

## Experimental Climate Monitoring and Prediction

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

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(FECT and IRI<sup>1</sup>)

16 February 2012

### FECT BLOG

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

and  
<http://fectsl.wordpress.com/>

### FECT WEBSITE

<http://www.climate.lk>  
and  
<http://www.tropicalclimate.org/>

### ENSO Update

#### 09 February 2012

A majority of the ENSO prediction models call for a weak or moderate strength La Nina to continue through the Northern Hemisphere winter 2011-2012, and begin gradually weakening after peaking during the January-February period.

(IRI)

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

**Weekly Monitoring:** During the previous week (09<sup>th</sup> –14<sup>th</sup> February) rainfall ranged between 0-80 mm. During 9<sup>th</sup>-10<sup>th</sup> of February high rainfall was observed in the Kurunegala District and its suburbs, up to maximum of about 80mm. 5mm-70mm of rainfall was experienced on the 14<sup>th</sup> for the most parts of the island except northern region. No significant rainfall was observed during rest of the week.

**Monthly Monitoring:** During January above average rainfall was experienced particularly in the districts of Gampaha, Colombo, Kalutara and Galle.

### Predictions

**7 Day Prediction:** For the coming week, the NCEP Global Forecast System predicts accumulated rainfall ranging between 05 mm-45 mm for the entire Sri Lanka.

**IMD WRF Model Forecast & IRI forecast:** On the 17<sup>th</sup> WRF model predicts 1mm-65mm rainfall particularly for the North Western, Western, and South Western regions and the Central Highlands while high rainfall (36mm-65mm) is predicted for Ratnapura district. It predicts 1mm-36mm rainfall particularly for the western slopes and western coast on the 18<sup>th</sup>. NOAA NCEP CFS predictions (delivered via IRI map tool) Predict up to 20mm total precipitation for the whole island.

**1 Month Prediction:** Overall, A rapid increase of rain fall shall be observed till the 19<sup>th</sup>. Thenafter it shall decrease dramatically till the 25<sup>th</sup> followed by a quite steady conditions for about a week with very low or no rainfall conditions. It shall again increase gradually till the end of the second week of March. *Western slopes*- Nearly the same pattern shall be observed with an increased rainfall. It shall increase rapidly till the 19<sup>th</sup> followed by a decreasing trend with some fluctuations till the 03<sup>rd</sup> of March. Thenafter it shall again increase gradually till the 16<sup>th</sup> of march. Overall wet conditons shall be expected during the coming month of period. *Eatern Slopes*- No significant rainfall shall be expected till the end of February. But a rapid increase shall be expected after 6<sup>th</sup> of March. *Northern Region*- A rapid increase of rainfall shall be observed till the 19<sup>th</sup> of February followed by a decrease in the same manner till the 25<sup>th</sup>. Then after it shall increase slowly till the 16<sup>th</sup> of March. However no significant rainfall shall be expected.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for February 2012 to April 2012, issued in January 2012, there is 60%-70% probability for temperature to be below normal for entire Sri Lanka, while 40%-45% the precipitation to be above normal particularly for the southern half of the island.

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- Weekly Average SST Anomalies

#### 2. Predictions

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

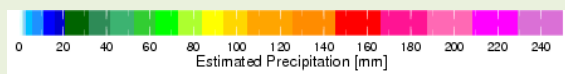
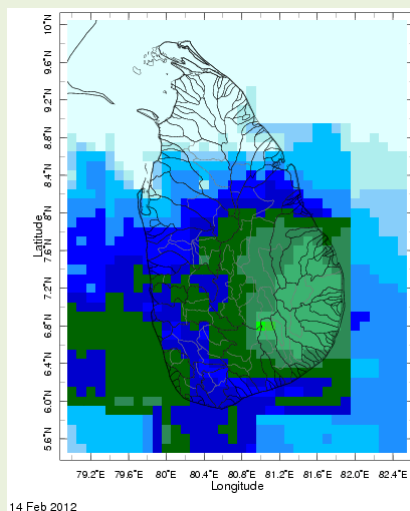
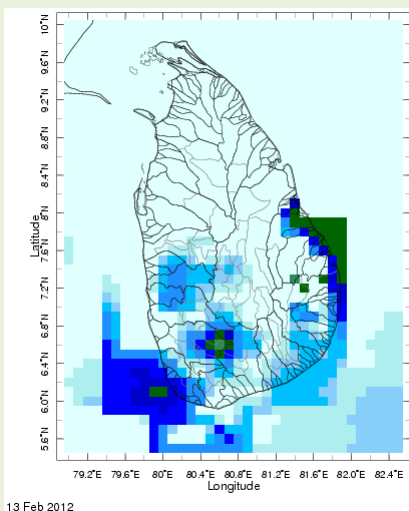
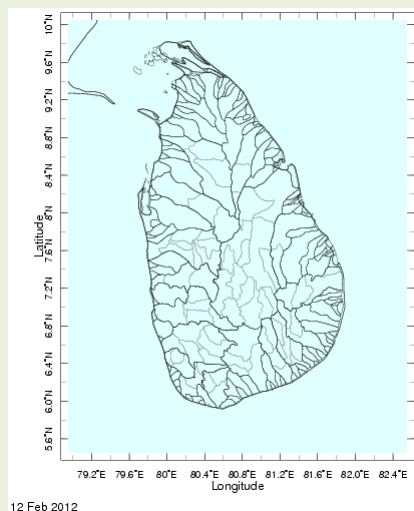
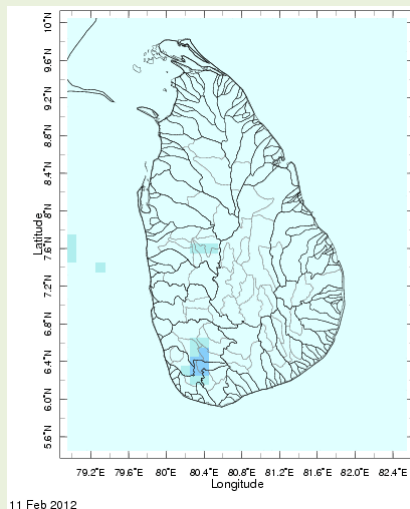
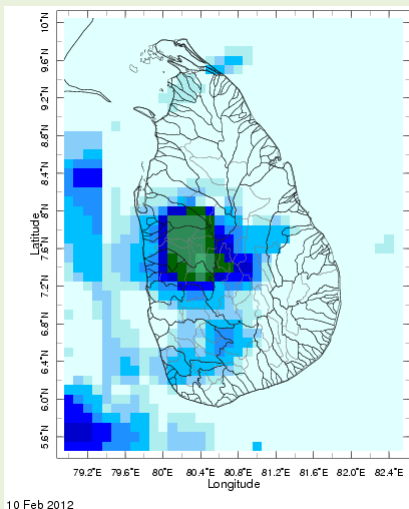
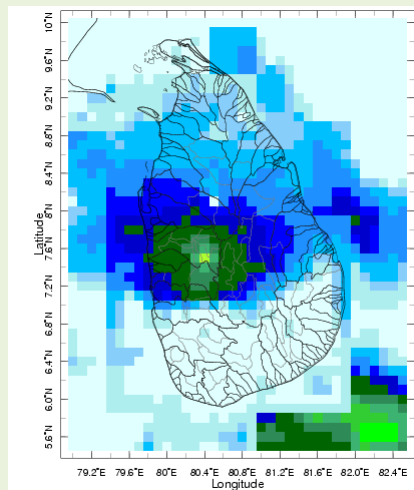
International Research Institute for Climate and Society.

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

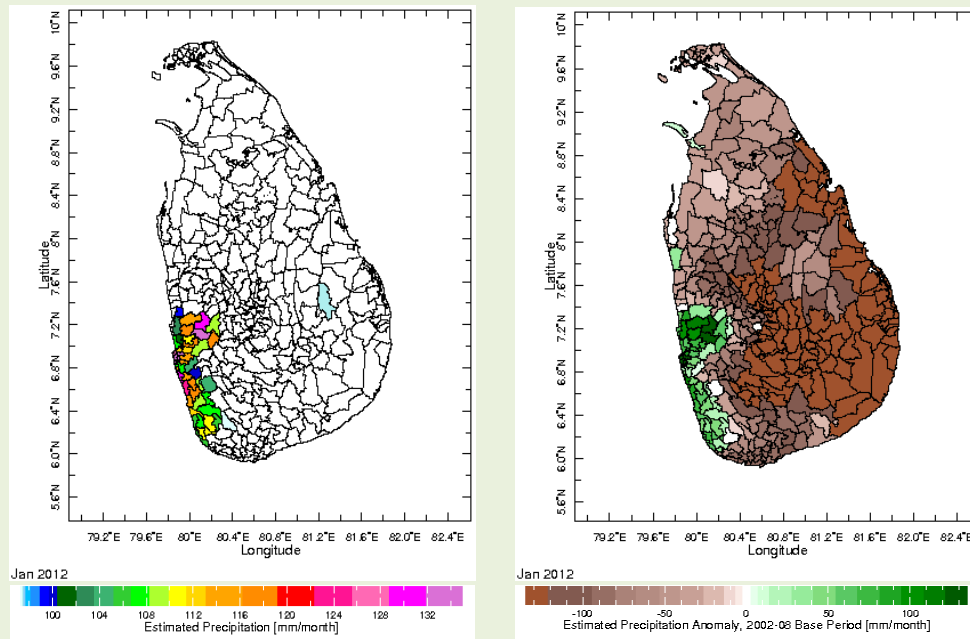
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

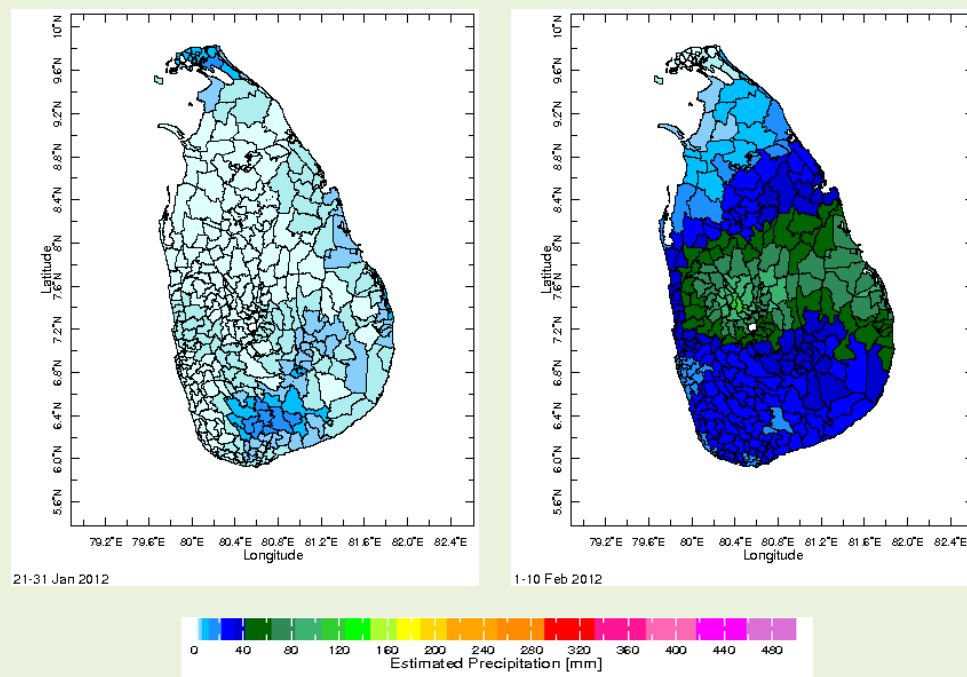
### a) Daily Satellite Derived Rainfall Estimate Maps: 09<sup>th</sup> –14<sup>th</sup> February, 2012 (Left-Right, Top-Bottom)



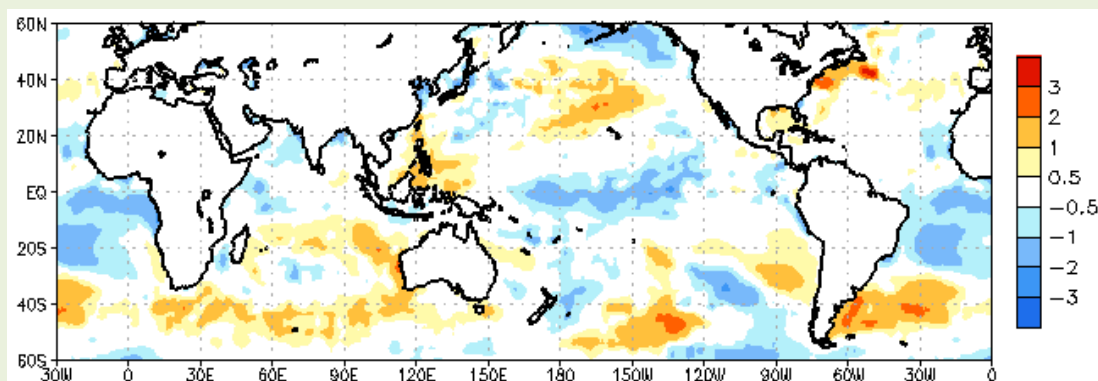
**b) Monthly Satellite Derived Rain fall Estimates for January 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 Jan. & 01-10 Feb. 2012)**



## d) Weekly Average SST Anomalies

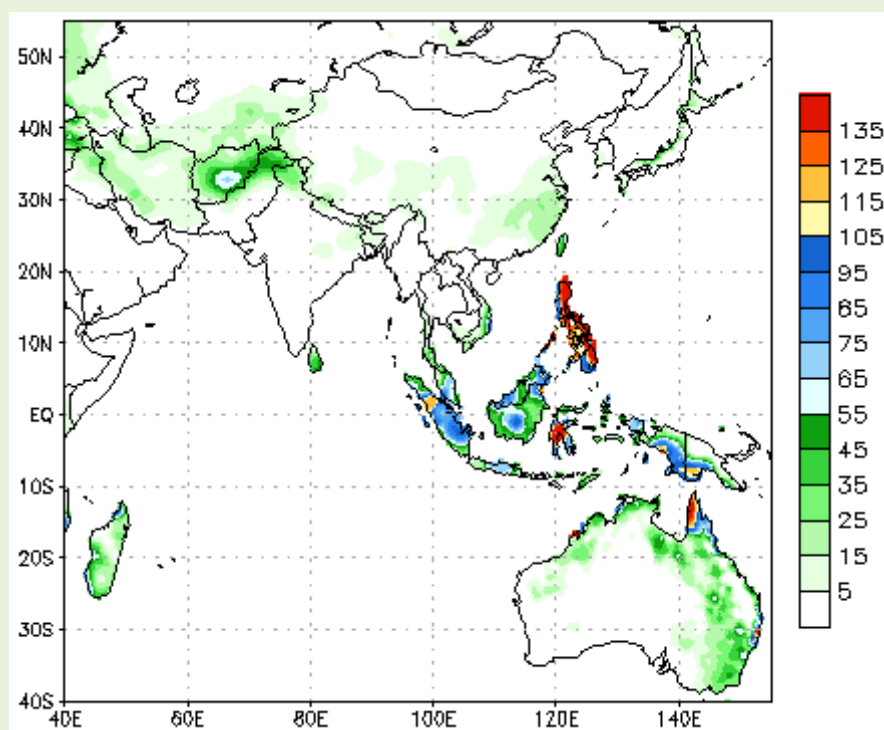


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 08<sup>th</sup> February, 2012

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.



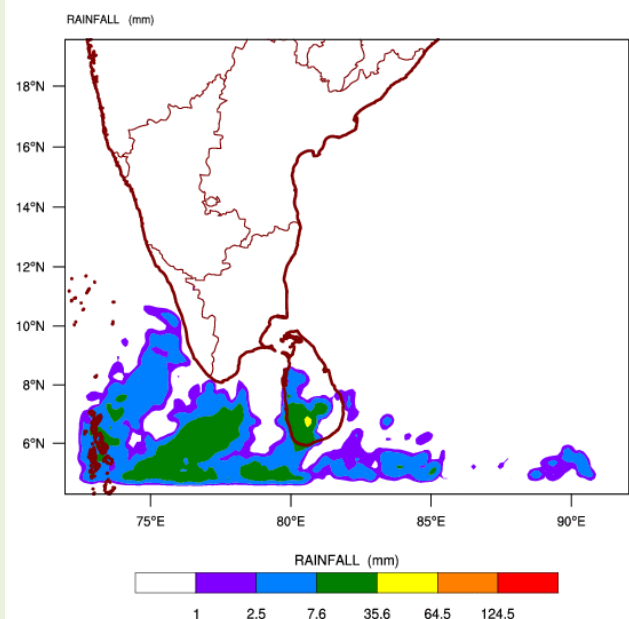
During next week, an accumulated rainfall of 05 mm-45 mm is predicted for the entire Sri Lanka.

Source – NOAA Climate Prediction Center

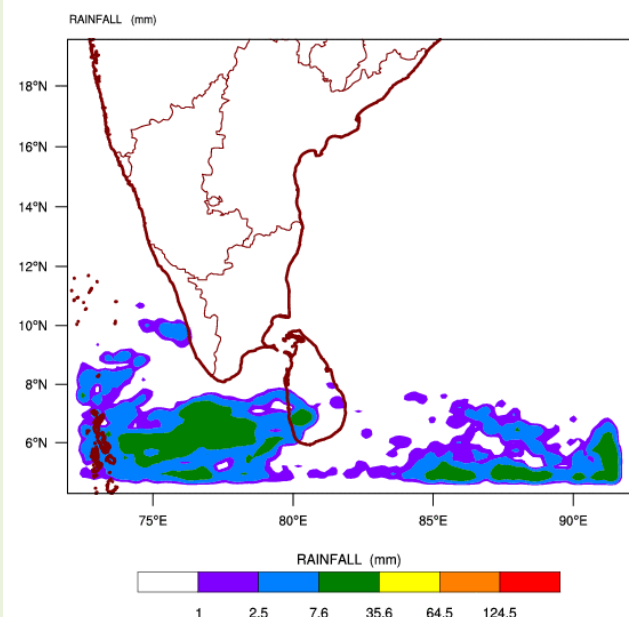
Map: Predicted accumulation of rainfall. (14<sup>th</sup> – 20<sup>th</sup> Feb, 2012 week)

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

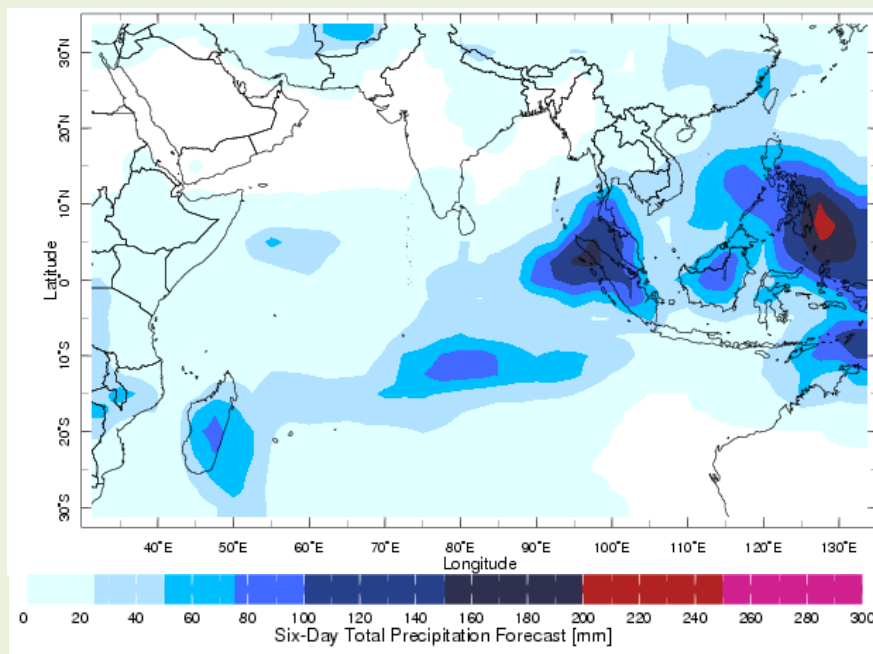
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 15-02-2012 valid for 03 UTC of 17-02-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 15-02-2012 valid for 03 UTC of 18-02-2012



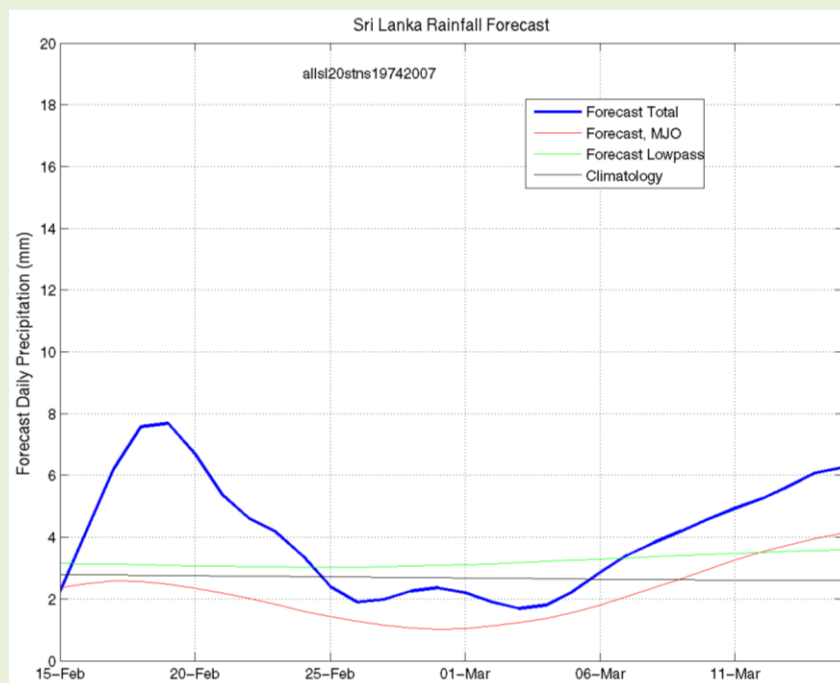
**c) Weekly Precipitation Forecast for 14-19 Feb 2012(Precipitation Forecast in Context Map Tool, IRI)**



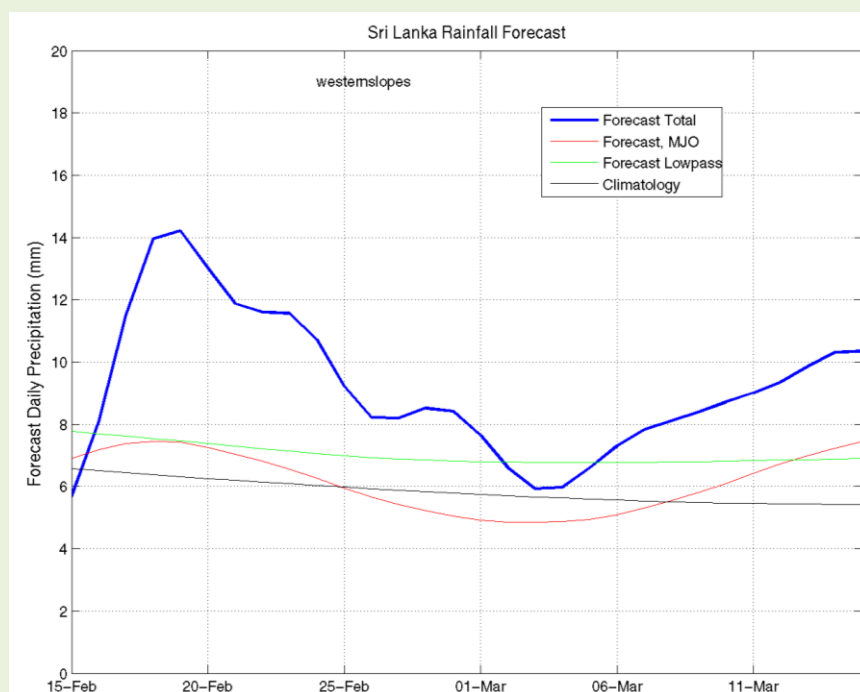
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 16<sup>th</sup> February, 2012

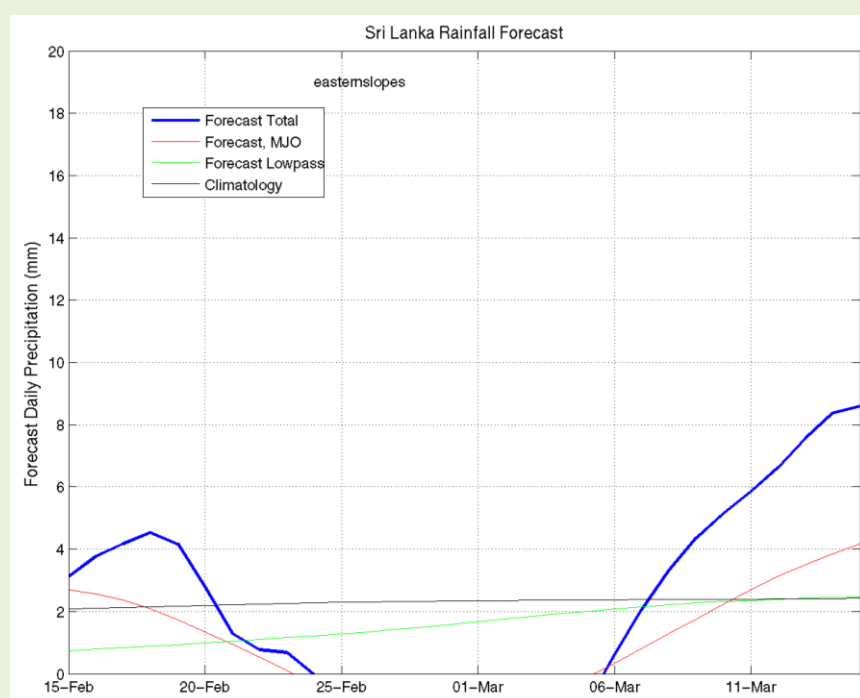
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



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

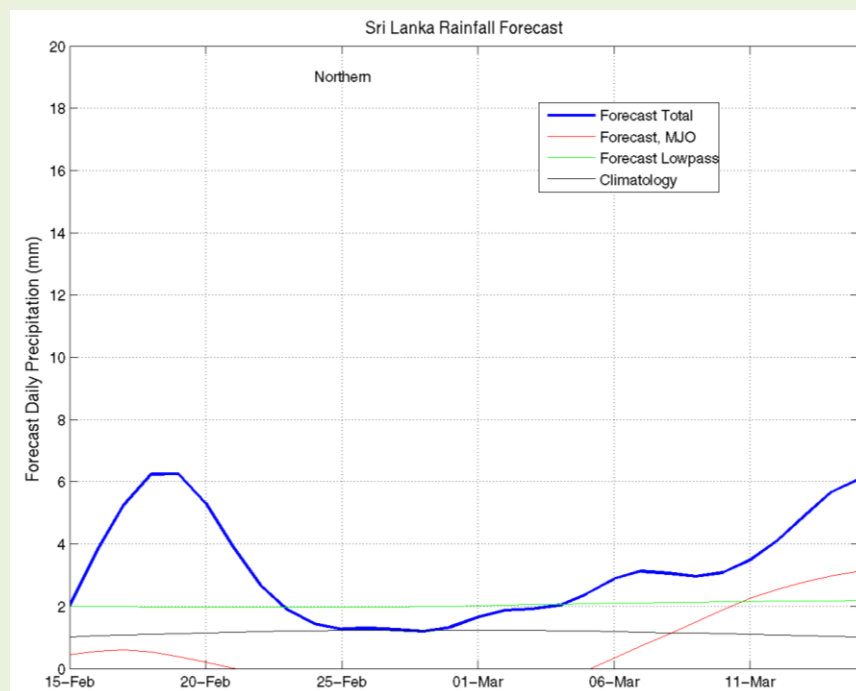


## Eastern Slopes (Rainfall Scale- from 0-20 mm/day)





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



## e) Seasonal Rainfall and Temperature Predictions from IRI

