



Issued on 16.10.2025

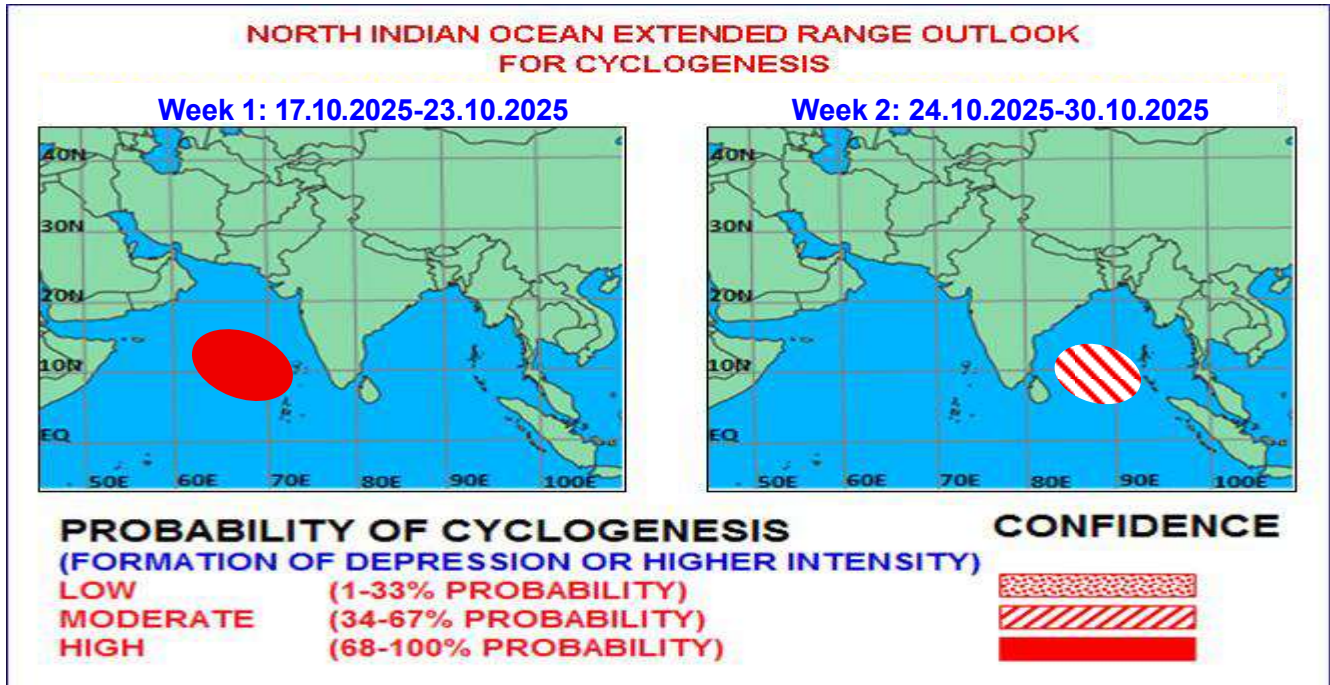


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

I. Environmental features:

The guidance from ECMM model indicates that Madden Julian Oscillation (MJO) index is likely to be in phases 2 & 3 during 16th to 20th October and in phase 4 during 21st to 28th October with amplitude remaining close to 1. Thereafter, it is likely to enter into phase 5. Thus, MJO would support enhancement of convective activity and cyclogenesis over Arabian Sea during 16th to 20th and over the Bay of Bengal during 18th to 26th.

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.

Guidance from NCICS model indicates enhanced cross equatorial flow from 17th October onwards leading to westerly wind burst over southern parts of Arabian Sea and Bay of Bengal and adjoining equatorial Indian Ocean during 18th to 26th October. The Model indicates prevalence of equatorial Rossby wave (ERW) Kelvin wave (KW), MJO, Low frequency Background wave (LW), enhanced westerly wind Anomaly ($>9\text{ mps}$) over the region during 18th to 26th October. The model is also indicating setting in of easterly wind over the Bay of Bengal and Arabian Sea with enhanced easterly wind anomaly ($5-7\text{ mps}$) over central and adjoining south Bay of Bengal during 18th to 26th October and weak easterly wind anomaly ($1-3\text{ mps}$) over southeast Arabian Sea during 16th-20th October and easterly wind anomaly ($5-7\text{ mps}$) during 21st to 23rd October over central Arabian Sea. These features indicate a favourable environment for Cyclogenesis (formation of Depression) over Arabian Sea during 20th to 22nd and over the Bay of Bengal during 24th to 26th October.

II. Model guidance:

Arabian Sea:

Guidance from deterministic models:

Most of the numerical models are indicating development of low-pressure area over southeast AS during 17th to 18th October with ECMWF, NCEP GFS, GEFS, ECAI, IMD GFS & NEPS on 18/00 UTC. However BFS is showing Depression on 16/00 UTC. Thus, the model is over-estimating the intensity by 2-3 stages. There is also good consensus among various models (ECMWF, NCEP GFS, IMD GFS, GEFS) with respect to formation of depression over southeast AS during 19th to 21st October. There is good consensus among various models about intensification of the system upto Depression/ Deep Depression stage only (Except IMD GFS). There is also consensus among all the models w.r.t west-northwestwards movement of the system towards Gulf of Aden.

Guidance from extended range models:

The 850hPa mean wind forecast of IMD ERF model for the first week is indicating an upper air cyclonic circulation over southeast Arabian Sea with trough extending northwestwards during week 1. The upper air cyclonic circulation over the southeast Arabian Sea is also extending up to middle tropospheric level. The corresponding 850 hPa mean wind anomaly in week 1 forecast indicates presence of an anomalous cyclonic circulation over the southeast Arabian Sea. During week 2, the 850hPa mean wind field is indicating upper air cyclonic circulation over westcentral Arabian Sea and adjoining Gulf of Aden and corresponding anomaly field is indicating an anomalous cyclonic circulation over Yemen & adjoining Oman coast. During week 3, the 850 hPa mean wind field is indicating a trough extending from the cyclonic circulation over southwest BoB to southeast Arabian Sea. IMD ERF model indicates a zone off south Sri Lanka coast with a probability of moderate to high (50-70%) of cyclogenesis during week 1 with moderate probability (40 to 60%) of cyclogenesis extending from these regions northwestwards towards southeast, central & adjoining westcentral parts of the Arabian Sea. The NCMRWF ERF model is also indicating similar features over the Arabian Sea during week 1 and Bay of Bengal during week 2.

Bay of Bengal:

Guidance from deterministic models:

Some of the deterministic models are indicating formation of a low pressure area over southeast Bay of Bengal and adjoining Andaman Sea during 21st-24th October (ECMWF on 24/00, IMD GFS on 22/00, NCEP on 21/00). Models like ECMWF and NCEP GFS are also indicating intensification of system into a depression (ECMWF on 25/18 and NCEP on 21/12). Models are indicating initial northwestwards movement of the system towards North Tamil Nadu and South Andhra Pradesh coasts.

Guidance from extended range models:

The 850hPa & 500hPa mean and anomaly wind forecast from IMD ERF model for week 2 indicates presence of cyclonic circulation over the south and adjoining westcentral Bay of Bengal (BoB). In the NCMRWF ERF, both the mean and anomaly wind fields are representing wind circulation features similar to IMD ERF model with presence of cyclonic circulation over the southeast Arabian Sea in week 1 forecast and cyclonic circulation over the westcentral BoB in week 2 forecast. During week 3, the mean wind field of the model is indicating a cyclonic circulation over southwest BoB off North Tamilnadu-South Andhra Pradesh coasts. These features are indicating west-northwestwards movement of the system towards Andhra Pradesh-Tamilnadu coasts. The anomaly

field is indicating an anomalous low over South Odisha during week 3, indicating north-northeastwards recurvature of the system.

IMD ERF model indicates moderate probability (30-50 %) of cyclogenesis over south Andaman Sea and adjoining Thailand region in week 1. IMD ERF model week 2 forecast also indicates low to moderate (30 to 40%) probability of cyclogenesis over west-central BoB and also over the south Andaman Sea region.

ECMWF Sub-seasonal forecast is indicating low probability of cyclogenesis (20 to 30%) over southwest and adjoining westcentral BoB during 20-27 October. ECMWF sub-seasonal forecast for week 2 also indicates low probability of cyclogenesis (20 to 30%) over the westcentral BoB region during 27 Oct to 3 Nov.

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**).

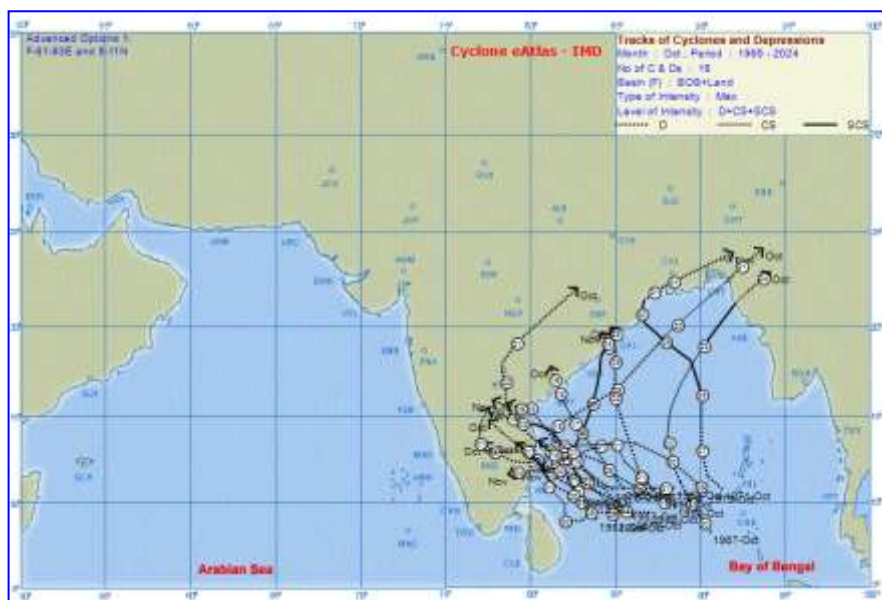


Fig.2: Tracks of cyclonic disturbances (maximum sustained wind speed ≥ 17 kts) over south BoB in the month of October during the period 1965-2024

III. Inference:

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

- 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.
- Another **low-pressure area** is likely to form over southeast Bay of Bengal in the first half of week 1 (around 24th October), it is likely to move west-northwestwards and intensify further thereafter. There is moderate probability of its intensification into a depression towards the middle of week 2 (around 26th October).

Impact expected:

Squally weather with wind speed reaching 35-45 gusting to 55 kmph is likely over Southeast Arabian Sea, Lakshadweep & Comorin Area and along & off Karnataka, Kerala and adjoining South Tamilnadu coasts during 16th -19th October.

Squally weather with wind speed reaching 40-50 gusting to 60 kmph is likely over central parts of South Arabian Sea on 20th & 21st October and 45-55 gusting to 65 kmph is likely over southwest & adjoining westcentral Arabian Sea during 21st-23rd 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 Arabian Sea, Lakshadweep & Comorin Area and along & off Karnataka, Kerala and adjoining South Tamilnadu coasts during 16th - 19th October.
- (d) Fishermen are advised not to venture into central parts of South Arabian Sea on 20th & 21st October and into southwest & adjoining westcentral Arabian Sea during 21st-23rd October.
- (e) Judicious regulation of offshore/onshore, ports, recreational and tourism activities.

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

The forecast issued on 2nd October for week 2 (10.10.2025-16.10.2025) indicated no system during the forecast issued on 09th October for week1 (10.10.2025-16.10.2025) indicated:

- (a) The existing well marked low pressure area (Remnant of Cyclonic Storm "Shakhti") over westcentral Arabian Sea to persist over the same region till 10th and become less marked thereafter.
- (b) The existing upper-air cyclonic circulation over south Bangladesh to persist till 12th October.
- (c) A fresh upper air cyclonic circulation to develop over southwest Bay of Bengal and move to southeast Arabian Sea across Comorin Area during middle of week 1.

Realised

- (a) The well-marked low pressure (Remnant of Cyclonic Storm "Shakhti") over westcentral Arabian Sea weakened into a low-pressure area at 1200 UTC of the 9th October, 2025 which became less marked at 0300 UTC of 12th and the associated cyclonic circulation extended upto 1.5 km above mean sea level persisted over the same region till 0300 UTC of 13th October.
- (b) The upper air cyclonic circulation over south Bangladesh & neighbourhood moved southwards and lay over south Bangladesh & adjoining north Bay of Bengal at 0300 UTC 10th October, 2025. It persisted over the same region till 0300 UTC of 11th October and became less marked in at 0000 UTC of 12th October.
- (c) An upper air cyclonic circulation formed over southwest Bay of Bengal & adjoining south Tamil Nadu coast at 0300 UTC of 12th and another upper air cyclonic circulation over southwest Bay of Bengal off north Tamil Nadu coast merged with the above cyclonic circulation over

southwest Bay of Bengal and adjoining south Tamil Nadu coast at 0300 UTC of 12th October, 2025. It persisted over the same region on 13th October, 2025 and became less marked on 14th October.

- (d) An upper air cyclonic circulation formed over Southeast Arabian Sea and adjoining Lakshadweep area on 15th October/ 0300 UTC and persisted over the same region on 16th October.

Thus, all the three systems were well predicted in the extended range outlooks but with some spatio-temporal variations.

NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 9th to 15th October 2025 is presented in Fig.2.

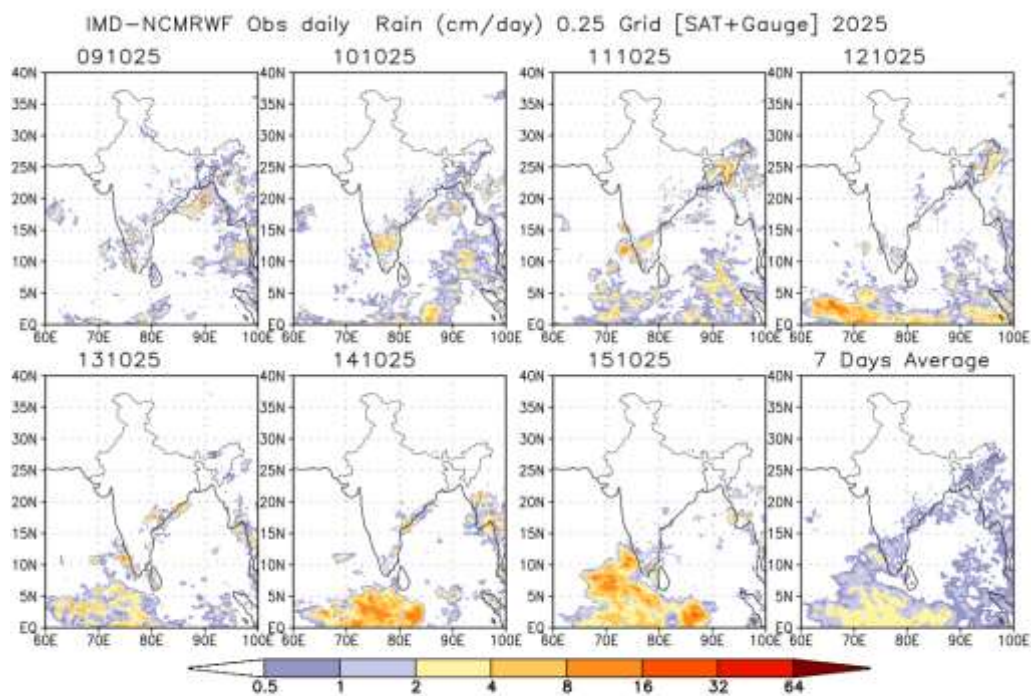


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of 24-hour accumulated rainfall from 09th to 15th October 2025

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: 23.10.2025