

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

I. Environmental features:

ECMM based guidance indicates that MJO is currently in phase 7 with amplitude greater than 1. It would move across phases 7 and 8 with amplitude remaining more than 1 during week 1. Thereafter, it would move across phases 1 and 2 during week 2 with amplitude becoming less than 1. Thus, MJO would support enhancement of convective activity over the Arabian Sea during week 2.

The CFS-NCICS model forecast indicates westerly wind anomaly over South Bay of Bengal (BoB) and low frequency background waves over southwest BoB & adjoining Comorin Area during week 1. During week 2, easterly wind anomaly is seen over both the basins. Model is also indicating MJO & low frequency background waves over the southwest BoB and adjoining Comorin area during week 2. All these features indicate equatorial waves to support moderately the enhancement of convective activity over the southwest BoB, Southern Peninsular India, Sri Lanka and Comorin area during week 1 and week 2.

The El Niño–Southern Oscillation (ENSO) is neutral, with both sea surface temperatures (SSTs) in the central equatorial Pacific Ocean and atmospheric patterns at ENSO-neutral levels. The Indian Ocean Dipole (IOD) is likely to remain neutral, but weakly negative, during next 2 months. These broadscale features (transition towards LaNina and slightly negative IOD conditions) indicate a favourable environment for enhancement of convective activity/cyclogenesis over the BoB.

II. Model Guidance:

Most of the deterministic models are indicating likely formation of an upper air cyclonic circulation over southwest BoB around 5th November with gradual westwards movement

towards Tamil Nadu coast till 9th November with no significant intensification. However, ECMM is indicating moderate (40-60%) probability of formation of depression over south BoB around 7th November. 850 hPa wind field of IMD ERF model is indicating a trough over south BoB during week 1 and an upper air cyclonic circulation over southwest BoB off southeast Sri Lanka coast in the first half of week 2. 850 hPa wind anomaly field does not indicate any cyclonic circulation over both the basins during both the weeks. Cyclogenesis probability forecast based on IMD's dynamical statistical model indicates 30-40% probability of cyclogenesis over southwest BoB off Tamil Nadu-Sri Lanka coasts/Comorin area during week 1. During week 2, 20-30% (low) probability of cyclogenesis over southwest BoB off Tamil Nadu-Sri Lanka coasts and 30-40% probability of cyclogenesis over southeast BoB & adjoining south Andaman sea.

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, ECMF: ECMWF-Ensemble System, ECMM: ECMWF-Ensemble System Bias Corrected, GPP: Genesis Potential Parameter, NCEP GFS: National Centre for Environment Prediction GFS, GEFS: GFS ensemble forecast system, 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 guidance from various numerical models and environmental features it is inferred that there is likelihood of formation of a trough of low over south BoB during week 1 with formation of a Low Pressure Area over southwest BoB towards the end of week 1. There is also low probability of its intensification into a depression over southwest BoB off Tamil Nadu coast during first half of week 2.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 17th October for week 2 (25-31 Oct) indicated no cyclogenesis over both the basins. The forecast issued on 24th October for week 1 (25-31 Oct) indicated Severe Cyclonic Storm (SCS) Dana to cross north Odisha and West Bengal coasts between Puri & Sagar Island close to Bhitarkanika and Dhamara during midnight of 24th to morning of 25th October. Actually, it crossed as an SCS close to Bhitarkanika and Dhamara during midnight of 24th to morning of 25th October.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 24th – 30th October, 2024 are presented in Fig. 2.

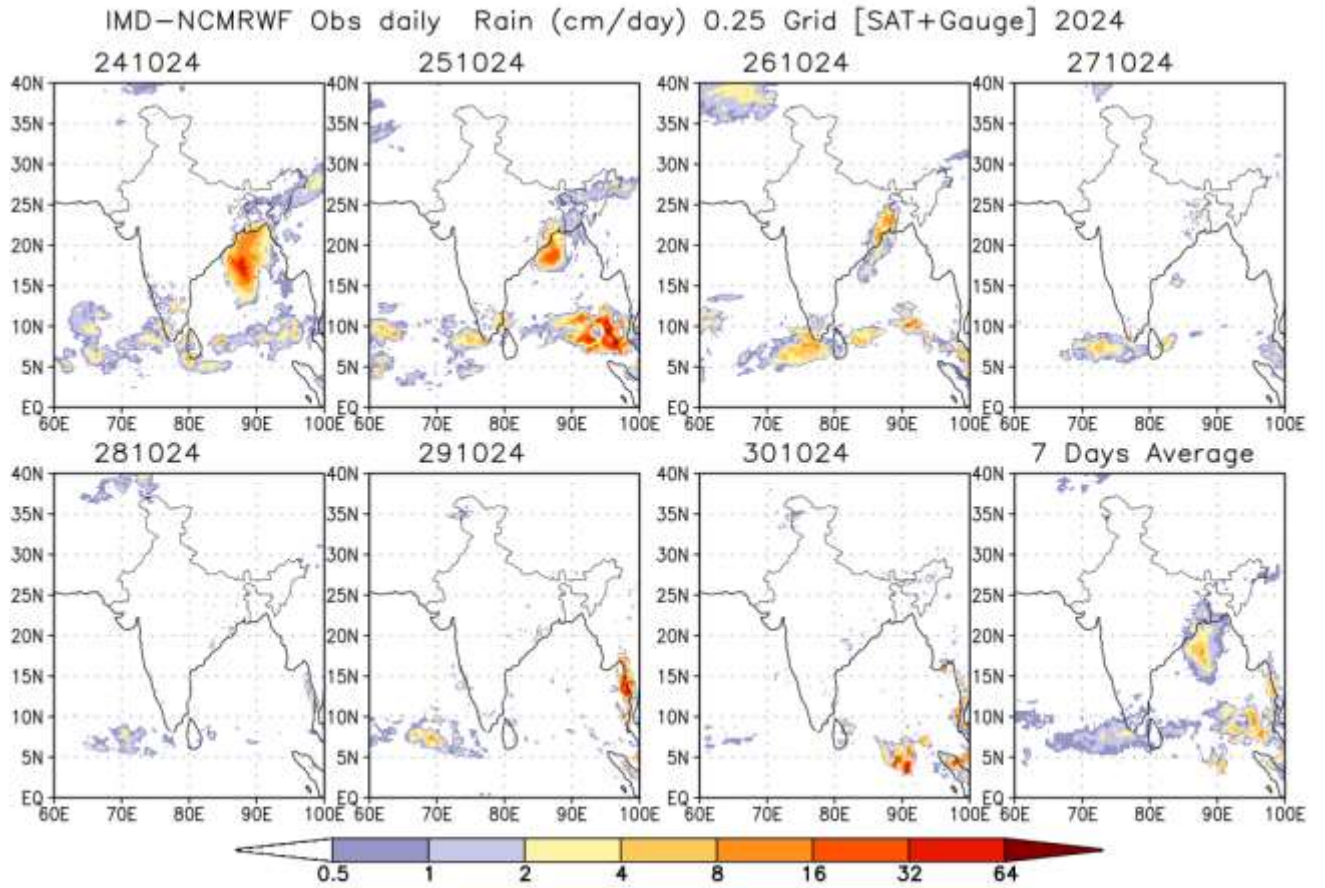


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 24th – 30th October, 2024.

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