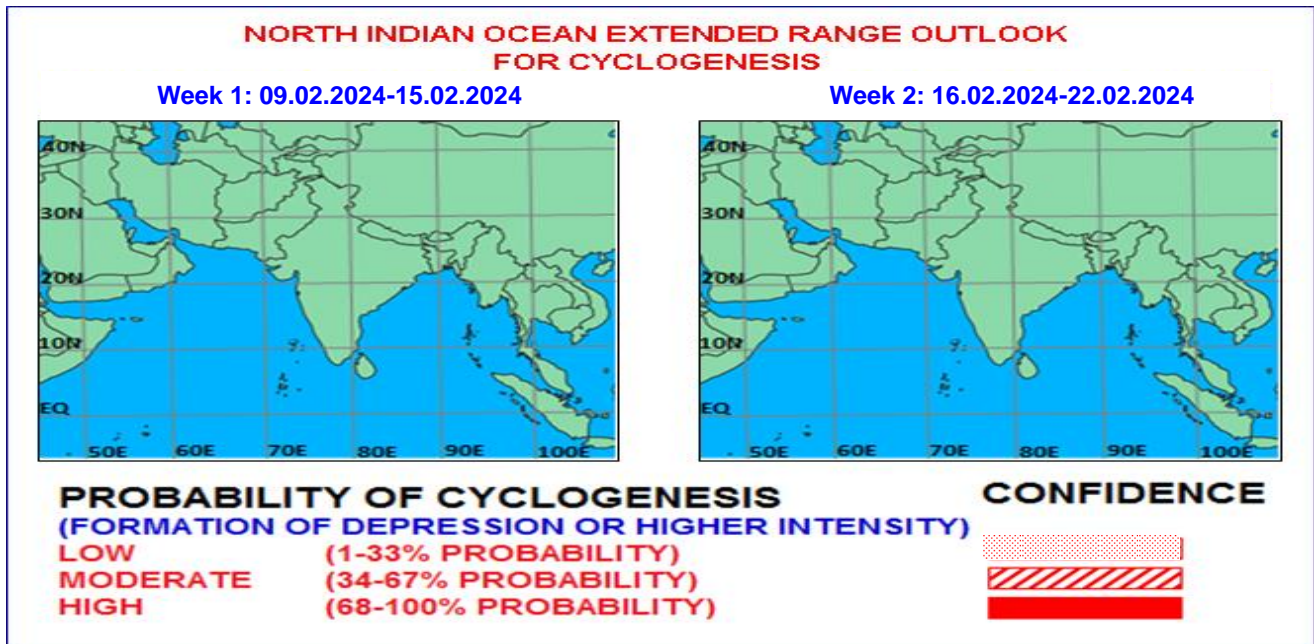




Issued on 08.02.2024



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

### I. Environmental features:

Madden Julian Oscillation (MJO) index shows looping and it is currently in phase 7 with amplitude greater than 1. In the forecasts, both GEFS and ECMWF ensembles indicate a slowing down of the MJO signal as it approaches towards phase 8 (Western Hemisphere and Africa) during the first week. With some ensemble members returning the MJO index back into phase 7 as well as amplitude towards the unit circle and a few members showing eastward movement into phase 8, the eastward propagation is not very obvious during week 1. But during week 2, models depict a healthier eastward propagation inside phases 8. But a consensus amongst both models about the amplitude of the MJO is lacking during next two weeks. Consequently, MJO is not likely to contribute in the cyclogenesis over the North Indian Ocean (NIO) during the entire forecast period.

NCICS based forecasts for equatorial waves indicate weak easterly winds (1-3 mps) over Andaman Sea, South Bay of Bengal (BoB), south Arabian Sea (AS) and adjoining Equatorial Indian Ocean (EIO) during the entire forecast period except in the second half of the first week when it is likely to become a bit stronger (7-9 mps) over south Andaman and south BoB. The westerlies (3-5 mps) are likely to remain over northern parts of BoB and AS during week 1 and the same is likely to weaken (1-3 mps) further during week 2. There is a stark absence of any Equatorial Rossby Waves (ERW) and Kelvin waves over both the sub-basins of NIO during both the weeks. Therefore, weak zonal winds along with the absence of equatorial waves are not likely to contribute to any cyclogenesis over the region during the entire forecast period.

### II. Model Guidance:

Various deterministic models including IMD GFS, GEFS, NCUM, ECMWF and NCEP GFS models are indicating the presence of two anticyclones in the lower tropospheric levels with one over north BoB & adjoining east India and another over north AS. There is likely formation of north-south trough in easterlies over southern peninsular India / along west coast region intermittently but no cyclogenesis (formation of depression) is likely over both BoB and AS during next 10 days. GPP forecasts are not indicating any significant zone of cyclogenesis over the

region during next 7 days. The extended range forecasts by IMD (CFS V2) are depicting anticyclonic flow over Indian sub-continent in both mean and anomaly wind fields and easterlies over south BoB and AS. The forecasts do not suggest any cyclogenesis over NIO during the entire forecast period. The ECMWF extended range forecast is also not indicating any cyclogenesis during next 2 weeks.

**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.

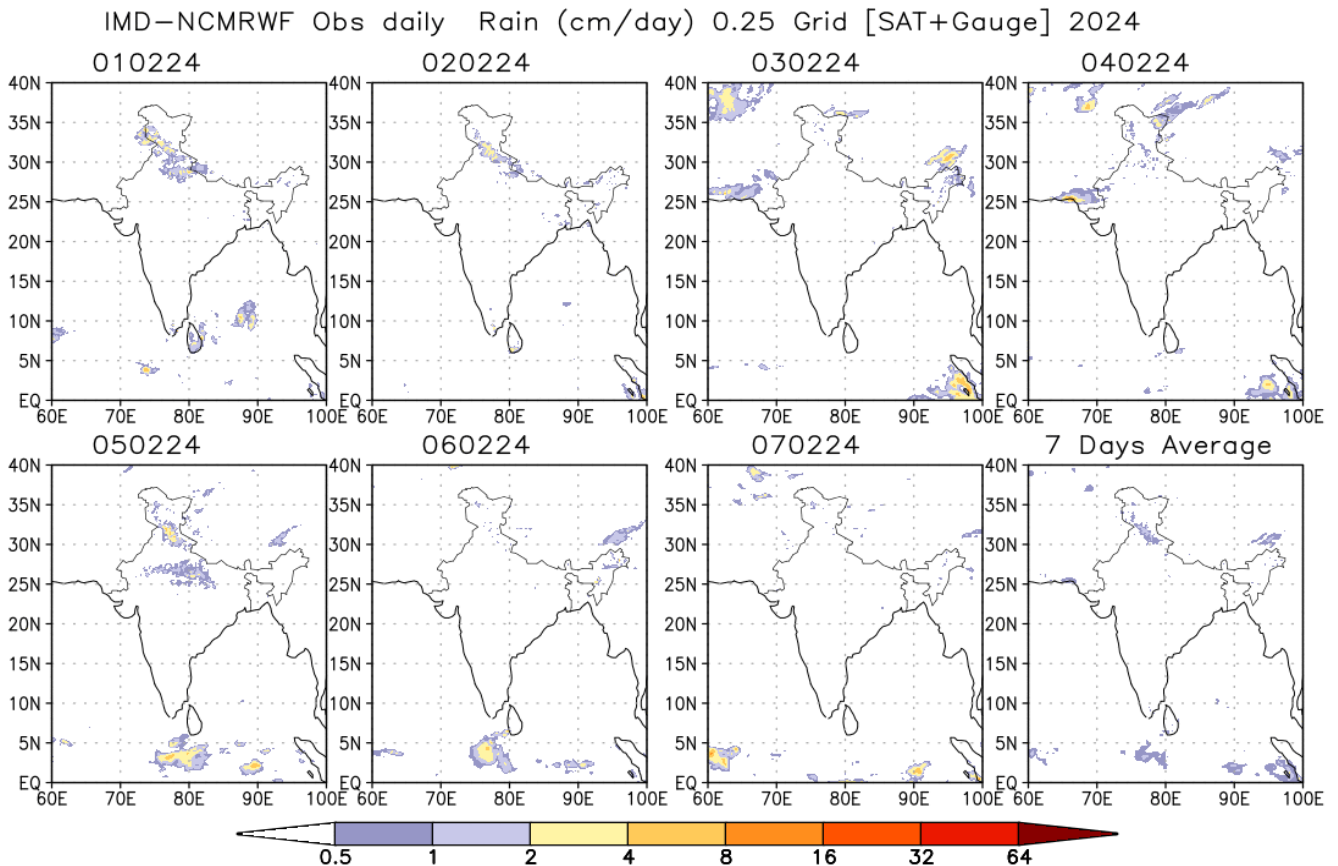
**III. Inference:**

Considering all environmental conditions and model guidance, it is inferred that there is no probability of cyclogenesis over the North Indian Ocean during the entire forecast period.

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

Forecast issued on 25<sup>th</sup> January for second week (02.02.2024-08.02.2024) and forecast issued on 1<sup>st</sup> February for first week (02.02.2024-08.02.2024) indicated no cyclogenesis over the North Indian Ocean during the 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, 01<sup>st</sup> to 7<sup>th</sup> February, 2024 are presented in Fig. 2.



**Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 1<sup>st</sup> to 7<sup>th</sup> February, 2024.**

**Next update: 15.02.2024**