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Experimental Climate Monitoring and Prediction

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27 April 2017

Highlights

- *The WRF model predicts up to 36 mm of rainfall in Western region of the country on 27th of April.*
- *Between 19-25 Apr: highest rainfalls of 20 mm were recorded on the 24th in Kegalla, Ratnapura, Kalutara, Galle and Matara districts.*
- *From 16-22 Apr: minimum temperature of 15 ºC was recorded from Nuwara Eliya district while northern and northeastern regions of the island recorded a maximum temperature between 30-35 ºC.*
- *From 18-24 Apr: up to 18 km/h, northwesterly winds were experienced by the southern regions; and speeds less than 14 km/h in the northern regions of the island.*
- *Average sea surface temperature was observed in the seas around Sri Lanka.*

Monitoring

Rainfall

***Weekly Monitoring*:** No significant rainfalls were recorded in any part of the island during the period of 19th-23rd April. On the 24th Kegalla, Ratnapura, Kalutara, Galle and Matara districts received up to 20 mm of rainfall. On the 25th several regions of Nuwara Eliya district received up to 10 mm of rainfall.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 25 mm Kegalla, Ratnapura, Colombo, Kalutara and Galle districts. It shows below average rainfall of 50-100 mm for Kurunegala, Puttalam, Anuradhapura, Kegalla, Gampaha, Colombo, Kalutara and Ratnapura districts; and 25-50 mm for most 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 20, 2017

By mid-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 across the central and east-central part of the basin. Across the western and central Pacific, the pattern of cloudiness, rainfall, and winds remains suggestive of La Nina conditions. The collection of ENSO prediction models indicates increasing chances of El Nino into the summer and fall of 2017.

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

Predictions

Rainfall

14-day prediction:
NOAA NCEP models:
From 26th Apr – 02nd May: Total rainfall between 25-35 mm in Gampaha, Kurunegala, Kegalla, Ratnapura and Matara districts; up to 15-25 mm in Puttalam, Anuradhapura, Matale, Kandy, Nuwara Eliya, Hambantota, Colombo, Kalutara and Galle districts; up to 5-15 mm in Mannar, Mullaitivu, Vavuniya, Trincomalee, Polonnaruwa, Ampara and Monaragala districts.

From 03rd – 09th May: Total rainfall between 25-35 mm in Kalutara and Galle districts; up to 15-25 mm in Kurunegala, Matale, Gampaha, Kegalle, Kandy, Ratnapura and Matara districts; up to 5-15 mm in Puttalam, Anuradhapura, Polonnaruwa, Ampara, Badulla, Nuwara Eliya, Monaragala, Hambantota and Colombo districts.

IMD WRF & IRI Model Forecast:
27th Apr: Up to 36 mm of rainfall in Puttalam, Gampaha, Colombo, Ratnapura, Kalutara and Galle; up to 8 mm of rainfall in Kurunegala, Kegalle, Matara, Trincomalee and Polonnaruwa districts; up to 3 mm of rainfall in Vavuniya, Mullaitivu, Anuradhapura, Ampara and Batticaloa districts.

28th Apr: Up to 36 mm of rainfall in Gampaha, Colombo and Kandy districts; up to 8mm of rainfall in Polonnaruwa, Puttalam, Kegalle, Kandy, Nuwara Eliya, Kalutara, Galle, Matara districts; up to 3 mm of rainfall in Trincomalee, Matale, Badulla, Ampara, Monaragala, Hambantota and Kurunegala districts.

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 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.

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Weekly Hydro- Meteorological Report for Sri Lanka

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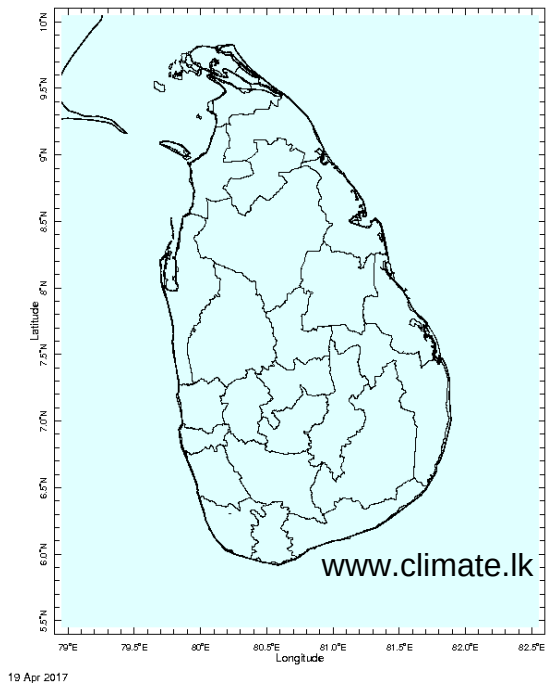
MONITORING

Daily Rainfall Monitoring

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



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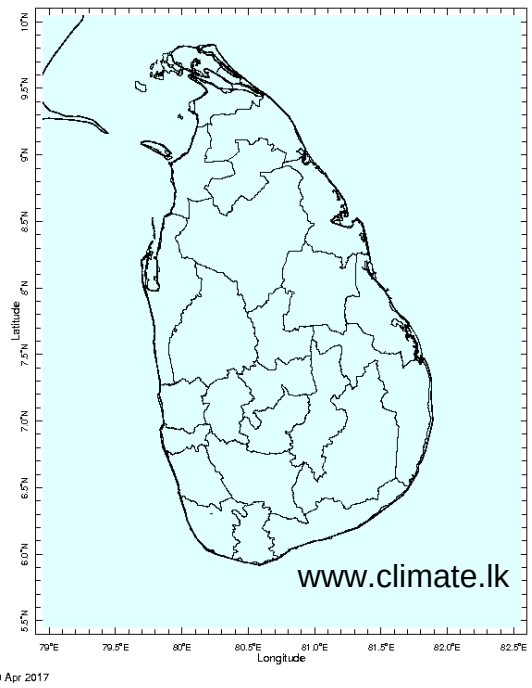

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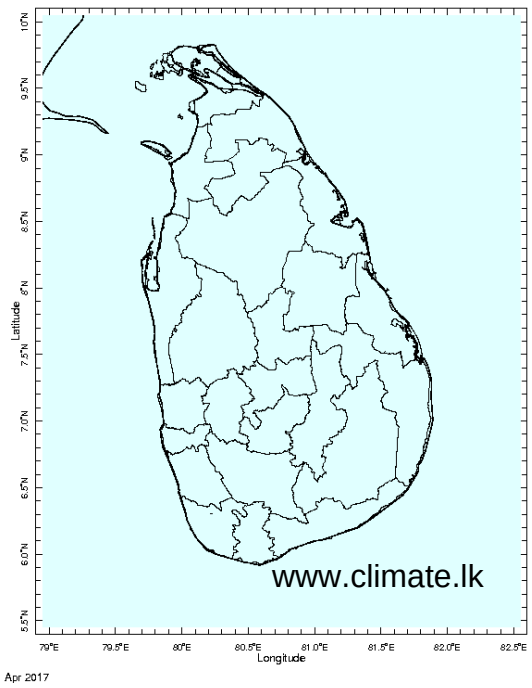

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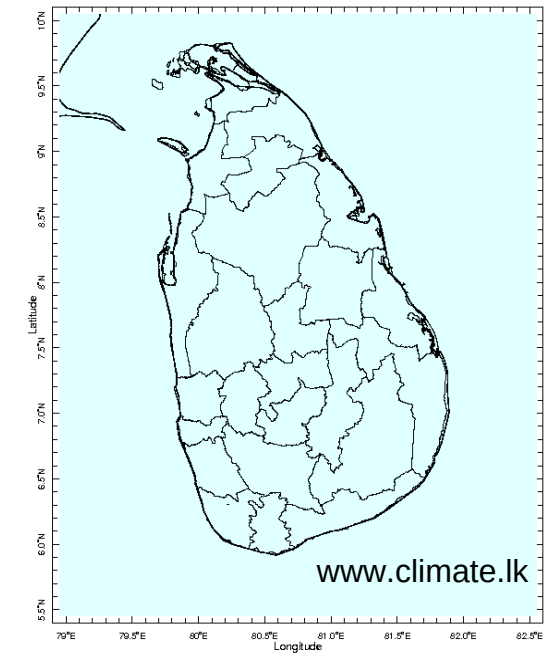

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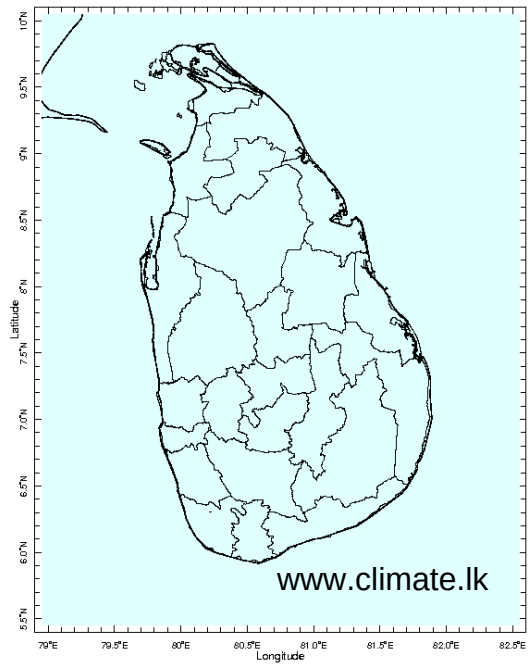

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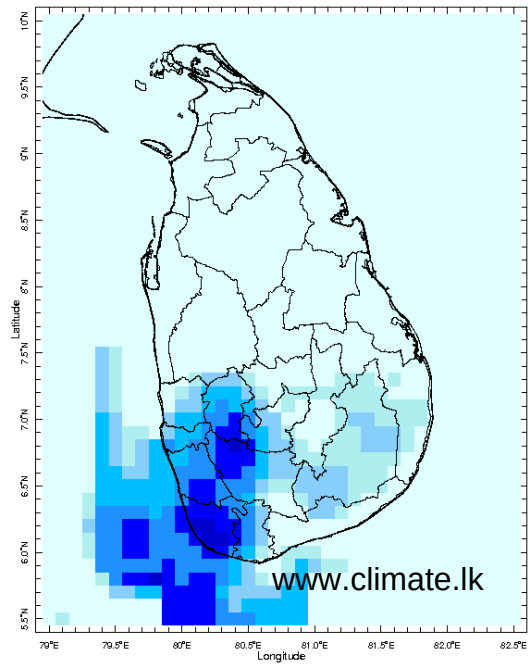

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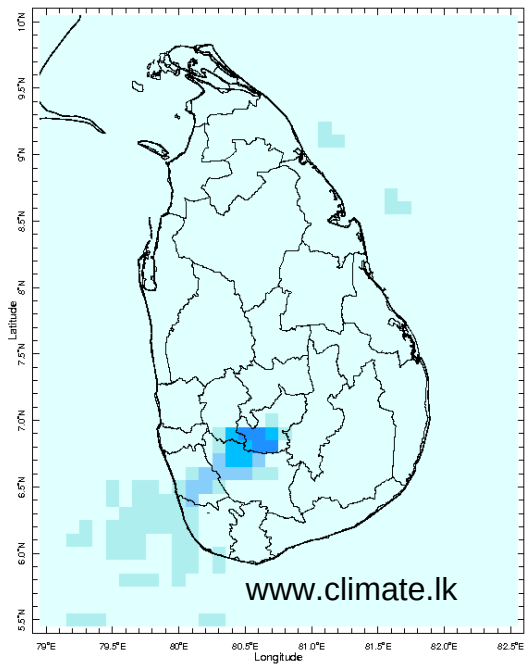
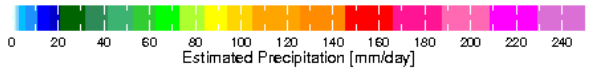
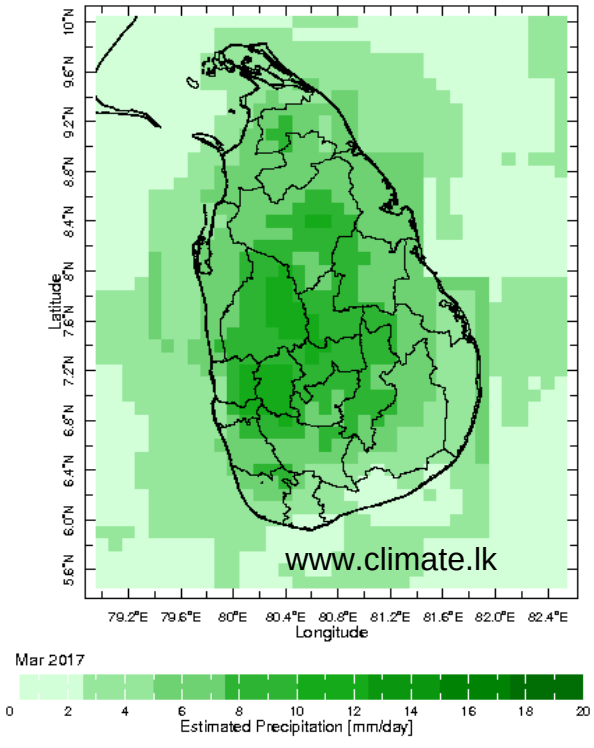


25 Apr 2017

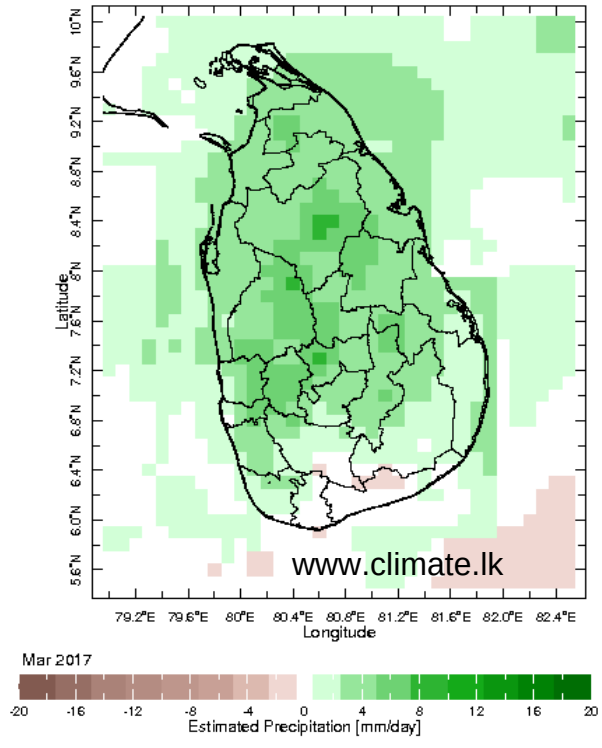


Monthly Rainfall Monitoring

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

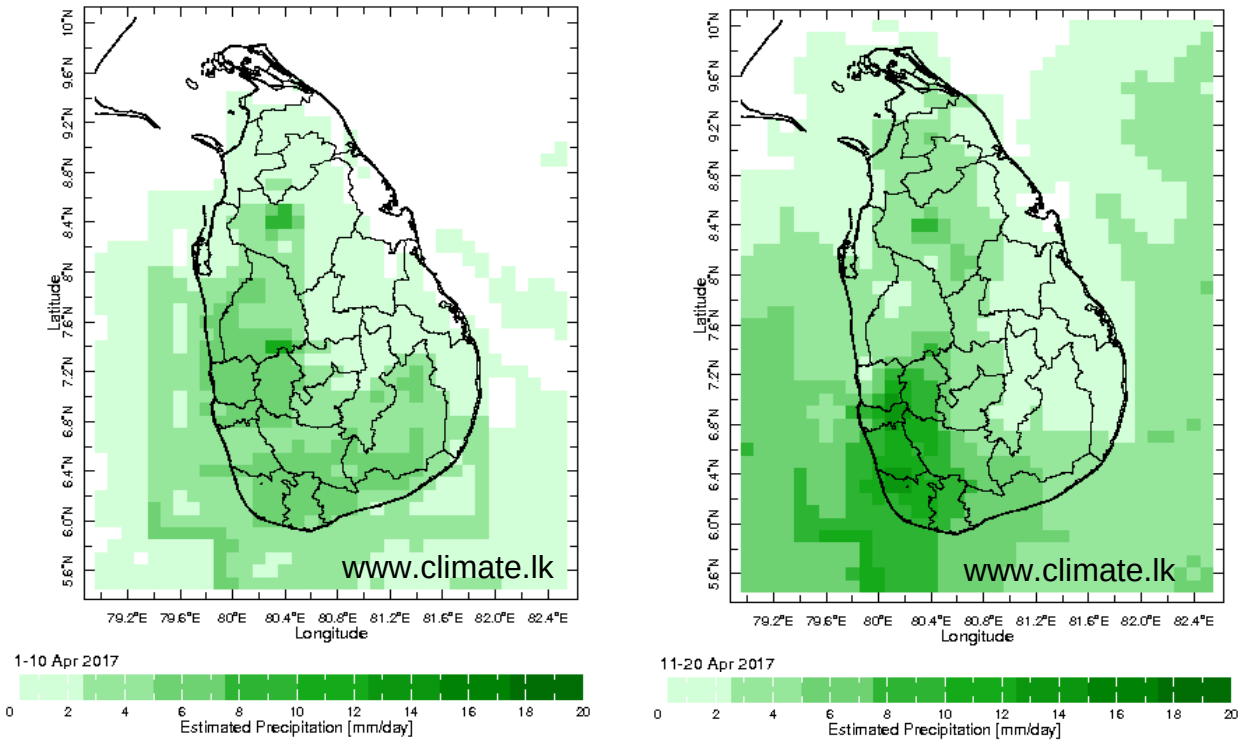


Monthly Average



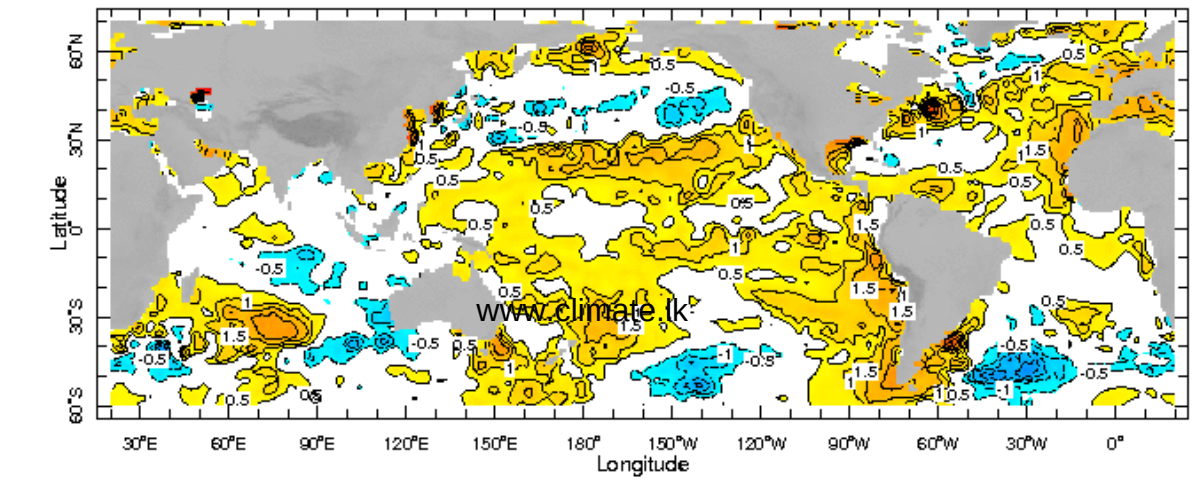
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates



Weekly Average SST Anomalies

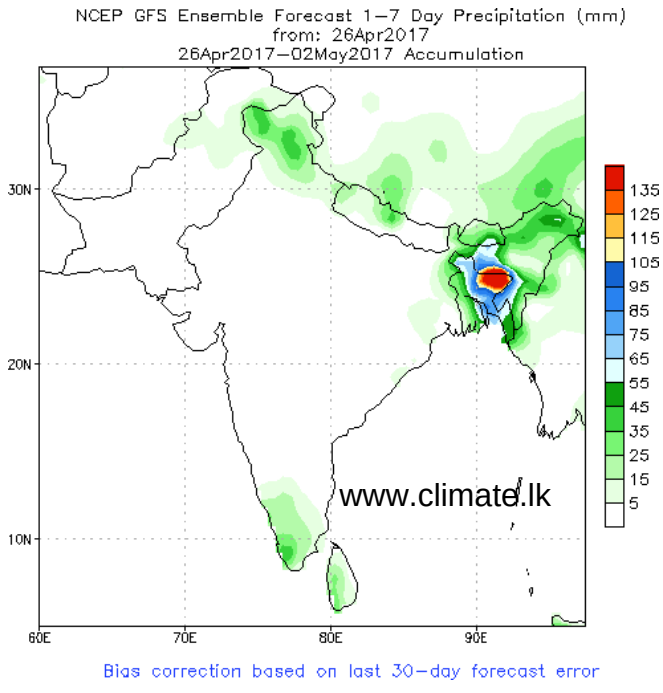
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP

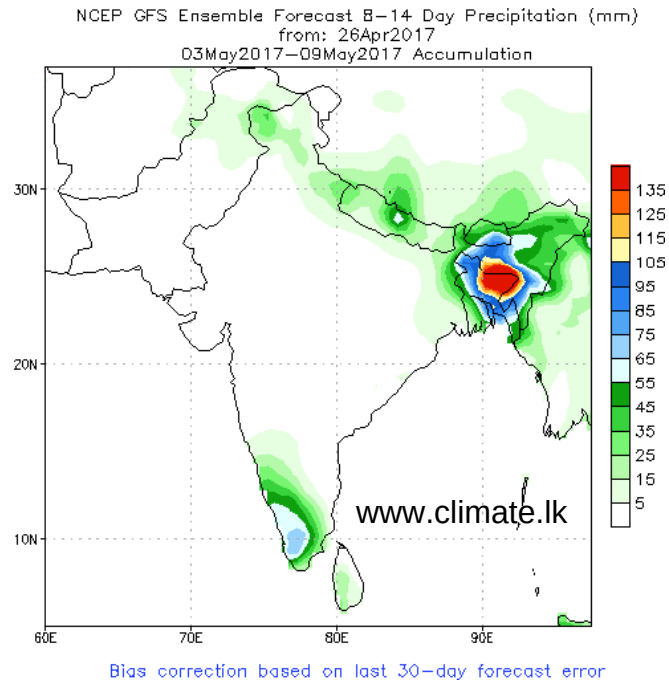


WORLDBATH topography

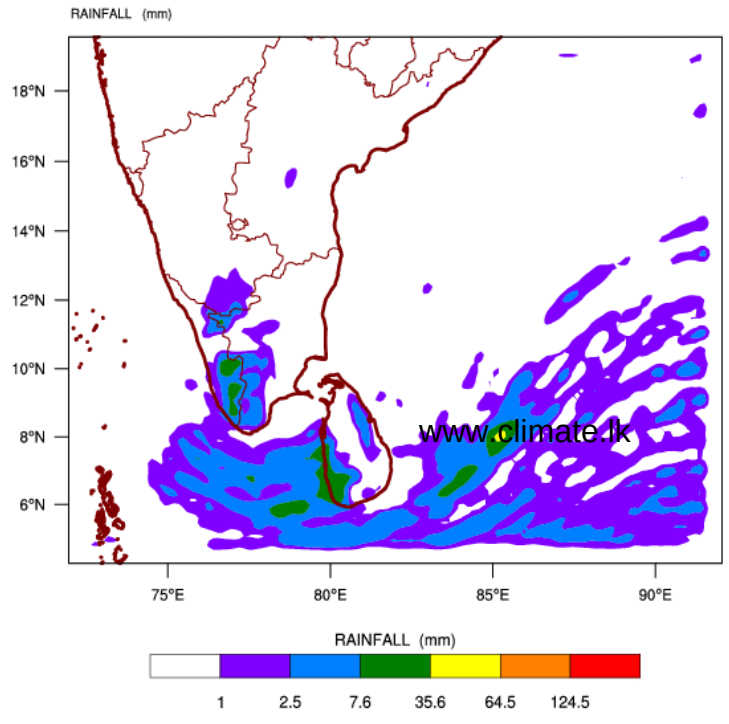
PREDICTIONS

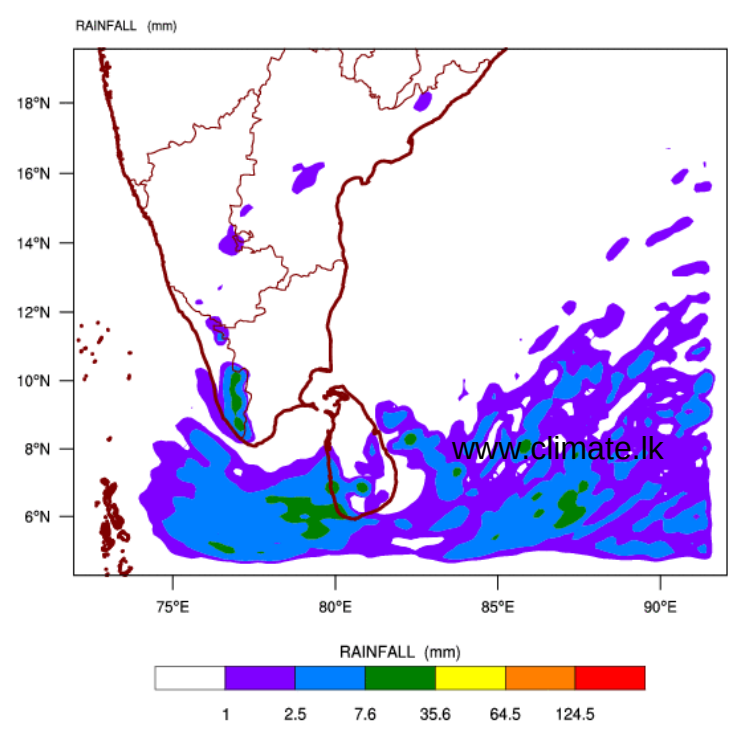
NCEP GFS 1- 14 Day prediction





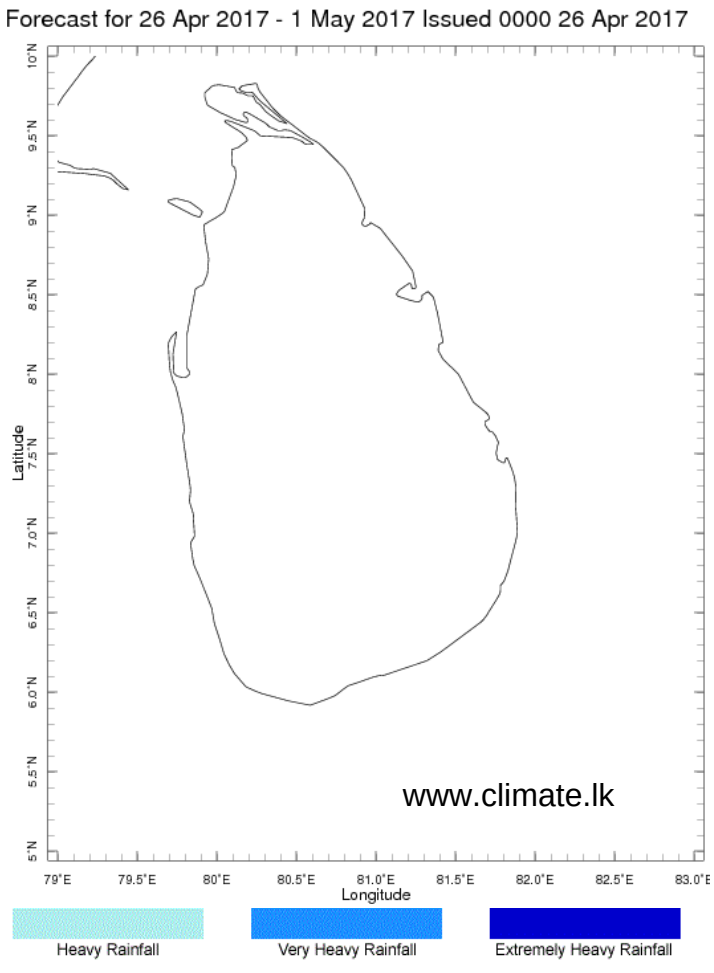
WRF Model Forecast (from IMD Chennai)



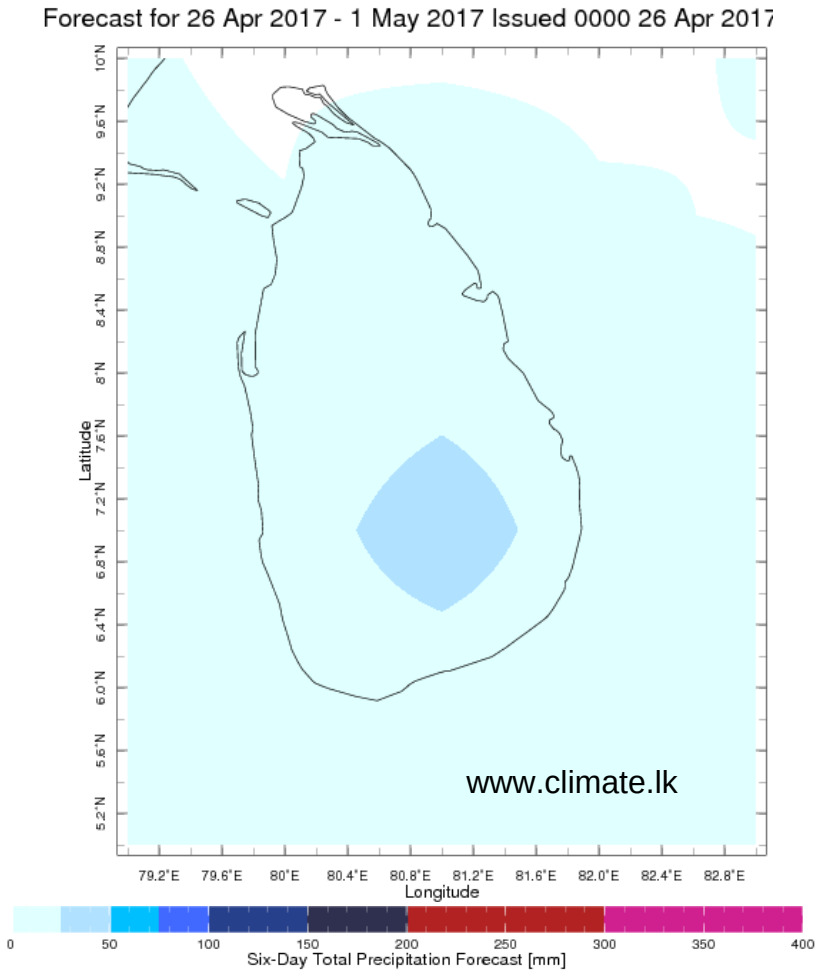


Weekly Rainfall Forecast from IRI

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.



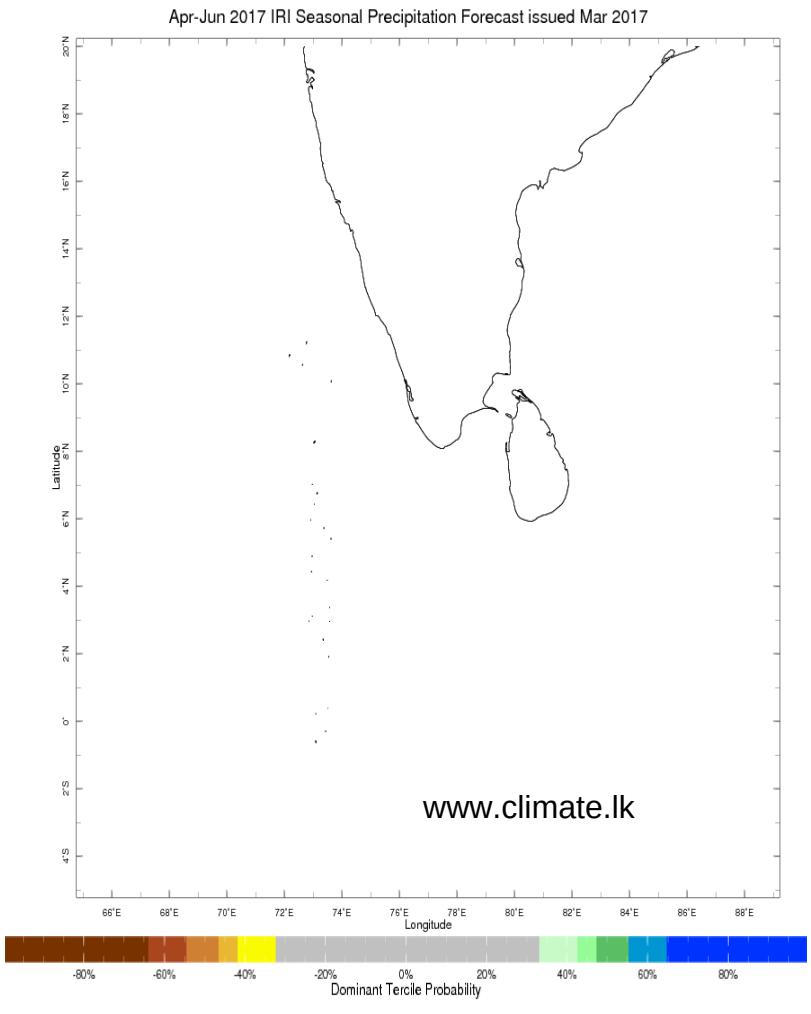
Extreme Rainfall Forecast



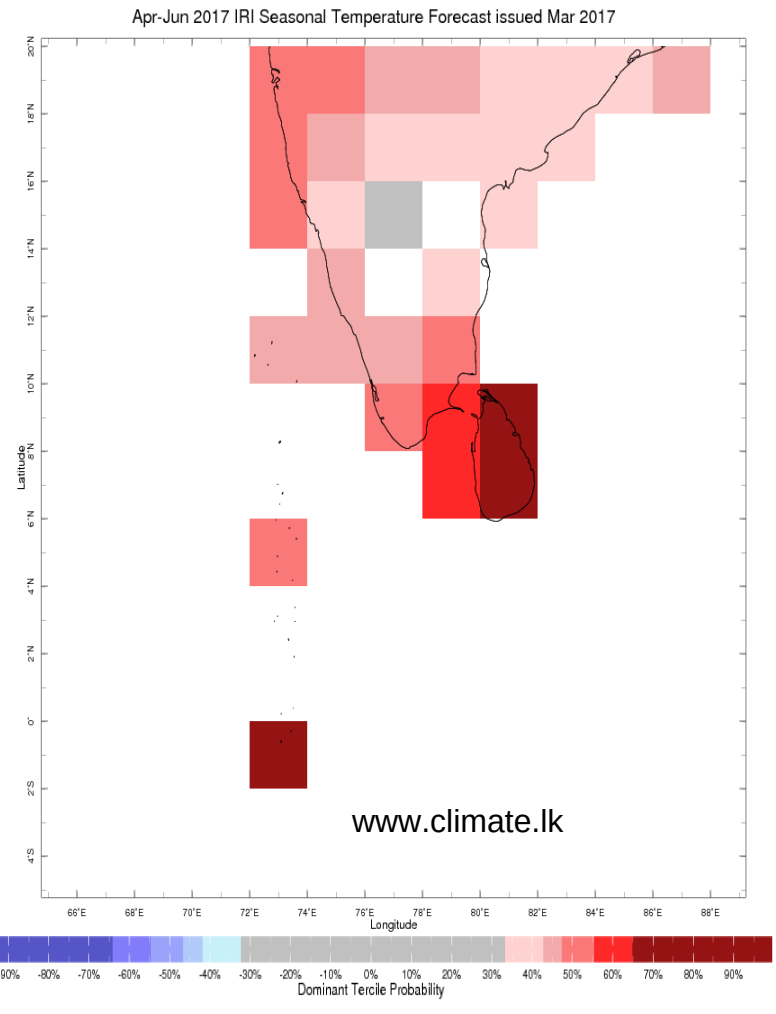
Total Six Day Precipitation Forecast

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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