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
(July to October 2026)

Highlights

- Currently, weak El Niño conditions prevail over the equatorial Pacific Ocean, with sea surface temperature (SST) anomalies remaining above normal across the central and eastern equatorial Pacific. These conditions are expected to strengthen further during the Southwest Monsoon season. Forecasts from the Monsoon Mission Coupled Forecast System (MMCFS) also indicate a continued strengthening of El Niño conditions throughout the Southwest Monsoon season.

- At present, neutral Indian Ocean Dipole (IOD) conditions prevail over the Indian Ocean. Forecasts from the Monsoon Mission Coupled Forecast System (MMCFS) indicate that these neutral IOD conditions are likely to persist throughout the Southwest Monsoon season.

- The Precipitation probability forecasts indicate an enhanced probability of below-normal precipitation over most parts of South Asia during both JAS and ASO seasons. However, some regions over the extreme northwest, extreme north and southeast parts of South Asia are likely to experience above-normal precipitation.

- In July, the country averaged monthly precipitation is likely to be normal to below normal for all countries. In August, the country averaged monthly precipitation is likely to be normal to below normal for all countries except Bhutan where it is likely to be above normal. In September, it is likely to be normal to below normal for all countries except Afghanistan and Maldives where it is likely to be above normal. In October, it is likely to be normal to below normal for all countries except Afghanistan and Pakistan where it is likely to be above normal.

- Temperature probability forecast indicate an enhanced probability of above-normal temperature over most parts of South Asia during both JAS and ASO seasons. However, some regions over the northwest and extreme north of South Asia are likely to experience below-normal temperature in both the seasons. Some regions over northeast are likely to experience below normal temperatures in the ASO season.

- The country averaged monthly temperatures during July is likely to be above normal for all countries. In August it is likely to be normal to above normal for all the countries except Afghanistan and Pakistan where it is likely to be below normal. In September, it is likely to be normal to above normal for all the countries except Afghanistan, Bhutan and Pakistan where it is likely to be below normal. In October, it is likely to be normal to above normal for all the countries except Bangladesh, Bhutan and Pakistan.

1. Important Global Climate Factors

1.1 Sea Surface Temperatures over the Pacific Ocean

During June 2026, sea surface temperatures (SSTs) were above average across the equatorial central and eastern Pacific Ocean, indicating the persistence of El Niño conditions (Fig. 1a). Positive SST anomalies were prominent over the far eastern equatorial Pacific, with warmer-than-normal conditions extending westward across the central Pacific. Above-average SSTs were also observed over large parts of the North Pacific, western Pacific, and several regions of the global oceans. Meanwhile, near-normal to slightly below-normal SSTs were observed over some regions of the southern Pacific and parts of the North Atlantic Ocean (Fig. 1a). Compared to May 2026, SST anomalies strengthened over the eastern equatorial Pacific Ocean during June 2026, while slight cooling was observed over parts of the central and western Pacific (Fig. 1b). •

Currently, weak El Niño conditions prevail over the equatorial Pacific Ocean, with sea surface temperature (SST) anomalies remaining above normal across the central and eastern equatorial Pacific. These conditions are expected to strengthen further during the Southwest Monsoon season. Forecasts from the Monsoon Mission Coupled Forecast System (MMCFS) also indicate a continued strengthening of El Niño conditions throughout the Southwest Monsoon season (Fig. 2).

1.2 Sea Surface Temperatures over Indian Ocean

In the Indian Ocean, Positive SST anomalies were observed over parts of the western and eastern basin, including regions near the Maritime Continent in June 2026 (Fig. 1a). Warmer than normal SSTs were also observed over the Arabian Sea and the Bay of Bengal. Compared with May 2026, warm SST anomalies observed over the western and eastern equatorial Indian Ocean, while cooling was evident over the Arabian Sea, Bay of Bengal, central and southern Indian Ocean (Fig. 1b). At present, neutral Indian Ocean Dipole (IOD) conditions prevail over the Indian Ocean. Forecasts from the Monsoon Mission Coupled Forecast System (MMCFS) indicate that these neutral IOD conditions are likely to persist throughout the Southwest Monsoon season (Fig. 3).

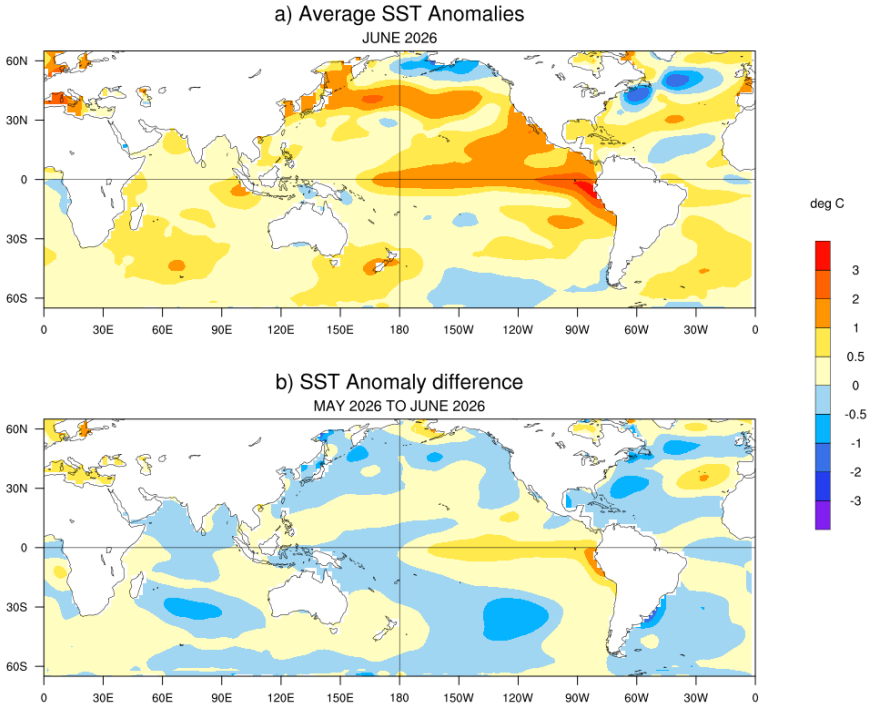

Fig.1: (a) Sea surface temperature (SST) anomalies (^{0}C) during June 2026 and (b) changes in the SST anomalies (^{0}C) from May to June 2026. SSTs are based on the ERSSTv5, from NOAA, and anomalies are computed with respect to 30-year (1991-2020) long term mean.

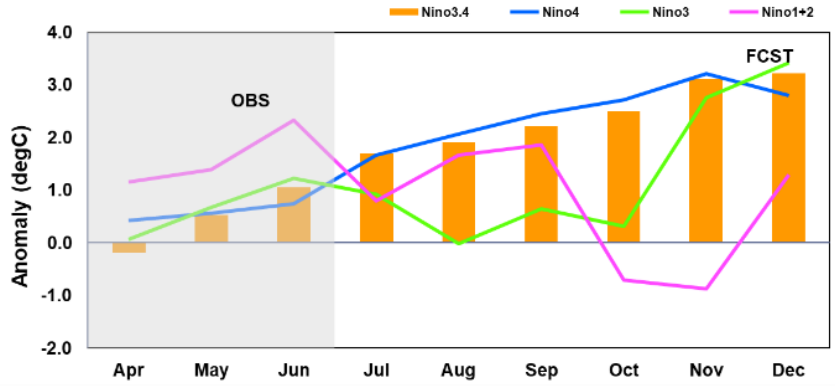

Fig.2: Time series of monthly area-averaged SST anomalies (°C) in the 4 Niño regions. ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF corrected anomaly forecast for the next 6 months.

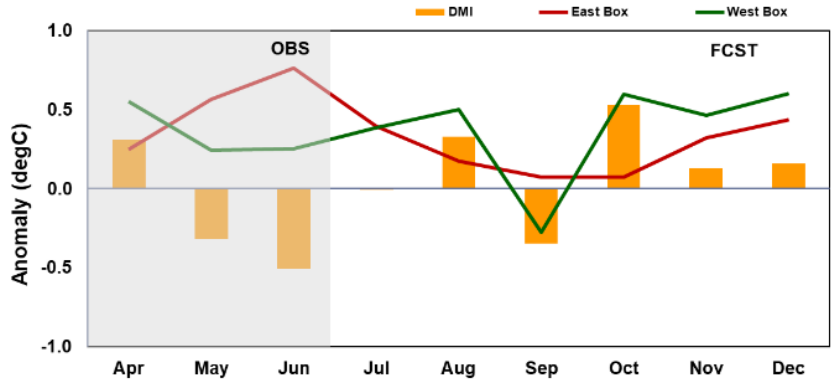

Fig.3: The time series of the monthly area-averaged SST anomaly Indices (°C) over west equatorial Indian Ocean (WEI) & east equatorial Indian Ocean (EEI) along with Dipole Mode Index (DMI=WEI-EEI) representing Indian Ocean Dipole (IOD). ERSSTv5 observed anomaly for the last 3 months and MMCFS model PDF 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 June 2026 is shown in Fig. 4. Negative OLR anomalies (enhanced convection; blue shading) were observed over central tropical Pacific Ocean, eastern parts of south Indian Ocean, parts of Australia and north America. Positive OLR anomalies (suppressed convection; orange/red shading) were observed over western tropical Pacific Ocean, parts of north Indian Ocean (both Arabian and Bay of Bengal), south tropical Pacific Ocean, maritime continent and most parts of India.

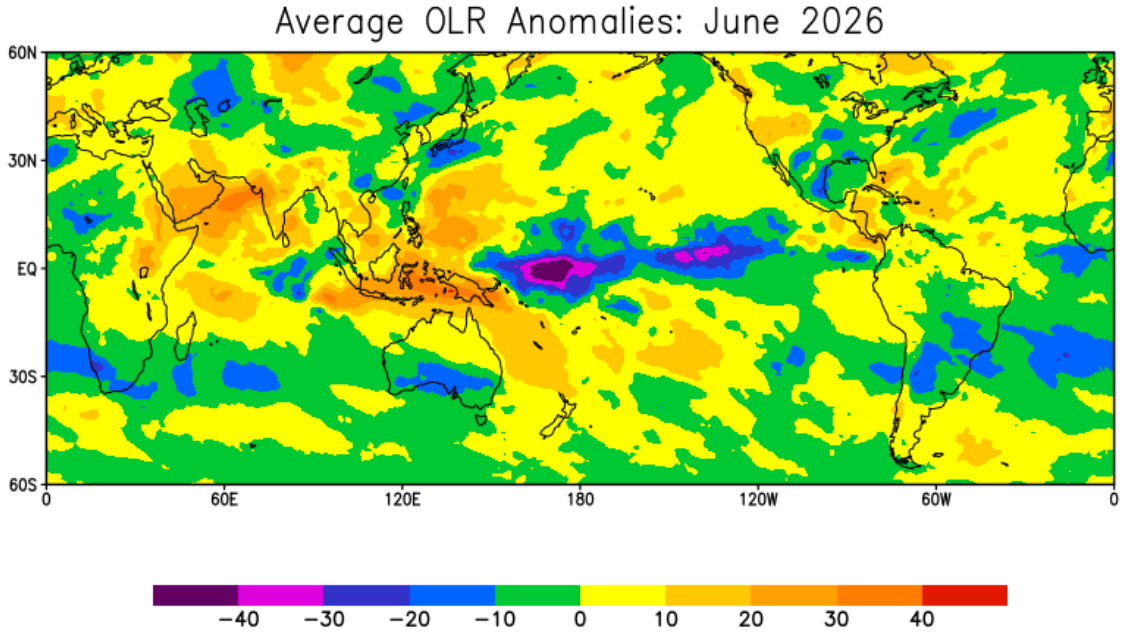

Fig.4: Outgoing Long Wave Radiation (OLR) Anomaly (W/m^2) for June 2026 (Data source: NCEP-NOAA)

1.4 Snow Cover Area over the Northern Hemisphere (NH)

During June 2026, the NH snow cover area (6.23 million Sq. km) was less than the 1991- 2020 normal by 1.91 million Sq. km (Fig. 5). Eurasian Snow cover area (1.78 million Sq. km) was 1.07 million Sq. km less than the 1991-2020 normal. North America snow cover area of 4.45 million sq. km was less by 0.8 million Sq. Km with respect to 1991-2020 normal.

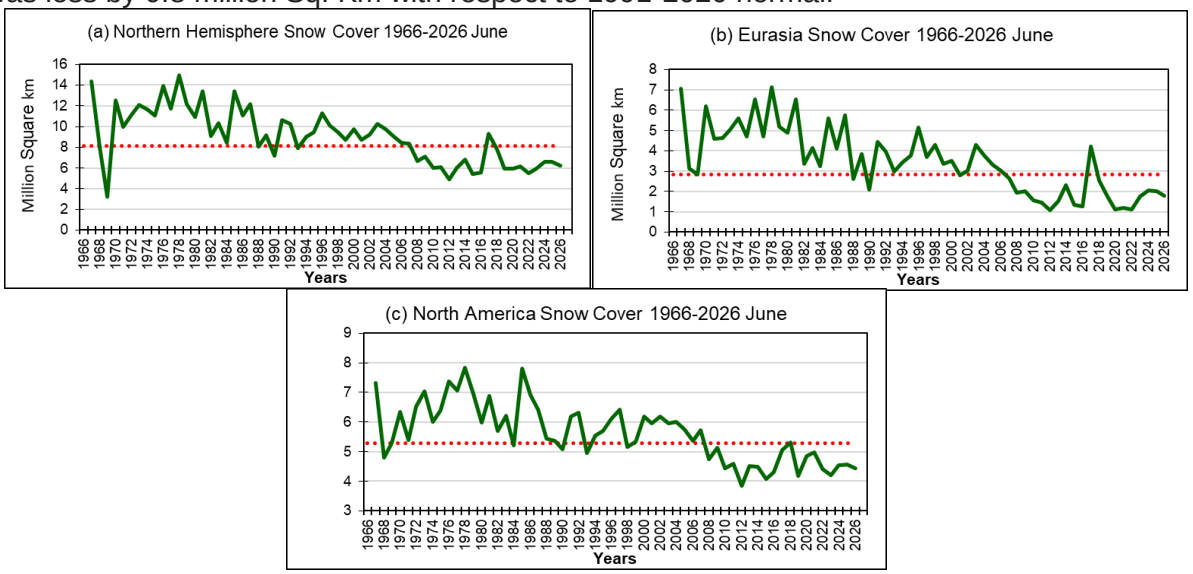

Fig 5: Snow cover area (million Sq. km) for the month of June during the period 1966-2026 (green solid lines) and normal value (1991-2020) (red dotted line) for (a) Northern Hemisphere (b) Eurasia and (c) North America. (Data Source: Rutgers University Snow Lab).

1.5. Madden Julian Oscillation (MJO)

During June 2026, the Madden–Julian Oscillation (MJO) propagated eastward from Phase 7 (Western Pacific) to Phase 1 (Western Hem, Africa) with an amplitude greater than 1 during the first 3 weeks of the month, indicating strong MJO activity. Subsequently, the MJO shifted toward Phase 6 (Western Pacific) with amplitude less than 1 during the 4th week, suggesting relatively suppressed activity. The MJO phase diagram illustrates the evolution and eastward propagation of the MJO through different phases, which correspond to convective activity over different regions along the equator around the globe.

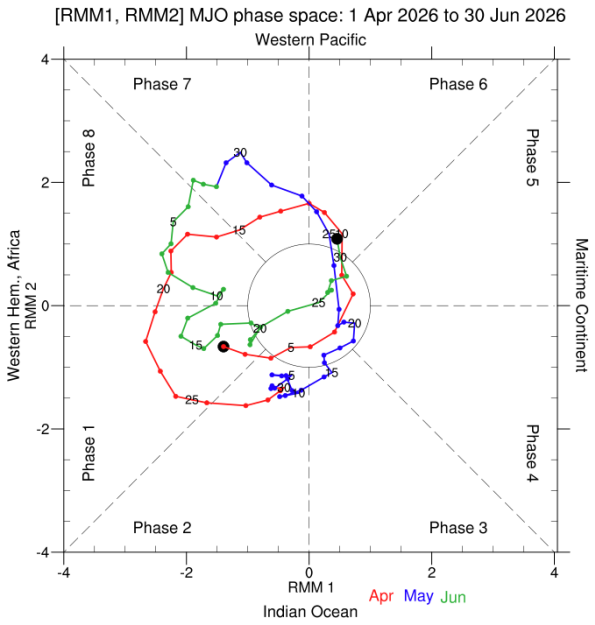

Fig.6. RMM phase diagram for Madden Julian Oscillation (MJO) for the period April to June 2026. (Data Source: http://www.bom.gov.au/climate/mjo/).

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 July–September 2026 (JAS) and August–October 2026 (ASO) seasons are shown in Figures 7a and 7b, respectively. These forecasts were prepared using the June initial conditions. The forecasts indicate an enhanced probability of below-normal precipitation over most parts of South Asia during both JAS and ASO seasons. However, some regions over the extreme northwest, extreme north and southeast parts of South Asia are likely to experience above-normal precipitation.

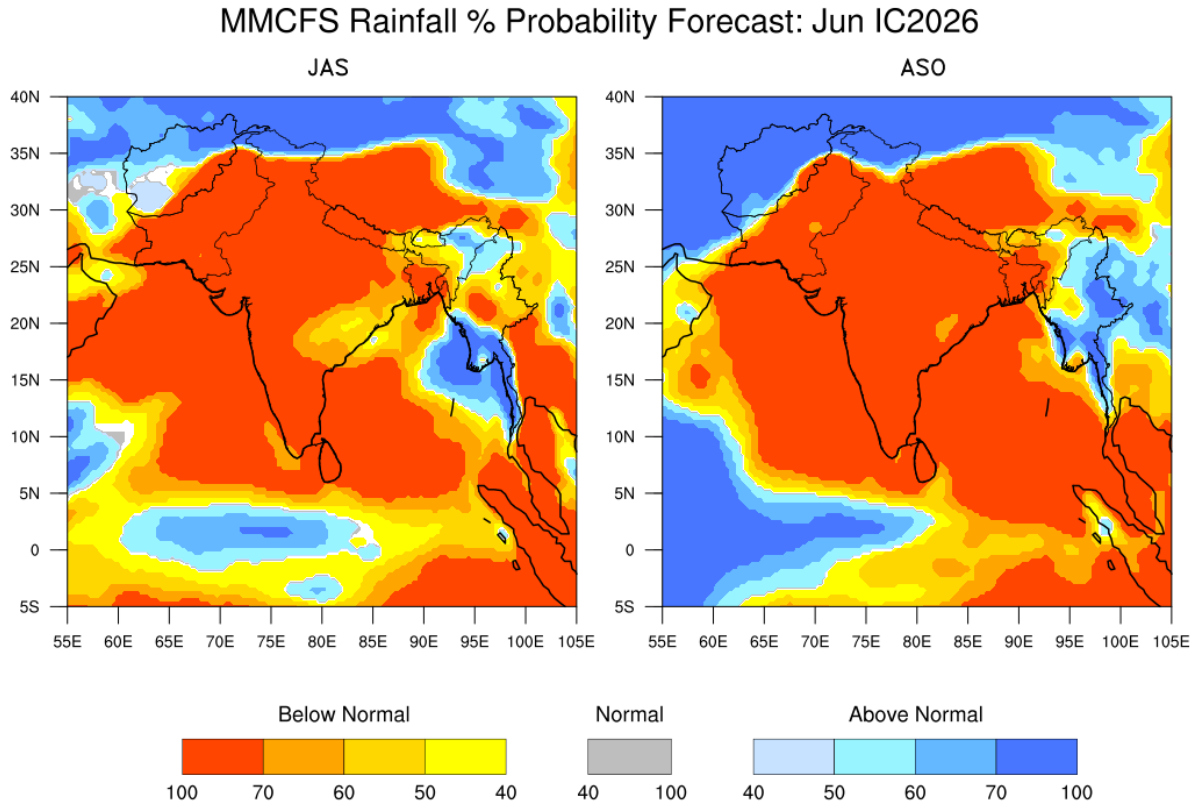

Fig.7: Seasonal probability (%) forecasts of precipitation for (a) JAS 2026 (left) and (b) ASO 2026 (right) based on initial conditions of June 2026.The white colour indicates climatological probability.

2.2. Temperature Probability Forecast*:*

The probability forecasts for temperature for July–September 2026 (JAS) and August–October 2026 (ASO) seasons are shown in the Figures 8a and 8b, respectively. These forecasts were prepared using the June initial conditions. The forecasts indicate an enhanced probability of above-normal temperature over most parts of South Asia during both JAS and ASO seasons. However, some regions over the northwest and extreme north of South Asia are likely to experience below-normal temperature in both the seasons. Some regions over northeast are likely to experience below normal temperatures in the ASO season.

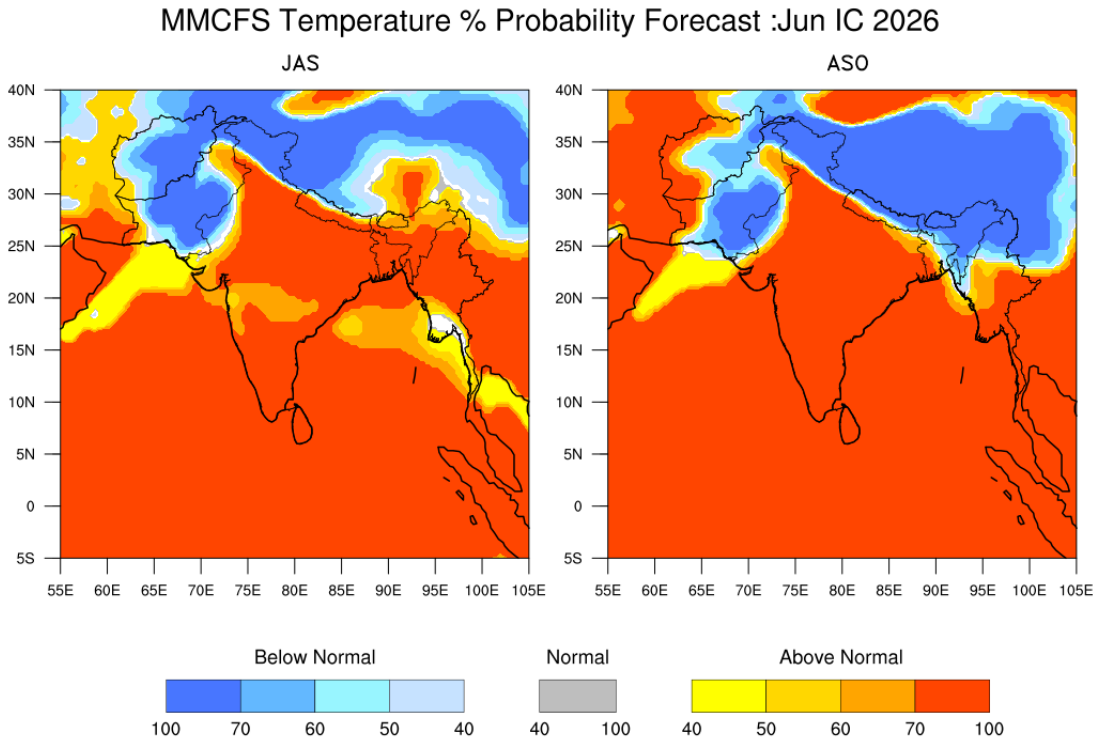

Fig. 8: Probability (%) forecast for the seasonal mean temperature for (a) JAS 2026 (left) and (b) ASO 2026 (right) based on initial conditions of June 2026. The white color indicates climatological probability.

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 July to October 2026) averaged over the 9 south Asian countries viz., Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka were shown in the Figure 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 July, the country averaged monthly precipitation is likely to be normal to below normal for all countries. In August, the country averaged monthly precipitation is likely to be normal to below normal for all countries except Bhutan where it is likely to be above normal. In September, it is likely to be normal to below normal for all countries except Afghanistan and Maldives where it is likely to be above normal. In October, it is likely to be normal to below normal for all countries except Afghanistan and Pakistan where it is likely to be above normal.

The country averaged monthly temperatures during July is likely to be above normal for all countries. In August it is likely to be normal to above normal for all the countries except Afghanistan and Pakistan where it is likely to be below normal. In September, it is likely to be normal to above normal for all the countries except Afghanistan, Bhutan and Pakistan where it is likely to be below normal. In October, it is likely to be normal to above normal for all the countries except Bangladesh, Bhutan and Pakistan where it is likely to be below normal.

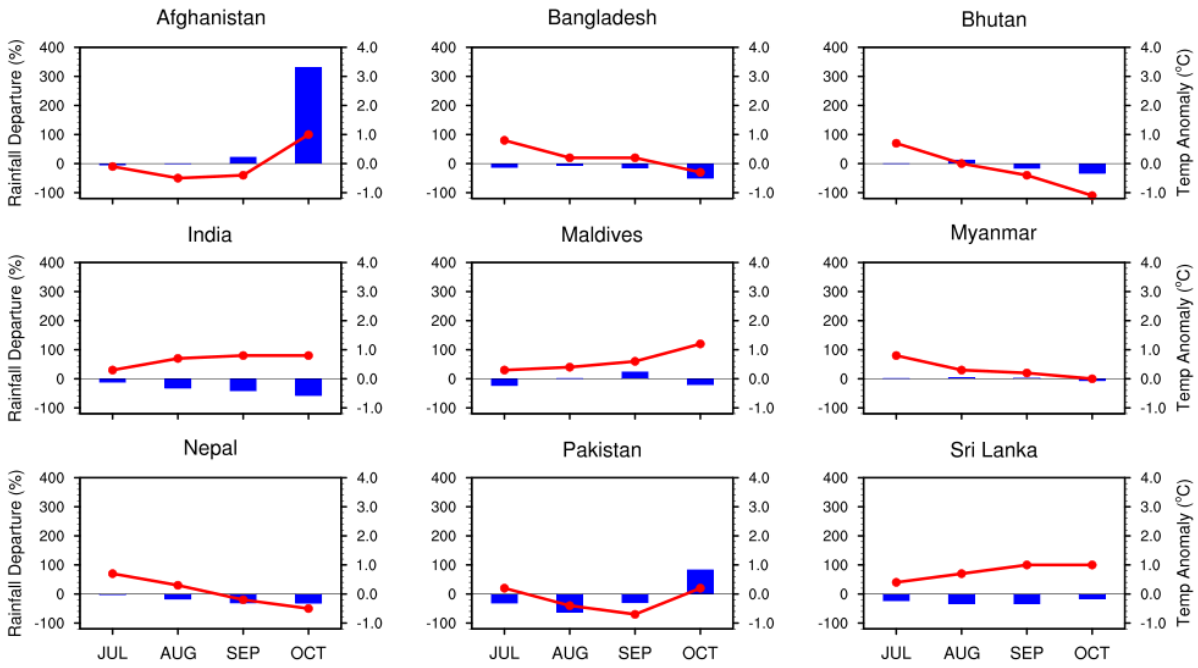

Fig. 9: Monthly country averaged rainfall forecast expressed as percentage departures (%) and monthly country averaged temperature anomaly (°C) forecast during July to October 2026. Here, the normal range for country averaged monthly precipitation is taken as -10% to +10% (Left Vertical Axis Scale for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