

Thursday, January 9, 2025  
Time of Issue: 1330 hours IST  
(MID-DAY)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems, Forecast and warning:

- ❖ A Western Disturbance as a Cyclonic Circulation lies over southwest Iran & neighbourhood in lower & middle tropospheric levels. Under its influence, Light/moderate isolated to scattered rainfall/snowfall likely over Western Himalayan region on 11<sup>th</sup> & 12<sup>th</sup> and Light/moderate isolated to scattered rainfall likely over the plains of Northwest India and adjoining central India during 10<sup>th</sup> -12<sup>th</sup> January.
- ✓ Thunderstorm activity at isolated places likely over Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh, West Uttar Pradesh, Rajasthan and Madhya Pradesh on 11<sup>th</sup> January. Isolated hailstorm also likely over south Haryana & Rajasthan on 11<sup>th</sup> January.
- ❖ A cyclonic circulation lies over Southeast Bay of Bengal & adjoining Equatorial Indian Ocean in lower tropospheric levels. Under its influence,
- ✓ Light to moderate rainfall accompanied with thunderstorm, lightning very likely at a few places over Tamil Nadu, Puducherry & Karaikal during 11<sup>th</sup> - 13<sup>th</sup> and Kerala & Mahe on 12<sup>th</sup> & 13<sup>th</sup> January with Isolated **heavy rainfall** likely over Tamilnadu, Puducherry & Karaikal on 12<sup>th</sup> January.
- ❖ Light to moderate rainfall accompanied with thunderstorm, lightning very likely at isolated places over northeastern states on 13<sup>th</sup> January.

#### Temperature, Cold Wave and Fog Forecast:

##### Temperature Conditions during past 24 hours till 0830 hours IST of today:

- ❖ Minimum temperatures are **below 0°C** over many parts of Jammu, Kashmir & Ladakh; **1-4°C** over isolated places of Himachal Pradesh, Punjab, Haryana; **5-10°C** over many parts of Northwest & Central India; **10-15°C** over many parts of East & West India. Today, the lowest minimum temperature of **3.5°C** is reported at **Hisar (Haryana)** over the plains of the country.
- ❖ During the past 24 hours, there has been **fall in minimum temperatures** by 3-6°C over many parts of Uttar Pradesh; by 1-3°C over some parts of Himachal Pradesh, East Madhya Pradesh, Gangetic West Bengal, Odisha, Madhya Maharashtra, Assam & Meghalaya; in isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Chhattisgarh, Telangana and **rise by** 1-3°C over some parts of Rajasthan, West Madhya Pradesh, Gujarat State and Tamil Nadu.
- ❖ Minimum temperatures are **appreciably below normal (-3°C to -5°C)** at isolated places over Madhya Pradesh, Vidarbha, Telangana, Chhattisgarh and Saurashtra & Kutch; **below normal (-1°C to -3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Haryana, Chandigarh, East Uttar Pradesh, East Rajasthan, Jharkhand, Odisha, Gujarat Region and Marathawada. These are **appreciably above normal (3°C to 5°C)** at isolated places over Assam & Meghalaya; **above normal (1°C to 3°C)** at isolated places over West Rajasthan, West Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura, Kerala & Mahe and near normal over rest part of the country.

##### Forecast of temperature:

- ❖ Rise in minimum temperatures by 2-4°C likely over Northwest India during next 4 days and gradual fall by 2-3°C thereafter.
- ❖ Gradual rise in minimum temperatures by 2-4°C likely over Central India during next 3 days and gradual fall by about 2°C thereafter.
- ❖ No significant change in minimum temperatures likely over East India during next 2 days and gradual rise by 2-4°C thereafter.
- ❖ Rise in minimum temperatures by 2-3°C likely over Maharashtra & Gujarat state during next 2 days and gradual fall by 2-3°C thereafter over Gujarat.

##### Cold Wave Warnings:

**Cold wave** conditions very likely in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad & Himachal Pradesh on 09<sup>th</sup> & 10<sup>th</sup>; Punjab, Madhya Pradesh and Chhattisgarh on 09<sup>th</sup> January.

##### Dense Fog Warnings:

**Dense to very Dense fog Condition** very likely to continue to prevail during night/early morning hours in some parts of Punjab till 11<sup>th</sup>; Haryana- Chandigarh till 10<sup>th</sup>; in isolated pockets of Uttar Pradesh till 10<sup>th</sup>; Rajasthan on 12<sup>th</sup> January.

**Dense fog conditions** very likely to continue to prevail during night/early morning hours in isolated pockets of Bihar during 10<sup>th</sup> -12<sup>th</sup>; Jharkhand on 10<sup>th</sup> & 11<sup>th</sup>; Himachal Pradesh, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura till 11<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim on 11<sup>th</sup> & 12<sup>th</sup>; West Rajasthan on 11<sup>th</sup>, 13<sup>th</sup> & 14<sup>th</sup>; East Rajasthan on 13<sup>th</sup> & 14<sup>th</sup> January.

##### Fishermen Warnings:

Fishermen are advised not to venture into southeast & southwest Bay of Bengal on 09<sup>th</sup> & 10<sup>th</sup>; Gulf of Mannar and adjoining Comorin area on 09<sup>th</sup>, 11<sup>th</sup> & 12<sup>th</sup> January.

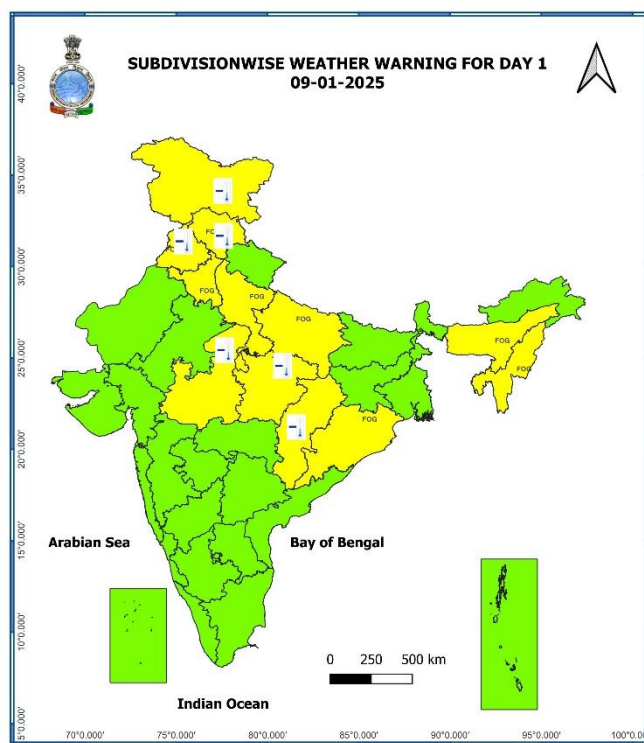
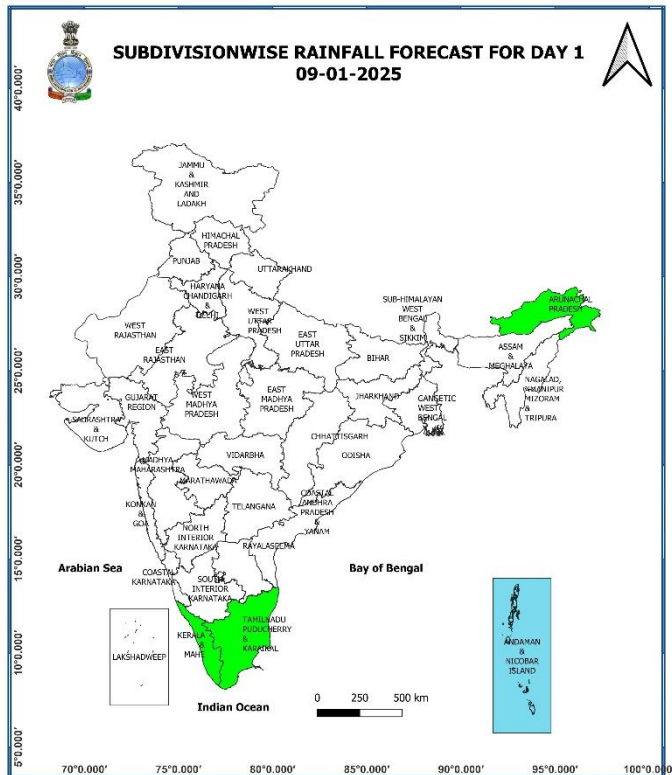
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST of yesterday to 0530 hours IST of today): **at isolated places** over Tamil Nadu, Puducherry & Karaikal, Andaman & Nicobar Islands, Assam.
- ❖ Heavy rainfall observed (from 0830 hours IST of yesterday to 0830 hours IST of today): Heavy rainfall recorded at isolated places over Andaman & Nicobar Islands.
- ❖ **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0530 hours IST of today) (in cm): **Andaman & Nicobar Islands:** Car Nicobar (dist Nicobar) 14, Iaf Carnicobar (dist Nicobar) 8, Nancowry (dist Nicobar) 2, Port Blair (dist South Andaman) 1
- ❖ **Fog reported** (at 0530 hours IST of today): **Dense to very dense fog (visibility < 50 m)** reported in some parts of Punjab & East Uttar Pradesh; in isolated pockets of Haryana, West Uttar Pradesh, Meghalaya and **dense fog (visibility 50-200 m)** reported in isolated pockets of Himachal Pradesh and Assam.
- ❖ **Visibility reported** (till 0830 hours IST of today) ( $\leq 200$  meter): **Punjab:** Amritsar, Pathankot 0 each, Patiala 10, Ludhiana 20; **East Uttar Pradesh:** Barabanki 10, Prayagraj-40, Fursatganj 50, Varanasi-200; **West Uttar Pradesh:** Meerut 30, Etawah 200; **Meghalaya:** Barapani, Shillong Airport 30 each; **Haryana:** Ambala, Karnal 40 each; **Himachal Pradesh:** Bilaspur 50, Mandi 100; **Assam:** Jorhat Airport-100.
- ❖ **Cold day to severe cold day conditions** prevailed in isolated pockets of East Uttar Pradesh.
- ❖ **Cold wave conditions** prevailed in isolated pockets of Punjab.
- ❖ **Minimum Temperature Departures (as on 09-01-2025):** Minimum temperatures are appreciably **above normal (3°C to 5°C)** at isolated places over Assam & Meghalaya; **above normal (1°C to 3°C)** at isolated places over West Rajasthan, West Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura, Kerala & Mahe. These are **appreciably below normal (-3°C to -5°C)** at isolated places over Madhya Pradesh, Vidarbha, Telangana, Chhattisgarh and Saurashtra & Kutch; **below normal (-1°C to -3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Haryana, Chandigarh, East Uttar Pradesh, East Rajasthan, Jharkhand, Odisha, Gujarat Region and Marathwada and near normal over rest part of the country (Fig. 4). Today, the **lowest minimum temperature** of 1.6°C is reported at **Adampur (Punjab)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 08-01-2025):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, West Rajasthan; **above normal (1.6°C to 3.0°C)** at isolated places over Haryana-Chandigarh-Delhi, Himachal Pradesh, West Uttar Pradesh, Coastal Andhra Pradesh & Yanam. These were **markedly below normal (-5.1°C or less)** at isolated places over Sub-Himalayan West Bengal & Sikkim; **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Bihar, East Uttar Pradesh, East Madhya Pradesh, Assam & Meghalaya; **below normal (-1.6°C to -3.0°C)** at isolated places over West Madhya Pradesh, Gangetic West Bengal, Odisha, Jharkhand, Madhya Maharashtra, North Interior Karnataka, Vidarbha, Gujarat state, Andaman & Nicobar Islands, Nagaland, Manipur, Mizoram & Tripura and near normal over rest part of the country (Fig. 2). Yesterday, the **highest maximum temperature** of 35.6°C was reported at **Kannur Airport (Kerala)** over the plains of the country.

### Meteorological Analysis (Based on 0830 hours IST)

- ❖ A **Western Disturbance** as a Cyclonic Circulation lies over southwest Iran & neighbourhood between 3.1 and 5.8 km above mean sea level.
- ❖ A **cyclonic circulation** lies over southeast Arabian Sea off Kerala coast at 3.1 km above mean sea level.
- ❖ The **cyclonic circulation** over Southeast Bay of Bengal & adjoining Equatorial Indian Ocean persists and now extends upto 3.1 km above mean sea level.
- ❖ A **cyclonic circulation** lies over east Bangladesh & neighbourhood at 1.5 km above mean sea level.
- ❖ Subtropical **westerly Jet Stream** with core winds of the order upto 135 knots at 12.6 km above mean sea level continues to prevail over North India.
- ❖ The **cyclonic circulation** over Northeast Assam & neighbourhood at 0.9 km above mean sea level has become less marked.
- ❖ The **cyclonic circulation** over North Tamil Nadu & neighbourhood at 3.1 km above mean sea level has become less marked.

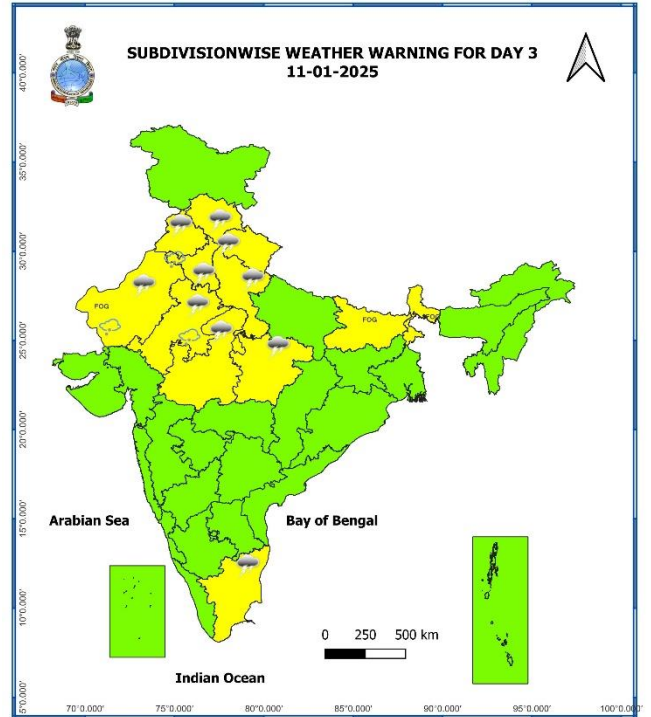
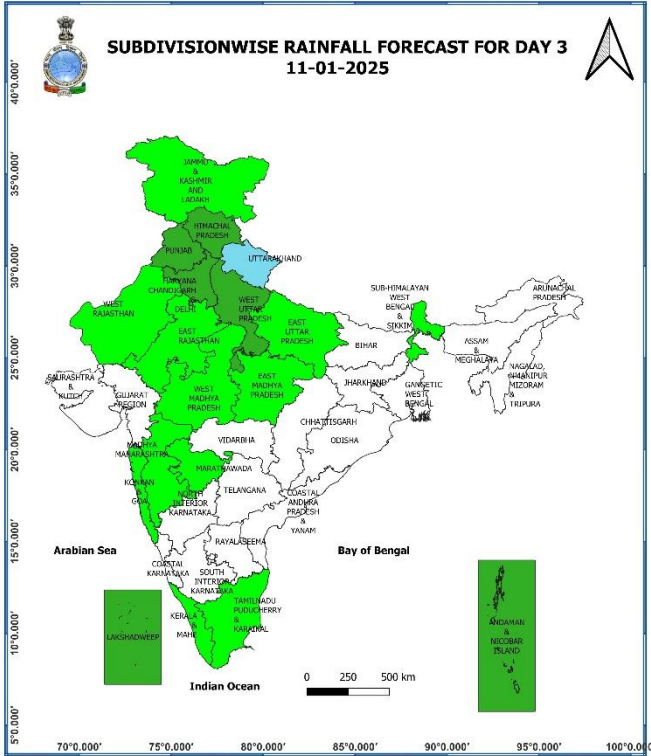
Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 16<sup>th</sup> January, 2025)



09<sup>th</sup> January (Day 1):

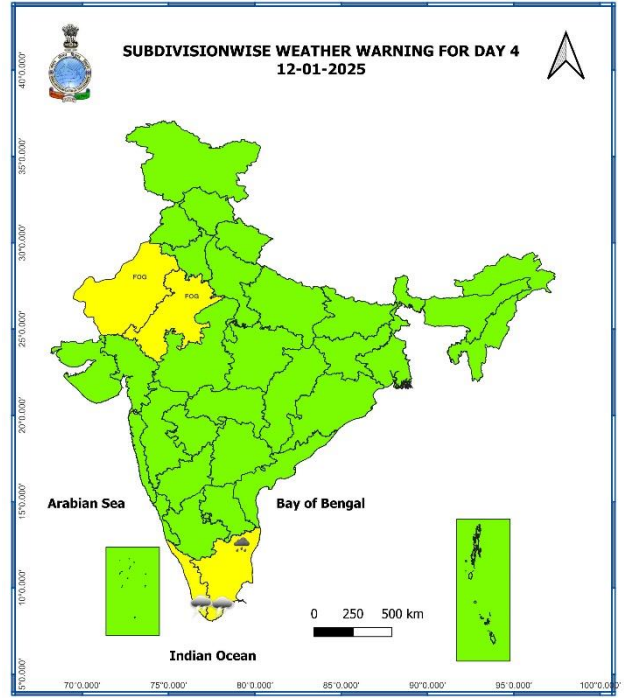
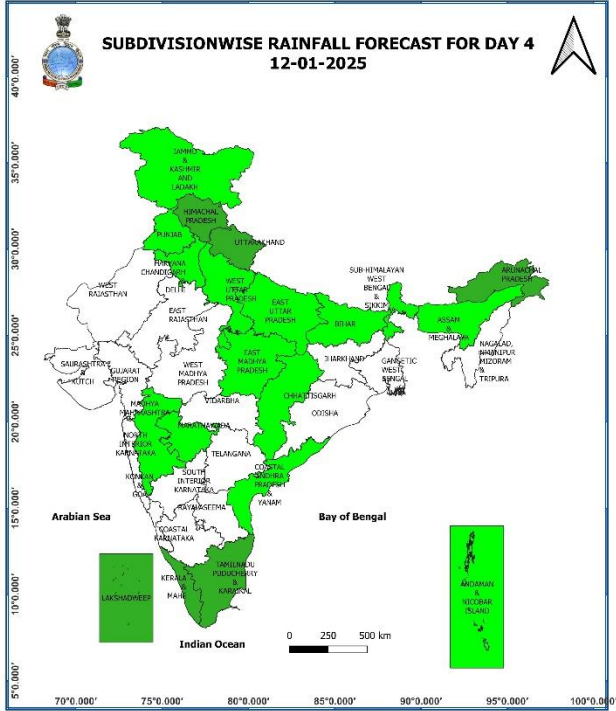
- ❖ **Dense to very dense fog conditions** very likely in some parts of Punjab, Haryana-Chandigarh-Delhi and Uttar Pradesh; **dense fog** in isolated parts of Himachal Pradesh, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during night/morning hours.
- ❖ **Cold wave conditions** very likely in isolated pockets of Punjab, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Madhya Pradesh, Chhattisgarh.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over central parts of south Bay of Bengal and adjoining southwest Bay of Bengal. **Squally wind with speed 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over gulf of Mannar and adjoining Comorin area. Fisherman are advised not to venture in to these areas.





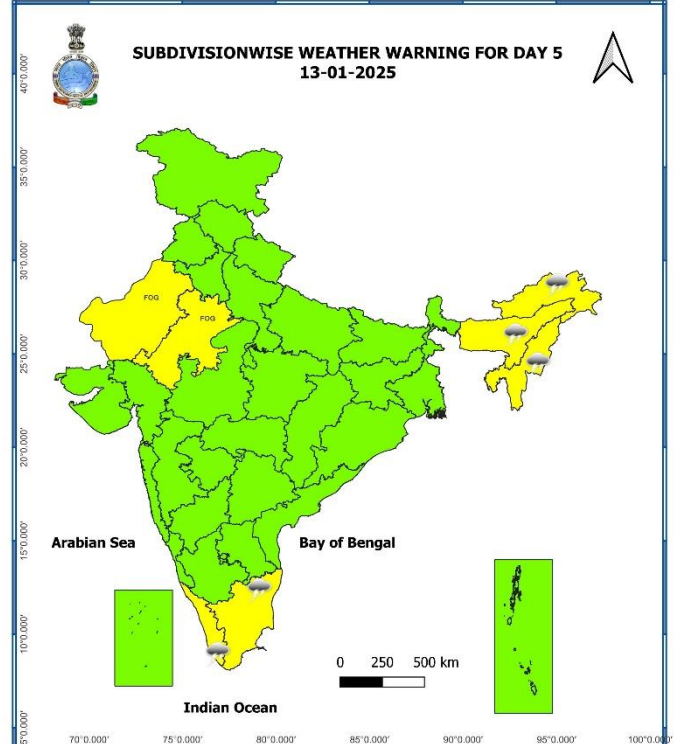
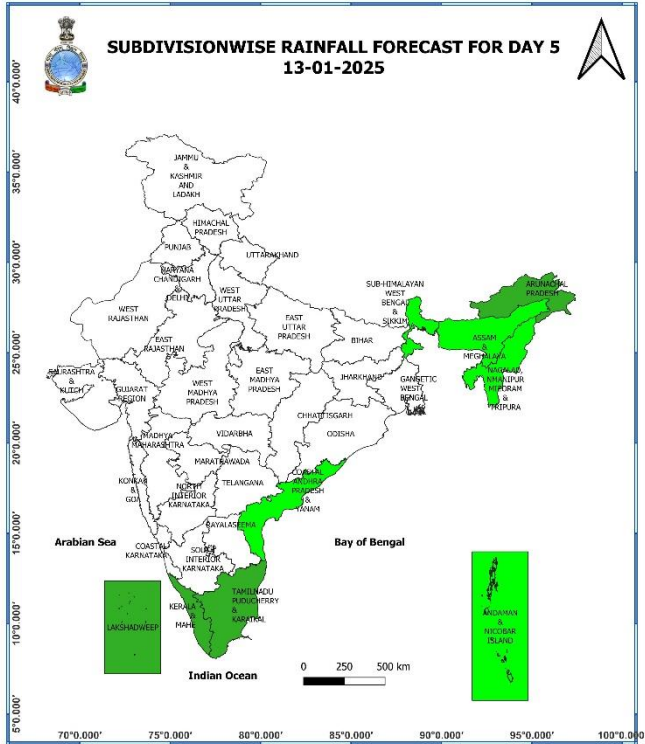
### 11<sup>th</sup> January (Day 3):

- ❖ **Dense fog conditions** likely in isolated pockets of West Rajasthan, Sub-Himalayan West Bengal & Sikkim, Bihar during night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Uttarakhand, Punjab, Himachal Pradesh, Haryana-Chandigarh, West Uttar Pradesh, Rajasthan, Madhya Pradesh, Tamil Nadu, Puducherry & Karaikal; **with hailstorm** at isolated places over Rajasthan, Haryana-Chandigarh-Delhi.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over gulf of Mannar and adjoining Comorin area.



### 12<sup>th</sup> January (Day 4):

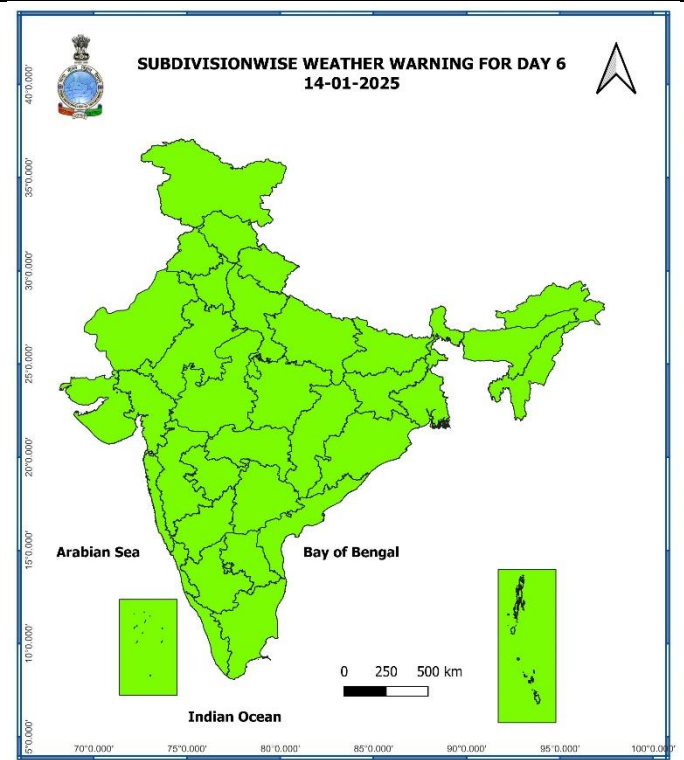
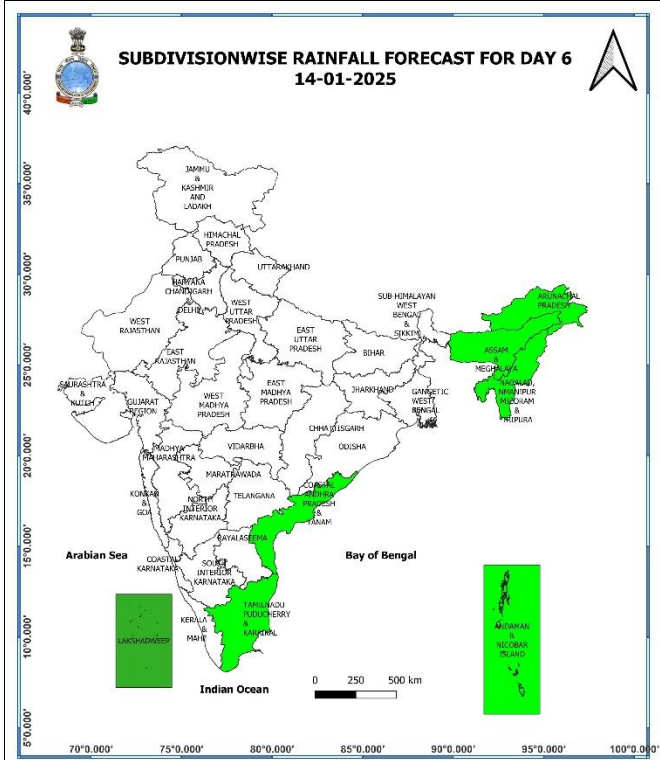
- ❖ **Dense to very dense fog conditions** very likely in isolated pockets of Rajasthan during night/morning hours.
- ❖ **Heavy rainfall** likely at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over Comorin area and adjoining gulf of Mannar.



### 13<sup>th</sup> January (Day 5):

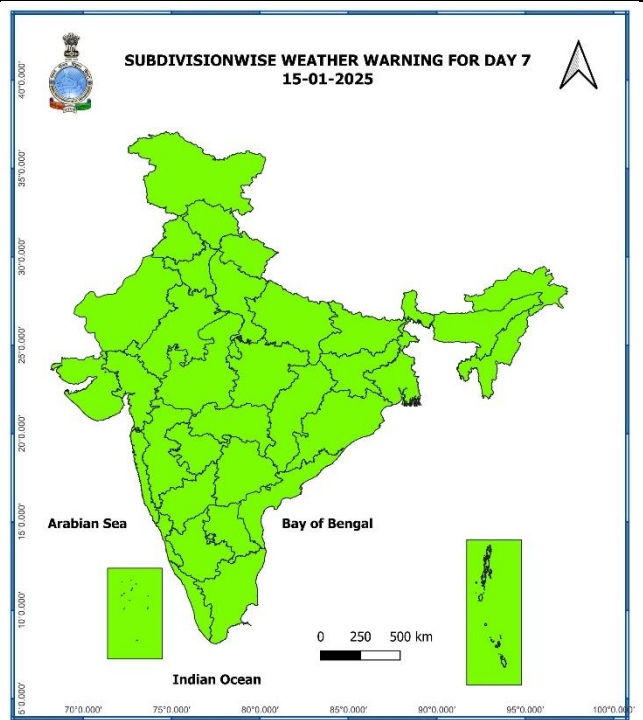
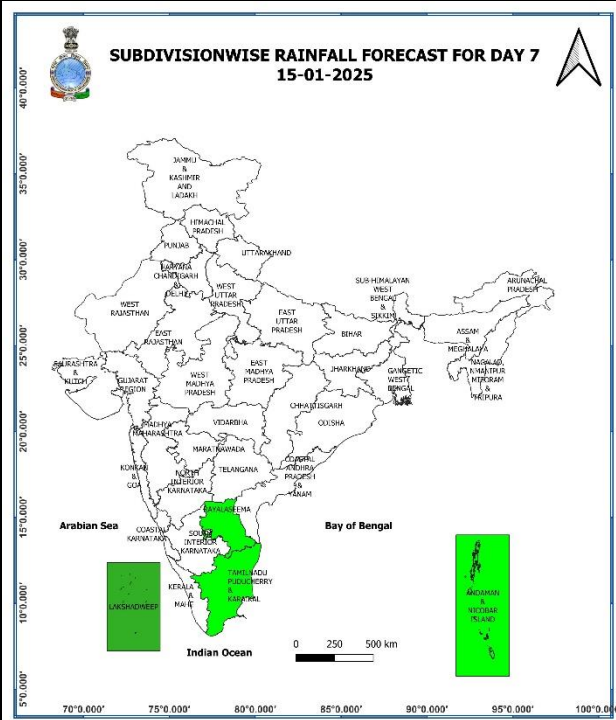
- ❖ **Dense fog conditions** likely in isolated pockets of Rajasthan during night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya.





**14<sup>th</sup> January (Day 6):**

❖ **No Weather Warning.**



**15<sup>th</sup> January (Day 7):**

❖ **No Weather Warning.**

**Weather Outlook for subsequent 3 days (During 16<sup>th</sup> January– 18<sup>th</sup> January, 2025)**

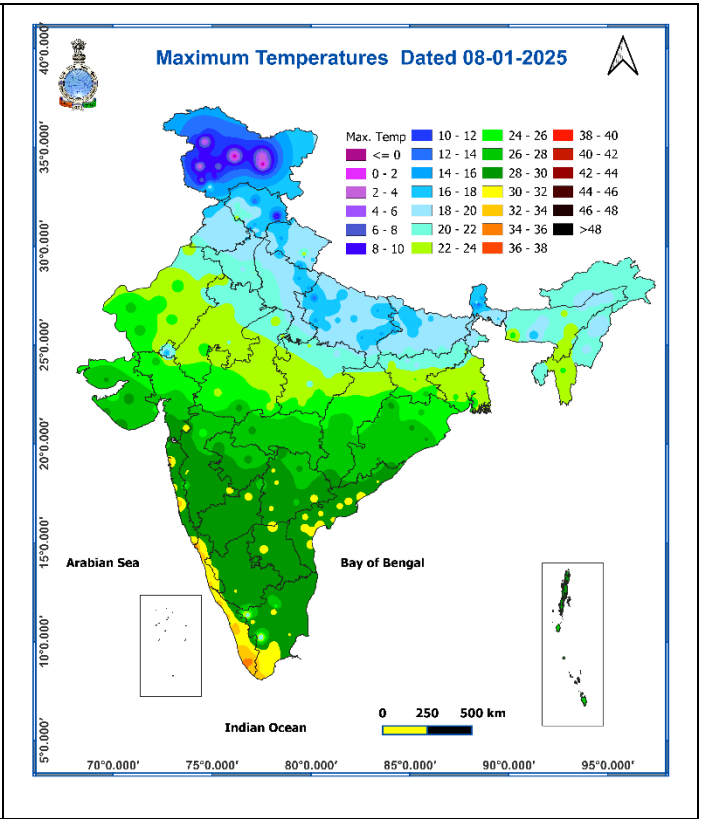
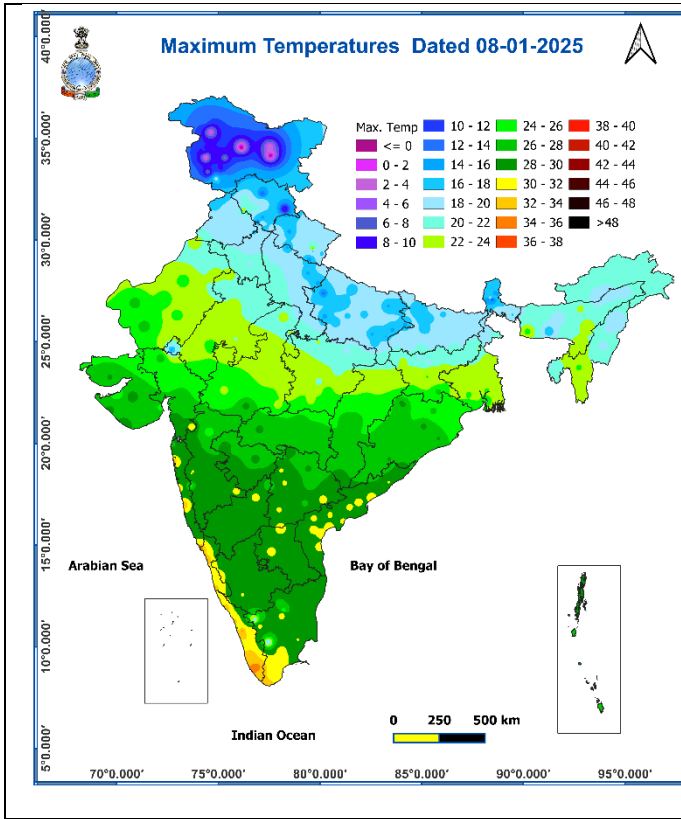
- ❖ Isolated rainfall over Madhya Pradesh, Tamil Nadu & Kerala and scattered to fairly widespread rainfall over Andaman & Nicobar Islands.
- ❖ Isolated rainfall/snowfall over higher reaches of Jammu & Kashmir.
- ❖ Mainly dry weather will prevail over rest parts of country.

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.

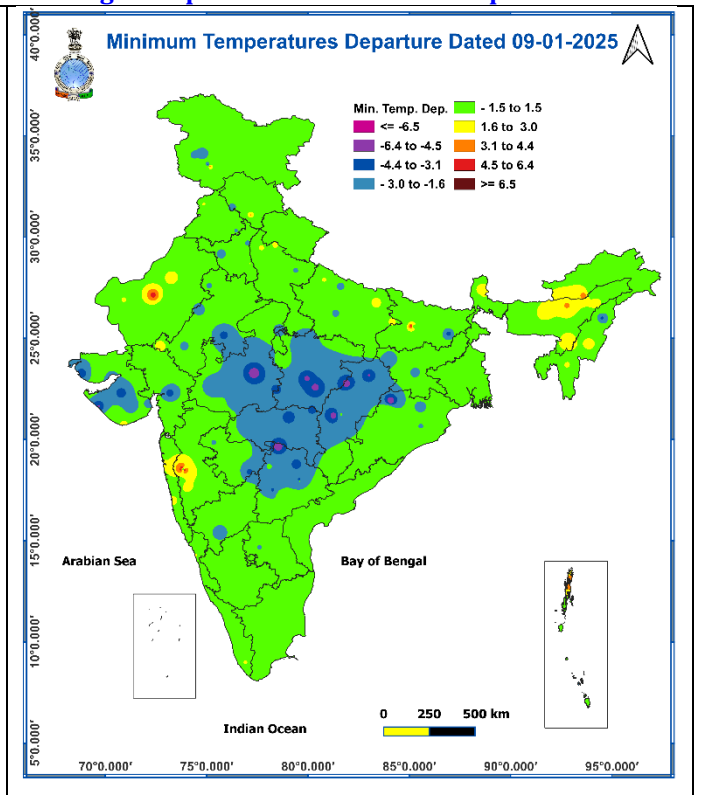
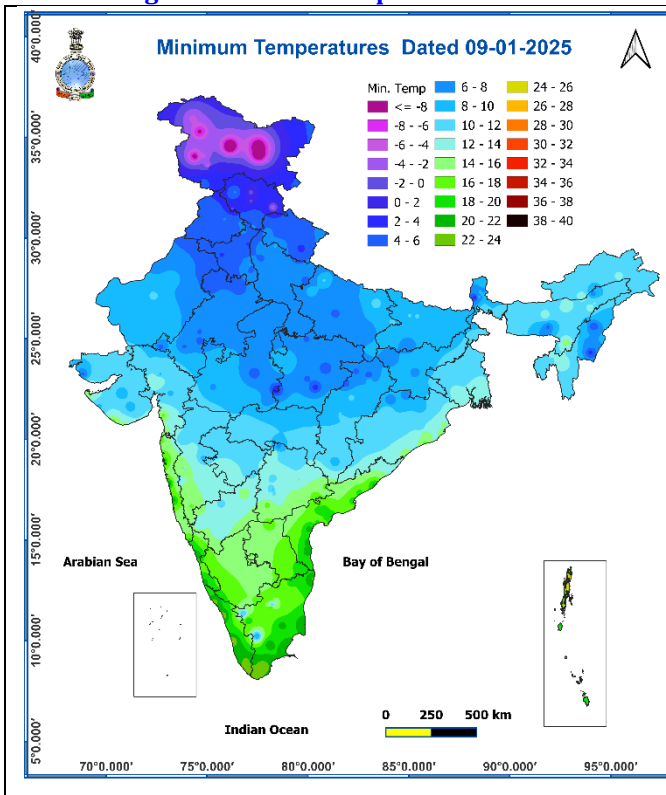
**Fig. 1: Maximum Temperatures**

**Fig. 2: Departure of Maximum Temperatures**



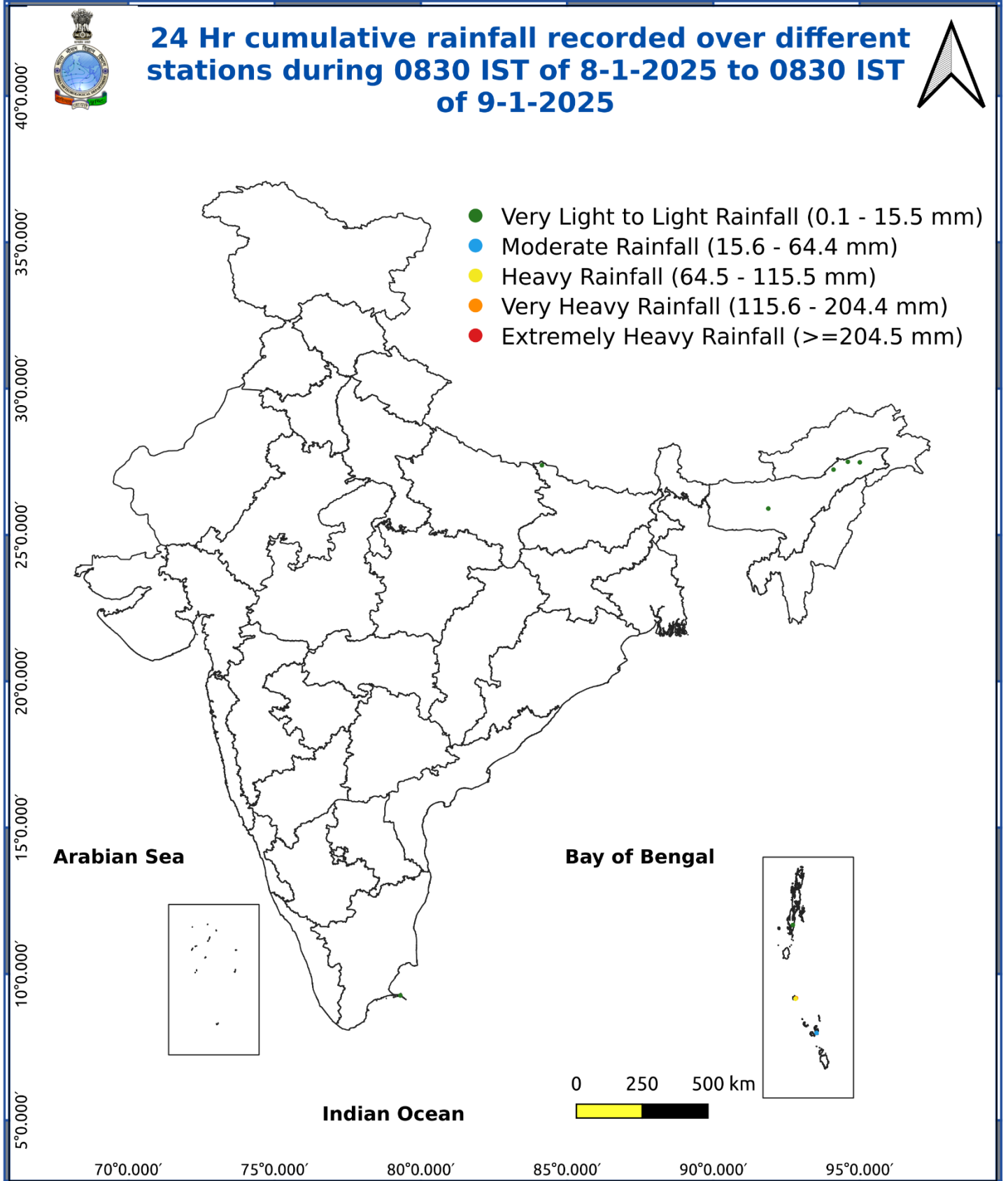
**Fig. 3: Minimum Temperatures**

**Fig. 4: Departure of Minimum Temperatures**



**\* 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)

Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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### Impact expected due to dense/very 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 Day/Severe Cold day 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 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 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 likely impact of Cold Wave

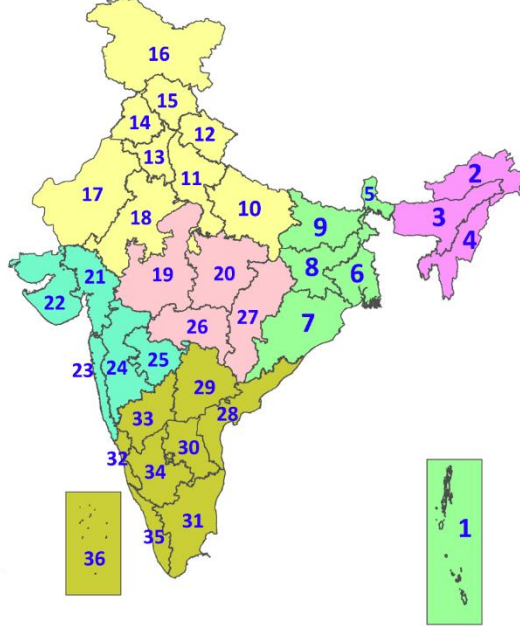
- In **Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Madhya Pradesh and Chhattisgarh**, apply light and frequent irrigation to the standing crops in the evening to protect them from low temperature stress or cold injuries. Use mulching and cover vegetable nurseries and young fruit plants with straw/polythene sheets to maintain optimum soil temperature.
- Provide mechanical support to horticultural crops and staking to vegetables.

### 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

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

## 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)