



India Meteorological Department
(Ministry of Earth Sciences)

BULLETIN NO. 16 (BOB/09/2022)

TIME OF ISSUE: 0550 HOURS IST

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Sub: Severe Cyclonic Storm “Mandous” pronounced as “Man-Dous” over Southwest Bay of Bengal (Cyclone Warning for north Tamil Nadu, Puducherry and south Andhra Pradesh coasts): Orange Message

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 0230 hours IST of 09th 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 Karaikal 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 thereafter. 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 midnight of today, the 09th December to early hours of 10th December.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
09.12.22/0230	10.7/82.0	85-95 gusting to 105	Severe Cyclonic Storm
09.12.22/0530	11.1/81.7	80-90 gusting to 100	Cyclonic Storm
09.12.22/1130	11.5/81.2	75-85 gusting to 95	Cyclonic Storm
09.12.22/1730	12.0/80.7	70-80 gusting to 90	Cyclonic Storm
09.12.22/2330	12.4/80.3	65-75 gusting to 85	Cyclonic Storm
10.12.22/1130	12.9/79.8	40-50 gusting to 60	Depression

Warnings:

(i) Rainfall (warning graphics enclosed)

- ❖ **09th December:** - Light to moderate rainfall at most places with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall at isolated places** very likely over north coastal Tamil Nadu, Puducherry and isolated **heavy to very heavy rainfall** likely over adjoining south Coastal Andhra Pradesh and north interior Tamilnadu and Rayalaseema.
- ❖ **10th December:-** It is likely to reduce to Light to moderate rainfall at most places with **heavy to very heavy rainfall** at isolated places likely over north Tamil Nadu and Rayalaseema and south Andhra Pradesh.

(ii) Wind warning:

- ❖ **Southwest Bay of Bengal:-** Gale wind, speed reaching 85-95 kmph gusting to 105 kmph prevails over southwest Bay of Bengal. It would decrease and becoming 80-90 kmph gusting to 100 kmph during next 06 hours thereafter gradually becoming 70-80 kmph gusting to 90 kmph from today evening, 55-65 kmph gusting to 75 kmph by 10th December morning and 30-40 kmph gusting to 50 kmph by 10th December evening.
- ❖ **Along & off Tamil Nadu, Puducherry, south Andhra Pradesh and north Sri Lanka coasts:-** Squally wind, speed reaching 45-55 kmph gusting to 65 kmph is prevailing along & off Tamil Nadu-Puducherry-south Andhra Pradesh-north Sri Lanka coasts. It would increase and becoming 50-60 kmph gusting to 70 kmph during next 06 hours and 65-75 kmph gusting to 85 kmph from today, the 09th December evening till early hours of 10th December. It is likely to reduce gradually thereafter becoming 55-65 kmph gusting to 75 kmph by morning of 10th December and then to 30-40 kmph gusting to 50 kmph by 10th December night.
- ❖ **Gulf of Mannar:-** Squally wind, speed reaching 40-50 kmph gusting to 60 kmph is prevailing over Gulf of Mannar. It would increase and becoming 50-60 kmph gusting to 70 kmph from today evening to early hours of 10th December and 40-50 kmph gusting to 60 kmph by 10th December morning.
- ❖ **Westcentral Bay of Bengal:-** Squally wind, speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over Westcentral Bay of Bengal off south Andhra Pradesh coast during next 06 hours and would increase gradually becoming 55-65 kmph gusting to 75 kmph from today evening to 10th December early morning and reduce thereafter gradually becoming 30-40 kmph gusting to 50 kmph by 10th December evening.

(iii) Sea condition

- ❖ **Sea condition likely to be very high** over Southwest Bay Of Bengal during next 06 hours and high thereafter till early hours of 10th December. It will be rough to very rough over adjoining areas of Westcentral Bay of Bengal till early hours of 10th December and improve gradually thereafter.
- ❖ **Sea condition likely to be very rough to high** during next 06 hours and thereafter it likely to be **high** till 10th morning and **rough to very rough** thereafter for subsequent 12 hours along & off South Andhra Pradesh, Tamil Nadu, Puducherry and Sri Lanka coasts.

(iv) Storm Surge Warning

The storm surge of about 0.6 m height above the astronomical tide likely to inundate low lying areas of north coastal Tamilnadu and Puducherry during the time of landfall.

(v) Fishermen Warning (warning graphics enclosed)

Fishermen are advised not to venture into:

- ❖ Southwest Bay of Bengal till 10th December
- ❖ Along & off Sri Lanka coast till 09th December.
- ❖ Along & off Tamilnadu, Puducherry and South Andhra Pradesh coasts and Gulf of Mannar till 10th December.
- ❖ Fishermen out at sea should return to the coast or move to the safe area.

(vi) Adverse Weather Warning for onshore and off-shore operations

- ❖ Regulate on-shore and off-shore operations over Southwest Bay of Bengal; along & off Tamil Nadu-Puducherry-South Andhra Pradesh coasts and Gulf of Mannar till 10th December.

(vii) Damage expected over Coastal Tamilnadu, Puducherry and adjoining south coastal Andhra Pradesh during Landfall.

- ❖ Damage to thatched houses/ huts. Unattached metal sheets may fly.
- ❖ Minor damage to power and communication lines leading to partial disruption in power and communication.
- ❖ Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- ❖ Breaking of tree branches, uprooting of small trees. Dead limbs blown from trees.
- ❖ Damage to banana, papaya trees and near coastal agriculture due to salt spray.
- ❖ Damage to paddy, other standing crops and horticulture crops.
- ❖ Inundation/localized flooding in low lying areas due to heavy rains
- ❖ Traffic may be disrupted due to poor visibility in association with heavy rain

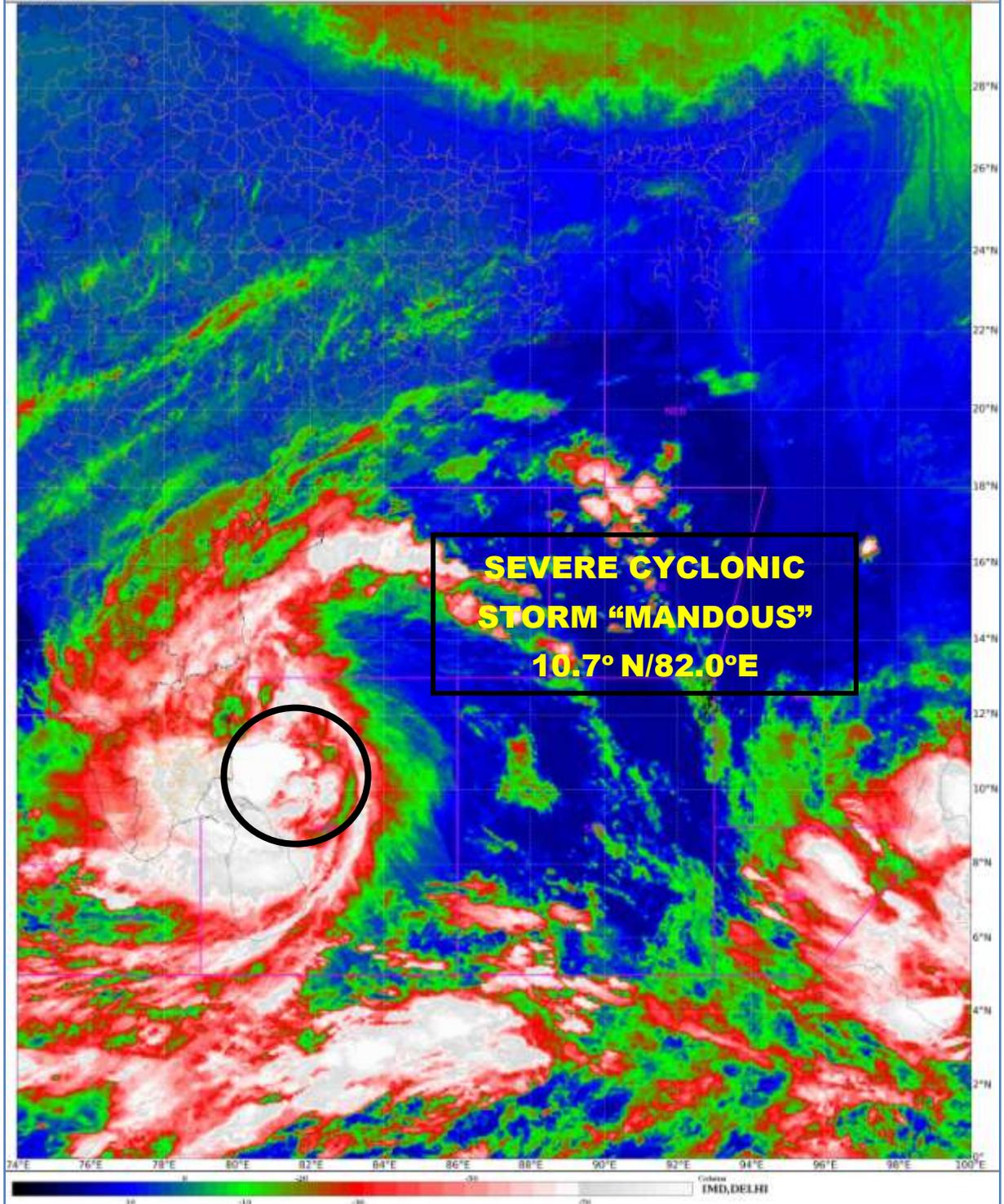
(viii) Action suggested over Coastal Tamil Nadu, Puducherry and adjoining south coastal Andhra Pradesh

- ❖ Total suspension of fishing operations till 10th December.
- ❖ Regulate onshore and off-shore operations till 10th December.
- ❖ People are advised to be cautious while going outside.
- ❖ Regulate traffic.
- ❖ People should not move nearby to vulnerable structures.

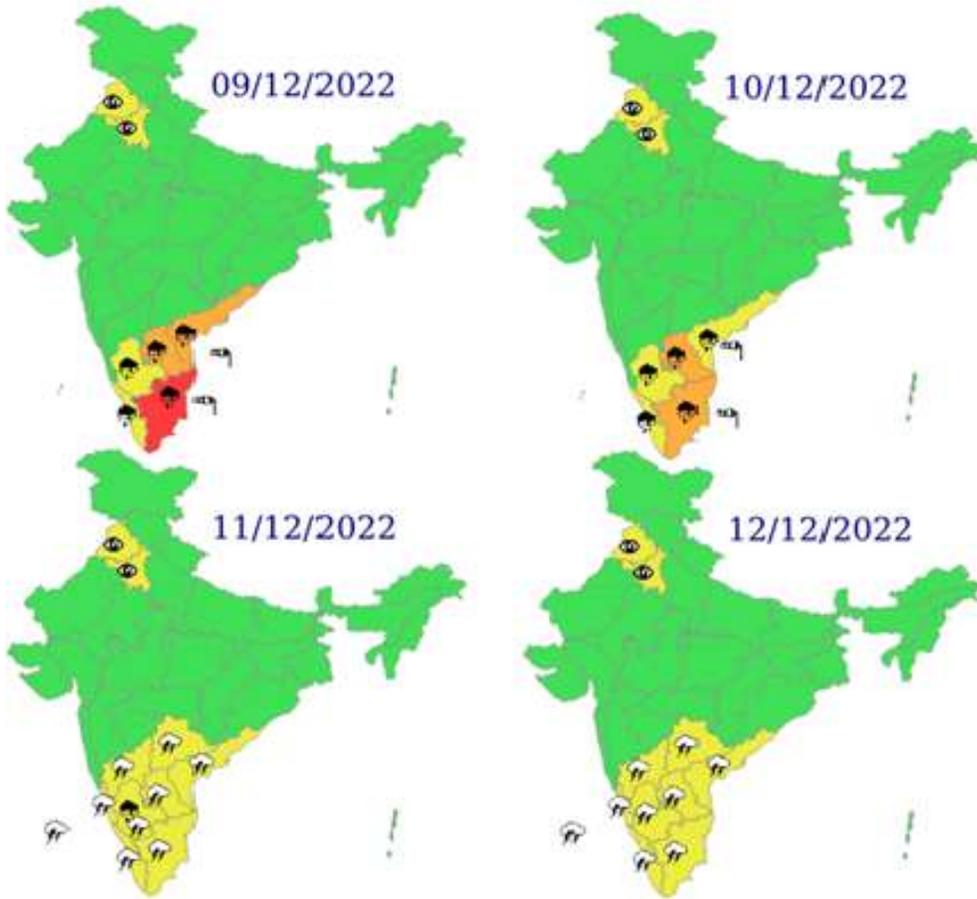
System is under continuous surveillance and the next bulletin will be issued at 0830 hours IST of 09th Dec, 2022.

(SHOBHIT KATIYAR)
Scientist C, Cyclone Warning Division, New Delhi

Copy to: ACWC Kolkata/ ACWC Chennai/ CWC Bhubaneswar/CWCVisakhapatnam/MO Port Blair



Multi hazard Warning Graphics



LEGEND: Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

WARNING		Probabilistic Forecast		Heavy Rain	Heavy Snow	Thunderstorm	Dust Storm
WARNING (TAKE ACTION)	ALERT (BE PREPARED)	Terms	Probability of Occurrence (%)				
WATCH (BE UPDATED)	NO WARNING (NO ACTION)	Unlikely	< 25				
		Likely	25 - 50				
		Very Likely	51 - 75				
		Most Likely	> 75				



OBSERVED AND FORECAST TRACK OF SEVERE CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 1800 UTC OF 08th 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 (\geq 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- \geq 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 08th 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
 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)

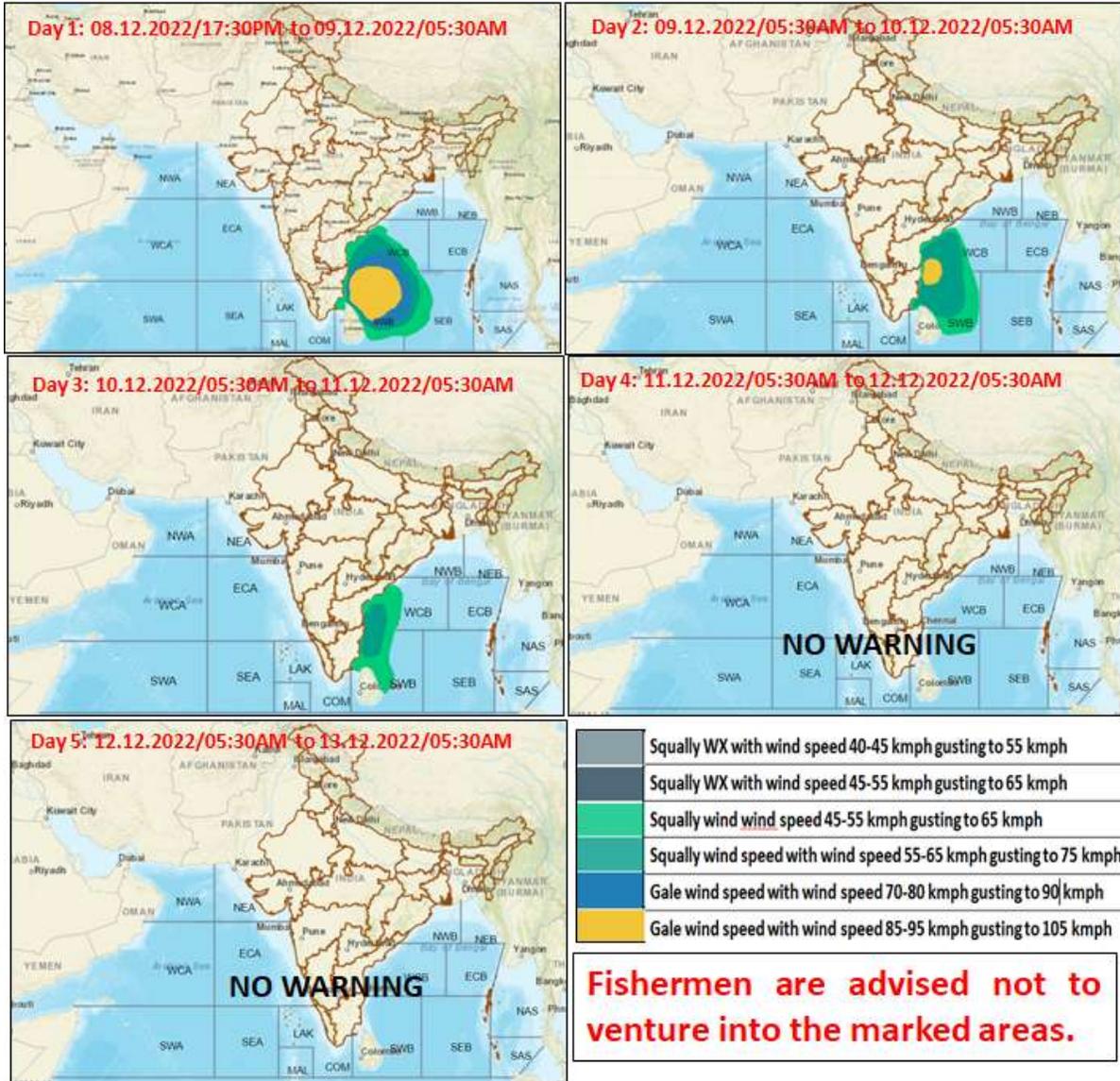
IMPACT OVER THE SEA

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

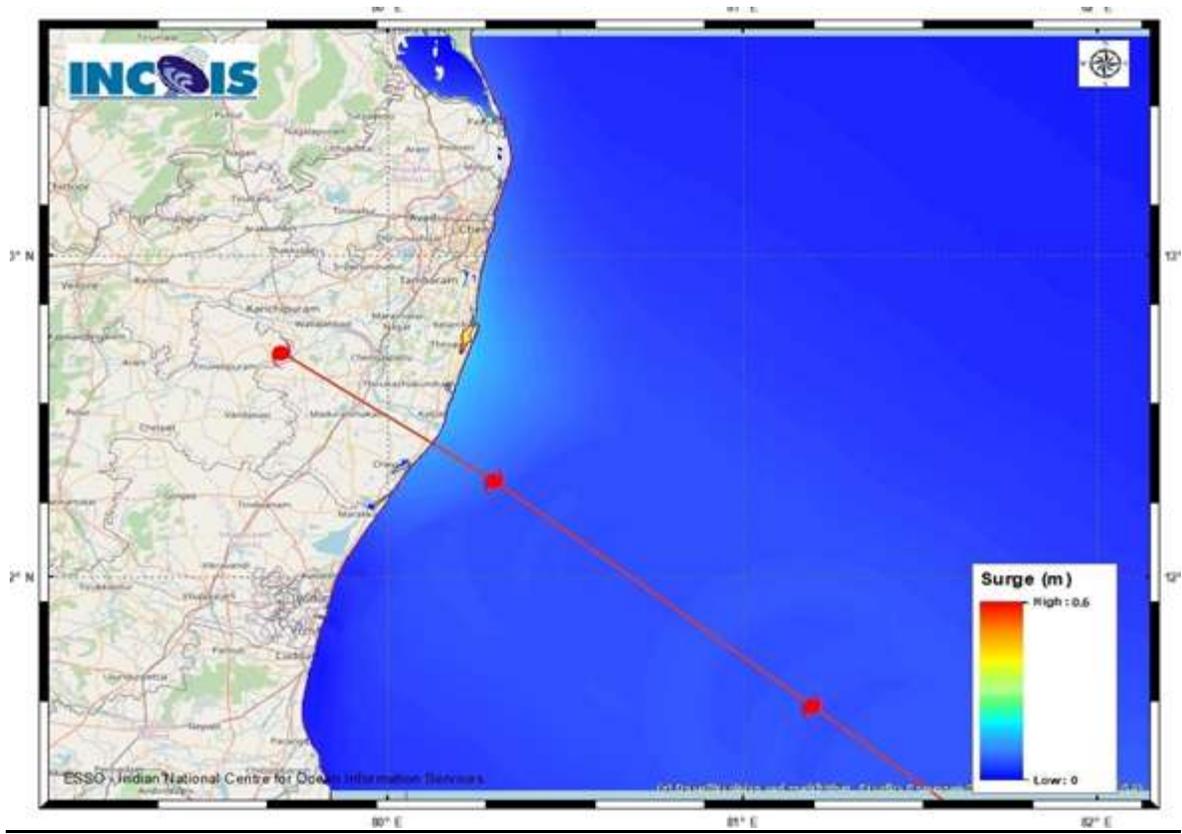
Forecast distance (km) and direction of the centre from nearest 5 coastal stations

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)

Fishermen warning graphics



Storm Surge Guidance



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)
Chengalpattu	Kancheepuram	Tamil Nadu	Neelankari	0.2-0.6	Upto 0.13