



Issued on 10.04.2025

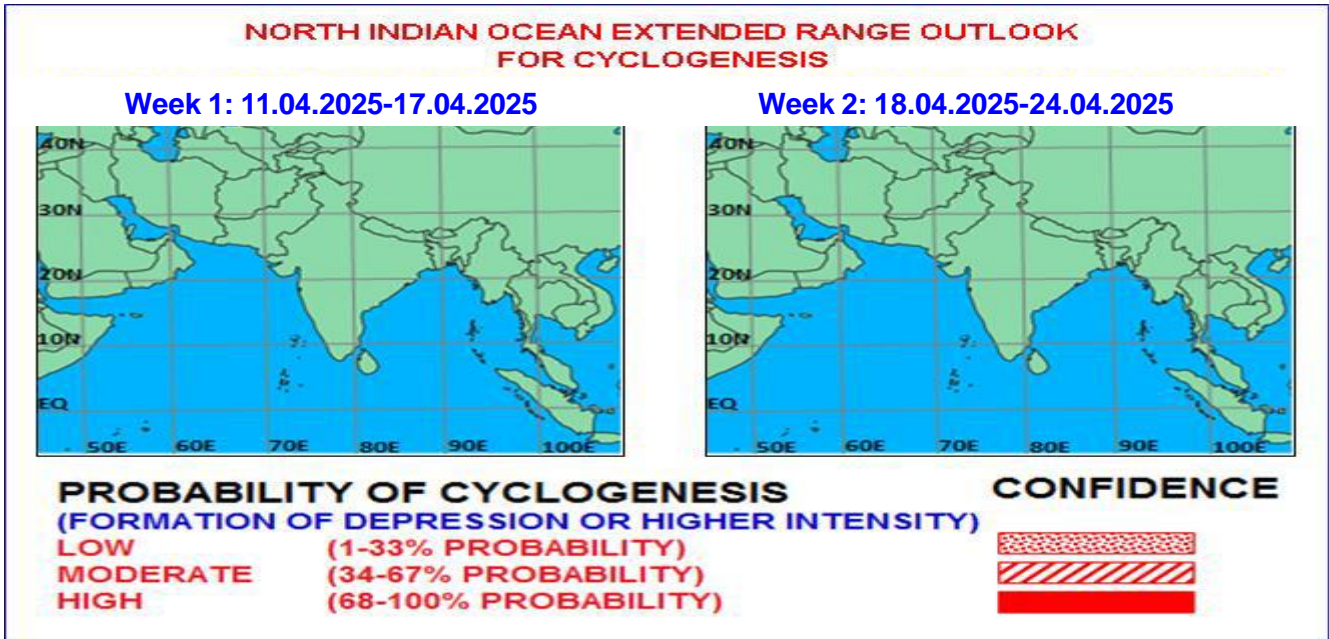


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

#### I. Environmental features:

The guidance from ECMM model for Madden Julian Oscillation (MJO) indicates that the MJO is currently in phase 4 with amplitude much less than 1. The very weak MJO signal is likely to move eastwards across phases 4 & 5 during week 1. Thereafter, As per all models the it is likely to have ambiguous movement across phase 6 with amplitude remaining less than 1. Thus, MJO is likely to support enhancement of convective activity over the Bay of Bengal (BoB) during week 1 only.

The NCICS CFS model is indicating enhanced westerly wind anomaly (5-7 mps), Equatorial Rossby wave (ERW), Kelvin Wave (KW) over south BoB and easterly wind anomaly (5-7 mps) over north & adjoining central BoB during first half of week 1. Thereafter, very weak westerly anomaly (1-3 mps) is likely to prevail over entire BoB and Arabian Sea (AS) and therefore become less supporting gradually during week 2. Moreover, no significant equatorial waves are seen over the North Indian Ocean (NIO) region during week 2. These features indicate that equatorial waves and MJO would support the prevailing low pressure area and associated cyclonic circulation over BoB during first half of week 1.

#### II. Model Guidance:

ECMWF and NCEP-GFS models indicate the low pressure area over westcentral BoB is likely to persists for next 12-24 hours over central BoB and weaken gradually further thereafter. The associated cyclonic circulation is likely to move northeastwards towards Myanmar coast by 12<sup>th</sup> April. But, IMD GFS is not indicating an obvious low pressure area over the same region. However, associated upper-air cyclonic circulation over westcentral BoB is likely to move north-northeastwards during next 2 days. IMD GEFS is indicating only a cyclonic circulation over westcentral BoB with nearly north-northeastward movement during next 24 hours only. Thereafter, all the models are not showing any significant development of low pressure system or cyclogenesis over the region till the end of forecast duration of 10 days.

The 850 hPa mean wind field of IMD ERF Model is indicating a feeble north-south trough over north BoB extending up to central parts of BoB during week 1. The wind anomaly field indicates a cyclonic circulation over central BoB. The model is indicating portraying seasonal circulation characteristics without any significant development of cyclonic disturbances over NIO region during week 2. The model is also not any probability of cyclogenesis the region during entire forecast period. The 850hpa mean wind and its anomaly field of NCMRWF ERF model are also indicating similar features during both weeks. ECMF extended range

model indicates nil probability of cyclogenesis over entire NIO region during both the weeks.

### III. Inference:

Considering large-scale environmental features and model guidance it is inferred that there is no probability of cyclogenesis over North Indian Ocean region during the entire forecast period.

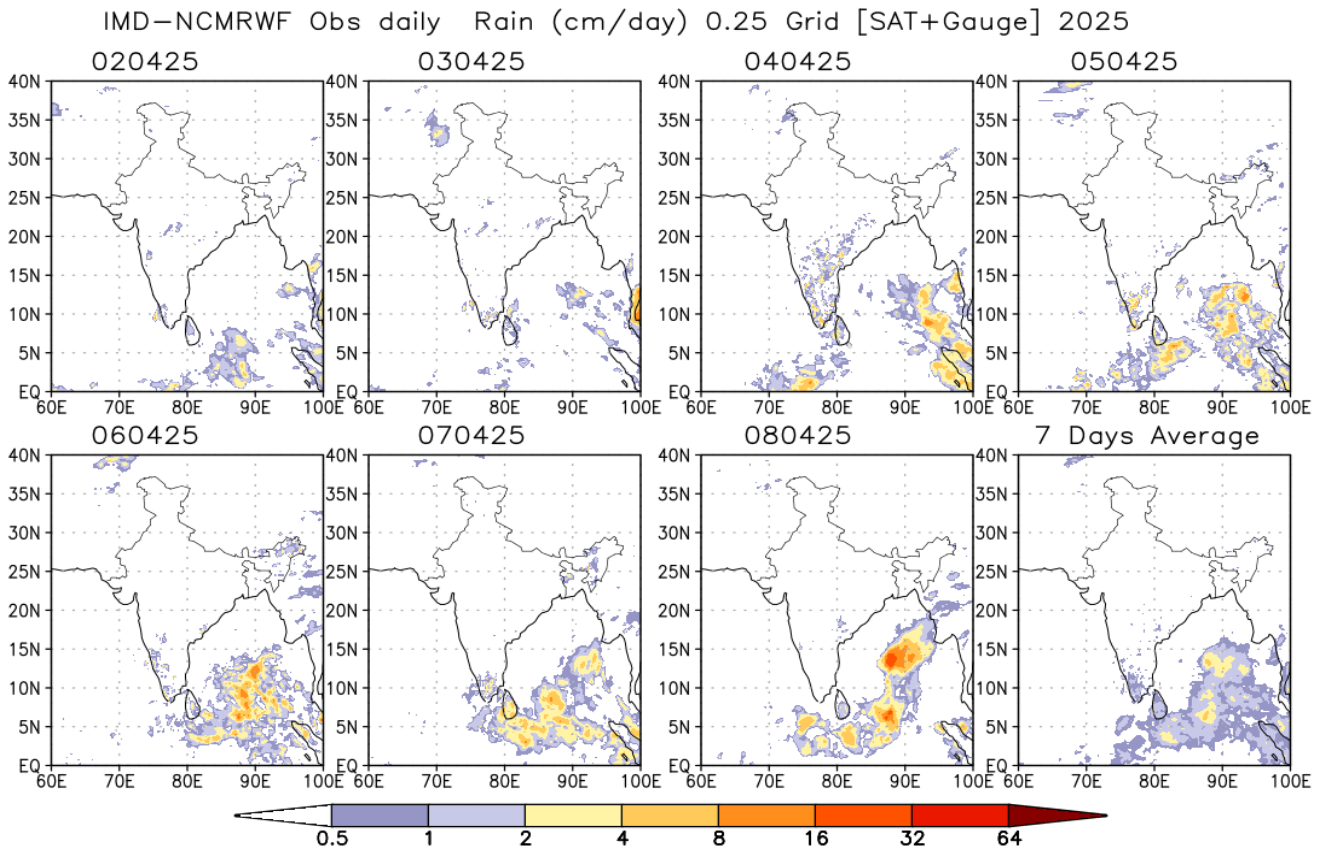
However, the low pressure area over westcentral Bay of Bengal is likely to move further north-northeastwards and weaken gradually over central BoB during next 12 hours. However, the associated cyclonic circulation is likely to persist for subsequent 2-3 days with northeastwards movement towards Myanmar.

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

The forecast issued on 27<sup>th</sup> March for week 2 (4<sup>th</sup> April-10<sup>th</sup> April) indicated low probability of cyclogenesis (formation of depression) over southeast Bay of Bengal and Andaman Sea from a possible emerging remnant from South China Sea during middle of week 2. The forecast issued on 3<sup>rd</sup> April for week 1 (4<sup>th</sup> April-10<sup>th</sup> April) indicated high probability of formation of a cyclonic circulation over central parts of south Bay of Bengal during middle of week 1 (around 6<sup>th</sup> April 2025) with low probability of its intensification into a low pressure area.

Actually, a cyclonic circulation lay over south Andaman & neighbourhood on 4<sup>th</sup> April. It moved west-northwestwards and lay as a low pressure area over central parts of South Bay of Bengal on 7<sup>th</sup> April. It moved northwestwards and lay as a well marked low pressure area over southwest & adjoining westcentral Bay of Bengal on 8<sup>th</sup> April. Thereafter, it gradually moved north-northeastwards and weakened into a low pressure area westcentral Bay of Bengal in the evening of 9<sup>th</sup> April. Further moving north-northeastwards, it persisted over the same region on 10<sup>th</sup> April.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 2<sup>nd</sup> -8<sup>th</sup> April, 2025 are presented in **Fig. 2**.



**Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 2<sup>nd</sup> to 8<sup>th</sup> April, 2025.**

**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, CPC: Climate Prediction Center (for MJO update), 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.

**Next update: 17.04.2025**