

Thursday, January 11, 2024
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems and Forecast & Warnings during next 5 days:

- ❖ A cyclonic circulation lies over East Equatorial Indian Ocean centered at Lat. 2.5°N/Long. 78.5°E in lower tropospheric levels.
- ❖ A cyclonic circulation lies over Kerala coast in lower tropospheric levels. Under the influence of above systems;
- ❖ Light to moderate rainfall at some places very likely over Tamil Nadu, Kerala, Coastal Karnataka and Lakshadweep on 11th January and dry weather thereafter.

Dense fog and Cold day warning:

- ❖ **Dense to very dense fog** conditions very likely to prevail for a few hours in morning in isolated pockets over north Rajasthan on 11th & 12th January, 2024 and reduction thereafter.
- ❖ **Dense fog** conditions very likely to prevail for a few hours in morning in isolated pockets over Punjab, Haryana, Chandigarh, Uttar Pradesh, Assam & Meghalaya, Mizoram & Tripura during 11th-16th; over Jammu division, Himachal Pradesh, Uttarakhand, north Madhya Pradesh, Odisha, Bihar, West Bengal & Sikkim on 11th & 12th January.
- ❖ **Cold Day** conditions very likely to continue in isolated pockets of Punjab, Uttar Pradesh and Rajasthan on 11th January and abate thereafter.

Temperatures Forecast and Cold wave warning:

- ❖ Minimum temperatures likely to fall by 2-3°C in over many parts of Central & East India during next 2-3 days.
- ❖ **No Cold wave conditions** likely over the country during next 5 days.
- ❖ **Ground frost conditions** very likely over Uttarakhand on 11th & 12th January, 2024.

Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): at isolated places over Kerala, South Tamil Nadu and Madhya Maharashtra.
- ❖ **Significant rainfall amount recorded** (from 0830 hours IST to 1730 hours IST of yesterday): (1 cm or more): **Kerala:** Palakkad-2.
- ❖ **Fog conditions observed** (at 0530 hours IST of today): **Very Dense fog** in isolated pockets of Punjab, West Uttar Pradesh and Tripura; **Dense fog** in some pockets of East Uttar Pradesh; in isolated pockets of Jammu Division, Haryana, Delhi, East Madhya Pradesh, Bihar and Assam and **Moderate fog** in isolated pockets of northwest Rajasthan and West Madhya Pradesh.
- ❖ **Visibility recorded** (at 0530 hours IST of today) (≤ 200 metres): **Punjab:** Bhatinda-00; **West Uttar Pradesh:** Agra-00; **Tripura:** Agartala -25; **Jammu Division:** Jammu-50; **Haryana:** Hissar-50; **Delhi:** Palam-50; **East Uttar Pradesh:** Varanasi, Lucknow -50 each; **East Madhya Pradesh:** Sagar, Satna -50 each; **Bihar:** Purnea-50; **Assam:** Tezpur-50; **northwest Rajasthan:** Ganganagar-200; **West Madhya Pradesh:** Bhopal-200.
- ❖ Yesterday, **cold day to severe cold day** conditions prevailed over many parts of Punjab and Haryana. **Cold day** conditions prevailed at isolated pockets over Chandigarh, Delhi and northwest Rajasthan.
- ❖ **Minimum Temperature Departures (as on 10-01-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at most places over Maharashtra, Madhya Pradesh, North Interior Karnataka; at many places over Chhattisgarh and Gujarat Region; at a few places over East Uttar Pradesh, Bihar, Jharkhand; at isolated places over Saurashtra & Kutch, Odisha and Telangana; **above normal (1.6°C to 3.0°C)** at most places over West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Rayalaseema, South Interior Karnataka and Tamil Nadu, Puducherry & Karaikal; at many places over Coastal Karnataka; at a few places over Arunachal Pradesh, Assam & Meghalaya and Kerala & Mahe; at isolated places over East Rajasthan, West Uttar Pradesh, Uttarakhand. They were **below normal (-1.6°C to -3.0°C)** at isolated places over West Rajasthan and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 3.8°C** was reported at **Sikar (East Rajasthan)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 10-01-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh; **above normal (1.6°C to 3.0°C)** at few places over Gangetic West Bengal; at isolated places over Bihar, Jharkhand, Odisha, Coastal Andhra Pradesh & Yanam, Chhattisgarh, Vidarbha, Telangana, North Interior Karnataka, Coastal Karnataka, Assam & Meghalaya, Arunachal Pradesh and Kerala & Mahe. They were **appreciably below normal (-3.1°C to -5.0°C)** at many places over Haryana-Chandigarh-Delhi; **below normal (-1.6°C to -3.0°C)** at many places over Punjab, Rajasthan, Madhya Pradesh, West Uttar Pradesh, Madhya Maharashtra; at a few places over East Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim; at isolated places over Gujarat state, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Nagaland, Manipur, Mizoram & Tripura and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 35.3°C** was reported at **Alappuzha (Kerla)**.

Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **cyclonic circulation** over East Equatorial Indian Ocean centered at Lat. 2.5°N/Long. 78.5°E extending upto 3.1 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Kerala coast at 1.5 km above mean sea level persists.
- ❖ A feeble Western Disturbance is likely to affect Western Himalayan Region from 12th January, 2024.
- ❖ The **Western Disturbance** as a cyclonic circulation over northwest Uttar Pradesh & neighbourhood at 3.1 km above mean sea level has become less marked.

Weather Forecast for next 7 days (Upto 0830 hours IST of 18th January, 2024)

- ❖ Minimum temperatures likely to fall by 2-3°C in over many parts of Central & East India during next 2-3 days.
- ❖ **No Cold wave conditions** likely over the country during next 5 days.
- ❖ **Ground frost conditions** very likely over Uttarakhand on 11th & 12th January, 2024.

Weather Outlook for subsequent 2 days

- ❖ Light to moderate rainfall at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and East India.
- ❖ Mainly dry weather likely to prevail over rest parts of the country.

Table-1

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

Legend	Category	% Stations
WS	Widespread/Most Places	76-100
FWS	Fairly Widespread/Many Places	51-75
SCT	Scattered/ A Few Places	26-50
ISOL	Isolated Places	1-25
DRY	No Rain	0

* 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. 1: Maximum Temperatures

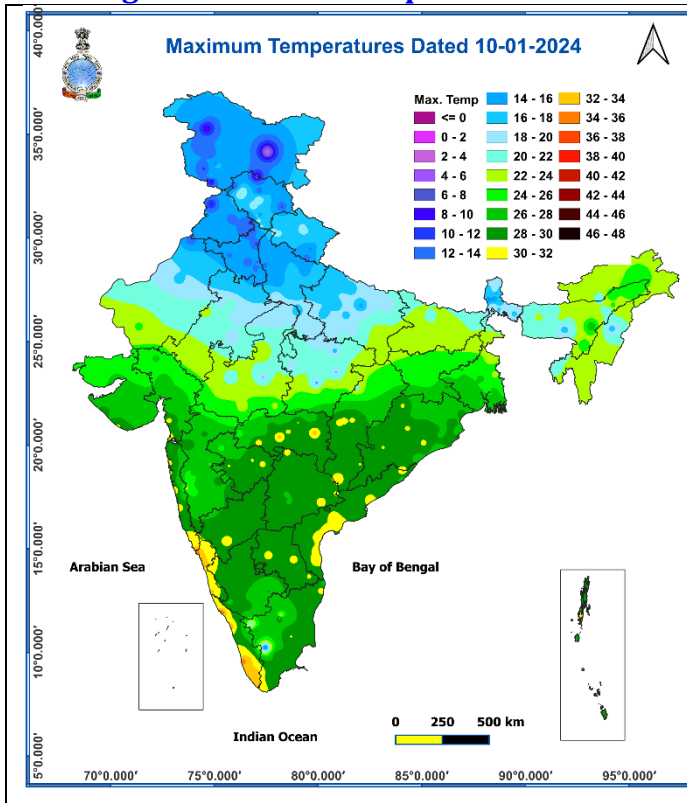


Fig. 2: Departure of Maximum Temperatures

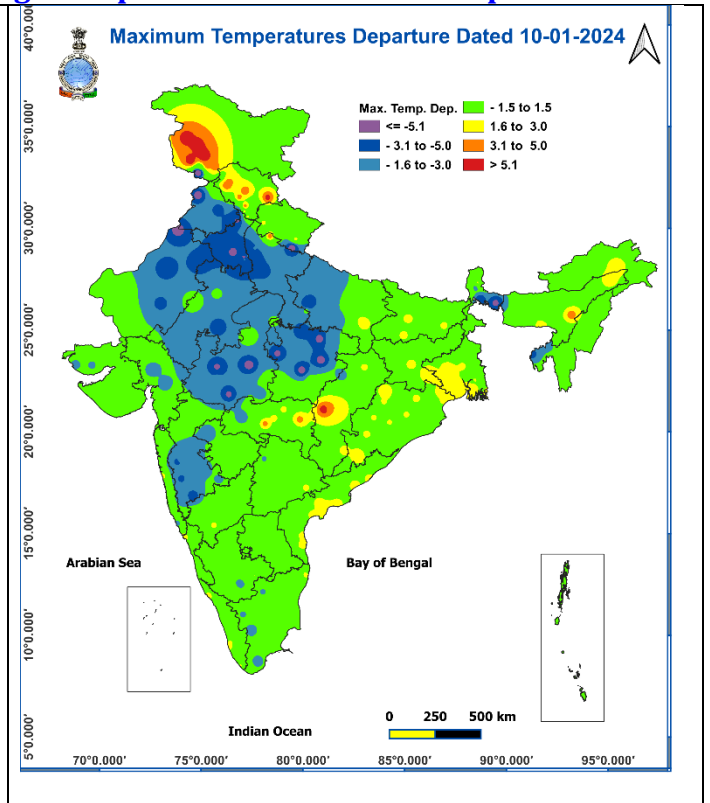


Fig. 3: Minimum Temperatures

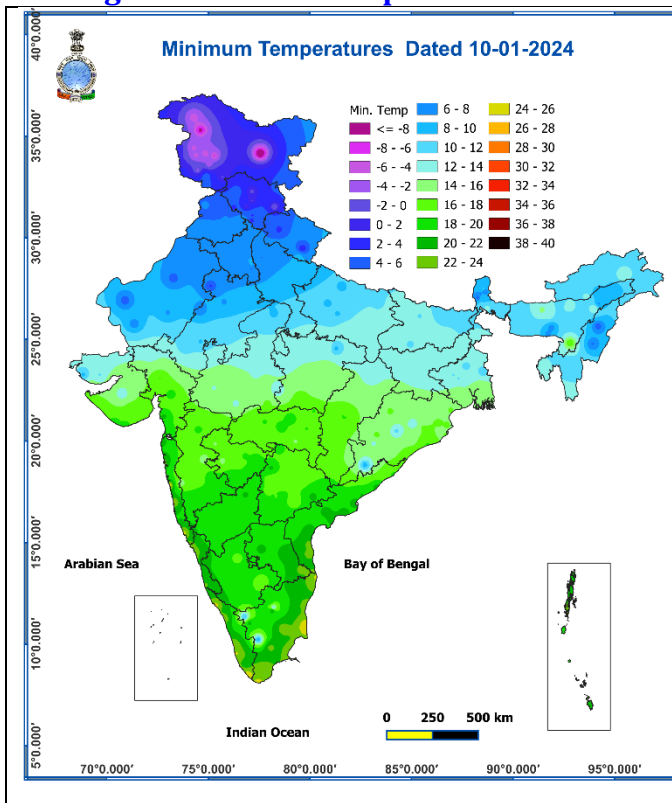


Fig. 4: Departure of Minimum Temperatures

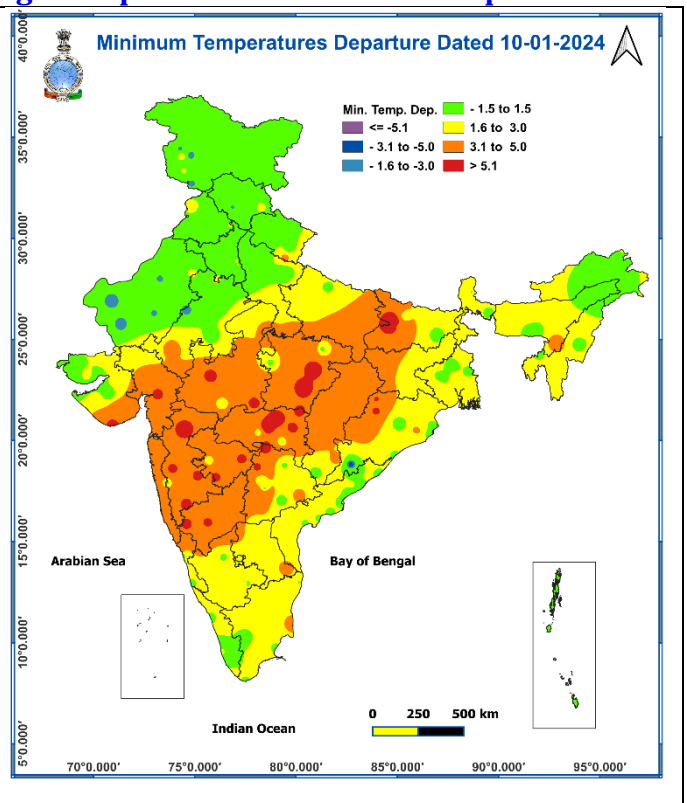
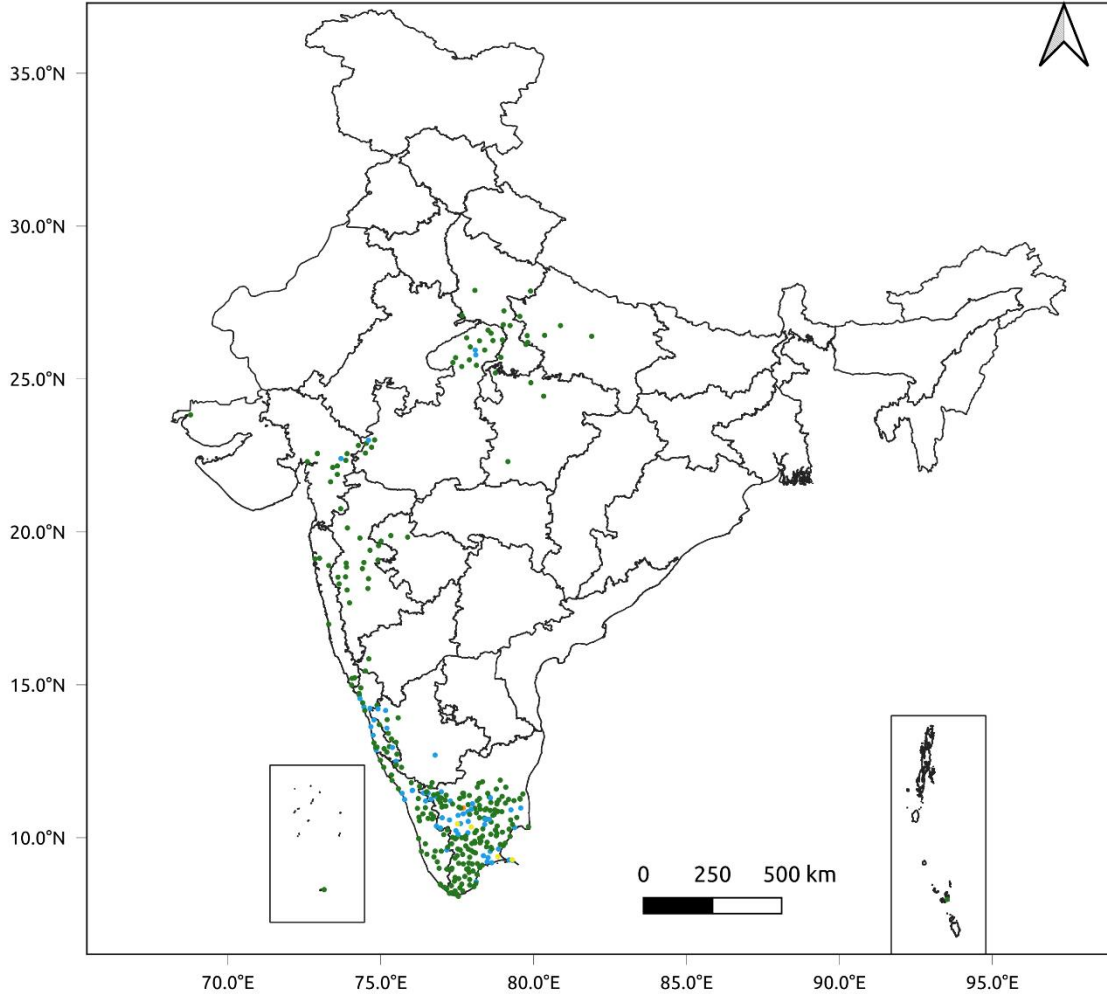


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

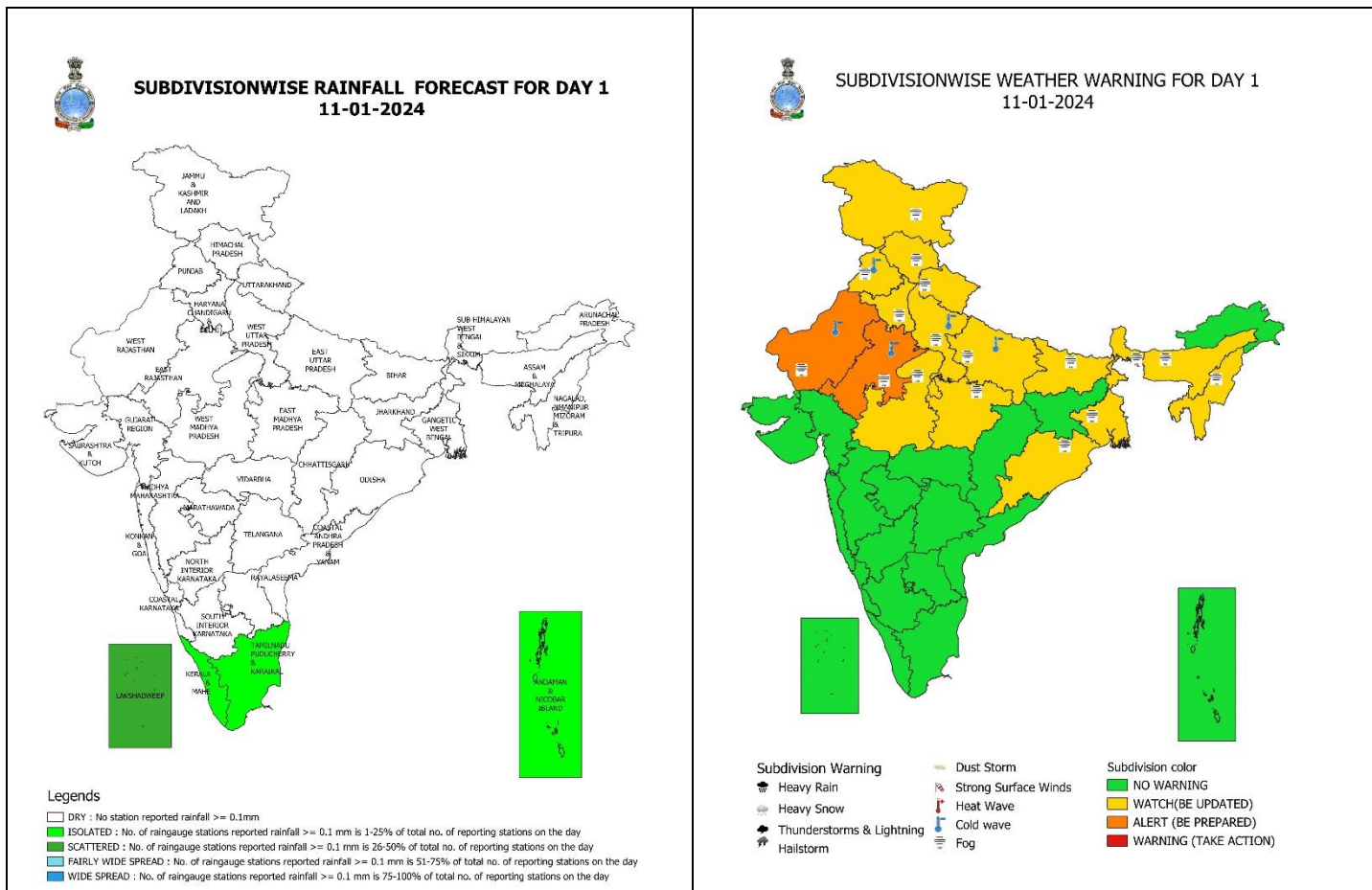


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 9-1-2024 to 0830 IST of 10-1-2024



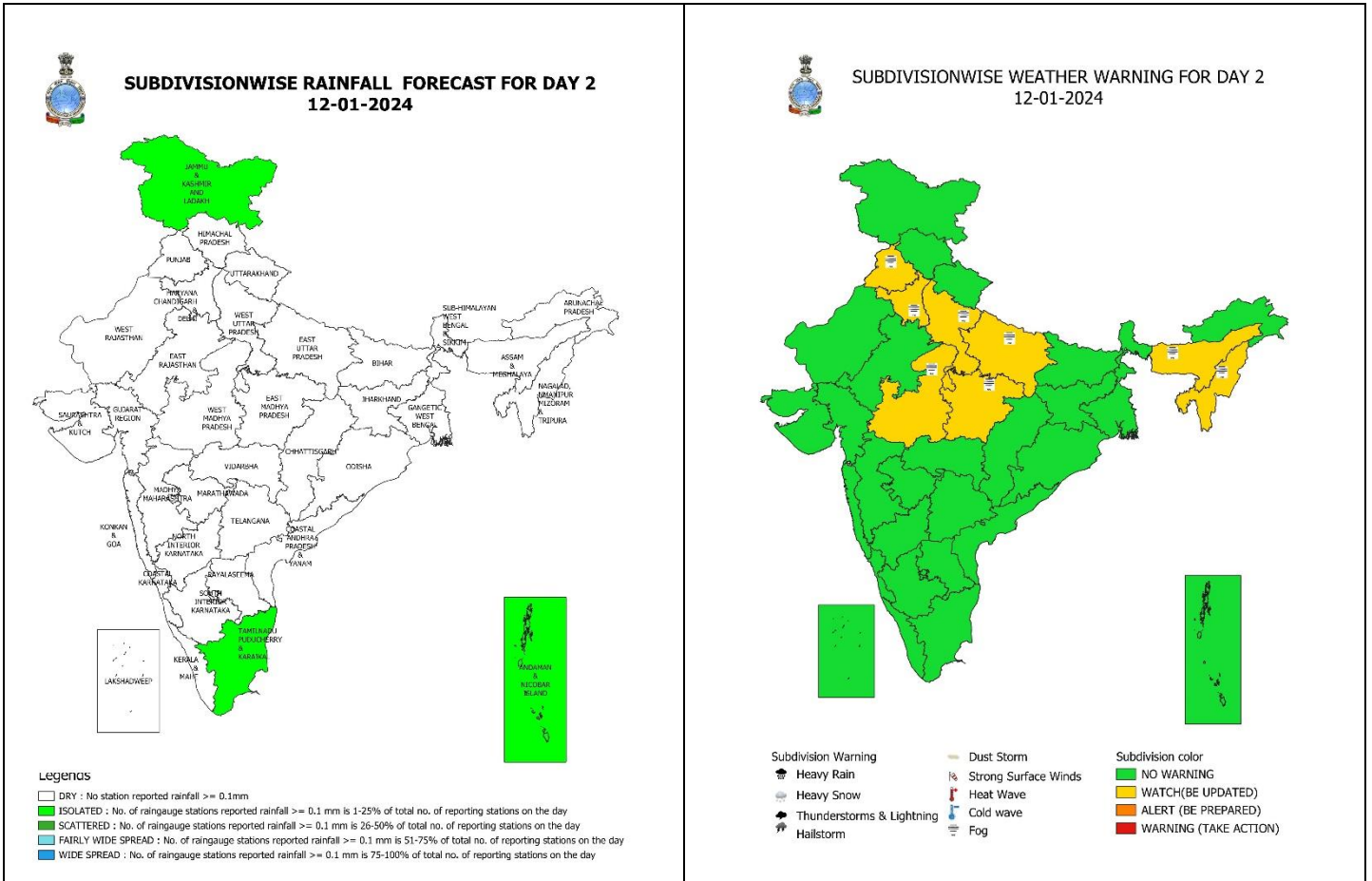
Legends

- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall (≥ 204.5 mm)



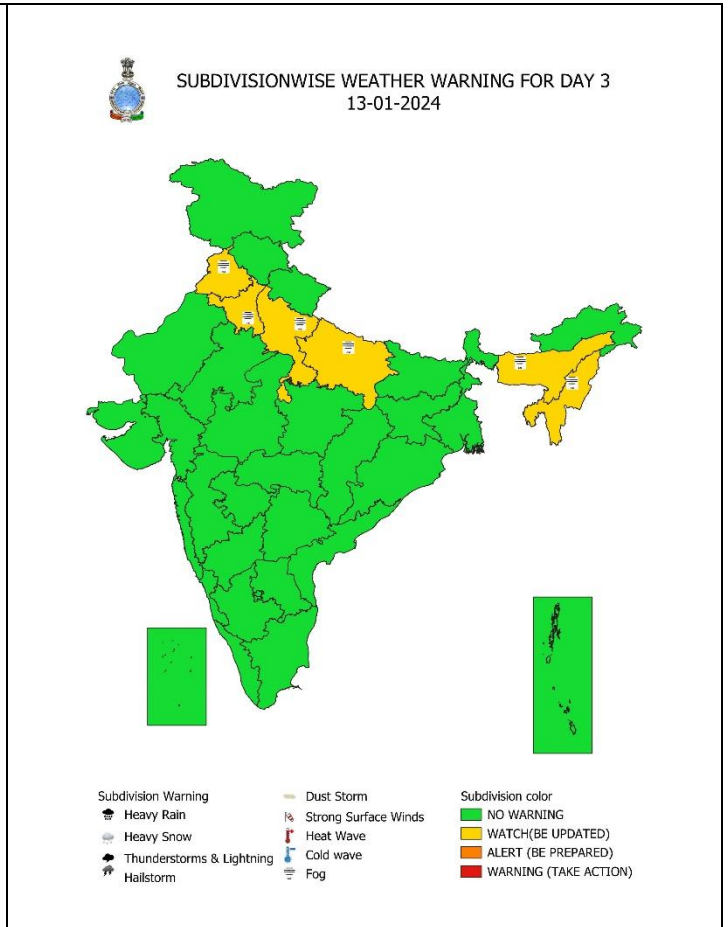
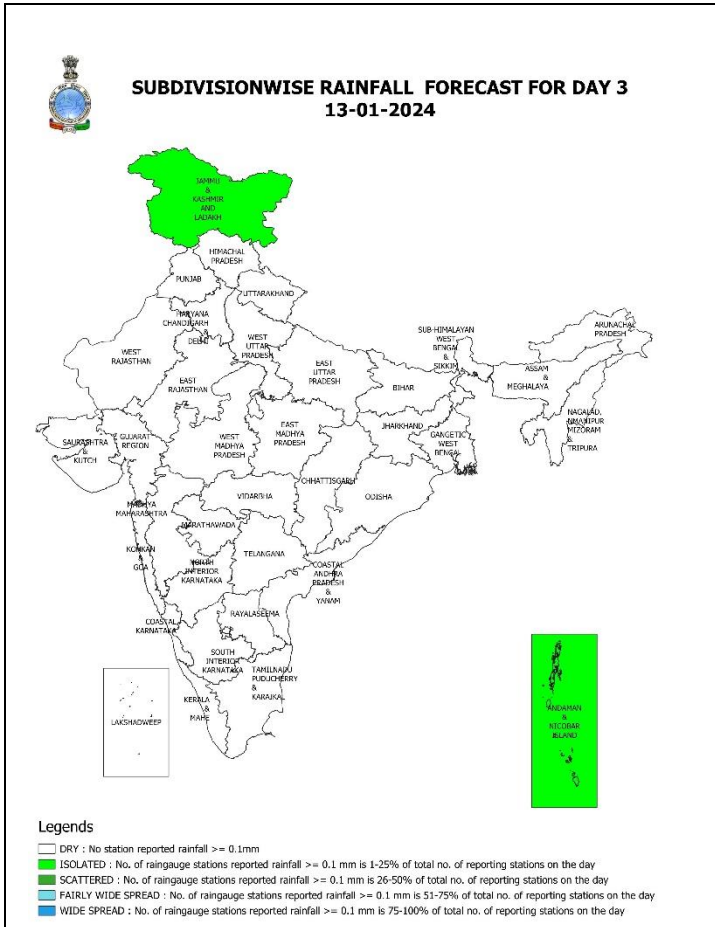
11 January (Day 1):

- ❖ **Dense to very dense fog** very likely in isolated pockets over West Rajasthan, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; **Dense fog** in isolated pockets over Jammu-Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh, West Uttar Pradesh, East Rajasthan, north Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Gangetic West Bengal, Bihar and Odisha.
- ❖ **Cold day** conditions very likely in isolated pockets of Punjab, Uttar Pradesh and Rajasthan.
- ❖ **Ground frost** conditions very likely in isolated pockets over Uttarakhand.
- ❖ **Squally weather with wind speed 40-45 kmph gusting to 55 kmph** very likely to prevail along and off Tamil Nadu coast, along and off Sri Lanka coast, adjoining Southwest Bay of Bengal, Gulf of Mannar, Comorin area, adjoining Maldives area, along and off south Kerala coast and adjoining Lakshadweep Area. Fishermen are advised not to venture into these areas.



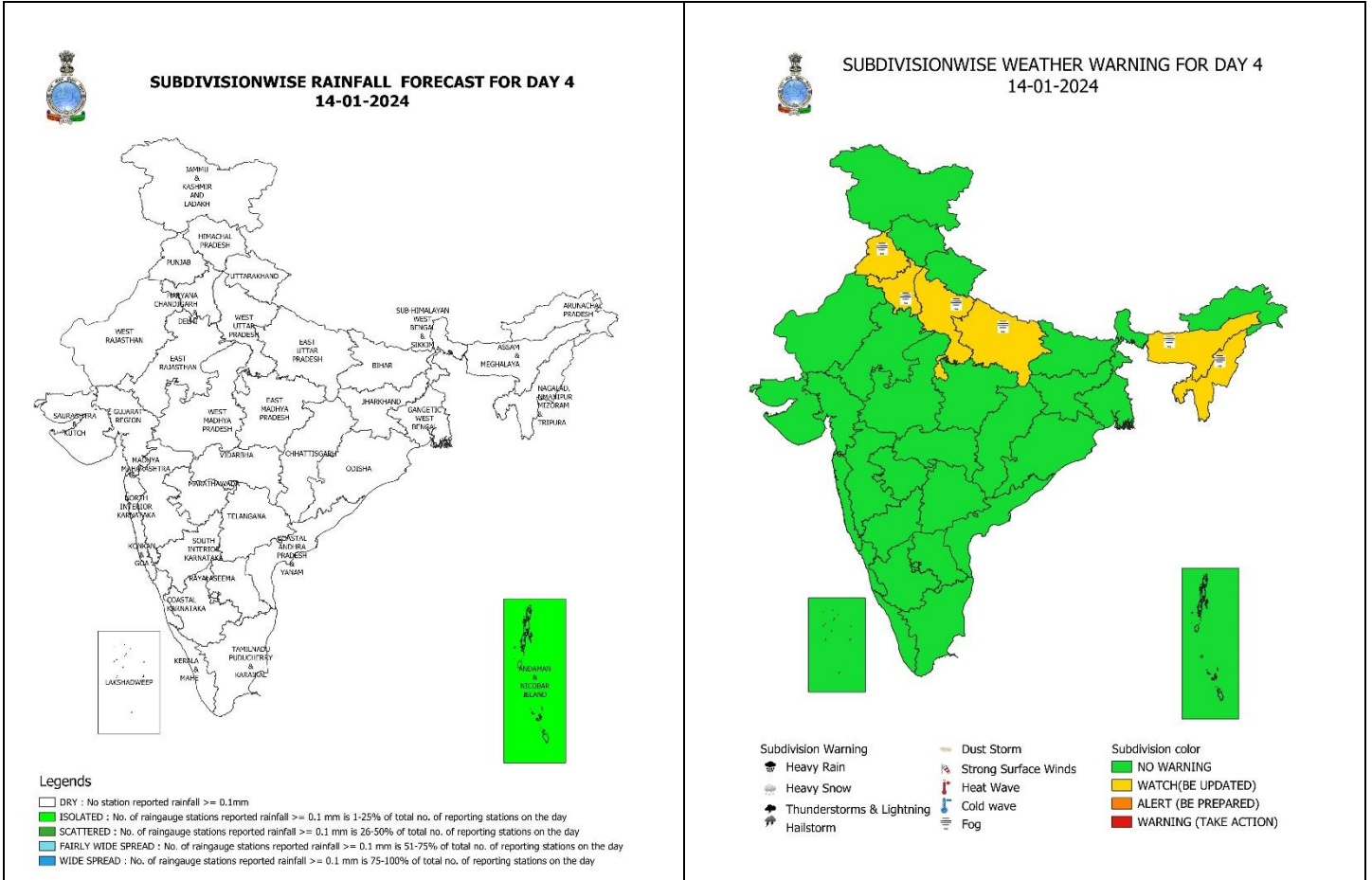
12 January (Day 2):

- ❖ **Dense fog** very likely in isolated pockets over Punjab, Haryana-Chandigarh, Uttar Pradesh, north Madhya Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed 40-45 kmph gusting to 55 kmph** very likely to prevail over Comorin area, Maldives area and adjoining Southeast Arabian Sea. Fishermen are advised not to venture into these areas.



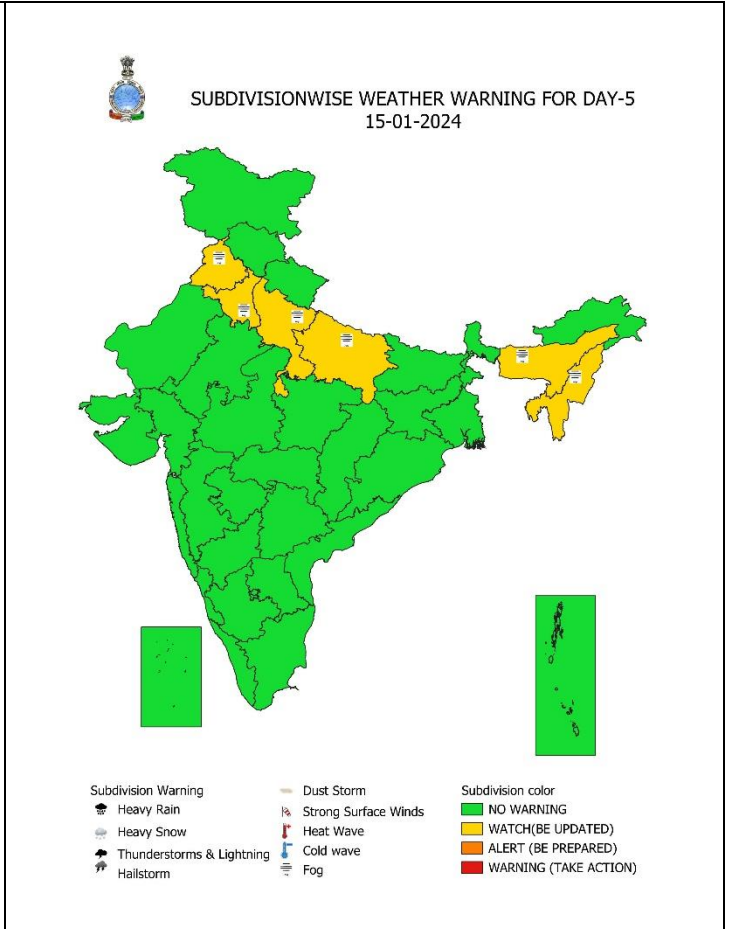
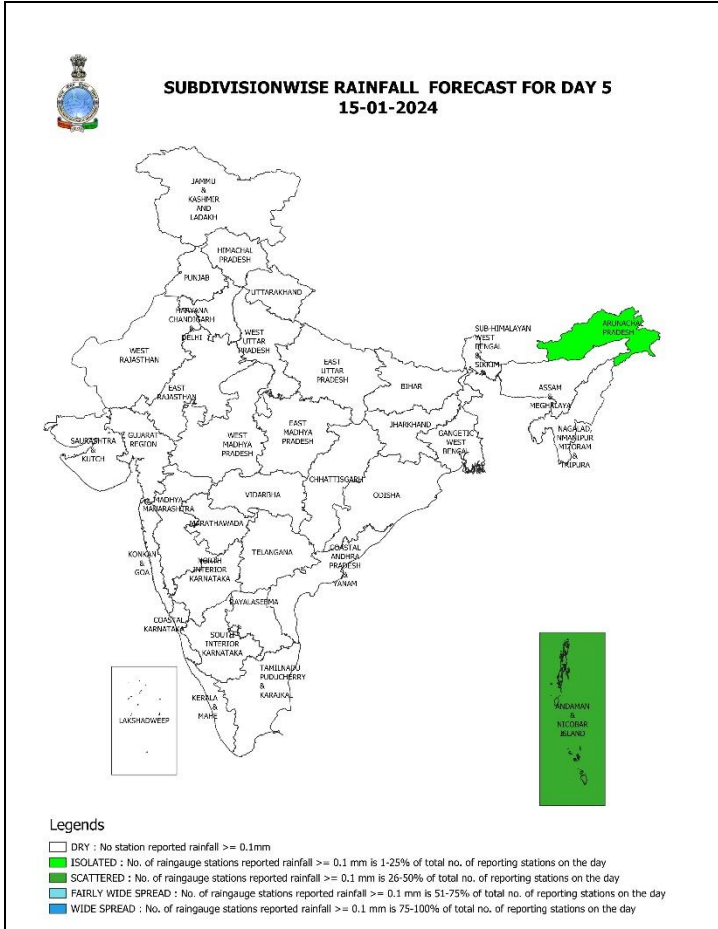
13 January (Day 3):

❖ **Dense fog** very likely in isolated pockets over Punjab, Haryana-Chandigarh, Uttar Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.



14 January (Day 4):

❖ **Dense fog** likely in isolated pockets over Punjab, Haryana-Chandigarh, Uttar Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

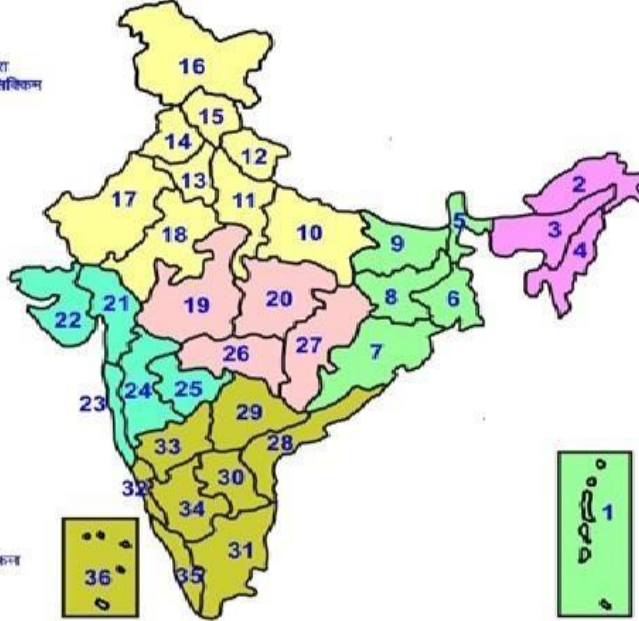


15 January (Day 5):

❖ **Dense fog** likely in isolated pockets over Punjab, Haryana-Chandigarh, Uttar Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

LEGENDS

- 1 अंडमान और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड, मणिपुर, मीज़ोरम 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 क्षेत्र
- 22 सौराष्ट्र एवं कच्छ
- 23 कोंकण एवं गोवा
- 24 मध्य महाराष्ट्र
- 25 महाराष्ट्र
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यनम
- 29 तेलंगाना
- 30 रायलसीमा
- 31 तमिलनाडु, पुदुचेरी एवं कराईकल
- 32 तटिय 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. Odisha
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. Tamilnada, 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

LEGENDS

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



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 $\geq 37^{\circ}\text{C}$



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 $> 6.4^{\circ}\text{C}$.



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 $\leq 15^{\circ}\text{C}$



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 $\leq -6.5^{\circ}\text{C}$



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



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



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



Ice deposits on ground

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



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



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



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)

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Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.

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(Service to the Nation since 1875)