

Wednesday, January 8, 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 trough in middle & upper tropospheric westerlies runs roughly along Long. 93°E to the north of Lat. 26°N. A cyclonic circulation lies over northeast Assam in lower tropospheric levels. It is very likely to cause
 - ✓ Light to moderate rainfall at a few places accompanied with thunderstorm activity at isolated places likely over Northeastern states on 08th January. Isolated hailstorm also likely over northeast Assam on 08th January.
- ❖ A fresh Western Disturbance and its interaction with easterly winds likely to affect Northwest India from 10th-12th January. Under its influence, Light/moderate scattered to fairly widespread rainfall/snowfall likely over Western Himalayan region and Light/moderate isolated to scattered rainfall likely over the plains of Northwest India and adjoining central India during the same period.
 - ✓ Thunderstorm activity at isolated places likely over Himachal Pradesh, Punjab, Haryana, Chandigarh, Uttar Pradesh, Rajasthan on 11th and over Uttarakhand on 11th & 12th January. Isolated hailstorm also likely over Rajasthan on 11th January.
- ❖ A cyclonic circulation lies over Southeast Bay of Bengal & adjoining Equatorial Indian Ocean in lower tropospheric levels. Another cyclonic circulation lies over North Tamil Nadu & neighbourhood 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 on 11th & 12th and Kerala & Mahe on 12th January with Isolated **heavy rainfall** likely over Tamilnadu, Puducherry & Karaikal on 11th January.

ii. Temperature, Cold Wave and Fog Forecast:

Temperature Conditions during past 24 hours till 0830 hours IST of today (Annexure IV):

- ❖ Minimum temperatures are **below 0°C** over many parts of Jammu, Kashmir & Ladakh; **1-3°C** over isolated places of Himachal Pradesh; **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 **1.6°C** is reported at **Rajgarh (West Madhya Pradesh)** over the plains of the country.
- ❖ During the past 24 hours, there has been **fall in minimum temperatures** by 1-5°C over many parts of Madhya Pradesh, Gujarat State; in some parts of Uttar Pradesh, Chhattisgarh and Odisha; in isolated places of Jammu-Kashmir, Himachal Pradesh, Haryana, East Rajasthan, Assam & Meghalaya, West Bengal & Sikkim, Vidarbha and South Interior Karnataka and **rise by** 1-3°C in isolated places of Uttarakhand, Telangana, Kerala & Mahe and Tamil Nadu.

Forecast of temperature:

- ❖ Fall in minimum temperatures by about 2°C likely over Northwest India during next 24 hours and gradual rise by 2-4°C thereafter.
- ❖ No significant change in minimum temperatures likely over Central India during next 24 hours and gradual rise by 3-5°C thereafter.
- ❖ Rise in minimum temperatures by 2-4°C likely over East India during next 24 hours and no significant change during subsequent 2 days and gradual rise by 2-3°C thereafter.
- ❖ Rise in minimum temperatures by 2-4°C likely over Maharashtra during next 3 days and no significant change thereafter.
- ❖ No significant change in minimum temperatures likely over Gujarat State during next 24 hours and gradual rise by 2-3°C thereafter.

Cold Wave Warnings:

Cold wave conditions very likely in isolated pockets over Himachal Pradesh, Punjab on 08th & 09th; Rajasthan & West Madhya Pradesh on 08th; Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 09th & 10th 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, Haryana & Chandigarh- Delhi and Uttar Pradesh till 10th January.

Dense fog conditions very likely to continue to prevail during night/early morning hours in isolated pockets of Sub-Himalayan West Bengal & Sikkim till 09th; Himachal Pradesh & Bihar till 11th; Madhya Pradesh & Odisha till 10th; Assam, Nagaland, Manipur, Mizoram & Tripura till 13th January.

Cold Day Warnings:

Cold day to severe cold day conditions very likely in some parts of Uttar Pradesh on 08th & 09th January.

Cold day conditions very likely in isolated pockets of Madhya Pradesh on 08th & 09th January.

Ground Frost Warnings:

Ground frost conditions very likely in isolated pockets of Himachal Pradesh on 08th & 09th January.

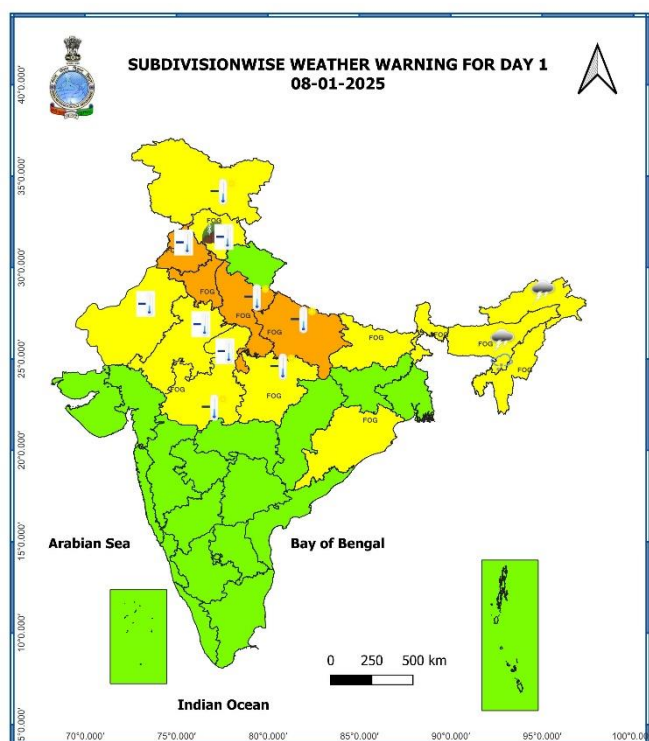
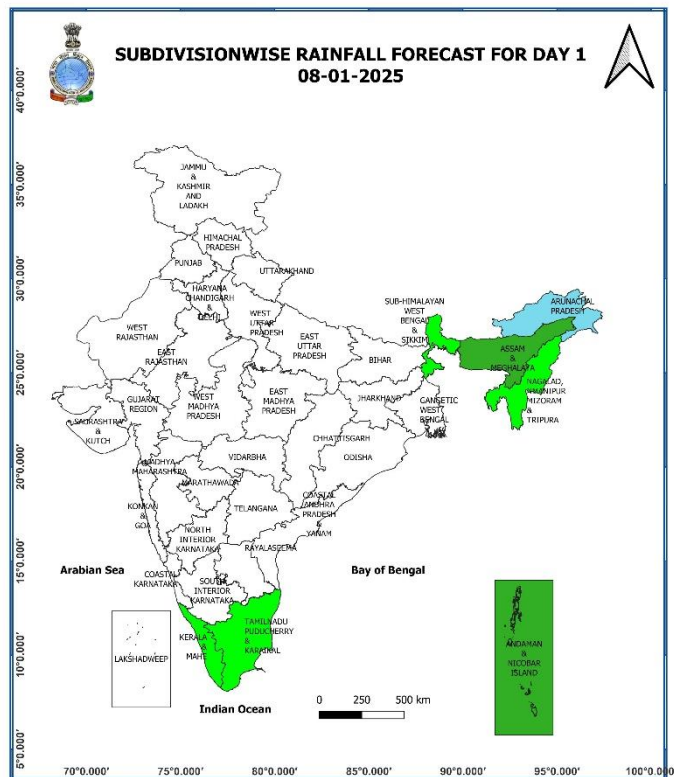
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST of yesterday to 0830 hours IST of today): **at many places** over Andaman & Nicobar Islands, Arunachal Pradesh **at a few places** over Sub-Himalayan West Bengal & Sikkim; **at isolated places** over Bihar, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Heavy to very heavy rainfall recorded** (from 0830 hours IST of yesterday to 0830 hours IST of today): over Arunachal Pradesh and **heavy rainfall** at isolated places over Assam.
- ❖ **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0830 hours IST of today) (in cm): **Arunachal Pradesh:** Nari(aws) (dist Lower Siang) 13, Kaying(aws) (dist West Siang) 11; **Assam:** Dhemaji (dist Dhemaji) 8, Khowang (dist Dibrugarh) 8, Moranhat (dist Dibrugarh) 5.
- ❖ **Fog reported** (upto 0830 hours IST of today): **Dense to very dense fog (visibility < 50 m)** reported in some parts of Punjab; in isolated pockets of Jammu- Kashmir, Delhi, Uttar Pradesh and **dense fog (visibility 50-200 m)** reported in some parts of Himachal Pradesh, Haryana Chandigarh, northwest Madhya Pradesh, Odisha; in isolated pockets of South Interior Karnataka.
- ❖ **Visibility reported** (upto 0830 hours IST of today) (≤ 200 meter): **Jammu-Kashmir:** Jammu Airport 0; **Punjab:** Patiala, Amritsar, Adampur 0 each, Ludhiana 20; **Delhi:** Palam 0; **Uttar Pradesh:** Agra 0; **Himachal Pradesh:** Bilaspur 50, Mandi 100; **Chandigarh** 80; **West Madhya Pradesh:** Gwalior 100; **Karnataka:** Bangalore airport 100; **Haryana:** Karnal 180.
- ❖ **Minimum Temperature Departures (as on 08-01-2025):** Minimum temperatures are **markedly above normal (5°C or above)** at a few places over Assam & Meghalaya; at isolated places over Bihar; **appreciably above normal (3°C to 5°C)** at a few places over Uttar Pradesh; at isolated places over Gangetic West Bengal; **above normal (1°C to 3°C)** at many places over Coastal Andhra Pradesh & Yanam; at a few places over Madhya Maharashtra; at isolated places over Uttarakhand, Punjab, East Madhya Pradesh, Konkan & Goa, Tamilnadu Puducherry & Karaikal and near normal over rest part of the country. These are **appreciably below normal (-3°C to -5°C)** at isolated places over West Madhya Pradesh; **below normal (-1°C to -3°C)** at a few places over Gujarat State; at isolated places over East Rajasthan, Marathawada, Vidarbha, Interior Karnataka, Telangana, Rayalaseema (Fig. 4). Today, the **lowest minimum temperature of 1.6°C** is reported at **Rajgarh (West Madhya Pradesh)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 07-01-2025):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura; **above normal (1.6°C to 3.0°C)** at many places over Gangetic West Bengal; at isolated places over Odisha, Coastal Andhra Pradesh & Yanam, Himachal Pradesh. These were **markedly below normal (-5.1°C or less)** at isolated places over East Uttar Pradesh; **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Bihar, Punjab, Haryana-Chandigarh-Delhi, East Rajasthan, East Madhya Pradesh; at a few places over West Uttar Pradesh, west Madhya Pradesh; **below normal (-1.6°C to -3.0°C)** at many places over Gujrat State ; at isolated places over Tamil Nadu, Puducherry & Karaikal, West Rajasthan and near normal over rest part of the country (Fig. 2). Yesterday, the **highest maximum temperature of 36.0°C** was reported at **Kannur Airport (Kerala)** over the plains of the country.

Meteorological Analysis (Based on 0830 hours IST)

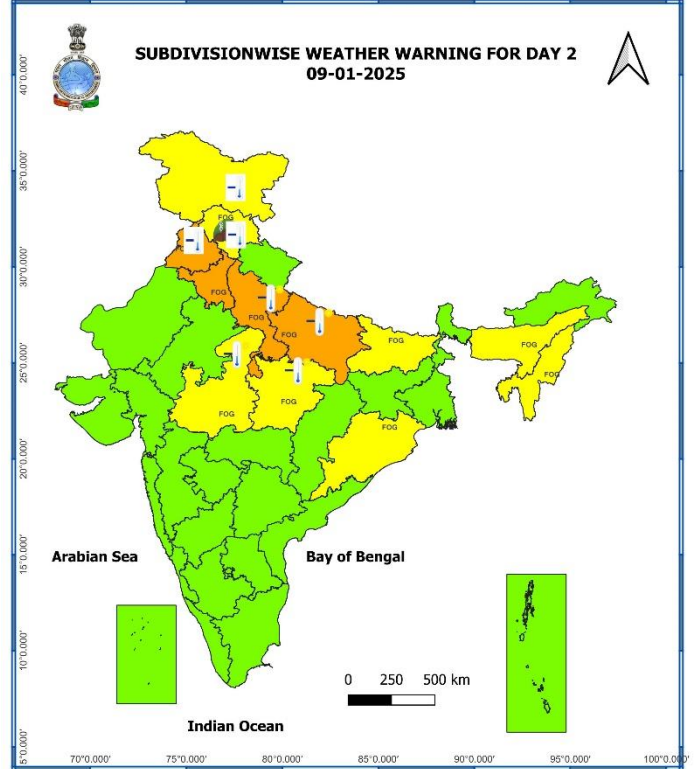
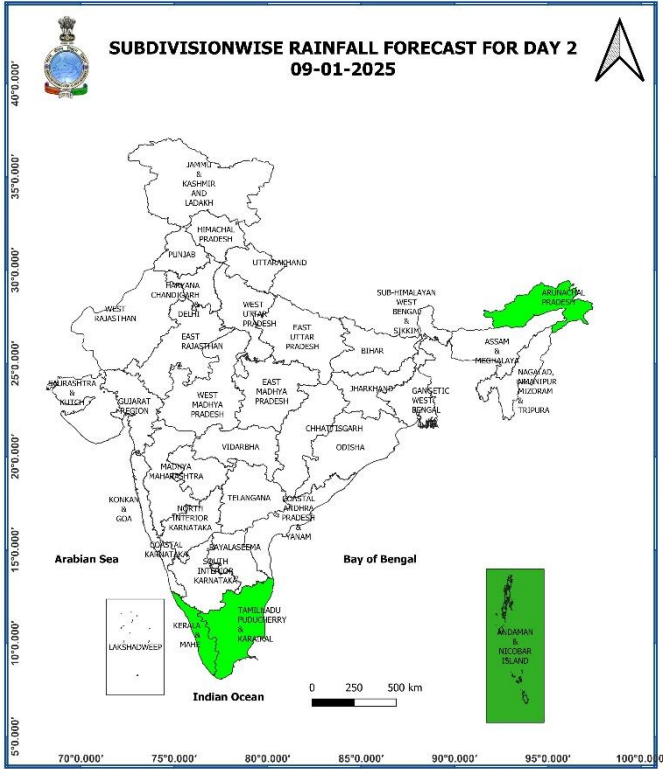
- ❖ The trough in middle & upper tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 93°E to the north of Lat. 26°N.
- ❖ Subtropical **westerly Jet Stream** with core winds of the order upto 145 knots at 12.6 km above mean sea level is prevailing over North India.
- ❖ The **cyclonic circulation** over Northeast Assam & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Southeast Bay of Bengal & adjoining Equatorial Indian Ocean extending upto 1.5 km above mean sea level persists.
- ❖ A **cyclonic circulation** lies over North Tamil Nadu & neighbourhood at 3.1 km above mean sea level.
- ❖ A fresh **Western Disturbance** is likely to affect northwest India from 10th January, 2025.
- ❖ The **trough** from the cyclonic circulation over Southeast Bay of Bengal to south Tamil Nadu at 1.5 km above mean sea level has become less marked.
- ❖ The **cyclonic circulation** over southeast Arabian Sea and adjoining south Kerala coast at 1.5 km above mean sea level has become less marked.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 15th January, 2025)



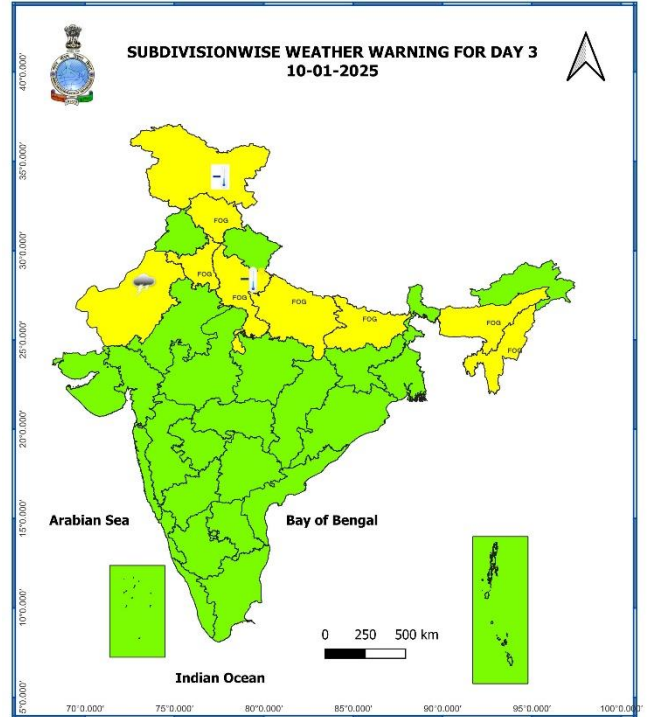
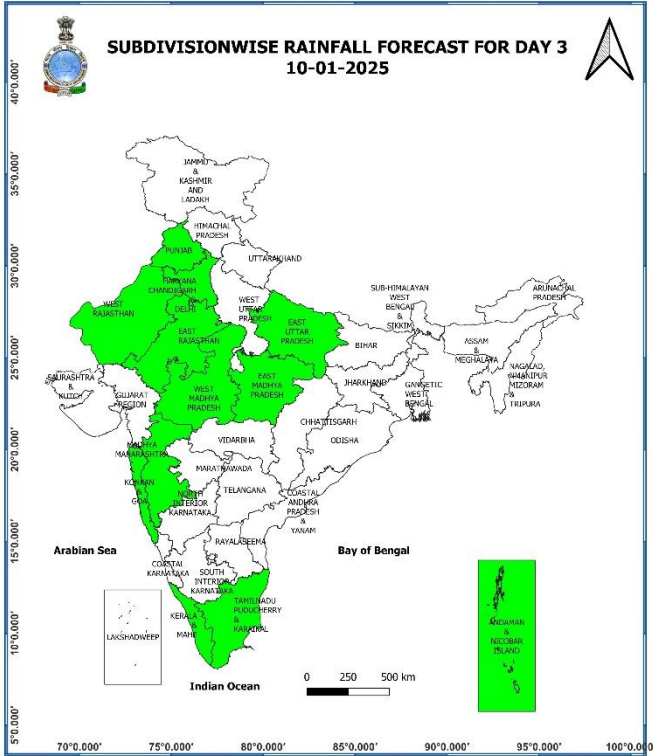
08th January (Day 1):

- ❖ **Dense to very dense fog conditions** very likely in some parts of Punjab, Haryana-Chandigarh and Uttar Pradesh; **dense fog** in isolated parts of Himachal Pradesh, Madhya Pradesh, Bihar, Odisha, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during night/morning hours.
- ❖ **Cold day to severe cold day conditions** very likely at a few places over Uttar Pradesh; cold day condition very likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad & Madhya Pradesh.
- ❖ **Cold wave conditions** very likely in isolated pockets of Punjab, Himachal Pradesh, Rajasthan, West Madhya Pradesh.
- ❖ **Thunderstorm accompanied with lightning & Hailstorm** very likely at isolated places over North East Assam; **with lightning** very likely at isolated places over Arunachal Pradesh.
- ❖ **Ground frost conditions** very likely in isolated pockets of Himachal Pradesh.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over northern parts of Southeast Bay of Bengal and adjoining parts of Southwest Bay of Bengal. Fisherman are advised not to venture in to these areas.



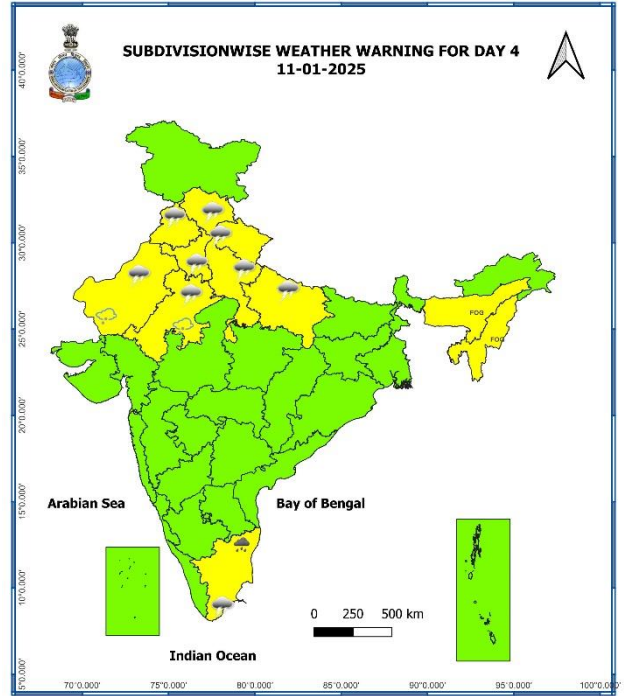
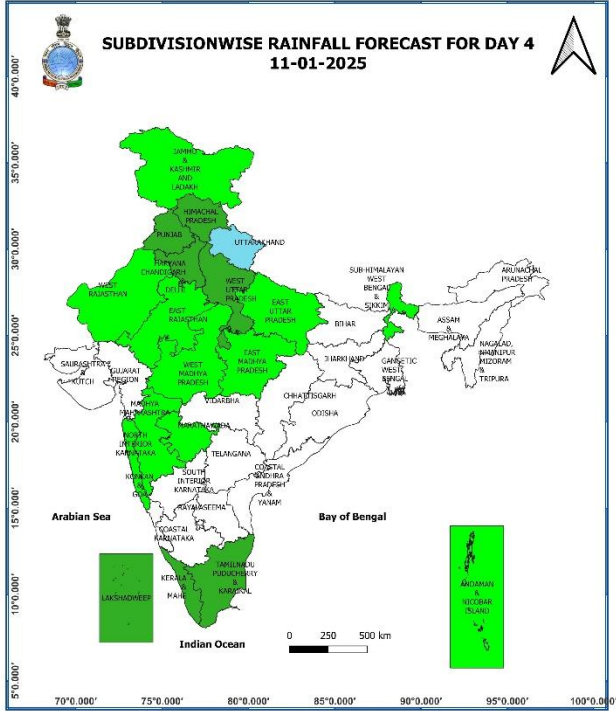
09th January (Day 2):

- ❖ **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, Madhya Pradesh, Bihar, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during night/morning hours.
- ❖ **Cold day to severe cold day conditions** very likely at a few places over Uttar Pradesh; **cold day** condition very likely at isolated places over Madhya Pradesh,
- ❖ **Cold wave conditions** very likely in isolated pockets of Punjab, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Ground frost conditions** very likely in isolated pockets of Himachal Pradesh.
- ❖ **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. Fisherman are advised not to venture in to these areas.



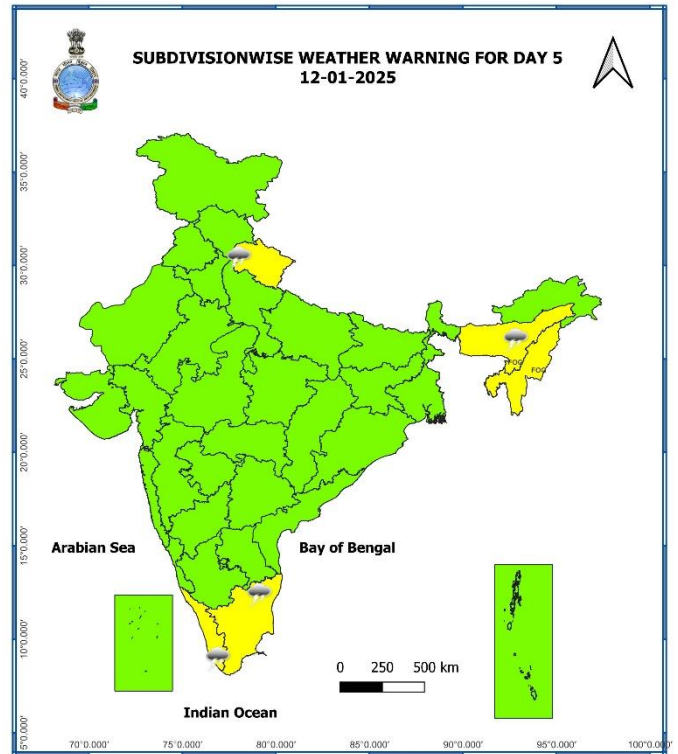
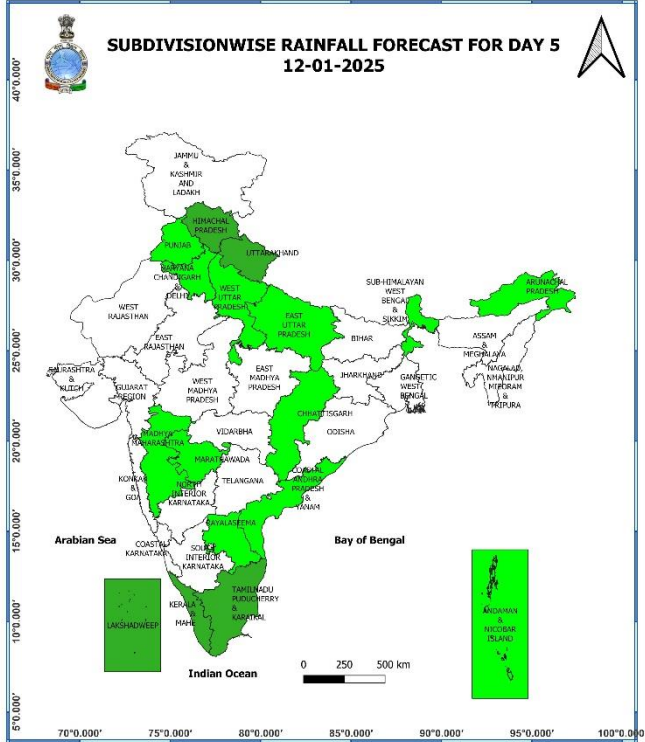
10th January (Day 3):

- ❖ **Dense to very dense fog conditions** very likely in some parts of Punjab, Haryana-Chandigarh-Delhi; **Dense fog conditions** likely in isolated pockets of Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Bihar, Uttar Pradesh, Himachal Pradesh during night/morning hours.
- ❖ **Cold day** condition at isolated places over West Uttar Pradesh.
- ❖ **Cold Wave** condition very likely at isolated places over Jammu and Kashmir and Ladakh.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over West Rajasthan.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over few parts of Southwest Bay of Bengal and adjoining parts of Southeast Bay of Bengal. Fisherman are advised not to venture in to these areas.



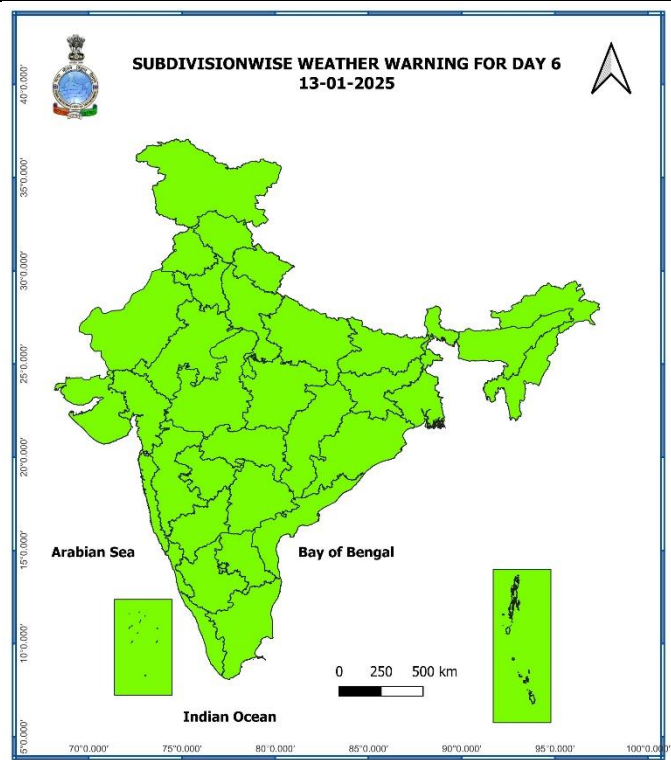
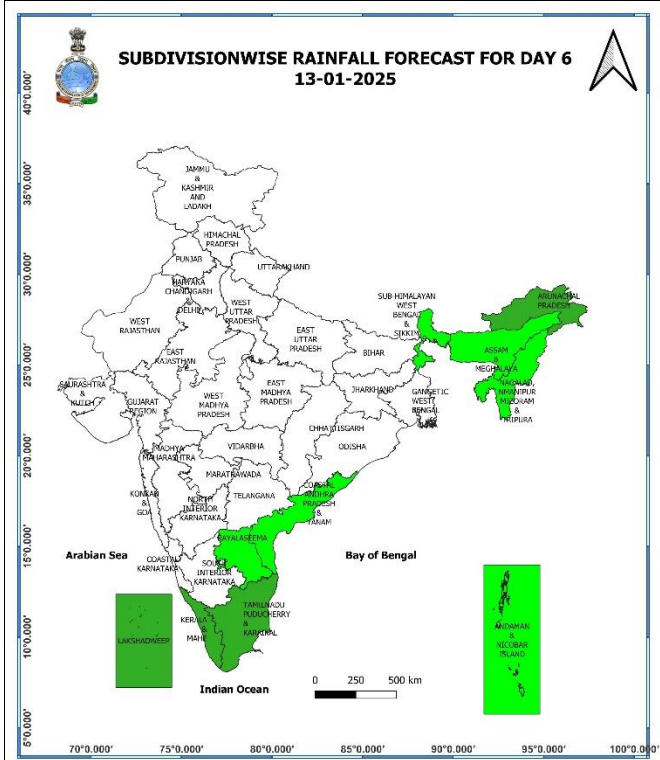
11th January (Day 4):

- ❖ **Heavy Rainfall ($\geq 7\text{cm}$)** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense fog conditions** likely in isolated pockets of Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Uttarakhnad, Punjab, Himachal Pradesh, Haryana-Chandigarh, Uttar Pradesh, Tamil Nadu, Puducherry & Karaikal; **with hailstorm** at isolated places over Rajasthan.



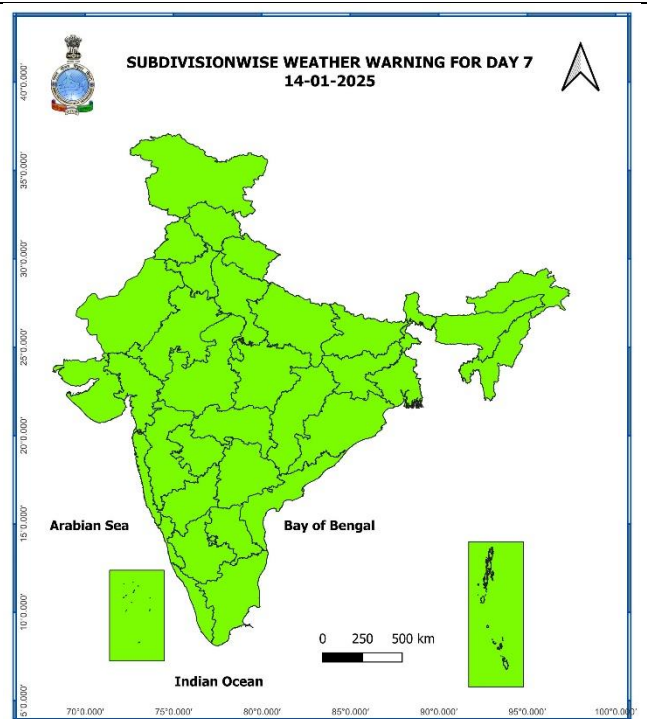
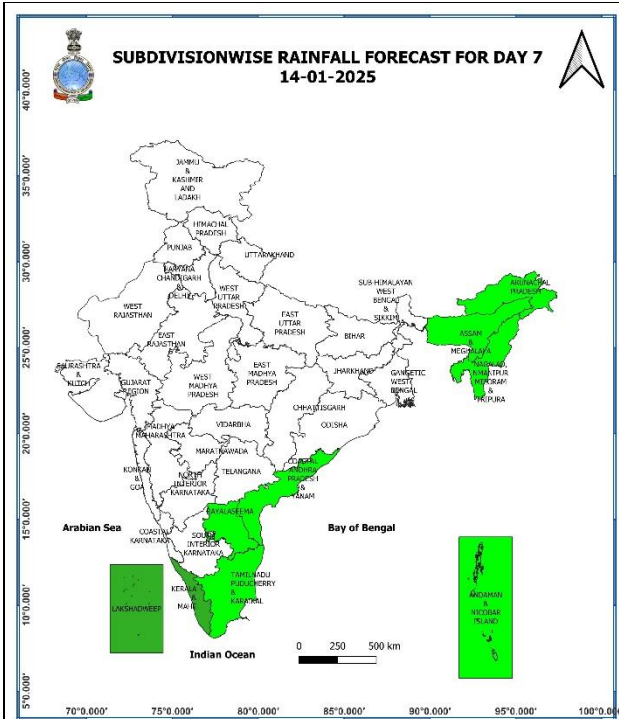
12th January (Day 5):

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



13th January (Day 6):

❖ **No Weather Warning.**



14th January (Day 7):

❖ **No Weather Warning.**

Weather Outlook for subsequent 3 days (During 15th January– 17th 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

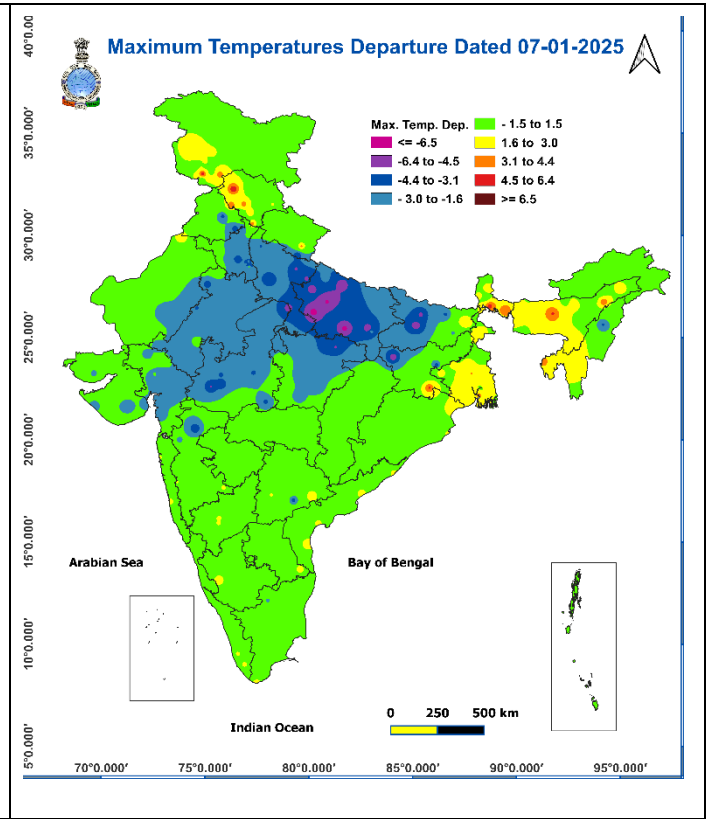
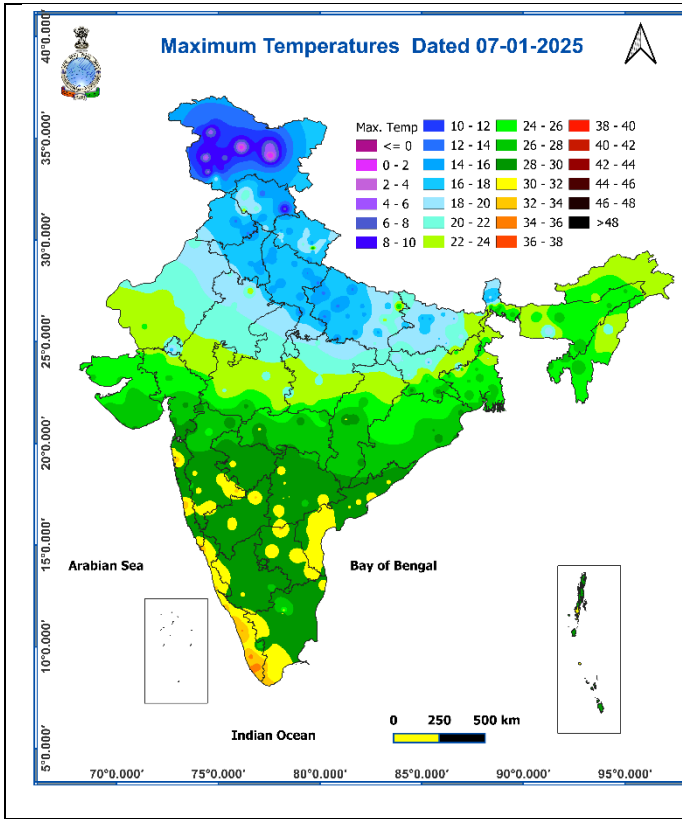
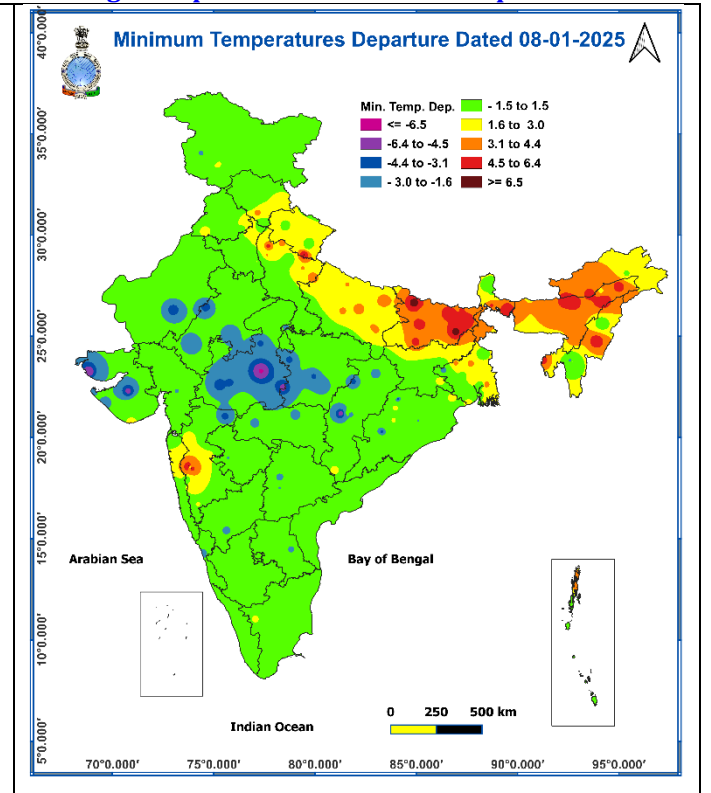
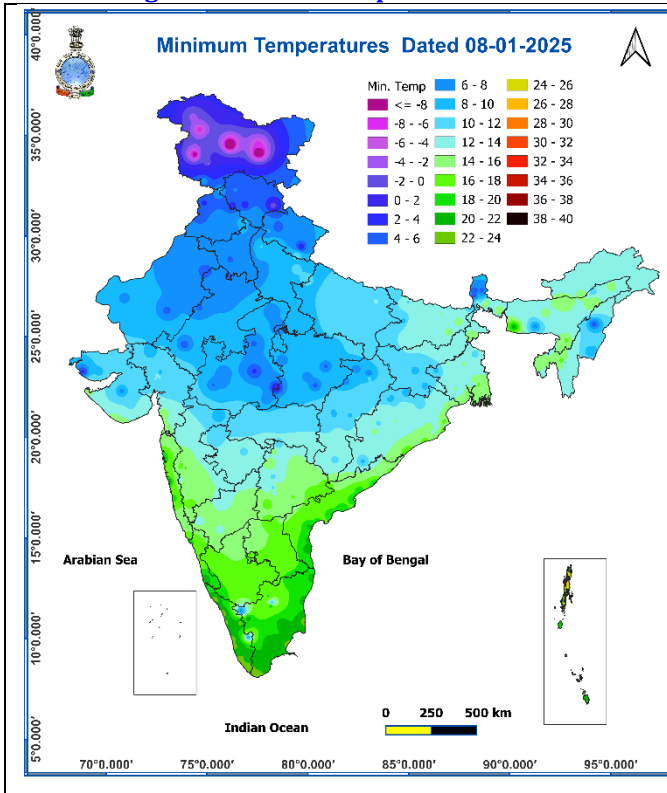


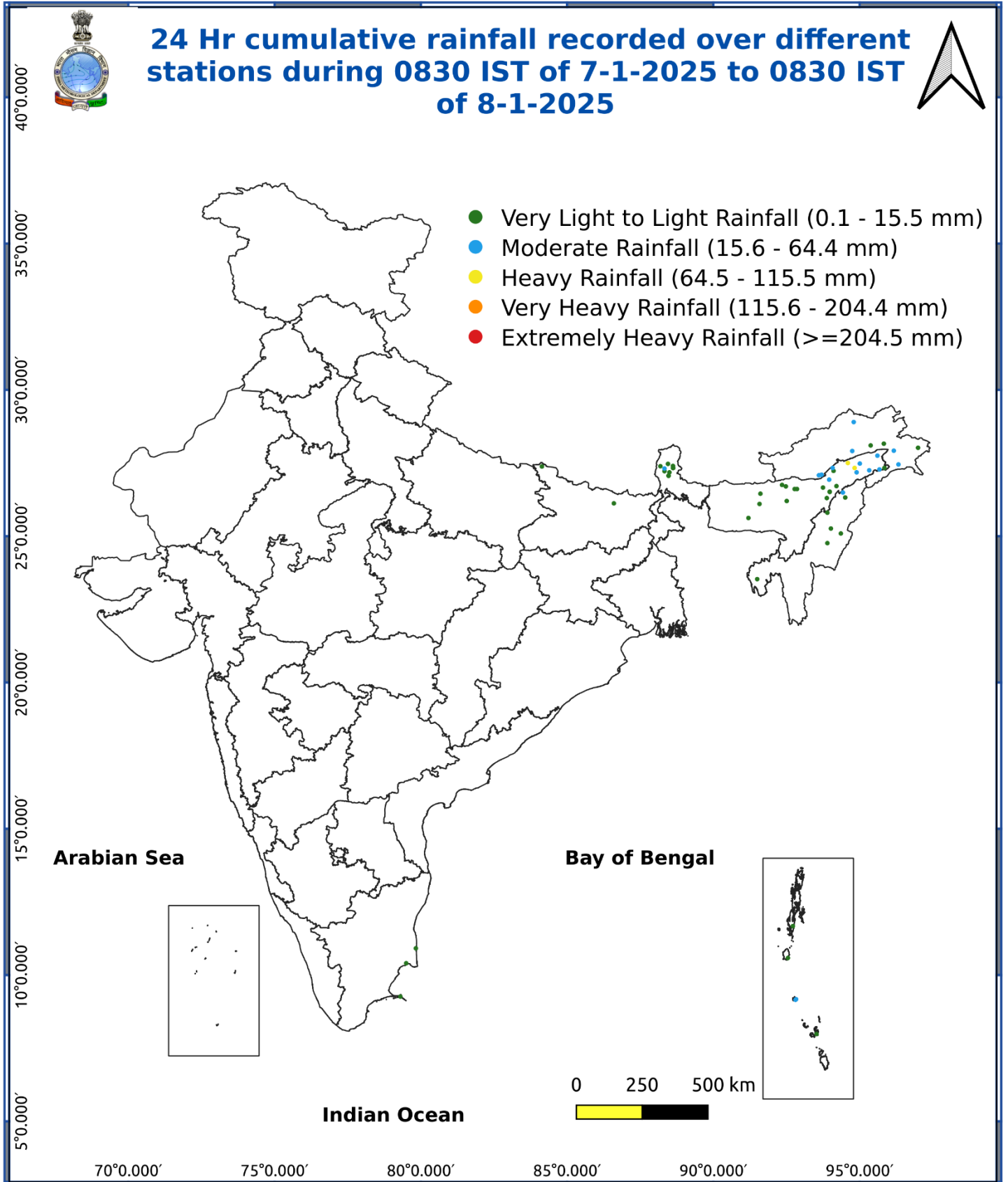
Fig. 3: Minimum Temperatures

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



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 Hailstorms / Cold Wave/ Ground Frost

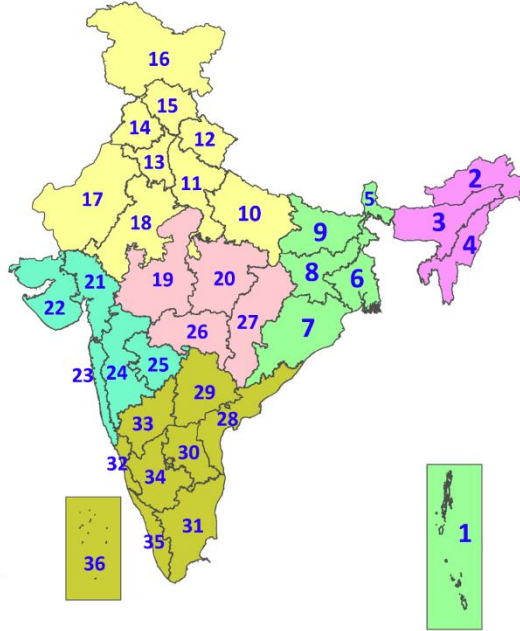
- Use hail nets to protect orchards and vegetable plants in **North East Assam**.
- In **Jammu & Kashmir, Himachal Pradesh, Punjab, Rajasthan** and **West Madhya Pradesh**, apply light and frequent irrigation to the standing crops in the evening to protect them from low temperature stress or cold injuries. 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°C to 6.4°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°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°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°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

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)