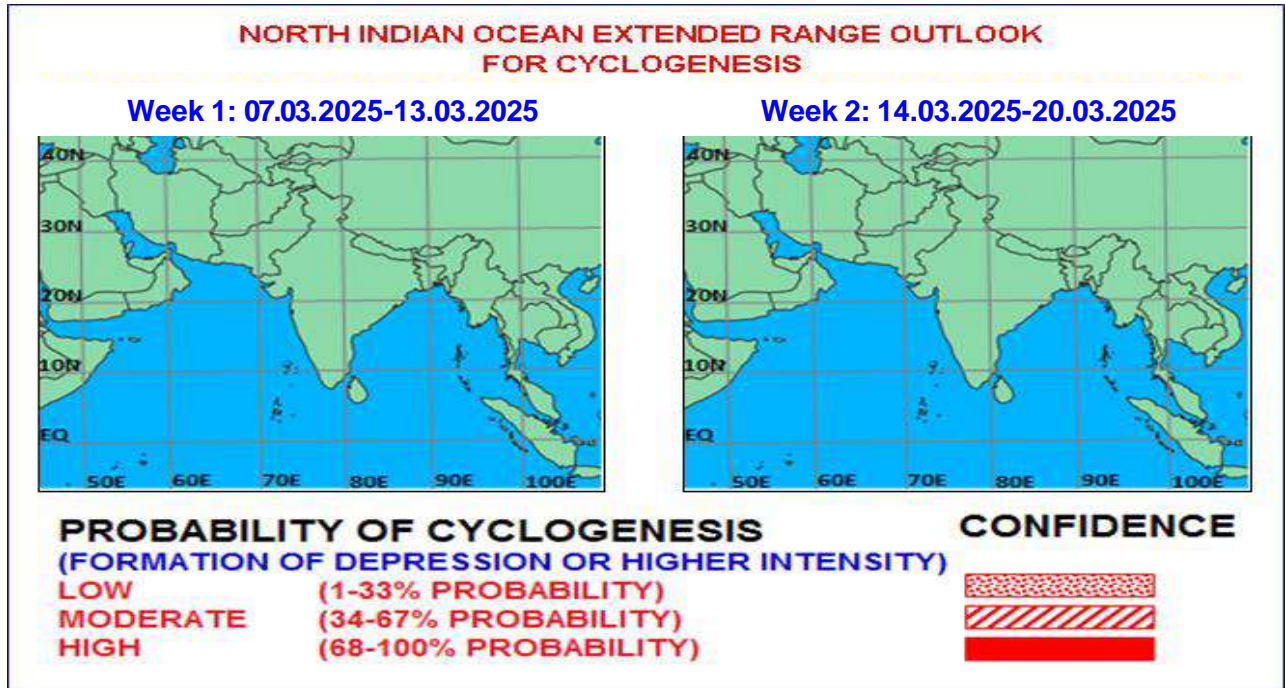




Issued on 06.03.2025



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

### **I. Environmental features:**

MJO is currently in phase 2 with amplitude more than 1. It would continue in same phase during week 1. Thereafter it would move across phases 3 & 4 with amplitude gradually decreasing but remaining close to 1. Thus, MJO would support enhancement of convective activity over the Arabian Sea (AS) during week 1 & first half of week 2 and over the Bay of Bengal (BoB) during the entire forecast period.

NCICS based forecast for equatorial waves indicated easterly winds over the entire North Indian Ocean (NIO) during week 1. During week 2, no significant waves are indicated over the BoB and easterly wind anomaly is seen over the AS. Thus, equatorial waves are not likely to contribute to cyclogenesis/ enhancement of convective activity over the NIO region.

### **II. Model Guidance:**

Various deterministic models including IMD GFS, NCEP GFS, GEFS, NCUM, NEPS and ECMWF are indicating likely formation of an upper air cyclonic circulation over Northeast Equatorial Indian Ocean (NEIO) and adjoining South Andaman Sea around 8<sup>th</sup> March with westwards movement towards Comorin Area during subsequent 3 days.

IMD extended range forecast model (IMD CFSV2) based 850 hPa wind anomaly field is indicating a cyclonic circulation over NEIO and adjoining South Andaman Sea during middle of week 1 with nearly westwards movement towards South Sri Lanka during subsequent 3 days. The rainfall anomaly charts are also indicating positive departure over the NEIO and adjoining South BoB and Comorin Area. The model is also indicating low probability of cyclogenesis over the region during

week 1. NCMRWF CNCUM Model is indicating easterly winds over the region. ECMM model is indicating 40-50 % probability of formation of low-pressure area over the NEIO and adjoining South Andaman Sea. ECMWF extended range model is also indicating similar features.

**Legends:** MJO: Madden Julian Oscillation, ERW: Equatorial Rossby Waves, KW: Kelvin Waves, 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, ECMWF: European Centre for Medium-Range Weather Forecasting, ECMM: ECMWF-Ensemble System Bias Corrected, GPP: Genesis Potential Parameter, NCEP GFS/GEFS/CFS: National Centre for Environment Prediction GFS/GEFSv12/CFSv2, IMD-GEFS: GFS ensemble forecast system of IMD, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Centre, NWS: National Weather Service, INCOIS: Indian National Centre for Ocean Information Services.

### **III. Inference:**

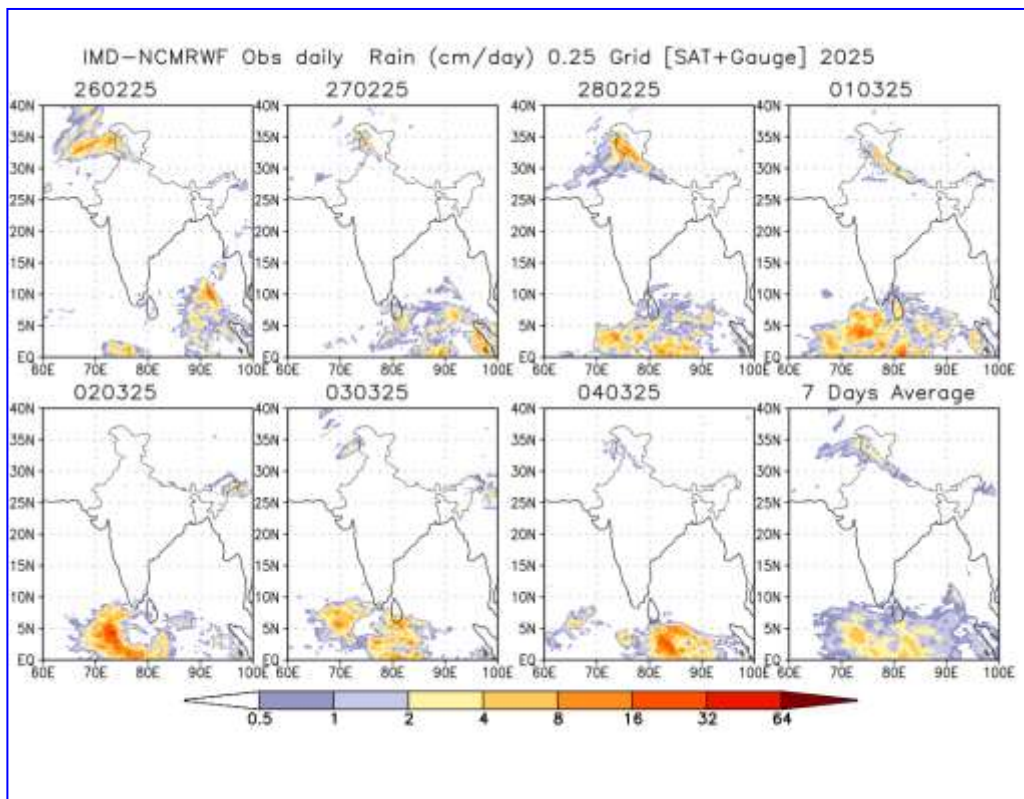
Considering various environmental conditions and model guidance it is inferred that there is likelihood of formation of an upper air cyclonic circulation embedded within the Equatorial trough over North East Equatorial Indian Ocean and adjoining South Andaman Sea during beginning of week 1 (around 8<sup>th</sup> March). It is likely to move nearly westwards towards Comorin Area across North East Equatorial Indian Ocean and adjoining south Bay of Bengal during subsequent 3 days.

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

The forecast issued on 20<sup>th</sup> February for week 2 (28<sup>th</sup> February-06<sup>th</sup> March) indicated no probability of cyclogenesis during the week. The forecast issued on 27<sup>th</sup> February for week 1 (28<sup>th</sup> February-06<sup>th</sup> March) indicated no probability of cyclogenesis during the week. No cyclogenesis occurred during the period.

However, the extended-range outlook issued on 20<sup>th</sup> and 27<sup>th</sup> February also indicated likely formation of a cyclonic circulation around 28<sup>th</sup> February. Actually, an upper air cyclonic circulation formed over East Equatorial Indian Ocean & adjoining southwest Bay of Bengal extending up to 0.9 km above mean sea level on 1<sup>st</sup> March 2025. It moved nearly westwards and became less marked over West Equatorial Indian Ocean & adjoining Maldives area on 04<sup>th</sup> March 2025. Hence, likely formation of cyclonic circulation over south BoB and equatorial Indian Ocean was correctly predicted two weeks ahead (almost 8 days ahead) but with some spatial variations.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 26<sup>th</sup> February to 04<sup>th</sup> March, 2025 are presented in **Fig. 2**.



**Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 26<sup>th</sup> February to 04<sup>th</sup> March, 2025.**

**Next update: 13.03.2025**