



India Meteorological Department  
(Ministry of Earth Sciences)

BULLETIN NO. 17 (BOB/09/2022)

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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 west-northwestwards with a speed of 13 kmph during past 06 hours and lay centered at 0530 hours IST of 09<sup>th</sup> December, 2022 over Southwest Bay of Bengal near latitude 11.0°N and longitude 81.7°E, about 270 km north-northeast of Trincomalee (Sri Lanka), 230 km east-northeast of Jaffna (Sri Lanka), 200 km east of Karaikal and about 270 km south-southeast of Chennai.

It is very likely to weaken into a cyclonic storm during next 03 hours. It would move nearly 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 09<sup>th</sup> December to early hours of 10<sup>th</sup> 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
09.12.22/0530	11.0/81.7	85-95 gusting to 105	Severe Cyclonic Storm
09.12.22/1130	11.5/81.2	80-90 gusting to 100	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
10.12.22/0530	12.7/80.0	55-65 gusting to 75	Deep Depression
10.12.22/1730	13.0/79.4	30-40 gusting to 50	Depression

## **Warnings:**

### **(i) Rainfall (warning graphics enclosed)**

- ❖ **09<sup>th</sup> 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.
- ❖ **10<sup>th</sup> 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, 60-70 kmph gusting to 80 kmph by 10<sup>th</sup> December morning and 25-35 kmph gusting to 45 kmph by 10<sup>th</sup> 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 09<sup>th</sup> December evening till early hours of 10<sup>th</sup> December. It is likely to reduce gradually thereafter becoming 55-65 kmph gusting to 75 kmph by morning of 10th December and then to 25-35 kmph gusting to 45 kmph by 10th December evening.
- ❖ **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 10<sup>th</sup> December and 40-50 kmph gusting to 60 kmph by 10<sup>th</sup> 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 10<sup>th</sup> December early morning and reduce thereafter gradually becoming 30-40 kmph gusting to 50 kmph by 10<sup>th</sup> 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 10<sup>th</sup> 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 very likely to be very rough to high** along & off South Andhra Pradesh, Tamil Nadu, Puducherry and Sri Lanka coasts during next 06 hours; **high** till 10<sup>th</sup> morning and **rough to very rough** thereafter for subsequent 12 hours.

### **(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 10<sup>th</sup> December
- ❖ Along & off Sri Lanka coast till 09<sup>th</sup> December.
- ❖ Along & off Tamilnadu, Puducherry and South Andhra Pradesh coasts and Gulf of Mannar till 10<sup>th</sup> 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 10<sup>th</sup> 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 10<sup>th</sup> December.
- ❖ Regulate onshore and off-shore operations till 10<sup>th</sup> December.
- ❖ People are advised to be cautious while going outside.
- ❖ Regulate traffic.
- ❖ People should not move nearby to vulnerable structures.

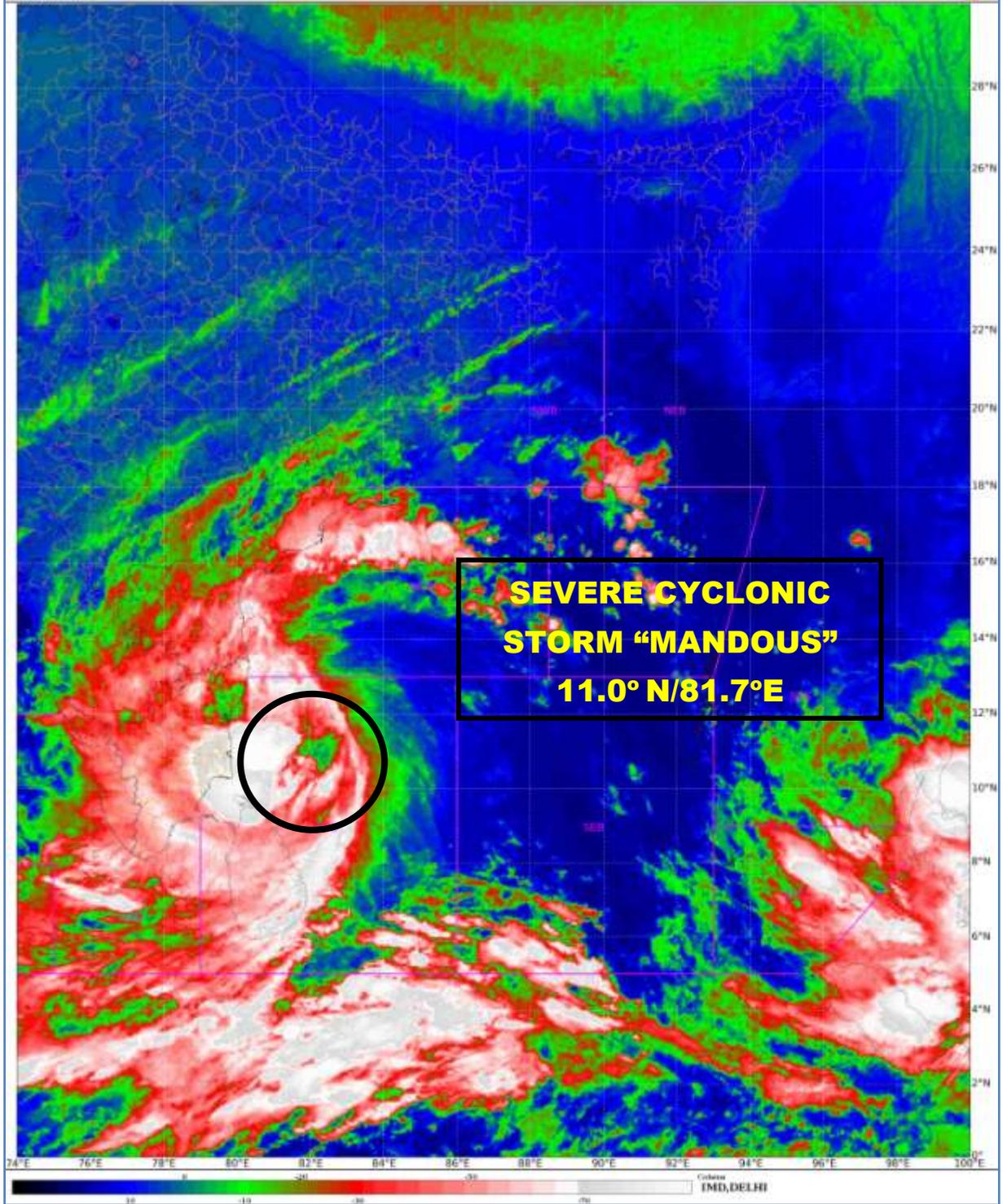
**System is under continuous surveillance and the next bulletin will be issued at 1130 hours IST of 09<sup>th</sup> Dec, 2022.**

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

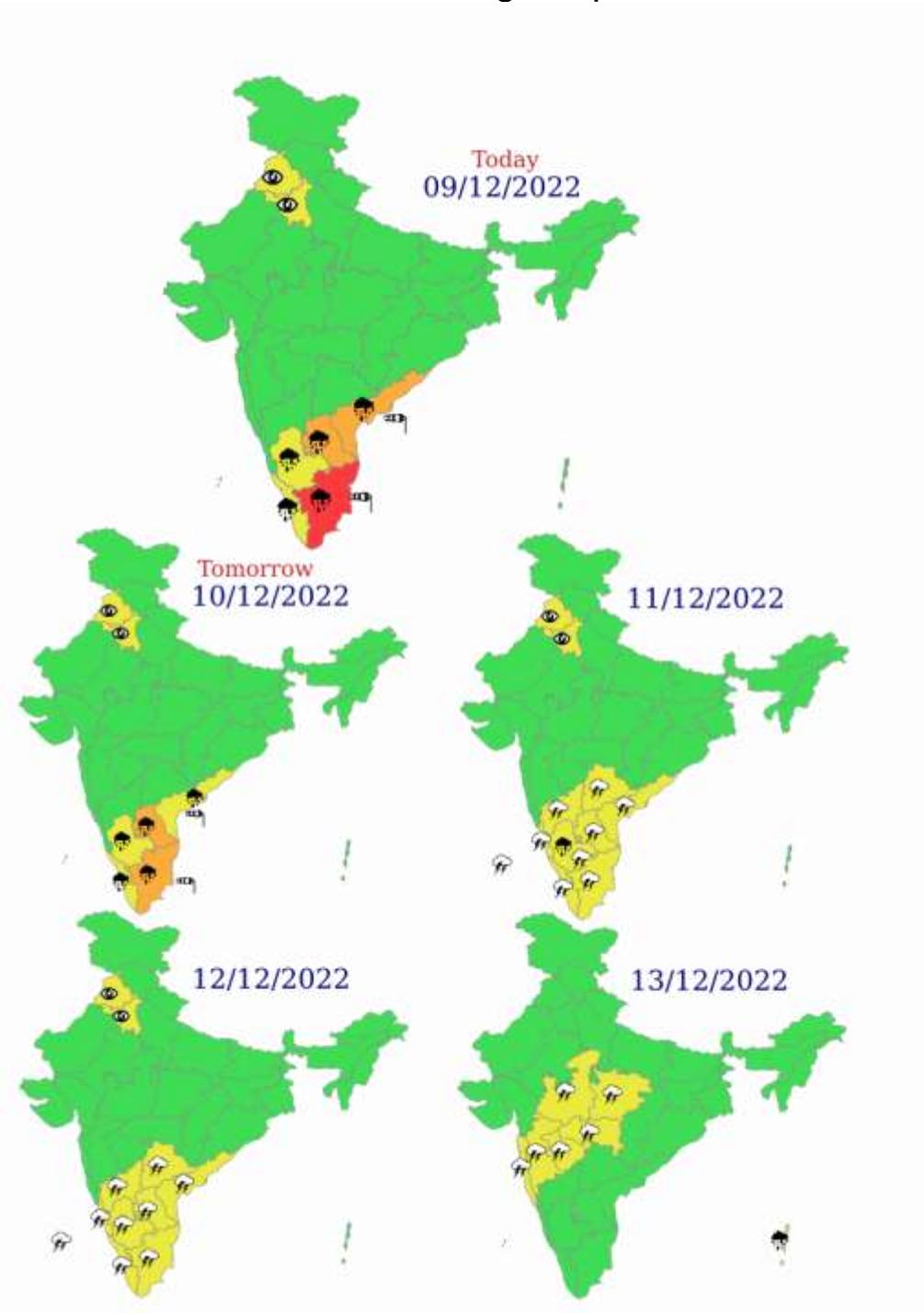
*Copy to: ACWC Kolkata/ ACWC Chennai/ CWC Bhubaneswar/CWCVisakhapatnam/MO Port Blair*

SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.6 um  
LIC Mercator

09-12-2022/(0130 to 0156) GMT  
09-12-2022/(0700 to 0726) IST



# 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		Weather Icons			
<b>WARNING (TAKI ACTION)</b>		Terms	Probability of Occurrence (%)	Heavy Rain	Heavy Snow	Thunderstorm	Dust Storm
<b>ALERT (BE PREPARED)</b>		Unlikely	< 25	Strong Winds	Visibility	Cyclone	Squall/ Hail
<b>WATCH (BE UPDATED)</b>		Likely	25 - 50	Frost	Cold Wave	Heat Wave	Sea State
<b>BE AWARE (NO ACTION)</b>		Very Likely	50 - 75				
		Most Likely	> 75				



**OBSERVED AND FORECAST TRACK OF SEVERE CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC OF 09<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 ( $\geq$  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 0000 UTC OF 09<sup>th</sup> DECEMBER.**



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
09.12.22/0000	0	11.0	81.7	NAGAPPATTINAM (205,E)	KARAIKAL (205,E)	VEDARANNIYAM (215,ENE)	MULLAITTIVU 1) (215,NNE)	PARANGIPETTAI (220,ESE)
09.12.22/0600	6	11.5	81.2	PARANGIPETTAI (155,E)	CUDDALORE (160,E)	MO PONDICHERRY (160,ESE)	KARAIKAL (165,ENE)	NAGAPPATTINAM (170,ENE)
09.12.22/1200	12	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	18	12.4	80.3	CHENNAI/MINAM BAKKAM (70,S)	MO PONDICHERRY (70,NE)	NUMGAMBAKKAM (75,S)	CUDDALORE (90,NE)	PARANGIPETTAI (115,NNE)
10.12.22/0000	24	12.7	80.0	CHENNAI/MINAM BAKKAM (40,SSW)	NUMGAMBAKKAM (45,SSW)	TIRUTTANI (70,SE)	MO PONDICHERRY (85,NNE)	VELLORE (95,ESE)
10.12.22/1200	36	13.0	79.4	TIRUTTANI (20,SW)	VELLORE (30,ENE)	TIRUPATHI (75,SSW)	CHENNAI/MINAM BAKKAM (85,W)	NUMGAMBAKKAM (85,W)

## Fishermen warning graphics

**Day 1: 08.12.2022/17:30PM to 09.12.2022/05:30AM**



**Day 2: 09.12.2022/05:30AM to 10.12.2022/05:30AM**



**Day 3: 10.12.2022/05:30AM to 11.12.2022/05:30AM**



**Day 4: 11.12.2022/05:30AM to 12.12.2022/05:30AM**



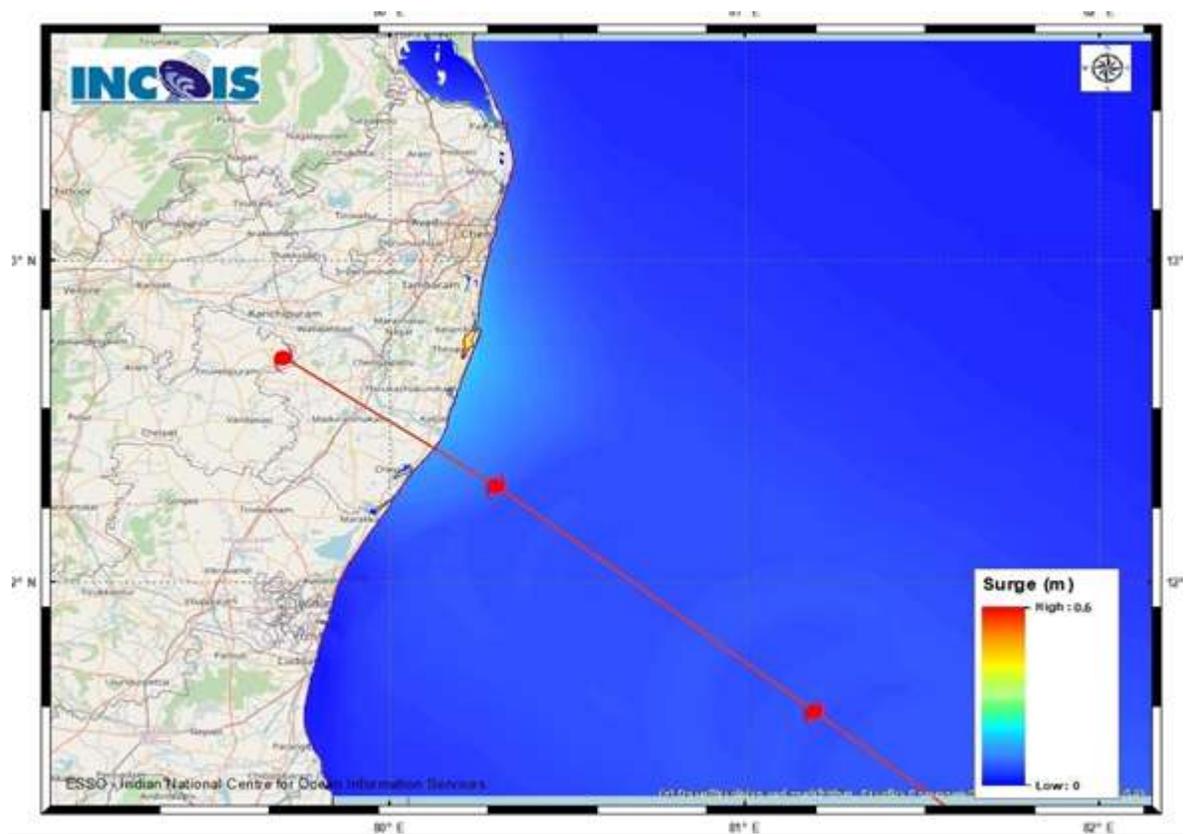
**Day 5: 12.12.2022/05:30AM to 13.12.2022/05:30AM**



	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 wind speed 45-55 kmph gusting to 65 kmph
	Squally wind speed with wind speed 55-65 kmph gusting to 75 kmph
	Gale wind speed with wind speed 70-80 kmph gusting to 90 kmph
	Gale wind speed with wind speed 85-95 kmph gusting to 105 kmph

**Fishermen are advised not to venture into the marked areas.**

## 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