

Issued on 28.03.2024

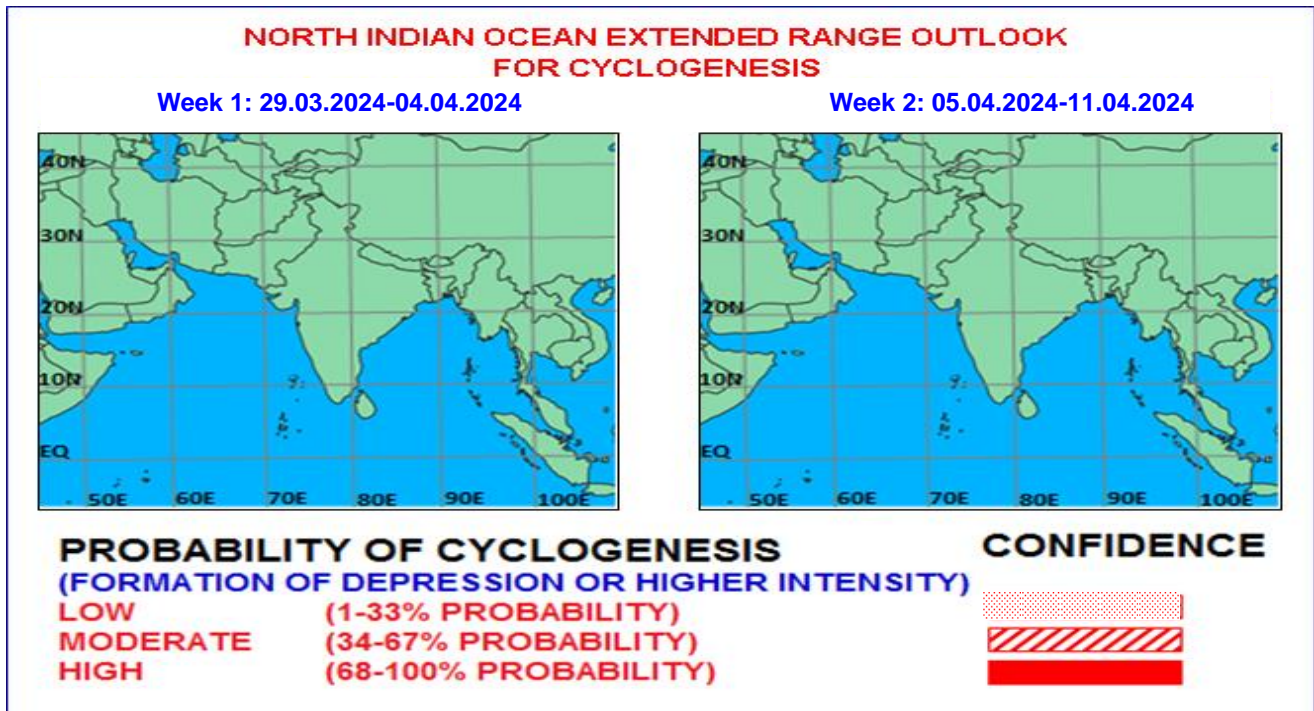


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Madden Julian Oscillation (MJO) index is currently in Phase 1 with amplitude greater than 1. The consensus between various forecasts (ECMWF, GEFSV12 and CFSv2 of NECP) indicate that the MJO index is likely to enter in phase 2 during next 2-3 days with a little reduction in amplitude. Thereafter, it would propagate eastward quickly across phase 2 during subsequent 3 days with amplitude less than 1 and then across phase 3 to reach phase 4 by the end of the week 1. It would continue to move eastward within phase 4 during first half of week 2 and then enter into phase 5 keeping amplitude slightly greater than 1 till end of the week. Considering the low amplitude and quick movement across phase 2 and 3, the MJO is not likely to provide support for the enhancement of convective activity over the North Indian Ocean (NIO) region.

NCICS based forecast for equatorial waves indicates weak easterly winds (1-3 mps) over south & central Arabian Sea (AS) with regional maxima over southwest AS during 1st half of week 1. During second half of week 1, gradual reversal of winds is indicated with weak westerly winds (1-3 mps) is likely to prevail over the entire Bay of Bengal (BoB) and major parts of south and central AS during second half of week 1. In a periodic fashion, weak easterly winds are likely to appear again over south BoB in the second week. Equatorial Rossby Wave (ERW) activity is likely over south BoB and adjoining north Equatorial Indian Ocean during second half of Week 1 and move gradually west-southwestwards over southeast AS in the beginning of week 2. Therefore, forecasts of zonal wind characteristics along with intermittent equatorial waves are not supportive for any cyclogenesis over the region.

II. Model Guidance:

Various deterministic models including IMD GFS, GEFS, NCUM, NEPS, ECMWF and NCEP GFS are predicting seasonal anticyclone or anticyclonic winds over BoB and AS and hence not indicating any development of cyclonic disturbances or cyclonic circulation over both the sub-basins of NIO region during next 7-10 days. GPP forecast based on IMD GFS is not indicating any significant zone of

cyclogenesis over the region during next 7 days. The extended range forecast (ERF) of mean winds by IMD (CFS V2) is indicating anticyclonic wind patterns with an east-west ridge along 15°N across peninsular India. The anomaly of wind fields shows an anticyclone over peninsular India with a north-south trough over AS in week 1 and wind pattern is likely to move eastward during week 2. Both extended range forecasts of IMD and ECMWF are not indicating any cyclogenesis during next 2 weeks.

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 no probability of cyclogenesis over the North Indian Ocean during the entire forecast period.

IV. Verification of forecast issued during last two weeks:

Forecast issued on 14th March for second week (22.03.2024-28.03.2024) and forecast issued on 21st March for first week (22.03.2024-28.03.2024) indicated no cyclogenesis over the NIO during the 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, 21st to 27th March, 2024 are presented in **Fig. 2**.

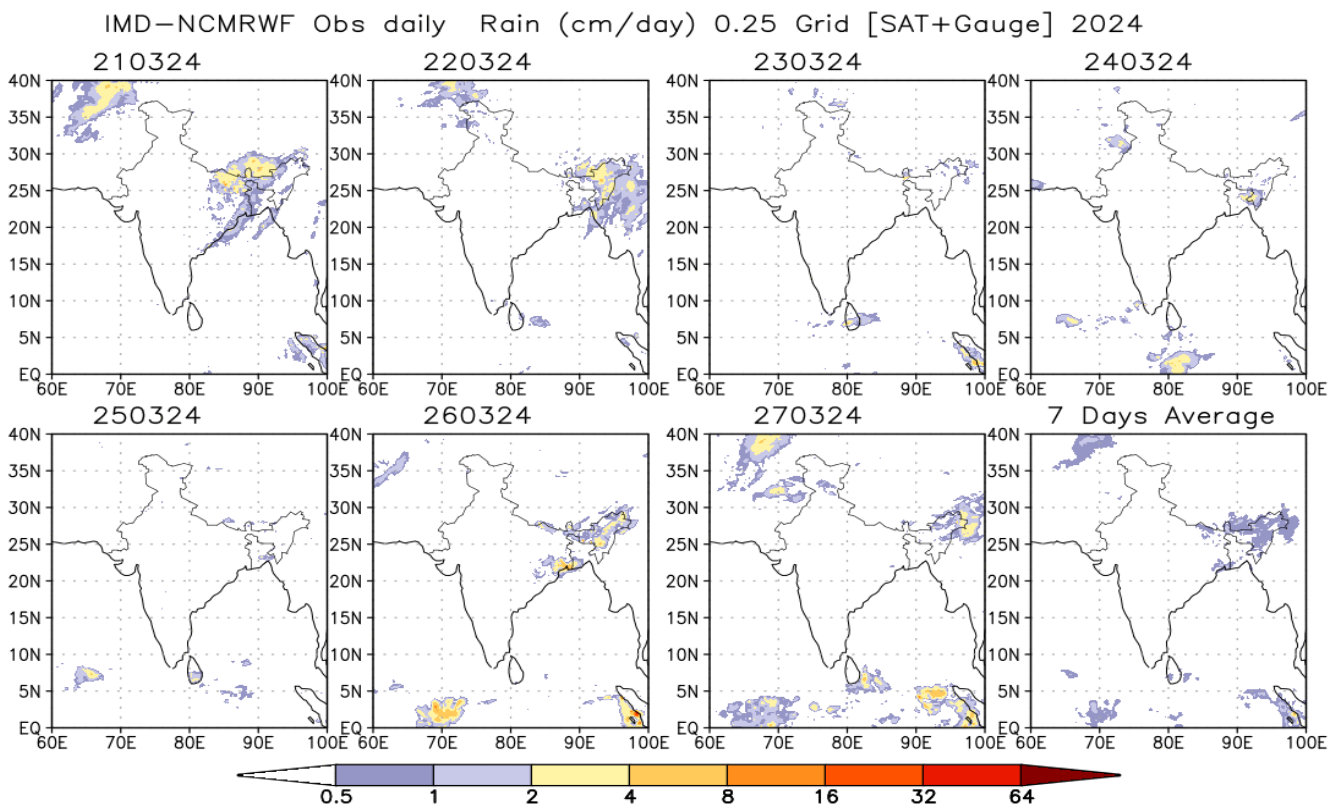


Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 21st to 27th March, 2024.