

## Experimental Climate Monitoring and Prediction

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

7 February 2013

### FECT BLOG

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

and

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

### FECT WEBSITES

<http://www.climate.lk>

and

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

### January 17, 2013 PACIFIC SEAS STATE

Most of the ENSO prediction models predict natural ENSO conditions through the first half of 2013. During early January the observed SST conditions have become below average, but in the neutral range.

(Text Courtesy IRI)

### INDIAN OCEAN STATE

In the Pacific, the El Nino state has weakened to neutral although there is weak warming remnant in the El Nino index areas. The unusually warmer sea surfaces of the Arabian Sea/Central Western and South-Eastern Indian Ocean remain.

### Highlights

#### Monitoring and Predictions:

Heavy rainfall is predicted for Ampara, Batticaloa, Hambantota and Moneragala districts during 6th February-12<sup>th</sup> February 2013. However, there shall not be high rainfall observations during the next week (7<sup>th</sup>-14<sup>th</sup> February), except for Southern regions. Rainfall is not predicted for eastern coast and slopes regions till 9<sup>th</sup> February.

#### Summary

##### Monitoring

**Weekly Monitoring:** During 29<sup>th</sup> January-5<sup>th</sup> February 2013 rainfall ranged between 5-145 mm. Maximum amount of rainfall was observed on the 4<sup>th</sup> February in Trincomalee district. During 29<sup>th</sup> January-2<sup>nd</sup> February entire country faced dry condition.

##### Predictions

**7-day prediction:** From 6<sup>th</sup> February-12<sup>th</sup> February 2013, heavy rainfall (more than 135 mm) is predicted for Ampara and Batticaloa districts and it shall spread in a decreasing manner towards West, South-west and North-west directions of Sri Lanka.

**IMD WRF Model Forecast & IRI forecast:** For the 8<sup>th</sup> of February 2013, IMD WRF model predicts less than 36 mm of rainfall for Matara, Galle and Ratnapura districts and rainfall shall spread in a reducing manner towards North ward direction. For the same day, model predicts less than 8 mm of rainfall for Batticaloa, Trincomalee and Ampara districts. For the 9<sup>th</sup> of February IMD WRF model predicts rainfall less than 65 mm for Hambantota district and it shall spread in a reducing manner towards North direction covering southern half of the island. NOAA model predicts heavy rainfall for the entire country and the magnitude of the rainfall shall increase towards the South-east direction of the island which shall provide extremely heavy rainfall for parts of Hambantota, Moneragala and Ampara districts from 6<sup>th</sup>-11<sup>th</sup> February.

**30 Days Prediction: Overall-** There shall not be high rainfall observations during the next week (7<sup>th</sup>-14<sup>th</sup> February). However, rainfall shall increase slightly after 14<sup>th</sup> till 18<sup>th</sup>. **Western Slopes & Western Coast** – Existing significant rainfall condition shall decrease drastically till 12<sup>th</sup> February and it shall increase drastically after 12<sup>th</sup> February onwards. **Eastern slopes & Eastern Coast** - Rainfall is not predicted till 9<sup>th</sup> February. Slight increase in rainfall shall observe during 9<sup>th</sup>-10<sup>th</sup> & thereafter it shall reduce during 10<sup>th</sup>-14<sup>th</sup>. **Northern region-** Rainfall is not predicted for 8<sup>th</sup>-11<sup>th</sup> February. Thereafter rainfall shall increase gradually throughout the month of February. **Southern Region-** Different rainfall pattern shall exist in this region. Rainfall shall increase gradually during 7<sup>th</sup>-10<sup>th</sup> & there shall be slight rainfall peak on 10<sup>th</sup>. Thereafter rainfall shall decrease till 13<sup>th</sup> and shall increase gradually thereon.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast issued on January 2013; for February 2013 to April 2013, there is a 50%-60% 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
- Weekly Average SST Anomalies

#### 2. Predictions

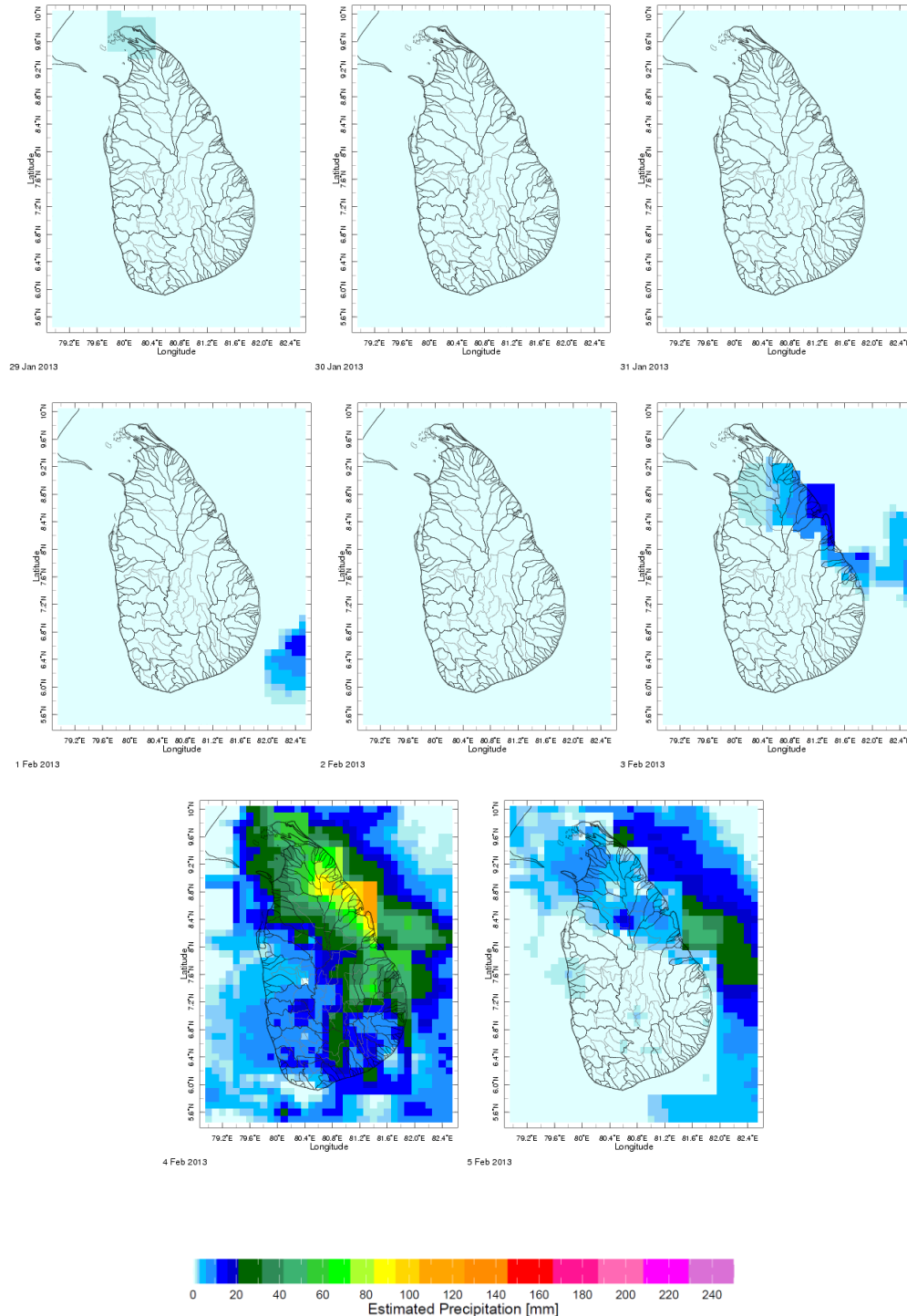
- NCEP GFS Ensemble 1-7 day predictions
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

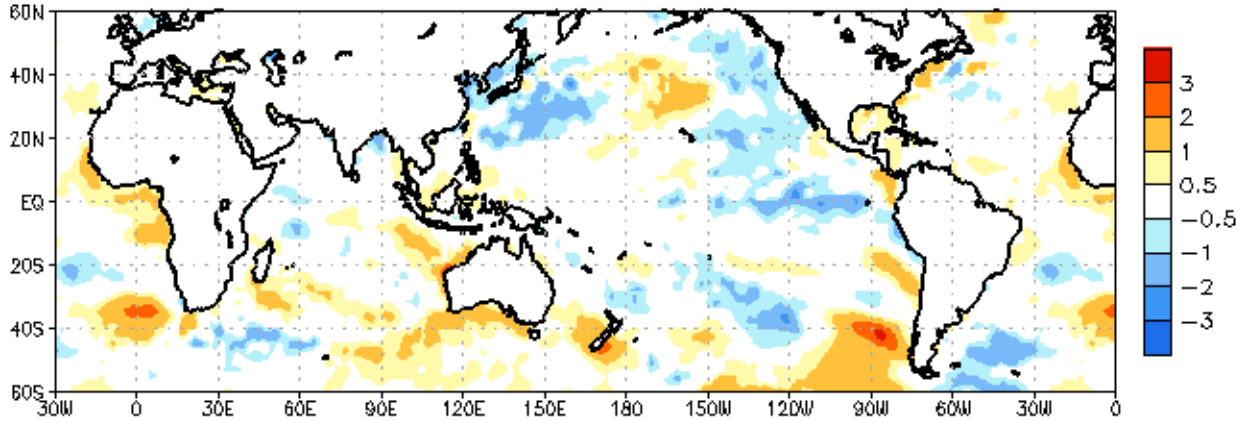
<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

## 1. Monitoring

### a) Daily Satellite Derived Rainfall Estimate Maps: 29<sup>th</sup> January–5<sup>th</sup> February 2013 (Left-Right, Top-Bottom)



**b) Weekly Average SST Anomalies**

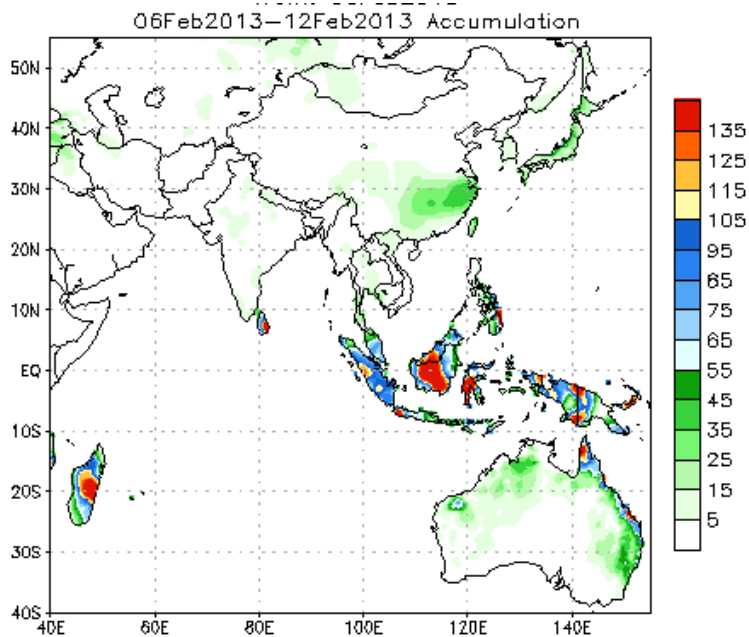


Weekly Average SST Anomalies ( $^{\circ}$ C), 30<sup>th</sup> January, 2013

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

**2. Predictions**

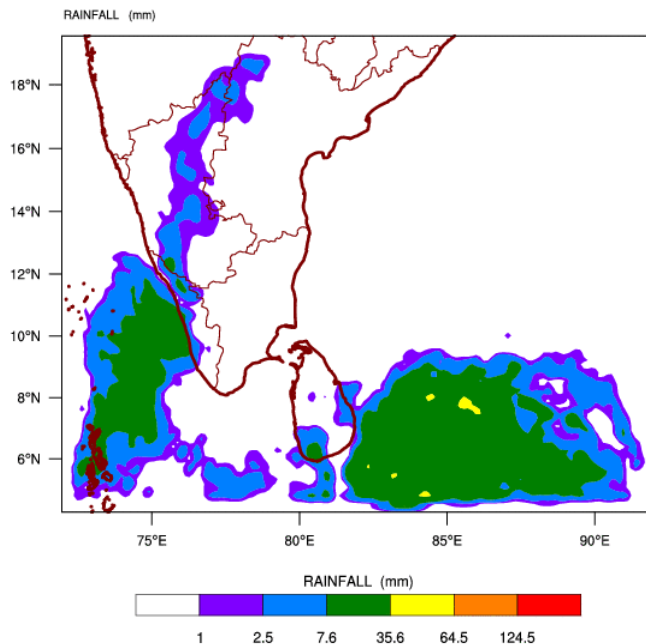
**a) NCEP GFS Ensemble 1-7 day predictions, NOAA, Climate Prediction Centre, USA.**



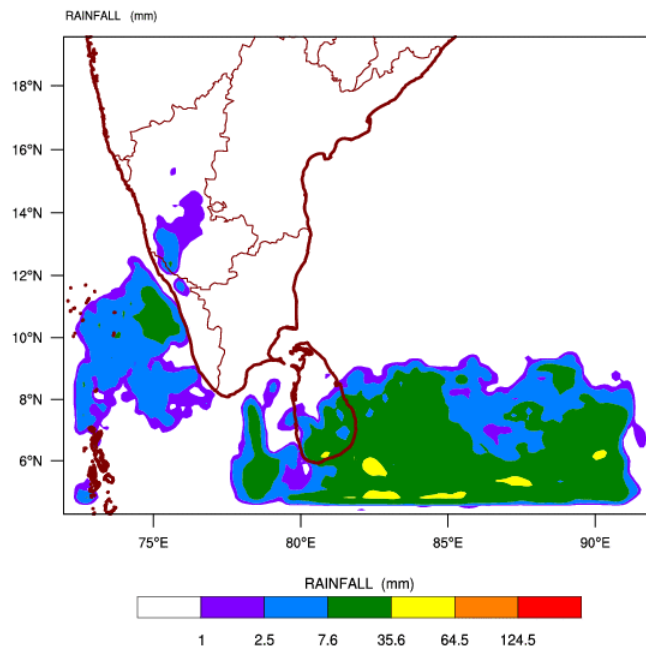
Source – NOAA Climate Prediction Center

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

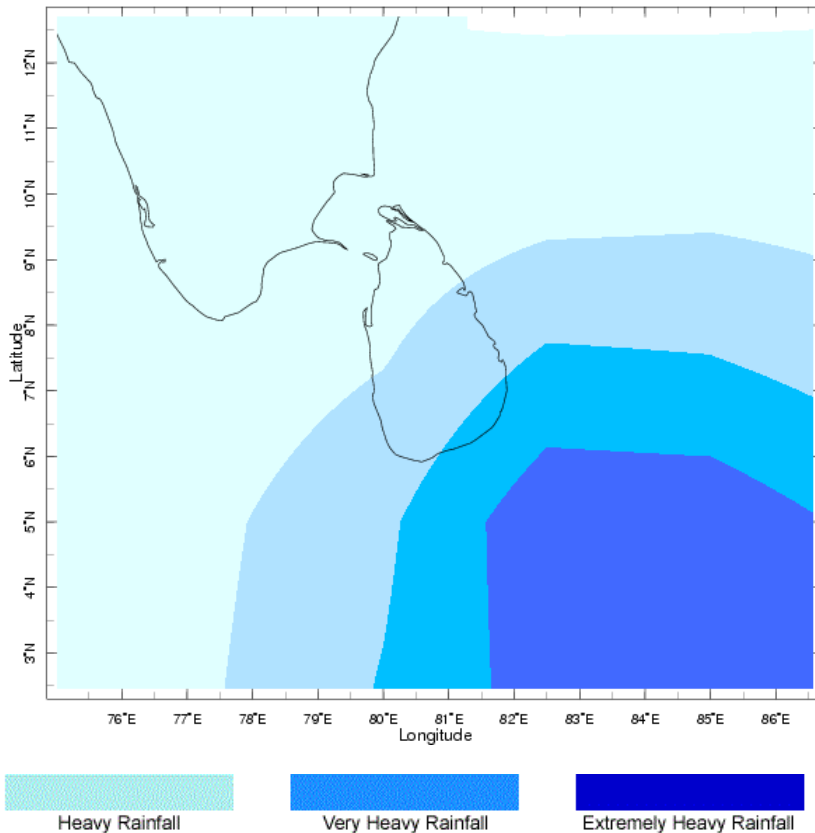
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)  
based on 00 UTC of 06-02-2013 valid for 03 UTC of 08-02-2013



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)  
based on 00 UTC of 06-02-2013 valid for 03 UTC of 09-02-2013



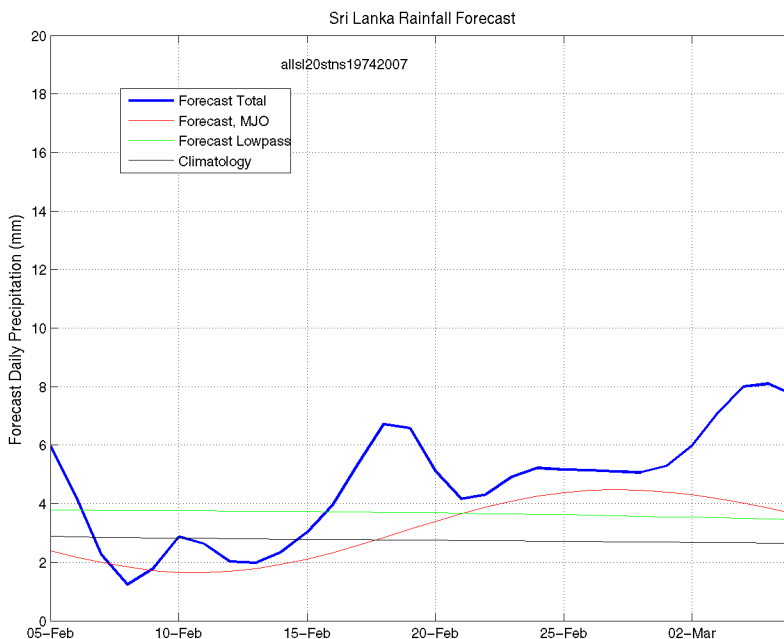
**c) Weekly Precipitation Forecast for 6<sup>th</sup>-11<sup>th</sup> February 2013 (Precipitation Forecast in Context Map Tool, IRI)**



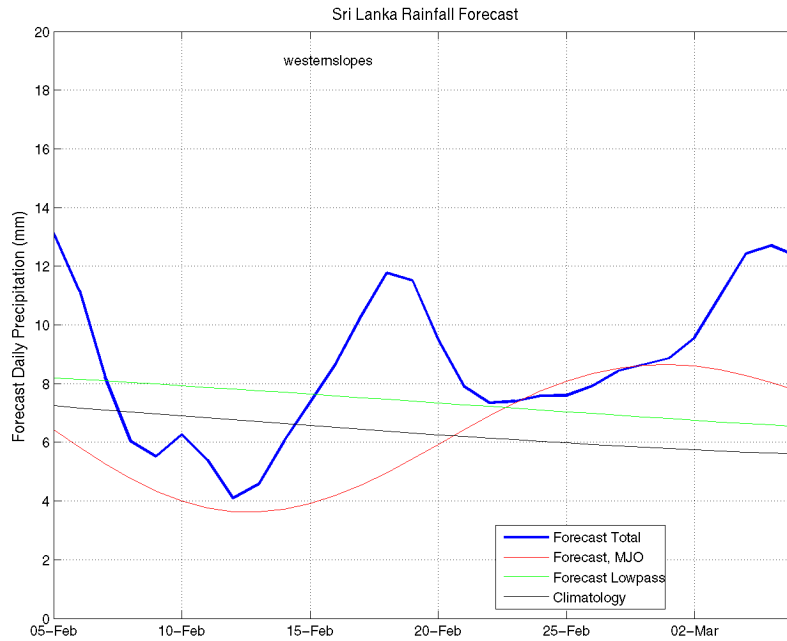
**d) 1 month experimental predictions by Paul Roundy and L. Zubair**

Predictions based on observed cloud cover and atmospheric waves. Issued 7<sup>th</sup> February, 2013

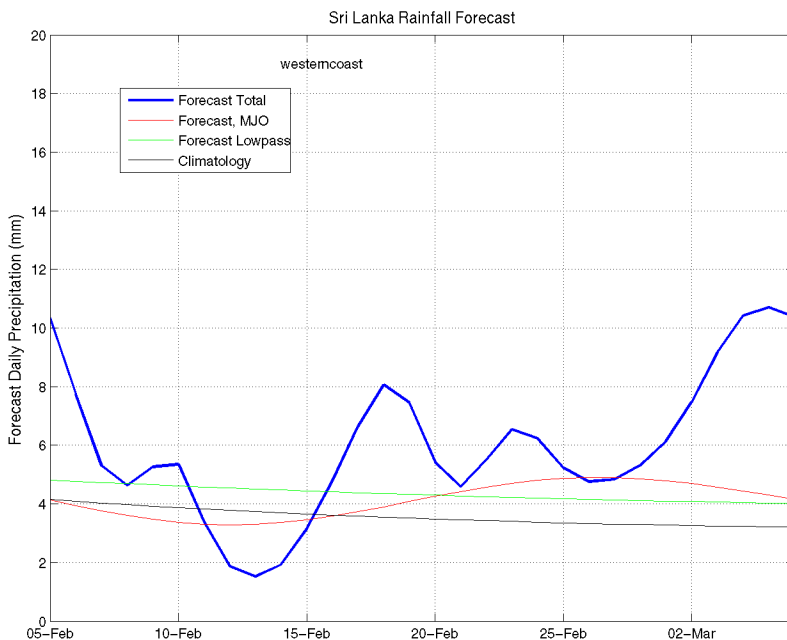
**All Sri Lanka (Rainfall Scale from 0-20 mm/day)**



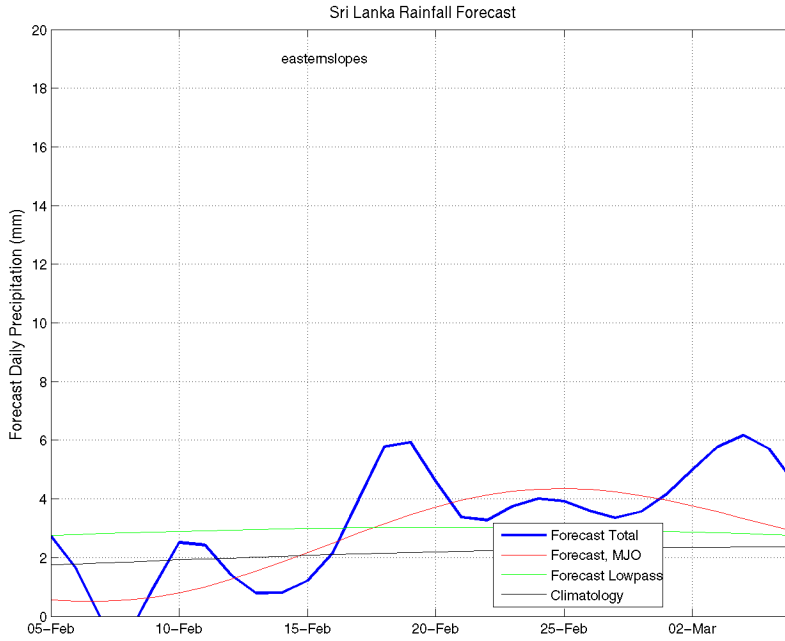
**Western Slopes (Rainfall Scale from 0-20 mm/day)**



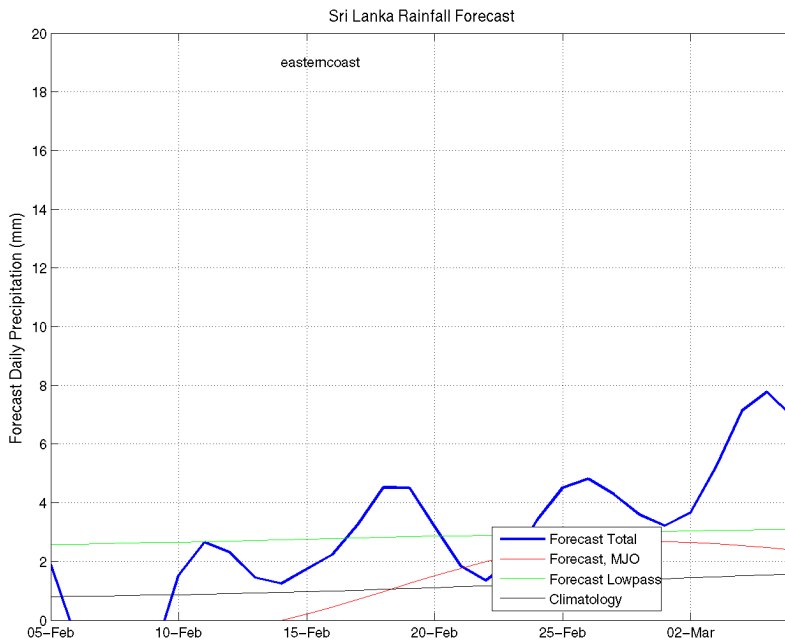
**Western Coast (Rainfall Scale from 0-20 mm/day)**



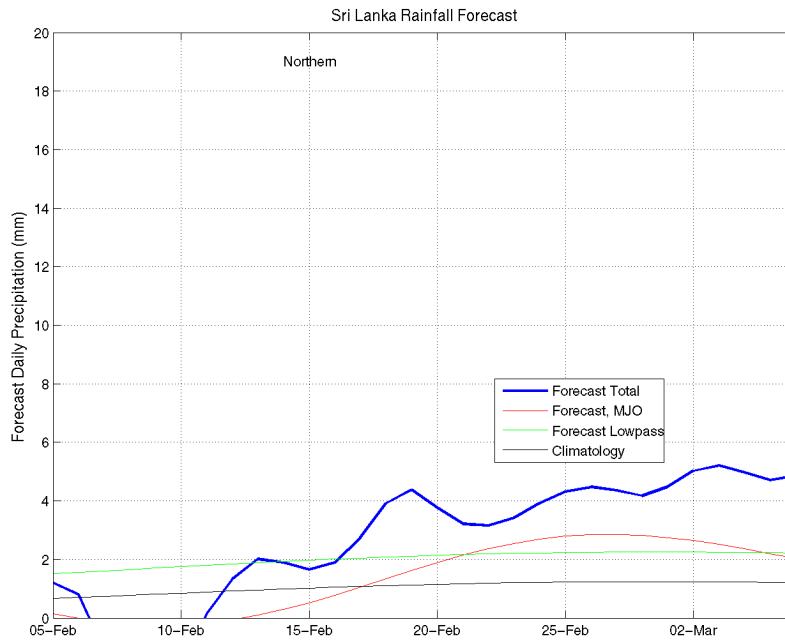
**Eastern Slopes (Rainfall Scale- from 0-20 mm/day)**



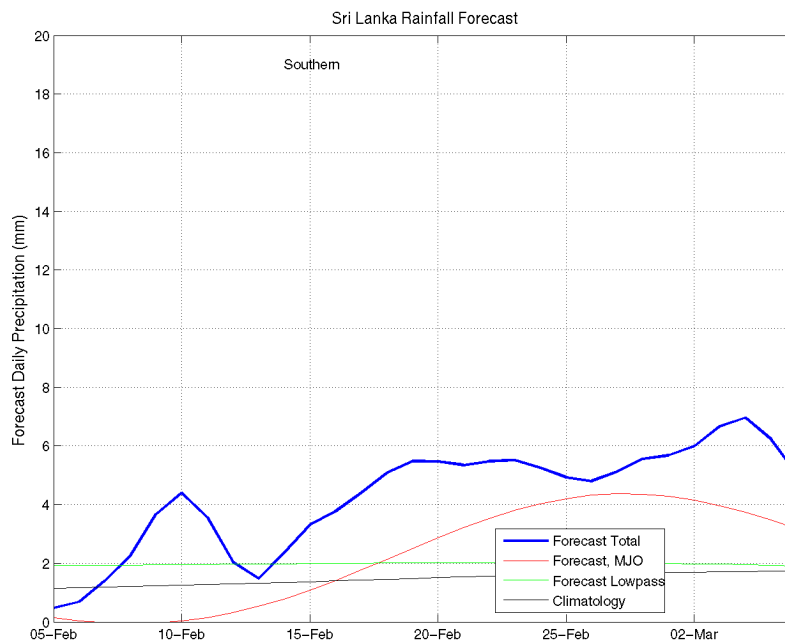
**Eastern Coast (Rainfall Scale- from 0-20 mm/day)**



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



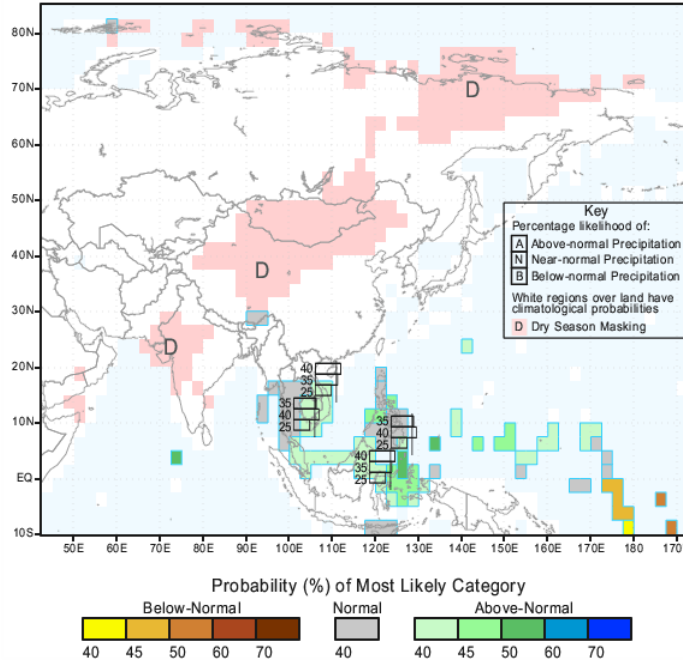
**Southern Region (Rainfall Scale- from 0-20 mm/day)**





*e) Seasonal Rainfall and Temperature Predictions from IRI*

IRI Multi-Model Probability Forecast for Precipitation  
for February-March-April 2013, Issued January 2013



IRI Multi-Model Probability Forecast for Temperature  
for February-March-April 2013, Issued January 2013

