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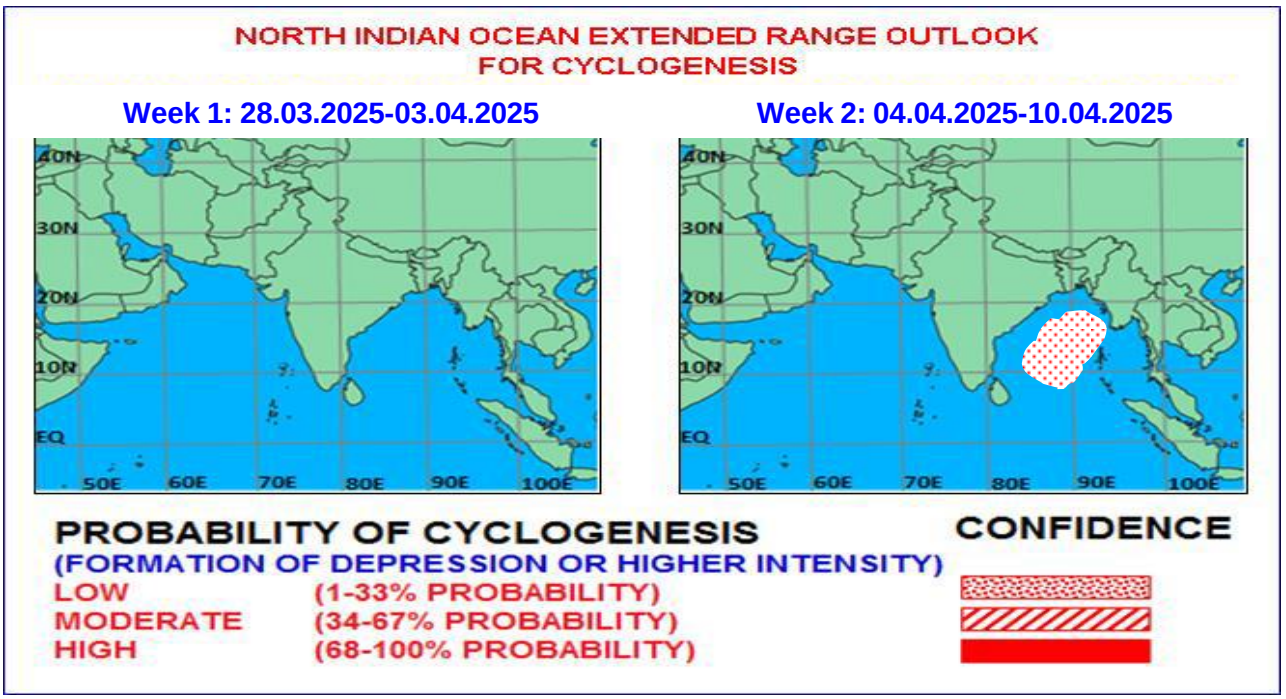

Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

I. Environmental features:

The CPC guidance for Madden Julion Oscillation (MJO) indicates that MJO is in phase 6 with amplitude close to 1. Most of the models suggest that MJO is likely to remain in same phase during first half of week 1 with disorganized looping. Thereafter, as per ECMM and ECMF models, it would move eastwards for a short period of time across phase 6 and enter into phase 7 with amplitude remaining close to 1 at the end of week 1. The models also indicate that after a certain eastwards movement during first half of week 2, MJO signal again illustrates another lopping motion within phase 7 during 2nd half of the week 2 rather straightway entering into phase 8. However, other models e.g., GEFS V12 and CFS models of NCEP show a little variation of movement within phase 6 and 7. The members of different ensemble prediction systems are also portraying ambiguous movement with a randomly large spread. Hence, in the forecasts of several models, MJO does enter into phase 8 at the end of week 2. Thus, MJO is not likely to support enhancement of any convective activity over the North Indian Ocean (NIO) region during entire forecast period.

The NCICS CFS model forecasts for zonal winds suggest prevalence of westerly wind anomaly (3-5 mps) over southern parts of Bay of Bengal (BoB) and south & central Arabian Sea (AS) during first half of week 1. At the same time, weak easterly wind anomalies (3-5 mps) are predicted over northern parts of both BoB and AS. The westerly anomaly is likely to disappear gradually over southern parts of BoB and AS during second half of week 1. The weak easterly anomalies (1-3 mps) over entire NIO region covering both BoB and AS is likely to disappear with advent of weak westerly anomaly (1-3 mps) over central parts of BoB during first half of week 2. The weak easterly anomaly is likely to spread over southern parts of BoB and adjoining southeast AS during second half of week 2. The model indicates the presence of Equatorial Rossby Waves (ERW) over south BoB and central AS during week 1 with gradual weakening. In the forecasts, Kelvin waves move eastward across south BoB during 1st half of week 1. There is no prevalence of any kind of equatorial waves during week 2. Therefore, the zonal wind anomalies and equatorial waves may support development of cyclonic circulation over Equatorial Indian Ocean (EIO) and adjoining south BoB during first half of week 1.

Negative Indian Ocean Dipole condition is prevailing over the region which is favourable for cyclogenesis over the BoB. Tropical Pacific atmospheric and sea surface temperature anomalies continue to indicate weak La Nina conditions.

II. Model Guidance:

IMD GFS is indicating a cyclonic circulation over southwest BoB around 5th and 6th April. NCEP GFS is indicating a low pressure area over Andaman Sea around 5th with northwestwards towards eastcentral BoB and intensification into a cyclonic storm over central BoB around 7th and northeastwards recurvature towards Myanmar. It is indicated to weaken into a low pressure area by 10th April over eastcentral BoB off Myanmar coast. ECMWF is indicating a low pressure area over North Andaman sea around 3rd April. It is indicated to move west-northwestwards and intensify into a depression over around 5th April and into a cyclonic storm around 6th April. It is indicated ton move towards westcentral BoB off South Andhra and adjoining North Tamil Nadu till 8th April and recurve north-northeastwards thereafter and dissipate off North Andhra Pradesh coast by 9th April. NCUM (G) is not indicating any significant development over the region. ECAIFS is not indicating any significant system over BoB during the period.

IMD ERF Model 850 hPa wind field is indicating an extended cyclonic circulation over southwest BoB during middle of week 1. The 850 hPa wind anomaly field is indicating cyclonic wind anomaly over northeast BoB and over westcentral AS during week 1. No such features are seen in week 2. IMD ERF cyclogenesis guidance is indicating no potential zone during week 1 and 10-20% probability of cyclogenesis over central parts of south BoB during week 2. The 850hpa wind anomaly field of NCMRWF ERF model is indicating cyclonic wind anomaly over Andaman Sea during both the weeks. However, mean wind field at 850 hPa is not showing any cyclonic circulation over the region during both the weeks. ECMM is indicating emergence of a cyclonic circulation into North Andaman Sea (10-20%) around 3rd April, with 20-30% probability of west-northwestwards movement towards central BoB till 7th April. ECMWF extended range model is also indicating 05-10% probability of cyclogenesis over North Andaman Sea and adjoining eastcentral BoB during later part of week 1 and first half of week 2. Thereafter it is indicating 10-20% probability of cyclogenesis over eastcentral BoB towards Myanmar coast during later half of week 2.

Thus, various numerical weather prediction models are indicating likely emergence of a cyclonic circulation into Andaman Sea around 3rd April with west-northwestwards movement and intensification into a low pressure area around 5th April and depression around 7th April. Models are also indicating initial west-northwestwards movement towards westcentral BoB till 7th April, followed by northeastwards recurvature.

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, ECMM: ECMWF-Ensemble System Bias Corrected, 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.

III. Inference:

Considering various environmental conditions and model guidance it is inferred that no cyclogenesis is likely over the North Indian Ocean region during week 1. However, there is low probability of cyclogenesis (formation of depression) over southeast Bay of Bengal and Andaman Sea from a possible emerging remnant from South China Sea during middle of week 2.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 13th March for week 2 (21st March-27th March) indicated no probability of cyclogenesis during the week. The forecast issued on 20th March for week 1 (21st March-27th March) indicated no probability of cyclogenesis during the week. No cyclogenesis occurred during the period.

However, the extended-range outlook issued on 20th March also indicated likelihood of a feeble cyclonic circulation over northeast Equatorial Indian Ocean and adjoining southeast Bay of Bengal during middle of week 1 (around 23rd March). Actually, an upper air cyclonic circulation lay over Equatorial Indian Ocean and adjoining southeast Bay of Bengal on the 23rd March, 2025. It persisted over the same region on 24th March, 2025 and became less marked on 26th March, 2025. Hence, likely convective activity over Equatorial Indian Ocean and adjoining southeast Bay of Bengal was correctly predicted in 2 weeks in advance.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from, 20th March to 26th March, 2025, 2025 are presented in **Fig. 2**.

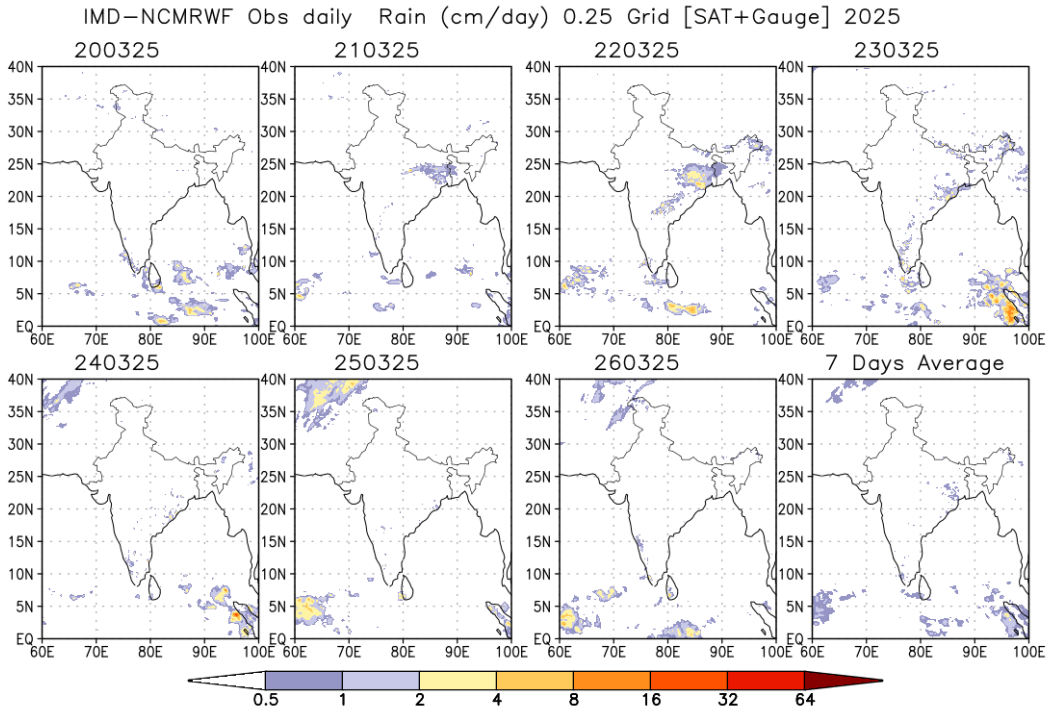

Fig.2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 20th March to 26th March, 2025.

Next update: 03.04.2025