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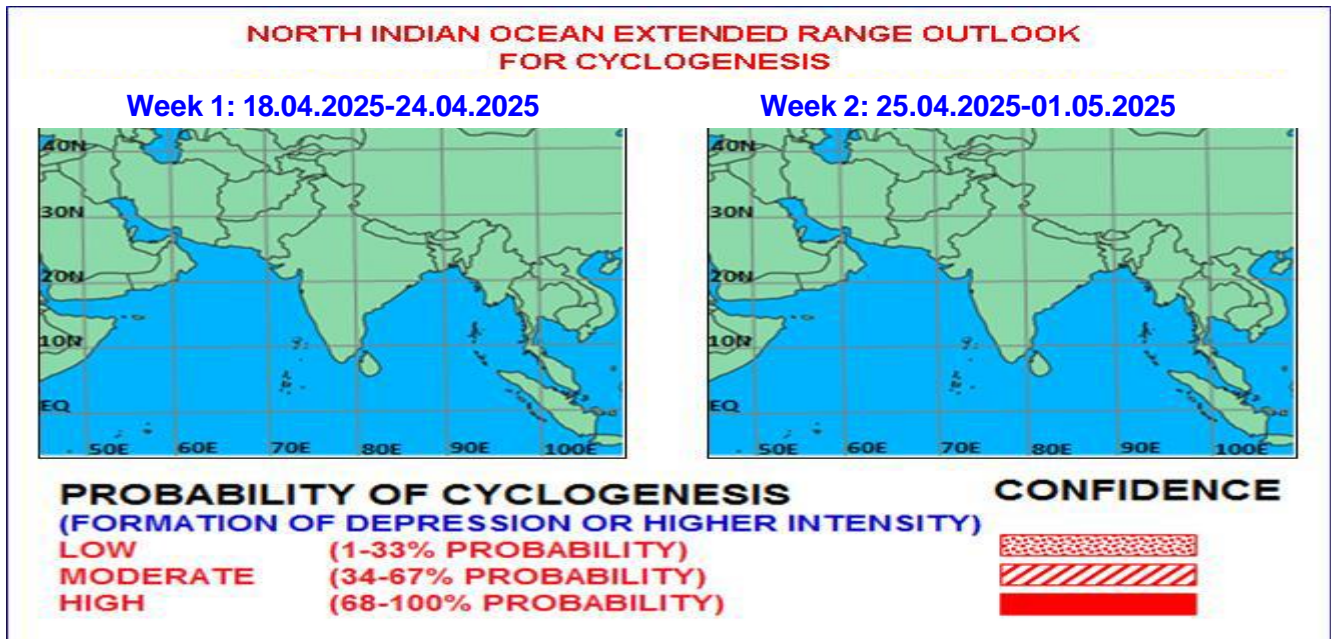


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

I. Environmental features:

The guidance from the Madden Julian Oscillation (MJO) monitoring and various model forecasts indicates that the MJO is currently in phase 6 with amplitude much less than 1. The weak MJO signal is likely to move eastwards across phases 6 & 7 during week 1 with gradual strengthening but keeping amplitude less than 1. The CFS-GEFS group of models indicate very slow ambiguous eastward movement within phase 7 with a large spread of ensemble members during week 2 with a looping at the later part of the week. The ECMF and ECMM group shows gradual slow eastward movement inside phase 7 with increasing amplitude step-by-step manner. Thus, the MJO is not likely to support enhancement of convective activity over North Indian Ocean (NIO) region the during week 1 and 2.

The NCICS CFS model indicates westerly wind anomaly (3-5 mps) over south Arabian Sea (AS), Comorin area and south Bay of Bengal (BoB) region with maxima (5-7 mps) over southeast BoB during first half of the week 1. At the same duration, a weak easterly wind anomaly (1-3 mps) is likely over north and southwest AS. During second half of the week 1, the westerly wind anomaly over south AS is likely to disappear and easterly wind anomaly (3-5 mps) is likely to prevail over entire AS except over southeast AS. However, the westerly wind anomaly is likely to persist over south BoB and adjoining Comorin area extending up to southeast AS. Both easterly wind anomaly over AS and westerly wind anomaly over south BoB is likely to weaken during week 2. The low frequency oscillation is expected to be present over Comorin and adjoining south AS and BoB region during the entire forecast period. Neither the Equatorial Rossby Wave (ERW) nor the Kelvin Wave activity is likely over the NIO region during both week 1 and 2. These environmental features indicate that equatorial waves and MJO are not likely provide significant support to the cyclogenesis and convective activities over the NIO region during the forecast period.

II. Model Guidance:

All models including ECMWF, NCEP-GFS, IMD-GFS and NCUM-G models indicate that the seasonal anti-cyclones respectively over AS and BoB is likely to prevail during entire 10 days of the forecast duration. There is likely formation of the north-south trough over peninsular region of India during this period. Therefore, all the models are not showing any significant development of low pressure system or cyclogenesis over the region during next 10 days.

The 850 hPa mean wind field of IMD ERF Model indicates an anticyclone over central AS and feeble

anticyclone over Andaman Sea associated with westerly winds over south BoB during week 1. However, a cyclonic circulation is likely to persist over southwest BoB off Tamil Nādu. Nearly similar circulation features are likely to continue over both AS and BoB except the cyclonic circulation moving westwards over peninsular India. Another cyclonic circulation is also seen over Andaman Sea during week 1. The wind anomaly at 850 hPa level of the model during week 2 indicates anticyclonic flow over AS with an east-west ridgeline extending up to northern part of BoB. However, a feeble cyclonic circulation is also seen over Andaman Sea and adjoining area during week 2. The model is not showing any probability of cyclogenesis in the region during entire forecast period except a low probability (10-20 %) over a small area of Andaman Sea during week 1. 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, cyclonic circulations are likely to form during week 1 with one over southwest Bay of Bengal and adjoining coastal Tamil Nādu and another over Andaman Sea.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 03rd April for week 2 (11th April-17th April) indicated nil probability of cyclogenesis (formation of depression) over NIO region. However, the forecast issued on 10th April for week 1 (11th April-17th April) indicated the low pressure area over westcentral BoB 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.

Actually, a low-pressure area formed over central parts of South BoB at 0300 UTC of 07th April, 2025 moved northwestward and became less marked over westcentral BoB at 0300 UTC, the 11th April, 2025. However, the associated cyclonic circulation extending up to 1.5 km above mean sea level persisted and became less marked over the same area at 0300 UTC of 12th April, 2025.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 10th -16th April, 2025 are presented in **Fig. 2**.

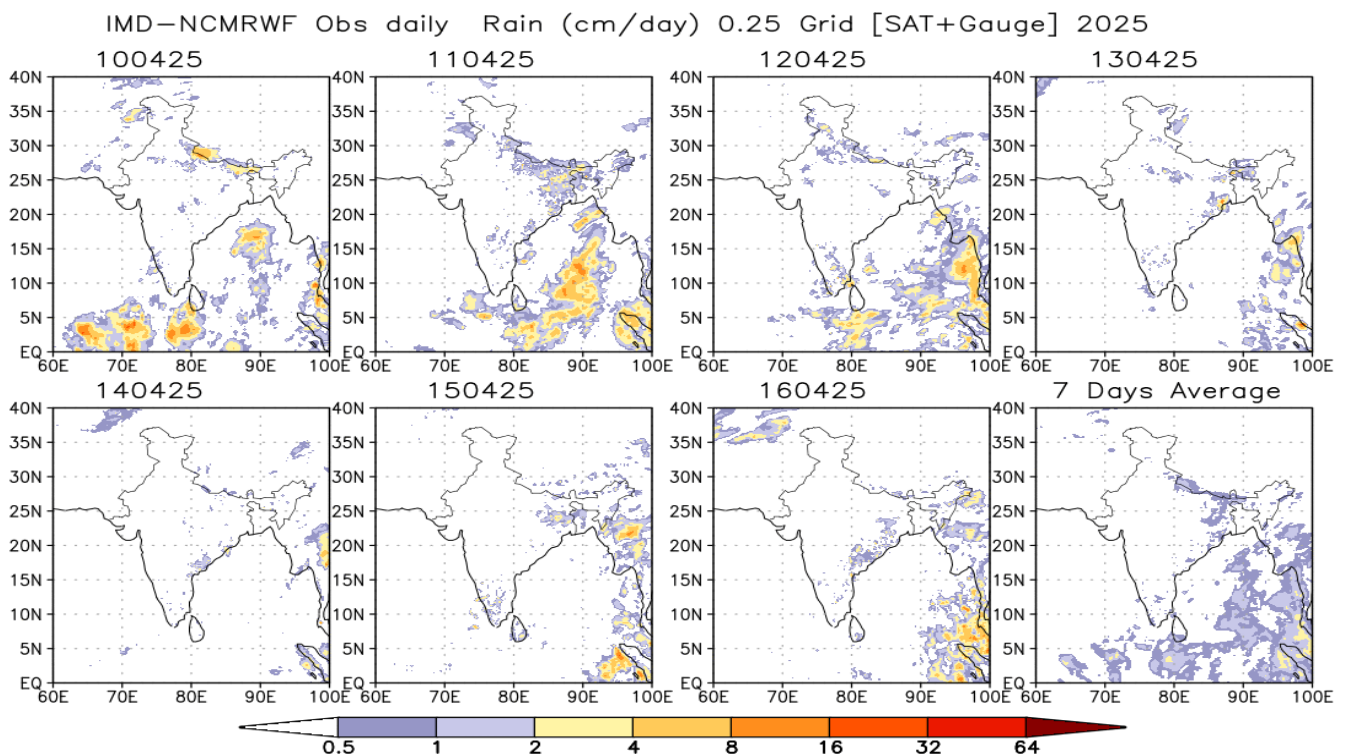


Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 10th to 16th April, 2025.

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: 24.04.2025