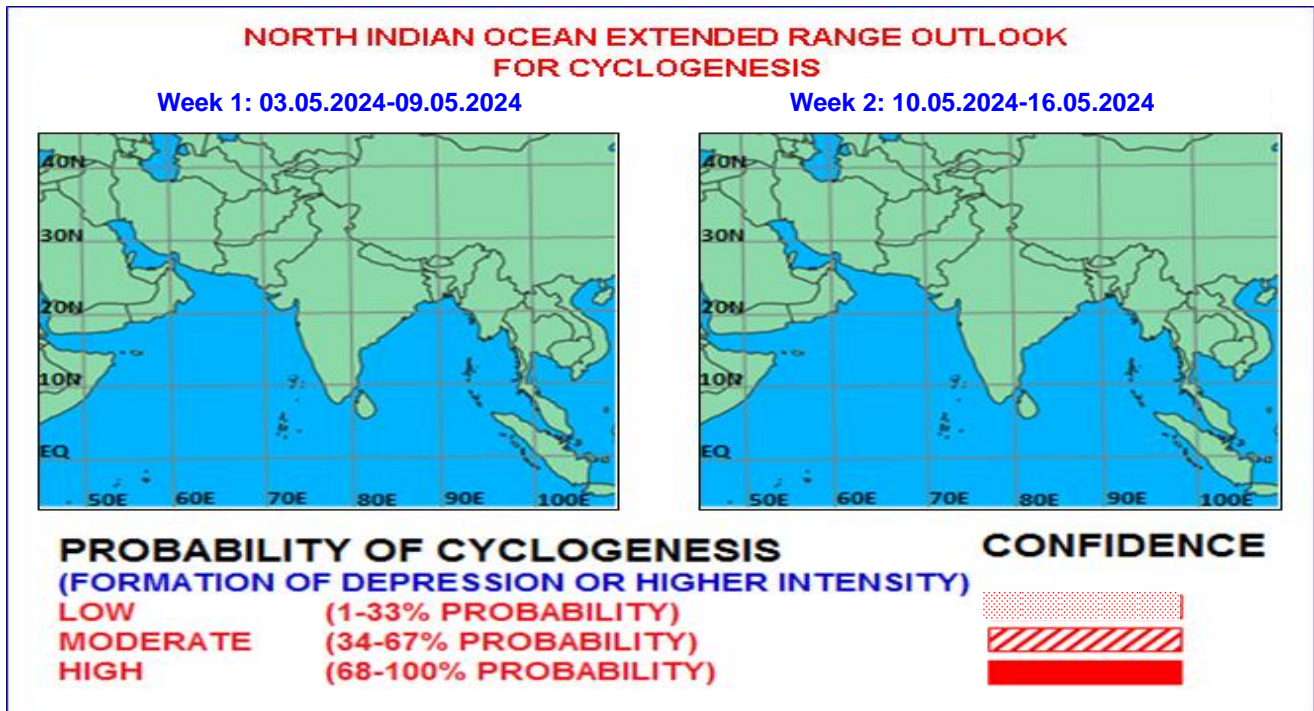




Issued on 02.05.2024



**Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks**

**I. Environmental features:**

Madden Julian Oscillation (MJO) index is currently entered into Phase 4 with amplitude greater than 1. The consensus forecast amongst different models indicates that the MJO index will continue to propagate eastward in the same phase during 1<sup>st</sup> half and enter into phase 5 with gradually decreasing amplitude in the second half of first week. Thereafter, the ensemble members of GEFS and ECMWF models portray larger spread. However, a large number of ensemble members suggest continued quick propagation sequentially through the Pacific (phases 6 & 7) and Western Hemisphere & Africa (phases 8 & 1) during first half of week 2. Subsequently, it is likely to re-emerge over eastern Indian Ocean (phase 3) at the end of second week. Thus, MJO signal may not support enhancement of convective activity over North Indian Ocean region during early May i.e., till first half of second week.

NCICS based forecasts for zonal winds indicate easterly winds (3 to 5 mps) over both the basins i.e., the Bay of Bengal (BoB) and the Arabian Sea (AS) during entire forecast period. The absence of Equatorial Rossby Wave (ERW) and westerlies over south BoB & AS is not favourable for cyclogenesis over the region during entire forecast period.

**II. Model Guidance:**

Various global NWP modelling systems including NCUM, NEPS, ECMWF, IMD GFS, GEFS and NCEP GFS indicate that two seasonal anticyclones, one over central part of AS and another over central BoB are likely to persist for next 10 days which inhibits cyclogenesis over the region during entire forecast period. The IMD Extended Range Forecast System (ERFS) forecasts imitate wind flow patterns of GFS group of models during both the weeks. Wind anomaly fields suggest anticyclonic wind flow over AS & BoB. However, IMD ERFS indicates 10-20% probability of cyclogenesis over south BoB only. The ECMWF ERFS also indicates no probability of cyclogenesis during entire forecast period.

**Legends:** NCICS: North Carolina Institute for Climate Studies (for Equatorial waves Forecast), IMD GFS: India Meteorological Department Global Forecast System, NCUM: National Centre for Medium Range Weather Forecasting Centre (NCMRWF) Unified Model, European Centre for Medium Range Weather Forecasting (ECMWF), GPP: Genesis Potential Parameter, National Centre for Environment Prediction (NCEP) GFS, ECMM: ECMWF multi model, GEFS: GFS ensemble, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Centre, NWS: National Weather Service.

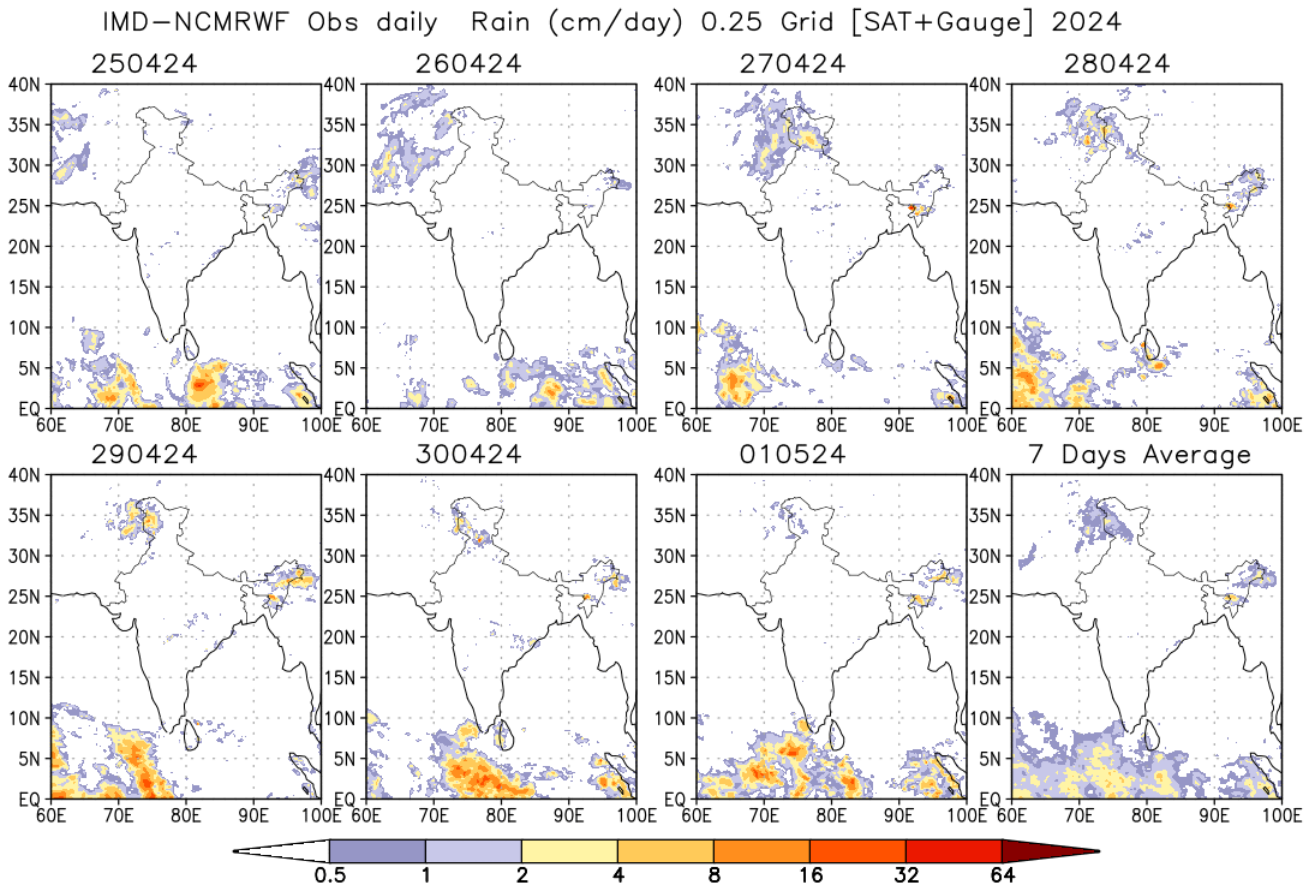
**III. Inference:**

Considering various environmental conditions and model guidance, it is inferred that there is no probability of cyclogenesis over North Indian Ocean during next two weeks.

**IV. Verification of forecast issued during last two weeks:**

Forecast issued on 18<sup>th</sup> April for second week (26.04.2024-02.05.2024) and forecast issued on 25<sup>th</sup> April for first week (26.04.2024-02.05.2024) indicated no cyclogenesis over the NIO during the forecast period. Actually, no cyclogenesis occurred over the region during the specified week.

NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during, 25<sup>th</sup> April to 01<sup>st</sup> May, 2024 are presented in **Fig. 2**.



**Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 25<sup>th</sup> April to 01<sup>st</sup> May, 2024.**

**Next update: 09.05.2024**