



Issued on 01.06.2023

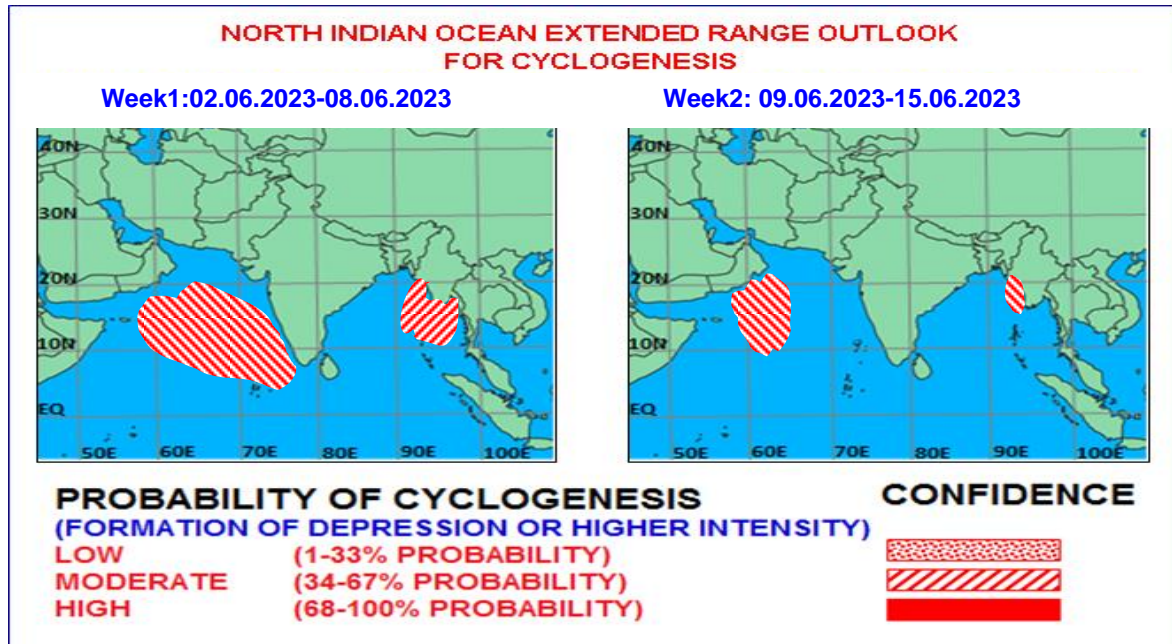


Fig.1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

The Madden Julian Oscillation (MJO) Index is currently in Phase 1 with amplitude less than 1. It would continue in same phase during first half of week 1. Thereafter, it would move across phase 2 during later part of week 1. During week 2, it would move across phases 3 and 4 with amplitude reaching close to 1 at the end of week 2. Hence, MJO is likely to support the enhancement of convective activity and cyclogenesis over the Bay of Bengal (BoB) and Arabian Sea (AS) from middle of week 1. From middle of week 1 onwards, westerly winds (1-3 mps) along with Equatorial Rossby Waves (ERW) are likely to prevail over south Arabian Sea till middle of week 2 and similarly over the eastcentral Bay of Bengal and North Andaman Sea area during later part of week 1. Therefore, westerly winds (1-3 mps) along with ERW and Kelvin Waves and MJO waves are likely to contribute towards cyclogenesis over south Arabian Sea and also over eastcentral BoB & North Andaman Sea during later part of week 1 and sustenance to convective activity over the region.

II. Model Guidance:

(a) Bay of Bengal:

Various deterministic models including ECMWF, NCUM and NEPS are indicating cyclogenesis (formation of depression) over North Andaman Sea & adjoining eastcentral BoB during later part of week 1. However, IMD GFS is not indicating any cyclogenesis over the BoB during the entire forecast period. Probabilistic model ECMM is indicating cyclogenesis over eastcentral & adjoining North Andaman Sea during later part of week1. IMD's coupled forecast model CFS (V2) is also indicating low (20-30%) probability of cyclogenesis over eastcentral & adjoining North Andaman Sea off Myanmar coast during week 1. CNCUM is indicating cyclonic circulation over North Andaman Sea and adjoining eastcentral BoB during later part of week 1.

(b) Arabian Sea:

Various deterministic models including ECMWF, IMD GFS, NCEP GFS and NCUM are indicating cyclogenesis over Arabian Sea during later part of week 1. However, there is large variation among various models with respect to area and time of genesis and subsequent movement. Probabilistic model ECMM is indicating cyclogenesis over southeast AS during later part of week 1, with most of the member models are indicating movement towards westcentral AS during first half of week 2. IMD's coupled forecast model CFS (V2) is also indicating moderate (50-60%) probability of cyclogenesis over south AS during week 1 and (30-40%) probability of cyclogenesis over westcentral AS during week 2. CNCUM is also indicating cyclonic circulation over central AS.

(Legends: IMD GFS: India Meteorological Department Global Forecast System, NCUM: National Centre for Medium Range Weather Forecasting Centre Unified Model, European Centre for Medium Range Weather Forecasting, GPP: Genesis Potential Parameter, National Centre for Environment Prediction GFS, ECMM: ECMWF multi model, GEFS: GFS ensemble, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Center, NWS: National Weather Service)

III. Inference:

Considering various environmental features and model guidance, following inferences are drawn:

- (i) there is moderate probability of cyclogenesis (formation of depression) over North Andaman Sea and adjoining eastcentral Bay of Bengal during later part of week 1 and start of week 2.**
- (ii) there is moderate probability of cyclogenesis over southeast Arabian Sea during later part of week 1.**

IV. Verification of forecast issued during last two weeks:

The forecast issued on 18th May, 2023 for week 2 (26.05.2023– 01.06.2023) indicated no cyclogenesis during week 2. The forecast issued on 25th May for week 2 (26.05.2023– 01.06.2023) indicated likely formation of cyclonic circulation around 29th May with low probability of cyclogenesis (formation of depression) during end of week 1 or beginning of week 2. Actually, a cyclonic circulation formed over North Andaman Sea and adjoining eastcentral BoB on 30th May. Thus, likely formation of cyclonic circulation could be well captured.

The realized rainfall during 25th May, 2023 – 31st May, 2023 from satellite-gauge merged data is presented in Fig.2

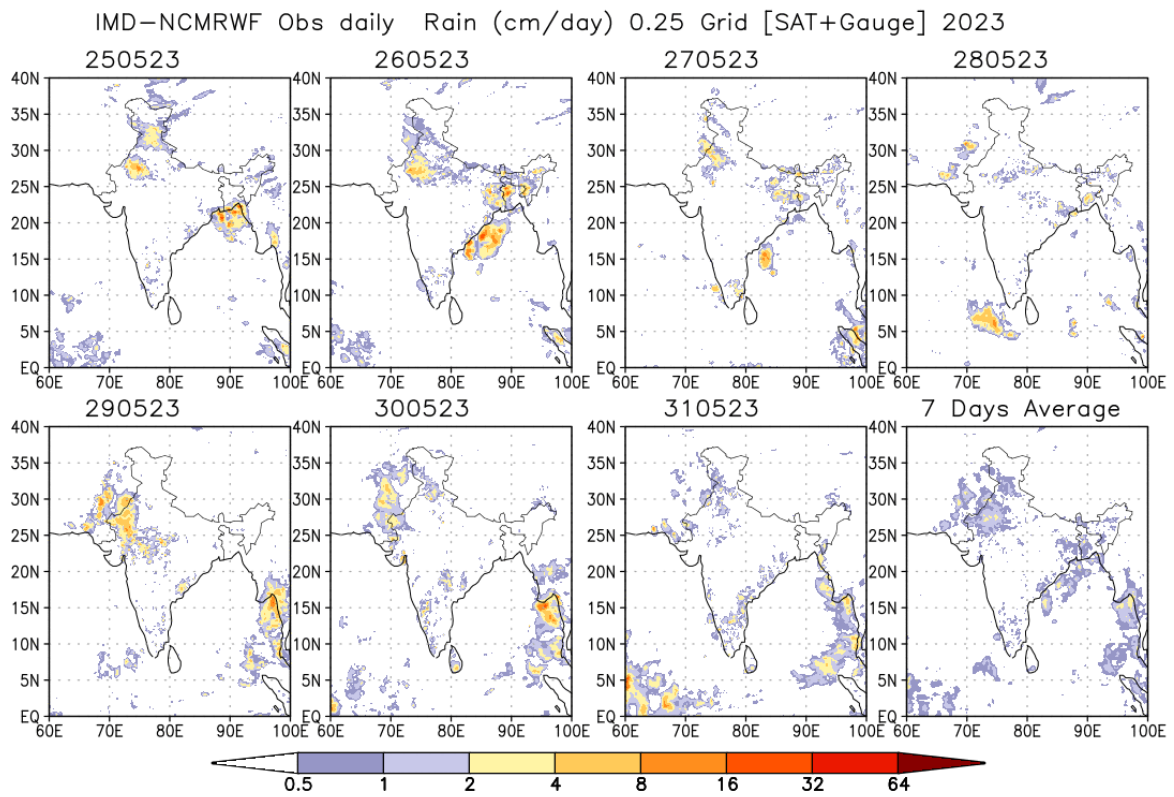


Fig.2: Rain gauge and satellite merged rainfall plots during 17th May– 23rd May, 2023

Next update: 08.06.2023