



**Earth System Science Organization (ESSO)  
Ministry of Earth Sciences (MoES)  
India Meteorological Department (IMD)**

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

**March 2026**

**Highlights**

At present, neutral El Niño–Southern Oscillation (ENSO) conditions are prevailing over the equatorial Pacific Ocean. However, some of the atmospheric circulation features over the tropical Pacific are consistent with weak La Niña–like conditions. The latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS) suggest that ENSO-neutral conditions are most likely to continue during April to June 2026 season. Thereafter, the probability of development of El Niño conditions increases gradually.

Currently, neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The latest MMCFS forecast suggests that these neutral IOD conditions are likely to persist during the March to May season and thereafter.

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

During February 2026, negative sea surface temperatures (SSTs) anomaly was observed over the central and some parts of eastern equatorial Pacific Ocean (Fig. 1a). However, positive SSTs anomaly observed over the western parts of the equatorial Pacific and the far eastern equatorial Pacific Ocean. In addition, warmer-than-average SSTs prevailed over the northern and southern extra-tropical regions of the Pacific Ocean (Fig. 1a). In comparison with January 2026, positive SST anomalies strengthened over the equatorial Pacific Ocean. Furthermore, cool SST anomalies were also evident over some parts of the North and South Pacific Oceans (Fig. 1b).

In February 2026, sea surface temperatures (SSTs) were mostly near average over the tropical Atlantic and Indian Oceans (Fig. 1a). Compared to January 2025, cooler SSTs developed over most parts of the eastern Indian Ocean, while warmer SSTs were evident over the western Indian Ocean. In terms of anomalies, positive SST anomalies prevailed over the Arabian Sea, whereas negative SST anomalies were observed over the northern Bay of Bengal (Fig. 1b).

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

The monthly time series of Niño3.4 SST anomalies for the last 12 months, from March 2025 to February 2026 is shown in Fig. 2(a). In March 2025, ENSO neutral conditions were

observed over the equatorial Pacific Ocean, which persisted until September 2025. Since October 2025, borderline La Niña conditions emerged and persisted through January 2026. Currently, the El Niño–Southern Oscillation (ENSO) neutral conditions are present.

The strong positive subsurface temperature anomalies are observed over most parts of the western equatorial Pacific Ocean below the 20°C isotherm, extending down to the thermocline, with the maximum strength close to the surface along the central Pacific Ocean (Fig.2 b).

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

Figure 2(c) shows the monthly time series of Dipole Mode Index (DMI) for March 2025 to February 2026. Weak negative IOD conditions were observed from March 2025, followed by prevailing neutral IOD conditions over the Indian Ocean till July 2025. The neutral IOD conditions turned Weak Negative during January 2026. At present, neutral IOD conditions are prevailing over the Indian Ocean.

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

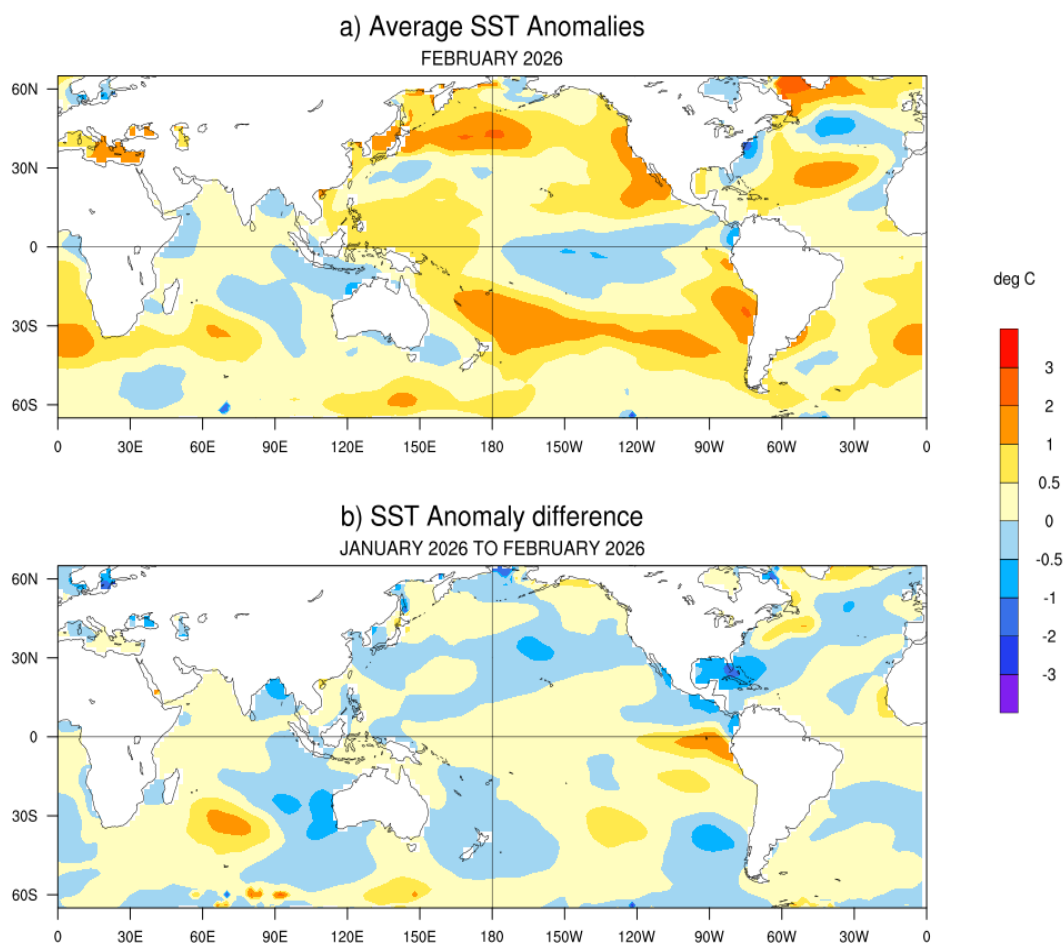
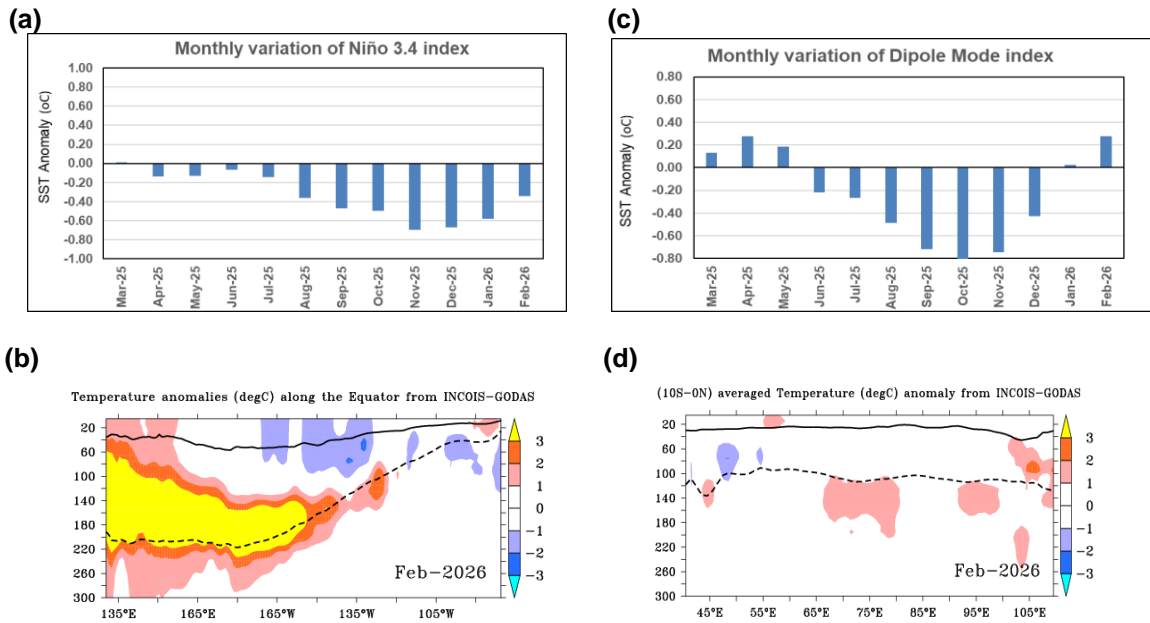


Fig.1: (a) Sea surface temperature (SST) anomalies (degC) during February 2026 and (b) changes in the SST anomalies (degC) from January 2026 to February 2026. SSTs are based on the ERSSTv5 (NCEP-NOAA), and anomalies are computed with respect to 30-year (1991-2020) long term mean.



**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 ( $5^{\circ}\text{S}-5^{\circ}\text{N}$ ) Pacific Ocean for the month of February 2026. (c) Same as (a) but for the Dipole Mode Index (DMI). (d) Same as (b) but for the tropical Indian Ocean ( $10^{\circ}\text{S}-\text{Eq}$ ). 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  $20^{\circ}\text{C}$  isotherm and the dashed line is thermocline depth (Data Source: INCOIS-GODAS).

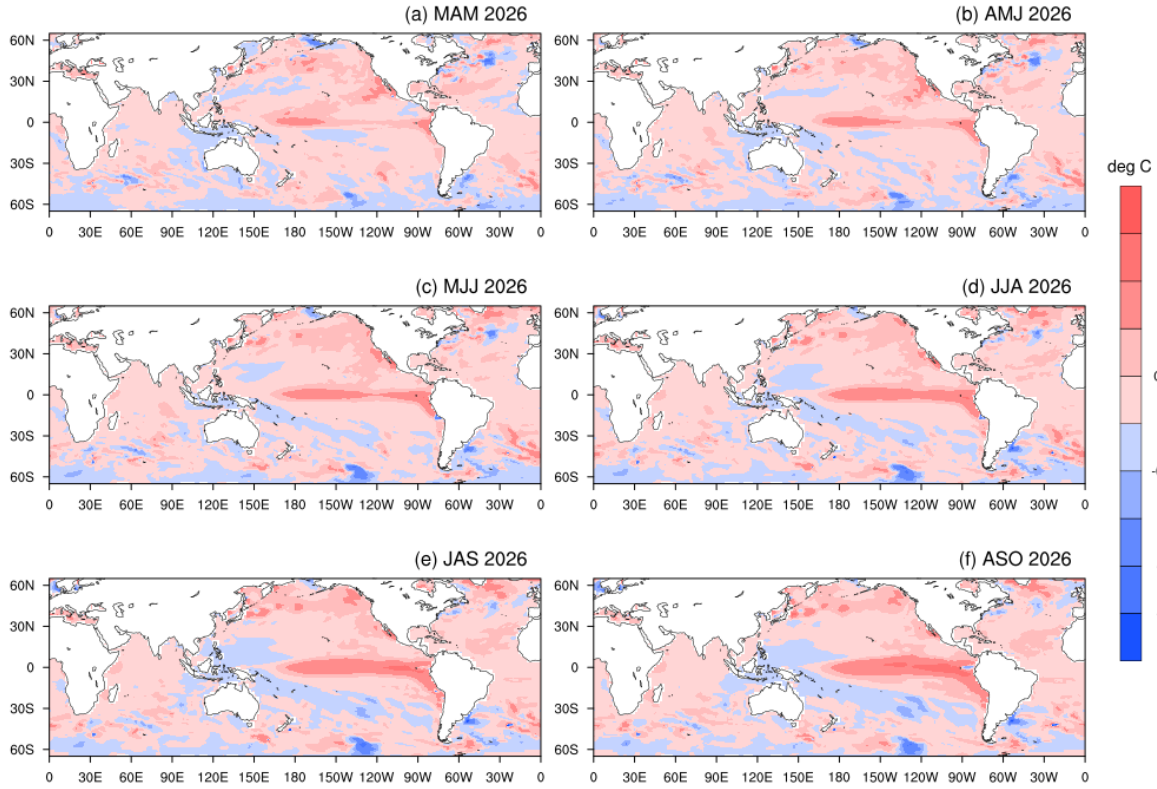
## 2. ENSO and IOD Forecast

The SST forecast was prepared using the high-resolution Monsoon Mission Coupled Forecast System (MMCFS) (AGCM T382L64;  $\sim 38$  km in the tropics and OGCM 25 km) based on February 2026 initial conditions. The initial conditions for the model runs were obtained from ESSO-INCOIS and ESSO-NCMRWF analyses. Probability density function (PDF) bias correction was applied to the forecasts of the Niño3.4 index (Fig. 4a) and the DMI (Fig. 4b), based on hindcasts for the period 1999-2008, and anomalies were calculated using the 1991-2020 Climatology.

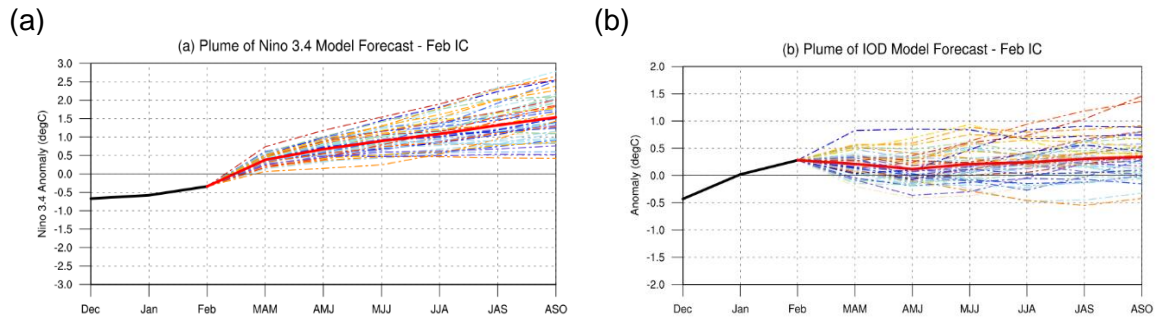
The 3-month season-averaged SST anomaly forecast for the Pacific Ocean (Fig. 3) indicates neutral SSTs are likely to prevail over the central equatorial Pacific Ocean during MAM. Thereafter, AMJ onwards, positive SSTs are likely to strengthen over the central and eastern equatorial Pacific. The latest MMCFS plume and probability forecasts (Fig. 4a & 5a) indicate the latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS) suggest that ENSO-neutral conditions are most likely to continue during April to June 2026 season. Thereafter, the probability of development of El Niño conditions increases gradually. The India Meteorological Department (IMD) continues to closely monitor the evolving ENSO conditions and provides monthly updates that incorporate the latest observations and changes in the Pacific Ocean.

The 3-month season-averaged SST anomaly forecast for the Indian Ocean (Fig. 3) suggests that neutral SST anomalies are prevailing over most parts of the Indian Ocean Indian Ocean during the upcoming seasons. The latest MMCFS forecast indicates that the current neutral IOD conditions are likely to continue during the MAM season and beyond (see Figs. 4b and 5b).

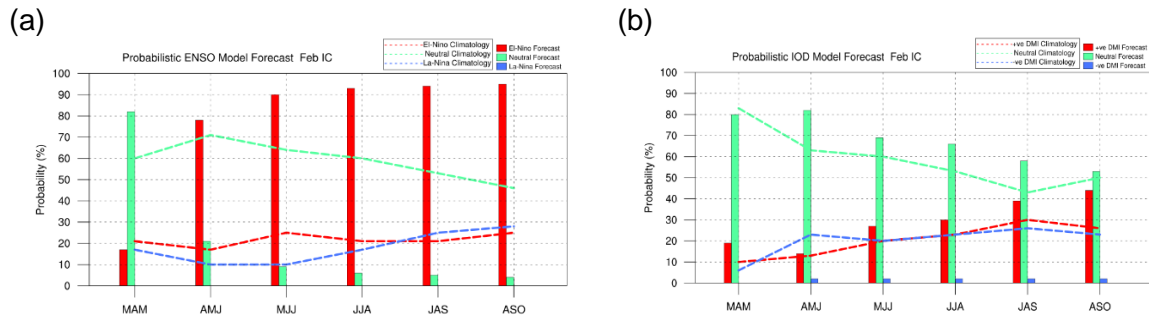
## MMCFS SST Anomaly Forecast :Feb 2026 IC



**Fig.3:** Forecasted Seasonal mean SST anomalies for three-monthly (a) March to May (MAM 2026), (b) April to Jun (AMJ 2026), (c) May to Jul (MJJ 2026), (d) June to August (JJA 2026), (e) July to September (JAS 2026) and (f) July to September (JAS 2026) Model bias correction base period: 1999-2008; Climatology base period:1991-2020).



**Fig.4:** Plume of (a) Niño 3.4 SST index, (b) Indian Ocean Dipole (IOD) Mode Index forecasted by high-resolution MMCFS. The forecasts were PDF corrected for bias and variance. The solid green line is the observed SST anomaly (ERSSTv5, NOAA) and the solid red line is the ensemble mean SST anomaly forecast of 47 members (MMCFS). The individual ensemble member forecasts are shown in light dotted lines of different colours.



**Fig.5:** Probability forecast along with climatological probabilities of (a) Niño 3.4 and (b) Indian Ocean Dipole (IOD) Mode Index from high-resolution MMCFS. The data source for Climatology probabilities: NOAA Extended Reconstructed SST V5. Criteria used for Probabilistic ENSO Forecast: La Niña  $\leq -0.5$ , Neutral  $<0.5$  to  $>-0.5$ , El Niño  $\geq 0.5$ . Criteria used for Probabilistic DMI Forecast: negative DMI  $\leq -0.4$ , Neutral  $<0.4$  to  $>-0.4$ , positive DMI  $\geq 0.4$ .