



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 16<sup>th</sup> January, 2024

Time of Issue: 1330 hours IST

**Subject:**

- (i) Dense to very dense fog conditions likely to continue to prevail over North India during next 5 days.**
- (ii) Cold day to severe cold day conditions likely to continue over plains of North India during next 2 days and reduction thereafter.**
- (iii) Cold wave to severe cold wave conditions likely to continue over plains of Northwest India during next 5 days.**

**Realized weather during past 24 hours till 0830 hours IST of today: (Details given in Annexure I)**

- ❖ **Minimum temperatures:** Minimum temperatures are in the range of 2-5°C over most parts of Punjab, Haryana-Chandigarh-Delhi; in the range of 6-10°C over many parts of Uttar Pradesh, Rajasthan, north Madhya Pradesh, Bihar, Uttar Pradesh, Jharkhand. These are below normal by 1°C to 4°C over many parts of Northwest & adjoining east India. **Today, the lowest minimum temperature of 1.1°C reported at Hissar (Haryana).**
- ❖ Today, **Cold wave to severe cold wave conditions** prevailed over many parts of Punjab, Haryana-Chandigarh-Delhi; in isolated pockets of West Uttar Pradesh, north Rajasthan; **cold wave conditions** in isolated pockets of East Uttar Pradesh.
- ❖ **Fog conditions observed** (at 0530 & 0830 hours IST of today): **Dense to very Dense Fog** reported over most parts of Punjab; in many parts of Haryana, Chandigarh & Delhi; in some parts of Uttar Pradesh; in isolated pockets of Uttarakhand, East Rajasthan, Bihar; **Dense Fog** in isolated pockets of Jammu division, northwest Rajasthan, Assam & Meghalaya, Tripura, Odisha and Saurashtra.

**Weather Systems and Forecast & Warnings during next 5 days:**

- ❖ **Jet Stream Winds of the order of 140-150 knots are prevailing over the plains of North India.** It is likely to cause light rainfall/snowfall at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 17<sup>th</sup> January.
- ❖ Light to moderate rainfall in isolated to some places very likely over Bihar, Jharkhand, Chhattisgarh, Odisha, West Bengal & Sikkim and Northeast India from 16<sup>th</sup> to 18<sup>th</sup> January, 2024.
- ❖ **Isolated Hailstorm** likely over Arunachal Pradesh, Assam & Meghalaya, Nagaland on 16<sup>th</sup> & 17<sup>th</sup> and over Sikkim on 17<sup>th</sup> January, 2024.

**Dense fog and Cold day warning: (graphics in Annexure II)**

- ❖ **Dense to very dense fog** conditions very likely to prevail for a few hours in night/morning over many parts of Punjab and Haryana, Chandigarh & Delhi during 16<sup>th</sup> to 18<sup>th</sup> night/morning and in some parts during 19<sup>th</sup> to 21<sup>st</sup> January morning.

- ❖ **Dense to very dense fog** conditions very likely to prevail for a few hours in night/morning in some parts of Uttar Pradesh during 16<sup>th</sup> to 18<sup>th</sup> morning and Dense fog in isolated pockets for subsequent 3 days.
- ❖ **Dense to very dense fog** conditions very likely to prevail in morning hours in isolated pockets over Uttarakhand and north Madhya Pradesh on 17<sup>th</sup> & 18<sup>th</sup> January, 2024.
- ❖ **Dense fog** conditions very likely to prevail in morning hours in isolated pockets of Bihar, north Rajasthan during 17<sup>th</sup>-21<sup>st</sup>; over Jharkhand, Sub-Himalayan West Bengal & Sikkim during 17<sup>th</sup>-20<sup>th</sup>; Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 17<sup>th</sup>-19<sup>th</sup>; over Himachal Pradesh on 17<sup>th</sup> & 18<sup>th</sup> and over Jammu division, Gangetic West Bengal and Odisha on 17<sup>th</sup> January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Punjab, Haryana-Chandigarh on 16<sup>th</sup> and **Cold Day** in some parts on 17<sup>th</sup> & 18<sup>th</sup> January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Uttar Pradesh on 16<sup>th</sup> and in isolated pockets on 17<sup>th</sup> January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in isolated pockets of Bihar on 16<sup>th</sup> & 17<sup>th</sup> January and **cold day conditions** in isolated pockets during 18<sup>th</sup>-20<sup>th</sup> January, 2024.

### **Minimum Temperature Forecast and Cold wave warning: (graphics in Annexure II)**

- ❖ Rise by about 2°C in minimum temperatures very likely over Northwest India during next 2 days and no significant change thereafter.
- ❖ Rise by 2-4°C in minimum temperatures very likely over East India during next 4 days and no significant change thereafter.
- ❖ No significant change in minimum temperatures likely over rest parts of the country during next 5 days.
- ❖ **Cold wave to Severe Cold wave** conditions very likely to continue in many parts of Punjab on 16<sup>th</sup> & 17<sup>th</sup> and in some parts during 18<sup>th</sup>-20<sup>th</sup> January, 2024.
- ❖ **Cold wave to Severe Cold wave** conditions very likely to continue in some parts of Haryana-Chandigarh-Delhi during 16<sup>th</sup>-20<sup>th</sup> January, 2024.
- ❖ **Cold wave** conditions very likely in isolated pockets of north Rajasthan during 16<sup>th</sup>-18<sup>th</sup> and over West Uttar Pradesh on 16<sup>th</sup> January.
- ❖ **Ground frost conditions** very likely over Uttarakhand on 16<sup>th</sup> & 17<sup>th</sup> January, 2024.

For more details kindly refer: [https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

**Realized weather during past 24 hours till 0830 hours IST of today:**

- ❖ Yesterday, **Maximum temperatures** were in the range of 11-15°C over most parts of Punjab, Haryana-Chandigarh, Uttar Pradesh, Bihar which were below normal by 4-7°C at many parts over these regions.
- ❖ Yesterday, **Cold day conditions** prevailed in many parts of East Uttar Pradesh; in some parts of Punjab, Haryana-Chandigarh, West Uttar Pradesh; in isolated pockets of Bihar & Gangetic West Bengal. **Cold day conditions** also prevailed in isolated pockets of northwest Rajasthan and Uttarakhand.
- ❖ **Visibility recorded (at 0530 hours IST of today) (≤500 metres):** **Punjab:** Patiala-25, Amritsar-200; **Haryana & Chandigarh:** Chandigarh-00, Ambala-25, Hissar-50; **Uttar Pradesh:** Varanasi-00, Bahraich-25, Lucknow, Sultanpur-200 each, Bareilly, Jhansi, Gorakhpur-300 each; **Bihar:** Gaya-20, Patna, Bhagalpur-500 each; **Northwest Rajasthan:** Ganganagar-50; **Madhya Pradesh:** Gwalior-00, Satna-50; **Assam:** Tezpur-50, Guwahati-500; **Tripura:** Agartala-50; **Andhra Pradesh:** Vijayawada-50; **West Bengal:** Digha, Haldia-200 each, Diamond Harbour, Kolkata/Alipore, Malda-500 each; **Delhi:** Safdarjung, Palam-500 each.
- ❖ **Visibility recorded (at 0830 hours IST of today) (≤500 metres):** **Punjab:** Bahtinda-00, Patiala -25, Amritsar Airport-50, ; **Haryana:** Ambala, Karnal, Hissar, Bhiwani-25 each; **Delhi:** Ayanagar, Sabdurjung-25 each, Ridge, Palam -50 each; **Jammu division-** Jammu Airport -50; **West Uttar Pradesh:** Jhansi-25, Meerut-50, **East Uttar Pradesh:** Varanasi-25, Sultanpur, Fursatganj, Gorakhpur-200 each, **West Rajasthan:** Ganganagar-50; **West Madhya Pradesh:** Gwalior-50, **East Madhya Pradesh:** Khajuraho, Satna, Reawa-50 each; **Bihar:** Gaya, Purnea-200 each ; **Sub-Himalayan West Bengal & Sikkim:** Jalpaiguri, Cooch Behar, Malda-200 each, **Gangetic West Bengal:** Midnapore, Haldia-200 each, **Assam & Meghalaya:** Dhubri, Tezpur-200 each; **Saurashtra:** Rajkot:50.

**Impact expected due to dense to very dense fog in the night/morning hours over Punjab, Haryana, Chandigarh, Delhi, Uttar Pradesh during 16<sup>th</sup>-20<sup>th</sup> and Uttarakhand, north Madhya Pradesh on 16<sup>th</sup> & 17<sup>th</sup> January, 2024.**

❖ **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 Day/Severe Cold Day conditions and Cold Wave/Severe Cold Wave conditions over Punjab, Haryana, Chandigarh, Delhi during 16<sup>th</sup>-20<sup>th</sup> and Uttar Pradesh on 16<sup>th</sup> & 17<sup>th</sup> January, 2024.**

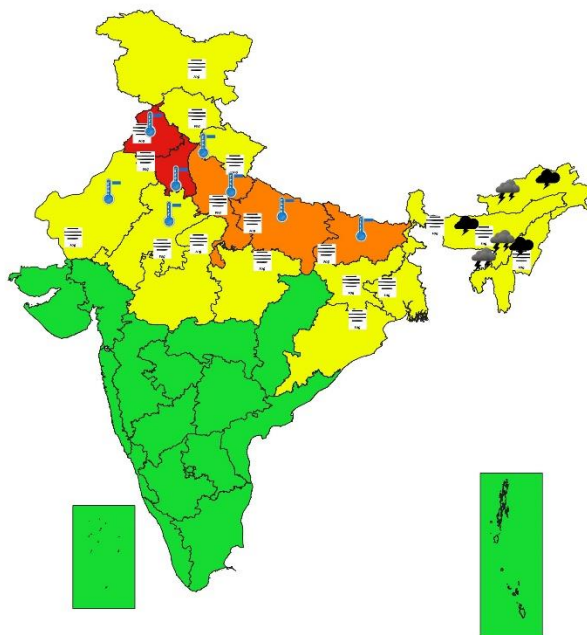
- ❖ An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- ❖ Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- ❖ Frostbite can occur due to prolonged 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 woolen 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 woolen 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.



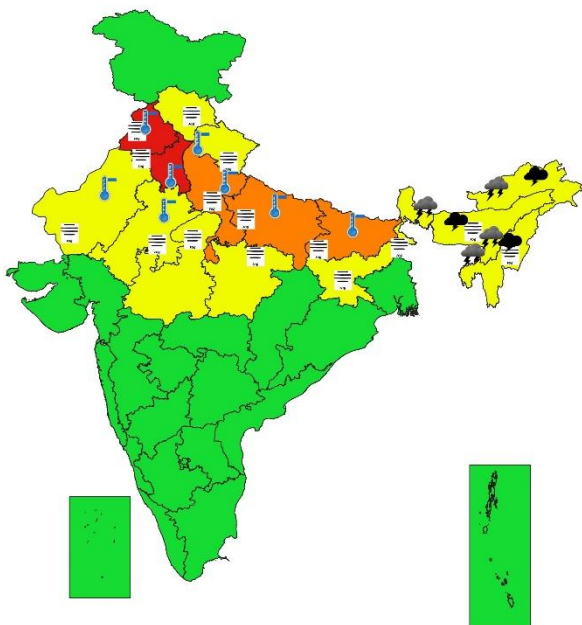
SUBDIVISIONWISE WEATHER WARNING FOR DAY 1  
16-01-2024



- |                            |                      |                          |
|----------------------------|----------------------|--------------------------|
| <b>Subdivision Warning</b> | Dust Storm           | <b>Subdivision color</b> |
| Heavy Rain                 | Strong Surface Winds | NO WARNING               |
| Heavy Snow                 | Heat Wave            | WATCH (BE UPDATED)       |
| Thunderstorms & Lightning  | Cold wave            | ALERT (BE PREPARED)      |
|                            | Fog                  | WARNING (TAKE ACTION)    |



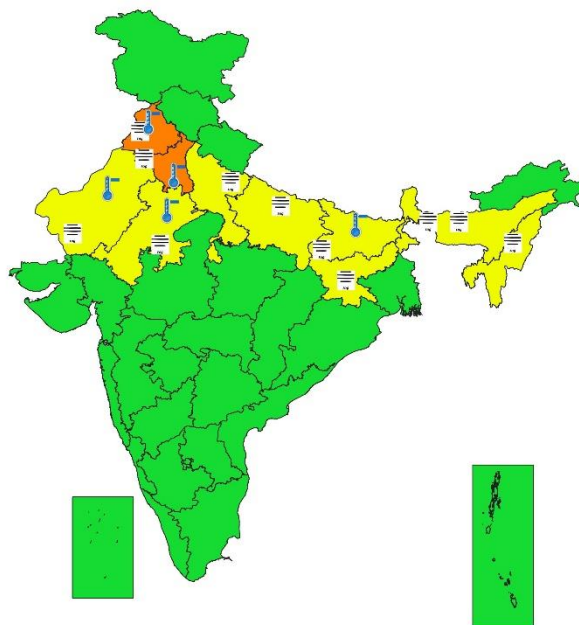
SUBDIVISIONWISE WEATHER WARNING FOR DAY 2  
17-01-2024



- |                            |                      |                          |
|----------------------------|----------------------|--------------------------|
| <b>Subdivision Warning</b> | Dust Storm           | <b>Subdivision color</b> |
| Heavy Rain                 | Strong Surface Winds | NO WARNING               |
| Heavy Snow                 | Heat Wave            | WATCH (BE UPDATED)       |
| Thunderstorms & Lightning  | Cold wave            | ALERT (BE PREPARED)      |
|                            | Fog                  | WARNING (TAKE ACTION)    |



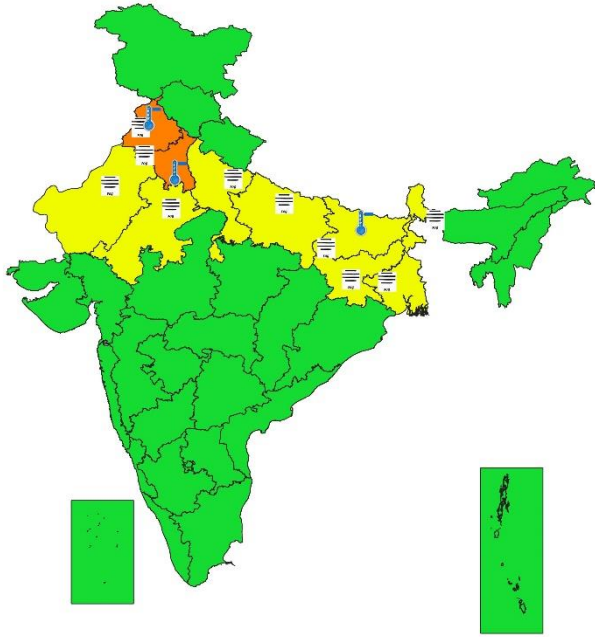
SUBDIVISIONWISE WEATHER WARNING FOR DAY 3  
18-01-2024



- |                            |                      |                          |
|----------------------------|----------------------|--------------------------|
| <b>Subdivision Warning</b> | Dust Storm           | <b>Subdivision color</b> |
| Heavy Rain                 | Strong Surface Winds | NO WARNING               |
| Heavy Snow                 | Heat Wave            | WATCH (BE UPDATED)       |
| Thunderstorms & Lightning  | Cold wave            | ALERT (BE PREPARED)      |
|                            | Fog                  | WARNING (TAKE ACTION)    |



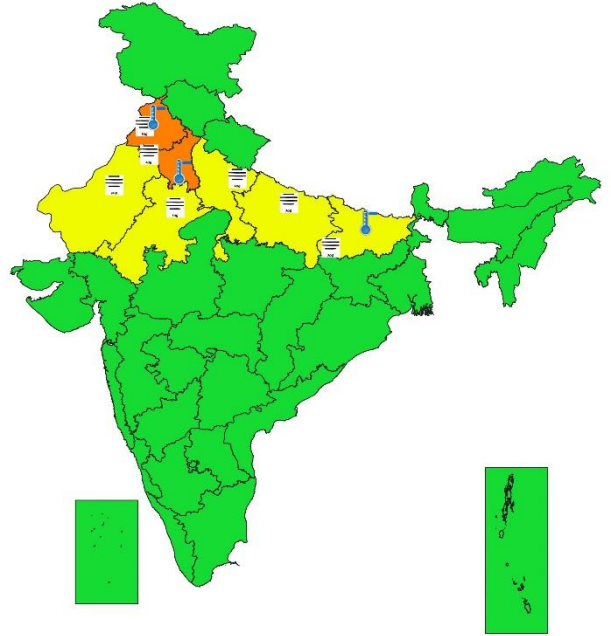
**SUBDIVISIONWISE WEATHER WARNING FOR DAY 4**  
19-01-2024



- |                            |                          |
|----------------------------|--------------------------|
| <b>Subdivision Warning</b> | <b>Subdivision color</b> |
| Heavy Rain                 | NO WARNING               |
| Heavy Snow                 | WATCH (BE UPDATED)       |
| Thunderstorms & Lightning  | ALERT (BE PREPARED)      |
| Dust Storm                 | WARNING (TAKE ACTION)    |
| Strong Surface Winds       |                          |
| Heat Wave                  |                          |
| Cold wave                  |                          |
| Fog                        |                          |



**SUBDIVISIONWISE WEATHER WARNING FOR DAY 5**  
20-01-2024



















- |                            |                          |
|----------------------------|--------------------------|
| <b>Subdivision Warning</b> | <b>Subdivision color</b> |
| Heavy Rain                 | NO WARNING               |
| Heavy Snow                 | WATCH (BE UPDATED)       |
| Thunderstorms & Lightning  | ALERT (BE PREPARED)      |
| Dust Storm                 | WARNING (TAKE ACTION)    |
| Strong Surface Winds       |                          |
| Heat Wave                  |                          |
| Cold wave                  |                          |
| Fog                        |                          |

## Legends:




- ❖ **Heavy Rain:** 64.5 to 115.5 mm; **Very Heavy Rain:** 115.6 to 204.4 mm; **Extremely Heavy Rain:** >204.4mm.
- ❖ **Obsy:** Observatory; **AWS:** Automatic Weather Station; **dist:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation
- ❖ **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 Marathwada.
  - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Lakshadweep.

| <b>SPATIAL DISTRIBUTION</b> (% 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)               |

|   |  |   |
|---|--|---|
| Subdivision Warning   |  Dust Storm           | Subdivision color   |
|  Heavy Rain                  |  Strong Surface Winds |  NO WARNING              |
|  Heavy Snow                |  Heat Wave          |  WATCH(BE UPDATED)      |
|  Thunderstorms & Lightning |  Cold wave          |  ALERT (BE PREPARED)   |
|  Hailstorm                 |  Fog                |  WARNING (TAKE ACTION) |

| <b>Probabilistic Forecast</b> |                               | <b>Flash Flood Risk</b>   |  |
|-------------------------------|-------------------------------|---|--|
| Terms                         | Probability of Occurrence (%) |   |  |
| Unlikely                      | < 25                          |  High Risk (Take Action)     |  |
| Likely                        | 25 - 50                       |  Moderate Risk (Be Prepared) |  |
| Very Likely                   | 50 - 75                       |  Low Risk (Be Updated)       |  |
| Most Likely                   | > 75                          |   |  |

### Definition of Cold wave, Cold Day and Fog Conditions:

|   |  |
|---|--|
| <br><b>Cold Wave</b> | <p>When minimum temperature of a station <math>\leq 10^{\circ}\text{C}</math> for plains and <math>\leq 0^{\circ}\text{C}</math> for hilly regions.</p> <p>(a) Based on departure</p> <p>Cold Wave: Minimum Temperature Departure from normal <math>-4.5^{\circ}\text{C}</math> to <math>-6.4^{\circ}\text{C}</math>.</p> <p>Severe Cold Wave: Minimum Temperature Departure from normal <math>\leq -6.5^{\circ}\text{C}</math></p> <p>(b) Based on actual Minimum Temperature (for Plains only)</p> <p>Cold Wave: When Minimum Temperature is <math>\leq 4.0^{\circ}\text{C}</math></p> <p>Severe Cold Wave: When Minimum Temperature is <math>\leq 2.0^{\circ}\text{C}</math></p> <p>(c) For Coastal Stations</p> <p>When Minimum Temperature departure is <math>\leq -4.5^{\circ}\text{C}</math> &amp; actual Minimum Temperature is <math>\leq 15^{\circ}\text{C}</math></p> |
| <br><b>Cold Day</b>  | <p>When minimum temperature of a station <math>\leq 10^{\circ}\text{C}</math> for plains and <math>\leq 0^{\circ}\text{C}</math> for hilly regions</p> <p>Based on departure</p> <p>Cold Day: Maximum Temperature Departure from normal <math>-4.5^{\circ}\text{C}</math> to <math>-6.4^{\circ}\text{C}</math>.</p> <p>Severe Cold Day: Maximum Temperature Departure from normal <math>\leq -6.5^{\circ}\text{C}</math></p>   |
| <br><b>Fog</b>       | <p>Phenomenon of small droplets suspended in air and the horizontal visibility <math>&lt; 1\text{km}</math></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 <math>&lt; 50</math> metres</p>   |