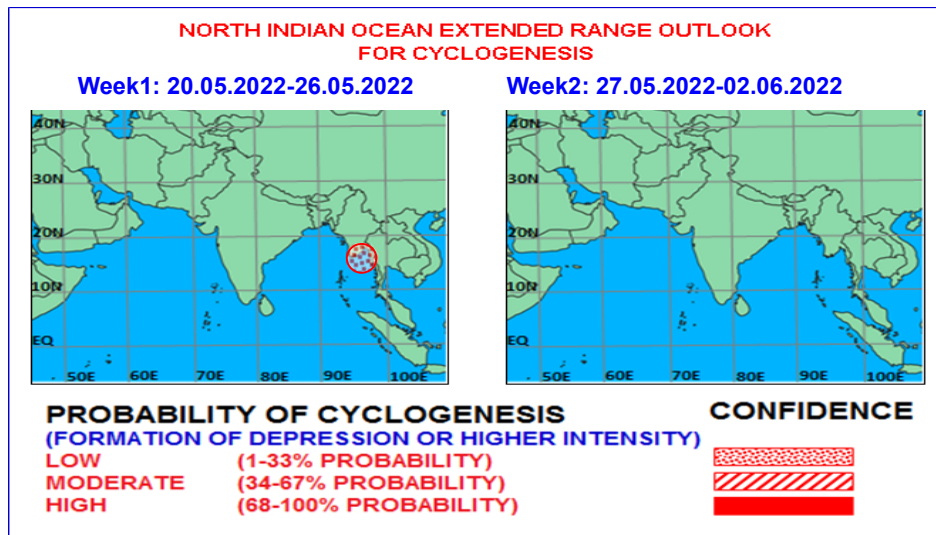




Issued on 19.05.2022



The Madden Julian Oscillation Index (MJO) currently lies in phase 8 with amplitude more than 1. It would move across phases 7 and 6 during week 1 and thereafter enter into phase 7 during week 2. Hence, MJO will not support any convective activity over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during entire forecast period.

Based on CFS forecast, during first half of week 1, westerly winds (5-7 mps) with Kelvin waves (KW), Equatorial Rossby Waves (ERW) & low frequency background waves (LW) over south BoB and easterlies (1-3 mps) over central BoB are likely to prevail. Thus, the conditions are conducive for development of cyclonic circulation over central BoB during beginning of week 1. Over the AS, westerly winds (3-5 mps) are likely over southeast AS and ERW over southwest AS. During later part of week 1, decrease in westerly winds (1-3 mps) is likely over south BoB. ERW is likely to prevail over north & adjoining central BoB. Weak easterlies are likely over north BoB. Thus, conditions are conducive for sustenance & further intensification of the cyclonic circulation over eastcentral BoB during week 1. However, during week2, entire Bay is flooded with westerly flow (1-3 mps) with no easterlies in the region. Similarly over the AS only westerly winds are likely to prevail. Thus conditions are not conducive for cyclogenesis during week 2.

Considering the sea conditions, sea surface temperature (SST) is around 29-30°C over entire BoB and AS with even higher temperatures over eastcentral BoB (31-32°C). The ocean heat content (OHC) is >100 KJ/cm² over southeast, eastcentral BoB and southwest BoB. Over the AS, OHC is >100 KJ/cm² over southeast and adjoining eastcentral AS.

Considering the model guidance, IMD GFS wind field is indicating a cyclonic circulation over eastcentral BoB with northeastward movement towards Myanmar. NCUM (G) is indicating enhanced southwesterly flow over eastcentral BoB and adjoining regions. The pressure fields of IMD GFS, GEFS, NEPS, are not indicating any potential zone for cyclogenesis over BoB. NCEP GFS and ECMWF are indicating low pressure area over eastcentral BoB during week 1. However ECMWF EPS and ERF model suggests probability of cyclogenesis over Gulf of Martaban and adjoining Myanmar during first half of week 1.

Climatologically, during the period 1961-2020, there have been 69 cyclonic disturbances (CDs) (maximum sustained wind speed (MSW) ≥ 17 kt) over the NIO with 48 over the BoB and 21 over the AS (Fig.1a). Out of these, 50 intensified into cyclonic storm (MSW) ≥ 34 kt) with 35 over the BoB & 15 over the AS (Fig. 1 b).

Hence, considering all the above, it is concluded that a low pressure area is likely to form over Eastcentral BOB towards beginning of week 1 in association with advance of southwest monsoon over the region. Considering the favourable equatorial waves over BoB & the wind flow pattern at surface level and the guidance from various models, low probability is assigned to intensification of existing cyclonic circulation over Gulf of Martaban into a depression over eastcentral BoB during week 1.

Verification of forecast issued during last two weeks:

The forecast issued on 5th May for week 2 (13.05.2022-19.05.2022) indicated no cyclogenesis over the region. The forecast issued on 12th May for week 1 (13.05.2022-19.05.2022) indicated no cyclogenesis over the region during week 1. However, it also indicated development of a low pressure area over Eastcentral BOB towards the end of week in association with advance of southwest monsoon over the region. Actually a cyclonic circulation lay over Gulf of Martaban and adjoining Myanmar on 19th morning. It is likely to lay as a low pressure area over the same region by tomorrow, the 20th May. Hence non-cyclogenesis was correctly captured two weeks in advance. Also likely formation of low pressure area over eastcentral BoB was also captured in week 1 forecast with slight temporal variation. The realised rainfall during 13th to 20th May, 2022 from satellite-gauge merged data is presented in Fig.2.

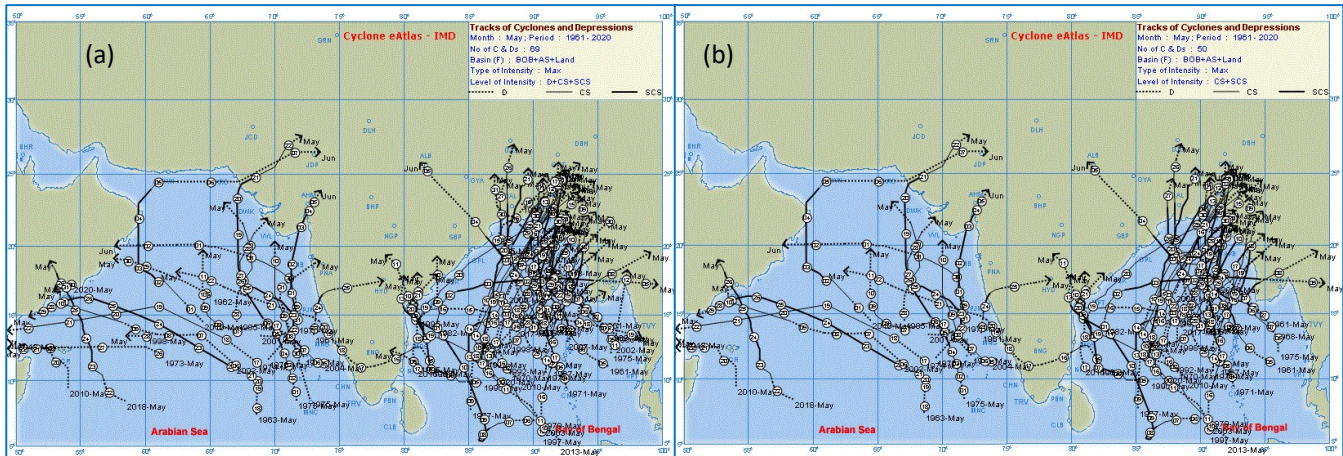


Fig. 1: Tracks of (a)cyclonic disturbances (MSW) ≥ 17 kt and (b) cyclonic storms (MSW ≥ 34 kt) over the North Indian Ocean during the month of May based on period of 1961-2020

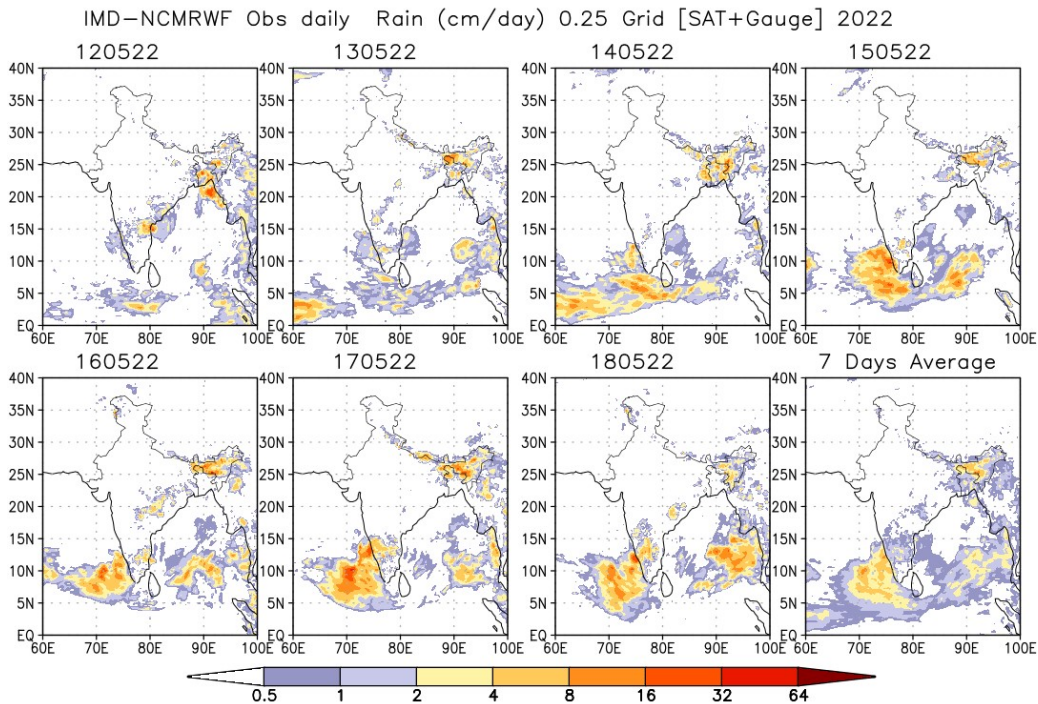


Fig.2: Rain gauge and satellite merged rainfall plots during 12th April to 18th May, 2022