India Meteorological Department
Ministry of Earth Sciences
Mausam Bhawan, Lodhi Road, New Delhi-110003

Issued on 14.08.2025

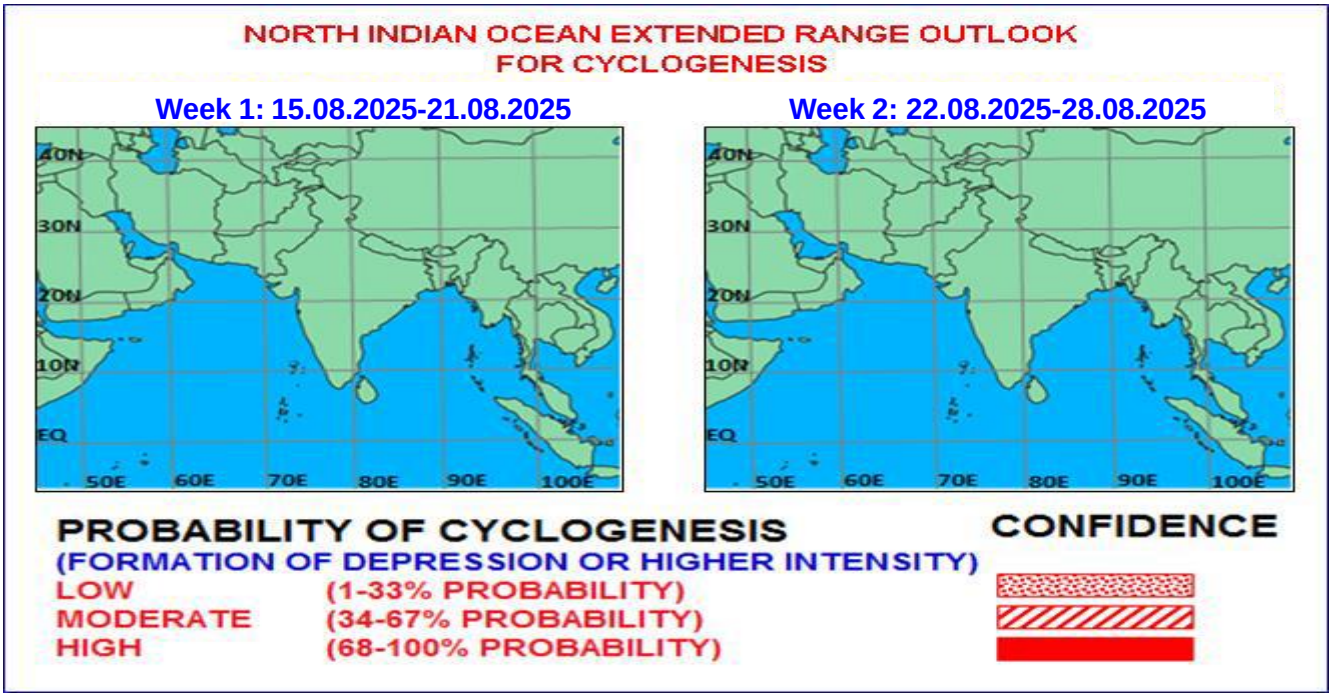

Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

I. Environmental features:

The guidance from various models indicates that Madden Julian Oscillation (MJO) is currently in phase 2 with an amplitude close to 1. Most of the model forecasts have a consensus and suggest that the MJO is very likely to propagate eastwards enter into phase 3 during next 1-2 days with increasing amplitude. Thereafter, it is very likely to move further eastwards across phase 3 till end of the first week with amplitude greater than 1. The models are not in agreement in their forecast for week 2. The ECMF, ECMM and CFSv2 models indicate that the MJO signal is likely to stagnate over phase 4 with a rapid weakening of the signal reaching far below 1 during week 2. On the other hand, mean forecasts from all variants of NCEP GEFSv12 model suggest that the MJO is likely to progress eastward in a regular manner across phase 4 and enter into phase 5 with amplitude greater than 1 throughout the week 2. However, the members of GEFSv12 model are showing a very large spread even during very early stage of their forecasts. Hence, it is inferred that the MJO is likely to support the enhancement of convective activity over the North Indian Ocean (NIO) region, more specifically over the Bay of Bengal (BoB) sub-basin during the entire forecast period.

The guidance from the NCICS CFS model indicates the westerly wind anomaly (3-5 mps) initially over south Arabioan Sea (AS) and over south and adjoining central BoB during first half of week 1. During the same period, comparatively strong easterly wind anomaly (5-7 mps) is also likely to prevail over the north BoB, and northern & adjoining central India and extending over northern parts of AS. During second half of week 1 and during the first half of the second week, the moderate westerly wind anomaly (3-5 mps) is likely to cover entire AS and BoB. The westerly wind anomaly over the region is likely to become more prominent over south BoB (5-7 mps) and Andaman Sea (7-9 mps) during the second half of week 2. The Equatorial Rossby Wave (ERW) activities are likely to be noticed over the entire BoB region in the first half of week 1. It is likely to propagate westward across peninsular & central India towards northern part of AS. The low-frequency wave is likely to be present over the North Equatorial Indian Ocean (NEIO) and adjoining areas of southwest BoB and southeast AS during both weeks.

Therefore, the forecast of MJO, ERW, and zonal wind anomaly indicates a favourable environment to support convective activity over BoB during both weeks. However, the environmental conditions are likely to become supportive of convective activities over northern part of AS during week 2.

II. Model Guidance:

Guidance from various deterministic models including ECMWF, ECAI, IMD GFS, NCEP GFS, BFS, NCUM (R) and NCUM (G)) indicates that existing low pressure area over northwest and adjoining areas of Westcentral Bay of Bengal and South Odisha-North Andhra Pradesh coasts is likely to persist over the same region during next 2-3 days with no significant intensification. The models are also indicating the development of a fresh cyclonic circulation/ low pressure area over northwest BoB around 19th August with west-northwestwards movement and no significant intensification.

The IMD ERF extended range model 850 hPa mean wind field indicates a seasonal monsoon trough south of its normal position with an embedded cyclonic circulation over coastal areas of north Andhra Pradesh and south Odisha during week 1. The corresponding wind anomaly field suggests an east-west trough from north coastal Andhra Pradesh to eastcentral AS with an embedded cyclonic circulation over Marathwada and neighbourhood. During week 2, the mean wind at 850 hPa indicates a position of the monsoon trough south of its normal position, with an embedded weak cyclonic circulation over east Madhya Pradesh and the adjoining area. The respective anomaly wind field shows a cyclonic circulation over Saurashtra & Kutch. The model also indicates an anticyclonic circulation over the southeast AS off Kerala coast during week 2. The model furnishes an east-west oriented zone with low-moderate probability (30 - 50%) of cyclogenesis from the Odisha coast to the Gujarat coast across central India during week 1. It indicates one east-west oriented zone with low-moderate probability (30 - 50%) over east India with maximum probability of cyclogenesis (50%) over Jharkhand and Gangetic West Bengal during week 2. It also shows another area with 30-40 % probability over Saurashtra & Kutch. The ECMWF ERF model is indicating low probability (20-30%) of cyclogenesis over northwest BoB off the south Odisha coast around 19th August during week 1. The week 1 forecast of the model also shows another area over northeast AS off Saurashtra & Kutch with low probability (20 %). However, the sub-seasonal model forecast of ECMWF also indicates a low probability (10-20%) of cyclogenesis over northwest BoB off south Odisha coast during week 1 and a 10-20% probability of cyclogenesis over the same region during week 2. There is another zone over northeast AS off the Gujarat coast showing low probability of cyclogenesis (10-20%) during week 1 and very low probability (5-10%) during week 2.

III. Inference:

Considering various large-scale environmental features and model guidance, it is inferred that there is no probability of cyclogenesis over the North Indian Ocean region during the entire forecast period. However:

(i) The existing low pressure area over northwest and adjoining areas of westcentral Bay of Bengal and south Odisha-north Andhra Pradesh coasts is likely to move slowly west-northwestwards across south Odisha-north coastal Andhra Pradesh during the next 24 hours.

(ii) There is also a likelihood of the development of a fresh cyclonic circulation/low pressure area over the northwest Bay of Bengal off Gangetic West Bengal & adjoining North Odisha coasts during the end of week 1 (around 19th August) with gradual west-northwestwards movement across north Odisha.

(iii) There is also a likelihood of the development of another cyclonic circulation/low pressure area over Gangetic West Bengal-north Odisha coasts and adjoining areas of northwest Bay of Bengal during the end of week 2 (around 27th August) with gradual west-northwestwards movement across Jharkhand.

IV. Verification of forecast issued during the previous two weeks:

The forecast issued on 31st July for week 2 (08.08.2025-14.08.2025) indicated the likelihood of formation of an upper-air cyclonic circulation/low pressure area over the southwest Bay of Bengal off north Tamil Nadu- south Andhra Pradesh coasts towards the end of the first week/in the beginning of week 2. The forecast issued on 7th August for week 1 (08.08.2025-14.08.2025) indicated the likely formation of a low pressure area over the northwest Bay of Bengal off the Odisha coast around 13th August, 2025.

An upper air cyclonic circulation formed over the Gulf of Mannar & adjoining south Tamil Nadu coast on 2nd August 2025. Thereafter, it slowly moved north-northeastwards and persisted over southwest BoB off the north Tamil Nadu coast till 7th August and became less marked over south coastal Andhra Pradesh on 8th August. Another upper air cyclonic circulation lay over the central parts of BoB on 12th August. Under its influence, a low pressure area formed over westcentral & adjoining northwest BoB off north Andhra Pradesh & adjoining south Odisha coasts on 13th August.

Hence likely formation of cyclonic circulation over southwest BoB during the week (01.08.2025-07.08.2025) and low pressure area around 13th August during the week (07.08.2025-13.08.2025) were well predicted in the week 1 forecast.

NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 7th to 13th August, 2025 are presented in Fig. 2.

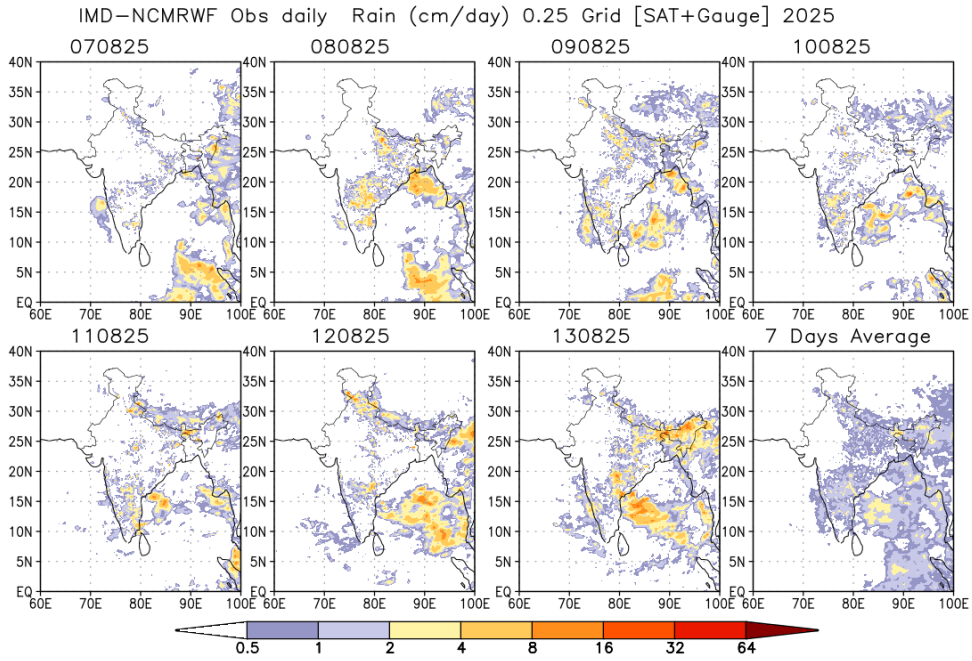

Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 7th to 13th August, 2025.

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, BFS: Bharat Forecast System, 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: 14.08.2025