

**16 October
2020**

EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

By: Nipuni Alahakoon, Chethana Chandrasiri, Chayana Gunathilake, Tuan Hadgie
Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

HIGHLIGHTS

Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 75 mm in Ratnapura, Colombo, Gampaha and Kegalle districts during 22nd -28th Oct.

Monitored Rainfalls



- Between 8th - 14th Oct up to 90 mm in Vavuniya and Anuradhapura districts.

Monitored Wind



- From 7th - 13th Oct: up to 15 km/h northwesterly winds were experienced by the entire island.

Monitored Sea Surface

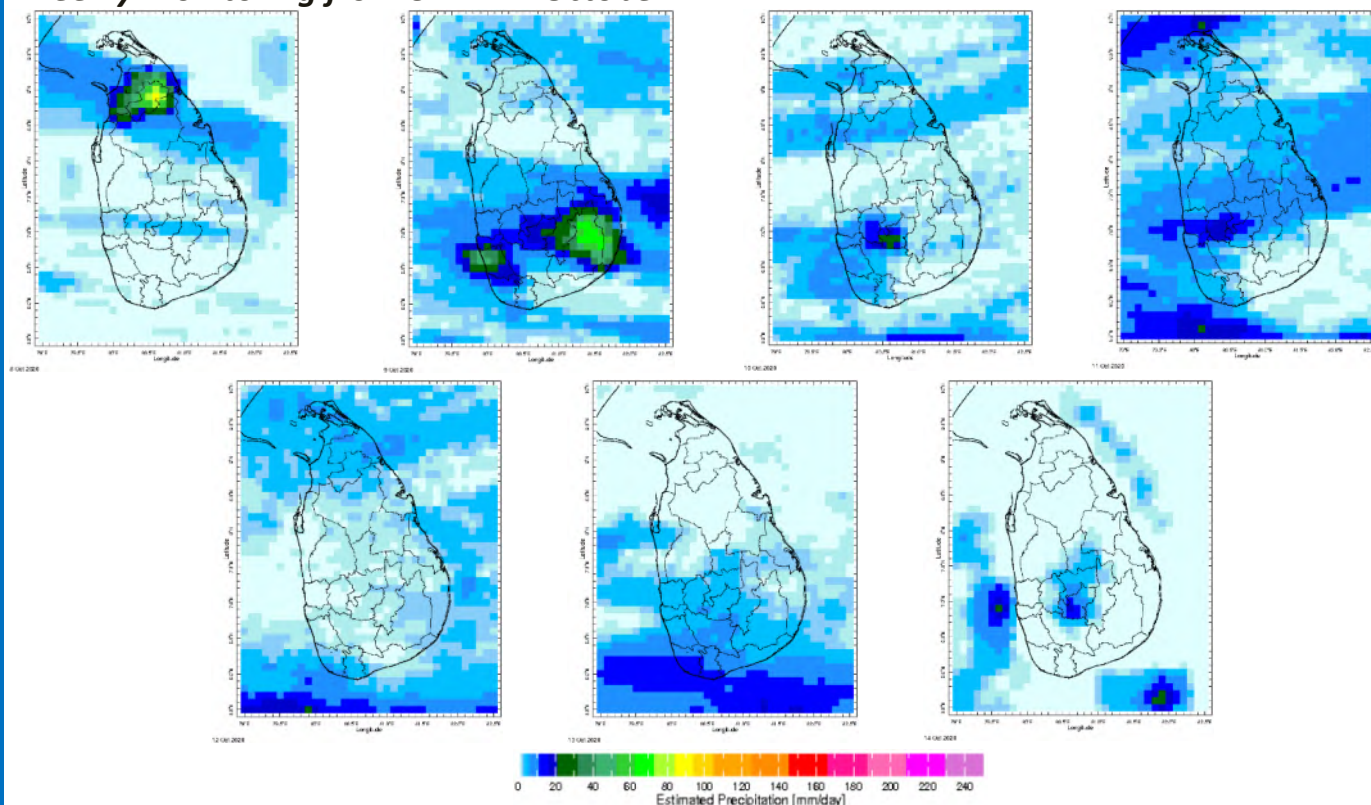


- 0.5°C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring

Rainfall

Weekly Monitoring from 8th– 14th October





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	Daily Maximum Rainfall
8 th October	Up to 90 mm in Vavuniya and Anuradhapura districts.
9 th October	Up to 70 mm in Moneragala and Ampara districts.
10 th October	Up to 30 mm in Nuwara Eliya, Ratnapura, Kegalle and Kandy districts.
11 th October	Up to 20 mm in Jaffna, Gampaha, Colombo, Ratnapura, Kegalle, Nuwara Eliya and Kandy districts.
12 th October	Up to 10 mm in Galle, Matara, Jaffna, Kilinochchi, Mullaitivu and Vavuniya districts.
13 th October	Up to 15 mm in Galle, Matara and Hambantota districts.
14 th October	Up to 20 mm in Nuwara Eliya and Kandy districts.

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 50 – 70 mm in Moneragala, Nuwara Eliya, Kegalle, Kandy, Kalutara, Anuradhapura, Vavuniya and Mullaitivu districts; up to 25 – 50 mm in Hambantota, Ampara, Badulla, Ratnapura, Gampaha, Colombo, Galle, Mannar, Trincomalee and Matara districts; and up to 10 -25 mm in Jaffna, Kilinochchi, Puttalam, Kurunegala, Batticaloa, Polonnaruwa and Matale districts.

Above rainfall average up to 10 – 25 mm in Ampara, Moneragala, Anuradhapura, Mullaitivu and Vavuniya districts; Below rainfall average up to 50 – 100 mm Matale, Polonnaruwa, Gampaha and Trincomalee districts; up to 25 – 50 mm in Puttalam, Kurunegala, Batticaloa, Badulla, Kandy, Kegalle, Ratnapura, Hambantota, Galle and Matara districts; and up to 10 – 25 mm in Kalutara, Colombo, Nuwara Eliya, Mannar, Kilinochchi and Jaffna districts.

Monthly Monitoring

During September – Above average rainfall conditions up to 12 mm in Badulla and Moneragala districts; up to 8 mm in Mannar district; up to 5 mm in Ampara, Polonnaruwa, Batticaloa, Trincomalee, Anuradhapura, Kilinochchi, Mullaitivu, Vavuniya and Jaffna districts; up to 4 mm in Puttalam, Kurunegala, Gampaha, Matale, Kandy, Nuwara Eliya, Ratnapura and Hambantota districts; and up to 2 mm in Colombo, Kalutara, Galle, Matara and Kegalle districts.

Ocean State (Text Courtesy IRI)

Pacific sea state: October 7, 2020

Equatorial Eastern Pacific SST decreased to near the La Niña threshold in early -October, and the atmospheric variables were either ENSO-neutral or indicative of weak La Niña conditions. The average of the forecasts of many models just short of the borderline of weak La Niña SST conditions through fall, becoming slightly weaker beginning in early winter. The official CPC/IRI outlook is somewhat similar to these model forecasts, calling for a likely continuation of ENSO-neutral in summer, with approximately equal chances of ENSO-neutral or La Niña for fall and winter.

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 15th October – 21th October: Total rainfall up to 65 mm in Ratnapura, Kegalle and Gampaha districts; up to 55 mm in Galle, Kurunegala and Puttalam districts; up to 45 mm in Matara, Nuwara Eliya, Kandy districts; up to 35 mm in Hambantota, Badulla and Moneragala districts; up to 25 mm in Matale district; and up to 15 mm in Polonnaruwa and Ampara districts.

From 22nd October – 28th October: Total rainfall up to 75 mm in Ratnapura, Colombo, Gampaha and Kegalle districts; up to 65 mm in Galle, Kurunegala and Puttalam districts; up to 45 mm in Matara, Hambantota, Nuwara Eliya, Kandy, Matale districts; up to 35 mm Monaragala and Badulla districts; up to 25 mm in Ampara and Polonnaruwa districts; and up to 15 mm in Batticaloa and Anuradhapura districts.

NOAA Model Forecast:

From 24th – 29th September: Total rainfall up to 75 mm in Badulla district; up to 50 mm in Ampara, Moneragala, Ratnapura, Nuwara Eliya, Kandy, Matale, Polonnaruwa, Anuradhapura, Batticaloa, Trincomalee, Vavuniya, Mullaitivu, Kilinochchi and Jaffna districts; and up to 25 mm in Mannar, Puttalam, Kurunegala, Kegalle, Gampaha, Colombo, Kalutara, Galle, Matara and Hambantota districts.

MJO based OLR predictions

For the next 15 days:

MJO shall significantly suppress during 14th-18th Oct and shall severely suppress during 19th-23rd Oct.

¹ International Research Institute for Climate and Society, Columbia University Water Center, Earth Institute at Columbia University, New York.



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 Climate bulletin - Sri Lanka

Inside This Issue

1. Monitoring

- Daily Rainfall Monitoring
- Weekly Rainfall Monitoring
- Monthly Rainfall Monitoring
- Dekadal (10 Day) Satellite Derived Rainfall Estimates
- Weekly Temperature Monitoring
- Weekly Wind Monitoring
- Weekly Average SST Anomalies

2. Predictions

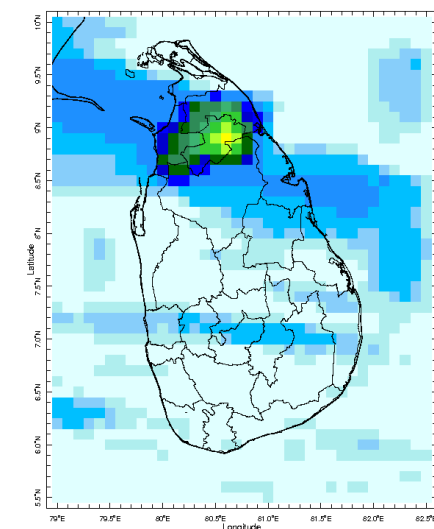
- NCEP GFS Ensemble 1-14 day Rainfall Predictions
- GFS (T574) Model Rainfall Forecast from RMSC New Delhi
- WRF Model Rainfall Forecast from IMD Chennai
- MJO Related OLR Forecast
- Weekly Precipitation Forecast from IRI
- Weekly Temperature Forecast
- Weekly Wind Forecast
- Seasonal Predictions from IRI



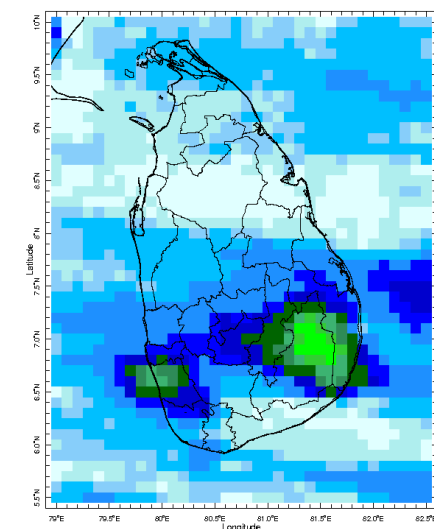
MONITORING

Daily Rainfall Monitoring

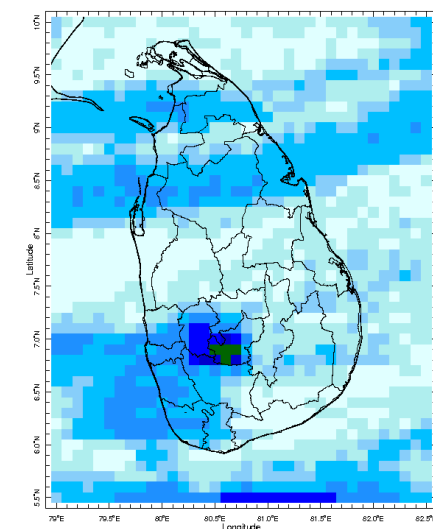
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



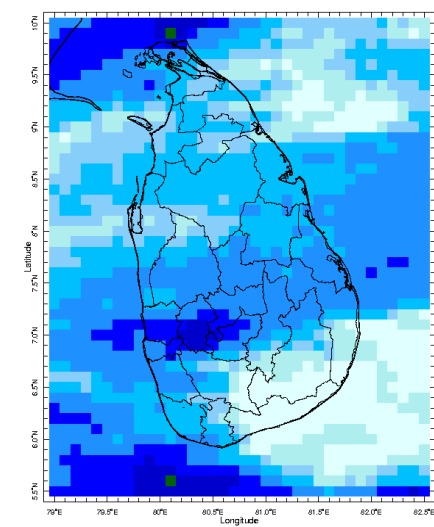
8 Oct 2020



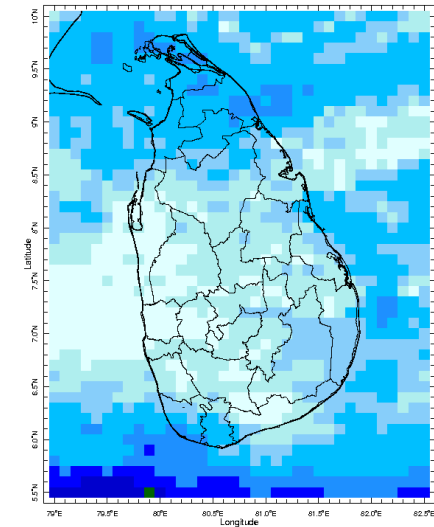
9 Oct 2020



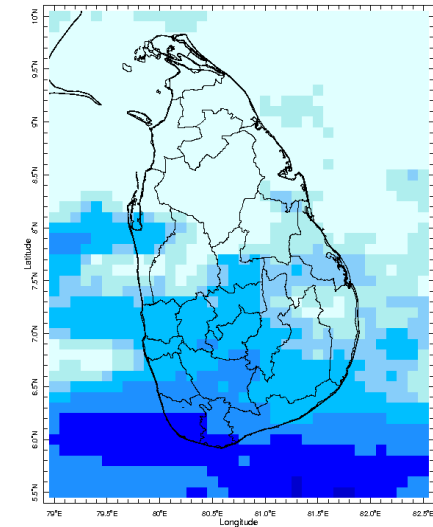
10 Oct 2020



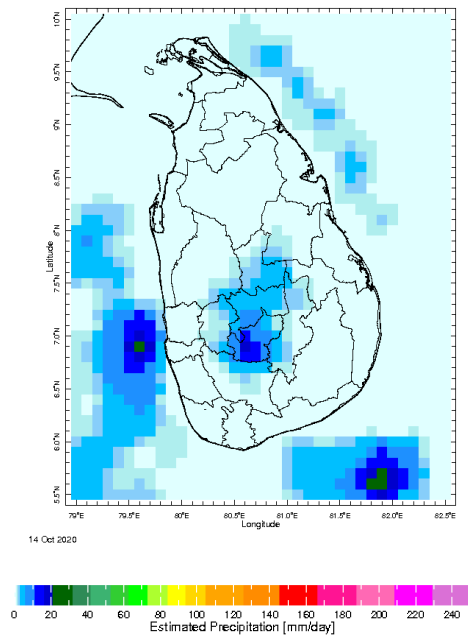
11 Oct 2020



12 Oct 2020

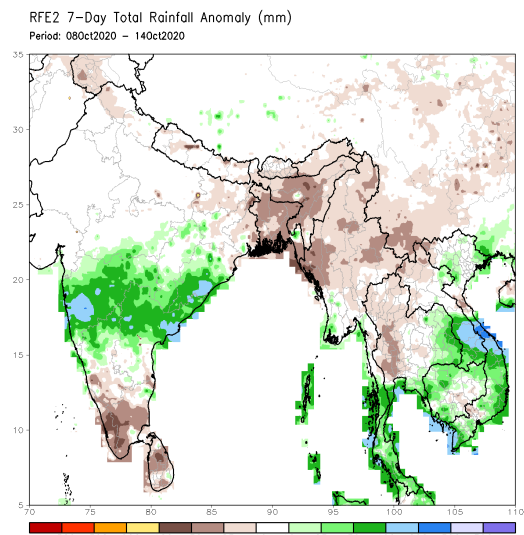
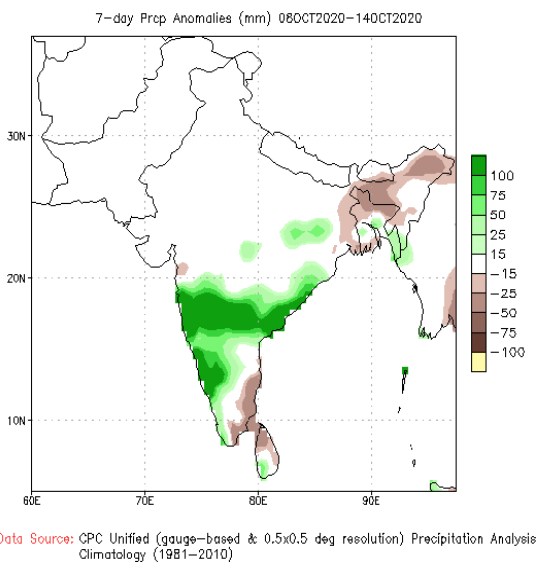
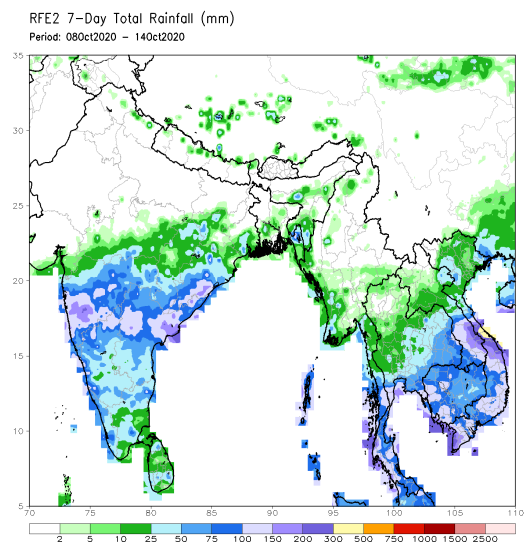
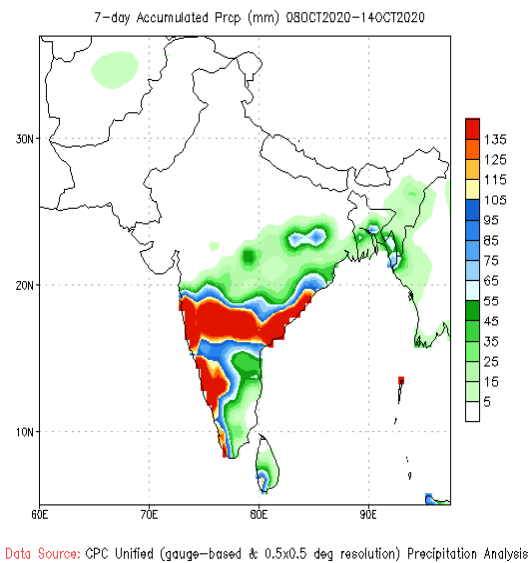


13 Oct 2020



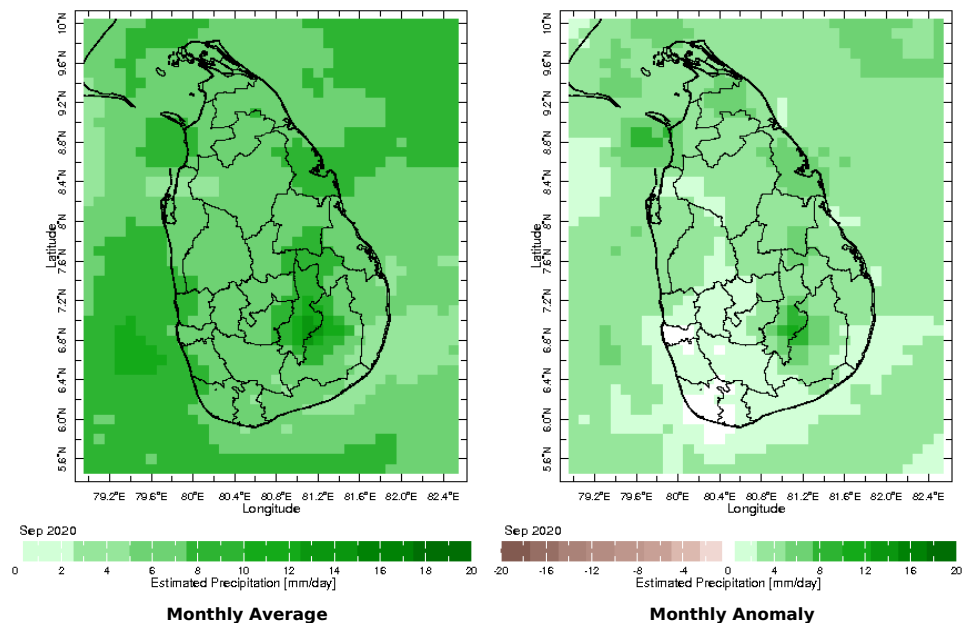
Weekly Rainfall Monitoring

The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite Rainfall Estimates. The bottom two figures are the respective anomalies.

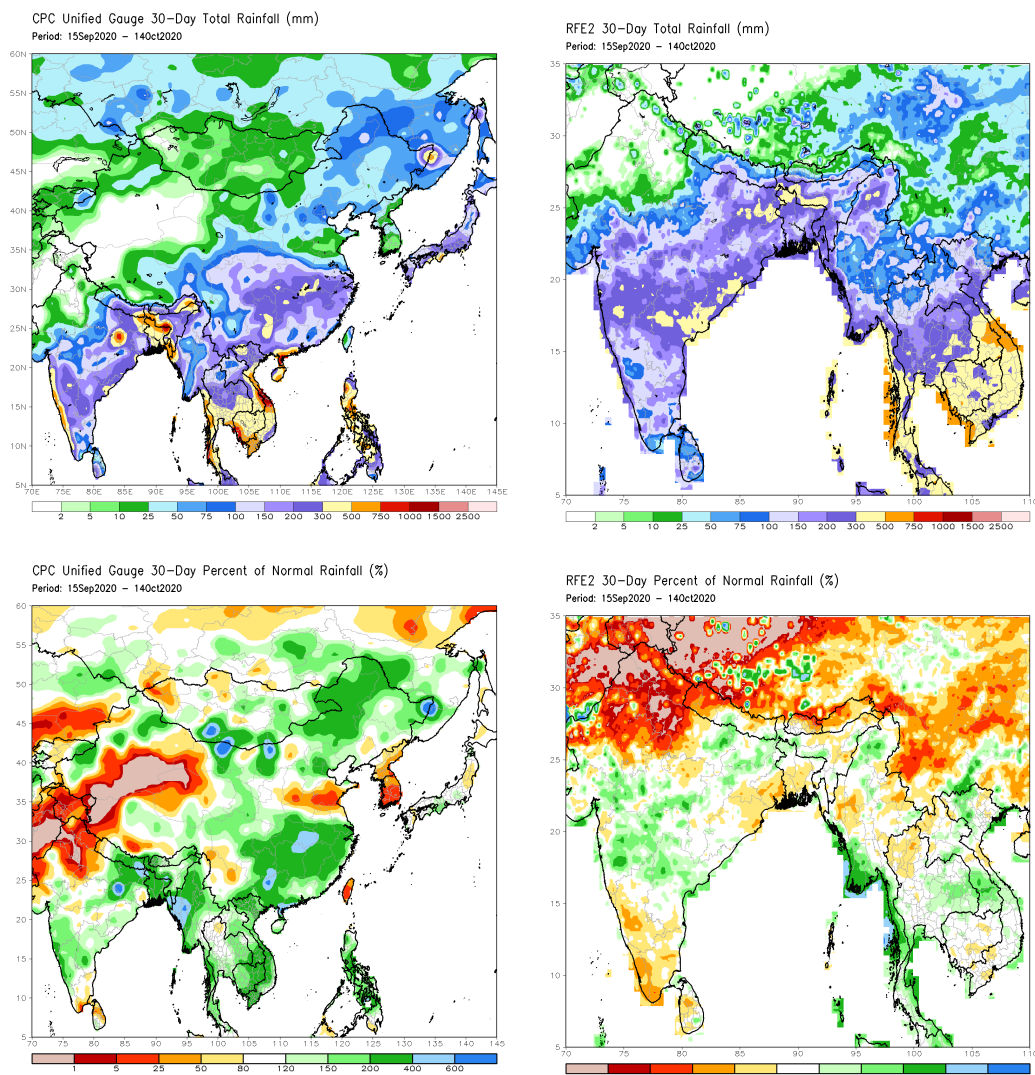


Monthly Rainfall Monitoring

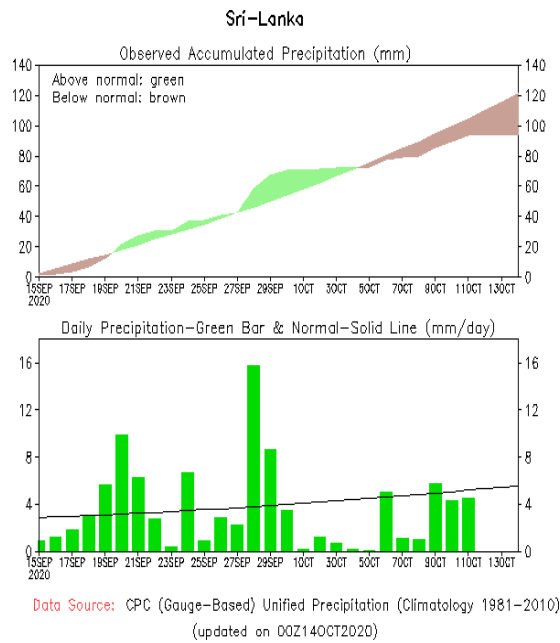
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places with above average rainfall. Darker shades show higher magnitudes in rainfall



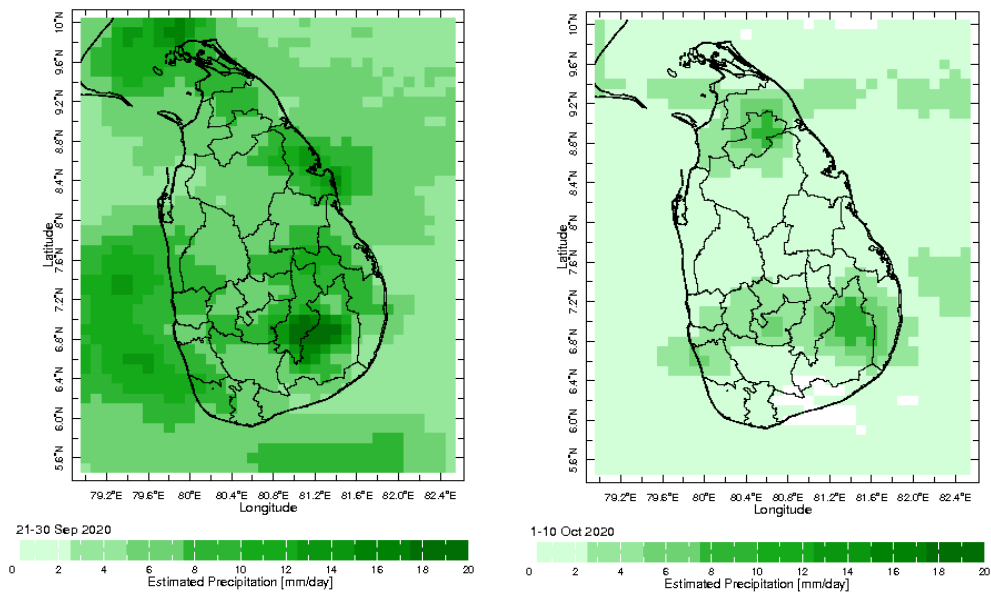
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in the past 30 days compared to normal rainfall in this period.



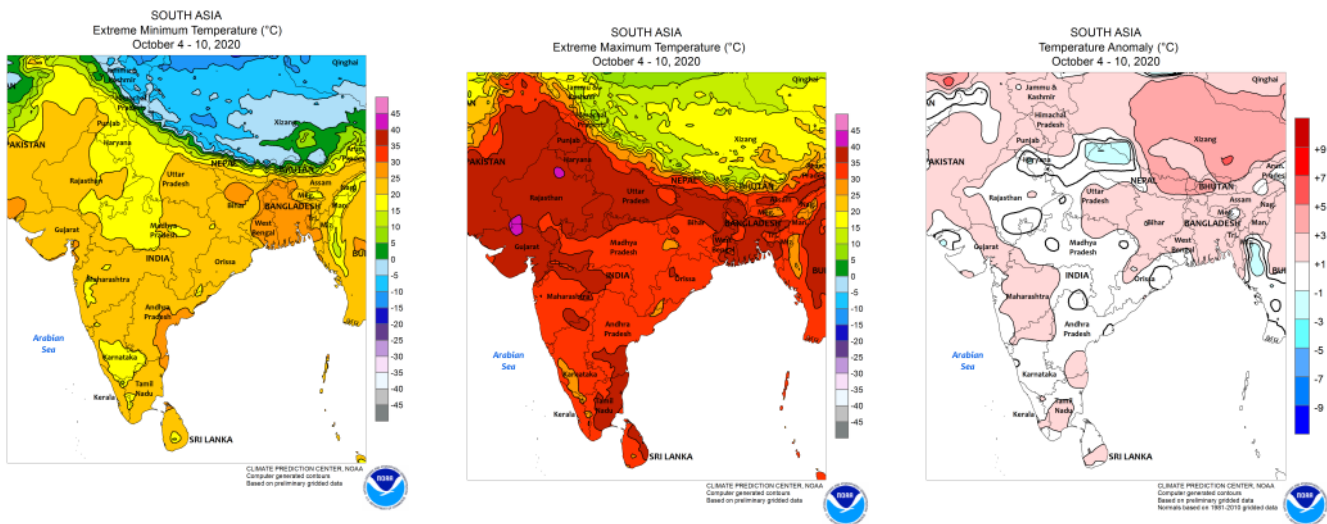
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

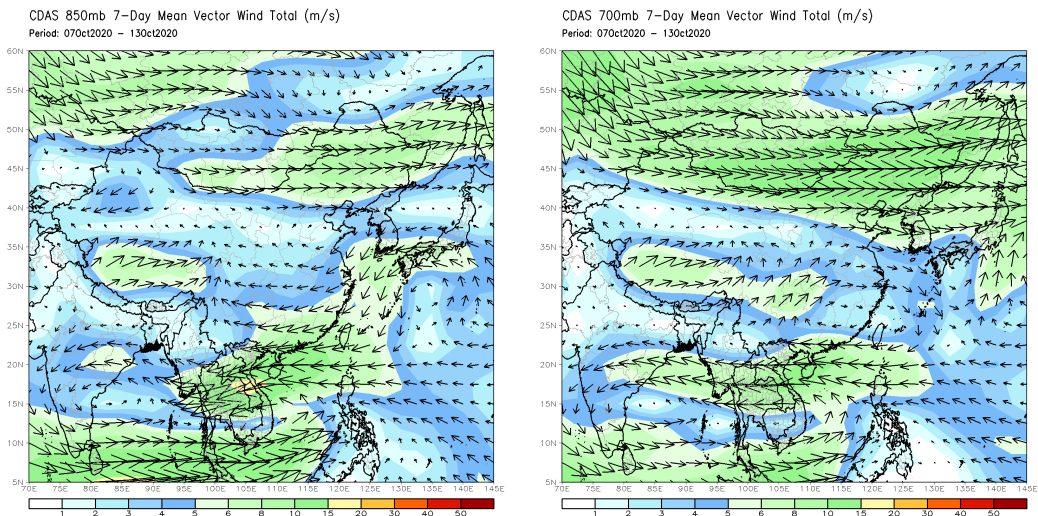


Weekly Temperature Monitoring



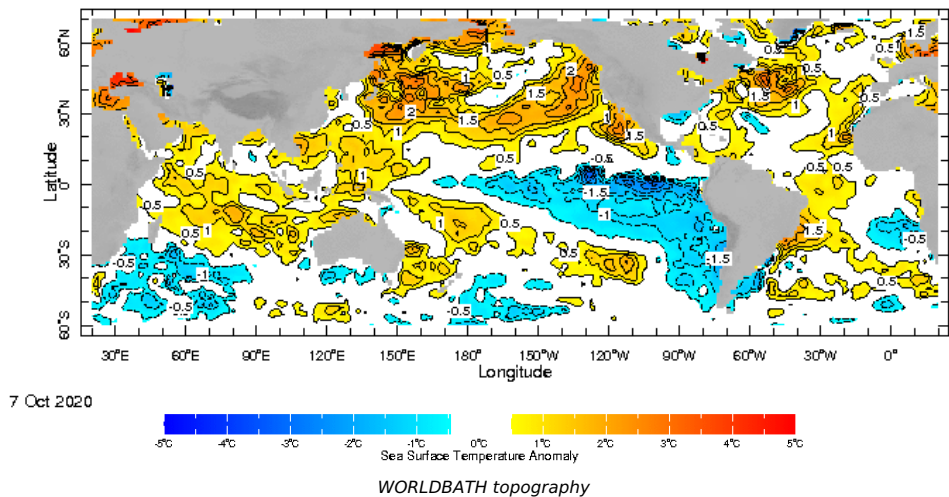
Weekly Wind Monitoring

The following figures show the mean vector wind total of the past 7 days near Sri Lanka at two levels. The figure on the left shows 850 mb (~1500 m) level and the figure on the right shows 700 mb (~3000 m) level.

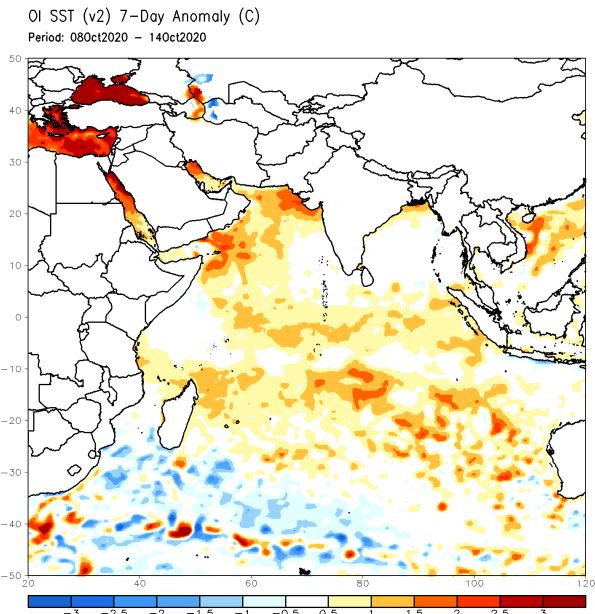


Weekly Average SST Anomalies

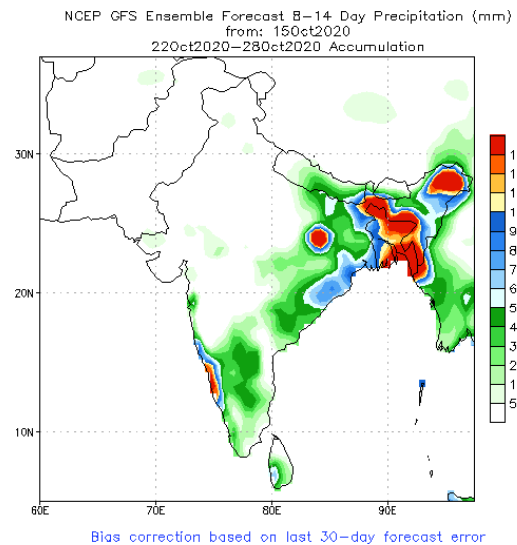
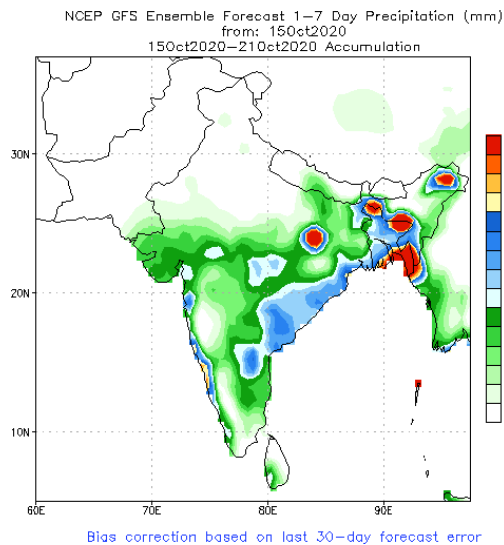
Weekly average Sea Surface Temperature (SST) anomaly in the world from NOAA NCEP



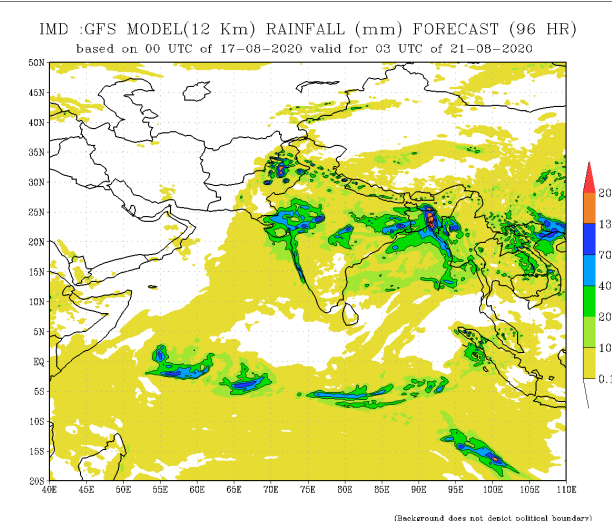
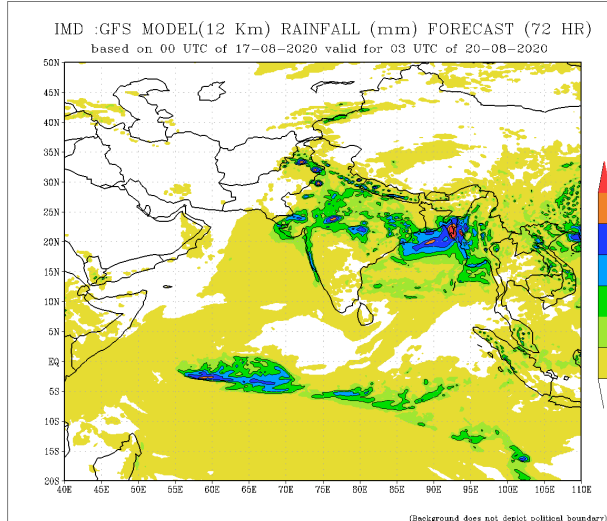
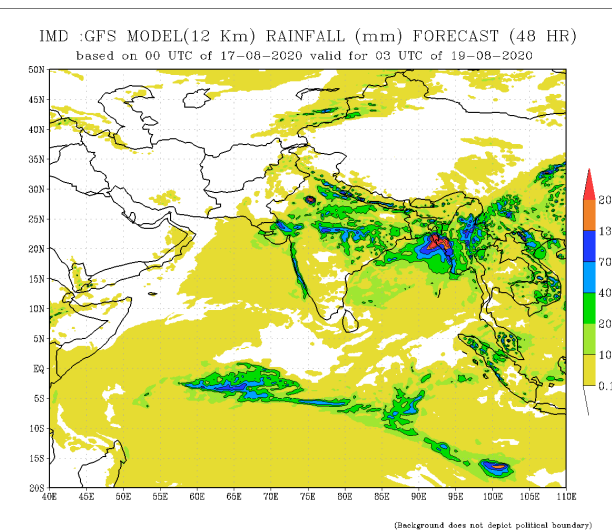
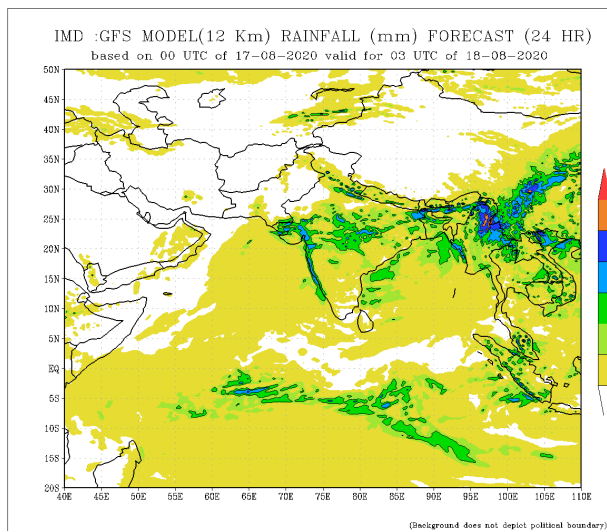
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

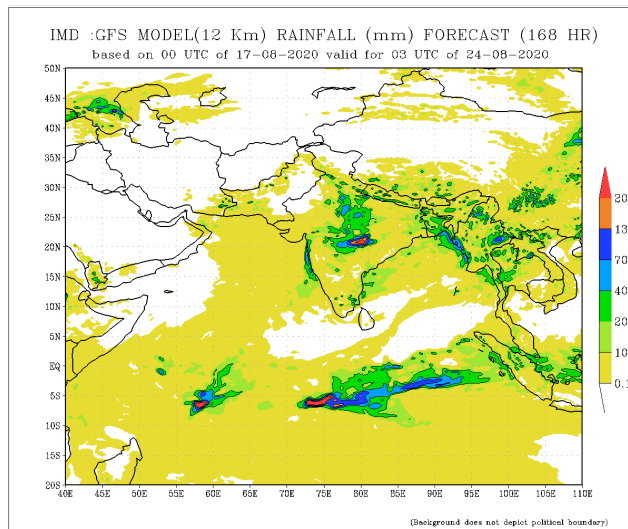
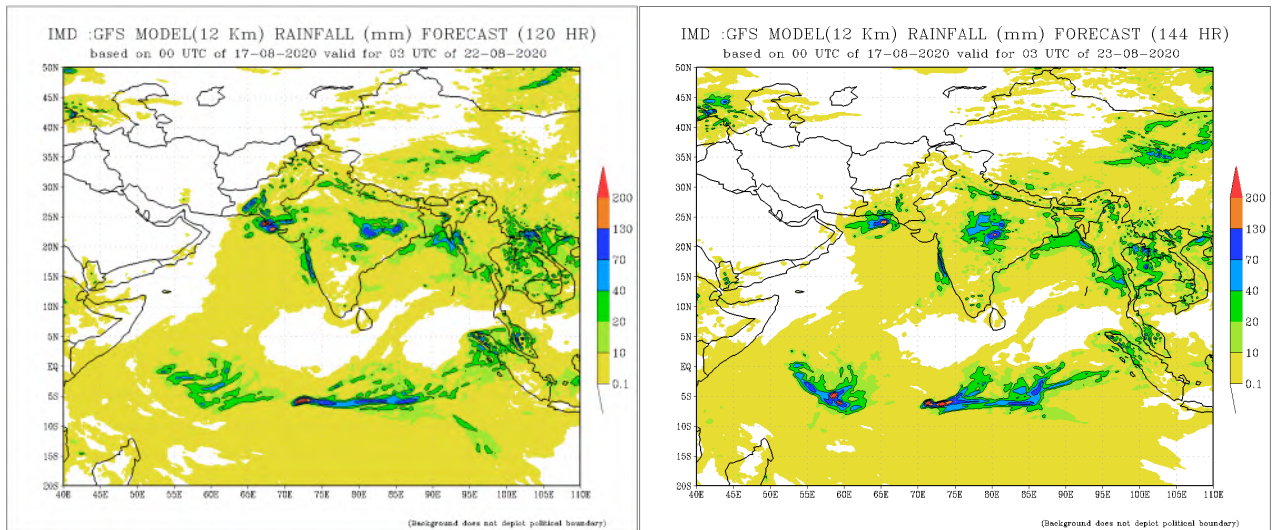


NCEP GFS 1- 14 Day prediction

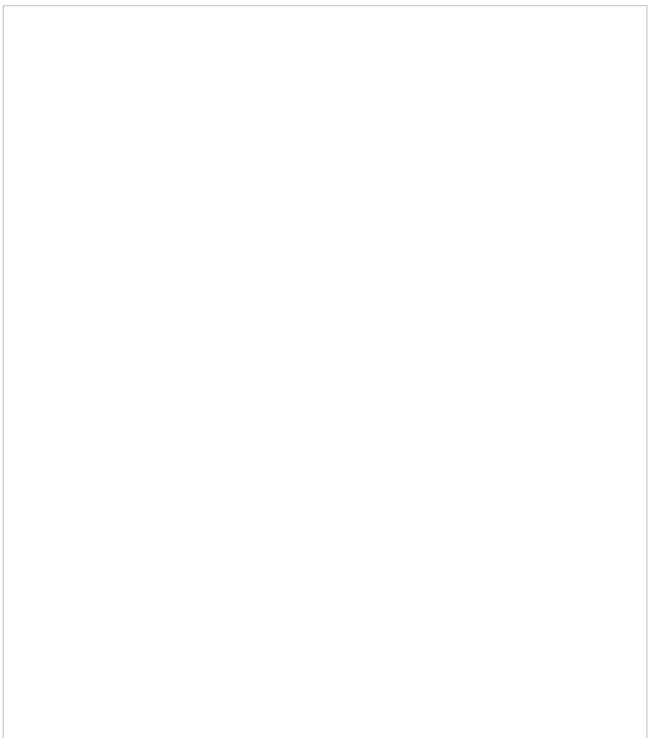
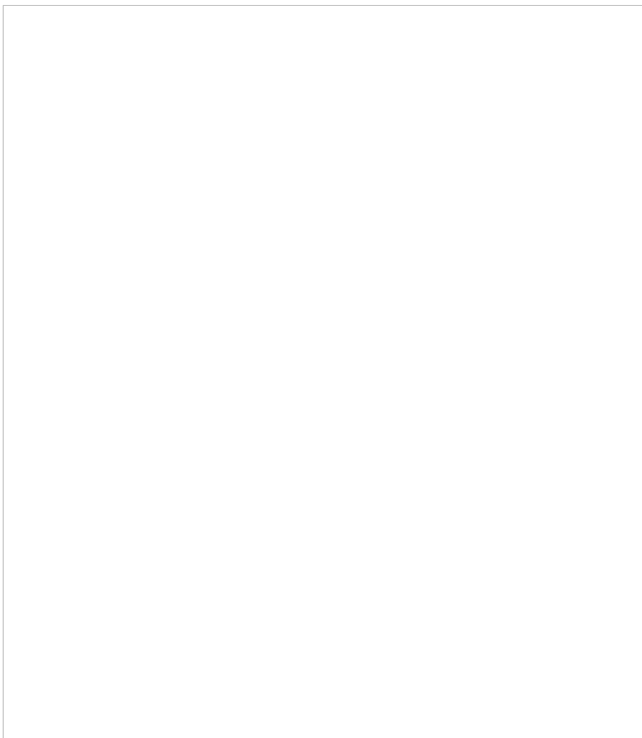


IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India



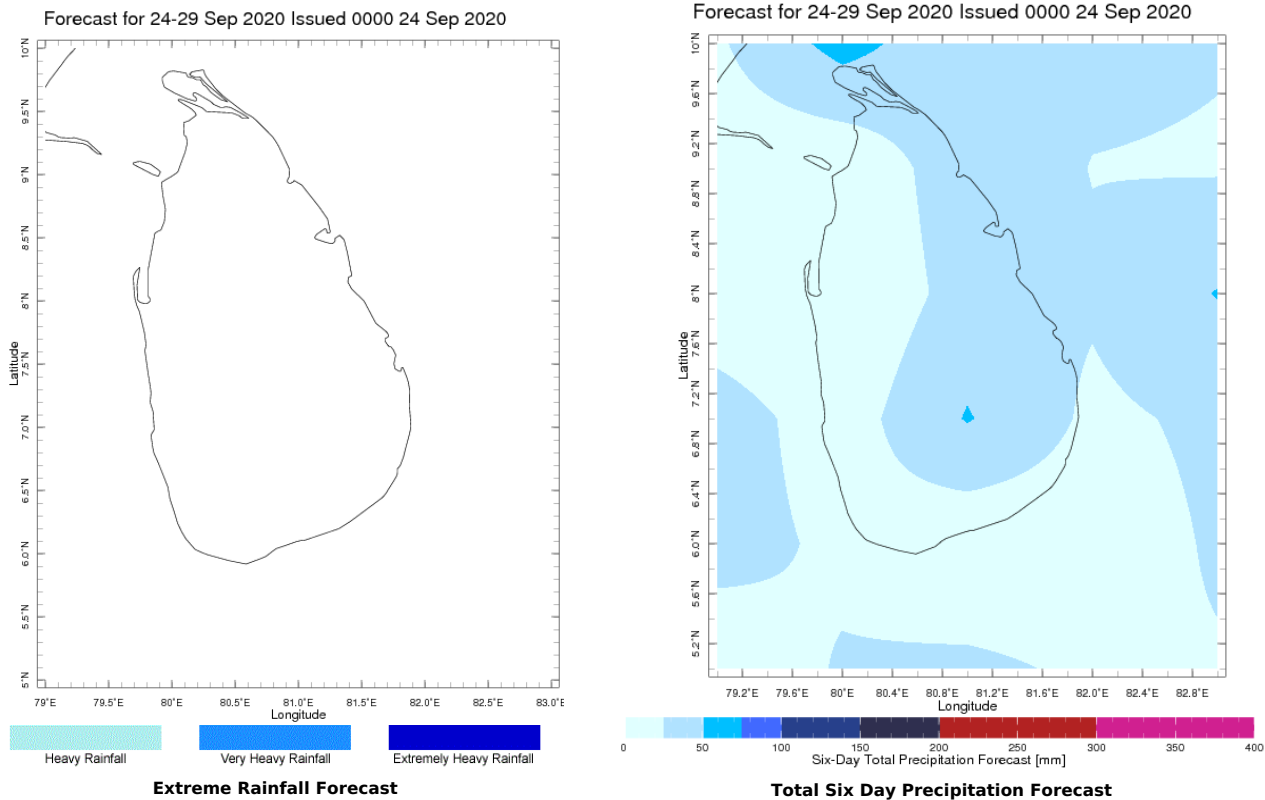


WRF Model Forecast (from IMD Chennai)



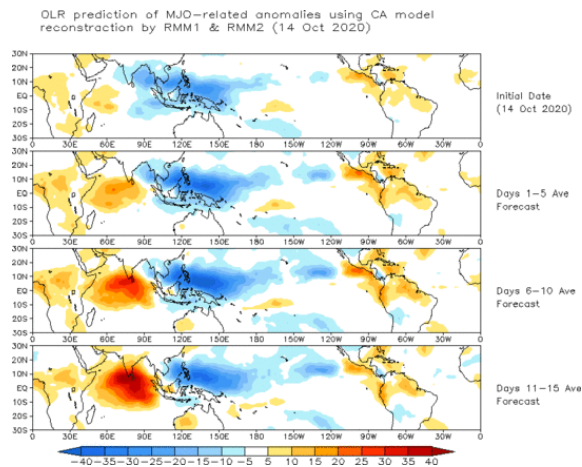
Weekly Rainfall Forecast from IRI

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.



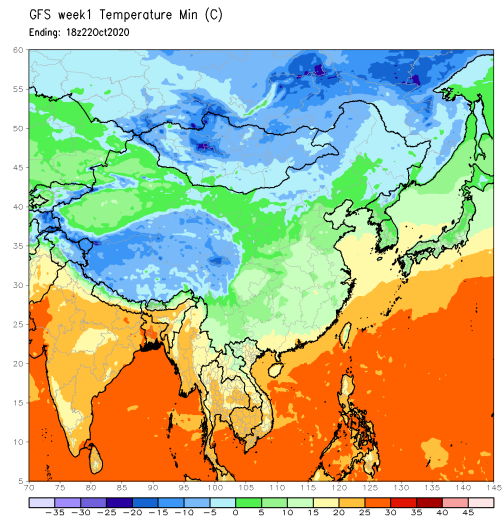
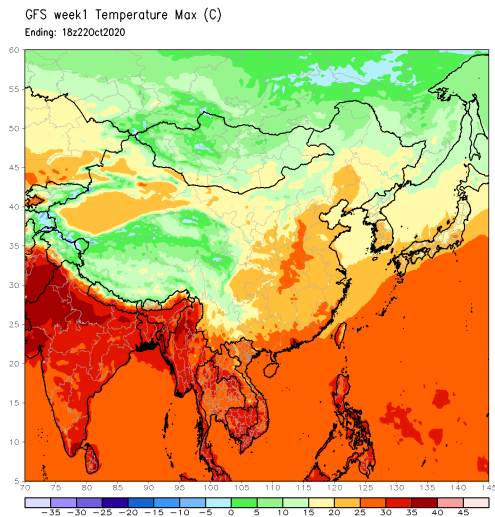
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated anomolous OLR for the next 15 days from the Constructed Analogue (CA) model forecasts.



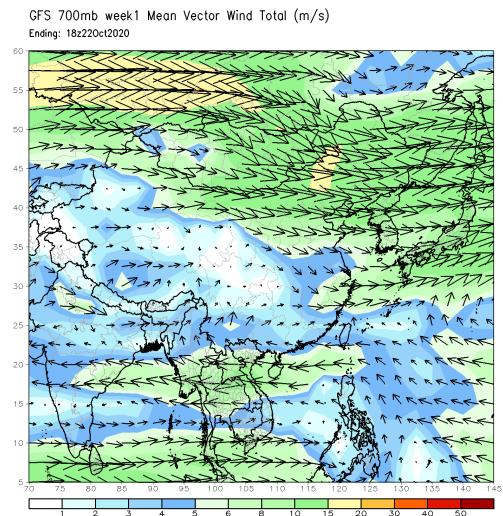
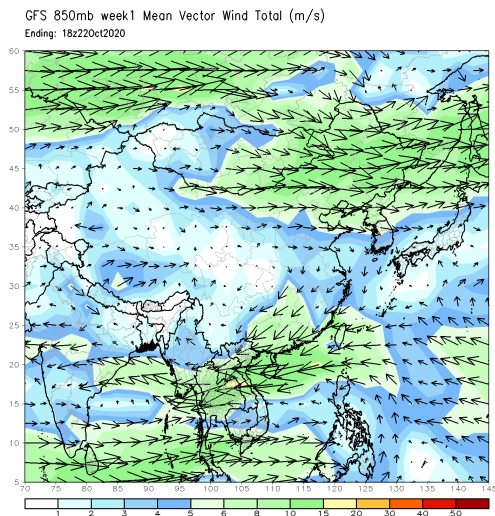
Weekly Temperature Forecast

Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)



Weekly Wind Forecast

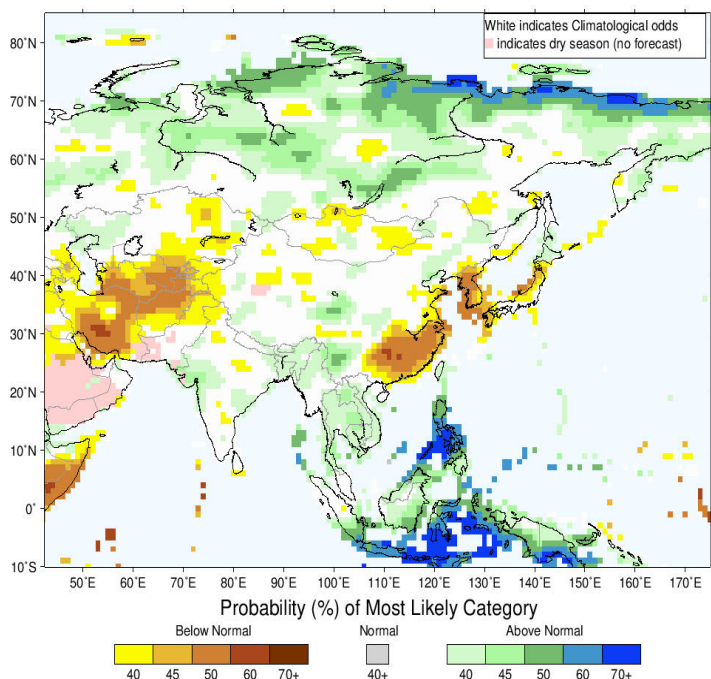
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



Seasonal Rainfall and Temperature Forecast

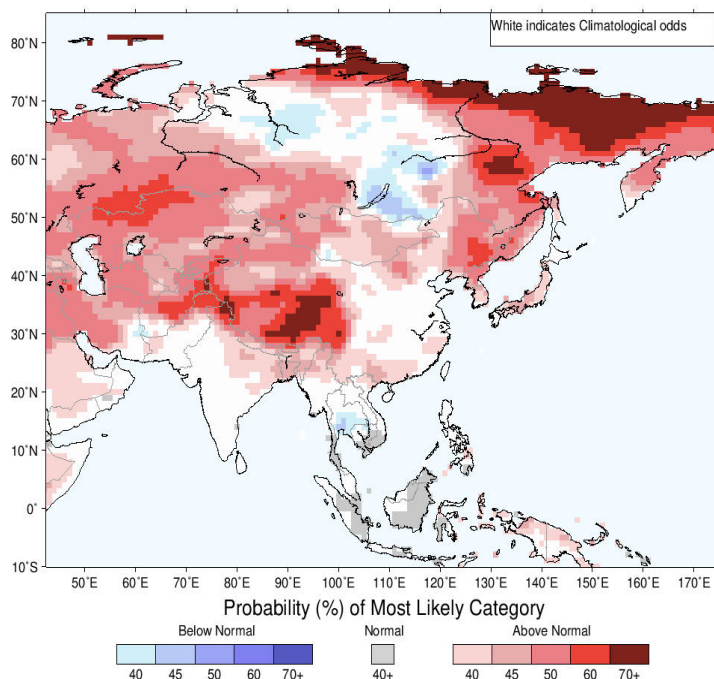
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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%).

IRI Multi-Model Probability Forecast for Precipitation for October–November–December 2020, Issued September 2020



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for October–November–December 2020, Issued September 2020



Temperature Forecast

Subscribe to our Monthly Sri Lanka Newsletter

email address

Subscribe

Follow @climatelk

Contact Us

email: fectsl@gmail.com

phone: (+94) 81 2300415

blog: www.fectsl.blogspot.com

Foundation for Environment, Climate & Technology
C/O Mahaweli Authority of Sri Lanka,
Digana Village,
Rajawella,
SRI LANKA