

Experimental Climate Monitoring and Prediction

(Prepared for the Water Management Secretariat of the Mahaweli Authority)

by: Madhura Weerasekera, Sewwandhi Chandrasekara, Sanjaya Ratnayake, Zeenas Yahiya,
Lareef Zubair and Michael Bell (FECT and IRI¹)

14 June 2012

FECT BLOG

Past reports available at
<http://fectsl.blogspot.com/>

and

<http://fectsl.wordpress.com/>

FECT WEBSITE

<http://www.climate.lk>

and

<http://www.tropicalclimate.org/>

ENSO Update

7 June 2012

Slightly more than half of the ENSO prediction models predict El Nino conditions developing around the July-September season, continuing through the rest of 2012. However 40-45% of the models indicate persistence of ENSO neutral conditions. Currently, no models indicate a re-emergence of La Nina conditions.

(IRI)

Summary² Monitoring

Weekly Monitoring: During last week (05th - 12th June) rainfall ranged between 5 mm - 40 mm. On the 06th and from 09th-12th June, rainfall was observed for the entire country. However on the remaining days scattered rainfall was observed in a few places around the country especially for the Southwestern regions of Sri Lanka.

Monthly Monitoring: During the month of May some part of Galle, Matara, Ratnapura and Hambantota districts experienced above average rainfall but the surplus is below 30 mm. Below average rainfall was experienced in the rest of the country.

Predictions

7 Day Prediction: For the coming week, an accumulated rainfall of 5 mm - 55 mm is predicted for the entire island.

IMD WRF Model Forecast & IRI forecast: WRF Model Predicts 1 mm-65 mm rainfall particularly for the coastal belt between Gampaha to Galle districts for the 15th of June. For the same day inner coastal parts of Jaffna to Hambantota including Kurunegala and Ratnapura; and parts of Ampara shall receive rainfall less than 35 mm, 1 mm-8 mm and 1 mm-2.5 mm respectively. WRF Model Predicts, for the Coastal belt between halves of Puttalam to Kalutara districts 1 mm-125 mm of rainfall on the 16th and it shall spread towards the eastern parts in a diminishing pattern, but the eastern half of Sri Lanka shall not experience rainfall. IRI models forecast predicts up to 50 mm of rainfall for the entire island.

1 Month Prediction: Overall a rapid increase of rainfall shall be observed during the period of 14th-16th of June. Then it shall decrease gradually till the 30th June with minor fluctuation during 23rd-26th June. There onwards it shall increase gradually. *Western slopes-* Nearly the same pattern shall be expected but with increased rainfall. However during 16th-30th June rainfall shall decrease gradually, with minor fluctuations during 18th-20th and 23rd-26th June. Thereafter it shall increase gradually. *Eastern slopes-* Rainfall shall increase during 14th-16th and shall decrease gradually till 28th June with minor fluctuations during 18th-20th, 24th-26th and reach minimum predicted daily rainfall of 2 mm. Then a rapid increase shall be experienced and wet conditions shall be expected towards the end of the month. *Northern region-* Rainfall shall increase during 14th-16th June. Rainfall shall decrease with a same rate as previous till 19th and further, rainfall shall decrease gradually till 26th. Thereafter rainfall shall increase gradually with minor fluctuations during 28th-30th June and 3rd-6th July.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for June 2012 to August 2012, issued in May 2012, there is a 45%-50% probability for temperature to be above normal for the country. There is 40% probability for rainfall 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, NOAA, CPC,USA
- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

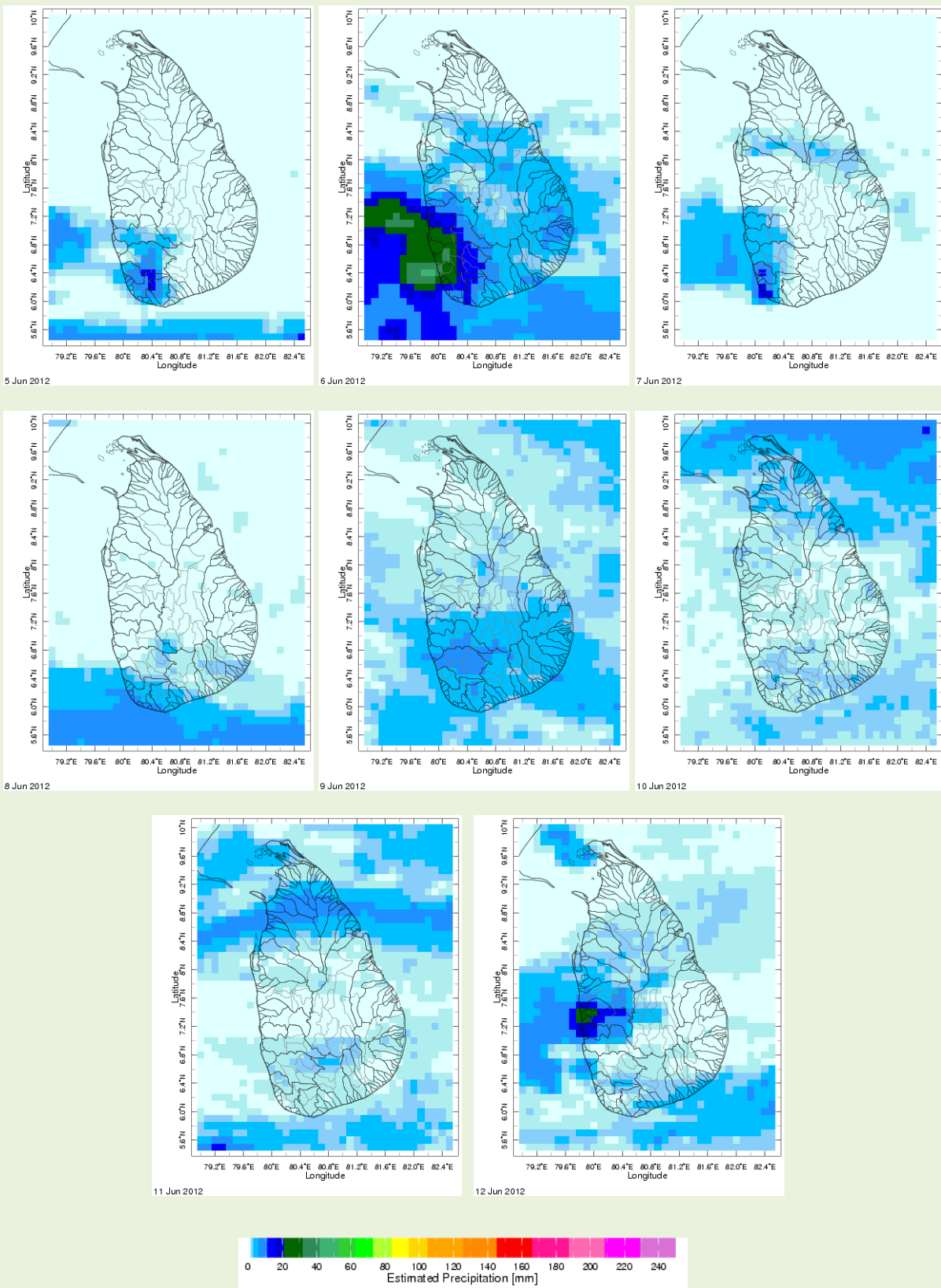
International Research Institute for Climate and Society.

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

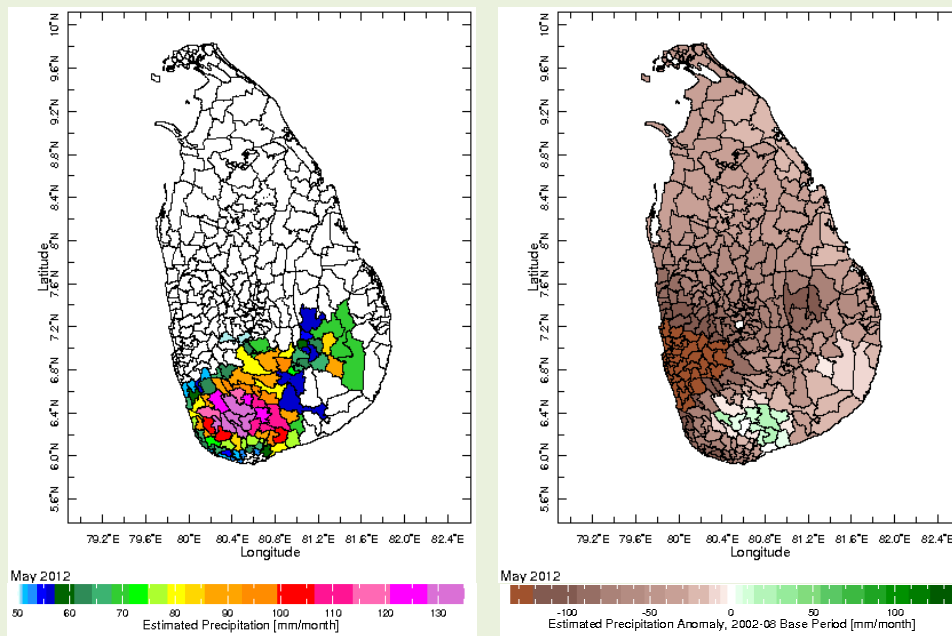
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

1. Monitoring

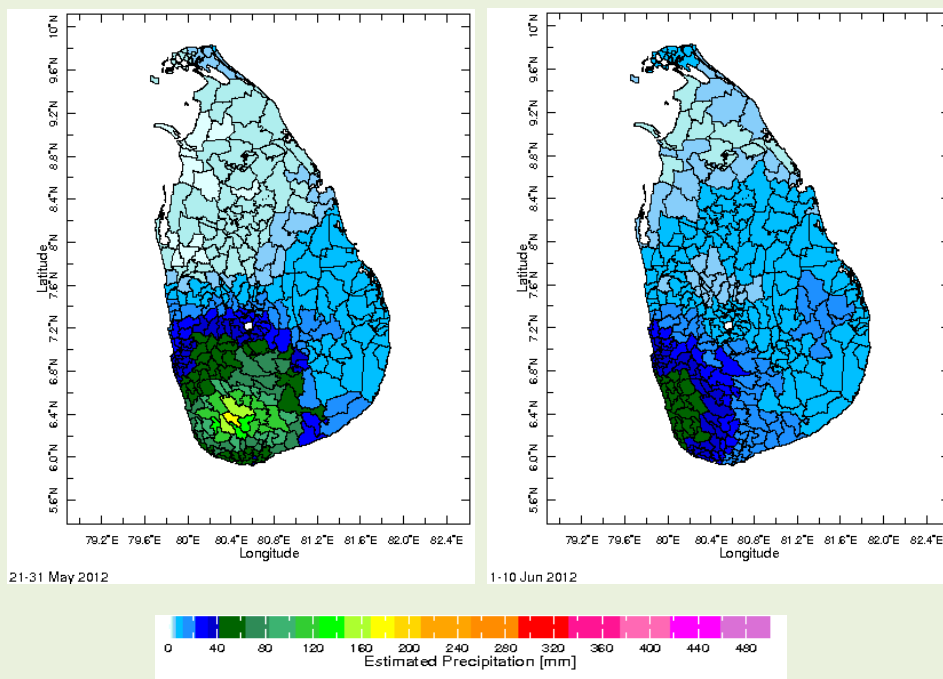
a) Daily Satellite Derived Rainfall Estimate Maps: 05th–12th June, 2012 (Left-Right, Top-Bottom)



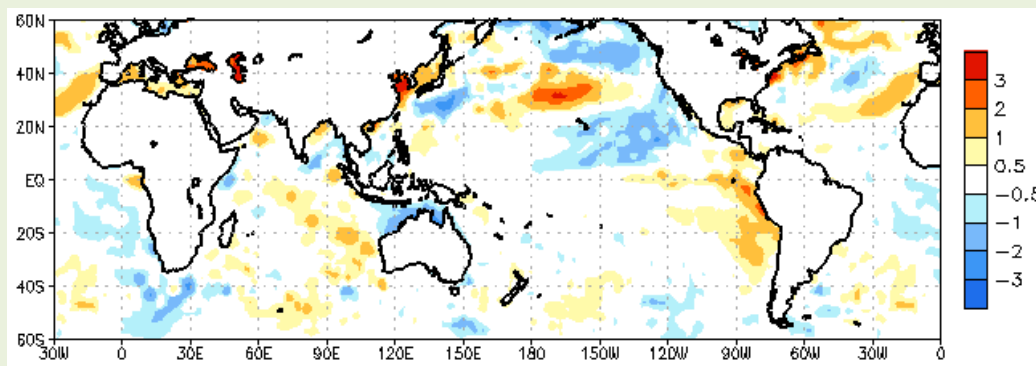
b) Monthly Satellite Derived Rain fall Estimates for May 2012 (Total – Left and Anomaly -Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 May & 01-10 June, 2012)



d) Weekly Average SST Anomalies

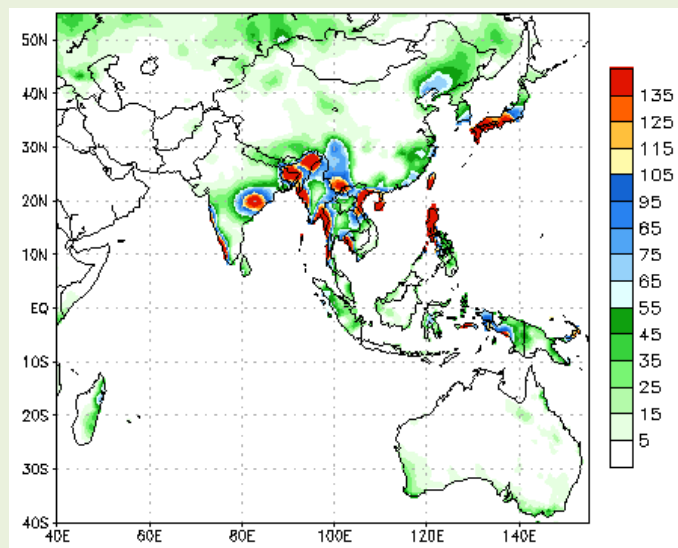


Weekly Average SST Anomalies ($^{\circ}\text{C}$), 06th June, 2012

Data Source: NCEP Global Sea Surface Temperature Analysis (Climatology 1981-2010)

2. Predictions

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



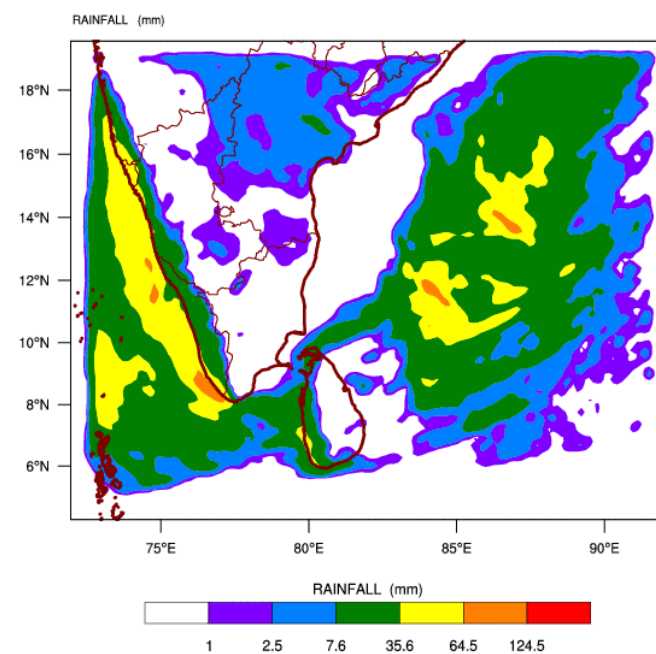
During next week, an accumulated rainfall of 5 mm - 55 mm is predicted for the entire island.

Source – NOAA Climate Prediction Center

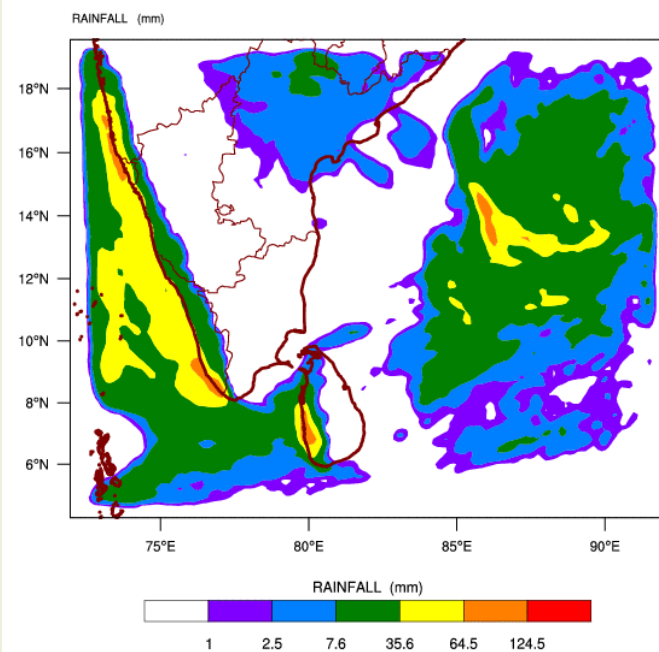
Map: Predicted accumulation of rainfall. (13th – 19th June, 2012 week)

b) WRF Model Forecast (Regional Meteorological Center, Chennai, Indian Meteorological Department)

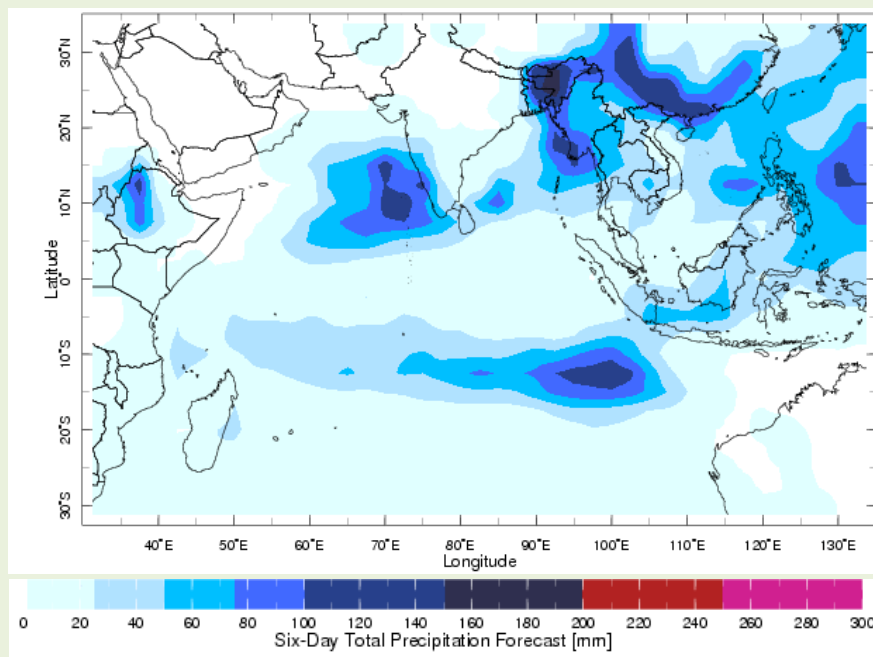
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 13-06-2012 valid for 03 UTC of 15-06-2012



WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 13-06-2012 valid for 03 UTC of 16-06-2012



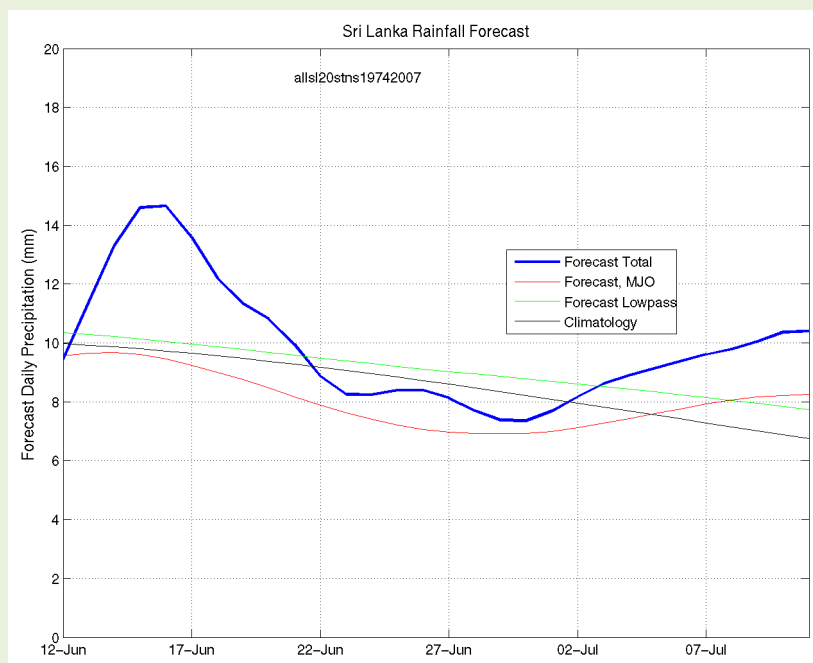
c) Weekly Precipitation Forecast for 12 -17 June 2012 (Precipitation Forecast in Context Map Tool, IRI)



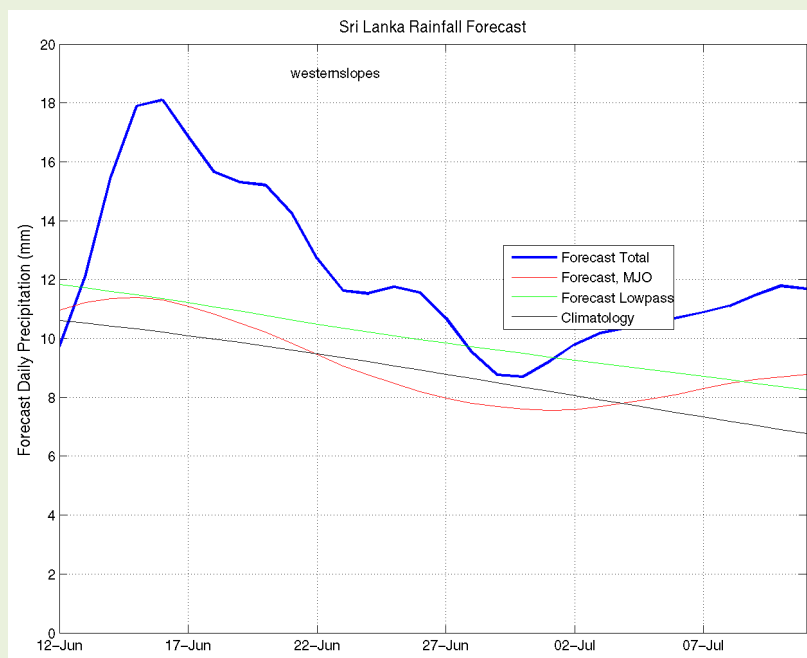
d) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 14th June, 2012

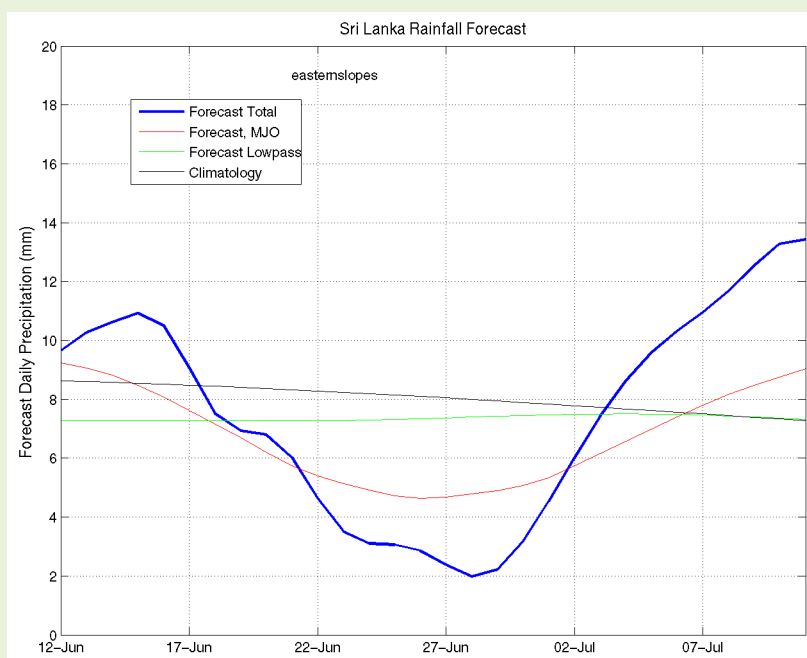
All Sri Lanka (Rainfall Scale from 0-20 mm/day)



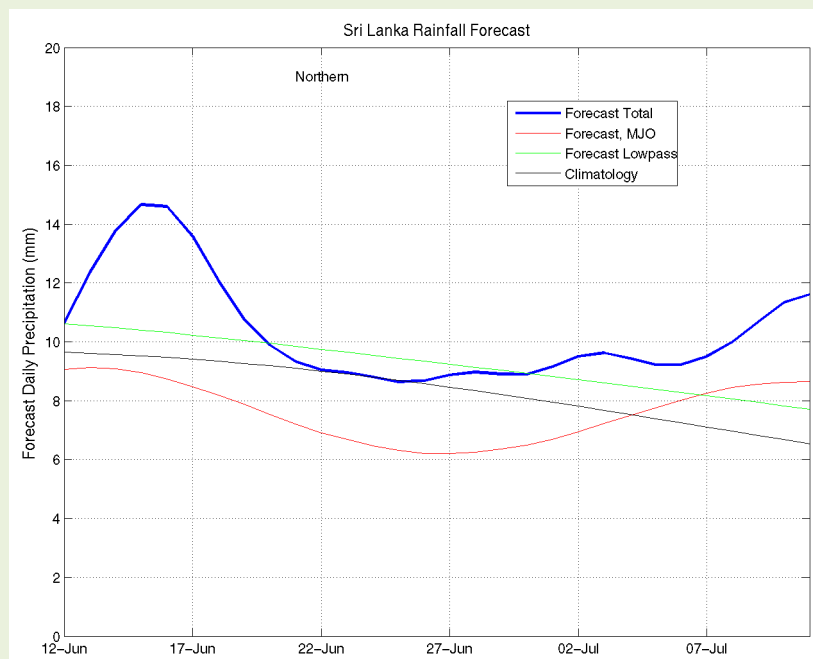
Western Slopes (Rainfall Scale from 0-20 mm/day)



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



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



e) Seasonal Rainfall and Temperature Predictions from IRI

