

## Experimental Climate Monitoring and Prediction

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

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28 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

20 September 2012

More than 80% of the ENSO prediction models predict El Nino SST conditions during the September- November season, continuing into Northern winter 2012-13. Among those predicting El Nino, very few predict more than a weak event.  
(IRI)

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

#### Monitoring

**Weekly Monitoring:** During the last week (20<sup>th</sup> - 25<sup>th</sup> September) rainfall ranged between 0 mm- 70 mm. During this week rainfall was observed for the entire country. Maximum rainfall of 70 mm was observed for the places at Monaragala district on 21<sup>st</sup> and for the places at Galle and Matara Districts on 22<sup>nd</sup>. Northern half of the island received significant amount of rainfall in this week compared to previous weeks.

**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 5 mm – 35 mm is predicted for the Southwestern region of the island.

**IMD WRF Model Forecast & IRI forecast:** On 29<sup>th</sup> September IMD WRF Model predicts less than 65 mm of rainfall for the Western province & Puttalam district. For the same day 3-37 mm of rainfall is predicted for western half of the island as well as North and Northeastern provinces. On 30<sup>th</sup> model forecasts less than 65 mm of rainfall for the western coastal regions & it shall diminish towards the inside the country. But for the eastern half of the island, the model predicts no rainfall. NOAA models forecast Predicts 50 mm rainfall for the entire country.

**1 Month Prediction: Overall-** Rainfall shall increase during 29<sup>th</sup> September- 1<sup>st</sup> October & it shall decrease gradually till 5<sup>th</sup> October. Rainfall shall increase gradually during 5-11<sup>th</sup> October & it shall decrease till 15<sup>th</sup>.

**Western Slopes-** Rainfall shall increase during 28<sup>th</sup> September- 1<sup>st</sup> October & it shall fluctuate between 0 and 8 mm during 1<sup>st</sup>-11<sup>th</sup> October, with highest rainfall expected on 1<sup>st</sup>, 11<sup>th</sup> and 21<sup>st</sup>. Thereafter rainfall shall decrease.

**Eastern slopes-** Rainfall is not predicted for the 29<sup>th</sup> September-1<sup>st</sup> October & 4<sup>th</sup>-7<sup>th</sup> October. Small amount of rainfall expected during 1<sup>st</sup>-4<sup>th</sup> October. Rainfall shall increase drastically till 12<sup>th</sup> & it shall show huge fluctuations thereafter. **Northern-** Rainfall is not predicted until the 6<sup>th</sup> of October. Rainfall shall increase gradually during 6<sup>th</sup>-9<sup>th</sup> & it shall show minor fluctuation between 9<sup>th</sup>-15<sup>th</sup>. Thereon rainfall shall decrease till 18<sup>th</sup> & it shall increase till 20<sup>th</sup>. Thereafter rainfall shall decrease.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for October 2012 to December 2012, issued in September 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

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

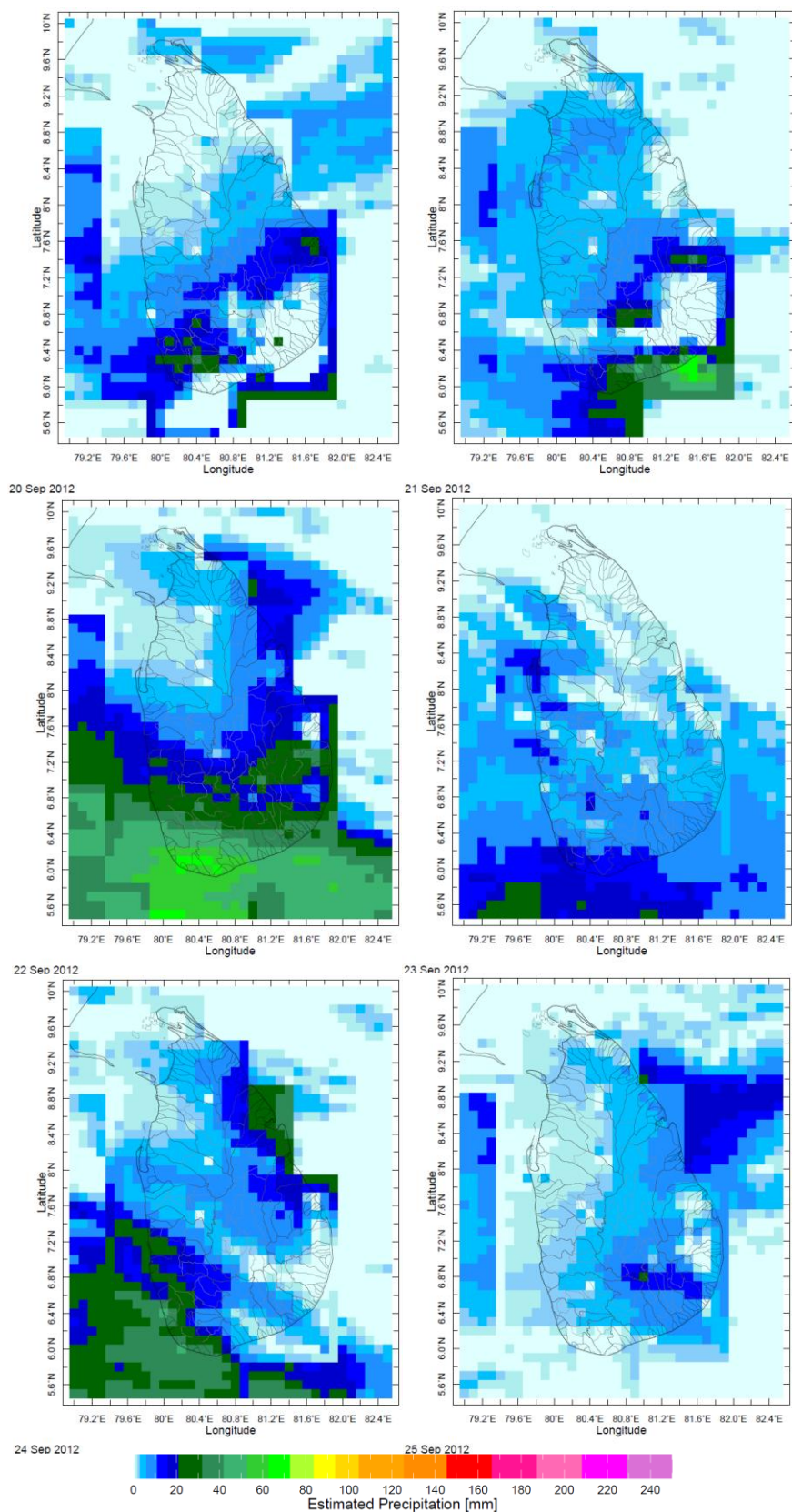
<sup>1</sup> International Research Institute for Climate and Society.

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

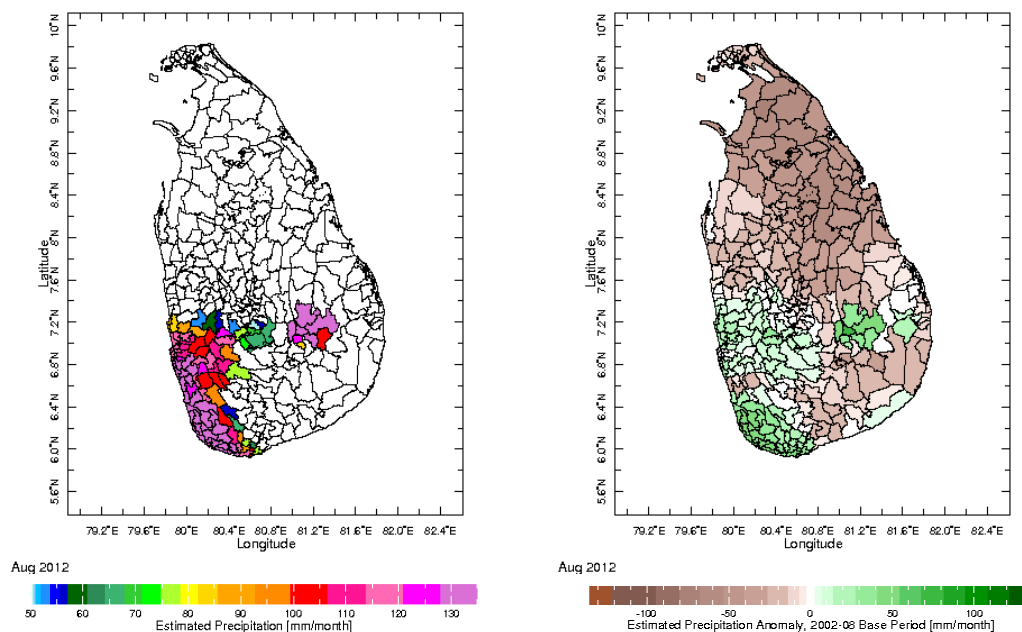
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

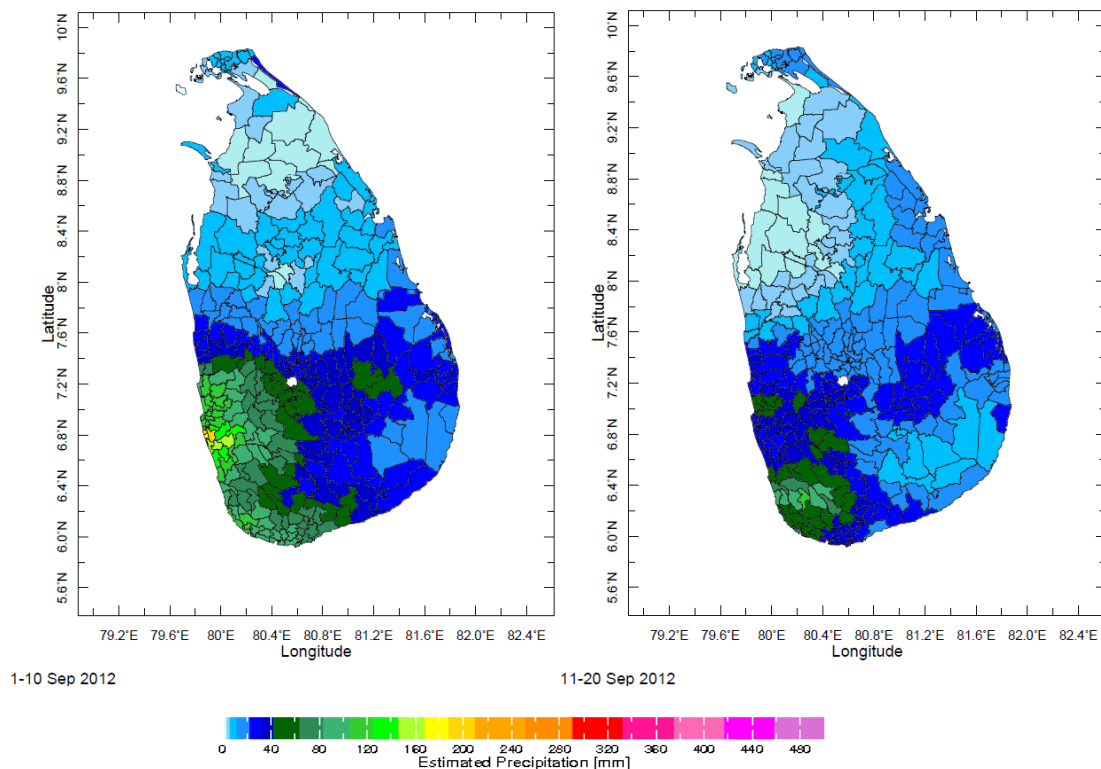
### a) Daily Satellite Derived Rainfall Estimate Maps: 20<sup>th</sup> - 25<sup>th</sup> September, 2012 (Left-Right, Top-Bottom)



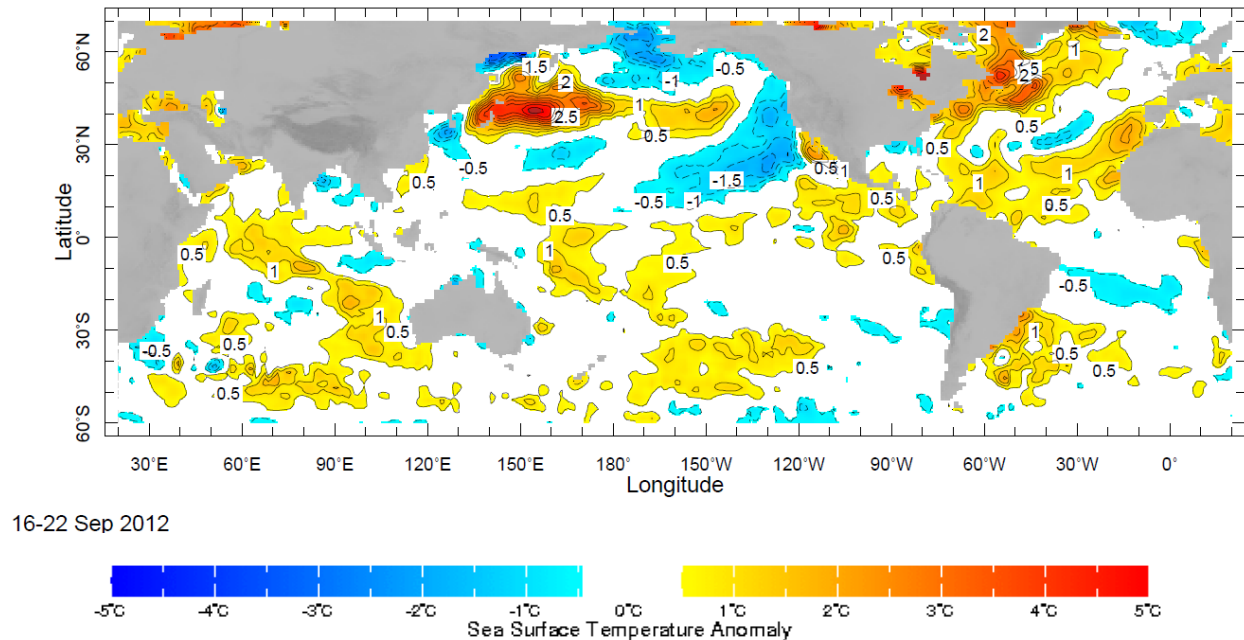
## b) Monthly Satellite Derived Rainfall Estimates for August 2012 (Total – Left and Anomaly -Right)



## c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (1-10 & 11-20 September, 2012)



## d) Weekly Average SST Anomalies



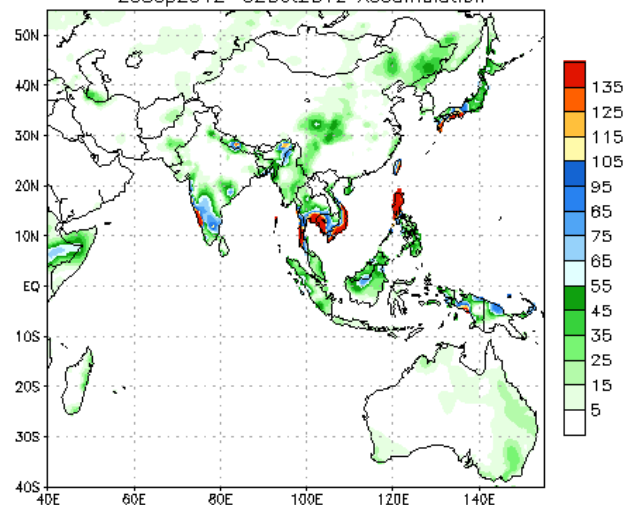
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 16<sup>th</sup> Sept- 22<sup>nd</sup> Sept, 2012

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: 26Sep2012  
26Sep2012-02Oct2012 Accumulation



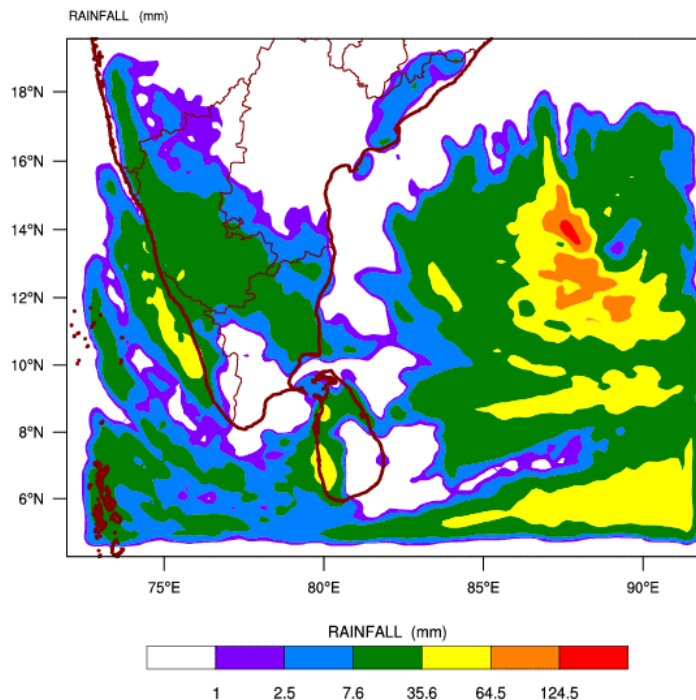
Bias correction based on last 30-day forecast error

Source – NOAA Climate Prediction Center

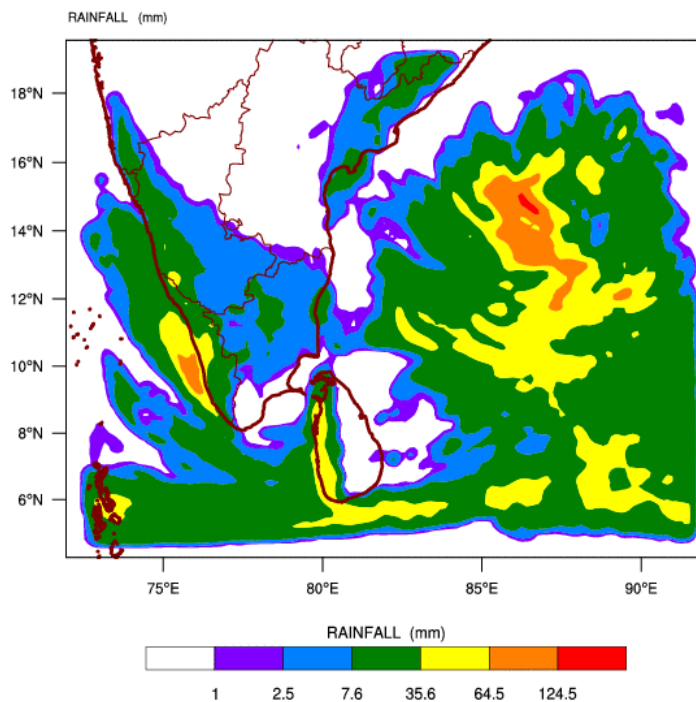


**b) WRF Model Forecast (Regional Meteorological Center, Chennai, Indian Meteorological Department)**

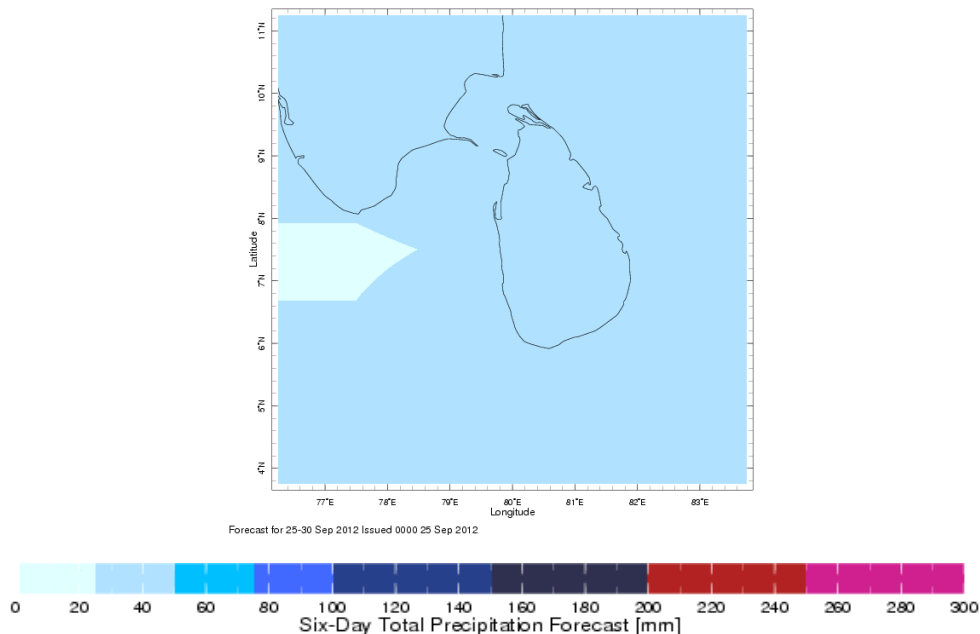
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-09-2012 valid for 03 UTC of 29-09-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 27-09-2012 valid for 03 UTC of 30-09-2012



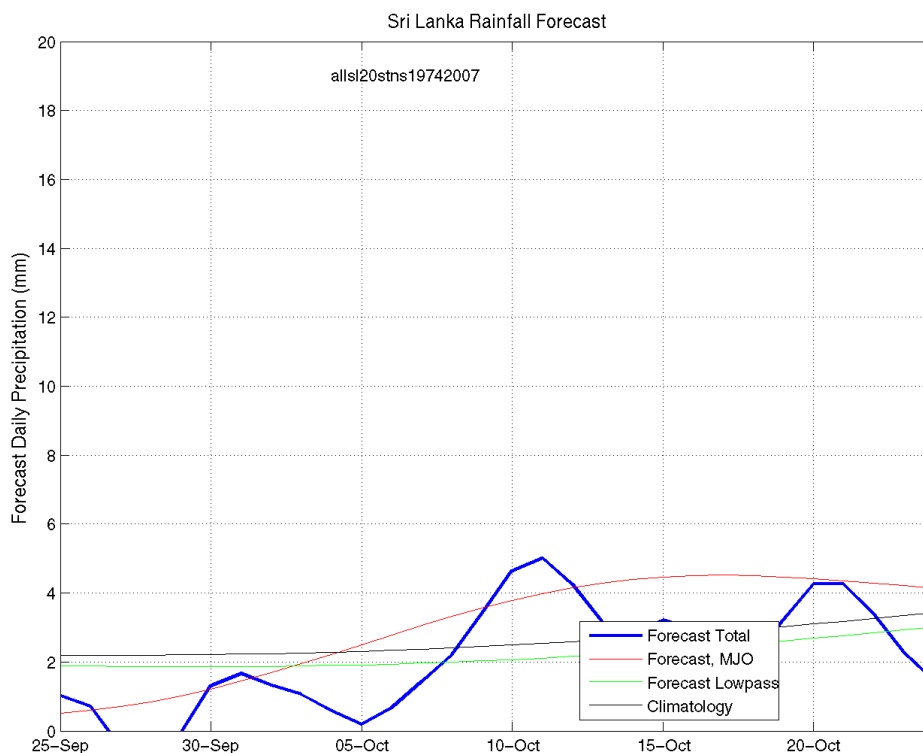
**c) Weekly Precipitation Forecast for 25<sup>th</sup> - 30<sup>th</sup> Sept 2012 (Precipitation Forecast in Context Map Tool, IRI)**



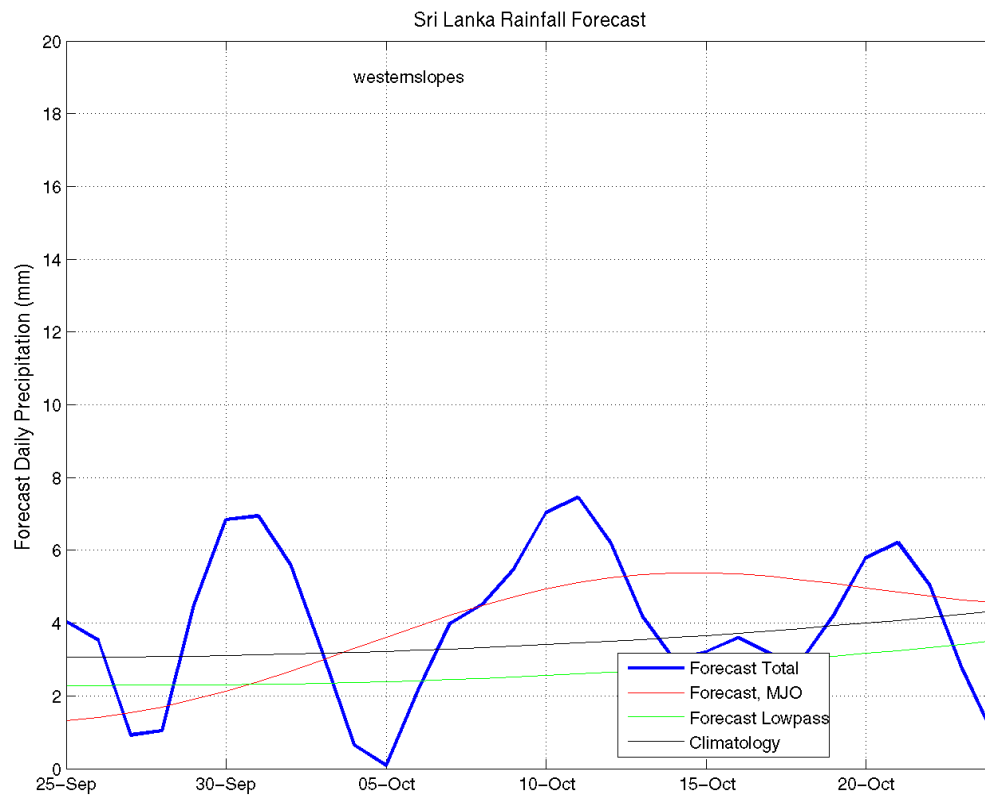
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 27<sup>th</sup> Sept, 2012

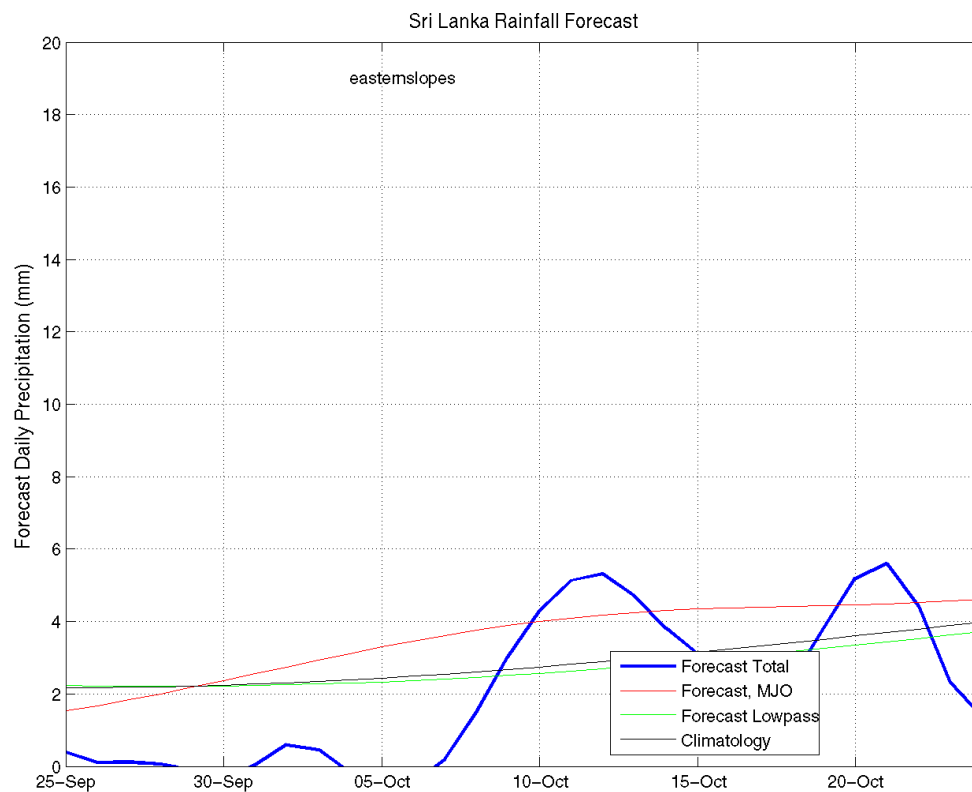
**All Sri Lanka (Rainfall Scale from 0-20mm/day)**



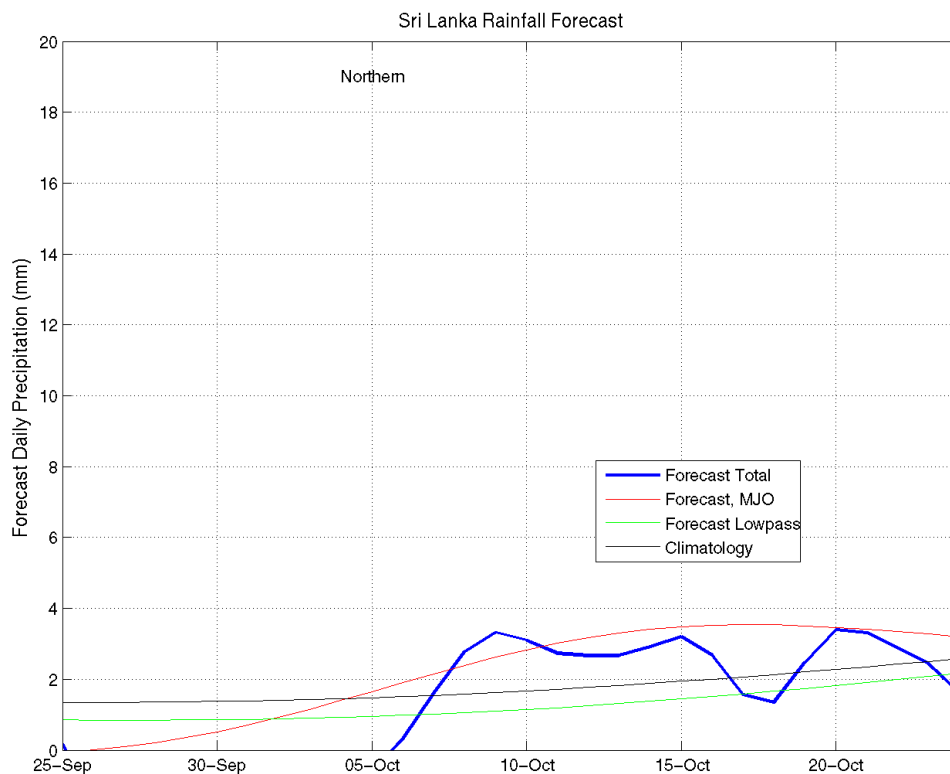
## Western Slopes (Rainfall Scale from 0-20 mm/day)



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

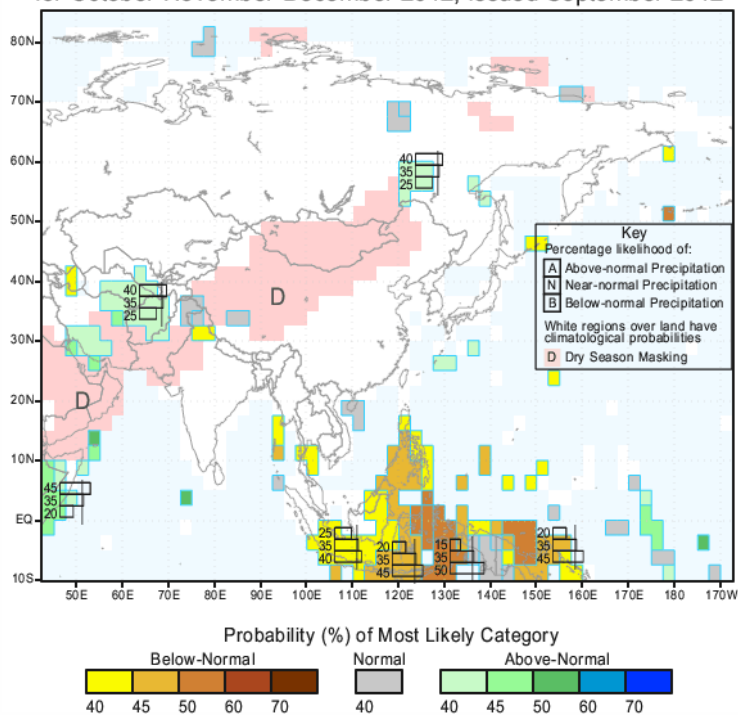


## Northern Region (Rainfall Scale- from 0-20 mm/day)



## e) Seasonal Rainfall and Temperature Predictions from IRI

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





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

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

