

Experimental Climate Monitoring and Prediction

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

23 January 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/>

16 January, 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.

(Text Courtesy IRI)

INDIAN OCEAN STATE

Northern sea of Sri Lanka showed neutral sea surface temperature and -1°C anomaly for rest of the seas around Sri Lanka during 12th - 18th January 2014.

MJO STATE

MJO is not active in the Indian Ocean but in the Pacific.

Highlights

Monitoring and Predictions:

During 15th January Kandy, Matale, Polonnaruwa and Ampara districts received heavy rainfall ranging up to 120 mm/day. In the coming week the weather and climate models predicts dry conditions over the island.

Summary

Monitoring

Weekly Monitoring: During 15th to 17th central parts of the country received rainfall up to 120 mm/day. Rest of the week experienced dry condition throughout.

Monthly Monitoring: Ampara, Batticaloa, Badulla, Monaragala and Jaffna districts received highest average rainfall during December 2013.

Predictions

14 day prediction: During 22th January-4th February 2014, Sri Lanka shall experience relatively dry condition throughout the weeks.

IMD WRF & IRI Model Forecast: For 24th of January, IMD WRF model predicts heavy rainfall over the northern region and eastern coast. Rainfall ranges between 2.5mm and 35.6mm/day. Rest of the country shall remain dry. For 25th of January, IMD WRF model predicts heavy rainfall more than 2.5 mm for Ampara and Badulla districts. IRI model predicts rainfall less than 25mm/day over the country for the coming week.

30 Days Prediction: Overall- Rainfall shall increase gradually from 22nd of January. The rainfall shall vary less than 6mm/day. **Western Slopes** –Rainfall shall decrease from 24th to 28th of January and gradually increase from 28th within the range 5 to 10mm/day. For **Western Coast, Northern, Southern and Eastern** parts continuous data is not available till 28th of January.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on December 2013; for December 2013 to March 2014, there is a 50-60% probability for temperature to be above normal in the country while the rainfall is to be climatological.

side this Issue

Monitoring

- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
- Decadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Average SST Anomalies

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

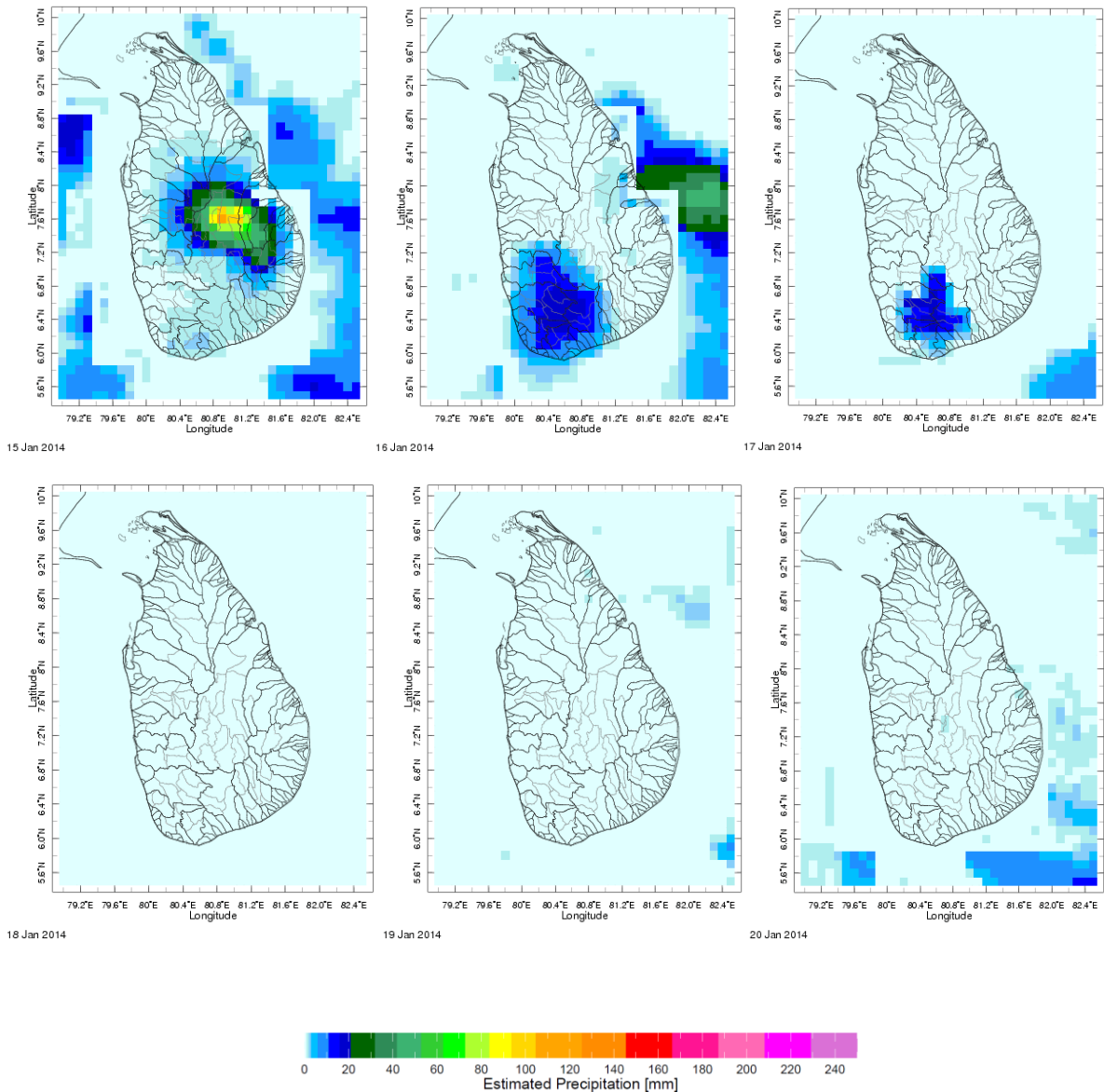
¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

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

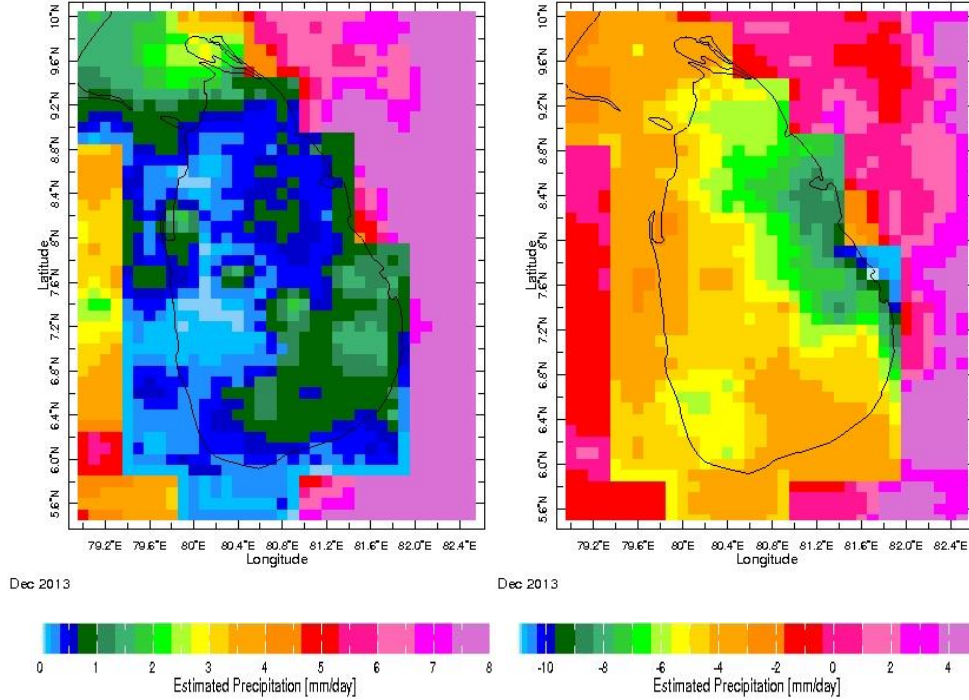
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

1. Monitoring

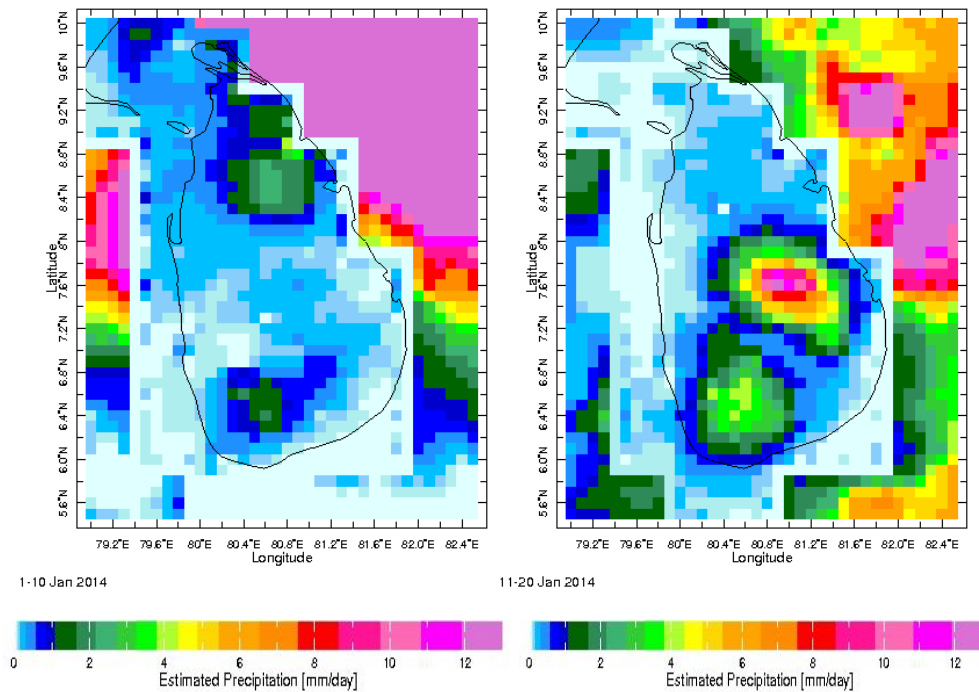
a) Daily Satellite Derived Rainfall Estimate Maps: 15th-20th January 2014 (Left-Right, Top-Bottom)



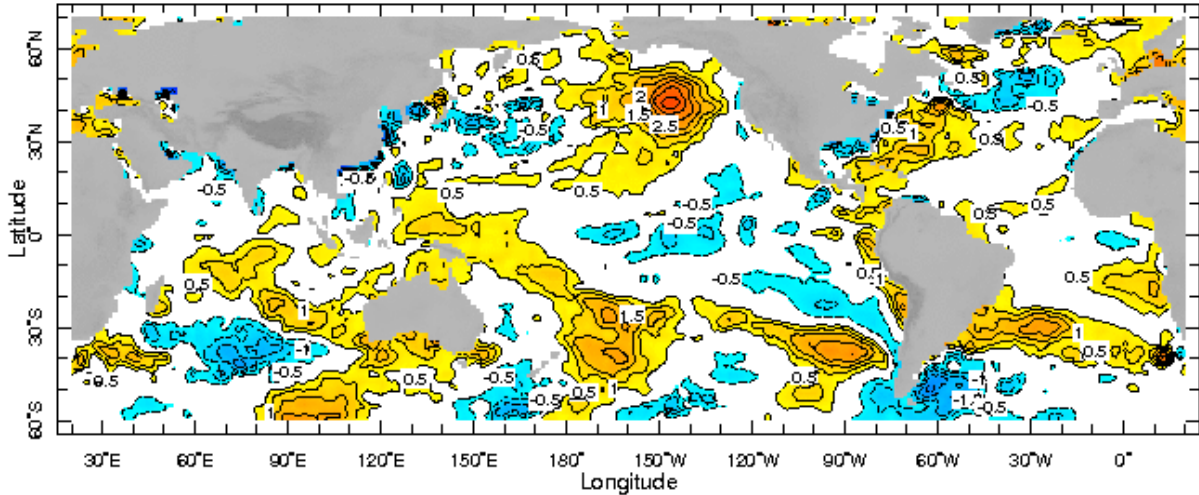
b) Monthly Satellite Derived Rainfall Estimates for December 2013 (Total – Left and Anomaly - Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (1-10 January, 2013 & 11-20 January, 2014)



d) Weekly Average SST Anomalies



12-18 Jan 2014



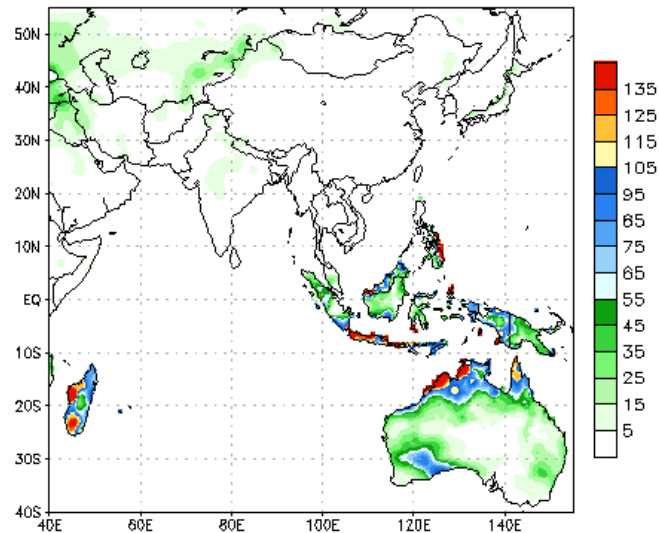
Weekly Average SST Anomalies ($^{\circ}$ C), 12th - 18th January, 2014

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

2. Predictions

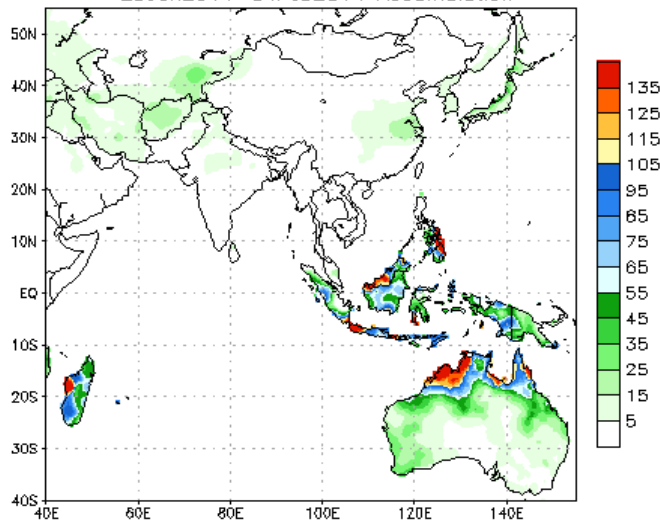
a) NCEP GFS Ensemble 1-14 day predictions, NOAA, Climate Prediction Centre, USA.

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 22Jan2014
22Jan2014-28Jan2014 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 22Jan2014
29Jan2014-04Feb2014 Accumulation

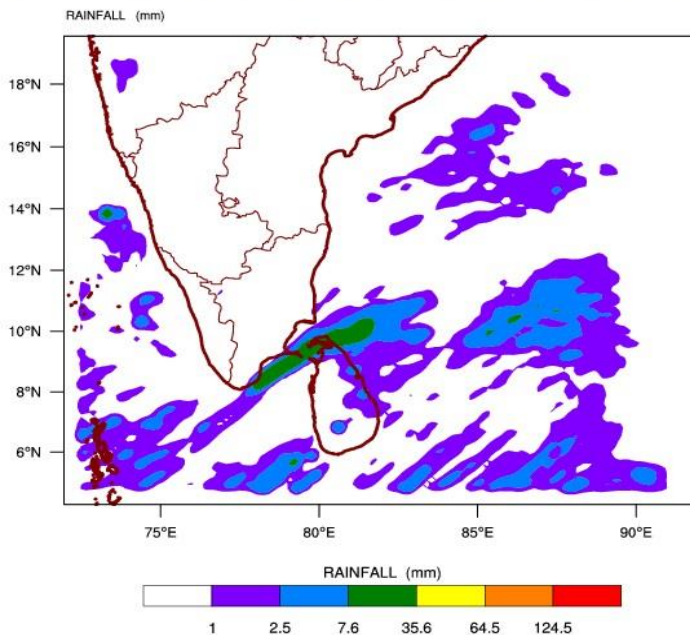


Bias correction based on last 30-day forecast error

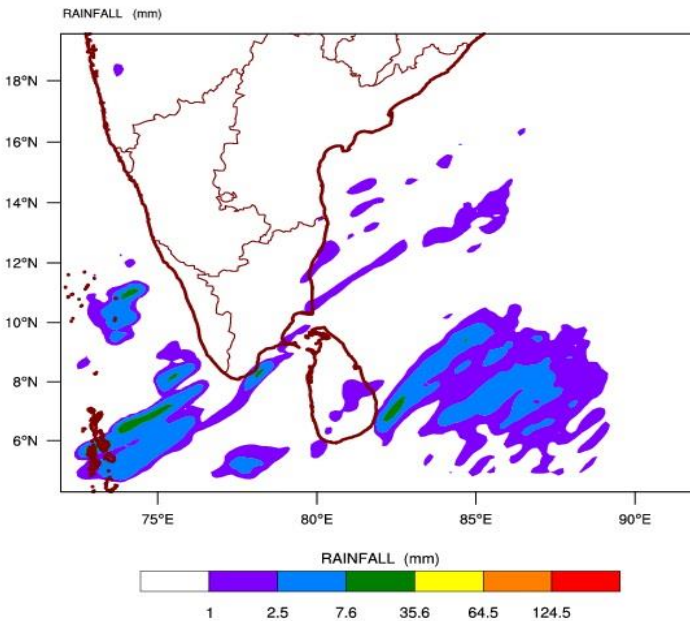
Source – NOAA Climate Prediction Center

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

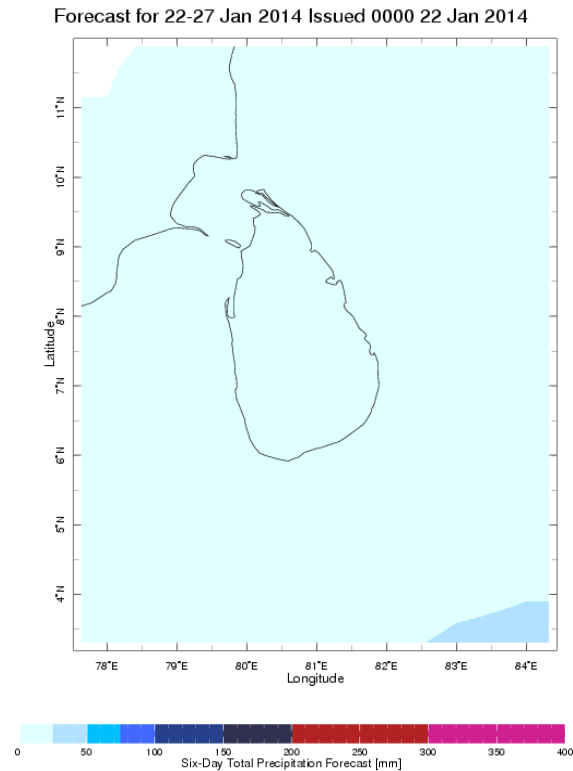
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 22-01-2014 valid for 03 UTC of 24-01-2014



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 22-01-2014 valid for 03 UTC of 25-01-2014



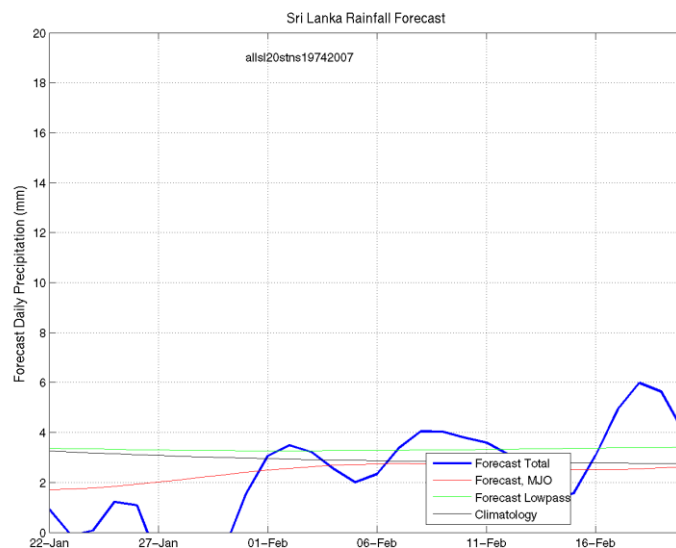
c) Weekly Precipitation Forecast for 22th -27th January 2014 (Precipitation Forecast in Context Map Tool, IRI)



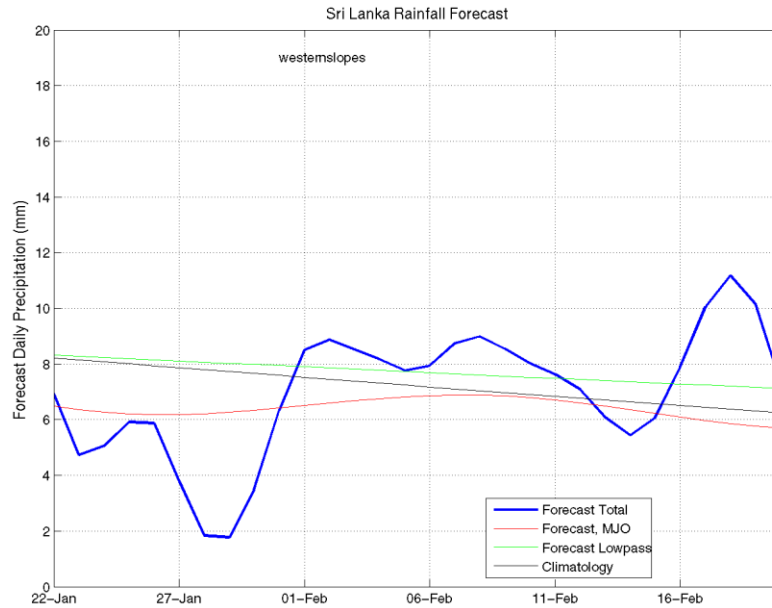
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 23rd January, 2014

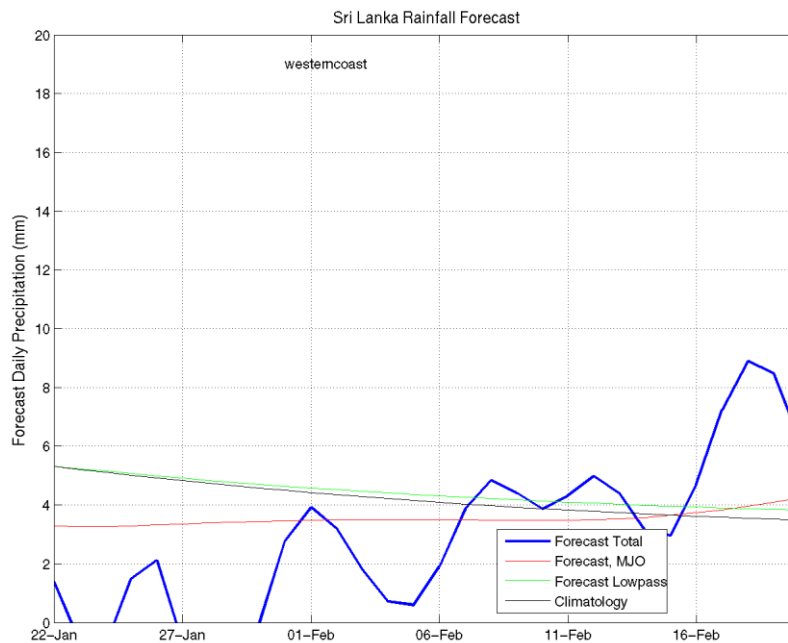
All Sri Lanka (Rainfall Scale from 0-20 mm/day)



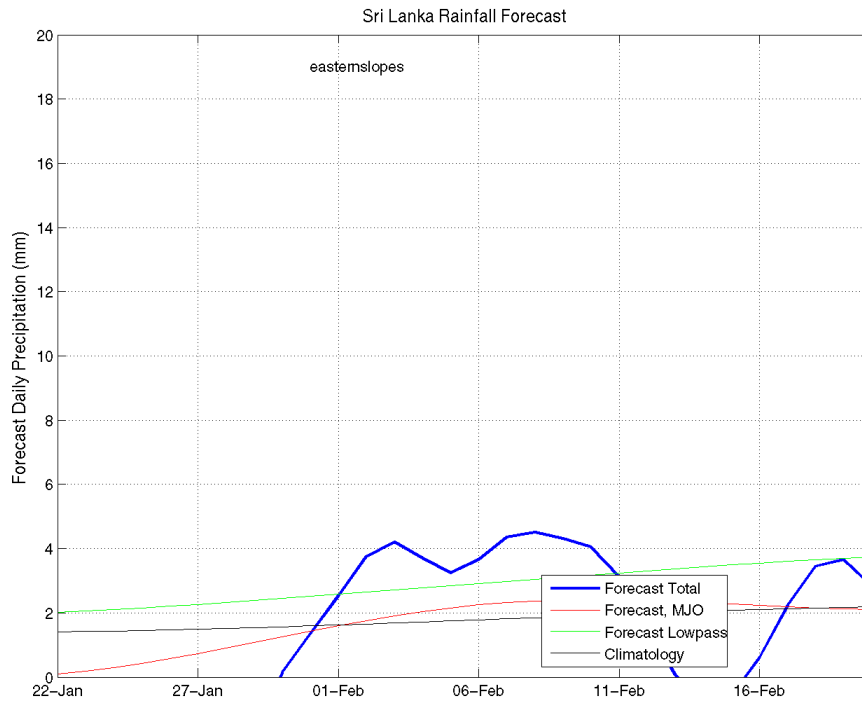
Western Slopes (Rainfall Scale from 0-20 mm/day)



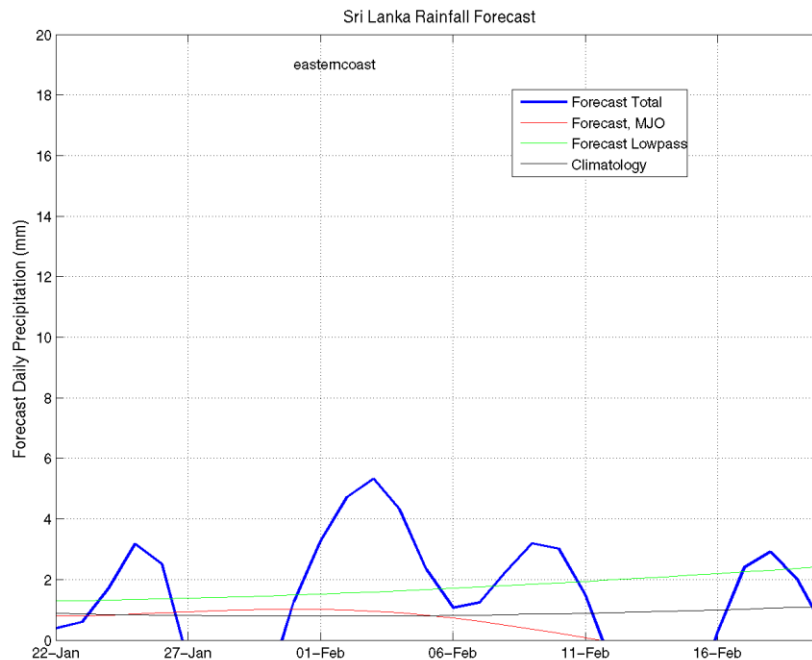
Western Coast (Rainfall Scale from 0-20 mm/day)



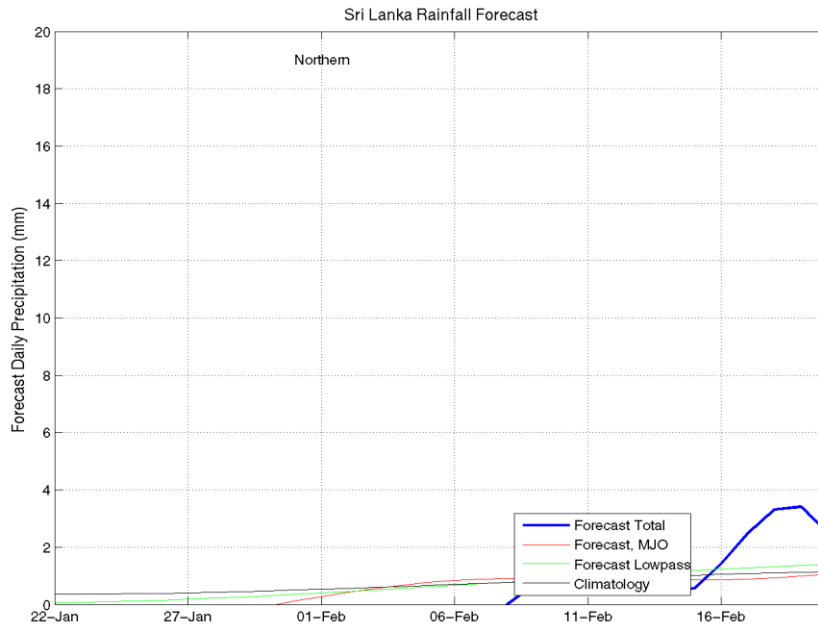
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



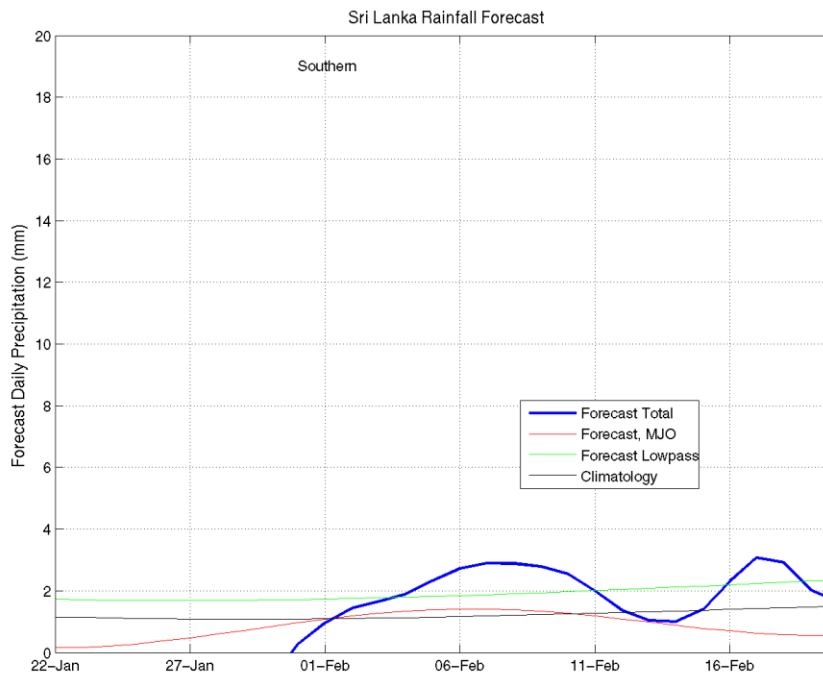
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

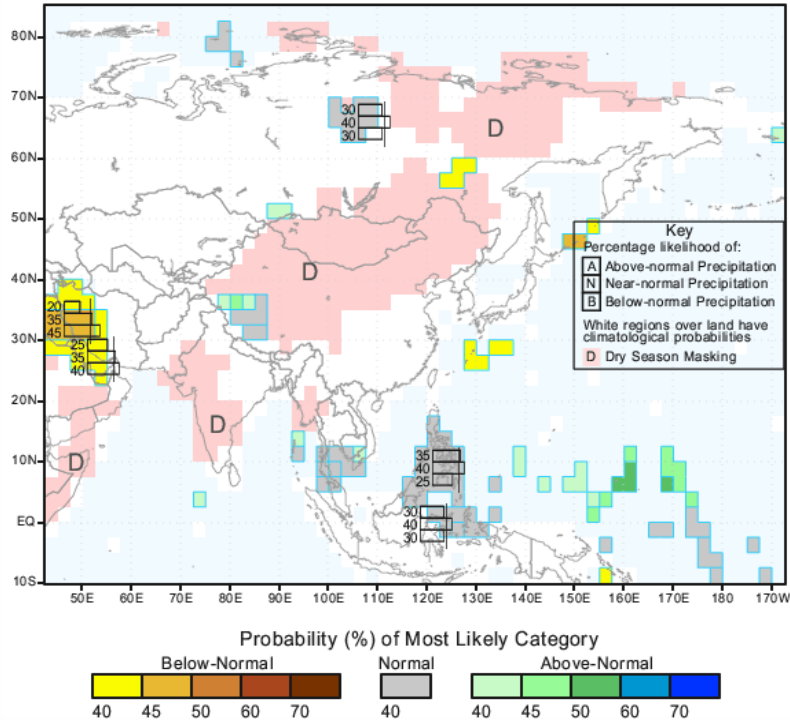


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for January-February-March 2014, Issued December 2013



IRI Multi-Model Probability Forecast for Temperature
for January-February-March 2014, Issued December 2013

