

## Experimental Climate Monitoring and Prediction

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

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### FECT BLOG

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

and

<http://fectsl.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 27<sup>th</sup> of September- 2<sup>nd</sup> of October, rainfall ranged between 0-60 mm. Maximum rainfall of 60 mm was observed on the 27<sup>th</sup> for Jaffna peninsula. During this week Southern half of the island received low rainfall. On the 28<sup>th</sup>, Jaffna peninsula received heavy rainfall while the rainfall on the rest of the country was much less. During the next 3 days, rainfall gradually diminished and by the 2<sup>nd</sup> of October rainfall desisted completely.

**Monthly Monitoring:** In September, Central and South Eastern regions of the country received below average rainfall and the rest of the country received above average rainfall. Particularly Western, South Western and Jaffna peninsula regions were observed having a high positive anomaly.

#### Predictions

**7-day prediction:** During this week, an accumulated rainfall of 5 mm – 55 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 8 mm rainfall for Jaffna peninsula. On the 30<sup>th</sup>, model forecasts less than 8 mm rainfall for Jaffna peninsula and less than 2.5 mm id predicted for the Western coastal areas of the country. NOAA models forecast 25 mm rainfall for the entire country.

**1 Month Prediction: Overall-** Rainfall is predicted to be in the range 0-6 mm with the highest amount of rainfall expected around 11<sup>th</sup> of October. Rainfall shall decrease during 5<sup>th</sup>-6<sup>th</sup> October. Rainfall shall increase drastically during 7<sup>th</sup>-11<sup>th</sup> & it shall reduce till 14<sup>th</sup>. Thereafter till 21<sup>st</sup>, rainfall shall increase with different rates. Thereafter rainfall shall gradually decrease till 27<sup>th</sup>. Thereon rainfall shall increase. **Western Slopes-** Same rainfall pattern shall exsits as mentioned for the overall country. But during 14<sup>th</sup>-21<sup>st</sup> rainfall shall show significant fluctuations. **Eastern slopes-** Same rainfall pattern shall exsits as mentioned for the overall country. **Northern-** During 03<sup>rd</sup>-21<sup>st</sup> rainfall shall increase gradually with different rates of fluctuations. Thereafter rainfall shall decrease gradually 25<sup>th</sup> & it shall increase thereafter.

**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

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

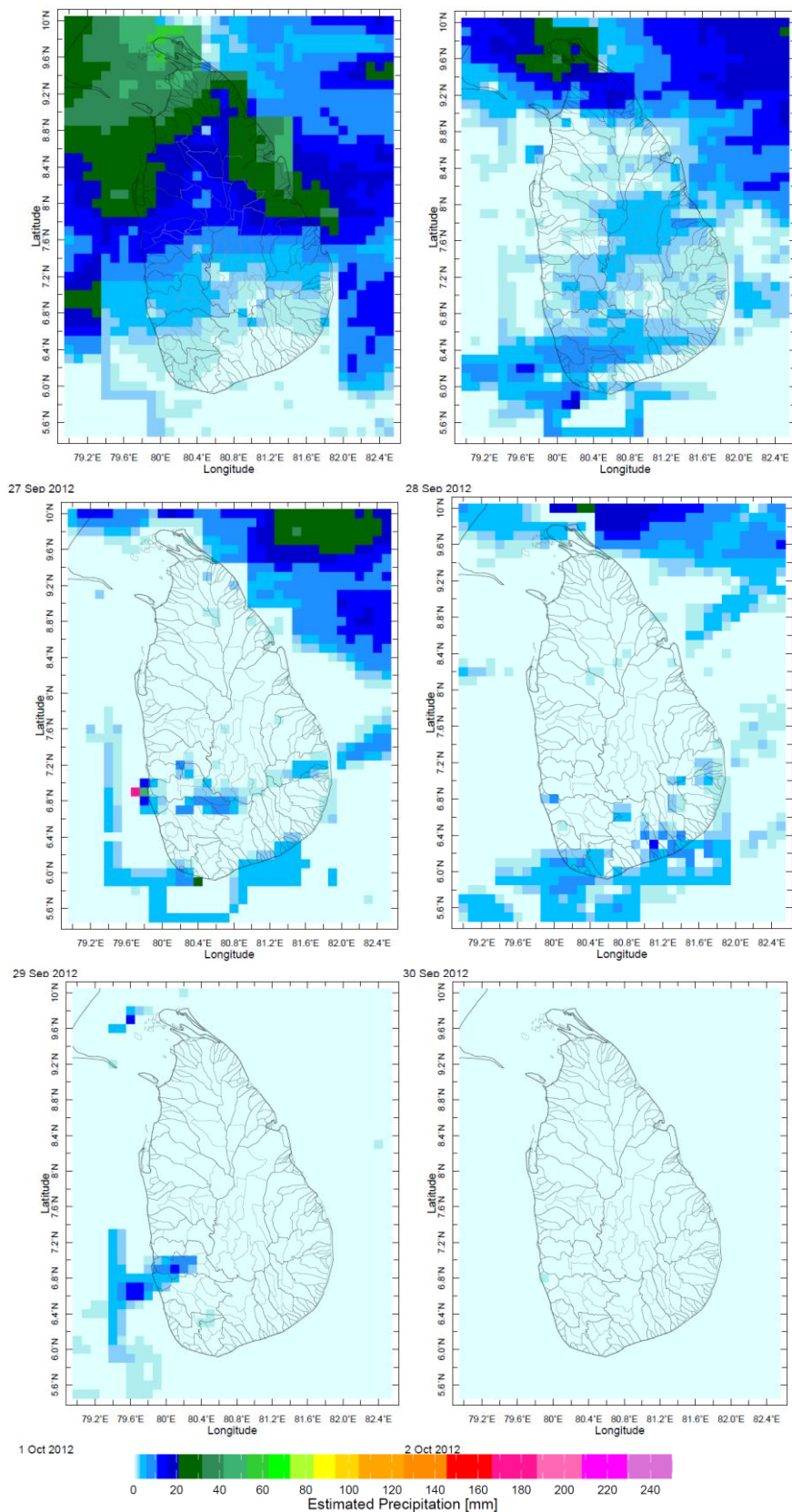
<sup>1</sup> International Research Institute for Climate and Society.

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

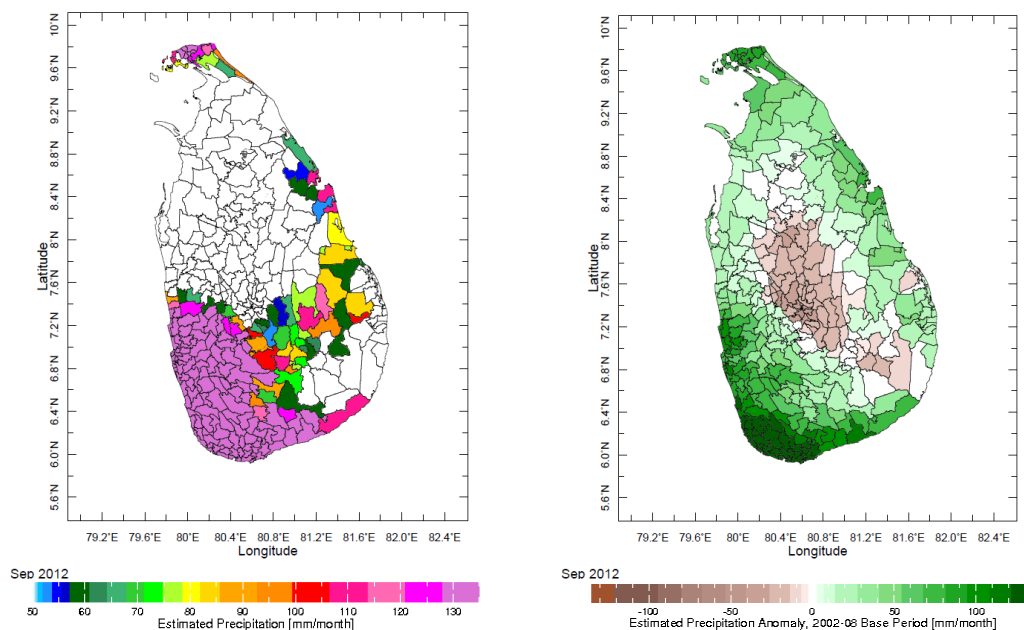
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

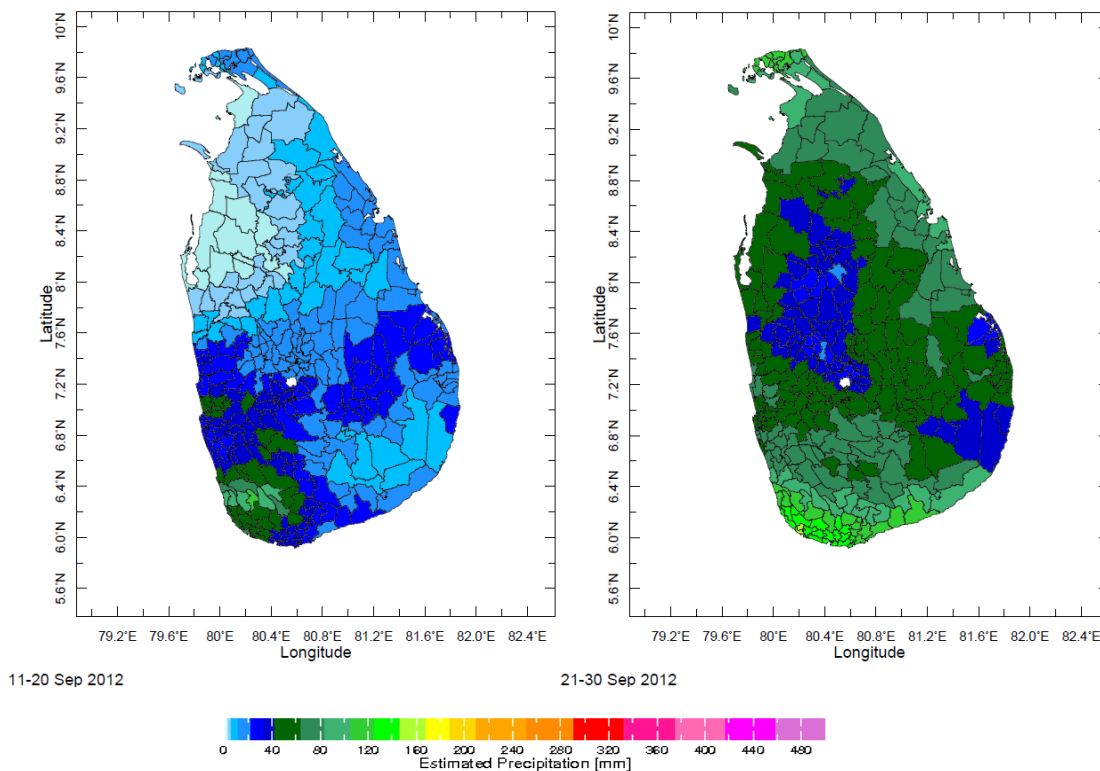
### a) Daily Satellite Derived Rainfall Estimate Maps: 27<sup>th</sup> Sep. - 2<sup>nd</sup> Oct., 2012 (Left-Right, Top-Bottom)



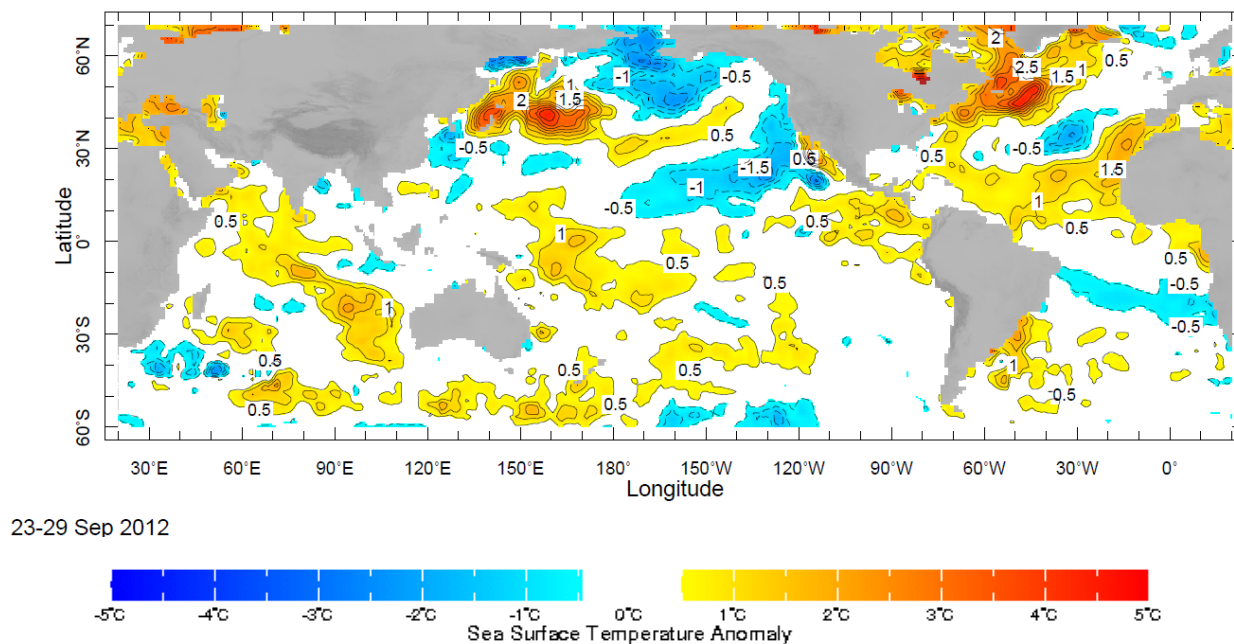
**b) Monthly Satellite Derived Rainfall Estimates for September 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (11-20 & 21-30 September, 2012)**



## d) Weekly Average SST Anomalies



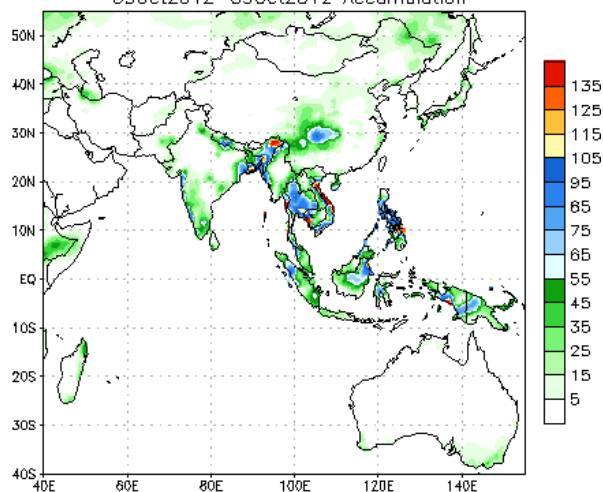
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 23<sup>rd</sup> Sept- 29<sup>th</sup> Sept, 2012

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: 03Oct2012  
03Oct2012-09Oct2012 Accumulation



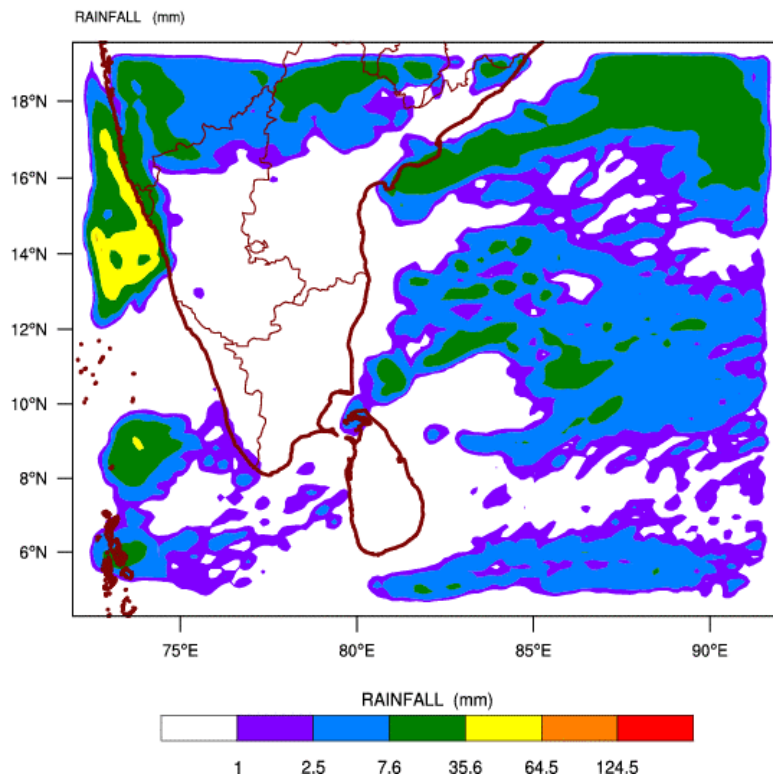
Bias correction based on last 30-day forecast error

Source – NOAA Climate Prediction Center

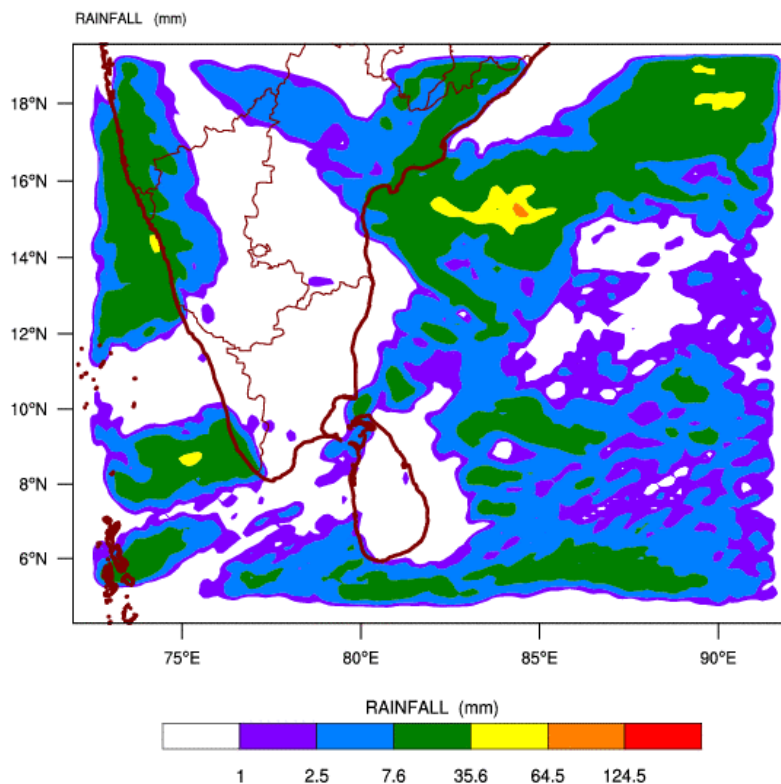


**b) WRF Model Forecast (Regional Meteorological Center, Chennai, Indian Meteorological Department)**

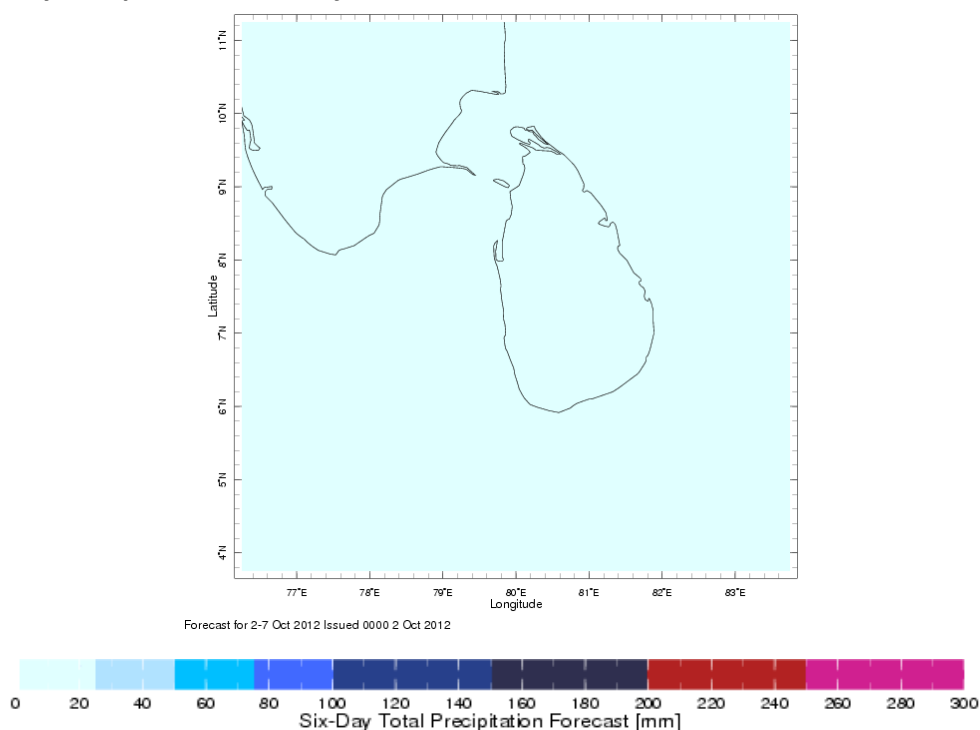
**WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\**  
based on 00 UTC of 03-10-2012 valid for 03 UTC of 05-10-2012



**WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\**  
based on 00 UTC of 03-10-2012 valid for 03 UTC of 06-10-2012



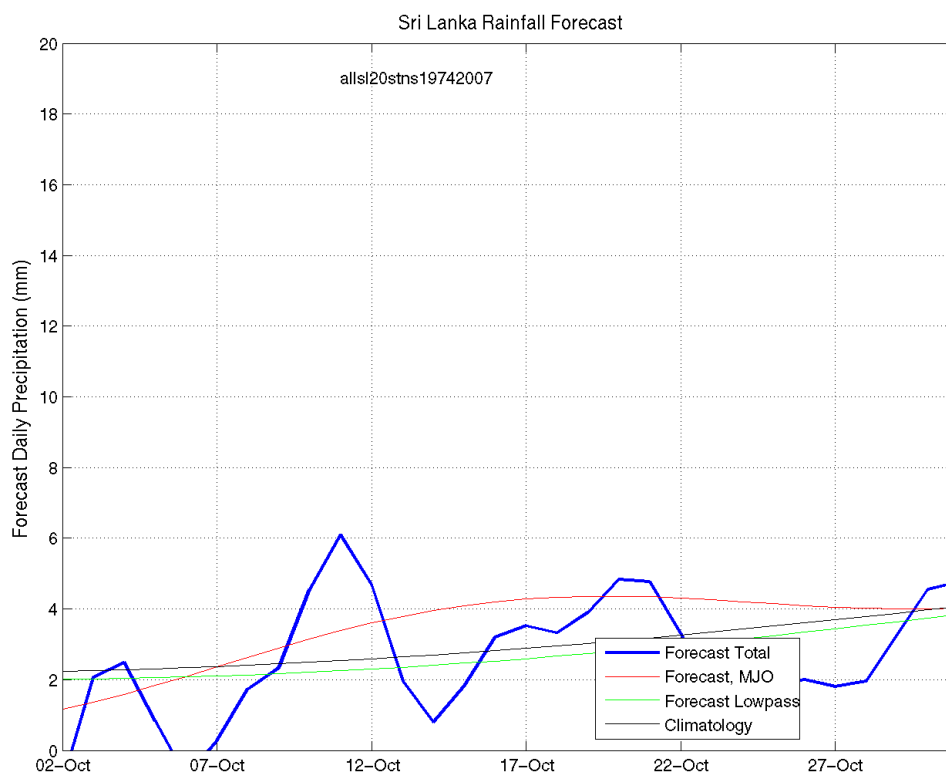
**c) Weekly Precipitation Forecast for 2<sup>nd</sup> -7<sup>th</sup> Oct 2012 (Precipitation Forecast in Context Map Tool, IRI)**



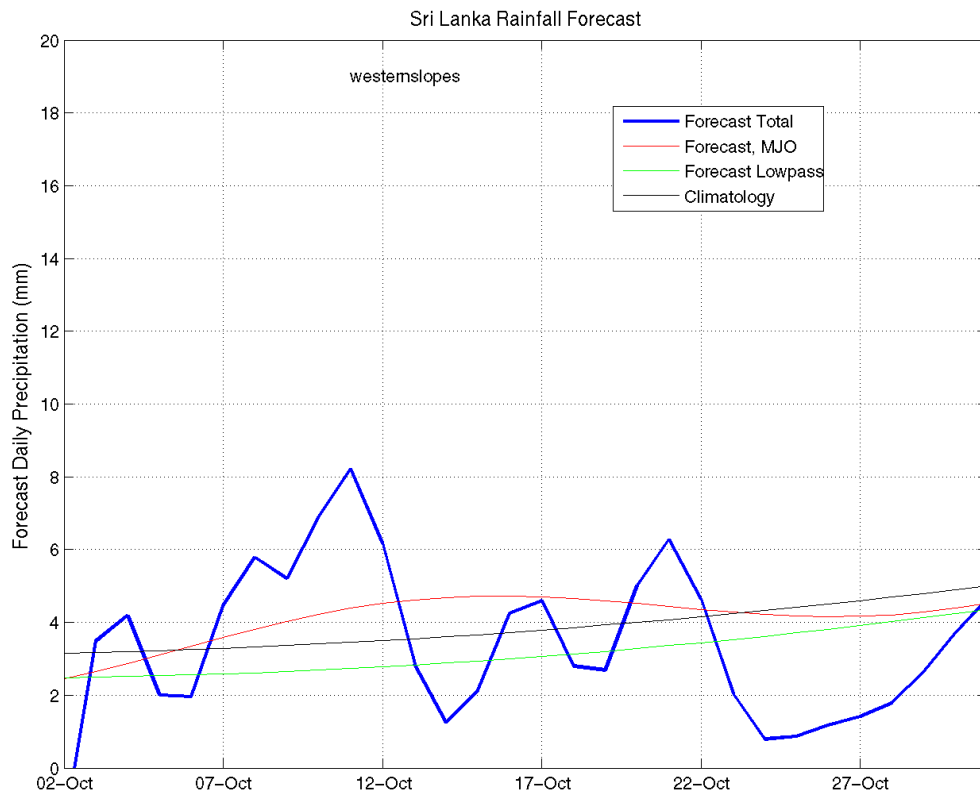
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 4<sup>th</sup> Oct, 2012

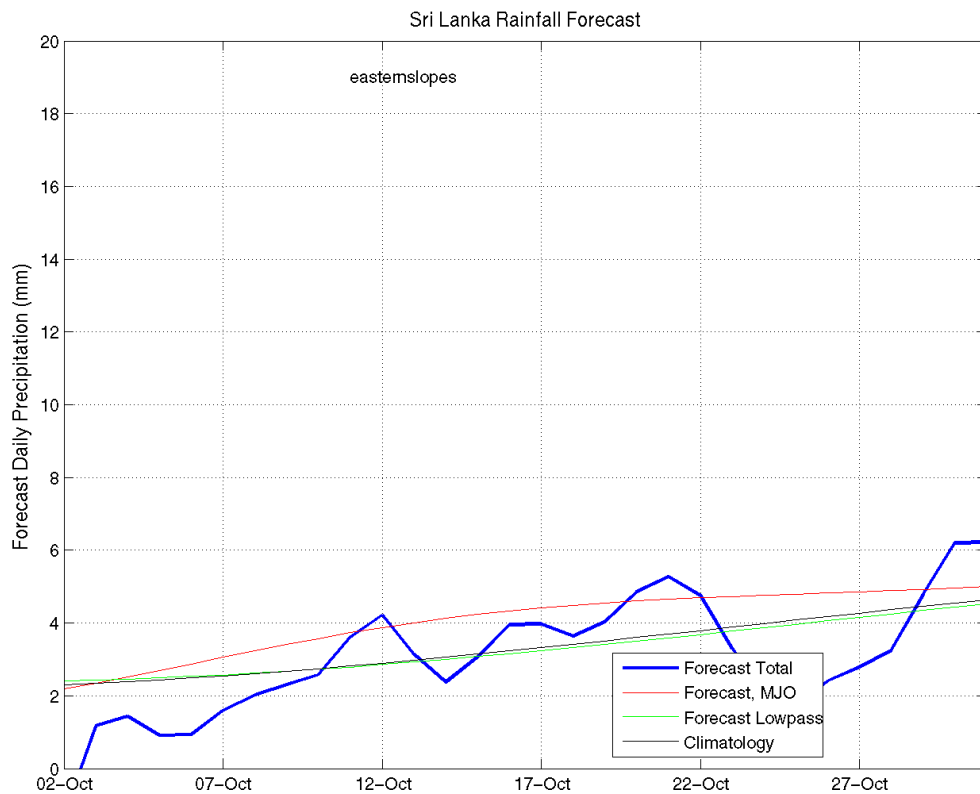
**All Sri Lanka (Rainfall Scale from 0-20mm/day)**



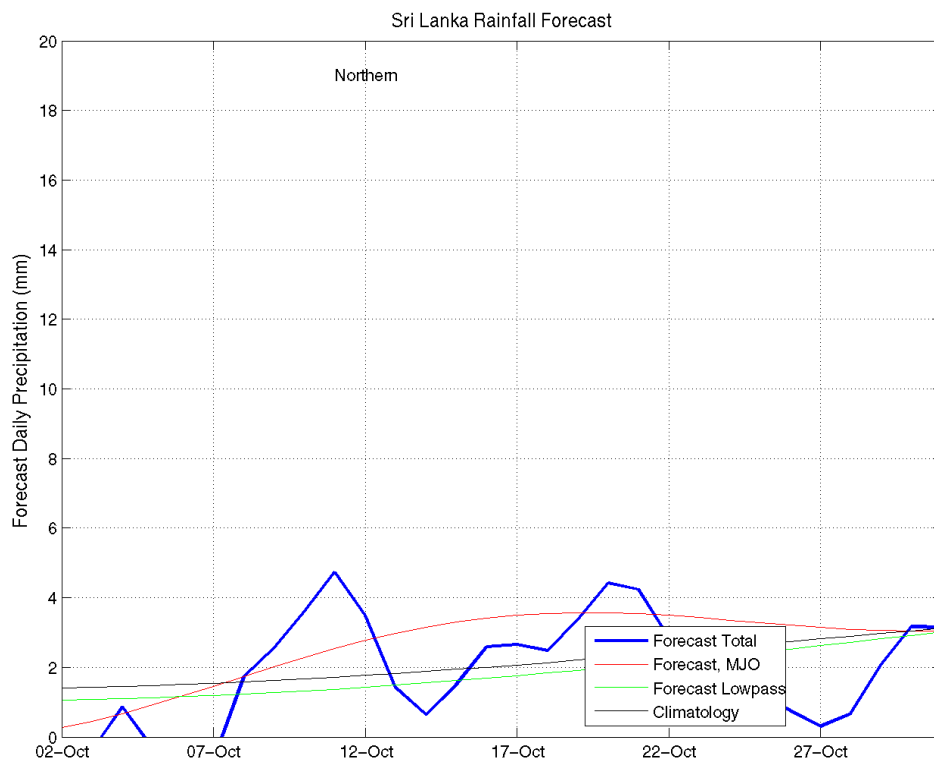
## Western Slopes (Rainfall Scale from 0-20 mm/day)



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

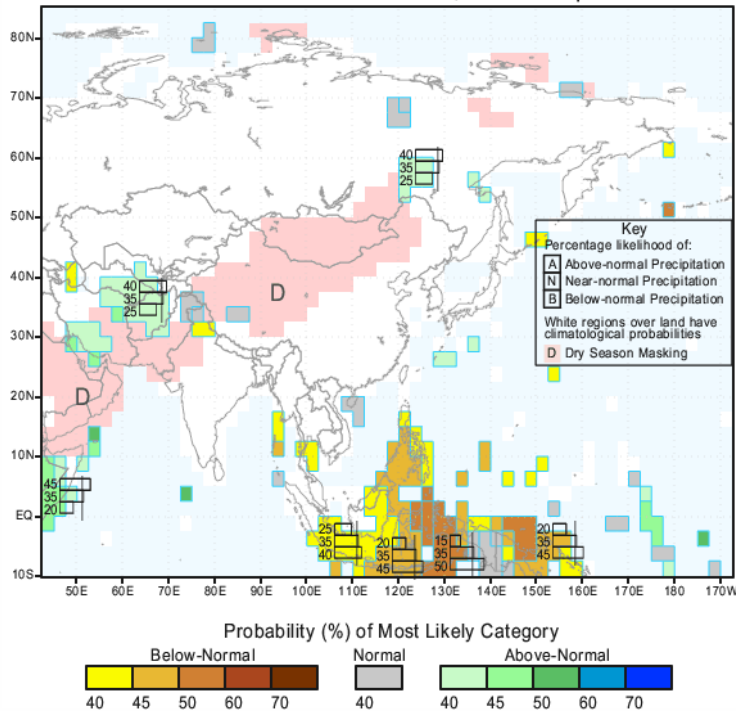


## Northern Region (Rainfall Scale- from 0-20 mm/day)



## 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

