



Issued on 19.10.2023

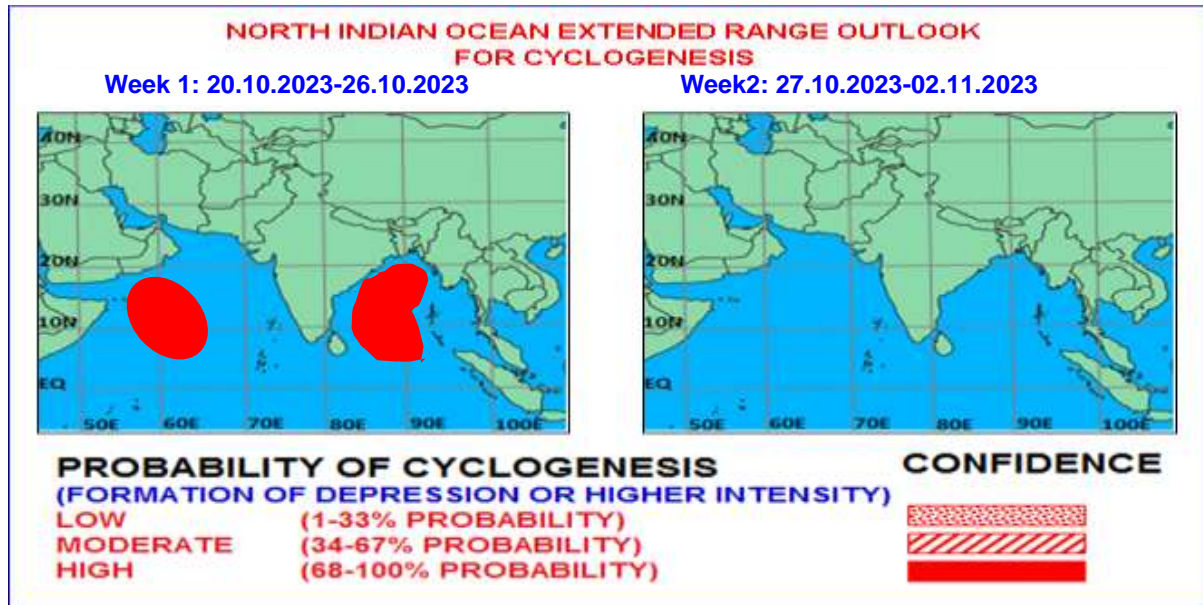


Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

Most of the models are indicating that MJO is currently in phase 1 with amplitude less than 1 and would continue in same phase with decreasing amplitude during first half of week 1. Thereafter, it would move across phase 8 with amplitude remaining less than 1. Thus, MJO is not likely to support enhancement of convective activity over the North Indian Ocean (NIO) including the Bay of Bengal (BoB) and the Arabian Sea (AS) during the entire forecast period.

During week 1, NCICS based forecast for equatorial waves over the region indicates weak westerly winds (1-3 mps) over southwest BoB. Weak easterly winds are also indicated over westcentral BoB. Over the AS, similarly weak westerly winds (1-3 mps) over central parts of south AS and weak easterly winds (3-5 mps) are also indicated over central AS. Thus, equatorial waves are likely to support enhancement of convective activity and cyclogenesis over both the basins during week 1.

Positive Indian Ocean Dipole (IOD) (+1.85°C) conditions are prevailing over the Indian Ocean, indicating higher sea surface temperature (SST) over western Indian Ocean and colder SST over eastern Indian Ocean. Positive IOD is likely to favour cyclogenesis over the AS region.

Model Guidance:

Over the Arabian Sea, all the models (IMD GFS, IMD GEFS, NUM (G), NCUM (R), NEPS, ECMWF, NCEP GFS, IMD MME) are indicating formation of depression over southwest and adjoining westcentral Arabian Sea during 21st to 23rd October with NCUM group indicating depression slightly late and other models slightly earlier. All the models are indicating movement towards Oman-Yemen coasts. Models are also indicating slight weakening prior to landfall. NCUM group of models are indicating movement towards Gulf of Aden. IMD MME is indicating movement towards Oman-Yemen coasts, peak intensity of severe cyclonic

storm (50-55 kts) and weakening before landfall. GPP is also indicating potential zone for cyclogenesis on 21st over southeast AS with gradual northwestwards movement towards Oman-Yemen coasts. Hence High probability is assigned to likely formation of depression over Arabian Sea during week 1.

Over the Bay of Bengal, all the models including IMD GFS, GEFS, IMD WRF, NCUM(G), NEPS, ECMWF and NCEP GFS are indicating formation of a low pressure area over central parts of BoB by 21st October. Most of the models except GEFS are indicating further intensification of the system into a depression. Most of the models (except IMD GFS) are indicating likely northwestwards movement initially towards North Andhra Pradesh-Odisha coasts and then gradual northeastwards recurvature towards South Bangladesh-Myanmar coasts. Further intensification of this system is not indicating by various models. Hence High probability is assigned to likely formation of depression over BoB during week 1.

The extended range model IMD CFS V2 is also indicating similar features for both the basins during week1.

Legends: NCICS: North Carolina Institute for Climate Studies (for Equatorial waves Forecast), IMD GFS: India Meteorological Department Global Forecast System, NCUM: National Centre for Medium Range Weather Forecasting Centre (NCMRWF) Unified Model, European Centre for Medium Range Weather Forecasting, GPP: Genesis Potential Parameter, National Centre for Environment Prediction GFS, ECMM: ECMWF multi model, GEFS: GFS ensemble, NEPS: NCUM ensemble prediction system, CNCUM: Coupled NCUM, CPC: Climate Prediction Center, NWS: National Weather Service).

II. Inference:

Considering all the above it is inferred that:

- (a) There is high probability of the intensification of the existing Low Pressure Area over southeast & adjoining southwest Arabian Sea into a Depression over southwest & adjoining westcentral Arabian Sea around 21st October.
- (b) There is high probability of formation of low pressure area over central parts of Bay of Bengal by 21st morning. Thereafter, it is likely to intensify further into a depression over westcentral Bay of Bengal around 23rd October.

III. Advisory for fishermen:

Both the cyclonic disturbances over the Arabian Sea and the Bay of Bengal are under continuous watch and being monitored regularly. Fishermen are advised to follow following advisories:

Fishermen are advised not to venture into following areas (Fig. 3 be referred for Warning Areas):

- ❖ Eastcentral Arabian Sea & Lakshadweep Area on 19th October.
- ❖ Southeast Arabian Sea on 19th & 20th October.
- ❖ Southwest Arabian Sea from 19th to 23rd October.
- ❖ Westcentral Arabian Sea from 20th to 23rd October.

- ❖ Southwest and adjoining southeast Bay of Bengal from 20th to 23rd October.
- ❖ Westcentral Bay of Bengal from 21st October onwards.

IV. Verification of forecast issued during last two weeks:

The forecast issued on 5th September for week 2 (13.10.2023-19.10.2023) didn't indicate any cyclonic circulation over the region during the week and the forecast issued on 12th October for week 1 (13.10.2023-19.10.2023) indicated formation of a cyclonic circulation during end of week, with likely formation of low pressure area over southeast Arabian Sea. Actually, a cyclonic circulation formed over southeast AS and adjoining Lakshadweep on 15th October and a low pressure area formed over southeast & adjoining eastcentral AS on 18th October.

Over the Bay of Bengal, the forecast issued on 5th September for week 2 (13.10.2023-19.10.2023) didn't indicate any cyclonic circulation over the region during the week and the forecast issued on 12th October for week 1 (13.10.2023-19.10.2023) indicated likely formation of a cyclonic circulation over southeast Bay of Bengal and adjoining Andaman Sea during end of week 1/ beginning of week 2. Actually, a cyclonic circulation formed over Southeast Bay of Bengal on 17th October.

Thus, likely formation of cyclonic circulation over both BoB and AS was well captured one week in advance, however with some spatial variability.

IMD-NCMRWF satellite-gauge merged data plots during 28th September -4th October, 2023 are presented in Fig.2

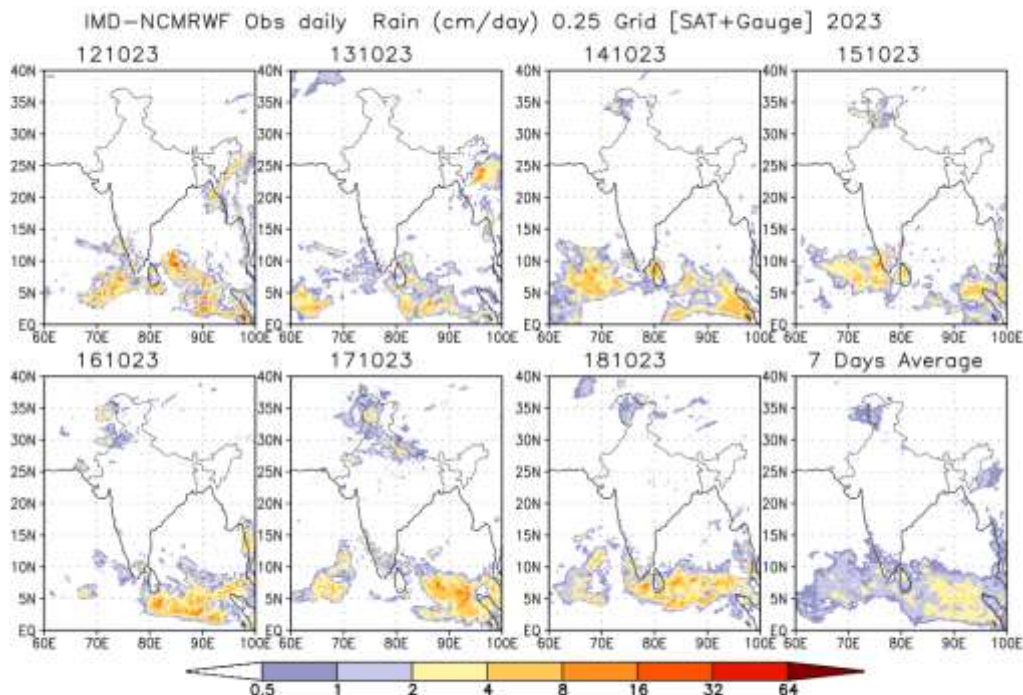


Fig.2: IMD-NCMRWF satellite-gauge merged data plots during 11th Oct. – 17th Oct., 2023

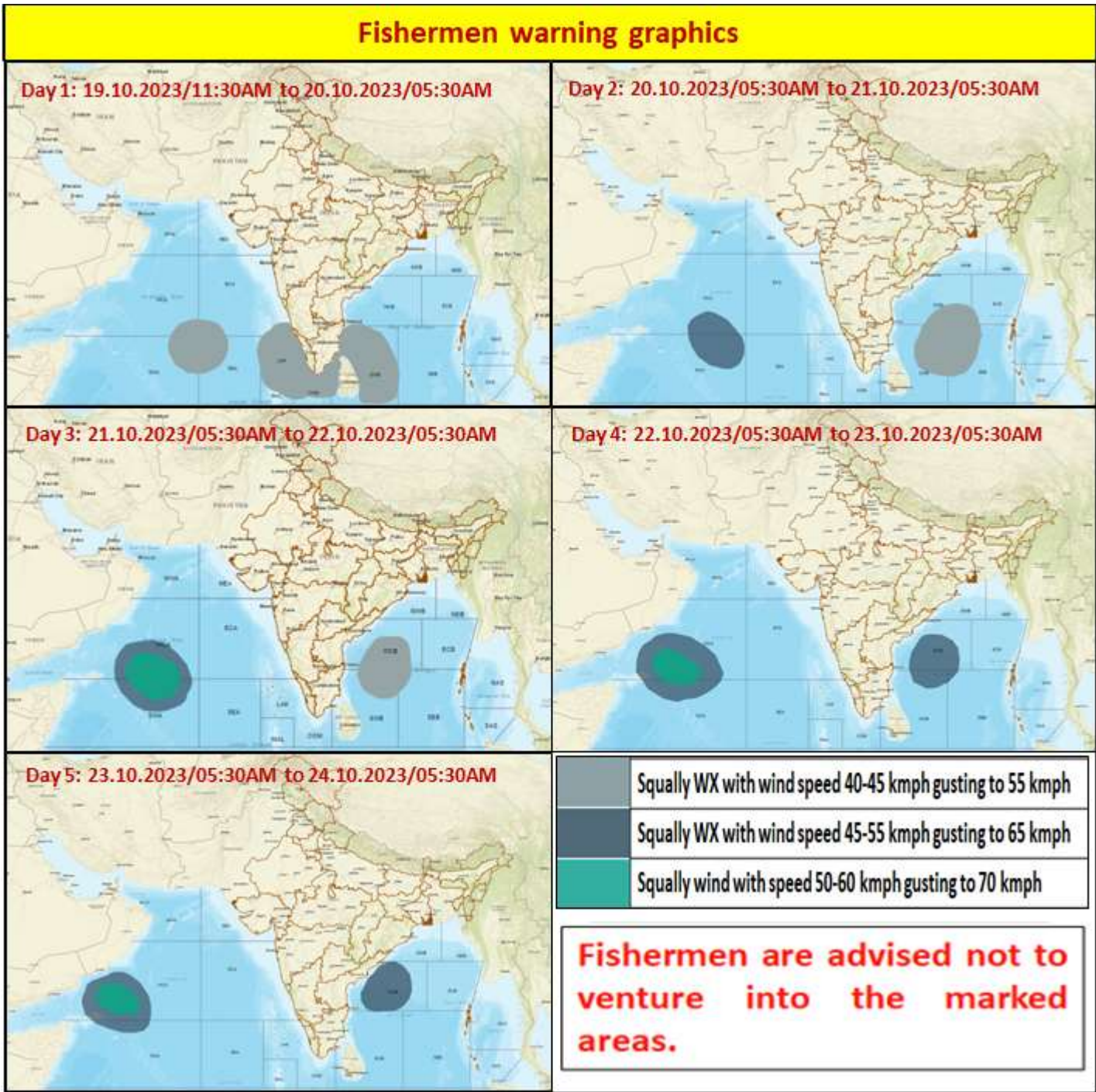


Fig.3: Fishermen Warning Graphics

Next update: 25.10.2023