



**Earth System Science Organization (ESSO)
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**

May 2026

Highlights

Currently, ENSO-neutral conditions in the equatorial Pacific are transitioning toward an El Niño conditions. The Monsoon Mission Climate Forecast System (MMCFS) suggests the development of El Niño conditions during the southwest monsoon season.

At present, neutral Indian Ocean Dipole (IOD) conditions are present over the Indian Ocean. The Monsoon Mission Climate Forecast System (MMCFS) suggests forecast indicates that the weak positive IOD conditions are likely to develop towards end of the southwest monsoon season.

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

During April 2026, ENSO-neutral conditions developed, as reflected by near-normal sea surface temperatures (SSTs) over the central and east-central equatorial Pacific Ocean (Fig. 1a). However, positive SST anomalies persisted over the far eastern Pacific and around the Maritime Continent region. Warmer-than-normal SSTs were also observed across the tropical and extra-tropical regions of both the North and South Pacific Oceans (Fig. 1a). Compared to March 2026, equatorial sea surface temperatures (SSTs) during April 2026 were near-normal over the east-central Pacific Ocean, above normal over the region just west of the Date Line and the far eastern Pacific Ocean, and below normal over the far western Pacific Ocean (Fig. 1b).

In April 2026, sea surface temperatures (SSTs) were above average in the western parts of Indian Ocean and below average SSTs over eastern Indian Ocean near Maritime continent (Fig. 1a). Above-average SSTs were observed over the Arabian Sea, while warm SSTs prevailed over the Bay of Bengal. Compared to March 2026, predominantly positive SST anomalies were observed across the Indian Ocean, while cooler SSTs prevailed over the northern Arabian Sea. (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 May 2025 to April 2026 is shown in Fig. 2(a). In April 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. ENSO-neutral conditions developed from February onwards, and currently, neutral ENSO conditions are prevailing.

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 May 2025 to April 2026. Weak positive IOD conditions were observed from May 2025, followed by prevailing neutral IOD conditions over the Indian Ocean till July 2025. The neutral IOD conditions turned into Weak Negative IOD conditions during December 2025. Thereafter the neutral positive IOD conditions were prevailed from January to March 2026. At present, neutral IOD conditions are prevailing over the Indian Ocean.

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

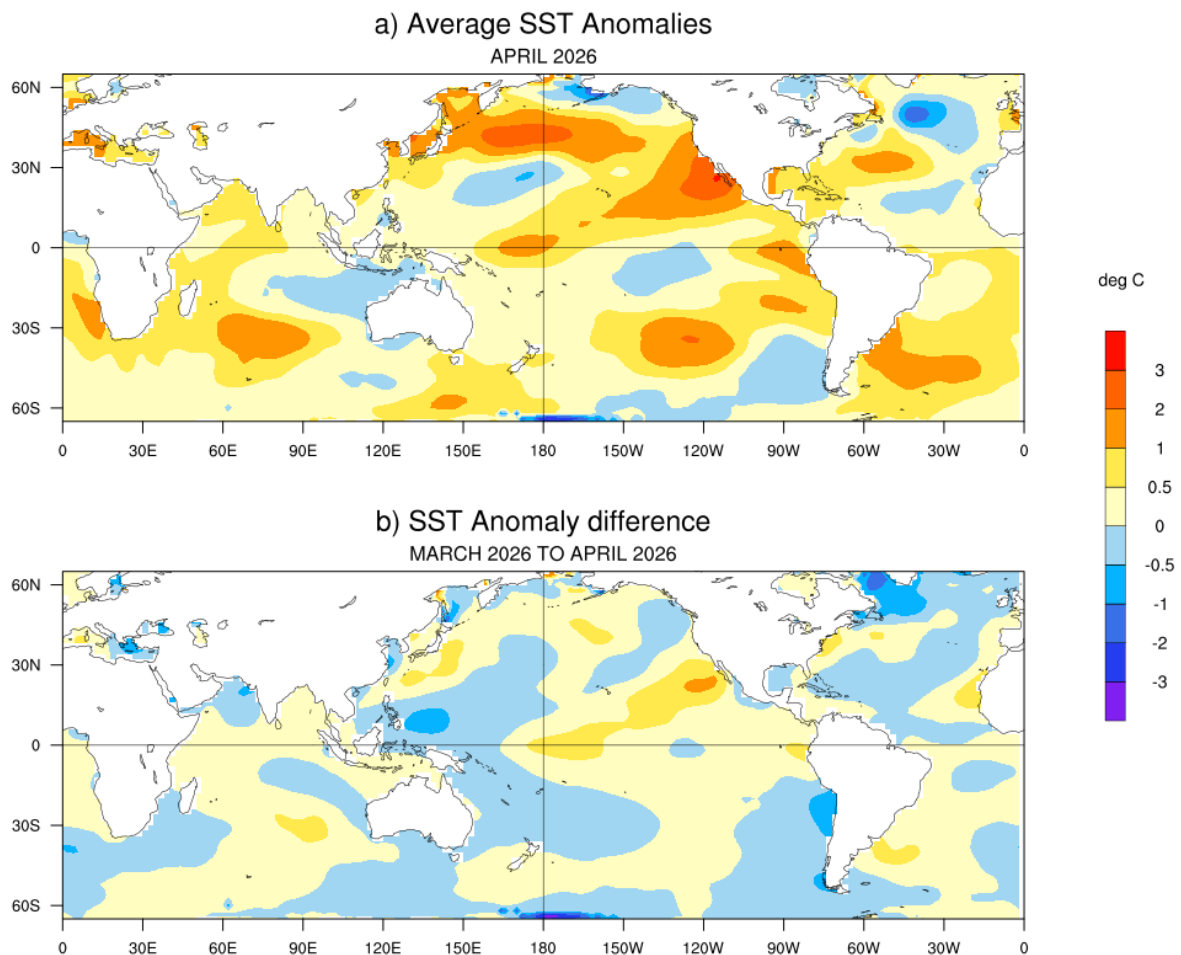


Fig.1: (a) Sea surface temperature (SST) anomalies (degC) during April 2026 and (b) changes in the SST anomalies (degC) from March 2026 to April 2026. SSTs are based on the ERSSTv5 (NCEP-NOAA), and anomalies are computed with respect to 30-year (1991-2020) long term mean.

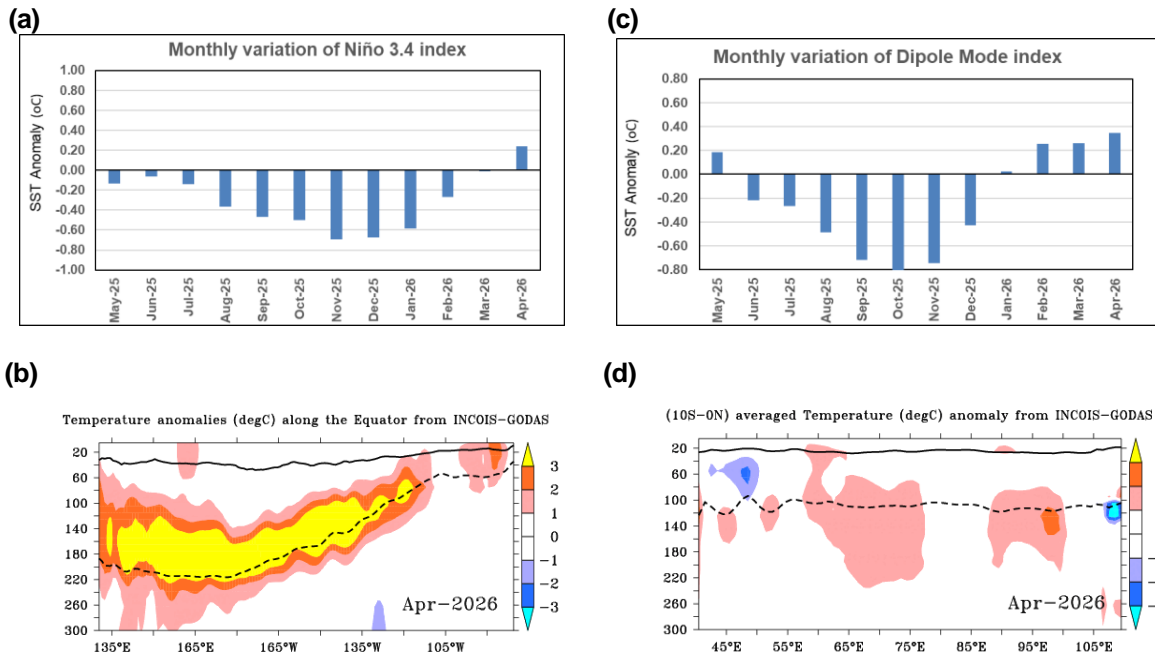


Fig.2: (a) Monthly variation of Niño 3.4 SST index for the last 12 months and (b) Depth-longitude section of sub-surface temperature anomalies in the equatorial ($5^{\circ}\text{S}-5^{\circ}\text{N}$) Pacific Ocean for the month of April 2026. (c) Same as (a) but for the Dipole Mode Index (DMI). (d) 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°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; ~ 38 km in the tropics and OGCM 25 km) based on April 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 positive SSTs are likely to prevail over the central equatorial Pacific Ocean during MJJ. Thereafter, JJA onwards, positive SSTs are likely to strengthen over the central and eastern equatorial Pacific. ENSO-neutral conditions developed, as reflected by near-normal sea surface temperatures (SSTs) over the central and east-central equatorial Pacific Ocean. The latest MMCFS plume and probability forecasts (Fig. 4a & 5a) suggests the development of El Niño conditions during the southwest monsoon season. 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 positive neutral SST anomalies are prevailing over most parts of the Indian Ocean during the upcoming seasons. At present, neutral Indian Ocean Dipole (IOD) conditions are present over the Indian Ocean and the latest MMCFS forecast indicates that the weak positive IOD conditions are likely to develop towards end of the southwest monsoon season (see Figs. 4b and 5b).

MMCFS SST Anomaly Forecast :Apr 2026 IC

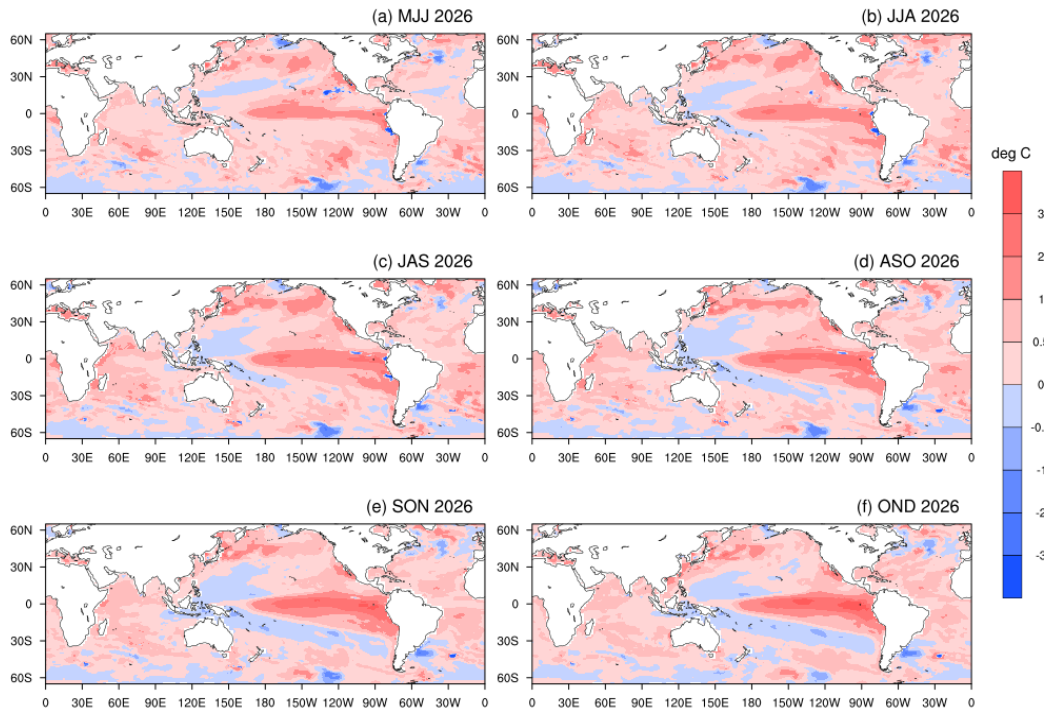


Fig.3: Forecasted Seasonal mean SST anomalies for three-monthly (a) May to Jul (MJJ 2026), (b) June to August (JJA 2026), (c) July to September (JAS 2026), (d) July to September (JAS 2026) (e) September to November (SON 2026) and (f) October to December (OND 2026) Model bias correction base period: 1999-2008;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

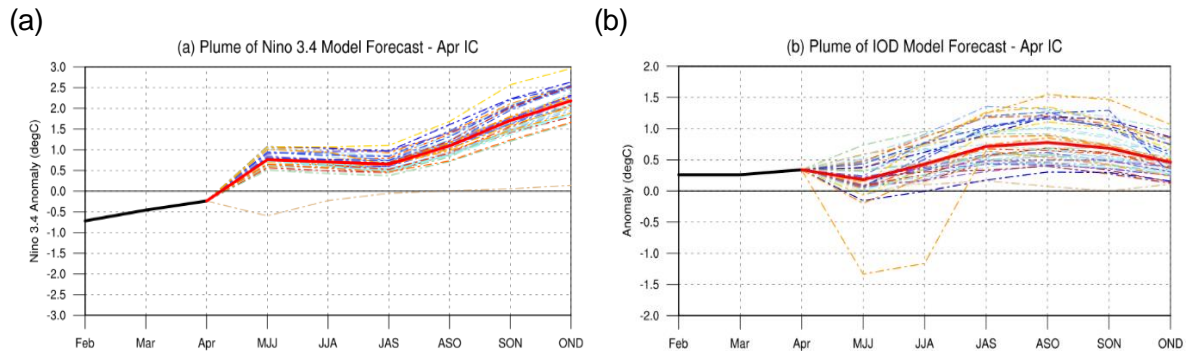


Fig.4: Plume of (a) Niño 3.4 SST index, (b) Indian Ocean Dipole (IOD) Mode Index forecasted by high-resolution MMCFS. The forecasts were PDF corrected for bias and variance. The solid green line is the observed SST anomaly (ERSSTv5, NOAA) and the solid red line is the ensemble mean SST anomaly forecast of 39 members (MMCFS). The individual ensemble member forecasts are shown in light dotted lines of different colours.

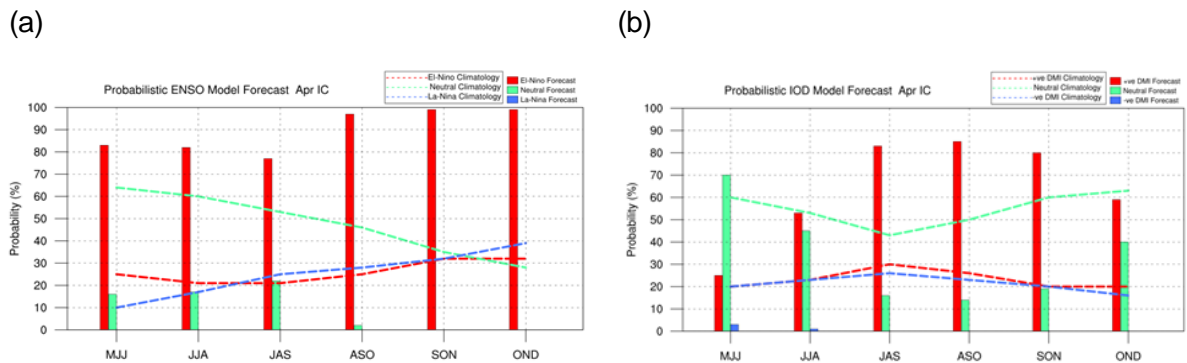


Fig.5: Probability forecast along with climatological probabilities of (a) Niño 3.4 and (b) Indian Ocean Dipole (IOD) Mode Index from high-resolution MMCFS. The data source for Climatology probabilities: NOAA Extended Reconstructed SST V5. Criteria used for Probabilistic ENSO Forecast: La Niña ≤ -0.5 , 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 .