

## Experimental Climate Monitoring and Prediction

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

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(FECT and IRI)

24 November 2011

### FECT BLOG

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### Extreme Weather

A storm system is moving towards Sri Lanka from the East and an active MJO phase is leading to heavy rainfall in the next few days. Heavy rains around the Eastern and Southern Coasts and in the seas around the island.

### ENSO Update

17 November 2011

Weak La Niña conditions re-emerged in August after a brief period of ENSO-neutral conditions following the ending of the significant 2010-11 La Niña. The current event has slowly strengthened and is currently of weak to moderate strength.

(Text Courtesy IRI)

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

**Weekly Monitoring:** During the previous week (16<sup>th</sup> November to 21<sup>st</sup> November, 2011) rainfall ranged between 0-90 mm. Scattered rainfall was observed during the first half of the week and particularly the Jaffna peninsula received high rainfall up to a maximum of about 80 mm. Northern, North Central, North Western, Eastern and South Eastern regions received more rainfall during the second half.

**Monthly Monitoring:** During October, above average rainfall was experienced particularly for the upper part of the Mahaweli basin and eastern part of the Island while the Western, North Western and South Western regions are below average.

### Predictions

**7 Day Prediction:** For the coming week, the NCEP Global Forecast System predicts an accumulated rainfall of 15 mm to 135 mm for the entire Island. Particularly the East to North will show a high accumulation (about 135mm) while 15-95 mm for the rest of the island.

**IMD WRF Model Forecast & IRI forecast:** WRF model predicts 35-65mm rainfall particularly for the South West to Northern Coast on the 25<sup>th</sup>. This high rainfall is likely shift to North and to South West by 26<sup>th</sup>. For the rest of the island the rainfall shall range from 3-36mm. NOAA NCEP CFS model predictions (delivered via IRI map tool) predicts 100mm-200mm cumulative rainfall for the week from 22-27<sup>th</sup> November.

**1 Month Prediction:** Overall rainfall will dramatically increase till the 27<sup>th</sup> November followed by dramatical decrease till the 31<sup>st</sup>. It will again increase gradually up to the 3<sup>rd</sup> December and thereafter gradually decrease till the 17<sup>th</sup> December. However wet conditions shall prevail till the 7<sup>th</sup> December. The same pattern will appear in the western slopes with an increased rainfall and wet conditions will sustain till the 14<sup>th</sup> December and high rainfall shall be expected. Eastern slopes will show a decreasing trend with some fluctuations and wet conditions shall be experienced till the 6<sup>th</sup> December. Western costs will receive high rainfall with frequent fluctuations till the end of December. For the Eastern coast rainfall fluctuation shall be observed. Two peaks shall be observed on the 27th November and the 03<sup>rd</sup> December. After 03<sup>rd</sup> December it shall decrease gradually till the 13<sup>th</sup>. There shall be no rainfall during 13<sup>th</sup>-18<sup>th</sup>. For the northern Region rainfall shall increase gradually after the 24<sup>th</sup> November till the 28<sup>th</sup> where peak rainfall shall be observed. Then after it shall decrease rapidly till the 30<sup>th</sup> and again it shall increase gradually till the 4<sup>th</sup> followed by a gradual decreasing trend with few fluctuations.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for December 2011 to February 2012, issued in November 2011, there is 70% probability for temperature to be normal for entire Sri Lanka, while the precipitation is likely to be climatological.

### Inside this Issue

#### 1. Monitoring

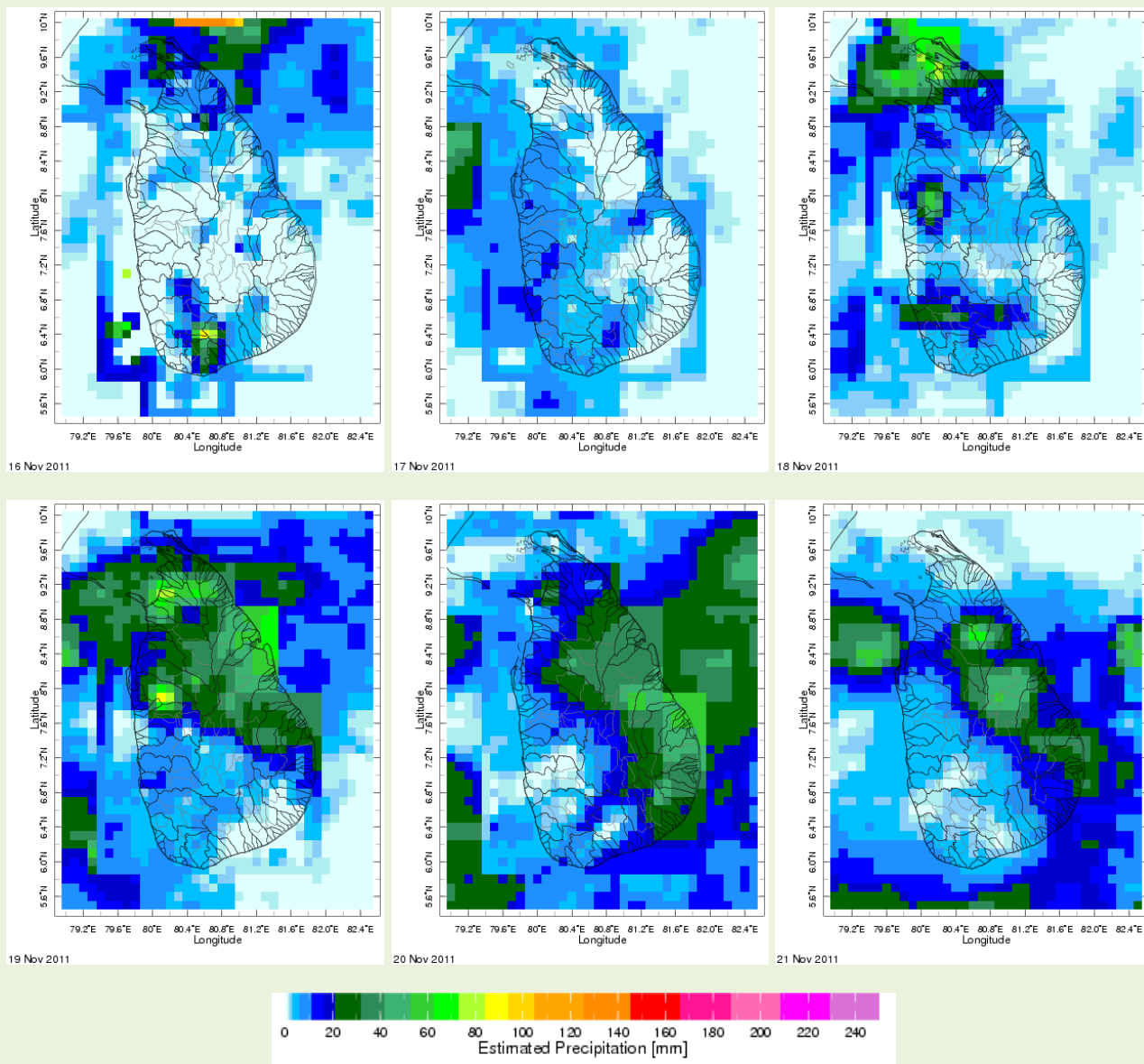
- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
- Decadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Average SST Anomalies

#### 2. Predictions

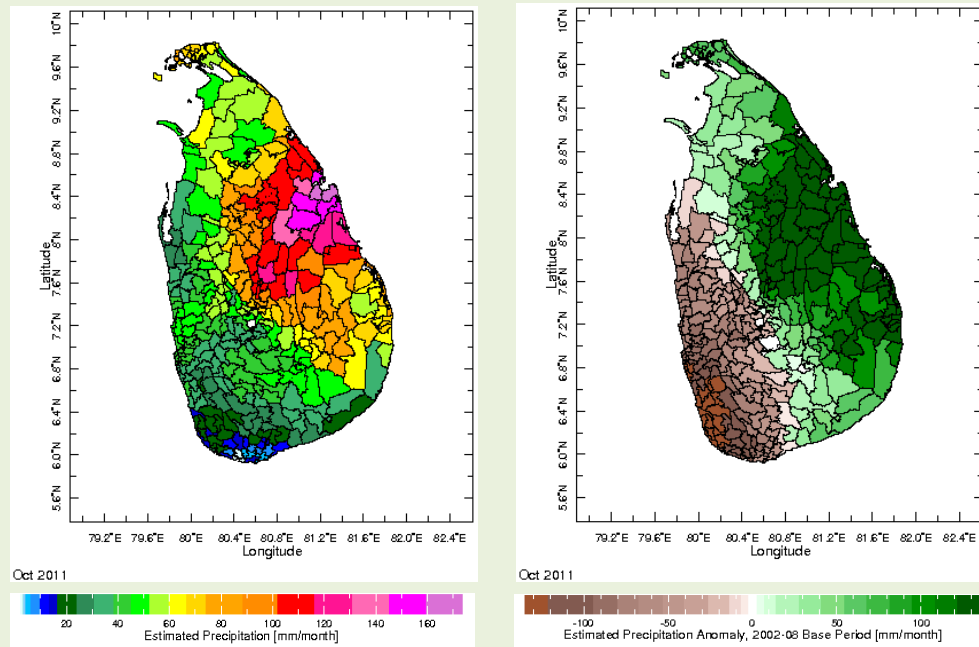
- NCEP GFS Ensemble 1-7 day predictions, NOAA, CPC, USA
- IMD WRF Model Forecast
- Weekly Precipitation Forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

## 1. Monitoring

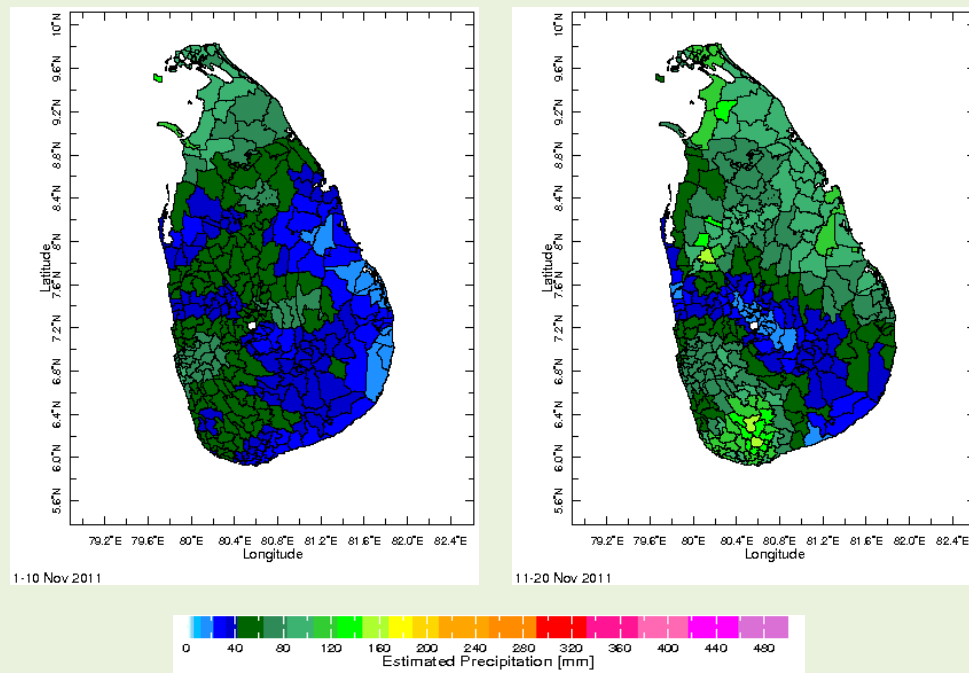
### a) Daily Satellite Derived Rainfall Estimate Maps: 16<sup>th</sup> November – 21<sup>st</sup> November, 2011 (Left-Right, Top-Bottom)



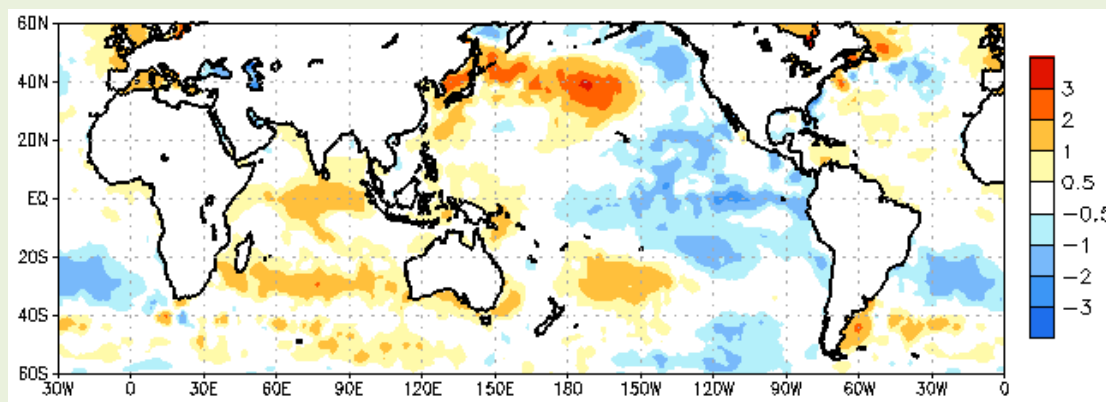
**b) Monthly Satellite Derived Rain fall Estimates for October 2011 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (November 1 -10, 2011 and 11-20 November, 2011)**



## d) Weekly Average SST Anomalies

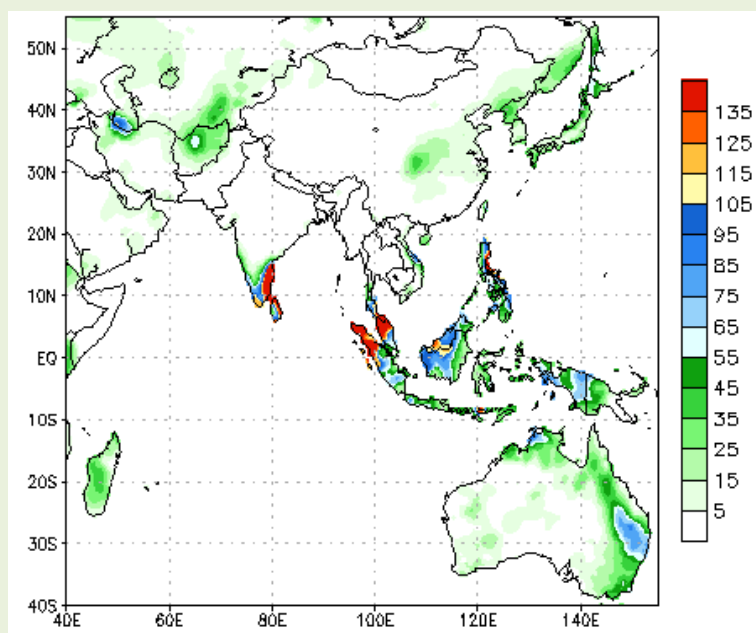


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 16<sup>th</sup> November, 2011

Data Source: NCEP Global Sea Surface Temperature Analysis (Climatology 1979-1995)

## 2. Predictions

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

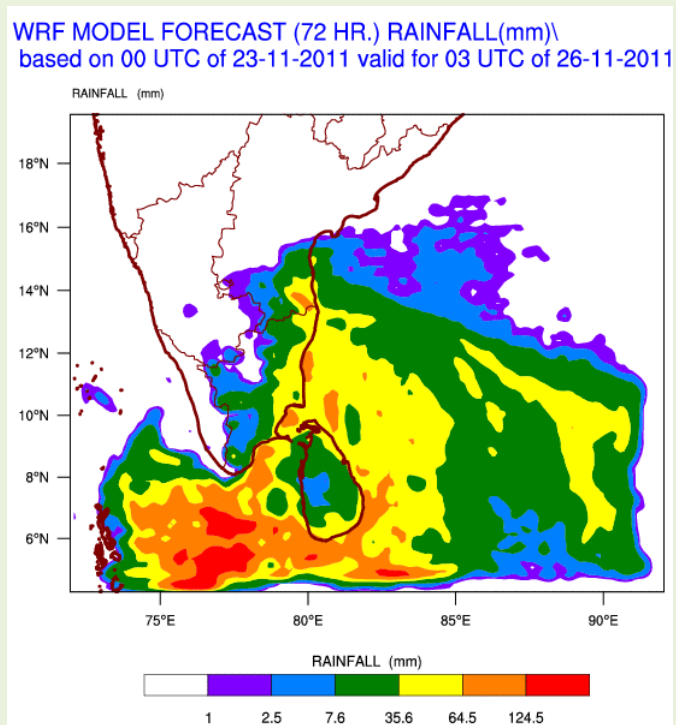
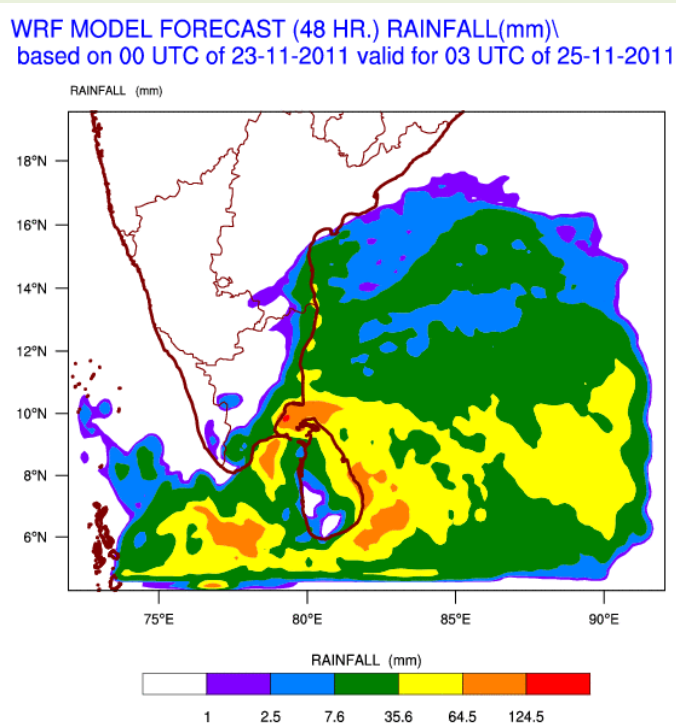


During next week, an accumulated rainfall of 5 mm to over 135 mm is predicted for the entire Island.

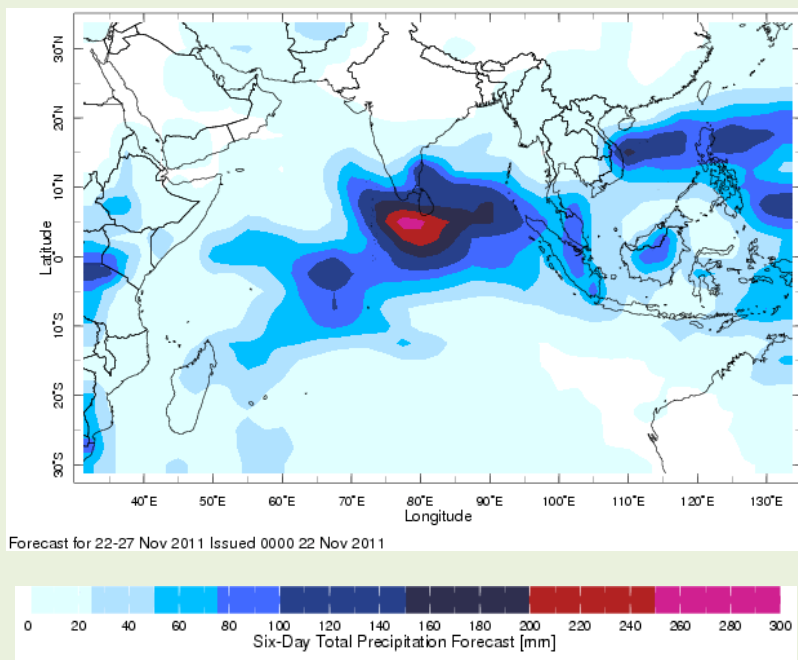
Source – NOAA Climate Prediction Center

Map: Predicted accumulation of rainfall. (23<sup>rd</sup> November – 29<sup>nd</sup> November, 2011 week)

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



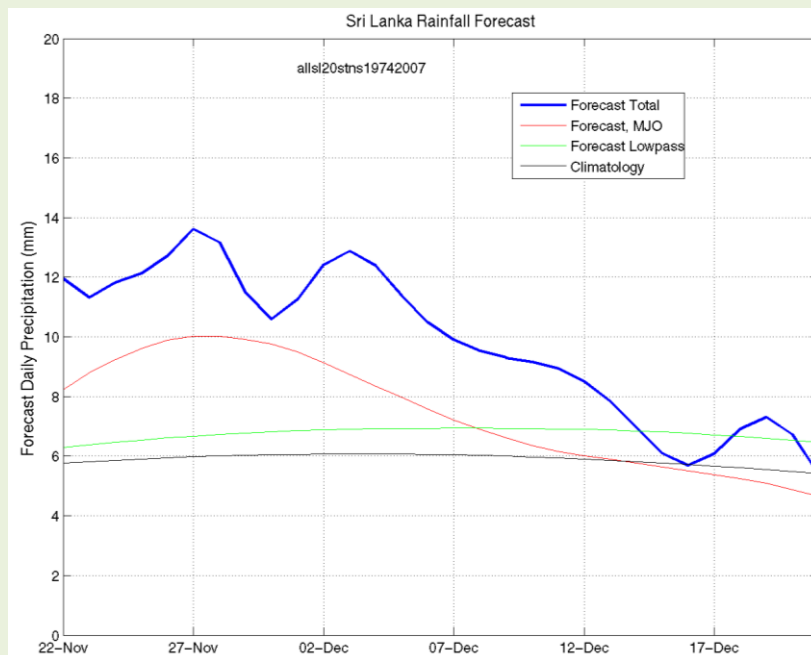
**c) Weekly Precipitation Forecast for 22-27 Nov, 2011. (Precipitation Forecast in Context Map Tool, IRI)**



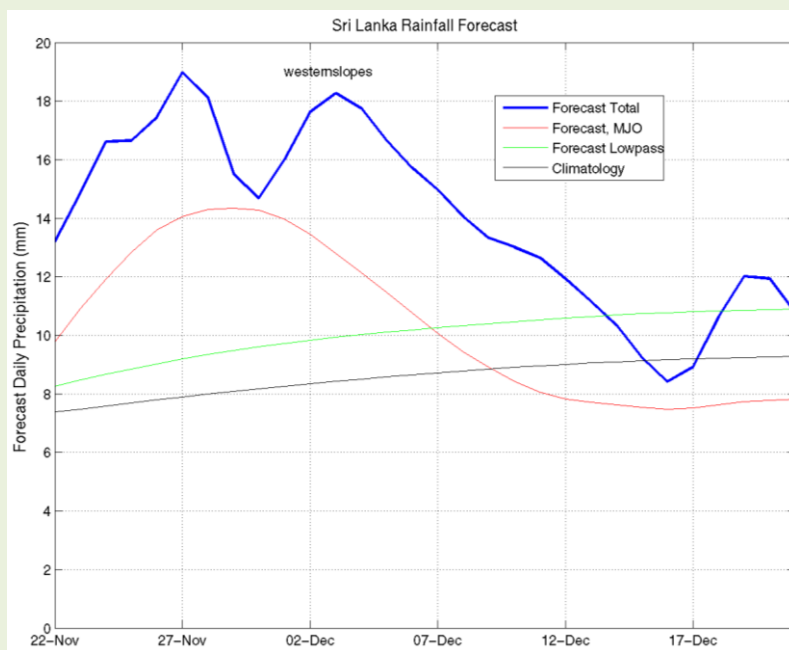
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 23<sup>rd</sup> November, 2011

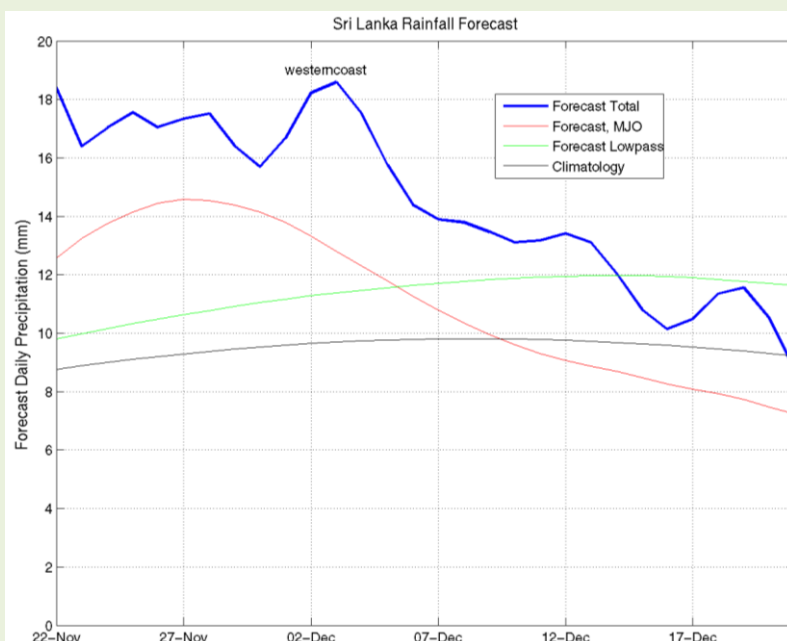
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



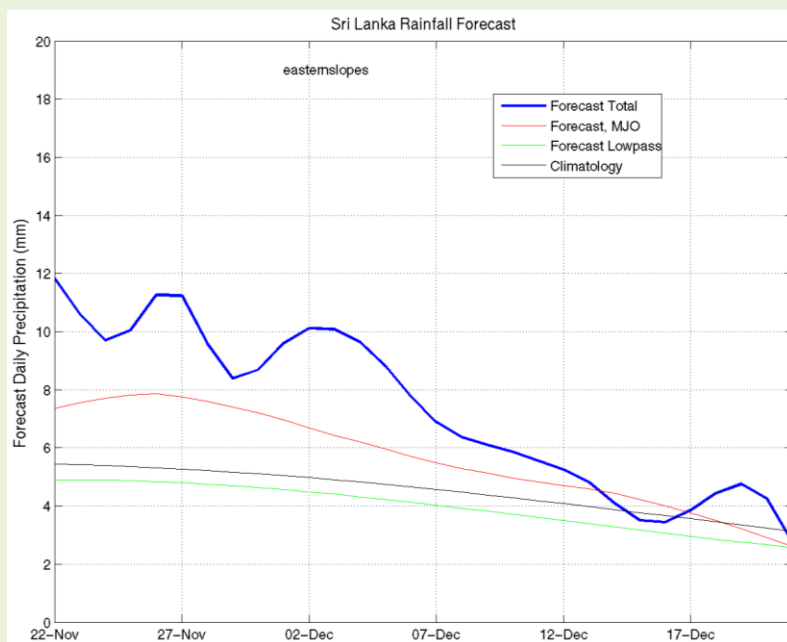
**Western Slopes (Rainfall Scale from 0-20 mm/day)**



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

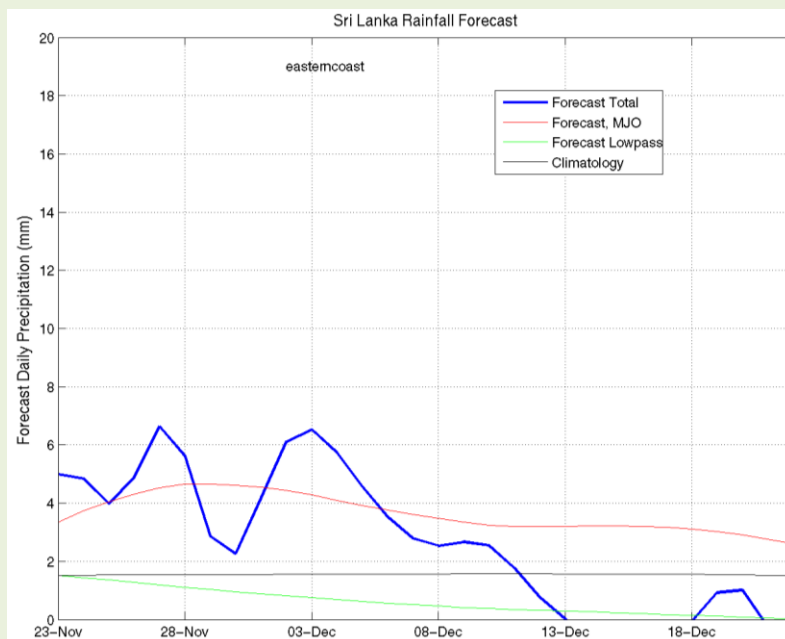


## Eastern Slopes (Rainfall Scale- from 0-20 mm/day)

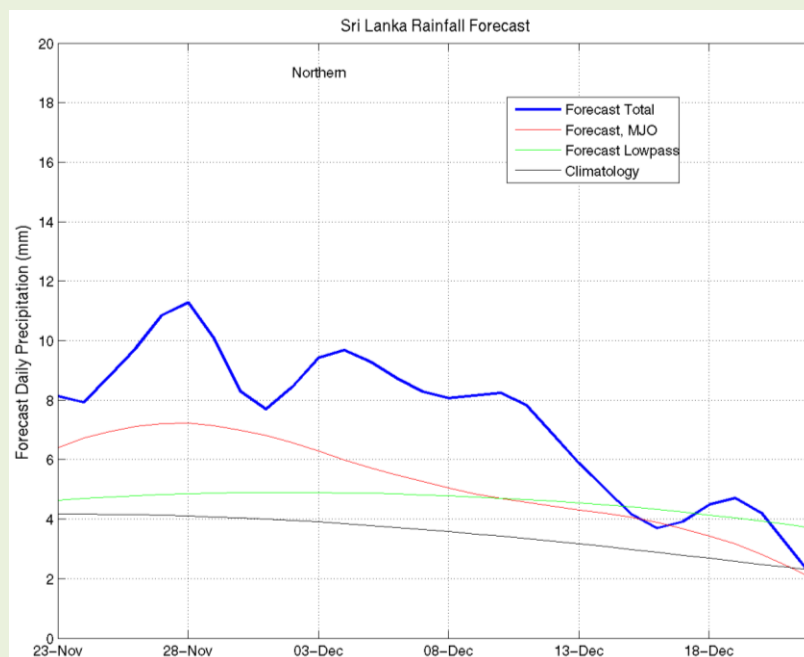




## Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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



## e) Seasonal Rainfall and Temperature Predictions from IRI

