India Meteorological Department
Ministry of Earth Sciences
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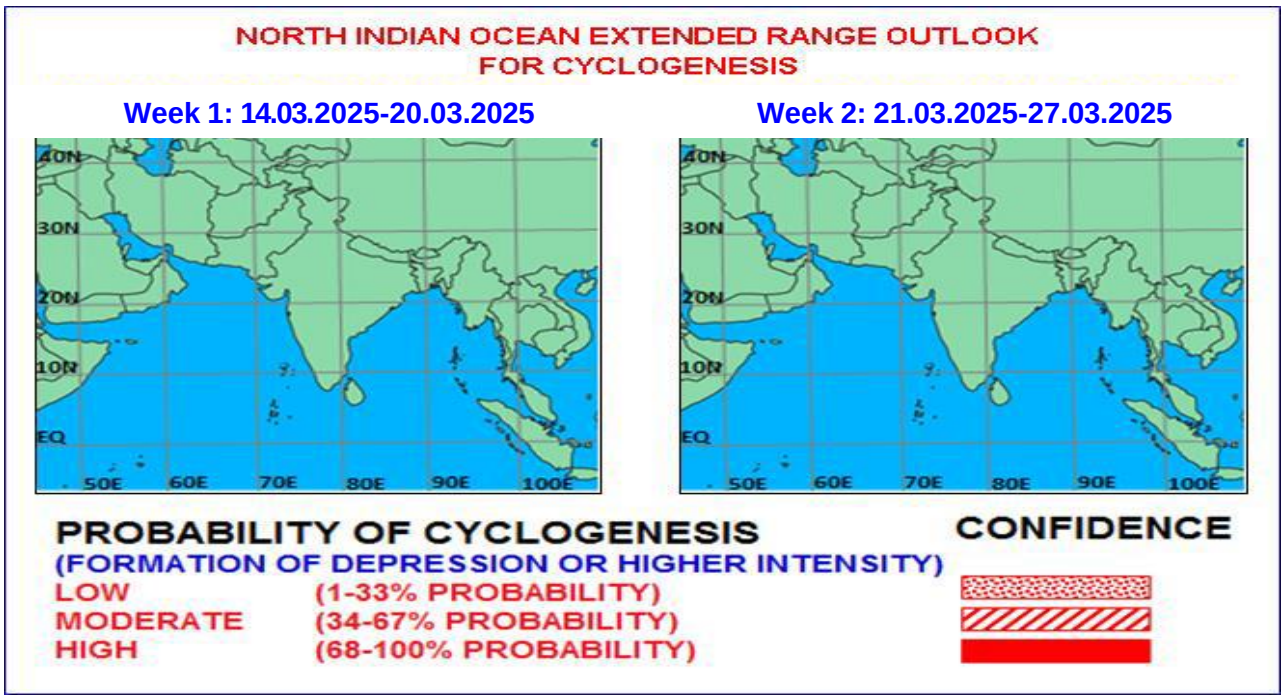

Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

I. Environmental features:

The guidance from NCEP CFSv2, model indicates that MJO is currently in phase 2 with amplitude more than 1. It is predicted to move rapidly across phases 2, 3, 4 and 5 during week 1 with amplitude becoming less than 1 during later half of week 1. Thereafter, it is predicted to move across phases 6 & 7 with amplitude becoming more than 1 in week 2. Thus, MJO phase and amplitude are likely to support enhancement of convective activity and cyclogenesis over the North Indian Ocean (NIO) during week 1. ECMM is also predicting similar features for MJO.

NCICS CFS model is indicating prevalence of westerly wind anomaly (2-4mps) over Equatorial Indian Ocean (EIO) & adjoining areas of south Bay of Bengal (BoB) and South Arabian Sea (AS) and easterly wind anomaly (2-3 mps) over the central parts of BoB and AS during week 1. An Equatorial Rossby wave (ERW) is also seen crossing across North East EIO (NEEIO) during week 1 reaching Northwest EIO during week 2. During Week 2, easterly winds anomaly (2-3 mps) is seen over south BoB and westerly wind anomaly (1-2mps) over North BoB. Thus, equatorial wave may support the existing cyclonic circulation over West EIO and adjoining Maldives during week 1.

II. Model Guidance:

Various deterministic models including IMD GFS, NCEP GFS, NCUM(G), NEPS and ECMWF are indicating seasonal anticyclonic circulations over the BoB & the AS and easterly winds over the southern parts of the NIO region. No significant cyclonic circulation is indicated over the NIO region during next 10 days. IMD extended range forecast model (IMD CFSV2) is also indicating similar features over the NIO region during week 1. The 850 hPa anomaly field is not indicating any significant cyclonic circulation during week 1. During week 2, mean wind field at 850 hPa level is indicating a north-south trough over northeast AS and the anomaly field is indicating a deep

trough in easterly over south and central AS. NCMRWF CNCUM Model is indicating easterly winds over the region. ECMM is indicating no potential zone for cyclogenesis over the region during next 2 weeks. Extended range forecast model of ECMWF is indicating 10-20% probability of cyclogenesis over southeast BoB during week 2.

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 no cyclogenesis is likely over the North Indian Ocean during next two weeks. However, enhanced convective activity is likely over southern parts of Bay of Bengal & Arabian Sea and adjoining Equatorial Indian Ocean during both the weeks. Squally weather may prevail over this region due to this enhanced convective activity. Fishermen should be cautious while venturing into these areas during this period.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 27th February for week 2 (07th March-13th March) indicated no probability of cyclogenesis during the week. The forecast issued on 6th March for week 1 (07th March-13th March) indicated no probability of cyclogenesis during the week. No cyclogenesis occurred during the period.

However, the extended-range outlook issued on 6th March also indicated likely formation of a cyclonic circulation over Northeast Equatorial Indian Ocean and adjoining South Andaman Sea during the beginning of week 1 (around 8th March). Actually, an upper air cyclonic circulation lay over northeast Equatorial Indian Ocean and adjoining southeast Bay of Bengal on the 9th March, 2025. It moved westwards and became less marked over Equatorial Indian Ocean & adjoining southwest Bay of Bengal on 11th March, 2025. Hence, likely formation of cyclonic circulation over south BoB and equatorial Indian Ocean was correctly predicted in week 1 forecast (about 3 days in advance) but with some spatial & temporal variations.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 06th March to 12th March, 2025 are presented in **Fig. 2**.

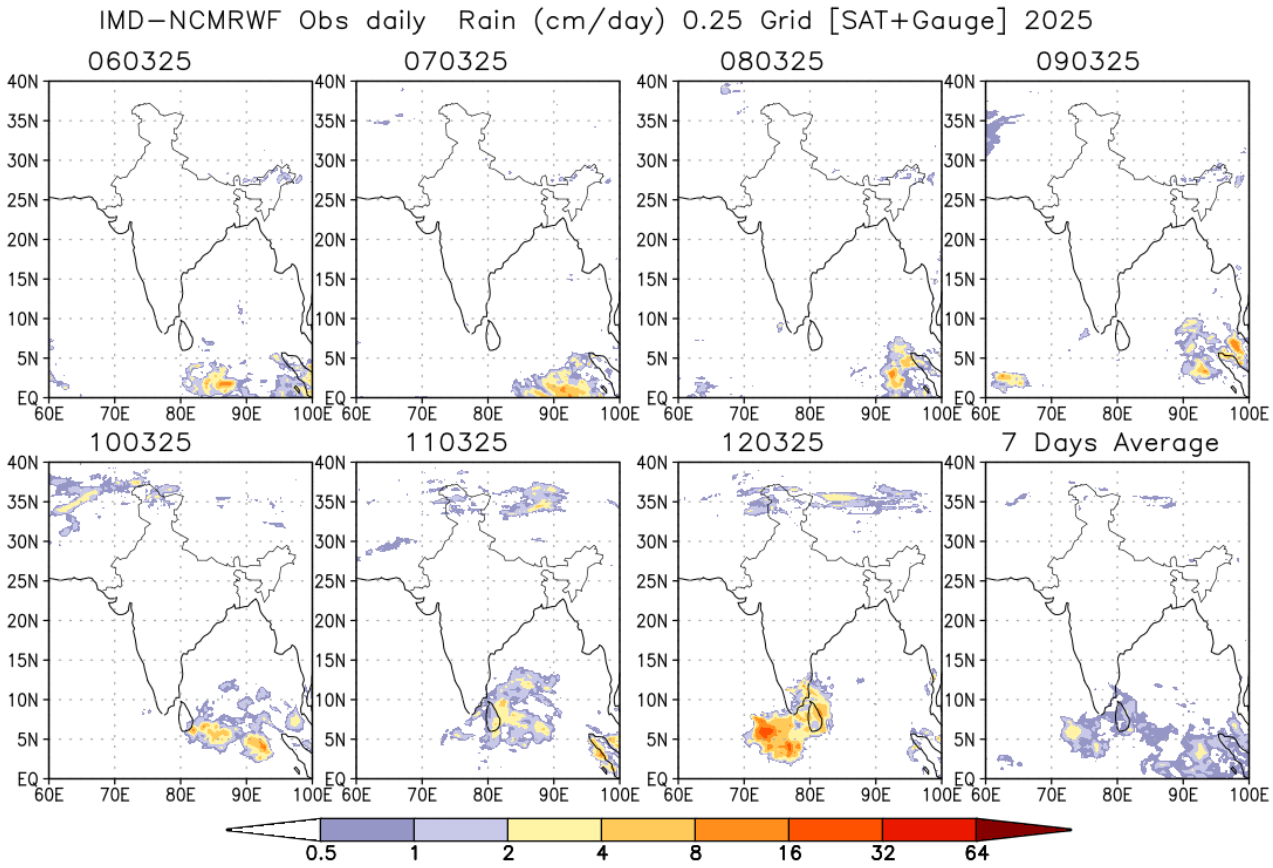

Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 06th March to 12th March, 2025.

Next update: 20.03.2025