



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

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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-southwestwards with a speed of 7 kmph during past 6 hours and lay centred at 1730 hours IST of today, the 30th November 2024 over the southwest Bay of Bengal off North Tamil Nadu coast near latitude 12.2°N and longitude 80.3°E, about 40 km away from the coast, 50 km south-southeast of Mahabalipuram, 60 km east-northeast of Puducherry and 90 km south of Chennai.

Latest observations indicate that the forward sector of spiral bands associated with the cyclone has entered into the land. It is likely to move west-southwestwards 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 next 3 to 4 hours.

The system is being continuously monitored by the Doppler Weather Radar at Chennai. Forecast track and intensity are given in the following table:

Date/ Time (IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.11.24/1730	12.2/80.3	70-80 gusting to 90	Cyclonic Storm
30.11.24/2330	12.1/79.8	55-65 gusting to 75	Deep Depression
01.12.24/0530	12.0/79.5	50-60 gusting to 70	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 30th November; **heavy to very heavy rainfall** at isolated places over interior Tamil Nadu on 01st December, and **heavy rainfall** at isolated places over Tamil Nadu on 02nd and 03rd 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 30th November, and **heavy rainfall** at isolated places on 01st December.

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

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

Kerala: Light to moderate rainfall at many places with isolated heavy rainfall is likely on 1st December, **heavy to very heavy rainfall** at isolated places on 2nd & 3rd December.

(ii) Wind warning:

- **Southwest Bay of Bengal:** Gale wind speed reaching 70-80 gusting to 90 is prevailing over southwest Bay of Bengal. It is likely to decrease gradually becoming 55-65 kmph gusting to 75 kmph by night of 30th 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 30th November. It is likely to decrease thereafter.
- **Along & off North Tamil Nadu – Puducherry and adjoining South Andhra Pradesh coasts:** Gale wind speed reaching 70-80 gusting to 90 is prevailing along & off **North Tamil Nadu - Puducherry and adjoining South Andhra Pradesh coasts**. It is likely to prevail till night of 30th November and gradually decrease thereafter.
- **Coastal districts of north Tamil Nadu & south Andhra Pradesh:** Gale wind speed reaching 70-80 gusting to 90 kmph is prevailing over coastal districts of Tamil Nadu (**Tiruvallur, Chennai, Chengalpattu, Villupuram, Puducherry Cuddalore, Mayiladuthurai and Nagappattinam**) and Andhra Pradesh (**Tirupati, Nellore and Prakasham**). It is likely to decrease from night of 30th November and becoming squally wind speed reaching 50-60 kmph gusting to 70 kmph from morning of 1st December and decrease gradually further 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 30th night 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 north Sri Lanka coasts till night of 30th November. It will gradually improve becoming Rough from morning of 1st December.

(iv) Flash Flood Guidance (Graphics Attached):

24 hours Outlook for the Flash Flood Risk (FFR) till 1730 IST of 01-12-2024:

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

Coastal Andhra Pradesh & Yanam - Prakasam and Nellore districts.

Rayalaseema - Chittoor and Kadapa districts.

Tamil Nadu - Puducherry & Karaikal - Ariyalur, Chennai, Cuddalore, Dharampuri, Erode, Krishnagiri, Namakkal, Nilgiri, Perambalur, Salem, Tiruchirappalli, Tiruvallur, Tiruvannamalai, Vellore and Villupuram districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern 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 30th November.
- Fishermen out at sea are advised to return to coast.

(vii) POST LANDFALL OUTLOOK

Impact Expected: 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.

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 30th 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 30th 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.

Agromet advisories:

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.

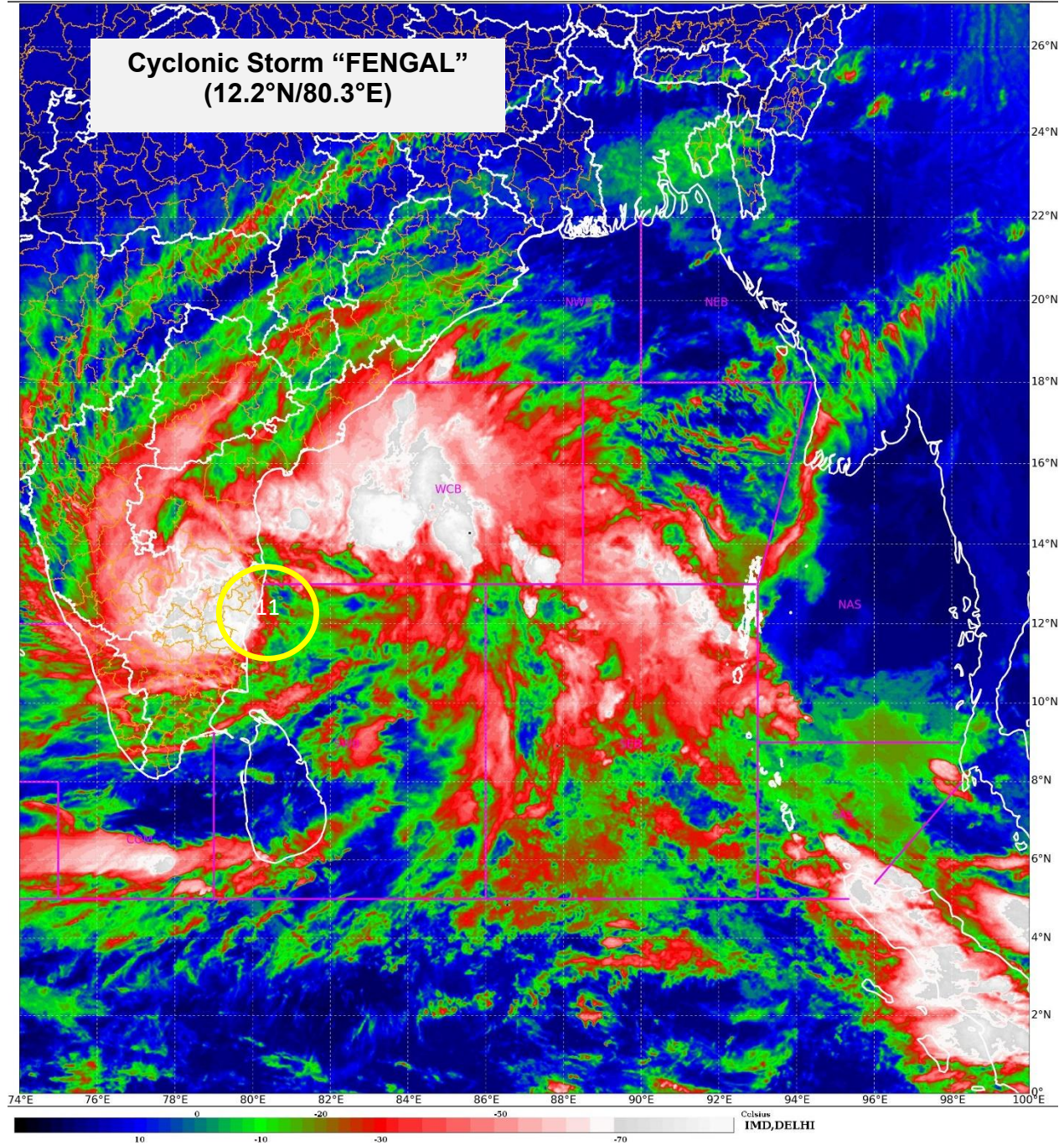
Significant amount of rainfall (in cm) recorded from 0830 hours IST of yesterday to 0830 hours IST of today, the 30th November:

Tamil Nadu, Puducherry & Karaikal: Jaya Engineering College & Terenure -13 each; Kanchipuram -12; Chennai Meenambakkam -11, Tiruttani-9; Vellore -3; Cuddalore & Salem-2 each;
Coastal Andhra Pradesh & Yanam: Nellore -4; Narsapur-2; Tuni, Vishakhapatnam & Kavali -1 each;
Rayalaseema: Tirupathi -5;

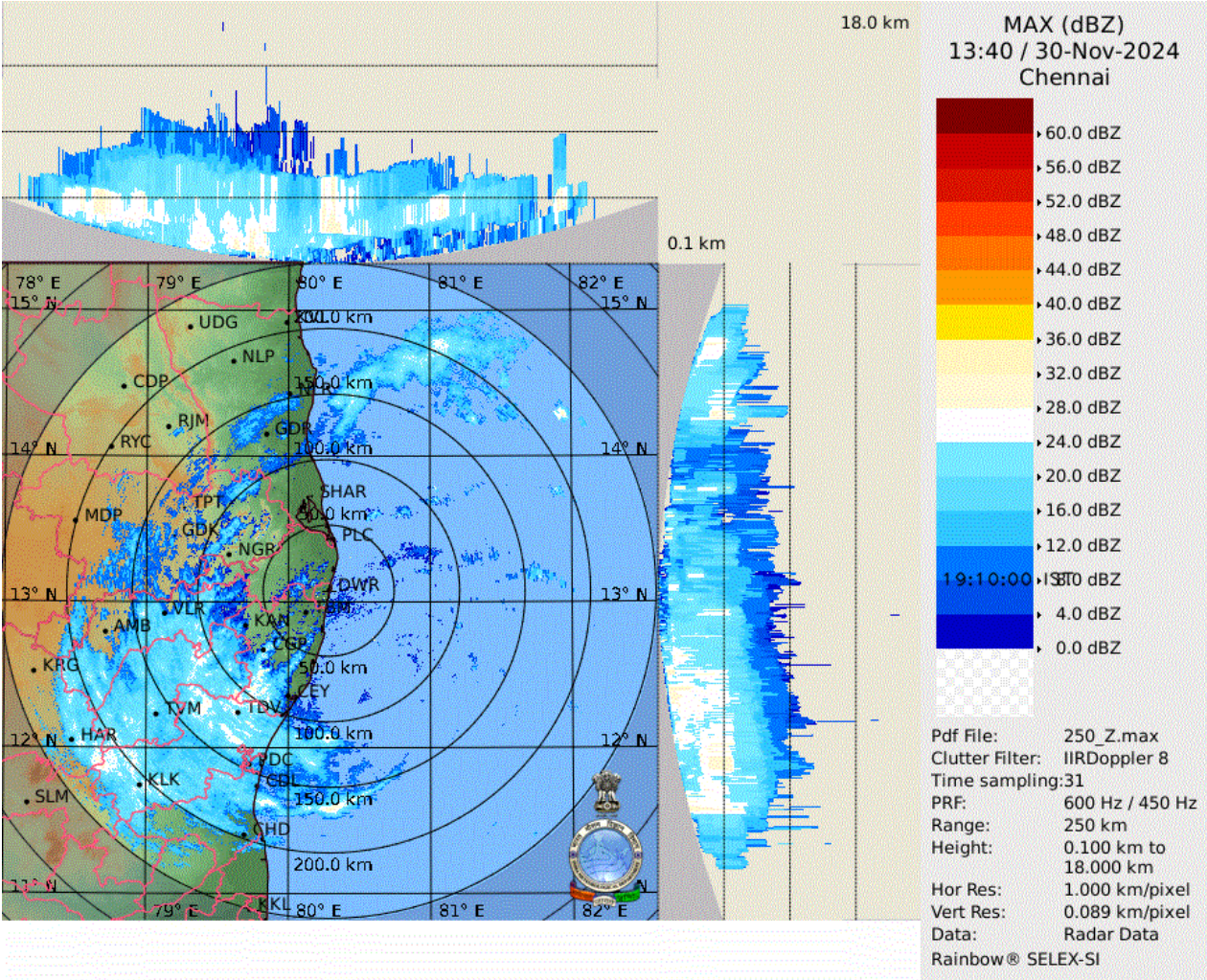
Next bulletin will be issued at 2330 hours IST of today, the 30th November, 2024.

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

Copy to: ACWC Kolkata/ACWC Chennai/CWC Bhubaneswar/MC, Amaravati/MC, Thiruvananthapuram/CWC, Vishakhapatnam

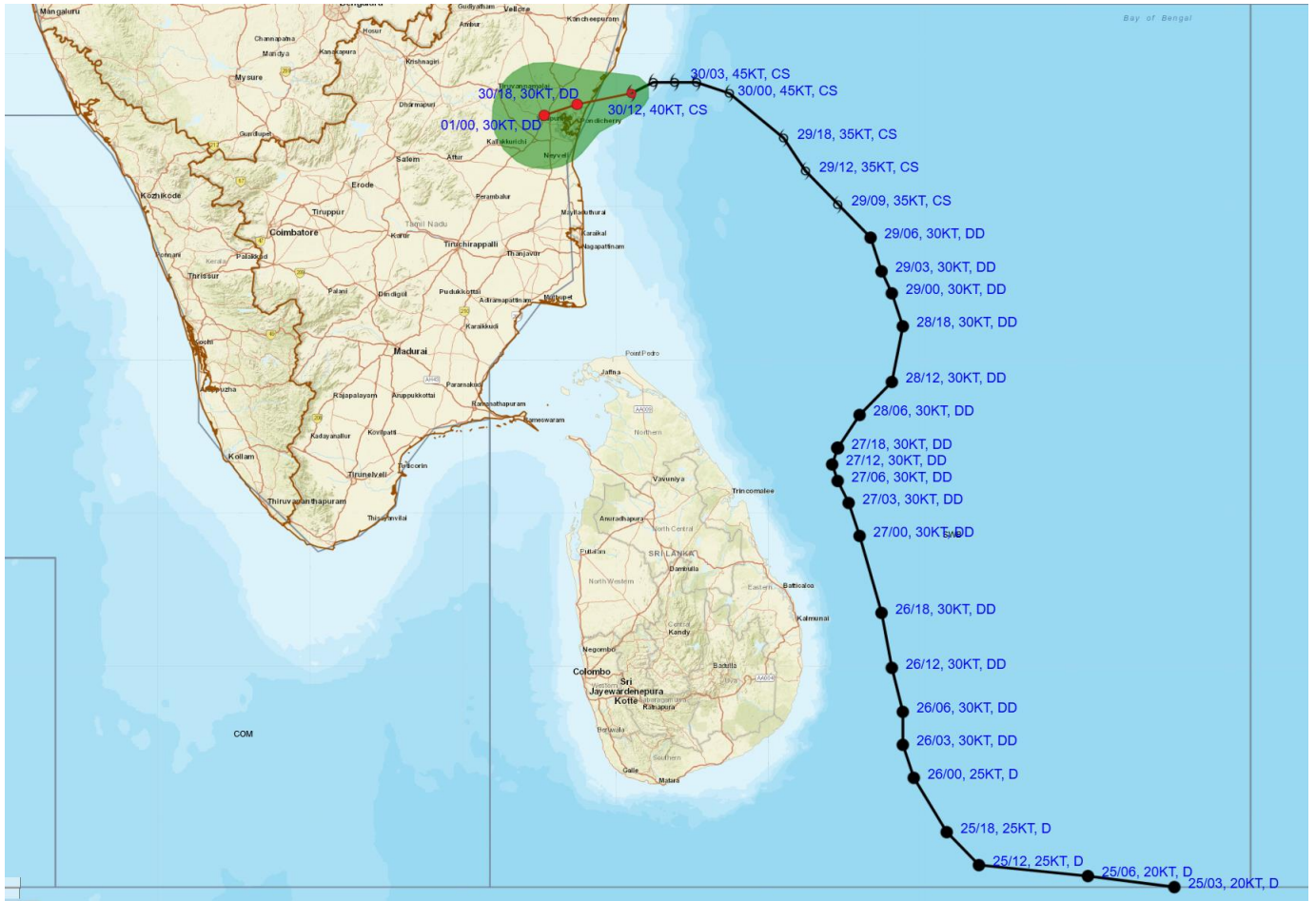


Doppler Weather Radar Observation (Max Z) at Chennai





OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC (1730 HRS. IST) OF 30TH NOVEMBER, 2024.



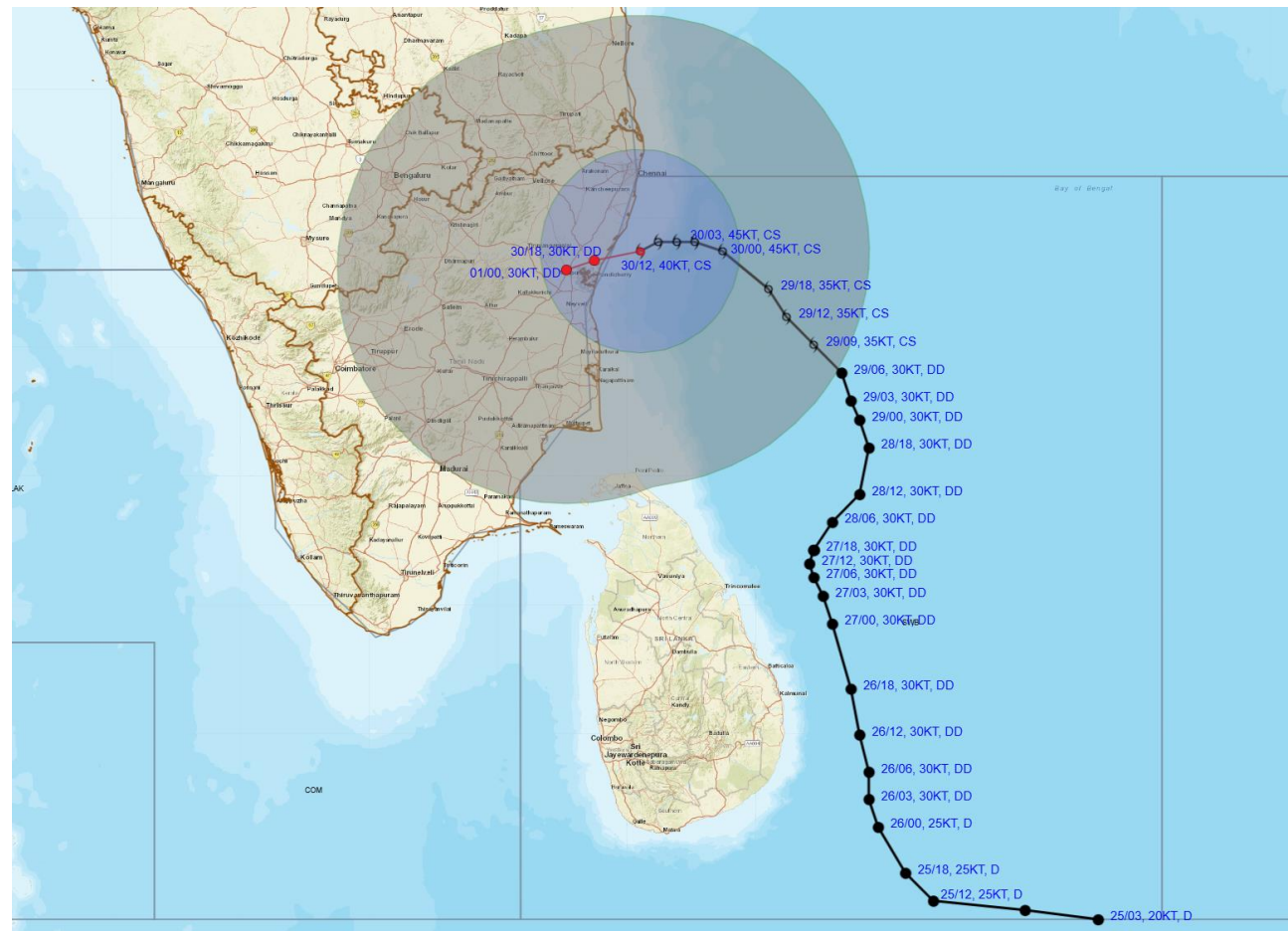
DATE/TIME : IN UTC
 IST : UTC + 0530
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
 LPA : LOW PRESSURE AREA
 WML : WELL MARKED LOW PRESSURE AREA
 D : DEPRESSION (17-27 KT)
 DD : DEEP DEPRESSION (28-33 KT)
 CS : CYCLONIC STORM (34-47 KT)
 SCS : SEVERE CYCLONIC STORM (48-63 KT)
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuCS : SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT
 ○ 34-47 KT
 ⊙ ≥ 48 KT
 — OBSERVED TRACK
 — FORECAST TRACK
 ▲ CONE OF UNCERTAINTY

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS		
Date and Time (UTC)	MAHABALIPURAM	MO PONDICHERRY	CHENNAI/MINAMB AKKAM
30.11.24/1200	50, SSE	60, ENE	90, S
30.11.24/1800	70, SW	10, N	110, SSW
01.12.24/0000	100, SW	30, W	130, SW



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC (1730 HRS. IST) OF 30TH NOVEMBER, 2024.



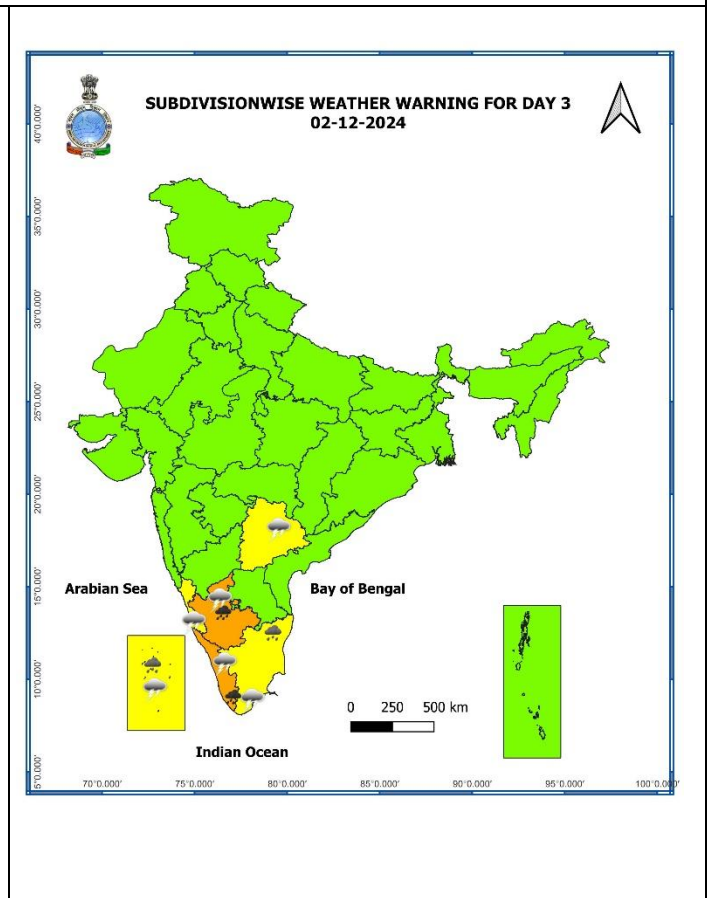
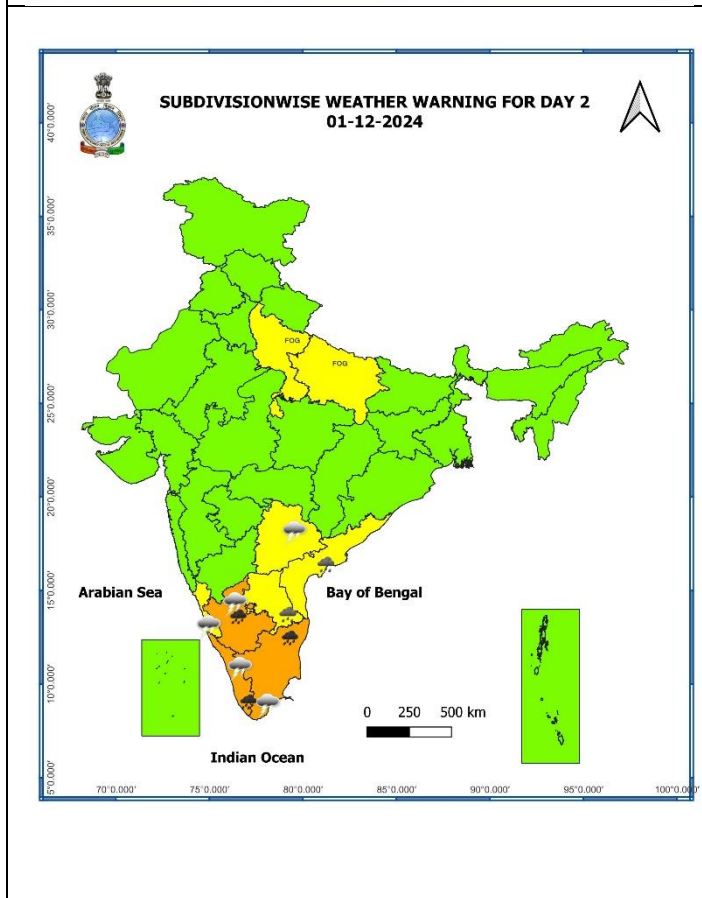
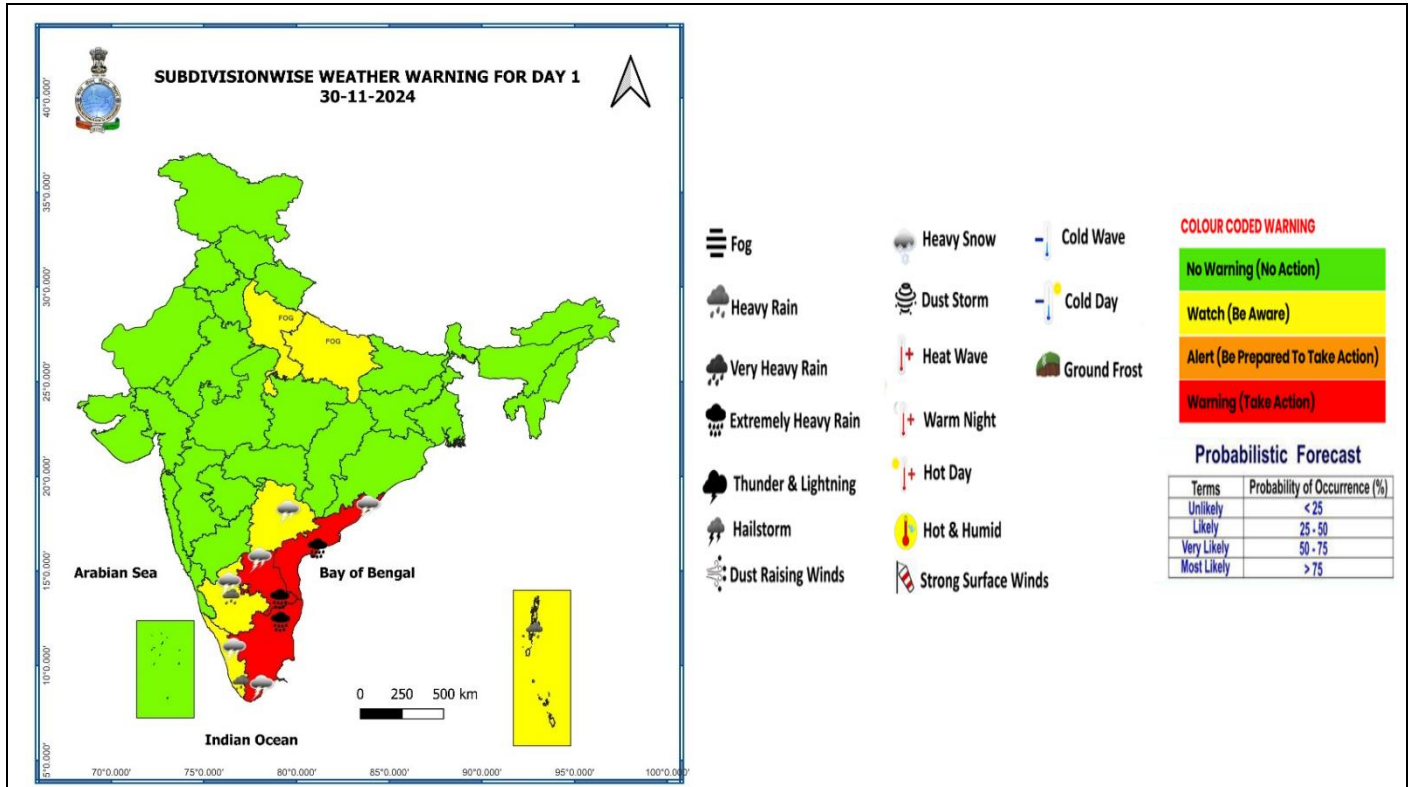
DATE/TIME : IN UTC
 IST : UTC + 0530
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
 LPA : LOW PRESSURE AREA
 WML : WELL MARKED LOW PRESSURE AREA
 D : DEPRESSION (17-27 KT)
 DD : DEEP DEPRESSION (28-33 KT)
 CS : CYCLONIC STORM (34-47 KT)
 SCS : SEVERE CYCLONIC STORM (48-63 KT)
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuCS : SUPER CYCLONIC STORM (≥ 120 KT)

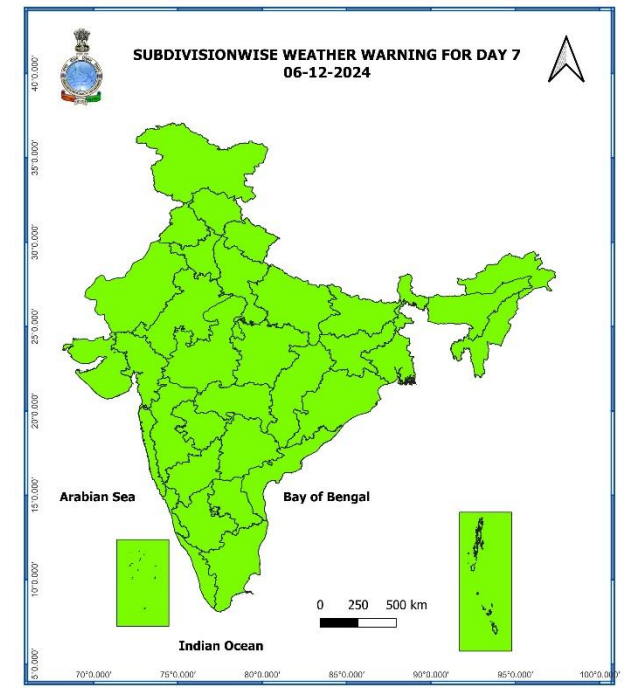
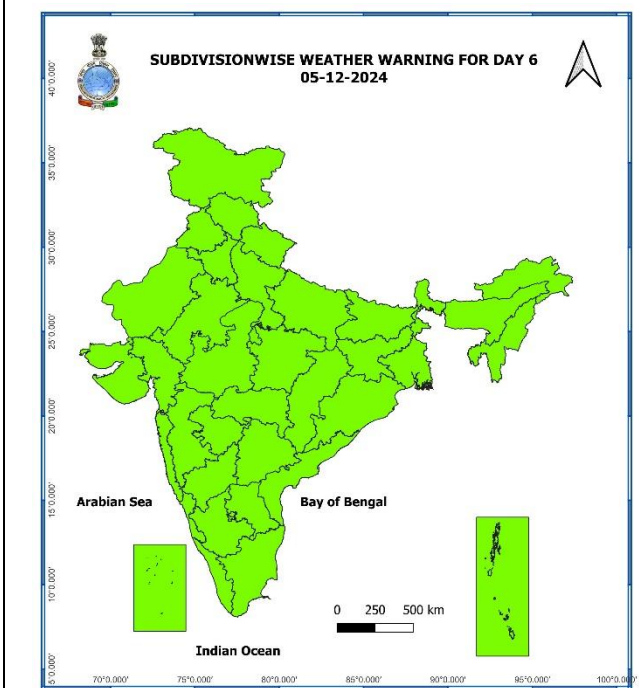
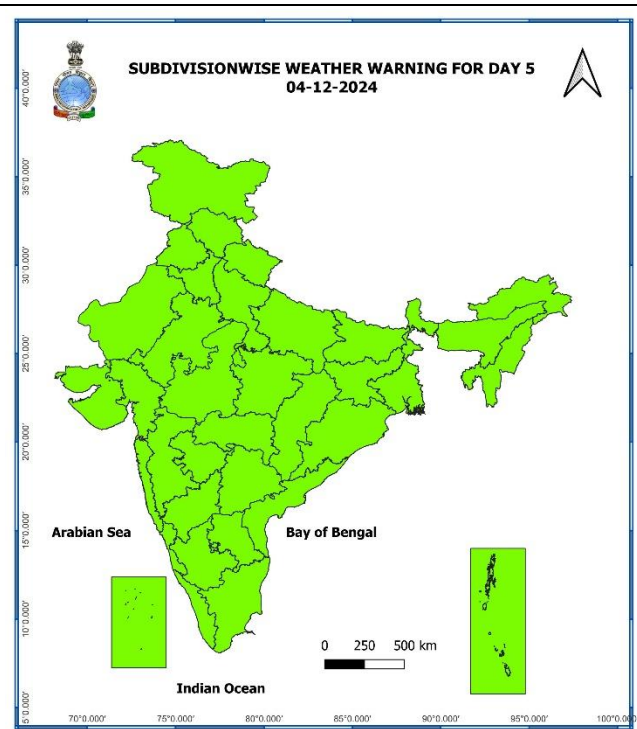
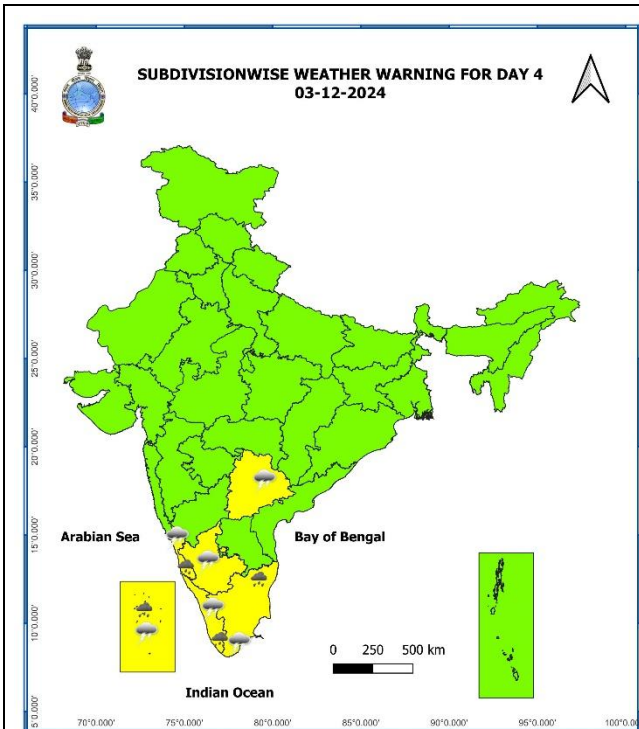
● LESS THAN 34 KT
 ⚡ 34-47 KT
 ⚡⚡ ≥ 48 KT
 — OBSERVED TRACK
 — FORECAST TRACK
 ◀ CONE OF UNCERTAINTY
 AREA OF MAXIMUM SUSTAINED WIND SPEED:
 ■ 28-33 KT (52-61 KMPH)
 ■ 34-49 KT (62-91 KMPH)
 ■ 50-63 KT (92-117 KMPH)
 ■ ≥ 64 KT (≥ 118 KMPH)

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

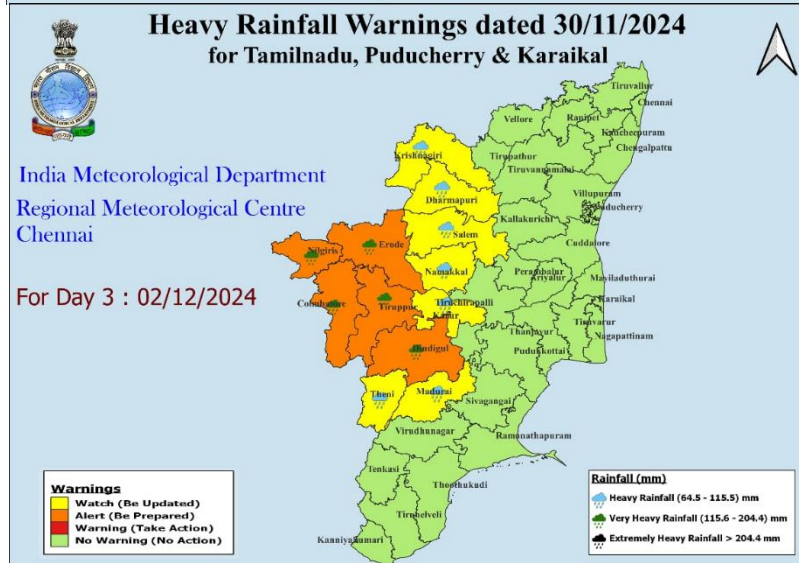
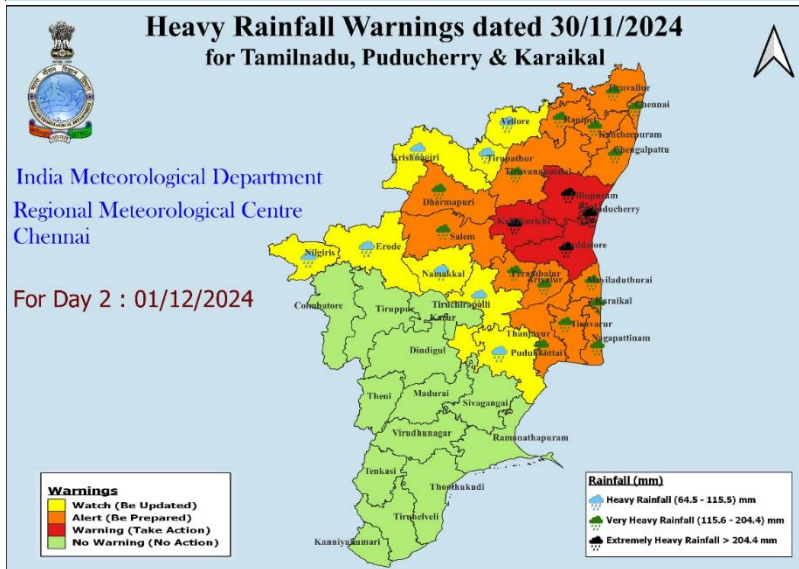
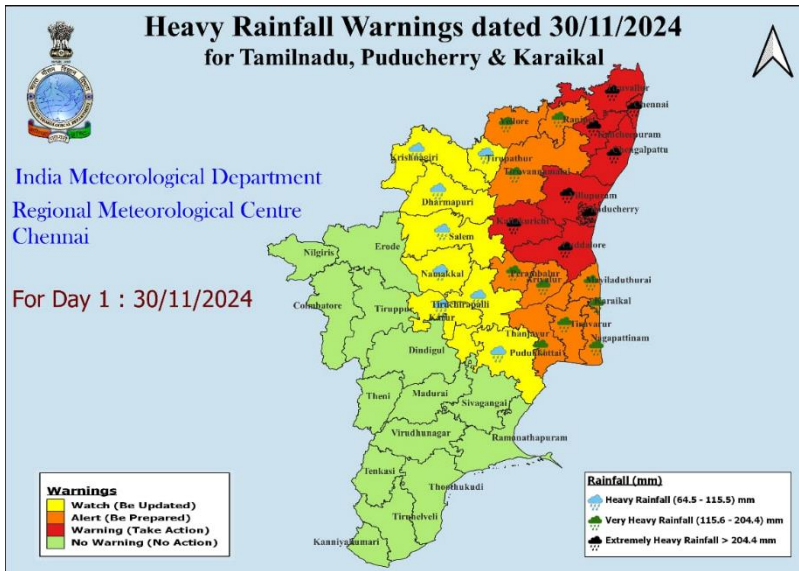
Weather Warning Graphics





- 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

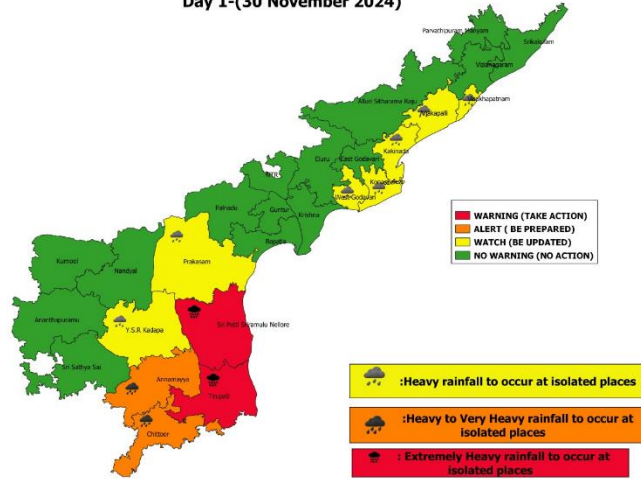


Rainfall warnings for Andhra Pradesh and Yanam.
Valid from 1300 hrs IST of 30.11.2024 to 0830 hrs IST of 01.12.2024

Date of Issue:- 30 November 2024



Day 1-(30 November 2024)

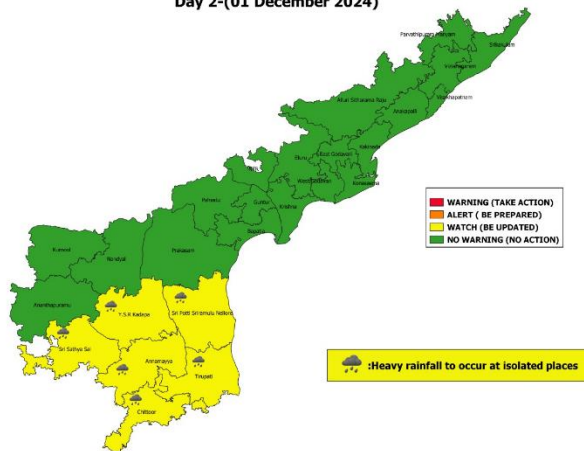


Rainfall warnings for Andhra Pradesh and Yanam.
Valid from 0830 hrs IST of 01.12.2024 to 0830 hrs IST of 02.12.2024

Date of Issue:- 30 November 2024

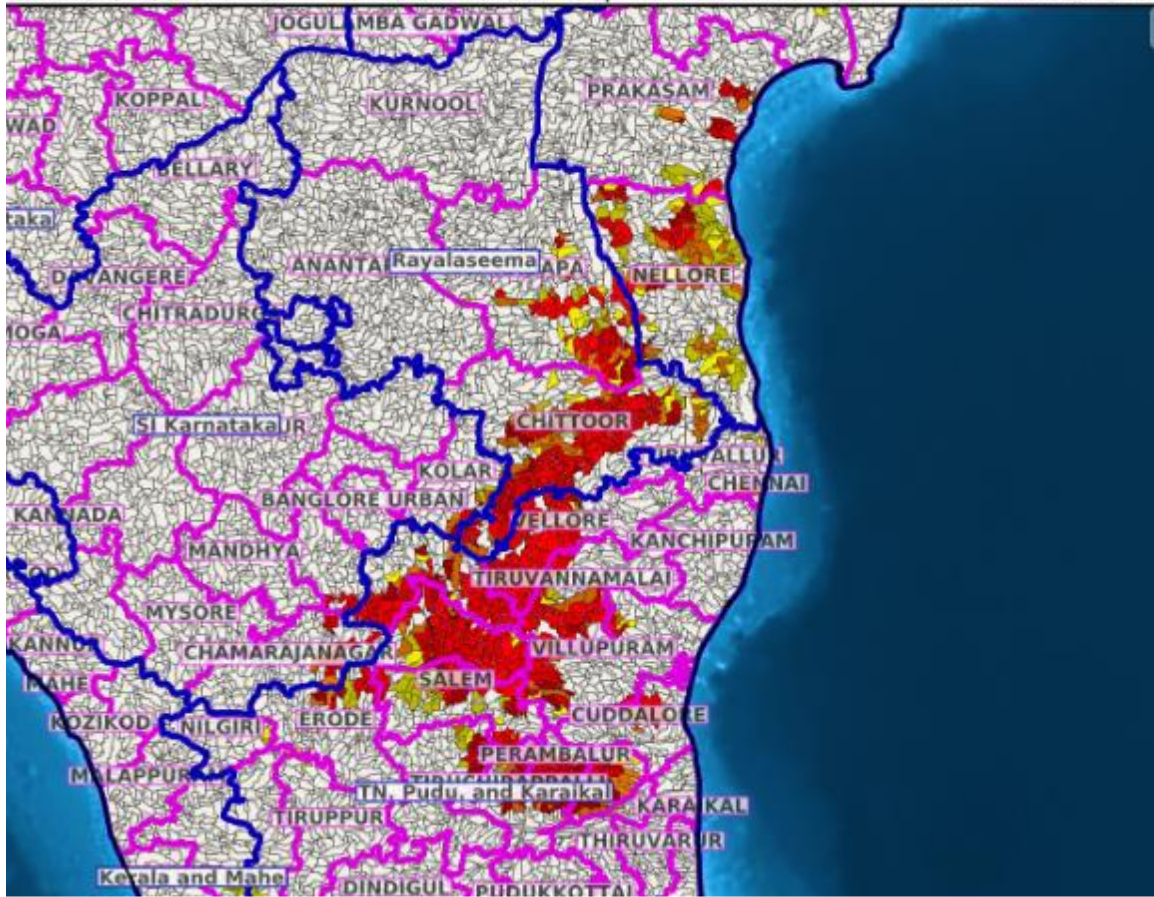


Day 2-(01 December 2024)



Flash Flood Guidance

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



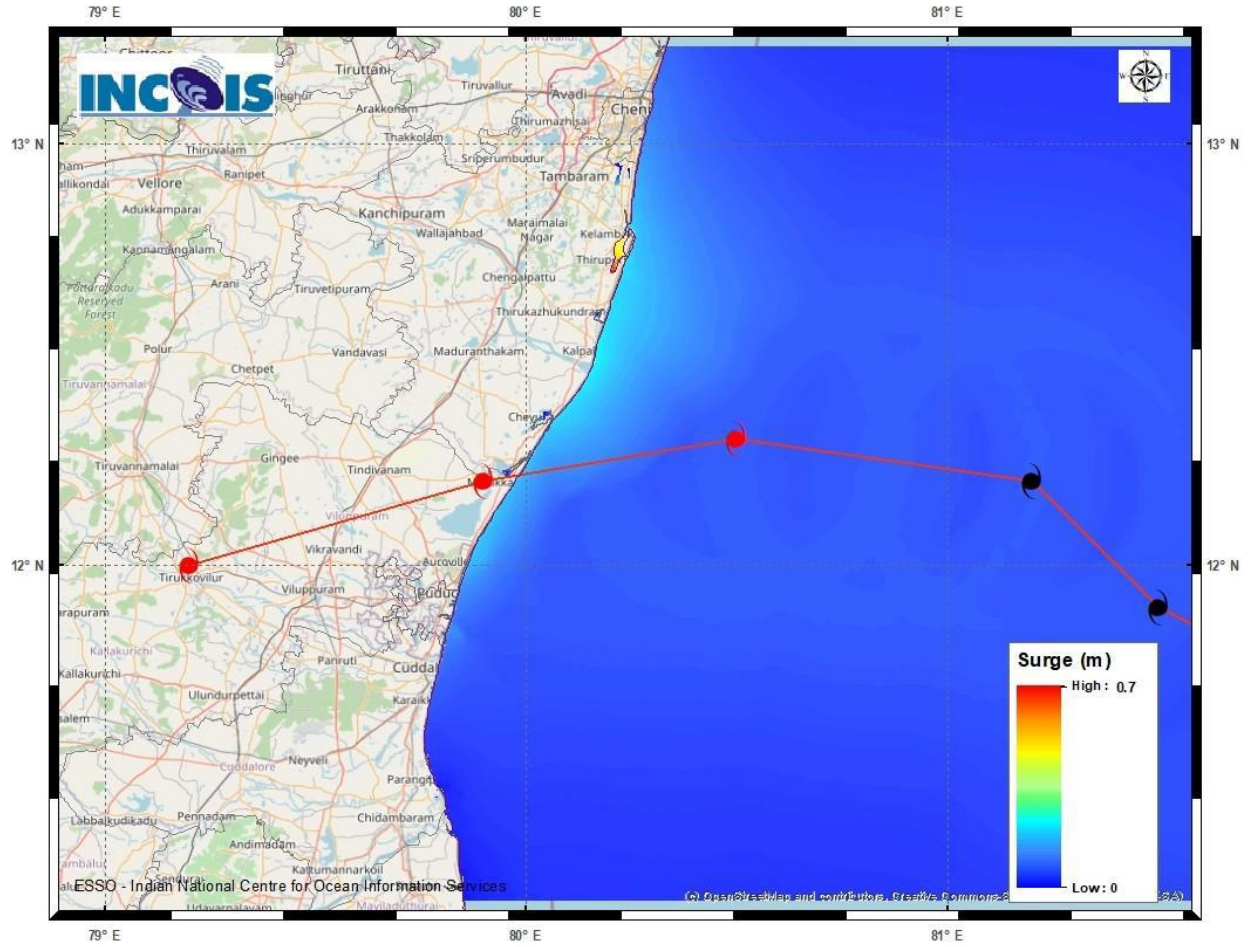
Flash Flood Risk

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

