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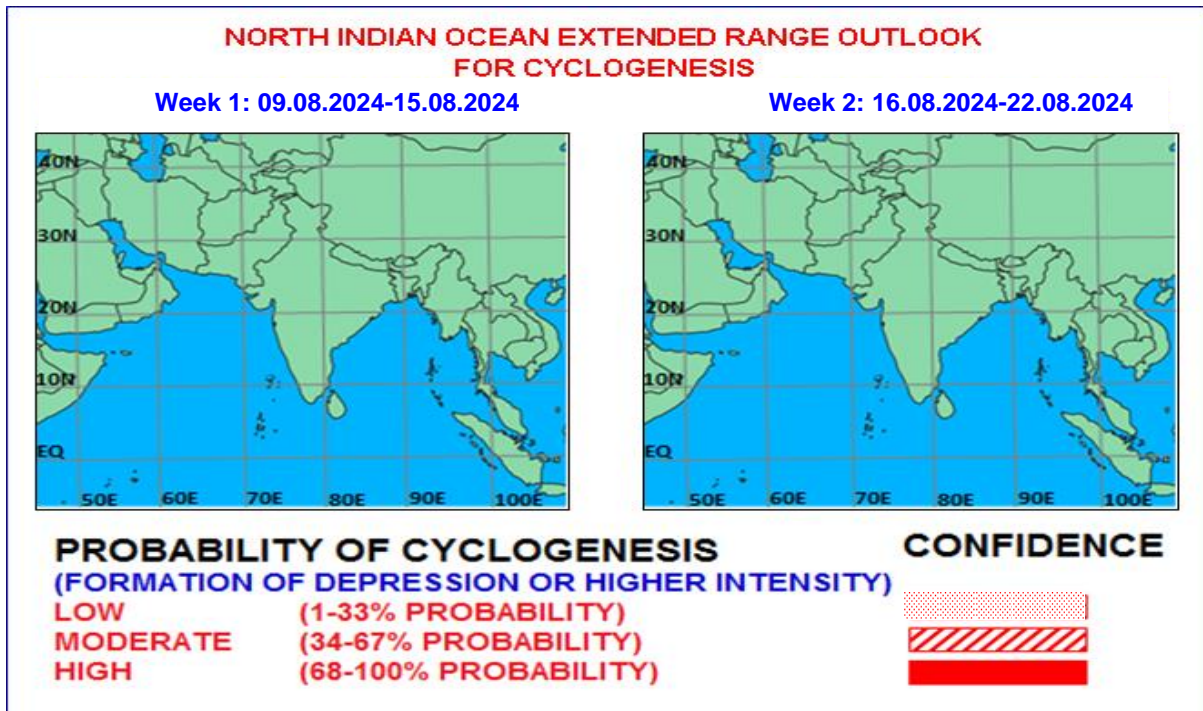


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

The ECMM based guidance for Madden Julian Oscillation (MJO) index indicates that MJO is currently in phase 1 with amplitude close to 1. It will continue in same phase with amplitude remaining close to 1 during first half of week 1. Thereafter It will move across phase 2 in second half of week 1 and into phase 3 during week 2 with amplitude remaining more than 1. Thus, MJO is likely to contribute to enhanced convection and cyclogenesis over the Arabian Sea (AS) during second half of week 1 and the Bay of Bengal (BoB) during week 2.

Equatorial Waves forecast by NCICS indicate, no significant convectively coupled equatorial waves like MJO, ERW and KW over the BoB and the AS during next two weeks.

II. Model Guidance:

Most of the numerical weather prediction models (IMD GFS, NCEP GFS, GEFS, ECMWF and NCUM) do not suggest formation of any low or cyclogenesis over the BoB and the AS. In the model forecasts, the cyclonic circulation over Jharkhand and adjoining North Odisha & north Chhattisgarh is likely to move further west-northwestwards during next 2-3 days reaching upto West Uttar Pradesh and adjoining Haryana & Delhi. There is also consensus amongst models about the location of the monsoon trough lying north of its normal position along the foothills of the Himalayas during next 7 days with the eastern end dipping towards north BoB for a few days. The models suggest a subdued monsoon rainfall activity over monsoon core zone including central and east India. However, most of the models indicate

that there could be enhanced rainfall activity over the regions along foothills of Himalayas and north-eastern states during the entire forecast period.

The weekly mean wind field of IMD extended range forecast system indicates subdued monsoonal flow at 850 hPa level with the monsoon trough to the north of its normal position during both the weeks. The forecast wind anomaly field at 850 hPa level also supports weak monsoonal activity over Indian region with the easterly wind over south & central parts of BoB and AS and south peninsular region during both the weeks. During week 1, wind anomaly also depicts two anticyclones over Arabian Sea and the Bay of Bengal and associated ridge line across central India. However, a cyclonic circulation is indicated over northwest India during the same period. The model also suggests low probability of cyclogenesis over Northern plains of India from Odisha to northwest India during both the weeks. The larger values of cyclogenesis probability are furnished over northwest India during week 1. However, the ECMWF extended range forecast does not indicate any cyclogenesis over NIO during the entire forecast period.

Legends: MJO: Madden Julian Oscillation, ERW: Equatorial Rossby Waves, KW: Kelvin Waves, 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 over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during the entire forecast period. However, existing cyclonic circulation over Jharkhand and neighbourhood is likely to move west-northwestwards during next 2-3 days.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 25th July for the second week (02.08.2024-08.08.2024) indicated formation of a cyclonic circulation over the head Bay area and neighbourhood at the end of first week around 1st August, 2024 and its west-northwestwards movement during the first half of week 2. The forecast issued on 1st August for first week (02.08.2024-08.08.2024) indicated the cyclonic circulation over Gangetic West Bengal to become a low pressure area by 2nd August and it's further intensification into a depression over land while moving westwards. Actually, a cyclonic circulation lay over Jharkhand & neighbourhood on 30th July, 2024. It lay over Gangetic West Bengal and south Bangladesh on 1st August, 2024. Under its influence, a low pressure area formed over Gangetic West Bengal and adjoining Jharkhand in the early morning (0530 hours IST) of 2nd August, 2024. It moved west-northwestwards and concentrated into a depression over North Jharkhand in the evening (1730 hours IST) of 2nd August, 2024 and into a deep depression over Southwest Bihar and adjoining Northwest Jharkhand in the morning (0830 hours IST) of 3rd August, 2024. Further moving west-northwestwards, it weakened into a depression over Northeast Rajasthan and neighbourhood in the morning (0530 hours IST) of 5th August, 2024,

into a Well Marked Low Pressure area over Central parts of Pakistan & neighbourhood in the early morning (0530 hours IST) of 6th August, 2024 and into a low pressure area over central parts of Pakistan in the morning (0830 hours IST) of 6th August, 2024.

The forecast issued on 1st August also indicated low probability of formation of a fresh cyclonic circulation/ low pressure area over coastal areas of Gangetic West Bengal and North Odisha towards the end of week 1 (around 8th August). Actually, a cyclonic circulation formed over Gangetic West Bengal and neighbourhood on 7th August and lay over West Jharkhand & neighbourhood on 8th August.

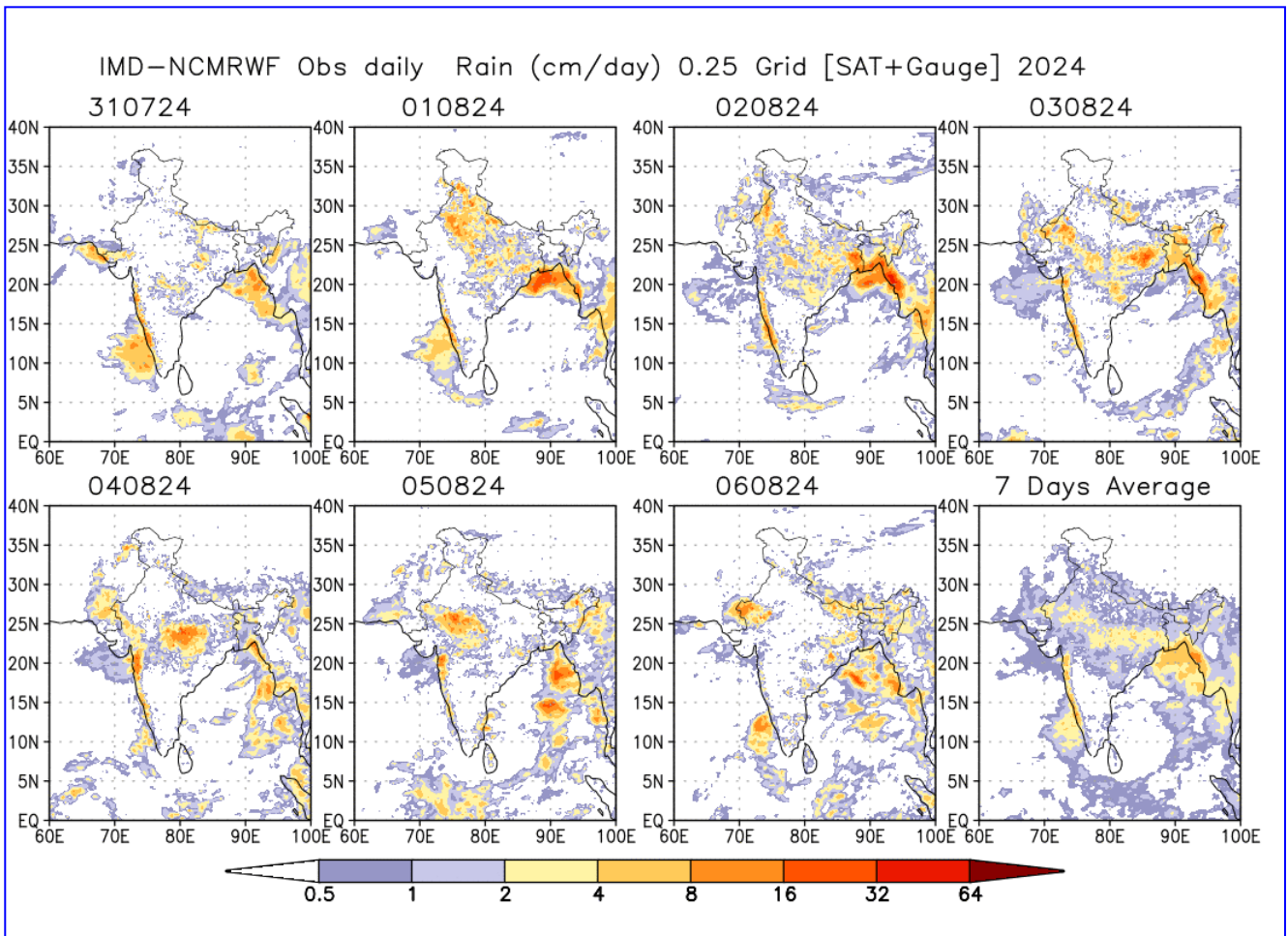


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 31st July to 06th August, 2024.

Next update: 15.08.2024