



Issued on 22.02.2024

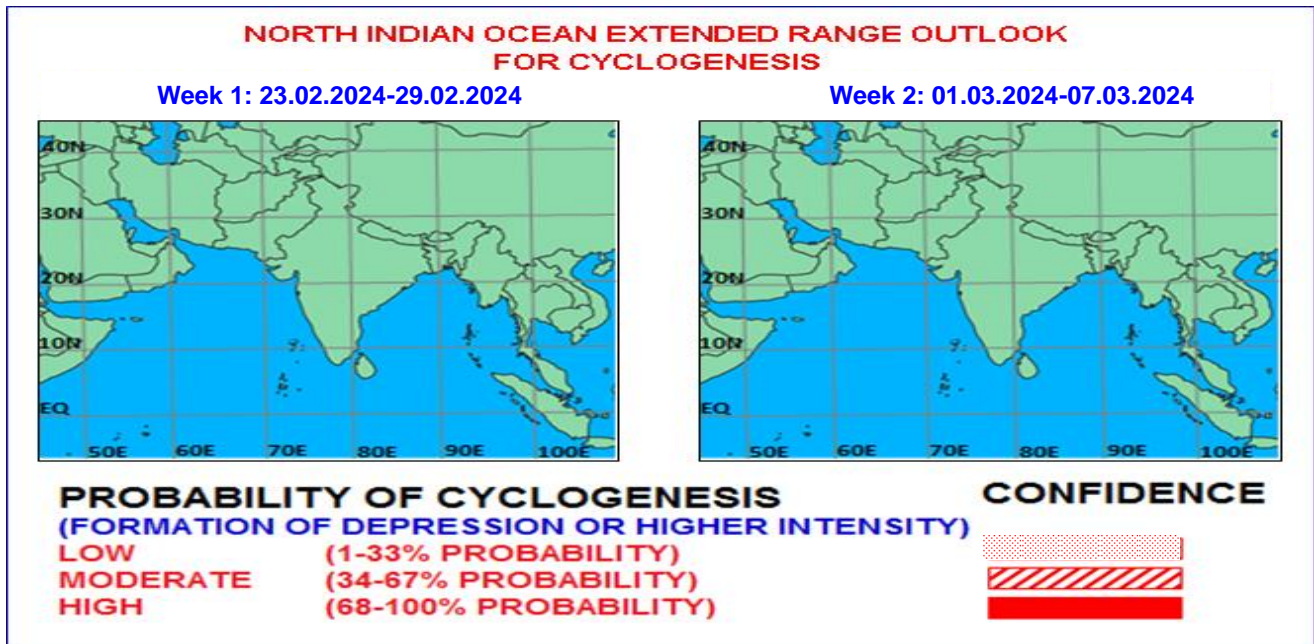


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Madden Julian Oscillation (MJO) index in the phase diagram, with a fast diagonal movement during past 3-4 days moved eastward from phase 8 to phase 4 across phases 1, 2 and 3 with very low amplitude less than 1. MJO index currently in phase 4 is likely to be in the same phase during next 2 weeks as illustrated by different forecasts. The GEFS model predicts a MJO signal meandering within phase 4 with a gradual increase in amplitude reaching out of the unit circle. On the other hand, ECMWF model indicates a stagnated/looping MJO signal within phase 4 with amplitude near to 1. The ensemble members of both the models favour an incoherent MJO with within phase 4 during the entire forecast period. Thus, MJO is not likely to favour any cyclogenesis over Arabian Sea (AS). However, it is likely to provide feeble support towards enhancement of convective activity over Andaman Sea and adjoining southeast Bay of Bengal (BoB) during next 2 weeks.

NCICS based forecasts for equatorial waves represent westerly winds (3-5 mps) over Andaman Sea, BoB, eastern parts of AS during first half of the first week. During the same period, easterly winds (1-3 mps) is likely to prevail over southwest AS. The westerly winds over BoB region are likely to be gradually replaced by easterly winds westwards during later part of week 1 and easterlies are likely to sustain till the end of the forecast period. The westerly winds are likely over entire AS during second half of week 1 with maximum wind speed (3-5 mps) over central parts of south AS. Weak easterly (1-3 mps) winds are likely over entire AS except over a few pockets of north AS during second week. Equatorial Rossby Wave (ERW) activities are likely over Entire BoB and east & northern parts of AS during first half of week 1. The ERW activity is also likely to be confined over southeast AS and adjoining areas during later part of first week. Kelvin wave is likely to be present over Andaman Sea and adjoining southeast BoB during first half of the week 1. No wave activity is likely over both the basins during second week. Therefore, the zonal winds and equatorial waves are likely to support the enhancement of convective activity over south BoB, southeast AS and adjoining areas during week 1.

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 eastcentral & adjoining northeast BoB and north-easterly winds over entire AS during next 2 days. The anticyclone over eastcentral BoB is likely to move westward over westcentral BoB and another anticyclone is likely to develop over northwest AS during subsequent 3-4 days. Hence, the easterly winds are likely to

prevail over south BoB and south AS. There is likely formation of north-south trough in westerly winds over peninsular India from east-central India extending upto north interior Tamil Nadu during next 1-2 days. Thereafter, intermittent north-south trough in prevailing easterly winds along west coast over southern parts of peninsular India is likely to develop during subsequent 3-4 days. There is likelihood of convective activity over peninsula and adjoining central India during the week. However, 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) of mean winds by IMD (CFS V2) depicts an anticyclonic flow over coastal Andhra Pradesh & neighbourhood with easterly winds over south BoB and AS whereas the anomaly wind field represents a north-south trough in easterly winds over central parts of AS during week 1. Mean wind forecast indicates two anti-cyclones over Andhra Pradesh and westcentral AS along with easterly flows over south Bob & AS during second week. But anomaly wind field shows easterly winds over south BoB become southerly over AS. 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 8th Feb. for second week (16.02.2024-22.02.2024) and forecast issued on 15th Feb. for first week (16.02.2024-22.02.2024) 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, 15th to 21st February, 2024 are presented in **Fig. 2**.

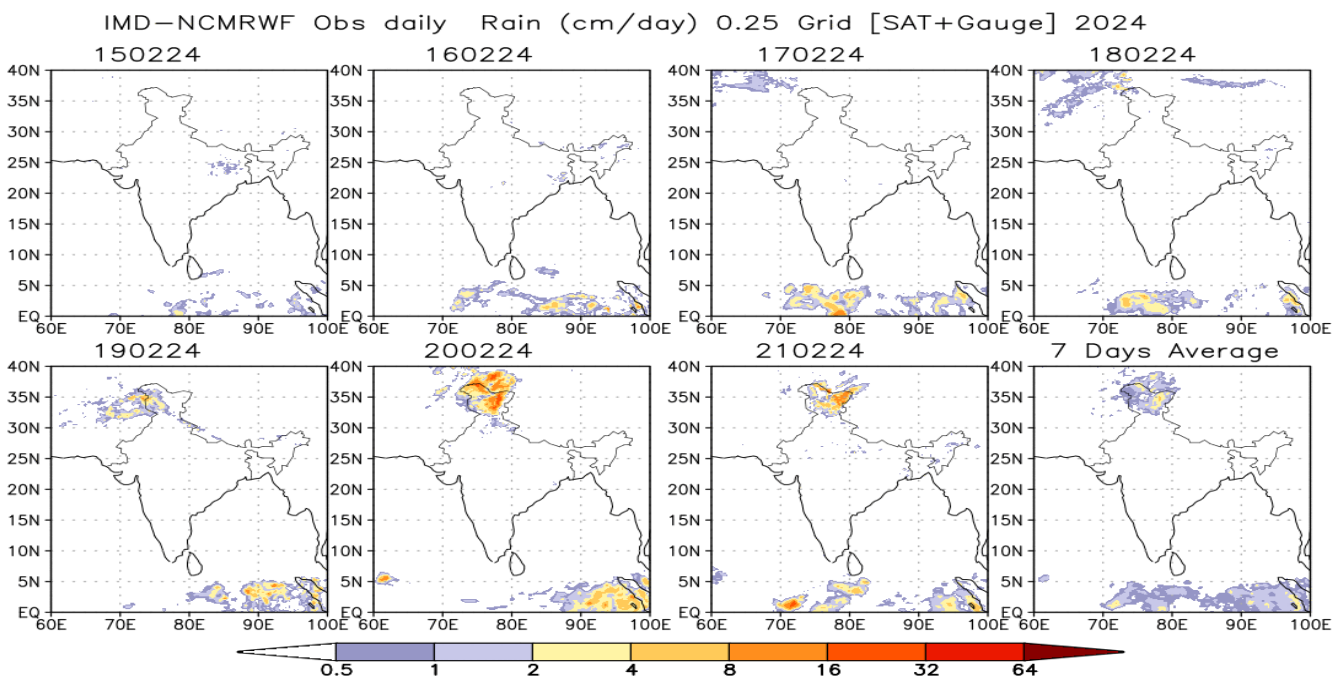


Fig.2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 8th to 14th February, 2024.

Next update: 29.02.2024