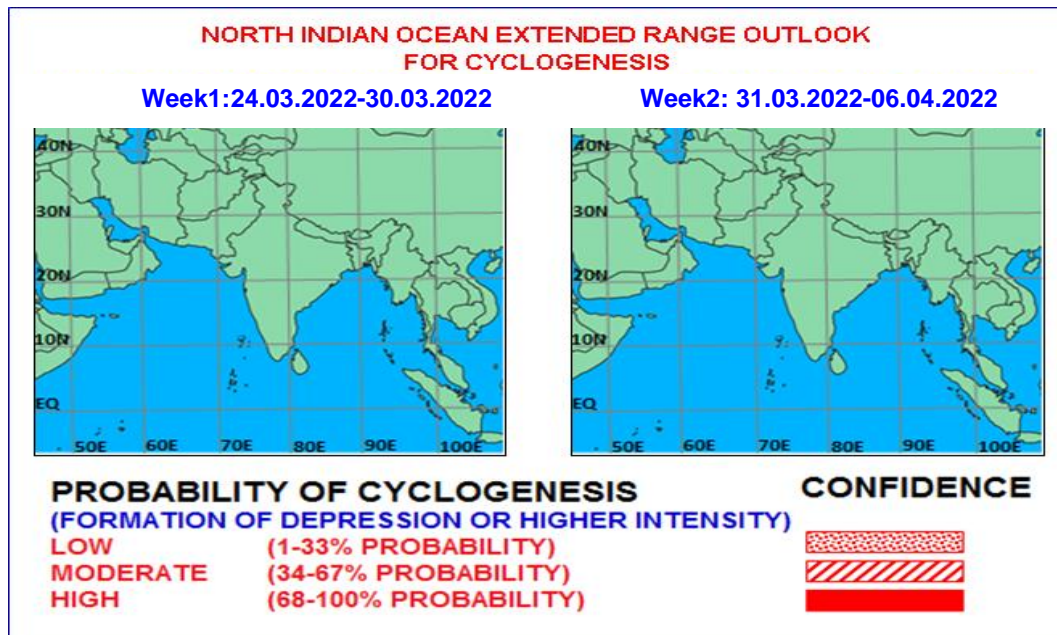




Issued on 24.03.2022



The Madden Julian Oscillation (MJO) Index currently lies in Phase 4 with amplitude more than 1 and will move across phase 5 during first half of week 1 with amplitude gradually becoming less than 1. Thereafter, it will move across phases 6 & 7 during remaining part of the forecast period. Thus, MJO phase is conducive for enhancement of convective activity over the Bay of Bengal (BoB) during first half of week1.

Based on CFS forecast, MJO, Kelvin waves (KW) and westerly winds (1-3 mps) are likely to prevail over north BoB and Equatorial Rossby Waves (ERW), KW alongwith westerly flow (3-5 mps) are likely to prevail over Equatorial Indian Ocean (EIO) & adjoining south Arabian Sea (AS) & southwest BoB during week 1. During week 2, weak westerlies (1-3 mps) are likely to prevail over central BoB. Considering the sea conditions, sea surface temperatures (SST) is around 29-30°C over south & adjoining eastcentral BoB and Andaman Sea and southeast & adjoining eastcentral AS. The ocean heat content (OHC) is >100 KJ/cm² over south Andaman Sea with energy gradually decreasing & becoming 60-80 KJ/cm² over major parts of south & adjoining eastcentral BoB and Andaman Sea and <50 KJ/cm² over northeast BoB. Over the AS, OHC is >100 KJ/cm² over southeast and adjoining eastcentral AS.

Considering, the numerical model guidance, models like IMD GFS, GEFS and NCUM (Global) are indicating development of cyclonic circulation/low pressure area over central parts of south AS during first half of week 1 with no significant intensification. Models like IMD GFS, NEPS and ECMWF ensemble are indicating likely development of cyclonic circulation over southeast BoB during first half of week 2 with west-northwest movement towards east coast of India & no significant intensification

Climatologically, during the period 1891-2020, there have been 2 cyclonic disturbances (CDs) over the BoB during 24-31 March and 44 CDs over North Indian Ocean (NIO) including 8 over AS and 36 over BoB (Fig.1).

Hence it is concluded that there is likelihood of formation of a cyclonic circulation/low pressure area over central parts of south Arabian Sea during week 1 and over southeast Bay of Bengal during week 2 with enhanced convective activity over these regions during the period. However, there is no likelihood of intensification of these circulations into a depression or higher intensity storms.

Verification of forecast issued during last two weeks:

The forecast issued on 10th March for week 2 (18.03.2022-24.03.2022) indicated no cyclogenesis over the NIO during the period. The forecast issued on 17th March for week 1 (18.03.2022-24.03.2022) indicated that the low pressure area over southeast Bay of Bengal would move east-northeastwards, intensify further and reach near Bangladesh and adjoining north Myanmar coasts on 22nd March morning. Actually, the low pressure area over southeast BoB on 16th gradually moved east-northeastwards and intensified into a well marked low pressure area on 18th and into a depression over southeast BoB on 19th. It then moved north-northeastwards and intensified into a deep depression on 21st March morning (0000 UTC). Continuing to move north-northeastwards, it crossed Myanmar coast near 16.0°N/94.2°E as a Deep Depression between 0800 and 0900 UTC of 22nd March 2022. It then moved nearly north-northeastwards along the coast, weakened gradually and emerged into eastcentral BOB close to Myanmar coast around 1800 UTC of 22nd as a Depression. Continuing to move in same direction, it again crossed Myanmar coast around 2100 UTC of 22nd and weakened into a Well Marked Low Pressure Area over Myanmar in the morning of 23rd March (0300 UTC). Thus, the track, intensity and landfall of deep depression was correctly predicted in week 1 forecast. Realised rainfall during 10th to 16th March, 2022 is presented in Fig.2.

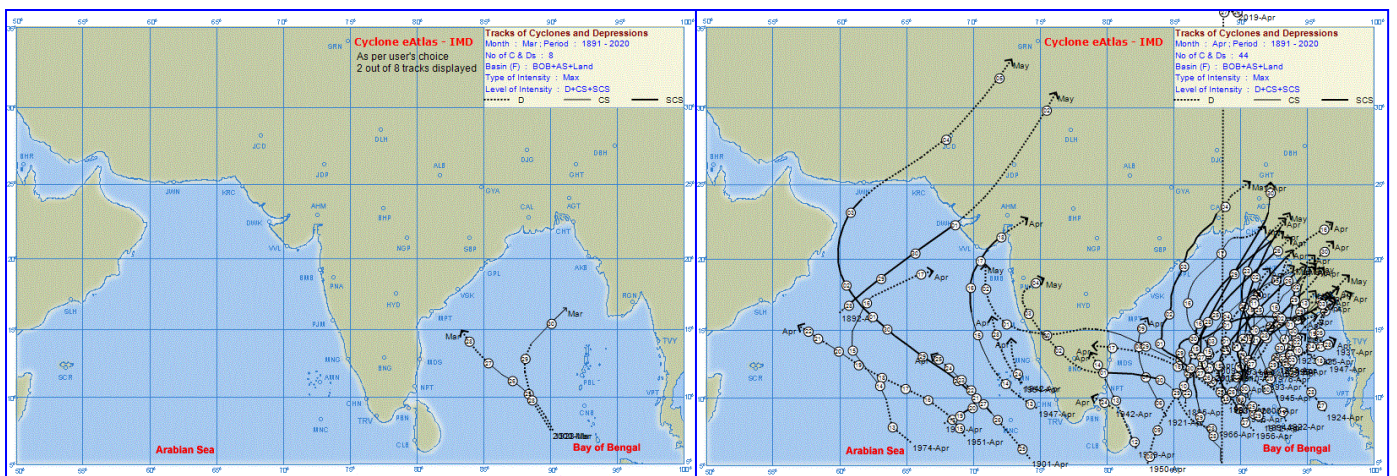


Fig. 1: Tracks of cyclonic disturbances during (a) 24-31 March and (b) the month of April during the period 1891-2020

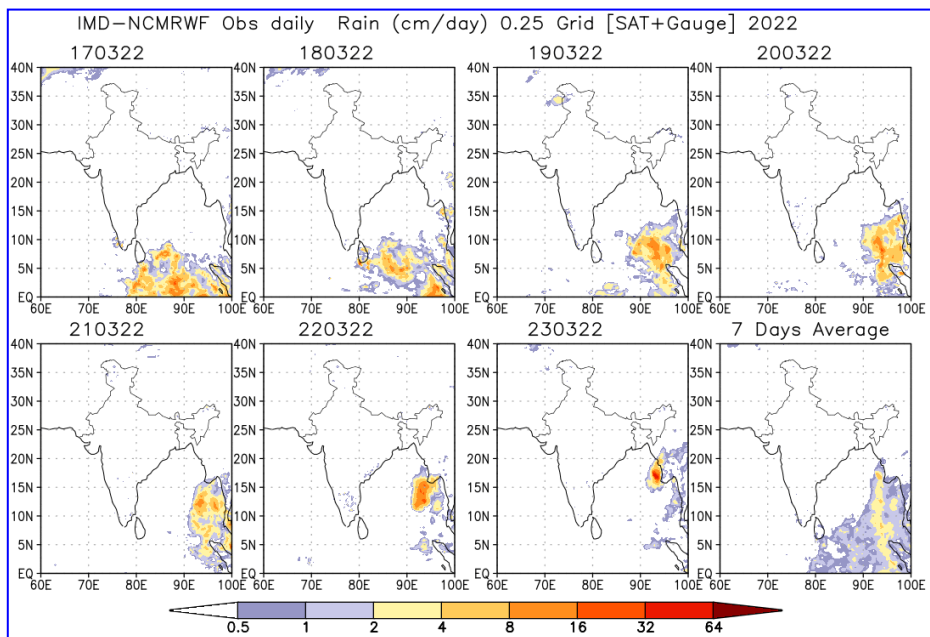


Fig.2: Rain gauge and satellite merged rainfall plots during 10th to 16th March, 2022