India Meteorological Department
Ministry of Earth Sciences
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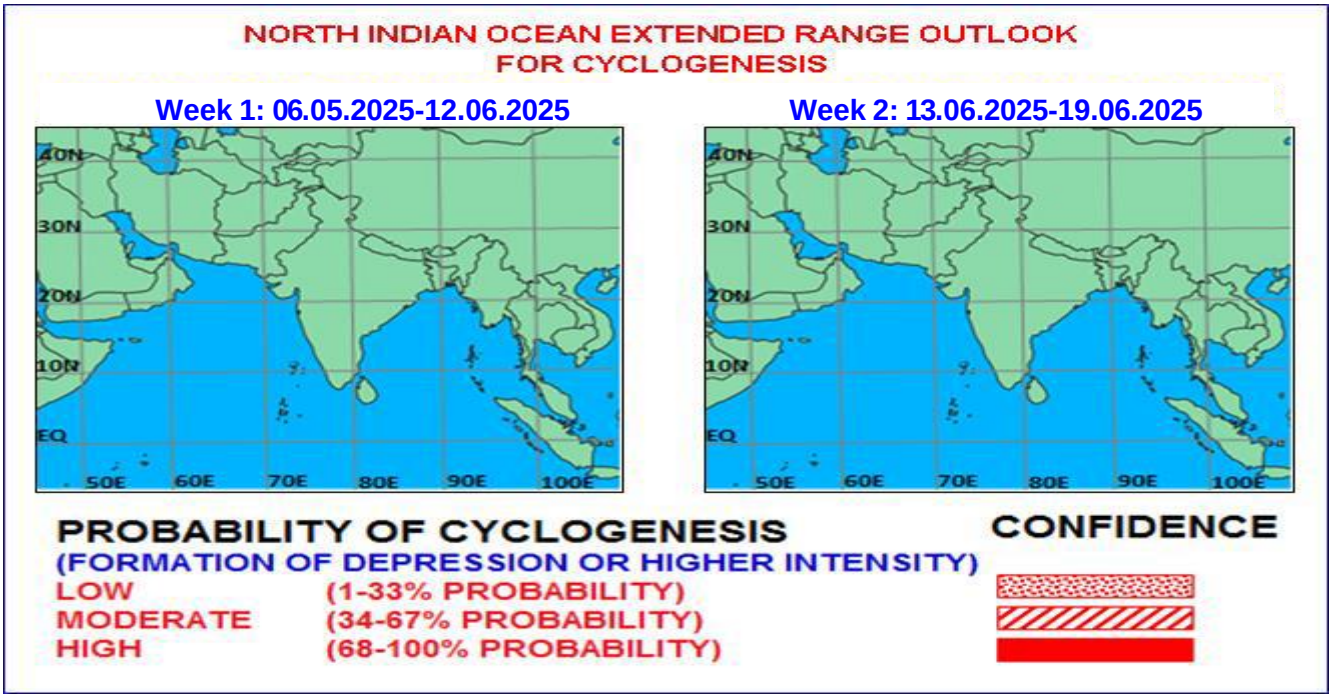

Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

I. Environmental features:

The guidance from the various models including (ECMM, NCEP, JMA, BOMA) indicates that the Madden Julian Oscillation (MJO) is currently in phase 6 with amplitude more than 1. It is likely to move across phases 7 and 8 during remaining part of the forecast period. Thus, MJO is not likely to contribute to enhancement of convective activity over the north Indian Ocean during the entire forecast period.

The guidance from NCICS CFS model indicates easterly wind anomaly (1-3mps) over entire Bay of Bengal (BoB), Arabian Sea (AS) and central & south peninsular India during week 1. These features indicate weak monsoon conditions over the region during week 1. During week 2, enhancement of cross equatorial flow is indicated over the south BoB. The model is indicating westerly wind anomaly (3-5mps) over south and adjoining central BoB along with Equatorial Rossby wave (ERW). Strong easterly wind anomaly (7-9 mps) is indicated over north BoB. Over the Arabian Sea, weak easterly wind anomaly (1-3 mps) is indicated. Thus, Equatorial waves are likely to support enhancement of convective activity over the BoB during week 2.

II. Model Guidance:

IMD GFS is indicating development of an upper air cyclonic circulation over eastcentral BoB around 10th June with west-northwestwards movement towards Andhra Pradesh and Odisha coast till 14th June. NCUM is indicating development of an upper air cyclonic circulation over eastcentral BoB around 10th and a low pressure area over westcentral BoB on 12th with northwestwards movement across central India till 14th. ECMWF is indicating a low pressure area over northwest BoB off Odisha coast on 17th with west northwestwards movement till 19th. NCEP GFS is indicating a low pressure area over northwest BoB on 15th with west northwestwards movement and

intensification into a depression over northwest BoB off West Bengal coast on 16th and west-northwestwards movement along the monsoon trough across Gangetic West Bengal, Odisha and Jharkhand till 19th.

The 850 hPa mean wind field of IMD ERF Model is indicating enhancement of cross equatorial monsoonal flow over south BoB and south AS during week 2. The model is also indicating southeasterly winds upto west Uttar Pradesh, a north- south extended circulation over Chhattisgarh & adjoining east Madhya Pradesh and seasonal monsoon trough extending upto eastcentral BoB during week 2. 850 hPa wind anomaly field is indicating east-west shear zone over central BoB. Model is also indicating above normal rainfall activity over central BoB, Andaman Sea, central India and south India. Model is indicating low probability of cyclogenesis (20%-40%) over westcentral and northwest BoB during week 2. ECMWF ERF model is indicating a probable zone for cyclogenesis (30-40%) over the northwest BoB and another over eastcentral AS off Maharashtra coast (10-20%) probability during first half of week 2.

Thus guidance from the various models infers that there is likelihood of formation of cyclonic circulation /low pressure area over north and adjoining central BoB during first half of week 2.

III. Inference:

Considering large-scale environmental features and model guidance, it is inferred that there is likelihood of formation of a cyclonic circulation /low pressure area over north and adjoining central Bay of Bengal during first half of week 2. However, there is no likelihood of its further intensification into a depression.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 22nd May for week 2 (30th May – 5th June) indicated no cyclogenesis over the region. The forecast issued on 29th May for week 1 (30th May – 5th June) indicated the existing deep depression over West Bengal and Bangladesh coasts to move nearly north-northeastwards and weaken gradually into a depression on 30th and into a well marked low pressure area around 31st May. Actually, the deep depression weakened into a depression over Bangladesh in the early morning (0530 hrs IST/0000 UTC) of 30th May 2025 and into a well-marked low pressure area over Meghalaya in the same evening (1730 hours IST/1200 UTC). No fresh cyclogenesis was indicated during this period.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 29th May to 4th June, 2025 are presented in **Fig. 2**.

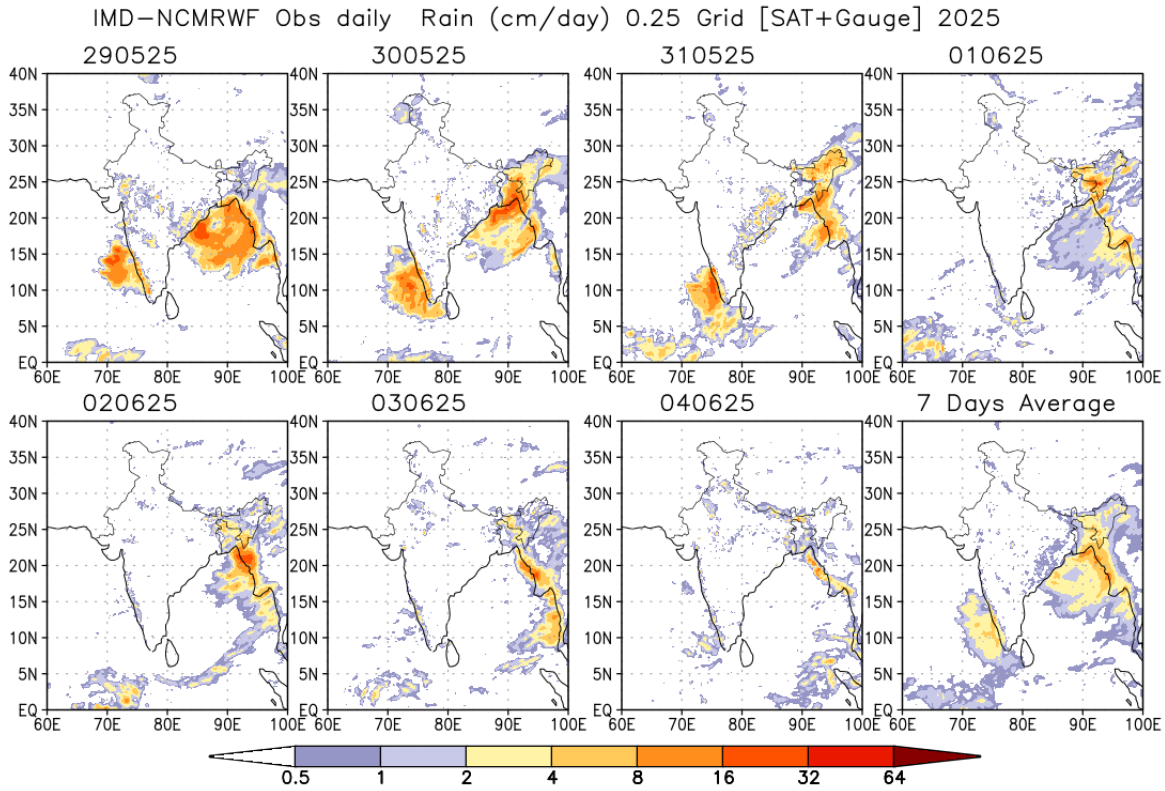

Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 29th May to 4th June, 2025.

Legends: MJO: Madden Julian Oscillation, ERW: Equatorial Rossby Waves, KW: Kelvin Waves, 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, ECMWF: European Centre for Medium-Range Weather Forecasting, EC-AIFS: ECMWF Artificial Intelligence Forecasting System, ECMM: ECMWF-Ensemble System Bias Corrected, GPP: Genesis Potential Parameter, NCEP GFS/GEFS/CFS: National Centre for Environment Prediction GFS/GEFSv12/CFSV2, CPC: Climate Prediction Center (for MJO update), IMD-GEFS: GFS ensemble forecast system of IMD, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Centre, NWS: National Weather Service, INCOIS: Indian National Centre for Ocean Information Services.

Next update: 12.06.2025