

Thursday, November 28, 2024  
Time of Issue: 0920 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ❖ The **Deep Depression** over Southwest Bay of Bengal moved northwards with a speed of 2 kmph during past 06 hours and lay centred at 0530 hours IST of today, the 28<sup>th</sup> November 2024 over the same region near latitude 9.1°N and longitude 82.1°E, about 110 km east-northeast of Trincomalee, 310 km southeast of Nagappattinam, 410 km southeast of Puducherry and 480 km south-southeast of Chennai. It is very likely to move nearly north-northwestwards skirting Sri Lanka coast during next 12 hours. Thereafter, it will continue to move north-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around morning of 30<sup>th</sup> November as a deep depression with a wind speed of 50-60 kmph gusting to 70 kmph. There is a possibility of marginal intensification of the deep depression into a Cyclonic Storm with wind speed 65-75kmph gusting to 85 kmph over southwest Bay of Bengal during the evening of 28<sup>th</sup> November to morning of 29<sup>th</sup> November 2024.
- ❖ A fresh Western disturbance is seen as a cyclonic circulation over northeast Iran and neighbourhood in lower tropospheric levels.

#### Forecast & Warnings (upto 7 days):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm & lightning very likely over coastal Tamil Nadu & Puducherry Coastal Andhra Pradesh & Yanam & Rayalaseema on 28<sup>th</sup> November.
- ✓ **Heavy to very heavy rainfall** at isolated places over coastal Tamil Nadu & Puducherry during 28<sup>th</sup> -30<sup>th</sup> November and **heavy rainfall** at isolated places over coastal Tamil Nadu & Puducherry on 01<sup>st</sup> & 02<sup>nd</sup> December.
- ✓ **Heavy to very heavy rainfall** at isolated places very likely over Coastal Andhra Pradesh & Yanam during 28<sup>th</sup>-30<sup>th</sup> November.
- ✓ **Heavy rainfall** at isolated places very likely over Andaman & Nicobar Islands on 30<sup>th</sup>, Rayalaseema during 28<sup>th</sup> -30<sup>th</sup> and Kerala & Mahe during 30<sup>th</sup> November- 02<sup>nd</sup> December.
- ✓ Dense fog conditions very likely to prevail during late night/early morning hours in isolated pockets of Himachal Pradesh till 29<sup>th</sup>; Punjab & Haryana-Chandigarh till 30<sup>th</sup> and Uttar Pradesh till 01<sup>st</sup> December morning hours.

#### Minimum Temperature Forecast:

- ❖ No large Change in minimum temperatures very likely over East India during next 2 days and fall by 2-3°C during subsequent 2-3 days and No large Change in minimum temperatures very likely over northwest & central India during next 5 days.

#### Fishermen & Wind Warnings:

- ❖ Fishermen are advised not venture into
  - ✓ southwest Bay of Bengal and along & off Sri Lanka & Tamil Nadu coasts till 30<sup>th</sup> November, 2024.
  - ✓ Adjoining areas of Westcentral Bay of Bengal and along & off south Andhra Pradesh coast during 28<sup>th</sup> to 30<sup>th</sup> November 2024.
- ❖ Fishermen out at sea are advised to return to coasts immediately.

#### Weather forecast over Delhi/NCR during 28<sup>th</sup> Nov. to 30<sup>th</sup> Nov. 2024

**28.11.2024:** Mainly clear sky. The predominant surface wind is likely to be from east direction with speed less than 04 kmph during morning hours. Smog/ moderate fog is likely in the morning. The wind speed will increase thereafter becoming less than 06 kmph from southeast direction during afternoon. It will decrease thereafter becoming less than 04 kmph from northeast direction during evening and night. Smog/ shallow fog is likely in the evening/night.

**29.11.2024:** Mainly clear sky. The predominant surface wind is likely to be from northeast direction with speed less than 04 kmph during morning hours. Smog/ moderate to dense fog is likely in the morning. The wind speed will gradually increase becoming 04-08 kmph from variable direction during afternoon. It will decrease thereafter becoming less than 04 kmph from north direction during evening and night. Smog/ shallow fog is likely in the evening/night.

**30.11.2024:** Mainly clear sky. The predominant surface wind is likely to be from variable direction with wind speed less than 04 kmph during morning hours. Smog/shallow to moderate fog in the morning. The wind speed will increase thereafter becoming 04-06 kmph from northeast direction during afternoon. It will gradually decrease becoming less than 04 kmph from north direction during evening and night. Smog/ shallow fog is likely in the evening/night.

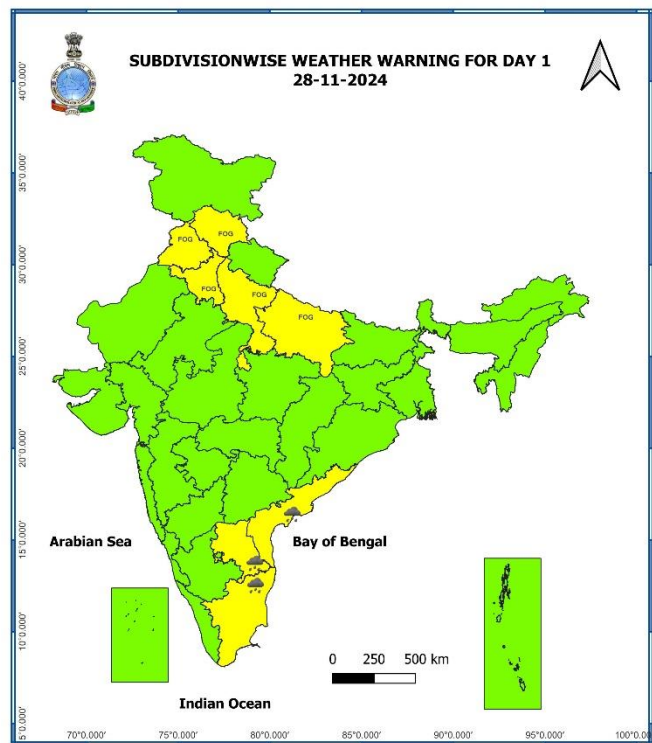
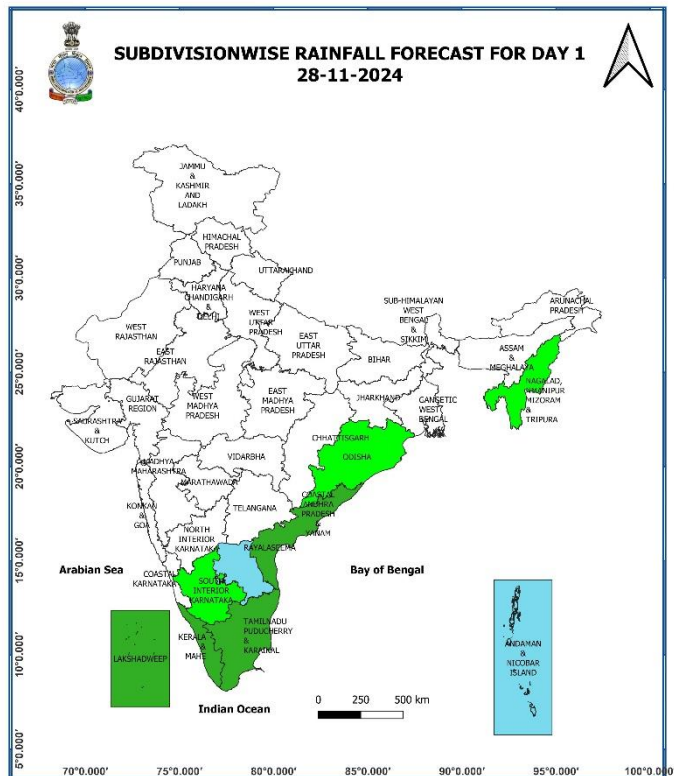
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Tamil Nadu, Puducherry & Karaikal; **at isolated places** over Kerala & Mahe, Andaman & Nicobar Islands.
- ❖ **Heavy rainfall observed** (from 0830 hours IST to 1730 hours IST of yesterday): **Nil**
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Nagapattinam 6, Karaikal 3, Parangipettai, Atiramapattinam 2 each; **Andaman & Nicobar Islands:** Nancowry 3.
- ❖ **Fog conditions observed** (at 0530 hours IST of today): **Dense fog** reported at isolated pockets of Bihar; **Shallow to Moderate fog** observed at isolated pockets over Uttar Pradesh and Tripura.
- ❖ **Visibility reported** (at 0530 hours IST of today) (in m): **Bihar:** Purnea 200, Bhagalpur 500; **East Uttar Pradesh:** Gorakhpur 500; **West Uttar Pradesh:** Agra 500; **West Madhya Pradesh:** Gwalior 500; **Tripura:** Kailashahar 500.
- ❖ **Minimum Temperature Departures (as on 27-11-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over West Rajasthan and Bihar; **above normal (1.6°C to 3.0°C)** at a few places over East Rajasthan; at isolated places over Uttar Pradesh, Gujarat State, West Bengal & Sikkim, Coastal Andhra Pradesh & Yanam, Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal. These were **appreciably below normal (-5.0°C to -3.1°C)** at a few places over Konkan & Goa & Madhya Maharashtra; **below normal (-3.0°C to -1.6°C)** at most places over Marathwada, Vidarbha; at isolated places over Madhya Pradesh, Odisha, Telangana, Chhattisgarh and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 6.6°C** was reported at **Adampur\_IAF (Punjab)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 27-11-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, West Rajasthan, Saurashtra & Kutch; **above normal (1.6°C to 3.0°C)** at isolated places over Himachal Pradesh, East Rajasthan, Assam & Meghalaya, Arunachal Pradesh. These were **appreciably below normal (-5.0°C to -3.1°C)** at a few places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe; **below normal (-1.6°C to -3.0°C)** at a few places over Madhya Maharashtra, Marathwada, South Interior Karnataka, Telangana; at isolated places over Rayalaseema, West Madhya Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim and near normal over rest parts of the country. Yesterday, **the highest maximum temperature of 35.4°C** was reported at **Bhuj-Rudramata (Saurashtra & Kutch)** over the country. **(Fig. 2)**

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Deep Depression** over Southwest Bay of Bengal moved northwards with a speed of 2 kmph during past 06 hours and lay centred at 0530 hours IST of today, the 28<sup>th</sup> November 2024 over the same region near latitude 9.1°N and longitude 82.1°E, about 110 km east-northeast of Trincomalee, 310 km southeast of Nagappattinam, 410 km southeast of Puducherry and 480 km south-southeast of Chennai. It is very likely to move nearly north-northwestwards skirting Sri Lanka coast during next 12 hours. Thereafter, it will continue to move north-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram around morning of 30<sup>th</sup> November as a deep depression with a wind speed of 50-60 kmph gusting to 70 kmph. There is a possibility of marginal intensification of the deep depression into a Cyclonic Storm with wind speed 65-75kmph gusting to 85 kmph over southwest Bay of Bengal during the evening of 28<sup>th</sup> November to morning of 29<sup>th</sup> November 2024.
- ❖ The **Western disturbance** as a cyclonic circulation over northeast Iran and neighbourhood between 3.1 & 4.5 km above mean sea level persists.
- ❖ **Jet Stream** Winds of the order upto 140 knots at 12.6 km above mean sea level continue to prevail over Northeast India.

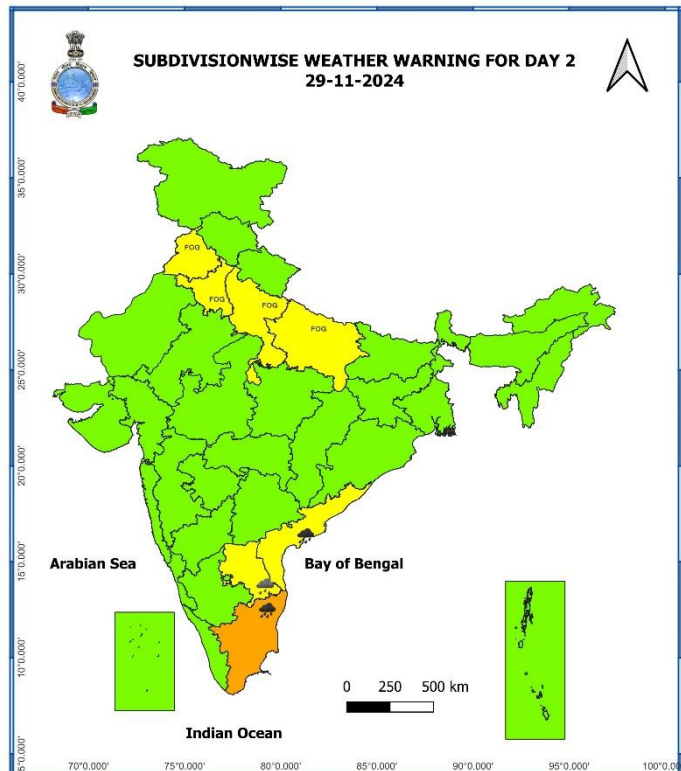
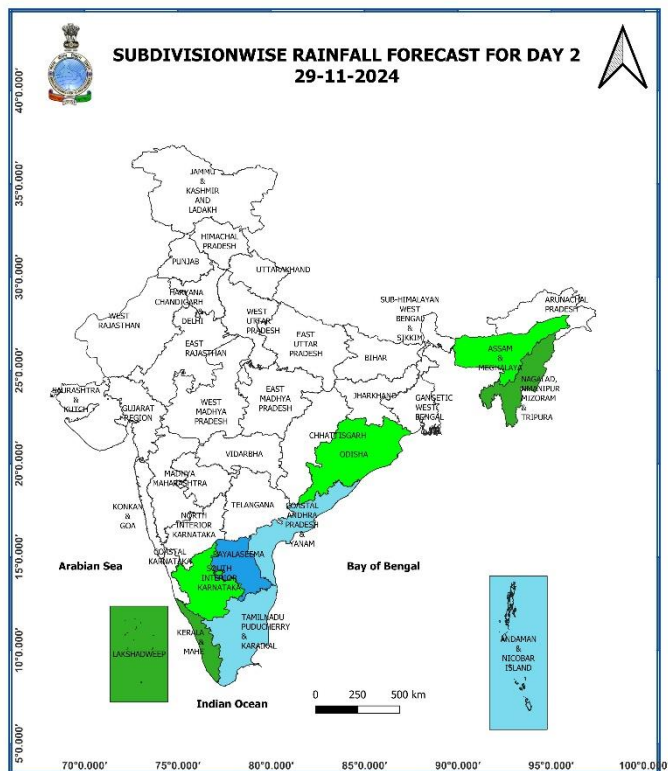
**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 05<sup>th</sup> December, 2024)**



**28 November (Day 1):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam and Rayalaseema.
- ❖ **Dense fog** very likely in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh-Delhi and Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema.
- ❖ **Gale wind speed reaching 60-70 kmph gusting to 80 kmph** is likely over southwest Bay of Bengal and along & off Sri Lanka coasts. **Squally wind speed reaching 55-65 kmph gusting to 75 kmph** is likely to prevail over westcentral Bay of Bengal and along & off Tamil Nadu-Puducherry and south Andhra Pradesh coasts. Fishermen are advised not to venture into these areas.

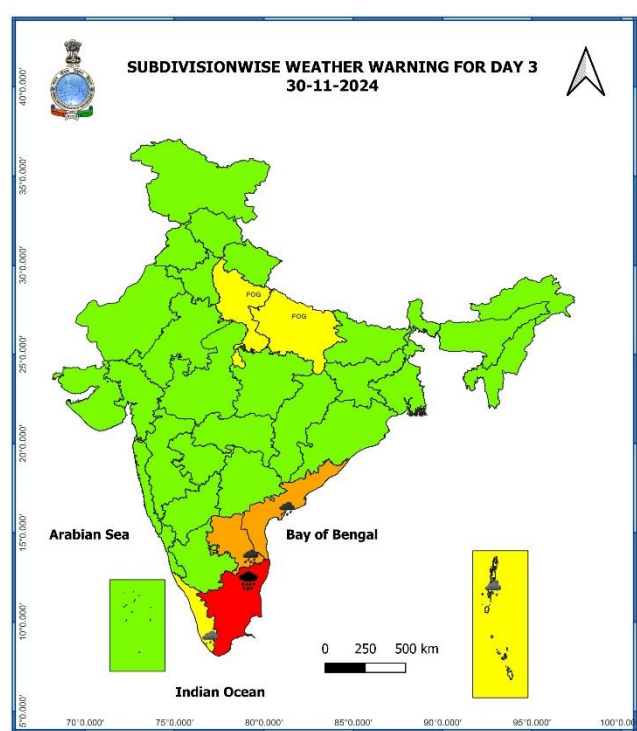
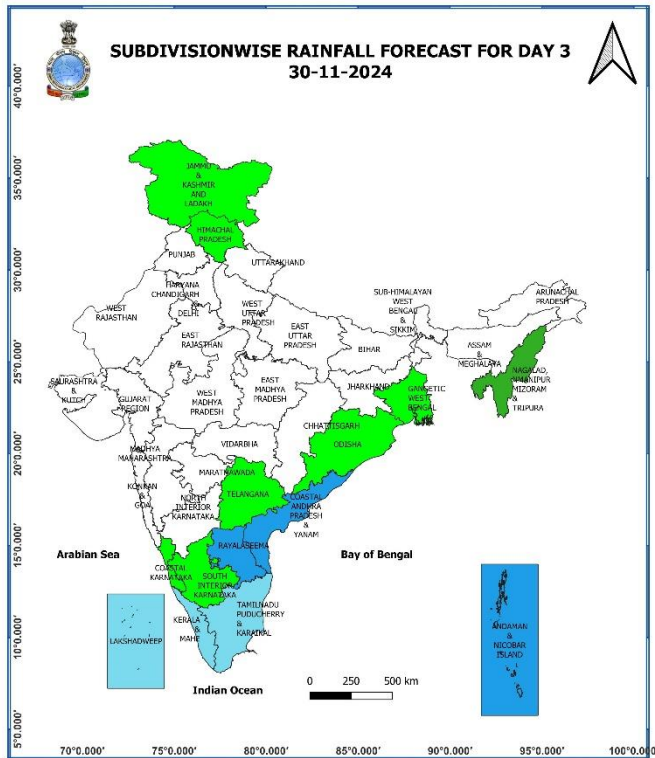




## 29 November (Day 2):

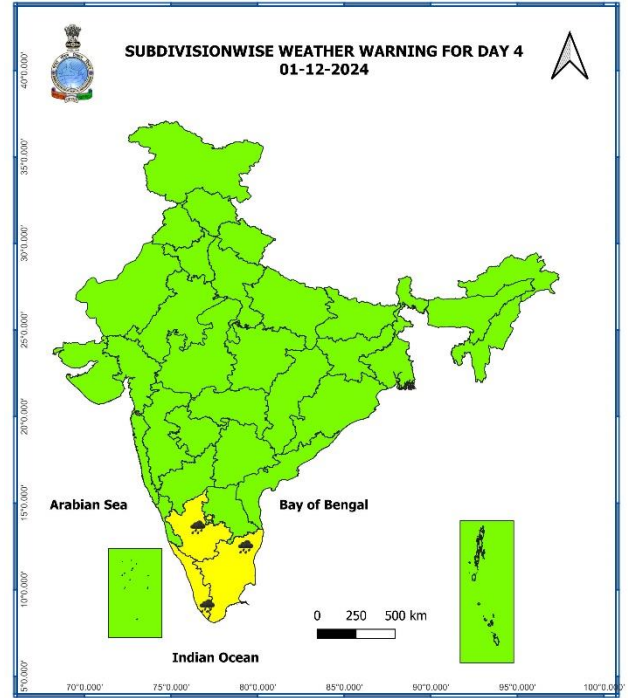
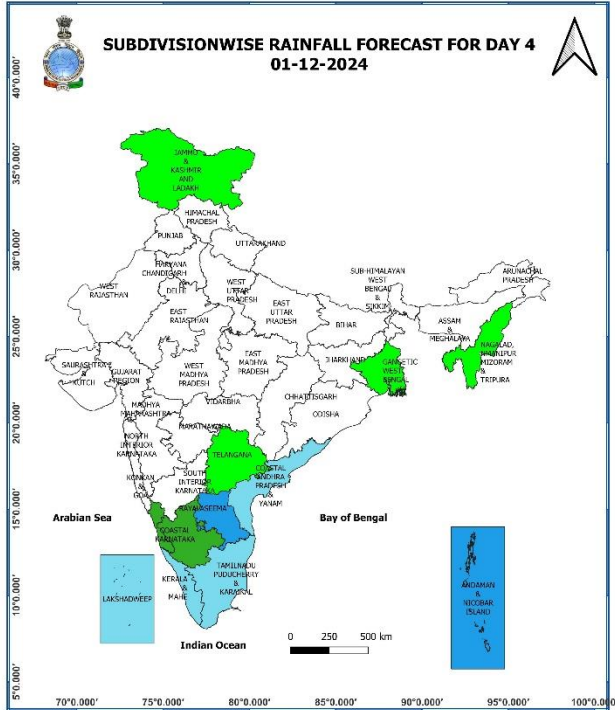
- ❖ **Heavy to very Heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam; **Heavy rainfall ( $\geq 7$  cm)** at isolated places over Rayalaseema.
- ❖ **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh-Delhi and Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Nagaland, Manipur, Mizoram & Tripura.

**Gale wind speed reaching 60-70 kmph gusting to 80 kmph** is likely over southwest Bay of Bengal and along & off Sri Lanka coasts. **Squally wind speed reaching 55-65 kmph gusting to 75 kmph** is likely to prevail over westcentral Bay of Bengal and along & off Tamil Nadu-Puducherry and south Andhra Pradesh coasts. Fishermen are advised not to venture into these areas.



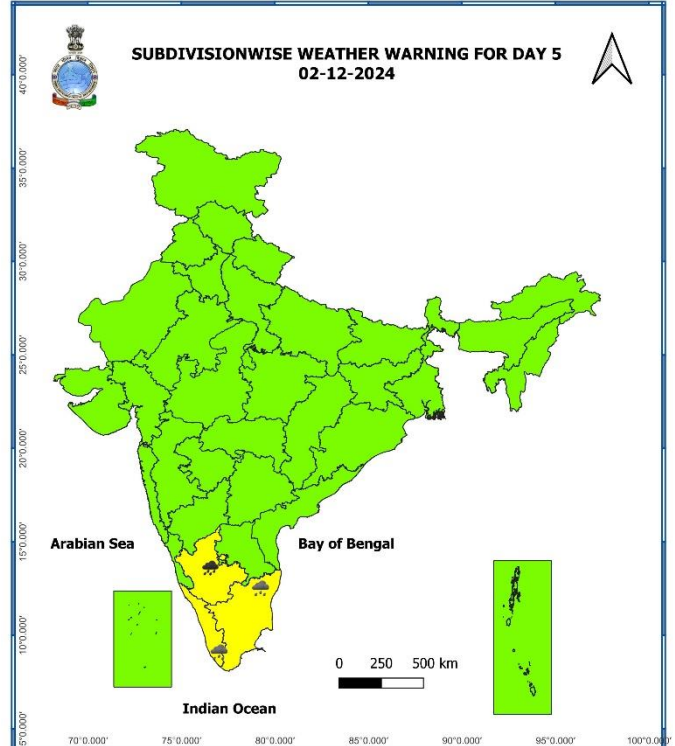
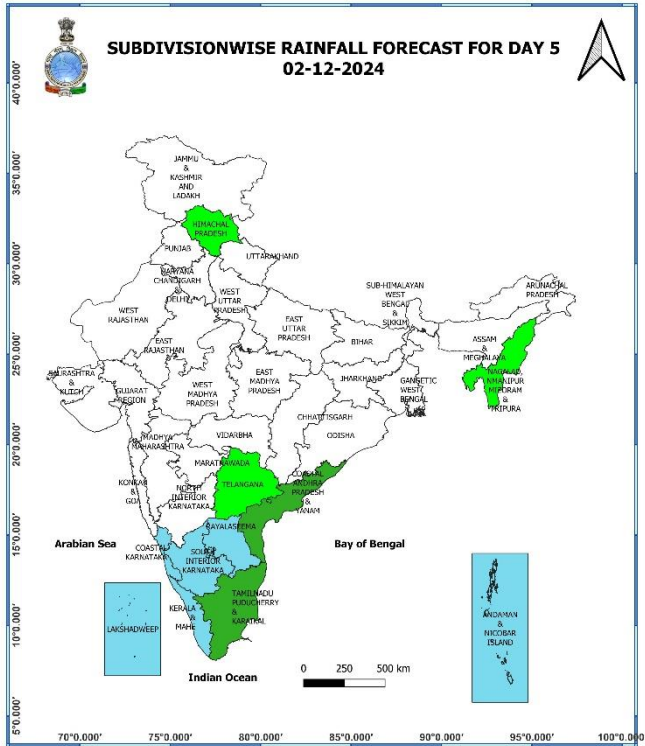
### 30 November (Day 3):

- ❖ **Heavy to very Heavy rainfall ( $\geq 12$  cm) with extremely falls very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Heavy to very Heavy rainfall ( $\geq 12$  cm) very likely at isolated places over Coastal Andhra Pradesh & Yanam; Heavy rainfall ( $\geq 7$  cm) at isolated places over Andaman & Nicobar Islands, Kerala & Mahe, Rayalaseema.**
- ❖ **Dense fog** likely in isolated pockets of Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally wind speed reaching 55-65 kmph gusting to 75 kmph** is likely to prevail over southwest Bay of Bengal, along & off Tamil Nadu- Puducherry and south Andhra Pradesh coasts. Fishermen are advised not to venture into these areas.



**01 December (Day 4):**

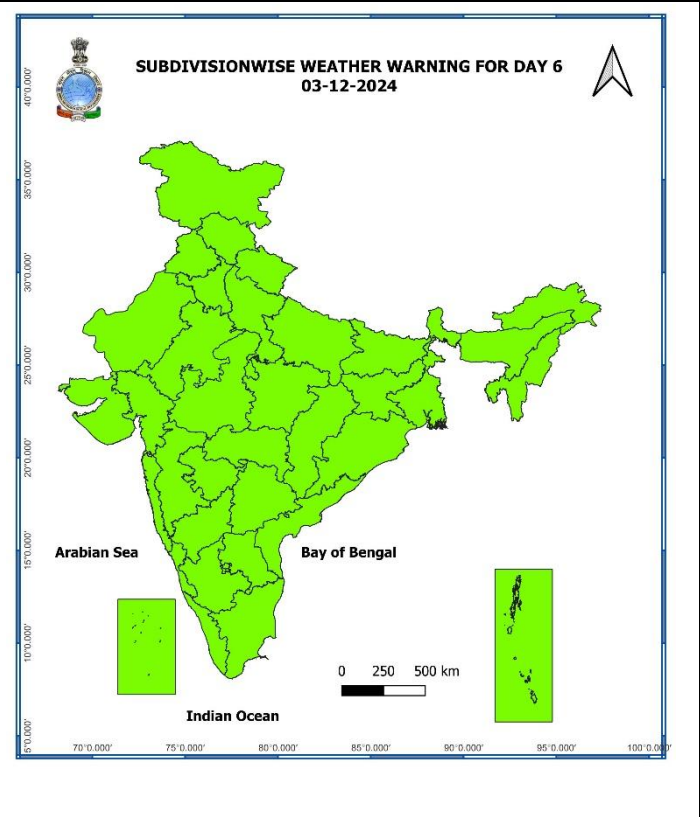
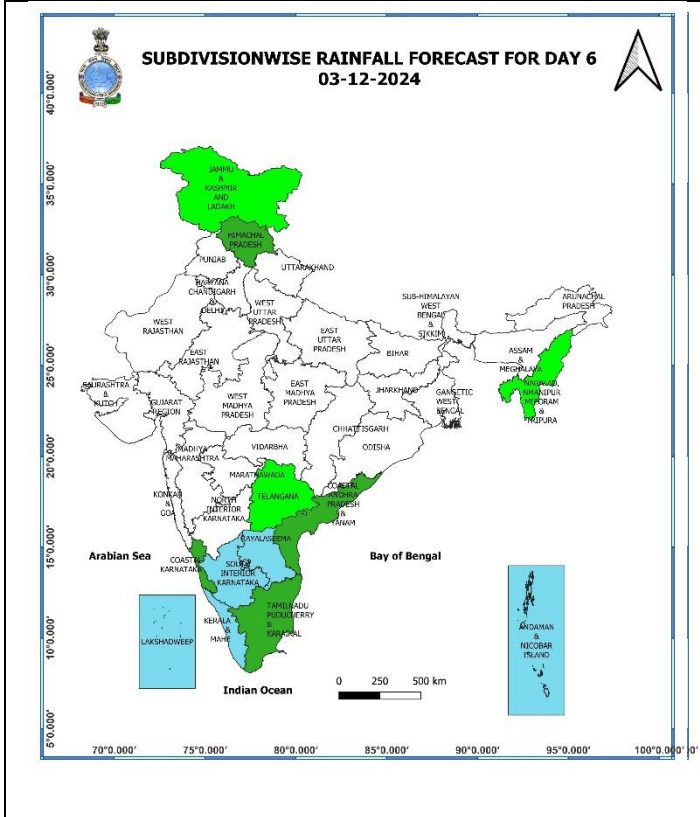
- ❖ Heavy to very Heavy rainfall ( $\geq 12$  cm) very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Kerala & Mahe.



**02 December (Day 5):**

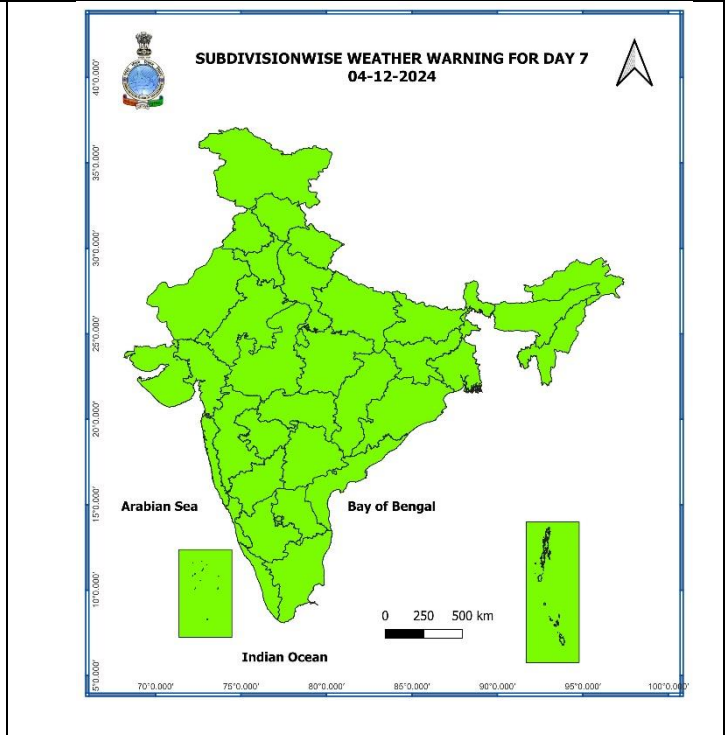
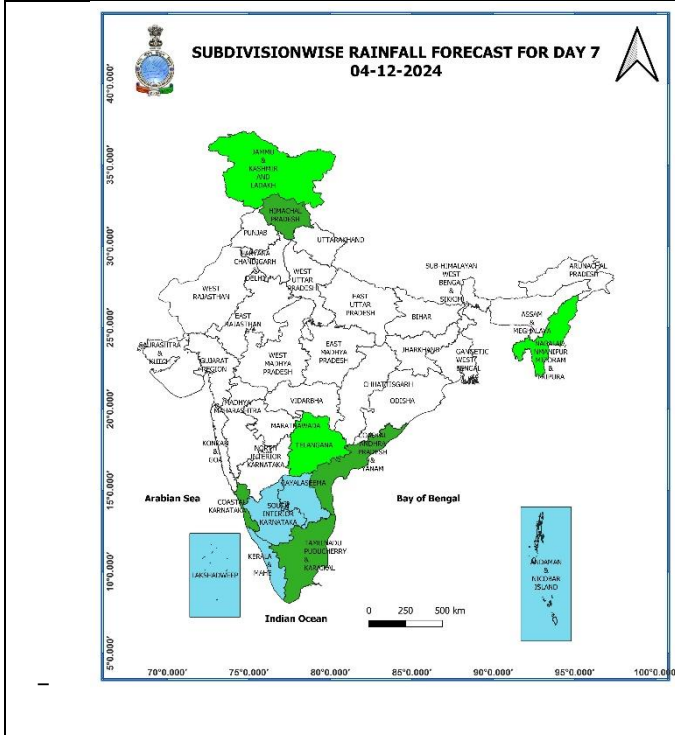
- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.





**03 December (Day 6):**

❖ **No Warning.**



**04 December (Day 7):**

❖ No Warning.

**Weather Outlook for subsequent 3 days (During 05<sup>th</sup> December – 07<sup>th</sup> December, 2024)**

- ❖ Isolated to Scattered to light to moderate rainfall likely over some parts of south peninsular India and light rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ Mainly dry weather will prevail over rest parts of country.

- 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.

\* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".  
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.  
For more details, kindly visit <https://mausam.imd.gov.in> or contact: 011-2434-4599  
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## Impact & Action Suggested due to

- ✓ **Isolated heavy to very heavy rainfall** over Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal during 29<sup>th</sup> November – 01<sup>st</sup> December.
- ✓ **Low to Moderate flash flood risk** likely over Tamil Nadu, Puducherry & Karaikal & Rayalaseema on 28<sup>th</sup> a7 29<sup>th</sup> November. **(ANNEXURE I)**

### A. Impact Expected

- ❖ 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.
- ❖ Possibilities of damage to vulnerable structure.
- ❖ Localized Landslides/Mudslides
- ❖ Damage to horticulture and standing crops in some areas due to inundation.
- ❖ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC).

### B. Action Suggested

- ❖ 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.
- ❖ Avoid staying in vulnerable structure.

## Impact expected due to dense/ very dense fog in the late night /morning hours

- ❖ Transport and Aviation:
  - May affect some airports, highways and railway routes in the areas of met- sub-division.
  - Difficult driving conditions with slower journey times.
  - Unless taken precautionary measures, it may lead to some road traffic collisions.
- ❖ Power Sector:
  - Chances of Tripping of Power lines in the very dense fog routes.
- ❖ Human Health:
  - Lung related health impacts: Dense fog contains particulate matter and other pollutants and in case exposed it gets lodged in the lungs, clogging them and decreasing their functional capacity which increases episodes of wheezing, coughing and shortness of breath.
  - Impact on people having asthma bronchitis: Long time exposure to dense fog may cause respiratory problem for people having asthma bronchitis and other lung related health problems.
  - Eye Irritation: Dense fog contains pollutions of various types and these Pollutants in the air if exposed may tend to irritate the membranes of the eye causing various infections leading to redness or swelling of the eye.

### Action suggested:

- ❖ Transport and Aviation:
  - Be careful while driving or outing through any transport.
  - Use fog lights during driving.
  - Be in touch with airlines, railways and state transport for schedule of your journey.
- ❖ Power Sector:
  - To keep ready Maintenance Team
  - Human Health: To avoid outing until unless emergency and to cover the face.

## Agromet advisories for Heavy Rainfall likely over Tamil Nadu, Kerala and Coastal Andhra Pradesh:

- In **Tamil Nadu**, drain out excess water from rice, sugarcane, cotton, turmeric, vegetables and other standing crop fields; coconut and banana orchards. Undertake propping in sugarcane. Provide mechanical support to banana plants to prevent lodging.
- In **Andhra Pradesh**, harvest the matured rice immediately and keep the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields. Provide adequate drainage facilities for removal of excess water from rice nurseries, vegetables, standing crop fields and fruit orchards. Provide mechanical support to horticultural crops and staking to vegetables.

## Livestock and Fishery

- Keep the animals inside the shed during heavy rainfall and provide balanced feed.
- Store the feed and fodder at safer place to avoid spoilage from rainfall.
- Hang gunny bags all around poultry sheds.
- Construct an outlet with proper netting around the pond to drain out excess rain water, thereby preventing fishes/fingerlings from escaping in case of overflowing.
- Check and repair dykes around the ponds to avoid entry of runoff water from catchment area.

## Flash Flood Guidance:

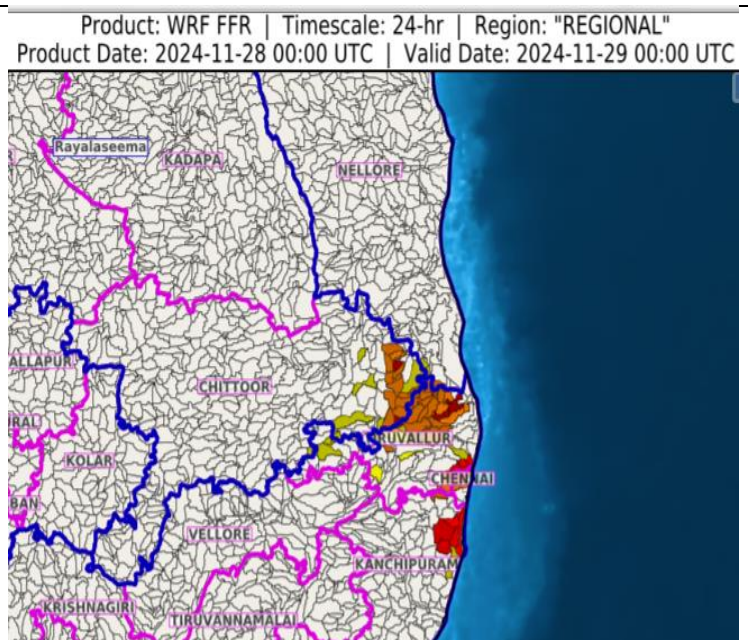
## ANNEXURE I

### 24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 29-11-2024:

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

**Rayalaseema** - Chittoor district.  
**Tamil Nadu - Pudu & Karaikal** - Chennai, Kanchipuram 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.



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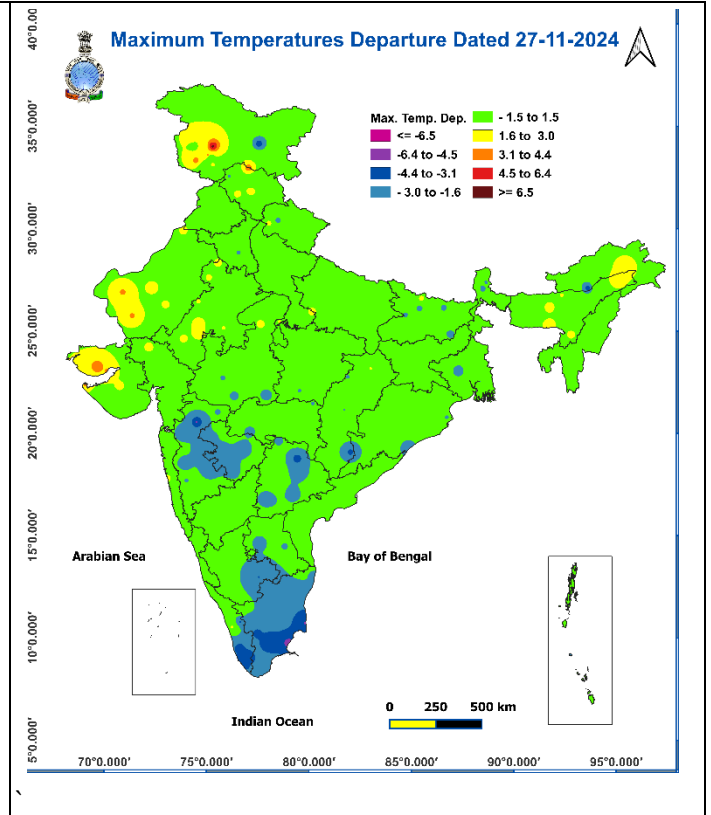
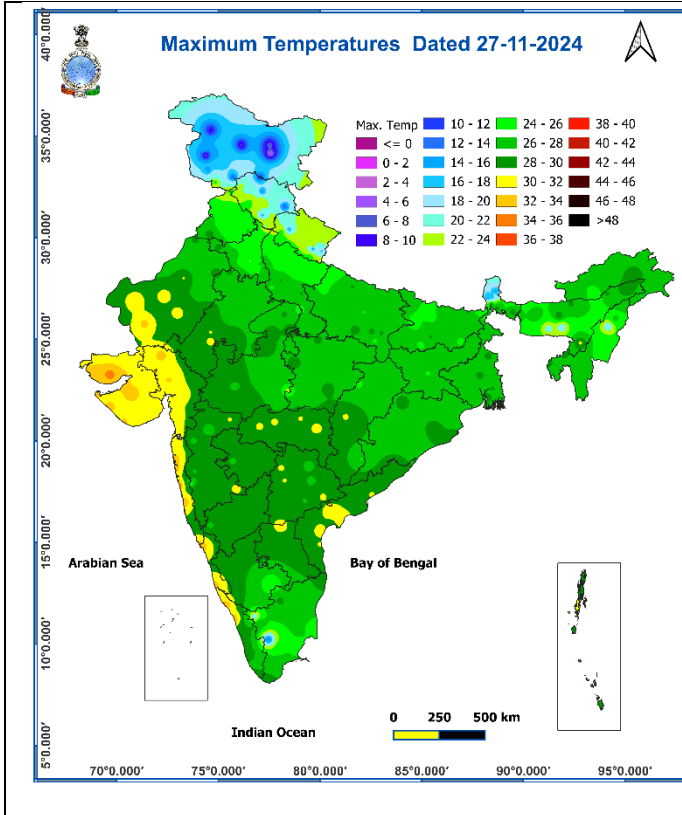
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**Fig. 1: Maximum Temperatures**

**Fig. 2: Departure of Maximum Temperatures**



**Fig. 3: Minimum Temperatures**

**Fig. 4: Departure of Minimum Temperatures**

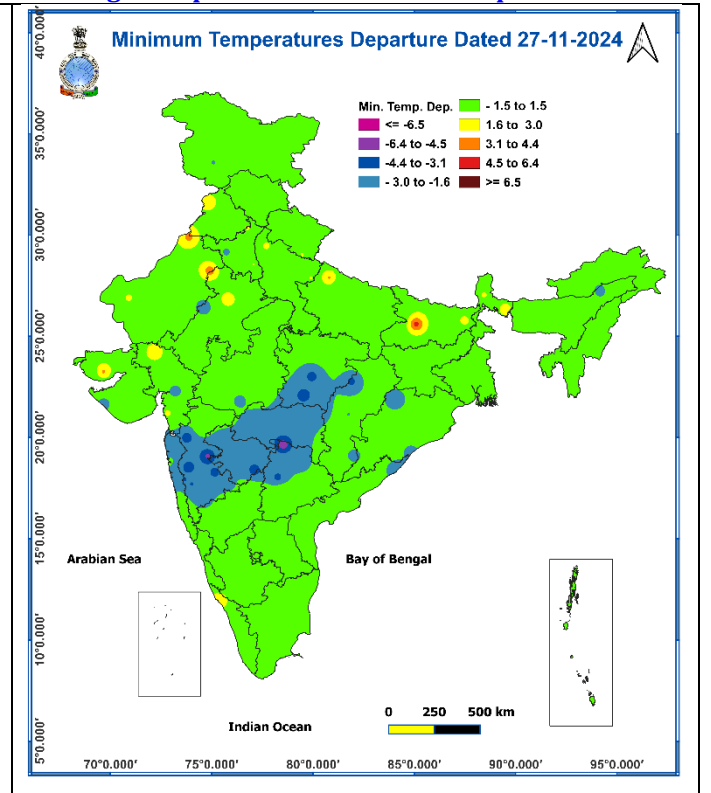
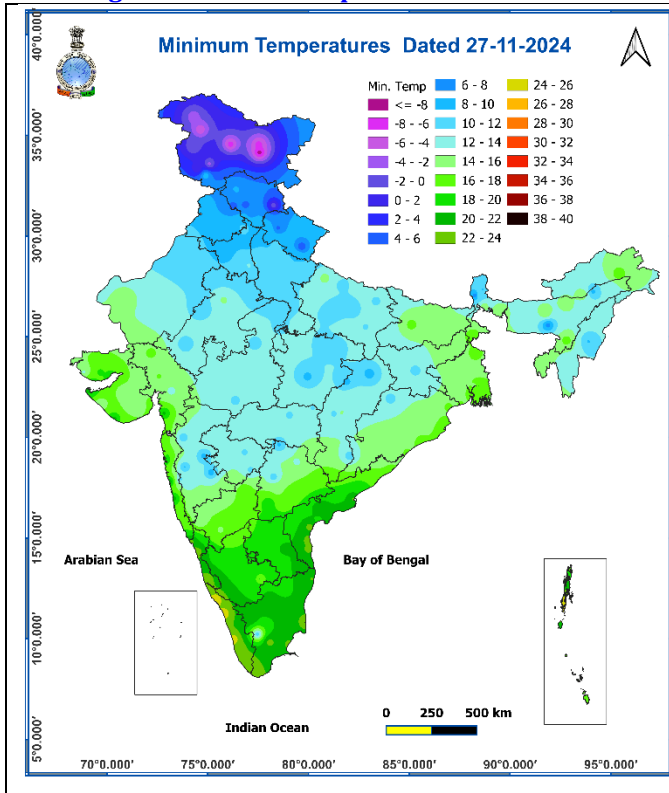
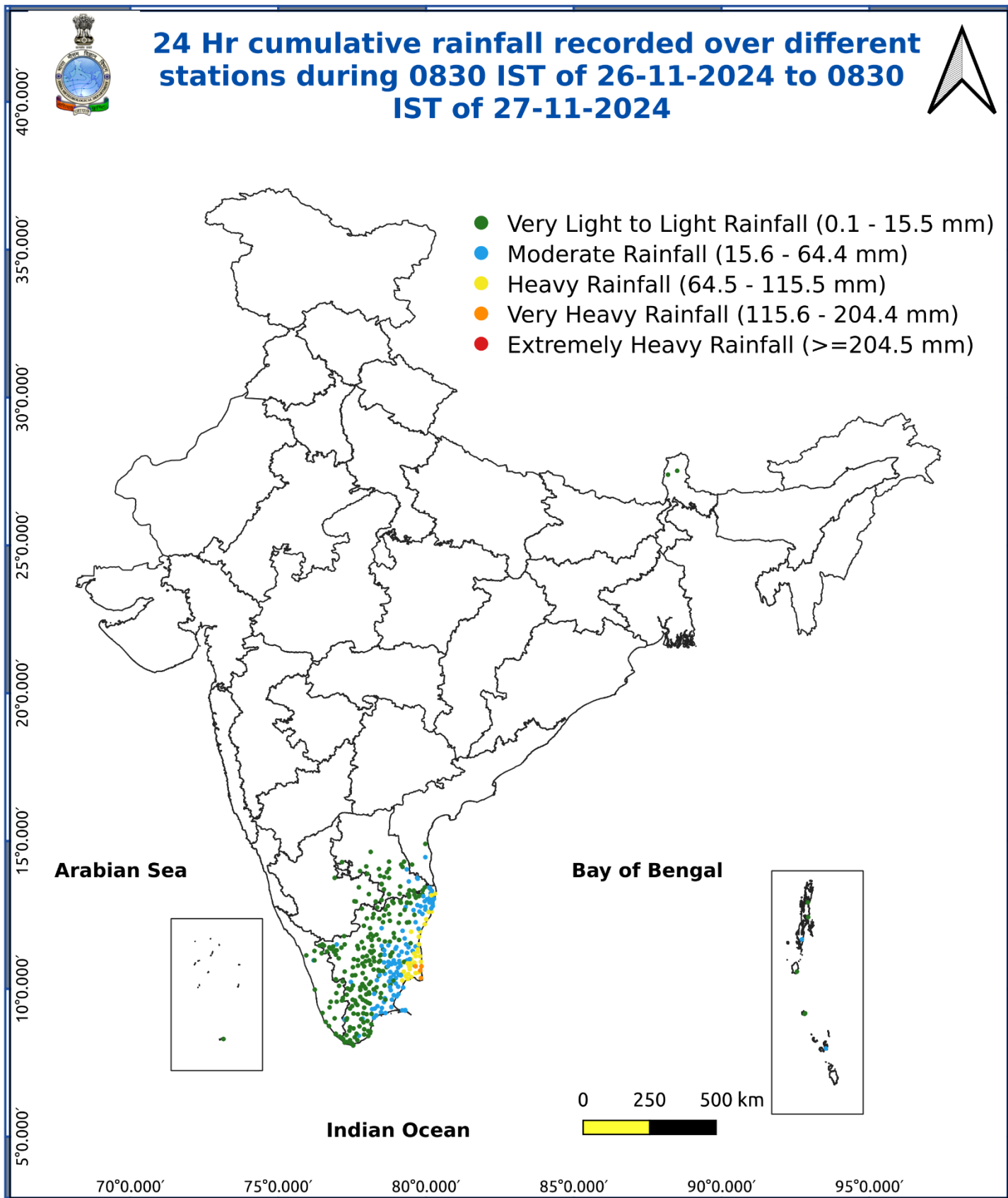


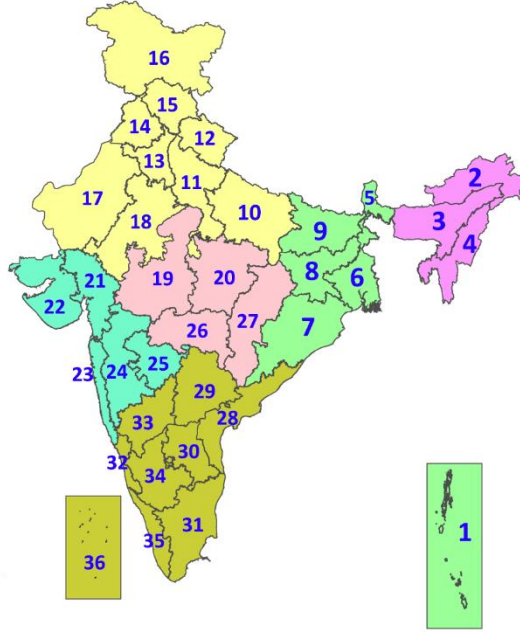
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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## LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और माहे
36. लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Odisha
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chandigarh & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidarbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

## SPATIAL DISTRIBUTION (% of Stations reporting)

| % Stations | Category                            | % Stations | Category                     |
|------------|-------------------------------------|------------|------------------------------|
| 76-100     | Widespread (WS/Most Places)         | 26-50      | Scattered (SCT/A Few Places) |
| 51-75      | Fairly Widespread (FWS/Many Places) | 1-25       | Isolated (ISOL)              |



Heavy Rain

Very Heavy Rain

Extremely Heavy Rain

Thunder & Lightning

Hailstorm

Dust Raising Winds



Dust Storm

Heat Wave

Warm Night

Hot Day

Hot & Humid

Strong Surface Winds



Cold Day

Ground Frost

### 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                          |



## DEFINITION/CRITERIA

### Rain/ Snow \*

Heavy: 64.5 to 115.5 mm/cm \*  
Very Heavy: 115.6 to 204.4 mm/cm\*  
Extremely Heavy: > 204.4 mm/cm \*

### Heat Wave

When maximum temperature of a station reaches  $\geq 40^\circ\text{C}$  for plains and  $\geq 30^\circ\text{C}$  for hilly regions  
(a) Based on Departure from normal

Heat Wave: Maximum Temperature Departure from normal  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .  
Severe Heat Wave: Maximum Temperature Departure from normal  $\geq 6.5^\circ\text{C}$

(b). Based on Actual maximum temperature

Heat Wave: When actual maximum temperature  $\geq 45^\circ\text{C}$ .  
Severe Heat Wave: When actual maximum temperature  $\geq 47^\circ\text{C}$

(c) Criteria for heat wave for coastal stations

When maximum temperature departure is  $> 4.5^\circ\text{C}$  from normal. Heat Wave may be described provided maximum temperature  $\geq 37^\circ\text{C}$

### Warm Night

When maximum temperature remains  $40^\circ\text{C}$

Warm Night: When minimum temperature departure  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .  
Severe Warm Night: When minimum temperature departure  $> 6.4^\circ\text{C}$ .

### Cold Wave

When minimum temperature of a station  $\leq 10^\circ\text{C}$  for plains and  $\leq 0^\circ\text{C}$  for hilly regions.  
(a). Based on departure

Cold Wave: Minimum Temperature Departure from normal  $-4.5^\circ\text{C}$  to  $-6.4^\circ\text{C}$ .  
Severe Cold Wave: Minimum Temperature Departure from normal  $\leq -6.5^\circ\text{C}$

(b) Based on actual Minimum Temperature (for Plains only)

Cold Wave : When Minimum Temperature is  $\leq 4.0^\circ\text{C}$   
Severe Cold Wave: When Minimum Temperature is  $\leq 2.0^\circ\text{C}$

(c) For Coastal Stations

When Minimum Temperature departure is  $\leq -4.5^\circ\text{C}$  & actual Minimum Temperature is  $\leq 15^\circ\text{C}$

### Cold Day

When minimum temperature of a station  $\leq 10^\circ\text{C}$  for plains and  $\leq 0^\circ\text{C}$  for hilly regions  
Based on departure

Cold Day: Maximum Temperature Departure from normal  $-4.5^\circ\text{C}$  to  $-6.4^\circ\text{C}$ .  
Severe Cold Day: Maximum Temperature Departure from normal  $\leq -6.5^\circ\text{C}$

### Fog

Phenomenon of small droplets suspended in air and the horizontal visibility  $< 1\text{km}$

Moderate Fog: When the visibility between 500-200 metres  
Dense Fog: when the visibility between 50- 200 metres  
Very Dense Fog: when the visibility  $< 50$  metres

### Thunderstorm

Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)

### Dust/Sand Storm

An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.

### Frost

Ice deposits on ground

Air temperature  $\leq 4^\circ\text{C}$  ( over Plains)

### Squall

A strong wind that rises suddenly, lasts for atleast 1 minute.

Moderate: Wind speed 52-61 kmph  
Severe: Wind speed 62-87 kmph  
Very Severe: Wind speed  $> 87$  kmph

### Sea State

Effect of various waves in the sea over specific area

Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre  
High to very high: Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre  
Phenomenal: Wind speed  $> 117$  kmph ( $> 63$  knots) & Wave height  $> 14$  metre

### Cyclone

Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)  
Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)  
Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)  
Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)  
Super Cyclone Strom: Wind speed  $> 220$  kmph ( $> 119$  knots)