

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

**I. Environmental features:**

Madden Julian Oscillation (MJO) index is currently in Phase 4 with amplitude less than 1. Thereafter, it will move across phase 3 with gradually increasing amplitude (becoming greater than 1) towards the end of week 1. During week 2, it would propagate across phase 4 with large amplitude (around 2). Thus MJO, phase and amplitude are highly favourable for enhancement of convective activity over the Bay of Bengal (BoB) during the entire forecast period.

The NCICS based forecasts for zonal winds indicate strong easterly winds (5 to 7 mps) over southern part of both the basins i.e., the Bay of Bengal (BoB) and the Arabian Sea (AS) during entire forecast period. However, during week 2, weakening of easterly winds is indicated over southern parts of both the basins. In addition, Equatorial Rossby Wave (ERW) are likely over south BoB. Thus, equatorial waves are likely to contribute towards cyclogenesis during week 2. The cross equatorial flow from southern hemisphere to eastern BoB and Andaman Sea will increase in week 2 which may lead to advance of monsoon during second week. Ahead of this southerly to southwesterly monsoonal surge, the lower level vorticity is likely to increase over the above region which may favour formation of depression.

**II. Model Guidance:**

IMD GFS and GEFS are indicating a cyclonic circulation over Comorin Area to the southwest of Sri Lanka on 14<sup>th</sup> May with gradual westwards movement till 17<sup>th</sup> May. IMD GFS is indicating advancement of southwest monsoonal winds from 19<sup>th</sup> May onwards. NCEP GFS is indicating a low pressure area over southeast BoB on 19<sup>th</sup> May with intensification and north-northeastwards movement towards south Myanmar coast. ECMWF deterministic model is not indicating any cyclonic circulation/disturbance over the region during next 2 weeks. NCUM and NEPs are not indicating any cyclogenesis over the region. IMD GPP analysis is

indicating a weak favourable potential zone over southwest BoB off southeast Sri Lanka coast on 16<sup>th</sup> May. ECMWF ensemble is indicating low probability of cyclogenesis over the Comorin Area with most of the members indicating north-northeastwards movement off Tamil Nadu coast during week 2 and also moderate cyclogenesis over the southeast BoB with most of the members indicating movement towards south Myanmar coast during week 2. IMD extended range model is indicating a cyclonic circulation over Comorin Area at 850 hPa level. It is indicating moderate probability (30-40%) of cyclogenesis over Comorin Area and low probability (10-20%) south Andaman Sea during week 1. Similarly, during week 2 it is indicating low probability (20-30%) of cyclogenesis over Andaman Sea.

**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.

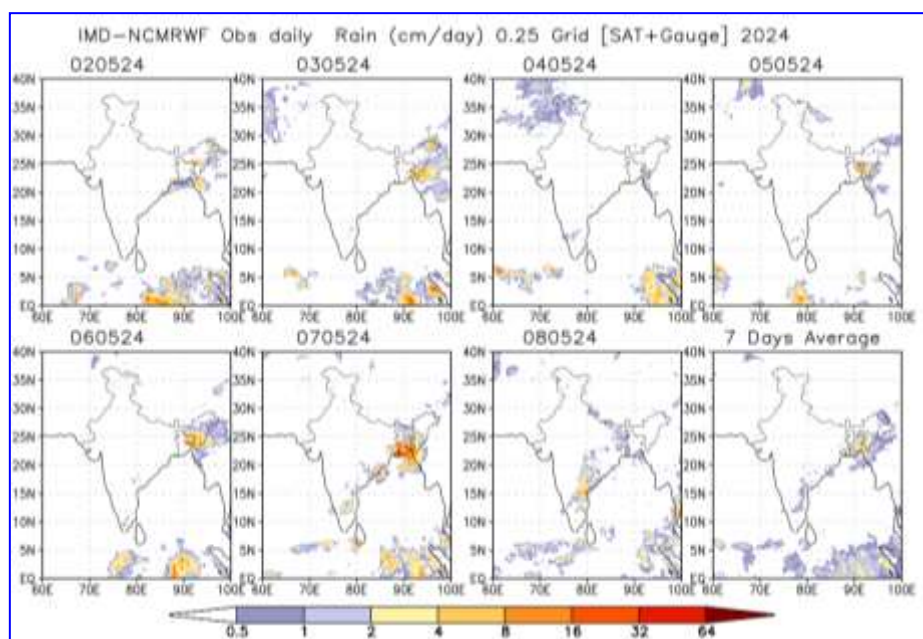
**III. Inference:**

Considering various environmental conditions and model guidance, it is inferred that there is low probability of formation of depression over southeast BoB during week 2.

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

Forecast issued on 25<sup>th</sup> April for second week (03.05.2024-09.05.2024) and forecast issued on 2<sup>nd</sup> May for first week (03.05.2024-09.05.2024) 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, 2<sup>nd</sup> May to 8<sup>th</sup> May, 2024 are presented in **Fig. 2**.



**Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 2<sup>nd</sup> May to 8<sup>th</sup> May, 2024.**

**Next update: 16.05.2024**