

## HIGHLIGHTS

**Rainfall Prediction**



- Fairly heavy rainfall is predicted for the Eastern province, and moderately heavy rainfall is expected for rest of the country during 3<sup>rd</sup> Feb - 9<sup>th</sup> Feb.

**Monitored Rainfalls**



- During the last week, maximum daily rainfall over Sri Lanka was 130.7 mm by storm (90B), and hydro catchment areas received 65.0 mm.
- Highest average rainfall 9.1 mm/day received to northern plains of the country.

**Monitored Wind**



- From 25<sup>th</sup> - 31<sup>st</sup> Jan, up to 8m/s of north easterly winds were experienced at 850 mb level over the island.
- During the last week, strong winds and rough seas were experienced due to storm (90B) over southwest Bay of Bengal.

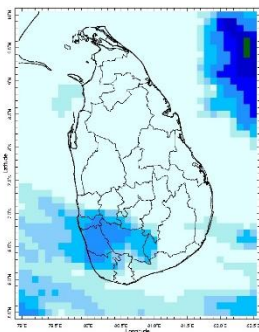
**Monitored Sea & Land Temp**



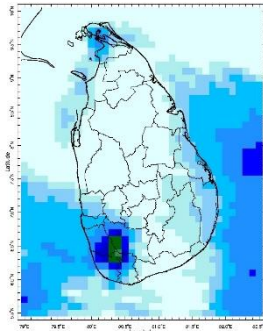
- Sea surface temperature around Sri Lanka was near-neutral for the entire island.
- Land surface temperature remained near normal.

## Monitoring Rainfall

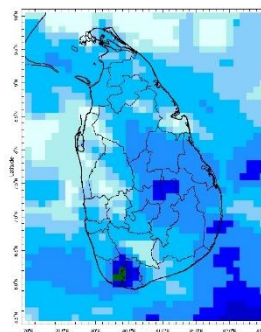
### Daily Estimates for Rainfall from 25<sup>th</sup> January – 1<sup>st</sup> February 2023



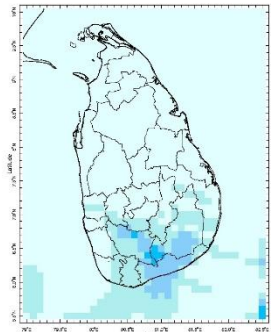
25 January



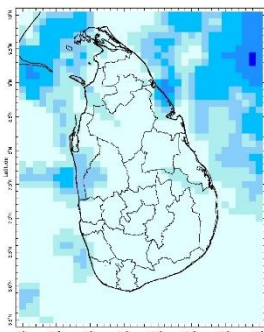
26 January



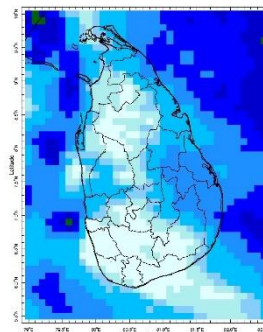
27 January



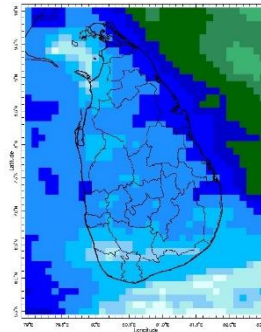
28 January



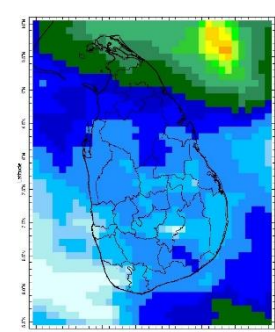
29 January



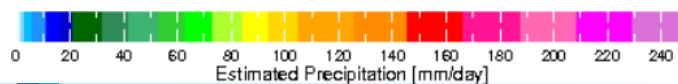
30 January



31 January



1 February



Federation for  
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### Federation for Environment, Climate and Technology

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## Ocean State *(Text Courtesy IRI)*

### **Pacific sea state: January 30, 2023**

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean late - January. The tropical Pacific atmosphere is consistent with La Niña. A large majority of the models indicate a transition from La Niña to ENSO-neutral anticipate during the February-April 2023 season by Northern Hemisphere spring (March-May 2023), the chance for ENSO-neutral is 82%.

### **Indian Ocean State**

Sea surface temperature around Sri Lanka was near neutral for the whole country in 25<sup>th</sup> January, 2023. 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 3<sup>rd</sup> February – 9<sup>th</sup> February:**

Total rainfall by Provinces:

Rainfall	Provinces
65 mm	Eastern
45 mm	North Central, Northern, North Western, Western
≤ 35 mm	Southern, Sabaragamuwa, Central, Uva

**From 10<sup>th</sup> February – 16<sup>th</sup> February:**

Total rainfall by Provinces:

Rainfall	Provinces
25 mm	Eastern
15 mm	Northern
≤ 5 mm	Central, Western, Southern, Sabaragamuwa, Uva, North Central, North Western

### **MJO based OLR predictions**

**For the next 15 days:**

MJO shall moderately enhance the rainfall during 3<sup>rd</sup> – 7<sup>th</sup> February, slightly enhance the rainfall during 8<sup>th</sup> – 12<sup>th</sup> February, and near normal the rainfall during 13<sup>th</sup> – 17<sup>th</sup> February for Sri Lanka.

## Interpretation

### Monitoring

**Rainfall:** During the last two weeks, there had been heavy rainfall over the following areas: Vavuniya, Batticaloa

Daily Average Rainfall in the Met stations for previous week of (25<sup>th</sup> January – 1<sup>st</sup> February) = 6.0 mm

Rmax: 130.7 mm & Rmin: 0.0 mm.

Region	Average rainfall for the Last 8 days
Northern Plains	9.1 mm
Eastern	8.1 mm
Western	1.9 mm
Southern Plains	2.2 mm

The Hydro Catchment Areas recorded 2.7 mm of average rainfall for the last week

Rmax: 65.0 mm & Rmin: 0.0 mm.

**Wind:** North easterly 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 Eastern, North Western, Northern, and Central provinces, driven by the warm SST's.

**Storm:** The storm '90B' originated as a low pressure area over the southwest Bay of Bengal. Then it moved west-southwestwards and centered close to the east coast of Sri Lanka near Trincomalee on 31<sup>st</sup> January. It cut across the island on 2<sup>nd</sup> February as a low pressure area, causing heavy rainfall over the Northern, Eastern, and Uva provinces of Sri Lanka.



Observed & forecast track of storm '90B' during 30<sup>th</sup> January – 2<sup>nd</sup> February, 2023: IMD

## Predictions

**Rainfall:** During the next week (3<sup>rd</sup> February – 9<sup>th</sup> February), fairly heavy rainfall ( $\geq 65$  mm) is predicted for the Eastern province, and moderately heavy rainfall is expected for rest of the country.

**Temperatures:** The temperature will remain below normal for some parts of the Central and Uva provinces during 4<sup>th</sup> – 10<sup>th</sup> February.

**Teleconnections:** A transition from La Niña to ENSO-neutral is anticipated during the February-April 2023 season by Northern Hemisphere spring (March-May 2023), the chance for ENSO-neutral is 82%.

MJO shall moderately enhance the rainfall during 3<sup>rd</sup> – 7<sup>th</sup> February, slightly enhance the rainfall during 8<sup>th</sup> – 12<sup>th</sup> February, and near normal the rainfall during 13<sup>th</sup> – 17<sup>th</sup> February for Sri Lanka.

**Seasonal Precipitation:** The precipitation forecast for the February-March-April 2023 season shows a higher tendency of near-normal precipitation for the country.

### Terminology for Rainfall Ranges

	<b>Rainfall (During 24 hours of period)</b>
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

Tropical Climate Guarantee, Federation of Environment, Climate and Technology, Columbia University Water Center, <sup>1</sup> International Research Institute for Climate and Society, , Earth Institute at Columbia University, New York.



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## Weekly Climate Bulletin for Sri Lanka

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#### 2. Predictions

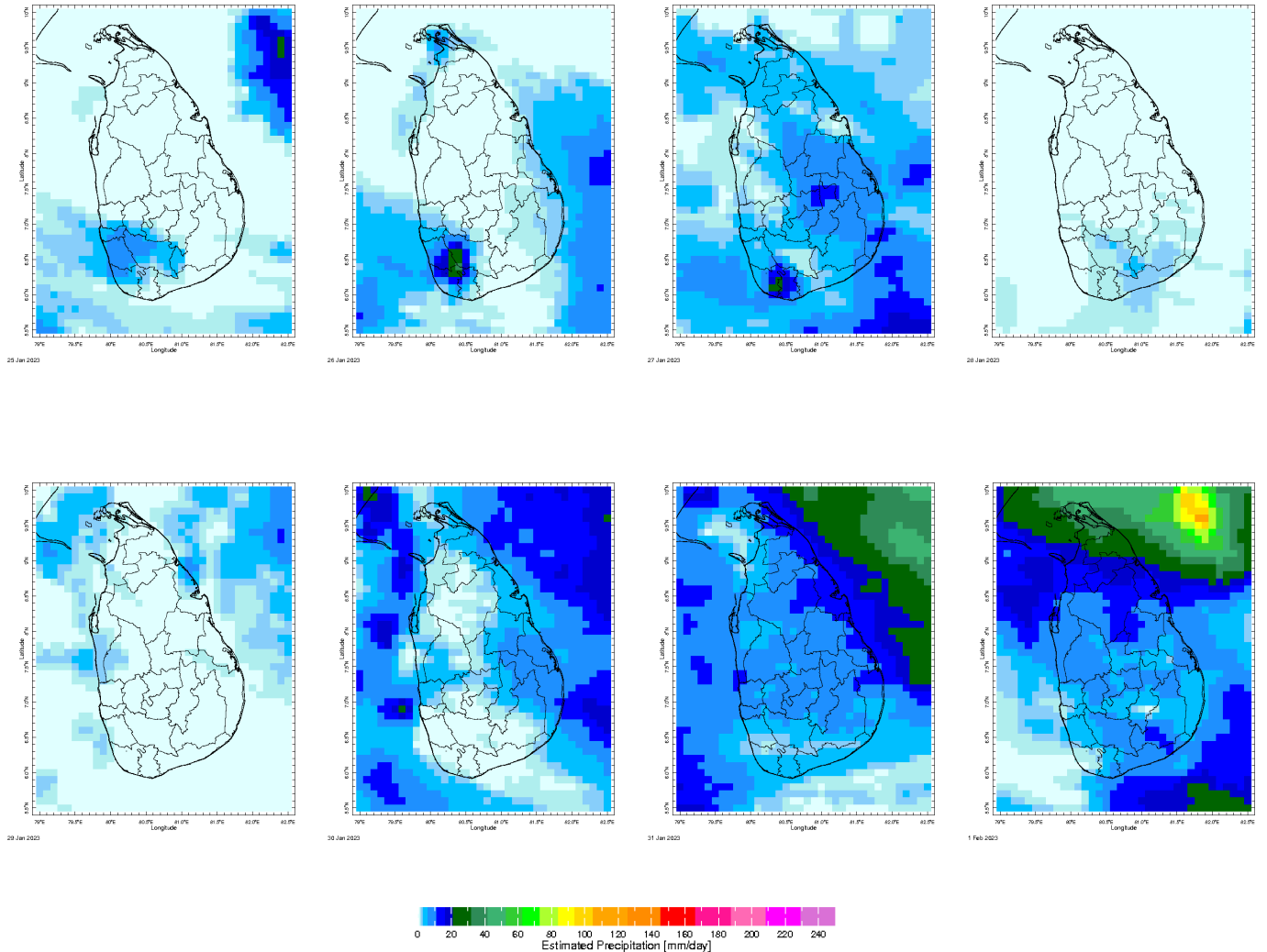
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### MONITORING

#### Daily Rainfall Monitoring

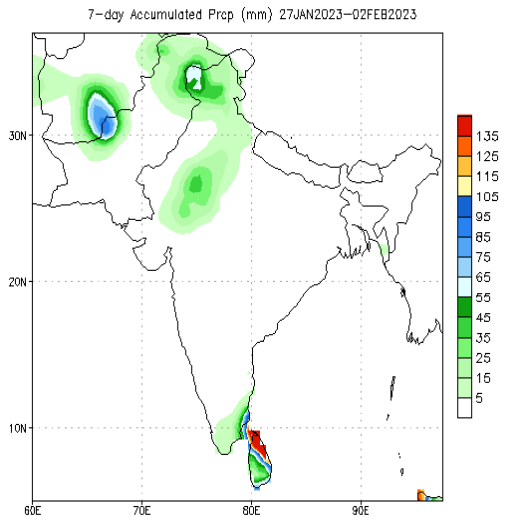
The following figures show the satellite observed rainfall in the last 7 days in Sri Lanka.



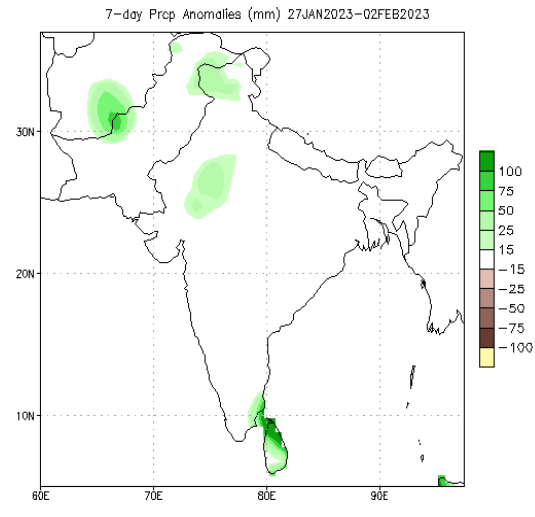


## Weekly Rainfall Monitoring

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.



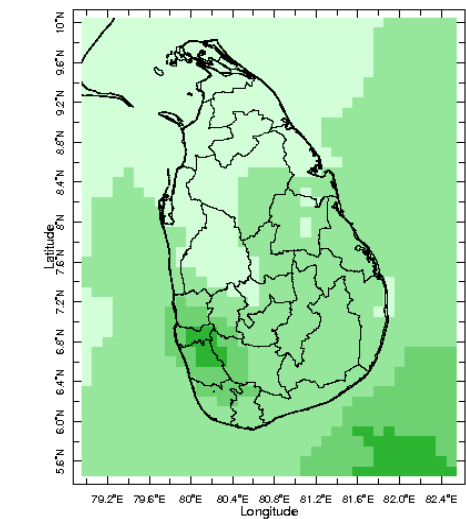
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



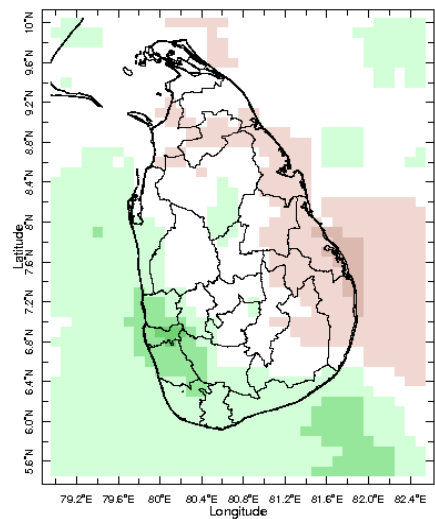
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1991-2020)

## 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

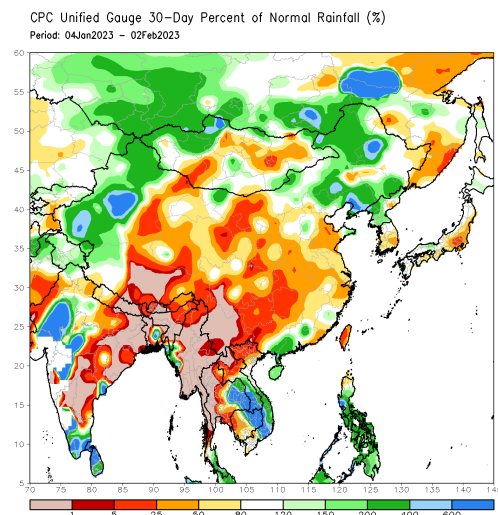
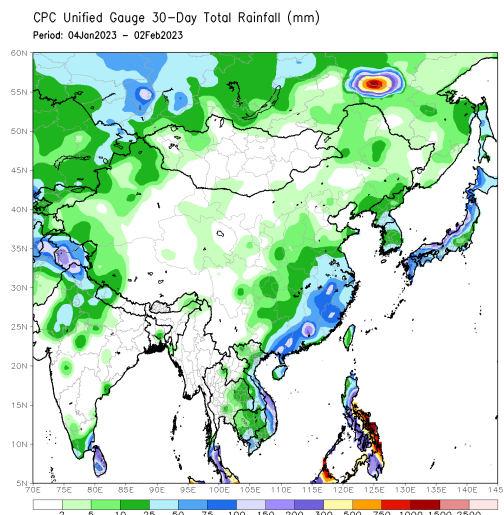


Monthly Average

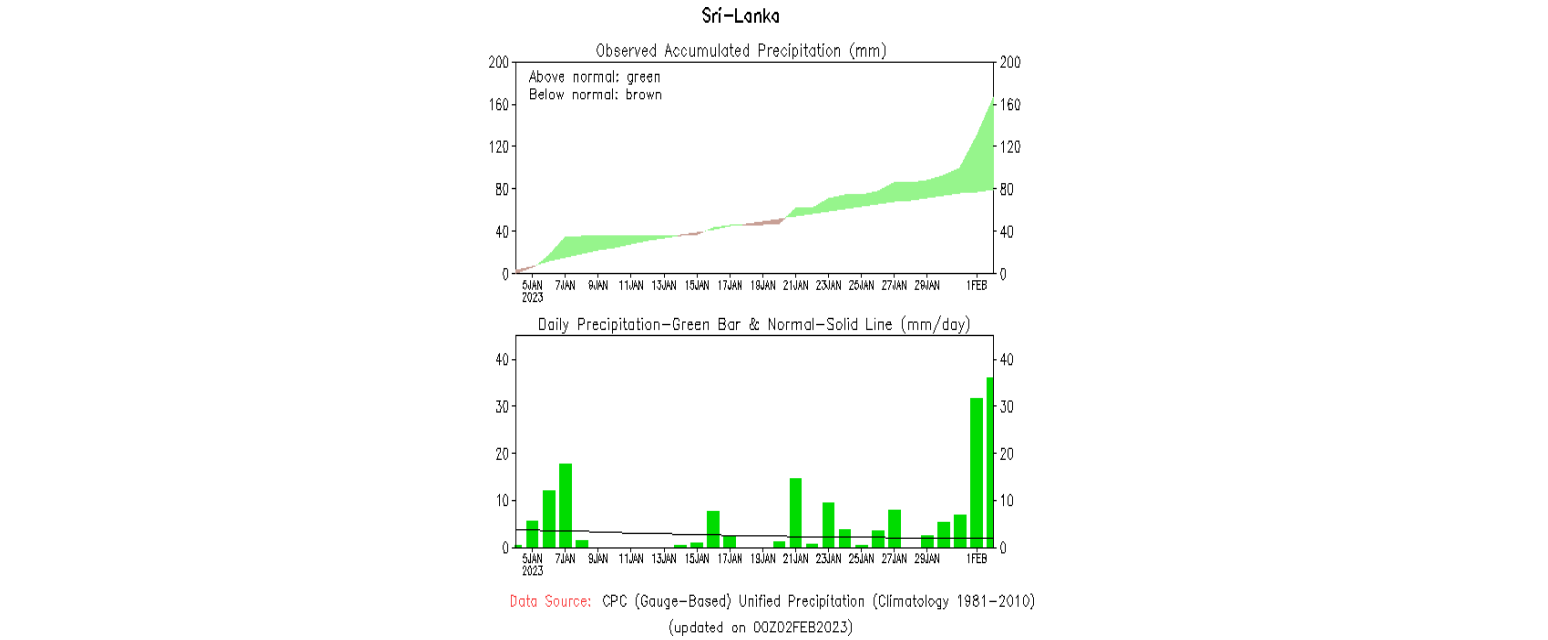


Monthly Anomaly

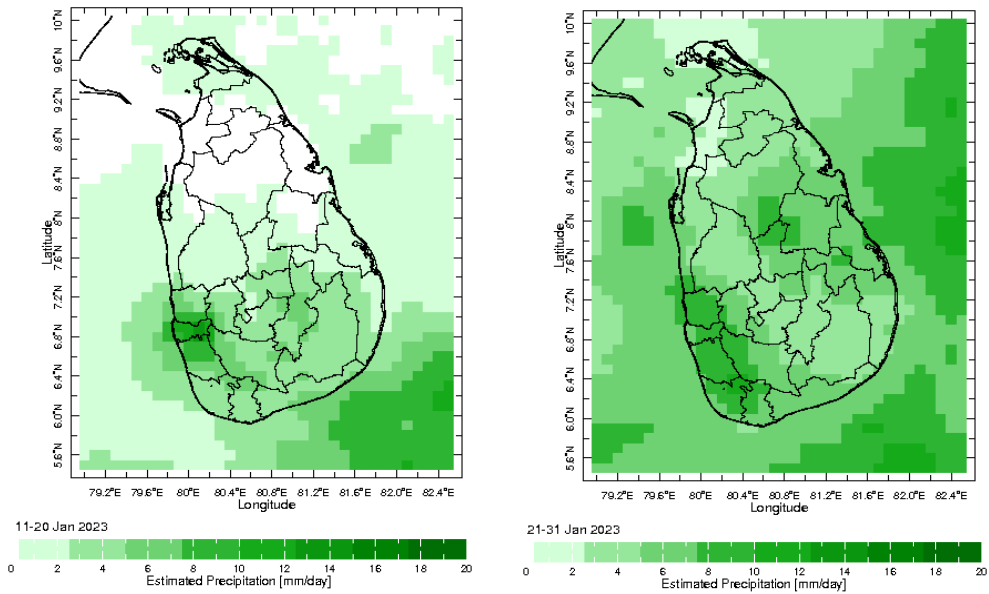
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



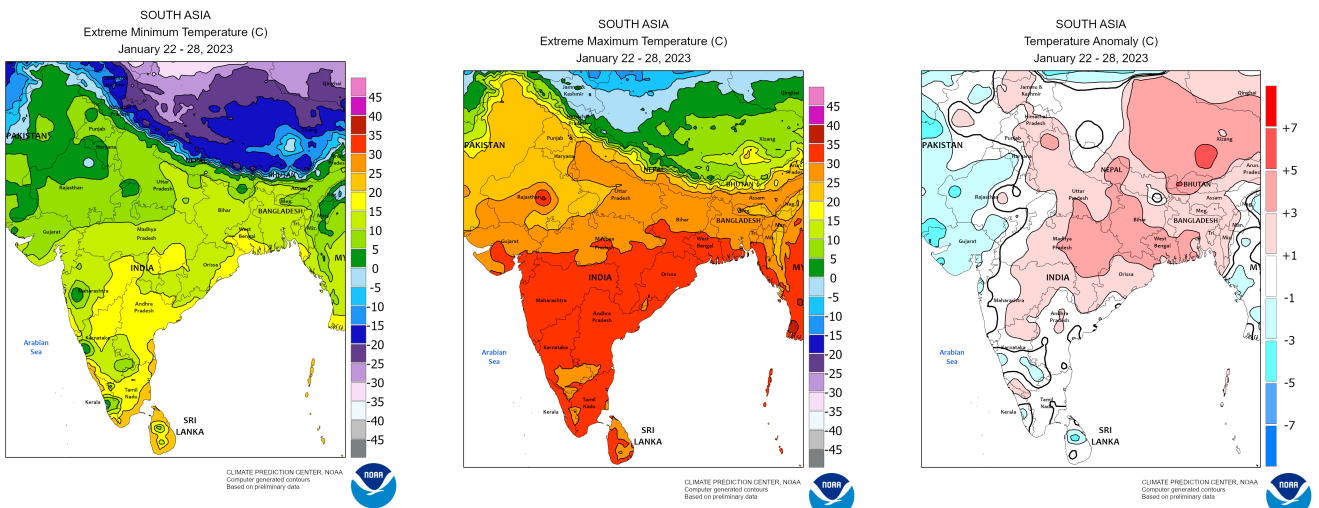
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



### Dekadal (10 Day) Satellite Derived Rainfall Estimates

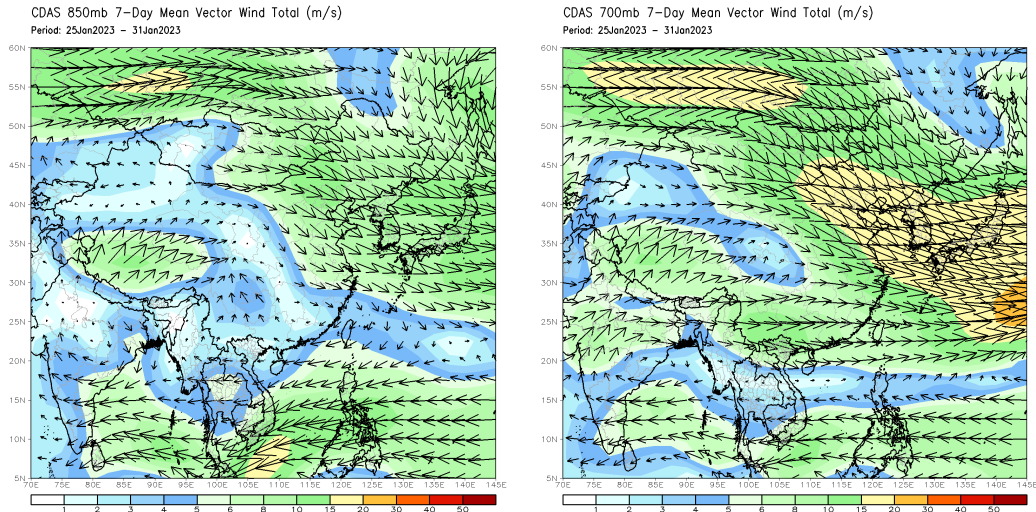


### Weekly Temperature Monitoring



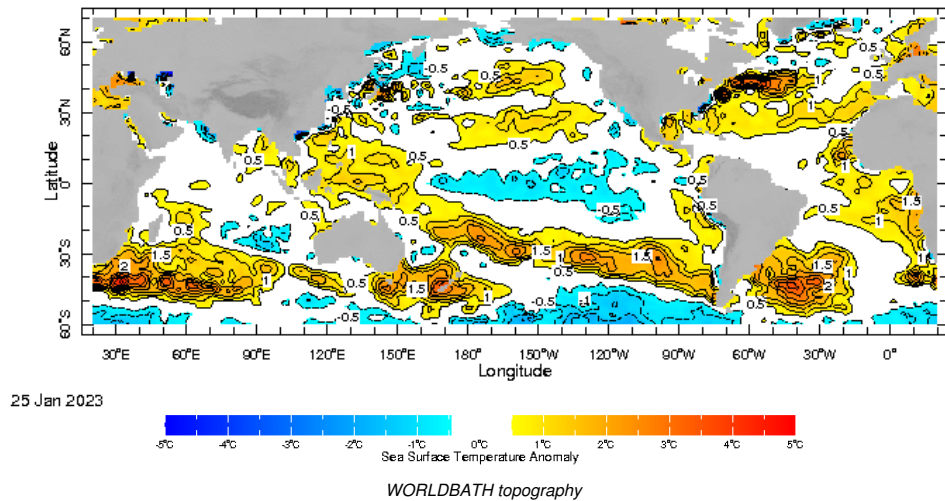
## Weekly Wind Monitoring

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.

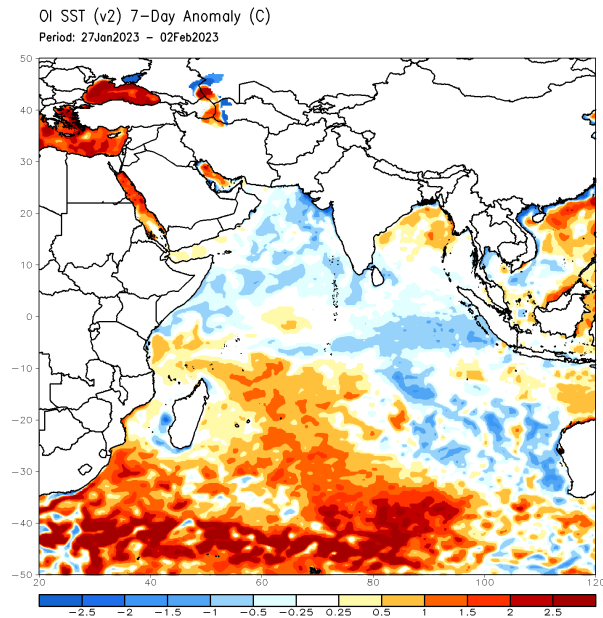


## Weekly Average SST Anomalies

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

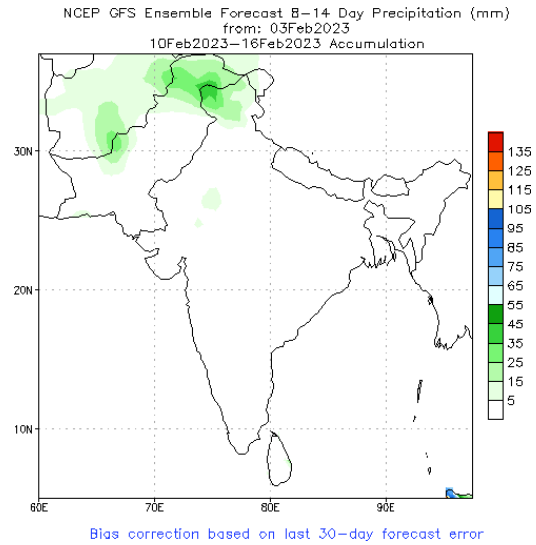
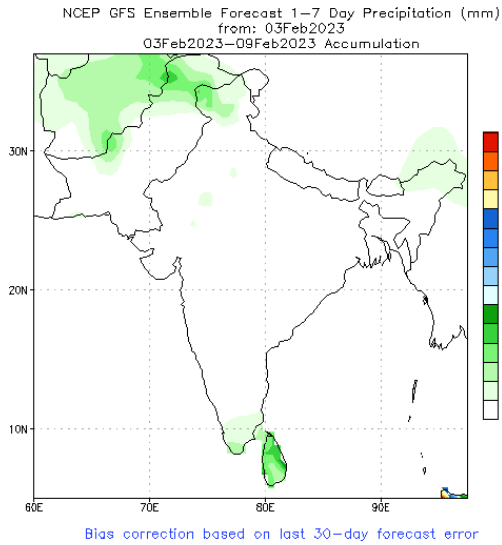


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC

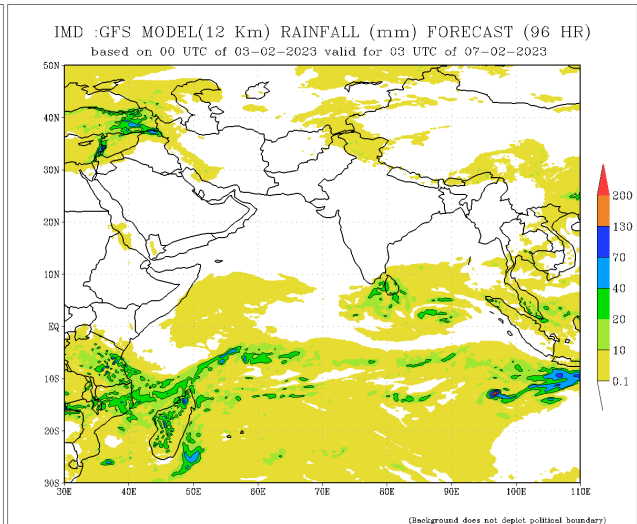
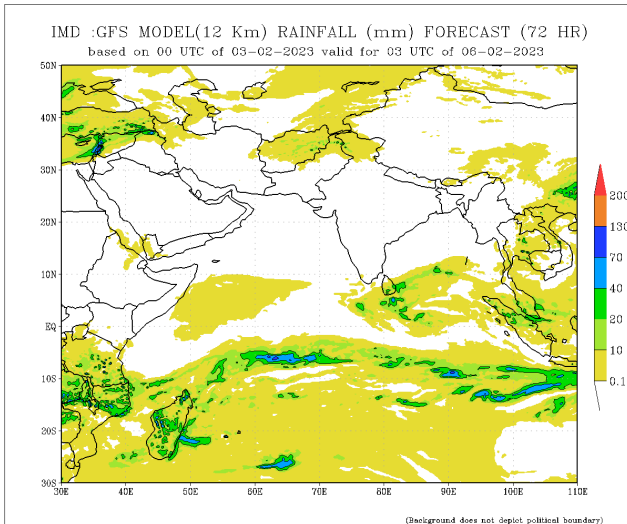
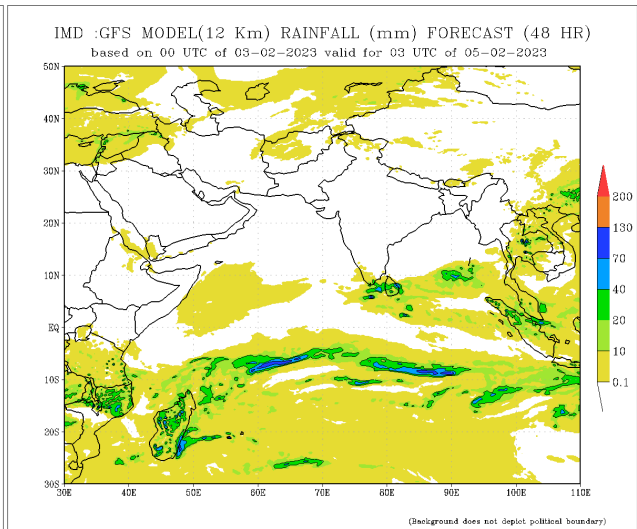
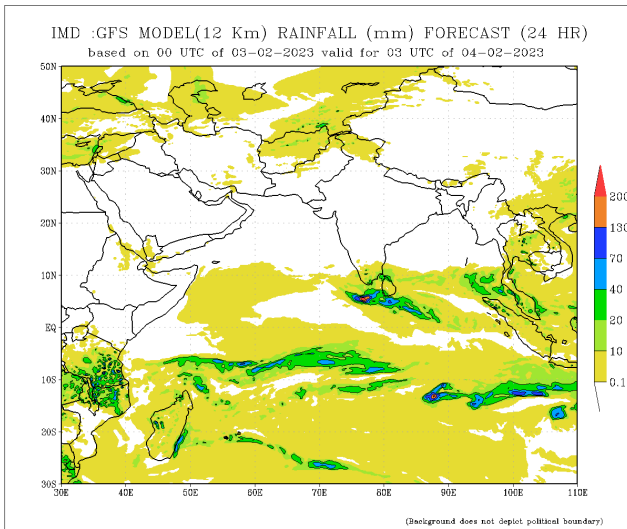


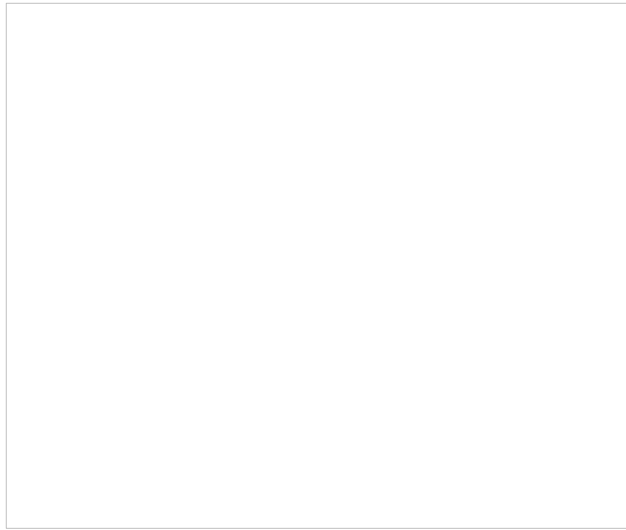
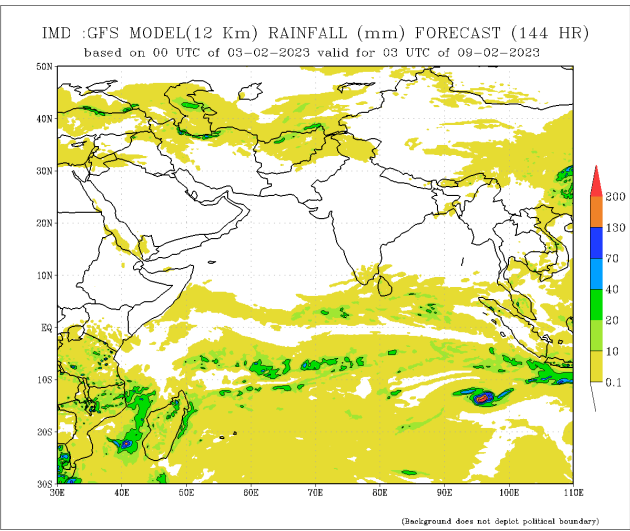
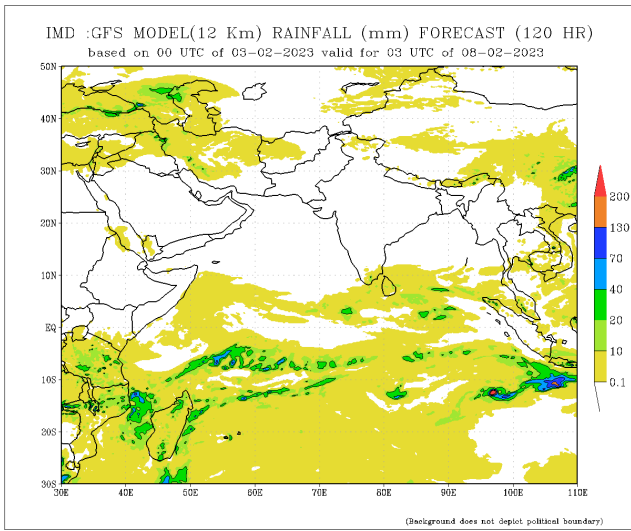


NCEP GFS 1- 14 Day prediction



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

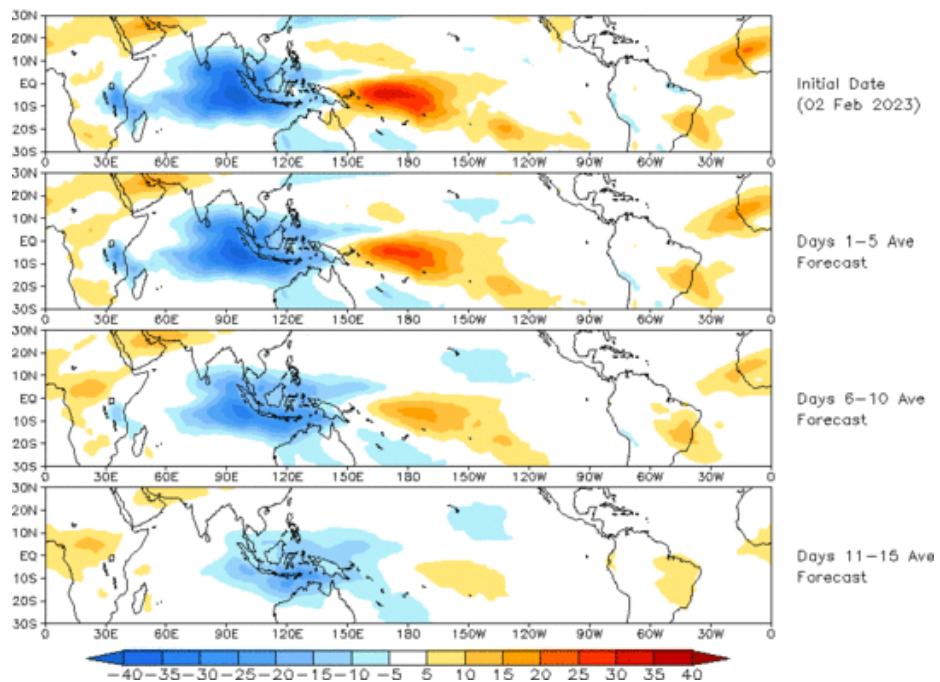




### Madden Julian Oscillation (MJO) related Outgoing Longwave Radiation (OLR) Forecast

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.

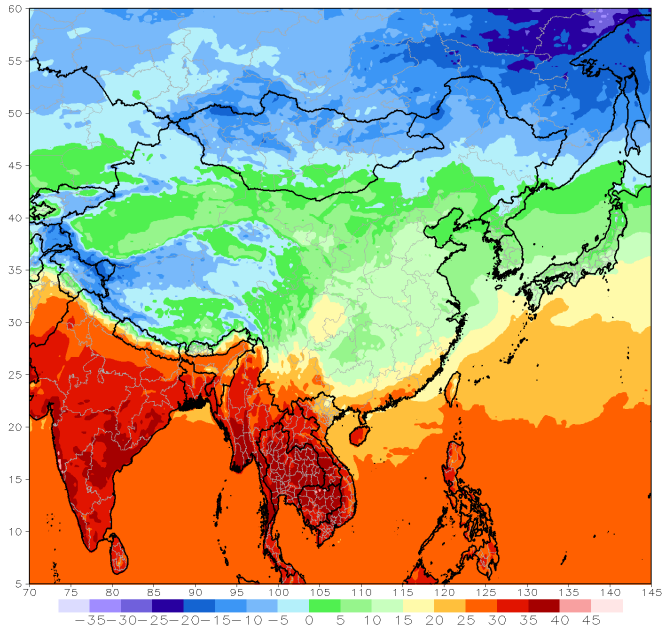
OLR prediction of MJO-related anomalies using CA model reconstruction by RMM1 & RMM2 (02 Feb 2023)



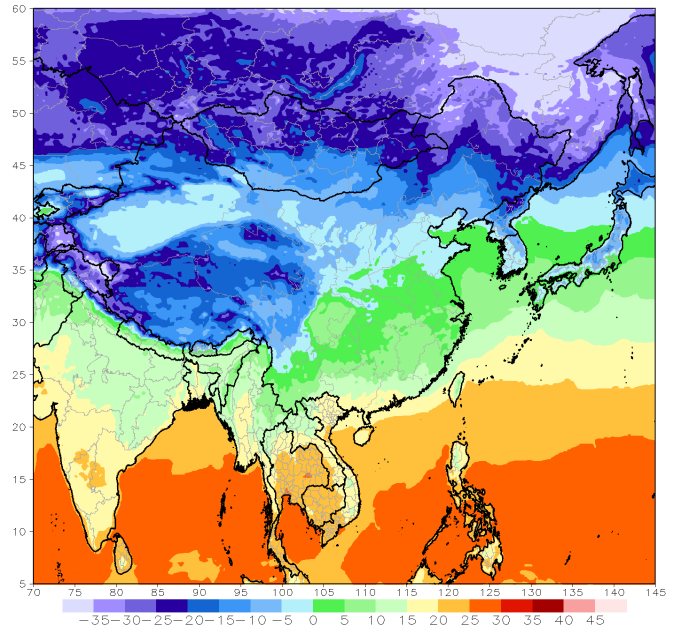
## Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)  
Period: 18z04Feb2023 - 18z10Feb2023



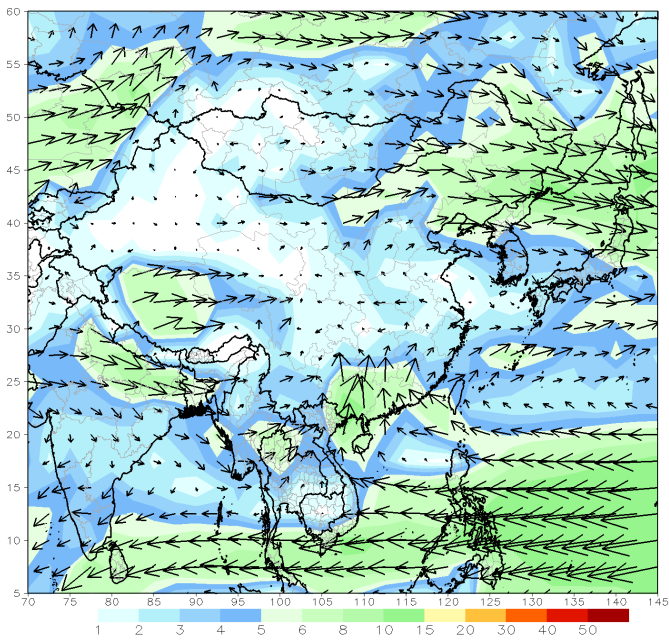
GFS week1 Temperature Min (C)  
Period: 18z04Feb2023 - 18z10Feb2023



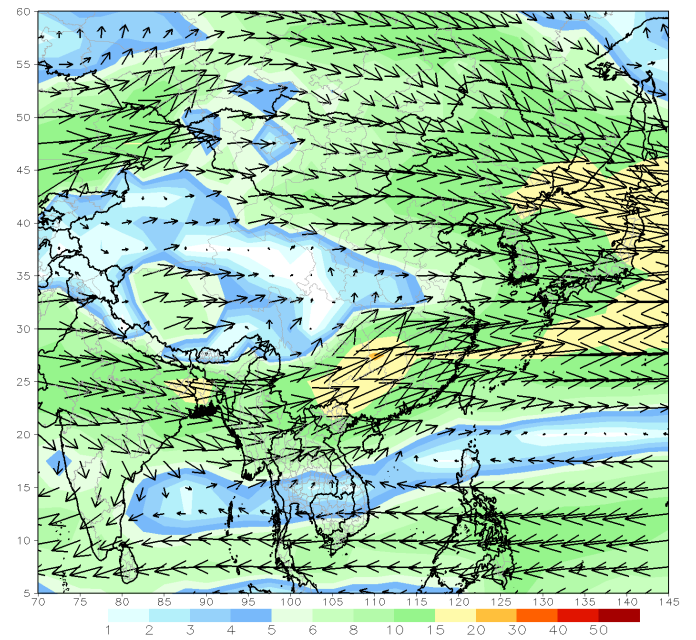
## Weekly Wind Forecast

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: 18z04Feb2023 - 18z10Feb2023



GFS 700mb week1 Mean Vector Wind Total (m/s)  
Period: 18z04Feb2023 - 18z10Feb2023

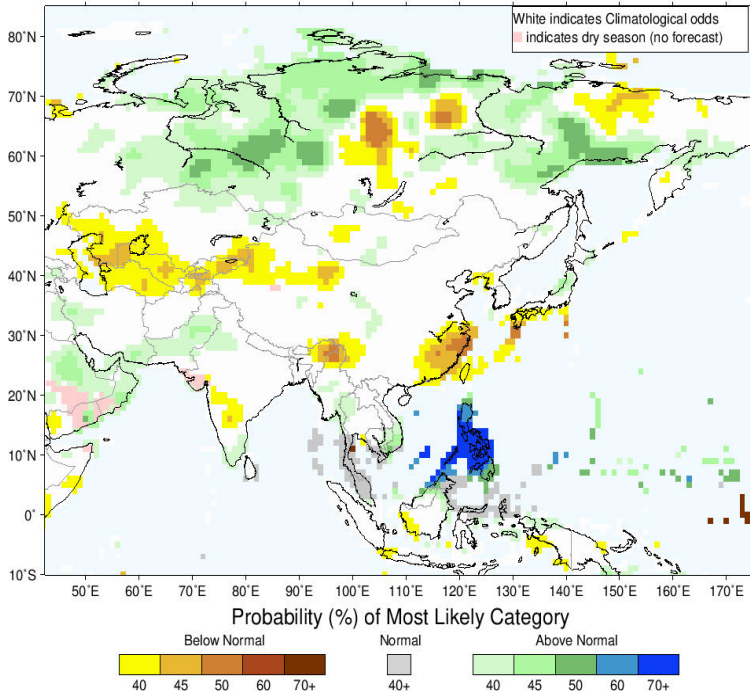




## Seasonal Rainfall and Temperature Forecast

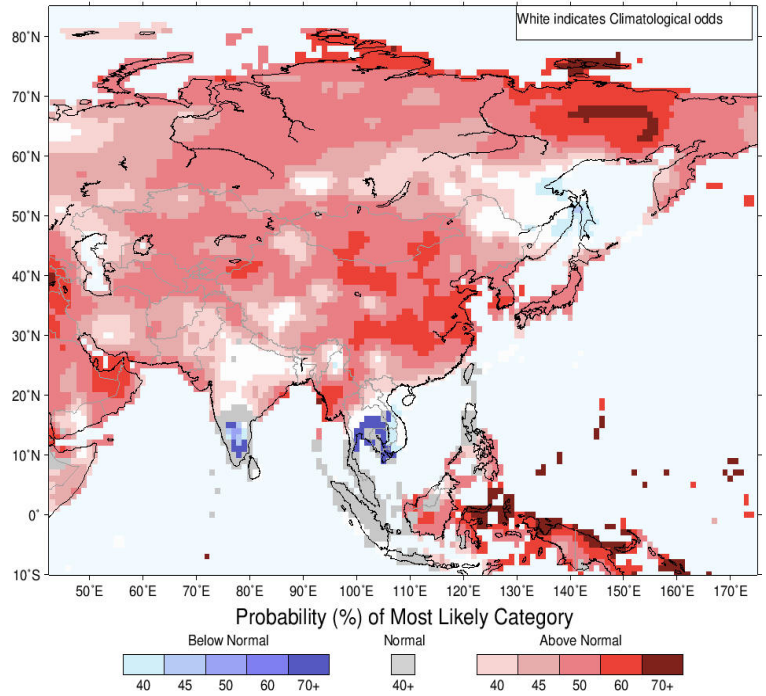
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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 February-March-April 2023, Issued January 2023



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for February-March-April 2023, Issued January 2023



Temperature Forecast

### About us

FECT is a federation of 7 organizations registered in four countries which works in countries across the Indian Ocean Islands and its littoral. Over the last 20 years, we have had operations in Africa, South Asia, South-East Asia but now it is mostly in the Indian Ocean Islands.

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