

**12 December
2019**

EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

By: Ruchira Lokuhetti, Divaskar Sathyendra, Chayana Gunathilake, Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

HIGHLIGHTS

Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 75 mm of total rainfall in northern and south-western regions of the island during 11-16 Dec.

Monitored Rainfalls



- Between 4-10 Dec: up to 160 mm of rainfall was recorded in Trincomalee district on the 9th.

Monitored Wind



- From 3-9 Dec: up to 36 km/h, northeasterly winds were experienced by the entire island.

Monitored Sea Surface



- 0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring

| Date | Rainfall |
|--------------------------|---|
| 4 th December | Up to 120 mm in Anuradhapura and Vavuniya districts; up to 100 mm in Puttalam district; up to 70 mm in Polonnaruwa, Trincomalee, Mullaitivu, Mannar, Kurunegala, Colombo, Ampara, Badulla and Monaragala districts; up to 60 mm in Matale and Kandy districts; and up to 50 mm in most parts of the island. |
| 5 th December | Up to 120 mm in Anuradhapura and Trincomalee districts; up to 100 mm in Vavuniya district; up to 70 mm in Jaffna, Kilinochchi, Mannar, Mullaitivu, Polonnaruwa and Trincomalee districts; up to 60 mm in Puttalam and Ampara districts; up to 50 mm in Kurunegala, Gampaha, Kegalle, Badulla and Monaragala districts; up to 30 mm in Matale, Kandy, Ratnapura, Nuwara Eliya and Colombo districts; and up to 20 mm in Matara and Hambantota districts. |
| 6 th December | Up to 20 mm in Jaffna and Kilinochchi districts. |
| 7 th December | Up to 10 mm in Jaffna, Kilinochchi, Anuradhapura, Matale, Polonnaruwa, Badulla, Monaragala, Ampara and Hambantotoa districts. |



Federation for Environment, Climate and Technology

c/o, Maintenance Office, Mahaweli Authority, Digana Village, Rajawella, Sri Lanka.

Phone (+94) 81-2376746, 2300415 E-mail: fectsl@gmail.com

Web Site <http://www.climate.lk>

| Date | Rainfall |
|---------------------------|---|
| 8 th December | Up to 20 mm in Jaffna, Kilinochchi, Mannar, Puttalam, Batticaloa and Ampara districts. |
| 9 th December | Up to 160 mm in Trincomalee district; up to 70 mm in Anuradhapura, Mullaitivu, Vavuniya and Polonnaruwa districts; up to 50 mm in Puttalam, Kurunegala, Batticaloa and Ampara districts; up to 30 mm in Matale and Monaragala districts; and up to 20 mm in Badulla district. |
| 10 th December | Up to 70 mm in Colombo and Batticaloa districts; up to 60 mm in Kalutara and Ampara districts; up to 50 mm in Anuradhapura, Trincomalee, Polonnaruwa, Badulla, Monaragala, Puttalam, Gampaha and Galle districts; up to 30 mm in Matale, Kandy, Nuwara Eliya, Kegalle, Ratnapura and Vavuniya districts; and up to 20 mm in most parts of the island. |

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 200-300 mm in Vavuniya, Anuradhapura and Trincomalee districts; up to 150-200 mm in Mannar, Batticaloa, Polonnaruwa and Ampara districts; and up to 100-150 mm in Kilinochchi, Puttalam, Kurunegala, Matale, Kandy, Badulla and Monaragala districts. Above average rainfall up to 200-300 mm is shown for Anuradhapura and Trincomalee districts; and up to 100-200 mm in Vavuniya, Mullaitivu, Puttalam, Polonnaruwa, Batticaloa, Ampara and Monaragala districts.

Monthly Monitoring

During November – Above average rainfall conditions up to 300 mm were experienced by Batticaloa and Ampara districts; up to 240 mm in Gampaha, Colombo, Kalutara, Galle, Kegalle districts and southern regions of Polonnaruwa district; and up to 150 mm in Matale, Badulla, Monaragala, Nuwara Eliya, Ratnapura and Matara districts. Below average rainfall conditions up to 300 mm were experienced by Vavuniya district; up to 150 mm in Jaffna, Kilinochchi, Mullaitivu and several regions of Mannar, Trincomalee, Anuradhapura, Kandy, Puttalam, Kurunegala and Polonnaruwa districts. The CPC Unified Precipitation Analysis tool shows up to 750 mm were experienced by Batticaloa and Ampara districts; and up to 500 mm in most parts of the island.

Ocean State (Text Courtesy IRI)

Pacific sea state: November 19, 2019

SSTs in the east-central Pacific were near thresholds of weak El Niño levels during October and early November. However, patterns in most atmospheric variables generally maintained neutral conditions. The oceanic warming is attributed to intraseasonal variability, and the overall diagnosis indicates ENSO-neutral conditions. Most model forecasts favor ENSO-neutral through winter and spring, with slightly higher chances for El Niño than La Niña. The official CPC/IRI outlook is consistent with these model forecasts.

Indian Ocean State

0.5 °C above average sea surface temperature was observed in the seas around Sri Lanka.



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Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 11th – 17th Dec: Total rainfall up to 125 mm in Batticaloa and Ampara districts; up to 105-115 mm in Trincomalee, Polonnaruwa, Galle and Matara districts; and up to 95-105 mm in Colombo, Ratnapura and Hambantota districts.

From 18th – 24th Dec: Total rainfall more than 135 mm in Trincomalee, Polonnaruwa, Anuradhapura, Badulla, Monaragala, Batticaloa and Ampara districts; up to 125-135 mm in Jaffna, Kilinochchi and Vavuniya districts; and up to 115-125 mm in Kurunegala and Matale districts.

NOAA Model Forecast:

From 11th – 16th Dec: Total rainfall up to 75 mm is expected in Jaffna, Gampaha, Colombo, Kalutara and Galle districts; and up to 50 mm in most parts of the island.

MJO based OLR predictions

For the next 15 days:

MJO shall enhance the rainfall in Sri Lanka.

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 Web

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



FECT Blog

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Weekly Hydro- Meteorological Report for Sri Lanka

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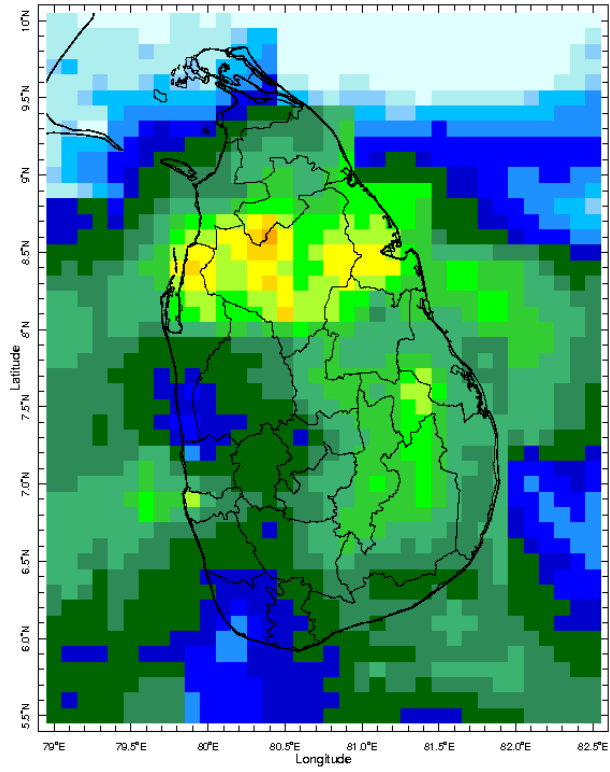
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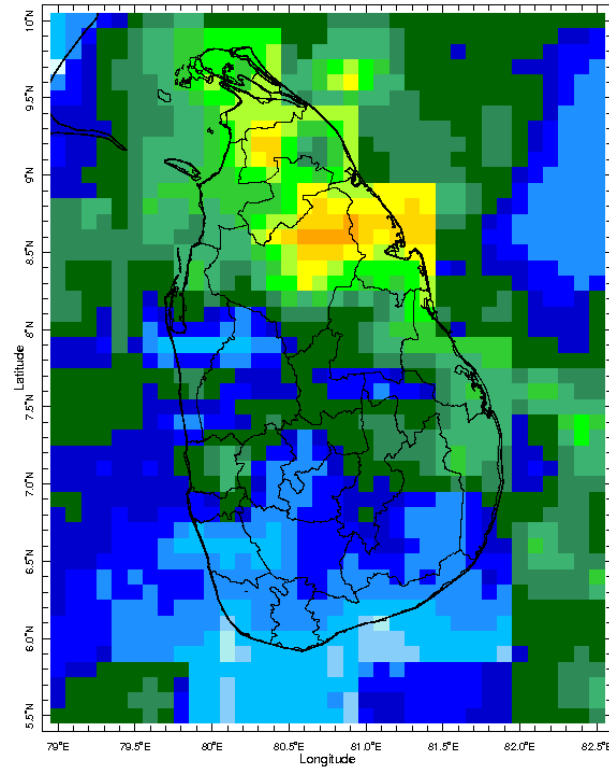
MONITORING

Daily Rainfall Monitoring

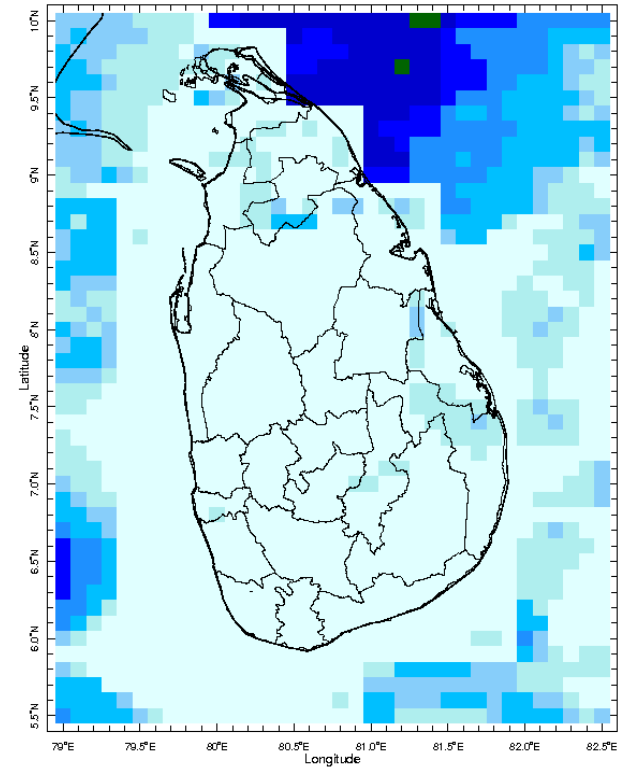
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



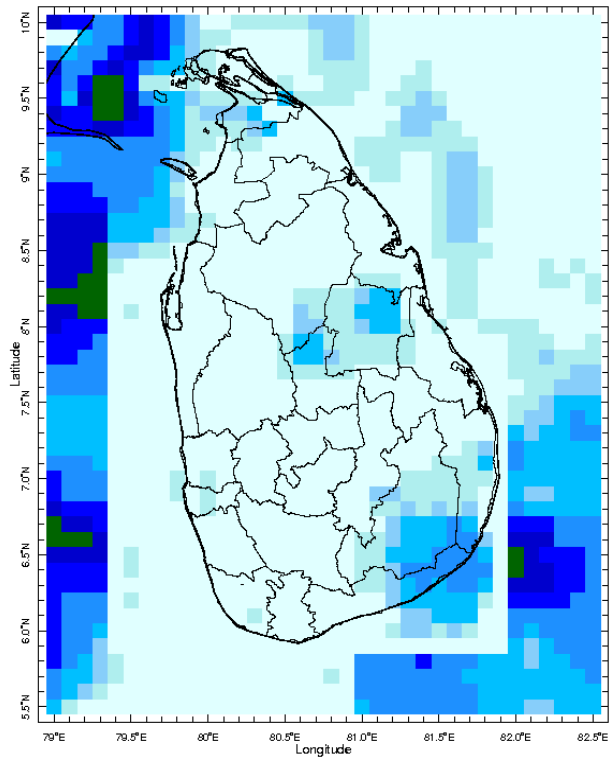
4 Dec 2019



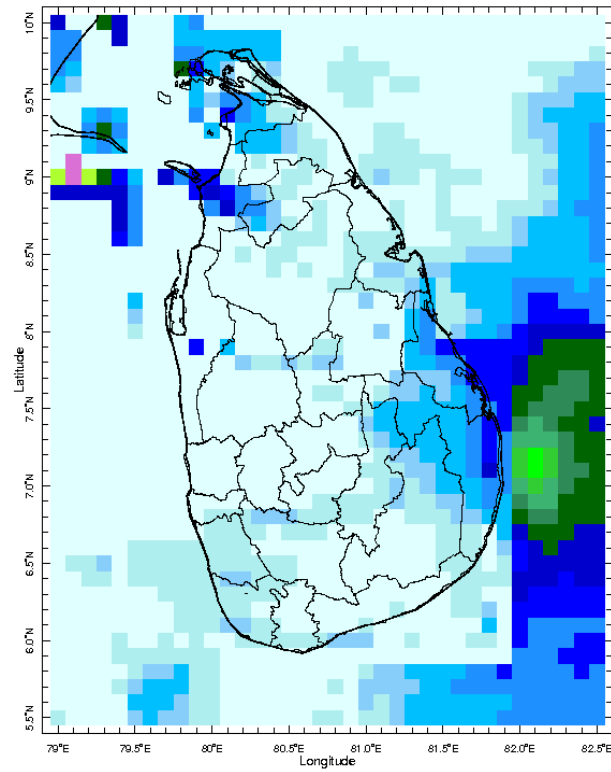
5 Dec 2019



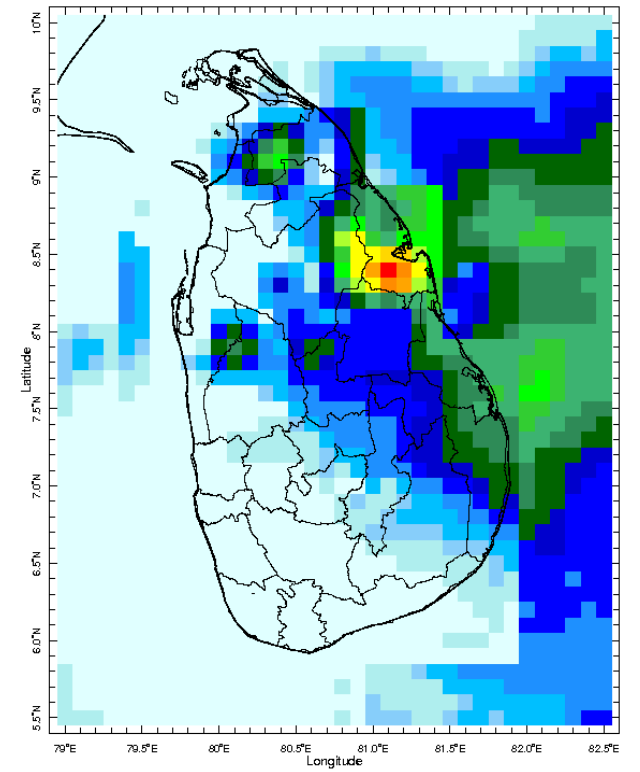
6 Dec 2019



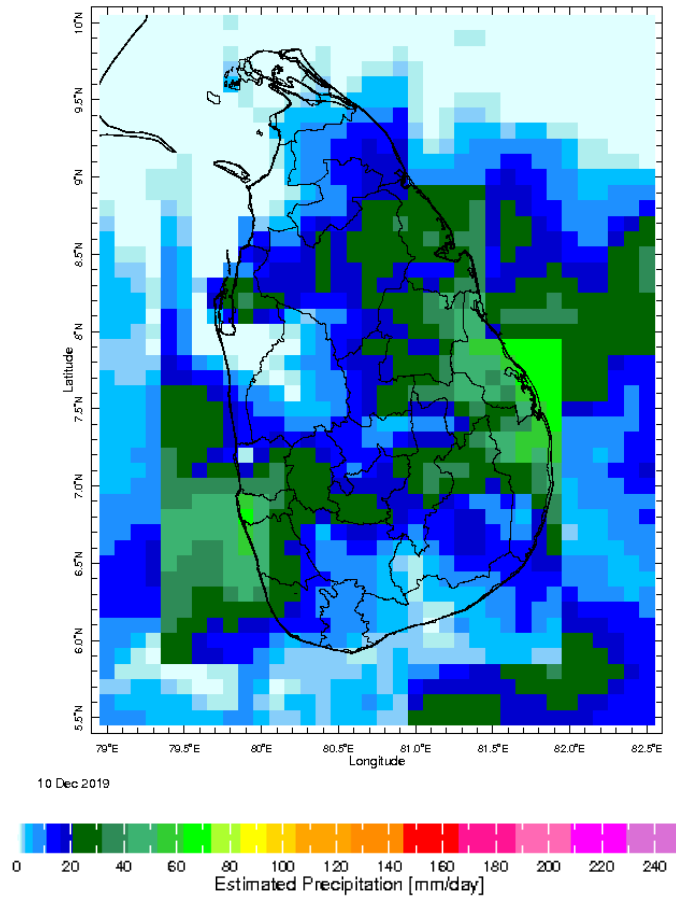
7 Dec 2019



8 Dec 2019

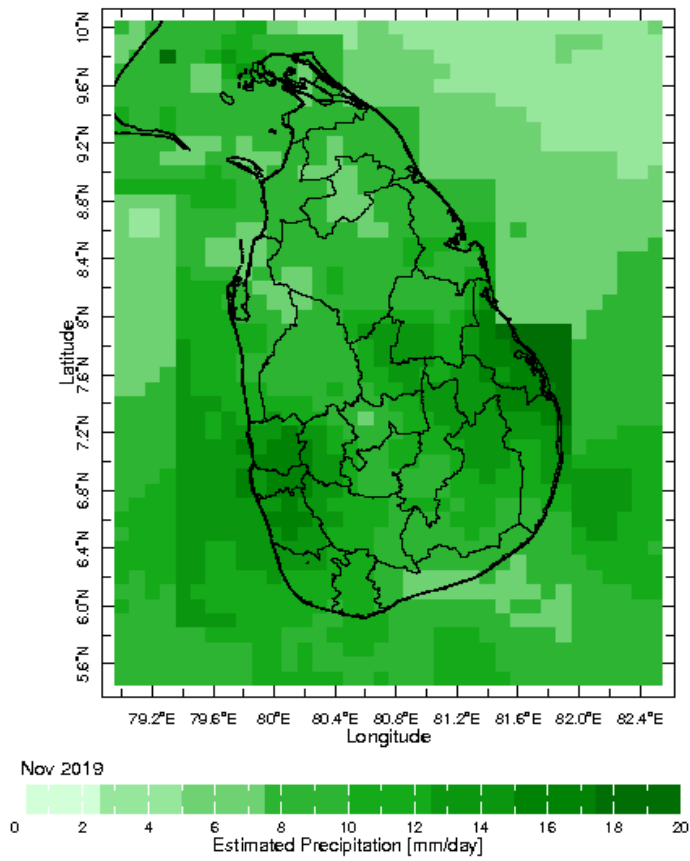


9 Dec 2019

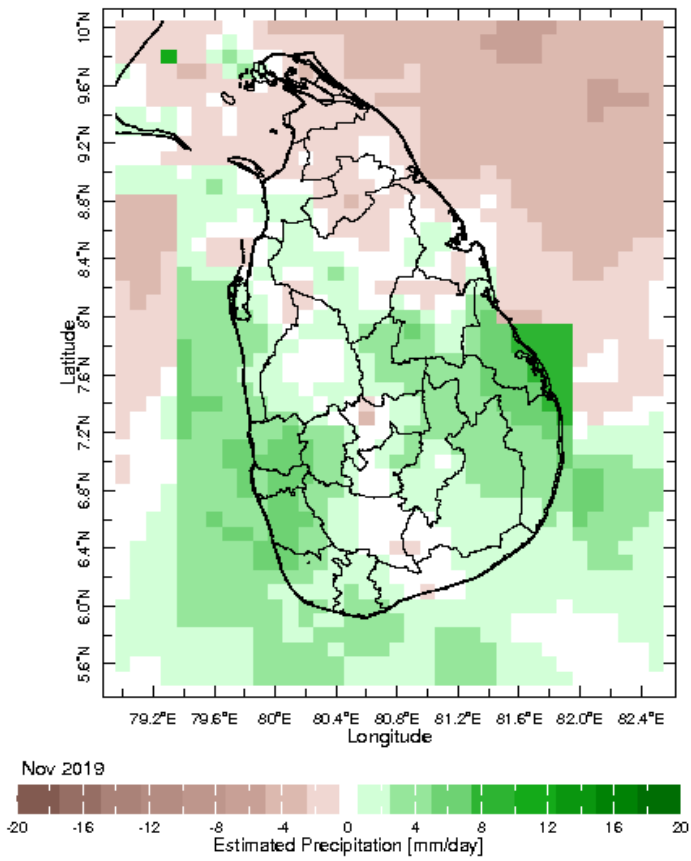


Monthly Rainfall Monitoring

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

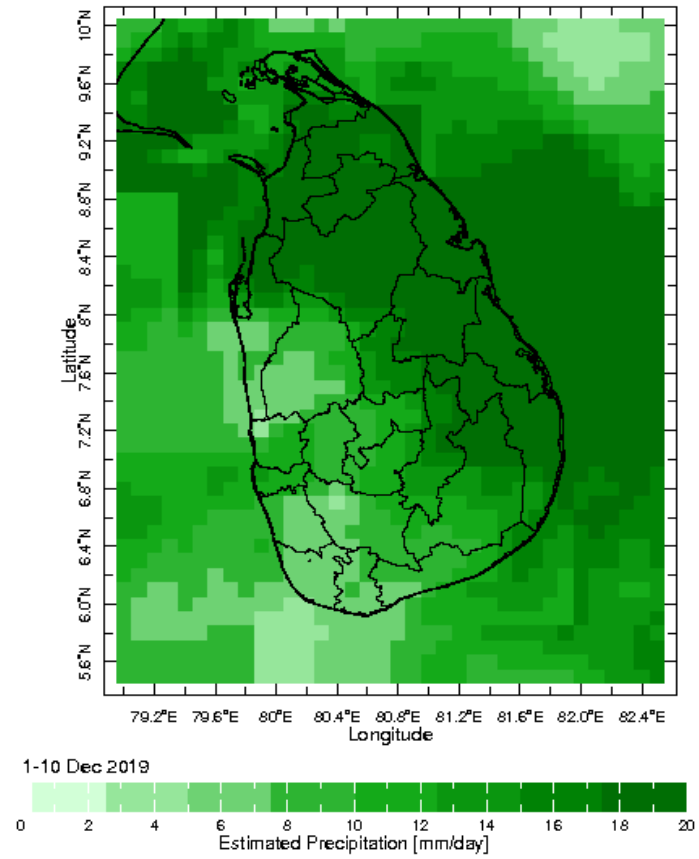
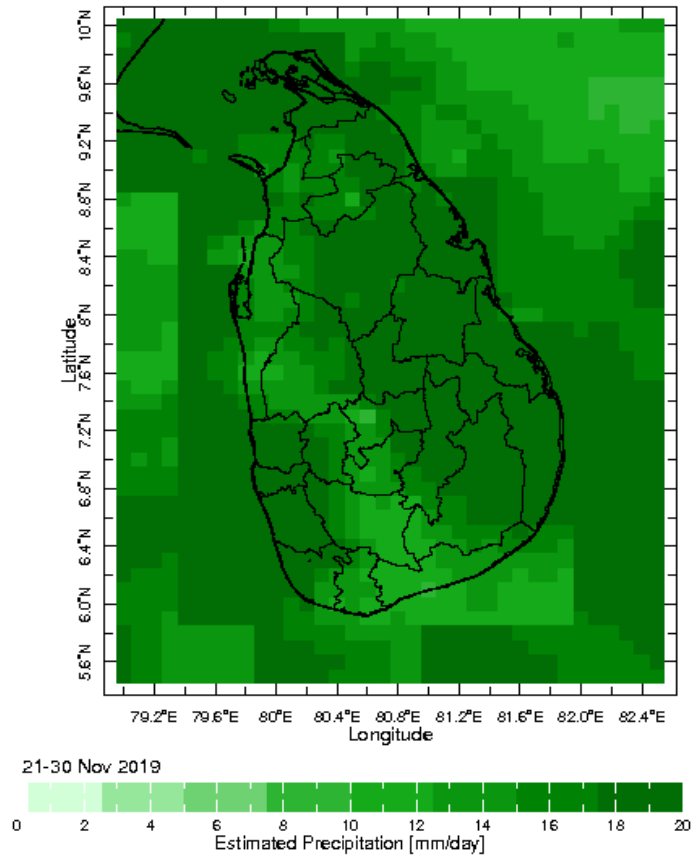


Monthly Average



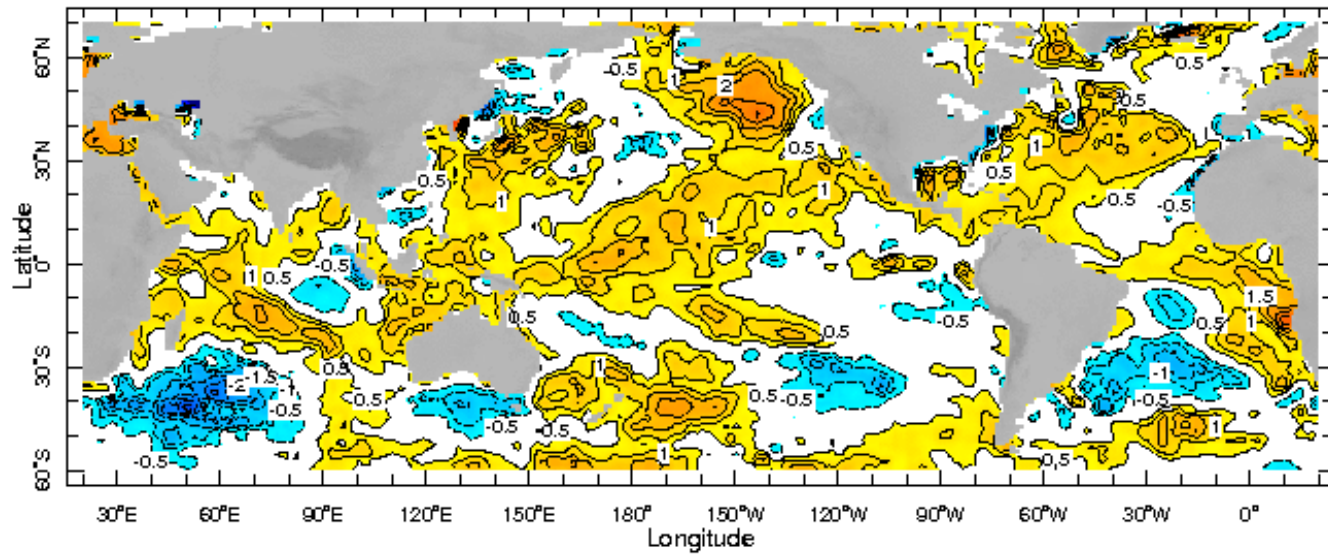
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

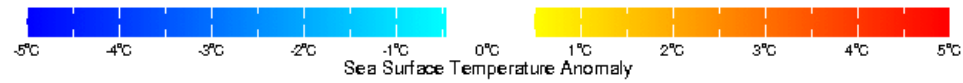


Weekly Average SST Anomalies

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



4 Dec 2019

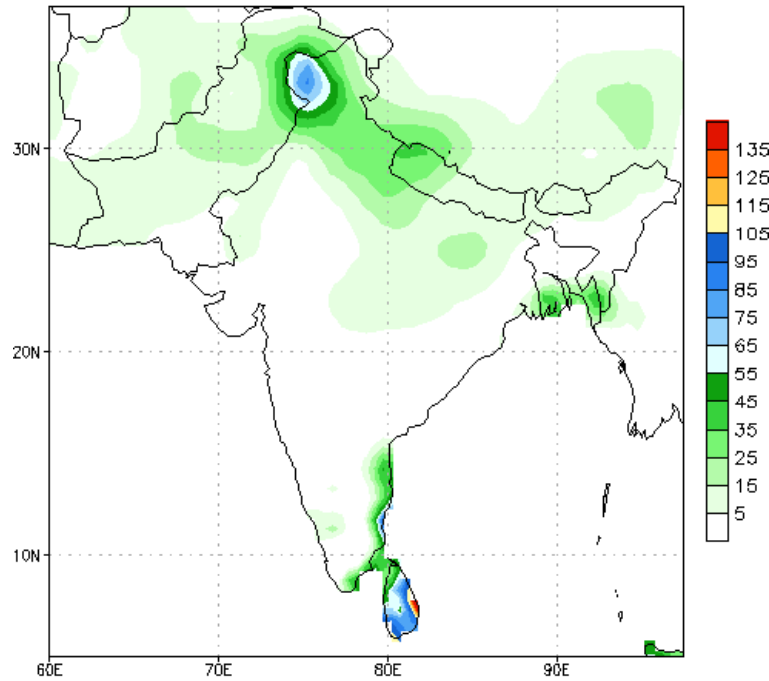


WORLDBATH topography

PREDICTIONS

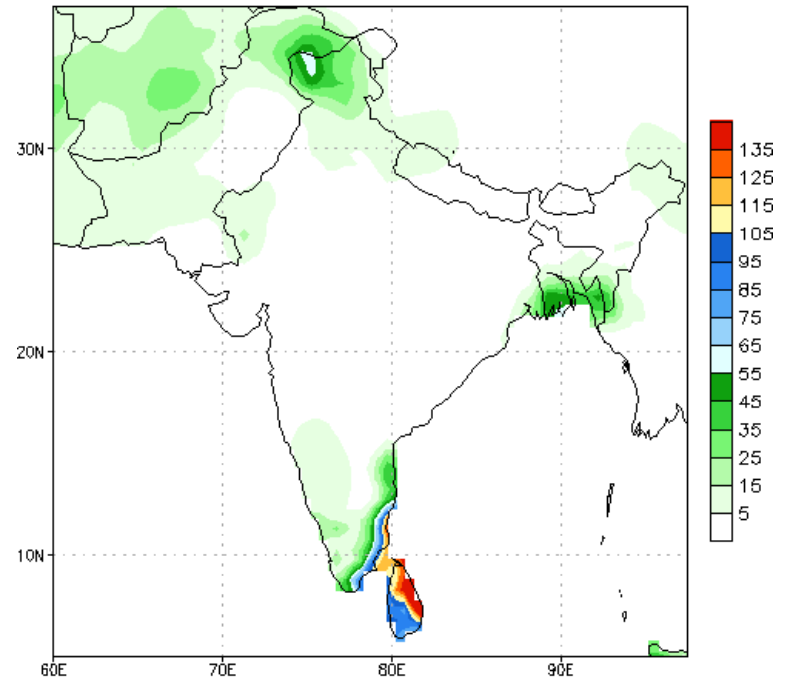
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 11Dec2019
11Dec2019-17Dec2019 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 11Dec2019
18Dec2019-24Dec2019 Accumulation

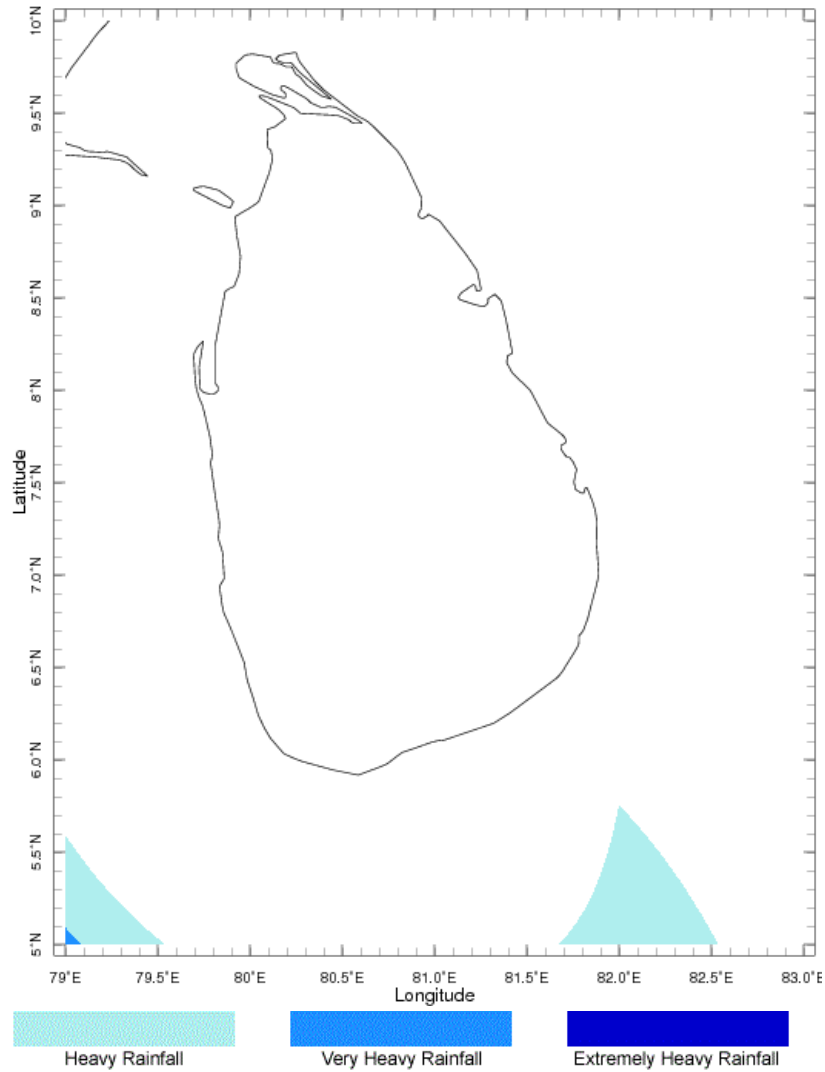


Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

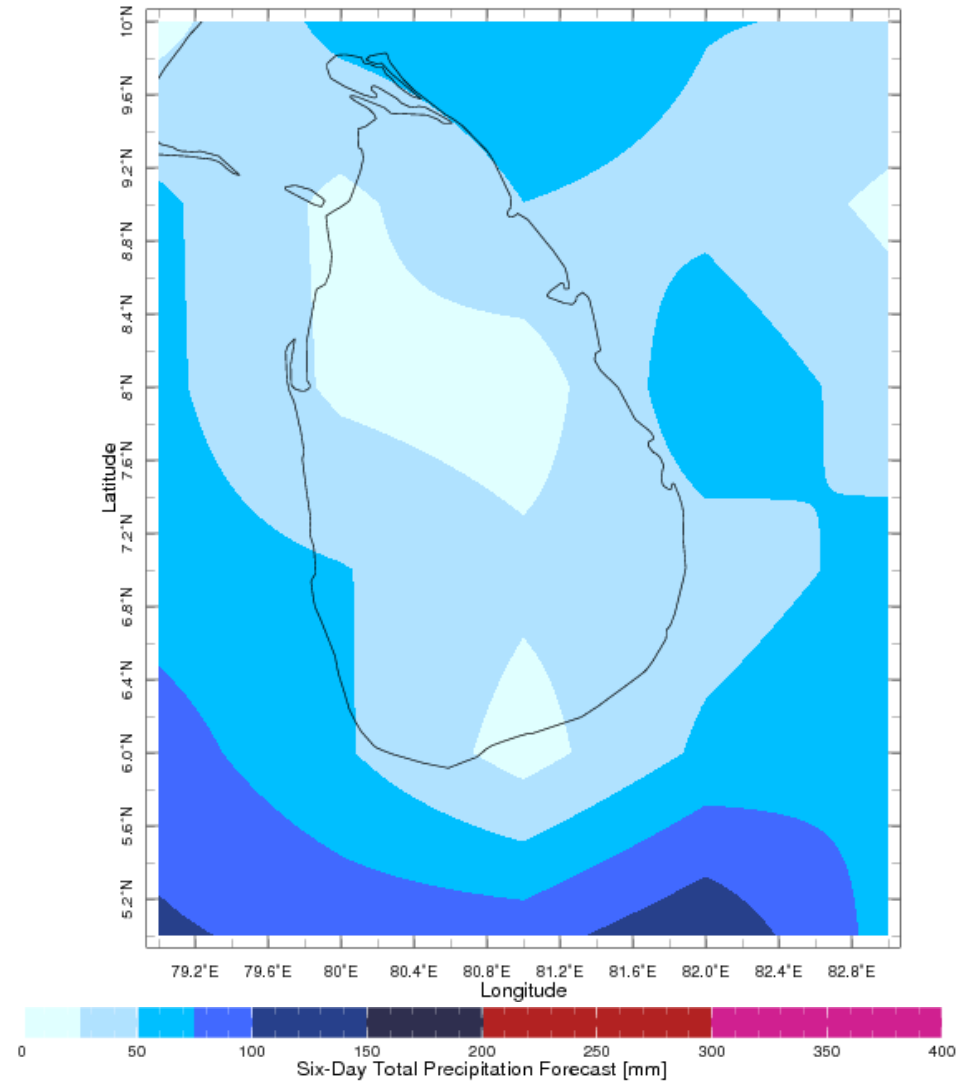
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 11-16 Dec 2019 Issued 0000 11 Dec 2019



Extreme Rainfall Forecast

Forecast for 11-16 Dec 2019 Issued 0000 11 Dec 2019



Total Six Day Precipitation Forecast