

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)

6 December 2012

FECT BLOG

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

FECT WEBSITES

<http://www.climate.lk>
and
<http://www.tropicalclimate.org/>

Pacific Seas State

15 November 2012

Most of the ENSO prediction models predict a warm-neutral ENSO condition for the coming few months, lasting into early 2013. During early November the observed SST conditions have been above average, but in the ENSO-neutral range. The Central Pacific Ocean has a significant warm anomaly which shall have regional and global consequences.
(IRI and FECT)

Indian Ocean State

Very Warm SST persists in the Equatorial Indian Ocean close to Sri Lanka. The pattern is consistent with the El Nino SST pattern in the Pacific and with the positive Indian Ocean Dipole (IOD) Mode. Often the above two phenomenon go together (with a lag of a month) – now it appears that IOD+ phase is strong while El Nino is weakening.

Summary

Monitoring

Weekly Monitoring: 5-165 mm of rainfall was observed during previous week (28th November-3rd December). On 29th of November Southern half of the Sri Lanka received 5-70 mm of rainfall. On 3rd December Northern and North-central regions received higher rainfall compared to rest of the days. However, maximum rainfall of 165 mm was observed for the belt in between Puttalam and Gampaha districts on 3rd December.

Monthly Monitoring: In October, a high positive rainfall anomaly was observed on the entire country. Surplus rainfall upto 150 mm was observed in all parts of the country with the exception of Uva region which received less rainfall than the rest of the country.

Predictions

7-day prediction: During this week, an accumulated rainfall around 5-95 mm is predicted for entire country except for the North-western regions of Sri Lanka.

IMD WRF Model Forecast & IRI forecast: On the 8th of December South-eastern regions shall experience rainfall of 36 mm of rainfall and rainfall shall decrease towards the center of the island. For the same day 36 mm of rainfall is predicted for the Colombo district. On 9th of December 8 mm and 36 mm of rainfall is predicted for the Eastern and Western, South-western regions, respectively. For this week IRI forecast is not available.

1 Month Prediction: Overall- Rainfall shall decrease gradually during 6th-13th December with minor fluctuation during 8th-9th. Rainfall shall increase during 13th-17th & it shall decrease drastically till 20th. **Western Slopes-** Rainfall shall decrease gradually during 6th-13th December. Rainfall shall increase during 13th-17th & it shall decrease drastically till 20th. **Eastern slopes & Northern-** For the eastern slopes rainfall shall decrease drastically during 6-12th and during 12th-15th rainfall shall remain constant. Rainfall shall increase gradually till 18th and shall decrease during 18th-22nd. For the wester slopes rainfall shall increase gradually during 6th-9th and it shall decrease gradually till 13th. Thereafter rainfall shall increase till 17th and it shall decrease drastically during 17th-20th December.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for December 2012 to February 2013, issued in November 2012, there is a 60%-70% probability for temperature to be above normal in the country while the rainfall is to be climatological.

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- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
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2. Predictions

- NCEP GFS Ensemble 1-7 day predictions
- IMD WRF model forecast
- 1 month experimental predictions by Paul Roundy and L. Zubair
- Seasonal Predictions from IRI

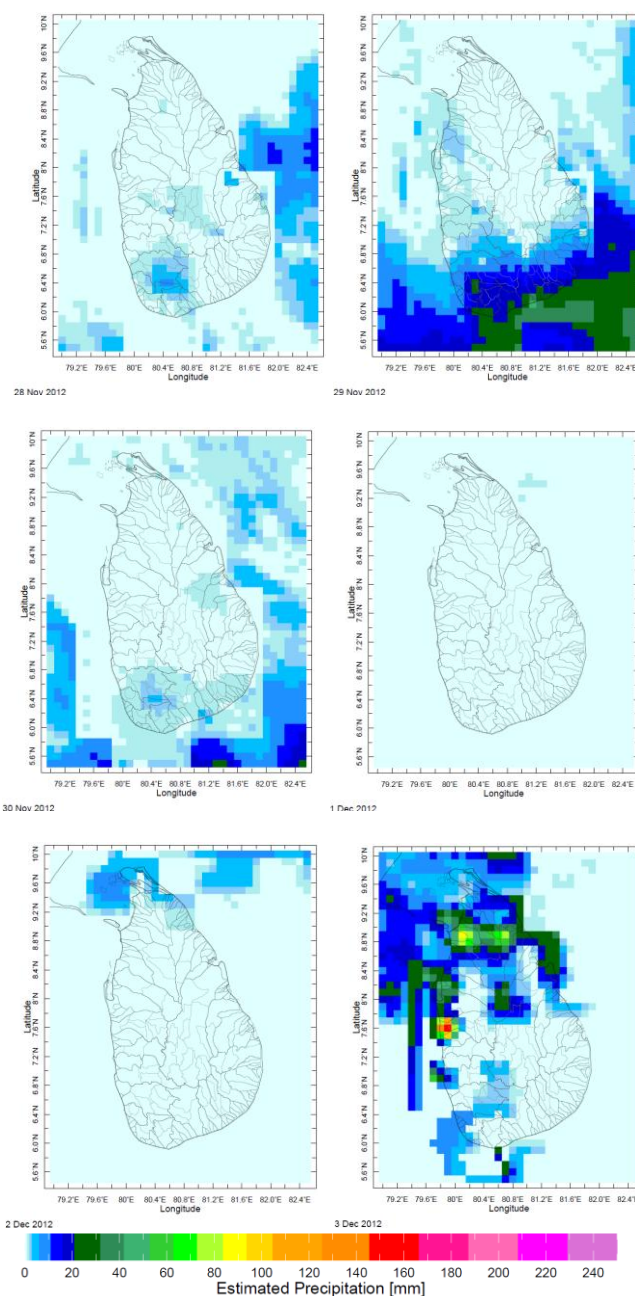
¹ International Research Institute for Climate and Society.

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

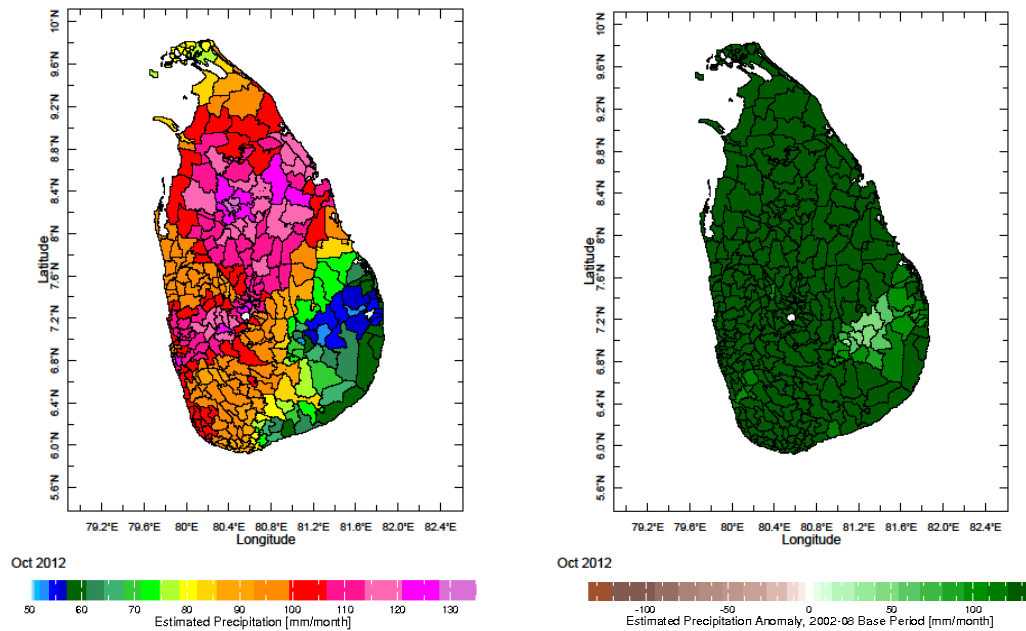
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

1. Monitoring

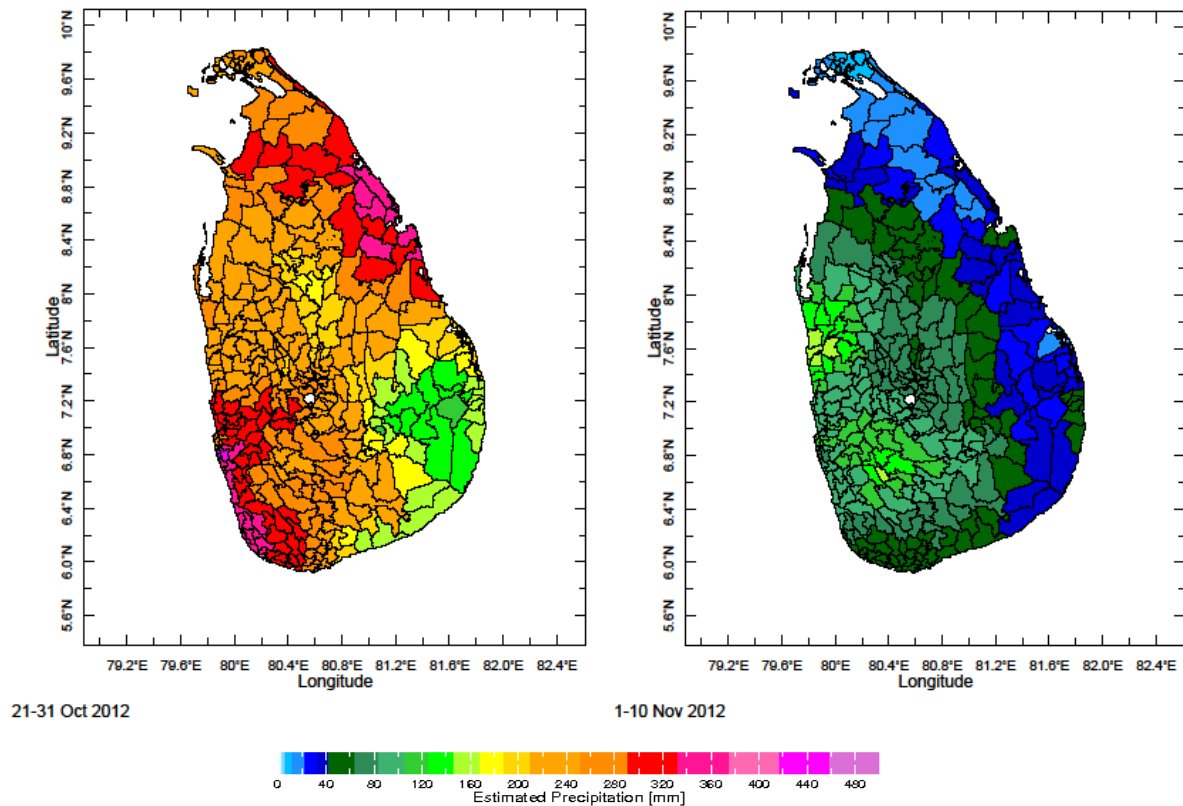
a) Daily Satellite Derived Rainfall Estimate Maps: 28th November - 3rd December, 2012 (Left-Right, Top-Bottom)



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

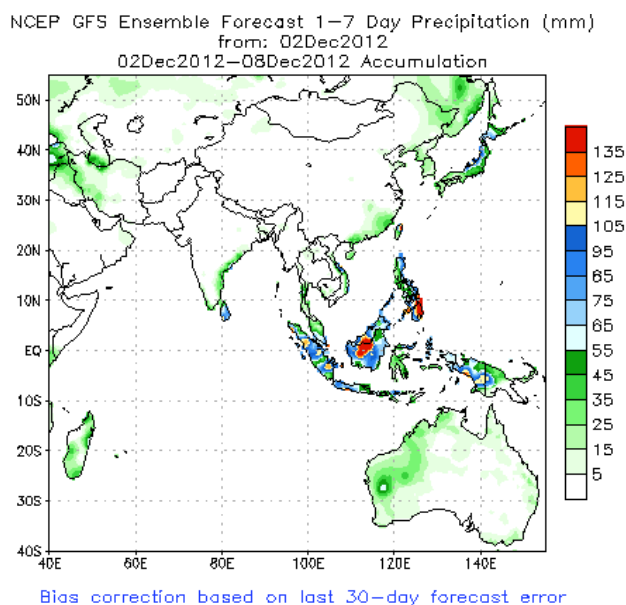


c) Dekadal (10 Day) Satellite Derived Rainfall Estimates (21-31 October & 1-10 November, 2012)



2. Predictions

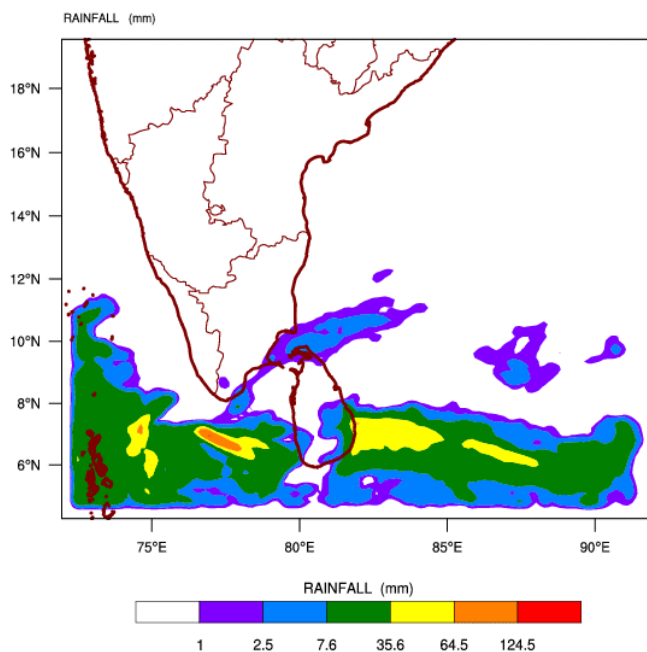
a) NCEP GFS Ensemble 1-7 day predictions, NOAA, Climate Prediction Centre, USA.



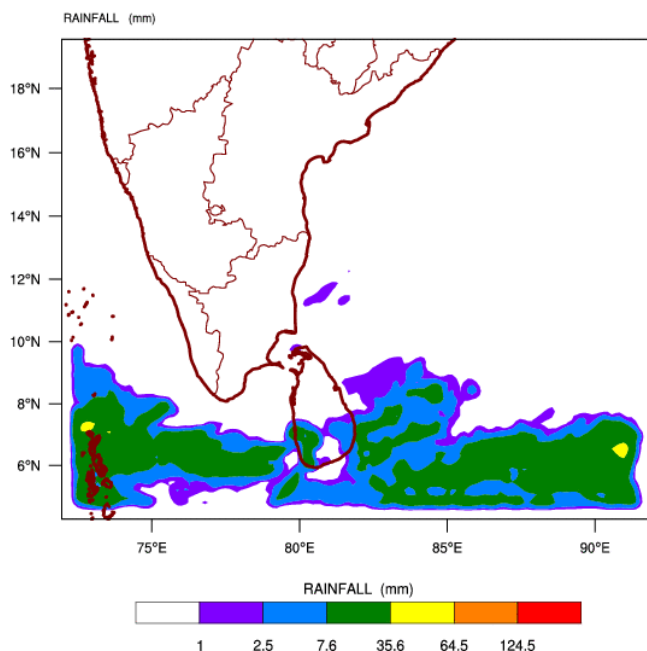
Source - NOAA Climate Prediction Center

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

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 06-12-2012 valid for 03 UTC of 08-12-2012



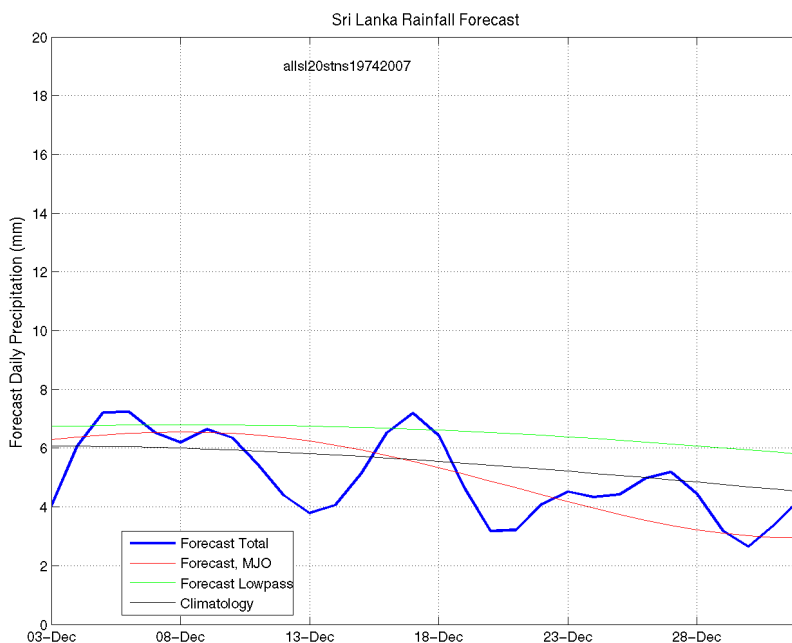
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 06-12-2012 valid for 03 UTC of 09-12-2012



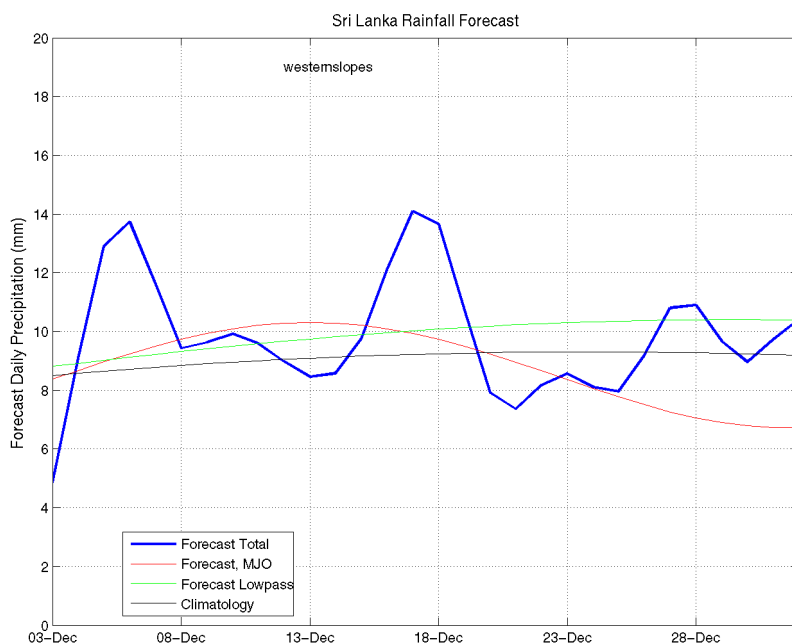
c) 1 month experimental predictions by Paul Roundy and L. Zubair

Predictions based on observed cloud cover and atmospheric waves. Issued 6th December, 2012

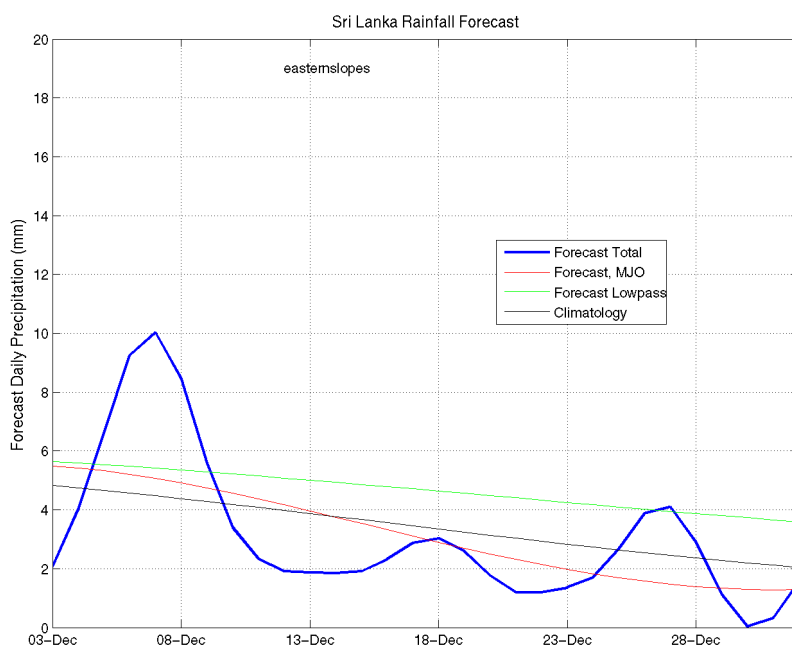
All Sri Lanka (Rainfall Scale from 0-20mm/day)



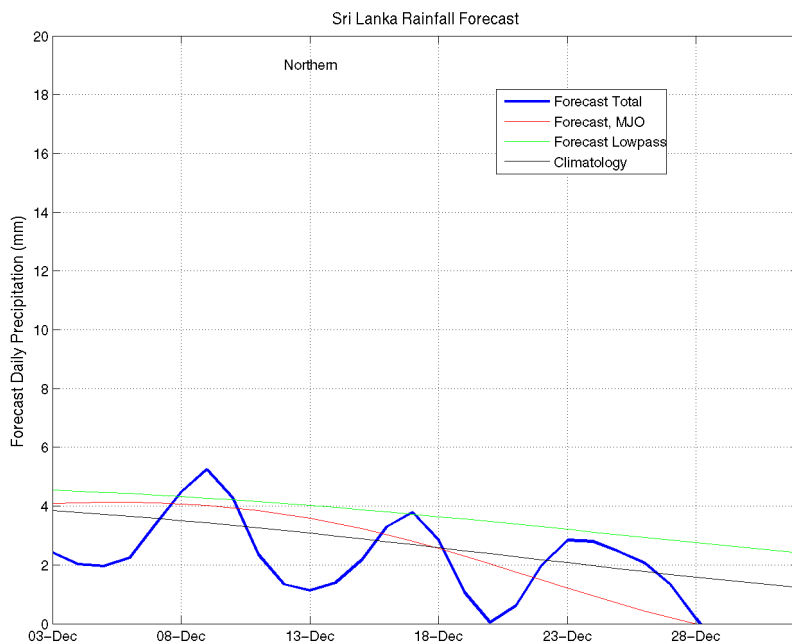
Western Slopes (Rainfall Scale from 0-20 mm/day)



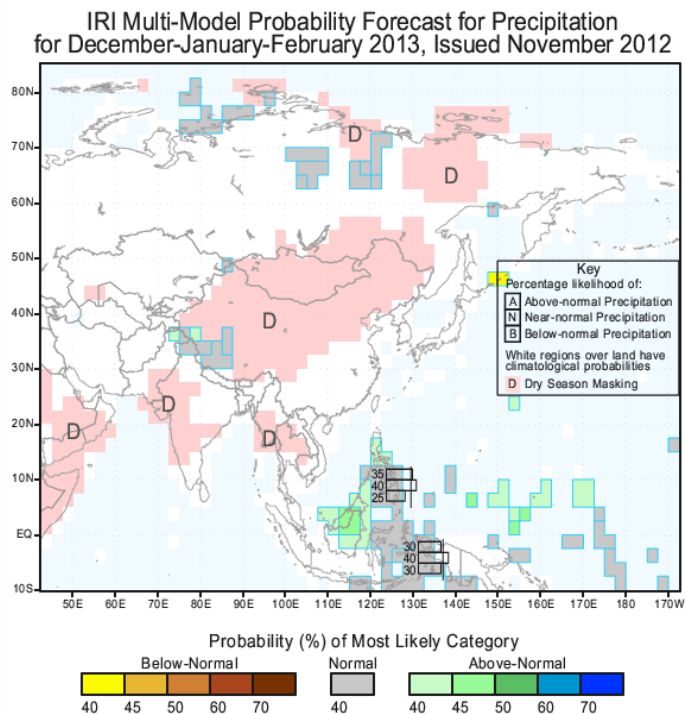
Eastern Slopes (Rainfall Scale- from 0-20 mm/day)



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



e) Seasonal Rainfall and Temperature Predictions from IRI



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

