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Experimental Climate Monitoring and Prediction

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17 December 2015

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December 10, 2015

PACIFIC SEAS STATE

During early December 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 December-February 2015-16 season in progress. Further strengthening is possible, but not likely, into mid-winter 2015-16, with the event slowly weakening during spring 2016.

(Text Courtesy IRI)

INDIAN OCEAN STATE

Neutral Sea Surface temperature was observed around Sri Lanka.

MJO STATE

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

Highlights

High rainfall continued in the entire country during 8th- 14th December week as well but there was a slight decrease in rainfall compared to previous weeks. Heaviest rainfall was recorded on the 14th this week where Gampaha and Badulla districts received very heavy rainfall. NOAA and IRI CFS models predict a significant decrease in the rainfall in the fortnight starting from the 16th. However the MJO is in phase 4 which shall slightly enhance rainfall conditions. IRI further predicts that there shall be below average rainfall during the first quarter of 2016 with 50% probability.

Summary

Monitoring

***Weekly Monitoring*:** During 8th – 14th December the entire country received rainfall. On 8th December, rainfall up to 90 mm was observed in ocean west of Colombo while Kurunegala district and ocean east of Kalkudah received rainfall up to 80 mm. Western, Central and Sabaragamuwa provinces received up to 40 mm rainfall on the same day. On 9thonly light rainfall was observed in the country. Rainfall up to 130 mm was observed around ocean near Pottuvil on 10th December while Vavuniya and Trincomalee districts received rainfall up to 60 mm. On 11th December, the north-eastern sea received heavy rainfall up to 160 mm. Ocean near Pottuvil received rainfall up to 70 mm on 12th December while Kalutara district received rainfall up to 50 mm. On 13th December Pothuhera received rainfall up to 80 mm and the surrounding area received rainfall up to 50 mm. On 14th December, Bibile region received heavy rainfall up to 200 mm while Gampaha and Kurunegala districts received rainfall up to 140 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. Higher above average rainfall was observed in northern region compared to southern region of the country.

Predictions

14 day prediction: NOAA NCEP models predict decrease of the rainfall during 16th – 22nd December compared to past weeks where heavy rainfall was observed. Total rainfall up to 55 mm is expected during the week in eastern and south western regions and total rainfall up to 45 mm is expected in rest of the country. These models predict the rainfall to decrease furthermore during 23rd – 29th December and total rainfall up to 65 mm is expected in northern and eastern regions and total rainfall up to 35 mm is expected in rest of the country.

IMD WRF & IRI Model Forecast: According to the IMD WRF model rainfall up to 125 mm is expected in the coastal region from Trincomalee to Pottuvil on 18th December while the rest of eastern regions shall receive up to 35 mm rain. On 19th December, ocean near Hambantota shall receive rainfall up to 125 mm while south-eastern region of the country shall receive up to 35 mm rain. IRI CFS models predict total rainfall up to 50 mm in central and southern regions of the country during 16th - 21st December. Heavy rainfall is expected in the south-eastern sea during this period.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for January to March, the total 3 month precipitation has 50% likelihood of being below average. 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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[1] International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

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

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Weekly Hydro- Meteorological Report for Sri Lanka

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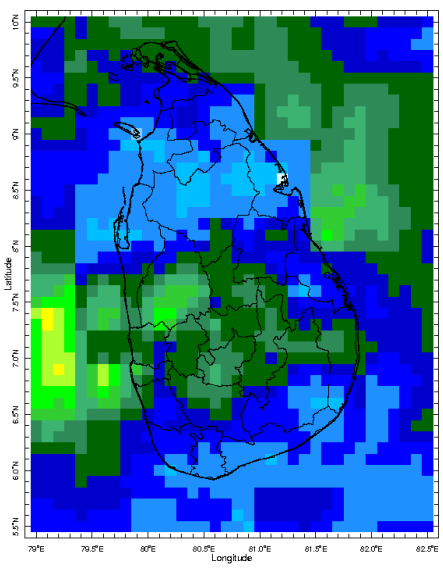
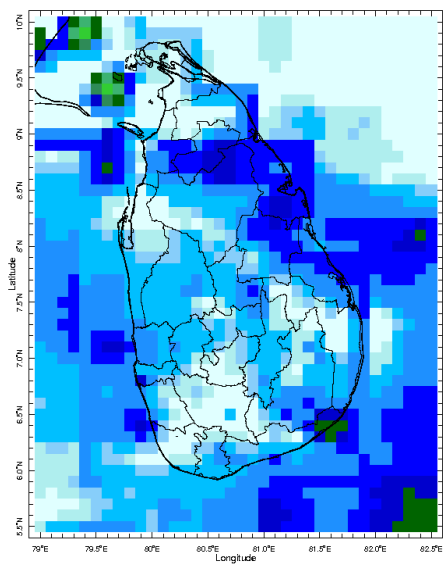
Daily Rainfall Monitoring

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



8 Dec 2015



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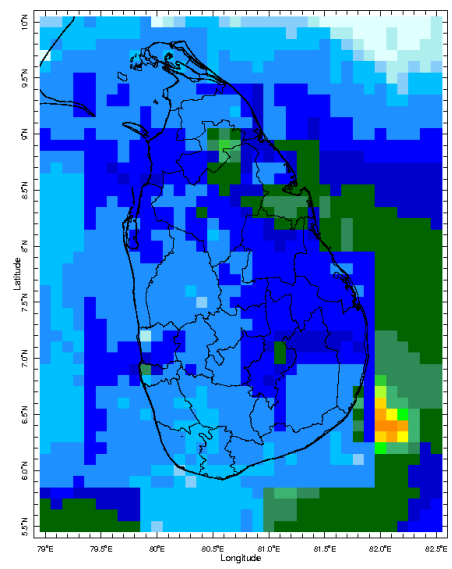

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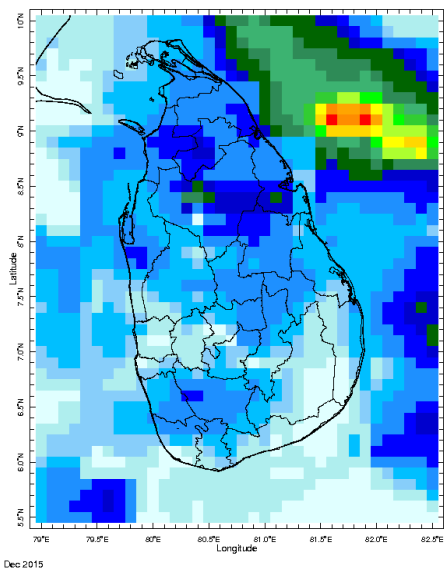

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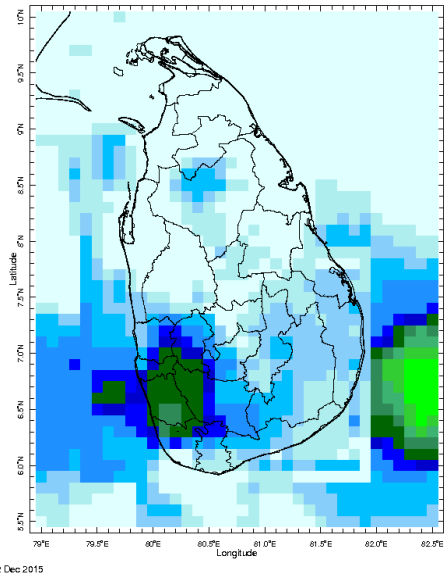

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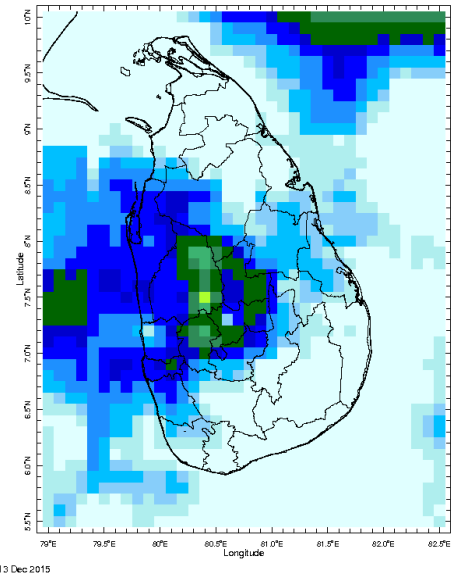

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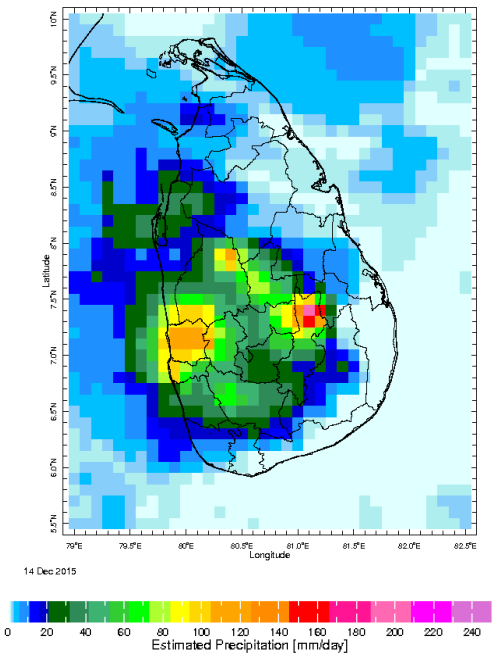
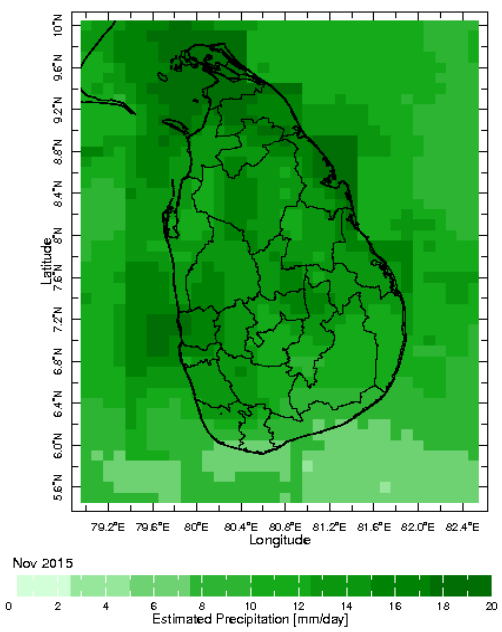
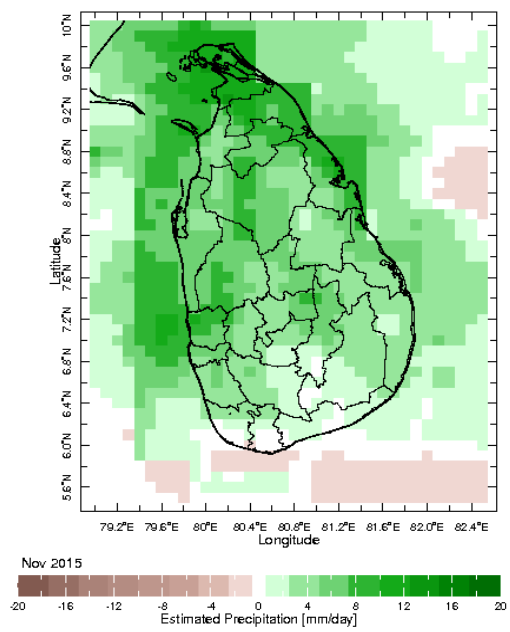


Monthly Rainfall Monitoring

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

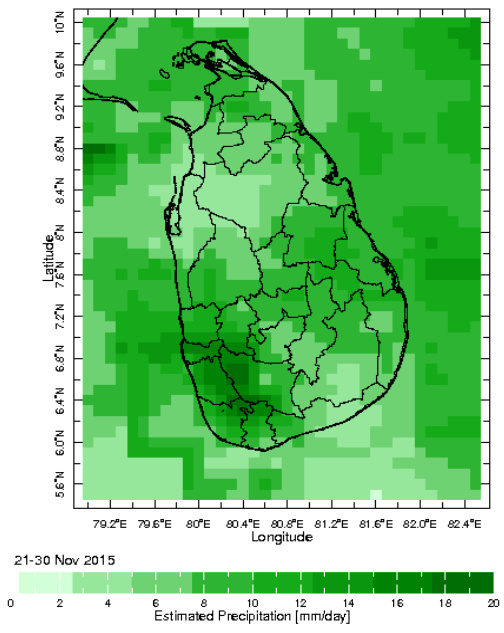


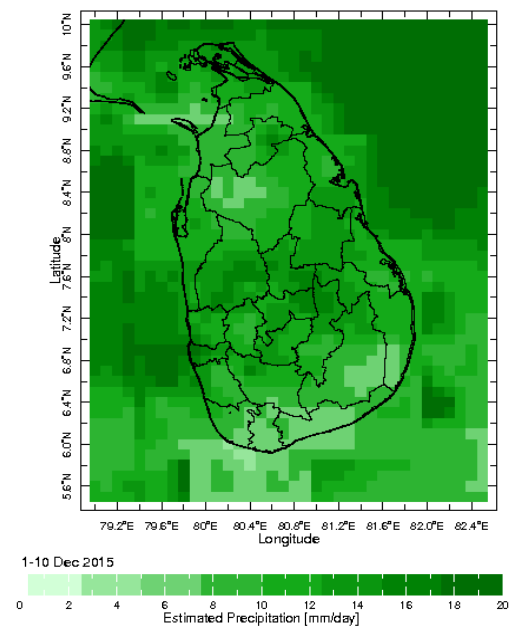
Monthly Average



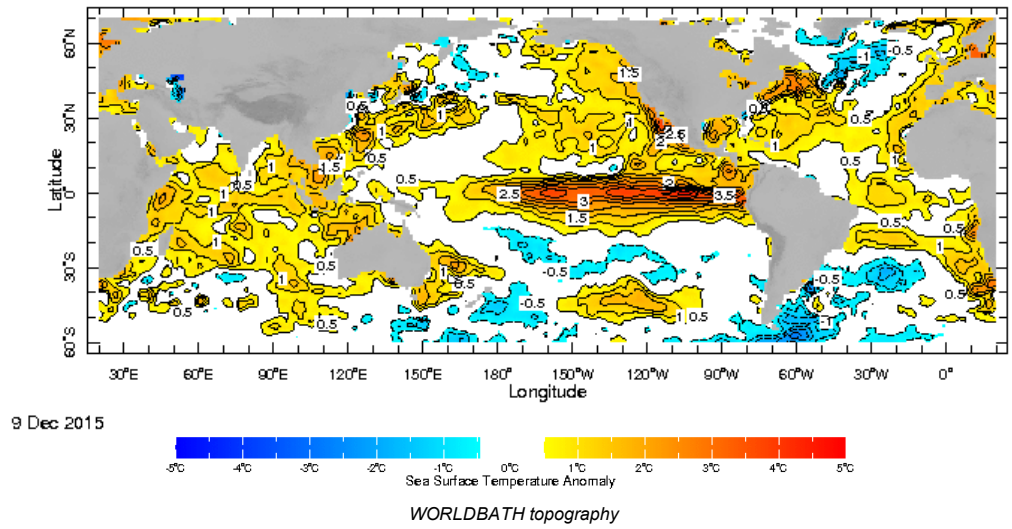
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

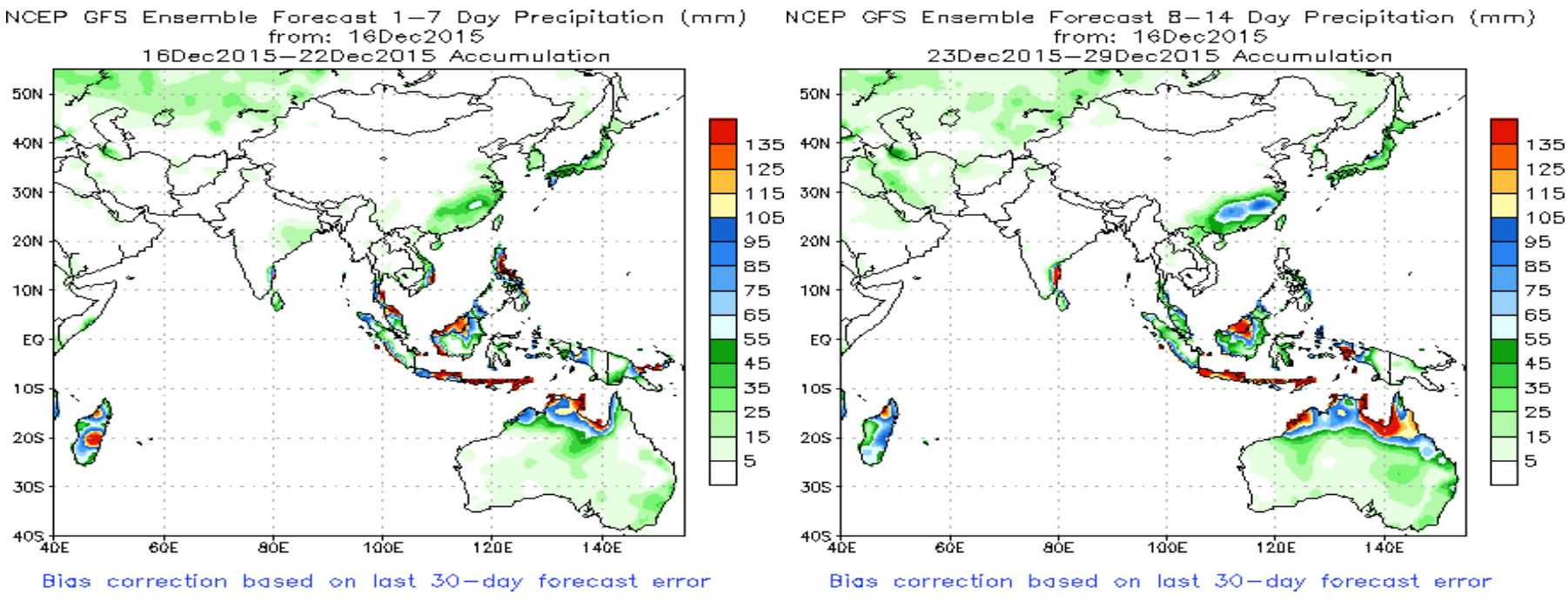




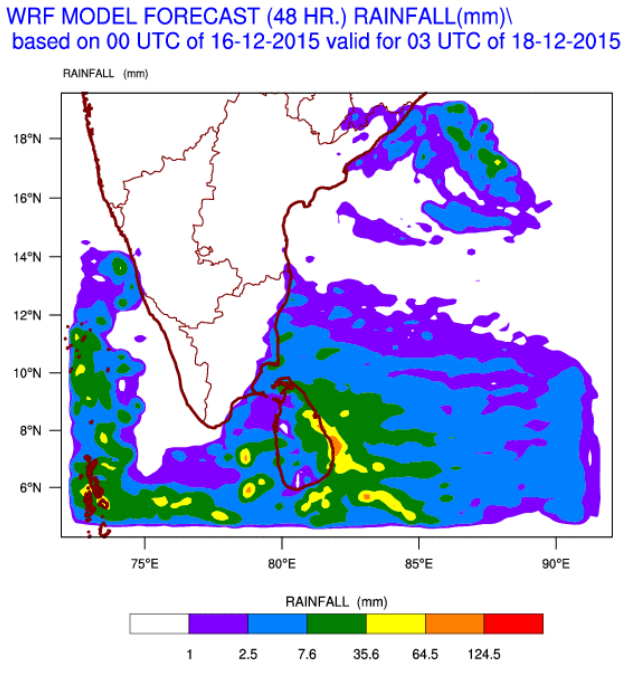
Weekly Average SST Anomalies

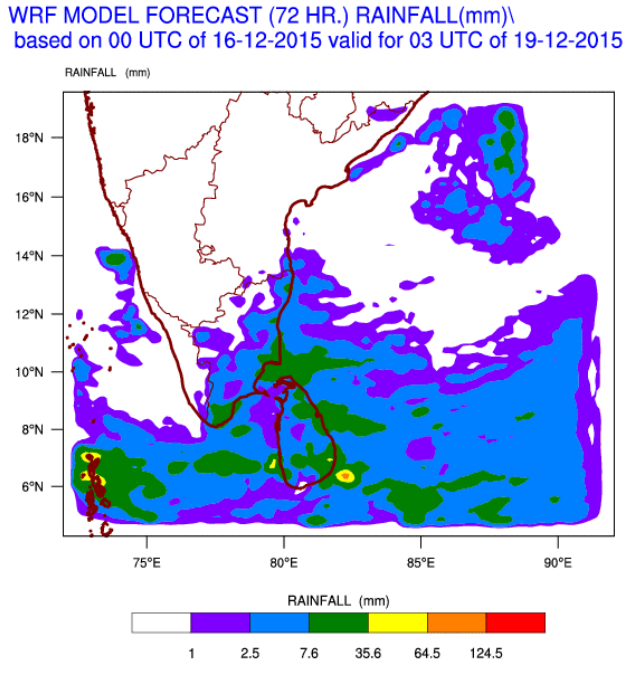


NCEP GFS 1- 14 Day prediction



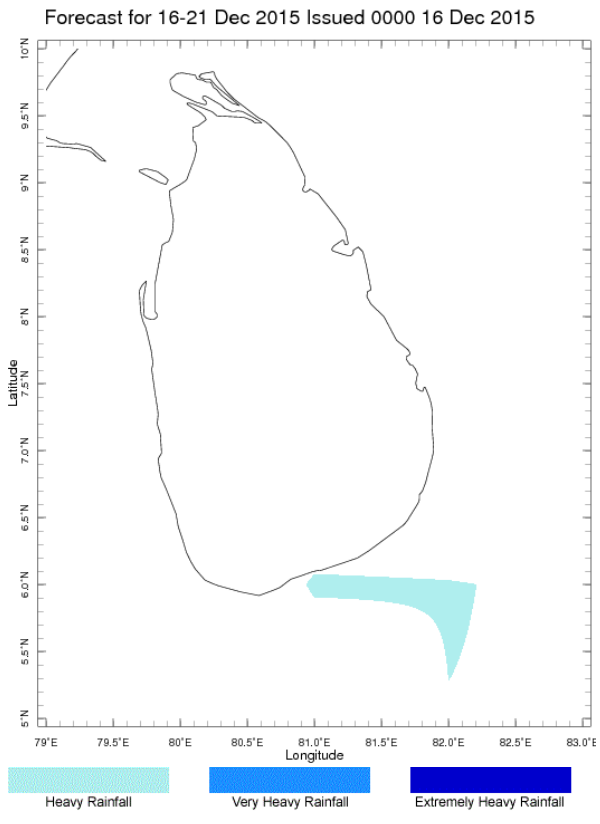
WRF Model Forecast (from IMD Chennai)



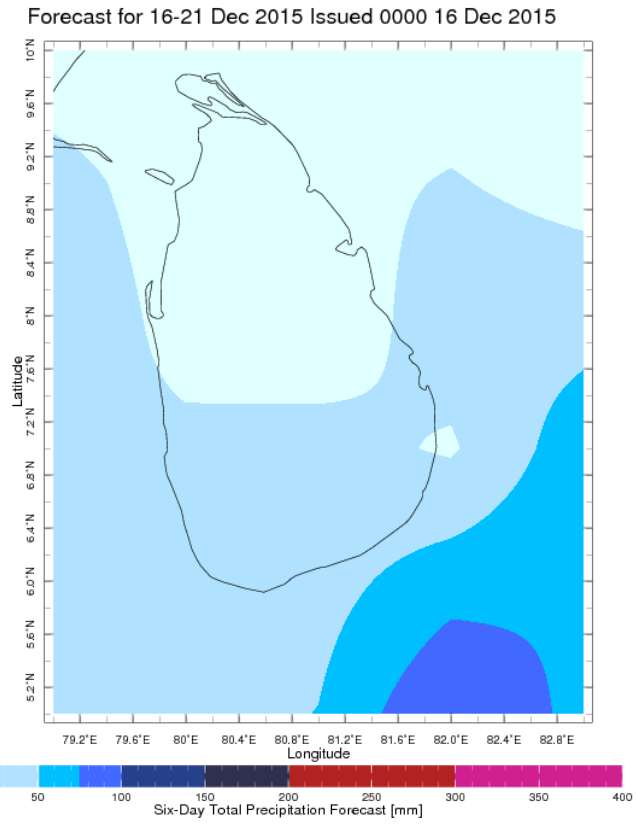


Weekly Rainfall Forecast

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.



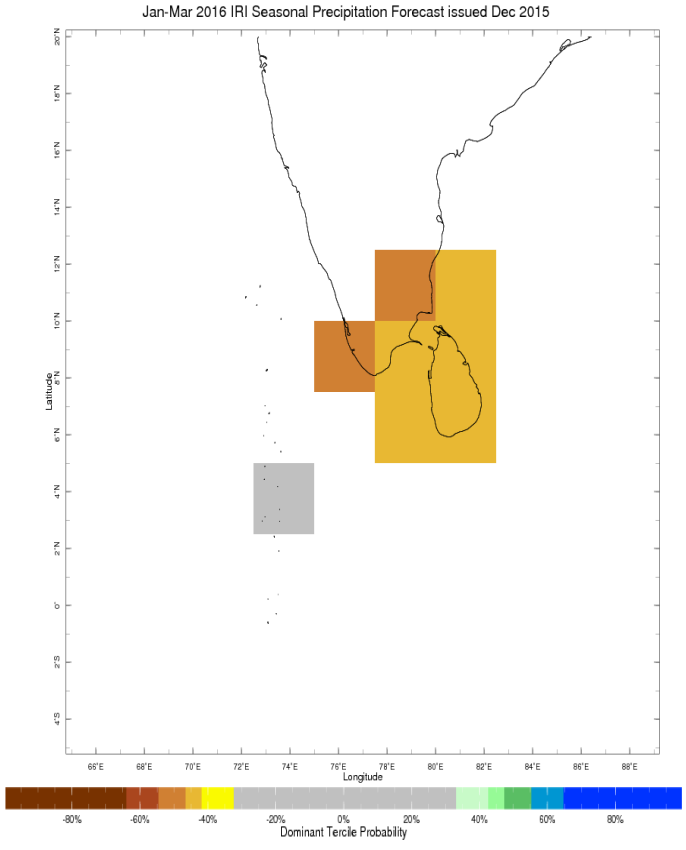
Extreme Rainfall Forecast



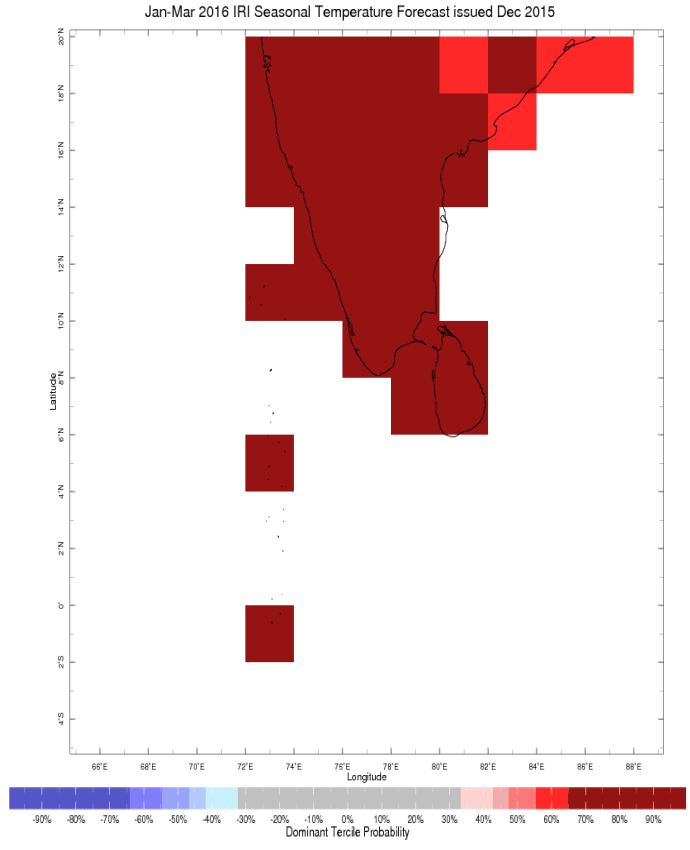
Total Six Day Precipitation Forecast

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%).



Precipitation Forecast



Temperature Forecast

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