

The Madden Julian Oscillation Index (MJO) currently lies in phase 6 with amplitude more than 1 and would continue in same phase during the entire forecast period.

Based on CFS forecast for equatorial waves, during week 1, weak easterlies (1-3 mps) are likely over south BoB and weak westerlies (1-3 mps) are likely over south AS & central parts of BoB. Equatorial Rossby Waves (ERW) are likely over Northwest Pacific. During week 2, ERW, MJO and weak westerlies (1-3 mps) are likely over eastcentral BoB and adjoining north Andaman Sea. Thus, equatorial waves are likely to support cyclogenesis over central parts of BoB during week 2.

The guidance from various deterministic numerical models including IMD GFS, GEFS, ECMWF, NCUM, NEPS, NCEP GFS indicate likely formation of a cyclonic circulation over north Andaman Sea and adjoining eastcentral BoB during middle of week 1. NCUM, NEPS and ECMWF are also indicating simultaneous formation of a cyclonic circulation over eastcentral and adjoining southeast AS during middle of week 1. These models further indicate that the cyclonic circulation over BoB would move west-northwestwards and become a low pressure area by 20th October. The GFS group of models are not indicating further intensification of the circulations over BoB and AS. However, NCUM, NEPS and ECMWF are indicating likely intensification of the low pressure area over BoB into depression during first half of week 2. The extended range forecast model IMD MME CFS (V2) is indicating west-northwestwards movement of existing cyclonic circulation over central parts of south BoB and its emergence into eastcentral AS during week 2. This model is also indicating development of a cyclonic circulation over North Andaman Sea with west-northwestwards movement during week 2. This model is indicating 20-40% of cyclogenesis over central parts of BoB during week 1 and 10-30% probability of cyclogenesis over eastcentral AS. It is also indicating 10-20% cyclogenesis over central and south BoB and 30-40% cyclogenesis over northeast AS during week 2. ECMF ensemble prediction system is indicating 30-40% probability of cyclogenesis over central & south BoB during first half of week 2 and (10-30%) probability of cyclogenesis over south AS during middle of week 1 to middle of week 2.

Hence, considering the model guidance and various environmental features, it is inferred that

- (i) there is likelihood of formation of a cyclonic circulation over north Andaman Sea and neighbourhood around 17th/18th with west-northwestwards movement and further intensification into a low pressure area by 20th October over southeast and adjoining central parts of Bay of Bengal. Further, there is moderate probability that the low pressure area would move west-northwestwards and concentrate into a depression over westcentral Bay of Bengal during beginning of the week 2.
- (ii) there is also likelihood of formation of a cyclonic circulation over eastcentral and adjoining southeast Arabian Sea around 17th/18th with intensification upto a low pressure area and southeastwards movement.

Verification of forecast issued during last two weeks:

The forecast issued on 29th September for week 2 (07.10.2022 – 13.10.2022) indicated development of a cyclonic circulation over eastcentral BoB and adjoining North Andaman Sea during week 2 with low probability of it's further intensification and west-northwestwards movement. The forecast issued on 6th September for week 1 (07.10.2022 – 13.10.2022) indicated the existing cyclonic circulation over central parts of south BoB to move west-northwestwards with low probability of it's intensification into a low pressure area.

Actually, a cyclonic circulation formed over central parts of South Bay of Bengal in the lower/middle tropospheric levels on 7th October. It moved westwards and lay over Southwest Bay of Bengal & adjoining north Sri Lanka coast on 9th and over the same areas in the lower tropospheric levels on 10th before getting less marked on 11th October 2022.

Hence, likely development of a cyclonic circulation over central parts of Bay of Bengal alongwith it's intensity and movement could be captured two weeks in advance.

The realized rainfall during 6th to 12th October, 2022 from satellite-gauge merged data is presented in Fig.1.

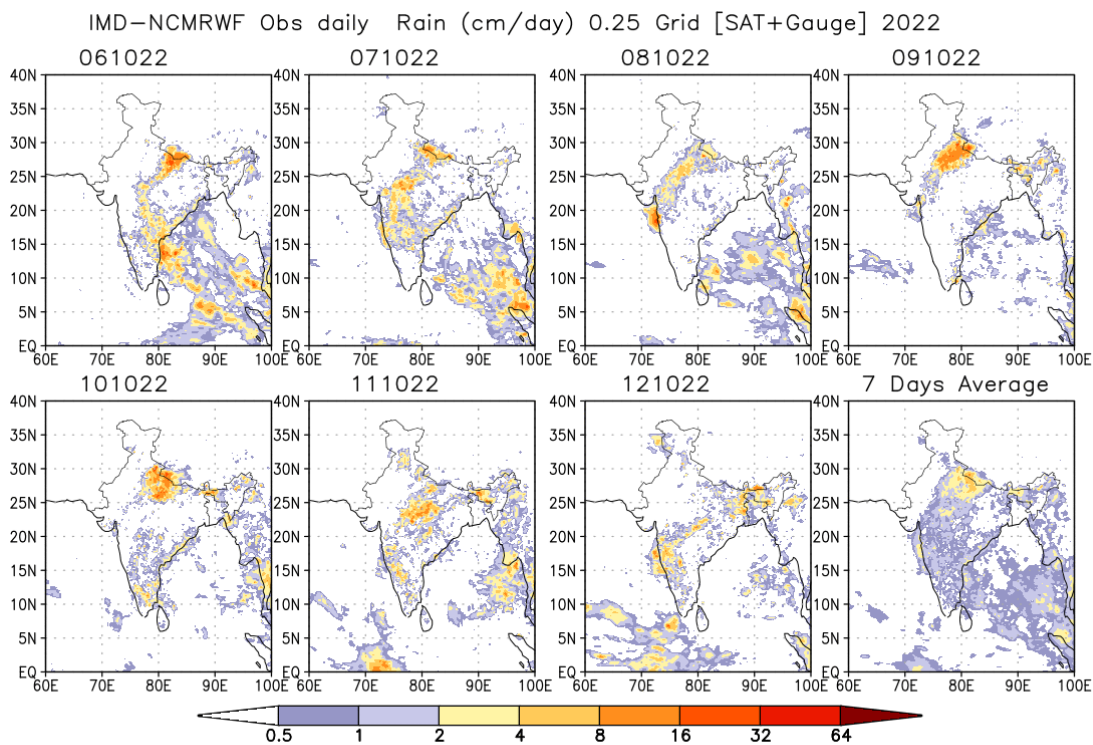


Fig.1: Rain gauge and satellite merged rainfall plots during 6th to 12th October, 2022

Next update: 20.10.2022