

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 IRI¹)

18 October 2012

FECT BLOG

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

and

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FECT WEBSITES

<http://www.climate.lk>

and

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

ENSO Update

4 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)

Summary²

Monitoring

Weekly Monitoring: During 10th-15th of October, rainfall ranged between 0-125 mm. During this week almost all the parts of Sri Lanka received rainfall. On 12th & 13th maximum rainfall of 125 mm was observed in the places at Anuradhapura district.

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 more than 135 mm is predicted for the western half of the island including North-central province and rest of the parts shall receive rainfall of 65-105 mm.

IMD WRF Model Forecast & IRI forecast: On 18th of October Northern half of the island shall receive less than 36 mm rainfall and rainfall shall spread towards southern half of the country with a decreasing pattern. For the Southern province there shall be less than 1 mm rainfall is predicted for the same day. NOAA models forecast 75 mm rainfall for North-Western regions of Sri Lanka and 45 mm rainfall for the rest of the country.

1 Month Prediction: Overall- Rainfall shall fluctuate between 3-6 mm throughout the next 30 days. **Western Slopes-** During 17th-20th rainfall shall increase drastically & it shall decrease till 25th October. Thereon rainfall shall increase till 29th. Thereafter it shall decrease till the end of October. **Eastern slopes-** Rainfall shall decrease gradually during 18th-21st October & it shall increase drastically till 27th October with minor fluctuation during 24th-25th. Thereafter rainfall shall decrease gradually till the end of October. **Northern-** Rainfall shall increase drastically during 17th-20th october & it shall decrease gradually till 24th. Again rainfall shall increase drastically till 29th & thereafter rainfall shall shows similar pattern as mentioned in previous regions till the end of October.

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.

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

2. Predictions

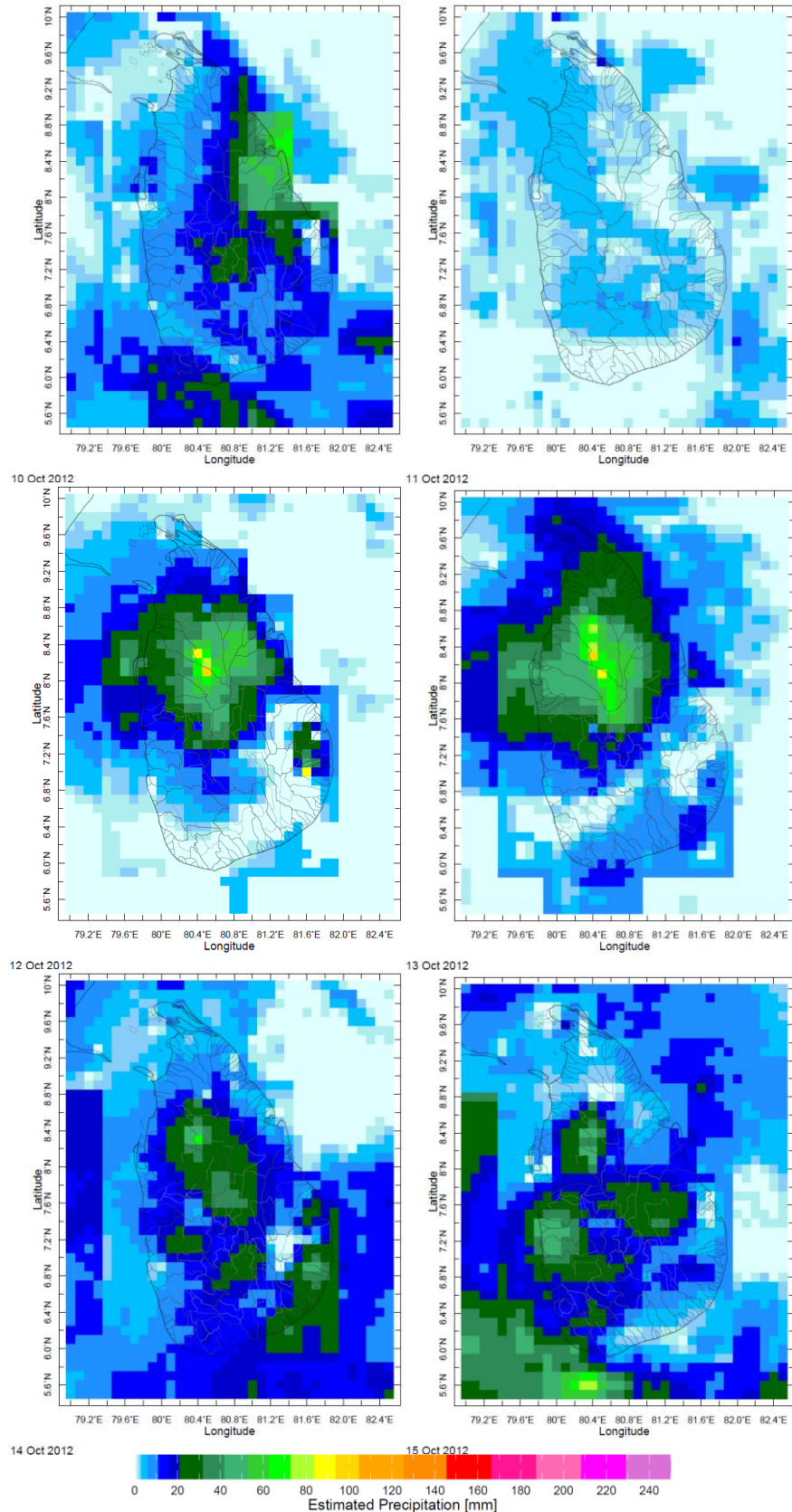
- NCEP GFS Ensemble 1-7 day predictions
- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

¹ International Research Institute for Climate and Society.

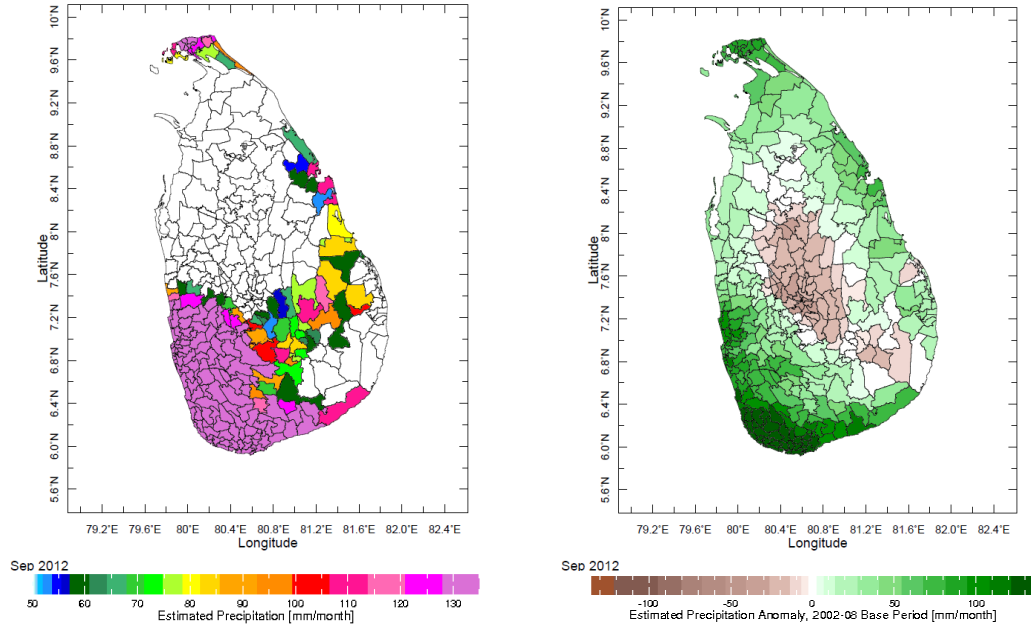
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

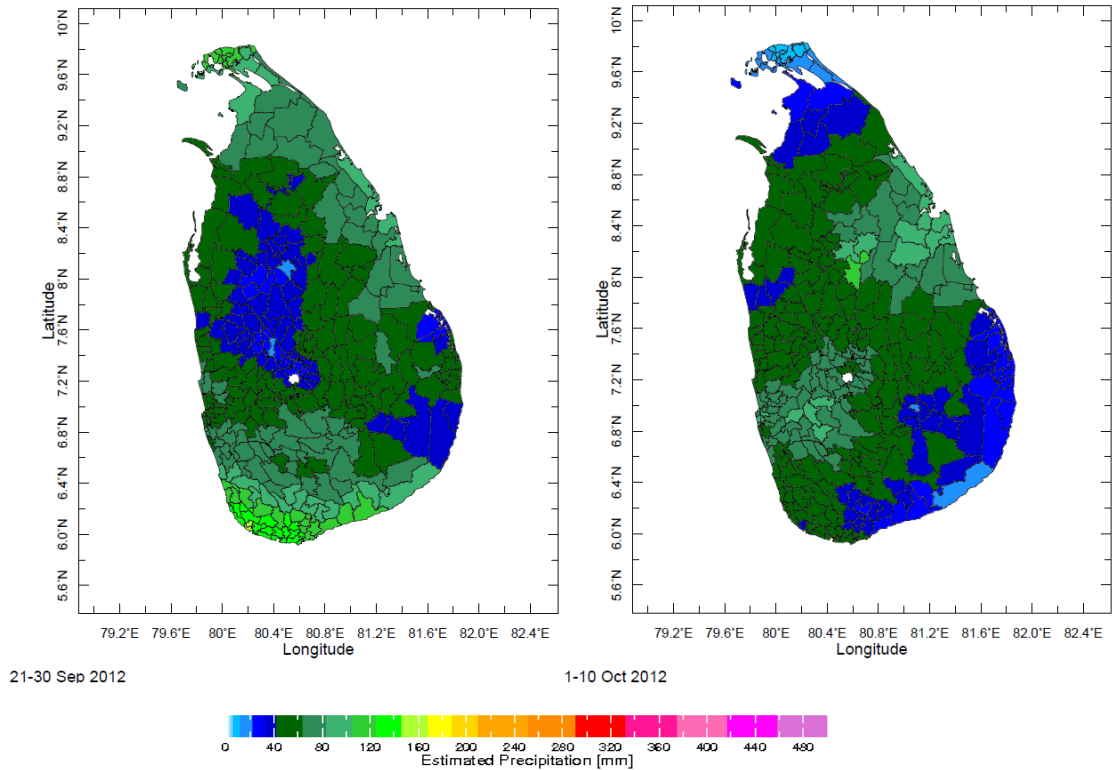
a) Daily Satellite Derived Rainfall Estimate Maps: 10th -15th October, 2012 (Left-Right, Top-Bottom)



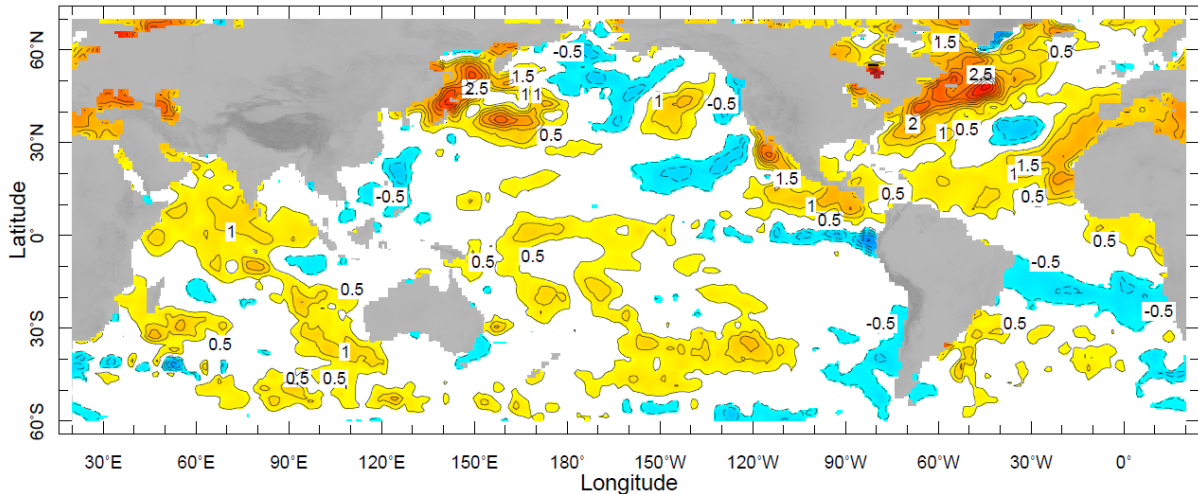
b) Monthly Satellite Derived Rainfall Estimates for September 2012 (Total – Left and Anomaly -Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-30 September & 1-10 October, 2012)



d) Weekly Average SST Anomalies



7-13 Oct 2012



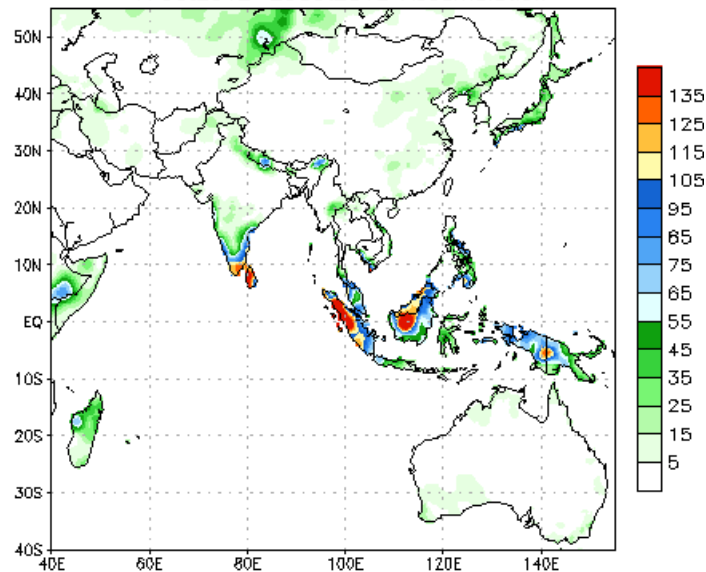
Weekly Average SST Anomalies ($^{\circ}\text{C}$), 7th - 13th Oct, 2012

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: 17Oct2012
17Oct2012-23Oct2012 Accumulation

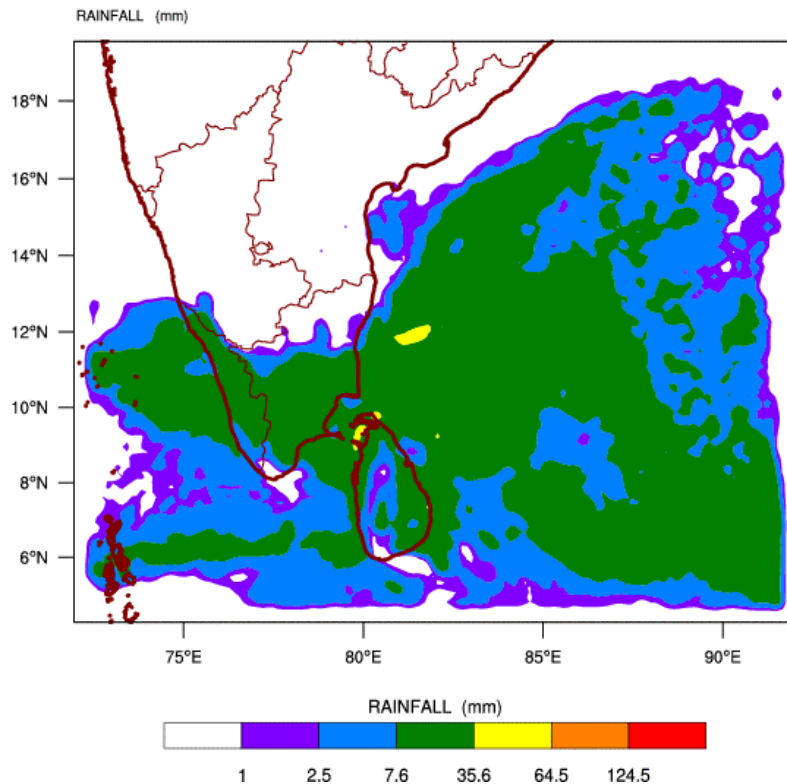


Bias correction based on last 30-day forecast error

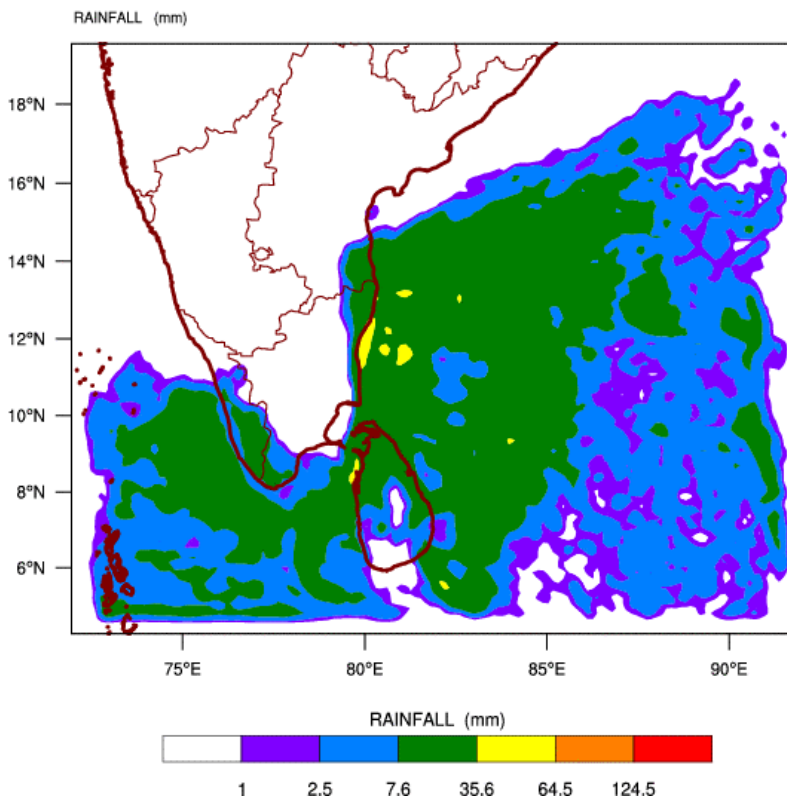
Source - NOAA Climate Prediction Center

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

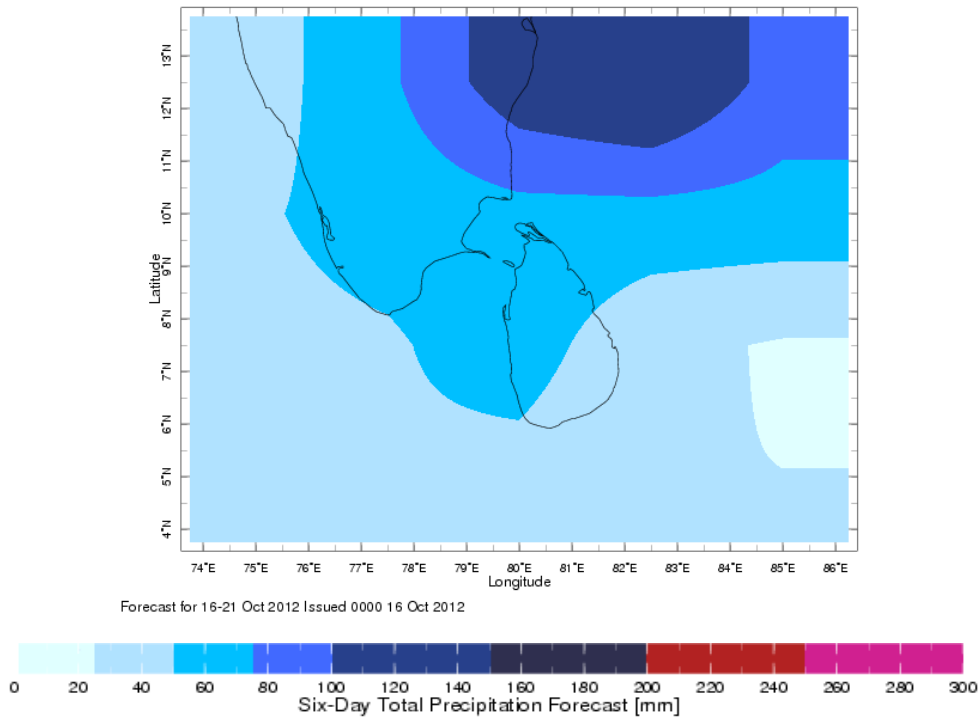
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 15-10-2012 valid for 03 UTC of 17-10-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 15-10-2012 valid for 03 UTC of 18-10-2012



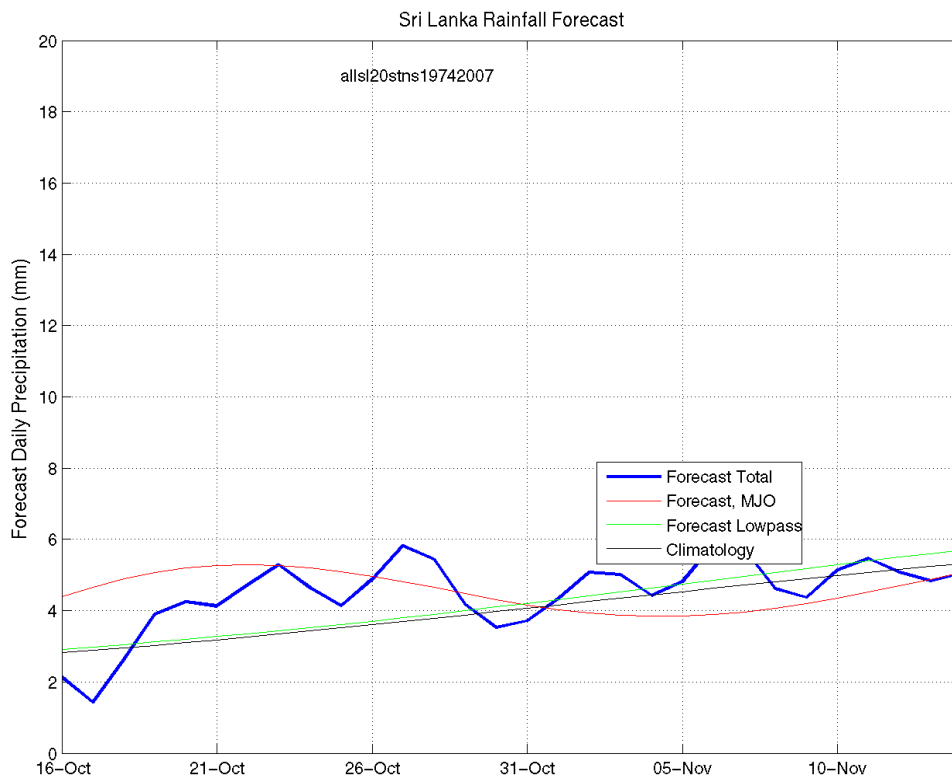
c) Weekly Precipitation Forecast for 16th-21st Oct 2012 (Precipitation Forecast in Context Map Tool, IRI)



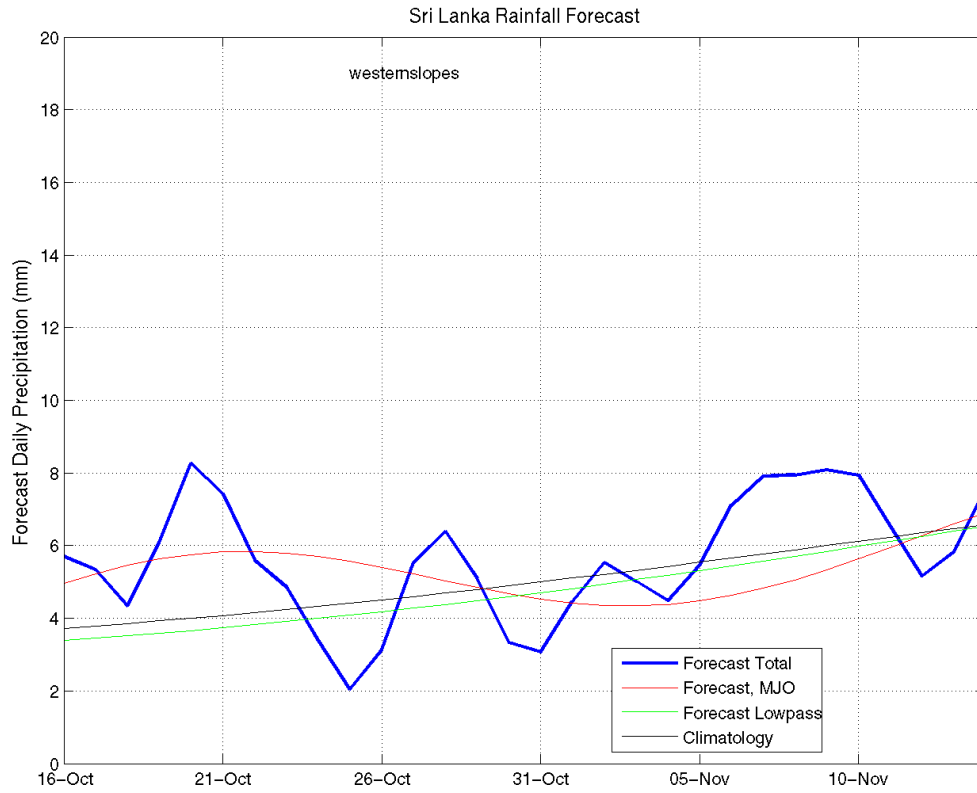
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 18th October, 2012

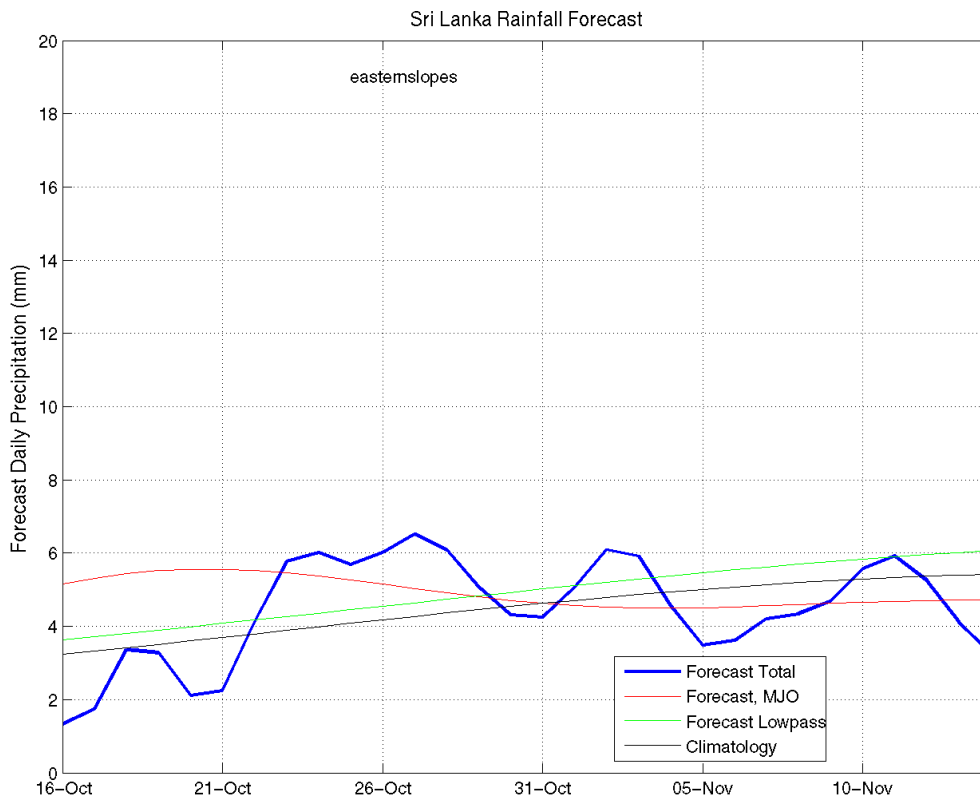
All Sri Lanka (Rainfall Scale from 0-20mm/day)



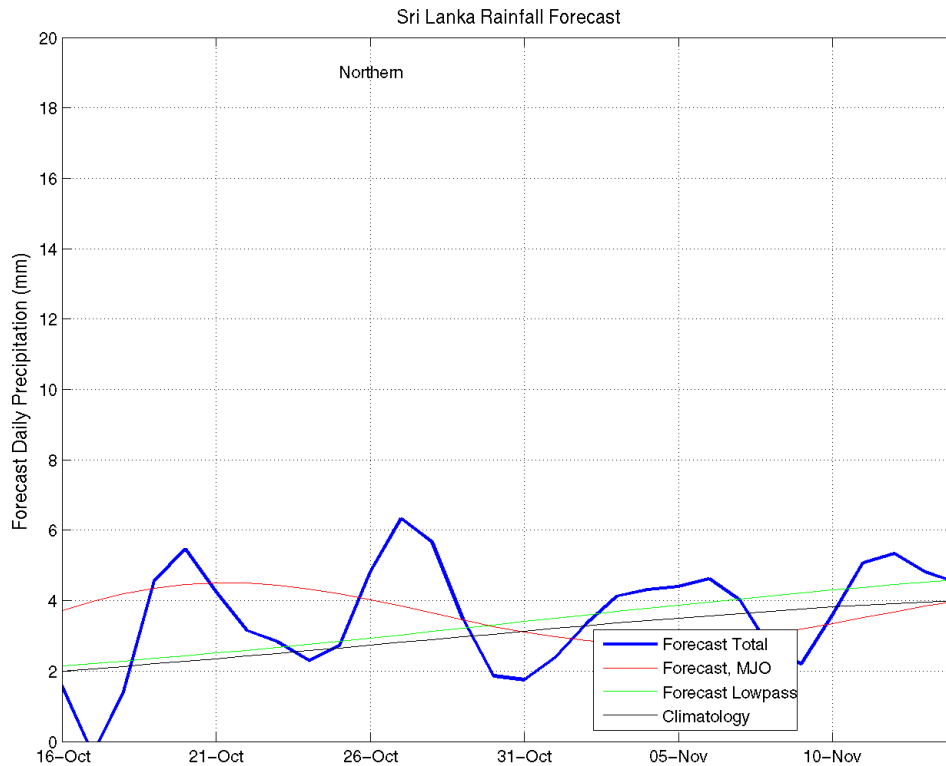
Western Slopes (Rainfall Scale from 0-20 mm/day)



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

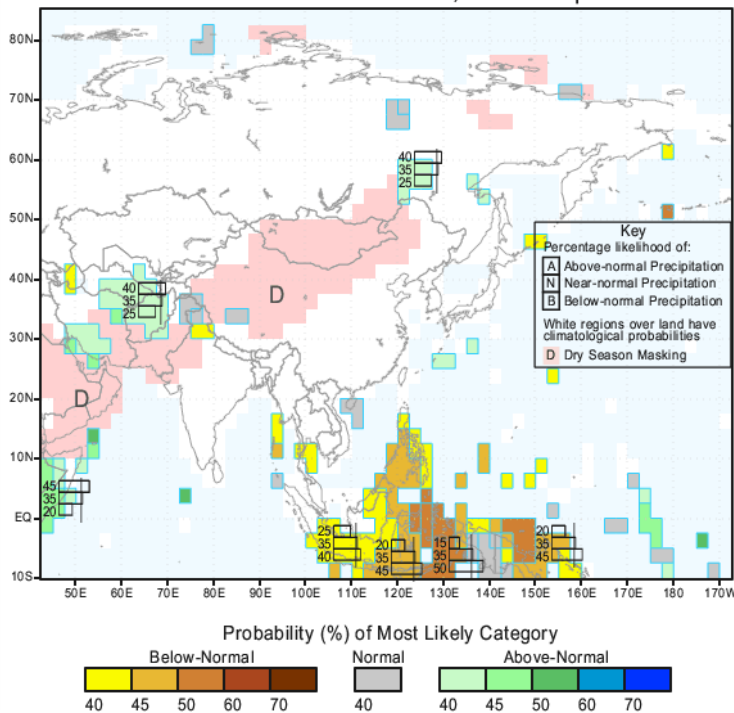


Northern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for 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

