



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

**NATIONAL BULLETIN NO. 30 (BOB/07/2024)**

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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 10 kmph during past 6 hours and lay centred at 1130 hours IST of today, the 30<sup>th</sup> November 2024 over the same region near latitude 12.3°N and longitude 80.7°E, about 100 km east-northeast of Puducherry, 100 km southeast of Chennai, 190 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. There is a possibility of slow movement of the system while approaching the coasts.

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

| <b>Date/<br/>Time (IST)</b> | <b>Position<br/>(Lat. °N/ long. °E)</b> | <b>Maximum sustained surface<br/>wind speed (Kmph)</b> | <b>Category of cyclonic<br/>disturbance</b> |
|-----------------------------|---|--|---|
| 30.11.24/1130               | 12.3/80.7                               | 75-85 gusting to 95                                    | Cyclonic Storm                              |
| 30.11.24/1730               | 12.2/80.1                               | 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 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.

**Rayalaseema:** 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 1<sup>st</sup> December, **heavy to very heavy rainfall** at isolated places on 2<sup>nd</sup> & 3<sup>rd</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.
- **Coastal districts of north Tamil Nadu & south Andhra Pradesh:** Gale wind speed reaching 65-75 kmph gusting to 85 kmph is prevailing over coastal districts of Tamil Nadu (Tiruvallur, Chennai, Chengalpattu, Villupuram and Puducherry) and Andhra Pradesh (Tirupati and Nellore). It is likely to increase becoming 70-80 gusting to 90 kmph over coastal districts of Tamil Nadu (**Tiruvallur, Chennai, Chengalpattu, Villupuram, Puducherry Cuddalore, Mayiladuthurai and Nagappattinam**) and Andhra Pradesh (**Tirupati, Nellore and Prakasham**) from evening of 30<sup>th</sup> November. It is likely to decrease becoming squally wind speed reaching 50-60 kmph gusting to 70 kmph from morning of 1<sup>st</sup> 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 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) 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 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.

**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.

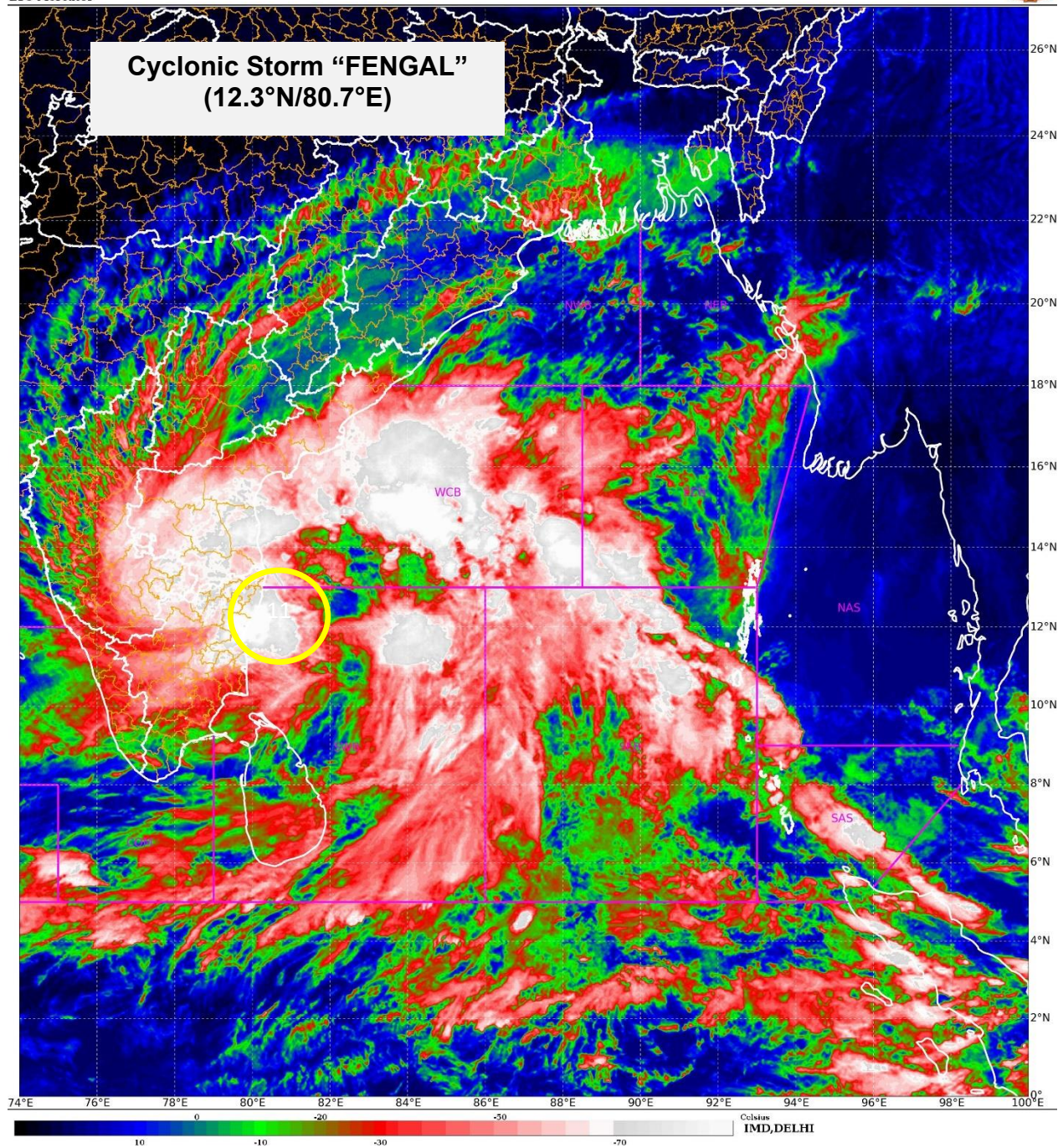
**Significant Rainfall (in cm) recorded during past 24 hours till 0830 hours IST of today, the 30<sup>th</sup> November, 2024 is given in Annexure-1.**

**Next bulletin will be issued at 1730 hours IST of today, the 30<sup>th</sup> November, 2024.**

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

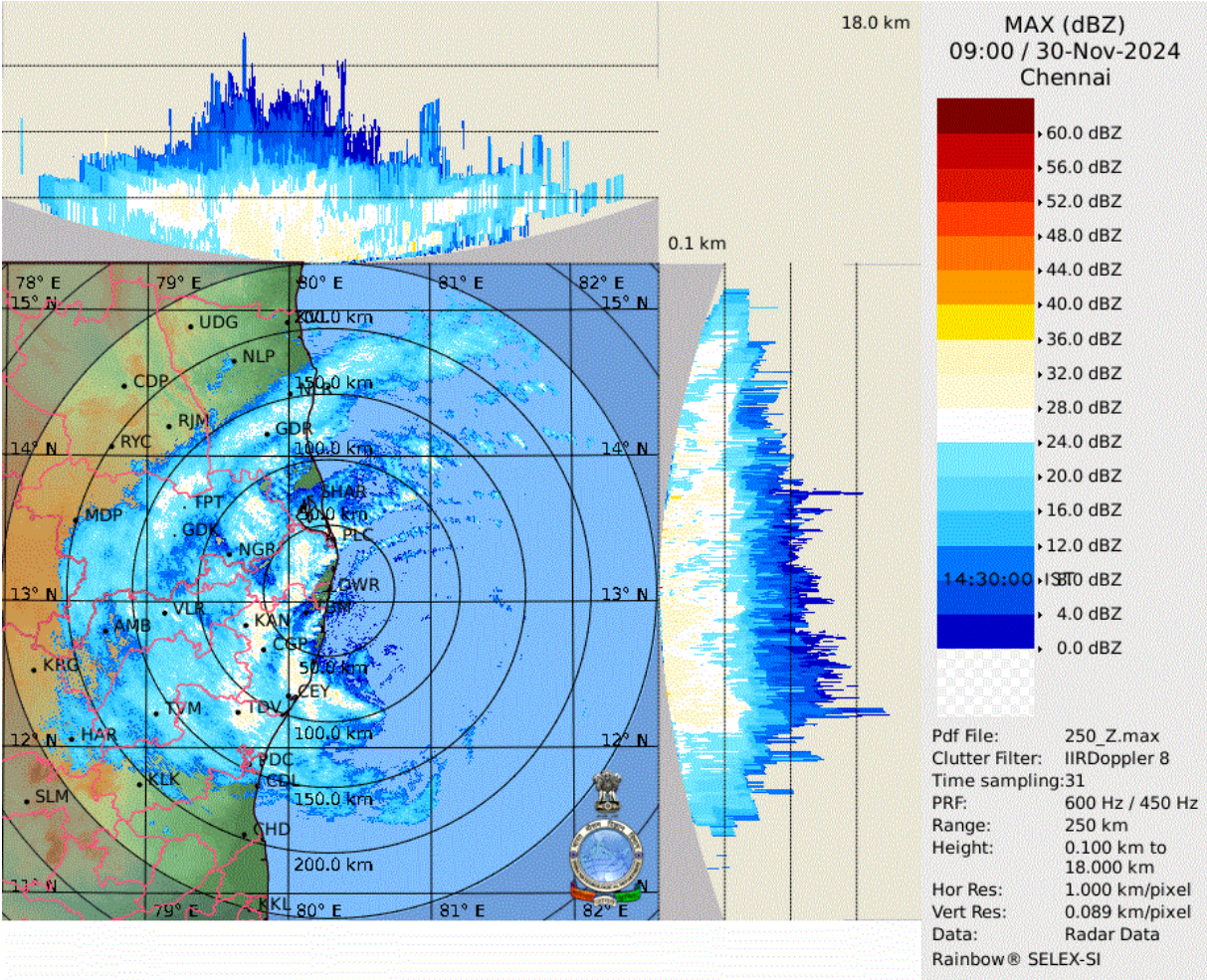
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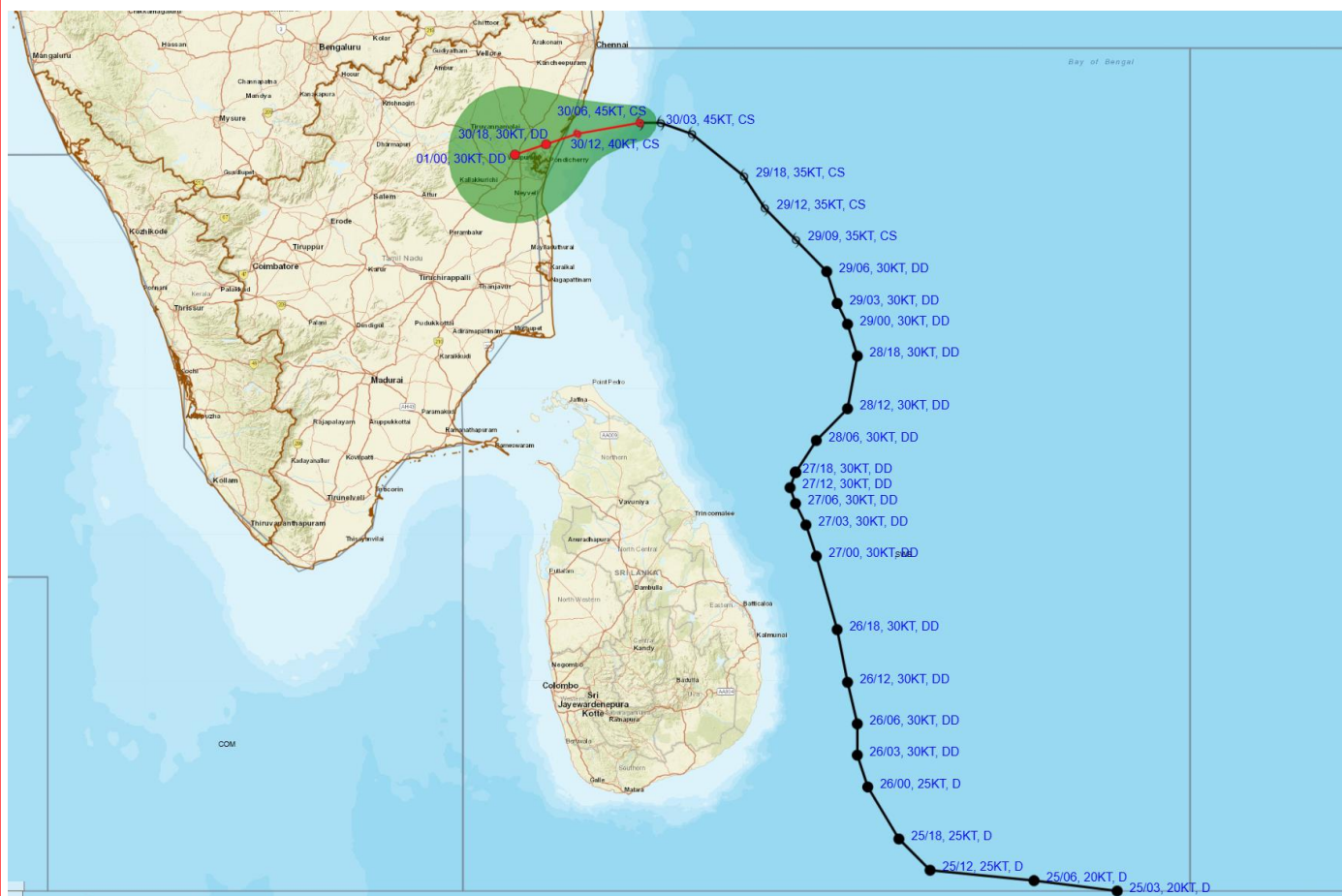


# Doppler Weather Radar Observation (Max Z) at Chennai





**OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY OF CYCLONIC STORM “FENGAL” OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 HRS. IST) OF 30<sup>TH</sup> NOVEMBER, 2024.**



DATE/TIME : IN UTC  
IST : UTC + 0530  
KT : NAUTICAL MILE/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)  
E SCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

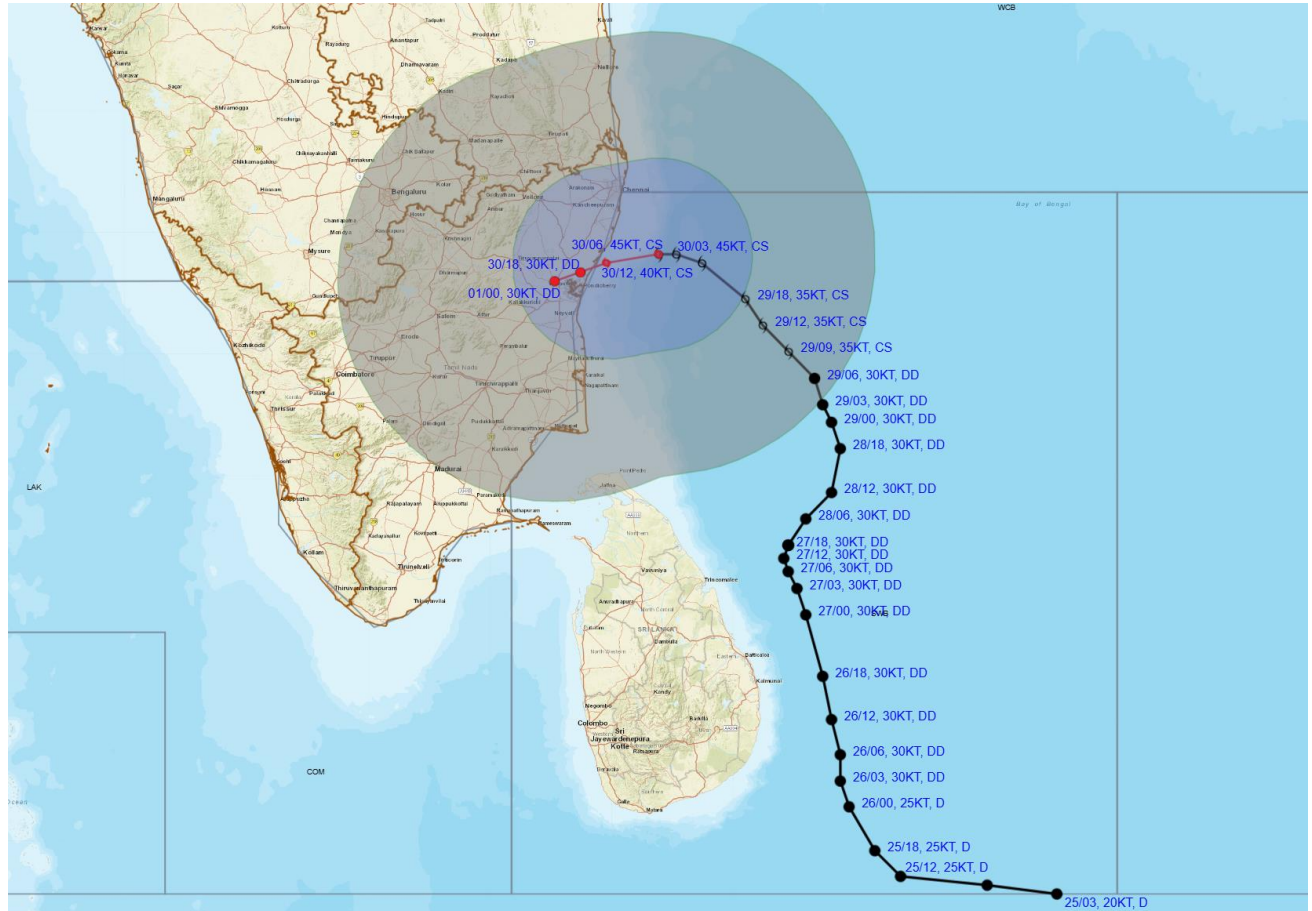
● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
● CONE OF UNCERTAINTY

| Forecast            | DISTANCE (KM) AND DIRECTION FROM STATIONS |                |               |             |
|---------------------|---|----------------|---------------|-------------|
| Date and Time (UTC) | CHENNAI/MINAMB<br>AKKAM                   | MO PONDICHERRY | NAGAPPATTINAM | TRINCOMALEE |
| 30.11.24/0600       | 100, SE                                   | 100, ENE       | 190, NNE      | 420, N      |
| 30.11.24/1200       | 90, S                                     | 40, NE         | 160, N        | 420, NNW    |
| 30.11.24/1800       | 110, SSW                                  | 10, N          | 150, N        | 420, NNW    |
| 01.12.24/0000       | 130, SW                                   | 30, W          | 140, NNW      | 430, NNW    |





**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM “FENGAL” OVER SOUTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 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 (≥120 KT)

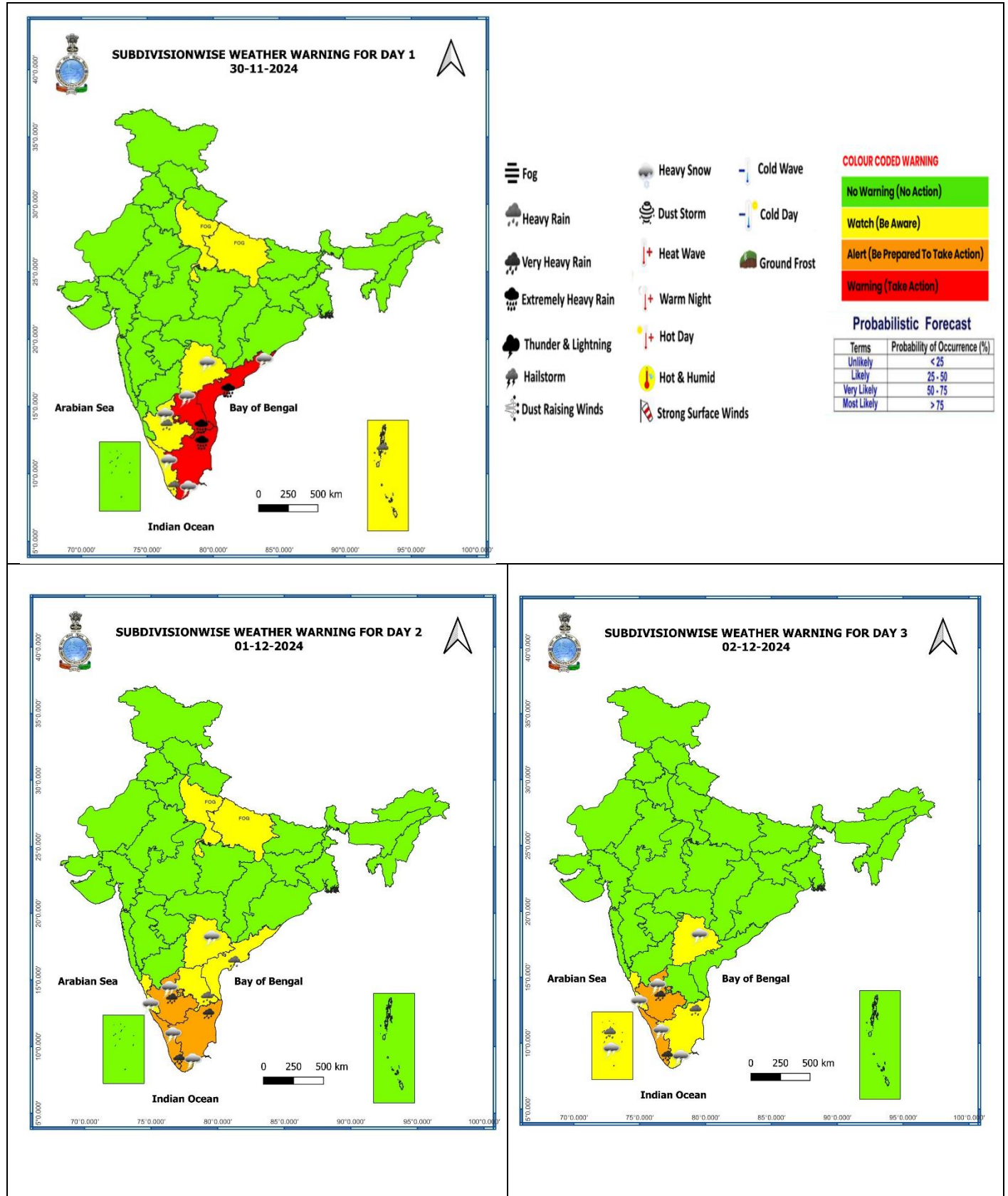
● LESS THAN 34 KT  
 ○ 34-47 KT  
 ○ ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

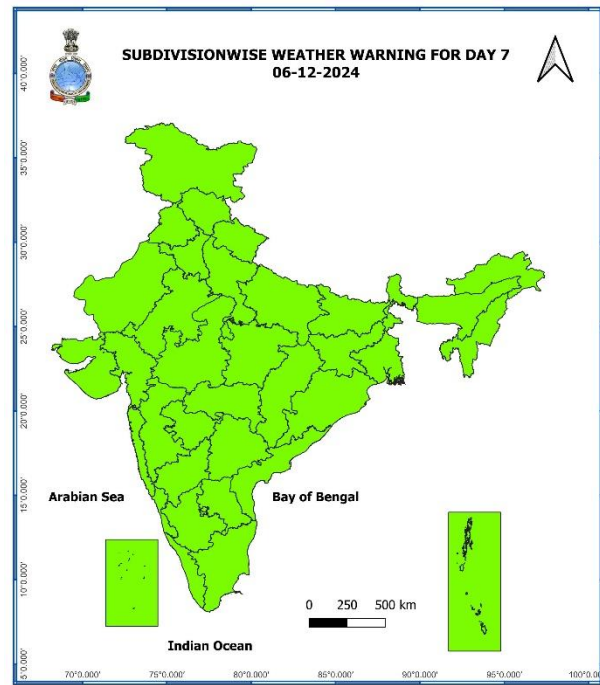
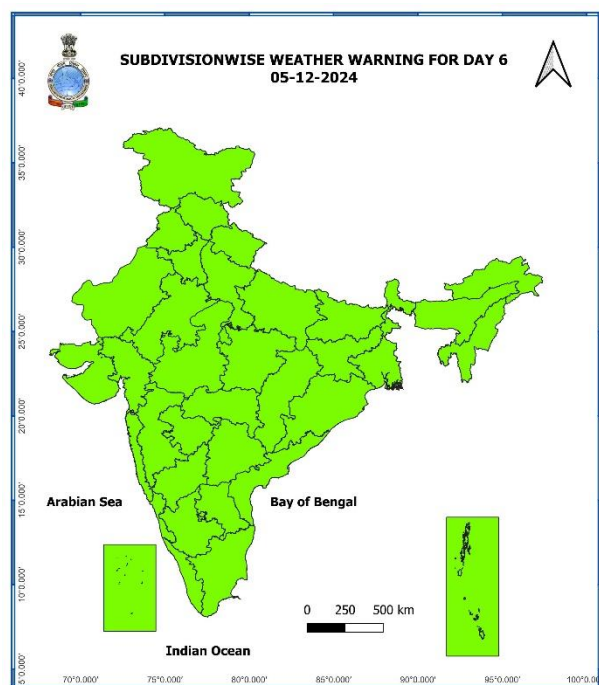
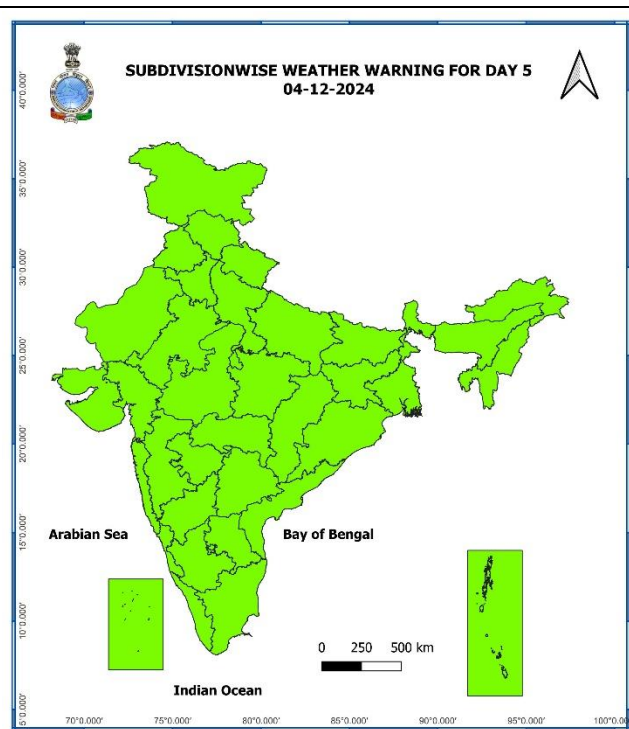
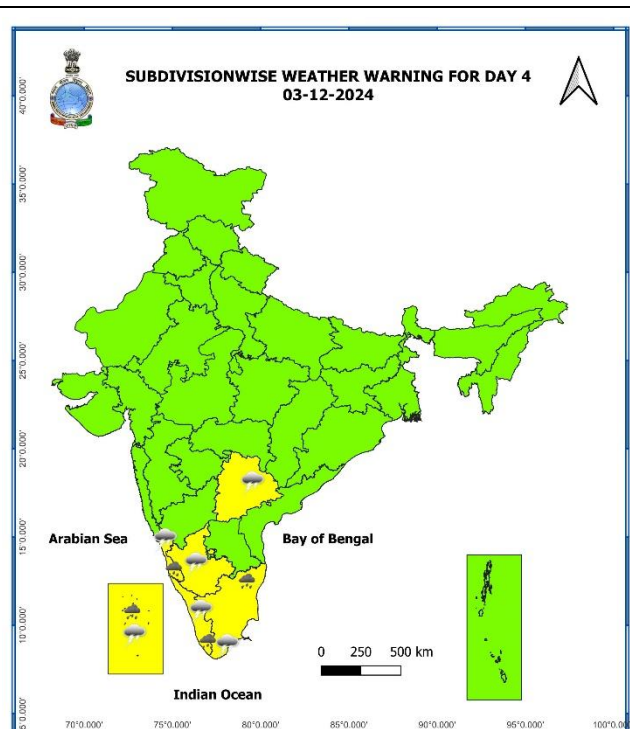
**IMPACT OVER THE SEA**

| 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 |



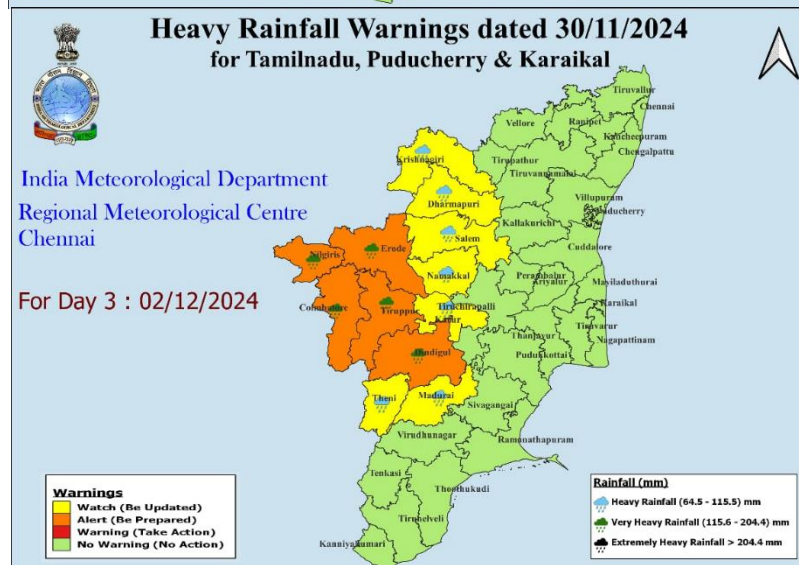
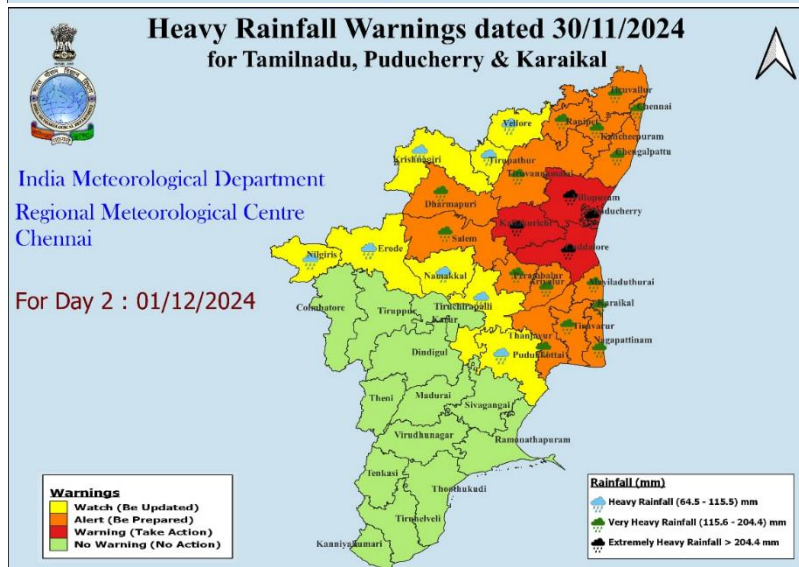
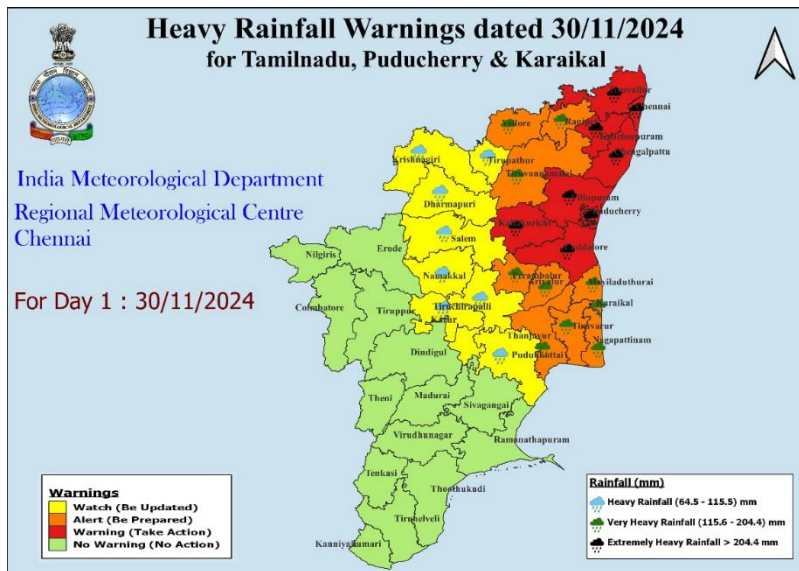
## Weather Warning Graphics





- 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





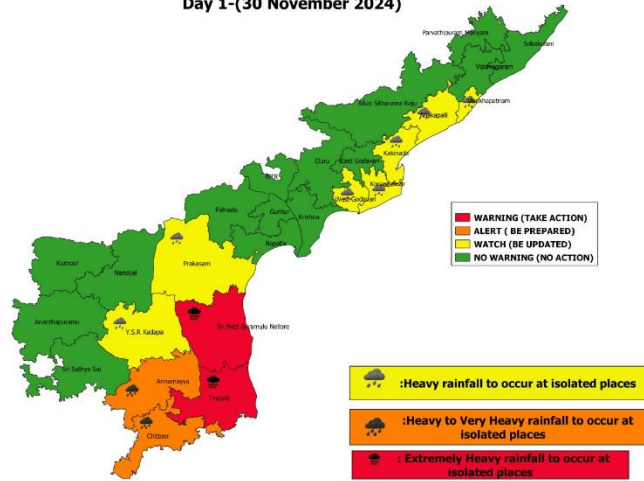
# District-Wise Warning Graphics of Andhra Pradesh



**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

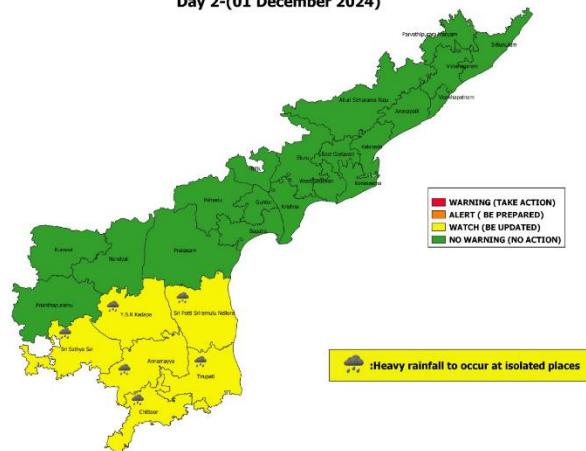
Day 1-(30 November 2024)



**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)



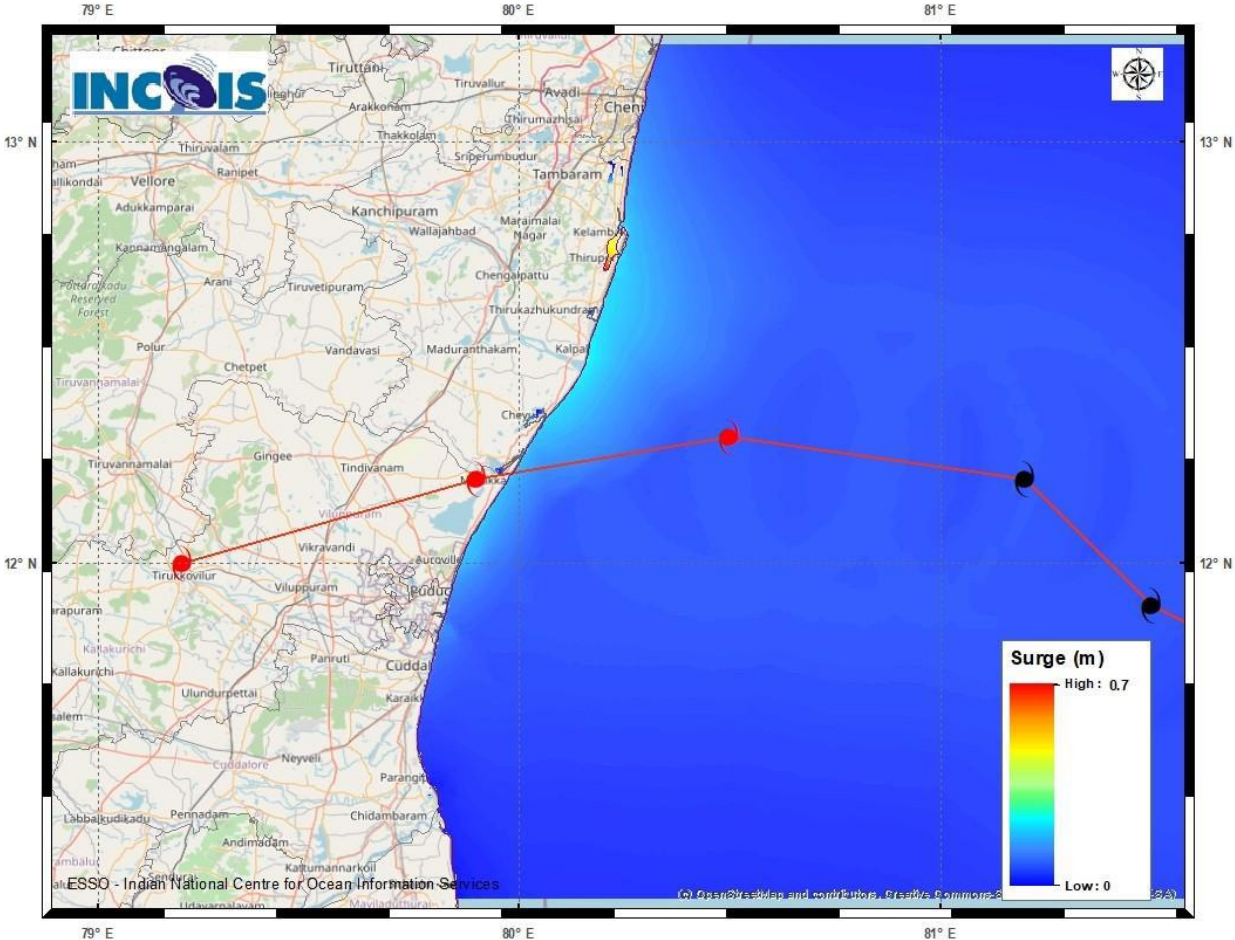
## 2

The map displays the Eastern Ghats region in South India, with various districts and cities labeled. The region is characterized by red and yellow shaded areas. Key districts include ANANTAPUR, Rayalaseema, KADAPA, NELLORE, CHITTOOR, KUDLUR, CHENNAI, KANCHIPURAM, TIRUVANNAMALAI, VILLUPURAM, CUDDALORE, PERAMBALUR, ARYALUR, KARAIKAL, THIRUVARUR, NAGAPATTINAM, PUDUKKOTTAI, DINDIGUL, KARUR, TIRUPPUR, ALAKKAD, NILGIRI, CHAMARAJANAGAR, SORE, MANDHYA, RAMNAGAR, BANGLORE URBAN, BANGLORE RURAL, KOLAR, CHIKBALLAPUR, and SI Karnataka. Major cities like Chennai, Bangalore, and Coimbatore are also marked. An inset map in the top right corner shows the location of the Eastern Ghats within India and its proximity to neighboring countries like Nepal and Bangladesh. A scale bar indicates 50 km.

|   |                                    |
|---|------------------------------------|
| <b>Flash Flood Risk</b>   |                                    |
|  | <b>High Risk (Take Action)</b>     |
|  | <b>Moderate Risk (Be Prepared)</b> |
|  | <b>Low Risk (Be Updated)</b>       |



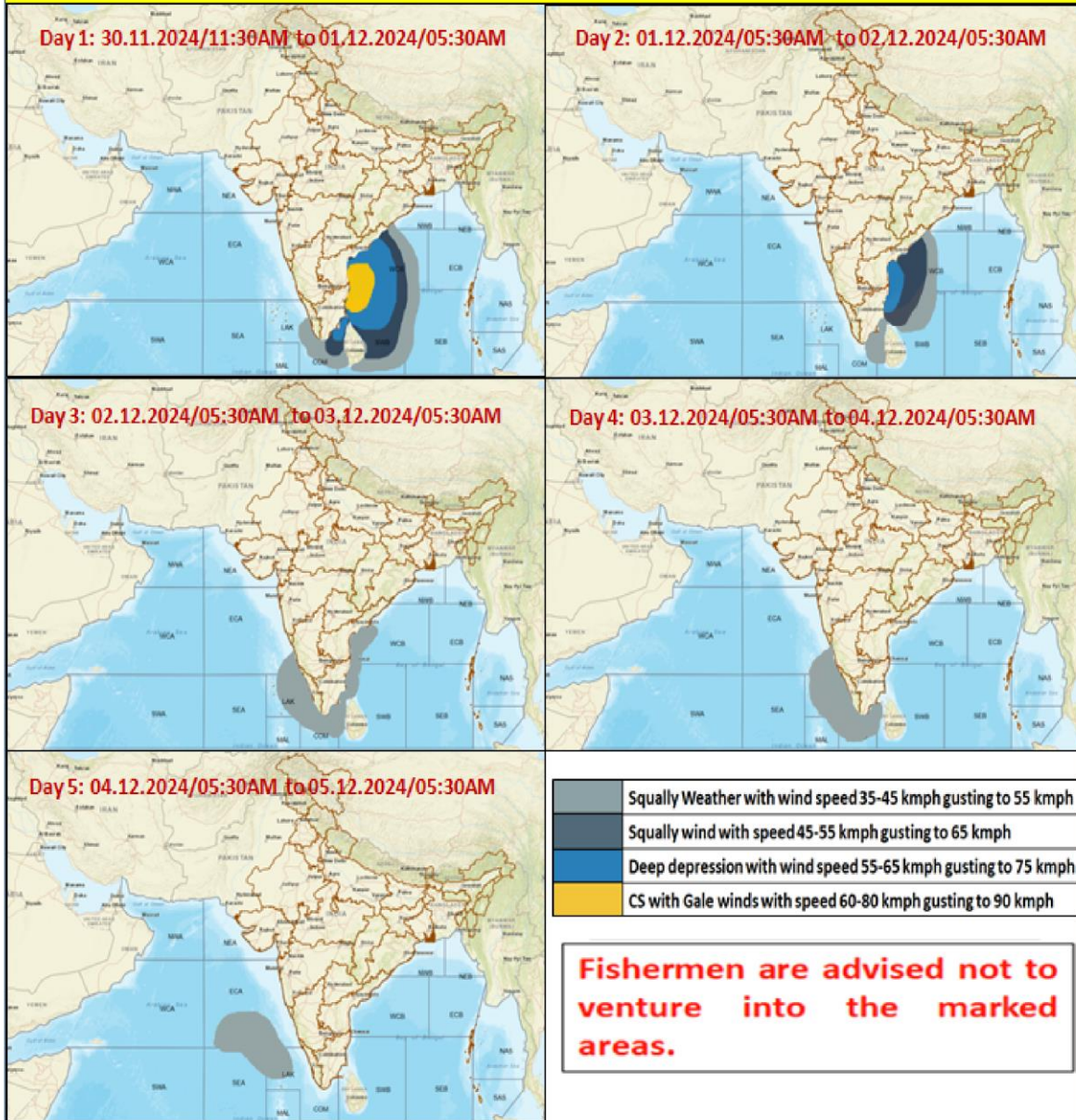
Storm Surge graphics



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



## 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, Kathivakkam (Chennai) 12, Thiruvottiyur (Chennai), Tondiarpet (Chennai), Sholinganallur (Chennai), CD Hospital Tondiarpet (Chennai), Basin Bridge (Chennai) 9 each, Ponneri (Tiruvallur), Manali (Chennai), Ice House (Chennai), Chennai (N) (Chennai), Chennai Central (Chennai) 8 each, Adyar (Chennai), Alandhur (Chennai), Kolathur (Chennai), Nandnam (Chennai), Madhavaram (Chennai), Anna University (Chennai), Chennai Collector Office (Chennai), DGP Office (Chennai), Sholinganallur (Chennai), Puzhal (Chennai), Hindustan\_University (Chengalpattu), Manali New Town (Chennai), Vadapalani (Chennai) 7 each;

### **Rayalaseema:**

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

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

Nellore (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 (Idukki) 1