



India Meteorological Department  
(Ministry of Earth Sciences)

BULLETIN NO. 19 (BOB/09/2022)

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

The cyclonic storm "Mandous" pronounced as "Man-Dous" over Southwest Bay of Bengal moved northwestwards with a speed of 10 kmph during past 06 hours and lay centered at 1130 hours IST of today, the 09<sup>th</sup> December, 2022 over Southwest Bay of Bengal off north Tamilnadu and Puducherry coasts near latitude 11.4°N and longitude 81.3°E, about 310 km north of Trincomalee (Sri Lanka), 230 km north-northeast of Jaffna (Sri Lanka), 180 km southeast of Mamallapuram and about 210 km south-southeast of Chennai. The cyclone is being monitored by Doppler Weather Radar Karaikal and Chennai.

It is very likely to move nearly northwestwards and cross north Tamilnadu, Puducherry and adjoining south Andhra Pradesh coasts between Puducherry and Sriharikota around Mamallapuram (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 tomorrow, the 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
09.12.22/1130	11.4/81.3	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
10.12.22/1130	12.9/79.7	40-50 gusting to 60	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 over north interior Tamil Nadu and Rayalaseema and adjoining south Andhra Pradesh.

### (ii) Wind warning:

- ❖ **Southwest Bay of Bengal:-** Gale wind, speed reaching 80-90 kmph gusting to 100 kmph prevails over southwest Bay of Bengal. It would decrease gradually becoming 70-80 kmph gusting to 90 kmph from today evening, 55-65 kmph gusting to 75 kmph by 10<sup>th</sup> December early morning and 30-40 kmph gusting to 50 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 become 50-60 kmph gusting to 70 kmph by today afternoon 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 10<sup>th</sup> December and then to 30-40 kmph gusting to 50 kmph by 10<sup>th</sup> 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 adjoining areas of Westcentral Bay of Bengal off south Andhra Pradesh coast till afternoon. It would increase gradually becoming 55-65 kmph gusting to 75 kmph from today, the 9<sup>th</sup> December 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 **high** over Southwest Bay Of Bengal till early hours of 10<sup>th</sup> December and would improve thereafter becoming very rough to rough from 10<sup>th</sup> December early morning to evening. The sea condition would be rough to very rough over adjoining areas of Westcentral Bay of Bengal till afternoon of 10<sup>th</sup> December.
- ❖ **Sea condition very likely to be very rough** along & off South Andhra Pradesh, Tamil Nadu, Puducherry and Sri Lanka coasts till afternoon hours; **high** thereafter till 10<sup>th</sup> morning and **very rough to rough** thereafter for subsequent 12 hours.

### (iv) Storm Surge Warning

The storm surge of about 0.5 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 evening.
- ❖ Along & off north Sri Lanka coast till 10<sup>th</sup> December forenoon.
- ❖ Along & off Tamilnadu, Puducherry and South Andhra Pradesh coasts and Gulf of Mannar till 10<sup>th</sup> December evening.

**(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 north 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 north Coastal Tamil Nadu, Puducherry and adjoining south coastal Andhra Pradesh**

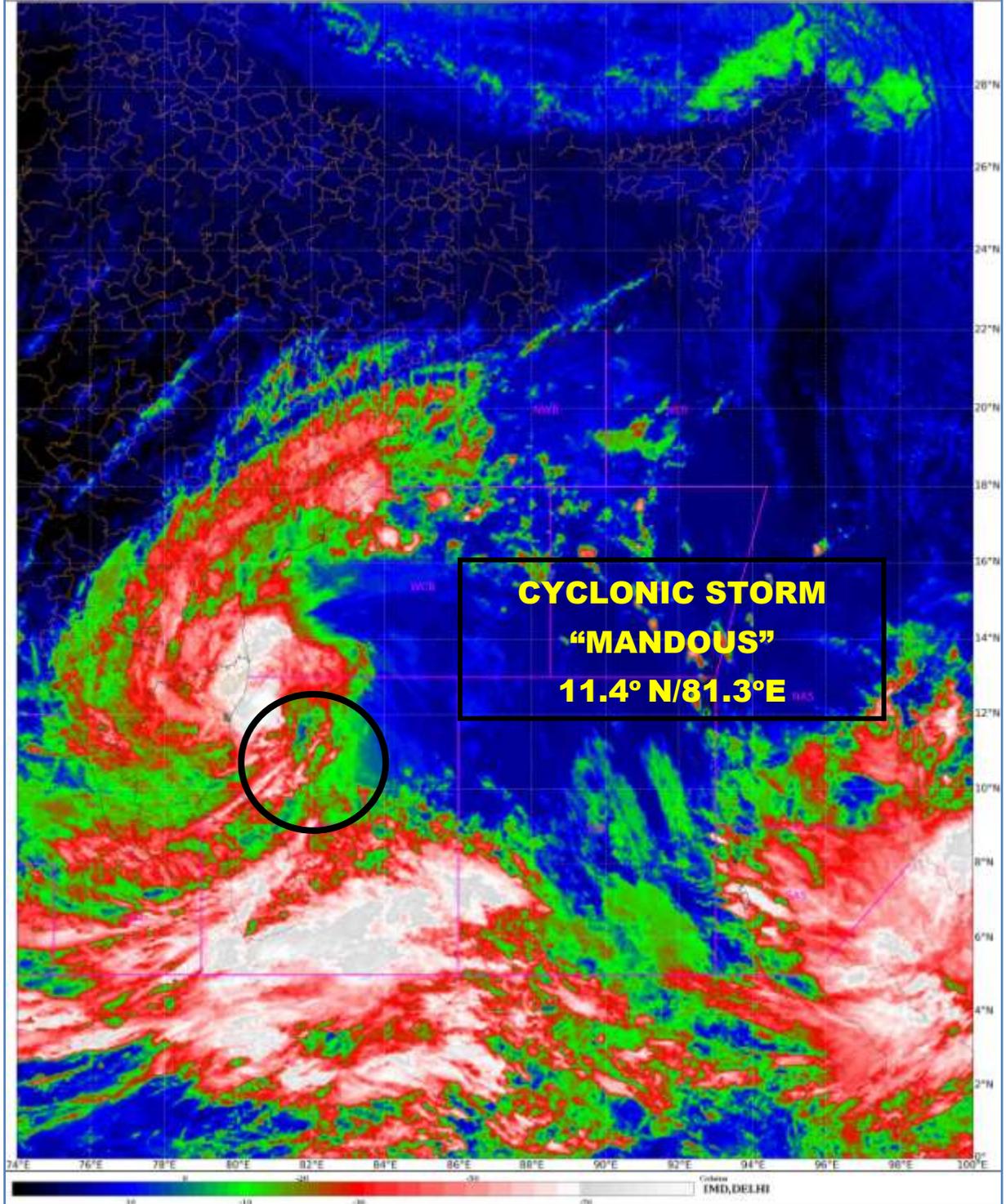
- ❖ People in north coastal Tamilnadu and Puducherry to remain in safe places till 10<sup>th</sup> December morning.
- ❖ Total suspension of fishing operations till 10<sup>th</sup> December evening.
- ❖ Regulate onshore and off-shore operations till 10<sup>th</sup> December evening.
- ❖ People are advised to be cautious while going outside.
- ❖ Regulate traffic.
- ❖ People should not move nearby to vulnerable structures.

**(ix) Post landfall outlook for interior districts of north Tamilnadu and adjoining south Andhra Pradesh**

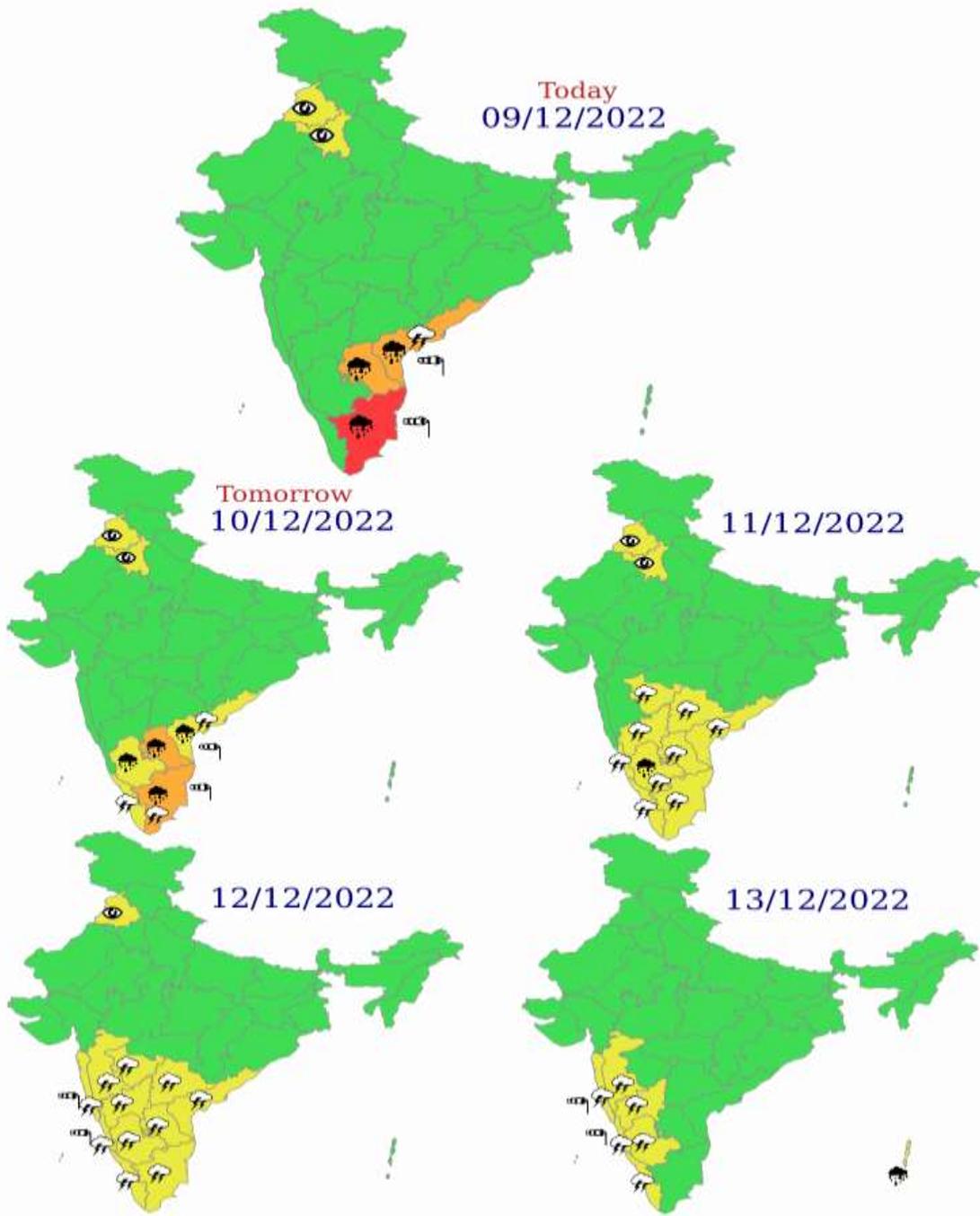
The cyclonic storm Mandous is very likely to weaken into a deep depression within 3 hours after landfall. Hence, any structural damage is not expected over the interior districts of Tamilnadu and Andhra Pradesh. However, the heavy to very heavy rainfall is likely at isolated places over districts of north interior Tamilnadu, Rayalaseema and adjoining districts of South Interior Karnataka on 10<sup>th</sup> December.

**System is under continuous surveillance and the next bulletin will be issued at 1730 hours IST of 09<sup>th</sup> Dec, 2022.**

**(R K JENAMANI)**  
**Scientist F, Cyclone Warning Division, New Delhi**



# 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)		Terms	Probability of Occurrence (%)	[Icon]		[Icon]		[Icon]		[Icon]	
ALERT (BE PREPARED)		Isolated	< 25	[Icon]		[Icon]		[Icon]		[Icon]	
WATCH (BE UPDATED)		Likely	25 - 50	[Icon]		[Icon]		[Icon]		[Icon]	
[Icon]		Very Likely	50 - 75	[Icon]		[Icon]		[Icon]		[Icon]	
[Icon]		Most Likely	> 75	[Icon]		[Icon]		[Icon]		[Icon]	
[Icon]				[Icon]		[Icon]		[Icon]		[Icon]	

- [Icon] Heavy Rain
- [Icon] Heavy Snow
- [Icon] Thunderstorm
- [Icon] Dust Storm
- [Icon] Strong Winds
- [Icon] Visibility
- [Icon] Cyclone
- [Icon] Squall/ Hail
- [Icon] Frost
- [Icon] Cold Wave
- [Icon] Heat Wave
- [Icon] Sea State



**OBSERVED AND FORECAST TRACK OF CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 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

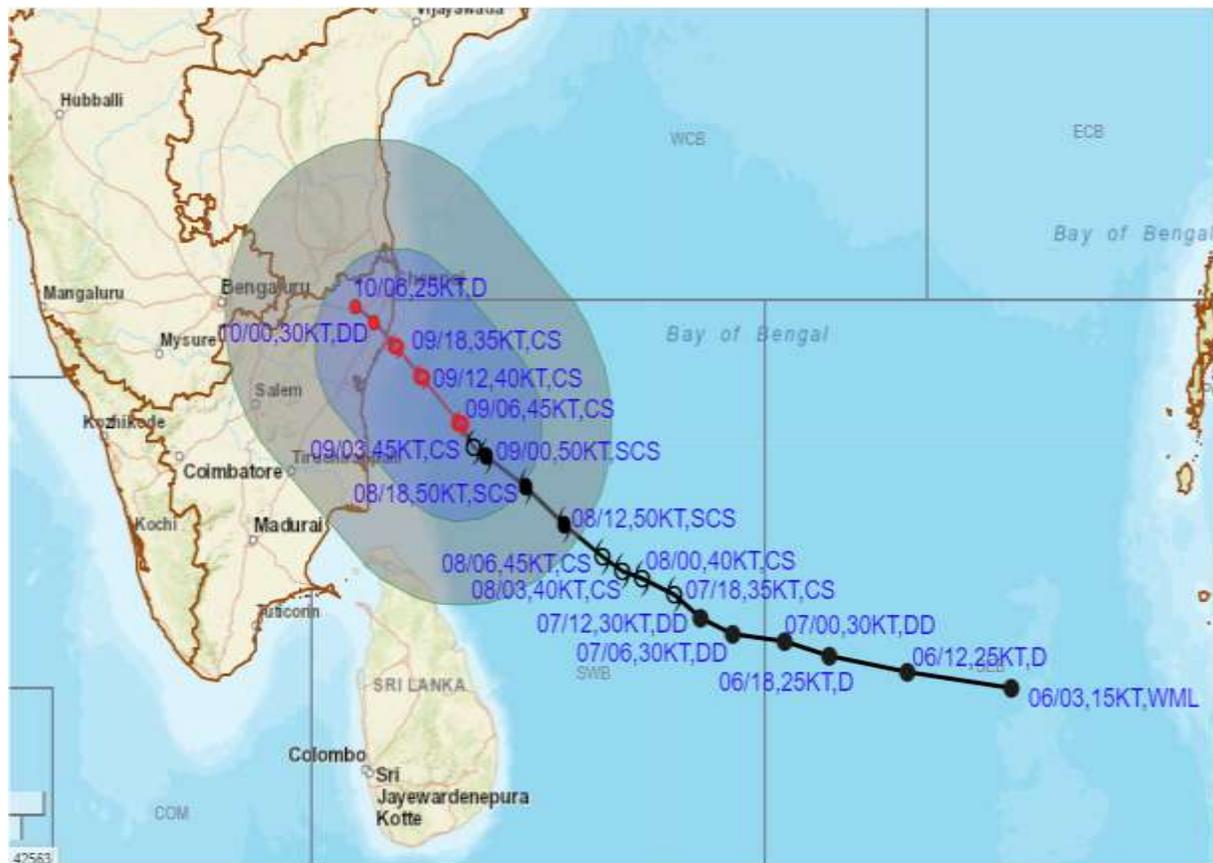
— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 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 (≥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
09.12.22/0600	0	11.4	81.3	PARANGIPETTAI (170,E)	MAMALLAPURAM (180,SE)	CUDDALORE (170,ESE)	NAGAPPATTINAM (175,ENE)	MO PONDICHERRY (175,ESE)
09.12.22/1200	6	12.0	80.7	MO PONDICHERRY (95,E)	MAMALLAPURAM (85,SE)	PARANGIPETTAI (115,ENE)	MINAMBAKKAM (125,SSE)	NUMGAMBAKKAM (130,SSE)
09.12.22/1800	12	12.4	80.3	MINAMBAKKAM (70,S)	MAMALLAPURAM (25,SSE)	NUMGAMBAKKAM (75,S)	CUDDALORE (90,NE)	PARANGIPETTAI (115,NNE)
10.12.22/0000	18	12.7	80.0	MINAMBAKKAM (40,SSW)	MAMALLAPURAM (20,WNW)	TIRUTTANI (70,SE)	MO PONDICHERRY (85,NNE)	VELLORE (95,ESE)
10.12.22/0600	24	12.9	79.7	TIRUTTANI (35,SSE)	MAMALLAPURAM (60,WNW)	NUMGAMBAKKAM (55,WSW)	VELLORE (60,E)	TIRUPATHI (85,S)

## Fishermen warning graphics

**Day 1: 09.12.2022/11:30AM to 10.12.2022/05:30AM**



**Day 2: 10.12.2022/05:30AM to 11.12.2022/05:30AM**



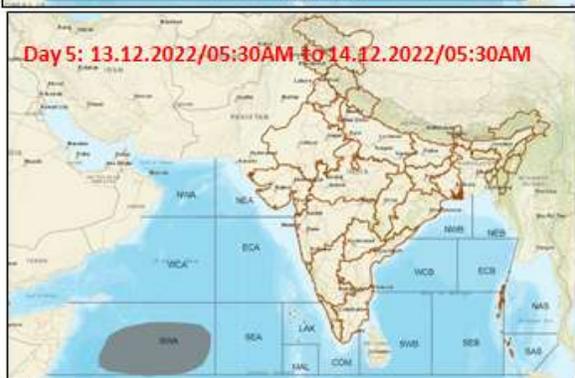
**Day 3: 11.12.2022/05:30AM to 12.12.2022/05:30AM**



**Day 4: 12.12.2022/05:30AM to 13.12.2022/05:30AM**



**Day 5: 13.12.2022/05:30AM to 14.12.2022/05:30AM**



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 speed 45-55 kmph gusting to 65 kmph

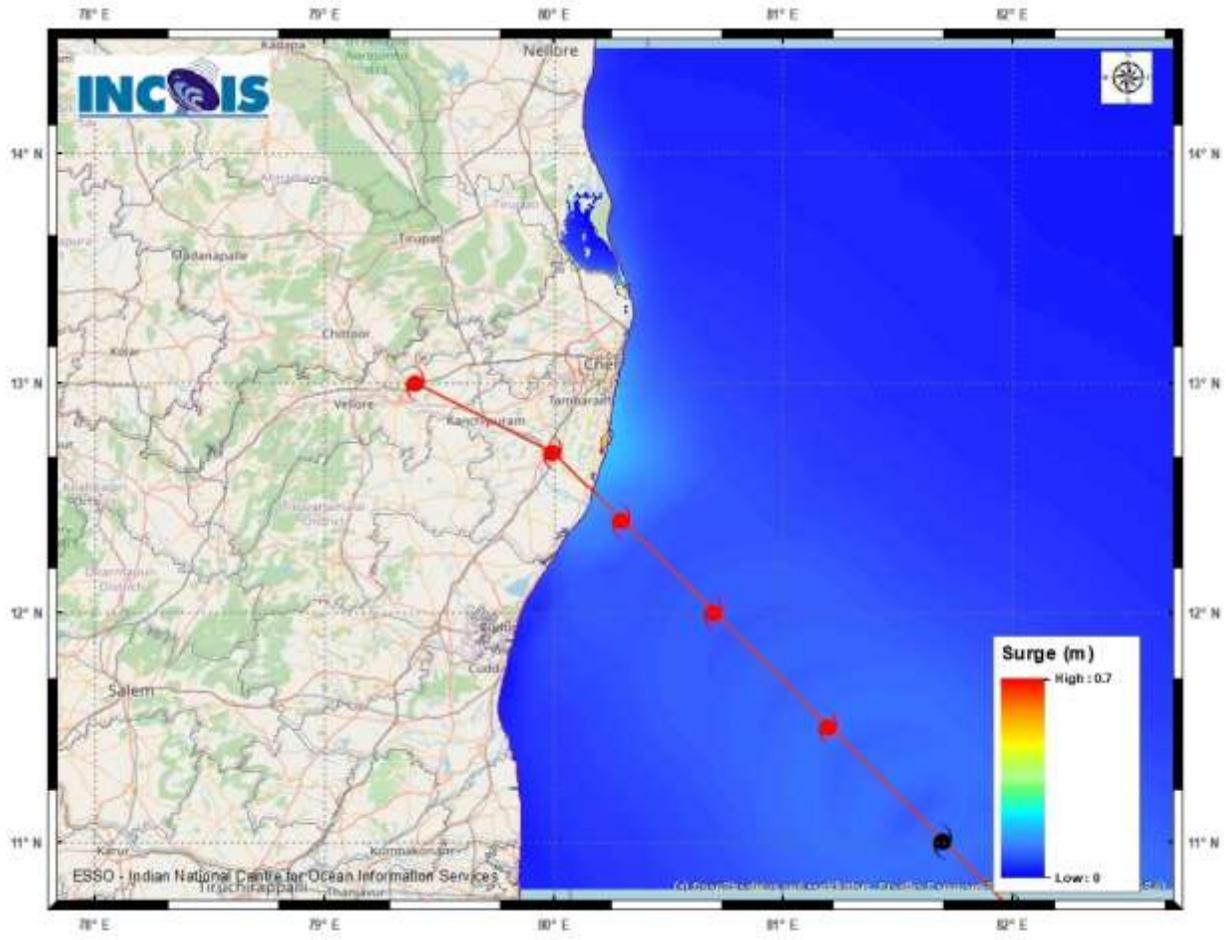
Squally wind with wind speed 55-65 kmph gusting to 75 kmph

Gale wind with wind speed 70-80 kmph gusting to 90 kmph

Gale wind with wind speed 80-90 kmph gusting to 100 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	Muthukadu	0.3-0.7	Upto 0.13