

**31 July
2020**

EXPERIMENTAL CLIMATE MONITORING AND PREDICTION

By: Piushani Ellegala, Chethana Chandrasiri, Chayana Gunathilake, Lareef Zubair and Michael Bell¹ (FECT and IRI¹)

HIGHLIGHTS

Rainfall Forecast



- The NOAA weekly rainfall forecast predicts up to 150 mm in Colombo, Galle, Kalutara, Matara, Ratnapura and Hambantota districts during 27 July -1 August.

Monitored Rainfalls



- Between 19th July - 25th July: up to 50 mm of rainfall was recorded in Galle, Matara and Badulla district on 23rd July.

Monitored Wind



- From 22 - 28 July: up to 10 km/h, northwesterly winds were experienced by the entire island.

Monitored Sea Surface



- 1 °C above average sea surface temperature was observed in the seas around Sri Lanka.

Monitoring Rainfall

Weekly Monitoring

Date	Rainfall
19 th July	Up to 40 mm in Badulla, Puttalam, Gampaha and Kurunegala districts; up to 30 mm in Ampara, and Hambantota districts; and up to 20 mm in Colombo, Kegalle, Katutara, Ratnapura, Monaragala, Matale, Kandy and Polonnaruwa districts; up to 15 mm in Galle, Mannar and Anuradhapura districts; up to 10 mm in Matara, Nuwara Eliya, Vavuniya, Mullaitivu and Kilinochchi districts.
20 th July	Up to 40 mm in Jaffna district; up to 30 mm in Kilinochchi district; up to 15 mm in Kalutara, Galle, Matara, and Hambantota districts; and up to 10 mm in Mannar, Kilinochchi, Vavuniya, Puttalam, Gampaha, Colombo, Ratnapura, Nuwara Eliya, Badulla, Monaragala and Ampara districts.
21 st July	Up to 2.5 mm in Monaragala, Batticaloa and Ampara Districts.
22 nd July	Up to 10 mm in Gampaha, Puttalam, Kurunegala, Kegalle, Kandy, Matale, Nuwara Eliya, Polonnaruwa, Badulla, Ampara and Batticaloa 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
23 rd July	Up to 50 mm in Galle, Matara and Badulla districts; up to 40 mm in Monaragala district; up to 30 mm in Nuwara Eliya, Kandy, Colombo, Kalutara and Hambantota districts; up to 20 mm in Gampaha, Ratnapura and Ampara districts; and upto 15 mm in Trincomalee district; and up to 10 mm in Kurunegala, Matale, Polonnaruwa, Anuradhapura and Kegalle districts.
24 th July	Up to 30 mm in Ampara and Batticaloa districts; and up to 20 mm in Monaragala district.
25 th July	Up to 15 mm in Mannar district; and up to 10 mm in Colombo, Gampaha, Katutara, Ratnapura, Galle, and Vavuniya districts.

Total Rainfall for the Past Week

The RFE 2.0 tool shows total up to 50– 75 mm in Monaragala, Badulla, Ampara, Mannar, Jaffna and Batticaloa districts; up to 25 – 50 mm in Kilinochchi, Mullaitivu, Puttalam, Vavuniya, Trincomalee, Anuradhapura, Polonnaruwa, Kurunegala, Matale, Ratnapura, Colombo, Gampaha, Kalutara, Kandy, Matale, Nuwara Eliya, Galle, Matara and Hambantota districts.

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

Monthly Monitoring

During June – Above average rainfall conditions up to 6 mm were experienced by Vavuniya and Anuradhapura districts; up to 4 mm in Mannar, Kurunegala, Polonnaruwa, Trincomalee, Kegalle, Kandy, Badulla, Ampara, Batticaloa, Monaragala and Hambantota districts and below average rainfall conditions upto 2 mm were experienced by Galle, Matara and Ratnapura districts.

Ocean State (Text Courtesy IRI)

Pacific sea state: June 24, 2020

SSTs in the east-central Pacific decreased to near the La Niña threshold in early June, 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

1 °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 30th July – 5th August: Total rainfall up to 45 mm in Kalutara, Colombo, Galle, Matara, Ratnapura and Hambantota districts; up to 35 mm in Gampaha, Kegalle, Badulla, Nuwara Eliya, and Monaragala districts; up to 25 mm in Kandy, Matale, Kurunegala, Puttalam, Polonnaruwa, Anuradhapura and Ampara districts; and up to 15 mm in Mannara and Vavuniya districts.

From 6th August – 12th August: Total rainfall up to 55 mm in Kalutara, Kegalle, Ratnapura, Galle and Matara, districts; up to 45 mm in Colombo, Gampaha, Kandy, Hambantota, Badulla, Nuwara Eliya, and Monaragala districts; up to 35 mm in Matale, Kurunegala, Puttalam, Trincomalee and Anuradhapura districts; and up to 25 mm in Mannar, Batticaloa, Mullaitivu, Polonnaruwa, Ampara and Vavuniya districts.

NOAA Model Forecast:

From 27th July – 1st August: Total rainfall up to 150 mm in Gampaha, Colombo, Kalutara, Galle, Matara, Ratnapura and Kegalle districts; up to 100 mm in Puttalam, Kurunegala, Kandy and Nuwara Eliya; up to 75 mm in Hambantota and up to 50 mm in Anuradhapura, Polonnaruwa, Matale, Badulla, Monaragala, Ampara, Batticaloa, Trincomalee, Vavuniya, Mullaitivu, Kilinochchi and Jaffna districts.

MJO based OLR predictions

For the next 15 days:

MJO shall enhance rainfall during 29 July - 2 August and shall remain neutral during 3 – 12 August.

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

- 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

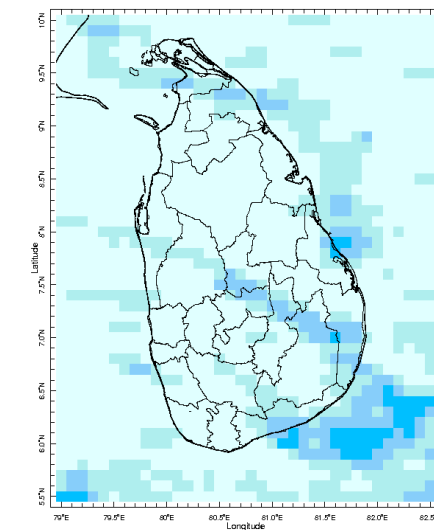
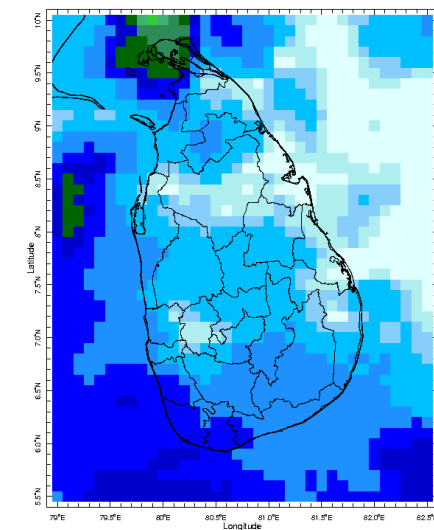
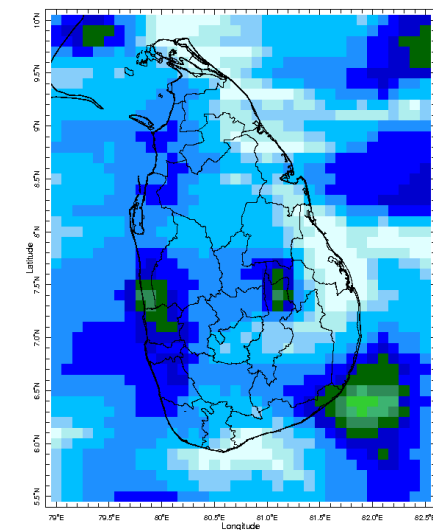
- NCEP GFS Ensemble 1-14 day Rainfall Predictions
- GFS (T574) Model Rainfall Forecast from RMSC New Delhi
- WRF Model Rainfall Forecast from IMD Chennai
- MJO Related OLR Forecast
- Weekly Precipitation Forecast from IRI
- Weekly Temperature Forecast
- Weekly Wind Forecast
- Seasonal Predictions from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

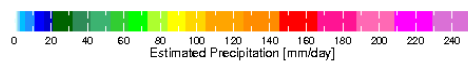
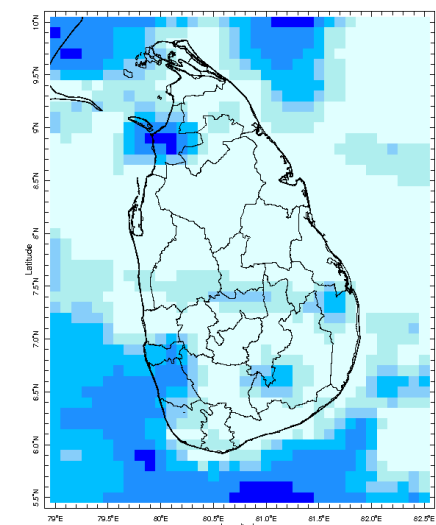
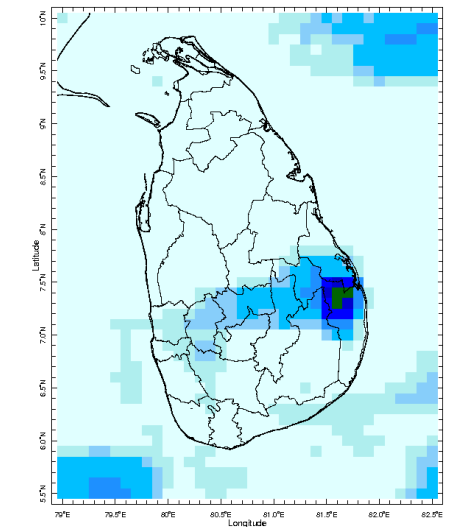
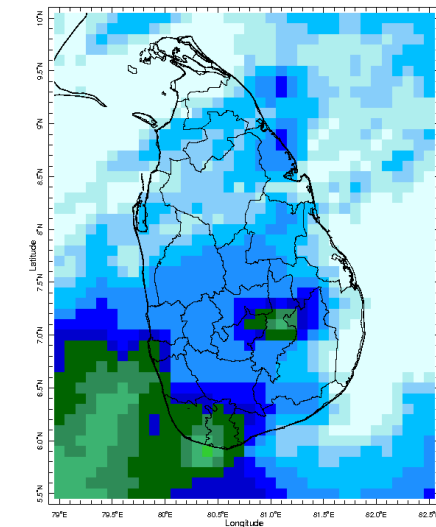
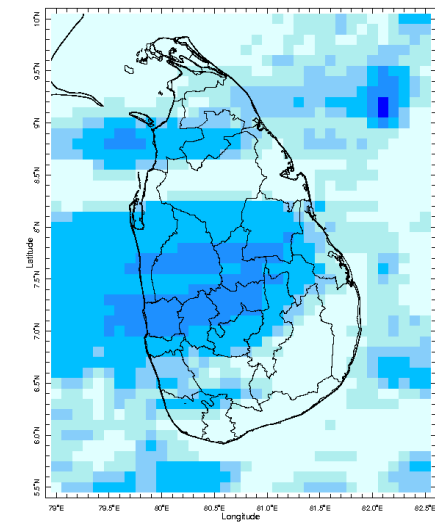


MONITORING

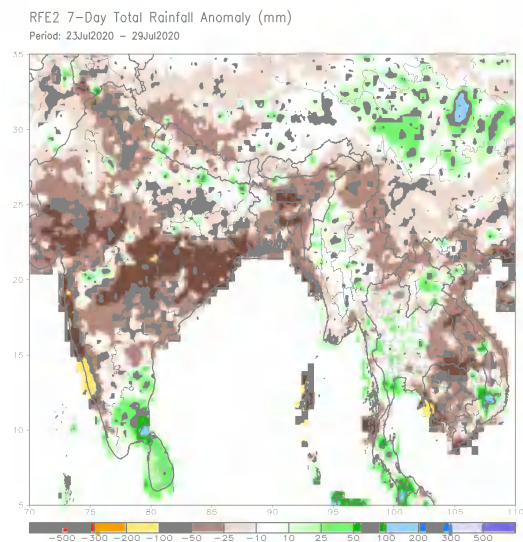
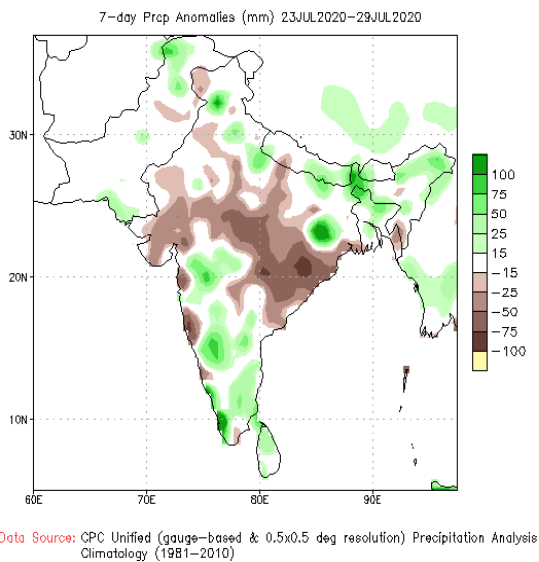
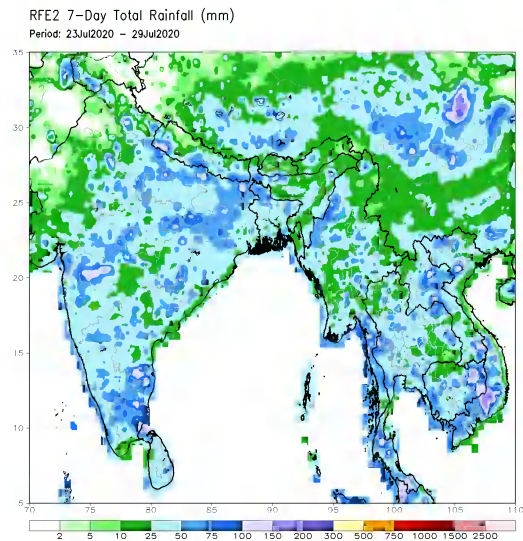
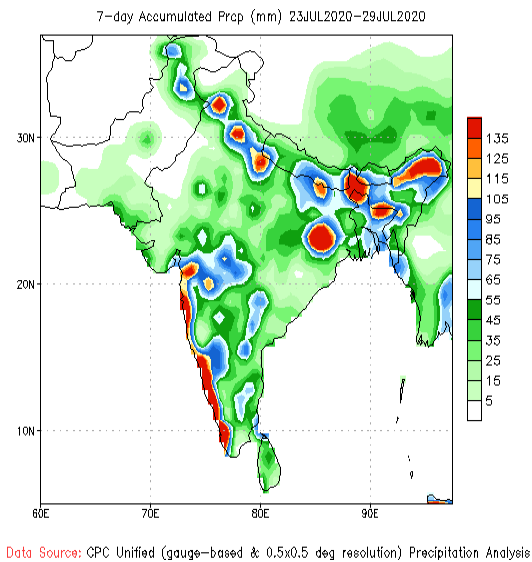
Daily Rainfall Monitoring

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



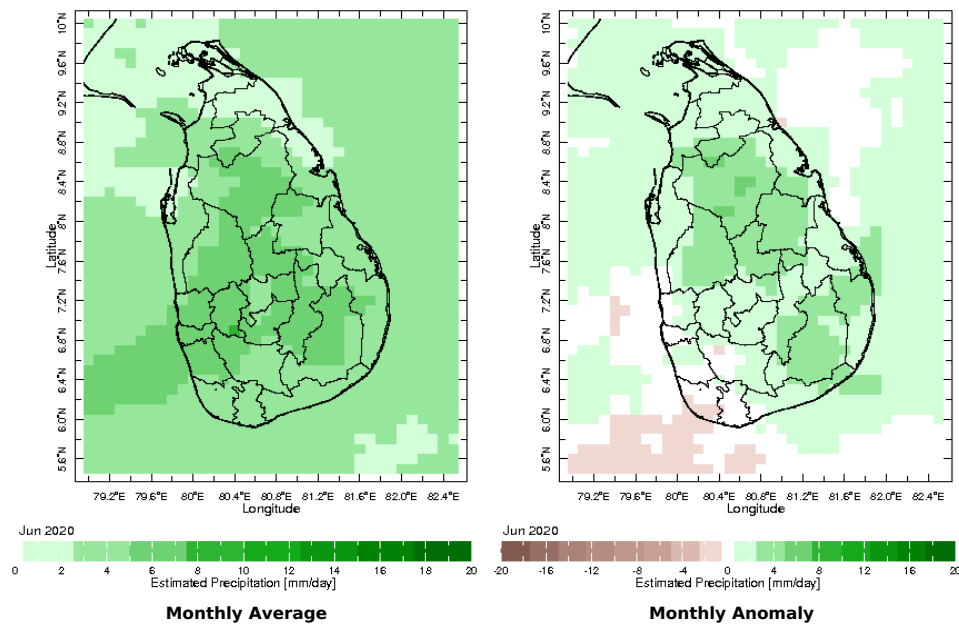


The following figures show the total satellite observed rainfall in the last week in Sri Lanka. The figure in the left is the total 7-day rainfall from NOAA Climate Prediction Center (CPC) Unified Precipitation Analysis and the figure in the right is the total 7-day rainfall from CPC RFE 2.0 Satellite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

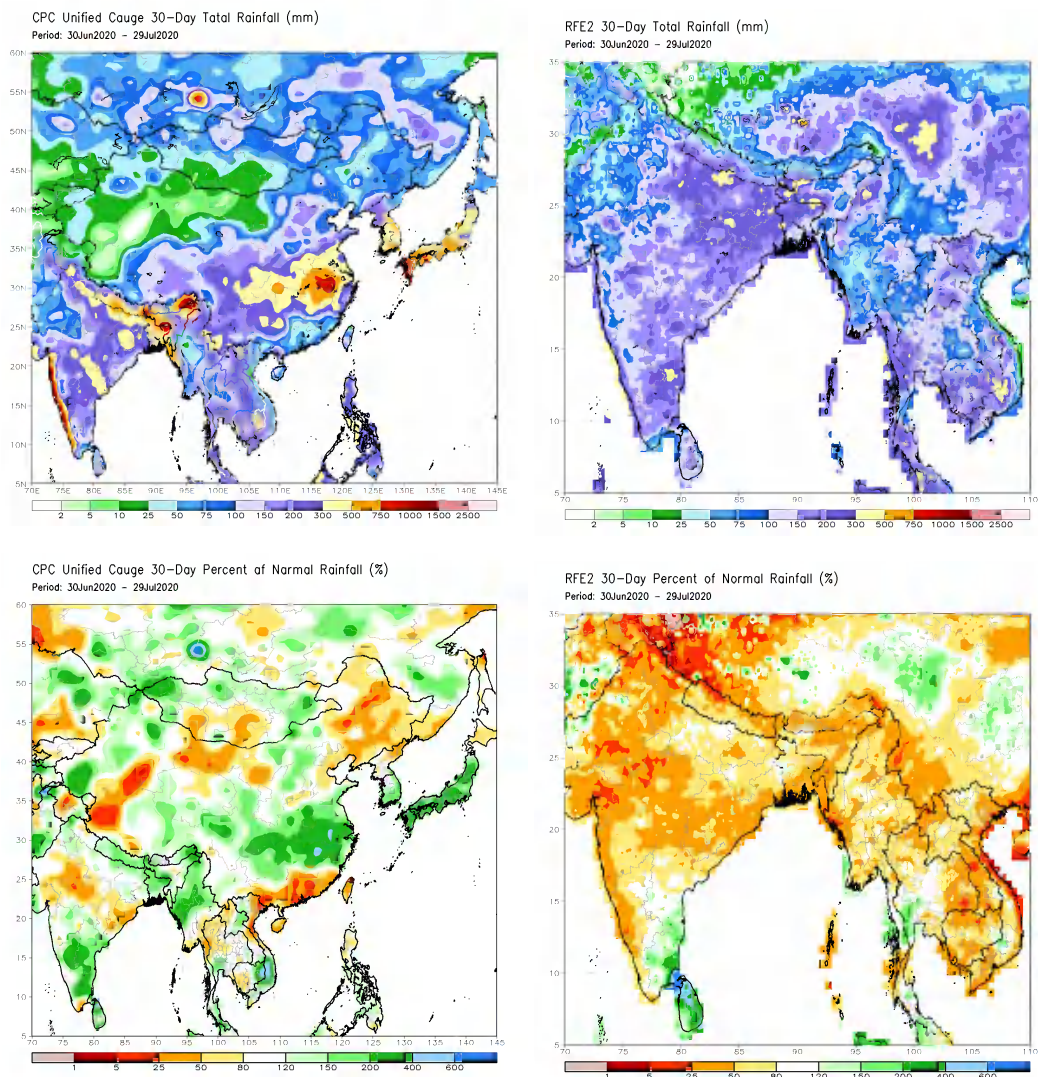


Monthly Rainfall Monitoring

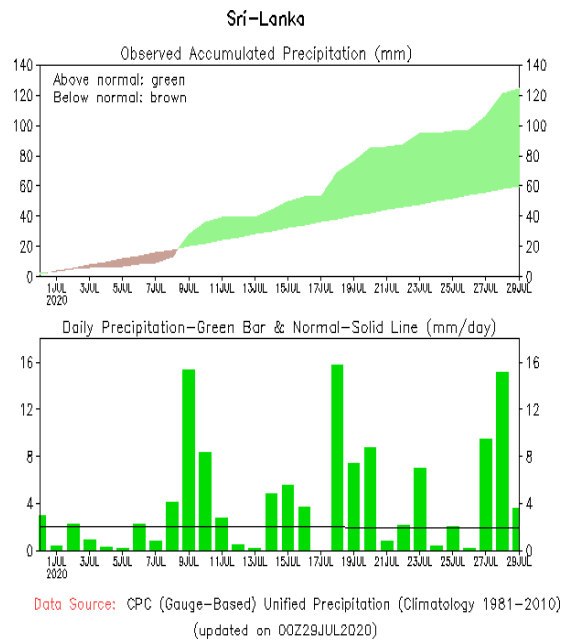
The figure in the left shows the average observed rainfall in the previous month. The rainfall anomaly in the previous month is shown in the figure to the right. The brown color in the anomaly figure shows places which received less rainfall than the historical average while the green color shows places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



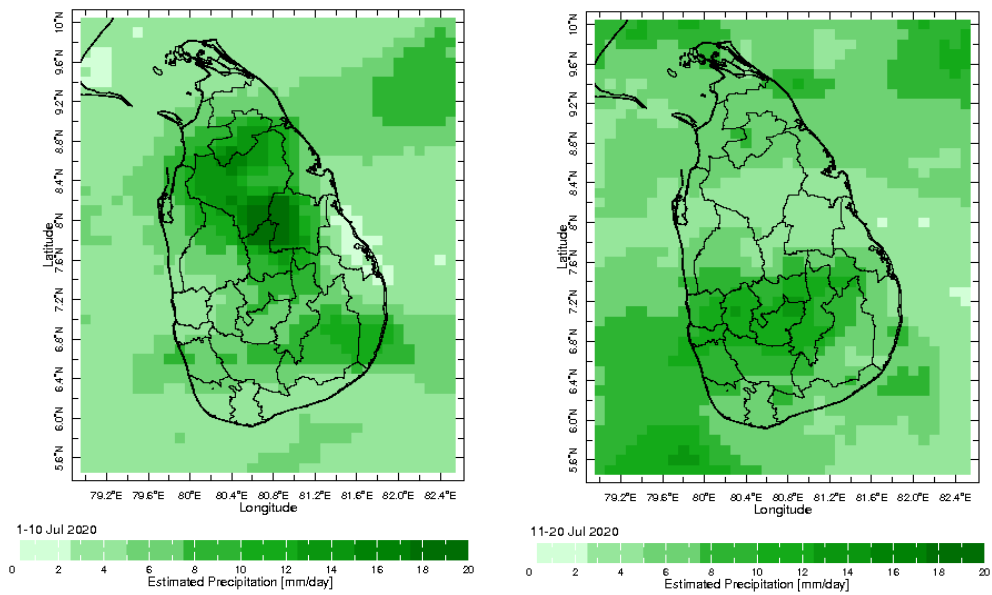
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



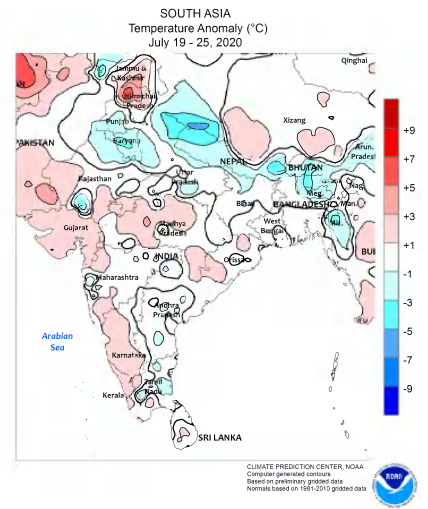
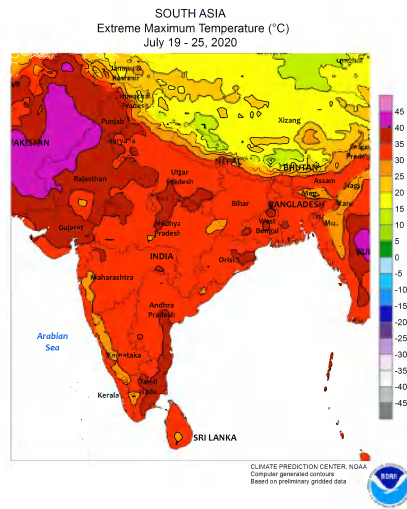
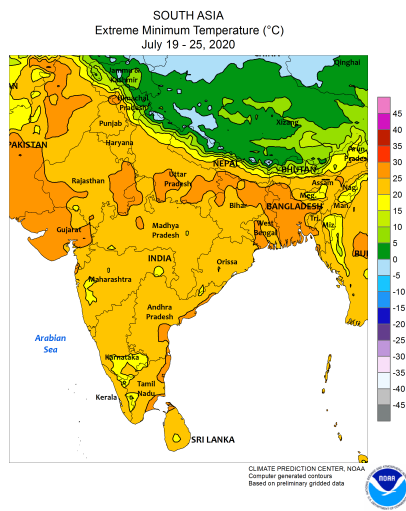
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

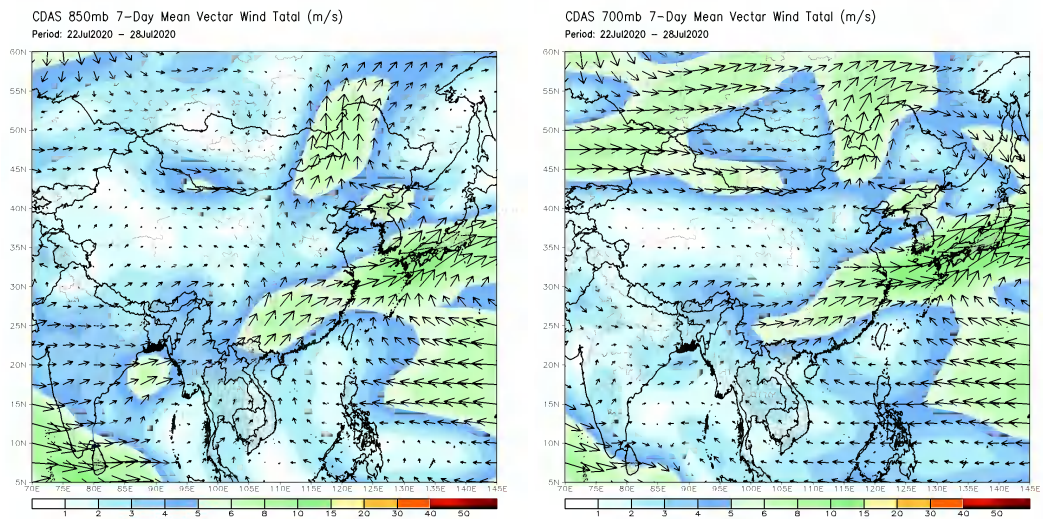


Weekly Temperature Monitoring



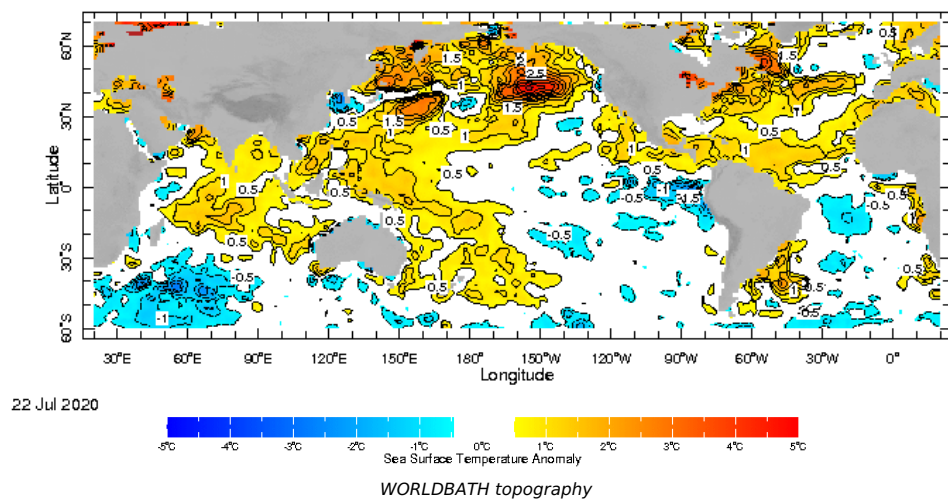
Weekly Wind Monitoring

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.



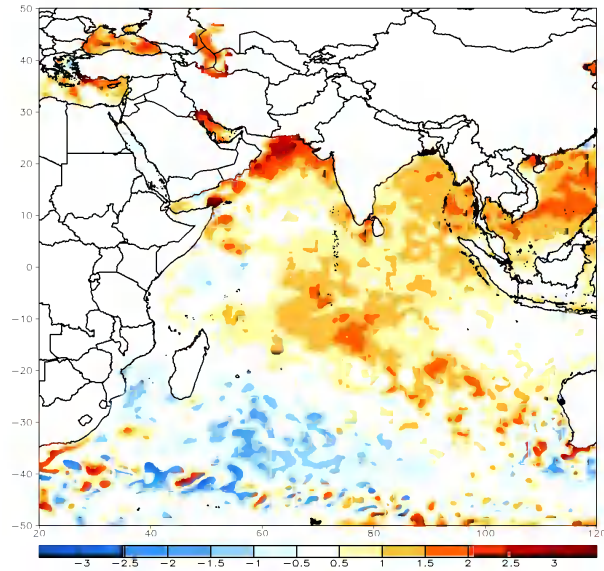
Weekly Average SST Anomalies

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

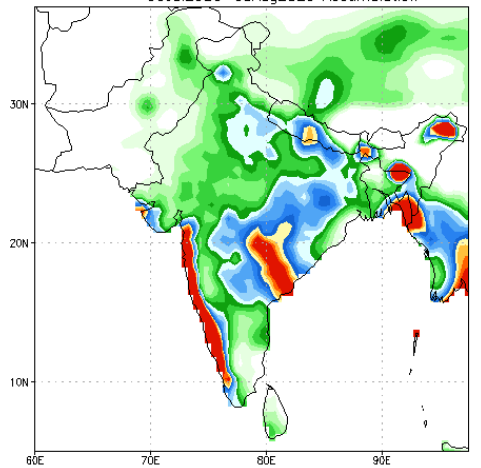
OI SST (v2) 7-Day Anomaly (C)
Period: 23Jul2020 - 29Jul2020



PREDICTIONS

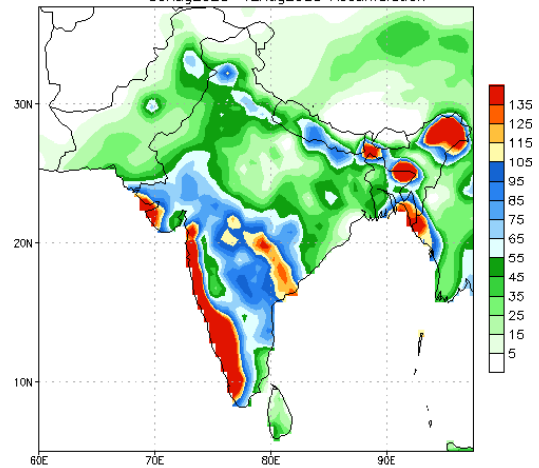
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 30Jul2020
30Jul2020-05Aug2020 Accumulation



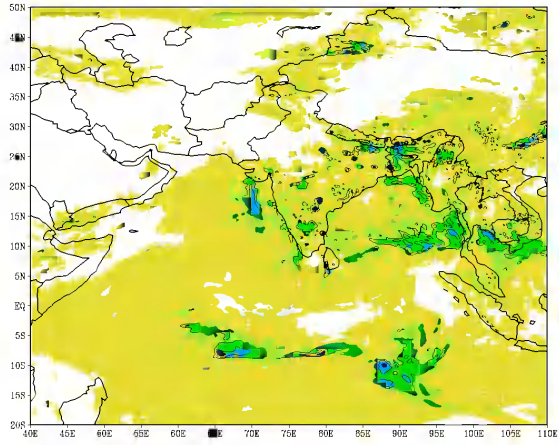
Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 30Jul2020
06Aug2020-12Aug2020 Accumulation



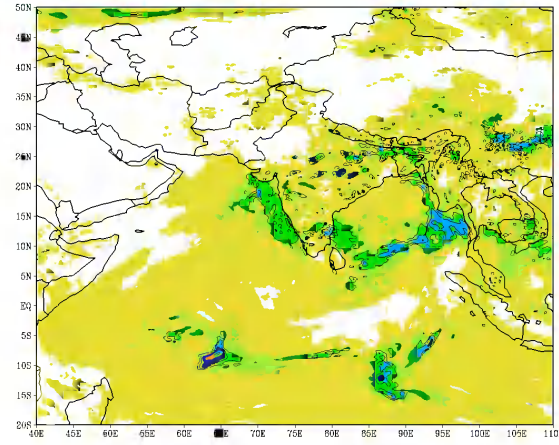
Bias correction based on last 30-day forecast error

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 29-06-2020



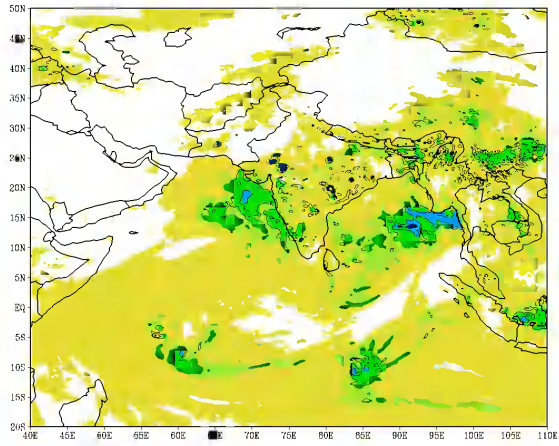
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 30-06-2020



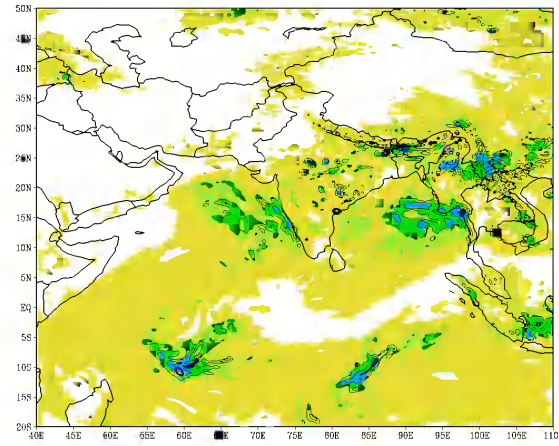
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (72 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 01-07-2020



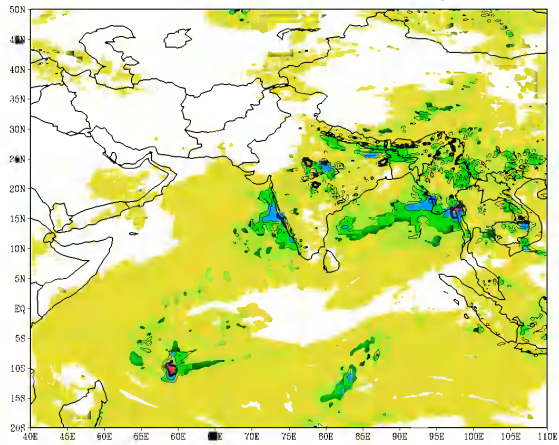
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 02-07-2020



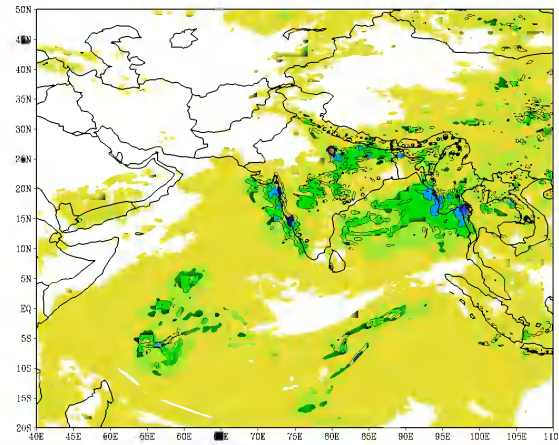
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 03-07-2020

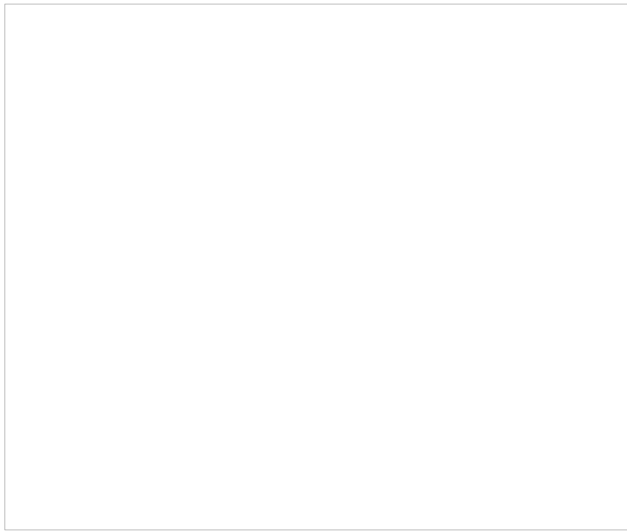


(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (144 HR)
based on 00 UTC of 28-06-2020 valid for 03 UTC of 04-07-2020



(Background does not depict political boundary)



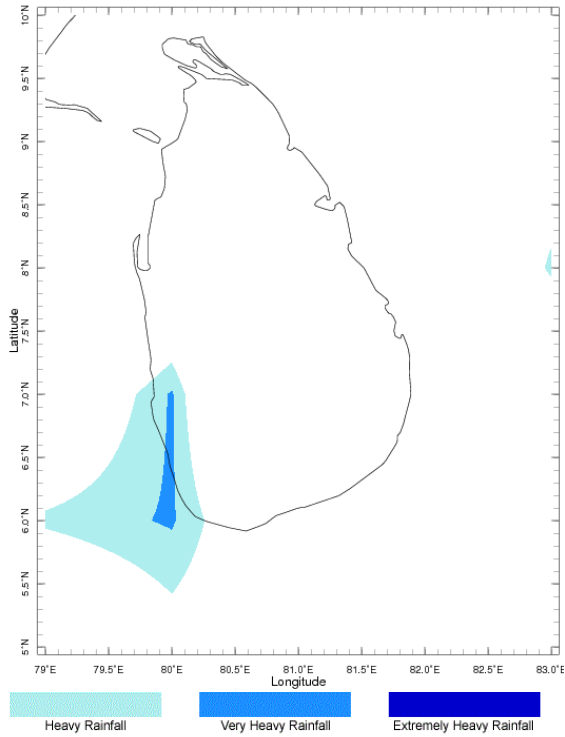
WRF Model Forecast (from IMD Chennai)



Weekly Rainfall Forecast from IRI

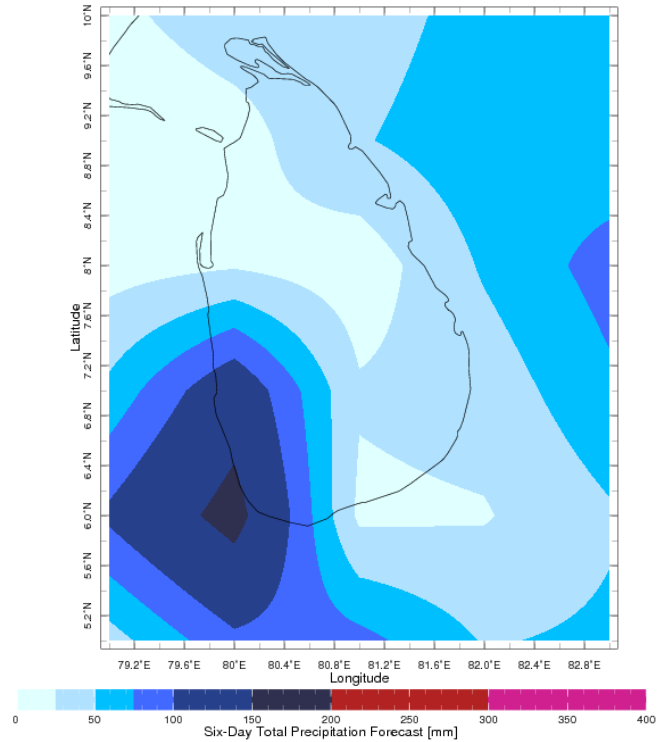
Total rainfall forecast from the IRI for next six days is provided in figures below. The figure to the left shows the expectancy of heavy rainfall events during these six days while the figure to the right is the prediction of total rainfall amount during this period.

Forecast for 27 Jul 2020 - 1 Aug 2020 Issued 0000 27 Jul 2020



Extreme Rainfall Forecast

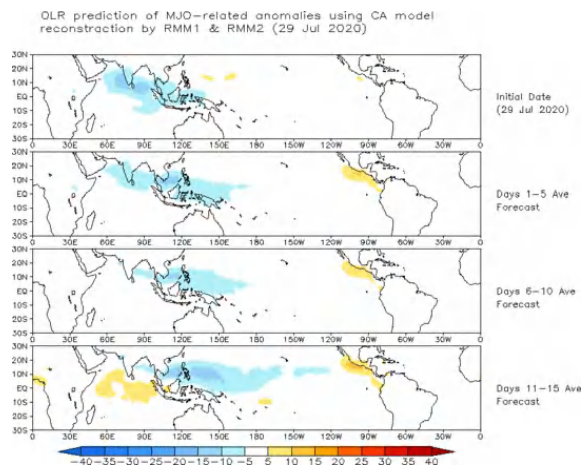
Forecast for 27 Jul 2020 - 1 Aug 2020 Issued 0000 27 Jul 2020



Total Six Day Precipitation Forecast

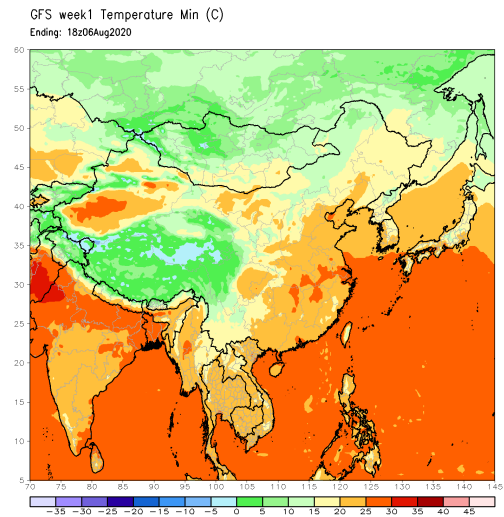
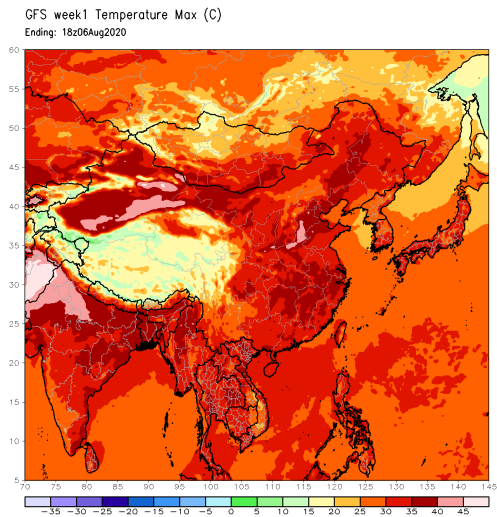
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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 anomalous OLR for the next 15 days from the Constructed Analogue (CA) model forecasts.



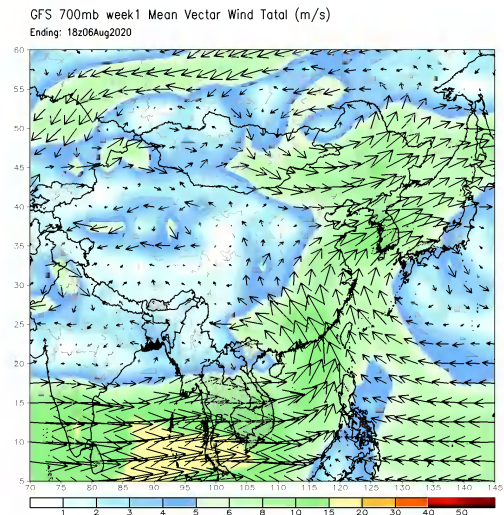
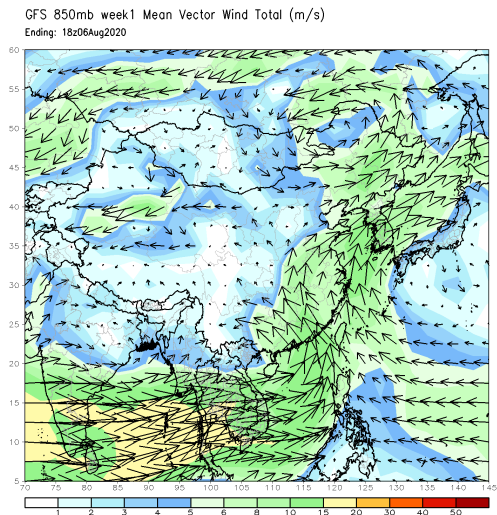
Weekly Temperature Forecast

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



Weekly Wind Forecast

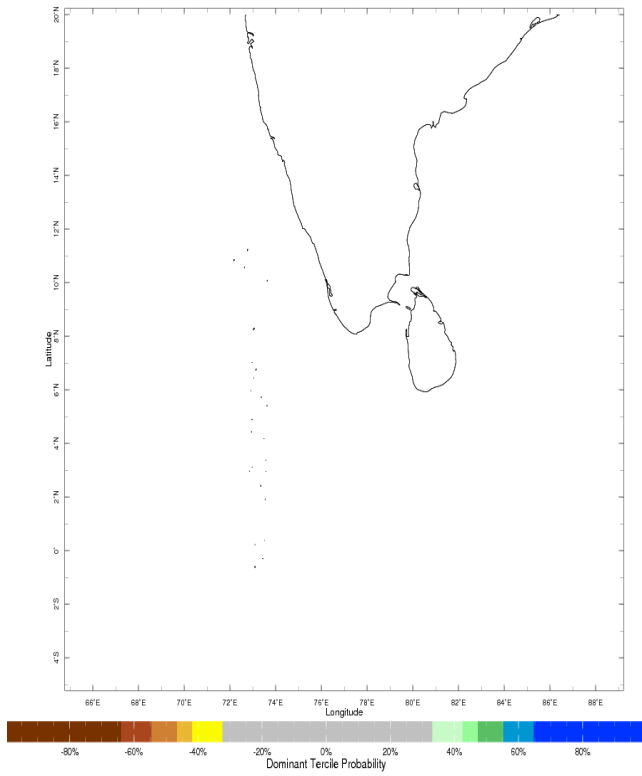
Weekly mean vector wind total prediction from the GFS model at 850 mb (left) and 700 mb (right) levels. (from NOAA CPC)



Seasonal Rainfall and Temperature Forecast

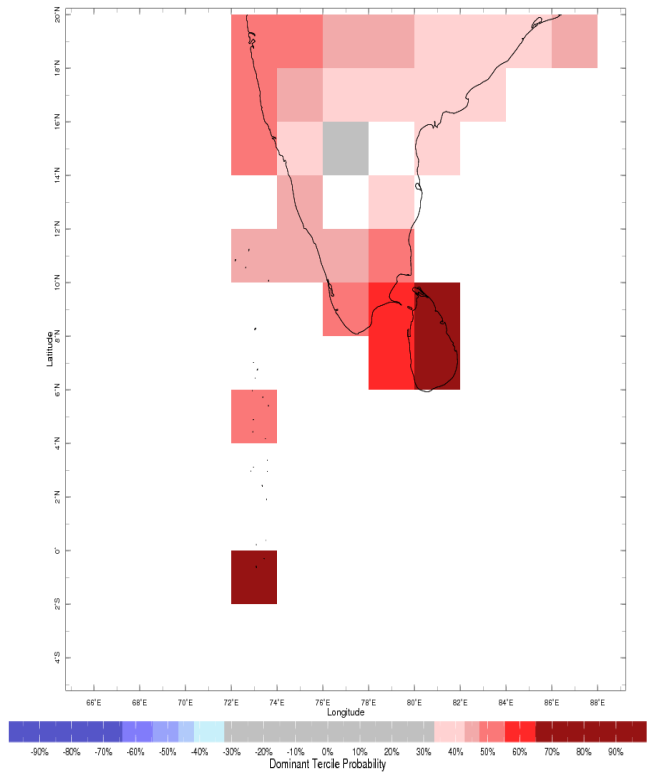
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant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

Apr-Jun 2017 IRI Seasonal Precipitation Forecast issued Mar 2017



Precipitation Forecast

Apr-Jun 2017 IRI Seasonal Temperature Forecast issued Mar 2017



Temperature Forecast

Subscribe to our Monthly Maldives Newsletter

email address

Subscribe

[Follow @climatelk](#)

Contact Us

email: fectsl@gmail.com

phone: (+94) 81 2376746

blog: www.fectsl.blogspot.com

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