

The Madden Julian Oscillation Index (MJO) currently lies in phase 5 with amplitude more than 1. It would continue in same phase during entire forecast period with amplitude becoming less than 1 from 8th onwards. Hence, MJO phase will support enhancement of convective activity over the Bay of Bengal (BoB) during entire forecast period.

Based on CFS forecast, during first half of week 1, easterly winds (3-5 mps) over north BoB & northern parts of India alongwith Kelvin Waves (KW) and MJO are likely to prevail. Enhanced westerlies (5-7 mps) over southwest & adjoining westcentral AS and easterlies (3-5 mps) over extreme north AS are likely to prevail. During later part of week 1, weak easterlies (1-3 mps) over north BoB and weak westerlies (1-3 mps) over south AS are likely to prevail. Thus, equatorial waves are likely to support existing cyclonic circulation/ low pressure system over north BoB & north AS during week 1. Fresh development of cyclonic circulation/ low pressure system is also likely over the north and adjoining central Bay of Bengal. They will also contribute towards enhancement of southwest monsoonal flow over the Indian region, especially central and south India during week 1. During first half of week 2, weak westerlies (1-3 mps) over south BoB and weak westerlies (1-3 mps) alongwith KW over south AS are likely to prevail. During later part of week 2, weak easterlies (1-3 mps) alongwith KW over south AS and westerlies (1-3 mps) with Rossby Waves (RW) over south & central BoB region is likely. Thus, during week 2, equatorial waves will contribute towards development of cyclonic circulation over the BOB.

The sea surface temperature (SST) is around 29-30^oC over most parts of BoB & Andaman Sea. Over the AS, the SST is 28-29^oC over eastern parts of AS with slightly higher values over the northeast around 30^oC. Colder sea with values <26^oC is seen over southwest and westcentral AS. The ocean heat content (OHC) is >100 KJ/cm² over major parts of central BoB and some pockets over northwest & westcentral BoB. OHC is 70-90 over remaining parts of BoB. Over the AS, OHC 60-80 KJ/cm² over major parts of east AS and <50 KJ/cm² over entire west 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 that the existing cyclonic circulation over northwest & adjoining westcentral BoB would move west-northwestwards as a cyclonic circulation or a low pressure area without any significant intensification. Models are also indicating likely formation of another cyclonic circulation over central parts of BoB with likely formation of low pressure area/depression over northwest BoB in the later part of week 1. Further, it is also indicated that the remnant cyclonic circulation of this LPA/depression would emerge into northeast AS and move west-northwestwards with marginal intensification into a WML. The genesis potential parameter index indicates a potential zone of cyclogenesis over north AS on 7th and another over northwest BoB off Odisha coast on 9th. It also indicates another potential zone for cyclogenesis over central parts of north BoB on 12th moving towards northwest BoB on 13th. ECMWF EPS indicates likely formation of depression during later part of week 1 over northwest BoB off Odisha coast and likely emergence of it's remnant into northeast AS during first half of week 2 with very low probability of it's intensification into depression. NCEP GFS also indicates likely

formation of a cyclonic circulation/low pressure area over northwest BoB off Odisha coast at the end of week 2.

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

- i) Active monsoon conditions are likely to prevail over the central & north Bay of Bengal, north & adjoining eastcentral parts of Arabian Sea and central & south India and adjoining areas of northwest India during entire forecast period.
- ii) The existing 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
- iii) A fresh cyclonic circulation is likely to form over central parts of BoB with gradual west-northwestwards movement and intensification into a low pressure area/depression over northwest BoB off Odisha coast during later part of week 1 with low probability for further intensification into a depression. The remnant of this system is likely to emerge into northeast AS in the middle of week 2 and intensify marginally into a low pressure area/well marked low pressure area over northwest AS.

Verification of forecast issued during last two weeks:

The forecast issued on 23rd June for week 2 (01.07.2022-07.07.2022) indicated no probability of cyclogenesis over the NIO region during week 2. The forecast issued on 30th June (01.07.2022-07.07.2022) indicated likelihood of formation of a low pressure area/cyclonic circulation over the northwest BoB off Odisha coast during beginning of week 1 leading to enhanced monsoon activity over central India and west coast of India during the forecast period. A Low pressure area formed over north Odisha and adjoining south Jharkhand & Gangetic West Bengal in the middle of week 1 (on 4th July). It moved across central & northwest india and emerged into northeast Arabian Sea on 6th night and lay as a well marked low pressure area over South Pakistan & neighbourhood on 7th July.

The realised rainfall during 30th June, 2022 to 6th July 2022 from satellite-gauge merged data is presented in Fig.1.

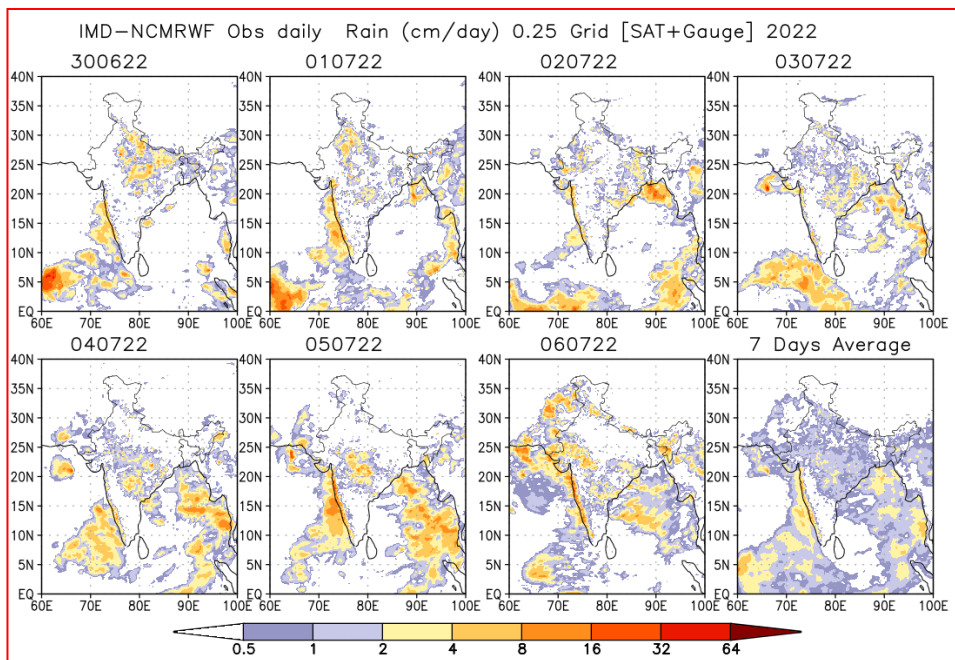


Fig.1: Rain gauge and satellite merged rainfall plots during 23rd to 29th June 2022

Next update: 14.07.2022