

## 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>)

14 September 2012

### FECT BLOG

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

and

<http://fects.l.wordpress.com/>

### FECT WEBSITES

<http://www.climate.lk>

and

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

### ENSO Update

06 September 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 (6<sup>th</sup>- 11<sup>th</sup> September) rainfall ranged between 0 mm- 70 mm. Heavy rainfall was observed during 6<sup>th</sup> -9<sup>th</sup> September in South and Western regions of the island which diminished on the 9<sup>th</sup>. A scattered rainfall was experienced on the 10<sup>th</sup> in most parts of the country. Rain ceased completely on the 11<sup>th</sup> for the whole island except for North-Central and South-Eastern regions of the island, which experienced slight rainfall.

**Monthly Monitoring:** During August South Western, Western and Some regions of Badulla and Ampara districts experienced an above average rainfall with quite high positive anomaly in the South Western region. The rest of the country experienced below average rainfall during this period.

#### Predictions

**7-day prediction:** During this week, an accumulated rainfall of 25 mm – 95 mm is predicted for the South western regions of the island.

**IMD WRF Model Forecast & IRI forecast:** On the 14<sup>th</sup> IMD WRF model predicts 1 mm-8 mm rainfall for Jaffna Peninsula. For the same day model predicts 2 mm- 36 mm rainfall for North Western and Western regions and less than 64.5 mm rainfall for South-Western parts of the country with maximum rainfall shall expect in Galle area. On the 15<sup>th</sup> model predicts an increased rainfall of 2-65 mm for Colombo, Negambo and Chilaw areas. Rainfall shall cease in Jaffna Peninsula while South-Western regions shall experience rainfall of 1-35 mm. NOAA models forecast Predicts up to 20 mm total rainfall for the whole country.

**1 Month Prediction: Overall-** Rainfall shall fluctuate between 0 and 3 mm. For the period of 16<sup>th</sup>-18<sup>th</sup> & 21<sup>st</sup>-25<sup>th</sup> rainfall is not predicted. **Western Slopes-** During 14<sup>th</sup>-17<sup>th</sup> rainfall shall decrease & it shall increase drastically till 19<sup>th</sup>. Thereon it shall decrease till 21<sup>st</sup>. Rainfall is not predicted for the 21<sup>st</sup>-23<sup>rd</sup>. Rainfall shall increase drastically upto 6 mm of daily rainfall during 23<sup>rd</sup>-30<sup>th</sup>. Thereon rainfall shall fluctuate between 4-6 mm during October. **Eastern slopes-** Rainfall shall decrease drastically during 14<sup>th</sup>-16<sup>th</sup>. During 16<sup>th</sup>-23<sup>rd</sup> rainfall shall increase gradually, with minor fluctuation during 18<sup>th</sup>-20<sup>th</sup>. Thereon rainfall shall decrease till 28<sup>th</sup>. Rainfall is not predicted for 28<sup>th</sup>-30<sup>th</sup>. Thereon rainfall shall increase till 7<sup>th</sup> October and shall decrease thereafter. **Northern-** No Significant rainfall shall be expected and rainfall is not predicted for the most of the periods in September.

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

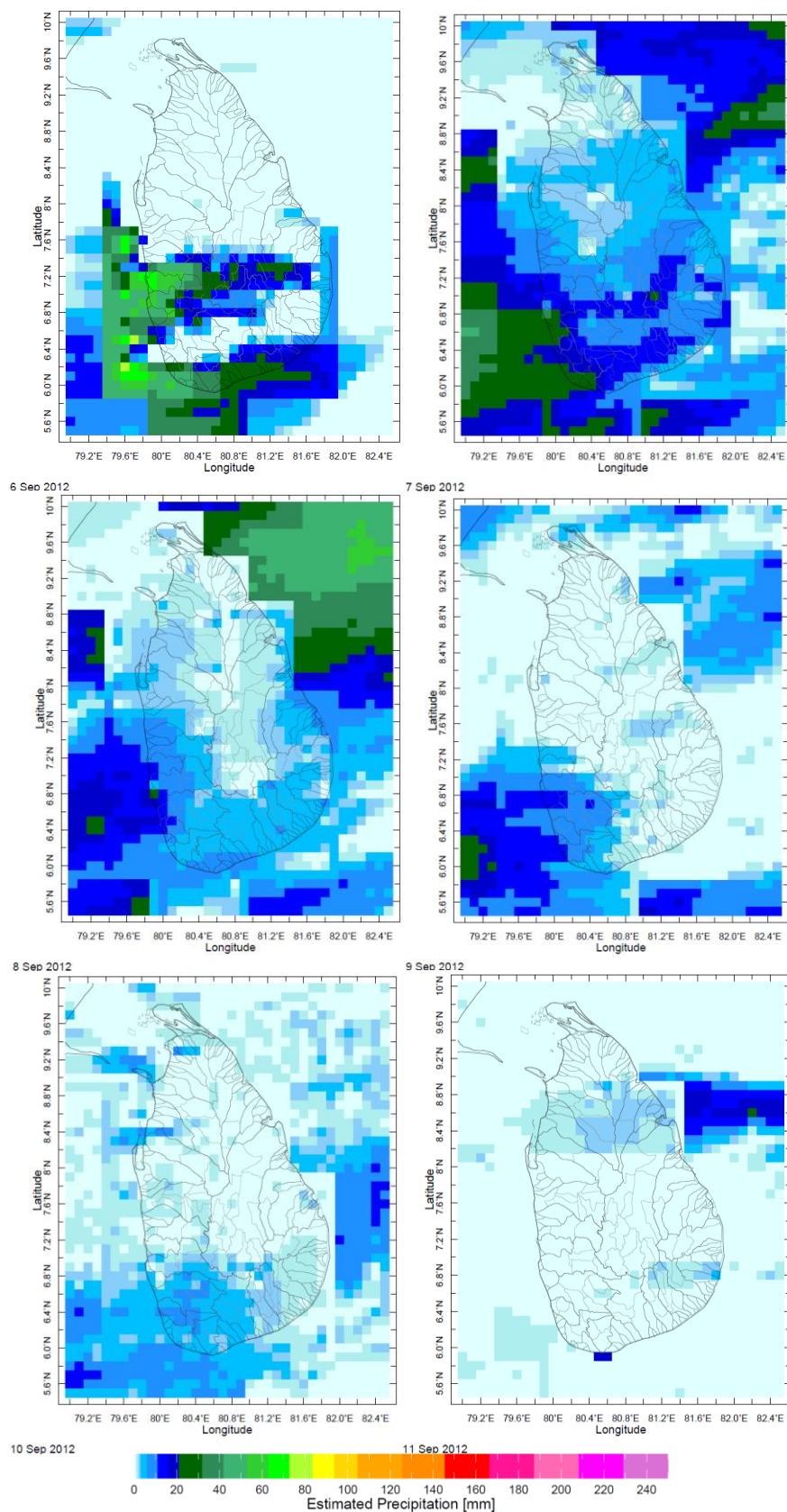
- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

<sup>1</sup> International Research Institute for Climate and Society.

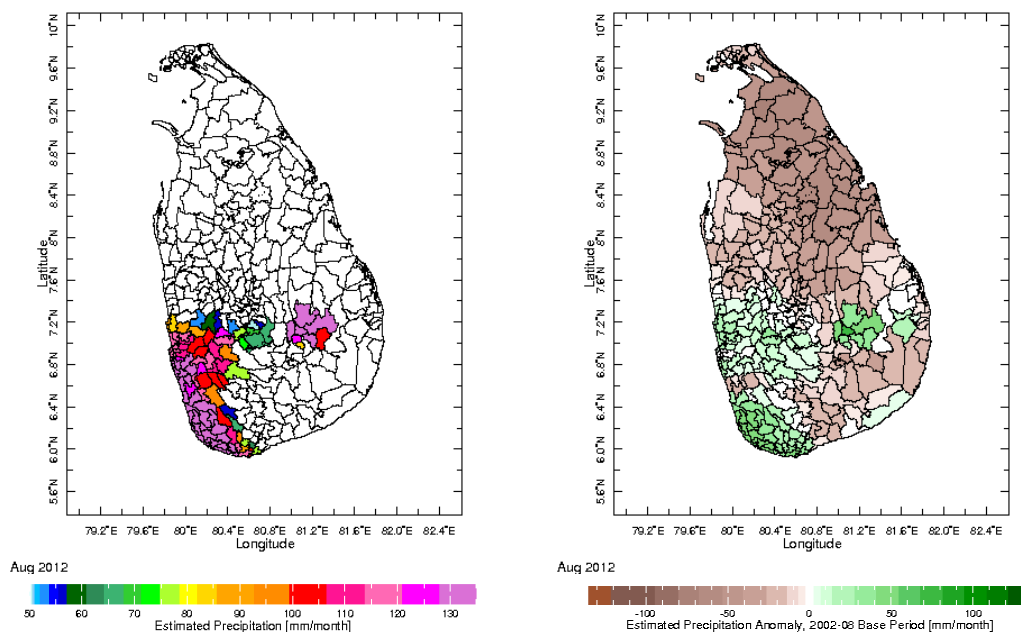
<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

## 1. Monitoring

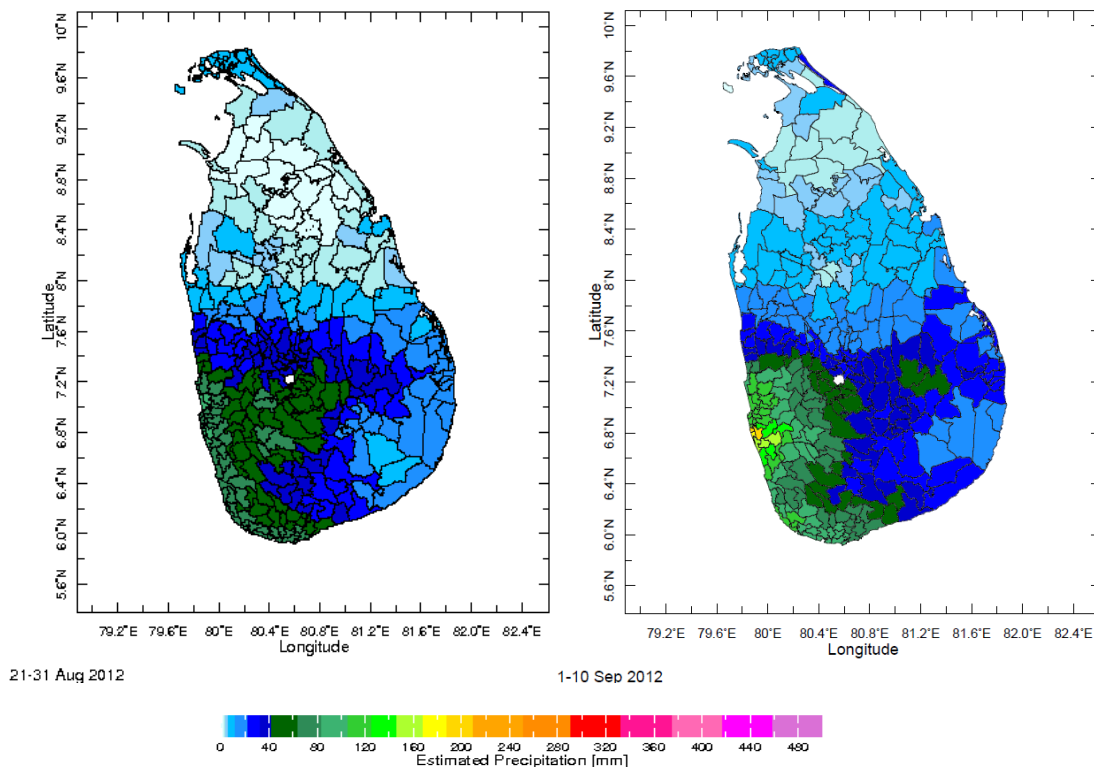
### a) Daily Satellite Derived Rainfall Estimate Maps: 06<sup>th</sup> - 11<sup>th</sup> September, 2012 (Left-Right, Top-Bottom)



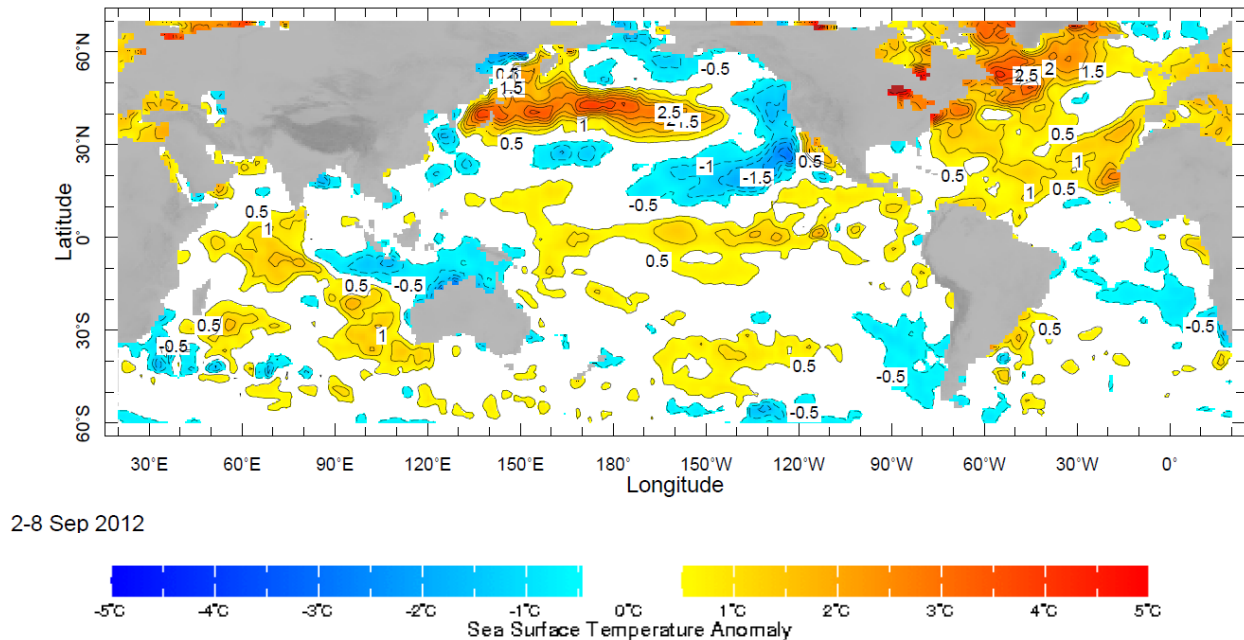
**b) Monthly Satellite Derived Rainfall Estimates for August 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 August & 1-10 September, 2012)**



## d) Weekly Average SST Anomalies



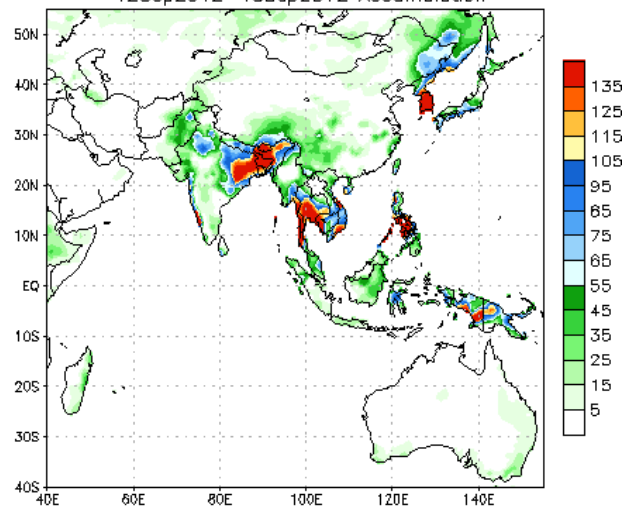
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 02<sup>nd</sup> Sept- 08<sup>th</sup> Sept, 2012

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: 12Sep2012  
12Sep2012-18Sep2012 Accumulation

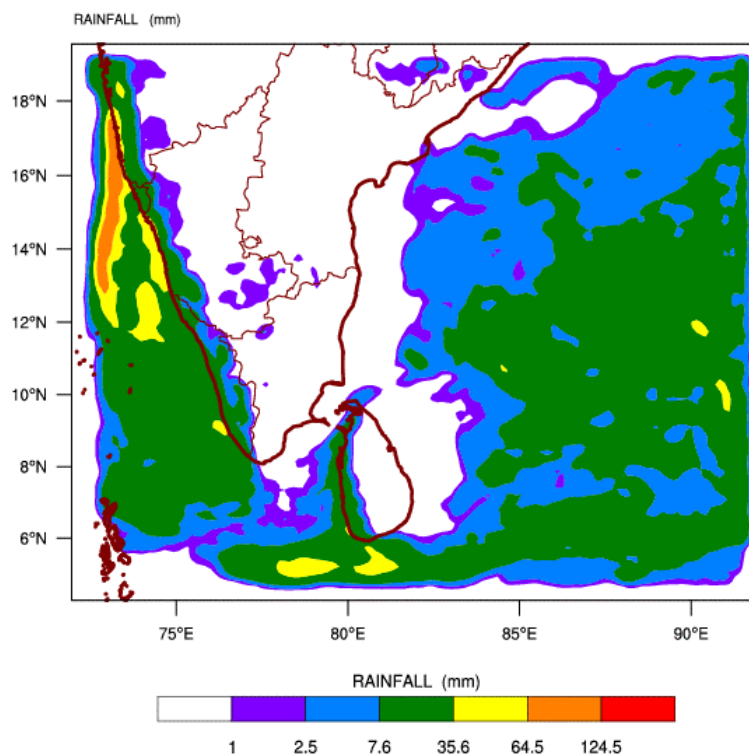


Source – NOAA Climate Prediction Center

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

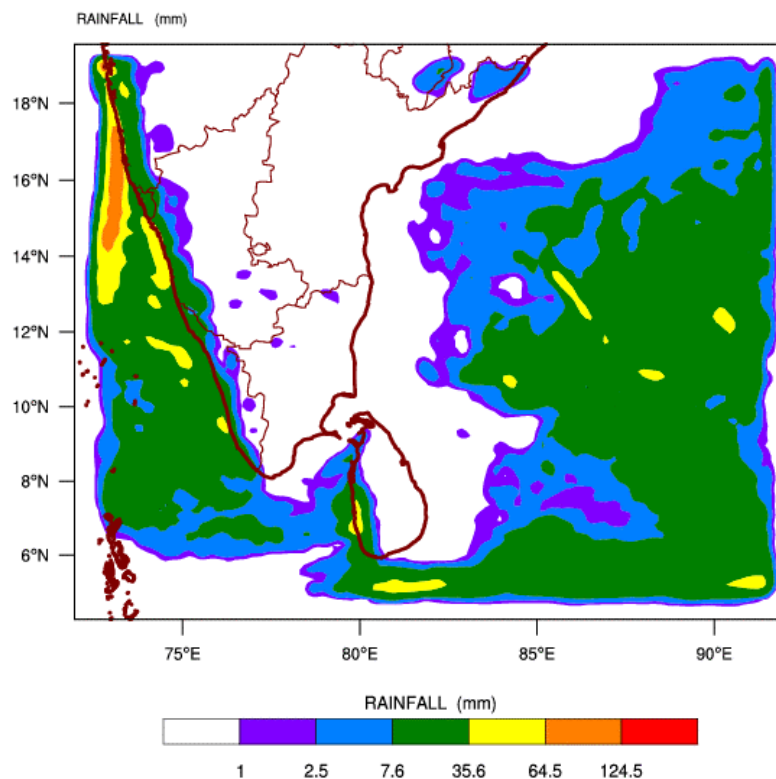
**WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\**

**based on 00 UTC of 12-09-2012 valid for 03 UTC of 14-09-2012**



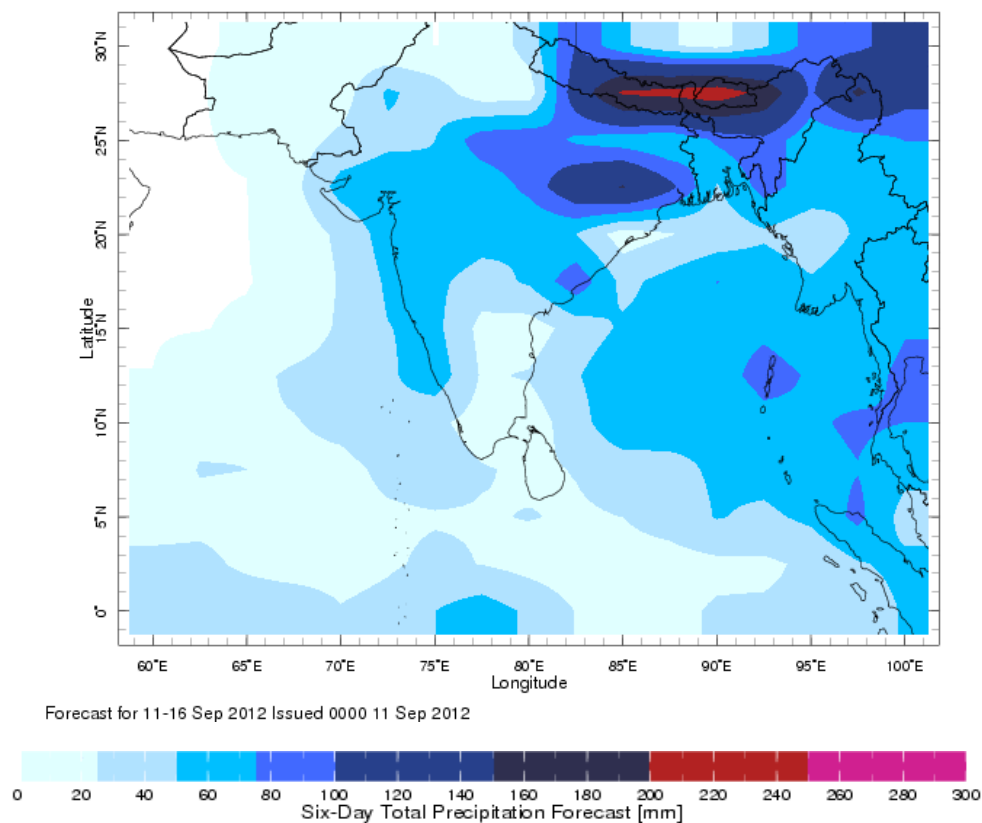
**WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\**

**based on 00 UTC of 12-09-2012 valid for 03 UTC of 15-09-2012**





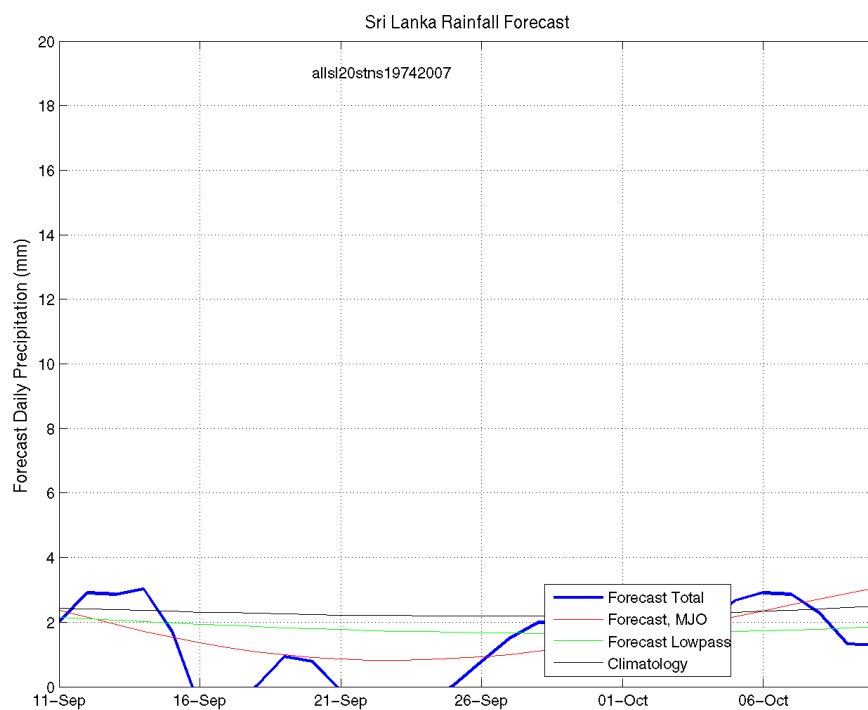
**b) Weekly Precipitation Forecast for 11-16 Sept 2012 (Precipitation Forecast in Context Map Tool, IRI)**



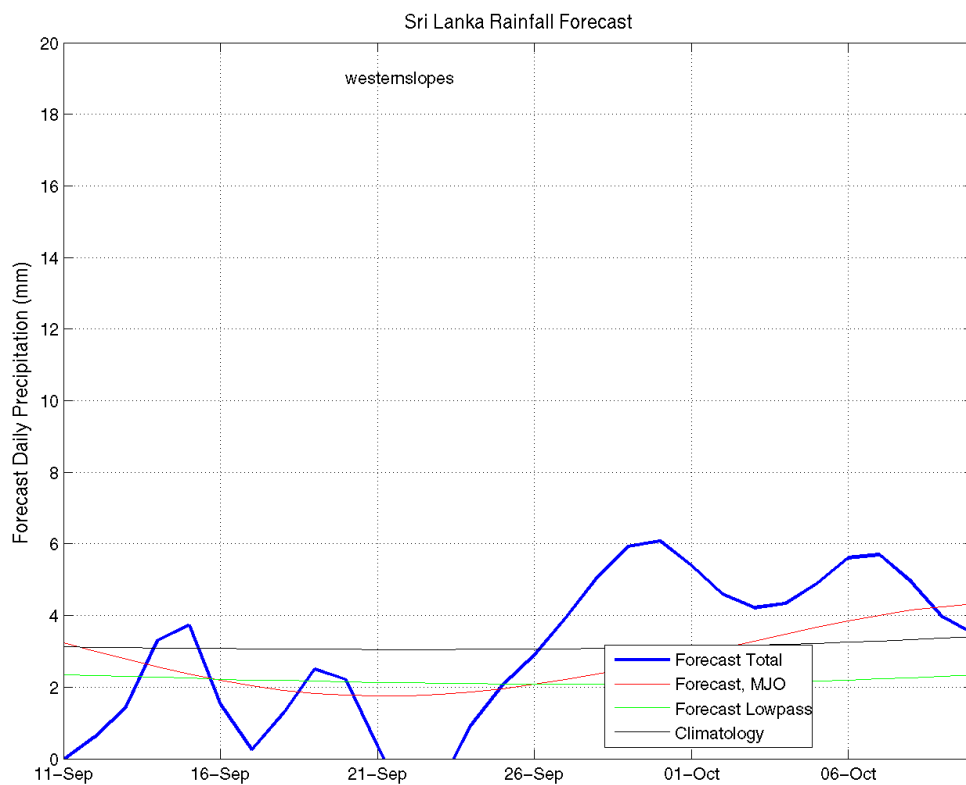
**c) 1 month experimental predictions by Paul Roundy and L. Zubair**

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

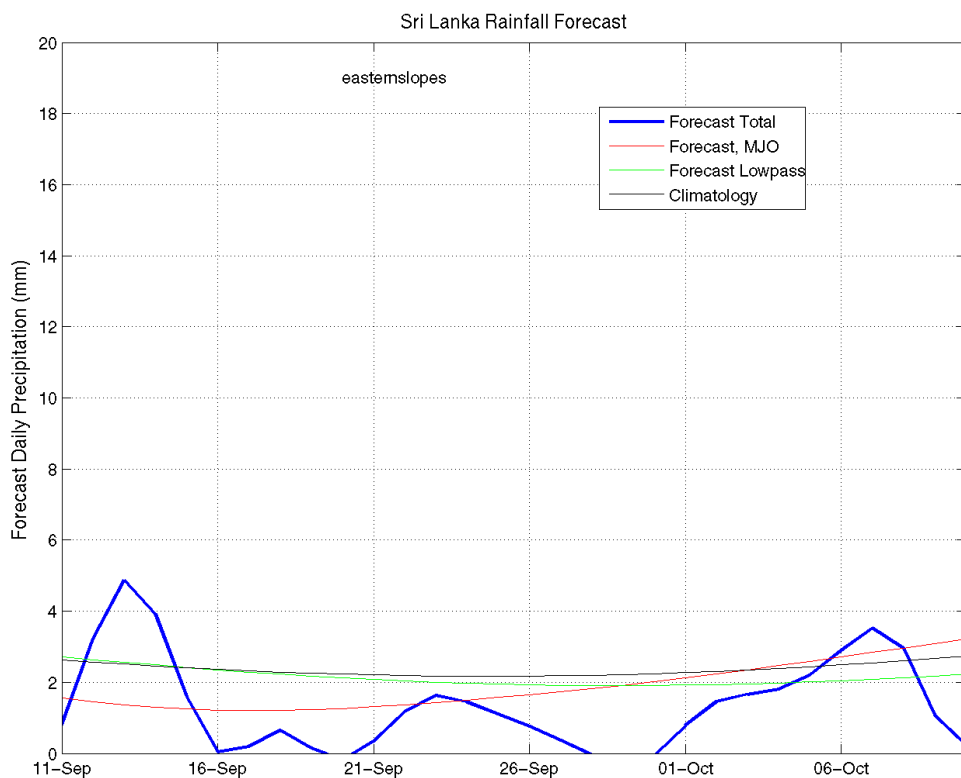
**All Sri Lanka (Rainfall Scale from 0-20mm/day)**



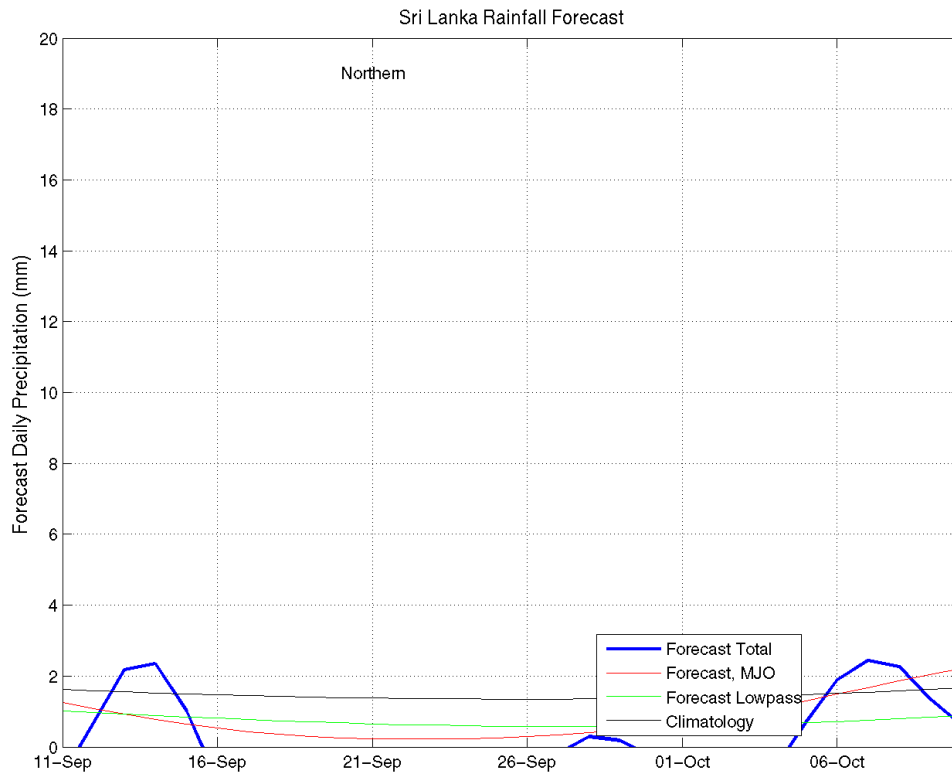
## Western Slopes (Rainfall Scale from 0-20 mm/day)



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

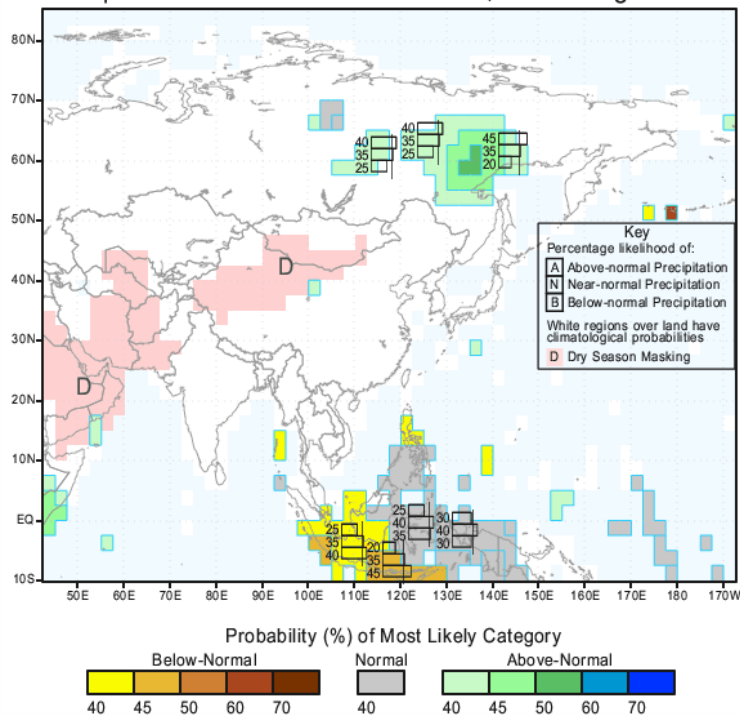


## Northern Region (Rainfall Scale- from 0-20 mm/day)



## d) Seasonal Rainfall and Temperature Predictions from IRI

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





*d) Seasonal Rainfall and Temperature Predictions from IRI Cntd...*

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

