

Sunday, December 22, 2024  
Time of Issue: 2000 hours IST  
(NIGHT)

## All India Impact Based Weather Warning Bulletin

Weather Warnings for next 7 days is given below:  
(Graphics for warnings & rainfall distribution (Table 1) are given below the text:

### 22 December (Day 1):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, West Bengal & Sikkim, Jharkhand, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- ❖ **Cold Wave Conditions** very likely in some parts of Himachal Pradesh; in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground Frost condition** very likely at isolated places over Uttarakhand, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Arunachal Pradesh.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over westcentral Bay of Bengal and adjoining southwest Bay of Bengal, along and off Andhra Pradesh coast. Fishermen are advised not to venture into these areas.

### 23 December (Day 2):

- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Rajasthan and Coastal Andhra Pradesh & Yanam.
- ❖ **Dense fog** very likely in isolated pockets of Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Rajasthan, Sub-Himalayan West Bengal & Sikkim, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- ❖ **Cold Wave Conditions** very likely in isolated pockets of Himachal Pradesh and Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground Frost condition** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over many parts of westcentral Bay of Bengal and adjoining parts of southwest Bay of Bengal, along and off Andhra Pradesh coast. Fishermen are advised not to venture into these areas.

### 24 December (Day 3):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Coastal Andhra Pradesh & Yanam, Odisha.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema.
- ❖ **Dense fog** very likely in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh-Delhi, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura in night/morning hours.
- ❖ **Cold wave to severe cold wave Conditions** very likely in some parts of Himachal Pradesh; **Cold wave Conditions** in some parts of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground Frost condition** very likely at isolated places over Himachal Pradesh, Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over some parts of westcentral Bay of Bengal and adjoining parts of southwest Bay of Bengal, along and off south Andhra Pradesh coast. Fishermen are advised not to venture into these areas.

#### 25 December (Day 4):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam & Tamil Nadu, Puducherry & Karaikal.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense fog** likely in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh in night/morning hours.
- ❖ **Cold wave to severe cold wave Conditions** likely in some parts of Himachal Pradesh; **Cold wave Conditions** in some parts of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground Frost condition** likely at isolated places over Himachal Pradesh.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over few parts of westcentral Bay of Bengal and adjoining parts of southwest Bay of Bengal, along and off south Andhra Pradesh and Tamil Nadu coasts. Fishermen are advised not to venture into these areas.

#### 26 December (Day 5):

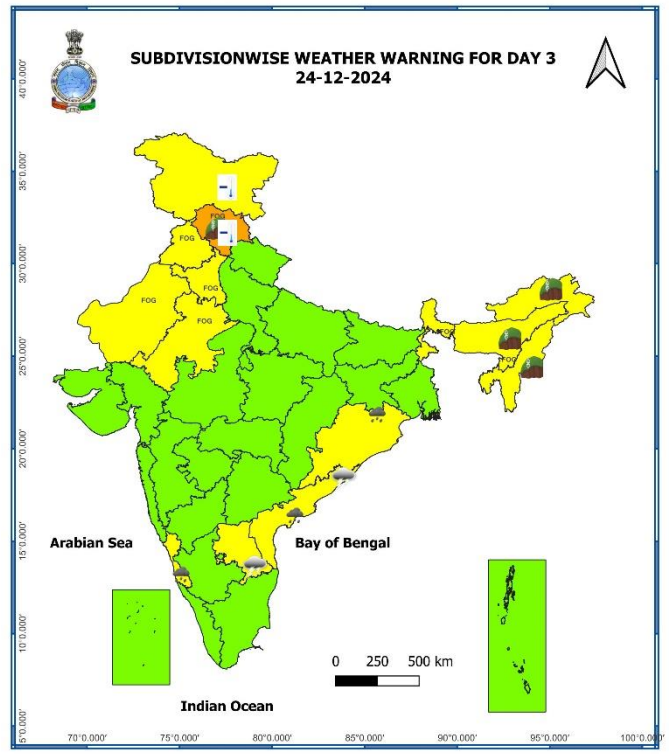
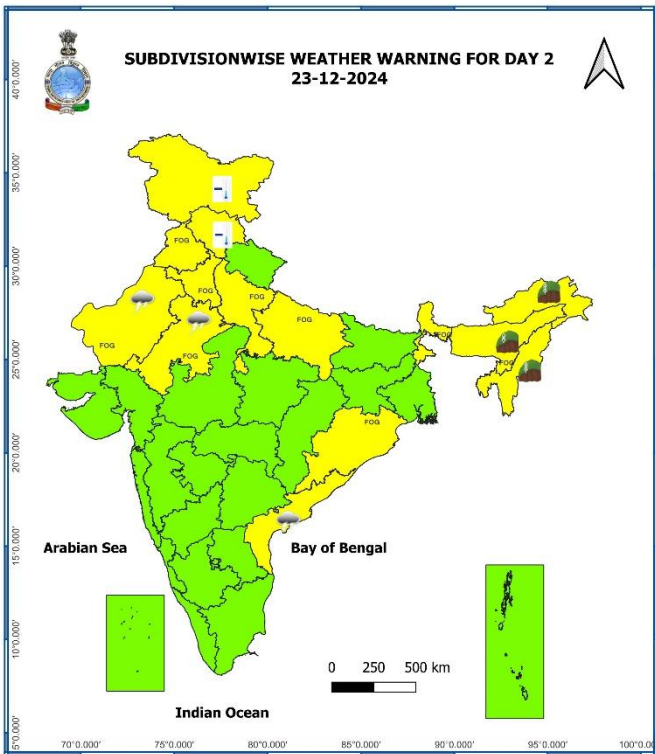
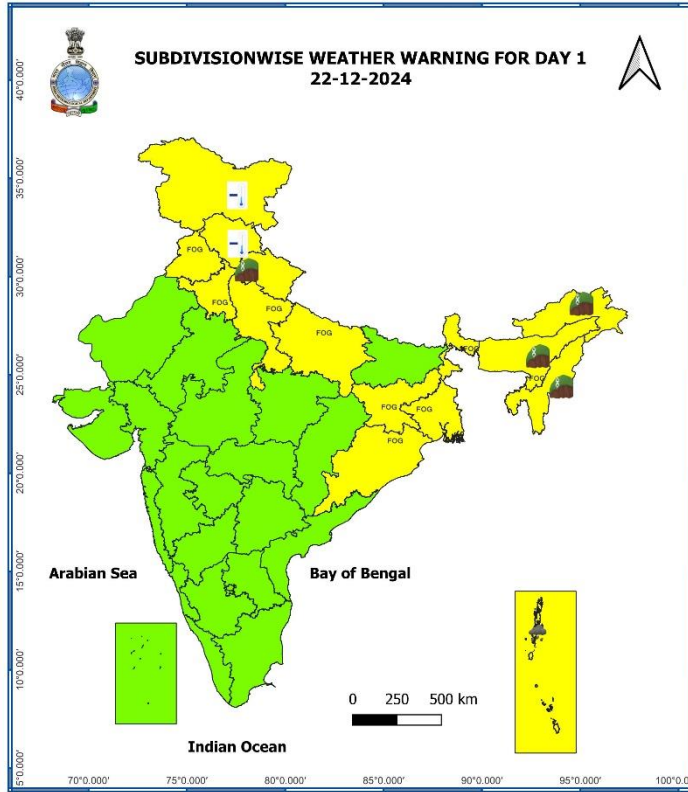
- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam & Tamil Nadu, Puducherry & Karaikal.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over West Madhya Pradesh, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam, Rayalaseema and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense fog** likely in isolated pockets of Himachal Pradesh in night/morning hours.
- ❖ **Cold wave to severe cold wave Conditions** very likely in some parts of Himachal Pradesh; **Cold wave Conditions** in some parts of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground Frost condition** likely at isolated places over Himachal Pradesh.

#### 27 December (Day 6):

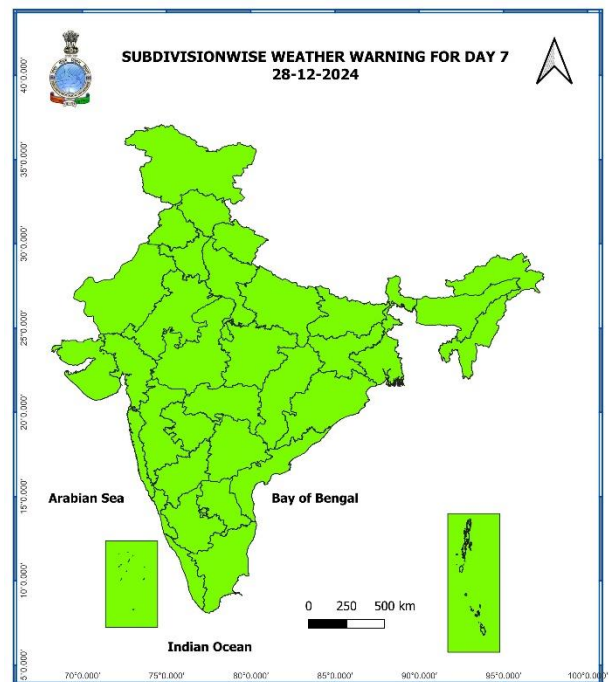
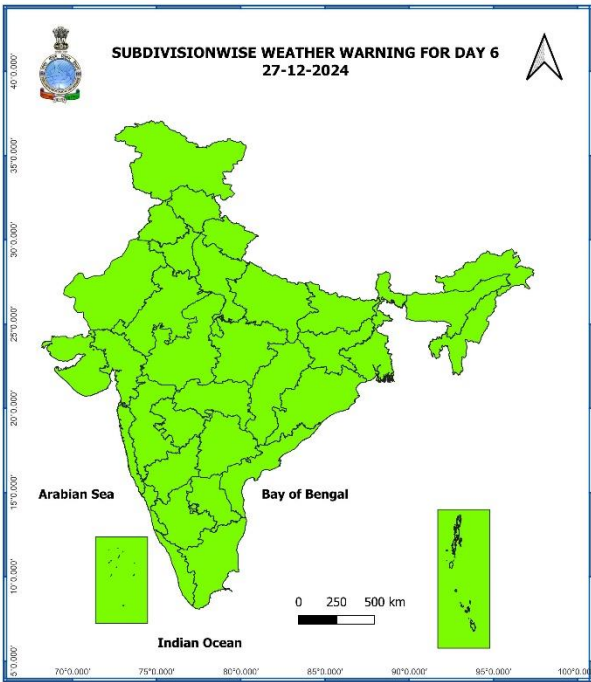
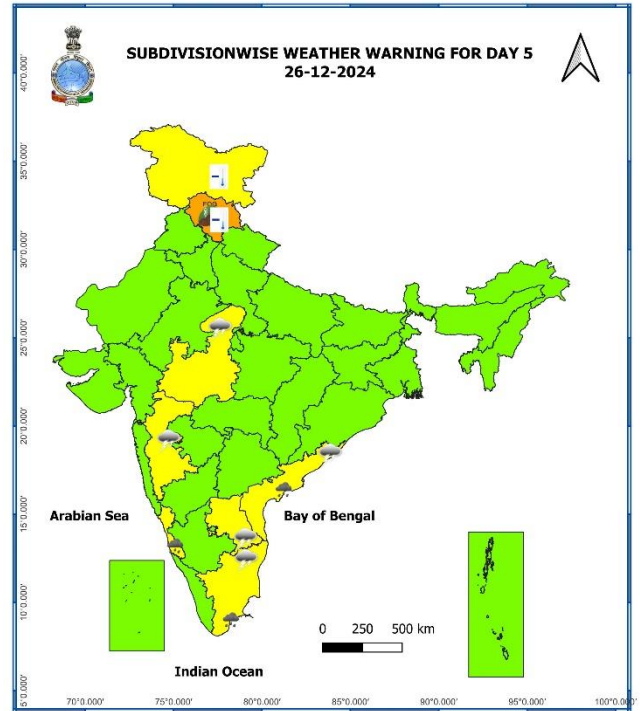
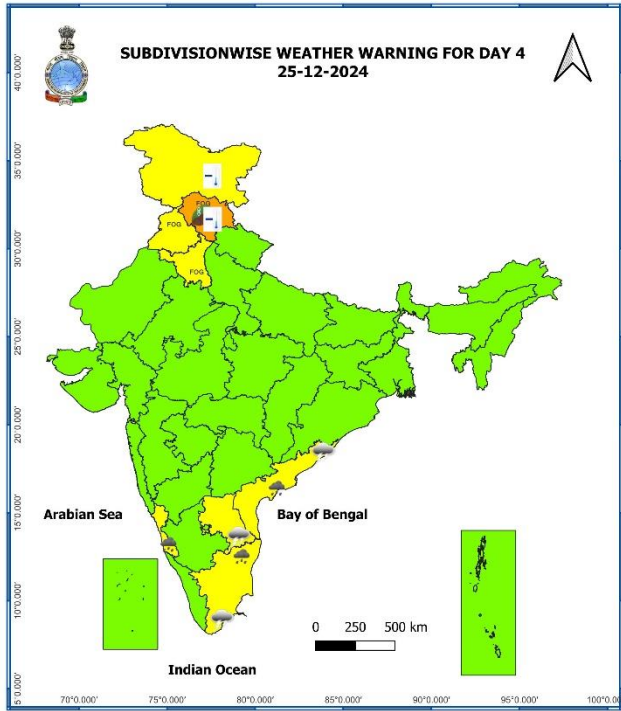
- ❖ **Thunderstorm accompanied with hailstorm & lightning** likely at isolated places over northwest India except East Uttar Pradesh.

#### 28 December (Day 7):

- ❖ **Thunderstorm accompanied with hailstorm & lightning** likely at isolated places over northwest India except East Uttar Pradesh.



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- Action may be taken based on **ORANGE AND RED** COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

Table-1

| 7 Days Rainfall Forecast |                                      |        |        |        |        |        |        |        |
|--------------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| S. No.                   | Subdivision                          | 22-Dec | 23-Dec | 24-Dec | 25-Dec | 26-Dec | 27-Dec | 28-Dec |
|                          |                                      | Day 1  | Day 2  | Day 3  | Day 4  | Day 5  | Day 6  | Day 7  |
| 1                        | ANDAMAN & NICOBAR ISLANDS            | FWS    | SCT    | ISOL   | ISOL   | SCT    | FWS    | FWS    |
| 2                        | ARUNACHAL PRADESH                    | ISOL   | ISOL   | ISOL   | DRY    | DRY    | DRY    | DRY    |
| 3                        | ASSAM & MEGHALAYA                    | ISOL   | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    |
| 4                        | NAGALAND, MANIPUR, MIZORAM & TRIPURA | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    |
| 5                        | SUB-HIMALAYAN WEST BENGAL & SIKKIM   | ISOL   | ISOL   | ISOL   | ISOL   | DRY    | DRY    | DRY    |
| 6                        | GANGETIC WEST BENGAL                 | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    |
| 7                        | ODISHA                               | DRY    | DRY    | ISOL   | ISOL   | DRY    | DRY    | DRY    |
| 8                        | JHARKHAND                            | DRY    | DRY    | ISOL   | DRY    | DRY    | DRY    | DRY    |
| 9                        | BIHAR                                | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    |
| 10                       | EAST UTTAR PRADESH                   | DRY    | DRY    | ISOL   | DRY    | DRY    | ISOL   | ISOL   |
| 11                       | WEST UTTAR PRADESH                   | DRY    | ISOL   | ISOL   | DRY    | DRY    | ISOL   | SCT    |
| 12                       | UTTARAKHAND                          | DRY    | ISOL   | ISOL   | DRY    | DRY    | ISOL   | SCT    |
| 13                       | HARYANA CHANDIGARH & DELHI           | DRY    | ISOL   | DRY    | DRY    | ISOL   | FWS    | ISOL   |
| 14                       | PUNJAB                               | DRY    | ISOL   | DRY    | DRY    | ISOL   | FWS    | ISOL   |
| 15                       | HIMACHAL PRADESH                     | ISOL   | SCT    | ISOL   | DRY    | DRY    | SCT    | SCT    |
| 16                       | JAMMU & KASHMIR AND LADAKH           | DRY    | ISOL   | ISOL   | DRY    | ISOL   | ISOL   | ISOL   |
| 17                       | WEST RAJASTHAN                       | ISOL   | ISOL   | DRY    | DRY    | DRY    | ISOL   | ISOL   |
| 18                       | EAST RAJASTHAN                       | ISOL   | ISOL   | DRY    | DRY    | ISOL   | SCT    | ISOL   |
| 19                       | WEST MADHYA PRADESH                  | DRY    | ISOL   | ISOL   | DRY    | ISOL   | SCT    | ISOL   |
| 20                       | EAST MADHYA PRADESH                  | DRY    | DRY    | ISOL   | DRY    | DRY    | ISOL   | ISOL   |
| 21                       | GUJARAT REGION                       | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 22                       | SAURASHTRA & KUTCH                   | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 23                       | KONKAN & GOA                         | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | DRY    |
| 24                       | MADHYA MAHARASHTRA                   | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 25                       | MARATHAWADA                          | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 26                       | VIDARBHA                             | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 27                       | CHHATTISGARH                         | DRY    | DRY    | DRY    | DRY    | DRY    | ISOL   | ISOL   |
| 28                       | COASTAL ANDHRA PRADESH & YANAM       | ISOL   | ISOL   | SCT    | SCT    | ISOL   | ISOL   | ISOL   |
| 29                       | TELANGANA                            | ISOL   | ISOL   | ISOL   | ISOL   | ISOL   | DRY    | DRY    |
| 30                       | RAYALASEEMA                          | ISOL   | ISOL   | SCT    | SCT    | SCT    | ISOL   | ISOL   |
| 31                       | TAMILNADU PUDUCHERRY & KARAIKAL      | ISOL   | ISOL   | ISOL   | SCT    | SCT    | ISOL   | ISOL   |
| 32                       | COASTAL KARNATAKA                    | DRY    | DRY    | DRY    | ISOL   | SCT    | SCT    | DRY    |
| 33                       | NORTH INTERIOR KARNATAKA             | ISOL   | DRY    | DRY    | ISOL   | SCT    | ISOL   | DRY    |
| 34                       | SOUTH INTERIOR KARNATAKA             | ISOL   | DRY    | DRY    | ISOL   | SCT    | ISOL   | DRY    |
| 35                       | KERALA & MAHE                        | ISOL   | ISOL   | DRY    | DRY    | ISOL   | ISOL   | ISOL   |
| 36                       | LAKSHADWEEP                          | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    | DRY    |

• As the lead period increases forecast accuracy decreases.

### Impact expected due to dense fog in the night /morning hour:

#### ❖ 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 wave/severe cold wave conditions:

- 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.

## Agromet advisories for Heavy Rainfall / Cold Wave likely over various parts of the country

- In **Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Meghalaya, Nagaland and Manipur**, apply light and frequent irrigation to the standing crops in the evening to protect them from low-temperature stress or cold injuries. Use mulching and cover vegetable nurseries and young fruit plants with straw/polythene sheets to maintain optimum soil temperature.

### Livestock

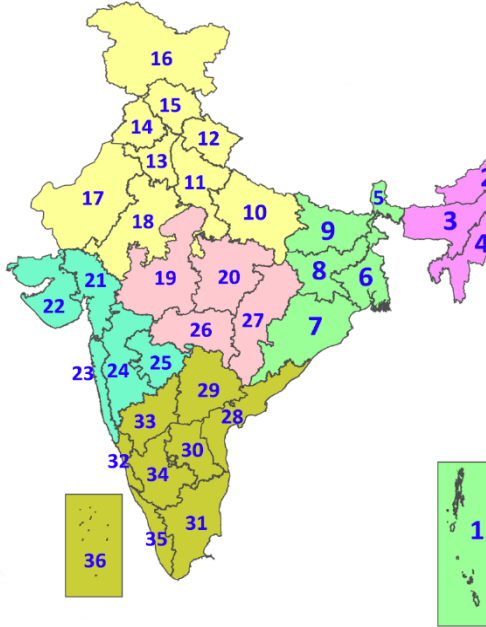
- To protect from cold, keep cattle inside the sheds during night and provide dry bedding. Also keep the chicks warm by providing artificial light in the poultry sheds.

### Legends & abbreviations:

- ❖ **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- ❖ **Obsy.:** Observatory; **AWS:** Automatic Weather Station; **ARG:** Automatic Rain Gauge; **dist.:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO:** Part Time Office, **Aero:** Aerodrome, **IAF:** Indian Air Force.
- ❖ **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 Marathawada.
  - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Lakshadweep.

## LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और 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. Odisha
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chandigarh & 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. Vidarbha
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)              |

- |                      |                      |              |
|----------------------|----------------------|--------------|
| Fog                  | Heavy Snow           | Cold Wave    |
| Heavy Rain           | Dust Storm           | Cold Day     |
| Very Heavy Rain      | Heat Wave            | Ground Frost |
| Extremely Heavy Rain | Warm Night           |              |
| Thunder & Lightning  | Hot Day              |              |
| Hailstorm            | Hot & Humid          |              |
| Dust Raising Winds   | Strong Surface Winds |              |

### COLOUR CODED WARNING

|                                    |
|------------------------------------|
| No Warning (No Action)             |
| Watch (Be Aware)                   |
| Alert (Be Prepared To Take Action) |
| Warning (Take Action)              |

### Probabilistic Forecast

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

\* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".  
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.  
For more details, kindly visit <https://mausam.imd.gov.in> or contact: 011-2434-4599  
(Service to the Nation since 1875)



## DEFINITION/CRITERIA

### Rain/ Snow \*

**Heavy:** 64.5 to 115.5 mm/cm \*  
**Very Heavy:** 115.6 to 204.4 mm/cm\*  
**Extremely Heavy:** > 204.4 mm/cm \*

### Heat Wave

**When maximum temperature of a station reaches  $\geq 40^\circ\text{C}$  for plains and  $\geq 30^\circ\text{C}$  for hilly regions**

**(a) Based on Departure from normal**

**Heat Wave:** Maximum Temperature Departure from normal  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .

**Severe Heat Wave:** Maximum Temperature Departure from normal  $\geq 6.5^\circ\text{C}$

**(b). Based on Actual maximum temperature**

**Heat Wave:** When actual maximum temperature  $\geq 45^\circ\text{C}$ .

**Severe Heat Wave:** When actual maximum temperature  $\geq 47^\circ\text{C}$

**(c). Criteria for heat wave for coastal stations**

When maximum temperature departure is  $>4.5^\circ\text{C}$  from normal. Heat Wave may be described provided maximum temperature  $\geq 37^\circ\text{C}$

### Warm Night

**When maximum temperature remains  $40^\circ\text{C}$**

**Warm Night:** When minimum temperature departure  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .

**Severe Warm Night:** When minimum temperature departure  $>6.4^\circ\text{C}$ .

### 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  $-4.5^\circ\text{C}$  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  $\leq 15^\circ\text{C}$

### 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  $-4.5^\circ\text{C}$  to  $-6.4^\circ\text{C}$ .

**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

### Thunderstorm

**Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)**

### Dust/Sand Storm

**An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.**

### Frost

**Ice deposits on ground**

Air temperature  $\leq 4^\circ\text{C}$  ( over Plains)

### Squall

**A strong wind that rises suddenly, lasts for atleast 1 minute.**

**Moderate:** Wind speed 52-61 kmph

**Severe:** Wind speed 62-87 kmph

**Very Severe:** Wind speed  $>87$  kmph

### Sea State

**Effect of various waves in the sea over specific area**

**Rough to very rough:** Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre

**High to very high:** Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre

**Phenomenal:** Wind speed  $>117$  kmph ( $>63$  knots) & Wave height  $>14$  metre

### Cyclone

**Cyclonic Storm:** Wind speed 62-87 kmph (34-47 knots)

**Severe Cyclonic Storm:** Wind speed 88-117 kmph (48-63 knots)

**Very Severe Cyclonic Storm:** Wind speed 118-165 kmph (64 - 89 knots)

**Extremely Severe Cyclonic Storm:** Wind speed 166-220 kmph (90 -119 knots)

**Super Cyclone Strom:** Wind speed  $>220$  kmph ( $>119$  knots)