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SEASONAL CLIMATE OUTLOOK FOR SOUTH ASIA
(September to December 2025)

Highlights

- Over 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 increased likelihood of La Niña conditions during the upcoming months.

- At present, negative 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 negative IOD conditions are likely to develop during SON season and likely to continue for a short period of time.

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

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

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

- The country averaged monthly temperatures during September, October and December is likely to be above normal for all the south Asian countries. In November, the country averaged monthly temperature is likely to be above normal for all countries except Pakistan where it is likely to be below normal.

1. Important Global Climate Factors

1.1 Sea Surface Temperatures over the Pacific Ocean

In August 2025, sea surface temperatures (SSTs) were near average over central and equatorial 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 and southern extra-tropical regions of the Pacific. Compared to July 2025, negative SST anomalies developed over the eastern & central Pacific Ocean while positive SST anomalies seen across the western Pacific Ocean. Additionally, cool SST anomalies were present in some parts of both the South and North Pacific Ocean (Fig. 1b). 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 increased likelihood of La Niña conditions during the upcoming months (Fig.2).

1.2 Sea Surface Temperatures over Indian Ocean

In August 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 July 2025, warm SSTs were observed across the Arabian Sea, Bay of Bengal and eastern Indian Ocean (Fig. 1b) while cool SSTs were observed over some parts of the western Indian Ocean. At present, negative 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 negative IOD conditions are likely to develop during SON season and likely to continue for a short period of time.

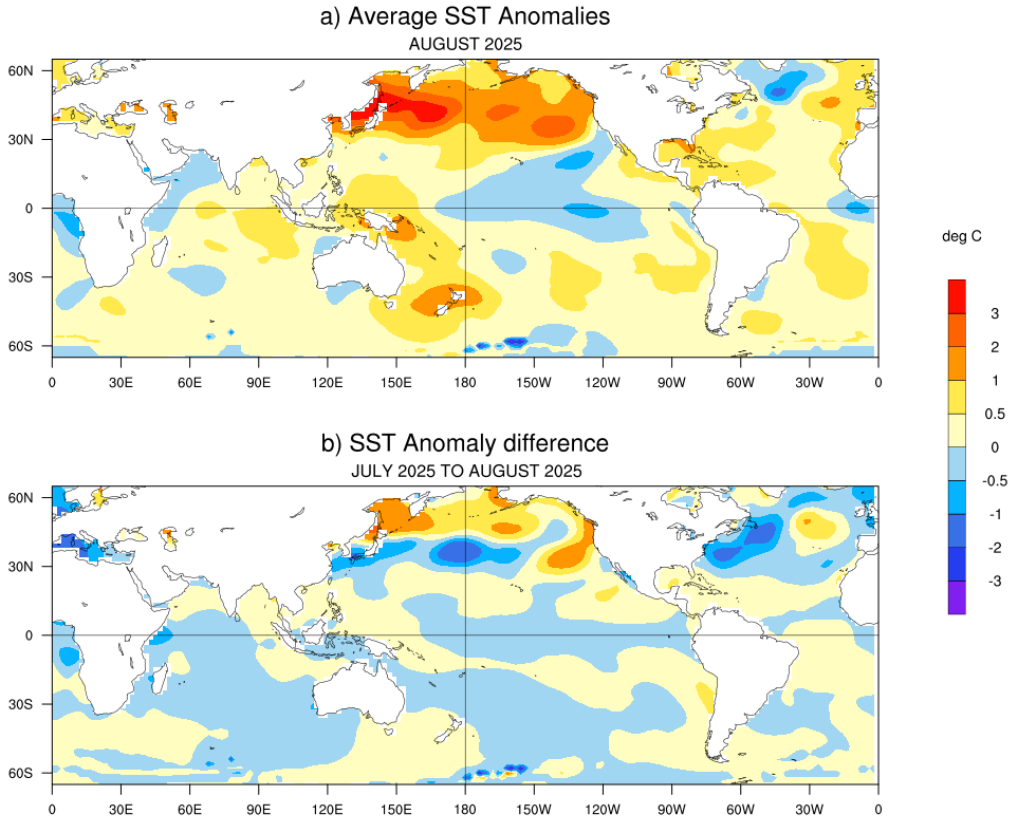

Fig.1: (a) Sea surface temperature (SST) anomalies (^{0}C) during August 2025 and (b) changes in the SST anomalies (^{0}C) from July to August 2025. SSTs are based on the ERSSTv5, from NOAA, and anomalies are computed with respect to 30-year (1991-2020) long term mean.

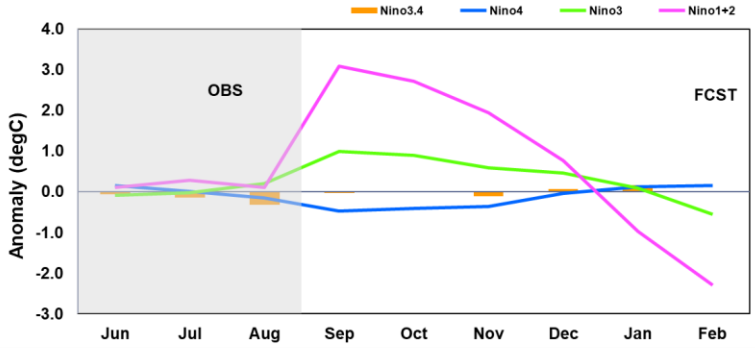

Fig.2: Time series of monthly area-averaged SST anomalies (°C) in the 4 Niño regions. ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

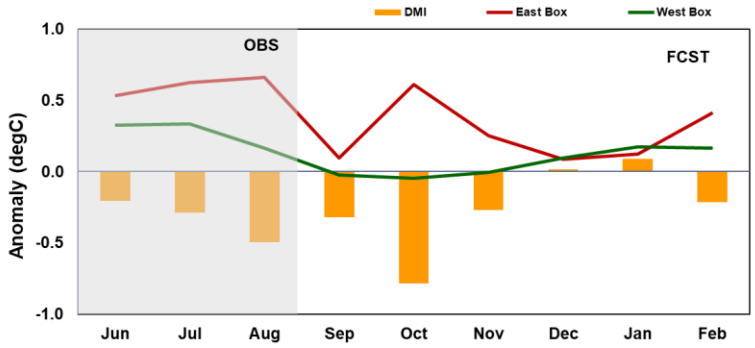

Fig.3: The time series of the monthly area-averaged SST anomaly Indices (°C) over west equatorial Indian Ocean (WEI) & east equatorial Indian Ocean (EEI) along with Dipole Mode Index (DMI=WEI-EEI) representing Indian Ocean Dipole (IOD). ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF 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 August 2025 is shown in (Fig.4). Negative OLR anomalies (enhanced convection, blue shading) were observed over Head, Arabian sea, South Indian Ocean 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 Ocean near equator, equatorial central Pacific Ocean and some parts of east and west tropical Pacific Ocean.

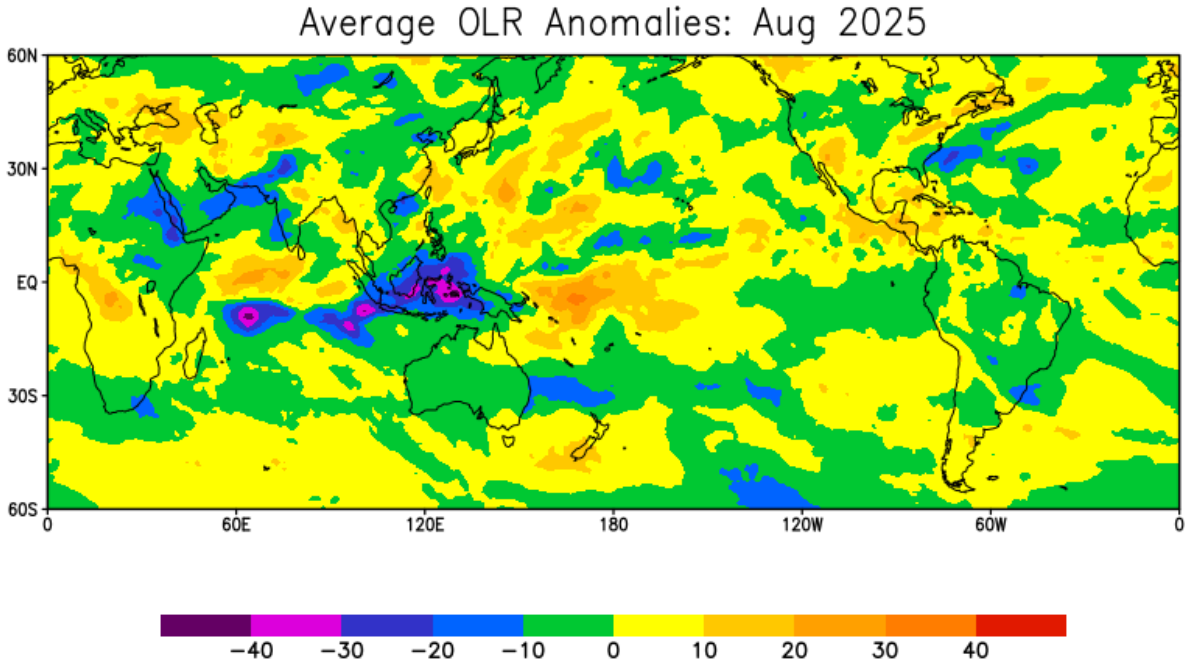

Fig.4: Outgoing Long Wave Radiation (OLR) Anomaly (W/m^2) for August 2025 (Data source: NCEP-NOAA)

1.4 Snow Cover Area over the Northern Hemisphere (NH)

During August 2025, the NH snow cover area (2.91 million Sq. km) was more than the 1991-2020 normal by 0.23 million Sq. km (Fig. 5). Eurasian Snow cover area (0.133 million Sq. km) was 0.14 million Sq. km less than the 1991-2020 normal. North America snow cover area of 2.77 million sq. km was more by 0.36 million Sq. Km with respect to 1991-2020 normal.

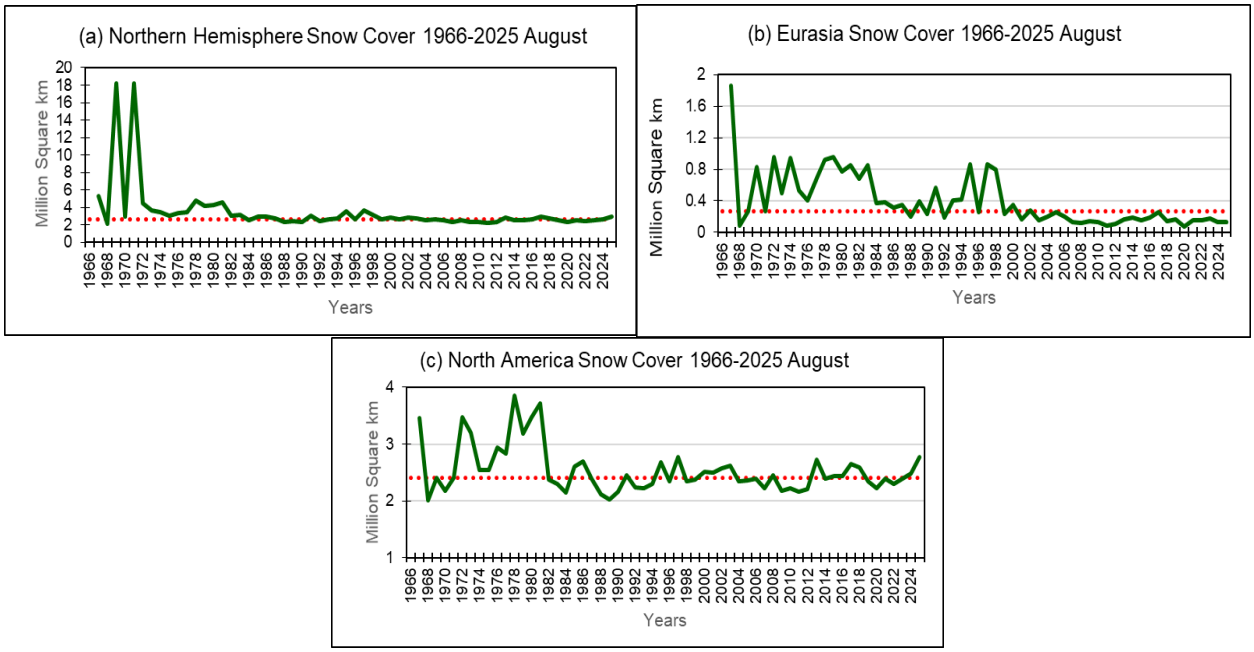

Fig.5. Snow cover area (million Sq. km) for the month of August during the period 1966-2025 (green solid lines) and normal value (1991-2020) (red dotted line) for (a) Northern Hemisphere (b) Eurasia and (c) North America. (Data Source: Rutgers University Snow Lab).

1.5. Madden Julian Oscillation (MJO)

During the first fortnight of August 2025, MJO moved eastwards from Phase 7 to Phase 2 (Indian Ocean) with an amplitude > 1. During the second fortnight it further 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.

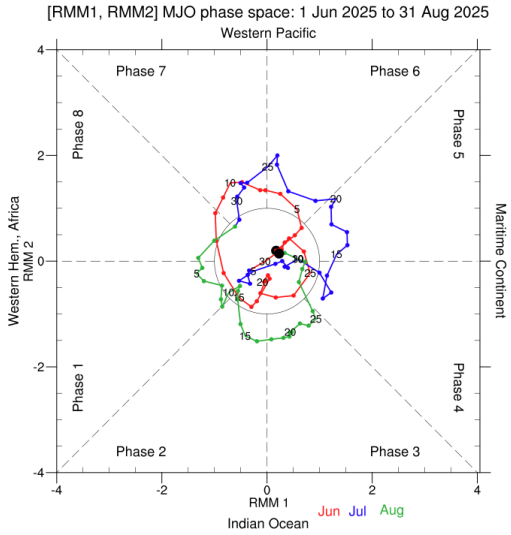

Fig.6. RMM phase diagram for Madden Julian Oscillation (MJO) for the period June to August 2025. (Data Source: http://www.bom.gov.au/climate/mjo/).

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

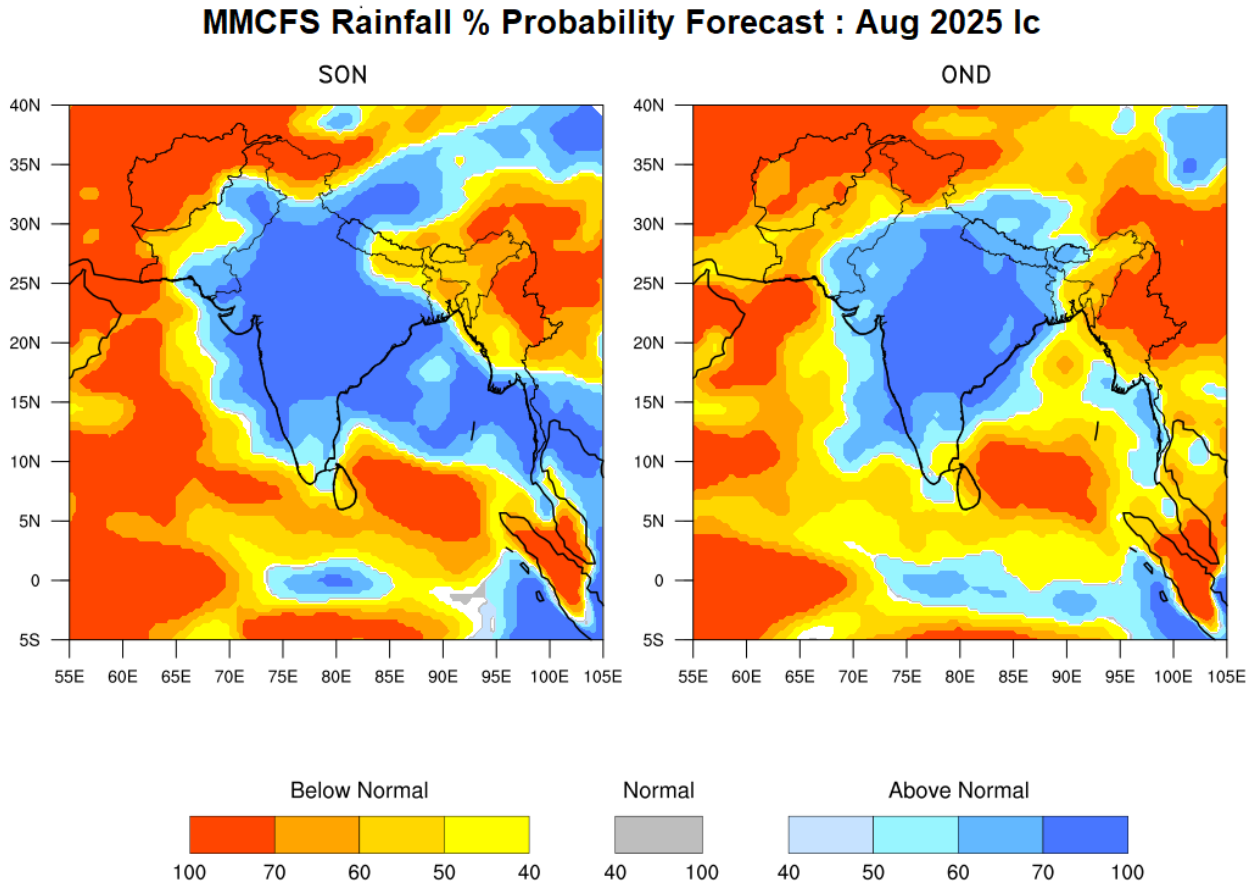

Fig.7: Seasonal probability (%) forecasts of precipitation for (a) SON 2025 (left) and (b) OND 2025 (right) based on initial conditions of August 2025.The white colour indicates climatological probability.

2.2. Temperature Probability Forecast*:*

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

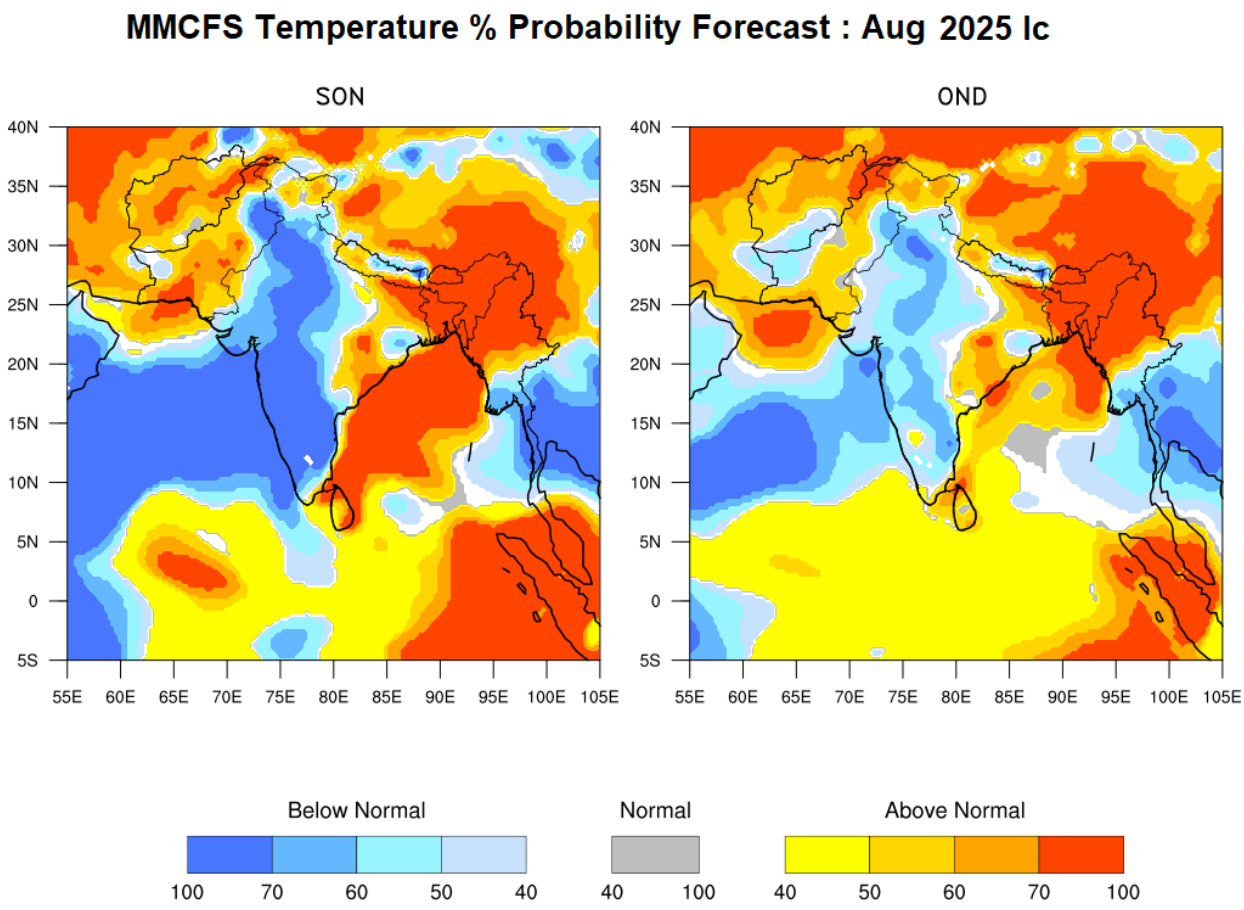

Fig. 8: Probability (%) forecast for the seasonal mean temperature for (a) SON 2025 (left) and (b) OND 2025 (right) based on initial conditions of August 2025. The white colour indicates climatological probability.

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

The country averaged monthly temperatures during September, October and December is likely to be above normal for all the south Asian countries. In November, the country averaged monthly temperature is likely to be above normal for all countries except Pakistan where it is likely to be below normal.

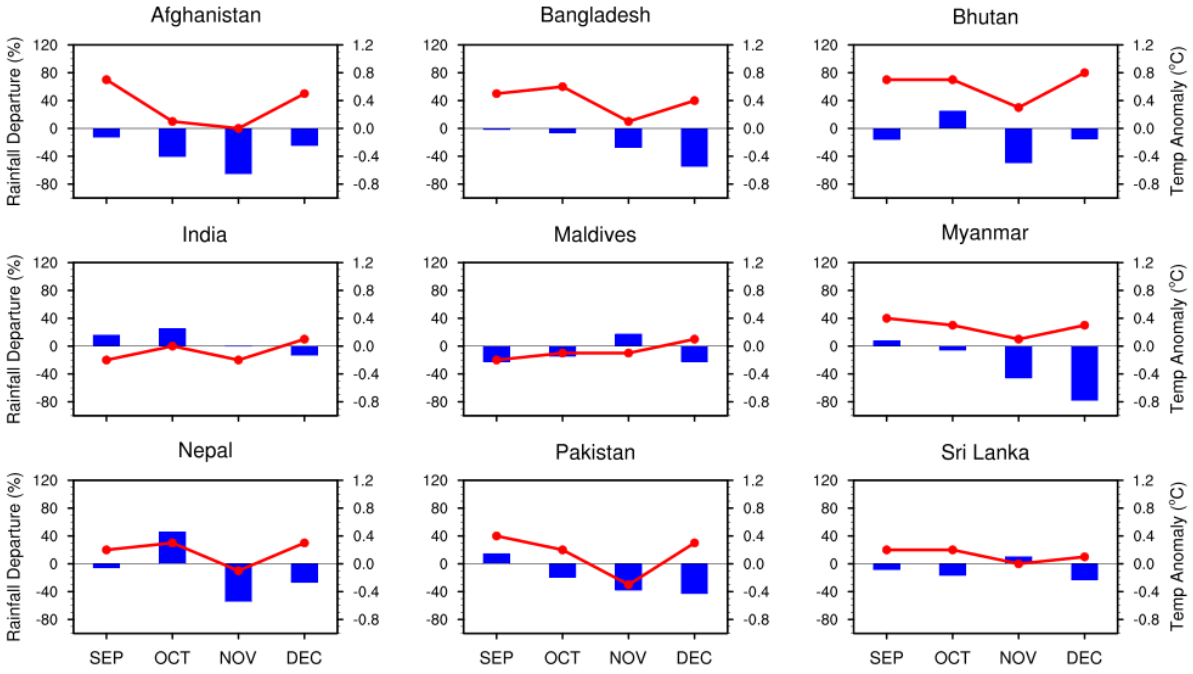

Fig. 9: Monthly country averaged rainfall forecast expressed as percentage departures (%) and Monthly country averaged temperature anomaly (°C) forecast during September to December 2025. Here, the normal range for country averaged monthly precipitation is taken as -10% to +10% (Left Vertical Axis Scale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