

## 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>)

26 October 2012

### 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

18 October 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)

### Highlights<sup>2</sup>

#### Monitoring and Prediction

The drought during the *Yala* season abated at the start of September and now as is seasonable with the start of the *Maha* season, we have heavy rainfalls. For the same reasons that *Yala* was drought ridden (warm Central Indian Ocean and Pacific Ocean surface temperatures), Sri Lanka and the sea towards eastern Africa is likely to have a wetter and warmer period till December.

#### Summary

##### Monitoring

**Weekly Monitoring:** During 17<sup>th</sup>-22<sup>nd</sup> of October, rainfall ranged between 0-100 mm. Heavy rain was reported in the Southern half of the island and Jaffna Peninsula on the 18<sup>th</sup>. In the next 4 days less rain was observed in South East while the rest of the country received heavy rainfall.

**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. Western, South Western and Jaffna peninsula regions were particularly wetter than normal.

##### Predictions

**7-day prediction:** During this week, North and South eastern regions shall receive 35- 55 mm rainfall and the rest of the country shall receive rainfall up to 65 mm.

**IMD WRF Model Forecast & IRI forecast:** IMD WRF Model predictions are not available for this week. NOAA models forecast 50- 75 mm rainfall in Jaffna peninsula and 100- 150 mm rainfall in the south. The rest of the country shall receive in between of rainfall.

**1 Month Prediction: Overall-** Rainfall shall decrease gradually during 25<sup>th</sup>-29<sup>th</sup> & it shall increase gradually during 29<sup>th</sup> October-2<sup>nd</sup> November. Thereafter again rainfall shall decrease till 4<sup>th</sup> November. Thereafter rainfall shall increase gradually till 11<sup>th</sup> November. **Western Slopes-** Rainfall shall gradually decrease until 1<sup>st</sup> of November. Then it shall gradually increase to a maximum around the 10<sup>th</sup>. Thereafter rainfall shall decrease. **Eastern slopes-** Rainfall shall gradually decrease until 30<sup>th</sup>. Then it shall gradually increase till 11<sup>th</sup> November. **Northern-** Rainfall shall decrease until 29<sup>th</sup> of October and fluctuate thereafter until 20<sup>th</sup> of November.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for November 2012 to January 2013, issued in October 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

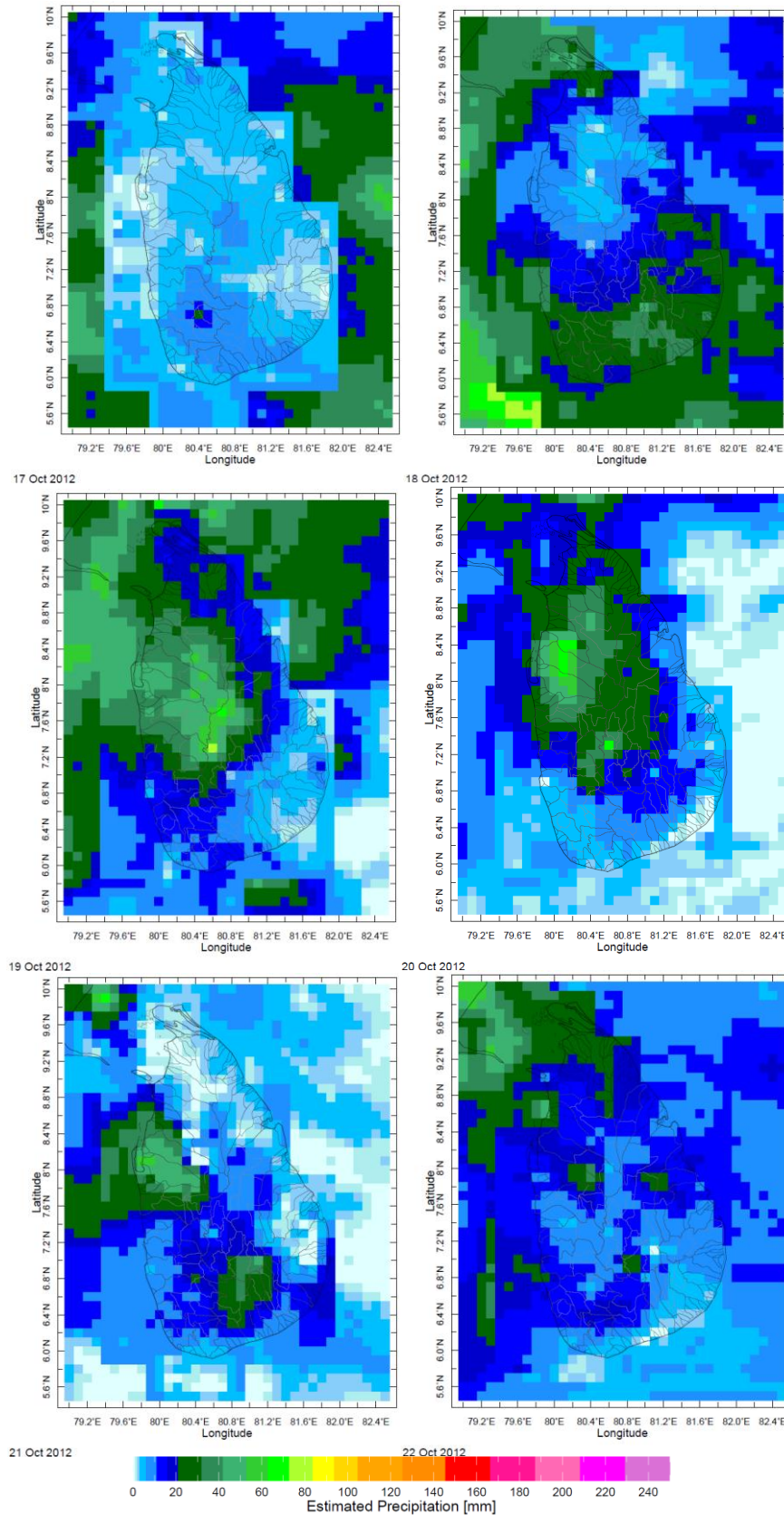
- NCEP GFS Ensemble 1-7 day predictions
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

<sup>1</sup> International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

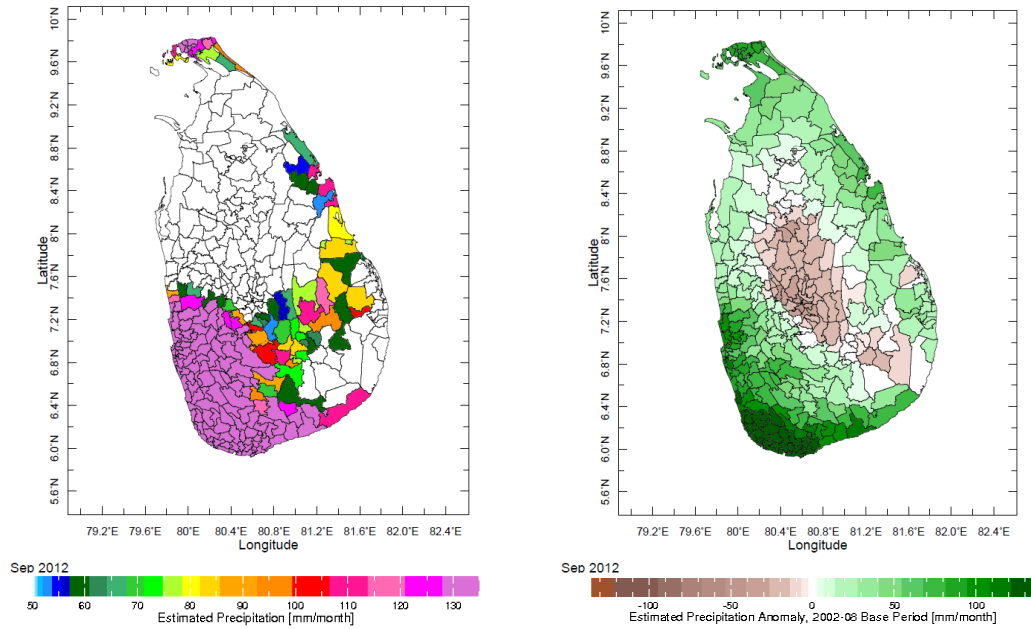
<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

## 1. Monitoring

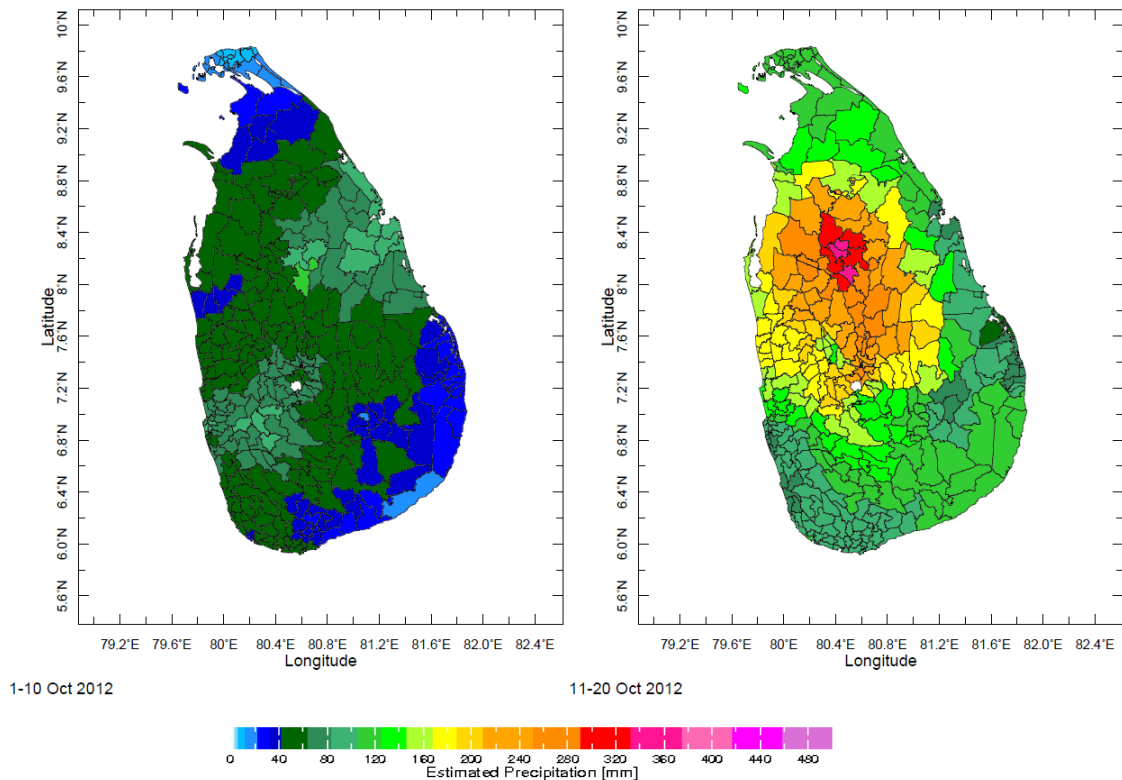
### a) Daily Satellite Derived Rainfall Estimate Maps: 17<sup>th</sup> -22<sup>nd</sup> October, 2012 (Left-Right, Top-Bottom)



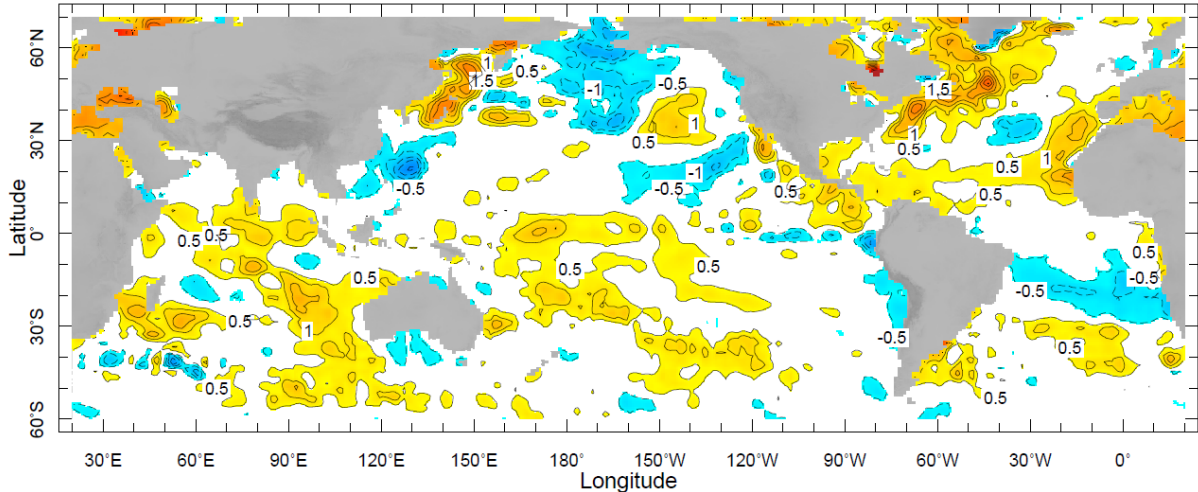
**b) Monthly Satellite Derived Rainfall Estimates for September 2012 (Total – Left and Anomaly -Right)**



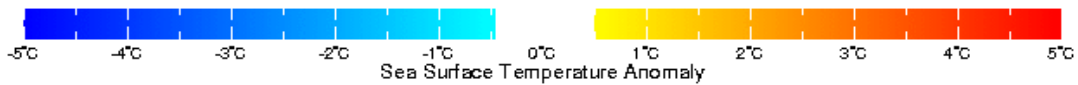
**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (1-10 & 11-20 October, 2012)**



**d) Weekly Average SST Anomalies**



14-20 Oct 2012



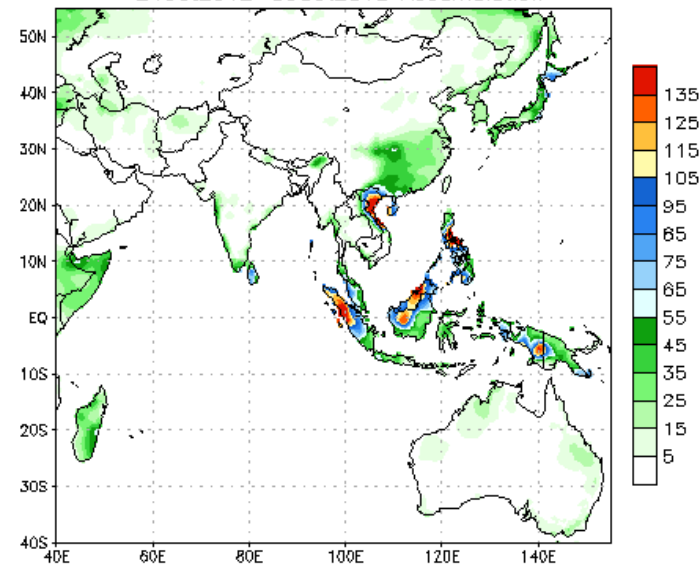
Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 14<sup>th</sup>- 20<sup>th</sup> Oct, 2012

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

**2. Predictions**

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

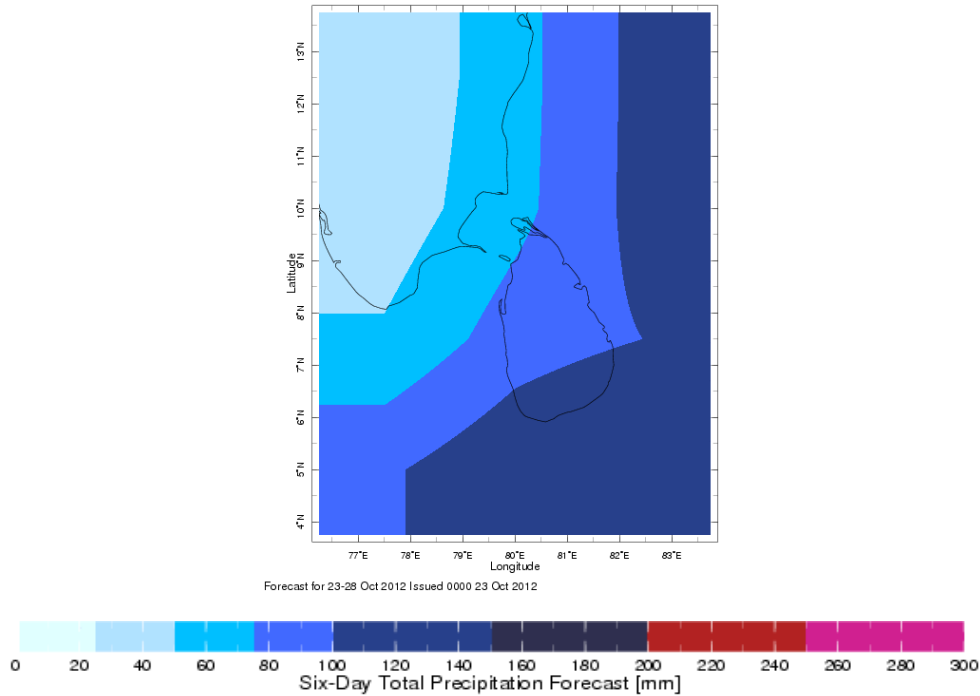
NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 24Oct2012  
24Oct2012-30Oct2012 Accumulation



Bias correction based on last 30-day forecast error

Source – NOAA Climate Prediction Center

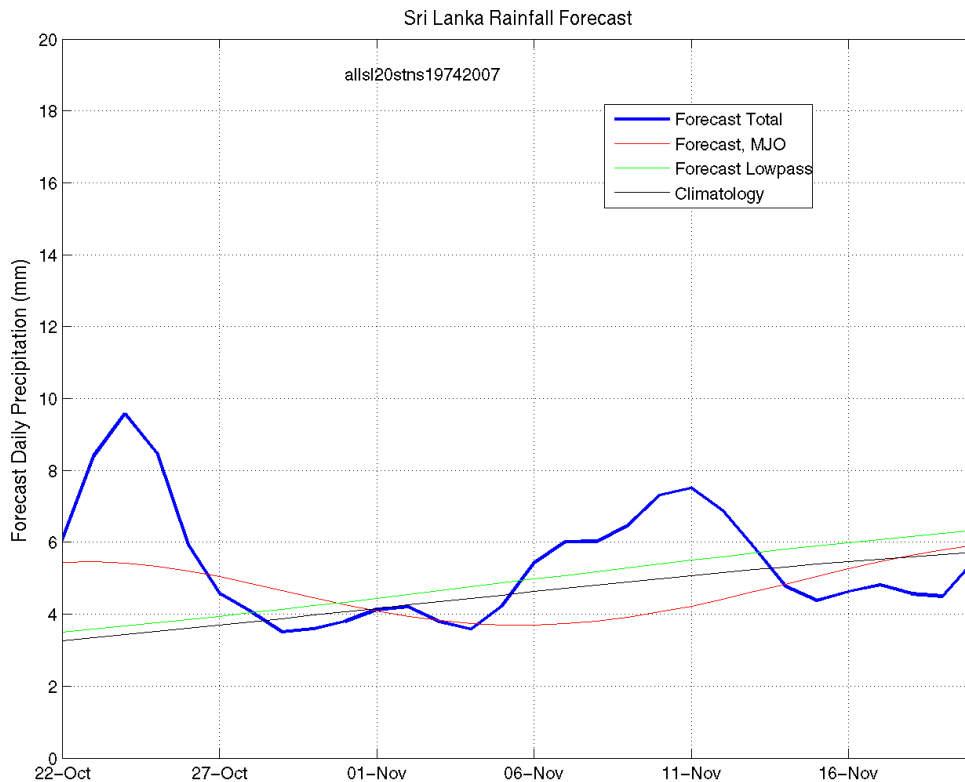
**b) Weekly Precipitation Forecast for 23<sup>rd</sup> -28<sup>th</sup> Oct 2012 (Precipitation Forecast in Context Map Tool, IRI)**



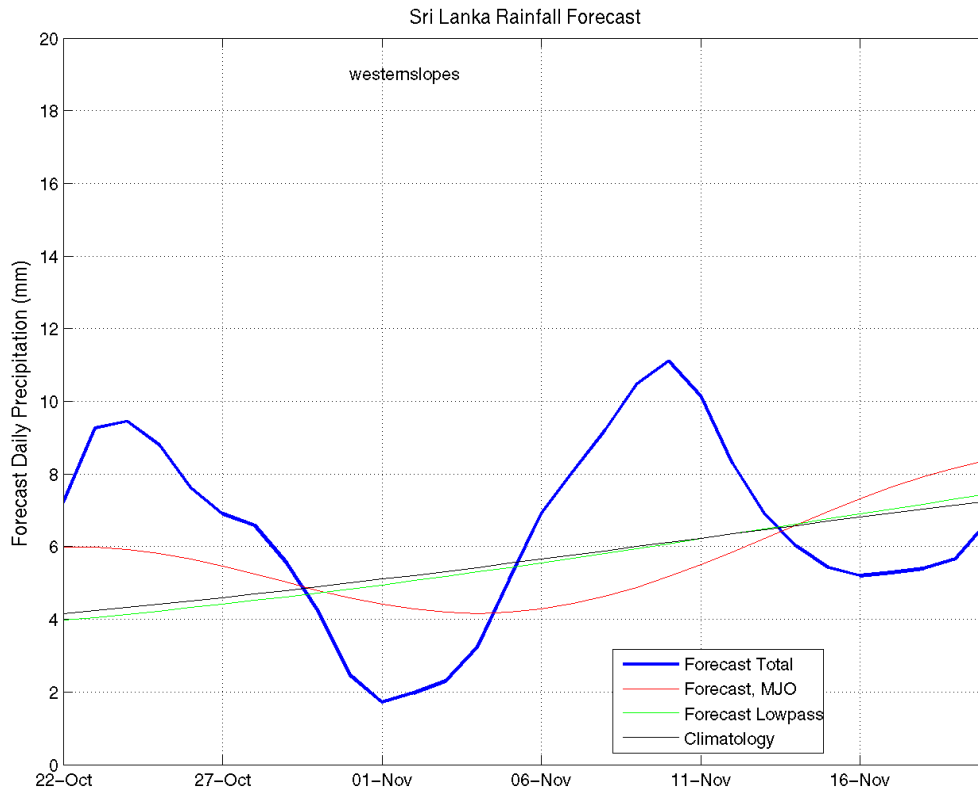
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 24<sup>th</sup> October, 2012

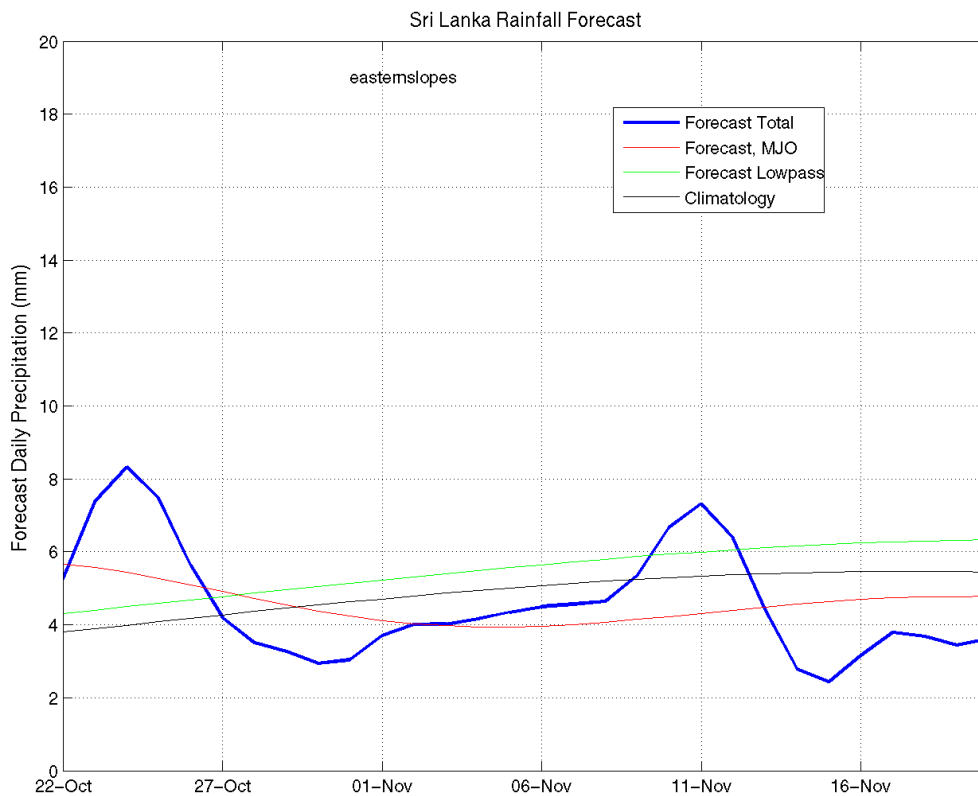
**All Sri Lanka (Rainfall Scale from 0-20mm/day)**



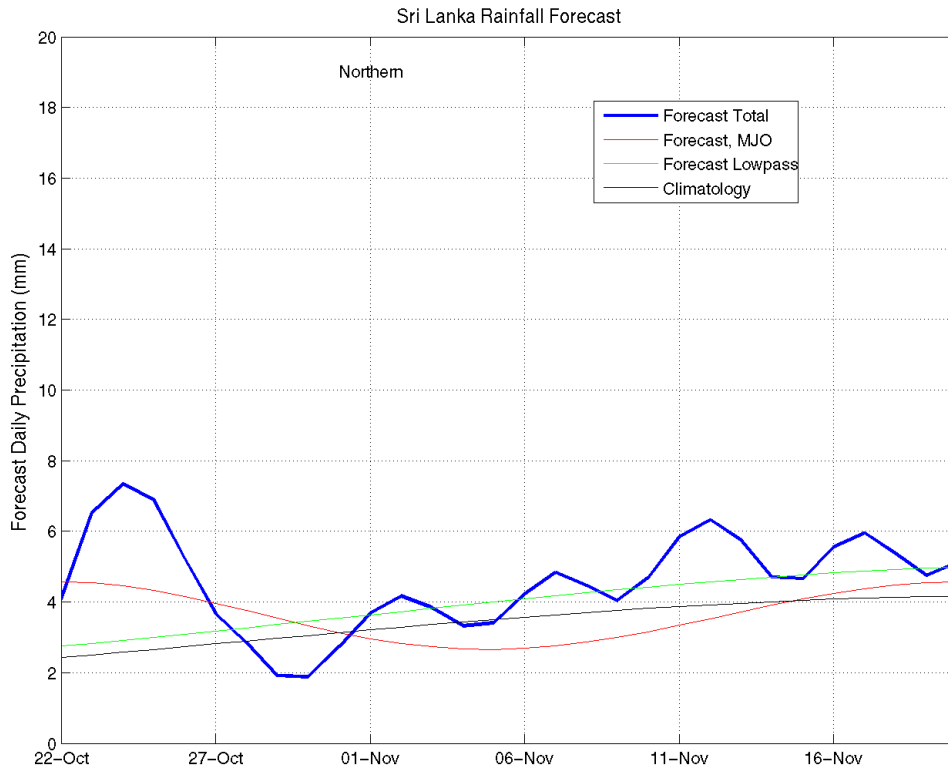
**Western Slopes (Rainfall Scale from 0-20 mm/day)**



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

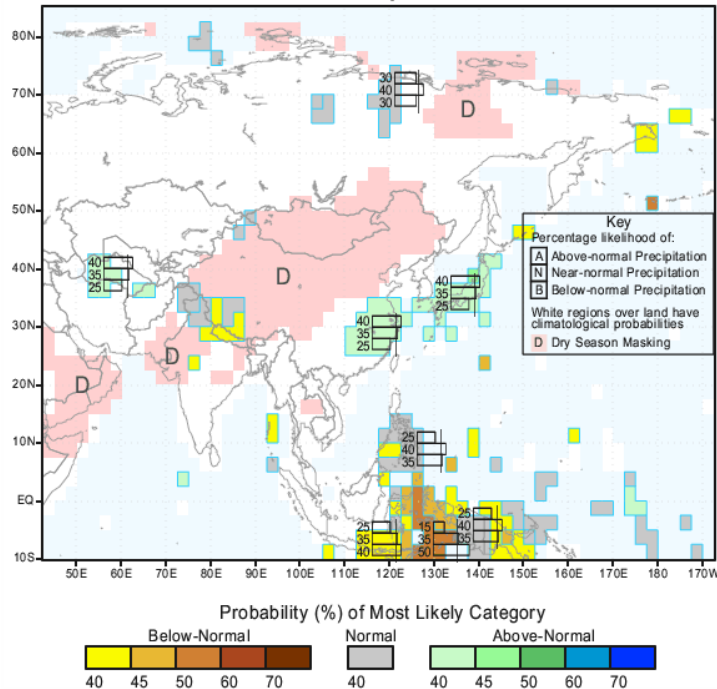


**Northern Region (Rainfall Scale- from 0-20 mm/day)**



**e) Seasonal Rainfall and Temperature Predictions from IRI**

IRI Multi-Model Probability Forecast for Precipitation  
for November-December-January 2013, Issued October 2012



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

IRI Multi-Model Probability Forecast for Temperature  
for November-December-January 2013, Issued October 2012

