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

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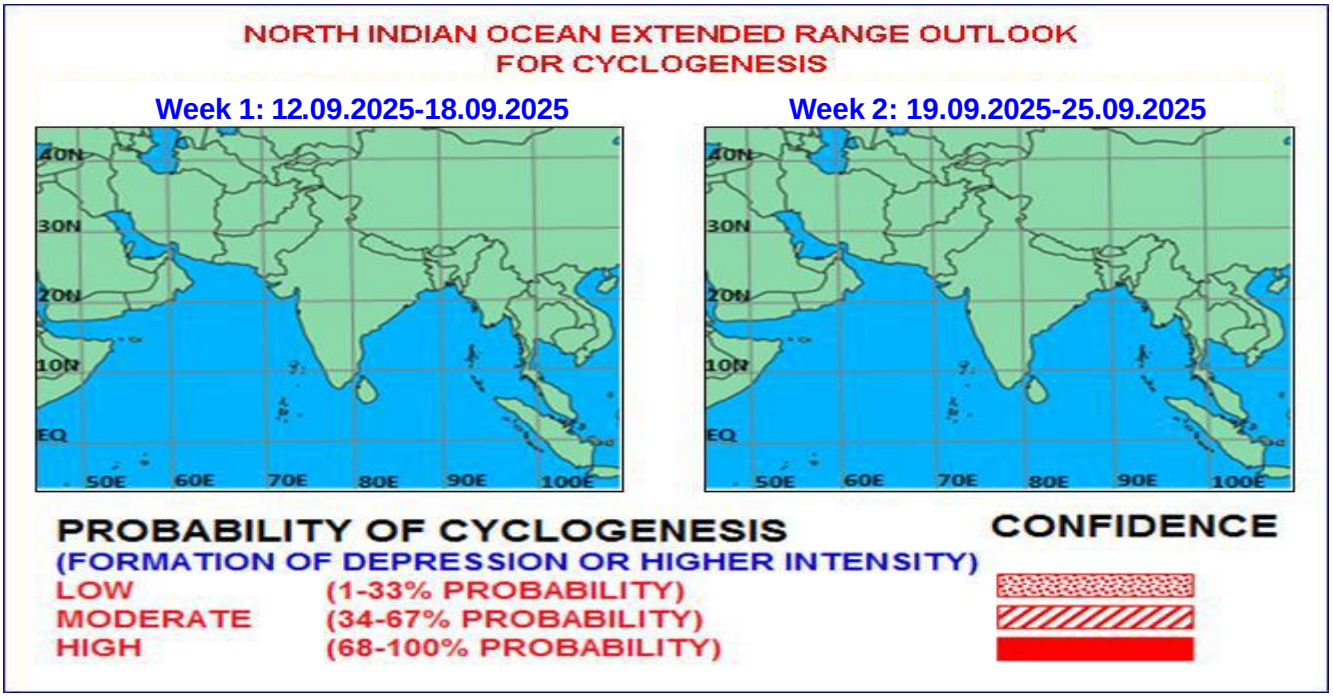


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

I. **Environmental features:**

The guidance from various numerical models indicates that Madden Julian Oscillation (MJO) is currently in phase 2 with negligibly small amplitude. It is likely to move rapidly eastwards and enter into phase 8 during second half of week 1 with amplitude becoming close to 1. Thereafter it will move across phases 8 and 1 during remaining part of the forecast period with amplitude remaining more than 1. MJO will thus support enhancement of convective activity over the Arabian Sea (AS) during first half of week 1 only.

The guidance from the NCICS CFS model indicates, westerly wind anomaly (5-7mps) over south Bay of Bengal (BoB) and east Equatorial Indian Ocean (EEIO) along with prevalence of Equatorial Rossby wave (ERW), Kelvin wave (KW), Low frequency background wave (LW) and impact of MJO over BoB during week 1. Model is also indicating easterly wind anomaly (5-7mps) over central parts of BoB during the same period. These features indicate that Equatorial waves would support enhancement of convective activity over BoB during week 1. There is expected impact of MJO, ERW and LW also during week 2.

Over the Arabian Sea, the model is indicating the prevalence of westerly wind anomaly (3-5mps) over central AS during later part of week 1 and first half of week 2. Model is also indicating easterly wind anomaly (5-7mps) over Northeast AS off south Gujarat, Maharashtra coasts during the same period. Thus, Equatorial waves are likely to support the enhancement of convective activity over eastern AS and central India during latter half of week 1 and first half of week 2.

Guidance from various deterministic models like NCUM(G), IMD GFS, NCEP GFS, ECMWF, ECAI, IMD BFS is indicating development of a cyclonic circulation/low pressure area over westcentral and adjoining northwest Bay of Bengal off Andhra Pradesh/ South Odisha coasts during first half of week1 (around 12th September). The models are also indicating west-northwestwards movement of the system during middle of the week 1. Above average rainfall activity is expected over Andhra Pradesh, Chhattisgarh, Telangana during first half of week 1.

Some of the deterministic models including ECMWF, ECAI, IMD GFS, BFS area also indicating development of a fresh Cycir/Low pressure area over west central Bay of Bengal off Andhra Pradesh Coast during middle of week 2 (Around 21st September). Above average rainfall activity is indicated over Andhra Pradesh, Chhattisgarh, Telangana during middle of week 2.

The guidance from 850hPa wind field of NCMRWF extended range model indicates prevalence of north-south trough over east India during week 1 and a cyclonic circulation over west central and adjoining northwest Bay off Andhra Pradesh-Odisha coast during week 2. The 850hPa mean wind anomaly field indicates cyclonic circulation over coastal Andhra Pradesh along with an anticyclonic anomaly over north BoB during week 1. During week 2, it is indicating a cyclonic anomaly over westcentral BoB.

The guidance from 850hPa mean wind field of IMD ERF model indicates prevalence of north-south trough extending from north Bihar to south coastal Andhra Pradesh during week 1. Seasonal Monsoon trough is absent and a feeble anticyclonic circulation is seen over Gujarat. Corresponding anomaly field also shows a north-south ridge line in easterly extending from west Rajasthan upto southwest AS during week 1. The 850hPa mean wind anomaly field indicates cyclonic circulation over central India during week 2. Anomaly field shows a prominent cyclonic circulation over eastcentral and adjoining northeast AS. Feeble anticyclone is seen over northeast BoB and similar to week 1, week 2 also shows easterly anomaly over whole south BoB and south AS. The model is not showing any significant area of cyclogenesis over AS and BoB during both the weeks.

IMD ERF model suggests north-south trough from east India to northeast Peninsula in week 1 and a cyclonic circulation over Vidarbha in week 2. The 850 hPa anomaly analysis indicate easterly winds over most parts of central and south BoB & AS, south India in week 1 indicating weaker monsoon circulation which is unfavourable for cyclogenesis. During week 2, there is anomalous cyclonic circulation over eastcentral AS and adjoining west coast of India. There is anomalous anticyclonic circulation over north BoB in both the weeks. All these features indicates that the predicted cyclonic circulation over westcentral BoB is not likely to intensify further into a depression. Further it is likely to move west-northwestwards across north Andhra Pradesh, south Chhattisgarh and adjoining Odisha, Telangana to emerge over westcentral AS across Maharashtra during week 2 the cyclonic circulation/ low pressure area of week 1 will have restricted westwards movement upto Vidarbha for subsequent 3 days after formation around 12th September. It may move nearly northwards thereafter.

The guidance from ECMWF S2S model indicates low (5%-10%) probability of cyclogenesis over westcentral BoB during later part of week 1 and (10%-20%) probability of cyclogenesis over central BoB during Middle of week 2.

II. Inference:

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

(1) The existing Well Marked low pressure area over northwest Arabian Sea and adjoining southwest Pakistan is likely to move westwards and weaken gradually during next 12 hours.
(2) Under the influence of existing upper air cyclonic circulation over south Odisha and adjoining north coastal Andhra Pradesh, a low-pressure area is likely to form over westcentral Bay of Bengal and adjoining areas of north Andhra Pradesh & south Odisha coasts during next 2 days.
(3) There is a likelihood of formation of a fresh upper air cyclonic circulation/low-pressure area over westcentral & adjoining northwest Bay of Bengal during first half of week 2 (around 20th September).

Verification of forecast issued during the previous two weeks:

The forecast issued on 28th August for week 2 (05.09.2025-11.09.2025) indicated the low pressure area over northwest BoB to move west northwestwards across the west Bengal and north Odisha and intensify into depression around 5th September. Formation of another low pressure area over the northwest Bay of Bengal at the end of week 2 was also indicated.

The forecast issued on 04th September for week 1 (05.09.2025-11.09.2025) indicated the existing low-pressure area over central parts of India (North Chhattisgarh & adjoining East Madhya Pradesh) to move west-northwestwards during next 2 days and intensify into a depression over Gujarat & neighbourhood around 7th September.

Realized:

A low-pressure area lay over north Chhattisgarh and neighbourhood on 5th September. It moved west-northwestwards and concentrated into a depression over Southwest Rajasthan and neighbourhood at 1800 UTC of 06th September, 2025. It followed a sinusoidal wave like path, intensified into a Deep

Depression over southeast Pakistan at 0600 UTC of 7th September. It moved across south Pakistan, emerged into northeast Arabian Sea on 10th September. Thereafter it moved nearly westwards & weakened into a well marked low pressure area over northwest Arabian Sea and adjoining southwest Pakistan at 0000 UTC of the 11th September, 2025.

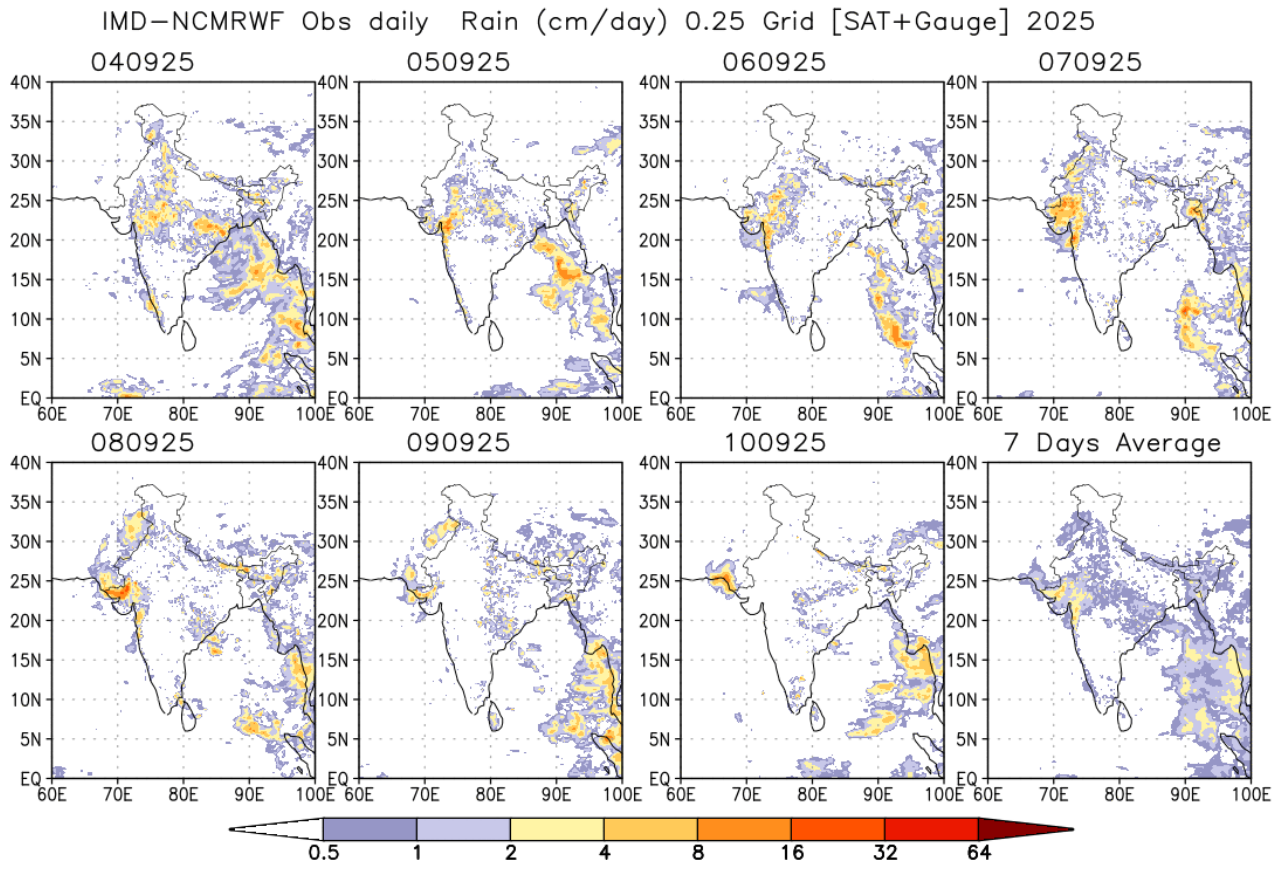
Thus, the movement of low pressure area over Chhattisgarh and its further intensification into depression could be well predicted two weeks in advance.

NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 04th September to 10th September, 2025, are placed in Annexure-1.

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: 18.09.2025

Annexure-1



NCMRWF-IMD satellite gauge merged data plots of realized 24-hour accumulated rainfall from 04th September to 10th September, 2025.