India Meteorological Department
Ministry of Earth Sciences
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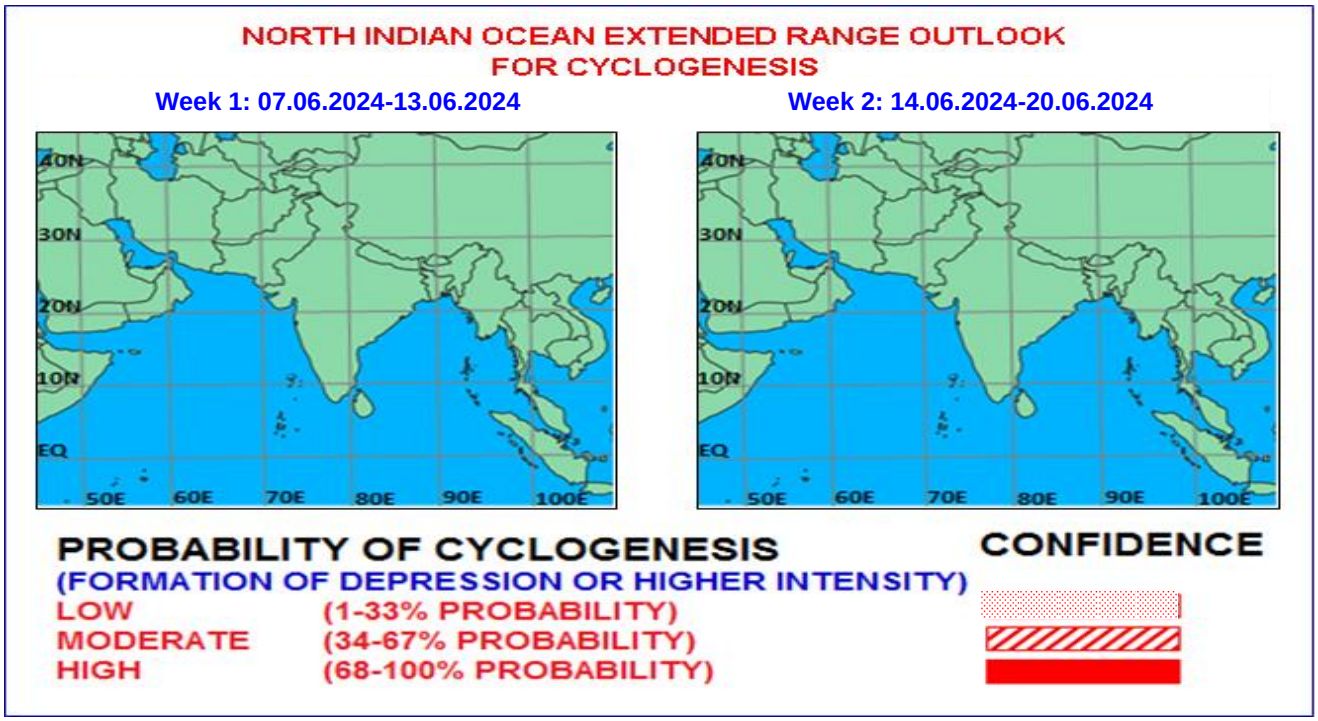

Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Madden Julian Oscillation (MJO) index is currently in Phase 5 with a weaker amplitude less than 1. Dynamical models predict a very weak MJO signal over the next two weeks. The GEFS forecasts indicate that the weak MJO signal is likely to move eastwards and enter into phase 7 passing over phase 6 during first week. Thereafter, the forecasts are displaying very slow and loopy movement within phase 7 during second week rather reaching phase 8. The ECMWF continues to favour a coherent eastward propagation of the weak signal across the Pacific (Phase 6 & 7) and likely to reach the Western Hemisphere (phase 8) at the end of the second week. Thus MJO, phase and amplitude are not favourable for enhancement of convective activity over the North Indian Ocean region during the entire forecast period.

The NCICS based forecasts for zonal winds indicate westerly winds (5 to 7 mps) over entire BoB during the first week. At the end of first of the second week, easterly winds are likely to appear over northern most part of the north BoB and persist for the rest of the forecast period. The forecasts also indicate that the westerly winds over south and adjoining central AS are comparatively weaker (1 to 3 mps) than BoB till first half of the second week which is likely to become strong (3 - 5 mps) gradually thereafter. Equatorial Rossby Waves (ERW) are likely to propagate westward gradually covering successively Andaman Sea, entire central & north BoB and south & central BoB and adjoining southeast AS during next two weeks. The Kelvin waves are likely to impact weather over northern part of India during the second week.

The sea surface temperatures prevailing over BoB are around ~29°C. Whereas it is likely to be a little higher (~30°C) over western parts of AS, thereby creating comparatively conducive environment for convective activity over the region. The guidance from INCOIS HYCOM model also indicates, tropical cyclone heat potential over southeast & adjoining

areas of central AS & Equatorial Indian Ocean (EIO) is higher (~75-125 KJ/cm^2) than BoB. The support of the environmental conditions for the convective activities over southeast AS, BoB and adjoining Andaman Sea is likely to increase gradually during entire forecast period.

II. Model Guidance:

Various models (GFS group of models, ECMWF, NCUMG) are indicating established monsoonal wind flow pattern over entire BoB as southwesterly winds (> 10 mps) are strengthening gradually over the region during next 7 days. Low level southwesterly winds over southwest & westcentral AS are also indicating similar increase in wind speed. Although, there is a lack of consensus amongst various models about location and evolution, all models indicate the formation of a cyclonic circulation/low pressure area over northwest BoB and neighbourhood around 10th June. However, all models do not indicate any cyclogenesis during next 10 days over BoB & AS.

ECMM model indicates low probability (20-30%) for the genesis of a cyclonic disturbance over westcentral & adjoining northwest BoB around 10th June. IMD extended range model CFSV2 is indicating enhanced southwesterly winds at 850 hPa level over entire BoB and AS along with wind anomaly field furnishing an anticyclonic circulation over north AS during both the weeks. The wind anomaly field is also indicating a cyclonic circulation over central BOB during second week. The model does not indicate any significant probability of cyclogenesis over the region during 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 during the entire forecast period. However, the formation of a cyclonic circulation/low pressure area is likely over westcentral and adjoining northwest Bay of Bengal around middle of the first week.

IV. Verification of forecast issued during last two weeks:

Forecast issued on 23rd May for second week (31.05.2024-06.06.2024) indicated no cyclogenesis over NIO region. The forecast issued on 30th May for first week (31.05.2024-06.06.2024) also predicted the absence of any cyclonic disturbances over both BoB and AS.

Actually, a cyclonic circulation in the lower tropospheric levels over southeast AS off Kerala coast was observed for a few days during first half of the week. Another cyclonic circulation over westcentral and adjoining southwest BoB off south Andhra Pradesh-north Tamil Nadu coasts persisted during the entire week. There was no cyclogenesis over NIO region during the specified week.

NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 30th May to 05th June, 2024 are presented in **Fig. 2**.

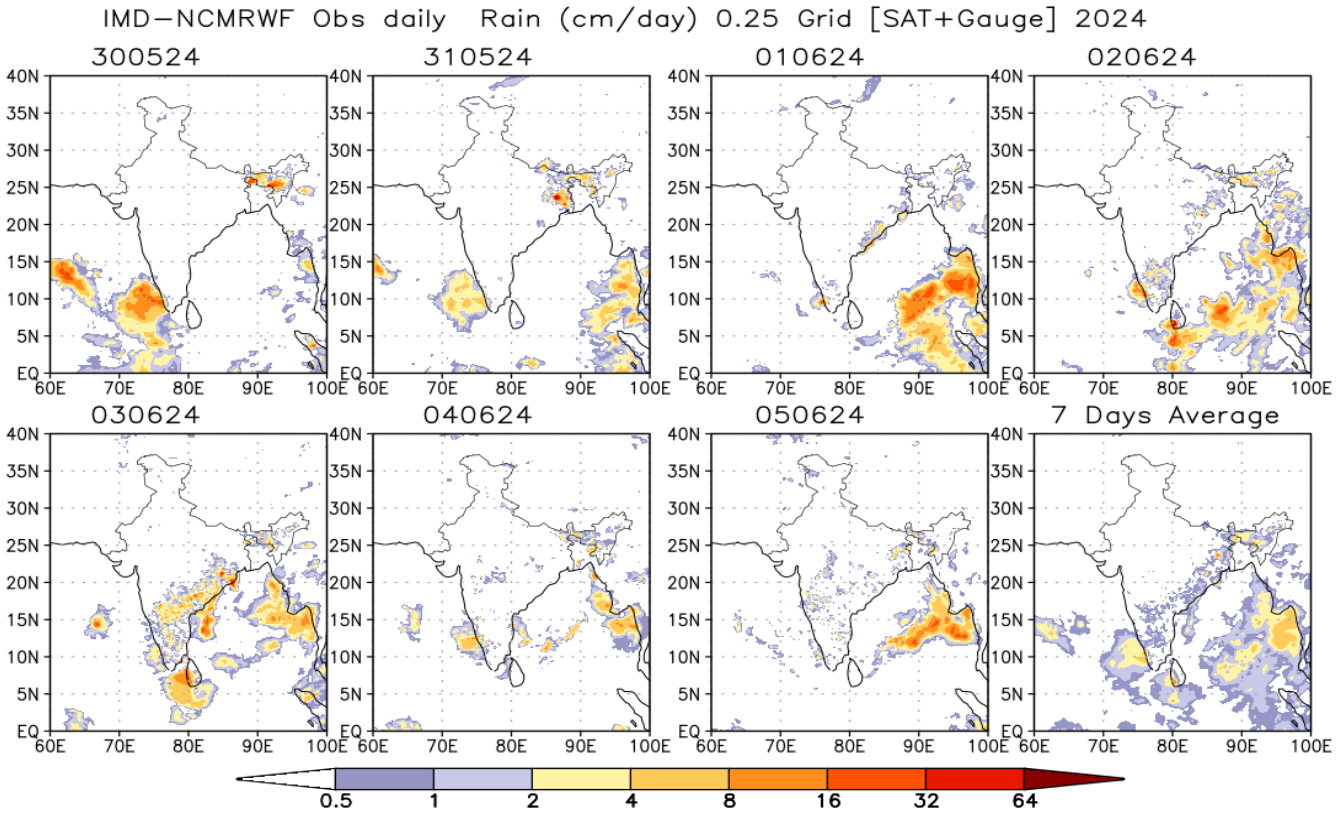

Fig. 2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 30th May to 05th June, 2024.

Next update: 13.06.2024