

The Madden Julian Oscillation Index (MJO) currently lies in phase 1 with amplitude more than 1. It would continue in same phase during first half of week 1 with amplitude remaining more than 1. Thereafter, it would move across phases 2 & 3 during remaining part of the forecast period with amplitude remaining less than 1. Hence, MJO phase will support enhancement of convective activity over the Bay of Bengal (BoB) and the Arabian Sea (AS) from later part of week 1.

Based on CFS forecast, easterlies (1-3 mps) are likely to prevail over south & adjoining central BoB, south & adjoining central AS and intervening central & south India during entire forecast period. No significant westerly winds are likely to prevail over the region, indicating weak monsoon conditions and no favourable conditions for development of a low pressure system over the region.

The sea surface temperature (SST) is around 29-30^oC over most parts of BoB & Andaman Sea. Over the AS, the SST is 29-30^oC over eastcentral & northeast AS with slightly higher values (around 30^oC) off Gujarat, Pakistan & Iran coasts. Colder sea with values <26^oC 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 no cyclogenesis over both the basins during entire forecast period. IMD GPP index indicates potential zone for cyclogenesis over northeast AS off south Gujarat coast on 25th July with west-northwestwards movement towards northwest AS during later part of week 1. ECMWF ensemble also indicates low probability 05-20% probability of cyclogenesis over northeast AS in the later part of week 1. Models also indicate weakening of monsoonal flow over Arabian Sea, Bay of Bengal and central India.

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

- i) Weak monsoon conditions are likely to prevail over the Arabian Sea, Bay of Bengal and central & southwestern parts of India commencing from later part of week 1.
- ii) No cyclogenesis is likely over the Bay of Bengal and the Arabian Sea during entire forecast period.

Verification of forecast issued during last two weeks:

The forecast issued on 7th July for week 2 (15.07.2022-21.07.2022) indicated that the remnant of low pressure area over northwest BoB off Odisha coast would 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 Arabian Sea. The forecast issued on 14th July for week 1 (15.07.2022-21.07.2022) indicated that 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.

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 became less marked over the same region on 14th July. Another low pressure area formed over northeast Arabian Sea and adjoining coastal areas of Gujarat at 0000 UTC and it lay as a well marked low pressure area over Northeast Arabian Sea and adjoining areas at 0300 UTC of 15th July, 2022. It intensified into depression over northeast Arabian Sea off Saurashtra coast at 0300 UTC of 16th July, 2022. It moved north-northwestwards for some time and recurved westwards thereafter. It weakened into a well marked low pressure area over central parts of north Arabian Sea at 0000 UTC 18th July, 2022 and a low pressure area over northwest Arabian Sea at 1200 UTC of 19th July.

Thus, the likely formation of a low pressure area over northeast Arabian Sea could be detected 2 weeks in advance and formation of depression could be captured one week in advance.

The realised rainfall during 14th July, 2022 to 20th July 2022 from satellite-gauge merged data is presented in Fig.1.

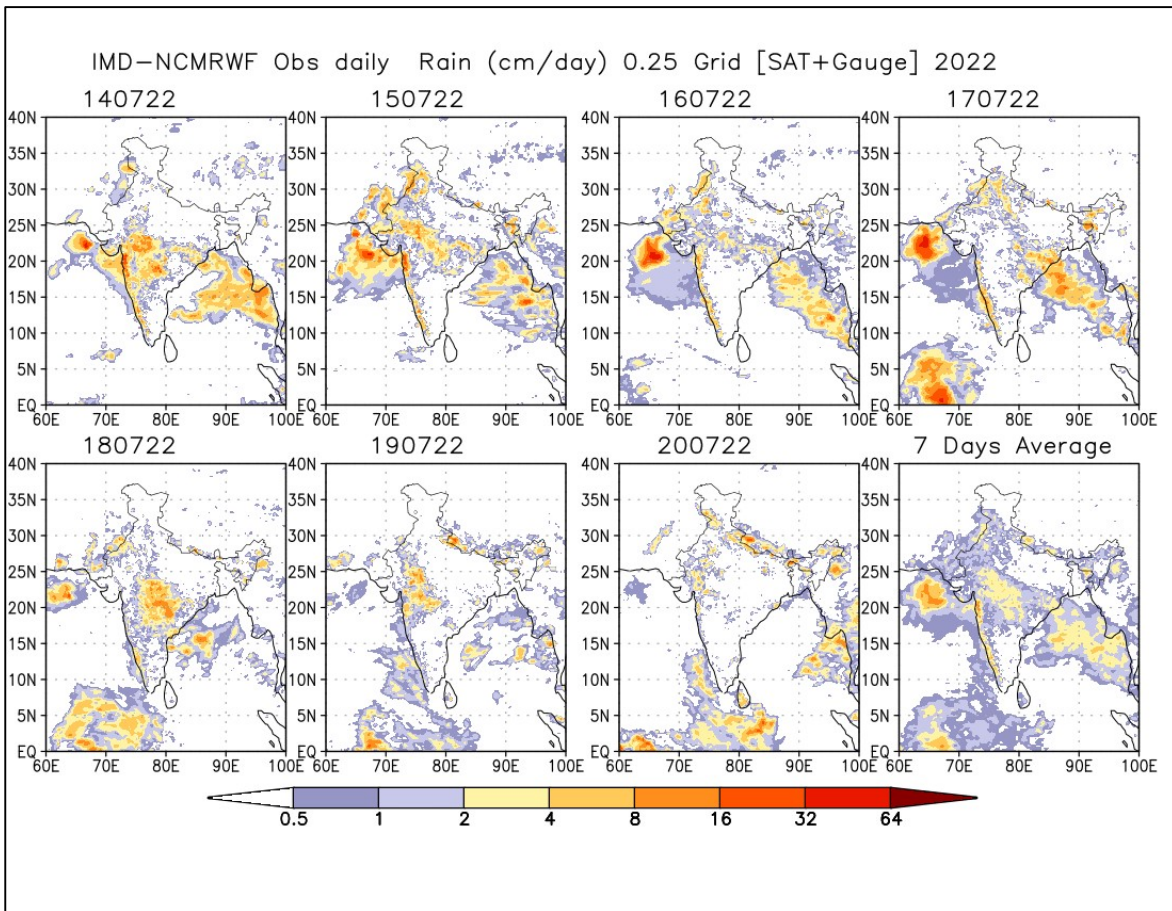


Fig.1: Rain gauge and satellite merged rainfall plots during 14th to 20th July 2022

Next update: 28.07.2022