

The Madden Julian Oscillation Index (MJO) currently lies in phase 4 with amplitude less than 1. It would continue in same phase during next 1 day with decreasing amplitude. Thereafter, it would move across phases 3 & 2 during subsequent 3 days. It would then move to phase 1 with amplitude remaining less than 1. Hence, MJO phase will support enhancement of convective activity over the Bay of Bengal (BoB) and Arabian Sea (AS) during next 2-3 days. The the MJO will be unfavourable with its movement to phase 1 for enhancement of convective activity over the BoB and AS, especially in second week.

Based on CFS forecast, during first half of week 1, feeble easterly winds (1-3 mps) over north BoB, westerlies (3-5 mps) over westcentral and south BoB and Rossby waves over south BoB are likely to prevail. Over the AS, feeble easterlies (1-3 mps) over northeast AS and feeble westerlies (1-3 mps) over south AS are likely to prevail. During later part of week 1, feeble easterlies (1-3 mps) are likely to prevail over westcentral & south AS and over north BoB. Similar conditions are likely to prevail during entire week 2 with easterlies spreading over entire central & south AS and also over south BoB. Thus, equatorial waves are likely to support development of cyclonic disturbances over the BoB and the AS during first half of week 1 only. From second half of week 2, they will not support any cyclogenesis over the north Indian Ocean and monsoonal flow will also gradually weaken.

The sea surface temperature (SST) is around 29-30°C over most parts of BoB & Andaman Sea. Over the AS, the SST is 29-30°C over eastcentral & northeast AS with slightly higher values (around 30°C) off Gujarat, Pakistan & Iran coasts. Colder sea with values <26°C is seen over southwest and westcentral AS. The ocean heat content (OHC) is 60-80 KJ/cm² over northeast and eastcentral AS.

The guidance from various deterministic & ensemble numerical models including IMD GFS, NCEP GFS, ECMWF, NCUM, NEPS, GEFS and IMD MME CFS(V2) etc. indicate likely formation of a low pressure area over coastal Gujarat during beginning of week 1 with low probability of its' further intensification into a depression over northeast AS off Gujarat coast during first half of week 1. IMD GPP index indicate potential zone for cyclogenesis over northeast AS off south Gujarat coast on 15th with gradual west-northwestward movement towards northwest AS during first half of week 1. ECMWF ensemble also indicates 30-60% probability of cyclogenesis over northeast AS in the first half of week 1.

Hence, considering the model guidance and environmental features, following inferences are drawn:

- i) Monsoonal flow is likely to weaken from second half of week 1.
- ii) A low pressure area is likely to form over coastal Gujarat in the beginning of week 1 with low probability of it's intensification into depression over northeast AS off Gujarat coast during first half of week 1.

Verification of forecast issued during last two weeks:

The forecast issued on 30th June for week 2 (08.07.2022-14.07.2022) indicated likely formation of a low pressure area over northwest BoB off Odisha coast during beginning of week 2. The forecast issued on 7th

July for week 1 (08.07.2022-14.07.2022) indicated that the cyclonic circulation over northwest & adjoining westcentral BoB would move west-northwestwards during next 2-3 days as a cyclonic circulation or a low pressure area with no further intensification. It also indicated development of a fresh cyclonic circulation over northwest BoB with intensification into a low pressure area/depression over BoB off Odisha coast during later part of week 1. Actually a cyclonic circulation formed over northwest & adjoining westcentral BoB off south Odisha- north Andhra Pradesh Coasts on 7th July. It lay as a low pressure area over south Odisha on 9th July and as a well marked low pressure area over south coastal Odisha on 12th July. It weakened into a low pressure area over the same region on 14th July. Thus, the likely formation of a cyclonic circulation/low pressure area over northwest BoB leading to enhanced convective activity over central India could be captured two weeks in advance.

The realised rainfall during 7th July, 2022 to 13th July 2022 from satellite-gauge merged data is presented in Fig.1.

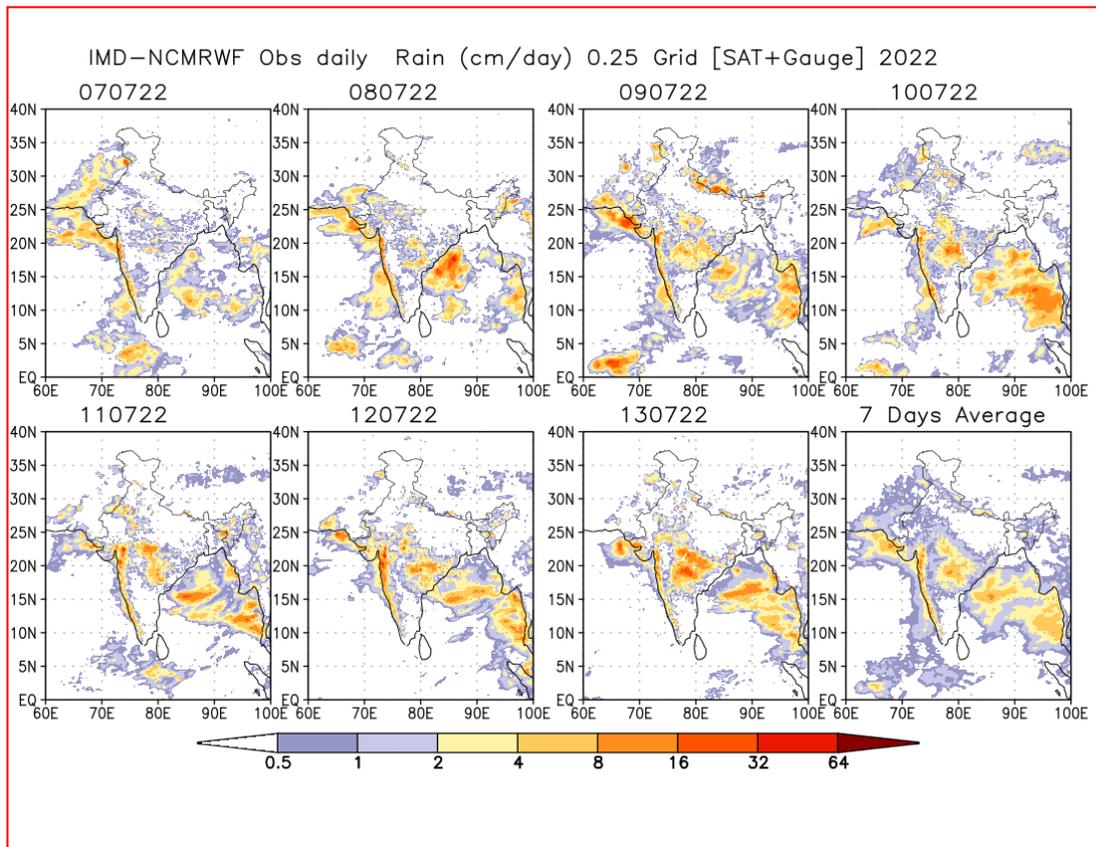


Fig.1: Rain gauge and satellite merged rainfall plots during 23rd to 29th June 2022

Next update: 21.07.2022