

Experimental Climate Monitoring and Prediction

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18 April 2017

Highlights

- The WRF model predicts up to 35 mm of rainfall in Colombo district on 21st of April.
- Between 12-18 Apr: highest rainfall of 60 mm was recorded on the 12th in Colombo district.
- From 9-15 Apr: minimum temperature of 15 °C was recorded from Nuwara Eliya district while northern regions of the island recorded a maximum temperature between 30-35 °C.
- From 11-17 Apr: up to 18 km/h, northeasterly winds were experienced by the southern regions, and speeds less than 7 km/h in the northern and central regions of the island.
- Average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring: On April 12th Colombo district received up to 60 mm of rainfall; and Kalutara, Ratnapura, Galle, Matara and Hambantota districts up to 50 mm; Gampaha district up to 30 mm; and Kalutara, Ampara, Monaragala and Badulla districts received up to 20 mm. On the 13th Kalutara, Galle, Ratnapura, and Hambantota districts received up to 50 mm of rainfall; Anuradhapura, Kandy, Nuwara Eliya, Badulla, Monaragala, and Matara districts up to 30 mm; and Kurunegala, Matale, Gampaha, Colombo, Kegalla and Ampara districts up to 20 mm. On the 14th several regions of Polonnaruwa, Trincomalee, Ampara and Monaragala districts received up to 10 mm of rainfall. No significant rainfalls were recorded in any part of the island during the period of 15th-18th.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 75 mm for Kalutara, Ratnapura, Galle, Matara and Hambantota districts; up to 50 mm for Gampaha, Colombo, Kegalla, Nuwara Eliya, Badulla and Monaragala districts; and up to 25 mm for Puttalam, Kurunegala, Anuradhapura, Polonnaruwa, Matale, Kandy, Badulla, Monaragala and Ampara districts. It shows below average rainfall of 50-100 mm for Kurunegala, Matale, Gampaha, Kegalla and Badulla districts; and 25-50 mm for many parts of the island.

Monthly Monitoring: During March - above average rainfall conditions were experienced in the entire island except for Hambantota district, which received up to 90 mm of below average rainfall. Anuradhapura, Kurunegala and Kandy received up to 150 mm above average rainfall; and many parts of the island received up to 120 mm. Monthly average rainfall for Anuradhapura, Matale, Polonnaruwa, Kurunegala, Gampaha, Colombo, Ratnapura, Kegalla, Nuwara Eliya Kandy and Badulla districts amounted to 270 mm/month; and 180 mm/month for many parts of the island. The CPC Unified Precipitation Analysis tool shows ~500 mm of total rainfall in Kurunegala, Gampaha, Colombo, Kegalla, Kandy and Ratnapura districts; up to ~300 mm in Kandy, Anuradhapura, Polonnaruwa, Puttalam, Kalutara, Galle, Badulla, Monaragala, Nuwara Eliya and Matale districts; up to ~200 mm Vavuniya, Mannar, and Matara districts; and up to 150 mm for the rest of the island.

Ocean State (Text Courtesy IRI)

Pacific sea state: April 13, 2017

By early April 2017, the tropical Pacific remained in an ENSO-neutral state, with above-average SSTs present in the eastern Pacific Ocean, and near-average SSTs present across the central and east-central part of the basin. Across the western and central Pacific, the pattern of cloudiness, rainfall, and winds remains consistent with La Nina-like conditions. The official forecast and most ENSO prediction models suggest an increasing chance of El Nino into the summer and fall of 2017.

Indian Ocean State

Average sea surface temperature was observed in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 19th – 25th Apr: Total rainfall up to 25-35 mm in Kurunegala, Kegalla, Colombo, Ratnapura and Galle districts; up to 15-25 mm in Anuradhapura, Puttalam, Gamapaha, Matale, Kandy, Nuwara Eliya and Hambantota districts.

From 26th Apr – 2 May: Total rainfall up to 25-35 mm in Kurunegala, Kegalla, Colombo, Ratnapura, Galle and Matara districts; up to 15-25 mm in Anuradhapura, Puttalam, Matale, Kandy, Nuwara Eliya, Badulla, and Monaragala districts.

IMD WRF & IRI Model Forecast:

21st Apr: Up to 36 mm rainfall in Colombo district; up to 8 mm rainfall in Gampah, Kalutara and Kegalla districts.

22nd Apr: Up to 3 mm rainfall in Gampaha and Puttalam districts.

Seasonal Prediction: IRI Multi Model Probability Forecast

May to July: the total 3-month precipitation has 50-60% likelihood of being in the above-normal tercile for the northern half of the island; and has 40-50% likelihood of being in the below-normal tercile for the southern half. The 3-month temperature has more than 30-40% 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 in Sri Lanka.

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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/>

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Weekly Hydro- Meteorological Report for Sri Lanka

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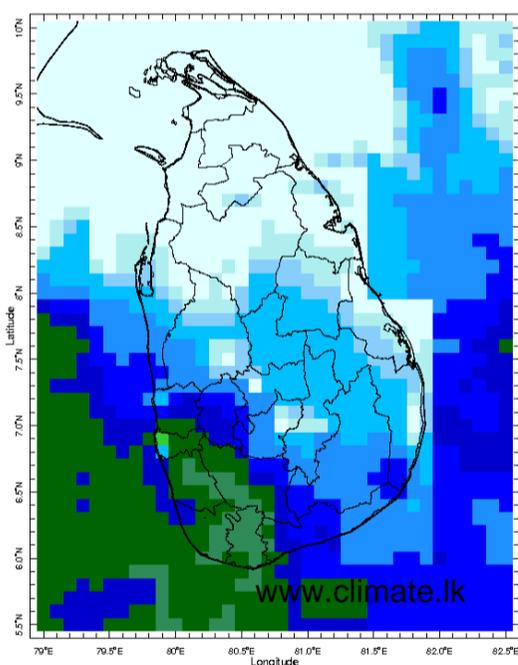
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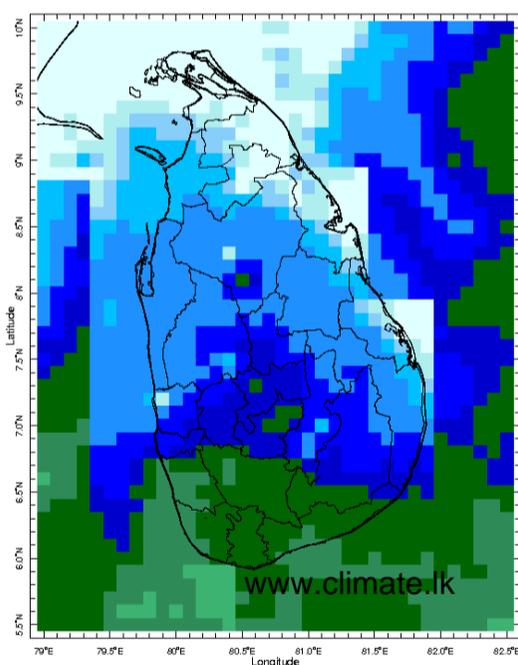
MONITORING

Daily Rainfall Monitoring

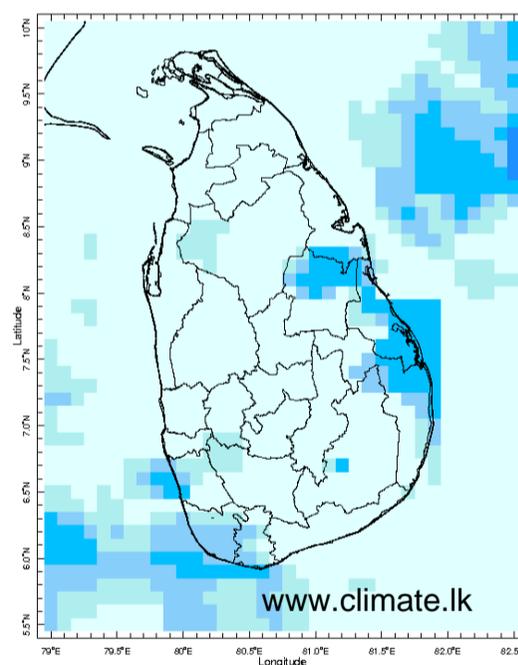
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



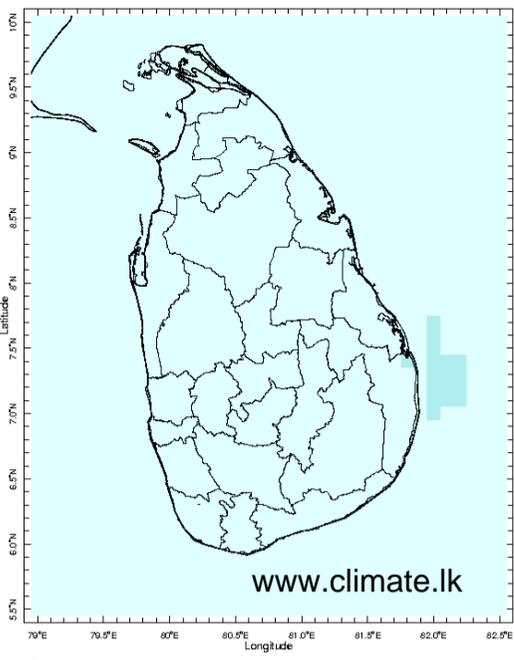
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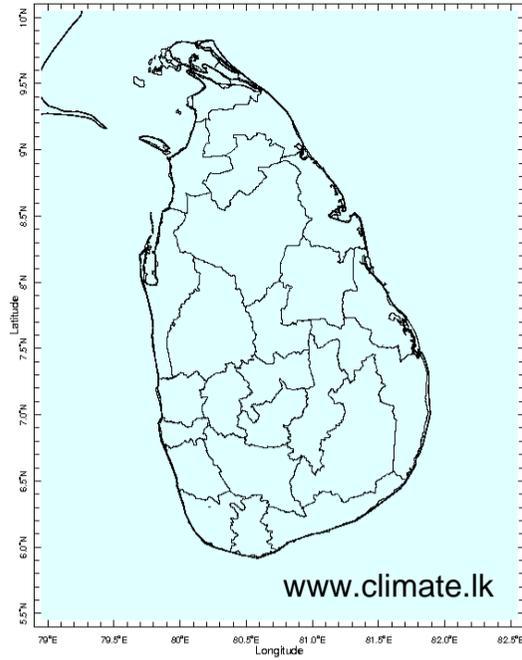
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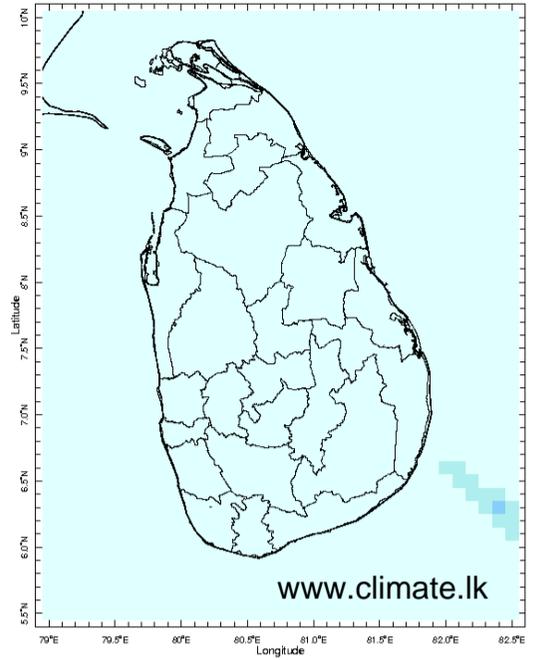
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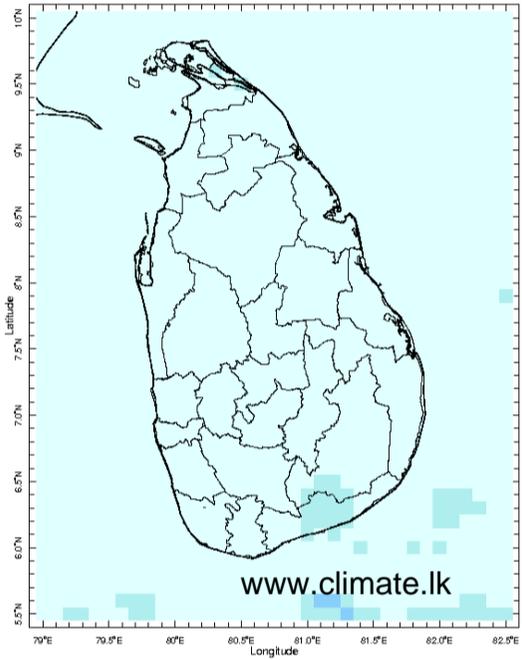
15 Apr 2017



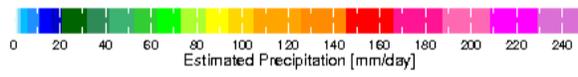
16 Apr 2017



17 Apr 2017

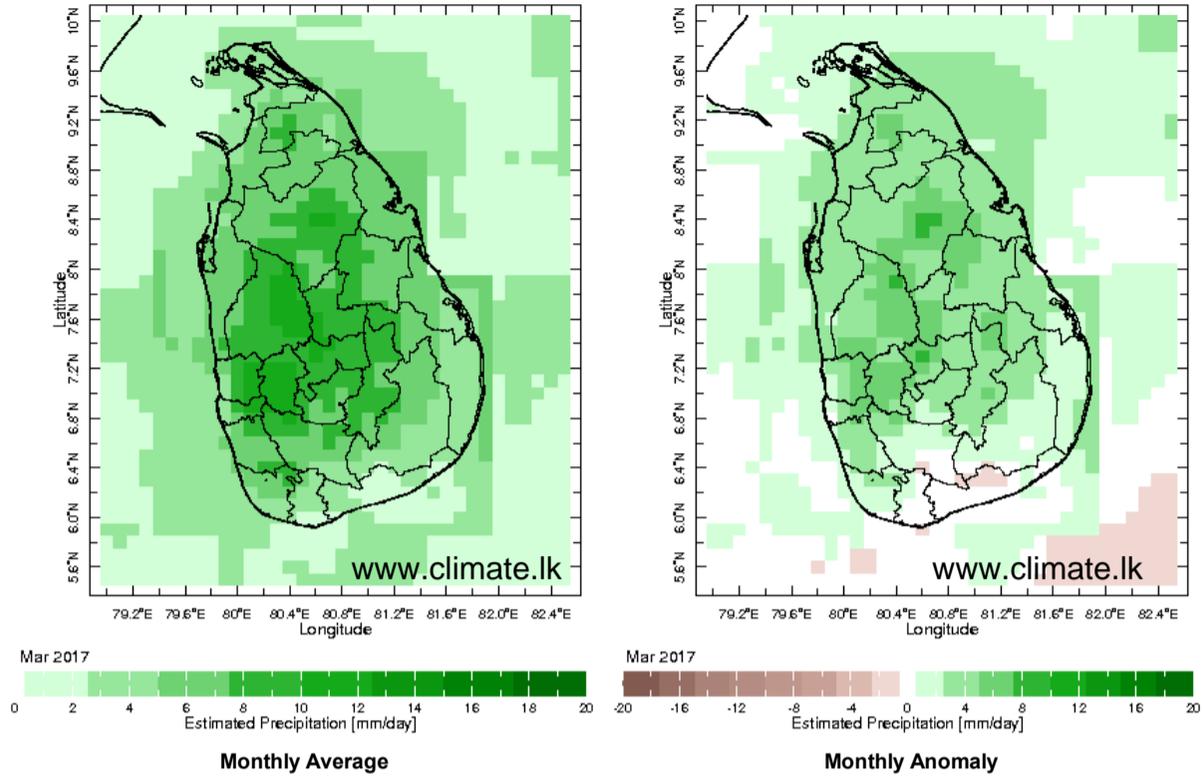


18 Apr 2017

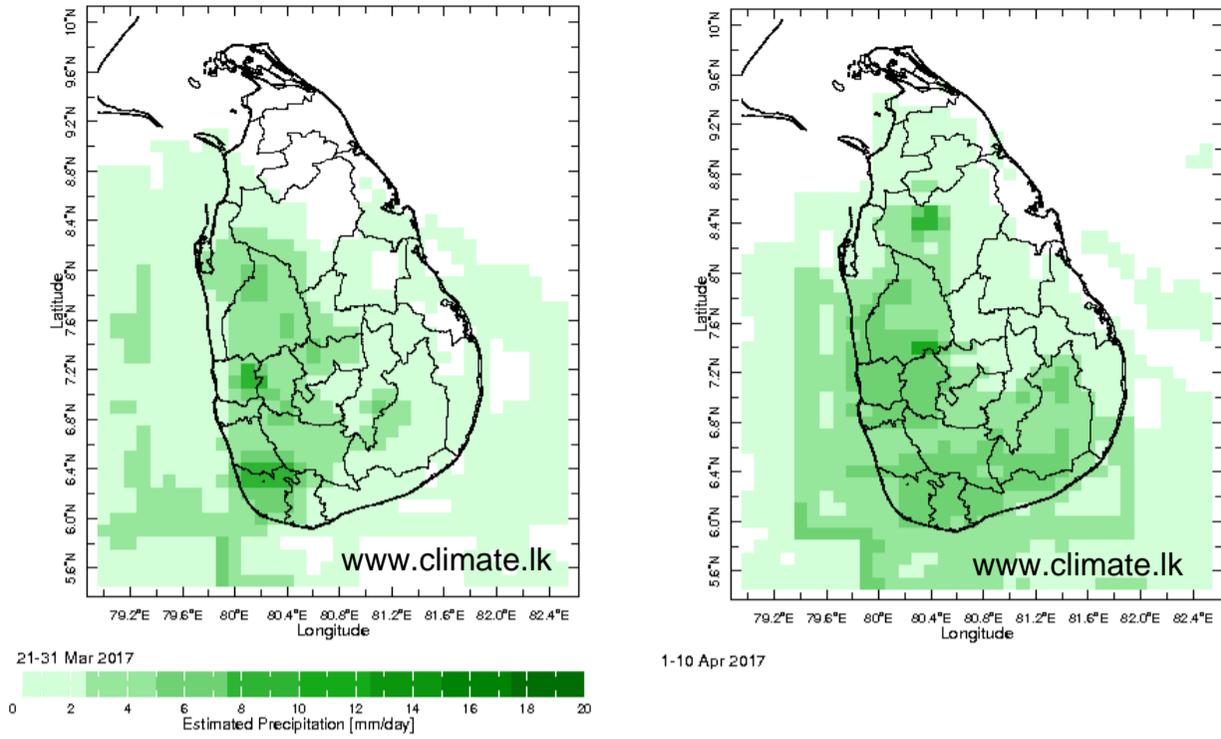


Monthly Rainfall Monitoring

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

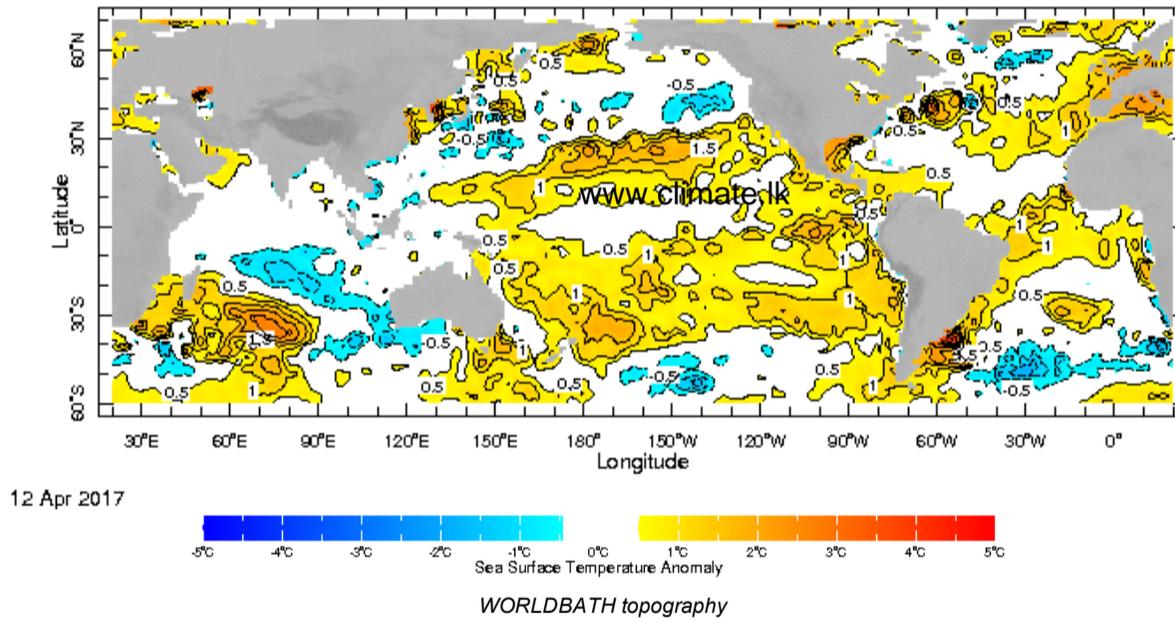


Dekadal (10 Day) Satellite Derived Rainfall Estimates

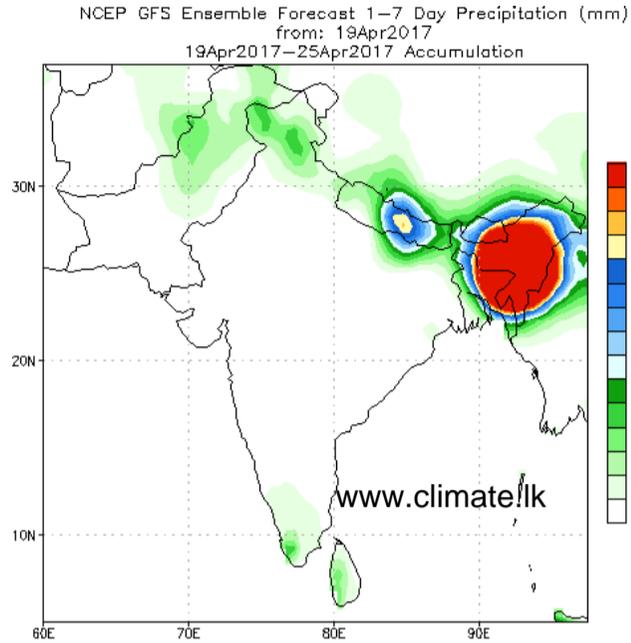


Weekly Average SST Anomalies

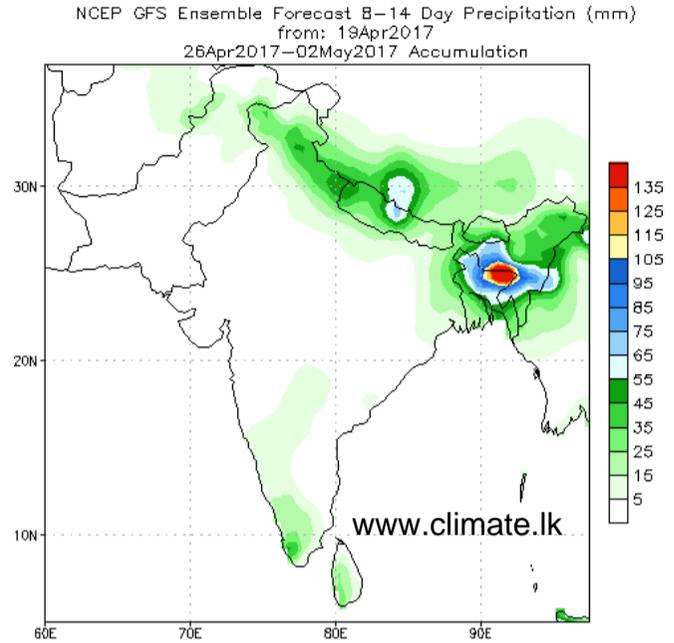
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



NCEP GFS 1- 14 Day prediction



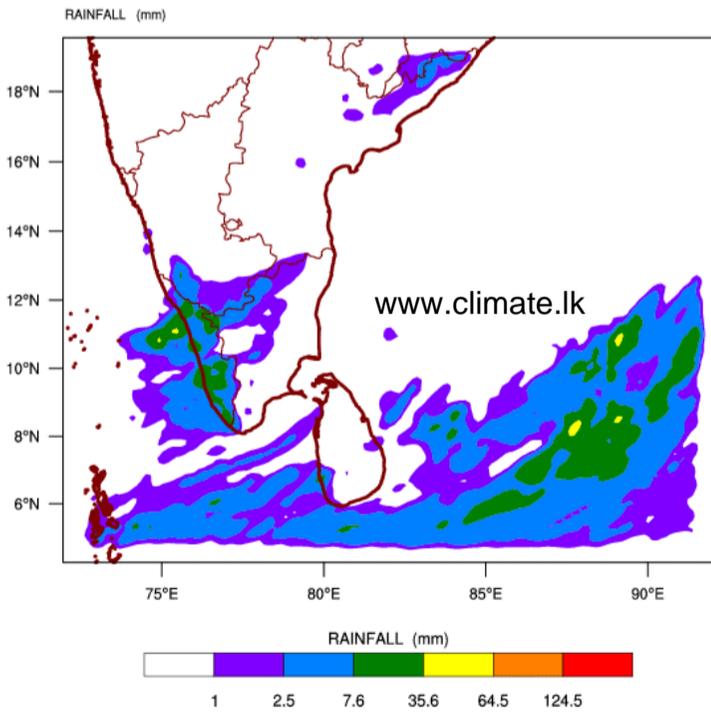
Bias correction based on last 30-day forecast error



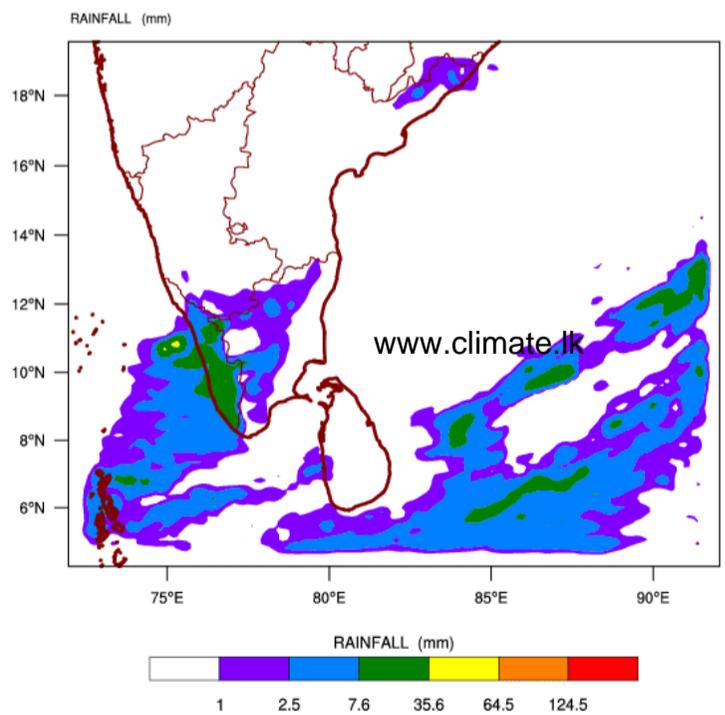
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 19-04-2017 valid for 03 UTC of 21-04-2017



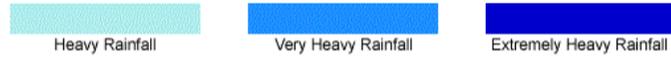
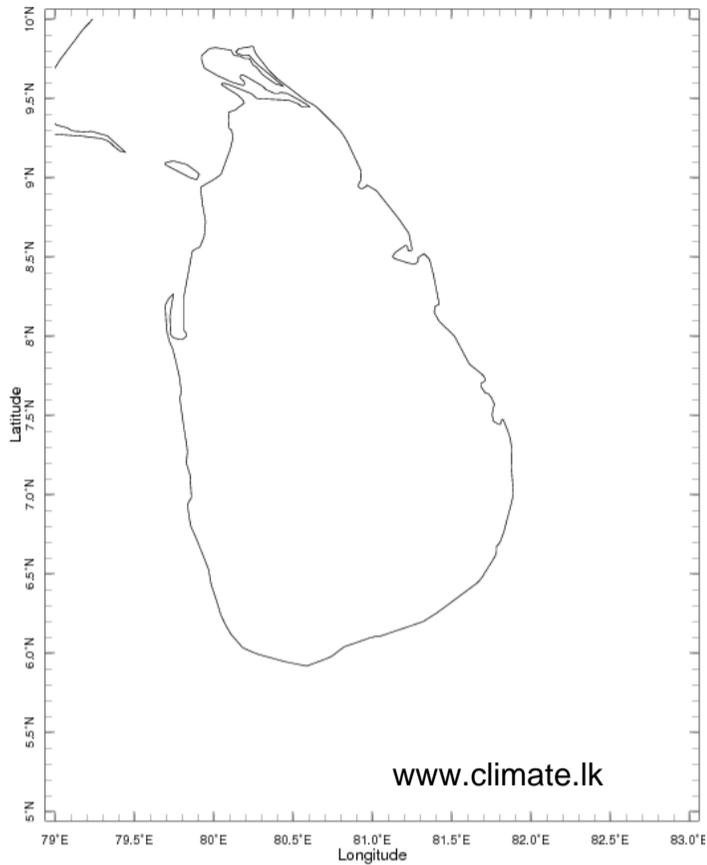
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 19-04-2017 valid for 03 UTC of 22-04-2017



Weekly Rainfall Forecast from IRI

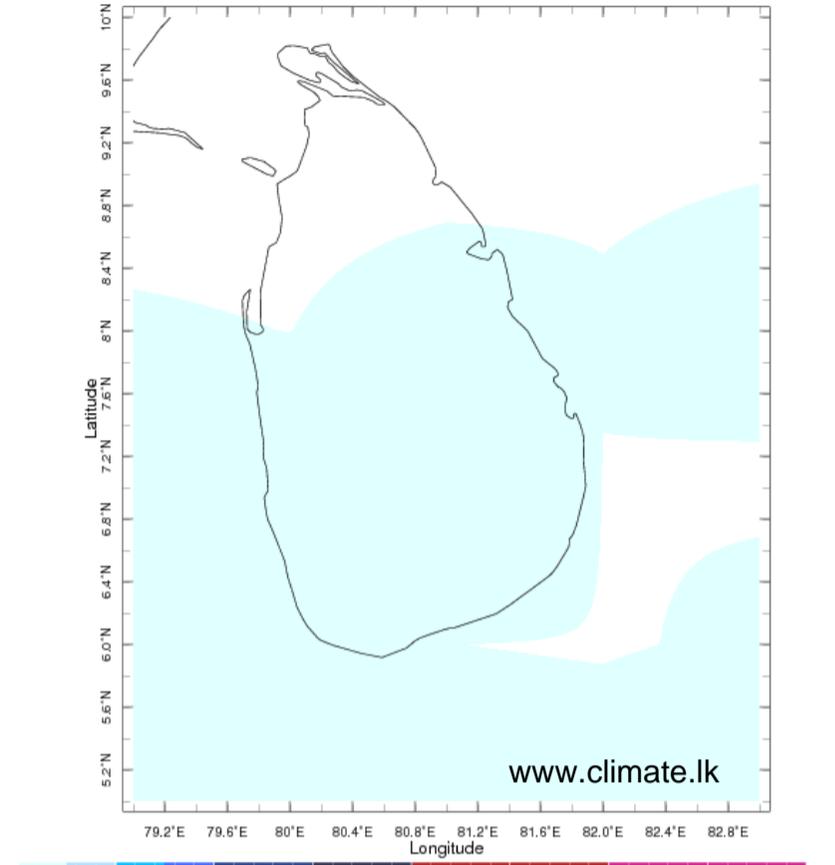
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 19-24 Apr 2017 Issued 0000 19 Apr 2017



Extreme Rainfall Forecast

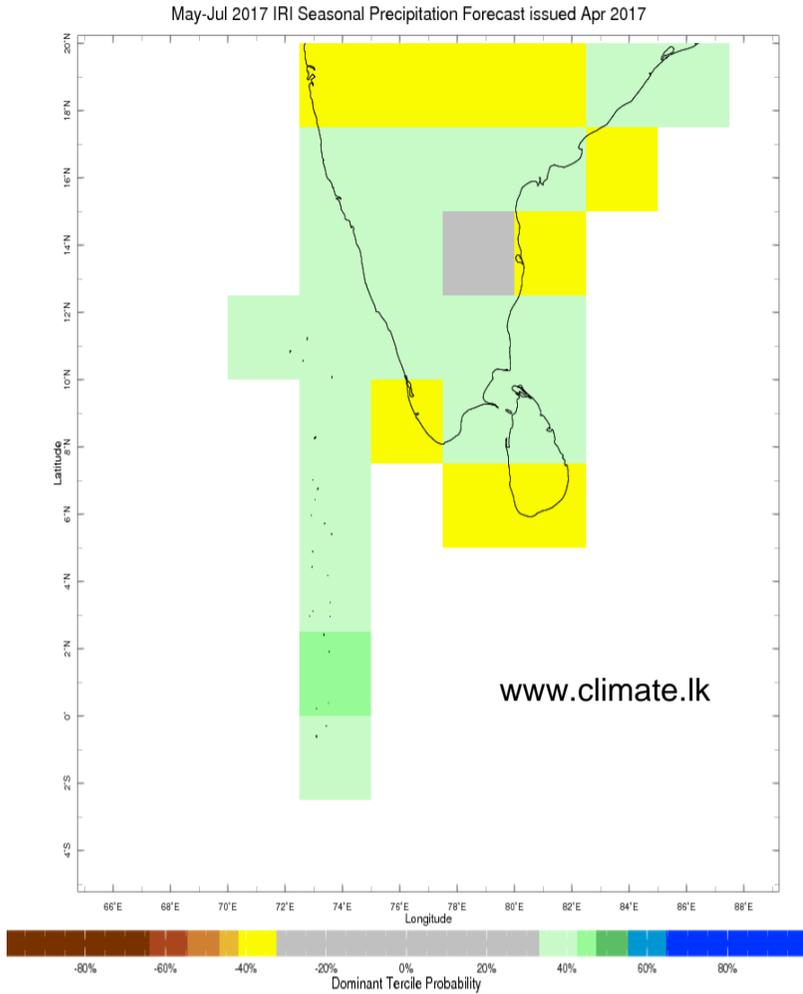
Forecast for 19-24 Apr 2017 Issued 0000 19 Apr 2017



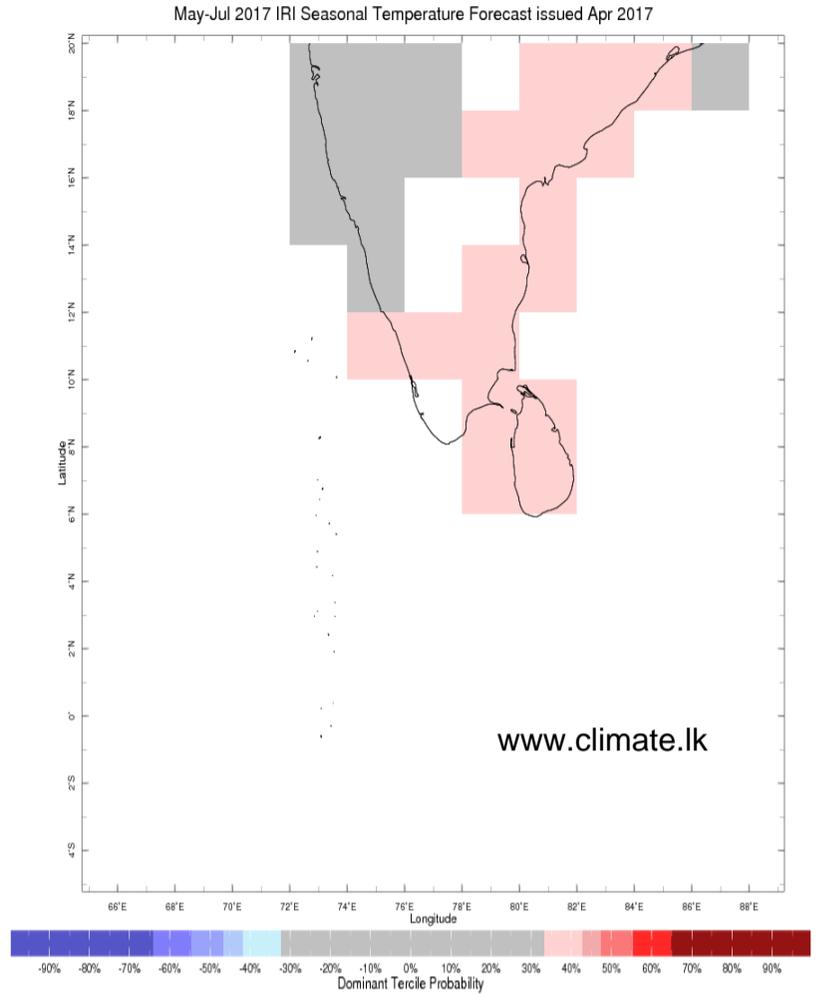
Total Six Day Precipitation Forecast

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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