

Experimental Climate Monitoring and Prediction

by: Madara Dassanayake, Prabodha Agalawatte, Sewwandhi Chandrasekara, Zeenas Yahiya,
Lareef Zubair and Michael Bell (FECT and IRI¹)

26 February 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/>

February 19, 2015 PACIFIC SEAS STATE

During January through early 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

Neutral SST was observed in the sea around Sri Lanka.

MJO STATE

MJO is in the phase 7 of the Western Pacific ocean therefore it shall slightly suppress rainfall in Sri Lanka.

Highlights

Monitoring and Predictions:

In previous week significant rainfall was observed during 22nd to 24th in all most all parts of the country. Highest rainfall for the week was observed on 23rd in Tricomalee area around 95 mm. Rainfall is expected to increase during 26th February to 3rd March for the entire country and further during 4th to 10th March.

Summary

Monitoring

Weekly Monitoring: More or less no rainfall was observed during 18th to 20th February. On the 21st rainfall was observed along the eastern coast averaging up to 10 mm. On 22nd Mahiyangana area received rainfall around 20 mm and Batticaloa, Ampara, Badulla, Nuawara Eliya, Ratnapura, Colombo received about 10 mm each. On the 23rd Trincomalee received the highest amount of rainfall of 95 mm while areas around in Kalutara, Batticaloa, Amapra received 30 mm each and north central, central, and eastern regions received rainfall around 10 mm. On 24th Batticaloa and Kegalle received rainfall around 30 mm and central, north western, north central received rainfall around 10 mm each.

Monthly Monitoring: During January an average rainfall of 2 mm to 5 mm was observed in western, southern, sabaragamuwa and uva regions. Highest rainfall in January was observed in the areas of Kalutara and Ratnapura. Rainfall received in the month was observed to be below average. Decadal rainfall average was decreased during 11th to 20th February compared to 1st to 10th February.

Predictions

14 day prediction: NOAA NCEP models predict entire country shall receive rainfall during 25th February to 3rd March exceeding 25 mm and rainfall is expected to increase during 4th to 10th March exceeding 35 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, entire country shall receive rainfall on 27th February with high precipitation around 65 mm in north-western, central and sabaragamuwa areas. Heavy rainfall shall continue in sabaragamuwa, central and southern areas on 28th February. IRI model predicts that during 25th February to 2nd March an average rainfall of 75 mm can be expected in areas around Nuwra Eliya, Badulla and Ratnapura.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for February to April, the total 3 month precipitation shall be climatological. The 3 month average temperature has more than 60% 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

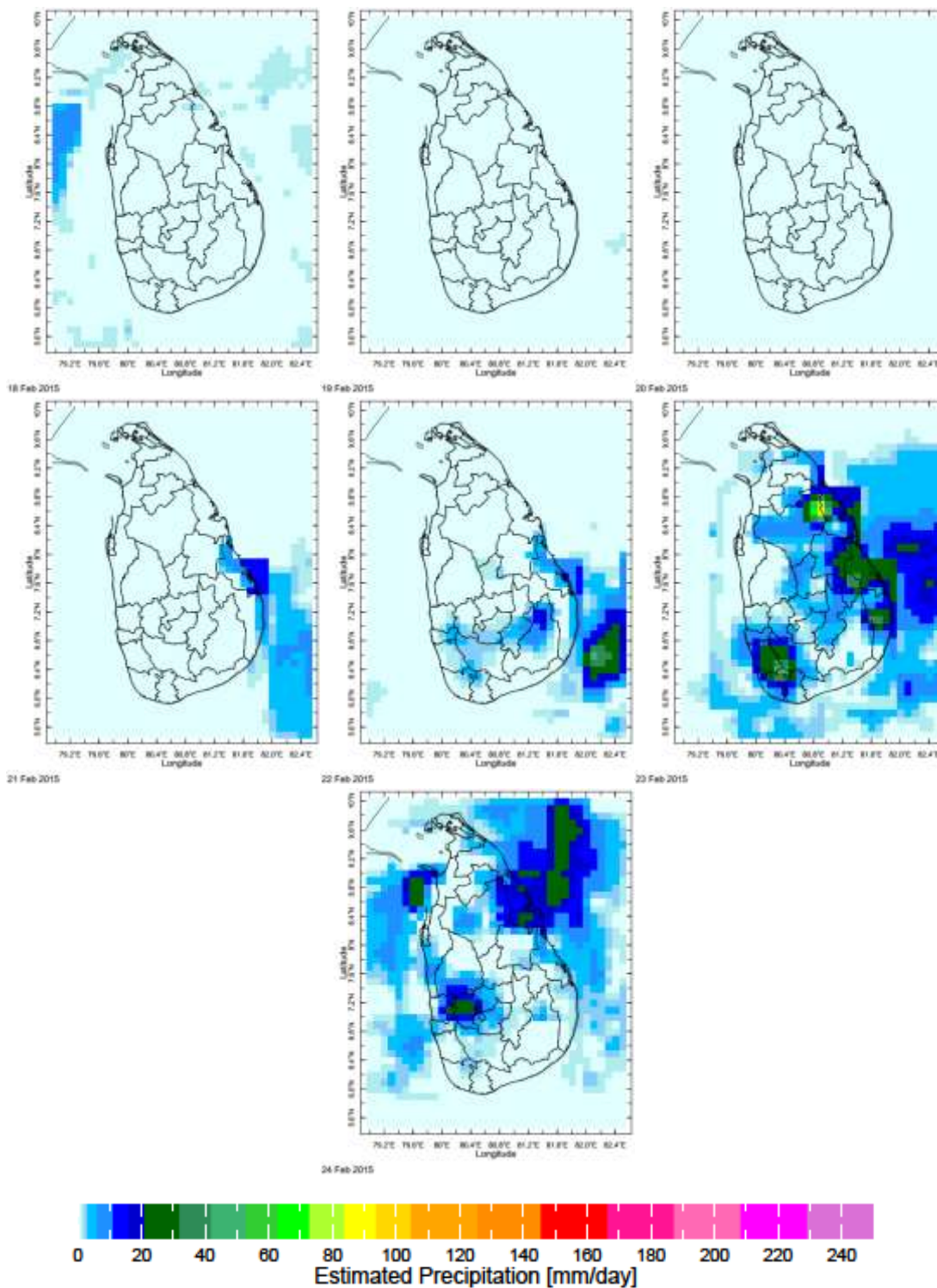
- NCEP GFS Ensemble 1-14 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- Seasonal Predictions from IRI

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

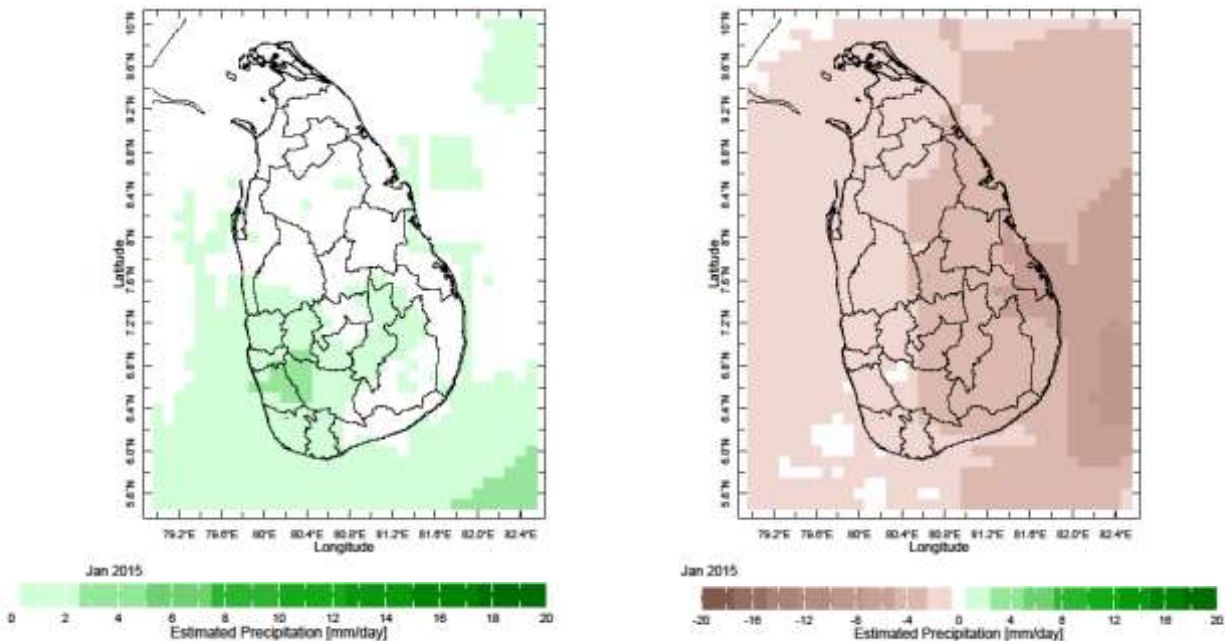
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

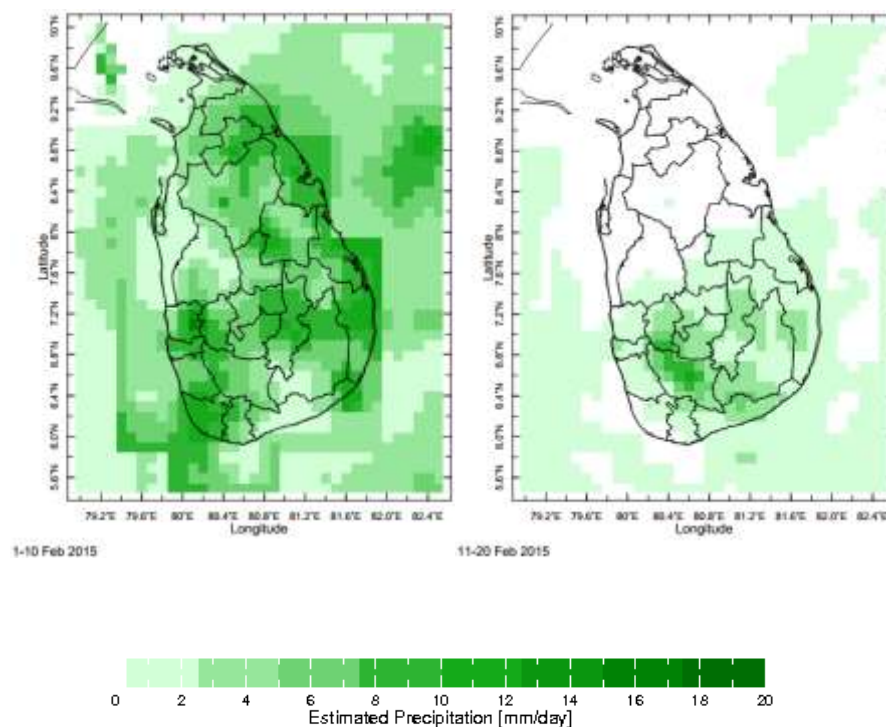
a) Daily Satellite Derived Rainfall Estimate Maps: 18th – 24th February 2015 (Left-Right, Top-Bottom)



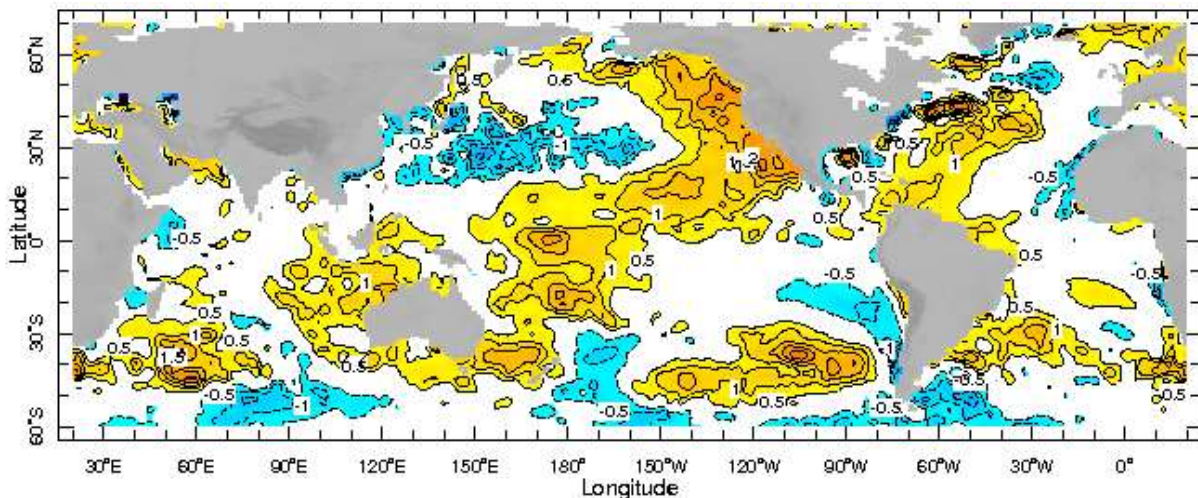
b) Monthly Satellite Derived Rainfall Estimates for January 2014 (Average – Left and Anomaly - Right)



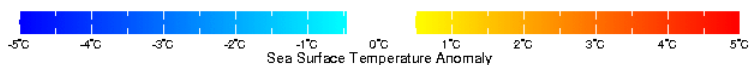
c) Dekadal (10 Day) Satellite Derived Rainfall Estimates 1-10' 11-20 Feb 2015)



d) Weekly Average SST Anomalies



15-21 Feb 2015



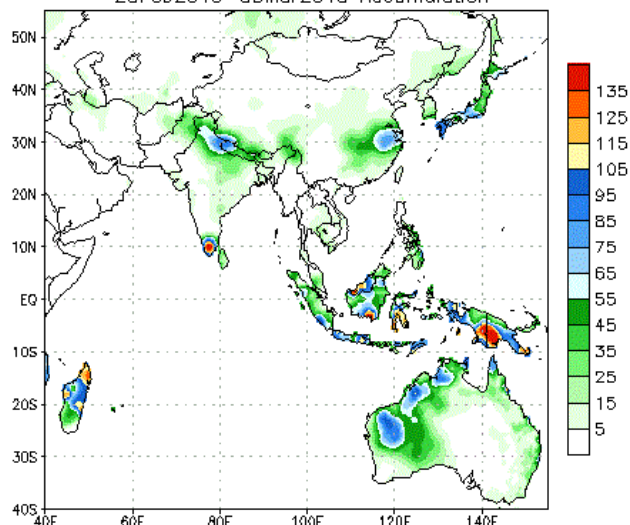
Weekly Average SST Anomalies ($^{\circ}\text{C}$), 15th – 21st February, 2015

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

2. Predictions

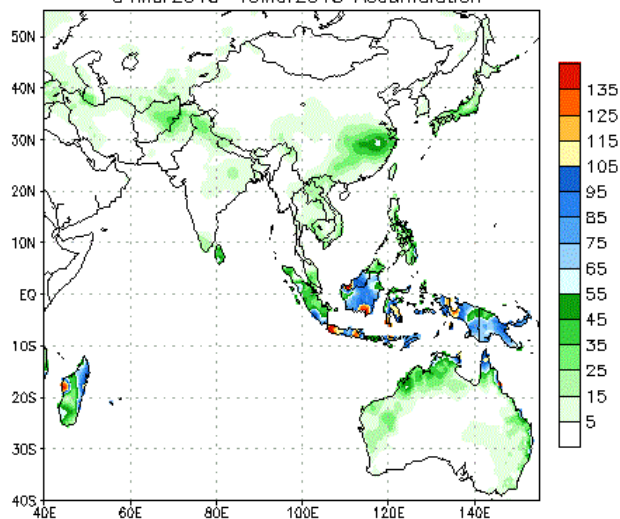
a) NCEP GFS Ensemble 1-14 day predictions, NOAA, Climate Prediction Centre, USA.

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 25Feb2015
25Feb2015-03Mar2015 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 25Feb2015
04Mar2015-10Mar2015 Accumulation

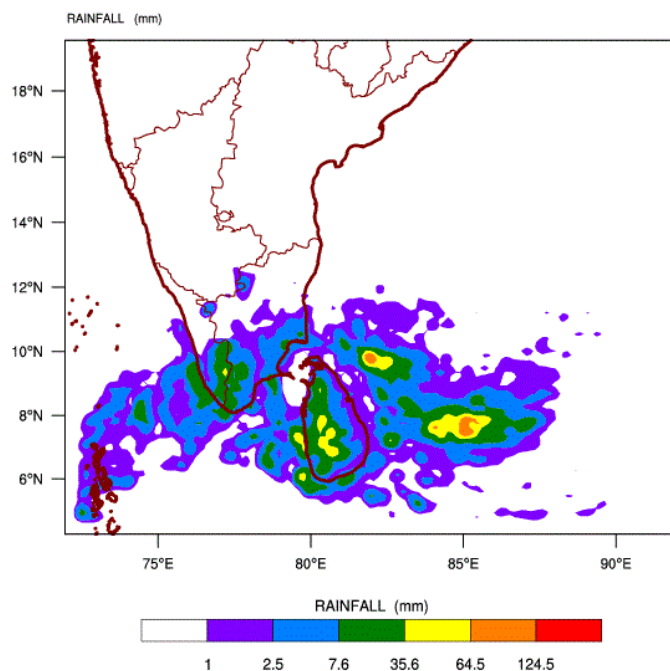


Bias correction based on last 30-day forecast error

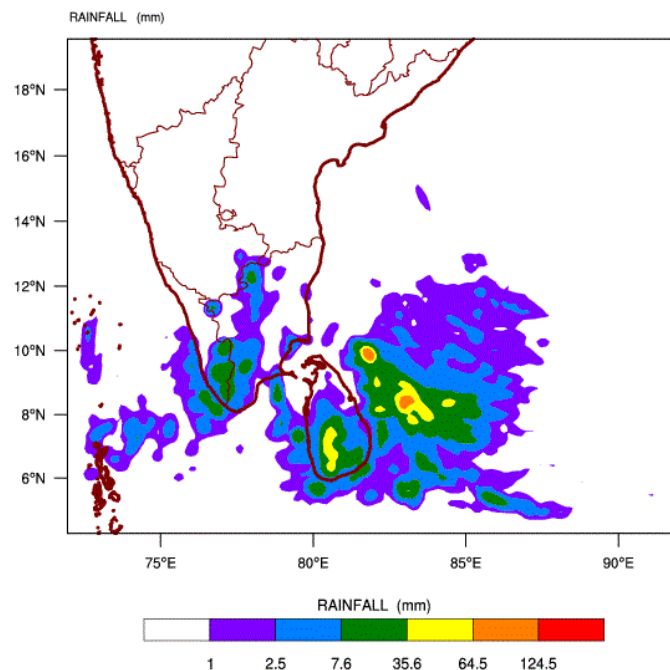
Source – NOAA Climate Prediction Center

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

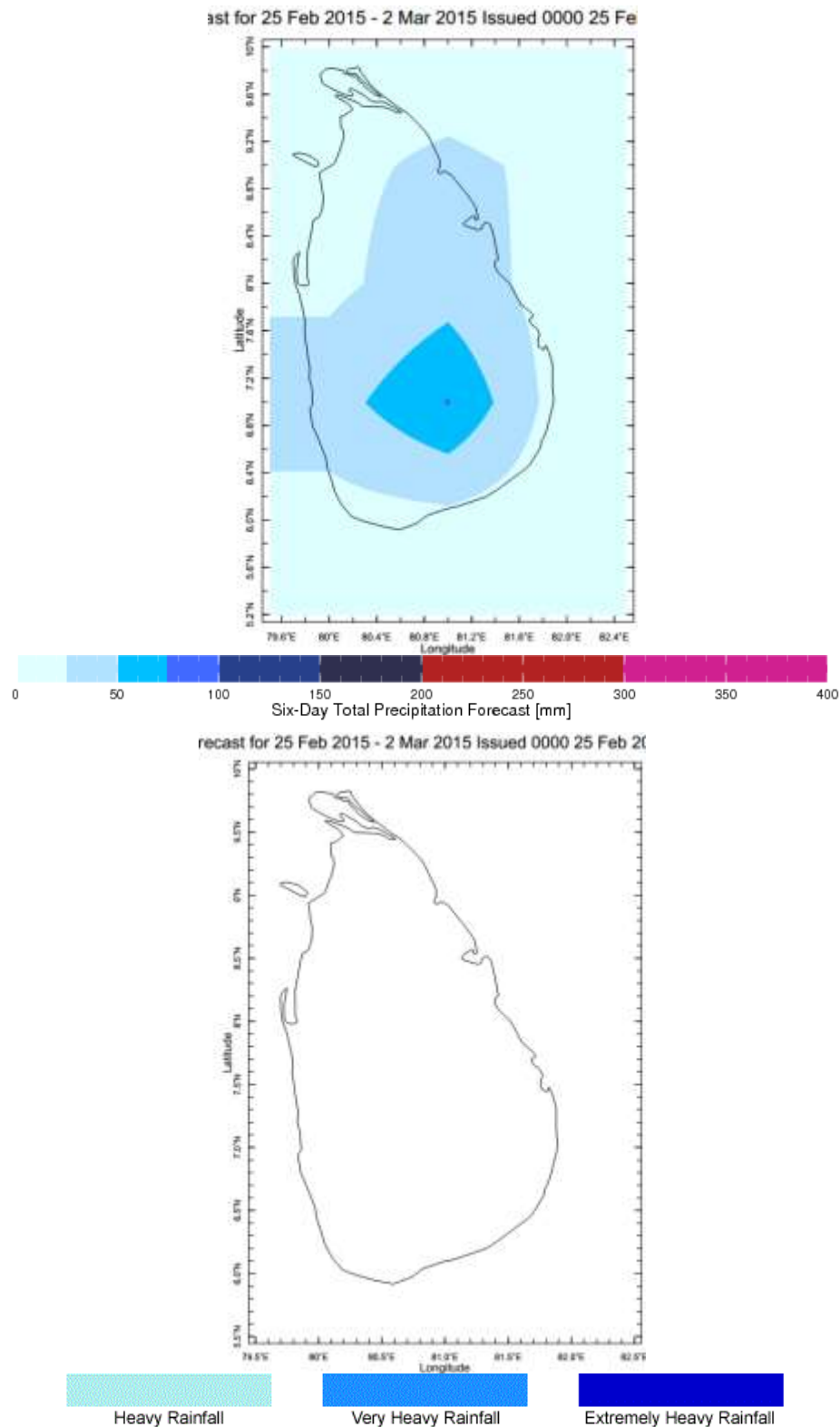
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 25-02-2015 valid for 03 UTC of 27-02-2015



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 25-02-2015 valid for 03 UTC of 28-02-2015

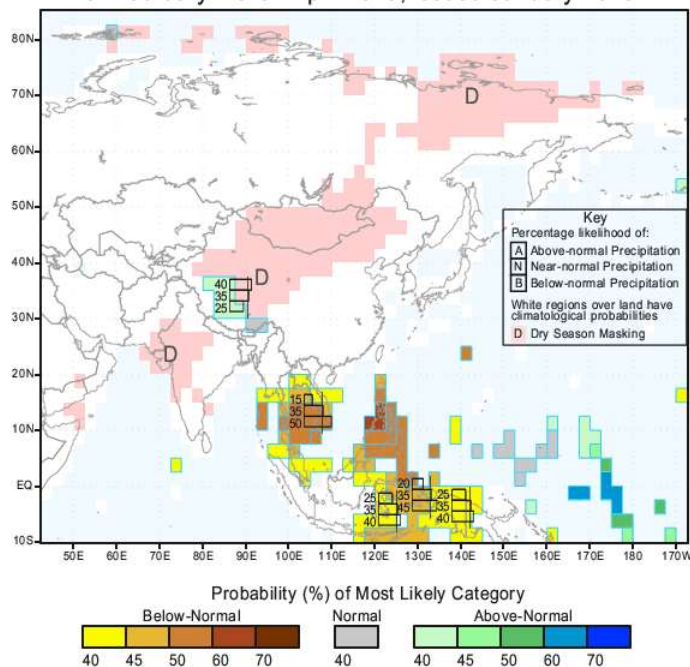


c) Weekly Precipitation Forecast for 25th February – 2nd March 2015 (Precipitation Forecast in Context Map Tool, IRI)



e) Seasonal Rainfall and Temperature Predictions from IRI

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



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

