



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 20<sup>th</sup> January, 2024

Time of Issue: 1315 hours IST

**Subject:**

- (i) **Dense to very dense fog conditions likely to continue to prevail over North India during next 2 days and decrease in intensity thereafter.**
- (ii) **Cold day to severe cold day conditions likely to continue to prevail over North India during next 2 days and decrease in intensity thereafter.**
- (iii) **Cold wave conditions likely to prevail over Bihar and north Madhya Pradesh today and expand to more parts of north India during 21<sup>st</sup>-22<sup>nd</sup> January.**

**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 6-10°C over most parts of Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Rajasthan, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim and Madhya Pradesh. These are below normal by 2- 4°C in isolated pockets of north Madhya Pradesh, southeast Uttar Pradesh, East Rajasthan, Bihar and Gangetic West Bengal. **Today, the lowest minimum temperature of 3.1°C reported at Nowgong (East Madhya Pradesh).**
- ❖ Today, **Cold wave conditions** prevailed in isolated pockets of Himachal Pradesh, East Uttar Pradesh and northeast Madhya Pradesh.
- ❖ **Fog conditions observed** (at 0530 & 0830 hours IST of today): **Dense to very Dense Fog** over some parts of Punjab, West Uttar Pradesh, Bihar; in isolated pockets of East Uttar Pradesh, Rajasthan, Sub-Himalayan West Bengal & Sikkim, Jharkhand; **Dense Fog** in isolated pockets of northeast Madhya Pradesh, Jammu division, Uttarakhand, Assam & Meghalaya and Tripura.
- ❖ Yesterday, **Cold day to Severe Cold day conditions** prevailed in most parts of Punjab; in many parts of Uttar Pradesh, Haryana-Chandigarh-Delhi and Bihar and in isolated pockets of Rajasthan, East Madhya Pradesh, Uttarakhand and East Rajasthan.

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

- ❖ **Jet Stream Winds of the order of 130-140 knots at 12.6 km above mean sea level are prevailing over the plains of North India. It is leading to subsidence of cold air and enhancing cold wave/cold day conditions over North India. Similar intensity of Jet Stream is likely to continue during next 3-4 days.** Also, light rainfall at isolated places likely over Sikkim & Arunachal Pradesh during next 5 days
- ❖ A feeble Western Disturbance seen as a trough in middle tropospheric westerlies roughly along Long. 75°E to the north of Lat. 35°N. Under its influence; light isolated rainfall/snowfall very likely over higher reaches of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh on 20<sup>th</sup> January.

- ❖ A trough in easterlies extends from South interior Karnataka to east Vidarbha in the lower levels causing light rainfall at isolated places likely over Odisha, Chhattisgarh and West Bengal during next 5 days.

#### **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 some parts of Punjab, Haryana and Chandigarh during 20<sup>th</sup> night to 22<sup>nd</sup> morning and dense fog in isolated pockets for subsequent 2 days.
- ❖ **Dense to very dense fog** conditions very likely to prevail for a few hours in night/morning in some parts of Uttar Pradesh and Bihar during 20<sup>th</sup> night to 21<sup>st</sup> January morning and dense fog in isolated pockets for subsequent 4 days.
- ❖ **Dense to very dense fog** conditions very likely to prevail in morning hours in isolated pockets of north Rajasthan on 20<sup>th</sup> January and dense fog in isolated pockets for subsequent 2 days.
- ❖ **Dense fog** conditions very likely to prevail in morning hours in isolated pockets of Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 20<sup>th</sup>-23<sup>rd</sup>; over Odisha, during 20<sup>th</sup>-22<sup>nd</sup>; over Jammu division, Himachal Pradesh, Uttarakhand, north Madhya Pradesh on 20<sup>th</sup> & 21<sup>st</sup> and Jharkhand, West Bengal & Sikkim on 20<sup>th</sup> January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in many parts of Uttar Pradesh on 20<sup>th</sup>; in isolated pockets on 21<sup>st</sup> and cold day conditions in isolated pockets for subsequent 3 days.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Punjab, Haryana on 20<sup>th</sup> & 21<sup>st</sup> and cold day conditions in isolated pockets on 22<sup>nd</sup> January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in isolated pockets of north Madhya Pradesh, north Rajasthan on 20<sup>th</sup> & 21<sup>st</sup> and cold day conditions in isolated pockets on 23<sup>rd</sup> January. Cold day to severe cold day conditions in isolated/some parts of Uttarakhand on 20<sup>th</sup> & 21<sup>st</sup> January.
- ❖ **Cold Day** conditions very likely to continue in isolated pockets of Bihar during 20<sup>th</sup>-24<sup>th</sup> January, 2024.

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

- ❖ Fall in minimum temperatures by 2-3°C very likely over many parts of Central India during next 2 days and no significant change thereafter.
- ❖ No significant change in minimum temperatures very likely over many parts of Northwest India during next 2 days and fall by 2-3°C thereafter.
- ❖ No significant change in minimum temperatures likely over rest parts of north India during next 5 days.
- ❖ **Cold wave** conditions very likely in isolated pockets of Punjab and Haryana during 21<sup>st</sup>-24<sup>th</sup> January; over north Madhya Pradesh during 20<sup>th</sup>-22<sup>nd</sup>; north Rajasthan on 22<sup>nd</sup> & 23<sup>rd</sup> January, 2024.
- ❖ **Cold wave** conditions very likely in isolated pockets of Bihar during 20<sup>th</sup>-24<sup>th</sup> with possibility of severe cold wave conditions on 21<sup>st</sup> & 22<sup>nd</sup> January, 2024.
- ❖ **Ground frost conditions** very likely at isolated places over Uttarakhand on 20<sup>th</sup> & 21<sup>st</sup> January.

For more details kindly refer: <https://mausam.imd.gov.in/responsive/all india forcast bulletin.php>

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

- ❖ Yesterday, **Maximum temperatures** were in the range of 10-15°C over most parts of Punjab, West Uttar Pradesh, Haryana-Chandigarh-Delhi; in some parts of East Uttar Pradesh and in isolated pockets of north Rajasthan, northwest Madhya Pradesh which were below normal by 7-10°C at most parts of Uttar Pradesh, Bihar; some parts of Punjab, Haryana and in isolated pockets of north Madhya Pradesh and Gangetic West Bengal; below normal by 4-6°C over most parts of Bihar, remaining parts of Gangetic West Bengal and north Rajasthan.
- ❖ **Visibility recorded (at 0530 hours IST of today) (≤200 metres):** **Bihar:** Gaya & Purnea-25 each, Bhagalpur-500; **Jammu Division:** Jammu-50; **East Madhya Pradesh:** Satna-50; **Punjab:** Patiala-200 and Amritsar-600; **Rajasthan:** Kota-200; **Uttar Pradesh:** Jhansi & Varanasi-200 each; **Jharkhand:** Ranchi-200; **Haryana:** Ambala-200.
- ❖ **Visibility recorded (at 0830 hours IST of today) (≤200 metres):** **Bihar:** Patna-25, Supaul-50, Purnea- 200; **East Rajasthan:** Sikar- 25, Ajmer, Bhilwara, Chittorgarh- 50 each, Kota- 200; **Madhya Pradesh:** Rewa- 50, Satna, Tikamgarh, Shivpuri-200 each; **Jharkhand:** Ranchi-50; **Punjab:** Patiala-200; **West Rajasthan:** Ganganagar and Churu-200 each; **Uttar Pradesh:** Bareilly, Bahrach, Fursatganj and Varanasi-500 each; **West Bengal:** Jalpaiguri- 200, Cooch Behar, Panagarh- 200 each.
- ❖ **Ground frost conditions** observed at isolated places over Uttarakhand.

**Impact expected due to dense to very dense fog in the night/morning hours over Punjab, Haryana-Chandigarh during 20<sup>th</sup>-22<sup>nd</sup>; Uttar Pradesh on 20<sup>th</sup> & 21<sup>st</sup> and Bihar & north Rajasthan on 20<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:**

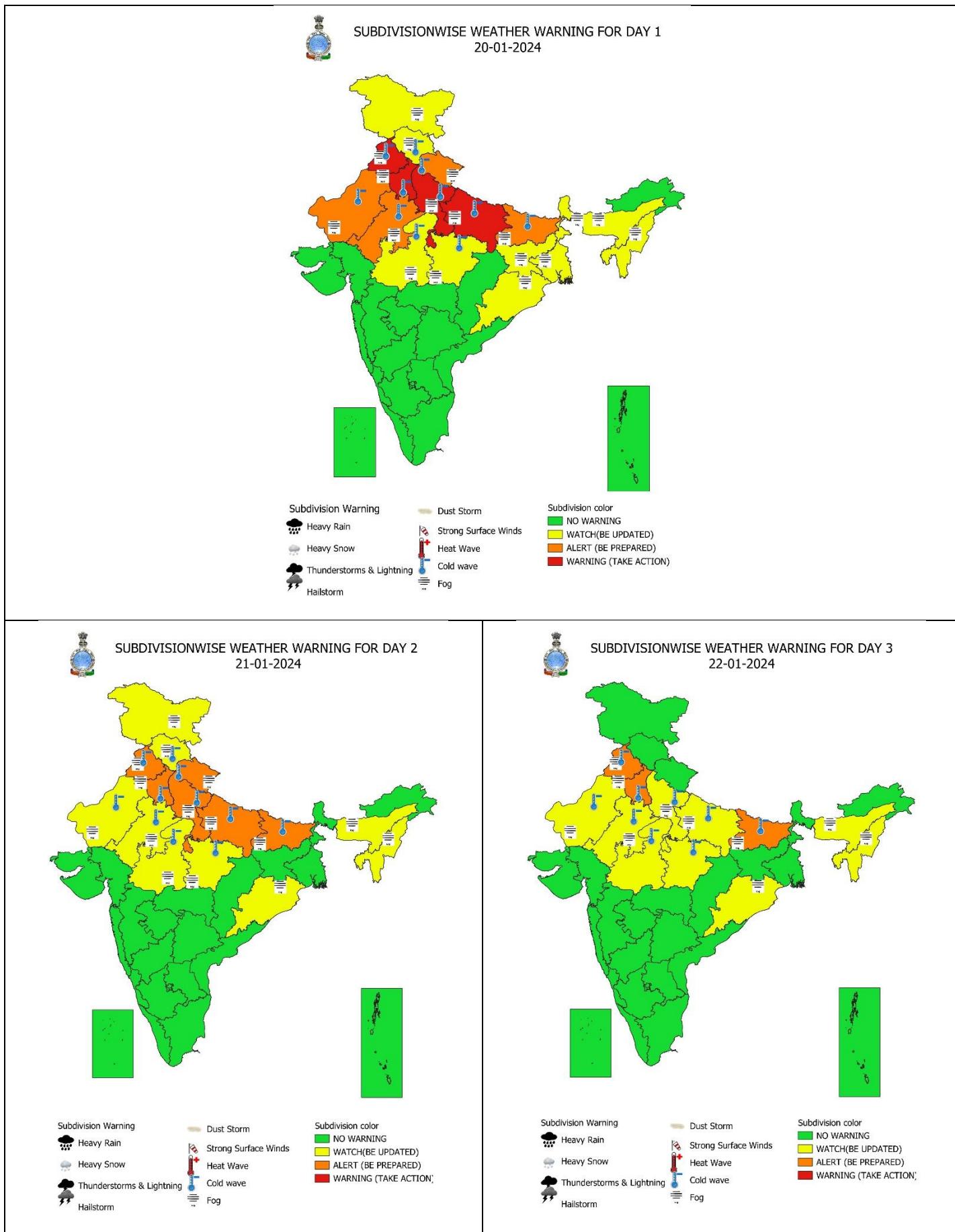
- ❖ To keep ready Maintenance Team
- ❖ Human Health: To avoid outing until unless emergency and to cover the face.

**Impact expected due to Cold Day/Severe Cold Day conditions and Cold Wave/Severe Cold Wave conditions over Uttarakhand, Punjab, Haryana-Chandigarh, Uttar Pradesh, north Rajasthan, north Madhya Pradesh on 20<sup>th</sup> & 21<sup>st</sup> January and over Bihar on 21<sup>st</sup> & 22<sup>nd</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.

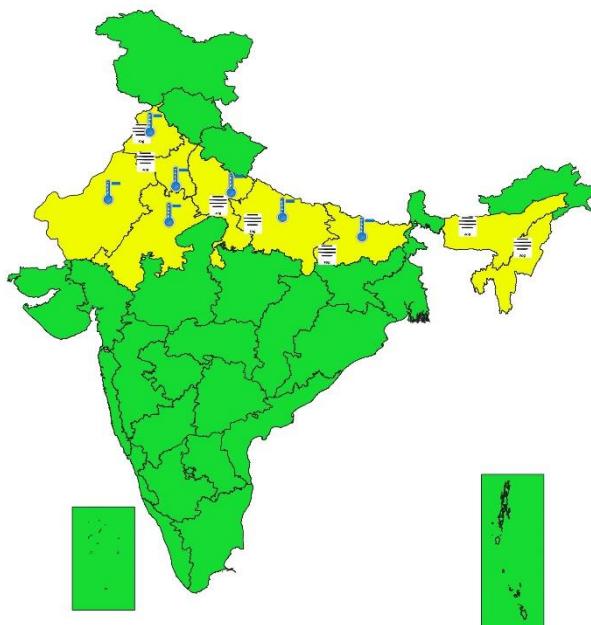
**Action suggested:**

- ❖ Wear several layers of loose fitting, light weight; warm 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.





SUBDIVISIONWISE WEATHER WARNING FOR DAY 4  
23-01-2024



Subdivision Warning

- Heavy Rain
- Heavy Snow
- Thunderstorms & Lightning
- Hailstorm

Dust Storm

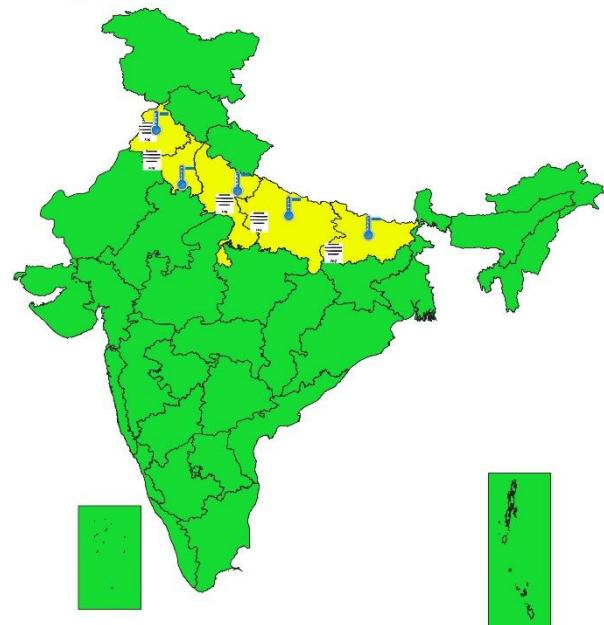
- Strong Surface Winds
- Heat Wave
- Cold wave
- Fog

Subdivision color

- NO WARNING (Green)
- WATCH(BE UPDATED) (Yellow)
- ALERT (BE PREPARED) (Orange)
- WARNING (TAKE ACTION) (Red)



SUBDIVISIONWISE WEATHER WARNING FOR DAY 5  
24-01-2024



Subdivision Warning

- Heavy Rain
- Heavy Snow
- Thunderstorms & Lightning
- Hailstorm

Dust Storm

- Strong Surface Winds
- Heat Wave
- Cold wave
- Fog

Subdivision color

- NO WARNING (Green)
- WATCH(BE UPDATED) (Yellow)
- ALERT (BE PREPARED) (Orange)
- WARNING (TAKE ACTION) (Red)

## 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.

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 Widespred (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)			

### Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

### Flash Flood Risk

 High Risk (Take Action)
 Moderate Risk (Be Prepared)
 Low Risk (Be Updated)

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

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

#### (a). Based on departure

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

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

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

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

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

#### (c) For Coastal Stations

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

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

#### Based on departure

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

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

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

**Moderate Fog:** When the visibility between 500-200 metres

**Dense Fog:** when the visibility between 50-200 metres

**Very Dense Fog:** when the visibility  $< 50$  metres