



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



FDP (Cyclone) NOC Report Dated 15<sup>th</sup> November, 2019

Time of Issue: 1100 UTC

**Synoptic features:**

A trough is seen in easterlies over eastcentral & adjoining southeast Bay of Bengal extending upto 1.5 km above mean sea level.

**Dynamical and thermodynamical features**

**Sea Surface Temperature (SST):**

Sea Surface Temperature is around 25-28°C over most parts of central Arabian Sea and adjoining northeast Arabian Sea. It increases to 28-30°C over northwest Arabian Sea and also over south Arabian Sea.

SST is around 27-28 °C over north BoB and adjoining WC BoB. It is around 28 - 30°C over rest BoB.

**Tropical Cyclone Heat Potential (TCHP):**

Tropical Cyclone Heat Potential (TCHP) is 20-40 kJ/cm<sup>2</sup> over most parts of central Arabian Sea and north Arabian Sea. Over south Arabian Sea it is of value 60-100 kJ/cm<sup>2</sup>.

TCHP is around 30-50 kJ/cm<sup>2</sup> over north BoB and adjoining westcentral BoB. It is around 80-90 kJ/cm<sup>2</sup> over rest of the BOB. A small area of value more than 100 kJ/cm<sup>2</sup> is seen over southwest BoB.

**Relative Vorticity:**

Cyclonic relative vorticity at 850 hPa of value  $10 \times 10^{-6} \text{ s}^{-1}$  is seen over a small area central BoB. Cyclonic relative vorticity at 850 hPa of value  $10-20 \times 10^{-6} \text{ s}^{-1}$  is seen over the north Arabian Sea.

**Low level Convergence:**

Small areas of positive lower level convergence area of value  $5 \times 10^{-5} \text{ s}^{-1}$  is seen over westcentral BoB region off south Andhra Pradesh coast and also over north Andaman Sea. No significant area of positive lower level convergence is seen over Arabian Sea.

**Upper level Divergence:**

Upper level divergence of value  $05-10 \times 10^{-5} \text{ s}^{-1}$  is seen over north Andaman Sea and adjoining eastcentral BoB.

Upper level divergence of value  $05-10 \times 10^{-5} \text{ s}^{-1}$  is seen over eastcentral and adjoining northeast Arabian Sea.

**Wind Shear:**

Wind shear is high over most parts of Arabian Sea except extreme south Arabian Sea where it is low to moderate.

Wind shear is low to moderate over most parts of BoB and Andaman Sea except extreme north BoB where it is high.

**Wind Shear Tendency:**

The wind shear tendency is negative over northwest, west central and adjoining parts of southwest BoB. It is positive or neutral elsewhere.

It is positive over north Arabian Sea and western parts of southwest Arabian Sea. It is negative or neutral over rest Arabian Sea.

**Upper tropospheric ridge:**

The upper tropospheric ridge at 200 hPa runs roughly along 18°N over the BoB.

**Satellite observations based on INSAT imagery:**

### **Arabian Sea:-**

As per the satellite imagery at 0900 UTC of 15<sup>th</sup> November, 2019, scattered low to medium clouds with embedded moderate to intense convection lies over south Arabian Sea and weak to moderate convection over northeast Arabian Sea.

### **Bay of Bengal & Andaman Sea:**

According to 0900 UTC satellite imagery, scattered low/medium clouds with embedded moderate to intense convection lies over eastcentral adjoining westcentral BoB off Andhra Pradesh coast, and northwest Andaman Sea.

### **Large scale features**

#### **M.J.O. Index:**

MJO index is in Phase 8 with amplitude more than 1. MJO is likely to propagate eastwards from phase 8 to phase 1 after 2-3 days with amplitude >1.

**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 systems for the next 10 days.

**IMD-GEFS:** Indicates development of no low pressure systems for the next 8 days.

**IMD-WRF:** Analysis shows a Low Pressure area southwest BoB off Tamil Nadu coast on 17<sup>th</sup> which becomes less marked next day.

**NCMRWF-NCUM:** Indicates development of no low pressure systems for the next 10 days.

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

**NEPS Model:** Indicates development of no low pressure systems for the next 10 days.

**ECMWF:** Indicates development of no low pressure systems for the next 10 days.

**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](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:**

As per the NWP models considered, no significant low pressure system is seen to form over North Indian Ocean Region for the next 8-10 days.

#### **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**















