

Experimental Climate Monitoring and Prediction

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November 19, 2015 PACIFIC SEAS STATE

During late October through mid-November 2015 the tropical Pacific SST was at a strong El Niño level. All atmospheric variables strongly support the El Niño pattern, including weakened trade winds and excess rainfall in the east-central tropical Pacific. The consensus of ENSO prediction models indicate continuation of strong El Niño conditions during the November-January 2015-16 season in progress. Some slight further strengthening is possible into early winter 2015-16, with the event slowly weakening during spring 2016.

(Text Courtesy IRI)

INDIAN OCEAN STATE

1 °C above average temperature was observed around Sri Lanka.

MJO STATE

MJO phase is in 4 therefore shall slightly enhance rainfall in Sri Lanka.

Highlights

Heavy rainfall was observed in the last few days throughout the country due to a low pressure area in the Bay of Bengal. Up to 40 mm rainfall was observed in northern and eastern regions of the country during the time period 25th November – 1st December. Heavy rainfall up to 160 mm was observed in ocean near Puttalam and up to 130 mm in ocean near Trincomalee on 1st December. Rainfall up to 110 mm was observed around Sinharaja Forest Reserve on 30th November. Every prediction model predict increase of rainfall during the next week. Very heavy rainfall is predicted for Badulla in the next few days.

Summary

Monitoring

Weekly Monitoring: During 25th November – 1st December the entire country received high rainfall. On 25th November, rainfall up to 30 mm was observed around Imaduwa, Kalawana and Eheliyagoda. On 26th November no rainfall was observed in the country. Rainfall up to 60 mm was observed around western region of Mullaitivu and ocean near Mannar on 27th November. Kuruwita received rainfall up to 80 mm on 28th November while Tangalle, Neluwa, Avissawella and ocean near eastern province received rainfall up to 50 mm. On 29th November rainfall up to 70 mm was observed around Dehiattakandiya, Badulla and the south eastern ocean. Rainfall up to 110 mm was observed around Sinharaja Forest Reserve on 30th November while Kalutara, Colombo and ocean near Matara received rainfall up to 80 mm. On 1st December, ocean near Puttalam received heavy rainfall up to 160 mm while ocean near Trincomalee received rainfall up to 130 mm.

Monthly Monitoring: In November 2015, almost entire country received above average rainfall while the ocean near eastern and southern provinces, southern region of Galle and Matara received below average rainfall.

Predictions

14 day prediction: NOAA NCEP models predict relatively high rainfall in northern and central regions of the country compared to the rest of the country during 2nd – 8th December. Total rainfall above 135 mm is expected during the week in northern and central regions and total rainfall up to 95 mm is expected in southern region. These models predict the rainfall to decrease during 9th – 15th December and total rainfall up to 95 mm is expected in eastern region, total rainfall up to 55 mm is expected in southern and north western regions.

IMD WRF & IRI Model Forecast: According to the IMD WRF model rainfall up to 125 mm is expected in Jaffna and ocean near Trincomalee and Gampaha on 4th December while rest of the country shall receive slight amounts of rainfall. On 5th December Dambulla, ocean near Jaffna, Puttalam and Galle shall receive rainfall up to 125 mm and the rest of the country shall receive slight amounts of rainfall. IRI CFS models predict total rainfall up to 200 mm in northern and south western regions of the country and the ocean near western region during 2nd – 7th December. Very heavy rainfall is predicted for Badulla.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for December to February, the total 3 month precipitation shall be climatological. The 3 month temperature has more than 70-80% likelihood in the entire country of being in the above-normal tercile during this period.

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- Seasonal Predictions from IRI

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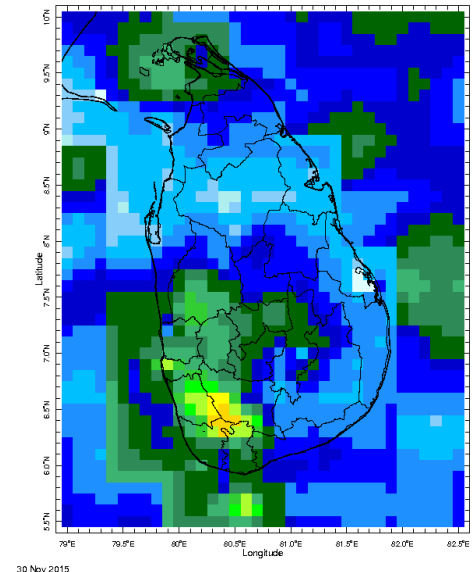
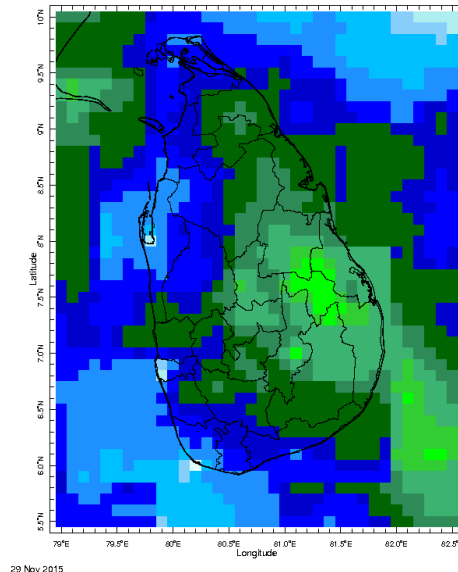
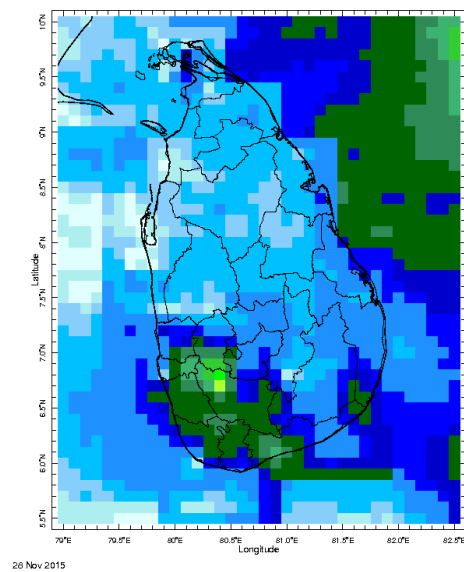
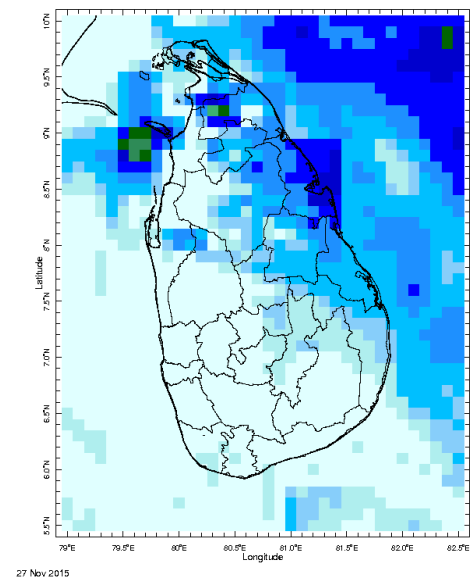
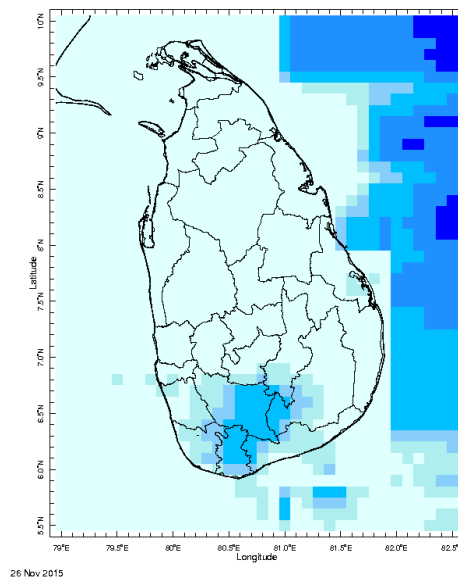
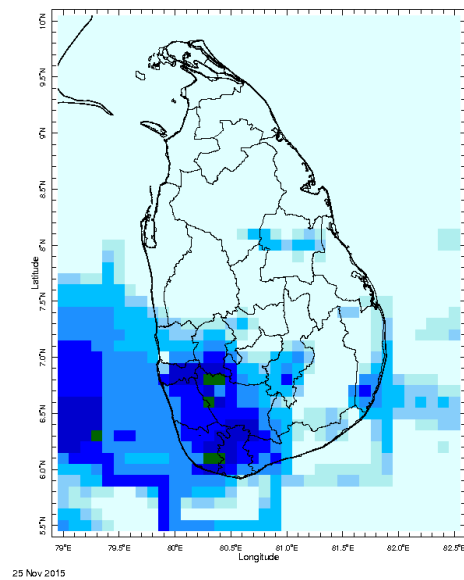
Weekly Hydro- Meteorological Report for Sri Lanka

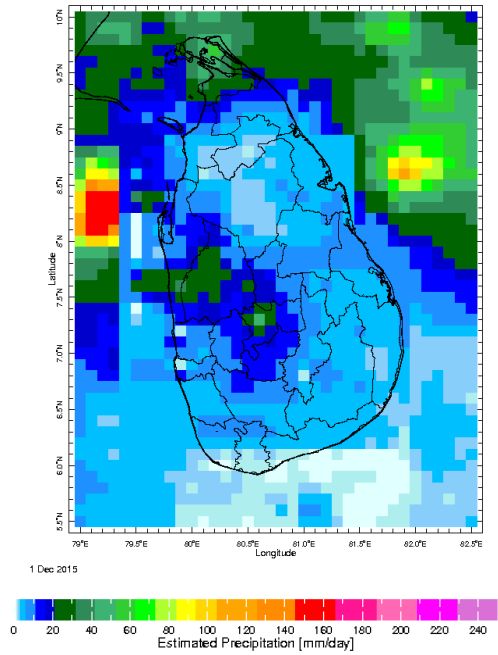
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Daily Rainfall Monitoring

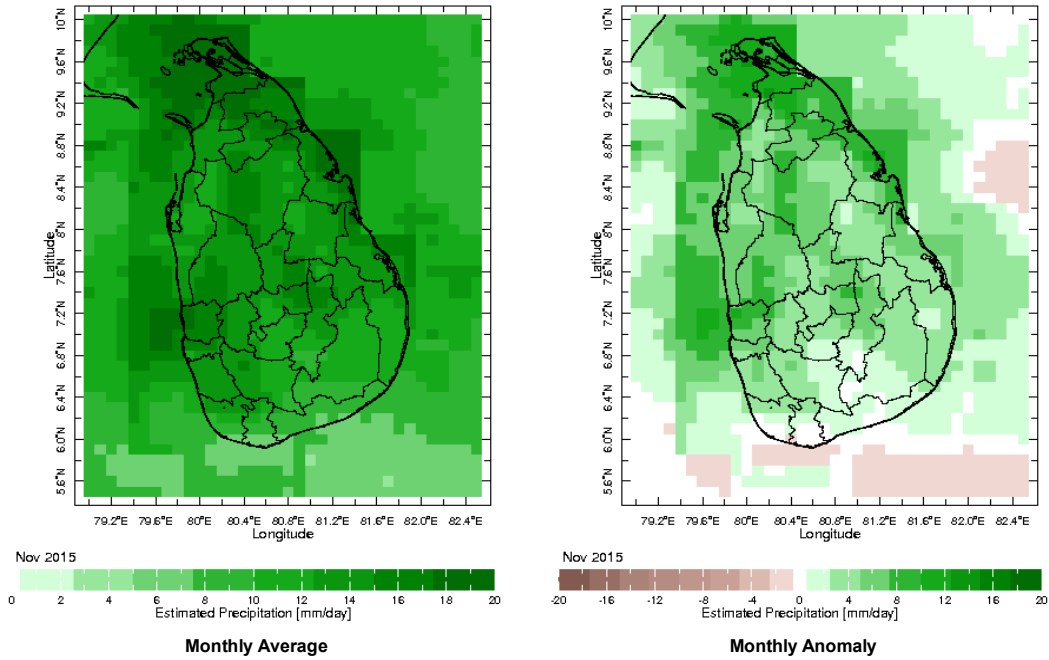
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



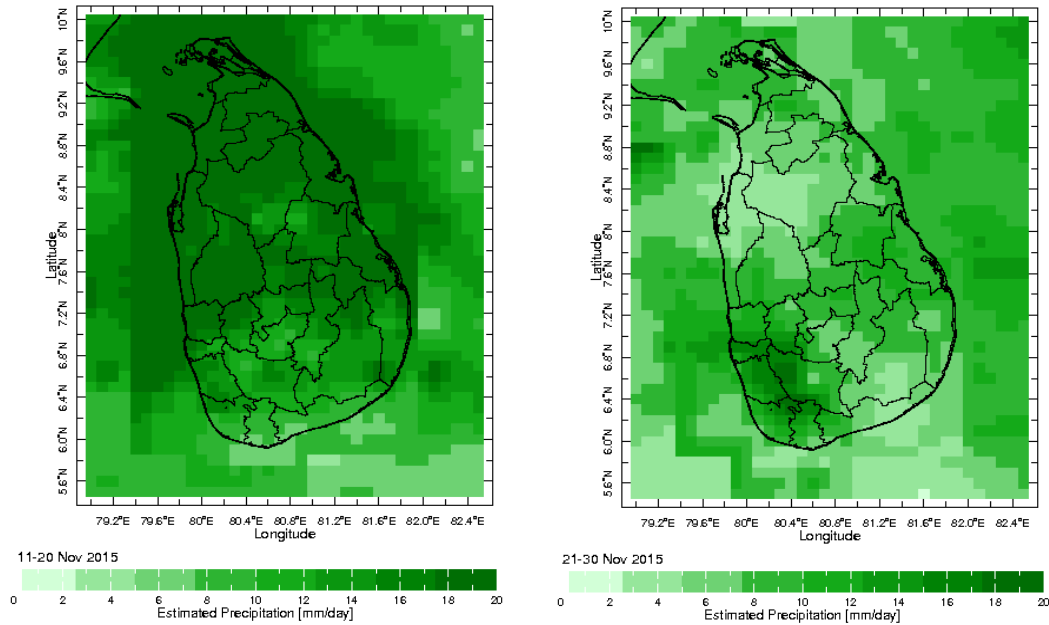


Monthly Rainfall Monitoring

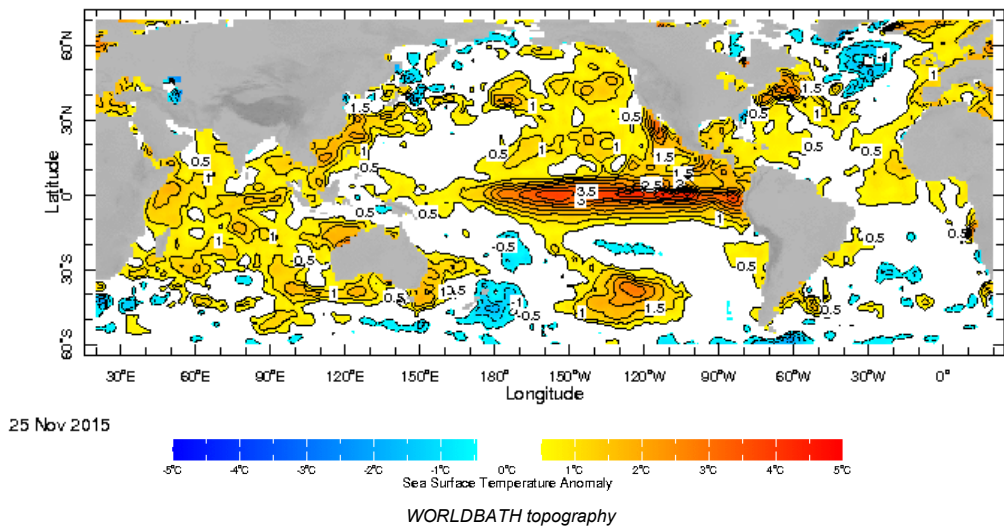
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places with above average rainfall. Darker shades show higher magnitudes in rainfall



Dekadal (10 Day) Satellite Derived Rainfall Estimates

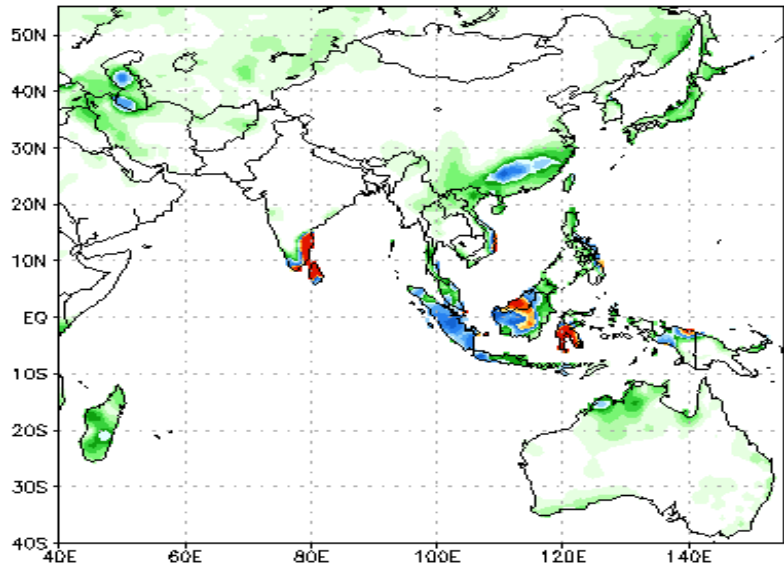


Weekly Average SST Anomalies



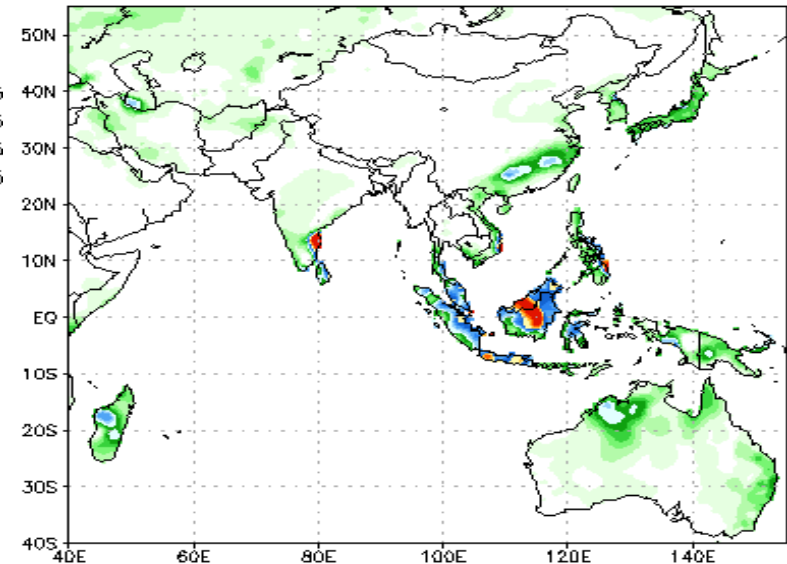
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 02Dec2015
02Dec2015–08Dec2015 Accumulation



Bias correction based on last 30–day forecast error

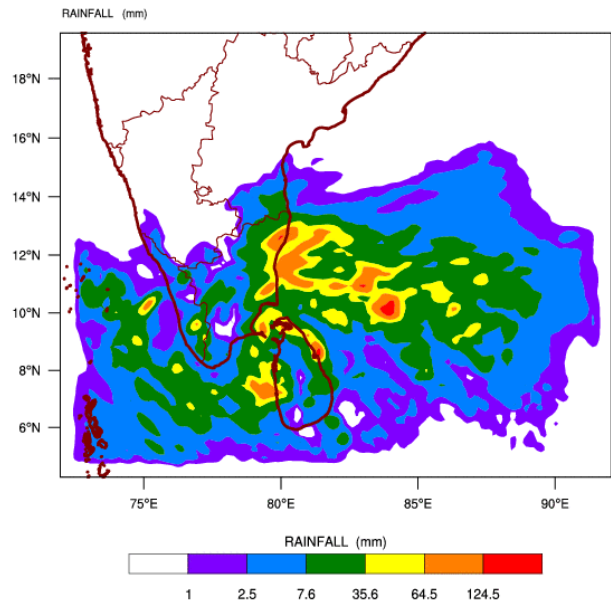
NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 02Dec2015
09Dec2015–15Dec2015 Accumulation



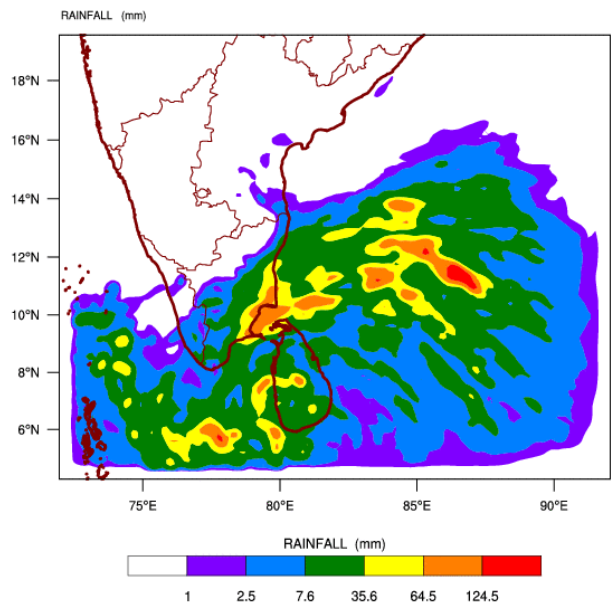
Bias correction based on last 30–day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 02-12-2015 valid for 03 UTC of 04-12-2015

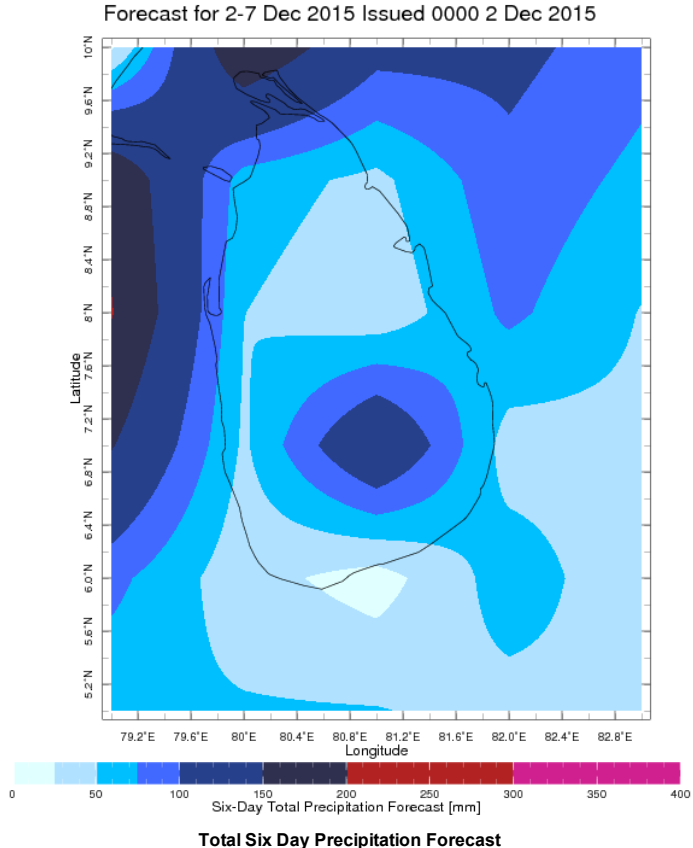
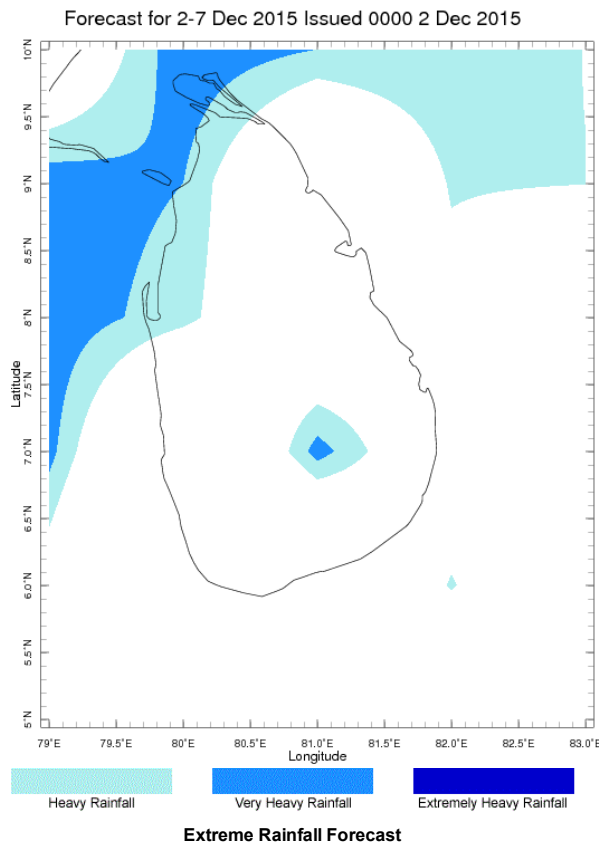


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 02-12-2015 valid for 03 UTC of 05-12-2015



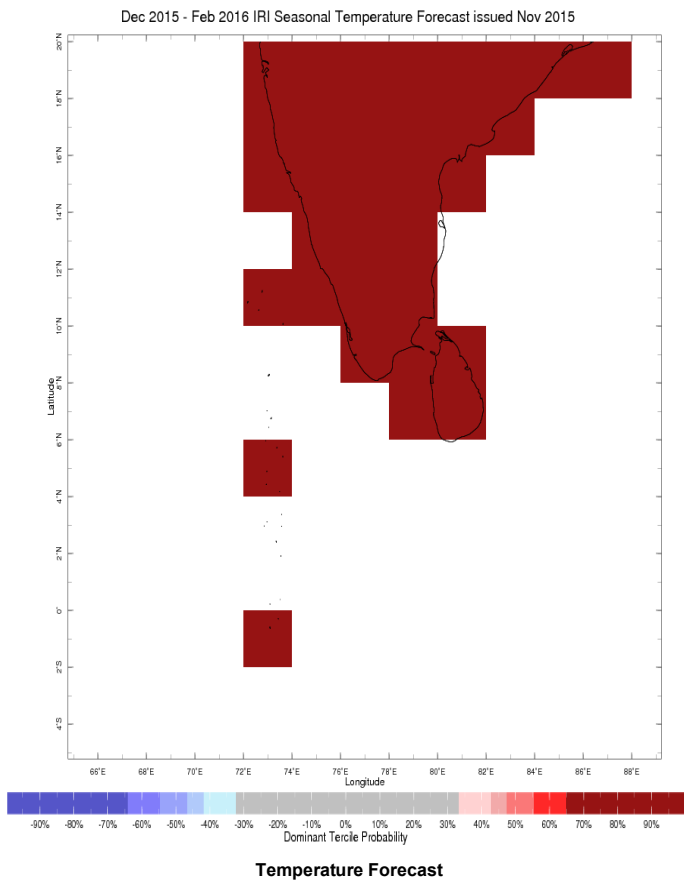
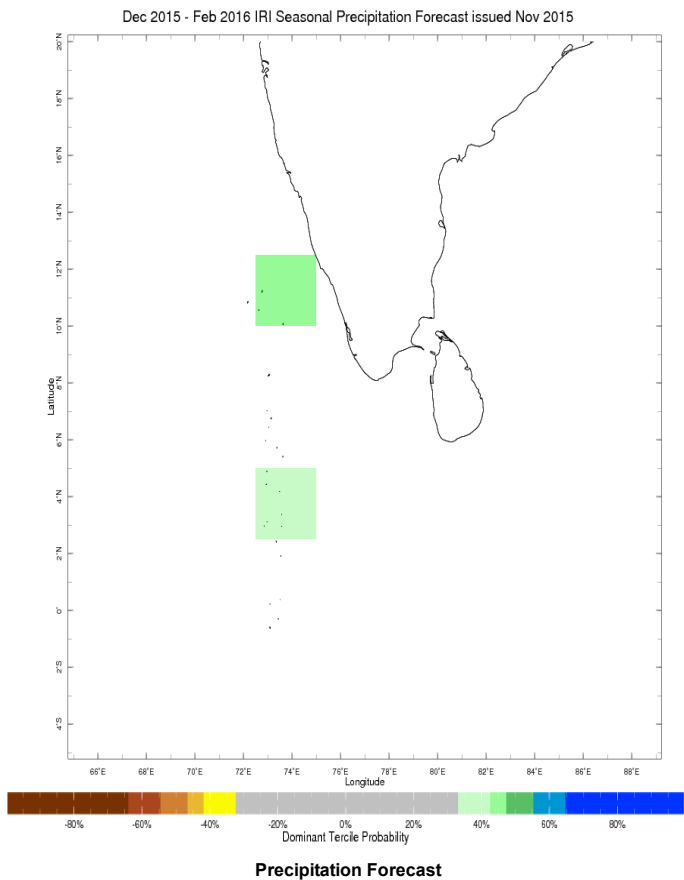
Weekly Rainfall Forecast

Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.



Seasonal Rainfall and Temperature Forecast

Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%).



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