

Issued on 14.11.2024

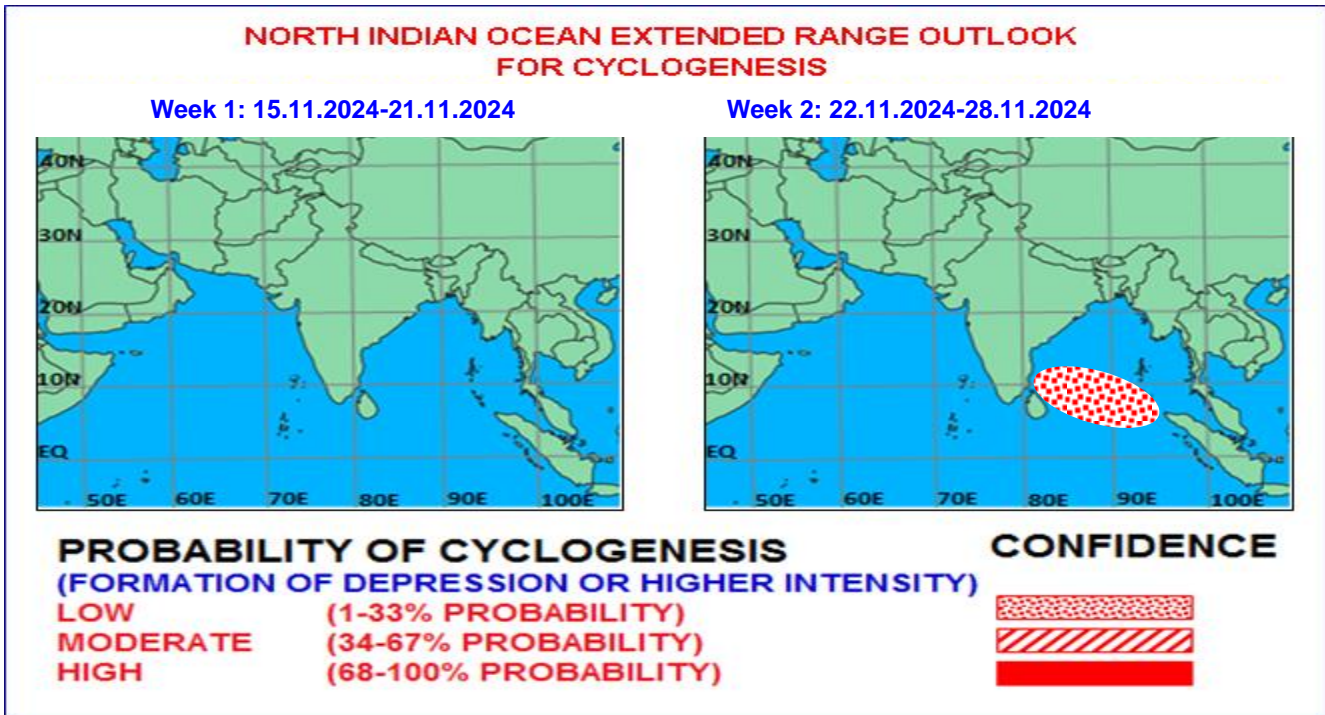


Fig. 1: Graphical Cyclogenesis over the north Indian Ocean during next two weeks

I. Environmental features:

Monitoring of Madden Julian Oscillations (MJO) indicates that currently, MJO has entered into phase 2 with an amplitude less than 1. Different model forecasts suggest slow eastward progress within phase 2 during the first week. The forecasts for the amplitude of the MJO signal by various models do not portray good agreement. The GEFS and CFS models show increasing amplitude during week 1 whereas ECMF and ECMM are not showing any significant change. The MJO is likely to enter into phase 3 during the first half of week 2. Thereafter, it is likely to move eastwards across phase 3 without any significant change in amplitude and reach upto phase 4 at the end of the second week. Thus, MJO would actively support the enhancement of convective activity and cyclogenesis over Arabian Sea (AS) during week 1 and over Bay of Bengal (BoB) during week 2.

The CFS-NCICS model-based forecast indicates that the westerly wind anomaly (3-5 mps) is likely to prevail over southeast BoB & adjoining Andaman Sea and North Equatorial Indian Ocean (NEIO) during first half of week 1. The westerly anomaly strengthened (5-7 mps) gradually over the same region and extended over southeast BoB during later part of the first week. A weaker (1-3 mps) westerly anomaly is likely over surrounding areas over central BoB. The westerly anomaly is likely to persist over south BoB and adjoining NEIO till the end of the second week. The easterly anomaly (1-3 mps) is likely to be seen over central parts of BoB during the first half of week 2 which spreads over adjoining southeast BoB and Andaman Sea during later part of the week. The weak (1-3 mps) westerly anomaly is likely over central and southeast AS during the first and second week.

Equatorial Rossby Waves (ERW) is likely over southwest BoB & adjoining Comorin area during second half week 1. It moved westwards gradually over southeast AS during second week. Low-frequency background waves are likely to persist over southwest BoB and Andaman Sea during the entire forecast period. All the features of zonal wind and equatorial waves indicate favorable conditions for the enhancement of convective activity over the southwest BoB during week 1 and over the south BoB during week 2.

The El Niño–Southern Oscillation (ENSO) is neutral condition, but on the negative side. The Indian Ocean Dipole (IOD) is likely to remain neutral, but weakly negative, during next 2 weeks. These broadscale features (transition towards LaNina and slightly negative IOD conditions) indicate a favourable environment for enhancement of convective activity/cyclogenesis over the BoB.

II. Model Guidance:

Various deterministic model forecasts are not suggesting any significant development of the low pressure system over the BoB and AS during the next 10 days. Easterly winds are prevailing over south BOB and AS during the same time. The deep trough in easterlies over the southwest BoB extending westward over Comorin and adjoining southeast AS is likely to persist during next 2-3 days. However, the ECMWF and NCEP GFS models indicate the formation of a cyclonic circulation/low pressure area over southeast BoB and adjoining NEIO around 22nd November.

IMD-CFS V2 (Extended Range Model) mean wind forecasts indicate persistent northeasterly winds over the Bay of Bengal due to northeast monsoon during both weeks. However, the wind anomaly for week 1 indicates a cyclonic circulation over southwest BoB. The wind anomaly for the second week does not portray any significant feature over the NIO region. The model also indicates a moderate probability (30-50%) of cyclogenesis over southeast BoB and over a pocket of southwest BoB during the second week. GPP values do not suggest any prominent zone during the next 7 days. However, A zone with GPP value more than 30 appears over the southeast BOB around 21st November. The ECMWF extended range ensemble forecasts indicate a moderate probability (30-50%) over southeast BoB and a low probability (10-30%) over central parts of south AS during week 1. The model also suggests a moderate probability (50-70 %) of cyclogenesis over the south Bay of Bengal from 21st to 28th November with a maximum over southwest BoB around 26th November.

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, ECMWF: European Centre for Medium Range Weather Forecasting, ECMF: ECMWF-Ensemble System, ECMM: ECMWF-Ensemble System Bias Corrected, GPP: Genesis Potential Parameter, NCEP GFS/GEFS/CFS: National Centre for Environment Prediction GFS/GEFSv12/CFSv2, IMD-GEFS: GFS ensemble forecast system of IMD, 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 all the above environmental conditions and model guidance it is inferred that there is no likelihood of any cyclogenesis over both Bay of Bengal and Arabian Sea during the first week.

However, there is a low probability of cyclogenesis over the south Bay of Bengal during the first half of the second week.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 31st October for week 2 (08-14 Nov) indicated formation of a Low Pressure Area over southwest BoB towards the end of the week 1 and its low probability of intensification into a depression over southwest BoB off Tamil Nadu coast during first half of week 2.

The forecast issued on 7th November indicated a low-pressure area is likely to form over southwest Bay of Bengal during first half of week 1. The cyclonic circulation / low pressure area is likely to move nearly westwards during this period towards Tamil Nadu/Sri Lanka coasts.

Actually, a cyclonic circulation formed over southwest Bay of Bengal 07th November, 2024. Under its influence, a low pressure area has formed over the same region at 0900 UTC of 11th November, 2024. It moved towards southwest & adjoining westcentral Bay of Bengal off north Tamil Nadu & adjoining south Andhra Pradesh coasts has become less marked at 0300 UTC of 13th November, 2024.

NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 7th November – 13th November, 2024 are presented in Fig. 2.

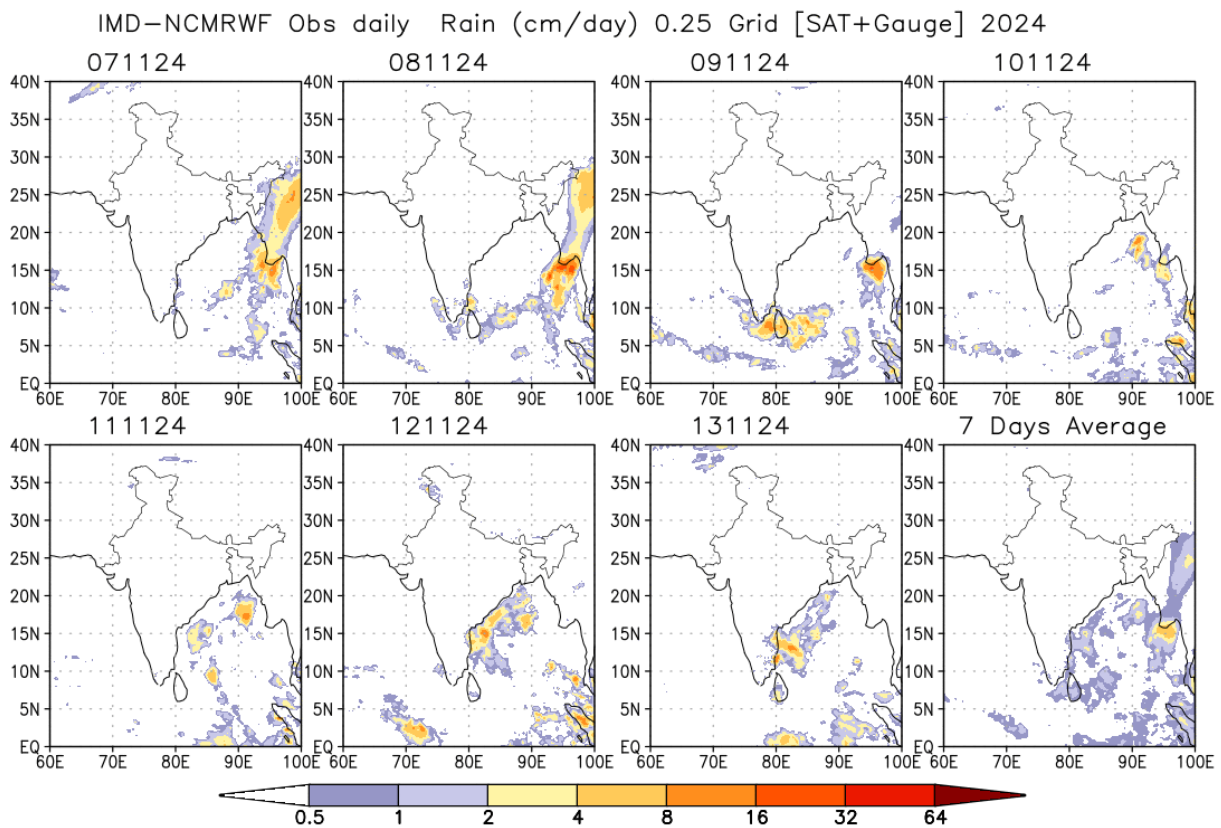


Fig. 2: NCMRWF-IMD satellite gauge merged data plots of realized 24 hours accumulated rainfall from 7th November – 13th November, 2024.

Next update: 21.11.2024