



Issued on 18.07.2024

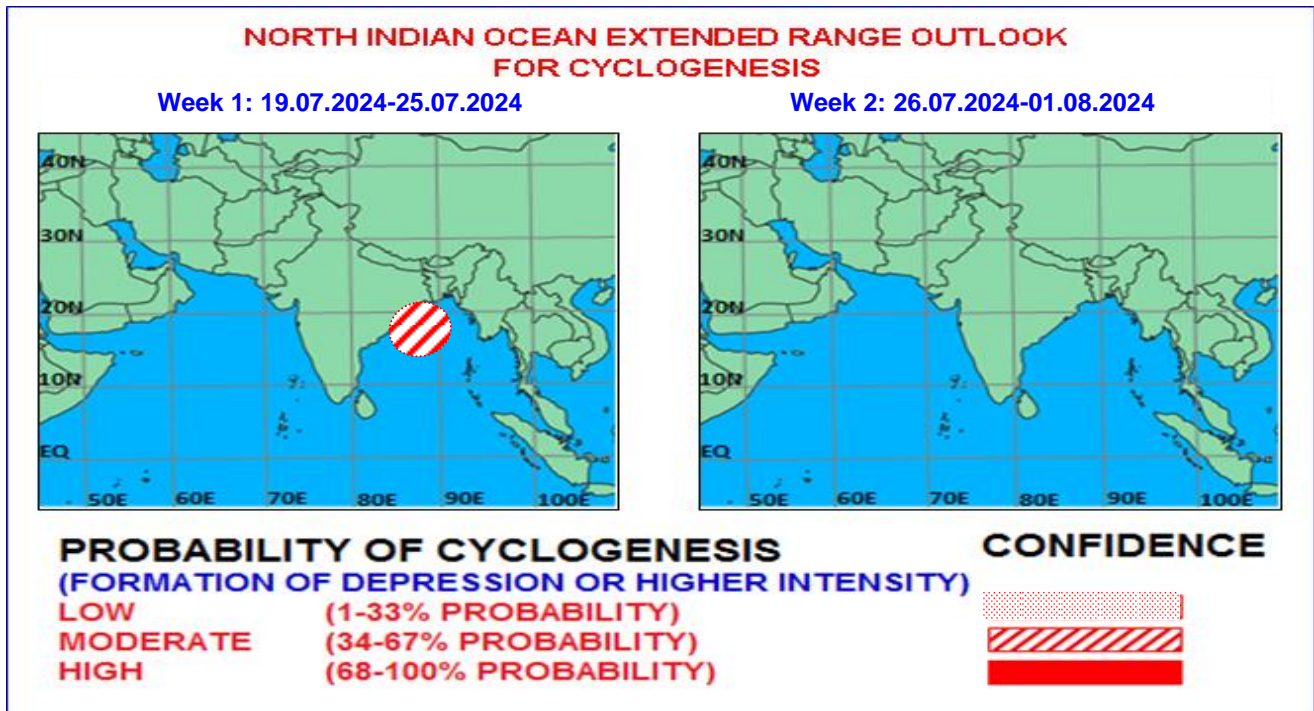


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

The Madden Julian Oscillation (MJO) index is currently located in phase 5 with amplitude more than 1 and likely to remain in same phase for next 2 more days and enter into phase 6 with weaker magnitude during remaining part of week 1. During week 2 the MJO will remain initially in phase 7 and subsequently in phase 8. Thus, MJO phase and amplitude is favourable for enhancement of convective activity over the north Bay of Bengal (BoB) during first half of week 1.

The NCICS based forecasts for zonal winds indicate strong easterly winds (~ 3 to 7 mps) over north BoB and adjoining central India and strong westerly winds (~ 3 to 7 mps) over the southern and adjoining east central part of BoB during first week. Additionally there is equatorial Rossby Wave (ERW) during first week over the same region. Subsequently, weak easterly winds (1-3 mps) over north BoB and westerly winds (~3-7 mps) over south and adjoining central BoB are likely during the second week. Thus, zonal winds and equatorial waves are likely to contribute towards the enhancement of convective activity and intensification of low pressure system over the BoB during first half of week 1.

II. Model Guidance:

Most of the numerical models (IMD GFS, NCEP GFS, GEFS, ECMWF and NCUM) indicate a low pressure area over northwest and adjoining west central Bay of Bengal on 18th July with likely northwestwards movement and slight intensification becoming well marked low pressure area/depression during next 2 days. ECMWF EPS is also indicating moderate probability of cyclogenesis over northwest & adjoining westcentral BoB during the first half of week 1.

IMD extended range model CFSv2 is indicating strong monsoonal flow at 850 hPa level over both the basins during week 1. The wind anomaly field is indicating a cyclonic circulation over northwest and adjoining west central parts of BoB during first half of week 1. The model also indicates 30-50% probability of cyclogenesis over northwest and adjoining westcentral Bay of Bengal during first half of week 1.

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 a high probability of the existing low-pressure area becoming well marked low-pressure area over northwest and adjoining westcentral Bay of Bengal by 19th July with northwestwards movement during first half of week 1. There is moderate probability for its intensification into a Depression over northwest Bay of Bengal and adjoining west-central BoB during first half of week 1.

IV. Verification of forecast issued during last two weeks:

Forecast: Forecast issued on 4th July for second week (12.07.2024-18.07.2024) indicated a low probability of the formation of a low pressure area over westcentral Bay of Bengal during later part of the second week. The forecast issued on 11th July for first week (12.07.2024-18.07.2024) predicted a high probability of formation of a cyclonic circulation/low-pressure area over northwest and adjoining westcentral Bay of Bengal with northwestwards movement during middle of the first week. However, no cyclogenesis (formation of depression) was indicated during both weeks.

Realised:

A cyclonic circulation lay over west-central BoB off coastal Andhra Pradesh coast on 13th July. Under its influence a low pressure area over Northwest and adjoining West Central BoB off the south Odisha coast was formed on 15th July. It moved northwestwards and became less marked on 17th over Vidarbha and adjoining Chhattisgarh.

Verification: Hence, the likely formation of a cyclonic circulation/low pressure area over BoB could be captured well two weeks in advance.

NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 11 to 17th July, 2024 are presented in **Fig. 2**.

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

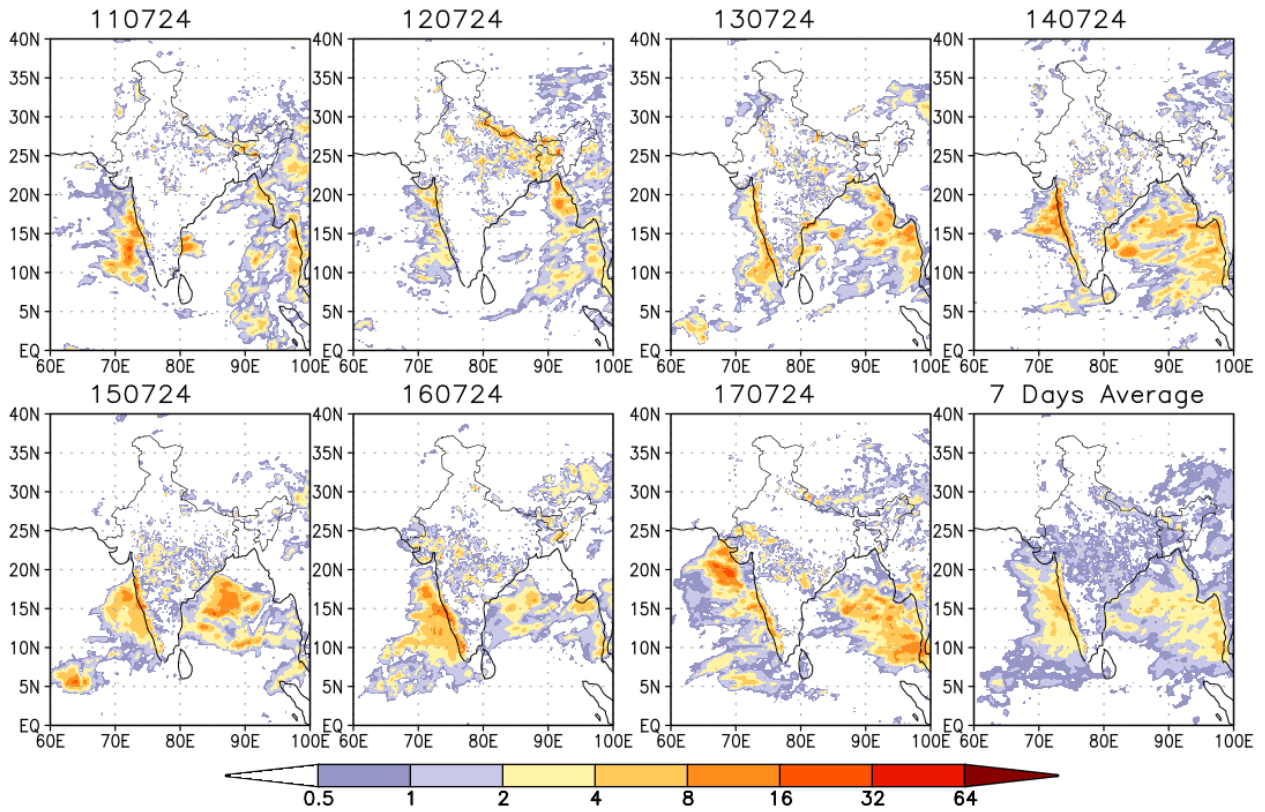


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of 24 hours accumulated realized rainfall during 11 to 17th July, 2024.

Next update: 25.07.2024