



Issued on 23.10.2025

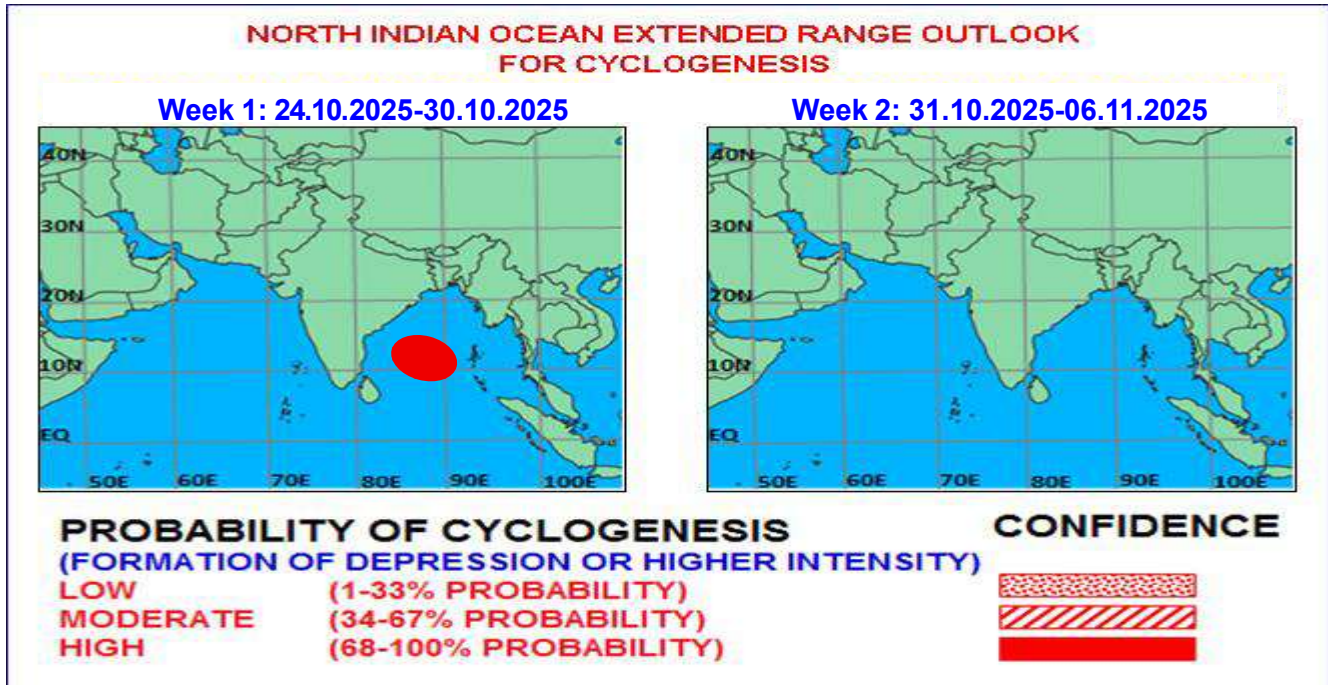


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

I. Environmental features:

The guidance from ECMM model indicates that Madden Julian Oscillation (MJO) index is presently in phase 4 and likely to remain in same phase with amplitude around 2 during next 2 days and decreasing amplitude reaching close to 1 till 28th October. Thereafter, it is likely to move across phase 5 with amplitude becoming less than 1 till the end of week 1. The MJO is likely to propagate eastwards across phase 5 obviously in the beginning of the second week. From the middle of the week 2, the models forecasts have a little consensus in the MJO propagation and its amplitude. The NCEP CFV2 and GEFS models indicate slow transition from phase 5 to 6 with amplitude more than 1. Whereas ECMF and ECMM model show a retrograding movement in phase 5 and 6 with amplitude less than 1. Therefore, the phase and amplitude of MJO is highly favourable for enhancement of convective activity and also cyclogenesis over the Bay of Bengal (BoB) during 23rd - 28th October and over north Bay of Bengal (BoB) during later part of week 1 and the entire week 2 as well.

Guidance from NCICS model indicates enhanced westerly wind anomaly over southern parts of the North Indian Ocean (NIO) including the south BoB & south Arabian Sea (AS) and adjoining Equatorial Indian Ocean (EIO) during 23rd to 27th October with slight decreasing trend thereafter during 28th October-2nd November. The westerly wind burst is likely to prevail over the southern parts of the NIO and adjoining EIO till 30th October. The model also indicates prevalence of equatorial Rossby wave (ERW), MJO, low frequency background wave (LW) over the same region during 23rd -30th October. The signatures of eastward propagation of Kelvin wave (KW) over EIO and adjoining southwest AS and over adjoining areas of southeast BoB are also indicated by

the model during 23rd to 24th October. The model guidance also indicates prevalence of easterly wind anomaly over westcentral BoB (7-9 mps) & over south Andaman Sea (3-5 mps) during initial few days of week 1. Thereafter easterly wind anomaly (1-3 mps) is likely over central parts of BoB. Over the AS, the model is indicating easterly wind anomaly (5-7 mps) over southwest & adjoining westcentral AS during 23rd to 27th October. Thus, equatorial waves are likely to support the cyclonic disturbances to maintain its intensity both over southeast Arabian Sea and over the south BoB during 23rd to 27th October. Thereafter, the model is indicating weakening of easterly flow over the central & northern parts of BoB and similarly over the central & northern parts of AS. Thereafter, the weakening of westerly wind is also indicated by the model during week 2.

Over the Arabian Sea (AS), the guidance from CIMSS indicates, the low level vorticity at 850 hPa is about $50 \times 10^{-6} \text{ s}^{-1}$ extending upto eastcentral Arabian Sea. Multiple vorticity centres are seen over the southeast and eastcentral AS.. Vertically positive vorticity zones are extending upto 500 hPa level. The upper-level divergence is around $20 \times 10^{-6} \text{ s}^{-1}$ to the northeast and another $10 \times 10^{-6} \text{ s}^{-1}$ to the southwest of system area. Low level convergence is about $20 \times 10^{-6} \text{ s}^{-1}$ to the east of system area along the west coast of India and another zone of $15 \times 10^{-6} \text{ s}^{-1}$ to the west of system area. Mid-level vertical wind shear (VWS) of horizontal wind is anticyclonic & low (05-10 kt) over the system area and over central parts of south and eastcentral Arabian Sea along the predicted path. Upper tropospheric ridge runs along 17°N over the Arabian Sea.

The latest weekly sea surface temperature SST departure over NINO 3.4 region is -0.5°C indicating possible development of La Niña conditions during October 2025. Negative IOD conditions are likely to continue during the October - December 2025. All these are favourable for enhanced activity over North Indian Ocean.

Over the Bay of Bengal, the guidance from CIMSS indicates, positive low-level vorticity at 850 hPa of about $20\text{-}30 \times 10^{-6} \text{ s}^{-1}$ over southwest Bay of Bengal and adjoining Tamil Nadu coast. Another positive vorticity zone is seen over southeast BoB & another over south Andaman Sea ($50\text{-}60 \times 10^{-6} \text{ s}^{-1}$). Vertically, both are extending upto 500 hPa level. The upper-level divergence is around $40 \times 10^{-6} \text{ s}^{-1}$ over central parts of south BoB and another of $05\text{-}10 \times 10^{-6} \text{ s}^{-1}$ over south Andaman Sea. Low level convergence is about $5\text{-}10 \times 10^{-6} \text{ s}^{-1}$ over south Andaman Sea and south Bay of Bengal. Vertical wind shear (VWS) of horizontal wind is low to moderate (05-15 kt) over the system area and to the west of system area. Upper tropospheric ridge runs along 18°N over the Bay of Bengal in association with anticyclonic circulation over south Myanmar.

II. Model guidance:

Arabian Sea:

Most of the models are indicating movement of the depression over southeast Arabian Sea and adjoining central Arabian Sea during week 1. Models are also indicating emergence of existing well marked low pressure area over south interior Karnataka & adjoining north Kerala to emerge into eastcentral Arabian Sea and merge with the depression over Arabian Sea during beginning of week 1.

The 850 hPa mean wind field of IMD ERF model is indicating cyclonic circulation over the central parts of Arabian Sea during both the weeks. The 850 hPa anomaly field is indicating anomalous cyclonic circulation over central AS during week 1 and another over northeast AS during week 2. These features indicate existing depression over southeast Arabian to move over central parts of Arabian Sea during week 1 and then gradually move towards northeast Arabian Sea. The model is also indicating 60-70% probability of cyclogenesis over the central parts of AS

during week 1 and 10-20% probability of cyclogenesis over northeast AS off Gujarat coast during week 2.

Bay of Bengal:

Most of the models are indicating development of a fresh low-pressure area over Southeast Bay of Bengal (with NCUM group is indicating over southwest BoB) during 24th to 27th October (with large variation in time of formation of low-pressure area). Considering average guidance from all models, a low-pressure area is likely over southeast and adjoining eastcentral BoB around 24th October. Models are also indicating west-northwestwards movement and further intensification of the low-pressure area around 25th October.

The 850 hPa mean wind field of IMD ERF model is indicating a cyclonic circulation over southwest BoB during week 1 and another over northwest BoB during week 2. The anomaly field is indicating, cyclonic anomaly which is southeast to northwest oriented during week 1 and another over Eastern parts of Indian (Odisha-West Bengal) during week 2. These features indicate the probable northwestwards movement of the fresh low pressure area over southeast BoB towards Andhra Pradesh coast during week 1 and then its northeastwards recurvature during beginning of week 2. The model is also indicating 60-70% probability of cyclogenesis over the southeast BoB during week 1 which is oriented towards Andhra Pradesh coast initially. Thereafter, it is indicated to recurve towards West Bengal coast during week 1. Model is also indicating and 10-20% probability of cyclogenesis over north BoB off West Bengal-Bangladesh coast during week 2.

Multiple interactions among various convectively coupled equatorial waves and the multiple cyclonic vortices over both the Arabian Sea & the Bay of Bengal and also over the South Indian Ocean, are leading to highly erratic guidance from various numerical models over the North Indian Ocean region.

III. Climatological guidance:

Climatologically, there have been 16 cyclonic disturbances (maximum sustained wind speed ≥ 17 kts) over south BoB in the month of October during the period 1965-2024 (**Fig-2**).

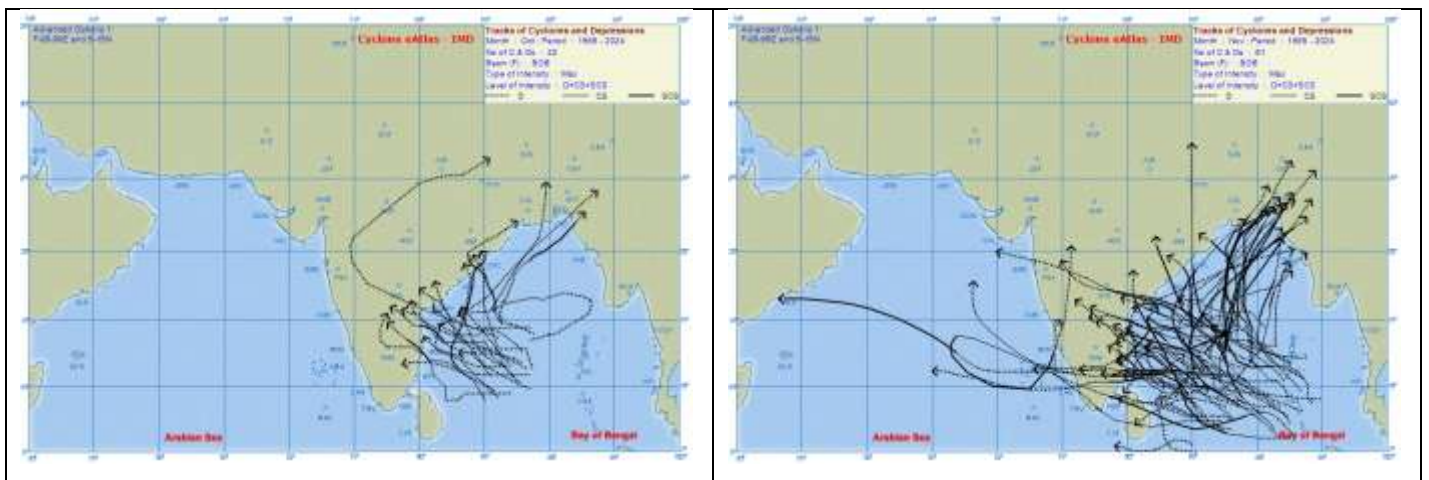


Fig.2: Tracks of cyclonic disturbances (maximum sustained wind speed ≥ 17 kts) formed over southeast and eastcentral Bay of Bengal in the month of (a) October and (b) November during the period 1965-2024

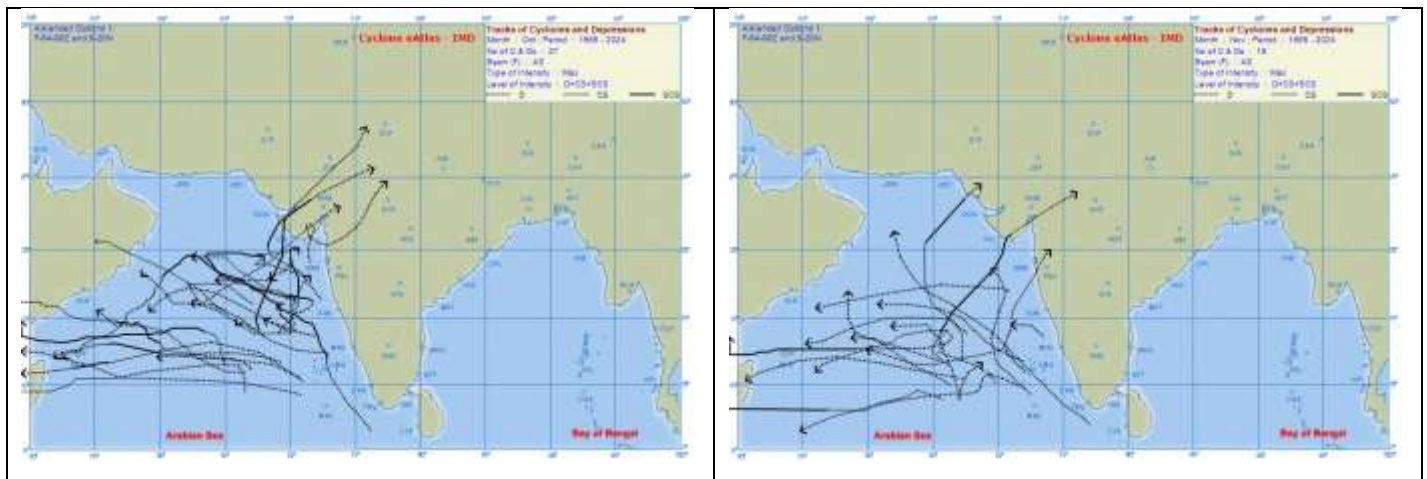


Fig.3: Tracks of cyclonic disturbances (maximum sustained wind speed ≥ 17 kts) formed over southeast and eastcentral Arabian Sea in the month of (a) October and (b) November during the period 1965-2024

IV. Inference:

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

- The low-pressure area over south interior Karnataka & adjoining north Kerala moved west-northwestwards across north Kerala, emerged over eastcentral & adjoining southeast Arabian Sea and became less marked. However, the associated upper-air cyclonic circulation lies over eastcentral Arabian Sea & adjoining Karnataka-north Kerala coasts is extending upto mid-tropospheric levels.
- The existing depression over southeast Arabian Sea moved nearly northeastwards across southeast Arabian Sea towards eastcentral Arabian Sea. The remnant of a low-pressure area mentioned above merged with the existing depression over southeast & adjoining eastcentral Arabian Sea. It is likely to recurve and move nearly northwestwards across eastcentral Arabian Sea during next 3-4 days.
- An upper air cyclonic circulation extending upto middle tropospheric levels lies over southeast Bay of Bengal & adjoining south Andaman Sea. Under its influence, a low-pressure area is likely to form over southeast & adjoining eastcentral Bay of Bengal on 24th October 2025. It is likely to move west-northwestwards and become more marked during subsequent 24 hours. Thereafter, while moving nearly northwestwards there is a high probability of cyclogenesis (intensification into a depression) during middle of the week 1 (around 26th October).

Impact expected:

- ❖ Squally wind with speed reaching 45-55 gusting to 65 kmph prevailing around the system center and continue to prevail over Southeast and adjoining Eastcentral Arabian Sea till 25th October.
- ❖ Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over Lakshadweep & Comorin Area and along & off Karnataka, Kerala and adjoining South Tamil Nadu coasts till 25th October.
- ❖ Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph is likely to prevail

over southeast Bay of Bengal and adjoining areas Andaman Sea & eastcentral Bay of Bengal till 24th October. It is likely to increase becoming squally wind speed reaching 45-55 kmph gusting to 65 kmph over central parts of Bay of Bengal on 25th & 26th October. It is likely to increase becoming 55-65 kmph gusting to 75 kmph over westcentral and adjoining southwest & eastcentral Bay of Bengal on 27th October.

- ❖ Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph is likely to prevail along & off Tamil Nadu - Andhra Pradesh coasts during 25th & 26th October. It is likely to increase becoming squally wind speed reaching 45-55 kmph gusting to 65 kmph on 27th October.

Anticipatory Actions:

- (a) Forecasters may maintain round the clock watch and continuously monitor weather systems over the region as per Standard Operation Procedures during next 2 weeks.
- (b) 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.
- (c) Fishermen are advised not to venture into Southeast & adjoining Eastcentral Arabian Sea, Lakshadweep & Comorin Area and along & off Karnataka, Kerala and adjoining South Tamil Nadu coasts till 25th October.
- (d) Fishermen are advised not to venture into Southwest, adjoining central Bay of Bengal and along & off Tamil Nadu - Andhra Pradesh coasts 25th October onwards. Those out at sea should return to coast by 24th October evening.
- (e) Judicious regulation of offshore/onshore, ports, recreational and tourism activities.

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

Forecast issued:

The forecast issued on 9th October for week 2 (17.10.2025-23.10.2025) indicated:

- (i) The formation of a low-pressure area over southeast Arabian Sea towards first half of 2nd week.
- (ii) Another low-pressure area is likely to form over south Bay of Bengal during middle of week 2 (around 22nd October). It is likely to move west-northwestwards and become more marked over southwest Bay of Bengal towards the end of week 2.

The forecast issued on 16th October for week1 (17.10.2025-23.10.2025) indicated:

- (i) Under the influence of existing upper air cyclonic circulation over southeast Arabian Sea & adjoining Lakshadweep area, a low-pressure area is likely to form over southeast Arabian Sea & Lakshadweep area off Kerala-Karnataka coasts around 18th October, 2025. Thereafter, it is likely to move west-northwestwards and intensify into a depression during subsequent 48 hours.

Realised:

- (i) Under the influence of the upper air cyclonic circulation over southeast Arabian Sea & adjoining Lakshadweep area, a Low-Pressure area formed over southeast Arabian Sea & Lakshadweep area off Kerala-Karnataka coasts at 0000 UTC of 18th October. It became a well- marked low-pressure area over the same region at 0300 UTC of same day. It moved nearly westwards and lay over southeast Arabian Sea at 0300 UTC of 20th October 2025. It concentrated into a Depression at 0000 UTC of 22nd October over the same region (southeast Arabian Sea).

- (ii) An upper air cyclonic circulation formed over southwest Bay of Bengal and adjoining Comorin area formed on 18th October. It lay over Southeast Arabian Sea off Kerala coast at 0000 UTC of 20th October and became less marked at 0300 UTC of 21st October.
- (iii) Another upper air cyclonic circulation formed over south Andaman Sea and adjoining southeast Bay of Bengal at 0300 UTC of 18th October. It persisted over the same region till 0300 UTC of 20th October. Under its influence, a low-pressure area formed over southwest Bay of Bengal at 0000 UTC and became a well-marked low-pressure area over the same region at 0300 UTC the 21st October. It moved northwards across North Sri Lanka Coast and lay over southwest Bay of Bengal off Tamil Nadu coast at 0000 UTC of 22nd October. It moved nearly northwestwards across north Tamil Nadu coast and lay over north interior Tamil Nadu and neighbourhood at 1800 UTC of 22nd October 2025. It weakened into a low pressure area over north interior Tamil Nadu & adjoining south interior Karnataka at 0000 UTC and lay over south interior Karnataka at 0300 UTC of 23rd October 2025.
- (iv) Another fresh upper air cyclonic circulation formed over south Andaman Sea & neighbourhood at 0300 UTC of 21st October and lay over southeast Bay of Bengal adjoining South Andaman Sea at 0300 UTC of 23rd October 2025.

Therefore, the prediction about the formation of the low-pressure area two weeks ahead became correct. However, the cyclogenesis over southeast Arabian Sea could be indicated one week ahead. The formation of a low-pressure area over south BoB was predicted well 2 weeks in advance.

NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 16th to 22nd October 2025 is presented in Fig.4.

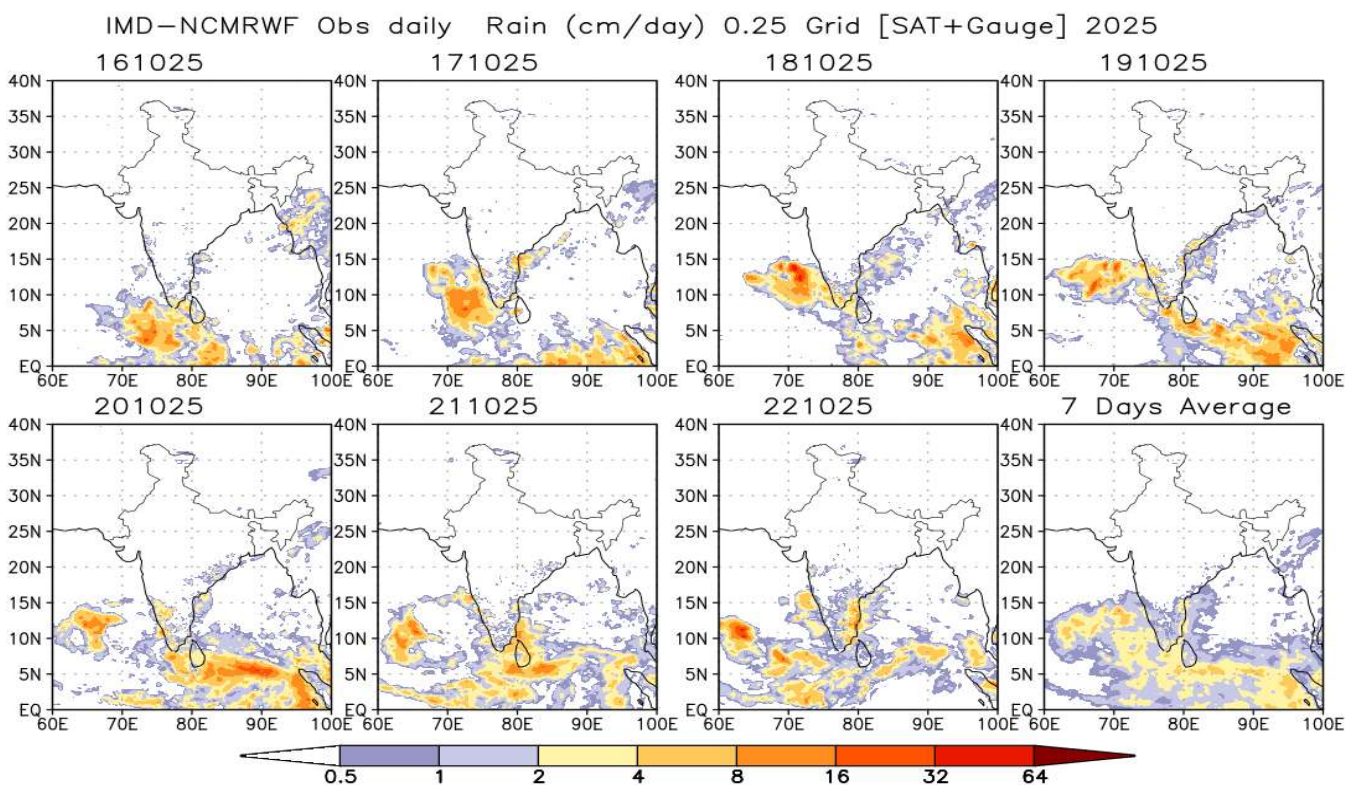


Fig. 4: NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 16th to 22nd October 2025

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: 30.10.2025