

Experimental Climate Monitoring and Prediction

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Lareef Zubair and Michael Bell (FECT and IRI¹)

18 April 2013

FECT BLOG

Past reports available at
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April 4, 2013 PACIFIC SEAS STATE

During February through March the observed ENSO conditions remained in the neutral ENSO conditions. Most of the ENSO prediction models call for neutral ENSO conditions through northern summer 2013, but some statistical models call for weak La-Nina while some dynamical models call for warming & possible weak El-Nino.

(Text Courtesy IRI)

INDIAN OCEAN STATE

The Indian Ocean around Sri Lanka particular to the Bay of Bengal continues to have a warm anomaly up to 0.5°C. Warm SST conditions are spreading towards seas north of Sri Lanka.

Highlights

Monitoring and Predictions:

Western half of the island shall receive rainfall during 17th-23rd April. For the coming two days rainfall shall be concentrated in the Kalutara, Ratnapura, Kegalle district, some places in Polonnaruwa district (on 19th) and Nuwara Eliya district (on 20th). For the entire country existing rainfall conditions shall decrease gradually till 21st and increase thereafter.

Summary

Monitoring

Weekly Monitoring: Rainfall ranged between 5-95 mm during 8th-15th March 2013. Maximum rainfall was observed on the 13th April in Kandy district. During 13th-15th almost entirety of the country received rainfall.

Predictions

7-day prediction: Western half of the island shall receive 5-55 mm of rainfall during 17th-23rd April.

IMD WRF Model Forecast & IRI forecast: For 19th of April 2013, IMD WRF model predicts 8-36 mm of rainfall for Kalutara, Ratnapura, Kegalle districts and some places in Polonnaruwa district and, spreads towards nearby regions in a reducing manner. In the same day, for the Hambantota, Ampara, Batticaloa districts and northern half of the island, less than 1 mm of rainfall is predicted. Then for the 20th of April, IMD WRF model predicts more rainfall in the Nuwara Eliya district and the rest of the island shall receive less than 1 mm of rainfall. NOAA model predicts wet weather conditions for Matara, Galle and Kalutara districts during 17th-22nd April.

30 Days Prediction: Overall- Existing rainfall condition shall decrease gradually till 21st and increase thereafter. **Western Slopes** – The rainfall pattern existing in the island shall be present in this region. **Western Coast** – There shall be rainfall peaks around 19th & 26th. **Eastern slopes** - Existing rainfall condition shall persist in the range of 1-5 mm with variations till 26th April. **Eastern Coast** – Rainfall is not predicted till 25th. **Northern region-** Rainfall shall increase gradually, but significant rainfall peaks are not predicted during the month of April. **Southern Region-** No significant amount of rainfall is predicted till 22nd.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on March 2013; for April 2013 to June 2013, there is a 45-50% probability for temperature to be above normal in the country while the rainfall is to be climatological.

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- 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

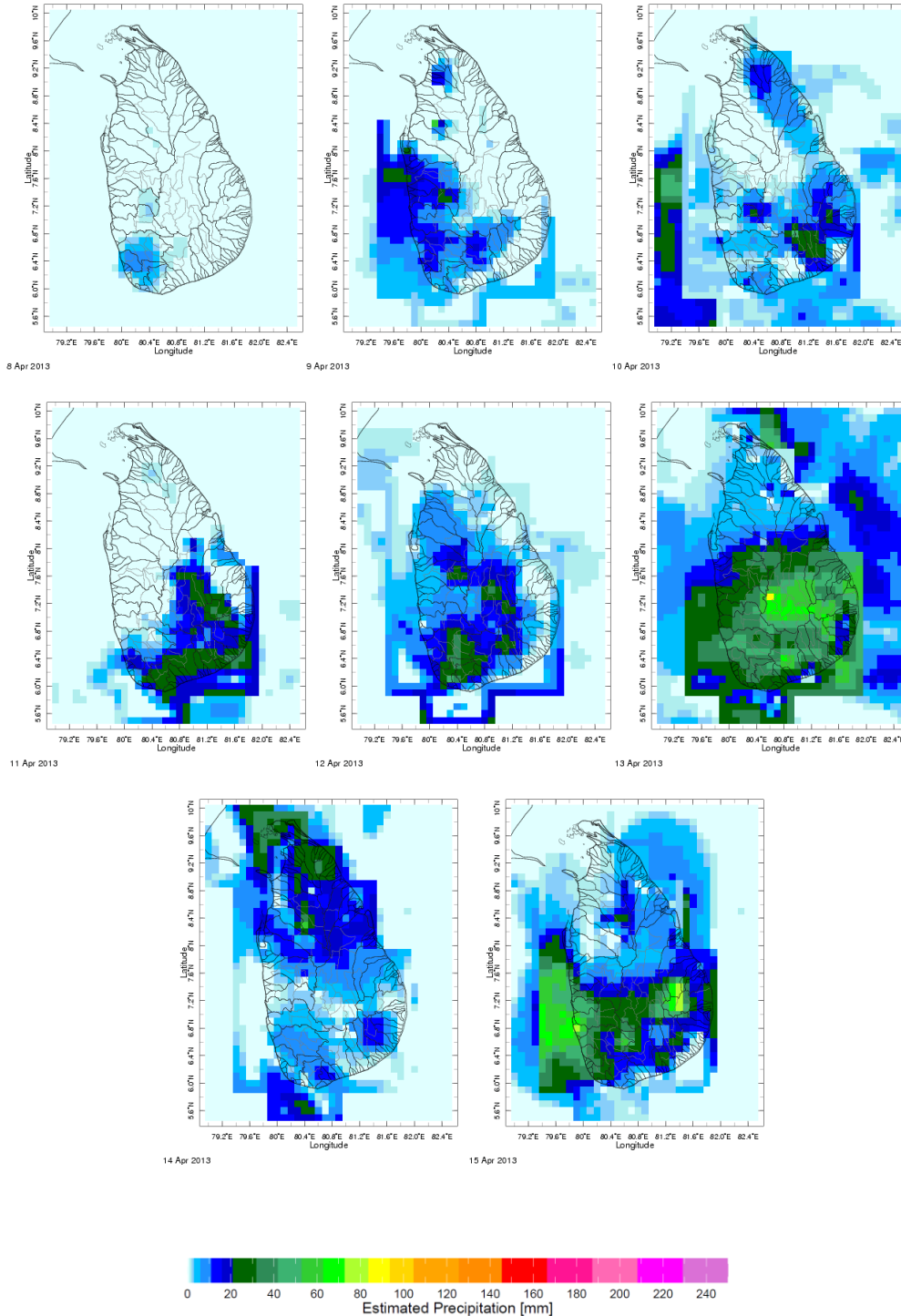
¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

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

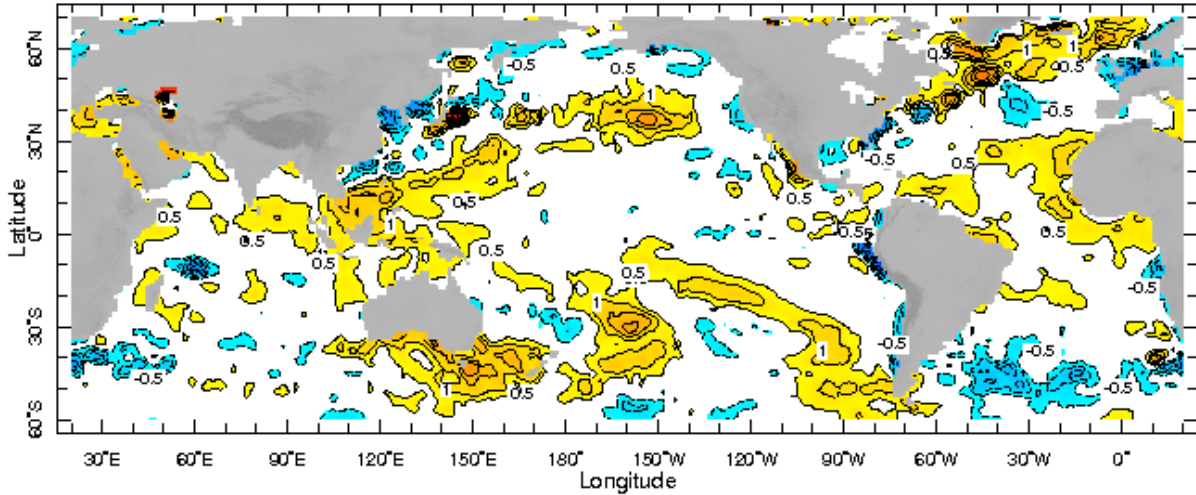
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

1. Monitoring

a) Daily Satellite Derived Rainfall Estimate Maps: 8th – 15th April 2013 (Left-Right, Top-Bottom)



b) Weekly Average SST Anomalies

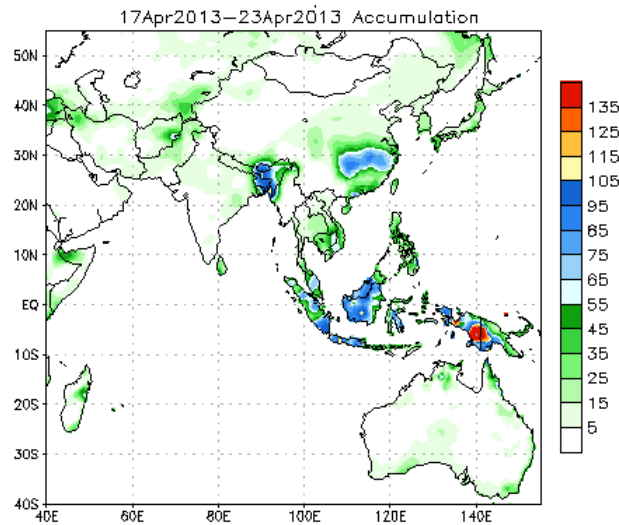


Weekly Average SST Anomalies ($^{\circ}C$), 7th-13th April, 2013

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

2. Predictions

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

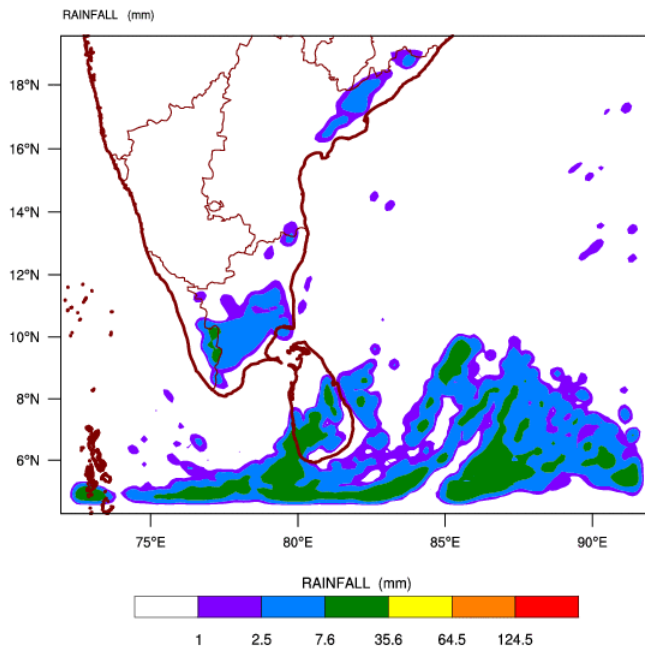


Bias correction based on last 30-day forecast error

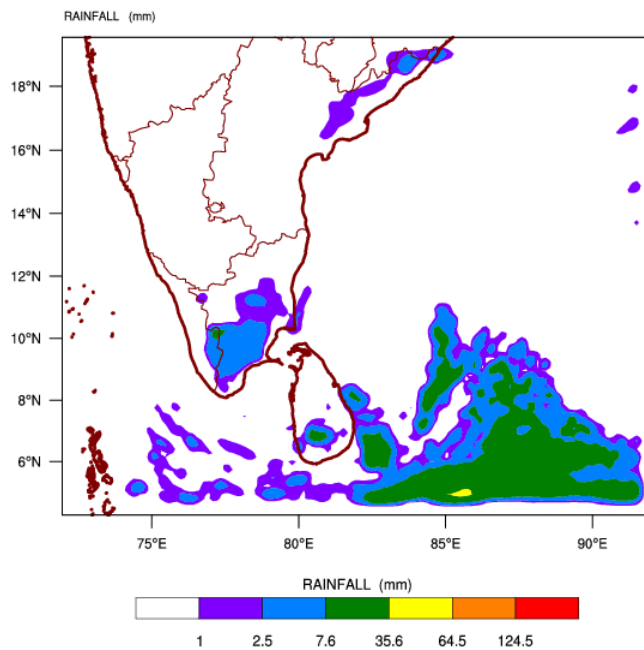
Source – NOAA Climate Prediction Center

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

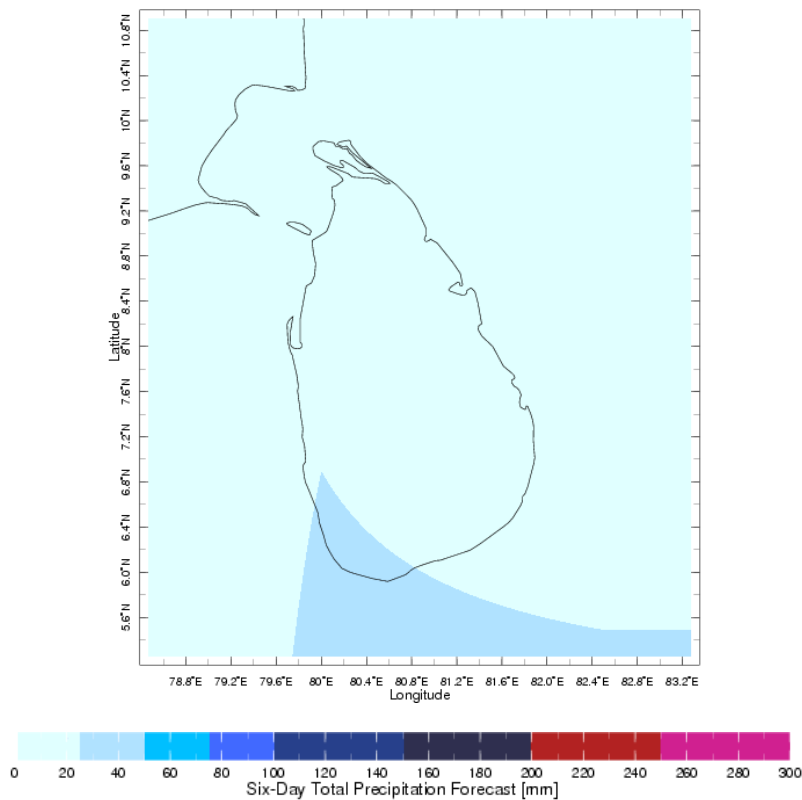
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 17-04-2013 valid for 03 UTC of 19-04-2013



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 17-04-2013 valid for 03 UTC of 20-04-2013



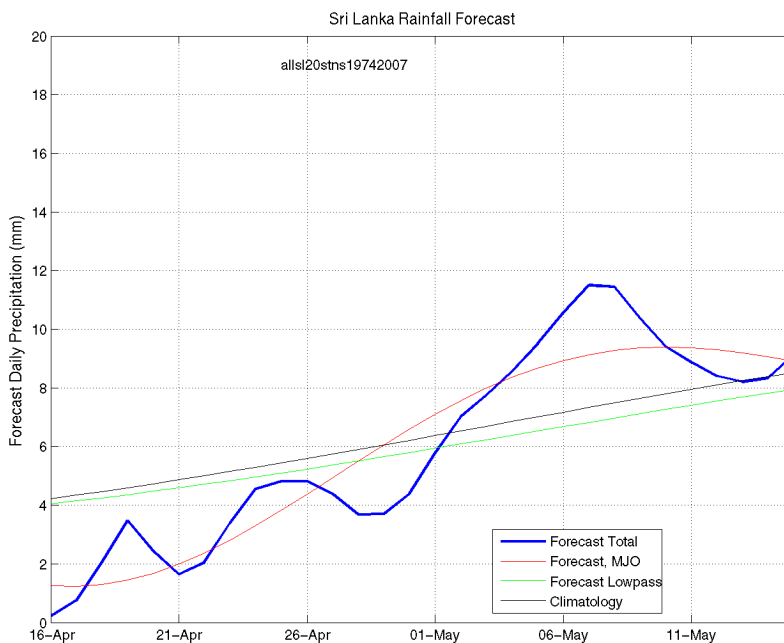
c) Weekly Precipitation Forecast for 17th-22nd April 2013 (Precipitation Forecast in Context Map Tool, IRI)



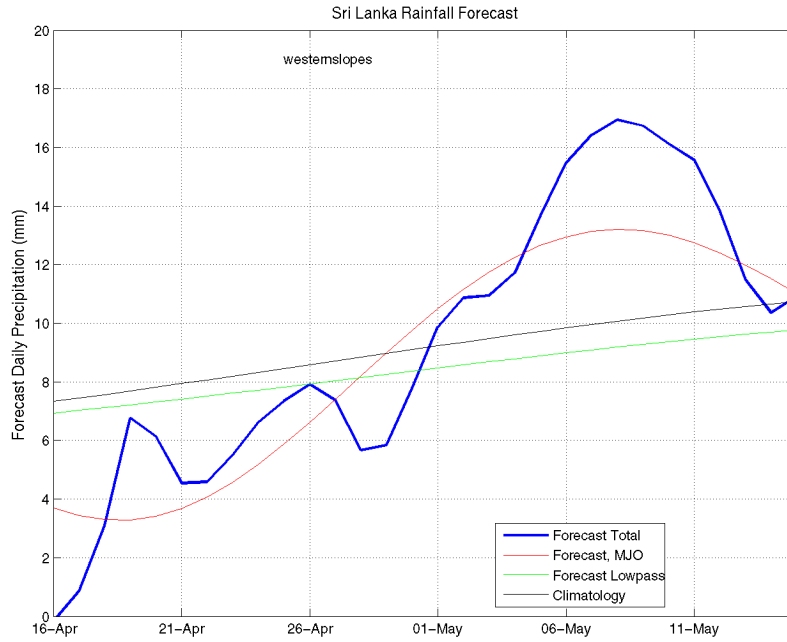
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 17th April, 2013

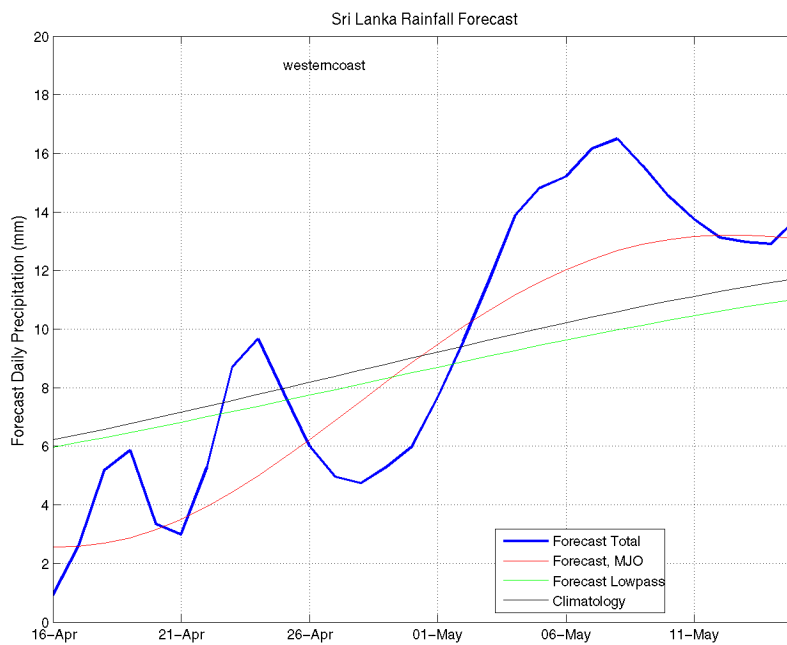
All Sri Lanka (Rainfall Scale from 0-20 mm/day)



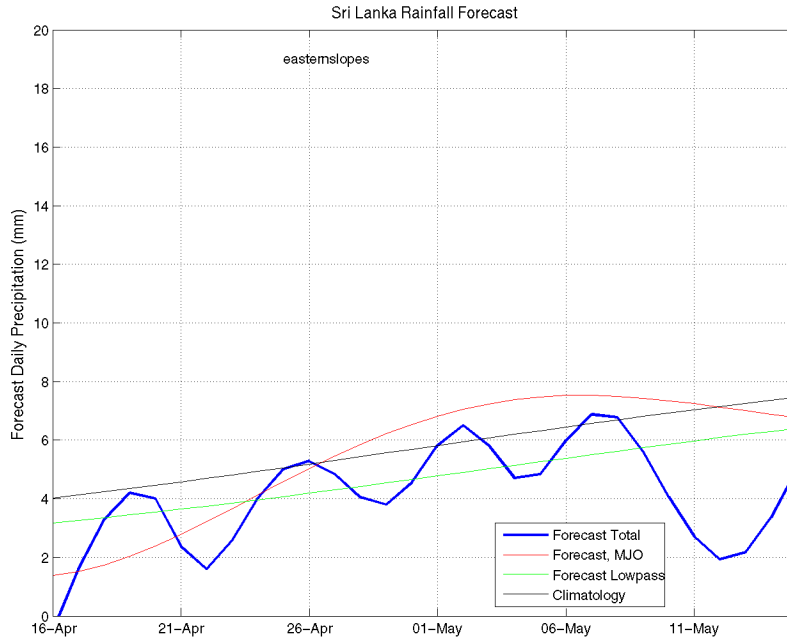
Western Slopes (Rainfall Scale from 0-20 mm/day)



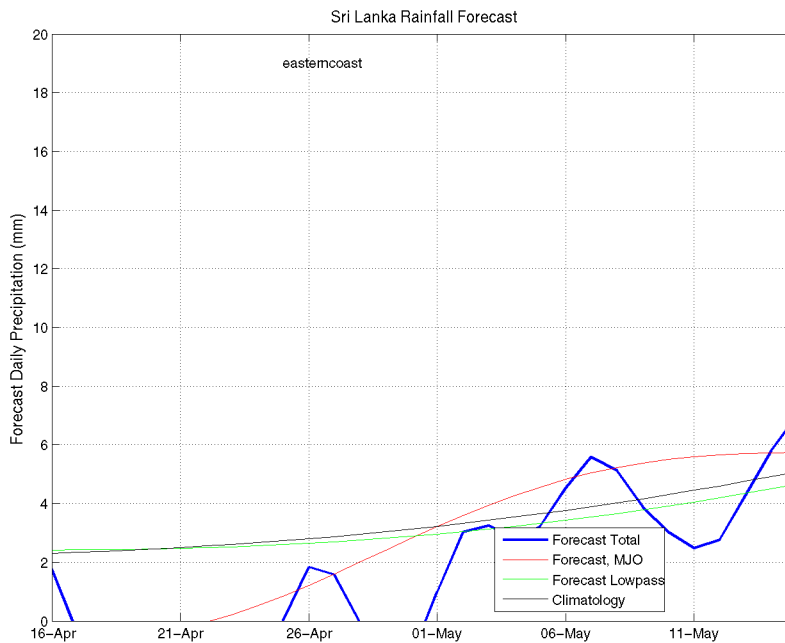
Western Coast (Rainfall Scale from 0-20 mm/day)



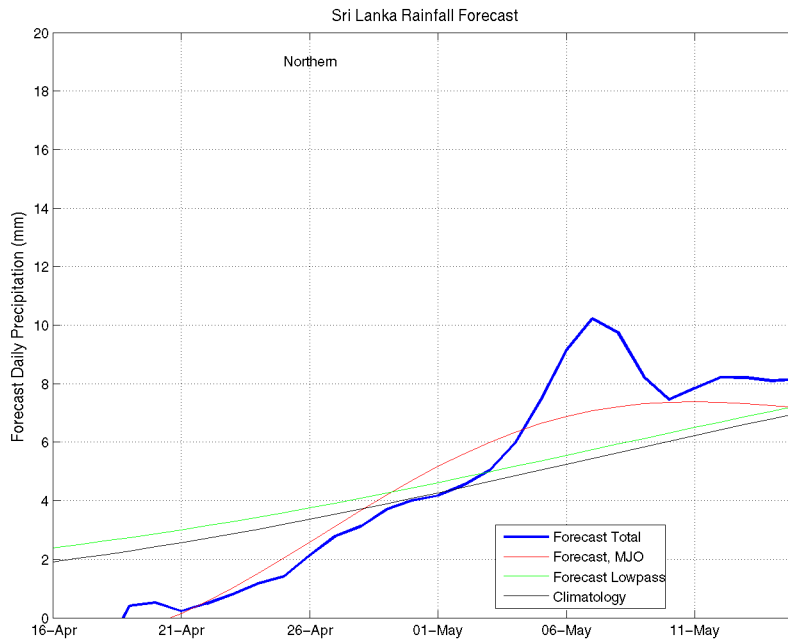
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



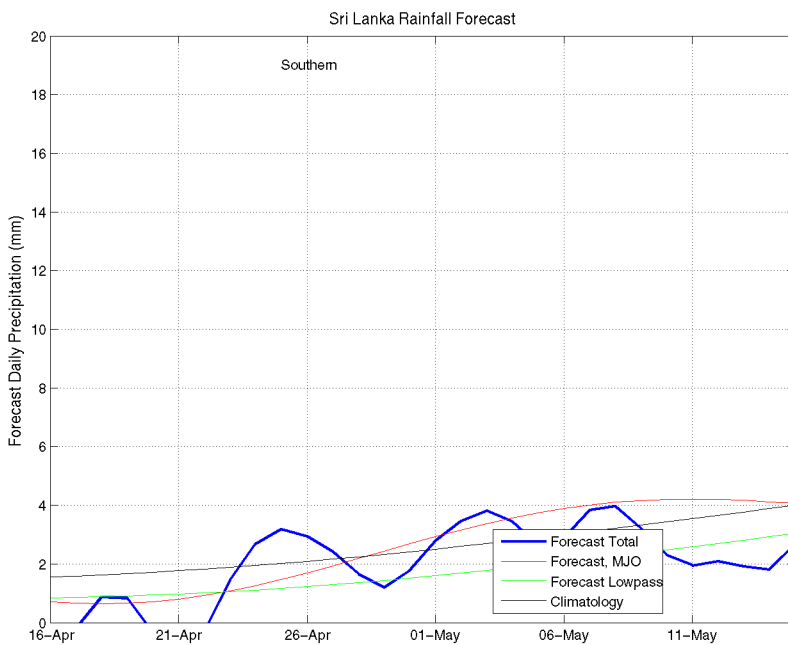
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

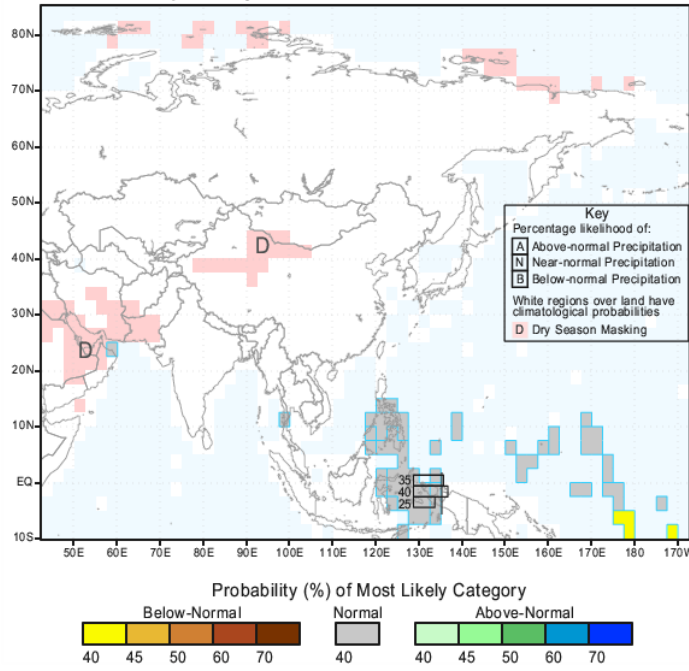


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for April-May-June 2013, Issued March 2013



IRI Multi-Model Probability Forecast for Temperature
for April-May-June 2013, Issued March 2013

