

## Experimental Climate Monitoring and Prediction

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

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9 August 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

19 July 2012

Slightly more than 70% of the ENSO prediction models predict El Nino conditions developing around the August- October season, continuing through the rest of 2012. However, nearly 30% of the models still indicate persistence of ENSO- neutral conditions. No models indicate a re-emergence of La Nina conditions (IRI)

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

**Weekly Monitoring:** During the last week (1<sup>st</sup>-7<sup>th</sup> August) rainfall ranged between 0mm-20mm. There was no significant rainfall experienced at the beginning of the week. A scattered rainfall was experienced during 4<sup>th</sup>-5<sup>th</sup> of August almost all over the island, but maximum rainfall had not exceeded 10mm. In the latter part of the week low rainfall was experienced up to about 5mm and while some parts of the Gal Oya basin experienced up to about 20mm rainfall.

**Monthly Monitoring:** During July, southern half of the island experienced a below average rainfall with an increased below average particularly in the Western and South Western regions. It clearly reflects the deficit of the South West Monsoon rainfall up to now. The rest of the island experienced an above average rainfall with a higher intensity in the Trincomalee district while some parts of the Moneragala district also experienced an above average rainfall.

### Predictions

**7 Day Prediction:** For the coming week an accumulated rainfall of 35 mm - 45 mm is predicted for the entire island.

**IMD WRF Model Forecast & IRI forecast:** On the 11<sup>th</sup>, IMD predicts 1mm-65mm rainfall for the Puttalam, Gampaha, Colombo, Kalutara, Ratnapura and Galle districts. A higher rainfall of about 65mm is predicted particularly for the Gampaha, Colombo and Kalutara districts. 1mm-3mm rainfall is predicted for some parts of the Ampara and Batticaloa districts. On the 12<sup>th</sup>, 1mm-36 mm rainfall is predicted for same regions except Batticaloa and Ampara districts. A higher rainfall is predicted for Colombo and Kalutara districts and some parts of Ratnapura District. NOAA models forecast up to about 70mm of total rainfall for the coming week (7 Aug-12 Aug) particularly for the Western, South Western and Central Highlands of the country while 40mm-50mm for the rest of the country.

**1 Month Prediction: Overall** - Rainfall shall increase dramatically with minor fluctuations till the 15<sup>th</sup> August followed by a rapid decrease till the 19<sup>th</sup>. There shall be no significant rainfall during 19<sup>th</sup>-27<sup>th</sup>. Thenafter again it shall show a rapid increase till the 30<sup>th</sup> but no high rainfall shall be expected. **Western Slopes**- A gradual decrease with minor fluctuations shall be observed till the 16<sup>th</sup> followed by a rapid decrease till the 20<sup>th</sup>. Thenafter there shall be no significant rainfall till the 29<sup>th</sup>. It shall again show a rapid increase after 29<sup>th</sup> August but no high rainfall shall be expected. Both **Eastern** and **Northern** regions shall show a rainfall fluctuation. Eastern slopes shall experience up to a maximum of about 7.5mm of rainfall while Northern region up to about 6mm.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for August 2012 to October 2012, issued in July 2012, there is a 60%-70% 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

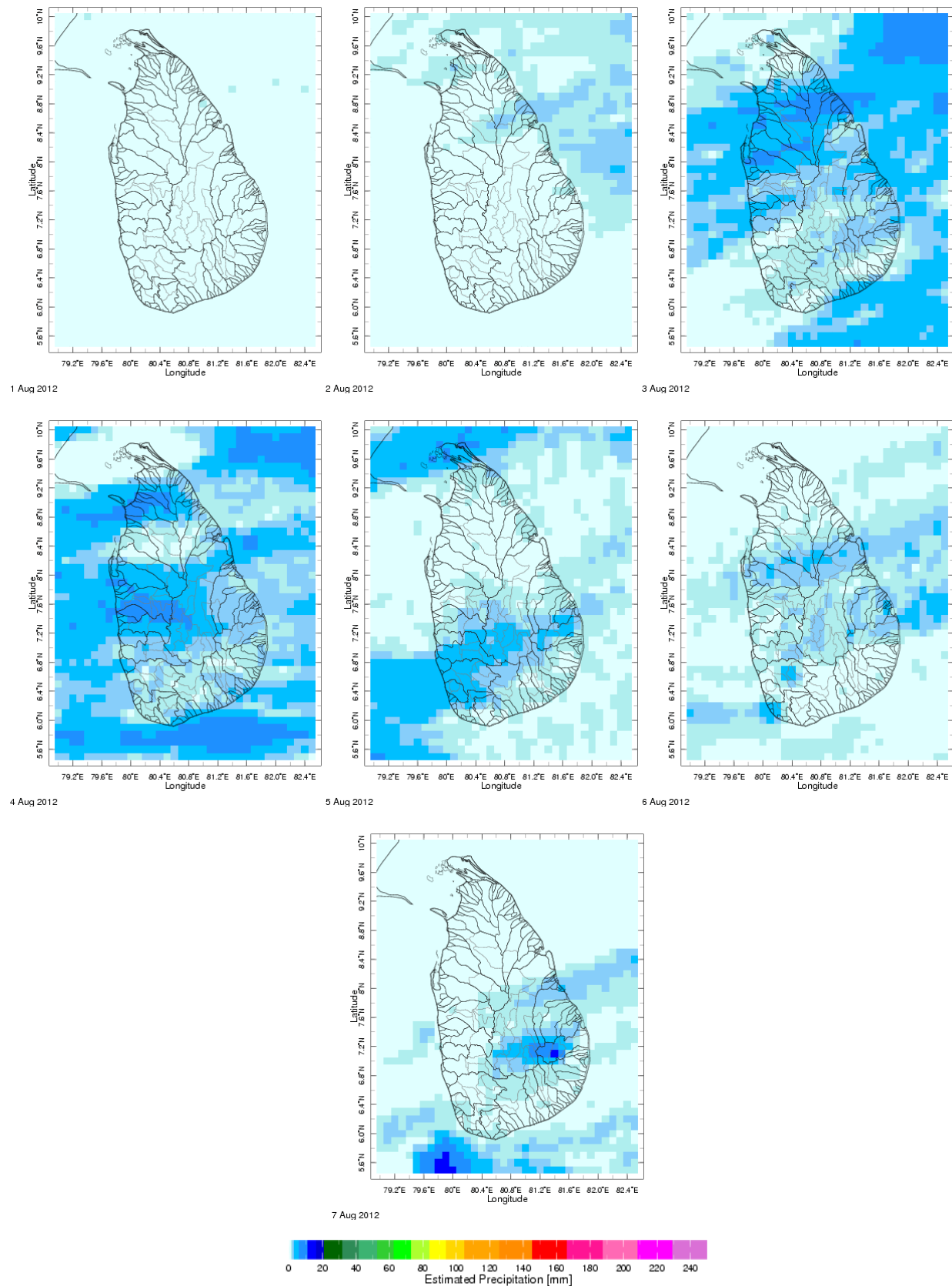
International Research Institute for Climate and Society.

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

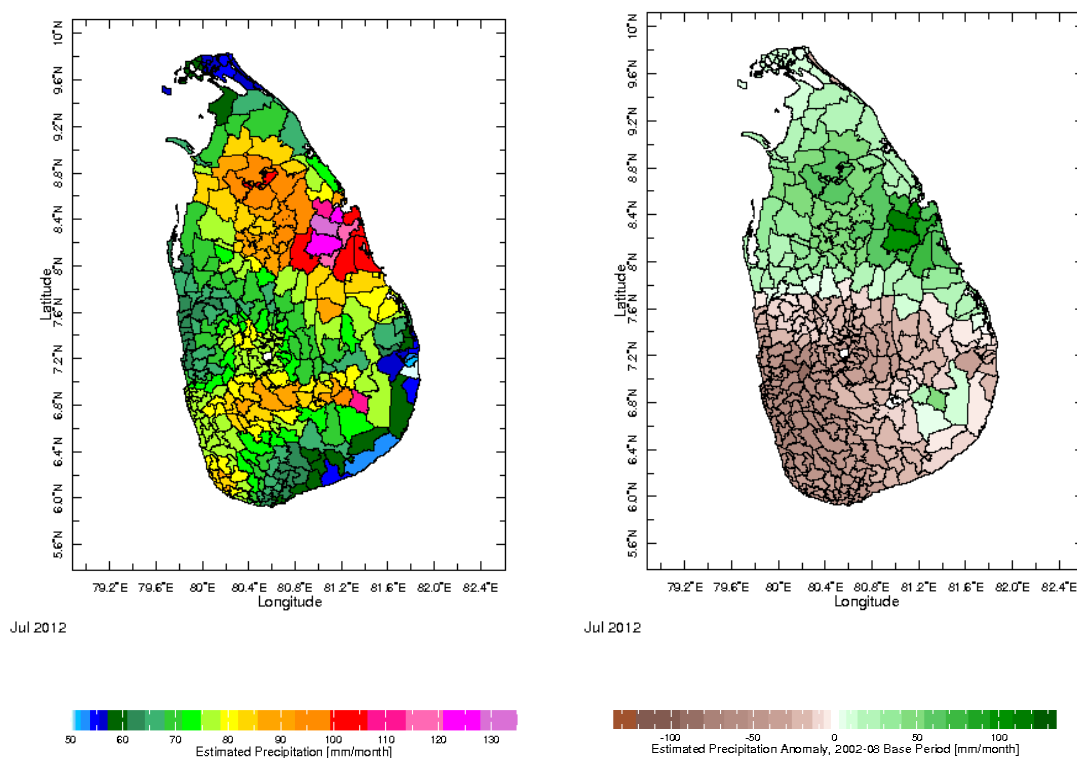
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

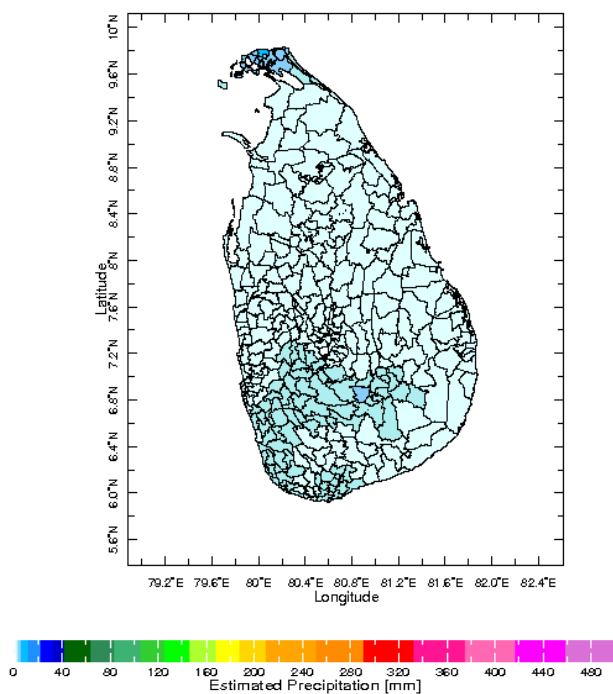
### a) Daily Satellite Derived Rainfall Estimate Maps: 1<sup>st</sup> Aug – 7<sup>th</sup> Aug, 2012 (Left-Right, Top-Bottom)



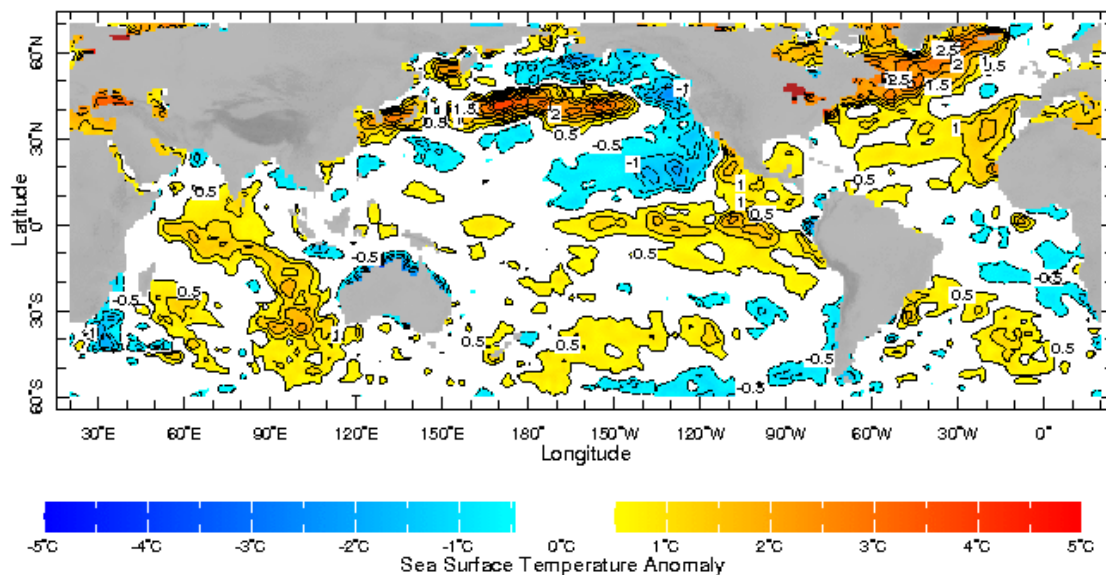
**b) Monthly Satellite Derived Rain fall Estimates for July 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 July, 2012)**



## d) Weekly Average SST Anomalies

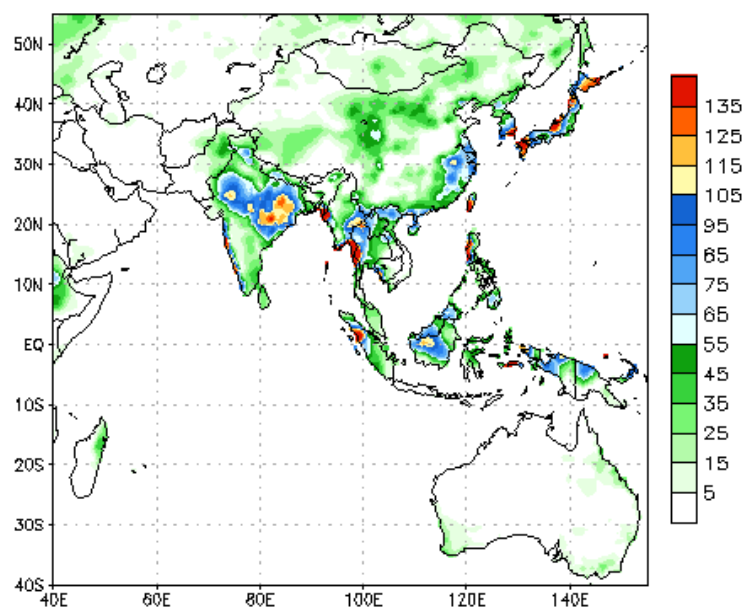


Weekly Average SST Anomalies ( $^{\circ}$ C), 29Jul -04 Aug, 2012

Data Source: NCEP Environmental monitoring center (Climatology 1971-2000)

## 2. Predictions

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



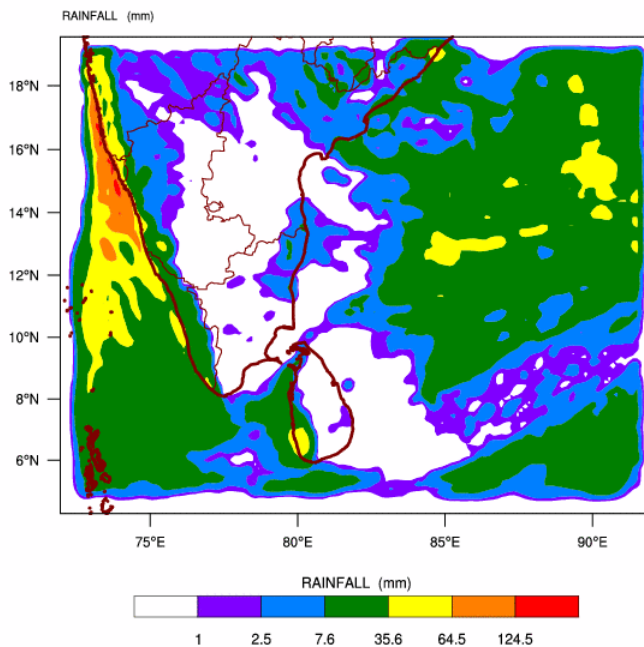
During next week, an accumulated rainfall of 35mm-45 mm is predicted for the entire island

Source – NOAA Climate Prediction Center

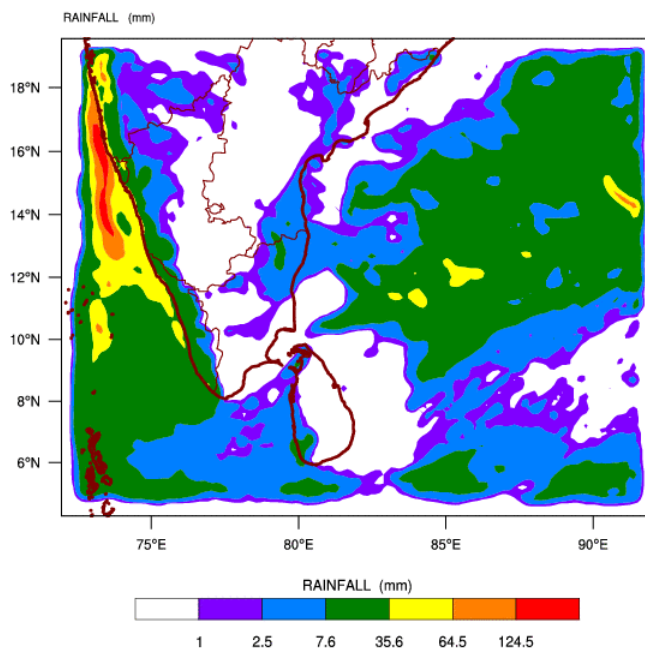
Map: Predicted accumulation of rainfall. (08– 14 Aug, 2012 week)

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

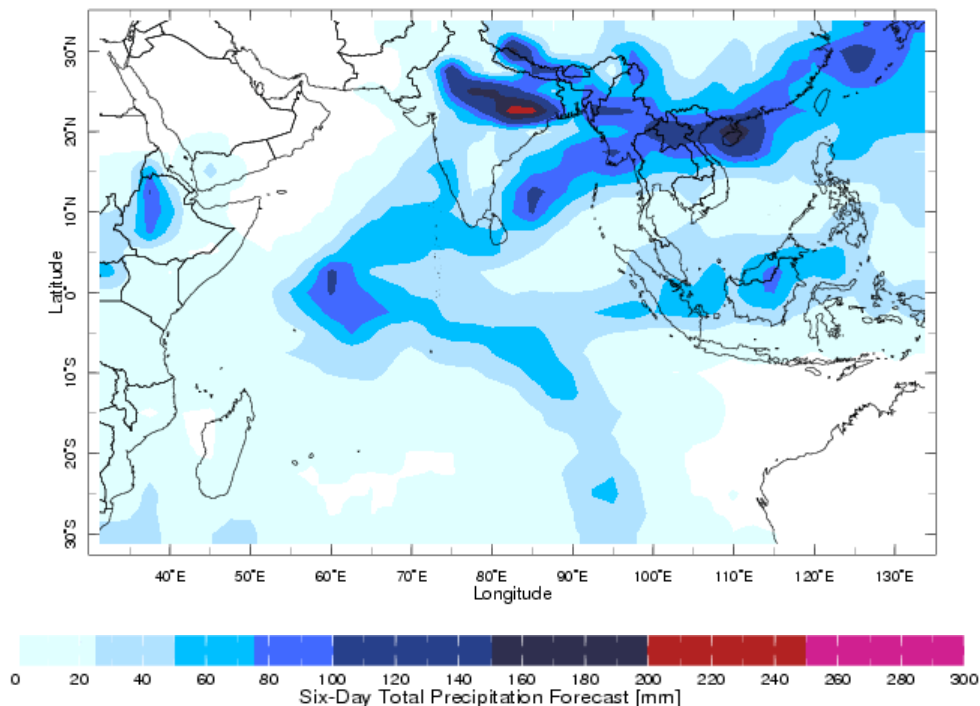
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 09-08-2012 valid for 03 UTC of 11-08-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 09-08-2012 valid for 03 UTC of 12-08-2012



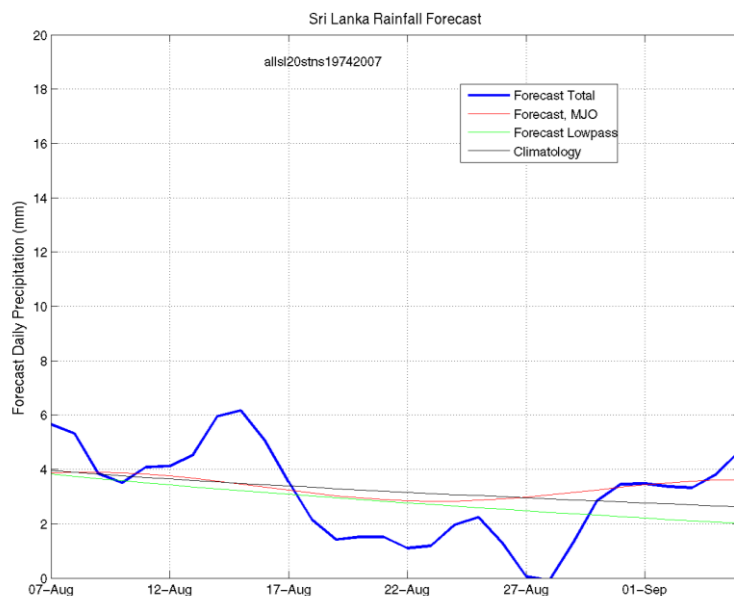
**c) Weekly Precipitation Forecast for 7Aug- 12 Aug, 2012 (Precipitation Forecast in Context Map Tool, IRI)**



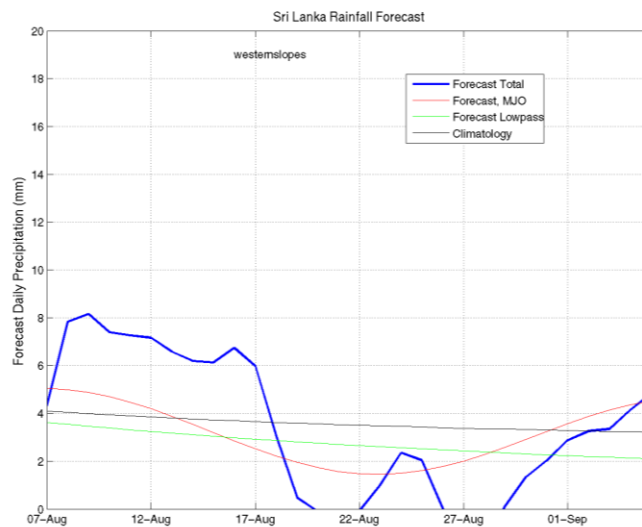
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 09<sup>th</sup> Aug, 2012

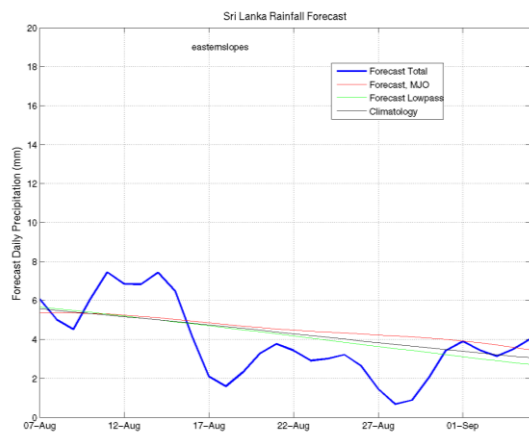
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



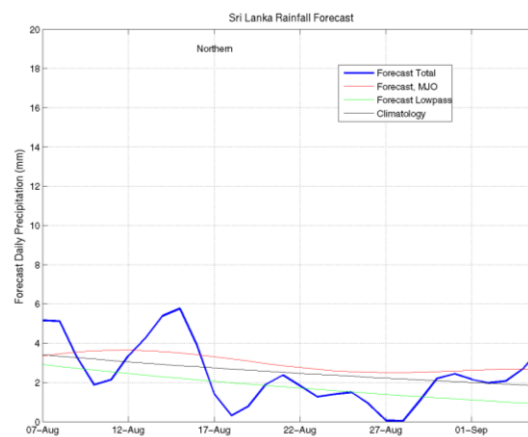
## Western Slopes (Rainfall Scale from 0-20 mm/day)



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

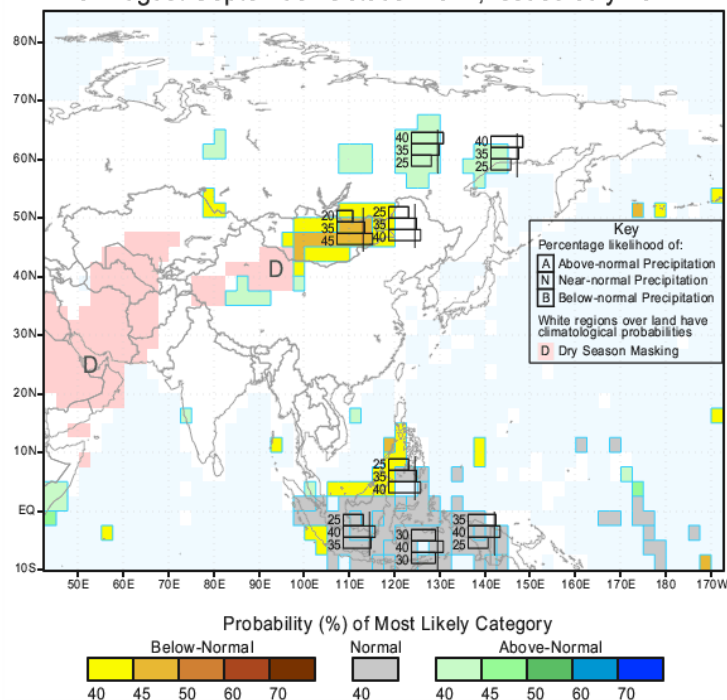


## Northern Region (Rainfall Scale- from 0-20 mm/day)



## e) Seasonal Rainfall and Temperature Predictions from IRI

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



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

