

15 MARCH
2024

CLIMATE MONITORING AND PREDICTION FOR SRI LANKA

HIGHLIGHTS

Rainfall Prediction



- Dry weather conditions are predicted for next week while high likelihood of scattered showers ($\leq 5\text{mm}$) may occur from 13 - 19 March.

Monitored Rainfalls



- On average, 1/6 of the predicted rainfall was received over the country during 12 Feb - 13 Mar.
- Rainfall on 8 March was highest (115 mm) at Keragala (SP).

Monitored & Predicted Wind



- Winds at 850mb (1.5 km) were north easterly from 4 - 10 Mar reaching up to 6 m/s.
- Winds at 850mb (1.5 km) are predicted easterly from 14 - 20 Mar reaching up to 3 m/s.

Monitored Sea & Land Temp

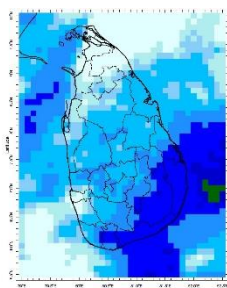


- Maximum daily temperature was in Kurunegala (38.3°C) & Puttalam (37.9°C).
- Sea surface temperature around Sri Lanka was $0.5 - 1.5^{\circ}\text{C}$ above normal.

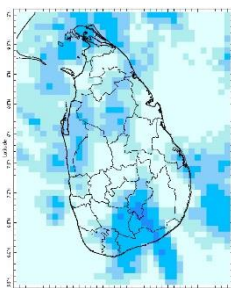
Monitoring

Rainfall

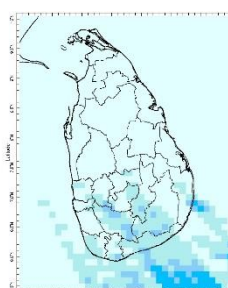
Daily Estimates for Rainfall from 1st March - 8th March 2024



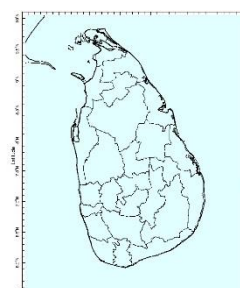
1 March



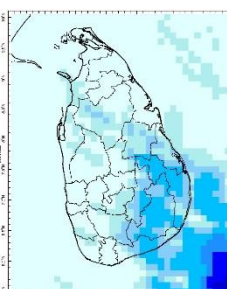
2 March



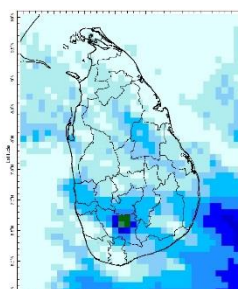
3 March



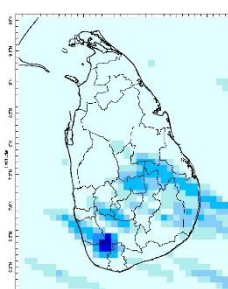
4 March



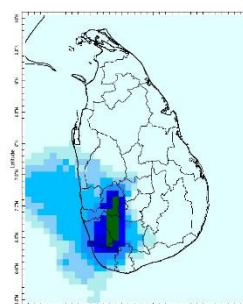
5 March



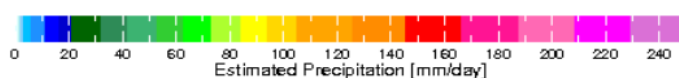
6 March



7 March



8 March



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& Technology

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Pacific sea state: March 11, 2024

The SST Anomalies for the NINO3.4 region shows a +1.7 °C on the week ending 11th March - thus a moderate-strong El Nino is sustained. Consensus of models predict a continuation of the El Niño event until May 2024 before weakening thereafter.

Indian Ocean State

Sea surface temperature around Sri Lanka was 1.0°C above normal to the country in 20th February - 26th February 2024. A positive Dipole Mode has set in across the Indian Ocean since 8th of June.

Predictions

Rainfall

14 Day prediction: NCEP GFS models

From 13th - 19th March:

Total rainfall by Provinces:

Rainfall (mm)	Provinces
≤ 5	Eastern, Uva, Central, Northern, Southern, Sabaragamuwa, Western, North Central, North Western

From 20th - 26th March:

Total rainfall by Provinces:

Rainfall (mm)	Provinces
≤ 5	Eastern, Central, Sabaragamuwa, Uva, Western, Southern, Northern, North Western, North Central

MJO based OLR predictions

For the next 15 days:

MJO shall slightly suppress the rainfall during 13th - 17th March and moderately suppress the rainfall during 18th - 27th March for Sri Lanka.

Interpretation

Monitoring

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

Daily Average Rainfall in the Met stations for previous week of (6th - 13th March) = 0.7 mm
Maximum Daily Rainfall: 106.9 mm & Minimum Daily Rainfall: 0.0 mm.

Region	Average rainfall for last 8 days (mm)	Average temperature for last 8 days (°C)	
		Maximum	Minimum
Northern plains	0.0	34.1	23.5
Eastern hills	0.0	28.6	16.3
Eastern plains	0.0	33.3	23.3

Western hills	5.3	30.5	18.8
Western plains	0.7	33.7	25.0
Southern plains	0.0	34.7	24.0

Region	Average rainfall for last 8 days (mm)	Daily maximum rainfall for last 8 days (mm)	Daily minimum rainfall for last 8 days (mm)
Hydro catchment	0.8	43.0	0.0

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

Temperatures: The temperature anomalies were above normal for some parts of the Sabaragamuwa, Western, Southern, and Central provinces and below normal for some parts of the Northern province of the country, driven by the warm SST's.

Predictions

Rainfall: During the next week (13th March - 19th March), light showers (≤ 5 mm) are predicted for the country.

Temperatures: The temperature will remain above normal for the country during 14th - 20th March.

Teleconnections: A positive Dipole Mode has set in across the Indian Ocean since 8th of June.

MJO shall slightly suppress the rainfall during 13th - 17th March and moderately suppress the rainfall during 18th - 27th March for Sri Lanka.

Seasonal Precipitation: The precipitation forecast for the March-April-May, 2024 season shows a 40% tendency toward above normal precipitation for the southern half of the country.

Terminology for Rainfall Ranges

	Rainfall
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, ¹ 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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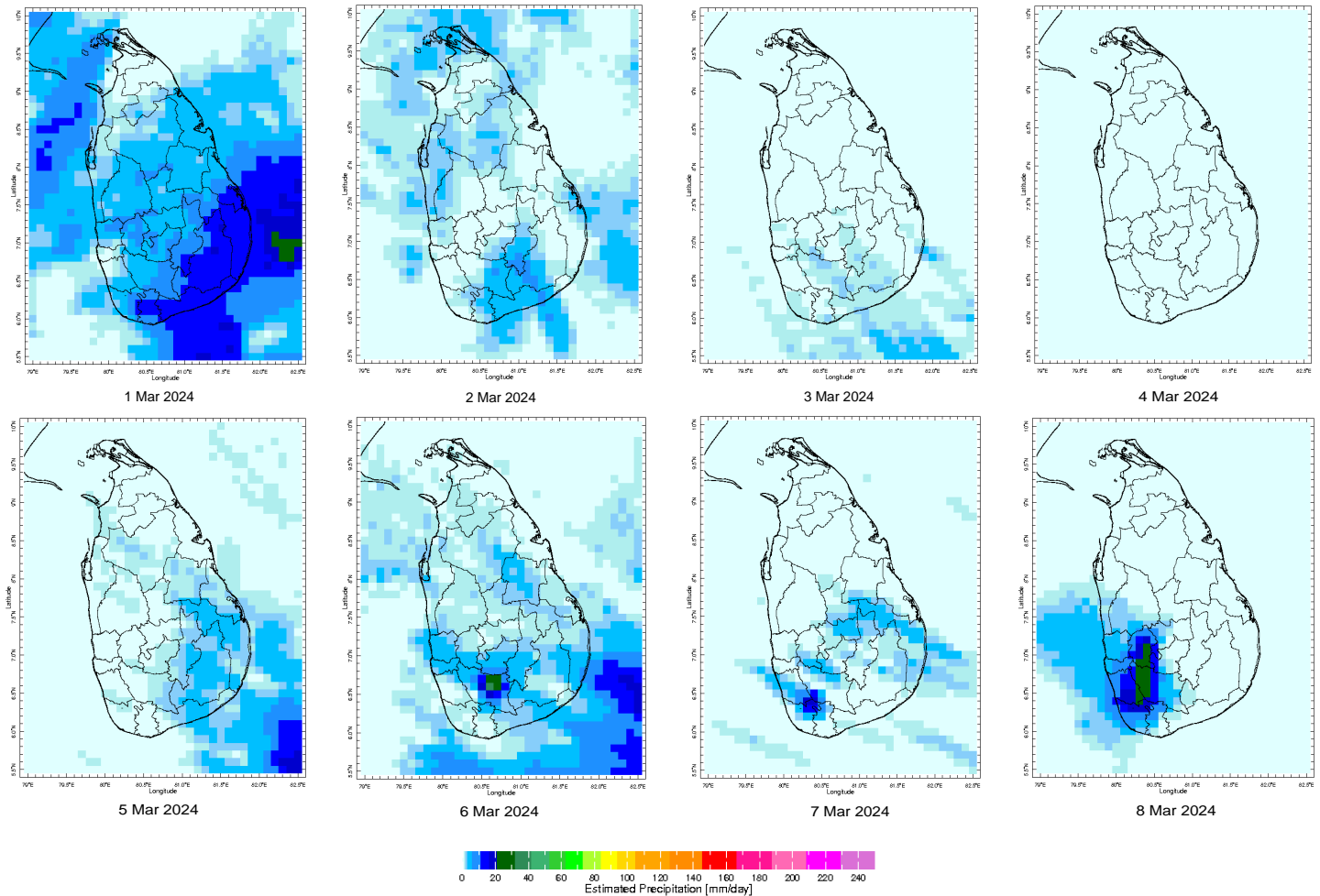
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MONITORING

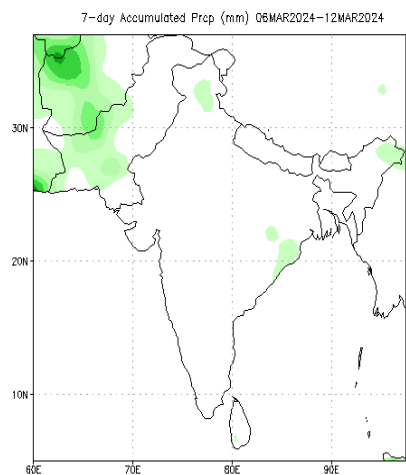
Daily Rainfall Monitoring

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

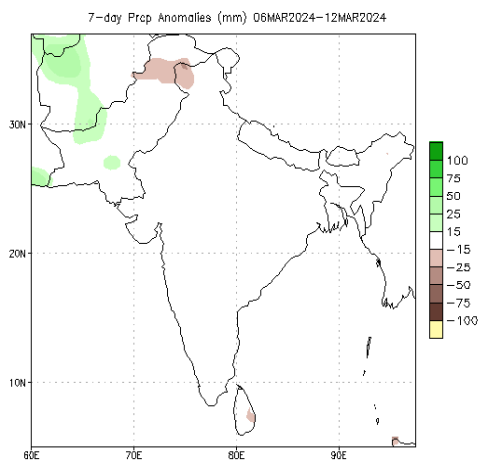


Weekly Rainfall Monitoring

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.



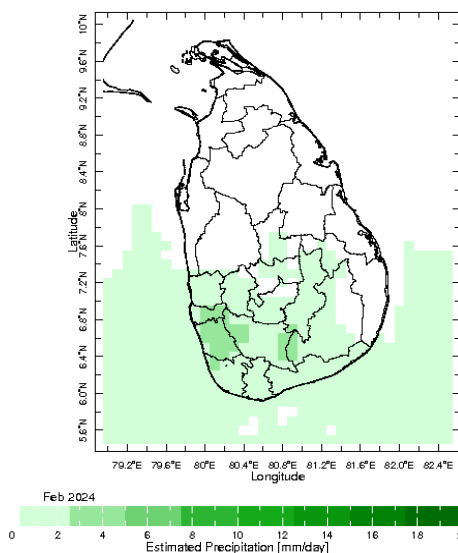
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis



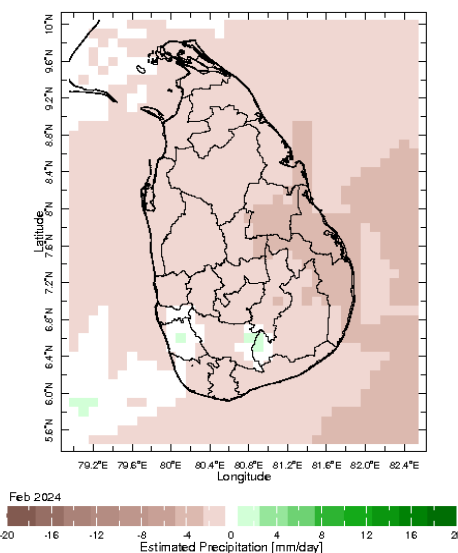
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1991–2020)

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

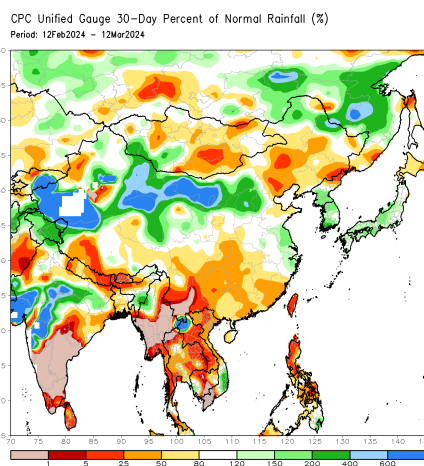
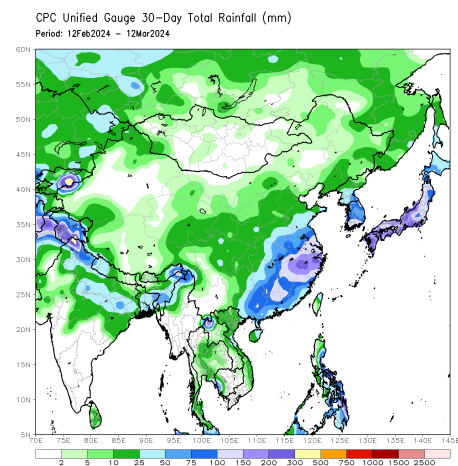


Monthly Average

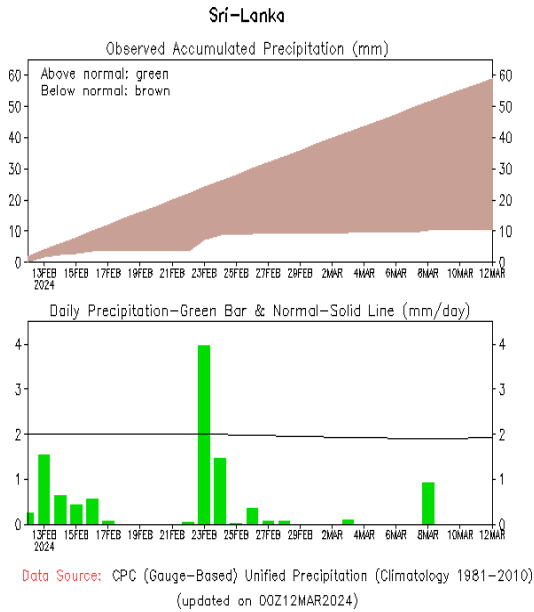


Monthly Anomaly

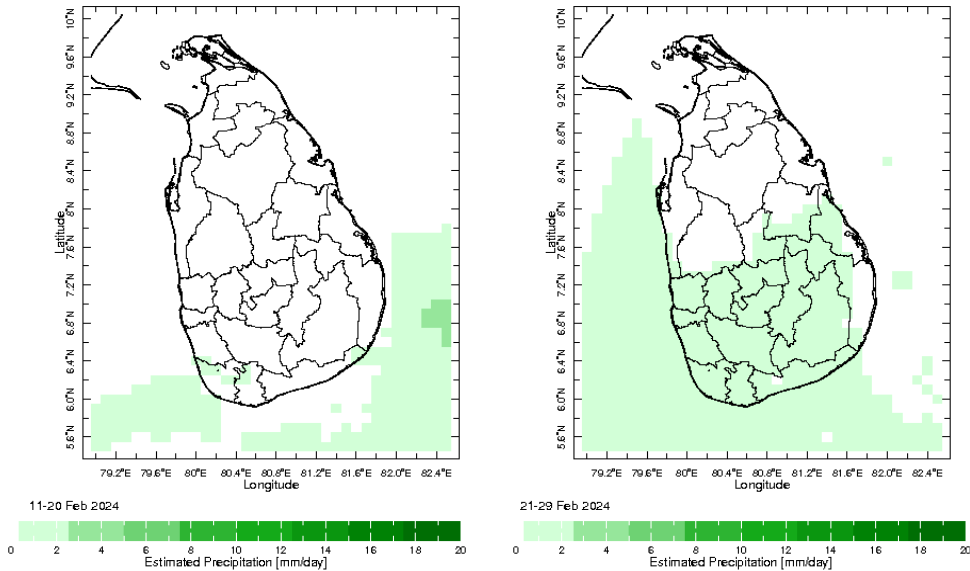
The figure in the top-left shows the total rainfall in the past 30 days from CPC Unified Precipitation Analysis while the figure in the top-right shows the total rainfall for the same period from RFE 2.0 Satellite Rainfall Estimates. The bottom two figures show the percentage of rainfall received in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



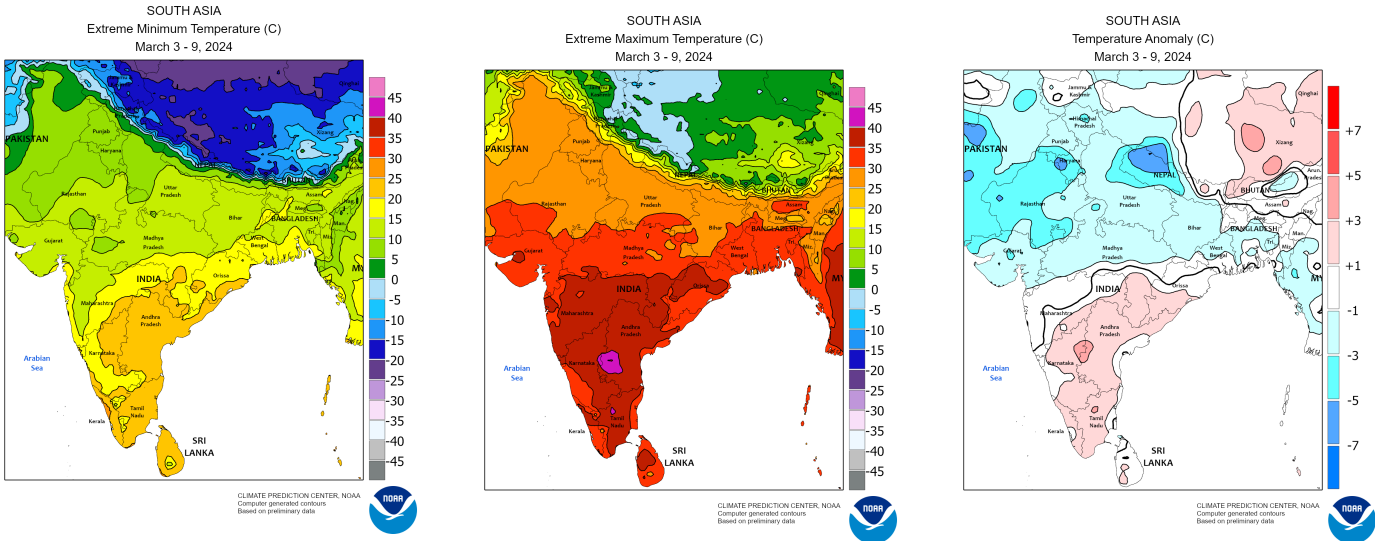
The following figure shows the observed accumulated rainfall (top) and daily observed rainfall (bottom) in Sri Lanka in the last 30 days.



Dekadal (10 Day) Satellite Derived Rainfall Estimates

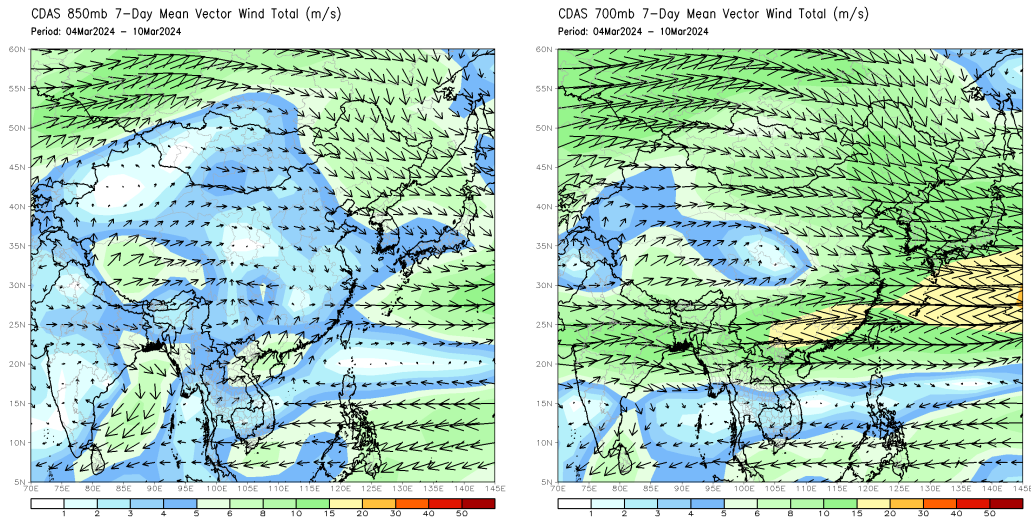


Weekly Temperature Monitoring



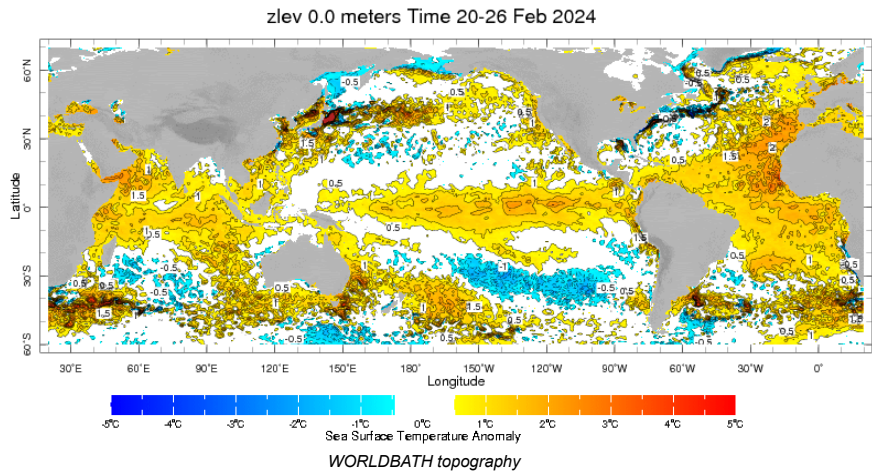
Weekly Wind Monitoring

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.

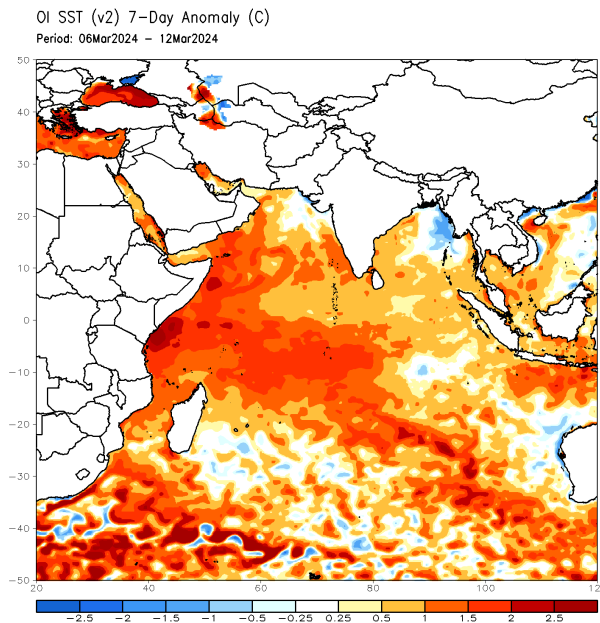


Weekly Average SST Anomalies

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

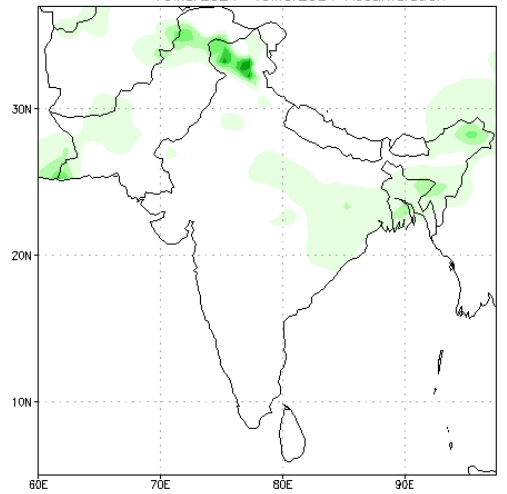


Optimum Interpolated Sea Surface Temperature Anomaly in the Indian Ocean from NOAA CPC



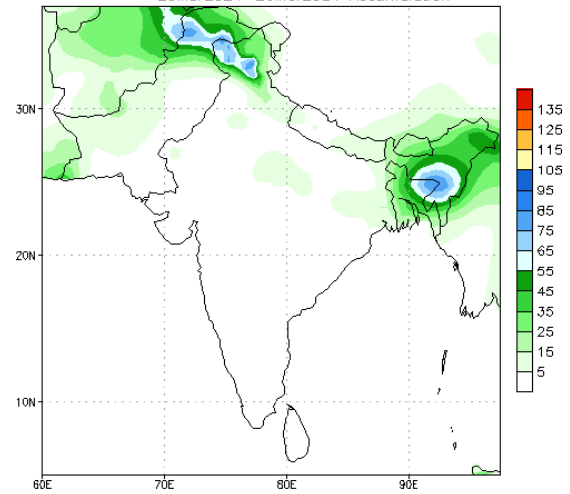
NCEP GFS 1- 14 Day prediction

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 13Mar2024
13Mar2024-19Mar2024 Accumulation



Bias correction based on last 30-day forecast error

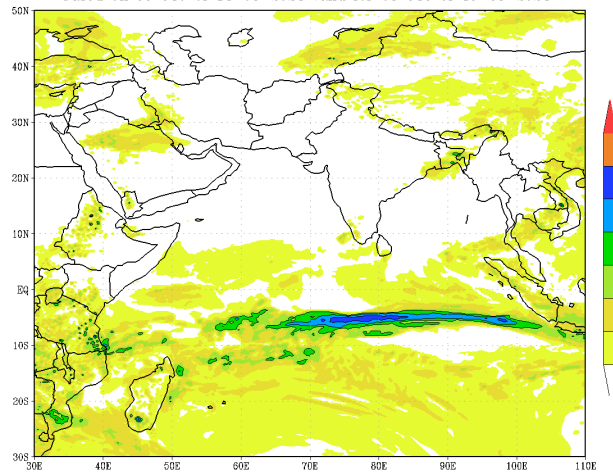
NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 13Mar2024
20Mar2024-26Mar2024 Accumulation



Bias correction based on last 30-day forecast error

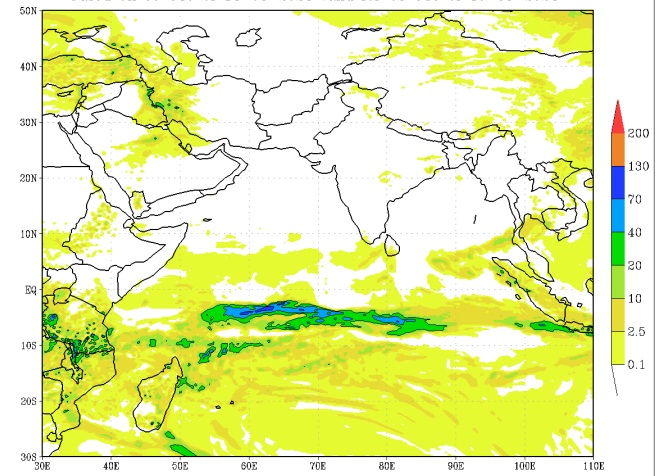
IMD GFS (T574) Model Rainfall Forecast from RMSC New Delhi, India

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (24 HR)
based on 00 UTC of 14-03-2024 valid for 03 UTC of 15-03-2024



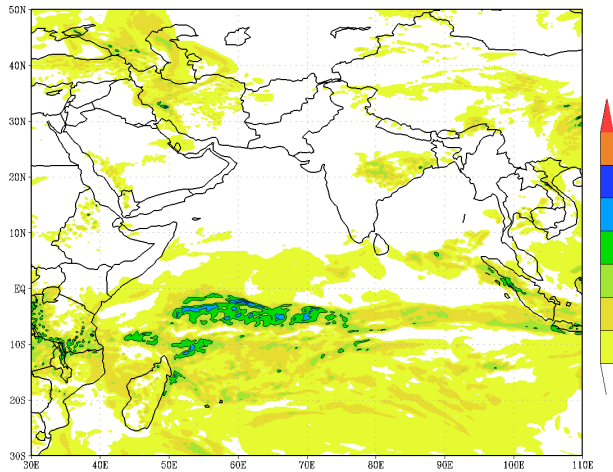
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (48 HR)
based on 00 UTC of 14-03-2024 valid for 03 UTC of 16-03-2024



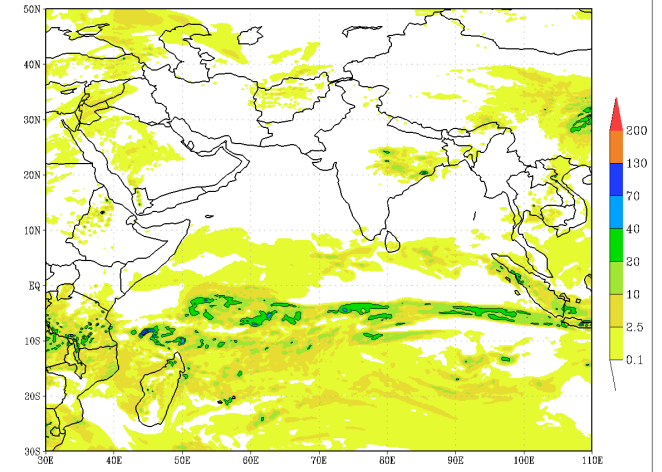
(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (96 HR)
based on 00 UTC of 13-03-2024 valid for 03 UTC of 17-03-2024

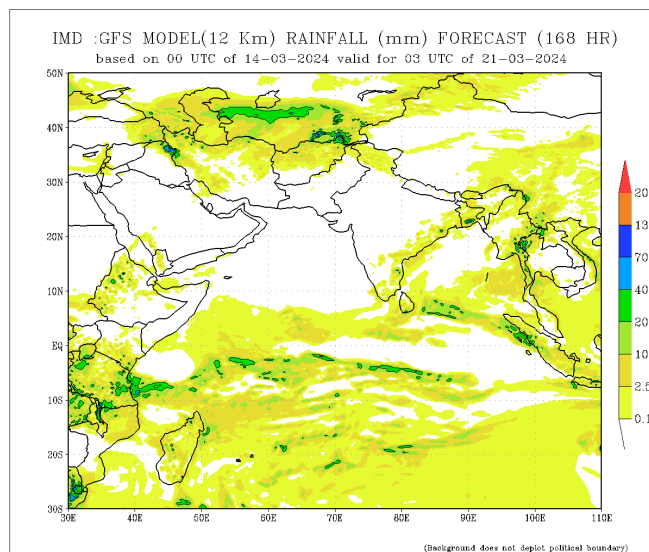
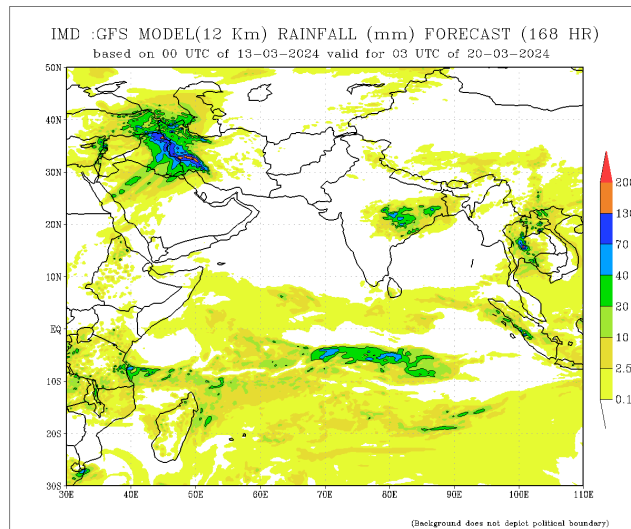
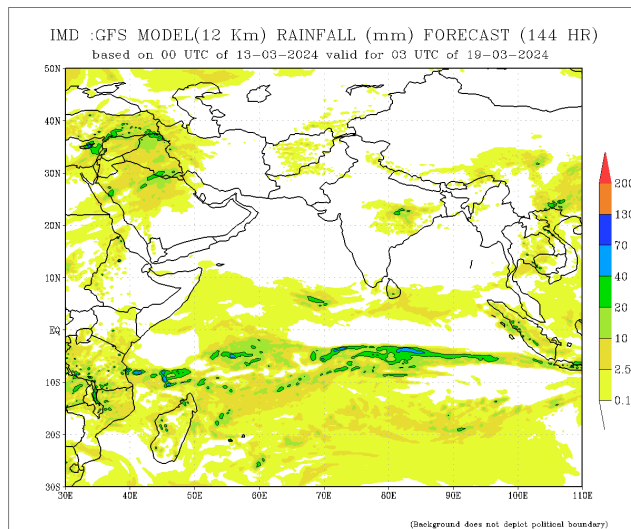


(Background does not depict political boundary)

IMD :GFS MODEL(12 Km) RAINFALL (mm) FORECAST (120 HR)
based on 00 UTC of 13-03-2024 valid for 03 UTC of 18-03-2024

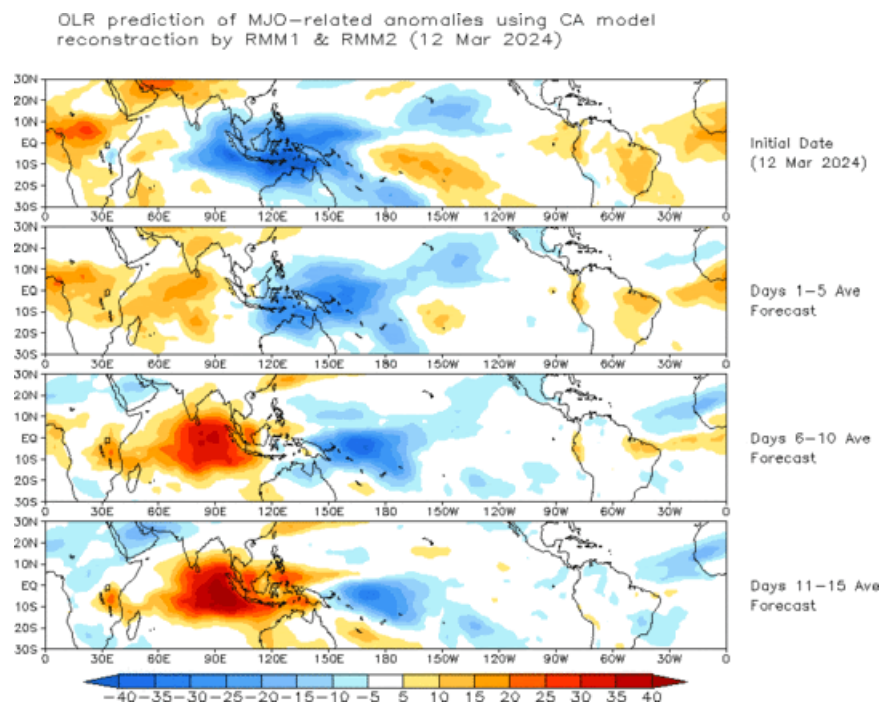


(Background does not depict political boundary)



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

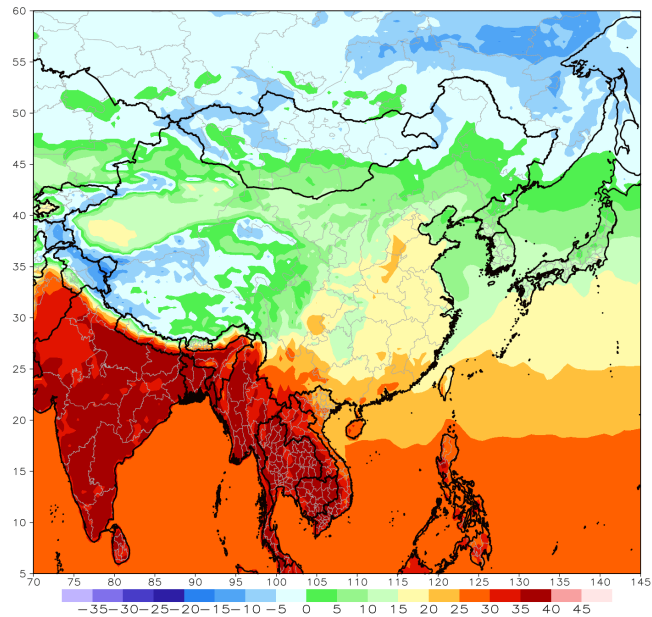
The Outgoing Longwave Radiation (OLR) is a proxy for rainfall. This can be used to identify convective rain clouds based on the MJO phase. Violet and Blue shading indicates enhanced tropical weather and Orange shading indicates suppressed conditions. The following figure shows the forecasts of MJO associated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



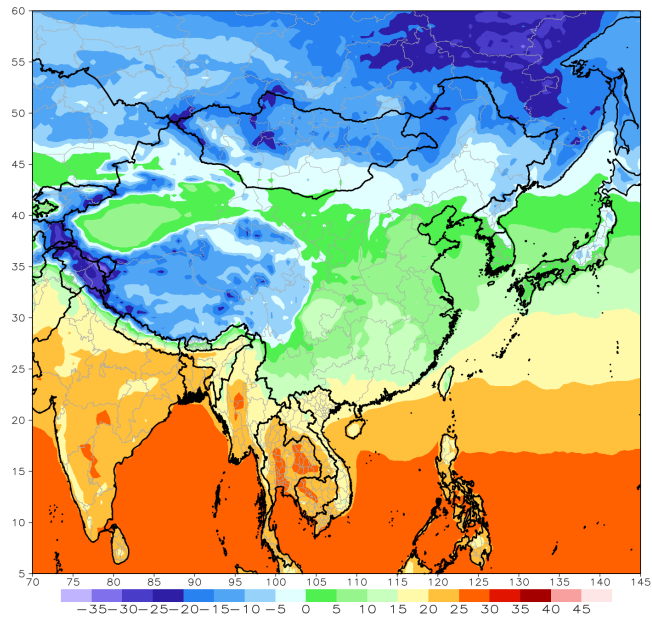
Weekly Temperature Forecast

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

GFS week1 Temperature Max (C)
Period: 18z14Mar2024 – 18z20Mar2024



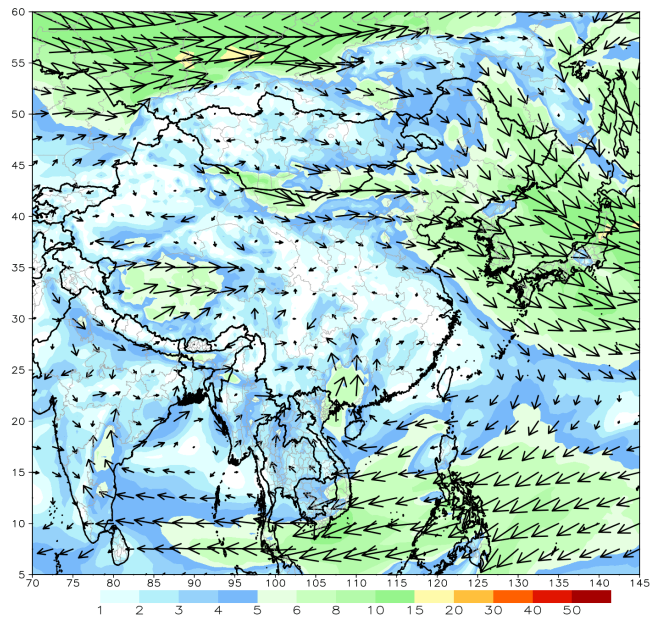
GFS week1 Temperature Min (C)
Period: 18z14Mar2024 – 18z20Mar2024



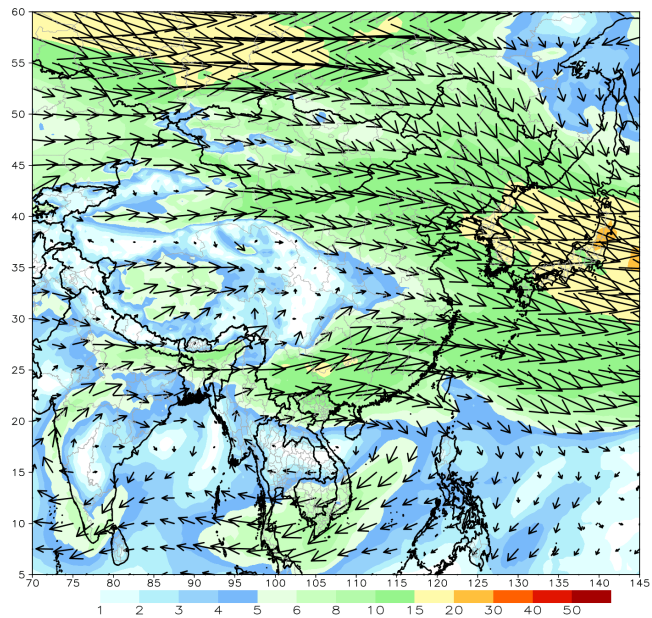
Weekly Wind Forecast

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: 18z14Mar2024 – 18z20Mar2024



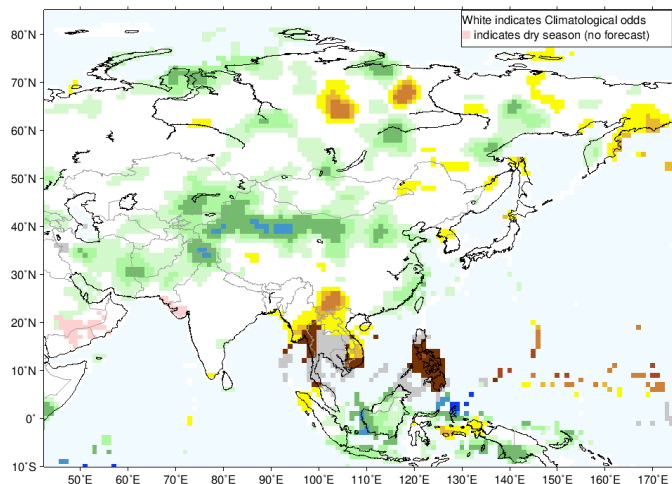
GFS 700mb week1 Mean Vector Wind Total (m/s)
Period: 18z14Mar2024 – 18z20Mar2024



Seasonal Rainfall and Temperature Forecast

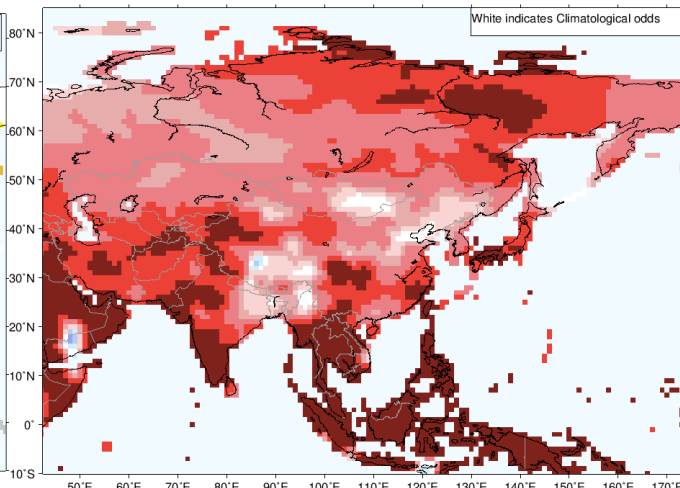
Following is the latest seasonal precipitation and temperature prediction for the next 3 months by the IRI. The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant 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
March–April–May 2024, Issued February 2024



Precipitation Forecast

IRI Multi-Model Probability Forecast for Temperature for
March–April–May 2024, Issued February 2024



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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