

**9 January
2020**

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 Batticaloa and Ampara districts during 8- 13 Jan.

Monitored Rainfalls



- Between 31 Dec 5 Jan: up to 100 mm of rainfall were recorded in Gampaha and Colombo districts on the 2nd.

Monitored Wind



- From 31 Dec - 6 Jan: up to 18 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
31 st December	Up to 30 mm in Colombo and Kalutara districts; and up to 20 mm in Ratnapura district.
1 st January	Up to 50 mm in Kegalle and Ratnapura districts; up to 30 mm in Gampaha and Colombo districts; and up to 20 mm in Nuwara Eliya district.
2 nd January	Up to 100 mm in Gampaha and Colombo districts; up to 70 mm in Kegalle district; up to 50 mm in Kalutara, Galle and Ratnapura districts; up to 30 mm in Kurunegala and Kandy districts; and up to 20 mm in Badulla and Matara districts.
3 rd January	Up to 20 mm in Colombo district; and up to 10 mm in Gampaha and Kalutara districts.
4 th January	Up to 50 mm in Kegalle, Ratnapura, Colombo, Kalutara and Galle districts; up to 30 mm in Kandy, Nuwara Eliya and Matara districts; and up to 20 mm in Gampaha district.
5 th January	Up to 5 mm in Ratnapura 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>

Date	Rainfall
6 th January	Up to 50 mm in Batticaloa and Ampara districts; up to 30 mm in Trincomalee district; and up to 20 mm in Anuradhapura and Polonnaruwa districts.

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 50-75 mm in Ratnapura district; up to 25-50 mm in Gampaha, Kegalle, Nuwara Eliya, Colombo and Kalutara districts; and up to 10-25 mm in Anuradhapura, Polonnaruwa, Kandy, Badulla, Monaragala, Galle and Matara districts. Above average rainfall up to 25-50 mm is shown for northern regions of Ratnapura district; and up to 10-25 mm in Kegalle districts. Below average rainfall up to 50-100 mm is shown for Polonnaruwa, Badulla, Monaragala, Batticaloa and Ampara districts; and up to 25-50 mm in Trincomalee, Anuradhapura, Matale, Kandy, Nuwara Eliya, Galle and southern regions of Ratnapura district.

Monthly Monitoring

During December – Above average rainfall conditions up to 300 mm were experienced by Trincomalee, Anuradhapura and Ampara districts; up to 240 mm in Mullaitivu, Puttalam, Polonnaruwa, Kurunegala, Matale, Kandy, Nuwara Eliya, Badulla, Monaragala, Galle, Colombo, Jaffna and Hambantota districts; and up to 60 mm in Kegalle, Kalutara and Matara districts. The CPC Unified Precipitation Analysis tool shows up to 500 mm were experienced by Mullaitivu, Anuradhapura, Polonnaruwa, Matale, Badulla, Monaragala, Batticaloa and Ampara districts; and up to 200-300 mm in Jaffna, Kilinochchi, Mannar, Puttalam, Kandy, Nuwara Eliya, Ratnapura and Hambantota districts.

Ocean State (Text Courtesy IRI)

Pacific sea state: December 19, 2019

SSTs in the east-central Pacific were neutral, but near the borderline of weak El Niño levels during mid-December. Patterns in most atmospheric variables have maintained neutral conditions. Most model forecasts favor warm-neutral to borderline weak El Niño SST conditions during early winter, returning to ENSO-neutral from late winter to spring and even early summer. 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.



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>

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 8th – 14th Jan: Total rainfall more than 15 mm in Trincomalee, Polonnaruwa, Batticaloa and Ampara districts; up to 25-35 mm in most parts of the island.

From 15th – 21st Jan: Total rainfall more than 15 mm in Batticaloa and Ampara districts.

NOAA Model Forecast:

From 8th – 13th Jan: Total rainfall up to 75 mm is expected in Batticaloa and Ampara districts.

MJO based OLR predictions

For the next 15 days:

MJO shall suppress 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

Past reports available at
<http://fectsl.blogspot.com/>



Facebook

www.fb.com/fectsl



Twitter

[@climatelk](https://twitter.com/climatelk)



Weekly Hydro- Meteorological Report for Sri Lanka

Inside This Issue

1. Monitoring

- a. Daily Rainfall Monitoring
- b. Monthly Rainfall Monitoring
- c. Dekadal (10 Day) Satellite Derived Rainfall Estimates
- d. Weekly Average SST Anomalies

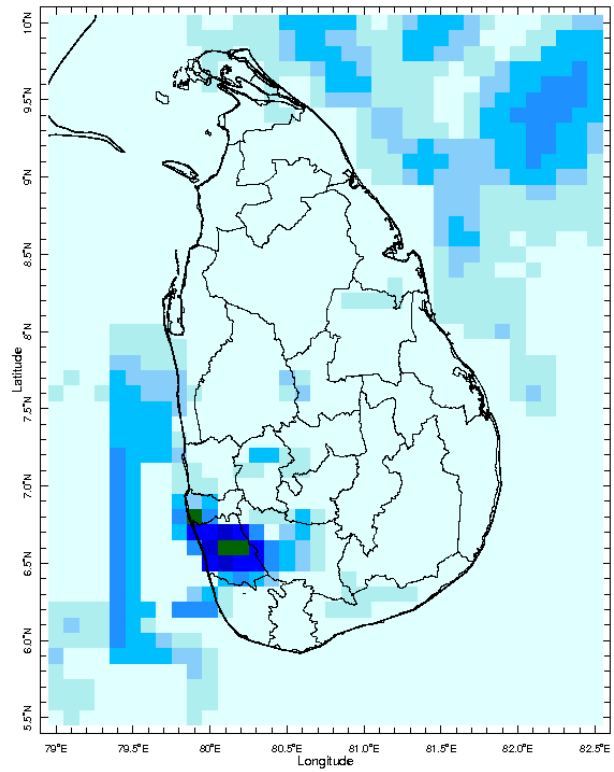
2. Predictions

- a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
- b. WRF Model Rainfall Forecast from IMD Chennai
- c. Weekly Precipitation Forecast from IRI
- d. Seasonal Predictions from IRI

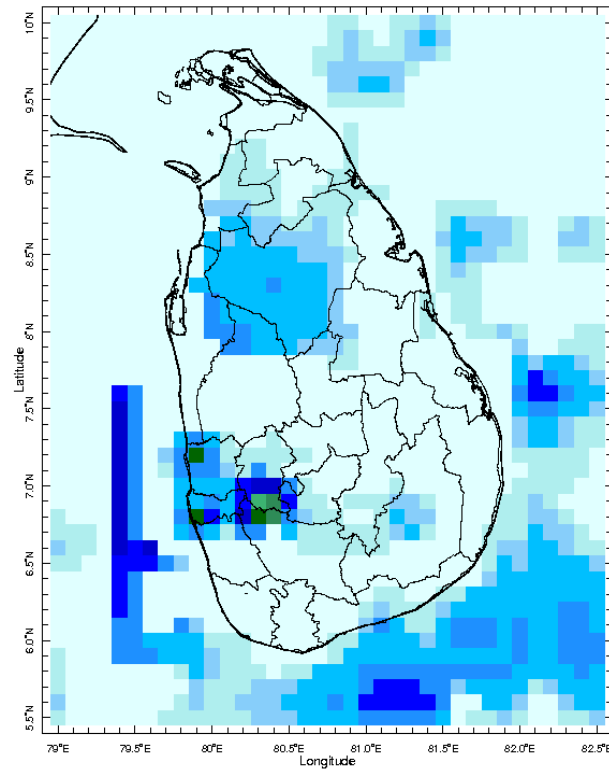
MONITORING

Daily Rainfall Monitoring

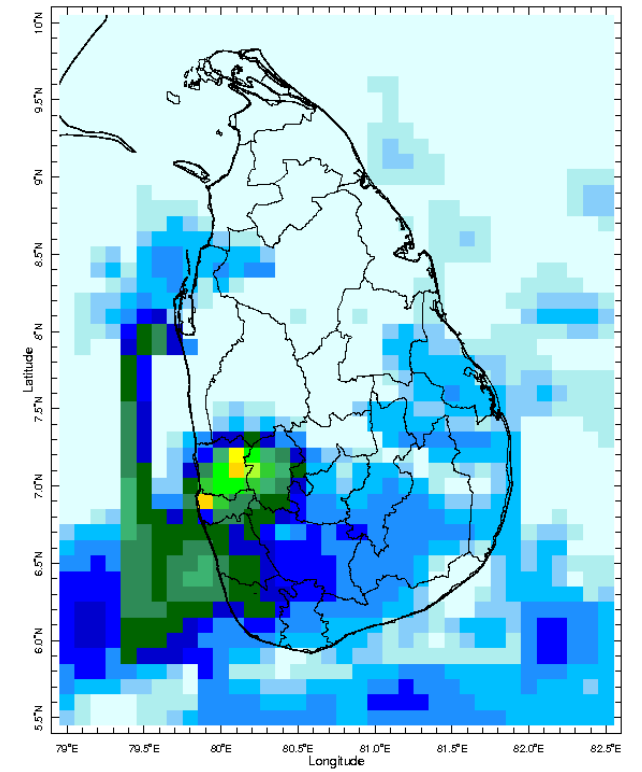
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



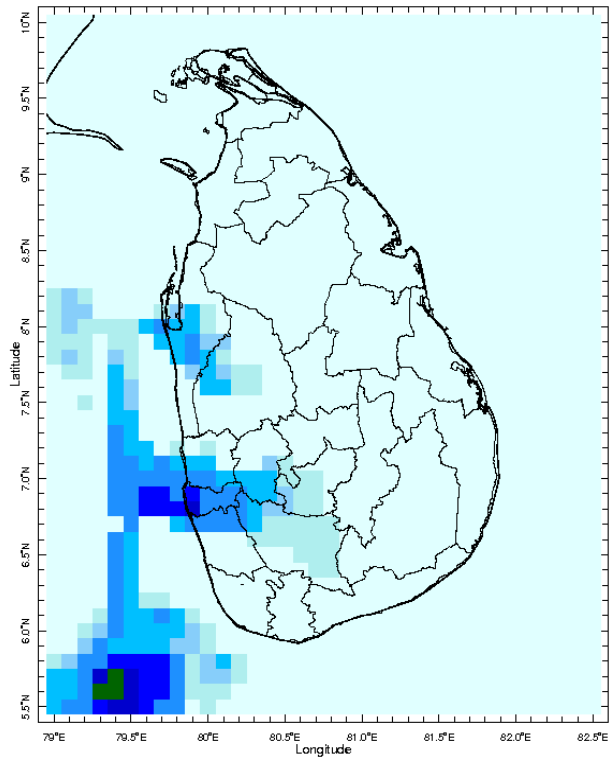
31 Dec 2019



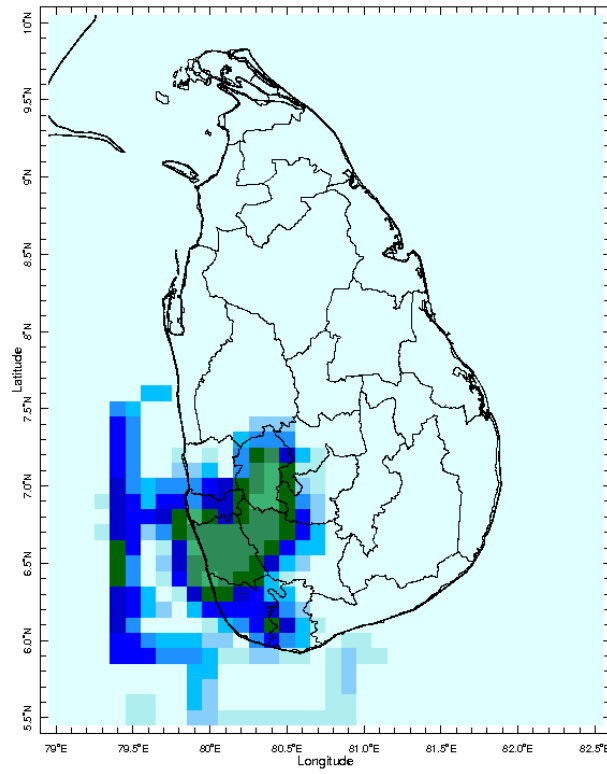
1 Jan 2020



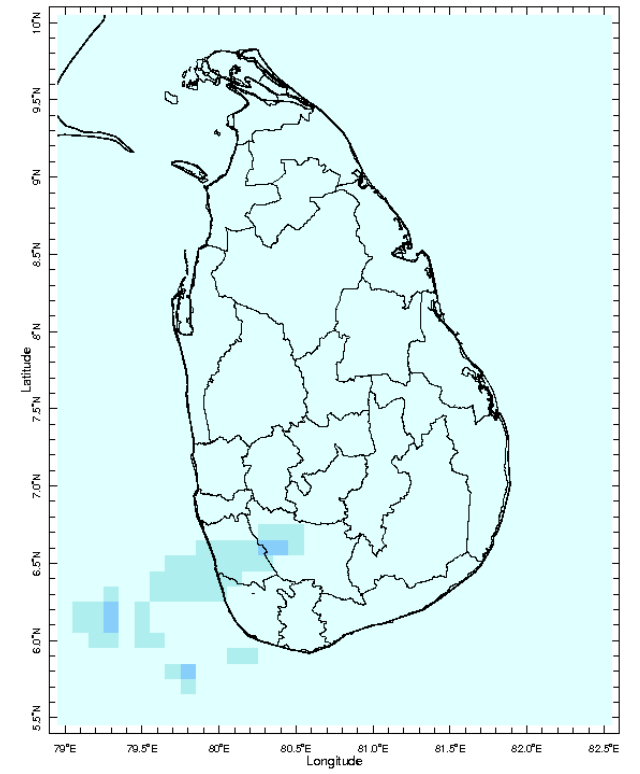
2 Jan 2020



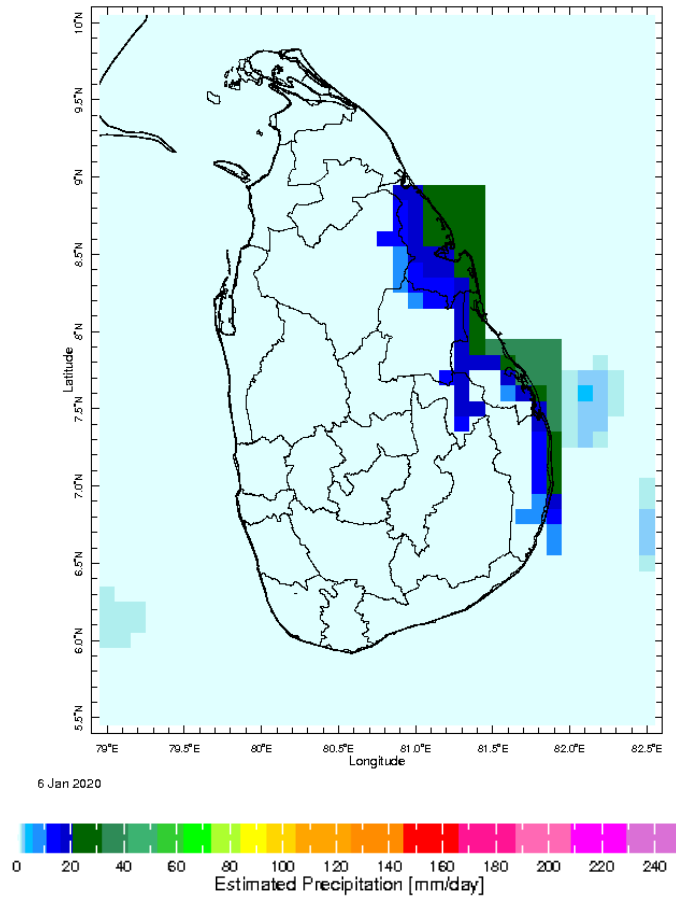
3 Jan 2020



4 Jan 2020

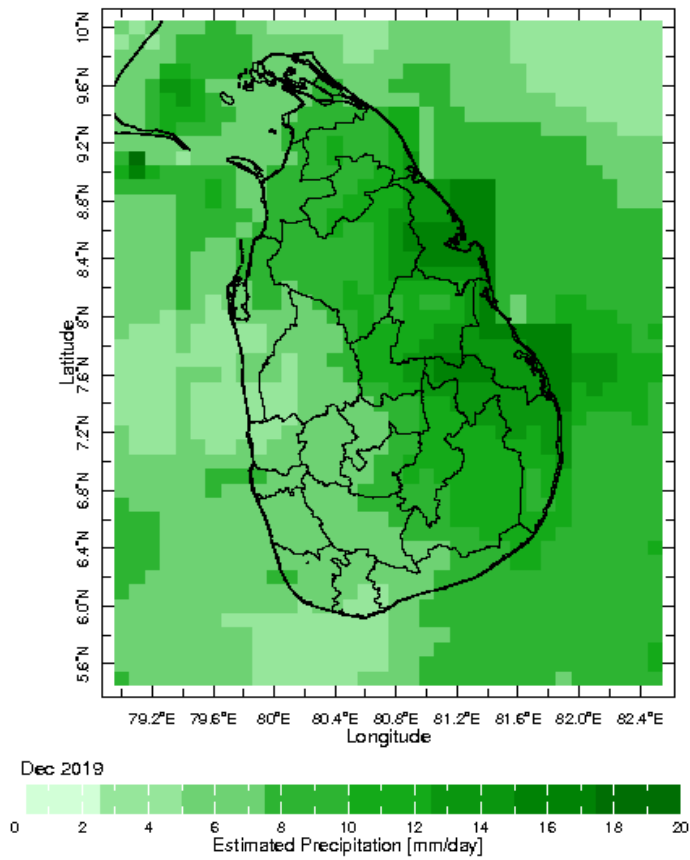


5 Jan 2020

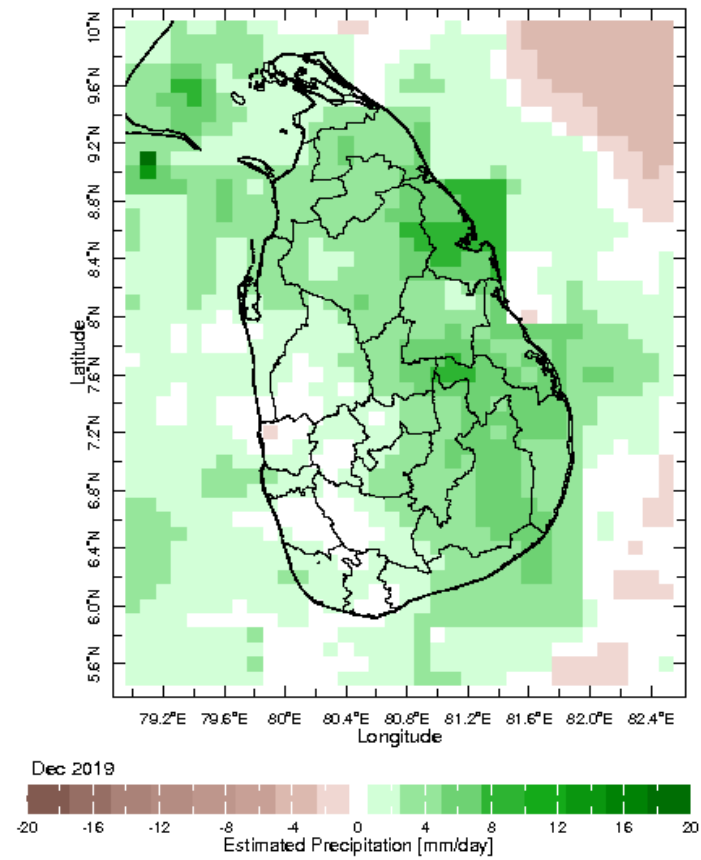


Monthly Rainfall Monitoring

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

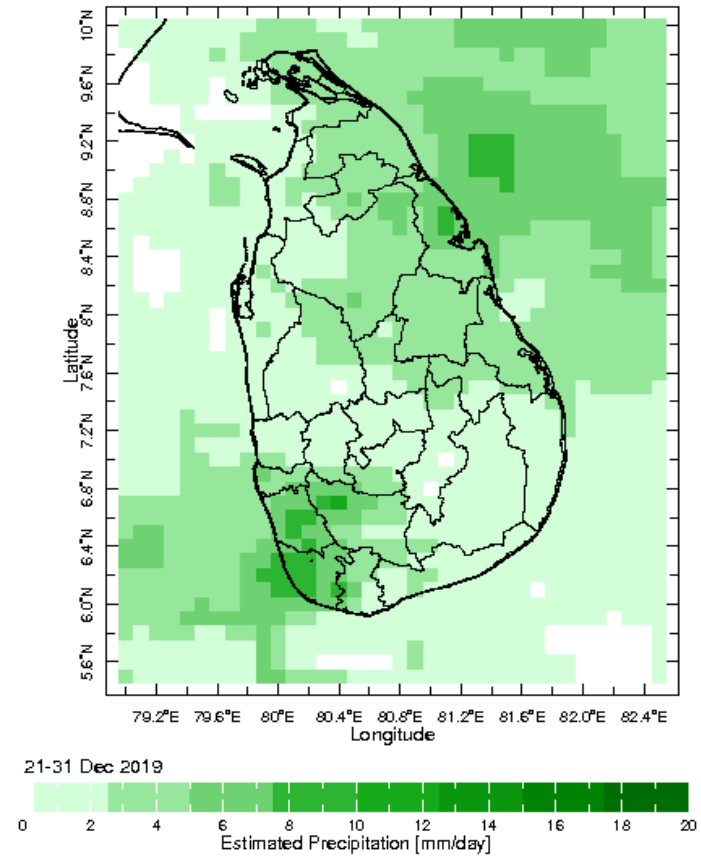
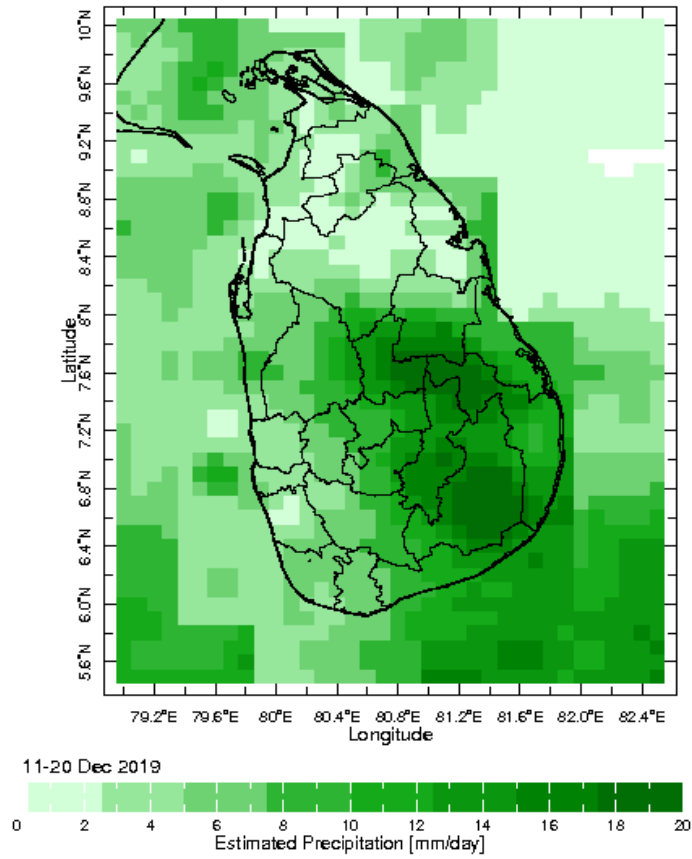


Monthly Average



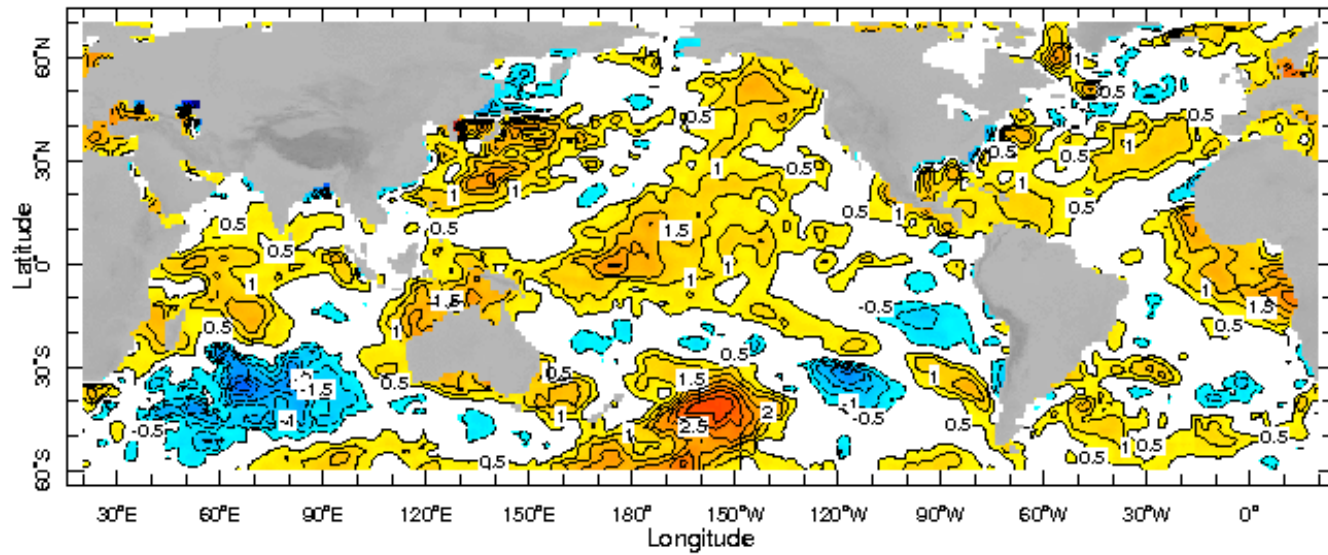
Monthly Anomaly

Dekadal (10 Day) Satellite Derived Rainfall Estimates

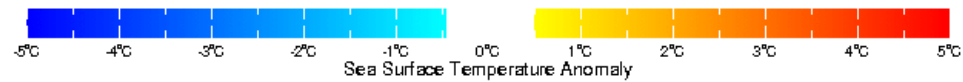


Weekly Average SST Anomalies

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



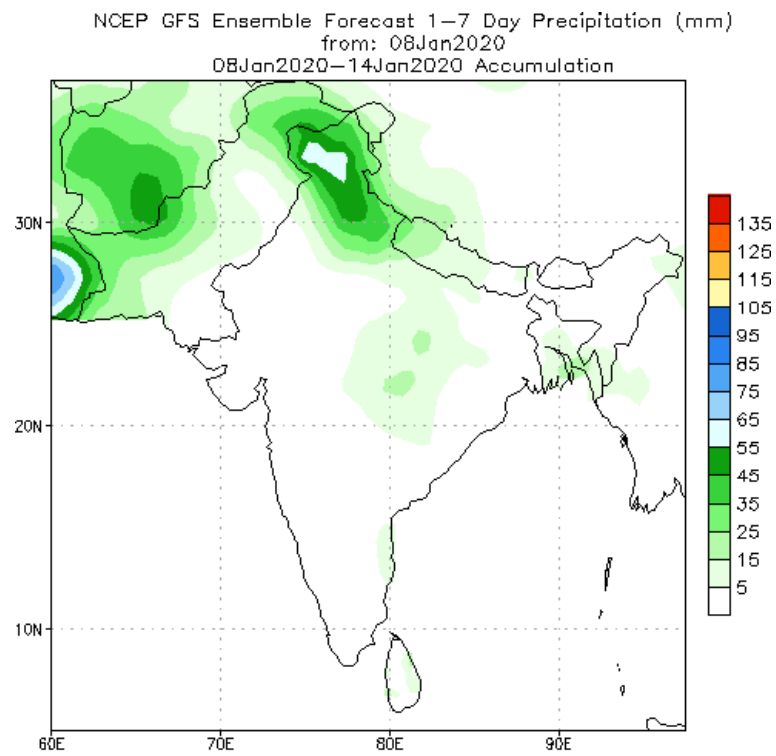
1 Jan 2020



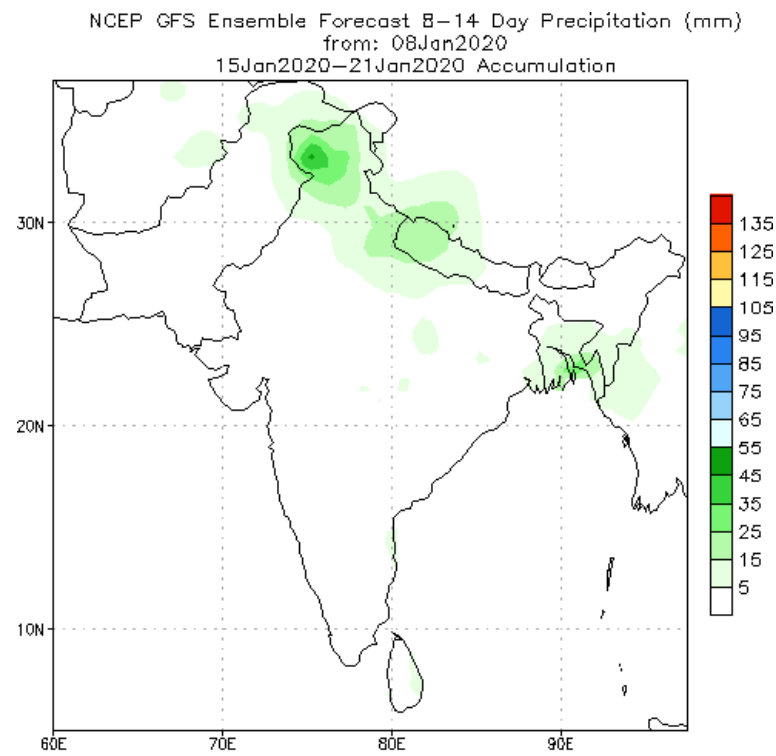
WORLDBATH topography

PREDICTIONS

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)

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.

