

Tuesday, March 12, 2024
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems and Forecast & Warnings:

- ❖ The Western Disturbance as a trough in middle tropospheric westerlies runs roughly along Long. 70°E to the north of Lat. 30°N and another fresh Western Disturbance along Long. 50°E to the north of Lat. 28°N. Under the influence of these systems:
 - ✓ ***Fairly widespread to widespread light/moderate rainfall/snowfall with isolated thunderstorm & lightning likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 13th & 14th March, 2024 and reduction in distribution and intensity thereafter.***
 - ✓ Isolated to scattered light rainfall very likely over Punjab, north Haryana, Chandigarh, Northwest Uttar Pradesh & West Rajasthan on 13th March, 2024.
- ❖ Isolated to scattered light rainfall very likely over Sub-Himalayan West Bengal & Sikkim during 12th -14th; Gangetic West Bengal during 13th-17th; over Odisha during 14th-17th; over Jharkhand, East Madhya Pradesh, Vidarbha and Chhattisgarh on 16th & 17th; over West Madhya Pradesh on 17th March, 2024.
- ❖ Isolated to scattered light/moderate 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 Kerala & Mahe during next 2 days and over Rayalaseema and Tamil Nadu, Puducherry & Karaikal during next 3 days.

Main Weather Observations:

- ❖ **Rainfall/snowfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh.
- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): at isolated places over Punjab.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday): (in cm): Nil.
- ❖ **Minimum Temperature Departures (as on 11-03-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at a few places over Odisha; at isolated places over North Interior Karnataka, west Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Rayalaseema, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal; at a few places over Chhattisgarh, Vidarbha, Marathwada, Telangana, Coastal Andhra Pradesh & Yanam, Saurashtra & Kutch, Coastal Karnataka; at isolated places over Gujarat Region and Punjab. They were **appreciably below normal (-3.1°C to -5.0°C)** at most places over Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura; at many places over East Uttar Pradesh, Bihar, Jharkhand; **below normal (-1.6°C to -3.0°C)** at many places over West Uttar Pradesh; at a few places over south Haryana, Delhi, south Rajasthan, southwest Madhya Pradesh, East Madhya Pradesh, Konkan & Goa, east Assam & Meghalaya and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 11.0°C** was reported at **Ballia (East Uttar Pradesh) and Gaya (Bihar)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 11-03-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Arunachal Pradesh, Assam & Meghalaya and Bihar; **above normal (1.6°C to 3.0°C)** at many places over Nagaland, Manipur, Mizoram & Tripura, Chhattisgarh, Sub-Himalayan West Bengal & Sikkim, Madhya Maharashtra and East Madhya Pradesh; at a few places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Saurashtra & Kutch, West Uttar Pradesh, Konkan & Goa, Vidarbha, Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe; at isolated places over West Rajasthan, Gujarat Region, Uttarakhand, Haryana-Chandigarh-Delhi, West Madhya Pradesh, Marathwada, Coastal Andhra Pradesh & Yanam. They were **below normal (-1.6°C to -3.0°C)** at isolated places over Himachal Pradesh and Gangetic West Bengal and near normal over rest parts of the country. Yesterday, **the highest maximum temperature of 39.7°C** was reported at **Anantapur (Rayalaseema)** over the country.

Meteorological Analysis (Based on 0530 hours IST)

- ❖ The Western Disturbance as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 70°E to the north of Lat. 30°N.
- ❖ A fresh Western Disturbance seen as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level runs roughly along Long. 50°E to the north of Lat. 28°N.
- ❖ The trough from West Rajasthan to southeast Madhya Pradesh across East Rajasthan and West Madhya Pradesh at 0.9 km above mean sea level persists.
- ❖ The cyclonic circulation over South Interior Karnataka & neighbourhood at 1.5 km above mean sea level persists.
- ❖ The cyclonic circulation over north Coastal Andhra Pradesh & neighbourhood at 1.5 km above mean sea level persists.

Weather Forecast for next 7 days (Upto 0830 hours IST of 19th 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 Northwest and East India during next 2 days and no significant change thereafter.
- ❖ No significant change in minimum temperatures very likely over rest part of the country during next 5 days.

Weather Outlook for subsequent 3 days (19th-21st March, 2024)

- ❖ Isolated light rainfall/snowfall likely over Arunachal Pradesh.
- ❖ Isolated light to moderate rainfall likely over Central & East India.
- ❖ Dry weather likely to prevail over rest parts of the country.

Table-1

7 Days Rainfall Forecast

S. No.	Subdivision	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	DRY	DRY	DRY	DRY	DRY	DRY	DRY
2	ARUNACHAL PRADESH	ISOL	SCT	SCT	SCT	ISOL	ISOL	ISOL
3	ASSAM & MEGHALAYA	DRY	ISOL	ISOL	ISOL	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	ISOL	ISOL	ISOL	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	DRY	ISOL	SCT	ISOL	SCT	ISOL	ISOL
7	ODISHA	DRY	DRY	ISOL	ISOL	ISOL	ISOL	ISOL
8	JHARKHAND	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
9	BIHAR	DRY	DRY	DRY	DRY	DRY	DRY	DRY
10	EAST UTTAR PRADESH	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
11	WEST UTTAR PRADESH	DRY	ISOL	DRY	DRY	DRY	DRY	DRY
12	UTTARAKHAND	DRY	SCT	SCT	DRY	DRY	DRY	DRY
13	HARYANA CHANDIGARH & DELHI	DRY	ISOL	DRY	DRY	DRY	DRY	DRY
14	PUNJAB	DRY	SCT	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	DRY	WS	SCT	ISOL	DRY	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	ISOL	WS	ISOL	DRY	DRY	DRY	DRY
17	WEST RAJASTHAN	DRY	ISOL	DRY	DRY	DRY	DRY	DRY
18	EAST RAJASTHAN	DRY	DRY	DRY	DRY	DRY	DRY	DRY
19	WEST MADHYA PRADESH	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
20	EAST MADHYA PRADESH	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
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	ISOL	ISOL	ISOL
27	CHHATTISGARH	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
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	ISOL	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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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

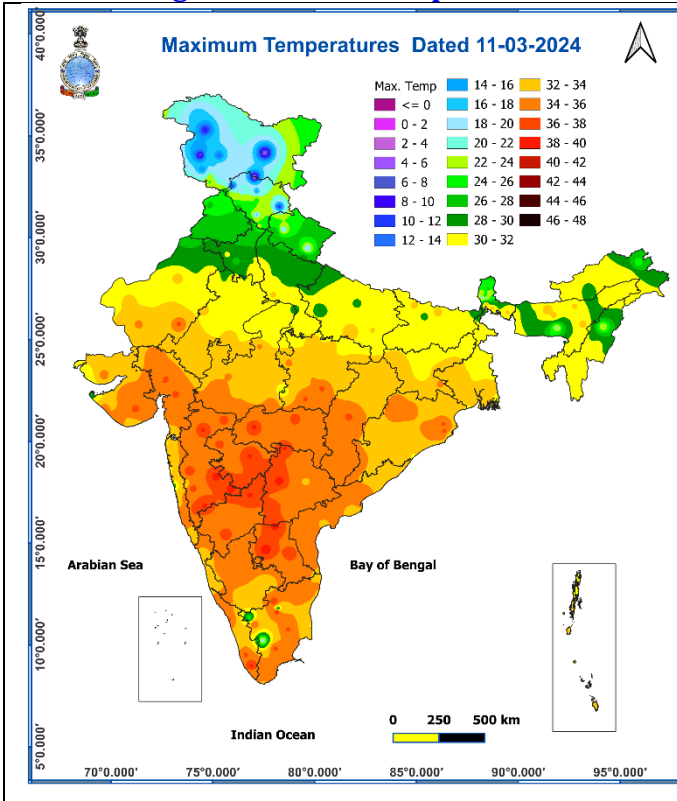


Fig. 2: Departure of Maximum Temperatures

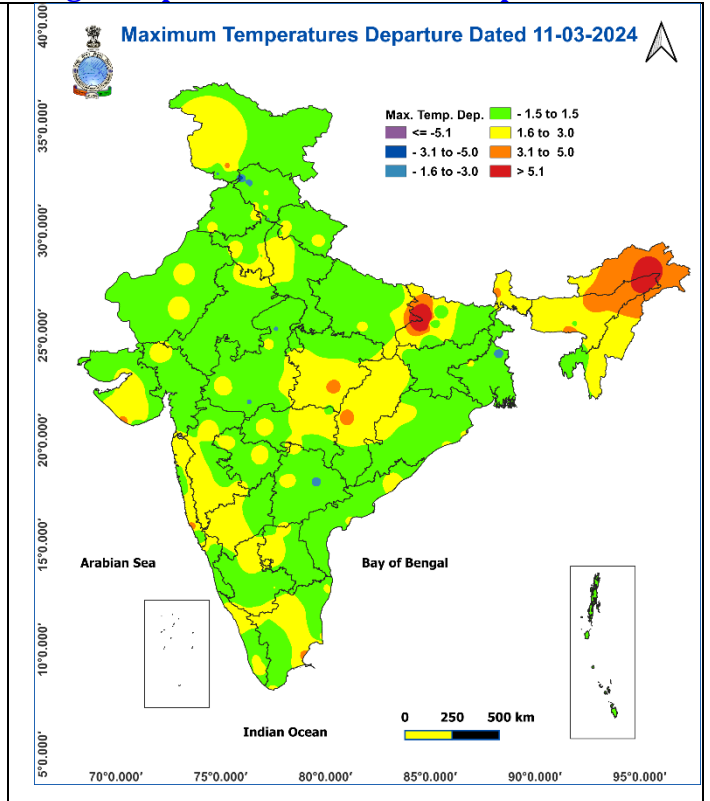


Fig. 3: Minimum Temperatures

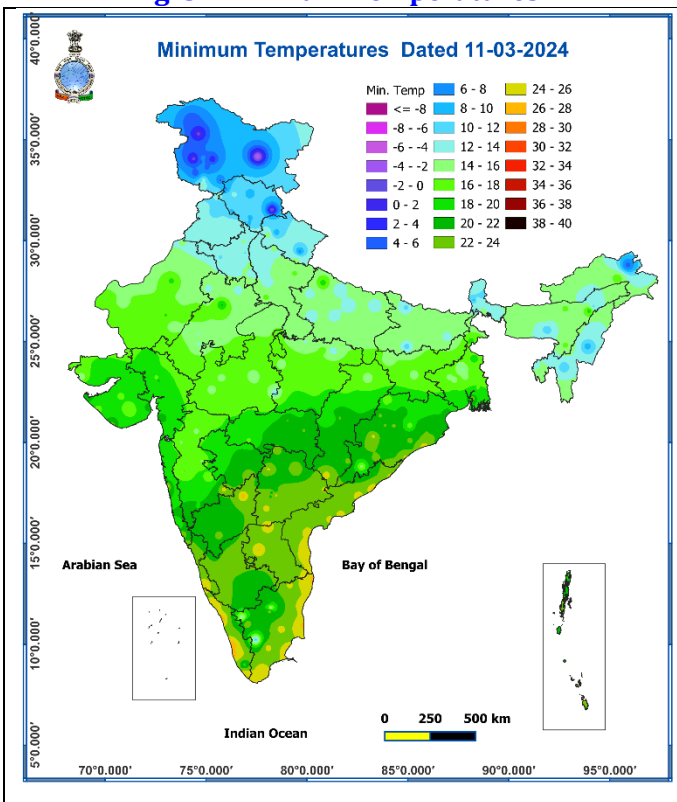


Fig. 4: Departure of Minimum Temperatures

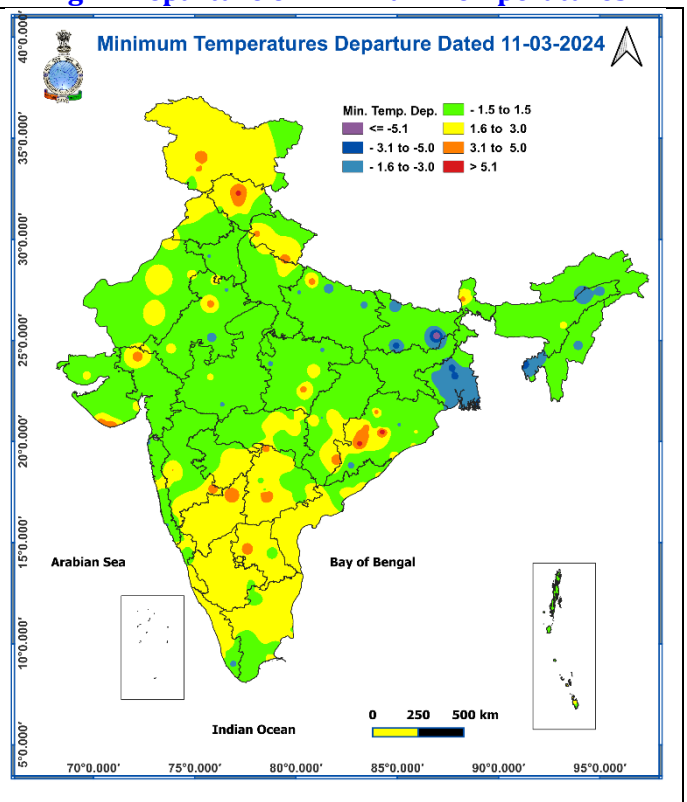
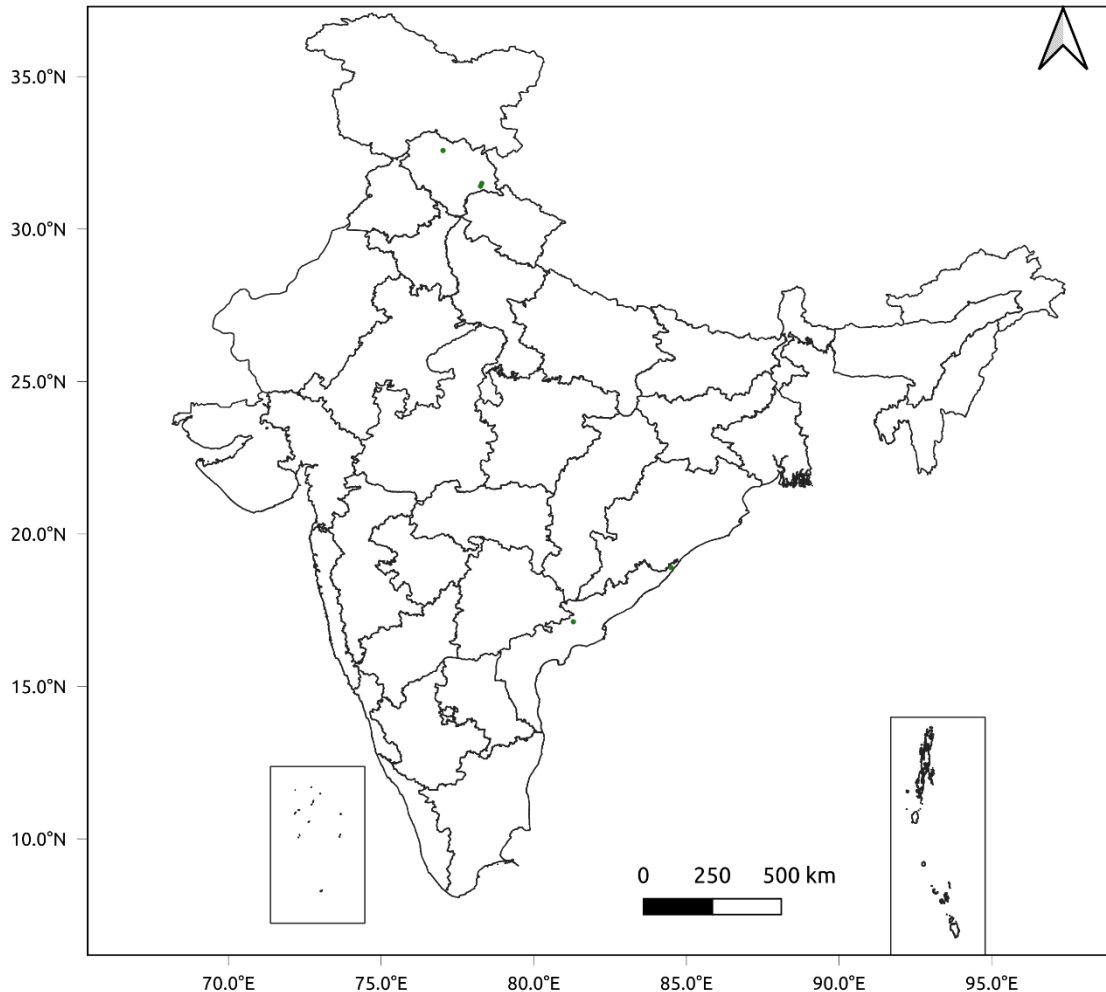


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

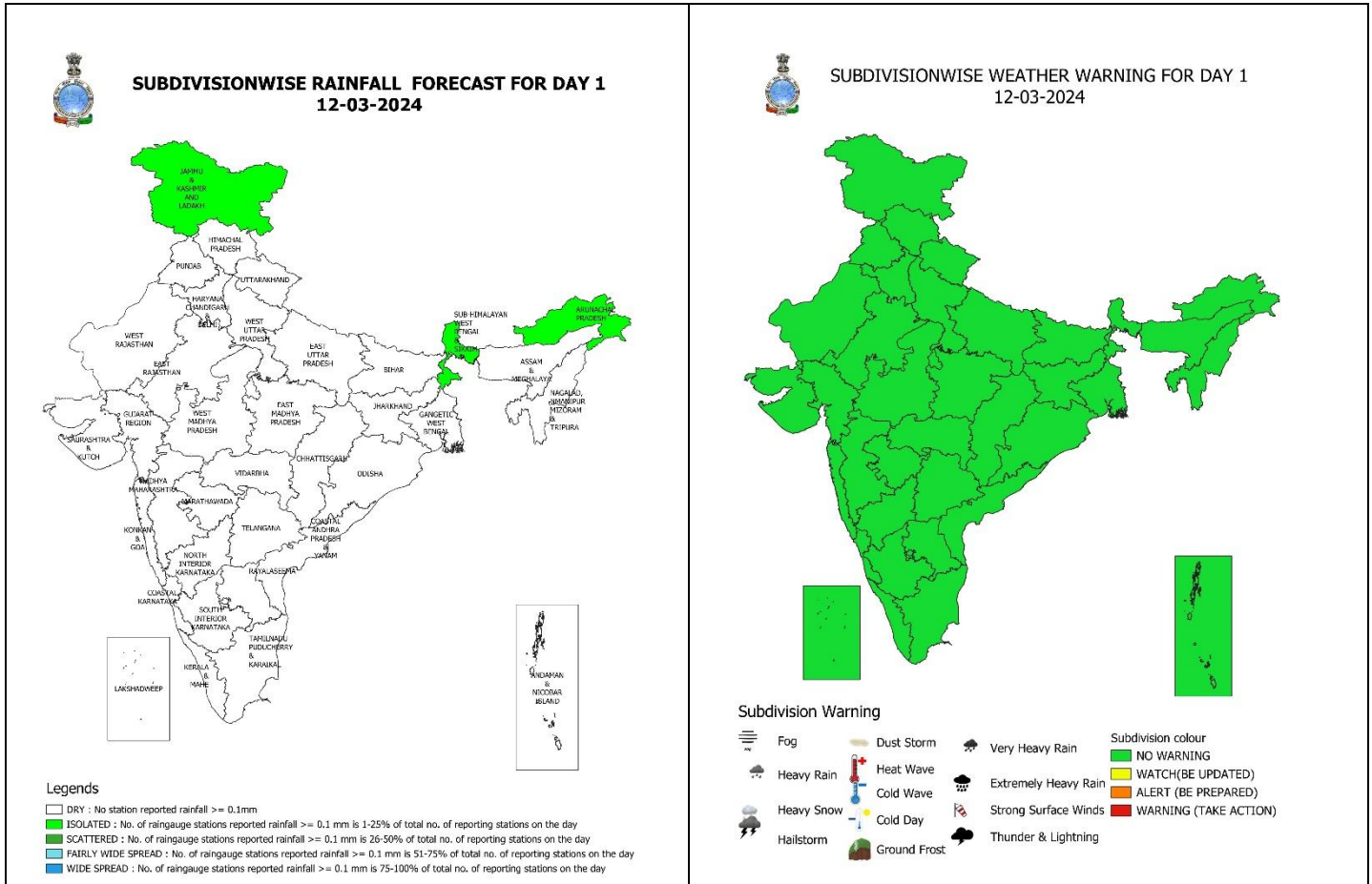


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 10-3-2024 to 0830 IST of 11-3-2024



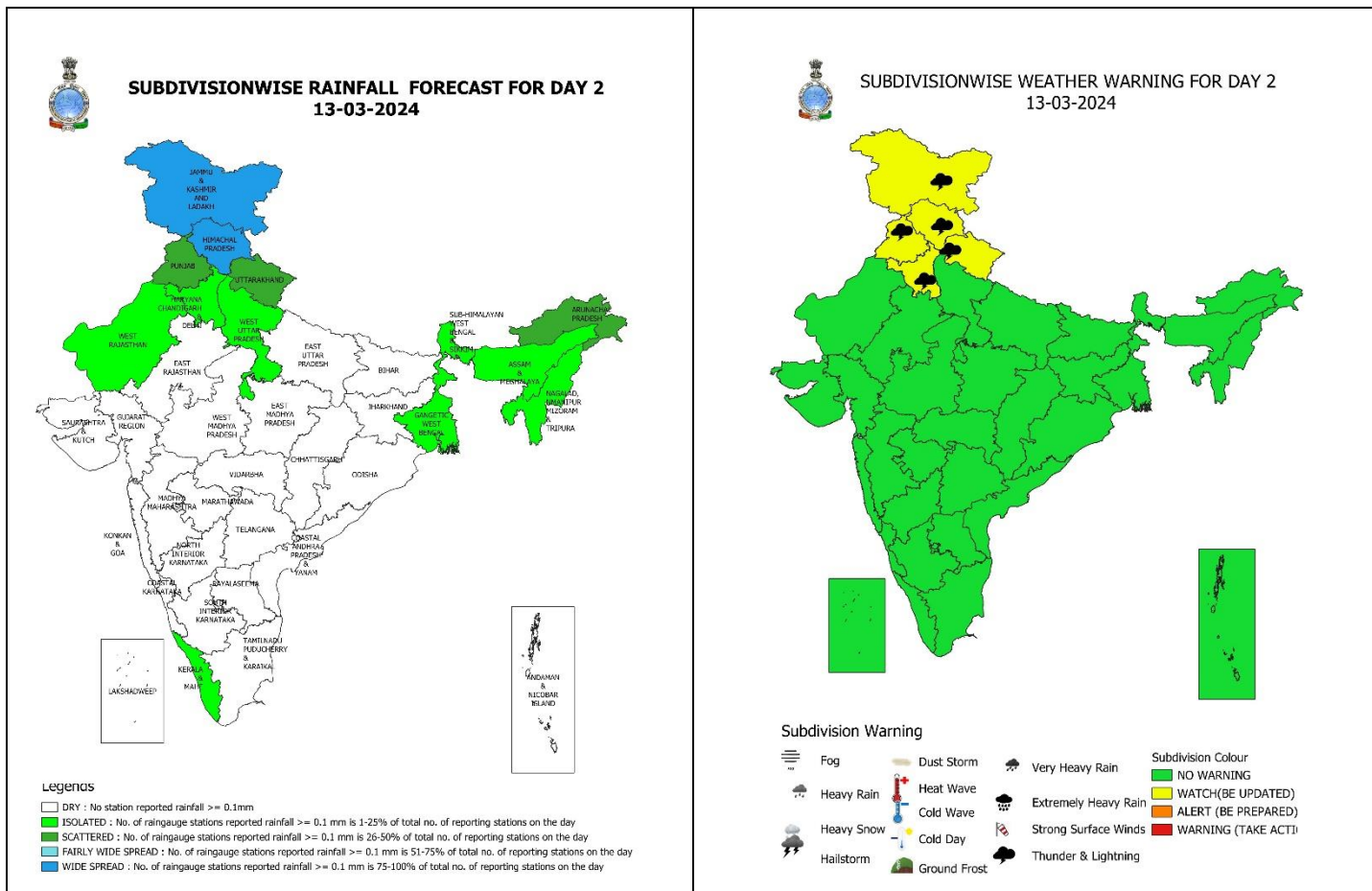
Legends

- 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)



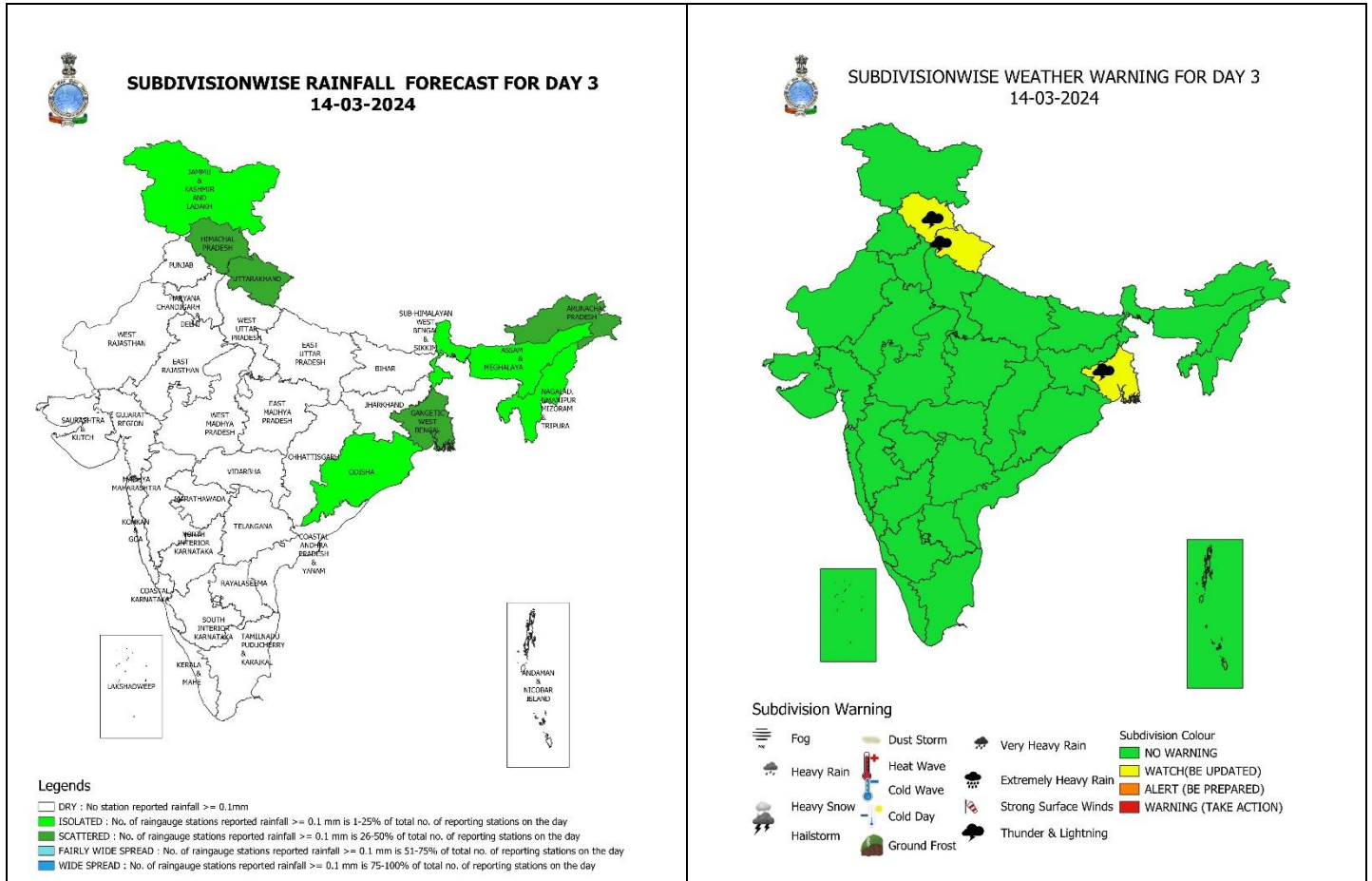
12 March (Day 1):

❖ No Weather Warning.



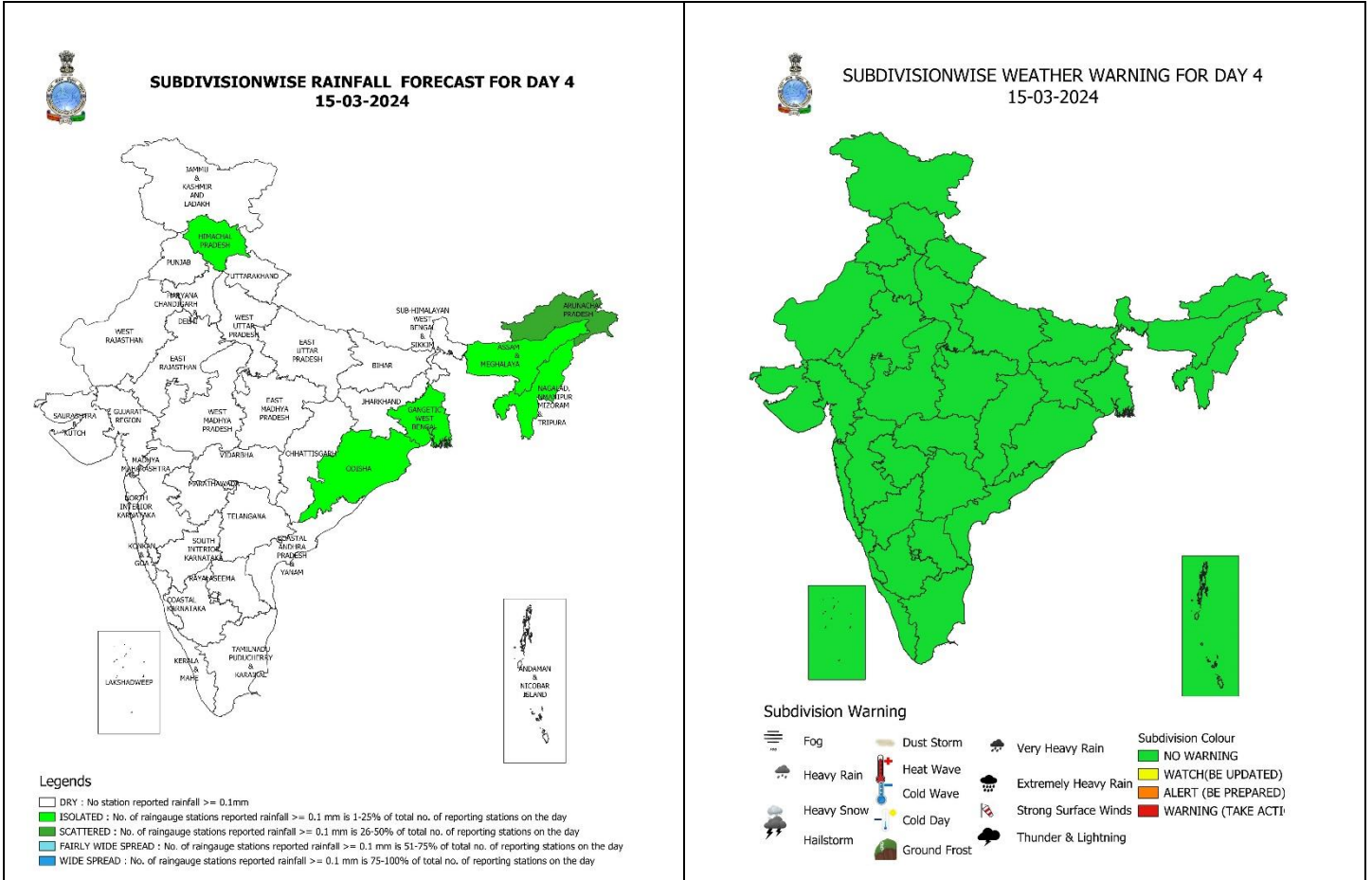
13 March (Day 2):

❖ **Thunderstorm accompanied with lightning & gusty winds (speed reaching 30-40 kmph) very likely at isolated places over north Punjab, north Haryana, Chandigarh and with lightning at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand.**



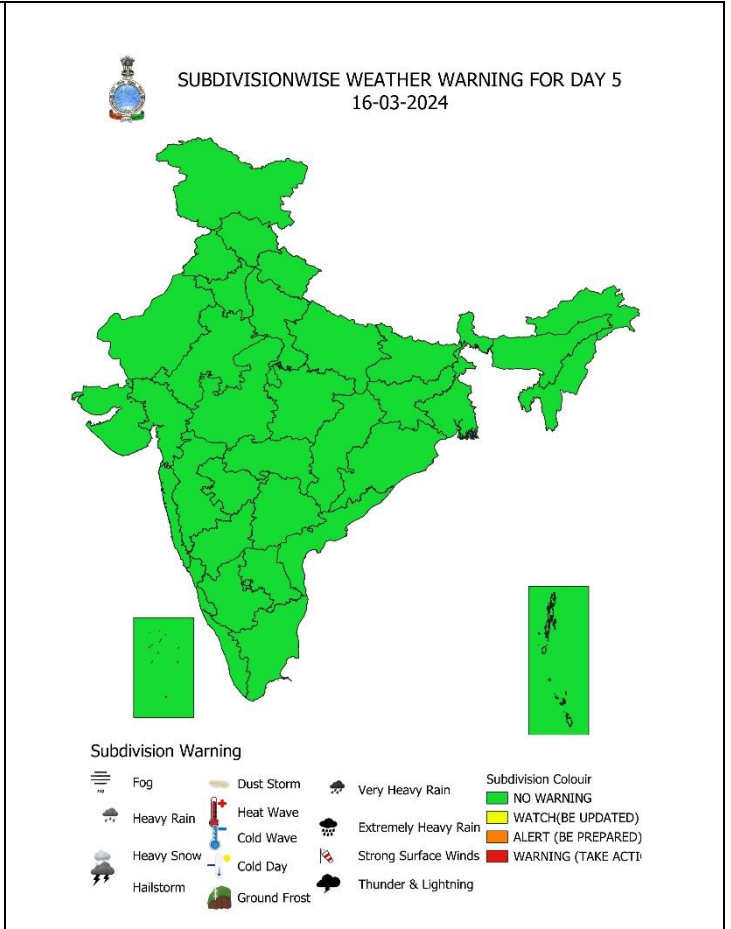
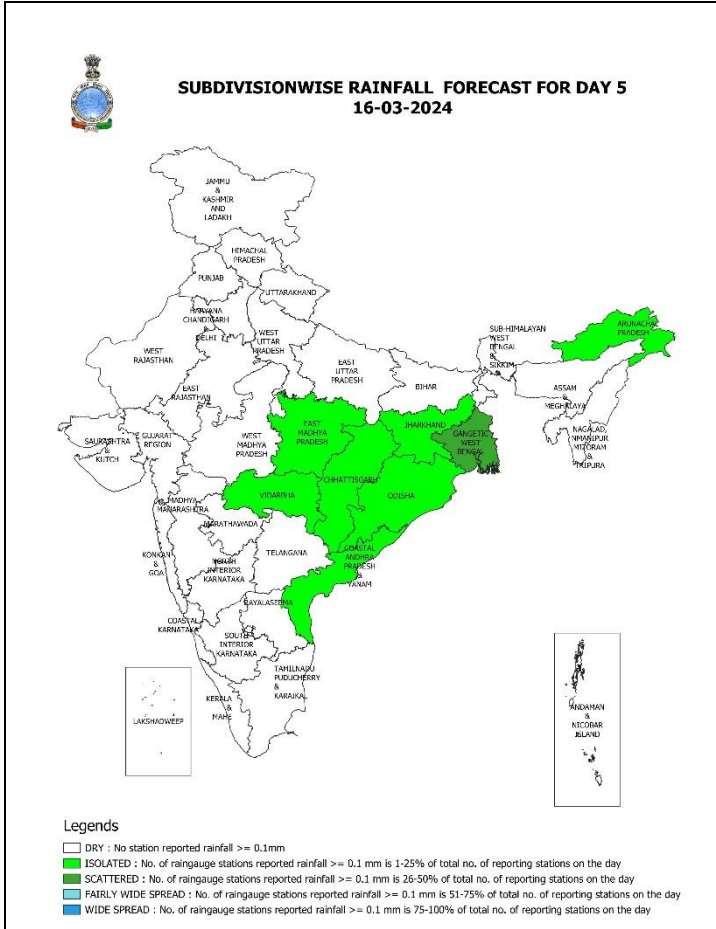
14 March (Day 3):

❖ **Thunderstorm accompanied with lightning & gusty winds (speed reaching 30-40 kmph)** likely at isolated places over Gangetic West Bengal and **with lightning** at isolated places over Himachal Pradesh and Uttarakhand.



15 March (Day 4):

❖ No Weather Warning.

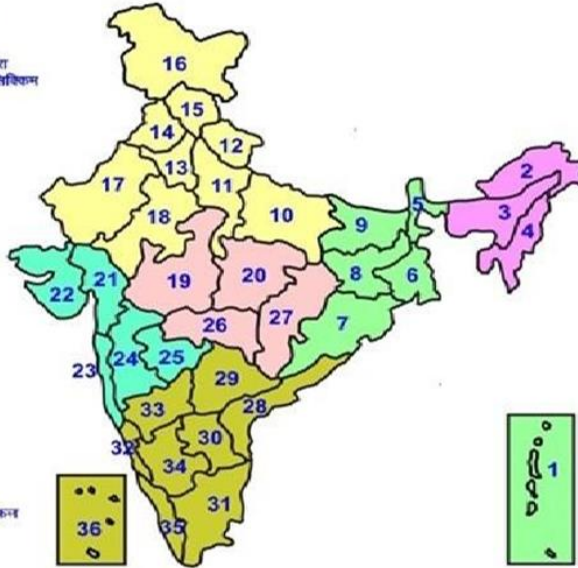


16 March (Day 5):

❖ No Weather Warning.

LEGENDS

- 1 अंडमन और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मणिपुर 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 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 उत्तरीमहाराष्ट्र
- 28 तटीय आंध्र प्रदेश एवं यानम
- 29 तेलंगाना
- 30 दखिनीय
- 31 दखिनीय, 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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