

## I. Environmental features:

The Madden Julian Oscillation (MJO) Index is currently in Phase 6 with amplitude more than 1. It will continue in same phase for next 3 days. Thereafter, it would move to phase 7 and continue there with gradually decreasing amplitude till end of week1. Thereafter, from week 2, it would enter into phase 2 with amplitude less than 1. It would move eastwards across phases 3 & 4, reaching phase 5 during the end of week 2. Thus, MJO will be favourable for enhancement of convective activity over the Bay of Bengal (BoB) during week 2.

Based on CFS forecast for equatorial waves, during beginning of week 1, westerly winds (3-5 mps) are likely over entire south BoB & south Peninsular region with Equatorial Rossby Waves (ERW) and weak easterly winds (1-3 mps) are likely over central BoB. Over the Arabian Sea (AS), similar features are likely to prevail till middle of week 1. From middle of week 1 onwards, easterly winds (1-3 mps) are likely over eastcentral & south BoB and weak westerly winds (1-3 mps) over south & adjoining equatorial Indian Ocean are likely to prevail till the end of week 2. Thus, equatorial waves are likely to contribute towards enhancement of convective activity over the Andaman Sea & central BoB and south Peninsular region during beginning of week 1 and over the AS during first half of week1.

## II. Model Guidance:

- Most of the models (GFS group, NCUM group, ECMWF) are indicating that the cyclonic circulation over North interior Tamil Nadu on today, the 24th November would move southwestwards and emerge into southeast Arabian Sea. Thereafter, it would move westwards with no significant intensification for subsequent 2-3 days.

- Most of the models (GFS group, NCUM group, ECMWF) are indicating emergence of a fresh cyclonic circulation (remnant from South China Sea) into North Andaman Sea around 25th with initial northwestwards movement followed by northwards movement towards North Bay of Bengal with no significant intensification.
- Models like NCEP GFS, NCUM group and ECMWF are also indicating likely emergence of another cyclonic circulation/low pressure area (remnant from South China Sea) into Andaman Sea around 4th December.
- ECMWF ensemble is indicating likely cyclogenesis (30-40% probability) over South BoB during next 3-4 days with intensification upto depression only. Model is also indicating another cyclogenesis over South BoB during 4th-8th Dec. with intensification upto Cyclonic Storm (50-60% probability). 20-30% Ensemble members indicate likely northwestwards movement towards Andhra Pradesh coast.
- Most of the models suggest gradual strengthening of easterly winds over Andaman Sea and adjoining Bay of Bengal from middle of week 2 and it's westward propagation thereafter, leading to active easterly waves which may support cyclogenesis during this period.
- Various extended range models like IMD MME CFS V2 are also indicating development of a cyclonic circulation over Andaman Sea during beginning of week1. NCMRWF Coupled Model (CNCUM) is also indicating enhanced easterly flow during week2.

### III. Inference:

**Considering the model guidance and various environmental features, it is inferred that**

- (1) A Fresh cycir (remnant from South China Sea) is likely to emerge into North Andaman Sea on 25<sup>th</sup> and move west-northwestwards initially followed by nearly northwards movement thereafter, with no significant intensification. Nil probability is assigned to it's intensification into a depression.**
- (2) Another cyclonic circulation (remnant from South China Sea) is likely to emerge into Andaman Sea during middle of week2 (around 4<sup>th</sup> December). It is likely to move northwestwards and intensify further. Low to moderate probability is assigned to cyclogenesis over central BoB during later half of week2.**

### IV. Verification of forecast issued during last two weeks:

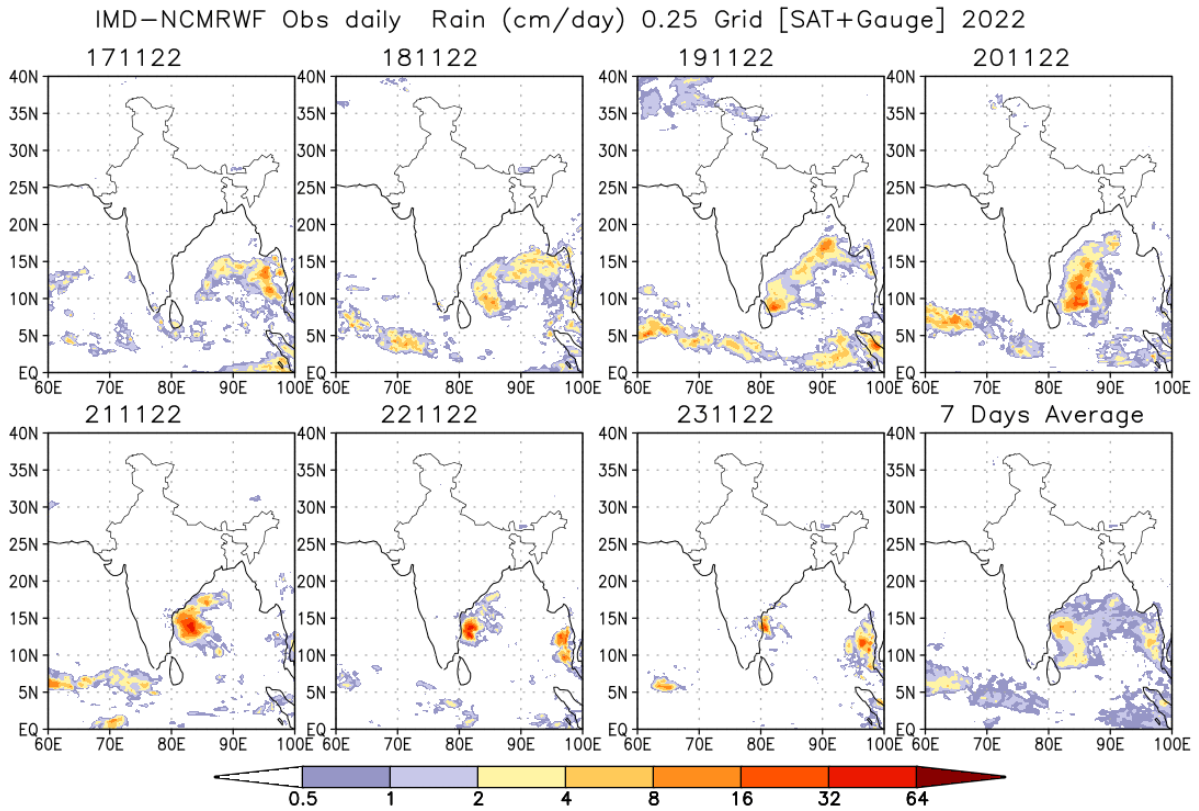
**Forecast:** The forecast issued on 10<sup>th</sup> November for week 2 (18.11.2022– 24.11.2022) indicated low probability of cyclogenesis over southeast BoB and neighbourhood towards end of week 1 or beginning of week 2 (around 17th/18th). The forecast issued on 17th November for week 1 (18.11.2022 – 24.11.2022) predicted that the low pressure area over Southeast Bay of Bengal & adjoining Andaman Sea will move west-northwestwards and gradually concentrate into a Depression (with moderate probability) over central parts of South Bay of Bengal around 19th November, 2022.

**Realised:** Actually, a cyclonic circulation formed over south Andaman Sea on 15<sup>th</sup> November. A low pressure area formed over Southeast BoB & adjoining Andaman Sea on 17<sup>th</sup> November, 2022. It lay as a well-marked low pressure area on 19<sup>th</sup> November. It concentrated into a depression over southwest and adjoining southeast BoB on 20<sup>th</sup> November.

Hence likely formation of low pressure area over southwest BoB, it's movement and

emergence into Arabian Sea was well predicted two weeks in advance.

The realized rainfall during 17<sup>th</sup> Nov to 23<sup>rd</sup> Nov, 2022 from satellite-gauge merged data is presented in Fig.1



**Fig.1: Rain gauge and satellite merged rainfall plots during 17<sup>th</sup> Nov to 23<sup>rd</sup> Nov, 2022**

**Next update: 01.12.2022**