

Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 28th December, 2024

Time of Issue: 1345 hours IST

**Subject: i) Heavy rainfall/snowfall likely to occur over Western Himalayan region today.
ii) Cold wave conditions likely to commence over parts of North India from 29th December, 2024.**

i. Realised weather during past 24 hours till 0830 hours IST of today (Annexure I)

- ❖ **Ground frost conditions** recorded in isolated pockets of Himachal Pradesh.
- ❖ Following the passage of **Western disturbance**, fog condition have developed over Punjab, Rajasthan. The large scale fog condition are likely to spread eastwards and increase in intensity from tomorrow.
- ❖ **Dense fog (50-200 m)** reported in isolated pockets of Vidarbha, Jammu Kashmir, Punjab, East Uttar Pradesh, Rajasthan,
- ❖ **Visibility reported (≤ 200 m)** (in meter): **Vidarbha:** Nagpur Airport 50m, **Punjab:** Amritsar 100 Airport 100, Bhatinda _IAF 200; **East Uttar Pradesh:** Kushinagar & Basti-50m each, Azamgarh-150m; **Jammu & Kashmir:** Qazi Kund 200; **East Rajasthan:** Ajmer 200; **West Rajasthan:** Bikaner 200.
- ❖ **Heavy rainfall/snowfall** recorded at isolated places over Jammu Kashmir
- ❖ **Heavy rainfall** recorded at isolated places over Haryana, Jammu Kashmir, Tamil Nadu.

Weather Systems, Forecast and warning (Annexure II & III):

- ❖ The **Western disturbance** as a cyclonic circulation over North Pakistan and adjoining Jammu & Kashmir persists in lower to upper tropospheric levels with a trough aloft in upper tropospheric westerlies with its axis at 9.1 km above mean sea level runs roughly along Long. 72°E to the north of Lat. 15°N.
- ❖ An **induced cyclonic circulation** lies over south Haryana, The **trough** in westerlies runs from north Punjab to Gujarat across above induced cyclonic circulation over south Haryana and Rajasthan and A **trough** in easterlies runs from southeast Arabian sea to North Konkan in lower tropospheric levels.
- ❖ Under the influence of these systems:
 - ✓ Isolated **Heavy Rainfall/Snowfall** accompanied with thunderstorm lightning is likely over Western Himalayan Region on 28th December.
 - ✓ Isolated to Scattered rainfall accompanied with thunderstorm, lightning & gusty winds (wind speed 30-50 kmph) likely over Uttar Pradesh, Madhya Pradesh, Vidarbha, Chhattisgarh and interior Maharashtra on 28th December.
 - ✓ **Thunderstorm accompanied with hailstorms also likely over Uttarakhand, Madhya Pradesh, Vidarbha, Chhattisgarh, Sub-Himalayan West Bengal on 28th December.**
- ❖ Two Fresh **Western Disturbance** in quick succession likely to affect western Himalayan region from 01st to 6th January, 2025. Under their influence light rainfall/snowfall likely over the Western Himalayan region during that period.

ii. Temperature, Cold Wave and Fog Forecast:

Temperature Conditions during past 24 hours till 0830 hours IST of today (Annexure IV):

- ❖ Minimum temperatures were **below 0°C** over many parts of Jammu, Kashmir & Ladak; **10-15°C** over Northwest, central and east India; **12-18°C** over many parts of Central, West & East India. Today, the lowest minimum temperature of 5.4°C is reported at Churu (West Rajasthan) over the plains of the country.
- ❖ There has been a rise in minimum temperature by 3-5°C over many parts of Western Himalayan Region; by 2-4°C over Uttar Pradesh, East Madhya Pradesh during past 24 hours and fall in minimum temperature by 3-6°C over West Rajasthan, Gujarat State; by 2-4°C over Interior Karnataka and Telangana.
- ❖ Minimum temperatures are **markedly above normal (5°C or more)** at many places over Vidarbha, Madhya Pradesh; at a few places over East Uttar Pradesh, Chhattisgarh, Madhya Maharashtra, Haryana-Chandigarh-Delhi;

at isolated places over Punjab, West Uttar Pradesh, East Rajasthan, Marathwada; **appreciably above normal (3°C to 5°C)** at a few places over Gujarat Region; at isolated places over Odisha, Jharkhand, Rayalaseema, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, North Interior Karnataka, Saurashtra & Kutch; **above normal (1°C to 3°C)** at a few places over Bihar, Gangetic West Bengal, Coastal Karnataka; at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, South Interior Karnataka. These are **below normal (-1°C to -3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 6.4°C** is reported at **Jaisalmer (West Rajasthan)** over the plains of the country

Forecast of temperature:

- ❖ Fall in minimum temperatures by 3-5°C likely over Northwest India during next 2 days & no significant change thereafter.
- ❖ No significant change in minimum temperatures during next 24 hours and fall by 3-5°C likely over West, Central India during Subsequent 3 days.
- ❖ No significant change in minimum temperatures during next 2 days and fall by 2-4°C likely over East India thereafter.

Cold Wave Warnings:

Cold wave to severe cold wave conditions very likely in some parts of Himachal Pradesh on 30th & 31st December. **Cold wave** conditions very likely in isolated pockets of Himachal Pradesh during 29th December-01st January; Punjab and Haryana-Chandigarh during 29th December-03rd January; over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Rajasthan on 30th & 31st December.

Cold Day Warnings:

Cold day to severe cold day conditions very likely in some parts of Himachal Pradesh on 28th December. **Cold Day** conditions very likely in isolated pockets of Himachal Pradesh on 29th; Punjab and Haryana-Chandigarh on 28th; Rajasthan on 28th & 29th December.

Dense Fog Warnings:

Dense to Very dense fog conditions very likely to prevail during late night/early morning hours in isolated pockets of Punjab, Haryana-Chandigarh, Rajasthan during 28th-30th December; **Dense fog conditions** very likely to prevail during late night/early morning hours in isolated pockets of Himachal Pradesh during 29th-31st; Punjab, Haryana, Chandigarh on 30th & 31st, Uttar Pradesh till 31st; Rajasthan 30th December-01st January; Madhya Pradesh till 01st January; Bihar, Orisha on 28th & 29th; Jharkhand till 30th; Sub-Himalayan West Bengal during 30th December- 02nd January; Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura till 02nd January,

Ground Frost Warnings:

Ground frost conditions very likely in isolated pockets of Himachal Pradesh during 29th-31st December.

iii. Weather conditions and forecast over Delhi/NCR during 28th to 31s Dec. 2024 (Annexure V)

For more details, kindly refer National Weather Bulletin:

https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php

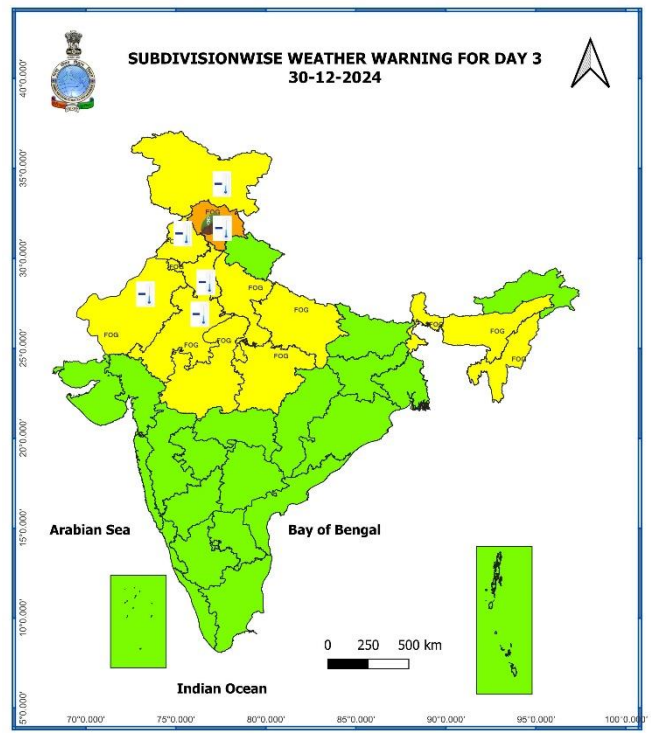
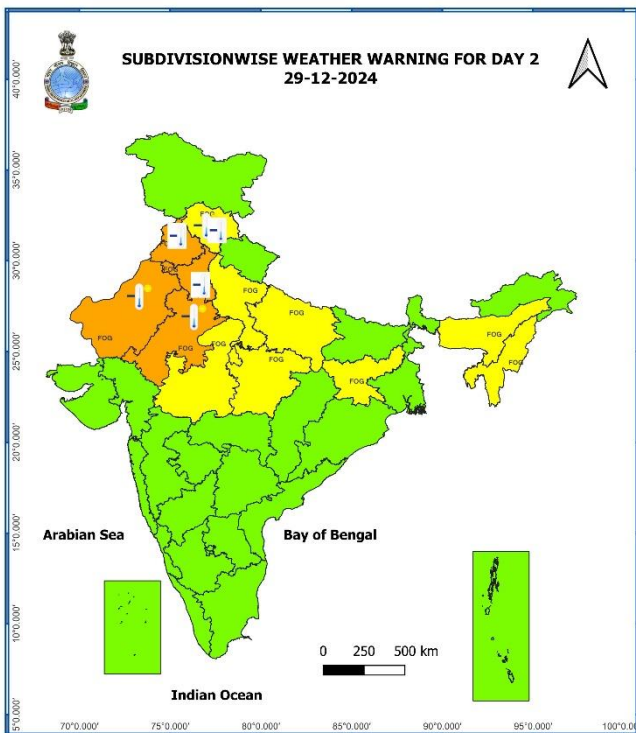
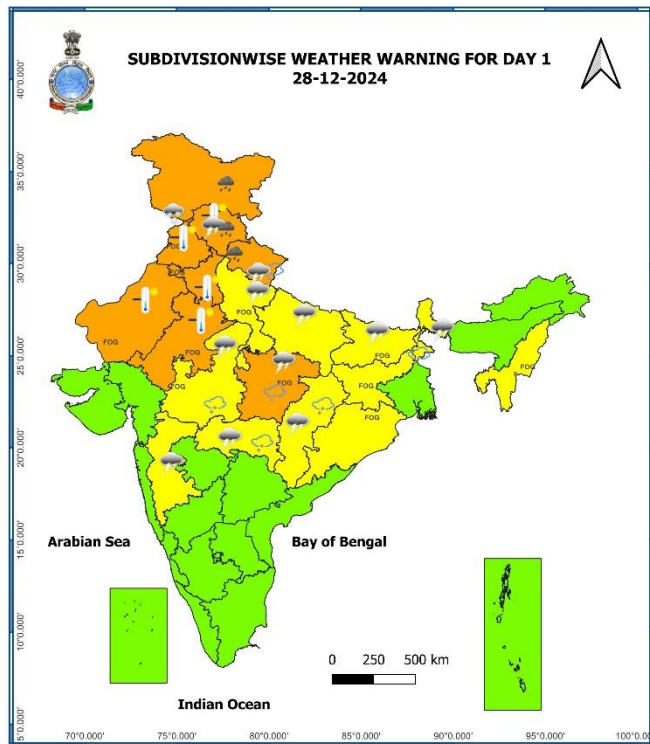
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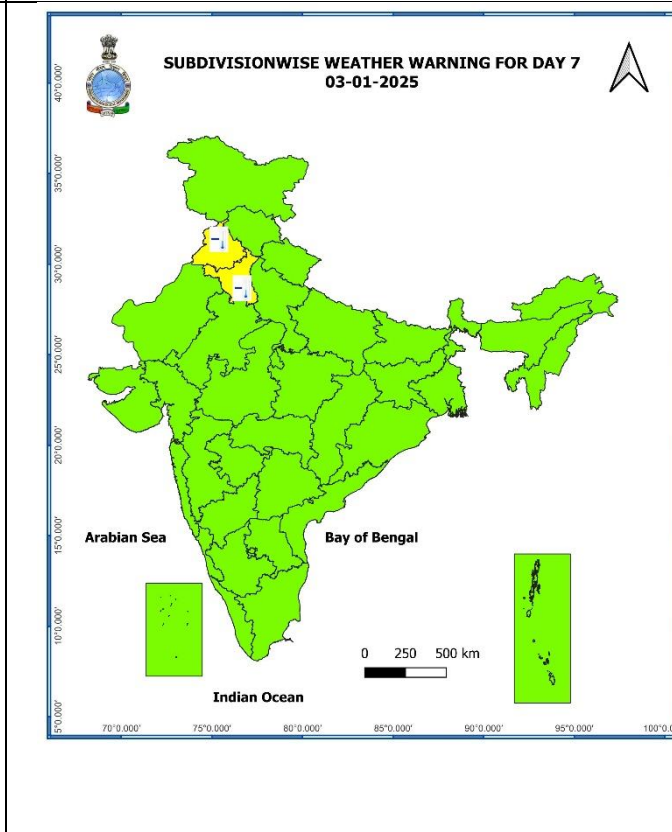
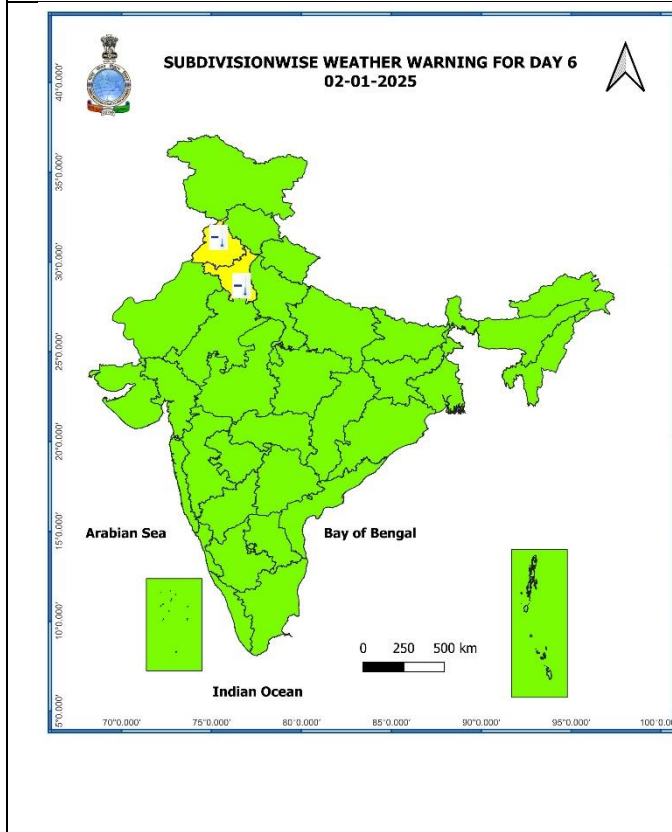
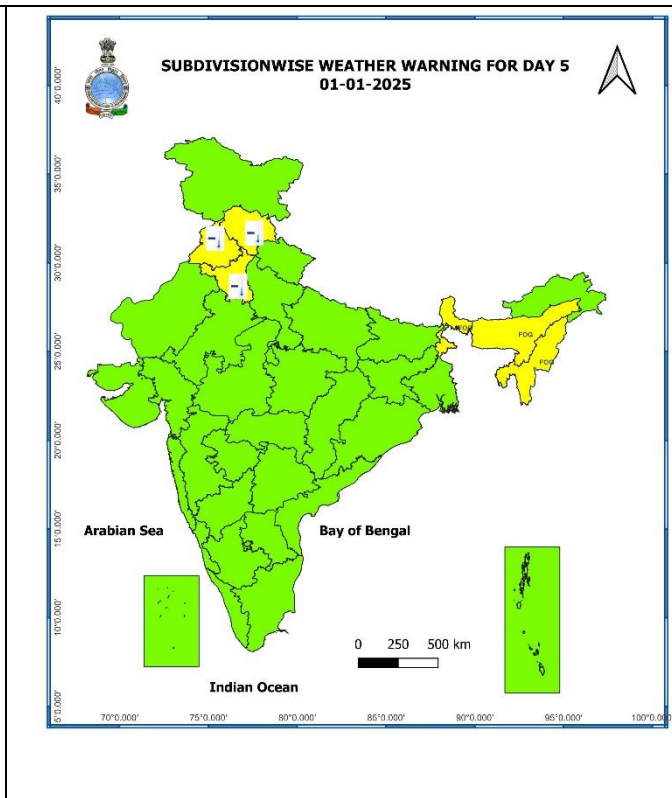
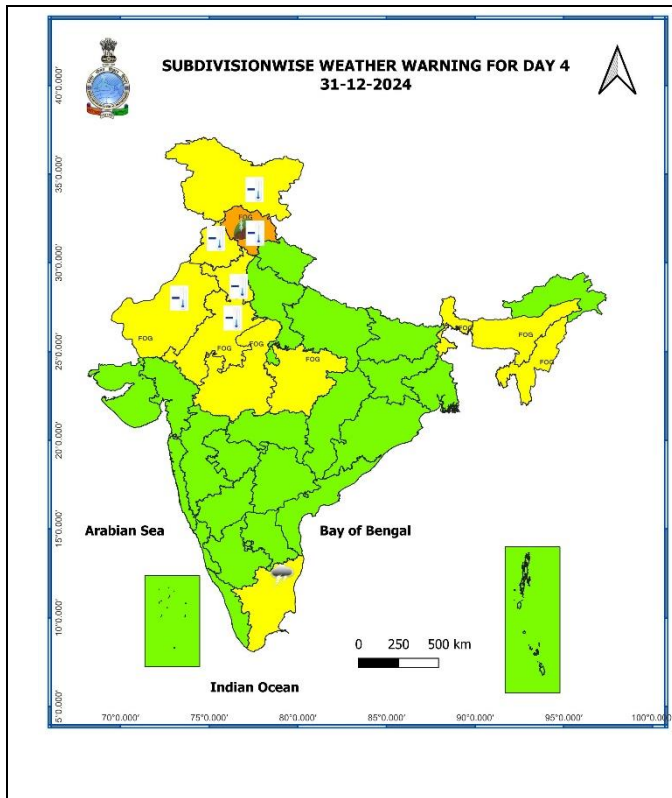
Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 28.12.2024 (in cm):

- ❖ **Tamil Nadu:** Tirupuvanam(dist Sivagangai) 9,
- ❖ **Haryana:** Salhawas(dist. Jhajjar)7,
- ❖ **Jammu Kashmir:** Banihal (dist Ramban) 7, Batote (dist Ramban) 6,

7 Days Rainfall Forecast								
S. No.	Subdivision	28-Dec	29-Dec	30-Dec	31-Dec	01-Jan	02-Jan	03-Jan
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	FWS	SCT	ISOL	ISOL	ISOL
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	ISOL	DRY	DRY	DRY
3	ASSAM & MEGHALAYA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	SCT	ISOL	DRY	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
8	JHARKHAND	SCT	ISOL	DRY	DRY	DRY	DRY	DRY
9	BIHAR	SCT	ISOL	DRY	DRY	DRY	DRY	DRY
10	EAST UTTAR PRADESH	FWS	DRY	DRY	DRY	DRY	DRY	DRY
11	WEST UTTAR PRADESH	SCT	DRY	DRY	DRY	DRY	DRY	DRY
12	UTTARAKHAND	WS	ISOL	DRY	DRY	DRY	DRY	DRY
13	HARYANA CHANDIGARH & DELHI	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
14	PUNJAB	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	WS	ISOL	DRY	DRY	ISOL	ISOL	ISOL
16	JAMMU & KASHMIR AND LADAKH	SCT	DRY	DRY	DRY	ISOL	SCT	SCT
17	WEST RAJASTHAN	DRY	DRY	DRY	DRY	DRY	DRY	DRY
18	EAST RAJASTHAN	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
19	WEST MADHYA PRADESH	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
20	EAST MADHYA PRADESH	FWS	DRY	DRY	DRY	DRY	DRY	DRY
21	GUJARAT REGION	DRY	DRY	DRY	DRY	DRY	DRY	DRY
22	SAURASHTRA & KUTCH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
23	KONKAN & GOA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
24	MADHYA MAHARASHTRA	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
25	MARATHAWADA	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
26	VIDARBHA	SCT	DRY	DRY	DRY	DRY	DRY	DRY
27	CHHATTISGARH	SCT	DRY	DRY	DRY	DRY	DRY	DRY
28	COASTAL ANDHRA PRADESH & YANAM	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	ISOL	SCT	SCT	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
33	NORTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
34	SOUTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
35	KERALA & MAHE	ISOL	ISOL	ISOL	ISOL	ISOL	DRY	DRY
36	LAKSHADWEEP	SCT	SCT	DRY	SCT	SCT	DRY	DRY

- As the lead period increases forecast accuracy decreases





- 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.

Fig. 1: Maximum Temperatures

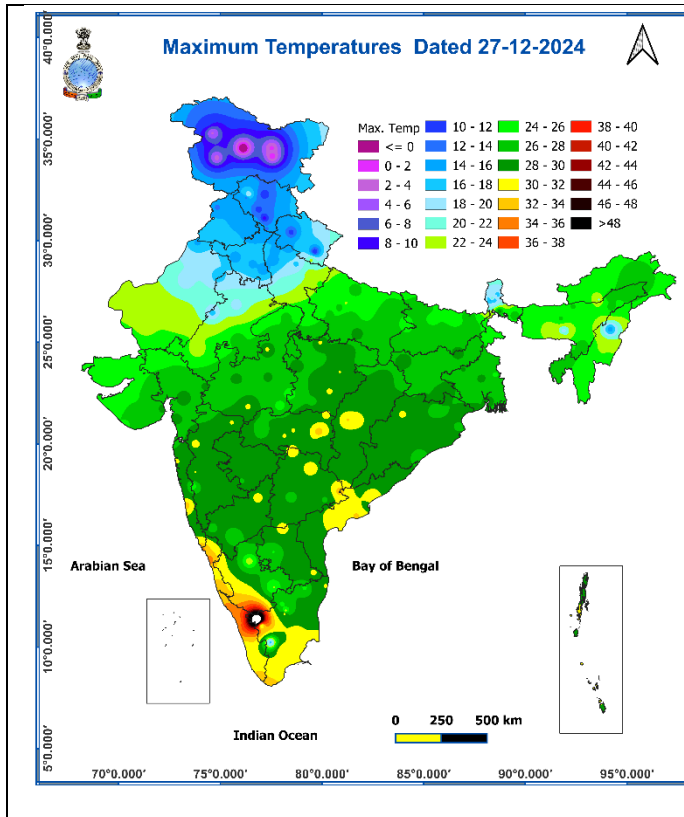


Fig. 2: Departure of Maximum Temperatures

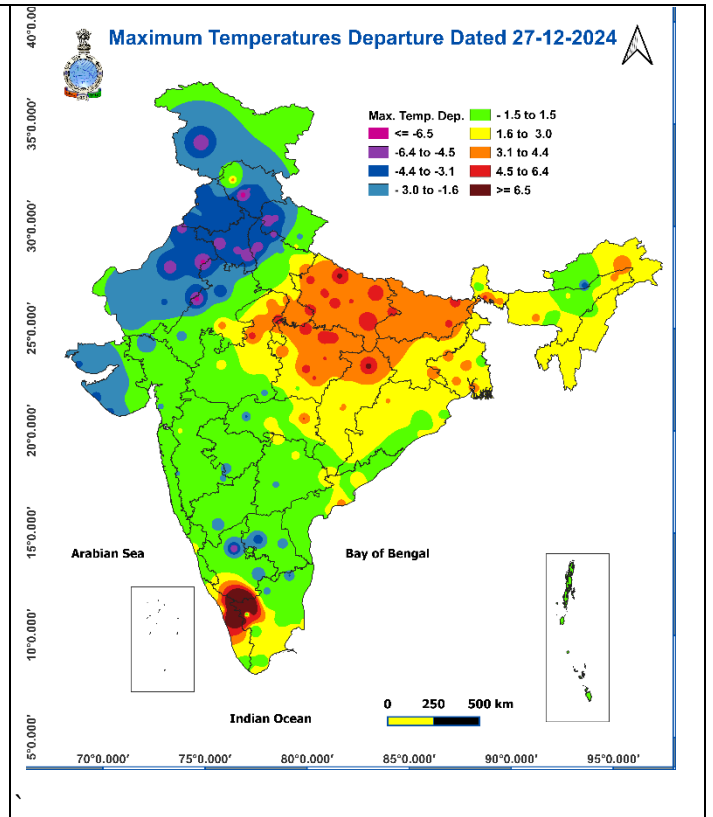


Fig. 3: Minimum Temperatures

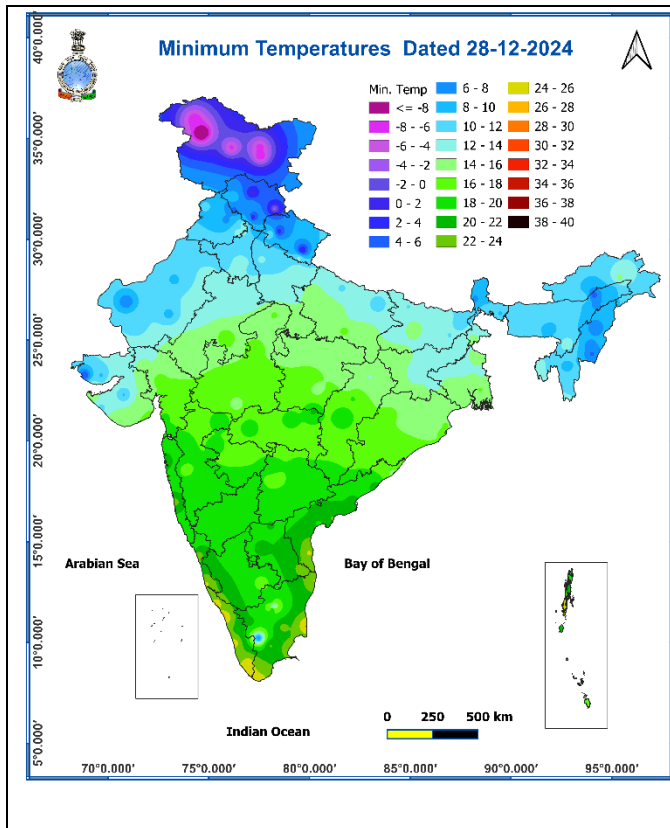
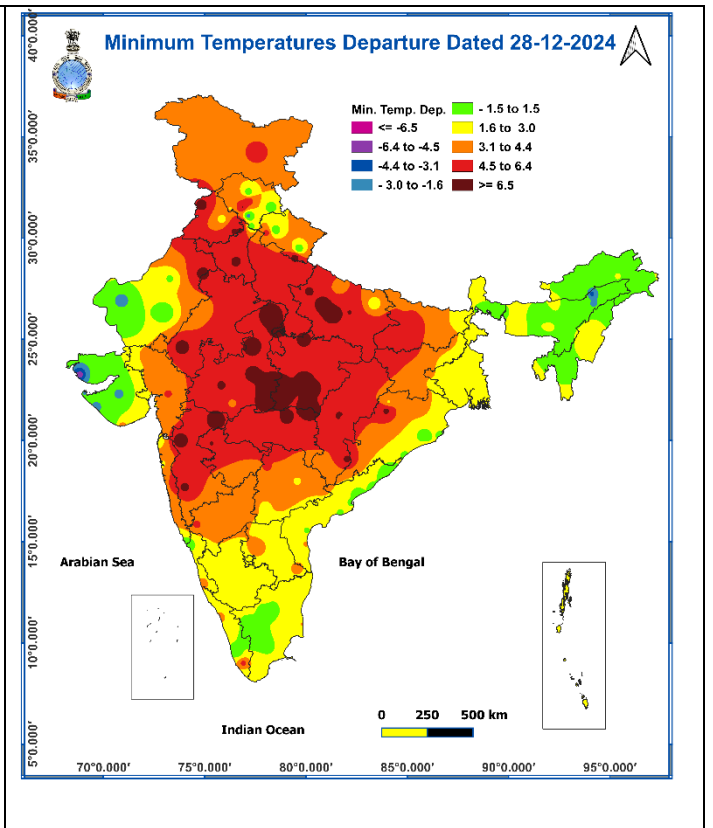


Fig. 4: Departure of Minimum Temperatures



Weather forecast over Delhi/NCR during 28th Dec. to 31th Dec. 2024**Past Weather:**

There has been a rise in minimum temperature upto 02°C over Delhi/NCR during past 24hr. The Maximum and Minimum temperature over Delhi is in the range of 14 to 15°C and 12 to 14°C respectively. The minimum temperature was above normal upto 06 to 07°C and maximum temperature was below normal upto 05 to 06°C over most places. Shallow fog reported at Safdarjung airport. Safdarjung airport recorded lowest visibility 800 m during 0830 hours to 1100 hours IST. Palam airport recorded lowest visibility 1100 m during 0600 hours to 1100 hours IST which improved thereafter becoming 1300m at 1130 hours IST. Mainly rainy condition with predominant surface wind from east direction with wind speed reaching 08 to 14 kmph prevailed past 24hr. Moderate rainfall was observed in Delhi. Mainly mist condition with wind speed less than 04 kmph variable direction prevailed over the region in the forenoon today.

Weather Forecast:

28.12.2024: Generally cloudy sky. Intermittent rain with one or two spells of light rain upto forenoon thereafter generally cloudy sky. The predominant surface wind is likely to be southeast direction with wind speed less than 06 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.

29.12.2024: Mainly clear sky. The predominant surface wind is likely to be from north direction with speed less than 04 kmph during morning hours. Smog/ dense fog in most of the places and very dense fog in isolated places is likely in the morning. The wind speed will gradually increase becoming 06-08 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 04 kmph from northwest direction during evening and night. Smog/shallow fog is likely in the evening/night.

30.12.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 06 kmph during morning hours. Smog/dense fog in most of the places and very dense fog in isolated places is likely in the morning. The wind speed will increase thereafter becoming 08-10 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 06 kmph from northwest direction during evening and night. Smog/shallow fog is likely in the evening/night.

31.12.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 06 kmph during morning hours. Smog/moderate fog in most of the places and dense fog in isolated places is likely in the morning. The wind speed will increase thereafter becoming 10-12 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 08 kmph from northwest direction during evening and night. Smog/shallow fog is likely in the evening/night.

Impact expected and action suggested due to thunderstorm with lightning & Hailstorm.**Impact expected:**

- ❖ Strong wind/hail may damage plantation, horticulture and standing crops.
- ❖ Hail may injure people and cattle at open places.
- ❖ Partial damage to vulnerable structures due to strong winds.
- ❖ Minor damage to kutcha houses/walls and huts.
- ❖ Loose objects may fly.

Action suggested:

- ❖ Stay indoors, close windows & doors and avoid travel if possible.
- ❖ Take safe shelters; do not take shelter under trees.
- ❖ Do not lie on concrete floors and do not lean against concrete walls.
- ❖ Unplug electrical/ electronic appliances.
- ❖ Immediately get out of water bodies.
- ❖ Keep away from all the objects that conduct electricity.

Impact & Action Suggested due to heavy rainfall/ snowfall over Himachal Pradesh, Uttarakhand, Jammu & Kashmir on 28th December.

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 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

- Keep the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields.
- Make necessary arrangements to drain out excess water from standing crop fields and vegetables in **Jammu & Kashmir, Himachal Pradesh, Uttarakhand** and drain out excess water from standing crop fields and vegetables in **Punjab, Haryana and Tamil Nadu**.
- Use hail nets to protect orchards and vegetable plants in **Uttarakhand, Sub Himalayan West Bengal & Sikkim, Madhya Pradesh, Vidarbha, and Chhattisgarh**.
- In **Jammu & Kashmir, Himachal Pradesh** and **Uttarakhand**, in case of heavy snowfall, shake the trees to remove snow immediately from the branches.
- Provide mechanical support to horticultural crops and staking to vegetables.
- In **Himachal Pradesh, Punjab and Haryana**, 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 and Fishery

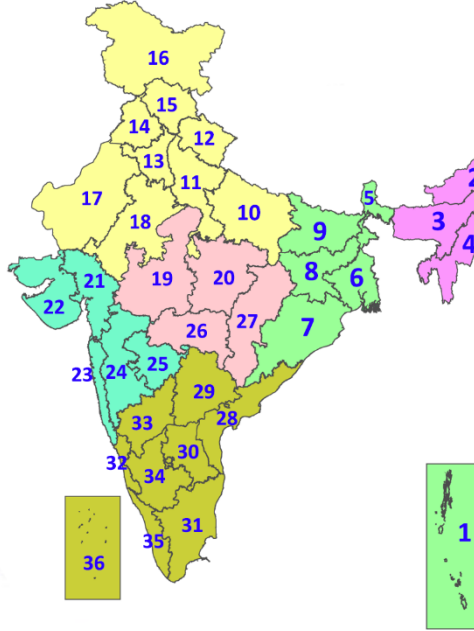
- Keep the animals inside the shed during heavy rainfall/ hailstorms and provide them with balanced feed.
- Store feed and fodder in a safe place to prevent spoilage.
- Remove excess water from fish ponds to avoid losses of fish (if feasible).
- To protect from cold, keep cattle inside the sheds during night and provide dry bedding. Also keep the chicks warm by providing artificial light in the poultry sheds.

Legends & abbreviations:

- ❖ **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- ❖ **Obsy:** Observatory; **AWS:** Automatic Weather Station; **ARG:** Automatic Rain Gauge; **dist:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO:** Part Time Office, **Aero:** Aerodrome, **IAF:** Indian Air Force.
- ❖ **Region wise classification of meteorological Sub-Divisions:**
 - **Northwest India:** Western Himalayan Region (Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand); Punjab, Haryana-Chandigarh-Delhi; West Uttar Pradesh, East Uttar Pradesh, West Rajasthan and East Rajasthan.
 - **Central India:** West Madhya Pradesh, East Madhya Pradesh, Vidarbha and Chhattisgarh.
 - **East India:** Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim; Gangetic West Bengal, Odisha and Andaman & Nicobar Islands.
 - **Northeast India:** Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
 - **West India:** Gujarat Region, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra and Marathawada.
 - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Lakshadweep.

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

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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(Service to the Nation since 1875)

DEFINITION/CRITERIA

Rain/ Snow *	<p>Heavy: 64.5 to 115.5 mm/cm *</p> <p>Very Heavy: 115.6 to 204.4 mm/cm*</p> <p>Extremely Heavy: > 204.4 mm/cm *</p>
Heat Wave	<p>When maximum temperature of a station reaches $\geq 40^\circ\text{C}$ for plains and $\geq 30^\circ\text{C}$ for hilly regions</p> <p>(a) Based on Departure from normal</p> <p>Heat Wave: Maximum Temperature Departure from normal 4.5°C to 6.4°C.</p> <p>Severe Heat Wave: Maximum Temperature Departure from normal $\geq 6.5^\circ\text{C}$</p> <p>(b). Based on Actual maximum temperature</p> <p>Heat Wave: When actual maximum temperature $\geq 45^\circ\text{C}$.</p> <p>Severe Heat Wave: When actual maximum temperature $\geq 47^\circ\text{C}$</p> <p>(c). Criteria for heat wave for coastal stations</p> <p>When maximum temperature departure is $>4.5^\circ\text{C}$ from normal. Heat Wave may be described provided maximum temperature $\geq 37^\circ\text{C}$</p>
Warm Night	<p>When maximum temperature remains 40°C</p> <p>Warm Night: When minimum temperature departure 4.5°C to 6.4°C.</p> <p>Severe Warm Night: When minimum temperature departure $>6.4^\circ\text{C}$.</p>
Cold Wave	<p>When minimum temperature of a station $\leq 10^\circ\text{C}$ for plains and $\leq 0^\circ\text{C}$ for hilly regions.</p> <p>(a). Based on departure</p> <p>Cold Wave: Minimum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Wave: Minimum Temperature Departure from normal $\leq -6.5^\circ\text{C}$</p> <p>(b) Based on actual Minimum Temperature (for Plains only)</p> <p>Cold Wave : When Minimum Temperature is $\leq 4.0^\circ\text{C}$</p> <p>Severe Cold Wave: When Minimum Temperature is $\leq 2.0^\circ\text{C}$</p> <p>(c) For Coastal Stations</p> <p>When Minimum Temperature departure is $\leq -4.5^\circ\text{C}$ & actual Minimum Temperature is $\leq 15^\circ\text{C}$</p>
Cold Day	<p>When minimum temperature of a station $\leq 10^\circ\text{C}$ for plains and $\leq 0^\circ\text{C}$ for hilly regions</p> <p>Based on departure</p> <p>Cold Day: Maximum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Day: Maximum Temperature Departure from normal $\leq -6.5^\circ\text{C}$</p>
Fog	<p>Phenomenon of small droplets suspended in air and the horizontal visibility $< 1\text{km}$</p> <p>Moderate Fog: When the visibility between 500-200 metres</p> <p>Dense Fog: when the visibility between 50- 200 metres</p> <p>Very Dense Fog: when the visibility < 50 metres</p>
Thunderstorm	<p>Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)</p>
Dust/Sand Storm	<p>An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.</p>
Frost	<p>Ice deposits on ground</p> <p>Air temperature $\leq 4^\circ\text{C}$ (over Plains)</p>
Squall	<p>A strong wind that rises suddenly, lasts for atleast 1 minute.</p> <p>Moderate: Wind speed 52-61 kmph</p> <p>Severe: Wind speed 62-87 kmph</p> <p>Very Severe: Wind speed >87 kmph</p>
Sea State	<p>Effect of various waves in the sea over specific area</p> <p>Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre</p> <p>High to very high: Wind speed 63-117 kmph (34-63 knots) & Wave height 6-14 metre</p> <p>Phenomenal: Wind speed >117 kmph (>63 knots) & Wave height >14 metre</p>
Cyclone	<p>Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)</p> <p>Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)</p> <p>Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)</p> <p>Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)</p> <p>Super Cyclone Strom: Wind speed >220 kmph (>119 knots)</p>

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