

Experimental Climate Monitoring and Prediction

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Lareef Zubair and Michael Bell (FECT and IRI¹)

24 October 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/>

October 17, 2013 PACIFIC SEAS STATE

During September through October the observed ENSO conditions remained neutral. Most of the ENSO prediction models indicate a continuation of neutral ENSO through 2013 & the first quarter of 2014. A long lasting mean disagreement between statistical and dynamical models (statistical leaning cooler, dynamical warmer) has diminished. The average forecast of all models indicates a gradual warming tendency during the first half of the 2014.

(Text Courtesy IRI)

INDIAN OCEAN STATE

The sea surface temperature around Sri Lanka was neutral during 13th-19th October 2013.

MJO STATE

MJO is at neutral phase and shall not influence Sri Lanka rainfall.

Highlights

Monitoring and Predictions:

Rainfall shall increase during 24th-27th and is likely to decrease gradually till the end of month (October 2013). However, significant rainfall event is likely to observe around 26th-28th October for the western slopes. Heavy rainfall is likely to observe for the southwestern regions and northeastern regions during coming two days (26th & 27th October).

Summary

Monitoring

Weekly Monitoring: During 15th-22nd October 2013, rainfall ranged between 5 – 90 mm/day. Entire country received rainfall on 18th October. However, the island was comparatively wetter than the September 2013.

Monthly Monitoring: Jaffna and Batticaloa districts received an above average rainfall during the month of September.

Predictions

7-day prediction: Southwestern regions shall receive rainfall of less than 75 mm/day and shall spread towards North-east direction in a reducing pattern during 23rd-29th October 2013.

IMD WRF Model Forecast & IRI forecast: For 26th of October, IMD WRF model predicts less than 36 mm of rainfall for Kalutara-Hambantota, Ratnapura and Trincomalee districts and shall spread to nearby districts in a reducing manner. For 27th of October, model predicts less than 65 mm/day of rainfall for Galle district and shall spread to nearby districts in a reducing manner. However, NOAA model predicts more rainfall for Northeastern regions of Sri Lanka during 23rd-28th October 2013.

30 Days Prediction: Overall- Rainfall shall increase during 24th-27th and is likely to decrease gradually till the end of month (October 2013). Thereafter rainfall shall vary between 2-5 mm/day. **Western Slopes** – The rainfall pattern persisting in the entire country shall be observed in this region with high amount of rainfall. However, significant rainfall event is likely to observe around 26th-28th October. **Western Coast** – The rainfall pattern persisting in the western slopes shall be observed in this region. **Eastern Slopes**– Rainfall is likely to decrease gradually till the end of month (October 2013). Thereafter rainfall shall vary between 1-4 mm/day. **Eastern Coast** – Rainfall is likely to decrease gradually till the end of month (October 2013). Thereafter rainfall shall vary between 1-4 mm/day. However, rainfall is not predicted during 28th October-2nd November 2013. **Northern region-** The rainfall pattern persisting in the Eastern slopes shall be observed in this region. **Southern Region-** The rainfall pattern persisting in the entire country shall be observed in this region.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on October 2013; for November, December 2013 to January 2014, there is a 60-70% probability for temperature to be above normal in the country while the rainfall is to be climatological.

Inside this Issue

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

2. Predictions

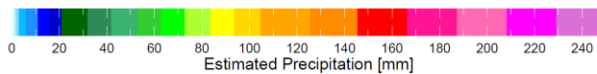
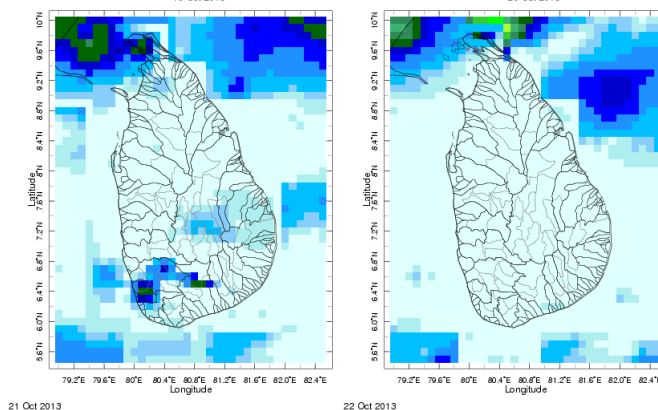
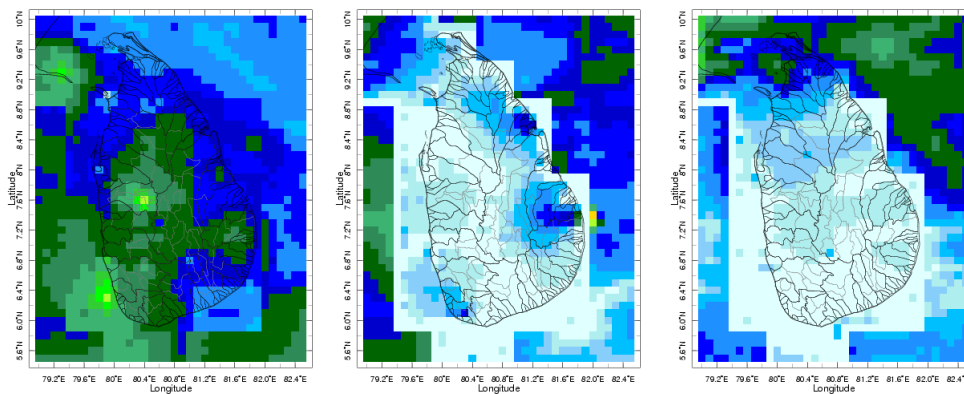
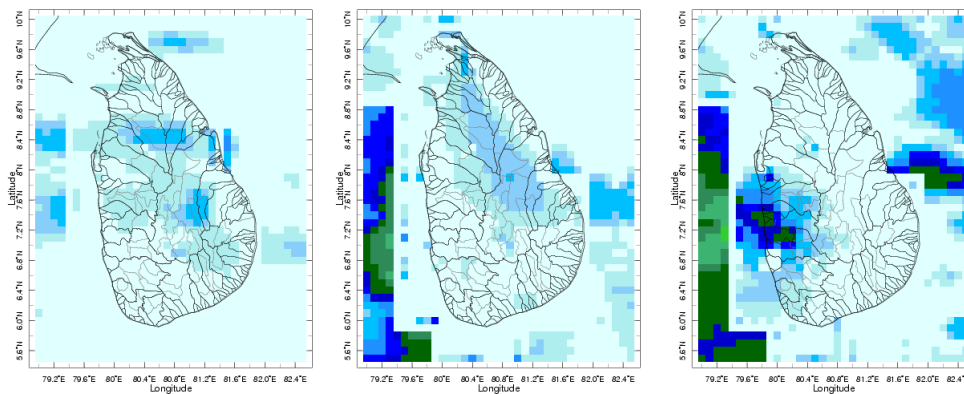
- NCEP GFS Ensemble 1-7 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

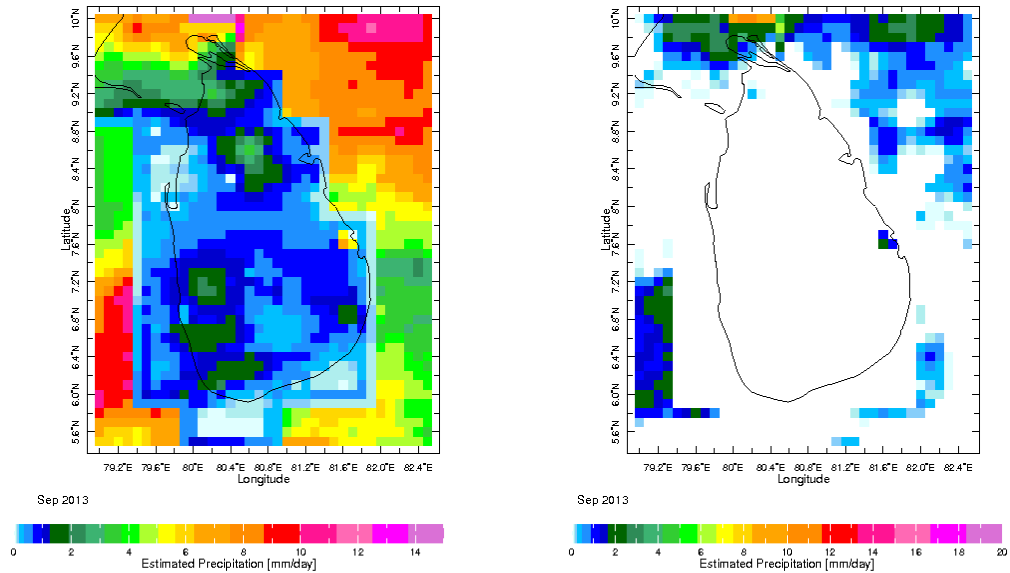
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

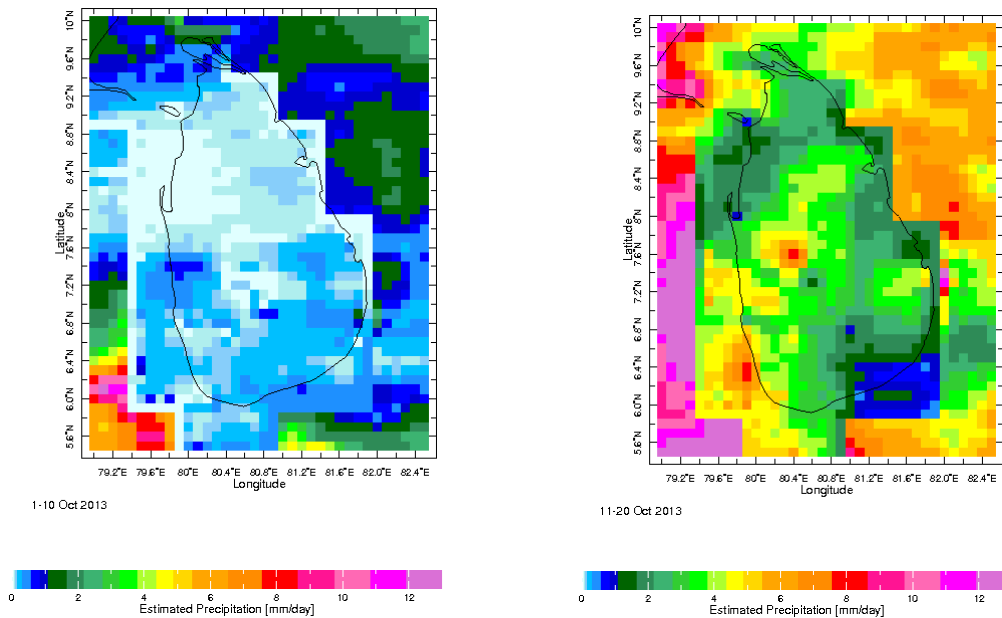
a) Daily Satellite Derived Rainfall Estimate Maps: 15th-22nd October 2013 (Left-Right, Top-Bottom)



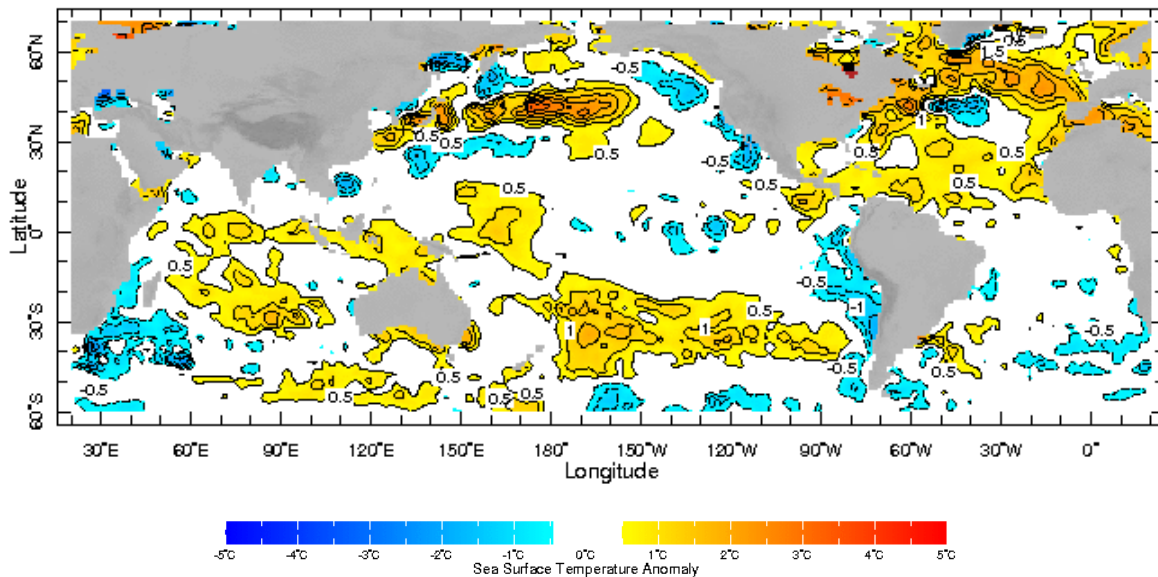
b) Monthly Satellite Derived Rainfall Estimates for September 2013 (Total – Left and Anomaly - Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (01-10 October & 11-20 October, 2013)



b) Weekly Average SST Anomalies

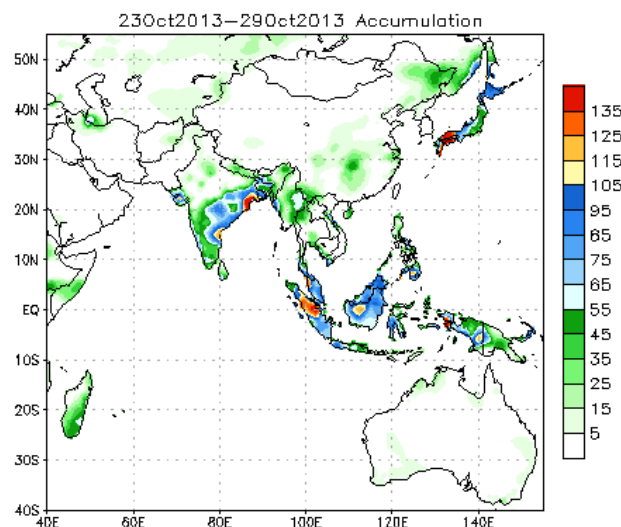


Weekly Average SST Anomalies ($^{\circ}$ C), 13th-19th October, 2013

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

2. Predictions

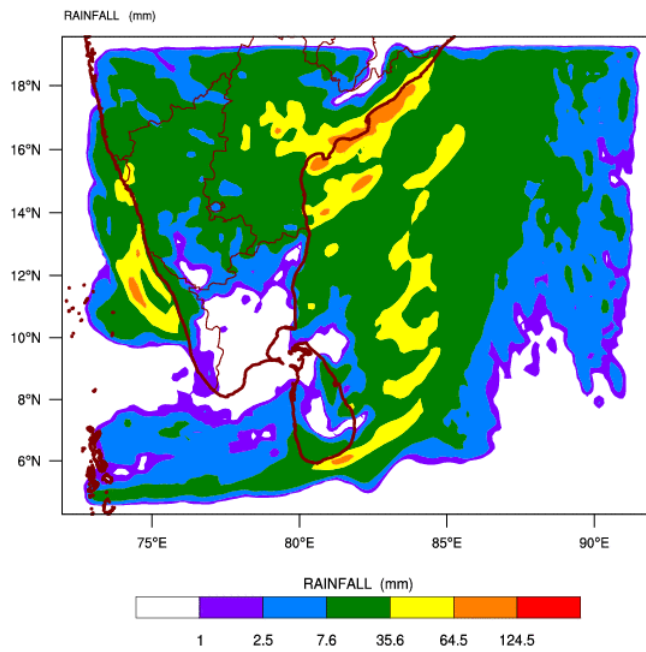
a) NCEP GFS Ensemble 1-7 day predictions, NOAA, Climate Prediction Centre, USA.



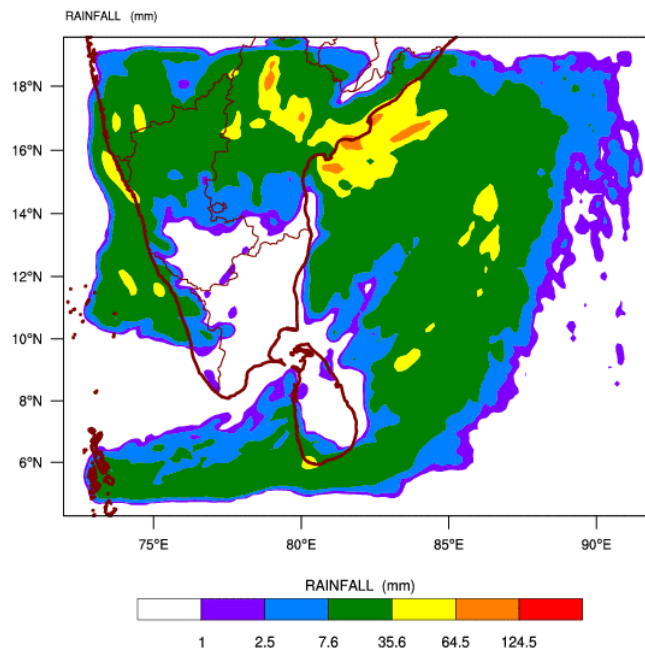
Source – NOAA Climate Prediction Center

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

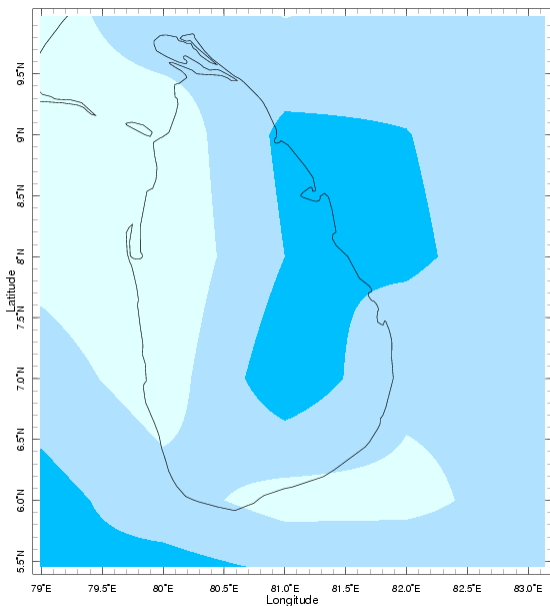
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 24-10-2013 valid for 03 UTC of 26-10-2013



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 24-10-2013 valid for 03 UTC of 27-10-2013



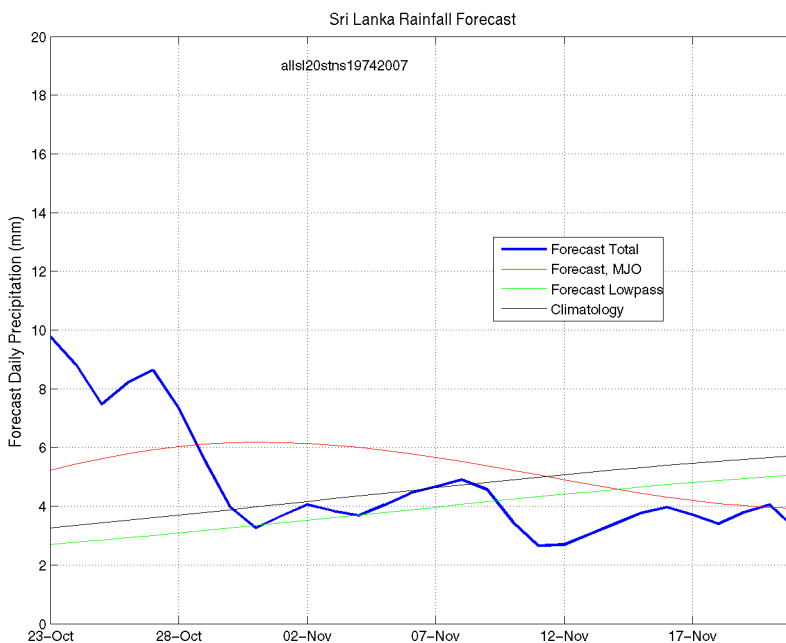
c) Weekly Precipitation Forecast for 23rd-28th October 2013 (Precipitation Forecast in Context Map Tool, IRI)



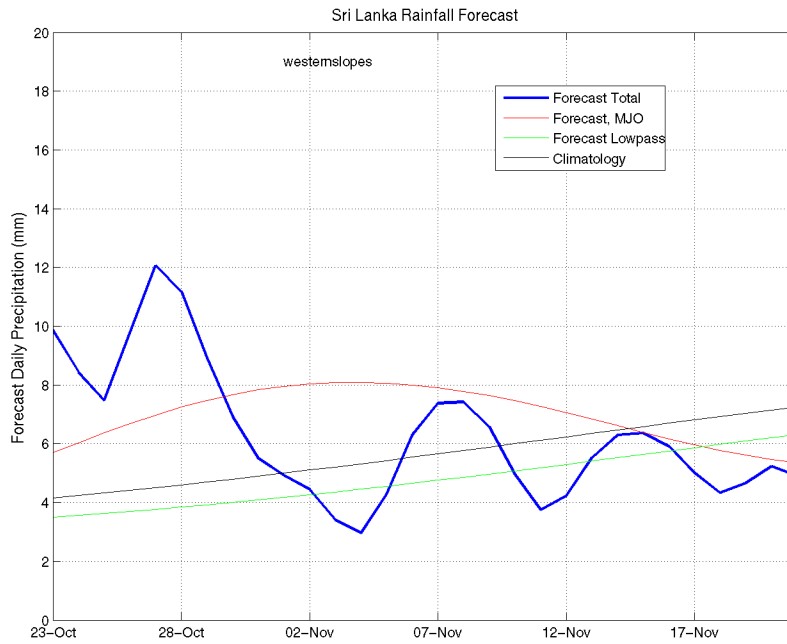
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 24th October, 2013

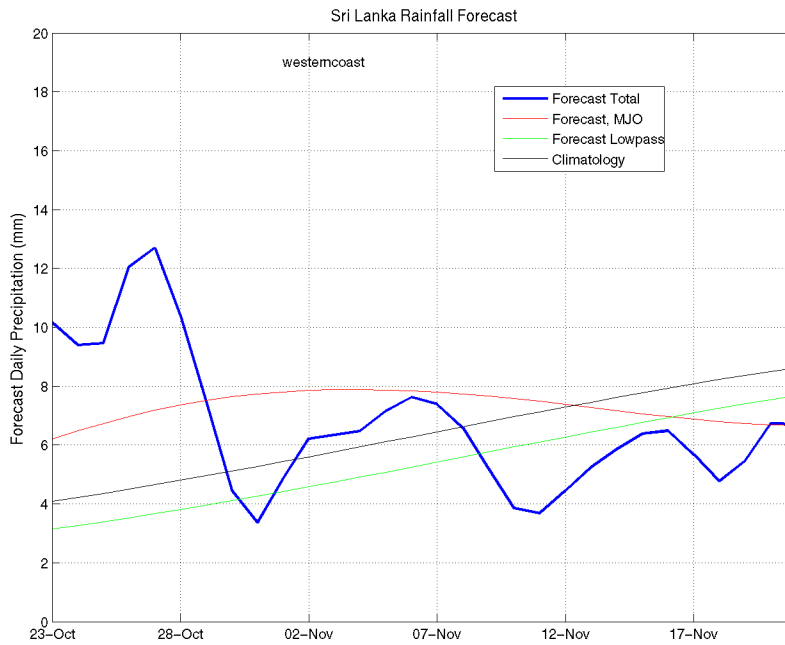
All Sri Lanka (Rainfall Scale from 0-20mm/day)



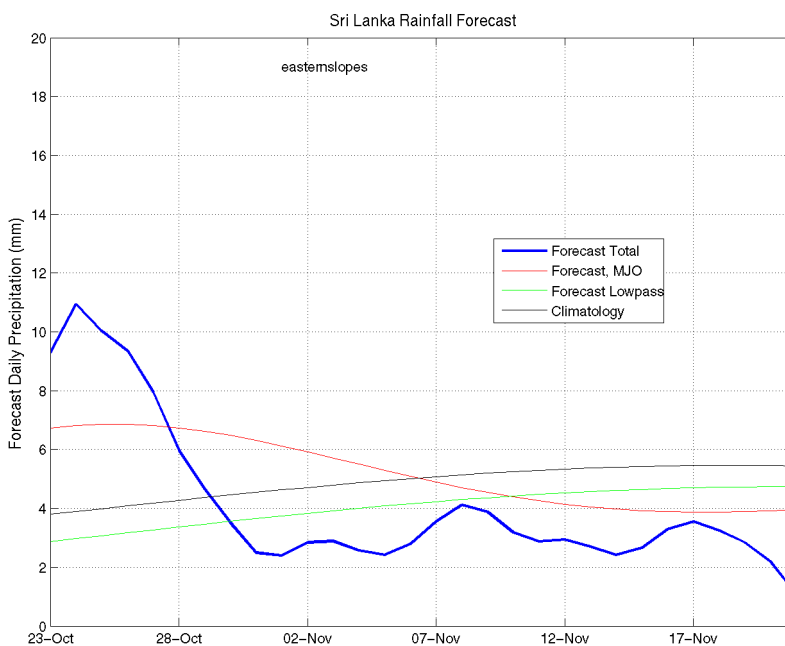
Western Slopes (Rainfall Scale from 0-20 mm/day)



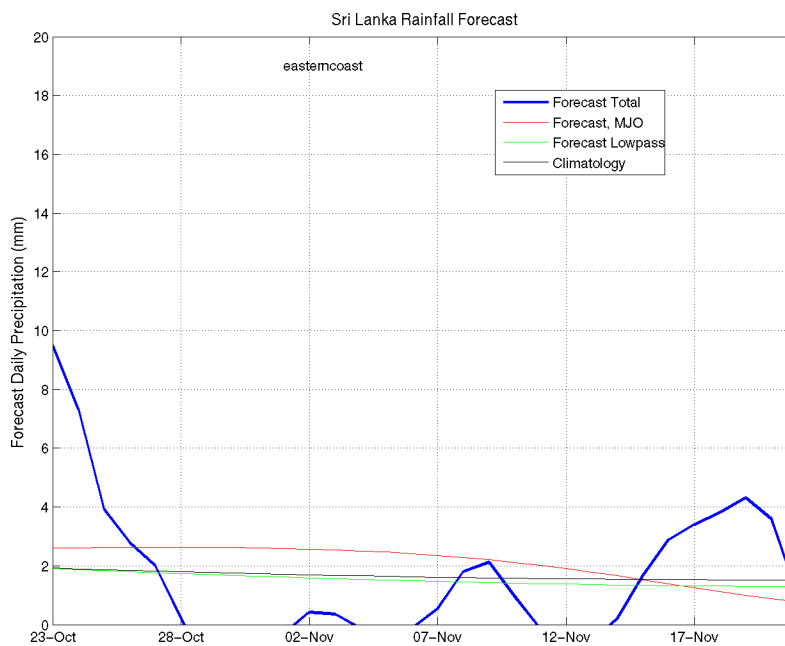
Western Coast (Rainfall Scale from 0-20 mm/day)



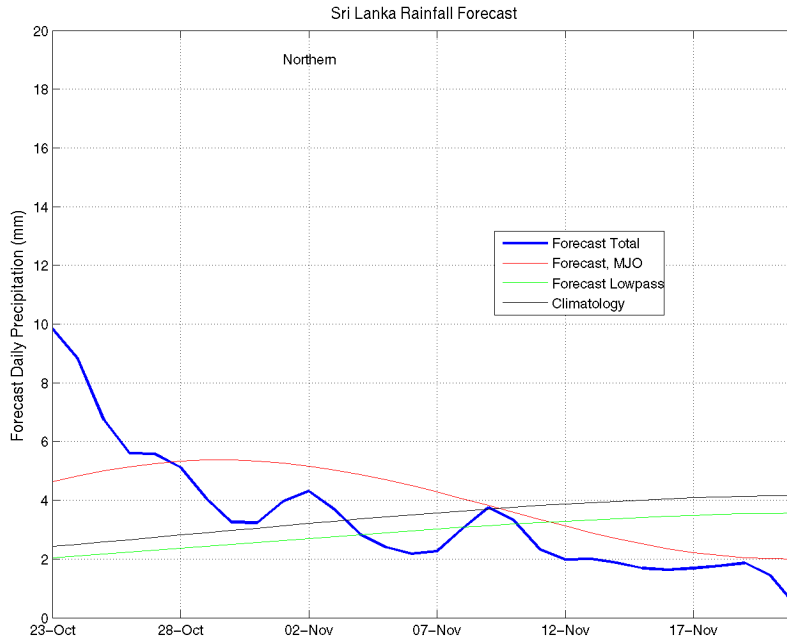
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



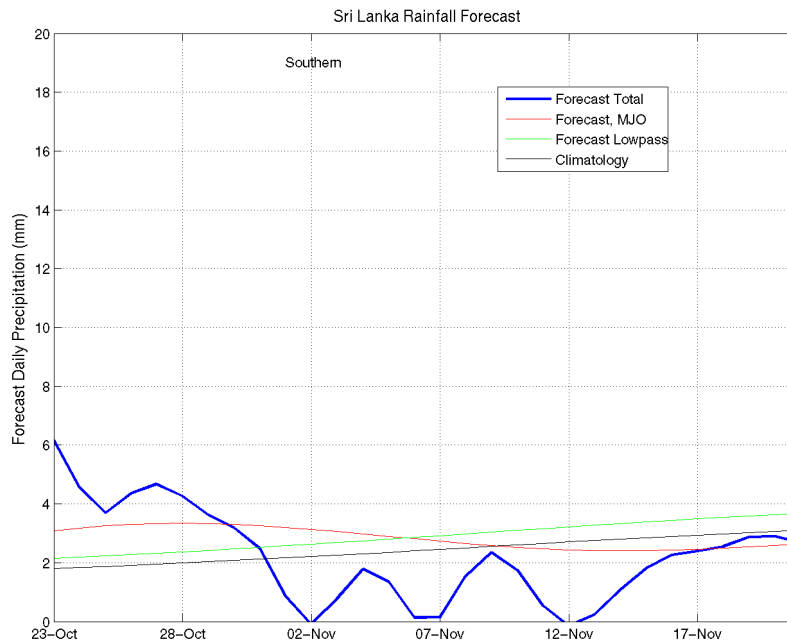
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

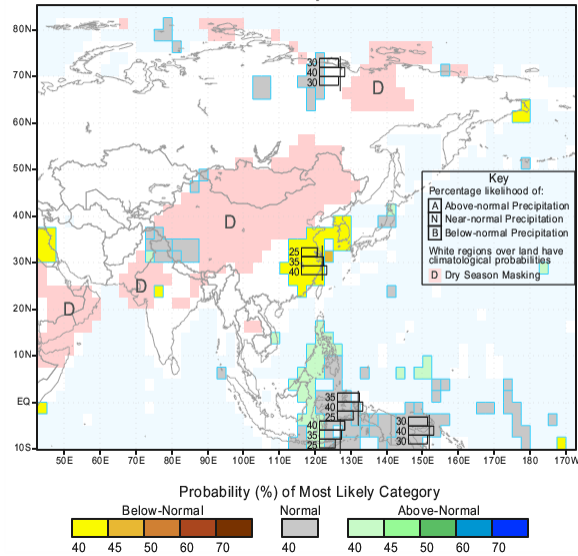


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for November-December-January 2014, Issued October 2013



IRI Multi-Model Probability Forecast for Temperature
for November-December-January 2014, Issued October 2013

