

Experimental Climate Monitoring and Prediction

by: Ruchira Lokuhetti, Chalani Malge, Janan Visvanathan,

Lareef Zubair and Michael Bell¹ (FECT and IRI¹)**7 November 2018**

Highlights

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- The IRI weekly rainfall forecast predicts total rainfall up to 200 mm in Jaffna, Kilinochchi, Mullaitivu, Trincomalee and Batticaloa districts during 5 - 10 Nov.
- Between 30 Oct – 5 Nov: up to 140 mm of rainfall was recorded in Ampara and Batticaloa districts on the 5th.
- From 28 Oct – 3 Nov: entire island recorded a minimum temperature between 20-25 °C and a maximum temperature between 30-35 °C.
- From 29 Oct – 4 Nov: up to 18 km/h, northeasterly winds were experienced by the Northern province; and up to 10 km/h in the same direction by the rest of the island.
- Average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring: On October 30th, Jaffna, Kilinochchi, Mannar, Anuradhapura and Puttalam districts received up to 50 mm of rainfall; Mullaitivu, Vavuniya, Trincomalee and Kurunegala districts up to 30 mm; and Batticaloa, Polonnaruwa, Matale, Kandy, Nuwara Eliya and Kegalle districts up to 20 mm. On the 31st, Matara, Ratnapura and Batticaloa districts received up to 20 mm of rainfall; and Jaffna, Kilinochchi, Mullaitivu, Vavuniya, Kurunegala, Puttalam, Anuradhapura, Polonnaruwa, Trincomalee, Kalutara, Galle and Hambantota districts up to 15 mm. On November 1st, Jaffna, Kilinochchi, Mullaitivu, Trincomalee and Ampara districts received up to up to 80 mm rainfall; Anuradhapura, Polonnaruwa, Batticaloa and Kurunegala districts up to 60 mm; Vavuniya, Mannar, Puttalam, Gampaha, Kegalle, Colombo, Ratnapura and Monaragala districts up to 50 mm; Kalutara, Galle, Matara, Nuwara Eliya, Kandy, Matale and Badulla districts up to 30 mm; and rest of the island up to 20 mm. On the 2nd, Jaffna district received up to 50 mm of rainfall; Kilinochchi, Trincomalee, Polonnaruwa, Puttalam, Kurunegala, Gampaha, Kegalle and Ratnapura districts up to 30 mm; Mullaitivu, Mannar, Anuradhapura, Kandy, Nuwara Eliya, Kalutara, Colombo and Ampara districts up to 20 mm; and most parts of the island up to 10 mm. On the 3rd, Jaffna district received up to 20 mm of rainfall; Kilinochchi district up to 20 mm; and Mullaitivu and Mannar districts up to 15 mm. On the 4th, No significant rainfalls were recorded in any part of the island. On the 5th, Ampara and Batticaloa districts received up to 140 mm of rainfall; Polonnaruwa district up to 100 mm; Trincomalee, Polonnaruwa, Anuradhapura, Matale, Badulla, Monaragala and Gampaha districts up to 90 mm; Kurunegala, Kandy and Kegalle districts received up to 80 mm of rainfall; Puttalam and Nuwara Eliya districts up to 60 mm; and most parts of the island up to 50 mm.

Total Rainfall for the Past Week: The RFE 2.0 tool shows total rainfall up to 200-300 mm in Batticaloa and Ampara districts; up to 150-200 mm in Jaffna, Kilinochchi, Mullaitivu, Trincomalee, Anuradhapura, Polonnaruwa and Monaragala districts; up to 75-100 mm in Mannar, Puttalam, Kurunegala, Matale, Nuwara Eliya, Badulla, Ratnapura, Matara and Kalutara districts; and up to 75 mm in rest of the island. Above average rainfall up to 100-200 mm is shown for Mullaitivu, Trincomalee, Polonnaruwa, Batticaloa and Ampara districts. up to 50-100 mm in Jaffna, Kilinochchi, Anuradhapura, Vavuniya, Puttalam, Kurunegala, Gampaha, Matale, Badulla, Monaragala and Kandy districts; and up to 25-50 mm for most parts of the island.

Monthly Monitoring: During October - above average rainfall conditions up to 210 mm were experienced by Anuradhapura district; up to 150 mm in Ratnapura, Colombo, Kalutara, Galle, Matara, Mannar, Vavuniya, Puttalam, Badulla and northern regions of Kurunegala and south western regions of Monaragala districts; and up to 60 mm in Jaffna, Kilinochchi, Gampaha, Kandy, Nuwara Eliya, Mullaitivu and southern regions of Kegalle and western regions of Monaragala districts. Polonnaruwa and Batticaloa districts experienced below average rainfall up to 150 mm; and Trincomalee, Matale and Ampara districts up to 90 mm. The CPC Unified Precipitation Analysis tool shows up to 500 mm of total rainfall in Kegalle, Ratnapura, Puttalam, Gampaha, Colombo, Kalutara, Galle, Kurunegala, Mannar, Anuradhapura and Vavuniya districts; and up to 300 mm in for the rest of the island.

Ocean State (Text Courtesy IRI)

Pacific sea state: October 19, 2018

While ENSO-neutral conditions prevailed in September, signs of El Niño increased in early October 2018 as east-central tropical Pacific SSTs warmed to weak El Niño levels. Also, low level winds showed westerly anomalies in most of the last three weeks. The subsurface water temperature continued to be above-average, and increased further recently. The official CPC/IRI outlook calls for a 70-75% chance of El Niño development during October/November, continuing through winter 2018-19. An El Niño watch is in effect. New forecasts of statistical and dynamical models collectively favor imminent El Niño development, most likely weak to moderate strength, continuing through winter.

Indian Ocean State

Average sea surface temperature was observed in the seas around Sri Lanka.

Predictions

Rainfall

14-day prediction:

NOAA NCEP models:

From 7th – 13th Nov: Total rainfall up to 115 mm in Jaffna, Kilinochchi, Anuradhapura, Mullaitivu and Vavuniya districts; up to 95-105 mm in Mannar and Trincomalee districts; up to 75-85 mm in Puttalam, Kurunegala, Polonnaruwa and Batticaloa districts; up to 55-65 mm in Gampaha, Matale and Ampara districts; and up to 45-55 mm in Colombo, Kalutara, Kegalle and Kandy districts.

From 14th – 20th Nov: Total rainfall up to 55 mm in Anuradhapura district; up to 35-45 mm in Mullaitivu, Vavuniya, Mannar, Kurunegala, Gampaha, Colombo, Trincomalee and Kegalle districts; and up to 25-35 mm in Gampaha, Matale, Kandy, Nuwara Eliya and Ratnapura districts.

IMD NCMWRF Forecast:

8th Nov: Up to 160 mm of rainfall in Colombo, Mullaitivu and Vavuniya districts; up to 80 mm in Ratnapura and Ampara districts; and up to 40 mm in Jaffna, Kilinochchi, Mannar, Trincomalee, Batticaloa, Badulla, Monaragala and Galle districts.

9th Nov: Up to 80 mm in Polonnaruwa and Batticaloa districts; up to 40 mm in Puttalam, Kurunegala and Ampara districts; and up to 20 mm in Mannar, Kilinochchi, Anuradhapura, Matale, Monaragala and Hambantota districts.

IRI Model Forecast:

From 5 – 10 Nov: Total rainfall up to 200 mm in Jaffna, Kilinochchi, Mullaitivu, Trincomalee and Batticaloa districts; up to 150 mm in Mannar, Vavuniya, Anuradhapura and Polonnaruwa districts; up to 100 mm in Puttalam, Kurunegala, Matale, Kandy, Nuwara Eliya, Kegalle, Ratnapura, Badulla, Monaragala and Ampara districts; and up to 75 mm in rest of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall enhance the rainfall in Sri Lanka in the next 5 days; shall not have an impact in the following 5 days; and shall suppress in the next 5 days.

¹ International Research Institute for Climate and Society, Earth Institute at Columbia University, New York.
Official hydro-meteorological statements are provided by the Sri Lanka Department of Meteorology and Department of Irrigation.

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/>



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Weekly Hydro- Meteorological Report for Sri Lanka

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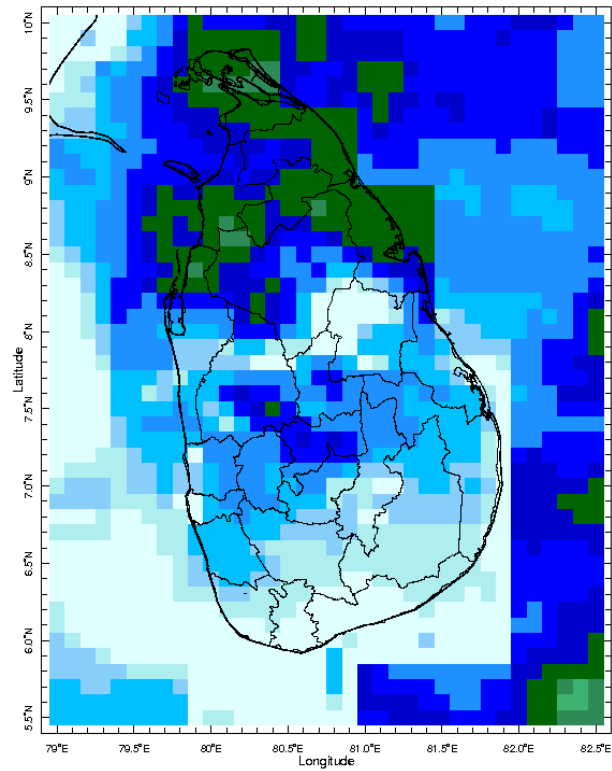
2. Predictions

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- b. WRF Model Rainfall Forecast from IMD Chennai
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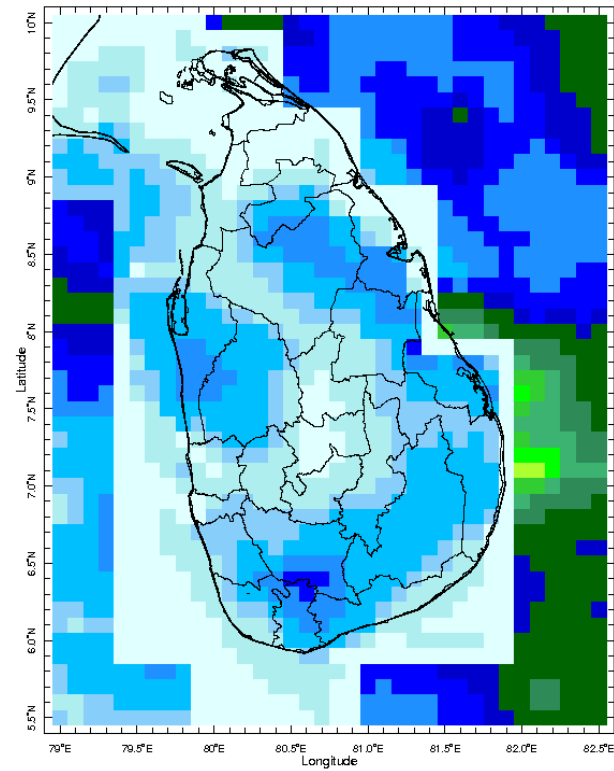
MONITORING

Daily Rainfall Monitoring

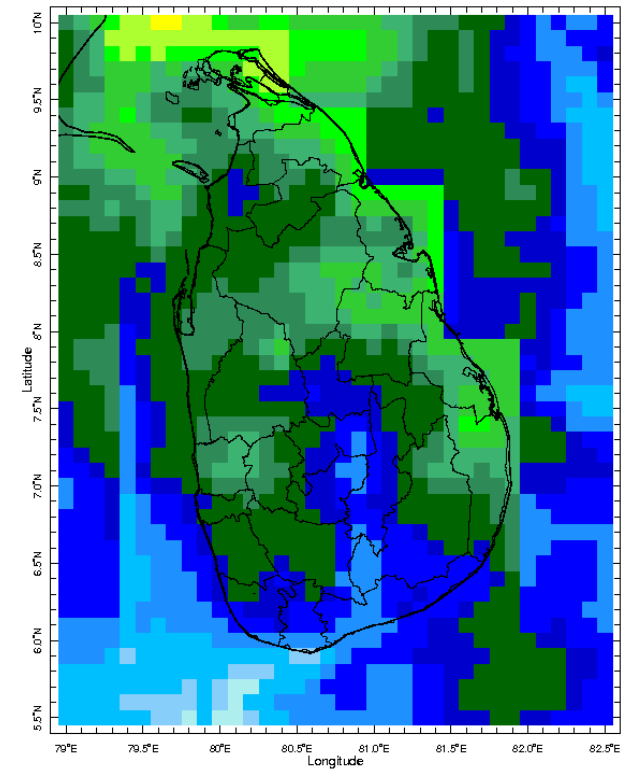
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



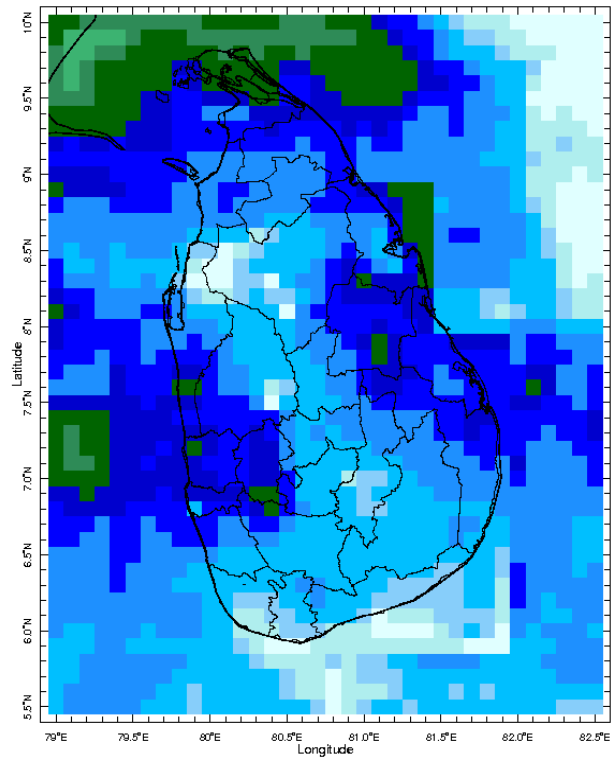
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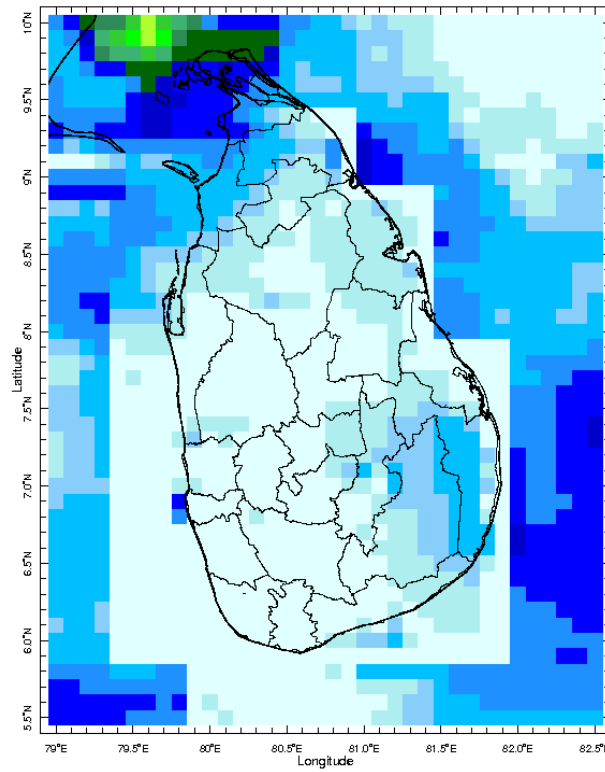
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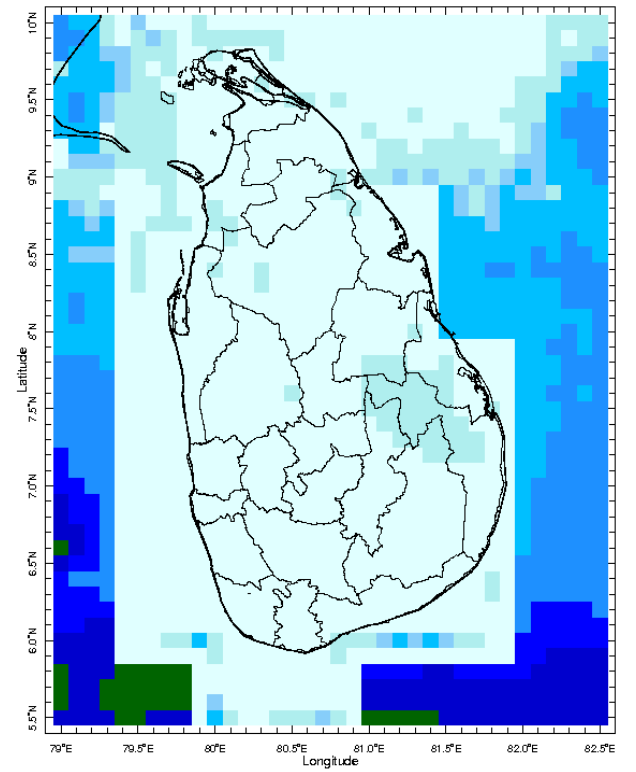
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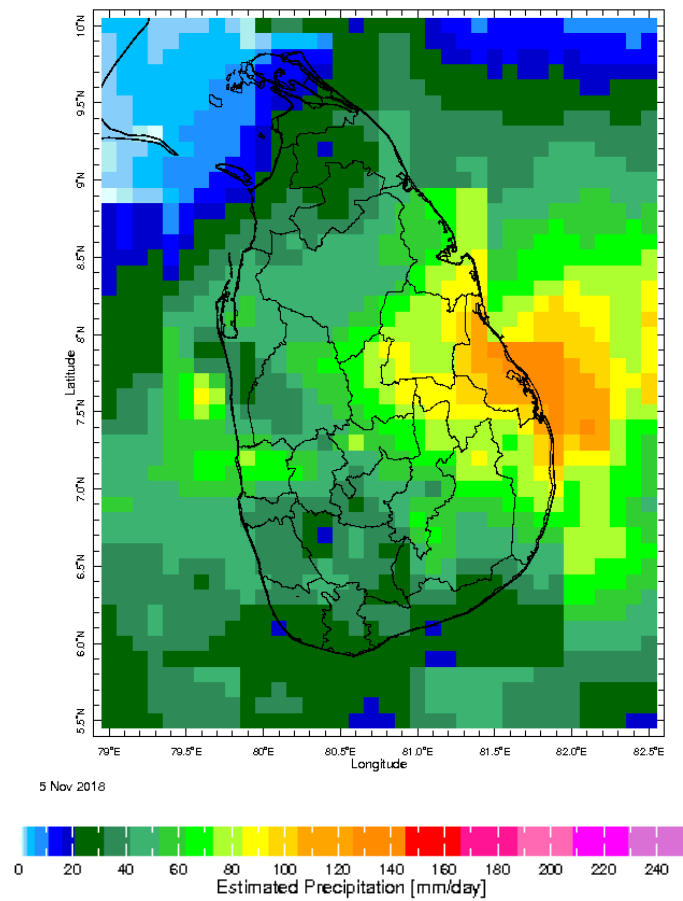
2 Nov 2018



3 Nov 2018

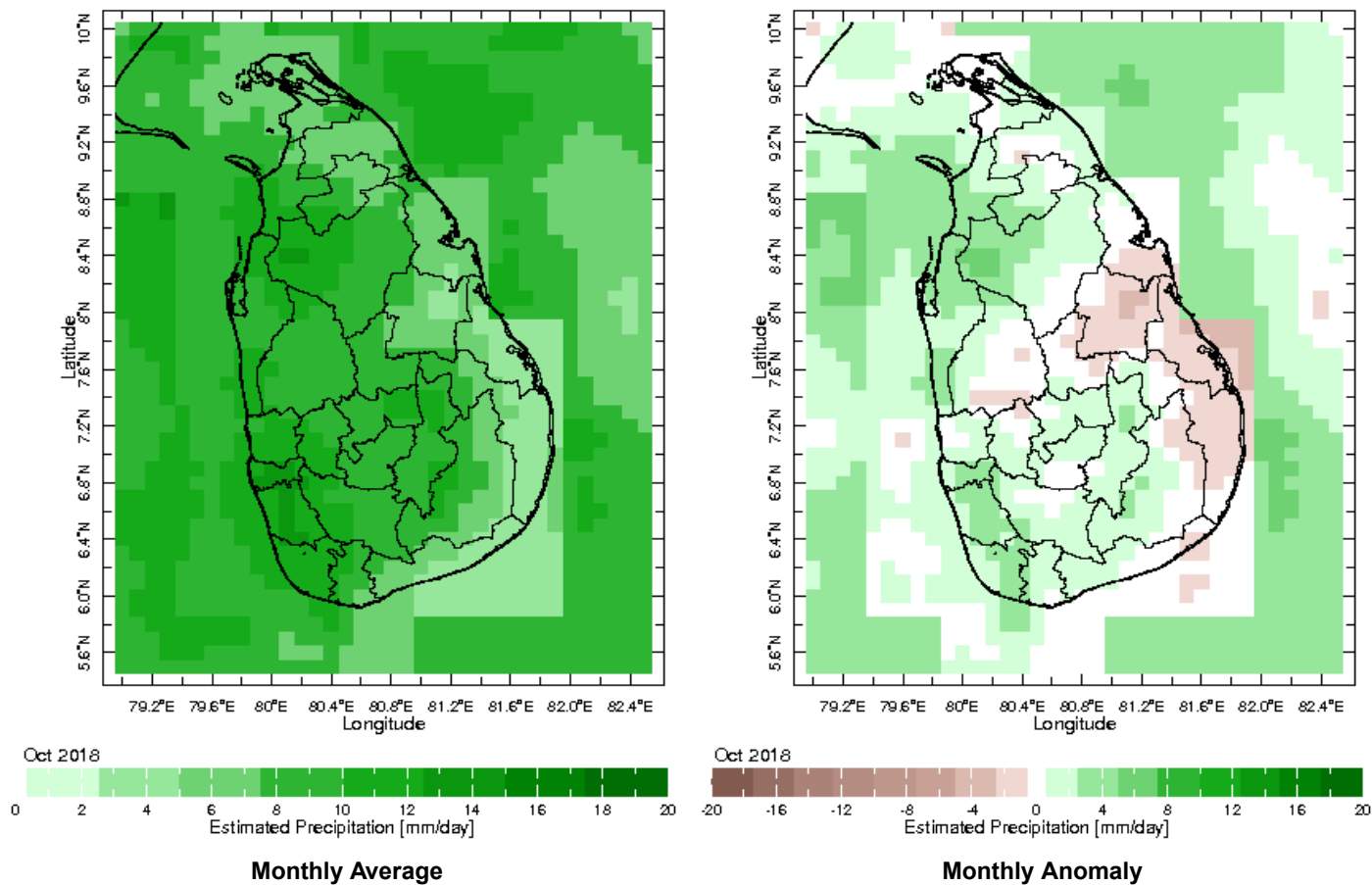


4 Nov 2018

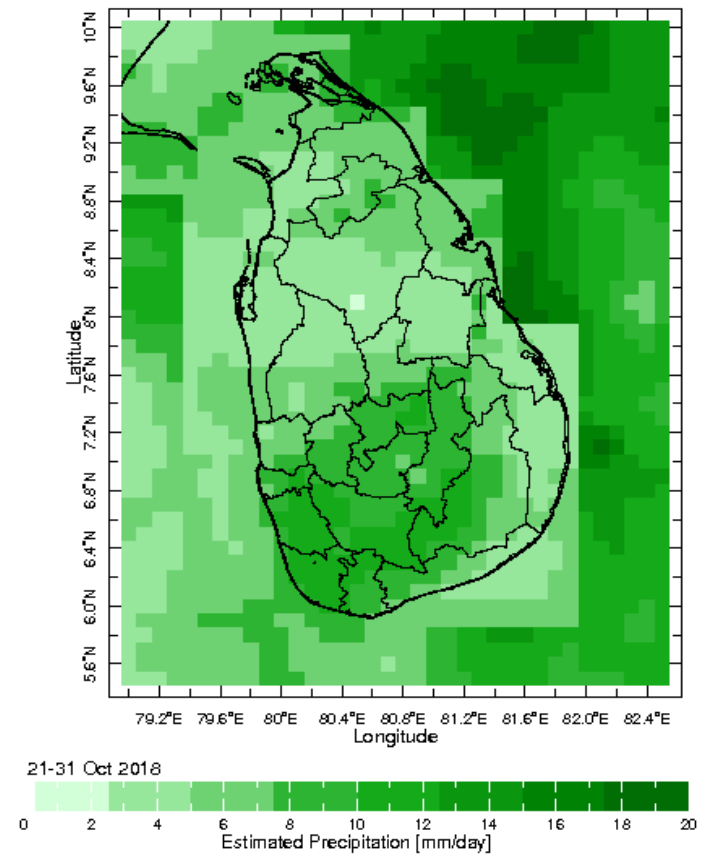
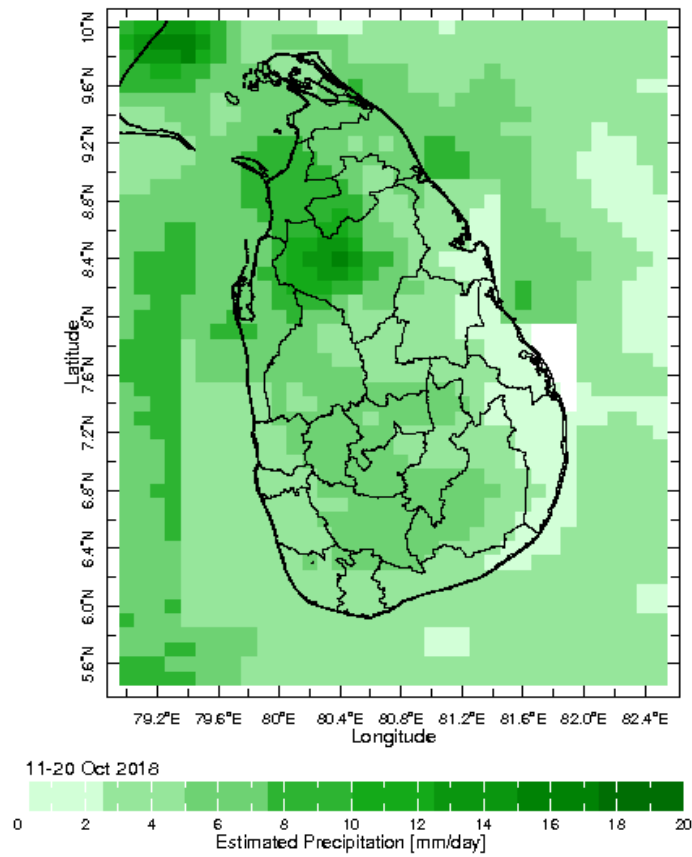


Monthly Rainfall Monitoring

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

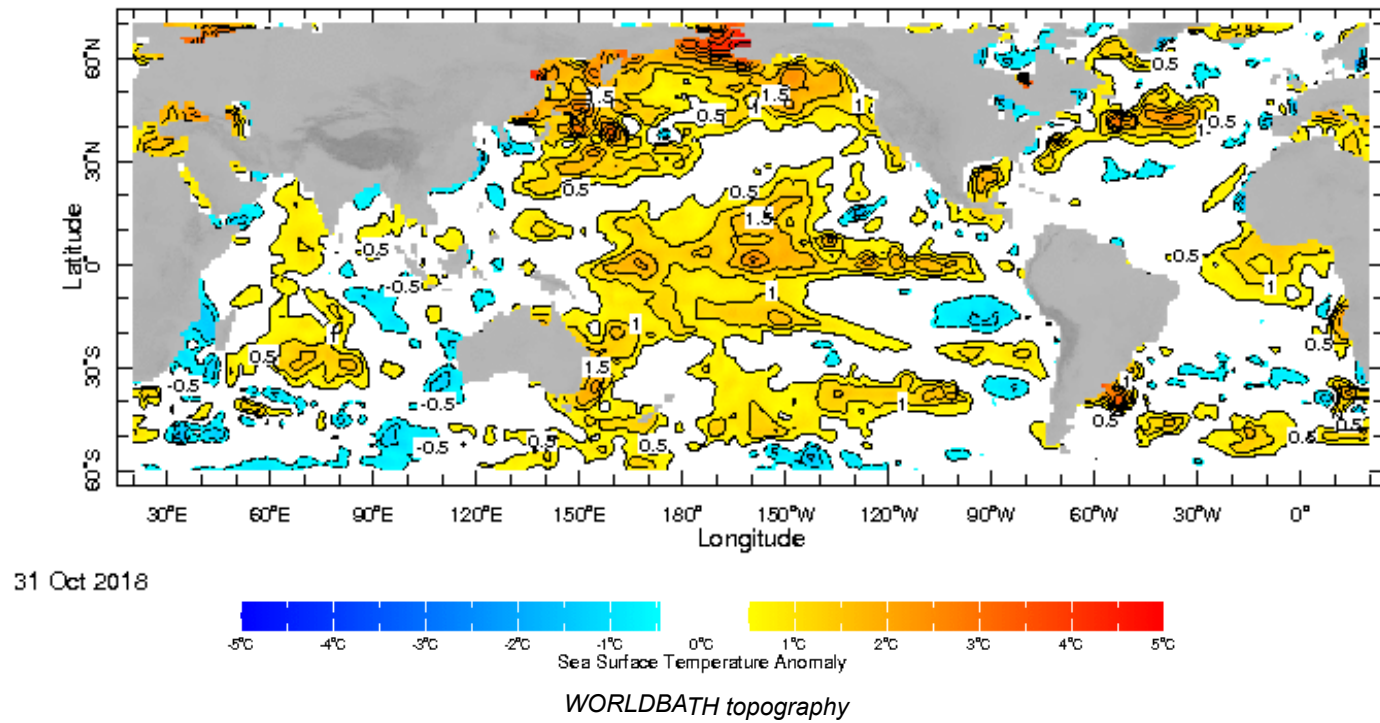


Dekadal (10 Day) Satellite Derived Rainfall Estimates

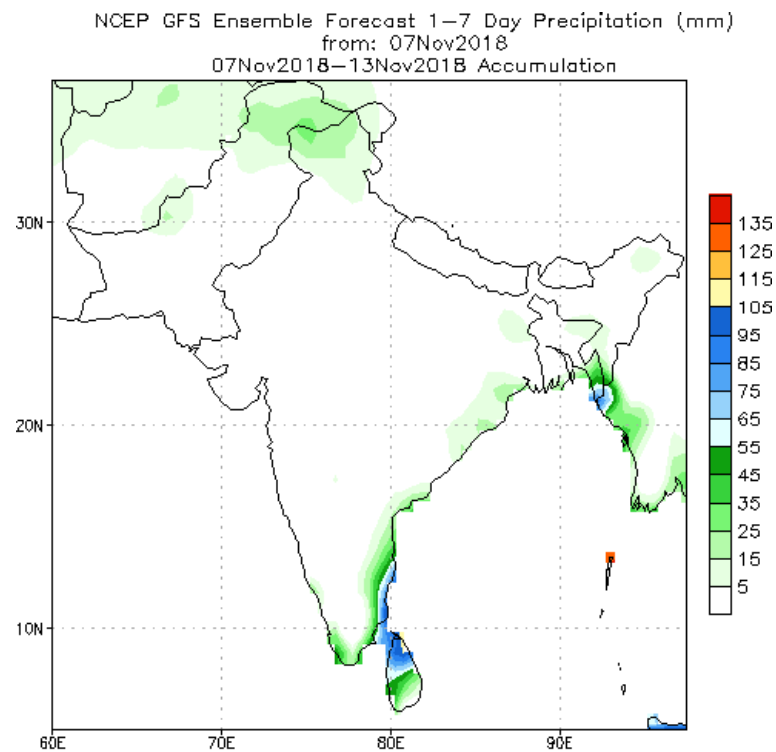


Weekly Average SST Anomalies

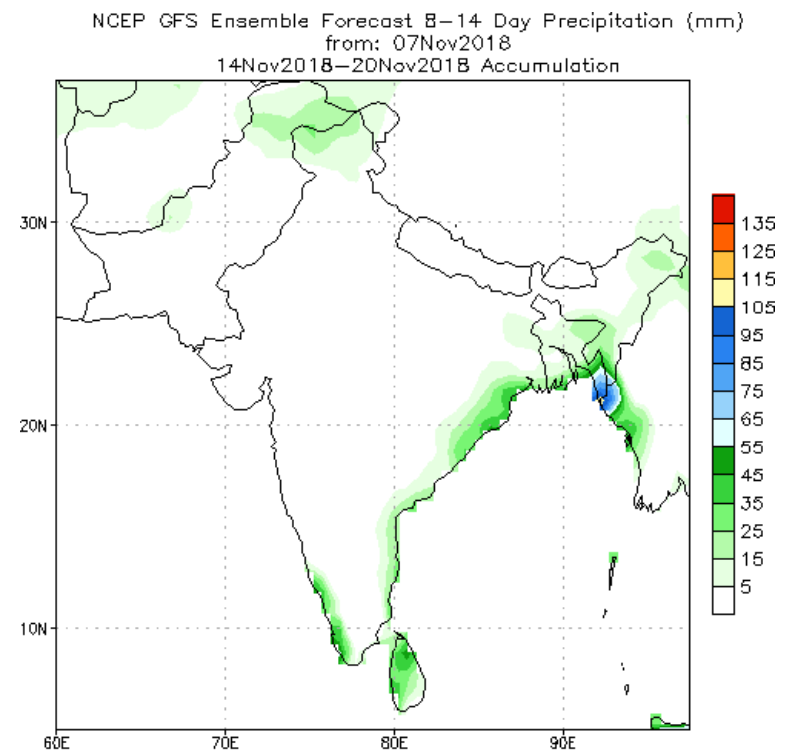
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



NCEP GFS 1- 14 Day prediction



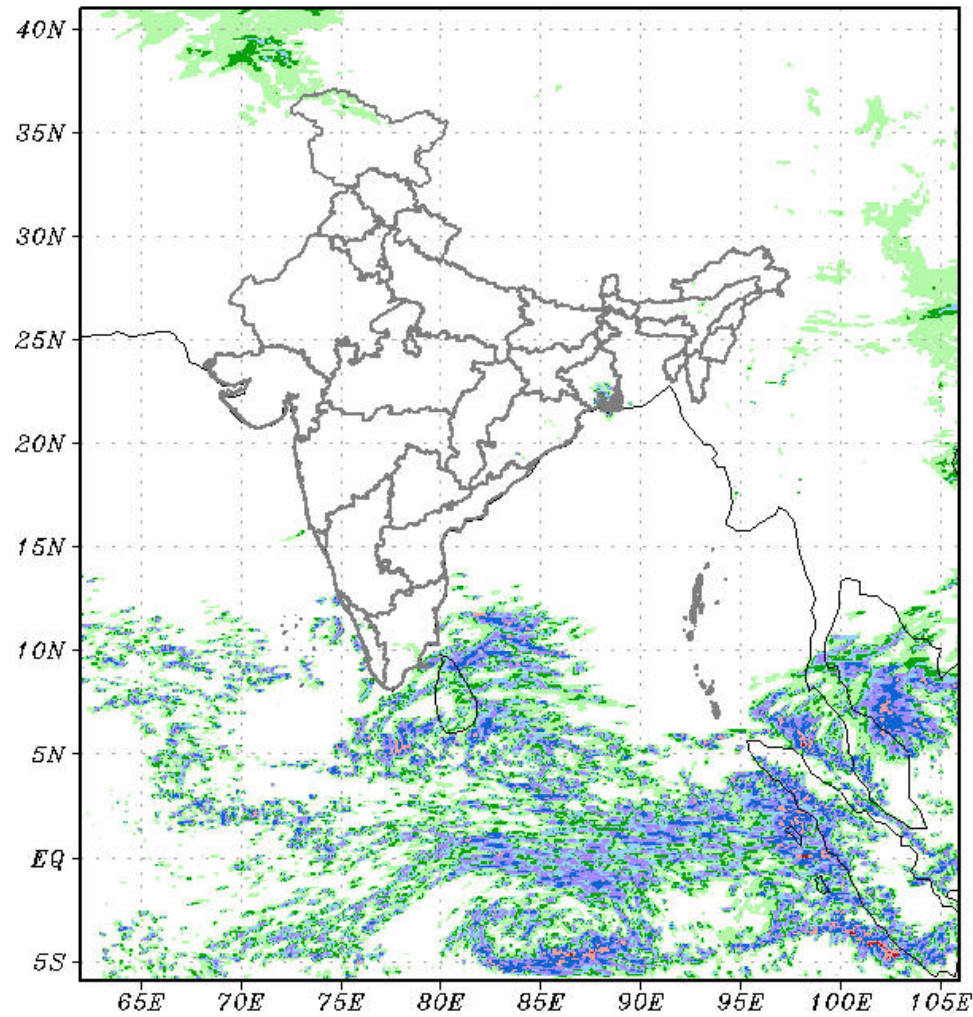
Bias correction based on last 30-day forecast error



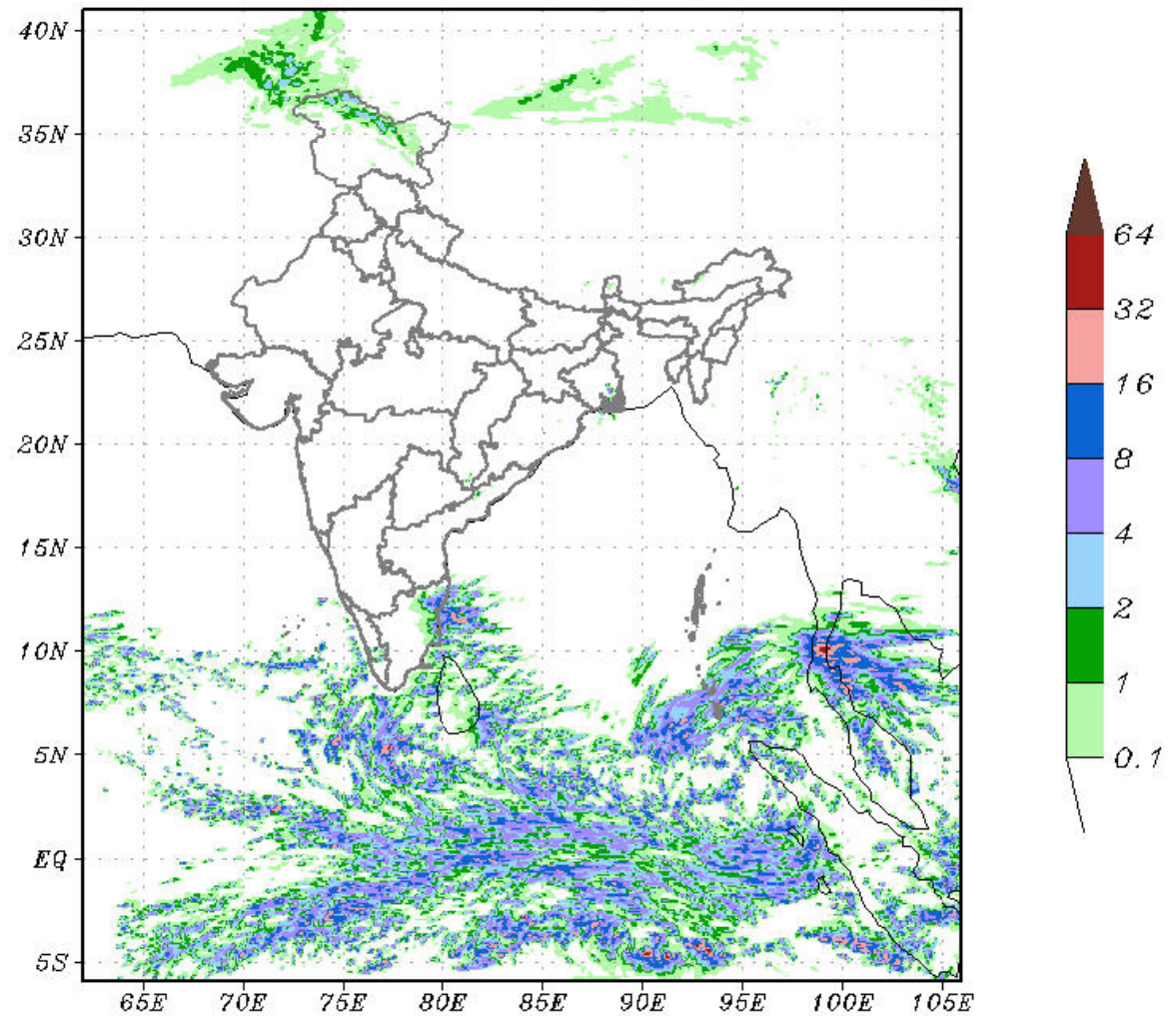
Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

DAY 1 FORECAST VALID ON 00Z8NOV2018
RAINFALL(cm) CI=0.1,1,2,4,8,...
NCMRWF UNIFIED MODEL (REG-4Km)



DAY 2 FORECAST VALID ON 00Z9NOV2018
RAINFALL(cm) CI=0.1,1,2,4,8,...
NCMRWF UNIFIED MODEL (REG-4Km)



Weekly Rainfall Forecast from IRI

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.

