



**India Meteorological Department  
(Ministry of Earth Sciences)**

**NATIONAL BULLETIN NO. 29 (BOB/07/2024)**

**TIME OF ISSUE: 1300 HOURS IST**

**DATED: 30.11.2024**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

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**Sub: Cyclonic Storm "FENGAL" [pronounced as FEINJAL] over Southwest Bay of Bengal (Post-Landfall Outlook: Red Message for North Tamil Nadu, Puducherry and adjoining south Andhra Pradesh)**

The Cyclonic Storm "FENGAL" [pronounced as FEINJAL] over Southwest Bay of Bengal moved west-northwestwards with a speed of 13 kmph during past 6 hours and lay centred at 0830 hours IST of today, the 30<sup>th</sup> November 2024 over the same region near latitude 12.3°N and longitude 80.9°E, about 120 km east-northeast of Puducherry, 110 km southeast of Chennai, 200 km north-northeast of Nagappattinam and 420 km north of Trincomalee.

It is likely to move nearly westwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram close to Puducherry as a cyclonic storm with a wind speed of 70-80 kmph gusting to 90 kmph during evening of 30<sup>th</sup> November.

The system is being continuously monitored.

Forecast track and intensity are given in the following table:

<b>Date/ Time (IST)</b>	<b>Position (Lat. °N/ long. °E)</b>	<b>Maximum sustained surface wind speed (Kmph)</b>	<b>Category of cyclonic disturbance</b>
30.11.24/0830	12.3/80.9	75-85 gusting to 95	Cyclonic Storm
30.11.24/1130	12.3/80.5	75-85 gusting to 95	Cyclonic Storm
30.11.24/1730	12.2/80.0	70-80 gusting to 90	Cyclonic Storm
30.11.24/2330	12.1/79.7	55-65 gusting to 75	Deep Depression

## **Warnings:**

### **(i) Rainfall Warning:**

**Tamil Nadu & Puducherry:** Light to moderate rainfall at many places with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall** at isolated places over north Tamil Nadu – Puducherry on 30<sup>th</sup> November; **heavy to very heavy rainfall** at isolated places over interior Tamil Nadu on 01<sup>st</sup> December, and **heavy rainfall** at isolated places over Tamil Nadu on 02<sup>nd</sup> and 03<sup>rd</sup> December.

**Coastal Andhra Pradesh:** Light to moderate rainfall at many places with **heavy to very heavy rainfall** with **extremely heavy rainfall** at isolated places over south coastal Andhra Pradesh on 30<sup>th</sup> November, and **heavy rainfall** at isolated places on 01<sup>st</sup> December.

**Royalaseema:** Light to moderate rainfall at many places with **heavy to very heavy rainfall** with **extremely heavy rainfall** at isolated places is likely on 30<sup>th</sup> November; **heavy rainfall** at isolated places on 01<sup>st</sup> December.

**South interior Karnataka:** Light to moderate rainfall at many places with isolated **heavy rainfall** is likely on 30<sup>th</sup> November, **heavy to very heavy rainfall** at isolated places on 01<sup>st</sup> & 2<sup>nd</sup> December.

**Kerala:** Light to moderate rainfall at many places with isolated heavy rainfall is likely on 30<sup>th</sup> November, **heavy to very heavy rainfall** at isolated places on 01<sup>st</sup> & 2<sup>nd</sup> December.

### **(ii) Wind warning:**

- **Southwest Bay of Bengal:** Gale wind speed reaching 75-85 gusting to 95 is prevailing over southwest Bay of Bengal. It is likely to decrease gradually becoming 55-65 kmph gusting to 75 kmph by night of 30<sup>th</sup> November.
- **Adjoining areas of 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 till night of 30<sup>th</sup> November. It is likely to decrease thereafter.
- **Along & off North Tamil Nadu – Puducherry and adjoining South Andhra Pradesh coasts:** Gale wind speed reaching 75-85 gusting to 95 is prevailing along & off **North Tamil Nadu - Puducherry and adjoining South Andhra Pradesh coasts**. It is likely to prevail till evening of 30<sup>th</sup> November and gradually decrease thereafter.
- **Costal districts of north Tamil Nadu & south Andhra Pradesh:** Gale wind speed reaching 60-70 kmph gusting to 80 kmph is prevailing over costal districts of Tamil Nadu (Tiruvallur, Chennai, Chengalpattu, Villupuram and Puducherry) and Andhra Pradesh (Tirupati and Nellore). It is likely to increase becoming 75-85 gusting to 95 kmph over costal districts of Tamil Nadu (**Tiruvallur, Chennai, Chengalpattu, Villupuram, Puducherry Cuddalore, Mayiladuthurai and Nagappattinam**) and Andhra Pradesh (**Tirupati, Nellore and Prakasham**) from 30<sup>th</sup> November morning to evening of 30<sup>th</sup> November. It is likely to decrease thereafter.
- **Along & off South Tamil Nadu coast and Gulf of Mannar:** Squally wind speed reaching 45-55 kmph gusting to 65 kmph is likely to prevail till 30<sup>th</sup> evening and gradually decrease thereafter.

### **(iii) Sea condition:**

Very Rough to High Sea conditions is very likely over southwest Bay of Bengal adjoining areas of westcentral Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu-Puducherry, South Andhra Pradesh and East Sri Lanka coasts till evening of 30<sup>th</sup> November. It will gradually improve becoming Very rough to rough till night of 30<sup>th</sup> November.

**(iv) Flash Flood Guidance (Graphics Attached):**

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 30-11-2024 :**

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

**Coastal Andhra Pradesh & Yanam** - Nellore district.

**Rayalaseema** - Chittoor and Kadapa districts.

**Tamil Nadu - Puducherry & Karaikal** - Puducherry, Chennai, Cuddalore, Kanchipuram, Tiruvallur, Tiruvannamalai, Vellore. Dharampuri, Krishnagiri and Villupuram districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern (AoC) as shown in map due to expected rainfall occurrence in next 24 hours.

**(v) Storm surge Warning (Graphics Attached):**

Storm surge of about 1 meter height above the astronomical tide is likely to inundate the low lying areas of the coastal districts of north Tamil Nadu, Puducherry and adjoining south Andhra Pradesh during the time of landfall.

**(vi) Fisherman warning (Graphics Attached):**

- Total suspension of fishing operations.
- Fishermen are advised not venture into southwest Bay of Bengal adjoining areas of westcentral Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu-Puducherry, South Andhra Pradesh and East Sri Lanka coasts till 30<sup>th</sup> November.
- Fishermen out at sea are advised to return to coast.

**(vii) Impact Expected [POST LANDFALL OUTLOOK] over coastal districts of North Tamil Nadu (Tiruvallur, Chennai, Chengalpattu, Puducherry Cuddalore, Mayiladuthurai, Nagappattinam, Dharampuri, Krishnagiri and Villupuram) and Andhra Pradesh (Tirupati, Nellore, Kadapa and Prakasham)]**

- Damage to thatched huts.
- Minor damage to power and communication lines due to breaking of branches.
- Major damage to Kutcha and minor damage to Pucca roads.
- Some damage to paddy crops, banana, papaya trees and orchards.
- Sea water inundation in low lying areas after erosion of Kutcha embankments.
- Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- Occasional reduction in visibility due to heavy rainfall.
- Disruption of traffic in major cities due to water logging in roads leading to increased travel time.
- Damage to horticulture and standing crops in some areas due to inundation.
- Breaking of tree branches, uprooting of small trees including banana, papaya and drumstick.

**(viii) Action Suggested**

- Total suspension of fishing operations.
- Fishermen are advised not venture into southwest Bay of Bengal adjoining areas of westcentral Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu-Puducherry, South Andhra Pradesh and East Sri Lanka coasts till 30<sup>th</sup> November.
- Fishermen out at sea are advised to return to coast.
- The ships plying over the area need to be regulated.
- People should stay in safe places during 30<sup>th</sup> morning to evening.
- Check for traffic congestion on your route before leaving for your destination.

- Follow any traffic advisories that are issued in this regard.
- Avoid going to areas that face the water logging problems often.
- Special care may be taken for fishing ponds and poultries over coastal areas.
- Avoid staying in vulnerable structure.

**(ix) Agromet advisories [over coastal districts of Tamil Nadu – Puducherry and adjoining south Andhra Pradesh]**

Provide adequate drainage facilities for the removal of excess water from rice, cotton, sugarcane, turmeric and vegetable fields, coconut and banana orchards. Provide mechanical support to banana plants to prevent lodging.

- Make arrangements to drain out excess water from the standing crop fields and fruit orchards in Kerala and Coastal Andhra Pradesh.
- Harvest the matured crops and keep it in safe place.
- Provide mechanical support to horticultural crops and staking to vegetables.

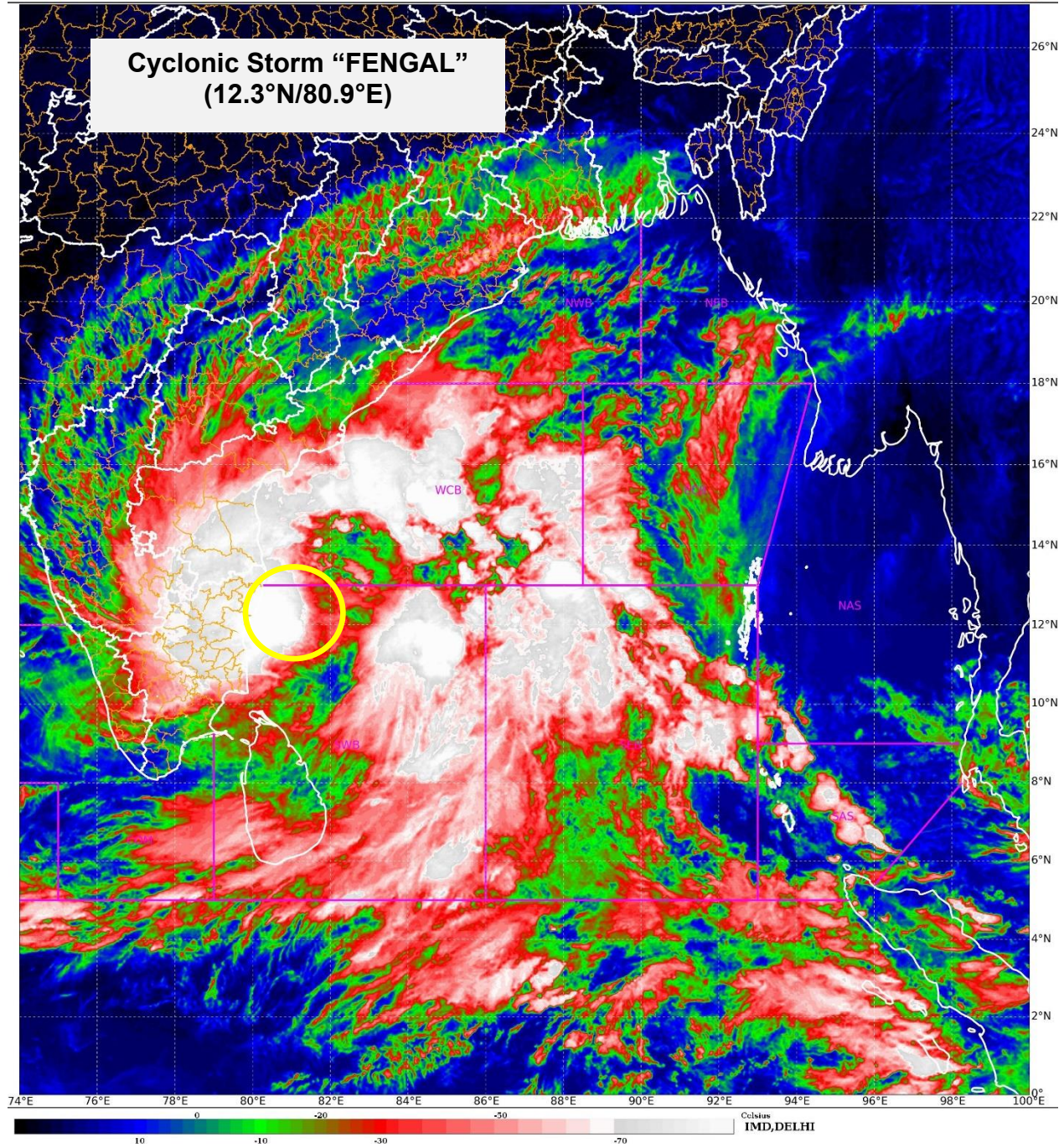
**Significant Rainfall (in cm) recorded during past 24 hours till 0830 hours IST of today, the 30<sup>th</sup> November, 2024 is given in Annexure-1.**

**Next bulletin will be issued at 1430 hours IST of today, the 30<sup>th</sup> November, 2024.**

**(Dr.Ananda Kumar Das)  
Scientist F, RSMC, New Delhi**

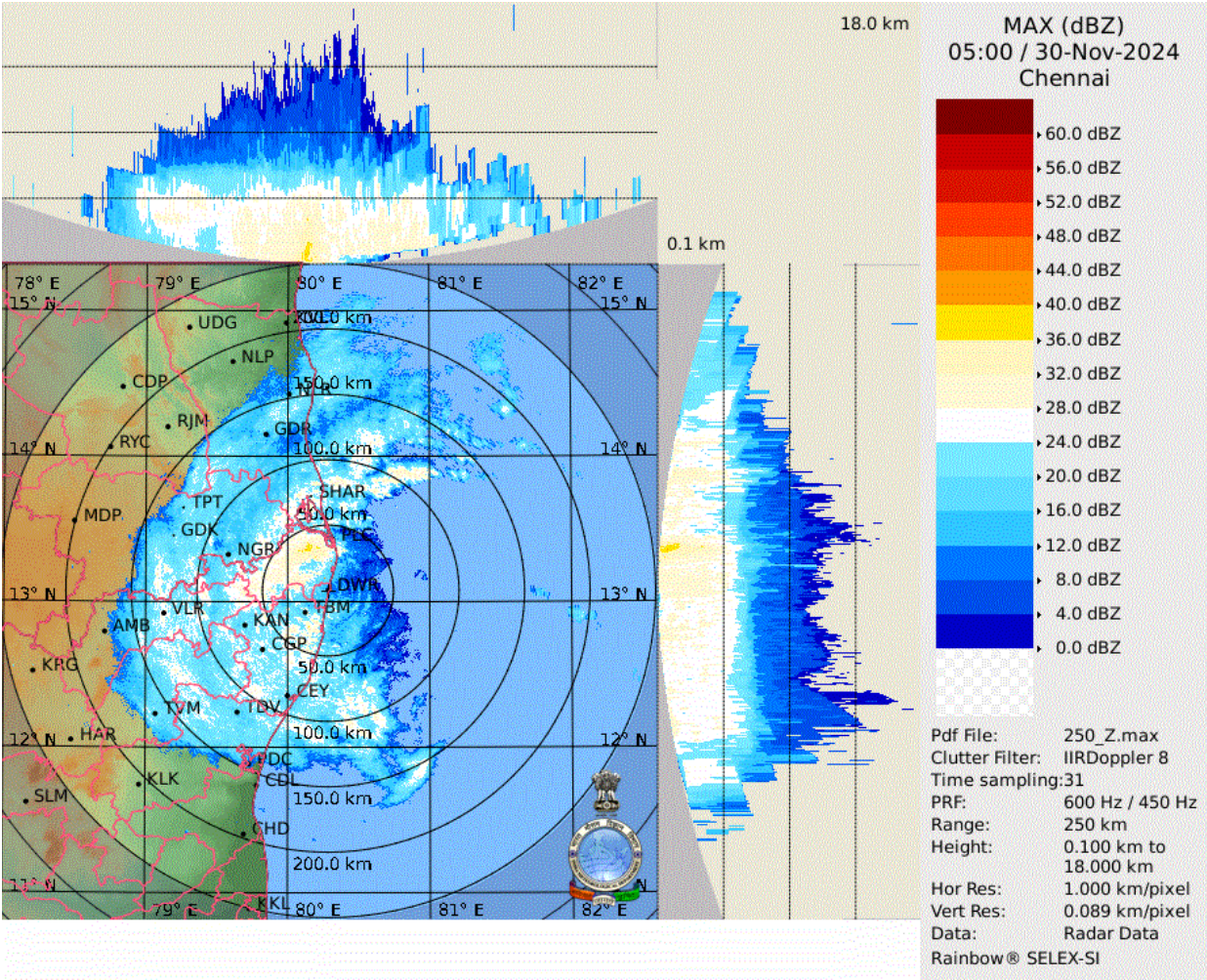
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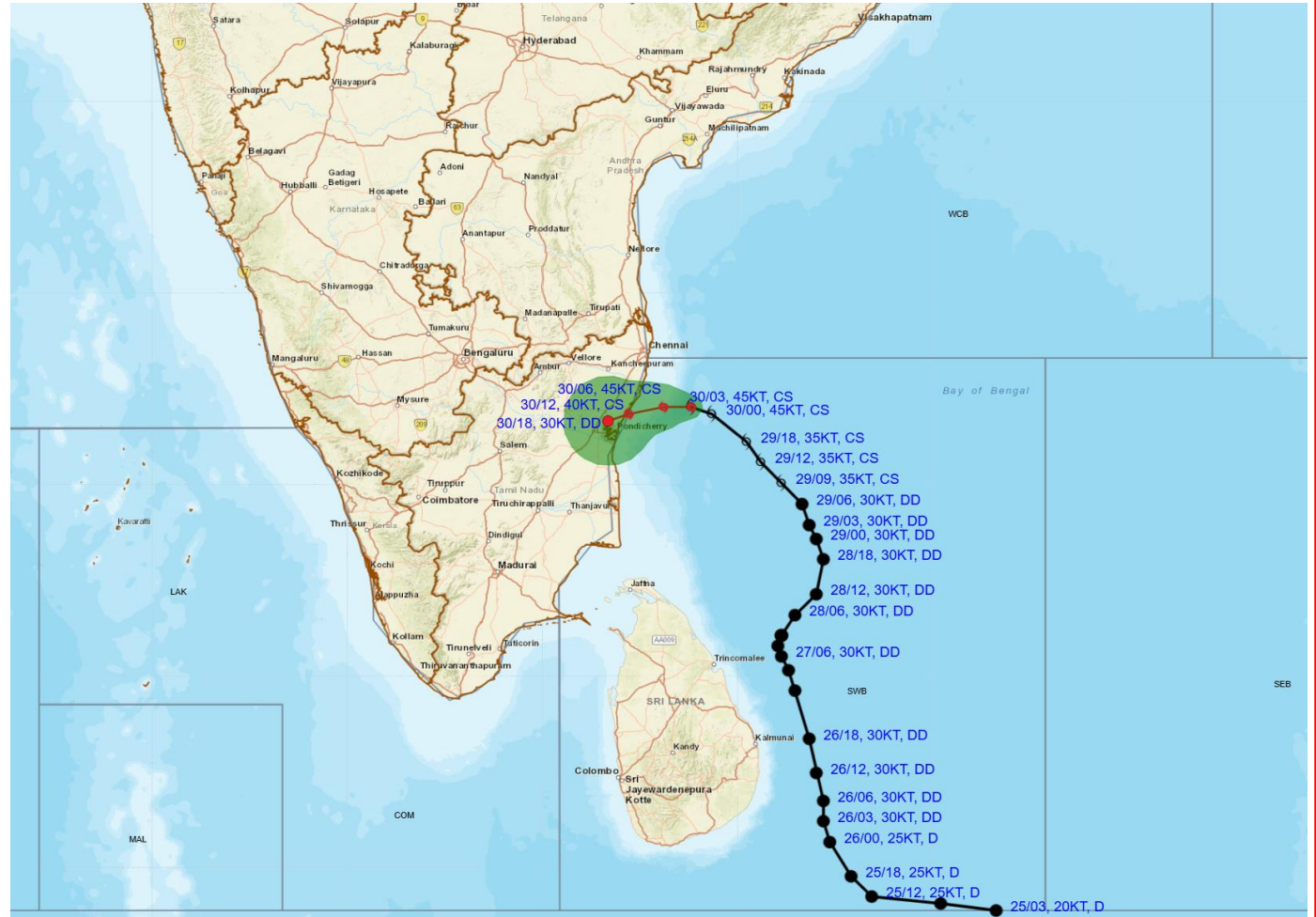


# Doppler Weather Radar Observation (Max Z) at Chennai





**OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 0300 UTC (0830 HRS. IST) OF 30<sup>TH</sup> NOVEMBER, 2024.**



DATE/TIME : IN UTC  
 IST : UTC + 0530  
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR  
 LPA : 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 (48-63 KT)  
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

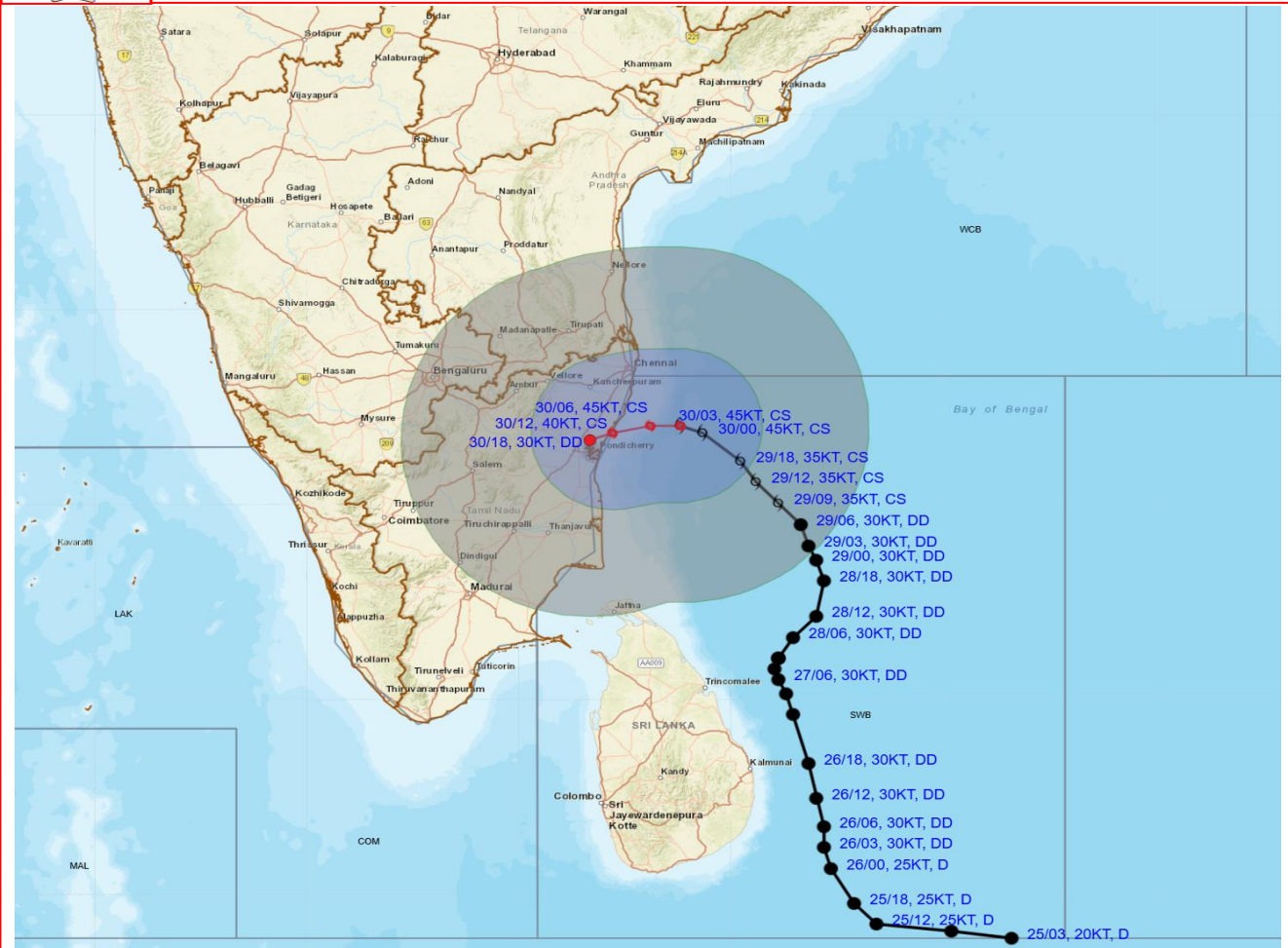
● LESS THAN 34 KT  
 ☁ 34-47 KT  
 ☁  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS			
	CHENNAI/MINAMB AKKAM	MO PONDICHERRY	NAGAPPATTINAM	TRINCOMALEE
30.11.24/0300	110, SE	120, ENE	210, NE	420, N
30.11.24/0600	90, SSE	80, ENE	180, NNE	420, N
30.11.24/1200	90, SSW	30, NE	160, N	430, NNW
30.11.24/1800	110, SSW	20, NW	150, N	430, NNW





**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 0300 UTC (0830 HRS. IST) OF 30<sup>TH</sup> NOVEMBER, 2024.**



DATE/TIME : IN UTC  
 IST : UTC + 0530  
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR  
 LPA : 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 (48-63 KT)  
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

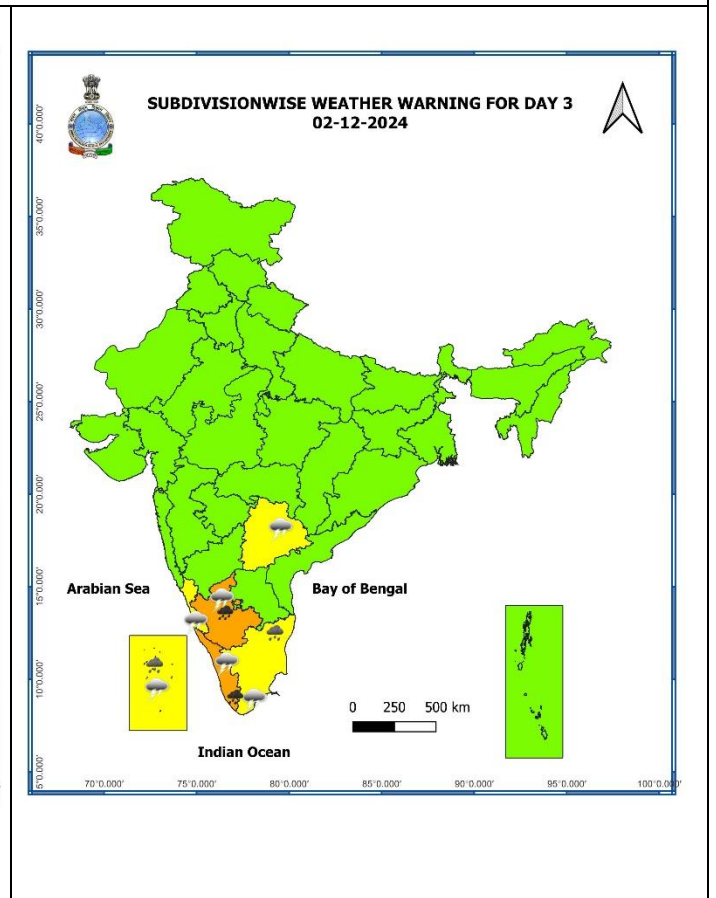
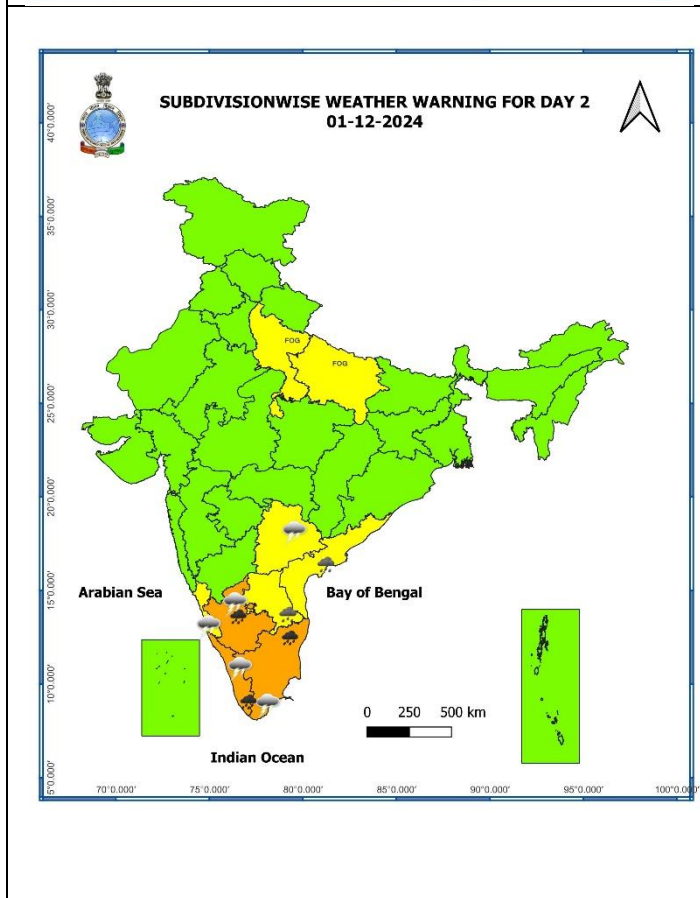
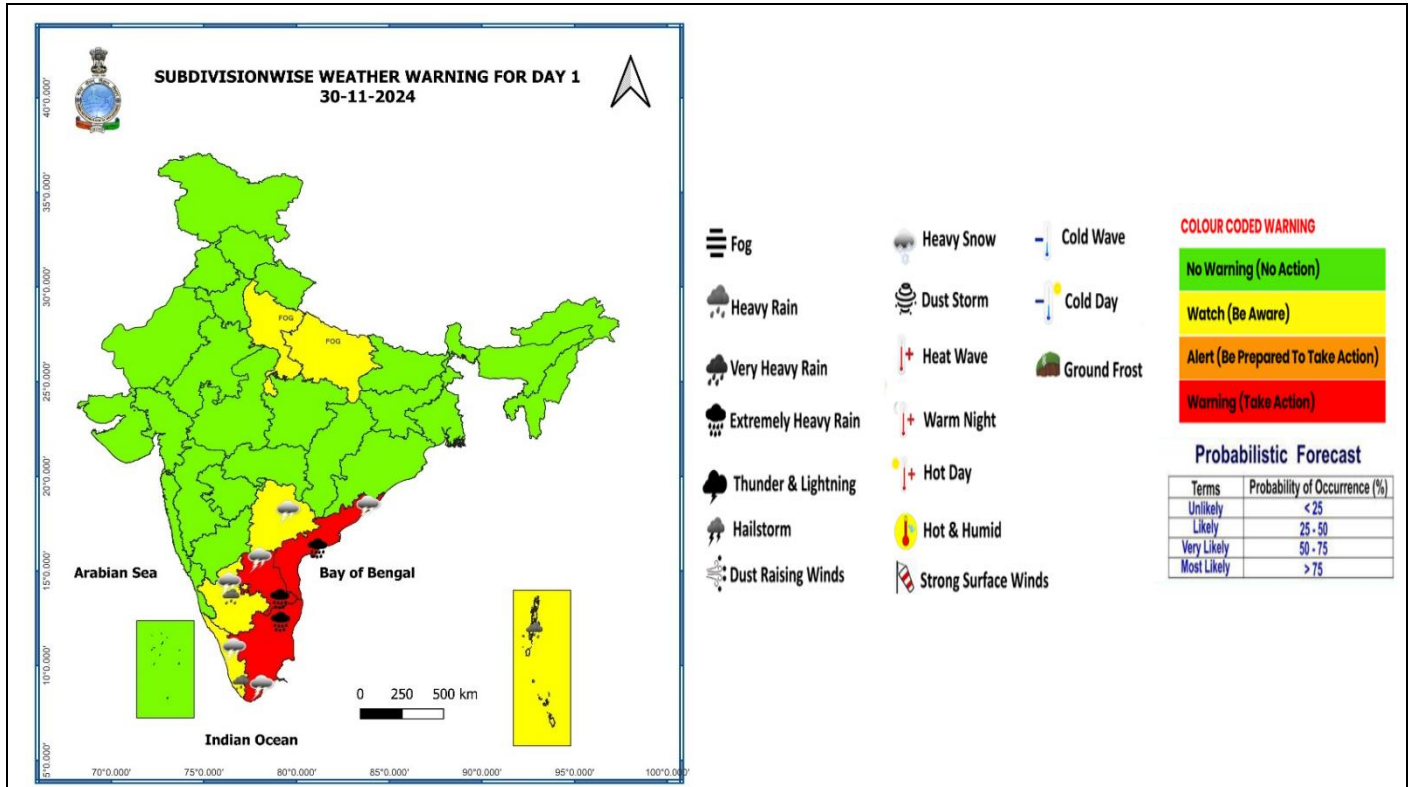
● LESS THAN 34 KT  
 ○ 34-47 KT  
 ○  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ○ CONE OF UNCERTAINTY  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■  $\geq 64$  KT ( $\geq 118$  KMPH)

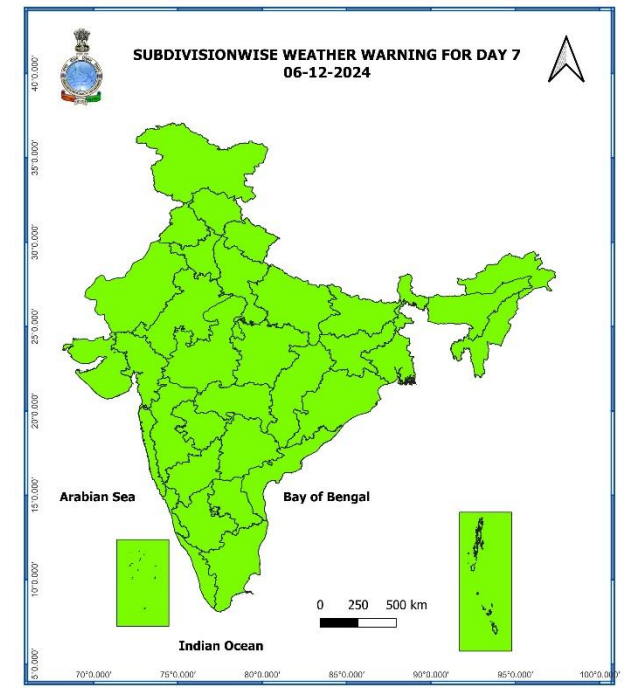
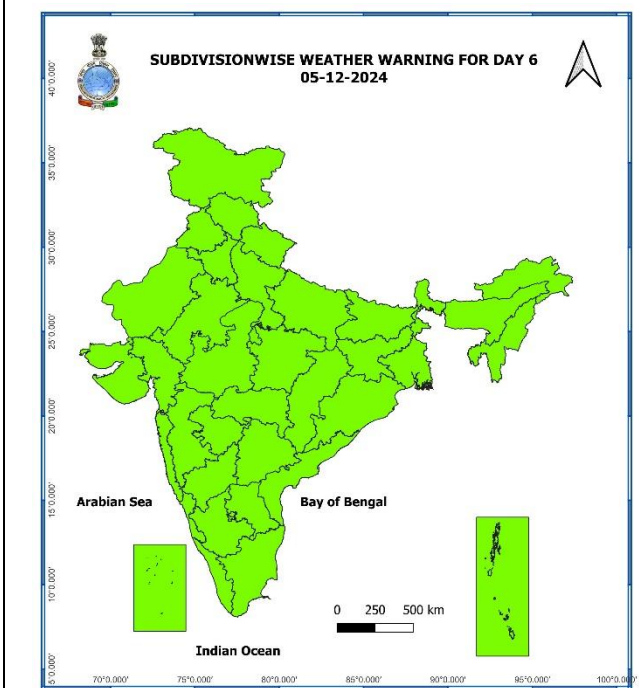
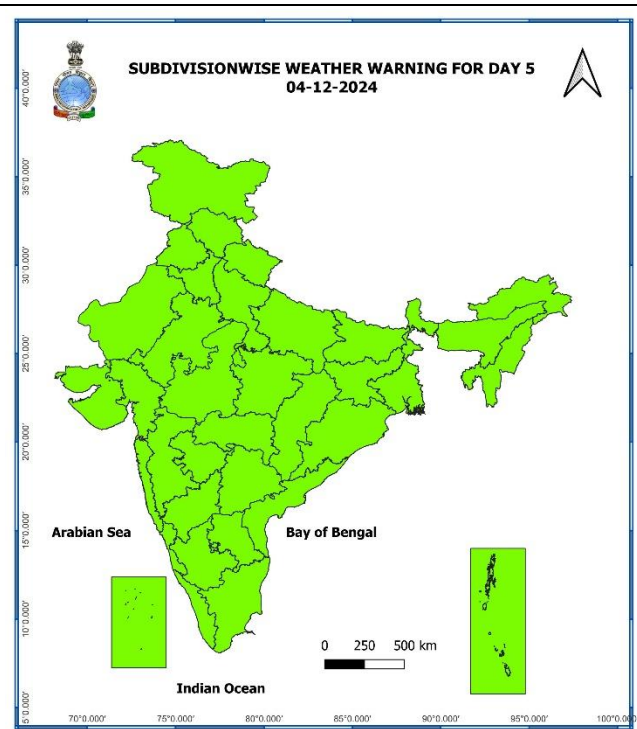
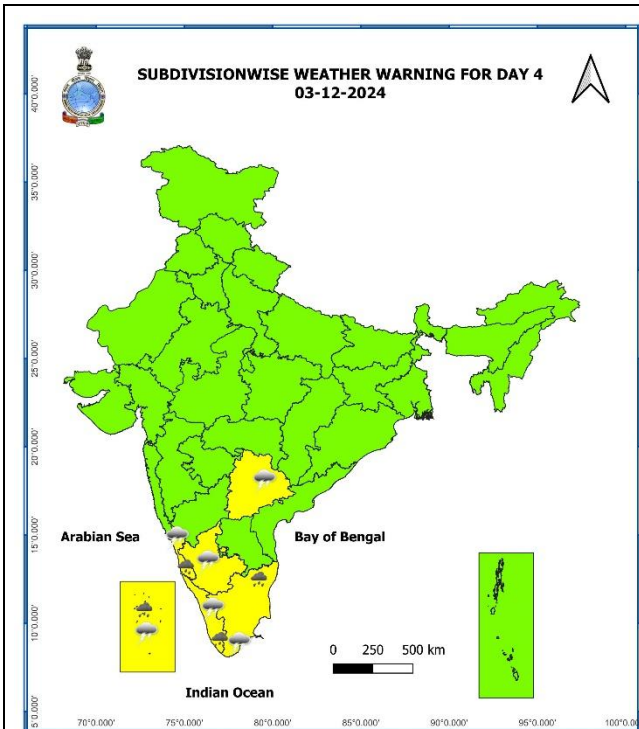
**IMPACT OVER THE SEA**

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
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations



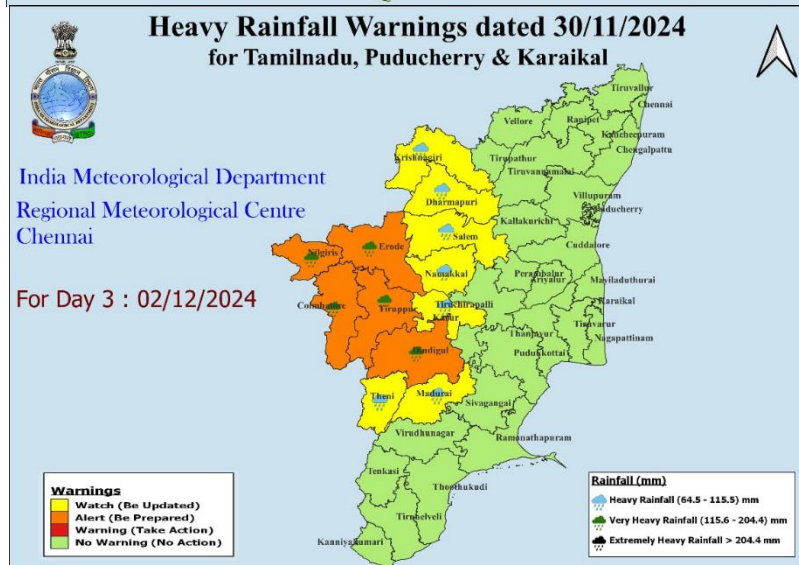
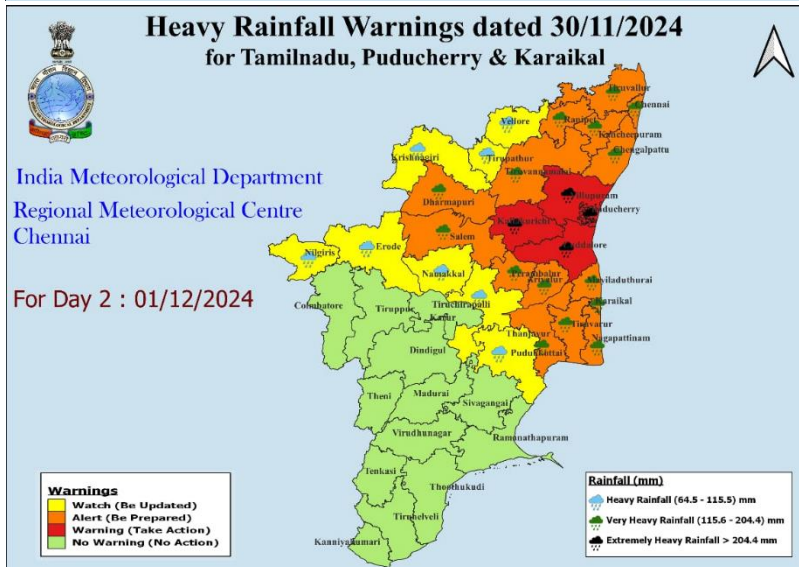
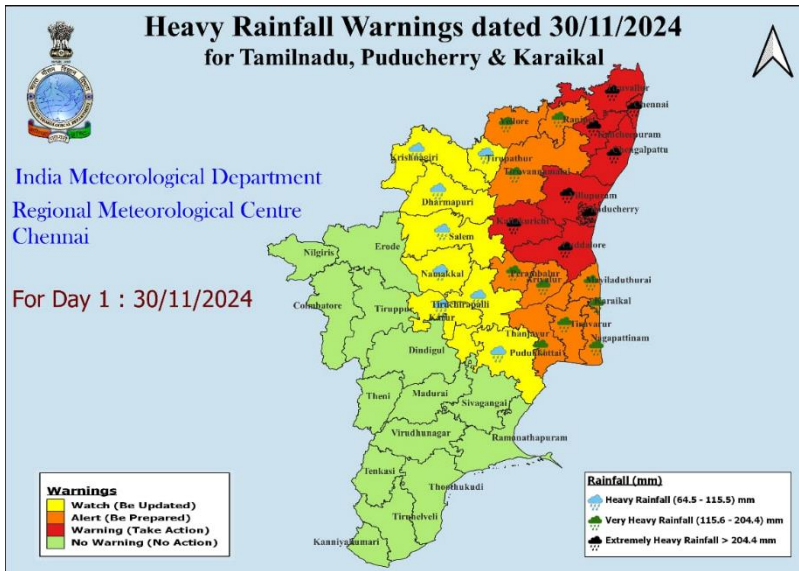
# Weather Warning Graphics





- Action may be taken based on **ORANGE AND RED COLOUR** warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

# District-Wise Warning Graphics of Tamil Nadu & Puducherry





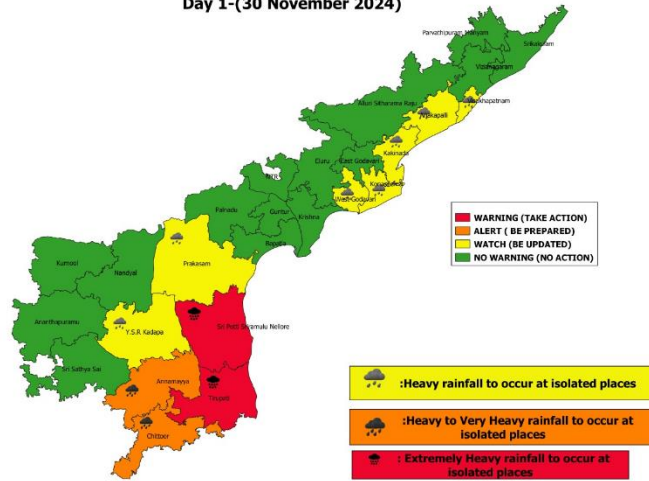
# District-Wise Warning Graphics of Andhra Pradesh



**Rainfall warnings for Andhra Pradesh and Yanam.**  
Valid from 1300 hrs IST of 30.11.2024 to 0830 hrs IST of 01.12.2024

Date of Issue:- 30 November 2024

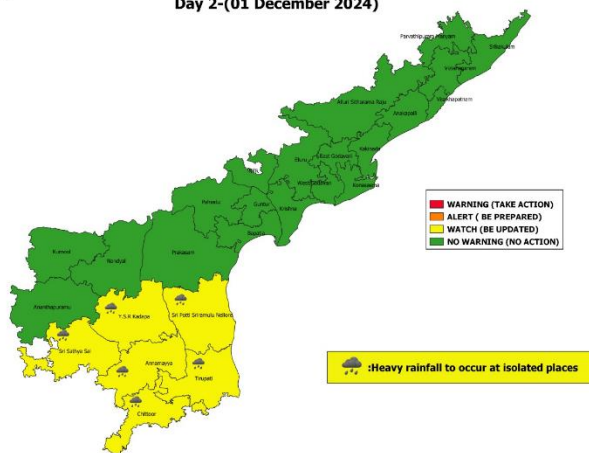
Day 1-(30 November 2024)



**Rainfall warnings for Andhra Pradesh and Yanam.**  
Valid from 0830 hrs IST of 01.12.2024 to 0830 hrs IST of 02.12.2024

Date of Issue:- 30 November 2024

Day 2-(01 December 2024)



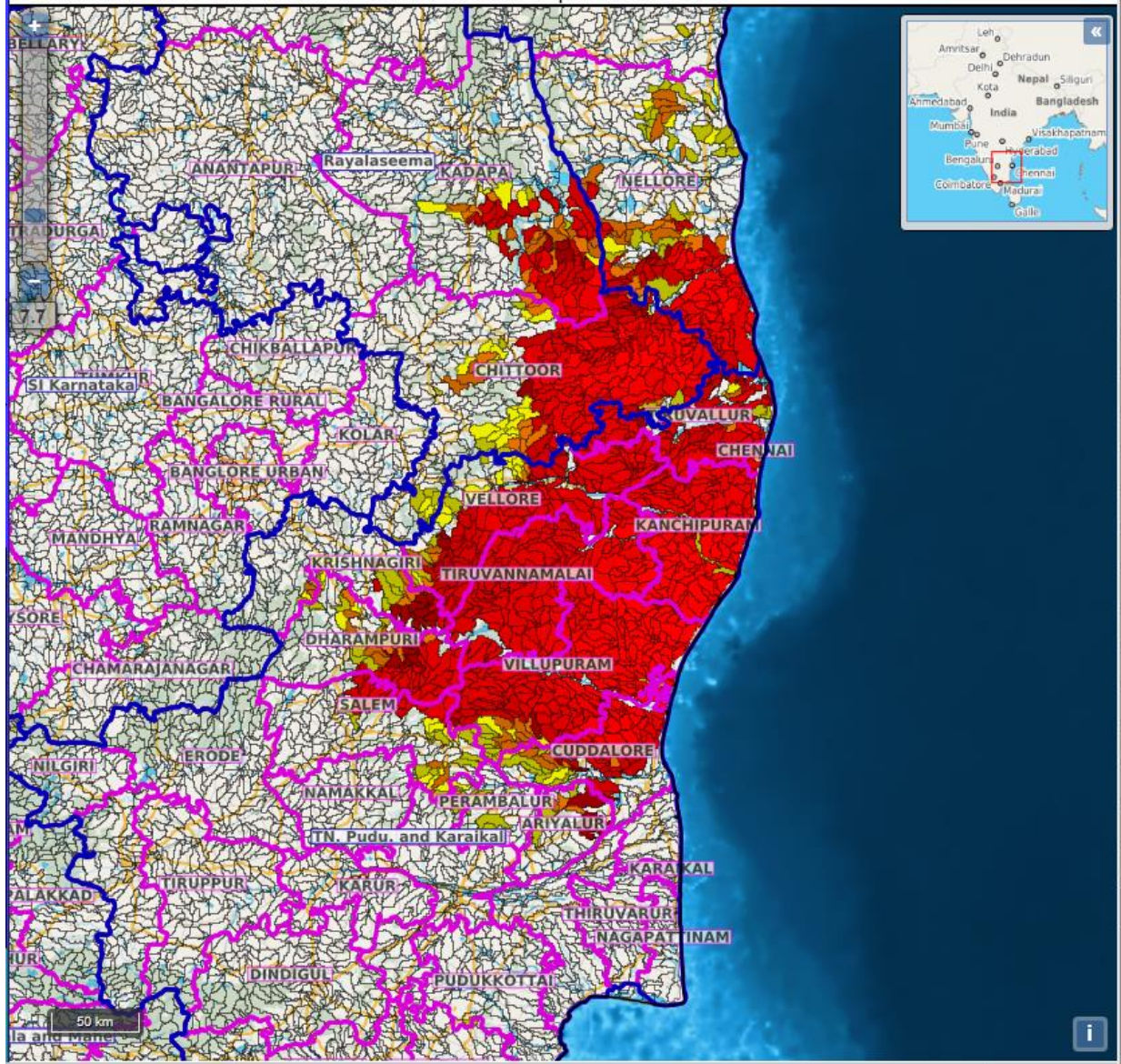
# Flash Flood Guidance




45 IST

SAsiaFFGS - South Asia Flash Flood Guidance System

2

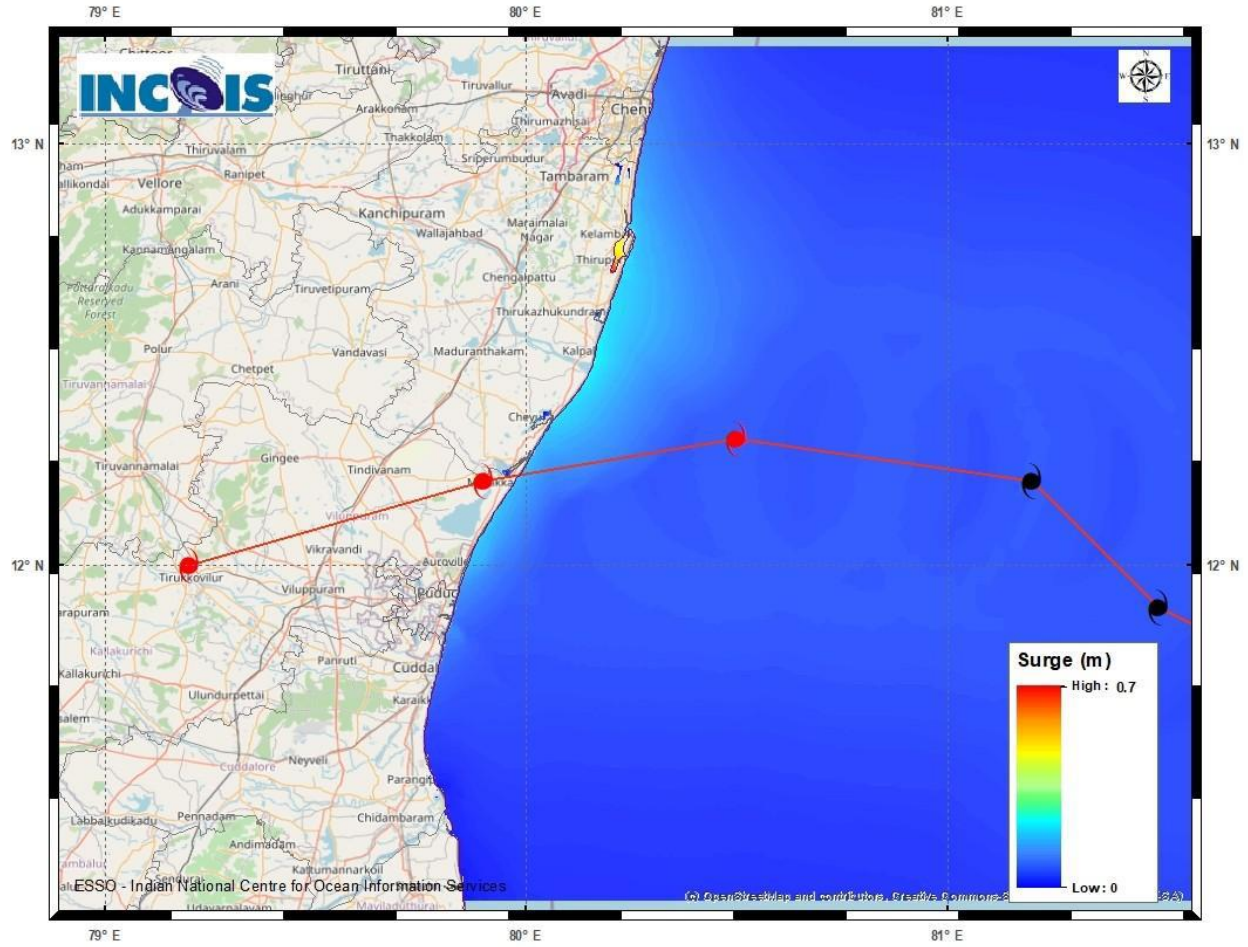
Product: NCU M FFR | Timescale: 24-hr | Region: "REGIONAL"  
Product Date: 2024-11-30 00:00 UTC | Valid Date: 2024-12-01 00:00 UTC



Flash Flood Risk	
	High Risk (Take Action)
	Moderate Risk (Be Prepared)
	Low Risk (Be Updated)



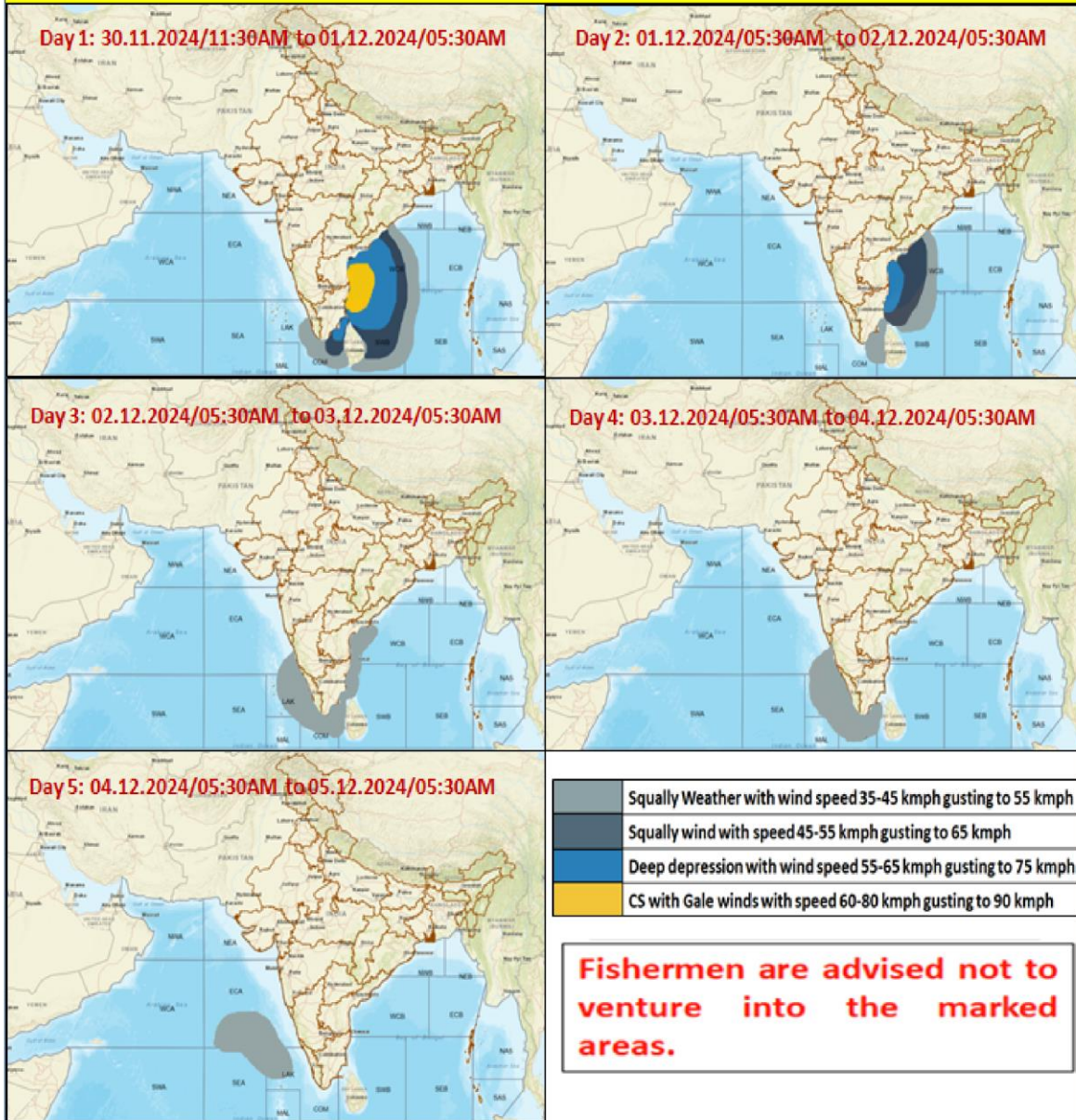
# Storm Surge graphics



DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m)*	EXPECTED INUNDATION EXTENT (km)
<u>Kancheepuram</u>	<u>Tamil Nadu</u>	<u>Muthukadu</u>	<u>0.2-0.7</u>	<u>Upto 0.13</u>



## Fishermen Warning Graphics



## Annexure -1

**Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 30.11.2024 (in cm):**

### **Tamil Nadu, Puducherry & Karaikal:**

Ennore AWS (Tiruvallur) 13, Zone 01 Kathivakkam (Chennai) 12, Zone 01 Thiruvottiyur (Chennai), Zone 04 Tondiarpet (Chennai), Sholinganallur (Chennai), CD Hospital Tondiarpet (Chennai), Zone 09 Basin Bridge (Chennai) 9 each, Ponneri (Tiruvallur), Zone 02 Manali (Chennai), Zone 10 Ice House (Chennai), Chennai (N) (Chennai), Zone 05 Chennai Central (Chennai) 8 each, Zone 13 Adyar (Chennai), Zone 12 Alandhur (Chennai), Zone 06 Kolathur (Chennai), YMCA Nandnam ARG (Chennai), Zone 03 Madhavaram (Chennai), Anna University ARG (Chennai), Chennai Collector Office (Chennai), DGP Office (Chennai), Zone 15 Sholinganallur (Chennai), Zone 03 Puzhal (Chennai), Hindustan\_University (Chengalpattu), Zone 02 Manali New Town (Chennai), Zone 10 Vadapalani (Chennai) 7 each;

### **Rayalaseema:**

Sullurpeta (Tirupati) 6, Tada (Tirupati) 5, Tirupati Aero (Tirupati) 5, Srikalahasti (Tirupati) 4, Thottambedu (Tirupati) 4;

### **Coastal Andhra Pradesh & Yanam:**

Nellore (Spsr Nellore) 2, Yelamanchili (Anakapalli) 2, Ranastalam (Srikakulam) 2, Garividi (Vizianagaram) 2, Pusapatirega (Vizianagaram) 2, Nellimarla (Vizianagaram) 2, Cheepurupalle (Vizianagaram) 2, Denkada (Vizianagaram) 2, Narsipatnam (Anakapalli) 2;

### **Kerala & Mahe:**

Vattavada Aws (Idukki) 1