FECT Foundation for Environment Climate and Technology
c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.
Phone (+94) 81-2376746, 4922992 E-mail climate@sltnet.lk Web Site http://www.climate.lk

Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Prabodha Agalawatte, Himash Rashmika, Zeenas Yahiya, Lareef Zubair and Michael Bell[1] (FECT and IRI[1])

23 February 2017

Highlights

- ***The WRF model predicts up to 65 mm of rainfall in Kalutara district and 36 mm of rainfall in Southern region of country on the 24th.***
- ***Between 15-21 Feb: highest rainfall of 20 mm was recorded on the 18th in Lunugala region of Badulla distict.***
- ***From 12-18 Feb: minimum temperature of 15 ^{o}C was recorded from Nuwara Eliya district while Gampaha, Colombo and Kegalla districts recorded a maximum temperature between 30-35 ^{o}C.***
- ***From 14-20 Feb: up to 36 km/h north easterly winds were experienced by the entire island.***
- ***0.5 ^{o}C below average sea surface temperature was observed in the northern and western seas of Sri Lanka.***

Monitoring

Rainfall

***Weekly Monitoring*:** On February 15th Alut Oya region of Polonnaruwa district and Dematawewa of Anuradhapura district recived up to 10 mm of rainfall. No rainfalls were recorded within the island on 16th and 17th. On the 18th Batticaloa, Ampara, Monaragala, Hambantota, Galle, Ratnapura and Kegalla districts recived up to 10 mm of rainfall; Badulla district up to 20 mm; and adjacent south eastern sea up to 120 mm of rainfall. On the 19th adjacent south eastern sea received up to 140 mm of rainfall. On the Monaragala and Hambantota, districts received up to 20 mm of rainfall. No significant rainfalls were recorded on the 21st.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 25 mm for Hambantota, Monaragala and Badulla districts; up to 10 mm for Galle, Matara, Kegalla, Ratnapura, Polonnaruwa, Batticaloa and Ampara districts. It shows above average rainfall of 10-25 mm for Monaragala and Hambantota districts; and below average rainfall of 10-25 mm for Gampaha, Colombo, Kalutara, Polonnaruwa and Ratnapura districts.

***Monthly Monitoring*:** During January - above average rainfall conditions were experienced in Jaffna, Kilinochchi, Mannar, and several regions of Anuradhapura, Polonnaruwa, Matale, Puttalam, Matara and Hambantota districts. These regions received up to 60 mm above average rainfall. Batticaloa, Ampara and Badulla districts received up to 150 mm below average rainfall; and up to 90 mm below average rainfall in many parts of the island. Monthly average rainfall for Anuradhapura, Polonnaruwa, Batticaloa, Ampara, Ratnapura, Galle, Matara and Hambantota amounted to 150 mm/month; and 90 mm/month for many parts of the island. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Mannar, Anuradhapura, Polonnaruwa, Galle, Batticaloa, Ampara, Hambantota, Ratnapura and Matale districts; and up to ~75 mm for many parts of the island.

Ocean State (*Text Courtesy IRI*)

Pacific sea state: February 16, 2017

During mid-February 2017, the tropical Pacific SST anomaly was close to 0.0C, in the ENSO-neutral range. Although most of the atmospheric variables across the tropical Pacific are now approximately ENSO-neutral, one or two still show a weak La Niña pattern. In particular, the pattern of cloudiness and rainfall in the central and western tropical Pacific remains indicative of a weak La Niña condition. The collection of ENSO prediction models indicates SSTs are likely to remain neutral through May 2017, with a chance for El Niño development later in the year.

Indian Ocean State

0.5 ^{o}C below average sea surface temperature was observed in the northern and western seas of Sri Lanka.

FECT Foundation for Environment Climate and Technology
c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.
Phone (+94) 81-2376746, 4922992 E-mail climate@sltnet.lk Web Site http://www.climate.lk

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:
From 22nd – 28th Feb: No rainfall.
From 1st – 7th Mar: Total rainfall between 75-85 mm in Vavuniya, Anuradhapura and Trincomalee districts; and between 65-75 mm in Mullaitivu, Mannar, Puttalam, Kegalla, Matale, Kandy, Polonnaruwa, Batticaloa, Badulla, Monaragala and Ampara districts.

IMD WRF & IRI Model Forecast:
24th Feb: Rainfall up to 65 mm in Kalutara district; up to 36 mm of rainfall in Galle, Matara, Hambantota, Ratnapura and Ampara; up to 8 mm of rainfall in Kegalle, Nuwara Eliya and Badulla Districts; and up to 3 mm rainfall in Colombo, Kandy and Batticaloa districts.

25th Feb: Rainfall up to 8 mm rainfall in Kandy, Badulla, Kalutara, Galle and Matara districts; and up to 3 rainfall in Kurunegala, Puttalam, Kegalla, Nuwara Eliya, Ampara, Ratnapura, Monaragala and Hambantota districts.

Seasonal Prediction: IRI Multi Model Probability Forecast
March to May: the total 3-month precipitation shall be climatological for the whole island. The 3-month temperature has more than 70-80% likelihood in the southern region and 60-70% likelihood in the northern region of being in the above-normal tercile

MJO based OLR predictions

For the next 15 days:
MJO shall enhance the rainfall in Sri Lanka.

[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.

FOUNDATION FOR ENVIRONMENT, CLIMATE AND TECHNOLOGY

www.climate.lk www.tropicalclimate.org/maldives

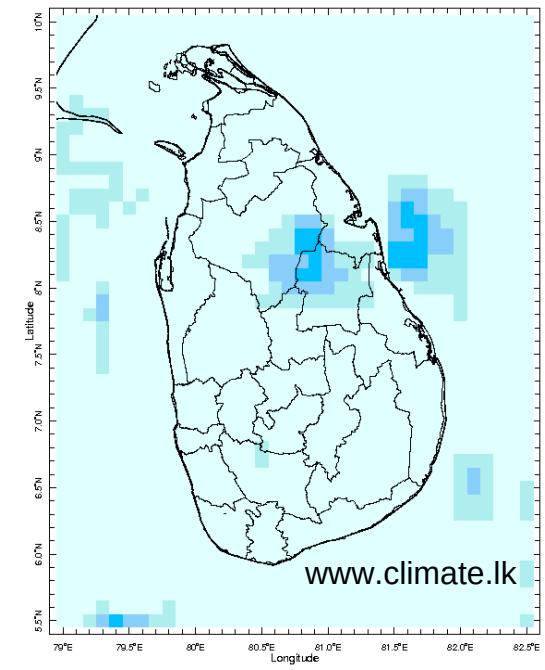
Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

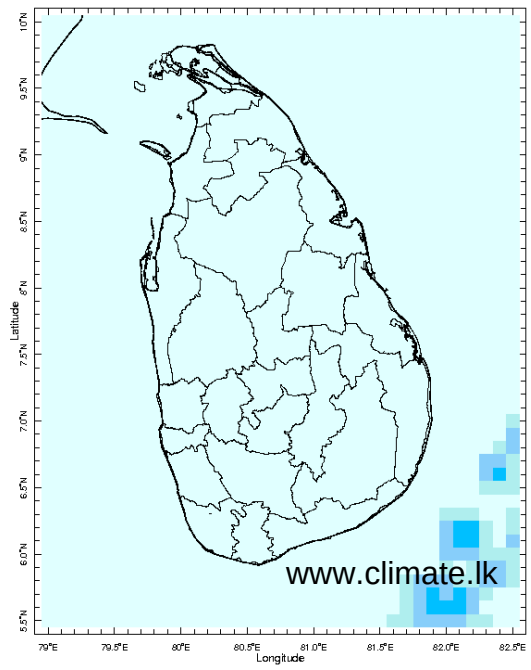
MONITORING

Daily Rainfall Monitoring

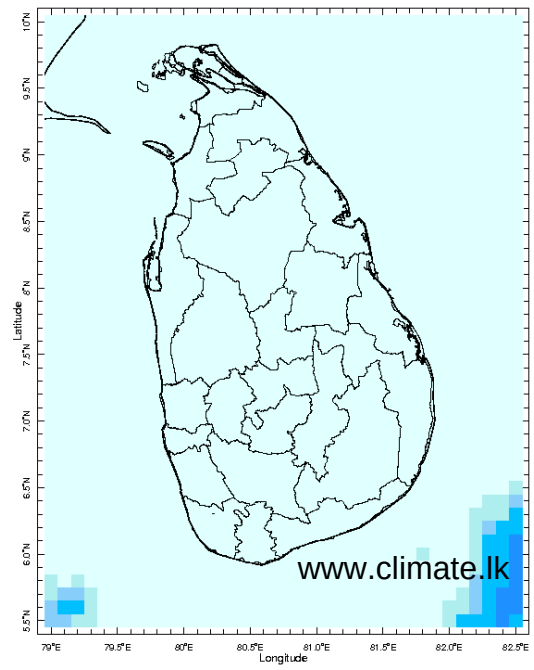
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



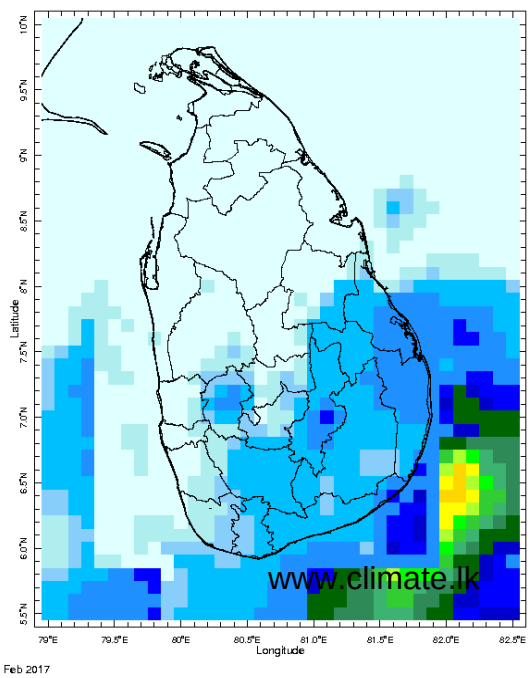
15 Feb 2017



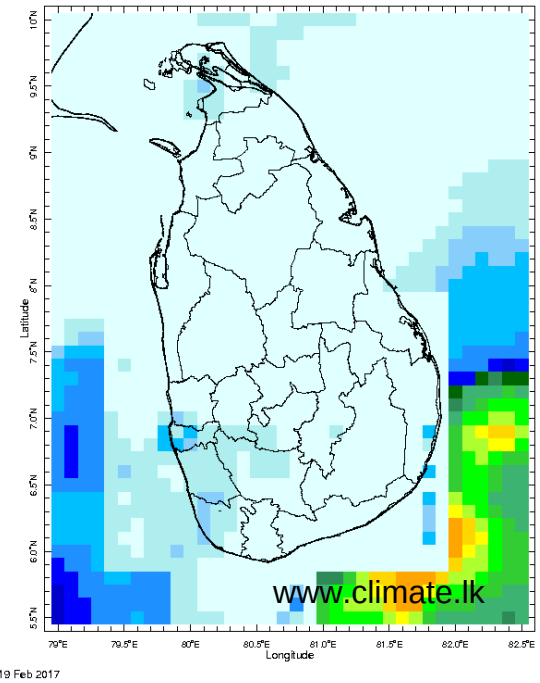
16 Feb 2017



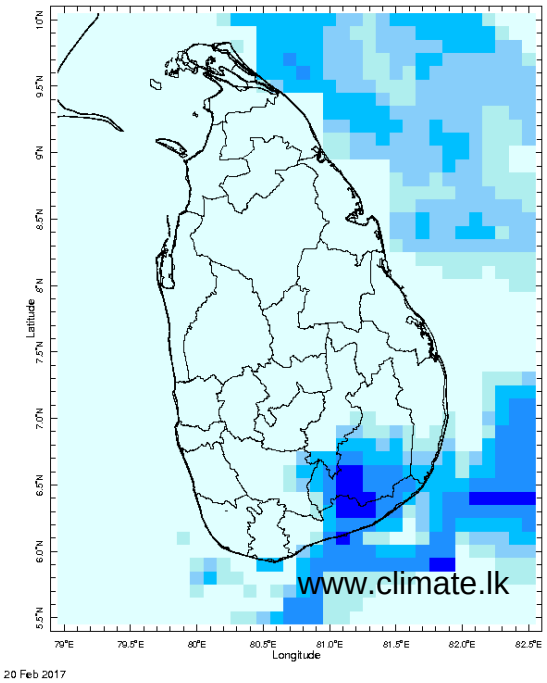
17 Feb 2017



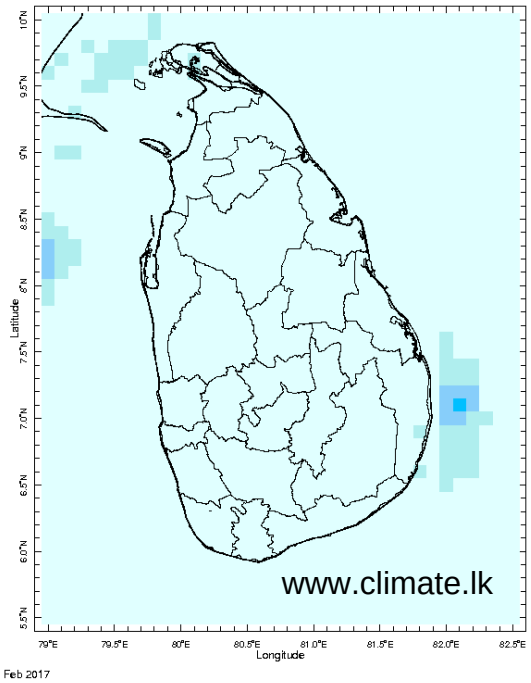
18 Feb 2017



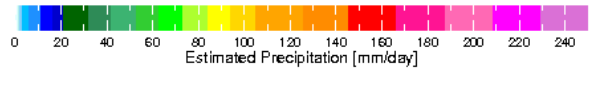
19 Feb 2017



20 Feb 2017

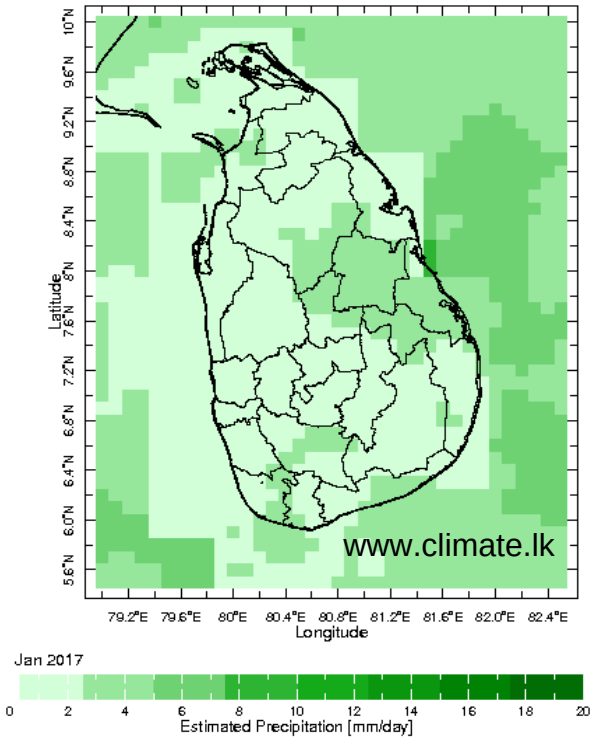


21 Feb 2017

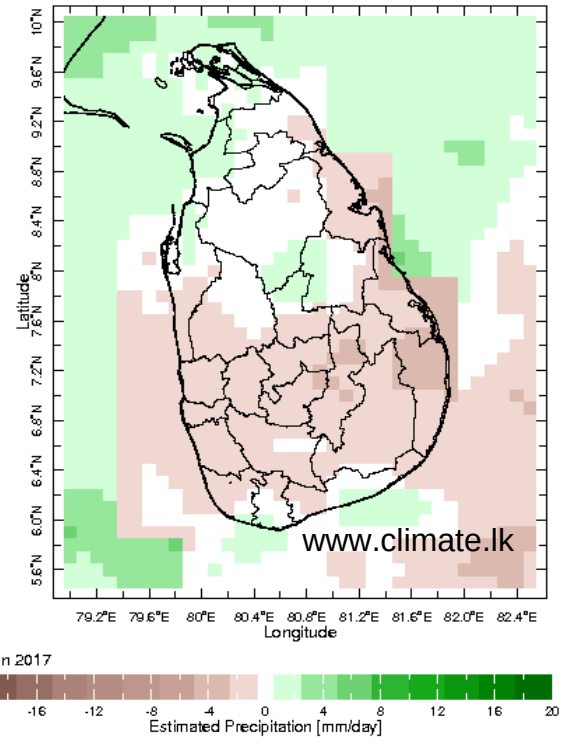


Monthly Rainfall Monitoring

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

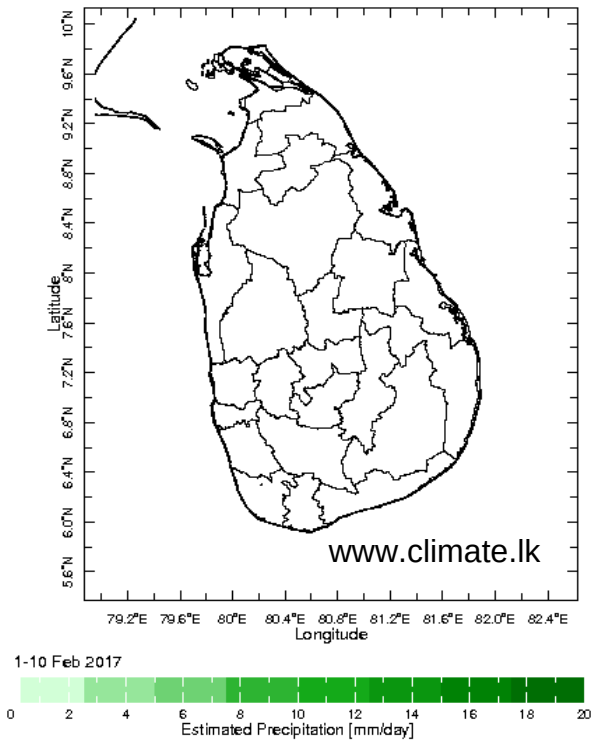


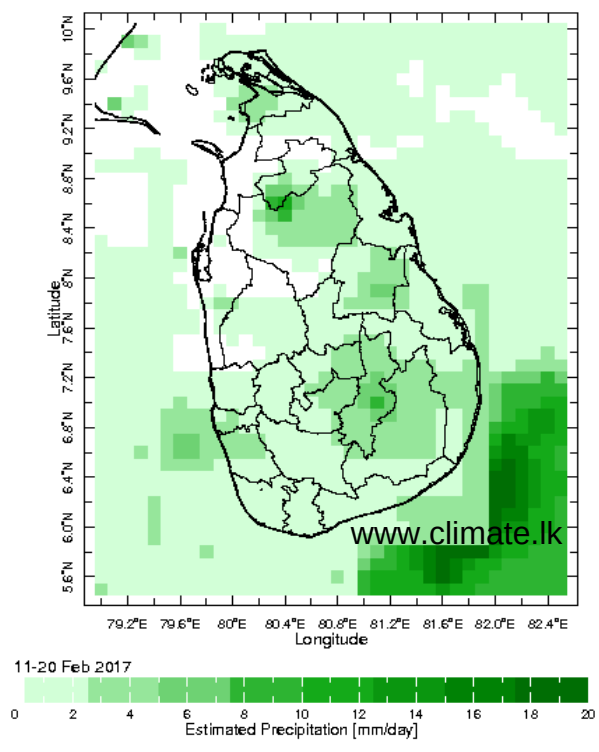
Monthly Average



Monthly Anomaly

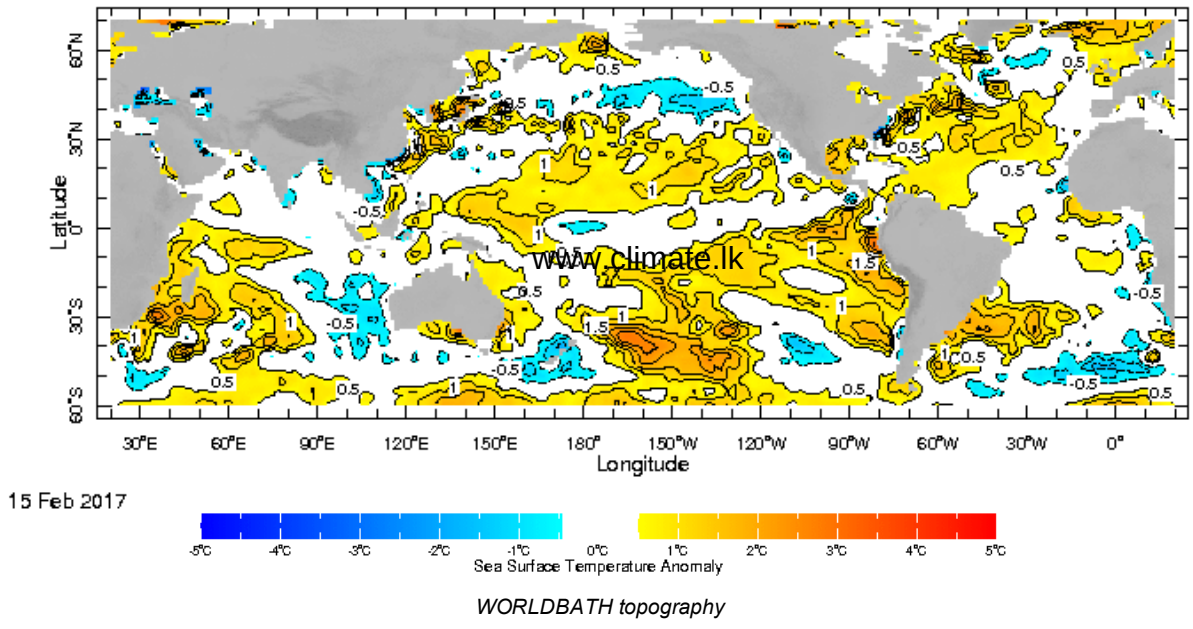
Dekadal (10 Day) Satellite Derived Rainfall Estimates





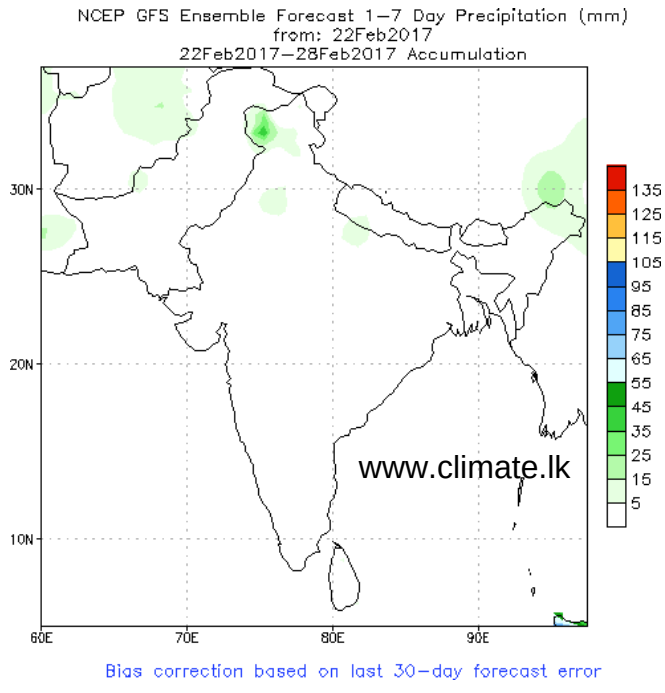
Weekly Average SST Anomalies

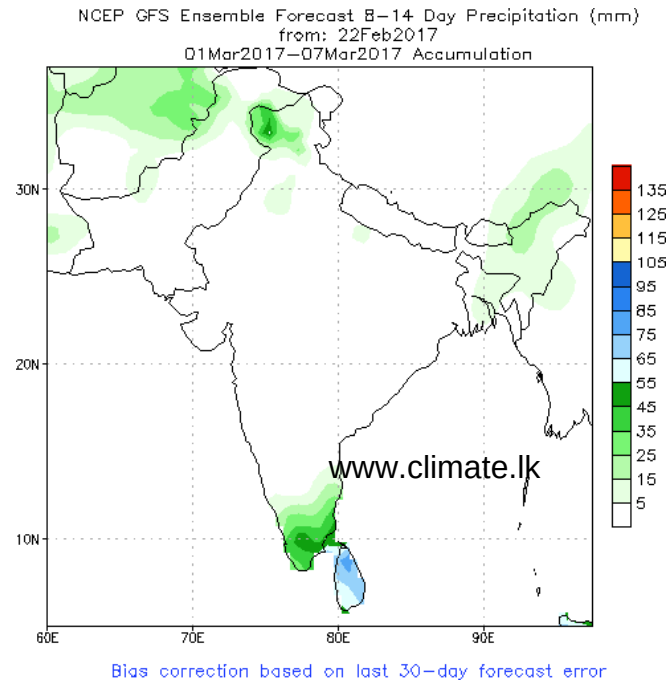
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



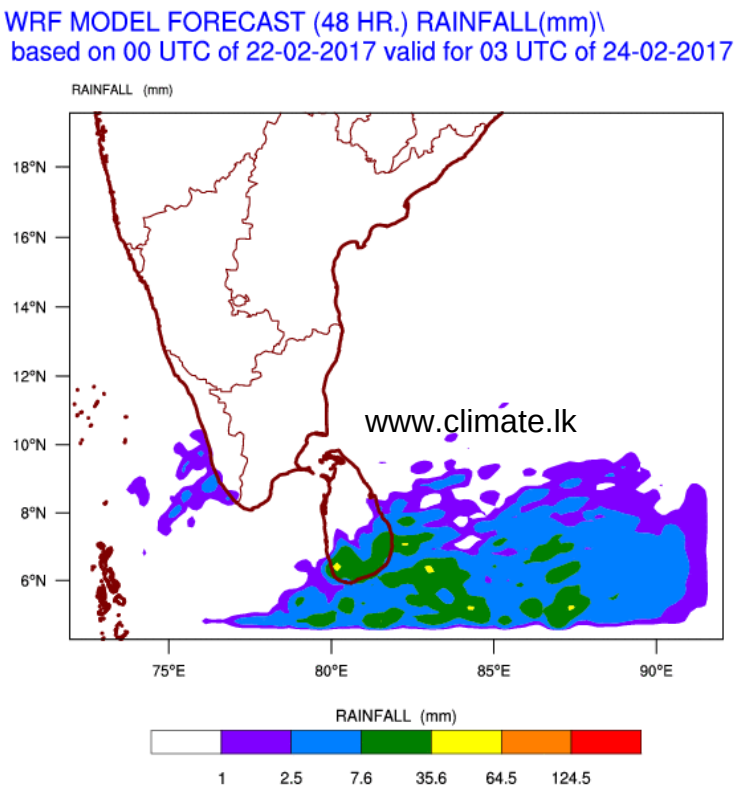
PREDICTIONS

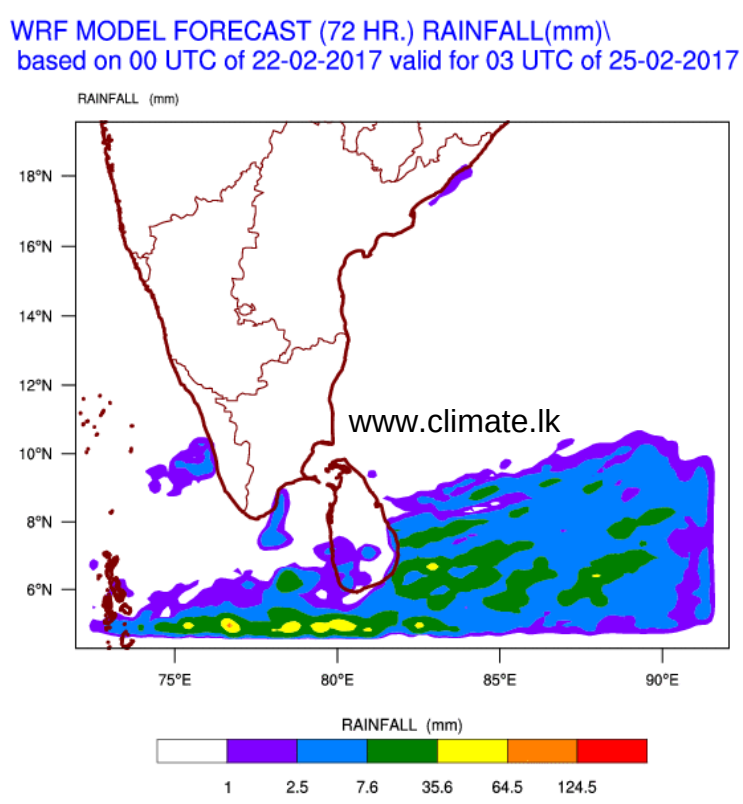
NCEP GFS 1- 14 Day prediction





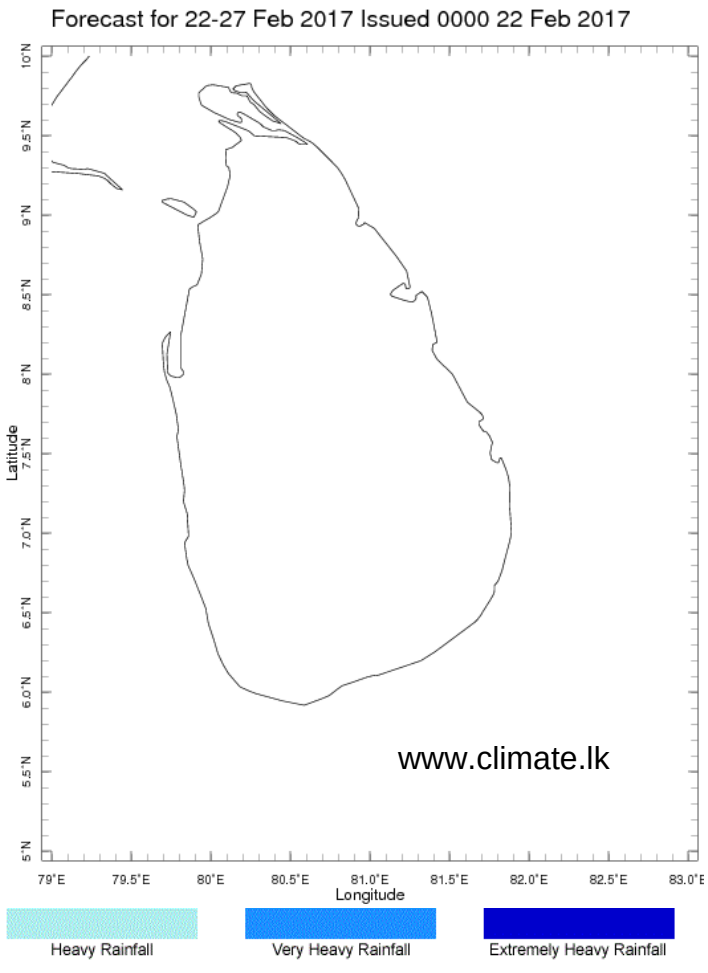
WRF Model Forecast (from IMD Chennai)



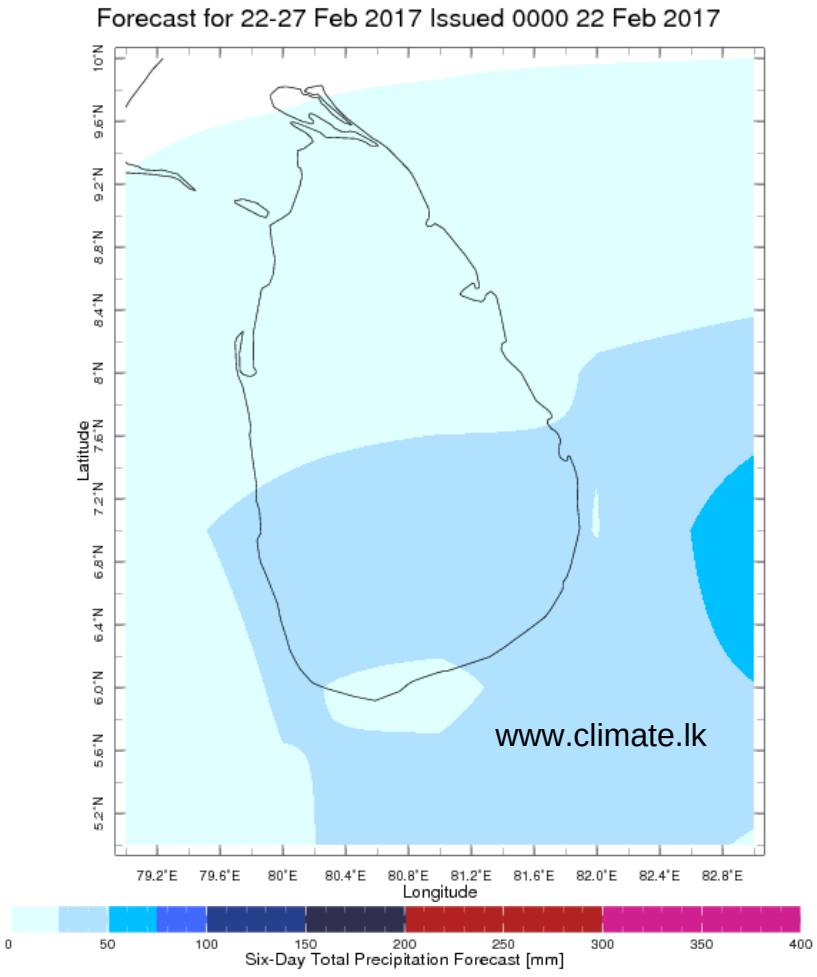


Weekly Rainfall Forecast from IRI

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.



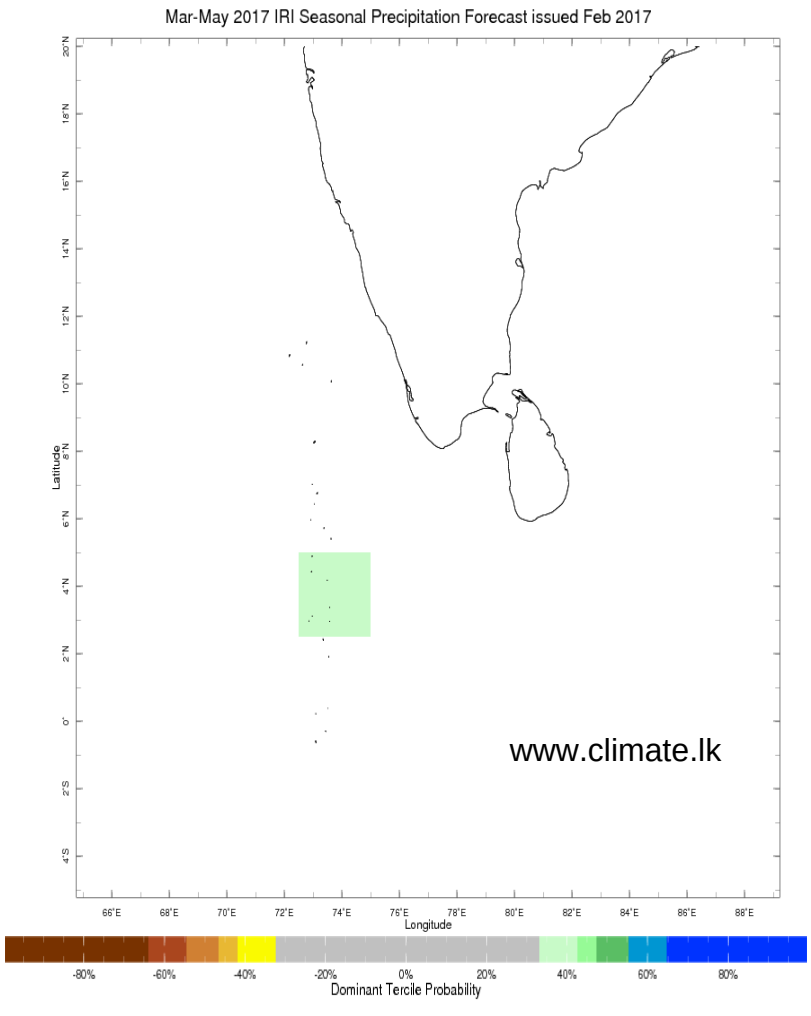
Extreme Rainfall Forecast



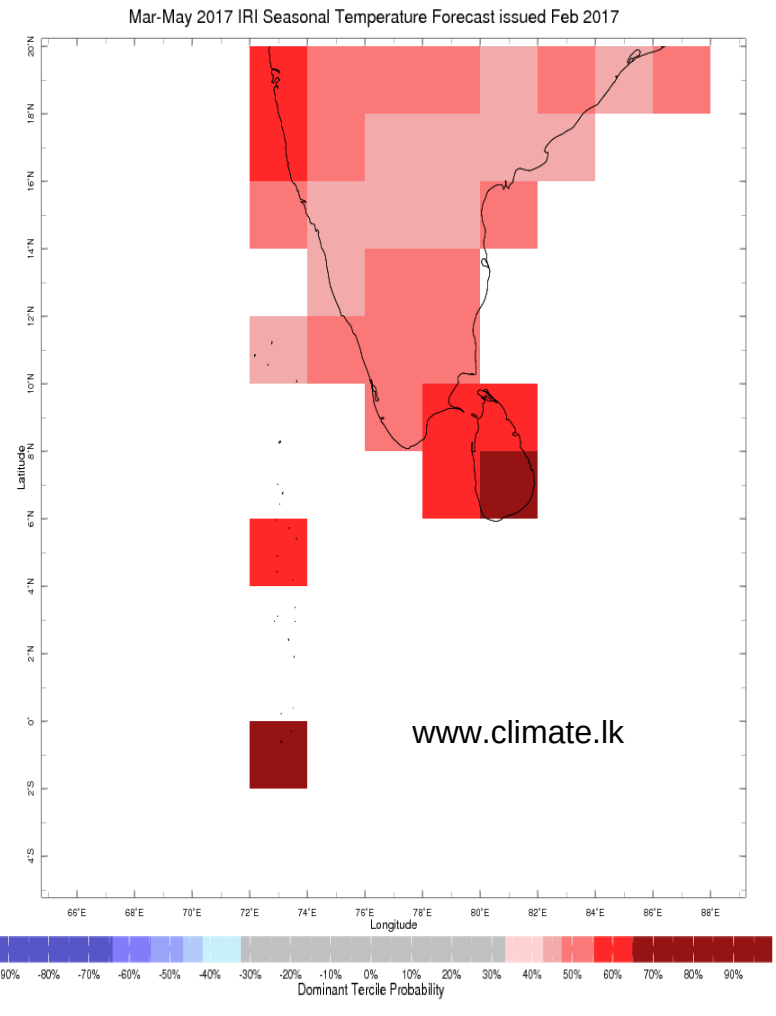
Total Six Day Precipitation Forecast

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