India Meteorological Department
Ministry of Earth Sciences
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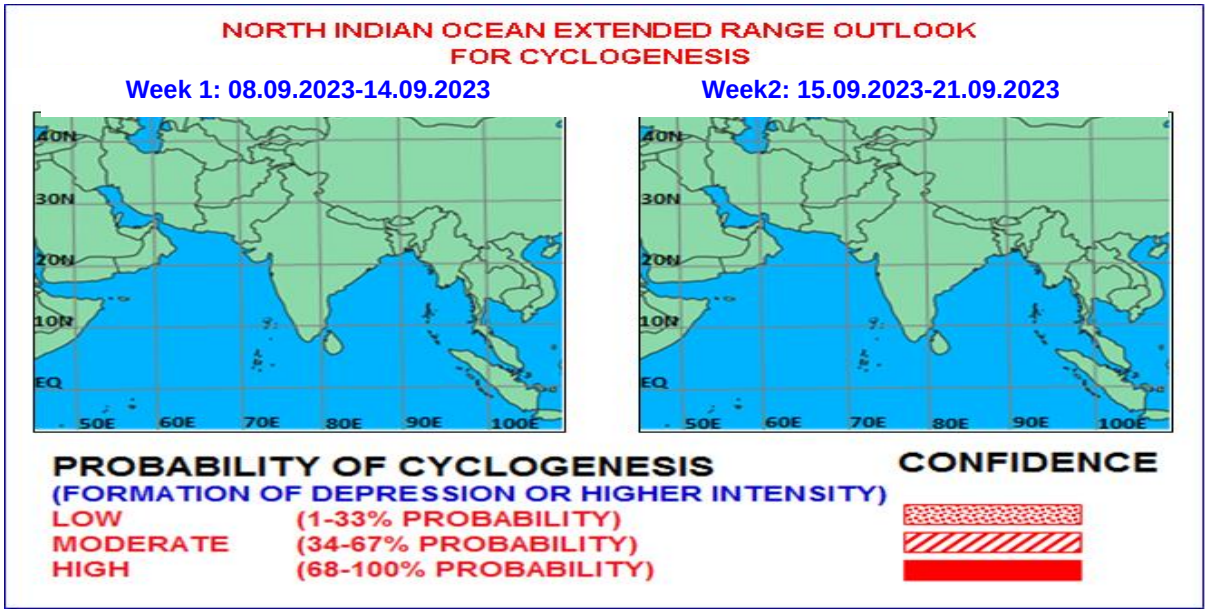

Fig. 1: Graphical Cyclogenesis over north Indian Ocean during next two weeks

I. Environmental features:

As per ECMWF and NCEP-CFSv2 forecast the Madden–Julian Oscillation (MJO) Index is currently in Phase 4 with amplitude greater than 1. Both forecasts depict a short-lived increased signal amplitude during week-1, after which the signal once again drops into the unit circle. Both models also show very little eastward movement of the MJO signal. With MJO over the Maritime Continent as indicated in the forecasts there will be a support towards a surge of convection over the Indian Ocean during week-1 that may fade away gradually during week-2.

NCICS based forecast for equatorial modes over the region indicates presence Equatorial Rossby Waves (ERW) over the south Arabian Sea (AS) leading to westerly winds during both the weeks. The MJO signal is visible over westcentral AS during week 1 and over an area over central AS across central India up to westcentral Bay of Bengal (BoB) during week 2. Mixed-Rossby Gravity (MRG) wave along with tropical low activities is likely to prevail over northern parts of India. During week 1, the westerly winds over south-central AS, peninsular India & south BoB and easterly winds over northern sectors of BoB and northern India are predicted. Similar tropical waves with strong westerly wind across central AS, central India and central BoB are likely during week 2. Thus, equatorial waves are likely to contribute significantly to the enhancement of monsoon activity over the whole Indian region during week 1 and over northern parts of central and east India during week 2.

II. Model Guidance:

Most of the deterministic models including IMD GFS, NCEP GFS, NCUM and ECMWF are indicating that the existing cyclonic circulation over central parts of interior Odisha and adjoining Chhattisgarh is likely to move west-northwestwards during next 3-4 days. Accordingly, the monsoon activity is likely to continue over central India during week 1. NCUM and ECMWF is also indicating rainfall activity over central parts of India and adjoining eastern parts of northwest & west India during week 1. The NCEP GFS is indicating the formation of a low pressure system in the beginning of week 2.

The wind and anomaly forecasts by extended range models viz. IMD CFS (V2) and CNCUM are indicating normal monsoon activity with a likelihood of cyclonic circulation over central India during week 1 and over eastcentral and adjoining North BoB during middle week 2. The ECMWF forecast is not showing any significant probability for the cyclogenesis over the region. But, IMD CFS (V2) is demonstrating 70-80% probability of formation of depression over west Madhya Pradesh and adjoining areas during week 1 and 30-40% probability of fresh cyclonic circulation over east India adjoining North BoB during week 2.

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).

III. Inference:

Considering all the above it is inferred that:

(i) The existing cyclonic circulation over central parts of interior Odisha and adjoining Chhattisgarh is likely to move west-northwestwards during next 3-4 days.

(ii) There is also a likelihood for the formation of another cyclonic circulation over North Bay of Bengal and adjoining east India in the beginning of week 2.

(iii) However, there is no probability of cyclogenesis over the region **(Fig.2).**

IV. Verification of forecast issued during last two weeks:

The forecast issued on 24th August for week 2 (31.08.2023-06.09.2023) indicated formation of cyclonic circulation over North Bay of Bengal during first half of week. The forecast issued on 31st August for week 1 (31.08.2023-06.09.2023) indicated formation of a cyclonic circulation over the North BoB. However, both the forecasts indicated about the absence of cyclogenesis over North Indian Ocean region during the week. Actually, a cyclonic circulation formed over northeast BoB and adjoining area on 3rd September. Under its influence a low-pressure area formed over Northwest & adjoining westcentral BoB off south Odisha-north Andhra Pradesh coasts on 5th September. It moved slowly west-northwestward across south Odisha coast and now lies as a cyclonic circulation over central parts of interior Odisha & adjoining Chhattisgarh.

The IMD-NCMRWF satellite-gauge merged data plots during 24th August-30th august are presented in **Fig. 2.**

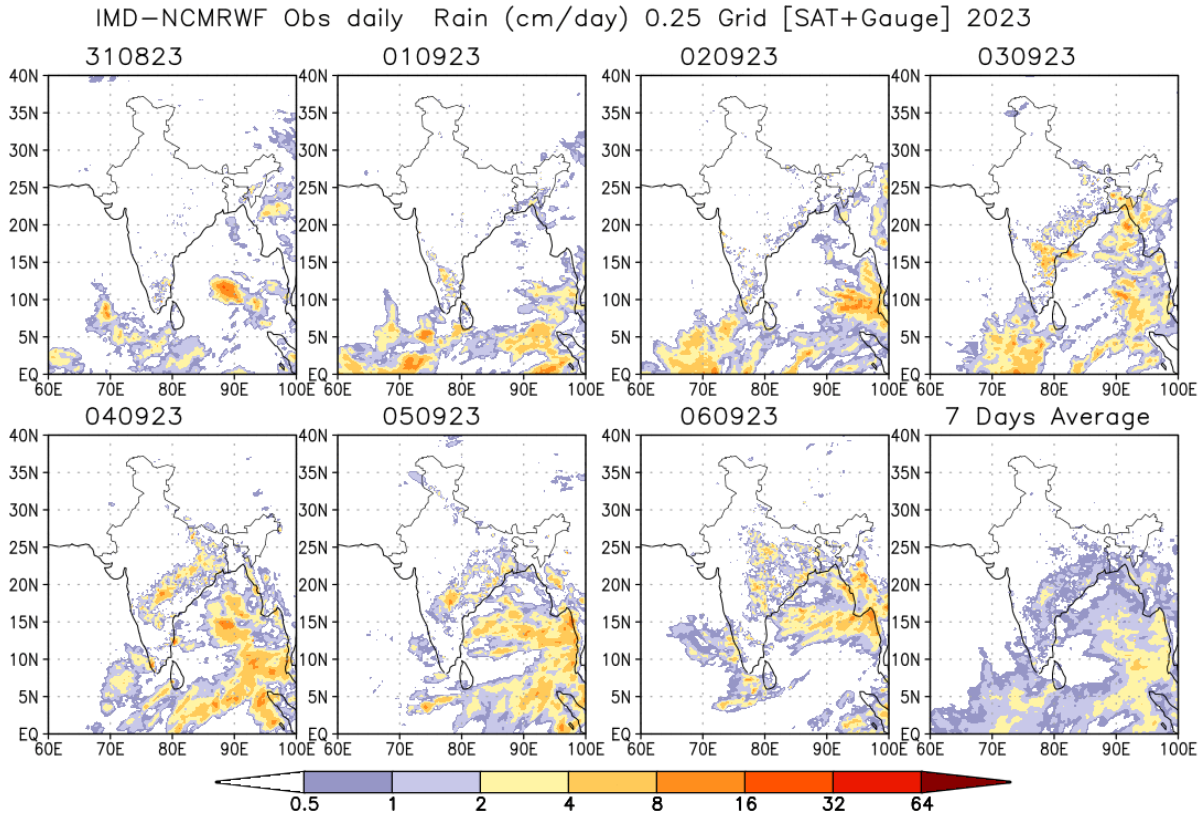

Fig.2: IMD-NCMRWF satellite-gauge merged data plots during 24th -30th August, 2023

Next update: 14.09.2023