



Thursday, April 13, 2023

MORNING

Time of Issue: 0800 hours IST

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features

#### Weather Forecast and Warnings:

- ❖ A **trough/wind discontinuity** runs from east Vidarbha to coastal Karnataka in lower tropospheric levels.
- ❖ A cyclonic circulation lies over southwest Rajasthan upto middle tropospheric levels.
- ❖ A fresh Western Disturbance is likely to affect Western Himalayan Region from 15<sup>th</sup> April, 2023.

#### Under the influence of these systems, following weather is expected:

##### West India:

- ❖ Light/moderate isolated rainfall with thunderstorm/lightning very likely over Konkan & Goa, Madhya Maharashtra and Marathwada during next 5 days.
- ❖ Isolated **hailstorm** very likely over Madhya Maharashtra during 13<sup>th</sup>-14<sup>th</sup>; over Konkan on 13<sup>th</sup> and over Marathawada on 14<sup>th</sup> April, 2023.

##### Northwest India:

- ❖ Light/moderate isolated to scattered rainfall with thunderstorm/lightning very likely over Jammu & Kashmir, Ladakh, Gilgit-Baltistan & Muzaffarabad, Himachal Pradesh & Uttarakhand during 15<sup>th</sup>-17<sup>th</sup> and isolated light rainfall over Punjab, north Haryana and West Rajasthan during 16<sup>th</sup>-17<sup>th</sup> April, 2023.
- ❖ **Strong surface winds (25-35 kmph)** very likely over Haryana and Uttar Pradesh during next 24 hours.
- ✓ **Heat wave conditions** very likely in isolated pockets over Gangetic West Bengal during 13<sup>th</sup>-16<sup>th</sup> and over Odisha during 13<sup>th</sup>-15<sup>th</sup> April, 2023.

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## Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): Nil.
- ❖ **Significant rainfall recorded** (in cm): Nil.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): NIL
- ❖ Yesterday, **Heat Wave conditions** prevailed in isolated pockets over Gangetic West Bengal.
- ❖ **Minimum Temperature Departures (as on 12-04-2023):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Haryana, Chandigarh & Delhi, West Rajasthan, Madhya Maharashtra and Andaman & Nicobar Islands; **above normal (1.6°C to 3.0°C)** at most places over Punjab; at many places over Gujarat Region; at a few places over Chhattisgarh and Saurashtra & Kutch; at isolated places over West Madhya Pradesh. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Bihar, Gangetic West Bengal and East Madhya Pradesh; **below normal (-1.6°C to -3.0°C)** at many places over East Uttar Pradesh and Jharkhand; at isolated places over Assam & Meghalaya and Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 16.2°C** was reported at **Rewa (East Madhya Pradesh)** over plains of the country.
- ❖ **Maximum Temperature Departures (as on 12-04-2023):** Maximum temperatures were **appreciably above normal (3.1°C to 5.1°C)** at many places over Gangetic West Bengal; at a few places over Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at most places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Sub-Himalayan West Bengal & Sikkim; at many places over Bihar; at a few places over Odisha, Coastal Andhra Pradesh & Yanam; at isolated places over Gujarat State, Konkan & Goa, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe. They were **below normal (-1.6°C to -3.0°C)** at isolated places over West Madhya Pradesh and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 43.0°C** was reported at **Rajgarh (West Madhya Pradesh)** and **Jharsuguda (Odisha)**.



## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **cyclonic circulation** over southwest Rajasthan & neighbourhood extending upto 4.5 km above mean sea level persists.
- ❖ The **trough/wind discontinuity** from east Vidarbha to Coastal Karnataka across Marathwada & interior Karnataka at 0.9 km above mean sea level persists.
- ❖ A fresh Western Disturbance is likely to affect Western Himalayan Region from 15<sup>th</sup> April, 2023.

## Weather Forecast for next 5 days ( upto 0830 hours IST of 18th April, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ **Northwest & East India:** Maximum Temperatures are very likely to rise gradually by 2-4°C during next 3 days and no significant change thereafter.
- ❖ **Central India:** Maximum Temperatures are very likely to rise gradually by 2-4°C during next 5 days.
- ❖ **Maharashtra:** No significant change in Temperatures very likely during next 2 days and rise gradually by 2-4°C thereafter.

## Weather Outlook for subsequent 2 days ( during 18th-20th April, 2023)

- ❖ Fairly widespread to widespread light/moderate rainfall likely over Western Himalayan region and isolated light rainfall over adjoining plains of Northwest India.
- ❖ Isolated light rainfall likely over parts of Peninsular India, Central India, Northeast India and Maharashtra.
- ❖ Mainly dry weather likely over rest parts of the country.

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## Weather Warning during next 5 days

**13 April (Day 1):** ♦ **Hailstorm with thunderstorm & lightning** very likely at isolated places over Konkan and Madhya Maharashtra.

♦ **Thunderstorm with lightning** very likely at isolated places over Vidarbha, Gujarat state and Marathwada.

♦ **Heat Wave conditions** likely in isolated pockets over coastal areas of Gangetic West Bengal and Odisha.

**14 April (Day 2):** ♦ **Hailstorm with thunderstorm & lightning** very likely at isolated places over Madhya Maharashtra and Marathwada.

♦ **Thunderstorm with lightning** very likely at isolated places over Vidarbha, Konkan & Goa, Interior Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** very likely in isolated pockets over Gangetic West Bengal and Odisha.

**15 April (Day 3):** ♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over Kerala & Mahe and **with lightning** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffrabad, Madhya Maharashtra, Marathwada and Karnataka.

♦ **Heat Wave conditions** likely in isolated pockets over Gangetic West Bengal and Odisha.

**16 April (Day 4):** ♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over Kerala & Mahe and **with lightning** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffrabad, Himachal Pradesh, Madhya Maharashtra, Marathwada and Karnataka.

♦ **Heat Wave conditions** likely in isolated pockets over Gangetic West Bengal.

**17 April (Day 5):** ♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over South Interior Karnataka and Kerala & Mahe and **with lightning** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffrabad, Himachal Pradesh, Punjab, Madhya Maharashtra, Marathwada and Coastal & North Interior Karnataka.



**Table-1**

<b>5 Day Rainfall Forecast</b>						
S. No.	Subdivision	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr
		Day 1	Day 2	Day 3	Day 4	Day 5
1	ANDAMAN & NICOBAR ISLANDS	DRY	DRY	DRY	DRY	DRY
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL
3	ASSAM & MEGHALAYA	DRY	DRY	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	DRY	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	DRY	ISOL	ISOL
8	JHARKHAND	DRY	DRY	DRY	DRY	DRY
9	BIHAR	DRY	DRY	DRY	DRY	DRY
10	EAST UTTAR PRADESH	DRY	DRY	DRY	DRY	DRY
11	WEST UTTAR PRADESH	DRY	DRY	DRY	DRY	DRY
12	UTTARAKHAND	DRY	DRY	ISOL	ISOL	ISOL
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	DRY	ISOL	ISOL
14	PUNJAB	DRY	DRY	DRY	ISOL	ISOL
15	HIMACHAL PRADESH	DRY	DRY	ISOL	SCT	SCT
16	JAMMU & KASHMIR AND LADAKH	DRY	DRY	ISOL	SCT	FWS
17	WEST RAJASTHAN	DRY	DRY	DRY	ISOL	ISOL
18	EAST RAJASTHAN	DRY	DRY	DRY	DRY	DRY
19	WEST MADHYA PRADESH	DRY	DRY	DRY	DRY	DRY
20	EAST MADHYA PRADESH	DRY	DRY	DRY	DRY	DRY
21	GUJARAT REGION	ISOL	DRY	DRY	DRY	DRY
22	SAURASHTRA & KUTCH	ISOL	DRY	DRY	DRY	DRY
23	KONKAN & GOA	ISOL	ISOL	ISOL	ISOL	ISOL
24	MADHYA MAHARASHTRA	ISOL	ISOL	ISOL	ISOL	ISOL
25	MARATHAWADA	ISOL	ISOL	ISOL	ISOL	ISOL
26	VIDARBHA	ISOL	ISOL	DRY	DRY	DRY
27	CHHATTISGARH	DRY	DRY	DRY	ISOL	DRY
28	COASTAL ANDHRA PRADESH & YANAM	DRY	DRY	DRY	DRY	DRY
29	TELANGANA	DRY	ISOL	ISOL	DRY	DRY
30	RAYALASEEMA	DRY	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	DRY	DRY	DRY	DRY	DRY
32	COASTAL KARNATAKA	DRY	ISOL	ISOL	ISOL	ISOL
33	NORTH INTERIOR KARNATAKA	DRY	ISOL	ISOL	ISOL	ISOL
34	SOUTH INTERIOR KARNATAKA	DRY	ISOL	ISOL	ISOL	SCT
35	KERALA & MAHE	ISOL	ISOL	ISOL	ISOL	ISOL
36	LAKSHADWEEP	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

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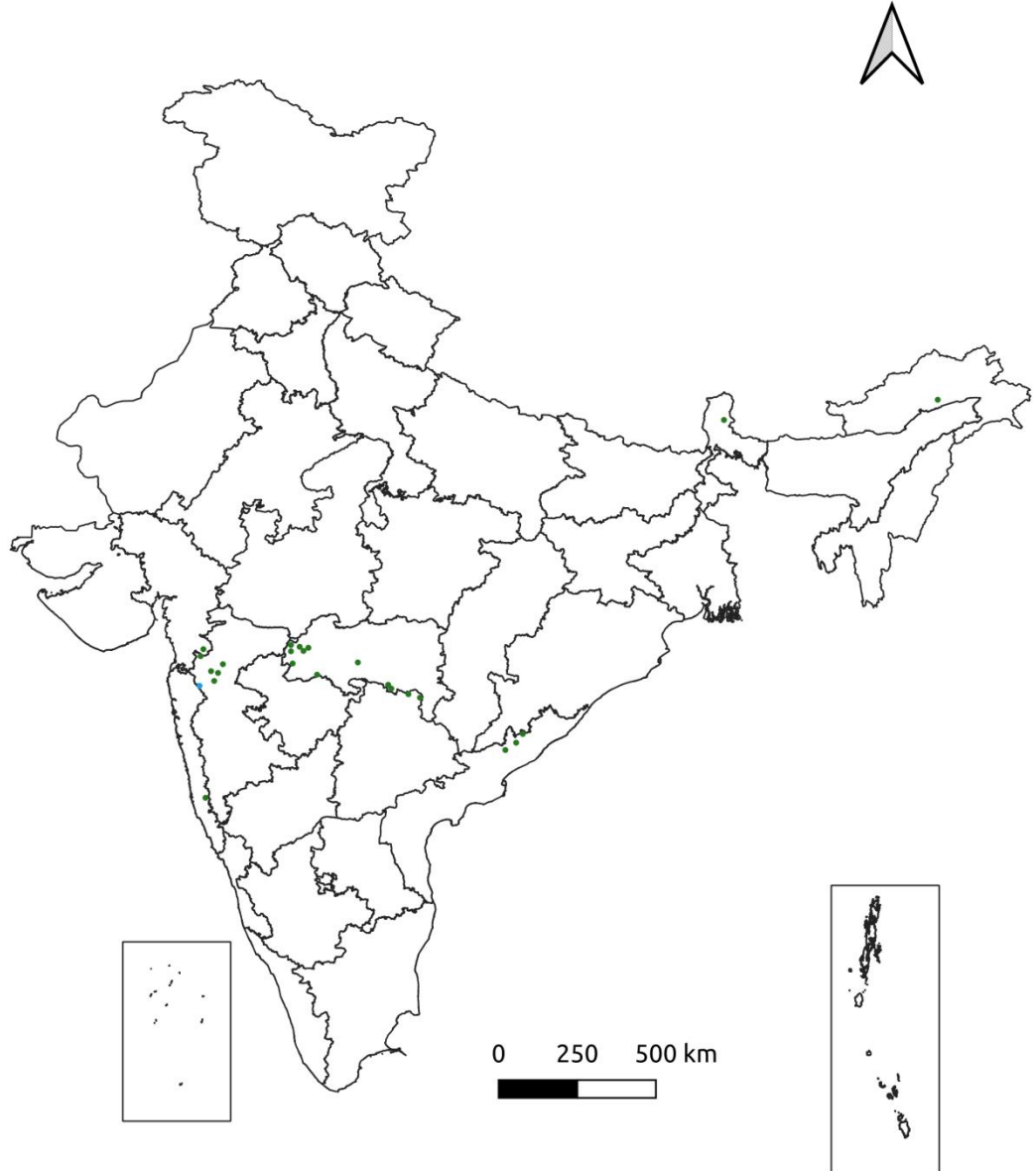
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**Fig. 1: Accumulated Rainfall (mm) during past 24 hours**



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 11-4-2023 to 0830 IST of 12-4-2023



## Legends

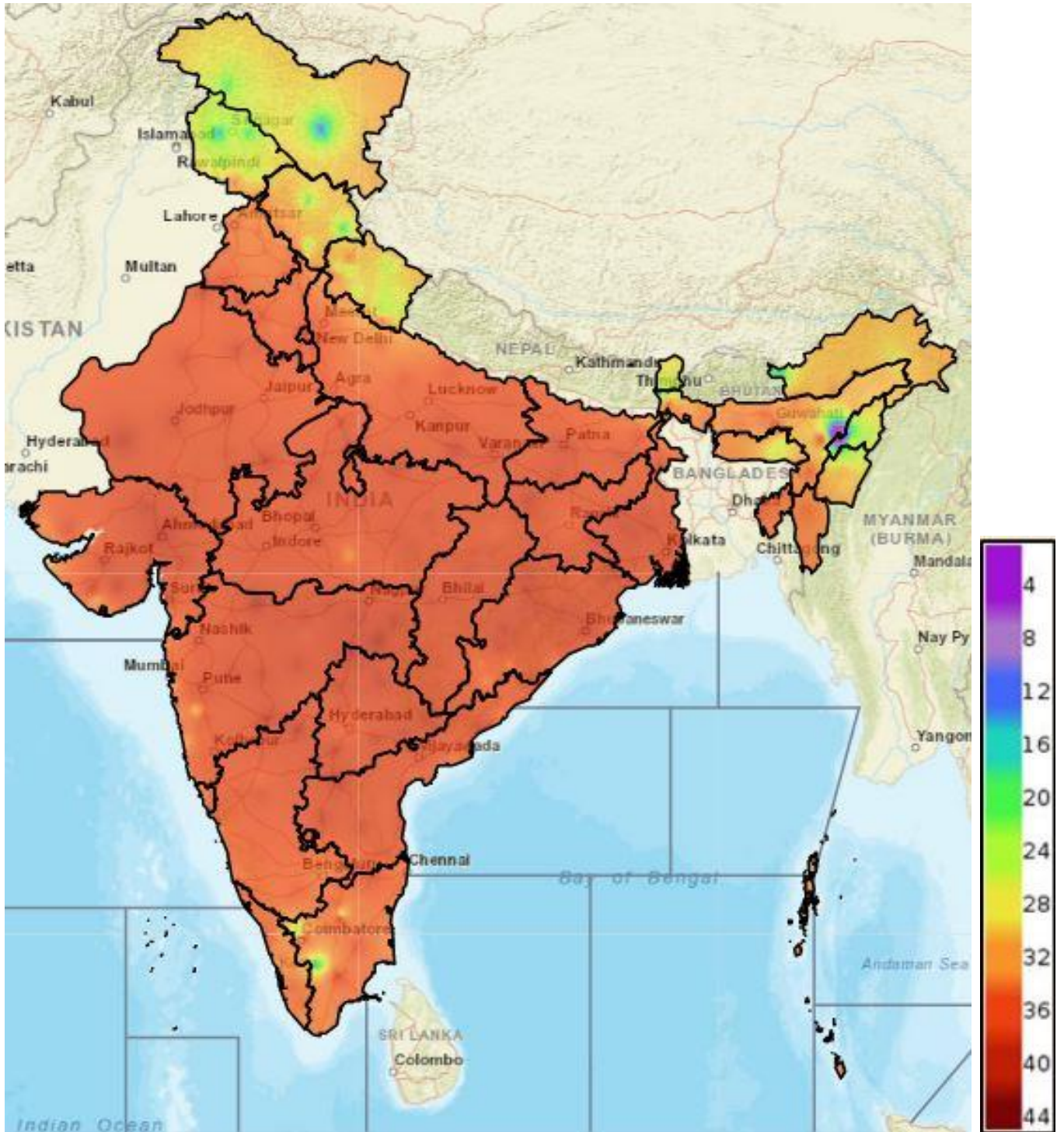
- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall ( $\geq 204.5$  mm)

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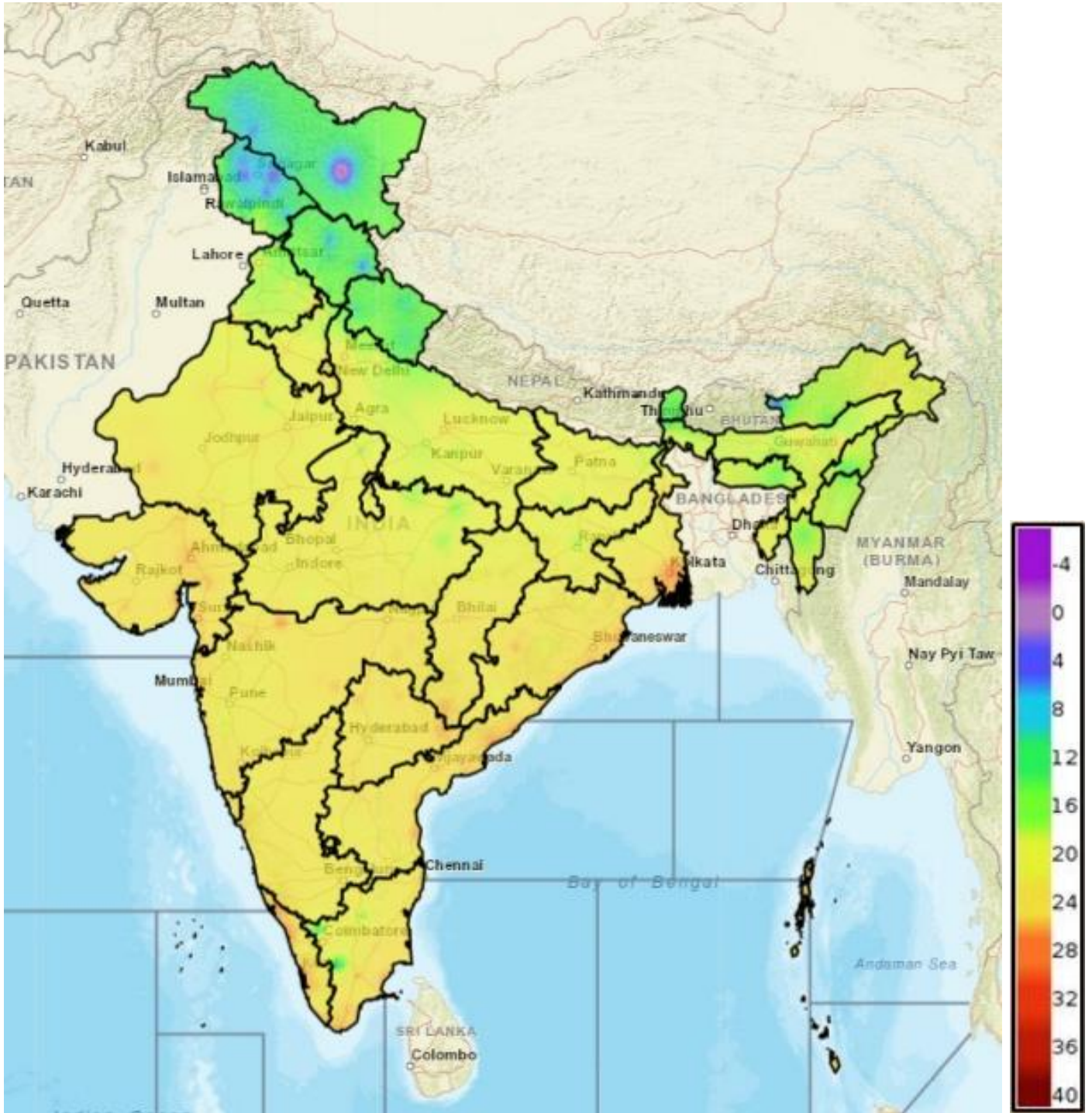
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Fig. 2: Maximum Temperatures Dated 12.04.2023



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Fig. 3: Minimum Temperatures Dated 12.04.2023



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Fig. 4: Departure from Normal of Maximum Temperatures Dated 12.04.2023

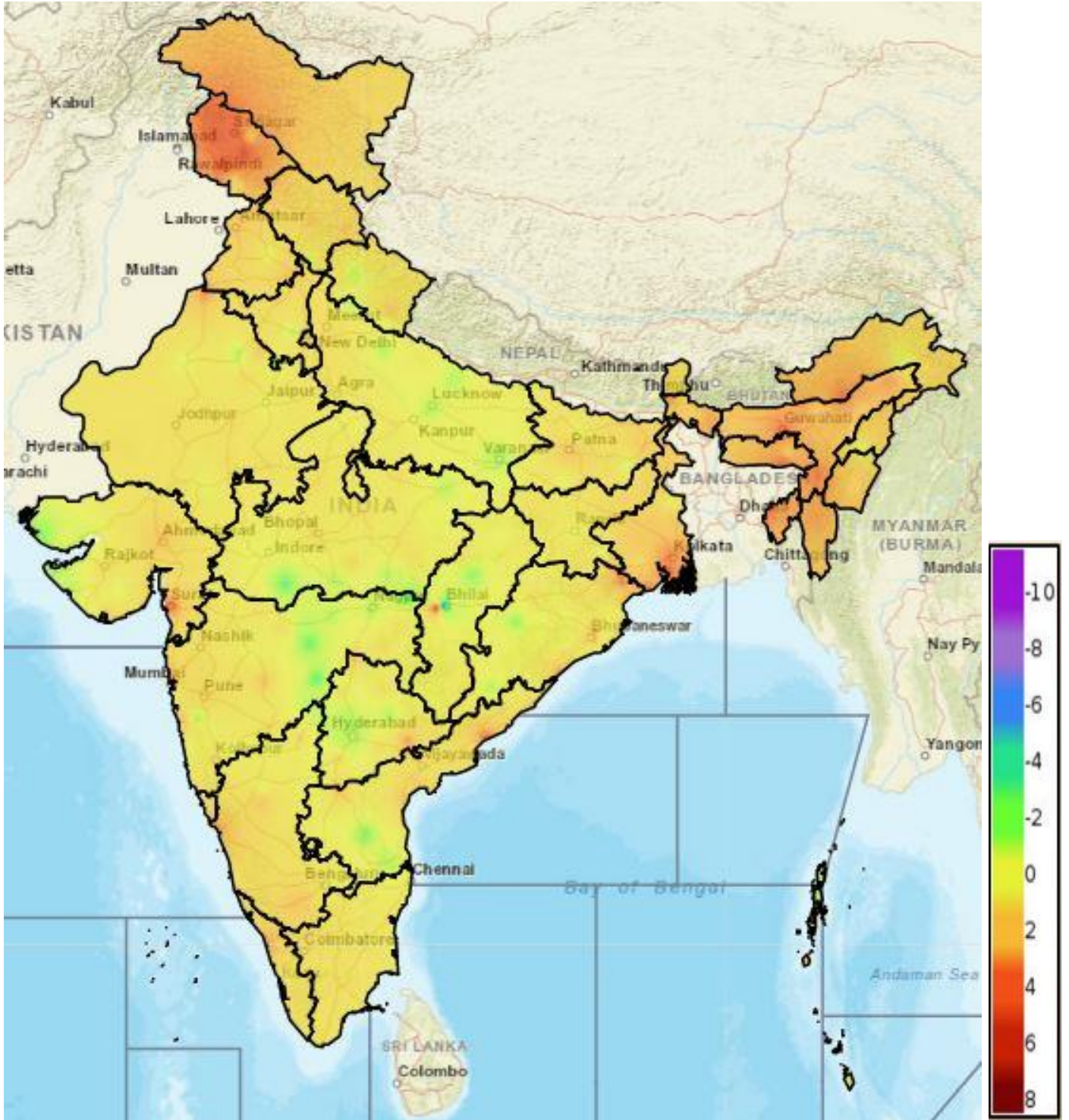
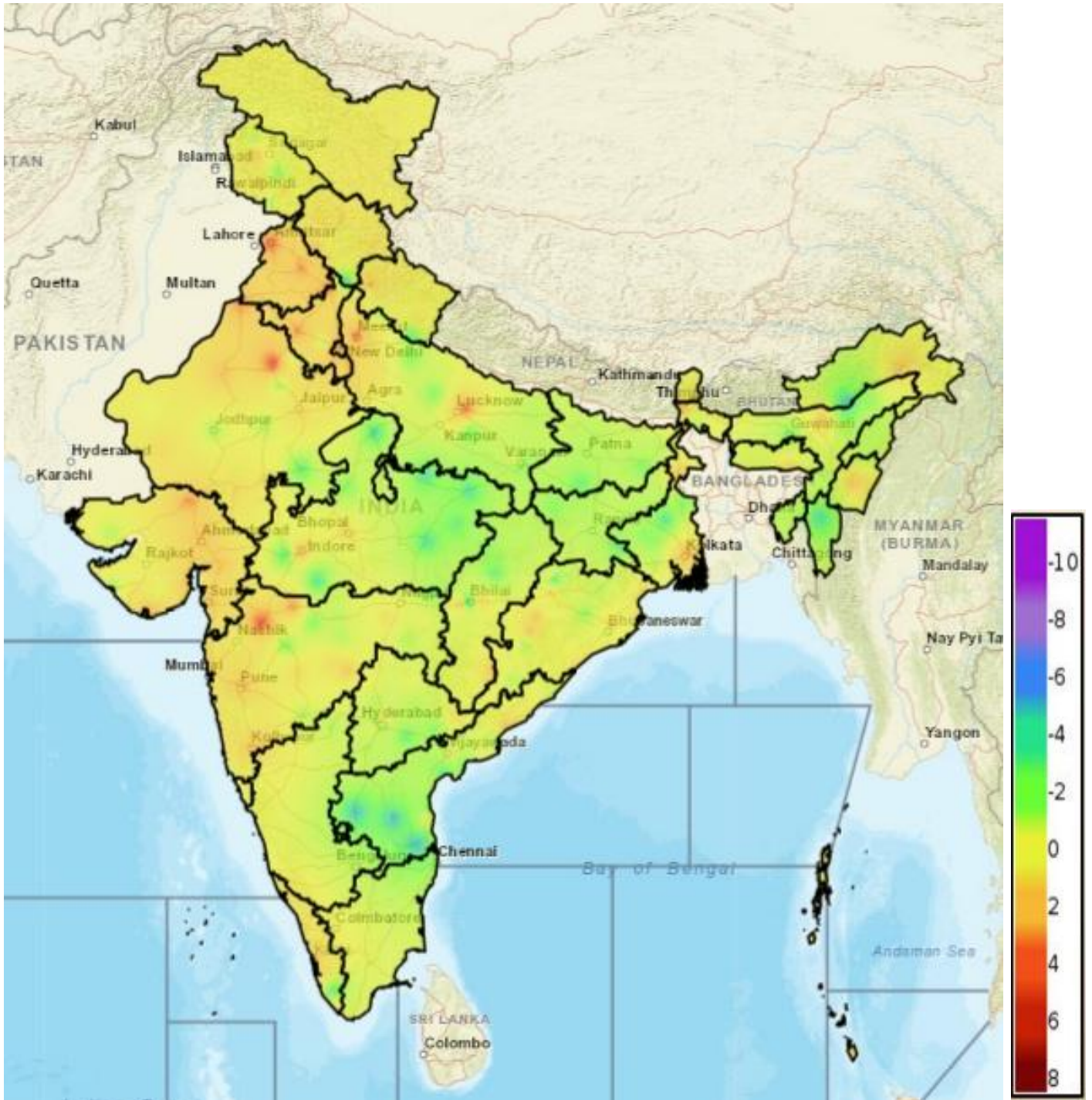


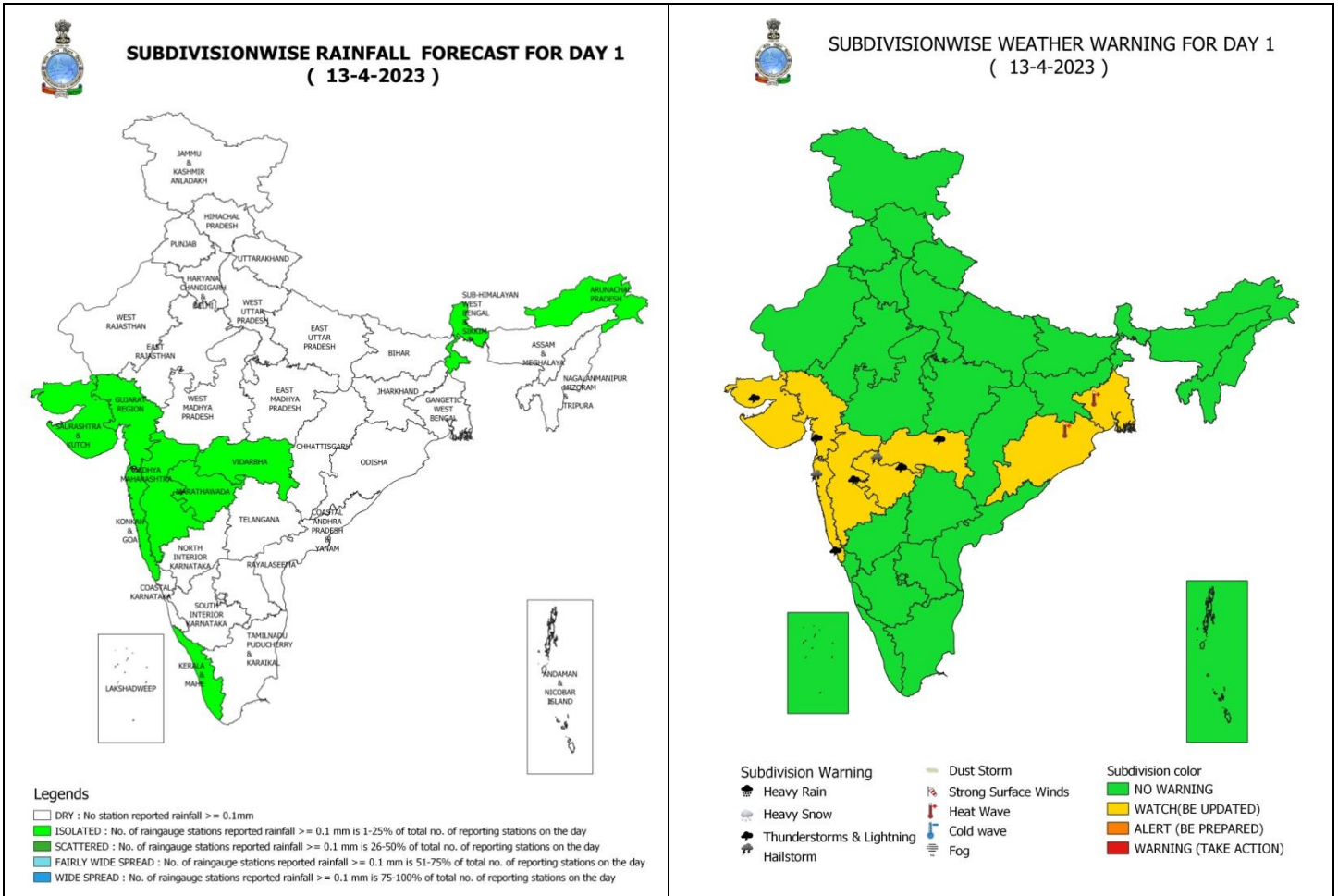
Fig. 5: Departure from Normal of Minimum Temperatures Dated 12.04.2023



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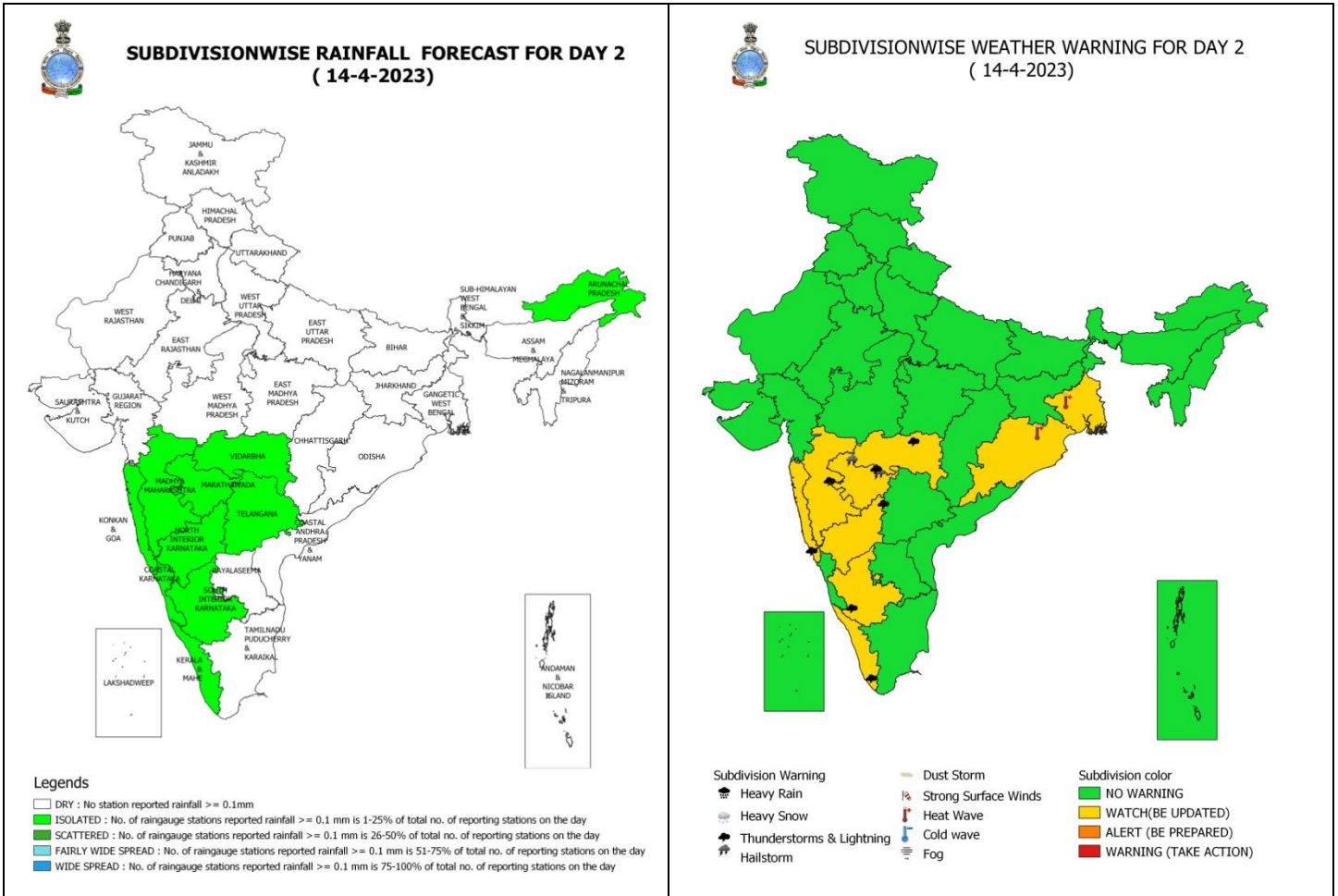
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**14 April (Day 2): ♦ Hailstorm with thunderstorm & lightning** very likely at isolated places over Madhya Maharashtra and Marathwada.

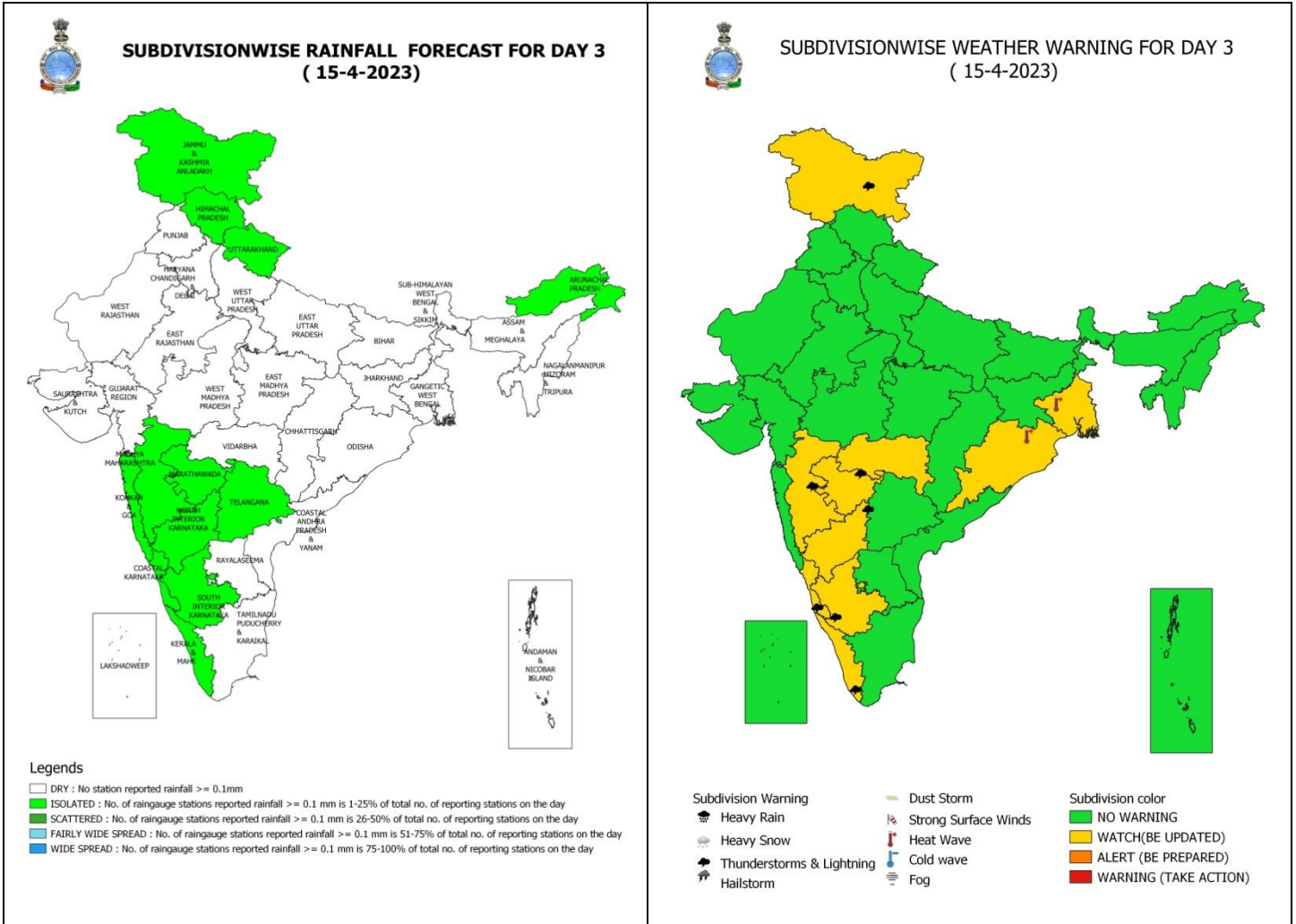
♦ **Thunderstorm with lightning** very likely at isolated places over Vidarbha, Konkan & Goa, Interior Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** very likely in isolated pockets over Gangetic West Bengal and Odisha.

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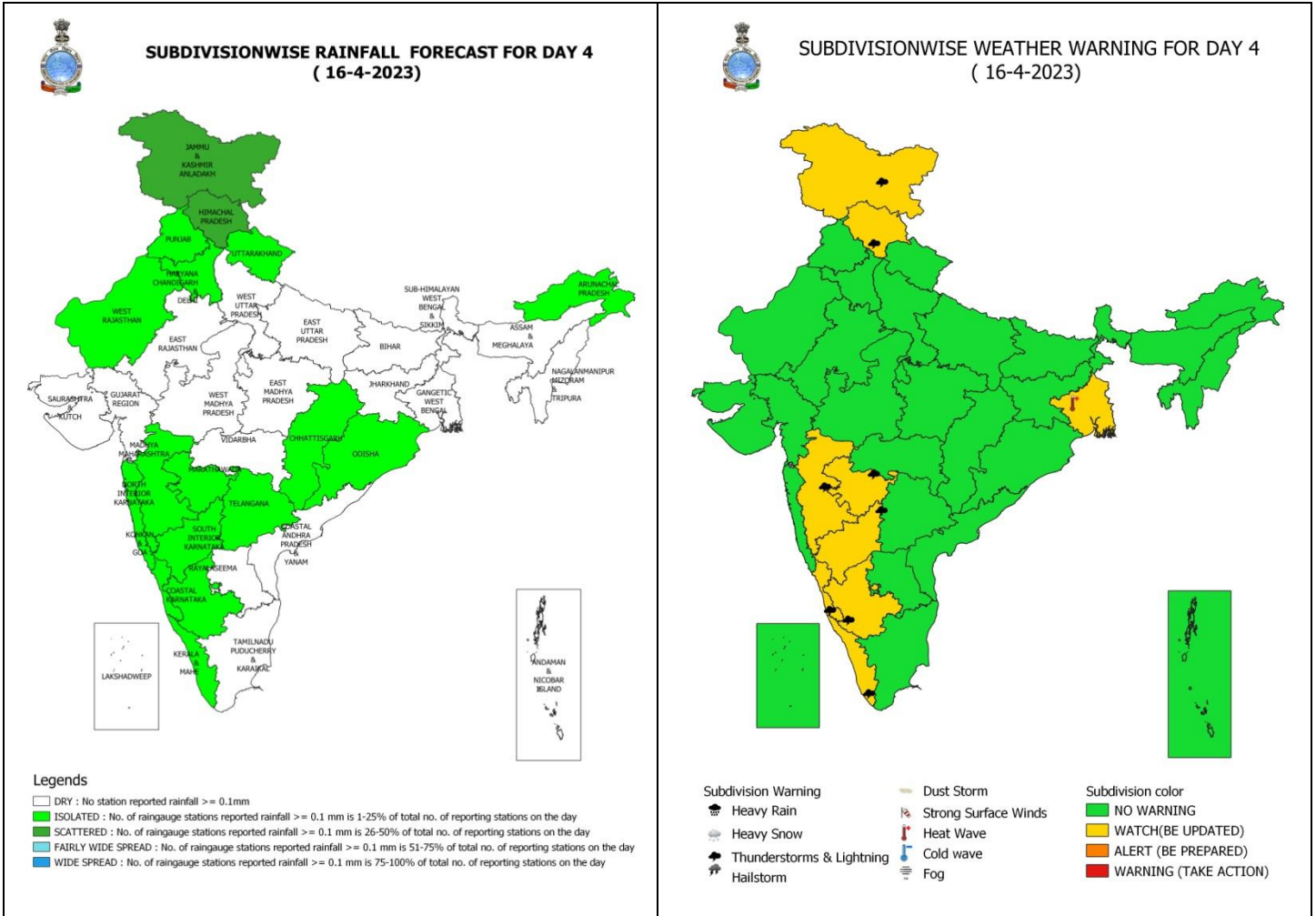
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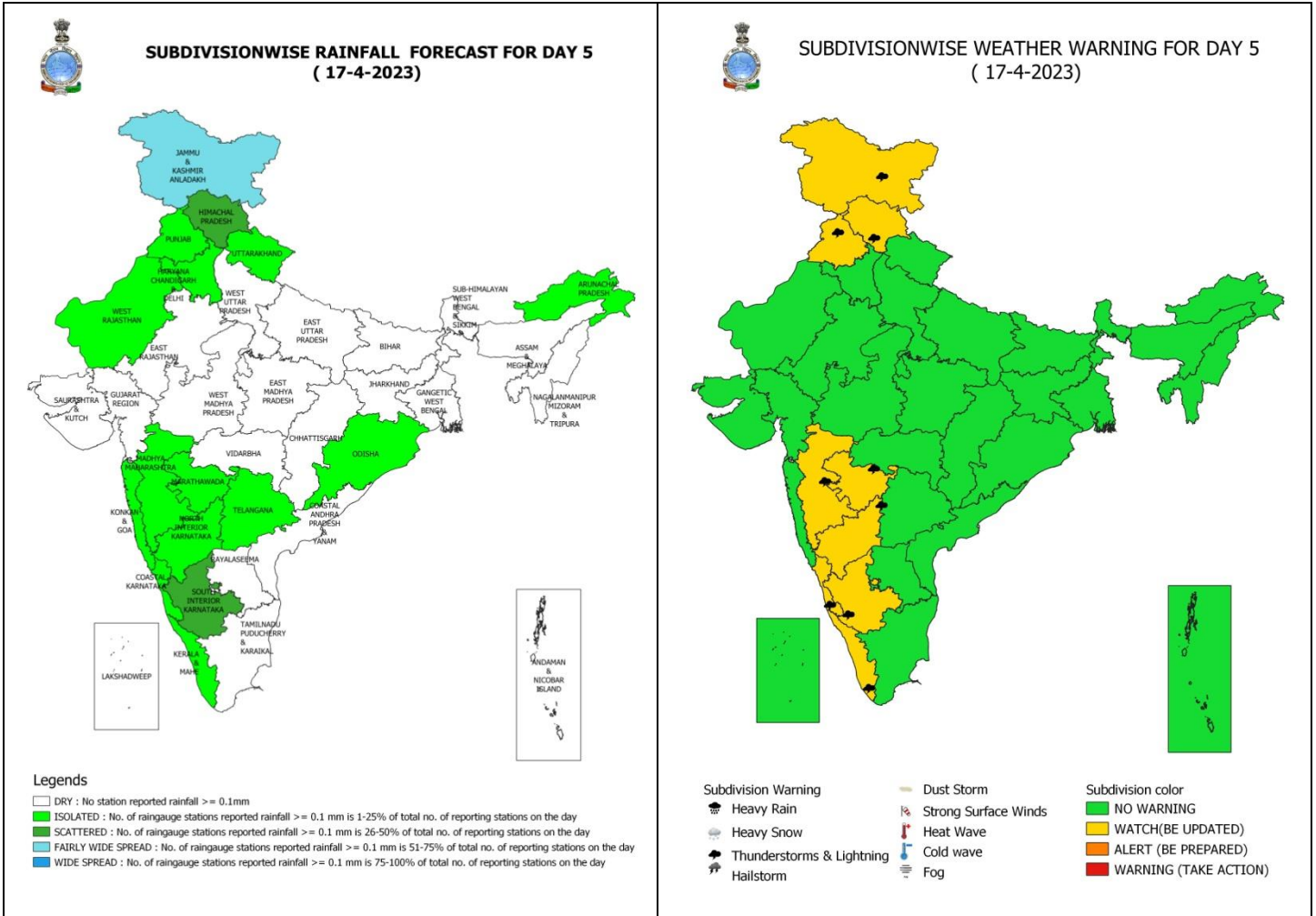
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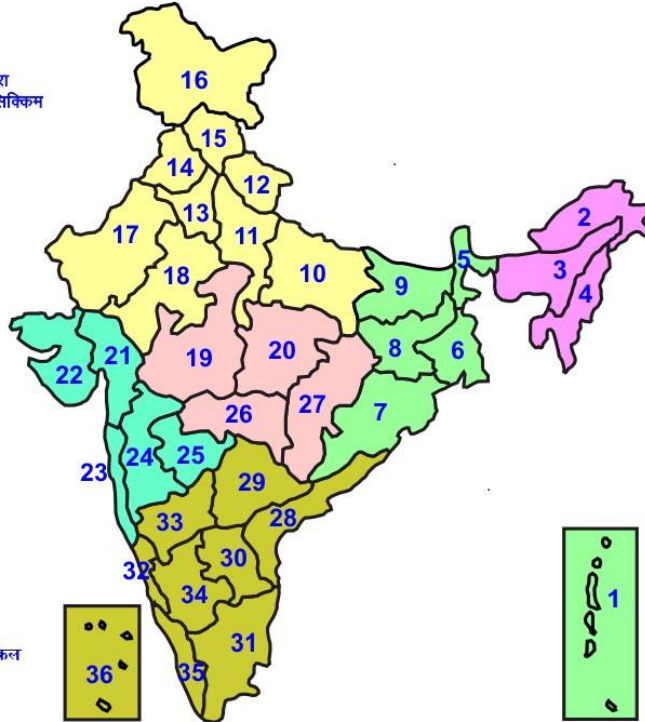
**♦ Heat Wave conditions likely in isolated pockets over Gangetic West Bengal.**



**17 April (Day 5): ♦ Thunderstorm with lightning & gusty wind (30-40 kmph) likely at isolated places over South Interior Karnataka and Kerala & Mahe and with lightning at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffrabad, Himachal Pradesh, Punjab, Madhya Maharashtra, Marathwada and Coastal & North Interior Karnataka.**

## LEGENDS

- 1 अंडमान और निकोबार द्वीप समुह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर मीजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एंव सिक्किम
- 6 पश्चिम गॉंगेय बंगाल
- 7 ओडिसा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडिगढ़ एंव दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एंव कश्मीर एंव लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात क्षेत्र
- 22 सौराष्ट्र एंव कच्छ
- 23 कोंकण एंव गोवा
- 24 मध्य महाराष्ट्र
- 25 मराठावाडा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एंव यनम
- 29 तेलंगाना
- 30 रायलसीमा
- 31 तमिलनाडु, पुदुचेरी एंव कराईकल
- 32 तटिय कर्नाटक
- 33 आंतरिक उत्तरी कर्नाटक
- 34 आंतरिक दक्षिणी कर्नाटक
- 35 केरल एंव 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. Orissa
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

<b>WARNING (TAKE ACTION)</b>
<b>ALERT ( BE PREPARED)</b>
<b>WATCH (BE UPDATED)</b>
<b>NO WARNING ( NO ACTION)</b>

## 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

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## 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  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

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  $40^{\circ}\text{C}$

Warm Night: When minimum temperature departure  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

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  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

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  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

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)

\* Red color warning does not mean "Red Alert" Red color 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 [www.imd.gov.in](http://www.imd.gov.in) or contact : +91 11 24631913, 24643965, 24629798