

## Experimental Climate Monitoring and Prediction

(Prepared for the Water Management Secretariat of the Mahaweli Authority)

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5 July 2012

### FECT BLOG

Past reports available at  
<http://fectsl.blogspot.com/>

and

<http://fectsl.wordpress.com/>

### FECT WEBSITE

<http://www.climate.lk>

and

<http://www.tropicalclimate.org/>

### ENSO Update

21 June 2012

Slightly more than half of the ENSO prediction models predict El Nino conditions developing around the August-October season, continuing through the rest of 2012. However over 40% of the models indicate persistence of ENSO neutral conditions. Currently, no models indicate a re-emergence of La Nina conditions.

(IRI)

### Summary<sup>2</sup> Monitoring

**Weekly Monitoring:** During last week (27<sup>th</sup> June- 2<sup>nd</sup> July) rainfall ranged between 5 mm - 30 mm. The North-eastern regions of the island received rainfall on the 27<sup>th</sup> June and 1<sup>st</sup> of July. Heavy rainfall was observed in the Southern half of the island during 30<sup>th</sup> June - 2<sup>nd</sup> July.

**Monthly Monitoring:** During the month of June some parts of Puttalam, Mannar, Kilinochchi, Jaffna, Anuradhapura and Trincomalee districts experienced above average rainfall, but the surplus is below 20 mm. The rest of the country experienced below average rainfall.

### Predictions

**7 Day Prediction:** For the coming week an accumulated rainfall of 5 mm - 55 mm is predicted for the southern half of the island.

**IMD WRF Model Forecast & IRI forecast:** WRF Model Predicts 1 mm - 65 mm rainfall particularly for Gampaha, Colombo, Kalutara, parts of Puttalam and Galle districts on the 06<sup>th</sup> of July, and rainfall shall drop while spreading towards eastward. For the 07<sup>th</sup> of July, the Model Predicts 1 mm - 125 mm rainfall for Colombo, Kalutara and Gampaha districts, and rainfall shall decrease towards North, South and eastward directions, and no rainfall is predicted for the eastern side of the island. IRI models forecast up to 20 mm of rainfall for the entire island.

**1 Month Prediction:** Overall a rapid increase in rainfall shall be observed during the period of 5<sup>th</sup>-7<sup>th</sup> of July. Then it shall decrease gradually till the 21<sup>st</sup> of July with minor fluctuations during 14<sup>th</sup>- 17<sup>th</sup> July. There onwards it shall increase gradually. *Western slopes-* Nearly the same pattern shall be expected with increased rainfall. Rainfall shall decrease gradually till 21<sup>st</sup> July with minor fluctuations between 9<sup>th</sup>-11<sup>th</sup> and 14<sup>th</sup>-17<sup>th</sup> July. Thereafter it shall increase gradually. *Eastern slopes-* From 6<sup>th</sup>- 19<sup>th</sup> July rainfall shall gradually decrease with fluctuations during 10<sup>th</sup>-11<sup>th</sup> and 14<sup>th</sup>-17<sup>th</sup> and reach minimum forecasted daily rainfall of 1 mm. Thereafter rainfall shall increase drastically. *Northern region-* Rainfall shall increase during 5<sup>th</sup>-7<sup>th</sup> July, and shall decrease with a same rate as previous till 10<sup>th</sup> July. Rainfall shall decrease gradually till 19<sup>th</sup> July. Thereafter rainfall shall increase gradually with fluctuations during 19<sup>th</sup>-20<sup>th</sup> and 24<sup>th</sup>-27<sup>th</sup> July.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for July 2012 to September 2012, issued in June 2012, there is a 45%-50% probability for temperature to be above normal in the country. There is 40% probability for rainfall to be climatological.

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- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

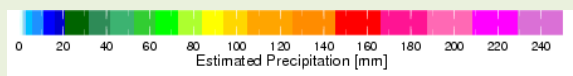
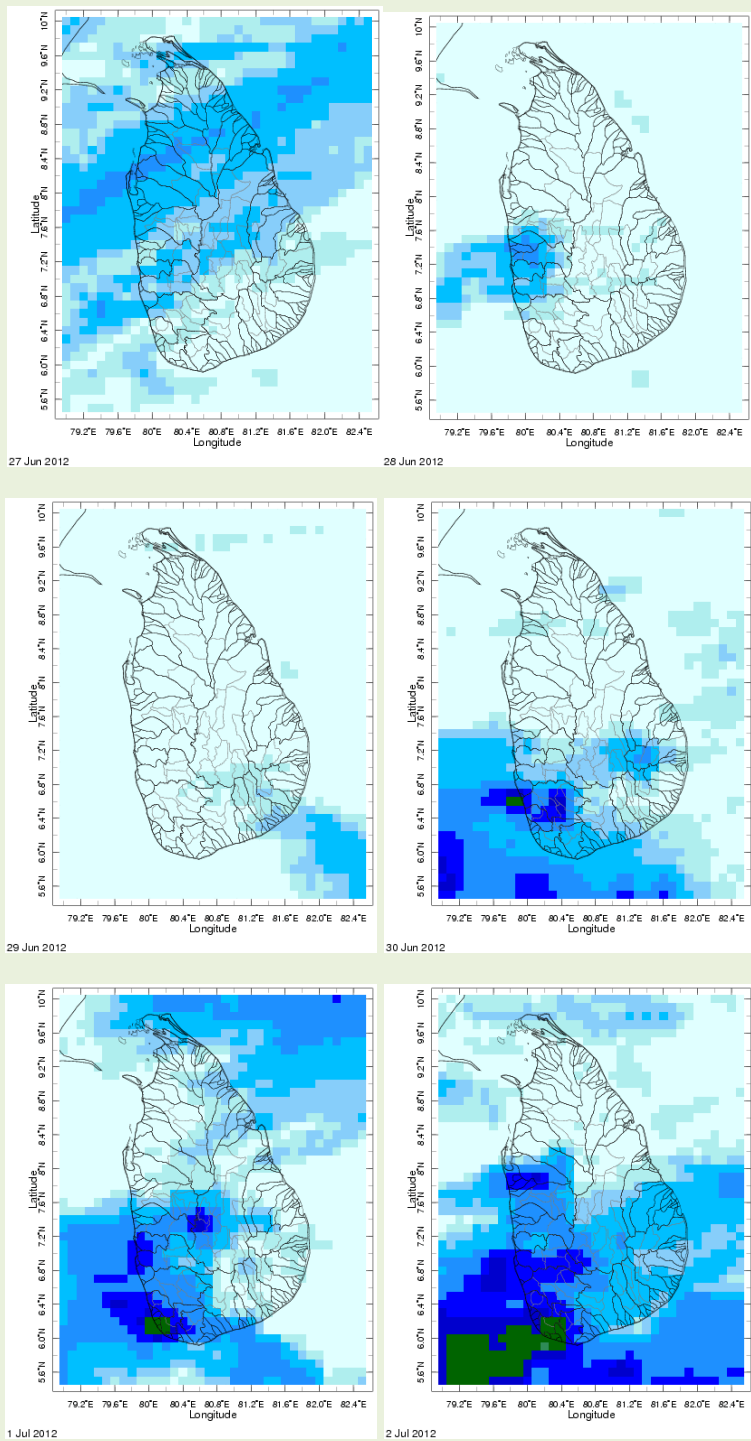
International Research Institute for Climate and Society.

<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

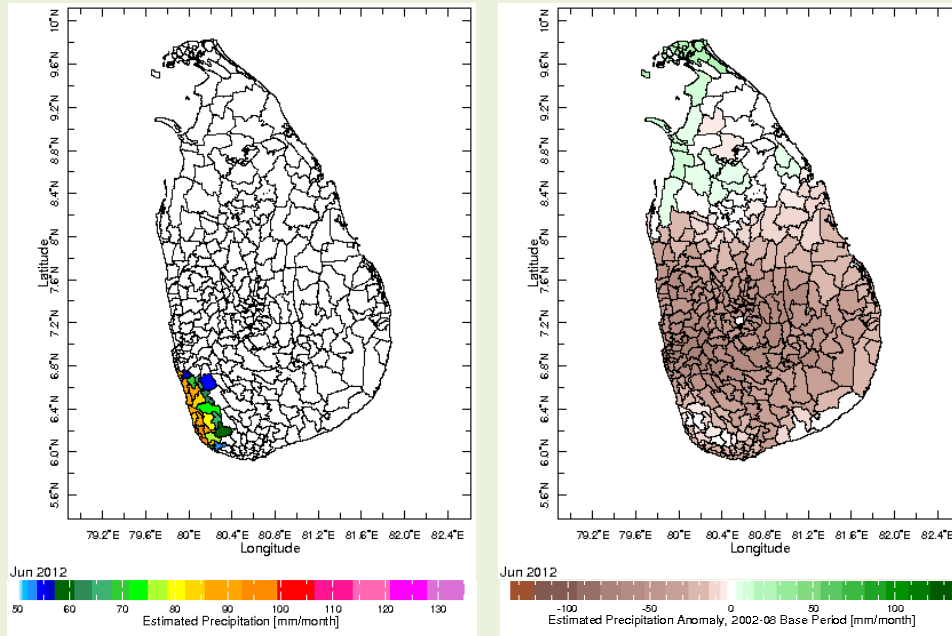
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

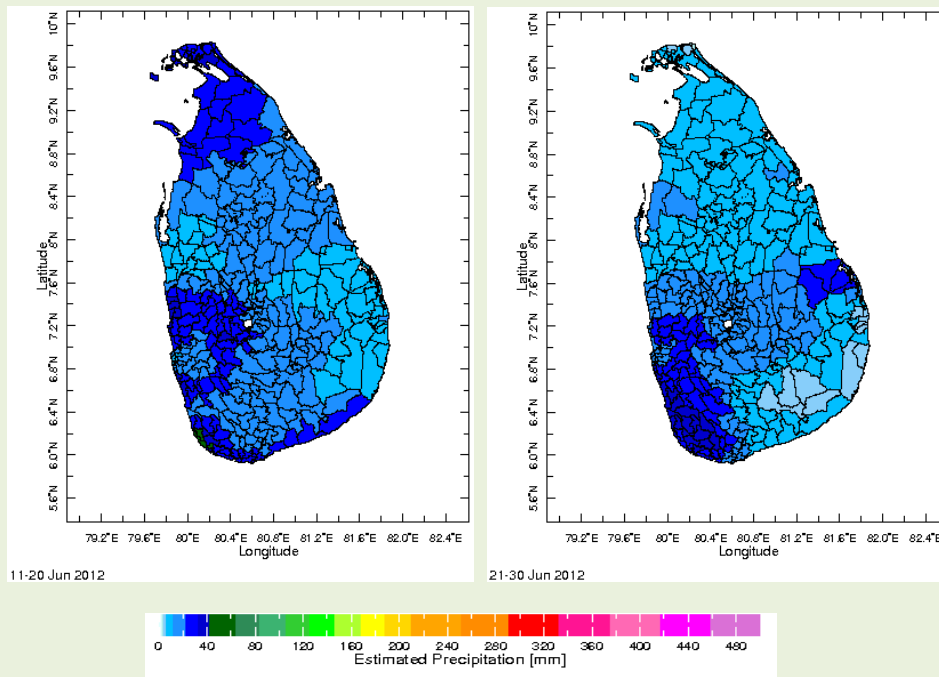
### a) Daily Satellite Derived Rainfall Estimate Maps: 27<sup>th</sup> June – 02<sup>nd</sup> July, 2012 (Left-Right, Top-Bottom)



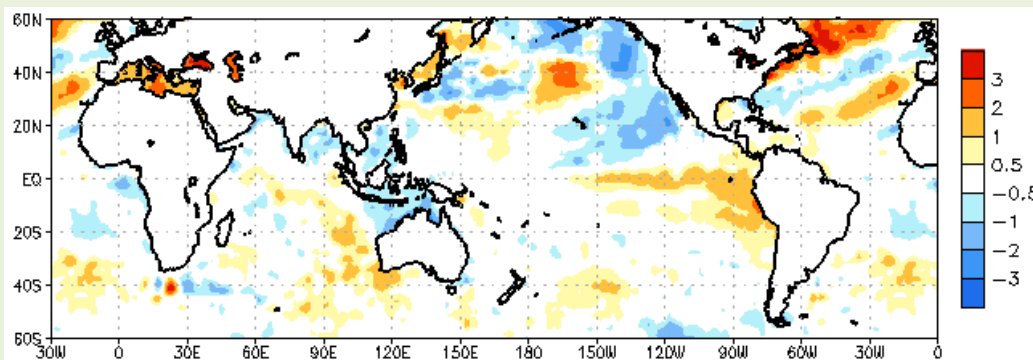
**b) Monthly Satellite Derived Rain fall Estimates for June 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (11-20 June &, 21-30 June 2012)**



**d) Weekly Average SST Anomalies**

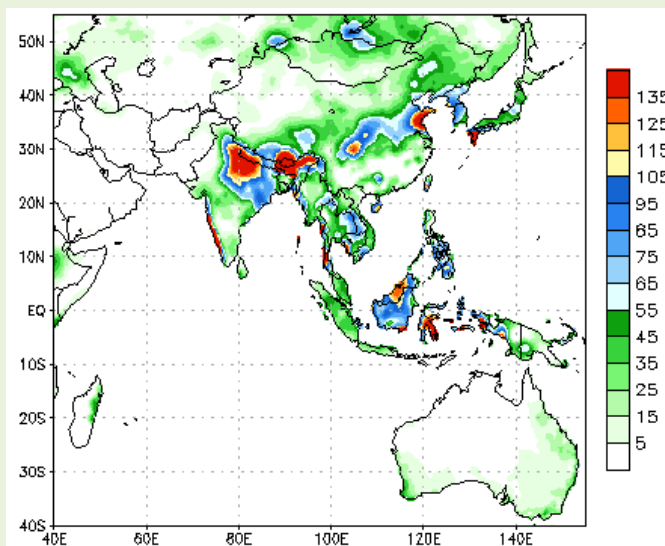


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 27<sup>th</sup> June, 2012

Data Source: NCEP Global Sea Surface Temperature Analysis (Climatology 1981-2010)

## 2. Predictions

**a) NCEP GFS Ensemble 1-7 day predictions, NOAA, Climate Prediction Centre, USA.**



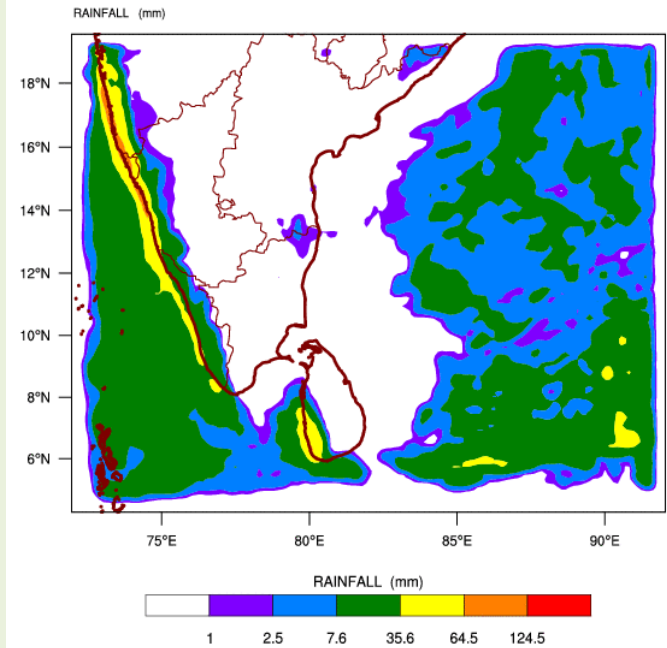
During next week, an accumulated rainfall of 5 mm - 55 mm is predicted for the southern half of the island.

Source – NOAA Climate Prediction Center

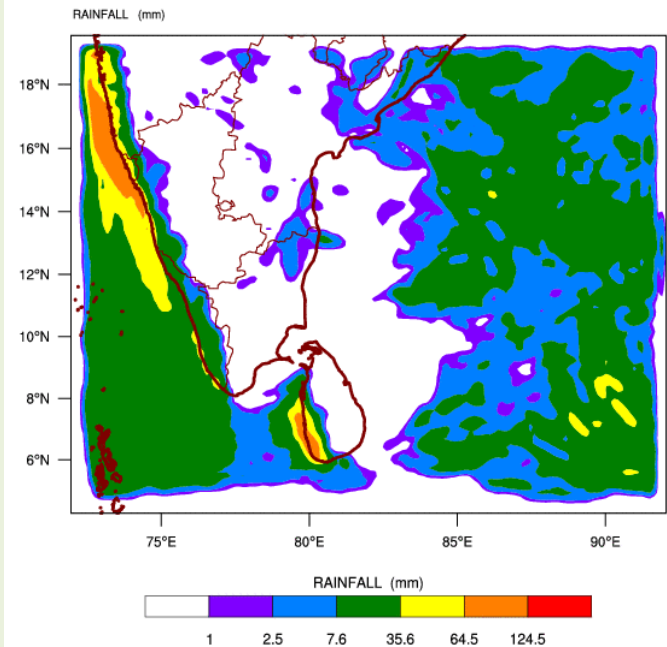
Map: Predicted accumulation of rainfall. (04<sup>th</sup>– 10<sup>th</sup> July, 2012 week)

**b) WRF Model Forecast (Regional Meteorological Center, Chennai, Indian Meteorological Department)**

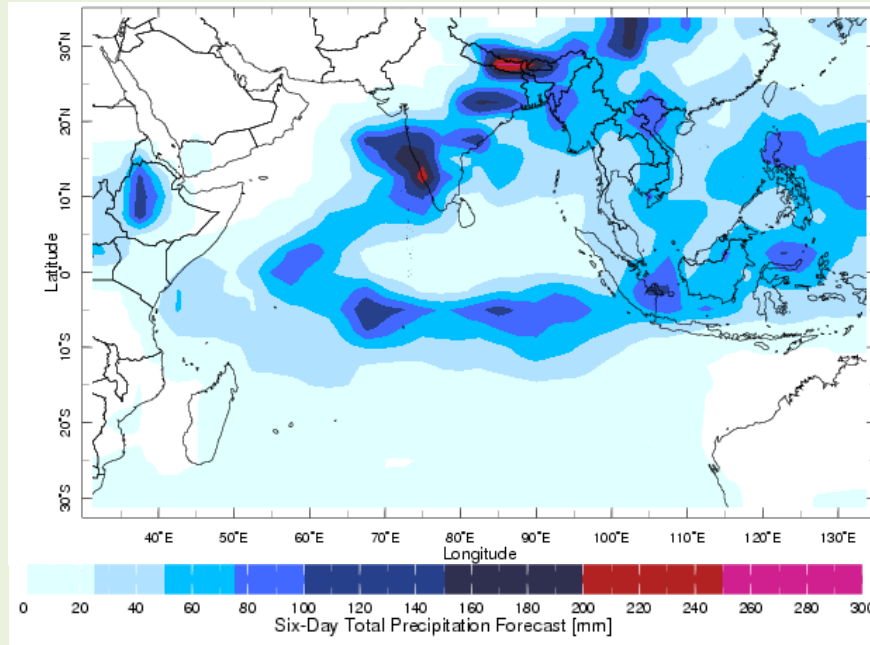
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 04-07-2012 valid for 03 UTC of 06-07-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 04-07-2012 valid for 03 UTC of 07-07-2012



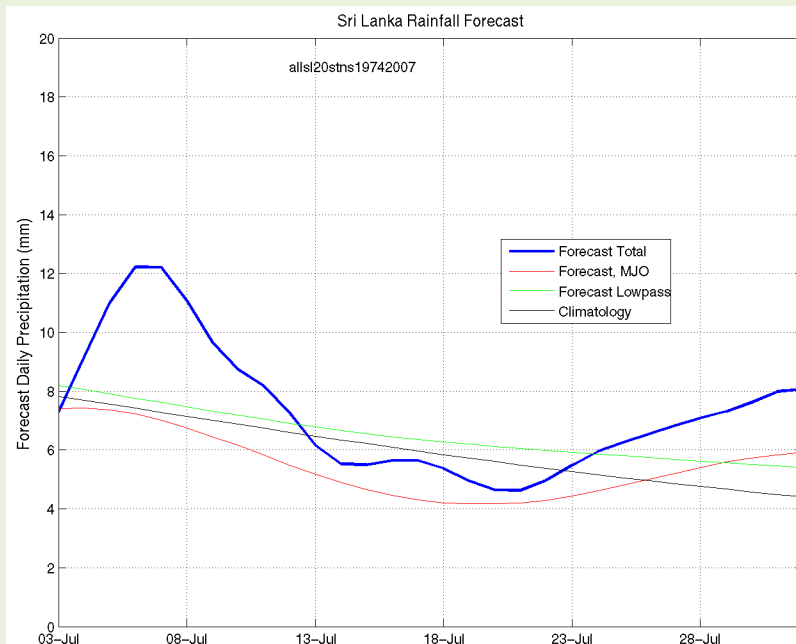
**c) Weekly Precipitation Forecast for 03 -08 July 2012 (Precipitation Forecast in Context Map Tool, IRI)**



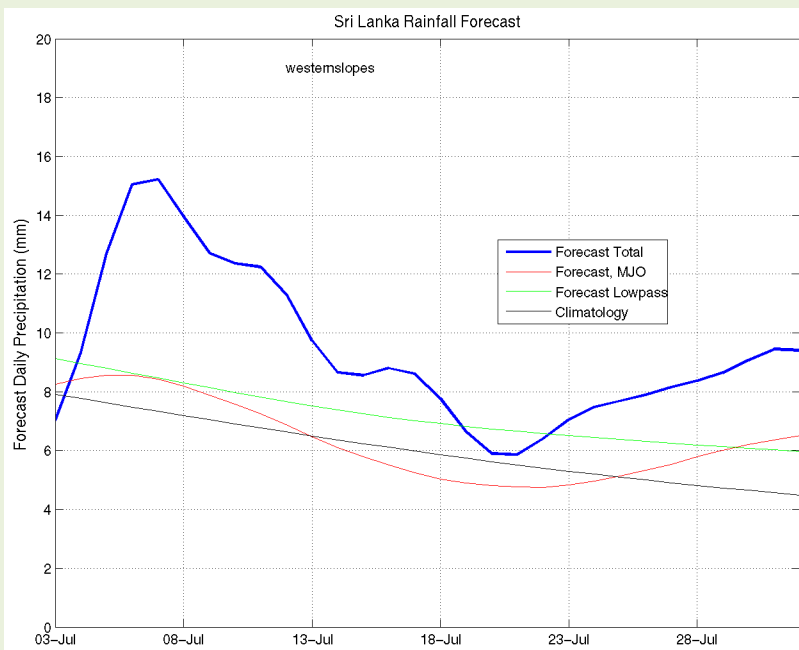
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 27<sup>th</sup> June, 2012

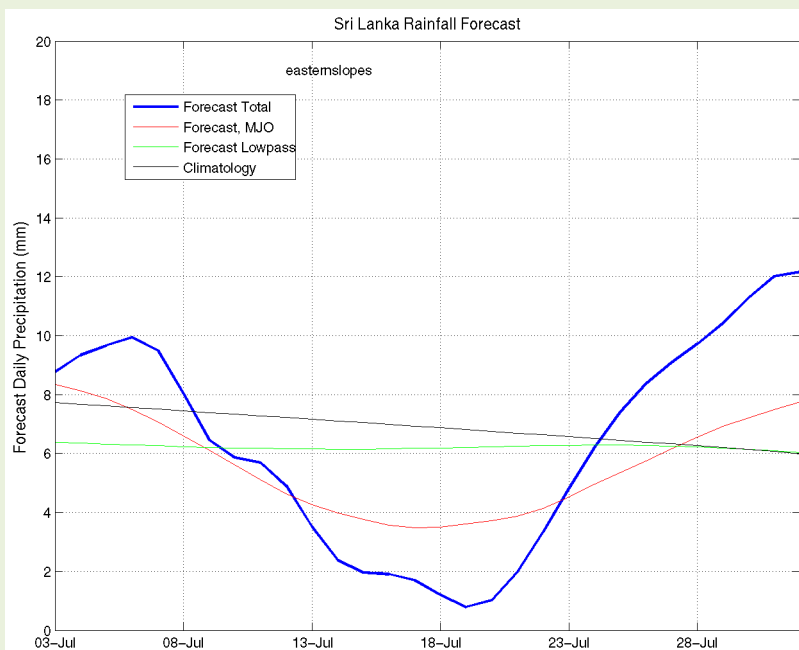
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



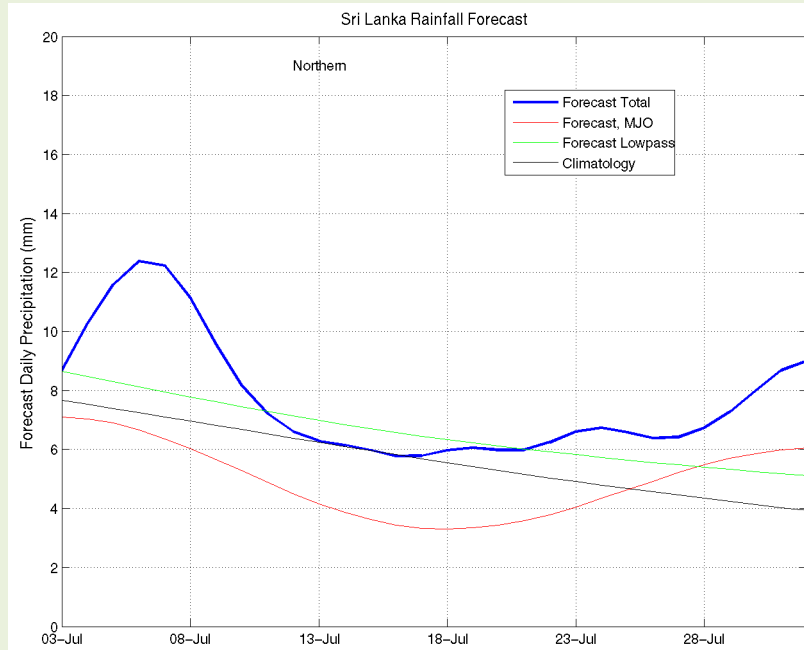
**Western Slopes (Rainfall Scale from 0-20 mm/day)**



**Eastern Slopes (Rainfall Scale- from 0-20 mm/day)**



**Northern Region (Rainfall Scale- from 0-20 mm/day)**





*e) Seasonal Rainfall and Temperature Predictions from IRI*

