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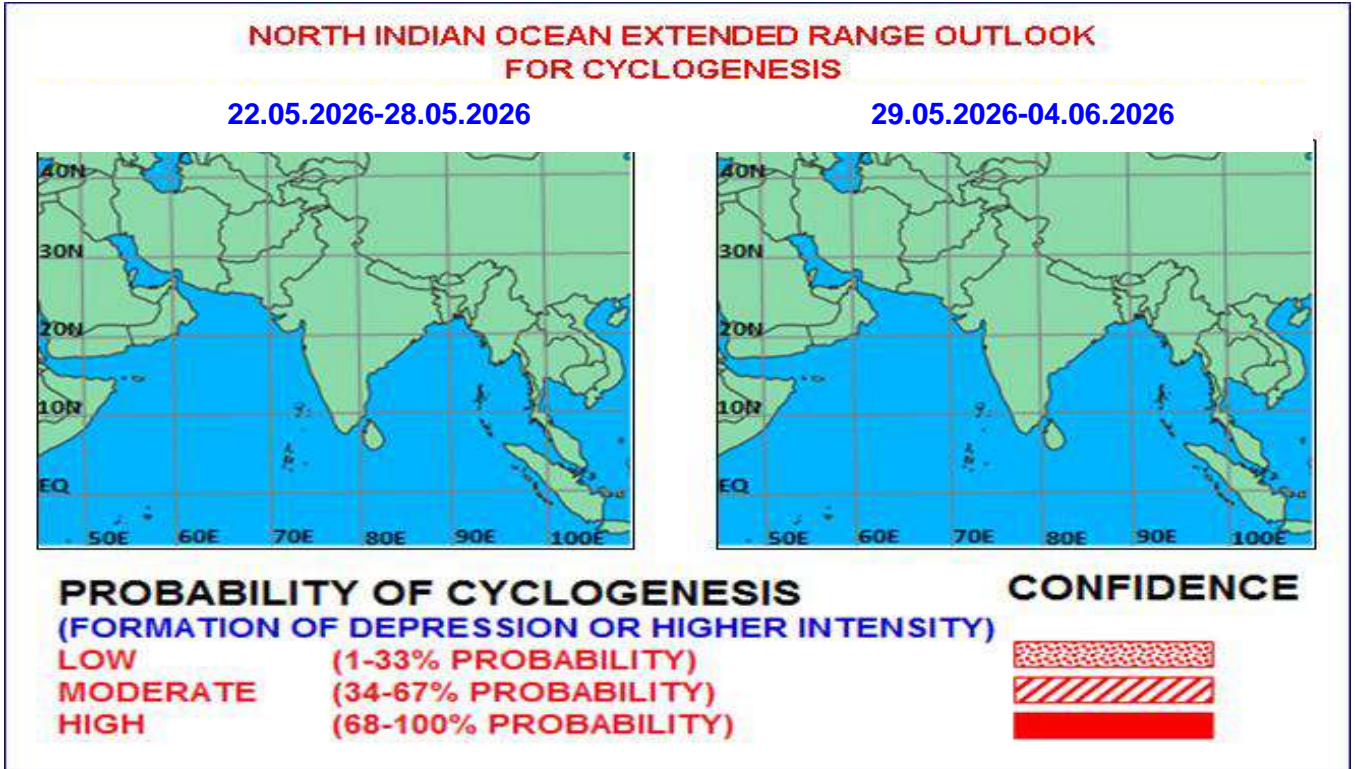


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during the next two weeks

I. Environmental features and Equatorial waves:

The guidance from ECMM model indicates that the Madden-Julian Oscillation (MJO) index is currently in phase 5 with amplitude equal to 1. It is likely to continue in same phase with amplitude remaining close to 1 during first half of week 1. Thereafter, it is likely to move across phases 6, 7 and 8 with amplitude remaining more than 1 during remaining part of the forecast period. Thus, MJO is likely to support enhancement of convective activity over the North Bay of Bengal (BoB) during first half of week 1.

The guidance from the NCICS model indicates the prevalence of westerly wind anomaly (7-9 mps) alongwith prevalence of MJO & Equatorial Rossby wave (ERW) and Low frequency background wave (LW) over south BoB, South Andaman Sea & adjoining areas of East Equatorial Indian Ocean (EEIO) and very weak easterly wind anomaly (1 mps) over north BoB & adjoining central BoB during first half of week 1. Over the Arabian Sea (AS), the model is indicating prevalence of strong westerly wind anomaly (7-9 mps) alongwith ERW & MJO over south AS and easterly wind (5-7 mps) over eastcentral AS over the same period. These features indicate that as per NCICS model, equatorial waves are likely to support development of a cyclonic circulation/ low pressure system over the eastcentral AS during first half of week 1. No similar support is indicated over the BoB during the same period. During second half of week 1, the model is indicating weakening of westerly wind anomaly over the BoB and MJO & LW still prevail over the south BoB. Over the AS also, weakening of westerly wind anomaly is indicated.

However, over the southwest AS, westerly wind anomaly (5-7 mps) over southwest AS is still indicated alongwith ERW and a trailing end of MJO over westcentral & adjoining northwest AS and prevalence of easterly wind anomaly (3-5 mps). These features indicate favourable environment for enhanced convective activity/ cyclonic circulation/ low pressure system over westcentral & adjoining southwest AS during later part of week 1.

During first half of week 2, the model is indicating enhanced westerly wind anomaly over most parts of BoB and Andaman Sea alongwith simultaneous occurrence of MJO, ERW & LW over southeast BoB & Andaman Sea with easterly wind anomaly (1-3 mps) over Myanmar. These features indicate that equatorial waves would contribute favourably towards enhancement of convective activity over Myanmar, Thailand and adjoining areas of Andaman Sea. During later half of week 2, westerly wind anomaly (1-3 mps) is indicated over the entire AS, BoB and India alongwith prevalence of ERW over southeast AS, Comorin Area.

II. Model Guidance:

(a) Guidance for Extended Range models:

During week 1, the 850 hPa mean wind field forecast of IMD Extended Range model (MME CFS-V2) indicates the prevalence of (1) cyclonic circulation over eastcentral & adjoining northeast AS, (2) a feeble trough extending from eastern parts of India (Bihar, West Bengal) to South Andaman Sea and (3) predominantly westerly/ west-southwesterly winds over most parts of south AS & adjoining central AS, South peninsular India and south BoB & south Andaman Sea. The model is indicating gradual establishment of southwesterly winds over the region and a cyclonic circulation over eastcentral & adjoining northeast AS. Corresponding anomaly field is indicating, cyclonic wind anomaly over the (i) eastcentral & adjoining northeast AS and (ii) the south Andaman Sea during week 1.

During week 2, the 850 hPa mean wind field is indicating seasonal southwesterly winds over the entire NIO region with a well-established trough extending from northwest India to south Andaman Sea. Corresponding anomaly field is showing (1) a broad scale cyclonic circulation over northwest AS & adjoining Oman coast indicating weakening of the week 1's cyclonic anomaly over eastcentral & adjoining northeast AS with nearly westwards movement and (2) cyclonic anomaly over westcentral & adjoining northwest BoB near North Andhra Pradesh & South Odisha coasts embedded into seasonal trough.

The precipitation anomaly is positive over the (i) entire east AS and adjoining coastal areas of India, along with central parts of AS and (ii) entire Andaman Sea and adjoining southeast BoB during week 1. During week 2, positive precipitation anomaly zone is extending over entire BoB, major parts of central & south India, Himalayan region, Northeastern states of India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand and eastern parts of AS.

The mean wind field at 850 hPa of NCMRWF extended range model (CNCUM) does not show any cyclonic circulation over the BoB and the AS during both the weeks. Contrary to IMD CFS-V2, the model is showing weaker southwesterlies over the region during both the weeks. Considering precipitation anomaly charts, the model is showing positive anomaly over central AS, Andaman Sea and northeast states of India during week 1. During week 2, the model is indicating positive precipitation anomaly over parts of southeast AS and over Andaman Sea.

With respect to cyclogenesis, IMD MME-CFSV2 model is indicating a zone with moderate to high (60-70%) probability of cyclogenesis over the southeast AS during week 1 and 30-40% over westcentral AS off Oman coast during week 2. Over the BoB, it is indicating 30-40% probability of cyclogenesis over eastcentral BoB and adjoining Myanmar-Bangladesh during week 1 and similar probability over northwest & adjoining westcentral BoB off Odisha coast during week 2.

Guidance from ECMM model indicates 20-30% probability of cyclogenesis over North Andaman Sea & adjoining eastcentral BoB. The individual ensemble member tracks indicate cyclogenesis over eastcentral BoB & adjoining North Andaman Sea with most of the tracks moving north/north-northeastwards towards Bangladesh & Myanmar and very few towards West Bengal & Odisha coasts. Over the AS also, 10-20% probability of cyclogenesis is indicated over eastcentral AS with most of the ensemble member tracks moving over eastcentral AS & dissipating over sea and very few tracks showing movement towards west coast of India (Goa, Karnataka and Kerala).

The higher cyclogenesis probability indicated by IMD CFSV2 and ECMM is against the 8-10% climatological probability of cyclogenesis over the North Indian Ocean region during the forecast period.

Thus, IMD CFSV2 and ECMM are indicating likely formation of cyclonic circulation/ low pressure system over the eastcentral & adjoining southeast AS during middle of week 1 with nearly westwards movement in first half of week 2. Over the BoB, both the models are indicating a cyclonic circulation over eastcentral BoB & adjoining North Andaman Sea during middle of week 1.

(b) Guidance from Medium-Range NWP models:

Models like ECMWF, NCUM, NEPS are not predicting any development over both the basins during next 10 days. However, models like IMD GFS, GEFS and BFS are predicting a low-pressure area over westcentral AS around 24th May, with gradual intensification into depression around 25th and northwestwards movement with further intensification into a cyclone. IMD GFS and BFS are also indicating another fresh upper air cyclonic circulation over southeast AS around 30th with no significant intensification and movement. NCEP GFS is indicating a low-pressure area over eastcentral BoB around 2nd June.

Among various AI models (ECAI, Pangu Weather, Graphcast & FourCast), only Pangu Weather is indicating a cyclonic circulation over westcentral AS around 23rd May.

III. Inference:

Considering various large-scale environmental features, climatology and model guidance, it is inferred that there is likelihood of:

- (a) development of an upper air cyclonic circulation / low pressure area over eastcentral Arabian Sea during first half of week 1 (around 24th May) which may move northward during subsequent 3-4 days.
- (b) formation of another fresh upper air cyclonic circulation over southeast Arabian Sea around 30th May.
- (c) development of another upper air cyclonic circulation/ low pressure area over eastcentral BoB during end of week 1 or beginning of week 2 (around 28th -29th May) with gradual west-northwestward movement.

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

Forecast issued:

The extended range outlook issued on 07th May for week 2(15.05.2026-21.05.2026) indicated

- (i) low probability of cyclogenesis over the southwest & adjoining westcentral BoB during the second half of week 1 and first half of week 2, preferably during 13-16 May 2026.
- (ii) likelihood of development of a depression with low probability over eastcentral Arabian Sea

around middle of week 2 (17-18th May 2026).

The extended range outlook issued on 14th May for week 1(15.05.2026-21.05.2026) indicated

- i) the existing well marked low pressure area over southwest & adjoining westcentral BoB to move northeastwards with low probability of further intensification into a depression over central Bay of Bengal during the first half of week 1 preferably around 16th May 2026 and
- (ii) likelihood of formation of an upper air cyclonic circulation/ low pressure area over southeast Arabian Sea during middle of week 1.

Realized weather:

- a) An upper air cyclonic circulation formed over Comorin area & neighbourhood on 08th May. Under its influence, a low-pressure area formed over southwest BoB off north Sri Lanka coast on 11th May. It moved nearly northwards over southwest Bay of Bengal and became a well-marked low pressure area over the southwest and adjoining westcentral BoB at 0300 UTC of 13th May. It moved northeastwards and lay over the same region as a low-pressure area at 0300 UTC of 16th May and became less marked in the same evening over the southwest BoB & adjoining Tamil Nadu. However, it didn't intensify into a depression, as predicted.
- b) An upper air cyclonic circulation formed over Comorin area & neighbourhood at 0300 UTC of 17th May and became less marked on the 18th May. Thus, it was well predicted in week 1 forecast issued on 14th May.

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, 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.

Next update: 28.05.2026