**Earth System Science Organization (ESSO) Ministry of Earth Sciences (MoES) India Meteorological Department**
**WMO Regional Climate Centre Pune,**
**India**

# SEASONAL CLIMATE OUTLOOK FOR SOUTH ASIA
**(November to February 2025 - 26)**

## 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) and other climate models suggest a moderate to fairly high likelihood (around 62%) of La Niña conditions persisting through the NDJ 2025/26 season, with a probable transition to neutral ENSO conditions 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 NDJ season and thereafter.
- The probability forecast for precipitation for NDJ season indicate that enhanced probability of above normal precipitation is likely over west, peninsular India and northeast and southeast of South Asia and below normal precipitation is likely over north, northwest and north along the plains of Himalayas and DFJ season indicate that enhanced probability of below normal precipitation is likely over most parts of South Asia except over Peninsular India where above normal precipitation is likely.
- In November the country averaged monthly precipitation is likely to be normal to above normal for all South Asia countries except Afghanistan, Maldives and Pakistan where it is likely to be above normal. In December, the country averaged monthly precipitation is likely to be normal to below normal for all countries except Bangladesh, India and Sri Lanka where it is likely to be above normal. In January it is likely to be normal to below normal for all countries. In February, the country averaged monthly precipitation is likely to be normal to above normal for all countries except Nepal where it is likely to be below normal.
- Temperature probability forecast for NDJ and DJF seasons indicate that enhanced probability of above normal temperatures is likely over most parts of South Asia except over central and Peninsular India where enhanced probability of below normal temperatures is likely.
- The country averaged monthly temperatures during November, December, January and February is likely to be above normal for all the south Asian countries.

## 1. Important Global Climate Factors

### *Sea Surface Temperatures over the Pacific Ocean*

In October 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 September 2025, negative SST anomalies developed over the western & central Pacific Ocean while positive SST anomalies seen across the far western 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) and other climate models suggest a moderate to fairly high likelihood (around 62%) of La Niña conditions persisting through the NDJ 2025/26 season, with a probable transition to neutral ENSO conditions thereafter (Fig.2).

### *1.2 Sea Surface Temperatures over Indian Ocean*

In October 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 September 2025, warmer sea surface temperatures (SSTs) were observed across the eastern Indian Ocean (Fig. 1b), while cooler SSTs were recorded over the western and central Indian Ocean, as well as in parts of the Arabian Sea and the northern Bay of Bengal. 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 NDJ season and thereafter.

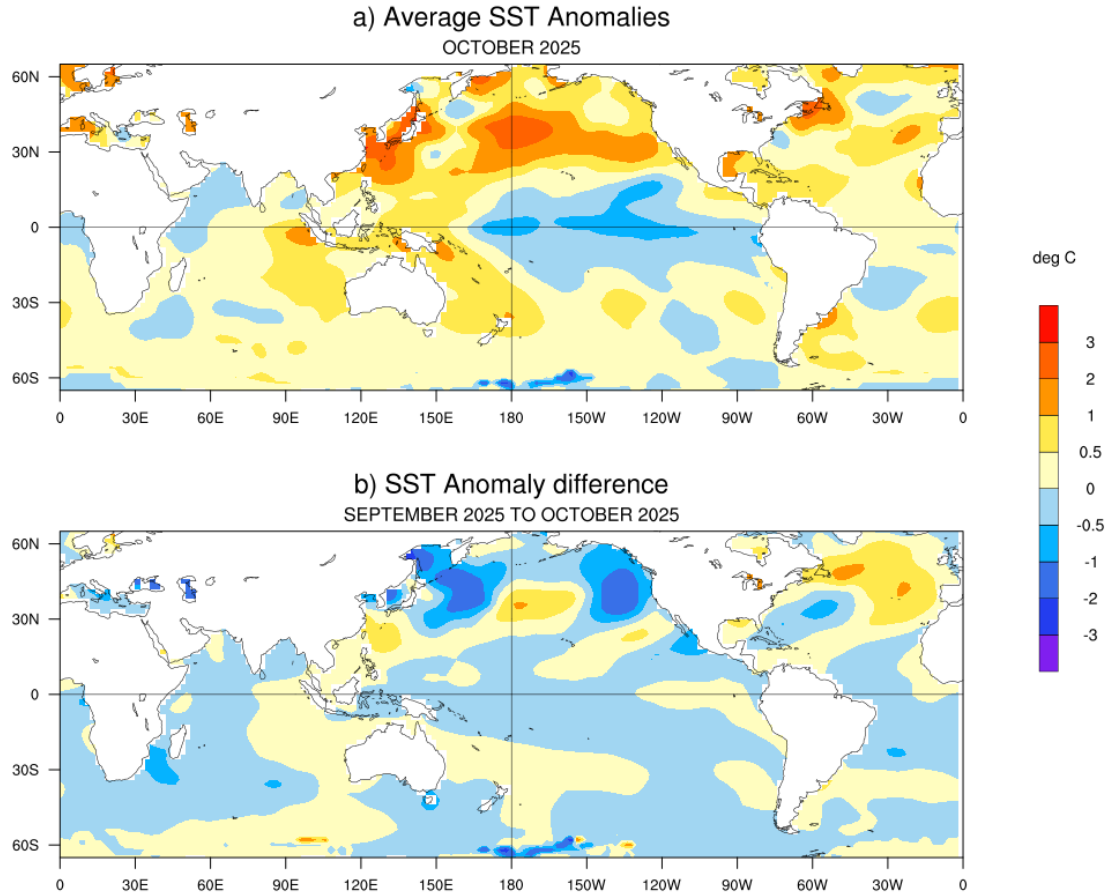


Fig.1: (a) Sea surface temperature (SST) anomalies ($^0$C) during October 2025 and (b) changes in the SST anomalies ($^0$C) from September to October 2025. SSTs are based on the ERSSTv5, from NOAA, and anomalies are computed with respect to 30-year (1991-2020) long term mean.

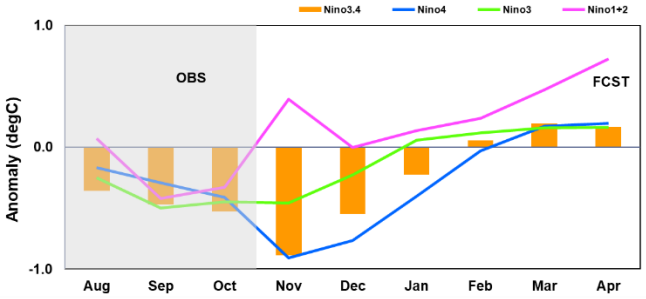


Fig.2: Time Series of monthly area-averaged SST anomalies (°C) in the 4 Niño regions. ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

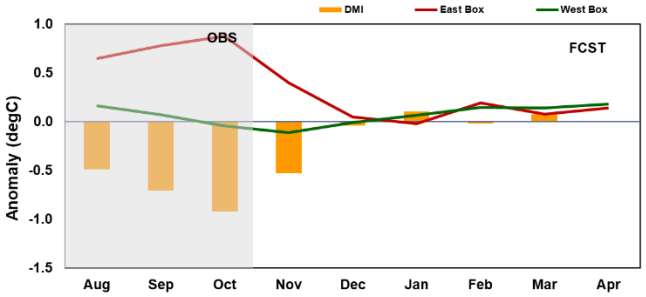


Fig.3: The time series of the monthly area-averaged SST anomaly Indices (°C) over west equatorial Indian Ocean (WEI) & east equatorial Indian Ocean (EEI) along with Dipole Mode Index (DMI=WEI-EEI) representing Indian Ocean Dipole (IOD). ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF 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 October 2025 is shown in (Fig.4). Negative OLR anomalies (enhanced convection, blue shading) were observed over Arabian sea, South China Sea, South Indian Ocean and western tropical Pacific Ocean. Negative OLR anomalies were also observed over most parts of Indian Subcontinent and Maritime Continent. Positive OLR anomalies (suppressed convection, orange/red shading) were observed over North west parts of South Asia, east and central Pacific Ocean and some parts of north and south America.

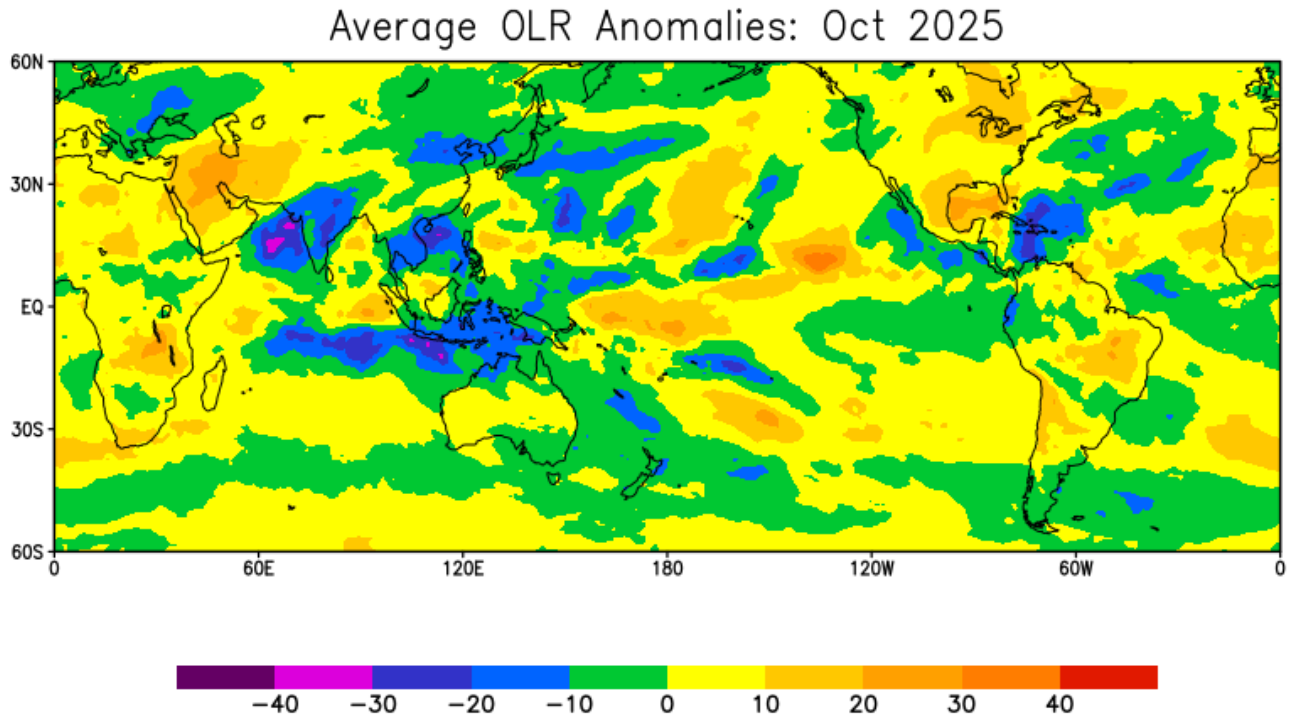


**Fig.4:** Outgoing Long Wave Radiation (OLR) Anomaly (W/m$^2$) for October 2025 (Data source: NCEP-NOAA)

### *1.4 Snow Cover Area over the Northern Hemisphere (NH)*

During October 2025, the NH snow cover area (18 million Sq. km) was less than the 1991- 2020 normal by 1.167 million Sq. km (Fig. 5). Eurasian Snow cover area (10.84 million Sq. km) was 0.156 million Sq. km more than the 1991-2020 normal. North America snow cover area of 7.16 million sq. km was less by 1.323 million Sq. Km with respect to 1991-2020 normal.

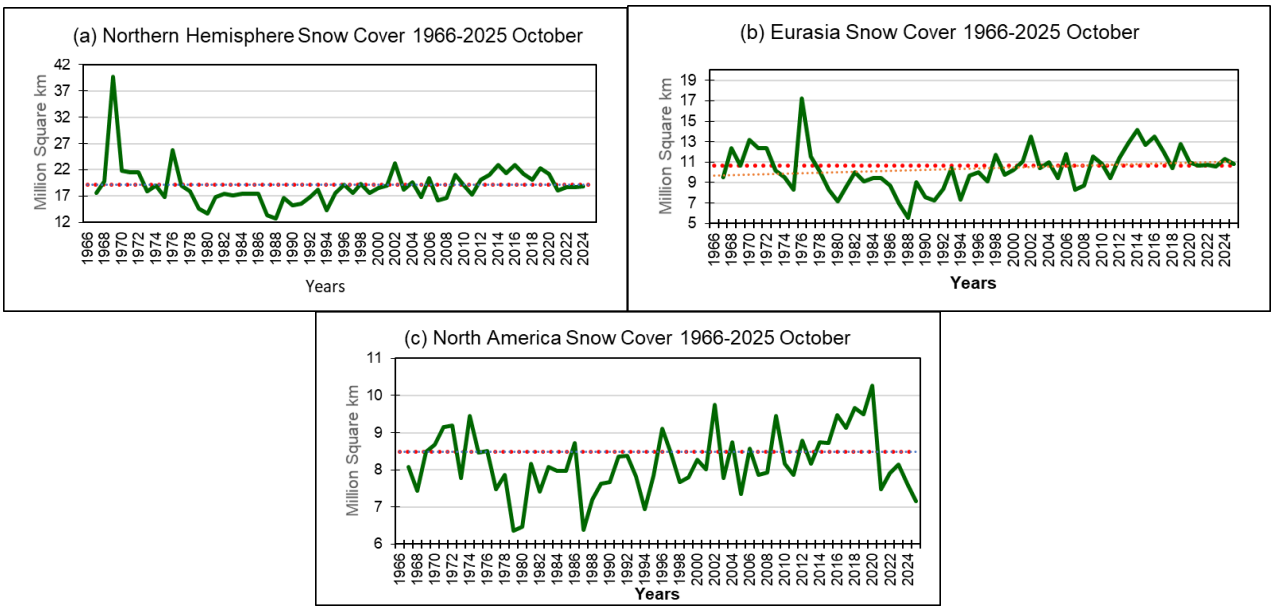


**Fig.5.** Snow cover area (million Sq. km) for the month of October during the period 1966-2025 (green solid lines) and normal value (1991-2020) (red dotted line) for (a) Northern Hemisphere (b) Eurasia and (c) North America. (Data Source: Rutgers University Snow Lab).

### *1.5. Madden Julian Oscillation (MJO)*

During the first fortnight of October 2025, MJO moved from Phase 2 (Indian Ocean) to Phase 1 (Western Hem. Africa) with an amplitude <1. During the second fortnight it moved eastwards to Phase 5 (Maritime Continent) with 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.

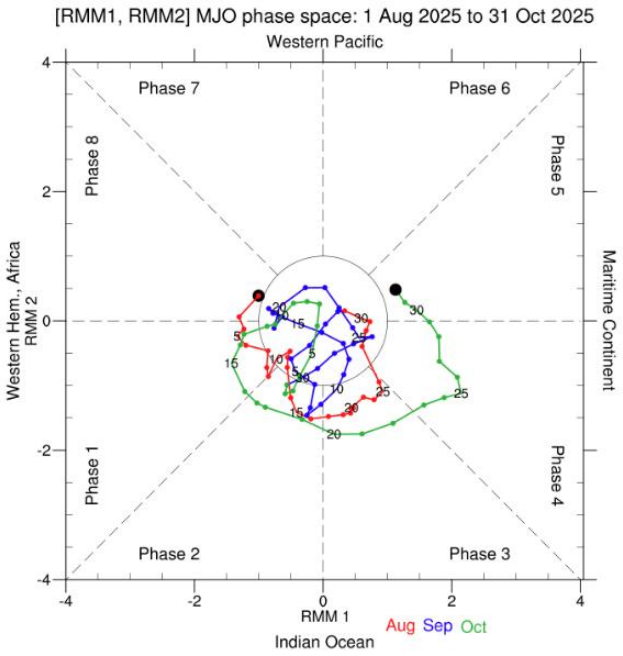


**Fig.6.** RMM phase diagram for Madden Julian Oscillation (MJO) for the period August to October 2025. (Data Source: http://www.bom.gov.au/climate/mjo/).

## 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 November to January 2025-26 (NDJ) and December to February 2025-26 (DJF) are given in the Figures 7a and 7b respectively. The forecast is prepared based on the October initial conditions. The probability forecast for precipitation for NDJ season indicate that enhanced probability of above normal precipitation is likely over west, peninsular India and northeast and southeast of South Asia and below normal precipitation is likely over north, northwest and north along the plains of Himalayas and DFJ season indicate that enhanced probability of below normal precipitation is likely over most parts of South Asia except over Peninsular India where above normal precipitation is likely.

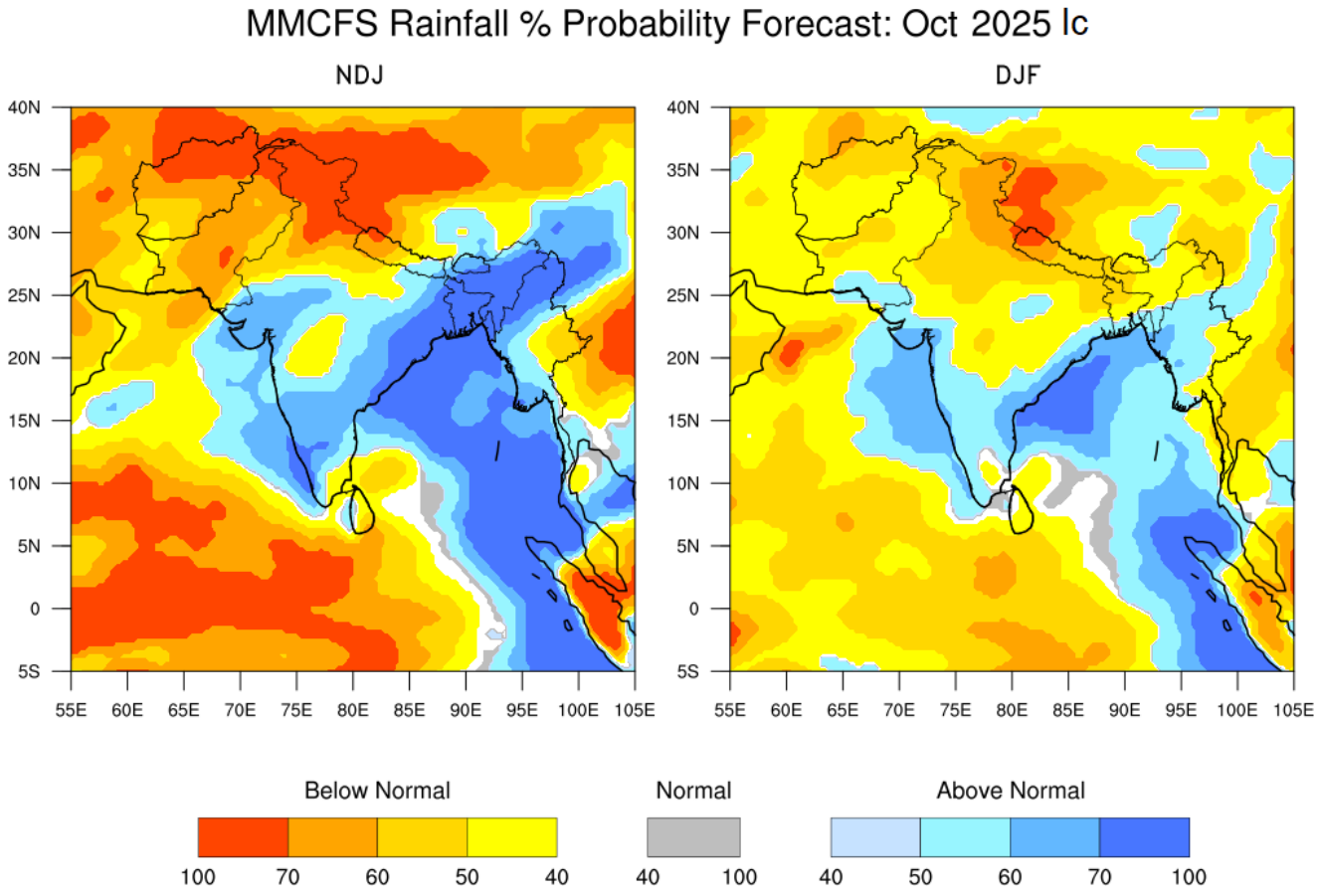


**Fig.7:** Seasonal probability (%) forecasts of precipitation for (a) NDJ 2025-26 (left) and (b) DJF 2025-26 (right) based on initial conditions of October 2025.The white color indicates climatological probability.

### 2.2. Temperature Probability Forecast*:*

The probability forecasts for temperature for the season November to January 2025 -26 (NDJ) and December to February 2025 - 26 (DJF) are given in the Figures 8a and 8b respectively. The forecast is prepared based on the October initial conditions. Temperature probability forecast for NDJ and DJF seasons indicate that enhanced probability of above normal temperatures is likely over most parts of South Asia except over central and Peninsular India where enhanced probability of below normal temperatures is likely.

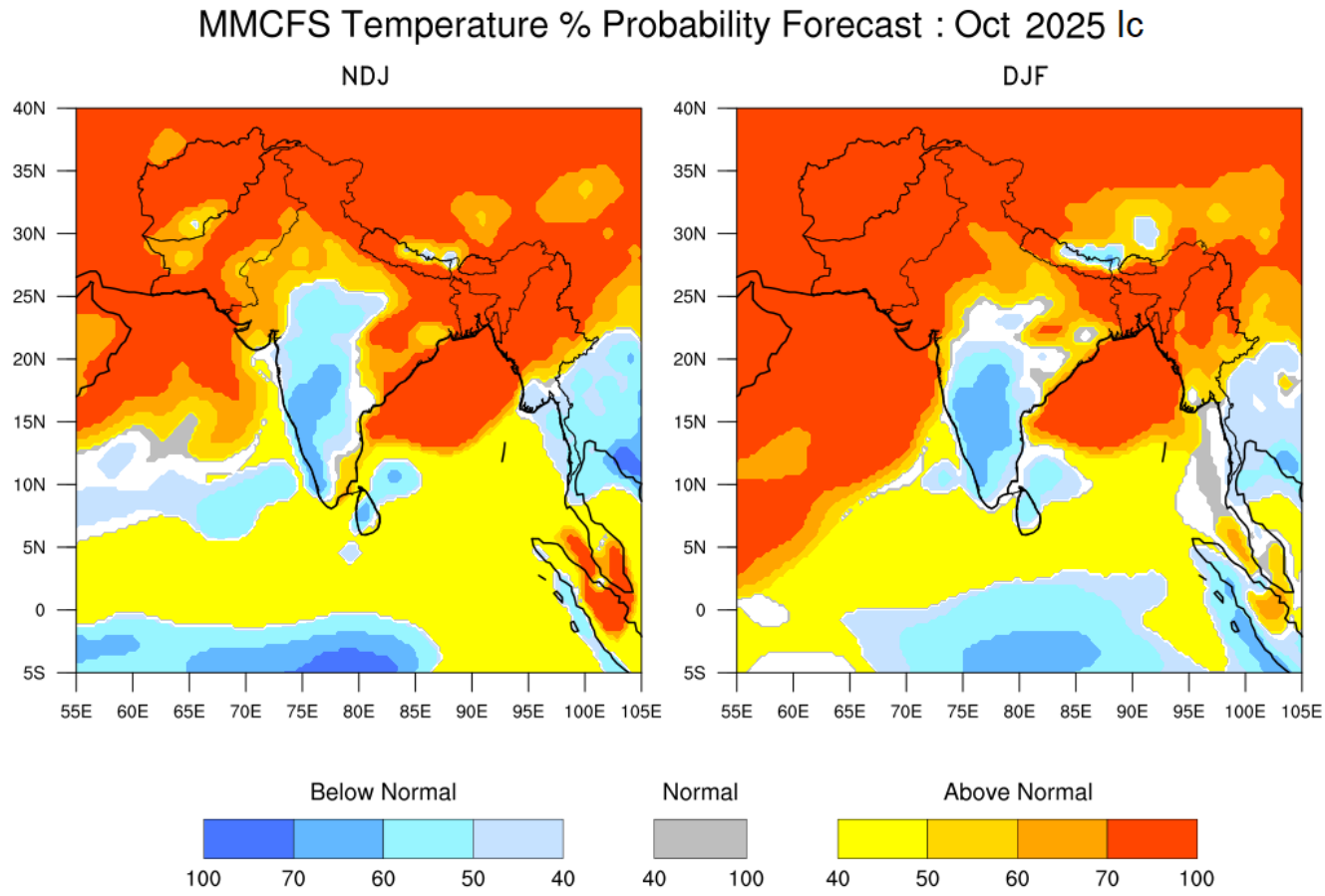


**Fig. 8:** Probability (%) forecast for the seasonal mean temperature for (a) NDJ 2025 -26 (left) and (b) DJF 2025-26 (right) based on initial conditions of October 2025. The white colour indicates climatological probability.

## 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 November to February 2025) 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 November the country averaged monthly precipitation is likely to be normal to above normal for all South Asia countries except Afghanistan, Maldives and Pakistan where it is likely to be above normal. In December, the country averaged monthly precipitation is likely to be normal to below normal for all countries except Bangladesh, India and Sri Lanka where it is likely to be above normal. In January it is likely to be normal to below normal for all countries. In February, the country averaged monthly precipitation is likely to be normal to above normal for all countries except Nepal where it is likely to be below normal.

The country averaged monthly temperatures during November, December, January and February is likely to be above normal for all the south Asian countries.

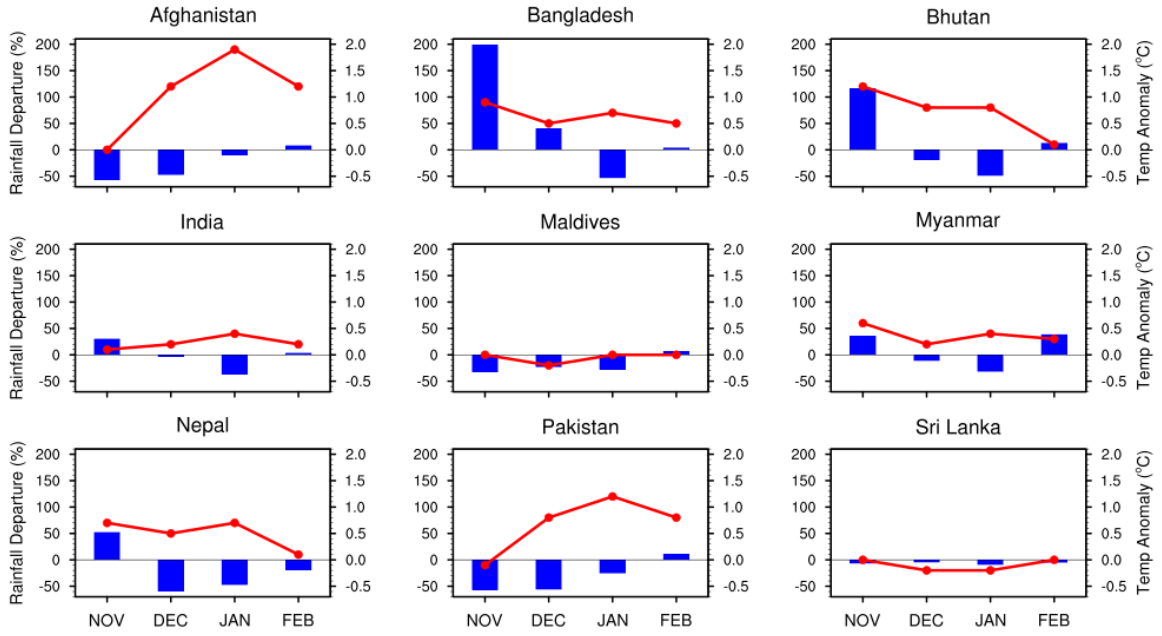


**Fig. 9:** Monthly country averaged rainfall forecast expressed as percentage departures (%) and Monthly country averaged temperature anomaly (°C) forecast during November to February 2025. Here, the normal range for country averaged monthly precipitation is taken as -10% to +10% (Left Vertical Axis 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).