



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

NATIONAL BULLETIN NO. 23 (BOB/07/2024)

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

The Deep Depression over Southwest Bay of Bengal moved north-northwestwards with a speed of 13 kmph during past 6 hours, intensified into a cyclonic storm "**FENGAL**" [pronounced as **FEINJAL**] and lay centred at 1430 hours IST of today, the 29th November 2024 over the same region near latitude 11.2°N and longitude 82.2°E, about 310 km north-northeast of Trincomalee, 260 km east of Nagappattinam, 270 km east-southeast of Puducherry and 300 km southeast of Chennai.

It is likely to move west-northwestwards 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 afternoon of 30th November.

The system is being continuously monitored.

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
29.11.24/1430	11.2/82.2	60-70 gusting to 80	Deep Depression
29.11.24/1730	11.4/81.9	60-70 gusting to 80	Cyclonic Storm
29.11.24/2330	11.6/81.5	65-75 gusting to 85	Cyclonic Storm
30.11.24/0530	11.8/80.9	70-80 gusting to 90	Cyclonic Storm
30.11.24/1130	11.9/80.3	70-80 gusting to 90	Cyclonic Storm
30.11.24/2330	12.1/79.1	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 with extremely falls at isolated places over north Tamil Nadu – Puducherry is likely on 29th November; 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 at isolated places is likely over south coastal Andhra Pradesh on 29th November; 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.

Royalaseema: Light to moderate rainfall at many places with heavy to very heavy rainfall with extremely heavy rainfall at isolated places is likely on 29th & 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 30th November, heavy to very heavy rainfall at isolated places on 01st & 2nd December.

(ii) Wind warning:

- **Southwest Bay of Bengal:** Gale wind speed reaching 60-70 kmph gusting to 80 kmph is prevailing over southwest Bay of Bengal. It is likely to increase becoming 70-80 kmph gusting to 90 kmph from morning till afternoon of 30th November. Thereafter, it is likely to decrease becoming 55-65 kmph gusting to 75 kmph by evening of 30th November.
- **Adjoining areas of westcentral Bay of Bengal:** Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail over adjoining areas of westcentral Bay of Bengal till evening of 30th November. It is likely to decrease thereafter.
- **Along & off North Tamil Nadu – Puducherry and adjoining South Andhra Pradesh coasts:** Squally wind speed reaching 50-60 kmph gusting to 70 kmph is prevailing along & off **North Tamil Nadu - Puducherry and adjoining South Andhra Pradesh coasts**. It is likely to increase becoming Gale wind speed reaching 60-70 kmph gusting to 80 kmph from evening of 29th and 70-80 kmph gusting to 90 kmph from 30th November morning to evening of 30th November. It is likely to decrease thereafter.
- **Costal districts of north Tamil Nadu & south Andhra Pradesh:** Squally wind speed reaching 40-50 kmph gusting to 60 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 Gale wind speed reaching 60-70 kmph gusting to 80 kmph from evening of 29th and 70-80 kmph gusting to 90 kmph over costal districts of Tamil Nadu (**Tiruvallur, Chennai, Chengalpattu, Villupuram, Puducherry Cuddalore, Mayiladuthurai and Nagappattinam**) and Andhra Pradesh (**Tirupati, Nellore and Prakasham**) from 30th November morning to evening of 30th November. It is likely to decrease thereafter.
- **Along & off East Sri Lanka coasts:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail **Along & off East Sri Lanka coasts** till 29th November. It would 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 30th 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 30th November. It will gradually improve becoming Very rough to rough from night of 30th November.

(iv) Flash Flood Guidance:

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 30-11-2024:

Moderate to high flash flood risk likely over few watersheds & neighbourhoods of following Meteorological subdivision in next 24 hours.

Coastal Andhra Pradesh – Tirupati and Nellore district

Rayalaseema – Chittoor, Annamaya and Kadapa district

Tamil Nadu, Puducherry & Karaikal - Chennai, Kanchipuram, Villupuram, Cuddalore, Vellore, Tiruvannamalai and Tiruvallur 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:

Storm surge of about 1 metre height above the astronomical tide is likely 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:

- 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 evening.
- Fishermen out at sea are advised to return to coast.

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

- 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.
- Minor damage to kutcha roads.
- Damage to horticulture and standing crops in some areas due to inundation.
- Partial disruption of power and communication lines.
- 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 30th November evening.
- 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.

(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.

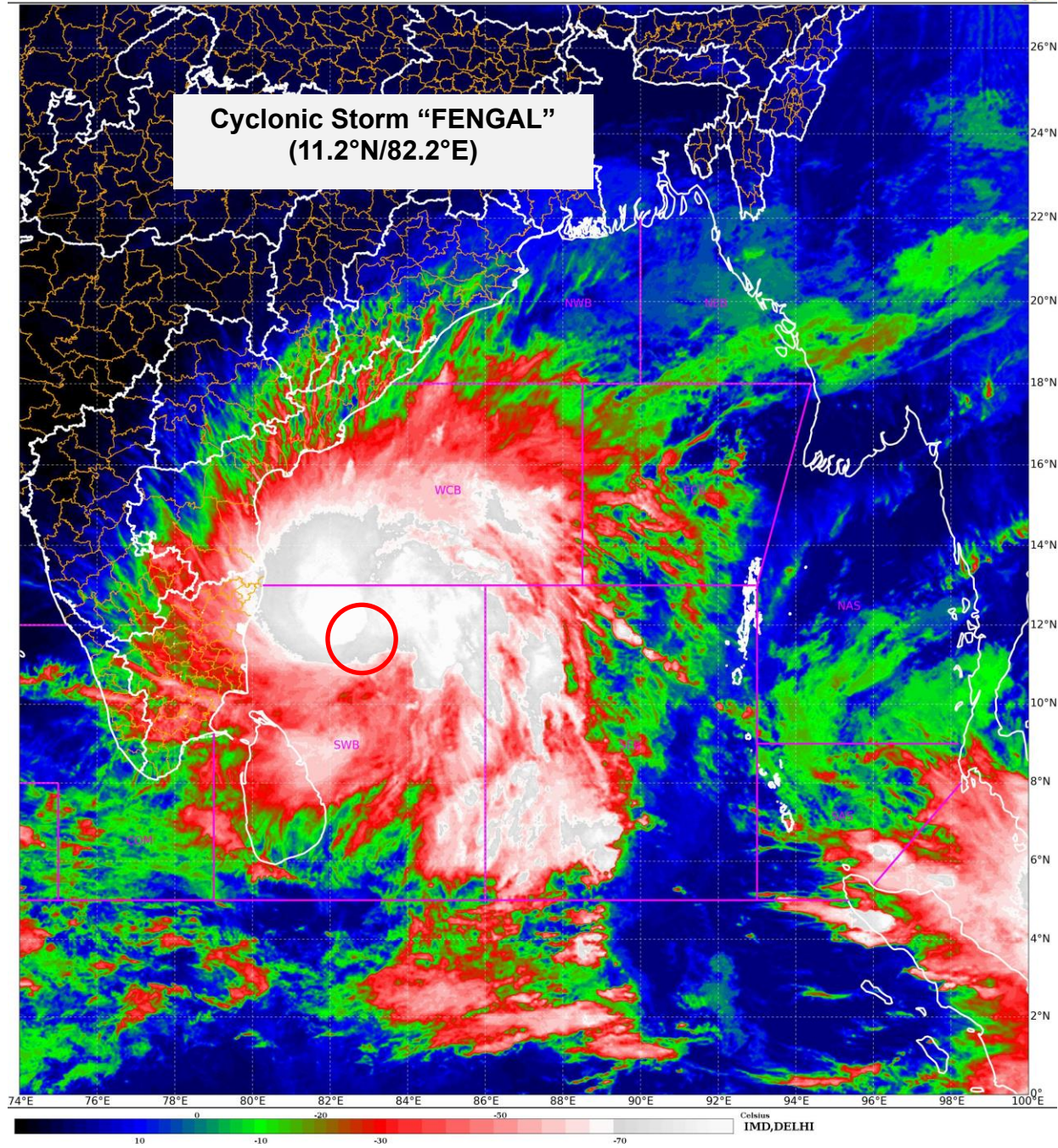
- Make arrangements to drain out excess water from the standing crop fields and fruit orchards in Kerala and Coastal Andhra Pradesh.
- Harvest the matured crops and keep it in safe place.
- Provide mechanical support to horticultural crops and staking to vegetables.

Next bulletin will be issued at 2030 hours IST of 29th November, 2024.

(AK Das)

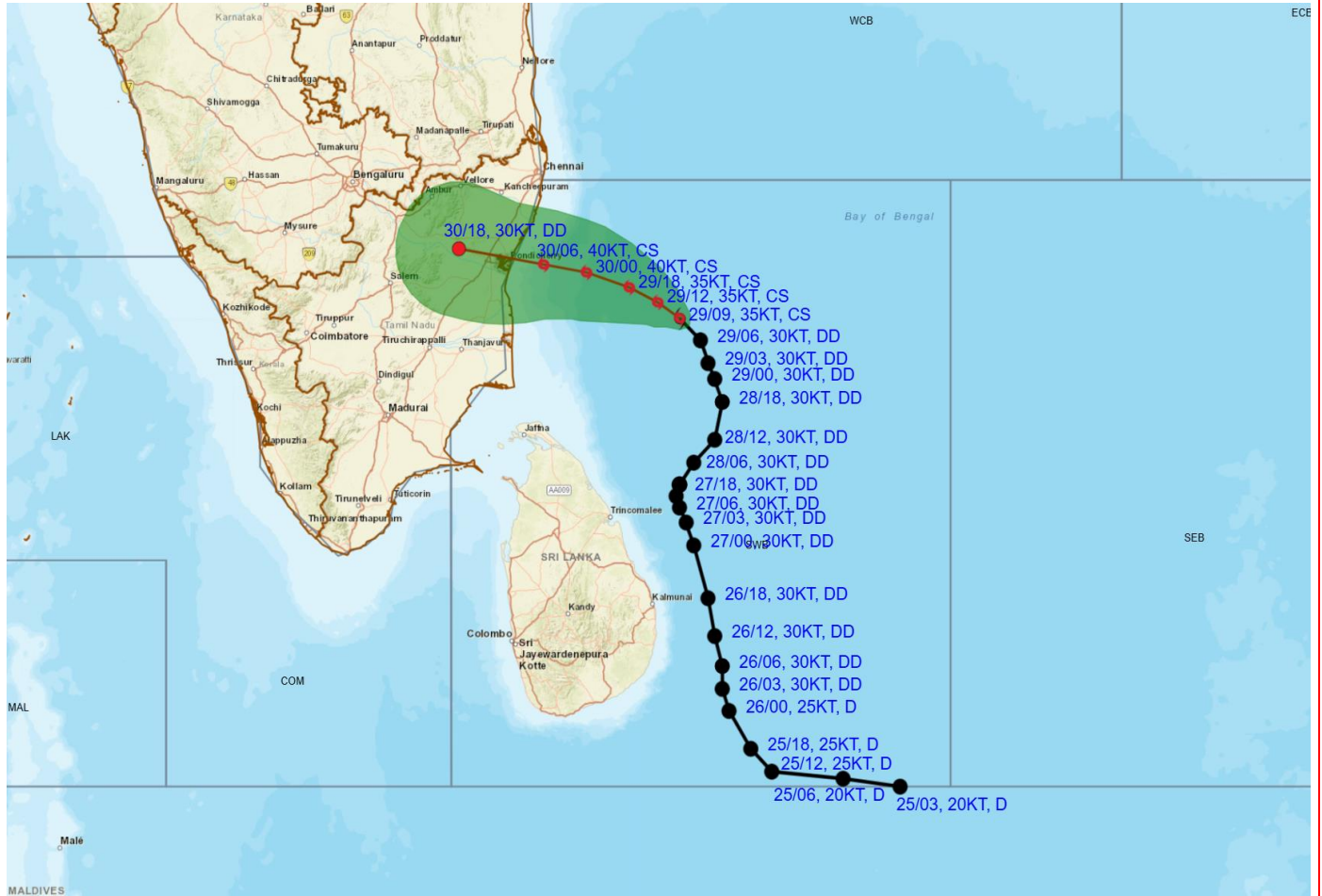
Scientist F, RSMC, New Delhi

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





OBSERVED AND FORECAST TRACK ALONG WITH CONE OF UNCERTAINTY OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 0900 UTC (1430 HRS. IST) OF 29TH NOVEMBER, 2024



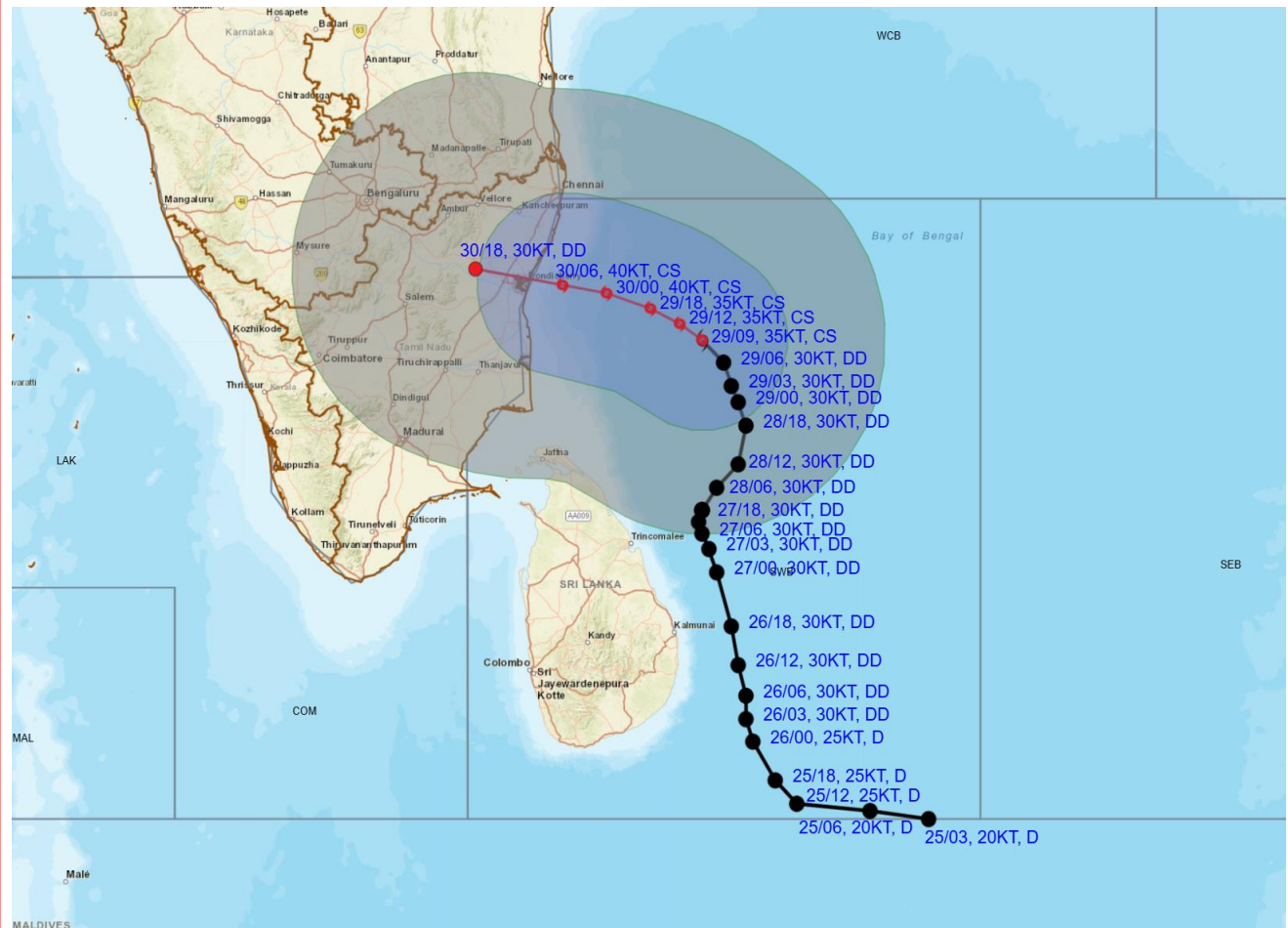
DATE/TIME : IN UTC
IST : UTC + 0530
KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
LPA : LOW PRESSURE AREA
WML : WELL MARKED LOW PRESSURE AREA
D : DEPRESSION (17-27 KT)
DD : DEEP DEPRESSION (28-33 KT)
CS : CYCLONIC STORM (34-47 KT)
SCS : SEVERE CYCLONIC STORM (48-63 KT)
VSCS : VERY SEVERE CYCLONIC STORM (64-89 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)	TRINCOMALEE	BATTICALOA	NAGAPPATTINAM	PUDUCHERRY	CHENNAI/MINAMBAKKAM
29.11.24/0900	310, NNE	390, N	260, E	270, ESE	300, SE
30.11.24/0600	380, NNW	490, NNW	140, NNE	50, E	120, S



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "FENGAL" OVER SOUTHWEST BAY OF BENGAL BASED ON 0900 UTC (1430 HRS. IST) OF 29TH NOVEMBER, 2024.



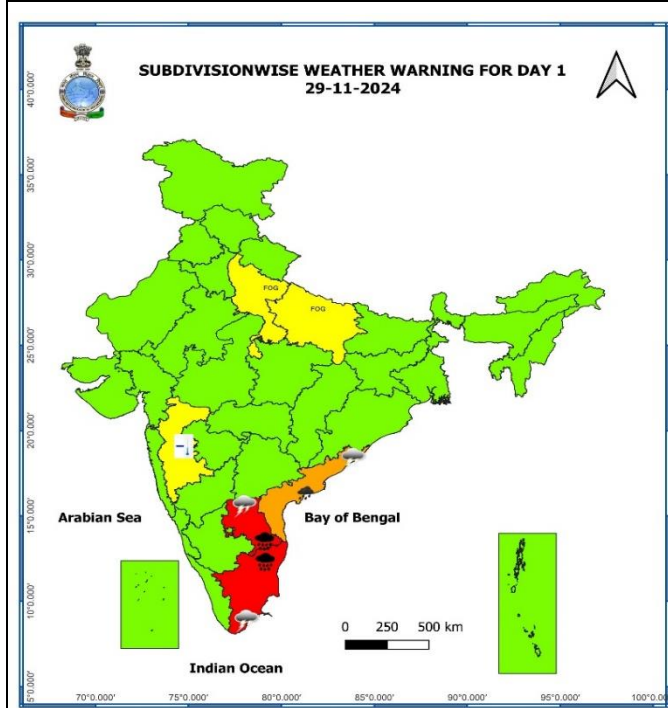
DATE/TIME : IN UTC
 IST : UTC + 0530
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
 LPA : LOW PRESSURE AREA
 WML : WELL MARKED LOW PRESSURE AREA
 D : DEPRESSION (17-27 KT)
 DD : DEEP DEPRESSION (28-33 KT)
 CS : CYCLONIC STORM (34-47 KT)
 SCS : SEVERE CYCLONIC STORM (48-63 KT)
 VSCS : VERY SEVERE CYCLONIC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



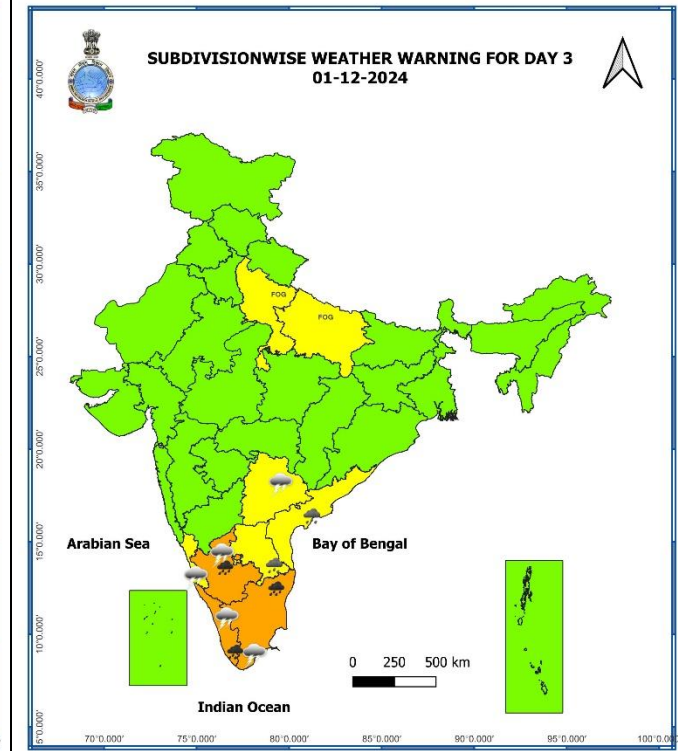
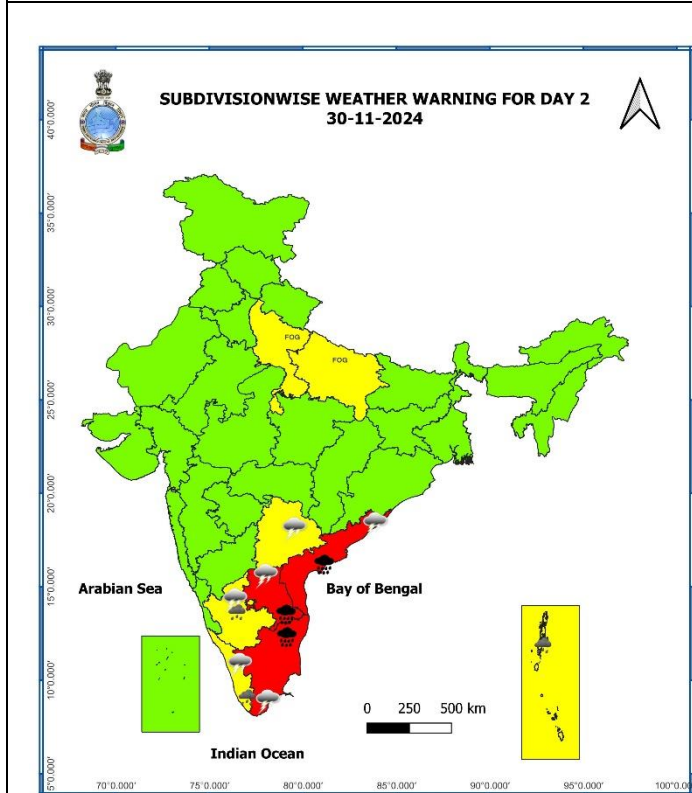
COLOUR CODED WARNING

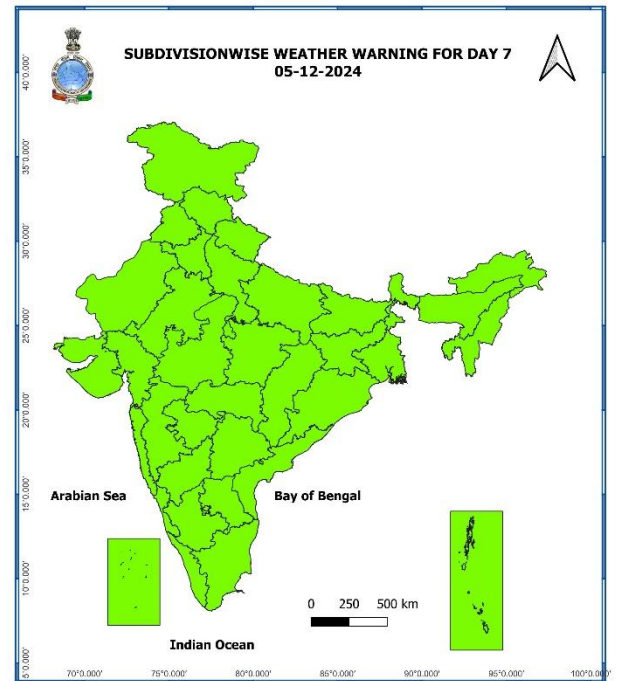
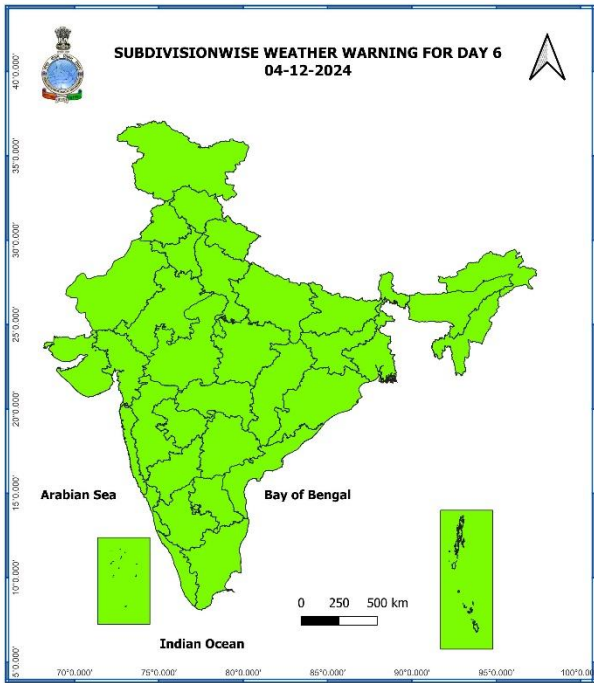
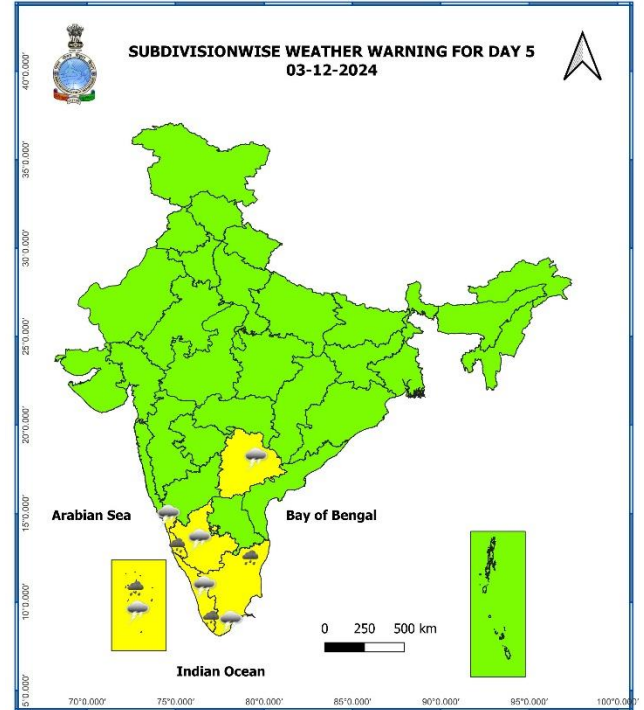
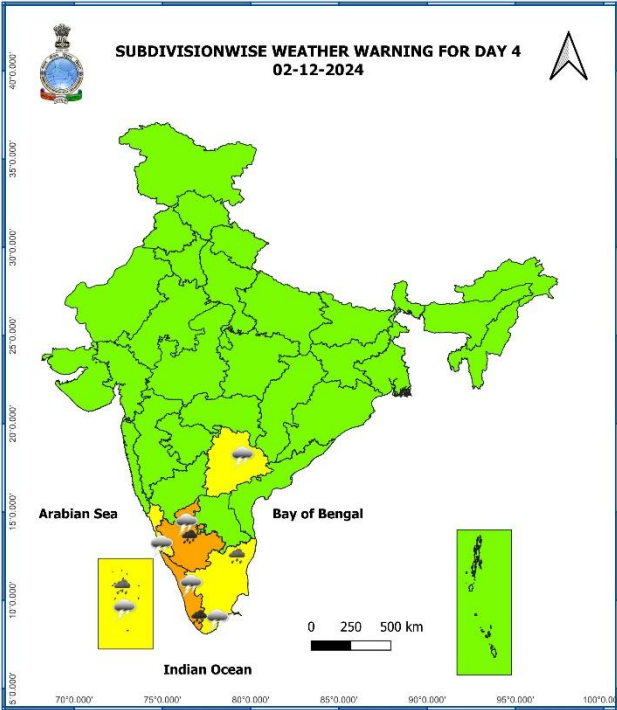
- No Warning (No Action)
- Watch (Be Aware)
- Alert (Be Prepared To Take Action)
- Warning (Take Action)

Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

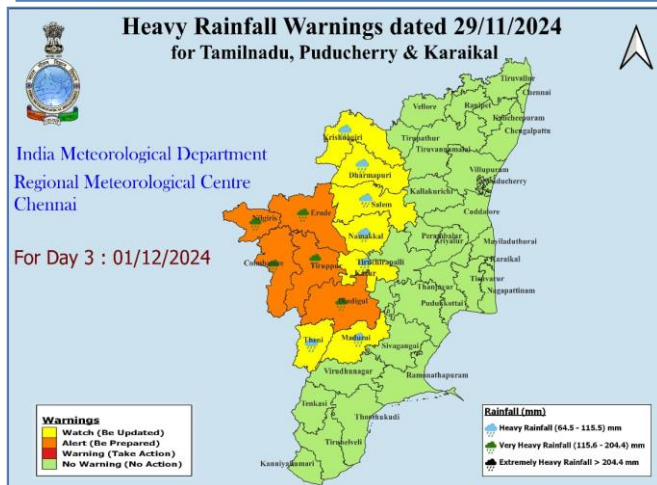
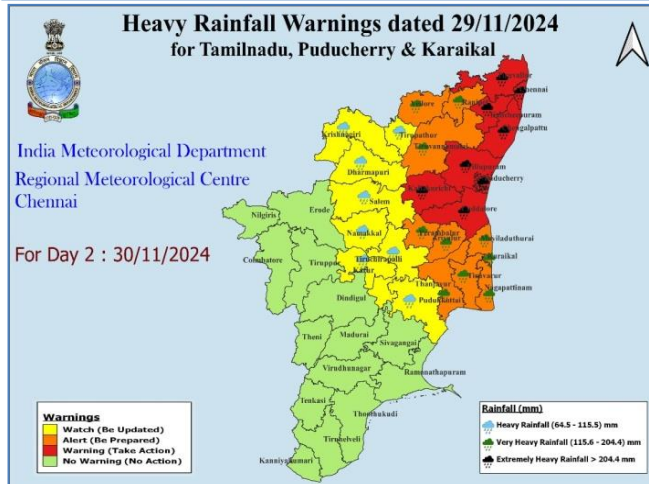
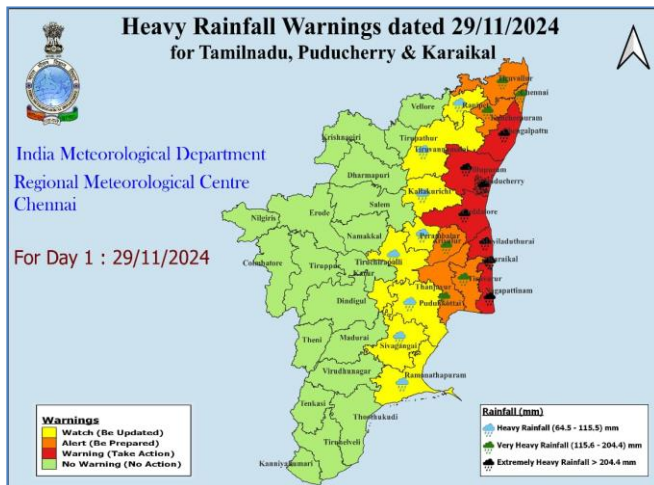
- Fog
- Heavy Rain
- Very Heavy Rain
- Extremely Heavy Rain
- Thunder & Lightning
- Hailstorm
- Dust Raising Winds
- Heavy Snow
- Dust Storm
- + Heat Wave
- + Warm Night
- + Hot Day
- Hot & Humid
- Cold Wave
- Cold Day
- Ground Frost
- Strong Surface Winds





- 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



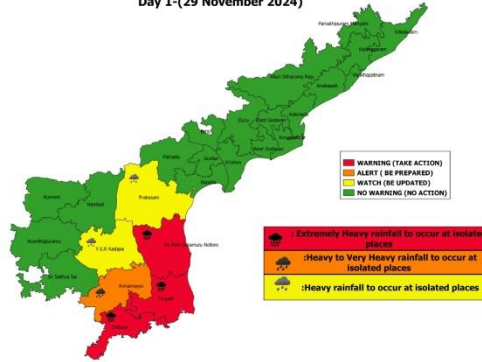
District-Wise Warning Graphics of Andhra Pradesh



Rainfall warnings for Andhra Pradesh and Yanam.
Valid from 1300 hrs IST of 29.11.2024 to 0830 hrs IST of 30.11.2024

Date of Issue:- 29 November 2024

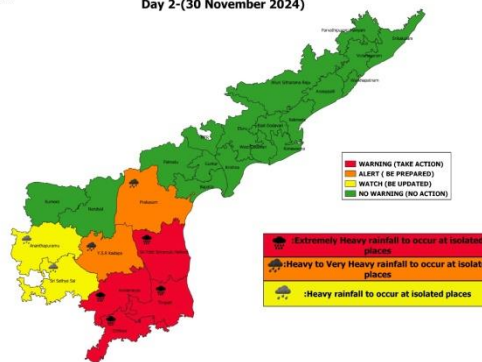
Day 1-(29 November 2024)



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

Date of Issue:- 29 November 2024

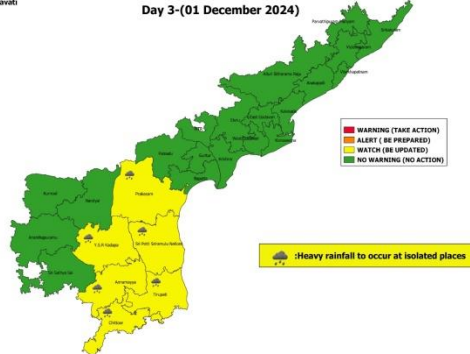
Day 2-(30 November 2024)



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:- 29 November 2024

Day 3-(01 December 2024)



Flash Flood Guidance

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 30-11-2024:

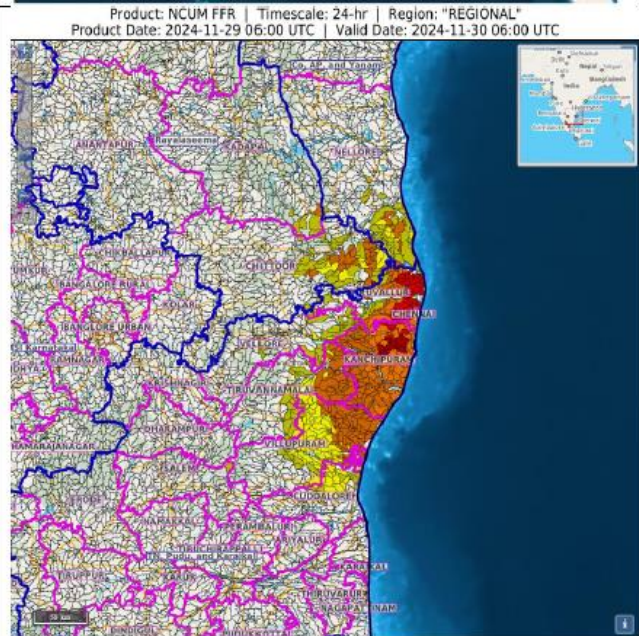
Moderate to high flash flood risk likely over few watersheds & neighbourhoods of following Meteorological subdivision in next 24 hours.

Coastal Andhra Pradesh – Thirupati and Nellore district

Rayalaseema – Chittoor, Annamaya and Kadapa district

Tamil Nadu, Puducherry & Karaikal - Chennai, Kanchipuram, Vellupuram, Cuddalore, Vellore, Tiruvannamalai and Tiruvallur 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.



Flash Flood Risk

High Risk (Take Action)

Moderate Risk (Be Prepared)

Low Risk (Be Updated)

Fishermen Warning Graphics

