

Experimental Climate Monitoring and Prediction

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22 October 2015

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October 15, 2015 PACIFIC SEAS STATE

During late September through mid-October 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 October-December 2015 season in progress. Some slightly further strengthening is possible into later fall, 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 is weak and therefore significant impact on rainfall is not expected.

Highlights

Up to 40 mm rainfall was observed in north western, western and southern regions of the country during the time period 14th – 20th October. Gampaha received heavy rainfall up to 160 mm on 18th October and rainfall up to 140 mm was observed in Hikkaduwa. Udawela received rainfall up to 110 mm on 20th October. Every prediction model predict increase of rainfall during the next week.

Summary

Monitoring

Weekly Monitoring: During 14th–20th October western, north western and southern regions mostly received rainfall. On 14th October rainfall up to 80 mm was observed around Attanagalla while Kuruwita received rainfall up to 50 mm. On 15th October, north eastern region of Kurunegala and Dambulla received rainfall up to 60 mm. Thanamalwila received rainfall up to 50 mm while rainfall up to 40 mm was observed Ratnapura and Embilipitiya on 16th October. Rainfall up to 50 mm was observed around Anamaduwa and in the ocean near Puttalam on 17th October while rainfall up to 30 mm was observed in Matur, Kinniya, Haputale and Galle. Heavy rainfall up to 160 mm was observed in the coastal region of Gampaha on 18th October while Hikkaduwa received rainfall up to 140 mm. On 19th October, rainfall up to 80 mm was observed in the coastal region of Kalutara while Kuliypitiya, Rambukkana and Balangoda received rainfall up to 50 mm. Udawela received rainfall up to 110 mm and Galgamuwa received rainfall up to 90 mm on 20th October.

Monthly Monitoring: In September 2015 the entire country received above average rainfall while the ocean near northern and eastern provinces received below average rainfall.

Predictions

14 day prediction: NOAA NCEP models predict relatively high rainfall in south western region of the country compared to the rest of the country during 21st - 27th October. Total rainfall above 135 mm is expected during the week in the south western region and total rainfall up to 85 mm is expected in the rest of the country except the northern region. Northern region is expected to receive rainfall up to 45 mm. These models predict the rainfall shall be increased during 28th October – 3rd November and total rainfall above 135 mm is expected in southern, central and western regions, total rainfall up to 135 mm is expected in north central region and the northern region shall receive total rainfall up to 95 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model rainfall up to 125 mm is expected in Badulla and Moneragala on 23rd October while central and south eastern regions shall receive heavy rainfall up to 65 mm and rest of the country also shall receive slight amounts of rainfall. On 24th October rainfall is expected up to 65 mm in Udawalawe and the coastal region of Hambantota while rainfall up to 35 mm is expected in south eastern region. IRI CFS models predict total rainfall up to 100 mm in south eastern region of the country during 21st - 26th October.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for November to January, 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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¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

Weekly Hydro- Meteorological Report for Sri Lanka

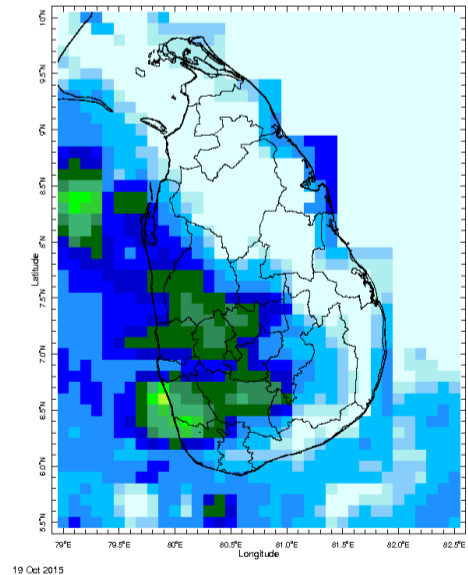
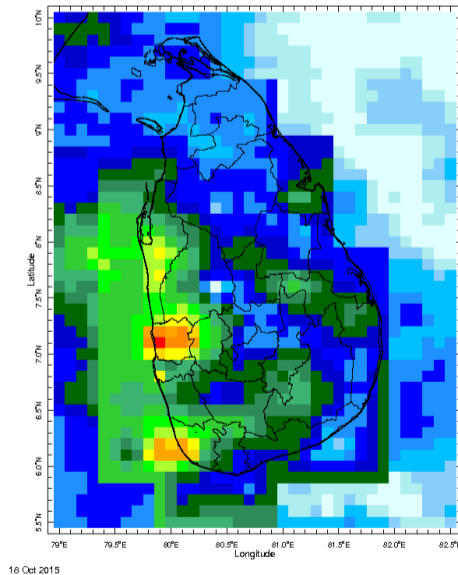
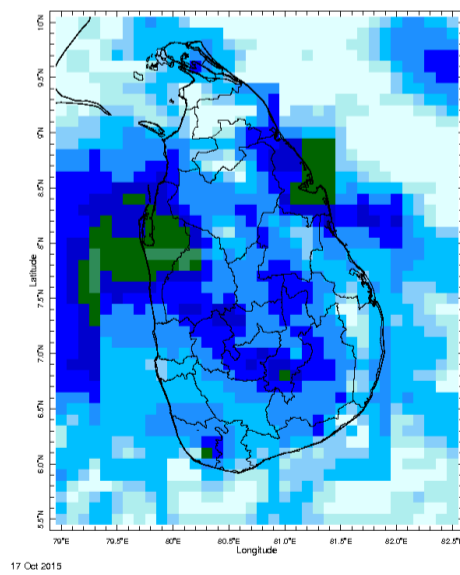
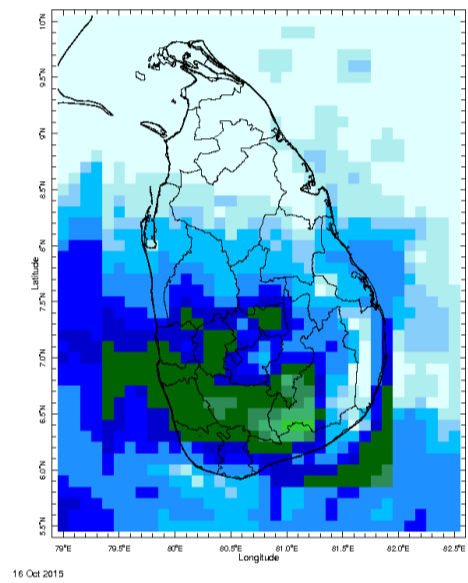
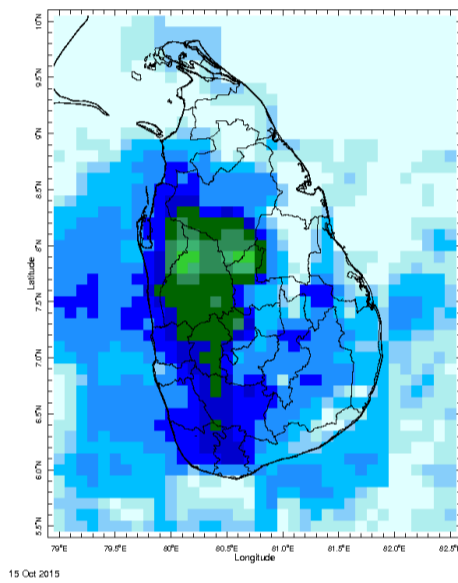
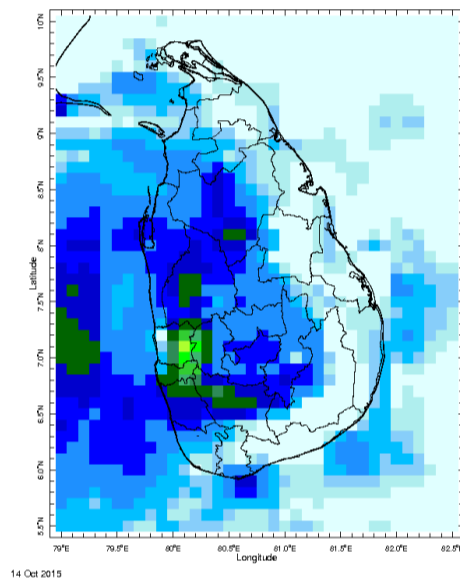
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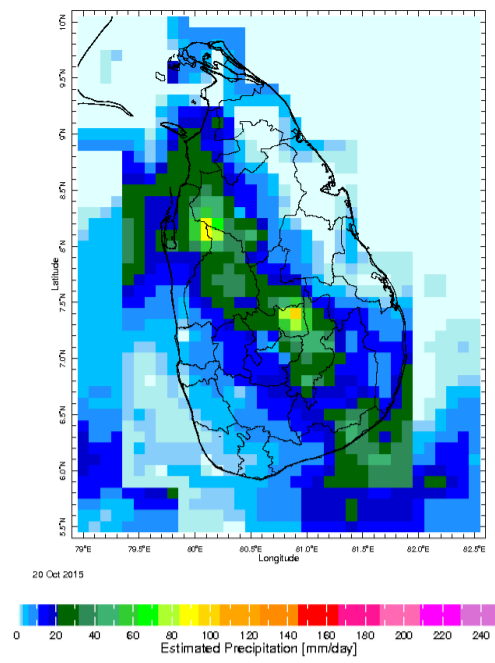
1. **Monitoring**
 - a. Daily Satellite derived Rainfall Estimates
 - b. Monthly Rainfall Estimates
 - c. Decadal (10 Day) Satellite Derived Rainfall Estimates
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Daily Rainfall Monitoring

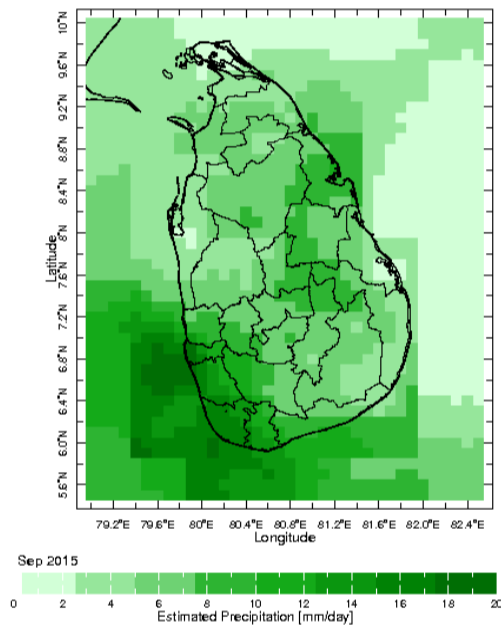
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



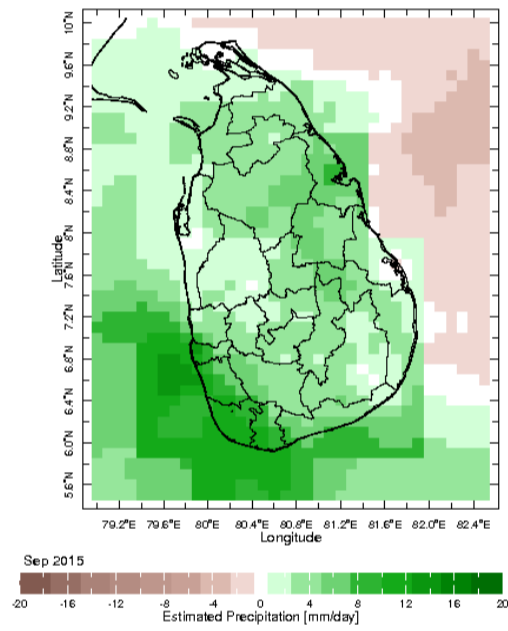


Monthly Rainfall Monitoring

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

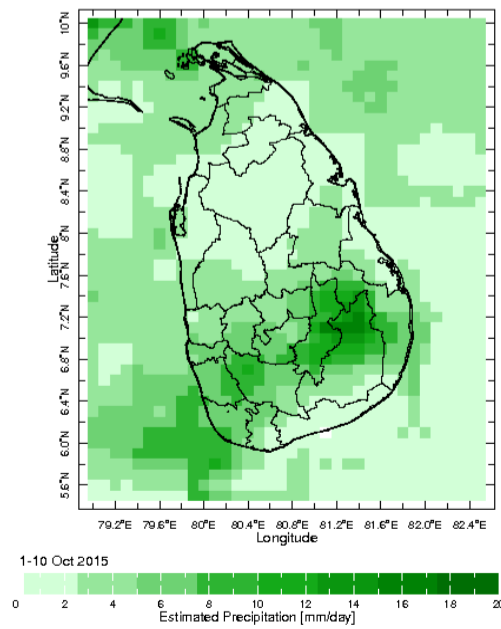


Monthly Average

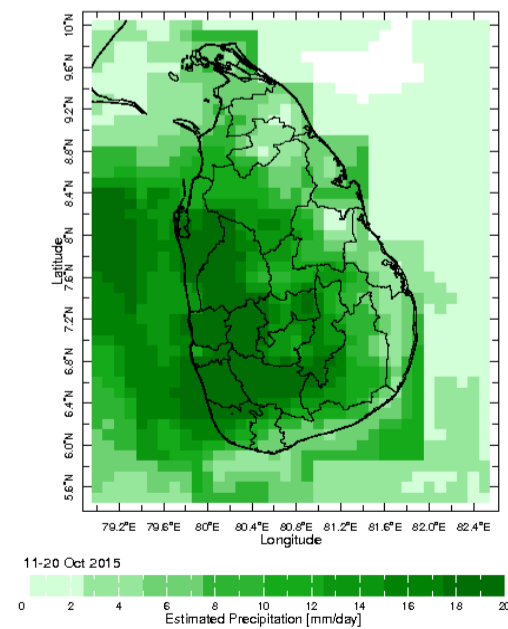


Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

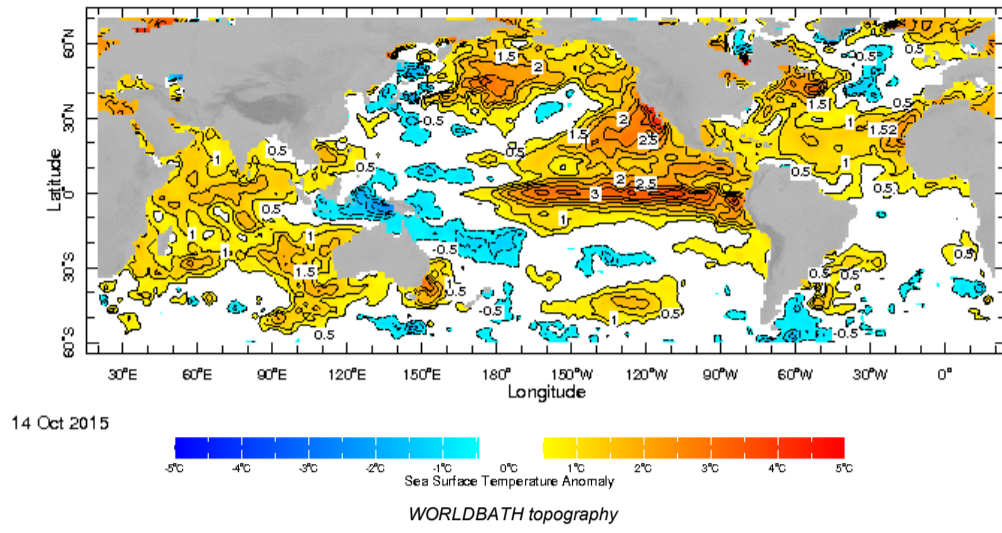


1-10 Oct 2015



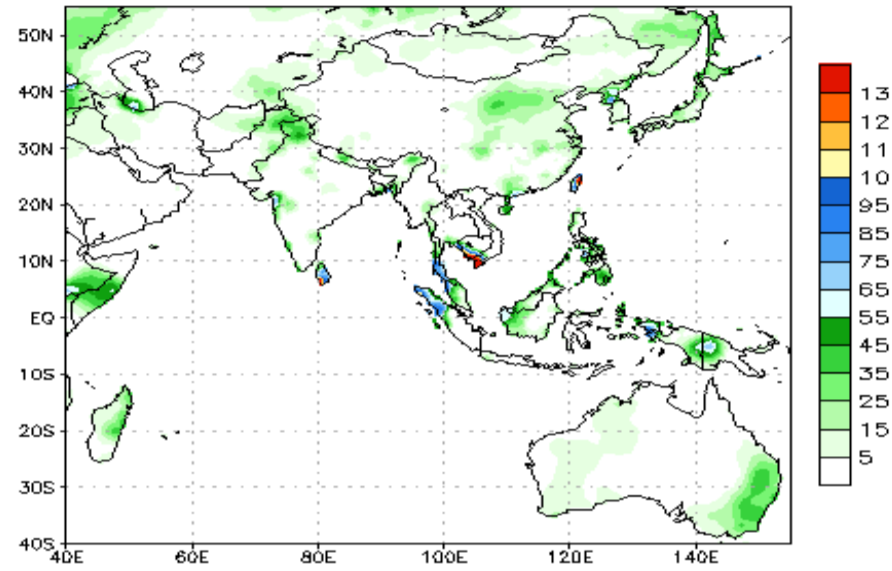
11-20 Oct 2015

Weekly Average SST Anomalies

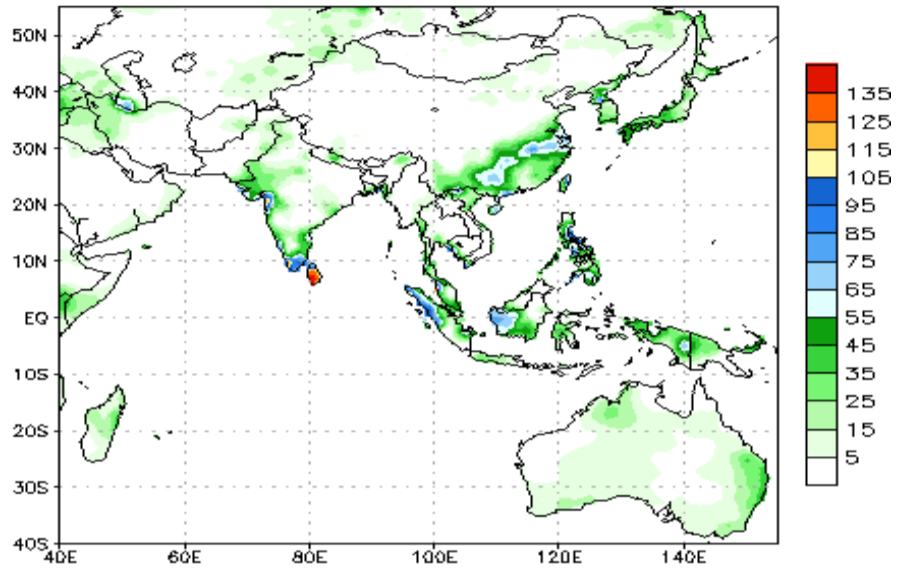


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 21Oct2015
21Oct2015-27Oct2015 Accumulation



NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 21Oct2015
28Oct2015-03Nov2015 Accumulation

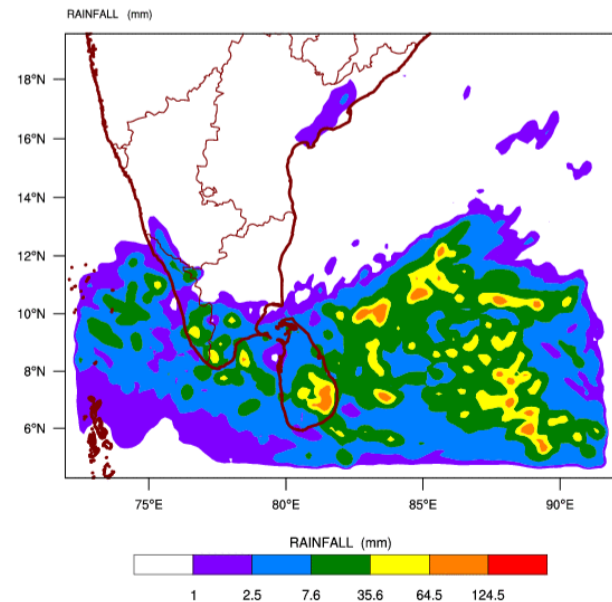


Bias correction based on last 30-day forecast error

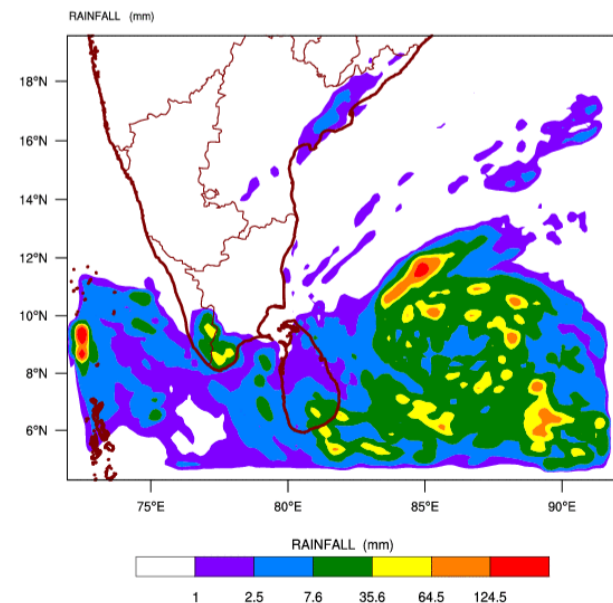
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 21-10-2015 valid for 03 UTC of 23-10-2015

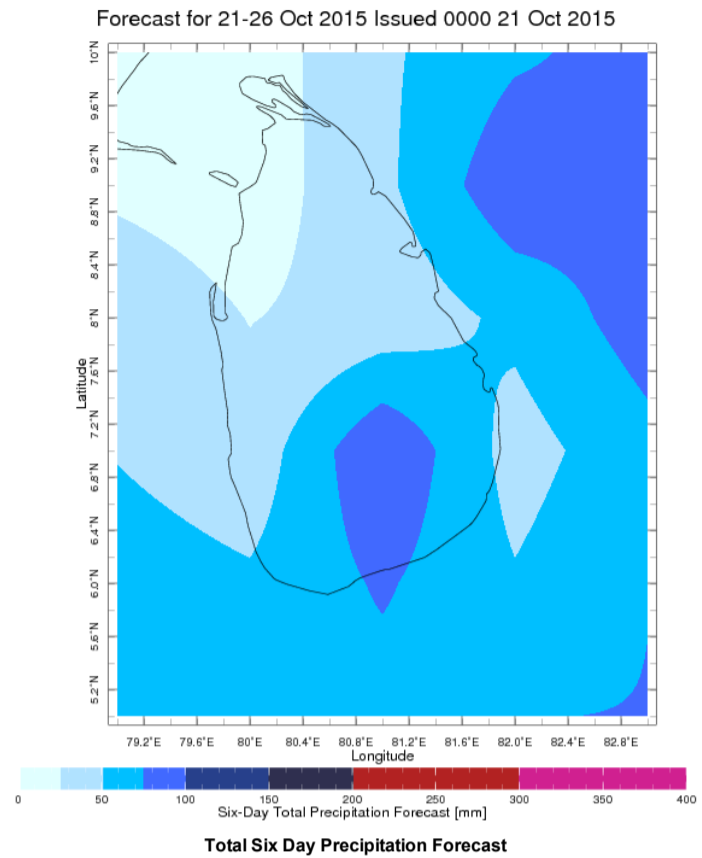
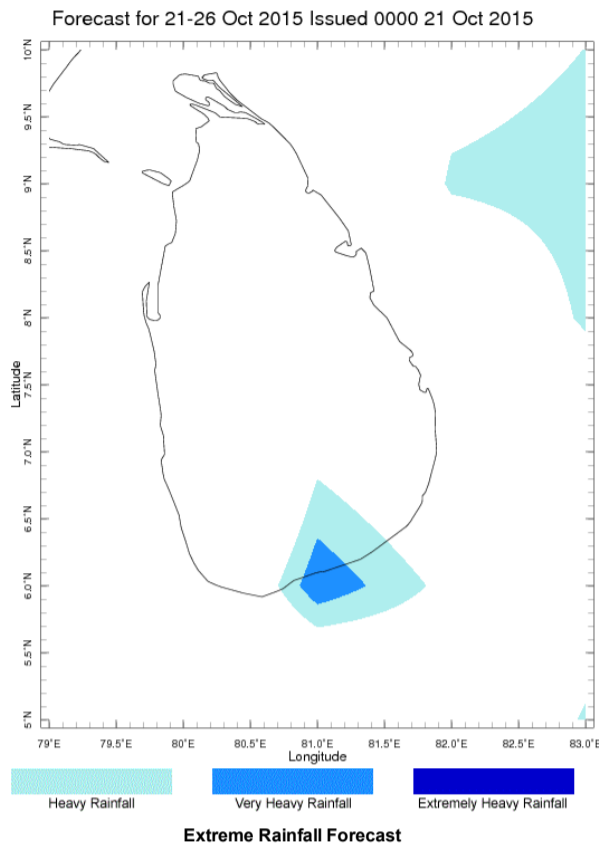


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 21-10-2015 valid for 03 UTC of 24-10-2015



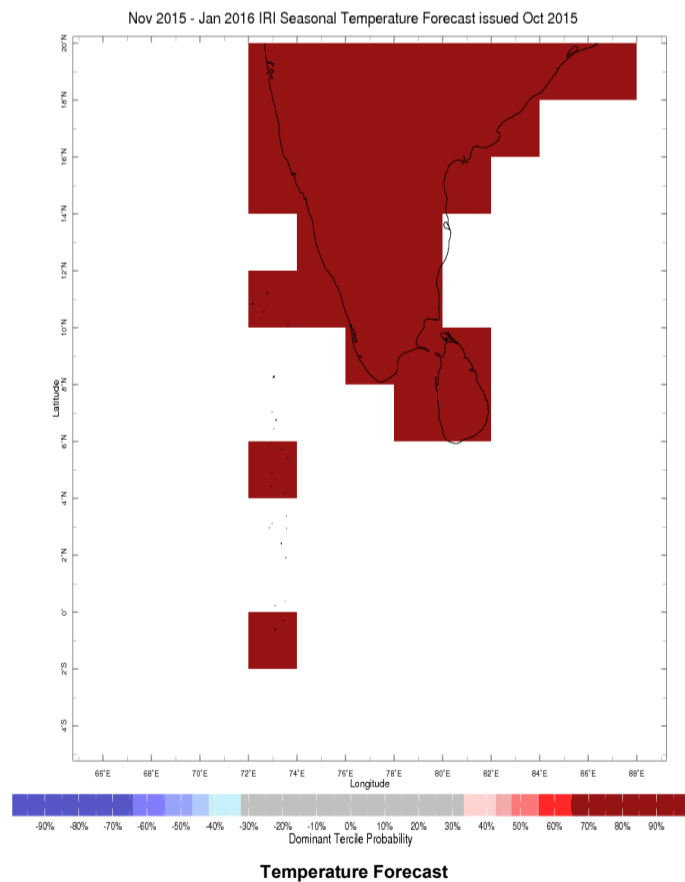
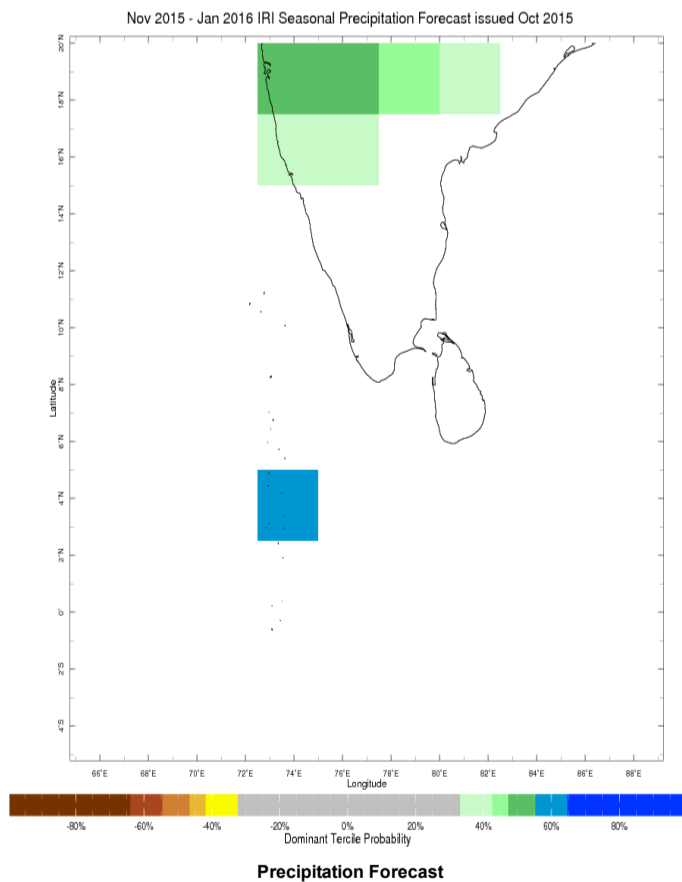
Weekly Rainfall Forecast

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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