

## Experimental Climate Monitoring and Prediction

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31 December 2015

### FECT BLOG

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

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

### FECT WEBSITES

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

### 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

1.5°C above average Sea Surface temperature was observed around Sri Lanka.

### MJO STATE

MJO phase is in 6 therefore shall not have a significant impact on the rainfall in Sri Lanka.

### Highlights

Slight decrease of rainfall was observed in the entire country in the week 23<sup>rd</sup> – 29<sup>th</sup> December. Highest rainfall was observed in western region of Kilinochchi and the ocean near Delft Island on 27<sup>th</sup> December. Relatively high rainfall was observed in several regions in Matale, Moneragala and Badulla. NOAA NCEP models predict increase of rainfall during next week. MJO phase is in 6 and shall continue to slightly suppress rainfall of the country.

### Summary

#### Monitoring

**Weekly Monitoring:** Slight amounts of rainfall observed in the country during 23<sup>rd</sup> – 29<sup>th</sup> December. On 23<sup>rd</sup> and 24<sup>th</sup> December, no rainfall was observed in entire country. On 25<sup>th</sup> Galle and Matara districts received rainfall up to 20 mm. Galoya national park received rainfall up to 50 mm on 26<sup>th</sup> December while Avissawella, north eastern region of Kandy and Horowpotana received rainfall up to 30 mm. On 27<sup>th</sup> December heavy rainfall was observed (up to 170 mm) in western region of Kilinochchi and ocean near Delft island received rainfall up to 160 mm while ocean near Jaffna received rainfall up to 100 mm and Laggala, Hettipola, Thanamalvila and Badulla received rainfall up to 90 mm. Rainfall up to 90 mm was observed around somawathie chaithya sanctuary on 28<sup>th</sup> December. Rainfall up to 60 mm was observed in eastern region of Kandy on 29<sup>th</sup> December while Kuliypatiya received rainfall up to 50 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 30<sup>th</sup> December – 5<sup>th</sup> January compared to past weeks where heavy rainfall was observed. Total rainfall up to 35 mm is expected during the week in western region and total rainfall up to 25 mm is expected in rest of the country. These models predict the rainfall to increase during 6<sup>th</sup> – 12<sup>th</sup> January 2016 where eastern region shall receive rainfall up to 95 mm and rest of the country is expected to receive total rainfall up to 55 mm.

**IMD WRF & IRI Model Forecast:** According to the IMD WRF model, eastern region of the country shall receive rainfall up to 35 mm on 1<sup>st</sup> January while the rest of the country shall receive slight amounts of rainfall. On 25<sup>th</sup> December, eastern region of the Kilinochchi shall receive rainfall up to 65 mm and eastern region shall receive rainfall up to 35 mm and rest of the country shall receive slight amounts of rain. IRI CFS models predict total rainfall up to 75 mm off the coast of Batticaloa during 30<sup>th</sup> December – 4<sup>th</sup> January.

**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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- Weekly precipitation forecast (IRI)
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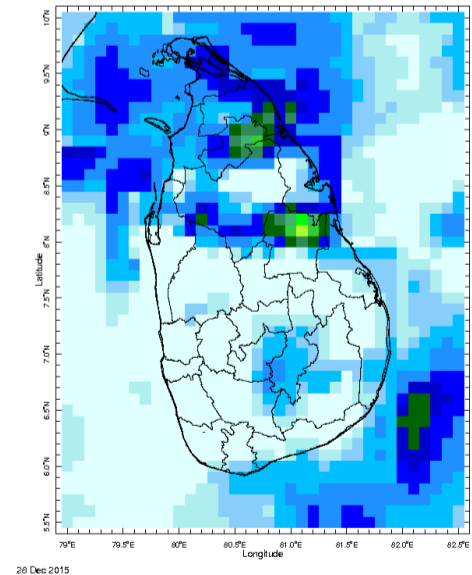
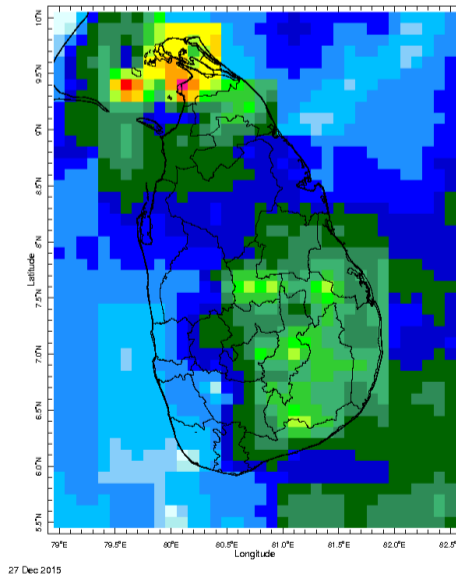
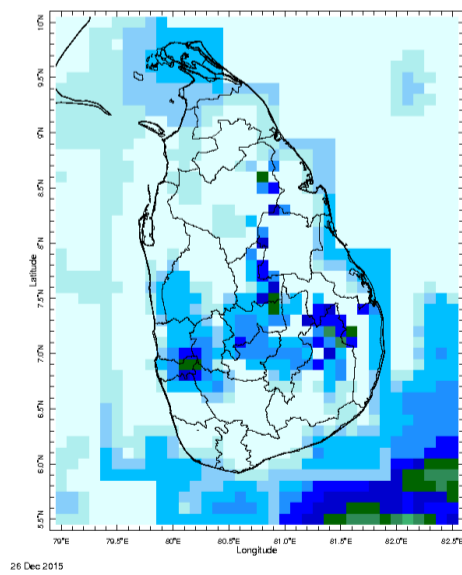
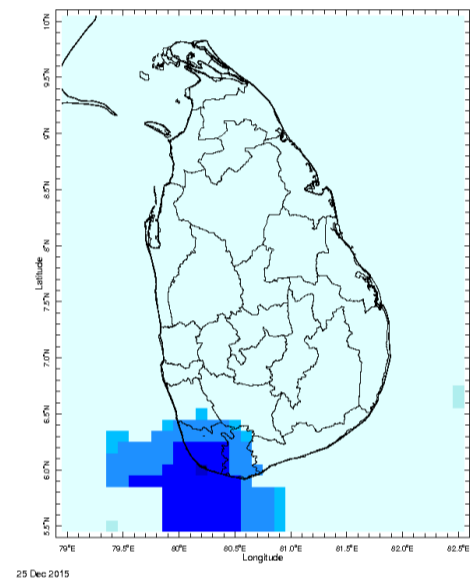
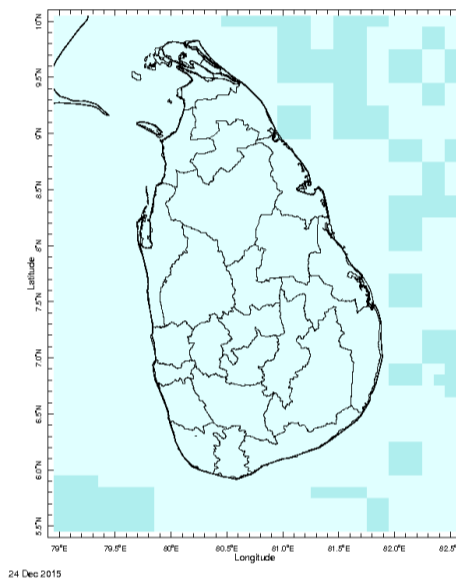
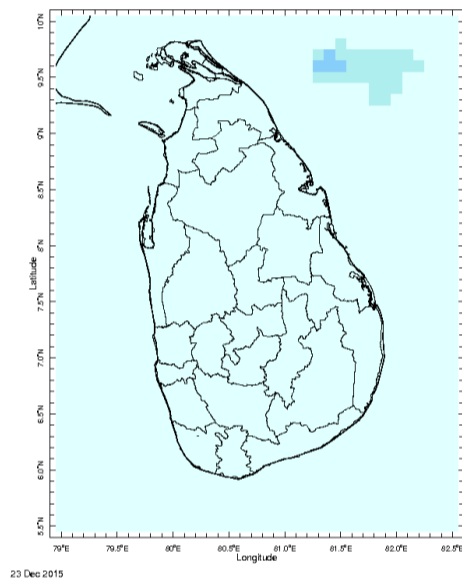
**Weekly Hydro- Meteorological Report for Sri Lanka**

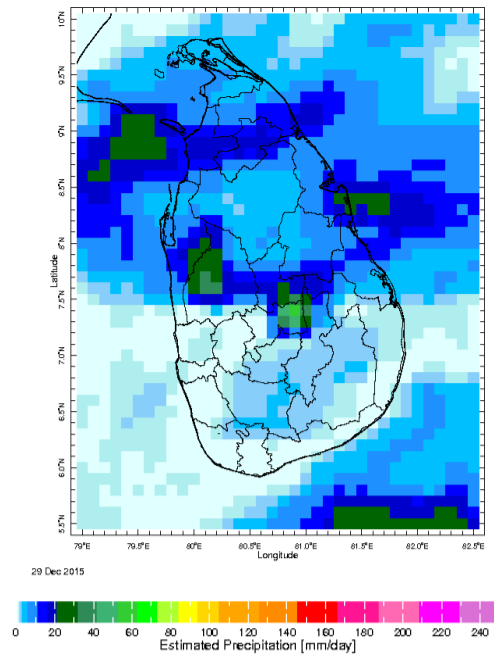
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**Daily Rainfall Monitoring**

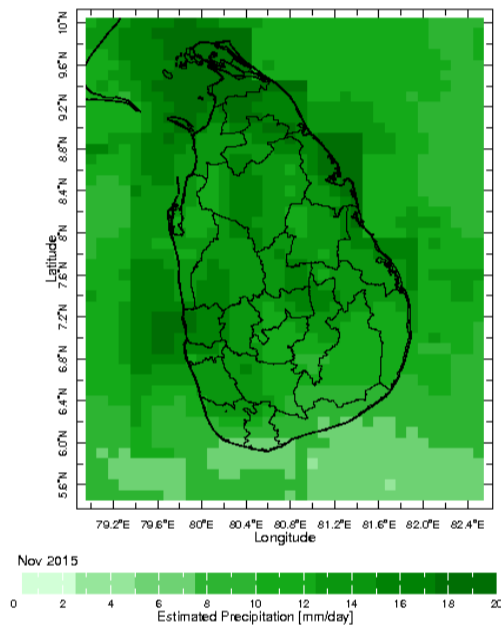
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



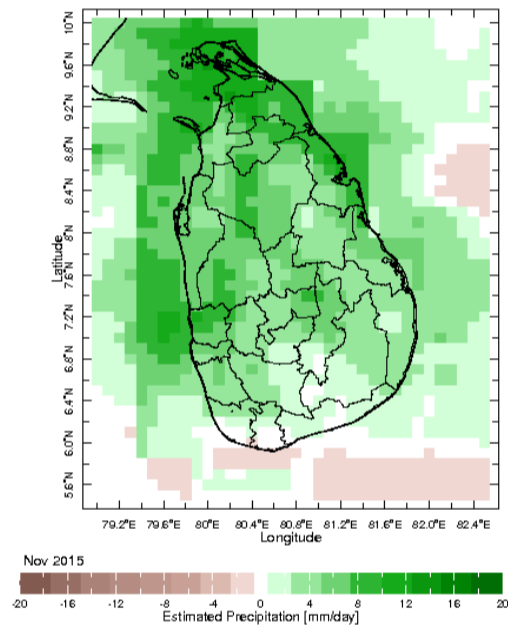


### Monthly Rainfall Monitoring

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

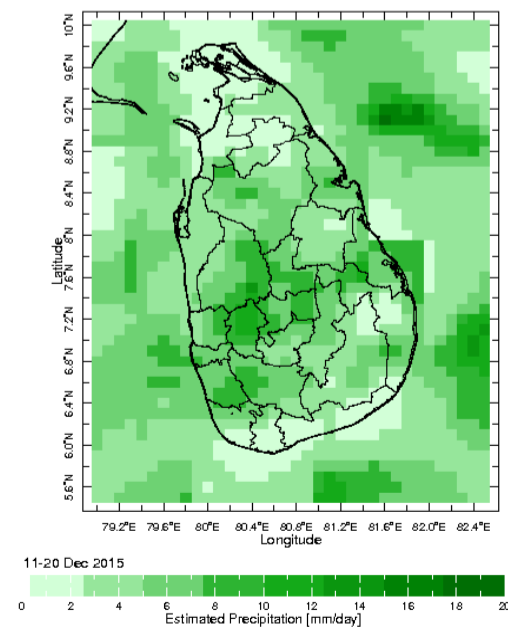
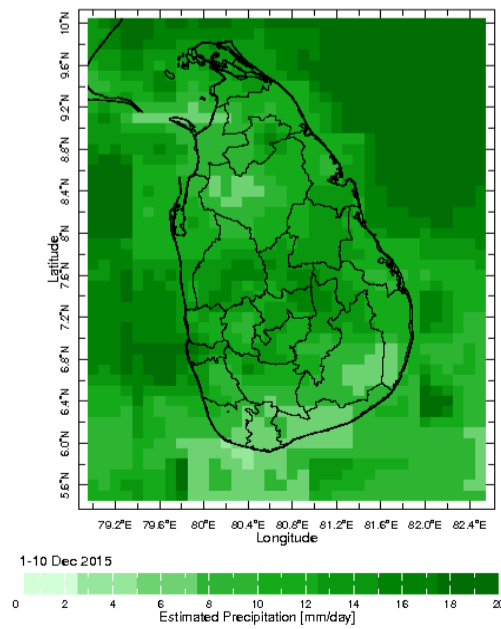


Monthly Average

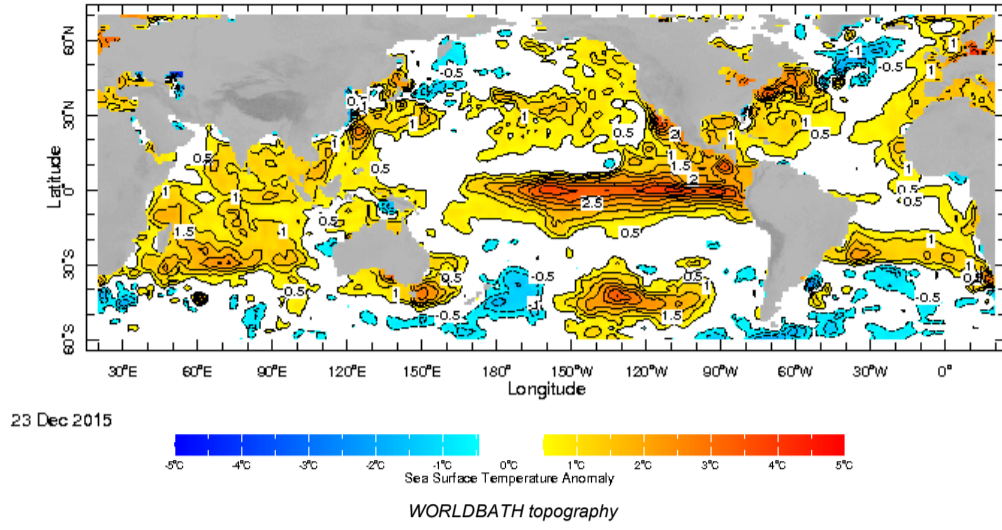


Monthly Anomaly

### Dekadal (10 Day) Satellite Derived Rainfall Estimates

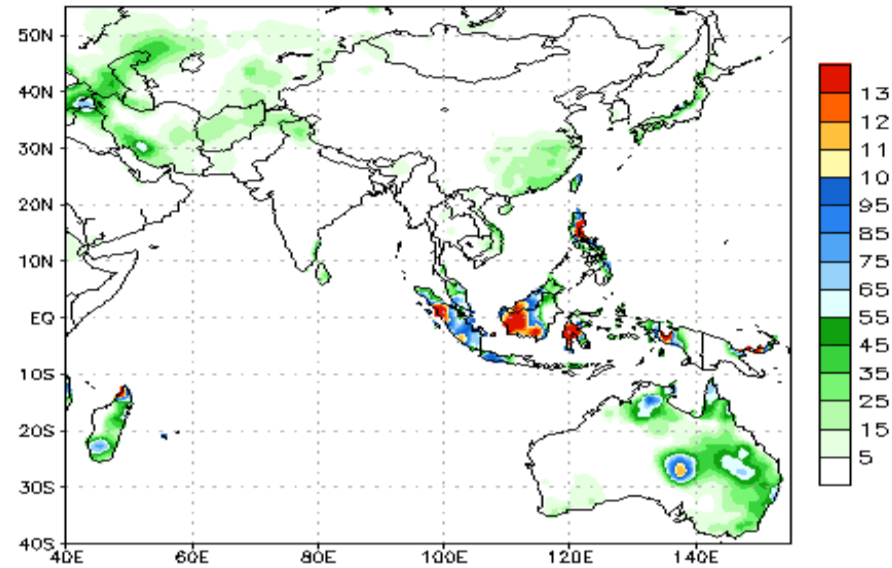


**Weekly Average SST Anomalies**

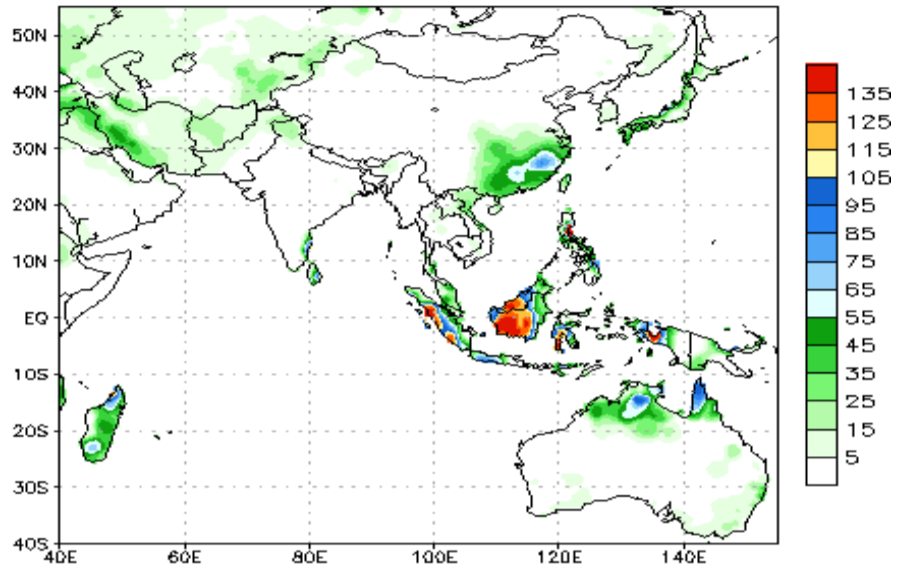


**NCEP GFS 1- 14 Day prediction**

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)  
from: 30Dec2015  
30Dec2015–05Jan2016 Accumulation



NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)  
from: 30Dec2015  
06Jan2016–12Jan2016 Accumulation

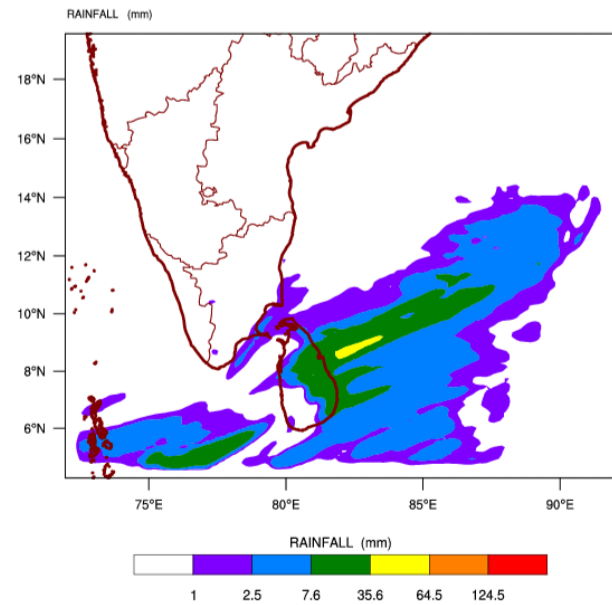


Bias correction based on last 30-day forecast error

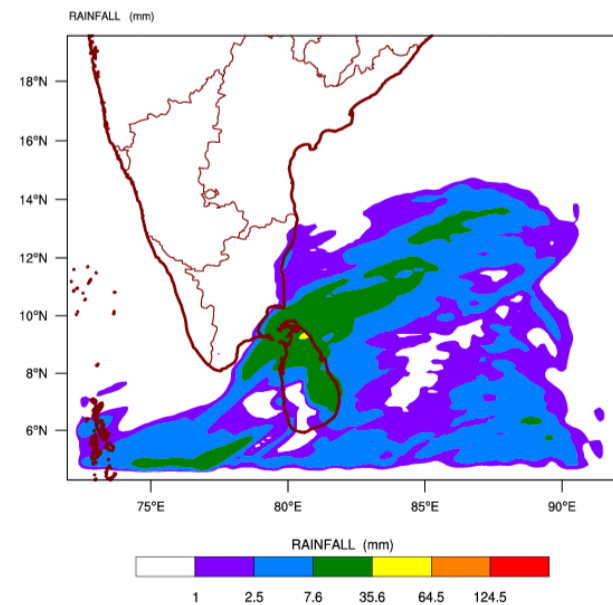
Bias correction based on last 30-day forecast error

**WRF Model Forecast (from IMD Chennai)**

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\  
based on 00 UTC of 30-12-2015 valid for 03 UTC of 01-01-2016



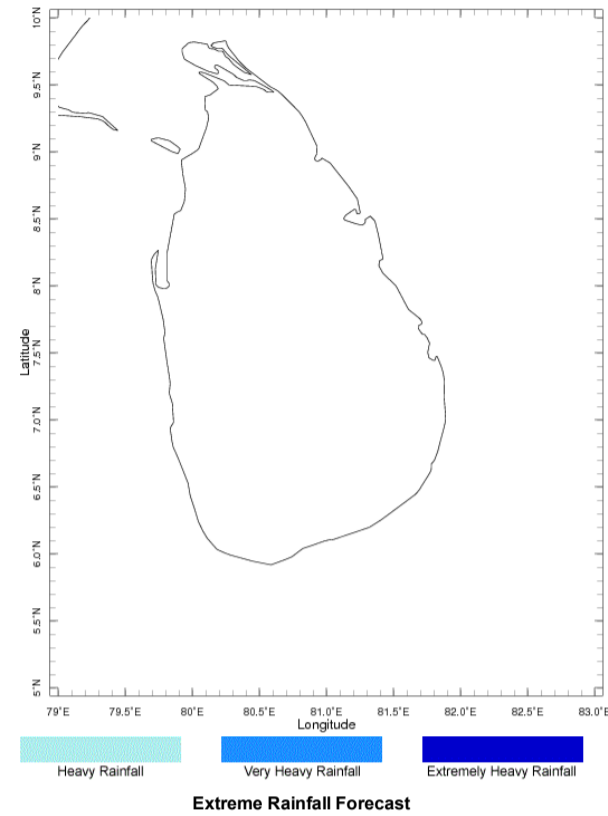
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\  
based on 00 UTC of 30-12-2015 valid for 03 UTC of 02-01-2016



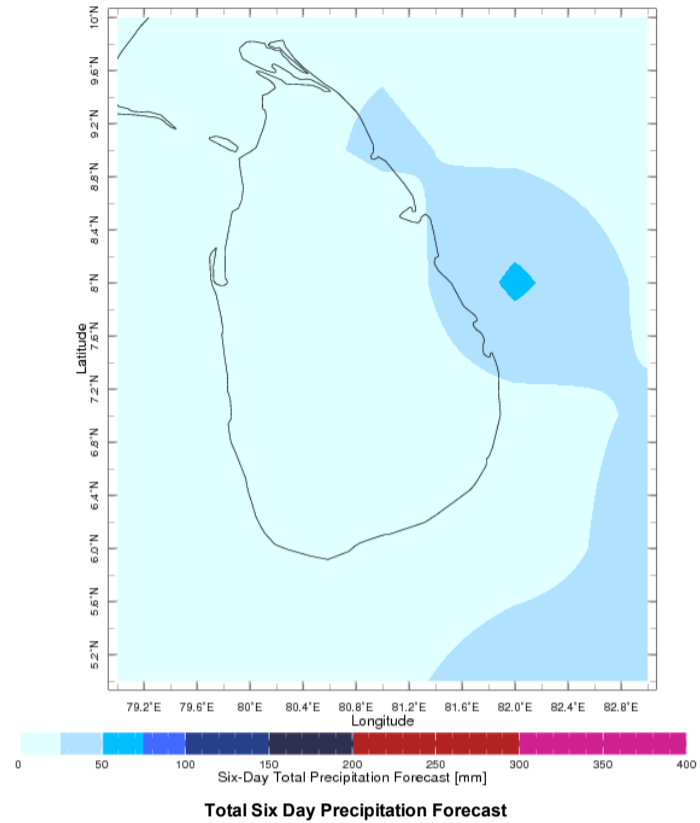
## Weekly Rainfall Forecast

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.

Forecast for 30 Dec 2015 - 4 Jan 2016 Issued 0000 30 Dec 2015



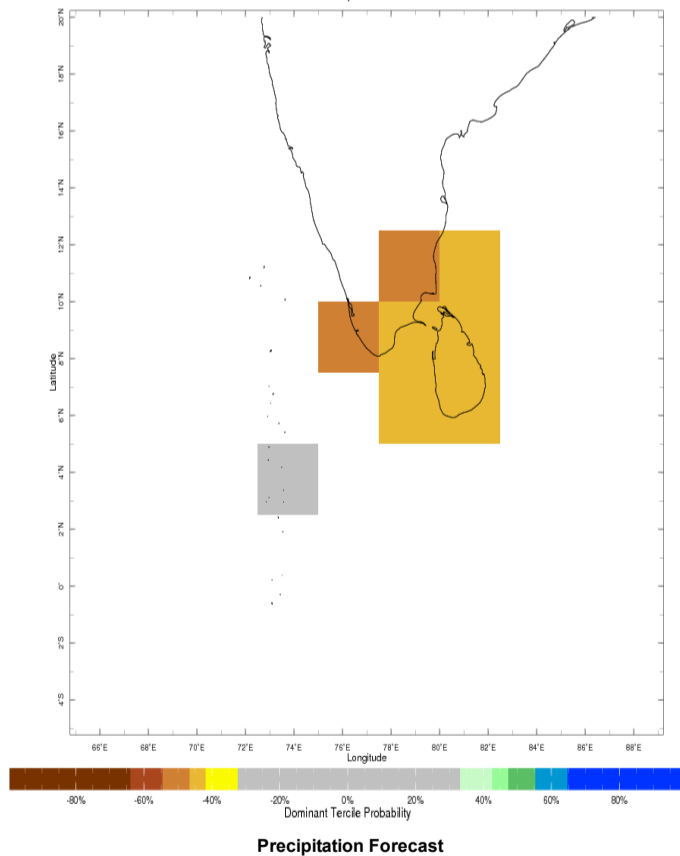
Forecast for 30 Dec 2015 - 4 Jan 2016 Issued 0000 30 Dec 2015



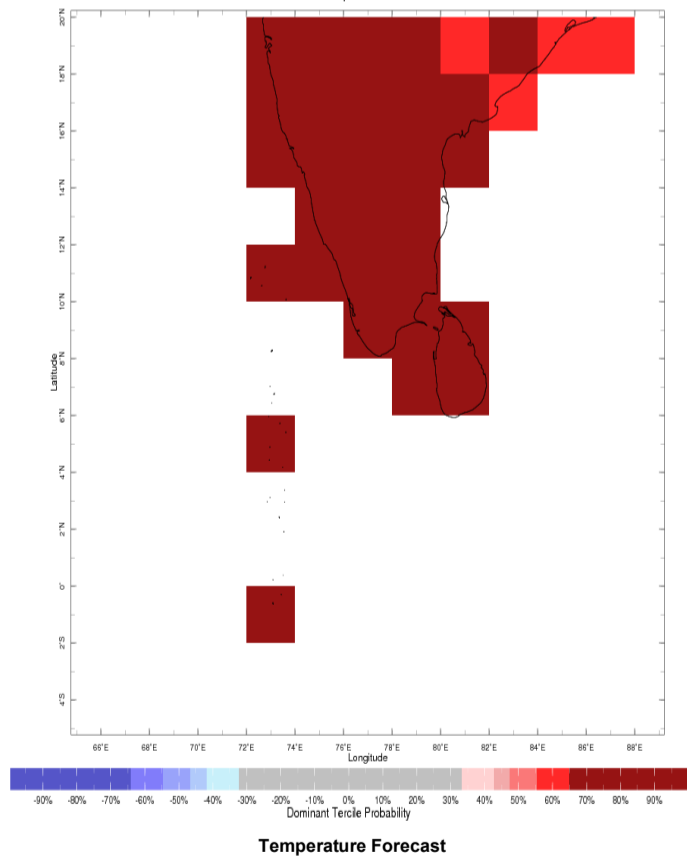
## Seasonal Rainfall and Temperature Forecast

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%).

Jan-Mar 2016 IRI Seasonal Precipitation Forecast issued Dec 2015



Jan-Mar 2016 IRI Seasonal Temperature Forecast issued Dec 2015



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