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, Himash Rashmika, Janan Visvanathan, Lareef Zubair and Michael Bell[1] (FECT and IRI[1])

3 August 2017

Highlights

- ***The WRF model predicts up to 124 mm of rainfall in Ratnapura district on 3rd of August.***
- ***Between 26 Jul-1 Aug: Rainfall up to 50 mm was recorded in Kurunegala district on the 31st.***
- ***From 23-29 Jul: minimum temperature of 20 ^{o}C was recorded from Nuwara Eliya district while Northern, Central and Eastern regions of the island recorded a maximum temperature between 30-35 ^{o}C.***
- ***From 25-31 Jul: up to 29 km/h, northwesterly winds were experienced by the entire island.***
- ***0.5 ^{o}C above average sea surface temperature was observed in the seas around Sri Lanka.***

Monitoring

Rainfall

***Weekly Monitoring*:** On July 26th, No significant rainfalls were recorded in any part of the island. On the 27th Padawiya region in Anuradhapura district received up to 20 mm of rainfall; and adjacent eastern sea up to 80 mm. On the 28th Ratnapura and several regions of Ampara and Monaragala received up to 30 mm of rainfall; Kalutara, Galle, Matara, Nuwara Eliya and several regions of Anuradhapura, Trincomalee and Badulla districts up to 20 mm; and Kegalla, Colombo and Kandy districts up to 10 mm. On 29th Badulla and northern regions of Kurunegala districts received up to 30 mm of rainfall; Matale, Kandy and Nuwara Eliya and Anuradhapura districts up to 20 mm; and Mullaitivu, Vavuniya and Trincomalee and Puttalam district up to 10 mm. On 30th Batticaloa and Ampara districts received up to 50 mm of rainfall; Trincomalee, Anuradhapura, Polonnaruwa and Badulla districts up to 30 mm; and Mullaitivu, Vavuniya, Kurunegala, Matale, Kandy and Monaragala districts up to 20 mm. On 31st up to Kurunegala district received up to 50 mm of rainfall; and Polonnaruwa Anuradhapura and Matale districts up to 20 mm. No significant rainfalls were recorded in any part of the island during on August 1st.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall of 25-50 mm in Trincomalee, Anuradhapura, Polonnaruwa, Kurunegala, Matale, Ampara, Badulla and Ratnapura districts; and up to 10-25 mm in many parts of the island. It shows above average rainfall and up to and 25-50 mm in Anuradhapura, Trincomalee, Polonnaruwa, Ampara, Kurunegala and Matale districts; and below average rainfall up to 10-25 mm Colombo, Kalutara, Galle, Matara and Hambantota districts.

***Monthly Monitoring*:** During July - below average rainfall conditions were experienced in the southern and western regions of the island and above average rainfall in eastern regions. Colombo, Kegalla and Nuwara Eliya districts received up to 150 mm below average rainfall; and Puttalam, Kurunegala, Gampaha, Kandy, Badulla, Monaragala, Hambantota, Ratnapura, Matara and Kalutara districts received up to 120 mm. Trincomalee, Polonnaruwa, Batticaloa and Ampara districts received up to 60 mm of above average rainfall. The CPC Unified Precipitation Analysis tool shows ~100 mm of total rainfall in Batticaloa , Polonnaruwa and Ampara districts; up to ~75 mm Trincomalee, Anuradhapura, Kuruegala, Matale, Kandy, Ratnapura, Kalutara and Galle district; and up to 50 mm in many parts of the island.

Ocean State (*Text Courtesy IRI*)

Pacific sea state: July 19, 2017

In mid-July 2017, the tropical Pacific remained in an ENSO-neutral state, with SSTs near the El Niño threshold in the east-central tropical Pacific but the atmosphere maintaining ENSO-neutral patterns. The collection of latest ENSO prediction models indicates ENSO-neutral as the most likely condition during summer through fall and into winter with chances for El Niño development at about 35-40%.

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Indian Ocean State
0.5 ^{0}C above average sea surface temperature was observed in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction:
NOAA NCEP models:
From 2nd – 8th Aug: Total rainfall between 45-55 mm in Jaffna, Mannar, Puttalam, Anuradhapura, Polonnaruwa, Batticaloa, Matale, Kurunegala, Matale, Kandy, Nuwara Eliya, Ratnapura and Galle districts; between 35-45 mm in Ampara, Badulla and Matara; and between 25-35 mm in Monaragala and Hambantota districts.

From 9th – 15th Aug: Total rainfall between 25-35 mm in Jaffna district; between 15-25 mm in Kilinochchi, Vavuniya, Trincomalee, Ampara, Matara and Ratnapura districts; and between 15-25 mm in many parts of the island.

IMD WRF & IRI Model Forecast:

4th Aug: Up to 64 mm of rainfall in Kegalla, Ratnapura, Colombo, Gampaha, Kurunegala and Kalutara districts; up to 35 mm of rainfall in Puttalam, Matale, Kandy, Nuwara Eliya and Galle districts; and up to 8 mm in many parts of the island.

5th Aug: Up to 124 mm of rainfall in Ratnapura district; up to 64 mm in Gampaha, Colombo, Kurunegala, Matale, Kandy, Nuwara Eliya and Kalutara districts; and up to 8 mm of rainfall in many parts of the island.

Seasonal Prediction: IRI Multi Model Probability Forecast
Apr to Jun: the total 3-month precipitation shall be climatological for the whole country. The 3-month temperature has more than 70-80% likelihood in the whole of the island of being in the above-normal tercile.

MJO based OLR predictions

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

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Weekly Hydro- Meteorological Report for Sri Lanka

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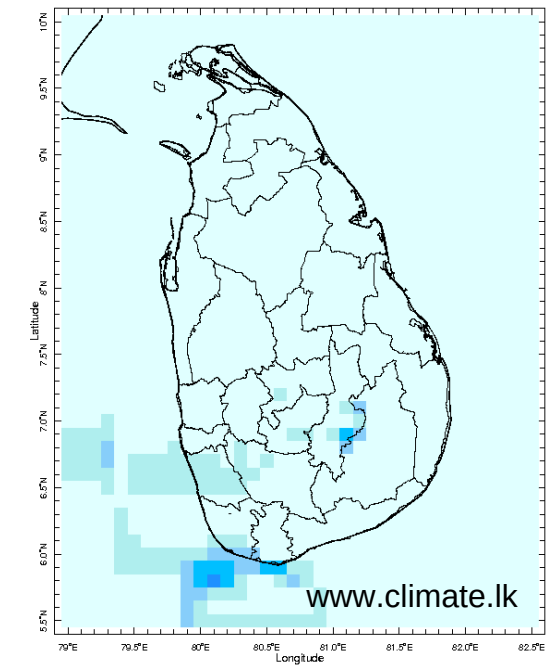
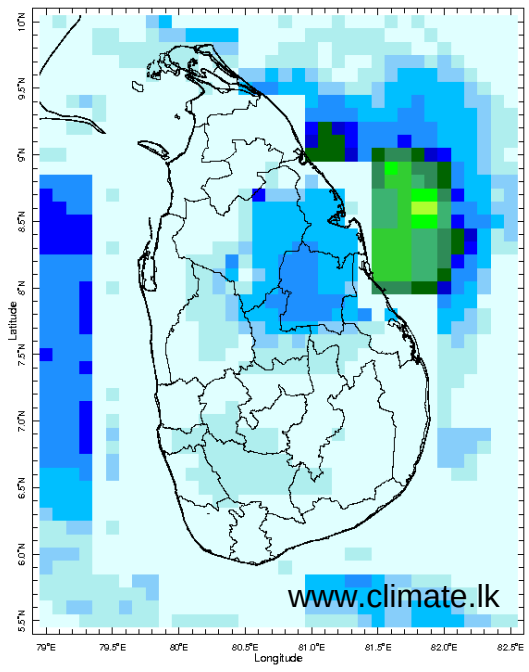
MONITORING

Daily Rainfall Monitoring

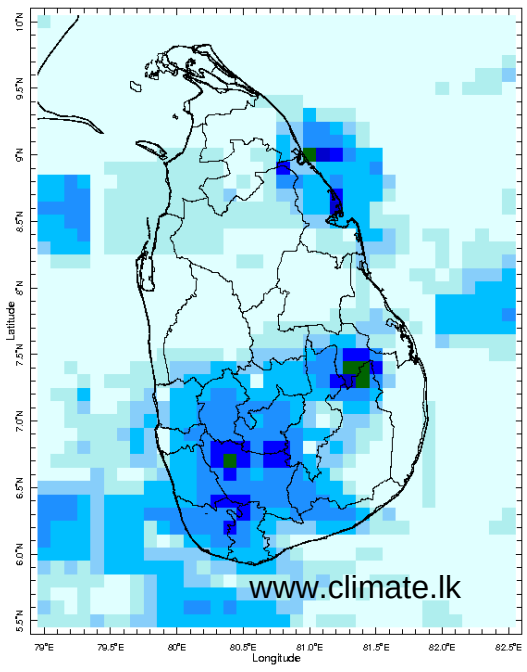
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



26 Jul 2017



27 Jul 2017



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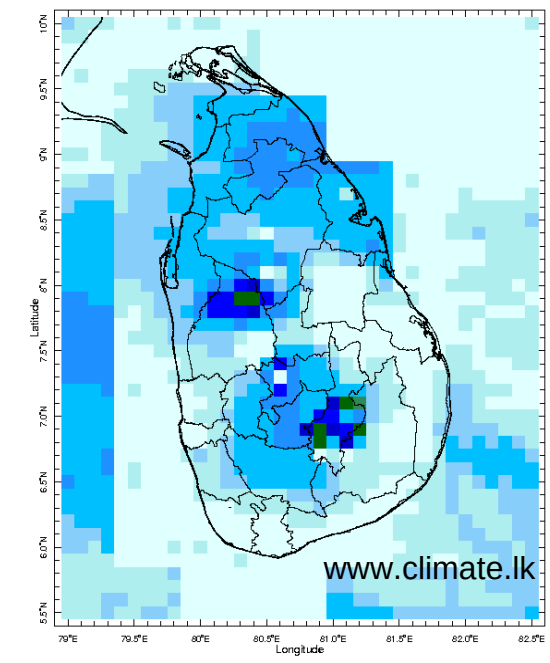

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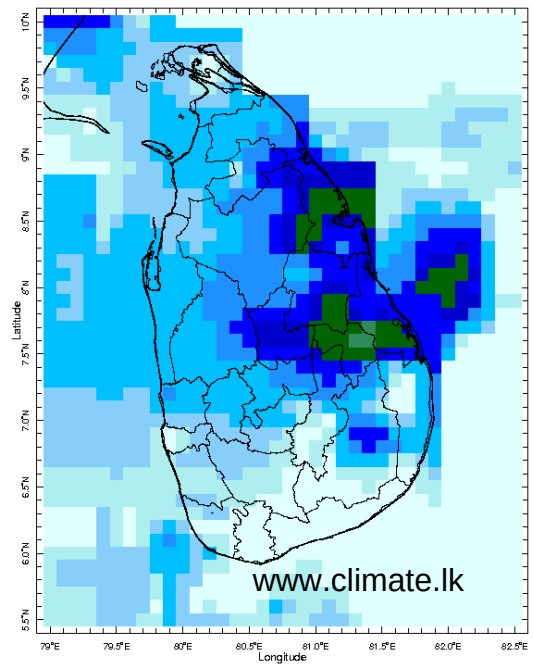
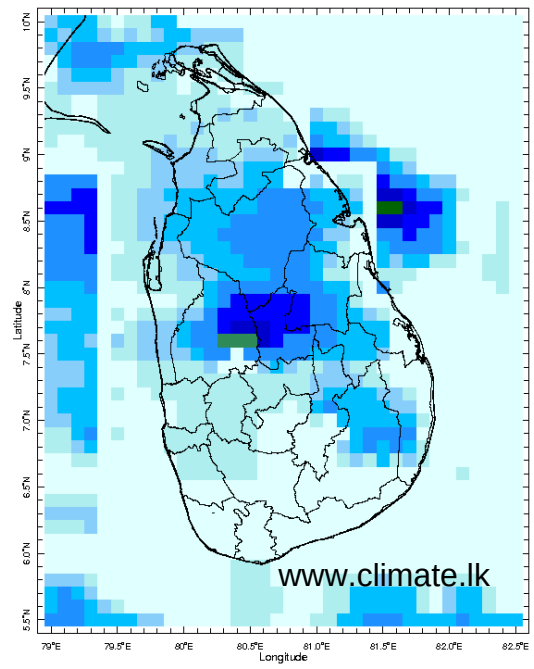
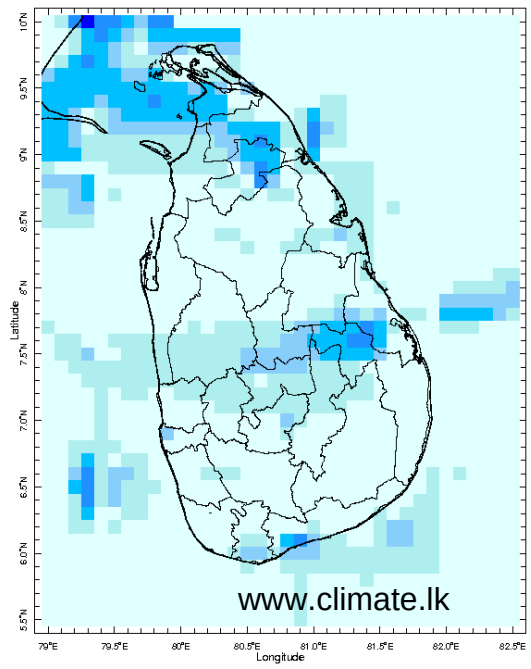


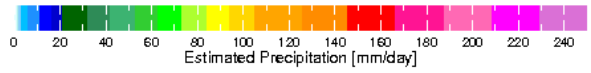
30 Jul 2017



31 Jul 2017

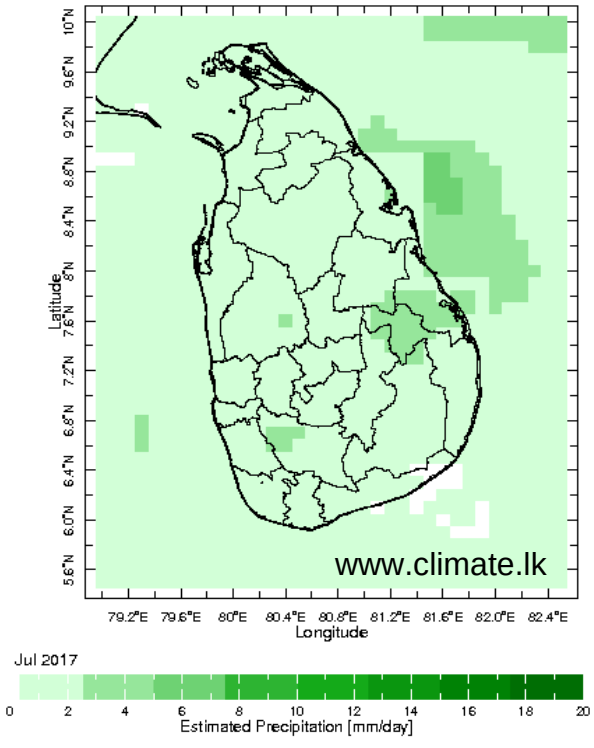


1 Aug 2017

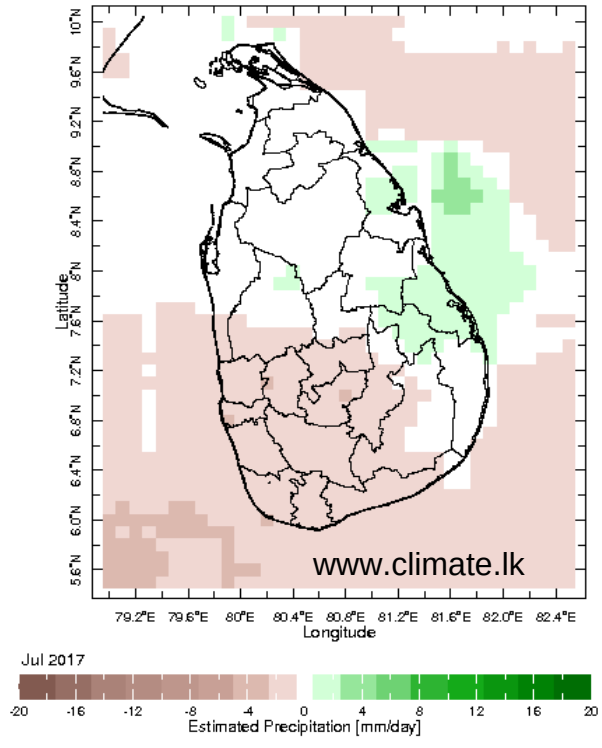


Monthly Rainfall Monitoring

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

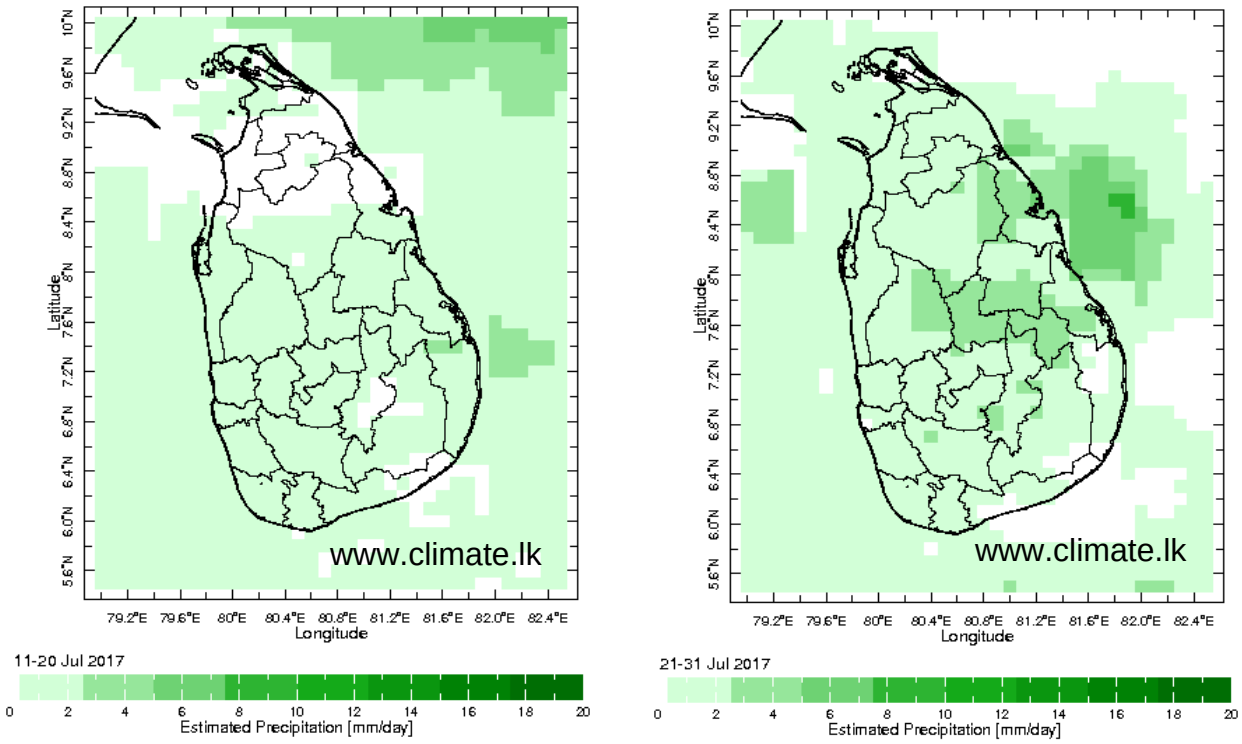


Monthly Average



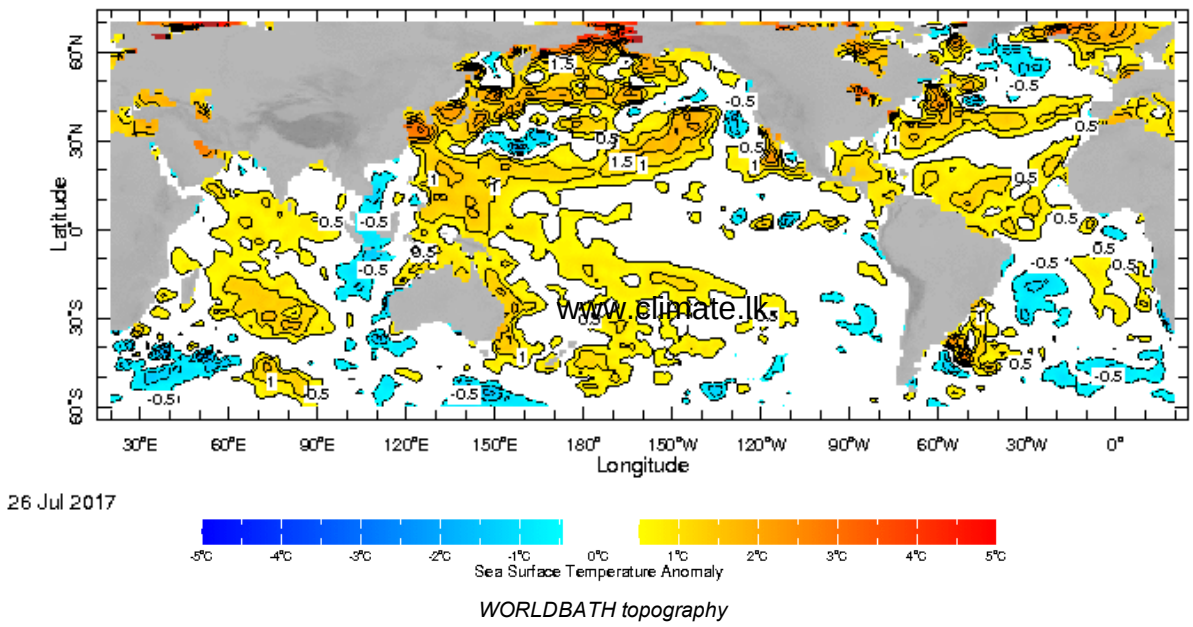
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates



Weekly Average SST Anomalies

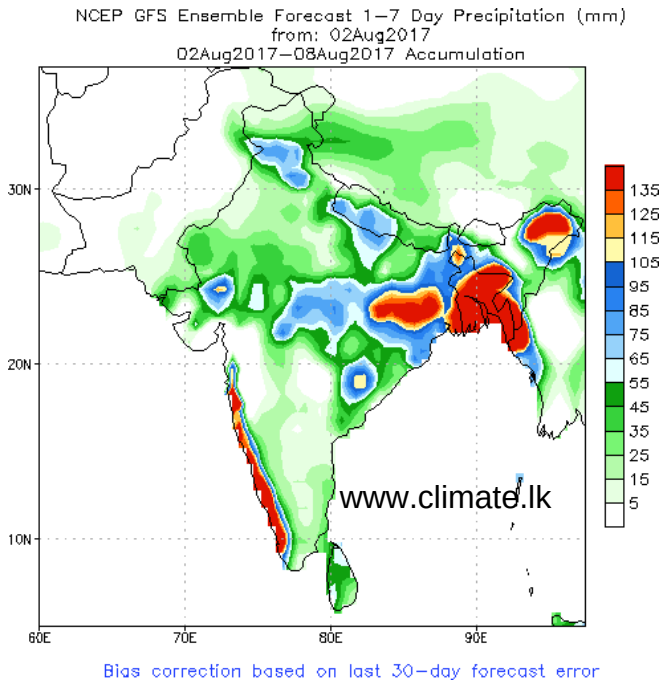
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

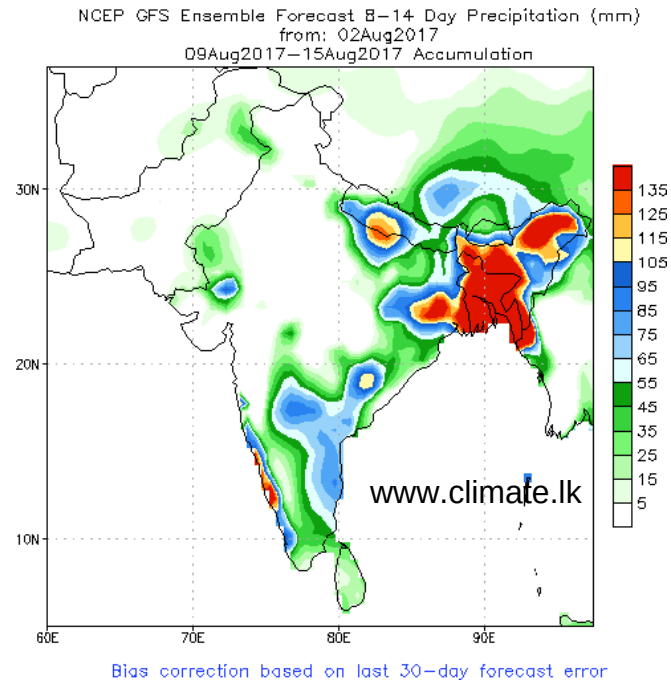


WORLDBATH topography

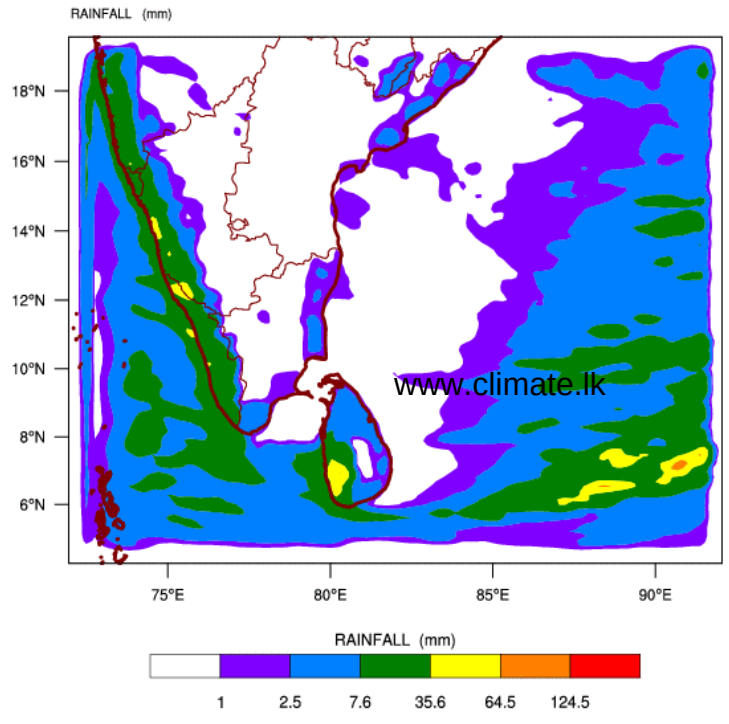
PREDICTIONS

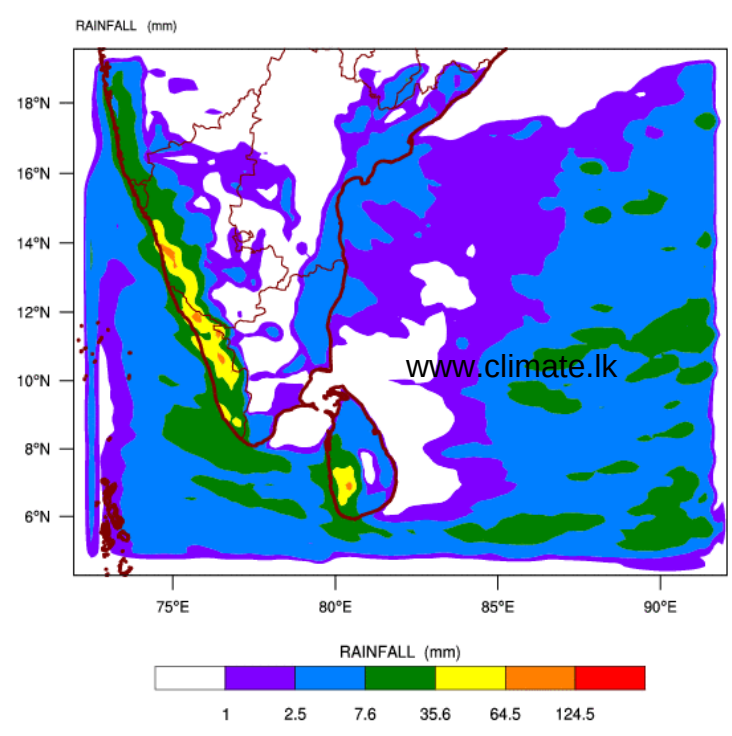
NCEP GFS 1- 14 Day prediction





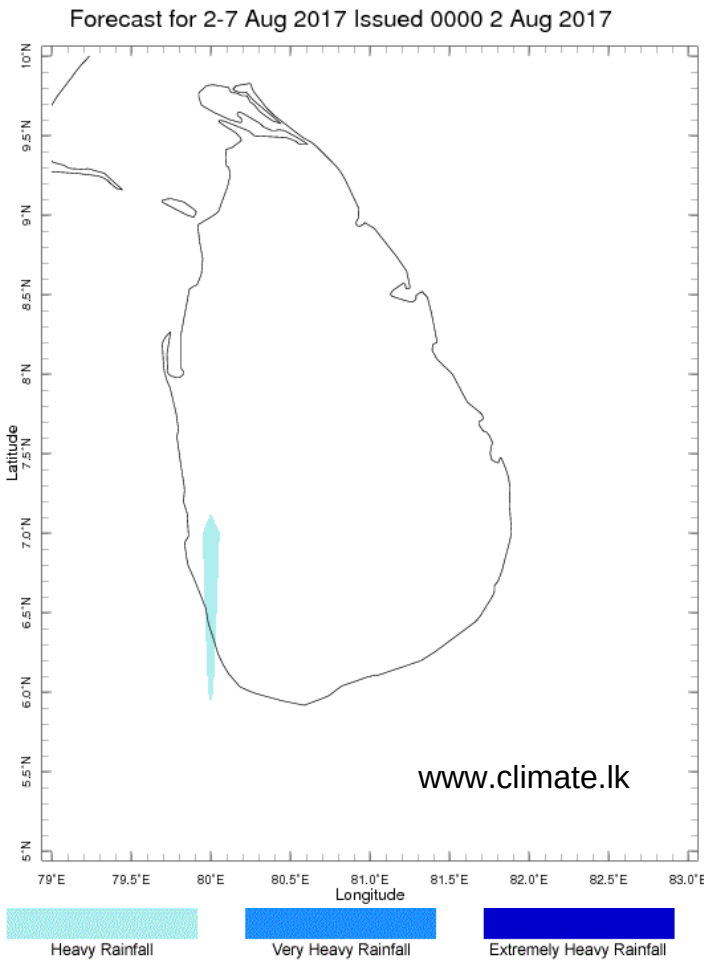
WRF Model Forecast (from IMD Chennai)



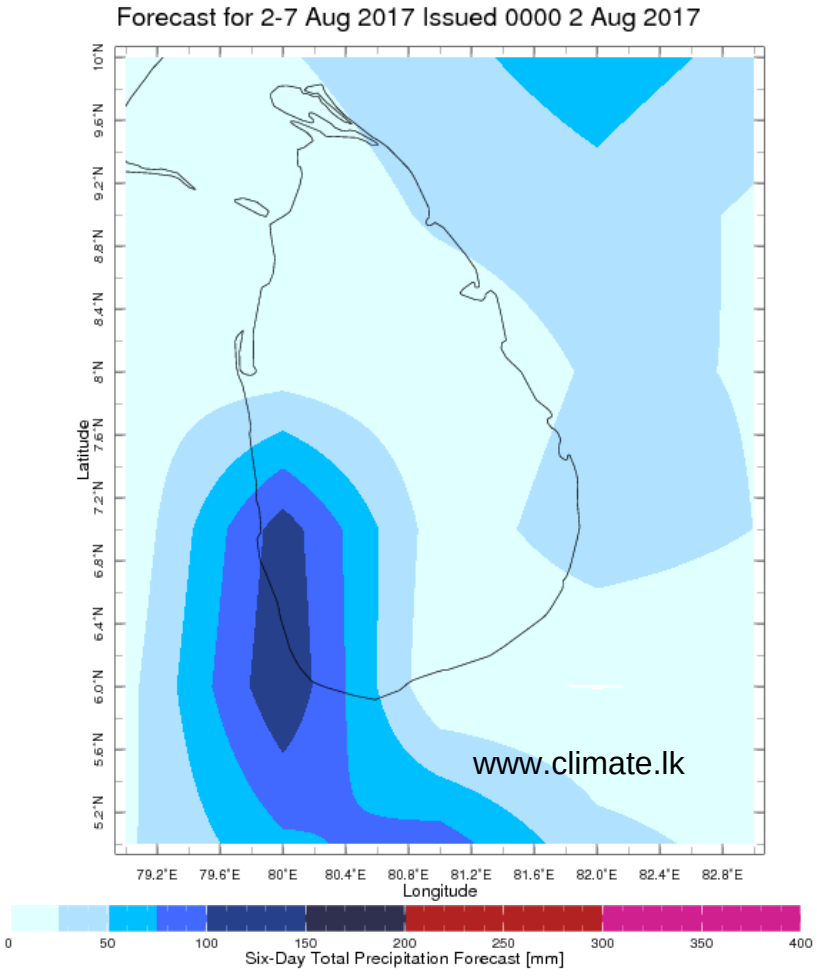


Weekly Rainfall Forecast from IRI

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.



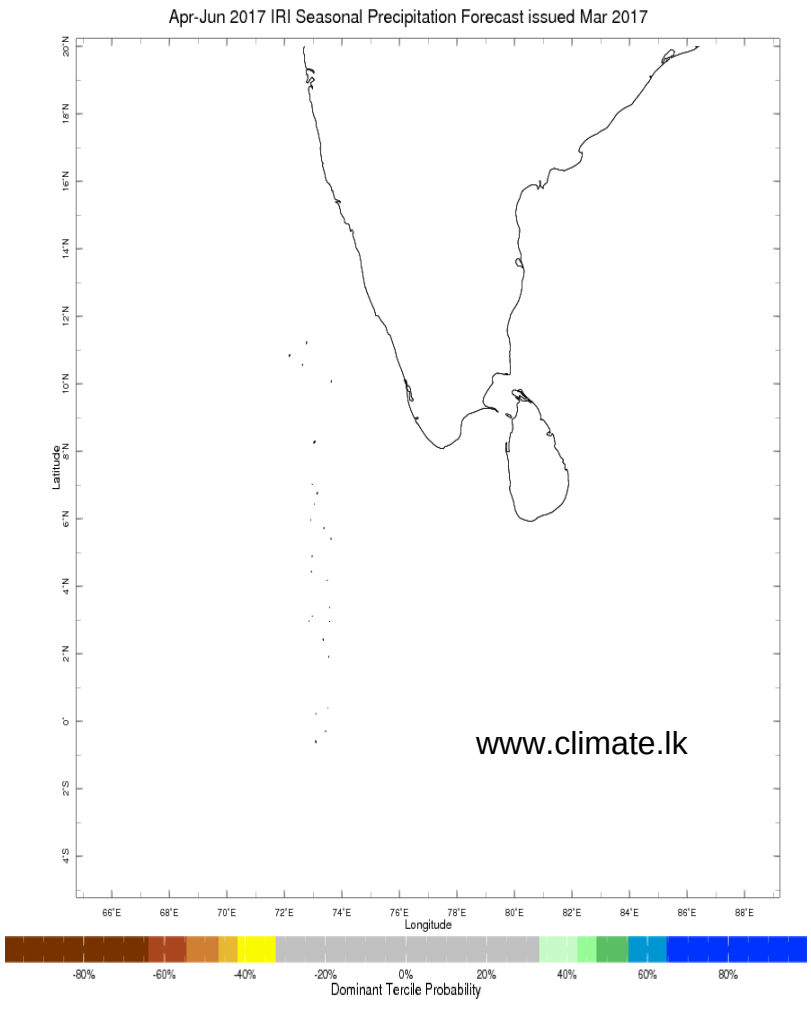
Extreme Rainfall Forecast



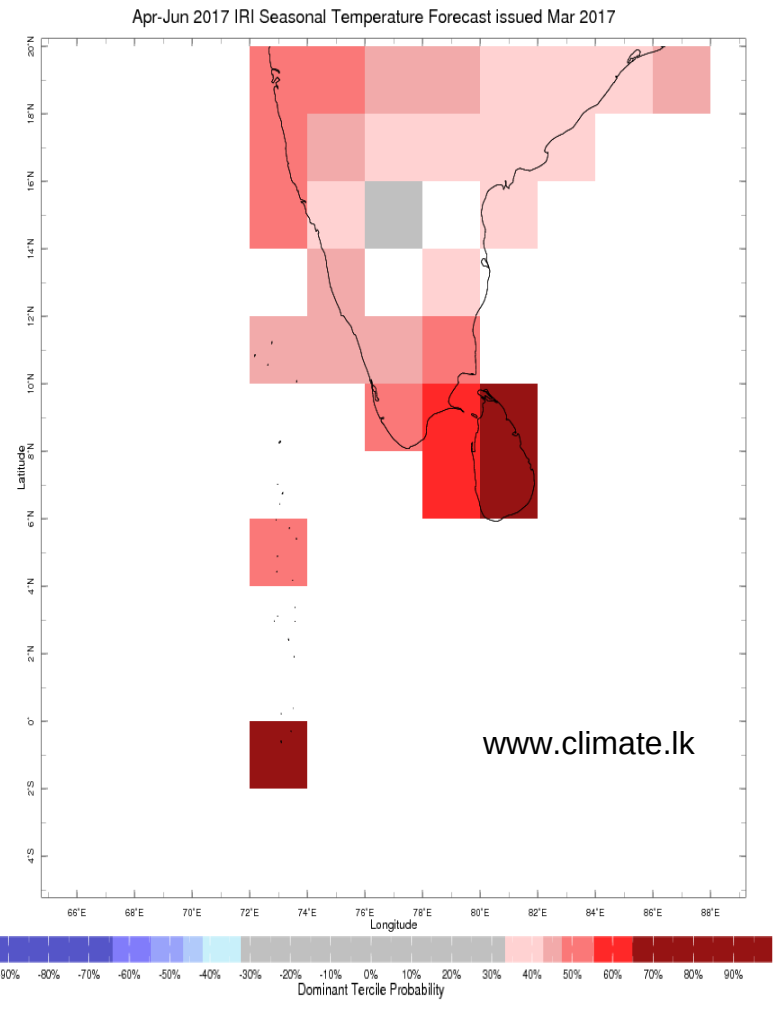
Total Six Day Precipitation Forecast

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

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