

## 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>)

10 May 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

03 May 2012

Many of the ENSO prediction models predict neutral ENSO conditions from the April-June period through the remainder of 2012, implying an end to the 2011-12 La Nina. However, approximately 40% of models predict El Nino conditions developing by the July-September season and continuing through 2012.

(IRI)

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

**Weekly Monitoring:** During the week of 02<sup>nd</sup> May-07<sup>th</sup> May rainfall ranged between 0-30 mm. On 3<sup>rd</sup> & 4<sup>th</sup> no rainfall was observed for the entire country. On the 7<sup>th</sup> of May 2/3<sup>rd</sup> of the Northern part of the island received rainfall ranging between 0-30 mm, & highest rainfall was experienced in few places of Mulativu & Vavuniya districts.

**Monthly Monitoring:** During April, the entire island has shown an above average rainfall.

### Predictions

**7 Day Prediction:** During next week, an accumulated rainfall of 105 mm is predicted for the Southwestern regions of the island and it shall diminish along the Northeast way. However for the entire country an accumulated rainfall of 5 mm-105 mm is predicted.

**IMD WRF Model Forecast & IRI forecast:** WRF Model Predicts less than 36 mm rainfall for Kalutara, Colombo and Badulla districts on 11<sup>th</sup> May 2012. On the same day less than 8 mm rainfall is predicted for the area from Puttalam to Galle, Kandy to Nuwara Eliya and Mulativu to Hambantota. For 12<sup>th</sup> May 2012, WRF Model predicts less than 65 mm of rainfall for the stretch between Gampaha to Galle, and less than 8 mm for Hambantota and Mulativu. On the same day less than 2.5 mm is predicted for Trincomalee.

**1 Month Prediction:** Overall, from 8<sup>th</sup>-12<sup>th</sup> May 2012, rainfall shall increase and then it shall decrease gradually till the 19<sup>th</sup>. There onwards rainfall shall increase gradually with minor fluctuations between 22<sup>nd</sup>-26<sup>th</sup>. *Western Slopes-* Expected rainfall for the western slopes is higher compared to other regions. Rainfall shall increase during 8<sup>th</sup>-12<sup>th</sup> May. There onwards rainfall shall gradually decrease between 12<sup>th</sup>-26<sup>th</sup> with minor variations on the 16<sup>th</sup> and 22<sup>nd</sup>. On 26<sup>th</sup> onwards rainfall shall increase gradually. *Eastern Slopes-* Rainfall shall increase during 8<sup>th</sup>-11<sup>th</sup> May 2012. Rainfall shall gradually decrease during 11<sup>th</sup>-24<sup>th</sup> and shall reach daily precipitation of 2 mm which is the lowest for the entire island. There onwards rainfall shall increase drastically. *Northern Region-* Rainfall shall increase steadily during 8<sup>th</sup>-12<sup>th</sup> and shall decrease gradually till 17<sup>th</sup> May. Thereafter rainfall shall increase gradually.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for May 2012 to July 2012, issued in April 2012, there is a 40%-45% probability for temperature to be below normal particularly in the northern half of the country while 40% probability for it is to be normal in the southern half. There is 40% probability for rainfall to be climatological.

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- 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

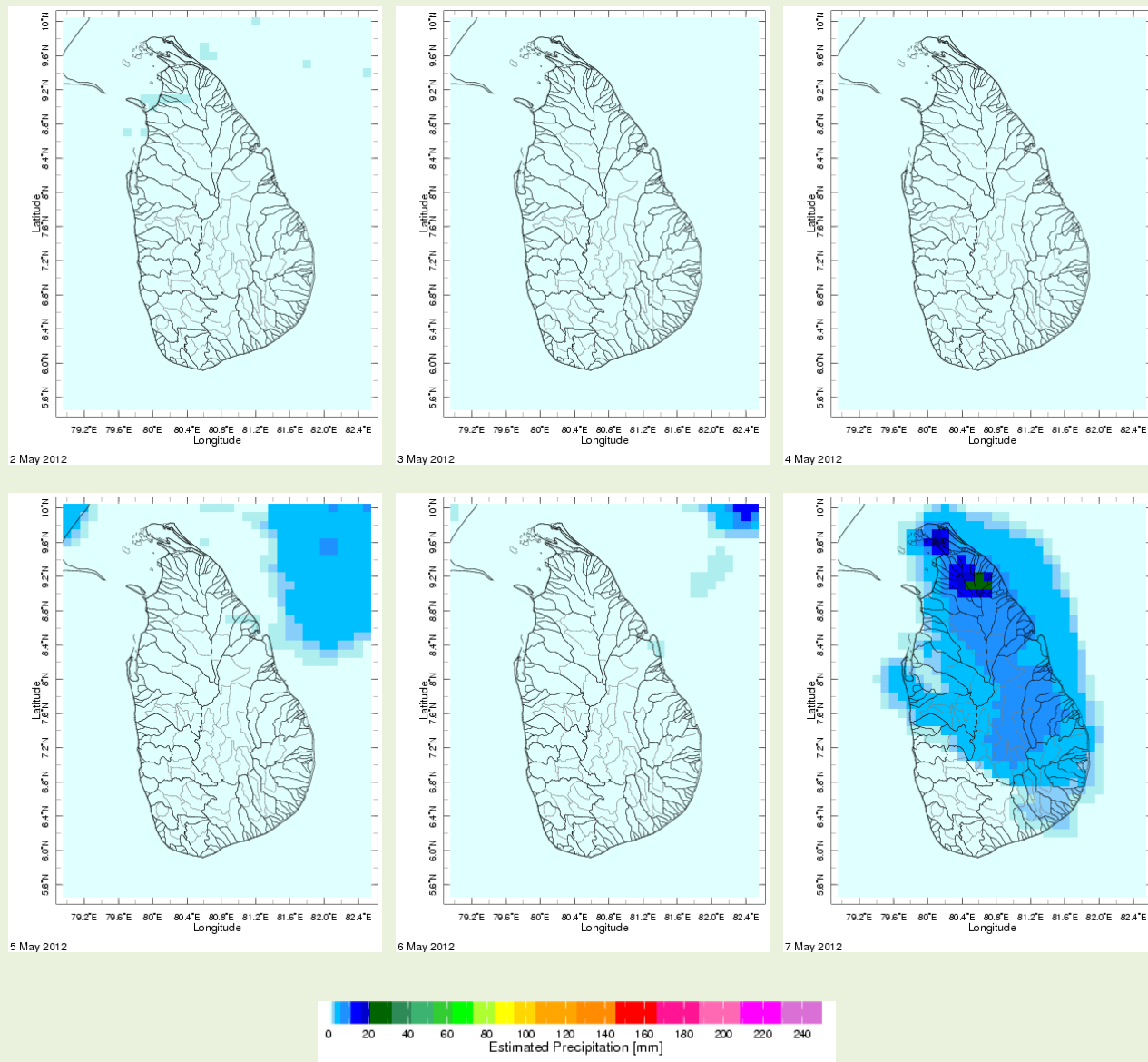
International Research Institute for Climate and Society.

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

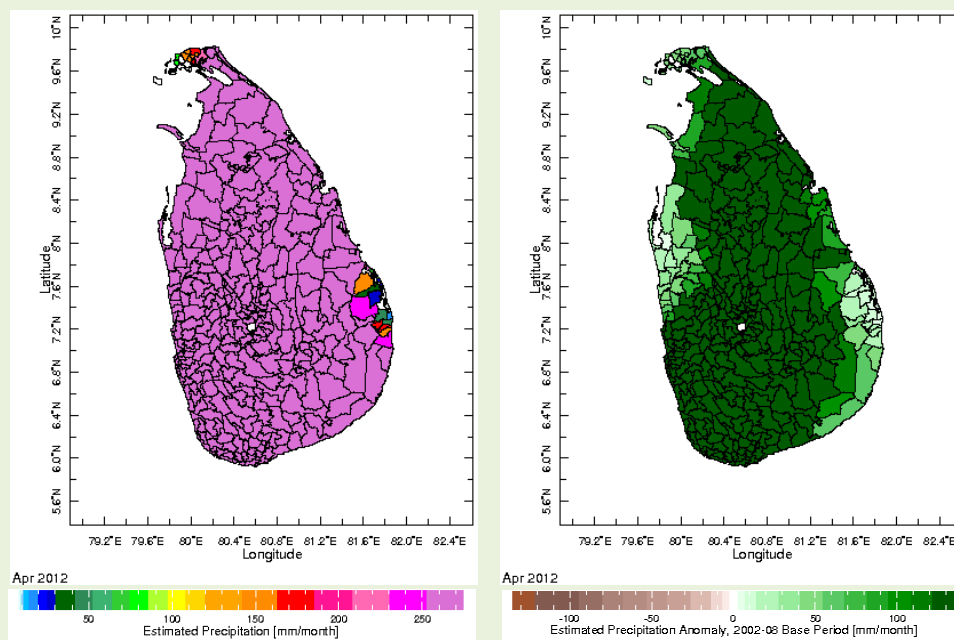
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

## 1. Monitoring

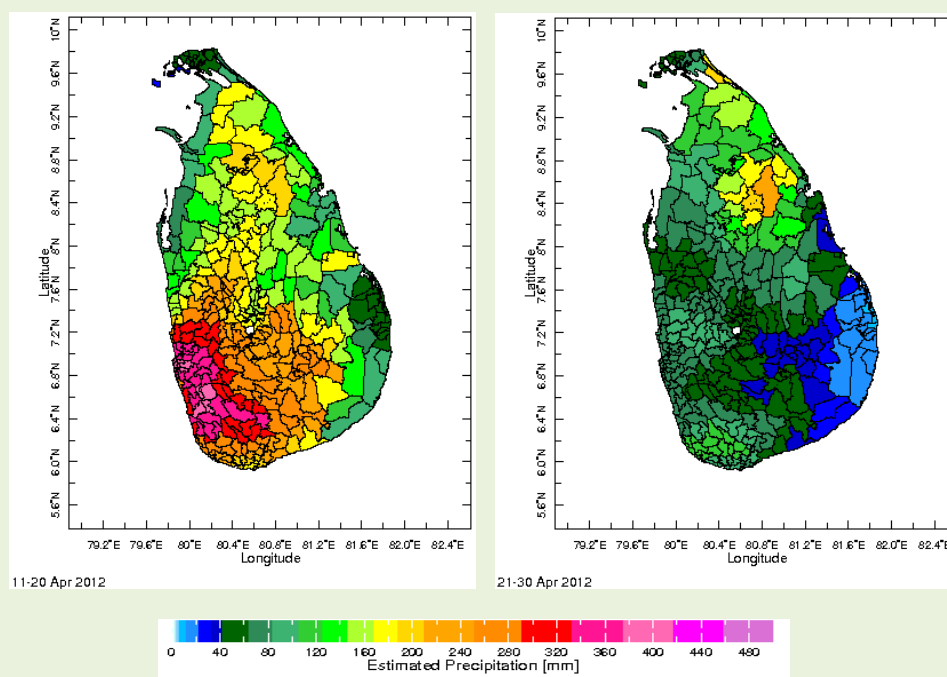
### a) Daily Satellite Derived Rainfall Estimate Maps: 2<sup>nd</sup> May – 7<sup>th</sup> May, 2012 (Left-Right, Top-Bottom)



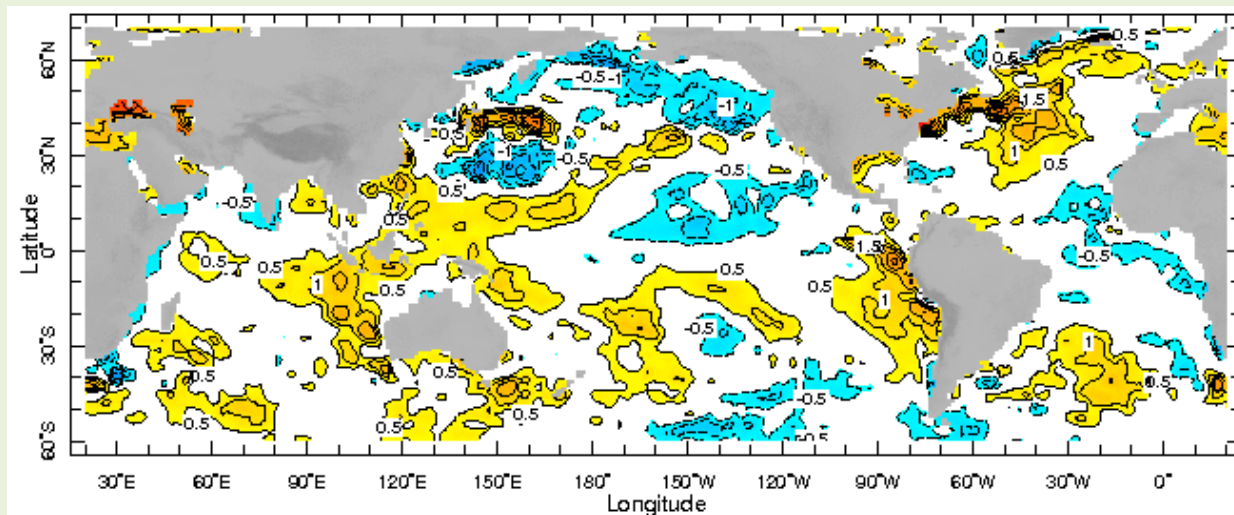
### b) Monthly Satellite Derived Rain fall Estimates for April 2012 (Total – Left and Anomaly -Right)



### c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (11-20 April & 21-30 April 2012)



## d) Weekly Average SST Anomalies

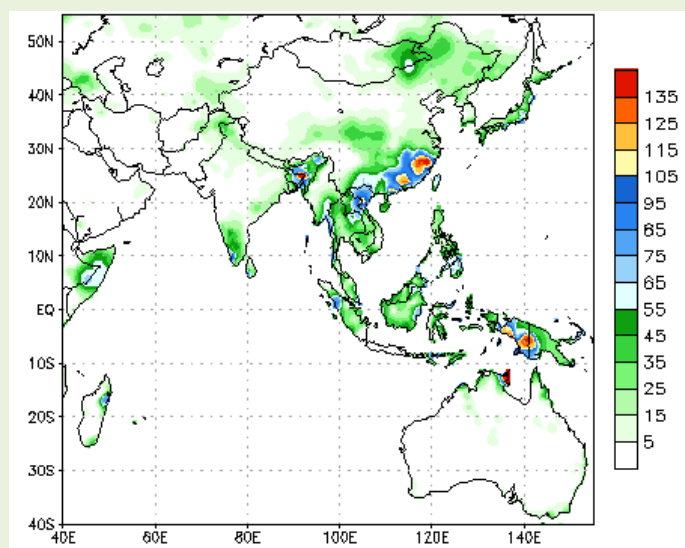


Weekly Average SST Anomalies ( $^{\circ}\text{C}$ ), 29<sup>th</sup> April – 5<sup>th</sup> May, 2012

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.



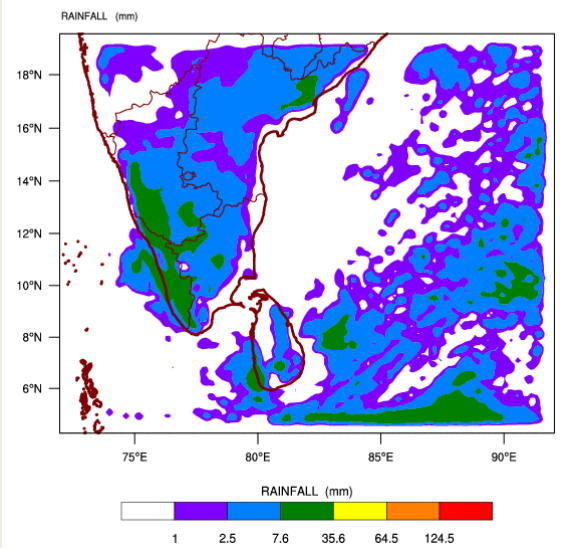
During next week, an accumulated rainfall of 105 mm is predicted for the Southwestern regions of the island and it shall diminish along the Northeast way. However for the entire country an accumulated rainfall of 5-105 mm is predicted.

Source – NOAA Climate Prediction Center

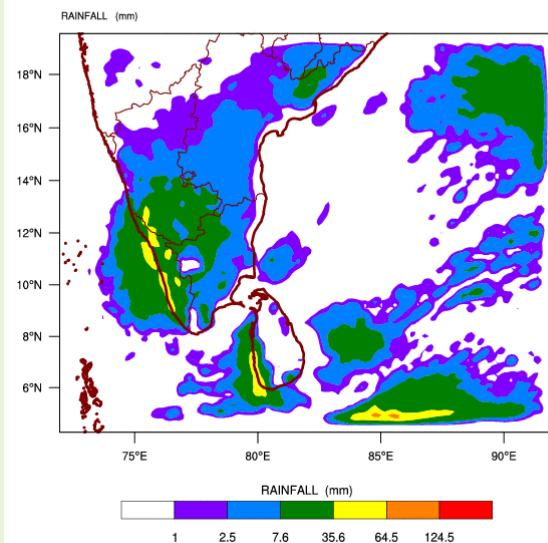
Map: Predicted accumulation of rainfall. (09<sup>th</sup> May– 15<sup>th</sup> May, 2012 week)

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

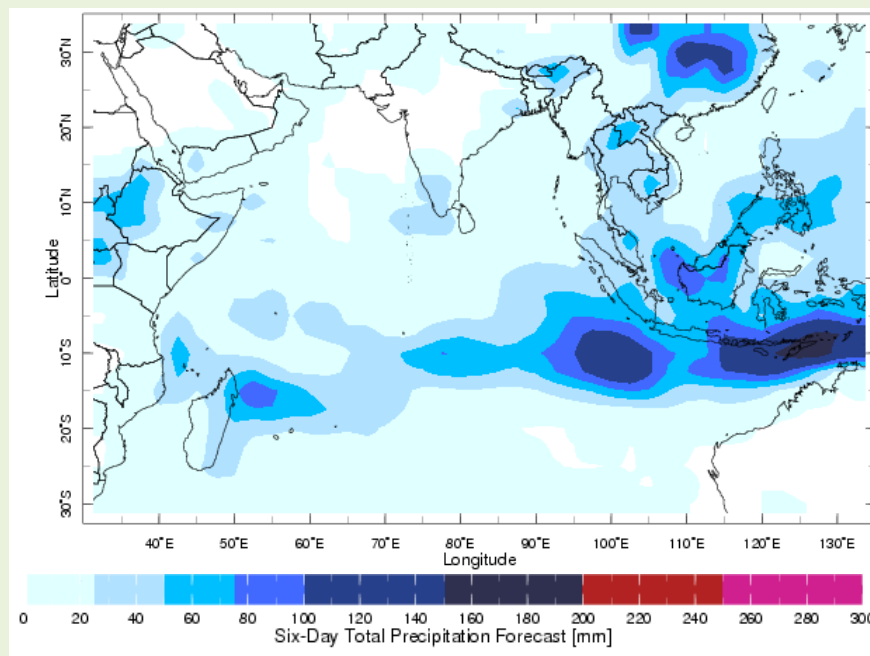
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 09-05-2012 valid for 03 UTC of 11-05-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 09-05-2012 valid for 03 UTC of 12-05-2012



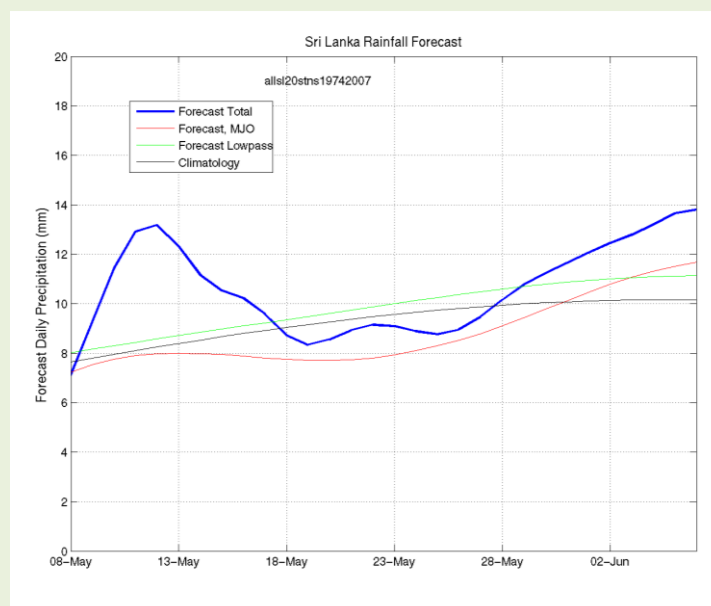
**c) Weekly Precipitation Forecast for 08 May - 13 May 2012 (Precipitation Forecast in Context Map Tool, IRI)**



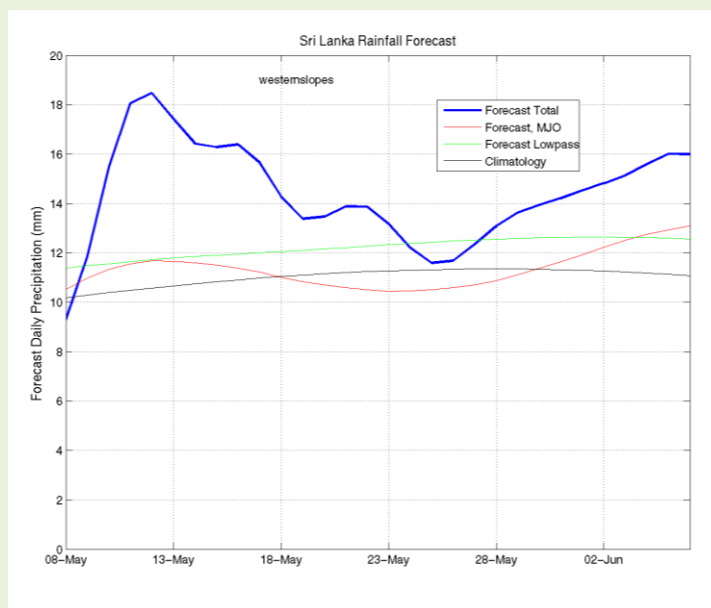
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 09<sup>th</sup> May, 2012

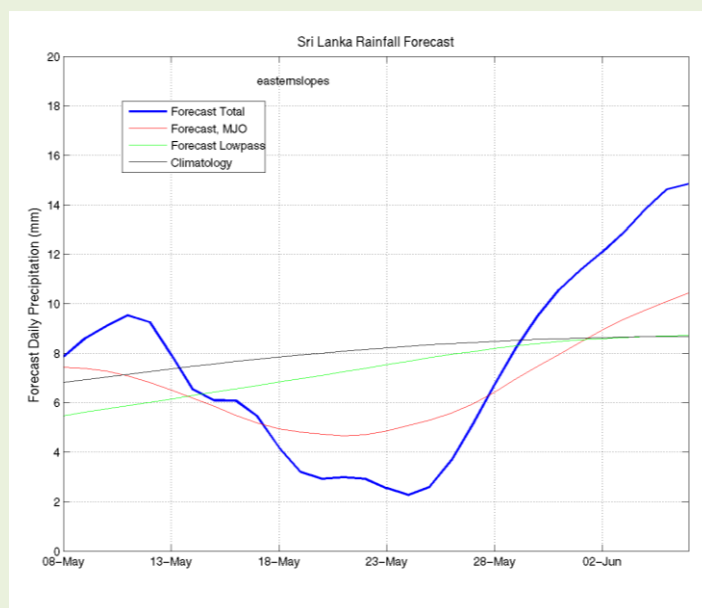
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



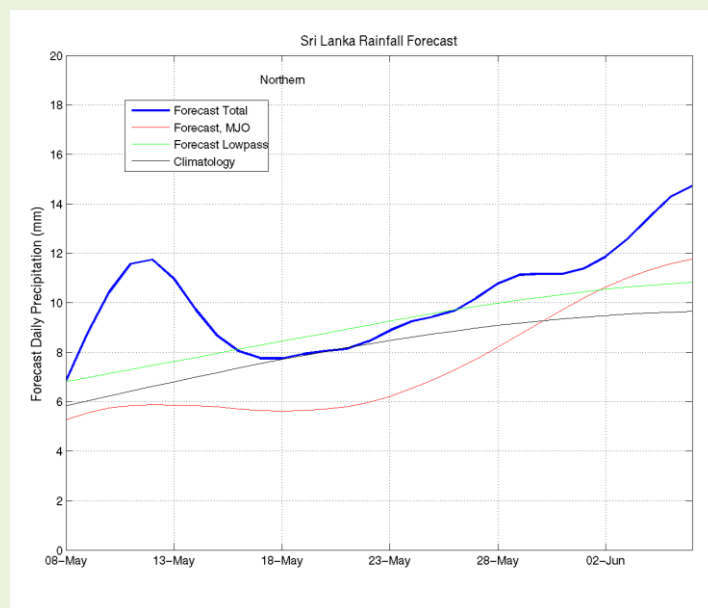
## Western Slopes (Rainfall Scale from 0-20 mm/day)



## 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

