

## Experimental Climate Monitoring and Prediction

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

by: Madhura Weerasekera, Sewwandhi Chandrasekara, Sanjaya Ratnayake, Zeenas Yahiya, Lareef Zubair and Michael Bell  
(FECT and IRI<sup>1</sup>)

22 March 2012

### FECT BLOG

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

and

<http://fects.wordpress.com/>

### FECT WEBSITE

<http://www.climate.lk>

and

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

### ENSO Update

15 March 2012

A majority of the ENSO prediction models call for below average SSTs, but neutral ENSO conditions during the March-May period, implying an end to the current La Nina. A transition to near average, or even slightly above average, SSTs is predicted by many models for the second half 2012.

(IRI)

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

**Weekly Monitoring:** During the previous week (12<sup>th</sup> –19<sup>th</sup> March) rainfall ranged between 0-50 mm. From the 12<sup>th</sup> - 17<sup>th</sup> most parts of the Western half of the island received rainfall & maximum of about 50 mm was received on the 16<sup>th</sup> of March for Gampaha district. On 18<sup>th</sup> & 19<sup>th</sup> there was no rainfall observed for the entirety of the island.

**Monthly Monitoring:** During February below average rainfall was experienced for the Northern Province and the few places at Puttalam and Trincomalee districts and above average rainfall was experienced for the rest of the country.

### Predictions

**7 Day Prediction:** For the coming week, the NCEP Global Forecast System predicts accumulated rainfall of 5 – 15 mm is predicted for the Colombo, Kalutara and Gampaha districts and remaining parts of the island shall receive an accumulated rainfall of less than 5 mm.

**IMD WRF Model Forecast & IRI forecast:** WRF model predicts 1 mm-8 mm rainfall for the Northern Province, Galle & Ratnapura districts & few places in Moneragala & Hambantota districts on the 23<sup>rd</sup> March 2012. For the same day, model predicts 1-3 mm rainfall for the districts of Ratnapura, Nuwara Eliya, Kegalle & Anuradhapura. The WRF model predicts 1 mm-8 mm rainfall for Galle & Ratnapura districts and less than 3 mm rainfall for Nuwara Eliya district for the 24<sup>th</sup> of March 2012. NOAA NCEP CFS model (delivered via IRI map tool) predicts total of 20mm rainfall till the 25<sup>th</sup> of March.

**1 Month Prediction:** Overall, from 21<sup>st</sup>-25<sup>th</sup> March rainfall shall rapidly increase & shall gradually decrease till 1<sup>st</sup> April 2012. During 1<sup>st</sup>-7<sup>th</sup> April rainfall shall show minor fluctuation & thereon rainfall shall increase gradually. *Western slopes-* the amount of forecasted daily rainfall shall be high compared to the other regions of Sri Lanka. Rainfall shall increase drastically within the period of 21<sup>st</sup>-25<sup>th</sup> March & thereafter rainfall shall decrease gradually till 7<sup>th</sup> April. Thereon rainfall shall increase gradually. *Eastern slopes-* Rainfall shall increase during 21<sup>st</sup>-24<sup>th</sup> March & during 24<sup>th</sup>-31<sup>st</sup> rainfall shall decrease gradually. Rainfall is not predicted for the period of 31<sup>st</sup> March-9<sup>th</sup> April. Thereon rainfall shall increase gradually. *Nothorn region-* Rainfall shall increase during 21<sup>st</sup>-25<sup>th</sup> & then shall decrease during 25<sup>th</sup>-30<sup>th</sup>. Rainfall shall show constant during 30<sup>th</sup> March-4<sup>th</sup> April & there onwards rainfall shall increase gradually.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for April 2012 to June 2012, issued in March 2012, there is a 60%-70% probability for temperature to be below normal for entire Sri Lanka, while precipitation to be climatological.

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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

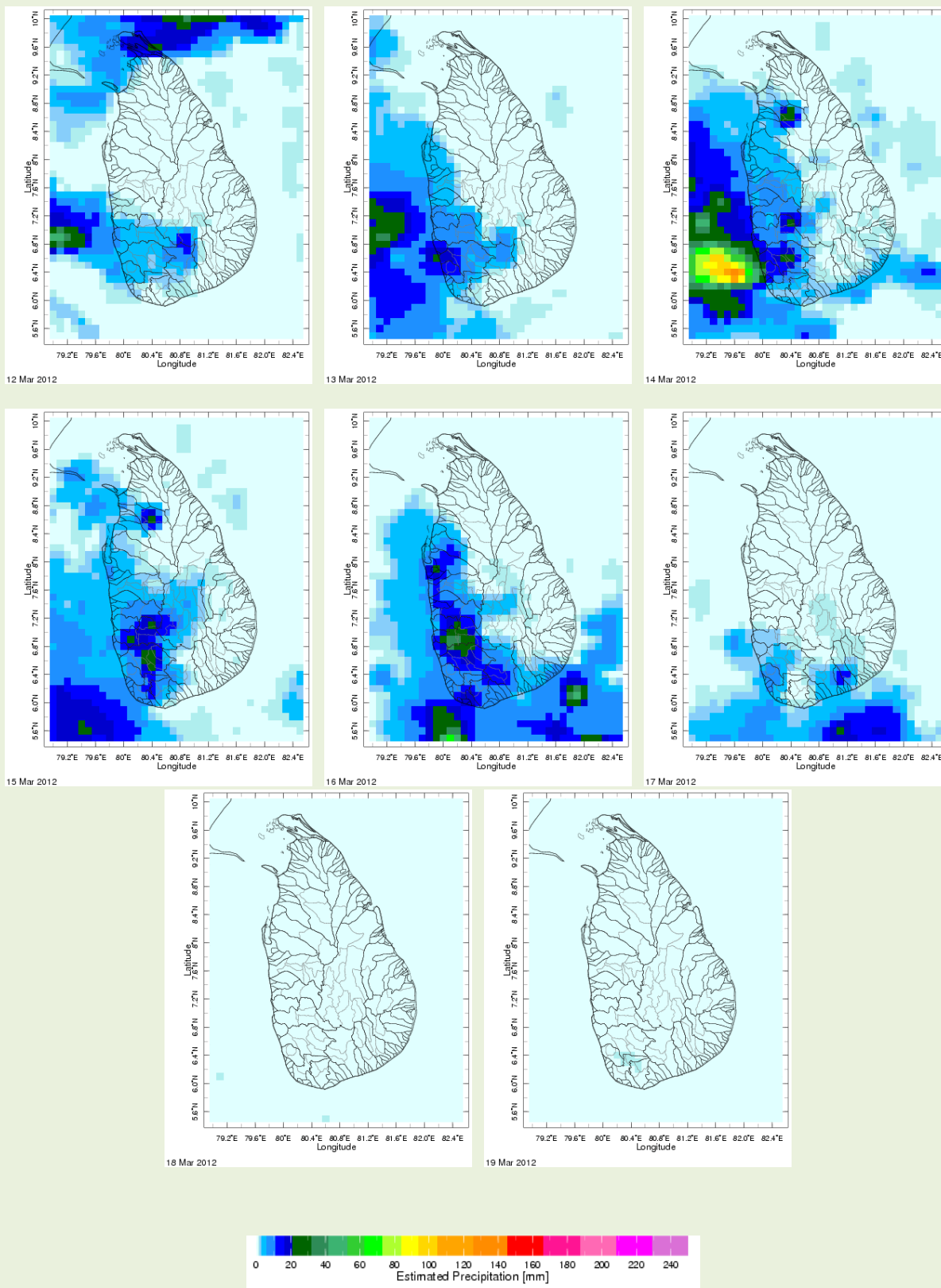
International Research Institute for Climate and Society.

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

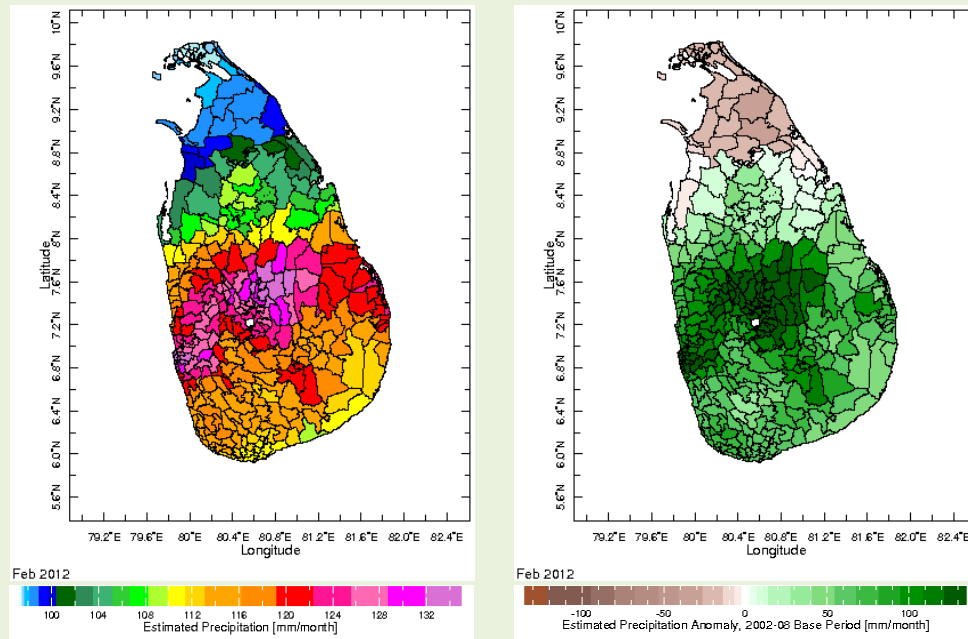
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

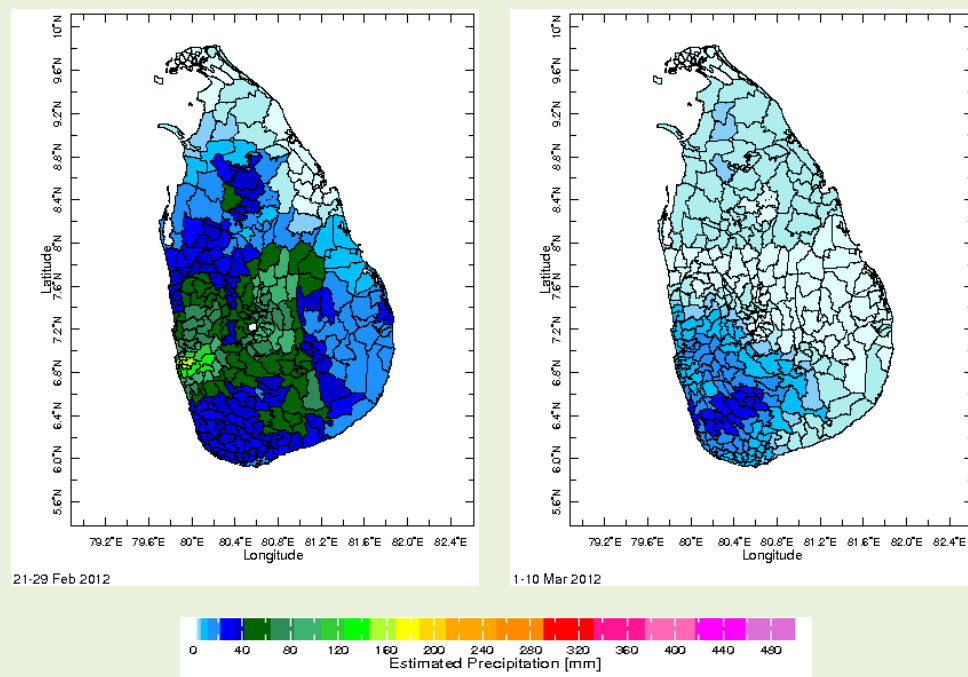
### a) Daily Satellite Derived Rainfall Estimate Maps: 12<sup>th</sup> March –19<sup>th</sup> March, 2012 (Left-Right, Top-Bottom)



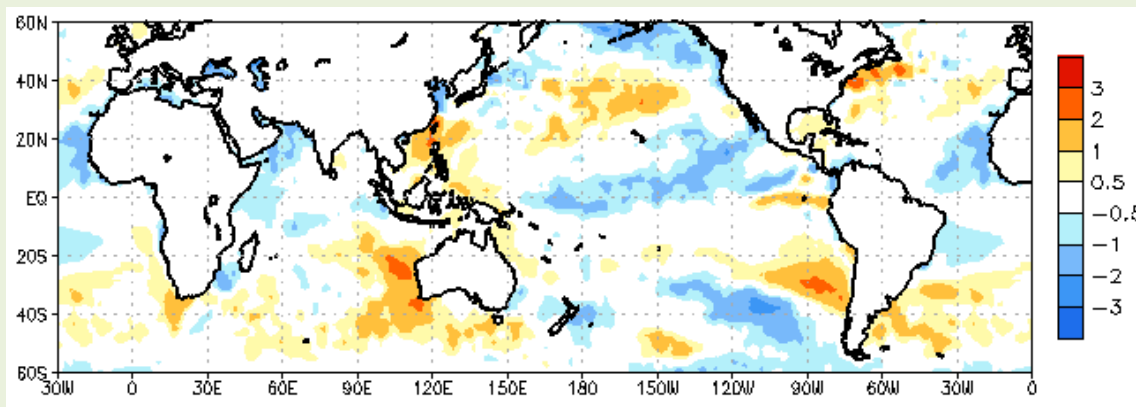
**b) Monthly Satellite Derived Rain fall Estimates for February 2012 (Total – Left and Anomaly -Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-29 Feb & 1-10 March 2012)**



## d) Weekly Average SST Anomalies

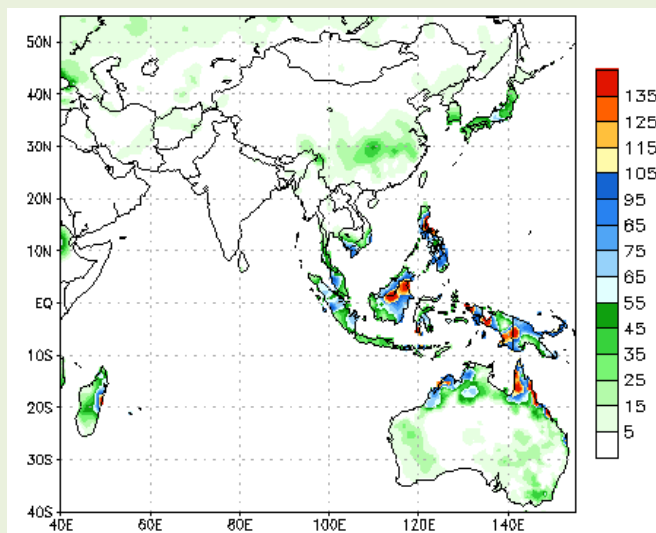


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 07<sup>th</sup> March, 2012

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.



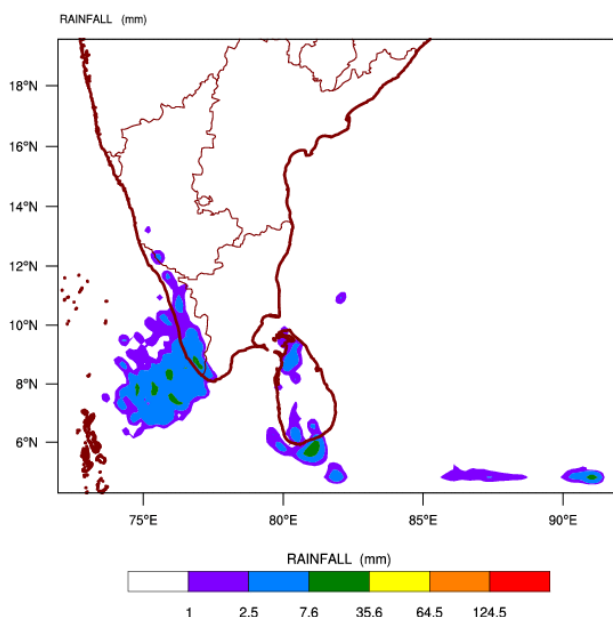
During next week, an accumulated rainfall of 5 – 15 mm is predicted for the Colombo, Kalutara and Gampaha districts and remaining parts of the island shall receive an accumulated rainfall of less than 5 mm.

Source – NOAA Climate Prediction Center

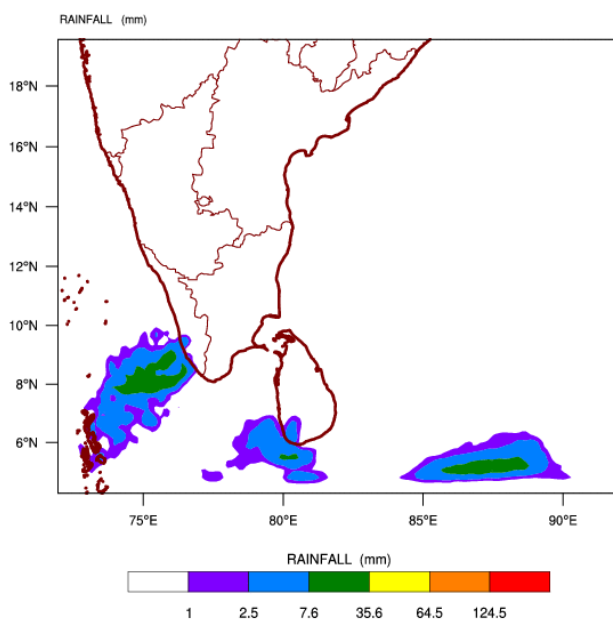
Map: Predicted accumulation of rainfall. (21<sup>st</sup> March– 27<sup>th</sup> March, 2012 week)

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

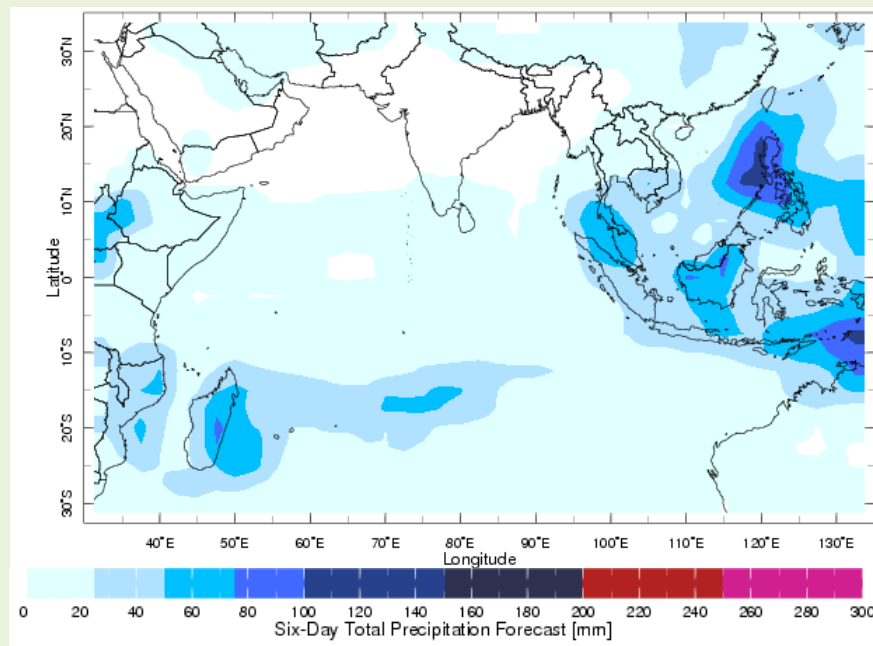
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)  
based on 00 UTC of 21-03-2012 valid for 03 UTC of 23-03-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)  
based on 00 UTC of 21-03-2012 valid for 03 UTC of 24-03-2012



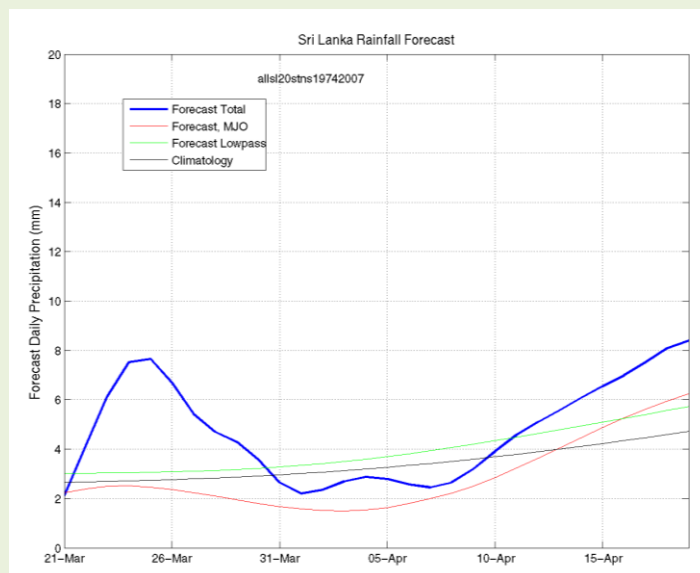
**c) Weekly Precipitation Forecast for 20 Mar - 25 Mar 2012 (Precipitation Forecast in Context Map Tool, IRI)**



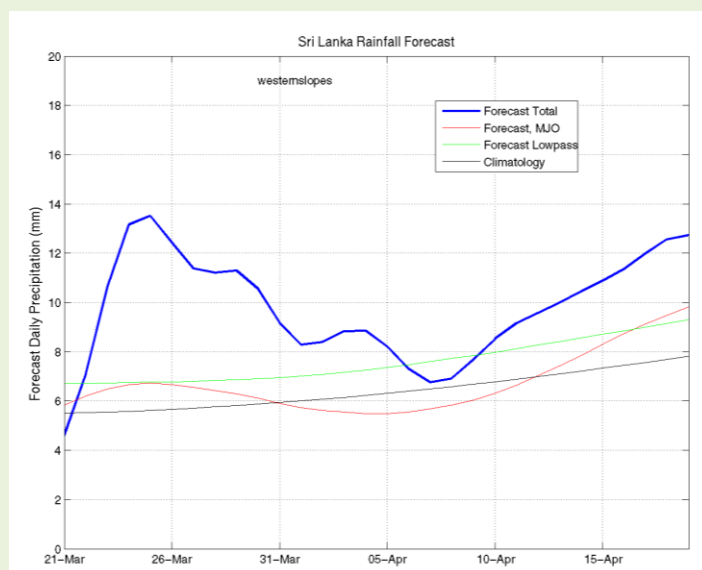
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 22<sup>nd</sup> March, 2012

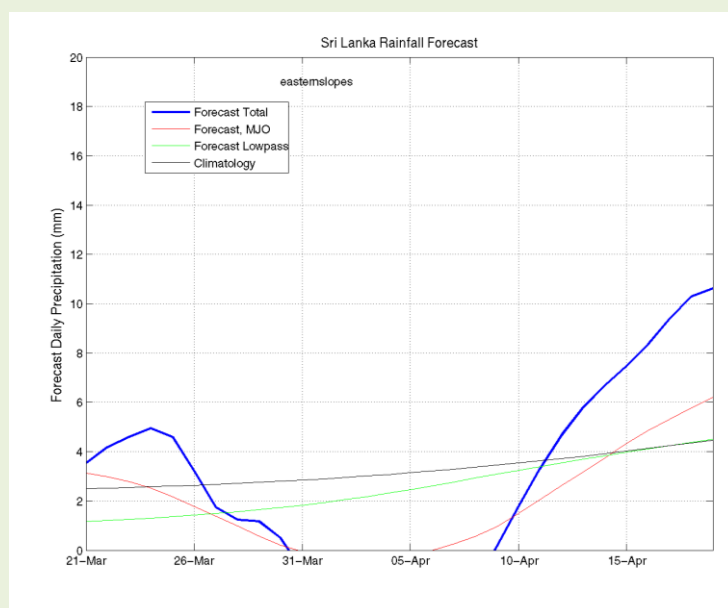
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



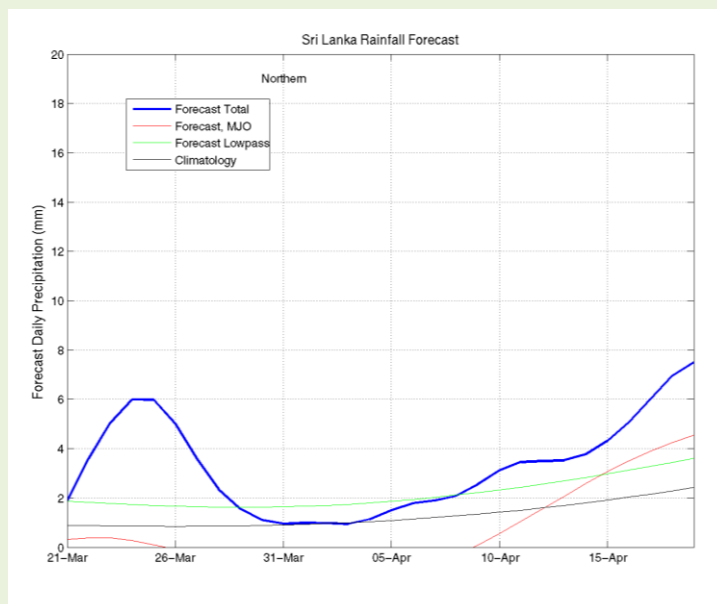
## ***Western Slopes (Rainfall Scale from 0-20 mm/day)***



## ***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

