CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction

- *Heavy rainfall (≥135mm) is predicted for the Sabaragamuwa, Western, Northern, Southern and Central provinces during 2nd - 8th Nov. During 9th - 15th Nov heavy rainfall (≥ 115mm) is predicted for Eastern, North Central, North Western and Uva provinces.*

Monitored Rainfalls

- *During the last week, the average daily rainfall over Sri Lanka was 10.8 mm & hydro catchment areas received 11.37 mm on average.*

Monitored Wind

- *From 24th -30th Oct, up to 4m/s of north-westerly winds were experienced at 850 mb level over the island. During 3rd - 9th Nov, north easterly winds are expected to the north and northerly winds are expected to south of the country .*
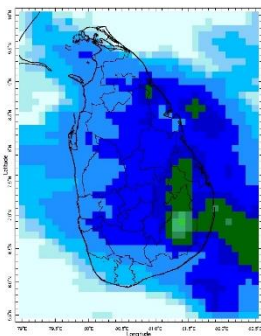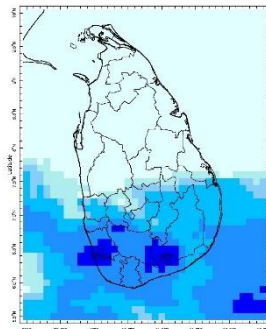
Monitored Sea & Land Temp

- *Sea surface temperature around Sri Lanka was above normal to the whole country. Land surface temperature remained near normal.*
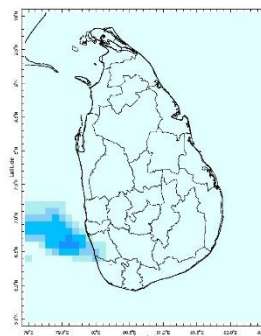
Monitoring
Rainfall

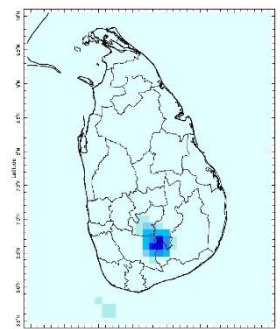*Daily Estimates for Rainfall from 25th October –1st November 2022*
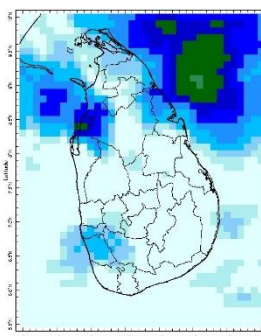

25 October

26 October

27 October

28 October

29 October
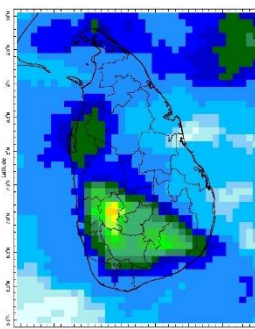
30 October
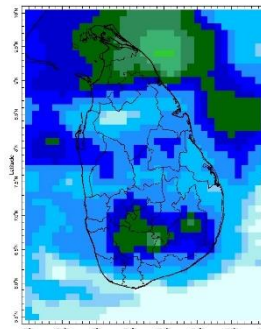
31 October

1 November

Estimated Precipitation [mm/day]
0   20   40   60   80   100   120   140   160   180   200   220   240

Federation for Environment, Climate and Technology

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

Phone (+94) 81-2376746, (+94) 81-2300415

Web Site: www.fect.lk   E mail: info@fect.lk   LI: www.linkedin.com/in/fectlk

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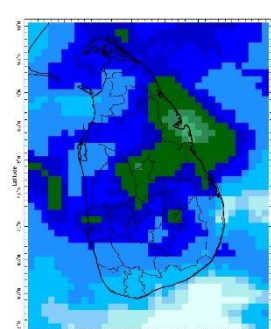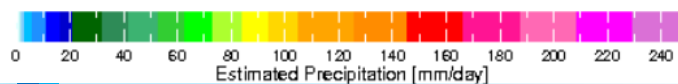
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Ocean State *(Text Courtesy IRI)*

Pacific sea state: October 31, 2022

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean late - October. The tropical Pacific atmosphere is consistent with La Niña. A large majority of the models indicate La Niña is favored to continue through during the Northern Hemisphere winter (December-February) 2022-23, with a 54% chance for ENSO-neutral in February-April 2023.

Indian Ocean State

Sea surface temperature around Sri Lanka was above $0.5^{\circ}C$ to the whole country. Across the Indian Ocean, a classical negative Indian Ocean Dipole prevails as is typical during a La Niña.

Predictions

Rainfall

14-day prediction: NOAA NCEP models

From 2nd November – 8th November:

Total rainfall by Provinces:

Rainfall	Provinces
> 135 mm	Western, Southern, Northern, Sabaragamuwa
135 mm	Central
125 mm	Eastern, North Central
115 mm	North Western, Uva

From 9th November – 15th November:

Total rainfall by Provinces:

Rainfall	Provinces
> 135 mm	Southern, Sabaragamuwa
135 mm	Western
125 mm	Central
115 mm	Northern
105 mm	Uva
95 mm	North Western
75 mm	Eastern, North Central

MJO based OLR predictions

For the next 15 days:

MJO shall slightly suppress the rainfall during 2nd– 6th November and slightly increase the rainfall during 7th – 16th November for Sri Lanka.

Interpretation

Monitoring

Rainfall: During the last two weeks, there had been very heavy rainfall over the following area: Kegalle

Daily Average Rainfall in the Met stations for previous week of (25th October – 1st November) = 10.8 mm
Rmax: 117.6 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	11.2 mm
Eastern	12.9 mm
Western	10.2 mm
Southern Plains	5.6 mm

The Hydro Catchment Areas recorded 11.37 mm of average rainfall for the last week
Rmax: 74.7 mm & Rmin: 0.0 mm.

Wind: North-westerly winds prevailed in the sea area and around the island last week.

Temperatures: The temperature anomalies were below normal for the North Central province and some parts of the North western and Eastern provinces, driven by the warm SST's.

Predictions

Rainfall: During the next week (2nd – 8th November), above 135 mm rainfall is predicted for the Western, Sabaragamuwa, Northern, Southern and Central provinces; and heavy (≥ 115mm) rainfall is expected for the rest of the country.

Temperatures: The temperature will remain above normal to the whole country during 3rd– 9th November.

Teleconnections: La Niña is favored to continue through during the Northern Hemisphere winter (December-February) 2022-23, with a 54% chance for ENSO-neutral in February-April 2023.

MJO shall slightly suppress the rainfall during 2nd– 6th November and slightly increase the rainfall during 7th – 16th November for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the November-December-January 2023 season shows a higher tendency for above-normal precipitation in the north half of the country.

Terminology for Rainfall Ranges

	Rainfall (During 24 hours of period)
Light Showers	Less than 12.5 mm
Light to Moderate	Between 12.5 mm and 25 mm
Moderate	Between 25 mm and 50 mm
Fairly Heavy	Between 50 mm and 100 mm
Heavy	Between 100 mm and 150 mm
Very Heavy	More than 150 mm

FECT Web	FECT Blog	Facebook	Twitter
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Weekly Climate Bulletin for Sri Lanka

Inside This Issue

1. **Monitoring**
   a. Daily Rainfall Monitoring
   b. Weekly Rainfall Monitoring
   c. Monthly Rainfall Monitoring
   d. Dekadal (10 Day) Satellite Derived Rainfall Estimates
   e. Weekly Temperature Monitoring
   f. Weekly Wind Monitoring
   g. Weekly Average SST Anomalies
2. **Predictions**
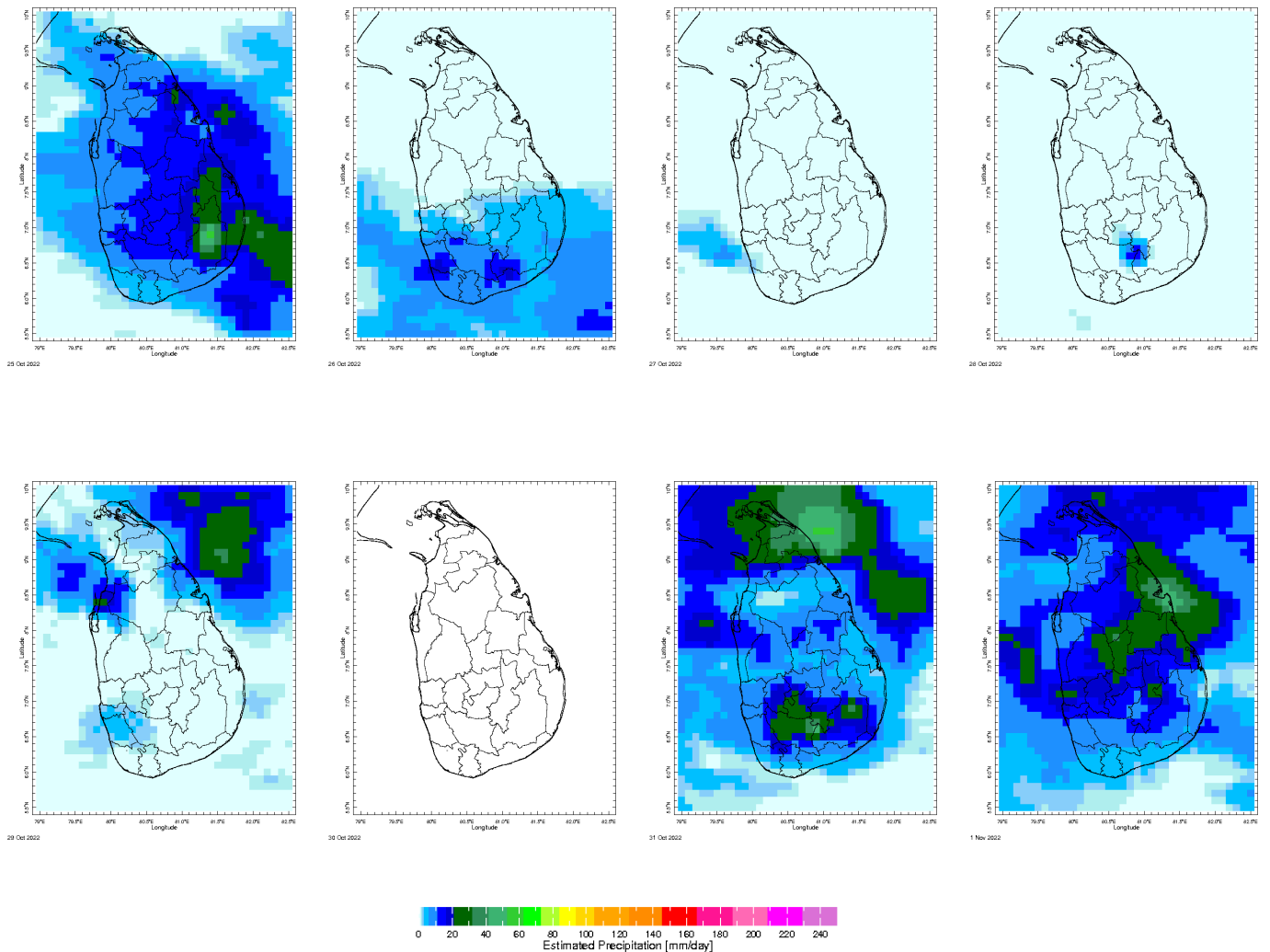   a. NCEP GFS Ensemble 1-14 day Rainfall Predictions
   b. GFS (T574) Model Rainfall Forecast from RMSC New Delhi
   c. MJO Related OLR Forecast
   d. Weekly Temperature Forecast
   e. Weekly Wind Forecast
   f. Seasonal Predictions from IRI

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MONITORING

Daily Rainfall Monitoring

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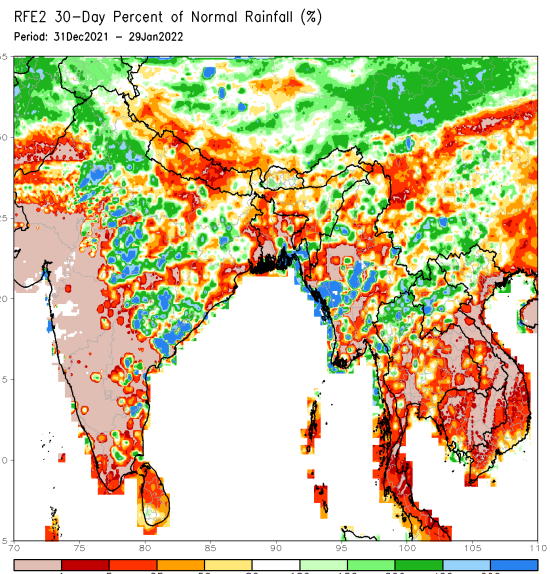
Weekly Rainfall Monitoring

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.


7-day Accumulated Prep (mm) 26OCT2022-01NOV2022

Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis

RFE2 7-Day Total Rainfall (mm)
Period: 23Jan2022 - 29Jan2022

7-day Prep Anomalies (mm) 26OCT2022-01NOV2022

Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1991-2020)

RFE2 7-Day Total Rainfall Anomaly (mm)
Period: 23Jan2022 - 29Jan2022
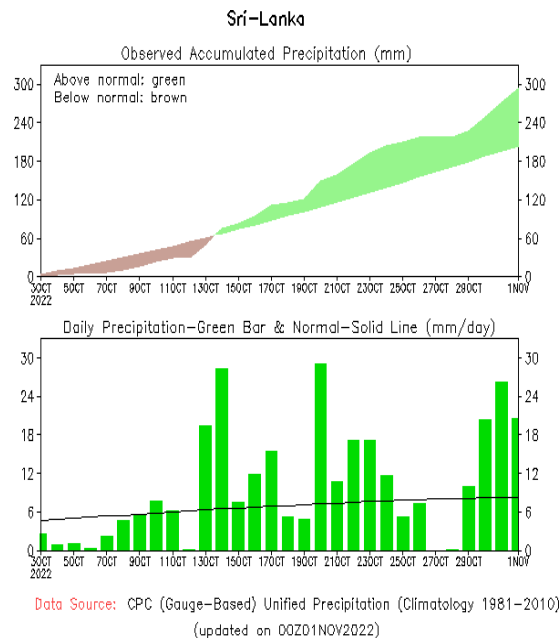
Monthly Rainfall Monitoring

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

Oct 2022

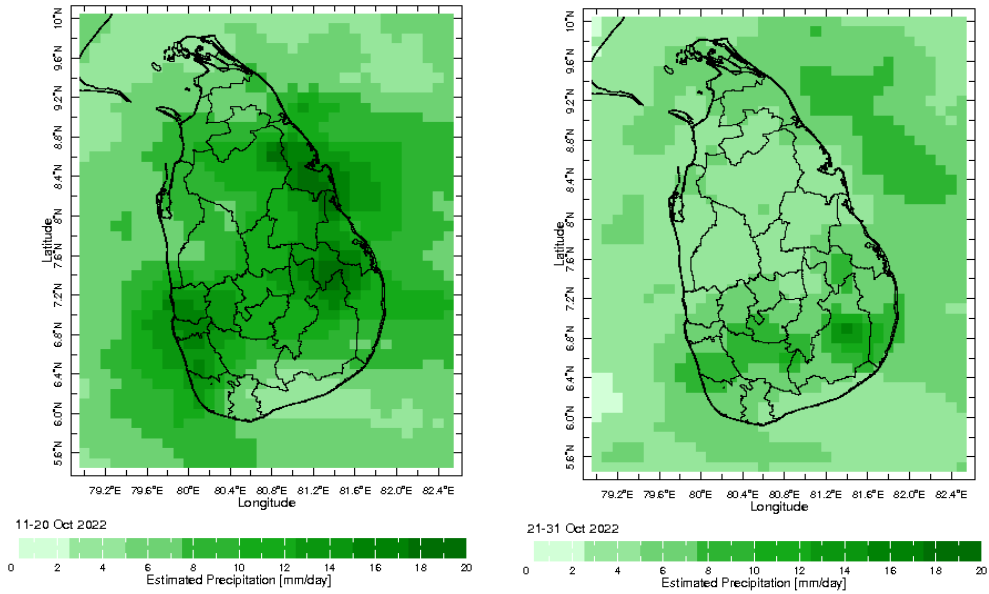**Monthly Average**

Oct 2022

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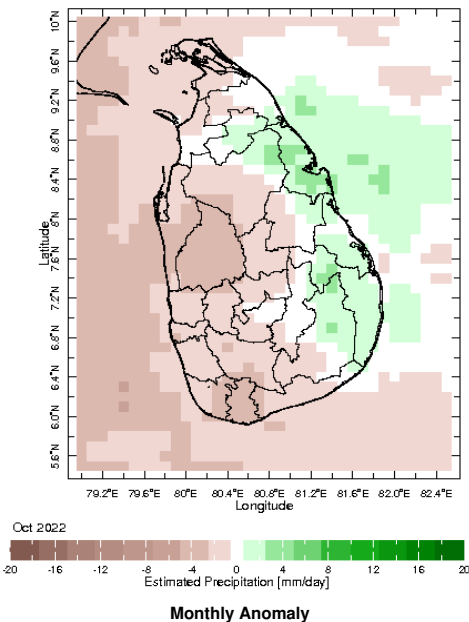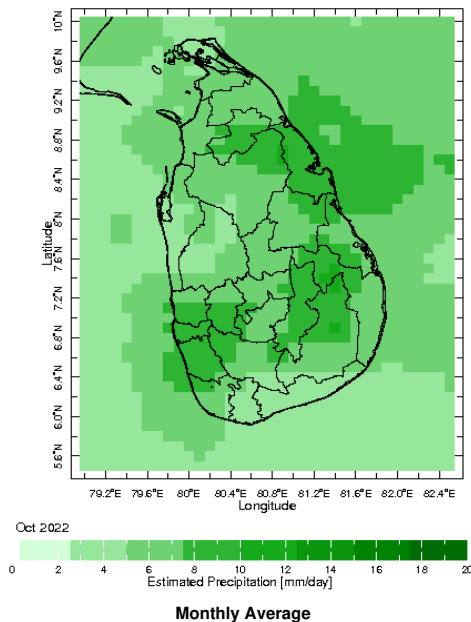
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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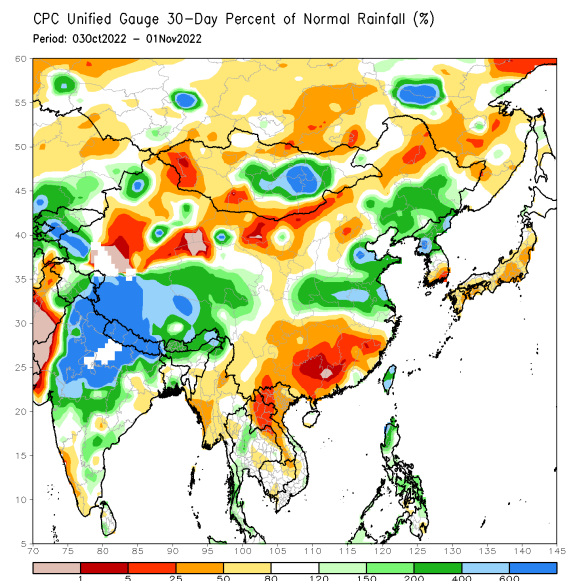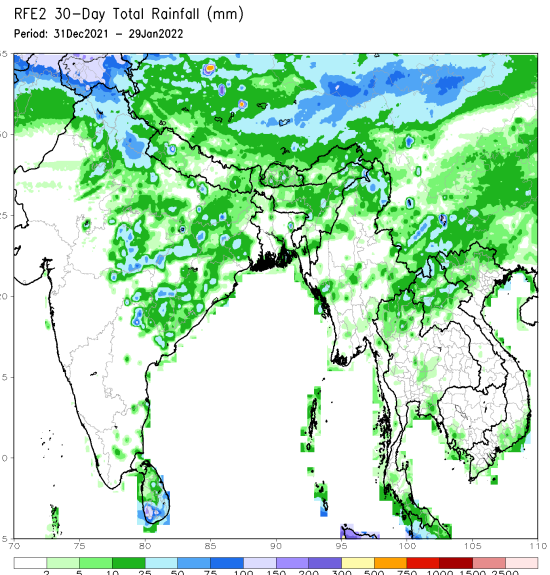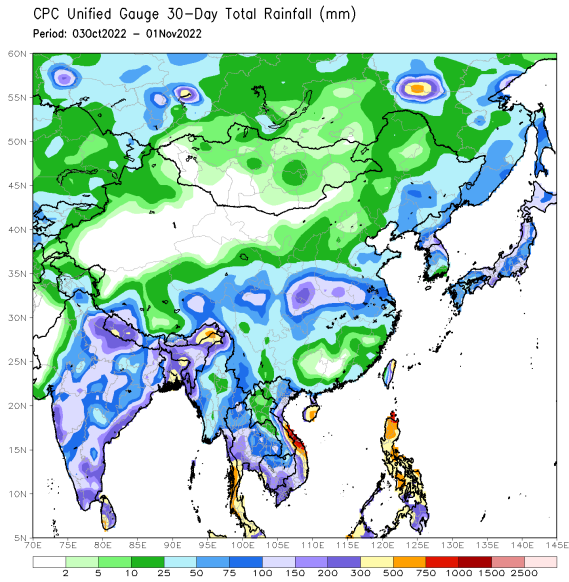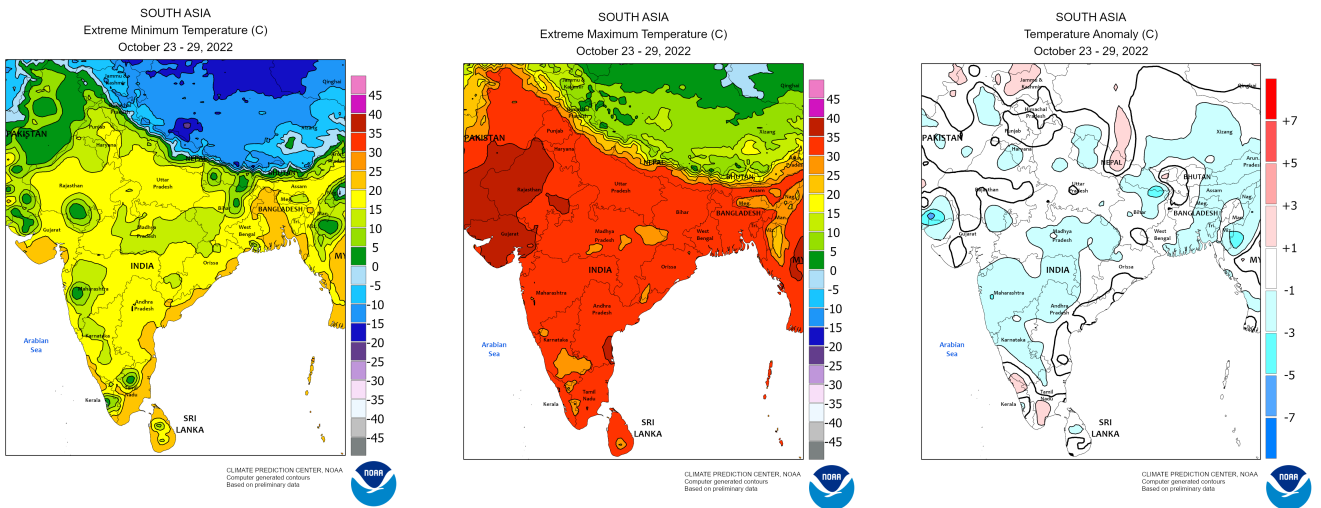

The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.

Dekadal (10 Day) Satellite Derived Rainfall Estimates

11-20 Oct 2022

Estimated Precipitation [mm/day]

21-31 Oct 2022

Estimated Precipitation [mm/day]

Weekly Temperature Monitoring

SOUTH ASIA
Extreme Minimum Temperature (C)
October 23 - 29, 2022

CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

SOUTH ASIA
Extreme Maximum Temperature (C)
October 23 - 29, 2022

CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

SOUTH ASIA
Temperature Anomaly (C)
October 23 - 29, 2022

CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data

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.

CDAS 850mb 7-Day Mean Vector Wind Total (m/s)
Period: 24Oct2022 - 30Oct2022

CDAS 700mb 7-Day Mean Vector Wind Total (m/s)
Period: 24Oct2022 - 30Oct2022
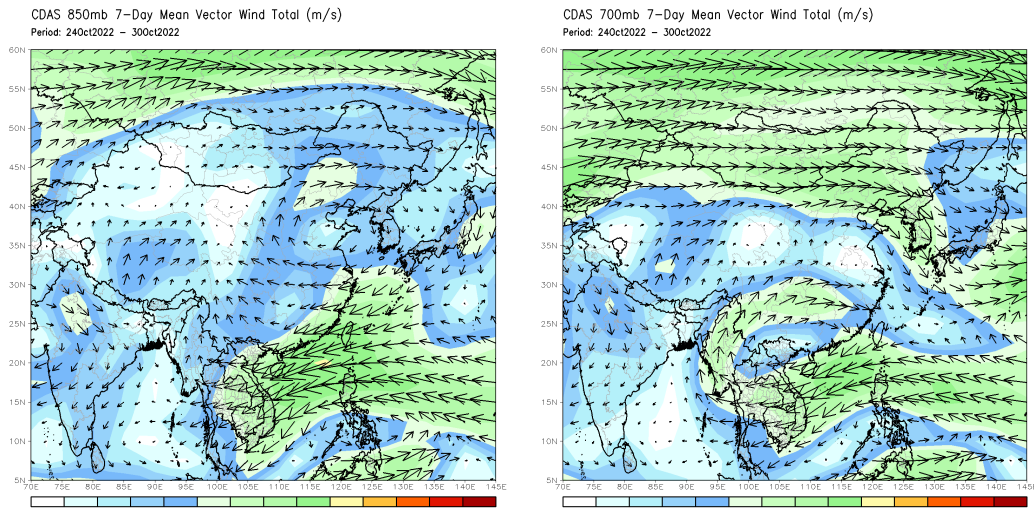
Weekly Average SST Anomalies

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

26 Oct 2022

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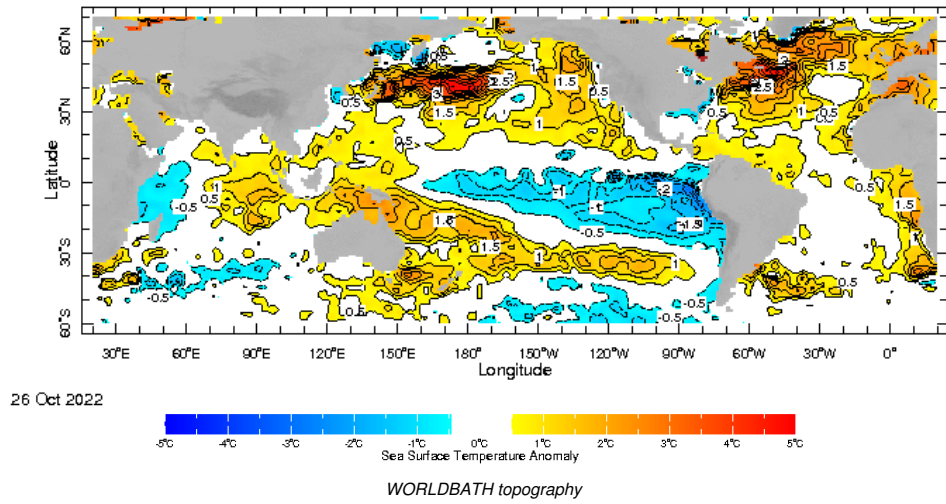
Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

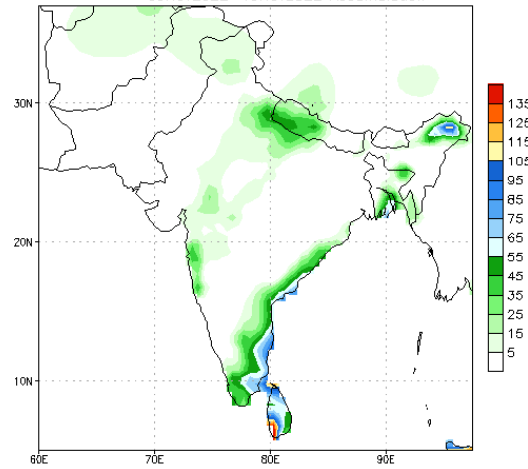OI SST (v2) 7-Day Anomaly (C)
Period: 26Oct2022 - 01Nov2022
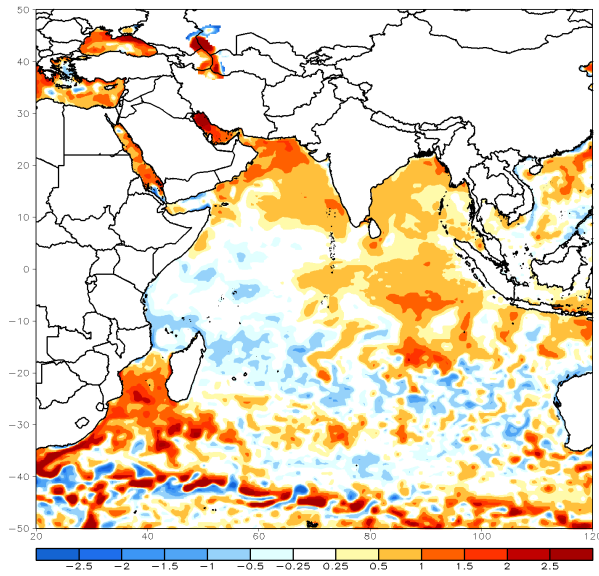
NCEP GFS 1- 14 Day prediction
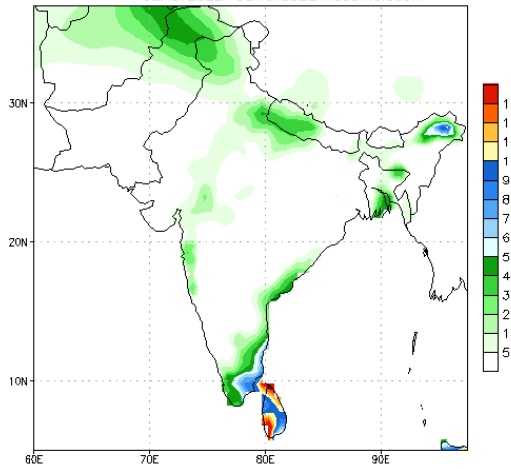
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India
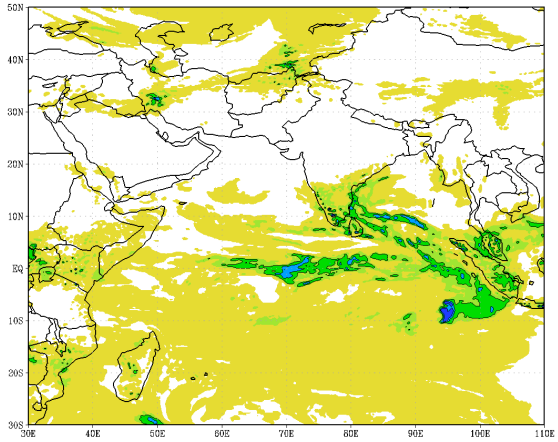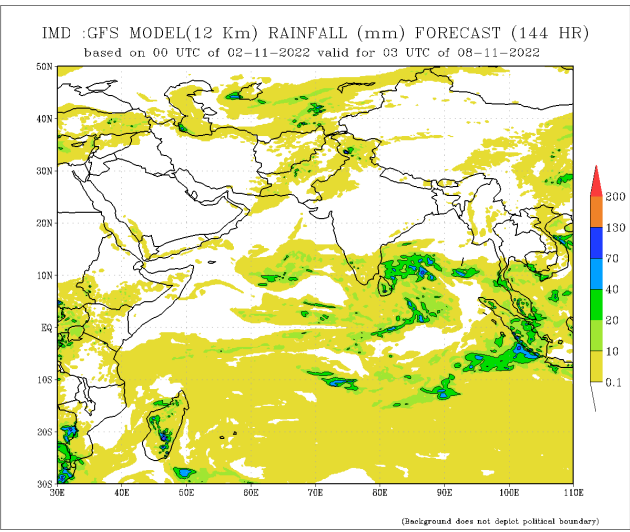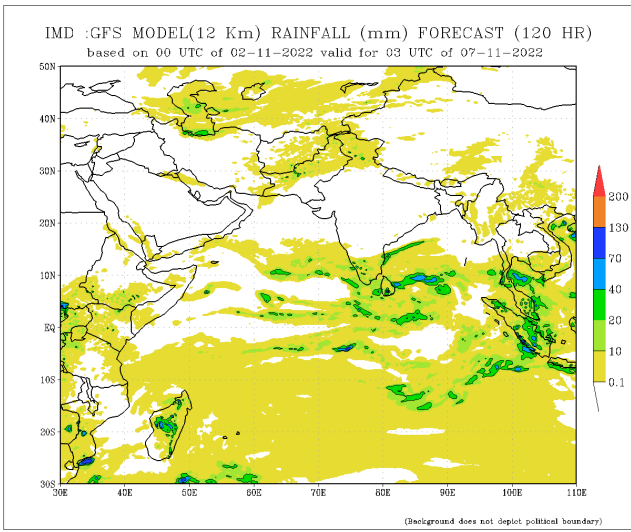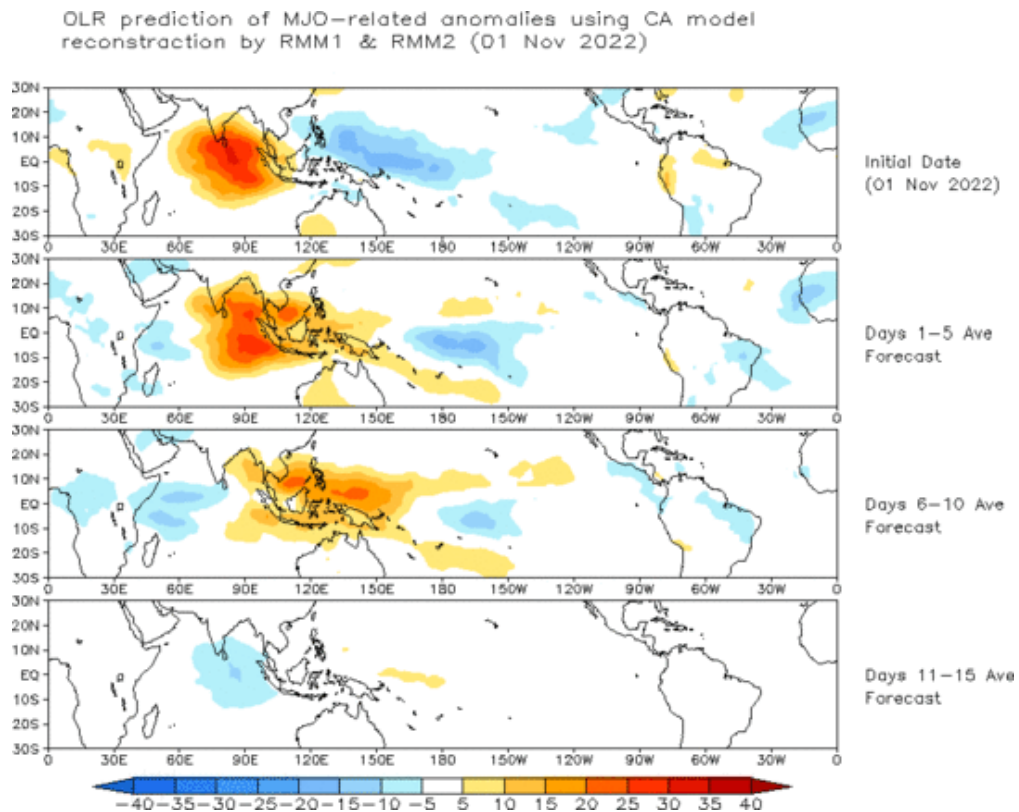
IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)
based on 00 UTC of 02-11-2022 valid for 03 UTC of 07-11-2022

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (144 HR)
based on 00 UTC of 02-11-2022 valid for 03 UTC of 08-11-2022

(Background does not depict political boundary)
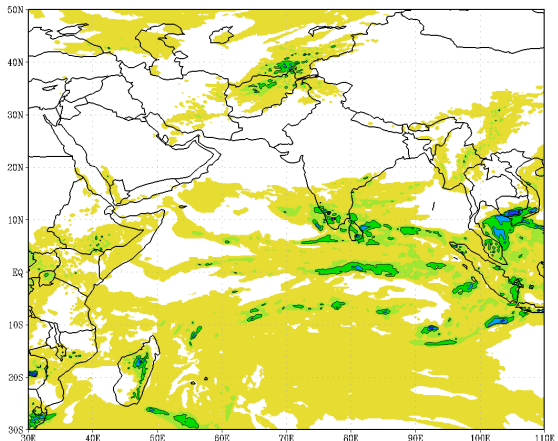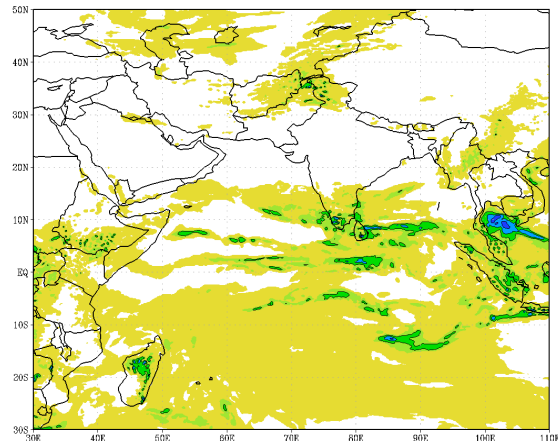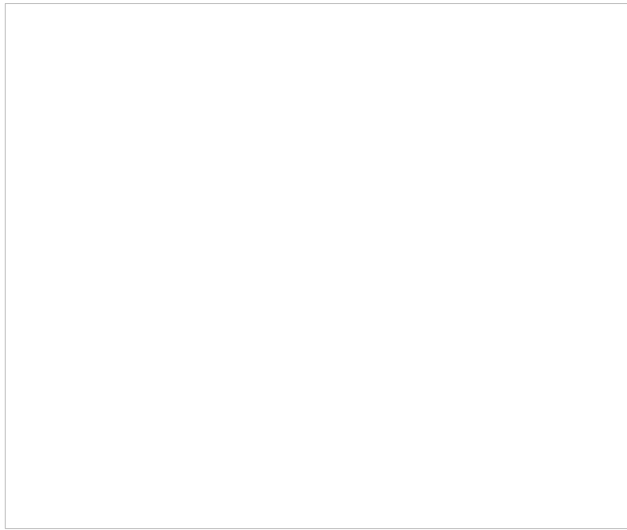
Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.
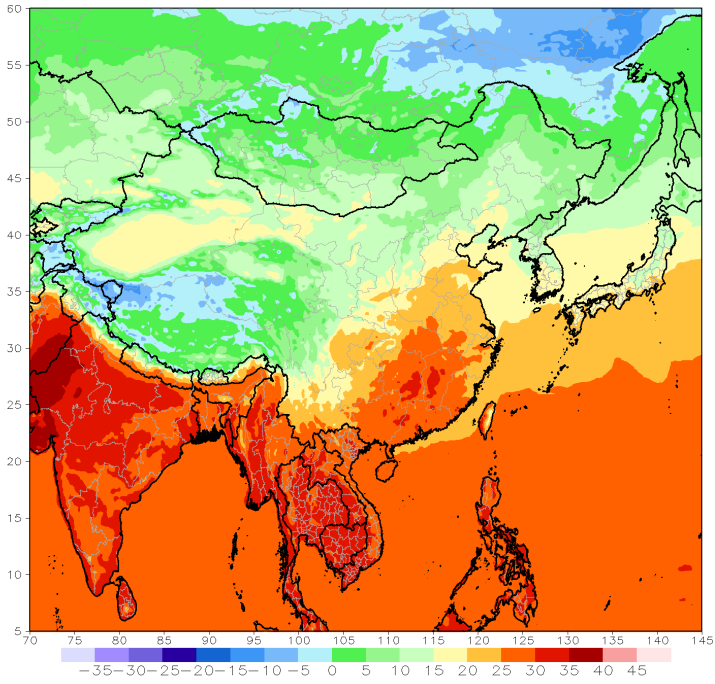

OLR prediction of MJO-related anomalies using CA model reconstraction by RMM1 & RMM2 (01 Nov 2022)

Weekly Temperature Forecast

Weekly Minimum and Maximum Temperature prediction from the GFS model (from NOAA CPC)
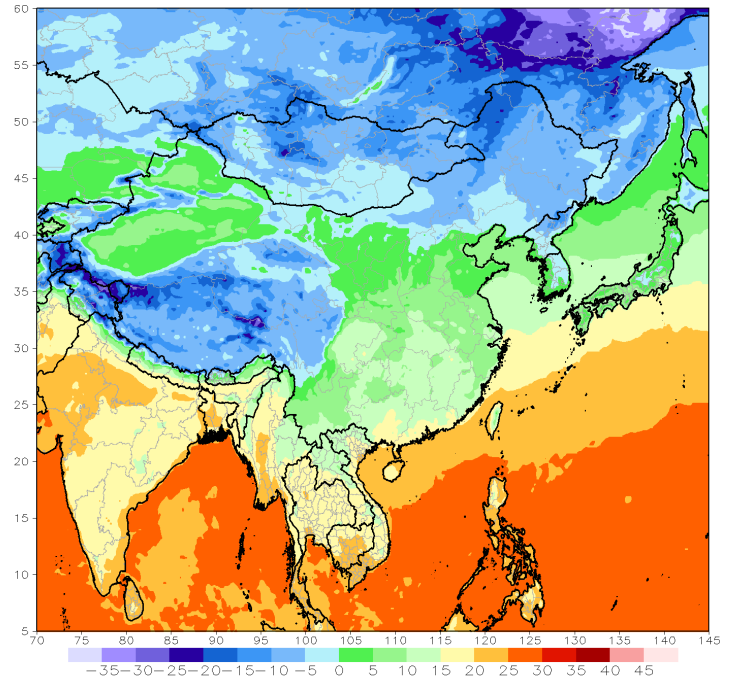
GFS week1 Temperature Max (C)
Period: 18z03Nov2022 – 18z09Nov2022

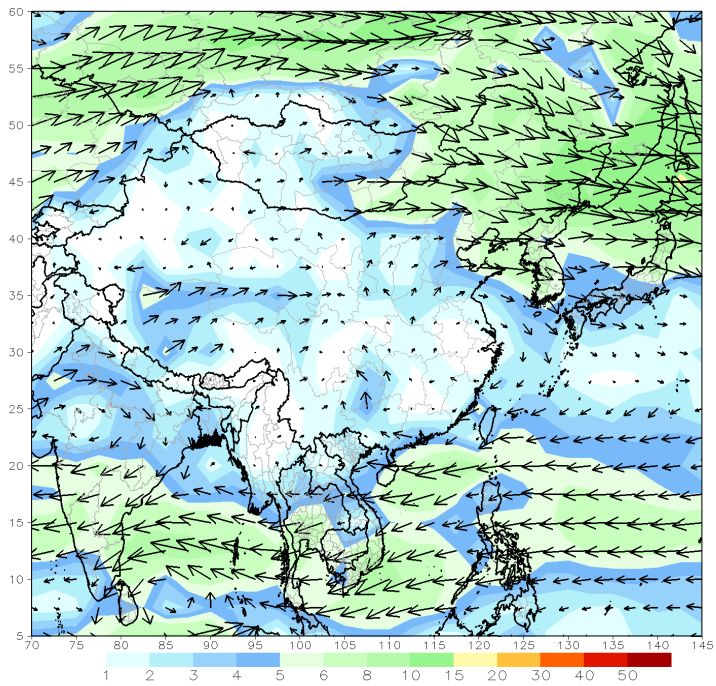GFS week1 Temperature Min (C)
Period: 18z03Nov2022 – 18z09Nov2022

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)
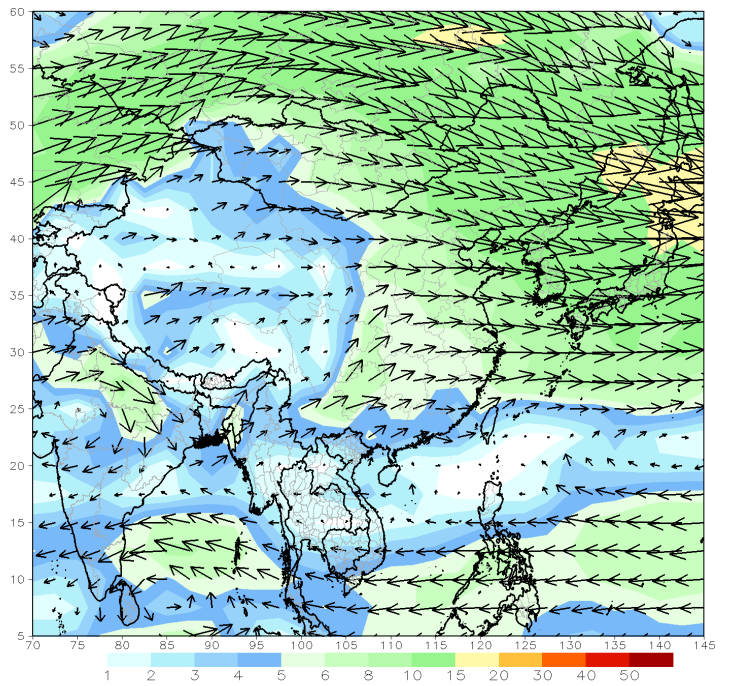
GFS 850mb week1 Mean Vector Wind Total (m/s)
Period: 18z03Nov2022 – 18z09Nov2022

GFS 700mb week1 Mean Vector Wind Total (m/s)
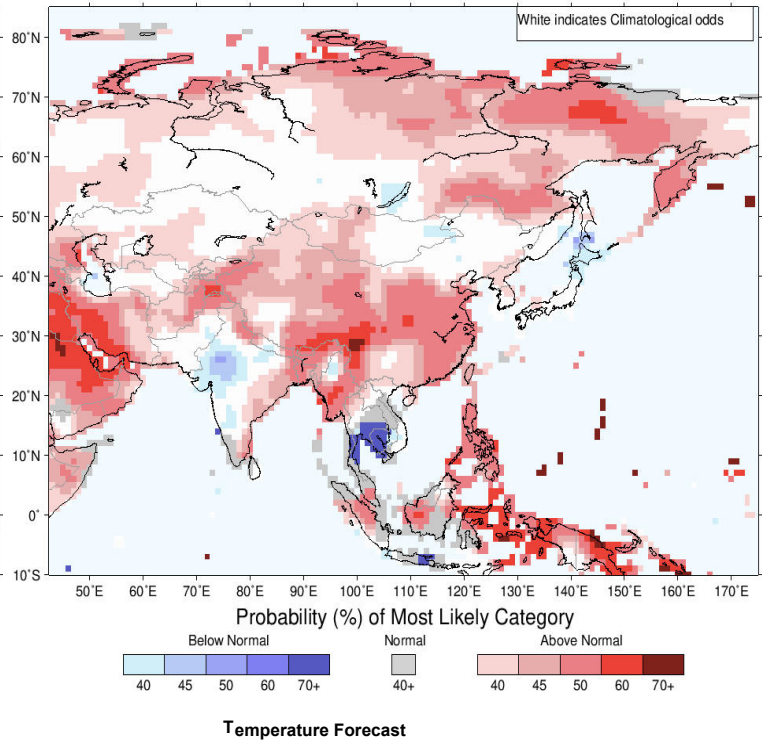Period: 18z03Nov2022 – 18z09Nov2022

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 November–December–January 2023, Issued October 2022

Precipitation Forecast
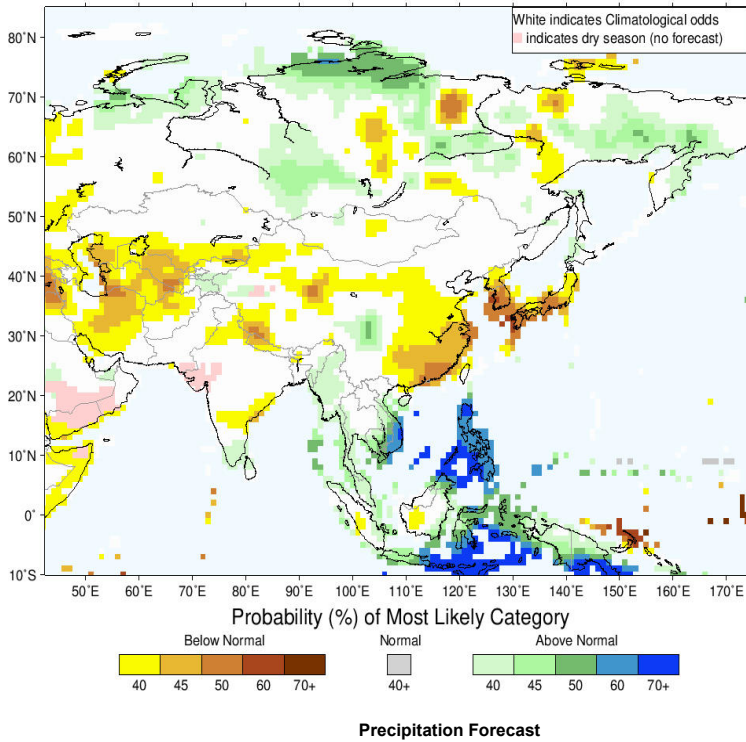
IRI Multi–Model Probability Forecast for Temperature for November–December–January 2023, Issued October 2022

Temperature Forecast