

Experimental Climate Monitoring and Prediction

by: Akram Kamiss, Prabodha Agalawatte, Sewwandhi Chandrasekara, Zeenas Yahiya,
Lareef Zubair and Michael Bell (FECT and IRI¹)

11 June 2015

FECT BLOG

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

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

FECT WEBSITES

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

May 21, 2015 PACIFIC SEAS STATE

During late April through mid-May 2015 the SST was at a weak to moderate Niño level. The atmospheric variables also indicate an El Niño pattern, including weakened trade winds, low Southern Oscillation Index and excess rainfall in the central tropical Pacific. The consensus of ENSO prediction models indicate weak to moderate El Niño conditions during the May-July 2015 season in progress, likely strengthening during summer and lasting through 2015.

(Text Courtesy IRI)

INDIAN OCEAN STATE

0.5 °C above average temperature was observed around Sri Lanka. The anomaly goes further up towards southern region.

MJO STATE

MJO phase is in 2 therefore shall slightly enhance rainfall in Sri Lanka.

Highlights

During 2nd – 8th June 2015, high rainfall was received throughout the week in Eastern, Western, Central and North Central provinces up to 20-40 mm. In 3rd, 5th, and 7th June, heavy rainfall up to 85 mm was observed in Polonnaruwa, Moneragala and Ampara districts. In 6th June, heavy rainfall of 120 mm was observed in the ocean near Trincomalee district. NOAA models predict high rainfall in Western and Eastern provinces in the next fortnight.

Summary

Monitoring

Weekly Monitoring: During the time period 2nd June – 8th June 2015, Eastern, Western, Central and North Central regions of the country received rainfall. On 2nd and 3rd June, rainfall up to 30-40 mm was observed in Uva province and Polonnaruwa district and the highest rainfall of 40 mm was observed in Moneragala and Coastal area of Kilinochchi district. On 4th June, rainfall was observed in North Central and Central provinces up to 30 mm and on 5th June, up to 30 mm rainfall was observed in Western, Central and Eastern regions of the country and the highest rainfall of 85 mm was observed in Polonnaruwa. Heavy rainfall of 120 mm was observed in the ocean near Trincomalee on 6th June and high rainfall was observed in Uva province on 7th June and the highest rainfall of 85 mm was observed in Moneragala. Only Uva province showed rainfall up to 20 mm on 8th June.

Monthly Monitoring: In the month May 2015, most of the country received above average rainfall while Colombo, Gampaha, Kalutara, Galle, and the western regions of Kegalle, Ratnapura, Matara, and Nuwara Eliya districts received below average rainfall.

Predictions

14 day prediction: NOAA NCEP models predict high rainfall in northern region of the country during 10th – 23rd June. Up to 85 mm total rainfall is expected during the first week. The rainfall shall decrease up to 35 mm in the following week.

IMD WRF & IRI Model Forecast: According to the IMD WRF model Puttalam and Kegalle districts shall receive rainfall up to 125 mm/day while the western region of the country shall receive rainfall up to 65 mm on 12th June. The rest of the country shall receive light rainfall on this day. The rainfall shall decrease and western and eastern regions shall receive rainfall up to 35 mm and the rest of the country shall receive light rainfall on the 13th. IRI CFS model also predicts light rainfall in Central, Uva, Western and Northern provinces in 10th – 15th June.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for June to August, 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.

Inside this Issue

1. Monitoring

- Daily Satellite Derived Rain fall Estimates
- Monthly Rain fall Estimates
- Decadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Average SST Anomalies

2. Predictions

- NCEP GFS Ensemble 1-14 day predictions
- WRF model forecast Regional Meteorological Center, Chennai, Indian Meteorological Department)
- Weekly precipitation forecast (IRI)
- Seasonal Predictions from IRI

¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.

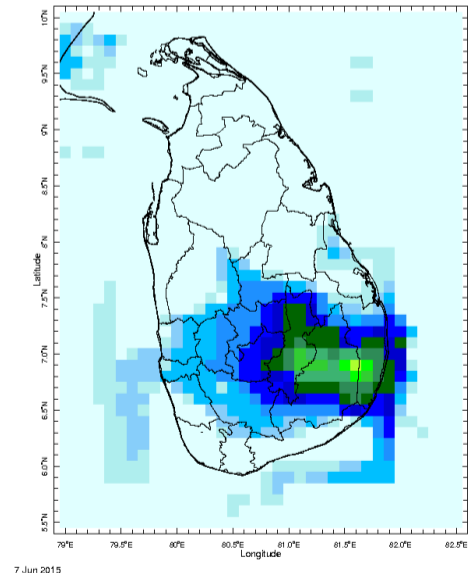
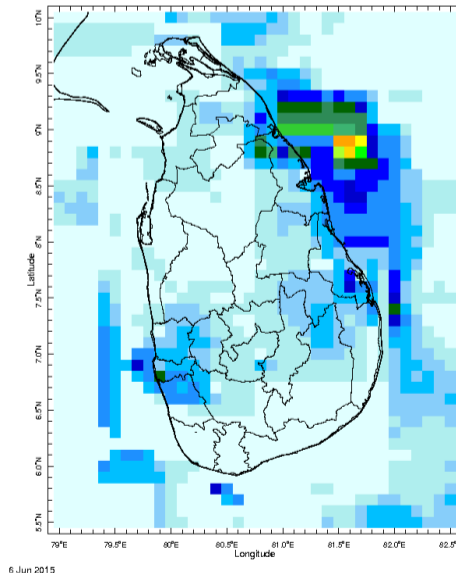
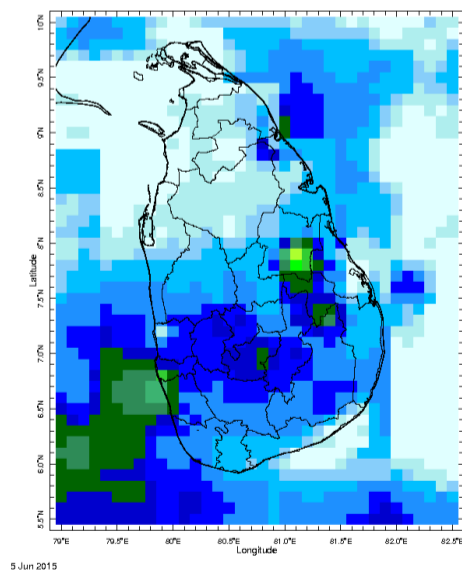
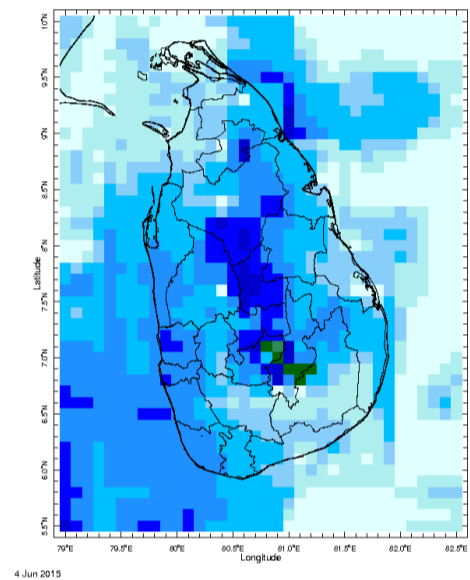
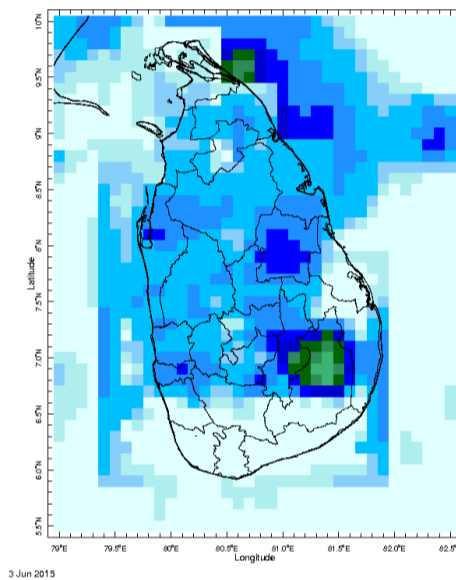
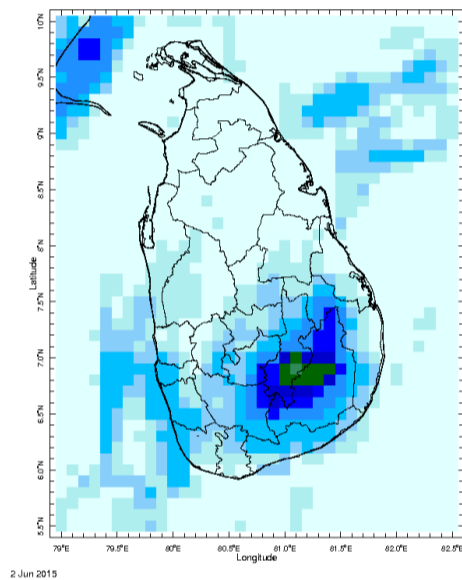
Weekly Hydro- Meteorological Report for Sri Lanka

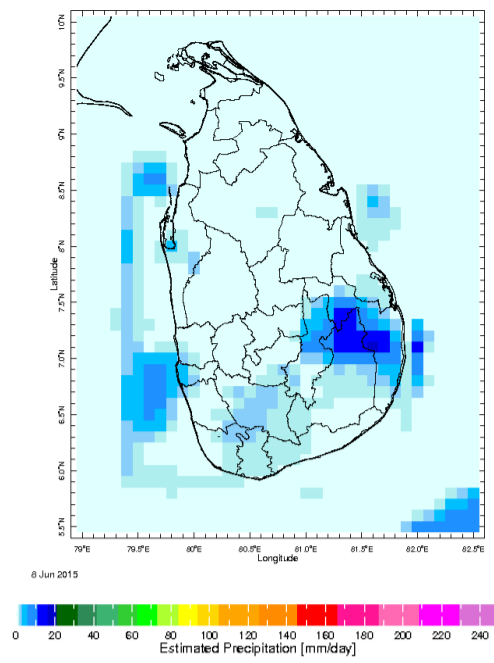
Inside This Issue

1. **Monitoring**
 - a. Daily Satellite derived Rainfall Estimates
 - b. Monthly Rainfall Estimates
 - c. Decadal (10 Day) Satellite Derived Rainfall Estimates
 - d. Weekly Average SST Anomalies
2. **Predictions**
 - a. NCEP GFS Ensemble 1-14 day predictions
 - b. WRF Model Forecast (48 hours and 72 Hours Ahead)
 - c. Weekly Precipitation Forecast from IRI
 - d. Seasonal Predictions from IRI

Daily Rainfall Monitoring

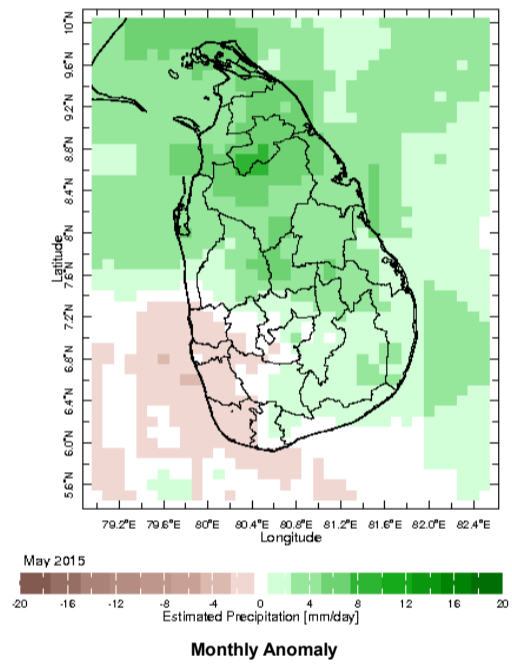
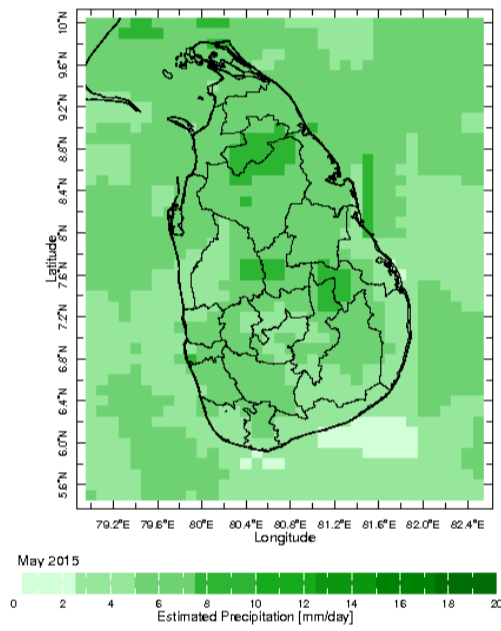
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



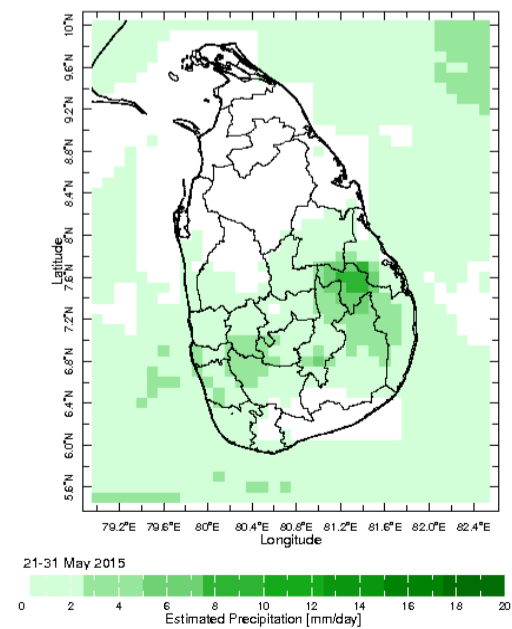
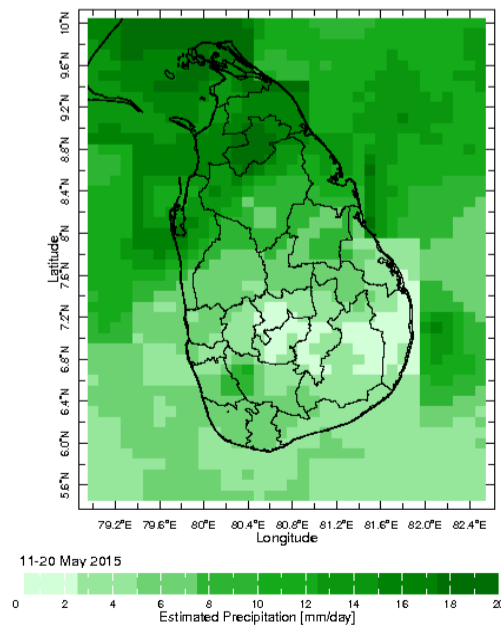


Monthly Rainfall Monitoring

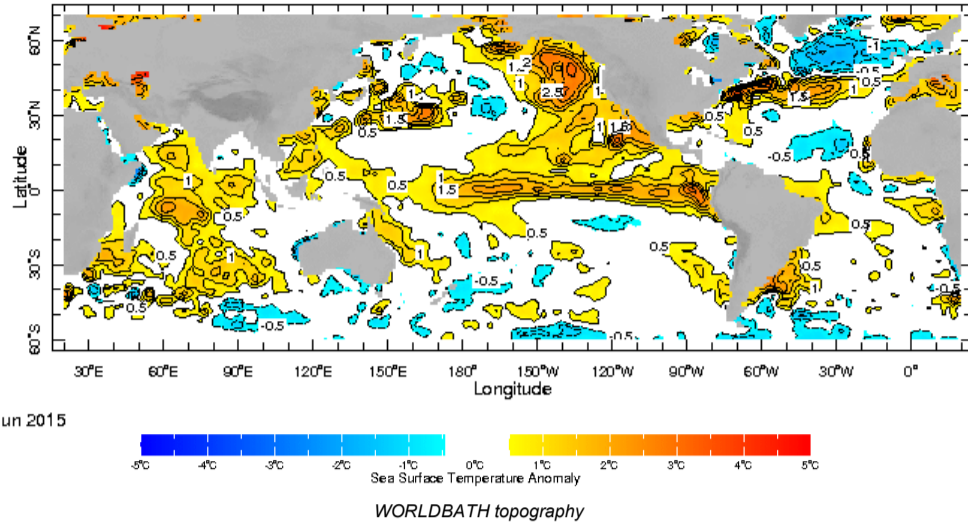
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places with above average rainfall. Darker shades show higher magnitudes in rainfall



Dekadal (10 Day) Satellite Derived Rainfall Estimates

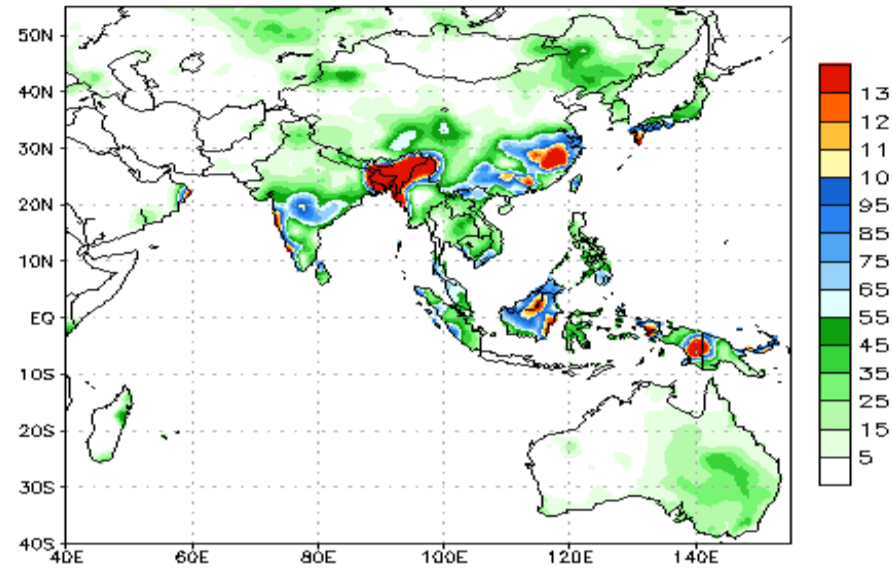


Weekly Average SST Anomalies

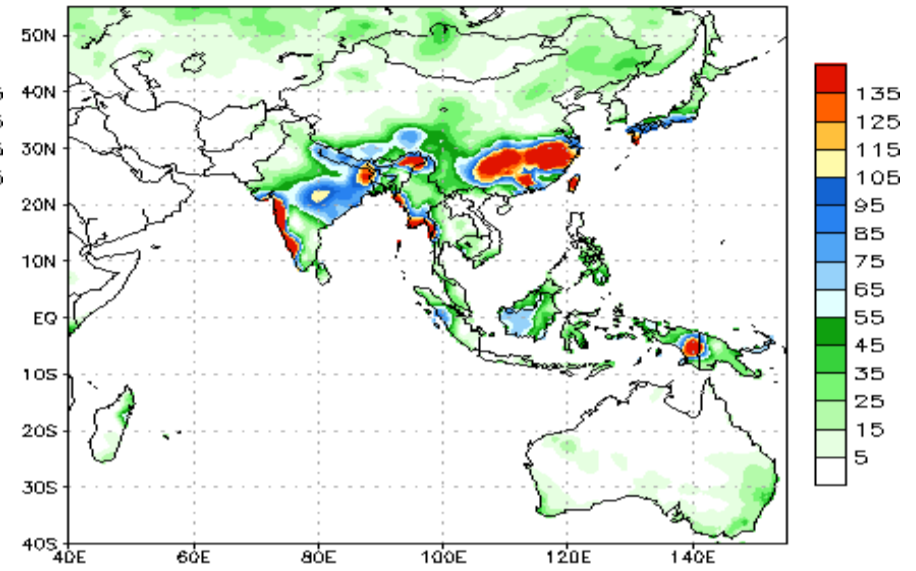


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 10Jun2015
10Jun2015–16Jun2015 Accumulation



NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 10Jun2015
17Jun2015–23Jun2015 Accumulation

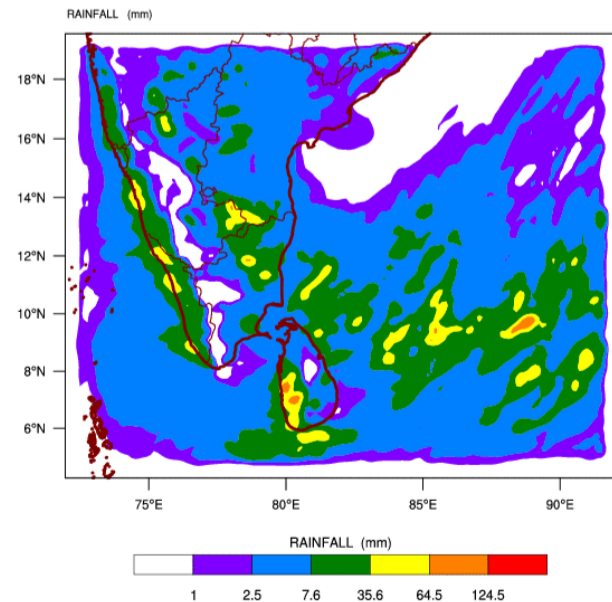


Bias correction based on last 30-day forecast error

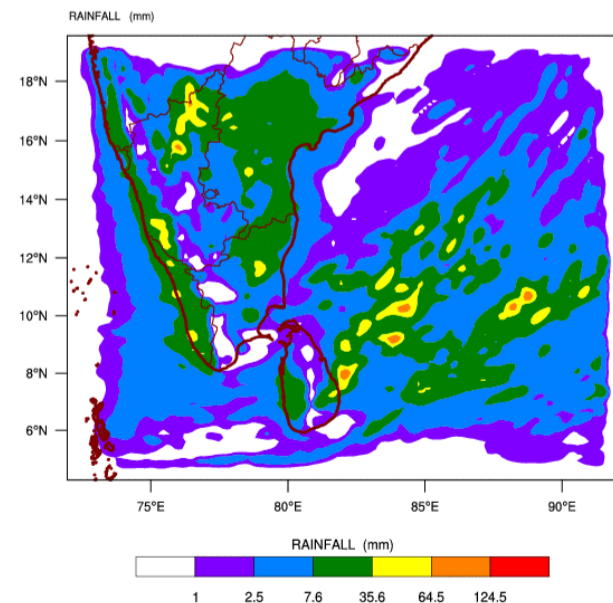
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 10-06-2015 valid for 03 UTC of 12-06-2015

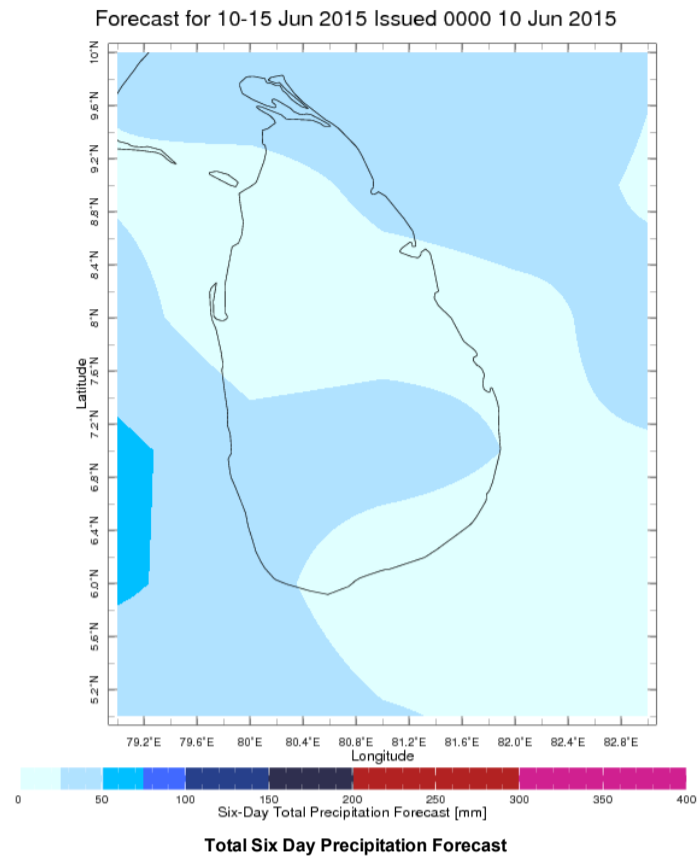
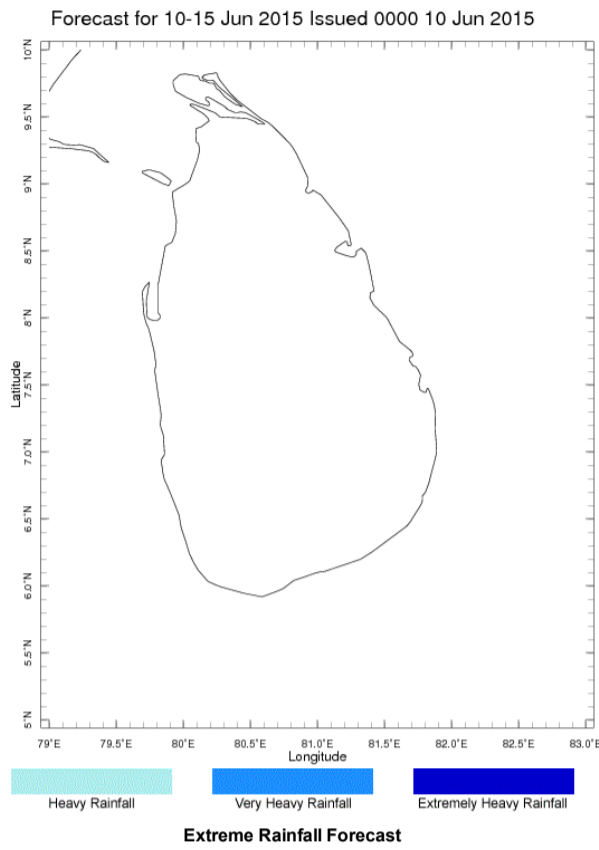


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 10-06-2015 valid for 03 UTC of 13-06-2015



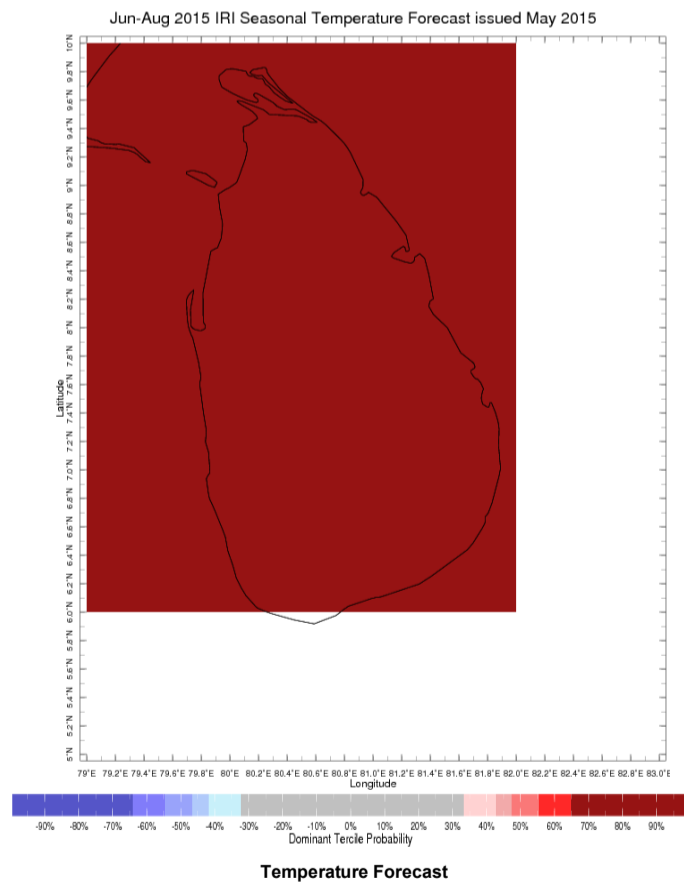
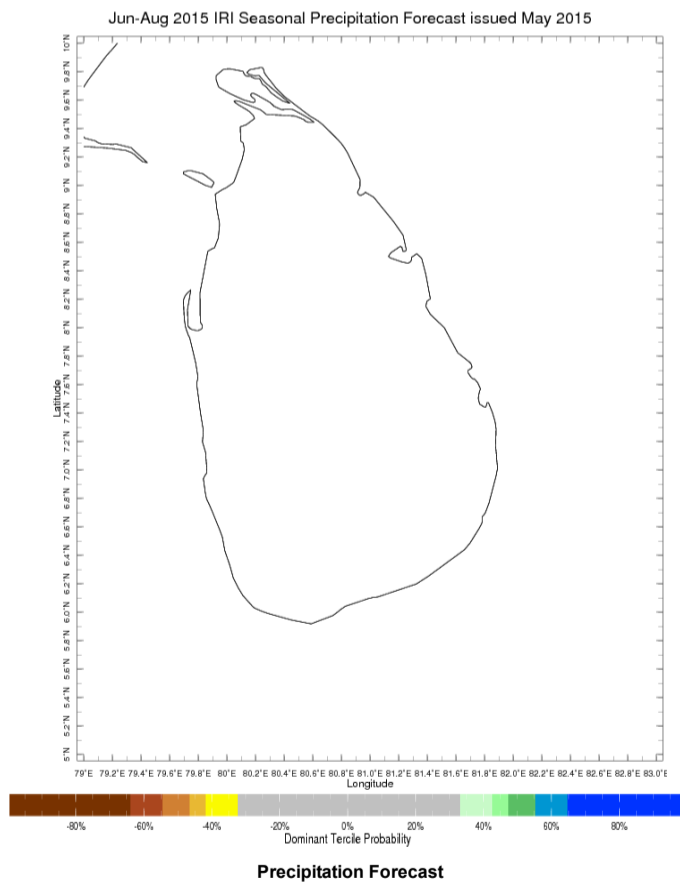
Weekly Rainfall Forecast

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%).



Subscribe to our Monthly Maldives Newsletter

email address

Subscribe

Follow @fectmv
Contact Us
email: fectsl@gmail.com
phone: (+94) 81 2376746
blog: www.fectsl.blogspot.com

Foundation for Environment, Climate & Technology
C/O Mahaweli Authority of Sri Lanka,
Digana Village,
Rajawella,
SRI LANKA