



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI**  
**TROPICAL CYCLONE ADVISORY NO. 10**

**FROM: RSMC TROPICAL CYCLONES NEW DELHI DATED 08.12.2022**

**FROM: RSMC –TROPICAL CYCLONES, NEW DELHI**

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)**  
**STORM WARNING CENTRE, BANGKOK (THAILAND)**  
**STORM WARNING CENTRE, COLOMBO (SRILANKA)**  
**STORM WARNING CENTRE, DHAKA (BANGLADESH)**  
**STORM WARNING CENTRE, KARACHI (PAKISTAN)**  
**METEOROLOGICAL OFFICE, MALE (MALDIVES)**  
**OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)**  
**YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)**  
**NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)**  
**PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)**  
**IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)**  
**QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY NO. 10 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0030 UTC OF 09.12.2022 BASED ON 2100 UTC OF 08.12.2022**

**SUBJECT: THE CYCLONIC STORM “MANDOUS” PRONOUNCED AS “MAN-DOUS” OVER SOUTHWEST BAY OF BENGAL INTENSIFIED INTO A SEVERE CYCLONIC STORM (CYCLONE WARNING: NORTH TAMILNADU, PUDUCHERRY AND SOUTH ANDHRA PRADESH COASTS)**

THE SEVERE CYCLONIC STORM “**MANDOUS**” PRONOUNCED AS “**MAN-DOUS**” OVER SOUTHWEST BAY OF BENGAL MOVED NEARLY WEST-NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS AND LAY CENTERED AT 2100 UTC OF 08<sup>TH</sup> DECEMBER, 2022 OVER SOUTHWEST BAY OF BENGAL NEAR LATITUDE 10.7°N AND LONGITUDE 82.0°E, ABOUT 240 KM NORTH-NORTHEAST OF TRINCOMALEE (SRI LANKA), 240 KM EAST-NORTHEAST OF JAFFNA (SRI LANKA), 240 KM EAST-SOUTHEAST OF KARAİKAL AND ABOUT 320 KM SOUTH-SOUTHEAST OF CHENNAI.

IT IS VERY LIKELY TO MAINTAIN ITS INTENSITY OF **SEVERE CYCLONIC STORM** DURING NEXT 06 HOURS, AND THEN WEAKEN GRADUALLY INTO A CYCLONIC STORM. IT WOULD CONTINUE TO MOVE WEST-NORTHWESTWARDS AND CROSS NORTH TAMILNADU, PUDUCHERRY AND ADJOINING SOUTH ANDHRA PRADESH COASTS BETWEEN PUDUCHERRY AND SRIHARIKOTA, AROUND MAHABALIPURAM AS A CYCLONIC STORM WITH A MAXIMUM SUSTAINED WIND SPEED OF 65-75 KMPH GUSTING TO 85 KMPH DURING 1800 TO 2100 UTC OG 09<sup>TH</sup> DECEMBER.

**FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:**

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
08.12.22/2100	10.7/82.0	85-95 gusting to 105	Severe Cyclonic Storm
09.12.22/0000	11.1/81.7	80-90 gusting to 100	Cyclonic Storm
09.12.22/0600	11.5/81.2	75-85 gusting to 95	Cyclonic Storm
09.12.22/1200	12.0/80.7	70-80 gusting to 90	Cyclonic Storm
09.12.22/1800	12.4/80.3	65-75 gusting to 85	Cyclonic Storm
10.12.22/0600	12.9/79.8	40-50 gusting to 60	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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AS PER INSAT 3D IMAGERY, CONVECTION SHOWS CURVED BAND PATTERN WITH INTENSITY T3.0. THE ASSOCIATED BROKEN LOW MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LIES OVER SOUTHWEST BAY OF BENGAL BETWEEN AREA LATITUDE 7.0°N TO 11.0°N LONGITUDE 80.0°E TO 85.0°E. THE CLOUD TOP TEMPERATURE IS MINUS 93°C.

THE MAXIMUM SUSTAINED SURFACE WIND SPEED IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS ABOUT 992 HPA. SEA CONDITION IS VERY HIGH TO HIGH OVER SOUTHWEST BAY OF BENGAL AND NEIGHBOURHOOD.

#### **REMARKS:**

THE MADDEN JULIAN OSCILLATION (MJO) INDEX CURRENTLY LIES IN PHASE 3 AND WILL REMAIN THERE TILL 9<sup>TH</sup> DECEMBER. SEA SURFACE TEMPERATURE (SST) IS AROUND 27°C-28°C OVER SOUTHWEST AND CENTRAL BOB AND ALONG AND OFF NORTH TAMILNADU AND ADJOINING ANDHRA PRADESH COASTS. ALSO THE OCEAN HEAT CONTENT (OHC) IS 80-100 KJ/CM<sup>2</sup> OVER SOUTHWEST BOB AND LESS THAN 50 KJ/CM<sup>2</sup> OVER WESTCENTRAL AND SOUTHWEST BOB ALONG EAST COAST OF INDIA. THERE IS WARM AIR ADVECTION TO THE SYSTEM FROM THE SOUTHERN SECTOR. IT WOULD CONTINUE SO TILL 9<sup>TH</sup> DECEMBER MORNING.

LOW LEVEL VORTICITY IS  $300 \times 10^{-6} \text{ S}^{-1}$  AROUND SOUTH WEST OF SYSTEM CENTER. LOW LEVEL CONVERGENCE IS  $20 \times 10^{-5} \text{ S}^{-1}$  TO THE SOUTH WEST OF SYSTEM CENTER AND UPPER LEVEL DIVERGENCE IS  $20 \times 10^{-5} \text{ S}^{-1}$  TO THE SOUTH WEST OF THE SYSTEM CENTER.

WIND SHEAR IS MODERATE TO HIGH (20-25 KNOTS) OVER & AROUND THE SYSTEM CENTER AND ALONG THE EXPECTED TRACK. THE UPPER TROPOSPHERIC RIDGE RUNS ROUGHLY ALONG 15.0°N OVER THE BOB. THE SYSTEM IS UNDER THE INFLUENCE OF EAST SOUTHEASTERLY STEERING WINDS AT MIDDLE TROPOSPHERIC LEVELS AND HENCE THE PRESENT SYSTEM IS LIKELY TO BE STEERED TOWARDS WEST-NORTHWEST TILL 8<sup>TH</sup> DECEMBER. THERAFTER, AS THE SYSTEM WILL COME CLOSER TOWARDS THE RIDGE, THE NORTHERLY COMPONENT IS LIKELY TO INCREASE. THE INTENSIFICATION PARAMETERS AS MENTIONED ABOVE WILL CONTINUE TO BE FAVOURABLE FOR MAINTAINING THE INTENSITY OF THE SYSTEM TILL THE MORNING OF 9<sup>TH</sup> DECEMBER. THEREAFTER, DUE TO SLOW MOVEMENT OF THE SYSTEM, COLD AND DRY AIR INTRUSION FROM SOUTH PENINSULAR INDIA, THE SYSTEM WOULD SHOW SLIGHT WEAKENING TREND WHILE MOVING TOWARDS COAST.

IN VIEW OF ALL THE ABOVE, THE SEVERE CYCLONIC STORM "MANDOUS" PRONOUNCED AS "MAN-DOUS" IS VERY LIKELY TO MAINTAIN THE INTENSIFY OF A SEVERE CYCLONIC STORM TILL EARLY MORNING OF 09<sup>TH</sup> DECEMBER AND THEN WEAKEN GRADUALLY INTO A CYCLONIC STORM BY FORENOON OF 9<sup>TH</sup> DECEMBER. IT WOULD CONTINUE TO MOVE WEST NORTHWESTWARDS AND CROSS NORTH TAMIL NADU-PUDUCHERRY & ADJOINING SOUTH ANDHRA PRADESH COASTS BETWEEN PUDUCHERRY AND SRIHARIKOTA AROUND MAHABALIPURAM AS A CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 65-75 KMPH GUSTING TO 85 KMPH AROUND 1800 UTC OF 09<sup>TH</sup> DECEMBER

**TRISANU BANIK**

**SCIENTIST-C, RSMC, NEW DELHI**



**OBSERVED AND FORECAST TRACK OF SEVERE CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 1800 UTC OF 08<sup>th</sup> DECEMBER, 2022.**



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



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 1800 UTC OF 08<sup>th</sup> DECEMBER, 2022.**



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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  
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)

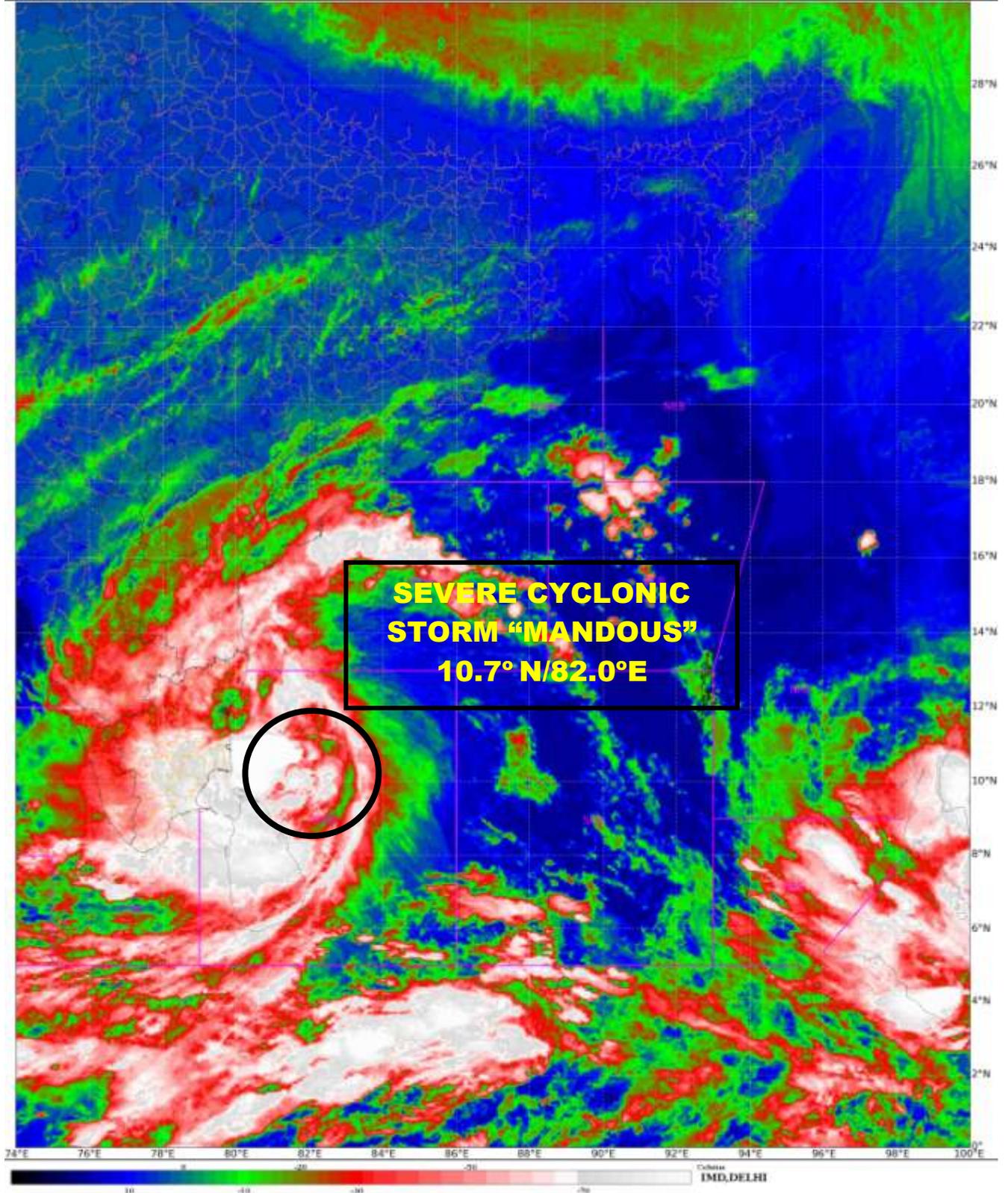
**IMPACT OVER THE SEA**

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

Forecast distance (km) and direction of the centre from nearest 5 coastal stations

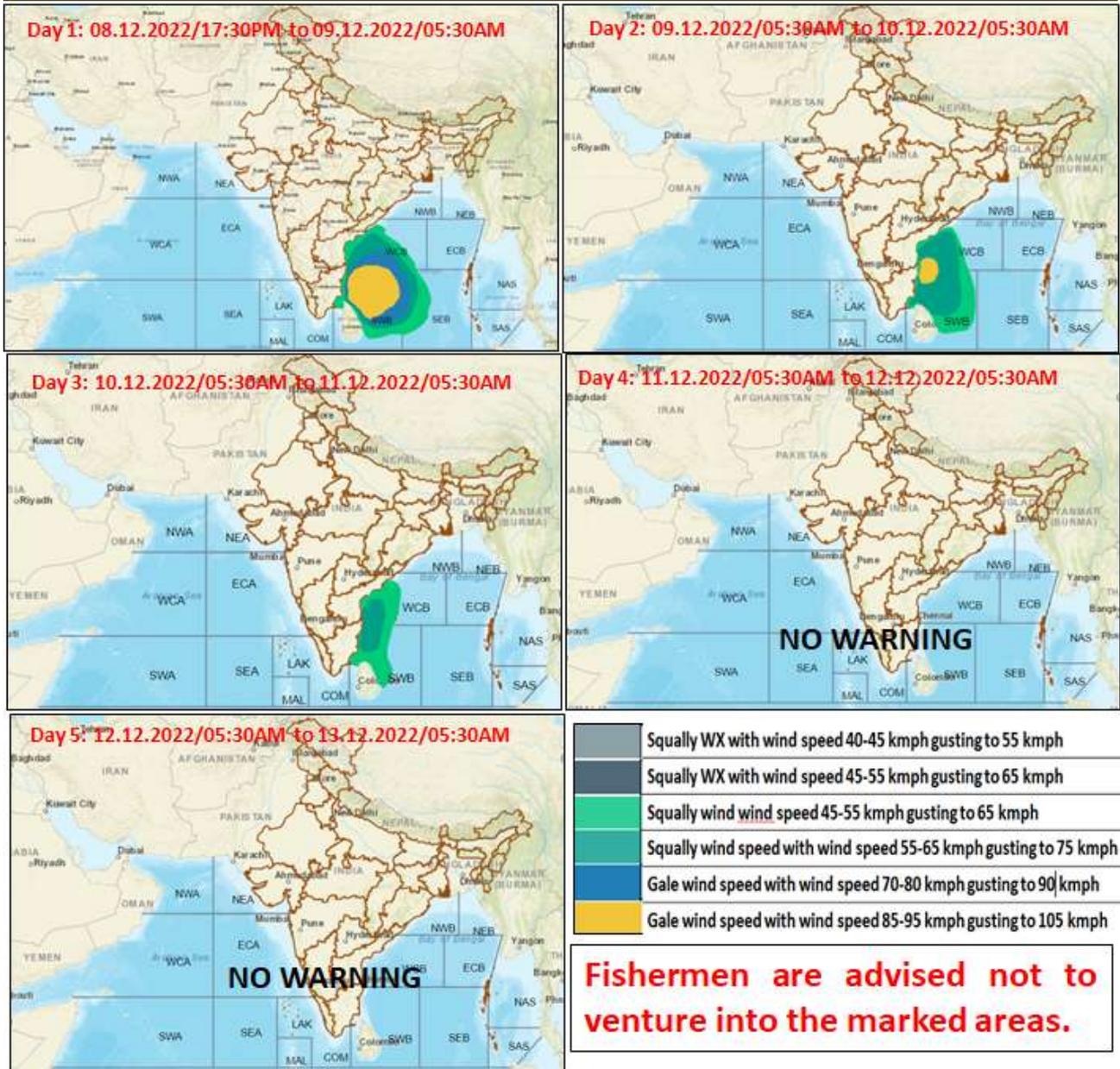
Forecast Date and Time	Lead Period	Lat	Lon	Station 1	Station 2	Station 3	Station 4	Station 5
08.12.22/1800	0	10.6	82.3	MULLAITTIVU 1) (220,NE)	TRINCOMALEE (250,NNE)	KANKASANTURAI 1) (260,ENE)	NAGAPPATTINAM (270,E)	VEDARANNIYAM (270,E)
09.12.22/0000	6	11.1	81.7	KARAIKAL (205,E)	NAGAPPATTINAM (205,E)	PARANGIPETTAI (215,ESE)	VEDARANNIYAM (220,ENE)	CUDDALORE (225,ESE)
09.12.22/0600	12	11.5	81.2	PARANGIPETTAI (155,E)	CUDDALORE (160,E)	MO PONDICHERRY (160,ESE)	KARAIKAL (165,ENE)	NAGAPPATTINAM (170,ENE)
09.12.22/1200	18	12.0	80.7	MO PONDICHERRY (95,E)	CUDDALORE (105,ENE)	PARANGIPETTAI (115,ENE)	CHENNAI/MINAM BAKKAM (125,SSE)	NUMGAMBAKKAM (130,SSE)
09.12.22/1800	24	12.4	80.3	CHENNAI/MINA MBAKKAM (70,S)	MO PONDICHERRY (70,NE)	NUMGAMBAKKAM (75,S)	CUDDALORE (90,NE)	PARANGIPETTAI (115,NNE)
10.12.22/0600	36	12.9	79.8	TIRUTTANI (40,SE)	CHENNAI/MINAM BAKKAM (45,WSW)	NUMGAMBAKKAM (45,WSW)	VELLORE (70,E)	TIRUPATHI (90,SSE)

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## Fishermen warning graphics



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