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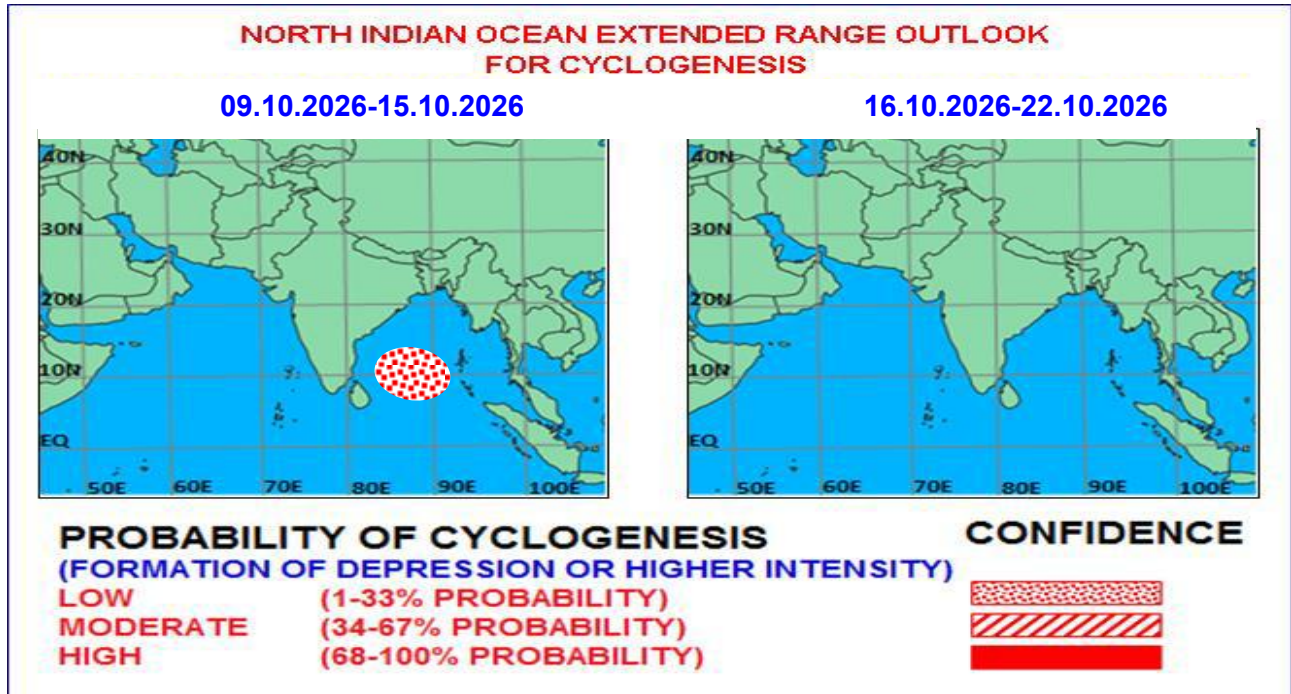


Fig. 1: Graphical Cyclogenesis over the North Indian Ocean during the next two weeks

I. Environmental features:

The guidance from various numerical models indicates that the Madden Julian Oscillation (MJO) is currently in Phase 1, over the Western Hemisphere and Africa, with amplitude more than 1. It is likely to move across phases 2 and 3 from 9th onwards with amplitude remaining more than 1. Thus, MJO is favorable for enhancement of convective activity and cyclogenesis over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during both the week.

The guidance from the NCICS model indicates the prevalence of easterly wind anomaly (5-7 mps) over most parts of BoB and AS and south peninsular India and westerly wind anomaly over central & north India alongwith an Equatorial Rossby wave (ERW) during beginning of week 1. During the same period, westerly wind anomaly (1-3 mps) is indicated over southwest AS and adjoining Equatorial Indian Ocean (EIO) and strong easterly wind anomaly (5-7 mps) to its north over central parts south AS, indicating a favourable environment for development of an upper air cyclonic circulation over southwest AS. During middle of week 1, easterly wind anomaly is indicated over most parts of south & central AS & BoB with an ERW over southern parts of BoB & AS. Towards, the end of week 1 (13th-15th Oct), westerly wind anomaly (5-7 mps) alongwith ERW, Madden Julian Oscillation (MJO), Kelvin wave (KW) is indicated over southeast AS & adjoining EIO, Comorin area & southwest BoB and easterly wind anomaly (3-5 mps) is indicated to its north, indicating a favourable environment for further intensification of the system over southwest BoB during end of week 1.

During week 2, the model is indicating weak westerly wind anomaly over southwest & adjoining westcentral BoB off North Tamil Nadu coast & easterly wind anomaly (1-3 mps) to its north over central India. Similarly, over the AS, it is indicating westerly wind anomaly (1-3 mps) alongwith ERW & MJO over south AS and easterly wind anomaly to its north over central & north AS. It is indicating a favourable environment for maintenance of intensity of low-pressure system over southwest & adjoining westcentral BoB while moving westwards across peninsular India towards southeast AS.

Thus, MJO and equatorial waves may contribute to development of low pressure system over south BoB during week 1 and a feeble low pressure system south AS during week 2.

II. Climatology of Cyclogenesis:

The daily probability of cyclogenesis over the NIO region (based on the data from 1891-2020) is plotted in **Fig. 2**. According to the values plotted in the figure, the daily climatological probability of cyclogenesis, valid for the duration of the next two weeks, ranges between 12-15%.

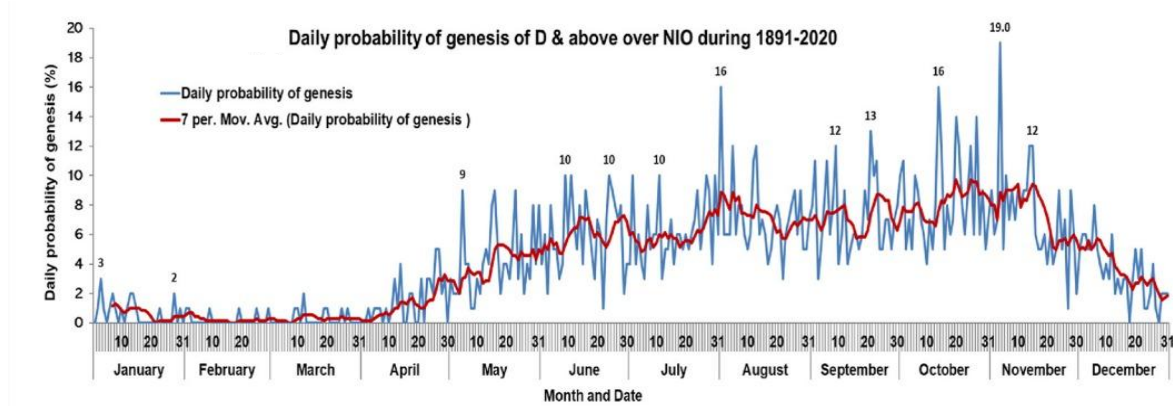


Fig. 2 Climatological daily probability of cyclogenesis over NIO region

Climatologically, based on the data in the month of October during the period 1965-2025, there have been development of 84 cyclonic disturbances (CDs) (maximum sustained wind speed (MSW) ≥ 17 kt) over the BoB and 36 CDs over the AS (Fig. 3 a & b). The frequency of depressions (MSW: 17-33 kt), cyclonic storms (MSW: 34-47 kt) and severe cyclonic storms (MSW ≥ 48 kt) in the $2.5^\circ \times 2.5^\circ$ grid over both the basins during the same period is presented in Fig. 3c.

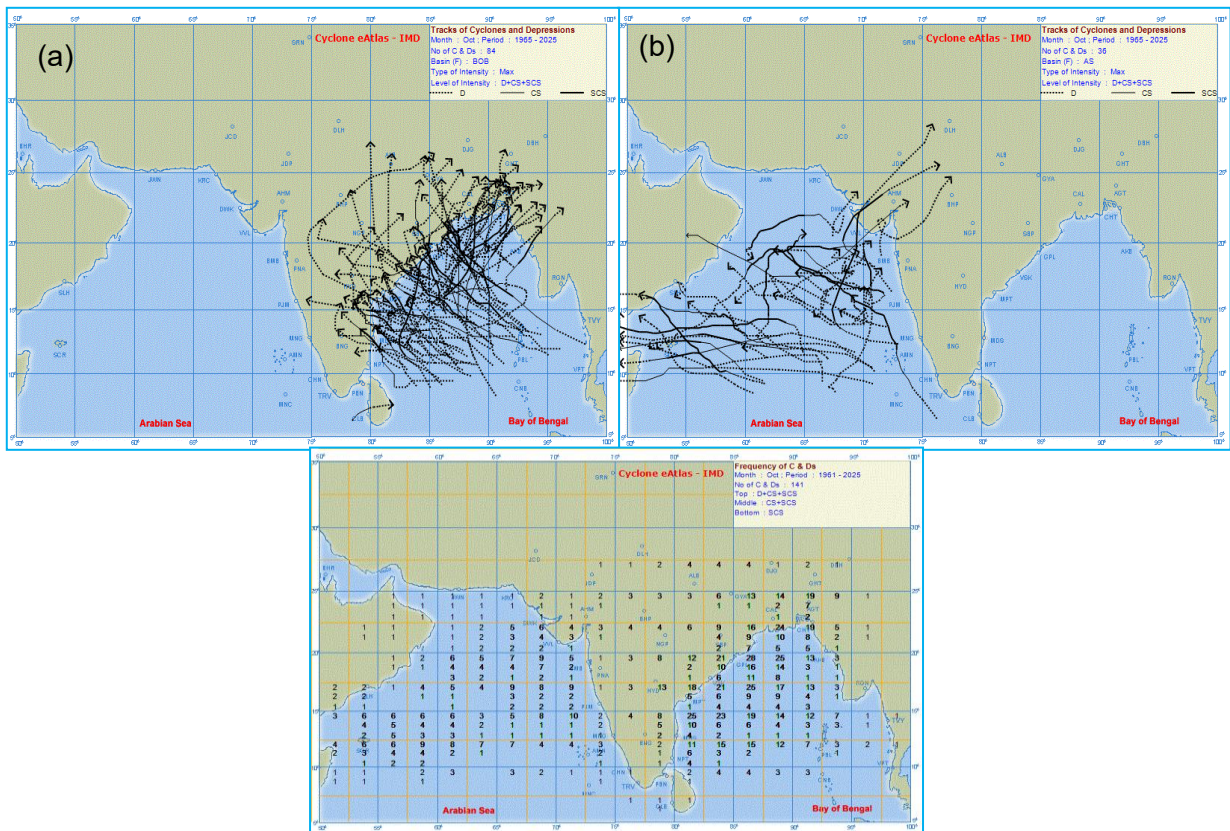


Fig. 3: Tracks of CDs over the (a) BoB (total 84) & (b) AS (total 36) and (c) frequencies of formation of depressions, cyclonic storms & severe cyclonic storms in the $2.5^\circ \times 2.5^\circ$ grid over BoB & AS during 1965-2025.

II. Model Guidance:

(a) Guidance from Extended Range models:

The mean wind field at 850 hPa pressure level from IMD Extended Range model (MME CFS-V2) indicates that the winds over most parts of Arabian Sea (AS) & Bay of Bengal is predominantly easterlies except over southern parts of south BoB with the presence of a feeble upper air cyclonic circulation over southeast BoB. During week 1 at the same time, the wind circulation features likely over Indian region is anticyclonic in nature with a prominent anticyclone over Gujarat state. Corresponding wind anomaly field indicates easterlies/north easterlies winds over the entire AS & BoB and anticyclonic flow pattern over Indian region during week 1.

The mean wind field during week 2 is similar to week 1 except strengthening of the easterlies & moreover, the cyclonic circulation over southeast BoB is replaced by an east-west trough extending from south Andaman to Tamil Nadu coast across south BoB. Corresponding wind anomaly field shows easterlies or south easterlies over the entire BoB and AS. Therefore, the models suggest that the environmental flow pattern is less likely to support any cyclogenesis over the region except over south BoB during both the weeks.

The extended-range forecasts of NCMRWF indicates mean wind field is nearly imitating the forecast of IMD ERF except the location of the upper air cyclonic circulation is over southwest BoB instead of southeast BoB during week 1. Anomalous wind over the entire BoB & AS is predominantly easterly t/northeasterly during week 1 however the easterly stronger compare to the forecast of IMD ERF.

The forecast of NCMRWF ERP is entirely different from IMD ERF during week 2. It indicates a prominent upper air cyclonic circulation over westcentral and adjoining southwest BoB off Andhra Pradesh- North Tamil Nadu coasts during week 2. Although, the anticyclonic flow pattern over Indian region and AS is likely to persist. Corresponding anomaly field displays an anticyclone over central AS & an east west ridge across Andaman Sea and south BoB. However, an extended feeble cyclonic circulation is seen over Indian peninsular region. Accordingly, the week 1 is less probable for the development of any cyclonic disturbance but there may be an enhancement of convective activity over peninsular region during week 2.

IMD ERF indicates an east-west oriented zone with low to moderate (20-40%) probability of cyclogenesis across North Andaman Sea & central BoB during week 1. Simultaneously, a zone of low probability (20-30%) of cyclogenesis over southeast AS. During week 2, the model predicts a similar east-west zone with low probability (20-30%) of cyclogenesis across south Andaman Sea & south BoB.

The ECMWF ensemble prediction system is also indicating low probability (10-30%) of formation of cyclogenesis over the westcentral & northwest BOB off Odisha coast in the beginning of week 2. S2S also indicates (10-20%) strike probability over north Andhra Pradesh & adjoining south Odisha coast from 12th October till 19th October, 2026.

(b) Guidance from Medium-Range NWP models:

NCEP GFS is showing an upper air cyclonic circulation over southeast Bay of Bengal (BoB) & adjoining South Andaman Sea (11.3N/90.6E) around 0000 UTC of 12th October. It is likely to move north-northwestwards and lay as a low-pressure area (LPA) over northeast & adjoining northwest BoB at 1200 UTC of 13th October. While moving northwestwards, it is likely to further intensify into a well-marked low-pressure area (WML) over the same region at 1800 UTC of 13th October & depression over the northwest BoB on 0000 UTC of 14th October. Further moving west-northwestwards, it is likely to intensify into a Deep depression over northwest BoB on 1200 UTC of 14th October. Thereafter it is likely to move northwards maintaining same intensity over northwest BoB till 0000 UTC of 15th October. Thereafter, it is

indicated to weaken into a depression over the same region by 1200 UTC of 15th October and LPA over the same region by 1200 UTC of 16th October.

ECMWF is showing an upper air cyclonic circulation over the southeast BoB & adjoining Andaman Sea (11.7N/91.3E) around 0300 UTC of 11th October. It is indicated to move westwards over south BoB towards Sri Lanka coast till 0000 UTC of 14th October. It is indicated to persist over the same region till 1200 UTC of 17th October.

IMD GFS is indicating an LPA over central BoB (11N/86E) around 00 UTC of 12 Oct. and less marked thereafter.

IMD GEFS is indicating an LPA over central Bay of Bengal 13N/87E around 00 UTC of 12 Oct. becoming less marked on 13th Oct.

IMD BFS based on 00 UTC 07 Oct shows an upper air cyclonic circulation over central BoB around 00 UTC of 11 Oct., becoming less marked thereafter.

IMD WRF is not indicating any significant system over the region.

MITHUNA GLB is indicating an upper air cyclonic circulation over south Andaman Sea on 10th October. It is indicated to move westwards initially and then west northwestwards towards Andhra Pradesh – Tamil Nadu coasts during 10th to 15th October. Model does not show any intensification of the system.

EC-AIFS is indicating the formation of an upper air cyclonic circulation over the southeast BoB & adjoining south Andaman Sea around 11th October. It is indicated to become LPA over southeast BoB around 12th Oct. Thereafter, it is indicated to move west-northwestwards, as a low-pressure area over south BoB towards north Sri Lanka till 14th October and become less marked thereafter.

MITHUNA ENS shows an upper air cyclonic circulation developing over south Andaman Sea on 11th October. It is indicated to intensify into an LPA over southeast Bay of Bengal on 12th Oct. Thereafter, it is indicated to move west northwestwards as an LPA till 14th and an upper air cyclonic circulation thereafter towards Andhra Pradesh coast till 17th October.

Other AI models including Pangu Weather, FourCastNet and GraphCast also indicate formation of an upper cyclonic circulation over south Andaman Sea on 10th October. Pangu and FourCastNet show the CyCir moving west northwestwards towards Andhra Pradesh-Tamil Nadu coast during 10th to 17th October. GraphCast shows CyCir moving westwards towards Sri Lanka from 10th to 17th October.

As against previous weeks forecast, there is large divergence among various models wrt date and area of formation of upper air cyclonic circulation/ low pressure area over the BoB. No model except NCEP GFS is indicating development of depression over the BoB.

Derived products from various models suggest that system will remain in the region of low to moderate & anticyclonic vertical wind shear of horizontal wind during most part of the week 1. Cold dry air incursion from northwest is also not expected to enter into the system area as it approaches towards the coast. Similarly, the mid-level relative humidity also continues to be > 50% over the system area throughout the week along the expected path.

III. Operational extended range forecast for the next two weeks:

Considering various large-scale environmental features, climatology and model guidance, it is inferred that there is likelihood of emergence of an upper air cyclonic circulation over North Andaman Sea & neighborhood towards the middle of week 1 (around 11th Oct.). Under its influence, a low-pressure area is likely to form over southeast BoB towards the later part of week 1 (around 13th Oct). Thereafter, it is likely to become more marked and move west-northwestwards towards North Tamil Nadu-South Andhra Pradesh coasts during subsequent 3-4 days.

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

Forecast issued:

The extended range outlook issued on 24.09.2026 for week 2 (02.10.2026-08.10.2026) and the extended range outlook issued on 01.10.2026 for week 1 (02.10.2026-08.10.2026) indicated no probability of cyclogenesis over the North Indian Ocean during the week.

Actually, no cyclogenesis (formation of depression) occurred over the region. Thus, the non-occurrence of cyclogenesis was correctly predicted two weeks in advance. However, there were multiple upper air cyclonic circulations formed over different parts of Bay of Bengal and Arabian Sea and became less marked within 1-2 days during the week.

An upper air cyclonic circulation formed over Southwest Bay of Bengal & adjoining Sri Lanka at 3.1 km above mean sea level at 0300 UTC of 2nd October and became less marked at 0300 UTC of 03rd October 2026.

Another upper air cyclonic circulation lay over south coastal Odisha & adjoining Northwest Bay of Bengal at 3.1 km above mean sea level at 0000 UTC of 06th October and became less marked over Coastal Andhra Pradesh & adjoining Westcentral Bay of Bengal at 0300 UTC of 07th October, 2026.

An upper air cyclonic circulation formed over Southeast Arabian Sea off Kerala coast at 0300 UTC of 2nd October. It moved across Lakshadweep area, south interior Karnataka & adjoining north Kerala and merged with the trough running from cyclonic circulation over Gulf of Mannar & adjoining south coastal Tamil Nadu to Eastcentral Arabian Sea across north interior Tamil Nadu and north Kerala at 0300 UTC of 04th October, 2026.

Another upper air cyclonic circulation lay over Comorin and adjoining area at 3.1 km above mean sea level at 0300 UTC of 03rd October and became less marked in the same evening.

An upper air cyclonic circulation lay over Westcentral Arabian at 1200 UTC of 02nd October, became less marked at 0300 UTC of 04th October, 2026.

An upper air cyclonic circulation formed over Gulf of Mannar & adjoining south coastal Tamil Nadu at 0.9 km above mean sea level at 0300 UTC of 04th October and became less marked on 05th October, 2026.

An upper air cyclonic circulation lay over Southeast Arabian Sea off south Kerala coast at 5.8 km above mean sea level at 0000 UTC 06th October and became less on 7th October, 2026.

An upper air cyclonic circulation formed over Lakshadweep & adjoining Southeast Arabian Sea at 0.9 km above mean sea level at 1200 UTC of 07th October and lay over south Kerala coast at 0.9 km above mean sea level at 0300 UTC of today, the 08th October, 2026.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 01st – 07th October, 2026 are presented in **Fig. 4**.

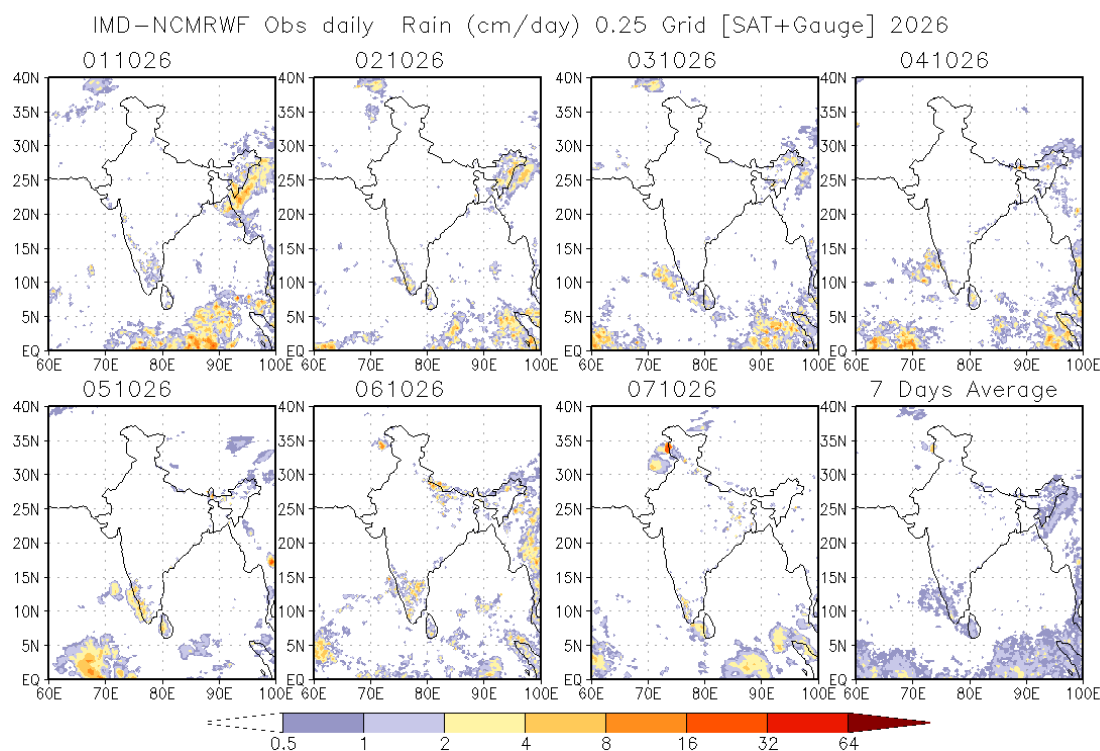


Fig.4: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 1st – 7th October, 2026.

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, Mithuna: National Centre for Medium-Range Weather Forecasting Centre (NCMRWF) Unified Model, ECMWF: European Centre for Medium-Range Weather Forecasting, BOMM: Bureau of Meteorology, Australia, 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.

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