

Experimental Climate Monitoring and Prediction

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

5 June 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/>

15 May, 2014 PACIFIC SEAS STATE

During April through mid-May the observed ENSO conditions moved from warm-neutral to the borderline of a weak El Niño condition. Most of the ENSO prediction models indicate a continued warming trend, with a transition to sustained El Niño conditions by the early northern summer.

(Text Courtesy IRI)

INDIAN OCEAN STATE

Sea surface temperature around Sri Lanka showed + 0.5^oC anomaly during 25th-31st May 2014.

MJO STATE

MJO is at phase 2 and shall impact on Sri Lanka rainfall.

Highlights

Monitoring and Predictions:

Existing rainfall condition shall increase further till 10th and gradually decrease till 14th June 2014. For western slopes and coasts, rainfall is likely to decrease during prediction period (6th-12th June 2014). However, for the eastern slopes and coasts rainfall is likely to increase during the prediction period and significant rainfall events are expected during 9th-20th June. For northern and southern regions significant rainfall events are expected during 7th-11th June 2014.

Summary

Monitoring

Weekly Monitoring: During 27th May-3rd June 2014, Sri Lanka received rainfall ranged 5-145 mm for most of the regions in southern 2/3rd of Sri Lanka. Maximum of 145 mm received for Ratnapura, Kegalle, Gampaha and Kalutara districts on 1st & 2nd June 2014.

Monthly Monitoring: Ampara and Anuradhapura districts received above normal rainfall during May 2014 and Gampaha district received highest negative anomaly of rainfall during May 2014.

Predictions

14 day prediction: During 4th-10th and 11th-17th June 2014, South and Southwestern regions of Sri Lanka shall receive 55-95 mm and less than 55 mm of rainfall, respectively. For the same period rainfall shall decrease towards northwards.

IMD WRF & IRI Model Forecast: For 6th of June, IMD WRF model predicts less than 36 mm/day of rainfall for Kalutara-Puttalam coastal districts and Ratnapura and, rainfall is likely to spread in reducing manner towards central hills. For 7th June 2014, the model predicts significant rainfall (less than 125 mm/day) for Kegalle, Nuwara-Eliya and Kandy districts. IRI model predicts rainfall of 150-200 mm/6 days for Colombo-Kalutara districts during 4th-9th June 2014.

30 Days Prediction: Overall- Existing rainfall condition shall increase further till 10th and gradually decrease till 14th June 2014. **Western Slopes -** Existing rainfall condition shall decrease gradually through the prediction period (6th-12th June 2014). **Western Coasts -** The rainfall pattern persisting in the entire country shall observe in this region. **Eastern Slopes-** Existing rainfall condition (less than 6 mm/day) shall remain constant till 13th and thereafter rainfall is likely to increase drastically. **Eastern Coasts-** Existing rainfall shall increase gradually and significant rainfall events are expected during 9th-20th June 2014. **Northern-** Existing rainfall shall increase gradually till 8th and significant rainfall event is likely to observe during 7th-9th June. Thereafter rainfall shall decrease. **Southern Region-** Existing rainfall shall increase gradually till 10th and significant rainfall event is likely to observe during 9th-11th June. Thereafter rainfall shall decrease till 14th June 2014.

Seasonal Prediction: As per IRI Multi Model Probability Forecast issued on May 2014; for June 2014 to August 2014, there is a more than 70% probability for temperature to be above normal for Hambantota district and 60-70% probability for temperature to be above normal for rest of the regions in Sri Lanka 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

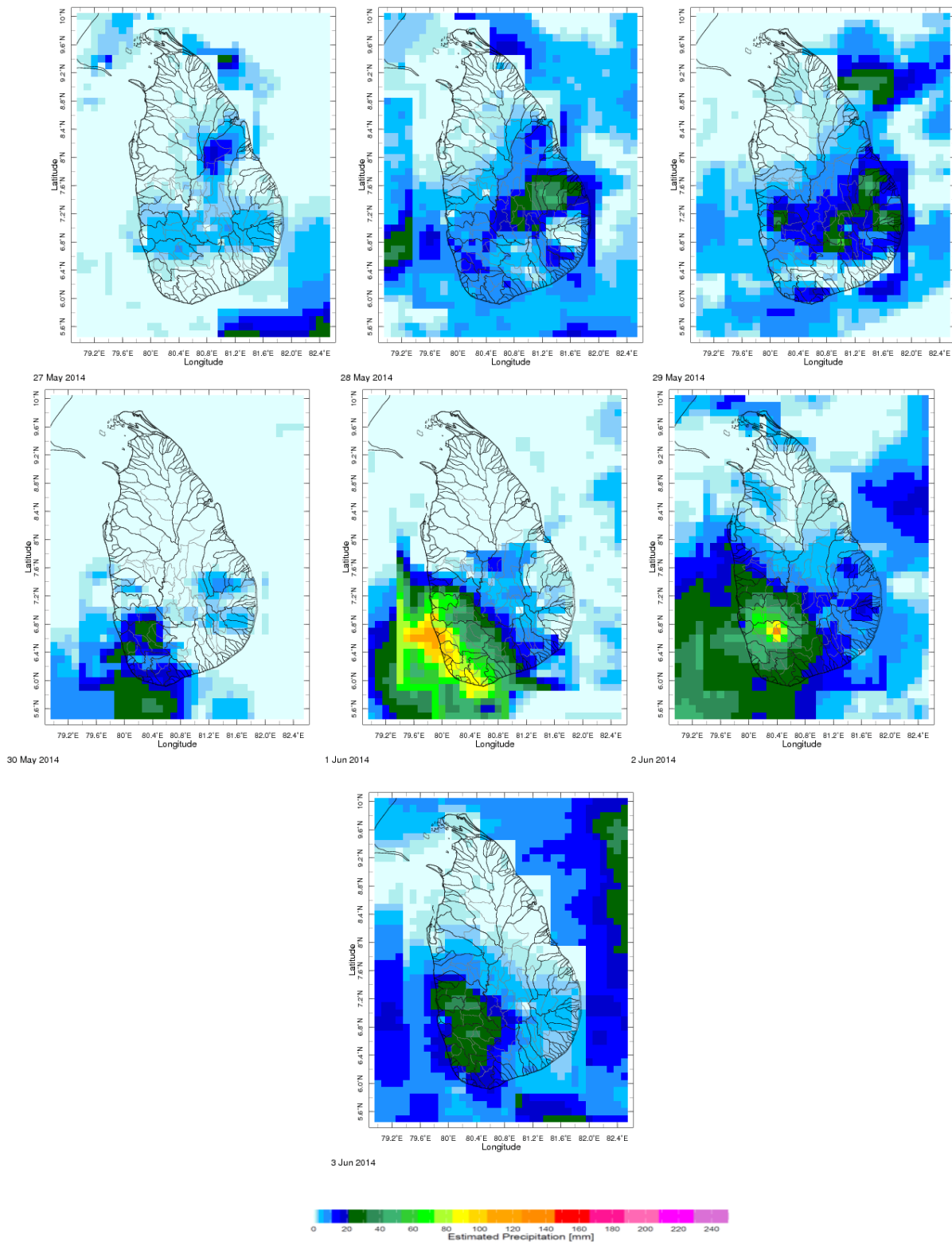
- NCEP GFS Ensemble 1-14 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

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

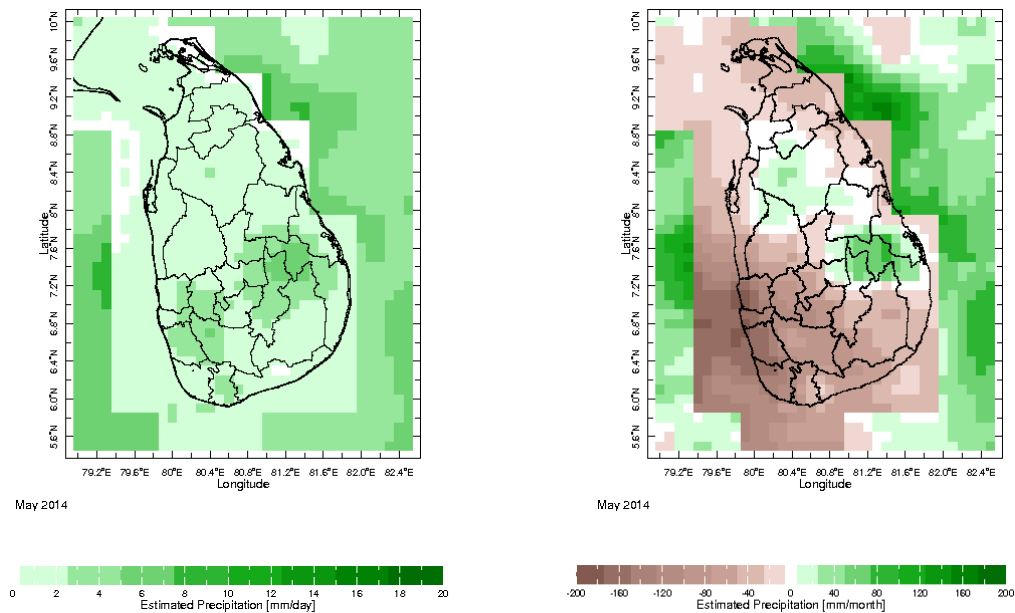
² These interpretations of hydro-meteorological conditions for the Mahaweli basins are provided for the use of the WMS/MASL.

1. Monitoring

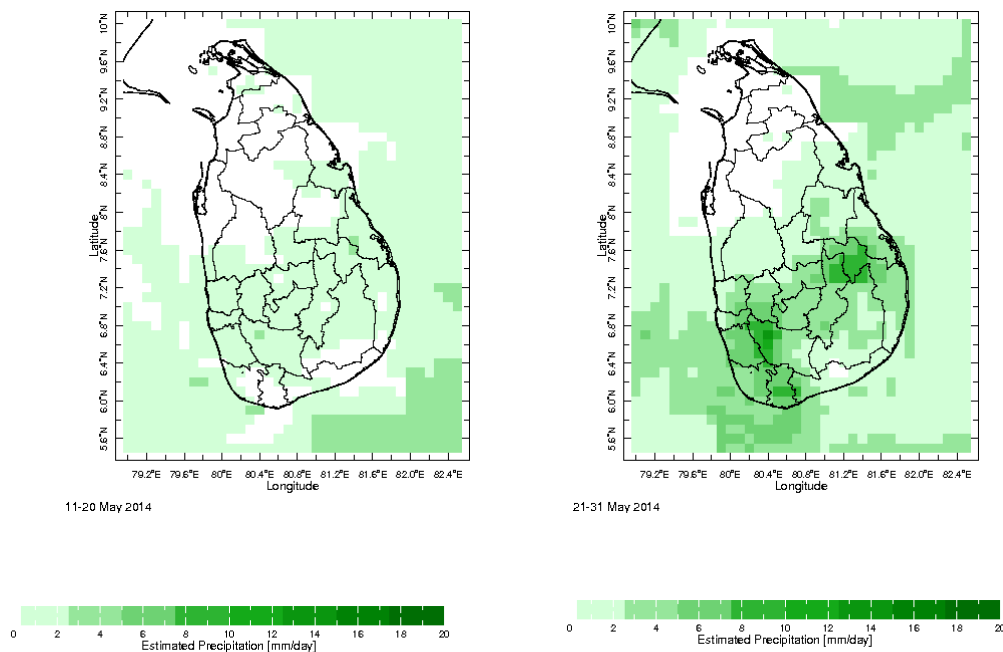
a) Daily Satellite Derived Rainfall Estimate Maps: 27th May-3rd June 2014 (Left-Right, Top-Bottom)



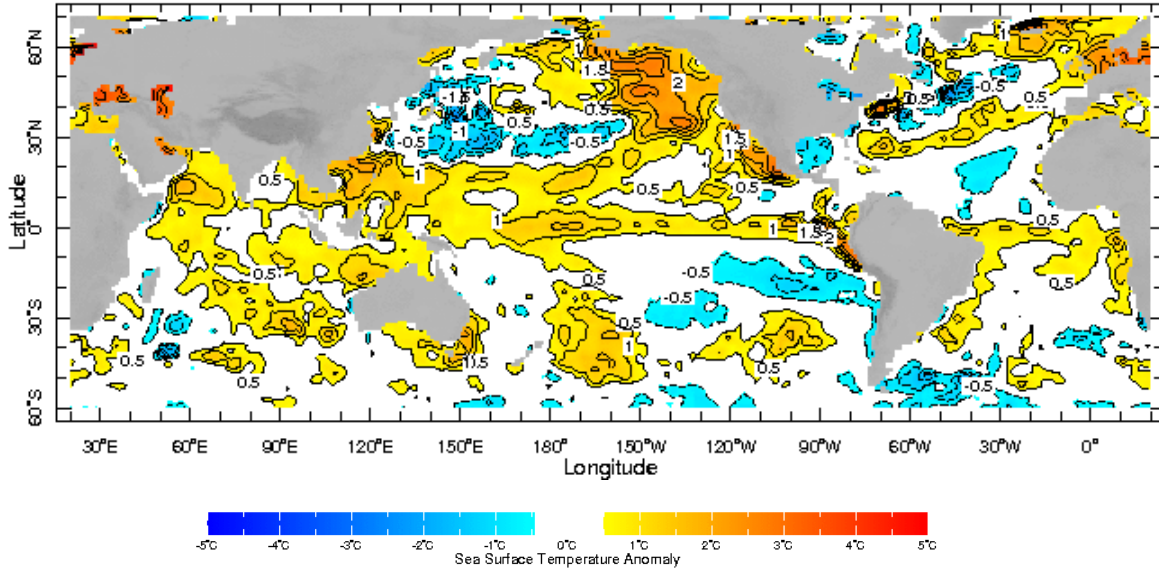
b) Monthly Satellite Derived Rainfall Estimates for May 2014 (Average – Left and Anomaly - Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (11-20 May & 21-31 May, 2014)



d) Weekly Average SST Anomalies



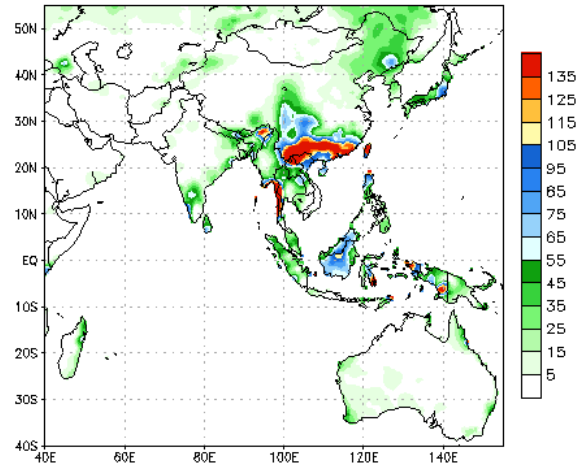
Weekly Average SST Anomalies ($^{\circ}$ C), 25th-31st May, 2014

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

2. Predictions

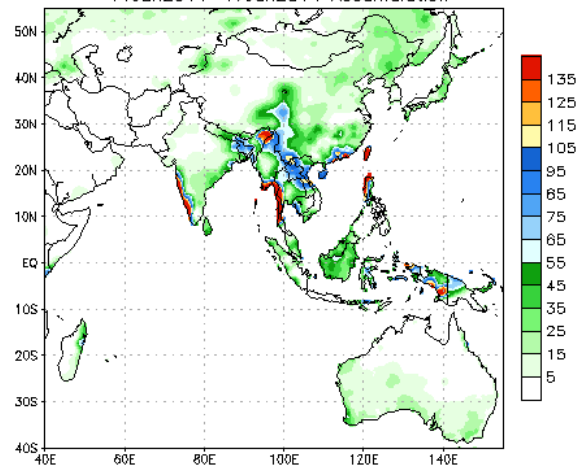
a) NCEP GFS Ensemble 1-14 day predictions, NOAA, Climate Prediction Centre, USA.

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 04Jun2014
04Jun2014-10Jun2014 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 04Jun2014
11Jun2014-17Jun2014 Accumulation

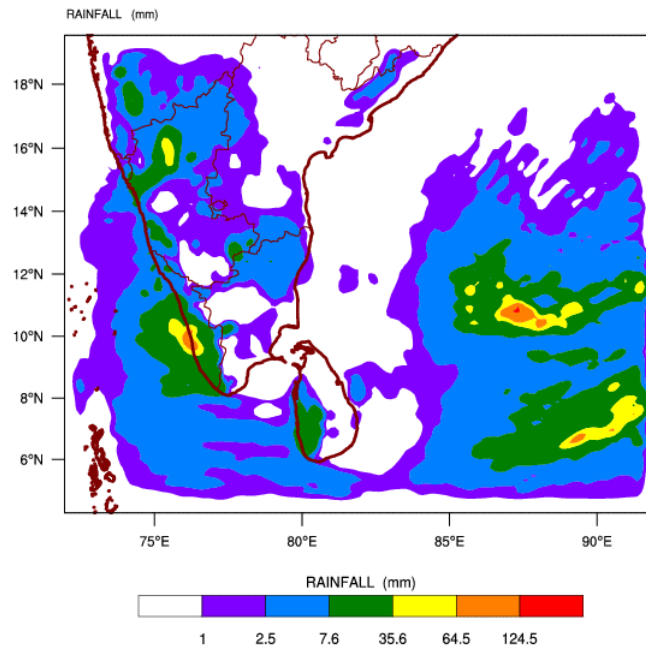


Bias correction based on last 30-day forecast error

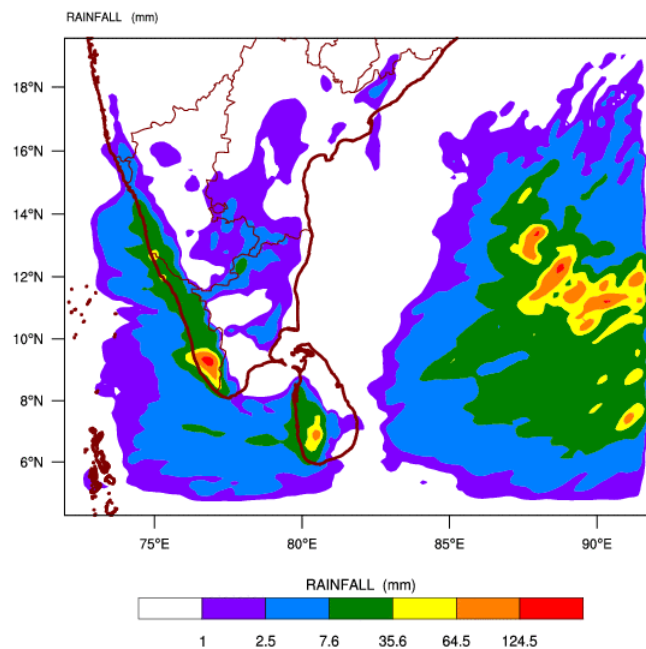
Source – NOAA Climate Prediction Center

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

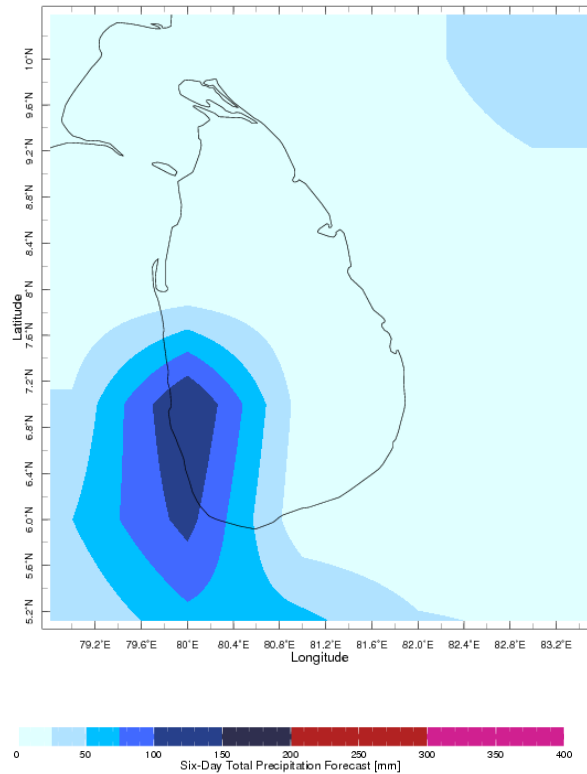
WRF MODEL FORECAST (24 HR.) RAINFALL(mm)
based on 00 UTC of 05-06-2014 valid for 03 UTC of 06-06-2014



WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 05-06-2014 valid for 03 UTC of 07-06-2014

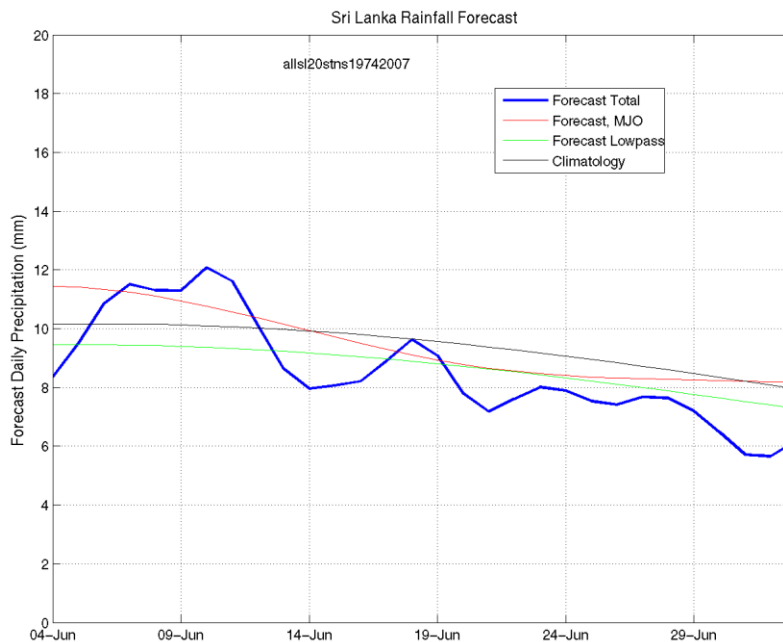


c) Weekly Precipitation Forecast for 4th-9th June 2014 (Precipitation Forecast in Context Map Tool, IRI)



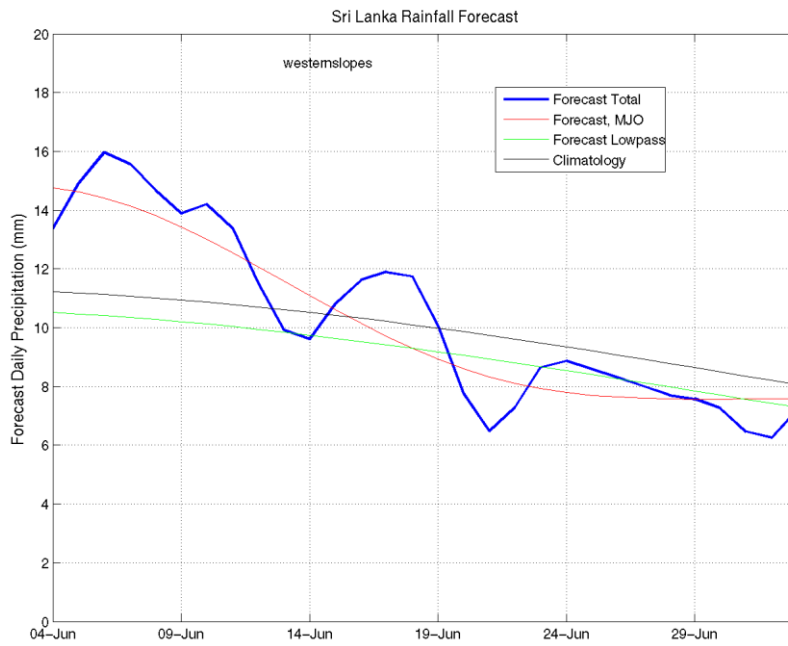
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 5th May, 2014

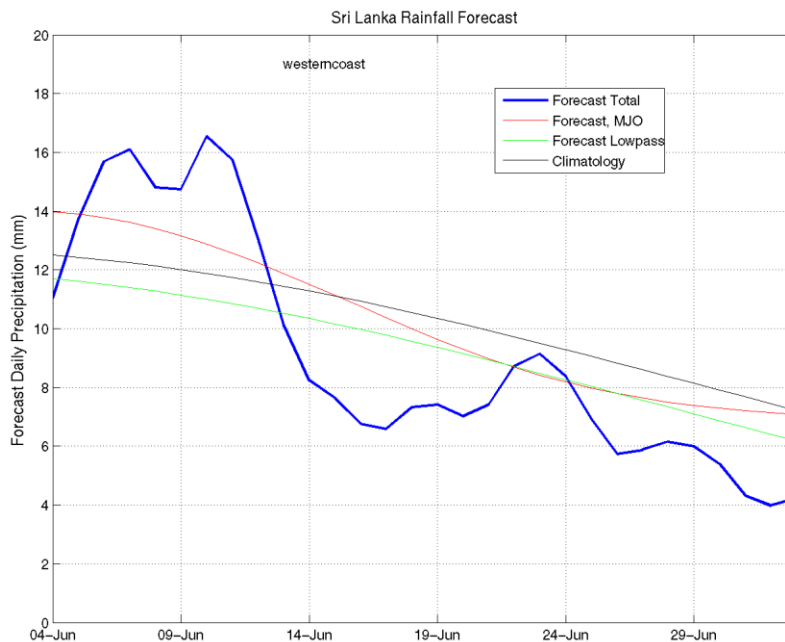


All Sri Lanka (Rainfall Scale from 0-20 mm/day)

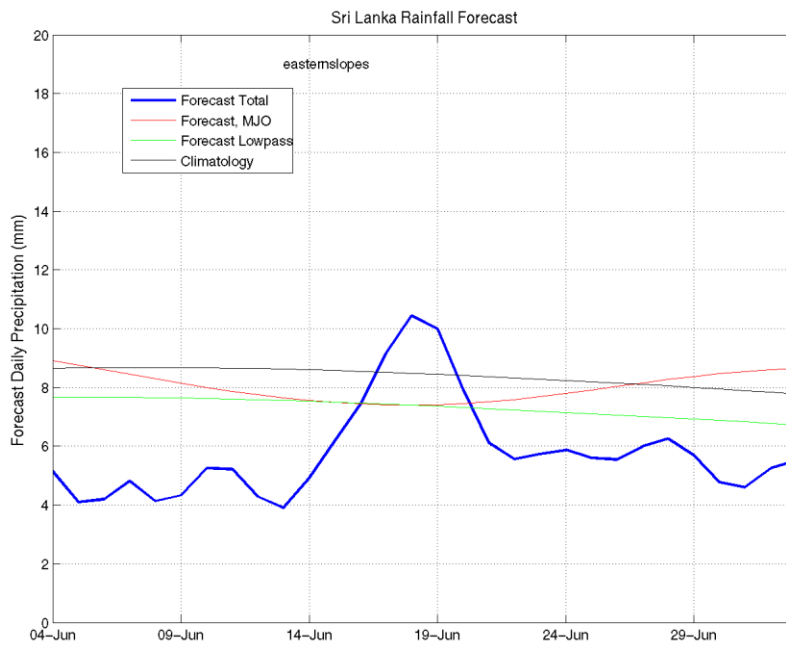
Western Slopes (Rainfall Scale from 0-20 mm/day)



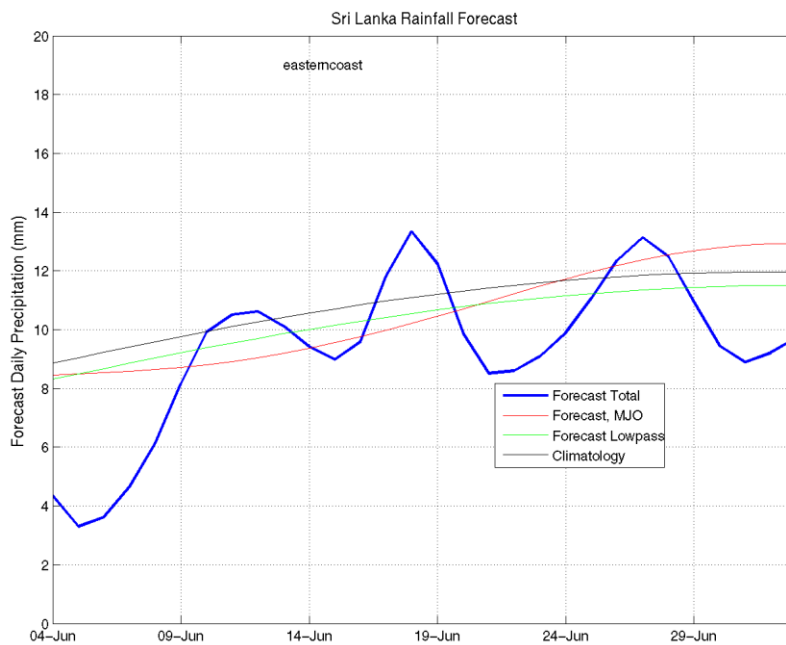
Western Coast (Rainfall Scale from 0-20 mm/day)



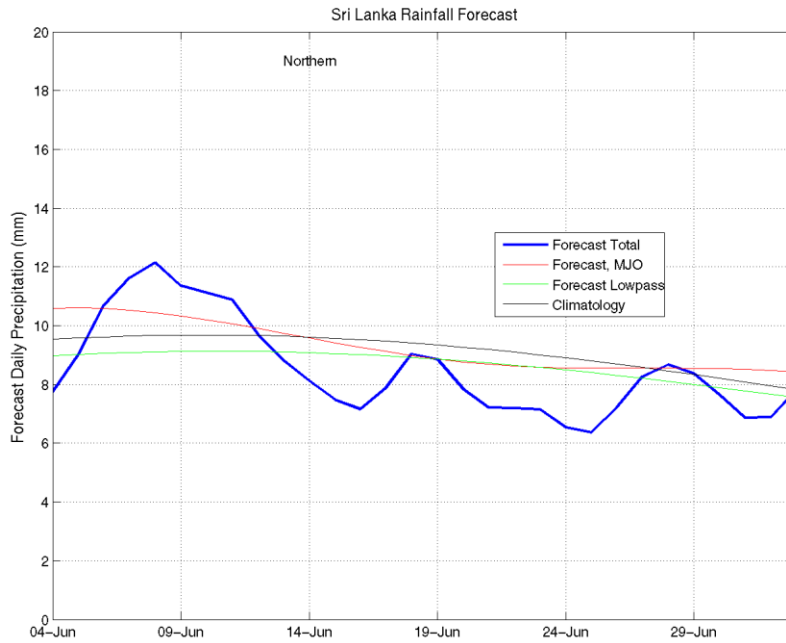
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



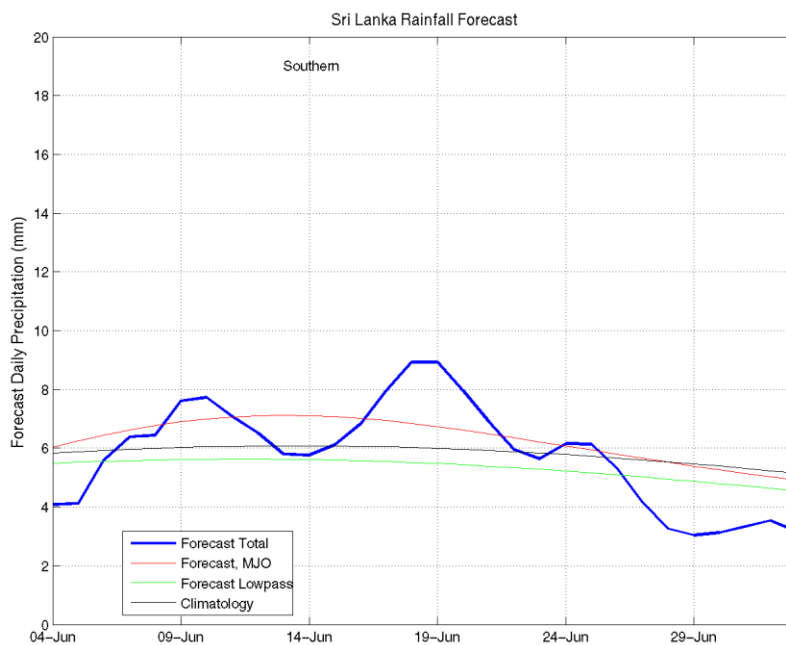
Eastern Coast (Rainfall Scale- from 0-20 mm/day)



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

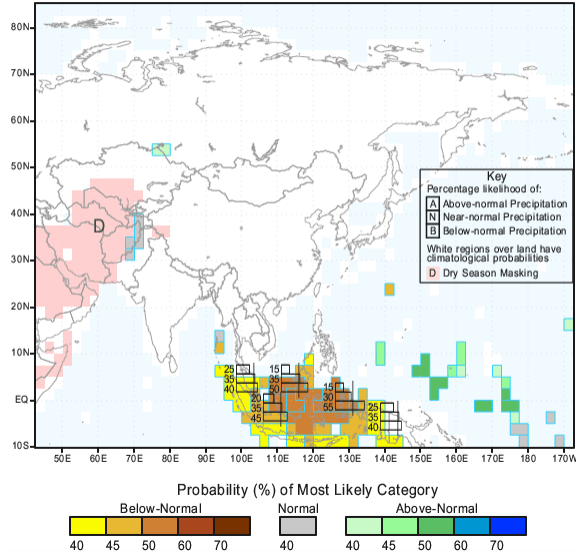


Southern Region (Rainfall Scale- from 0-20 mm/day)



e) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for June-July-August 2014, Issued May 2014



IRI Multi-Model Probability Forecast for Temperature
for June-July-August 2014, Issued May 2014

