

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

I. Environmental features:

Most of the models are indicating that MJO will meander across the Western Hemisphere between phases 8 and 1 as it would move from the current phase 8 with amplitude nearly of 1 to phase 1 in the later half of the week 1 with gradual decreasing amplitude. Moving eastward in the beginning of week 2, it would enter into phase 2 with amplitude less than 1. Thus, MJO is not likely to support enhancement of convective activity over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during the week 1. It will be slightly favorable during week 2.

During week 1, NCICS based forecast for equatorial waves over the region indicates weak westerly winds (1-3 mps) over entire BoB except southern part adjacent to equatorial Indian Ocean where easterly wind remains. Weak (1-3 mps) easterly winds are also indicated over south AS which is extending towards adjoining westcentral AS during the same period. It is predicted that the weak westerly winds would be persisting over northern part of BoB in week 2 as well. The weak easterly wind is likely to remain only over south AS and south BoB. There is prominent presence of Equatorial Rossby Wave (ERW) activity over south BoB extending westward across south peninsular India covering up to southeast AS during week 1 and week 2. Under the conditions of above-mentioned equatorial waves and wind pattern, the convective activity is expected to increase gradually over south BoB, south peninsular India and southeast AS from the later part of week 1. However, it may not support the cyclogenesis over the region.

II. Model Guidance:

All the models (IMD GFS, IMD GEFS, NUM (G), NCUM (R), NEPS, ECMWF, NCEP GFS, IMD MME) are not indicating any cyclogenesis over both BoB and AS during next 7 days. The models are not showing any formation of low pressure system but weak easterly wave activity near extreme south peninsular India during week 1. The extended range model IMD

CFS V2 is also indicating similar features for both the basins during week 1. The model does not indicate any prominent zone for probable cyclogenesis over BoB and also over AS except over southwest AS near to Somalia coast (20-30 % probability during week 1. The model is showing very little probability (10-20 %) of cyclogenesis over southwest BoB and southeast AS during week 2. The ECMWF model indicates 10 % probability of cyclogenesis over south BoB 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).

III. Inference:

Considering all the above it is inferred that there is no probability of cyclogenesis over both the Bay of Bengal and Arabian Sea basins during the next 2 weeks.

IV. Verification of forecast issued during last two weeks:

Arabian Sea:

The forecast issued on 12th October for week 2 (20.10.2023-26.10.2023) indicated formation of a low pressure area over southeast Arabian Sea in the beginning of week 2 with is low probability of its intensification into a depression. The forecast issued on 19th October for week 1 (20.10.2023-26.10.2023) indicated high probability of intensification of the Low Pressure Area over southeast & adjoining southwest Arabian Sea into a Depression over southwest & adjoining westcentral Arabian Sea around 21st October.

Actually, a low-pressure area formed over Southeast & adjoining Eastcentral Arabian Sea on 18th October. It concentrated into a depression over southwest Arabian Sea on 20th October, 2023. It intensified into the Cyclonic Storm "Tej" on 21st October and further into Extremely Severe Cyclonic Storm on 22nd September, 2023 over westcentral & adjoining southwest Arabian Sea. It weakened before landfall and crossed Yemen coast near latitude 15.9°N and longitude 52.15°E close to south of Al Ghaidah between 0230 and 0330 hours IST of 24th October as a very severe cyclonic storm with maximum sustained wind speed reaching 125-135 kmph gusting to 150 kmph. After landfall, it weakened rapidly into a Severe Cyclonic in the morning (0530 hrs IST), Cyclonic Storm over around noon (1130 hours IST), Deep Depression in the afternoon (1430 hours IST), Depression in the evening (1730 hours IST) and Well Marked Low Pressure area over Yemen in the night (2030 hours IST) of 24th October, 2023.

Bay of Bengal:

The forecast issued on 12th October for week 2 (20.10.2023-26.10.2023) indicated formation of a low pressure area over south & adjoining central Bay of Bengal during beginning of week 2 with low probability of its intensification into depression over southwest & adjoining

westcentral Bay of Bengal. The forecast issued on 19th October for week 1 (20.10.2023-26.10.2023) indicated High probability of formation of low pressure area over central parts of Bay of Bengal by 21st morning and it's intensification into a depression over westcentral Bay of Bengal around 23rd October.

Actually, the low pressure area over southeast & adjoining eastcentral Bay of Bengal concentrated into a depression over Westcentral Bay of Bengal in the midnight (2330 hours IST) of 21st October, 2023. It intensified into the Cyclonic Storm "Hamoon" in the evening (1730 hours IST) of 23rd October, 2023. It intensified into Very Severe Cyclonic Storm over Northwest and adjoining Northeast Bay of Bengal in the morning (0830 hours IST) of 24th October and further into Very Severe Cyclonic Storm over Northwest and adjoining Northeast Bay of Bengal in the morning (0830 hours IST) of 24th October. Thereafter, it entered unfavourable environment and weakened into a Severe Cyclonic Storm over northeast Bay of Bengal in the evening (1730 hours IST of 24th October, 2023). It further weakened into a Cyclonic Storm and crossed Bangladesh coast to the south of Chittagong near latitude 21.9°N and longitude 91.9°E between 0130 hours IST & 0230 hours IST of 25th October as a Cyclonic Storm with wind speed of 75-85 kmph gusting to 95 kmph. It further weakened into a Deep Depression in the morning (0830 hours IST) of 25th, Depression over Mizoram around noon (1130 hours IST) and Well Marked Low Pressure area over north Mizoram and adjoining Manipur & Myanmar in the same evening (1730 hours IST) of the 25th October, 2023.

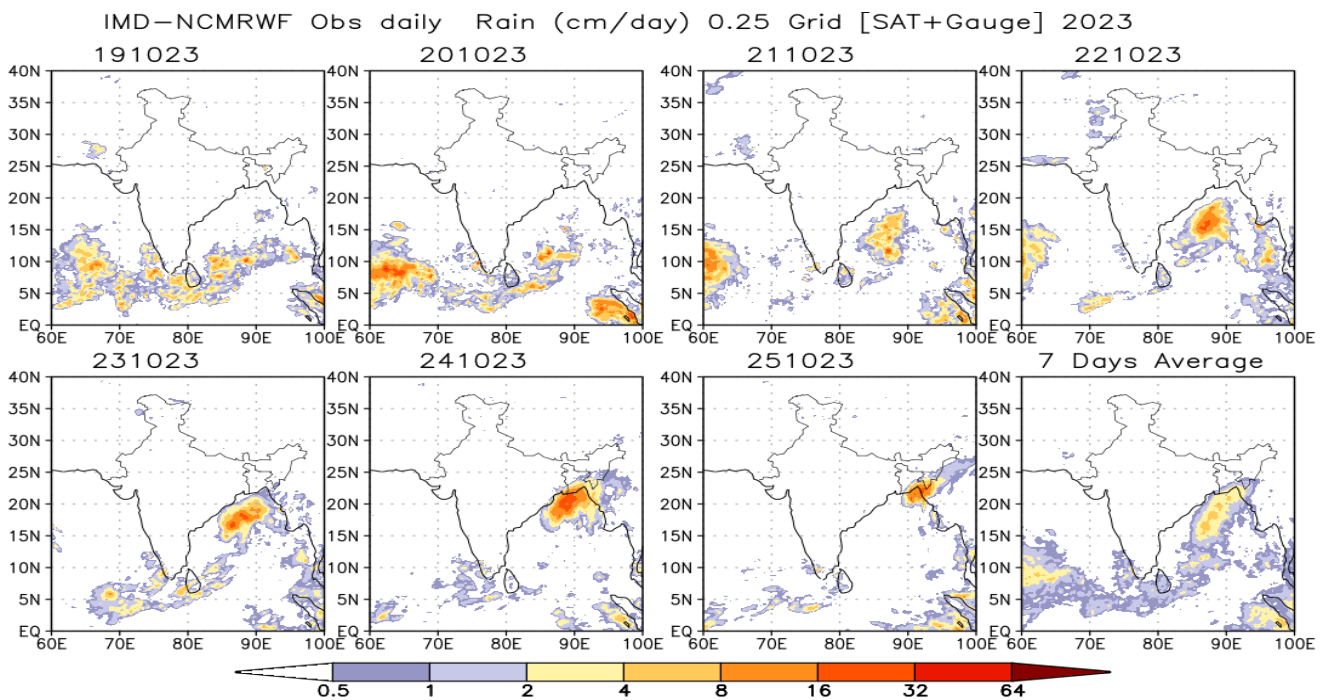


Fig. 2 IMD-NCMRWF satellite-gauge merged data plots during 19th-25th October

Next update: 02.11.2023