India Meteorological Department
Ministry of Earth Sciences
Mausam Bhawan, Lodhi Road, New Delhi-110003

Issued on 31.08.2023

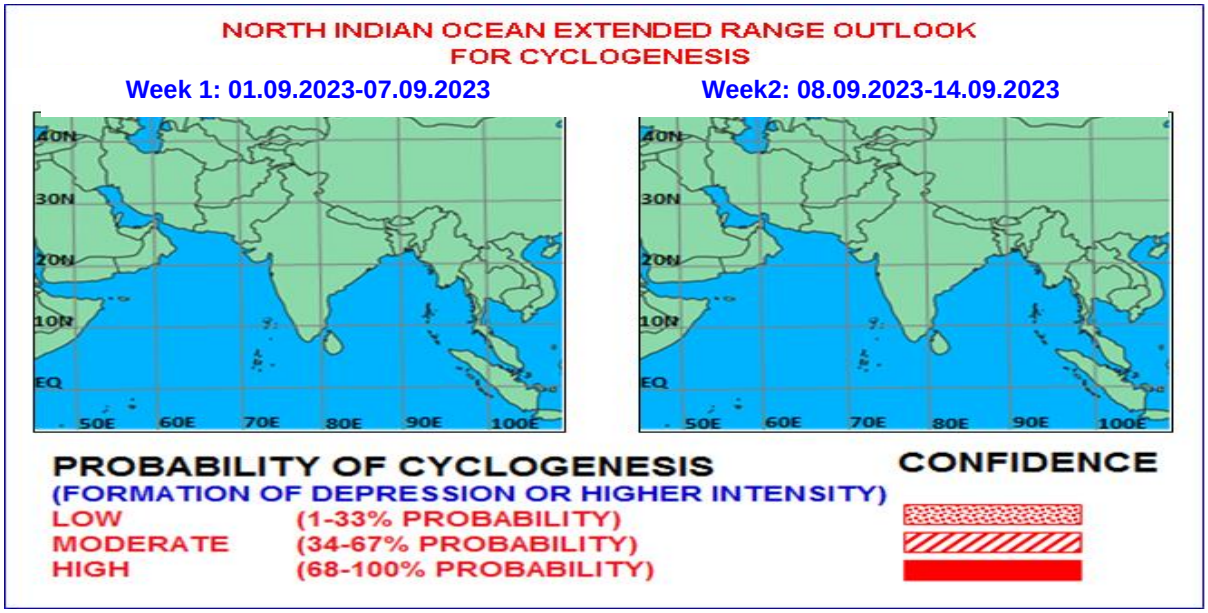

Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

As per ECMWF and NCEP forecast the Madden–Julian Oscillation (MJO) Index is currently in Phase 3 with amplitude less than 1. It would move across phases 4 and 5 during the entire forecast period with gradually increasing amplitude in week 1 and gradually decreasing amplitude in week 2. It indicates that MJO would support enhancement of convective activity over the Bay of Bengal during entire forecast period.

NCICS based forecast for equatorial waves over the region indicates presence of MJO and Equatorial Rossby Waves (ERW) over the south and central Arabian Sea leading to westerly winds. During week 2, ERW is likely to prevail with westerly winds over South and central Arabian Sea. Thus, equatorial waves are likely to contribute significantly to the strengthening of monsoon circulation over the region during the forecast period.

II. Model Guidance:

Most of the deterministic models including IMD GFS, NCEP GFS, NCUM and ECMWF are indicating likely formation of a cyclonic circulation over the north BoB around 4th September and low pressure area around 5th September with gradual west-northwestwards movement. NCUM is also indicating further intensification of the system into a depression over central parts of India around 7th September. IMD GFS is also indicating another circulation over North BoB during first half of week 2. The GPP is indicating a potential zone for cyclogenesis over North BoB during end of week 1 (around 6th September). The extended range models viz. IMD CFS (V2) and CNCUM are also indicating likelihood of a low pressure area over North BoB during middle of week 1 and another cyclonic circulation over BoB during week 2. IMD CFS (V2) is also indicating 60-70% probability of formation of depression over north & adjoining central Bay of Bengal during week 1 and 30-40% probability of fresh cyclonic circulation 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:

(i) A cyclonic circulation is likely to form over north Bay of Bengal during middle of week 1. Under its influence a low pressure area is likely to form over northwest & adjoining westcentral Bay of Bengal subsequently and move west-northwestwards

(ii) There is also likelihood of formation of another cyclonic circulation over North Bay of Bengal during week 2.

(iii) However, there is no probability of cyclogenesis over the region **(Fig.2).**

IV. Verification of forecast issued during last two weeks:

The forecast issued on 17th August for week 2 (25.08.2023-31.08.2023) indicated formation of cyclonic circulation over North Bay of Bengal during first half of week. The forecast issued on 24th August for week 1 (25.08.2023-31.08.2023) indicated formation of no cyclonic disturbance over the North Indian Ocean. However, it indicated likely formation of cyclonic circulation over North Bay of Bengal during beginning of week 2 starting at 1st September. Actually, a cyclonic circulation formed over northeast Bay of Bengal on 29th August. It is persisting over the same region on 31st August. Another cyclonic circulation is lying over westcentral Bay of Bengal on 31st August.

The IMD-NCMRWF satellite-gauge merged data plots during 24th August-30th august are presented in **Fig. 2.**

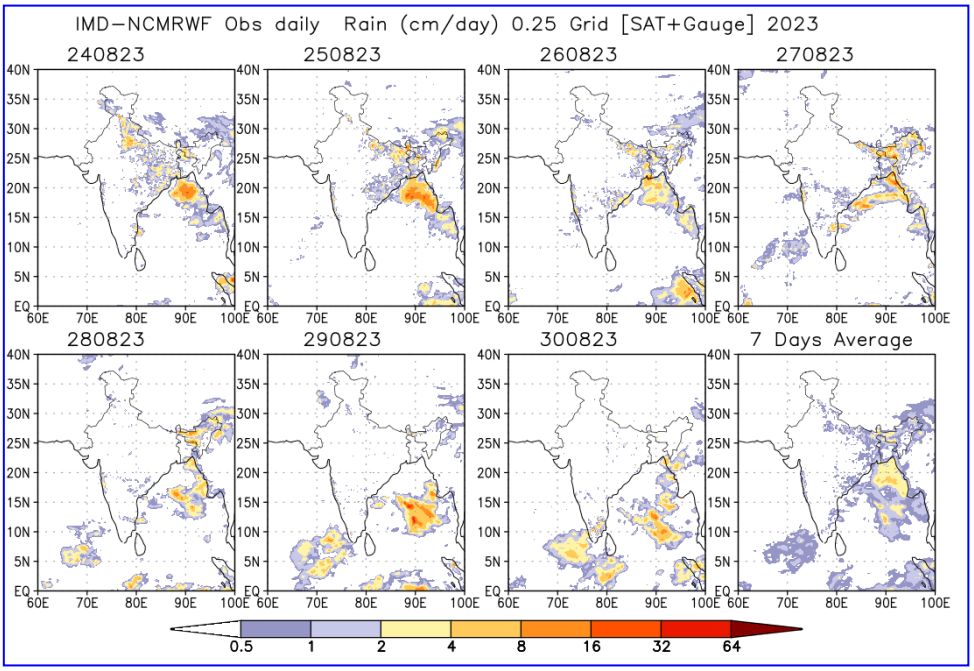

Fig.2: IMD-NCMRWF satellite-gauge merged data plots during 24th -30th August, 2023

Next update: 07.09.2023