

**19 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 200 mm of total rainfall in Batticaloa and Ampara districts during 17- 22 Dec.

Monitored Rainfalls



- Between 11-16 Dec: up to 60 mm of rainfalls were recorded in Mullaitivu and Vavuniya districts on the 13th.

Monitored Wind



- From 10-16 Dec: up to 36 km/h, easterly 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
11th December	Up to 10 mm in Kalutara and Galle districts.
12th December	Up to 30 mm in Anuradhapura and Vavuniya districts; and up to 20 mm in Jaffna, Kilinochchi, Trincomalee, Polonnaruwa, Ratnapura and Galle districts.
13th December	Up to 60 mm in Mullaitivu and Vavuniya districts; up to 30 mm in Jaffna, Kilinochchi, Mullaitivu, Anuradhapura and Trincomalee districts; and up to 20 mm in Kalutara district.
14th December	Up to 20 mm in Anuradhapura, Kalutara and Galle districts; and up to 10 mm in rest of the island.
15th December	Up to 10 mm in Monaragala, Batticaloa and Ampara districts.
16th December	Up to 50 mm in Trincomalee, Anuradhapura, Ampara and Batticaloa districts; up to 30 mm in Monaragala district; and up to 20 mm in Badulla district.



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>

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 75-100 mm in Badulla, Monaragala and Ampara districts; up to 25-50 mm in Batticaloa, Trincomalee, Mullaitivu, Kilinochchi and Jaffna districts; and up to 10-25 mm in most parts of the island. Below average rainfall up to 100-200 mm is shown for Batticaloa and Ampara districts; up to 50-100 mm in Vavuniya, Mullaitivu, Trincomalee, Polonnaruwa, Batticaloa, Matale, Kandy, Nuwara Eliya, Kegalle, Ratnapura, Kalutara, Galle, Badulla and Monaragala districts; and up to 25-50 mm in rest of the island.

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: December 12, 2019

SSTs in the east-central Pacific were near thresholds of weak El Niño levels during November, but returned to neutral in December. Patterns in most atmospheric variables have maintained neutral conditions. Most model forecasts favor ENSO-neutral through winter and spring and even early summer, 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.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 18th – 24th Dec: Total rainfall more than 135 mm in Trincomalee, Anuradhapura, Polonnaruwa, Badulla, Monaragala, Batticaloa and Ampara districts; up to 115-125 mm in Matale, Kandy, Nuwara Eliya and Hambantota districts; and up to 105-115 mm in Colombo, Ratnapura, Kalutara and Galle districts.



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From 25th – 31st Dec: Total rainfall more than 135 mm in Batticaloa and Ampara districts; up to 85-95 mm in Trincomalee and Polonnaruwa districts; and up to 75-85 mm in Anuradhapura, Badulla and Monaragala districts.

NOAA Model Forecast:

From 17th – 22nd Dec: Total rainfall up to 200 mm is expected in Batticaloa and Ampara districts; up to 150 mm Trincomalee, Monaragala and Hambantota districts; up to 100 mm in Gampaha, Colombo, Mullaitivu, Vavuniya, Anuradhapura and Polonnaruwa 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 in the next 10 days and shall suppress in the following 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 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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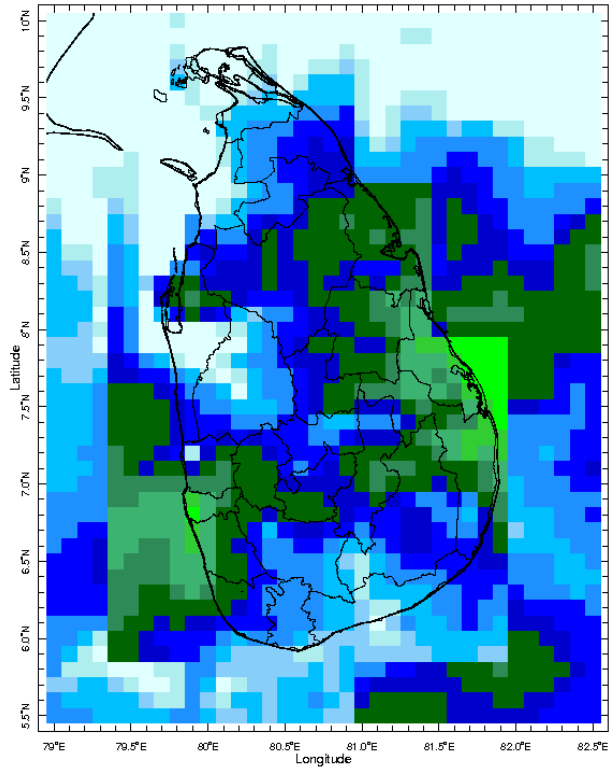
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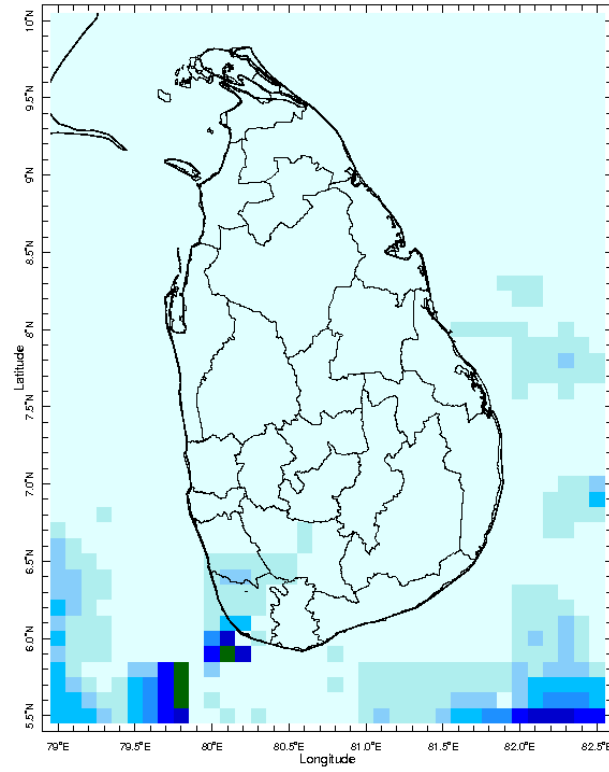
MONITORING

Daily Rainfall Monitoring

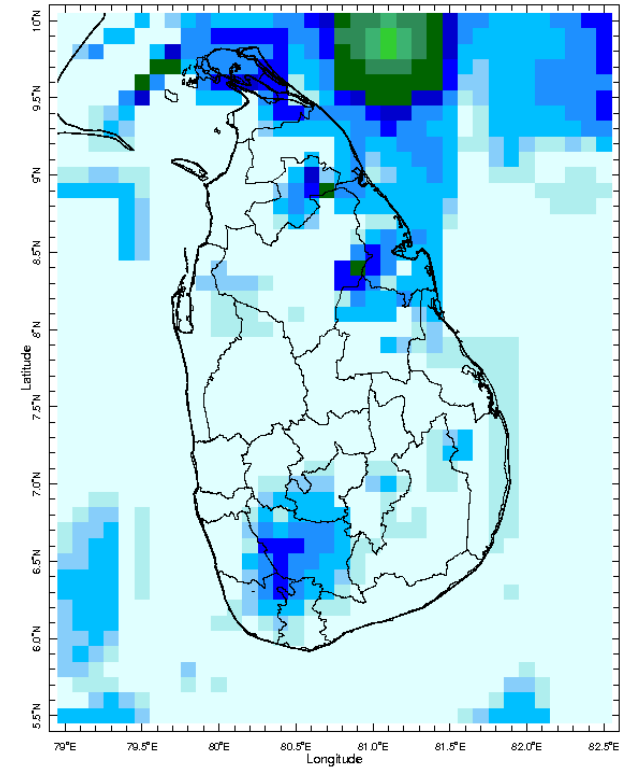
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



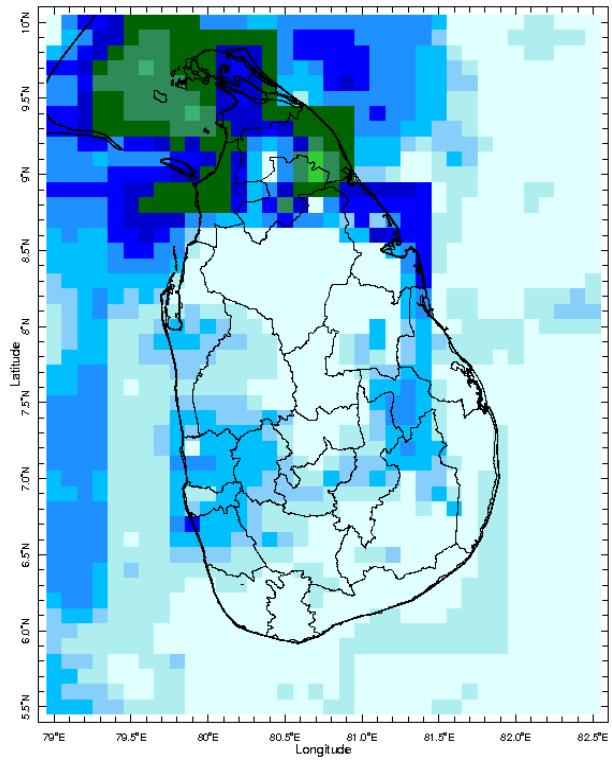
10 Dec 2019



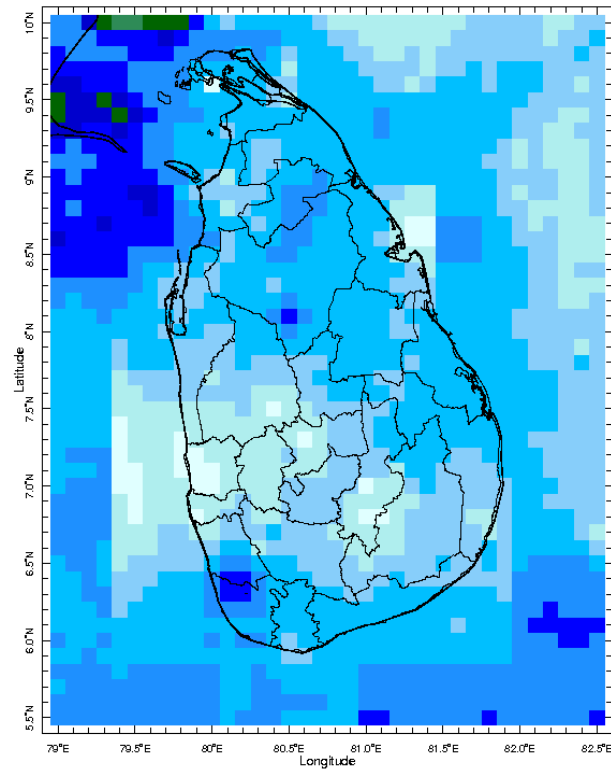
11 Dec 2019



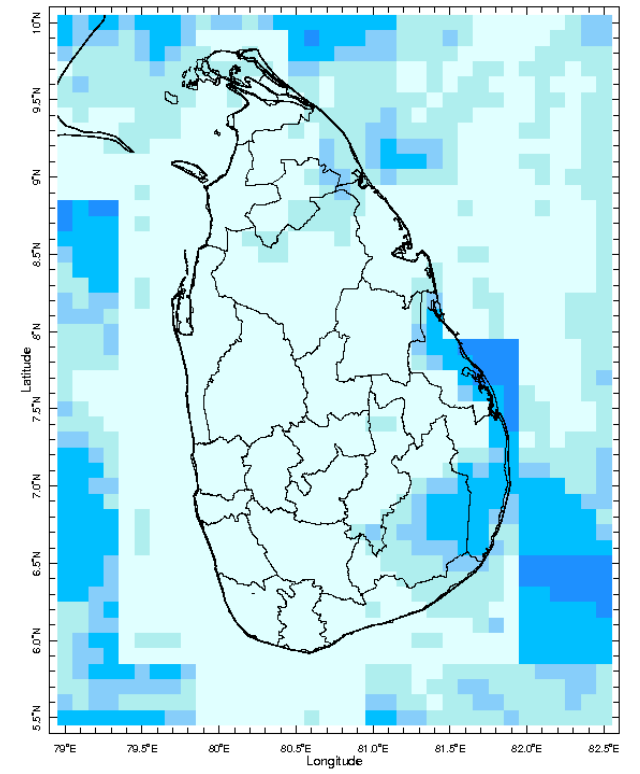
12 Dec 2019



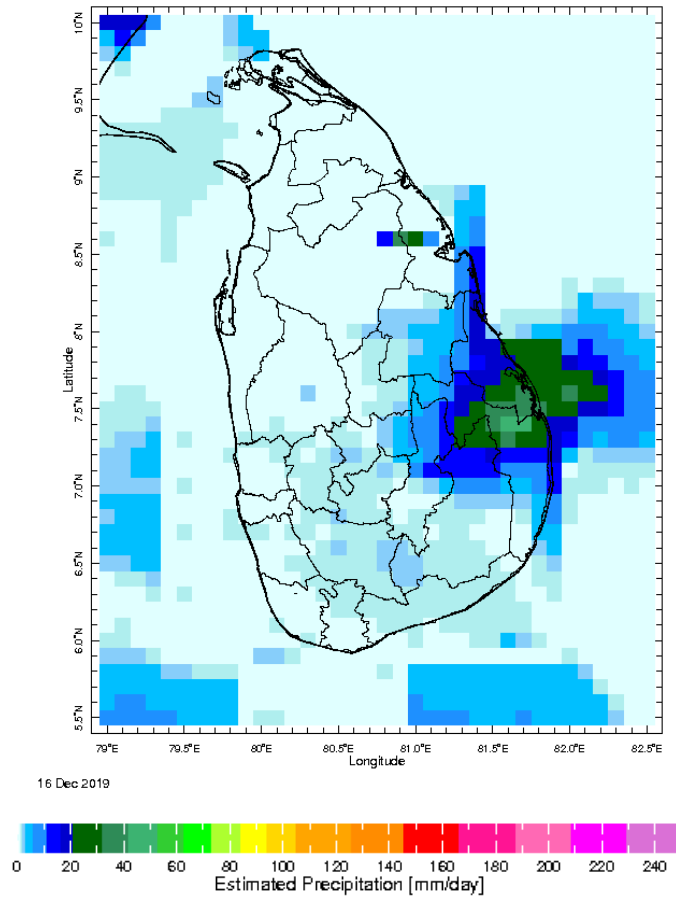
13 Dec 2019



14 Dec 2019

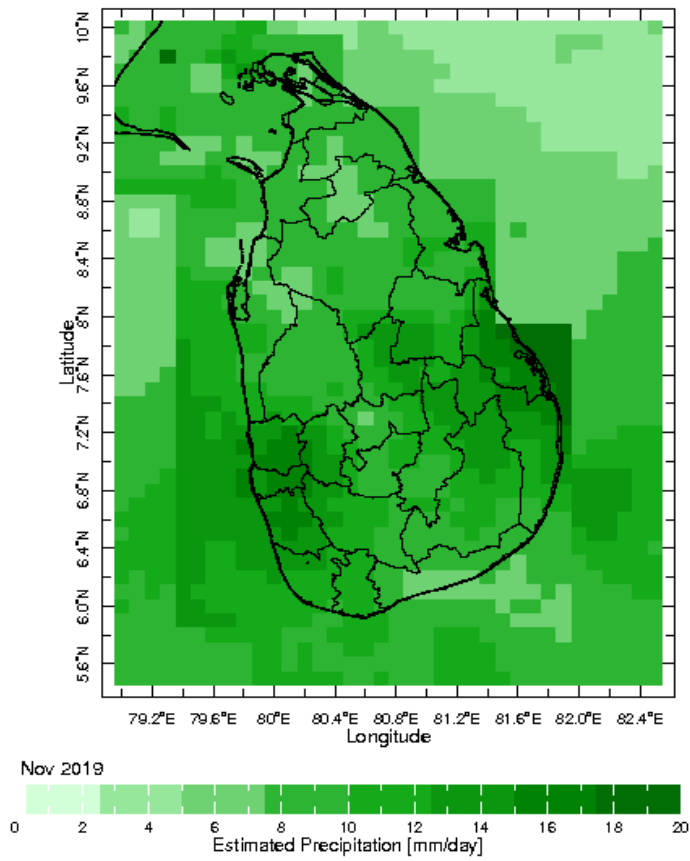


15 Dec 2019

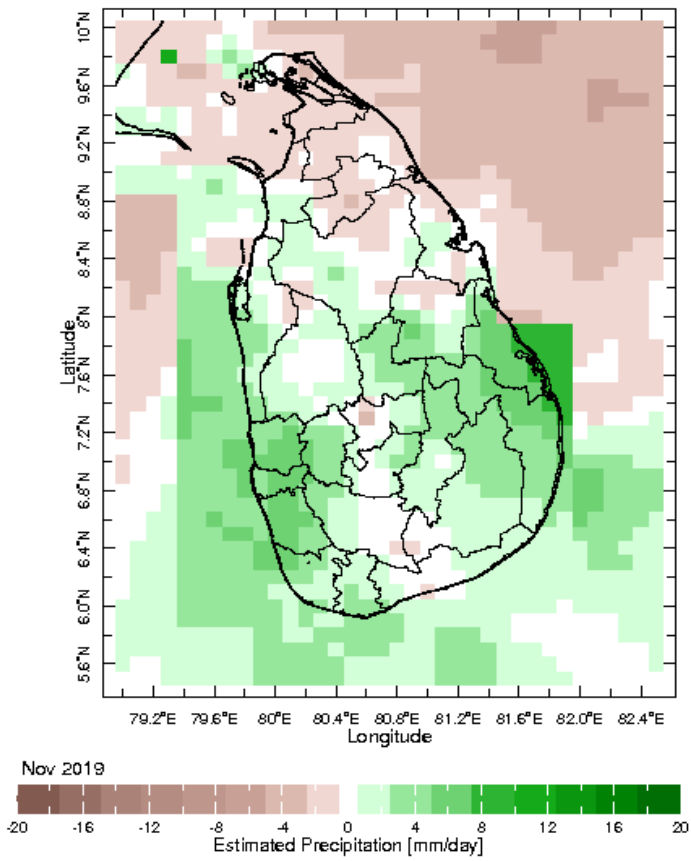


Monthly Rainfall Monitoring

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

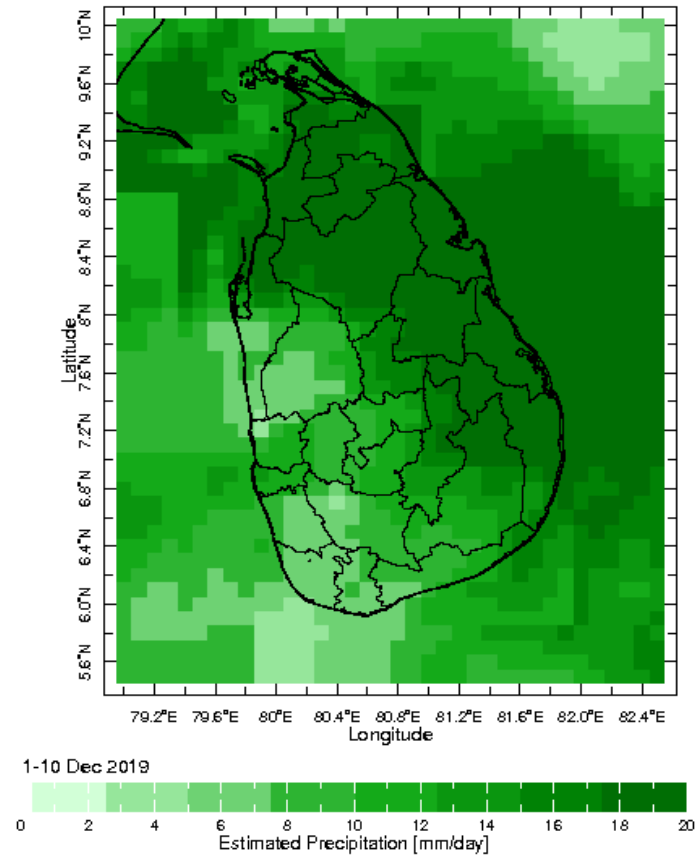
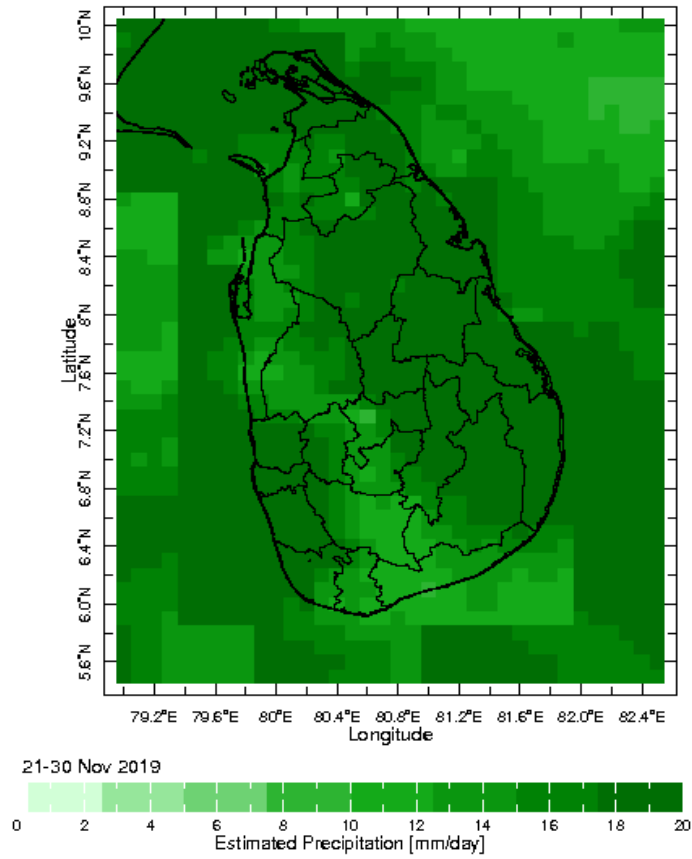


Monthly Average



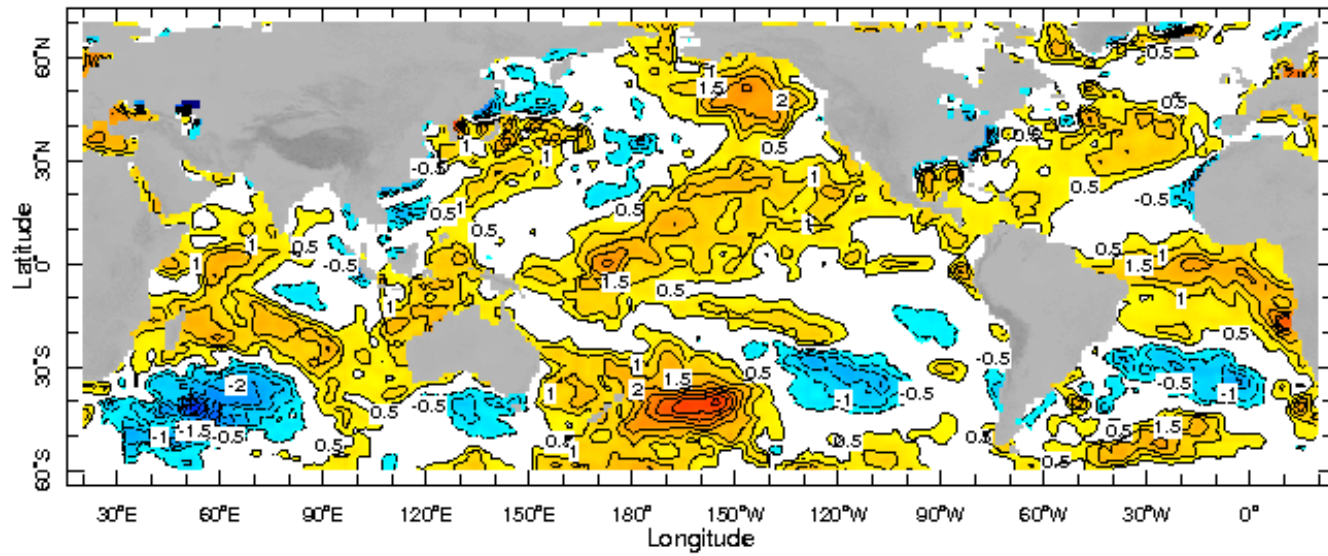
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

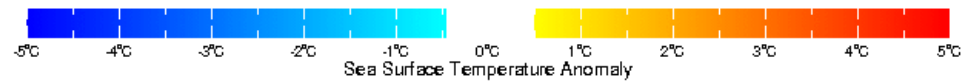


Weekly Average SST Anomalies

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



11 Dec 2019

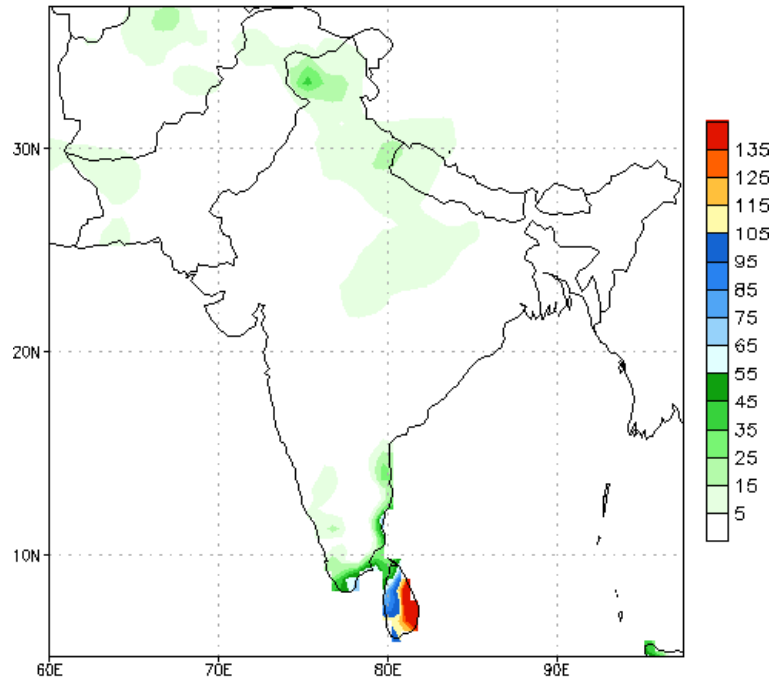


WORLDBATH topography

PREDICTIONS

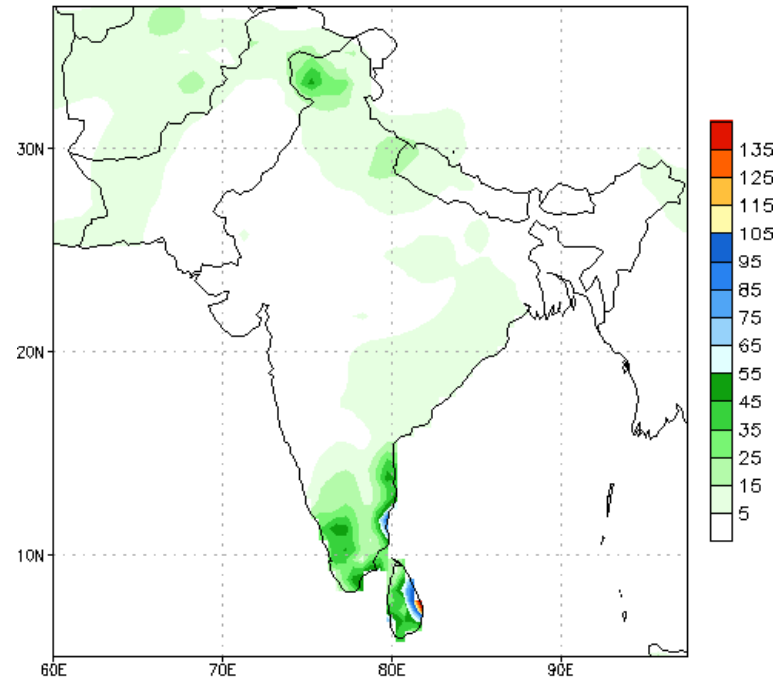
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 18Dec2019
18Dec2019-24Dec2019 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 18Dec2019
25Dec2019-31Dec2019 Accumulation

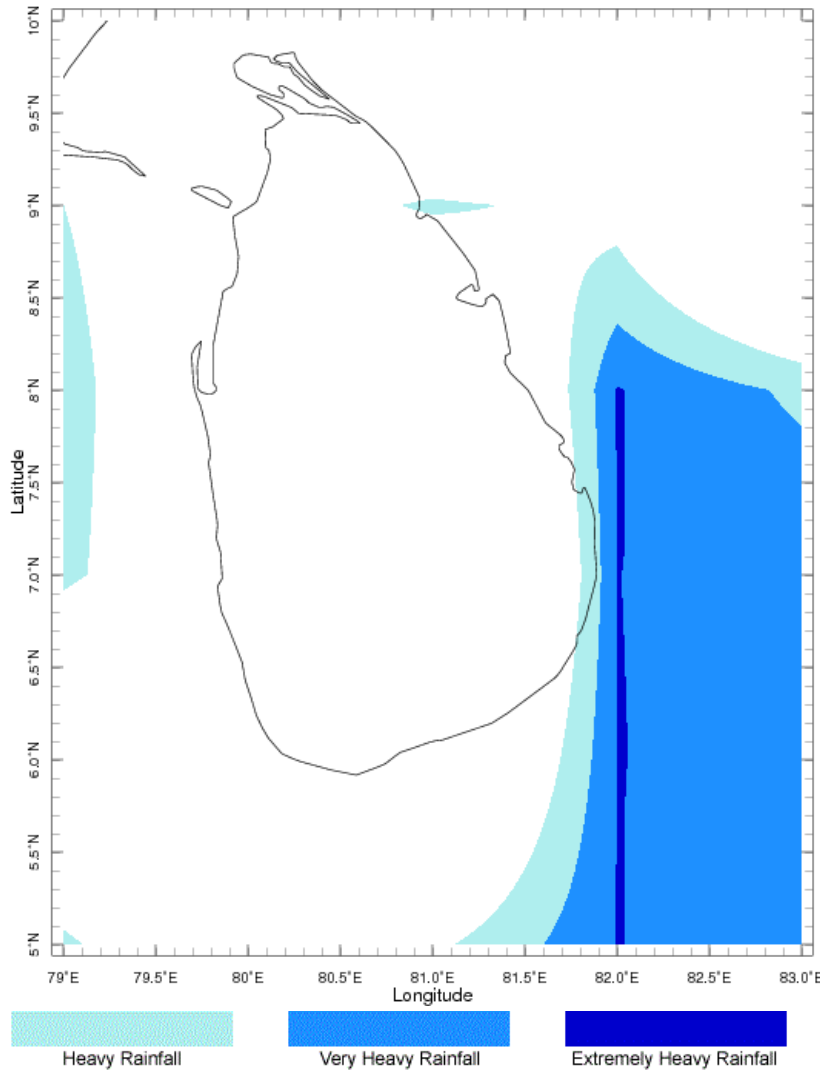


Bias correction based on last 30-day forecast error

WRF Model Forecast (from IMD Chennai)

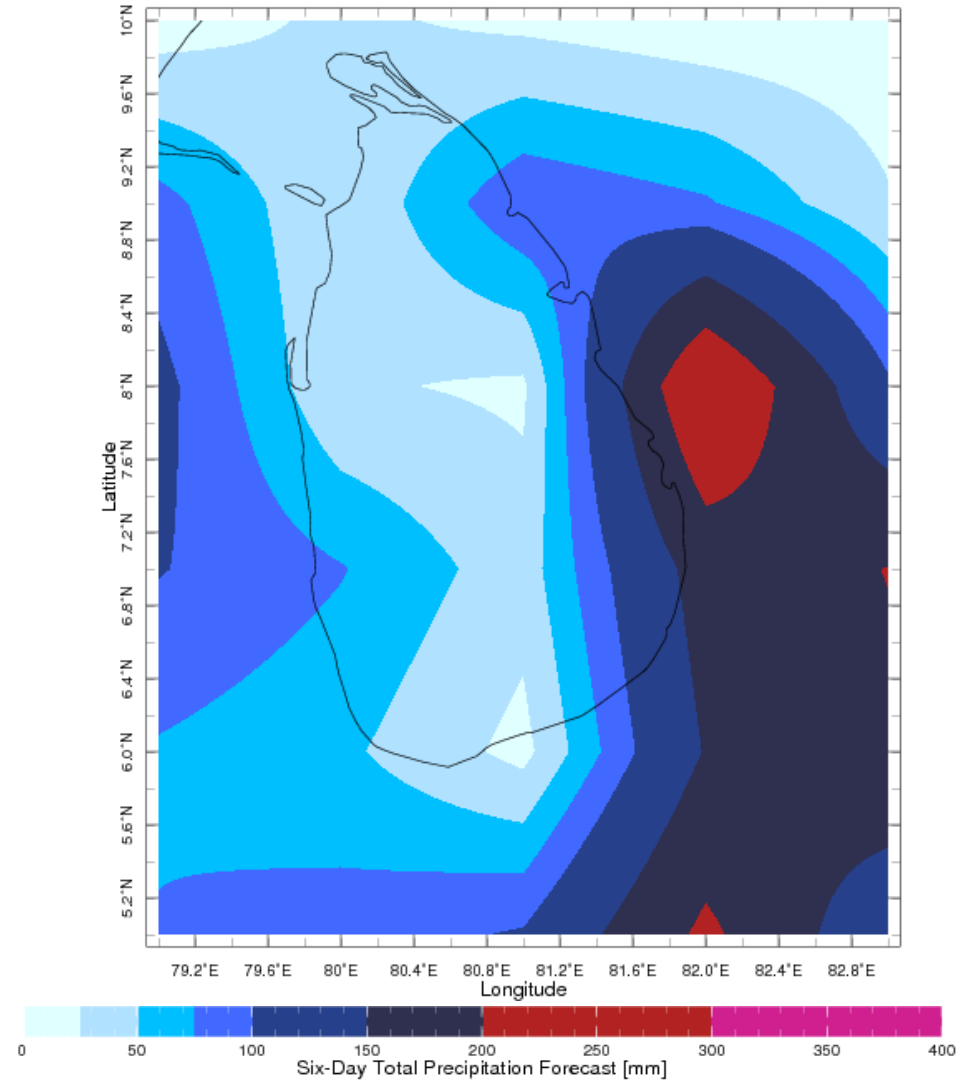
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 17-22 Dec 2019 Issued 0000 17 Dec 2019



Extreme Rainfall Forecast

Forecast for 17-22 Dec 2019 Issued 0000 17 Dec 2019



Total Six Day Precipitation Forecast