



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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 02.12.2023

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 02.12.2023 BASED ON 0000 UTC OF 02.12.2023.

SUB: DEPRESSION INTENSIFIED INTO DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL

THE DEPRESSION OVER SOUTHWEST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 22 KMPH DURING PAST 06 HOURS, INTENSIFIED INTO DEEP DEPRESSION AND LAY CENTERED AT 0000 UTC OF 02ND DECEMBER, 2023 OVER THE SAME REGION NEAR LATITUDE 10.5°N AND LONGITUDE 84.1°E, ABOUT 500 KM EAST-SOUTHEAST OF PUDUCHERRY (43331), 510 KM EAST-SOUTHEAST OF CHENNAI (43279), 630 KM SOUTHEAST OF NELLORE (43245), 710 KM SOUTH-SOUTHEAST OF BAPATLA (43220) AND 710 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185).

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS, INTENSIFY INTO A CYCLONIC STORM OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND REACH WESTCENTRAL BAY OF BENGAL OFF SOUTH ANDHRA PRADESH AND ADJOINING NORTH TAMILNADU COASTS BY 0600 UTC OF 4TH DECEMBER. THEREAFTER, IT WOULD MOVE NEARLY NORTHWARDS ALMOST PARALLEL AND CLOSE TO SOUTH ANDHRA PRADESH COASTS AND CROSS SOUTH ANDHRA PRADESH COASTS BETWEEN NELLORE AND MACHILIPATNAM DURING 0600 UTC OF 5TH DECEMBER AS A **CYCLONIC STORM** WITH A MAXIMUM SUSTAINED WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.

TRACK & INTENSITY FORECASTS:

DATE/TIME (UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.12.23/0000	10.5/84.1	50-60 KMPH GUSTING TO 70 KMPH	DEEP DEPRESSION
02.12.23/0600	10.7/83.7	50-60 KMPH GUSTING TO 70 KMPH	DEEP DEPRESSION
02.12.23/1200	11.0/83.3	55-65 KMPH GUSTING TO 75 KMPH	DEEP DEPRESSION
02.12.23/1800	11.4/82.9	60-70 KMPH GUSTING TO 80 KMPH	CYCLONIC STORM
03.12.23/0000	11.8/82.5	60-70 KMPH GUSTING TO 80 KMPH	CYCLONIC STORM
03.12.23/1200	12.5/81.9	70-80 KMPH GUSTING TO 90 KMPH	CYCLONIC STORM
04.12.23/0000	13.5/81.1	80-90 KMPH GUSTING TO 100 KMPH	CYCLONIC STORM
04.12.23/1200	14.5/80.5	85-95 KMPH GUSTING TO 105 KMPH	CYCLONIC STORM
05.12.23/0000	15.5/80.7	85-95 KMPH GUSTING TO 105 KMPH	CYCLONIC STORM
05.12.23/1200	16.5/81.1	70-80 KMPH GUSTING TO 90 KMPH	CYCLONIC STORM
06.12.23/0000	17.6/82.2	45-55 KMPH GUSTING TO 65 KMPH	DEPRESSION
06.12.23/1200	18.5/83.6	35-45 KMPH GUSTING TO 55 KMPH	DEPRESSION

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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INSAT -3D IMAGERY AT 0000 UTC, INDICATES VORTEX OVER SOUTHWEST BAY OF BENGAL AND NEIGHBOURHOOD NOW LAY CENTERED WITHIN HALF A DEGREE OF 10.4°N/84.1°E WITH ASSOCIATED INTENSITY OF T2.0. ASSOCIATED SCATTERED TO BROKEN LOW/MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH AND ADJOINING CENTRAL BAY OF BENGAL BETWEEN LATITUDE 5.0°N TO 15.0°N LONGITUDE 80.0E TO 90.0E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93 DEGREE CELSIUS.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 30 KNOTS GUSTING TO 40 KNOTS. ESTIMATED CENTRAL PRESSURE IS 1000 HPA. SEA CONDITION IS LIKELY TO BE VERY ROUGH OVER THE SOUTHWEST & ADJOINING SOUTHEAST BAY OF BENGAL. MADDEN JULIAN OSCILLATION (MJO) IS CURRENTLY IN PHASE 3 WITH AMPLITUDE GREATER THAN 1. IT WOULD MOVE ACROSS PHASES 3 AND 4 WITH AMPLITUDE GREATER THAN 1 DURING 2ND TO 6TH DECEMBER. THUS, MJO WOULD SUPPORT CYCLOGENESIS OVER THE BAY OF BENGAL (BOB) REGION TILL 6TH DECEMBER. SEA SURFACE TEMPERATURE IS 28-30°C OVER MAJOR PARTS OF BOB. TROPICAL CYCLONE HEAT POTENTIAL IS 60-70 KJ/CM² OVER SOUTHEAST BOB. THE NCICS BASED FORECASTS FOR EQUATORIAL WAVES INDICATE STRENGTHENING OF WESTERLY WINDS ALONGWITH PRESENCE OF EQUATORIAL ROSSBY WAVES & MJO OVER SOUTH BOB AND EASTERLY WINDS OVER CENTRAL BOB TILL 4TH DECEMBER. ALL THESE LARGE SCALE FEATURES ARE FAVOURABLE FOR CYCLOGENESIS (INTENSIFICATION INTO A CYCLONIC STORM) OVER SOUTHWEST BOB.

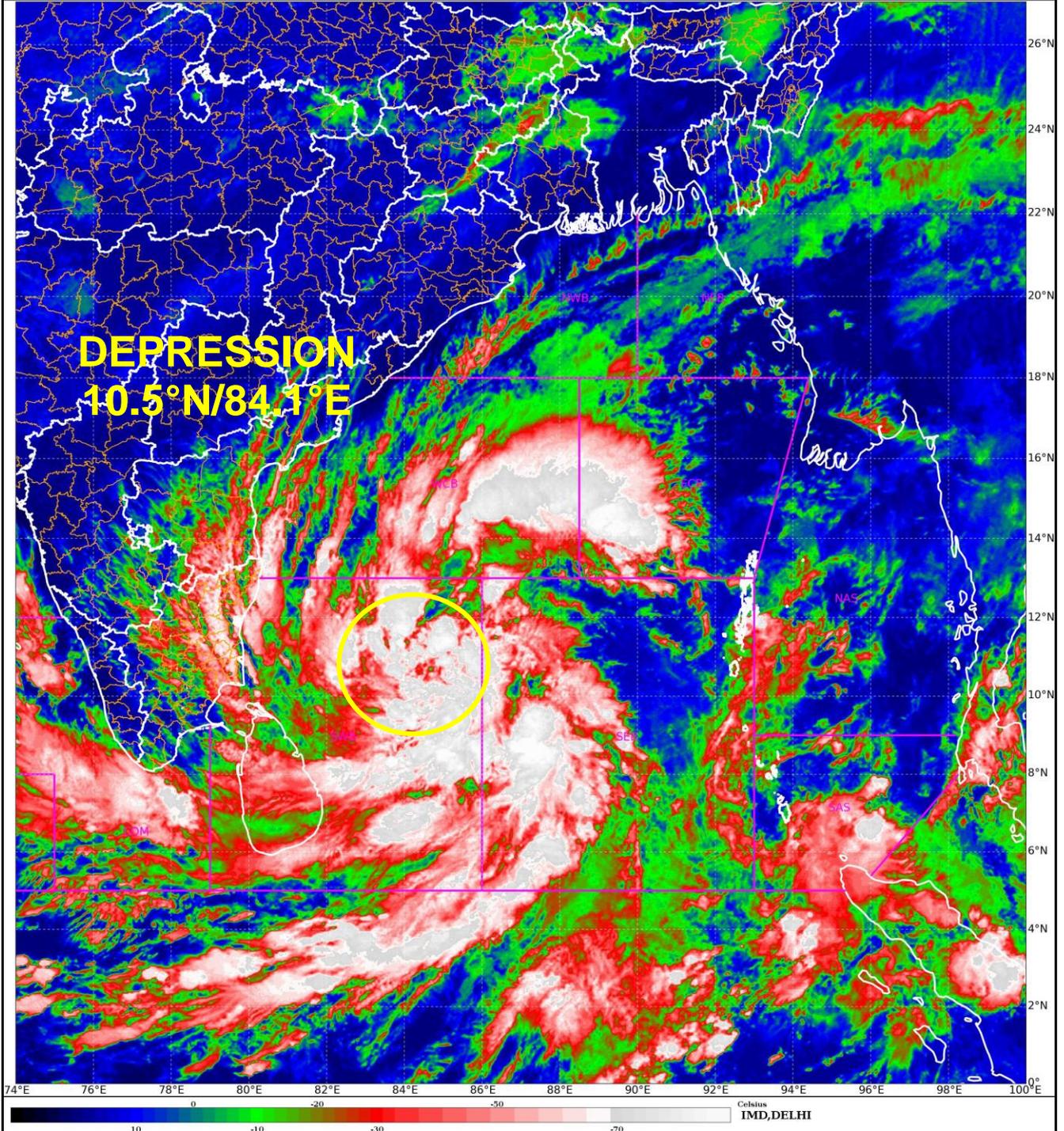
CURRENT ENVIRONMENTAL FEATURES INDICATE, POSITIVE LOW LEVEL VORTICITY OF $50 \times 10^{-6} \text{S}^{-1}$ AROUND SYSTEM CENTRE WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. POSITIVE LOW LEVEL CONVERGENCE HAS INCREASED AND IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHEAST OF SYSTEM CENTRE. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE EAST OF THE SYSTEM CENTRE. WIND SHEAR IS ABOUT 10-20 KNOTS OVER SOUTH BOB AND UPTO 12°N. LOW TO MODERATE CLOCKWISE DEEP LAYER WIND SHEAR IS SUPPORTING INTENSIFICATION OF THE SYSTEM.

GUIDANCE FROM VARIOUS NUMERICAL MODELS IS INDICATING INITIAL NORTHWESTWARDS MOVEMENT TOWARDS ANDHRA PRADESH AND ADJOINING NORTH TAMIL NADU COASTS, WITH CROSSING OVER SOUTH ANDHRA PRADESH COAST AND NORTHEASTWARDS MOVEMENT ALONG THE COAST. THERE IS GOOD CONSENSUS AMONG THE MODELS WITH RESPECT TO MOVEMENT. WITH RESPECT TO INTENSIFICATION, MOST OF THE MODELS ARE INDICATING THE SYSTEM TO INTENSIFY INTO A CYCLONIC STORM. PEAK INTENSIFICATION OF 45 KNOTS IS SUGGESTED. HOWEVER, ECMWF IS INDICATING INTENSIFICATION UPTO DEEP DEPRESSION STAGE. IMD GFS IS INDICATING INTENSIFICATION UPTO VERY SEVERE CYCLONIC STORM. IMD MME IS INDICATING INTENSIFICATION UPTO 45 KNOTS (CYCLONIC STORM CATEGORY).

CONSIDERING ALL THE ABOVE, THE DEPRESSION OVER SOUTHWEST BAY OF BENGAL HAS INTENSIFIED INTO DEEP DEPRESSION AND LAY OVER SOUTHWEST BAY OF BENGAL AT 0000 UTC OF 02ND DECEMBER, 2023.

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS, INTENSIFY INTO A CYCLONIC STORM OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND REACH WESTCENTRAL BAY OF BENGAL OFF SOUTH ANDHRA PRADESH AND ADJOINING NORTH TAMILNADU COASTS BY 0600 UTC OF 4TH DECEMBER. THEREAFTER, IT WOULD MOVE NEARLY NORTHWARDS ALMOST PARALLEL AND CLOSE TO SOUTH ANDHRA PRADESH COASTS AND CROSS SOUTH ANDHRA PRADESH COASTS BETWEEN NELLORE AND MACHILIPATNAM DURING 0600 UTC OF 5TH DECEMBER AS A **CYCLONIC STORM** WITH A MAXIMUM SUSTAINED WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.

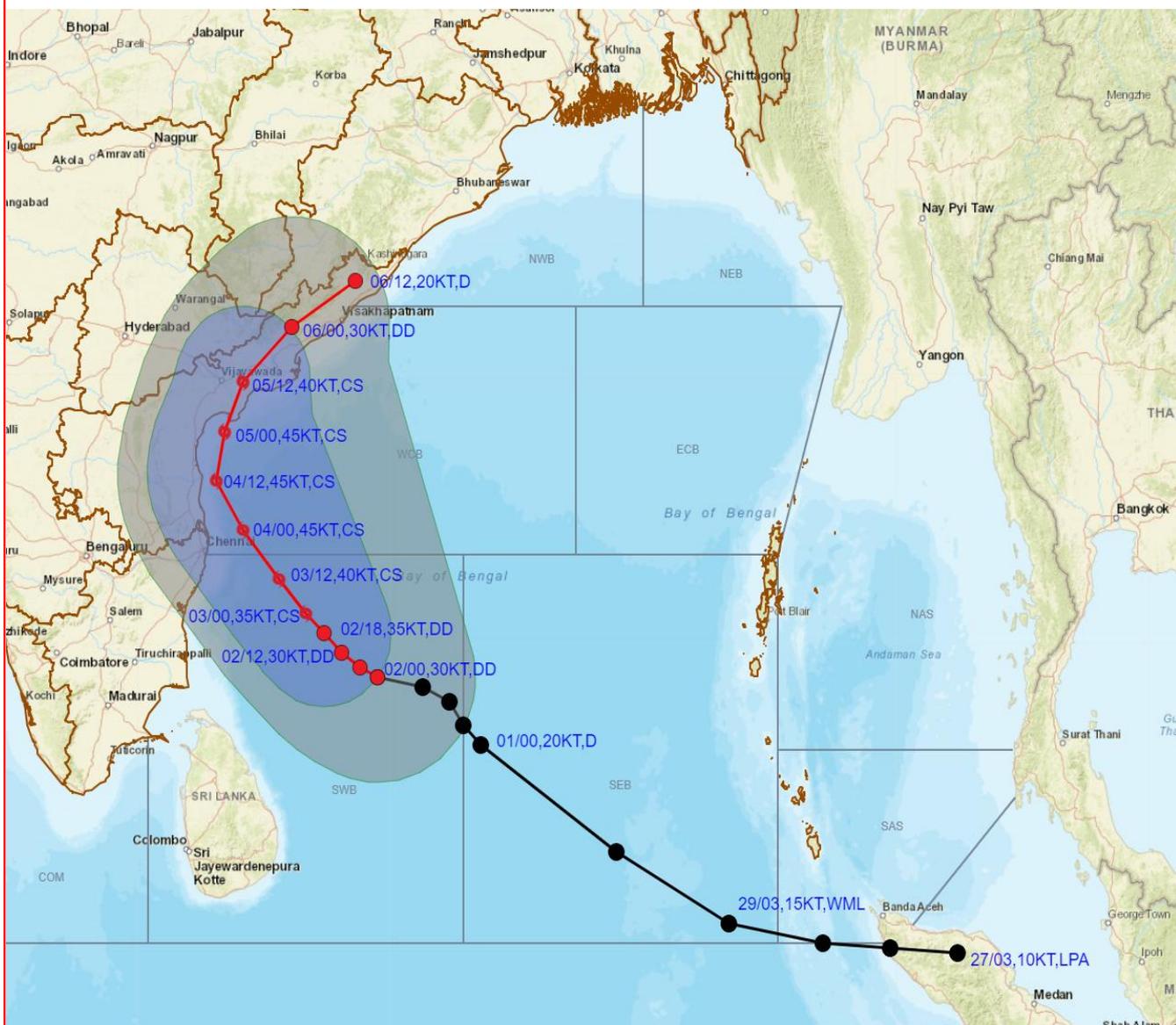
(SHOBHIT KATIYAR)
RSMC NEW DELHI



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OBSERVED AND FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 02ND DECEMBER 2023.



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)

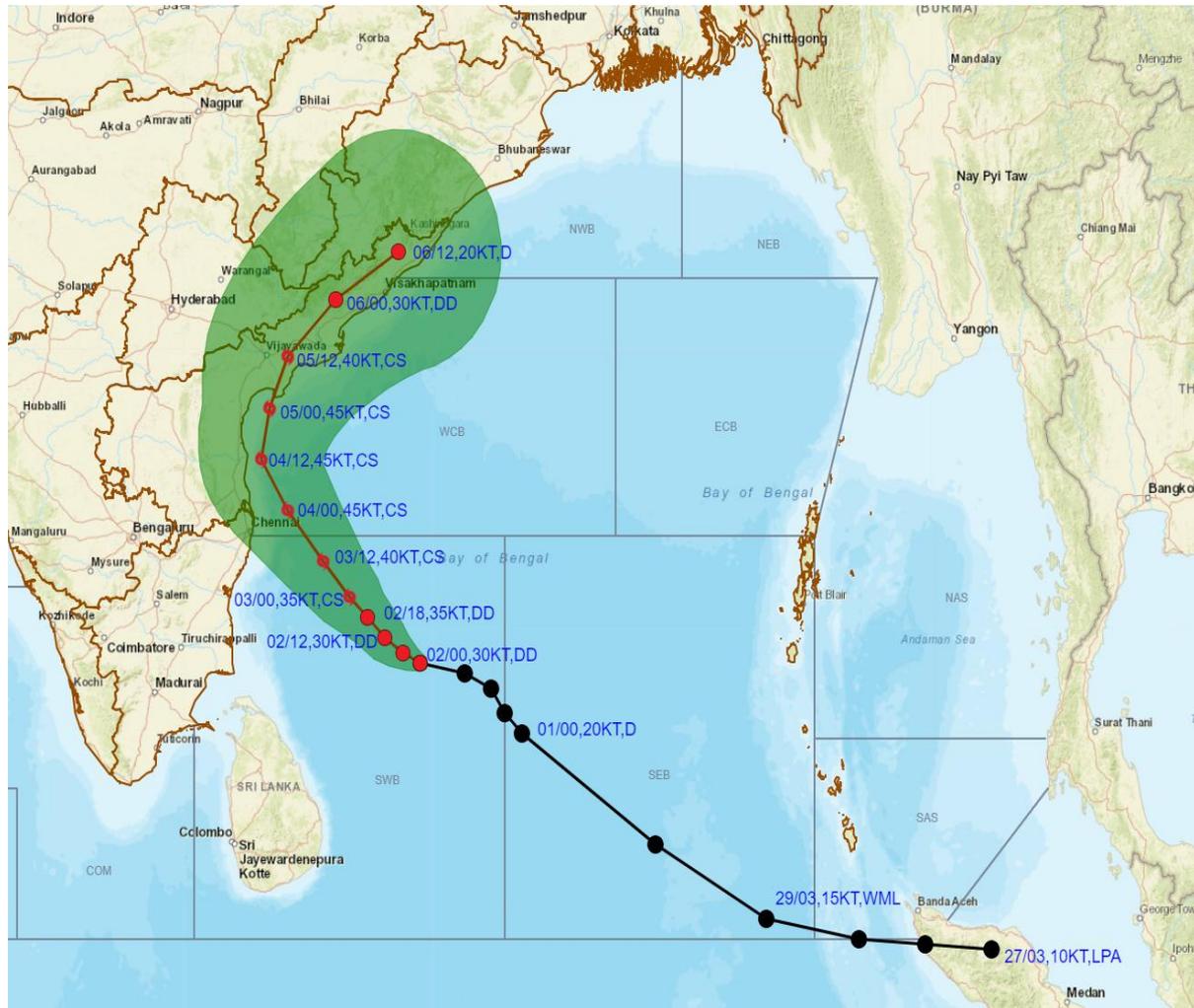
IMPACT OVER THE SEA

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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OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 02ND DECEMBER



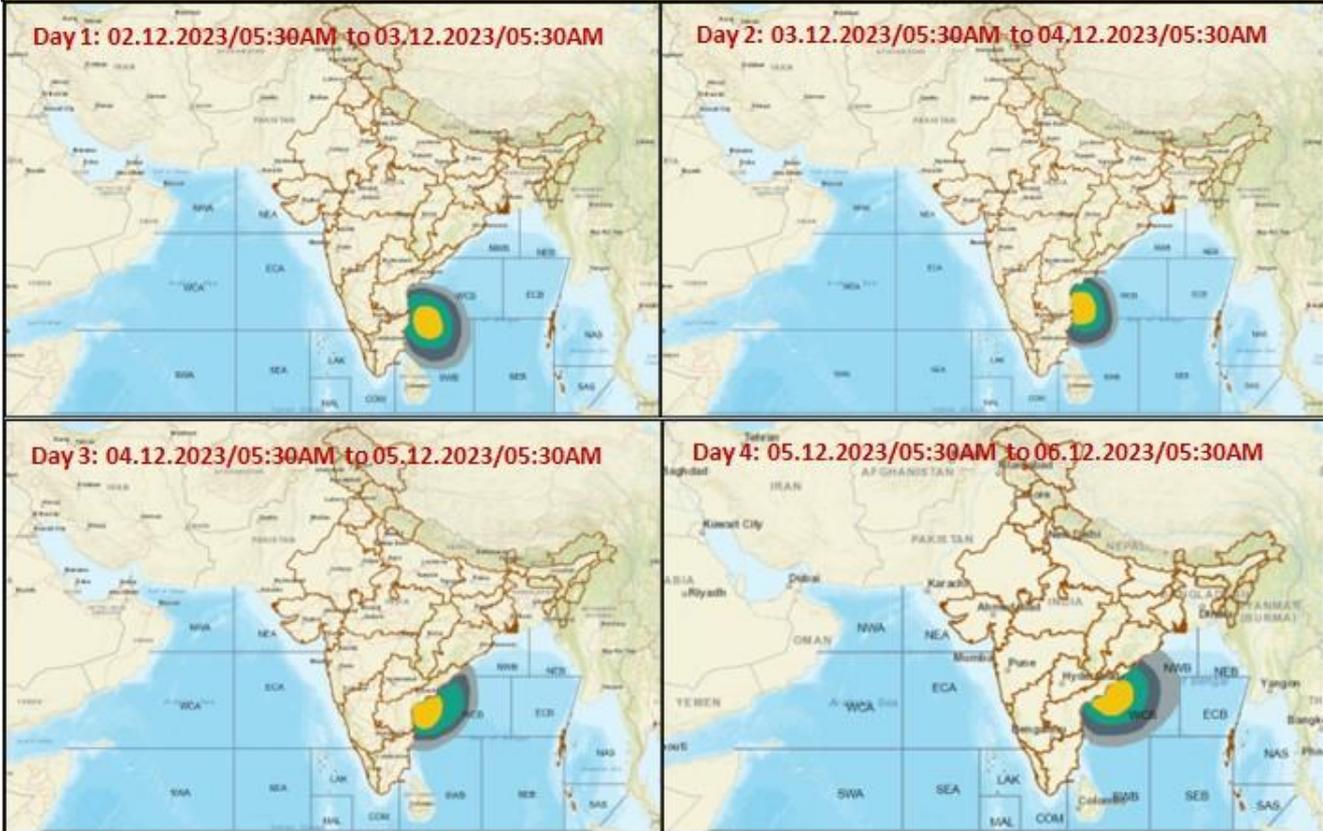
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SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

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

Forecast Date and Time (UTC)	DISTANCE (KM) AND DIRECTION FROM STATIONS				
	MO PONDICHERRY	CHENNAI/MINAMBAKKAM	NELLORE	BAPATLA	MACHILIPATNAM/ FRANCHPET
02.12.23/0000	490, ESE	500, ESE	620, SE	710, SSE	710, SSE
03.12.23/0000	290, E	280, ESE	400, SE	500, SSE	510, SSE
04.12.23/0000	230, NE	120, ENE	160, SE	270, SSE	300, S
05.12.23/0000	410, NNE	290, NNE	150, NNE	60, SSE	100, SSW
06.12.23/0000	680, NNE	560, NNE	430, NE	270, NE	200, NE

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Fishermen warning graphics

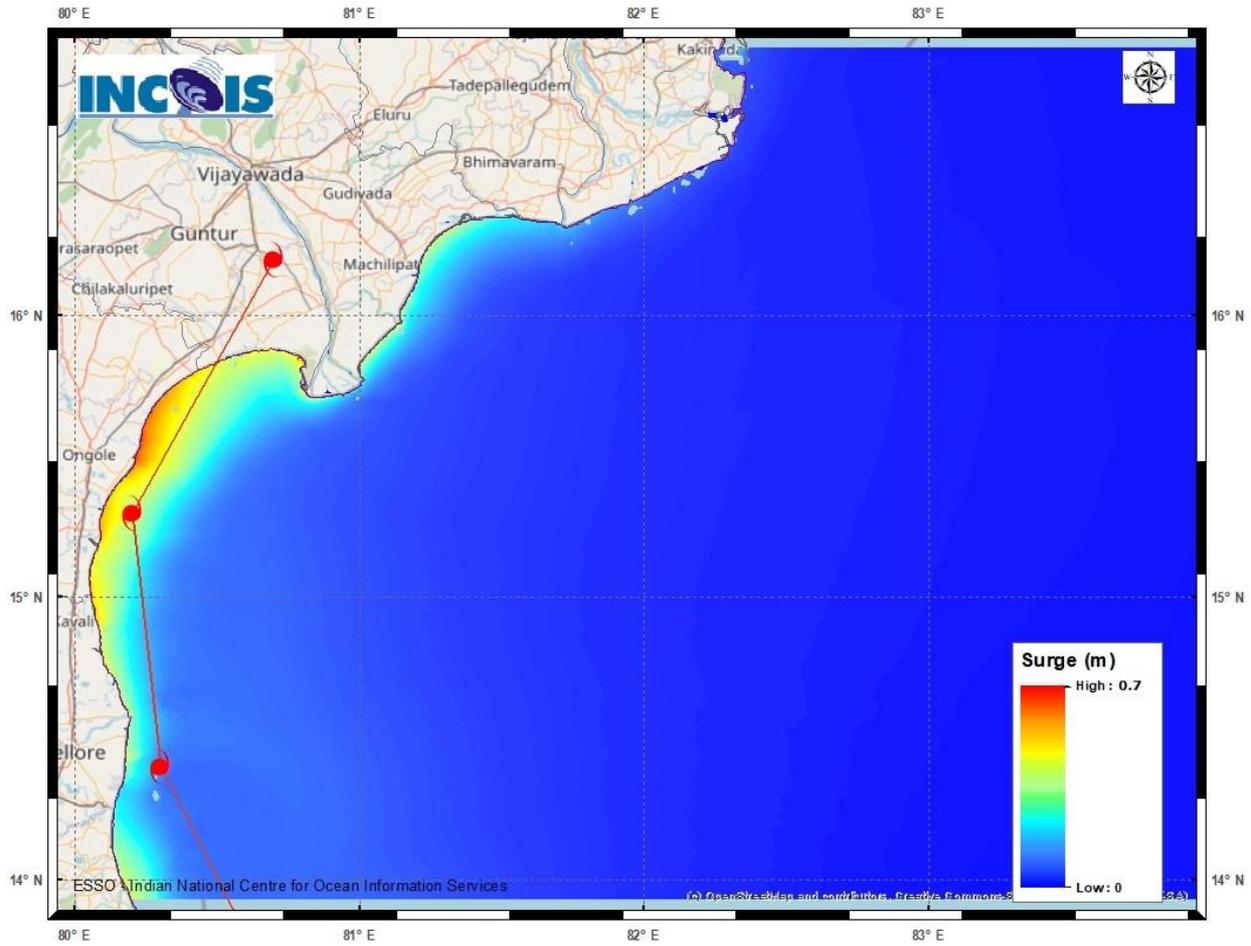


	Squally WX with wind speed 40-45 kmph gusting to 55 kmph
	Squally WX with wind speed 45-55 kmph gusting to 65 kmph
	Squally wind with speed 50-60 kmph gusting to 70 kmph
	CS with Gale wind speed 60-90 kmph gusting to 110 kmph

Fishermen are advised not to venture into the marked areas.

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Storm Surge Warning Graphics based on Forecast Track



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