



Issued on 04.05.2023

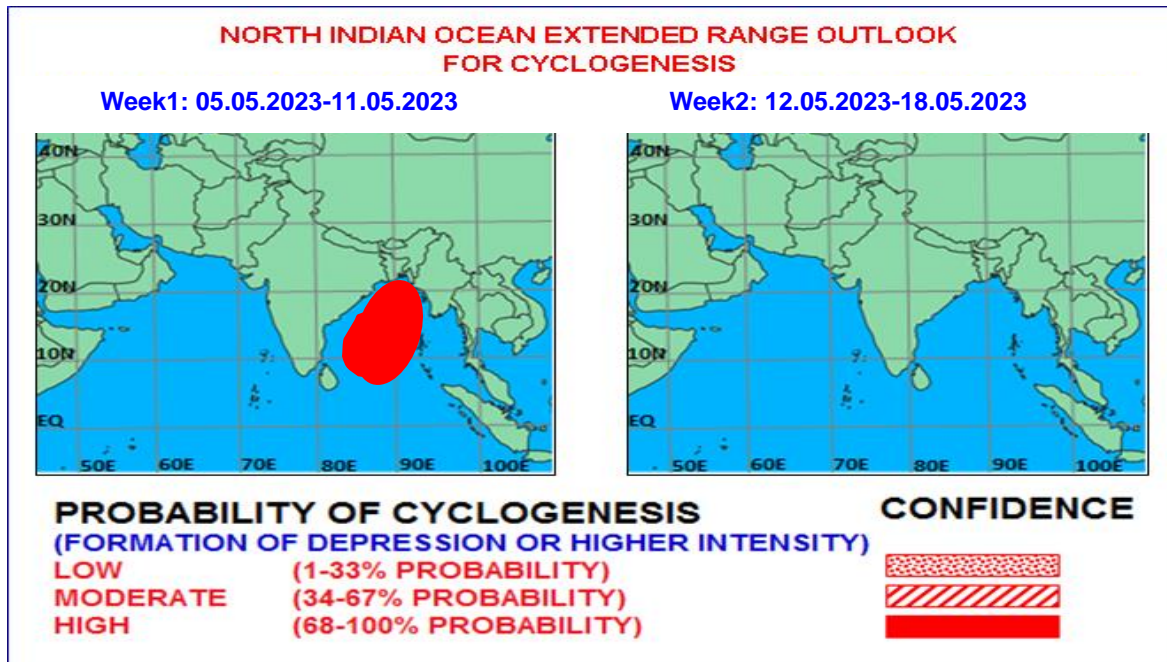


Fig.1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

The Madden Julian Oscillation (MJO) Index is currently in Phase 5 with amplitude around 2. It would continue in same phase with increased amplitude during most part of week 1. Thereafter, it would move eastwards and enter into phase 6. Hence, MJO will support enhancement of convective activity over the Bay of Bengal (BoB) during week 1. Easterly winds (1-3 mps) are likely to prevail over south Andaman Sea and south Bay of Bengal (BoB) in the lower tropospheric levels during next 2 days. Thereafter, the westerly winds are likely to prevail over the south BoB and south Andaman Sea with easterly winds over central & north BoB from 8th May onwards. Thus, the equatorial waves and MJO are likely to collectively contribute towards enhancement of convective activity and hence cyclogenesis over south BoB around 8th May onwards.

II. Model Guidance:

Various models including IMD GFS, NCUM, ECMWF, ECMM, NEPS and GEFS are indicating cyclogenesis over southeast BoB during middle of week 1 (around 8th May). All the models are indicating intensification of this system into a severe category storm. However, there is large variation among various models with respect to the track of the system. GFS group of models and ECMWF are indicating northwestwards movement initially and then northeastwards movement towards Bangladesh and adjoining Myanmar coasts. However, NCUM group of models are indicating northwestwards movement of the system towards Tamil Nadu coast and re-emergence into the southeast & adjoining eastcentral Arabian Sea.

IMD's Coupled Forecast System Version 2 (IMD CFS V2) and NCMRWF coupled CNCUM are indicating potential zone for cyclogenesis during later half of week 1 over southeast BoB and first half of week 2 over central and adjoining northeast BoB. Extended range forecast of ECMWF for tropical cyclone activity NIO region also indicate likely

cyclogenesis over south BoB during later part of week 1 (30-60% probability). Most of the ensemble members are indicating initial northwestwards movement followed by northeastwards recurvature towards Bangladesh-Myanmar coasts.

(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. Climatological Guidance

Fig. 2 (a) shows that during 1965-2020, about 214 cyclonic storms developed over the Bay of Bengal. May is the peak month wrt cyclonic activity during pre-monsoon season (March-May). Fig. 2(b) shows the frequency of landfalling cyclones over various coastal states during 1965-2020. It shows that during pre-monsoon season, the frequency of landfalling cyclones is highest over Bangladesh followed by Myanmar, West Bengal, Odisha, Andhra Pradesh and Tamil Nadu.

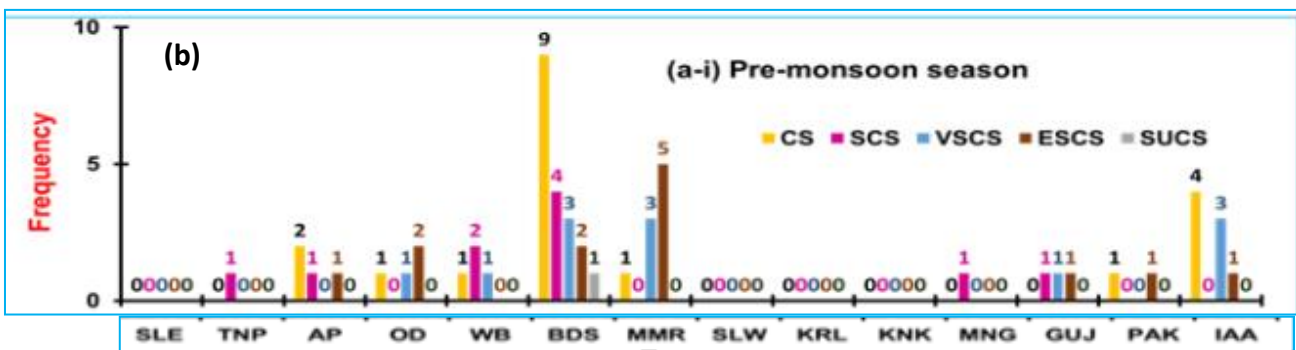
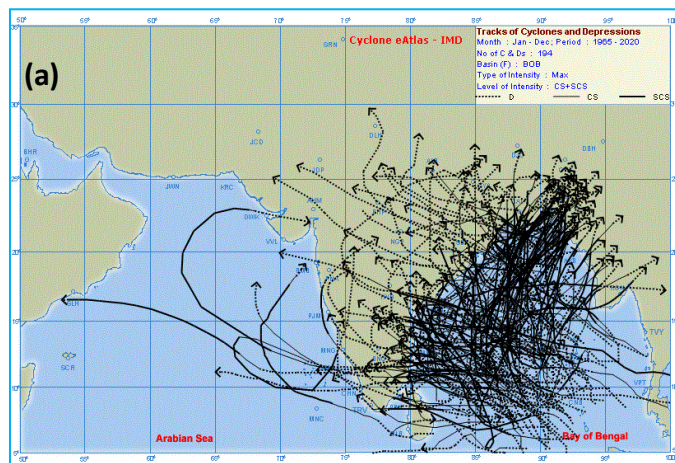


Fig.2: (a) Tracks of cyclonic storms over Bay of Bengal during 1961-2022 and (b) Frequency of landfalling cyclones over various coastal states during 1965-2020

SLE: Sri Lanka East, TNP: Tamilnadu and Puducherry, AP: Andhra Pradesh, OD: Odisha, WB: West Bengal, BDS: Bangladesh, MMR: Myanmar, SLW: Sri Lanka West, KRL: Kerala, KNK: Karnataka, MNG: Maharashtra and Goa, GUJ: Gujarat, PAK: Pakistan, IAA: Iran, Arabia and Africa

IV. Inference:

Considering all the above, there is high probability of cyclogenesis (formation of depression) over the Bay of Bengal region during later part of week 1 (Fig. 1).

V. Advisory for marine community

- a) Fishermen, small ships, boats and trawlers are advised not to venture into southeast Bay of Bengal and adjoining areas from 07th May onwards and into adjoining central Bay of Bengal from 09th May onwards.
- b) Those who are over southeast Bay of Bengal are advised to return to safer places before 07th and those over central Bay of Bengal are advised to return before 09th May.
- c) Regulation of tourism and offshore activities and shipping over Andaman and Nicobar Islands during 08th - 11th May and
- d) Regulation of shipping activity over the sea areas of southeast and central Bay of Bengal during 08th -11th May.

VI. Verification of forecast issued during last two weeks:

The forecast issued on 21st April, 2023 for week 2 (28.04.2023– 04.05.2023) and 27th April, 2023 for week 1 (28.04.2023– 04.05.2023) indicated no cyclogenesis over the NIO region. Thus, nil cyclogenesis was correctly predicted in two weeks forecast.

The realized rainfall during 27th April, 2023 – 4th May, 2023 from satellite-gauge merged data is presented in Fig.3

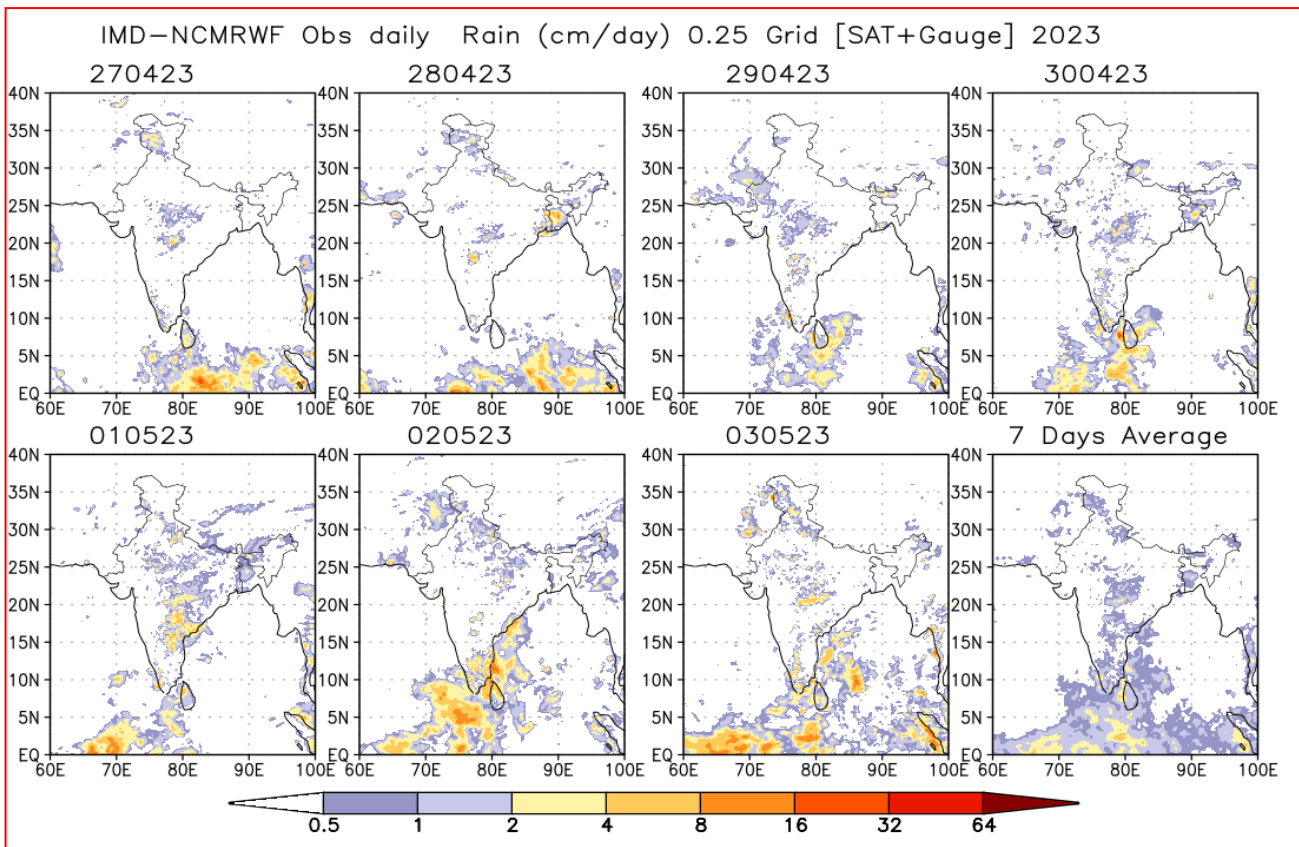


Fig.3: Rain gauge and satellite merged rainfall plots during 27th April– 4th May, 2023

Next update: 11.05.2023