

Experimental Climate Monitoring and Prediction

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April 21, 2016 PACIFIC SEAS STATE

During mid-April 2016 the positive tropical Pacific SST anomaly was weakening, now indicating only a moderate strength El Niño. All atmospheric variables continue to support the El Niño pattern, but at reduced strength. This includes weakened trade winds and excess rainfall in the east-central tropical Pacific, extending eastward to a lesser extent than last month. Most ENSO prediction models indicate continued weakening El Niño conditions during the rest of the northern spring season, returning to neutral by late spring or early summer 2016, with La Niña development likely by fall.

(Text Courtesy IRI)

INDIAN OCEAN STATE

1°C above average sea surface temperature was observed around Sri Lanka.

MJO STATE

MJO phase is in 3 therefore shall slightly enhance rainfall in Sri Lanka.

Highlights

Increased rainfall conditions were observed in the last week compared to the previous week. The entire country received rainfall during 3rd-9th May while up to 60mm high rainfall was seen in Mullaitivu, Vavuniya, northern region of Anuradhapura and south eastern sea region on 6th May. Both NCEP GFS and IRI CFS models predict heavy rainfall in the following two weeks with the entire country expected to receive more than 135 mm rainfall. MJO phase is in 3 and shall slightly enhance rainfall.

Summary

Monitoring

Weekly Monitoring: South western and north eastern regions of the country including south eastern, western and eastern sea regions received rainfall during 3rd- 9th May. Up to 30mm rainfall was seen in eastern region of Gampaha, Colombo and sea close to Colombo on 3rd-4th May while surrounding regions received up to 20mm rainfall. On the 5th, the sea near Akkaraipattu and the western sea side along Puttalam, Gampaha, Colombo and Kalutara districts received up to 30mm rainfall. On 6th May, Mullaitivu, Vavuniya, northern region of Anuradhapura and south eastern sea region of the country received heavy rainfall up to 60mm while close regions received up to 30mm rainfall. Up to 50mm rainfall was seen in Mullaitivu, Vavuniya, northern region of Anuradhapura, sea close to Colombo and south western sea region of the country on the 7th while surrounding regions also received up to 30mm rainfall. Only up to 20mm slight rainfall was seen in the entire country on 8th May while up to 30mm rainfall was received along the sea side from Puttalam to Galle and sea close to Hambantota. Only Around Kurunegala town and Hanwella received up to 30mm rainfall on the 9th while other regions of the country received slight rainfall.

Monthly Monitoring: During April 2016 most regions of the country received below average rainfall except Ratnapura, Colombo and Gampaha districts. These districts received up to ~120mm monthly excess rainfall than the historical average.

Predictions

14-day prediction: NOAA NCEP models predict more than 135mm total rainfall in the entire country, except northern region during 11th – 17th May. Rainfall shall decrease during 18th-24th May and up to 85mm total rainfall is expected in south western region of the country while north, north east and east regions shall receive up to 45mm rainfall.

IMD WRF & IRI Model Forecast: According to the IMD WRF model, up to 65mm total rainfall is expected in the western sea near Puttalam while up to 35mm rainfall is expected in Galle and Vavuniya, Colombo and Puttalam districts on the 13th. There shall be up to 125mm rainfall in the sea east of Batticaloa, Kalutara and Kegalle districts while up to 65mm rainfall is expected in surrounding regions on the 14th. The IRI CFS model predicts heavy rainfall around Puttalam, Galle, Matara, Hambantota districts and surrounding regions while the southern sea of the country shall have very heavy rainfall during 11th-16th May. This extreme heavy rainfall conditions shall increase towards the south eastern sea region.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for May to July, 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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- Weekly precipitation forecast (IRI)
- Seasonal Predictions from IRI

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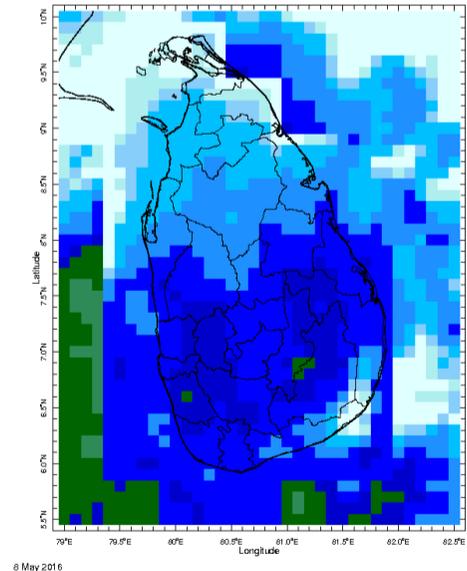
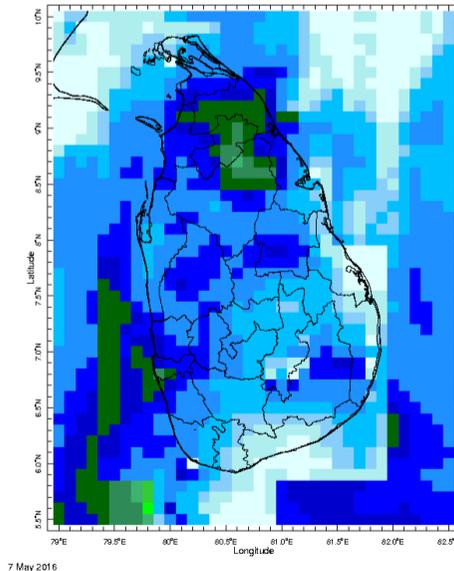
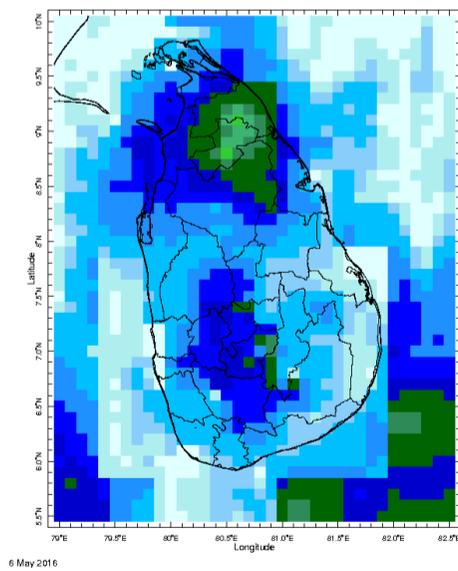
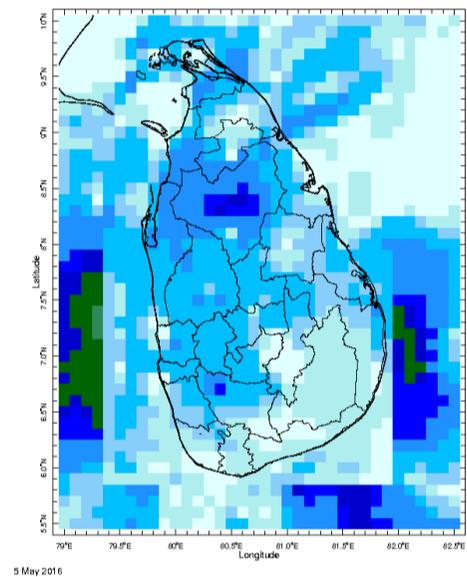
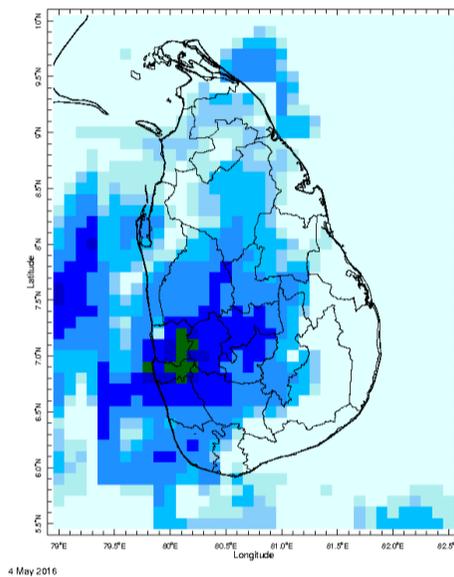
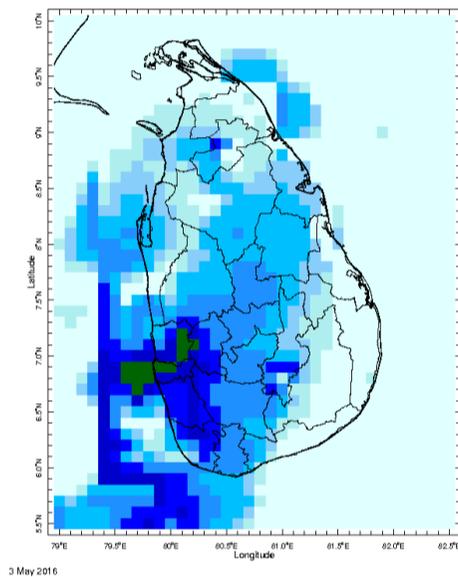
Weekly Hydro- Meteorological Report for Sri Lanka

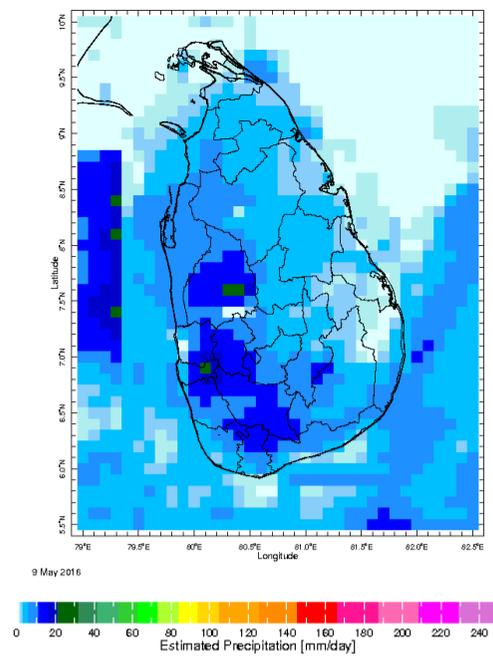
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Daily Rainfall Monitoring

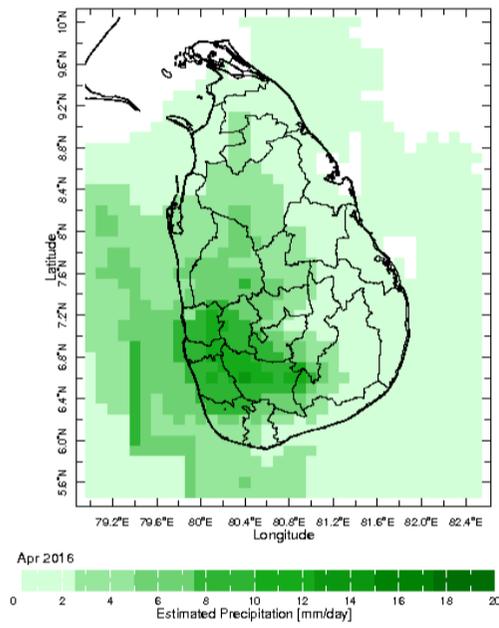
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



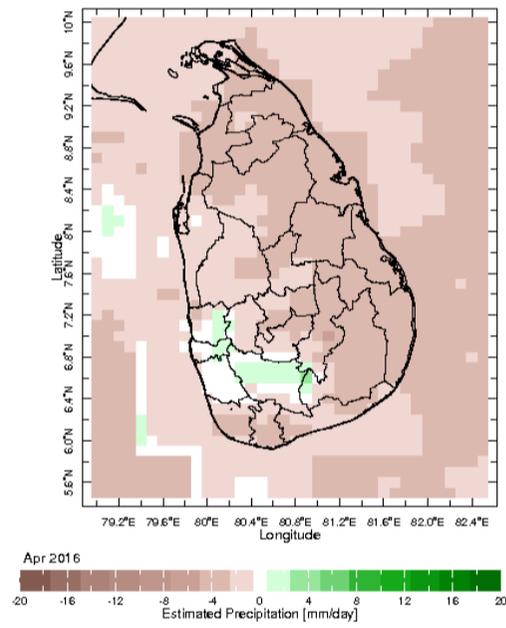


Monthly Rainfall Monitoring

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

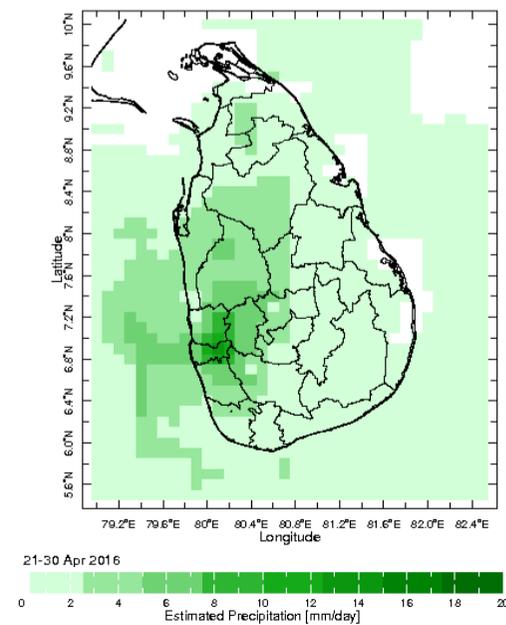
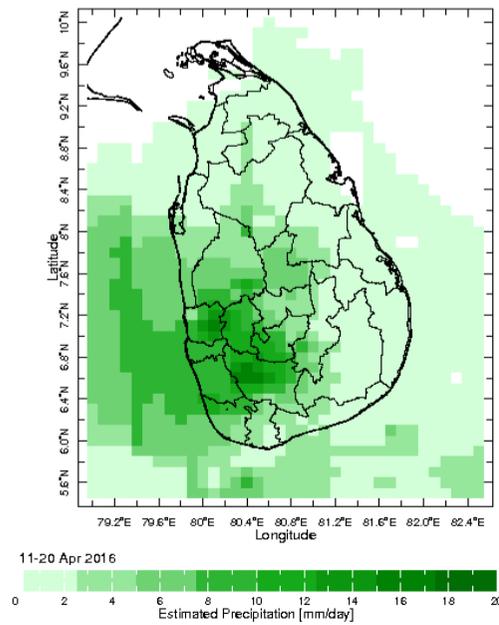


Monthly Average

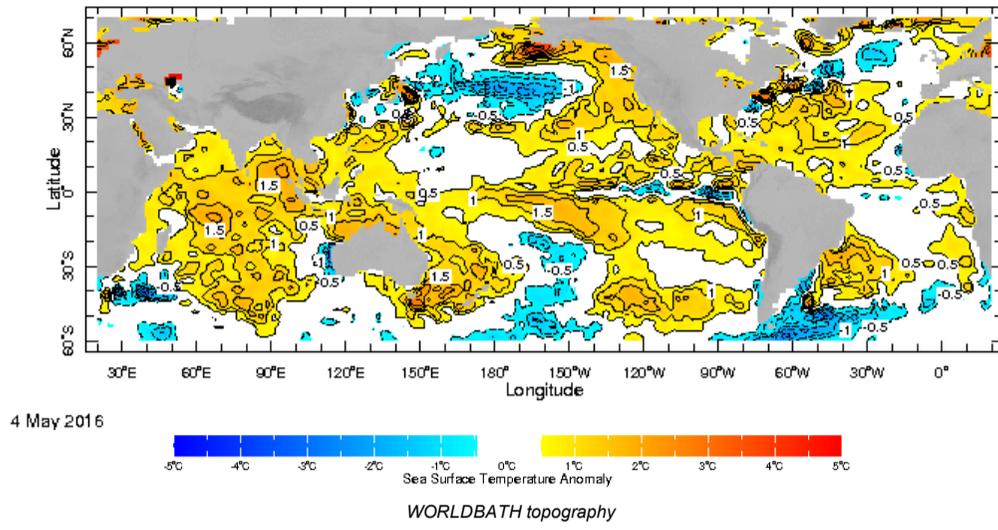


Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

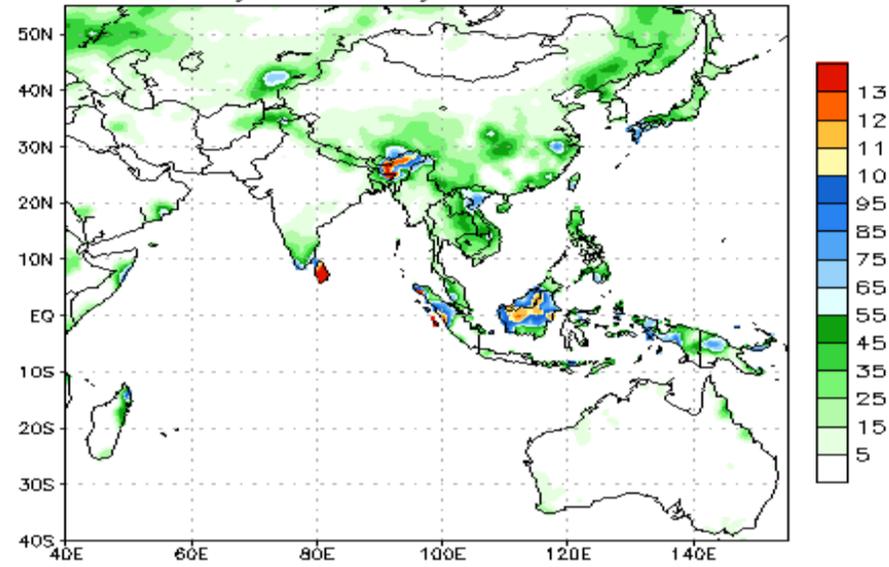


Weekly Average SST Anomalies



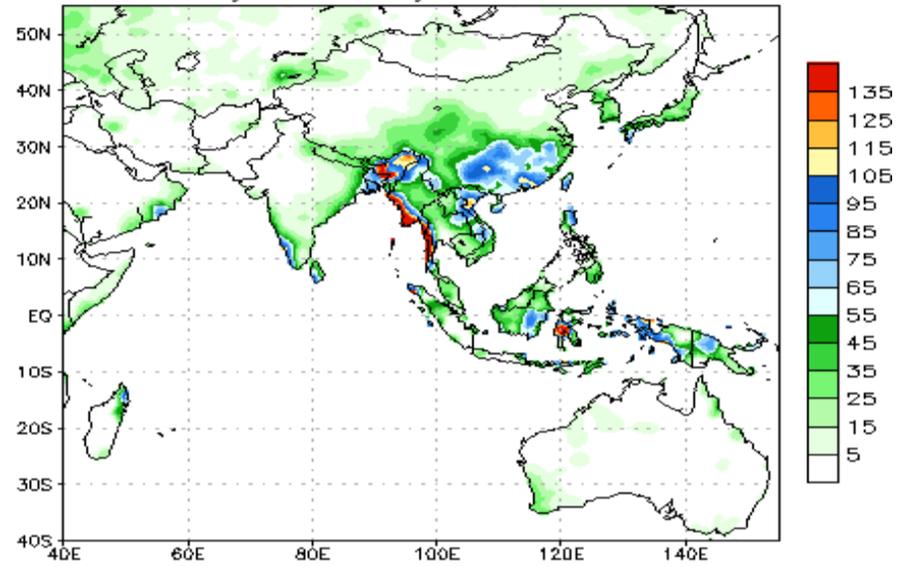
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 11 May 2016
11 May 2016–17 May 2016 Accumulation



Bias correction based on last 30-day forecast error

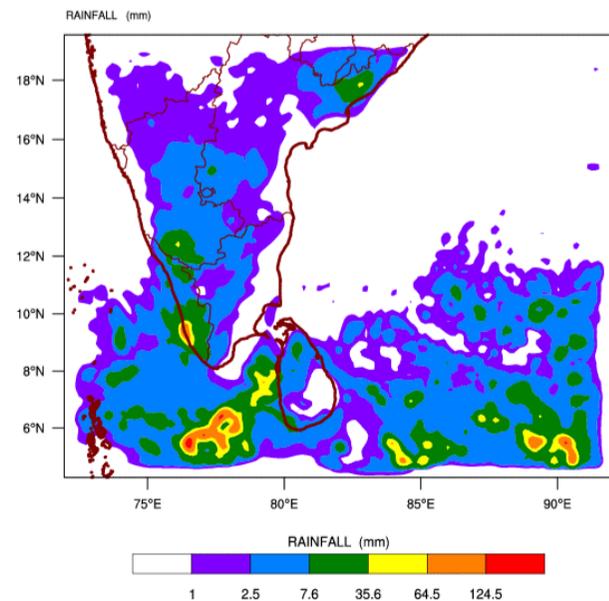
NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 11 May 2016
18 May 2016–24 May 2016 Accumulation



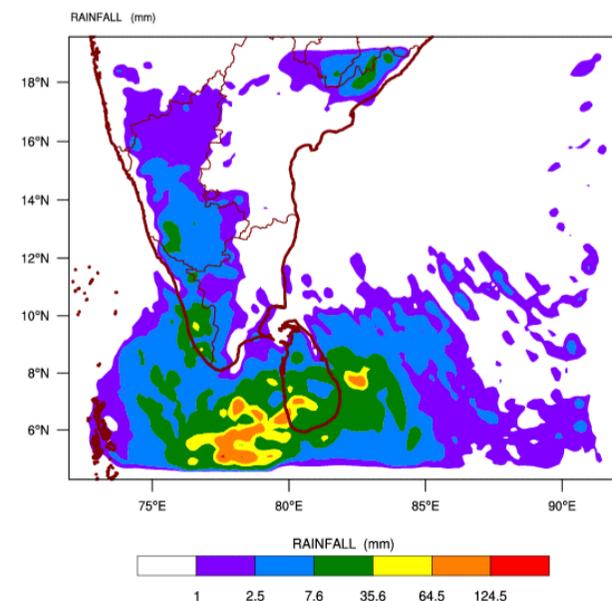
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 11-05-2016 valid for 03 UTC of 13-05-2016

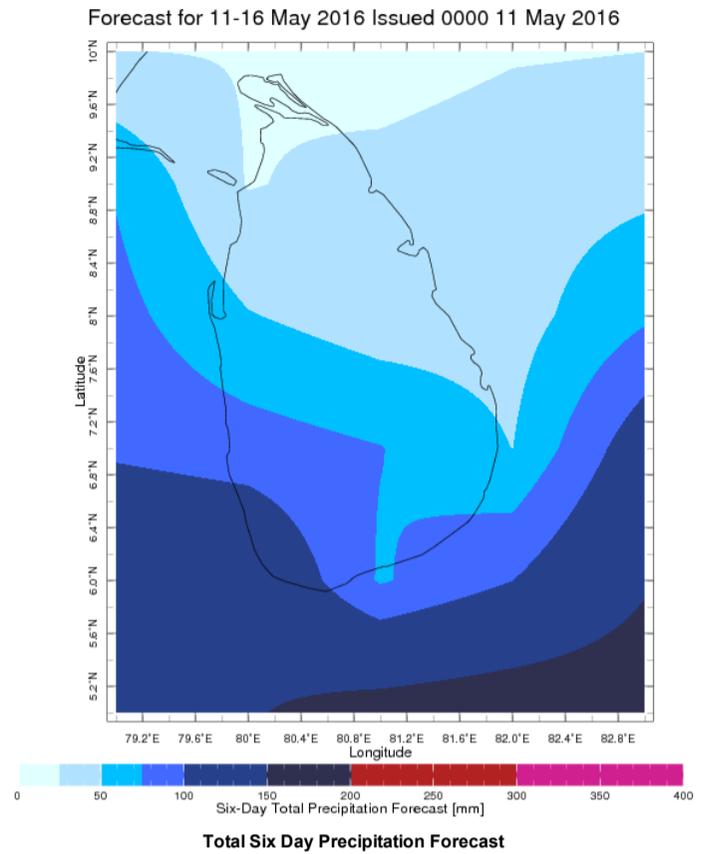
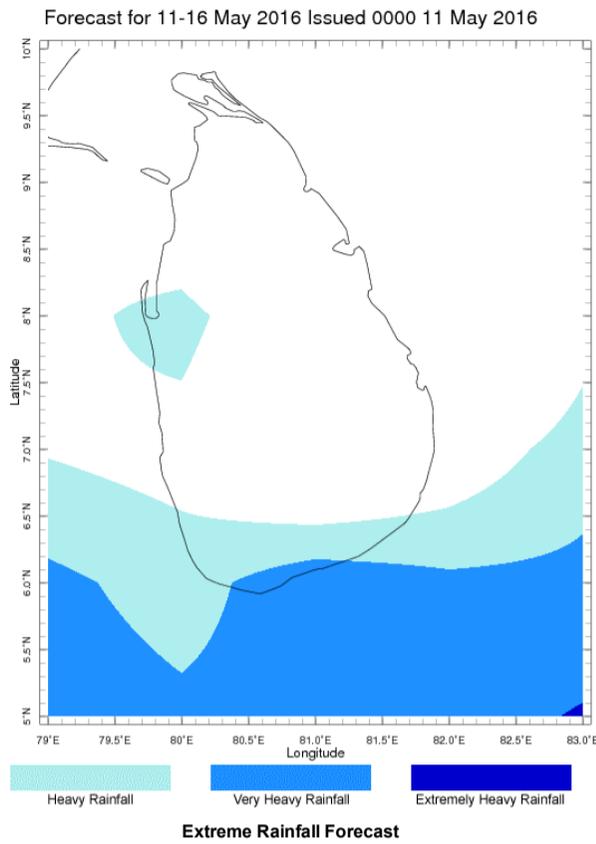


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 11-05-2016 valid for 03 UTC of 14-05-2016



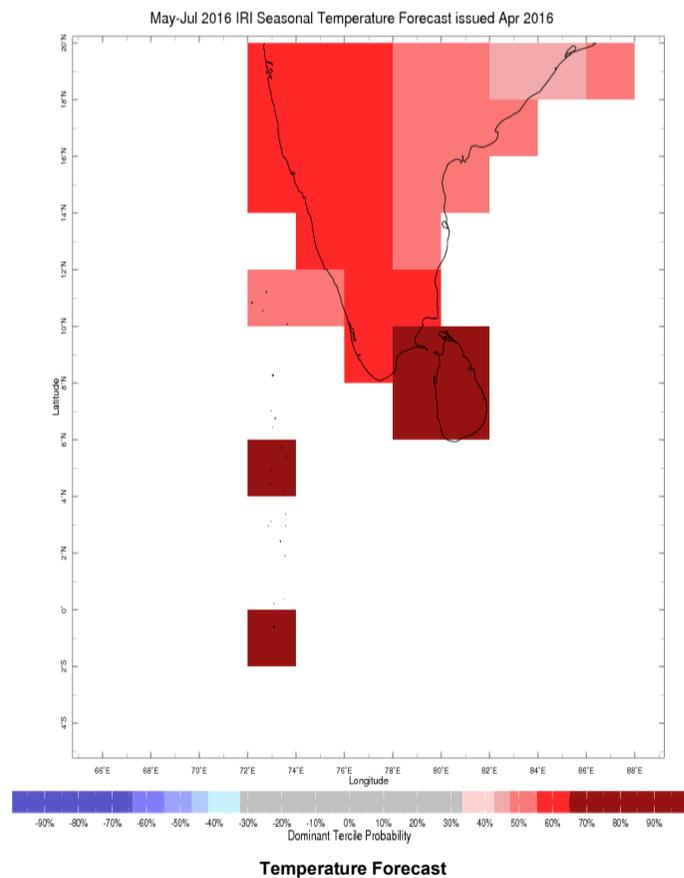
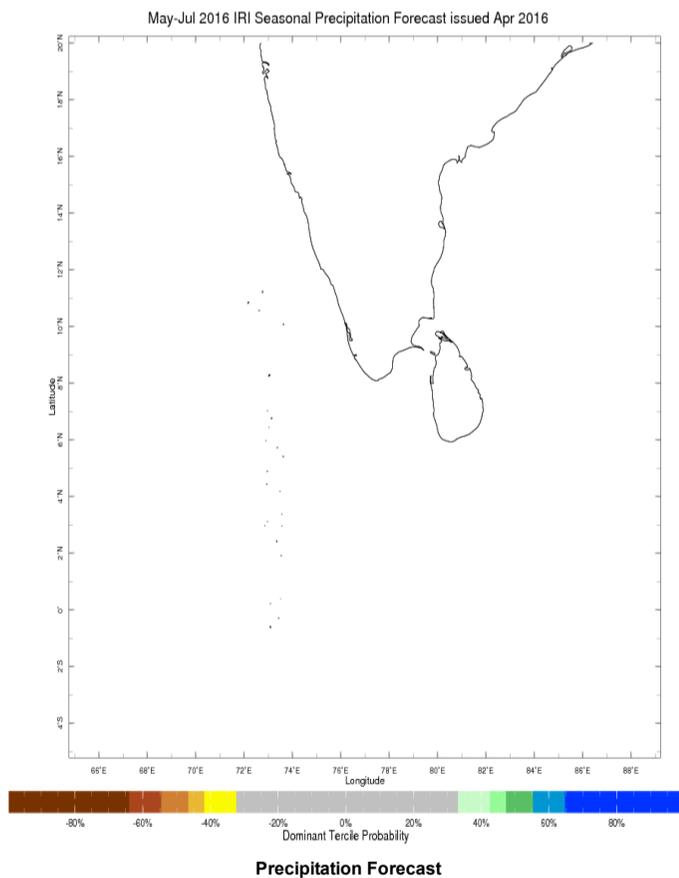
Weekly Rainfall Forecast

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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