

## 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>)

20 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

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 (12<sup>th</sup> July- 17<sup>th</sup> July) rainfall ranged between 0- 130 mm. Light rainfall observed in North-Central region on the 12<sup>th</sup> July. On the 13<sup>th</sup> up to 140 mm of rainfall experienced particularly in Trincomalee district. During 14<sup>th</sup>- 16<sup>th</sup> of July almost all regions of the Island experienced rainfall ranged between 5mm -60 mm. The rainfall diminished throughout the island on the 17<sup>th</sup> 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 - 35 mm is predicted for the South Western region of the island.

**IMD WRF Model Forecast & IRI forecast:** WRF Model Predicts 1mm- 8 mm rainfall particularly for Gampaha, Colombo, Kalutara, Puttalam, Galle & Ratnapura districts on the 20<sup>th</sup> of July. For the 21<sup>st</sup> of July, the Model predicts 1-35 mm rainfall for above mentioned districts and 3- 8 mm rainfall for Mannar district. No rainfall predicted for the rest of the country. NOAA models forecast up to 50 mm of rainfall for the entire island.

**1 Month Prediction:** Overall rainfall shall fluctuate between 17<sup>th</sup> July – 17<sup>th</sup> August with highest rainfall of 6 mm expected around 20<sup>th</sup> of July and the lowest of 1.5 mm expected around 10<sup>th</sup> of July. **Western Slopes:** A fluctuation of rainfall is once again predicted between 8 mm and 2 mm during the next month. **Eastern Slopes:** Rainfall shall gradually decrease from 15<sup>th</sup> to 31<sup>st</sup> July with fluctuation. Then 31<sup>st</sup> onwards till 5<sup>th</sup> of August a significant increase in rainfall is expected. Then once again rainfall shall decrease. **Northern:** A significant reduction in rainfall until 27<sup>th</sup> of July is predicted. After that rainfall shall fluctuate.

**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.

### Inside this Issue

#### 1. Monitoring

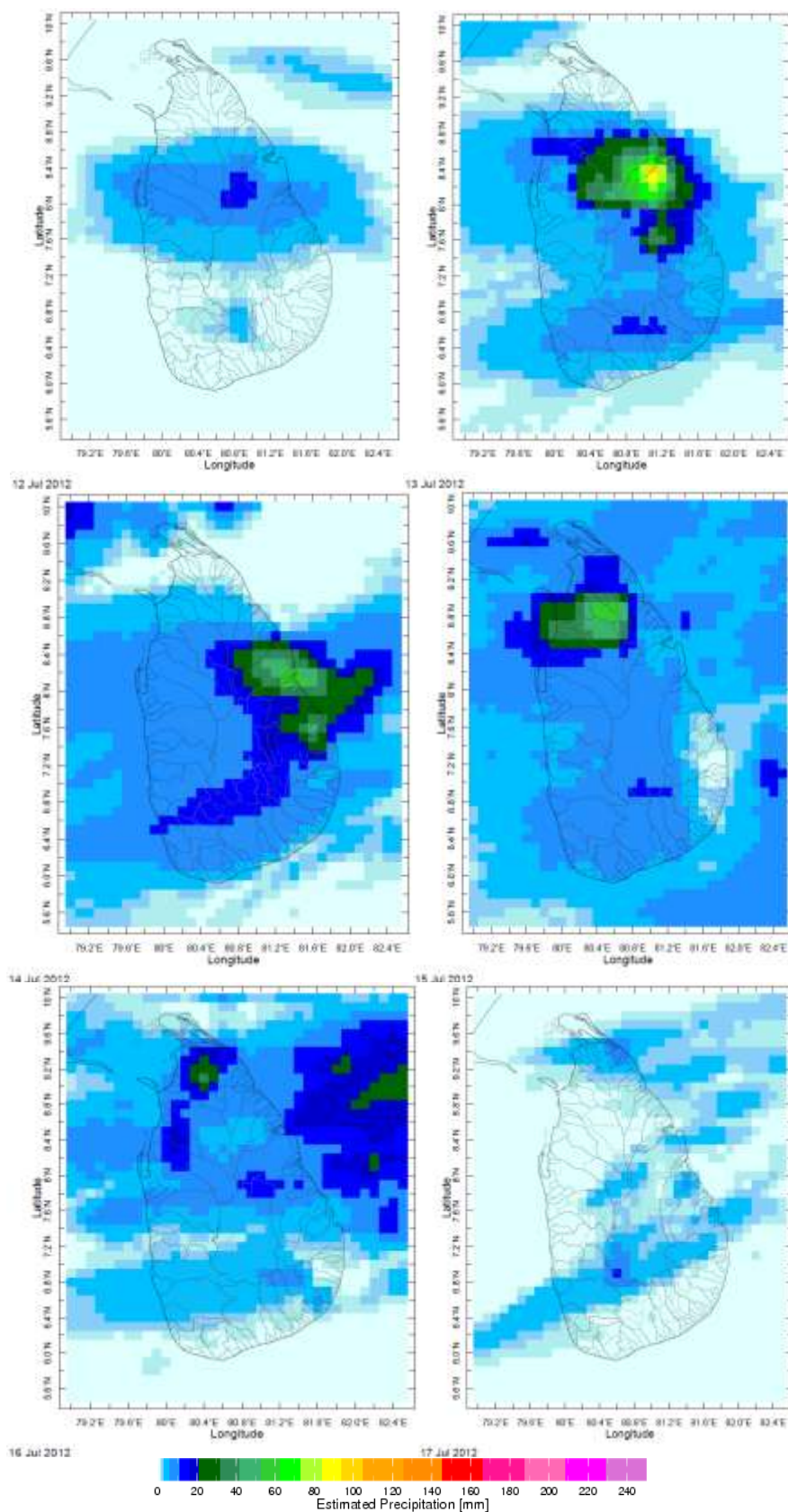
- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
- Decadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Average SST Anomalies

#### 2. Predictions

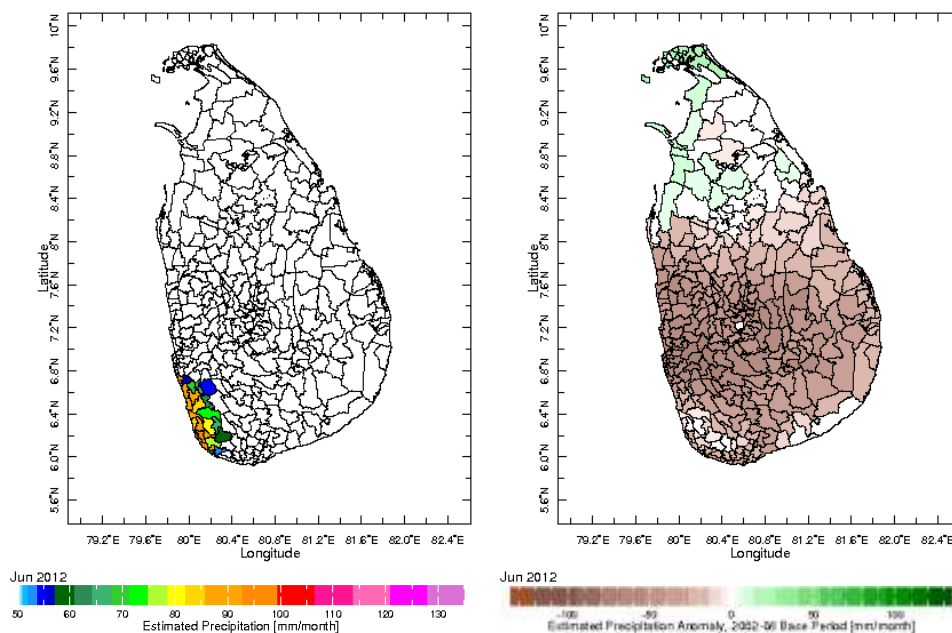
- NCEP GFS Ensemble 1-7 day predictions, NOAA, CPC,USA
- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

## 1. Monitoring

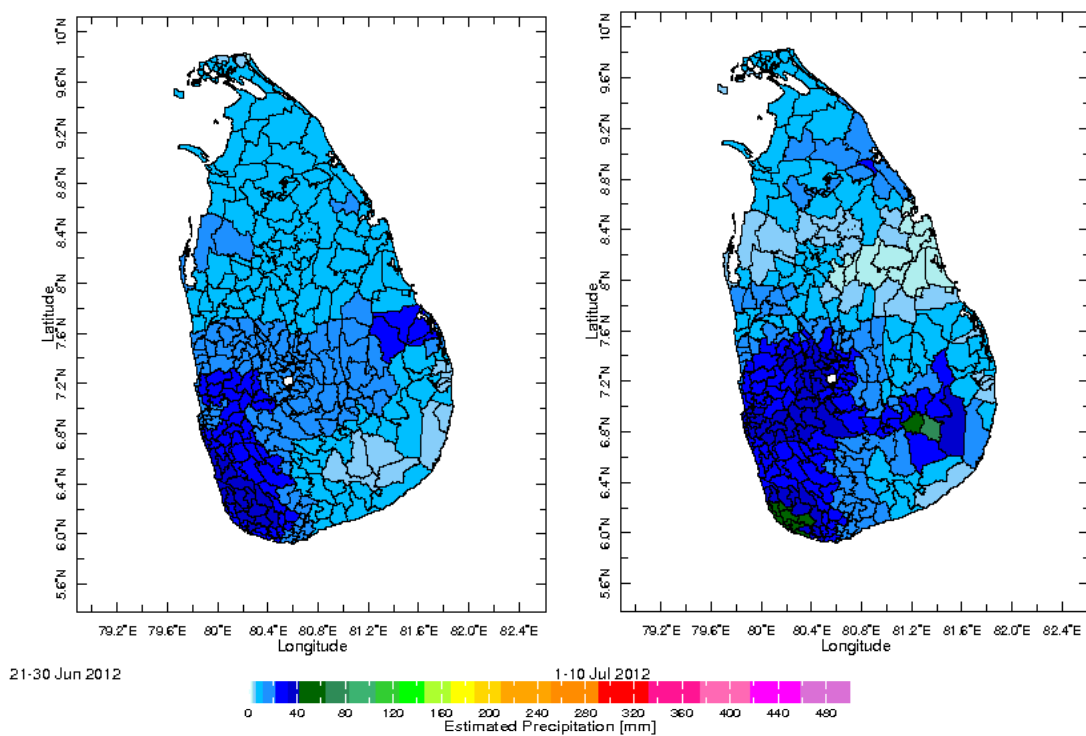
### a) Daily Satellite Derived Rainfall Estimate Maps: 12<sup>th</sup> July – 17<sup>th</sup> July, 2012 (Left-Right, Top-Bottom)



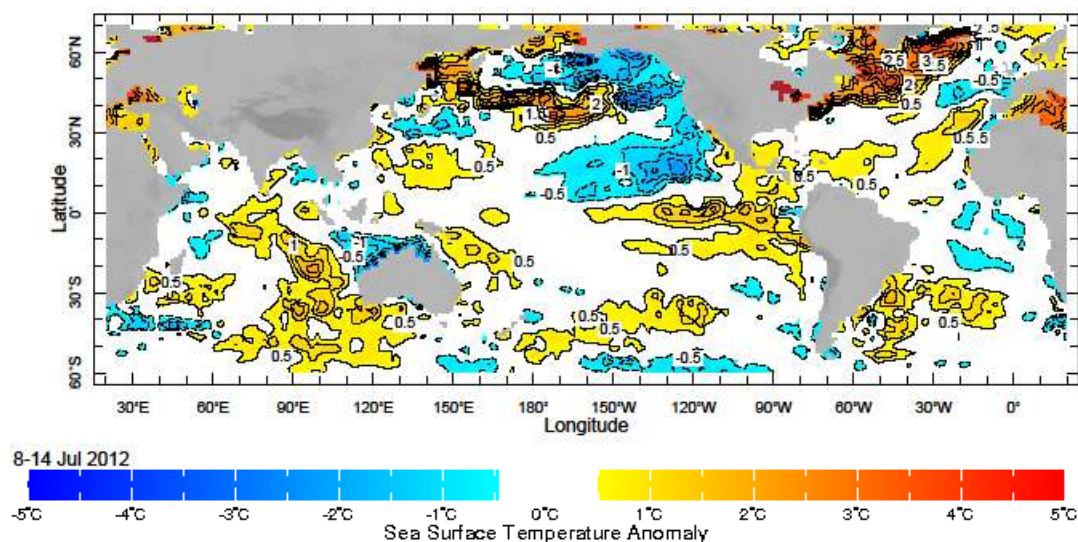
**b) Monthly Satellite Derived Rain fall Estimates for June 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-30 June &, 1-10 July 2012)**



## d) Weekly Average SST Anomalies



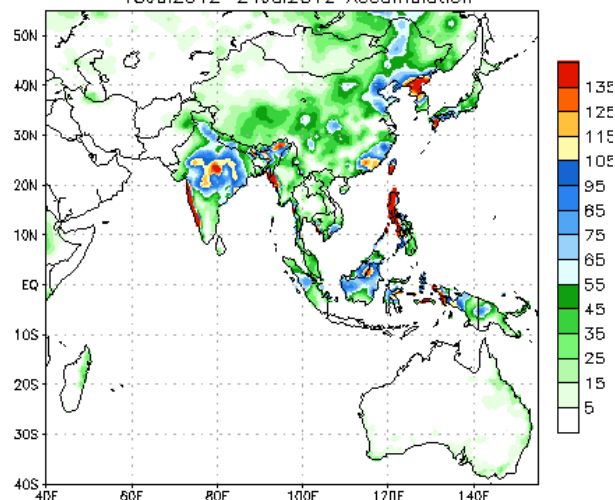
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 8<sup>th</sup> -14<sup>th</sup> July, 2012

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 1-7 Day Precipitation (mm)  
from: 18Jul2012  
18Jul2012-24Jul2012 Accumulation



During next week, an accumulated rainfall of 5 mm - 35 mm is predicted South Western region of the island.

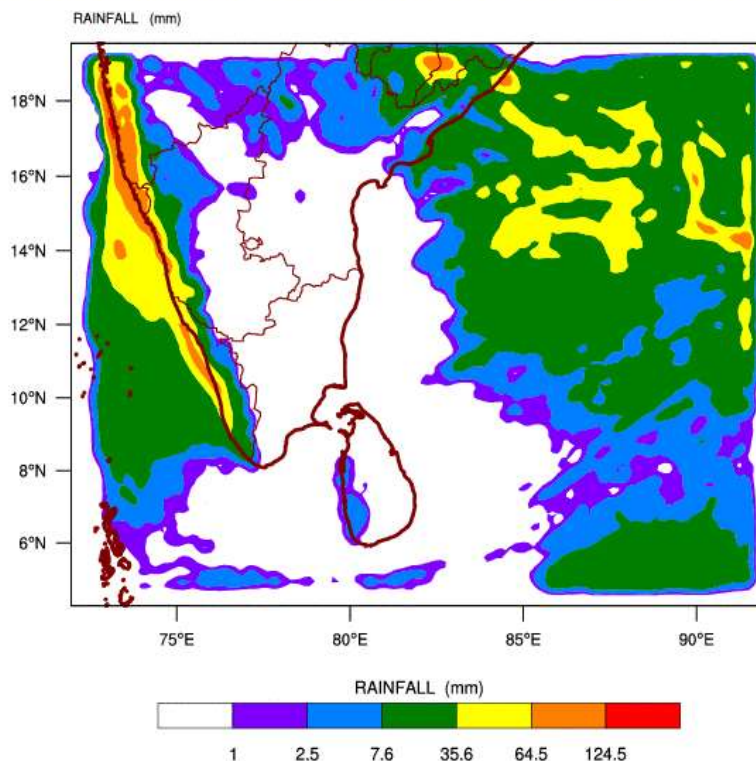
Source – NOAA Climate Prediction Center

Map: Predicted accumulation of rainfall. (18<sup>th</sup> – 24<sup>th</sup> July, 2012 week)

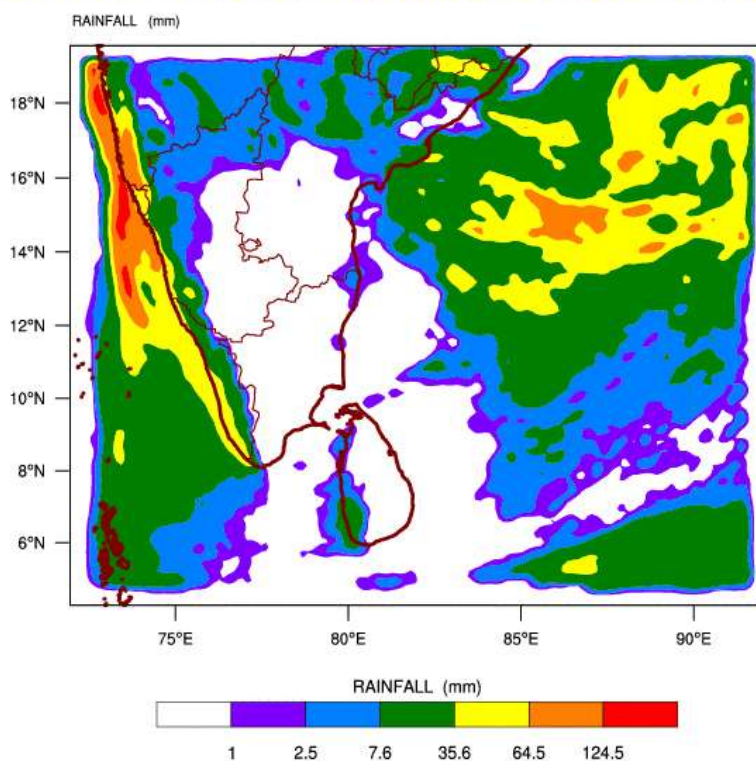


**b) WRF Model Forecast (Regional Meteorological Center, Chennai, Indian Meteorological Department)**

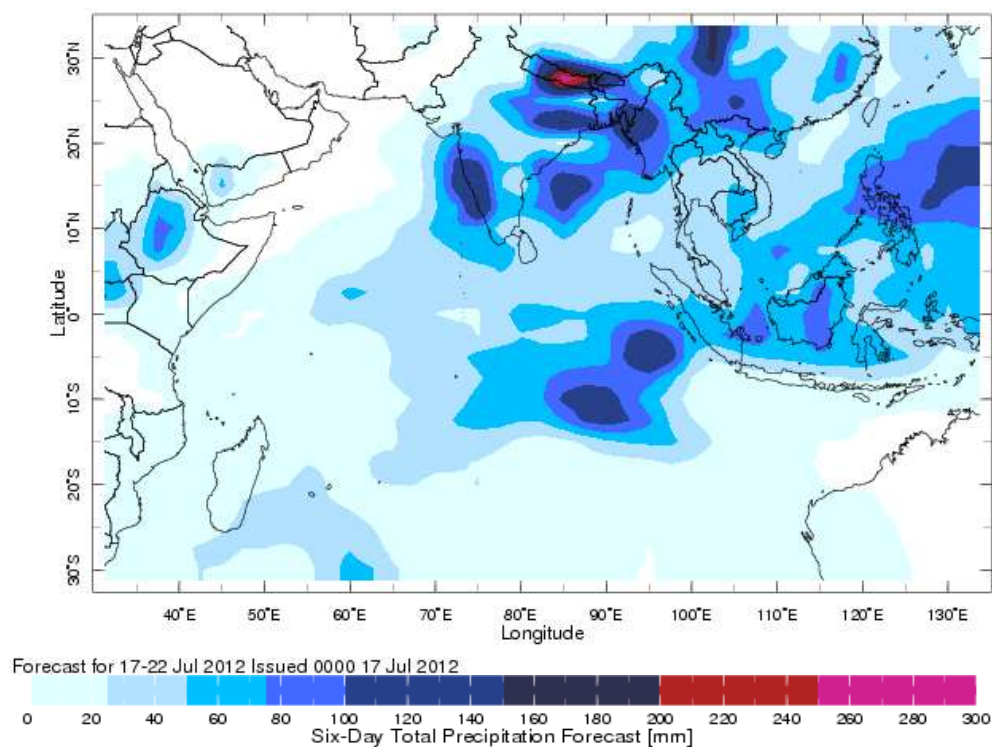
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 18-07-2012 valid for 03 UTC of 20-07-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 18-07-2012 valid for 03 UTC of 21-07-2012



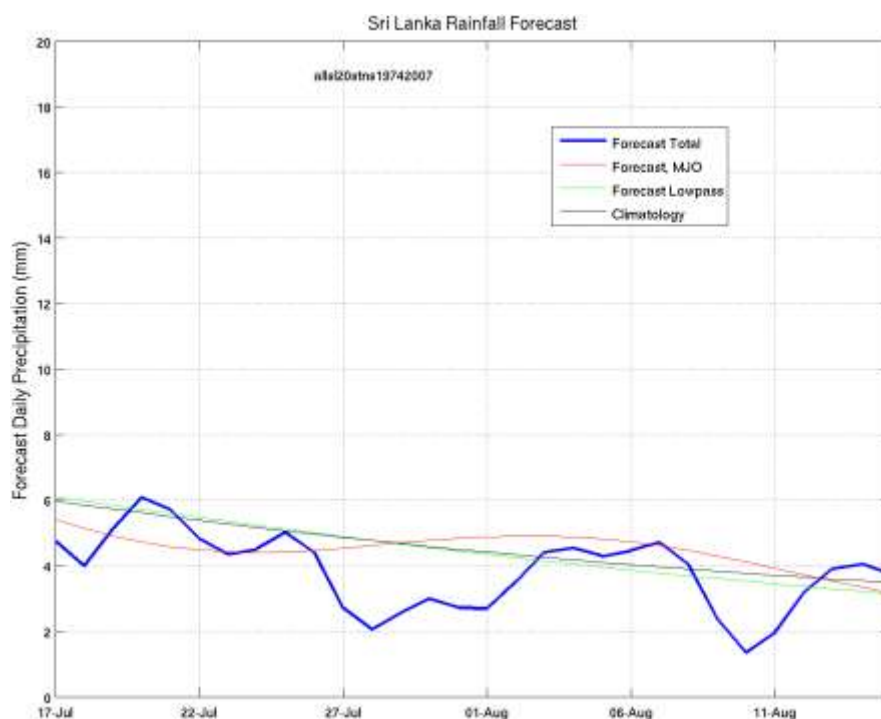
**c) Weekly Precipitation Forecast for 17-22 July 2012 (Precipitation Forecast in Context Map Tool, IRI)**



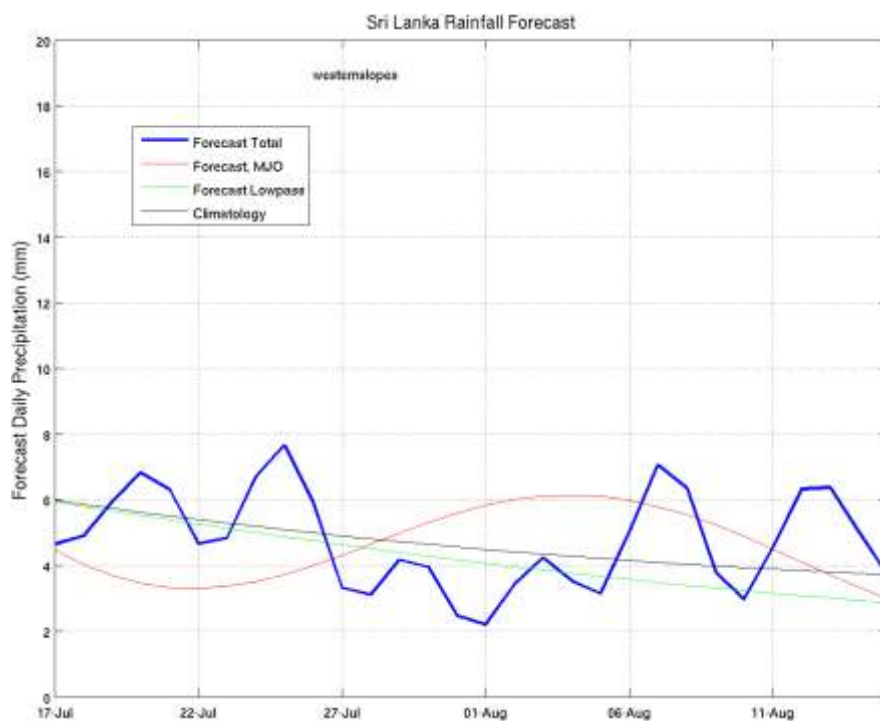
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 19<sup>th</sup> July, 2012

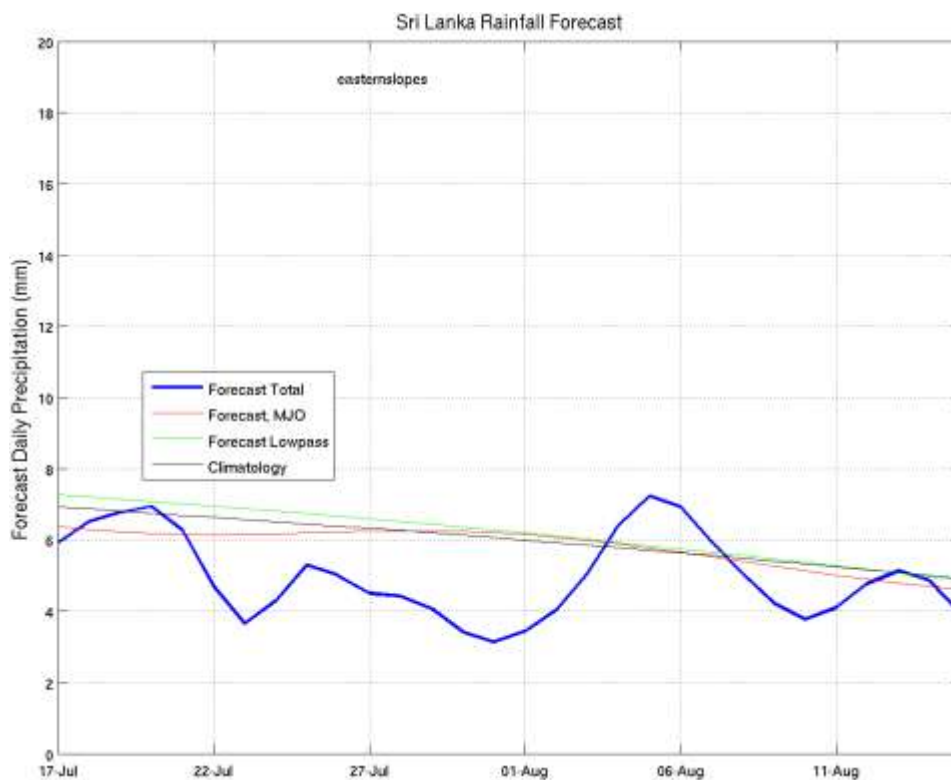
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



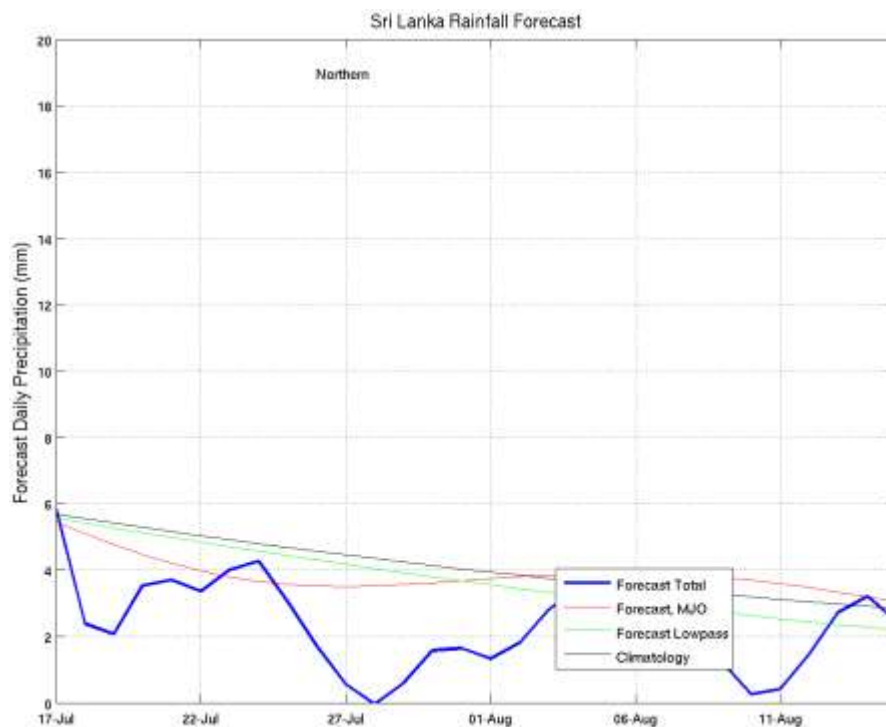
## Western Slopes (Rainfall Scale from 0-20 mm/day)



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



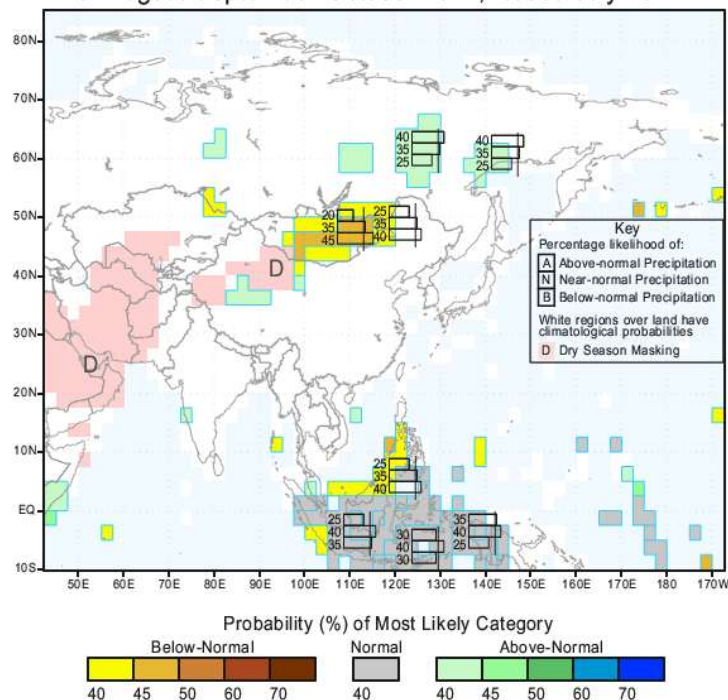
## Northern Region (Rainfall Scale- from 0-20 mm/day)





## e) Seasonal Rainfall and Temperature Predictions from IRI

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



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

