



India Meteorological Department
(Ministry of Earth Sciences)

BULLETIN NO. 20 (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 14 kmph during past 06 hours and lay centered at 1430 hours IST of today, the 09th December, 2022 over Southwest Bay of Bengal off north Tamilnadu and Puducherry coasts near latitude 11.7°N and longitude 81.0°E, about 350 km north of Trincomalee (Sri Lanka), 250 km north-northeast of Jaffna (Sri Lanka), 135 km southeast of Mamallapuram and about 170 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 09th December to early hours of tomorrow, the 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
09.12.22/1430	11.7/81.0	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
10.12.22/0530	12.7/80.0	55-65 gusting to 75	Deep Depression
10.12.22/1130	12.9/79.6	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 over north interior Tamil Nadu and Rayalaseema and adjoining south Andhra Pradesh.

(ii) Wind warning:

- ❖ **Southwest Bay of Bengal:-** Gale wind, speed reaching 75-85 kmph gusting to 95 kmph prevails over southwest Bay of Bengal. It would decrease gradually becoming 65-75 kmph gusting to 85 kmph from today midnight, 55-65 kmph gusting to 75 kmph by 10th December early 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:-** Gale wind, speed reaching 65-75 kmph gusting to 85 kmph very likely to prevail 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 evening.
- ❖ **Gulf of Mannar:-** Squally wind, speed reaching 45-55 kmph gusting to 65 kmph likely to prevail over Gulf of Mannar till early hours of 10th December and reduce thereafter becoming 40-50 kmph gusting to 60 kmph by 10th December morning.
- ❖ **Westcentral Bay of Bengal:-** Squally wind, speed reaching 55-65 kmph gusting to 75 kmph is likely to prevail over adjoining areas of Westcentral Bay of Bengal off south Andhra Pradesh coast till 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 **high** over Southwest Bay of Bengal till early hours of 10th December and would improve thereafter becoming very rough to rough from 10th 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 10th December.
- ❖ **Sea condition very likely to be high** along & off north Tamil Nadu and adjoining areas of south Andhra Pradesh and Puducherry coasts and rough to very rough along and off Srilanka and south Tamilnadu coasts till early morning of 10th morning. It will gradually improve thereafter, becoming rough to very rough over these regions till 10th December afternoon.

(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 10th December evening.
- ❖ Along & off north Sri Lanka coast till 10th December forenoon.
- ❖ Along & off Tamilnadu, Puducherry and South Andhra Pradesh coasts and Gulf of Mannar till 10th 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 10th 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

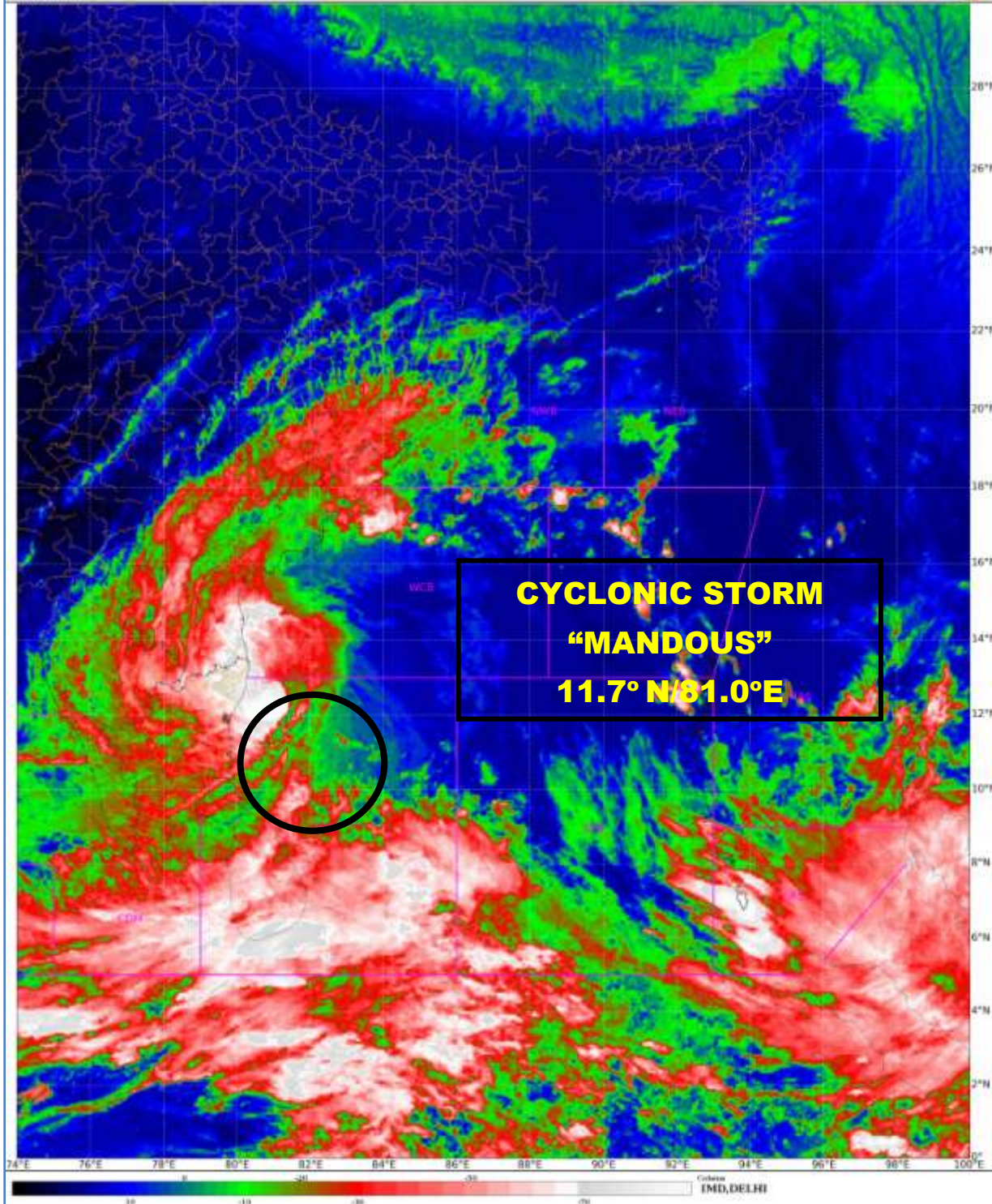
- ❖ People in north coastal Tamilnadu and Puducherry to remain in safe places till 10th December morning.
- ❖ Total suspension of fishing operations till 10th December evening.
- ❖ Regulate onshore and off-shore operations till 10th December evening.
- ❖ People are advised to be cautious while going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

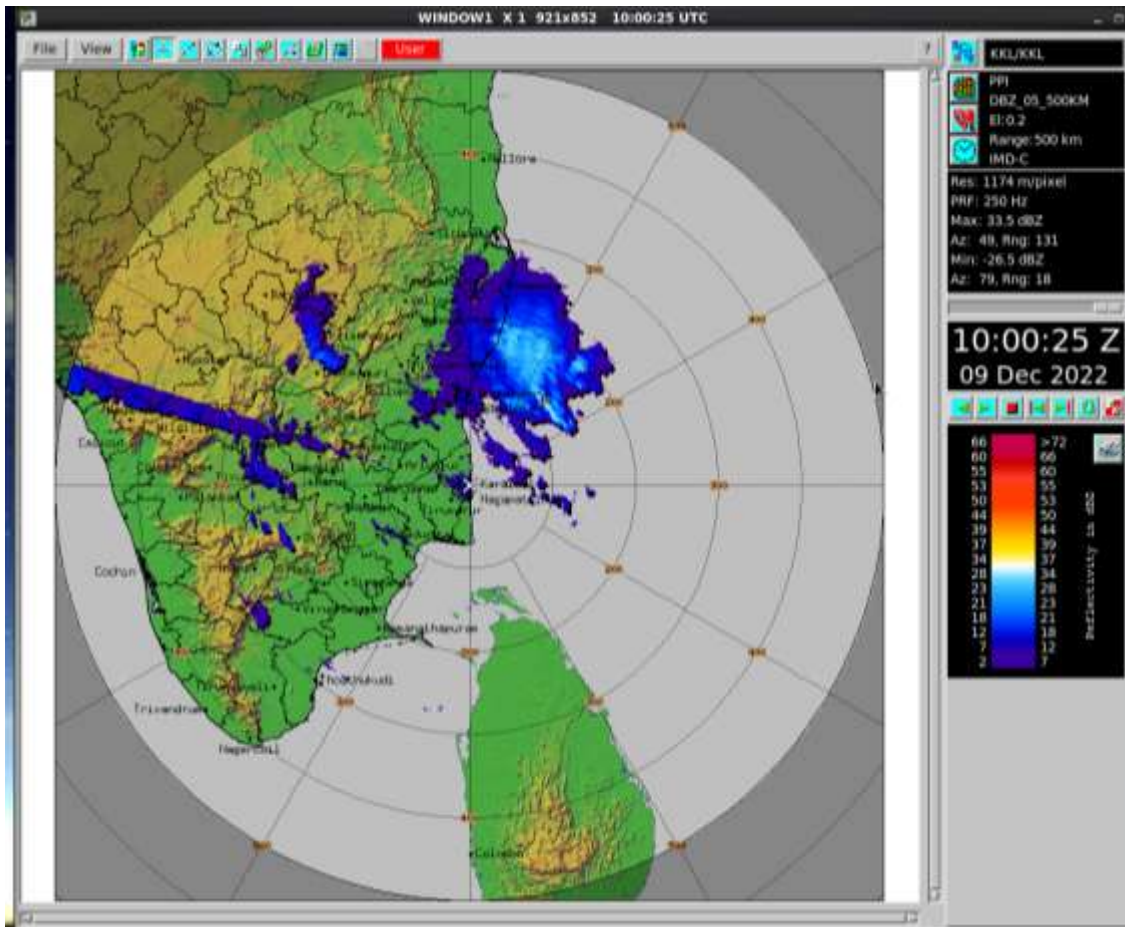
(ix) Post landfall outlook for interior districts of north Tamilnadu and adjoining south Andhra Pradesh

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 10th December.

System is under continuous surveillance and the next bulletin will be issued at 2030 hours IST of 09th Dec, 2022.

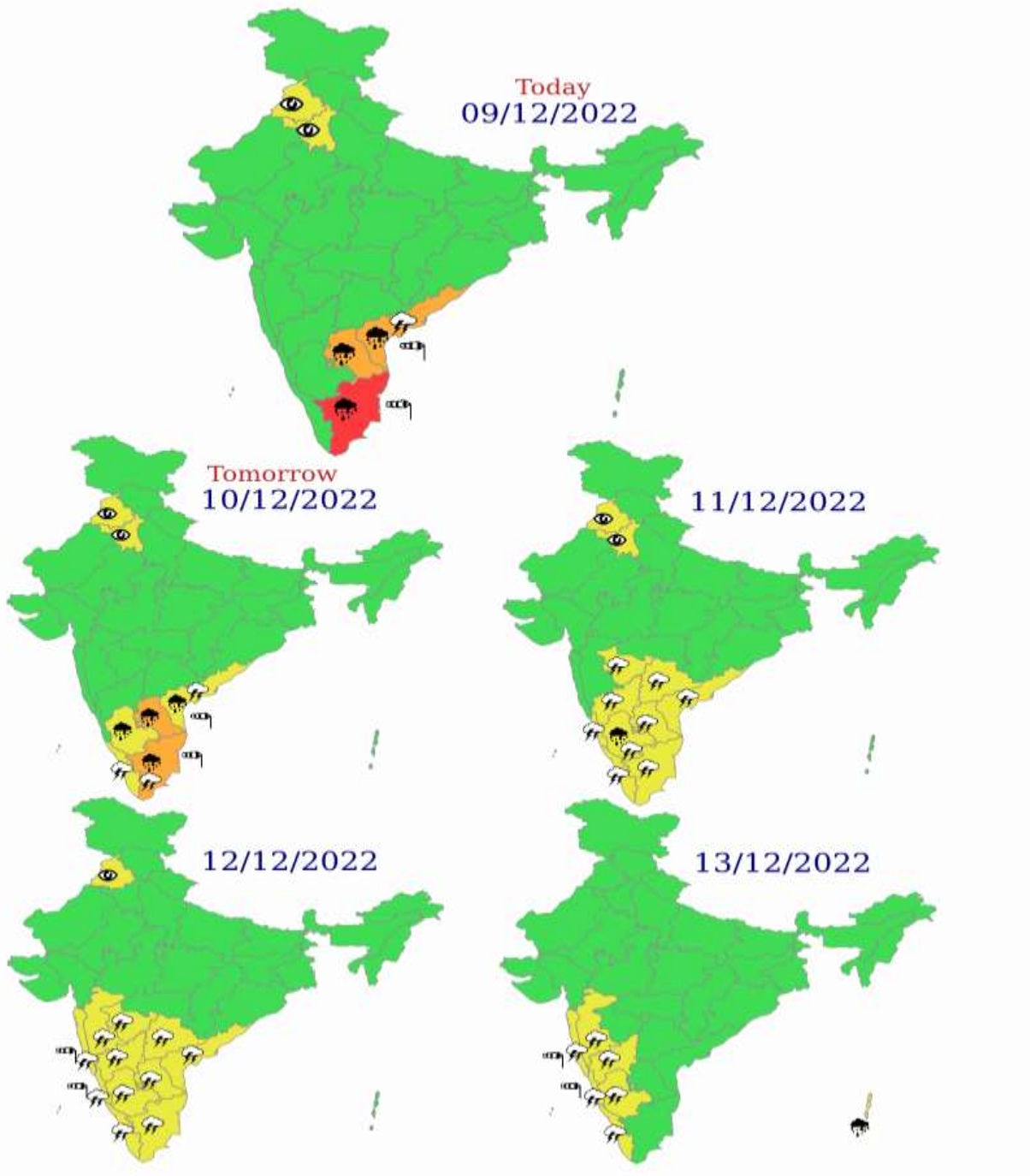
(R K JENAMANI)
Scientist F, Cyclone Warning Division, New Delhi





Radar Image from Doppler Weather Radar Karaikal of 10:00 UTC of 9th December 2022.

Multi hazard Warning Graphics



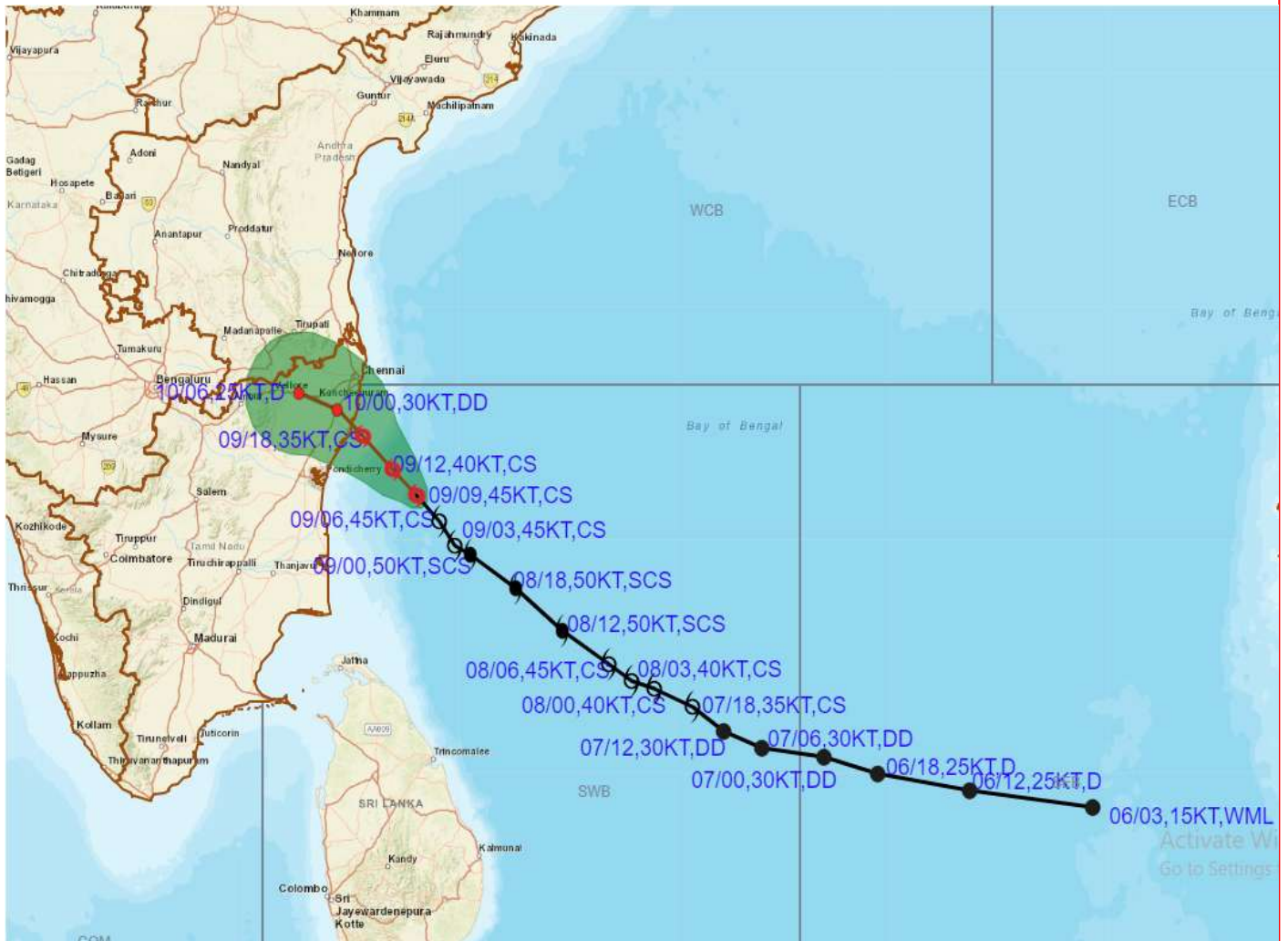
LEGEND: Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

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 0900 UTC OF 09th 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 CYCLONIC STORM 'MANDOUS' OVER SOUTHWEST BAY OF BENGAL BASED ON 0900 UTC OF 09th 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

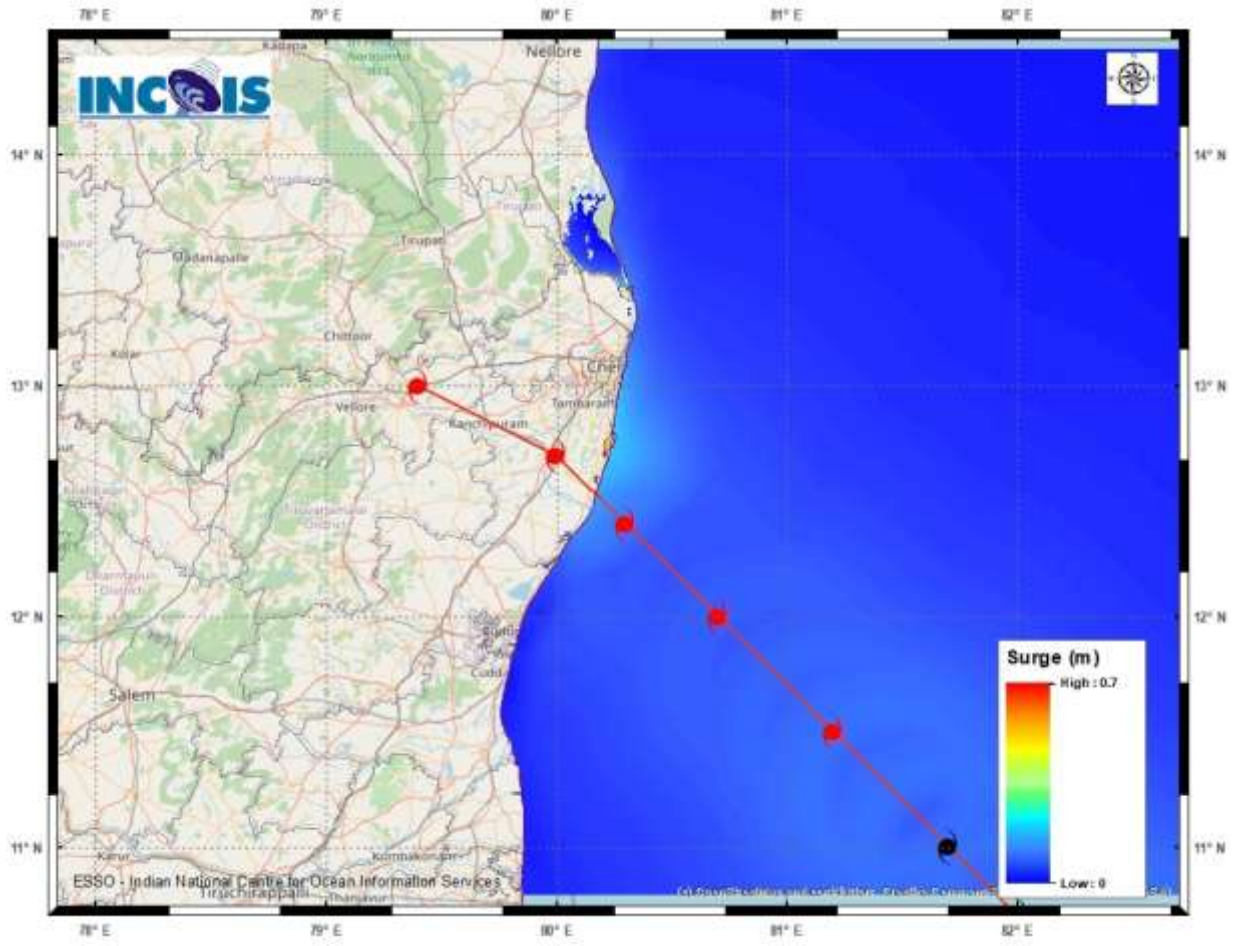
Squally wind with wind speed 55-65 kmph gusting to 75 kmph

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