

## Experimental Climate Monitoring and Prediction

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

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30 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

16 August 2012

More than 75% of the ENSO prediction models predict El Nino conditions developing around the August- October season, continuing through the rest of 2012. Meanwhile, about 20% 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 (23<sup>rd</sup>- 28<sup>th</sup> August) rainfall ranged between 0- 40 mm. Light rainfall observed in Central and South western parts of the country. On the 26<sup>th</sup> and the 27<sup>th</sup> of August Northern regions also experienced light 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 15 - 45 mm is predicted for the whole island with more rainfall for the South-western region.

**IMD WRF Model Forecast & IRI forecast:** WRF Model Predicts 2 mm- 125 mm rainfall for the Western, South-Western and North-Western regions of the country on the 31<sup>st</sup> of August. It also predicts 1-35 mm rainfall for Eastern regions of the country. For the 1<sup>st</sup> of September, the Model predicts 2 mm- 125 mm of rainfall for the Western, South-Western and North-Western regions of the country. NOAA models forecast 0- 20 mm of rainfall for the whole country.

**1 Month Prediction:** Overall rainfall shall decrease gradually during 30<sup>th</sup> August – 1<sup>st</sup> September and it shall increase until 5<sup>th</sup>. Rainfall shall decrease gradually till the 17<sup>th</sup> of September and for the period of 17<sup>th</sup>-20<sup>th</sup> rainfall is not predicted. Generally high rainfall shall not be expected. **Western/Eastern Slopes:** Rainfall shall fluctuate throughout the month. **Northern:** A fluctuation of rainfall is expected until the 8<sup>th</sup> of September. During 11<sup>th</sup>-20<sup>th</sup> rainfall is not predicted. Then it shall diminish.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for September 2012 to November 2012, issued in July 2012, there is a 50%-60% probability for temperature to be above normal in the country while the rainfall is 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

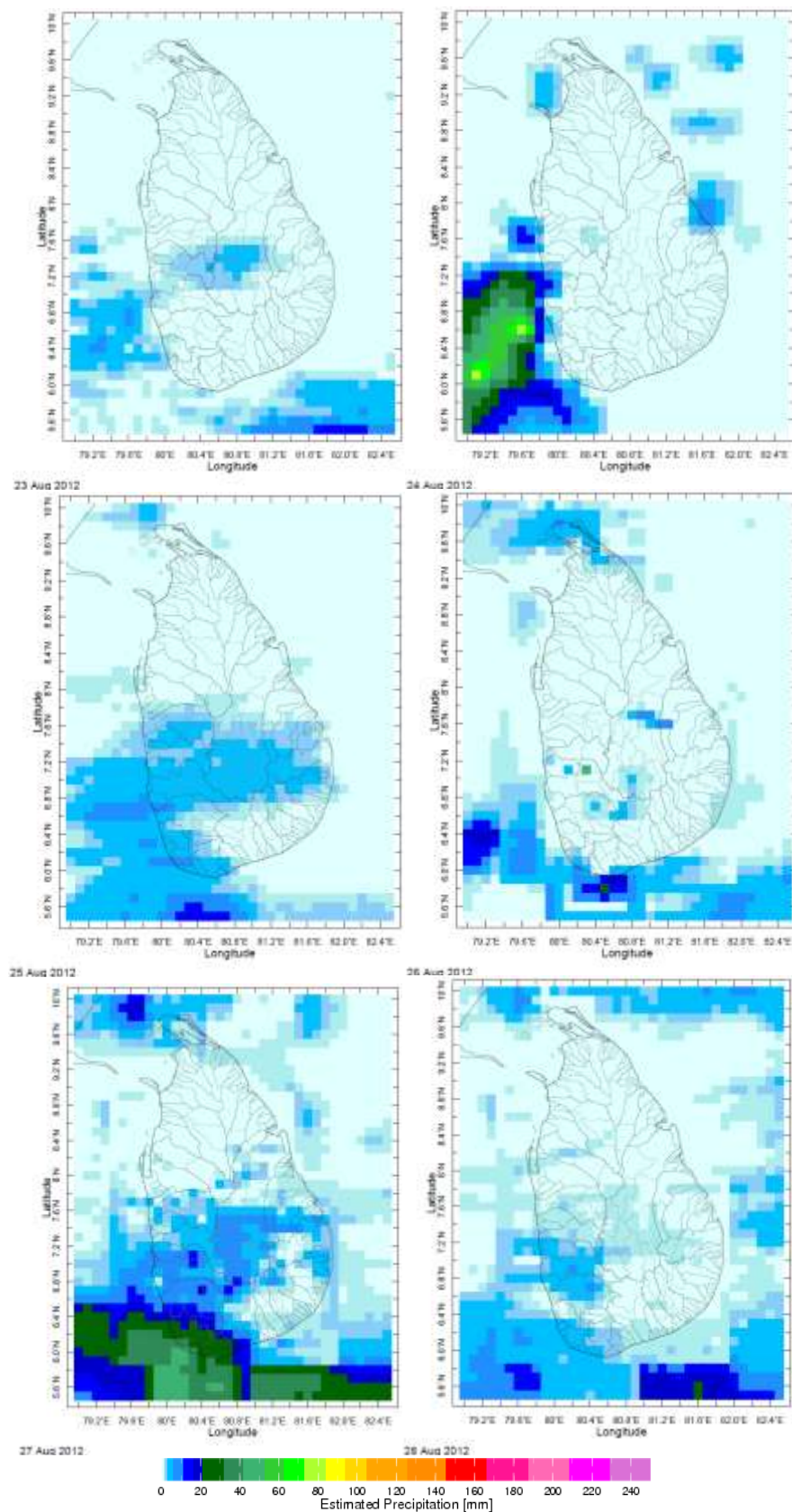
International Research Institute for Climate and Society.

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

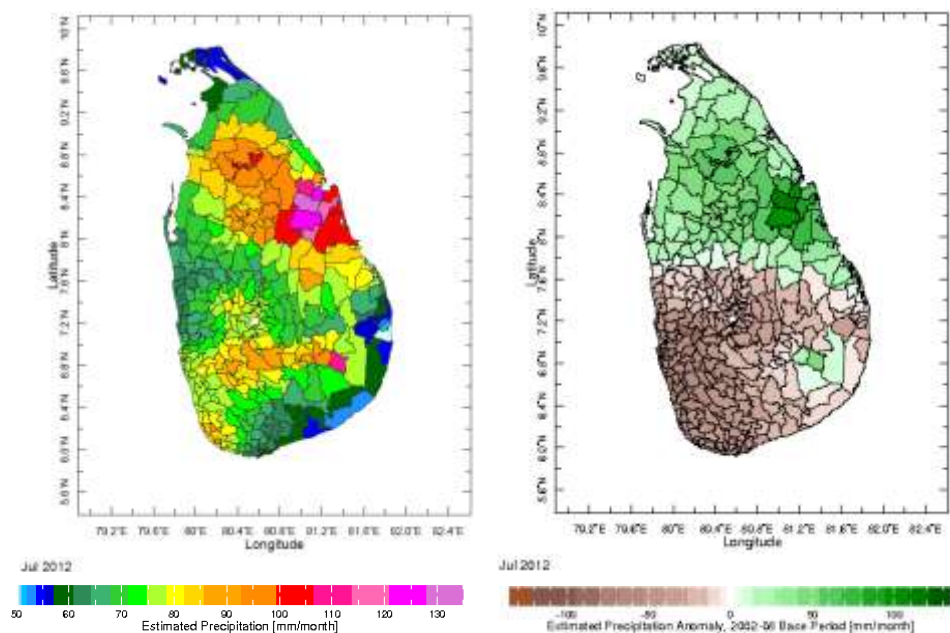
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

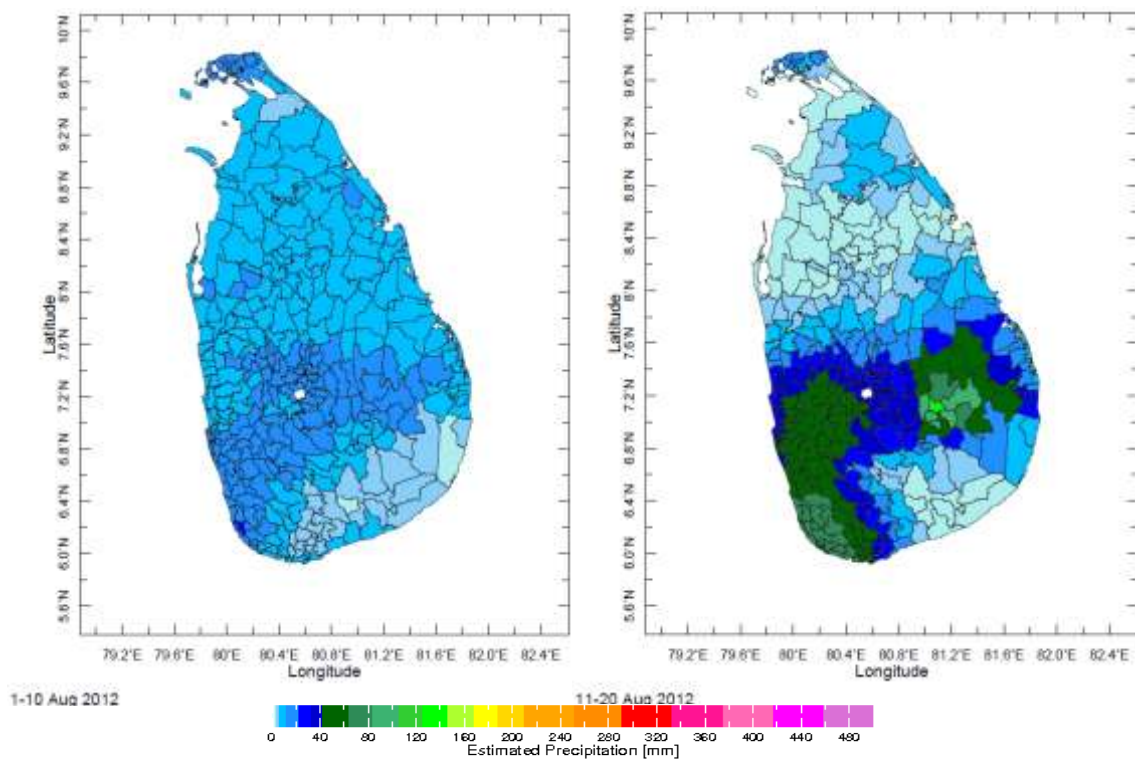
### a) Daily Satellite Derived Rainfall Estimate Maps: 23<sup>th</sup> Aug- 28<sup>th</sup> Aug, 2012 (Left-Right, Top-Bottom)



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

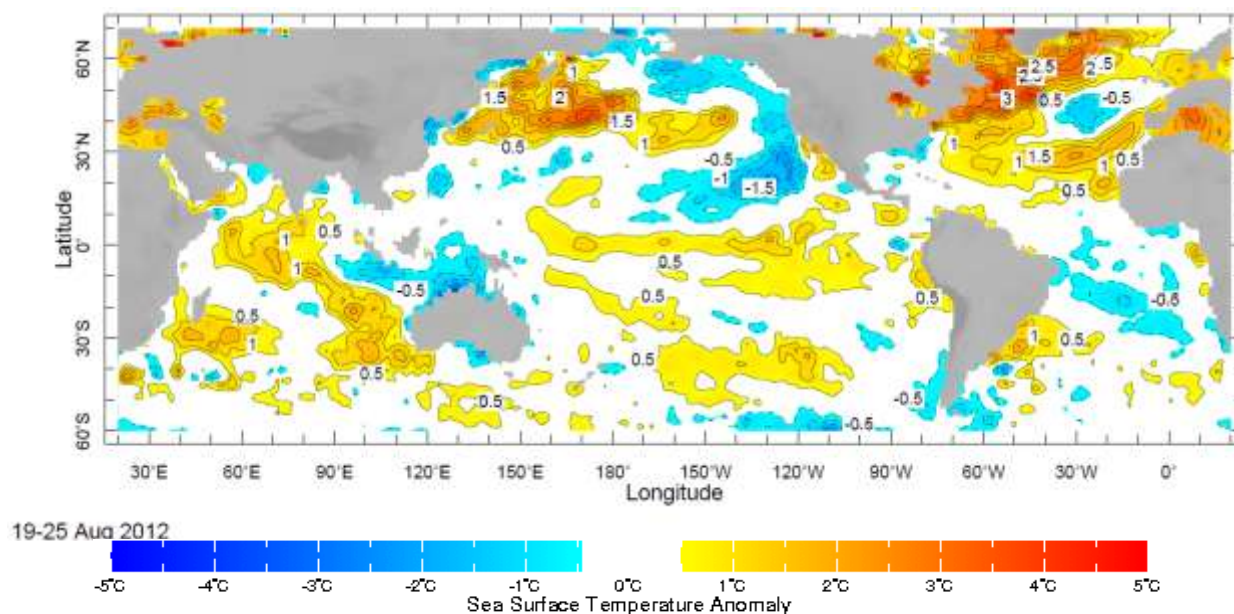


**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (1-10 & 11-20 August 2012)**





## d) Weekly Average SST Anomalies



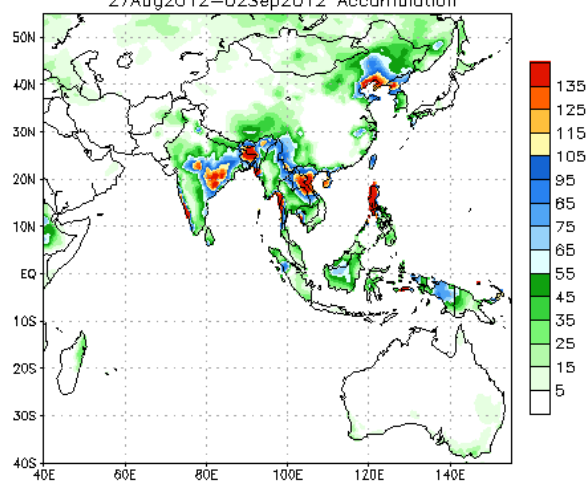
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 19<sup>th</sup> -25<sup>th</sup> August, 2012

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

## 2. Predictions

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

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 20Aug2012  
27Aug2012-02Sep2012 Accumulation



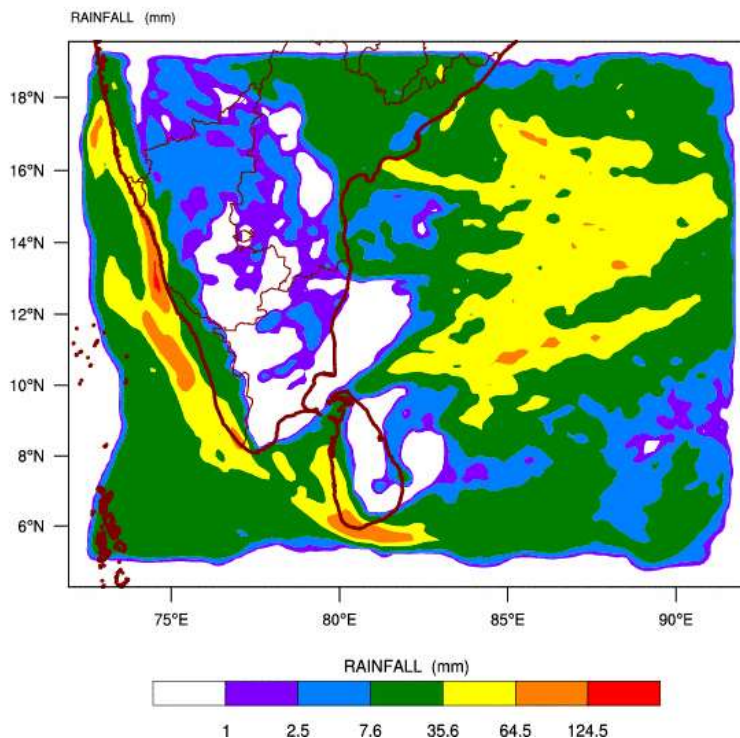
Bias correction based on last 30-day forecast error

During this week, an accumulated rainfall of 55 mm – 65 mm and 15 mm - 55 mm is predicted for the South western regions and rest of the island, respectively.

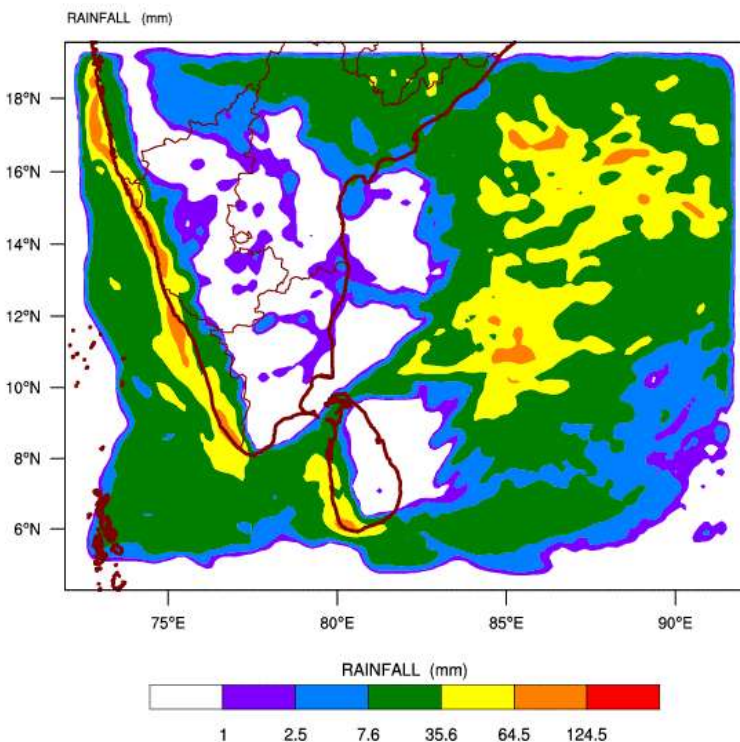
Source – NOAA Climate Prediction Center

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

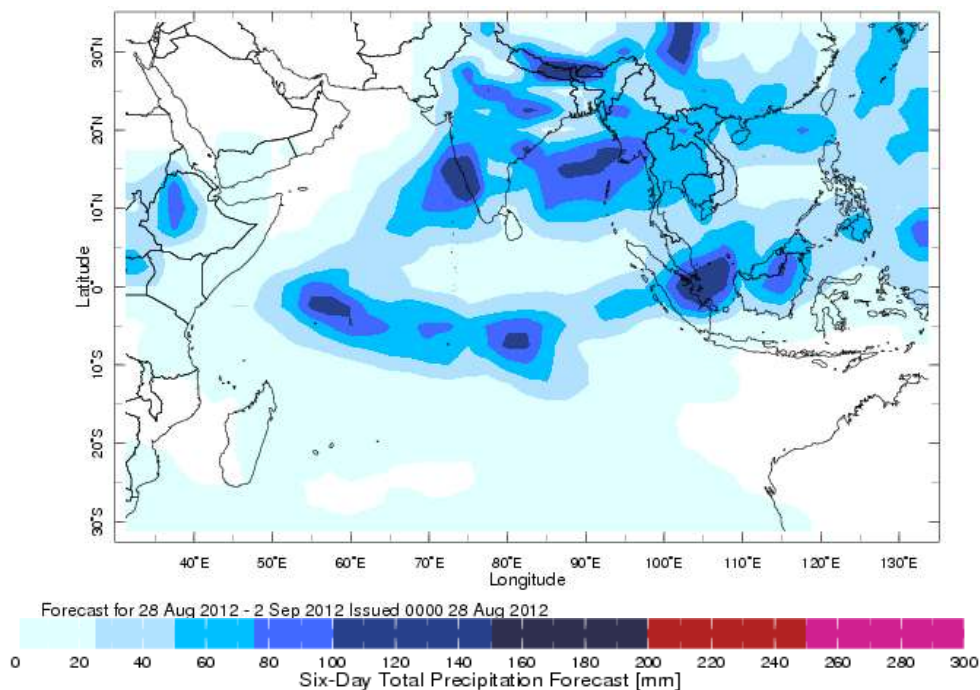
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 29-08-2012 valid for 03 UTC of 31-08-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 29-08-2012 valid for 03 UTC of 01-09-2012



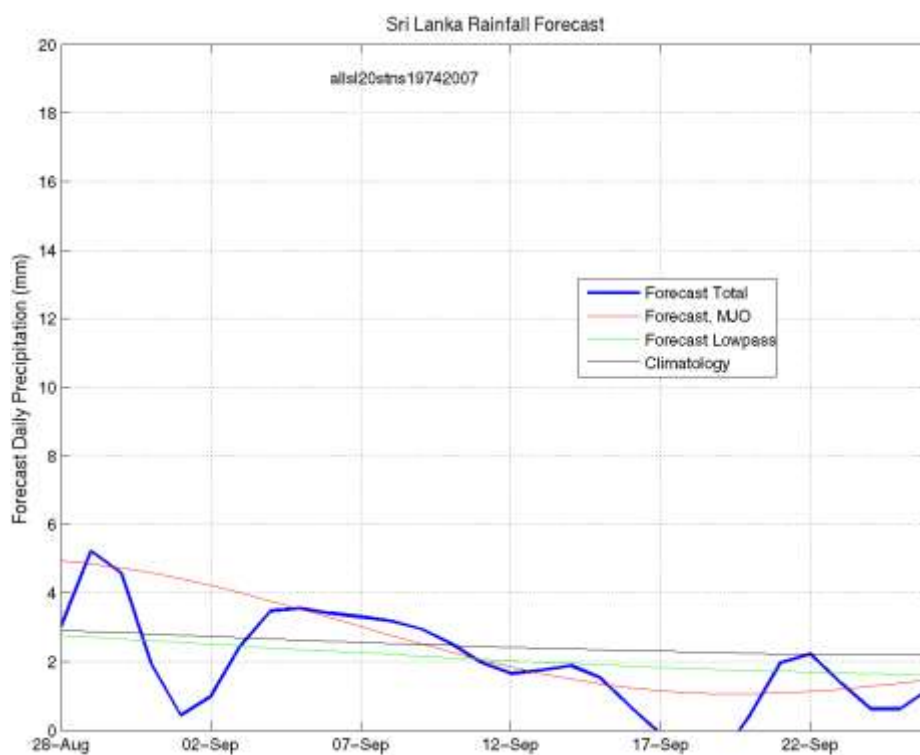
**c) Weekly Precipitation Forecast for 28 August- 2 Sep 2012 (Precipitation Forecast in Context Map Tool, IRI)**



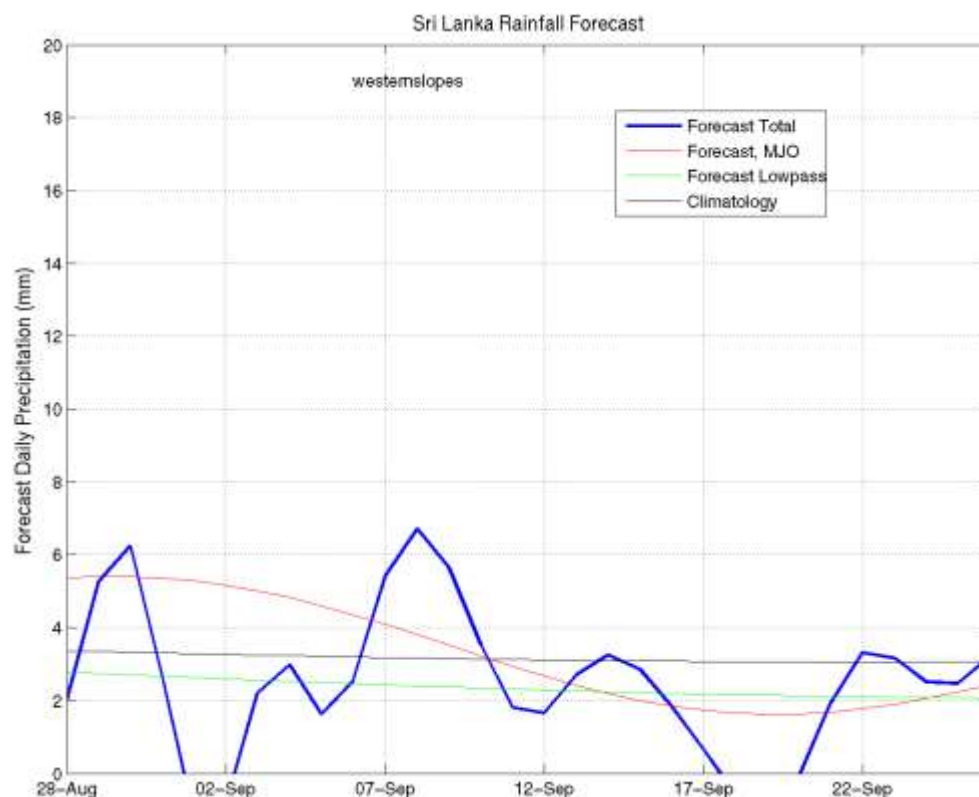
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 30<sup>th</sup> August, 2012

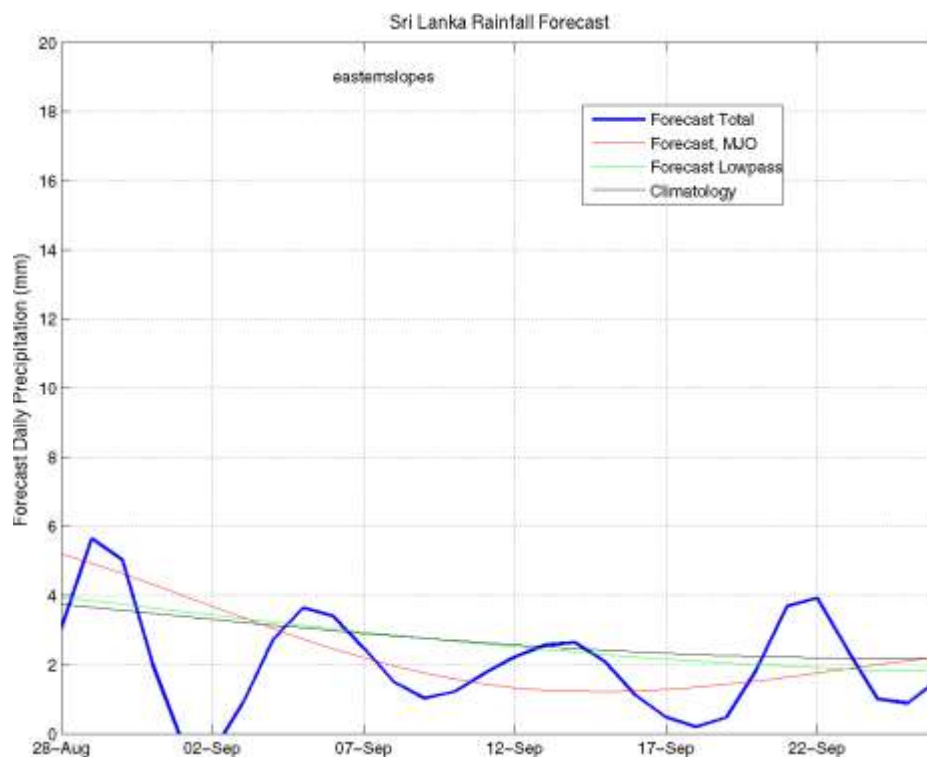
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



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

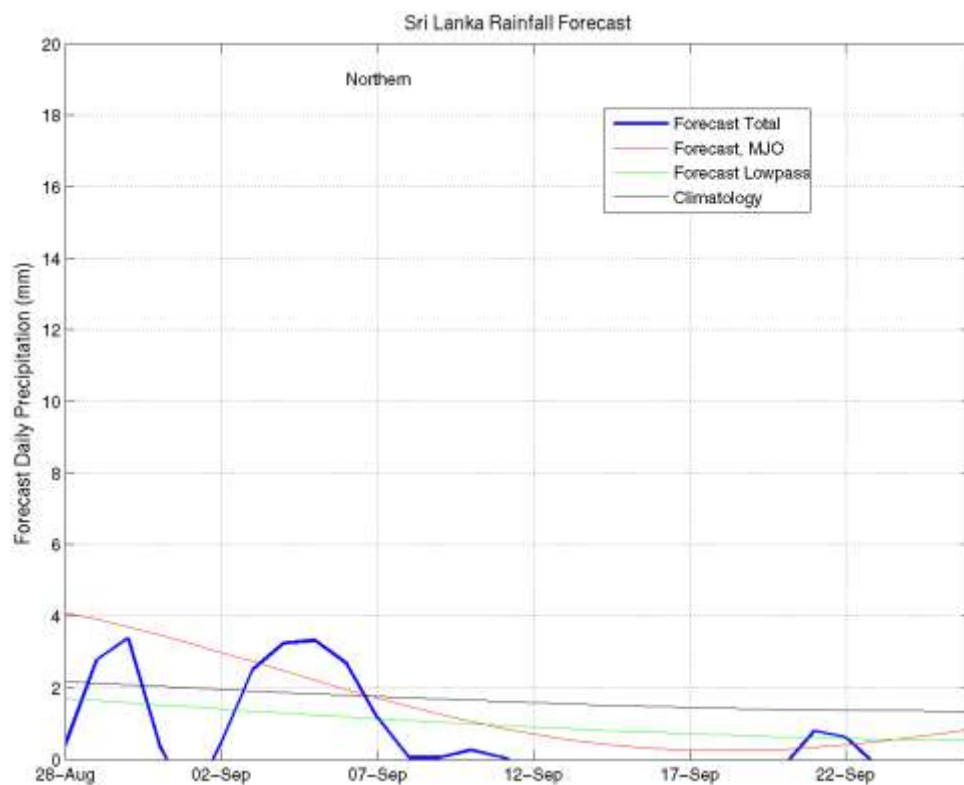


## Eastern Slopes (Rainfall Scale- from 0-20 mm/day)





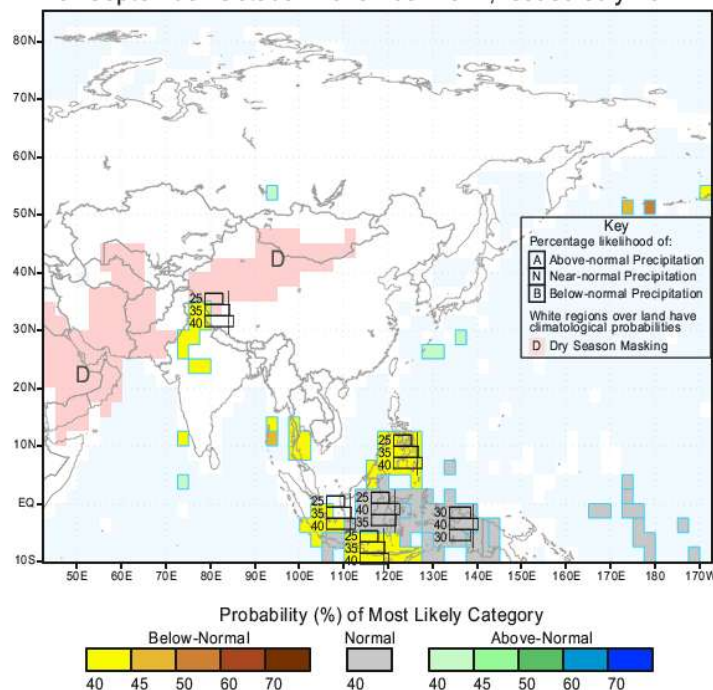
## Northern Region (Rainfall Scale- from 0-20 mm/day)





## e) Seasonal Rainfall and Temperature Predictions from IRI

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



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

