



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 19th January, 2024

Time of Issue: 1230 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 to prevail over North India during next 3 days.**
- iii) Cold wave to severe cold wave conditions likely to continue over plains of Northwest India during next 3 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 in isolated pockets of north Rajasthan, south Haryana; in the range of 6-10°C over most parts of Punjab, Chandigarh, Delhi, Uttar Pradesh, remaining parts of Rajasthan and Madhya Pradesh. These are below normal by 2- 4°C in isolated pockets of south Haryana, south Uttar Pradesh and north Rajasthan. **Today, the lowest minimum temperature of 2.4°C reported at Bikaner (West Rajasthan) and Kanpur (East Uttar Pradesh).**
- ❖ Today, **Cold wave conditions** prevailed in isolated pockets of Punjab, East Uttar Pradesh, West Rajasthan and north Madhya Pradesh.
- ❖ **Fog conditions observed** (at 0530 & 0830 hours IST of today): **Dense to very Dense Fog** over most parts of Punjab, Haryana; in some parts of East Rajasthan, Uttarakhand; in isolated pockets of Uttar Pradesh, West Rajasthan; **Dense Fog** in isolated pockets of northeast Madhya Pradesh, Odisha, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Tripura.
- ❖ Yesterday, **Cold day to Severe Cold day conditions** prevailed in many parts of Uttar Pradesh; in some parts of Bihar, West Rajasthan; in isolated pockets of Punjab, Haryana, north 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.**
- ❖ Light to moderate rainfall in isolated to some places very likely over Chhattisgarh, Odisha, West Bengal & Sikkim and Arunachal Pradesh on 19th January and a fresh spell likely over East & Northeast India from 23rd 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, Haryana and Chandigarh during 19th night to 20th morning and in some parts for subsequent 4 days.
- ❖ **Dense to very dense fog** conditions very likely to prevail for a few hours in night/morning in some parts of Uttar Pradesh during 19th night to 21st January morning and 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 during 19th-23rd January, 2024.
- ❖ **Dense to very dense fog** conditions very likely to prevail in morning hours in some parts of north Rajasthan on 19th January; in isolated pockets on 20th and dense fog in isolated pockets for subsequent 3 days.
- ❖ **Dense fog** conditions very likely to prevail in morning hours in isolated pockets of Bihar, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 19th-23rd; over Odisha, Sub-Himalayan West Bengal & Sikkim during 19th-21st; over Himachal Pradesh on 19th & 20th and north Madhya Pradesh, Jharkhand, Gangetic West Bengal on 19th January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in many parts of Uttar Pradesh on 19th & 20th and in isolated pockets for subsequent 3 days.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Bihar during 19th-24th January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in some parts of Punjab, Haryana and north Rajasthan on 19th & 20th and cold day condition on 21st January, 2024.
- ❖ **Cold Day to Severe Cold Day** conditions very likely to continue in isolated pockets of north Madhya Pradesh and Uttarakhand on 19th & 20th 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 East India during next 3 days and no significant change thereafter.
- ❖ No significant change in minimum temperatures likely over rest parts of north India during next 5 days.
- ❖ **Cold wave to Severe Cold wave** conditions very likely to continue in isolated pockets of Punjab and Haryana on 19th & 20th and cold wave conditions on 21st & 22nd January, 2024.
- ❖ **Cold wave** conditions very likely in isolated pockets of Himachal Pradesh, north Madhya Pradesh on 19th & 20th and over West Rajasthan during 19th-21st January and East Rajasthan on 20th & 21st January, 2024.
- ❖ **Ground frost conditions** very likely at isolated places over Uttarakhand during 19th-21st January.

For more details kindly refer: 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 10-15°C over many parts of Punjab, Uttar Pradesh, Haryana-Chandigarh, north Rajasthan, north Madhya Pradesh; 16-20°C over most parts of Delhi, Jharkhand and Bihar; which were below normal by 7-10°C at most parts of Gangetic West Bengal; at many parts of Uttar Pradesh, Bihar; some parts of south Punjab, south Haryana, north Rajasthan and in isolated pockets of north Madhya Pradesh and south Uttarakhand.
- ❖ **Visibility recorded (at 0530 hours IST of today) (≤200 metres):** **Punjab:** Bhatinda- 0; Amritsar & Patiala-25 each; **West Rajasthan:** Bikaner-0, Ganganagar & Churu-50 each; **Haryana-Chandigarh:** Chandigarh & Hissar-50, Ambala-200; **Delhi:** Palam & Safdarjung-50 each; **East Rajasthan:** Jaipur-50; **Tripura:** Agartala-50; **Uttarakhand:** Dehradun-200; **East Uttar Pradesh:** Sultanpur-200; **Bihar:** Purnea & Bhagalpur-200 each; **Jharkhand:** Ranchi-200; **Odisha:** Jharsuguda-200.
- ❖ **Visibility recorded (at 0830 hours IST of today) (≤200 metres):** **Punjab:** Amritsar, Ludhiana - 25, Patiala- 50; **Rajasthan:** Jaipur-25; Ganganagar, Alwar & Churu-50 each; **Haryana-Chandigarh:** Hissar & Ambala-25 each; Chandigarh & Bhiwani- 50; **Assam-** Dhubri- 50; **West Bengal-** Cooch Behar- 50; Jalpaiguri- 200; Malda & Shantiniketan- 500 each; **Bihar:** Purnea & Bhagalpur-200 each; **Delhi:** Palam & Ayanagar-200 each; Safdarjung & Ridge- 500 each; **Uttar Pradesh:** Sultanpur & Jhansi-200 each; Fursatganj & Gorakhpur- 500 each; **Uttarakhand:** Dehradun- 200; Pantnagar- 500; **Odisha:** Paradip, Gopalpur & Keonjhargarh- 500 each; **Madhya Pradesh-** Datia, Shivpuri, Guna & Damoh – 200 each; Jabalpur, Gwalior & Umaria- 500 each.
- ❖ **Isolated hailstorm** observed over Sikkim.
- ❖ **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-Delhi, Uttar Pradesh during 19th-23rd and Uttarakhand and north Rajasthan on 19th & 20th 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 Bihar during 19th-23rd and over Punjab, Haryana, north Rajasthan during 19th-21st January and over north Madhya Pradesh on 19th & 20th 2024.

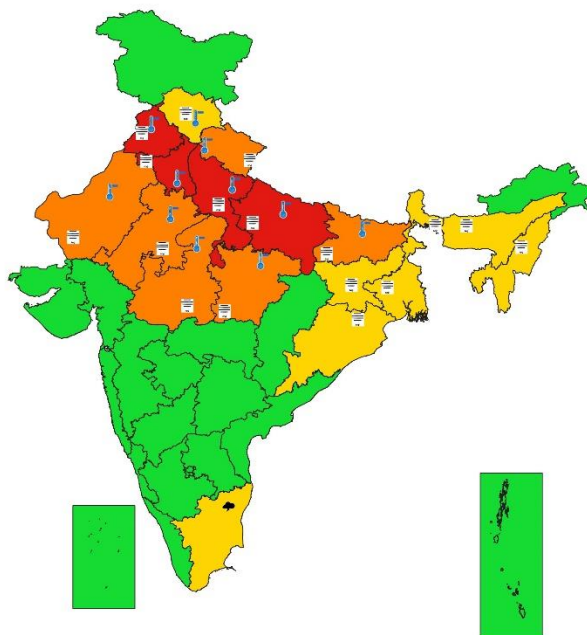
- ❖ An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- ❖ Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- ❖ Frostbite can occur due to prolonged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



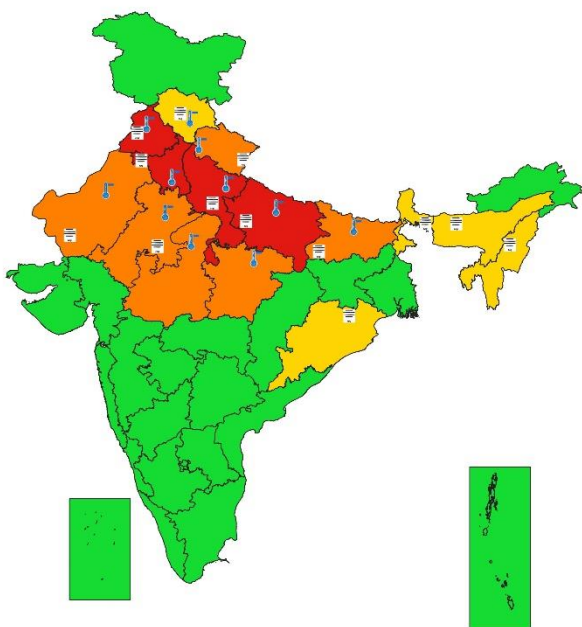
SUBDIVISIONWISE WEATHER WARNING FOR DAY 1
19-01-2024



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|----------------------------|----------------------|--------------------------|
| 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) |



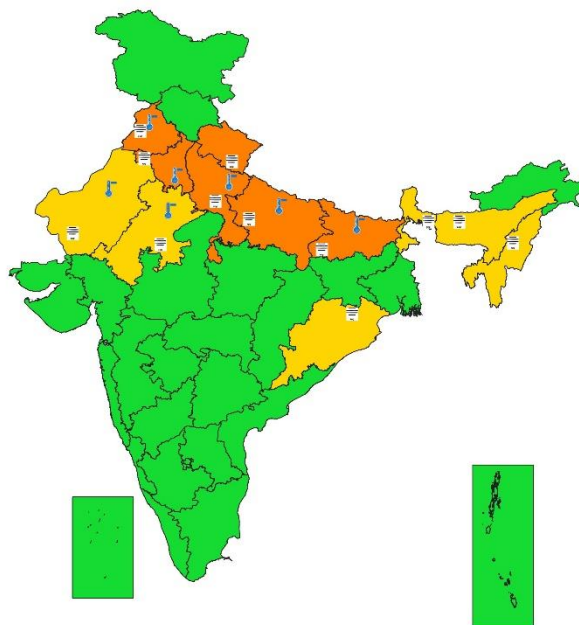
SUBDIVISIONWISE WEATHER WARNING FOR DAY 2
20-01-2024



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| 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) |



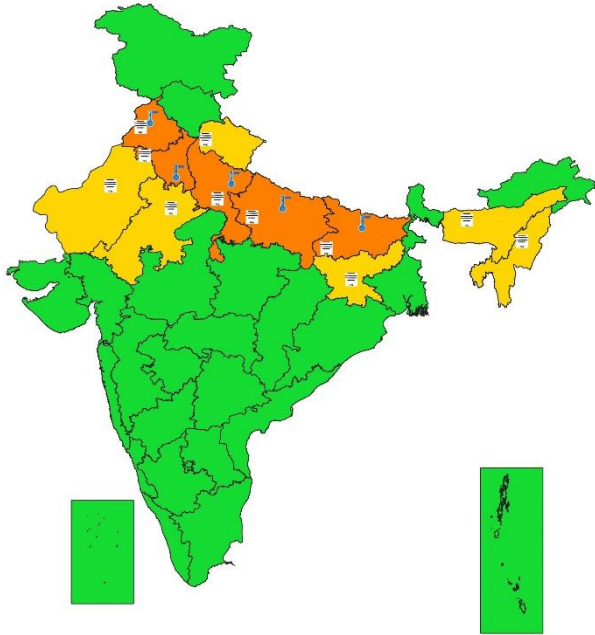
SUBDIVISIONWISE WEATHER WARNING FOR DAY 3
21-01-2024



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|----------------------------|----------------------|--------------------------|
| 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) |



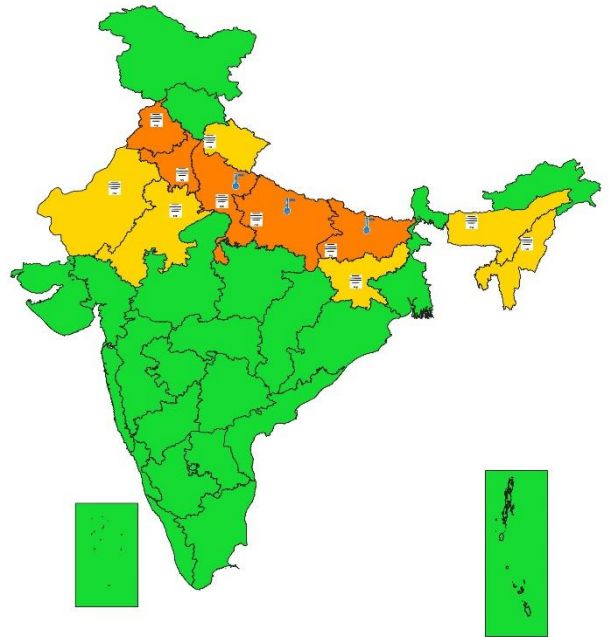
SUBDIVISIONWISE WEATHER WARNING FOR DAY 4
22-01-2024



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| 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) |



SUBDIVISIONWISE WEATHER WARNING FOR DAY-5
23-01-2024



- | | | |
|----------------------------|----------------------|--------------------------|
| 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) |

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 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)

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 $\leq 10^{\circ}\text{C}$ for plains and $\leq 0^{\circ}\text{C}$ for hilly regions.

(a) Based on departure

Cold Wave: Minimum Temperature Departure from normal -4.5°C to -6.4°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 $\leq 15^{\circ}\text{C}$

Cold Day

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°C to -6.4°C .

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

Fog

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