

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

I. Environmental features:

Most of the models are indicating that MJO is currently in phase 1 with amplitude more than 1 and would continue in same phase during week 1. As per GEFS and ECMWF, it would slow down and move across phase 1 with amplitude becoming less than 1 during week 2. Thus, MJO is not likely to support enhancement of convective activity over North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during entire forecast period.

During week 1, NCICS based forecast for equatorial waves over the region indicates westerly winds (1-3 mps) over Andaman Sea and eastcentral BoB. Weak easterly winds are also indicated over East Equatorial Indian Ocean (EEIO) alongwith Rossby waves. Over the AS, easterlies are likely over south & adjoining central AS and Rossby waves are likely over Northeast AS. During week 2, westerly winds (1-3 mps) are likely over entire BoB region with Rossby waves over South Andaman Sea. Over the AS region, weak easterly winds (1-3 mps) are likely westcentral AS.

Positive Indian Ocean Dipole (IOD) (+1.85°C) conditions are prevailing over the Indian Ocean, indicating higher sea surface temperature (SST) over western Indian Ocean and colder SST over eastern Indian Ocean. Positive IOD is favourable for cyclogenesis over the AS region.

Model Guidance:

The deterministic models including IMD GFS is indicating a cyclonic circulation over BoB during beginning of week 2 with no further intensification. Over the AS, it is indicating a trough over southeast AS during beginning of week 2. NCEP GFS is indicating formation of a low pressure area over southeast AS on 19th with intensification into depression on 20th. It is further indicating nearly northwards movement till 24th with gradual west-northwestwards

movement thereafter. Over the BoB, no system is indicated. ECMWF is indicating a cyclonic circulation over southeast AS and also over southeast BoB during beginning of week 2 with no further intensification. NCUM is indicating a cyclonic circulation over southeast AS during later part of week 1 with no further intensification. It is also indicating a cyclonic circulation over south BoB during later part of week 1 with intensification into a depression over westcentral BoB during beginning of week 2. The ECMM is indicating a potential zone for formation of depression over northeast BoB during week 1 and another potential zone during beginning of week 2 over south BoB. It is also indicating a potential zone of formation of depression over southeast AS during beginning of week 2. The GPP is indicating a potential zone for cyclogenesis over Andaman Sea and adjoining central BoB during beginning of week 2. A feeble potential zone for cyclogenesis is also indicated during beginning of week 2 over southeast and adjoining eastcentral AS. The 850 hPa wind field and anomaly fields of IMD CFS V2 are indicating a cyclonic circulation over southeast AS and Andaman Sea during end of week 1 and also during week 2.

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, 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).

II. Inference:

Considering all the above it is inferred that there is likelihood of formation of

(a) a cyclonic circulation over southeast Arabian Sea during end of week 1 or beginning of week 2. Under its influence, a low pressure area is likely to form over the same region in the beginning of week 2 and there is low probability that it would concentrate into a depression subsequently.

(b) a cyclonic circulation over southeast Bay of Bengal and adjoining Andaman Sea during end of week 1 or beginning of week 2. Under its influence, a low pressure area is likely to form over south & adjoining central Bay of Bengal during beginning of week 2. It is likely to move westwards towards North Tamilnadu and Andhra Pradesh coasts with low probability of further intensification into depression over southwest & adjoining westcentral Bay of Bengal during week 2.

III. Verification of forecast issued during last two weeks:

The forecast issued on 28th September for week 2 (06.10.2023-12.10.2023) and the forecast issued on 5th October for week 1 (06.10.2023-12.10.2023) indicated no cyclonic circulation or cyclonic disturbance over the NIO region. Actually, no circulation formed over the region during the period.

IMD-NCMRWF satellite-gauge merged data plots during 28th September -4th October, 2023 are presented in Fig.2

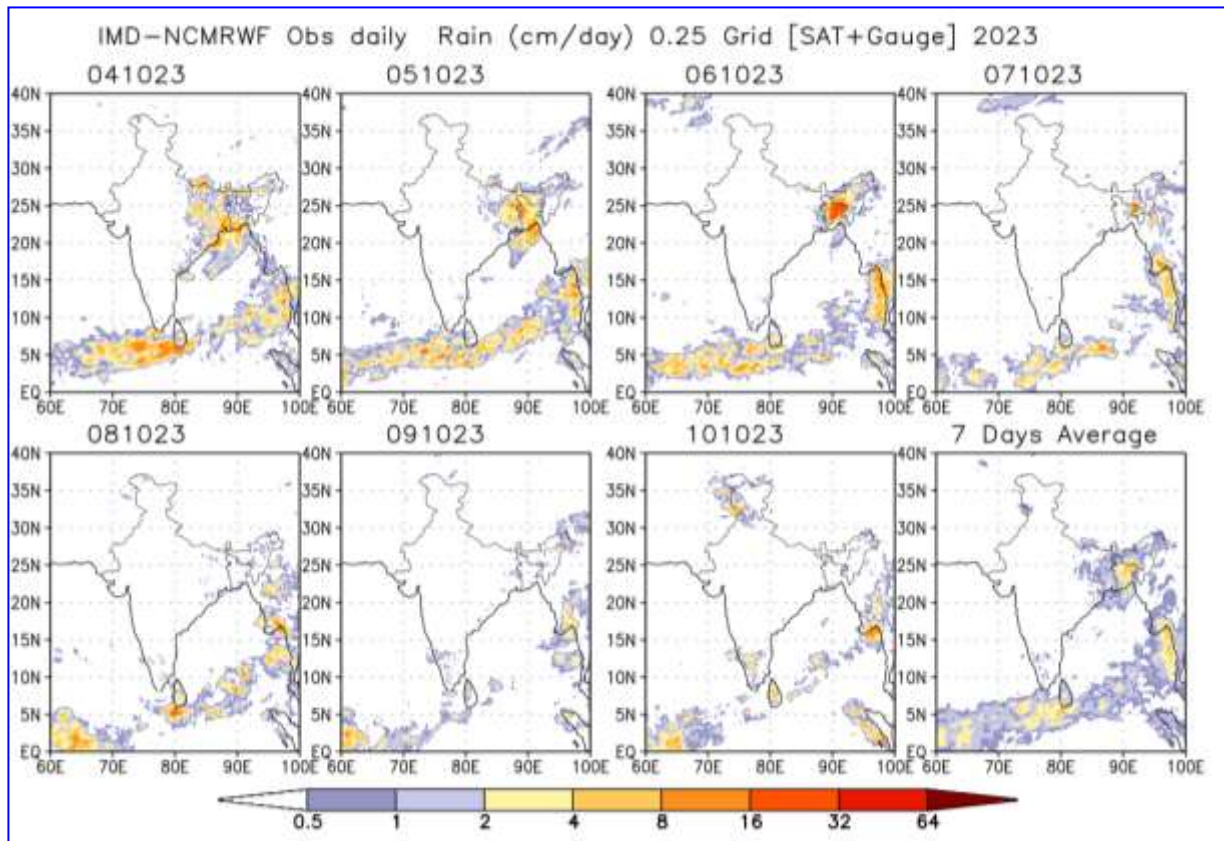


Fig.2: IMD-NCMRWF satellite-gauge merged data plots during 4th Oct. – 10th Oct., 2023

Next update: 19.10.2023