



## REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI SPECIAL TROPICAL WEATHER OUTLOOK

### DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 09.09.2024

**SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 168 HOURS ISSUED AT 0330 UTC OF 09.09.2024 BASED ON 0000 UTC OF 09.09.2024.**

### DEEP DEPRESSION OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL:

THE DEEP DEPRESSION OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL MOVED SLOWLY NORTHWESTWARDS WITH A SPEED OF 8 KMPH DURING PAST 6 HOURS, AND LAY CENTERED AT 0000 UTC OF THE 9TH SEPTEMBER, 2024 OVER THE SAME REGION NEAR LATITUDE 19.3°N AND LONGITUDE 86.2°E, ABOUT 70 KM SOUTHEAST OF PURI (43053), 140 KM EAST GOPALPUR (43049), 120 KM SOUTH-SOUTHWEST OF PARADIP (42976), 170 KM SOUTH SOUTHWEST OF CHANDBALI (42973), 240 KM EAST NORTHEAST OF KALINGAPATNAM (43105) AND 290 KM SOUTH-SOUTHWEST OF DIGHA (42901).

IT IS VERY LIKELY TO MOVE NEARLY NORTHWESTWARDS AND CROSS ODISHA COAST NEAR PURI BY 0800 UTC OF 9TH SEPTEMBER. IT WOULD THEN MOVE WEST-NORTHWESTWARDS ACROSS ODISHA & CHHATTISGARH DURING SUBSEQUENT 2 DAYS.

THE SYSTEM IS UNDER THE CONTINUOUS SURVEILLANCE OF DOPPLER WEATHER RADARS AT VISHAKHAPATNAM AND GOPALPUR.

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
09.09.24/0000	19.3/86.2	55-65 GUSTING TO 75	DEEP DEPRESSION
09.09.24/0600	19.8/85.9	55-65 GUSTING TO 75	DEEP DEPRESSION
09.09.24/1200	25.5/85.2	50-60 GUSTING TO 70	DEEP DEPRESSION
09.09.24/1800	21.1/84.4	40-50 GUSTING TO 60	DEPRESSION

AT 0000 UTC, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T2.0. AS PER INSAT 3DR IMAGERY AT 0015 UTC, ASSOCIATED SCATTERED TO BROKEN LOW & MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER

NORTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL, NORTH COASTAL ANDHRA PRADESH, ODISHA, VIDARBHA, AND SOUTH CHHATTISGARH. MINIMUM CLOUD TOP TEMPERATURE IS -93°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IN ASSOCIATION WITH THE SYSTEM IS 30 KTS GUSTING TO 40 KTS. ESTIMATED CENTRAL PRESSURE IS 991 HPA.

AT 0000 UTC, PURI REPORTED MSLP OF 991.9 HPA AND MSW OF 050°/10KT. GOPALPUR REPORTED MSLP OF 994.4 HPA, AND MSW OF 270°/05KT. A BUOY (17.8N/89.1) REPORTED MSLP OF 1000.1 HPA AND MSW OF 212°/10KT. ANOTHER BUOY (17.4N/89.1) REPORTED MSLP OF 999.8 HPA AND MSW OF 252°/10KT.

#### **WIND WARNING**

SQUALLY WEATHER WITH WIND SPEED REACHING 55-65 KMPH GUSTING TO 75 KMPH PREVAILING OVER NORTHWEST AND ADJOINING NORTHEAST & CENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH-ODISHA-WEST BENGAL COASTS, LIKELY TO CONTINUE TILL 0800 UTC OF 9<sup>TH</sup> SEPTEMBER. IT IS LIKELY TO DECREASE GRADUALLY BECOMING 45-55 KMPH GUSTING TO 65 KMPH BY 1200 UTC OF THE 9<sup>TH</sup> SEPTEMBER AND DECREASE GRADUALLY THEREAFTER.

#### **SEA CONDITION**

ROUGH TO VERY ROUGH SEA CONDITION IS LIKELY OVER NORTHWEST AND ADJOINING NORTHEAST & CENTRAL BAY OF BENGAL AND ALONG & OFF ANDHRA PRADESH-ODISHA-WEST BENGAL COASTS TILL 1200 UTC OF THE 9<sup>TH</sup> SEPTEMBER AND ROUGH SEA CONDITION ON 10<sup>TH</sup> SEPTEMBER. IT IS LIKELY TO IMPROVE GRADUALLY THEREAFTER.

#### **FISHERMEN WARNING**

FISHERMEN ARE ADVISED NOT TO VENTURE INTO NORTHWEST AND ADJOINING NORTHEAST & CENTRAL BAY OF BENGAL; ALONG & OFF ANDHRA PRADESH-ODISHA-WEST BENGAL COASTS TILL 0800 UTC OF 11<sup>TH</sup> SEPTEMBER.

#### **REMARKS:**

CURRENT ENVIRONMENTAL CONDITIONS INDICATE THAT THE DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL (BOB) IS LYING IN A FAVOURABLE ENVIRONMENT. SEA SURFACE TEMPERATURE IS 29-30°C OVER WESTCENTRAL & ADJOINING EASTCENTRAL BOB. IT IS HIGHER AROUND 32°C OVER NORTHWEST BOB OFF ODISHA COAST. TROPICAL CYCLONE HEAT POTENTIAL IS 60-80KJ/CM<sup>2</sup> NEAR SYSTEM LOCATION. IT IS SLIGHTLY HIGHER OVER NORTHWEST BOB (100 KJ/CM<sup>2</sup>). THUS, DURING ITS NORTH-NORTHWESTWARDS MOVEMENT, IT WILL ENTER INTO WARM OCEANIC AREA.

MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 5 WITH AMPLITUDE LESS THAN 1. IT IS LIKELY TO CONTINUE IN SAME PHASE DURING NEXT 4 DAYS. THUS, MJO WOULD SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER NORTH BOB. NCICS BASED GUIDANCE ON EQUATORIAL WAVES INDICATE, STRONG WESTERLY WINDS (5-7 MPS) ALONGWITH ROSSBY WAVES OVER SOUTH BOB AND STRONG EASTERLY WINDS (5-7MPS) OVER NORTH BOB.

THE LOW LEVEL CONVERGENCE IS AROUND  $20 \times 10^{-5} \text{ S}^{-1}$  TO THE SOUTHWEST OF SYSTEM CENTRE. UPPER LEVEL DIVERGENCE IS AROUND  $30 \times 10^{-5} \text{ S}^{-1}$  TO THE WEST AND ANOTHER ZONE OF  $10 \times 10^{-5} \text{ S}^{-1}$  TO THE EAST OF SYSTEM CENTRE. THE WIND SHEAR IS LOW (05-10 KT) OVER SYSTEM AREA AND ALONG THE FORECAST TRACK.

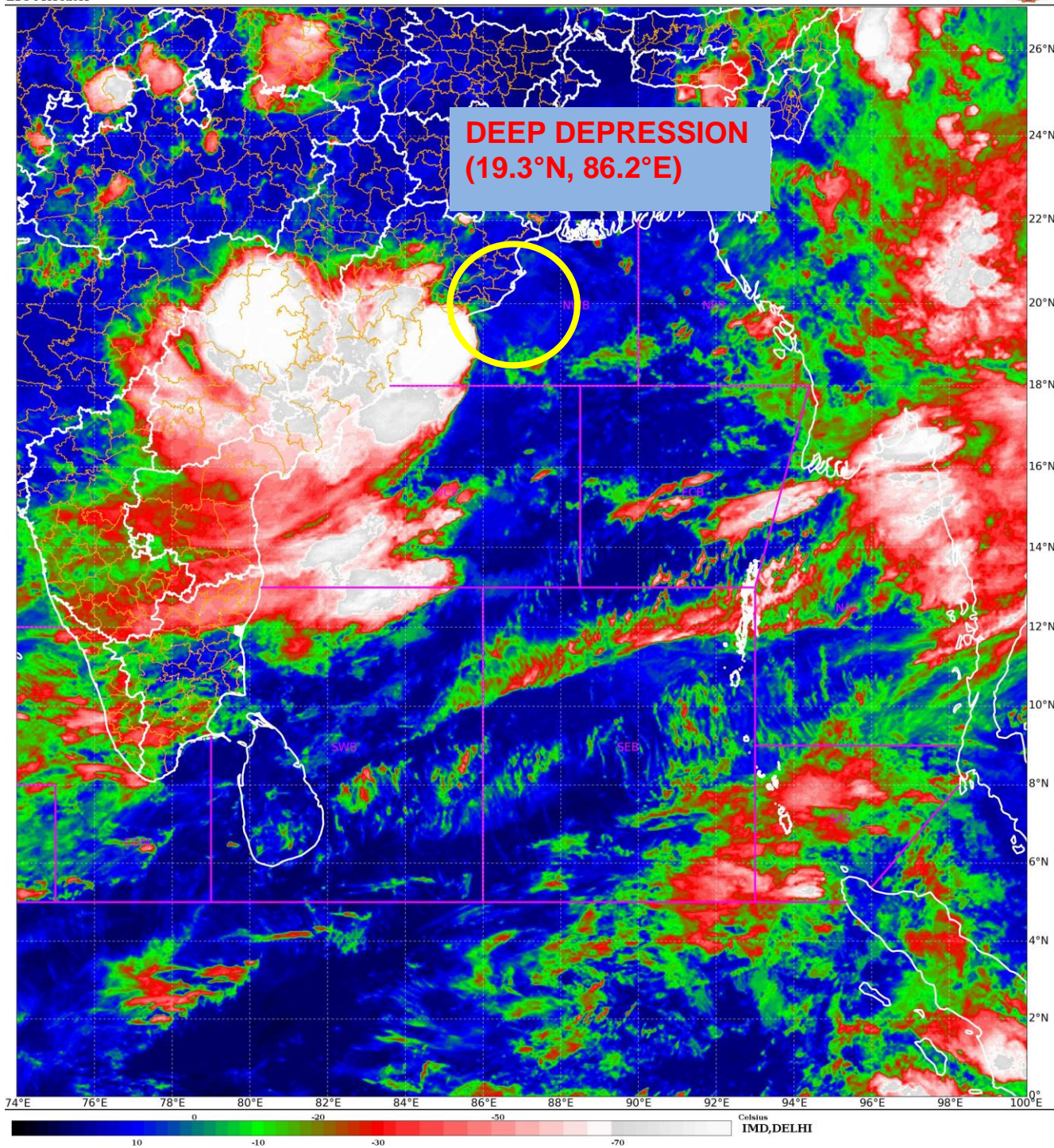
VORTICITY AT 850 HPA LEVEL IS AROUND  $150 \times 10^{-5} \text{ S}^{-1}$  TO THE SOUTH OF SYSTEM AREA WITH EXTENSION UPTO 500 HPA LEVEL.

GUIDANCE FROM VARIOUS NUMERICAL WEATHER PREDICTION MODELS (IMD GFS, NCEP GFS, GEFS, ECMWF, AND NCUM) IS SHOWING INITIAL NORTHWARDS MOVEMENT TILL 0000 UTC 09TH SEPTEMBER, FOLLOWED BY WEST-NORTHWESTWARDS MOVEMENT TOWARDS ODISHA COAST. NCEP GFS IS INDICATING NEARLY NORTHWARDS MOVEMENT AND CROSSING NEAR  $20^{\circ}\text{N}/86^{\circ}\text{E}$  AROUND 0600 UTC OF 9TH SEPTEMBER. ECMWF IS INDICATING NEARLY NORTHWARDS MOVEMENT WITH CROSSING NEAR  $20.3^{\circ}\text{N}/86.8^{\circ}\text{E}$  AROUND 0600 UTC OF 9TH SEPTEMBER. IMD GFS IS INDICATING NEAR NORTHWARDS MOVEMENT AND CROSSING NEAR  $19.5^{\circ}\text{N}/86.2^{\circ}\text{E}$  AROUND 0000 UTC OF 9<sup>TH</sup> SEPTEMBER. NCUM IS INDICATING CROSSING NEAR  $20^{\circ}\text{N}/85^{\circ}\text{E}$  AROUND 0600 UTC OF 9<sup>TH</sup> SEPTEMBER. IMD MME IS INDICATING THE SYSTEM TO CROSS ODISHA COAST NEAR PURI ( $19.9/86.1$ ) AROUND 0400 UTC OF 9<sup>TH</sup> SEPTEMBER. HOWEVER, THERE IS CONSENSUS AMONG ALL MODELS REGARDING WEST-NORTHWESTWARDS MOVEMENT OF THE SYSTEM AFTER LANDFALL ACROSS ODISHA, CHHATTISGARH & NORTHEAST MADHYA PRADESH.

CONSIDERING ALL THE ABOVE, IT IS CONCLUDED THAT THE DEEP DEPRESSION OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL IS VERY LIKELY TO MOVE NEARLY NORTHWESTWARDS AND CROSS ODISHA COAST NEAR PURI BY 0800UTC OF 9TH SEPTEMBER. IT WOULD THEN MOVE WEST-NORTHWESTWARDS ACROSS ODISHA & CHHATTISGARH DURING SUBSEQUENT 2 DAYS.

(SHIBIN BALAKRISHNAN)  
RSMC NEW DELHI

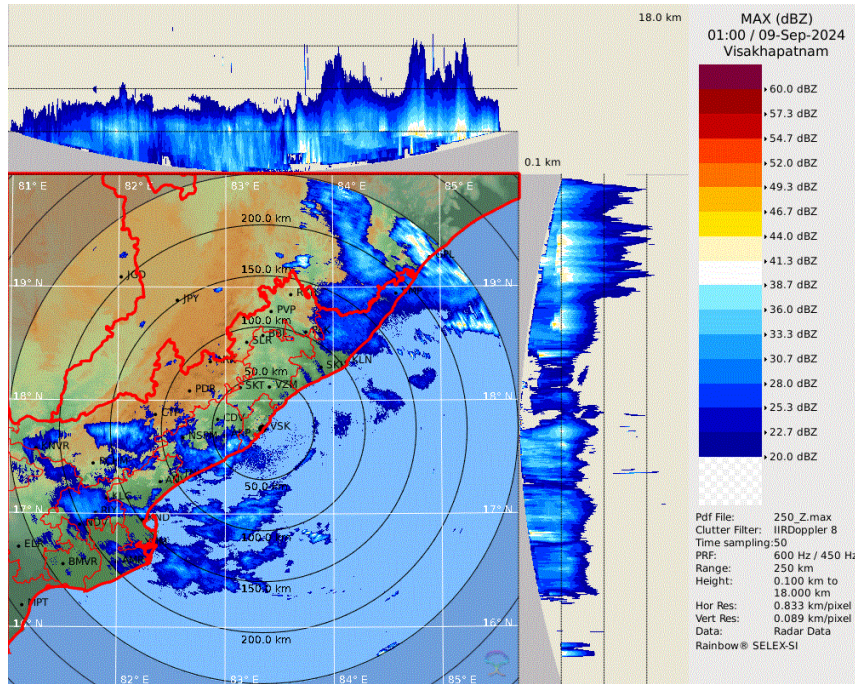




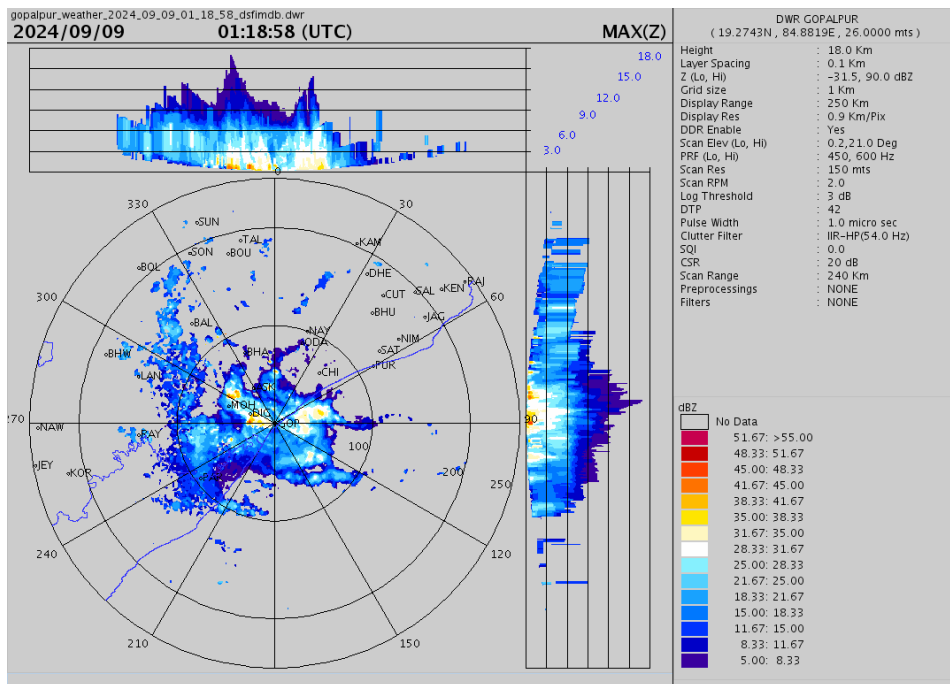
Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
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## Reflectivity imagery from Doppler Weather Radar, Visakhapatnam



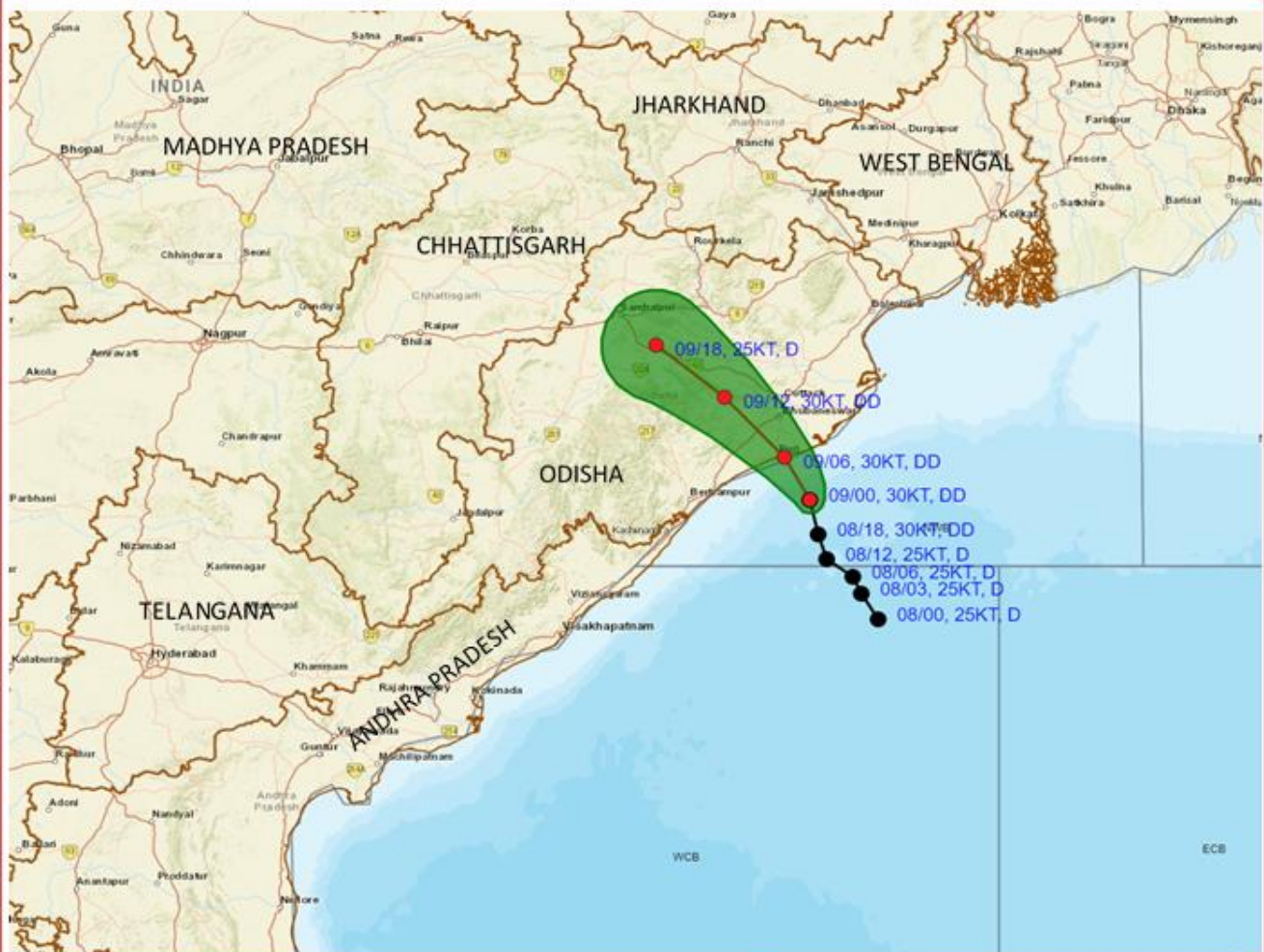
## Maximum reflectivity imagery from Doppler Weather Radar, Gopalpur



Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
 PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
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**OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 9th SEPTEMBER, 2024.**



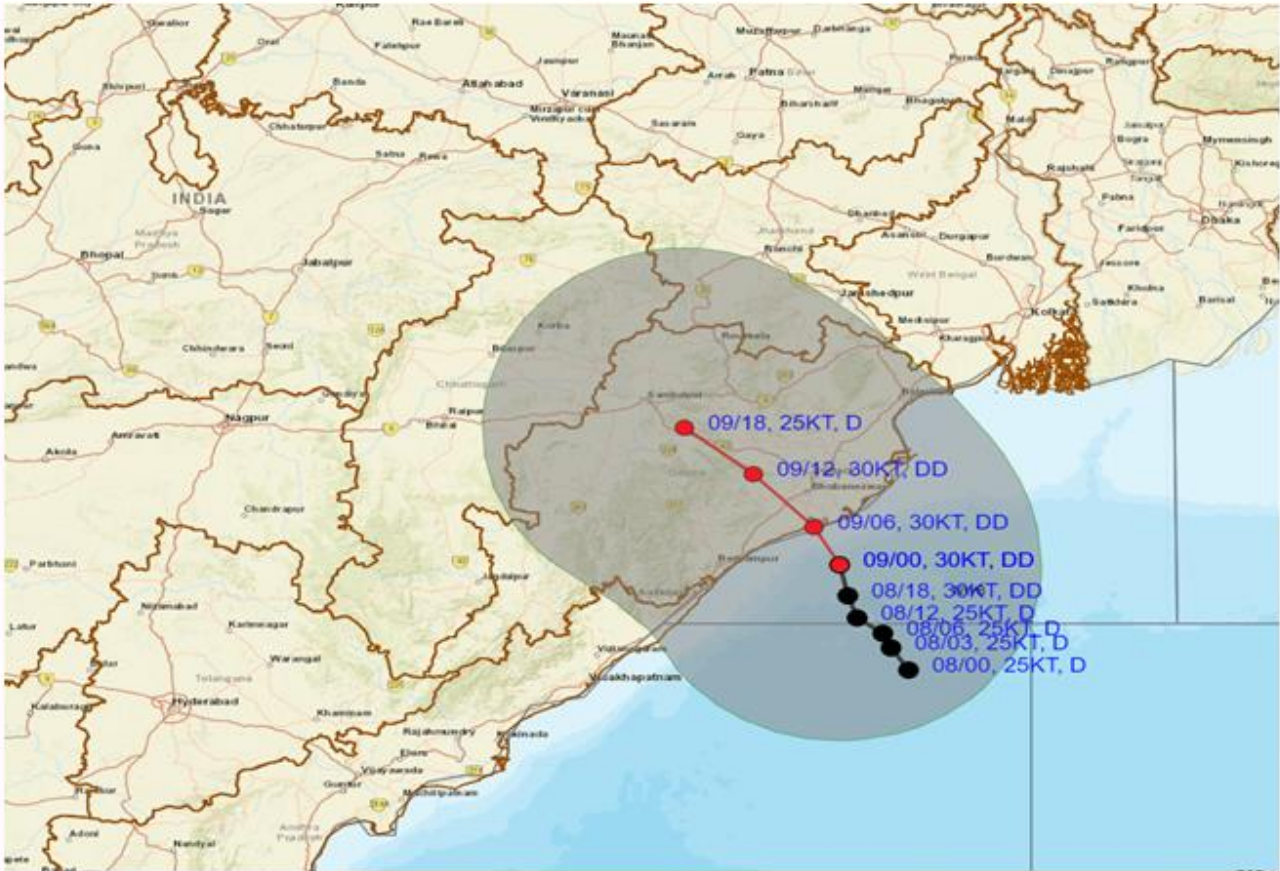
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY





**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER NORTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 9th SEPTEMBER, 2024.**



DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT  
 ○ 34-47 KT  
 ● ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

**IMPACT OVER THE SEA**

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

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### Fishermen Warning Graphics

