

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 3 with amplitude less than 1. It would move to phase 4 during the end of week 1. Thereafter, it would move to phase 5 with amplitude remaining less than 1. Hence, MJO is likely to be favourable for enhancement of convective activity over northwest Bay of Bengal (BoB) during first half of week 1 and over north & northeast India during second half of week 1. During week 2, it would support enhancement of convective activity over north BoB and central India. During week 1, easterly winds (1-3 mps) are likely to prevail over entire BoB and southeast Arabian Sea (AS). During week 2, easterly winds are likely over entire BoB and entire AS. Equatorial waves are indicating weaker than normal monsoon circulation over the region.

II. Model Guidance:

Various deterministic models including ECMWF, IMD GFS, NCEP GFS, NCUM, NEPS and GEFS are indicating no cyclogenesis over both the basins i.e. BoB and AS during entire forecast period. But these deterministic models are indicating likely development of a cyclonic circulation over Gangetic West Bengal & adjoining Odisha coast during middle of week 2 (around 16th July) with west-northwestwards movement. IMD GPP is also not indicating any cyclogenesis during next week. IMD CFS (V2) is indicating 30-40% cyclogenesis probability over Gangetic West Bengal with west-northwestwards extending zone during both the weeks. The model is indicating easterly anomaly over the BoB in week 1 and westerly anomaly in week 2 with embedded circulation over North BoB.

Legends: IMD GFS: India Meteorological Department Global Forecast System, NCUM: National Centre for Medium Range Weather Forecasting Centre 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 various environmental features and model guidance, it is inferred that

1. the existing upper air cyclonic circulation over Gangetic West Bengal and neighbourhood would move west-northwestwards upto West Madhya Pradesh and weaken gradually thereafter.
2. there is also likelihood of formation of a fresh cyclonic circulation over northwest Bay of Bengal during middle of week 2 (around 16th July) with possibility of its intensification into a low pressure area and its west-northwestwards movement across central India.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 22nd June 2023 for week 2 (30.06.2023– 06.07.2023) indicated no cyclogenesis over the Bay of Bengal and Arabian Sea. The forecast issued on 29th June for week 1 (30.06.2023– 06.07.2023) also didn't indicate any cyclogenesis over the region. Hence, no cyclogenesis was correctly predicted two weeks in advance..

The realized rainfall during 29th June to 5th July, 2023 from satellite-gauge merged data is presented in Fig.2.

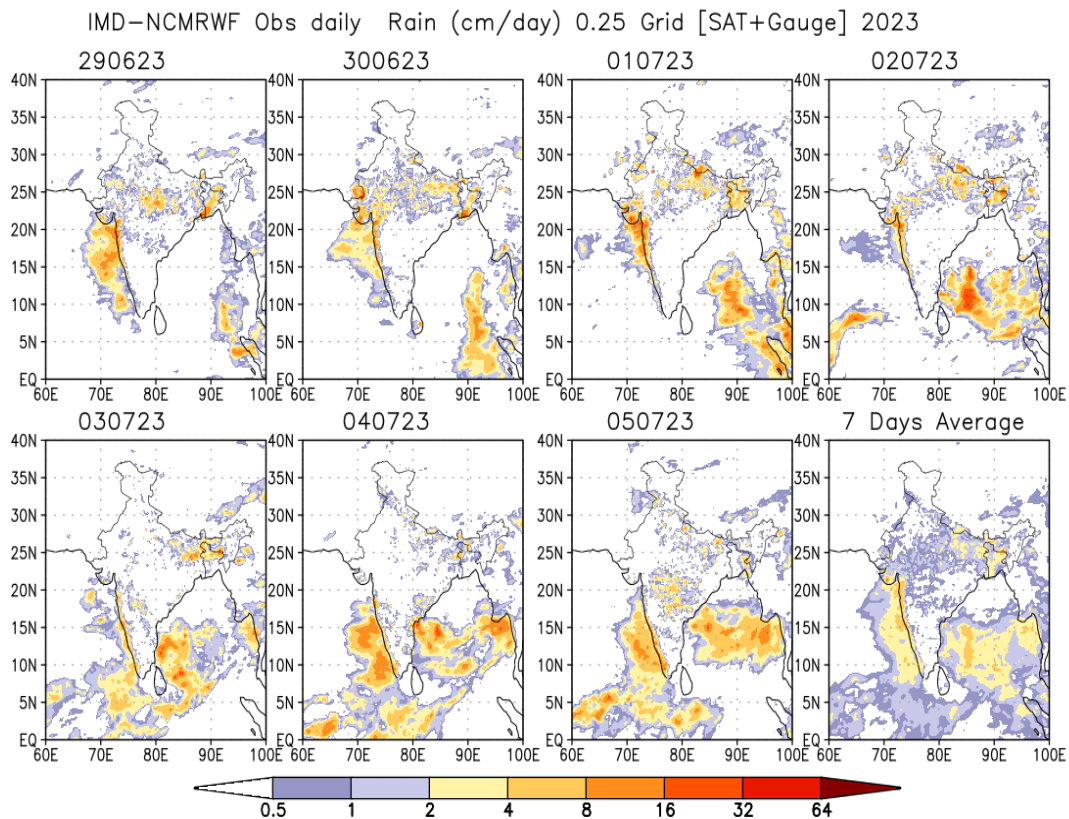


Fig.2: Rain gauge and satellite merged rainfall plots during 22nd to 28th June, 2023

Next update: 13.07.2023