Earth System Science Organization (ESSO)
Ministry of Earth Sciences (MoES)
India Meteorological Department
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Pune, India

SEASONAL CLIMATE OUTLOOK FOR SOUTH ASIA
(December 2025 to March 2026)

Highlights

- At present, weak La Niña conditions are prevailing over the equatorial Pacific region. The latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS), there is an almost certain probability (approaching 100%) that ENSO conditions will remain in the neutral phase throughout the DJF 2026 season and thereafter.

- Currently, negative Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest MMCFS forecast suggests that these negative IOD conditions are likely to weaken, with an increasing probability of a transition to neutral conditions during the DJF season and thereafter.

- The probability forecast for precipitation for DJF season indicates that enhanced probability of above normal precipitation is likely over most parts of northwest, north along the plains of Himalayas, east, northeast and southern regions of South Asia and enhanced probability of below normal precipitation is likely over extreme north, west, southeast and extreme south of South Asia. The same for JFM seasons indicate that enhanced probability of above normal precipitation is likely over most parts of northwest, extreme north, north along the plains of Himalayas, central, and northeast parts of South Asia and enhanced probability of below normal precipitation is likely over west, Peninsular India, extreme south and southeast of South Asia.

- In December the country averaged monthly precipitation is likely to be normal to below normal for all South Asia countries except Bangladesh where it is likely to be above normal. In January, it is likely to be normal to above normal for all countries except Maldives, Myanmar and Sri Lanka where it is likely to be below normal. In February and March, it is likely to be normal to above normal for all countries except Myanmar and Sri Lanka where it is likely to be below normal.

- Temperature probability forecast for DJF season indicates that enhanced probability of above normal temperatures is likely over all parts of South Asia except over central region where enhanced probability of below normal temperatures is likely. The same for JFM season indicate that enhanced probability of above normal temperatures is likely over most parts of South Asia except over few parts in the north where enhanced probability of below normal temperatures is likely.

- The country averaged monthly temperatures during December is likely to be above normal for all the south Asian countries except Maldives where it is likely to be below normal. In January, it is likely to be above normal for all countries. In February, the country averaged monthly temperature is likely to be above normal for all countries except Nepal where it is likely to be below normal. In March, it is likely to be above normal for all countries except Afghanistan where it is likely to be below normal.

1. Important Global Climate Factors

1.1 Sea Surface Temperatures over the Pacific Ocean

In November 2025, sea surface temperatures (SSTs) were below average in the central and east-central Pacific Ocean (Fig. 1a). SSTs were above average over the western parts of equatorial Pacific Ocean. Warmer-than-average SSTs were observed in the northern extra-tropical regions of the Pacific. Compared to October 2025, negative SST anomalies developed over most parts of the Pacific Ocean. Additionally, cool SST anomalies were present in some parts of both the South and North Pacific Ocean (Fig. 1b). At present, weak La Niña conditions are prevailing over the equatorial Pacific region. The latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS), there is an almost certain probability (approaching 100%) that ENSO conditions will remain in the neutral phase throughout the DJF 2026 season and thereafter (Fig.2).

1.2 Sea Surface Temperatures over Indian Ocean

In November 2025, warmer than average SSTs were seen over eastern parts of the equatorial Indian Ocean and near average over the western Indian Ocean (Fig. 1a). Cool SSTs were observed in the Arabian Sea and warm SSTs over northern Bay of Bengal. Compared to October 2025, cooler SSTs were observed across the eastern and central Indian Ocean, whereas warmer SSTs were recorded in parts of the northern Arabian Sea and the northern Bay of Bengal (1b). Currently, negative Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest MMCFS forecast suggests that these negative IOD conditions are likely to weaken, with an increasing probability of a transition to neutral conditions during the DJF season and thereafter (Fig.2).

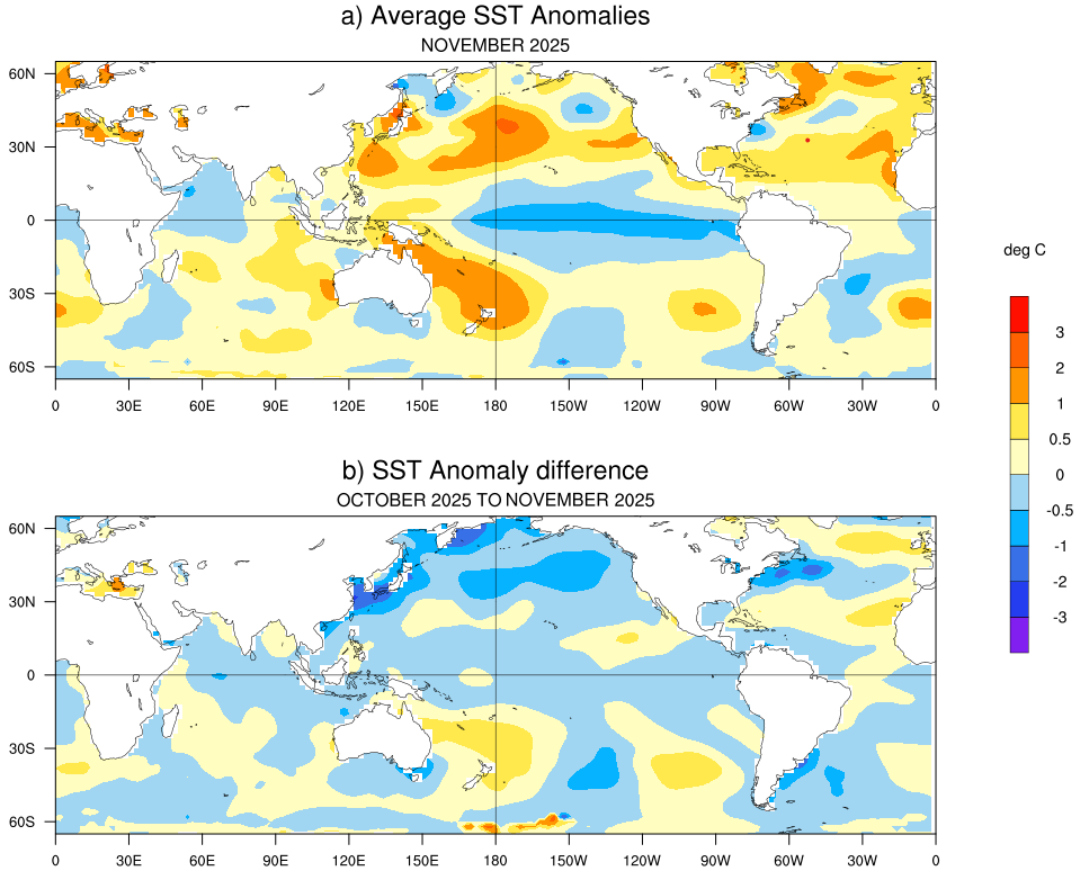

Fig.1: (a) Sea surface temperature (SST) anomalies (^{0}C) during November 2025 and (b) changes in the SST anomalies (^{0}C) from October to November 2025. SSTs are based on the ERSSTv5, from NOAA, and anomalies are computed with respect to 30-year (1991-2020) long term mean.

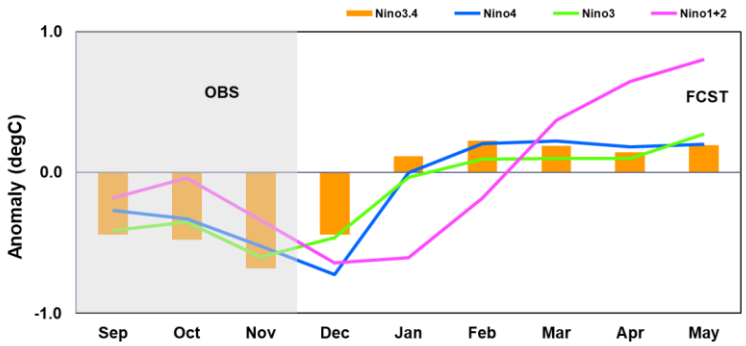

Fig.2: Time series of monthly area-averaged SST anomalies (°C) in the 4 Niño regions. ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

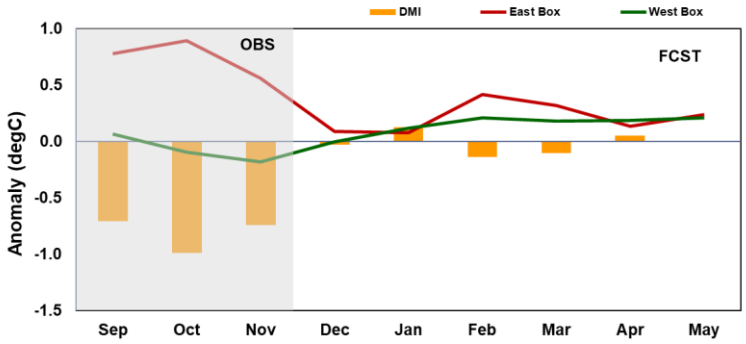

Fig.3: The time series of the monthly area-averaged SST anomaly Indices (°C) over west equatorial Indian Ocean (WEI) & east equatorial Indian Ocean (EEI) along with Dipole Mode Index (DMI=WEI-EEI) representing Indian Ocean Dipole (IOD). ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

1.3 Convection (OLR Anomaly) Pattern over the Asia Pacific Region

The Outgoing Longwave Radiation (OLR) anomaly during November 2025 is shown in (Fig.4). Negative OLR anomalies (enhanced convection, blue shading) were observed over South China Sea and western tropical Pacific Ocean. Negative OLR anomalies were also observed over Maritime Continent and some parts of South Africa. Positive OLR anomalies (suppressed convection, orange/red shading) were observed over Indian Ocean, eastern parts of Africa and northwest parts of South Asia.

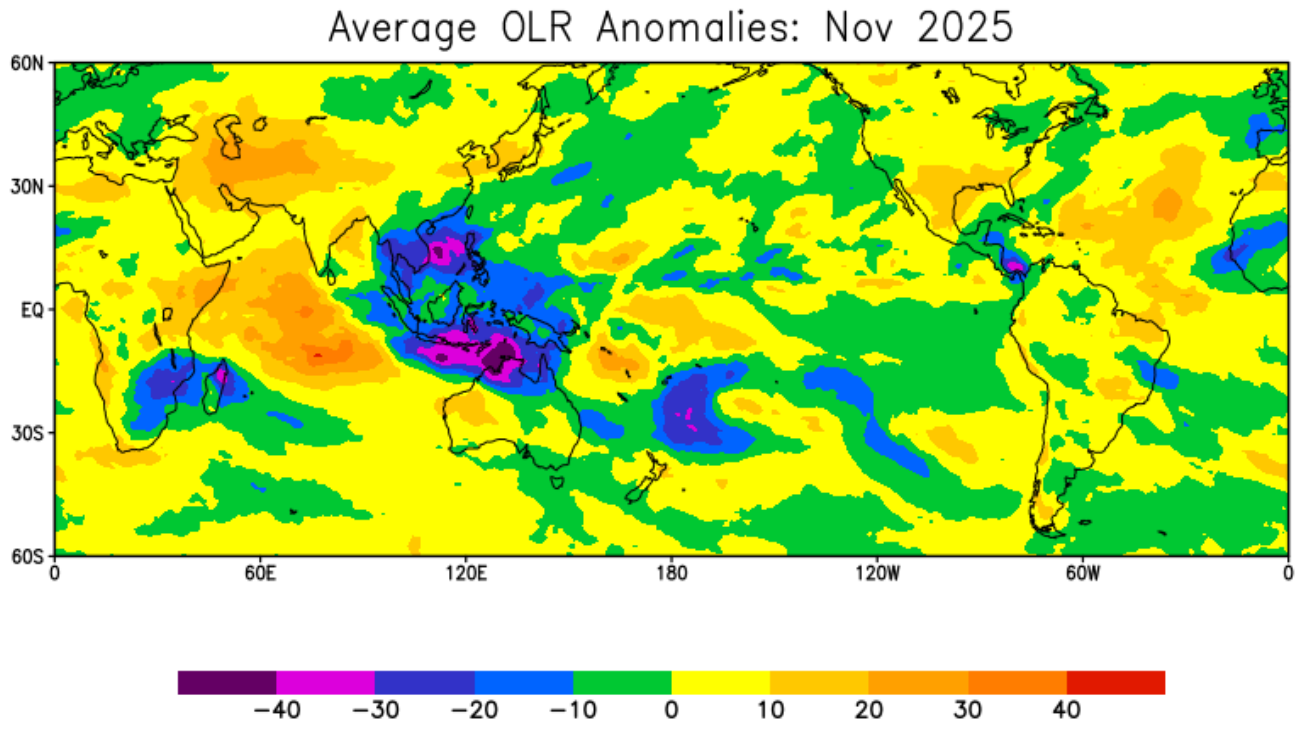

Fig.4: Outgoing Long Wave Radiation (OLR) Anomaly (W/m^2) for November 2025 (Data source: NCEP-NOAA)

1.4 Snow Cover Area over the Northern Hemisphere (NH)

During November 2025, the NH snow cover area (33.12 million Sq. km) was less than the 1991-2020 normal by 1.94 million Sq. km (Fig. 5). Eurasian Snow cover area (19.66 million Sq. km) was 1.52 million Sq. km less than the 1991-2020 normal. North America snow cover area of 13.46 million sq. km was less by 0.42 million Sq. Km with respect to 1991-2020 normal.

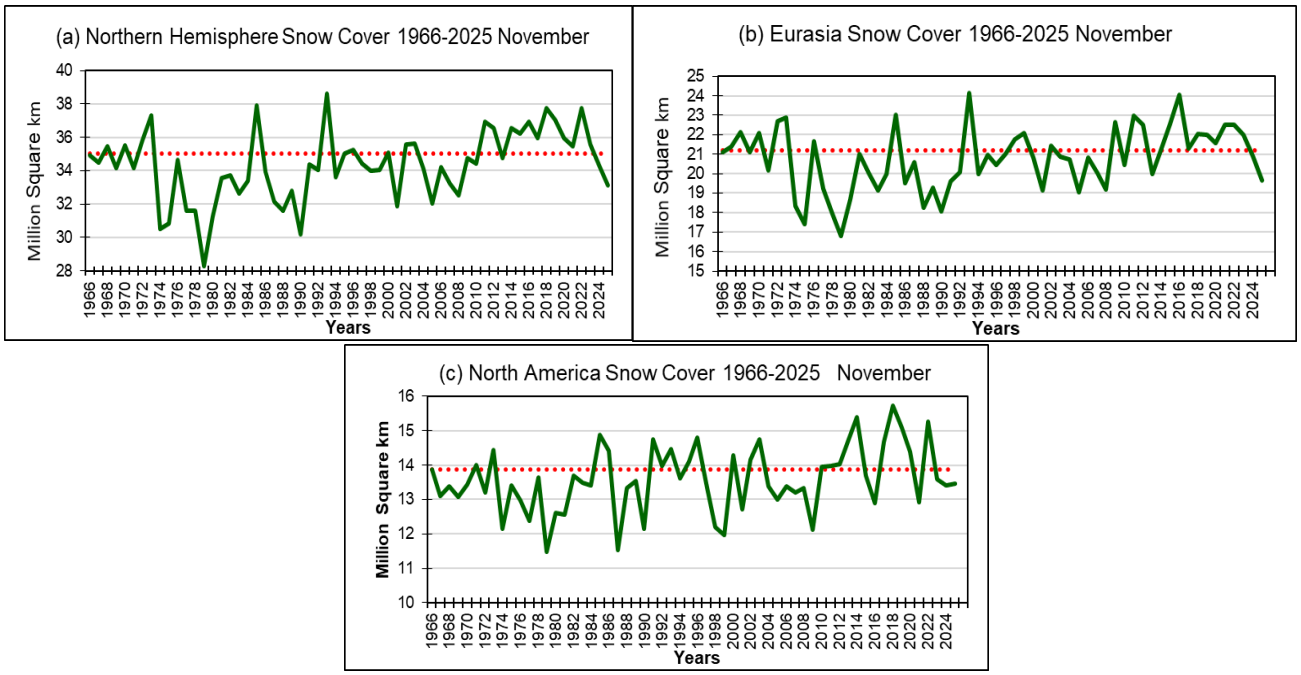

Fig.5. Snow cover area (million Sq. km) for the month of November during the period 1966-2025 (green solid lines) and normal value (1991-2020) (red dotted line) for (a) Northern Hemisphere (b) Eurasia and (c) North America. (Data Source: Rutgers University Snow Lab).

1.5. Madden Julian Oscillation (MJO)

During the first week of November 2025, MJO remained in Phase 5 (Maritime continent). During the second and third week it moved eastwards to Phase 6 (Western Pacific). In the last week it moved further eastwards to phase 7 (Western Pacific). The entire month MJO had amplitude > 1. The MJO phase diagram illustrates the progression of the MJO through different phases, which generally coincide with locations along the equator around the globe.

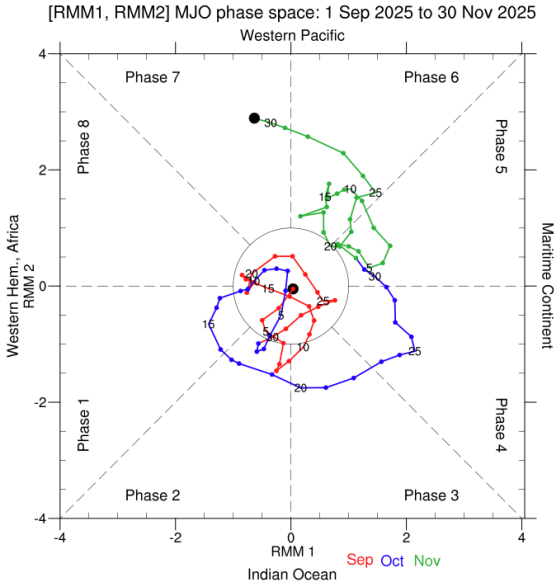

Fig.6. RMM phase diagram for Madden Julian Oscillation (MJO) for the period September to November 2025. (Data Source: http://www.bom.gov.au/climate/mjo/).

2. Seasonal Outlook for South Asia

The seasonal outlook was prepared based on the forecast from Monsoon Mission Coupled Forecasting System (MMCFS). The model is a fully coupled ocean-atmosphere-land model. The atmospheric component of CFSv2 is Global Forecast System (GFS) with spectral resolution of T382 (approximately 38 km) and 64 hybrid vertical levels and the ocean component is Geophysical Fluid Dynamics Laboratory (GFDL) Flexible Modelling System (FMS) Modular Ocean Model version.

2.1. Precipitation Probability Forecast:

The probability forecasts for precipitation for the seasons December 2025 to February 2026 (DJF) and January to March 2026 (JFM) are given in the Figures 7a and 7b respectively. The forecast is prepared based on the November initial conditions. The probability forecast for precipitation for DJF season indicates that enhanced probability of above normal precipitation is likely over most parts of northwest, north along the plains of Himalayas, east, northeast and southern regions of South Asia and enhanced probability of below normal precipitation is likely over extreme north, west, southeast and extreme south of South Asia. The same for JFM seasons indicate that enhanced probability of above normal precipitation is likely over most parts of northwest, extreme north, north along the plains of Himalayas, central, and northeast parts of South Asia and enhanced probability of below normal precipitation is likely over west, Peninsular India, extreme south and southeast of South Asia.

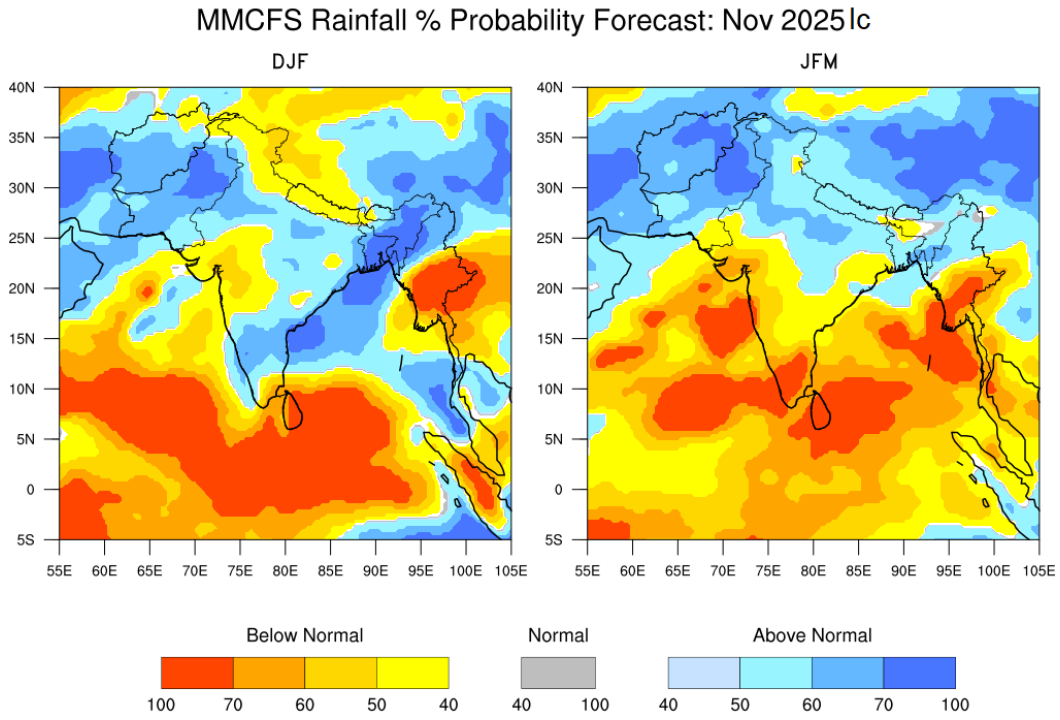

Fig.7: Seasonal probability (%) forecasts of precipitation for (a) DJF 2025 -26 (left) and (b) JFM 2026(right) based on initial conditions of November 2025.The white color indicates climatological probability.

2.2. Temperature Probability Forecast*:*

The probability forecasts for temperature for the season December 2025 to February 2026 (DJF) and January to March 2026 (JFM) are given in the Figures 8a and 8b respectively. The forecast is prepared based on the November initial conditions. Temperature probability forecast for DJF season indicates that enhanced probability of above normal temperatures is likely over all parts of South Asia except over central region where enhanced probability of below normal temperatures is likely. The same for JFM season indicate that enhanced probability of above normal temperatures is likely over most parts of South Asia except over few parts in the north where enhanced probability of below normal temperatures is likely.

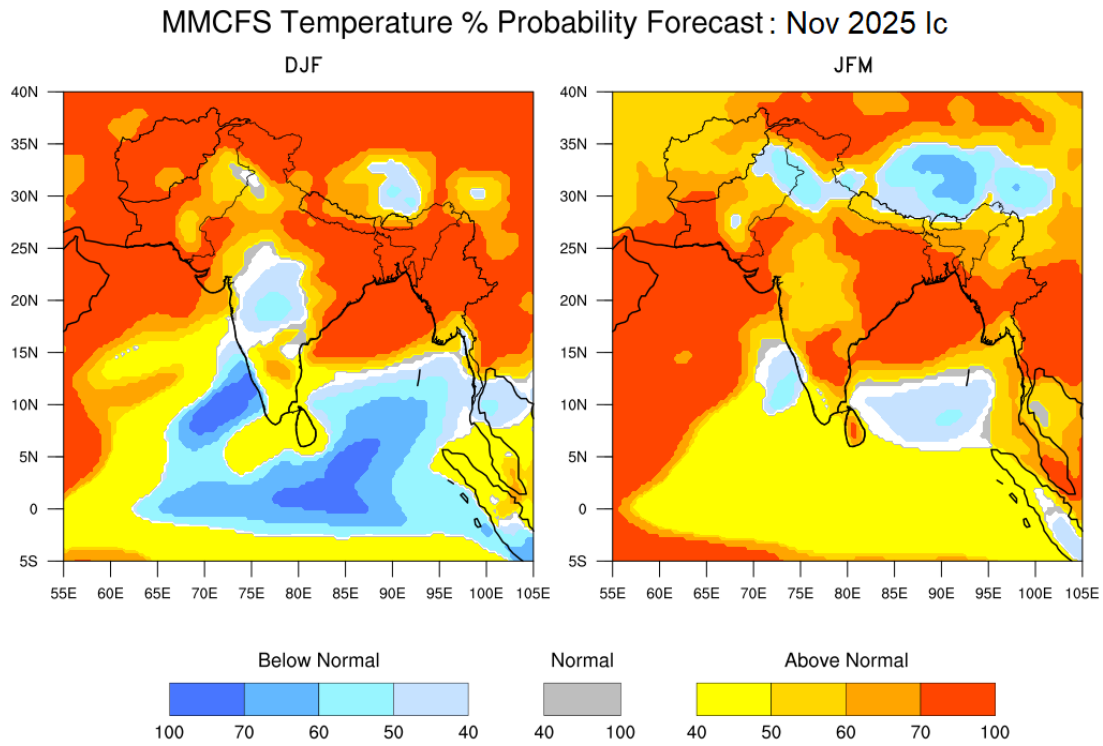

Fig. 8: Probability (%) forecast for the seasonal mean temperature for (a) DJF 2025-26 (left) and (b) JFM 2026 (right) based on initial conditions of November 2025. The white colour indicates climatological probability.

3. Forecast Outlook for the Country Averaged Monthly Precipitation and Temperature

The MMCFS model forecast for monthly precipitation and temperature for the next four months (from December 2025 to March 2026) averaged over the 9 south Asian countries viz., Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka were shown in the Figures 9. The monthly rainfall anomaly is expressed as percentage departure from Long Period Model Average (LPMA) and monthly temperature anomaly is expressed in degree Celsius.

In December the country averaged monthly precipitation is likely to be normal to below normal for all South Asia countries except Bangladesh where it is likely to be above normal. In January, it is likely to be normal to above normal for all countries except Maldives, Myanmar and Sri Lanka where it is likely to be below normal. In February and March, it is likely to be normal to above normal for all countries except Myanmar and Sri Lanka where it is likely to be below normal.

The country averaged monthly temperatures during December is likely to be above normal for all the south Asian countries except Maldives where it is likely to be below normal. In January, it is likely to be above normal for all countries. In February, the country averaged monthly temperature is likely to be above normal for all countries except Nepal where it is likely to be below normal. In March, it is likely to be above normal for all countries except Afghanistan where it is likely to be below normal.

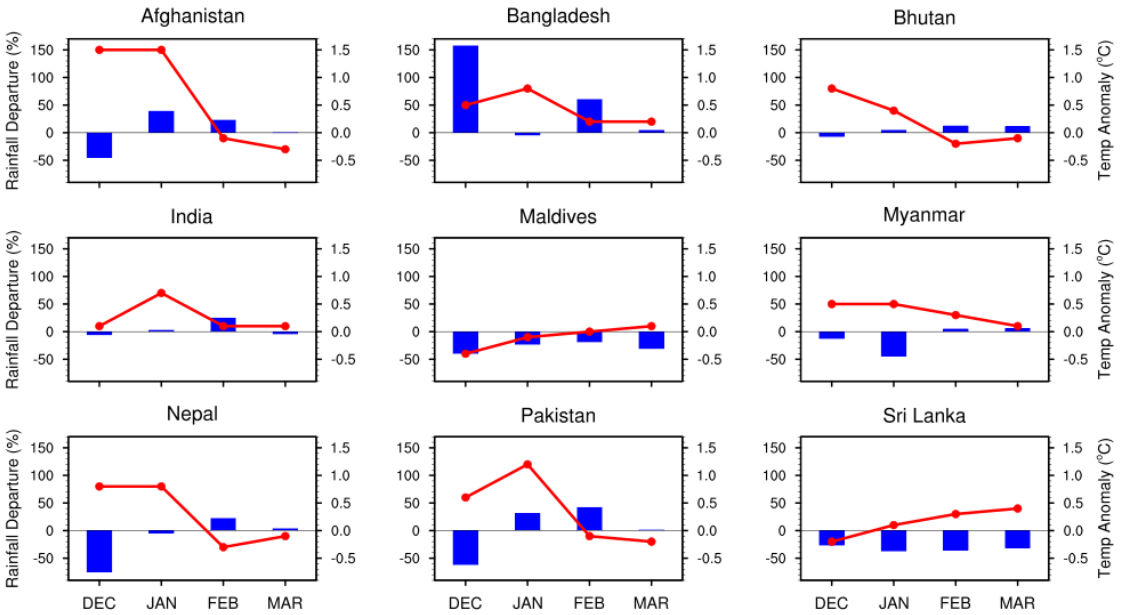

Fig. 9: Monthly country averaged rainfall forecast expressed as percentage departures (%) and Monthly country averaged temperature anomaly (°C) forecast during December 2025 to March 2026. Here, the normal range for country averaged monthly precipitation is taken as -10% to +10% (Left Vertical Axis Scale for Precipitation indicated in blue shaded bars) and the normal range for country averaged monthly temperature is taken -0.25°C to +0.25°C (Right Vertical Axis Scale for Temperature indicated in red colored lines).