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Experimental Climate Monitoring and Prediction

by: Akram Kamiss, Prabodha Agalawatte, Sewwandhi Chandrasekara, Zeenas Yahiya, Lareef Zubair and Michael Bell (FECT and IRI[1])

4 June 2015

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May 21, 2015

PACIFIC SEAS STATE

During late April through mid-May 2015 the SST was at a weak to moderate Niño level. The atmospheric variables also indicate an El Niño pattern, including weakened trade winds, low Southern Oscillation Index and excess rainfall in the central tropical Pacific. The consensus of ENSO prediction models indicate weak to moderate El Niño conditions during the May-July 2015 season in progress, likely strengthening during summer and lasting through 2015.

(Text Courtesy IRI)

INDIAN OCEAN STATE

0.5 ^{0}C above average temperature was observed in the southern sea of Sri Lanka. The anomaly goes further up towards south-west.

MJO STATE

MJO is in phase I and therefore shall slightly enhance the rainfall in Sri Lanka.

Highlights

During 27th May – 2nd June 2015, high rainfall was received in the end of the week which was an increase when compared to the past week. In the beginning of the week there were no rain in any part of the country and the Eastern and Uva provinces observed rainfall up to 70 mm/day from 30th May. Highest rainfall of 70mm was received in Ampara and the Central, Sabaragamuwa, North Eastern and North Western provinces also received rainfall up to 10-30 mm/day. NOAA models predict high rainfall in Eastern, South Eastern and Western provinces in the next fortnight. The MJO has been weak for some time now and therefore no influence on the rainfall from MJO is expected.

Summary

Monitoring

***Weekly Monitoring*:** During the time period 27th May – 2nd June 2015, only Sabaragamuwa, Uva and Eastern provinces received rainfall. In the first 3 days there was no any significant rainfall observed in the whole country. On the 30th of May up to 30 mm light rainfall in central to eastern regions of the country. Then up to 90 mm very heavy rainfall was observed in the Ampara district on the 31st of May while up to 30 mm rainfall was observed in Sabaragamuwa. Rainfall decreased on the 1st of June where only Ampara and Batticaloa districts received up to 30 mm rainfall. On the 2nd Mahiyangana and Badulla districts received up to 30 mm rainfall.

***Monthly Monitoring*:** In May 2015 Most of the country received above average rainfall. Gampaha, Colombo, Kaluthara and Galle districts as well as western regions of Kegalle and Ratnapura districts received below average rainfall. Highest monthly average rainfall in this month was observed in Anuradhapura and Vavunia districts and northern regions of Badulla and Ampara districts.

Predictions

14 day prediction: NOAA NCEP models predict high rainfall in northern regions of Sri Lanka during 3rd – 16th June 2015. Up to 55 mm total rainfall is expected during 3rd – 9th June and the rainfall shall further increase up to about 85 mm (total) in the following week.

IMD WRF &IRI Model Forecast: According to the IMD WRF model, the entire country except for northern, north-central and Hambantota regions shall receive up to 35 mm rainfall on the 5th of June. This may go up to about 65 mm in Mahiyangana area. Rainfall shall decrease on the 6th where only light rainfall is expected in south eastern regions. IRI CFS model also predict high rainfall in Mahiyangana area during 1st- 6th June. However no unusually heavy rainfall is expected in any part of the country during these six days.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for June to August, the total 3 month precipitation shall be climatological. The 3 month temperature has more than 70-80% likelihood in the entire country of being in the above-normal tercile during this period.

Inside this Issue

[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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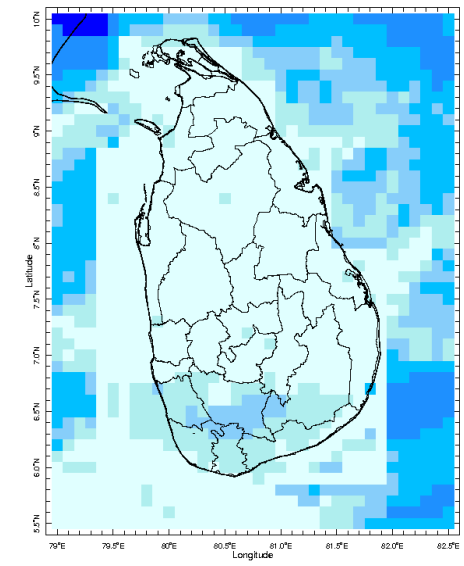
Weekly Hydro- Meteorological Report for Sri Lanka

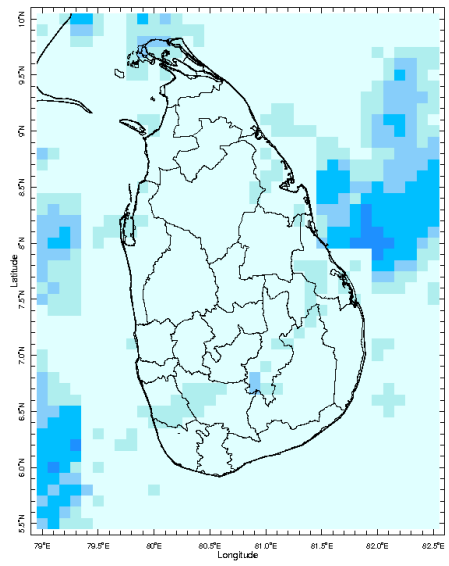
Inside This Issue

Daily Rainfall Monitoring

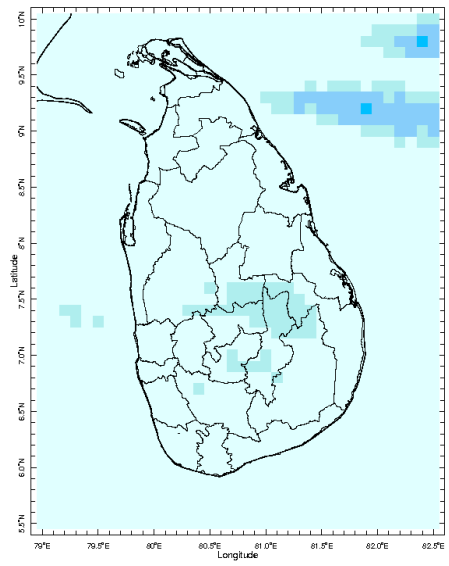
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



27 May 2015



28 May 2015



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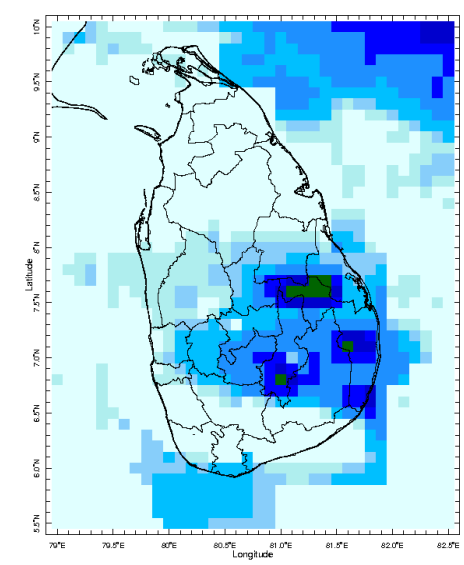
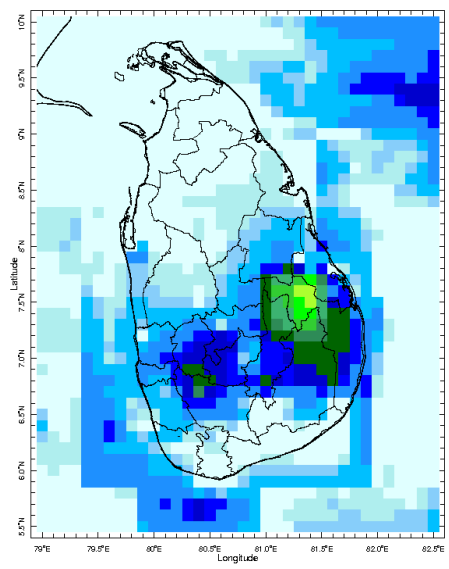
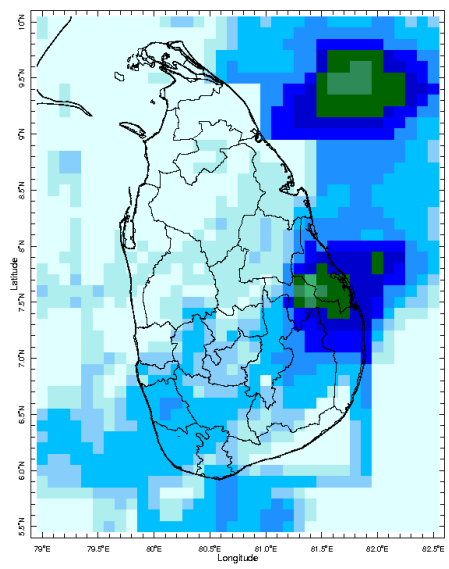


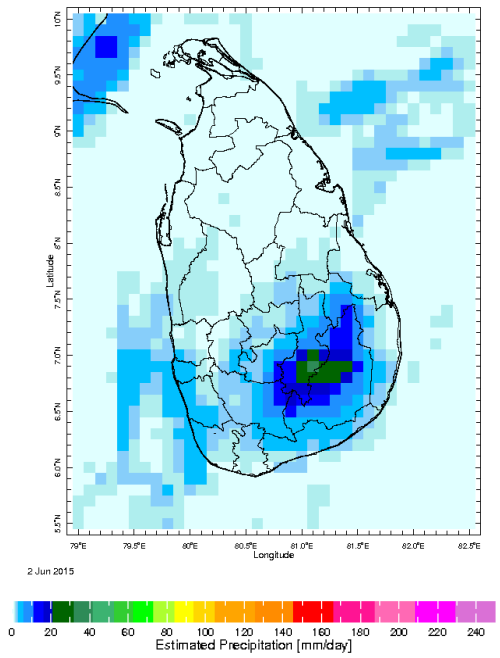
30 May 2015



31 May 2015

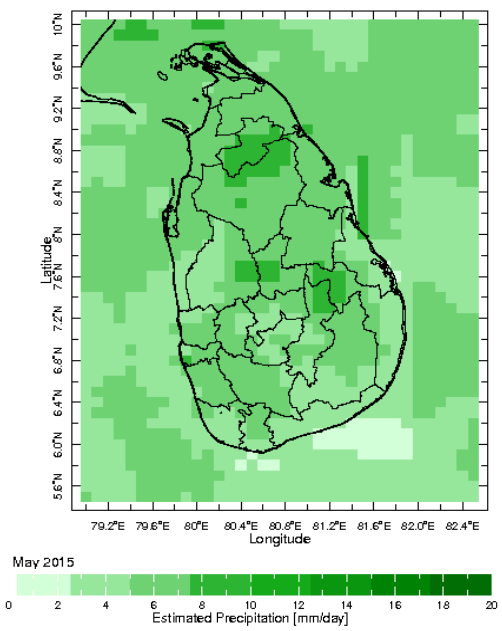


1 Jun 2015

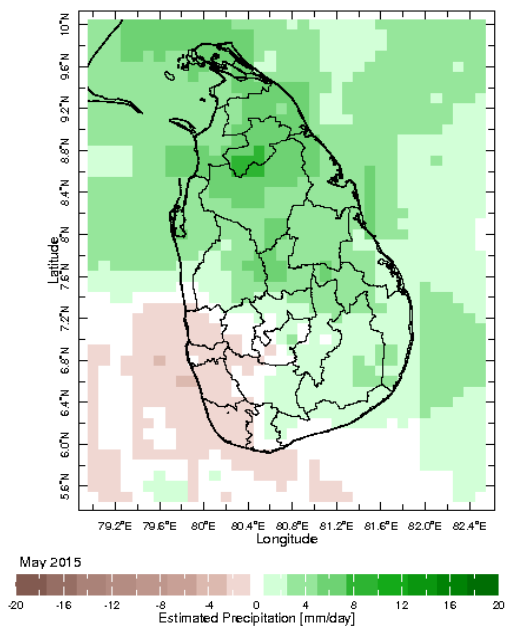


Monthly Rainfall Monitoring

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

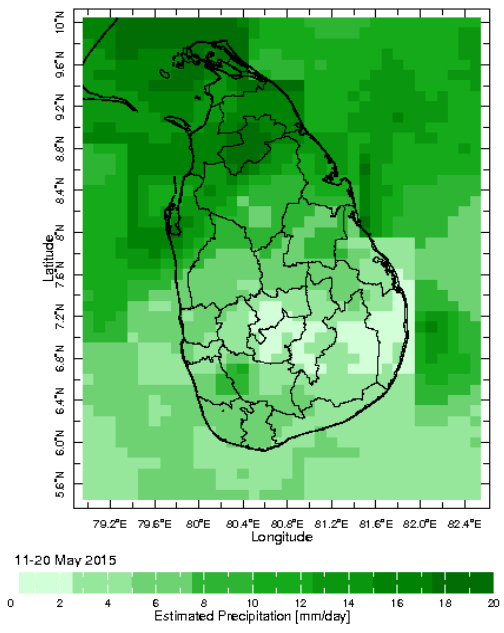


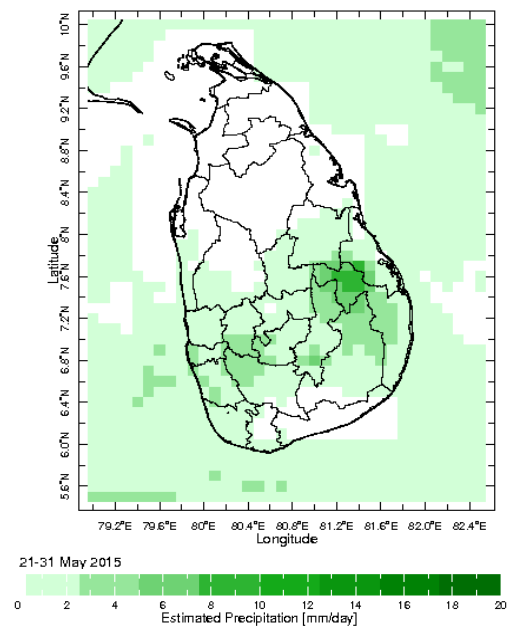
Monthly Average



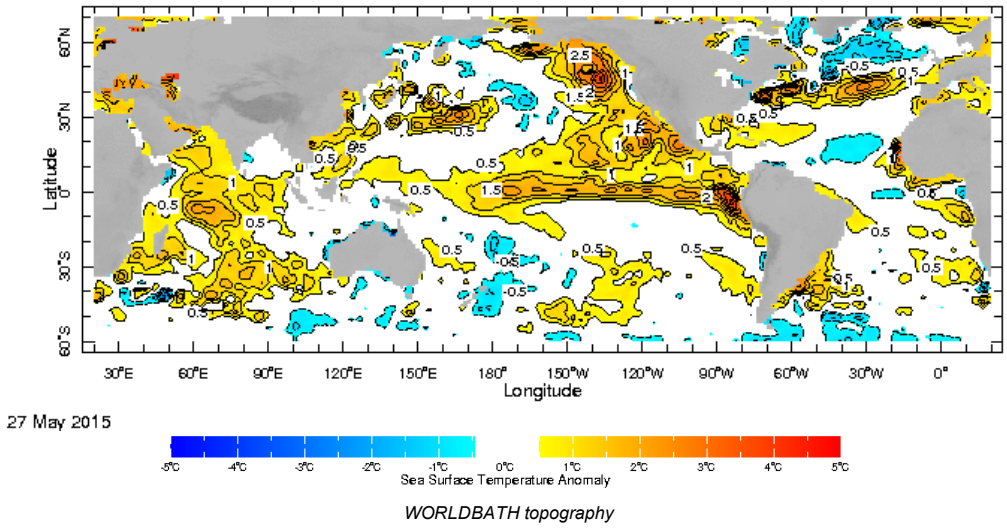
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates



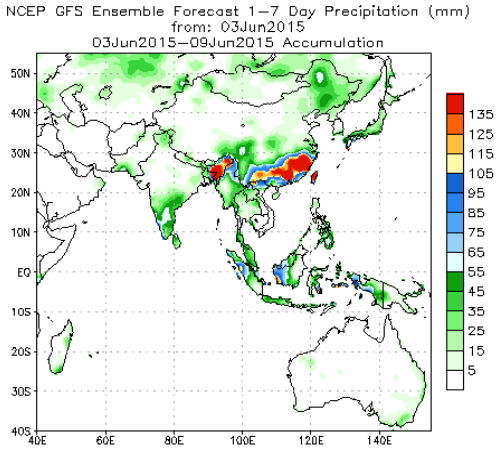


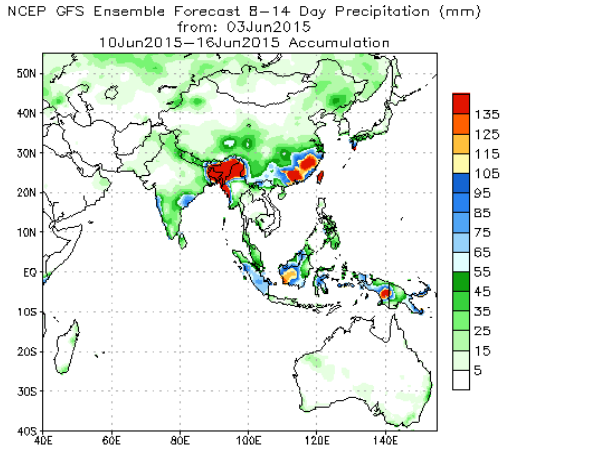
Weekly Average SST Anomalies



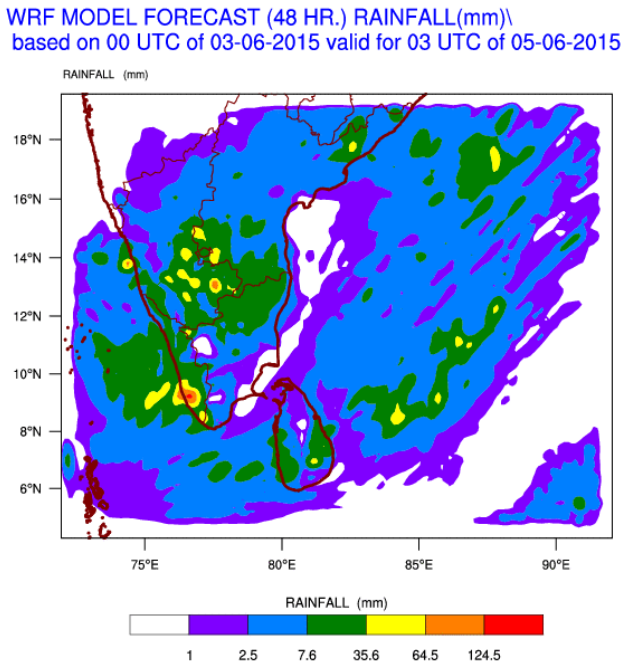
WORLDBATH topography

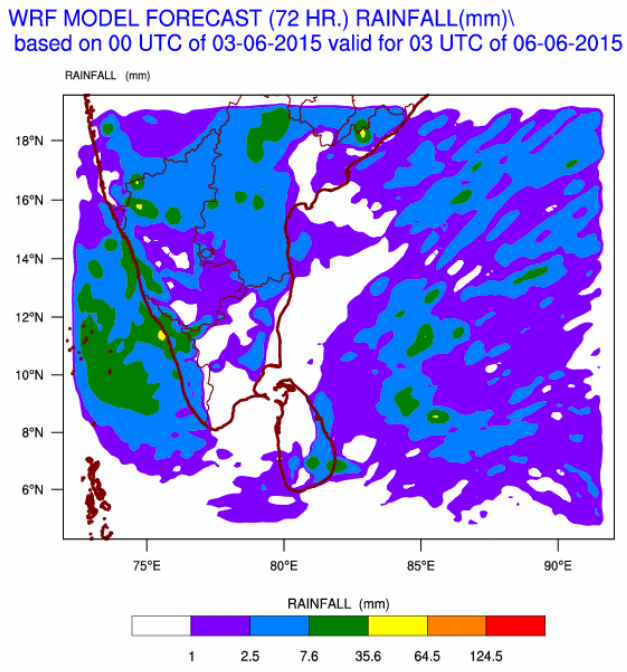
NCEP GFS 1- 14 Day prediction





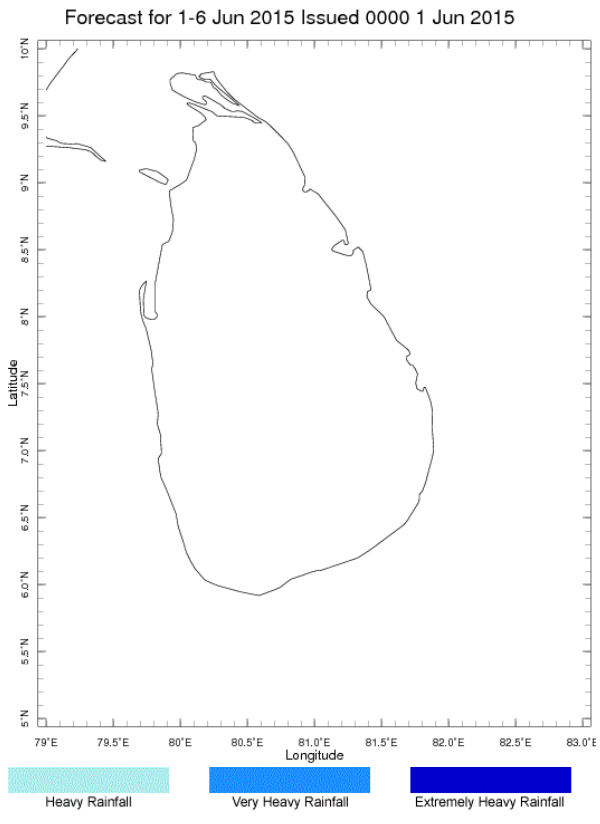
WRF Model Forecast (from IMD Chennai)



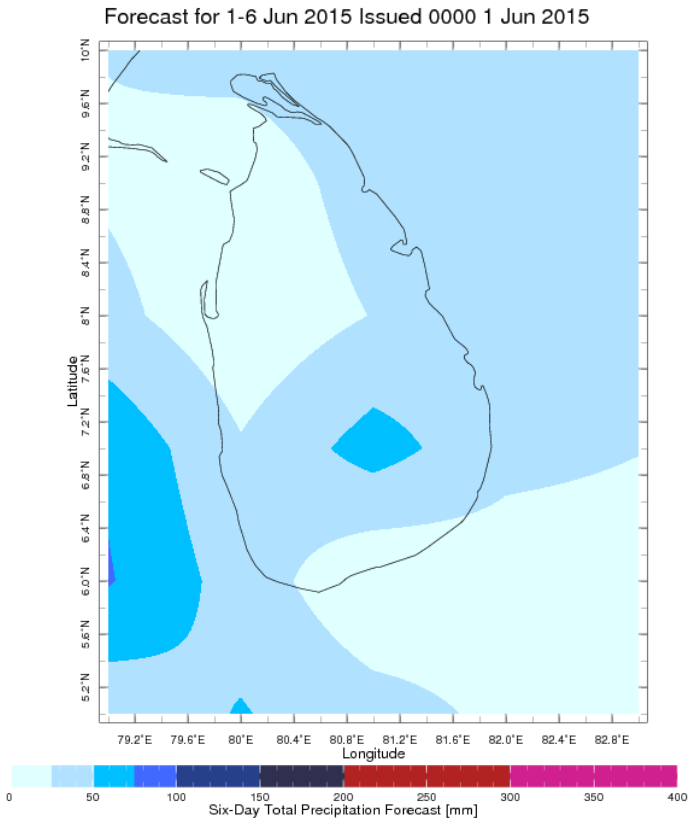


Weekly Rainfall Forecast

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.



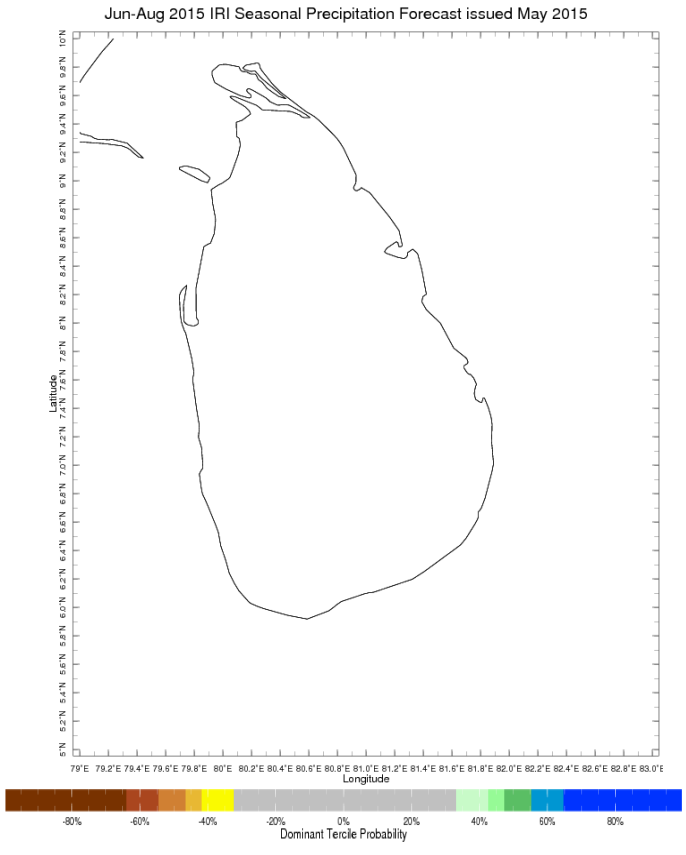
Extreme Rainfall Forecast



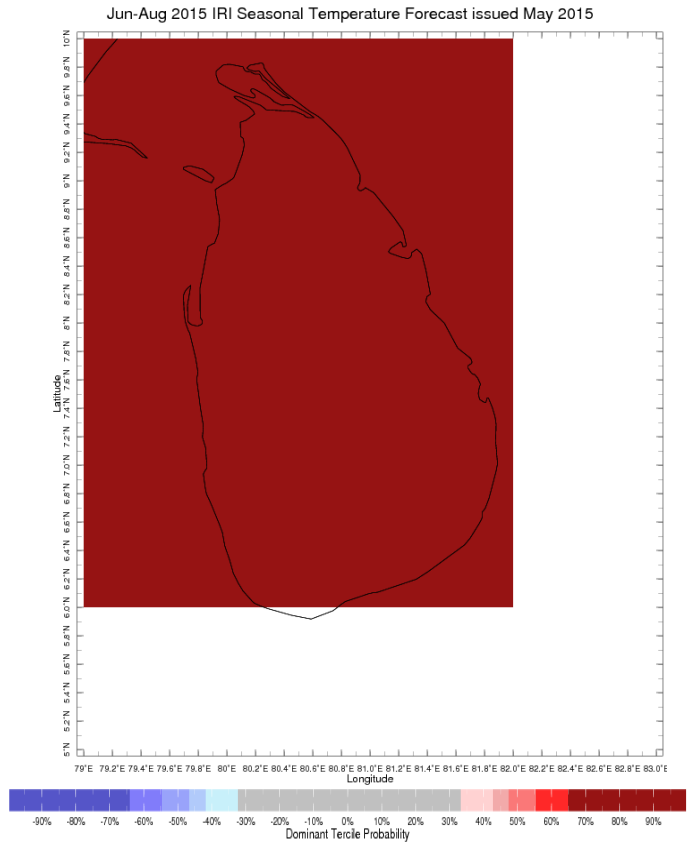
Total Six Day Precipitation Forecast

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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