



Issued on 13.06.2024

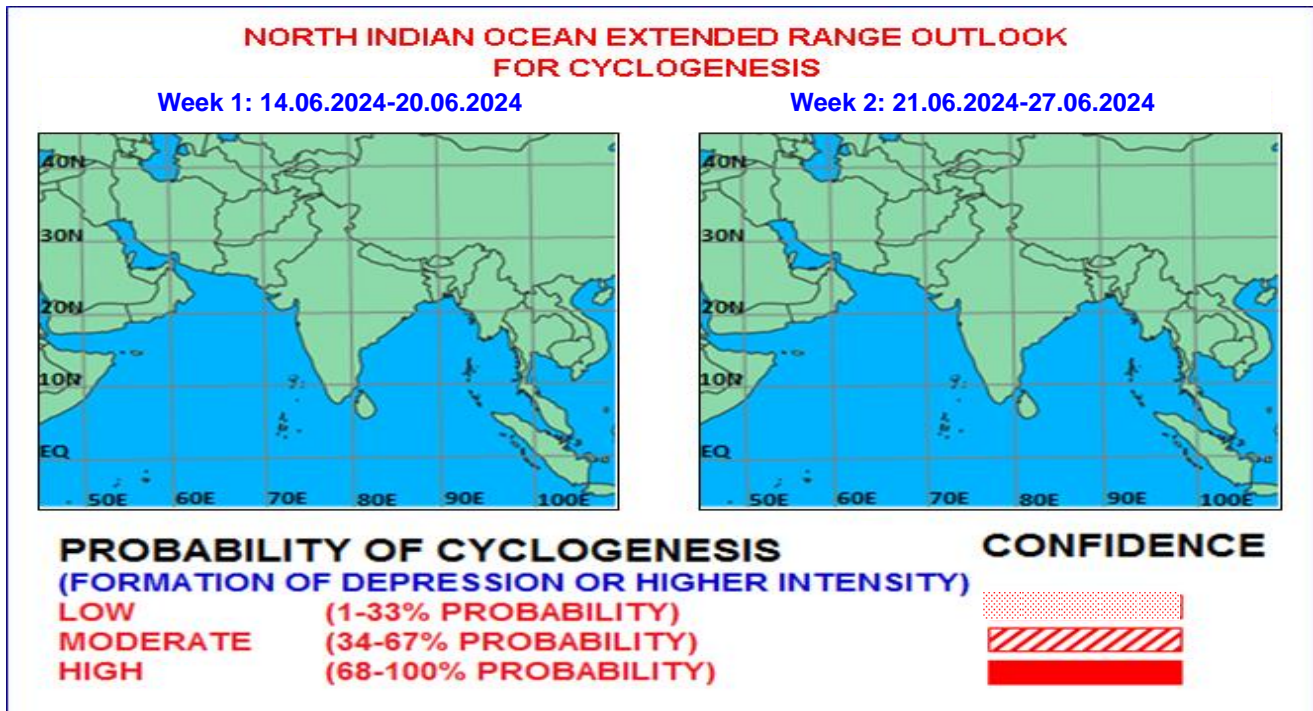


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

**I. Environmental features:**

The Madden Julian Oscillation (MJO) index is currently in Phase 7 with amplitude close to 1. The forecast from different models indicate that it would move across phases 7 and 8 during the entire forecast period with weak amplitude (less than 1). Dynamical models predict a very weak MJO signal over the next two weeks. Thus MJO, phase and amplitude are not favourable for enhancement of convective activity and cyclogenesis over the North Indian Ocean region during the entire forecast period.

The NCICS based forecast for zonal winds indicate westerly winds (3 to 5 mps) over eastcentral Bay of Bengal (BoB) alongwith Equatorial Rossby Waves (ERW) during the week 1. Easterly winds (3 to 5 mps) are likely over entire Arabian Sea (AS) and south BoB. Thus, during week 1, the zonal winds and equatorial waves are not likely to support cyclogenesis or enhancement of any convective activity over the region. During week 2, enhanced westerly winds (5-7 mps) are likely over both south AS and south BoB alongwith westwards propagating ERW over south BoB and south Peninsular India. Easterly winds (3-5 mps) are likely over north BoB and North AS. During this period, the equatorial waves are likely to support cyclogenesis over both the BoB and the AS.

The sea surface temperatures prevailing over BoB are around ~29°C. Whereas it is likely to be a little higher (~30°C) over western parts of BoB & south Andaman Sea. Similarly, over the AS, temperatures are higher (~30°C) over eastern parts. The guidance from INCOIS HYCOM model also indicates, tropical cyclone heat potential (TCHP) more than 100 KJ/cm<sup>2</sup> over southeast & adjoining areas of central AS & Equatorial Indian Ocean (EIO).

## II. Model Guidance:

Various models (GFS group of models, ECMWF, NCUMG) are indicating weakening of southwesterly winds over the region during week 1. The southwesterly monsoonal winds are likely to increase gradually during week 2. However, none of the deterministic models are indicating any cyclonic circulation/low pressure area/ depression over the region during next 10 days. IMD GPP is not indicating any potential zone for cyclogenesis during next 7 days.

ECMM model is not indicating any potential zone for the genesis during next two weeks. IMD extended range model CFSV2 is indicating enhanced southwesterly winds at 850 hPa level over entire BoB and AS during week 2. The wind anomaly field is also indicating a cyclonic circulation/ trough over eastcentral AS during week 2. The model does not indicate any significant probability of cyclogenesis over the region during week 1. However, during week 2, it is indicating low probability of cyclogenesis over eastcentral AS.

**Legends:** 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, European Centre for Medium Range Weather Forecasting (ECMWF), GPP: Genesis Potential Parameter, National Centre for Environment Prediction (NCEP) GFS, ECMM: ECMWF multi model, GEFS: GFS ensemble, 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 there is no probability of cyclogenesis during the entire forecast period. However, there is low probability of formation of a cyclonic circulation/low pressure area over eastcentral Arabian Sea during week 2.

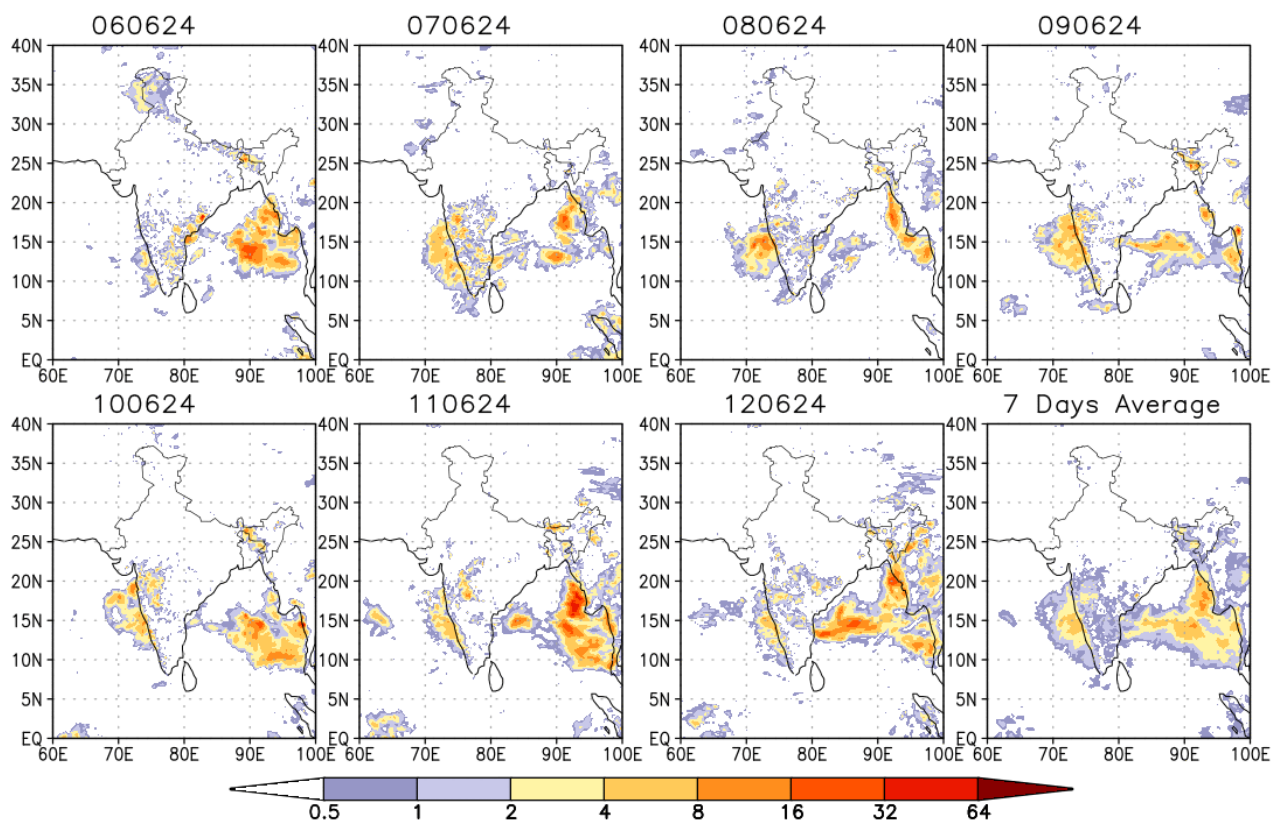
## IV. Verification of forecast issued during last two weeks:

Forecast issued on 30<sup>th</sup> May for second week (31.05.2024-06.06.2024) indicated low probability of cyclogenesis over eastcentral BoB. The forecast issued on 6<sup>th</sup> June for first week (31.05.2024-06.06.2024) predicted no cyclogenesis over both BoB and AS during the period. Actually, a cyclonic circulation lay over eastcentral BoB off Myanmar coast during 6<sup>th</sup>-7<sup>th</sup> June and became less marked thereafter.

Hence, non-occurrence of cyclogenesis (formation of depression) was correctly predicted.

NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 6<sup>th</sup> June to 12<sup>th</sup> June, 2024 are presented in **Fig. 2**.

IMD-NCMRWF Obs daily Rain (cm/day) 0.25 Grid [SAT+Gauge] 2024



**Fig. 2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 6<sup>th</sup> June to 12<sup>th</sup> June, 2024.**

**Next update: 20.06.2024**