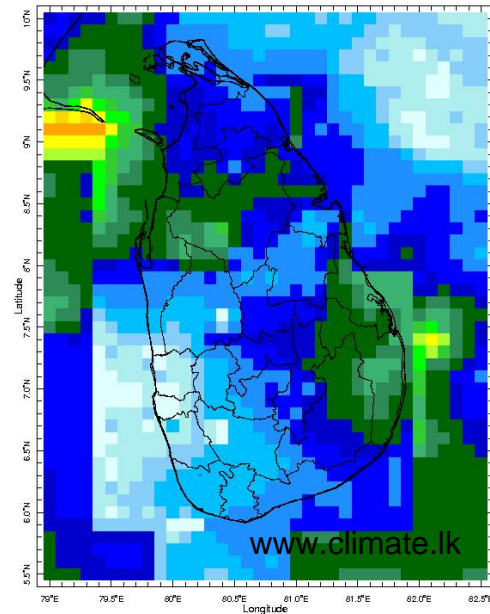
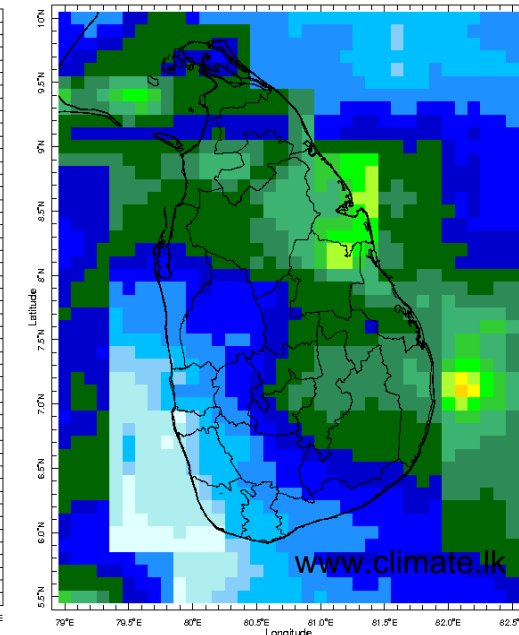
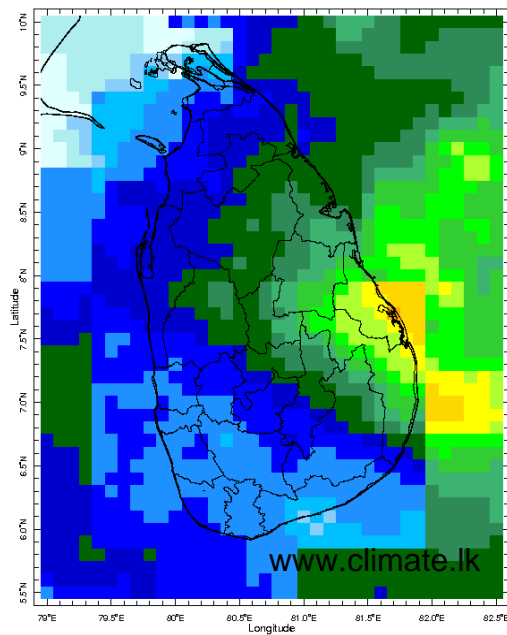
22 Nov 2017



23 Nov 2017

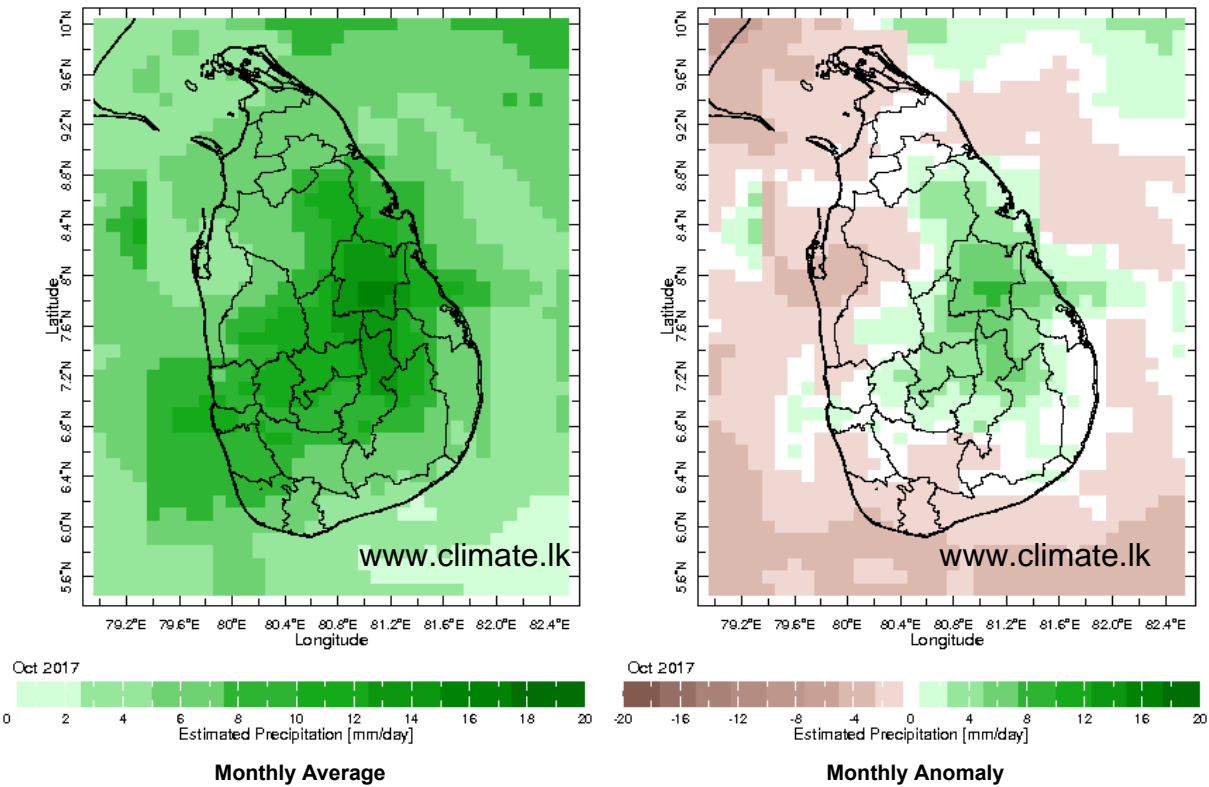


24 Nov 2017

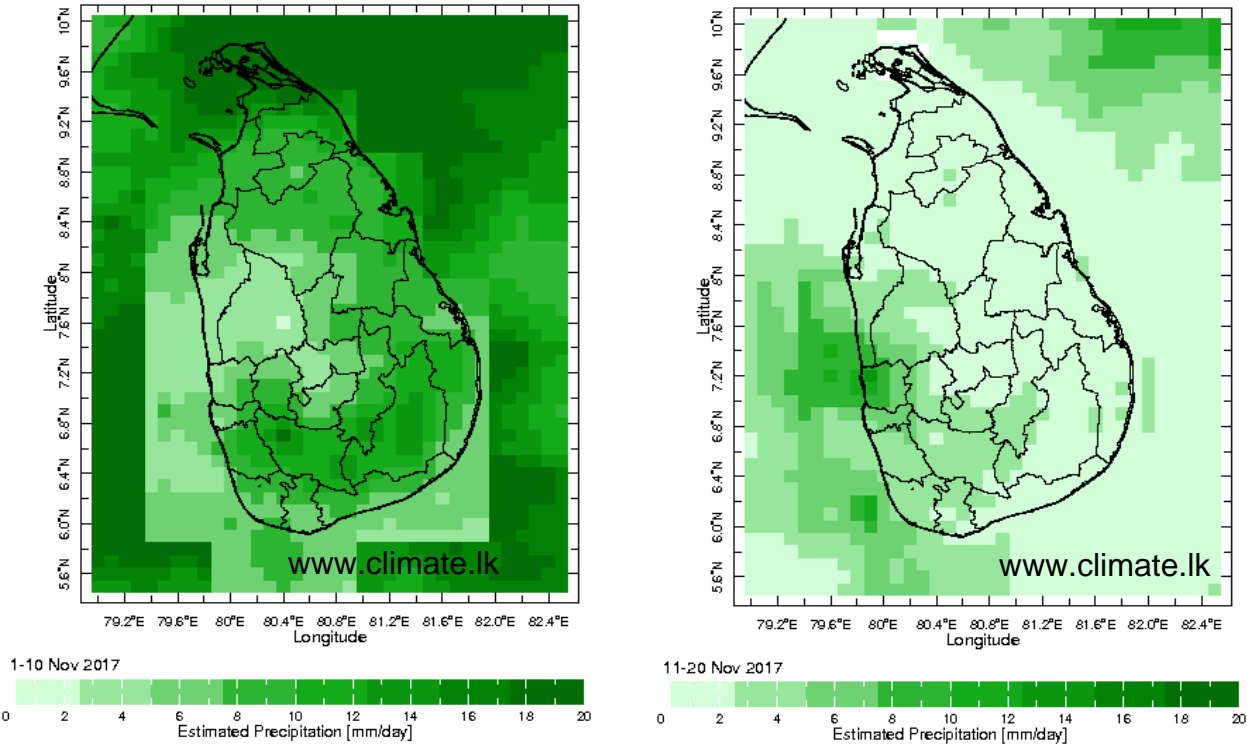


Monthly Rainfall Monitoring

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

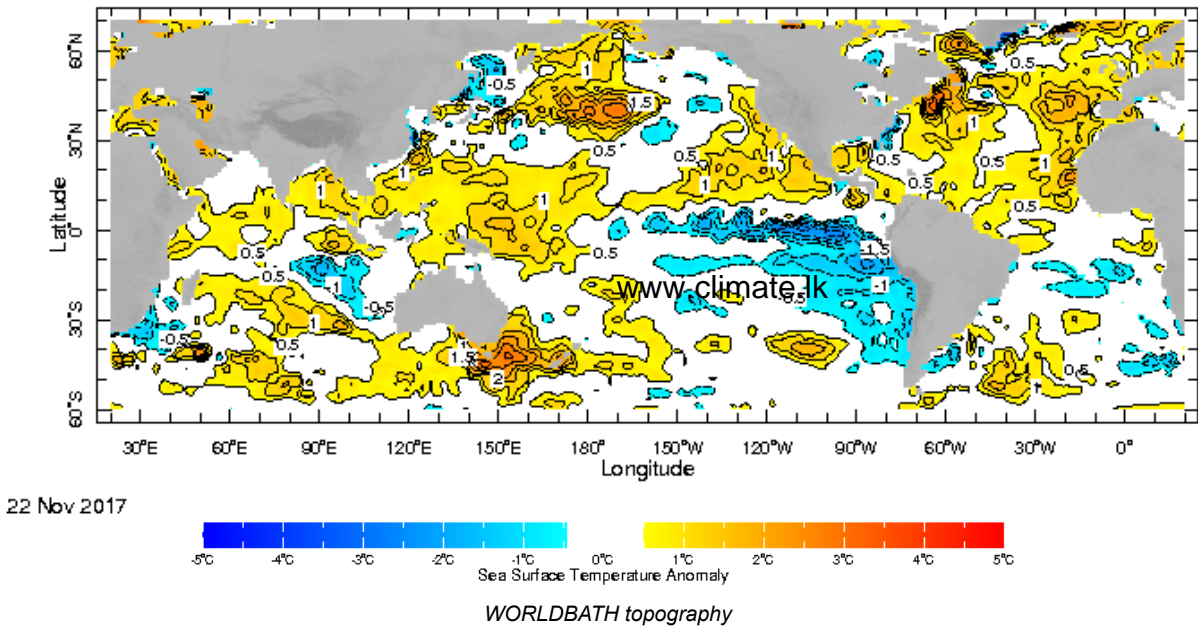


Dekadal (10 Day) Satellite Derived Rainfall Estimates



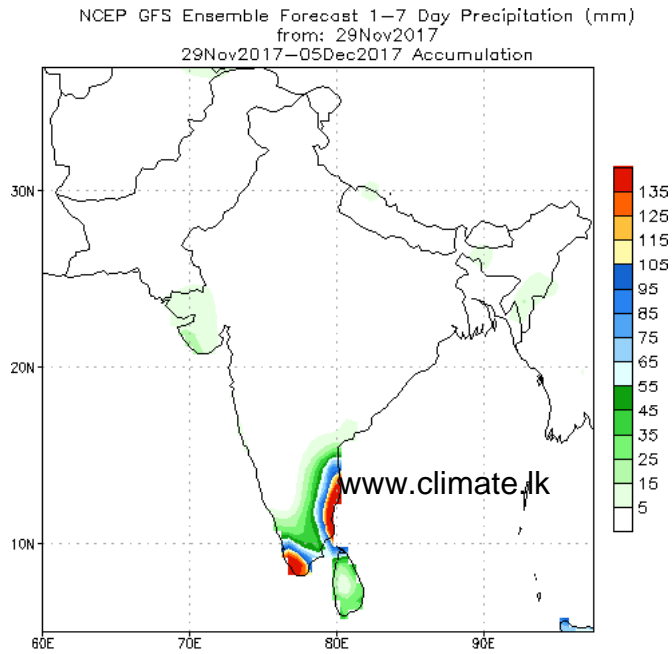
Weekly Average SST Anomalies

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

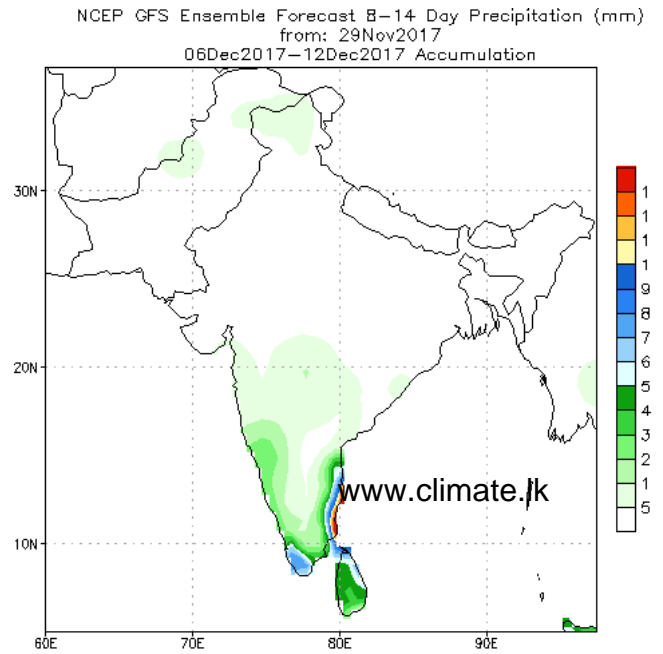


PREDICTIONS

NCEP GFS 1- 14 Day prediction



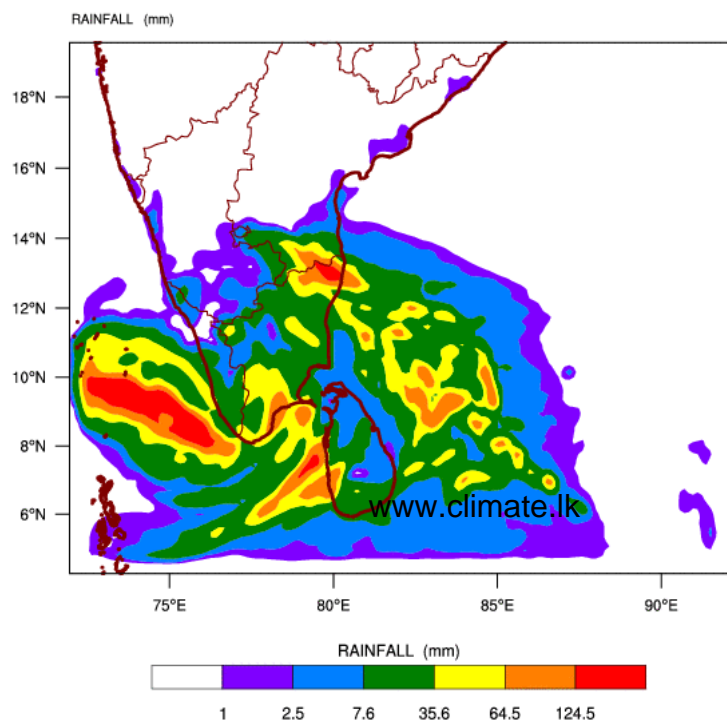
Bias correction based on last 30-day forecast error



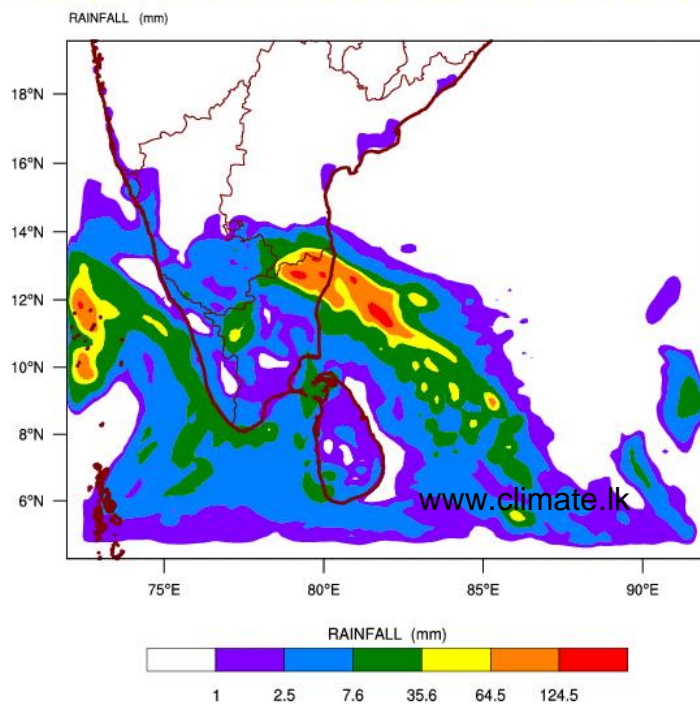
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 29-11-2017 valid for 03 UTC of 01-12-2017



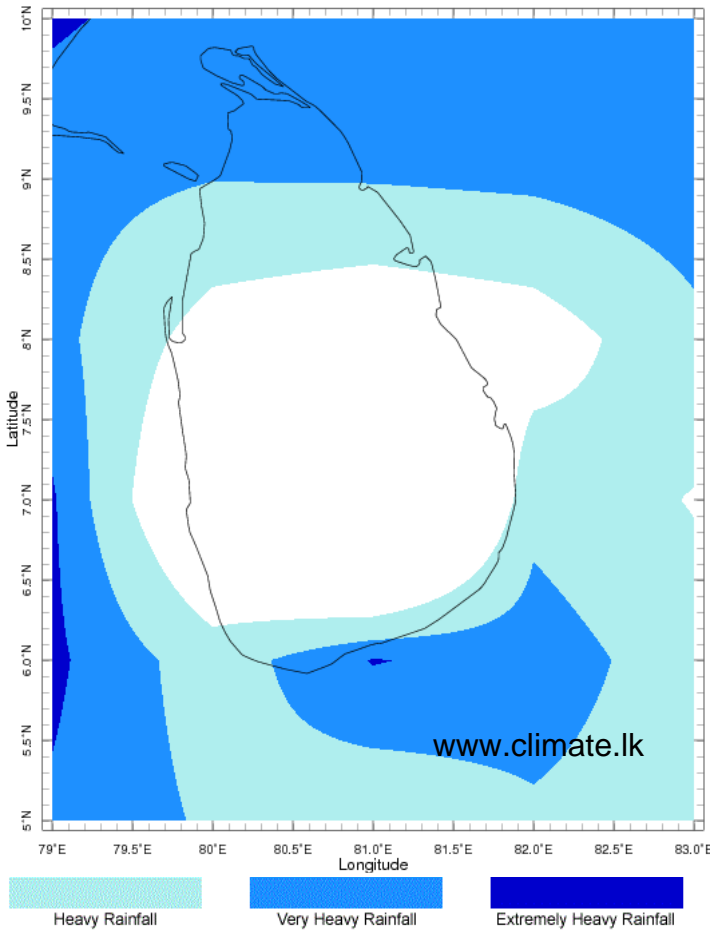
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 29-11-2017 valid for 03 UTC of 02-12-2017



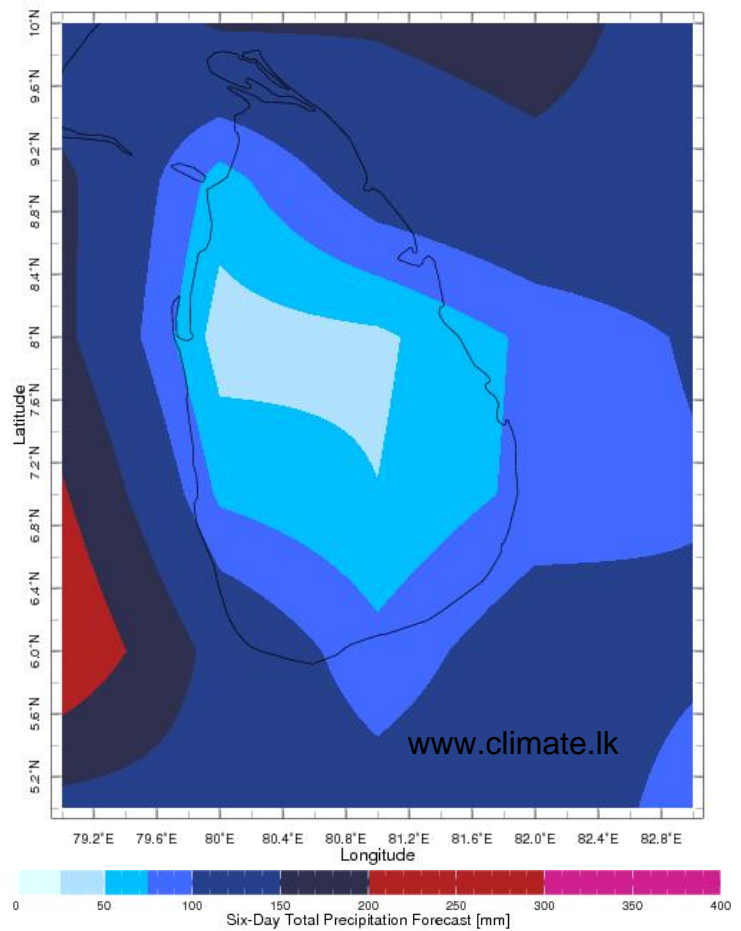
Weekly Rainfall Forecast from IRI

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 29 Nov 2017 - 4 Dec 2017 Issued 0000 29 Nov 2017



Forecast for 29 Nov 2017 - 4 Dec 2017 Issued 0000 29 Nov 2017



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