

Experimental Climate Monitoring and Prediction

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

20 February 2014

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/>

6 February, 2014 PACIFIC SEAS STATE

During December through early January the observed ENSO conditions have remained neutral.

Most of the ENSO prediction models indicate a continuation of neutral ENSO into northern spring 2014. During late spring and summer a warming tendency is seen in both dynamical and statistical models

(Text Courtesy IRI)

INDIAN OCEAN STATE

Northern sea of Sri Lanka showed -1^oC anomaly cold sea surface temperature around western side of Sri Lanka and for normal seas surface temperature observed rest of the seas around Sri Lanka during 2nd-8th February 2014.

MJO STATE

MJO is neutral.

Highlights

Monitoring and Predictions:

The existing dry condition shall decrease after 23rd of February and western slopes and, coastal shall receive significant rainfall events during the end of February. However, during coming two days (21st and 22nd February 2014) patches of Ratnapura district shall receive significant rainfall.

Summary

Monitoring

Weekly Monitoring: During the week entire country experienced dry condition throughout, except on 16th February, parts of Nuwara Eliya received insignificant amount of rainfall (less than 2 mm).

Monthly Monitoring: Ampara, Matale and Ratnapura districts received rainfall during the month of January 2014 within the range 1 to 4 mm/day.

Predictions

14 day prediction: During 14th to 25th February 2014, rainfall shall spread towards South-west direction in an increasing manner. However, entire country shall receive less than 105 mm of rainfall during the mentioned week. During 26th February to 04th March 2014, entire country shall receive rainfall of less than 55 mm of rainfall.

IMD WRF & IRI Model Forecast: For 21st of February, IMD WRF model predicts significant rainfall for the small patches in Galle and Ratnapura districts. For 22nd February, patches of Ratnapura district shall receive significant rainfall. However, during these two days Northern half of the island is likely to be dry. During 19th to 24th February, Colombo, Ratnapura, Moneragala, Ampara and Batticaloa districts shall receive wet condition than the other areas of Sri Lanka.

30 Days Prediction: Overall- Existing dry condition shall decrease and rainfall shall observe. However, rainfall shall remain less than 6mm/day till the end of February. **Western Slopes-** Rainfall shall increase gradually till the end of February. Significant amount of rainfall is likely to observe during end of February and the beginning of March. **Western Coast-** Rainfall shall increase gradually till 23rd of February, which is likely to be significant rainfall event. Thereafter rainfall shall decrease. **Eastern Slopes-** Rainfall shall vary in between 1-6 mm/day till the end of February. No significant rainfall events are expected. **Eastern Coast-** No significant rainfall events are expected. However, existing dry condition shall decrease. **Northern-** Rainfall shall vary below 4 mm/day till the end of February. **Southern Region-** Rainfall shall increase gradually till the end of month.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on January 2014; for February 2014 to April 2014, 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
- 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)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

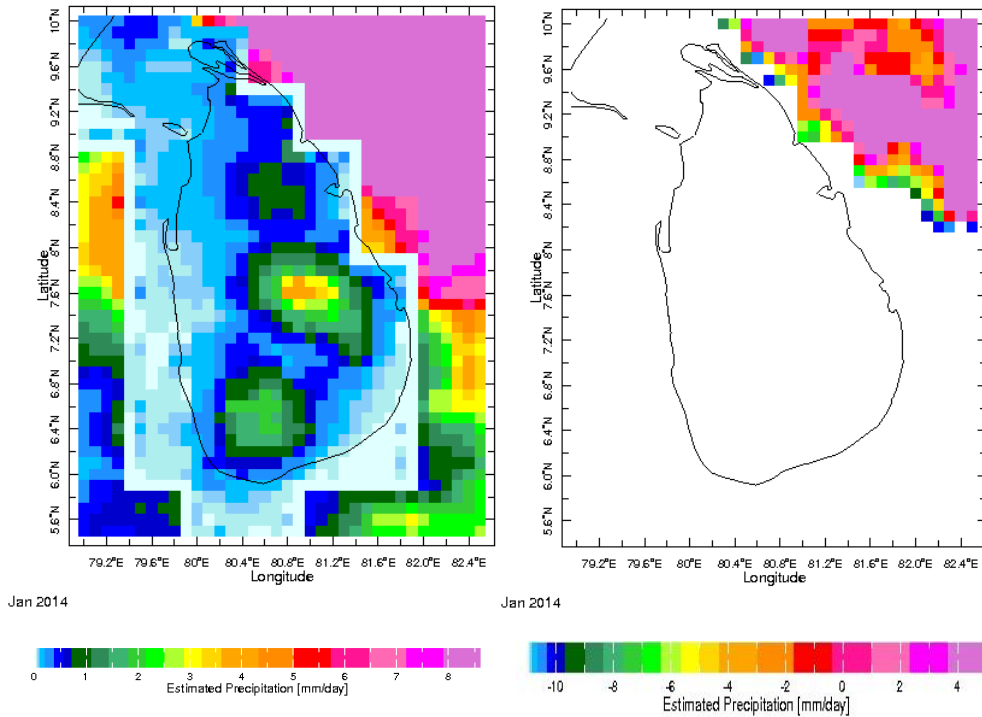
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

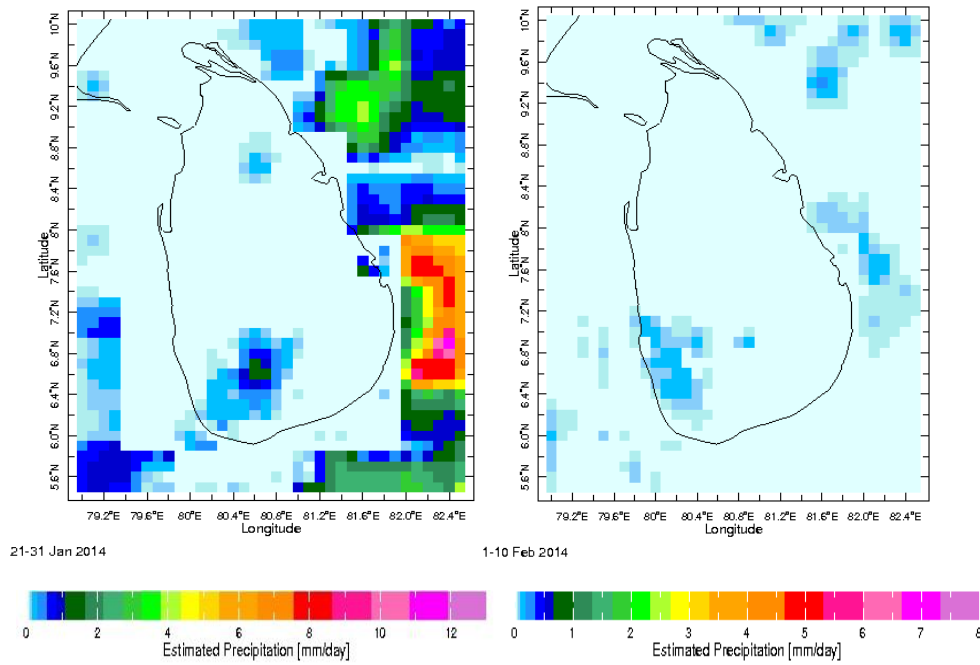
a) Daily Satellite Derived Rainfall Estimate Maps: 11th-18th February 2014 (Left-Right, Top-Bottom)



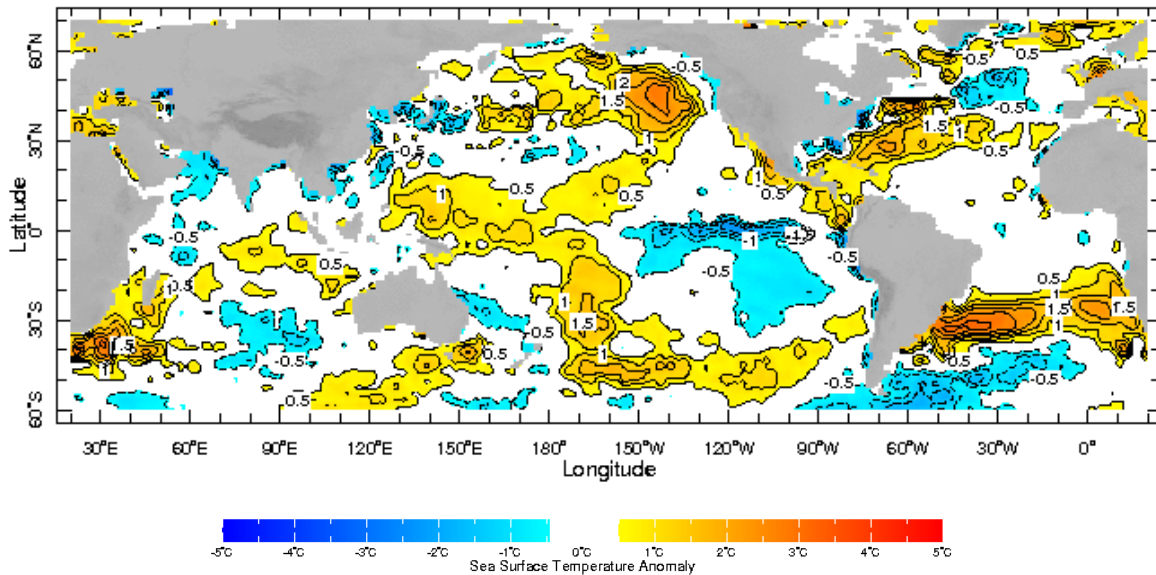
b) Monthly Satellite Derived Rainfall Estimates for January 2014 (Average – Left and Anomaly - Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-30 January, 2013 & 01-10 February, 2014)



d) Weekly Average SST Anomalies



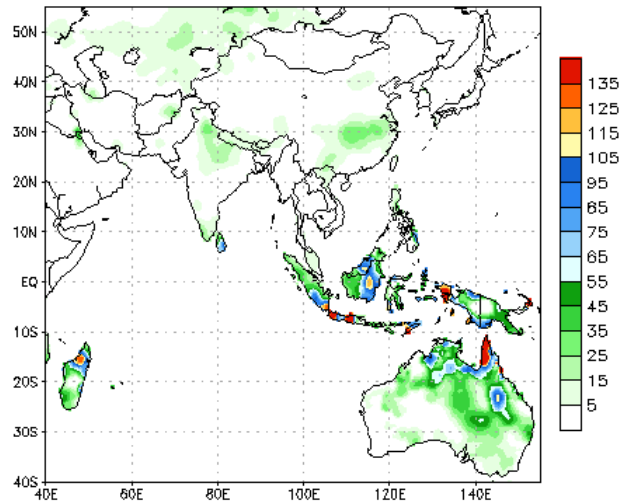
Weekly Average SST Anomalies (°C), 9th-15th February, 2014

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

2. Predictions

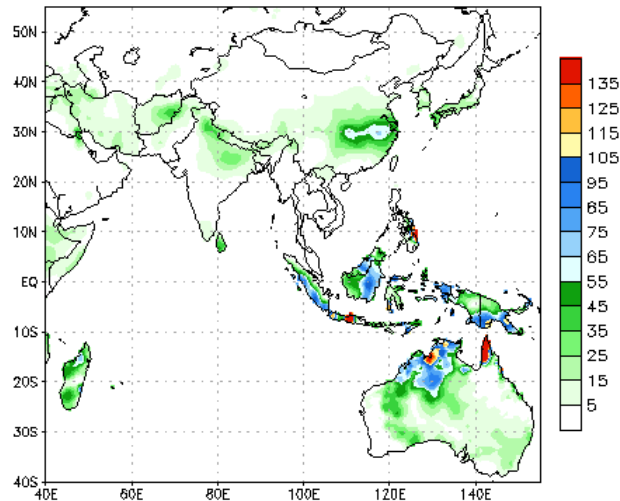
a) NCEP GFS Ensemble 1-14 day predictions, NOAA, Climate Prediction Centre, USA.

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 19Feb2014
19Feb2014-25Feb2014 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 19Feb2014
26Feb2014-04Mar2014 Accumulation

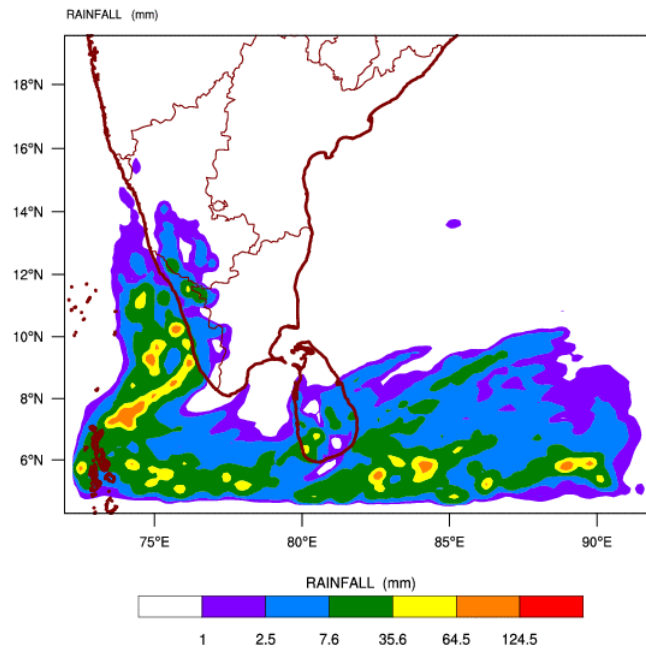


Bias correction based on last 30-day forecast error

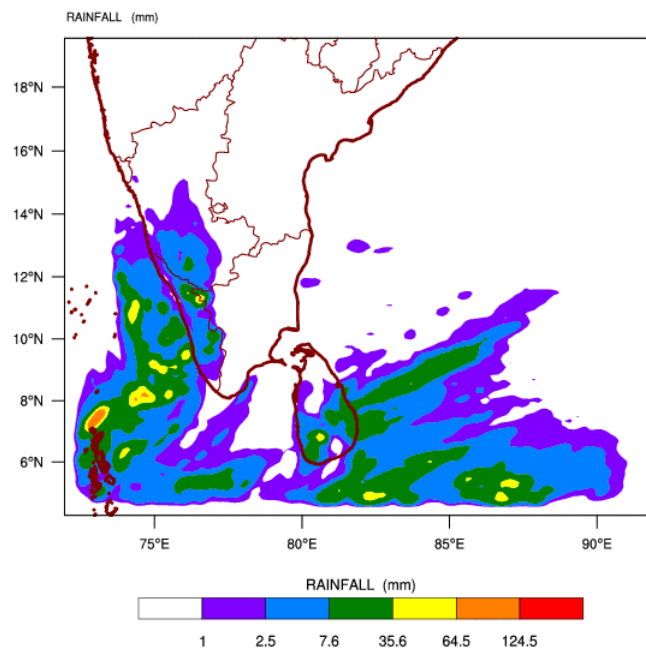
Source – NOAA Climate Prediction Center

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

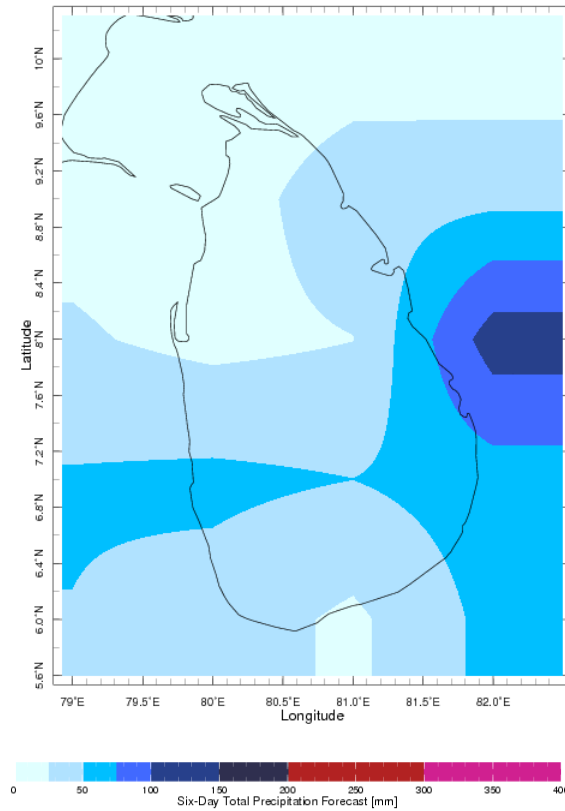
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 19-02-2014 valid for 03 UTC of 21-02-2014



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 19-02-2014 valid for 03 UTC of 22-02-2014



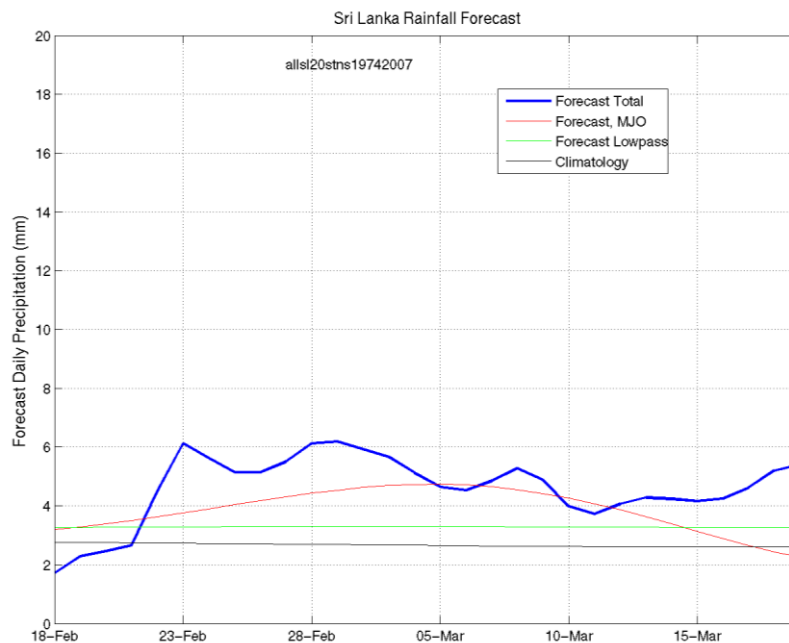
c) Weekly Precipitation Forecast for 19th -24th February 2014 (Precipitation Forecast in Context Map Tool, IRI)



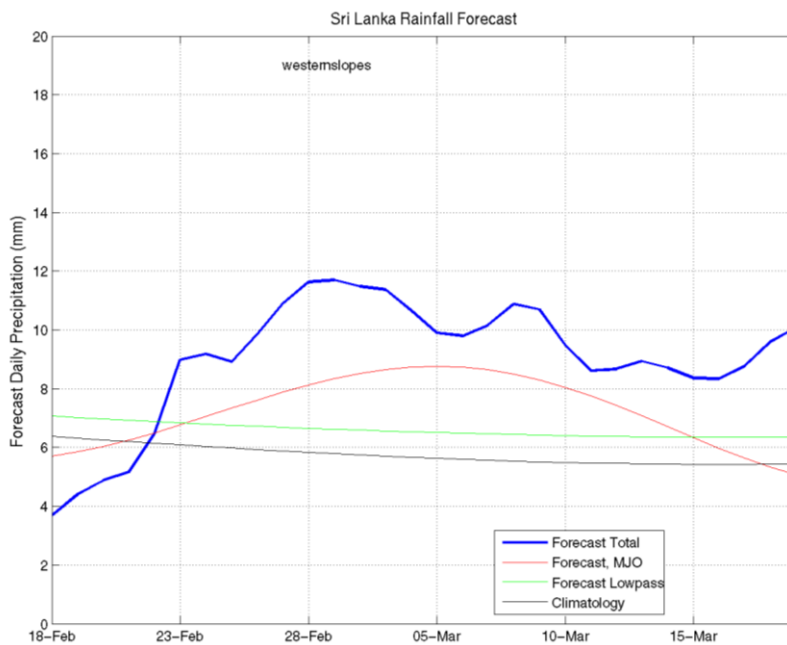
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 19th February, 2014

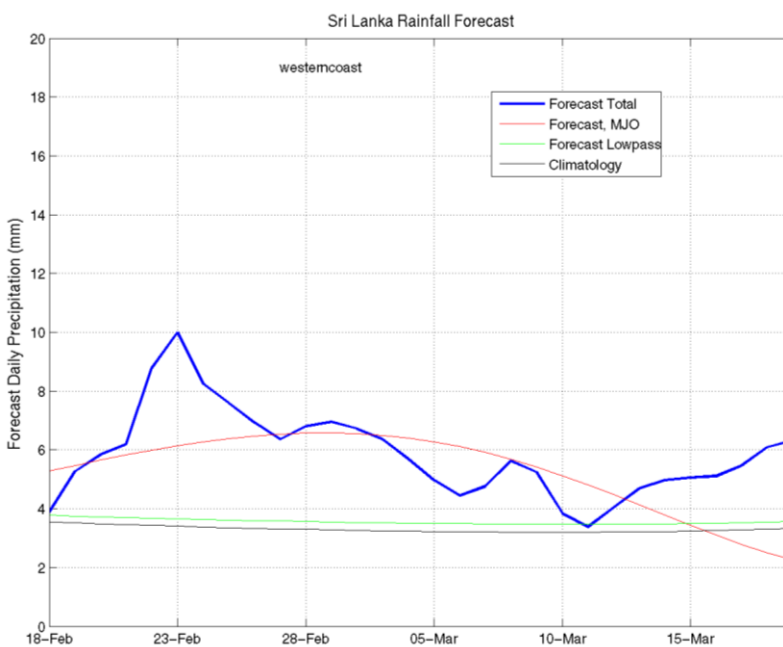
All Sri Lanka (Rainfall Scale from 0-20 mm/day)



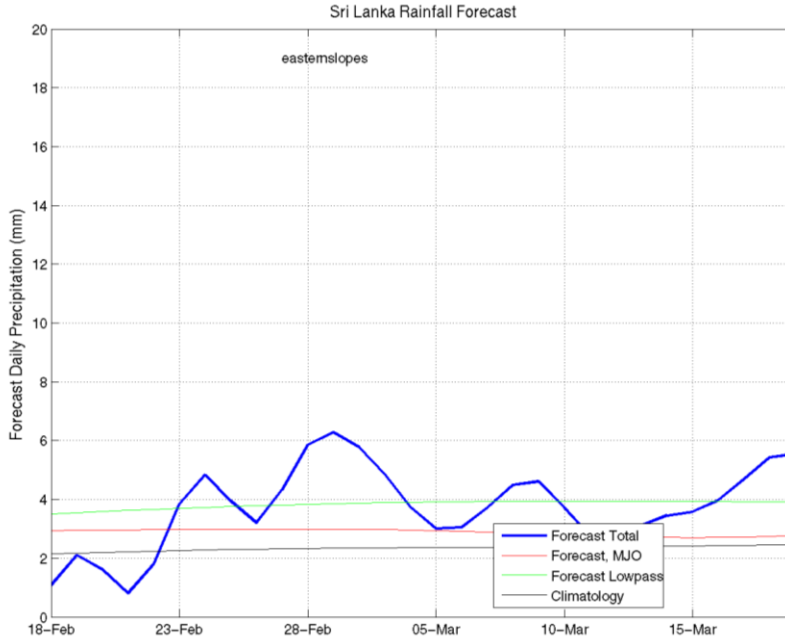
Western Slopes (Rainfall Scale from 0-20 mm/day)



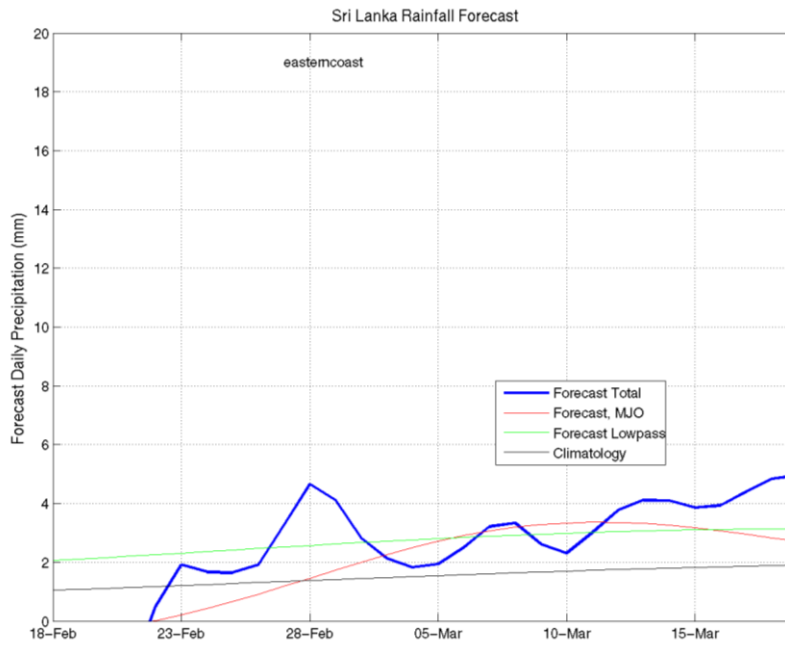
Western Coast (Rainfall Scale from 0-20 mm/day)



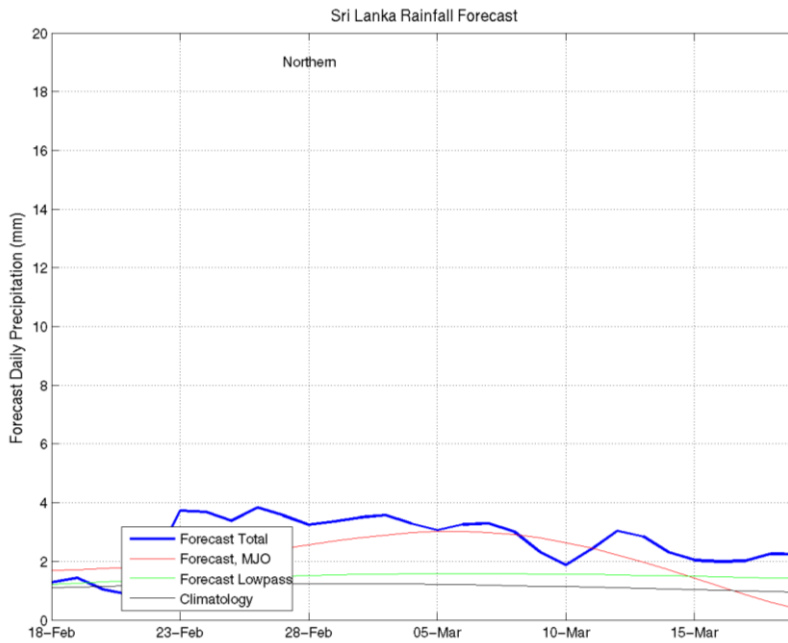
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



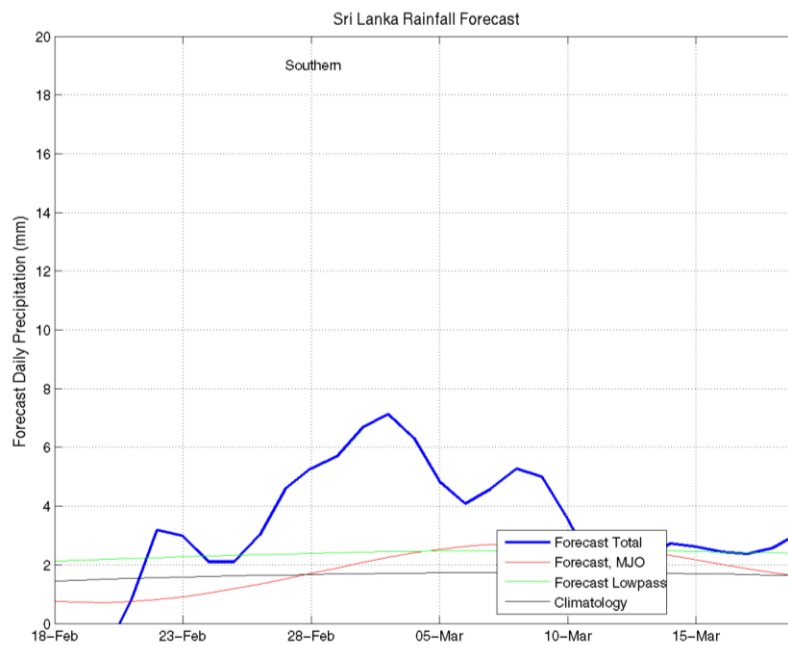
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

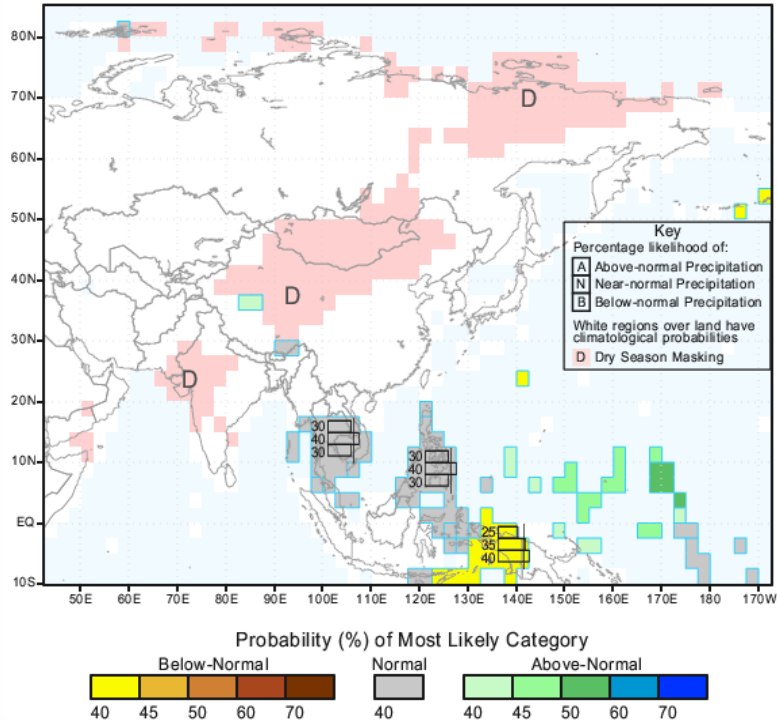


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for February-March-April 2014, Issued January 2014



IRI Multi-Model Probability Forecast for Temperature
for February-March-April 2014, Issued January 2014

