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SEASONAL CLIMATE OUTLOOK FOR SOUTH ASIA
(August to November 2025)

Highlights

- Currently, neutral El Nino-Southern Oscillation (ENSO) conditions are prevailing over the equatorial Pacific region. The latest Monsoon Mission Climate Forecast System (MMCFS) as well as other climate model forecasts indicate that the neutral ENSO conditions are likely to continue during the monsoon season.

- At present, neutral Indian Ocean Dipole (IOD) conditions are observed over the Indian Ocean. The latest MMCFS forecast as well as other climate model forecasts indicates that the weak negative IOD conditions are likely to develop during end of the monsoon season.

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

- In August, the country averaged monthly precipitation is likely to be normal to above normal for all South Asia countries except Pakistan where it is going to be below normal. In September, the country averaged monthly precipitation is likely to be normal to above normal for all countries. In October it is likely to be above average for all countries except Afghanistan where it is likely to be below normal. In November Bangladesh, Bhutan and India is likely to be normal to above normal and Afghanistan, Maldives, Myanmar, Nepal Pakistan and Sri Lanka is likely to be below normal.

- Temperature probability forecast for ASO and SON seasons indicate that enhanced probability of above normal temperatures is likely over northwest, north along the plains of Himalayas, east, northeast and south east parts of South Asia and enhanced probability of below normal temperatures is likely over west central and Peninsular India.

- The country averaged monthly temperatures during August to November is likely to be above normal for all the south Asian countries.

1. Important Global Climate Factors

1.1 Sea Surface Temperatures over the Pacific Ocean

In July 2025, sea surface temperatures (SSTs) were near average over central and eastern equatorial Pacific Ocean (Fig. 1a). SSTs were above average over the western parts of equatorial Pacific Ocean. Negative SSTs were observed over Atlantic Oceans. Warmer-than-average SSTs were observed in the northern and southern extra-tropical regions of the Pacific. Compared to June 2025, positive SST anomalies developed over the eastern Pacific Ocean while negative SST anomalies intensified across the western Pacific Ocean. Additionally, cool SST anomalies were present in some parts of both the South and North Pacific Ocean (Fig. 1b). However, warm SST anomalies are present over the north Pacific Ocean between 30 N to 60 N. Currently, neutral El Nino-Southern Oscillation (ENSO) conditions are prevailing over the equatorial Pacific region. The latest Monsoon Mission Climate Forecast System (MMCFS) as well as other climate model forecasts indicate that the neutral ENSO conditions are likely to continue during the monsoon season (Fig.2)

1.2 Sea Surface Temperatures over Indian Ocean

In July 2025, warmer than average SSTs were seen over most 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 northern Bay of Bengal. Compared to June 2025, cool SSTs were observed across the Arabian Sea, Bay of Bengal and Western Indian Ocean (Fig. 1b) while warm SSTs were observed over some parts of the Eastern Indian Ocean. At present, neutral Indian Ocean Dipole (IOD) conditions are observed over the Indian Ocean. The latest MMCFS forecast as well as other climate model forecasts indicates that the weak negative IOD conditions are likely to develop during end of the monsoon season (Fig.3).

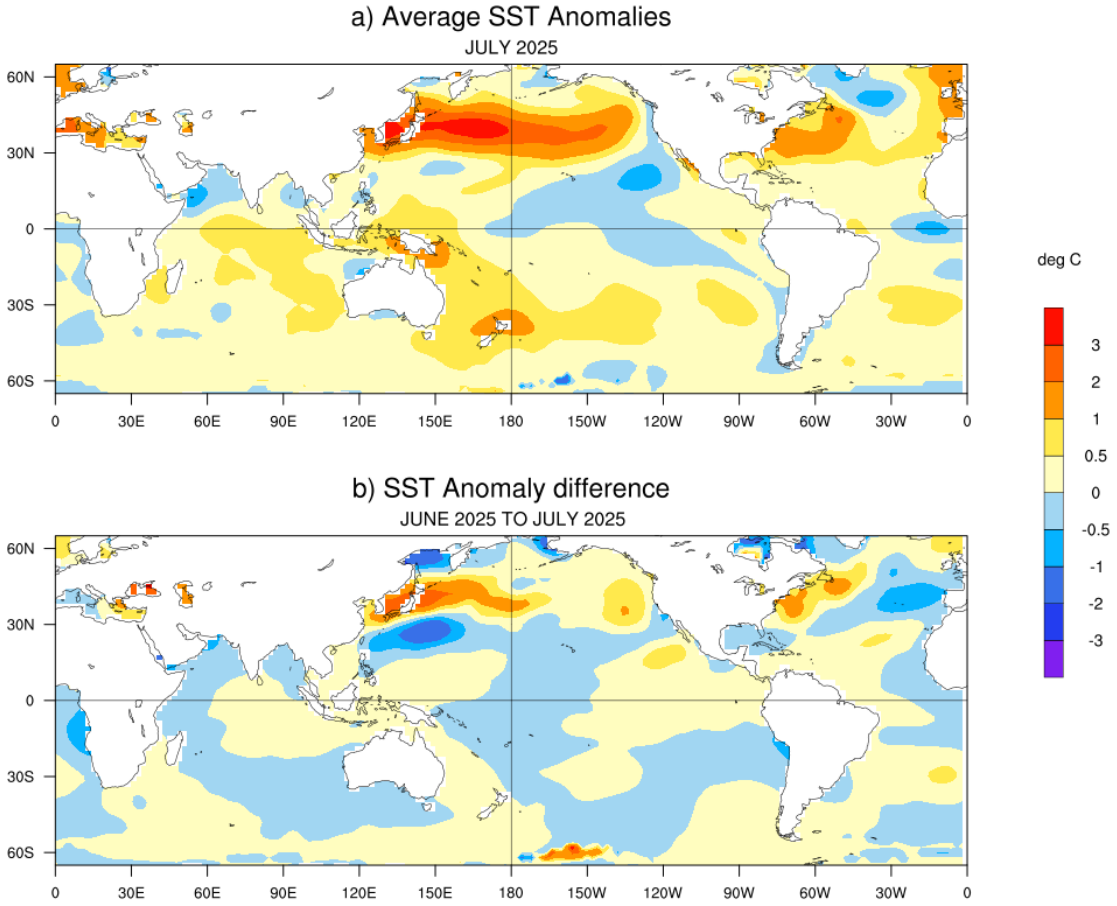

Fig.1: (a) Sea surface temperature (SST) anomalies (^{0}C) during July 2025 and (b) changes in the SST anomalies (^{0}C) from June to July 2025. SSTs are based on the ERSSTv5, from NOAA, and anomalies are computed with respect to 30-year (1991-2020) long term mean.

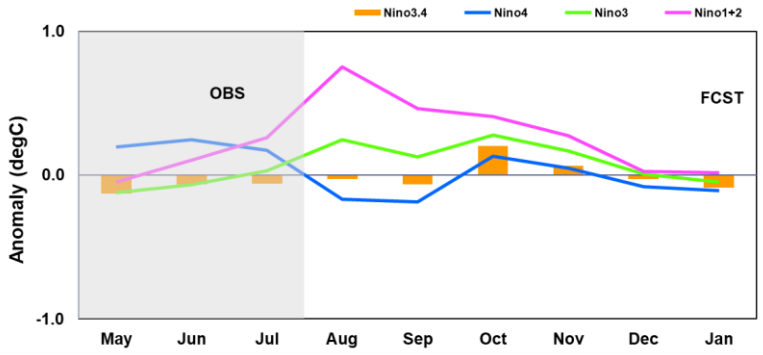

Fig.2: Time series of monthly area-averaged SST anomalies (°C) in the 4 Niño regions. ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

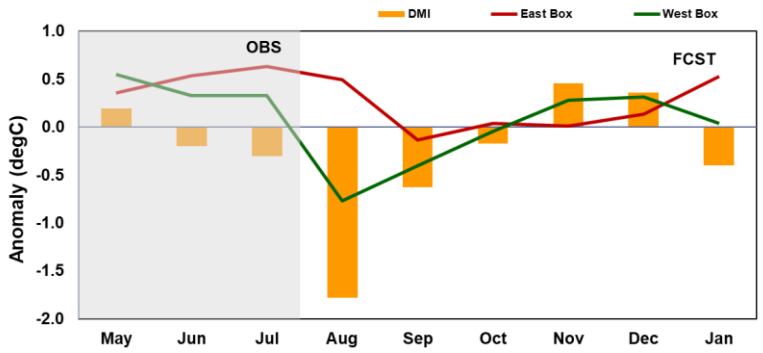

Fig.3: The time series of the monthly area-averaged SST anomaly Indices (°C) over west equatorial Indian Ocean (WEI) & east equatorial Indian Ocean (EEI) along with Dipole Mode Index (DMI=WEI-EEI) representing Indian Ocean Dipole (IOD). ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF 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 Jul 2025 is shown in (Fig.4). Negative OLR anomalies (enhanced convection, blue shading) were observed over Head Bay of Bengal and western tropical Pacific Ocean. Negative OLR anomalies were also observed over northwest parts of South Asia and Maritime Continent. Positive OLR anomalies (suppressed convection, orange/red shading) were observed over North Indian Oceans, Central and East Equatorial Pacific Ocean and Tropical Atlantic Ocean. Positive OLR anomalies are also observed over the southern South Asia, parts of Africa and South America.

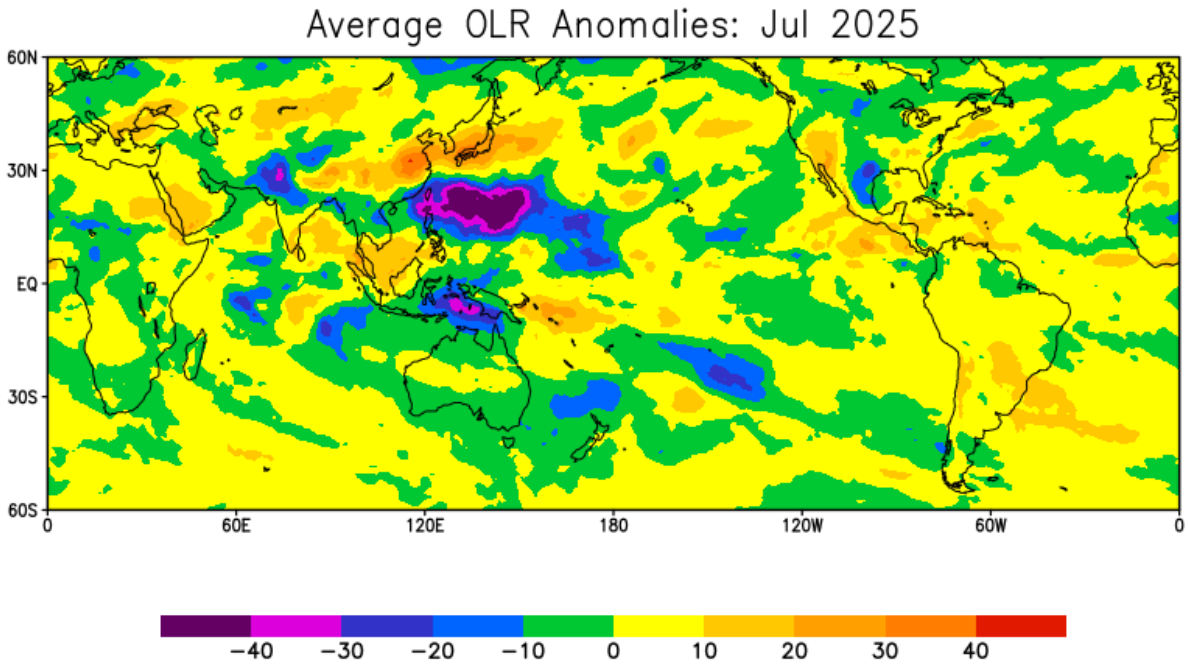

Fig.4: Outgoing Long Wave Radiation (OLR) Anomaly (W/m^2) for July 2025 (Data source: NCEP-NOAA)

1.4 Snow Cover Area over the Northern Hemisphere (NH)

During July 2025, the NH snow cover area (2.89 million Sq. km) was less than the 1991-2020 normal by 0.3 million Sq. km (Fig. 5). Eurasian Snow cover area (0.193 million Sq. km) was 0.29 million Sq. km less than the 1991-2020 normal. North America snow cover area of 2.7 million sq. km was less by 0.003 million Sq. Km with respect to 1991-2020 normal.

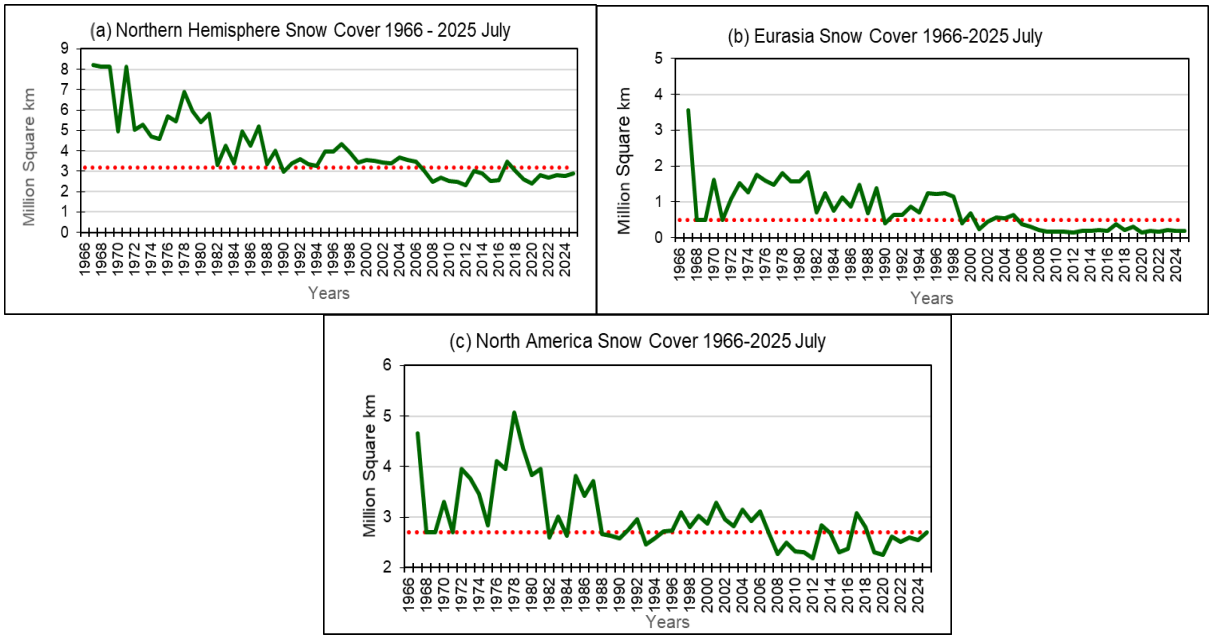

Fig.5. Snow cover area (million Sq. km) for the month of July during the period 1966-2025 (green solid lines) and normal value (1991-2020) (red dotted line) for (a) Northern Hemisphere (b) Eurasia and (c) North America. (Data Source: Rutgers University Snow Lab).

1.5. Madden Julian Oscillation (MJO)

During the first week of July 2025, MJO moved from Phase 2 to Phase 3 (Indian Ocean) with an amplitude < 1. In the second week it moved to phase 4 (Maritime continent) with an amplitude > 1. During the second fortnight it further moved eastwards to Phase 7 (Western Pacific) 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.

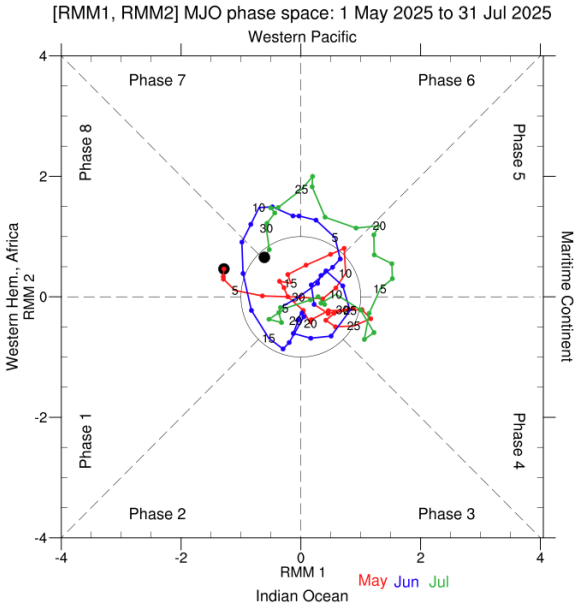

Fig.6. RMM phase diagram for Madden Julian Oscillation (MJO) for the period May to July 2025 2025. (Data Source: http://www.bom.gov.au/climate/mjo/).

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 August to October 2025 (ASO) and September to November 2025 (SON) are given in the Figures 7a and 7b respectively. The forecast is prepared based on the July initial conditions. The probability forecast for precipitation for ASO season indicate that enhanced probability of above normal precipitation is likely over most parts of central and southern regions of South Asia and enhanced probability of below normal precipitation is likely over northwest, west, north along the plains of Himalayas, east, northeast and southeast of South Asia. The same for and SON season indicate that enhanced probability of above normal precipitation is likely over most parts of central, southern peninsular region, east, west, parts of northwest of South Asia and below normal precipitation is likely over extreme northwest, extreme north, extreme south, northeast and southeast of South Asia.

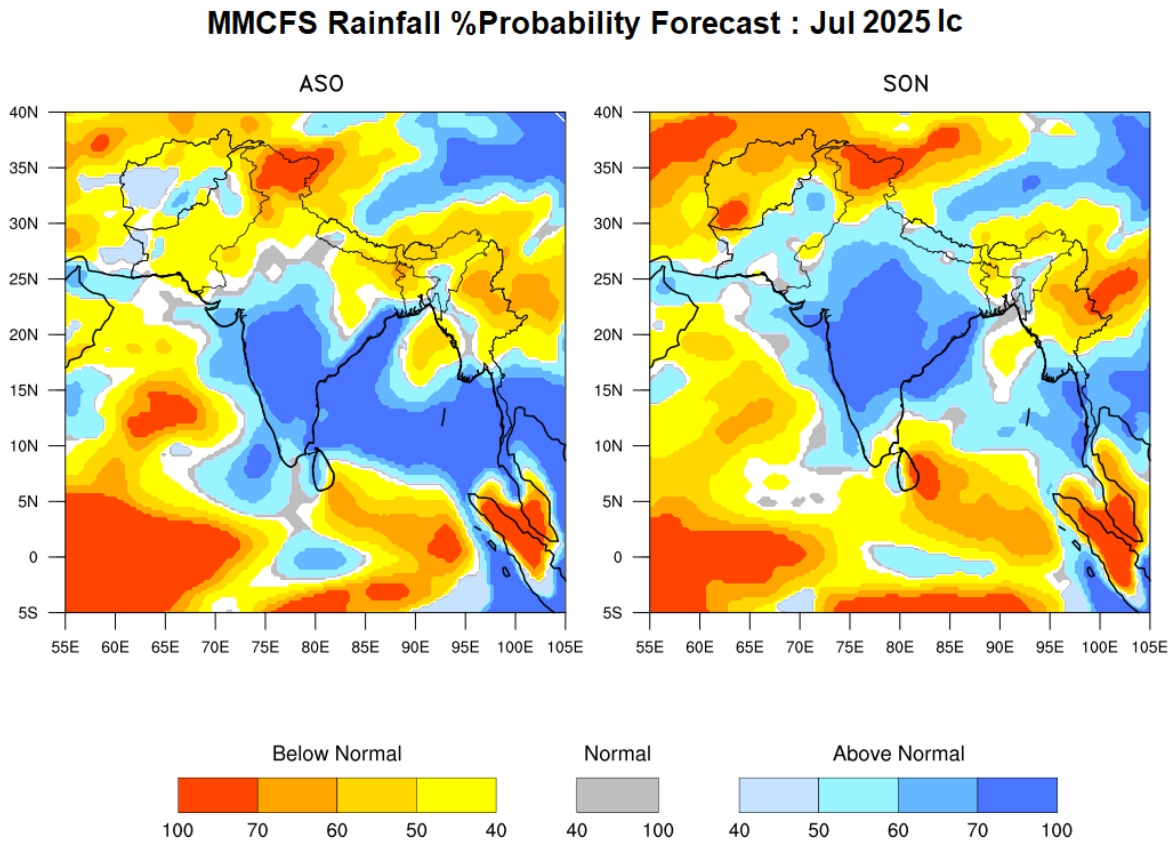

Fig.7: Seasonal probability (%) forecasts of precipitation for (a) ASO 2025 (left) and (b) SON 2025 (right) based on initial conditions of July 2025.The white colour indicates climatological probability.

2.2. Temperature Probability Forecast*:*

The probability forecasts for temperature for the season August to October 2025 (ASO) and September to November 2025 (SON) are given in the Figures 8a and 8b respectively. The forecast is prepared based on the July initial conditions. Temperature probability forecast for ASO and SON seasons indicate that enhanced probability of above normal temperatures is likely over northwest, north along the plains of Himalayas, east, northeast and south east parts of South Asia and enhanced probability of below normal temperatures is likely over west central and Peninsular India.

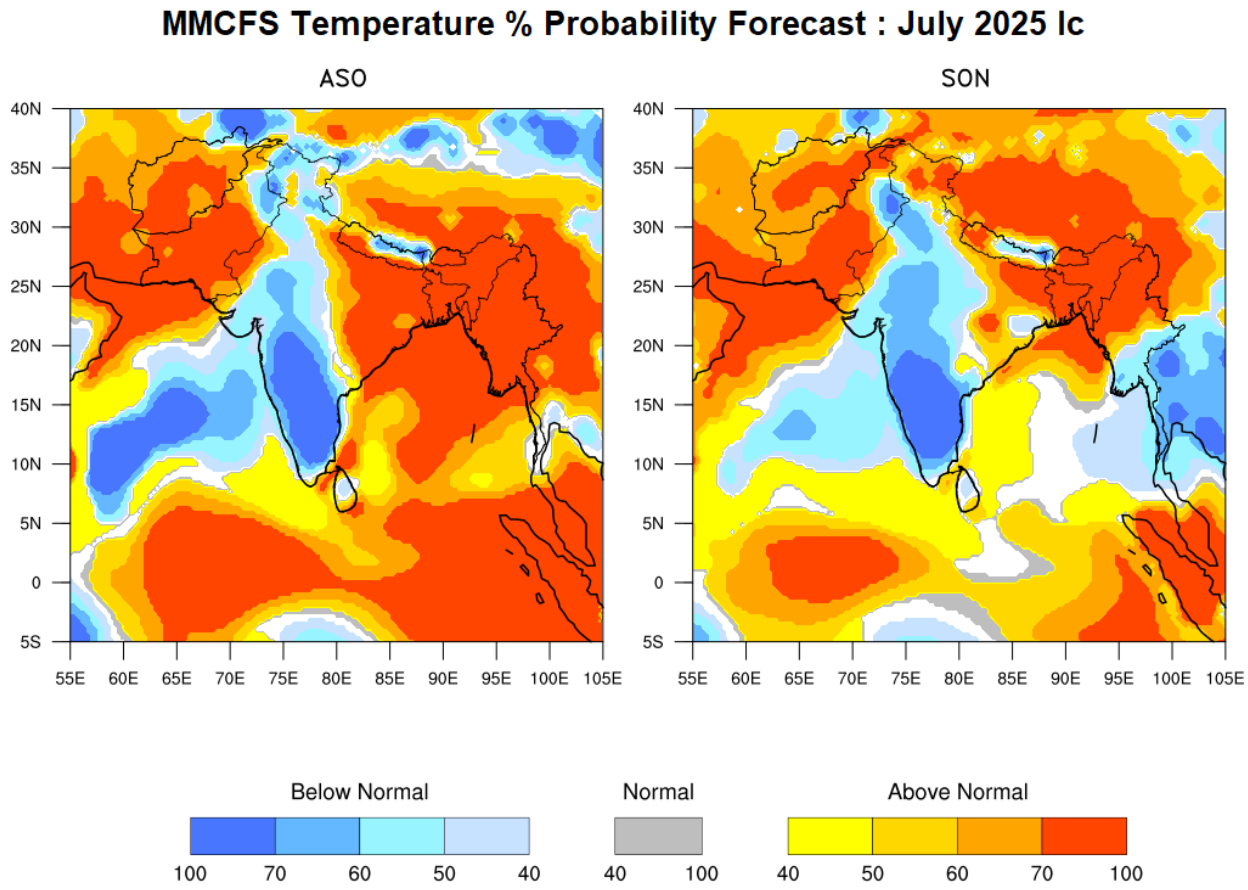

Fig. 8: Probability (%) forecast for the seasonal mean temperature for (a) ASO 2025 (left) and (b) SON 2025 (right) based on initial conditions of July 2025. The white colour indicates climatological probability.

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 August to November 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 August, the country averaged monthly precipitation is likely to be normal to above normal for all South Asia countries except Pakistan where it is going to be below normal. In September, the country averaged monthly precipitation is likely to be normal to above normal for all countries. In October it is likely to be above average for all countries except Afghanistan where it is likely to be below normal. In November, Bangladesh, Bhutan and India is likely to be normal to above normal and Afghanistan. Maldives, Myanmar, Nepal Pakistan and Sri Lanka are likely to be below normal.

The country averaged monthly temperatures during August to November is likely to be above normal for all the south Asian countries.

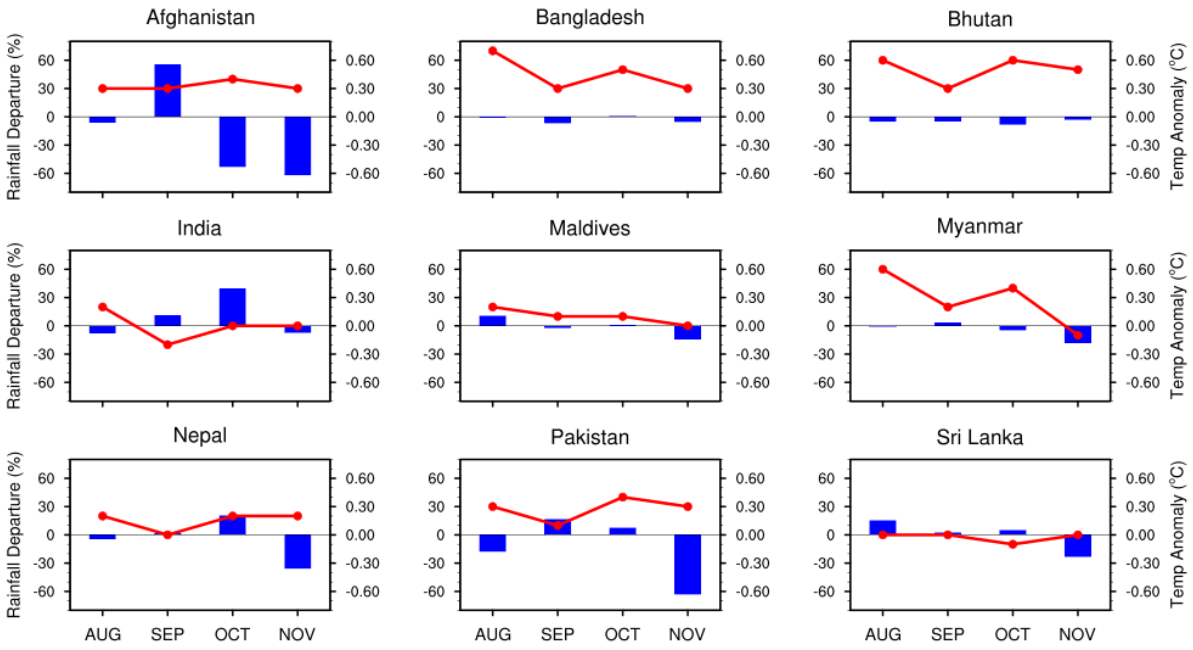

Fig. 9: Monthly country averaged rainfall forecast expressed as percentage departures (%) and Monthly country averaged temperature anomaly (°C) forecast during August to November 2025. Here, the normal range for country averaged monthly precipitation is taken as -10% to +10% (Left Vertical Axis Scale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