

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

I. Environmental features:

Most of the models are indicating that MJO index is currently in phase 1 over the Western Hemisphere & Africa with amplitude more than 1. The ECMWF forecast suggests a more coherent eastward progress into phase 2 during week 1, thereafter a looping back quickly up to phase 7 through phase 1 & 8 in the beginning of week 2 and a return to phase 8 in later part of week 2. Whereas CFS forecast indicates that the MJO index is likely to loop back into phase 8 from phase 1 during week 1 and remain in phase 8 during week 2. During the start of week 1 the amplitude of MJO index is likely to decrease rapidly to less than 1 and remain weak during the entire forecast period. Thus, MJO is likely to support slightly the enhancement of convective activity over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during the week 1 but it will not be favorable during week 2.

During week 1, NCICS based forecast for equatorial waves over the region indicates very weak easterly winds (1-3 mps) over south BoB & AS along with adjacent to equatorial North Indian Ocean during week 1 which become further weaker during week 2. It is predicted that the Equatorial Rossby Wave (ERW) activity is likely over Equatorial North Indian Ocean (ENIO) and adjoining south BoB extending westward towards southeast AS across Sri Lanka during week 1. The presence of ERW will remain only over southeast AS & adjoining areas of ENIO and another area over peninsular India extending westwards over central AS during week 2. Under the conditions of above-mentioned equatorial waves and wind pattern, the convective activity is expected over south BoB, south peninsular India and southeast AS during week 1 which may decrease slightly during week 2. However, it may not support the cyclogenesis over the region.

II. Model Guidance:

All the models (IMD GFS, IMD GEFS, NUM (G), NCUM (R), NEPS, ECMWF, NCEP GFS, IMD MME) are not indicating any cyclogenesis over both BoB and AS during next 7 days. The models are not showing any formation of low pressure system but westward propagation of easterly wave activity over south BoB, south peninsular India and southeast AS during the entire forecast period. The IMD GFS and NCUM models indicate the formation of cyclonic circulation/low pressure area embedded within easterly waves over southwest and adjoining westcentral BoB during later part of week 2. The extended range model IMD CFS V2 is indicating presence easterly winds over the same region with anticyclonic wind anomalies over both south BoB & AS during week 1 which become easterly during

week 2. The model does not indicate any prominent zone for probable cyclogenesis both over BoB and AS during the entire forecast period. The model is showing very little probability (10-20 %) of cyclogenesis over southwest BoB and southeast AS which is also depicting activity associated with easterly waves. The ECMWF model indicates 10 % probability of cyclogenesis over south and adjoining westcentral BoB from 11th November during week 2,

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, GPP: Genesis Potential Parameter, National Centre for Environment Prediction GFS, ECMM: ECMWF multi model, GEFS: GFS ensemble, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Center, NWS: National Weather Service).

III. Inference:

Considering all the above it is inferred that there is no probability of cyclogenesis over both the Bay of Bengal and Arabian Sea basins during the next 2 weeks. However, there will be likely formation of a cyclonic circulation in the lower tropospheric levels/ low pressure area over southwest and adjoining westcentral Bay of Bengal during the later part of week 2.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 19th October for week 2 (27.10.2023-02.11.2023) indicated no probability of cyclogenesis over both BoB & AS basins of North Indian Ocean. The forecast issued on 26th October for week 1 (27.10.2023-02.11.2023) also reiterated about the absence of cyclogenesis during the week. Although there was a mention about the enhanced convective activity over southwest AS.

Actually, there were no formation of low pressure systems over both BoB and AS basins during the week (27.10.2023-02.11.2023). There was formation of cyclonic circulation over southwest AS on 30th October which persisted over the region till 1st November. It is presently lay over southwest and adjoining westcentral AS. Therefore, the forecasts about no probability of cyclogenesis for the week from 2 consecutive weeks with a lead time of 2 weeks became accurate.

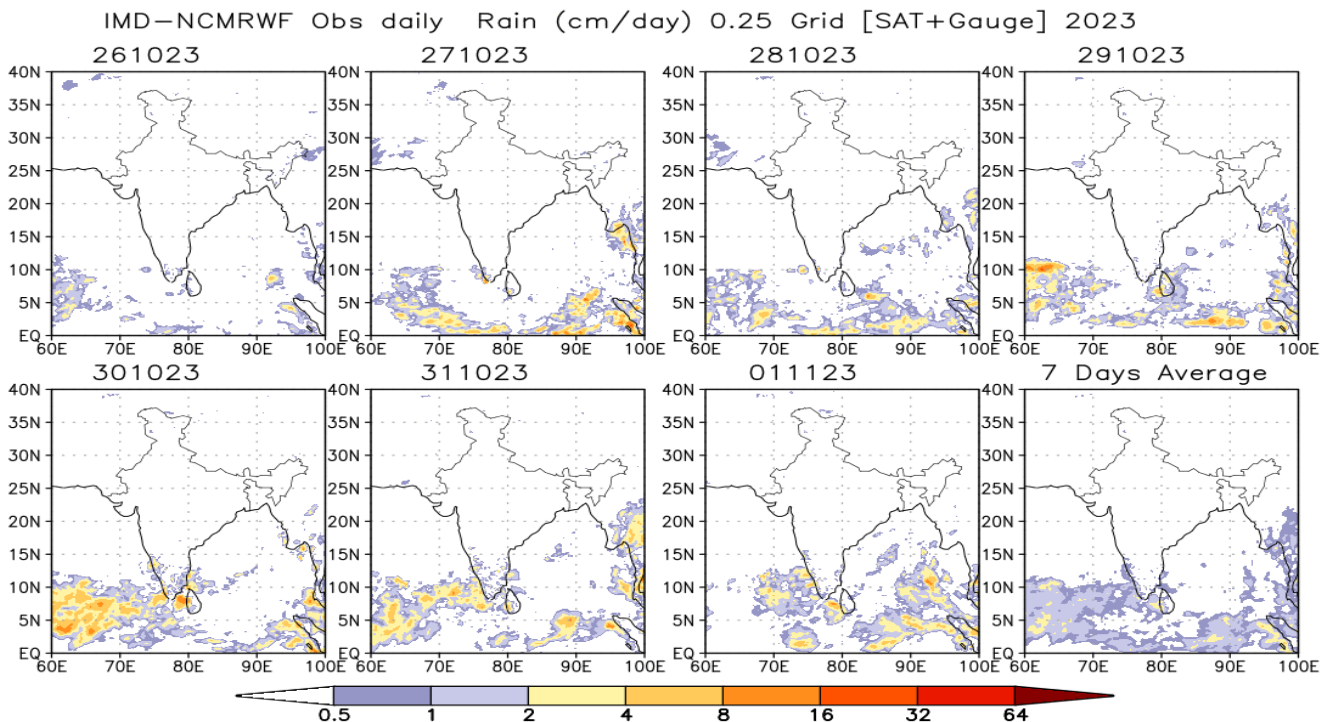


Fig. 2 IMD-NCMRWF satellite-gauge merged data plots during 26th October - 01st November

Next update: 09.11.2023