

Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Prabodha Agalawatte, Manusha Lakmali, Zeenas Yahiya,
Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

8 December 2016

Highlights

- The IMD WRF model predicts rainfall up to 64 mm on 9th December for coastal regions of Batticaloa district.
- Between Nov 30 & Dec 6, the highest rainfall of 50 mm was recorded on the 30th in Jaffna, Kilinochchi and Mannar districts.
- From Nov 27 – Dec 3, 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 Nov 29 – Dec 5, up to 18 km/h north easterly winds were experienced in Jaffna, Kilinochchi and Mullaitivu regions while rest of the island experienced north westerly wind with speeds less than 10 km/h.

Monitoring

Rainfall

Weekly Monitoring: On November 30th Jaffna, Kilinochchi and Mannar districts received rainfall up to 50 mm; Mullaitivu, Vavuniya, Puttalam and Anuradhapura districts up to 30 mm; Kurunegala, Batticaloa, and Trincomalee districts up to 20 mm ; and adjacent eastern sea up to 140 mm. On 1st of December Jaffna district including Mannar island received rainfall up to 50 mm; Kilinochchi district including Kekirawa region up to 30 mm; Mullaitivu district and several regions of Vavuniya district up to 20 mm. Up to 90 mm rainfall was received by north western sea on the 2nd. No significant rainfalls were recorded in any part of the island on the 2nd or 3rd. On 4th up to 50 mm rainfall was received by Galle, Matara, Ratnapura, Kalutara districts and up to 20 mm rainfall by several regions of Colombo, Hambantota and Kurunegala districts. Galle and adjacent sea region received up to 20 mm rainfall on the 5th. No significant rainfalls were recorded on the 6th.

Total Rainfall for the past week

The RFE 2.0 tool shows total rainfall up to 100 mm in Kilinochchi and Jaffna regions; up to 50 mm for Kalutara, Ratnapura, Galle, Matara, Mannar, Vavuniya, Mullaitivu and Anuradhapura regions; up to 25 mm for Puutalam, Kurunegala, Polonnaruwa and Colombo regions. It shows below average rainfall of 10-25 mm for south western and northern regions of the country and below average rainfall of 25-50 mm for the rest of the island.

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: November 17, 2016

During mid-November 2016 the tropical Pacific SST anomaly was slightly cooler than -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. 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 or slightly cooler than the threshold of La Niña during the remainder of fall, 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 south western and north eastern seas of Sri Lanka.

Predictions

Rainfall

14-day prediction:

From 7th – 13th December, the NOAA NCEP models predicts total rainfall up to 55 mm for coastal regions of Colombo, and Hambantota and several regions of Ratnapura and Matara districts; 35-45 mm in Gampaha and Kegalla districts; 25-35 mm in Nuwara Eliya district; and 65-75 mm in western and southern sea regions adjacent to the island.

From 14th – 20th December, total rainfall between 25-35 mm is expected in Colombo and 15-25 mm in Ratnapura, Galle, Matara and Hambantota districts.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, up to 64 mm of rainfall is expected on the 9th in coastal regions of Batticaloa; up to 35 mm of rainfall in rest of Batticaloa, Anuradhapura, Polonnaruwa and Matale districts; and up to 7 mm in most parts of the island. On the 10th, Hambantota, Embilipitiya, Balangoda, and Kataragama regions will receive up to 7 mm of rainfall ; and a decreasing tendency of rainfall is expected throughout the country.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for December to February 2017, the total 3-month precipitation shall be climatological 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 enhance the rainfall in Sri Lanka during the next 5 days and shall not have a significant impact on rainfall for the following 5 days. MJO shall suppress the rainfall for the succeeding 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/>



www.fb.com/fectsl



[@fectlk](https://twitter.com/fectlk)



Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

1. Monitoring

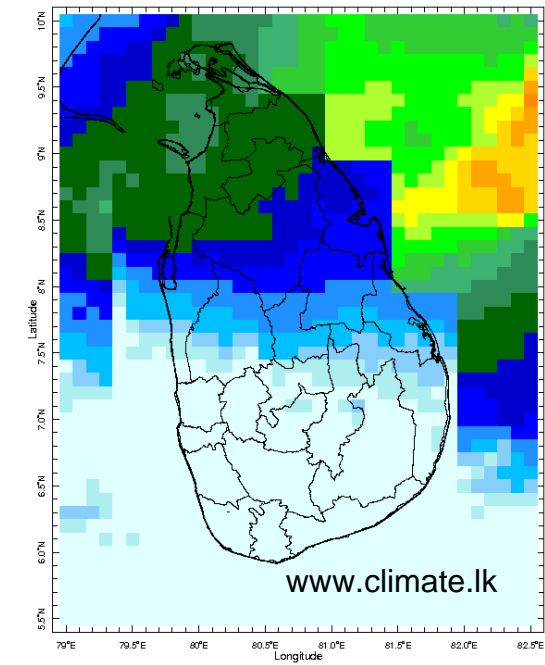
- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

2. Predictions

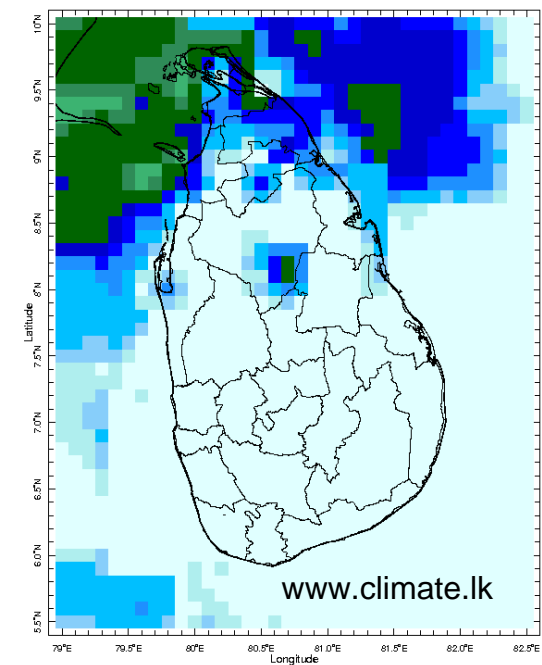
- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

Daily Rainfall Monitoring

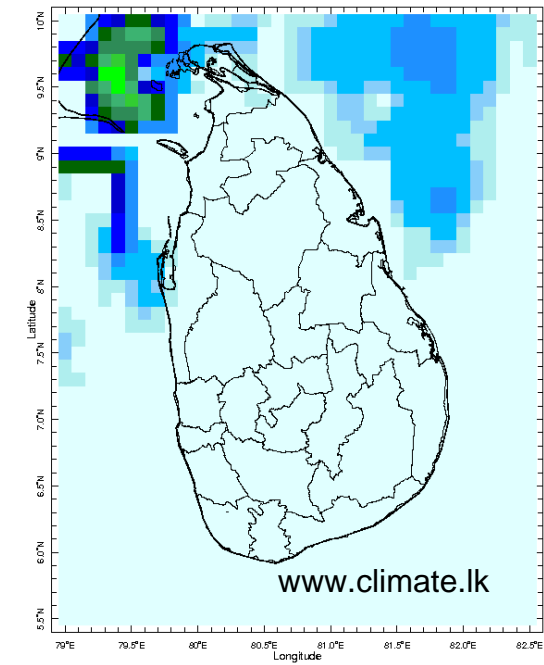
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



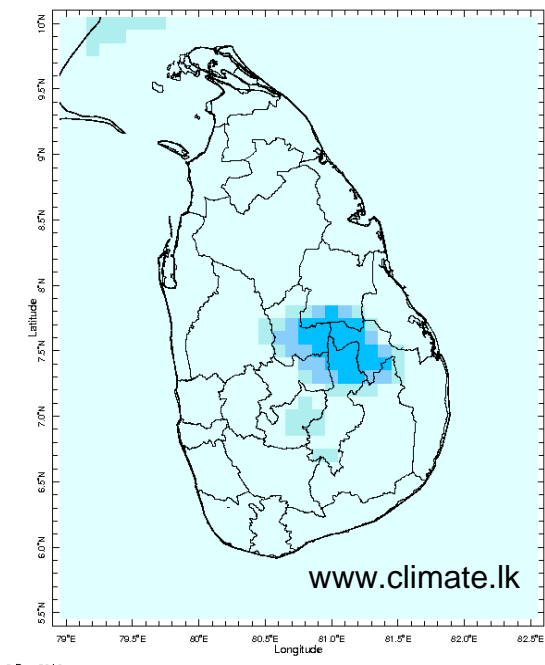
30 Nov 2016



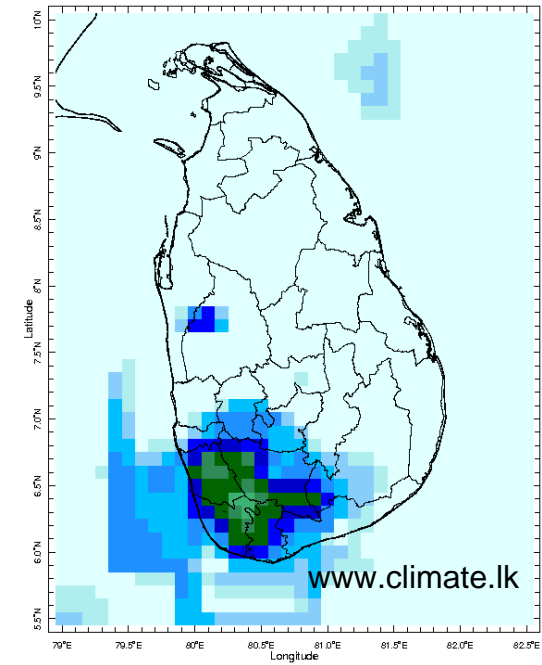
1 Dec 2016



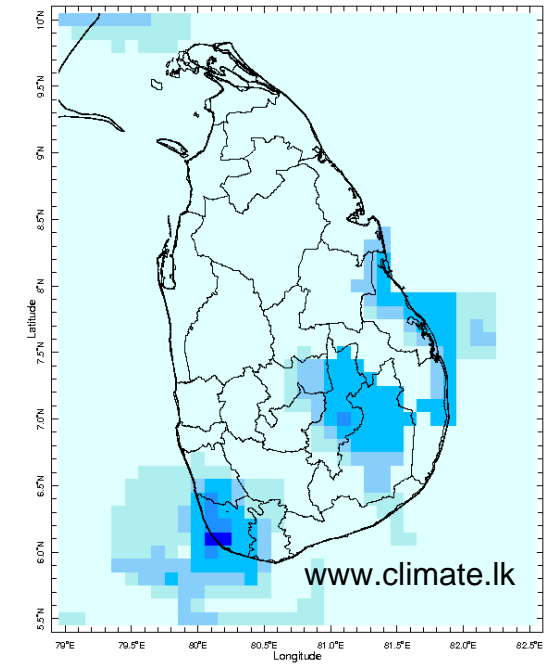
2 Dec 2016



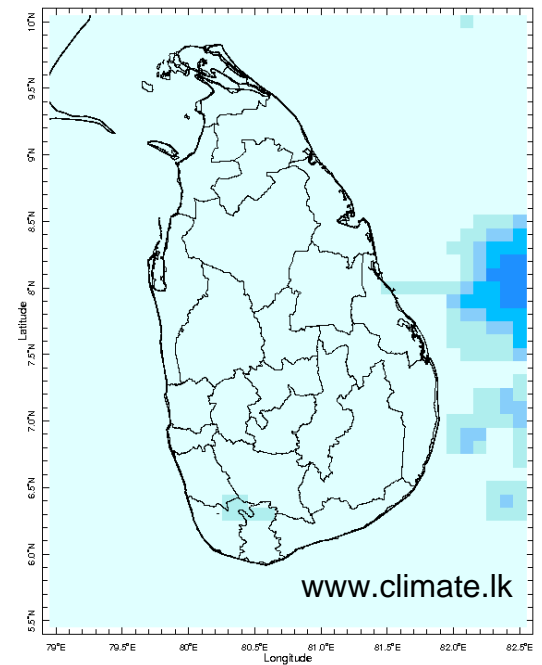
3 Dec 2016



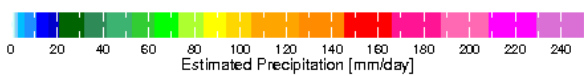
4 Dec 2016



5 Dec 2016

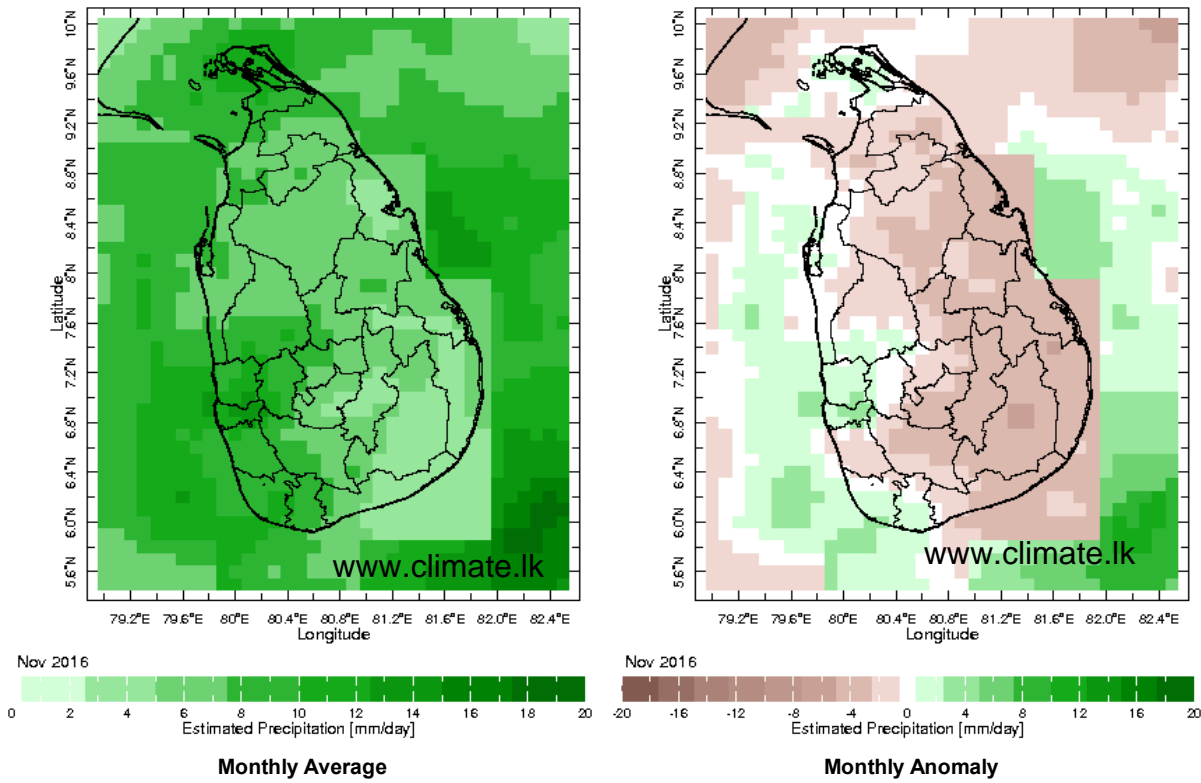


6 Dec 2016

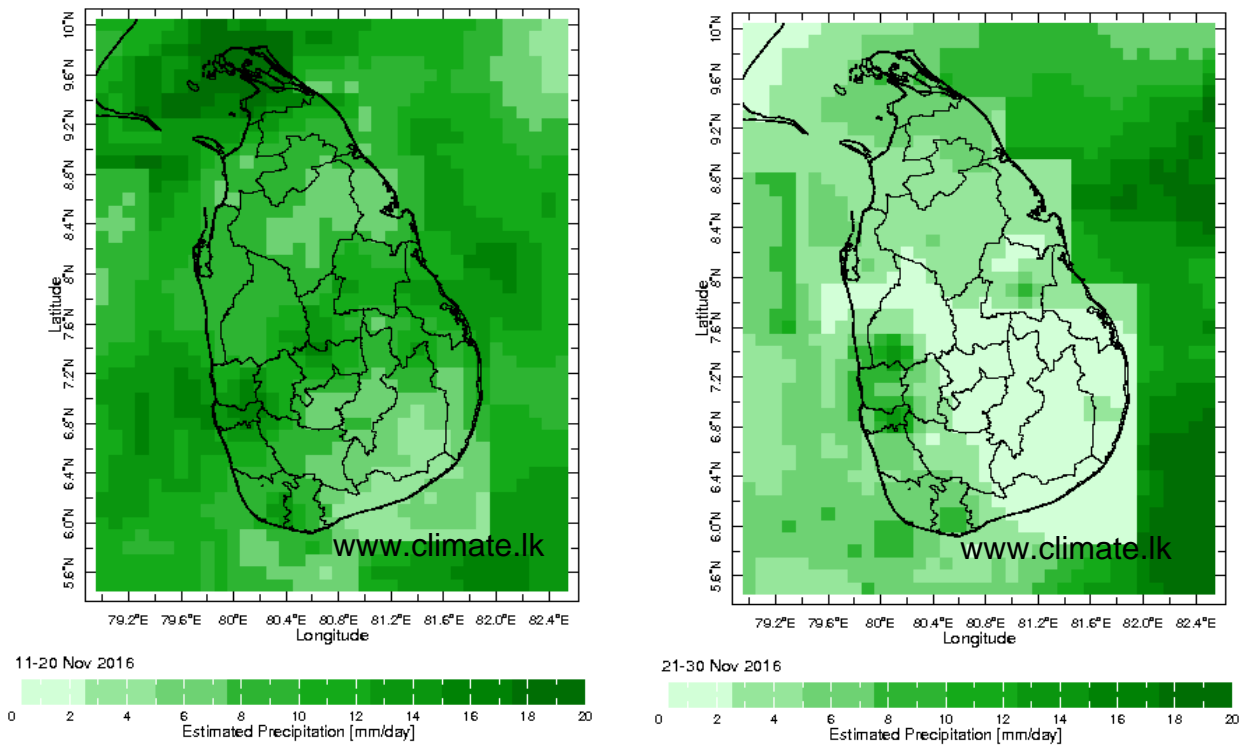


Monthly Rainfall Monitoring

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

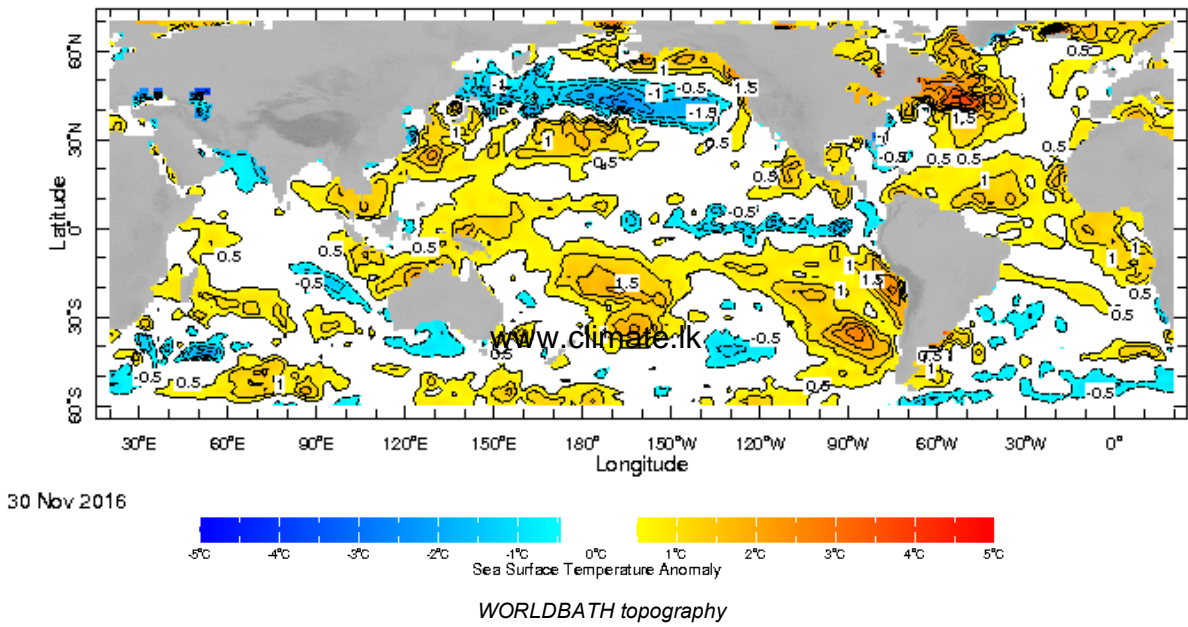


Dekadal (10 Day) Satellite Derived Rainfall Estimates



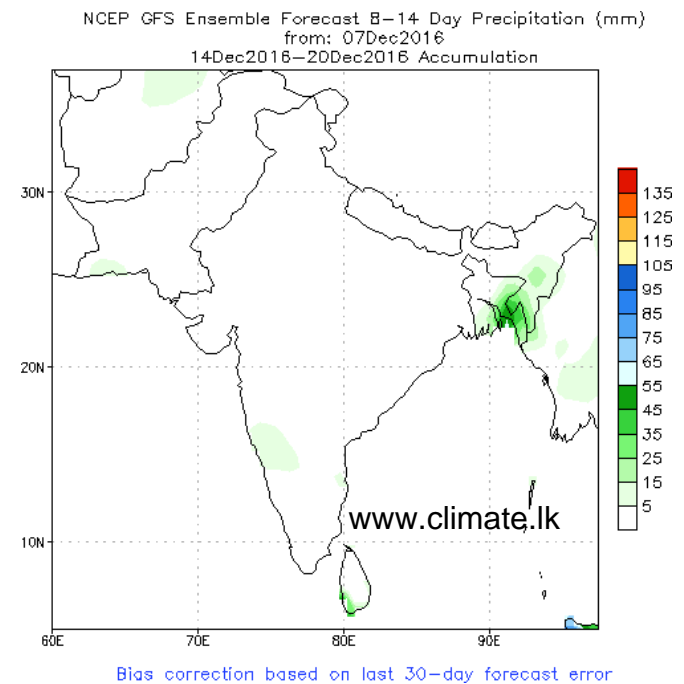
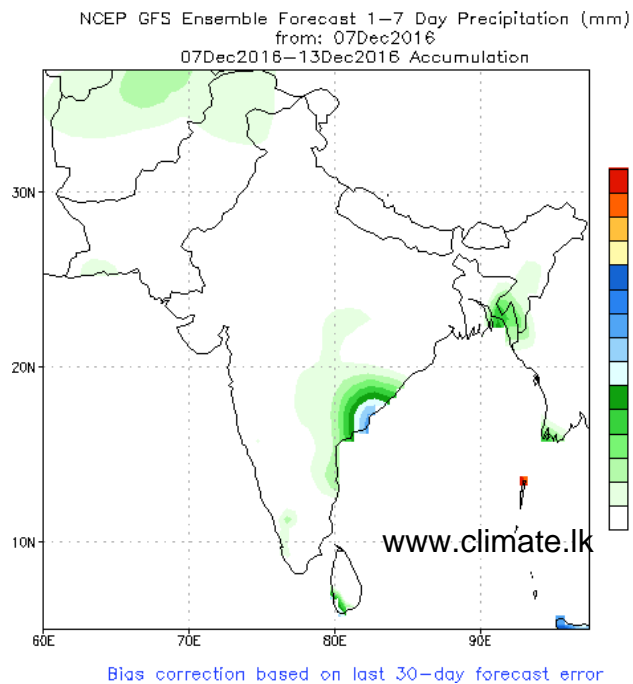
Weekly Average SST Anomalies

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



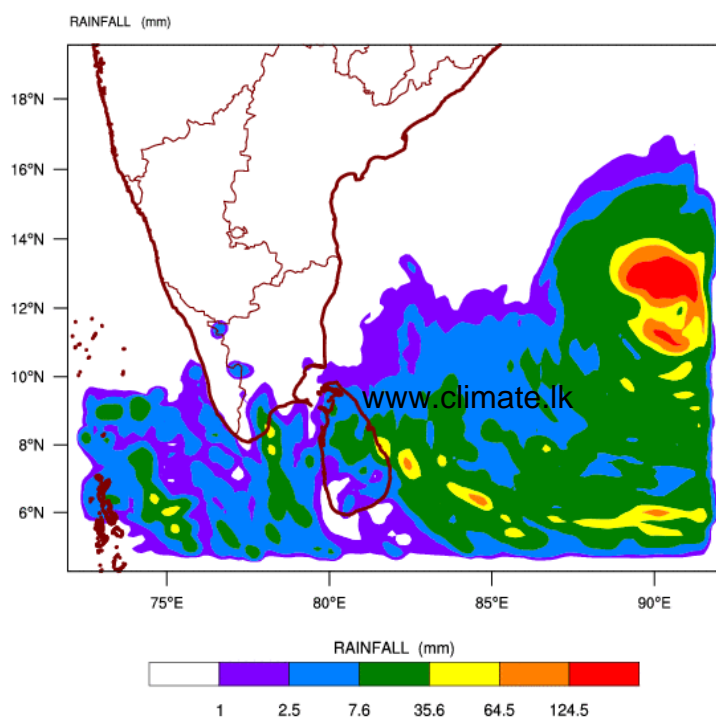
PREDICTIONS

NCEP GFS 1- 14 Day prediction

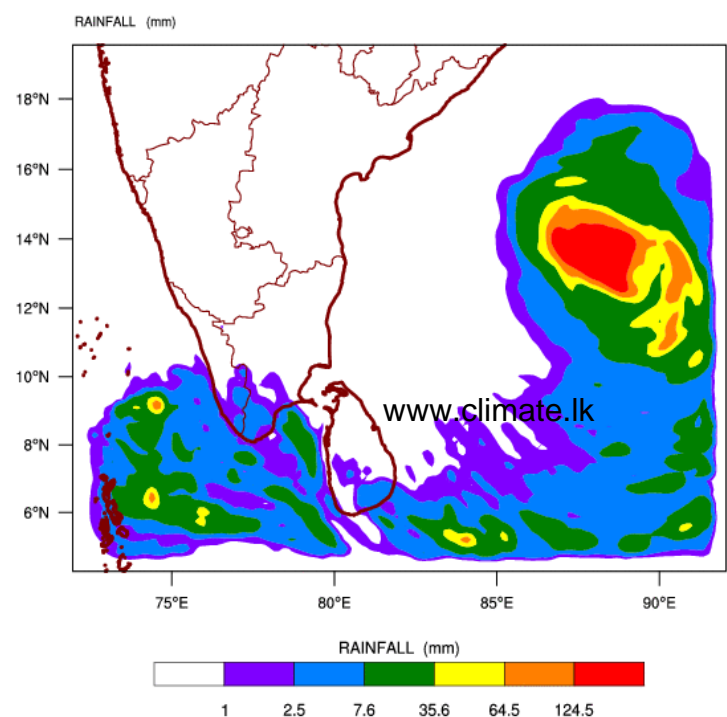


WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 07-12-2016 valid for 03 UTC of 09-12-2016

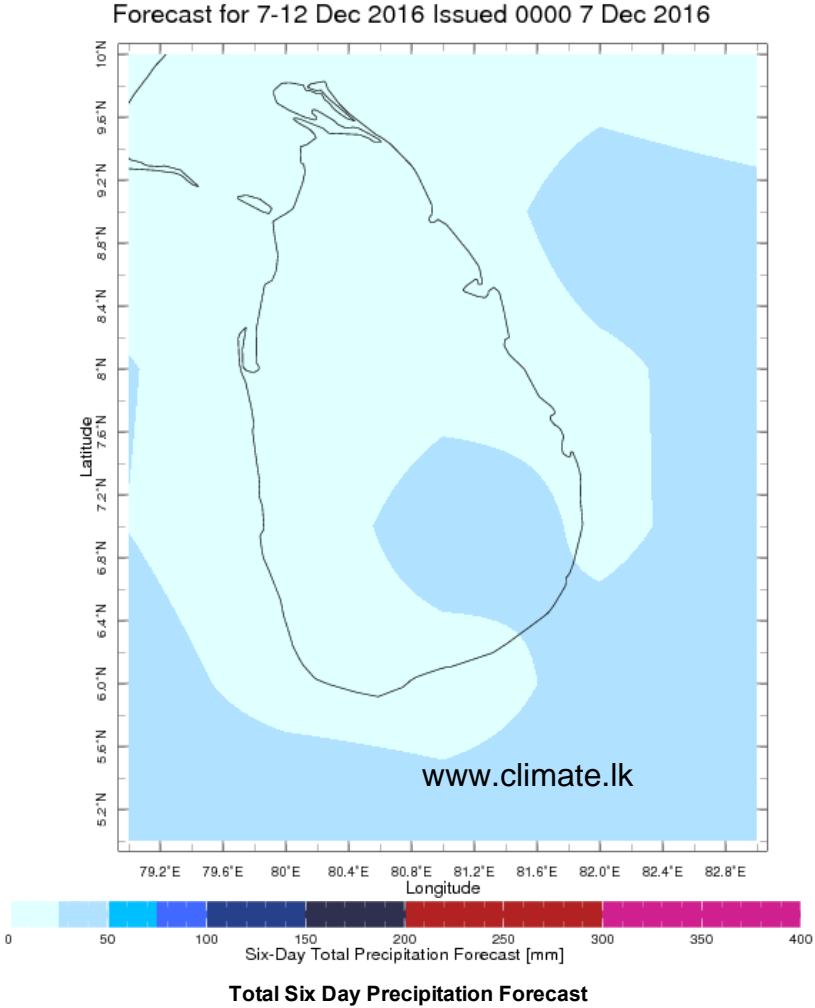
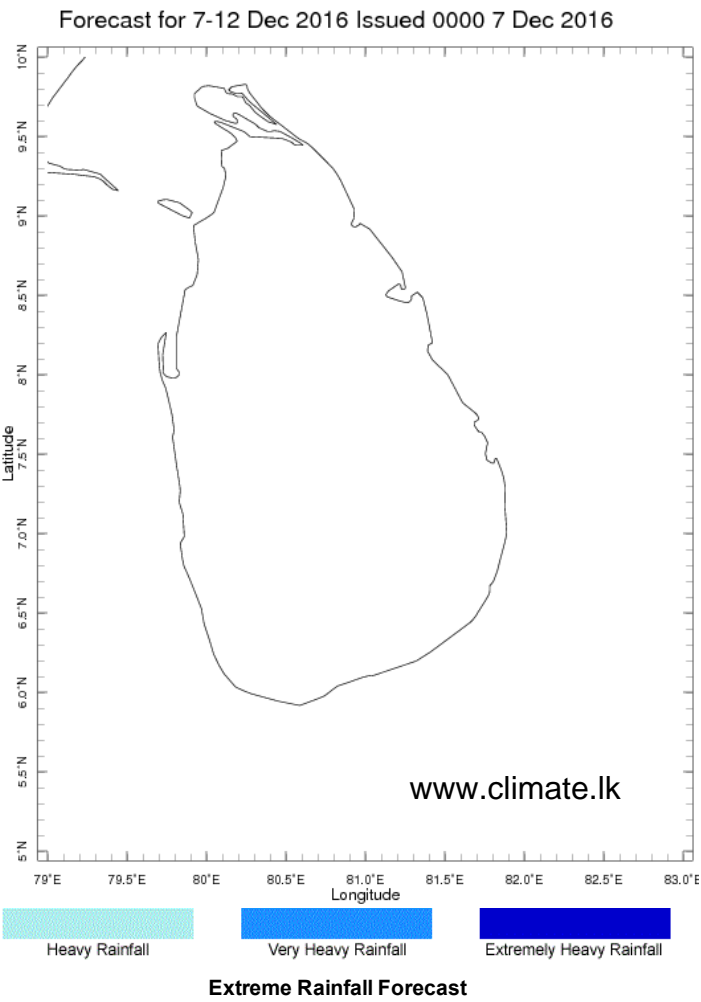


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 07-12-2016 valid for 03 UTC of 10-12-2016



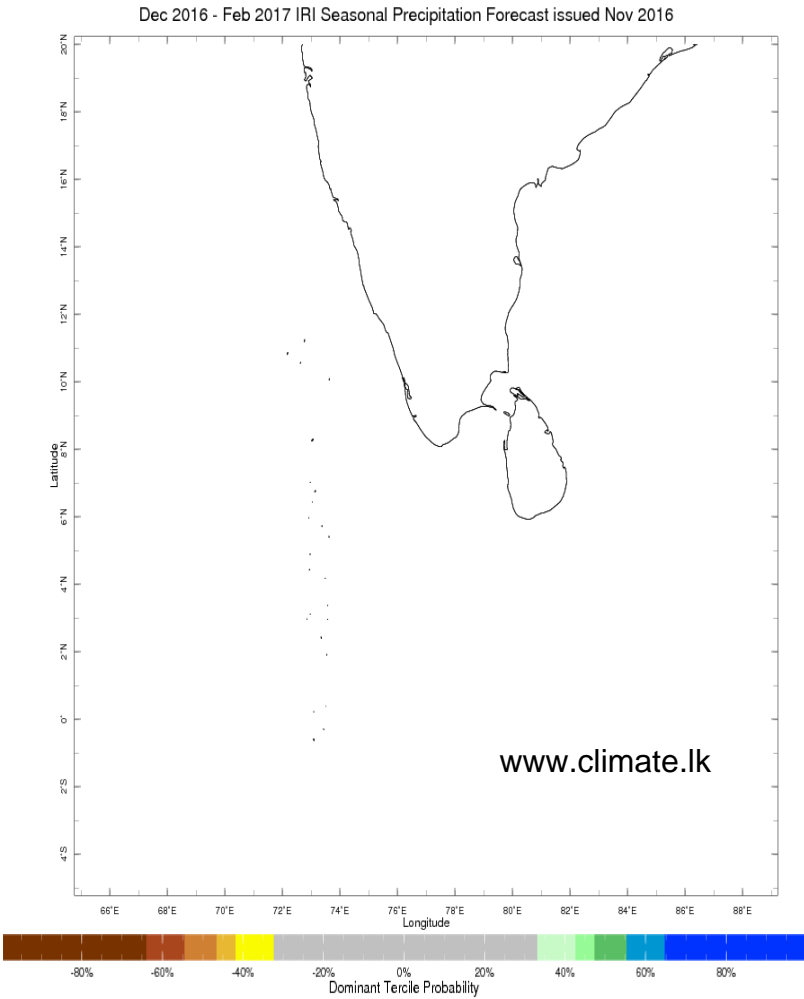
Weekly Rainfall Forecast from IRI

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.

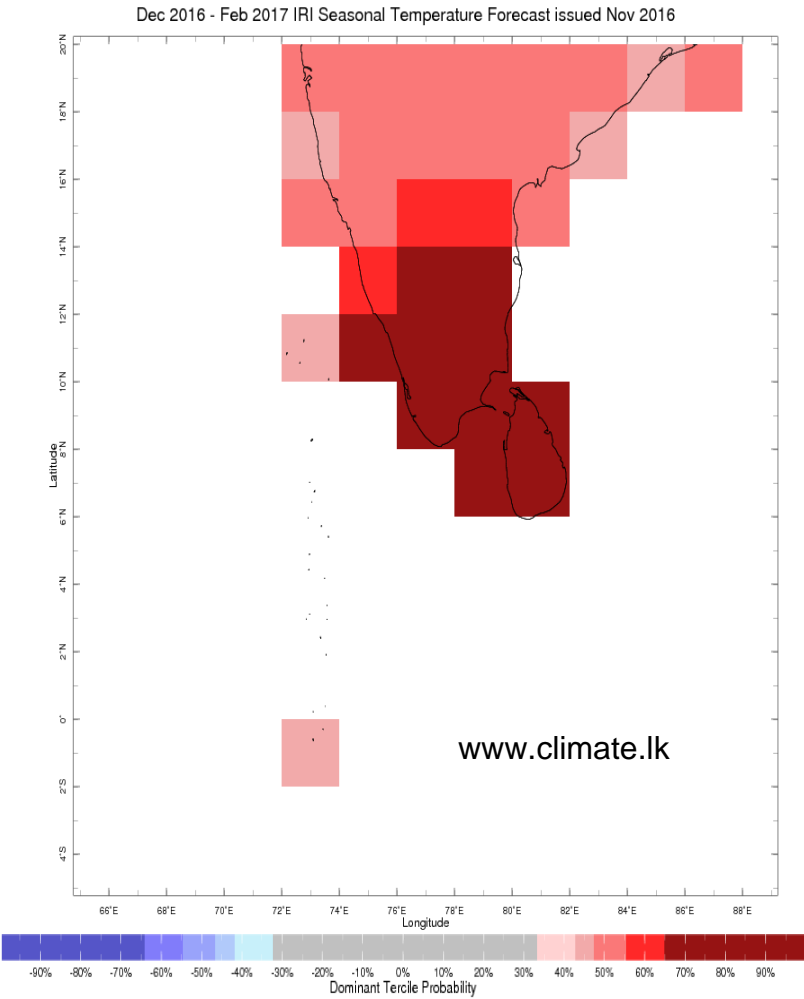


Seasonal Rainfall and Temperature Forecast

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

Subscribe to our Monthly Maldives Newsletter

email address

Subscribe

[Follow @fectmv](#)

Contact Us

email: fectsl@gmail.com

phone: (+94) 81 2376746

blog: www.fectsl.blogspot.com

Foundation for Environment, Climate & Technology

C/O Mahaweli Authority of Sri Lanka,

Digana Village,

Rajawella,

SRI LANKA