

Experimental Climate Monitoring and Prediction

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

23 September 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 temperature was observed around Sri Lanka.

MJO STATE

MJO is in phase 4 therefore shall slightly enhance the rainfall in Sri Lanka.

Highlights

Up to 30 mm rainfall was observed in southern and western regions of the country during the time period 15th-21st September. Southern region of the country received heavy rainfall on 18th September up to 80 mm. Every prediction model predict high rainfall in eastern and south western regions during the next week.

Summary

Monitoring

Weekly Monitoring: During 15th-21st of September, rainfall was mostly observed in western and southern regions of the country. On 15th September rainfall up to 40 mm was observed in the ocean near Colombo and rainfall up to 30 mm was observed in western province and Polonnaruwa. Rainfall up to 40 mm was observed in Moneragala and the ocean near Matara and Hambantota. On 16th September and on 17th September only the ocean near Hambantota received rainfall up to 30 mm. The ocean near Galle received rainfall up to 80 mm on 18th September while Galle and Matara received rainfall up to 60 mm. On 19th September only the ocean near southern province received rainfall up to 30 mm and on 20th September, ocean near Mullaitivu received rainfall up to 60 mm and rainfall up to 30 mm observed in southern region of Kegalle. On 21st September significant amount of rainfall was not observed in any part of the country.

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 the south western region of the country during 22nd-28th September. South western region shall receive total rainfall up to 135 mm during the week while total rainfall up to 85 mm is expected in south eastern region and rest of the country shall receive total rainfall up to 55 mm. These models predict the rainfall shall be slightly decreased during 29th September - 05th 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 55 mm.

IMD WRF & IRI Model Forecast: According to the IMD WRF model heavy rainfall up to 125 mm shall receive in Vavuniya, Polonnaruwa and the northern region of Badulla on 24th September while Mullaitivu, Badulla, Nuwara Eliya and Matale shall receive rainfall up to 65 mm. The western and southern regions of the country shall receive rainfall up to 35 mm and the rest of the country shall also receive slight amounts of rainfall. Rainfall up to 125 mm is expected in Galle on 25th September and south western region shall receive rainfall up to 65 mm while rest of the country shall receive slight amounts of rainfall. IRI CFS models predict total rainfall up to 100 mm in south western and central regions of the country during 22nd-27th September.

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.

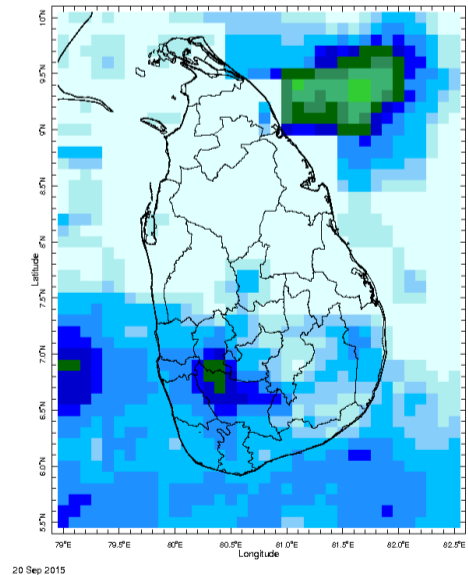
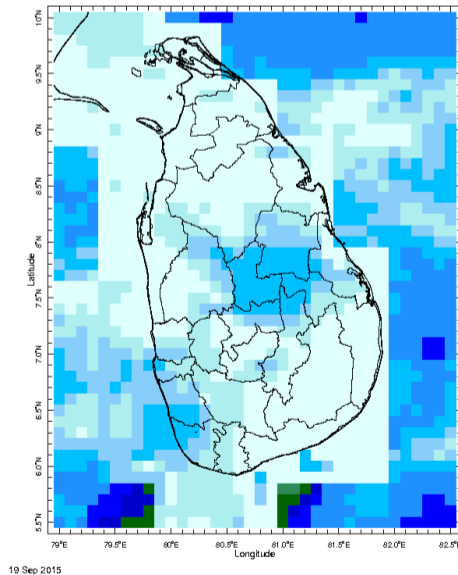
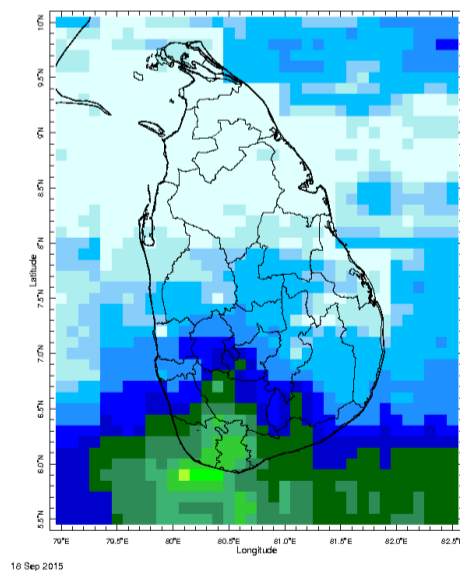
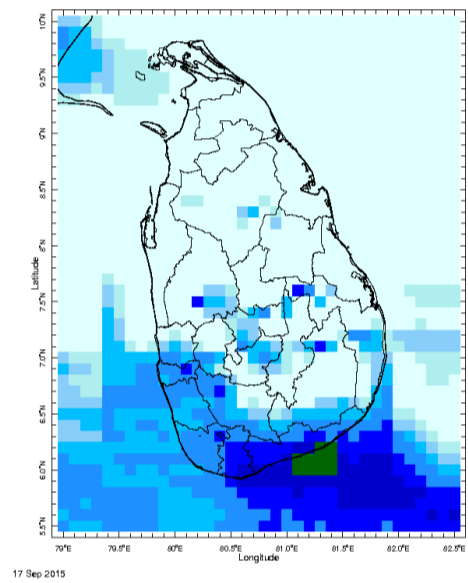
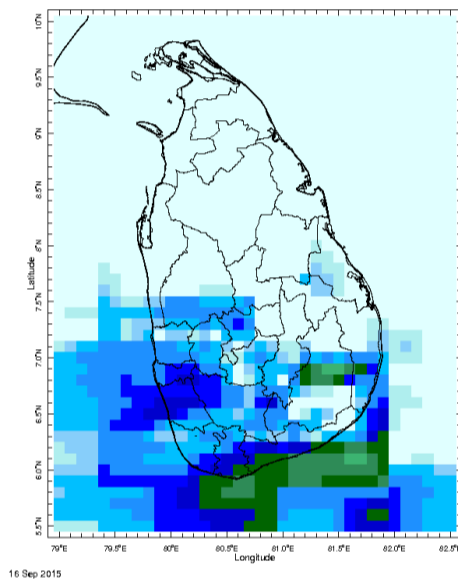
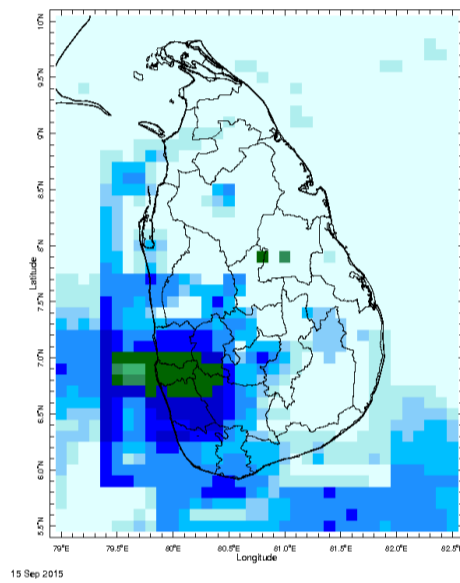
Weekly Hydro- Meteorological Report for Sri Lanka

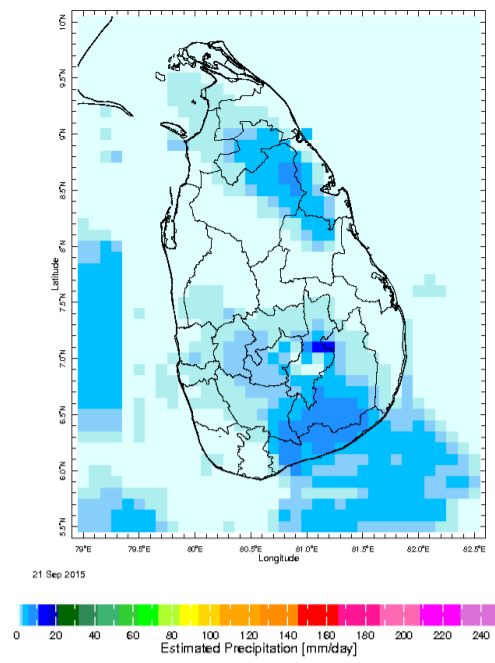
Inside This Issue

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

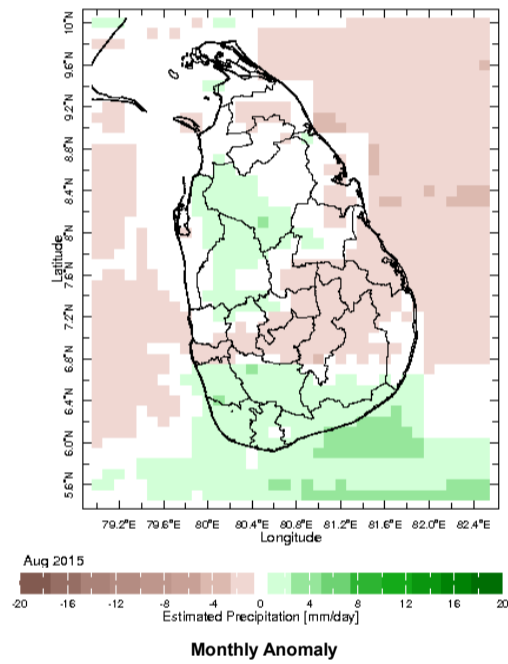
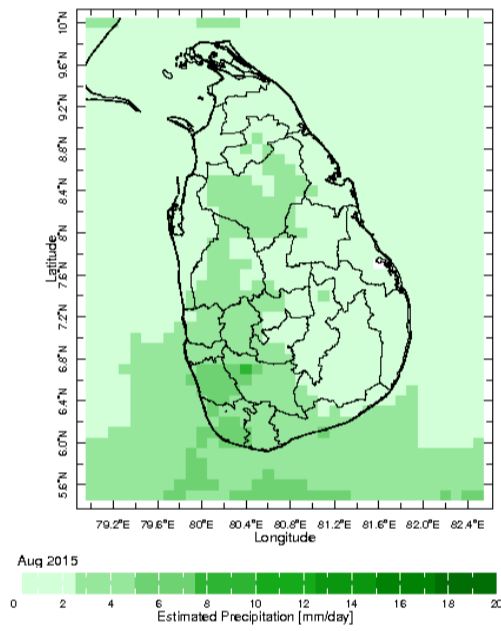
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



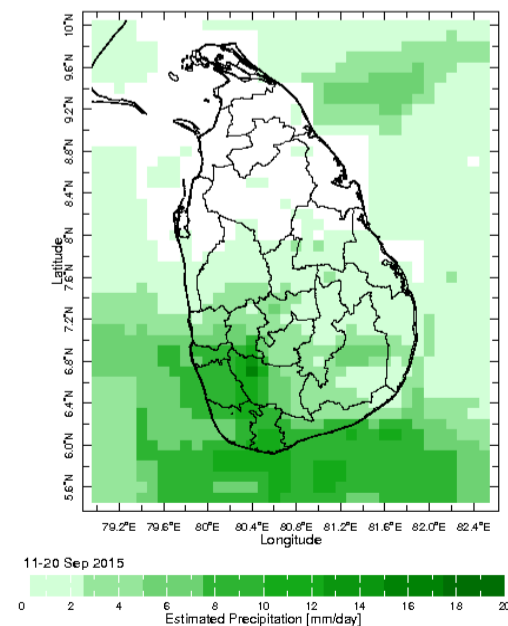
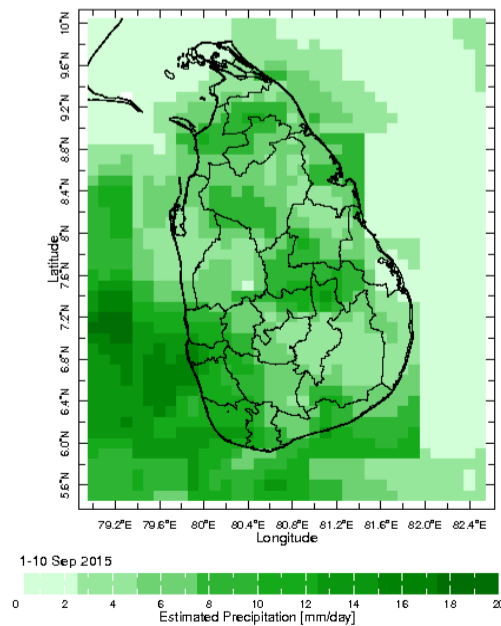


Monthly Rainfall Monitoring

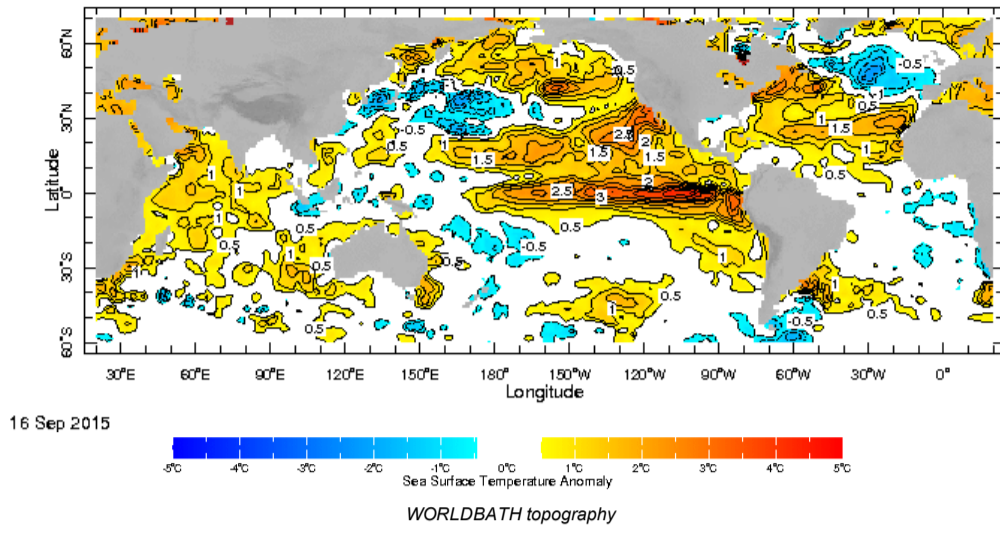
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



Dekadal (10 Day) Satellite Derived Rainfall Estimates

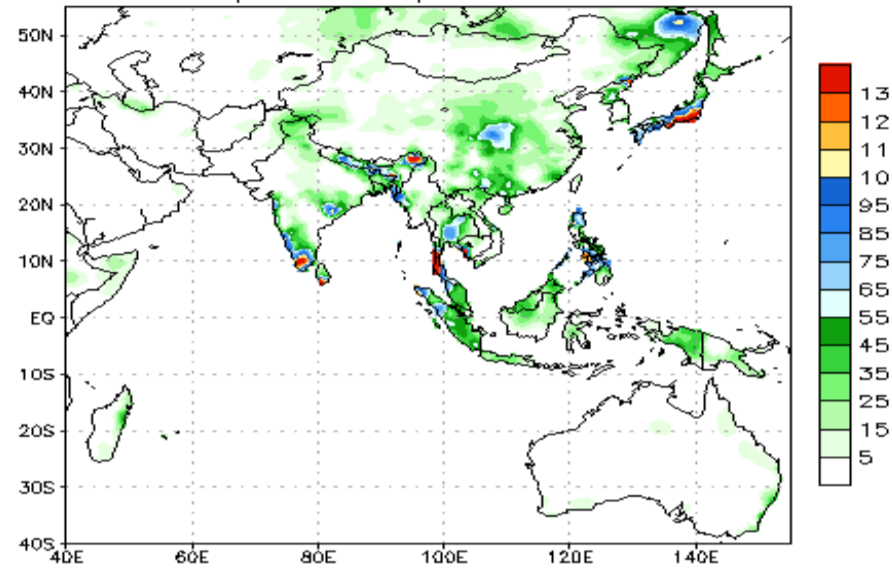


Weekly Average SST Anomalies

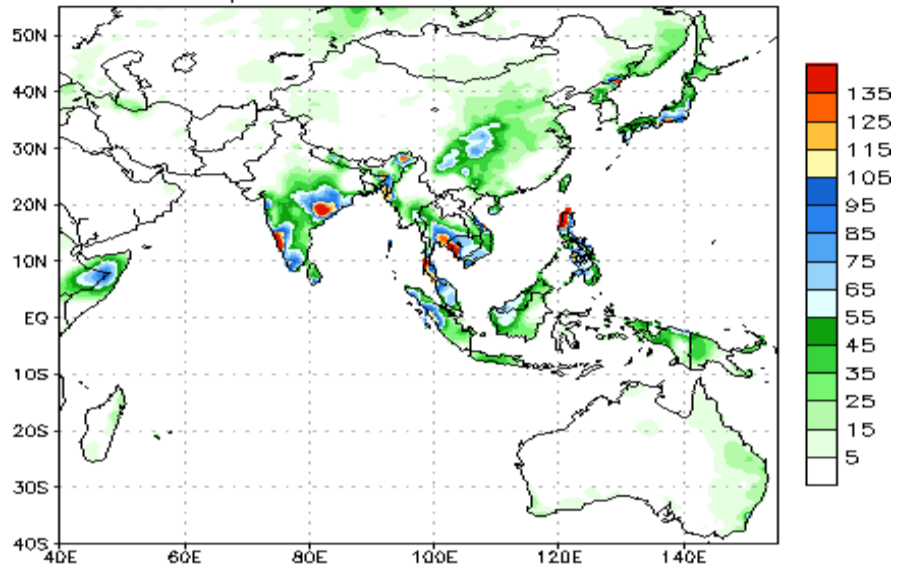


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 22Sep2015
22Sep2015-28Sep2015 Accumulation



NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 22Sep2015
29Sep2015-05Oct2015 Accumulation

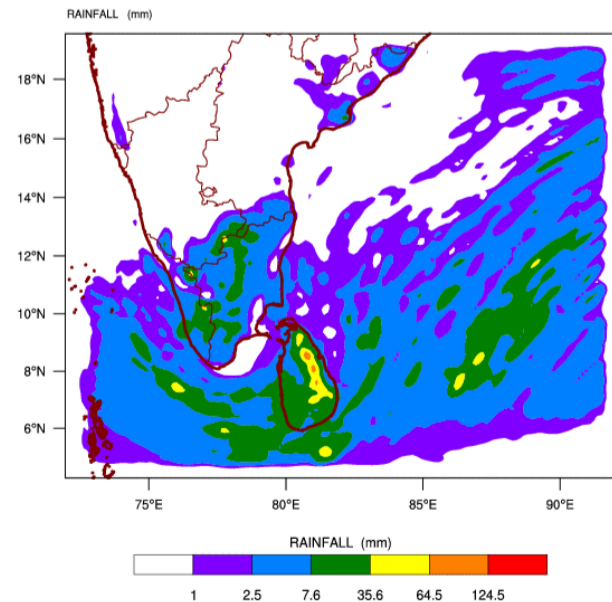


Bias correction based on last 30-day forecast error

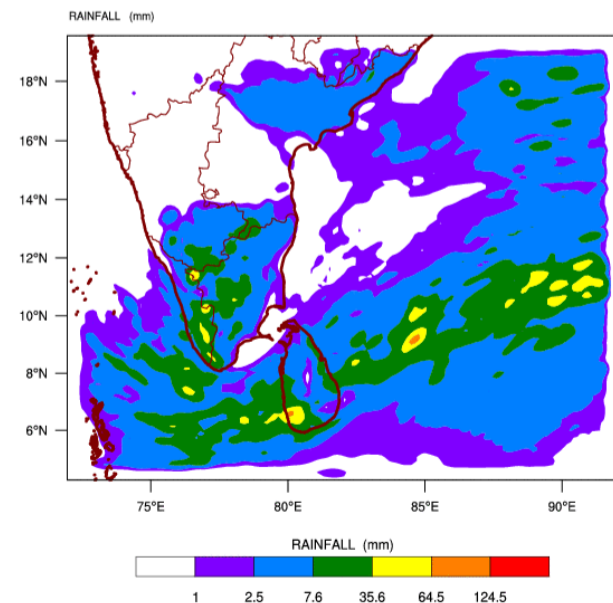
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)\
based on 00 UTC of 22-09-2015 valid for 03 UTC of 24-09-2015

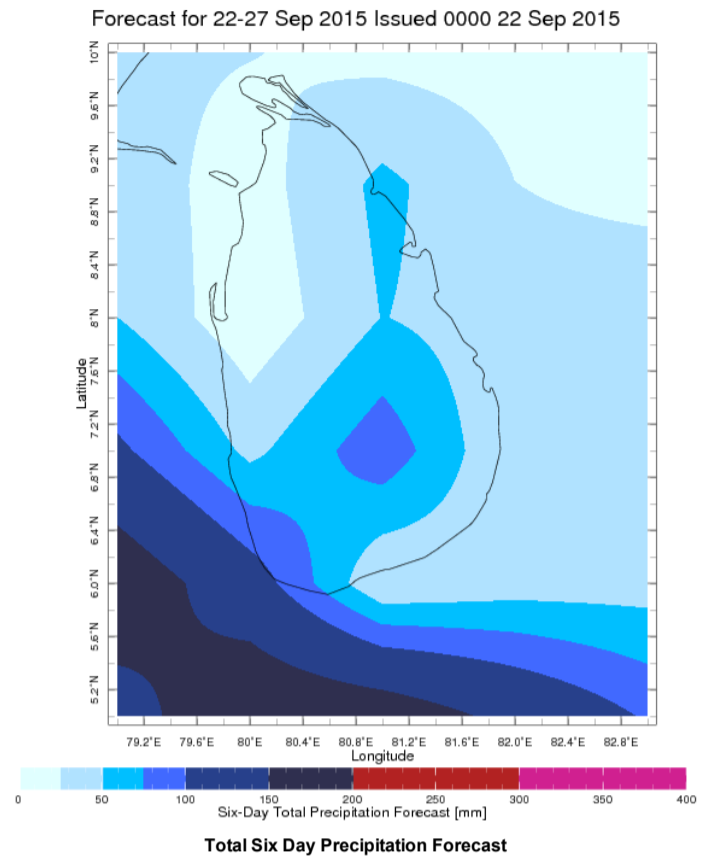
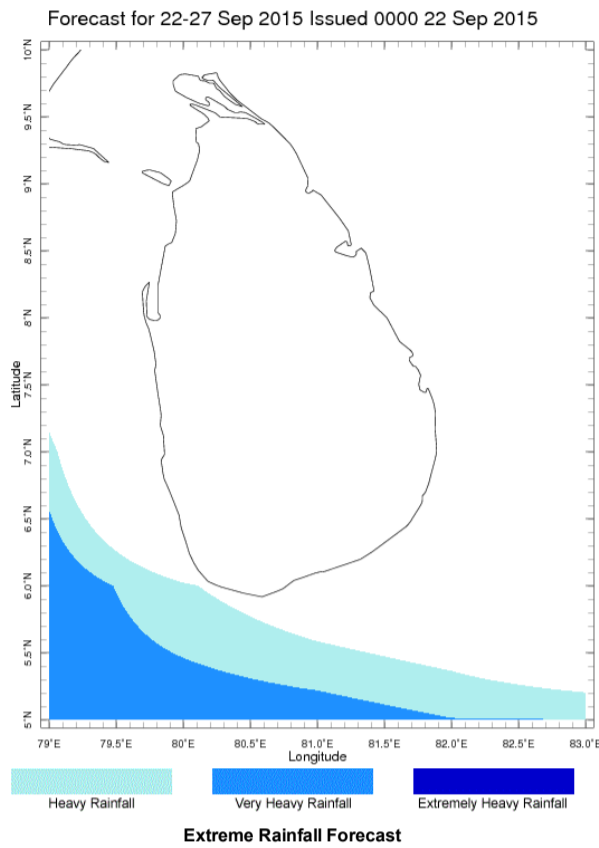


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)\
based on 00 UTC of 22-09-2015 valid for 03 UTC of 25-09-2015



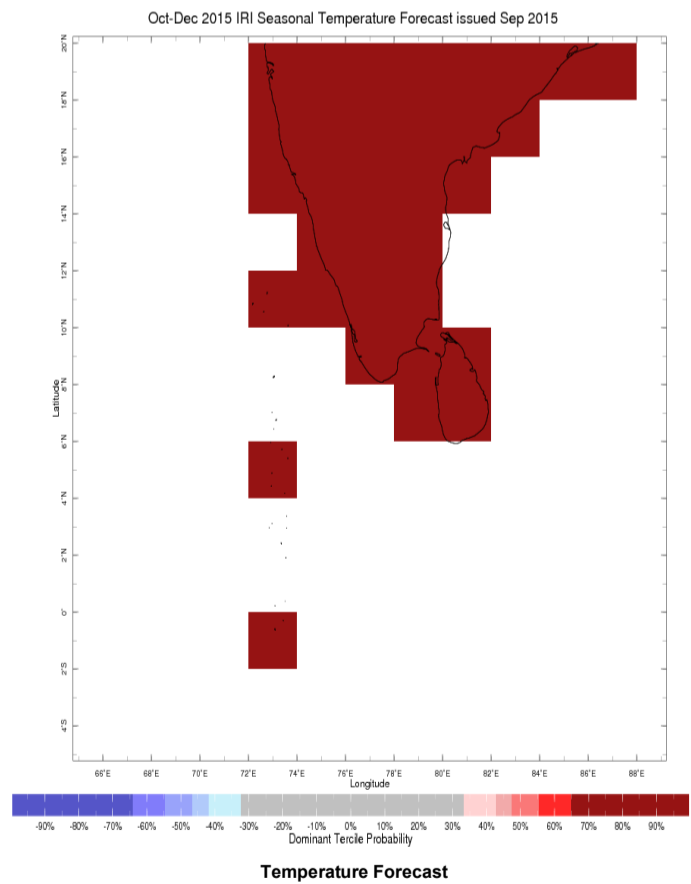
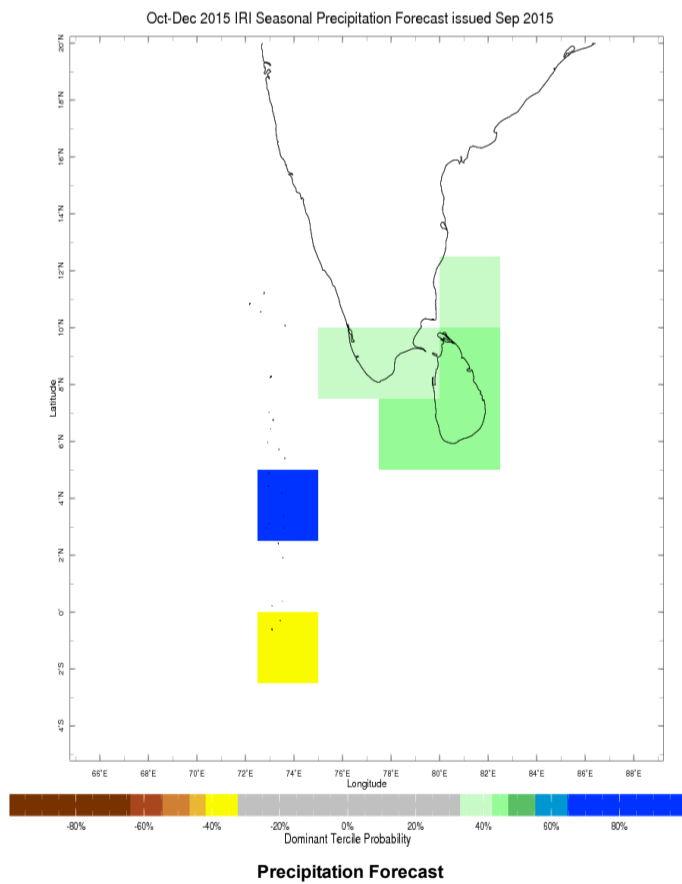
Weekly Rainfall Forecast

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