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Ministry of Earth Sciences (MoES)
India Meteorological Department (IMD)
WMO Regional Climate Centre
Pune, India**

**El Niño Southern Oscillation (ENSO) and
Indian Ocean Dipole (IOD) Bulletin**

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Highlights

Currently, equatorial Pacific SSTs are well above average, especially in the central-eastern and eastern Pacific, with a strong ocean-atmosphere coupling and strong El Niño conditions are prevailing over the equatorial Pacific Ocean. These conditions are expected to strengthen further in the coming months. Forecasts from the Monsoon Mission Coupled Forecast System (MMCFS) indicate a continued strengthening of El Niño conditions through the end of the year.

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 continue throughout the forecast period. However, some international climate centers forecast that the neutral IOD conditions may transition to positive IOD conditions toward the end of the Southwest Monsoon season.

1. Current Sea Surface Temperature (SST) Conditions over the Pacific and Indian Oceans

During August 2026, El Niño conditions strengthened further compared to the previous month. Sea surface temperature (SST) anomalies exceeded $+2.0^{\circ}\text{C}$ over the eastern equatorial Pacific, indicating a continued intensification of the El Niño conditions (Fig. 1a). Positive SST anomalies intensified east of the Date Line and extended across the eastern equatorial Pacific. Above-average SSTs were also observed over parts of the North 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 July 2026, positive SST anomalies strengthened over the eastern equatorial Pacific Ocean during August 2026. In contrast, cooling was observed over parts of the central and western equatorial Pacific, as well as over the northern and southern subtropical Pacific Ocean (Fig. 1b).

In August 2026, positive SST anomalies were observed over both the western and eastern Indian Ocean (Fig. 1a), with notably warmer SSTs prevailing over the Arabian Sea and the Bay of Bengal. Compared with July 2026, warm SST anomalies observed over the western and central equatorial Indian Ocean, while cooling was evident over the eastern equatorial Indian Ocean and the Arabian Sea, whereas the Bay of Bengal exhibited warm SSTs. (Fig. 1b).

1.1 El Niño Southern Oscillation (ENSO) conditions over the Pacific Ocean

The monthly time series of Niño 3.4 SST anomalies for the 12-month period from September 2025 to August 2026 is shown in Fig. 2a. La Niña conditions persisted from September 2025 through February 2026 and transitioned to ENSO-neutral conditions in March 2026. Subsequently, the Niño 3.4 SST anomalies increased rapidly, crossing the El Niño threshold in May 2026 and strengthening further to approximately $+2.08^{\circ}\text{C}$ by August 2026, indicating the strong El Niño conditions over the central equatorial Pacific Ocean.

Strong positive subsurface temperature anomalies are observed across much of the eastern equatorial Pacific Ocean both near and above the 20°C isotherm, extending down to the thermocline. Negative SST anomalies were observed over the western and central equatorial Pacific, with the strongest negative anomalies in the central equatorial Pacific (Fig. 2b).

1.2. Indian Ocean Dipole (IOD) conditions over the Indian Ocean

Fig. 2c shows the monthly variation of the Dipole Mode Index (DMI) over the Indian Ocean from September 2025 to August 2026. Negative IOD conditions persisted from September to December 2025, followed by a gradual weakening of the negative phase. The DMI remained near neutral in January 2026 and turned positive during February–April 2026, indicating relatively warmer SSTs over the western equatorial Indian Ocean compared to the eastern equatorial Indian Ocean. Thereafter, the DMI gradually turned to negative during May–June 2026. Neutral IOD conditions prevailed from July to August 2026.

Positive subsurface temperature anomalies (Fig. 2d) are observed in the western and central equatorial Indian Ocean below the 20°C isotherm, extending down to the thermocline.

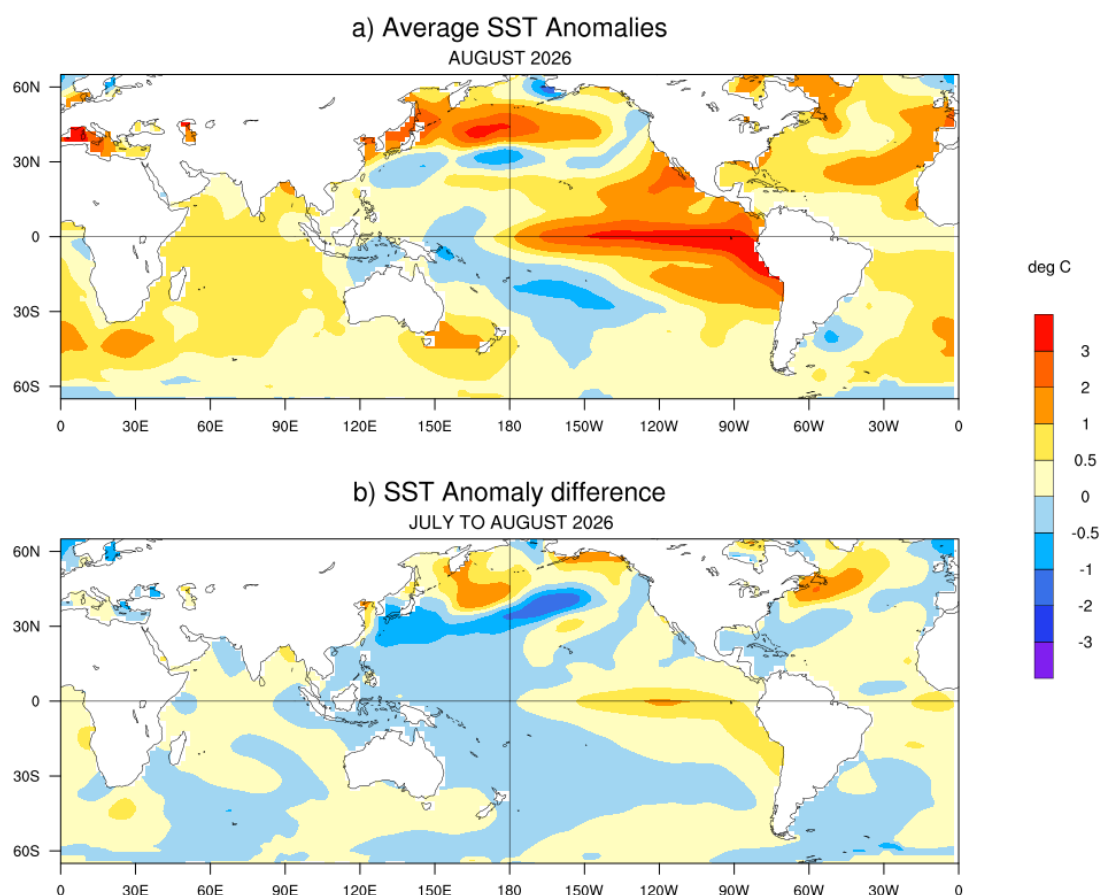


Fig.1: (a) Sea surface temperature (SST) anomalies (degC) during August 2026 and **(b)** changes in the SST anomalies (degC) from July 2026 to August 2026. SSTs are based on the ERSSTv5 (NCEP-NOAA), and anomalies are computed with respect to 30-year (1991-2020) long term mean.

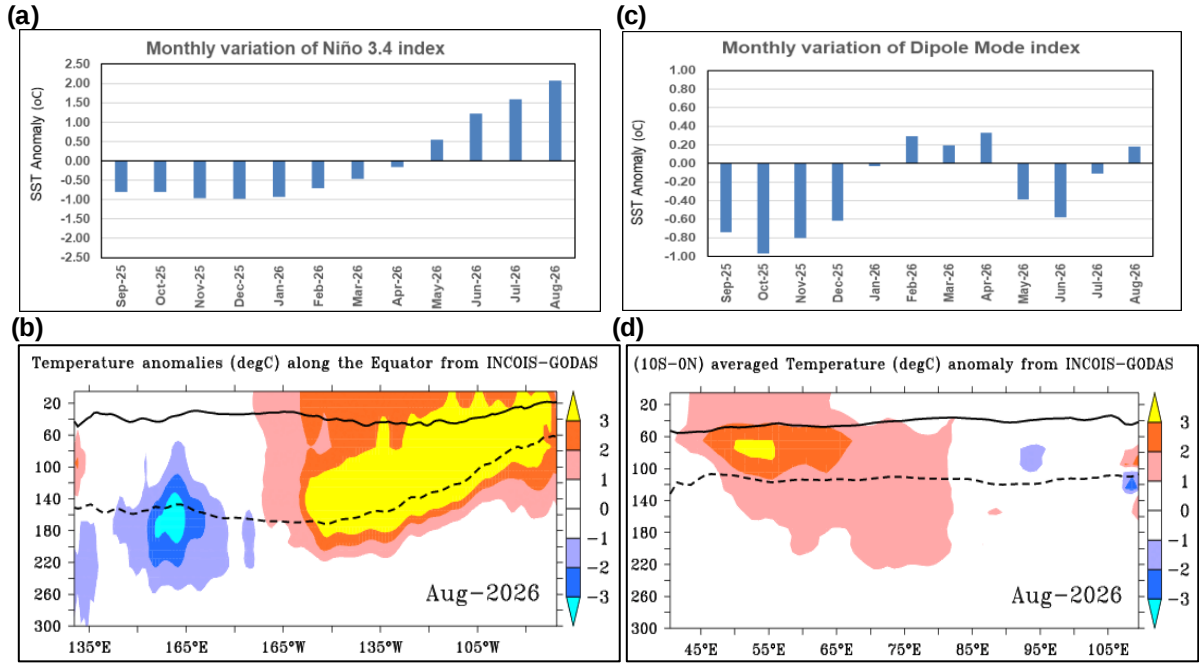


Fig.2: (a) Monthly variation of Niño 3.4 SST index for the last 12 months and **(b)** Depth-longitude section of sub-surface temperature anomalies in the equatorial (5°S-5°N) Pacific Ocean for the month of August 2026. **(c)** Same as **(a)** but for the Dipole Mode Index (DMI). **(d)** Same as **(b)** but for the tropical Indian Ocean (10°S-Eq). The anomalies in **(a)** and **(c)** were computed using the base period of 1991-2020 (Data Source: ERSSTv5). The solid dark line in **(b)** and **(d)** is the 20°C isotherm and the dashed line is thermocline depth (Data Source: INCOIS-GODAS).

2. ENSO and IOD Forecast

The SST forecast was generated using the high-resolution Monsoon Mission Coupled Forecast System (MMCFS) (AGCM T382L64; ~38 km horizontal resolution and OGCM ~25 km resolution in the tropics), initialized with August 2026 initial conditions. The model initial conditions were obtained from analyses produced by ESSO-INCOIS and ESSO-NCMRWF. Probability density function (PDF)-based bias correction was applied to the forecasts of the Niño 3.4 index (Fig. 4b) and the Dipole Mode Index (DMI; Fig. 5b) using hindcasts for the period 1999–2008. Forecast anomalies were computed relative to the 1991–2020 climatological mean.

The forecast of three-month seasonally averaged SST anomalies over the Pacific Ocean (Fig. 3) indicates that positive SST anomalies are likely to strengthen over the central equatorial Pacific Ocean during Sep-Nov (SON) 2026. Thereafter, from September-November (SON) 2026 onwards, positive SST anomalies are expected to strengthen further and expand across the central and eastern equatorial Pacific Ocean. The 3-month season-averaged SST anomaly forecast for the Indian Ocean (Fig. 3) suggests that near-neutral SST anomalies are likely to prevail over most parts of the Indian Ocean during the upcoming seasons.

The latest MMCFS plume and probability forecasts (Figs. 4a and 4b) suggest a strong to very strong El Niño conditions likely to persist during the upcoming season. The India Meteorological Department (IMD) will continue to closely monitor the evolving ENSO conditions and provide monthly updates based on the latest observations and changes in the Pacific Ocean.

At present, neutral Indian Ocean Dipole (IOD) conditions prevail over the Indian Ocean, and the latest MMCFS forecast indicates that neutral IOD conditions have the highest probability of persisting throughout the forecast period (Figs. 5a and 5b).

MMCFS SST Anomaly Forecast :Aug 2026 IC

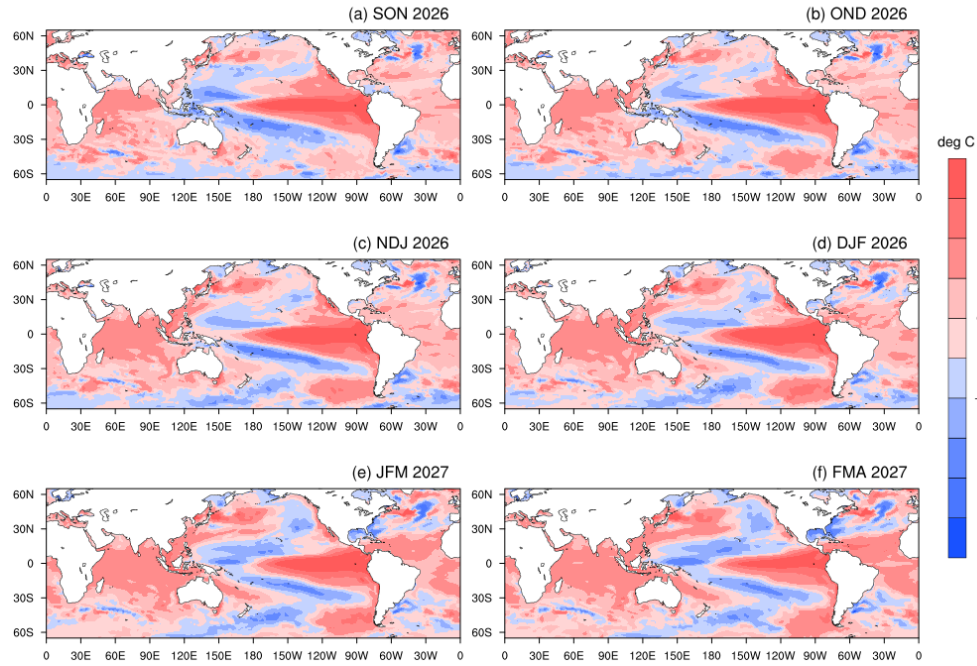


Fig.3: Forecasted Seasonal mean SST anomalies for three-monthly (a) September to November (SON 2026), (b) October to December (OND 2026), (c) November to January (NDJ 2026), (d) December to February (DJF 2027), (e) January to March (JFM 2027), and (f) February to April (FMA 2027) Model bias correction base period: 1999-2008; Climatology base period:1991-2020).

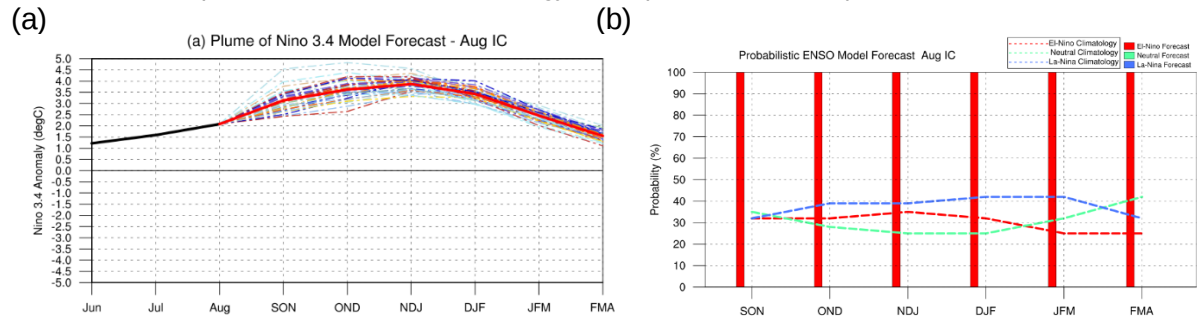


Fig.4: (a) Plume of Niño 3.4 SST index, forecasted by high-resolution MMCFS **(b)** Probability forecast along with climatological probabilities of Niño 3.4 SST index from high-resolution MMCFS.

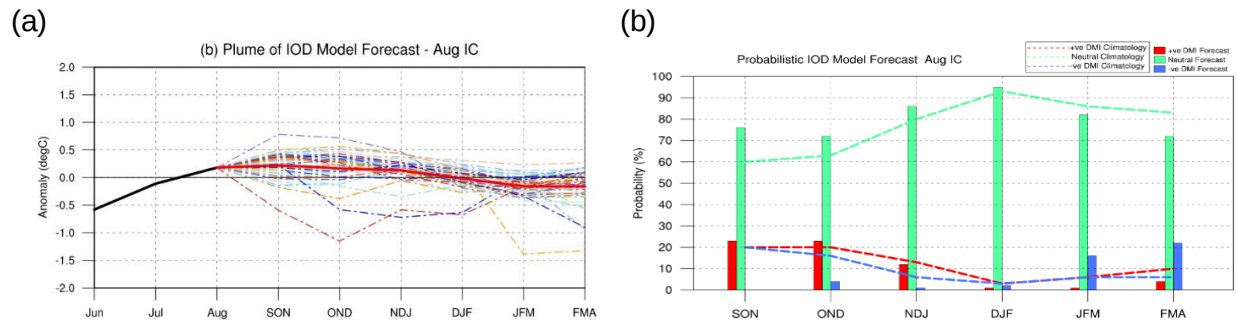


Fig.5: (a) Plume of Indian Ocean Dipole (IOD) Mode Index forecasted by high-resolution MMCFS and **(b)** Probability forecast along with climatological probabilities of Indian Ocean Dipole (IOD) Mode Index from high-resolution MMCFS.

- Plume Forecast - The forecasts were PDF corrected for bias and variance. The solid black line is the observed SST anomaly (ERSSTv5, NOAA) and the solid red line is the ensemble mean SST anomaly forecast of 42 members (MMCFS). The individual ensemble member forecasts are shown in light dotted lines of different colors.
- Probability Forecast - The data source for Climatology probabilities: NOAA Extended Reconstructed SST V5. Criteria used for Probabilistic ENSO Forecast: La Niña ≤ -0.5 , Neutral <0.5 to >-0.5 , El Niño ≥ 0.5 . Criteria used for Probabilistic DMI Forecast: negative DMI ≤ -0.4 , Neutral <0.4 to >-0.4 , positive DMI ≥ 0.4 .