

## Experimental Climate Monitoring and Prediction

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

12 March 2015

### FECT BLOG

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

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

### FECT WEBSITES

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

### March 5, 2015 PACIFIC SEAS STATE

During January through February 2015 the SST just met the thresholds for weak Niño conditions. Lately some of the atmospheric variables began indicating an El Niño pattern a little more than they had been before January. The consensus of ENSO prediction models indicate warm neutral to borderline El Niño conditions during the February-April season in progress, continuing into northern spring 2015, with some suggestion of strengthening El Niño toward mid-2015.

(Text Courtesy IRI)

### INDIAN OCEAN STATE

0.5°C above average sea surface temperature was observed in the sea around Sri Lanka.

### MJO STATE

MJO is in phase 6. Therefore rainfall in Sri Lanka shall be suppressed due to this.

### Highlights

Dry condition were observed in the past few days throughout the country except in south-western region of the country. This is likely to change in the next few days as NOAA NCEP models predict high precipitation in the next week.

### Summary

#### Monitoring

**Weekly Monitoring:** On the 4<sup>th</sup> of March rainfall was observed throughout the country with up to 30 mm magnitude. This was the highest rainfall observed during the week. Thereafter until the 10<sup>th</sup> rainfall was observed only in the south-western region of the country.

**Monthly Monitoring:** After a dry January, almost the entirety of the country received above average rainfall during February. Only places where less than average rainfall was observed are Puttalam, Kurunegala and Polonnaruwa districts. Batticaloa and Ratnapura areas received highest rainfall during this month. Decreased rainfall was observed during the first 10 days of March compared to the last 8 days of February. In March until the 10<sup>th</sup>, rainfall was mostly observed in the western and south-western parts of the country.

#### Predictions

**14 day prediction:** NOAA NCEP models predict high amount of rainfall throughout the country during 11<sup>th</sup>- 17<sup>th</sup> March with rainfall expected to go up to 85 mm. Thereafter until the 24<sup>th</sup> rainfall is expected to cease.

**IMD WRF & IRI Model Forecast:** According to the IMD WRF model, Hambantota area shall receive up to 65 mm rainfall on the 13<sup>th</sup> of March. Entire eastern region and Ratnapura region shall also receive rainfall up to 35 mm on the same day. On the 14<sup>th</sup> rainfall shall increase with most of the country receiving rainfall up to 65 mm. IRI models predict up to 75 mm rainfall in Colombo during 9<sup>th</sup>- 14<sup>th</sup> March. No heavy rainfall events are not predicted during this period.

**Seasonal Prediction:** As per IRI Multi Model Probability Forecast for March to May, the total 3 month precipitation shall be climatological. The 3 month average temperature has more than 60- 70% likelihood of being in the above-normal tercile during this period.

### 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

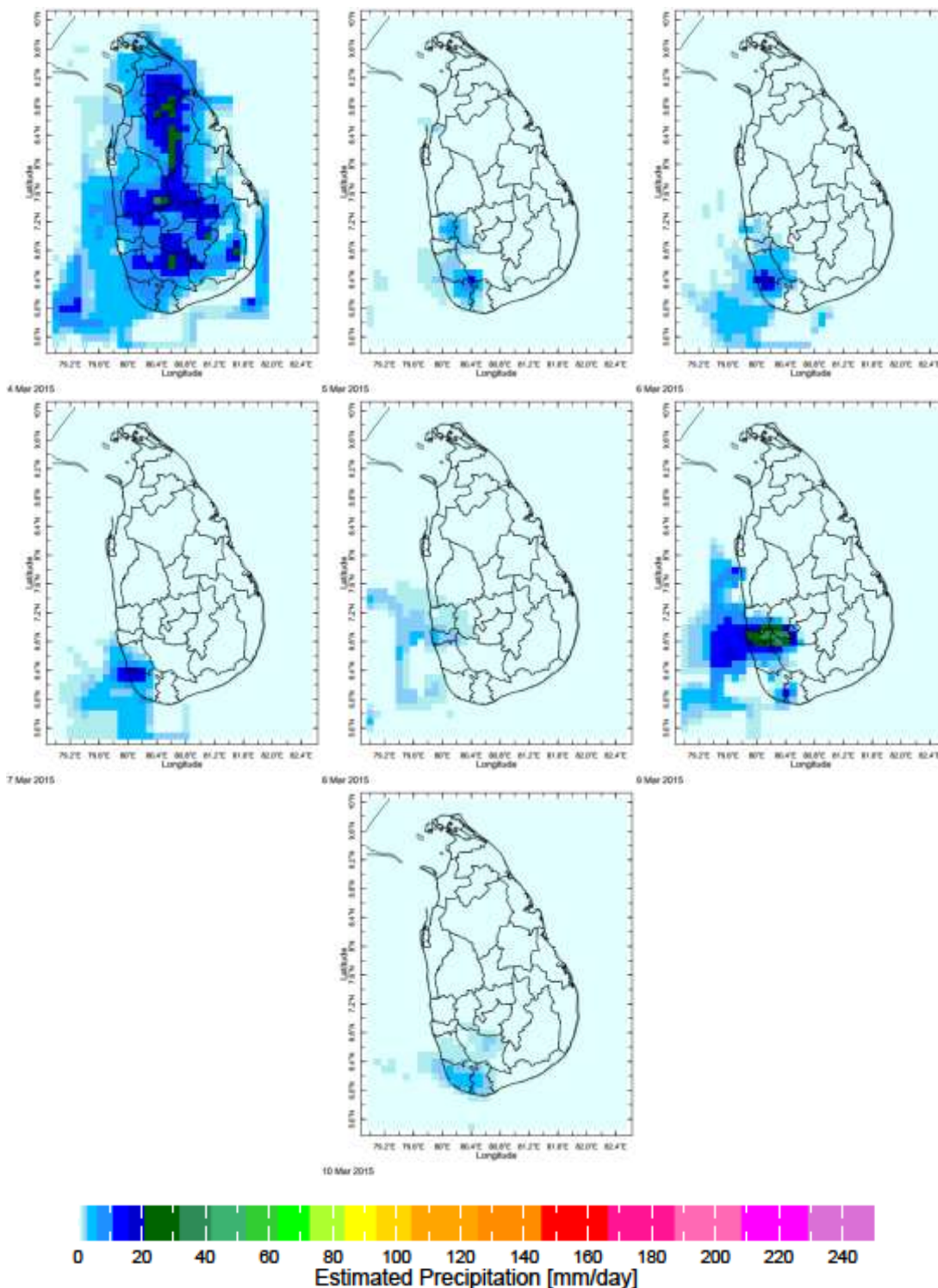
- NCEP GFS Ensemble 1-14 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- Seasonal Predictions from IRI

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

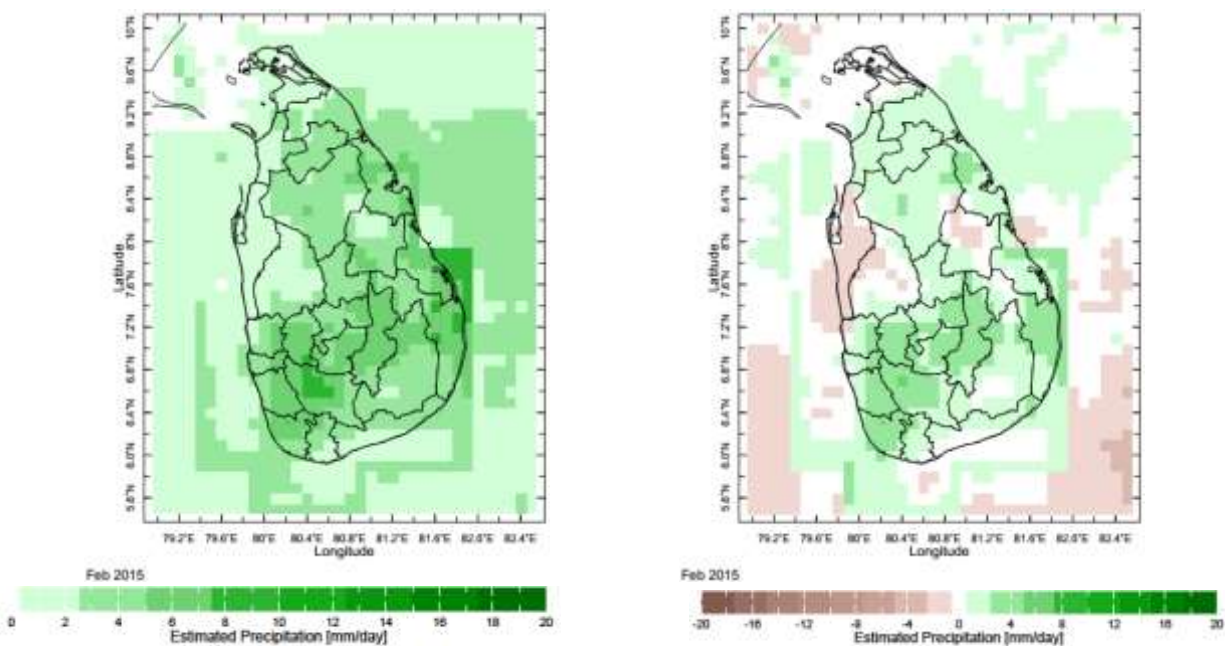
<sup>2</sup> These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

## 1. Monitoring

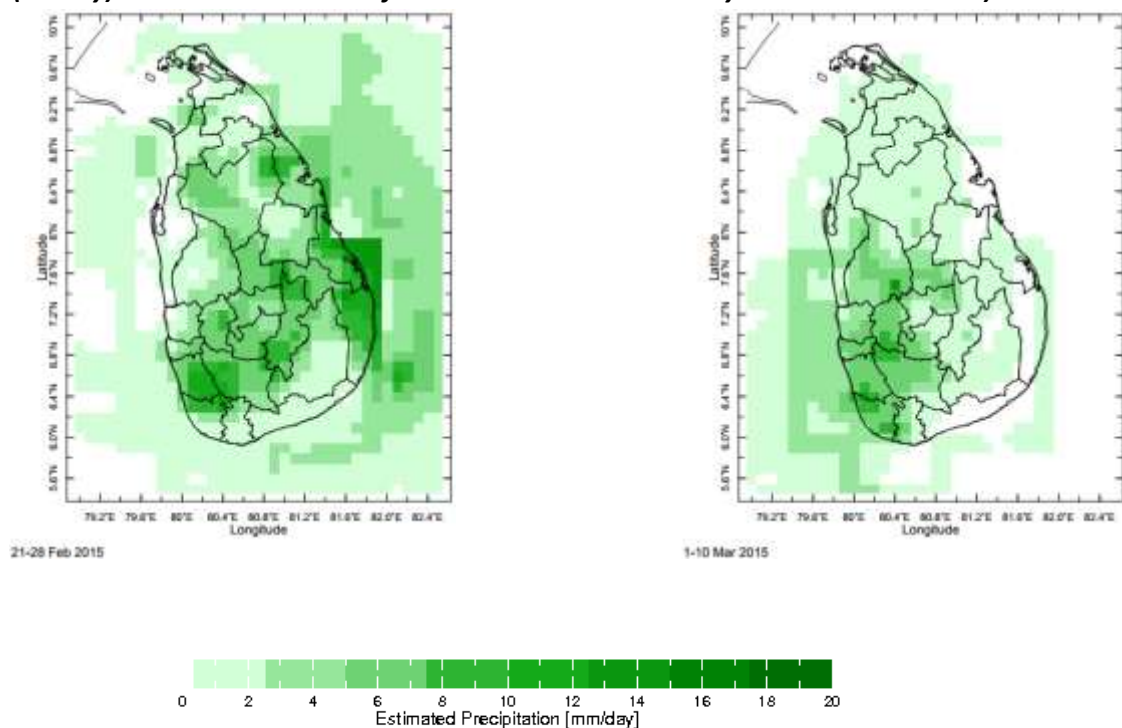
### a) Daily Satellite Derived Rainfall Estimate Maps: 4<sup>th</sup> – 10<sup>th</sup> March 2015 (Left-Right, Top-Bottom)



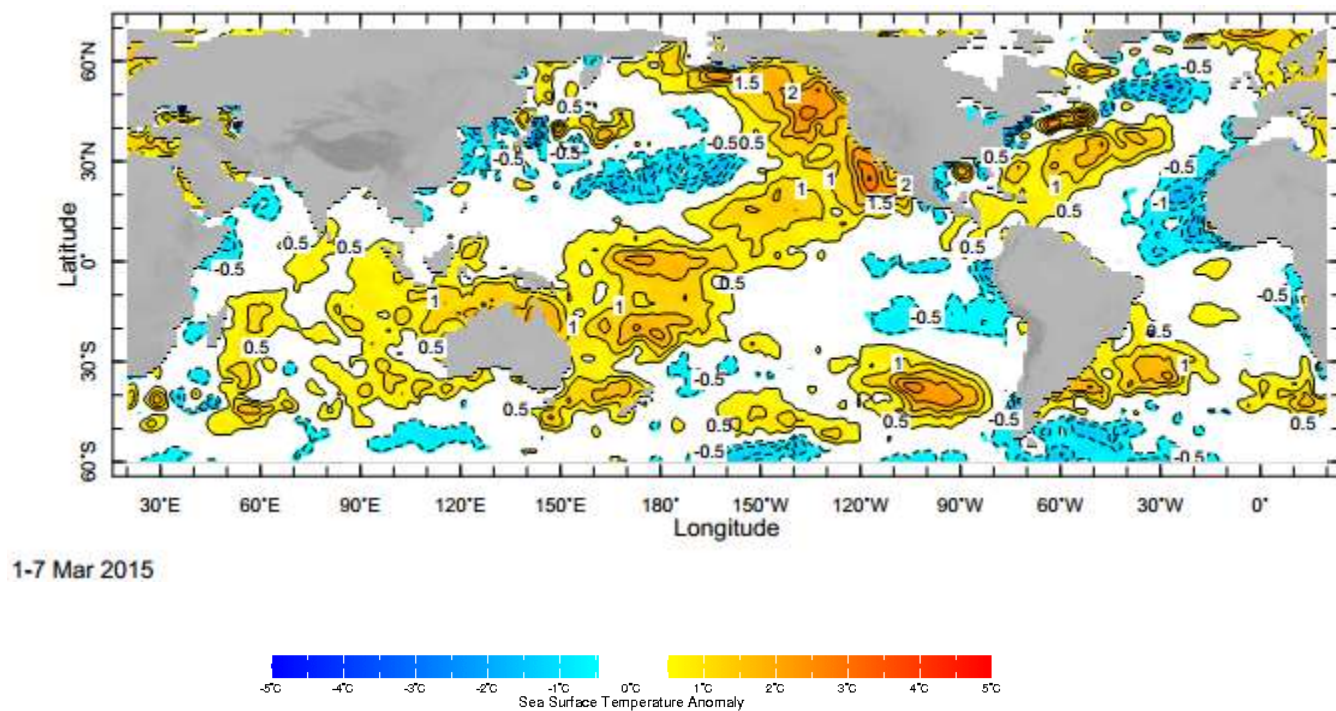
**b) Monthly Satellite Derived Rainfall Estimates for February 2015 (Average – Left and Anomaly - Right)**



**c) Dekadal (10 Day) Satellite Derived Rainfall Estimates 21-28 February & 1- 10 March 2015)**



## d) Weekly Average SST Anomalies



**Weekly Average SST Anomalies (°C), 1<sup>st</sup>- 7<sup>th</sup> March, 2015**

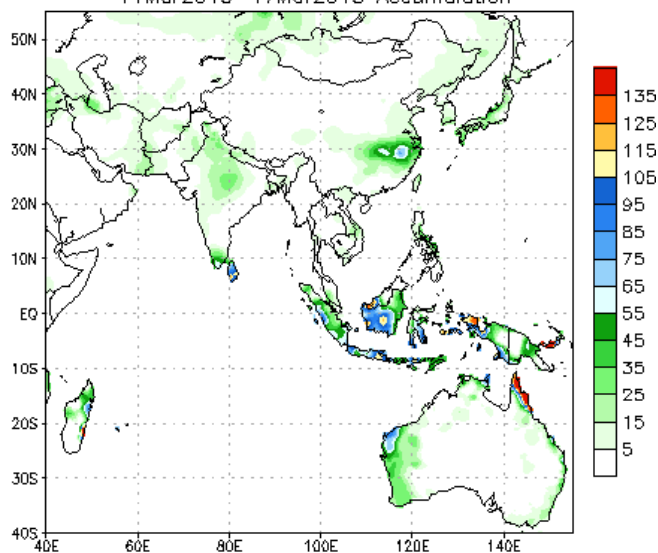
Data Source: NCEP Environmental monitoring center (Climatology 1971-2000)



## 2. Predictions

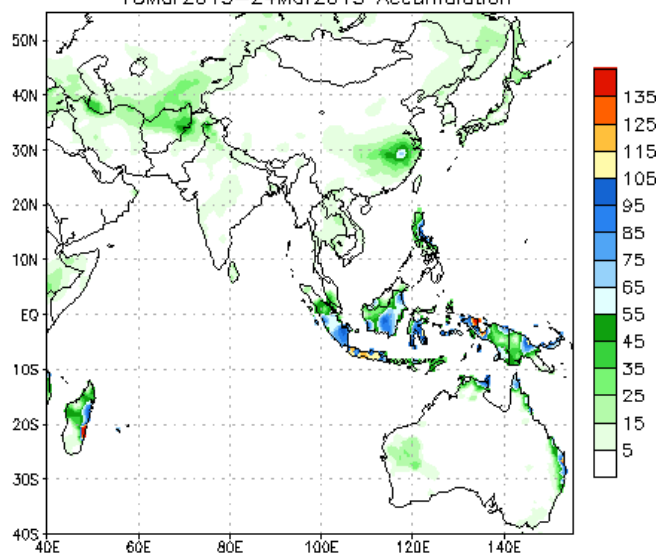
### a) NCEP GFS Ensemble 1-14 day predictions, NOAA, Climate Prediction Centre, USA.

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)  
from: 11Mar2015  
11Mar2015-17Mar2015 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)  
from: 11Mar2015  
18Mar2015-24Mar2015 Accumulation

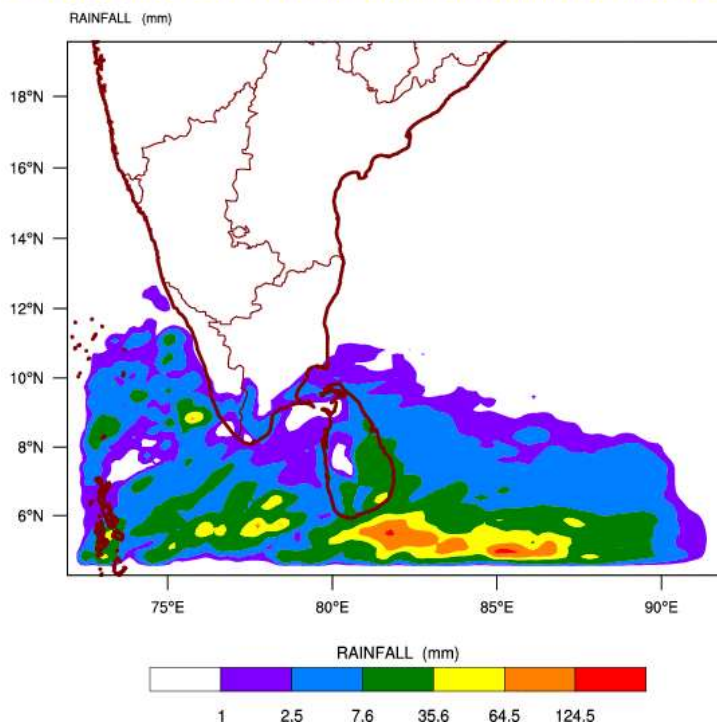


Bias correction based on last 30-day forecast error

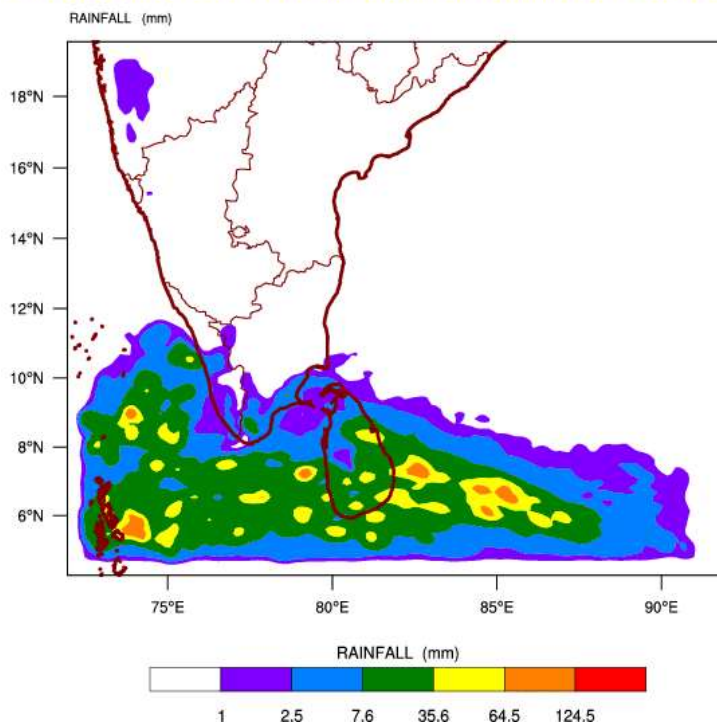
Source – NOAA Climate Prediction Center

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

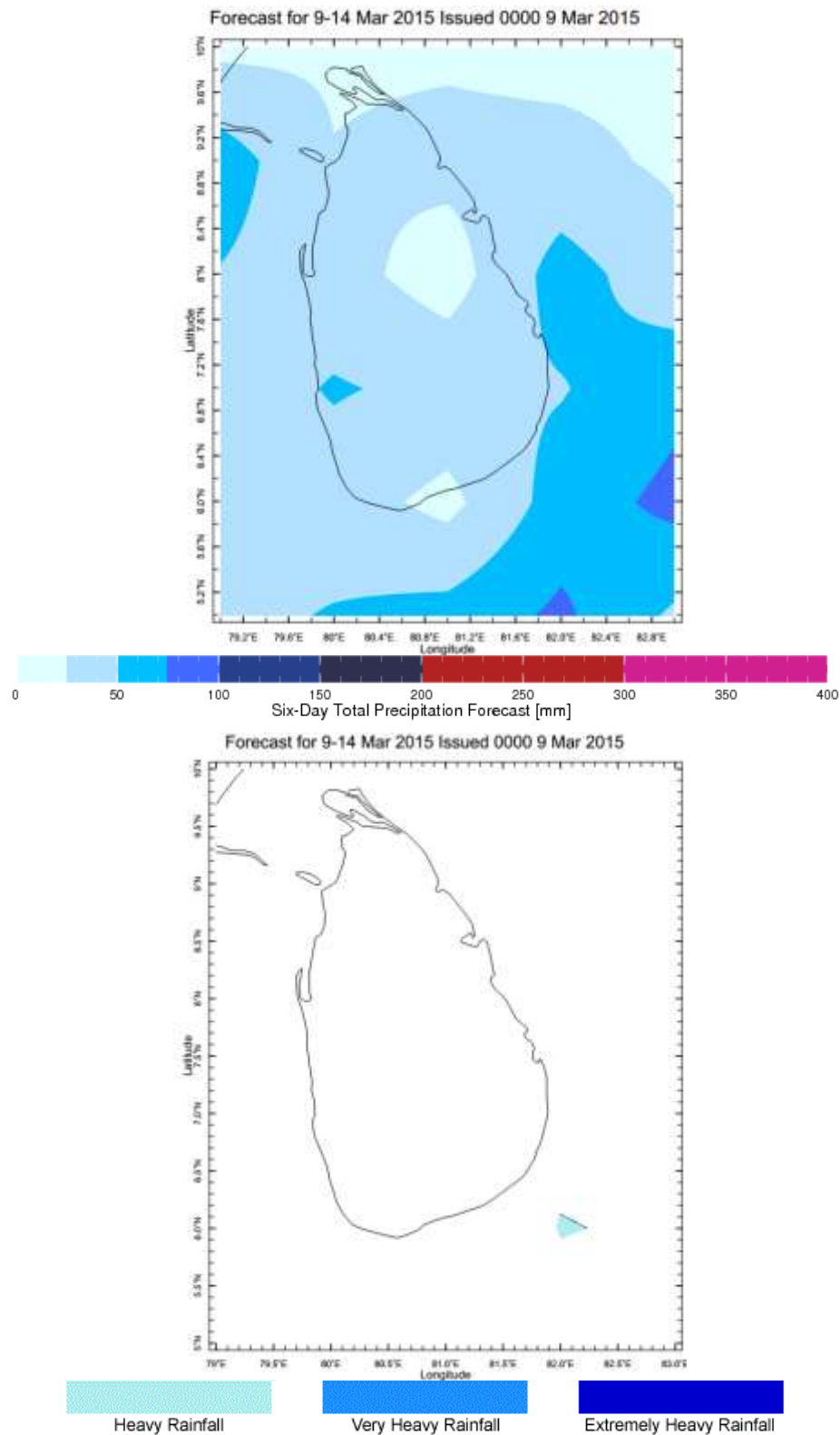
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 11-03-2015 valid for 03 UTC of 13-03-2015



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 11-03-2015 valid for 03 UTC of 14-03-2015

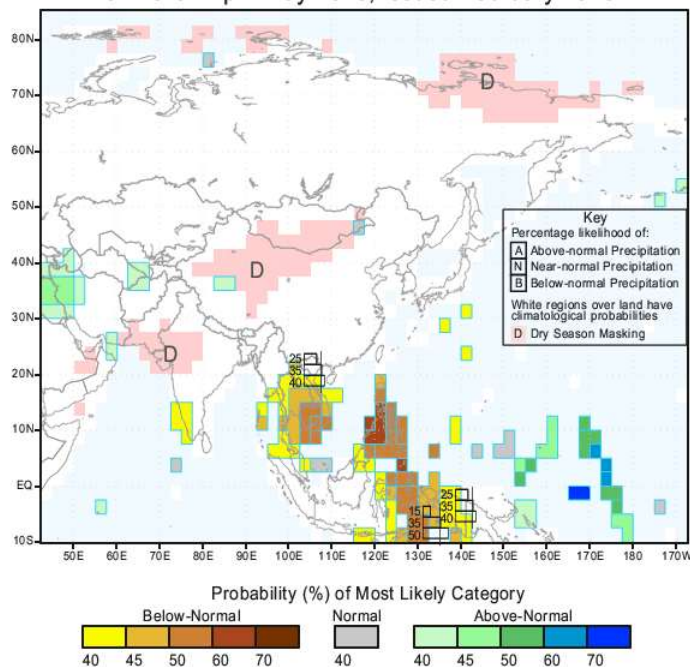


**c) Weekly Precipitation Forecast for 9<sup>th</sup>-14<sup>th</sup> March 2015 (Precipitation Forecast in Context Map Tool, IRI)**



## e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation  
for March-April-May 2015, Issued February 2015



IRI Multi-Model Probability Forecast for Temperature  
for March-April-May 2015, Issued February 2015

