



**Government of India
Earth System Science Organization
Ministry of Earth Sciences
India Meteorological Department**

**Press Release
Date 20th December, 2020
Time of Issue: 1600 hrs IST**

Subject: Cold wave spell over northwestern plains and adjoining central India

Cold Wave: Minimum temperatures have increased by 1-2° C over parts of northwest India during past 24 hours. Today Cold Wave to Severe Cold Wave conditions have been observed at isolated places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and north Rajasthan and Cold Wave conditions at isolated places over western parts of Gangetic West Bengal, Odisha, Bihar and Vidarbha.

Cold Day: Maximum temperatures have also increased by 2-3°C over most parts of northwest India & adjoining Central India during past 24 hours with no cold day conditions observed over the region except over East Uttar Pradesh.

Yesterday (19th Dec), Cold Day to Severe Cold Day conditions observed at a few places over East Uttar Pradesh and Cold Day conditions at isolated places over West Uttar Pradesh and Bihar.

(For actual observed Maximum, minimum Temperature, their 24h-tendencies and departure from normal for major cities of already cold spell affected areas, refer Table 1 and 2)

Dense Fog observed (at 0530 & 0830 hours IST of today): Dense to very dense fog observed in many pockets over East Uttar Pradesh and in isolated pockets over Punjab and Dense fog in isolated pockets over Uttarakhand, West Uttar Pradesh, Bihar and Tripura. **Visibility recorded (at 0530 & 0830 hours IST of today) (200 m or less):** Amritsar, Shahjahanpur, Hardoi, Lucknow, Barabanki, Fursatganj, Muzaffarpur and Varanasi-25 each; Pantnagar, Bareilly, Bahraich and Sultanpur-50 each; Ambala, Bhagalpur -200 each.

Forecast and Warning for next 5-days

Likely Temperature conditions: Gradual rise in minimum and maximum temperatures by 2-3°C very likely over plains of Northwest & adjoining Central India during next 48 hours.

Cold Day: No Cold Day conditions likely to prevail over Northwest & adjoining Central India during next 3 days except over East Uttar Pradesh. **The current spell of Cold Day to Severe Cold Day conditions likely to continue over East Uttar Pradesh till 22 Dec.**

Cold Wave: The current spell of Cold Wave/Severe Cold Wave conditions over Northwest & adjoining Central India likely to abate from 22nd December while it is likely to continue over Uttar Pradesh, Bihar, western parts of Gangetic West Bengal and interior Odisha till 23 Dec, 2020.

Dense Fog: The current spell of Dense to very dense fog likely to continue at a few places over East Uttar Pradesh during 20th-21st December and at isolated places over the same area during subsequent 2 days during 22nd-23rd December.

Wind conditions: Strong surface wind (speed reaching 10-20 kmph) very likely to prevail over parts of Northwest India & adjoining Indo-Gangetic plains during next 24 hours.

Ground Frost: Ground Frost very likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and north Rajasthan during next 24 hours.

Detailed forecast & warnings are as follow:

Sub-Divisions	20 Dec. 2019*	21 Dec. 2019*	22 Dec. 2019*	23 Dec. 2019*	24 Dec. 2019*
Punjab	Cold Wave to Severe Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil	Nil
Haryana, Chandigarh & Delhi	Cold Wave to Severe Cold Wave Conditions at a few places	Cold Wave Conditions at isolated places over Haryana	Nil	Nil	Nil
North Rajasthan	Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil	Nil
West Uttar Pradesh	Cold Wave conditions at a few places with Severe Cold Wave Conditions at isolated places	Cold Wave Conditions and Cold Day to Severe Cold Day Conditions at isolated places	Nil	Nil	Nil
East Uttar Pradesh	Cold Wave conditions at a few places with Severe Cold Wave Conditions at isolated places. Dense to very Dense fog in some pockets	Cold Wave to Severe Cold Wave Conditions at isolated places. Cold Day to Severe Cold Day Conditions at a few places. Dense to very Dense fog in isolated pockets	Cold Wave and Cold Day Conditions at isolated places. Dense to very Dense fog in isolated pockets	Cold Day Conditions at isolated places. Dense to very Dense fog in isolated pockets	Cold Day Conditions at isolated places. Dense to very Dense fog in isolated pockets

Bihar	Cold Wave to Severe Cold Wave Conditions at isolated places	Cold Wave to Severe Cold Wave Conditions & Cold Day Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil
Odisha	Cold Wave to Severe Cold Wave Conditions at isolated places	Cold Wave to Severe Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil
Jharkhand	Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil	Nil
Gangetic West Bengal	Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Cold Wave Conditions at isolated places	Nil	Nil

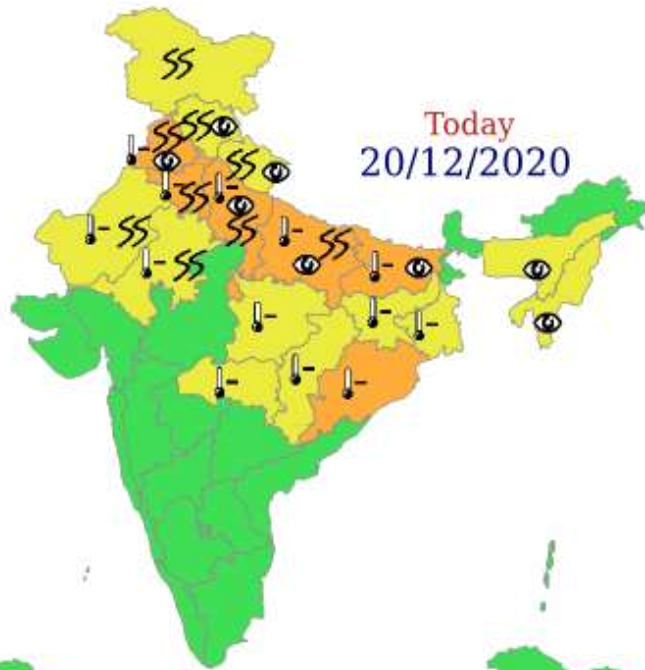


Table 1: Observed Maximum Temp.,Tendency and Departure over the Plains of North India Dated
20.12.2020

Station	Maximum Temperature	Departure from Normal	24 Hour Tendency
Delhi			
Palam	19.3	-3.1	0.6
Safdarjung	21.8	-0.6	1.2
Ridge	21.8	-	2.4
Ayanagar	21.2	-	1.4
Haryana & Chandigarh			
Chandigarh	20.3	-0.8	2.6
Ambala			
Karnal			
Hissar	21.0	-1.7	2.4
Narnaul	24.2	1.0	2.0
Rohtak	18.3	-4.6	2.4
Punjab			
Amritsar	16.0	-4.5	0.0
Ludhiana	19.7	0	0.6
Patiala	20.6	0.2	1.6
West Rajasthan			
Ganganagar	22.8	0.8	1.8
Churu	24.1	-0.2	2.6
Bikaner	24.8	-0.5	2.0
Jaisalmer	24.7	-0.3	1.4
Barmer	27.4	0.3	2.4
East Rajasthan			
Jaipur	25.2	0.9	3.6
Ajmer	26.0	0.1	3.0
Kota	24.3	-1.0	2.6
Bhilwara	24.6	-0.3	3.8
Udaipur	24.2	-1.4	2.4
Chittorgarh	25.9	-0.2	1.8

West Uttar Pradesh			
Meerut	20.9	-2.1	2.2
Bareilly	12.5	-10.1	-0.2
Shahjahanpur	16.5	-6.5	-3.0
Jhansi	25.1	0.6	2.6
East Uttar Pradesh			
Bahraich	11.6	-12.9	-2.0
Gorakhpur	15.6	-9.5	0.8
Lucknow	20.2	-3.8	-0.2
Varanasi	22.6	-3.3	2.8
Banda	21.6	-3.5	1.6
West Madhya Pradesh			
Guna	25.2	-0.9	2.6
Rajgarh	23.2	-4.5	1.2
Dhar	32.8	-5.6	0.6
Khandwa	25.1	-4.6	-1.0
Indore	23.2	-4.2	--
Bihar			
Chapra	17.5	-6.0	-2.2
Patna	20.4	-4.0	0.2
Bhagalpur	20.6	-5.3	-0.2
Purnea	19.6	-6.1	-1.0
Gaya	21.0	-3.4	1.4

Table 2: Observed Minimum Temperatures, their Departure and 24 hours Tendency over the Plains of North India dated 20.12.2020

Station	Minimum Temperature	Departure from Normal	24 Hour Tendency
Delhi			
Palam	6	-1.9	0.3
Safdarjung	3.4	-4.7	-0.5
Lodi Road	3.3	-4.0	0.0
Ridge	6.9	-	0.8
Ayanagar	6.4	-	3
Haryana & Chandigarh			
Chandigarh	4.2	-2.6	-0.1
Hissar	3.3	-3.9	0.5
Narnaul	2.4	-3.7	0.2
Rohtak	4	-3.7	0.2
Punjab			
Amritsar	1	-2.9	0.4
Ludhiana	6.2	-1	3.4
Patiala	5	-1.9	1
West Rajasthan			
Ganganagar	5.9	-0.4	1.4
Churu	1.6	-3.6	1.7
Bikaner	7.6	-0.5	1.6
Jaisalmer	10.1	2	-
Barmer	11.7	0.2	2.5
East Rajasthan			
Jaipur	7.6	-1.6	1
Ajmer	7.7	-1.5	1.7
Kota	6.3	-5.6	1.8
Bhilwara	2.8	-5	1.2
Udaipur	4.2	-3.4	1.2
Chittorgarh	4	-2.9	1.5
West Uttar Pradesh			
Meerut	5.2	-2.7	-0.3
Bareilly	3.3	-5.8	0.5
Shahjahanpur	2.8	-4.5	-0.2
Jhansi	6.7	-1.7	1.7
East Uttar Pradesh			
Bahraich	4.6	-5	-0.2
Gorakhpur	8	-1.6	2.9
Lucknow	4	-3.7	-0.3
Fursatganj	2.8	-	0.2
Varanasi	5.6	-1.4	0
Banda	4.2	-5.6	0.2
West Madhya Pradesh			
Datia	5	-2.4	1.2
Guna	6.6	-1.9	2.9
Rajgarh	7	-2	-0.3
Dhar	8.2	-2.9	0.2
Khandwa	10	-	0
Indore	9.6	-1.1	0.2
Bihar			
Chapra	9.2	-2.2	0.3
Patna	7.8	-1.9	1.8
Bhagalpur	8.3	-4.7	-0.3
Purnea	8.7	-0.2	1.5
Gaya	4.3	-4.6	0.7

Impact expected and action suggested due to Cold Wave/Severe cold wave, Cold Day/Severe Cold Day conditions over East Uttar Pradesh and Bihar during next 3 days; Punjab, Haryana, Chandigarh & Delhi, north Rajasthan during next 2 days.

Impact expected:

- 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, water supply, transport and power sector at some places.

Action suggested:

- Moisturize your skin regularly with oil/cream.
- Eat vitamin-C rich fruits & vegetable and drink sufficient fluids preferably warm fluids to maintain adequate immunity.
- Don't drink alcohol. It reduces your body temperature.
- 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.

Impact expected and action suggested due to Dense to very dense Fog conditions over East Uttar Pradesh during next 3 days.

Impact expected:

➤ **Transport and Aviation:**

- May affect some airports, highways and railway routes in the areas of met- sub-division.
- Ferry services also to be affected.
- Difficult driving conditions with slower journey times.
- 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.
- Causes 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:**

- Careful while driving or outing through any transport.
- Use fog lights during driving.
- Be touch with airlines and Railway and State transport for scheduled of your journey.

➤ **Power Sector:**

- To keep ready Maintenance Team

- **Human Health:** To avoid outing until unless emergency and to cover the face.

Note: * Warning till 0830 IST of next day.

Legends: Yellow: Be updated, Orange- Be prepared; Red- Take action, Green: No warning

A. Conditions for Cold Wave:

When minimum temperature of a station is 10°C or less for plains and 0°C or less for Hilly regions and fulfils any of the following criteria:

I) Based on Departure of Minimum Temperatures from Normal

Cold Wave: When the Departure is -4.5°C to -6.4°C

Severe Cold Wave: When the Departure is > -6.4°C

II) Based on Actual Minimum Temperature (For plain stations only)

Cold Wave: When minimum temperature is $\leq 4^{\circ}\text{C}$

Severe Cold Wave: When minimum temperature is $\leq 2^{\circ}\text{C}$

III) For coastal stations:

When the Departure of Minimum Temperature is -4.5°C or less and Minimum Temperature is 15°C or less.

B. Conditions for Cold Day:

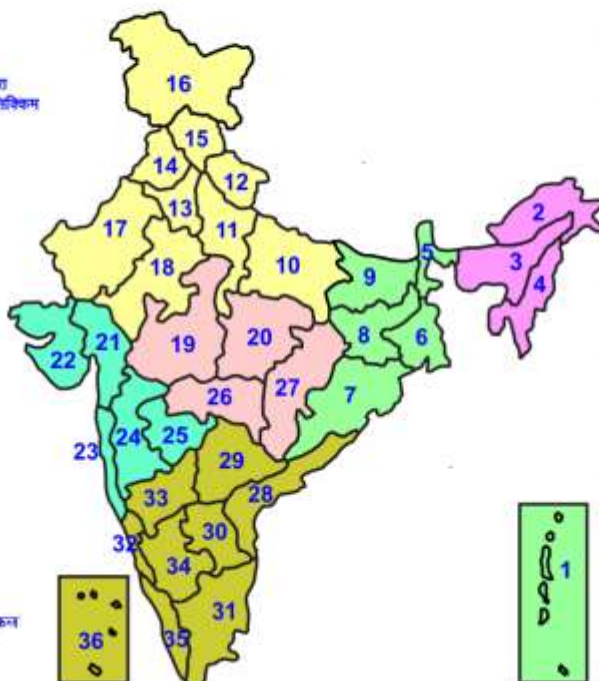
When minimum temperature is 10°C or less for plains and 0°C or less for Hilly regions and fulfils following criteria:

Cold day: Maximum Temperature Departure is -4.5°C to -6.4°C

Severe Cold day: Maximum Temperature Departure is < -6.4°C

LEGENDS

- 1 अंडमान और निकोबार द्वीप समुद्र
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर मीजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 पश्चिम बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडीगढ़ एवं दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवं लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात
- 22 सौराष्ट्र
- 23 कर्नाटक एवं गोवा
- 24 मध्य महाराष्ट्र
- 25 मराठवाड़ा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यानम
- 29 तेलंगाना
- 30 राजस्थान
- 31 तमिळनाडु, पुदुचेरी एवं केरल
- 32 दक्षिण कर्नाटक
- 33 आंतरिक उत्तरी कर्नाटक
- 34 आंतरिक दक्षिणी कर्नाटक
- 35 केरल एवं 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. Orissa
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chd & 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. Vidharbha
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)

WARNING

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO ACTION)

Probabilistic Forecast

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

Heavy Rain	Heavy Snow	Thunderstorm	Dust Storm
Strong Winds	Visibility	Cyclone	Squall/ Hail
Frost	Cold Wave	Heat Wave	Sea State

Kindly download **MAUSAM** APP for location specific forecast & warning, **MEGHDoot** APP for Agromet advisory and **DAMINI** APP for Lightning Warning & visit state MC/RMC websites for district wise warning.