

Experimental Climate Monitoring and Prediction

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

1 October 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/>

**September 17,
2015**

PACIFIC SEAS STATE

During late August through early September 2015 the tropical Pacific SST was at a strong El Niño level. All atmospheric variables 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 September-November 2015 season in progress. Some further strengthening into later fall is possible, with the event lasting well into spring 2016.

(Text Courtesy IRI)

INDIAN OCEAN STATE

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

MJO STATE

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

Highlights

Up to 40 mm rainfall was observed in south western, western and north eastern regions of the country during the time period 22nd-28th September. Ocean near Kalutara received heavy rainfall up to 160 mm on 25th September and Galle received heavy rainfall up to 120 mm on 28th September. Every prediction model predict decrease of rainfall during the next week.

Summary

Monitoring

Weekly Monitoring: During 22nd -28th of September, eastern and south western regions of the country received heavy rainfall. On 22nd September only Badulla received rainfall up to 30 mm and on 23rd southern regions of Matale, Kandy and Ratnapura received rainfall up to 30 mm. Rainfall up to 45 mm was observed in Mannar and eastern regions of Anuradhapura, Vavuniya, Mullaitivu and northern regions of Puttalam and Kurunegala. Heavy rainfall up to 160 mm was observed in the ocean near Kalutara while western province received rainfall up to 90 mm and Badulla, Nuwara-Eliya also received rainfall up to 50 mm on 25th September. On 26th September Trincomalee received rainfall up to 100 mm and Colombo received rainfall up to 80 mm while south eastern region also received rainfall up to 50 mm. On 27th September, ocean near Galle received rainfall up to 80 mm and Polonnaruwa, Matale and northern region of Ampara received rainfall up to 50 mm. On 28th September, coastal region of Galle received rainfall up to 120 mm while Matara received rainfall up to 90 mm.

Monthly Monitoring: In August 2015 most of south western, north western and north central regions received above average rainfall. Colombo district, central and eastern provinces received below average rainfall. Highest rainfall was observed in Ratnapura district. Southern sea of the country also received above average rainfall during this month.

Predictions

14 day prediction: NOAA NCEP models predict high rainfall in all regions of the country except south eastern during 30th September-6th October. Total rainfall up to 45 mm is expected during the week. These models predict that the rainfall shall increase during 7th- 13th October and total rainfall up to 85 mm is expected in south western region and the rest of the country shall receive total rainfall up to 45 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model heavy rainfall up to 125 mm shall receive in the ocean near Mannar on 02nd October while eastern region shall receive rainfall up to 35 mm. The rest of the country shall also receive slight amounts of rainfall. Rainfall shall be decreased by 03rd October and only few regions in eastern province shall receive rainfall up to 35 mm and rest of the country shall not receive significant amount of rainfall. IRI CFS models predict total rainfall up to 60 mm in northern and north eastern regions of the country during 30th September-05th October.

Seasonal Prediction: As per IRI Multi Model Probability Forecast for October to December, the total 3 month precipitation has 50% likelihood of being above 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.

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.

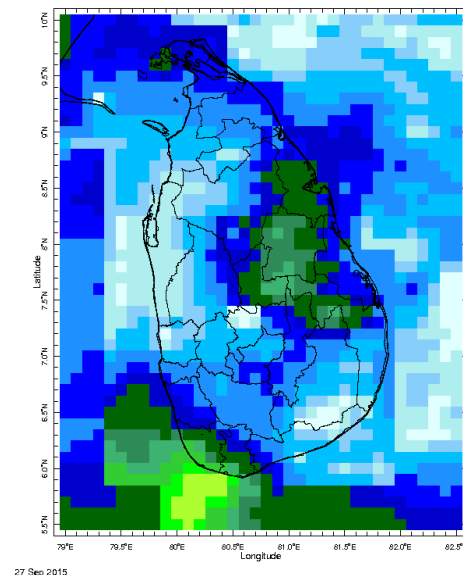
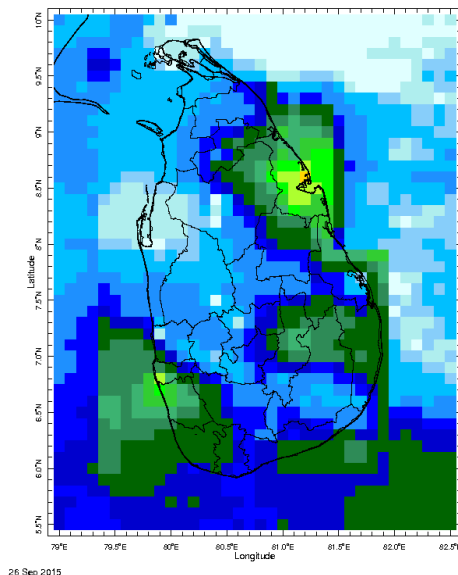
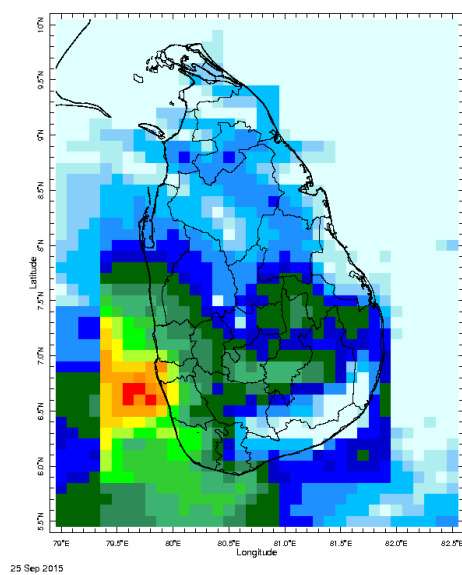
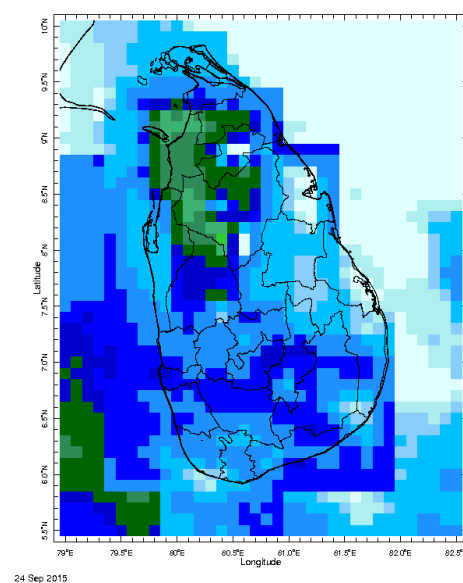
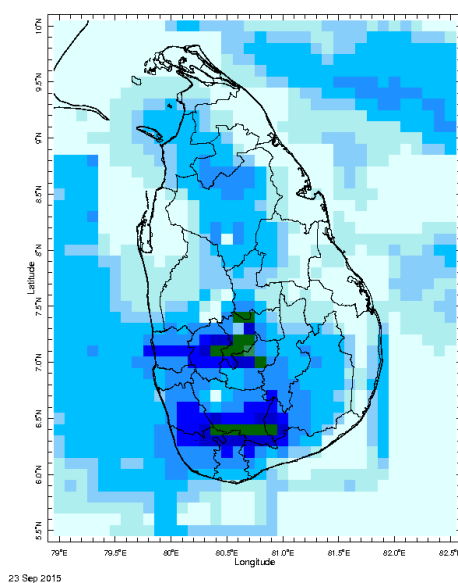
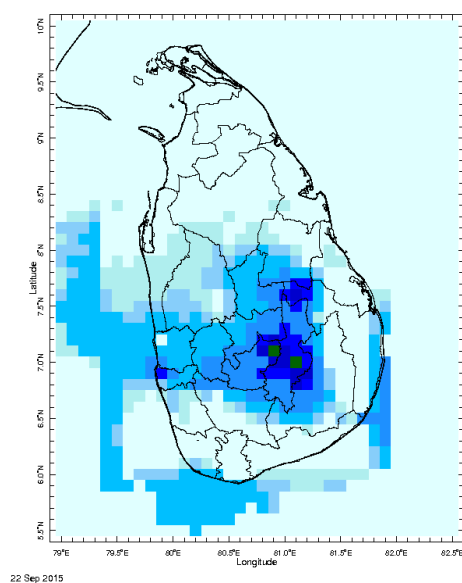
Weekly Hydro- Meteorological Report for Sri Lanka

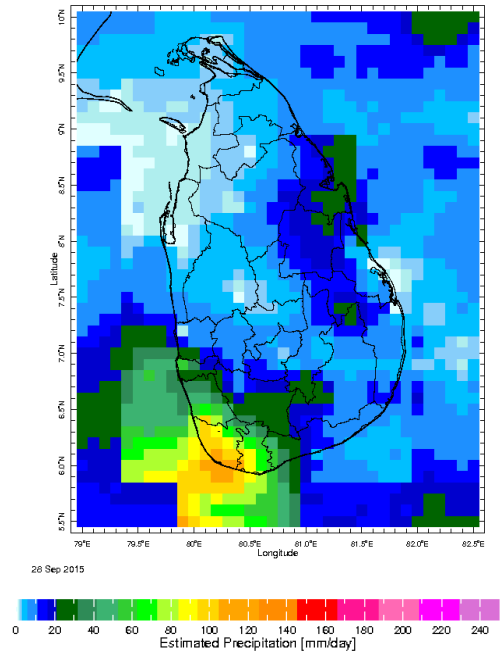
Inside This Issue

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

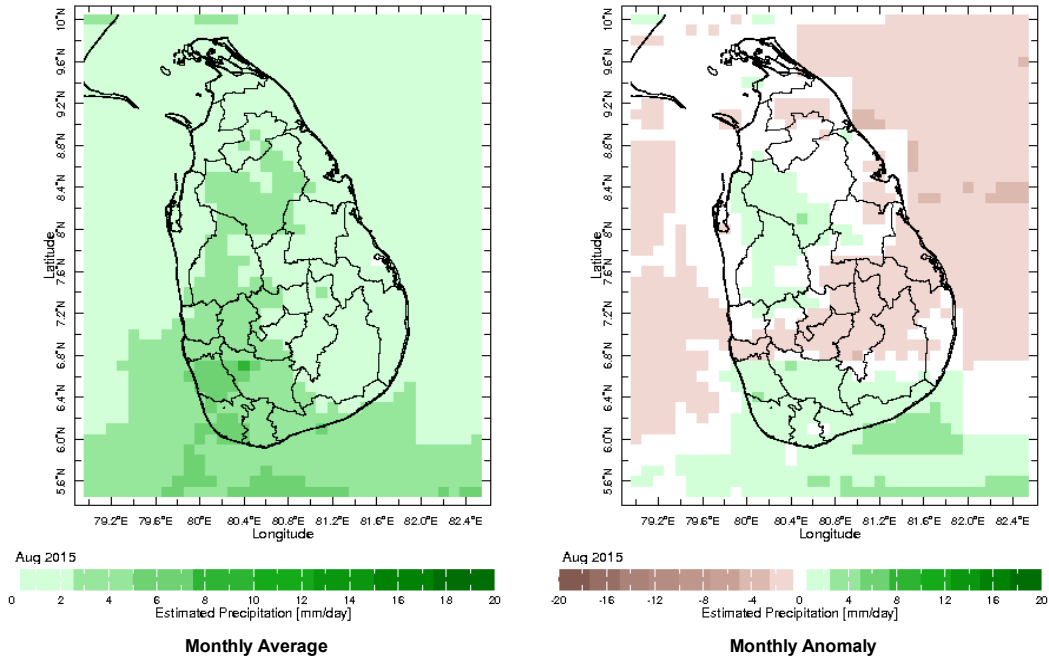
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



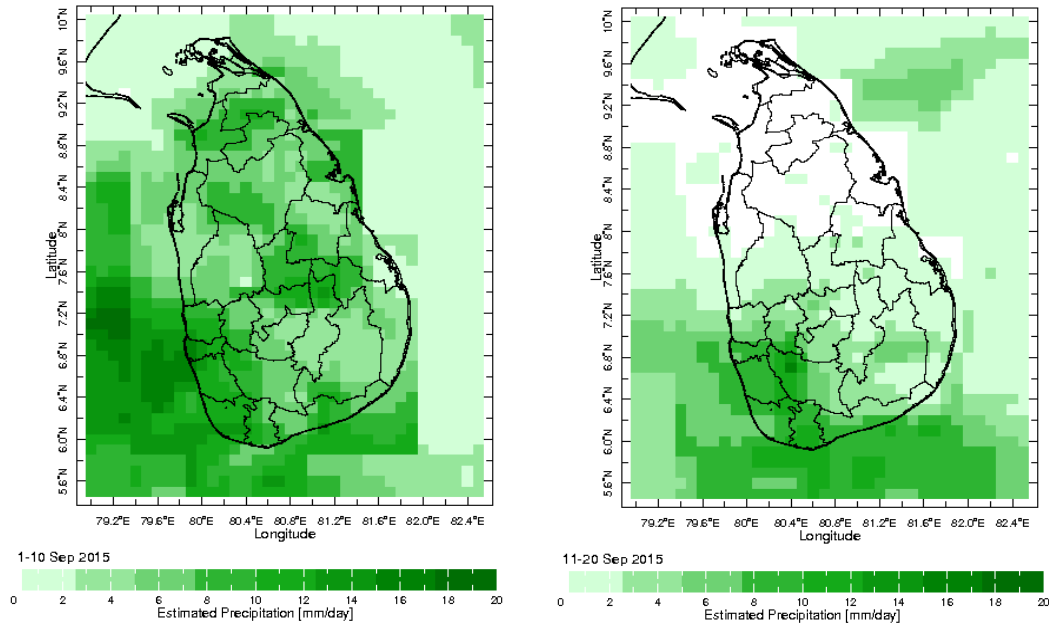


Monthly Rainfall Monitoring

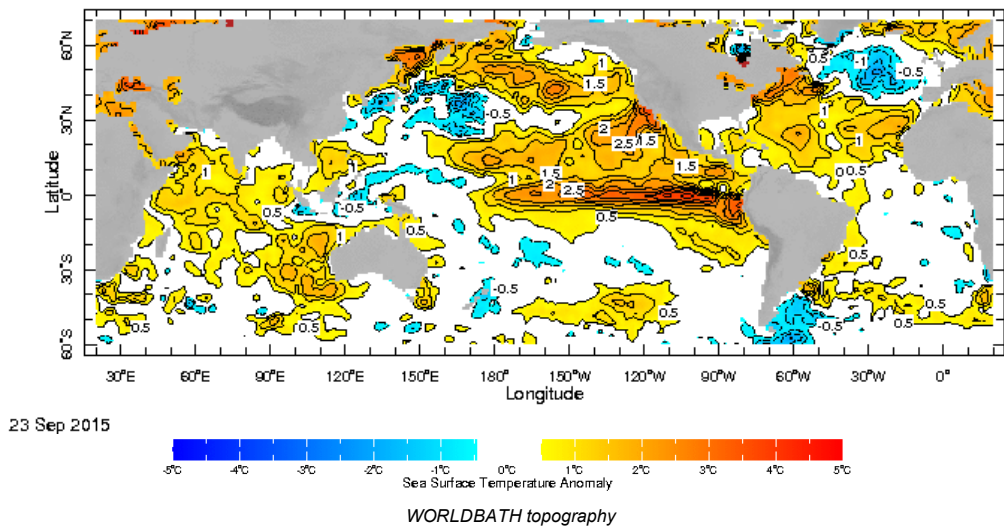
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



Dekadal (10 Day) Satellite Derived Rainfall Estimates

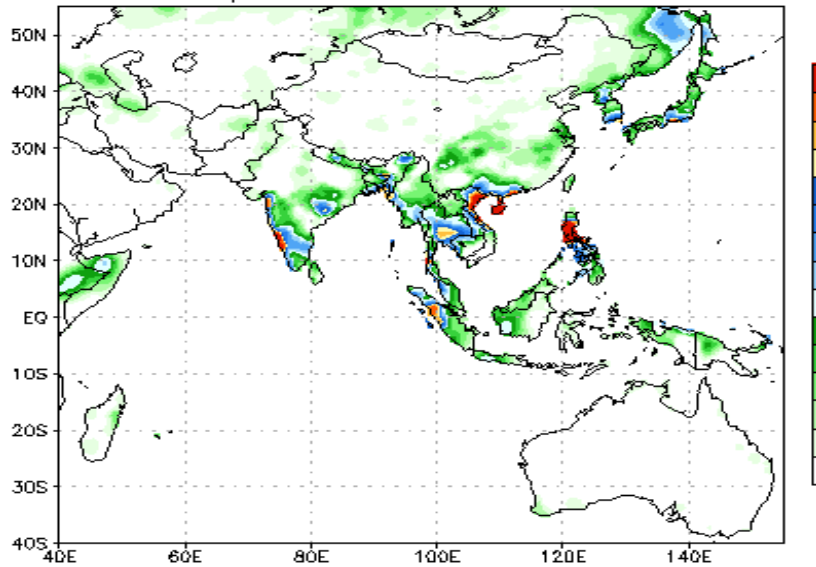


Weekly Average SST Anomalies



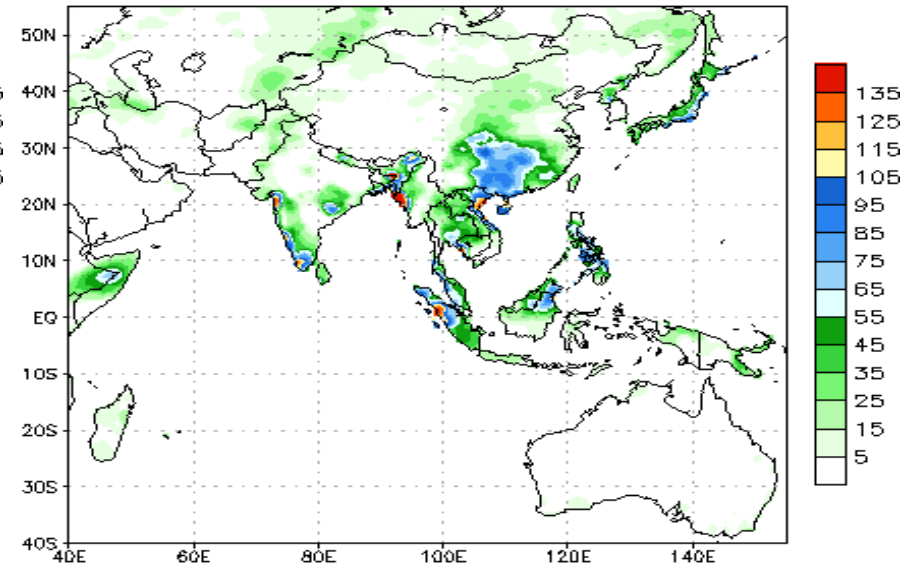
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 30Sep2015
30Sep2015–06Oct2015 Accumulation



Bias correction based on last 30–day forecast error

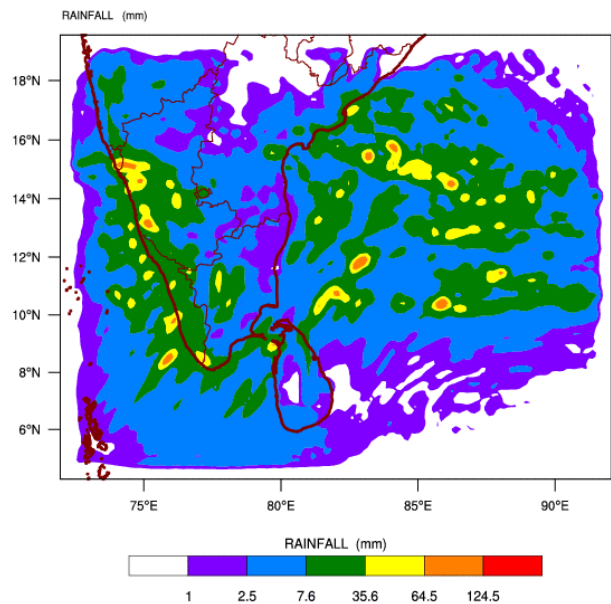
NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 30Sep2015
07Oct2015–13Oct2015 Accumulation



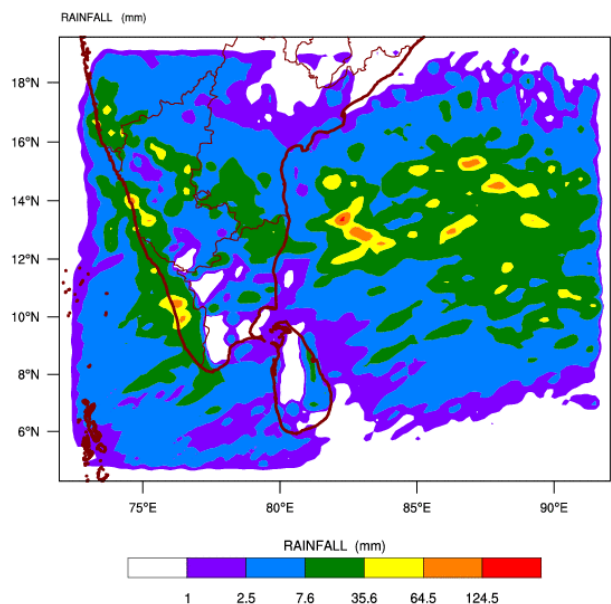
Bias correction based on last 30–day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 30-09-2015 valid for 03 UTC of 02-10-2015



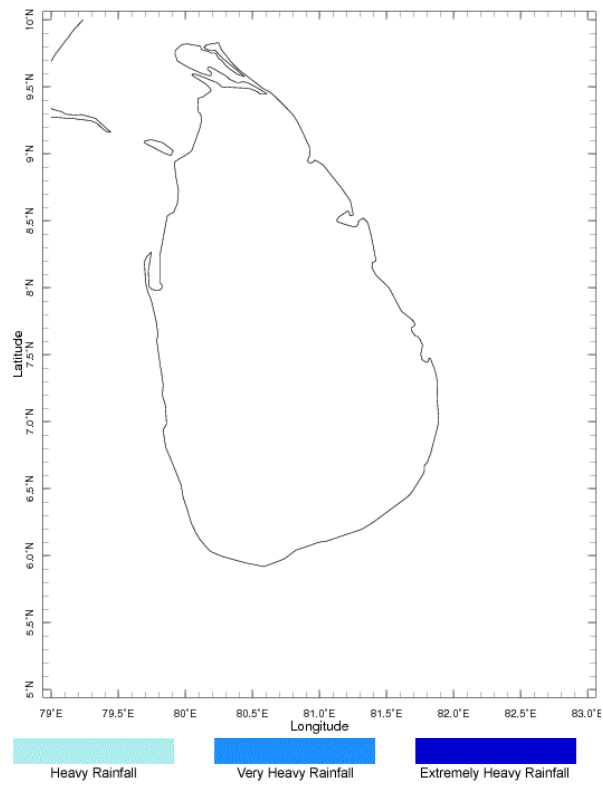
WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 30-09-2015 valid for 03 UTC of 03-10-2015



Weekly Rainfall Forecast

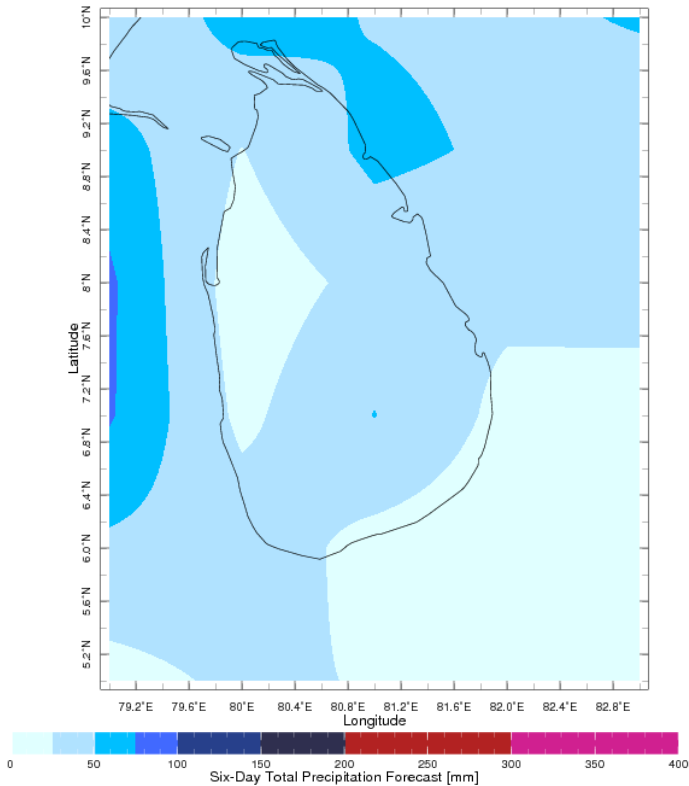
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 30 Sep 2015 - 5 Oct 2015 Issued 0000 30 Sep 2015



Extreme Rainfall Forecast

Forecast for 30 Sep 2015 - 5 Oct 2015 Issued 0000 30 Sep 2015

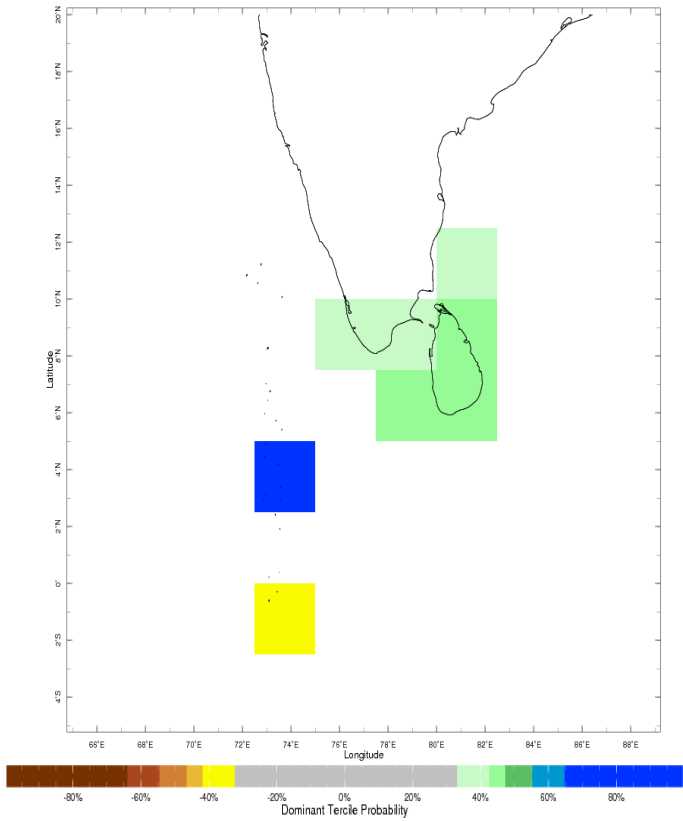


Total Six Day Precipitation Forecast

Seasonal Rainfall and Temperature Forecast

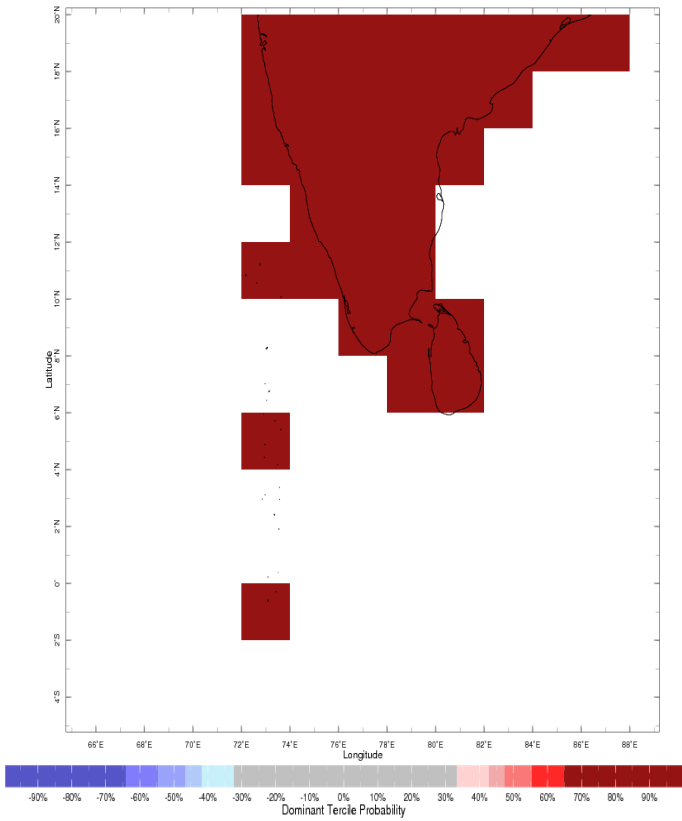
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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%).

Oct-Dec 2015 IRI Seasonal Precipitation Forecast issued Sep 2015



Precipitation Forecast

Oct-Dec 2015 IRI Seasonal Temperature Forecast issued Sep 2015



Temperature Forecast

Subscribe to our Monthly Maldives Newsletter

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