



**Ministry of Earth Sciences
India Meteorological Department
Cyclone Warning Division, New Delhi**



FDP (Cyclone) NOC Report Dated 25th November, 2019

Time of Issue: 1100 UTC

Synoptic features:

- No significant weather system is .

Dynamical and thermodynamical features

Sea Surface Temperature (SST):

Sea Surface Temperature is around 25-28°C over westcentral Arabian Sea and north Arabian Sea and western parts of southwest Arabian Sea. It increases to 28-30°C over eastcentral and southeast Arabian Sea.

SST is around 25-28 °C over most parts of north BoB and adjoining WC BoB. It is between 28 - 30°C over rest BoB with higher values over eastcentral and south BoB.

Tropical Cyclone Heat Potential (TCHP):

Tropical Cyclone Heat Potential (TCHP) is 20-40 kJ/cm² over north Arabian Sea, westcentral, adjoining eastcentral and western parts of southwest Arabian Sea. Over southeast Arabian Sea it is of value 60-100 kJ/cm². There are areas of values more than 100 kJ/cm² southeast Arabian Sea.

TCHP is around 30-50 kJ/cm² over north BoB and adjoining westcentral BoB. It is around 80-90 kJ/cm² over rest of the BOB.

Relative Vorticity:

No significant areas of cyclonic relative vorticity seen over BoB except for the positive vorticity over north and south BoB.

A circular area of cyclonic relative vorticity of value 20-40x10⁻⁵ s⁻¹ seen over north Arabian Sea.

Low level Convergence:

An area of positive lower level convergence of value 5-10x10⁻⁵ s⁻¹ is seen over southwest BoB and adjoining equatorial Indian Ocean and also over Comorin area.

Areas of positive lower level convergence of value 5-10x10⁻⁵ s⁻¹ is also seen over Maldives area, south Arabian Sea and adjoining equatorial Indian Ocean.

Upper level Divergence:

No significant areas of upper level divergence are seen over BoB.

Upper level divergence of value 5-10x10⁻⁵ s⁻¹ is seen over south Arabian Sea and adjoining equatorial Indian Ocean.

Wind Shear:

Wind shear is high over north and central Arabian Sea except south Arabian Sea where it is low to moderate.

Wind shear is high over north and adjoining central BoB. It is low to moderate over rest BoB and Andaman Sea.

Wind Shear Tendency:

The wind shear tendency is positive or neutral over north and central BoB.

It is negative or neutral over westcentral and adjoining southeast Arabian Sea.

Upper tropospheric ridge:

The upper tropospheric ridge at 200 hPa runs roughly along 12°N over BoB and Arabian Sea.

Satellite observations based on INSAT imagery:

Arabian Sea:-

As per the satellite imagery at 0600 UTC of 25th November, 2019, scattered low to medium clouds with embedded intense to very intense convection lies over south Arabian Sea to the south of 10.0° N latitude, Comorin area, Gulf of Mannar, Palk Strait, Sri Lanka and Maldives.

Bay of Bengal & Andaman Sea:

According to 0600 UTC satellite imagery, scattered low/medium clouds with embedded moderate to intense convection lies over extreme south BoB and extreme south Andaman Sea.

Large scale features

M.J.O. Index:

MJO index is in Phase 2 with amplitude less than 1. It is likely to move to phase 1 from tomorrow and will remain there for about 5-6 days with increasing amplitude.

Storms and Depression over South China Sea/ South Indian Ocean: Nil

NWP Input for FDP Cyclone based on 0000 UTC of today

IMD-GFS T-1534: Indicates development of no low pressure area over NIO region for the next 10 days.

IMD-GEFS: Indicates development of no low pressure area over NIO region for the next 8 days.

IMD-WRF: Analysis shows no Low Pressure systems for the next 3 days.

NCMRWF-NCUM: Indicates development of two low pressure areas over equatorial Indian ocean and adjoining southeast and southwest Arabian Seas on 30th, which move northwestwards without much intensification.

NCMRWF-UM-Regional Model: Indicates development of no low pressure systems for the next 3 days.

NEPS Model: Indicates development of two low pressure areas, one over equatorial Indian ocean to the south of southwest BoB and the other over equatorial Indian Ocean to the south of southwest Arabian Sea on 29th and 30th. However, they are not demonstrating any significant intensification.

ECMWF: Indicates no significant low pressure system over NIO region for the next 10 days.

NCEP-GFS: Indicates development of a low pressure area on 01st December over southwest Arabian Sea and adjoining equatorial Indian Ocean. It further intensifies and seen as a depression during 02-05th and as a CS on 6th. Thereafter it is seen to weaken while moving northwestward.

ARP-Meteo France : Indicates development of no low pressure systems for the next 3 days

Dynamical statistical models

IMD Genesis Potential Parameter (GPP):

Areas of significant zone of GPP are seen to develop over southwest Arabian Sea during 29th to 30th November.

IMD NWP products are available at:

<http://nwp.imd.gov.in/bias/gfsproducts.php>

<http://nwp.imd.gov.in/bias/wrf27pro.php>

http://www.rsmcnewdelhi.imd.gov.in/NWP_CYC/Analysis.htm or

http://www.rsmcnewdelhi.imd.gov.in/NWP_CYC/<HH> hrs.htm

<HH> are forecast hours i.e. 24, 48, 72 and etc.

Summary and Conclusion:

Amongst the NWP models considered, only NCEP GFS is indicating a low pressure area over southwest Arabian Sea and adjoining equatorial Indian Ocean on 01st December. It further indicates that the system has potential to intensify. NCUM and its ensemble also indicate development of low pressure area over Arabian Sea, but are not indicating any further intensification. The development of a low pressure area over Arabian Sea and any possible intensification needs to be monitored.

Probability of cyclogenesis over Bay of Bengal and Andaman Sea during next 120 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

Probability of cyclogenesis over Arabian Sea during next 120 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS
Nil	Nil	Nil	Nil	Nil

Advisory: No IOP area for the next 5 days













