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: 0845 hours IST**
**(MORNING)**

# ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

## Significant Weather Features:

**Weather Systems:**

- The **depression** over westcentral Bay of Bengal off Andhra Pradesh coast moved east-northeastwards with the speed of 7 kmph during past 6 hours and lay centred at 0530 hrs IST of 21st December 2024 over the same region, near latitude 13.9°N and longitude 84.2°E, about 450 km east-northeast of Chennai (Tamil Nadu), 440 km south-southeast of Visakhapatnam (Andhra Pradesh) and 600 km south-southwest 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 in the Sea.
- A **Western disturbance** as a trough in lower & middle tropospheric westerlies runs roughly along Long. 78°E to the north of Lat. 25°N with an induced cyclonic circulation in the lower levels over northwest Rajasthan and neighbourhood.
- A fresh feeble **Western disturbance** is likely to affect Northwest India from 22nd December 2024.
- Another fresh and active **Western disturbance** is likely to affect Western Himalayan region & adjoining plains from 27th December 2024.

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

- Light rainfall/snowfall very likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh during 22nd- 24th December.

**ii. Temperature, Cold Wave and Fog Forecast:**

**Temperature Conditions during past 24 hours till 0830 hours IST of 20th December:**

Minimum temperatures were
**below 0°C** over many parts of Jammu, Kashmir & Ladakh & Himachal Pradesh;
**4-8°C** over major parts of Punjab, Haryana, Chandigarh, Delhi and Rajasthan;
**8-12°C** over many parts of Madhya Pradesh, Bihar & Jharkhand.
**The lowest minimum temperature** of **3.8°C** was reported at **Adampur_IAF (Punjab)** over the plains of the country.
**Minimum temperatures had fallen** by 1-2°C over some parts of Jammu-Kashmir & risen by 2-5°C in most parts of East Madhya Pradesh, Chhattisgarh, Marathwada, Vidarbha, Madhya Maharashtra & Telangana; in many parts of Haryana; in some parts of Punjab, East Rajasthan, West Madhya Pradesh, West Uttar Pradesh, interior Odisha and North Interior Karnataka.
Minimum temperatures were **below normal (-1°C to -3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, East Uttar Pradesh, West Rajasthan, Saurashtra & Kutch and near normal over rest parts of the country.

**Forecast of temperature:**

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

**Cold Wave Warnings:**

**Cold wave to severe cold wave** conditions very likely in some parts of Himachal Pradesh during 21st -24th December;
**Cold wave** conditions very likely in isolated pockets over Himachal Pradesh on 25th & 26th, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 21st -26th, 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, East Rajasthan & Jharkhand till 22nd, Punjab, Haryana & Assam & Meghalaya during 22nd-25th, West Bengal & Sikkim & Bihar on 21st & 22nd December.

**Ground Frost Warnings:**

**Ground Frost** conditions very likely in isolated pockets of Himachal Pradesh during 21st -24th and Uttarakhand, Arunachal Pradesh & Meghalaya on 21st December.

**iii. Weather forecast over Delhi/NCR during 21st to 23rd Dec. 2024**

**21.12.2024**: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with 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 less than 06 kmph from northwest 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.

**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/ moderate to dense fog is likely in the morning hours. The wind speed will gradually increase becoming 06-08 kmph from southeast direction during afternoon. It will decrease thereafter becoming less than 04 kmph from southeast direction during evening and night. Smog/shallow fog is likely in the evening/night.

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

## Main Weather Observations:

- **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at a few places** over Odisha, Coastal Andhra Pradesh & Yanam; **at isolated places** over Tamil Nadu, Puducherry & Karaikal, 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): **Coastal Andhra Pradesh & Yanam:** Kalingapatnam & Vishakhapatnam-2 each; **Odisha**: Paradip-3, Bhubaneshwar-2, Gopalpur-1; **Andaman & Nicobar Islands**: Nancowry-3.

- **Moderate fog** (at 0530 Hours IST of today) reported in isolated pockets of Delhi, Uttar Pradesh, Punjab and West Rajasthan.

- **Visibility reported** (at 0530 Hours IST of today) **(≤ 200 m)** (in meter): **Delhi:** Safdarjung-200; **West Uttar Pradesh:** Agra & Sarsawa IAF -200; **East Uttar Pradesh**: Ghorpur-200; **Punjab:** Bhatinda IAF-200; **West Rajasthan:** Suratgarh IAF-200.

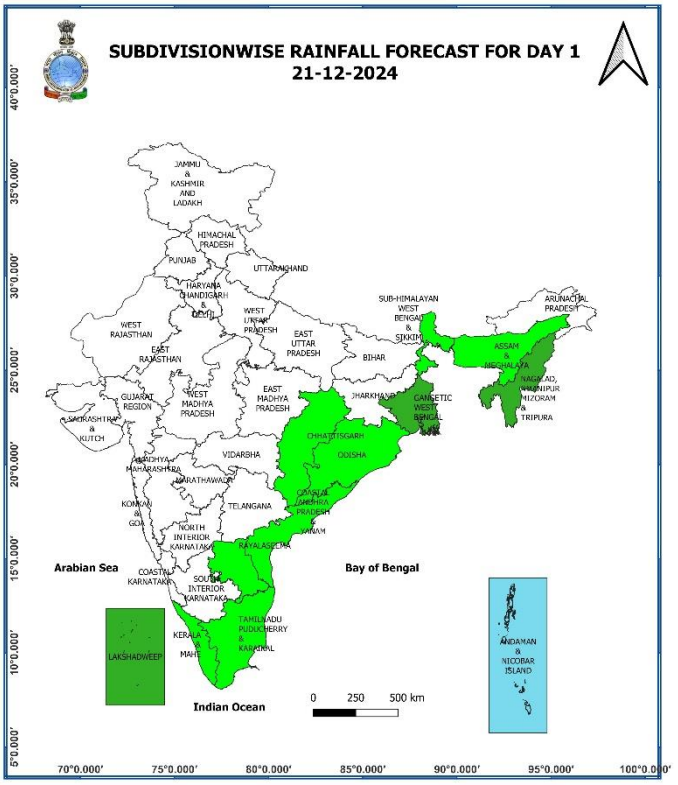
- **Minimum Temperatures Departures (as on 20-12-2024):** Minimum temperatures were **Markedly above normal (5.1°C or more)** at few places over Odisha, Telangana; at isolated places over Chhattisgarh; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Andaman & Nicobar Islands, Rayalaseema; at isolated places over East Madhya Pradesh, Vidarbha, Coastal Andhra Pradesh & Yanam, North Interior Karnataka, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at a few places over Bihar, Kerala & Mahe; at isolated places over East Rajasthan, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Marathwada, Madhya Maharashtra, South Interior Karnataka, Coastal Karnataka, Gujarat Region. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, East Uttar Pradesh, Saurashtra & Kutch, West Rajasthan and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature** of **3.8°C** was reported at **Adampur_IAF (Punjab)** over the plains of the country.

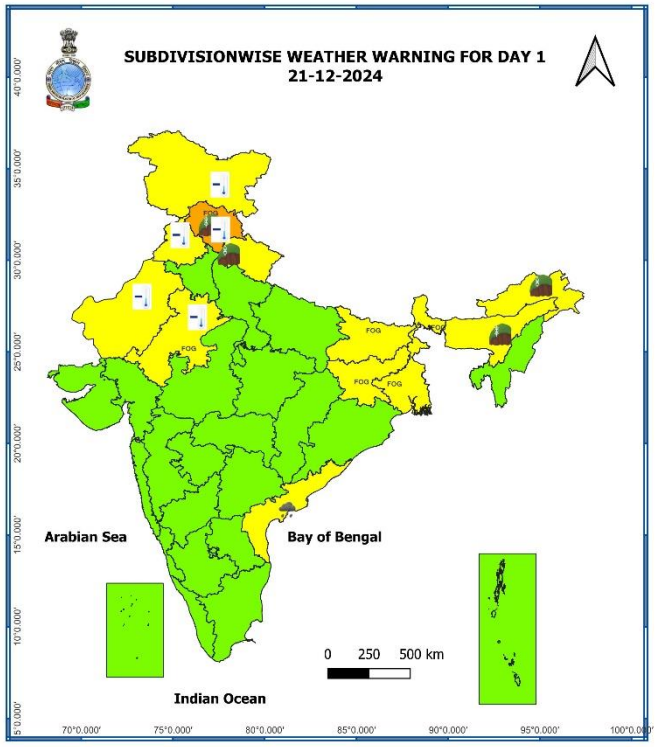
- **Maximum Temperature Departures (as on 20-12-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Bihar, Chhattisgarh, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over East Uttar Pradesh, Vidarbha, Jharkhand; 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 0530 hours IST)

- The **depression** over westcentral Bay of Bengal off Andhra Pradesh coast moved east-northeastwards with the speed of 7 kmph during past 6 hours and lay centred at 0530 hrs IST of 21st December 2024 over the same region, near latitude 13.9°N and longitude 84.2°E, about 450 km east-northeast of Chennai (Tamil Nadu), 440 km south-southeast of Visakhapatnam (Andhra Pradesh) and 600 km south-southwest 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 in the Sea.
- The **Western disturbance** as a trough in lower & middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 78°E to the north of Lat. 25°N.
- The **induced cyclonic** circulation over northwest Rajasthan & neighbourhood at 1.5 km above mean sea level persists.
- 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 125 knots at 12.6 km above mean sea level continue to prevail over Northwest India.
- A fresh feeble **western disturbance** is likely to affect northwest India from 22nd December 2024
- Another fresh and active **western disturbance** is likely to affect western Himalayan region & adjoining plains from 27th December 2024.

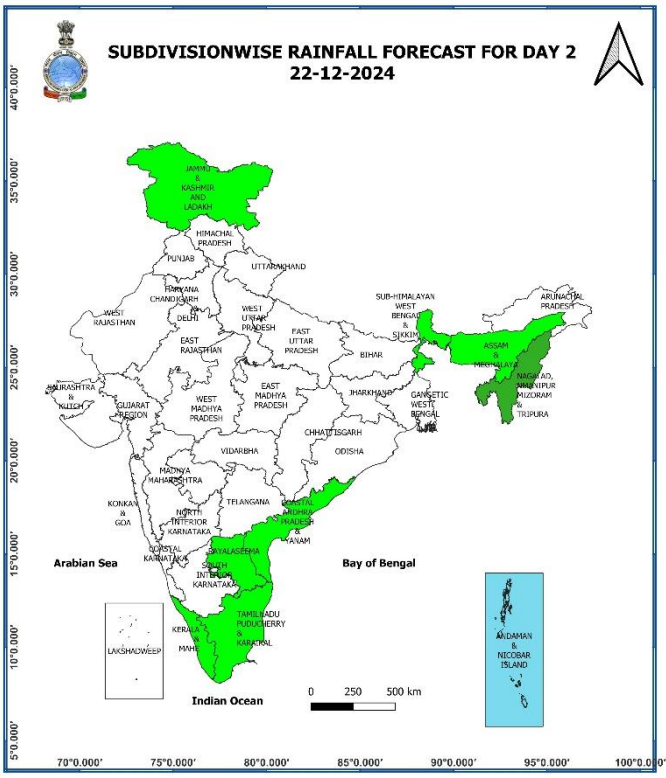
# Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 28th December, 2024)

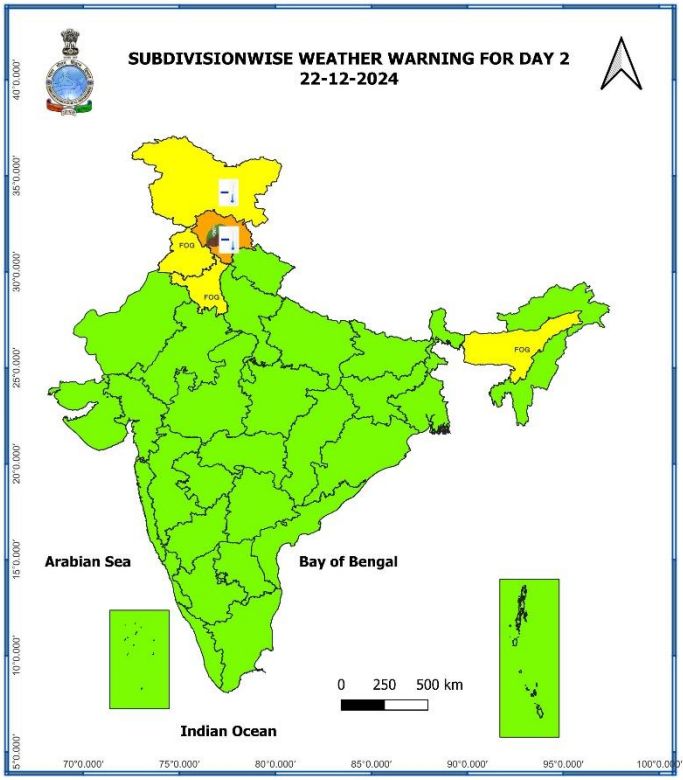



## 21 December (Day 1):

- **Heavy rainfall (≥7 cm)** very likely at isolated places over north Coastal Andhra Pradesh & Yanam.
- **Dense fog** very likely in isolated pockets of Himachal Pradesh, East Rajasthan, Gangetic West Bengal, Bihar, Jharkhand 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, Arunachal Pradesh, Assam & Meghalaya.
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over most parts of westcentral **B**ay 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 central parts of westcentral Bay of Bengal. Fishermen are advised not to venture into these areas.



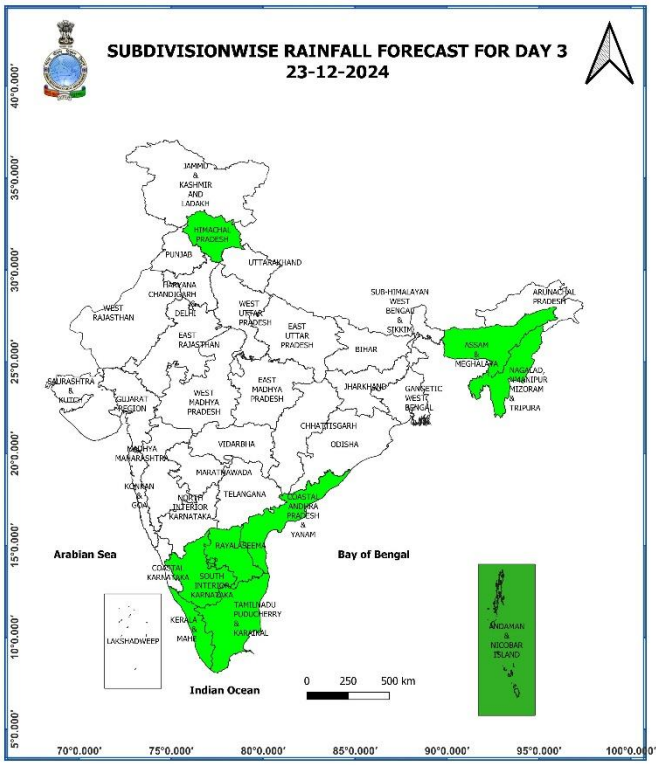

## 22 December (Day 2):

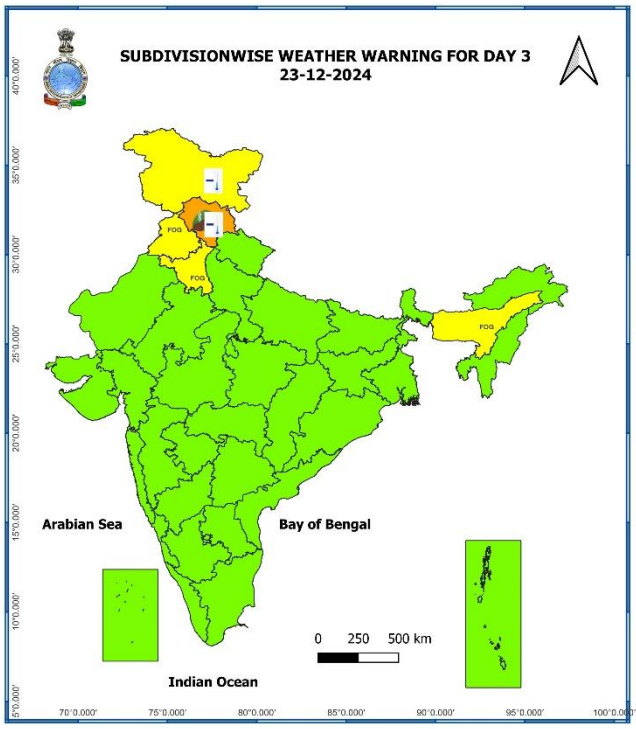
- **Dense fog** very likely in isolated pockets of Punjab and Haryana-Chandigarh, Assam & Meghalaya in night/morning hours.

- **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.

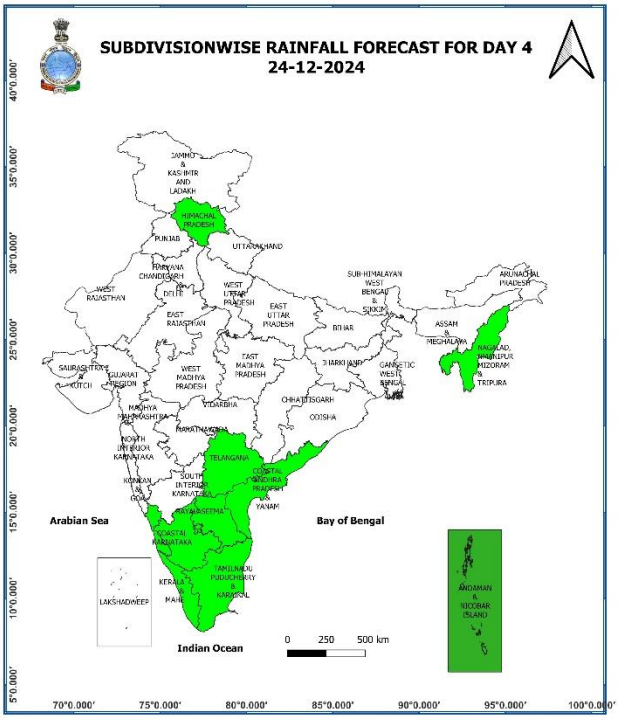
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over most parts of westcentral Bay of Bengal, off Andhra Pradesh coast. **Squally weather with wind speed 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over central parts of westcentral Bay of Bengal. Fishermen are advised not to venture into these areas.

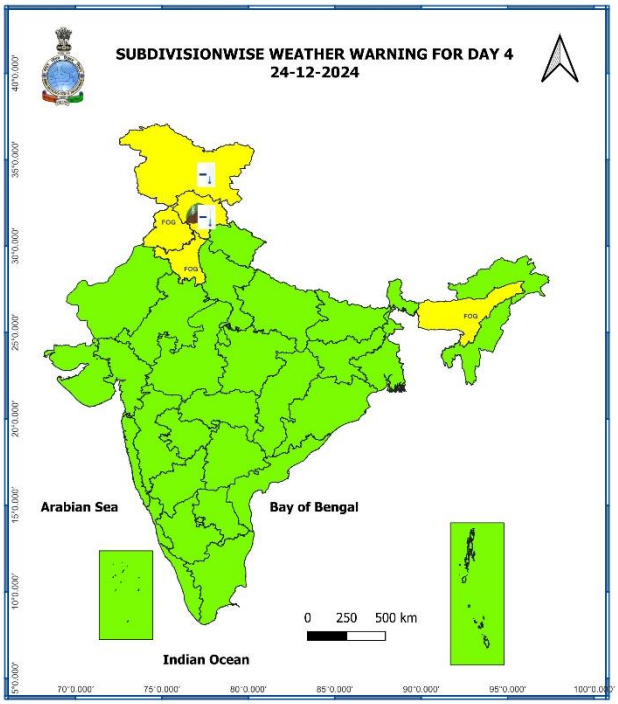



## 23 December (Day 3):

- **Dense fog** likely in isolated pockets of Punjab, Haryana-Chandigarh, 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** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- **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.



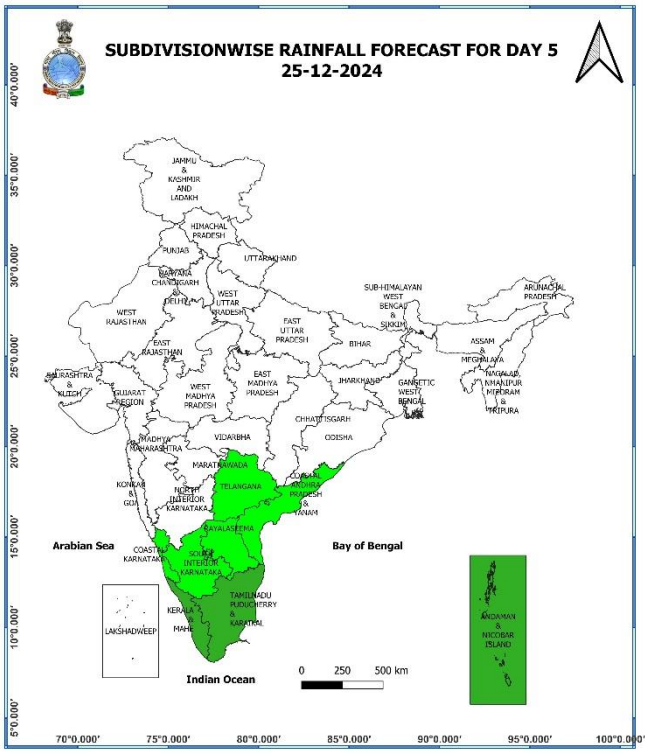



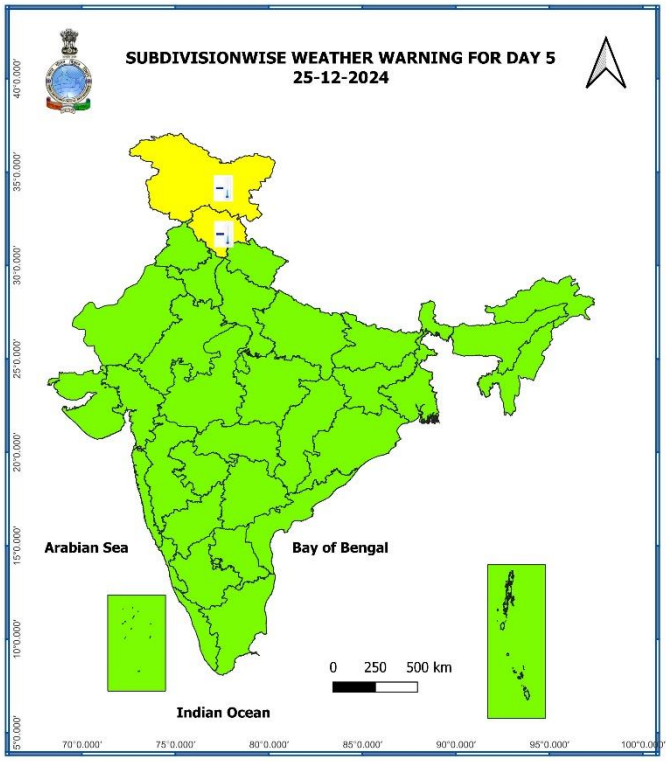

## 24 December (Day 4):

- **Dense fog** likely in isolated pockets of Punjab, Haryana-Chandigarh, 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** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.

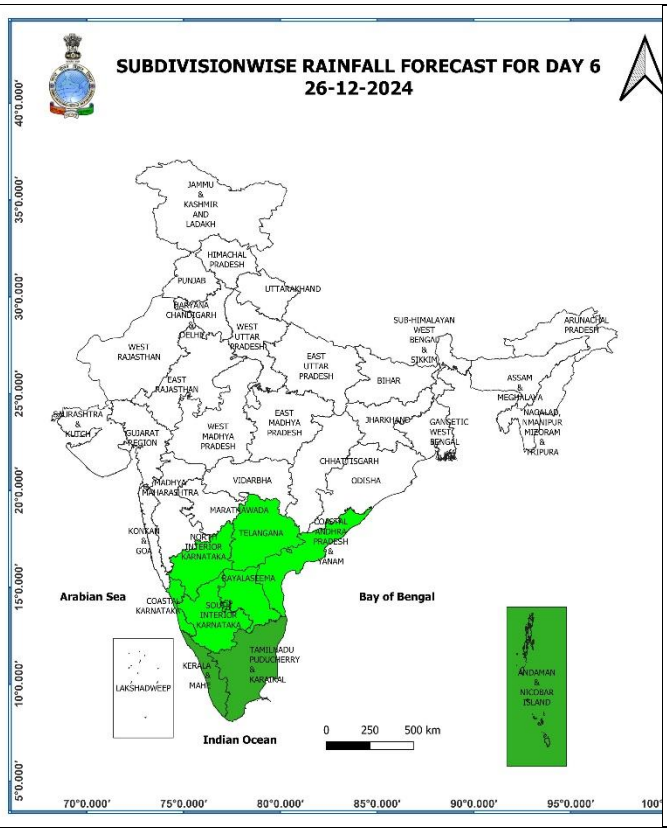
- **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over southwestern parts of westcentral Bay of Bengal and adjoining parts of southwest bay of Bay of Bengal. Fishermen are advised not to venture into these areas.

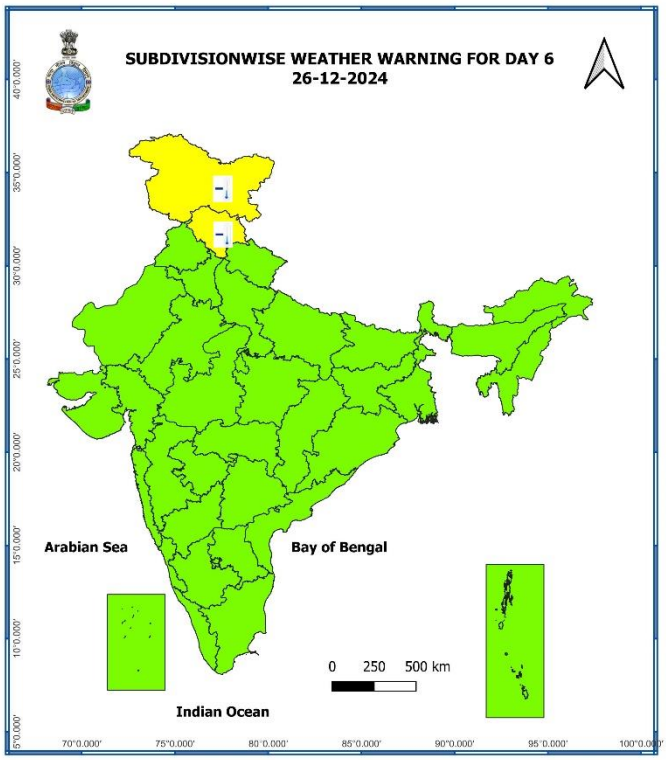



## 25 December (Day 5):

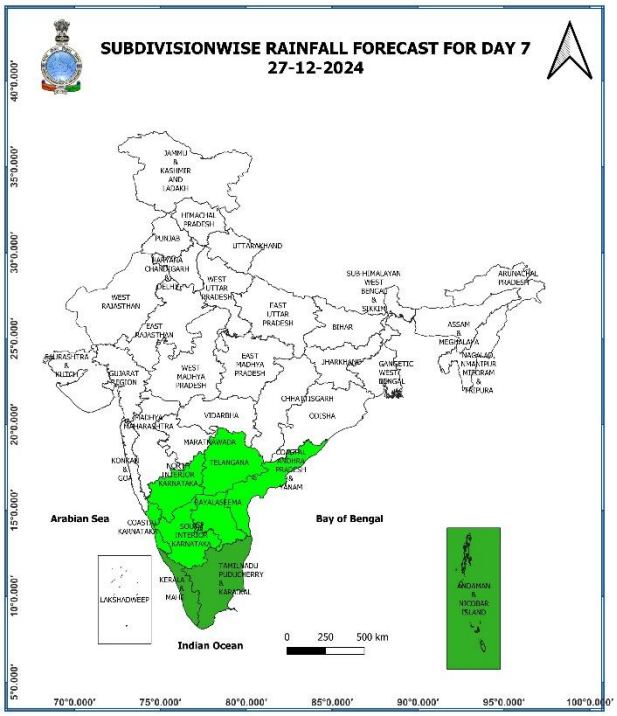
- **Cold Wave Conditions** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.

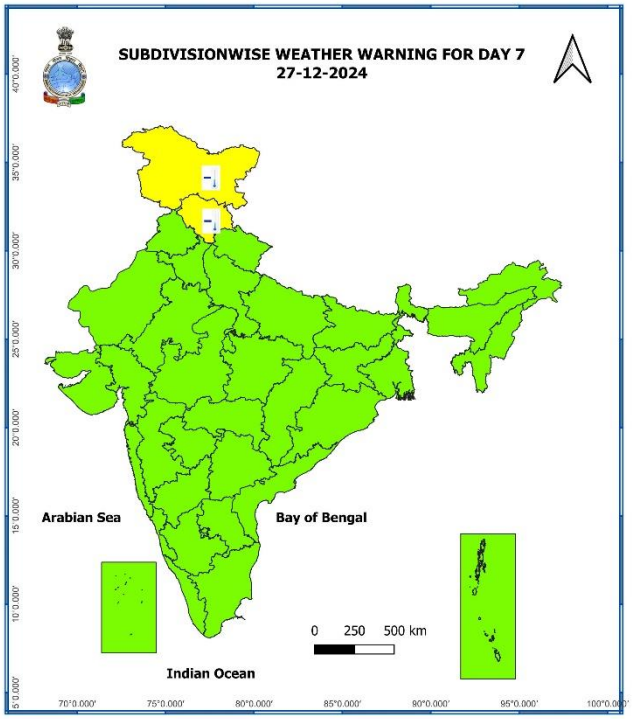



## 26 December (Day 6):

- **Cold Wave Conditions** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.




## 27 December (Day 7):

❖ **Cold Wave Conditions** likely in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.

## 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.

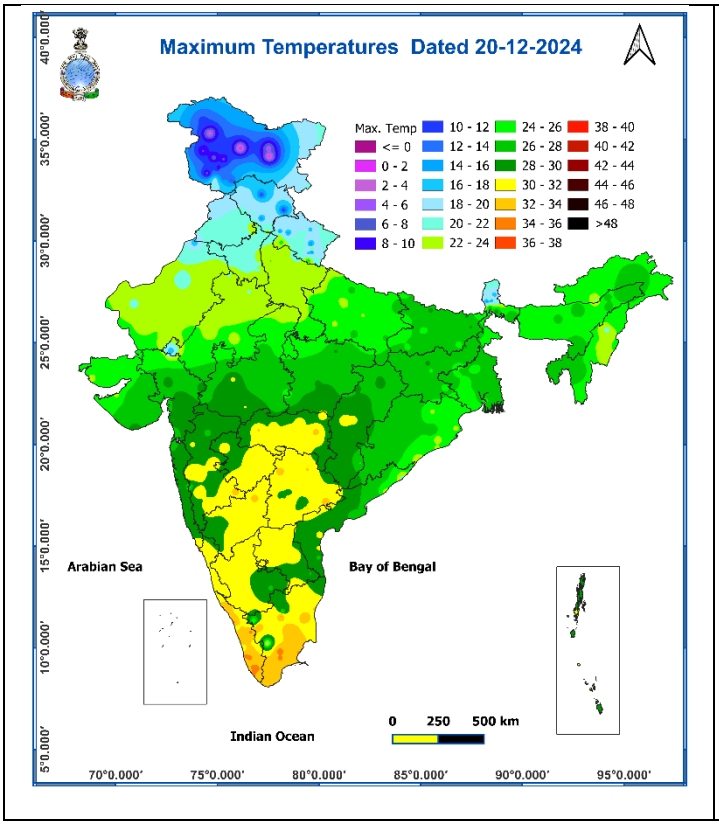
## Agromet advisories for Heavy Rainfall / Cold Wave likely over various parts of the country

- In **Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Rajasthan and Arunachal Pradesh** 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.

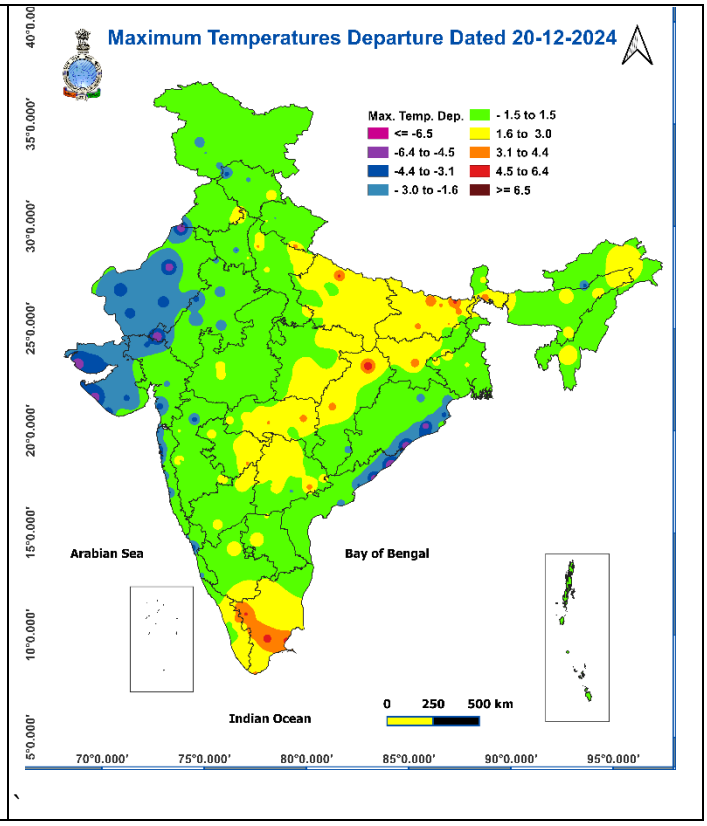
## Livestock

- 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.

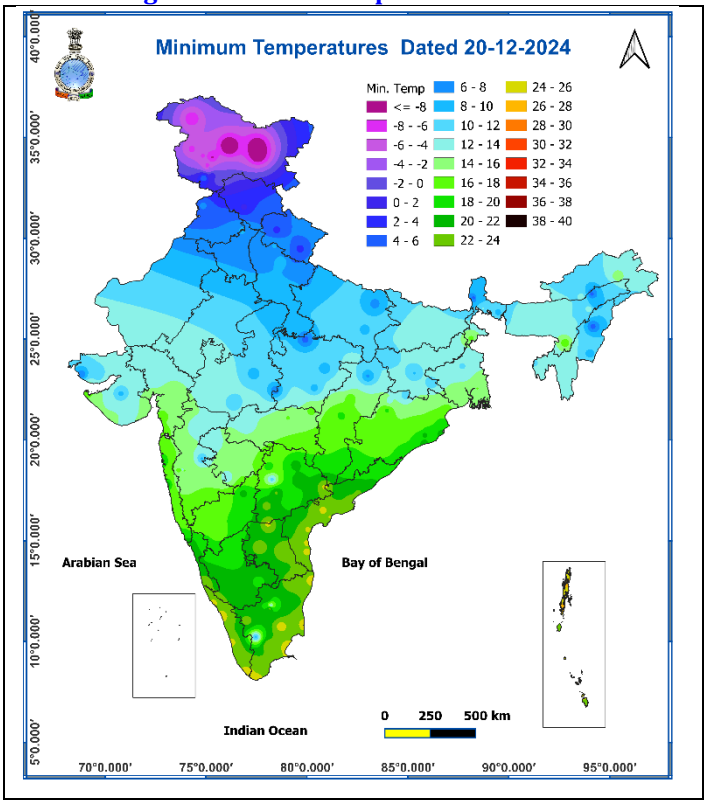
## Fig. 1: Maximum Temperatures



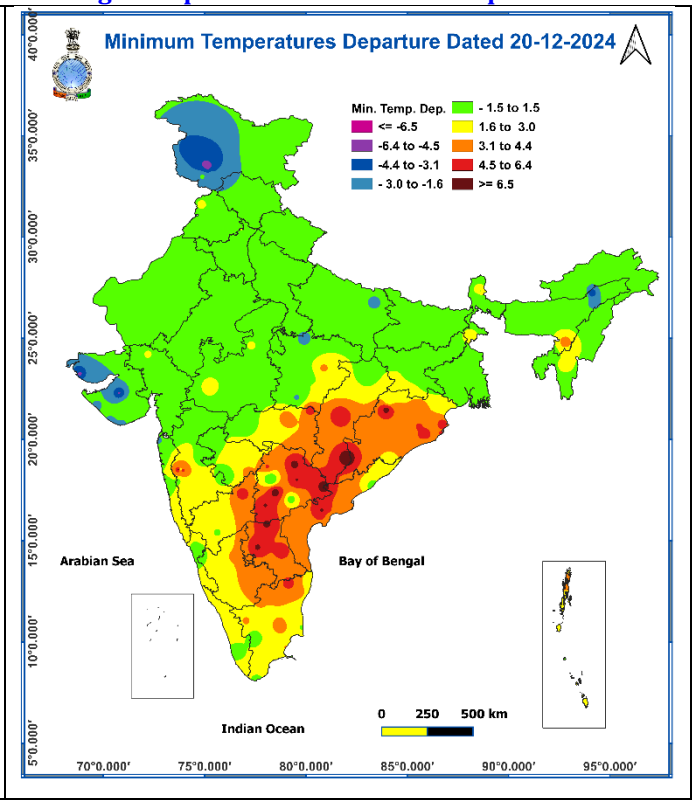

## Fig. 2: Departure of Maximum Temperatures




## Fig. 3: Minimum Temperatures

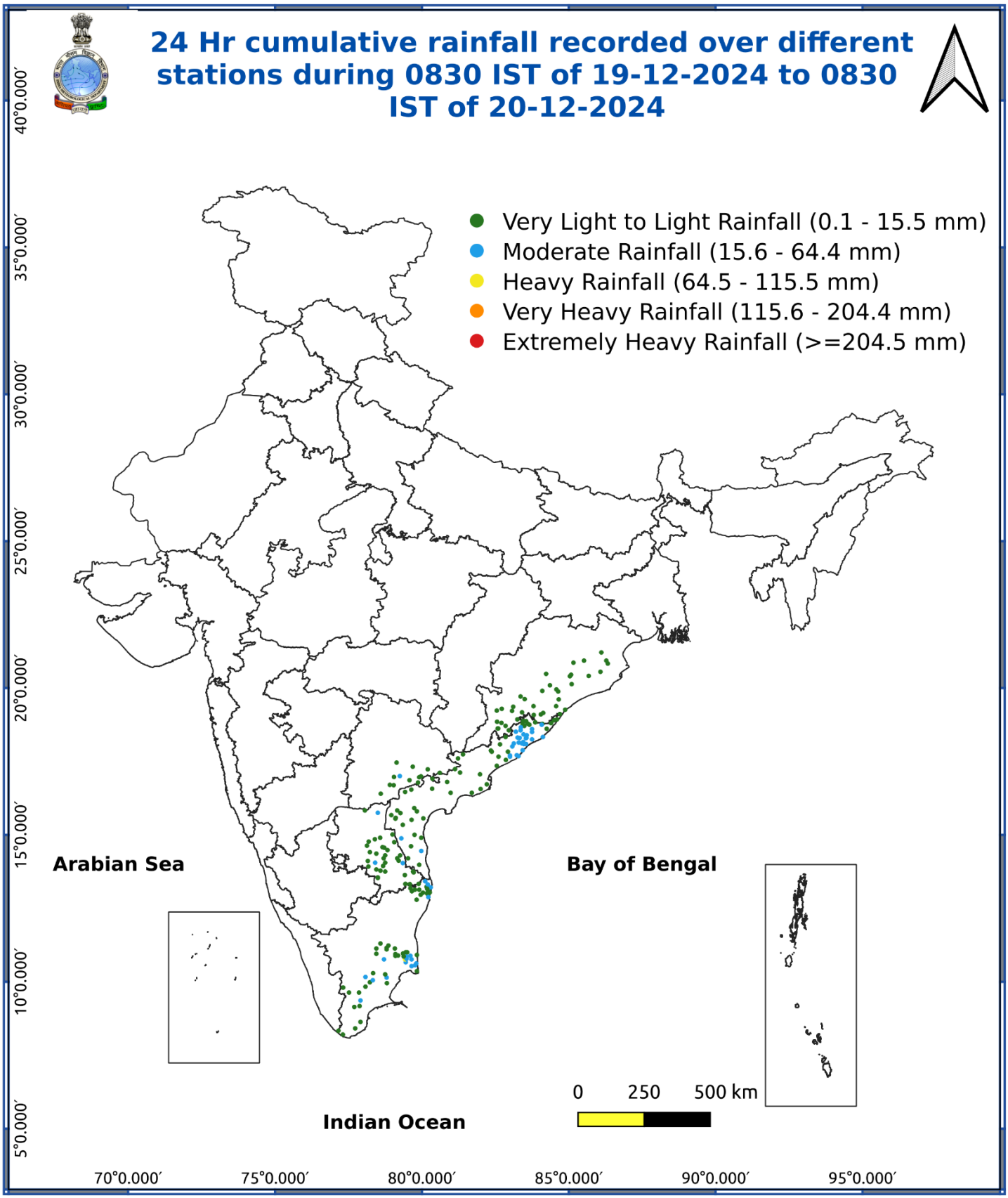



## Fig. 4: Departure of Minimum Temperatures



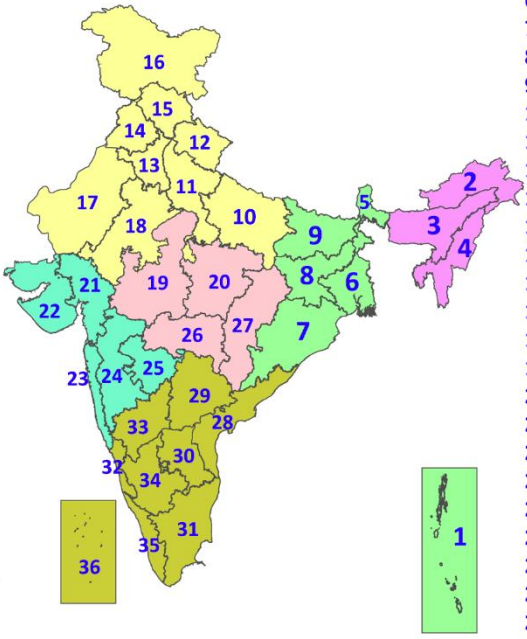

* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.
For more details, kindly visit https://mausam.imd.gov.in or contact: 011-2434-4599
(Service to the Nation since 1875)

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



# 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 |

* 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
(Service to the Nation since 1875)

# DEFINITION/CRITERIA

| | |
|---|---|
| **Rain/ Snow *** | **Heavy:** 64.5 to 115.5 mm/cm *<br>**Very Heavy:** 115.6 to 204.4 mm/cm*<br>**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**<br>**(a) Based on Departure from normal**<br>**Heat Wave:** Maximum Temperature Departure from normal 4.5° C to 6.4° C.<br>**Severe Heat Wave:** Maximum Temperature Departure from normal ≥6.5° C<br>**(b). Based on Actual maximum temperature**<br>**Heat Wave:** When actual maximum temperature ≥45°C.<br>**Severe Heat Wave:** When actual maximum temperature ≥47°C<br>**( c). Criteria for heat wave for coastal stations**<br>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**<br>**Warm Night:** When minimum temperature departure 4.5 °C to 6.4 °C.<br>**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.**<br>**(a). Based on departure**<br>**Cold Wave:** Minimum Temperature Departure from normal -4.5 °C to -6.4 °C.<br>**Severe Cold Wave:** Minimum Temperature Departure from normal ≤ -6.5 °C<br>**(b) Based on actual Minimum Temperature (for Plains only)**<br>**Cold Wave :** When Minimum Temperature is ≤ 4.0 °C<br>**Severe Cold Wave:** When Minimum Temperature is ≤ 2.0 °C<br>**( c) For Coastal Stations**<br>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**<br>**Based on departure**<br>**Cold Day:** Maximum Temperature Departure from normal -4.5 °C to -6.4 °C.<br>**Severe Cold Day:** Maximum Temperature Departure from normal ≤ -6.5 °C |
| **Fog** | **Phenomenon of small droplets suspended in air and the horizontal visibility < 1km**<br>**Moderate Fog:** When the visibility between 500-200 metres<br>**Dense Fog:** when the visibility between 50- 200 metres<br>**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**<br>Air temperature ≤4°C ( over Plains) |
| **Squall** | **A strong wind that rises suddenly, lasts for atleast 1 minute.**<br>**Moderate**: Wind speed 52-61 kmph<br>**Severe**: Wind speed 62-87 kmph<br>**Very Severe**: Wind speed >87 kmph |
| **Sea State** | **Effect of various waves in the sea over specific area**<br>**Rough to very rough**: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre<br>**High to very high**: Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre<br>**Phenomenal**: Wind speed >117 kmph (>63 knots) & Wave height >14 metre |
| **Cyclone** | **Cyclonic Storm**: Wind speed 62-87 kmph (34-47 knots)<br>**Severe Cyclonic Storm**: Wind speed 88-117 kmph (48-63 knots)<br>**Very Severe Cyclonic Storm**: Wind speed 118-165 kmph (64 - 89 knots)<br>**Extremely Severe Cyclonic Storm**: Wind speed 166-220 kmph (90 -119 knots)<br>**Super Cyclone Strom**: Wind speed >220 kmph (>119 knots) |

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