राष्ट्रीय मौसम पूर्वानुमान केन्द्र
भारत मौसम विज्ञान विभाग
पृथ्वी विज्ञान मंत्रालय

National Weather Forecasting Centre
India Meteorological Department
Ministry of Earth Sciences

Saturday, December 21, 2024
Time of Issue: 1430 hours IST
(MID-DAY)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ❖ Yesterday's **well marked low pressure area** over westcentral & adjoining southwest Bay of Bengal concentrated into a **depression** over westcentral Bay of Bengal at 1730 hours IST of yesterday, the 20th December 2024, moved east-northeastwards with the speed of 12 kmph during past 6 hours and lay centred at 0830 hrs IST of 21st December 2024 over the westcentral Bay of Bengal, near latitude 14.0°N and longitude 84.5°E, about 430 km south-southeast of Visakhapatnam (Andhra Pradesh), 480 km east-northeast of Chennai (Tamil Nadu) and 590 km south- of Gopalpur (Odisha). The system is likely to move slowly east-northeastwards maintaining its intensity as a depression for next 12 hours and weaken gradually thereafter over the Sea.
- ❖ A **cyclonic** circulation lies over south Rajasthan & neighbourhood in lower tropospheric levels.
- ❖ A fresh **western disturbance** as a cyclonic circulation in middle tropospheric levels lies over Iraq & neighbourhood.
- ❖ Under the influence of these systems:
- ✓ Light to moderate rainfall very likely at a few places with **heavy rainfall** at isolated places over Coastal Andhra Pradesh, Rayalaseema during 24th-26th December.
- ✓ Light rainfall/snowfall very likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh during 22nd-24th December.

- ❖ Another **intense Western Disturbance** is very likely to affect Northwest India from the night of 26th December onwards. Under its influence, an induced cyclonic circulation very likely to form over southwest Rajasthan & neighbourhood on 27th December, 2024. These systems likely to interact with lower levels easterlies leading to high moisture feeding from Arabian Sea as well as Bay of Bengal till 28th December. Under the influence of these systems:
- ✓ Fairly Widespread to Widespread Rainfall/Snowfall is likely over Western Himalayan Region during 26th-28th December with peak activity on 27th and 28th December.
- ✓ Scattered to fairly widespread rainfall also likely over plains of northwest India and adjoining central India on 27th and 28th December.
- ✓ Thunderstorm accompanied with gusty winds is also likely over East Rajasthan and West Madhya Pradesh on 26th and over North Rajasthan, Punjab, Haryana-Chandigarh-Delhi, West Uttar Pradesh on 27th-28th December.

ii. Temperature, Cold Wave and Fog Forecast:

Temperature Conditions during past 24 hours till 0830 hours IST of today :

Minimum temperatures were
below 0°C over many parts of Jammu, Kashmir & Ladakh & Himachal Pradesh;
4-8°C over major parts of Uttarakhand, Punjab, Haryana, Chandigarh, Delhi, Uttar Pradesh and Rajasthan;
8-12°C over many parts of Madhya Pradesh, Bihar & Gujarat.
Today, **the lowest minimum temperature** of **1.8°C** is reported at **Adampur_IAF (Punjab)** over the plains of the country.
Minimum temperatures have fallen by 1-3°C over some parts of Himachal Pradesh, Punjab, Odisha & risen by 1-3°C in some parts of East Madhya Pradesh, Chhattisgarh, Gangetic West Bengal, Marathwada, Vidarbha, Madhya Maharashtra, Jharkhand & Telangana.
Minimum temperatures are **below normal (-1°C to -3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Saurashtra & Kutch; **above normal by 4-7°C** over Chhattisgarh, Odisha, Vidarbha, southeast Madhya Pradesh, Telangana and Andhra Pradesh and near normal over rest parts of the country.

Forecast of temperature:

- ❖ No significant change in minimum temperatures likely over Northwest & Central India during next 24 hours and gradual rise by 2-3°C thereafter.
- ❖ No significant change in minimum temperatures likely over West & East India (except Gujarat State) during next 4-5 days.
- ❖ No significant change in minimum temperatures likely over Gujarat State during next 3 days and gradual rise by 2-3°C thereafter.

Cold Wave Warnings:

Cold wave to severe cold wave conditions very likely in some parts of Himachal Pradesh during 21st-23rd; **Cold wave** conditions very likely in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 21st-23rd, Punjab & Rajasthan on 21st December.

Dense Fog Warnings:

Dense fog conditions very likely to prevail during late night/early morning hours in isolated pockets of Himachal Pradesh on 24th & 25th; Punjab, Haryana, Jharkhand, Odisha on 21st & 22nd; Rajasthan, Gangetic West Bengal on 21st; Sub-Himalayan West Bengal & Sikkim during 21st-23rd; Assam & Meghalaya during 22nd-25th December.

Ground Frost Warnings:

Ground Frost conditions very likely in isolated pockets of Himachal Pradesh during 21st-25th and Uttarakhand on 21st & 22nd December.

Weather forecast (during 21st Dec. to 24th Dec. 2024) over Delhi/NCR

21.12.2024: Mainly clear sky. The predominant surface wind is likely to be northwest direction with wind speed less than 08 kmph till evening. It would decrease thereafter becoming less than 04 kmph from variable direction during night. Smog/shallow fog is likely in the evening/night.

22.12.2024: Mainly clear sky. The predominant surface wind is likely to be from variable direction with speed less than 04 kmph during morning hours. Smog/shallow to moderate fog is likely in the morning. The wind speed will increase thereafter becoming less than 06 kmph from east 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.

23.12.2024: Partly cloudy sky with possibility of a spell of very light rain/drizzle during the day. The predominant surface wind is likely to be from southeast direction with speed less than 04 kmph during morning hours. Smog/ shallow to moderate fog is likely in the morning hours. The wind speed will gradually increase becoming 06-08 kmph from east direction during afternoon. It will decrease thereafter becoming less than 04 kmph from east direction during evening and night. Smog/shallow fog is likely in the evening/night.

24.12.2024: Mainly clear sky. The predominant surface wind is likely to be from northeast direction with wind speed less than 04 kmph during morning hours. Smog/moderate to dense fog is likely in the morning. The wind speed will increase thereafter becoming 06-08 kmph from north direction during afternoon. It will gradually decrease becoming less than 04 kmph from variable direction during evening and night. Smog/shallow fog is likely in the evening/night.

Main Weather Observations:

- **Rainfall distribution** (from 0830 hours IST of yesterday to 0830 hours IST of today): at **most places** Odisha; at **many places** Coastal Andhra Pradesh & Yanam, Gangetic West Bengal; **at a few places** over Andaman & Nicobar Islands; **at isolated places** over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Telangana, Rayalaseema, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe

- **Heavy rainfall observed** (from 0830 hours IST of yesterday to 0830 hours IST of today): at isolated places over Tamil Nadu, Coastal Andhra Pradesh and Odisha.

- **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0830 hours IST of today): (in cm): **Tamil Nadu, Puducherry & Karaikal:** Sandhiyur KVK AWS (dist Salem) 8, Kodumudiyaru Dam (dist Tirunelveli), Balamore (dist Kanyakumari), Oothu (dist Tirunelveli), Nandhiyar Head (dist Thiruchirappalli) 7 each; **Coastal Andhra Pradesh & Yanam:** Bondapalle (dist Vizianagaram) 9, Merakamudidam (dist Vizianagaram) 8, Bobbili (dist Vizianagaram) 8, Therlam (dist Vizianagaram) 8, Mentada (dist Vizianagaram) 8, Bheemunipatnam (dist ishakhapatnam) 8, Nellimarla (dist Vizianagaram) 7, Garividi (dist Vizianagaram) 7, Cheepurupalle (dist Vizianagaram) 7, Gajapathinagaram (dist Vizianagaram) 7; **Odisha:** Ranpur (dist Nayagarh) 11, Begunia (dist Khurda) 8, Berhampur (dist Ganjam) 8, Jatni (dist Khurda) 7, Khordha Pto (dist Khurda) 7, Pipili (dist Puri) 7, Naugaon (dist Jagatsinghpur) 7, Banpur (dist Khurda) 7, Belaguntha (dist Ganjam) 7, Krishnaprasad (dist Puri) 7, Gop (dist Puri) 7, Purushottampur (dist Ganjam) 7,

- **Dense fog observed** (at 0830 Hours IST of today): **Very dense fog** reported in isolated pockets of north Rajasthan; **Dense fog** in isolated pockets of Punjab, Haryana, Delhi, Chhattisgarh, West Uttar Pradesh, Meghalaya and north Madhya Pradesh.

- **Visibility reported** (at 0830 Hours IST of today) **(≤ 200 m)** (in meter): **Punjab**: Halwara & Bathinda-200 each, **Haryana**: Hissar-200, **Delhi**: Palam & Safdarjung-200 each, **Madhya Pradesh**: Gwalior-200; **Uttar Pradesh**: Agra-200; **Chhattisgarh**: Raipur-200; **Rajasthan**: Pilani & Churu-0 each, Suratgarh & Chittorgarh-200 each; **Meghalaya**: Shillong & Cherrapunji-100 each.

- **Cold wave to severe cold wave conditions** observed in isolated pockets over Himachal Pradesh, Punjab; **Cold wave conditions** in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Uttarakhand, Haryana, West Uttar Pradesh and Saurashtra & Kutch.
- **Ground frost conditions** recorded in isolated pockets of Himachal Pradesh, Punjab and Uttarakhand.

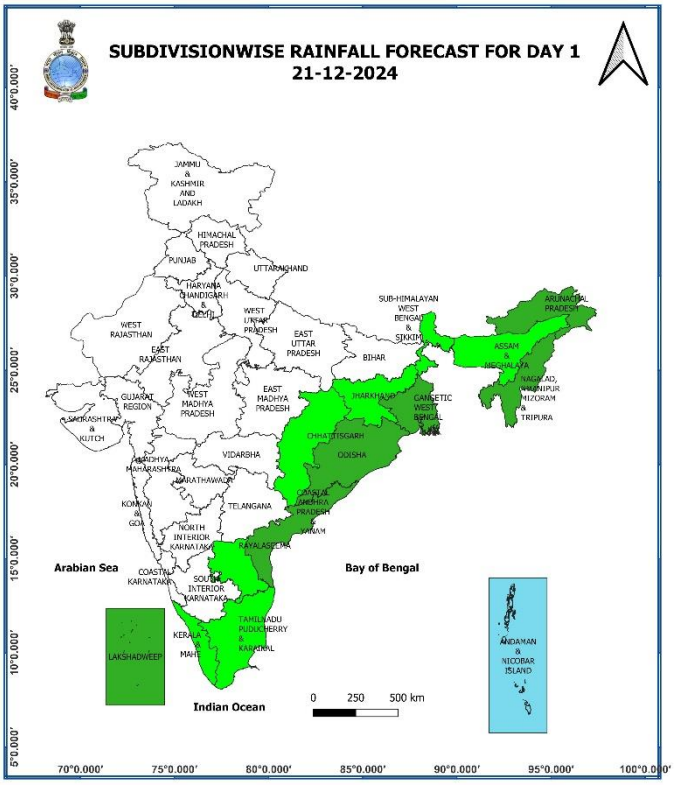
- **Minimum Temperatures Departures (as on 21-12-2024):** Minimum temperatures are **markedly above normal (5.1°C or more)** at a few places over Telangana; at isolated places over Chhattisgarh; **appreciably above normal (3.1°C to 5.0°C)** at many places over Rayalaseema; at a few places over Vidarbha, Coastal Andhra Pradesh & Yanam, Marathwada, Jharkhand; at isolated places over East Madhya Pradesh, Gangetic West Bengal, Odisha, Interior Karnataka, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at most places over Kerala & Mahe; at many places over Madhya Maharashtra, Bihar; at a few places over Konkan & Goa, Coastal Karnataka, Nagaland, Manipur, Mizoram & Tripura; at isolated places over Gujarat Region, Assam & Meghalaya, West Madhya Pradesh. These are **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Saurashtra & Kutch; **below normal (-1.6°C to -3.0°C)** at isolated places over Himachal Pradesh and near normal over rest parts of the country. Today, **the lowest minimum temperature** of **1.8°C** is reported at **Adampur_IAF (Punjab)** over the plains of the country.

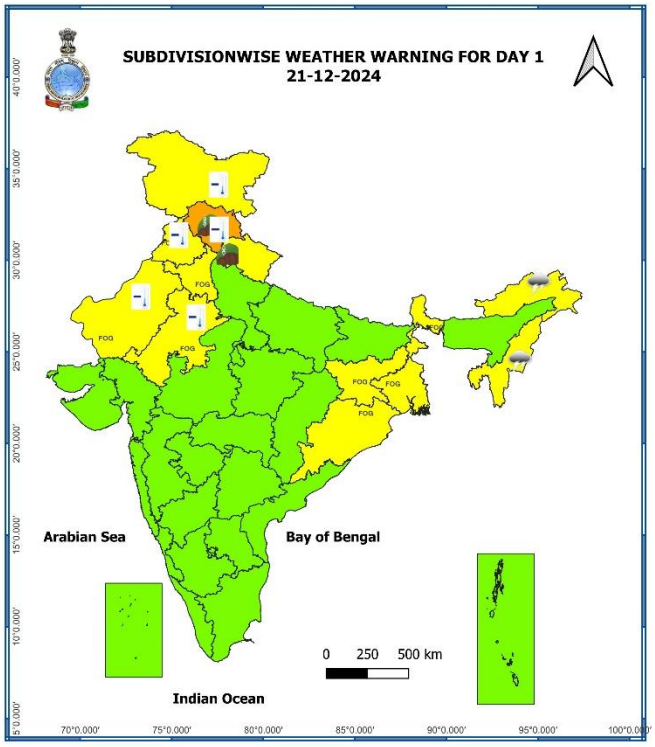
- **Maximum Temperature Departures (as on 20-12-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Bihar, Chhattisgarh, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over East Uttar Pradesh, Vidarbha, Jharkhand; at a few places over East Madhya Pradesh, Telangana, Kerala & Mahe, Marathwada; at isolated places over Interior Karnataka, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Uttar Pradesh. These were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over West Rajasthan, Saurashtra & Kutch, Odisha, Coastal Andhra Pradesh & Yanam; **below normal (-1.6°C to -3.0°C)** at isolated places over East Rajasthan, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Konkan & Goa, Gujarat Region and near normal over rest parts of the country. Yesterday, **the highest maximum temperature** of **35.2°C** was reported at **Madurai (Tamil Nadu)** over the plains of the country. **(Fig. 2)**

Meteorological Analysis (Based on 0830 hours IST)

- The **depression** over westcentral Bay of Bengal off Andhra Pradesh coast moved east-northeastwards with the speed of 12 kmph during past 6 hours and lay centred at 0830 hrs IST of 21st December 2024 over the westcentral Bay of Bengal, near latitude 14.0°N and longitude 84.5°E, about 430 km south-southeast of Visakhapatnam (Andhra Pradesh), 480 km east-northeast of Chennai (Tamil Nadu) and 590 km south- of Gopalpur (Odisha). The system is likely to move slowly east-northeastwards maintaining its intensity as a depression for next 12 hours and weaken gradually thereafter over the Sea.
- The **upper air cyclonic circulation** over east Bangladesh & neighbourhood at 1.5 km above mean sea level persists.
- The **cyclonic circulation** over northeast Assam & neighbourhood at 3.1 km above mean sea level persists.
- **Subtropical westerly Jet Stream** with core winds of the order upto 130 knots at 12.6 km above mean sea level continue to prevail over Northeast India.
- An **upper air cyclonic** circulation lies over south Rajasthan & neighbourhood at 1.5 km above mean sea level.
- A fresh **western disturbance** seen as a cyclonic circulation in middle tropospheric levels over Iraq & neighbourhood.
- Another fresh and active **western disturbance** is likely to affect western Himalayan region & adjoining plains from 27th December 2024.
- The **Western disturbance** as a trough in lower & middle tropospheric westerlies along Long. 78°E to the north of Lat. 25°N has moved away northeastwards.
- The **induced cyclonic** circulation over northwest Rajasthan & neighbourhood at 1.5 km above mean sea level has become less marked.

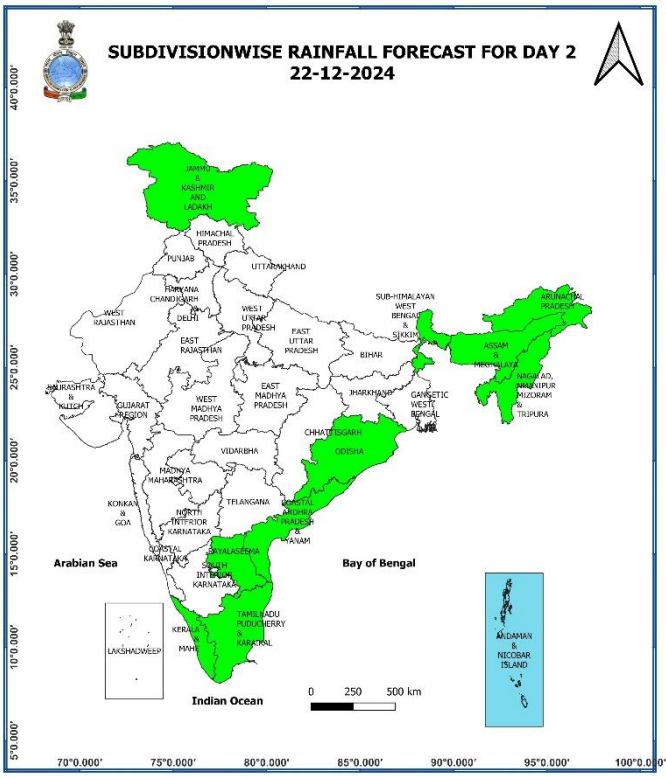
Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 28th December, 2024)

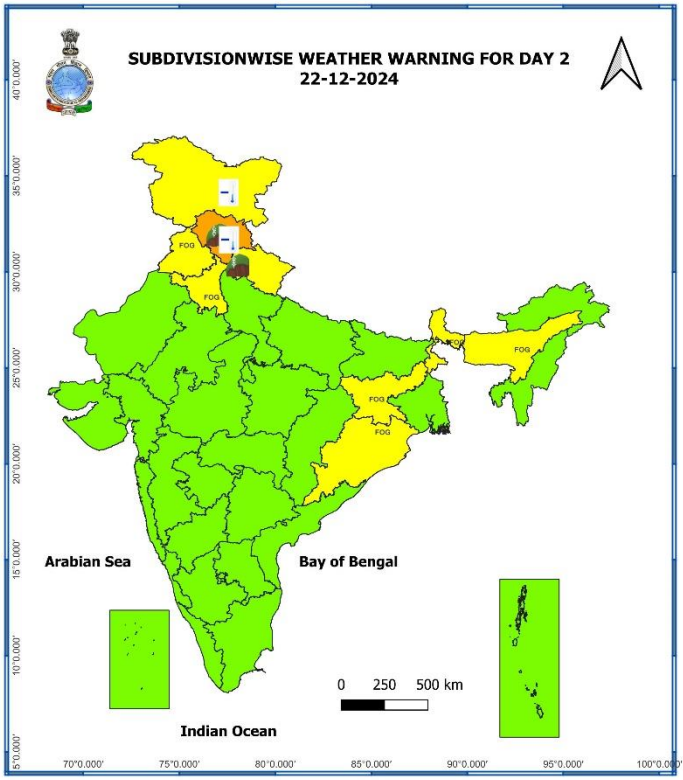




21 December (Day 1):

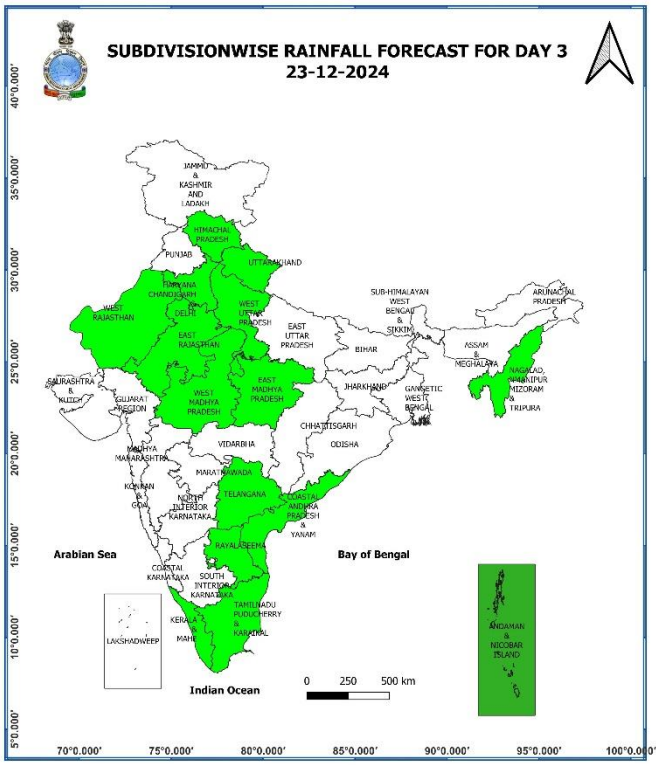
- **Thunderstorm accompanied with lightning** very likely at isolated places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura.
- **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh, Rajasthan, West Bengal & Sikkim, Jharkhand, Odisha in night/morning hours.
- **Cold Wave to severe cold wave Conditions** very likely at a few places over Himachal Pradesh; **Cold Wave Conditions** in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab, Rajasthan.
- **Ground Frost condition** very likely at isolated places over Himachal Pradesh, Uttarakhand.
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over most parts of westcentral Bay of Bengal, adjoining parts of southwest, eastcentral and northwest bay of Bengal, along and off Andhra Pradesh, south Odisha coasts. **Squally weather with wind speed 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over eastern parts of westcentral Bay of Bengal and adjoining eastcentral Bay of Bengal. Fishermen are advised not to venture into these areas.

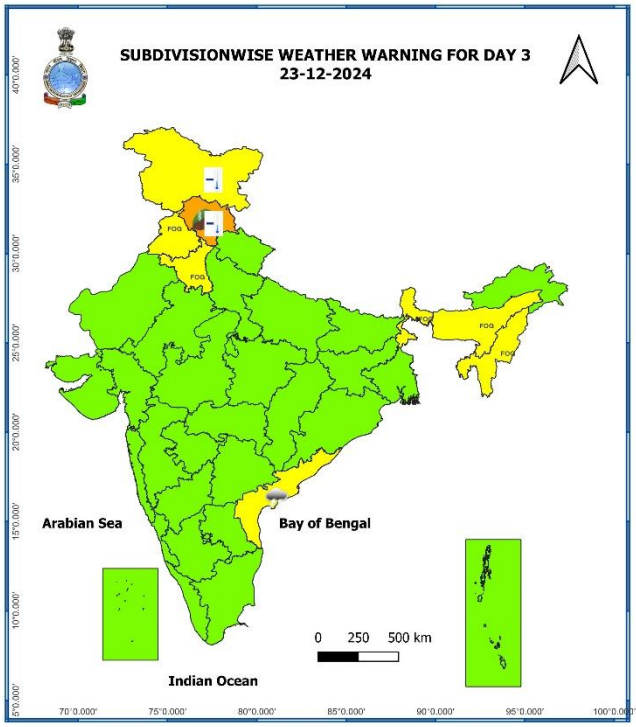




22 December (Day 2):

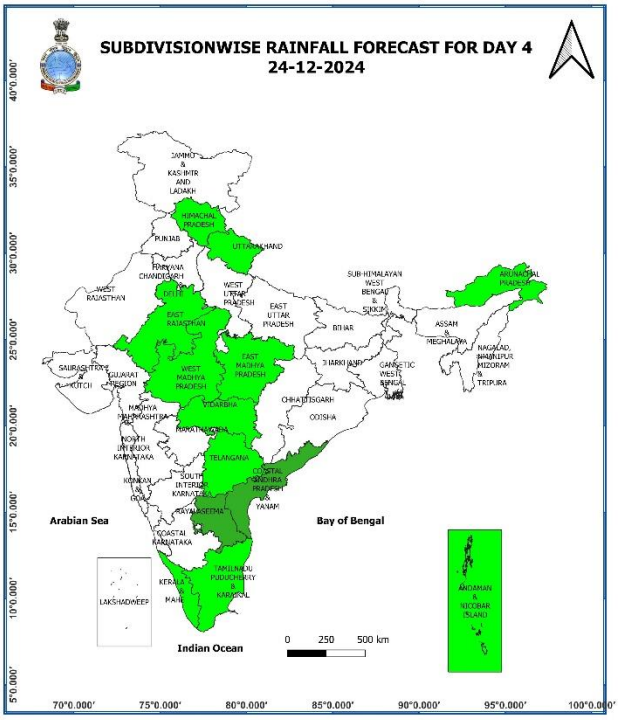
- **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh, Sub-Himalayan West Bengal & Sikkim, Jharkhand, Odisha, Assam & Meghalaya in night/morning hours.
- **Cold Wave to severe cold wave Conditions** very likely at a few places over Himachal Pradesh; **Cold Wave Conditions** in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- **Ground Frost condition** very likely at isolated places over Himachal Pradesh, Uttarakhand.
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over many parts of westcentral Bay of Bengal. Fishermen are advised not to venture into these areas.

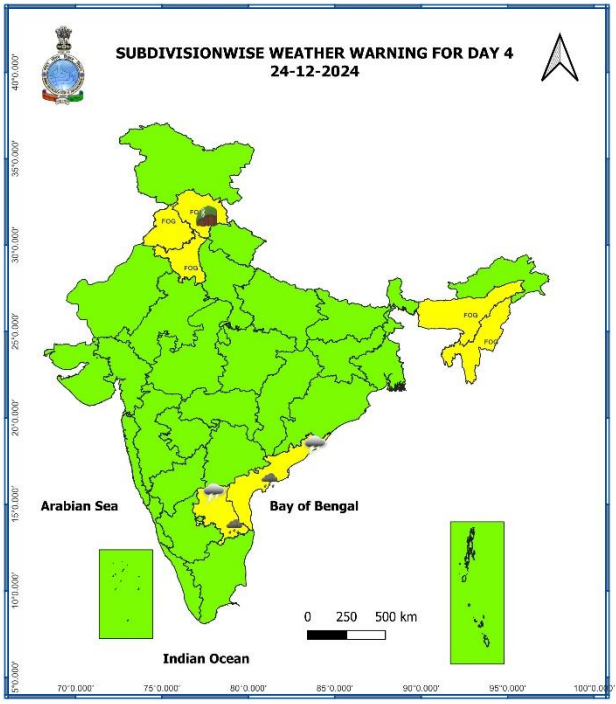




23 December (Day 3):

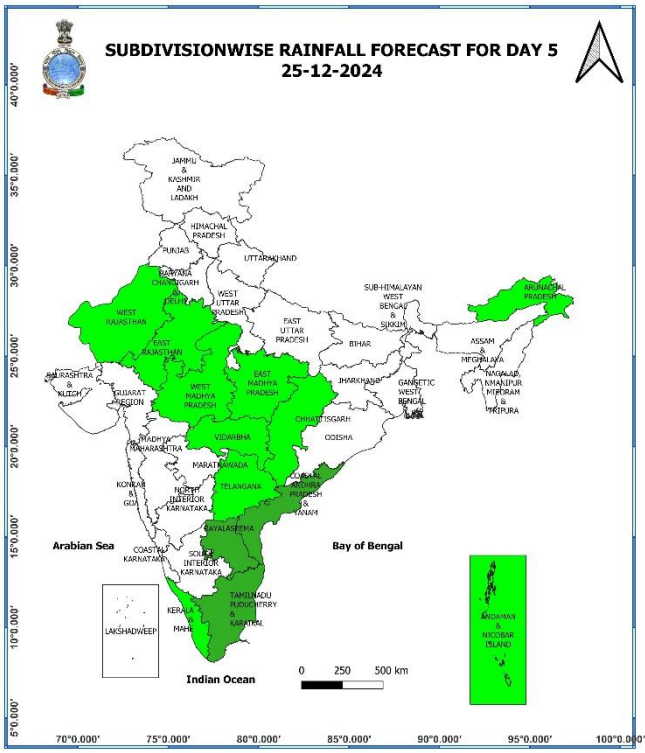
- **Thunderstorm accompanied with lightning** very likely at isolated places over Coastal Andhra Pradesh & Yanam.
- **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- **Cold Wave to severe cold wave** Conditions very likely at a few places over Himachal Pradesh**; Cold Wave Conditions** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- **Ground Frost condition** very likely at isolated places over Himachal Pradesh.
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over many parts of westcentral Bay of Bengal and adjoining parts of southwest Bay of Bengal. Fishermen are advised not to venture into these areas.

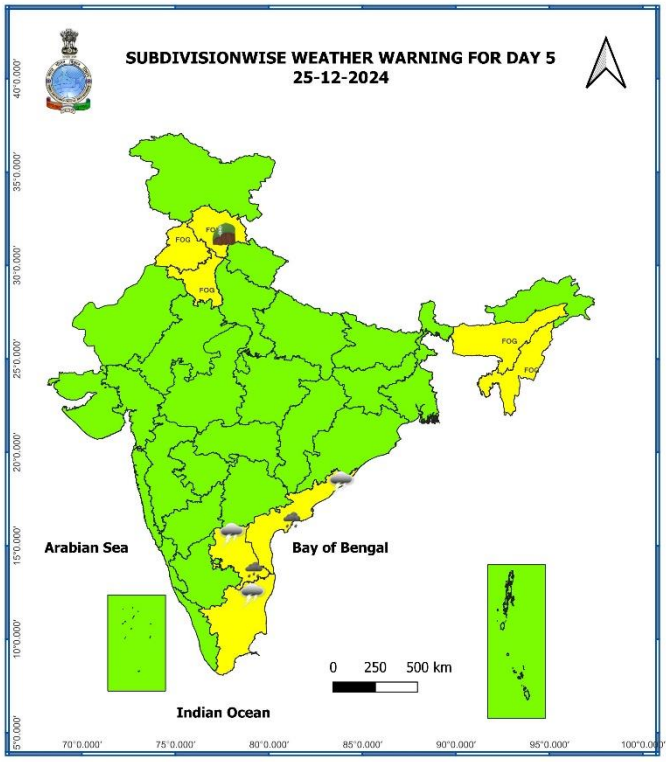




24 December (Day 4):

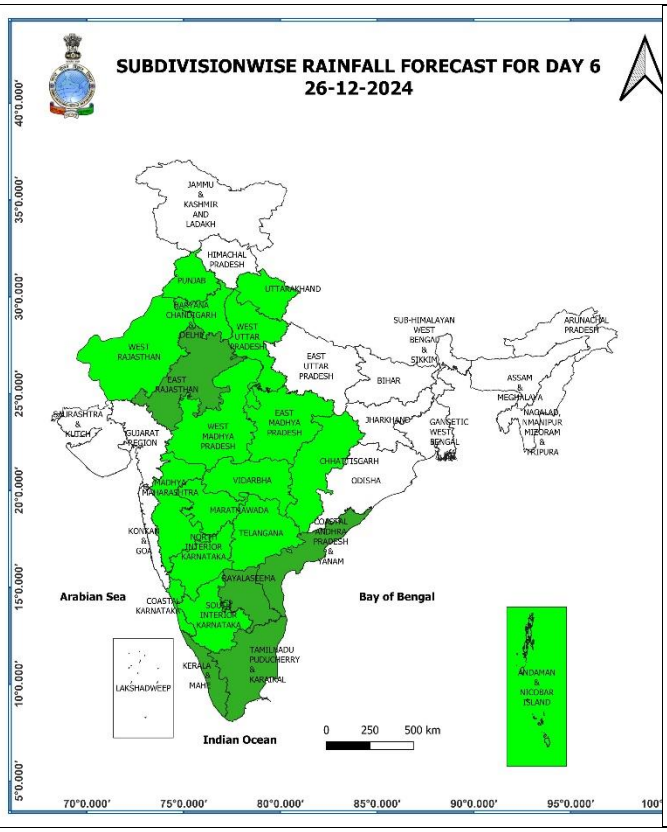
- **Heavy rainfall (≥7 cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema.
- **Thunderstorm accompanied with lightning** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema.
- **Dense fog** likely in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- **Ground Frost condition** likely at isolated places over Himachal Pradesh.
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over southwestern parts of westcentral Bay of Bengal and adjoining parts of southwest Bay of Bengal. Fishermen are advised not to venture into these areas.

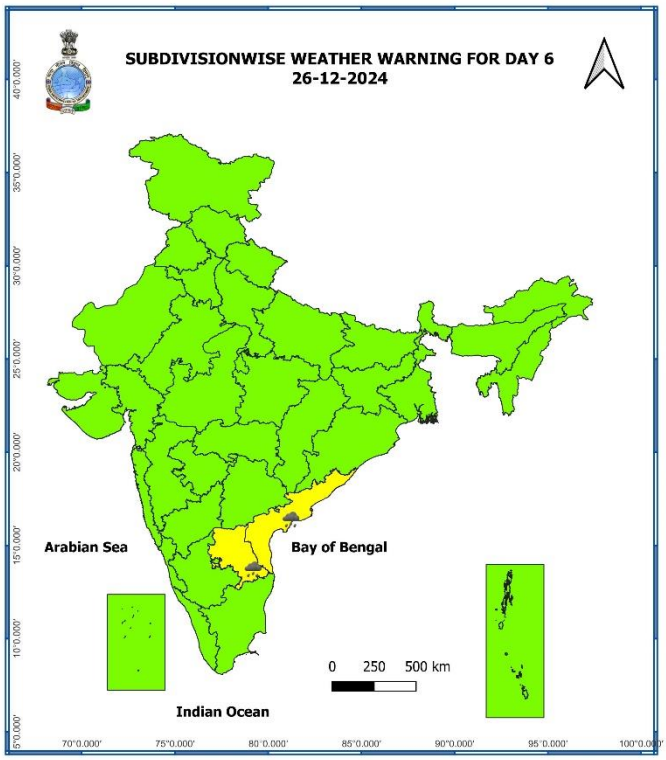




25 December (Day 5):

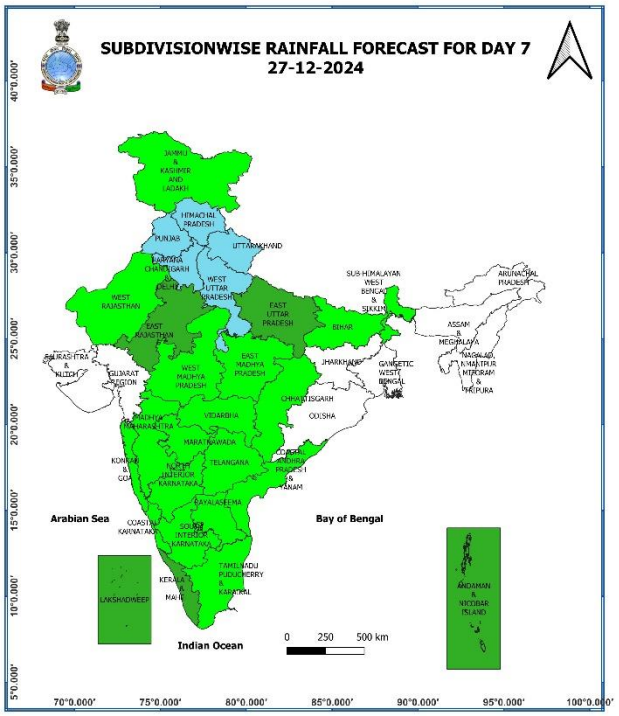
- **Heavy rainfall (≥7 cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema.
- **Thunderstorm accompanied with lightning** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema, Tamil Nadu, Puducherry & Karaikal.
- **Dense fog** likely in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- **Ground Frost condition** likely at isolated places over Himachal Pradesh.

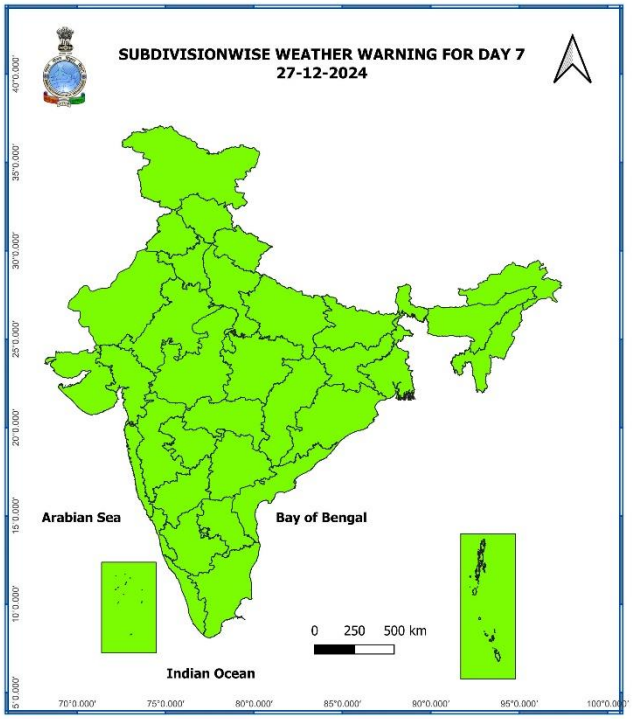




26 December (Day 6):

- **Heavy rainfall (≥7 cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema.





27 December (Day 7):

❖ **No warning.**

Weather Outlook for subsequent 3 days (During 28th December – 30th December, 2024)

❖ Scattered to Fairly widespread light to moderate rainfall likely over some parts of south peninsular India and Isolated to scattered light to moderate rainfall over Madhya Pradesh and Maharashtra.

❖ 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.**

Impact expected due to dense fog in the night /morning hour:

❖ 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.

Impact expected due to cold wave/severe cold wave conditions:

- An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- Frostbite can occur due to prolonged exposure to cold. The skin turns pale, hard and numb and eventually black blisters appear on exposed body parts such as fingers, toes, nose and or earlobes. Severe frostbite needs immediate medical attention and treatment.
- Impact on agriculture, crop, livestock, water supply, transport and power sector at some places.

Action suggested:

- Wear several layers of loose fitting, light weight; warm woollen clothing.
- Cover your head, neck, hands and toes adequately as majority of heat loss occurs through these body parts. Wear several layers of loose fitting, light weight; warm woollen clothing rather than one layer of heavy cloth.
- Eat vitamin-C rich fruits & vegetable and drink sufficient fluids preferably warm fluids to maintain adequate immunity.
- Avoid or limit outdoor activities.
- Keep dry, if wet, change cloths immediately to prevent loss of body heat. Wear insulated/waterproof shoes.
- Warm the affected area of the body slowly with lukewarm water; do not rub the skin vigorously.
- If the affected skin area turns black, immediately consult a doctor.
- Maintain ventilation while using Heaters to avoid inhaling toxic fumes.
- Take safety measures while using electrical and gas heating devices.
- Extreme care needed for vulnerable people.
- Seek medical attention as soon as possible for someone suffering from frostbite/ Hypothermia.
- Protect livestock from cold weather.

Agromet advisories for Heavy Rainfall / Cold Wave likely over various parts of the country

- In **Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab and Rajasthan,** apply light and frequent irrigation to the standing crops in the evening to protect them from low-temperature stress or cold injuries. Use mulching and cover vegetable nurseries and young fruit plants with straw/polythene sheets to maintain optimum soil temperature.
- Drain out excess water from standing crop fields and vegetables in Odisha, Coastal Andhra Pradesh and Tamil Nadu.

Livestock

- To protect from cold, keep cattle inside the sheds during night and provide dry bedding. Also keep the chicks warm by providing artificial light in the poultry sheds.

Fig. 1: Maximum Temperatures

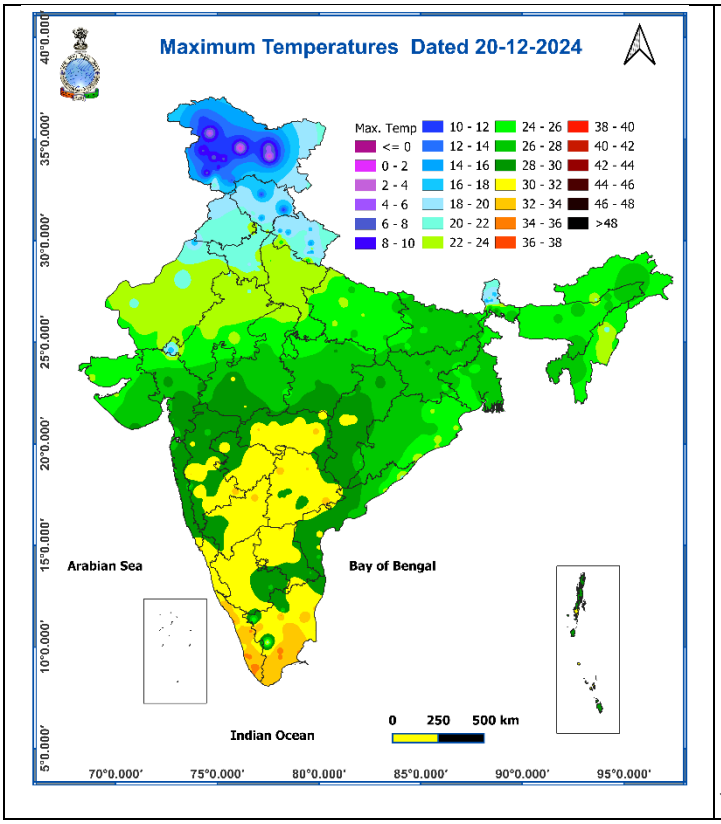


Fig. 2: Departure of Maximum Temperatures

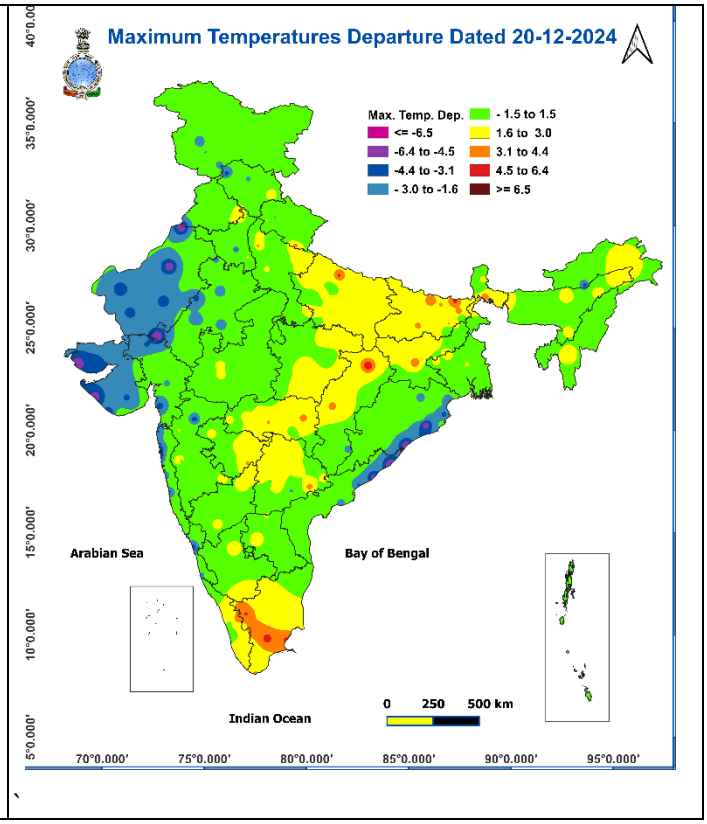


Fig. 3: Minimum Temperatures

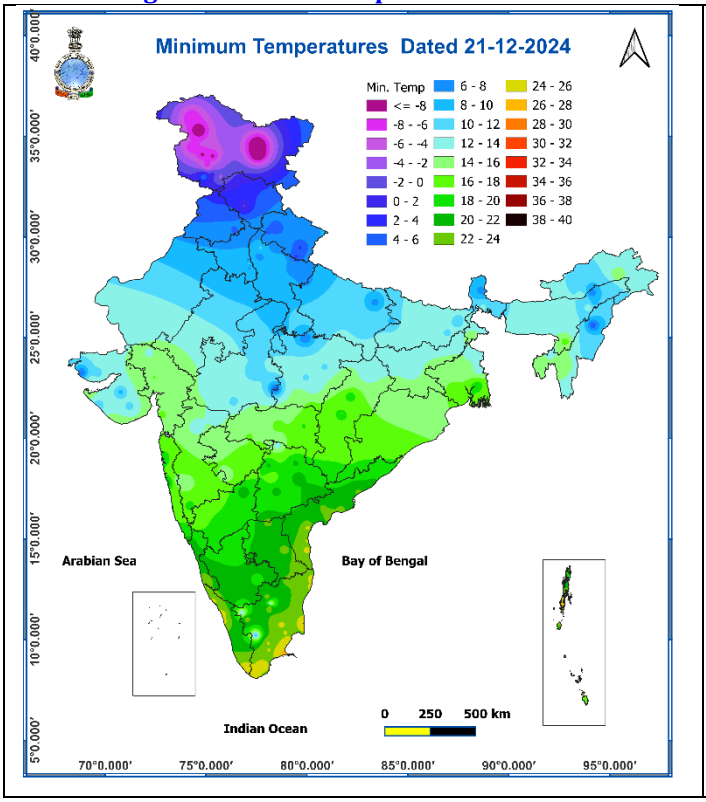


Fig. 4: Departure of Minimum Temperatures

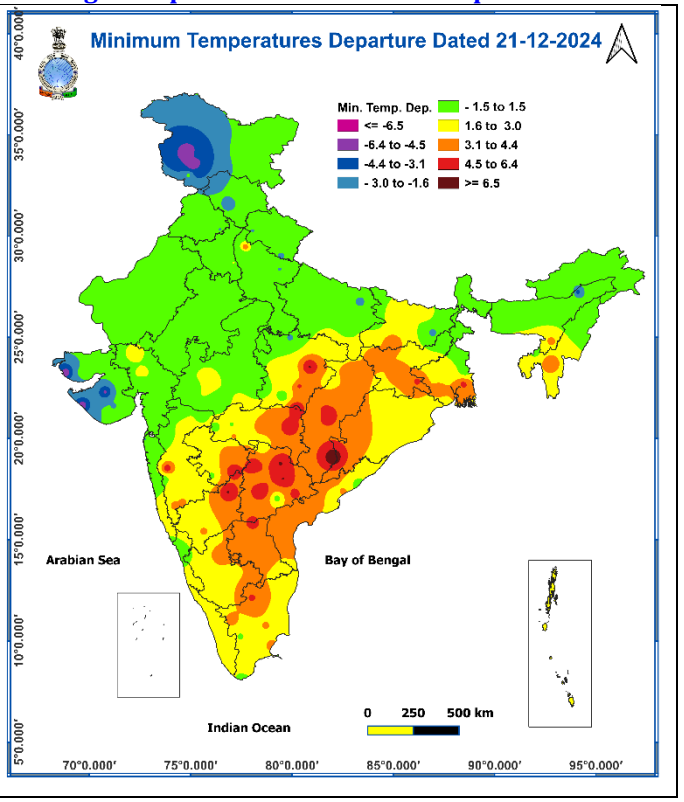


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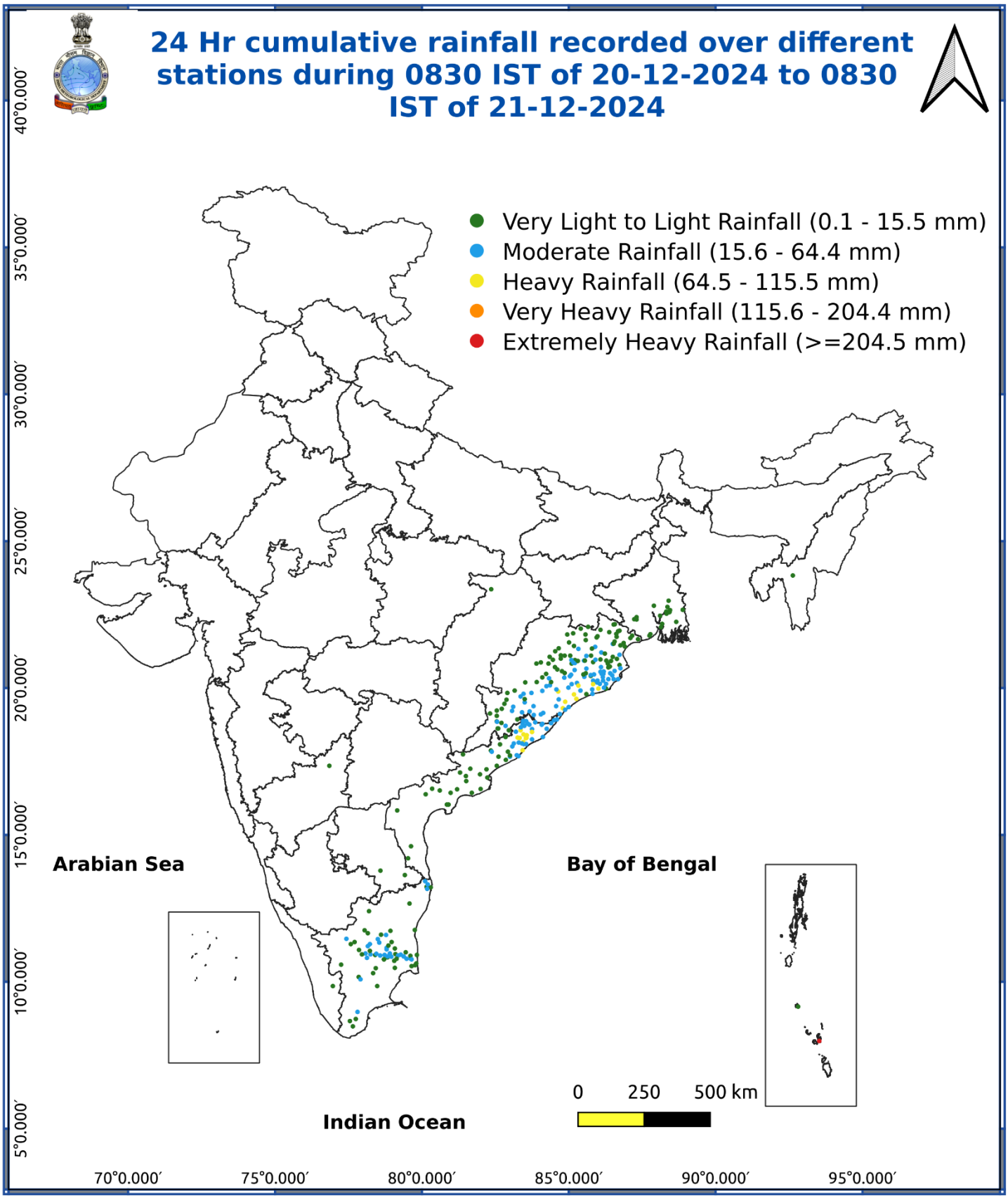
Fig. 5: Accumulated Rainfall (mm) during past 24 hours

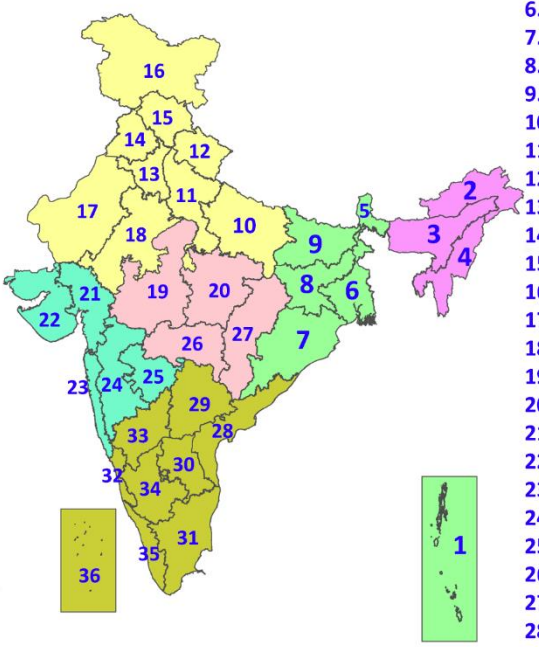


राष्ट्रीय मौसम पूर्वानुमान केन्द्र
भारत मौसम विज्ञान विभाग
पृथ्वी विज्ञान मंत्रालय

National Weather Forecasting Centre
India Meteorological Department
Ministry of Earth Sciences

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)

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
Strong Surface Winds
Cold Wave
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

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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 ≥40° C for plains and ≥30° C for hilly regions

(a) Based on Departure from normal

- **Heat Wave:** Maximum Temperature Departure from normal 4.5° C to 6.4° C.
- **Severe Heat Wave:** Maximum Temperature Departure from normal ≥6.5° C

(b). Based on Actual maximum temperature

- **Heat Wave:** When actual maximum temperature ≥45°C.
- **Severe Heat Wave:** When actual maximum temperature ≥47°C

(c). Criteria for heat wave for coastal stations

When maximum temperature departure is >4.5°C from normal. Heat Wave may be described provided maximum temperature ≥37°C

Warm Night

When maximum temperature remains 40°C

- **Warm Night:** When minimum temperature departure 4.5 °C to 6.4 °C.
- **Severe Warm Night:** When minimum temperature departure >6.4 °C.

Cold Wave

When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions.

(a). Based on departure

- **Cold Wave:** Minimum Temperature Departure from normal -4.5 °C to -6.4 °C.
- **Severe Cold Wave:** Minimum Temperature Departure from normal ≤ -6.5 °C

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

- **Cold Wave :** When Minimum Temperature is ≤ 4.0 °C
- **Severe Cold Wave:** When Minimum Temperature is ≤ 2.0 °C

(c) For Coastal Stations

When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C

Cold Day

When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions

Based on departure

- **Cold Day:** Maximum Temperature Departure from normal -4.5 °C to -6.4 °C.
- **Severe Cold Day:** Maximum Temperature Departure from normal ≤ -6.5 °C

Fog

Phenomenon of small droplets suspended in air and the horizontal visibility < 1km

- **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 ≤4°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)