

Experimental Climate Monitoring and Prediction

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

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Lareef Zubair and Michael Bell (FECT and IRI¹)

21 September 2012

FECT BLOG

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

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

FECT WEBSITES

<http://www.climate.lk>

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

ENSO Update

20 September 2012

More than 80% of the ENSO prediction models predict El Nino SST conditions during the September- November season, continuing into Northern winter 2012-13. Among those predicting El Nino, very few predict more than a weak event.
(IRI)

Summary² Monitoring

Weekly Monitoring: During the last week (12th- 17th September) rainfall ranged between 0 mm- 30 mm. Maximum rainfall of 30 mm observed on 14th & 15th for scattered places of Southern, Western & Southwestern regions of Sri Lanka. Southern half of the island received heavy rainfall on 15th & 16th. Scattered rainfall observed during 15th- 17th for Jaffna peninsula & North-Eastern regions of the country.

Monthly Monitoring: During August South Western, Western and Some regions of Badulla and Ampara districts experienced an above average rainfall with quite high positive anomaly in the South Western region. The rest of the country experienced below average rainfall during this period.

Predictions

7-day prediction: During this week, an accumulated rainfall of 25 mm – 95 mm is predicted for the South, Western and Southwestern regions of the island.

IMD WRF Model Forecast & IRI forecast: On the 20th IMD WRF model predicts less than 65 mm rainfall for Colombo, 2.5-36 mm rainfall for South-Western regions, 2.5- 8 mm rainfall for the South coast and 2.5- 36 mm rainfall for the West. Rainfall shall have the same pattern on the following day (21st) with increased (35- 65 mm) rainfall for South-Western regions of the country. NOAA models forecast Predicts 20- 50 mm rainfall for Northern, North-Central and North Eastern parts of the country. Rest of the parts shall receive less than 20 mm of rainfall.

1 Month Prediction: Overall- During 22nd-24th rainfall shall show slight increase & shall decrease with same rate. For 24th-26th rainfall is not predicted. Thereon it shall increase gradually but it shall show falls during 28th-29th September, 5th-7th & 13th-18th October. **Western Slopes-** Rainfall shall increase with different rates during 22nd-28th. Until 13th of October, rainfall shall remain around 5 mm with some fluctuations. Rainfall shall further decrease till 15th & shall increase thereafter. **Eastern slopes-** Until 1st of October, rainfall is only expected on 22nd- 25th. Rainfall shall increase during 30th September-3rd October & it shall decrease till 7th October with same rate. Thereafter it shall increase till 13th & shall gradually decrease thereon. **Northern-** During 22nd-24th rainfall shall show slight increase & shall decrease with same rate. Rainfall is not predicted for the period of 29th September-1st October. Thereon it shall increase with minor fluctuations till 13th October. Thereafter rainfall shall decrease gradually.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for September 2012 to November 2012, issued in August 2012, 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

- IMD WRF Model Forecast
- Weekly precipitation forecast (IRI)
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

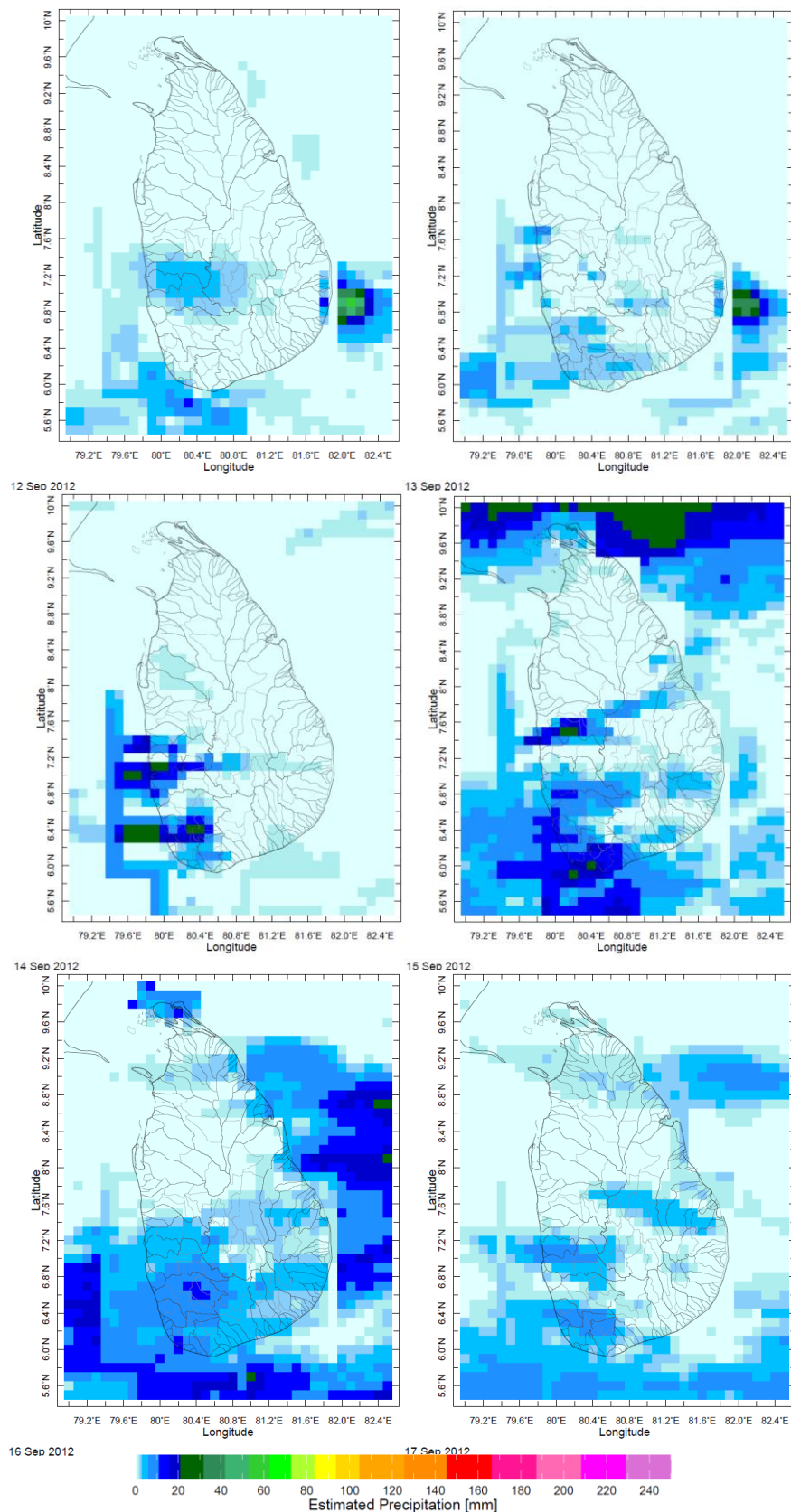
¹ International Research Institute for Climate and Society.

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

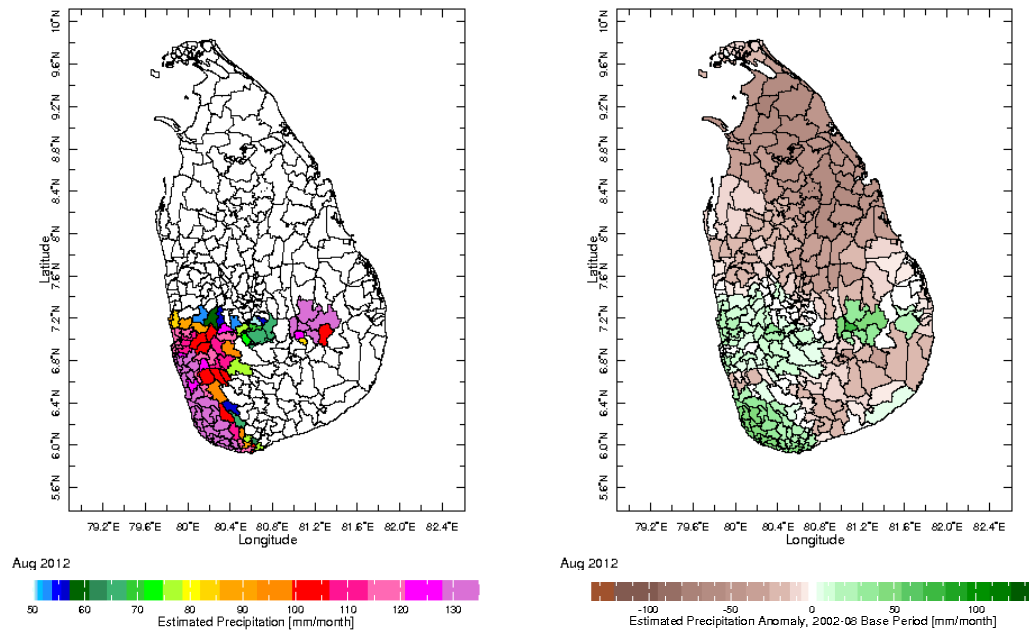
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

1. Monitoring

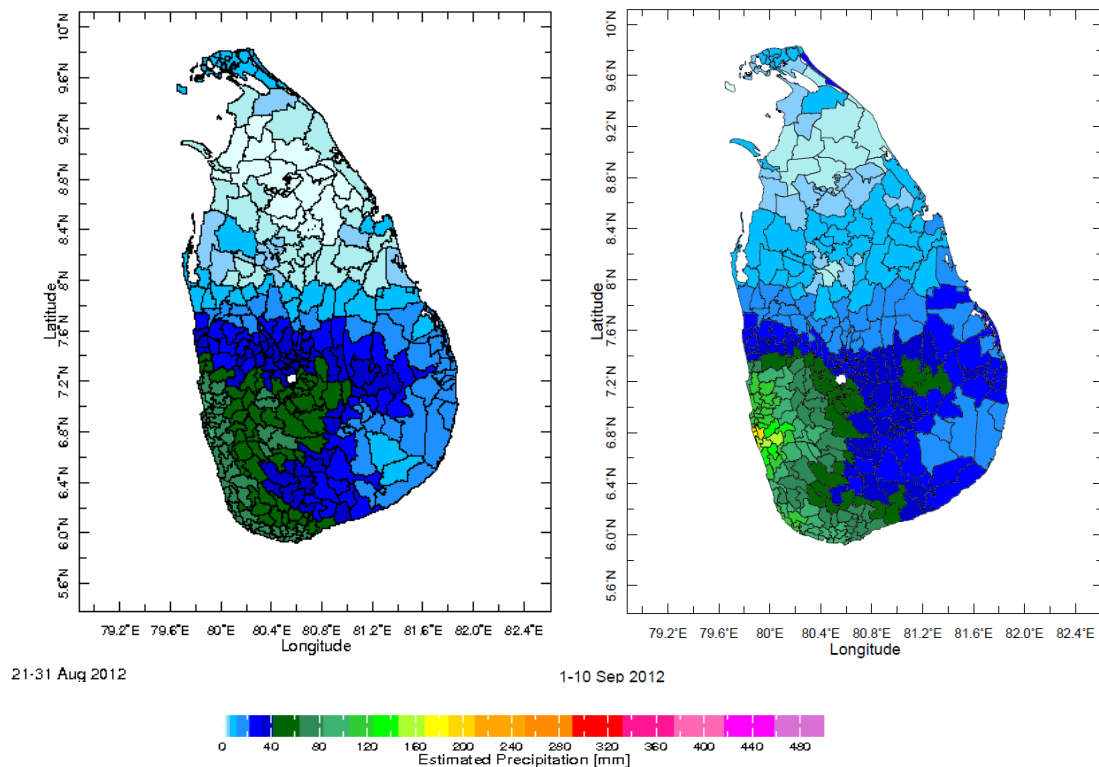
a) Daily Satellite Derived Rainfall Estimate Maps: 12th - 17th September, 2012 (Left-Right, Top-Bottom)



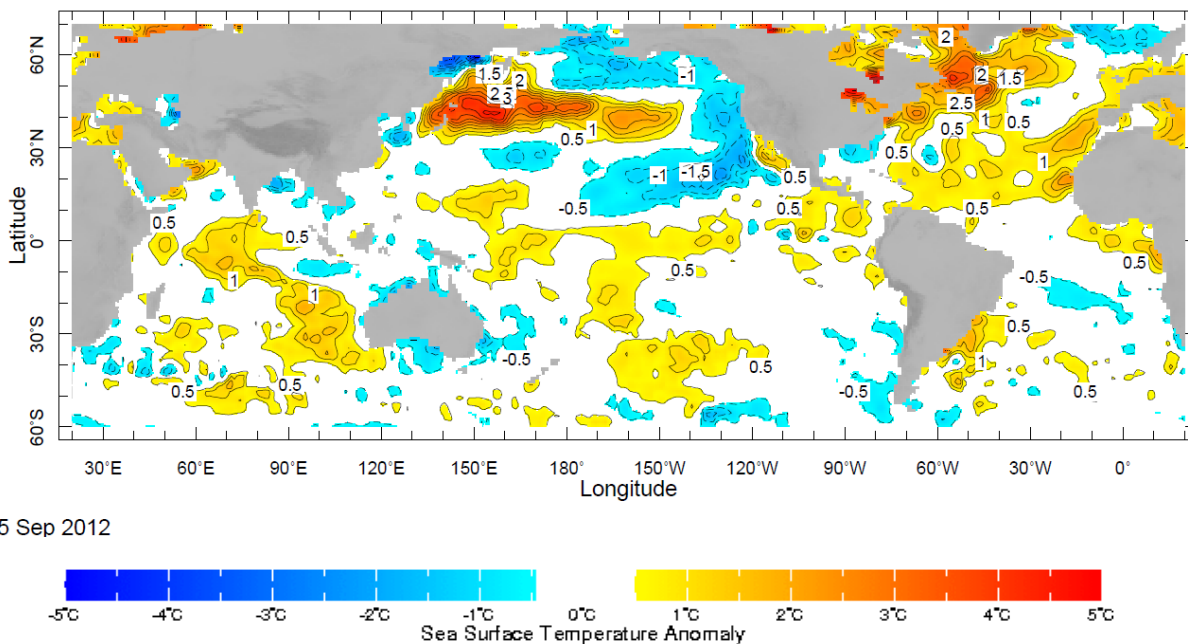
b) Monthly Satellite Derived Rainfall Estimates for August 2012 (Total – Left and Anomaly -Right)



c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 August & 1-10 September, 2012)



d) Weekly Average SST Anomalies



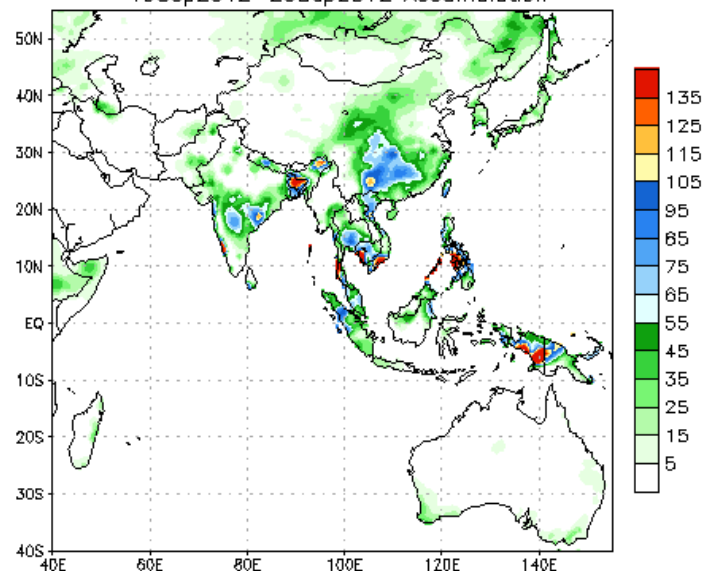
Weekly Average SST Anomalies ($^{\circ}\text{C}$), 09th Sept- 15th Sept, 2012

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

2. Predictions

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

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 19Sep2012
19Sep2012-25Sep2012 Accumulation



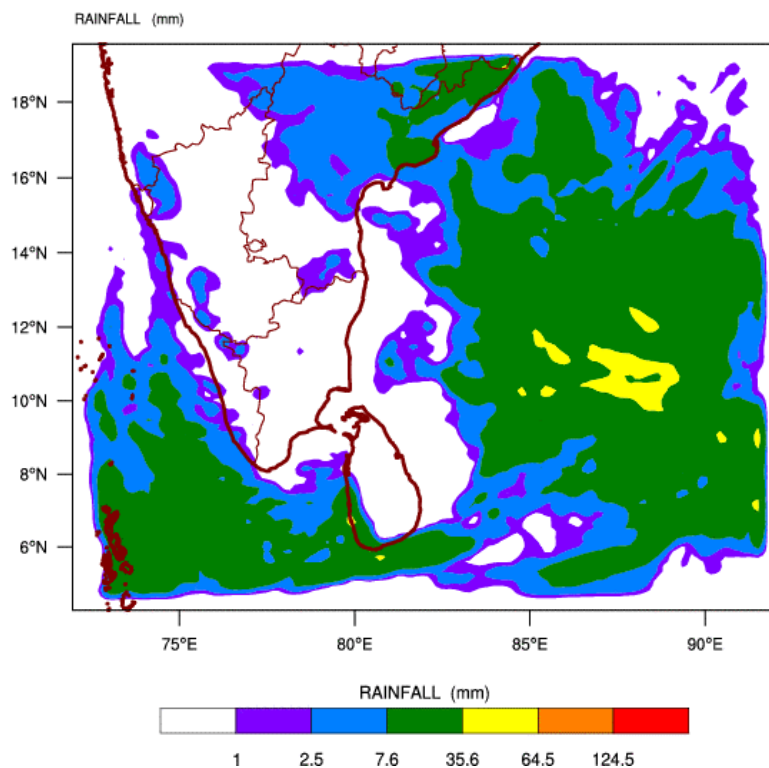
Bias correction based on last 30-day forecast error

Source – NOAA Climate Prediction Center

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

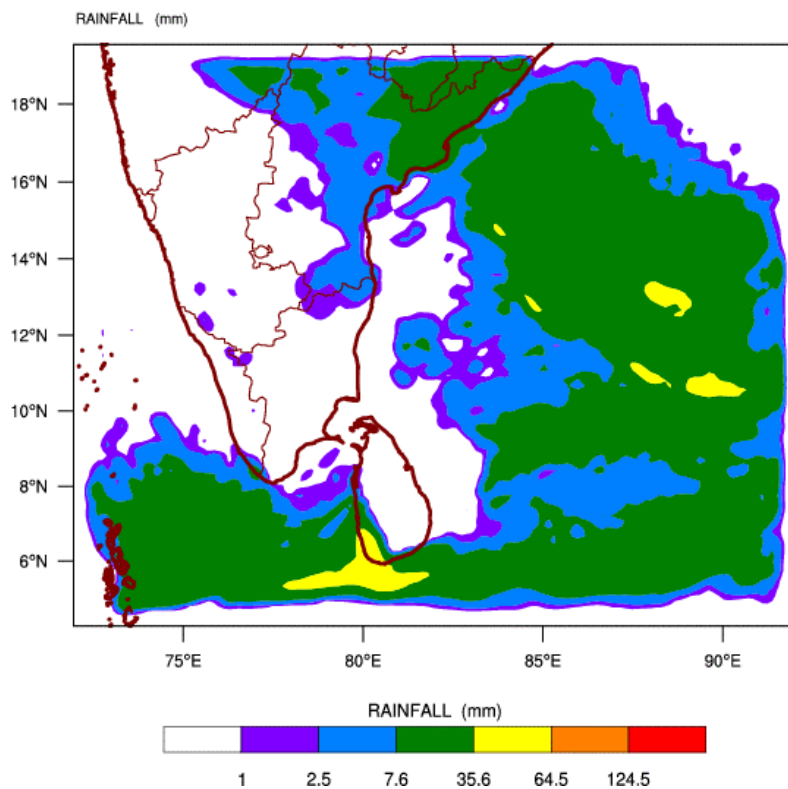
WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\

based on 00 UTC of 18-09-2012 valid for 03 UTC of 20-09-2012

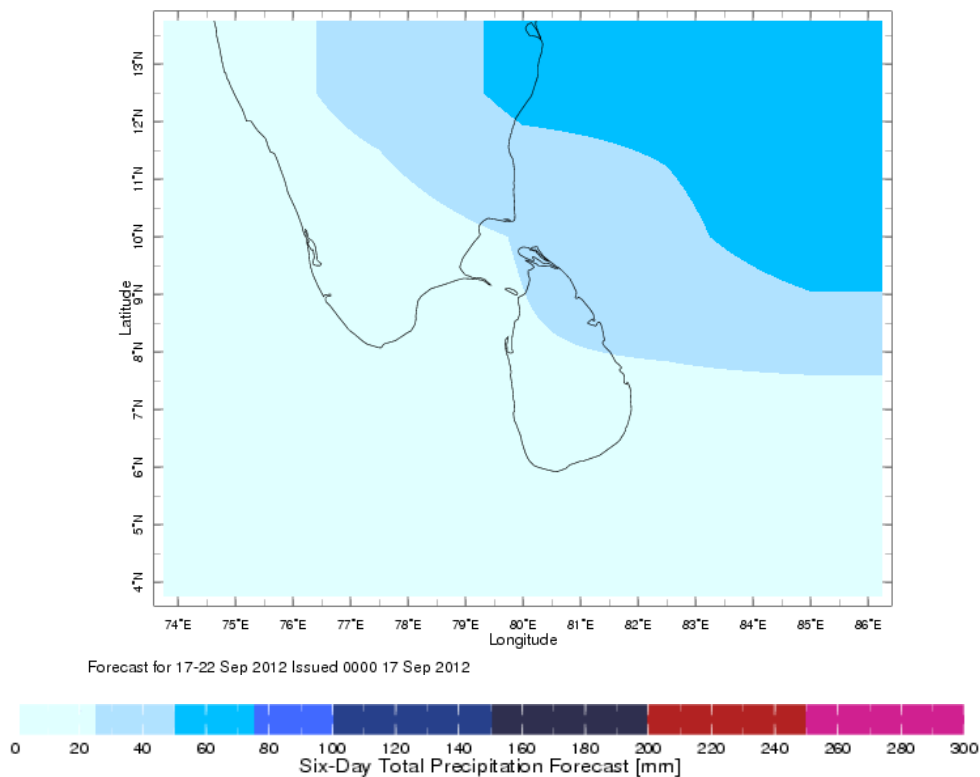


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\

based on 00 UTC of 18-09-2012 valid for 03 UTC of 21-09-2012



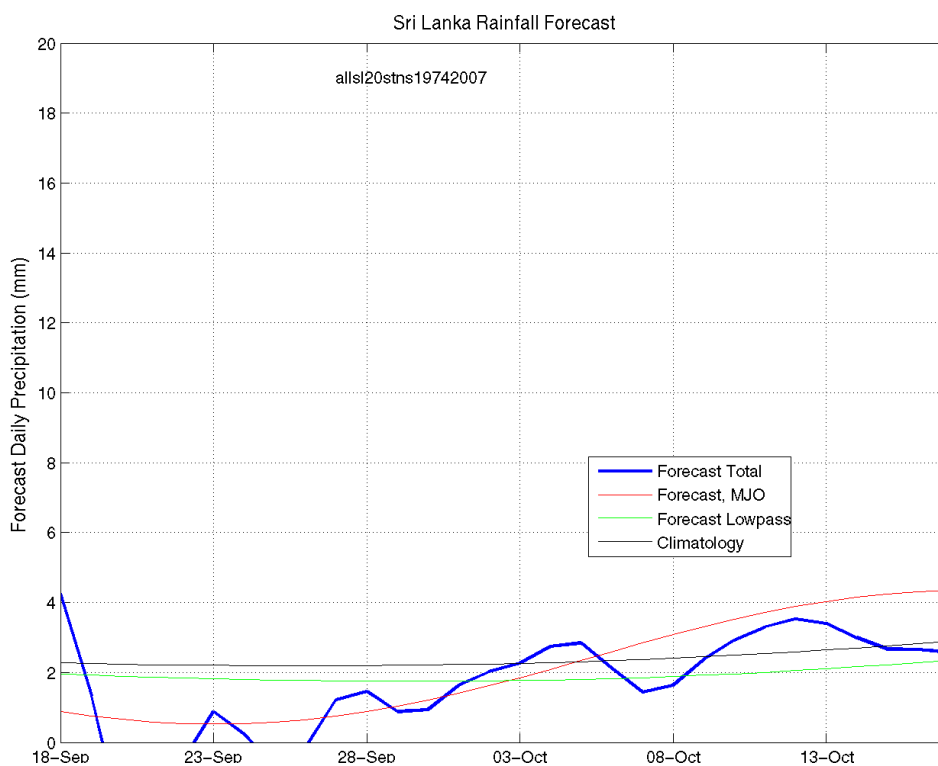
b) Weekly Precipitation Forecast for 17th - 22nd Sept 2012 (Precipitation Forecast in Context Map Tool, IRI)



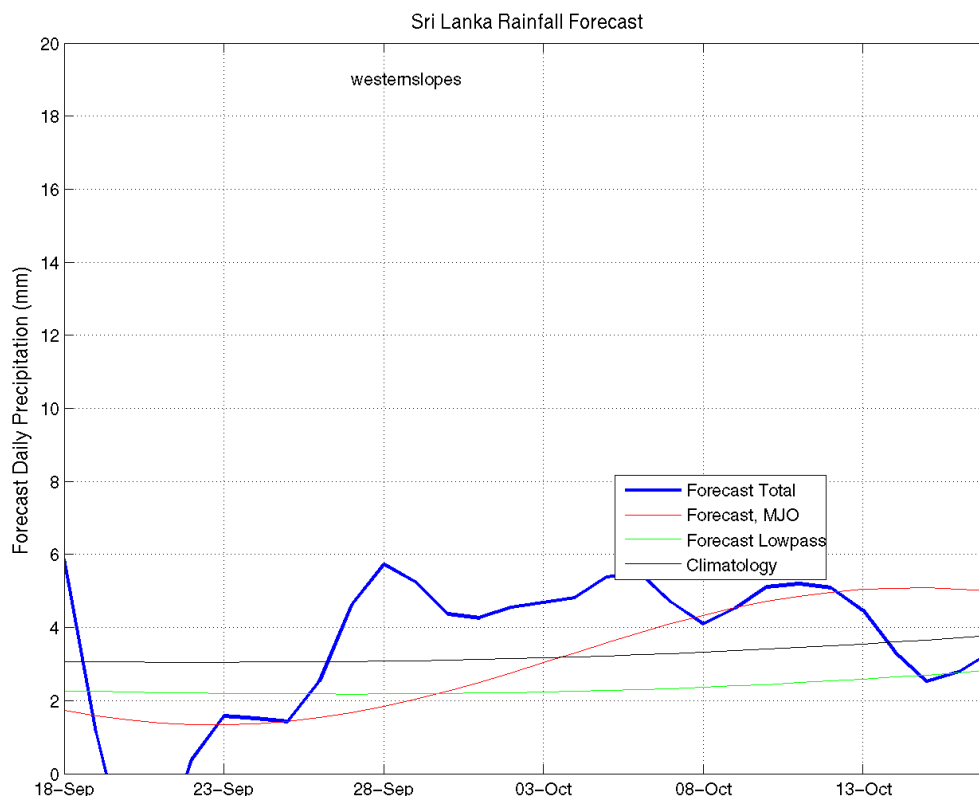
c) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 20th Sept, 2012

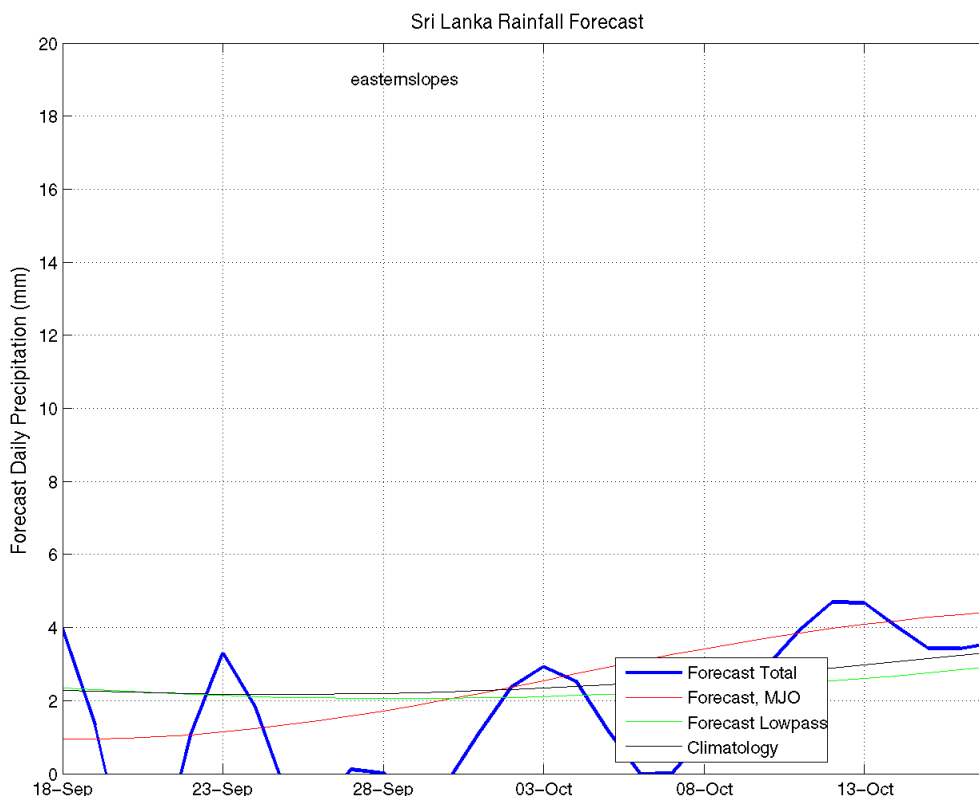
All Sri Lanka (Rainfall Scale from 0-20mm/day)



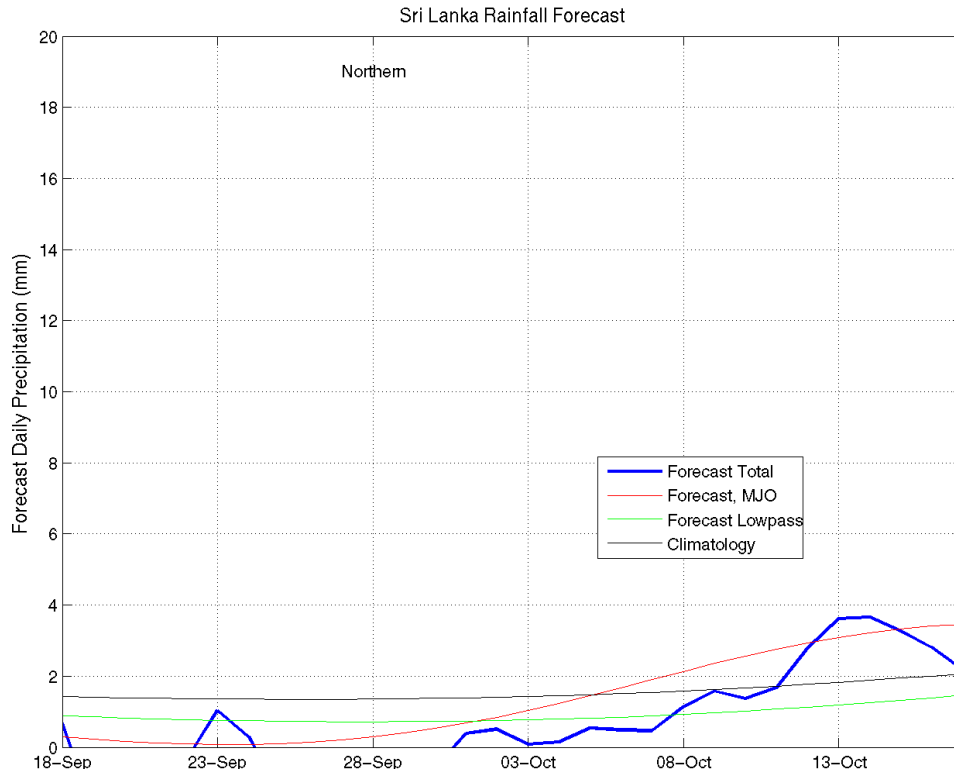
Western Slopes (Rainfall Scale from 0-20 mm/day)



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

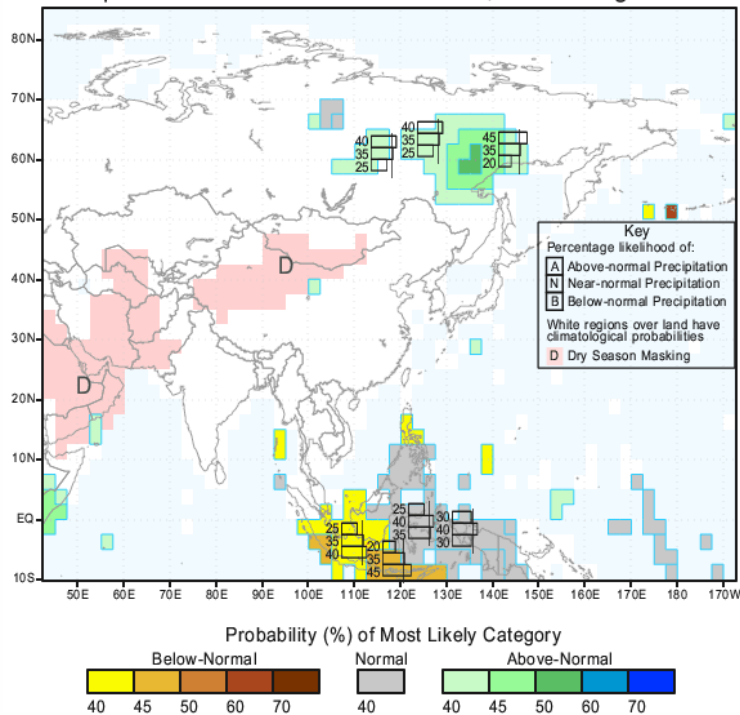


Northern Region (Rainfall Scale- from 0-20 mm/day)



d) Seasonal Rainfall and Temperature Predictions from IRI

IRI Multi-Model Probability Forecast for Precipitation
for September-October-November 2012, Issued August 2012



d) Seasonal Rainfall and Temperature Predictions from IRI Cntd...

IRI Multi-Model Probability Forecast for Temperature
for September-October-November 2012, Issued August 2012

