



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

**Tropical Cyclone Forecast Programme
Report Dated 27th November 2024**

Time of Issue: 1100 UTC

Synoptic features (based on 0600 UTC analysis):

The Deep Depression over Southwest Bay of Bengal moved north-northwestwards with a speed of 10 kmph during past 6 hours and lay centred at 0600 UTC of today, the 27th November 2024 over the same region near latitude 8.7°N and longitude 82.2°E, about 110 km east of Trincomalee (43418), 350 km southeast of Nagappattinam (43347), 450 km southeast of Puducherry (43331) and 530 km south-southeast of Chennai (43279). It is very likely to continue to move north-northwestwards and intensify further into a cyclonic storm during next 06 hours. Thereafter, it will continue to move north-northwestwards towards Tamil Nadu coast skirting Sri Lanka coast during subsequent 2 days.

Environmental Features:

Parameter	Bay of Bengal (BoB)	Arabian Sea (AS)
Sea Surface Temperature (SST) °C	<ul style="list-style-type: none"> ➤ 28-30°C over BoB. 	<ul style="list-style-type: none"> ➤ 29-30°C over most parts of AS. ➤ 26-28°C over southwest AS along and off Somalia coast and parts of westcentral AS.
Tropical Cyclone Heat Potential (TCHP) kJ/cm²	<ul style="list-style-type: none"> ➤ 100-120 over south BoB & adjoining EIO. ➤ 30-40 over southwest & adjoining eastcentral BoB and along & off Sri Lanka/Tamil Nadu/ Andhra Pradesh coasts 	<ul style="list-style-type: none"> ➤ 80-100 over most parts of south, central AS, Lakshadweep Island. ➤ 20-40 over rest of the area.
Cyclonic Relative vorticity (X10⁻⁶s⁻¹)	<ul style="list-style-type: none"> ➤ 100-120 over southwest BoB along & off Sri Lanka & adjoining east EIO. ➤ 20-30 over north BoB. 	<ul style="list-style-type: none"> ➤ 10-20 over eastcentral AS, extreme South AS, westcentral AS along the coast of Somalia.
Low Level convergence(X10⁻⁵ s⁻¹)	<ul style="list-style-type: none"> ➤ 30-40 over southwest BoB, along & off north Sri Lanka. 	<ul style="list-style-type: none"> ➤ 5 over southl AS
Upper-Level divergence (X10⁻⁵ s⁻¹)	<ul style="list-style-type: none"> ➤ 30-40 over southwest and adjoining westcentral BoB 	<ul style="list-style-type: none"> ➤ 5 over southwest and adjoining southeast & eastcentral AS, Lakshadweep area.
Vertical Wind Shear (VWS knots) Low: 05-10 knots Moderate: 10-20 knots High: >20 knots	<ul style="list-style-type: none"> ➤ High over north & central BoB. ➤ Moderate – High over southwest BoB. ➤ Low-Moderate over southeast BoB. 	<ul style="list-style-type: none"> ➤ High over north AS. ➤ Low-Moderate over rest of AS.

Wind Shear Tendency (knots)	<ul style="list-style-type: none"> ➤ Increasing over North, central and southwest BoB. ➤ Decreasing over southeast BoB. 	<ul style="list-style-type: none"> ➤ Increasing over north & central AS. ➤ Decreasing over South AS.
Upper tropospheric Ridge	➤ At 13 ⁰ N.	➤ At 12 ⁰ N.

Satellite observations based on INSAT imagery (0300 UTC):

a) Over the BoB & Andaman Sea: -

Scattered to broken low and medium clouds with embedded intense to very intense convection lay over south & central Bay of Bengal, Palk strait, Gulf of Mannar (Minimum Cloud Top Temperature is minus 80-93 degrees Celsius). Scattered low and medium clouds with embedded moderate to intense convection lay over Andaman Sea and weak to moderate convection lay over north Bay of Bengal.

b) Over the Arabian Sea:

Scattered low and medium clouds with embedded moderate to intense convection lay over south Arabian Sea, Comorin area, Lakshadweep Islands & Maldives area and Isolated weak to moderate convection lay over eastcentral Arabian Sea.

c) Outside India:

Scattered low/med clouds with embedded moderate to intense convection lay over Sri Lanka, Palk strait, Gulf of Mannar, Maldives, Tibet, China, Myanmar, Thailand, Gulf of Thailand, Cambodia, Laos, Vietnam, Sumatra, Strait of Malacca, Malaysia, Borneo, south China Sea, Java Islands & Sea, Celebes Islands & Sea, Philippines, Sulu Sea, north Mozambique Channel and over Indian Ocean between Lat 5.0N to 20.0S Long 50.0E to 120.0E.

M.J.O. Index:

Madden Julian Oscillation (MJO) is in phase 4 with amplitude more than 1 and would move across phase 5 from 29th onwards.

Storms and Depression over east China sea adjoining Taiwan/ South Indian Ocean:

Vortex over South Indian Ocean (area H05) centered near 11.5S / 91.7E. Intensity T2.0/2.0. Associated scattered to broken low and medium clouds with embedded intense to very intense convection lay over area between latitude 10.0⁰ S to 17.0⁰ S longitude 87.0⁰ E to 97.0⁰ E.

NWP Guidance for FDP Cyclone based on 0000 UTC for the next 7 days:

MODEL GUIDANCE	Bay of Bengal (BoB)	Arabian Sea (AS)
IMD-GFS	Model is indicating DD /CS as on today the 27th November, moving northwestward and lay over southwest BoB as CS on 28th, moving in the same direction towards Tamil Nadu coast and lay over southwest BoB as DD/CS on 29th, it will move in the same direction and lay close to north Tamil Nadu coast ad D/DD on 30th. It will then weaken gradually over the same area.	No significant circulation over AS.
IMD-GEFS	Model is indicating DD/CS as on today the 27th November, moving northwestward and lay over southwest BoB as CS on 28th, moving in the same direction towards Tamil Nadu coast and lay over southwest BoB as DD/CS on 29th, it will move in the same direction and lay close to north Tamil Nadu coast as D/DD on 30th. It will then weaken gradually over the same area.	No Significant circulation over AS.
IMD-WRF	Model is indicating DD/CS as on today the 27 th November, moving northwestward and lay over southwest BoB as CS on 28 th , moving in the same direction and lay over southwest BoB north of Sri Lanka coast as SCS on 29 th . It will move in the same direction and cross the south Tamil Nadu coast as SCS/VSCS.	No Significant circulation over AS.
NCMRWF-NCUM(G)	Model is indicating DD as on today the 27 th /00 UTC, moving northwestward and lay over southwest BoB as CS on 28 th , moving in the same direction towards Tamil Nadu coast and lay over southwest BoB as CS on 29 th , it will move in the same direction and cross the Tamil Nadu coast as DD around 30 th /00 UTC. It will move over land area and emerge into south east Arabian Sea as depression around 02 nd December 00 UTC. It will have its west-southwestward movement towards Somalia coast.	Model is indicating, emergence of BoB system as WML / D ON 2 nd Dec into southeast AS. It will have southwestwards movement.
NCMRWF-NCUM(R)	Model is indicating DD as on today the 27 th /00 UTC, moving northwestward and lay over southwest BoB as depression on 28 th , moving in the same direction towards and cross the Tamil Nadu coast as depression around 30 th /00 UTC.	No Significant circulation over AS.
NCMRWF-NEPS	Model is indicating DD as on today the 27 th /00 UTC, moving northwestward and	Model is indicating, emergence of BoB system as WML / D ON 2 nd

	lay over southwest BoB as CS on 28 th , moving in the same direction towards Tamil Nadu coast and lay over southwest BoB as CS on 29 th , it will move in the same direction and cross the Tamil Nadu coast as DD around 30 th /00 UTC. It will move over land area and emerge into south east Arabian Sea as depression around 02 nd December 00 UTC. It will have its west-southwestward movement towards Somalia coast.	Dec into southeast AS. It will have southwestwards movement.
ECMWF	Model is indicating DD as on today the 27 th /00 UTC, moving northwestward and lay over southwest BoB as DD on 28 th , moving in the same direction towards and cross the Tamil Nadu coast as depression around 30 th /00 UTC.	No Significant cyclonic circulation over AS.
NCEP-GFS	Model is indicating DD as on today the 27 th /00 UTC over north Sri Lanka and adjoining southwest BoB, moving northeastwards and lay over southwest and adjoining westcentral BoB. Model is indicating that it lay over same region while slightly intensifying till 02 nd December/12 UTC. It will then have nearly westward movement towards Tamil Nadu coast.	No Significant cyclonic circulation over AS.

Summary:

(a) Bay of Bengal:

Model guidance indicates that, there is good consensus among various model with respect to movement, intensity and landfall. Most of the models are indicating intensification into marginal cyclonic storm during 27th/1200 UTC to 29th/0000 UTC and gradual weakening of the system thereafter.

(b) Arabian Sea

Most of the models are indicating no significant cyclonic circulation over Arabian Sea for the next seven days.

Inference:

Considering various environmental conditions and model guidance, it is inferred that:

Considering all the above, it is inferred that the deep depression over Southwest Bay of Bengal is very likely to continue to move north-northwestwards and intensify further into a cyclonic storm during next 12 hours. Thereafter, it will continue to move north-northwestwards towards Tamil Nadu coast skirting Sri Lanka coast during subsequent 2 days.

Probability of cyclogenesis (formation of depression and above intensity systems) over the Bay of Bengal during next 168 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
-	-	-	-	-	-	-

Probability of cyclogenesis (formation of depression and above intensity systems) over the Arabian Sea during next 168 hours:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

“- “indicates genesis has already occurred.

Probability is indicated as NIL for 0%, LOW for 1-33%, MOD for 34-67% and High for 68-100%.

Intense Observation Period (IOP): Sri Lanka coasts during 27th-29th, Tamil Nadu coast during 27th-30th November and south Andhra Pradesh coast during 27-30th.

ANNEXURE















