

## Experimental Climate Monitoring and Prediction

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Lareef Zubair and Michael Bell (FECT and IRI<sup>1</sup>)

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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/>

### September 19, 2013 PACIFIC SEAS STATE

During August through early September the observed ENSO conditions remained neutral. Most of the ENSO prediction models indicate a continuation of neutral ENSO through 2013 & the first quarter of 2014. However, a few (mainly statistical) models call for cooling towards borderline or weak La-Nina conditions for northern autumn into winter, while a few others (mainly dynamical) forecast a warming toward borderline or weak El-Nino conditions for this same time frame.

(Text Courtesy IRI)

### INDIAN OCEAN STATE

The sea surface temperature around Sri Lanka was neutral during 6<sup>th</sup>-12<sup>th</sup> October 2013.

### MJO STATE

MJO is at neutral phase and shall not influence Sri Lanka rainfall.

### Highlights

#### Monitoring and Predictions:

Heavy rainfall is likely to observe for Batticaloa, Galle-Gampaha and parts of Anuradhapura districts during coming two days (18<sup>th</sup> & 19<sup>th</sup> October). South-western regions shall receive heavy rainfall during 16<sup>th</sup>-22<sup>nd</sup> October 2013.

### Summary

#### Monitoring

**Weekly Monitoring:** During 8<sup>th</sup>-14<sup>th</sup> October 2013, rainfall ranged less than 40 mm/day. Northern regions received more rainfall compared to the rest of the island. However, the island was comparatively drier than the previous months.

**Monthly Monitoring:** Jaffna and Batticaloa districts received an above average rainfall during the month of September.

#### Predictions

**7-day prediction:** Galle and Kalutara districts shall receive heavy rainfall (more than 135 mm/day) and shall spread towards North, North-east and East directions in a reducing pattern during 16<sup>th</sup>-22<sup>nd</sup> October 2013.

**IMD WRF Model Forecast & IRI forecast:** For 18<sup>th</sup> of October, IMD WRF model predicts less than 65 mm of rainfall for coastal regions of Batticaloa and Galle-Kalutara districts. For the same day rest of the regions shall receive less than 36 mm/day, except for the parts of Hambantota. For 19<sup>th</sup> of October, model predicts less than 65 mm/day of rainfall for coastal regions of Galle-Gampaha, Batticaloa and parts of Anuradhapura. For the same day rest of the regions shall receive less than 36 mm/day of rainfall. However, NOAA model prediction is suspended this week due to the U.S. Government shutdown.

**30 Days Prediction: Overall-** Rainfall is likely to increase gradually till 26<sup>th</sup> October. **Western Slopes** – The rainfall pattern persisting in the entire country shall be observed in this region. **Western Coast** – The rainfall pattern persisting in the entire country shall be observed in this region. **Eastern Slopes**– Rainfall shall decrease gradually till 22<sup>nd</sup> and is likely to increase thereafter. **Eastern Coast** – The rainfall pattern persisting in the Eastern slopes shall be observed in this region. However, rainfall is not predicted during 20<sup>th</sup>-24<sup>th</sup> October. **Northern region-** The rainfall pattern persisting in the Eastern slopes shall be observed in this region. **Southern Region-** The rainfall pattern persisting in the Eastern slopes shall be observed in this region

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast issued on September 2013; for October 2013 to December 2013, there is a 60-70% 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

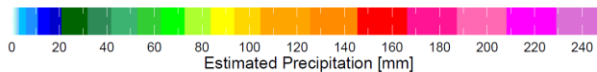
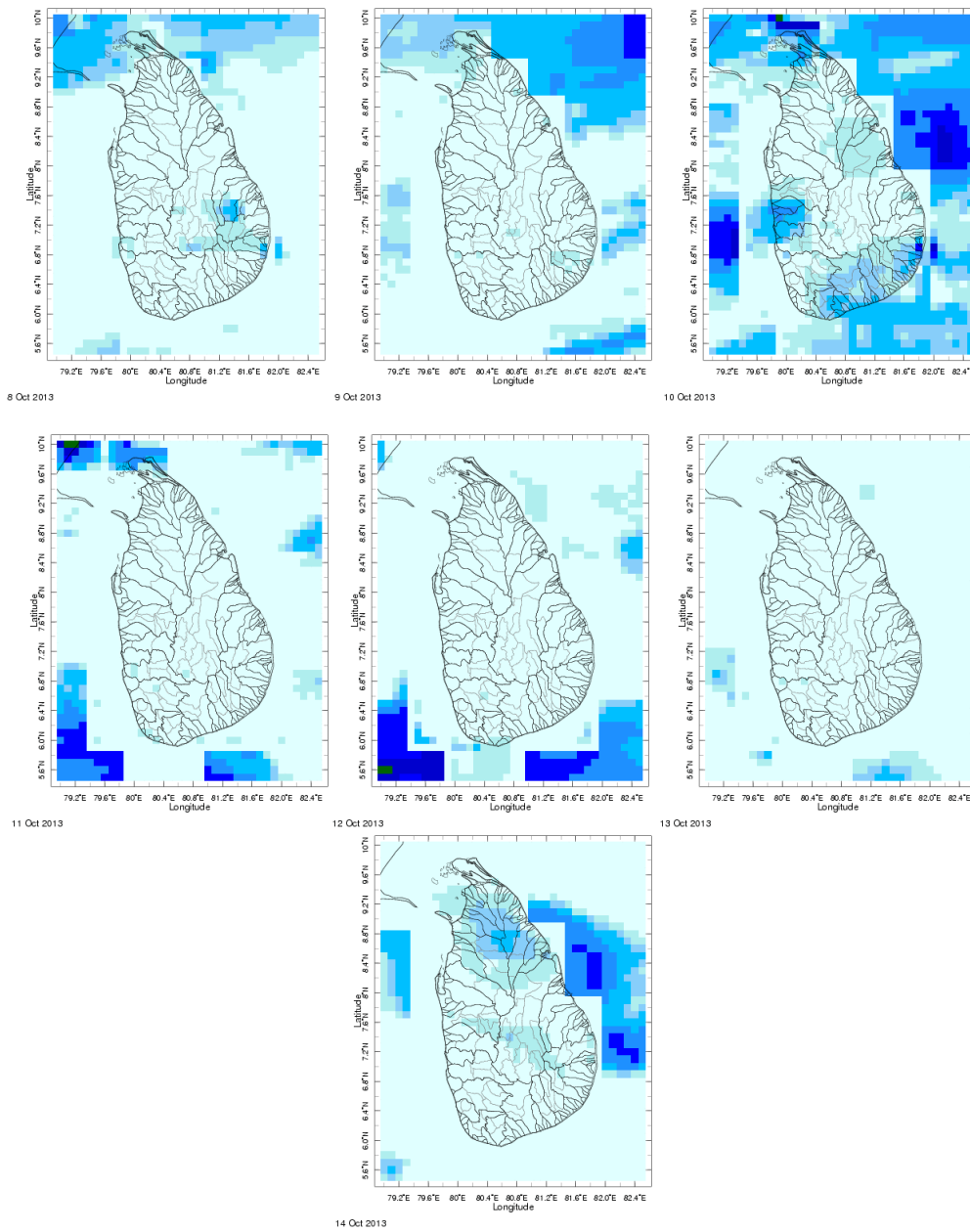
- NCEP GFS Ensemble 1-7 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

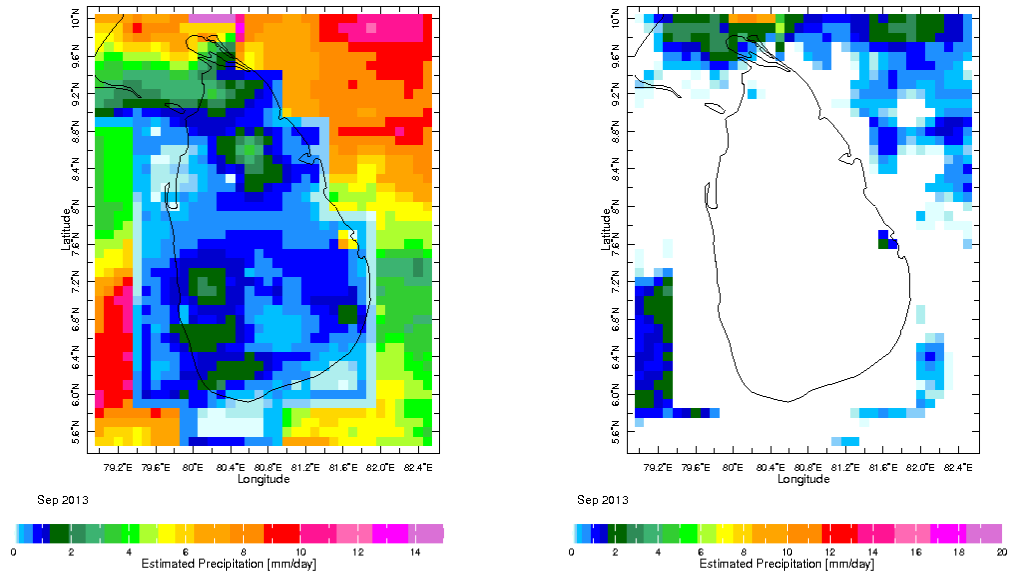
<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

## 1. Monitoring

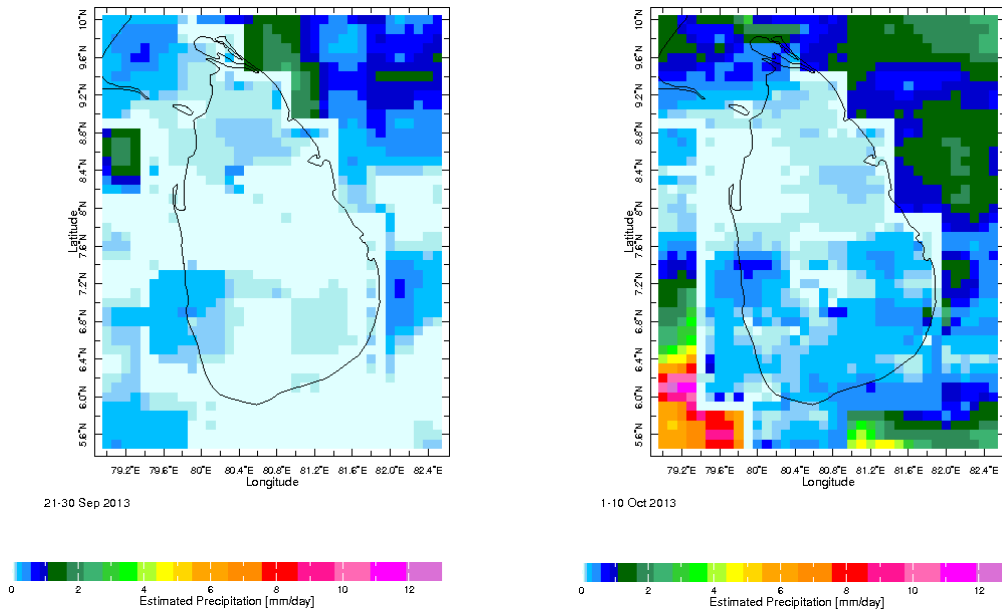
### a) Daily Satellite Derived Rainfall Estimate Maps: 8<sup>th</sup>-14<sup>th</sup> October 2013 (Left-Right, Top-Bottom)



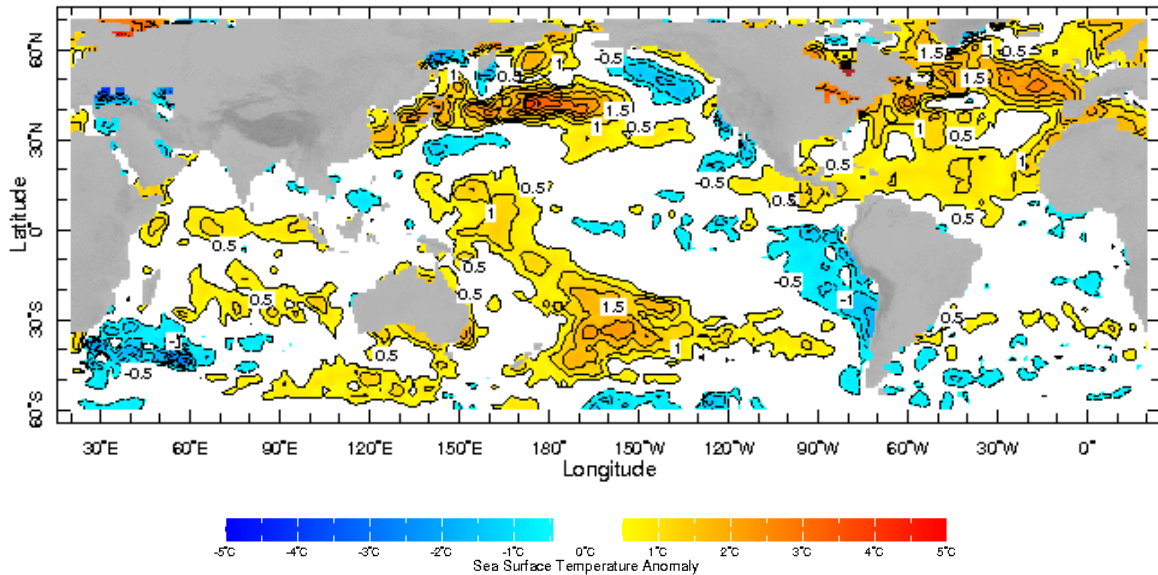
**b) Monthly Satellite Derived Rainfall Estimates for September 2013 (Total – Left and Anomaly - Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-30 September & 01-10 October, 2013)**



**b) Weekly Average SST Anomalies**

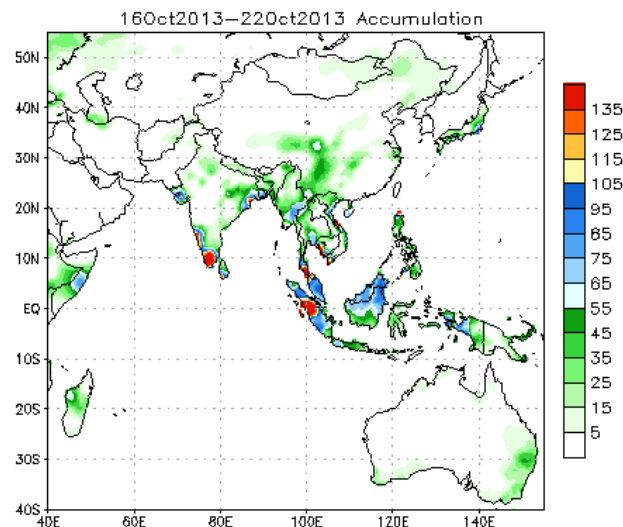


Weekly Average SST Anomalies ( $^{\circ}$ C), 6<sup>th</sup>-12<sup>th</sup> October, 2013

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

**2. Predictions**

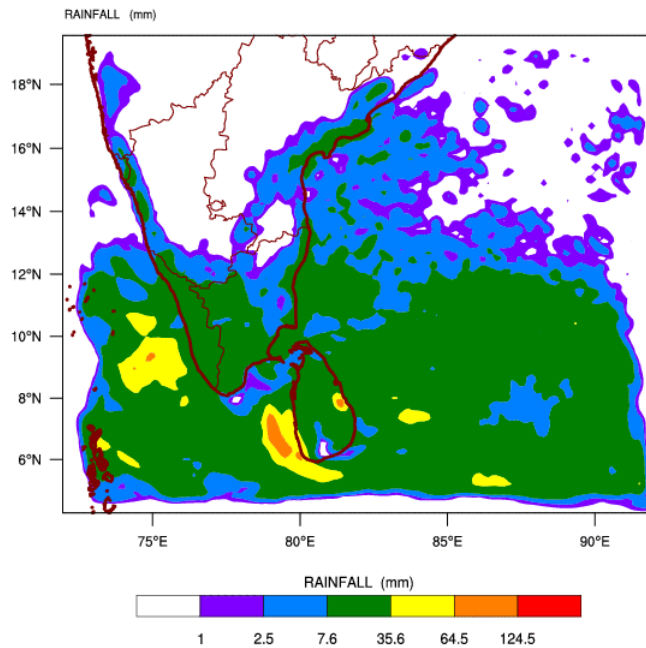
**a) NCEP GFS Ensemble 1-7 day predictions, NOAA, Climate Prediction Centre, USA.**



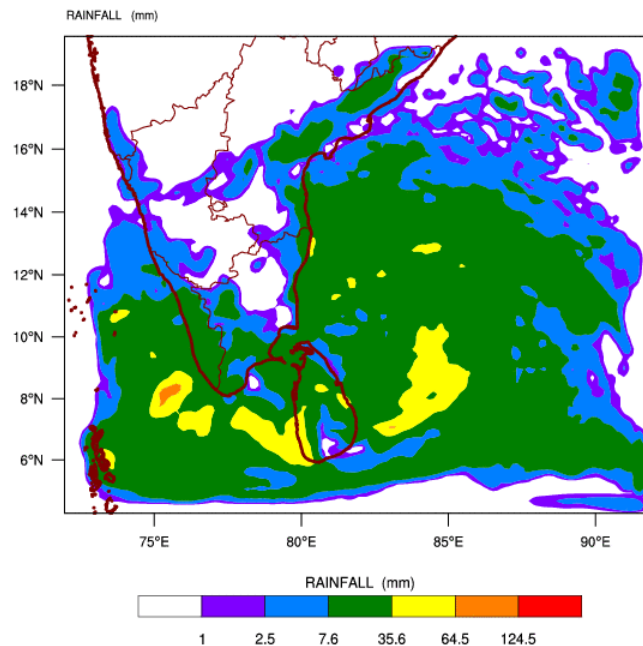
Source – NOAA Climate Prediction Center

**b) WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)**

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)  
based on 00 UTC of 16-10-2013 valid for 03 UTC of 18-10-2013



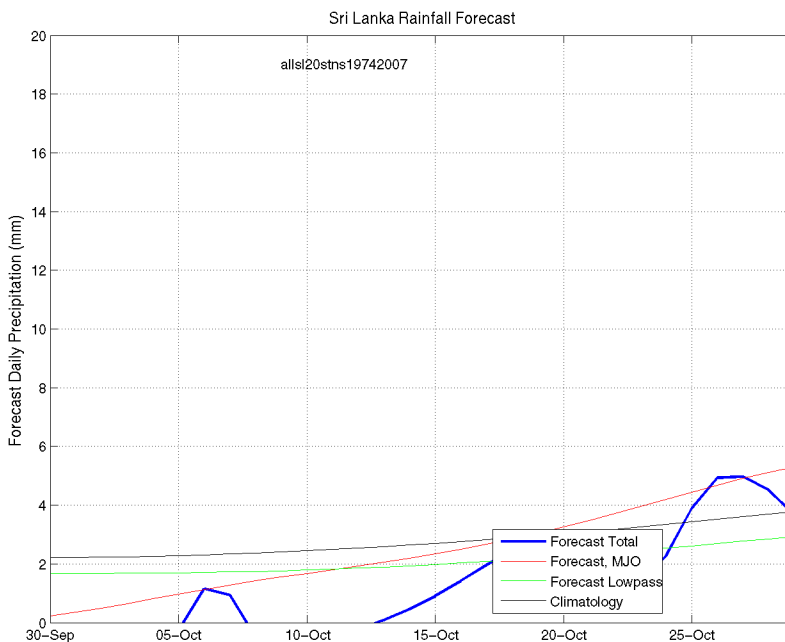
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)  
based on 00 UTC of 16-10-2013 valid for 03 UTC of 19-10-2013



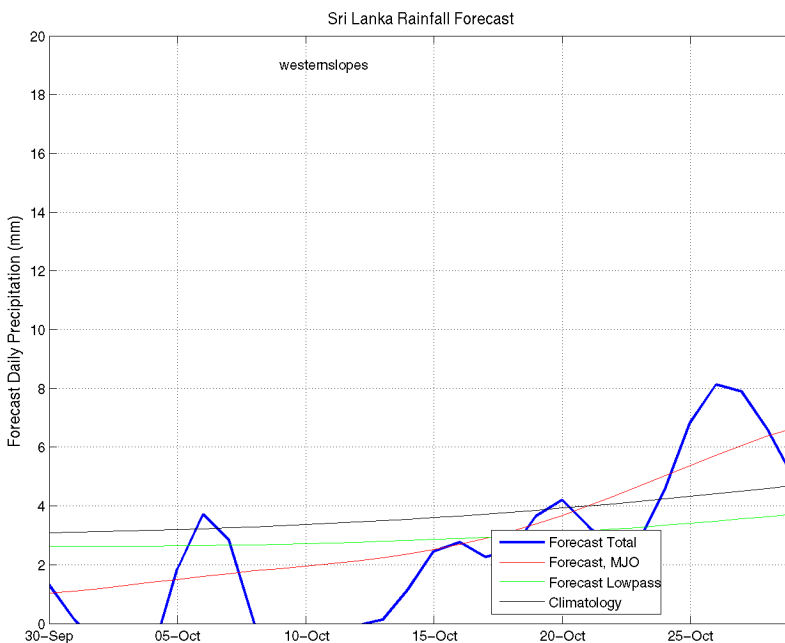
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 1<sup>st</sup> October, 2013

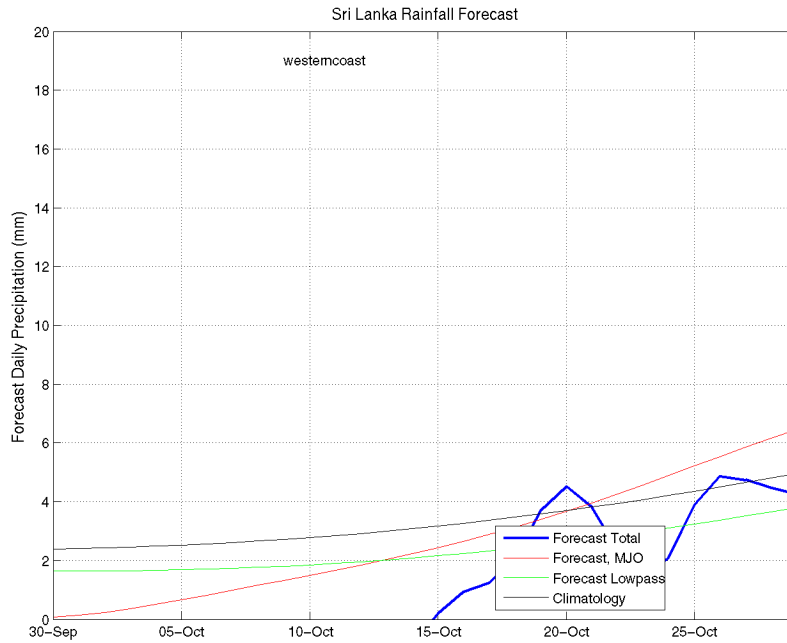
**All Sri Lanka (Rainfall Scale from 0-20mm/day)**



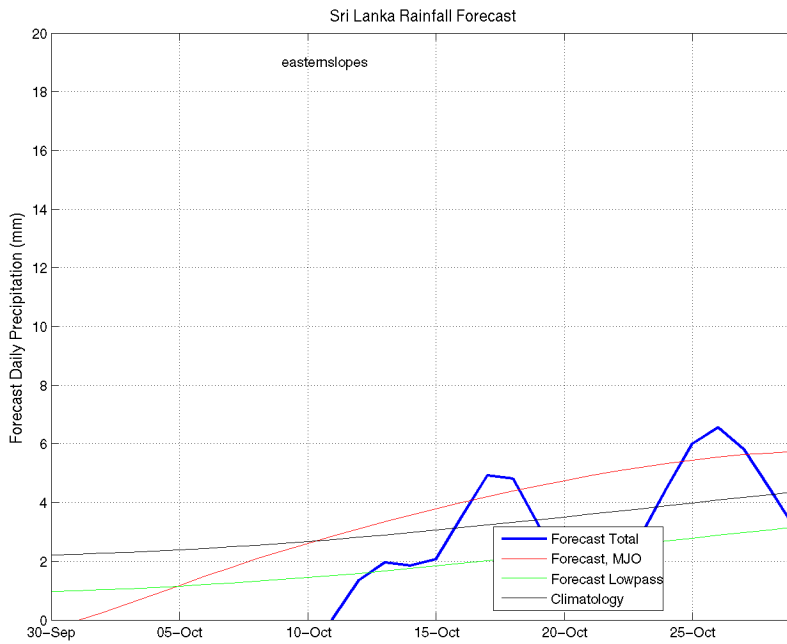
**Western Slopes (Rainfall Scale from 0-20 mm/day)**



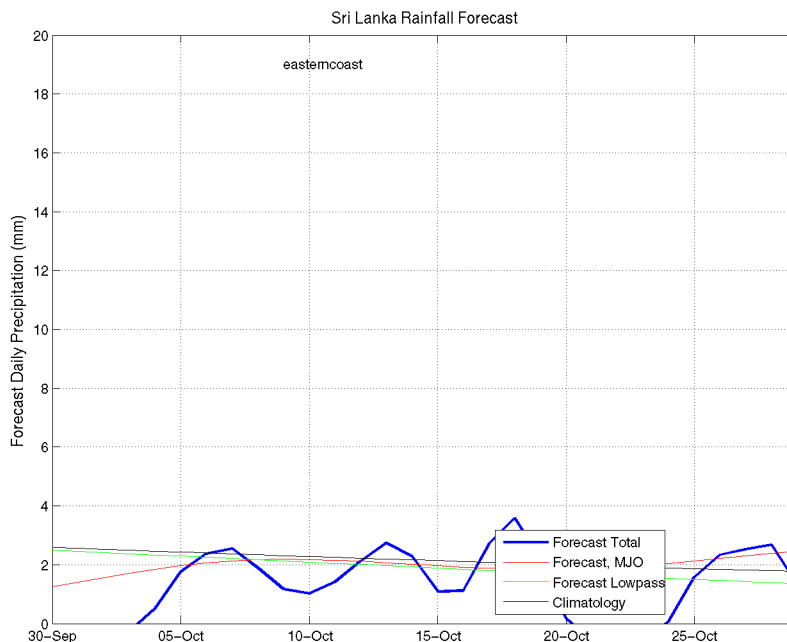
**Western Coast (Rainfall Scale from 0-20 mm/day)**



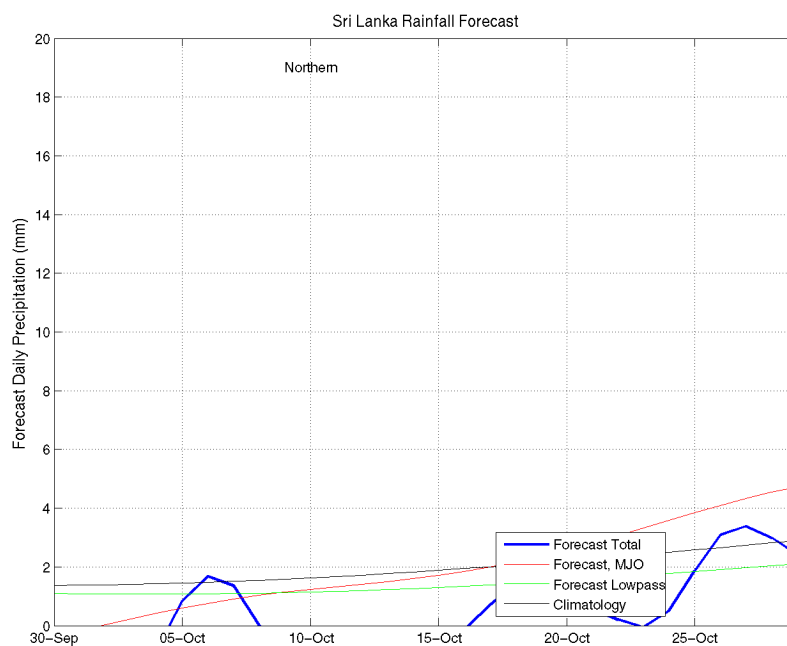
**Eastern Slopes (Rainfall Scale- from 0-20 mm/day)**



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

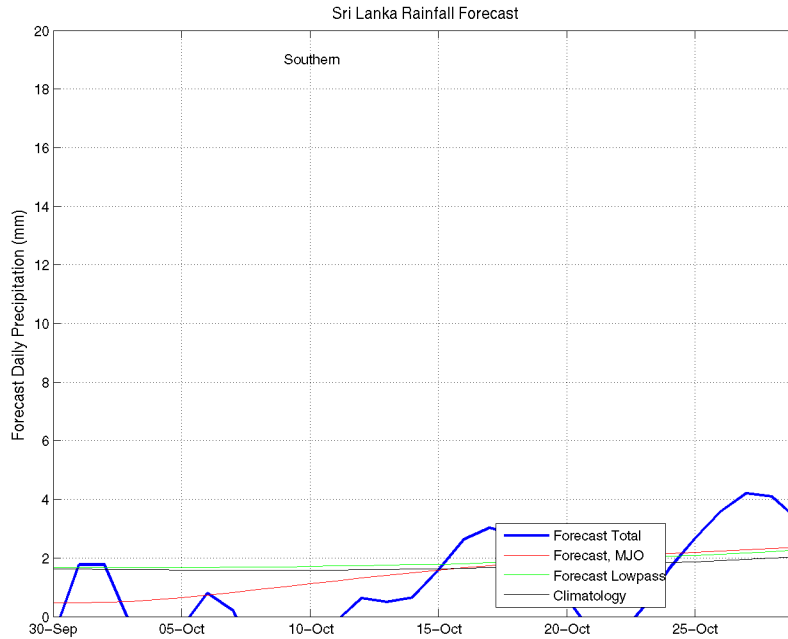


**Northern Region (Rainfall Scale- from 0-20 mm/day)**



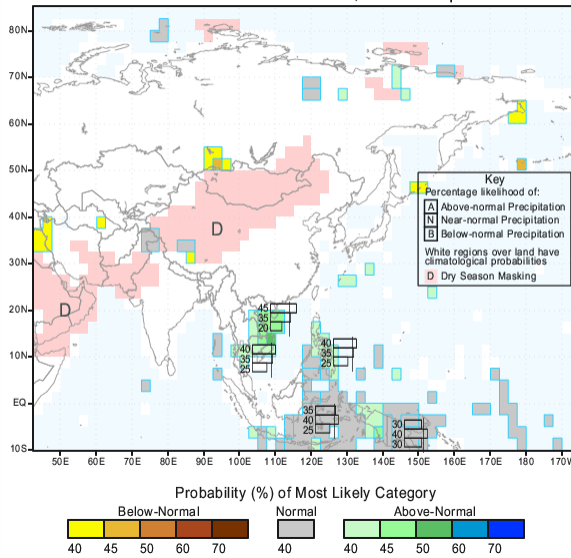


**Southern Region (Rainfall Scale- from 0-20 mm/day)**



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

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



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

