



Issued on 15.02.2024

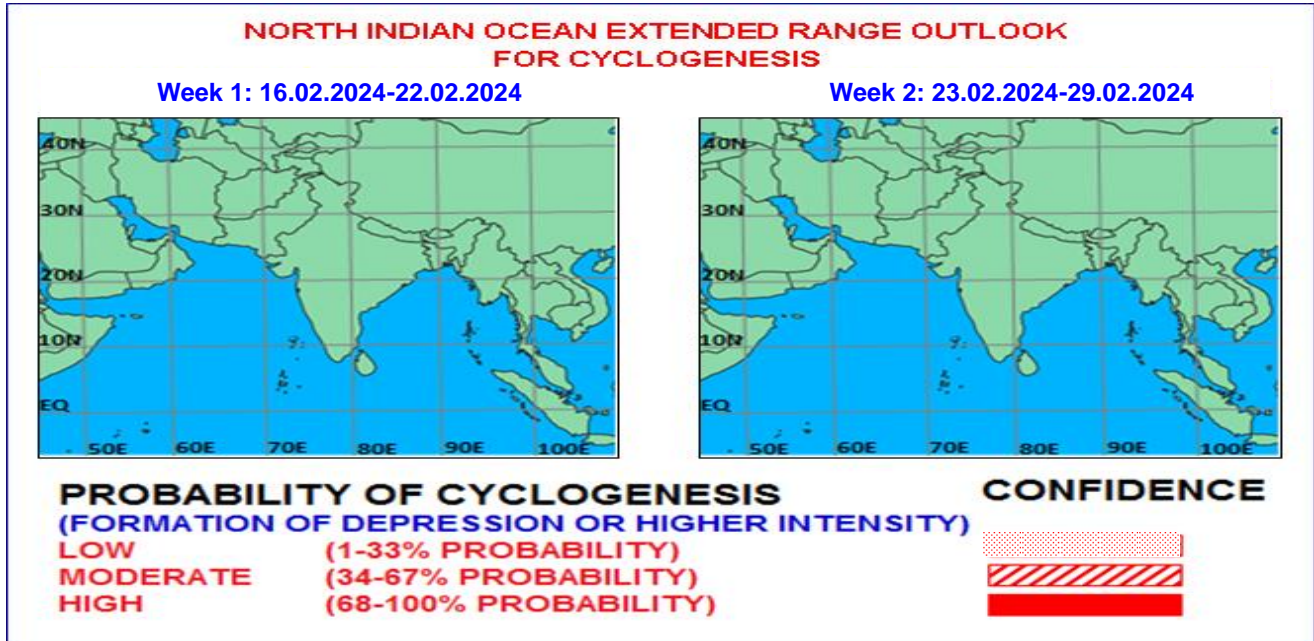


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Madden Julian Oscillation (MJO) index shows that the associated signal is currently meandering between phases 7 and 8 with amplitude decaying near to 1. The GEFS model predicts a very slow eastward propagation of MJO index within phase 8 to enter into phase 1 during the end of first week while amplitude drops to less than 1. In the beginning of second week, it is likely to advance slowly into phase 2 with further decay in amplitude. Whereas, the ECMWF model indicates a diagonal propagation of MJO signal in the phase diagram from phase 7 to 5 with weak amplitude very much less than 1 during first week and likely to remain in the same phase during week 2. The ensemble members of both the models favour an incoherent MJO with amplitude falling below 1 during the forecast period. Thus, MJO is not likely to favour any cyclogenesis over the North Indian Ocean (NIO) during entire forecast period. However, it is likely to provide support towards enhancement of convective activity over peninsular India and southeast AS & adjoining areas during the second week.

NCICS based forecasts for equatorial waves indicate easterly winds (1-5 mps) over Andaman Sea, Bay of Bengal (BoB), south Arabian Sea (AS) during first week. During the week, both Equatorial Rossby Wave (ERW) and Kelvin wave activities are not likely over both the sub-basins of NIO. In the forecast, the westerly winds (1-5 mps) are likely over BoB and eastern parts AS during second week. The ERW is likely to appear over central & south BoB during first half of the second week. It is likely to advance westward gradually over south peninsular India and southeast AS during later part of week 2. Therefore, weak easterly winds along with the absence of equatorial waves are not likely to contribute to any cyclogenesis over the region during first week. In the second week, there is a likelihood of convective activity over south peninsular India, southeast AS and adjoining area.

II. Model Guidance:

Various deterministic models including IMD GFS, GEFS, NCUM, ECMWF and NCEP GFS models are indicating the presence of the anticyclone in lower tropospheric levels over northwest BoB & adjoining east India and an east-west ridgeline extending upto Oman across India and

central AS during next 5-6 days. Accordingly, the easterly winds are likely to prevail over south BoB and south AS. There is likely formation of north-south trough in westerly winds along west coast region around 22nd February but no cyclogenesis (formation of depression) is likely over both BoB and AS during next 10 days. GPP forecasts are not indicating any significant zone of cyclogenesis over the region during next 7 days. The extended range forecast (ERF) by IMD (CFS V2) depicts an anticyclonic flow over Indian sub-continent in both mean and anomaly wind fields and easterlies over south BoB and AS during week 1. During second week, the mean wind forecast indicates a north-south trough in westerly winds and anomaly shows a cyclonic circulation over northeast AS and adjoining Gujarat- Maharashtra coasts. But, IMD ERF does not suggest any cyclogenesis over NIO during the entire forecast period. The ECMWF extended range forecast is also 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 all 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 1st February for second week (09.02.2024-15.02.2024) and forecast issued on 8th February for first week (09.02.2024-15.02.2024) indicated no cyclogenesis over the North Indian Ocean 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, 8th to 14th February, 2024 are presented in **Fig. 2**.

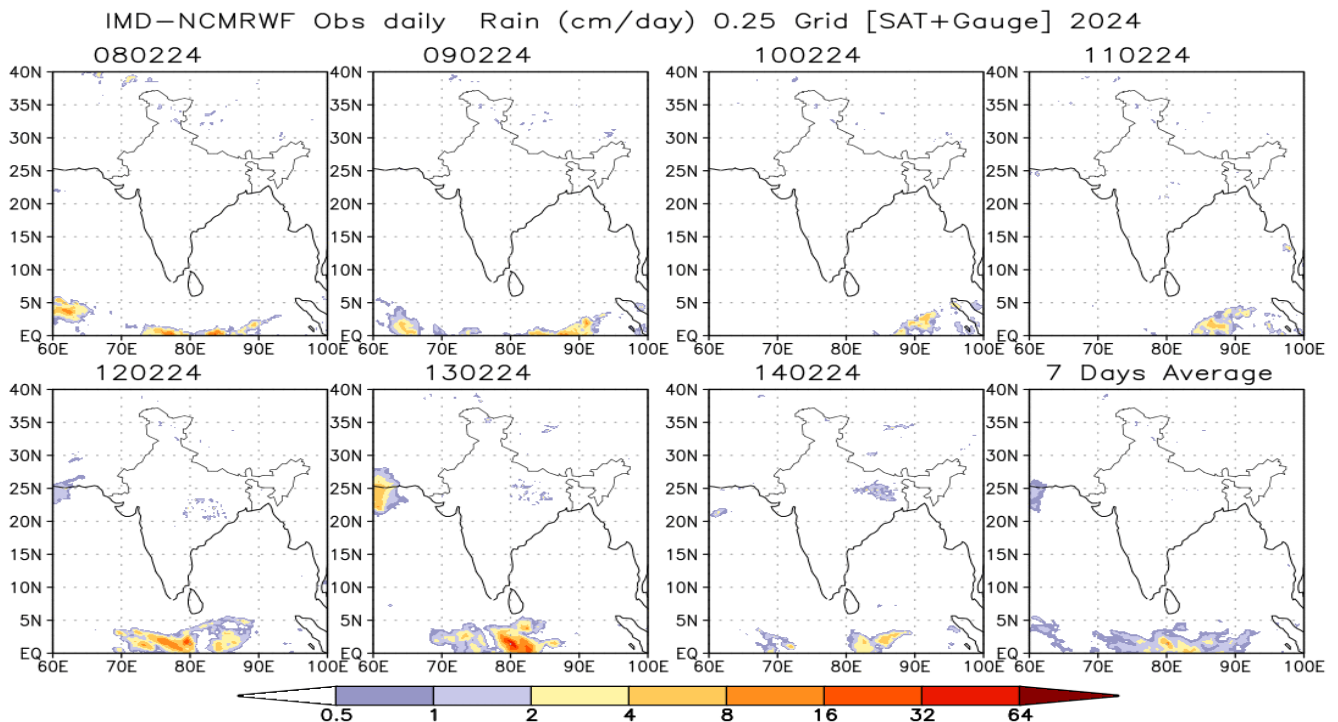


Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 8th to 14th February, 2024.

Next update: 22.02.2024