

### I. Environmental features:

The Madden Julian Oscillation (MJO) Index is currently in Phase 5 with amplitude more than 1. It will continue in same phase for next 3 days. Thereafter, it would move to phase 6. Thus MJO will be favourable for enhancement of convective activity over the Bay of Bengal during first half of week 1.

Based on CFS forecast for equatorial waves, during first half of week 1, westerly winds (3-5 mps) are likely over central & adjoining south Bay of Bengal (BoB) with Equatorial Rossby Waves (ERW) and weak easterly winds (1-3 mps) are likely over Andaman Sea with Kelvin Waves (KW). During later part of week 1, easterly winds (1-3 mps) are likely over eastcentral & south BoB. During first half of week 2, easterly winds over central BoB and westerly winds over south Andaman Sea & south BoB with ERW are likely to prevail. Thus, equatorial waves are likely to support cyclogenesis during first half of week 1 and first half of week 2.

### II. Model Guidance:

Most of the deterministic numerical models are indicating that the low pressure area over southeast BoB and adjoining Andaman Sea would concentrate into a depression during 19<sup>th</sup>-21<sup>st</sup> (IMD GFS & NCEP GFS on 21<sup>st</sup>, GEFS & ECMWF on 19<sup>th</sup>, WRF, NCUM, NEPS on 20<sup>th</sup>). Models are also indicating west-northwestward movement of the system towards North Tamil Nadu-South Andhra Pradesh coasts. Most of the models except NCUM are indicating that the system would weaken slightly before reaching coast. However, NCUM group of models is indicating that the system would cross South Andhra Pradesh coast as a depression. IMD MME CFS V2 is indicating 30-40% probability of cyclogenesis over central parts of south BoB during week 1 with northwestward movement of the system towards Andhra Pradesh coast. NCMRWF Coupled

Model (CNCUM) is also indicating cyclogenesis over central parts of south BoB during middle of week 1.

These deterministic models are also indicating a remnant cyclonic circulation/low pressure area emerging into central Andaman Sea around 23<sup>rd</sup>/24<sup>th</sup>. Subsequently, it is likely to move initially northwestwards and then northwards towards central BoB. Extended range models like IMD MME CFS V2 is also indicating development of a cyclonic circulation over Andaman Sea around 23<sup>rd</sup>/24<sup>th</sup>. NCMRWF Coupled Model (CNCUM) is also indicating cyclogenesis over Andaman Sea during beginning of week 2.

### III. Inference:

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

- The Low pressure area over Southeast Bay of Bengal & adjoining Andaman Sea is likely to move west-northwestwards and gradually concentrate into a Depression over central parts of South Bay of Bengal around 19<sup>th</sup> November, 2022. Thereafter, it is likely to move west-northwestward towards Tamilnadu-Puducherry and south Andhra Pradesh coasts during subsequent 3 days. Thus, moderate probability is assigned to likely cyclogenesis over the central parts of south Bay of Bengal.
- **A Fresh cyclonic circulation/low pressure is also likely to emerge into central Andaman Sea on 23<sup>rd</sup>/24<sup>th</sup>. It is likely to move northwestwards initially.**

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

- (i) The forecast issued on 3<sup>rd</sup> November for week 2 (11.11.2022 – 17.11.2022) indicated likely formation of a low pressure area over southwest BoB off Sri Lanka coast towards the end of week 1 or in the beginning of week 2 and likely to move west-northwestward towards Tamil Nadu coast and a slight intensification to become a depression during the first half of week 2.

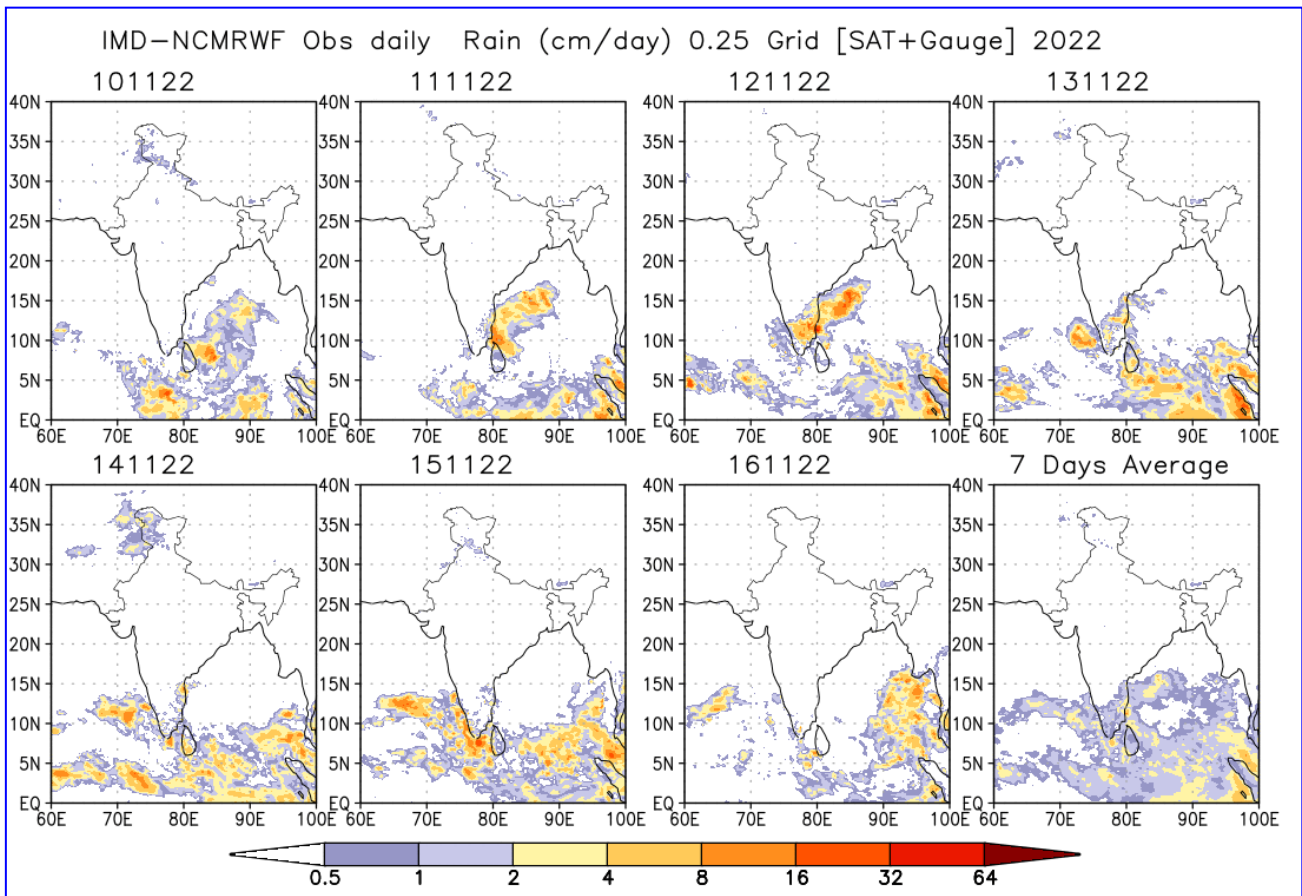
The forecast issued on 10<sup>th</sup> November for week 1 (11.11.2022 – 17.11.2022) predicted that the Low Pressure Area (LPA) over southwest Bay of Bengal would become more marked around 11<sup>th</sup> and move northwestwards towards Tamilnadu-Puducherry coasts till 12<sup>th</sup> November. Thereafter, it would move across Tamil Nadu-Puducherry and Kerala and emerge into southeast Arabian Sea around 14<sup>th</sup> Nov.

Actually, a Low Pressure Area formed over southwest BoB on 9<sup>th</sup> November, became well marked Low Pressure Area Over on 11<sup>th</sup> November and emerged as low pressure area over southeast Arabian sea off Kerala coast on 13<sup>th</sup> and became less marked over southeast Arabian Sea & adjoining areas of Lakshadweep islands on 14<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. However, forecast that the remnant of this low pressure system would intensify into depression over Arabian Sea was over warned.

- (ii) The forecast issued on 10<sup>th</sup> November indicated that a fresh cyclonic circulation would form over south Andaman Sea/ southeast BoB around 14<sup>th</sup> Nov. It was predicted that the system would move west-northwestwards and intensify gradually into a depression during 17<sup>th</sup>-20<sup>th</sup>. Actually, a cyclonic circulation developed over south Andaman Sea and adjoining southeast Bay of Bengal on 15<sup>th</sup> November, and became Low Pressure Area over southeast Bay of Bengal & adjoining Andaman Sea on 17<sup>th</sup> November, 2022.

The realized rainfall during 10<sup>th</sup> Nov to 16<sup>th</sup> Nov, 2022 from satellite-gauge merged data is presented in Fig.1



**Fig.1: Rain gauge and satellite merged rainfall plots during 10<sup>th</sup> Nov to 16<sup>th</sup> Nov, 2022**

**Next update: 24.11.2022**