

The Madden Julian Oscillation (MJO) Index currently lies in phase 4 with amplitude less than 1. It is likely to move eastwards into phase 5 during first half of week 1. Thereafter, it will move across phases 6 & 7 during remaining part of forecast period. Hence, MJO is favourable for enhancement of convective activity over Bay of Bengal (BoB) during first half of week 1. Based on CFS forecast, 3-5 mps easterly winds are likely to prevail over central BoB and 3-5 mps westerly waves over Equatorial Indian Ocean (EIO) & adjoining south BoB during first half of week 1. Kelvin waves over south Arabian Sea (AS), low frequency background waves over EIO & adjoining south BoB and Rossby waves over southwest BoB are also likely during first half of week 1. The equatorial waves are likely to support convective activity over the south BoB region. During later part of week 1, no easterlies are seen over Indian region, westerly flow is likely over EIO, Kelvin waves over the BoB & adjoining EIO and Rossby waves over EIO & adjoining Malay Peninsula. The equatorial waves are not likely to support convective activity over the BoB during later part of week 1. Similarly, during week 2, Kelvin waves, low frequency background waves and Rossby waves are likely to prevail over EIO and adjoining Malay Peninsula and hence would not support convection.

Considering the sea conditions, sea surface temperatures (SST) is around 29-30°C over south & adj. westcentral BoB and adjoining southeast AS. The ocean heat content (OHC) is >100 KJ/cm² over southeast BoB and 60-80 KJ/cm² over remaining parts of south BoB and major parts of adjoining central BoB & Andaman Sea. Over the AS, OHC is >100 KJ/cm² over southeast and adjoining eastcentral AS.

Considering NWP model guidance, most of the models including IMD GFS, GEFS, NCUM, NEPS and ECMWF, ECMF ensemble etc. are indicating that the existing cyclonic circulation is likely to move west-northwestwards towards Sri Lanka-Tamil Nadu coasts without any significant intensification. However, IMD GPP is indicating potential zone for cyclogenesis over southeast BoB with gradual west-northwest movement during 8th to 12th.

Climatologically, during the period 1891-2020, there have been 44 cyclonic disturbances (CDs) (maximum sustained wind speed (MSW) ≥ 17 kt) over the NIO including 8 over AS and 36 over BoB (Fig.1a). Out of the 8 CDs over AS, 2 intensified into CS category (MSW ≥ 34 kt) and 4 into SCS category (MSW ≥ 48 kt) and over the BoB, out of 44 CDs, 13 intensified into CS and 15 into SCS category (Fig. 1 b).

Hence, various environmental features and model guidance indicate that the existing cyclonic circulation over south Andaman Sea would move west-northwestwards with enhanced convective activity over the region during first half of week 1 without significant intensification. However, a continuous watch is maintained and the system is being continuously monitored.

Verification of forecast issued during last two weeks:

The forecast issued on 24th March for week 2 (01.04.2022-07.04.2022) indicated likelihood of formation of a cyclonic circulation/low pressure area over southeast Bay of Bengal with enhanced convective activity over these regions during the period. The forecast issued on 31st March for week 1 (01.04.2022-07.04.2022) indicated likelihood of formation of a cyclonic circulation/low pressure area over southeast Bay of Bengal during later half of week 1. Actually, cyclonic circulation formed over south Andaman Sea & neighbourhood on 6th April. The realised rainfall during 31st to 6th March, 2022 from satellite-gauge merged data is presented in Fig.2. Hence, development of cyclonic circulation over south Andaman Sea & neighbourhood was well captured two weeks in advance. No cyclogenesis was also correctly picked in two weeks in advance.

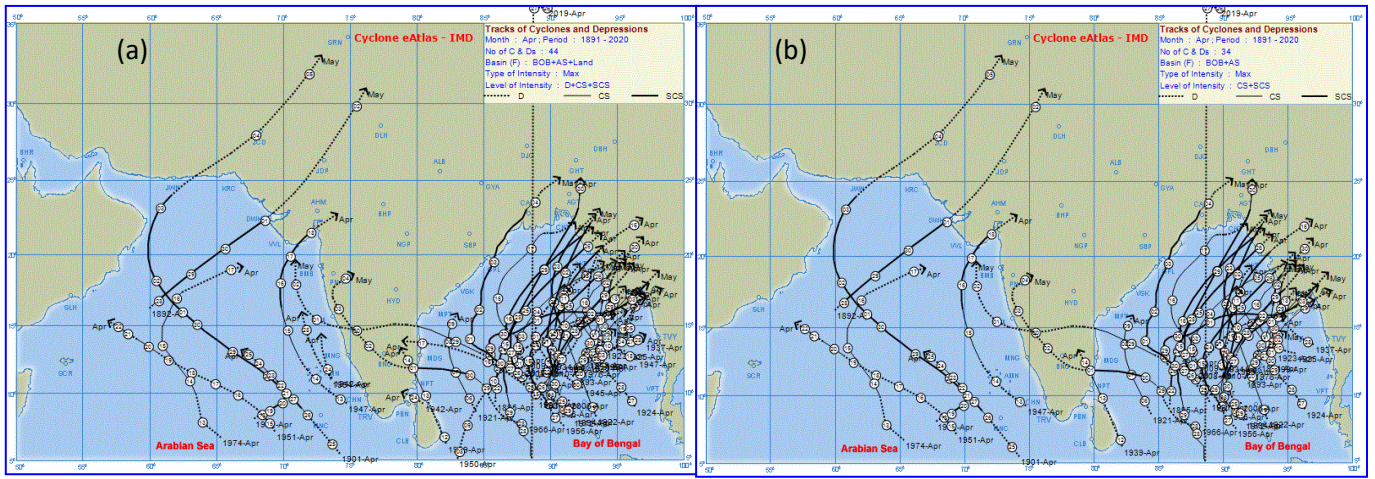


Fig. 1: Tracks of (a) cyclonic disturbances (MSW) \geq 17 kt and (b) cyclonic storms (MSW \geq 34 kt) in the month of April during the period 1891-2020

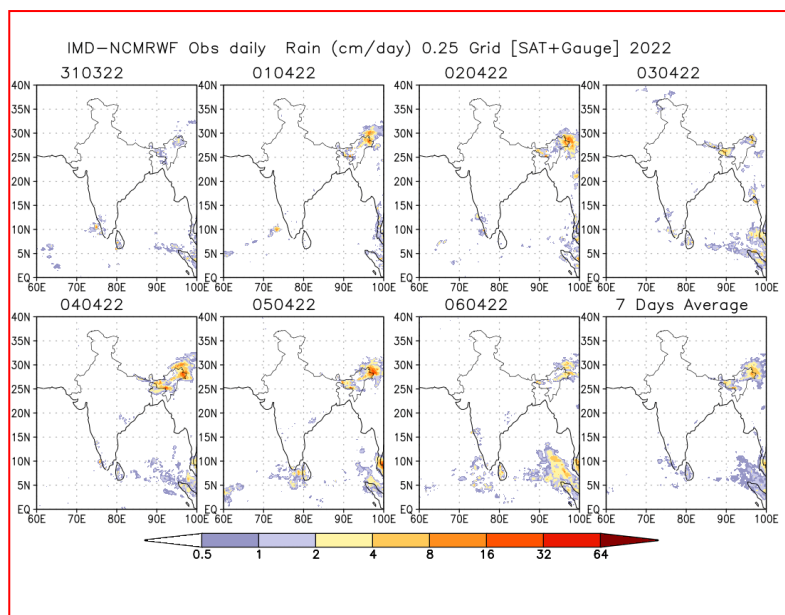


Fig.2: Rain gauge and satellite merged rainfall plots during 31st March to 06th April, 2022

Next update: 14.04.2022