

Experimental Climate Monitoring and Prediction

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Lareef Zubair and Michael Bell (FECT and IRI¹)

18 September 2013

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/>

September 5, 2013 PACIFIC SEAS STATE

During July through August the observed ENSO conditions remained neutral. Most of the ENSO prediction models indicate a continuation of neutral ENSO through the remainder of 2013 & into early 2014. However, a few (mainly statistical) models call for cooling towards borderline or weak La-Nina conditions for northern autumn into winter, while a few others (mainly dynamical) forecast some warming towards borderline or weak El-Nino conditions for this same time frame.

(Text Courtesy IRI)

INDIAN OCEAN STATE

The sea surface temperature around Sri Lanka was neutral during 8th-14th September 2013.

MJO STATE

MJO is entering phase 4 and shall not influence Sri Lanka rainfall.

Highlights

Monitoring and Predictions:

Kalutara to Puttalam districts shall receive heavy rainfall on coming two days (19th & 20th September). Ongoing rainfall is likely to decrease gradually till 25th with slight variations. Rainfall is not predicted for 25th-26th. No significant rainfall events are expected.

Summary

Monitoring

Weekly Monitoring: During 10th-16th September 2013, rainfall ranged 5-20 mm. More rainfall observed during early days of the week than the rest of the days for the entire country. Jaffna peninsula received rainfall during 10th-12th September.

Monthly Monitoring: Southwestern regions of Sri Lanka received an above average rainfall during the month of July. The entire country received less than 15 mm of daily rainfall, with Colombo and Gampaha districts receiving the highest rainfall during the month (14 mm/day).

Predictions

7-day prediction: Southern 2/3rd of the island shall receive 5-65 mm of rainfall during 17th-23rd September 2013.

IMD WRF Model Forecast & IRI forecast: For 19th of September, IMD WRF model predicts less than 65 mm of rainfall for the entire Kalutara district and coastal regions of Kalutara-Puttalam districts and shall spread to nearby regions (including West-Northern and West- Southern coastal regions and central of the island) in a reducing manner. For 20th of September, same model predicts less than 65 mm of rainfall for the small regions in Galle and Kalutara districts and shall spread as 19th of September. NOAA model predicts high rainfall (5-75 mm/week) for Galle-Kalutara districts during 16th-21st September.

30 Days Prediction: Overall- Ongoing rainfall is likely to decrease gradually till 25th with slight variations. Rainfall is not predicted for 25th-26th. No significant rainfall events are expected. **Western Slopes** – The rainfall increase drastically during 19th-23rd. Thereafter it shall decrease in a same rate till 26th. **Western Coast** – The rainfall pattern persisting in the entire country shall be observed in this region. **Eastern Slopes**– Rainfall shall vary between 0-2 mm/day during 18th-21st. Rainfall is not predicted during 21st-23rd and 24th thereafter. Insignificant rainfall shall observe on 24th. **Eastern Coast** – Rainfall shall increase slightly during 18th-19th & decrease thereafter. Rainfall is not predicted during 21st-24th and 25th-28th. Insignificant rainfall shall observe during 24th-25th. **Northern region-** Slight increase during 18th-22nd and decrease in same rate during 22nd-24th. Rainfall is not predicted during 24th-29th. **Southern Region-** Rainfall is likely to decrease drastically during 18th-18th. Rainfall is not predicted during 19th-21st. Thereafter it shall increase with different rates till 29th.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on August 2013; for September 2013 to November 2013, 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

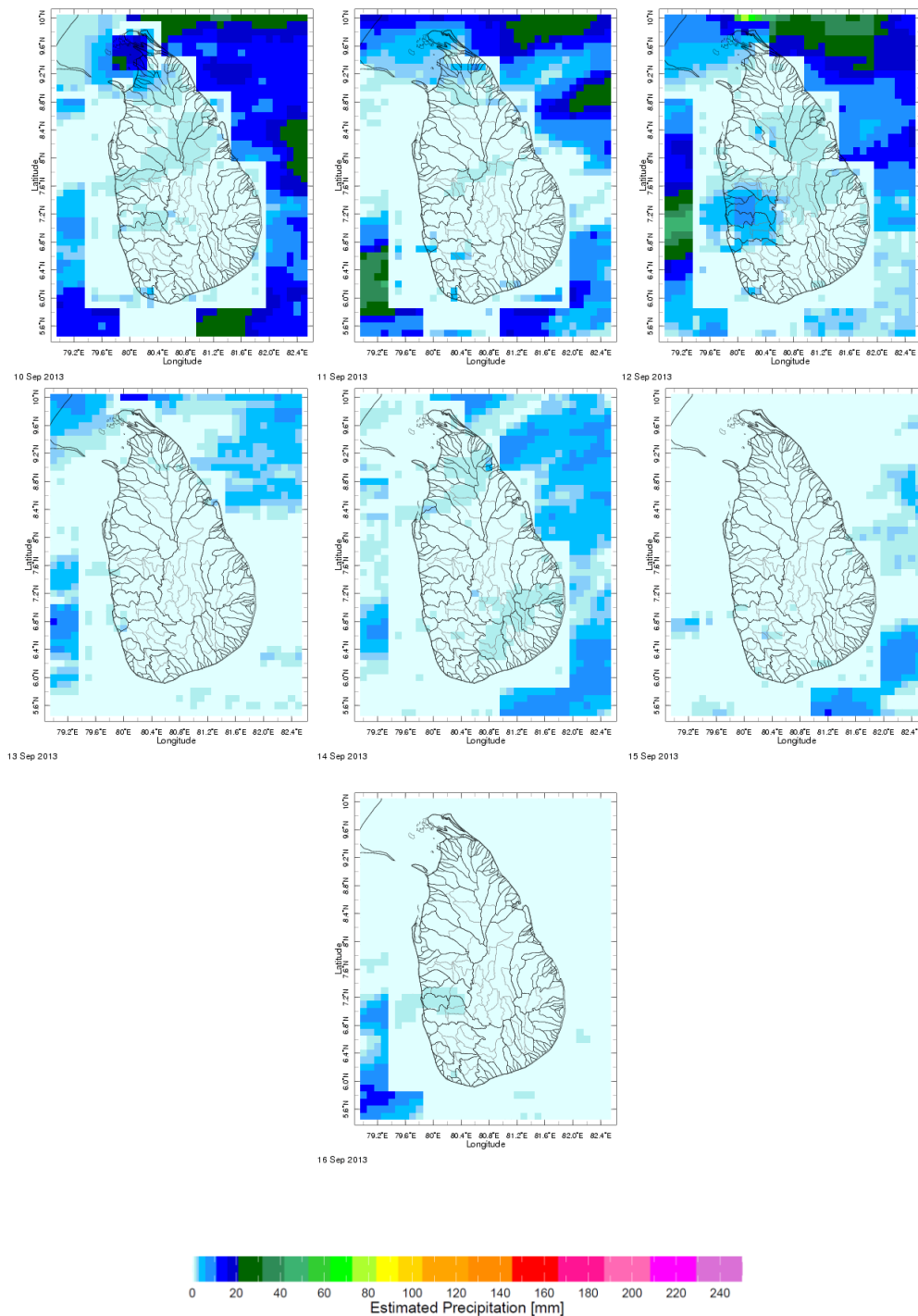
- NCEP GFS Ensemble 1-7 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

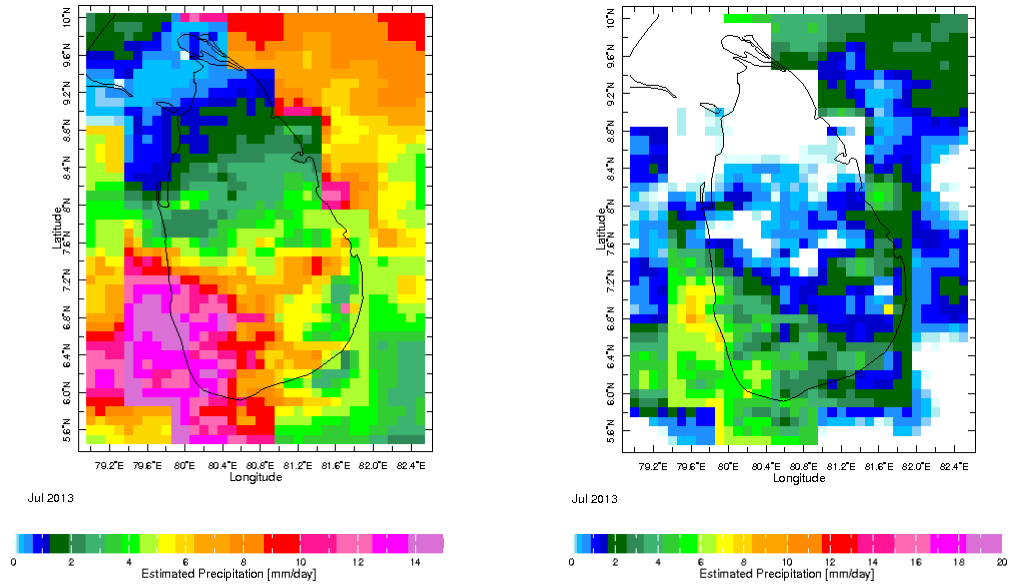
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

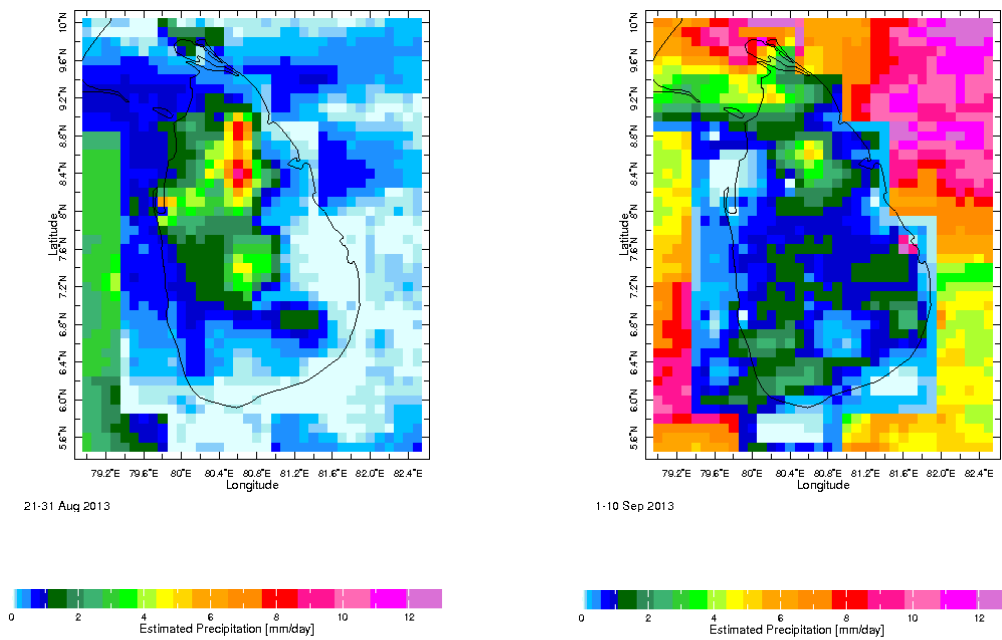
a) Daily Satellite Derived Rainfall Estimate Maps: 10th - 16th September 2013 (Left-Right, Top-Bottom)



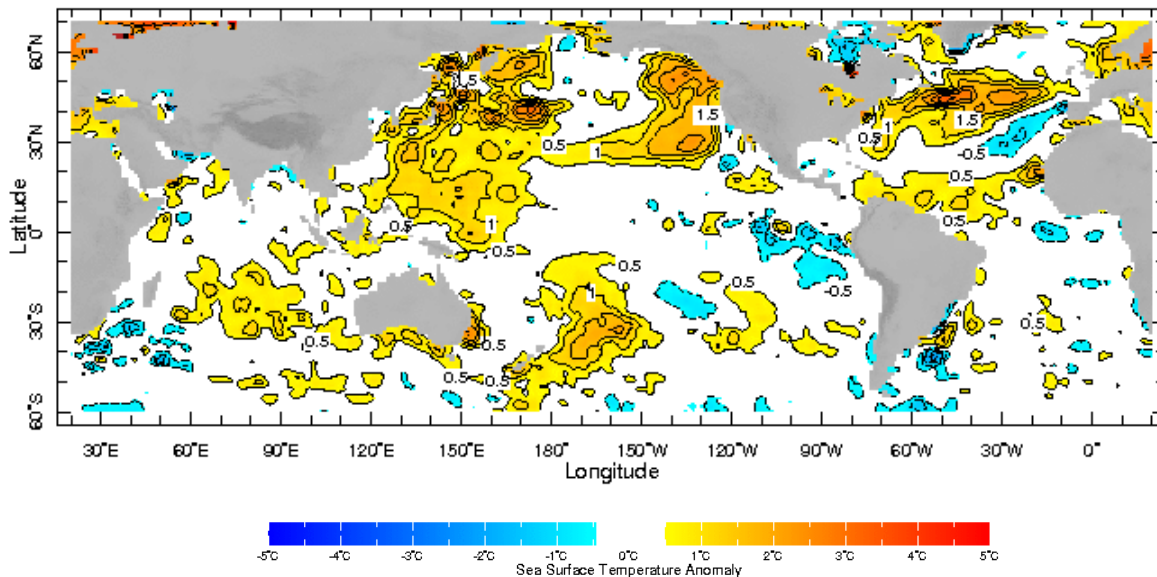
b) Monthly Satellite Derived Rainfall Estimates for July 2013 (Total – Left and Anomaly -Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 August & 01-10 September, 2013)



b) Weekly Average SST Anomalies

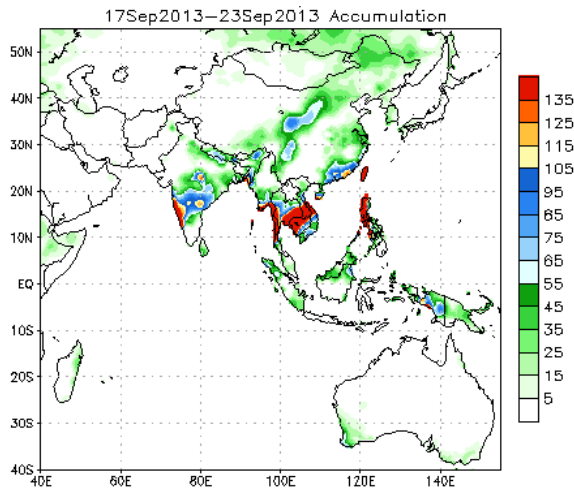


Weekly Average SST Anomalies ($^{\circ}C$), 8th-14th September, 2013

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

2. Predictions

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

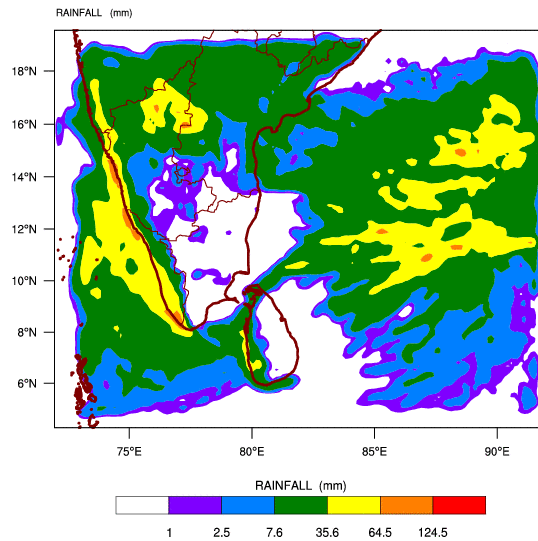


Bias correction based on last 30-day forecast error

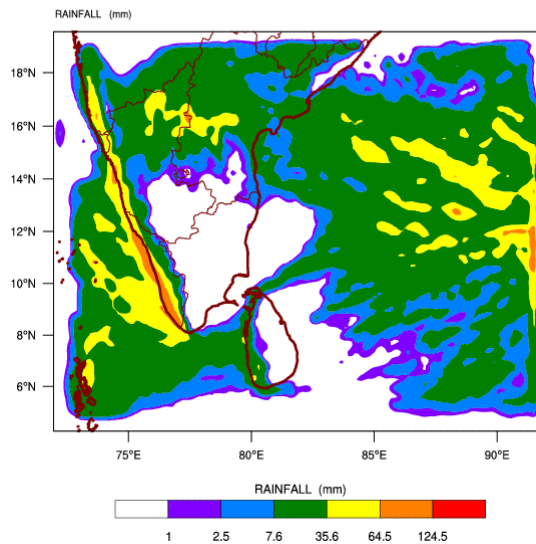
Source – NOAA Climate Prediction Center

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

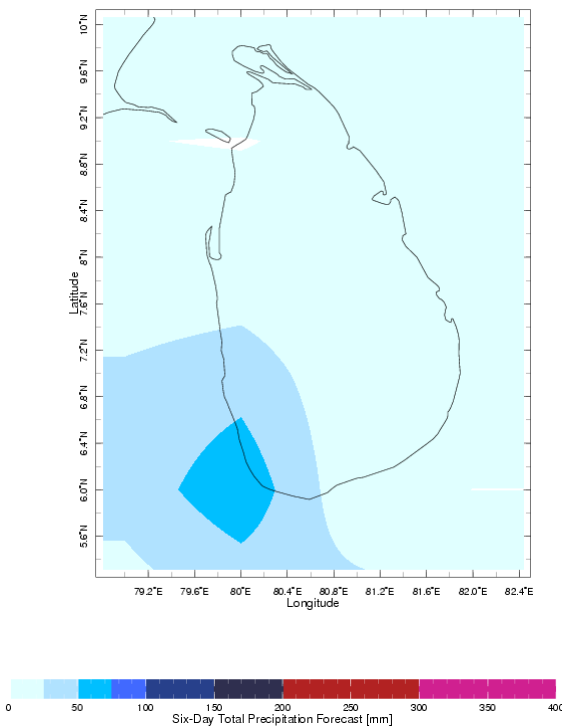
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 17-09-2013 valid for 03 UTC of 19-09-2013



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 17-09-2013 valid for 03 UTC of 20-09-2013



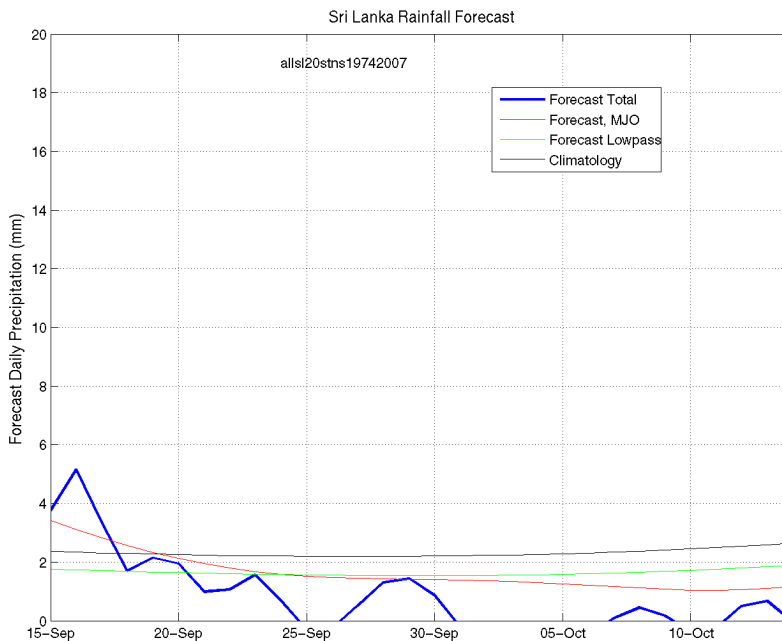
c) Weekly Precipitation Forecast for 16th-21st September 2013 (Precipitation Forecast in Context Map Tool, IRI)



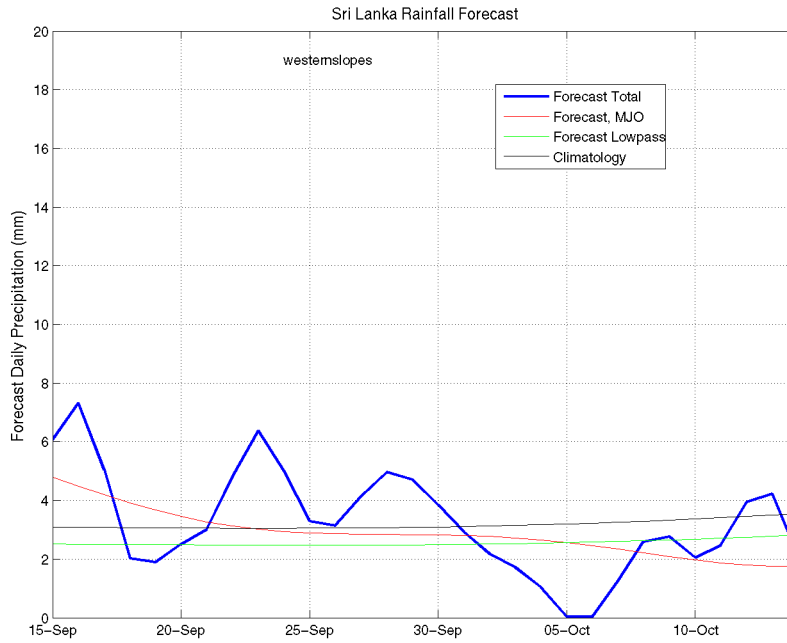
d) 1 month experimental predictions by Paul Roundy and L. Zubair

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

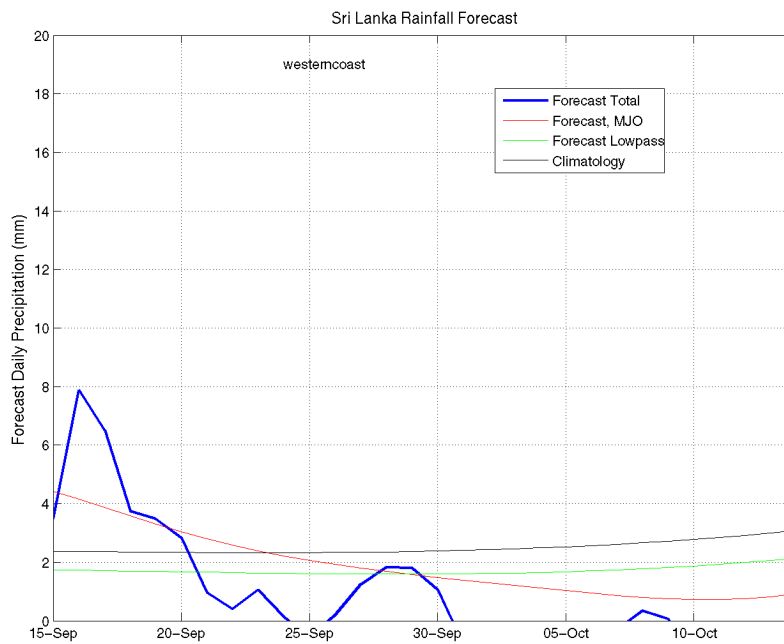
All Sri Lanka (Rainfall Scale from 0-20mm/day)



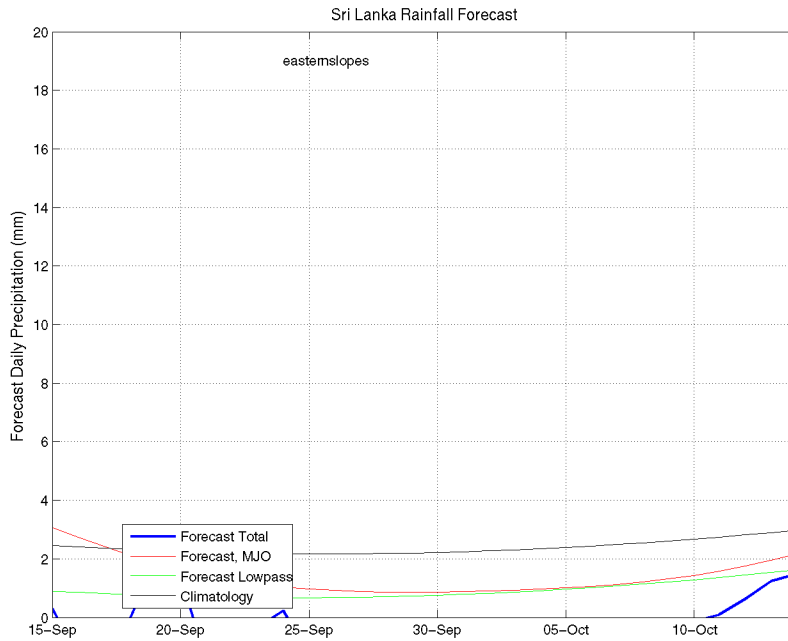
Western Slopes (Rainfall Scale from 0-20 mm/day)



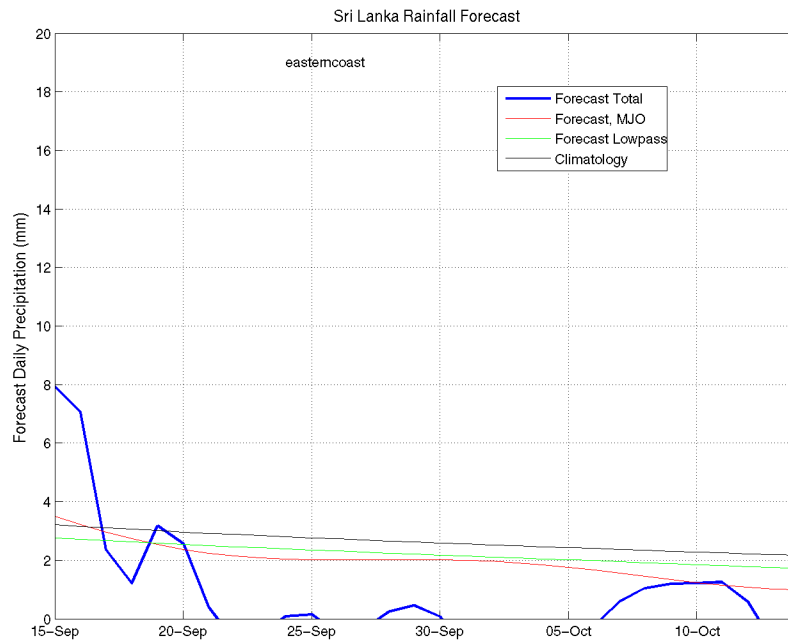
Western Coast (Rainfall Scale from 0-20 mm/day)



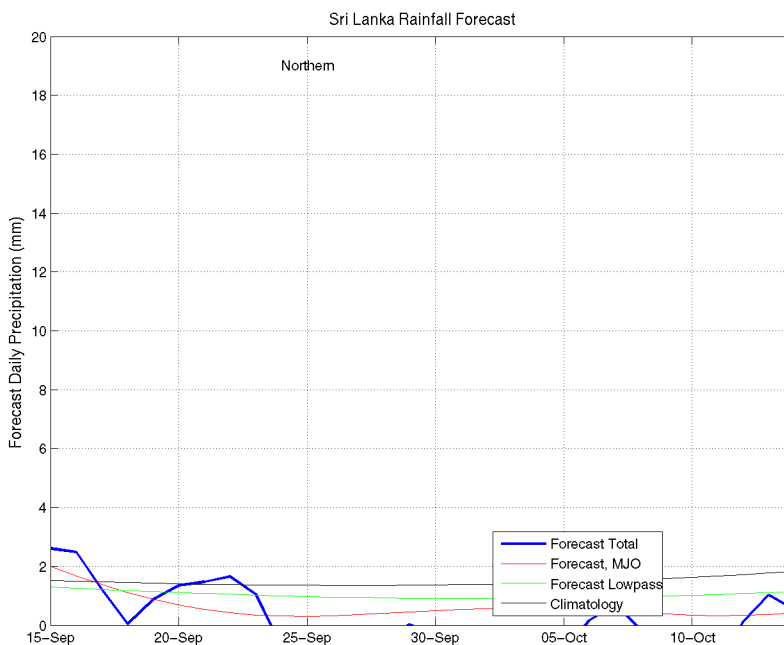
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



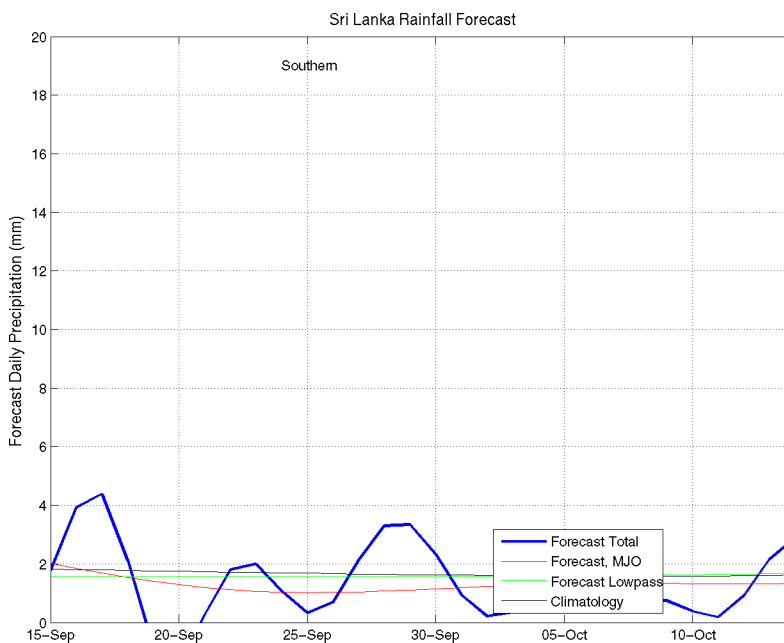
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

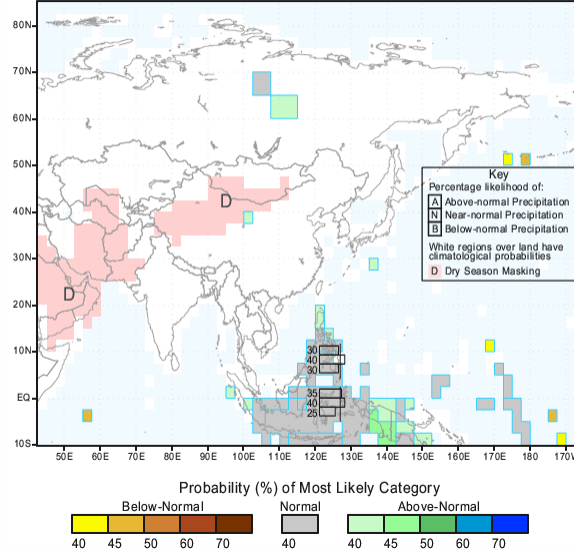


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for September-October-November 2013, Issued August 2013



IRI Multi-Model Probability Forecast for Temperature
for September-October-November 2013, Issued August 2013

