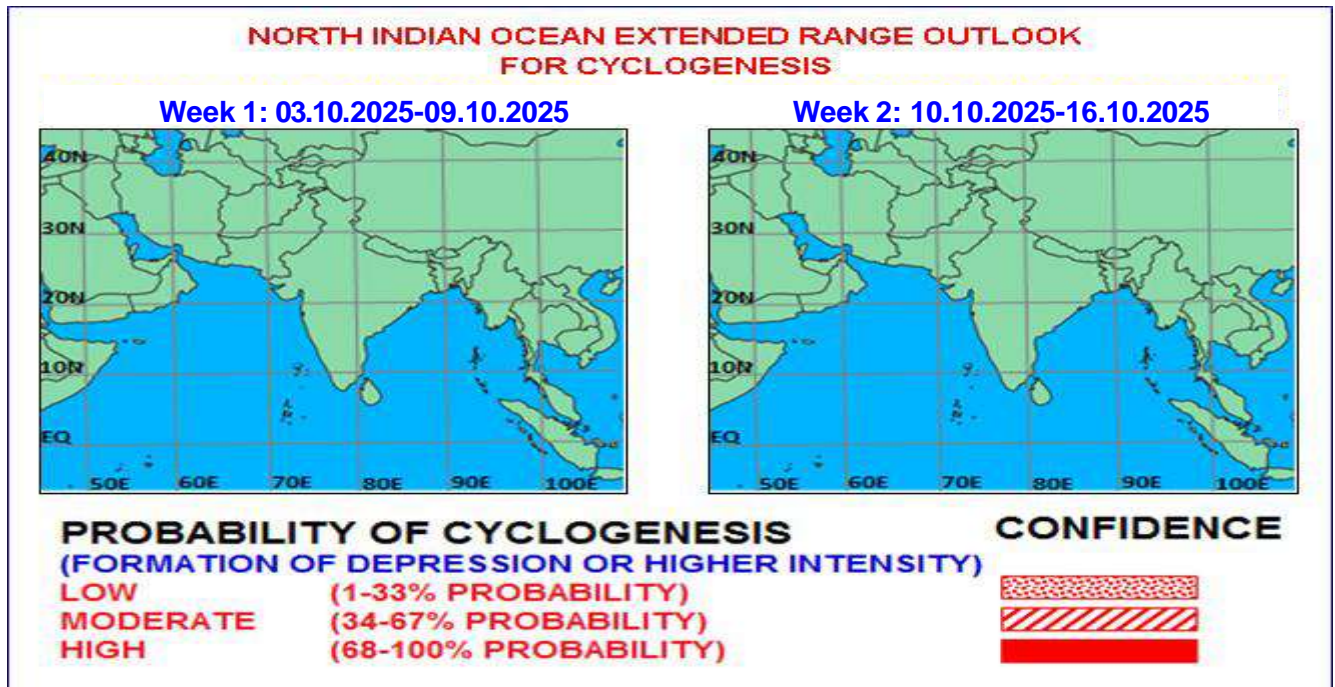




Issued on 02.10.2025



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

#### **I. Environmental features:**

The guidance from various numerical models indicates that Madden Julian Oscillation (MJO) is currently in phase 2 with amplitude more than 1. It is likely to continue in same phase with gradually decreasing amplitude during first half of week 1. Thereafter, it is likely to enter into phase 1 with gradually decreasing amplitude during remaining part of the forecast period. Thus, MJO would contribute to enhancement of convective activity/ cyclogenesis over the Arabian Sea (AS) during first half of week 1.

The guidance from the NCICS CFS model is indicating westerly wind anomaly (5-7mps) over westcentral Bay of Bengal (BoB) along with easterly winds anomaly (1-3mps) over north BoB & adjoining east India during first half of week 1. The model is also indicating westerly wind anomaly (5-7mps) over central AS alongwith MJO and easterly wind anomaly (5-7 mps) over north AS during first half of week 1. These features indicate that equatorial waves would contribute positively towards the maintenance of convective activity in association with the depressions over the BoB and the AS during next 2-3 days.

Thereafter, the model indicates westerly wind anomaly over the entire North Indian Ocean (NIO) including the BoB and the AS and weakening of easterlies is indicated. Thus, equatorial waves are not likely to contribute to any cyclogenesis from second half of week 1 onwards.

La Niña conditions are likely to develop during October - December 2025. Negative IOD conditions are likely to continue during the October - December 2025.

#### **II. Model guidance:**

Most of the models indicated the deep depression over northwest & adjoining Westcentral BoB to cross Odisha coast by 1200 UTC of 2<sup>nd</sup> October. It's remnant is expected to move north-northwestwards during next 2 days.

Various numerical models are indicating existing depression over northeast Arabian Sea to intensify further into a deep depression and move west-southwestwards towards northwest Arabian Sea. There is variation among various models regarding further intensification. However, all are unanimous wrt weakening

of the system over northwest Arabian Sea near Oman coast.

IMD-GFS model is indicating the development of an upper air cyclonic circulation over north Andaman Sea around 5<sup>th</sup> October with north-northwestwards movement towards north BoB and formation of a low pressure area (LPA) over north BoB around 9<sup>th</sup> October. IMD-GFS model is also indicating the development of an LPA over north BoB around 7<sup>th</sup> October. Bharat Forecast System is indicating development of an LPA over northwest BoB around 10<sup>th</sup> October. NCEP-GFS is also indicating development of a cyclonic circulation/LPA over north BoB around 9<sup>th</sup> October. NCUM (G) is also indicating development of an LPA over north BoB around 10<sup>th</sup> October.

During week 1, the 850hPa mean wind field of IMD ERF model is indicating cyclonic wind over the Westcentral & adjoining northwest Arabian Sea and over the northeast Arabian Sea during week 1. The model is also indicating a North-South trough extending from south Bihar to south Andhra Pradesh in week 1. During week 2, the mean wind field is indicating a cyclonic circulation over North Bay of Bengal. The 850hPa wind anomaly field is indicating anomalous cyclonic circulation over the Northeast Arabian Sea and an east-west trough passing through this towards Gangetic West Bengal (GWB) region in week 1. Above average rainfall activity is indicated over most parts of central & north India during week 1. During week 2, it is indicating an anomalous cyclonic circulation over GWB and neighbourhood. Above average rainfall activity is indicating over central eastern and adjoining northeastern states of India during week 2. The model is also indicating high probability (70-80%) of cyclogenesis over the Northeast Arabian Sea in week 1 in association with the current system and its continuation during first half of week 1. The forecast also indicates low probability (20-30%) of cyclogenesis over eastern and adjoining northeastern regions of India during week 2.

The NCMRWF ERF model mean and anomaly wind field is also indicating cyclonic circulation at 850 hPa over northeast Arabian Sea and over Gangetic West Bengal and neighbourhood during week 1.

ECMWF Sub-seasonal forecasts are not indicating any cyclogenesis probability during 06-20 October 2025.

### **III. Inference:**

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

- i. The existing deep depression over coastal Odisha and its remnant is very likely to continue to move north-northwestwards and weaken gradually into a depression by 3<sup>rd</sup> October/ 0000 UTC.
- ii. The depression over northeast Arabian Sea is very likely to intensify further into a deep depression by 3<sup>rd</sup> October morning and move west-southwestwards towards northwest Arabian Sea during next 3 days.
- iii. There is also likelihood of development of a fresh cyclonic circulation /low pressure area over north Bay of Bengal during end of week 1 (around 9<sup>th</sup> October).

### **Impact expected:**

- (1) Due to the existing deep depression over coastal Odisha and its remnant, widespread rainfall activity with heavy to very heavy rainfall at some places is likely over Eastern states of India (Andhra Pradesh, Odisha, West Bengal, Chhattisgarh, Jharkhand, Bihar, East Uttar Pradesh, East Madhya Pradesh etc.), Bangladesh, Nepal and Bhutan during next 3-4 days. There could be localised flooding, landslides, landslips, mudslips etc. due to heavy rainfall in these regions.
- (2) Due to the depression over Arabian Sea and its further intensification, rough to very rough sea conditions are likely over northeast and adjoining northwest Arabian Sea and adjoining areas of central Arabian Sea during next 3-4 days.
- (3) In view of expected low pressure area over North Bay of Bengal around 9<sup>th</sup> October, above normal rainfall activity is likely in East & northeast India and Bangladesh during first half of week 2. There could be localised flooding, landslides, landslips, mudslips etc. due to heavy rainfall in these regions.

### **Anticipatory Actions:**

- (1) Forecasters may maintain round the clock watch and continuously monitor weather systems over the region as per Standard Operation Procedures during next 2 weeks.
- (2) Disaster managers, media and general public are advised to closely monitor official weather forecasts from India Meteorological Department available on websites, social networking channels, face book,

X and mobile Apps.

- (3) Fishermen are advised to be cautious while venturing into sea and stay updated.
- (4) Judicious regulation of recreational & tourism activities and surface transport.

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

The forecast issued on 18th September for week 2 (26.09.2025-02.10.2025) indicated likelihood of formation of:

- i. A low-pressure area over northeast Bay of Bengal during 1st half of week 2 (around 26th September) with moderate probability of its further intensification into a depression over northwest Bay of Bengal around 27<sup>th</sup> September. It is likely to move west-northwestwards and cross Odisha coast on same day and move across central India during subsequent 2 days.
- ii. Another remnant upper air cyclonic circulation from South China Sea was indicated to emerge into North Bay of Bengal during 2nd half of week 2 (around 30<sup>th</sup> September).

The forecast issued on 25th September for week 1 (26.09.2025-02.10.2025) indicated

- i. Likely formation of a low-pressure area over north and adjoining central Bay of Bengal on 25<sup>th</sup> September. Moving nearly westwards, it was indicated to concentrate into a depression over northwest and adjoining westcentral Bay of Bengal off South Odisha- North Andhra Pradesh coasts on 26<sup>th</sup> September. It was indicated to cross South Odisha-North Andhra Pradesh coasts around 27<sup>th</sup> September morning. Thereafter, the remnant of the depression mentioned above was indicated to move west-northwestwards across central India and emerge into Northeast Arabian Sea off south Gujarat coast as a low-pressure area around 29<sup>th</sup> September with moderate probability for its further intensification into a depression over the same region around 30<sup>th</sup> September. It was indicated to move slowly westwards across south Gujarat and emerge into northeast Arabian Sea around 1<sup>st</sup> October with moderate probability of its intensification into a depression thereafter.
- ii. Earlier forecast was further reiterated and it was indicated that an upper air cyclonic circulation would emerge into North Andaman Sea around 30<sup>th</sup> September. Under its influence a low-pressure area would form over North & adjoining central Bay of Bengal around 1<sup>st</sup> October with low to moderate probability of its intensification into a depression over northwest Bay of Bengal around 2<sup>nd</sup> October.

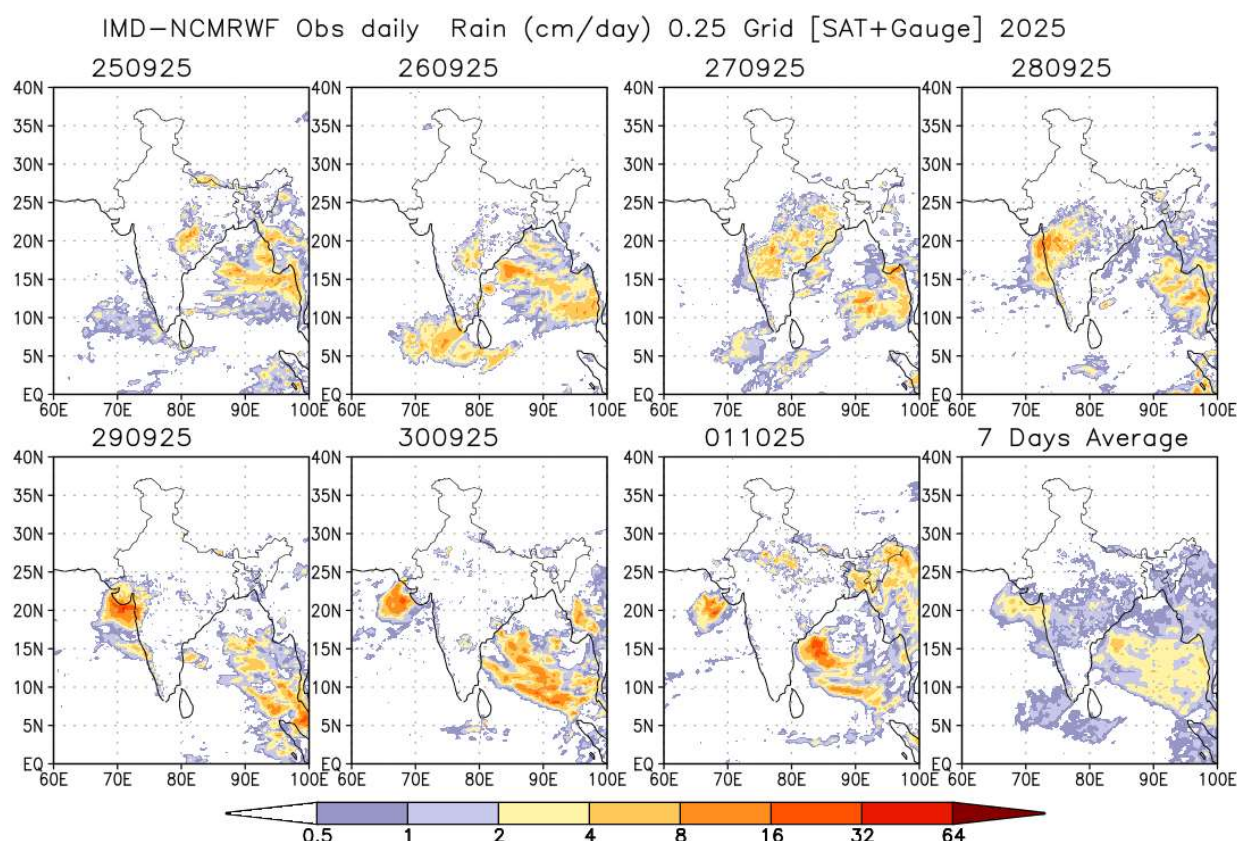
Realized:

- 1) Under the influence of the upper air cyclonic circulation over eastcentral & adjoining northeast Bay of Bengal, a low pressure area formed over central parts of north and adjoining central Bay of Bengal in the evening of 25th/1200 UTC September. Moving westwards, it lay as a well-marked low pressure area over northwest and adjoining central Bay of Bengal in the morning (0000) of the 26th /0000 UTC further moved west-northwestwards and concentrated into a depression over northwest and adjoining westcentral Bay of Bengal off South Odisha- North Andhra Pradesh coasts at 1200 UTC of 26<sup>th</sup> September. It crossed south Odisha coast close to Gopalpur around 2300 UTC of 26<sup>th</sup> September. It moved across South Odisha, Chhattisgarh, Vidarbha, Madhya Pradesh & Gujarat and emerged into northeast Arabian Sea and adjoining Saurashtra coast at 0300 UTC of 01st October 2025 and concentrated into a depression at 1200 UTC of 01st October, 2025 over northeast Arabian Sea.
- 3) Under the influence of upper air cyclonic circulation over eastcentral Bay of Bengal & neighbourhood a low-pressure area formed over westcentral Bay of Bengal at 1200 UTC of 30th September. It concentrated into a depression over westcentral Bay of Bengal at 0600 UTC

of 01st October. The system moved north- northwestwards intensified into a Deep Depression at 1800 UTC of 1<sup>st</sup> October over westcentral and adjoining northwest Bay of Bengal.

Thus, both the systems were well predicted two weeks ahead from the stage of upper air cyclonic circulation itself.

NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 25<sup>th</sup> September to 1<sup>st</sup> October 2025 is presented in Fig.2.



**Fig. 2:** NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 25<sup>th</sup> September to 1<sup>st</sup> October 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: 09.10.2025**