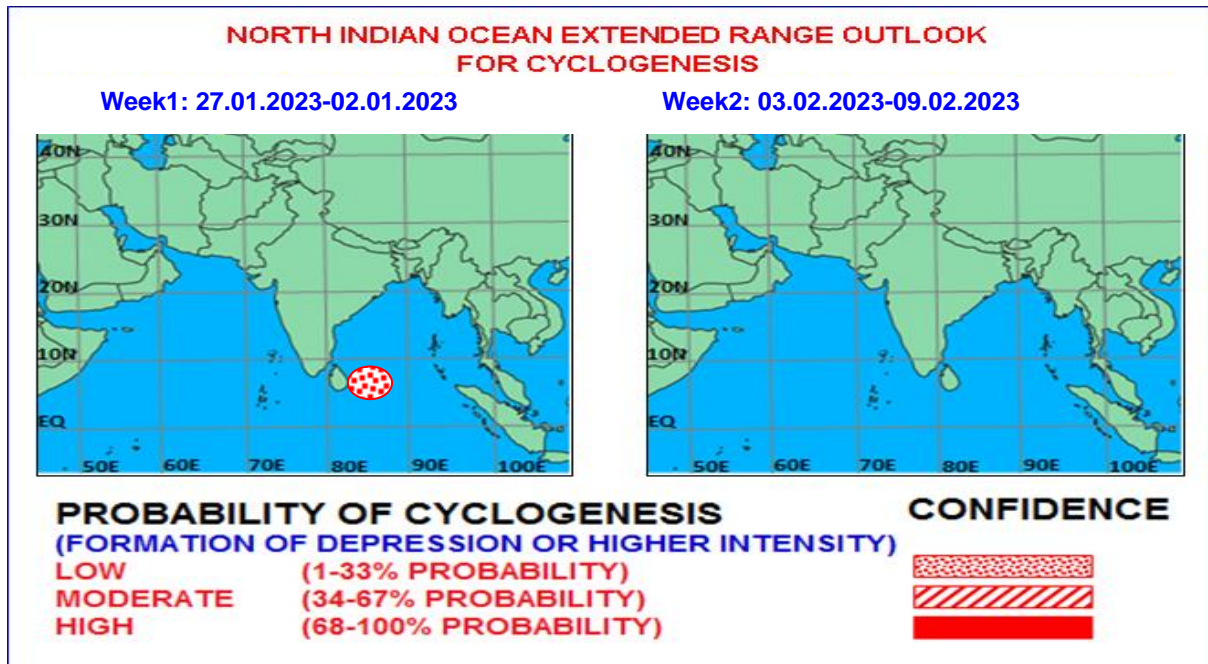




Issued on 26.01.2023



I. Environmental features:

The Madden Julian Oscillation (MJO) Index is currently in Phase 3 with amplitude more than 1. It will continue to be in the same phase during week 1 but with decreasing amplitude during the latter part of the week. During the first half of week 2, the amplitude will decrease further as it will move to phase 4. Thereafter, it would continue in the same phase with amplitude less than 1 during week 2. Thus, MJO will support enhancement of convective activity over the North Indian Ocean (NIO) during the entire forecast period while it will be more favorable during week 2.

The CFS based forecast for Equatorial Waves indicate weak easterly winds (1-5 mps) over southeast Bay of Bengal (BoB) and adjoining Andaman Sea during week 1. The weak westerly winds (1-3 mps) over southeast & central Arabian Sea (AS) during first part of the week 1 will gradually be replaced by the weak easterly. Weak easterly winds (1-3 mps) are persisting over Andaman Sea and entire BoB. The CFS forecasts also show that the Equatorial Rossby Waves (ERW) and Kelvin waves with strong westerly winds (more than 9 mps) over Equatorial Indian Ocean will be persisting during week 1.

During week 2, MJO will be dominant over equatorial Indian Ocean and adjoining south BoB and southeast AS with westerly winds (1-3 mps). ERW and Kelvin waves are likely over south BoB and adjoining equatorial Indian Ocean. Thus, equatorial waves are likely to contribute towards enhancement of convective activity over south BoB during the entire forecast period and over south and adjoining central AS during week 2.

The sea surface temperature is 27-28°C over south BoB, southeast AS and <26°C over central AS which is likely to remain same during the forecast duration as per CFS forecasts. Ocean thermal energy is 90-100 KJ/cm² over south Andaman Sea becoming 40-50 KJ/cm² over southwest BoB with local minima which extends over southeast AS and <20 KJ/cm² over central AS.

II. Model Guidance:

- Based on the guidance from various deterministic models (GFS group, NCUM group, ECMWF, IMD MME) a low pressure area (LPA) is likely form over southeast BoB during start of the week 1 which is likely to move gradually west-northwestward over southwest BoB, intensify further to become well-marked low pressure area and reach near south Sri Lanka coast in the beginning of the week 2. It is likely to move further in the same direction to influence south Tamil Nadu & Kerala coasts during later part of the week 2.
- Ensemble systems including IMD GEFS, NCMRWF NEPS and genesis potential parameter plots do not indicate any cyclogenesis over the NIO region during the forecast period. However, ECMWF ensemble prediction system is indicating likely formation of depression over southeast and adjoining southwest BoB during the end of week 1 and first part of week 2 (10-20% probability whereas nil probability during rest of the week 2.
- NCMRWF Coupled Extended Range Model (CNCUM) and IMD MME Coupled Forecast System (MME CFS V-2) Version 2 do not indicate any significant cyclogenesis over the NIO region during the forecast period.

III. Inference:

Considering the model guidance and various environmental features, it is inferred that a low pressure area is very likely to form over southeast BoB within a day which is very likely to move west-northwestwards, become well-marked low pressure area subsequently during next 2 days over the same region. The system is likely to move gradually west-northwestwards, intensify further into a depression over southwest Bay of Bengal around 31st January and reach near Sri Lanka coast at the end of week 1 and in the beginning of week 2. Hence there is low probability of cyclogenesis during later part of week 1.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 12th January, 2023 for week 2 (20.01.2023– 26.01.2023) indicated no cyclogenesis over the region. The forecast issued on 19th January, 2023 for week 1 (20.01.2023– 26.01.2023) indicated formation of a cyclonic circulation/low pressure area over southeast BoB during the latter part of week 1 with westwards movement towards southwest Bay of Bengal. Actually, a cyclonic circulation formed over east Equatorial Indian Ocean and adjoining Southeast Bay of Bengal at 0300 UTC of 25th January, 2023. Hence, formation of cyclonic circulation/low pressure area was correctly predicted in two weeks forecast.

The realized rainfall during 19th Jan, 2023 – 25th Jan, 2023 from satellite-gauge merged data is presented in Fig.1

IMD-NCMRWF Obs daily Rain (cm/day) 0.25 Grid [SAT+Gauge] 2023

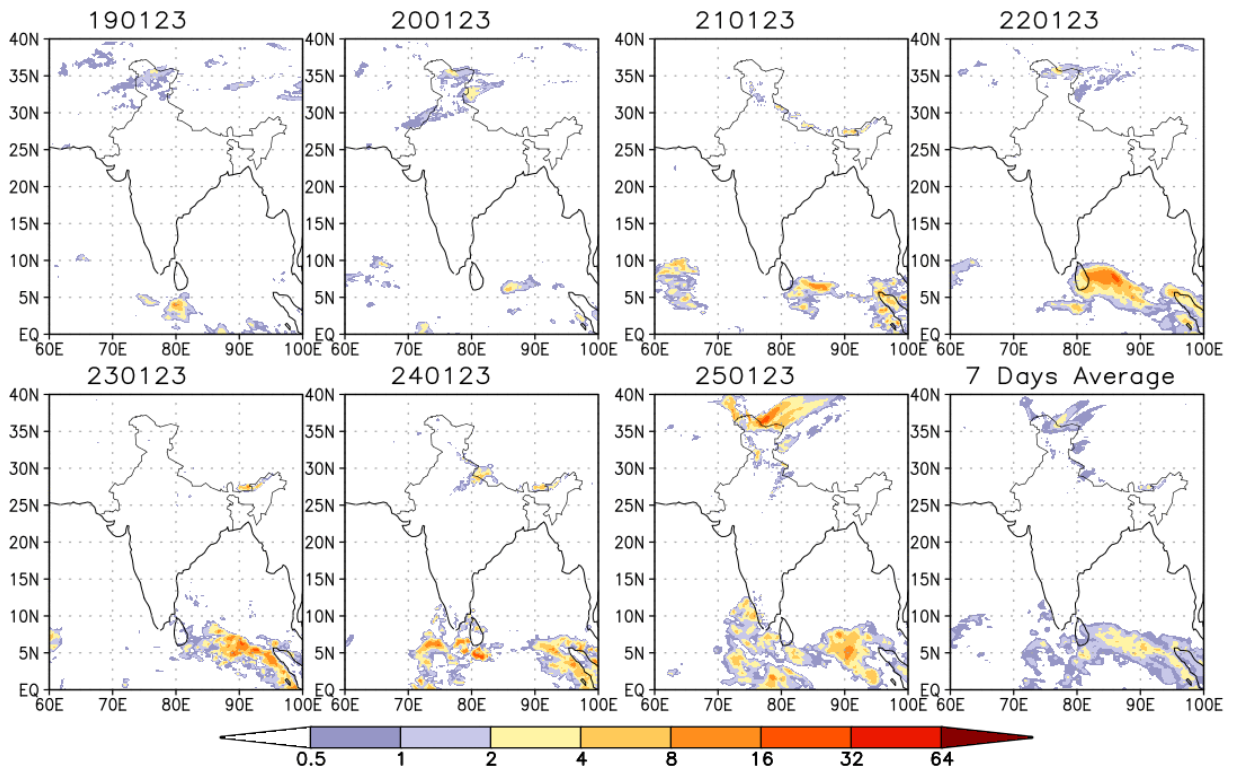


Fig.1: Rain gauge and satellite merged rainfall plots during 19th Jan, 2023 – 25th Jan, 2023

Next update: 02.02.2023