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Experimental Climate Monitoring and Prediction

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23 December 2015

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December 17, 2015

PACIFIC SEAS STATE

During mid-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 unlikely, into mid-winter 2015-16, with the event slowly weakening during spring 2016.

(Text Courtesy IRI)

INDIAN OCEAN STATE

1^{0}C above average Sea Surface temperature was observed around Sri Lanka.

MJO STATE

MJO phase is in 5 therefore shall not have a significant impact on the rainfall in Sri Lanka.

Highlights

As predicted in the previous week there was a significant decrease in rainfall in the entire country. NOAA NCEP models predict that the rainfall shall decrease further in the next two weeks. The highest rainfall observed this week was on the 17th near the district boundary separating Anuradhapura and Mannar districts. Apart from that the coastal region from Trincomalee to Kalmunai received relatively high rainfall. High sea surface temperature is observed in the entire Indian Ocean. The MJO is still in phase 5 and shall continue to suppress rainfall slightly.

Summary

Monitoring

***Weekly Monitoring*:** During 15th – 21st December light rainfall was observed in the country. On 15th December, the south western sea received rainfall up to 50 mm. On 16th December significant rainfall was not observed. The boundary between Anuradhapura and Mannar districts received rainfall up to 70 mm on the 17th while Kekirawa and Trincomalee areas received up to 50 mm on the same day. Rainfall up to 60 mm was observed in Trincomalee and Anuradhapura districts on 18th December while coastal region from Trincomalee to Kalmunai received rainfall up to 40 mm. On 19th December, rainfall up to 65 mm was observed around Dehiattakandiya, Siyambalanduwa and southern region of Moneragala while ocean near Mannar received rainfall up to 60 mm. No rainfall was observed in the entire country on 20th and 21st December.

***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 a further decrease of the rainfall during 22nd – 28th December compared to past weeks where heavy rainfall was observed. Total rainfall up to 55 mm is expected during the week in northern region and total rainfall up to 45 mm is expected in rest of the country. These models predict the rainfall to decrease during 29th December – 4th January 2016 where only southern and eastern regions of the country are expected to receive total rainfall up to 35 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, coastal region from Trincomalee to Pottuvil shall receive slight amounts of rainfall on 24th December while the rest of the country shall not have rainfall. On 25th December, eastern region of the country and Ratnapura shall receive slight amounts of rain and rest of country is not expected rainfall. IRI CFS models predict total rainfall up to 100 mm off the coast of Batticaloa during 22nd – 27th December.

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.

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Weekly Hydro- Meteorological Report for Sri Lanka

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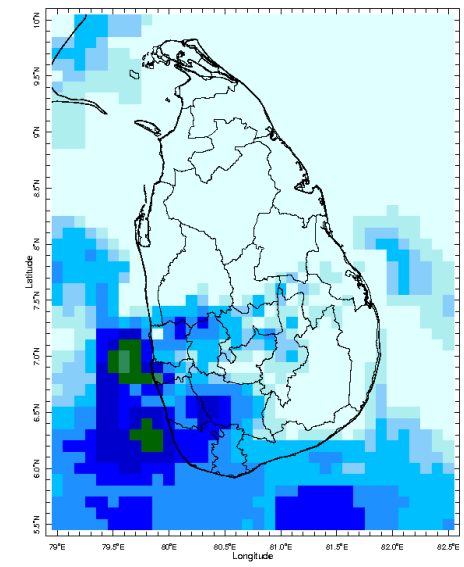
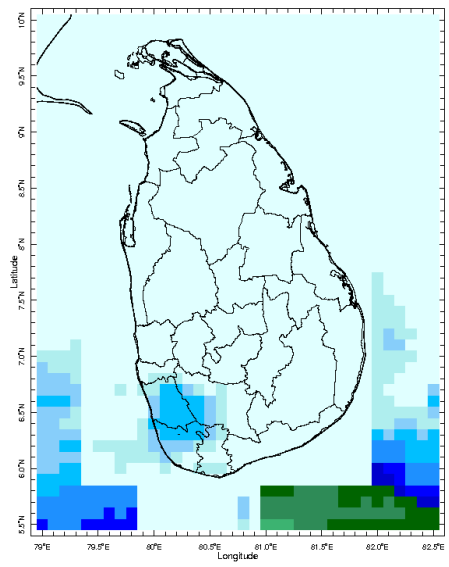
Daily Rainfall Monitoring

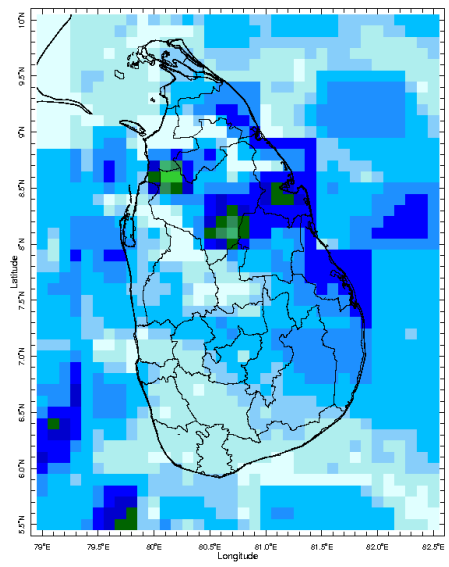
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



15 Dec 2015



16 Dec 2015



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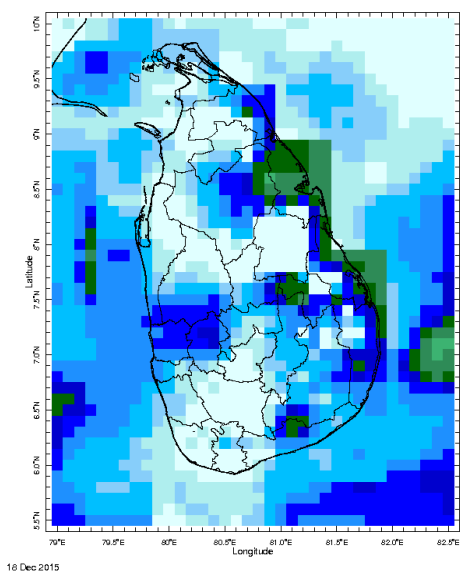

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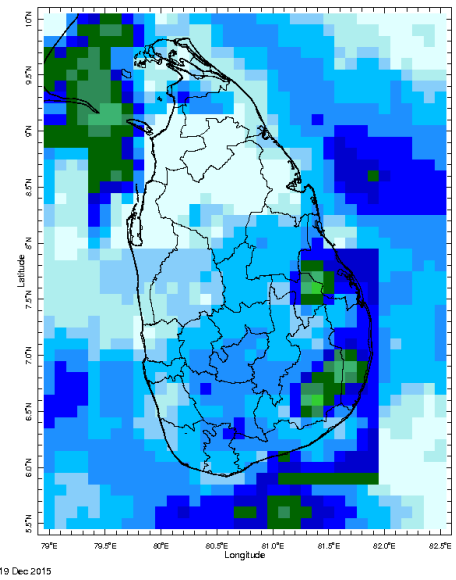
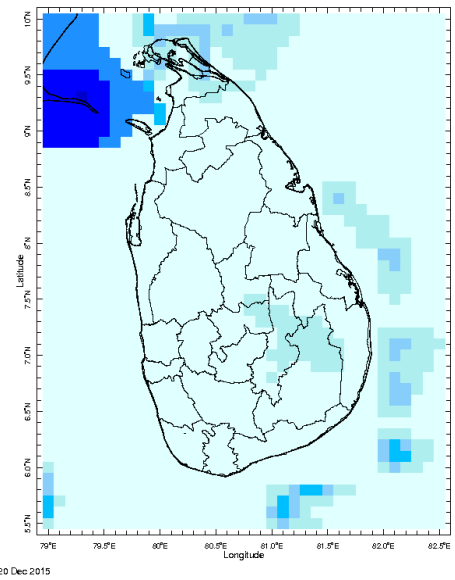
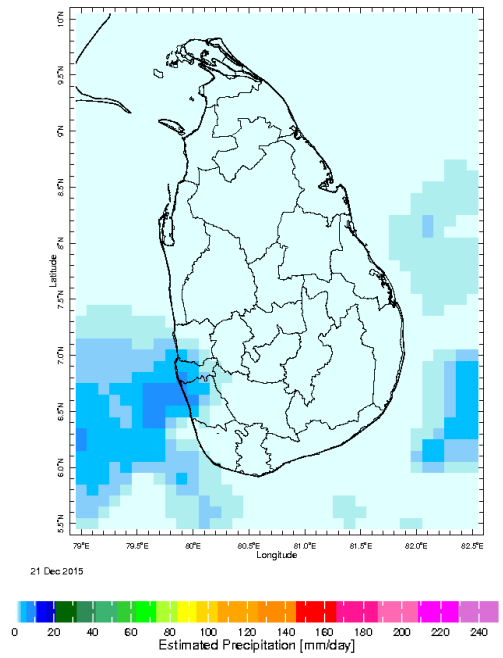


19 Dec 2015

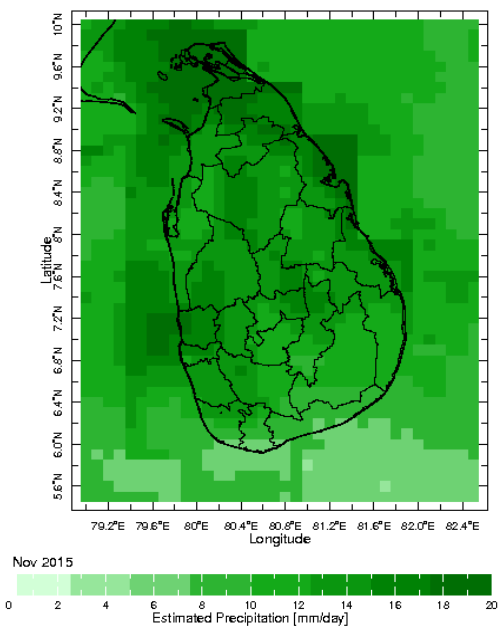


20 Dec 2015

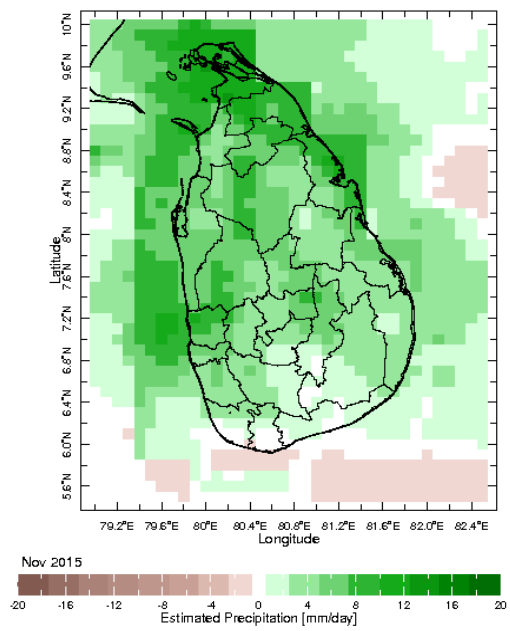


Monthly Rainfall Monitoring

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

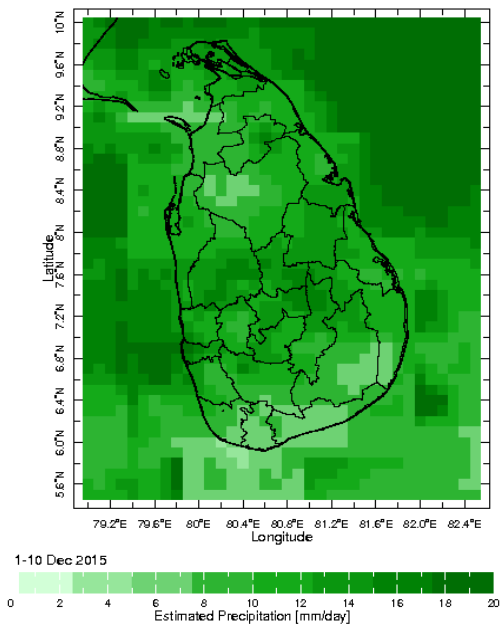


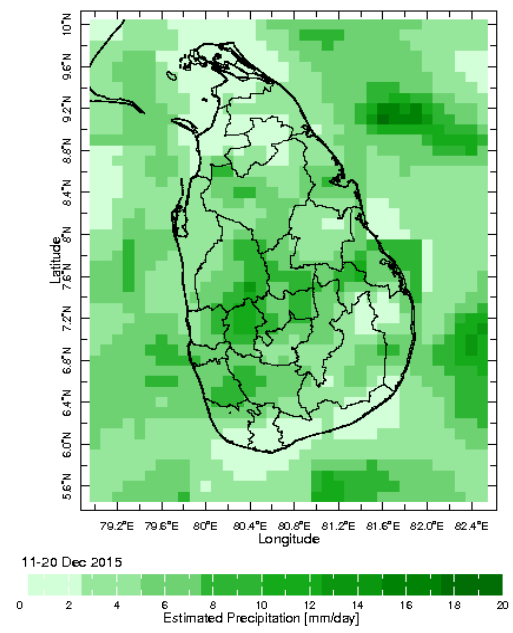
Monthly Average



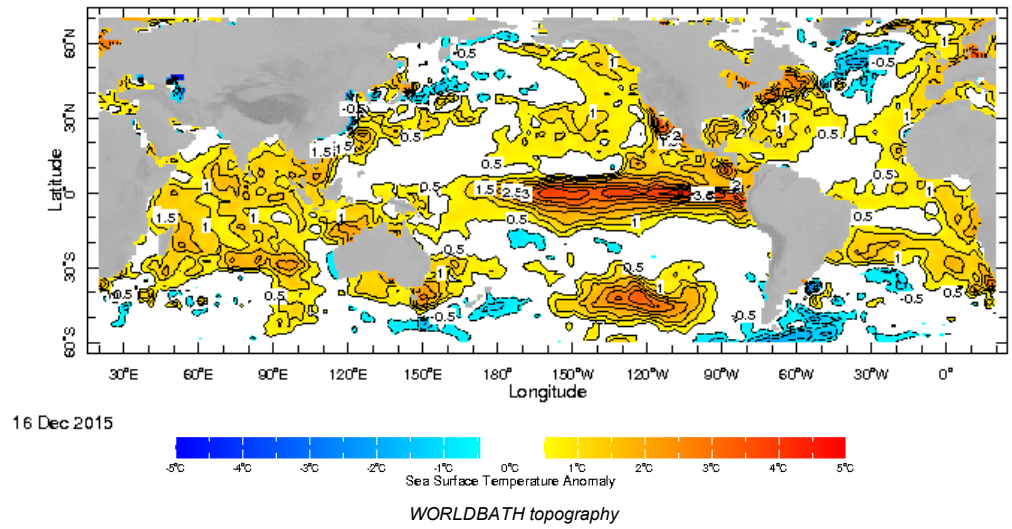
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

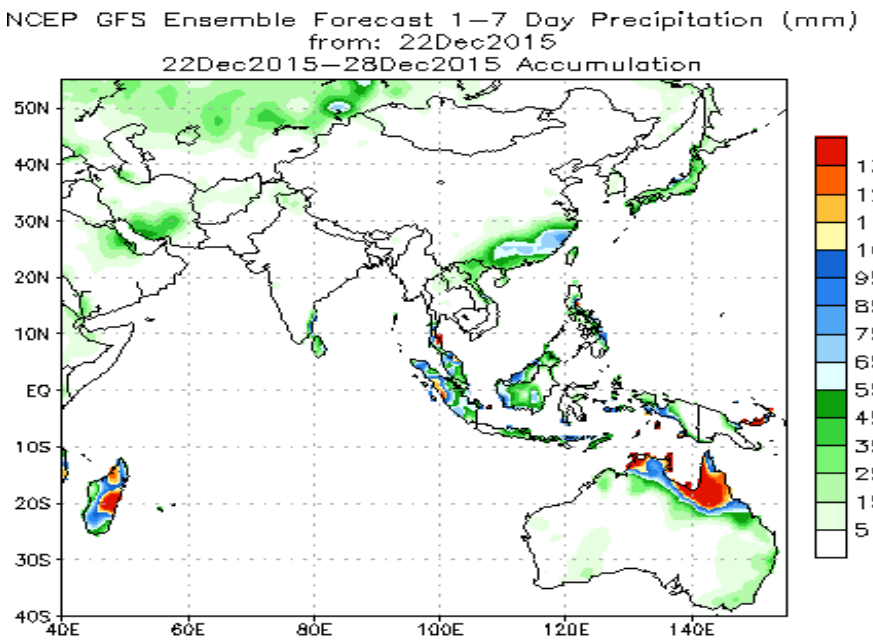


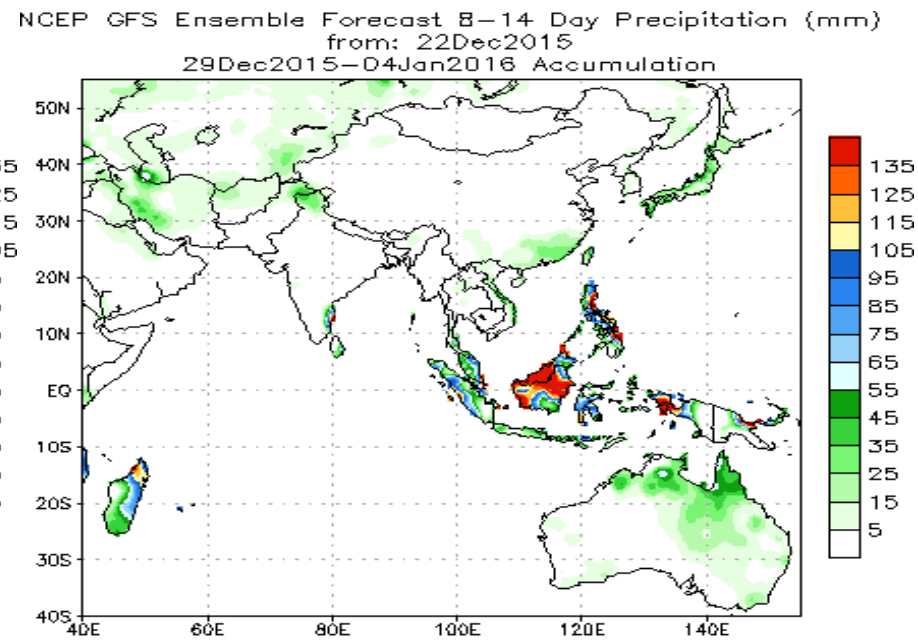


Weekly Average SST Anomalies

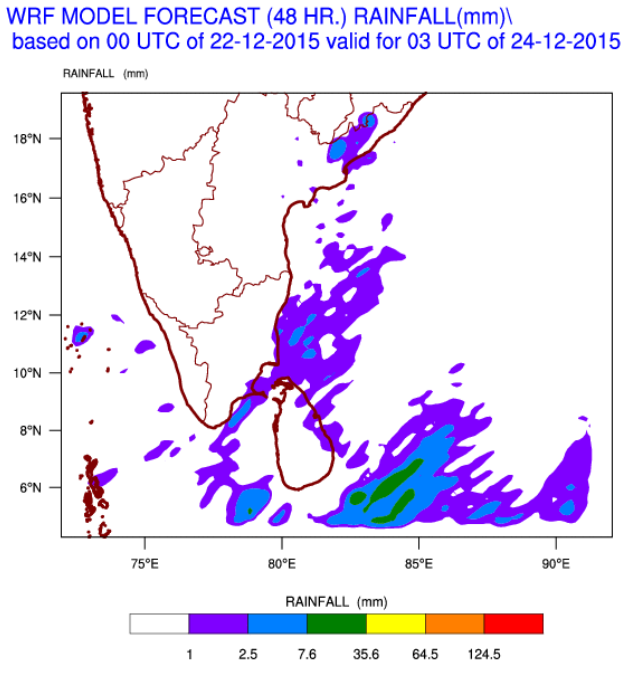


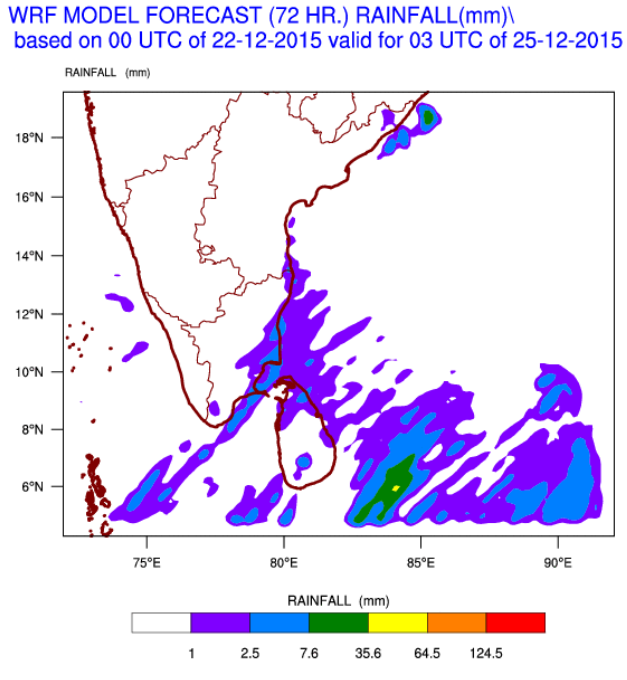
NCEP GFS 1- 14 Day prediction





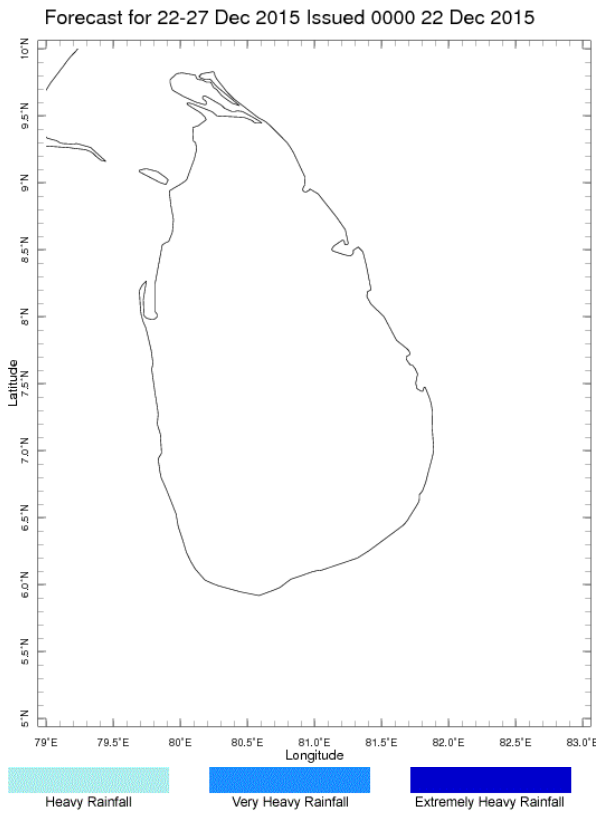
WRF Model Forecast (from IMD Chennai)



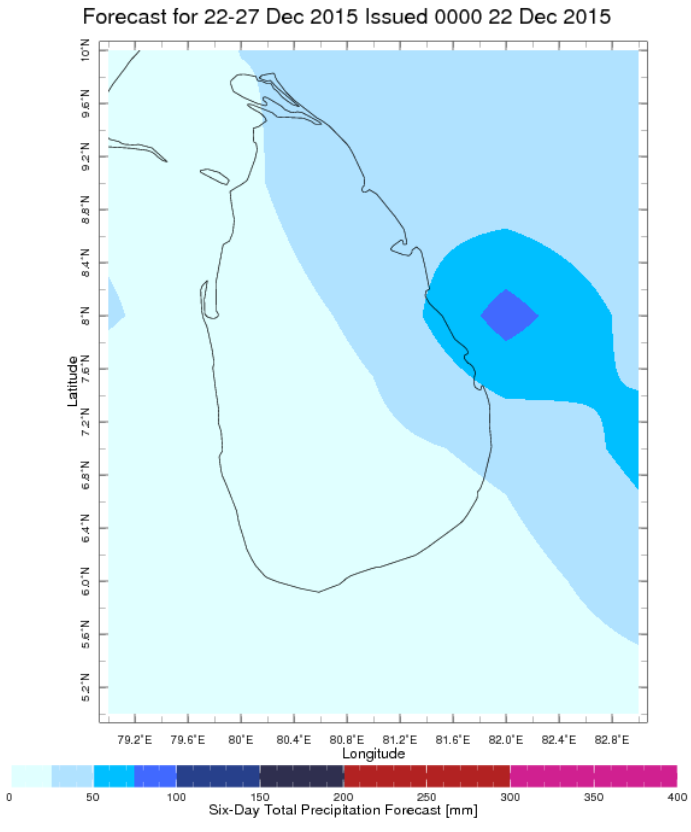


Weekly Rainfall Forecast

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.



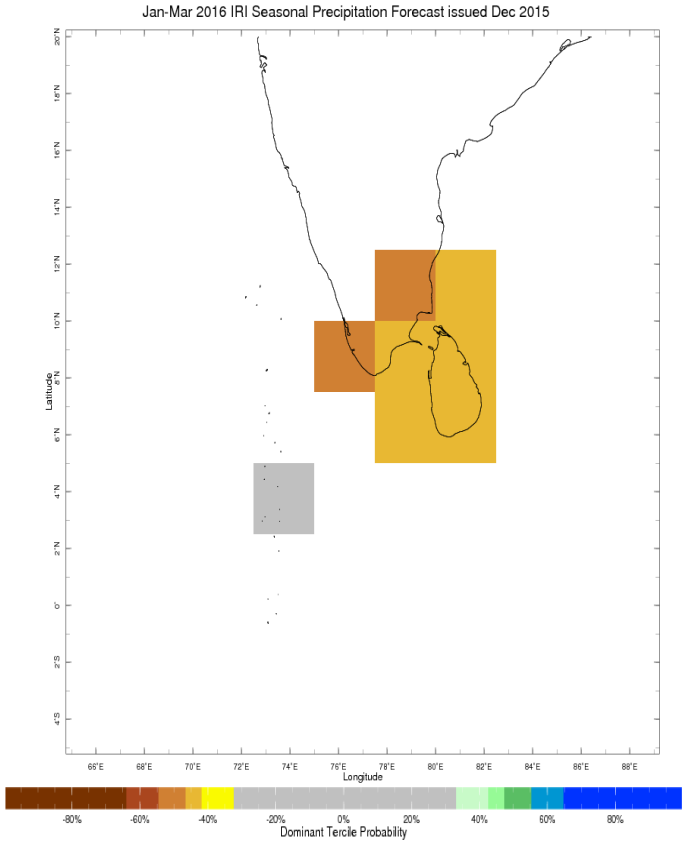
Extreme Rainfall Forecast



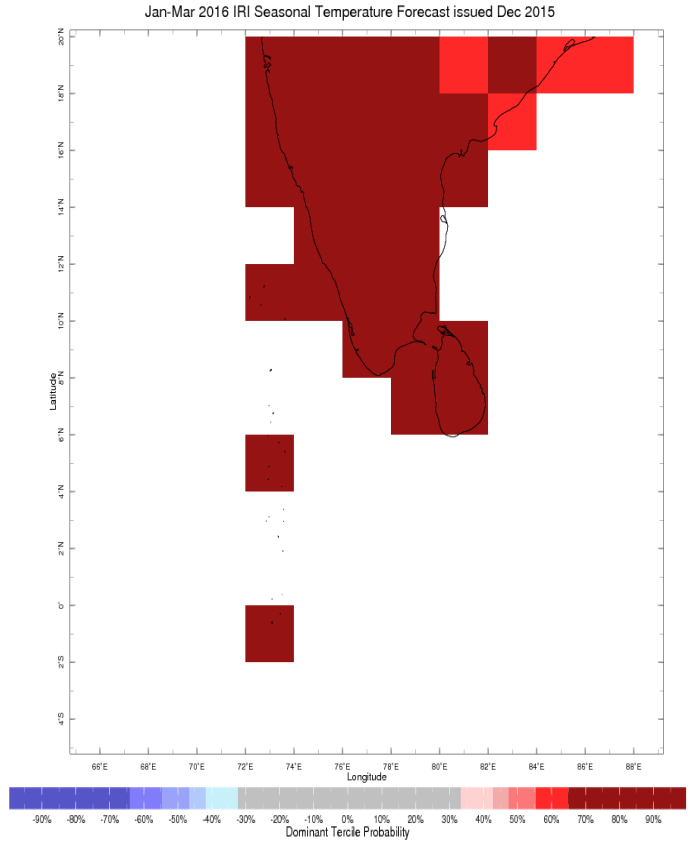
Total Six Day Precipitation Forecast

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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