



**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 0700 UTC OF 02.12.2023 BASED ON 0300 UTC OF 02.12.2023.**

**SUB: DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL (CYCLONE ALERT FOR ANDHRA PRADESH AND ADJOINING NORTH TAMIL NADU-PUDUCHERRY COASTS: **YELLOW MESSAGE**)**

THE DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL MOVED WEST-NORTHWESTWARDS WITH A SPEED OF 18 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 0300 UTC OF TODAY, THE 2<sup>ND</sup> DECEMBER, 2023 OVER THE SAME REGION NEAR LATITUDE 10.6°N AND LONGITUDE 83.6°E, ABOUT 440 KM EAST-SOUTHEAST OF PUDUCHERRY (43331), 450 KM EAST-SOUTHEAST OF CHENNAI (43279), 580 KM SOUTH-SOUTHEAST OF NELLORE (43245), 670 KM SOUTH-SOUTHEAST OF BAPATLA (43220) AND 670 KM SOUTH-SOUTHEAST OF MACHILIPATNAM (43185).

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND 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 4<sup>TH</sup> 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 AROUND 0600 UTC OF 5<sup>TH</sup> 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
02.12.23/0300	10.6/83.6	50-60 kmph gusting to 70 kmph	Deep Depression
02.12.23/0600	10.7/83.2	50-60 kmph gusting to 70 kmph	Deep Depression
02.12.23/1200	11.0/82.6	55-65 kmph gusting to 75 kmph	Deep Depression
02.12.23/1800	11.4/82.2	60-70 kmph gusting to 80 kmph	Cyclonic Storm
03.12.23/0000	11.8/81.9	65-75 kmph gusting to 85 kmph	Cyclonic Storm
03.12.23/1200	12.6/81.4	70-80 kmph gusting to 90 kmph	Cyclonic Storm
04.12.23/0000	13.5/80.9	75-85 kmph gusting to 95 kmph	Cyclonic Storm
04.12.23/1200	14.5/80.5	80-90 kmph gusting to 100 kmph	Cyclonic Storm

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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05.12.23/0000	15.5/80.7	80-90 kmph gusting to 100 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

INSAT -3D IMAGERY AT 0300 UTC, INDICATE FURTHER ORGANISATION OF CLOUD MASS. ASSOCIATED INTENSITY IS 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 16.0°N LONGITUDE 80.0E TO 90.0E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 92 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 2<sup>ND</sup> TO 6<sup>TH</sup> DECEMBER. THUS, MJO WOULD SUPPORT CYCLOGENESIS OVER THE BAY OF BENGAL (BOB) REGION TILL 6<sup>TH</sup> DECEMBER. SEA SURFACE TEMPERATURE ALONG 27°C. TROPICAL CYCLONE HEAT POTENTIAL IS 60-70 KJ/CM<sup>2</sup> OVER SOUTHWEST AND WESTCENTRAL 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 4<sup>TH</sup> DECEMBER. ALL THESE LARGE SCALE FEATURES ARE FAVOURABLE FOR FURTHER INTENSIFICATION OF SYSTEM INTO A CYCLONIC STORM.

CURRENT ENVIRONMENTAL FEATURES INDICATE, INCREASE IN POSITIVE LOW LEVEL VORTICITY TO  $100 \times 10^{-6} \text{S}^{-1}$  AROUND SYSTEM CENTRE WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. THE VORTICITY FIELD SHOWS NO TILTING WITH HEIGHT. POSITIVE LOW LEVEL CONVERGENCE IS SAME DURING PAST 3 HOURS AND IS ABOUT  $20 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTHEAST OF SYSTEM CENTRE. POSITIVE UPPER LEVEL DIVERGENCE IS SAME AND IS ABOUT  $30 \times 10^{-5} \text{S}^{-1}$  TO THE NORTHEAST OF THE SYSTEM CENTRE. WIND SHEAR IS ABOUT 10-20 KNOTS OVER SOUTH BOB AND UPTO 13°N. CLOCKWISE DEEP LAYER MEAN WIND SHEAR IS SUPPORTING FURTHER INTENSIFICATION OF SYSTEM. TOTAL PRECIPITABLE WATER IMAGERY IS INDICATING WARM MOIST AIR ADVECTION FROM SOUTHEAST SECTOR.

UPPER TROPOSPHERIC RIDGE RUNS ALONG 14°N. FROM 4<sup>TH</sup> DECEMBER/0000 UTC, THE SYSTEM WILL COME CLOSER TO THE RIDGE AND HENCE WOULD MOVE NEARLY NORTHWARDS AND BY 5<sup>TH</sup> /0000 UTC, IT WOULD CROSS RIDGE AND HENCE RECURVE NORTHEASTWARDS FROM 5<sup>TH</sup> DECEMBER/0000 UTC. UPPER TROPOSPHERIC WINDS ARE OF THE ORDER OF 50-60 KNOTS OVER NORTH ANDHRA PRADESH AND ODISHA COASTS. IT WOULD LEAD TO HIGHER WIND SHEAR

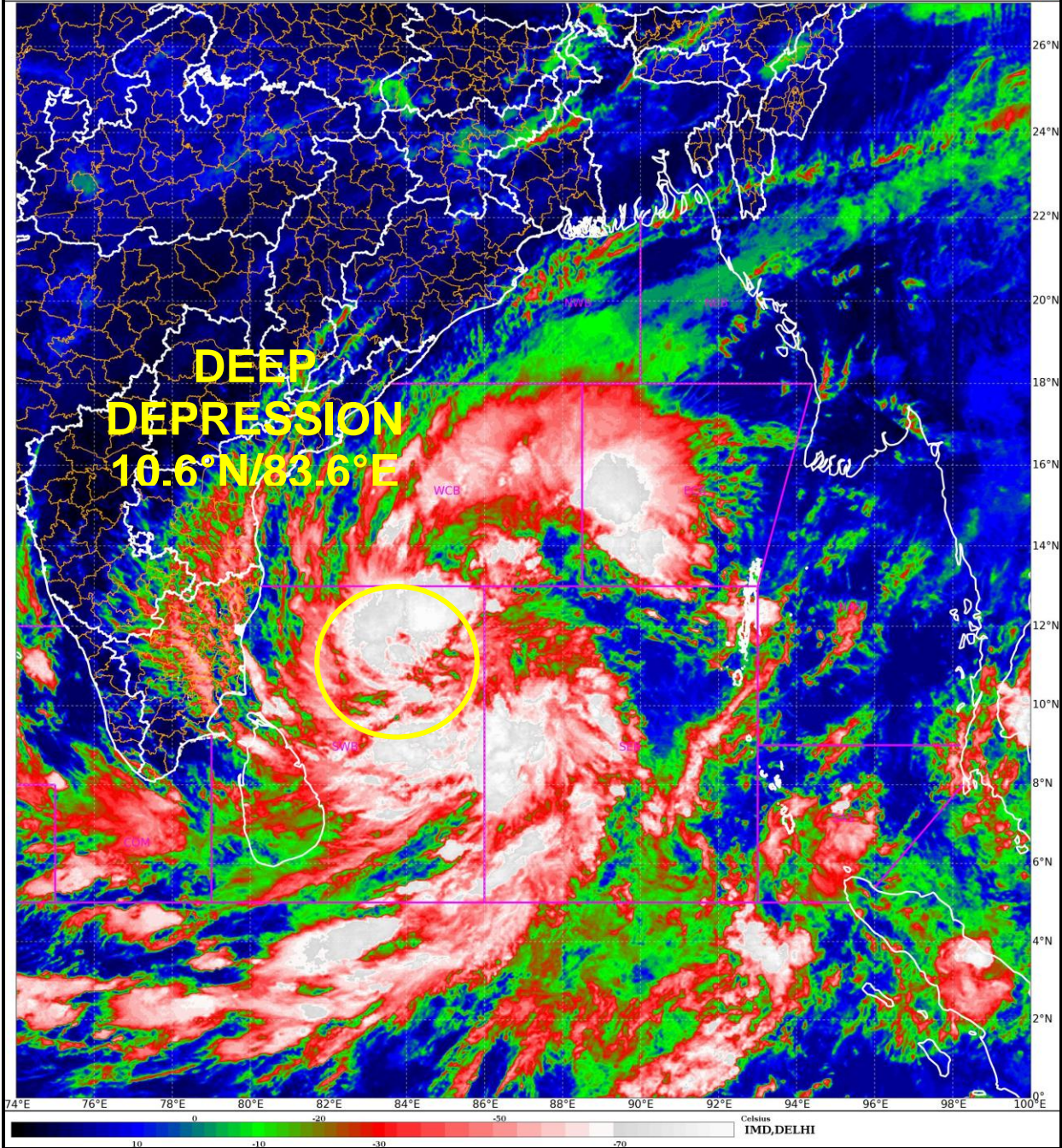
MOST OF THE MODELS ARE INDICATING INTIAL WEST-NORTHWESTWARDS MOVEMENT FOLLOWED BY NORTHWESTWARDS MOVEMENT TOWARDS ANDHRA PRADESH COAST. THE LANDFALL POINT IS VARYING BETWEEN LATITUDE 15.5-16.5°N/80.0-82.0°E. HOWEVER, NCUM MODEL IS INDICATING LANDFALL NEAR 13.3N/80.1E. IMD MME IS INDICATING LANDFALL NEAR 16.3N/81.2E. THE LANDFALL TIME IS VARYING BETWEEN 4<sup>TH</sup>/1800 UTC TO 5<sup>TH</sup> /1500 UTC.

CONSIDERING ALL THE ABOVE, THE DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL 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 AROUND 0600 UTC OF 5TH DECEMBER AS A CYCLONIC STORM WITH A MAXIMUM SUSTAINED WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.

(M SHARMA)  
RSMC NEW DELHI

SAT : INSAT-3DR IMG  
IMG\_TIR1\_TEMP 10.8 um  
LIC Mercator

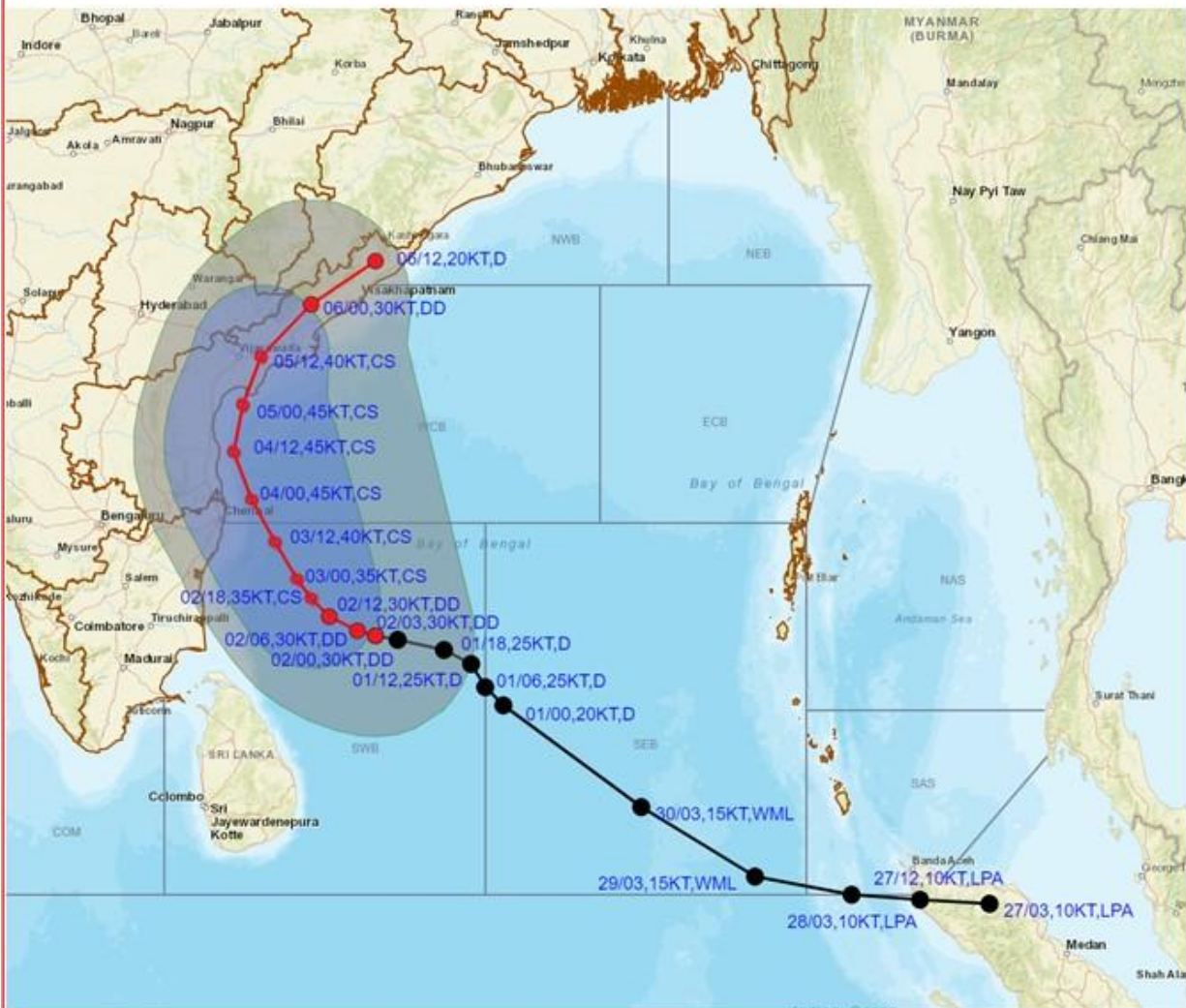
02-12-2023/(0445 to 0512) GMT  
02-12-2023/(1015 to 1042) IST



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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 0300 UTC (0830 IST) OF 02<sup>ND</sup> 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)

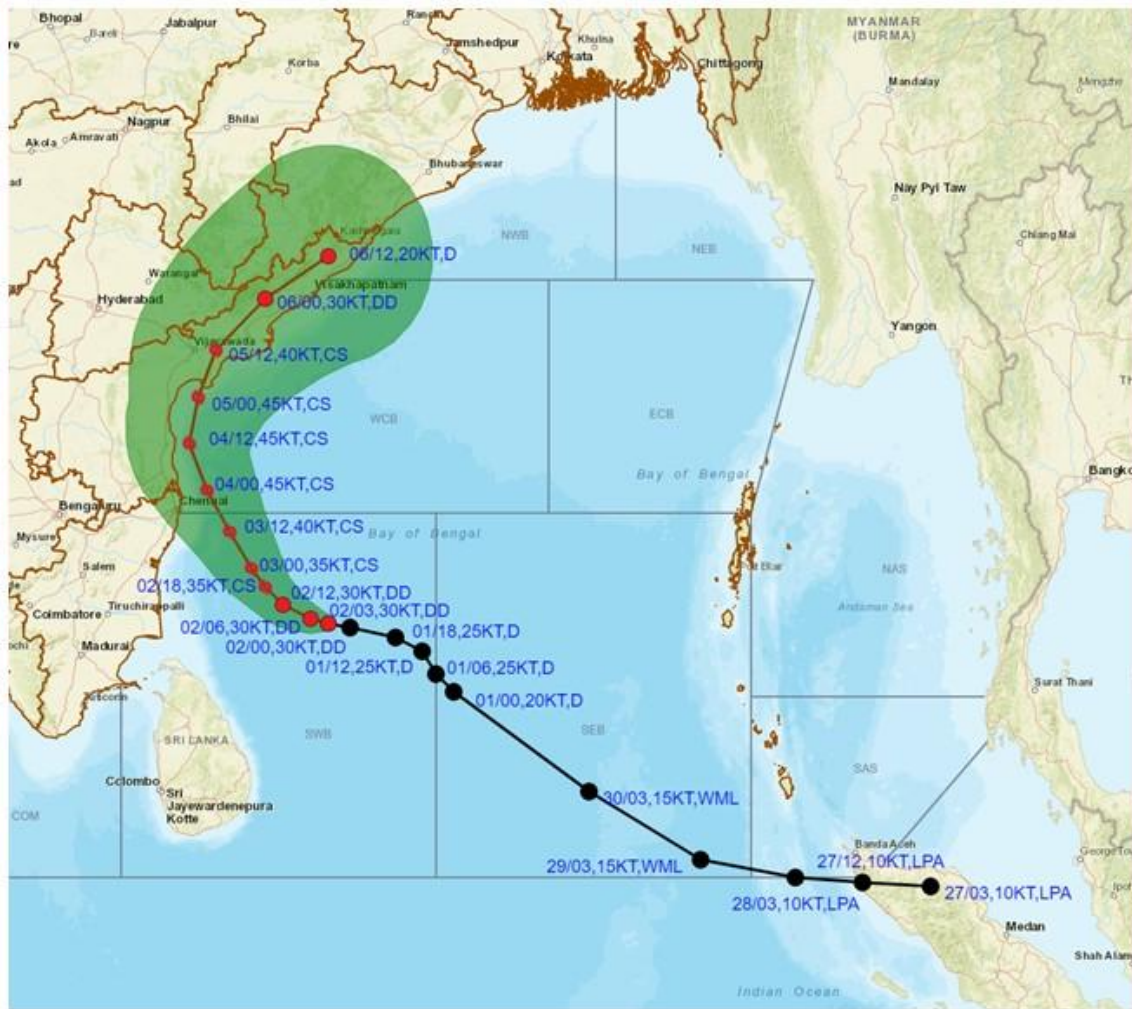
**IMPACT OVER THE SEA**

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 TRACK

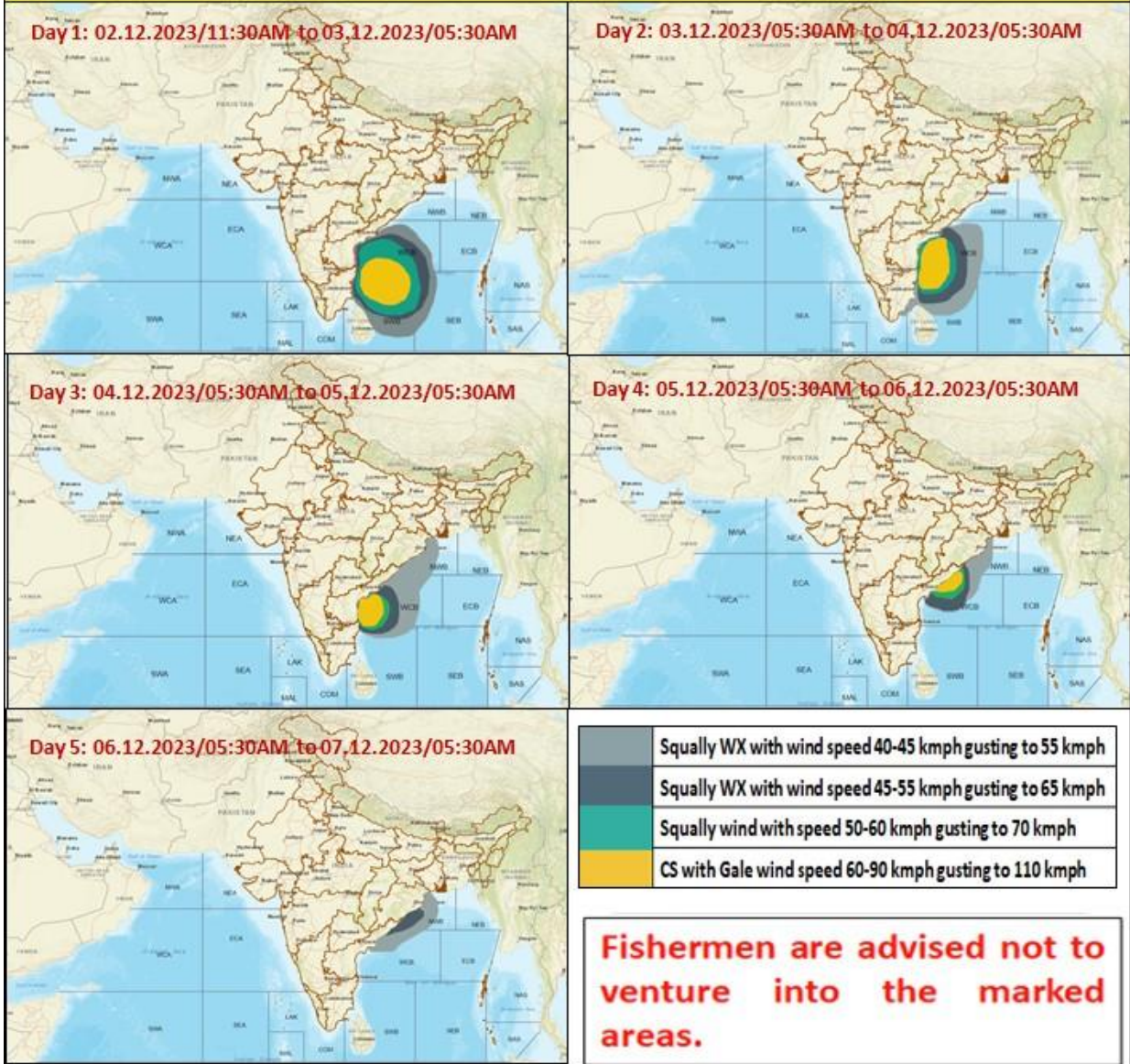
— FORECAST TRACK

▲ CONE OF UNCERTAINTY

Forecast Date and Time (UTC)	DISTANCE (KM) AND DIRECTION FROM STATIONS				
	MO PONDICHERRY	CHENNAI/MINAMBAKKAM	NELLORE	BAPATLA	MACHILIPATNAM/ FRANCHPET
02.12.23/0300	440, ESE	450, SE	580, SE	680, SSE	670, SSE
03.12.23/0000	220, E	220, SE	360, SE	480, SSE	490, S
04.12.23/0000	210, NE	100, NE	140, SE	270, S	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

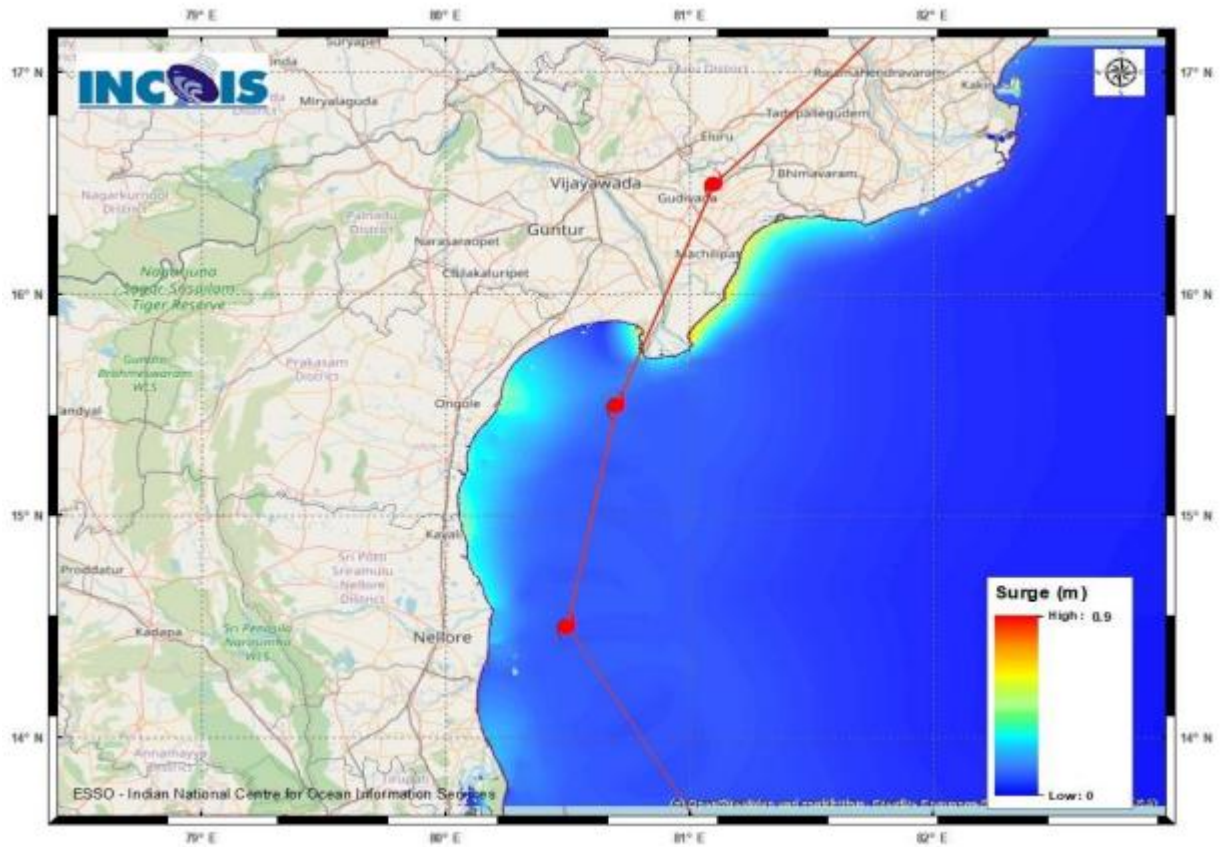
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## Fishermen warning graphics



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## Storm Surge Warning Graphics based on Forecast Track



### STORM SURGE HEIGHT INFORMATION:

\* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE/UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Avanigadda	Krishna	Andhra Pradesh	Ramakrishnapuram	0.3-0.8	Upto 0.10
Machilipatnam	Krishna	Andhra Pradesh	Chinagollapalem	0.4-0.9	Upto 0.49
Repalle	Guntur	Andhra Pradesh		0.2-0.5	Upto 0.34

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