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

February 2026

Highlights

At present, weak La Niña conditions persisted, marked by sustained below-normal sea surface temperatures across the east-central and eastern equatorial Pacific. The latest forecasts from the Monsoon Mission Climate Forecast System (MMCFS) indicate that the transition to ENSO-neutral is most likely in the February-April 2026 season and thereafter.

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 February to April season and thereafter.

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

During January 2026, the continuation of cooler-than-average sea surface temperatures (SSTs) over the east-central and eastern equatorial Pacific indicated ongoing weak La Niña conditions. (Fig. 1a), while the western equatorial Pacific exhibited warmer SSTs relative to the eastern Pacific. The northern and southern extratropical Pacific also experienced warmer-than-normal SSTs. As compared to December 2025, warming of SST anomalies was observed over some parts of the equatorial Pacific Ocean (Fig.1b). Cooling of SST anomalies was observed over some parts of the north and west Pacific Ocean (Fig. 1b).

January 2026 featured mostly near-average SSTs in the tropical Atlantic and Indian Oceans (Fig. 1a) however, warmer SSTs occurred in the northern Arabian Sea and the northern Bay of Bengal. Compared with December 2025, cooler SSTs developed over most of the Indian Ocean. Positive SST anomalies were evident over the northern Arabian Sea, while negative SST anomalies prevailed over the northern Bay of Bengal.

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 February 2025 to January 2026 is shown in Fig. 2(a). Weak La Niña conditions have been weakening since February 2025. Thereafter, neutral ENSO conditions persisted until September 2025, and in October 2025, borderline La Niña conditions emerged and persisted through December 2025. Currently, weak La Niña conditions are present.

The strong positive subsurface temperature anomalies are observed over the western Pacific Ocean, both near and above the 20°C isotherm depth (Fig. 2b). Negative subsurface temperature anomalies are observed over the central and eastern equatorial Pacific Ocean, occurring near and below the thermocline depth (Fig.2b).

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 February 2025 to January 2026. Weak negative IOD conditions were observed from February 2025, followed by prevailing neutral IOD conditions over the Indian Ocean till July 2025. The neutral IOD conditions turned Weak Negative during December 2025. 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).

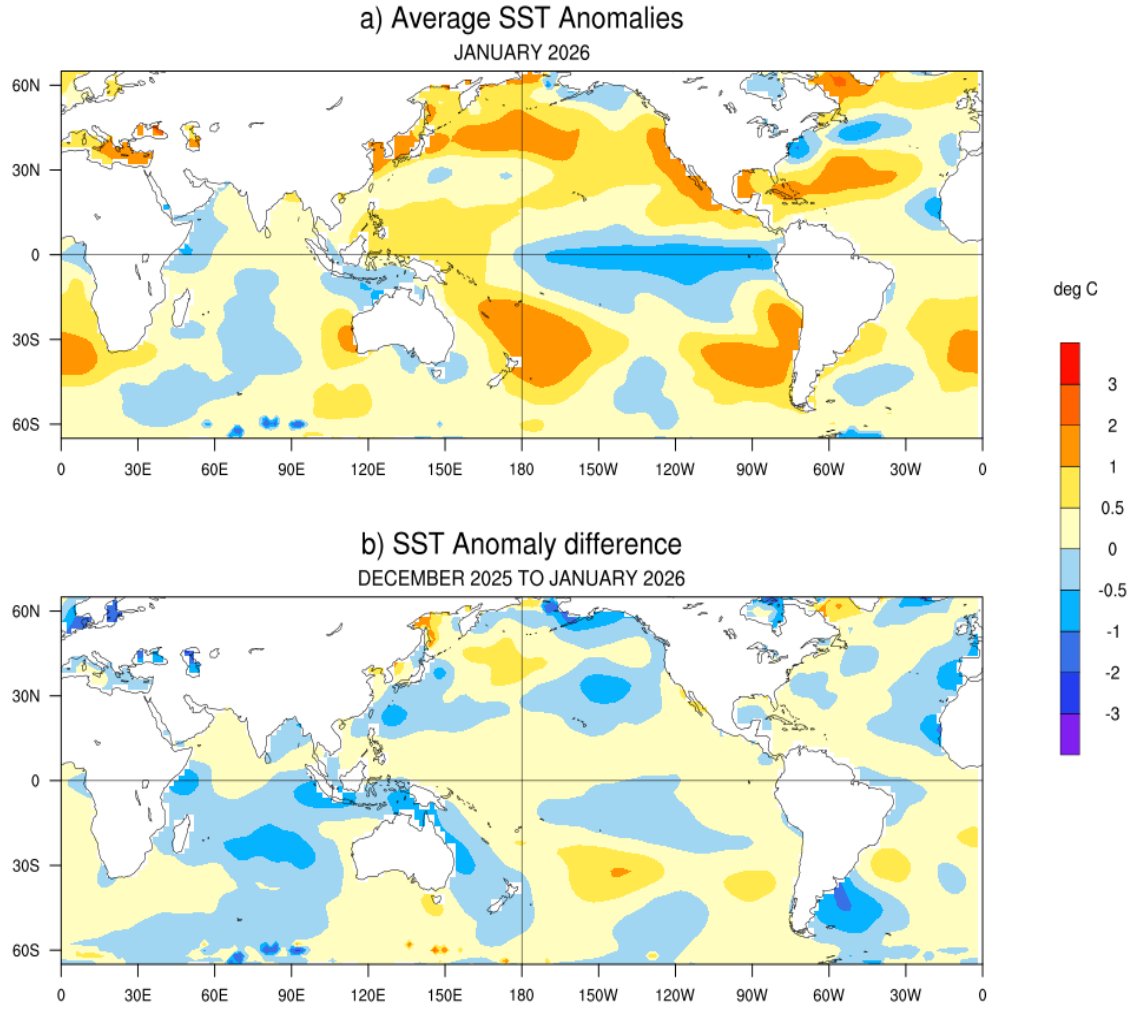

Fig.1: (a) Sea surface temperature (SST) anomalies (degC) during January 2026 and (b) changes in the SST anomalies (degC) from December 2025 to January 2026. SSTs are based on the ERSSTv5 (NCEP-NOAA), and anomalies are computed with respect to 30-year (1991-2020) long term mean.

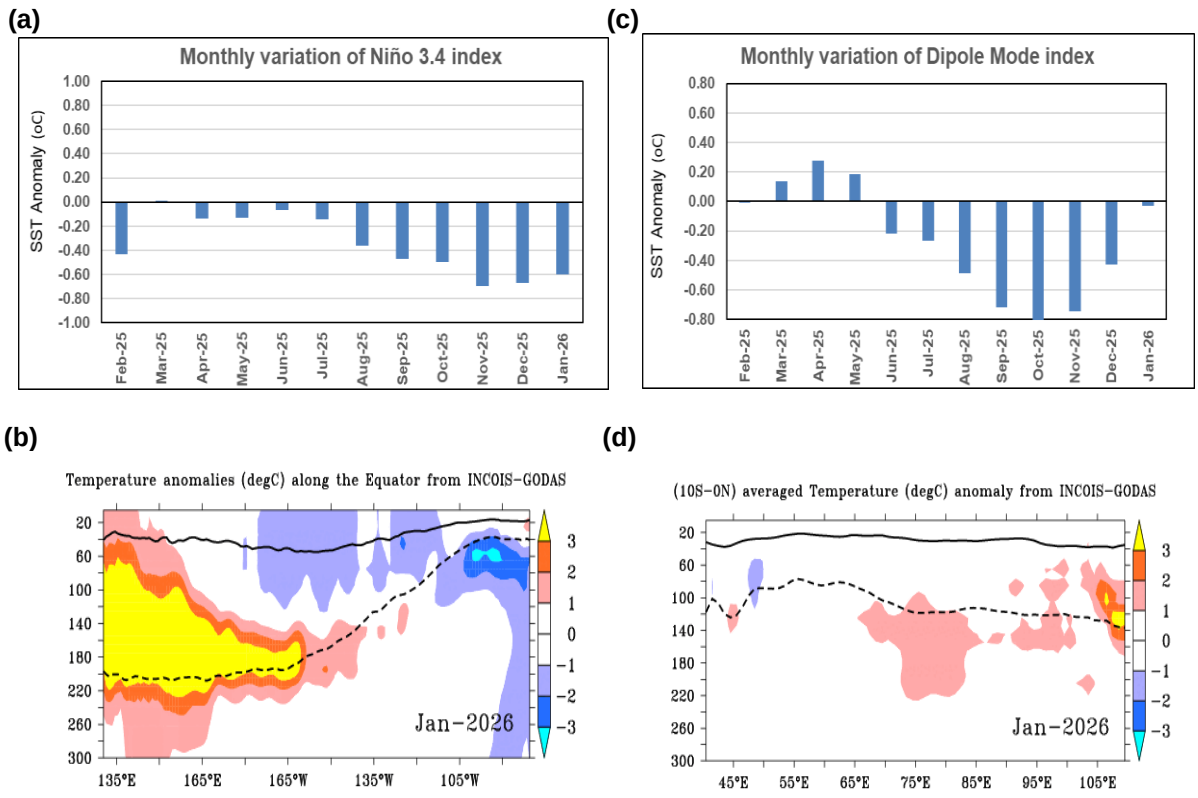

Fig.2: (a) Monthly variation of Niño 3.4 SST index for the last 12 months and (**b**) Depth-longitude section of sub-surface temperature anomalies in the equatorial (5^0S-5^0N) Pacific Ocean for the month of January 2026. (**c**) Same as (**a**) but for the Dipole Mode Index (DMI). (**d**) Same as **(b)** but for the tropical Indian Ocean (10^0S-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 20^0C 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; ~38 km in the tropics and OGCM 25 km) based on January 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.

In December 2025, equatorial sea surface temperatures (SSTs) were below average across the east-central and eastern Pacific and were slightly above average in the western Pacific. 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 FMA and thereafter. However, JJA onwards, positive SSTs are likely to strengthen over the eastern equatorial Pacific. The latest MMCFS plume and probability forecasts (Fig. 4a & 5a) indicate that neutral ENSO conditions are most likely during FMA 2026 and the subsequent seasons. It is further noted that the probability of neutral ENSO conditions is expected to decrease from May–June–July (MJJ) onwards. 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 FMA season and beyond (see Figs. 4b and 5b).

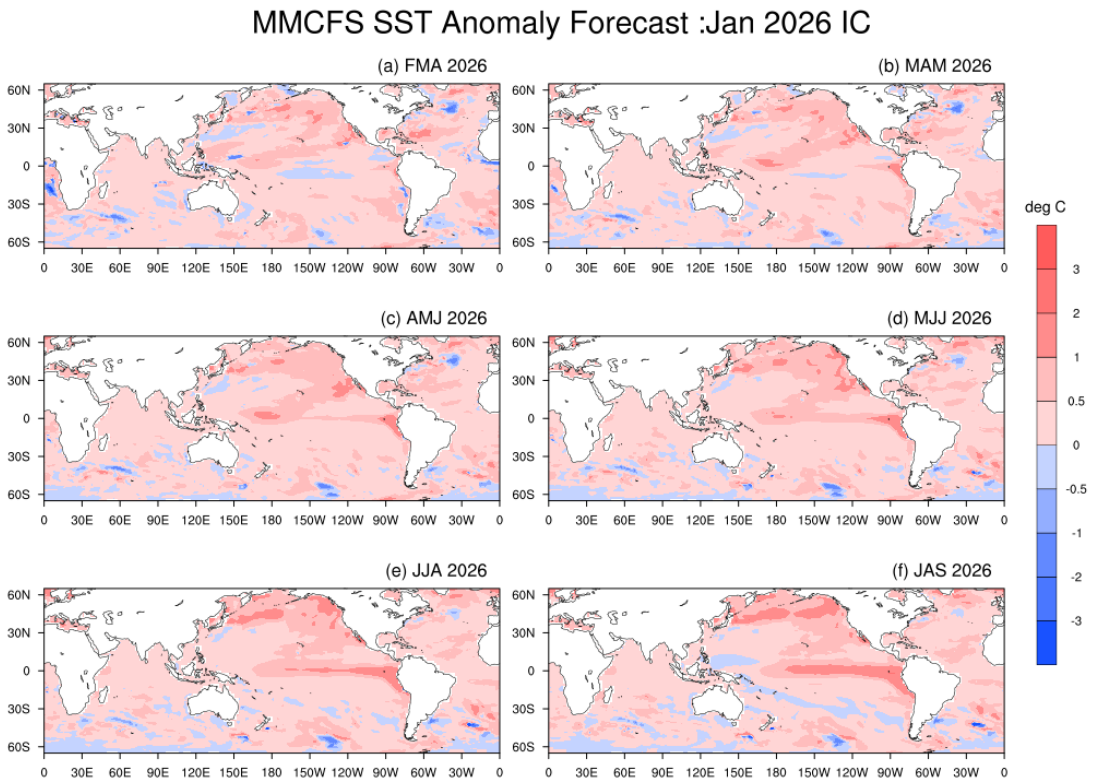

Fig.3: Forecasted Seasonal mean SST anomalies for three-monthly (a) February to April (FMA 2026), (b) March to May (MAM 2026), (c) April to Jun (AMJ 2026), (d) May to Jul (MJJ 2026), (e) June to August (JJA 2026) and (f) July to September (JAS 2026) Model bias correction base period: 1999-2008; Climatology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

(a) (b)

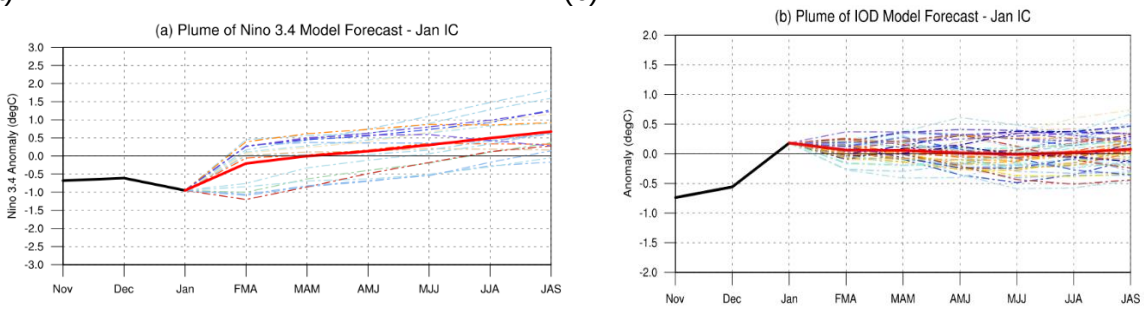

Fig.4: Plume of **(a)** Niño 3.4 SST index, **(b)** Indian Ocean Dipole (IOD) Mode Index forecasted by high-resolution MMCFS. The forecasts were PDF corrected for bias and variance. The solid green line is the observed SST anomaly (ERSSTv5, NOAA) and the solid red line is the ensemble mean SST anomaly forecast of 45 members (MMCFS). The individual ensemble member forecasts are shown in light dotted lines of different colours.

(a) (b)

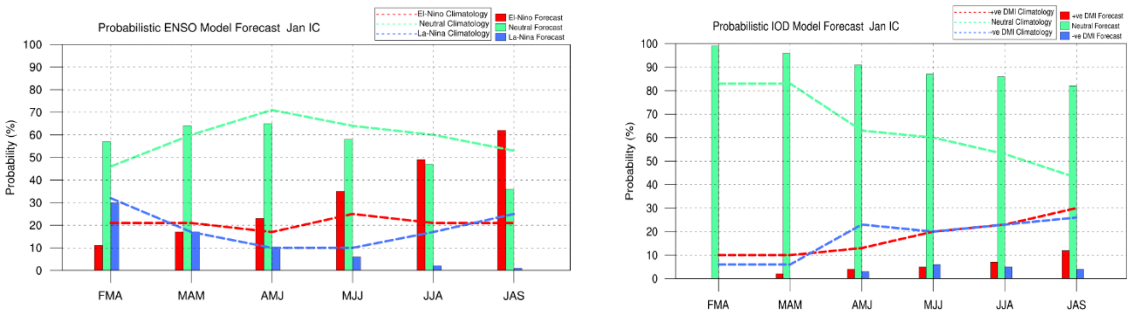

Fig.5: Probability forecast along with climatological probabilities of **(a)** Niño 3.4 and **(b)** Indian Ocean Dipole (IOD) Mode Index from high-resolution MMCFS. The data source for Climatology probabilities: NOAA Extended Reconstructed SST V5. Criteria used for Probabilistic ENSO Forecast: La Niña ≤ -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.