

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

I. Environmental features:

The Madden Julian Oscillation (MJO) index is currently in phase 8 with amplitude close to 1. It will continue in same phase with amplitude remaining less than 1 till later half of week 1. Thereafter It will move across phase 1 with amplitude remaining less than 1 till later half of week 2. Towards the end of week 2, it will enter into phase 2 with amplitude remaining less than 1. Thus, MJO is likely to contribute to enhanced convection towards end of week 2 over the Equatorial Indian Ocean and adjoining Arabian Sea (AS).

Equatorial Waves forecast by NCICS indicate, influence of MJO over the region extending from North Bay of Bengal (BoB) to northeast AS during week 1 and influence of both MJO and Equatorial Rossby Waves over the same region in week 2. All these will favour enhanced convection over the region and support the genesis of low over the Head BoB on 2nd August with further intensification and westwards movement in week 1 and genesis of another low pressure system in week 2.

II. Model Guidance:

Most of the numerical models (IMD GFS, NCEP GFS, GEFS, ECMWF and NCUM) indicate a low pressure area existing over Gangetic West Bengal neighbourhood with nearly westwards movement during next 5 days upto east Rajasthan. Due to the presence of the system, all models suggest an active monsoon wind flow pattern with a monsoon trough remaining near to its normal position during the same period. A few models predict further intensification of the system during next 2 days. The IMD-GFS, NCUM-G and ECMWF (EPS) forecasts show that the low pressure area is likely to concentrate into a depression by 3rd August over Jharkhand & adjoining north Chhattisgarh area. Thereafter, all models have a consensus and suggest that the monsoon trough is likely to move to the north of its normal

position near the foothills for a temporary period. Subsequently, some of the models are indicating a fresh cyclonic circulation /low pressure area over coastal areas of Gangetic West Bengal and north Odisha around 8th August.

IMD extended range forecast system indicates normal monsoonal flow at 850 hPa level during both the weeks. The forecast wind anomaly field indicates cyclonic wind anomaly over Arabian Peninsular region during week 1. During week 2, wind anomaly at 850 hPa level is indicating two anticyclones over Arabian Sea and the Bay of Bengal and associated ridge line across central India. These features indicate decrease in rainfall activity over monsoon core zone in India. The model also indicates low probability of cyclogenesis over Northern plains of India from Odisha to northwest India during both the weeks. However, the ECMWF extended range forecast does not indicate any probability of cyclogenesis over NIO during the entire forecast period.

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, INCOIS: Indian National Centre for Ocean Information Services.

III. Inference:

Considering various environmental conditions and model guidance, it is inferred that there is no probability of cyclogenesis over the North Indian Ocean (NIO) during the entire forecast period. However,

- (i) Existing cyclonic circulation over Gangetic West Bengal is likely to become a low pressure area by 2nd August and further intensify over land while moving westwards during next 3 days.
- (ii) There is also low probability of formation of a fresh cyclonic circulation/ low pressure area over coastal areas of Gangetic West Bengal and North Odisha towards the end of week 1 (around 8th August) or the beginning of week 2.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 18th July for the second week (26.07.2024-01.08.2024) did not indicate formation of any low pressure system/ cyclonic circulation over the region. The forecast issued on 25th July for first week (26.07.2024-01.08.2024) predicted formation of fresh cyclonic circulation head Bay of Bengal area and neighborhood towards the end of first week around 1st August, 2024 with west-northwestwards movement during the first half of week 2. Actually, a cyclonic circulation formed over Gangetic West Bengal & neighborhood in lower & middle tropospheric levels on 31st July and lay over Gangetic West Bengal & adjoining south Bangladesh on 1st August. Hence, likely formation of a cyclonic circulation over the Head Bay region could be captured well but with some spatial displacements. NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 25th to 30th July, 2024 are presented in **Fig. 2**.

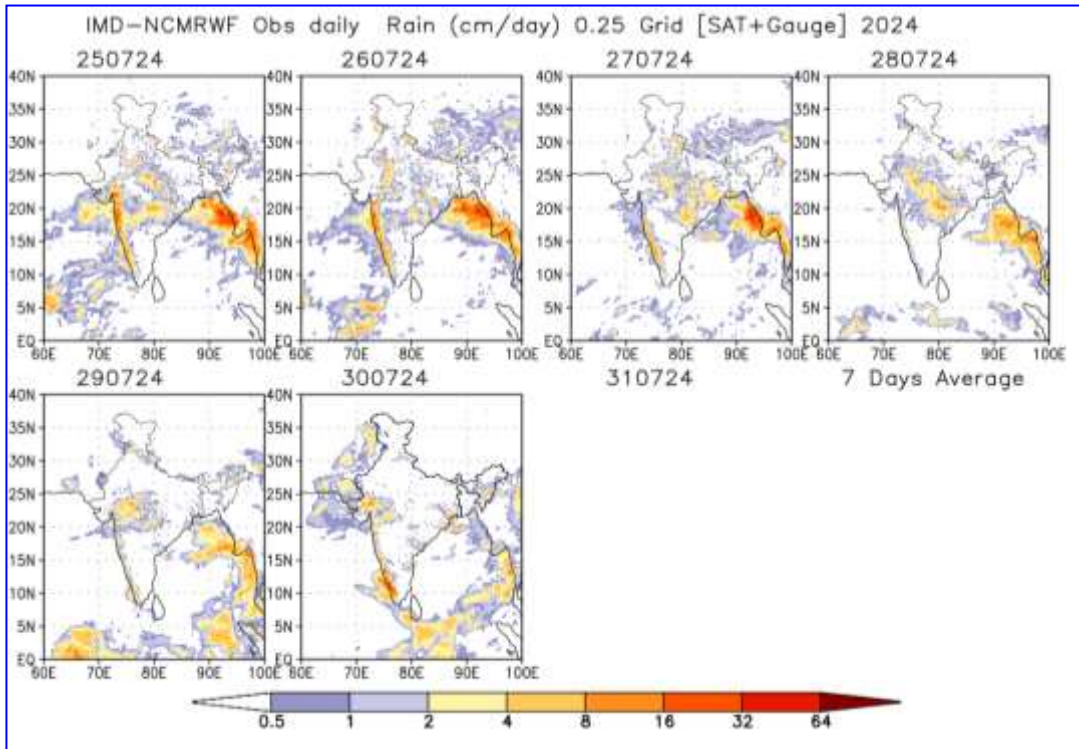


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 25th to 30th July, 2024.

Next update: 08.08.2024