

Experimental Climate Monitoring and Prediction

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

MJO STATE

MJO is in Phase 7 and therefore shall suppress rainfall in Sri Lanka in a significant manner.

Highlights

During the week 26th December – 1st January, highest rainfall was observed in western region of Kilinochchi and the ocean near Delft Island on 27th December. Relatively high rainfall was observed in several regions in Matale, Moneragala and Badulla. NOAA NCEP models predict increase of rainfall during next week in south eastern region. MJO phase is in 7 and shall suppress rainfall of the country significantly. A continuation of strong El Niño conditions is predicted by the IRI and therefore in January the rainfall shall be low.

Summary

Monitoring

Weekly Monitoring: Slight amounts of rainfall was observed in the country during 26th December – 1st January. Gal-oya national park received rainfall up to 50 mm on 26th December while Avissawella, north eastern region of Kandy and Horowpotana received rainfall up to 30 mm. On 27th 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 28th December. Rainfall up to 60 mm was observed in eastern region of Kandy on 29th December while Kuliypitiya received rainfall up to 50 mm. No rainfall was observed on 30th December and on 31st December north eastern region of Moneragala received rainfall up to 80 mm. From 1st January onward, the daily prediction is not available.

Monthly Monitoring: North province, northern regions of Central, Uva and Sabaragamuwa provinces, northern region of Ampara, Colombo and Polonnaruwa received above average rainfall while eastern province, south province, northern region of Mannar, north eastern region of Anuradhapura, western region of Mullaitivu and the ocean around Trincomalee to Ampara, Galle to Hambantota received below average rainfall.

Predictions

14 day prediction: NOAA NCEP models predict relatively high rainfall in south eastern of the country compared to the rest of country during 6th – 12th January. Total rainfall up to 85 mm is expected in south eastern region and the rest of the country is expected to receive rainfall up to 45 mm. During 13th – 19th January, the rainfall is expected to decrease and total rainfall up to 35 mm is expected to receive around south western region and the rest of the country is expected to receive rainfall up to 25 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, northern region of Badulla and ocean around Kirinda shall receive rainfall up to 65 mm on 8th January while central to eastern regions of the country shall receive up to 35 mm. Northern region of Ampara and Badulla, Galle, Kalutara and Kuruwita is expected to receive rainfall up to 35 mm on 9th January while the eastern and western regions of the country shall receive slight amounts of rain. IRI CFS models predict total rainfall up to 50 mm in south western, southern, central and south eastern regions of the country

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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- Seasonal Predictions from IRI

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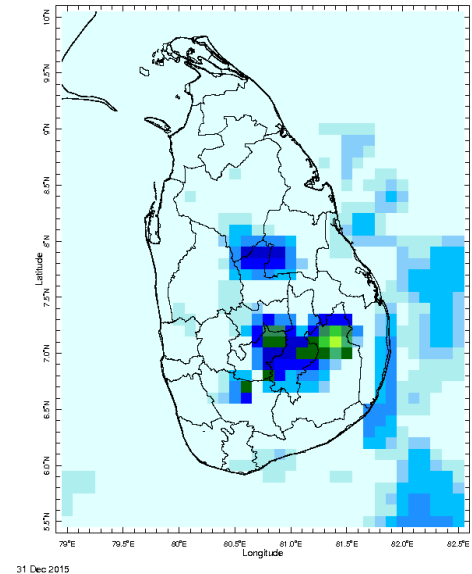
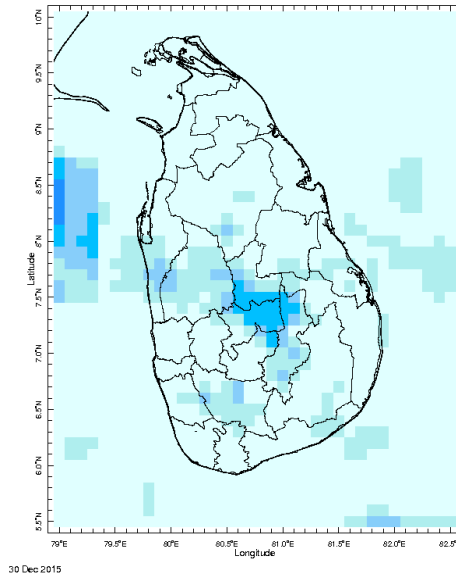
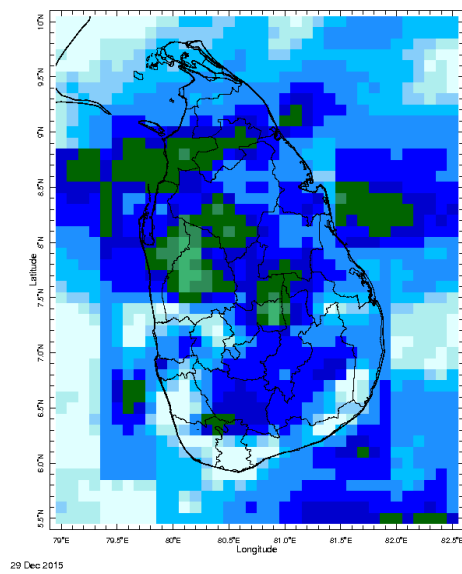
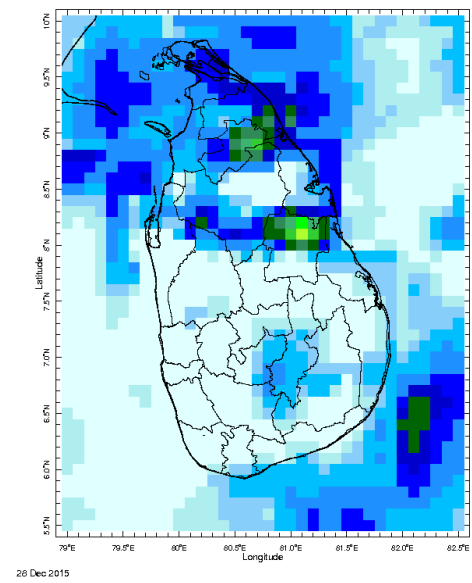
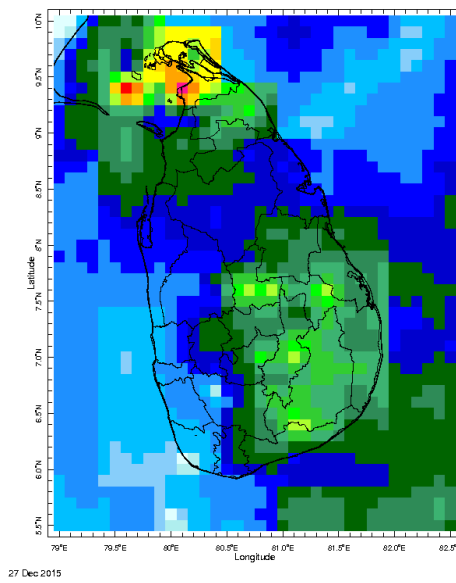
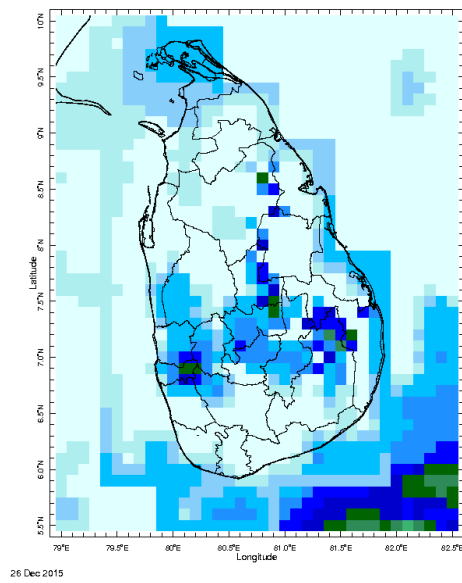
Weekly Hydro- Meteorological Report for Sri Lanka

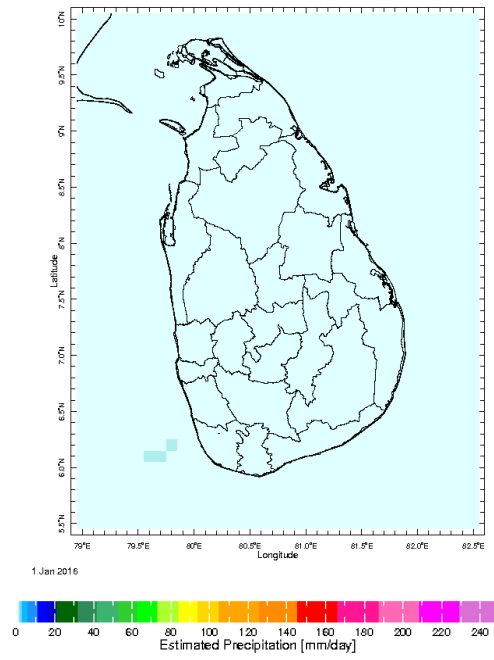
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Daily Rainfall Monitoring

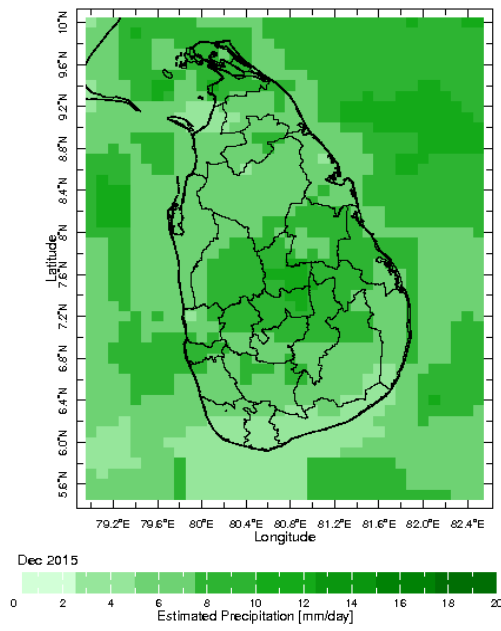
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



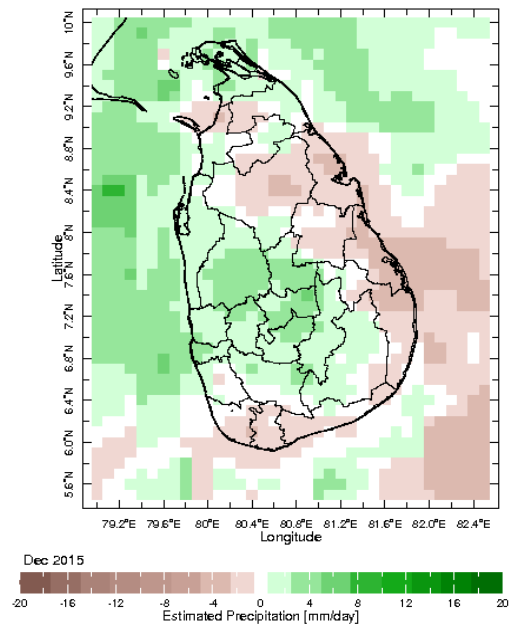


Monthly Rainfall Monitoring

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

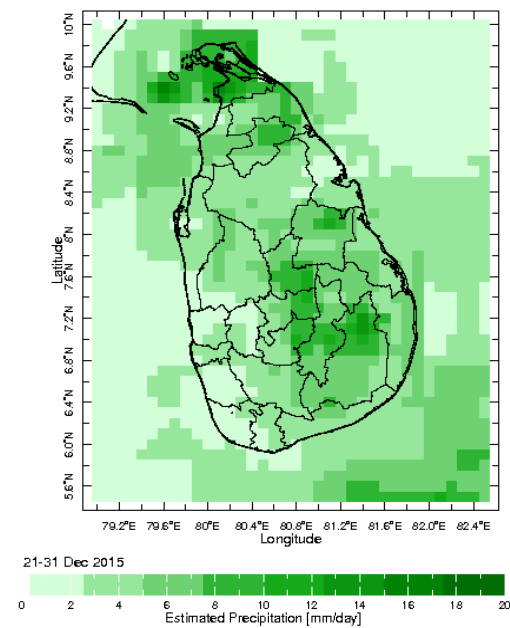
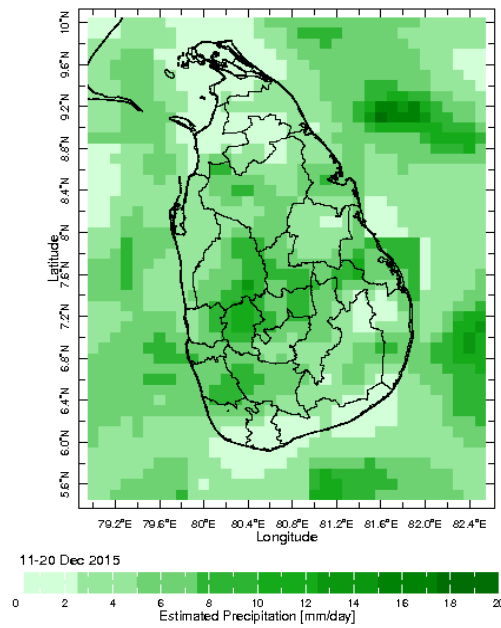


Monthly Average

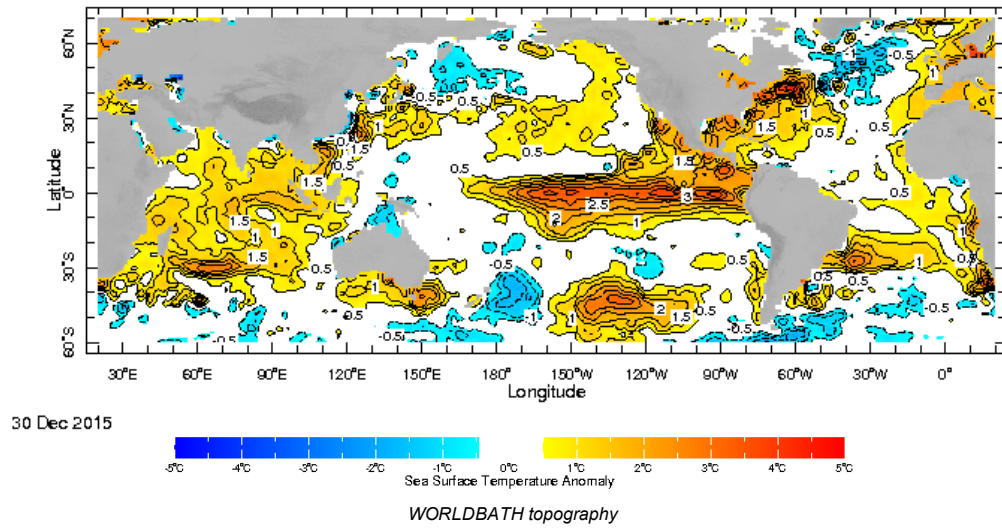


Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

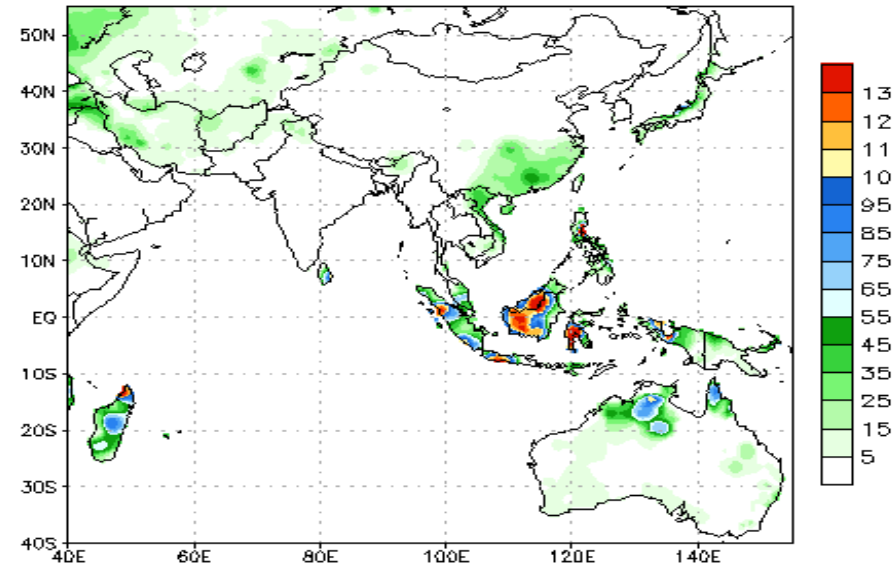


Weekly Average SST Anomalies

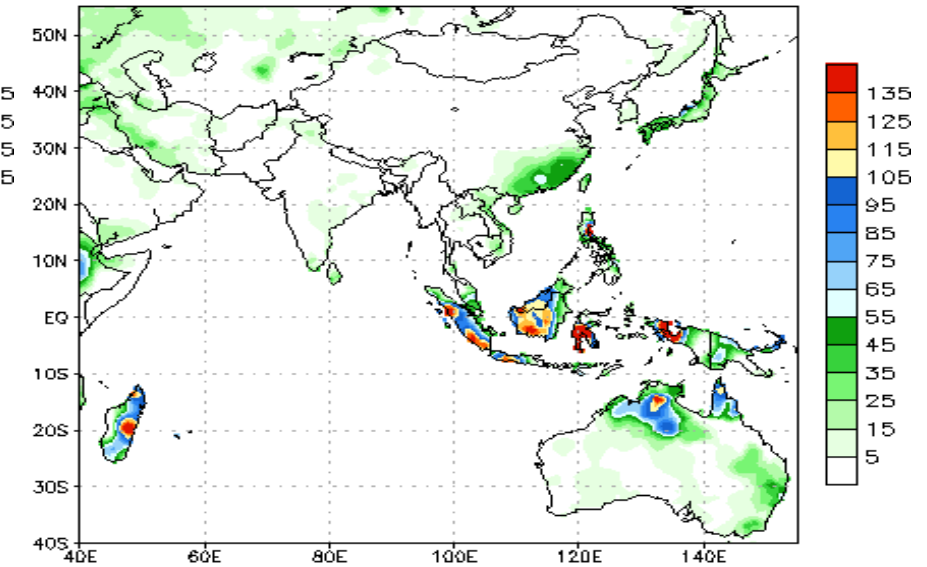


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 06Jan2016
06Jan2016–12Jan2016 Accumulation



NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 06Jan2016
13Jan2016–19Jan2016 Accumulation

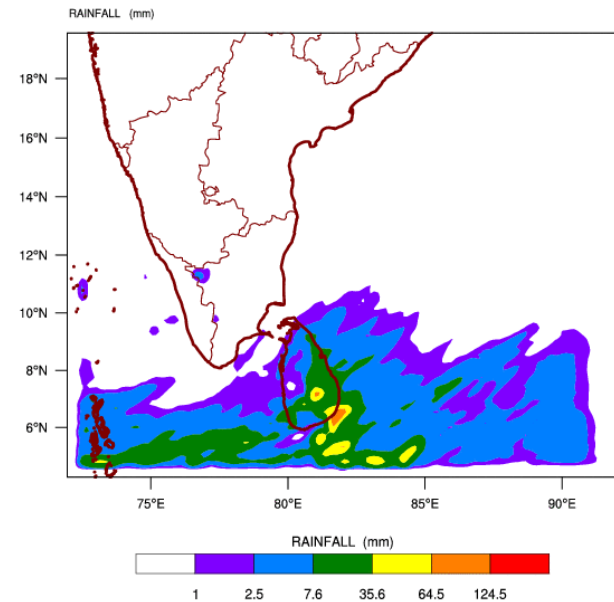


Bias correction based on last 30-day forecast error

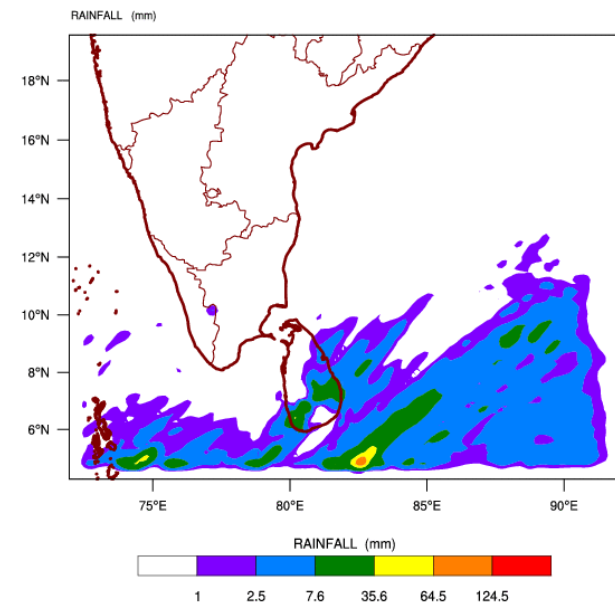
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 06-01-2016 valid for 03 UTC of 08-01-2016

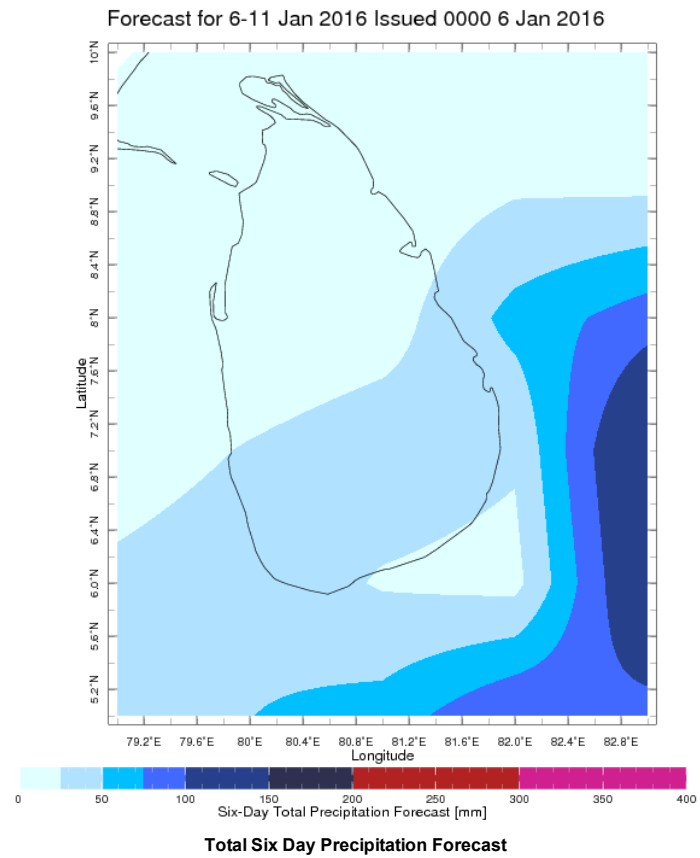
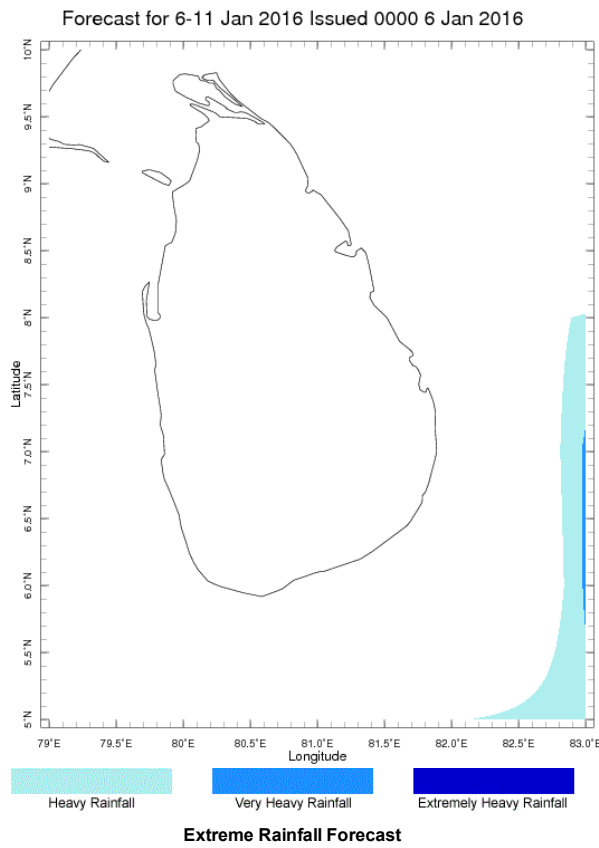


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 06-01-2016 valid for 03 UTC of 09-01-2016



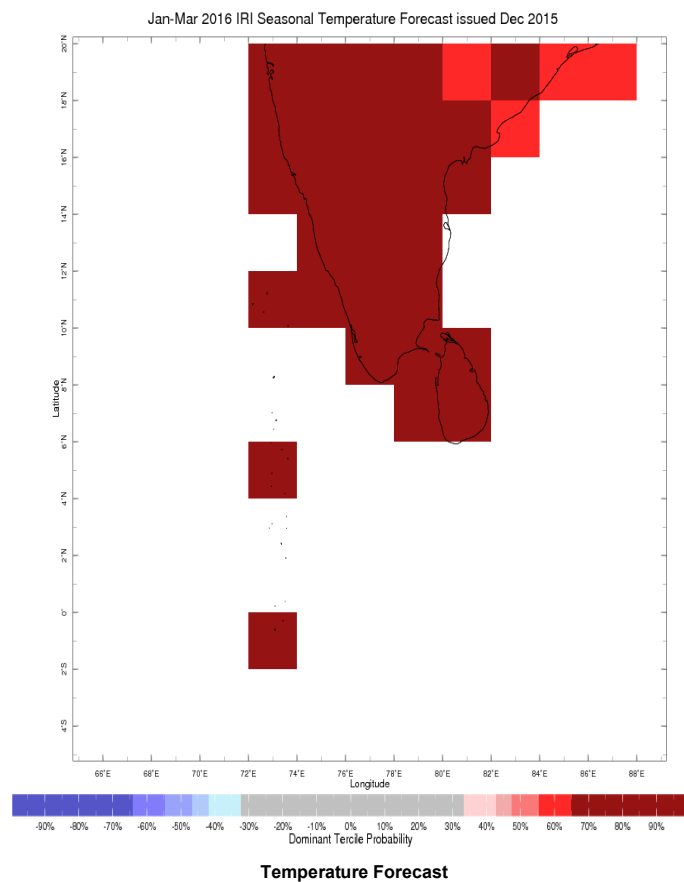
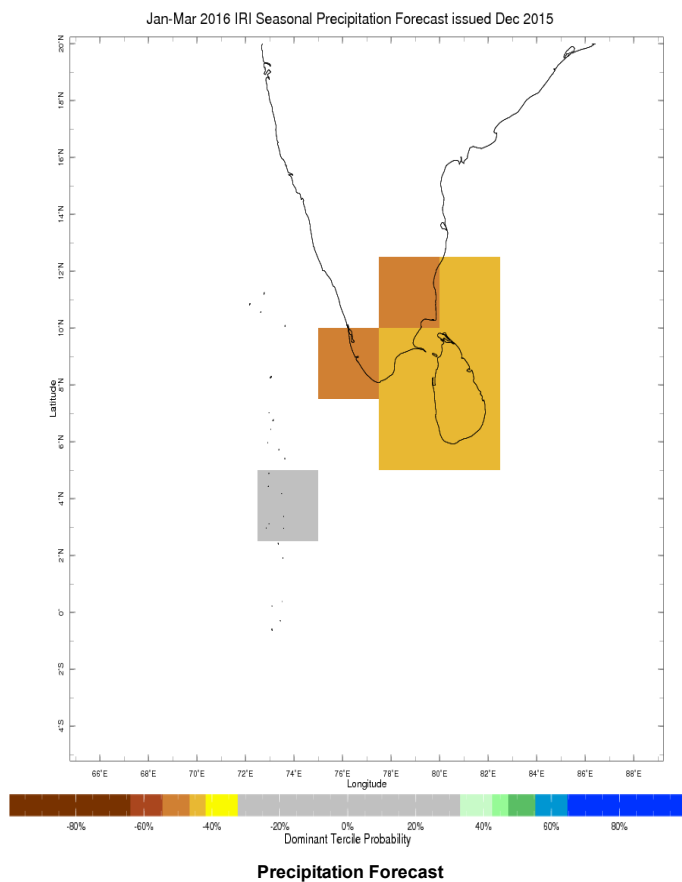
Weekly Rainfall Forecast

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.



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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