

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 6 with amplitude less than 1. It would move across phases 6,7 & 8 during the week 1 with amplitude remaining less than 1. Thereafter during week 2, it will move to phase 1 with amplitude remaining less than 1. Thus, MJO will not support enhancement of convective activity over North Indian Ocean (NIO) including Bay of Bengal (BoB) and Arabian Sea (AS) during the entire forecast period. NCICS based forecast for equatorial waves over the region indicates that equatorial waves are not likely to support any cyclogenesis over the region during the forecast period.

II. Model Guidance:

Various deterministic models including ECMWF, IMD GFS, NCEP GFS, NCUM, NEPS and GEFS are indicating existing low pressure area (LPA) over South Odisha and adjoining North Andhra Pradesh would move northwestwards during next 24 hours and gradually recurve northeastwards and reach Gangetic West Bengal by 31st July. It is likely to move to Head Bay of Bengal temporarily and then move west-northwestwards during 2-6th August.

IMD Genesis Potential Parameter (GPP) is also indicating a potential zone for cyclogenesis over northwest BoB off Gangetic West Bengal around 2nd August with the emergence of the above cyclonic circulation/low pressure area. The ERF models of IMD and NCMRWF are also predicting a cyclonic circulation over northwest BoB off Gangetic West Bengal around 2nd August which could be the same existing circulation which would be moving to northwest BoB.

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, ECMWF: 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:

The existing low pressure area over South Odisha and adjoining North Andhra Pradesh would move northwestwards during next 24 hours and gradually recurve northeastwards and reach

Gangetic West Bengal by 31st July as a low/cyclonic circulation. It is likely to move to Head Bay of Bengal temporarily and then move west-northwestwards during 2-6th August as a low/cyclonic circulation.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 13th July for week 2 (21.07.2023-27.07.2023) indicated formation of a low pressure area over northwest BoB around 19th July with intensification into a depression around 21st July. The forecast issued on 20th July for week 1 (21.07.2023-27.07.2023) indicated formation of a fresh low pressure area over northwest and adjoining westcentral BoB off south Odisha and north Andhra Pradesh coasts around 24th July with likely intensification into a depression over the same region around 25th July.

However, a low pressure area formed over northwest BoB off Odisha coast on 20th July and became less marked on 22nd July over coastal areas of south Odisha & adjoining north Andhra Pradesh. Another low pressure area formed over westcentral & adjoining northwest BoB on 24th July. It lay as a well marked low pressure area over the same region on 25th and as a low pressure over South Odisha & adjoining North Andhra Pradesh on 27th.

Thus, the formation of low pressure area on 22nd & 24th could be captured well. However, these systems didn't intensify further into a depression.

The realized rainfall during 20th to 26th July, 2023 from satellite-gauge merged data is presented in Fig. 2.

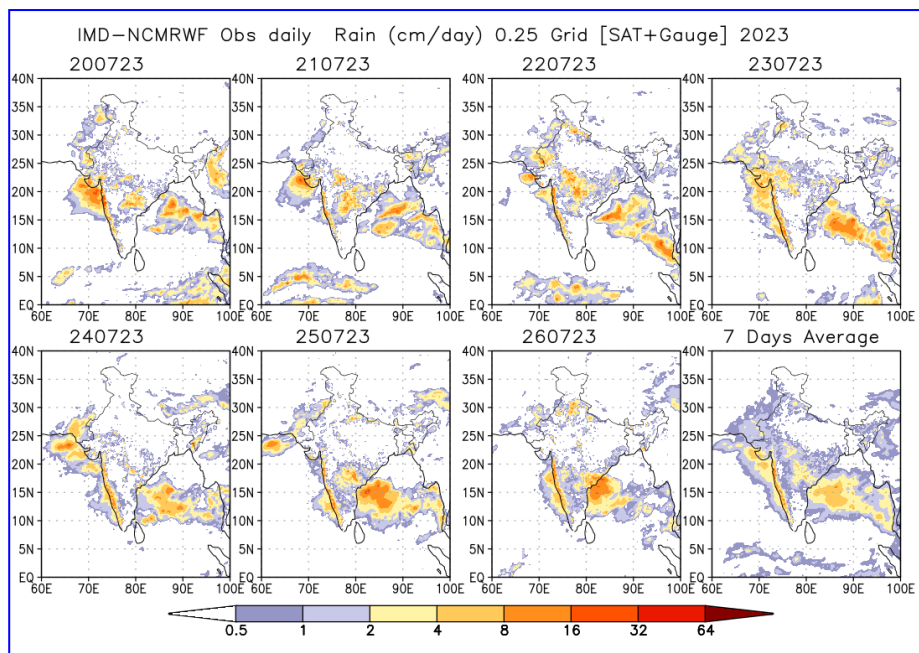


Fig.2: Rain gauge and satellite merged rainfall plots during 13th to 19th July, 2023

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