



Issued on 21.08.2025

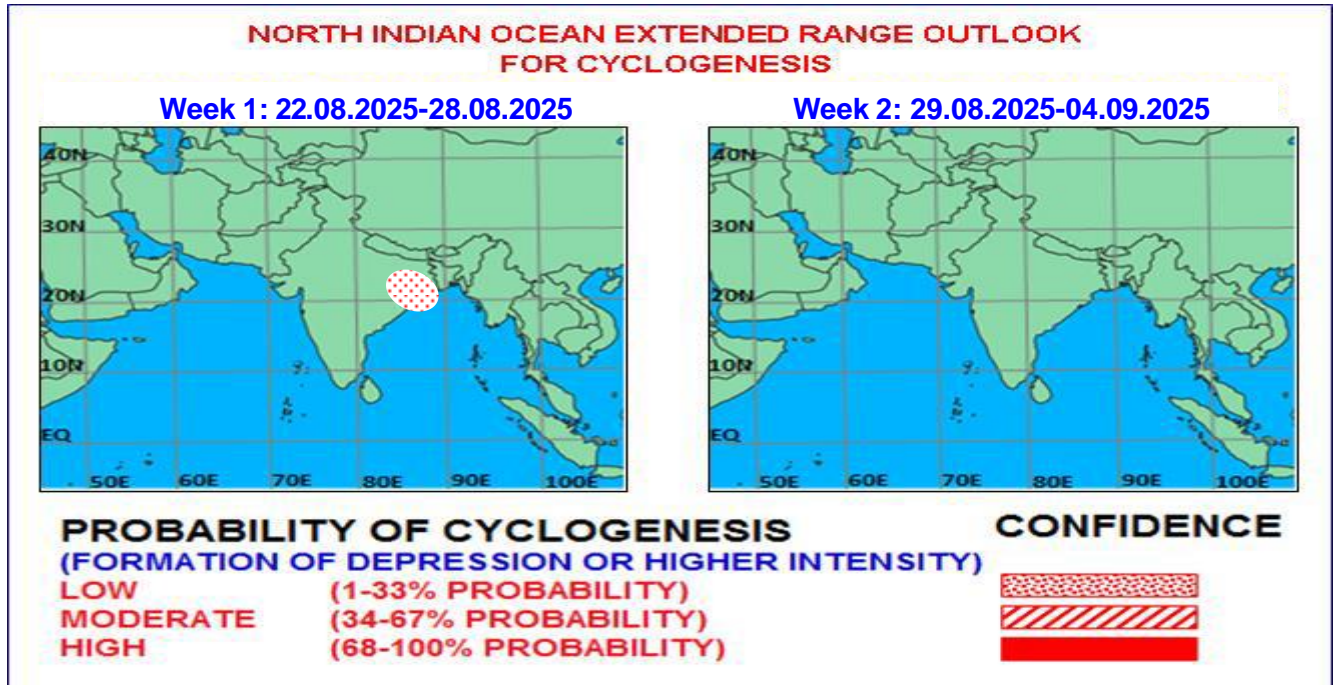


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

#### I. Environmental features:

The guidance from various models indicates that Madden Julian Oscillation (MJO) is currently in phase 4 with an amplitude more than 1. It is likely to move across phases 4 & 5 with decreasing trend in amplitude during week 1. Thereafter, it will move across phases 6, 7 & 8 with negligibly small amplitude during week 2. Thus, MJO is likely to support the enhancement of convective activity over the north Bay of Bengal (BoB) and adjoining east India during week 1.

The guidance from the NCICS CFS model indicates the easterly wind anomaly (5-7 mps) over most parts of BoB and weak westerly wind anomaly (1-3 mps) over Indo- Gangetic plains along with westward moving Equatorial Rossby Wave (ERW) during first half of week 1. The model is also indicating prevalence of westerly wind anomaly (5-7 mps) over Equatorial Indian Ocean (EIO) and adjoining south Arabian Sea (AS) along with ERW and easterly wind anomaly (5-7 mps) over central AS during first half of week 1. Thereafter, significant weakening of westerly wind anomaly is indicated during entire forecast period. No other equatorial wave is prevalent over the region. Thus, equatorial waves are likely to contribute to enhancement of convective activity over the southeast AS during first half of week 1. Prevalence of ERW over the north BoB and adjoining east India is likely to support convective activity over the region during week 1.

#### II. Model Guidance:

Guidance from various deterministic models including ECMWF, ECAI, IMD GFS, NCEP GFS, BFS, indicates that the eastern end of the monsoon trough will be shifting towards south over northwest Bay of Bengal and there will an embedded upper air cyclonic circulation over coastal areas of Gangetic West Bengal (GWB) - North Odisha and adjoining northwest BoB around 24<sup>th</sup> August. Under the influence of this upper air cyclonic circulation, a low pressure is likely to form over northwest BoB off West Bengal and north Odisha coasts around 25<sup>th</sup> Aug. According to IMD GFS, Bharat Forecast System and NCEP GFS, the formation of low-pressure area is on 25<sup>th</sup> August. However, ECMWF and ECAIFS indicate, formation of Low-pressure area over the same region on 26<sup>th</sup> August. Thereafter, according to the models forecast, the system is likely to move gradually

west northwestwards across north Odisha & adjoining GWB and North Chhattisgarh & adjoining Jharkhand and reach up to east Madhya Pradesh by 28<sup>th</sup> August. Thereafter, the low-pressure area/ upper air cyclonic circulation is likely to move further nearly northwestwards up to south Rajasthan and adjoining north Gujarat region by 30<sup>th</sup> August. According to IMD GFS and BFS, the system is likely to become well-marked low over north coastal Odisha on 27<sup>th</sup> August. According to IMD GEFS, it is showing probability of intensification of system into a depression on 27<sup>th</sup> August. BFS is also indicating development of depression over north Odisha & adjoining northwest BoB on 27<sup>th</sup> August. ECMWF is indicating no further intensification till 28<sup>th</sup> August and weakening thereafter.

The IMD ERF extended range model 850hPa mean wind field indicates seasonal monsoon trough at its normal position with an embedded weak cyclonic circulation over north Odisha & neighbourhood during week 1. The corresponding wind anomaly field suggests an embedded cyclonic circulation over northwest BoB off north Odisha Coast. In anomaly field, another weak cyclonic circulation is also seen over south Rajasthan. During week 1, there is an anticyclonic circulation over southeast AS off Kerala coast and east-west ridge line across south AS in the mean wind anomaly field at 850 hPa.

During week 2, the mean wind at 850hpa is indicating seasonal monsoon trough shifting to south of its normal position with an embedded weak cyclonic circulation over north Chhattisgarh and neighborhood. Corresponding anomaly wind field, is also indicating the monsoon trough to the south of its normal position and a cyclonic circulation over Gujarat during week 2. The model furnishes an east-west oriented zone with low-moderate probability (30 - 50%) of cyclogenesis from the Odisha coast to West Uttar Pradesh across Indo-Gangetic plains during week 1. During week 2, there is a zone of cyclogenesis with low probability (30-40%).

The sub-seasonal model forecast of ECMWF is also indicating a low probability (5-10%) of cyclogenesis over northwest BoB off south Odisha coast during end of week 1 and beginning of week 2. The ECMWF ensemble forecast is indicating low probability (05%-10%) of cyclogenesis over northwest BoB and adjoining Odisha-Gangetic West Bengal coast during middle of week 1. The model is also indicating low probability (10-20%) of cyclogenesis over northeast AS off Kutch-South Pakistan coasts during first half of week 2.

### **III. Inference:**

Considering various large-scale environmental features and model guidance, it is inferred that

- (i) There is likely formation of low pressure area over northwest Bay of Bengal off Odisha-West Bengal coasts around 25<sup>th</sup> August. There is also low probability of its intensification into a depression over north Odisha and adjoining northwest Bay of Bengal & Gangetic West Bengal around 27<sup>th</sup> August. It is likely to move west northwestwards across north Odisha & adjoining Jharkhand, North Chhattisgarh and east Madhya Pradesh during subsequent 2 days.
- (ii) There is also likelihood of formation of a cyclonic circulation/low pressure area over northwest Bay of Bengal off Odisha-West Bengal coasts during week 2.

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

**The forecast issued on 07<sup>th</sup> August for week 2 (15.08.2025-21.08.2025)** indicated likelihood of formation of an upper-air cyclonic circulation/low pressure area over the northwest Bay of Bengal off Odisha-West Bengal coasts towards the end of week 2.

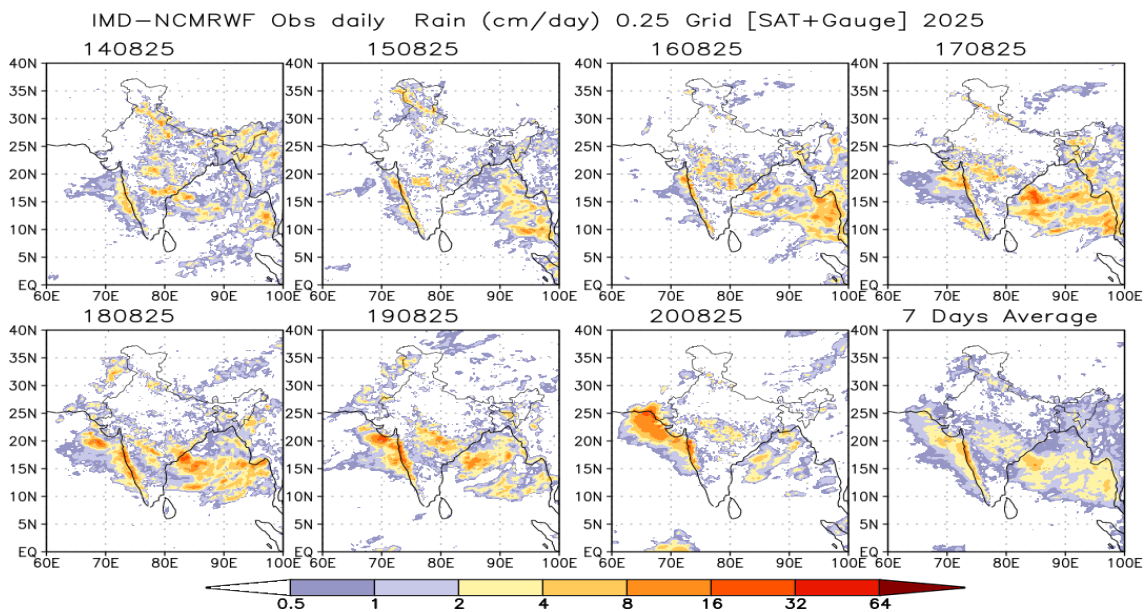
**The forecast issued on 14<sup>th</sup> August for week 1 (15.08.2025-21.08.2025)** indicated likelihood of the development of a cyclonic circulation/low pressure area over the northwest Bay of Bengal off Gangetic West Bengal & adjoining North Odisha coasts during the end of week 1 (around 19<sup>th</sup> August) with gradual west-northwestwards movement across north Odisha.

## Realized:

- i. A Low Pressure Area formed over westcentral and adjoining northwest Bay of Bengal off north Andhra Pradesh & south Odisha coasts at 0300 UTC of 17th August, 2025. It became a well marked low pressure area over westcentral & adjoining northwest Bay of Bengal and north Andhra Pradesh - south Odisha coasts at 0000 UTC of 18th August, 2025. It moved northwestwards and concentrated into a depression over northwest & adjoining westcentral Bay of Bengal and north Andhra Pradesh at 1200 UTC of 18th August. It crossed South Odisha coast close to Gopalpur during early morning of 19th August and weakened into a well marked low pressure area over central parts of Chhattisgarh & neighbourhood at 1200 UTC of 19th August.
- ii. A fresh upper air cyclonic circulation formed over northwest Bay of Bengal & adjoining areas of north Odisha and Gangetic West Bengal at 0000 UTC of 21st August, 2025.

Hence likely formation of low pressure area over northwest Bay of Bengal off Gangetic West Bengal & adjoining North Odisha during the week (15.08.2025-21.08.2025) was well predicted with some spatial variations. Further, its intensification into a depression was not predicted. Another Cyclonic Circulation over northwest Bay of Bengal & adjoining areas of north Odisha and Gangetic West Bengal was not predicted.

NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 14<sup>th</sup> to 20<sup>th</sup> August, 2025 are presented in Fig. 2.



**Fig.2:** NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 14<sup>th</sup> to 20<sup>th</sup> 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: 28.08.2025**