



Saturday, December 09, 2023
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather systems:

- The cyclonic circulation over Southeast Arabian Sea & adjoining Maldives area extending upto 4.5 km above mean sea level persists. Under its influence a **Low Pressure Area** is likely to form over the same region during next 24 hours.
- The Western Disturbance as a trough in middle tropospheric westerlies runs roughly along Long. 71°E to the north of Lat. 34°N.
- Another fresh feeble Western Disturbance is likely to affect Western Himalayan Region from 11th December.

Rainfall Warning:

- Light to moderate rainfall at some places with isolated thunderstorm & lightning very likely over Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Lakshadweep during next 4-5 days.
- Isolated **heavy rainfall** also very likely over Kerala during 09th-10th and over Tamil Nadu on 09th December.
- **Hailstorm** also likely at isolated places over Sub-Himalaya West Bengal & Sikkim on 12th December.

Dense fog warning:

- **Dense fog** during morning hours very likely in isolated pockets over Bihar on 10th and over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 10th - 11th December.

Minimum Temperatures Forecast:

- Gradual fall in Minimum Temperatures by about 2-4°C are very likely over Northwest, Central & East India during next 2 days and no significant change thereafter.
- No significant change in Minimum Temperatures over rest parts of the country during next 4-5 days.



Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Assam & Meghalaya; **at a few places** over Arunachal Pradesh; **at isolated places** over Nagaland, Manipur, Mizoram & Tripura, Odisha, Tamil Nadu, Puducherry & Karaikal
- ❖ **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 to Very Dense Fog** in isolated pockets of East Uttar Pradesh and **dense fog** in isolated pockets of Bihar.
- ❖ **Visibility Recorded** (at 0530 hours IST of today) (≤ 200 metre): East Uttar Pradesh: Varanasi-0; Bihar: Purnea-200.
- ❖ **Minimum Temperature Departures (as on 08-12-2023):** Minimum temperatures were **markedly above normal (5.1°C or more)** at most places over Bihar, Jharkhand; at many places over East Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura and Assam & Meghalaya; at isolated places over Chhattisgarh, Vidarbha, Marathwada and East Madhya Pradesh; **appreciably above normal (3.1°C to 5.0°C)** at most places over Arunachal Pradesh, Gangetic West Bengal, Odisha, Coastal Andhra Pradesh & Yanam, Rayalaseema, North Interior Karnataka and Gujarat Region; at many places over Telangana, Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka and West Madhya Pradesh; at isolated places over Sub-Himalayan West Bengal & Sikkim; **above normal (1.6°C to 3.0°C)** at many places over Kerala & Mahe, Rajasthan, Saurashtra & Kutch, Uttarakhand; at a few places over Punjab; at isolated places over West Uttar Pradesh, Coastal Karnataka and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature** of 7.0°C is reported at **Churu (West Rajasthan)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 08-12-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Bihar; **above normal (1.6°C to 3.0°C)** at many places over Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Kerala & Mahe; at isolated places over Sub-Himalayan West Bengal & Sikkim, Uttarakhand, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, North Interior Karnataka. They were **appreciably below normal (-3.1°C to -5.0°C)** at a few places over Gangetic West Bengal; **below normal (-1.6°C to -3.0°C)** at most places over Odisha, Gangetic West Bengal, Assam & Meghalaya, Arunachal Pradesh, Telangana; at a few places over Madhya Pradesh, Jharkhand, Nagaland, Manipur, Mizoram & Tripura; at isolated places over Gujarat Region, Vidarbha, East Rajasthan, Chhattisgarh and **near normal** over rest parts of the country. Yesterday, the highest **maximum temperature** of 35.8°C was reported at **Thiruvananthapuram (Kerala)**.

Meteorological Analysis (Based on 0530 hours IST)

- ❖ The cyclonic circulation over Southeast Arabian Sea & adjoining Maldives area extending upto 4.5 km above mean sea level persists. Under its influence a **Low Pressure Area** is likely to form over the same region during next 24 hours.
- ❖ 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. 71°E to the north of Lat. 34°N.
- ❖ The cyclonic circulation over East Bangladesh & neighbourhood extending upto 1.5 km above mean sea level persists.
- ❖ A fresh feeble Western Disturbance is likely to affect Western Himalayan Region from 11th December.

Weather Forecast for next 7 days (Upto 0830 hours IST of 16th December, 2023)

- ❖ Meteorological sub-division wise detailed 7 days rainfall forecast is given in Table-1.
- ❖ Gradual fall in Minimum Temperatures by about 2-4°C are very likely over Northwest, Central & East India during next 2 days and no significant change thereafter.
- ❖ No significant change in Minimum Temperatures over rest parts of the country during next 3-4 days.
- ❖ Shallow to moderate fog in morning hours very likely over Jharkhand and Odisha on 10th December.

Weather Outlook for subsequent 2 days

- ❖ Isolated to scattered light rainfall likely over Kerala and Tamil Nadu.
- ❖ Isolated to scattered light rainfall/snowfall likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ Mainly dry weather likely to prevail over rest parts of the country.



Table-1

7 Days Rainfall Forecast								
S. No.	Subdivision	09-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-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	SCT	ISOL	DRY	ISOL	ISOL	ISOL	ISOL
3	ASSAM & MEGHALAYA	ISOL	ISOL	DRY	DRY	ISOL	ISOL	ISOL
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	ISOL	ISOL	DRY	DRY	ISOL	ISOL	ISOL
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	SCT	ISOL	ISOL	SCT	SCT	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	ISOL	ISOL	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	ISOL	ISOL	DRY	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	DRY	DRY	ISOL	ISOL	DRY	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	ISOL	ISOL	ISOL	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	ISOL	ISOL	ISOL	DRY	DRY	DRY
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	SCT	SCT	SCT	ISOL	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	SCT	SCT	SCT	ISOL	DRY	DRY	DRY
33	NORTH INTERIOR KARNATAKA	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY
34	SOUTH INTERIOR KARNATAKA	SCT	ISOL	ISOL	ISOL	DRY	DRY	DRY
35	KERALA & MAHE	WS	FWS	FWS	FWS	ISOL	ISOL	ISOL
36	LAKSHADWEEP	WS	FWS	FWS	FWS	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

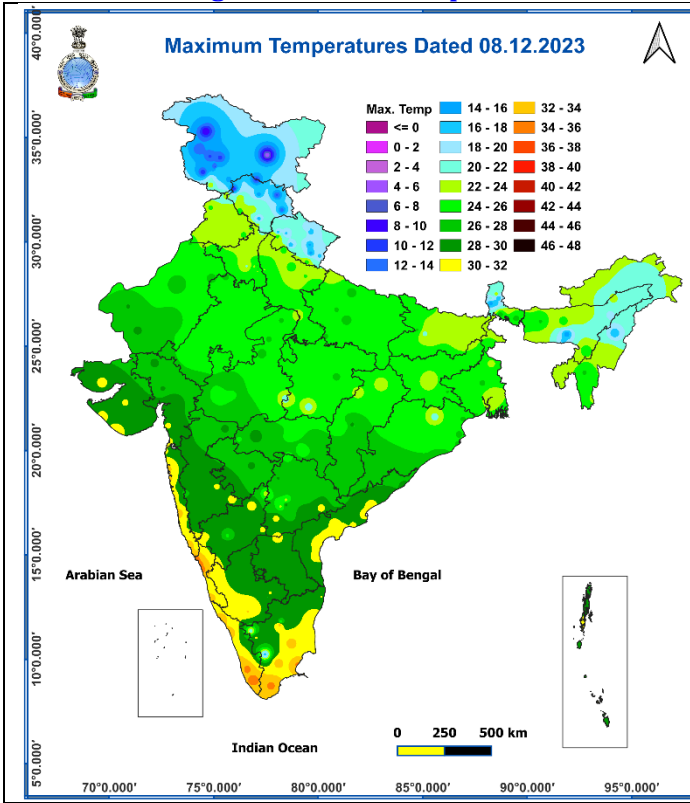


Fig. 2: Departure of Maximum Temperatures

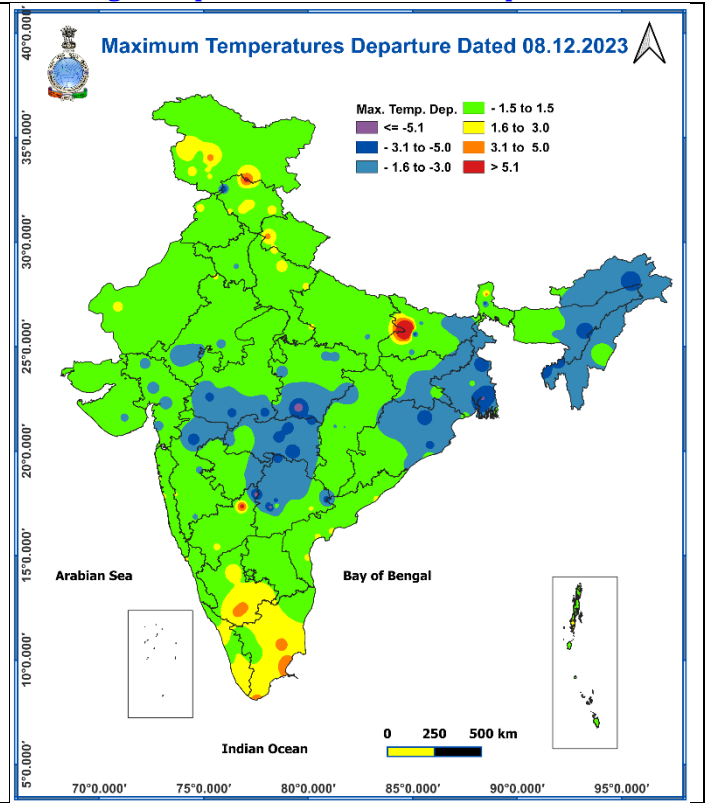


Fig. 3: Minimum Temperatures

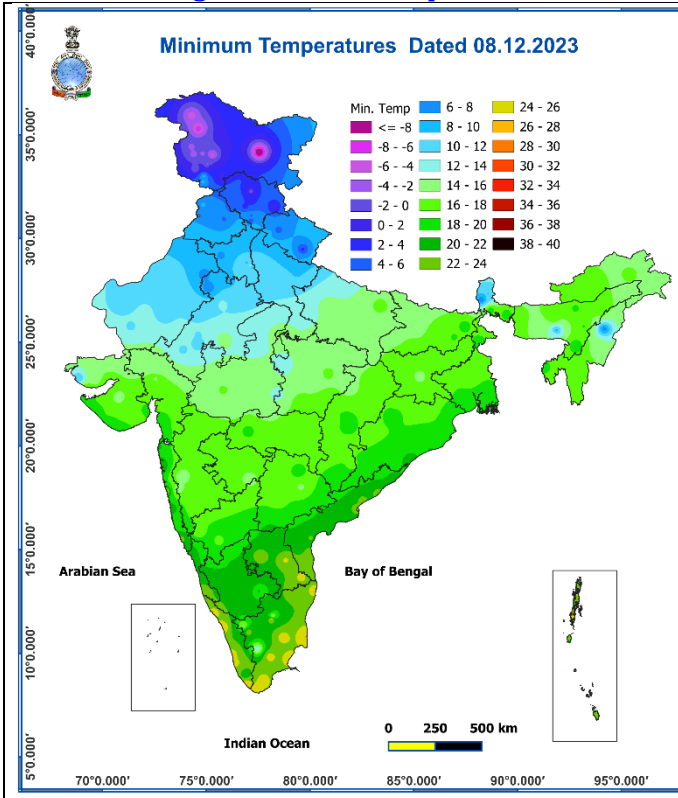


Fig. 4: Departure of Minimum Temperatures

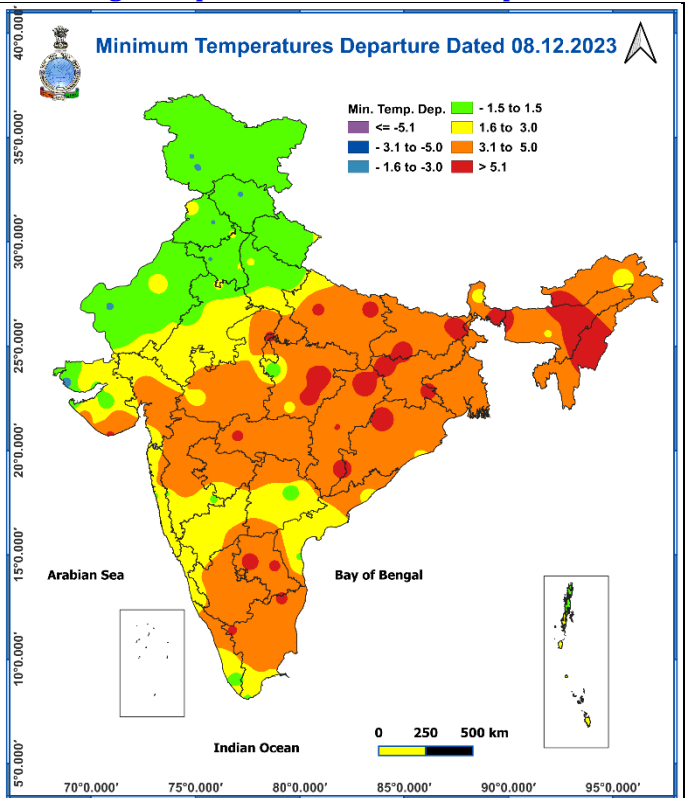
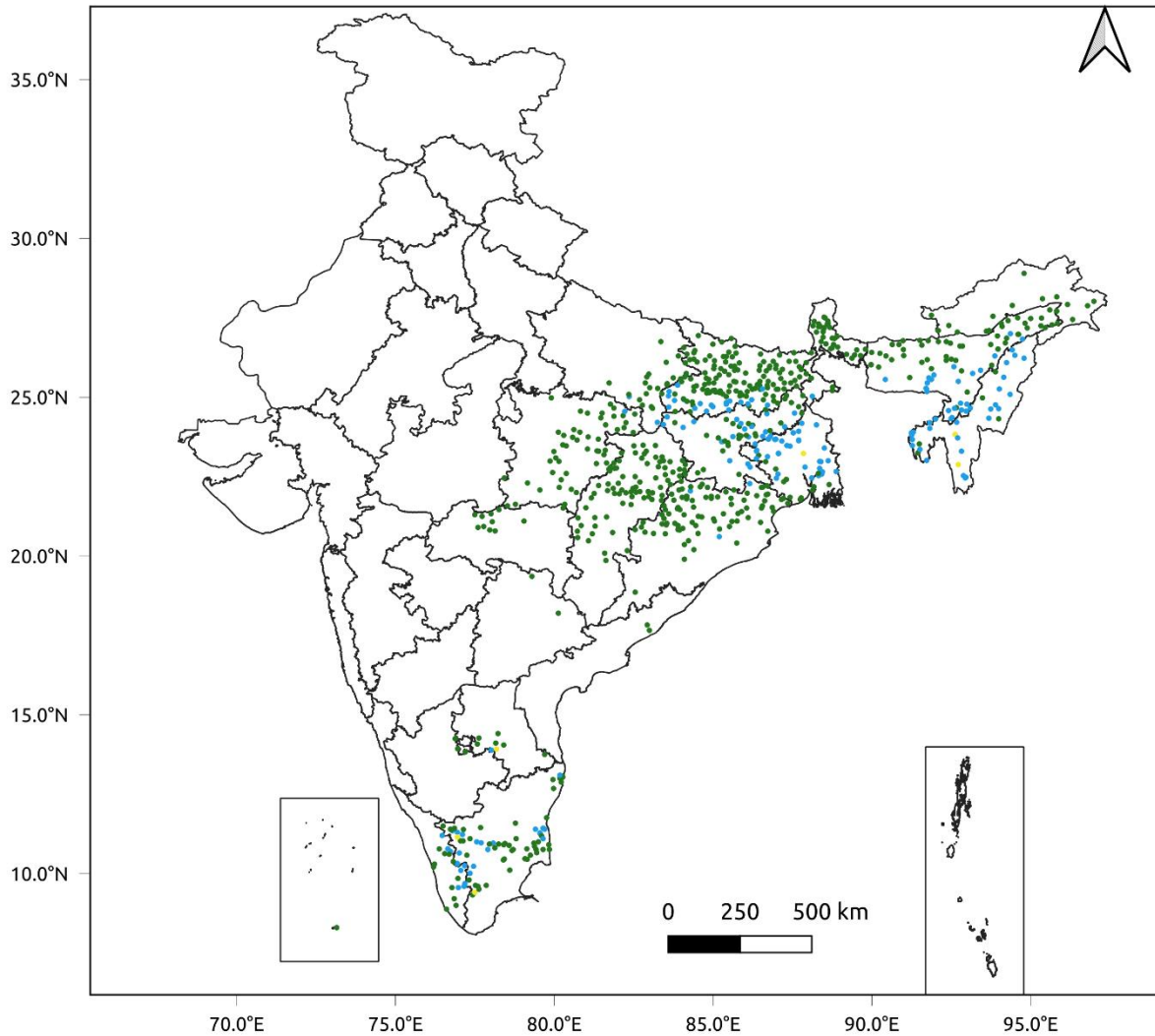


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

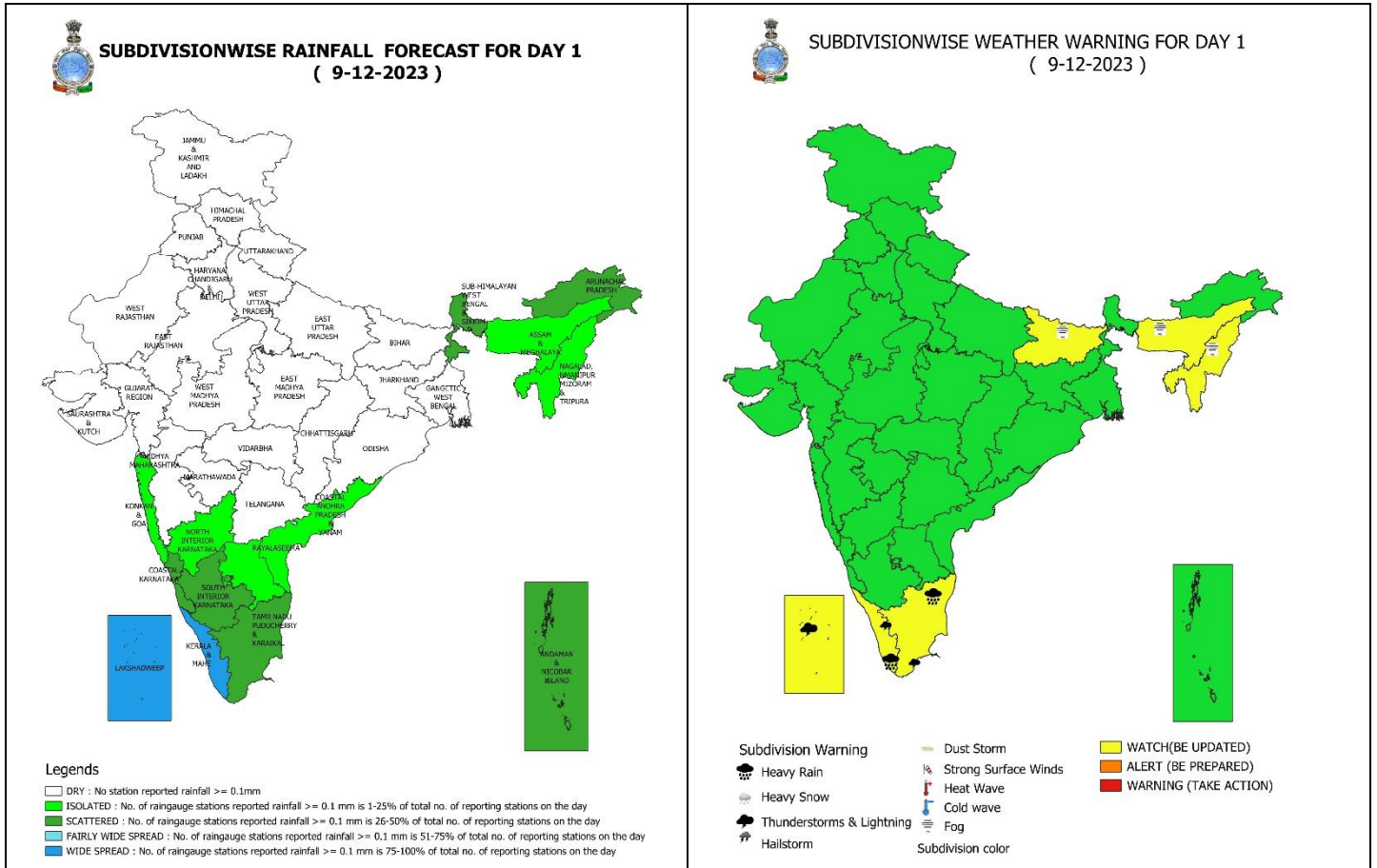


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 7-12-2023 to 0830 IST of 8-12-2023



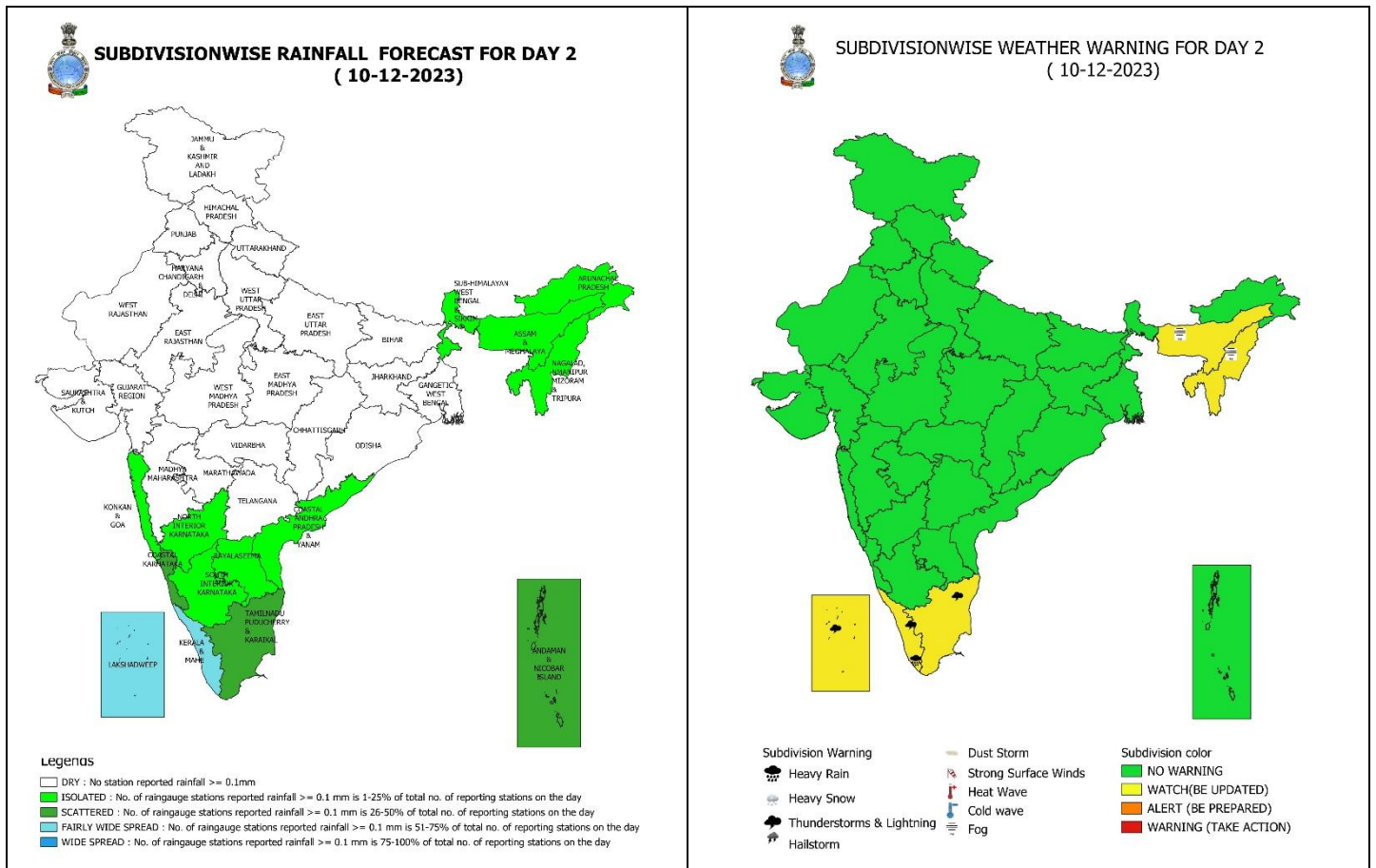
Legends

- 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)



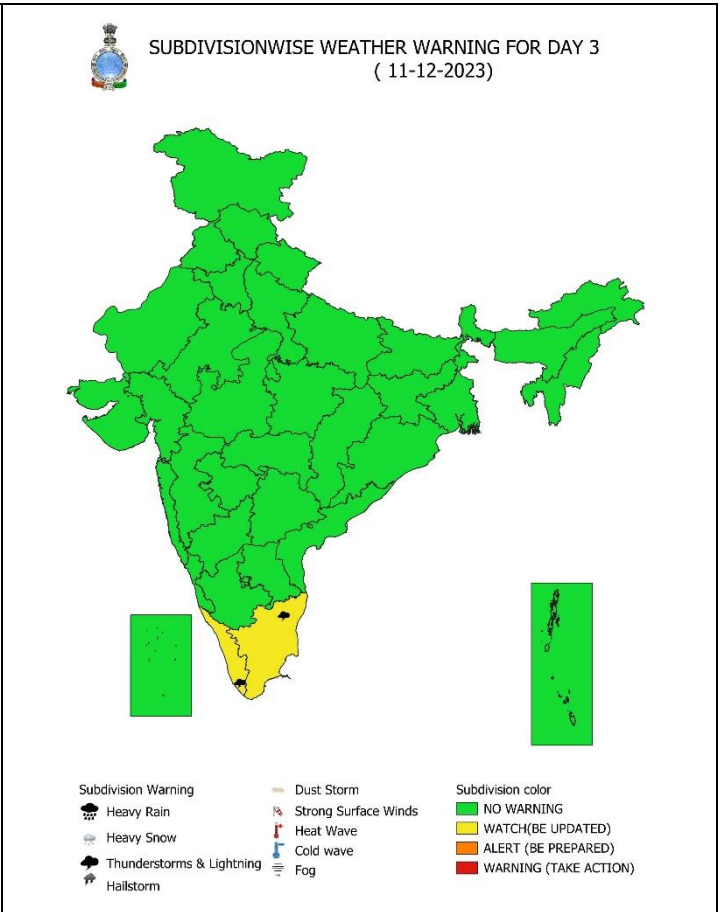
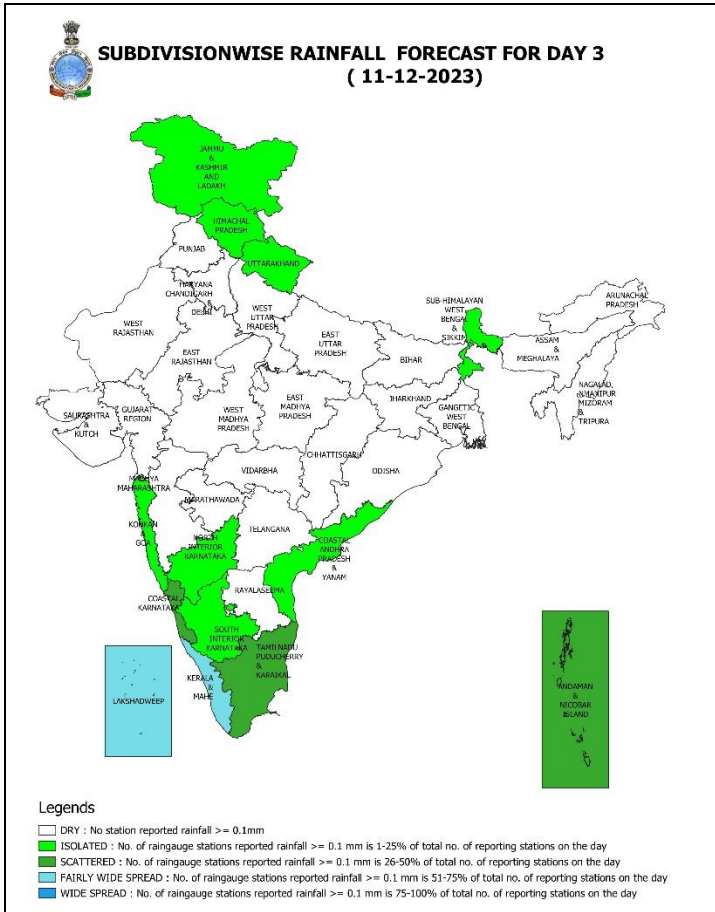
09 December (Day 1):

- ❖ **Heavy rainfall** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.
- ❖ **Thunderstorm accompanied with lightning & gusty winds (speed 30-40 kmph)** very likely at isolated places over Kerala & Mahe and Lakshadweep; **with lightning** at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense Fog** very likely in isolated pockets over Bihar, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather** (wind speed reaching 40-45 kmph gusting to 55 kmph) very likely to prevail over Southeast Arabian Sea & adjoining Lakshadweep area. Fishermen are advised not to venture into these areas.



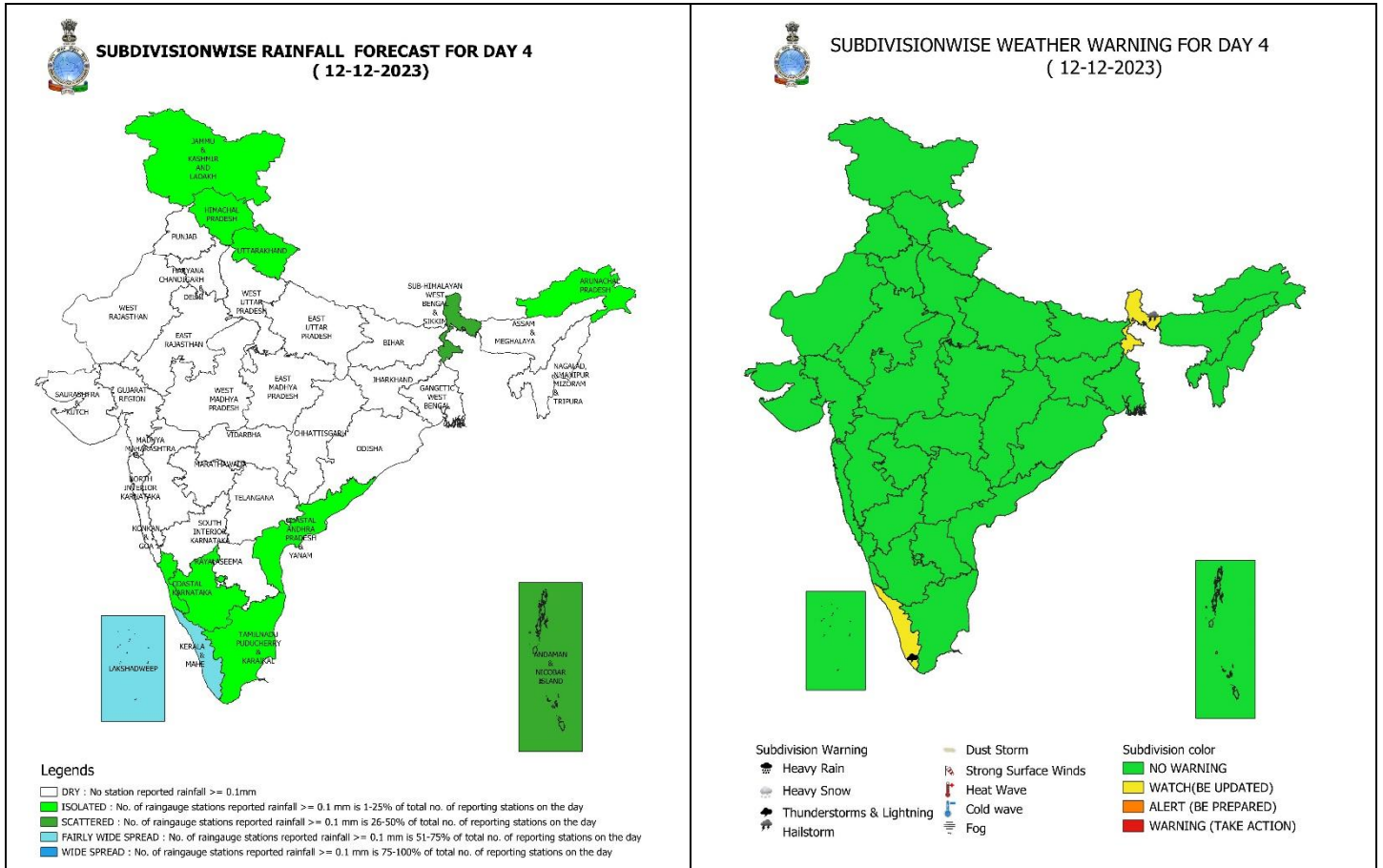
10 December (Day 2):

- ❖ **Heavy rainfall** very likely at isolated places over Kerala & Mahe.
- ❖ **Thunderstorm accompanied with lightning & gusty winds (speed 30-40 kmph)** very likely at isolated places over Kerala & Mahe; **with lightning** at isolated places over Tamil Nadu, Puducherry & Karaikal and Lakshadweep.
- ❖ **Dense Fog** very likely in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather** (with wind speed 40-45 kmph gusting to 55 kmph) very likely to prevail over Southeast Arabian Sea & adjoining Lakshadweep area. Fishermen are advised not to venture into these areas.



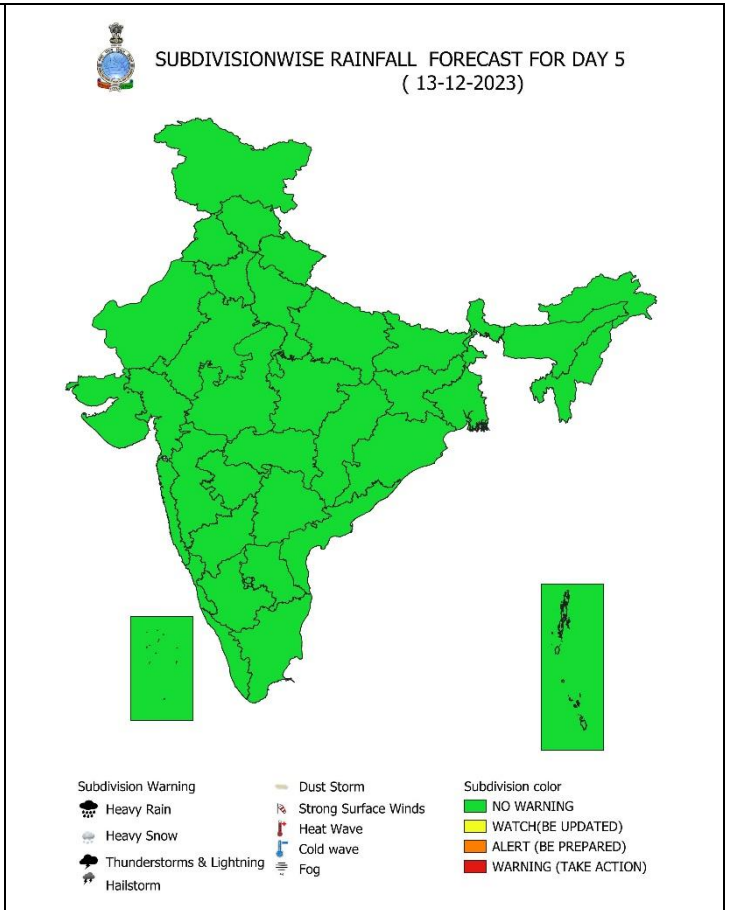
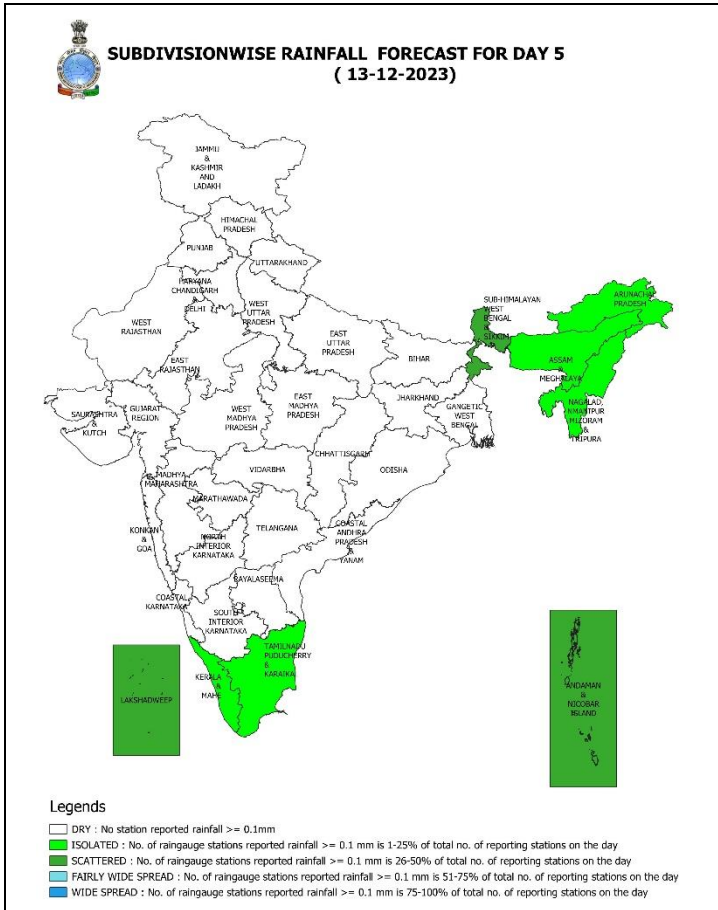
11 December (Day 3):

- ❖ **Thunderstorm with lightning** very likely at isolated places over Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal.



12 December (Day 4):

- ❖ **Hailstorm with thunderstorm & lightning** likely at isolated places over Sub-Himalayan West Bengal & Sikkim.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Kerala & Mahe.

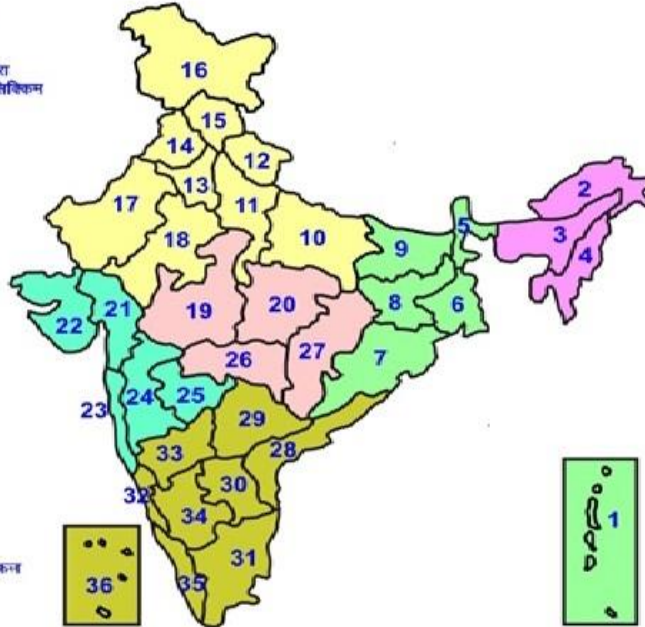


13 December (Day 5):

❖ **No weather warning.**

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 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. 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



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)