

Experimental Climate Monitoring and Prediction

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

10 December 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/>

November 19, 2015 PACIFIC SEAS STATE

During late October through mid-November 2015 the tropical Pacific SST was at a strong El Niño level. All atmospheric variables strongly 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 November-January 2015-16 season in progress. Some slight further strengthening is possible into early winter 2015-16, with the event slowly weakening during spring 2016.

(Text Courtesy IRI)

INDIAN OCEAN STATE

Neutral sea surface temperature was observed around Sri Lanka.

MJO STATE

MJO phase is in 5 therefore shall slightly suppress rainfall in Sri Lanka.

Highlights

Heavy rainfall was observed in the entire country during the 1st- 7th December 2015. The Sea around the country also received extremely heavy rainfall during this week. NOAA NCEP models predict a decrease in the rainfall in northern and north central regions of the country but very heavy rainfall shall continue in the eastern region during the next two weeks. The sea surface temperature around the country is neutral. The MJO shall be in phases 5 and 6 during the next week which shall suppress rainfall.

Summary

Monitoring

Weekly Monitoring: During 1st – 7th December northern and the entire country received rainfall. On 1st December, ocean near Puttalam received heavy rainfall up to 160 mm while ocean near Trincomalee received rainfall up to 130 mm. On 2nd December rainfall up to 50 mm was observed around Buttala, Bandarawela, Kuruvita and ocean around Jaffna. On 3rd December, ocean near Kalmunai received rainfall up to 70 mm. Rainfall up to 90 mm was observed in the ocean near Galle on 4th December while Dehiattakandiya, Girandurukotte, Hasalaka and western region of Matale received rainfall up to 70 mm. Rainfall up to 100 mm was observed in the south eastern ocean on 5th December, and on 6th December only Kuruvita received rainfall up to 40 mm while the rest of the country received light rainfall. On 7th December, the western province and the nearby sea received rainfall up to 80 mm while Trincomalee, Mullaitivu and ocean around eastern and northern provinces received rainfall up to 40 mm.

Monthly Monitoring: In November 2015, almost entire country received above average rainfall while the ocean near eastern and southern provinces, southern region of Galle and Matara received below average rainfall.

Predictions

14 day prediction: NOAA NCEP models predict relatively high rainfall in eastern region of the country compared to the rest of the country during 9th – 15th December. Total rainfall above 135 mm is expected during the week in eastern region and total rainfall up to 85 mm is expected in rest of the country. These models predict the rainfall to decrease during 16th – 22nd December and total rainfall above 135 mm is expected in eastern region, total rainfall up to 55 mm is expected in rest of the country.

IMD WRF & IRI Model Forecast: According to the IMD WRF model rainfall up to 65 mm is expected around Somawathi Sanctuary, Kattankudy, Kalmunai and Yala on 11th December while rest of the country shall receive slight amounts of rainfall. On 5th December Kalmunai shall receive rainfall up to 65 mm and rest of the country shall receive slight amounts of rainfall. IRI CFS models prediction is not available in this week

Seasonal Prediction: As per IRI Multi Model Probability Forecast for December to February, 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.

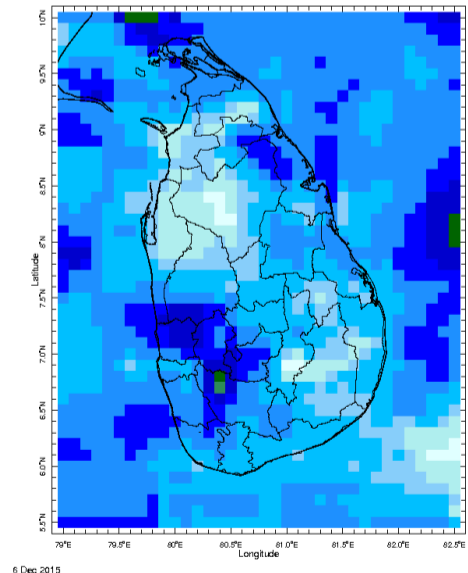
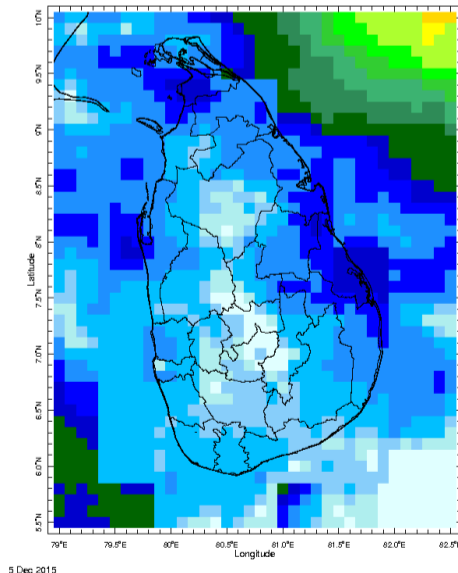
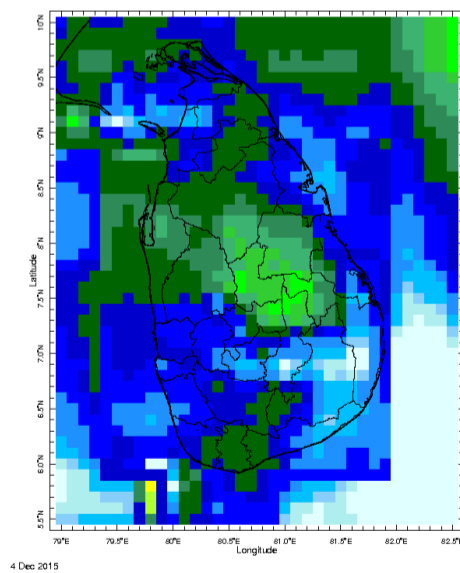
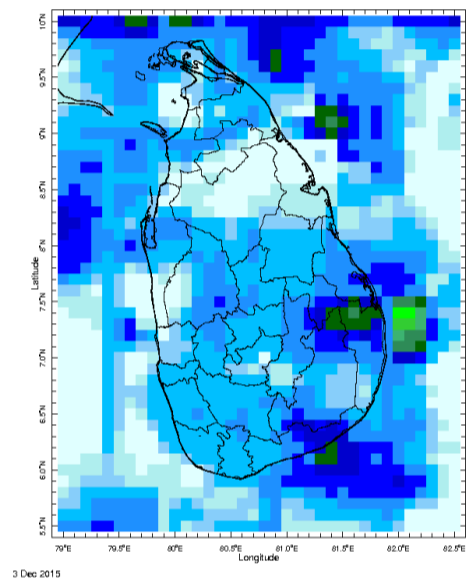
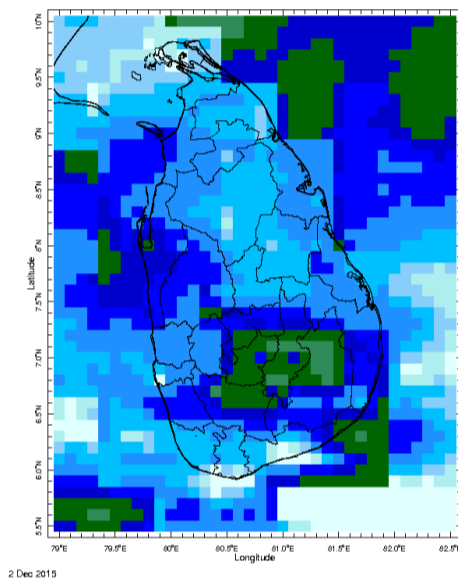
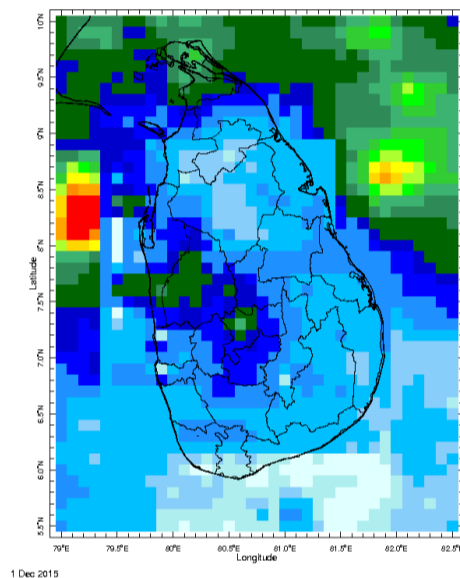
Weekly Hydro- Meteorological Report for Sri Lanka

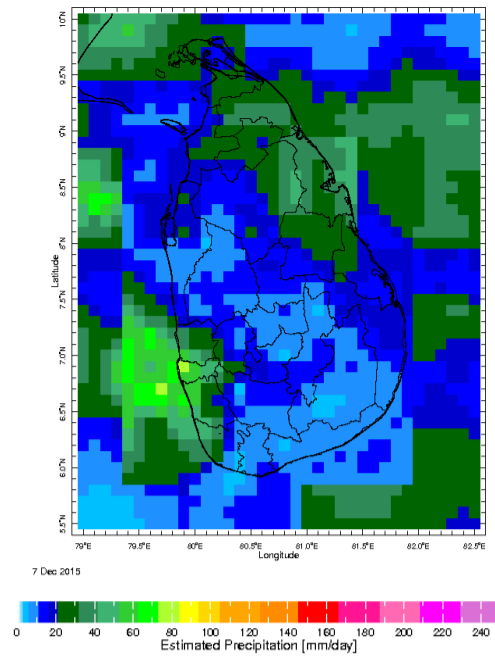
Inside This Issue

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

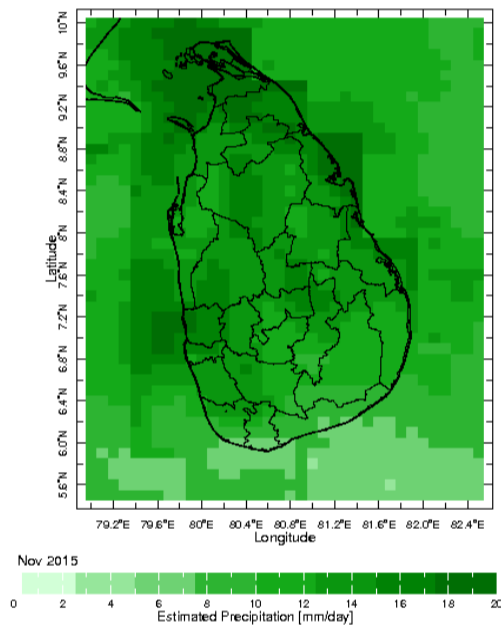
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



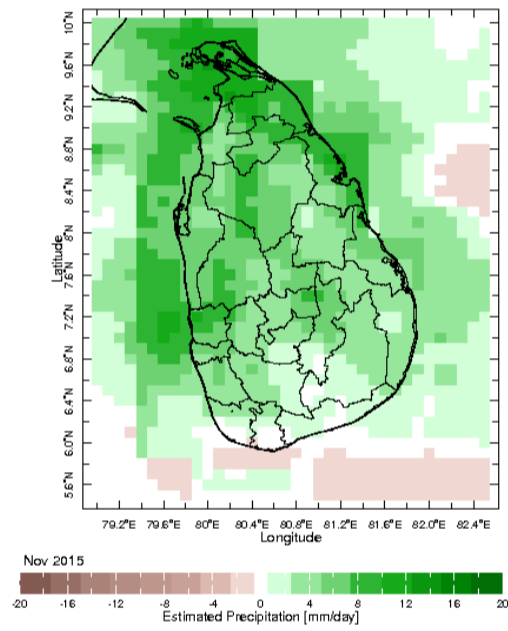


Monthly Rainfall Monitoring

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

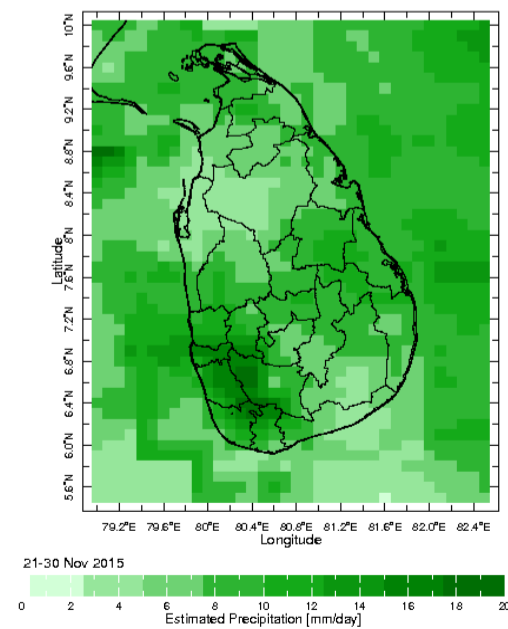
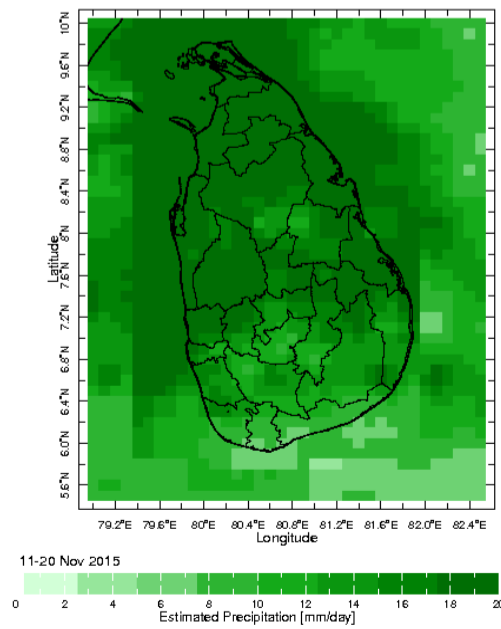


Monthly Average

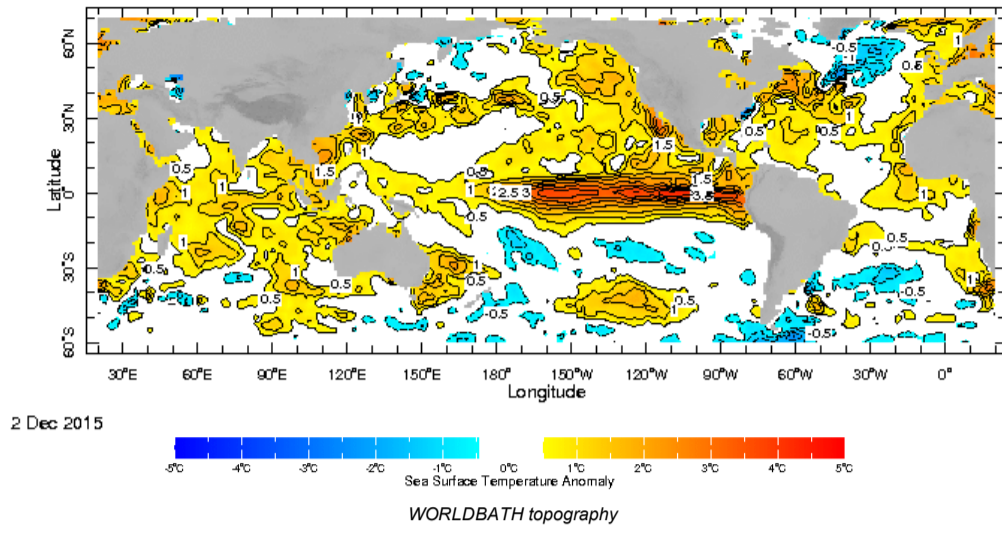


Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

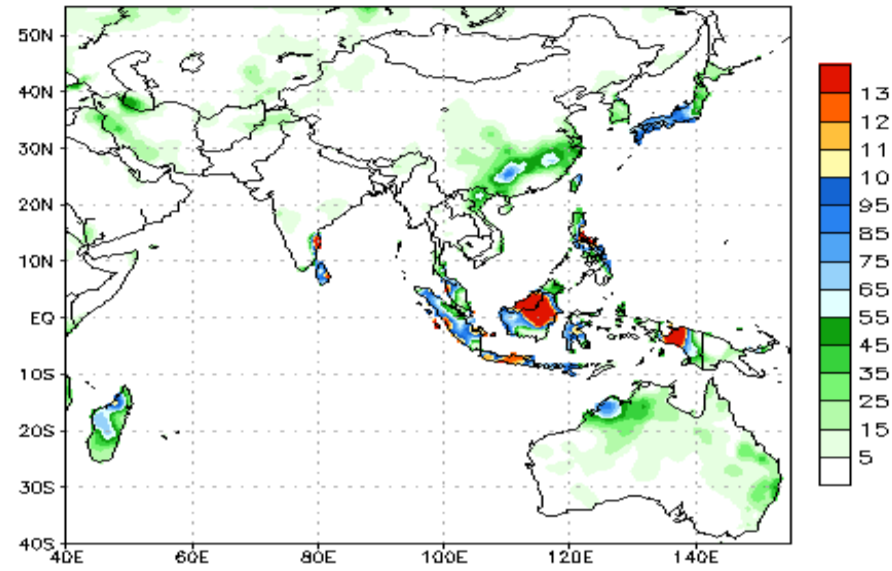


Weekly Average SST Anomalies

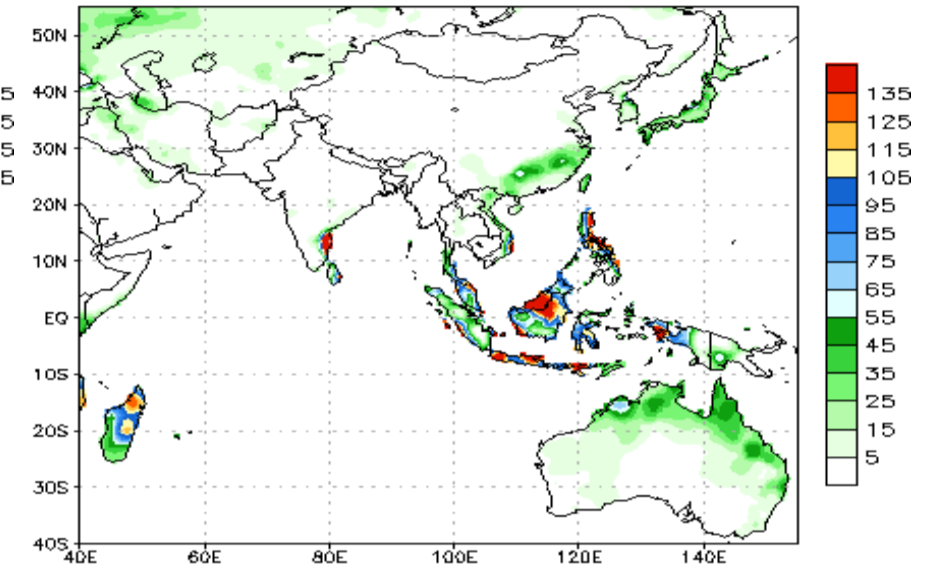


NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 09Dec2015
09Dec2015–15Dec2015 Accumulation



NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 09Dec2015
16Dec2015–22Dec2015 Accumulation

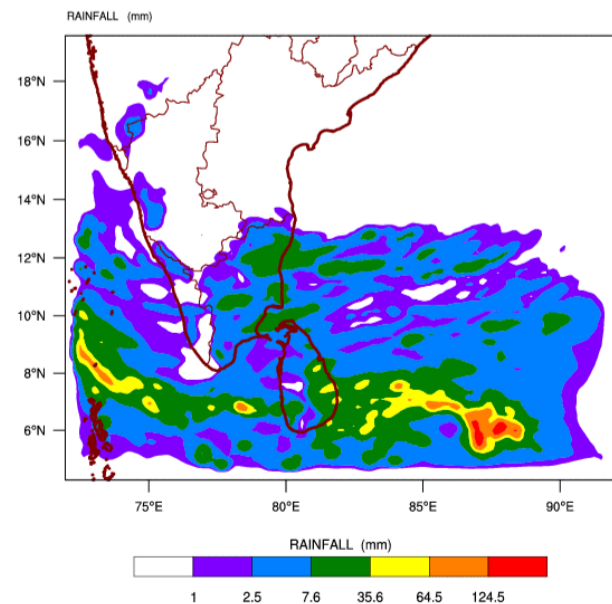


Bias correction based on last 30-day forecast error

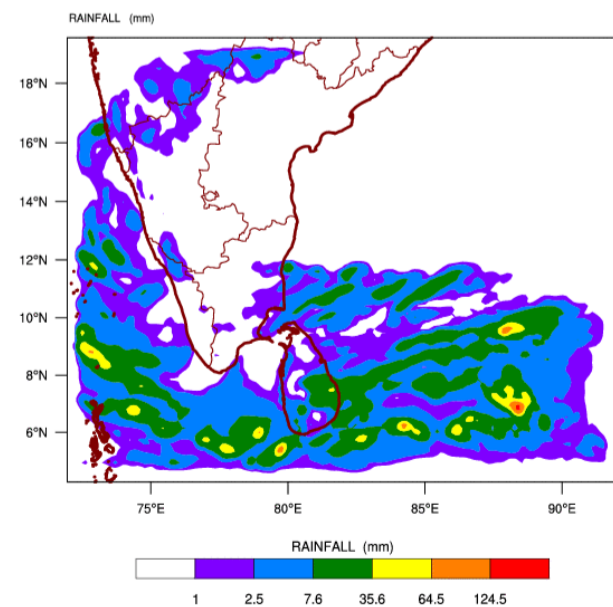
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

WRF MODEL FORECAST (48 HR.) RAINFALL(mm)
based on 00 UTC of 09-12-2015 valid for 03 UTC of 11-12-2015

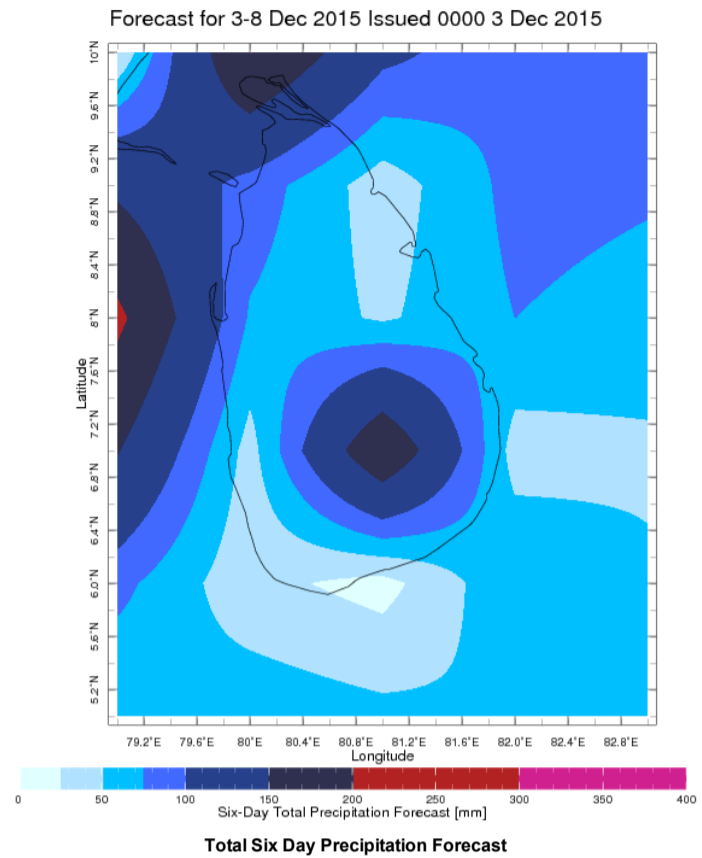
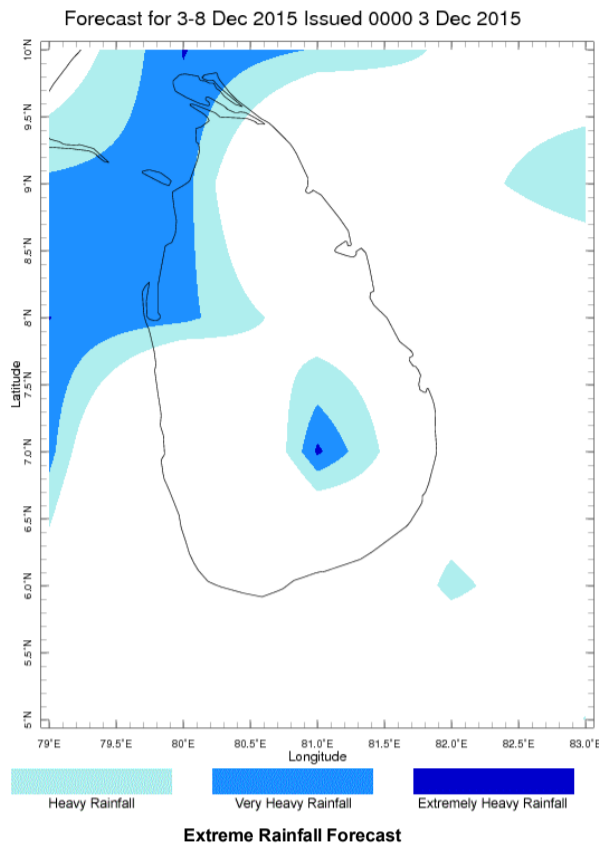


WRF MODEL FORECAST (72 HR.) RAINFALL(mm)
based on 00 UTC of 09-12-2015 valid for 03 UTC of 12-12-2015



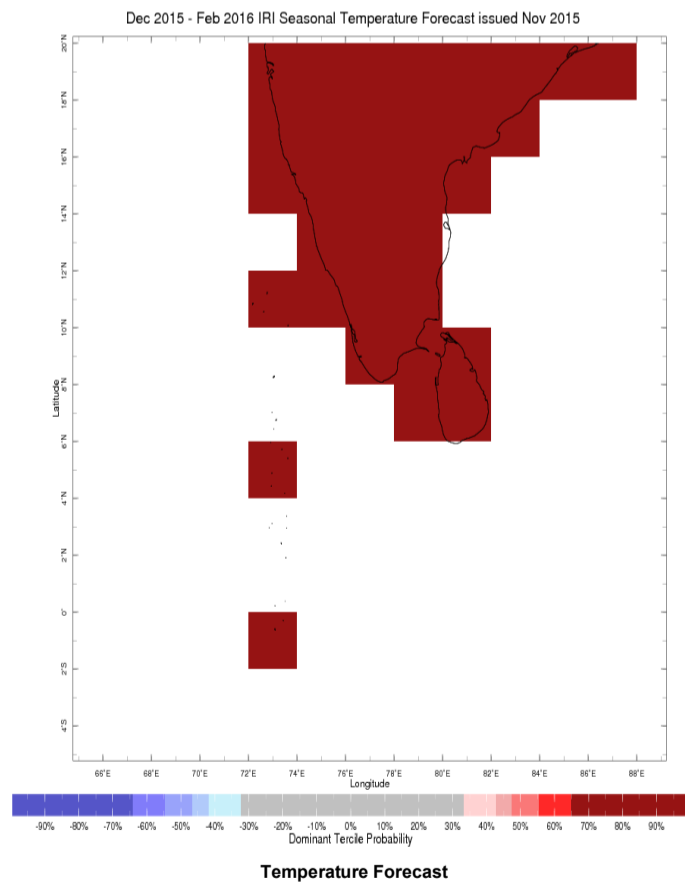
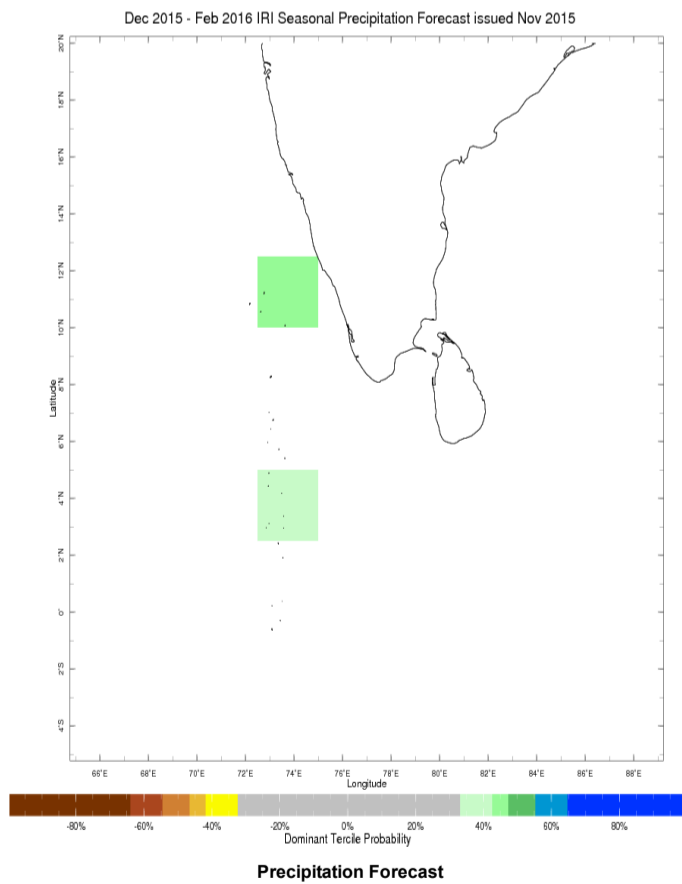
Weekly Rainfall Forecast

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