

Experimental Climate Monitoring and Prediction

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February 18, 2016 PACIFIC SEAS STATE

During mid-February 2016 the tropical Pacific SST was still at a very strong El Niño level, having peaked in November and December. All atmospheric variables continue to support the El Niño pattern, including weakened trade winds and excess rainfall in the east-central tropical Pacific. Most ENSO prediction models indicate slowly weakening El Niño conditions over the coming several months, returning to neutral by late spring or early summer 2016, with a chance for La Niña development during fall.

(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

Dry weather conditions prevailed in most parts of the country between 24th February and 1st March where western, southern and south western regions received rainfall. On 24th February highest rainfall of 90mm was observed around the northern region of Ratnapura and western region of Ampara received rainfall up to 60 mm. Hikkaduwa received rainfall up to 70 mm on 27th February. For the next week, NOAA NCEP model predicts rainfall in western and south western regions and dry weather conditions for the rest of the country. MJO is in phase 7 shall suppress rainfall in Sri Lanka in a significant manner.

Summary

Monitoring

Weekly Monitoring: During the period 24th February – 1st March, western, southern and south western regions of the country received rainfall. 90 mm of rainfall was observed around northern region of Ratnapura on 24th February while western region of Ampara received rainfall up to 60 mm. On 25th of February, the sea near Colombo received rainfall up to 50 mm, while rainfall up to 30 mm was observed in northern region of Colombo, Hambantota and the sea around Hambantota. The sea around Nilaveli received rainfall up to 20 mm on 26th February. Hikkaduwa received rainfall up to 70 mm on 27th February and no significant rainfall was observed in the entire country at the end of the week.

Monthly Monitoring: During February 2016 most regions of the country observed below average rainfall; and above average rainfall was observed in the northern region of Ratnapura, western region of Gampaha, Colombo, Kalutara, Galle, Matara and the sea around western, south eastern and south western regions of the country.

Predictions

14 day prediction: NOAA NCEP models predict rainfall in western and south western regions of the country where rainfall up to 55 mm is expected in south western region and up to 45 mm rainfall in western region during 2nd – 8th March. Rest of the country is not expected to receive rainfall. These models predict that there shall be no rainfall in entire country during 9th – 15th March.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, the sea around Ampara and Hambantota is expected to receive rainfall up to 35 mm on 4th March while Ampara, Galle and central regions of the country shall receive slight amounts of rainfall. Rest of the country is not expected to receive rainfall. On 5th February, rainfall up to 125 mm is expected to receive in Galle where coastal region of Ampara shall receive rainfall up to 35 mm. Eastern, central, western and southern regions shall receive slight amounts of rainfall. IRI CFS models predict up to 50 mm total precipitation in western sea, Colombo, Kalutara, Kegalle, Nuwara Eliya and Badulla during 2nd – 7th March.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for March to May, the total 3 month precipitation has 40% 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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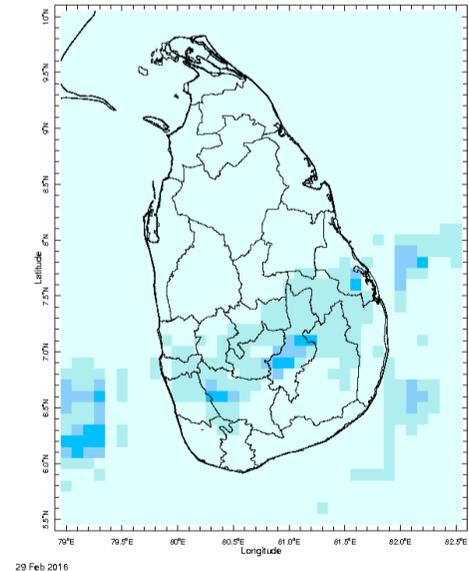
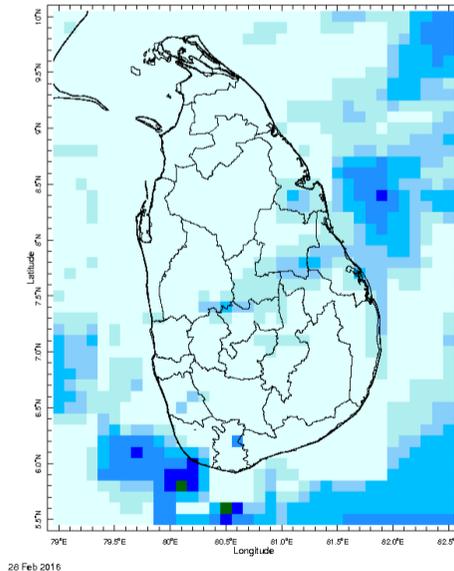
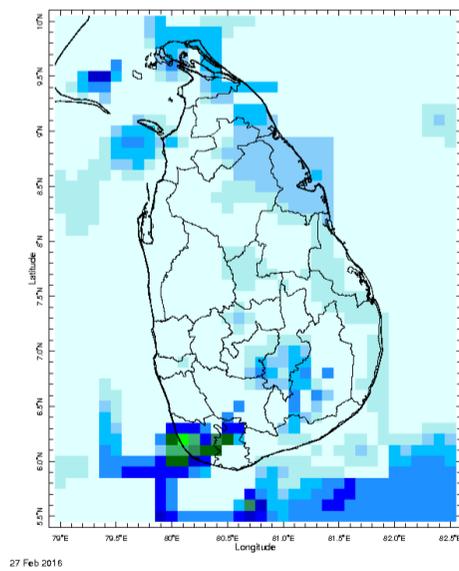
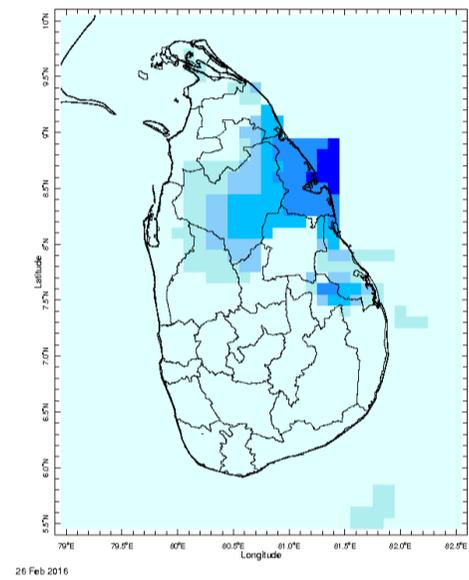
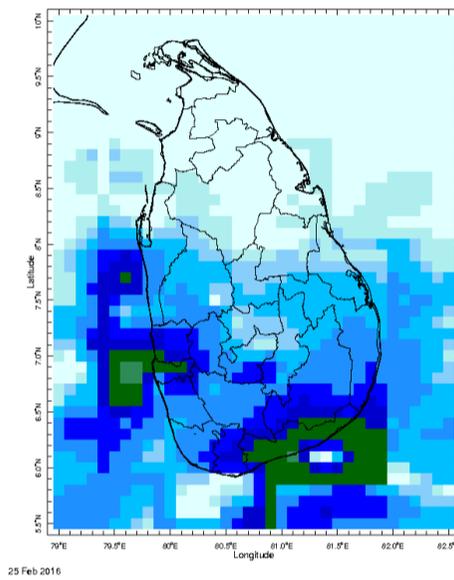
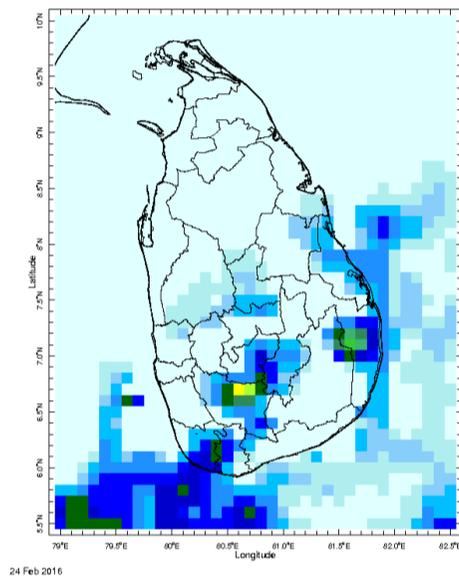
Weekly Hydro- Meteorological Report for Sri Lanka

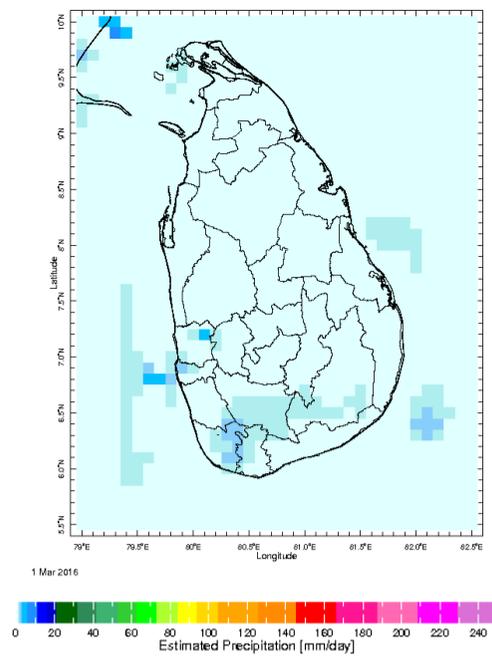
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Daily Rainfall Monitoring

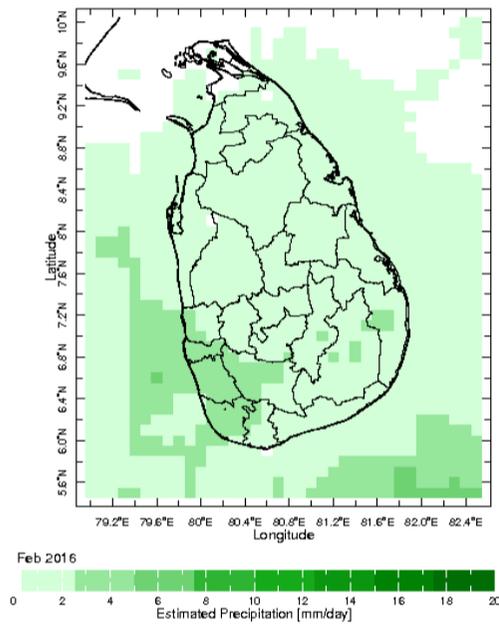
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



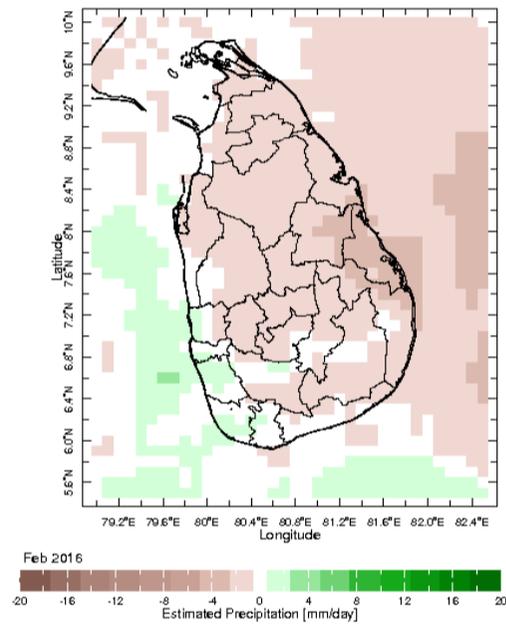


Monthly Rainfall Monitoring

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

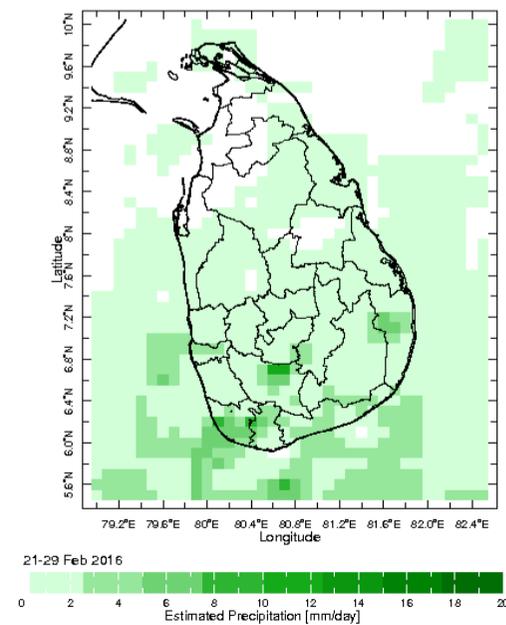
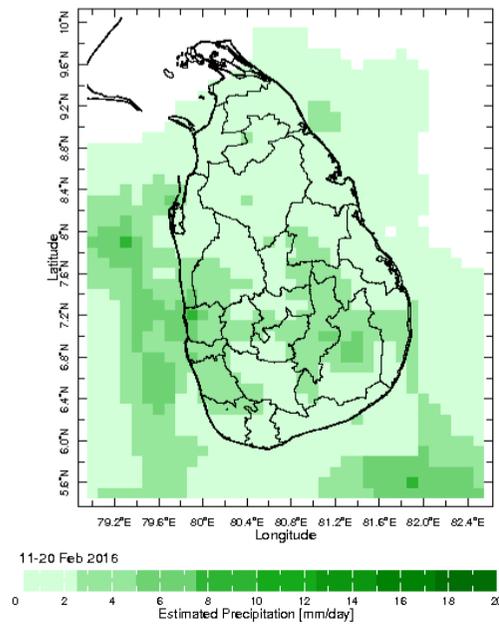


Monthly Average

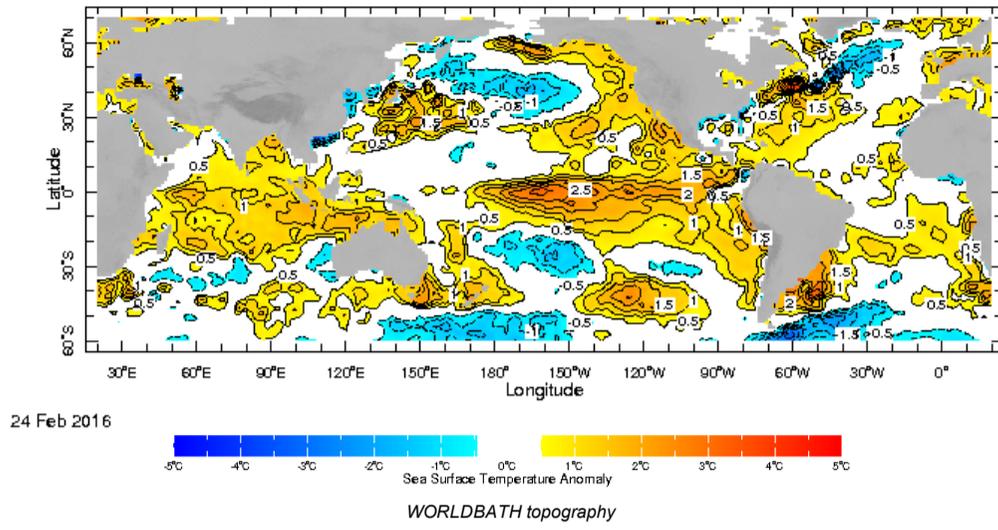


Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

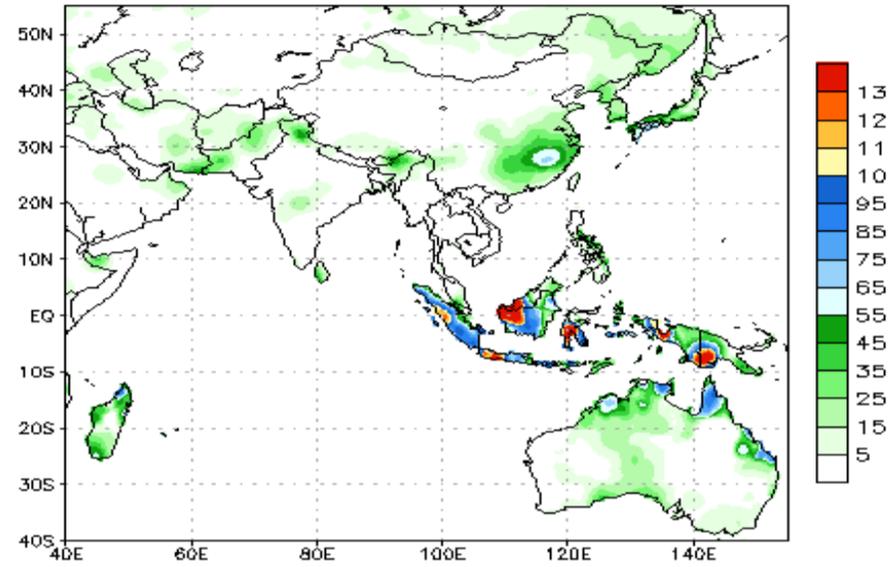


Weekly Average SST Anomalies

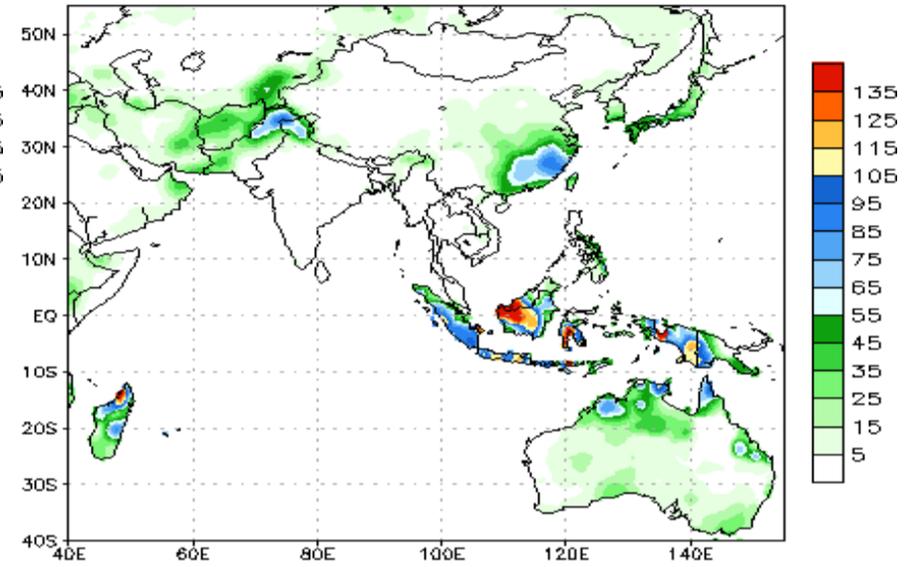


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 02Mar2016
02Mar2016–08Mar2016 Accumulation



NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 02Mar2016
09Mar2016–15Mar2016 Accumulation

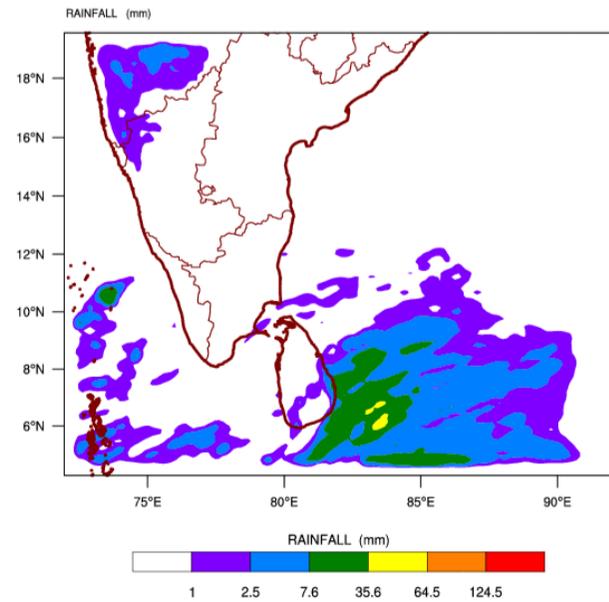


Bias correction based on last 30-day forecast error

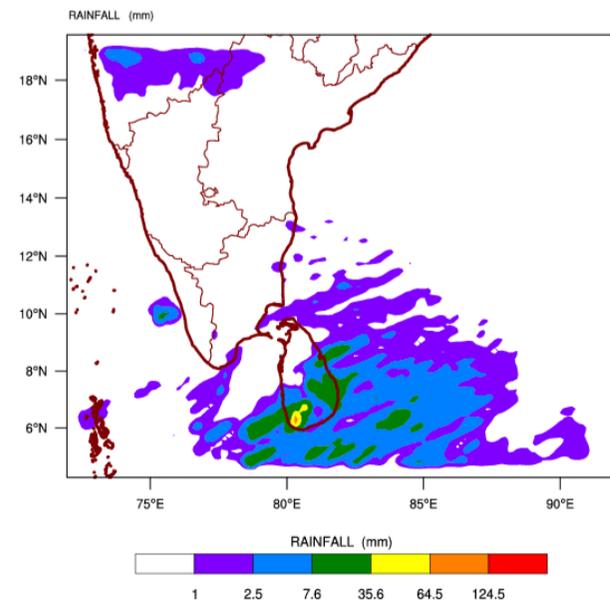
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 02-03-2016 valid for 03 UTC of 04-03-2016

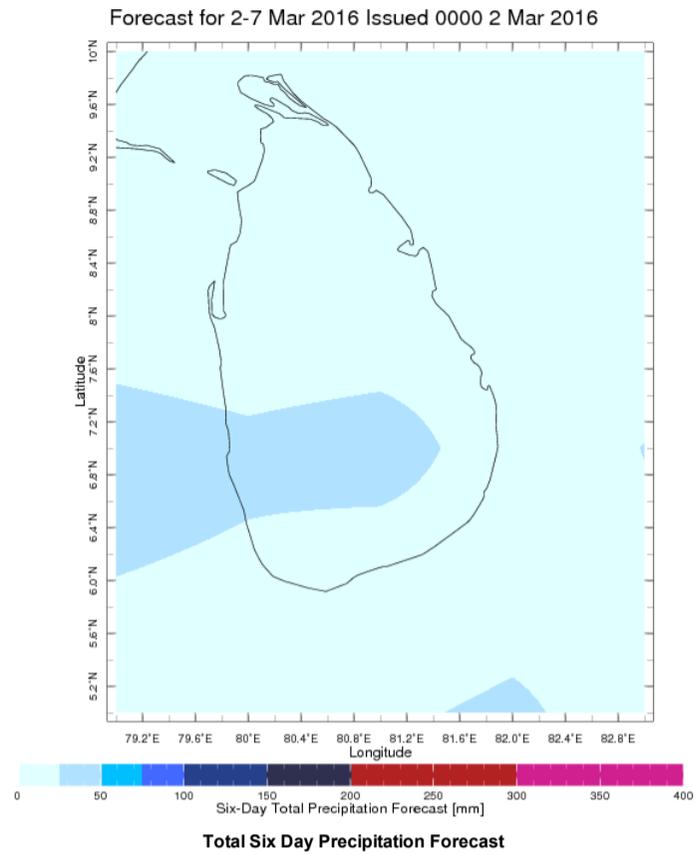
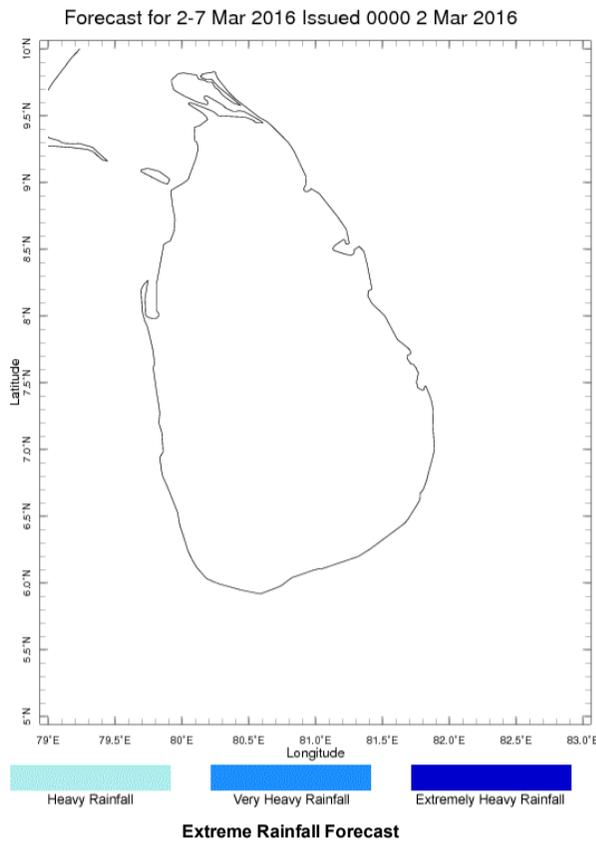


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 02-03-2016 valid for 03 UTC of 05-03-2016



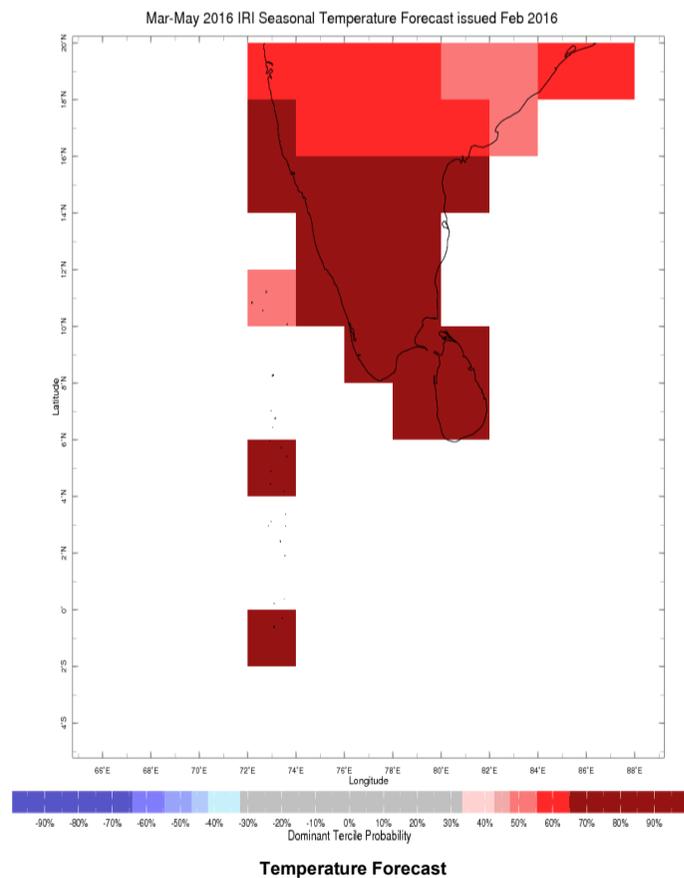
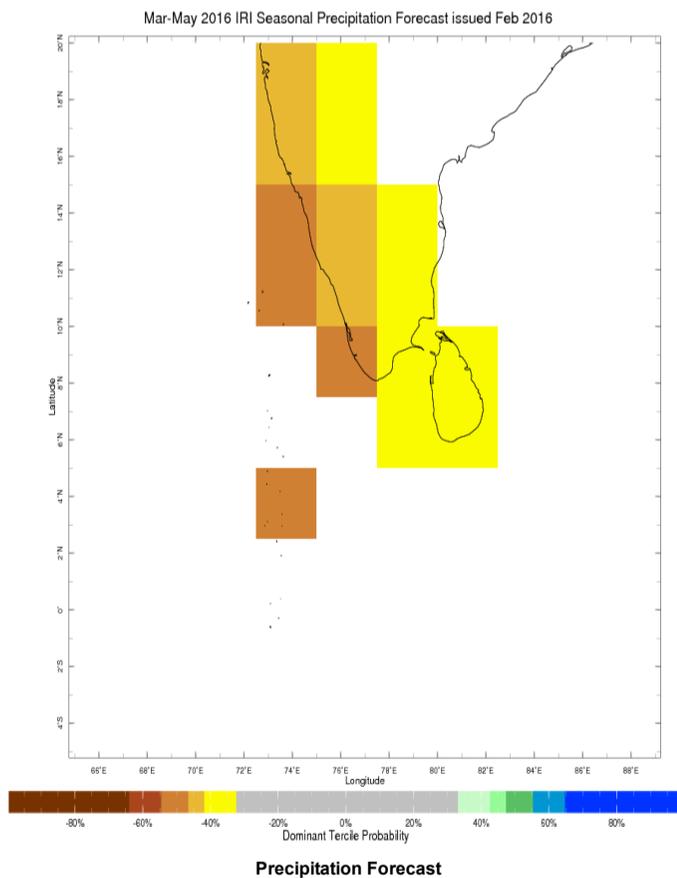
Weekly Rainfall Forecast

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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