

Saturday, March 9, 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:

- ❖ Two Western Disturbances in quick succession likely to affect northwest India, first from the night of 10th March and second from the night of 12th March. Under the influence of these systems;
 - ✓ Isolated light/moderate rainfall/snowfall likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh on 10th; Scattered to fairly widespread light/moderate rainfall/snowfall with isolated thunderstorms, lightning likely over the region during 11th-14th March, 2024.
 - ✓ Isolated light/moderate rainfall/snowfall likely over Uttarakhand during 11th-14th March, 2024.
 - ✓ Isolated to scattered rainfall very likely over Punjab during 12th-14th; over Haryana, West Uttar Pradesh on 13th & 14th March, 2024.
- ❖ **Strong surface winds (25-35 kmph)** very likely to prevail over plains of Northwest India except south Rajasthan on 09th March, 2024.
- ❖ Isolated rainfall very likely over Odisha during 09th-10th and Sub-Himalayan West Bengal & Sikkim on 09th March, 2024.
- ❖ A trough in westerlies runs roughly along Long. 92°E to the north of Lat. 25°N in lower tropospheric levels. Isolated light rainfall/snowfall very likely over Arunachal Pradesh during next 7 days. Isolated light rainfall very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 13th-15th March, 2024.
- ❖ **Hot and humid weather** very likely to prevail over Rayalaseema, Tamil Nadu, Puducherry & Karaikal and Kerala during next 3 days. Day temperatures likely to be above normal by 2-3°C.

Main Weather Observations:

- ❖ **Rainfall/snowfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **NIL**.
- ❖ **Minimum Temperature Departures (as on 08-03-2024):** Minimum temperatures were **above normal (1.6°C to 3.0°C)** at a few places over Telangana, Rayalaseema, Sub-Himalayan West Bengal & Sikkim, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe; at isolated places over Odisha, Chhattisgarh, Madhya Maharashtra, Marathwada, North Interior Karnataka, South Interior Karnataka, Coastal Andhra Pradesh & Yanam. They were **appreciably below normal (-3.1°C to -5.0°C)** at most places over Haryana-Chandigarh-Delhi; **below normal (-1.6°C to -3.0°C)** at most places over Rajasthan, Uttar Pradesh; at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab; at a few places over Gujarat state, Himachal Pradesh, Uttarakhand, Madhya Pradesh; at isolated places over Bihar, Jharkhand, Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature** of **8.3°C** was reported at **Karnal (Haryana)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 08-03-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over Rayalaseema; at a few places over Karnataka, Coastal Andhra Pradesh & Yanam and Kerala & Mahe; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Konkan & Goa and Telangana. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over West Rajasthan, East Madhya Pradesh, Odisha and Gangetic West Bengal; **below normal (-1.6°C to -3.0°C)** at many places over East Rajasthan and Bihar; at a few places over Himachal Pradesh, Haryana-Chandigarh-Delhi, West Madhya Pradesh and Jharkhand; at isolated parts over Uttar Pradesh, Chhattisgarh, Arunachal Pradesh and Gujarat Region and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature** of **40.5°C** was reported at **Anantapur (Rayalaseema)** over the country.

Meteorological Analysis (Based on 0530 hours IST)

- ❖ The Western Disturbance as a cyclonic circulation over Punjab & neighbourhood at 3.1 km above mean sea level has become less marked. However, the trough aloft in middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 78°E to the north of Lat. 32°N.
- ❖ The trough from Telangana to Comorin area across Rayalaseema and Tamil Nadu at 0.9 km above mean sea level persists.
- ❖ The trough from north Odisha to north Coastal Andhra Pradesh & Yanam at 0.9 km above mean sea level persists.
- ❖ The trough in westerlies at 3.1 km above mean sea level roughly along Long. 92°E to the north of Lat. 25°N persists.
- ❖ The cyclonic circulation over Telangana & neighbourhood at 1.5 km above mean sea level persists.
- ❖ Two fresh Western Disturbances in quick succession are likely to affect Northwest India, first from the night of 10th March and second from the night of 12th March, 2024.

Weather Forecast for next 7 days (Upto 0830 hours IST of 16th March, 2024)

- ❖ Meteorological sub-division wise detailed 7 days rainfall forecast is given in Table-1.
- ❖ Gradual Rise in maximum temperatures by 2-4°C very likely over many parts of Northwest during next 5 days.
- ❖ No significant change in maximum temperatures over Central and East India during next 2 days and gradual rise by 2-4°C thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country during next 3-4 days.

Weather Outlook for subsequent 3 days (16th-18th March, 2024)

- ❖ Isolated rainfall/snowfall likely over Arunachal Pradesh.
- ❖ Dry weather likely to prevail over rest parts of the country.

Table-1

7 Days Rainfall Forecast								
S. No.	Subdivision	09-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	SCT
3	ASSAM & MEGHALAYA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	DRY	DRY	ISOL	ISOL	ISOL	ISOL
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY	ISOL	DRY
7	ODISHA	ISOL	ISOL	DRY	DRY	DRY	ISOL	DRY
8	JHARKHAND	DRY	DRY	DRY	DRY	DRY	ISOL	DRY
9	BIHAR	DRY	DRY	DRY	DRY	DRY	DRY	DRY
10	EAST UTTAR PRADESH	DRY	DRY	DRY	DRY	ISOL	ISOL	DRY
11	WEST UTTAR PRADESH	DRY	DRY	DRY	DRY	ISOL	ISOL	DRY
12	UTTARAKHAND	DRY	DRY	ISOL	ISOL	SCT	FWS	DRY
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	DRY	DRY	SCT	ISOL	DRY
14	PUNJAB	DRY	DRY	DRY	ISOL	SCT	ISOL	DRY
15	HIMACHAL PRADESH	DRY	ISOL	FWS	SCT	FWS	FWS	DRY
16	JAMMU & KASHMIR AND LADAKH	DRY	ISOL	FWS	SCT	FWS	SCT	DRY
17	WEST RAJASTHAN	DRY	DRY	DRY	ISOL	ISOL	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	ISOL	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	DRY	DRY	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	DRY	DRY	DRY	DRY	DRY	DRY	DRY
36	LAKSHADWEEP	DRY	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".
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(Service to the Nation since 1875)

Fig. 1: Maximum Temperatures

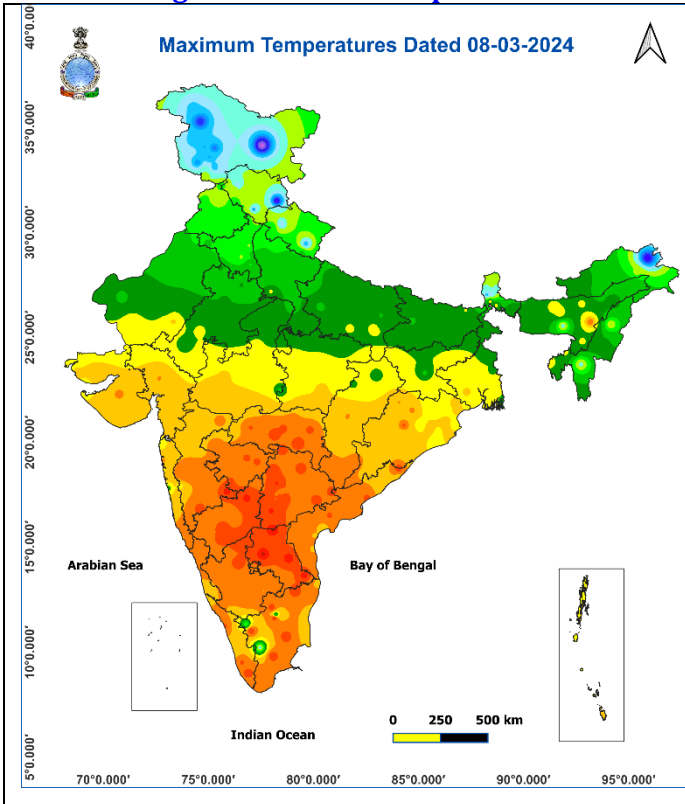


Fig. 2: Departure of Maximum Temperatures

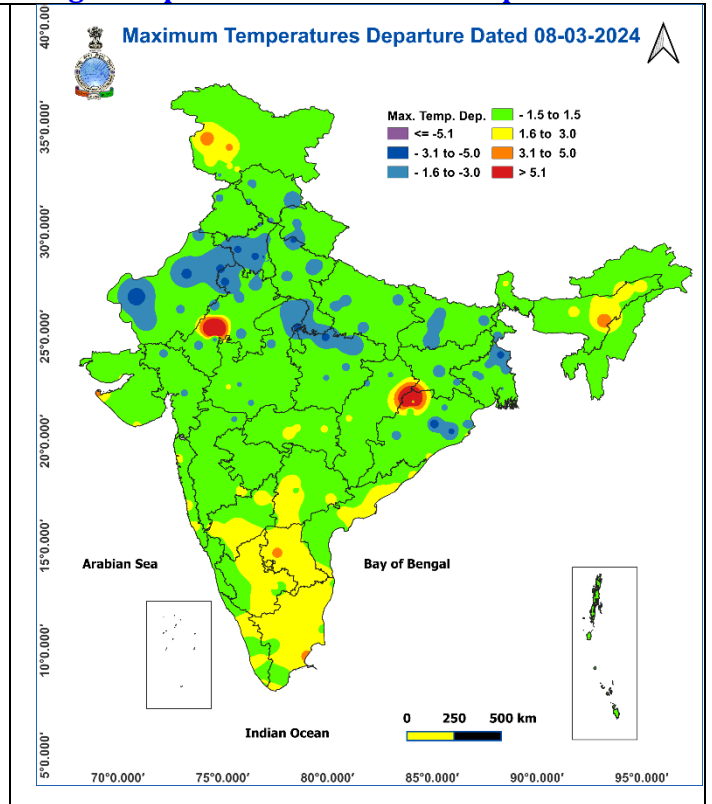


Fig. 3: Minimum Temperatures

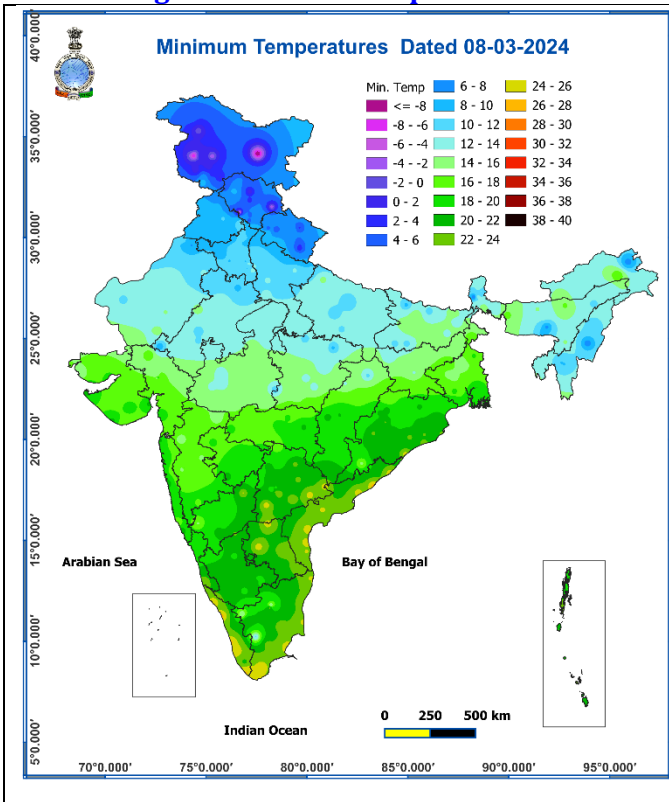


Fig. 4: Departure of Minimum Temperatures

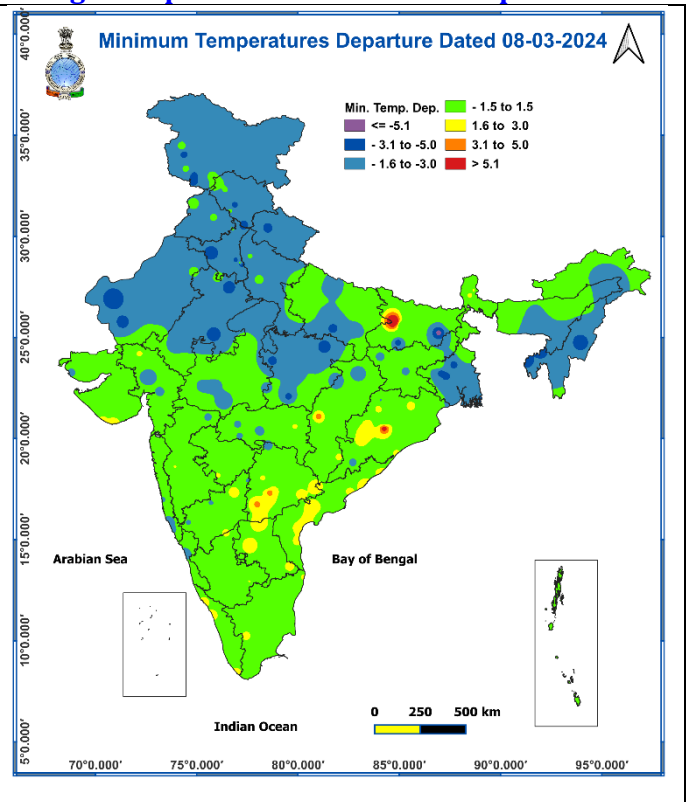
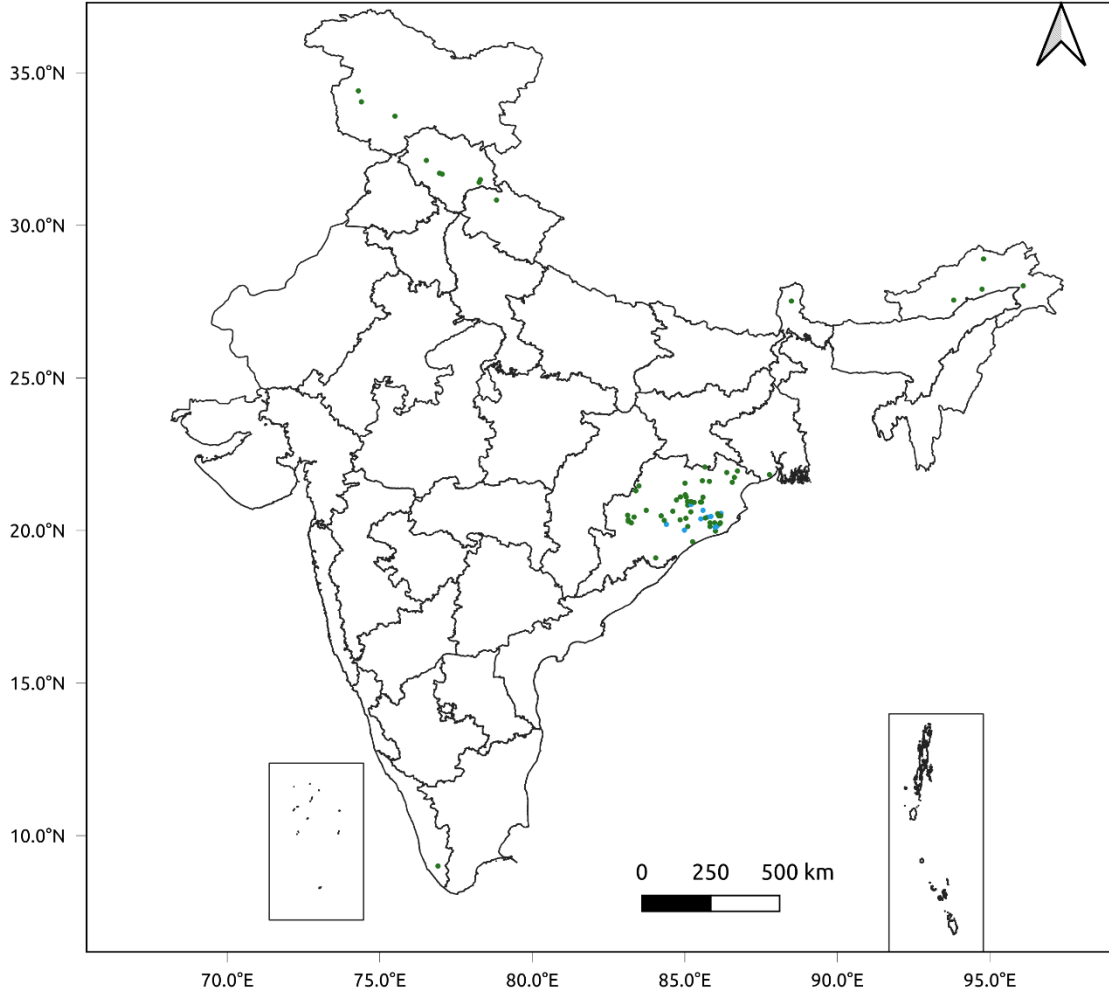


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

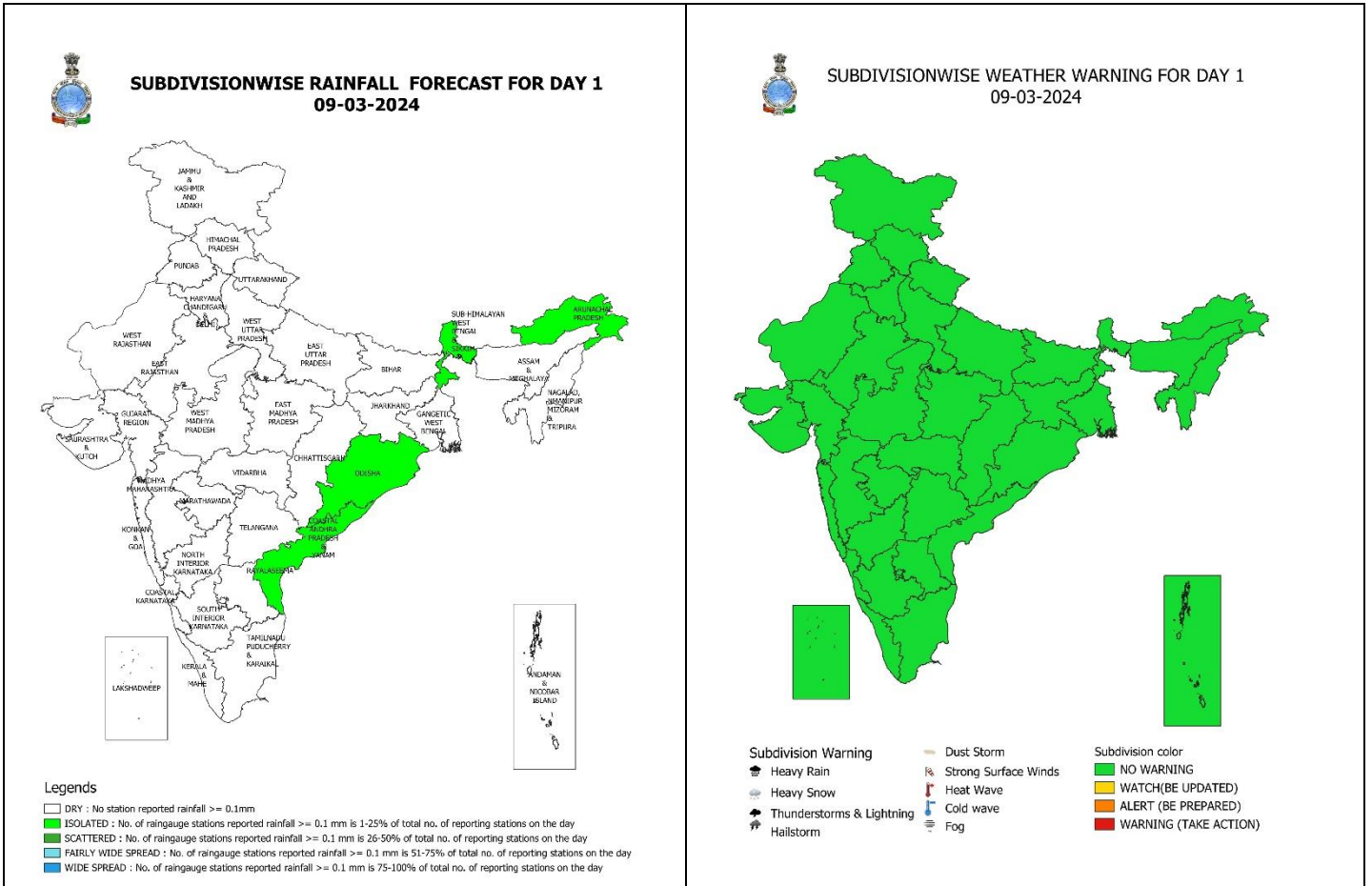


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 7-3-2024 to 0830 IST of 8-3-2024



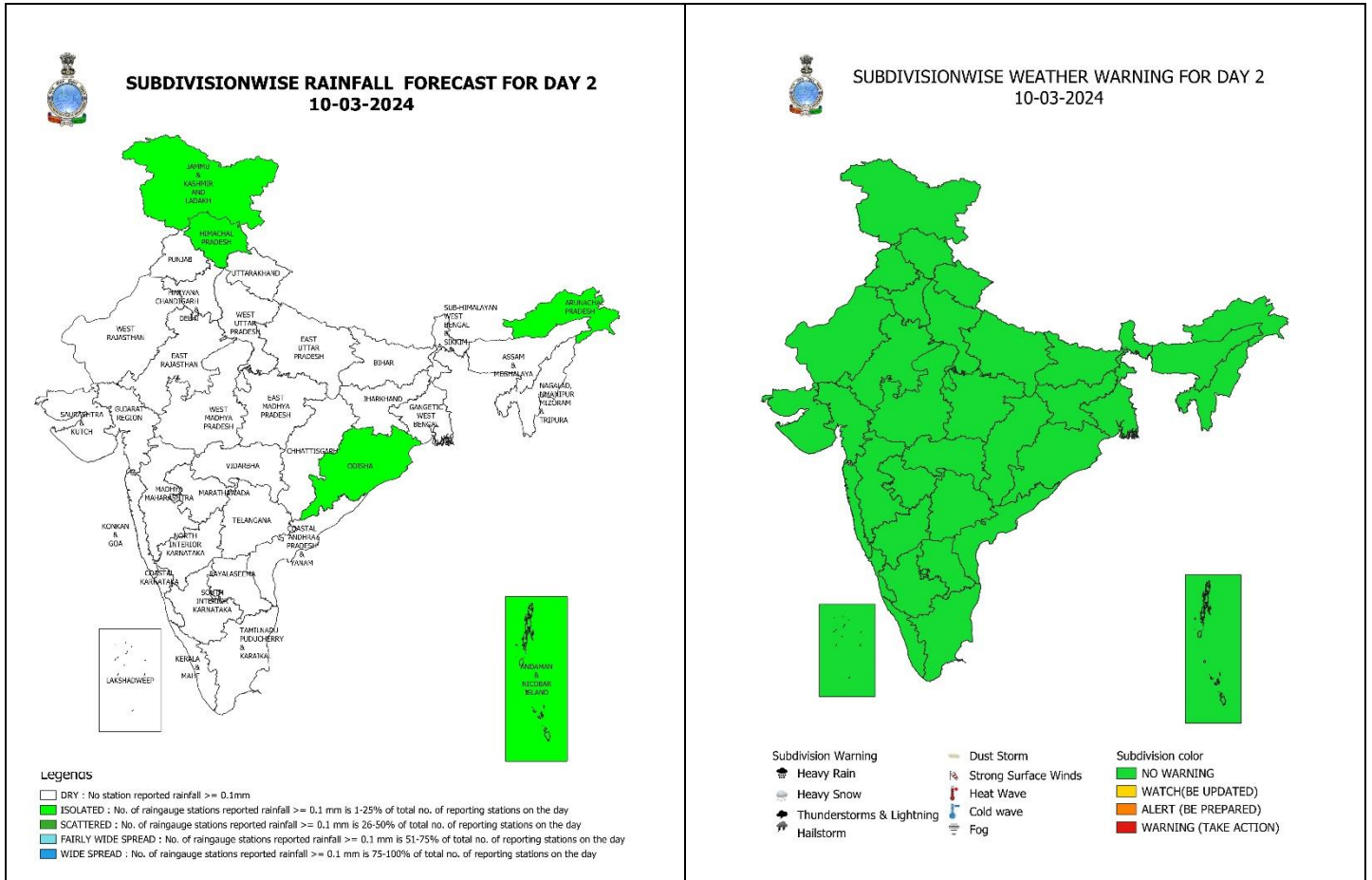
Legends

- 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)



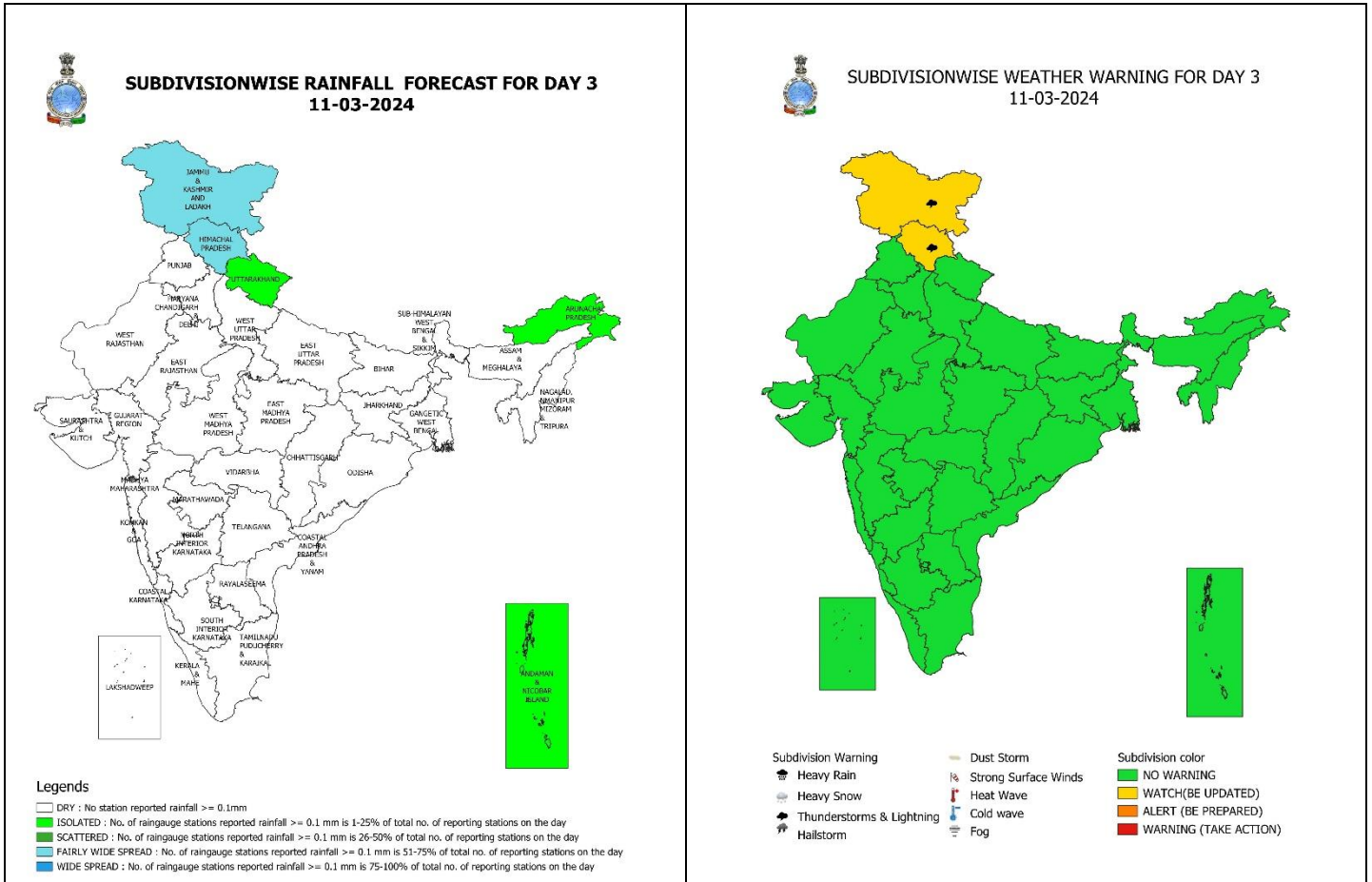
09 March (Day 1):

❖ **No Weather Warning.**



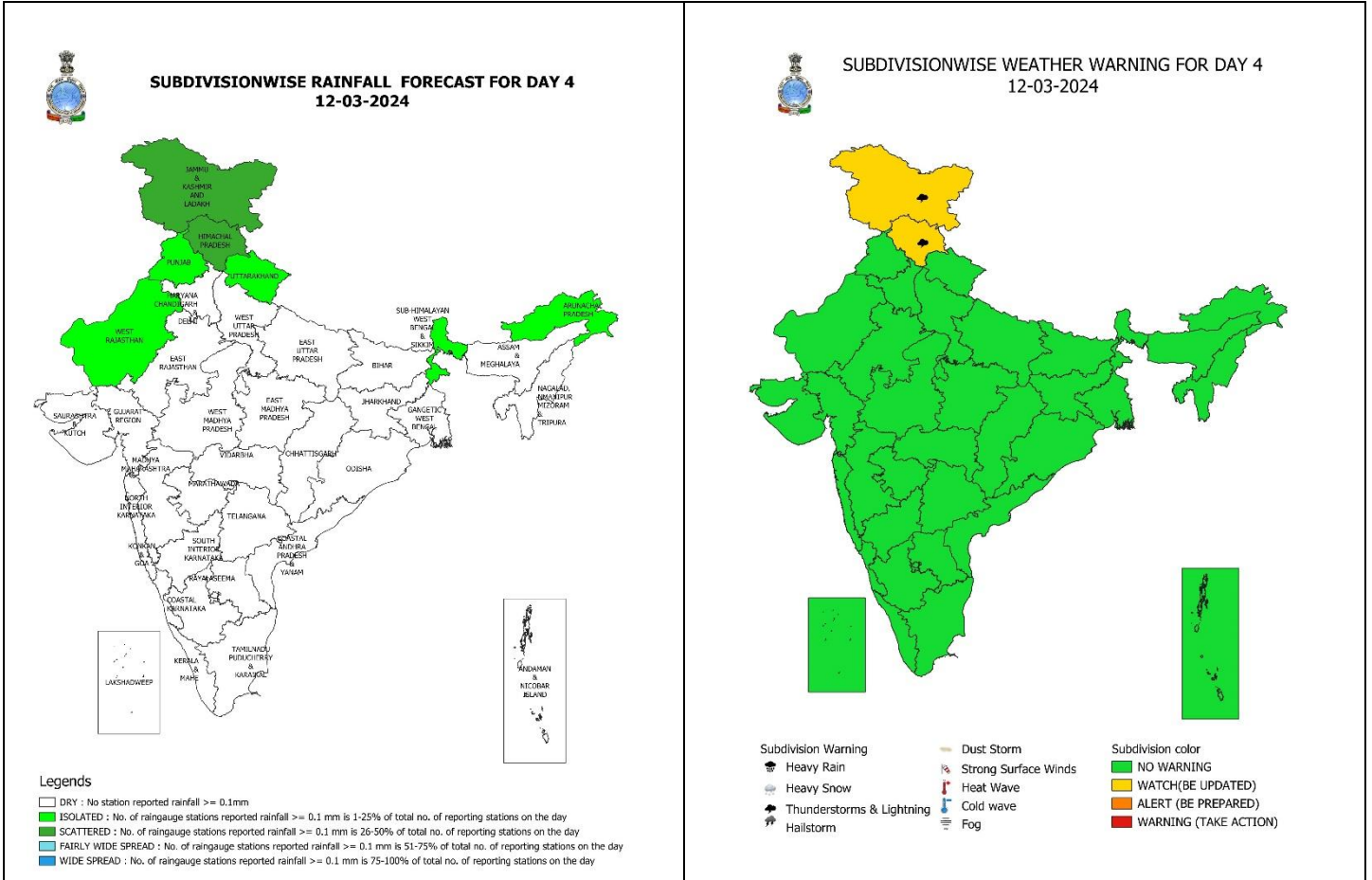
10 March (Day 2):

❖ No Weather Warning.



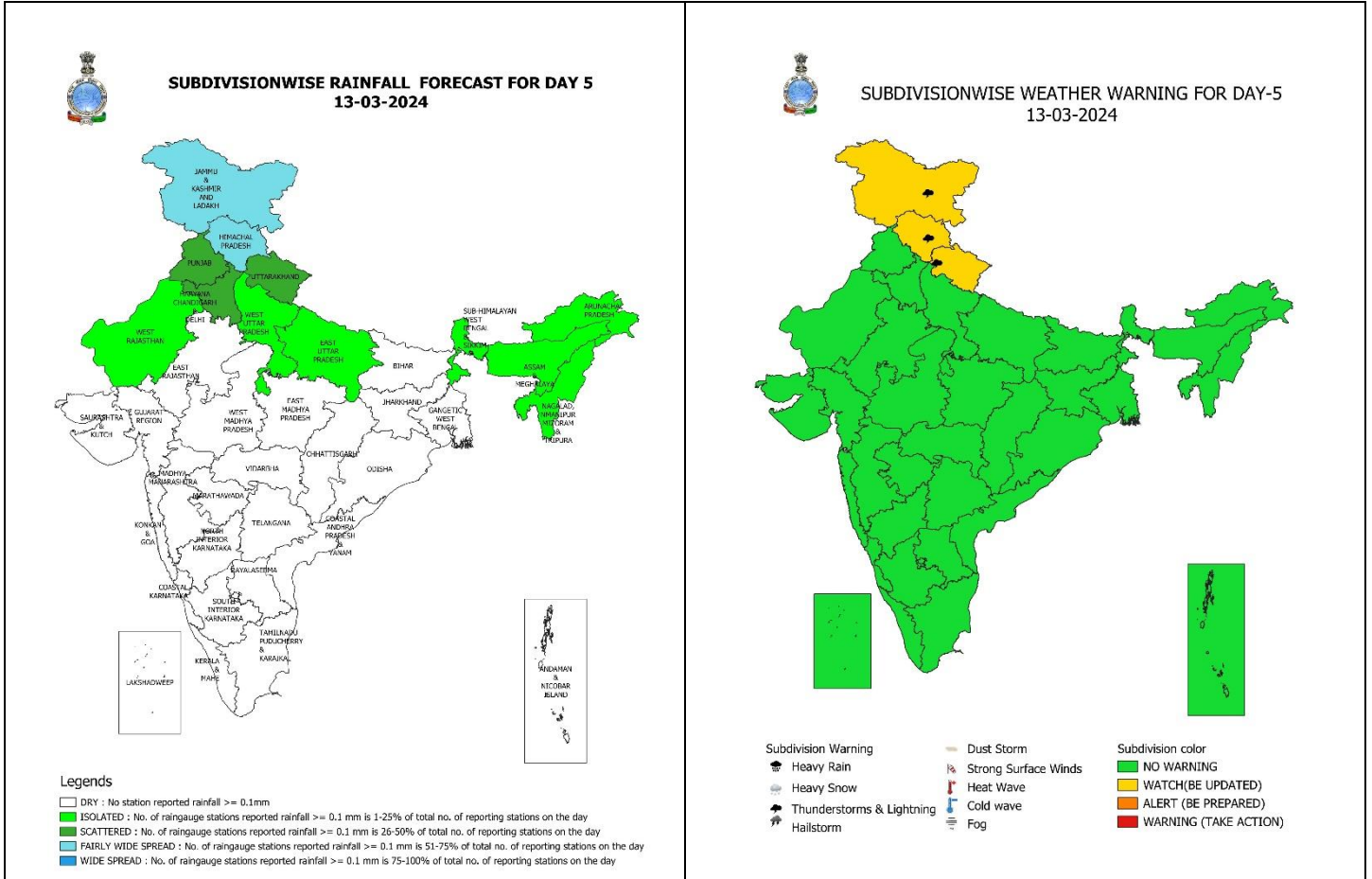
11 March (Day 3):

❖ **Thunderstorm accompanied with lightning** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.



12 March (Day 4):

❖ **Thunderstorm accompanied with lightning** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.

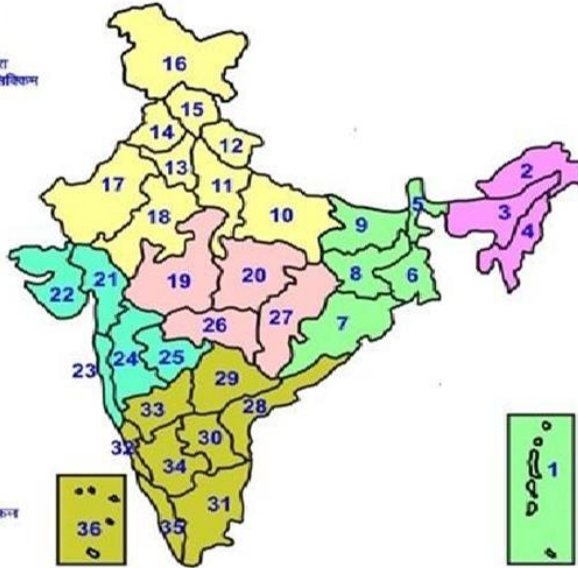


13 March (Day 5):

❖ **Thunderstorm accompanied with lightning** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand.

LEGENDS

- 1 अंडमन 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 एवंम 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 मराठवाड़ा
- 26 विदर्भ
- 27 उत्तरीसमूह
- 28 तटीय आंध्र प्रदेश एवं यानम
- 29 तेलंगाना
- 30 दख्खिणी
- 31 पश्चिमनाडु, पुदुचेरी एवंम कराईकल
- 32 तटिय कर्नाटक
- 33 आंतरिक उत्तरी कर्नाटक
- 34 आंतरिक दक्षिणी कर्नाटक
- 35 केरल एवंम 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 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

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 *

Rain/ Snow *



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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