

Experimental Climate Monitoring and Prediction

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Highlights

- The IMD WRF model predicts rainfall up to 35 mm on 17th December in Jaffna and Kilinochchi districts.
- Between Dec 6–12: highest rainfall of 50 mm was recorded on the 8th in the surrounding regions of Kumana.
- From Dec 4–10: minimum temperature of 15 °C was recorded from Nuwara Eliya district while many parts of the island recorded a maximum temperature between 30-35 °C.
- From Dec 6–12: up to 28 km/h north westerly winds were experienced in the eastern and south eastern regions, and speeds less than 20 km/h in the rest of the island.

Monitoring

Rainfall

Weekly Monitoring: On December 6th no significant rainfalls were recorded in any part of the island. On 7th surrounding regions of Passara and Nakkala received rainfall up to 30 mm; and Welimada and Demodara regions up to 20 mm. On 8th Monaragala, Hambantota and southern regions of Ampara districts received up to 50 of mm rainfall; and Matale, Kandy, Kurunegala, Badulla districts and coastal regions of Vakarai received up to 20 mm. On 9th up to 20 mm of rainfall was received by Colombo, Gampaha and Kegalla districts and up to 60 mm by the adjacent south eastern sea. On the 10th Kirinda and the adjacent sea region received up to 30 mm of rainfall. No rainfalls were recorded in any part of the island on the 11th. On 12th the coastal regions of Moratuwa and Weligama received up to 20 mm of rainfall.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 75 mm in the southern regions of Ampara district; up to 50 mm for Monaragala, Hambantota, Kandy and Matale districts; up to 25 mm for Gampaha, Colombo, Kalutara, Galle, Matara and Ratnapura districts. It shows above average rainfall of 10-25 mm for the surrounding regions of the district border of Ampara, Hambantota and Monaragala; and below average rainfall of 50-100 mm for the eastern regions of the island and 25-50 mm below average rainfall for many parts of the country.

Monthly Monitoring: Above average rainfall conditions were experienced in Jaffna, Kilinochchi, Kegalla, Gampaha, Colombo, Galle, Matara and several regions of Kurunegala and Puttalam districts during November. Monthly average rainfall for these regions amounted to 360 mm/month. Rest of the island experienced below average rainfall conditions with a monthly average not exceeding 180 mm/month. The CPC Unified Precipitation Analysis tool shows ~300 mm of total rainfall in Kilinochchi, Mullaitivu, Gampaha, Colombo, Ratnapura, Batticaloa, Kalutara, Hambantota, Galle and Matara districts; ~200 mm in Vavuniya, Mannar, Anuradhapura, Polonnaruwa, Puttalam, Kurunegala, Kegalla and Monaragala districts; and 150 mm in rest of the island.

Ocean State (Text Courtesy IRI)

Pacific sea state: December 8, 2016

During early December 2016 the tropical Pacific SST anomaly was near -0.5C, the threshold for weak La Niña. Also, most of the atmospheric variables across the tropical Pacific have been consistent with weak La Niña conditions, although subseasonal atmospheric variability has temporarily weakened some of them. The upper and lower atmospheric winds have been suggestive of a strengthened Walker circulation, and the cloudiness and rainfall have also been consistent with weak La Niña conditions. The collection of ENSO prediction models indicates SSTs near the threshold of La Niña persisting through mid-winter, then weakening to cool-neutral by later winter.

Indian Ocean State

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

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 14th – 20th December: total rainfall up to 55 mm for the coastal regions of Colombo, and Jaffna; 35-45 mm for rest of the Colombo district; and 25-35 mm in Kilinochchi, Galle, Matara, Ratnapura and Gampaha districts.

From 21st – 27th December: total rainfall between 45-55 mm is expected in the coastal regions of Matara, Kumana and Kalmunai; 35-45 mm in Galle and many parts of Matara, Hambantota and Ampara districts; and 25-35 mm in Monaragala district.

IMD WRF & IRI Model Forecast:

Up to 35 mm of rainfall is expected on the 16th in Monaragala town region; and up to 7 mm of rainfall in rest of the Monaragala district. On the 17th, Jaffna and Kilinochchi districts and adjacent north and north eastern sea regions will receive up to 35 mm of rainfall; and up to 7 mm of rainfall can be expected in Mullaitivu, Mannar and several regions of Galle and Ratnapura districts.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for January to March 2017, the total 3-month precipitation has 40-50% likelihood of being in the above-normal tercile for the whole island. The 3-month temperature has more than 70-80% likelihood in the entire country of being in the above-normal tercile during this period.

MJO based OLR predictions

For the next 15 days: MJO shall not have a significant impact on rainfall for the next 10 days and shall suppress the rainfall for the following 5 days.

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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

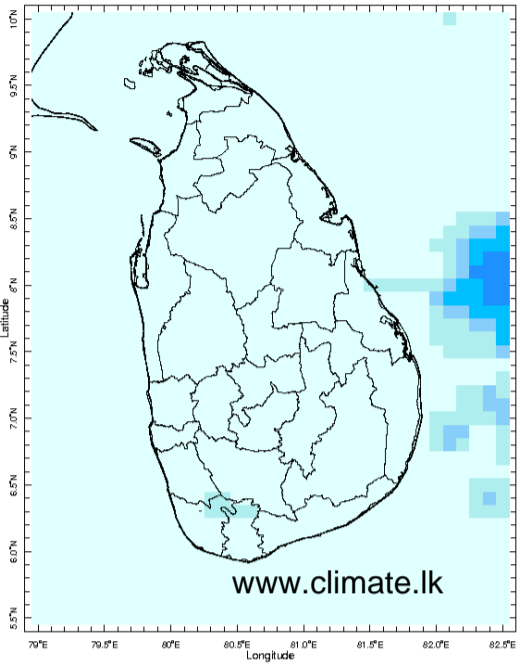
- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

2. Predictions

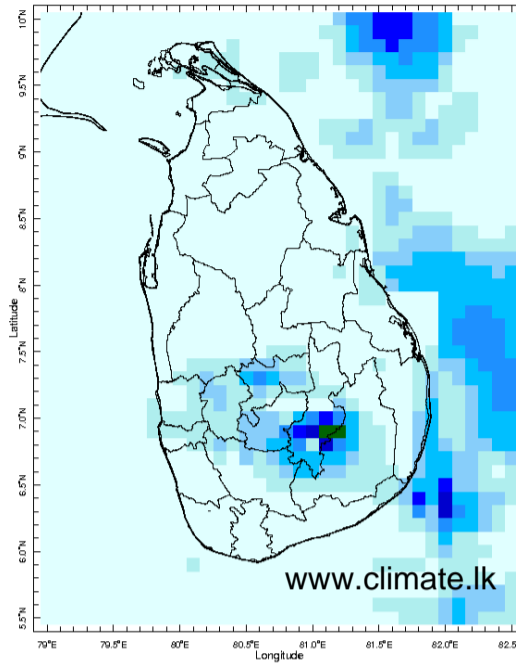
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

Daily Rainfall Monitoring

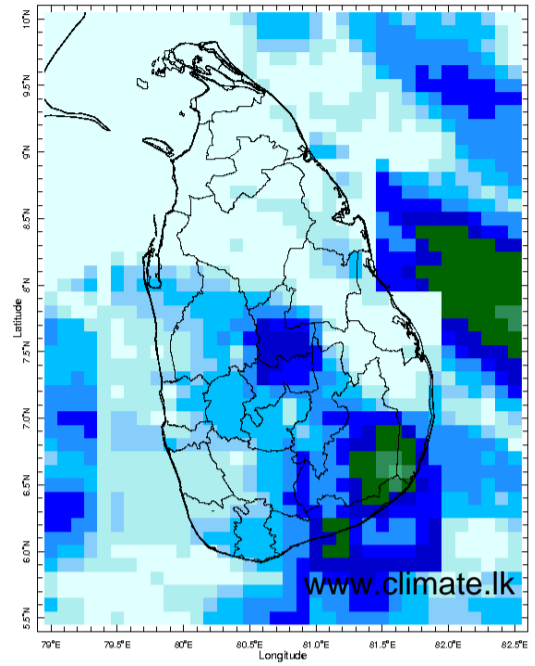
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



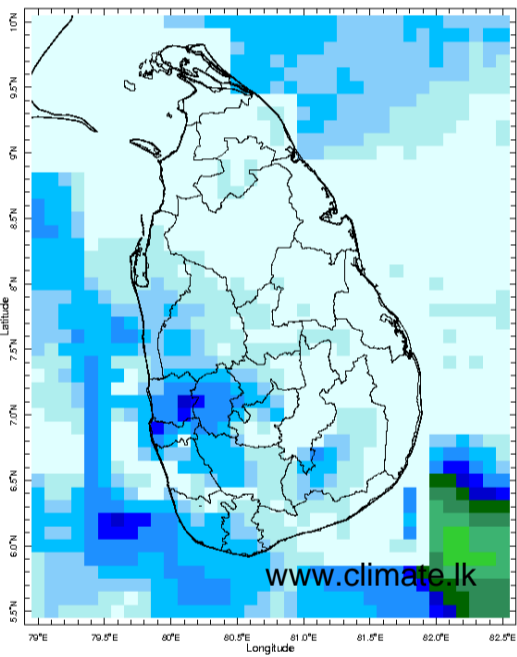
6 Dec 2016



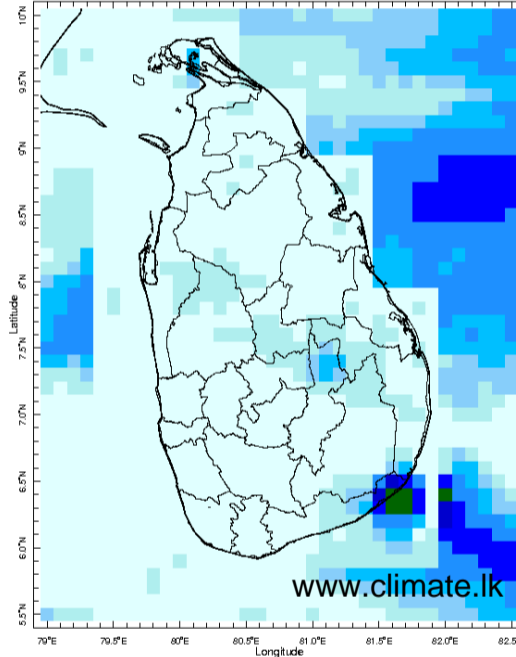
7 Dec 2016



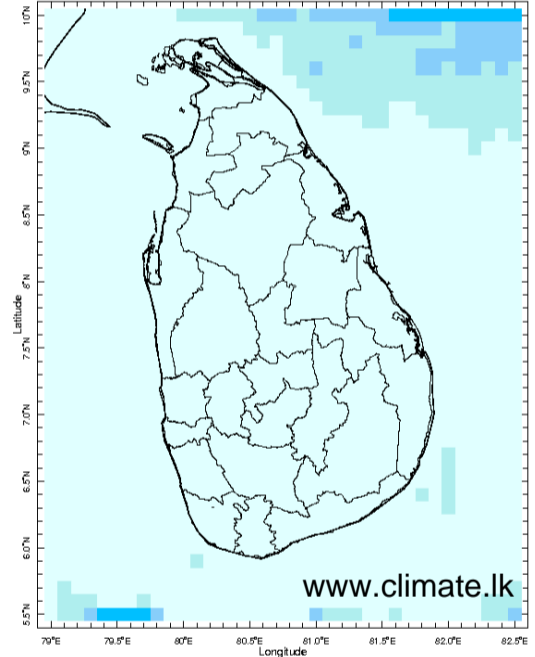
8 Dec 2016



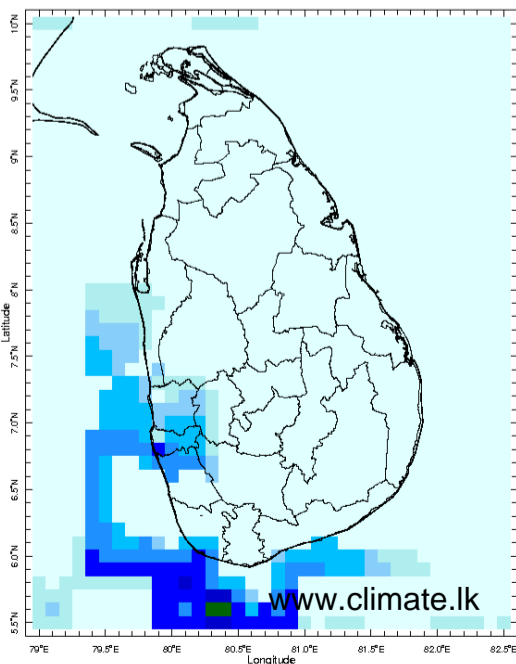
9 Dec 2016



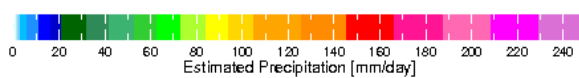
10 Dec 2016



11 Dec 2016

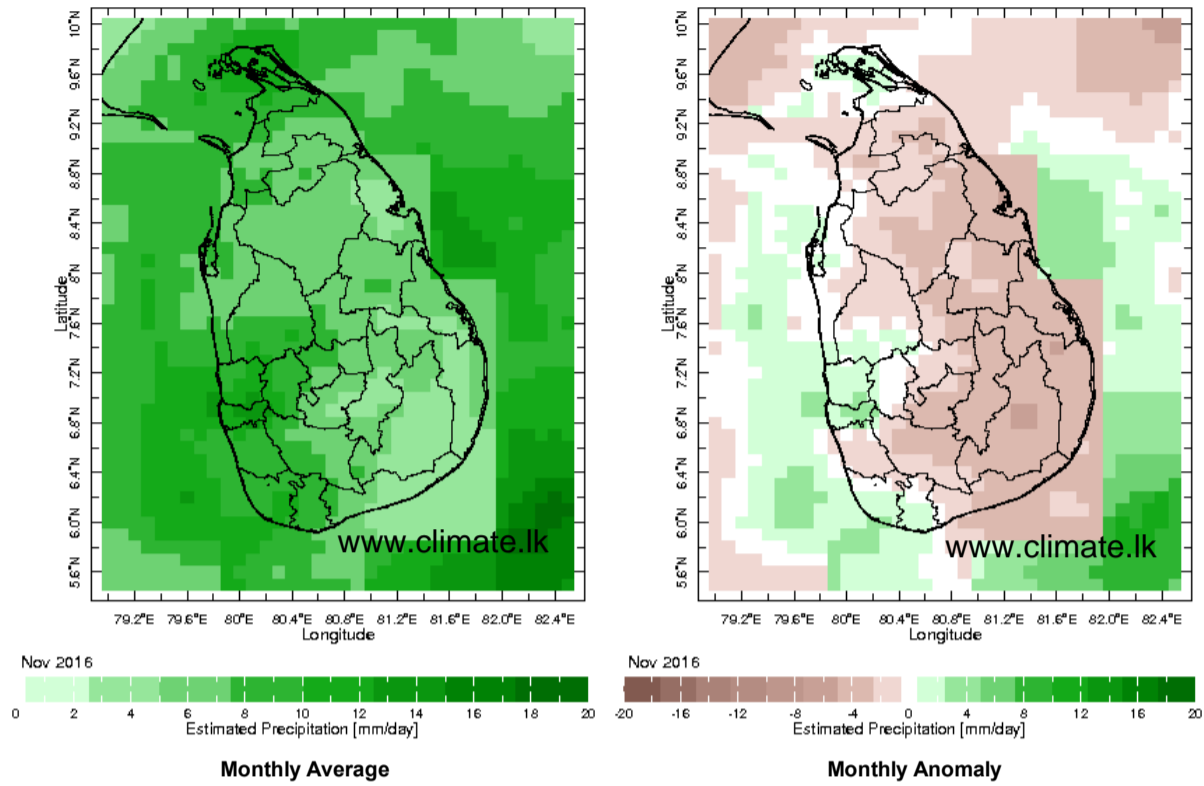


12 Dec 2016

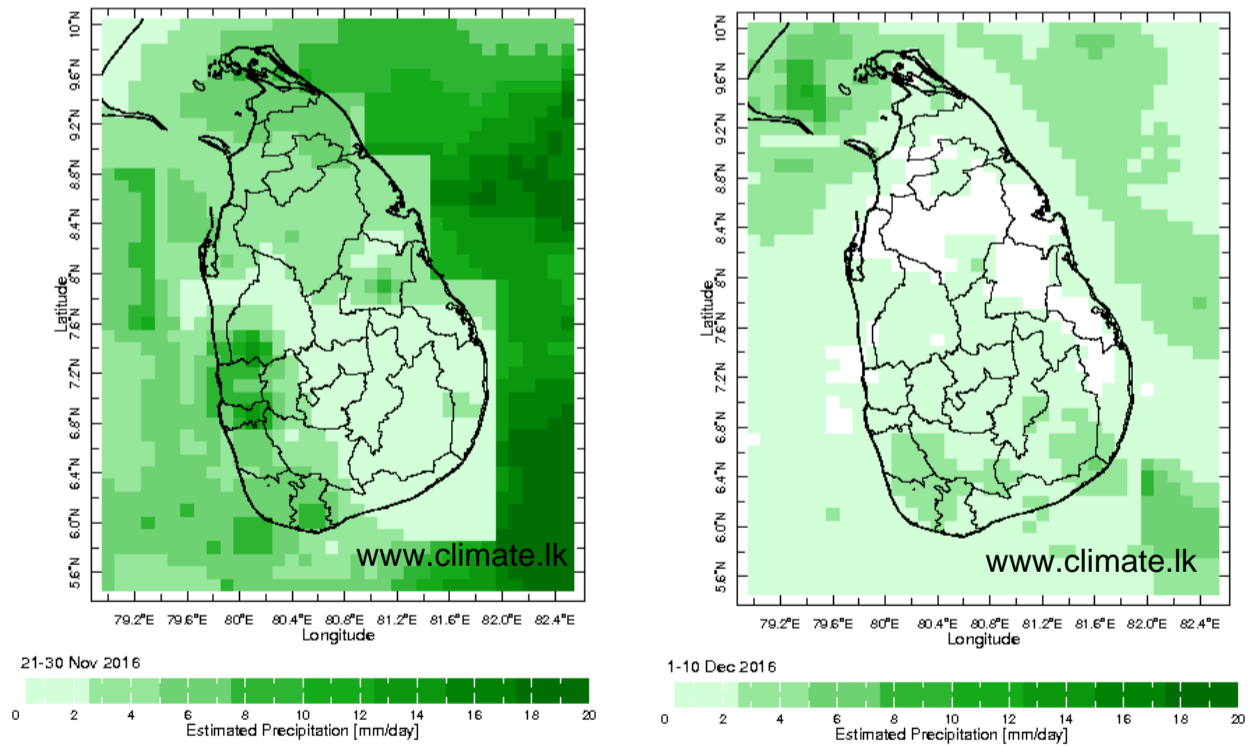


Monthly Rainfall Monitoring

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

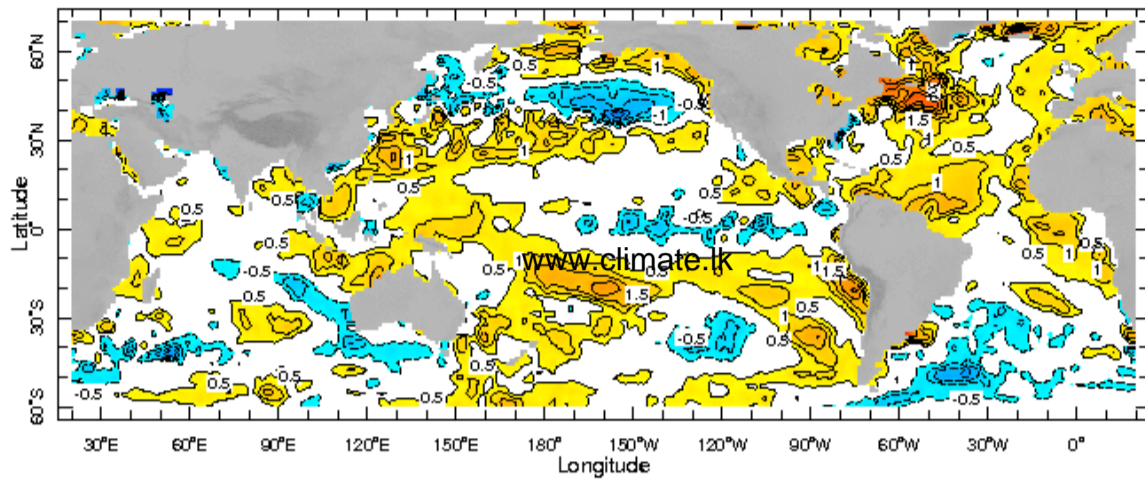


Dekadal (10 Day) Satellite Derived Rainfall Estimates

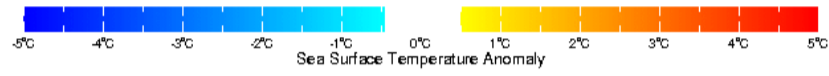


Weekly Average SST Anomalies

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

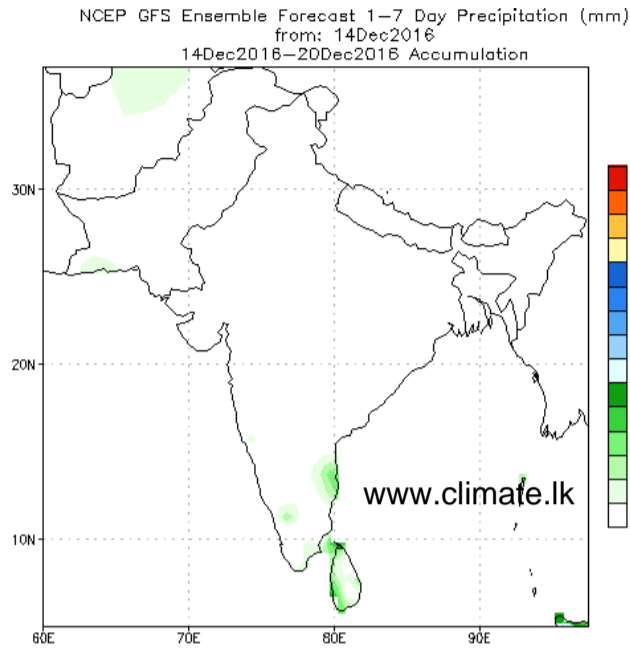


7 Dec 2016

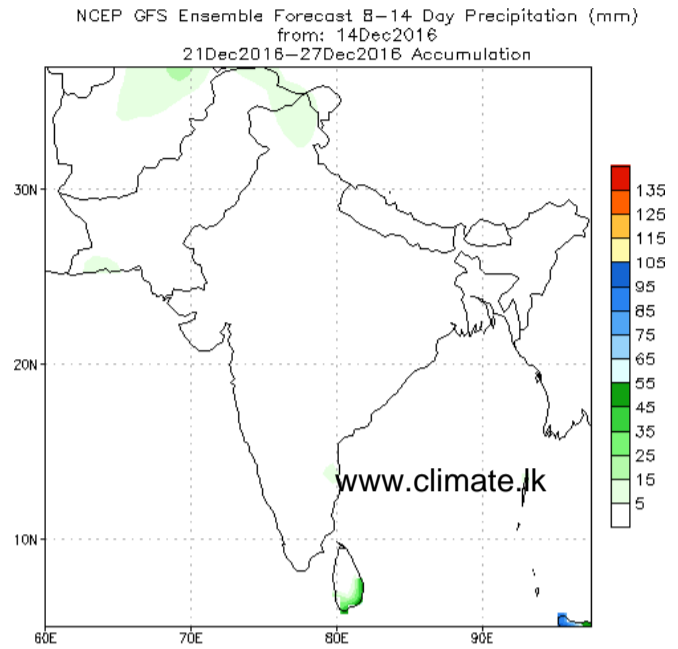


WORLDBATH topography

NCEP GFS 1- 14 Day prediction



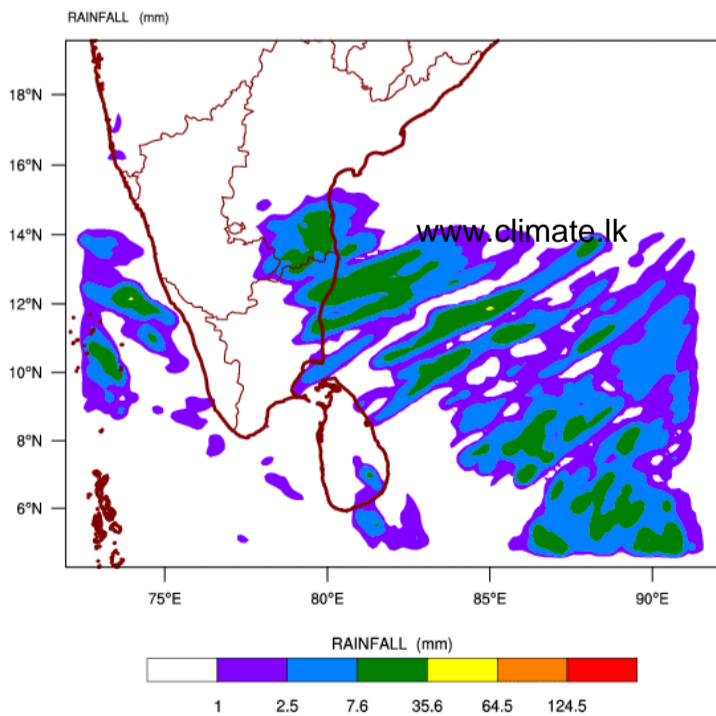
Bias correction based on last 30-day forecast error



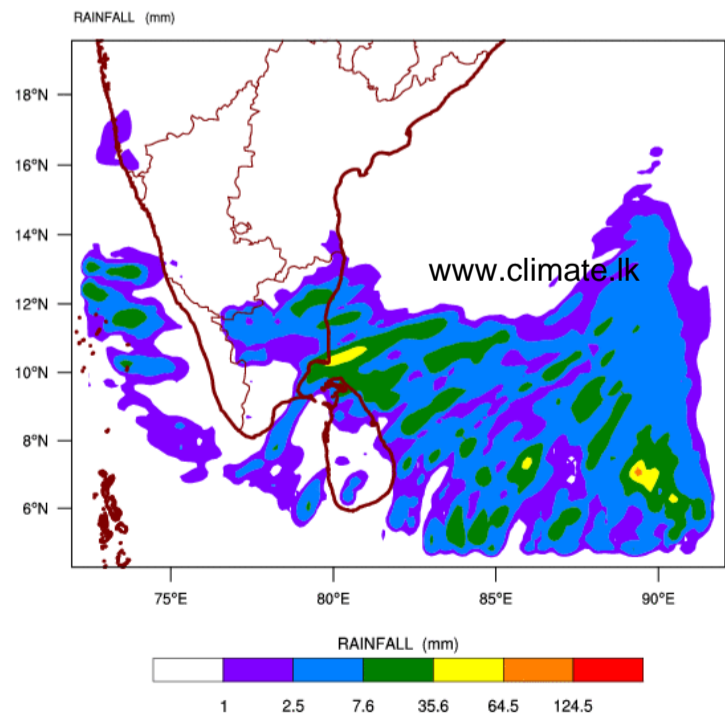
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 14-12-2016 valid for 03 UTC of 16-12-2016

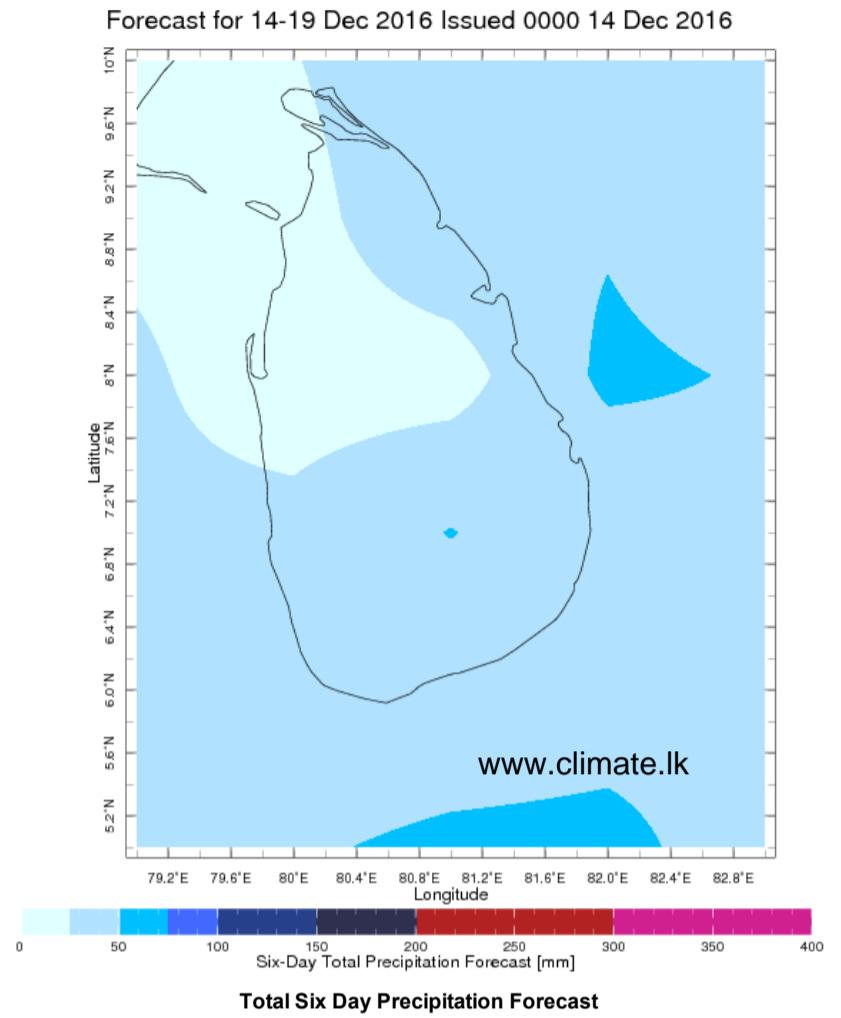
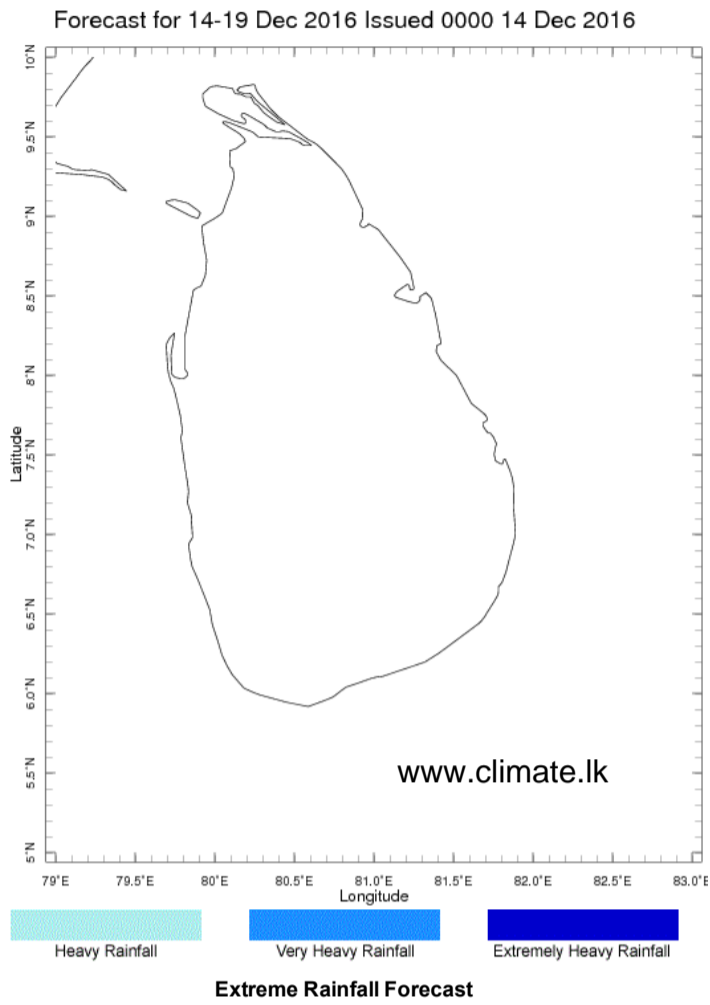


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 14-12-2016 valid for 03 UTC of 17-12-2016



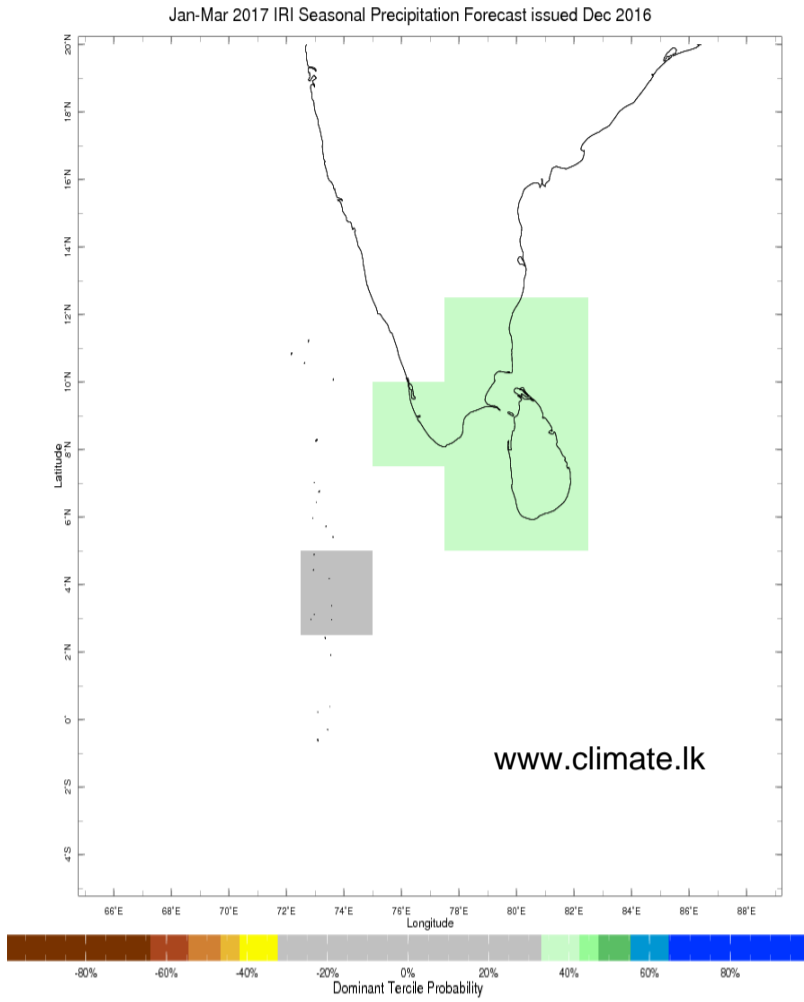
Weekly Rainfall Forecast from IRI

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.

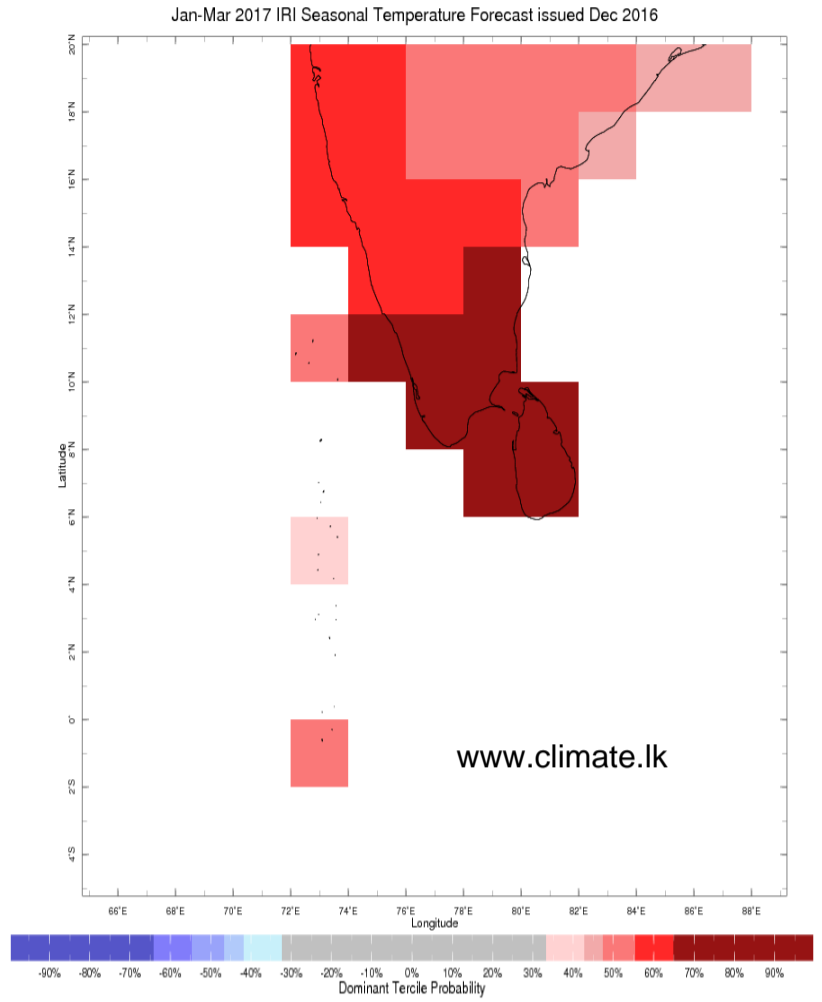


Seasonal Rainfall and Temperature Forecast

Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%).



Precipitation Forecast



Temperature Forecast

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