



Tuesday, December 12, 2023
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Minimum Temperatures are in the range of 6-10°C over most parts of Punjab, Haryana-Chandigarh-Delhi, North Rajasthan and over many parts of Uttar Pradesh.

Weather systems:

- A cyclonic circulation lies over Southeast Arabian Sea & adjoining Maldives area in lower tropospheric levels.
- A Western Disturbance seen as a trough roughly along Long. 72°E to the north of Lat. 32°N in lower tropospheric levels.

Rainfall Warning:

- Light to moderate rainfall at some to many places accompanied with isolated thunderstorm, lightning and gusty winds very likely over Kerala & Mahe on 12th, 15th & 16th and over south Tamil Nadu on 12th & 16th December.
- No significant weather likely over remaining parts of the country during next 5 days.

Hailstorm warning:

- **Hailstorm** likely at isolated places over Sikkim on 12th and over Arunachal Pradesh on 13th December.

Dense fog warning:

- **Dense fog** during morning hours very likely in isolated pockets over Punjab on 12th & 13th and over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 12th -14th December.

Minimum Temperatures Forecast:

- No significant change in Minimum Temperatures over most 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 isolated places** over Andaman & Nicobar Islands, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.
- ❖ **Significant Rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Kerala:** Chavara-3, Venkurinji-2; **Tamil Nadu:** Pamban-2.
- ❖ **Fog Observed (at 0530 hours IST of today):** Dense in isolated pockets of East Uttar Pradesh and Punjab.
- ❖ **Visibility Recorded (at 0530 hours IST of today) (≤ 200 metre):** Amritsar, Lucknow, Varansi-200 each.
- ❖ **Minimum Temperature Departures (as on 11-12-2023):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at a few places over Madhya Maharashtra, Konkan & Goa; at isolated places over Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at most places over Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema, Kerala & Mahe, Gujarat Region; at many places over Arunachal Pradesh; at isolated places over West Madhya Pradesh, Saurashtra & Kutch, Sub-Himalayan West Bengal & Sikkim, Telangana; They were **below normal (-1.6°C to -3.0°C)** at a few places over Himachal Pradesh; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan, Haryana-Chandigarh-Delhi, Punjab, Uttar Pradesh, Gangetic West Bengal, Bihar and **near normal** over rest parts of the country. Today, **the lowest minimum temperature of 5.5°C was reported at Bareilly (West Uttar Pradesh) and Sikar (East Rajasthan)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 11-12-2023):** Maximum temperatures were **above normal (1.6°C to 3.0°C)** at a few places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Coastal Andhra Pradesh & Yanam and Lakshadweep; at isolated places over West Rajasthan, Saurashtra & Kutch, Madhya Maharashtra, Rayalaseema, Karnataka, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Himachal Pradesh and Bihar; **below normal (-1.6°C to -3.0°C)** at a few places over West Bengal & Sikkim and Vidarbha; at isolated places over Haryana-Chandigarh-Delhi, East Rajasthan, Madhya Pradesh, Jharkhand and Odisha and **near normal** over rest parts of the country. Yesterday, the highest **maximum temperature of 35.5°C was reported at Ratnagiri (Konkan & Goa).**



Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Cyclonic Circulation** over Southeast Arabian Sea & adjoining Maldives area extending upto 1.5 km above mean sea level persists.
- ❖ The **Western Disturbance** as a trough now runs roughly along Long. 72°E to the north of Lat. 32°N at 3.1 km above mean sea level.

Weather Forecast for next 7 days (Upto 0830 hours IST of 19th December, 2023)

- ❖ Meteorological sub-division wise detailed 7 days rainfall forecast is given in Table-1.
- ❖ Shallow to moderate fog likely in morning hours at isolated pockets over northwest India and East India during next 24 hours.
- ❖ No significant change in Minimum Temperatures over most parts of the country during next 4-5 days.

Weather Outlook for subsequent 2 days

- ❖ Scattered to fairly widespread light to moderate rainfall likely over Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Islands; Isolated to scattered light rainfall likely over Karnataka.
- ❖ Mainly dry weather likely to prevail over rest parts of the country.



Table-1

| 7 Days Rainfall Forecast | | | | | | | | |
|--------------------------|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| S. No. | Subdivision | 12- Dec | 13- Dec | 14- Dec | 15- Dec | 16- Dec | 17- Dec | 18- Dec |
| | | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
| 1 | ANDAMAN & NICOBAR ISLANDS | SCT | SCT | FWS | FWS | FWS | FWS | FWS |
| 2 | ARUNACHAL PRADESH | ISOL | SCT | ISOL | DRY | DRY | DRY | DRY |
| 3 | ASSAM & MEGHALAYA | DRY | ISOL | ISOL | DRY | DRY | DRY | DRY |
| 4 | NAGALAND, MANIPUR, MIZORAM & TRIPURA | DRY | ISOL | DRY | 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 | ISOL | 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 | ISOL | DRY | DRY | DRY | DRY | DRY | DRY |
| 16 | JAMMU & KASHMIR AND LADAKH | ISOL | DRY | DRY | DRY | ISOL | ISOL | 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 | DRY | DRY | DRY | ISOL | ISOL | DRY |
| 29 | TELANGANA | DRY | DRY | DRY | DRY | DRY | DRY | DRY |
| 30 | RAYALASEEMA | DRY | DRY | DRY | DRY | ISOL | ISOL | DRY |
| 31 | TAMILNADU PUDUCHERRY & KARAIKAL | ISOL | ISOL | ISOL | SCT | SCT | SCT | SCT |
| 32 | COASTAL KARNATAKA | ISOL | DRY | DRY | DRY | ISOL | ISOL | ISOL |
| 33 | NORTH INTERIOR KARNATAKA | DRY | DRY | DRY | DRY | DRY | DRY | DRY |
| 34 | SOUTH INTERIOR KARNATAKA | ISOL | DRY | DRY | ISOL | ISOL | ISOL | ISOL |
| 35 | KERALA & MAHE | SCT | ISOL | ISOL | SCT | SCT | SCT | FWS |
| 36 | LAKSHADWEEP | SCT | SCT | SCT | FWS | FWS | WS | FWS |

| 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

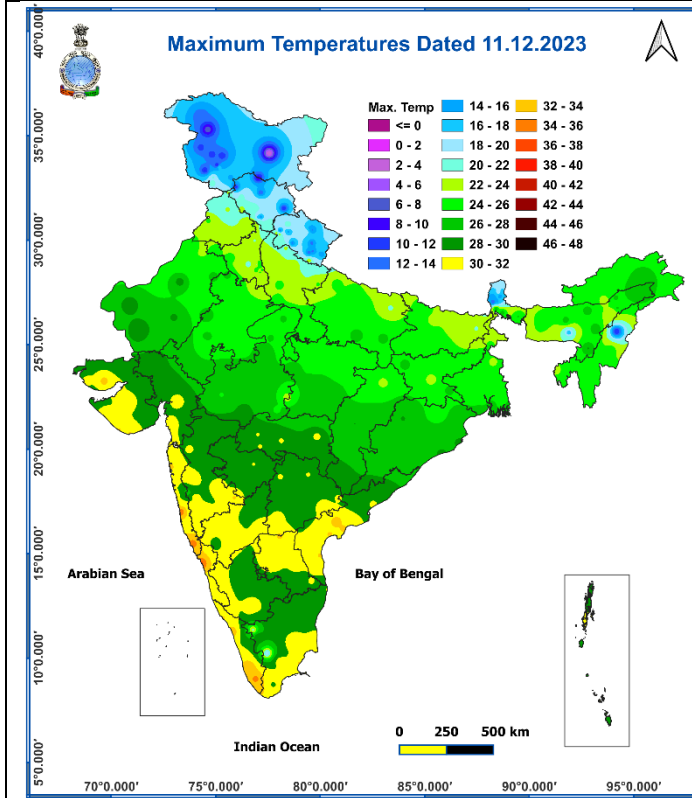


Fig. 2: Departure of Maximum Temperatures

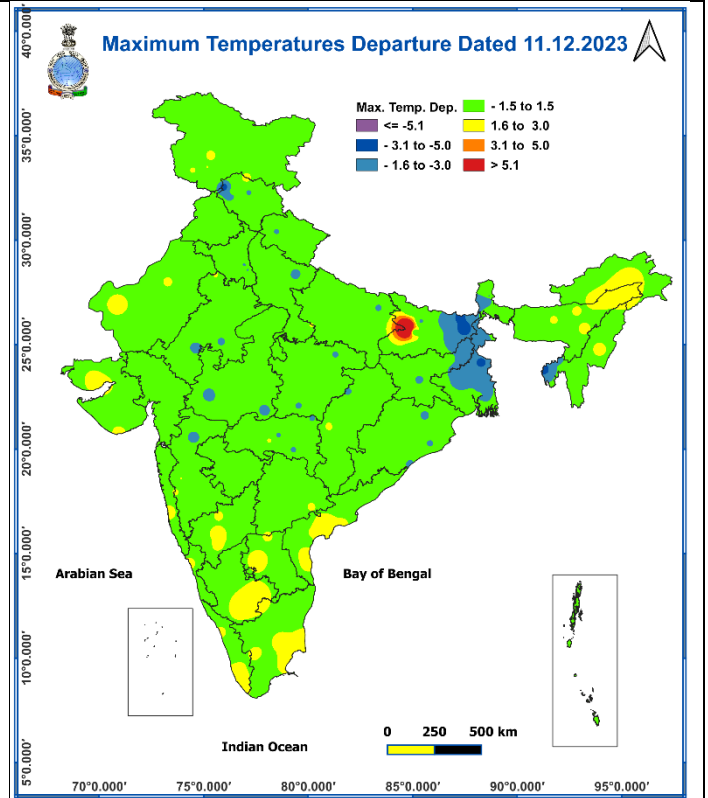


Fig. 3: Minimum Temperatures

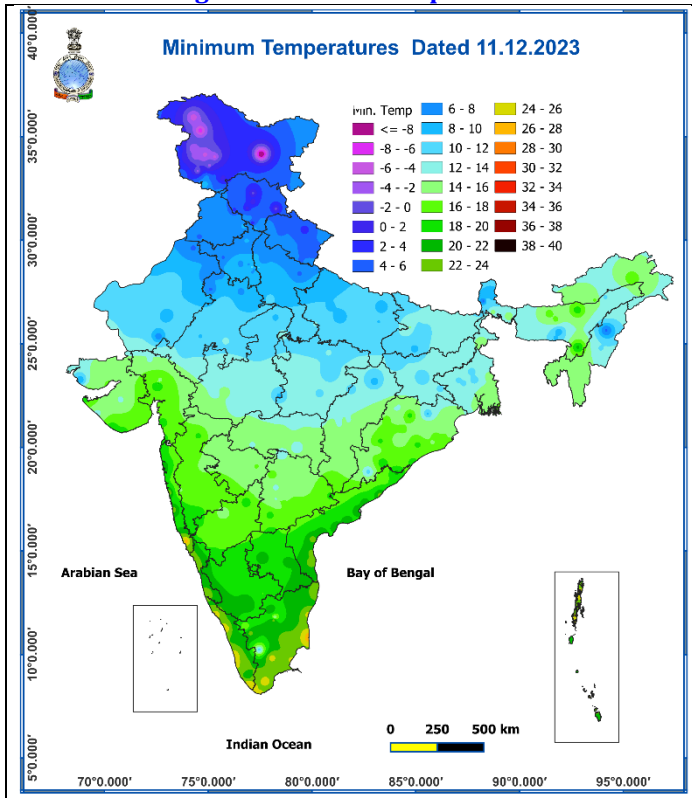


Fig. 4: Departure of Minimum Temperatures

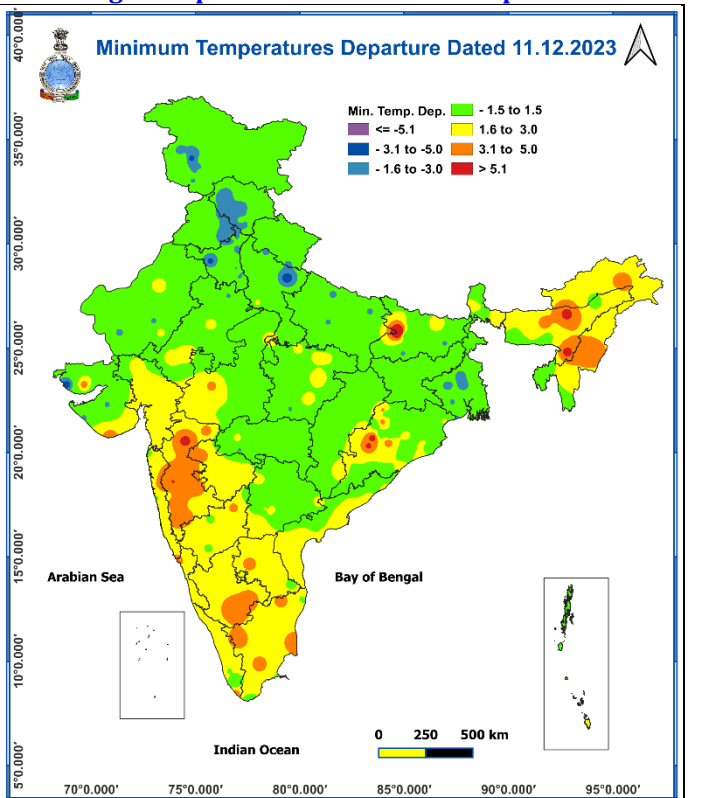
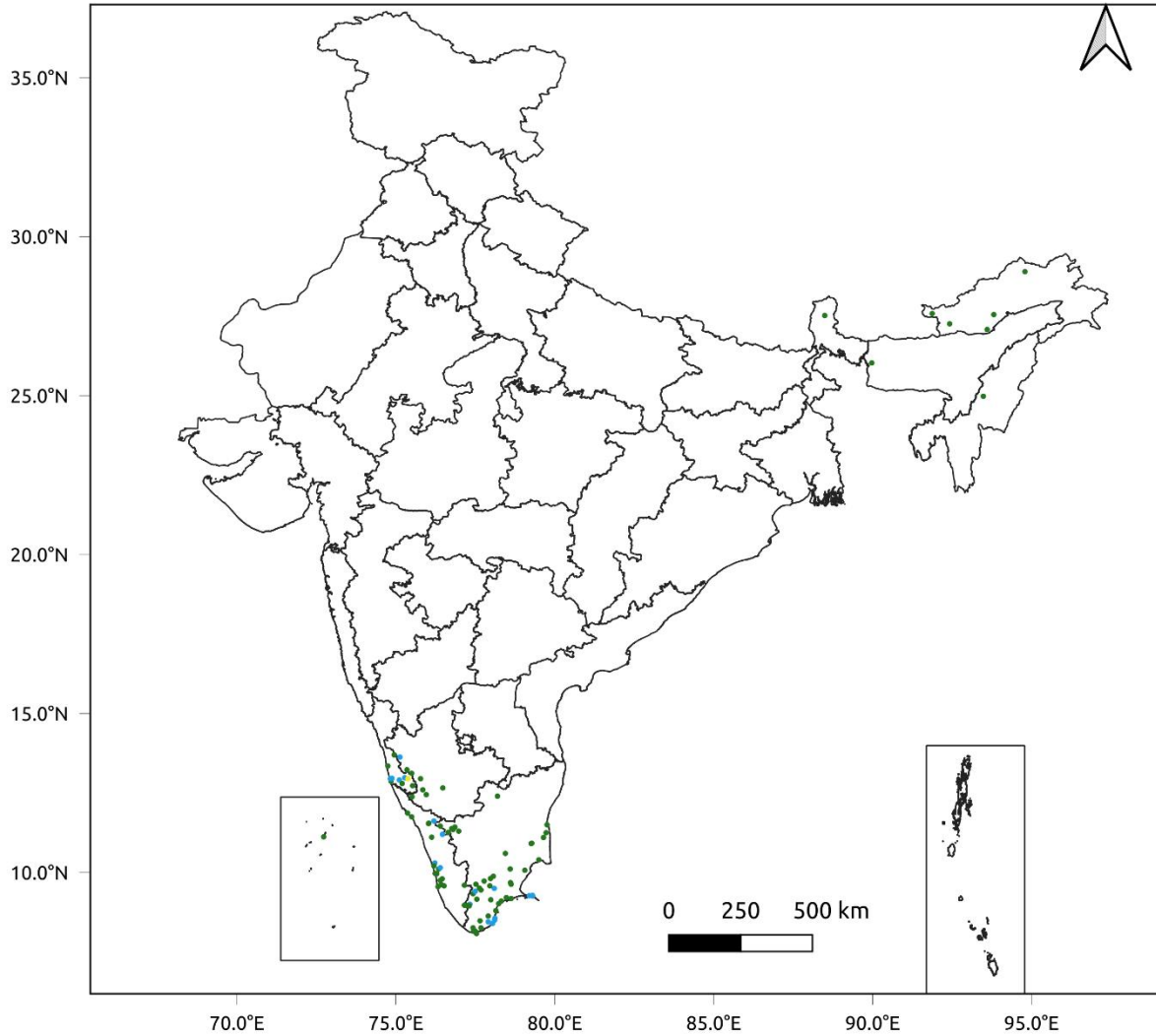


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

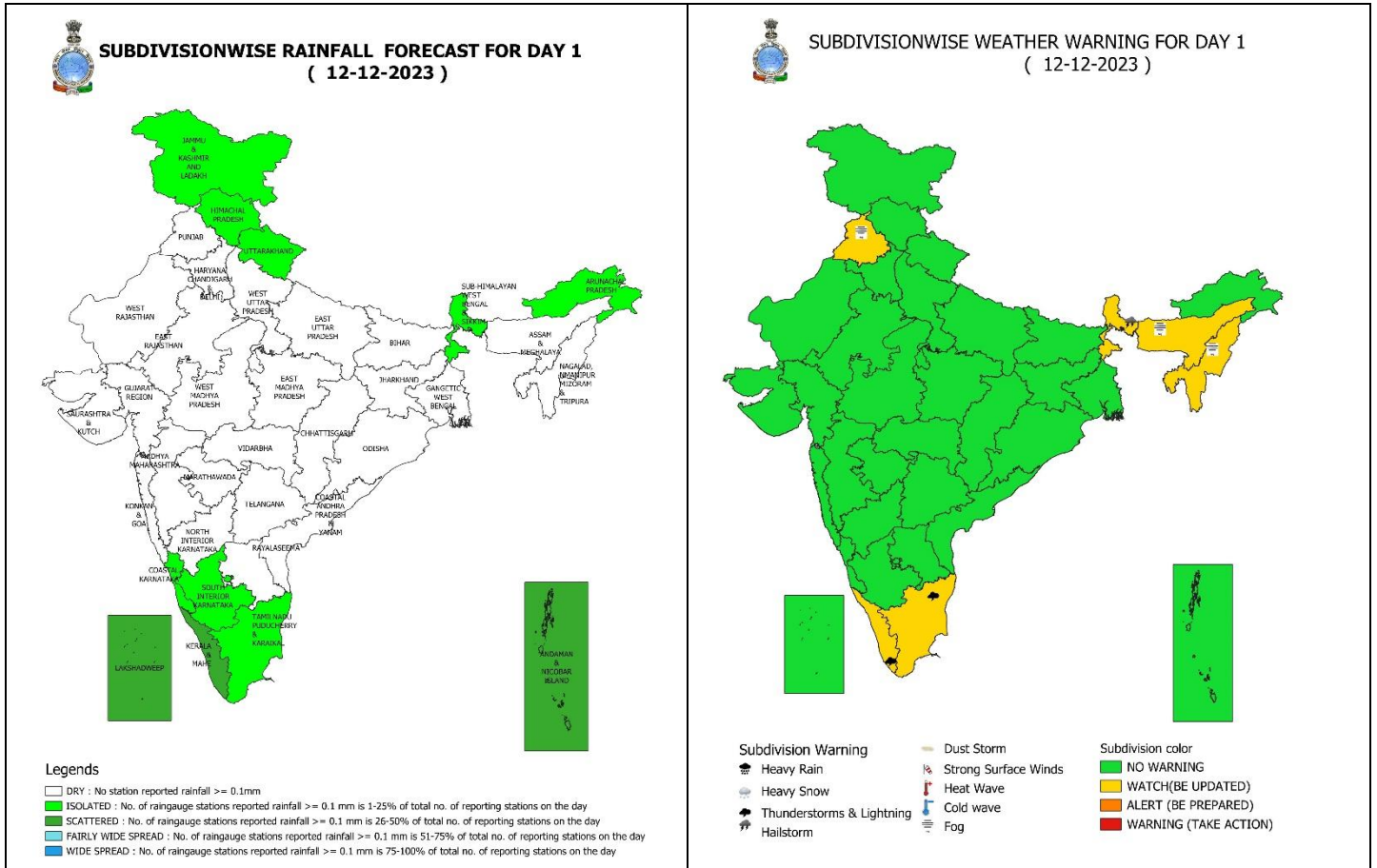


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 10-12-2023 to 0830 IST of 11-12-2023



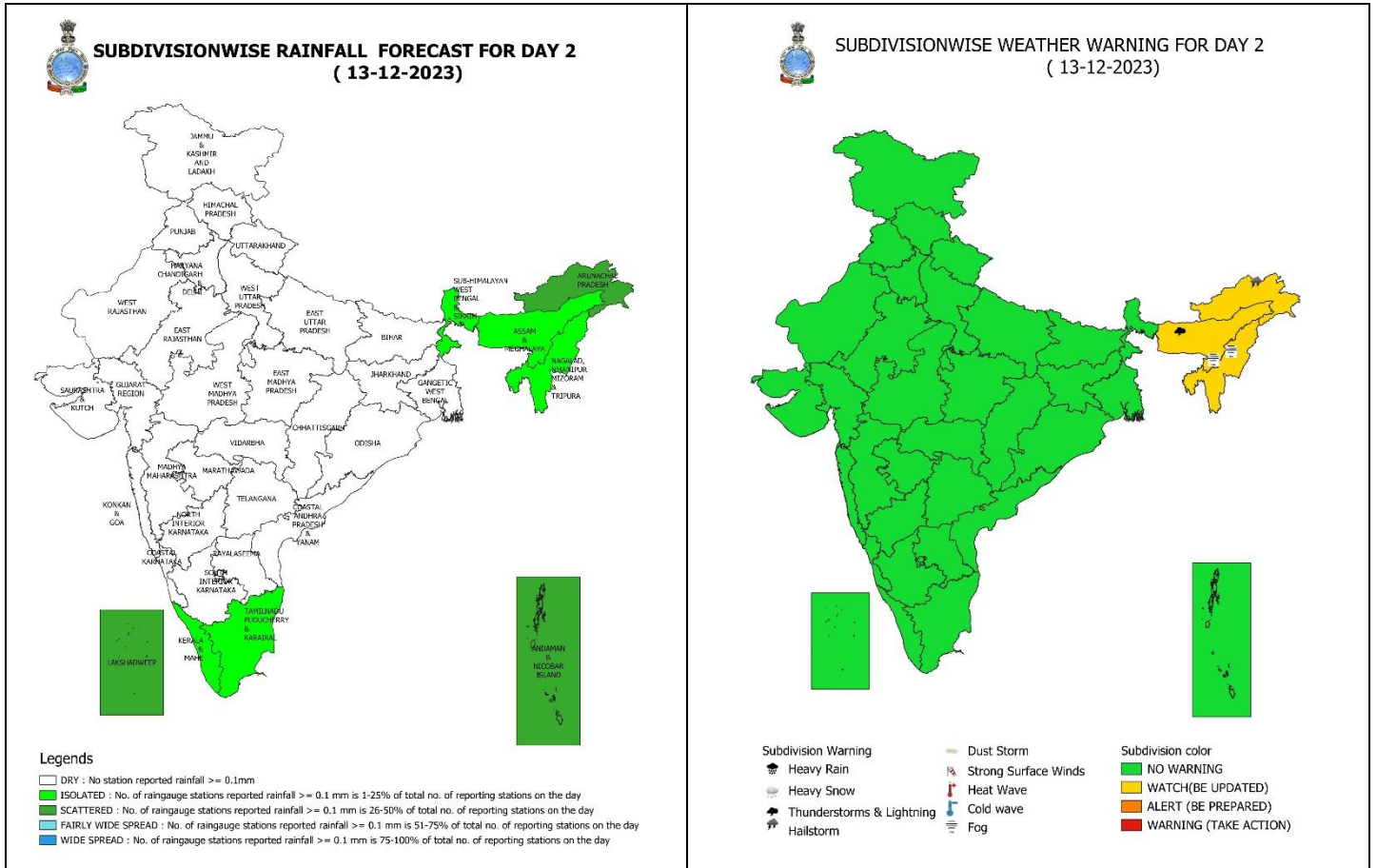
Legends

- 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)



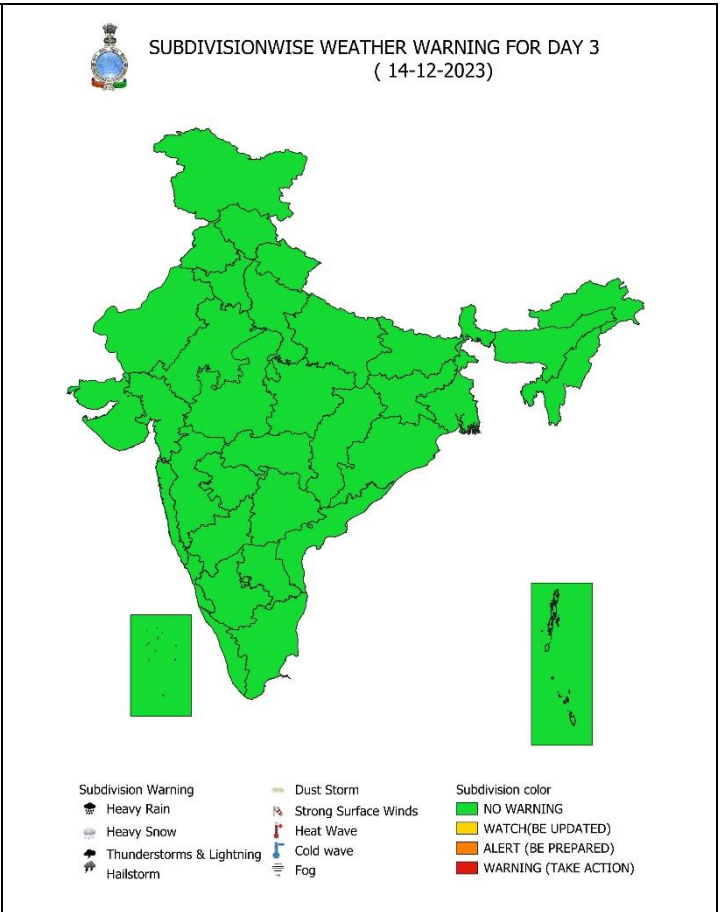
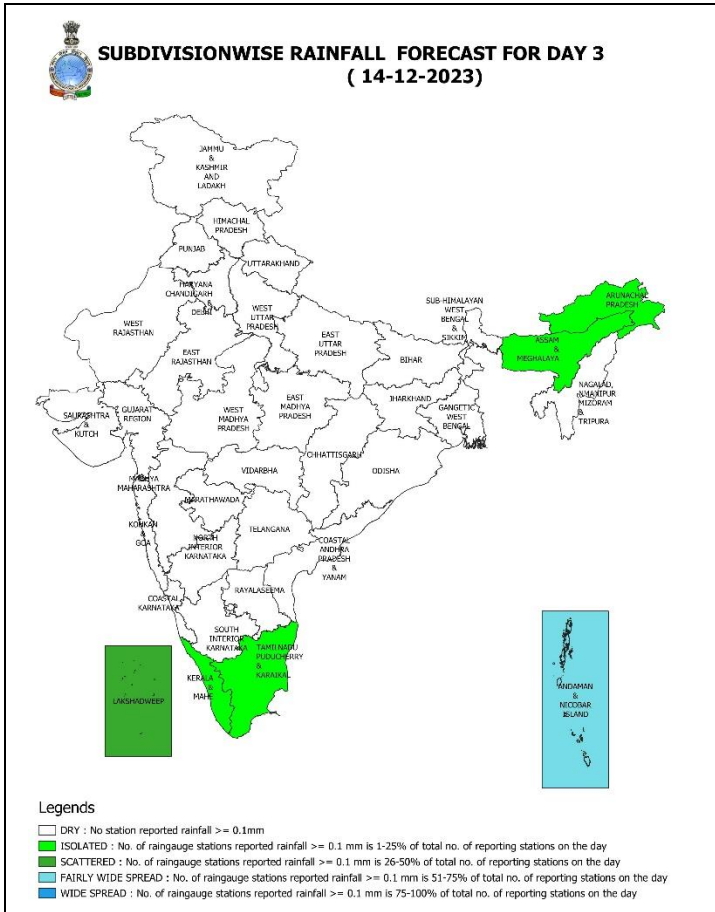
12 December (Day 1):

- ❖ **Thunderstorm accompanied with lightning & hail** very likely at isolated places over Sikkim; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Kerala & Mahe and **with lightning** at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense Fog** very likely in isolated pockets over Punjab, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.



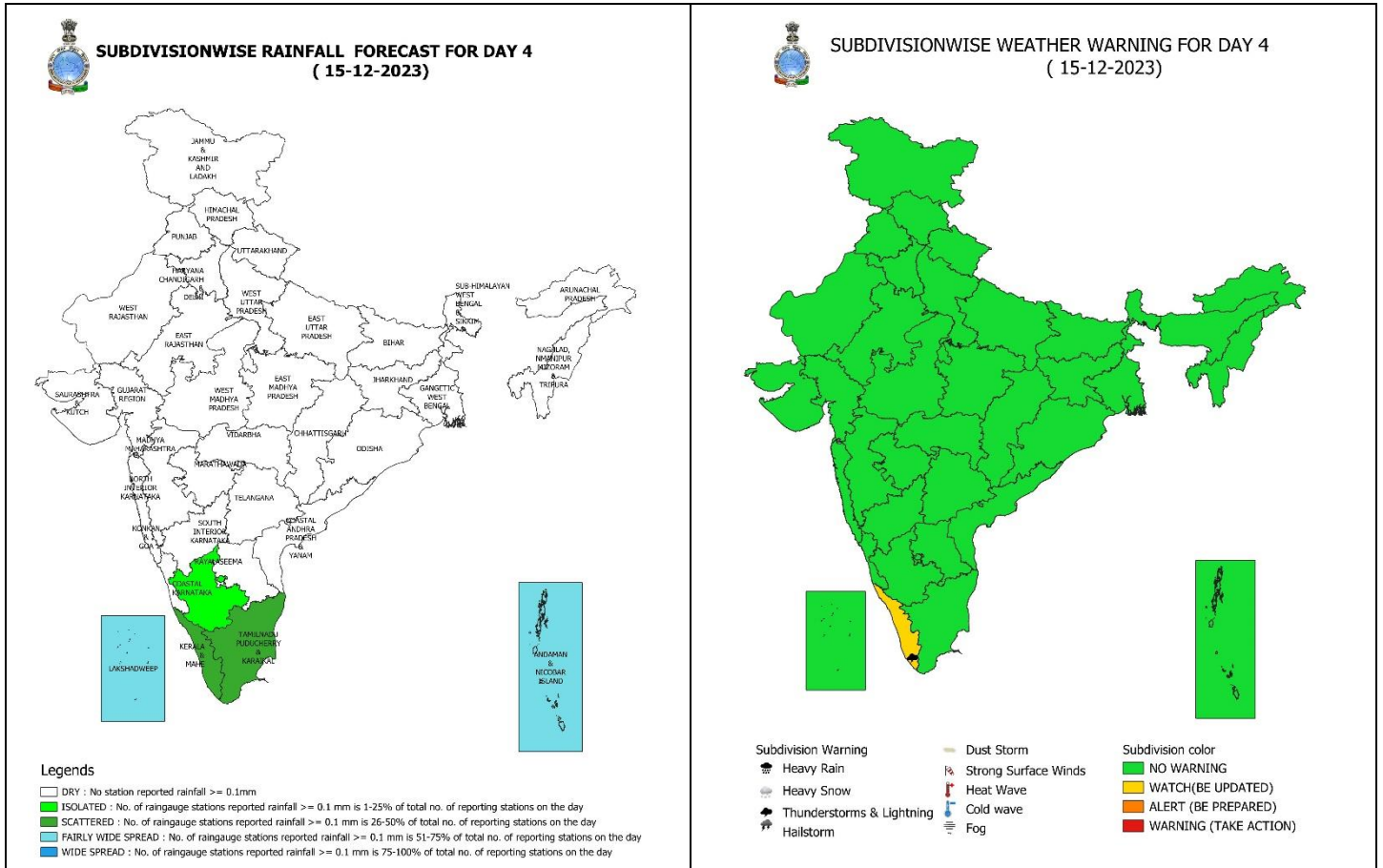
13 December (Day 2):

- ❖ **Thunderstorm accompanied with lightning & hail** very likely at isolated places over Arunachal Pradesh and **with lightning** at isolated places over Assam & Meghalaya.
- ❖ **Dense Fog** very likely in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.



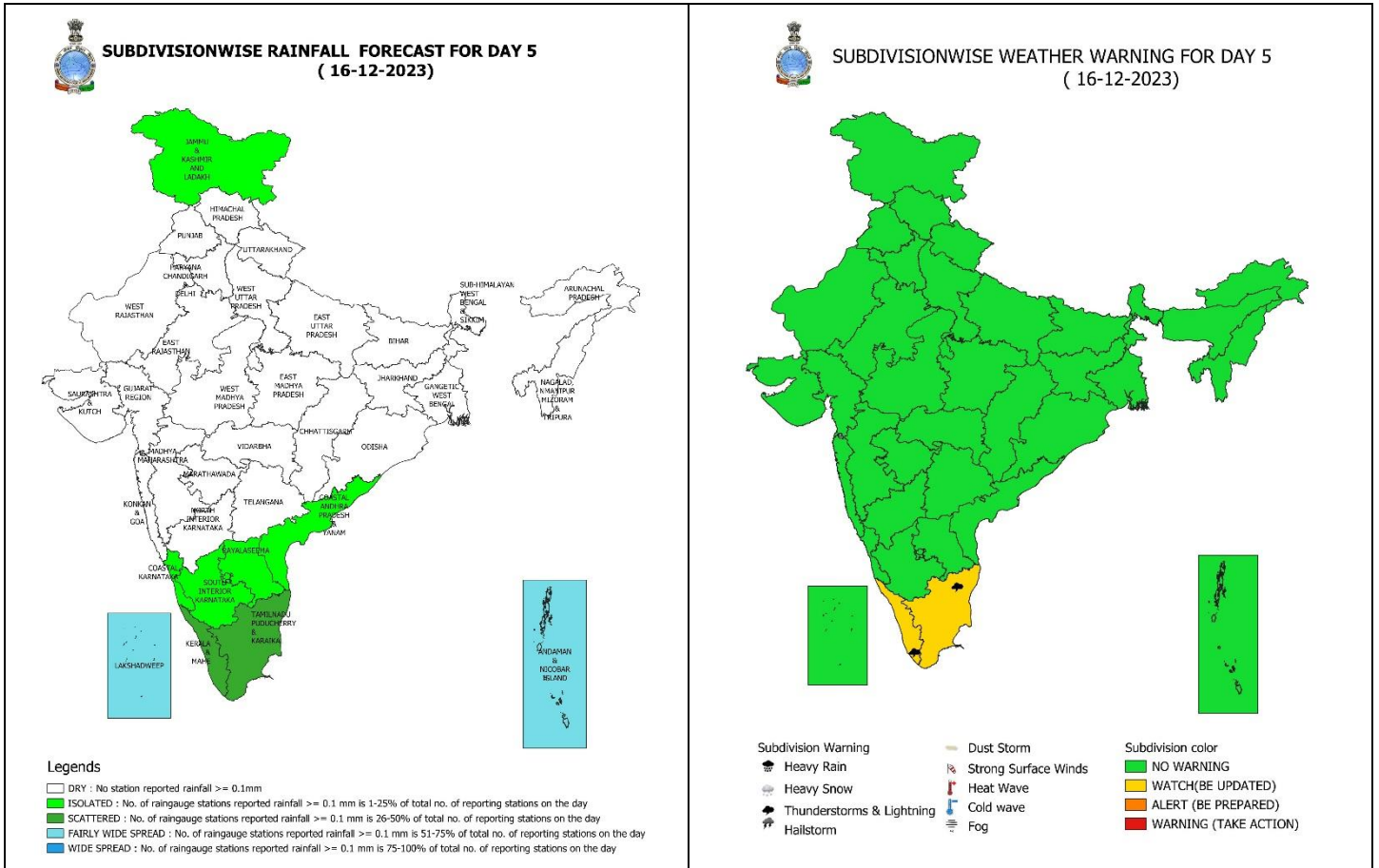
14 December (Day 3):

❖ **No weather warning.**



15 December (Day 4):

❖ **Thunderstorm accompanied with lightning likely at isolated places over Kerala & Mahe.**

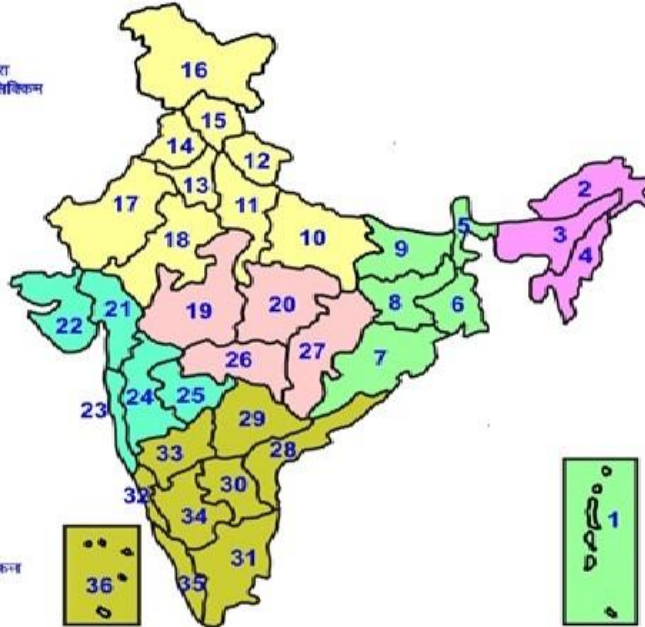


16 December (Day 5):

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

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



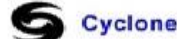
Dust Storm



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)