Government of India
Ministry of Earth Sciences
India Meteorological Department

Press Release
Date: 21st January, 2024
Time of Issue: 1300 hours IST

Subject:

i. **Dense to very dense fog and cold day to severe cold day conditions likely to continue to prevail over North India during next 4-5 days.**
ii. **Cold wave conditions likely to prevail over Punjab, Haryana & Chandigarh and north Rajasthan during next 3-4 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 3-7°C over most parts of Punjab, Haryana-Chandigarh-Delhi & West Uttar Pradesh; in some parts of Rajasthan & Madhya Pradesh and 8-10°C over many parts of East Uttar Pradesh & Bihar. These are below normal by 2- 4°C in many parts of Haryana-Chandigarh-Delhi & West Uttar Pradesh; in some parts of Rajasthan & Madhya Pradesh and near normal over rest parts of north India. **Today, the lowest minimum temperature of 2.8°C reported at Hissar (Haryana).**
- Today, **Cold wave to severe cold wave conditions** prevailed in isolated pockets of Rajasthan. **Cold wave conditions** prevailed in isolated pockets of Himachal Pradesh, Uttarakhand, Punjab, Haryana.
- **Fog conditions observed** (at 0530 & 0830 hours IST of today): **Dense to very Dense Fog** over many parts of Punjab, Haryana-Chandigarh-Delhi; in isolated pockets of Uttar Pradesh, Rajasthan & Madhya Pradesh; **Dense Fog** in many parts of Uttarakhand; in isolated pockets of Jammu Division, Sub-Himalayan West Bengal, Odisha, Assam & Tripura.
- Yesterday, **Cold day to severe cold day conditions** prevailed in many parts of East Uttar Pradesh; in some parts of Punjab, West Uttar Pradesh & East Madhya Pradesh; in isolated pockets of Uttarakhand & Haryana. **Cold day conditions** also observed in isolated pockets of Rajasthan, West Madhya Pradesh & Bihar.

Weather Systems and Forecast & Warnings during next 5 days:

- **Jet Stream Winds of the order of 140-160 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**.
- Due to trough in easterlies from South Interior Karnataka to east Vidarbha and anti-cyclonic circulation over Northwest Bay of Bengal in the lower levels, light rainfall at isolated places likely over Odisha, Chhattisgarh and West Bengal during next 4-5 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, Chandigarh and Uttar Pradesh during 21st night to 26th morning. **Dense Fog** conditions very likely in isolated places over Delhi during 22nd night & 25th January morning.
- **Dense to very dense fog** conditions very likely to prevail for a few hours in night/morning in isolated pockets of Rajasthan & Madhya Pradesh during 21st night to 24th January morning.
- **Dense fog** conditions very likely to prevail in morning hours in some parts of Uttarakhand; in isolated pockets of Jammu Division, Himachal Pradesh, Sub-Himalayan West Bengal, Odisha, Assam & Meghalaya and Mizoram & Tripura during 21st night to 23rd January morning; Bihar during 21st night to 26th January morning and Gangetic West Bengal during 21st night to 22nd morning.
- **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Punjab, Haryana during 21st-23rd and **cold day** conditions in isolated pockets on 24th & 25th January, 2024.
- **Cold Day to Severe Cold Day** conditions very likely to continue in many parts of Uttar Pradesh during 21st-25th January.
- **Cold Day to Severe Cold Day** conditions very likely to continue in isolated pockets of north Rajasthan & north Madhya Pradesh on 21st and **cold day** conditions in isolated pockets of north Rajasthan on 22nd January.
- **Cold Day to Severe Cold Day** conditions very likely to continue in isolated pockets of Bihar on 21st and **cold day** conditions in isolated pockets during 22nd-25th January.
- **Cold Day** conditions very likely in isolated pockets of Delhi on 21st & 22nd and over Sub-Himalayan West Bengal on 21st January.

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

- No significant change in minimum temperatures very likely over northern parts of the country during next 5 days.
- **Cold wave** conditions very likely in isolated pockets of Punjab and Haryana & Chandigarh during 21st-25th January; over north Rajasthan during 21st-23rd January.
- **Ground frost conditions** very likely at isolated places over Uttarakhand on 21st & 22nd January.

For more details kindly refer: https://mausam.imd.gov.in/responsive/all_india_forcast_bulletin.php

Annexure I

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

- Yesterday, **Maximum temperatures** were in the range of 13-20°C over most parts of Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh & Bihar; in some parts of Rajasthan & Madhya Pradesh which were below normal by 7-10°C over some parts East Uttar Pradesh & East Madhya Pradesh; below normal by 4-6°C over many parts of West Uttar Pradesh; at isolated places over Haryana-Chandigarh-Delhi, north Rajasthan, West Madhya Pradesh & Bihar.

- **Visibility recorded** (at 0530 hours IST of today) **(≤200 metres): Punjab**: Patiala-50; **Haryana-Chandigarh**: Ambala-25, Chandigarh & Hissar-50 each; **Delhi**: Palam-25, Safdarjung-200; **West Rajasthan**: Churu & Bikaner-50 each; **West Uttar Pradesh**: Bareilly & Jhansi-25 each; **West Madhya Pradesh:** Bhopal-25; **East Madhya Pradesh**: Sagar & Satna-50 each; **Bihar**: Purnea-200.

- **Visibility recorded** (at 0830 hours IST of today) **(≤200 metres): Haryana-Chandigarh**: Hissar-25, Chandigarh-50, Ambala-200; **West Rajasthan:** Jaisalmer-25, Bikaner & Churu-50 each; **West Uttar Pradesh:** Bareilly-25, Meerut & Jhansi-50 each; **West Madhya Pradesh:** Bhopal-25, Gwalior, Guna & Rajgarh-50 each; **East Madhya Pradesh:** Satna-25, Rewa-50, Damoh & Mandla-200 each; **Jammu Division:** Jammu-50; **Uttarakhand:** Pantnagar-50, Dehradun-200; **Punjab:** Patiala-50, Amritsar & Ludhiana-200 each; **Delhi:** Palam, Safdarjung, Ridge & Ayanagar-50 each; **Sub-Himalayan West Bengal:** Jalpaiguri & Cooch Behar-50 each, Baghdogra-200; **Assam:** Dhubri-50; **Tripura:** Agartala & Kailashahar-50 each; **East Uttar Pradesh:** Lucknow-200; **Bihar:** Purnea-200.

- **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 and Uttar Pradesh during 21st night to 26th morning; Rajasthan & Madhya Pradesh during 21st night to 24th January morning.

- **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:

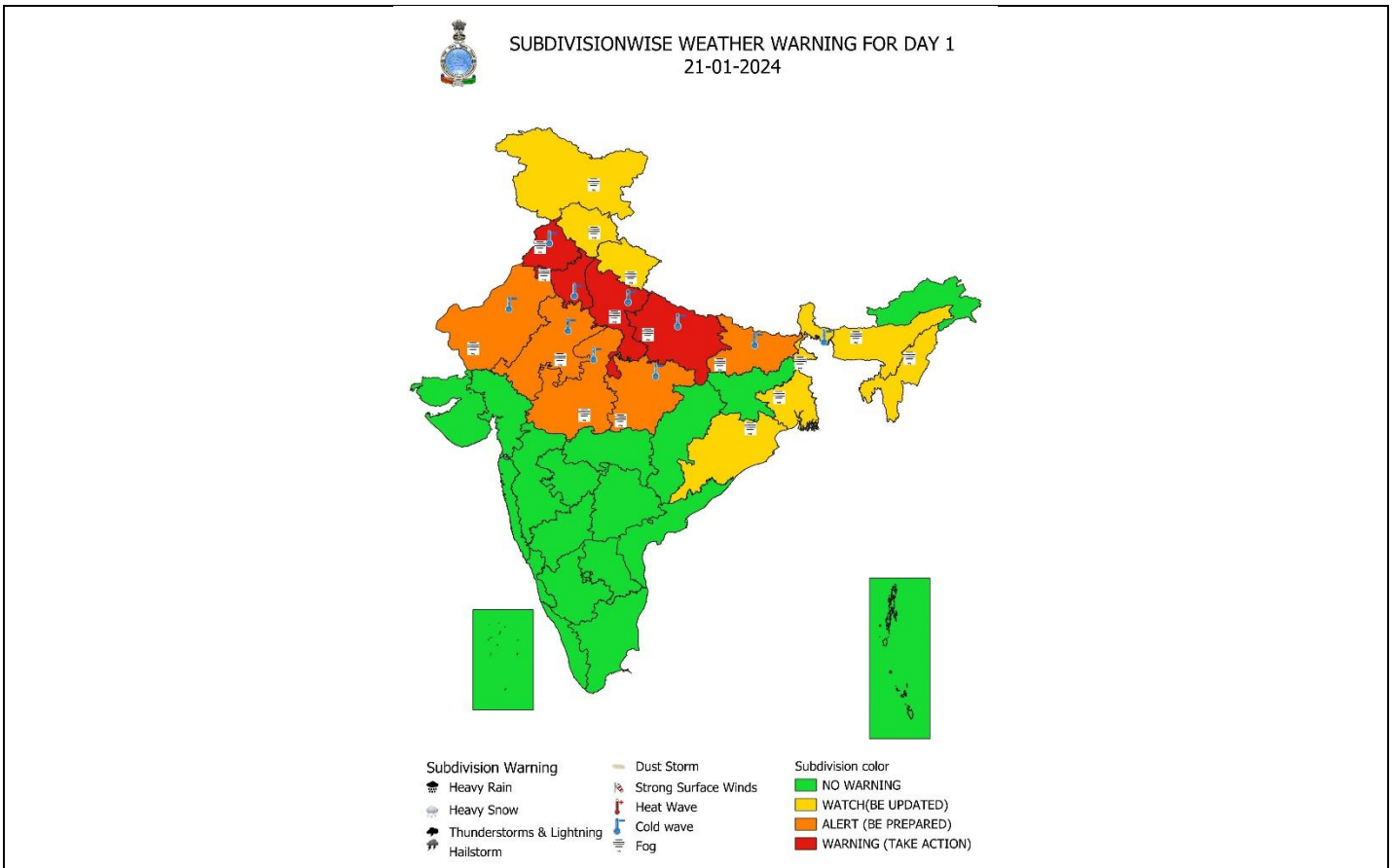
- **Transport and Aviation:**
  - Be careful while driving or outing through any transport.
  - Use fog lights during driving.
  - Be in touch with airlines, railways and state transport for schedule of your journey.
- **Power Sector:**
  - To keep ready Maintenance Team
  - Human Health: To avoid outing until unless emergency and to cover the face.

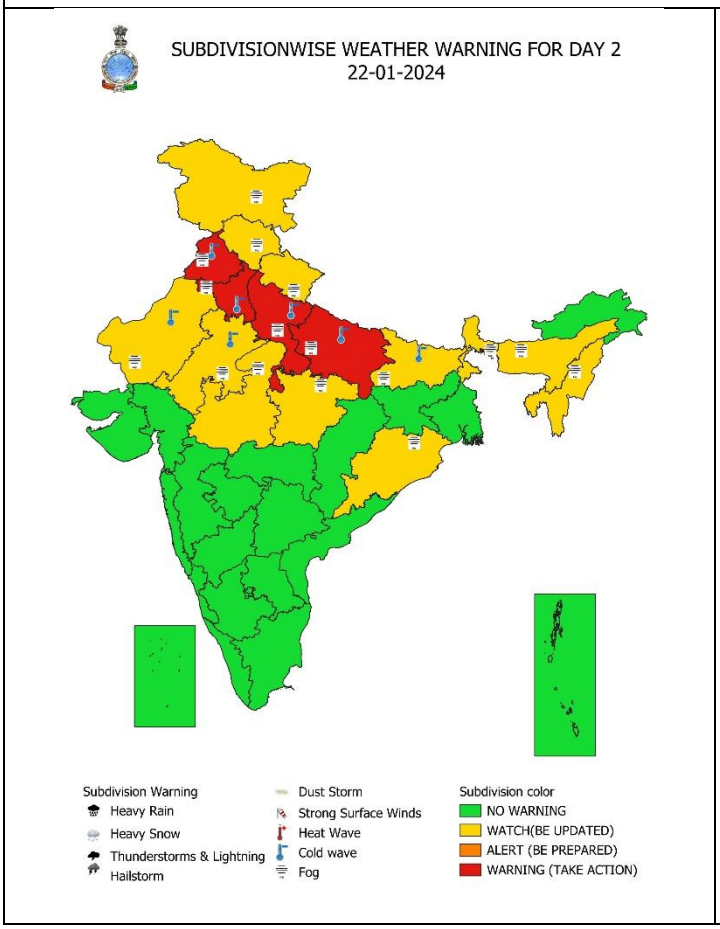
Impact expected due to Cold Day/Severe Cold Day conditions over Punjab, Haryana-Chandigarh, Uttar Pradesh during 21st-25th January and over Rajasthan, Madhya Pradesh and Bihar on 21st January, 2024.

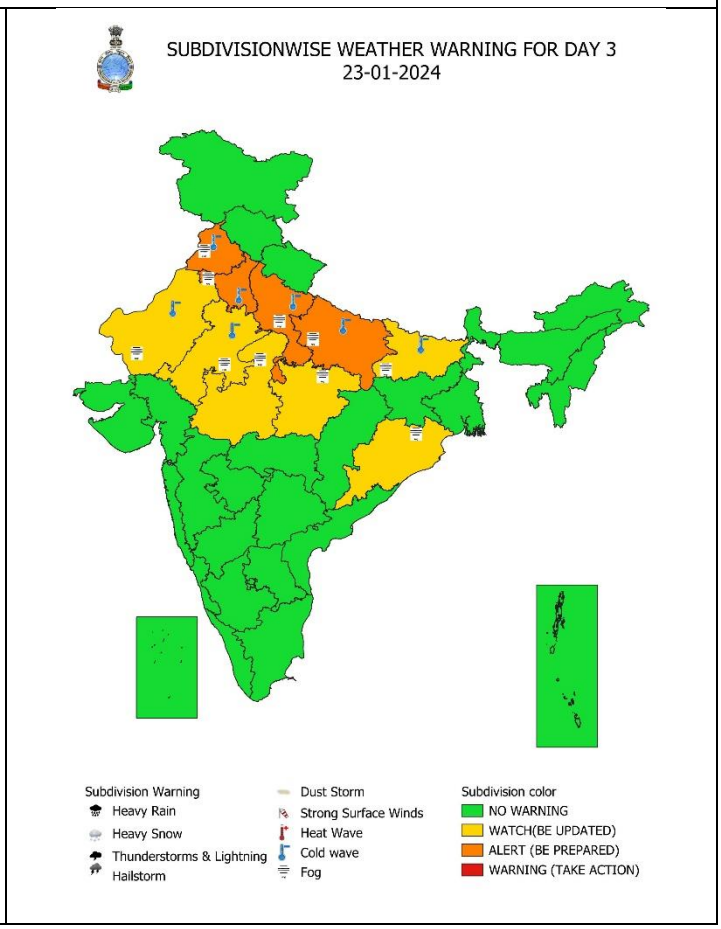
- An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- Frostbite can occur due to prolonged exposure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

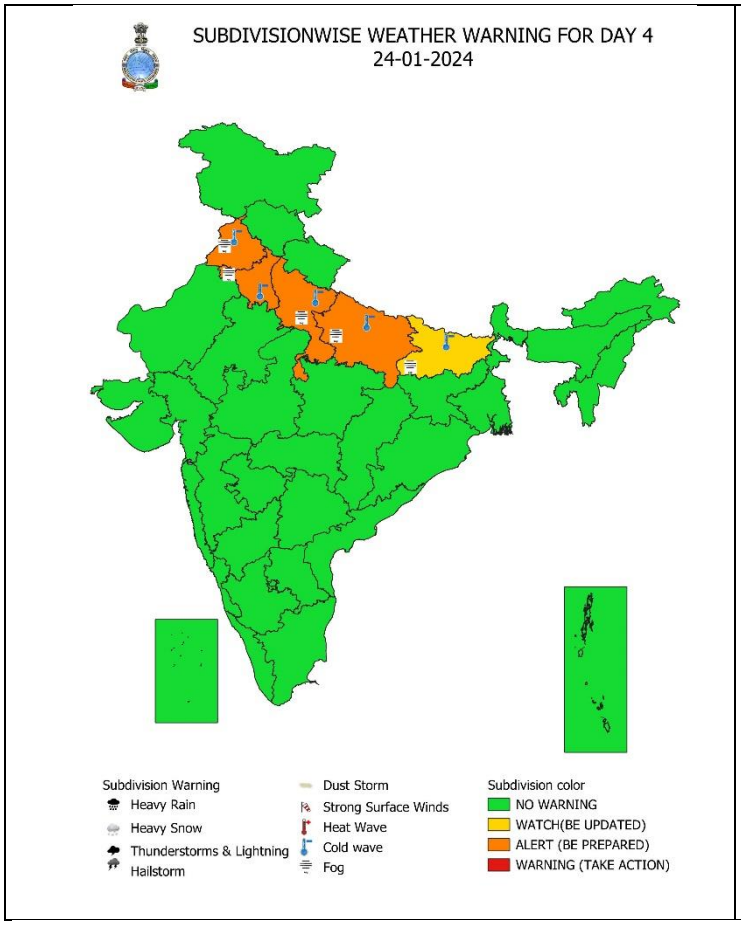
Action suggested:

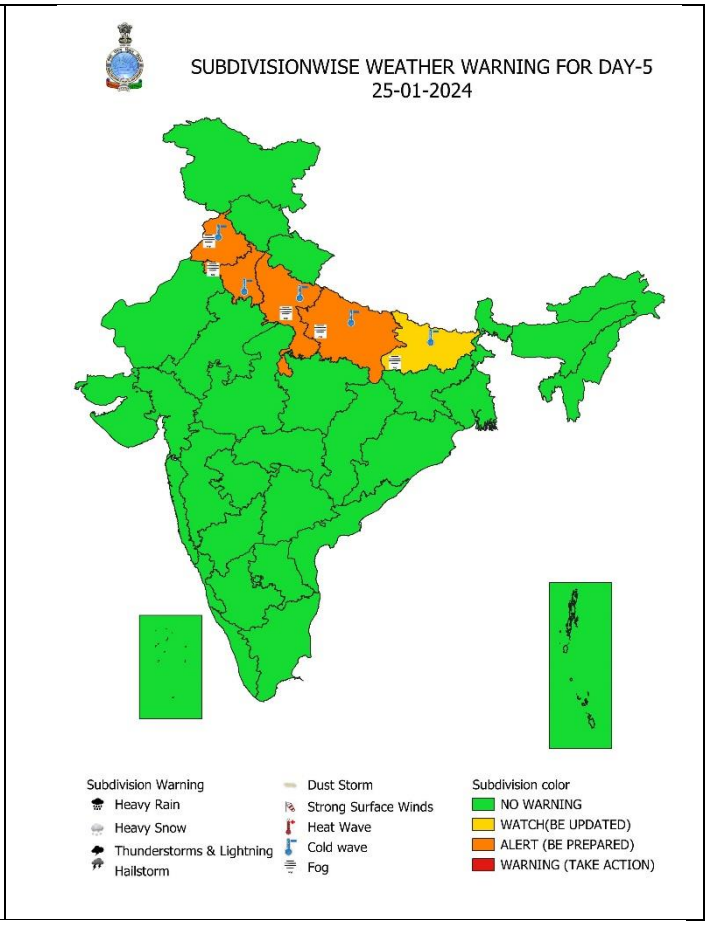
- Wear several layers of loose fitting, light weight; warm woollen clothing.
- Cover your head, neck, hands and toes adequately as majority of heat loss occurs through these body parts. Wear several layers of loose fitting, light weight; warm woollen clothing rather than one layer of heavy cloth.
- Eat 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 1
21-01-2024
Subdivision Warning
Heavy Rain
Heavy Snow
Thunderstorms & Lightning
Hailstorm
Dust Storm
Strong Surface Winds
Heat Wave
Cold wave
Fog
Subdivision color
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY 2
22-01-2024
Subdivision Warning
Heavy Rain
Heavy Snow
Thunderstorms & Lightning
Hailstorm
Dust Storm
Strong Surface Winds
Heat Wave
Cold wave
Fog
Subdivision color
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY 3
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
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY 4
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
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY-5
25-01-2024
Subdivision Warning
Heavy Rain
Heavy Snow
Thunderstorms & Lightning
Hailstorm
Dust Storm
Strong Surface Winds
Heat Wave
Cold wave
Fog
Subdivision color
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)

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

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:

Cold Wave

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

(a). Based on departure

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

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

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

(c) For Coastal Stations

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

Cold Day

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

Based on departure

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

Fog

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

- **Moderate Fog:** When the visibility between 500-200 metres
- **Dense Fog:** when the visibility between 50- 200 metres
- **Very Dense Fog:** when the visibility < 50 metres