



Saturday, December 23, 2023
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

- **Yesterday, Minimum temperatures** were in the range of 4-8°C over most parts of Punjab, Haryana-Chandigarh-Delhi, northwest Rajasthan; some parts of northwest Uttar Pradesh and 8-12°C over many parts of East Uttar Pradesh, south Rajasthan, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand and interior Odisha. Minimum Temperature were **below normal** by 2-3°C at isolated places over Punjab, Haryana, Chhattisgarh, interior Odisha, Vidarbha and Telangana and normal to above normal over rest parts of the country.

Weather Systems and Forecast & Warnings during next 5 days:

Weather Systems:

- The Western Disturbance as a cyclonic circulation lies over North Pakistan & neighbourhood in lower tropospheric levels with a trough aloft in middle & upper tropospheric levels between Lat. 44°N/Lon. 62°E and Lat. 26°N/Lon. 68°E.
- The Cyclonic Circulation lies over Equatorial Indian Ocean and adjoining southwest Bay of Bengal in lower tropospheric levels.

Forecast & Warnings:

- **Isolated light rainfall/snowfall** likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 23rd and **Isolated light rainfall** likely over Punjab & Haryana on 23rd December.
- Light to moderate rainfall at isolated places very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe and Lakshadweep area during next 4-5 days.

Dense fog warning

Dense to very dense fog conditions very likely in morning hours at isolated pockets of Punjab during next 4-5 days. **Dense Fog** conditions very likely in morning hours in isolated pockets of Haryana on 24th & 25th; northwest Rajasthan on 24th; northwest Uttar Pradesh during 25th-27th; Assam & Meghalaya and Mizoram & Tripura and Odisha 23rd & 24th December.

Minimum Temperatures Forecast:

- **Northwest & Central India:** Rise by about 2°C in Minimum Temperatures during next 24 hours and no significant change thereafter.
- **East India:** Rise by 2-3°C in Minimum Temperatures during next 2 days and no significant change thereafter.



Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at isolated places** over Kerala & Mahe and Lakshadweep.
- ❖ **Significant rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): (in cm): Nil.
- ❖ **Fog Observed** (at 0530 hours IST of today): **Dense fog** (Visibility: 50-200 meters) in isolated pockets of East Uttar Pradesh and West Madhya Pradesh; **Moderate fog** (Visibility: 200-500 meters) in isolated pockets of Punjab and Delhi; **Shallow Fog** (visibility: 500-1000 meters) in isolated pockets of Haryana, West Uttar Pradesh, Bihar and Tripura.
- ❖ **Visibility Recorded** (at 0530 hours IST of today) (≤ 500 meters): **East Uttar Pradesh:** Lucknow (airport)-50; Lucknow & Varanasi-200; **West Madhya Pradesh:** Gwalior (Airport)-100, Gwalior-500; **Punjab:** Amritsar-200; **Delhi:** Safdarjung-200; **Haryana:** Hissar-500; **West Uttar Pradesh:** Jhansi-500; **Tripura:** Kailashahar-500.
- ❖ **Yesterday, Cold Wave** observed in isolated pockets over Punjab.
- ❖ **Minimum Temperature Departures (as on 22-12-2023):** Minimum temperatures were **above normal (1.6°C to 3.0°C)** at most places over Gujarat state, Konkan & Goa, Madhya Maharashtra; at a few places over West Madhya Pradesh, Madhya Maharashtra, Coastal & South Interior Karnataka and Kerala & Mahe and at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Rajasthan, Tamil Nadu, Puducherry & Karaikal, Bihar, West Bengal & Sikkim and Nagaland, Manipur, Mizoram & Tripura. They were **below normal (-1.6°C to -3.0°C)** at a few places over Telangana and at isolated places over Vidarbha, Chhattisgarh, Odisha, Coastal Andhra Pradesh & Yanam, East Uttar Pradesh and Punjab and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 2.8°C** was reported at **Sikar (East Rajasthan)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 22-12-2023):** Maximum temperatures were **appreciably above normal(3.1°C to 5.0°C)** at a few places over Arunachal Pradesh and at isolated places over Uttarakhand, Himachal Pradesh, West Rajasthan and Sub-Himalayan West Bengal & Sikkim; **above normal (1.6°C to 3.0°C)** at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Assam & Meghalaya; at a few places over West Uttar Pradesh, Andaman & Nicobar Islands and Saurashtra & Kutch and at isolated places over Punjab, Haryana-Chandigarh-Delhi, East Rajasthan, East Uttar Pradesh, Bihar, Interior Karnataka, Konkan & Goa, Gujarat Region, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Nagaland, Manipur, Mizoram & Tripura. They were **below normal (-1.6°C to -3.0°C)** at a few places West Madhya Pradesh and at isolated places over East Madhya Pradesh and Madhya Maharashtra and **near normal** over rest parts of the country. Yesterday, the **highest maximum temperature of 35.0°C** was reported at **Cochin (Kerala)**.



Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Western Disturbance** as a cyclonic circulation lies over North Pakistan & neighbourhood at 3.1 km above mean sea level with a trough aloft between 5.8 & 12.1 km above mean sea level with its axis at 5.8 km above mean sea level runs between Lat. 44°N/Lon. 62°E and Lat. 26°N/Lon. 68°E.
- ❖ The **Cyclonic Circulation** over Southeast & adjoining Southwest Arabian Sea extends upto 4.5 km above mean sea level persists.
- ❖ The **Cyclonic Circulation** over Equatorial Indian Ocean and adjoining southwest Bay of Bengal extending upto 3.1 km above mean sea level persists.

Weather Forecast for next 7 days (Upto 0830 hours IST of 30th December, 2023)

- ❖ Meteorological sub-division wise detailed 7 days rainfall forecast is given in Table-1.
- ❖ Shallow to moderate fog during morning hours very likely in isolated pockets over Gangetic West Bengal and Bihar during 23rd - 25th December, 2023.
- ❖ **Northwest & Central India:** Rise by about 2°C in Minimum Temperatures during next 24 hours and no significant change thereafter.
- ❖ **East India:** Rise by 2-3°C in Minimum Temperatures during next 2 days and no significant change thereafter.
- ❖ No significant change in Minimum Temperatures likely over rest parts of the country during next 4-5 days.

Weather Outlook for subsequent 2 days

- ❖ Mainly dry weather likely to prevail over most parts of the country except Islands where scattered to fairly widespread rainfall and isolated light rainfall over Tamil Nadu, Puducherry & Karaikal is likely.



Table-1

7 Days Rainfall Forecast								
S. No.	Subdivision	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	SCT	SCT	SCT	SCT	SCT	SCT	SCT
2	ARUNACHAL PRADESH	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
3	ASSAM & MEGHALAYA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
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	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
14	PUNJAB	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	ISOL	DRY	DRY	DRY	ISOL	DRY	DRY
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	ISOL	ISOL	DRY	DRY	DRY	DRY
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	ISOL	SCT	SCT	SCT	SCT	SCT
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	ISOL	DRY	DRY	DRY	DRY
35	KERALA & MAHE	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
36	LAKSHADWEEP	SCT	SCT	SCT	SCT	SCT	SCT	SCT

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

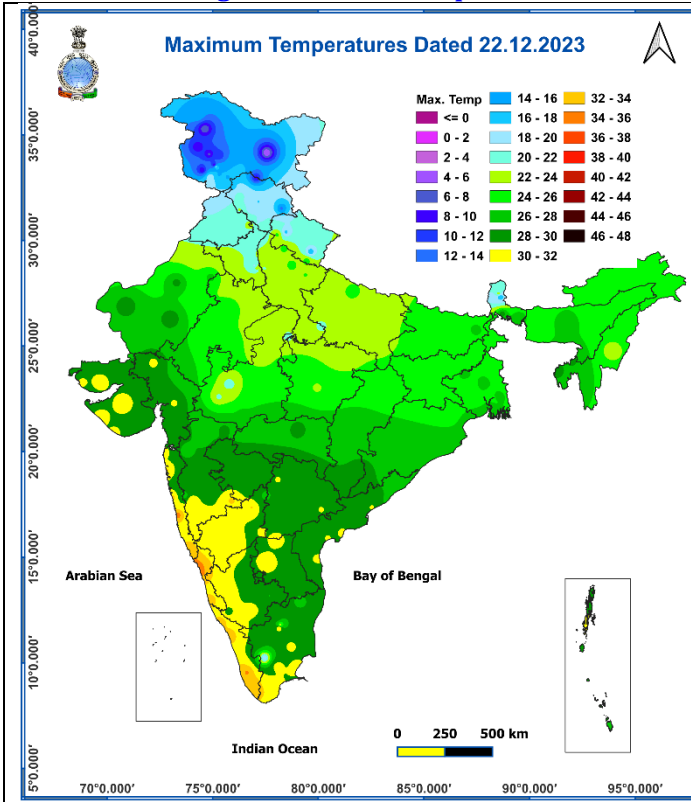


Fig. 2: Departure of Maximum Temperatures

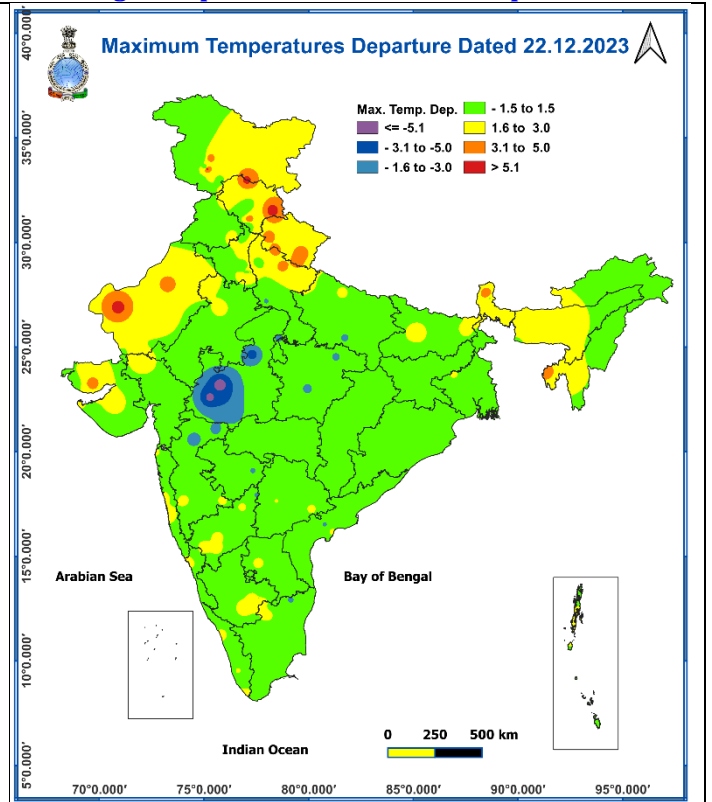


Fig. 3: Minimum Temperatures

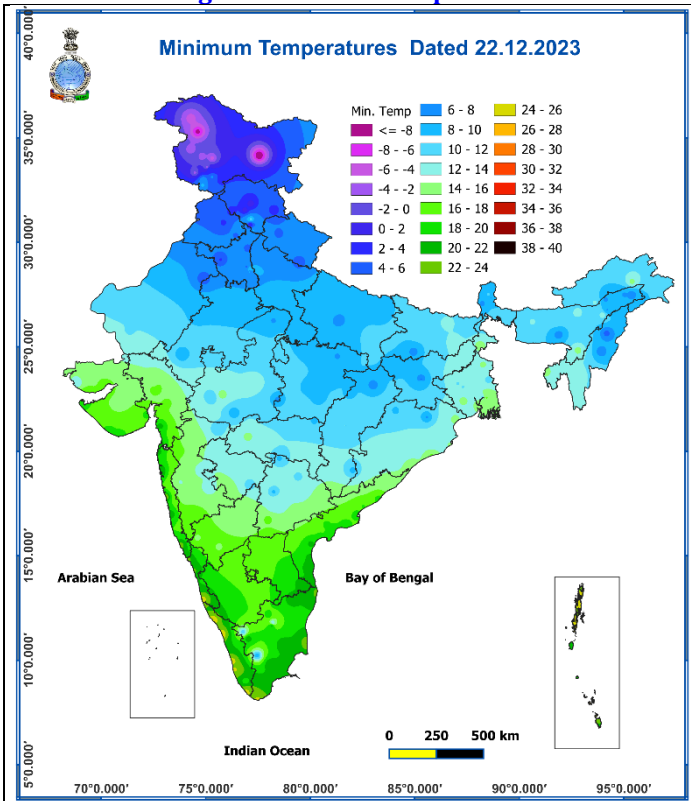


Fig. 4: Departure of Minimum Temperatures

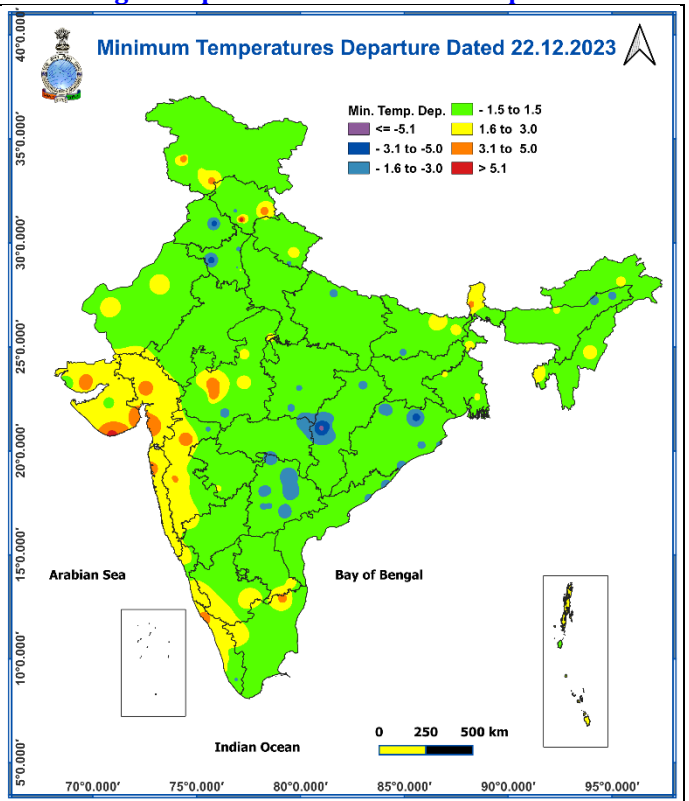
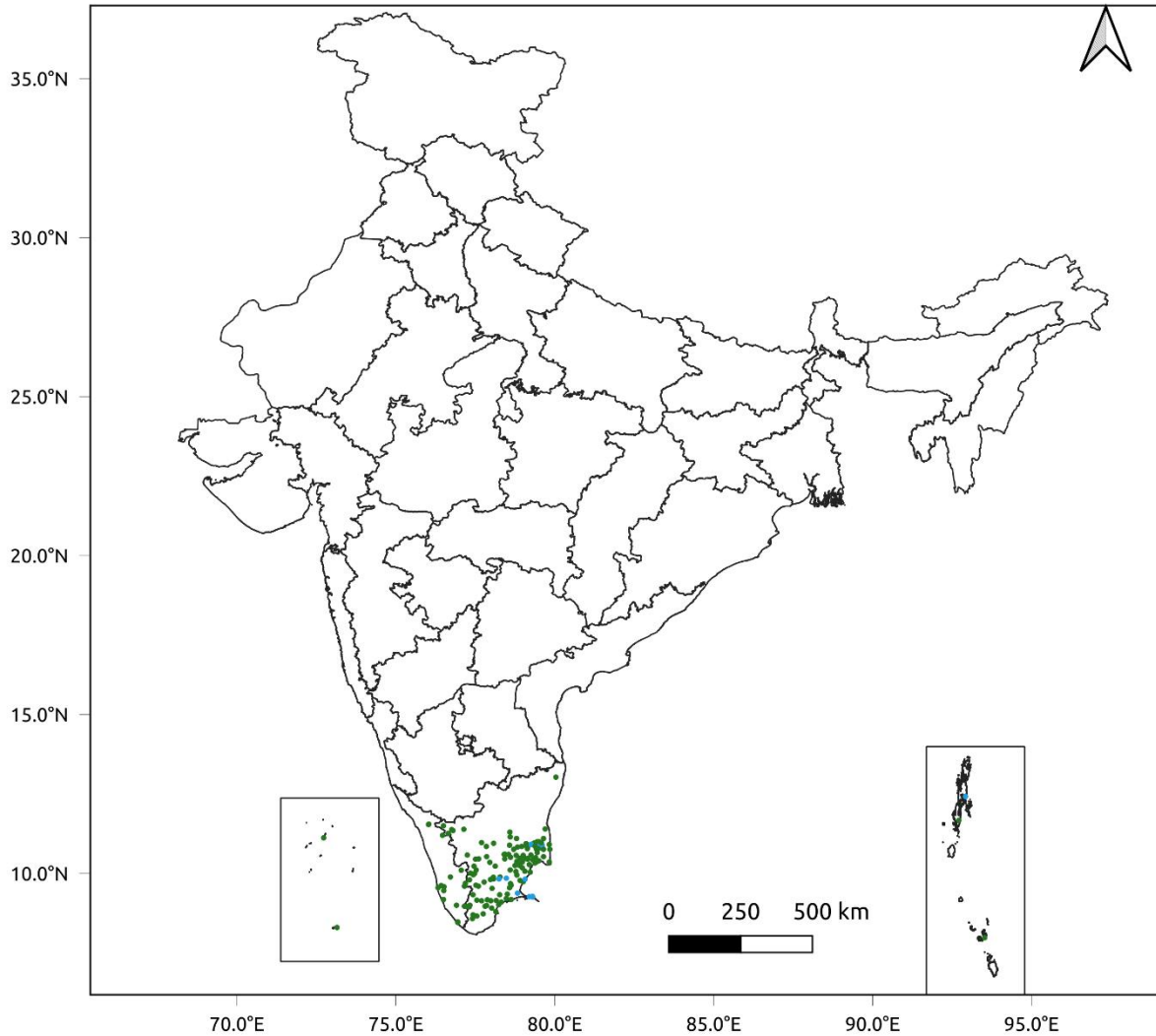


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

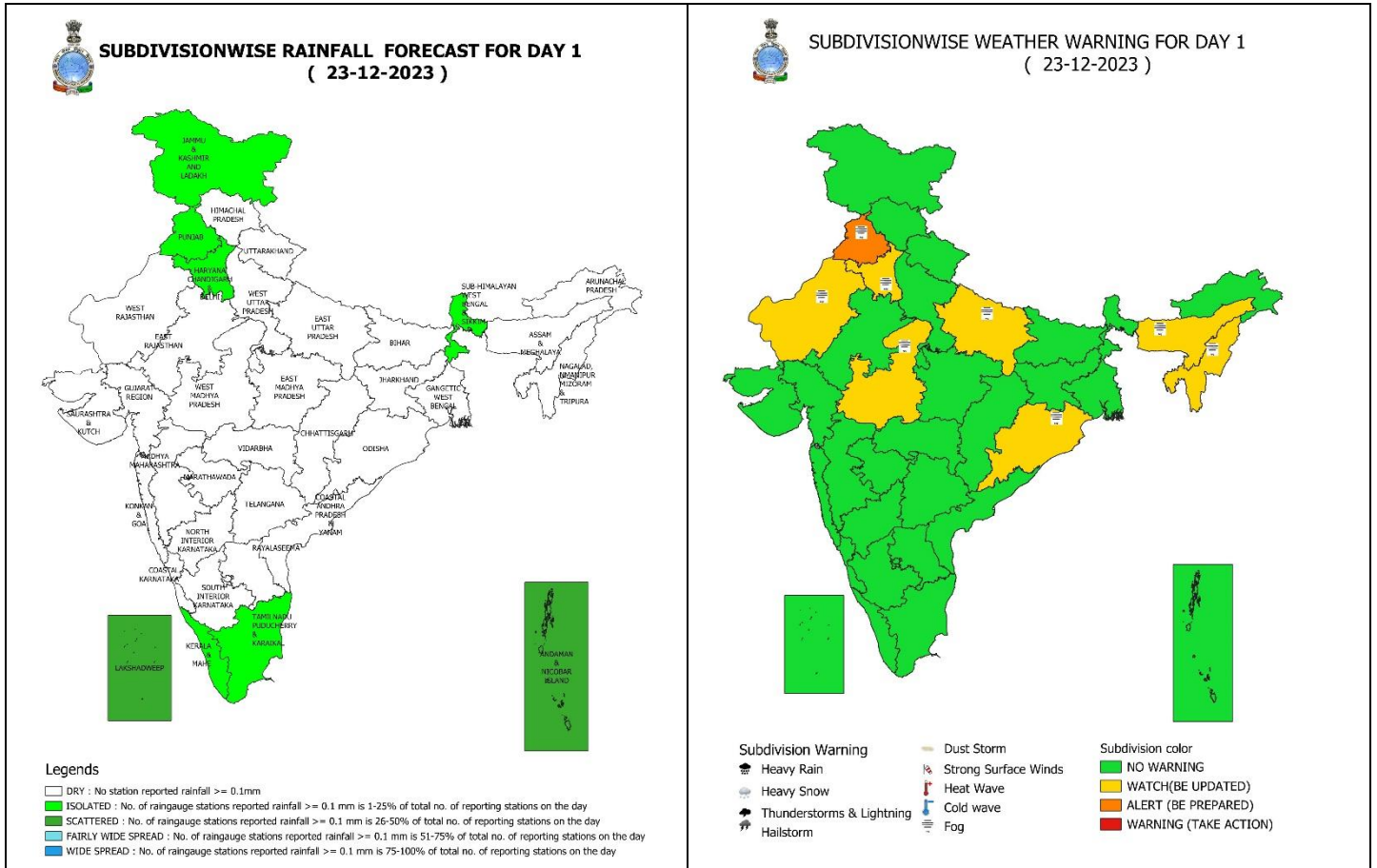


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 21-12-2023 to 0830 IST of 22-12-2023



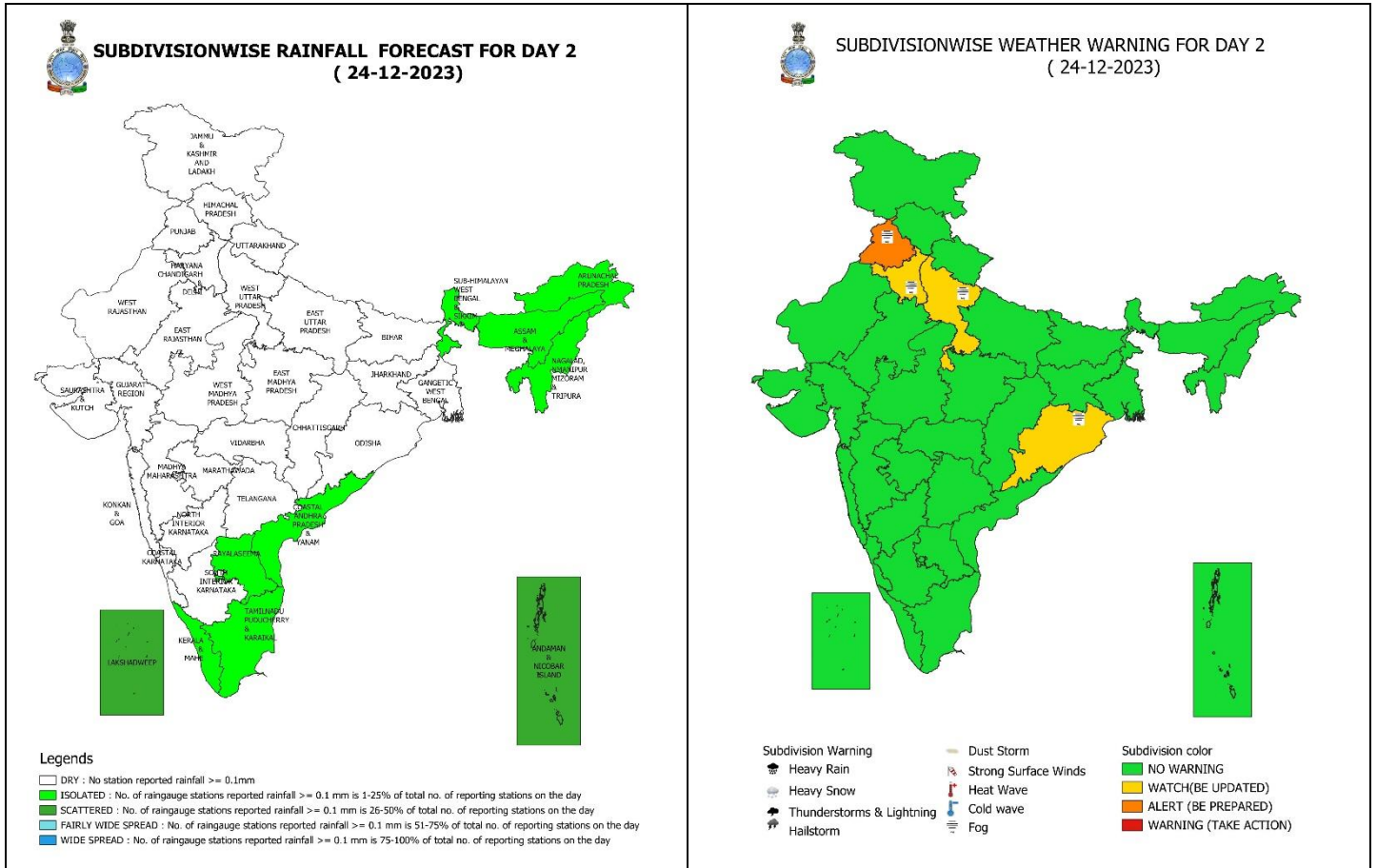
Legends

- 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)



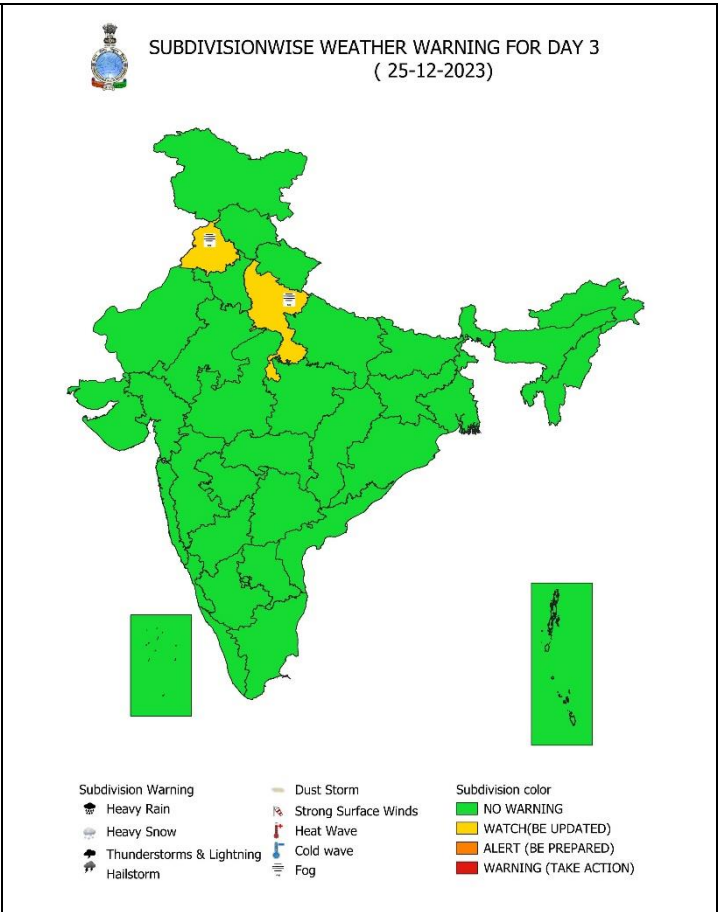
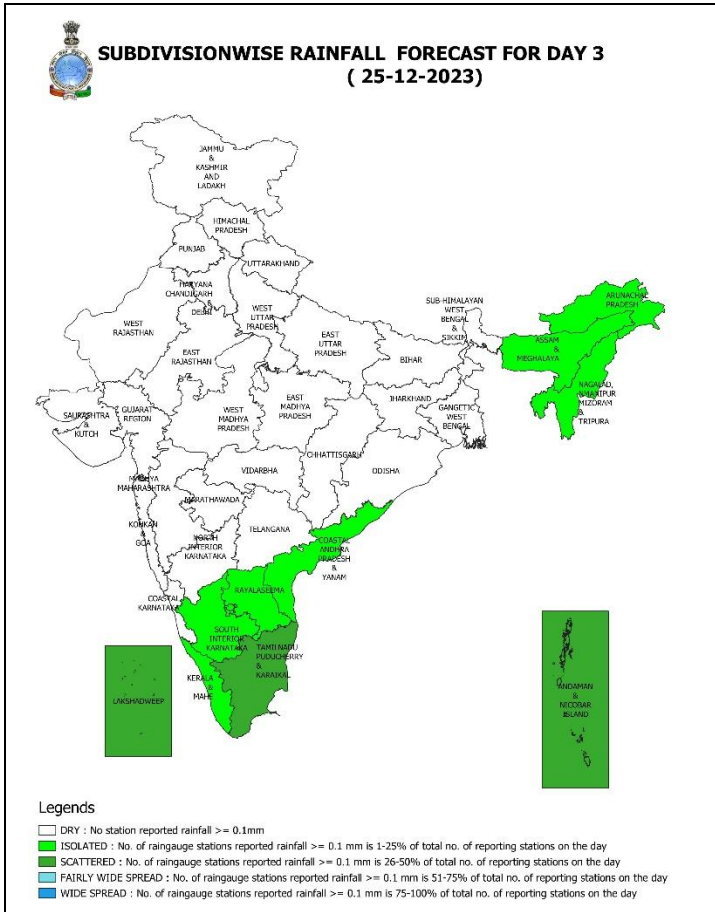
23 December (Day 1):

- ❖ **Dense to very dense fog** very likely in isolated pockets over Punjab and **dense fog** in isolated pockets over Haryana, West Rajasthan, East Uttar Pradesh, West Madhya Pradesh, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather (wind speed 40-45 kmph gusting to 55 kmph)** likely to prevail over Comorin area and adjoining Maldives and Lakshadweep areas. Fishermen are advised not to venture into these areas.



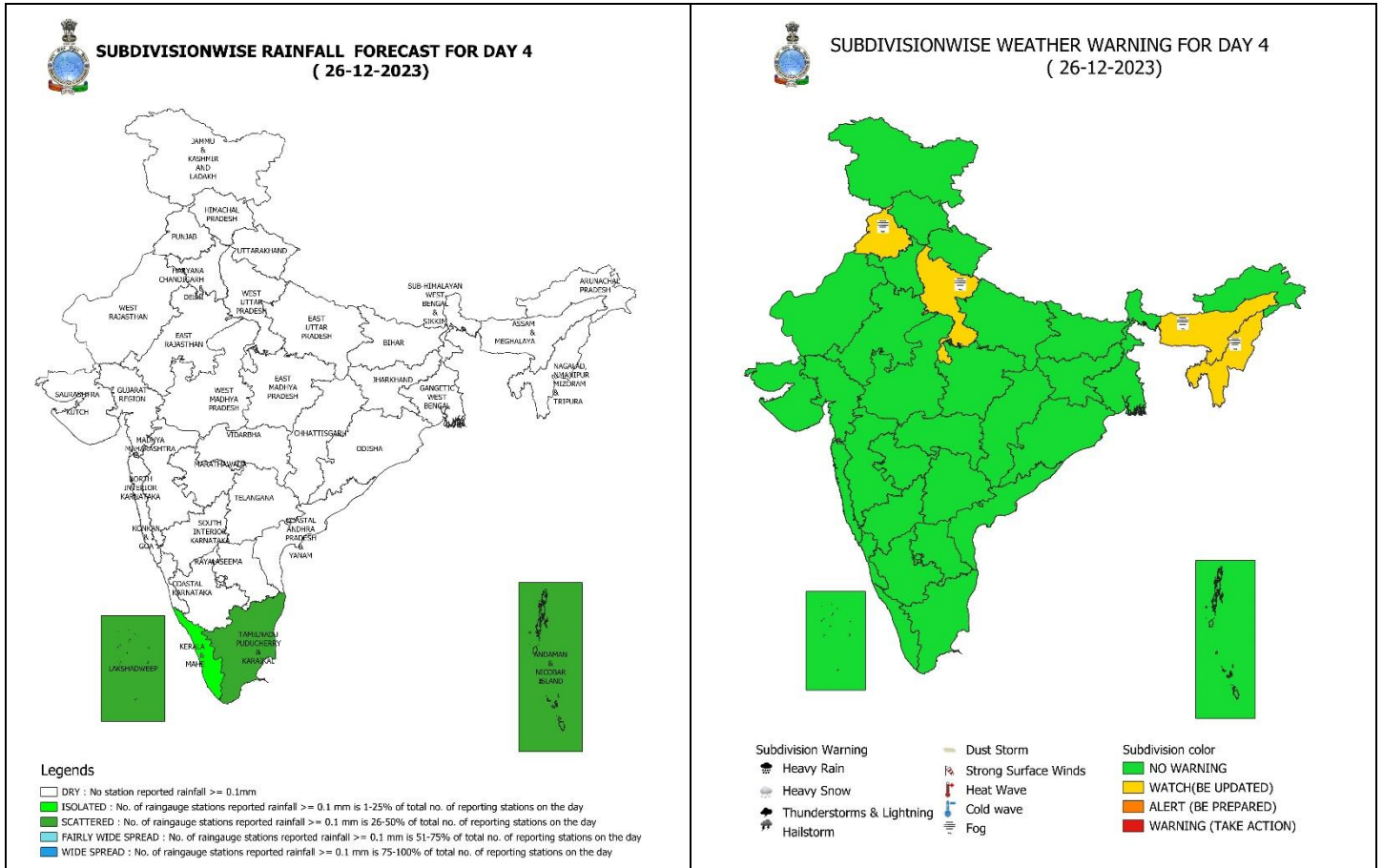
24 December (Day 2):

- ❖ **Dense to very dense fog** very likely in isolated pockets over Punjab and **dense fog** in isolated pockets over Haryana, West Uttar Pradesh and Odisha.



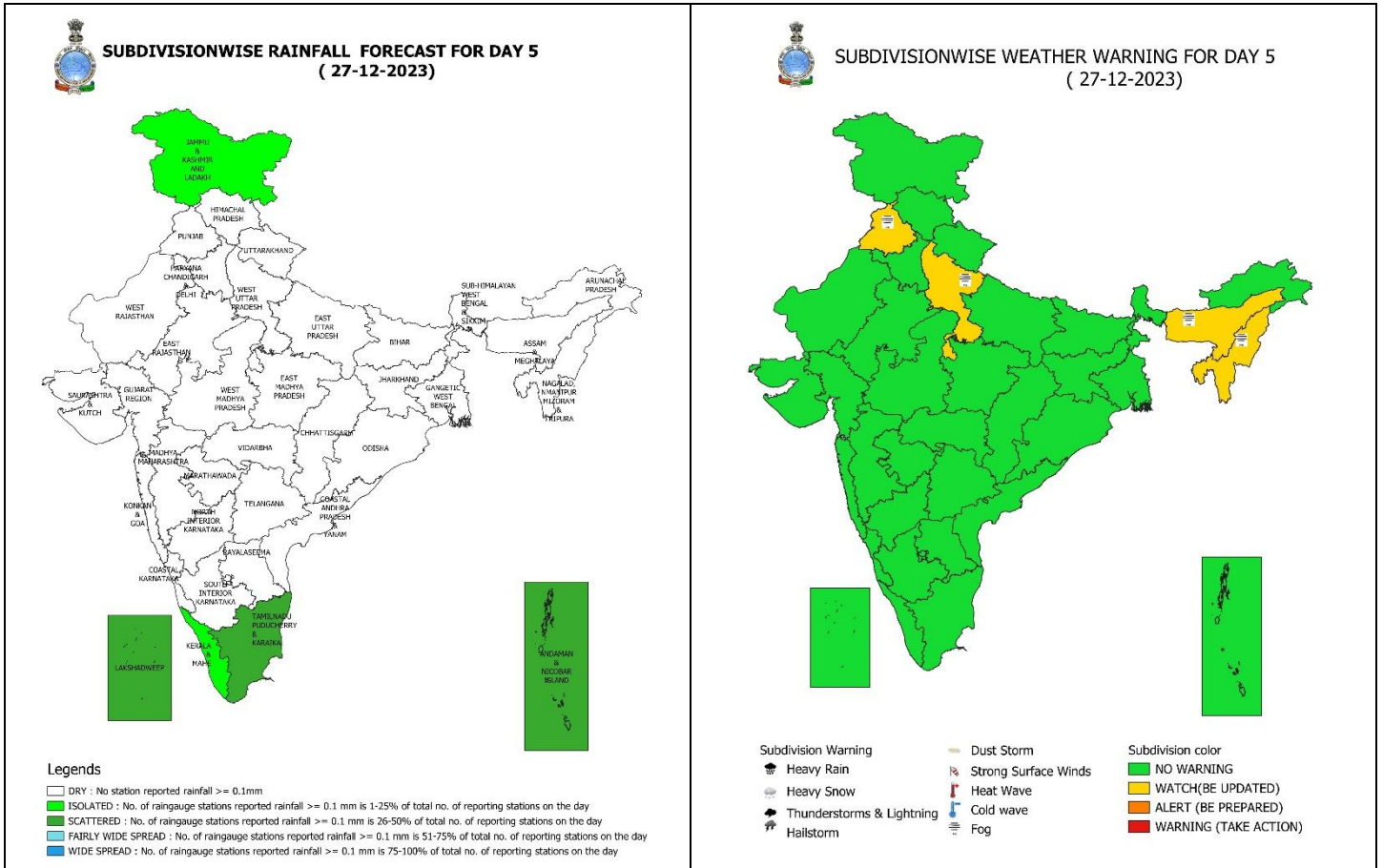
25 December (Day 3):

❖ Dense to very dense fog likely in isolated pockets over Punjab and dense fog in isolated pockets over West Uttar Pradesh.



26 December (Day 4):

❖ **Dense to very dense fog** likely in isolated pockets over Punjab and **dense fog** in isolated pockets over West Uttar Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

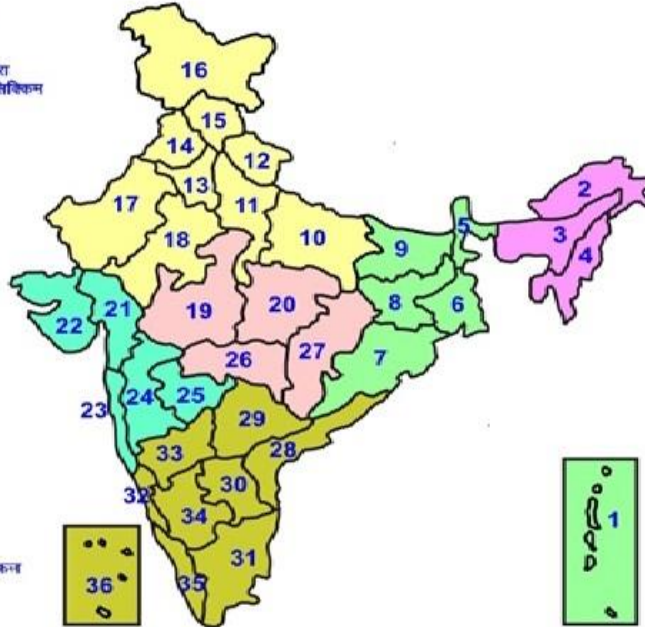


27 December (Day 5):

❖ **Dense to very dense fog** likely in isolated pockets over Punjab and **dense fog** in isolated pockets over West 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 मनीपुर मीजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 पश्चिम बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडीगढ़ एवं दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवं लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात
- 22 सौराष्ट्र
- 23 कोंकण एवं कच्छ
- 24 मध्य महाराष्ट्र
- 25 महाराष्ट्र
- 26 विदर्भ
- 27 उत्तरीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यनम
- 29 तेलंगाना
- 30 राजलक्ष्मी
- 31 तमिलनाडु, पुदुचेरी एवं कराईकल
- 32 तटिय कर्नाटक
- 33 अंतरिक उत्तरी कर्नाटक
- 34 अंतरिक 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. Marathawada
26. Vidharbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

SPATIAL DISTRIBUTION (% of Stations reporting)

% Stations	Category	% Stations	Category
76-100	Widespread (WS/ Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespred (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



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 Storm: Wind speed > 220 kmph (> 119 knots)