

## Experimental Climate Monitoring and Prediction

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

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Lareef Zubair and Michael Bell (FECT and IRI<sup>1</sup>)

12 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

05 July 2012

Slightly more than half of the ENSO prediction models predict El Nino conditions developing around the August-October season, continuing though 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 the last week (4<sup>th</sup> June- 9<sup>th</sup> July) rainfall ranged between 0 mm - 95 mm. South and Central regions of the island received light rainfall on the 4<sup>th</sup>, 5<sup>th</sup> & 7<sup>th</sup> of July while rainfall was observed in North Central and Central regions on the 6<sup>th</sup> of July. Heavy rainfall was observed in South Eastern region of the island on 8<sup>th</sup> of July and Central to Western regions on 9<sup>th</sup> of July.

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

#### Predictions

**7 Day Prediction:** For the coming week an accumulated rainfall of 5 - 55 mm is predicted for the South Western and Northern regions of the island.

**IMD WRF Model Forecast & IRI forecast:** WRF Model Predicts 35- 125 mm rainfall particularly for Gampaha, Colombo, and Kalutara districts and 2.5-35 mm rainfall for Galle, Matara districts and Central to Eastern regions of the country on the 13<sup>th</sup> of July. For the 14<sup>th</sup> of July, the Model predicts a slight reduction in the rainfall, having a similar pattern as the previous day. NOAA models forecast up to 20 mm of rainfall for the entire island.

**1 Month Prediction:** Overall a rapid increase in rainfall 10<sup>th</sup>-13<sup>th</sup> of July. Then it shall remain the same for a brief period and then decrease gradually till the 27<sup>th</sup> of July with minor fluctuations during 20<sup>th</sup>- 24<sup>th</sup> of July. There onwards it shall increase gradually. **Western slopes-** Nearly the same pattern shall be expected with increased rainfall. Rainfall shall decrease gradually till 27<sup>th</sup> July with minor fluctuations between 16<sup>th</sup> and 24<sup>th</sup> of July. Thereafter it shall increase gradually. **Eastern slopes-** Rainfall shall gradually decrease with minor fluctuations between 13<sup>th</sup> and 26<sup>th</sup> of July. Then it shall increase afterwards. **Northern region-** Rainfall shall increase slightly during 10<sup>th</sup> -13<sup>th</sup> of July. Then it shall decrease until 20<sup>th</sup> of July. Between 20<sup>th</sup> of July and 2<sup>nd</sup> of August rainfall shall remain the same with minor fluctuations. Thereafter it shall increase.

**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.

#### Inside this Issue

##### 1. Monitoring

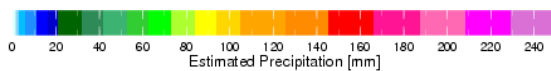
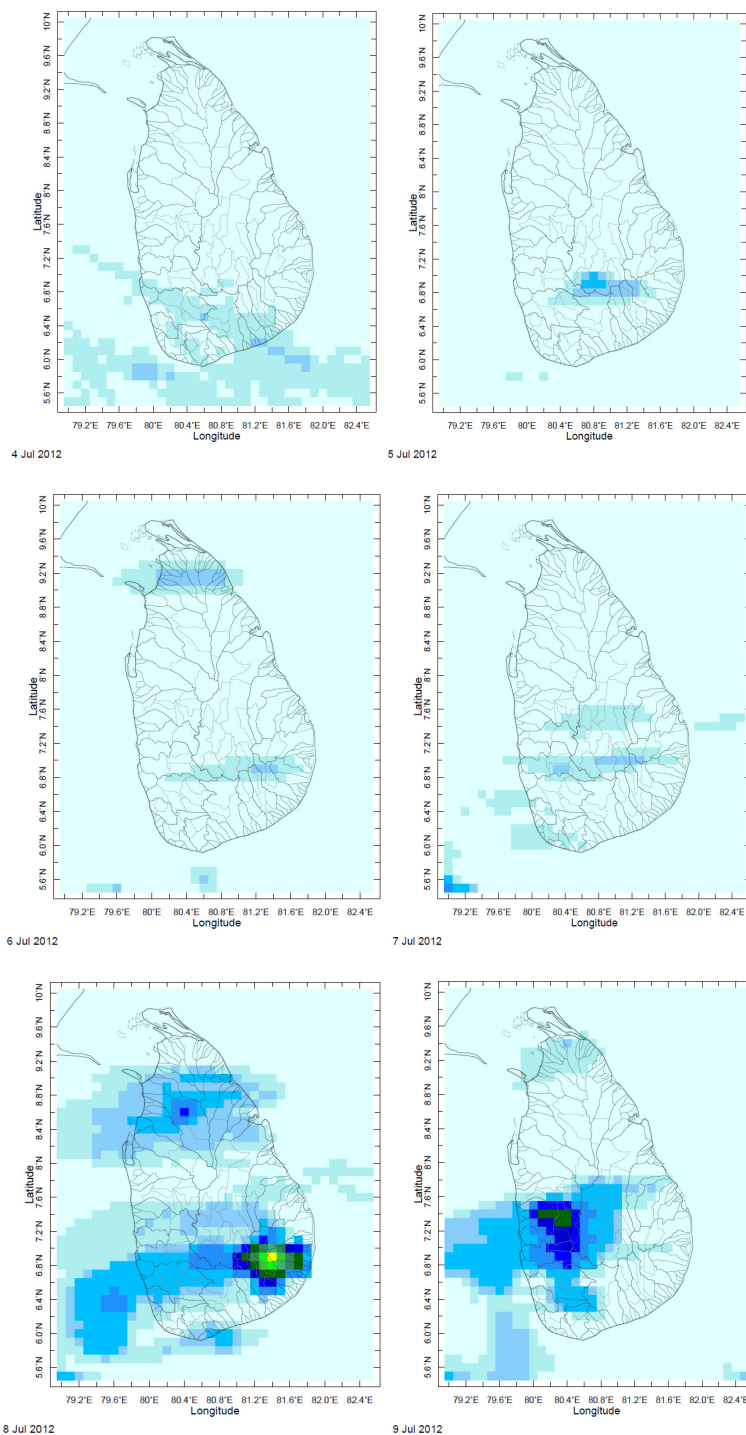
- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
- Decadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Average SST Anomalies

##### 2. Predictions

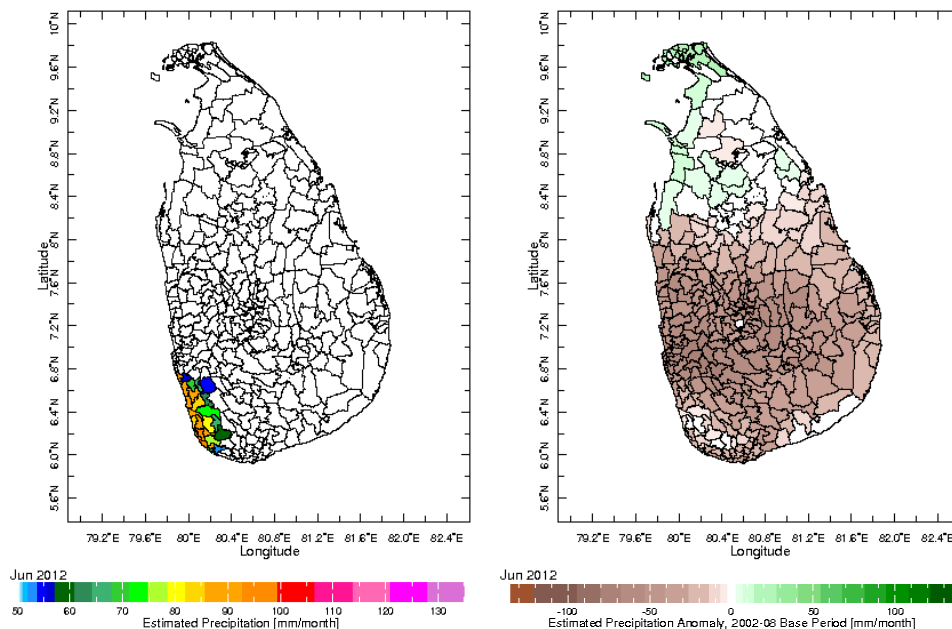
- NCEP GFS Ensemble 1-7 day predictions, NOAA, CPC,USA
- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

## 1. Monitoring

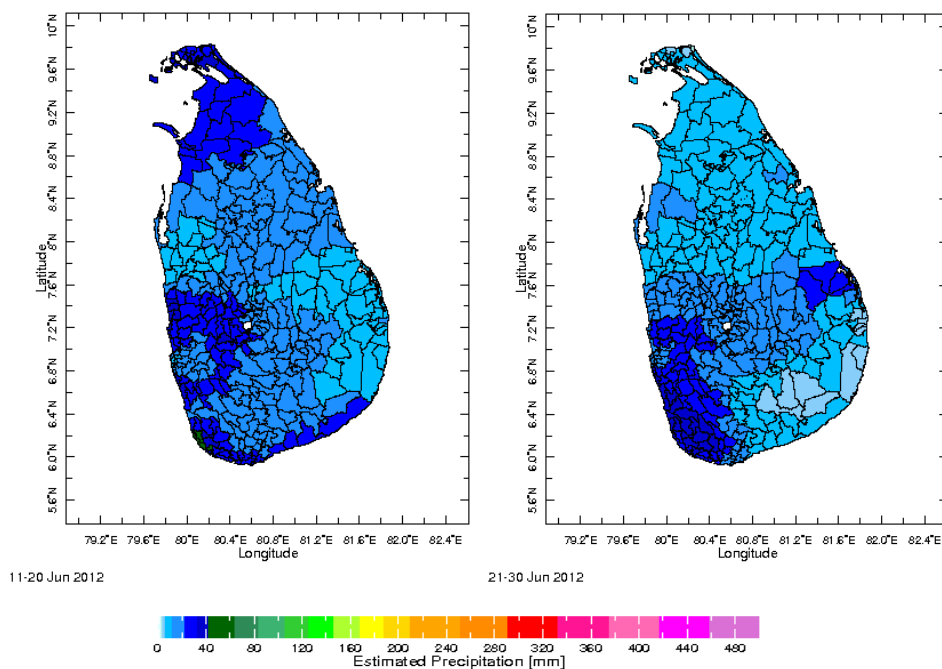
### a) Daily Satellite Derived Rainfall Estimate Maps: 04<sup>th</sup> July – 09<sup>nd</sup> July, 2012 (Left-Right, Top-Bottom)



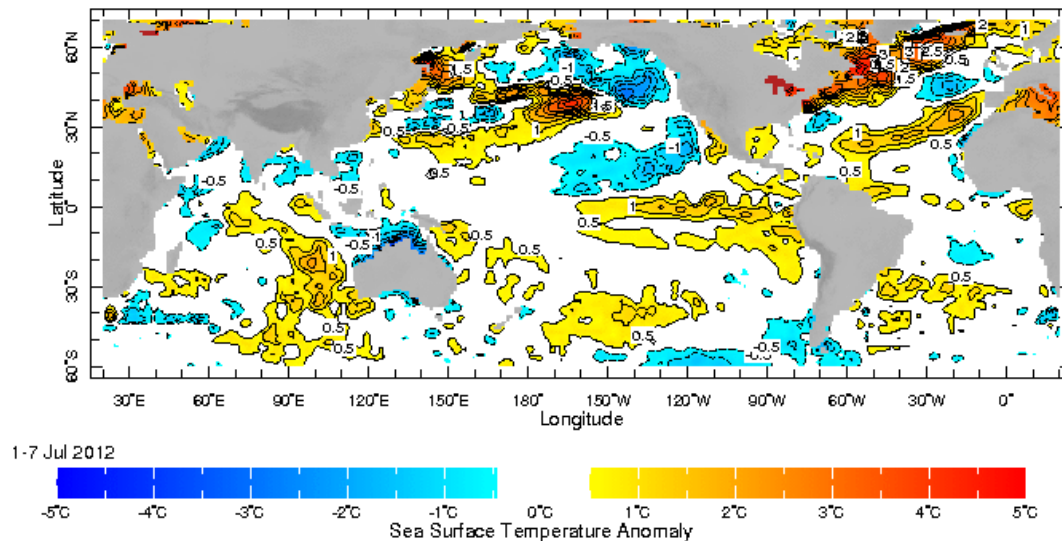
**b) Monthly Satellite Derived Rain fall Estimates for June 2012 (Total – Left and Anomaly -Right)**



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



## d) Weekly Average SST Anomalies

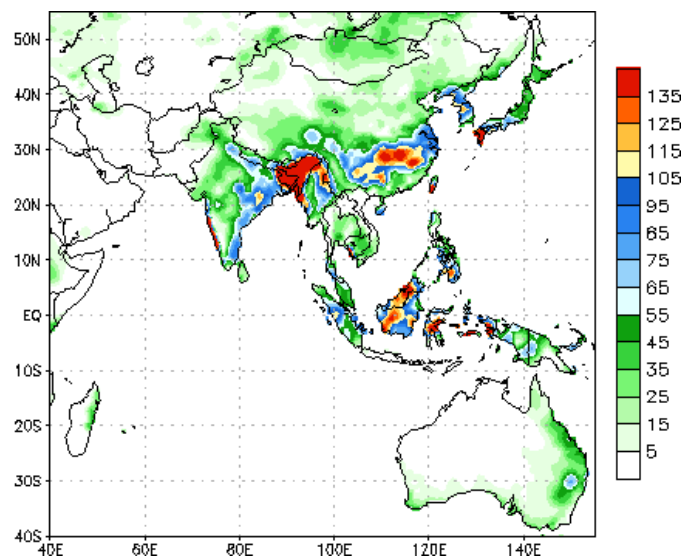


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 04<sup>th</sup> July, 2012

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 South Western and North regions of the island.

Source – NOAA Climate Prediction Center

Map: Predicted accumulation of rainfall. (11<sup>th</sup> – 17<sup>th</sup> July, 2012 week)

**FECT** Foundation for Environment  
Climate and Technology

c/o, Maintenance Office, Mahaweli Authority,  
Digana Village, Rajawella, Sri Lanka.

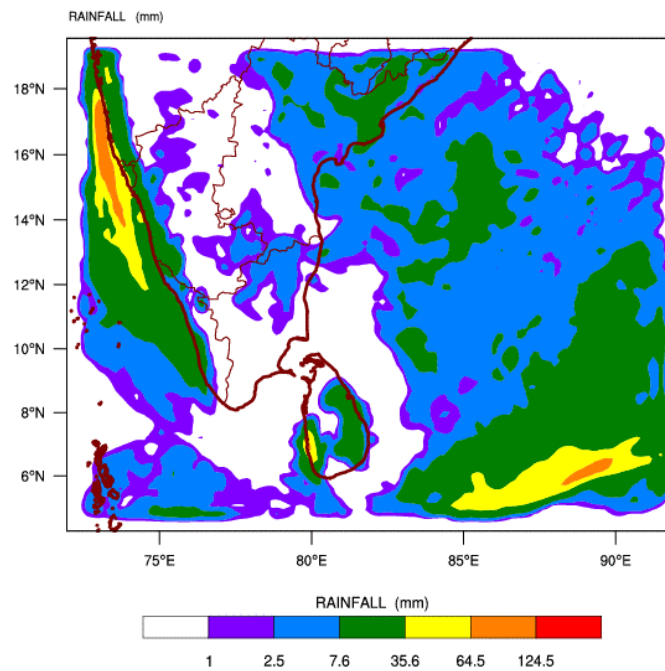
Phone (+94) 81-2376746, 4922992

E-mail [climate@slt.net.lk](mailto:climate@slt.net.lk)

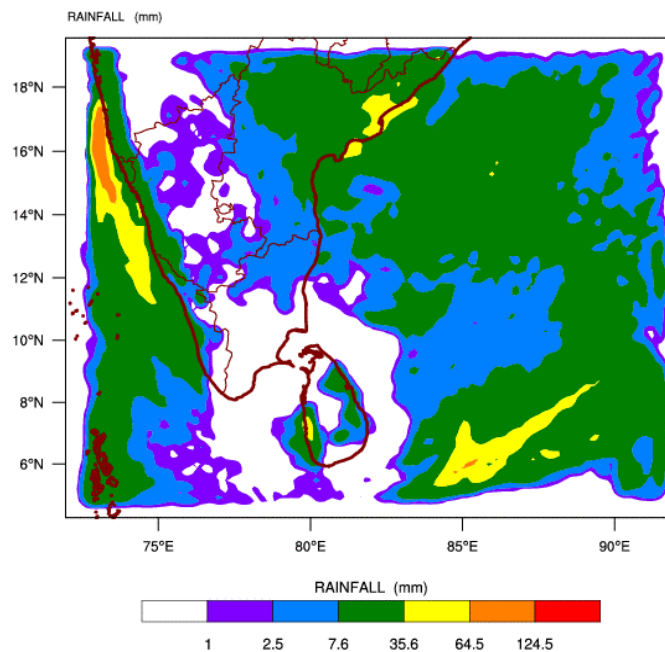
Web Site <http://www.climate.lk>

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

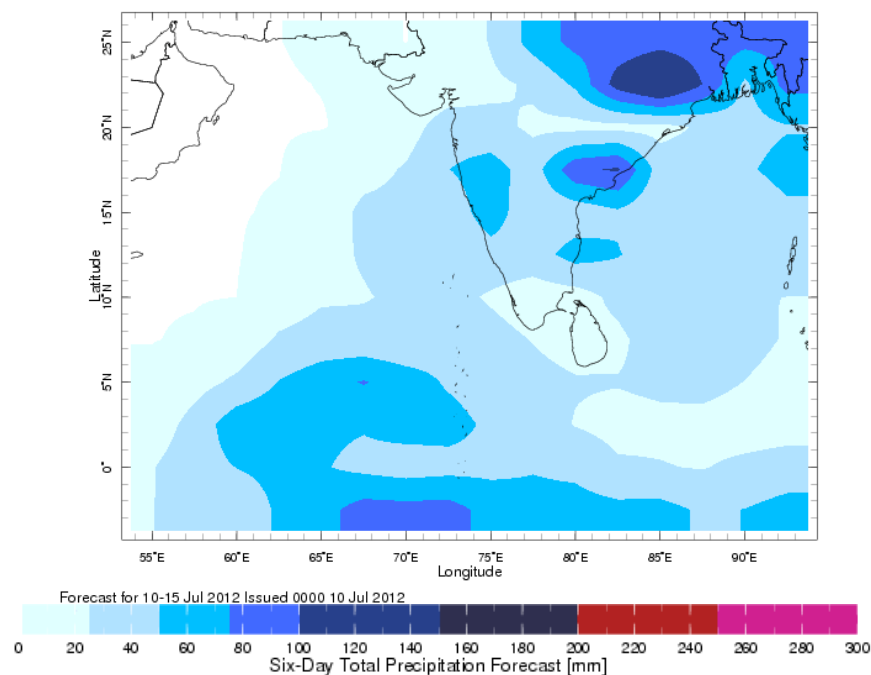
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 12-07-2012 valid for 03 UTC of 14-07-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 12-07-2012 valid for 03 UTC of 15-07-2012



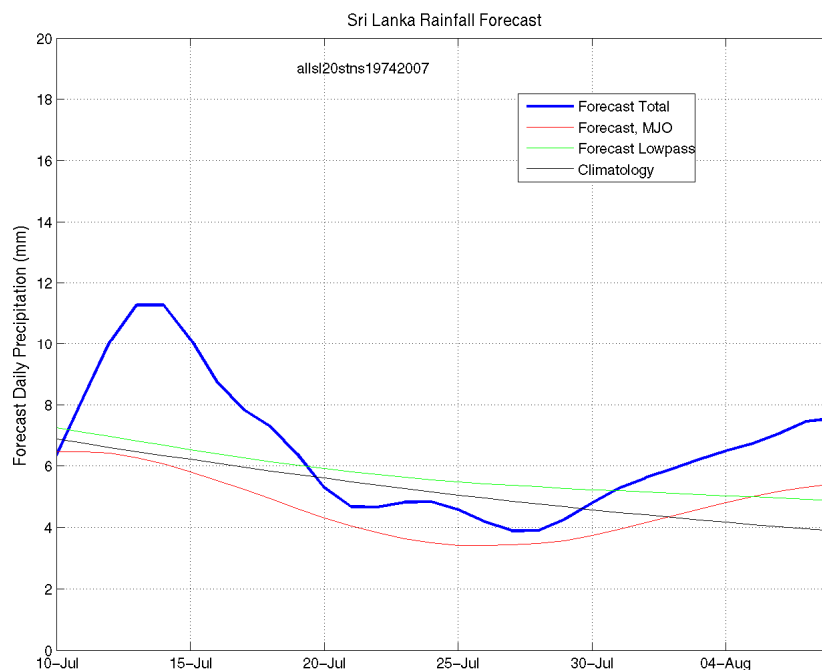
**c) Weekly Precipitation Forecast for 10-15 July 2012 (Precipitation Forecast in Context Map Tool, IRI)**



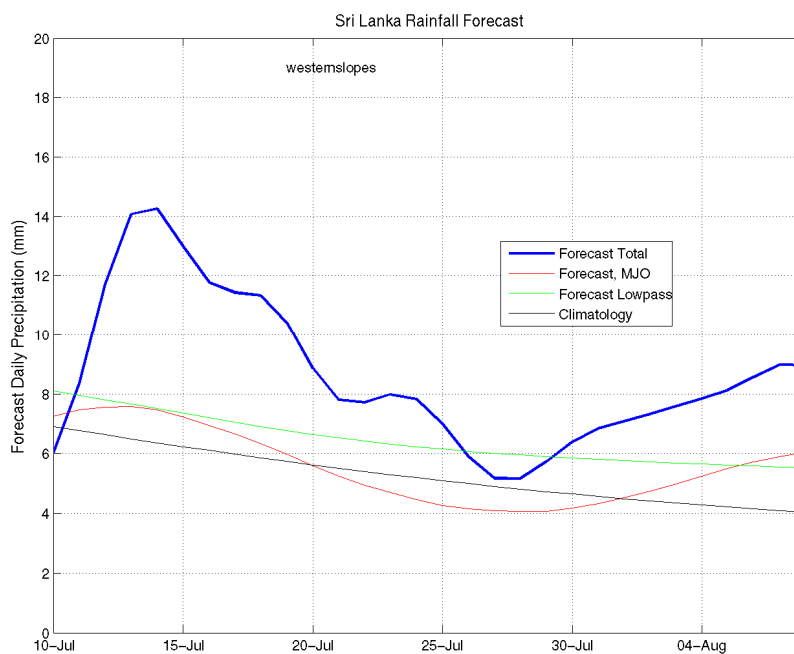
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 12<sup>th</sup> July, 2012

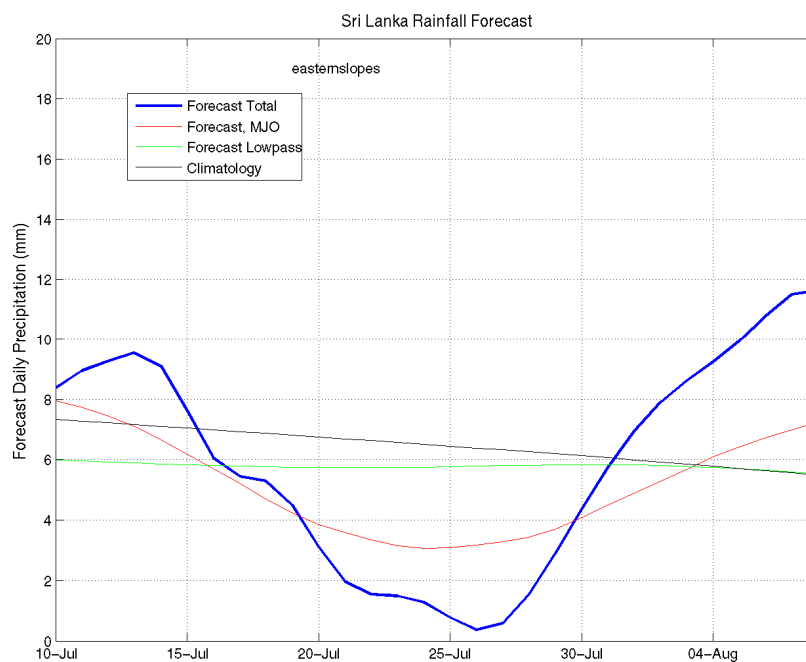
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



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

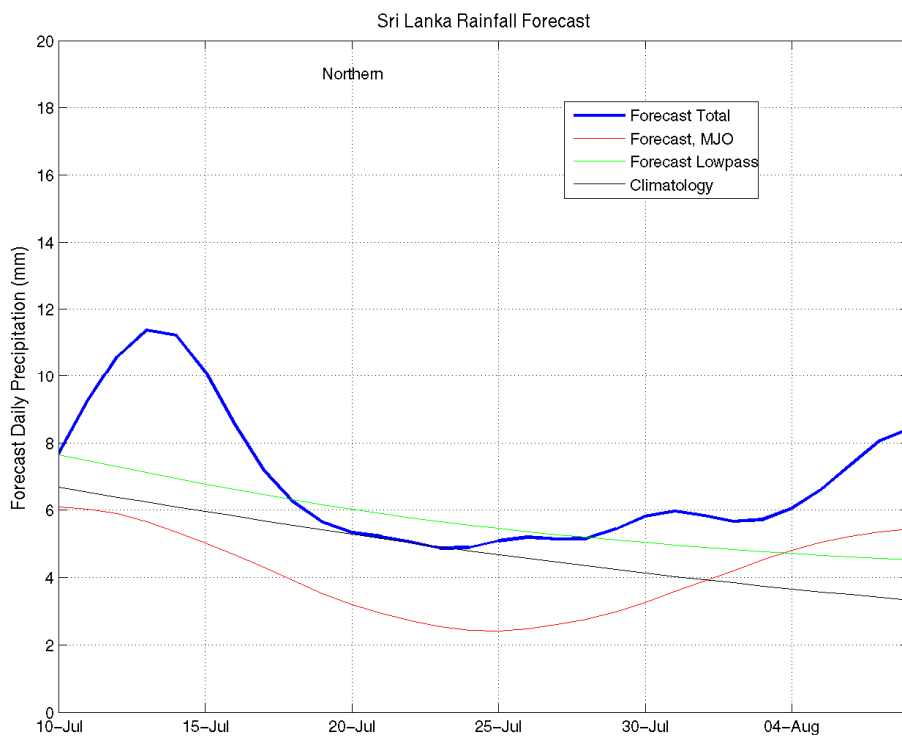


**Eastern Slopes (Rainfall Scale- from 0-20 mm/day)**





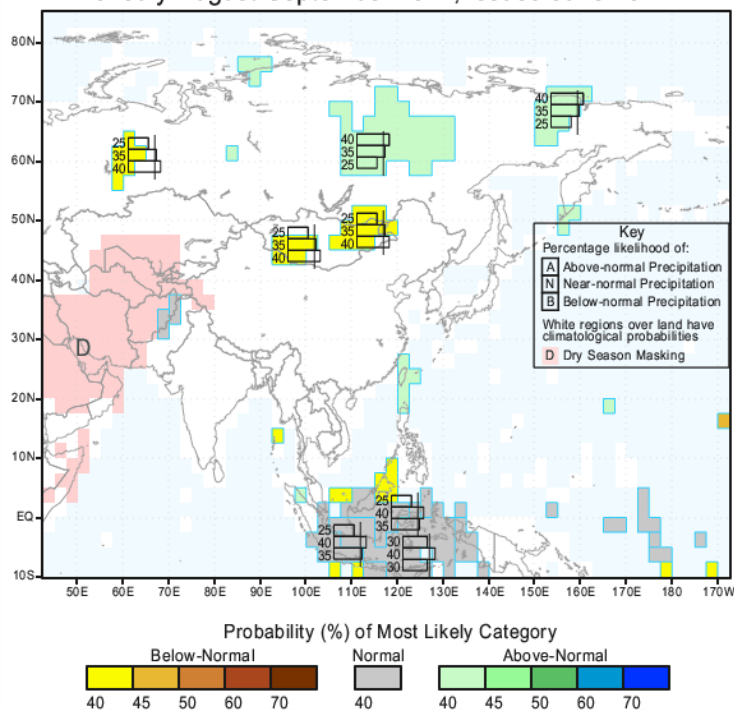
**Northern Region (Rainfall Scale- from 0-20 mm/day)**





## e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation  
for July-August-September 2012, Issued June 2012



IRI Multi-Model Probability Forecast for Temperature  
for July-August-September 2012, Issued June 2012

