

Issued on 04.04.2024

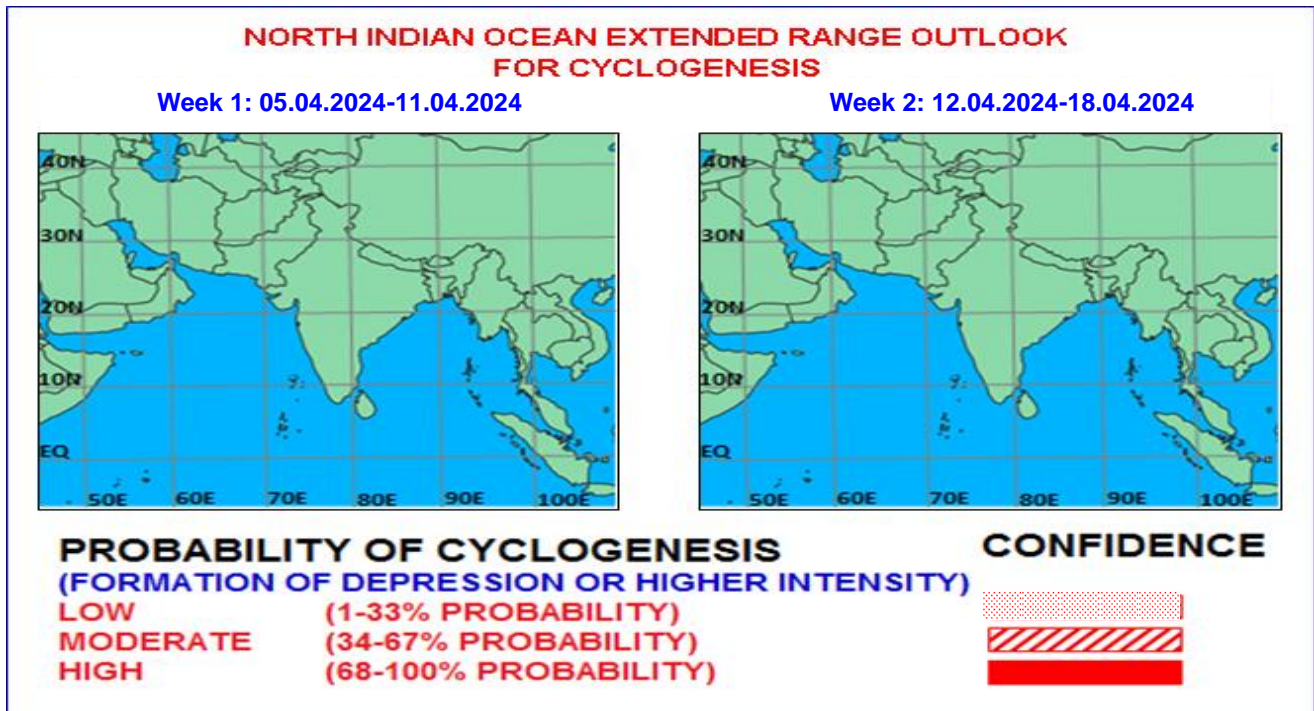


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Madden Julian Oscillation (MJO) index is currently entered into Phase 3 with amplitude close to 1. The consensus between various forecasts (ECMWF, GEFSV12 and CFSv2 of NECP) indicate that the MJO index is likely to enter quickly into phase 4 during next 1-2 days with a slight variation in amplitude. Thereafter, it would propagate eastward within phase 4 during subsequent days of the week 1 with decreasing amplitude to less than 1. It would continue to move eastward further into phase 5 in the beginning of second week. During week 2, the NCEP GFSV12 & CFSV2 are indicating smooth eastward propagation into phase 6 with steady increase in the amplitude reaching more than 1. But the ECMWF model is suggesting that the MJO signal is likely to have ambiguous/looping movement within phase 5 during the second week. Therefore, the MJO is not likely to provide support for the enhancement of convective activity over the North Indian Ocean (NIO) region due to its very short stint inside phase 3.

NCICS based forecast does not indicate significant zonal winds over Bay of Bengal and Arabian Sea (AS) region during first half of the week 1. In the second half the week, the easterly winds (1-5 mps) are likely to prevail over south BoB and adjoining southeast AS. Whereas, westerlies (3-5 mps) is likely over southwest and westcentral AS during 2nd half of week 1. Weak westerly is also mlikely over northern parts of BoB during the same period. During second week, weak westerly winds (1-3 mps) are likely to prevail over the entire south BoB and south AS.

Equatorial Rossby Wave (ERW) activity is likely over a region from Andaman Sea, south & central BoB upto southeast & eastcentral AS across peninsular India during first half of week 1. The ERW activity is likely to propagate westward and reach over westcentral and southwest AS in the beginning of week 2 and disappear from the region thereafter. No other equatorial wave activity is likely during the entire forecast period. Therefore, forecasts of zonal wind characteristics along with intermittent ERW activities 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 persistence of seasonal anticyclone or anticyclonic winds over central BoB and central AS

during next 7-10 days and hence not indicating any development of cyclonic disturbances or cyclonic circulation over both the sub-basins of NIO region. 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 also imitating the medium range forecast with anticyclonic wind patterns with an east-west ridge along latitude between 10-15°N across peninsular India. The anomaly of wind field shows an anticyclone over peninsular India in week 1 and entire wind flow pattern is likely to move northeastwards with southerlies over AS 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 21st March for second week (29.03.2024-04.04.2024) and forecast issued on 28th March for first week (29.03.2024-04.04.2024) 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, 27th March to 03rd April, 2024 are presented in **Fig. 2**.

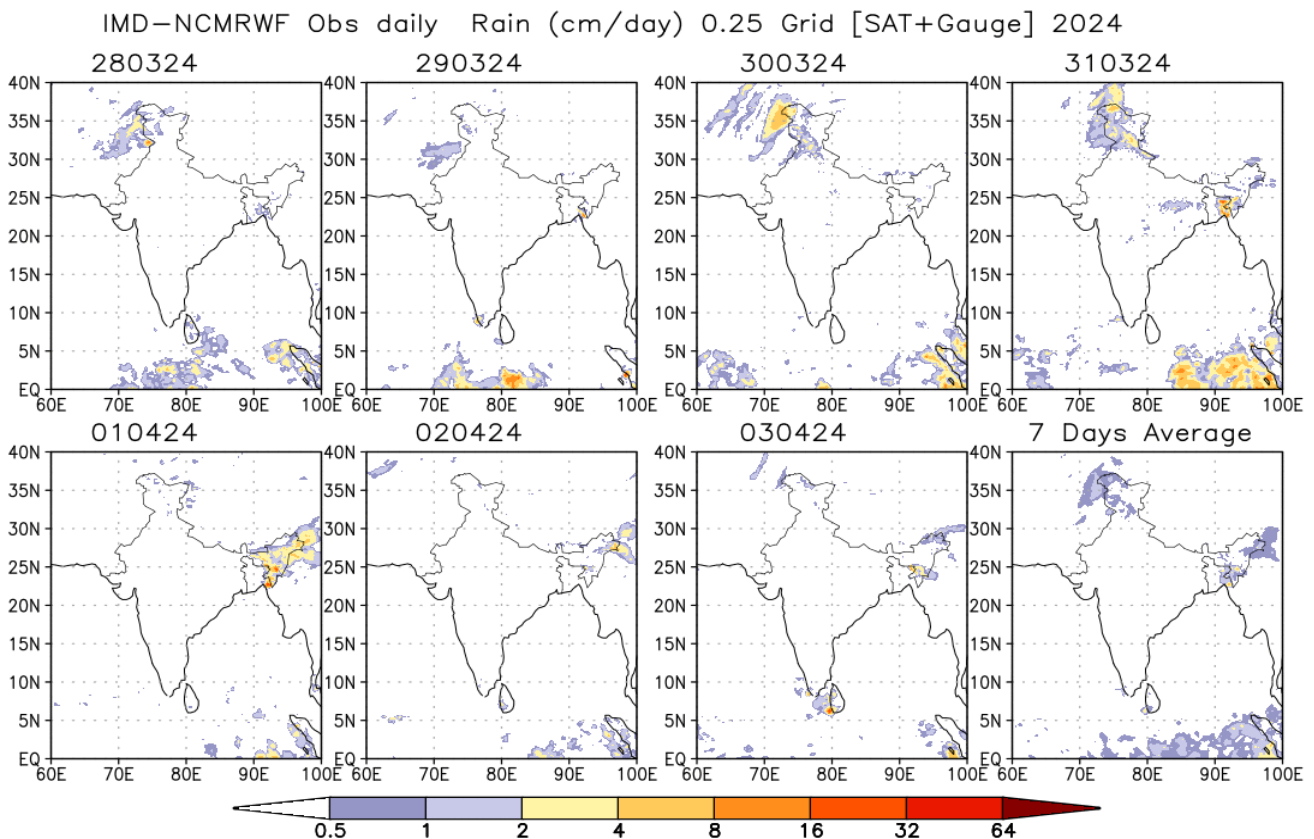


Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 27th March to 03rd April, 2024.

Next update: 11.04.2024