



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



FDP (Cyclone) NOC Report Dated 26th November, 2019

Time of Issue: 1100 UTC

Synoptic features:

- No significant weather system is seen over NIO region.

Dynamical and thermodynamical features

Sea Surface Temperature (SST):

Sea Surface Temperature is around 26-28°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. There is a very small pocket of values around 25°C over northeast AS.

SST is around 26-28 °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 20-50 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 10-20x10⁻⁵ s⁻¹ seen over north Arabian Sea.

Low level Convergence:

An area of positive lower level convergence of value 5x10⁻⁵ 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 5x10⁻⁵ s⁻¹ is also seen over Maldives area, south Arabian Sea and adjoining equatorial Indian Ocean. An area of positive lower level convergence of value 20-30x10⁻⁵ s⁻¹ is also seen over southwest Arabian Sea and adjoining equatorial Indian Ocean.

Upper level Divergence:

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

An area of positive lower level convergence of value 30-40x10⁻⁵ s⁻¹ is seen over southwest Arabian Sea and adjoining equatorial Indian Ocean.

Wind Shear:

Wind shear is high over north and central Arabian Sea except southeast 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 negative or neutral over entire BoB.

It is positive or neutral over most parts of Arabian Sea except north Arabian Sea, where it is negative.

Upper tropospheric ridge:

The upper tropospheric ridge at 200 hPa runs roughly along 12°N over BoB and roughly along 8°N over Arabian Sea.

Satellite observations based on INSAT imagery:**Arabian Sea:-**

As per the satellite imagery at 1200 UTC of 26th November, 2019, scattered low to medium clouds with embedded intense to very intense convection lies over south Arabian Sea to the south of 12.0° N latitude, Comorin and Maldives areas.

Bay of Bengal & Andaman Sea:

According to 1200 UTC satellite imagery, scattered low/medium clouds with embedded moderate to intense convection lies over southwest BoB off north Tamil Nadu coast and weak to moderate convection over south Tenasserim coast.

Large scale features**M.J.O. Index:**

MJO index is in Phase 1 with amplitude less than 1. It is likely to remain there for about 3-4 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 significant 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 a low pressure areas over equatorial Indian ocean to the south of southwest Arabian Sea on 28th, which move northwestwards and intensify into depression off Somali coast on 02nd December and into a CS on 03rd December. It weakens over the same area thereafter.

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

NEPS Model: Indicates development of a low pressure area, over equatorial Indian ocean to the south of southwest Arabian Sea on 29th November. It intensifies into a Depression on 01st December and into a DD on 02nd and into a CS on 04th December off Somali coast. It weakens thereafter over the same area.

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

NCEP-GFS: Indicates development of a low pressure area/ WML on 01st December over southwest Arabian Sea and adjoining equatorial Indian Ocean. It meanders over the same area without further intensification and is seen to weaken thereafter.

ARP-Meteo France : Nil.

Dynamical statistical models**IMD Genesis Potential Parameter (GPP):**

Areas of significant zone of GPP is seen to develop over southwest Arabian Sea during on 28th November, which increases in area by 30th and persists over the same area till 03rd December.

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](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 and NCUM is indicating development of a low pressure area over southwest Arabian Sea and adjoining equatorial Indian Ocean on 30 November/ 01st December. NCUM further indicates that the system to intensify further into a depression and into a CS by 03rd December. However, NCEP is not indicating the system to intensify beyond WML stage. The development of a low pressure area over southwest 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













