



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



FDP (Cyclone) NOC Report Dated 23rd November, 2019

Time of Issue: 1100 UTC

Synoptic features:

- No weather systems observed over NIO region.

Dynamical and thermodynamical features

Sea Surface Temperature (SST):

Sea Surface Temperature is around 26-29°C over most parts of 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 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 20-40 kJ/cm² over north Arabian Sea and westcentral and adjoining eastcentral Arabian Sea. Over south Arabian Sea it is of value 60-100 kJ/cm². There is an area 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 northeast BoB.

No significant areas of cyclonic relative vorticity seen over Arabian Sea except for the positive areas seen over north Arabian Sea and also over southeast Arabian Sea.

Low level Convergence:

An area of positive lower level convergence of value $5-10 \times 10^{-5}$ s⁻¹ is seen over southwest BoB and adjoining equatorial Indian Ocean.

No significant area of positive lower level convergence is seen over Arabian Sea.

Upper level Divergence:

Upper level divergence of value 5×10^{-5} s⁻¹ is seen over Andhra Pradesh coast and adjoining westcentral BoB.

Upper level divergence of value $5-10 \times 10^{-5}$ s⁻¹ is seen over Maldives area.

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 negative over most parts of BoB except western parts of southwest and westcentral BoB where it is positive.

It is negative or neutral over north, westcentral and 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 23rd November, 2019, scattered low to medium clouds with embedded moderate to intense convection lies over south and adjoining central Arabian Sea and Comorin- Maldives area and also over extreme southwest Arabian Sea.

Bay of Bengal & Andaman Sea:

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

Large scale features

M.J.O. Index:

MJO index is in Phase 2 with amplitude close to 1. It is likely to remain in phase 1 for about 2-3 days with amplitude less than 1 and move to phase 1 thereafter.

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 a low pressure area over Maldives and adjoining southeast Arabian sea and equatorial Indian Ocean on 30th, which is seen to move westwards and intensifies into a well marked low on 01st December and a CS on 02nd December.

IMD-GEFS: Indicates a low pressure area over Maldives area on 30th and 01st December.

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 to the south of southeast and southwest Arabian Sea on 30th, which move westwards 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 30th. (Product not available beyond that)

ECMWF: Indicates a low pressure area over Maldives area on 01st December which moves nearly westwards and becomes a depression on 03rd over southeast Arabian Sea.

NCEP-GFS: Indicates development of no low pressure systems for the next 10 days.

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

Dynamical statistical models

IMD Genesis Potential Parameter (GPP):

No area of significant zone of GPP is seen to develop over NIO region during next 5 days.

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:

As per the NWP models considered, many of them are indicating a low pressure area over southeast Arabian Sea and adjoining Maldives area around 30th November-01st December. IMD GFS model and ECMWF model is forecasting it to further intensify into a depression over southeast Arabian Sea by 03rd December. The development of this low pressure area and its 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













