



Friday, April 21, 2023

MORNING

Time of Issue: 0800 hours IST

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features

Significant Meteorological features:

- ❖ A Western Disturbance seen as a trough in middle tropospheric westerlies roughly along Long. 70°E to the north of Lat. 25°N.
- ❖ An induced cyclonic circulation lies over north Pakistan & adjoining Punjab in lower tropospheric levels.
- ❖ A trough/wind discontinuity runs from Telangana to south Tamil Nadu in lower tropospheric levels.
- ❖ A trough runs from east Bangladesh to Northwest Bay of Bengal in lower tropospheric levels.

Maximum Temperatures and Heat Wave observed:

- ❖ Yesterday's, Maximum Temperatures were in the range of 40-44°C over many parts of East India and East Uttar Pradesh; in some parts of Central India, interior Maharashtra and Rayalaseema; 35-40°C of rest of the parts of the country except over Western Himalayan Region (12-25°C).
- ❖ Yesterday's, Heat Wave conditions to severe heat wave conditions were prevailing over Gangetic West Bengal since last 10 days, Heat Wave conditions over Bihar since last 7 days and Odisha since last 5 days.

Heat Wave Warnings:

East India:

- ❖ **Gangetic West Bengal: -Heat wave conditions** in isolated pockets very likely on 21st & 22nd April.
- ❖ **Bihar and Sub-Himalayan West Bengal: Heat wave conditions** in isolated pockets very likely on 21st April.
- ❖ **Odisha: - Heat wave conditions** in isolated pockets very likely on 21st April.

Rainfall Forecast and Warnings:

Northwest India:

- ❖ Light/moderate fairly widespread to widespread rainfall with thunderstorm/lightning very likely over Western Himalayan Region during next 24 hours. Isolated **Hailstorm** also very likely over Uttarakhand on 21st April, 2023.

Northeast India:

- ❖ Light/moderate scattered to fairly widespread rainfall with thunderstorm/lightning/gusty winds very likely over the region during next 3 days.
- ❖ **Heavy rainfall** very likely at isolated places over Arunachal Pradesh and Assam & Meghalaya during 21st-22nd April, 2023.

Central India:

- ❖ Light/moderate isolated rainfall with thunderstorm/lightning/gusty winds very likely over Madhya Pradesh, Vidarbha and Chhattisgarh during next 5 days. Isolated **hailstorm** also likely over Chhattisgarh on 23rd April, 2023.

West India:

- ❖ Light/moderate isolated rainfall with thunderstorm/lightning/gusty winds very likely over parts of interior Maharashtra during next 24 hours.

East India:

- ❖ Light isolated rainfall with thunderstorm/lightning very likely Bihar, Jharkhand, West Bengal and Odisha during 21st-24th April, 2023.

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Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Himachal Pradesh; **at a few places** over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad **and at isolated places** over Madhya Pradesh, Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Arunachal Pradesh, Madhya Maharashtra and South Interior Karnataka.
- ❖ **Significant rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Jammu & Kashmir:** Qazigund-1; **Himachal Pradesh:** Kalpa-1.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Himachal Pradesh and Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Madhya Maharashtra, Vidarbha, North Interior Karnataka and Kerala & Mahe.
- ❖ **Hailstorm observed** (from 0830 hours IST hours IST of yesterday to 0530 hours IST of today) at isolated places over Punjab, Vidarbha and Delhi.
- ❖ **Yesterday, Heat wave conditions** were observed over most parts with isolated **severe heat wave conditions** over Gangetic West Bengal and **heat wave** condition in isolated pockets over Sub-Himalayan West Bengal & Sikkim, Bihar and Odisha.
- ❖ **Minimum Temperature Departures (as on 20-04-2023):** Minimum temperatures were **markedly above normal (5.1°C or more)** at isolated places over East Uttar Pradesh; **appreciably above normal (3.1°C to 5.0°C)** at many places over Bihar; at a few places over East Madhya Pradesh and isolated places over West Rajasthan; **above normal (1.6°C to 3.0°C)** at most places over West Bengal and Chhattisgarh; at many places over West Uttar Pradesh, West Madhya Pradesh, Jharkhand and Andaman & Nicobar Islands; at a few places over Haryana, Chandigarh & Delhi, Madhya Maharashtra, Odisha and Vidarbha and at isolated places over Punjab, Gujarat State, Konkan & Goa and Kerala & Mahe. They were **below normal (-1.6°C to -3.0°C)** at a few places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh and Marathawada and at isolated places over West Madhya Pradesh, Telangana and Coastal Andhra Pradesh & Yanam **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 16.9°C** was reported at **Amritsar (Punjab)** over plains of the country.
- ❖ **Maximum Temperature Departures (as on 20-04-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at many places over Gangetic West Bengal; a few places over Sub-Himalayan West Bengal & Sikkim; at isolated places over Bihar; **appreciably above normal (3.1°C to 5.0°C)** at many places over Jharkhand; at a few places over Odisha, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over East Uttar Pradesh, Konkan & Goa, Kerala & Mahe; at a few places over Chhattisgarh, Coastal Andhra Pradesh & Yanam, Rayalaseema. They were **markedly below normal (-5.1°C or less)** at many places over Himachal Pradesh; at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad; **appreciably below normal (-1.6°C to -3.0°C)** at most places over West Rajasthan; at many places over Punjab; at a few places over East Rajasthan; at isolated places over Gujarat State, West Madhya Pradesh, Haryana, Chandigarh & Delhi and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 43.9°C** was reported at **Panagarh (Gangetic West Bengal)**.

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Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Western Disturbance** as a trough in middle tropospheric levels with its axis at 5.8 km above mean sea level now runs roughly along Long. 70°E to the north of Lat. 25°N.
- ❖ The induced **cyclonic circulation** over north Pakistan and adjoining Punjab extending upto 1.5 km above mean sea level persists.
- ❖ The **trough/wind discontinuity** from Telangana to south Tamil Nadu across Rayalaseema at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over north Bangladesh & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **trough** from East Bangladesh to Northwest Bay of Bengal at 1.5 km above mean sea level persists.

Weather Forecast for next 5 days (upto 0830 hours IST of 26th April, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ **Northwest India:** Gradual rise in Maximum Temperatures by 3-4°C during next 5 days.
- ❖ **Central India:** No Large change in Maximum Temperatures likely over Vidarbha & Chhattisgarh during next 24 hours and fall by 2-4°C thereafter.
- ❖ **South Peninsular India:** No Large change in Maximum Temperatures likely during next 24 hours and fall by 2-3°C thereafter.
- ❖ **Rest parts of the country:** No significant change in Temperatures very likely during 5 days.

Weather Outlook for subsequent 2 days (during 26th-28th April, 2023)

- ❖ Scattered to Fairly widespread light/moderate rainfall likely over Northeast India.
- ❖ Isolated to scattered light rainfall likely over parts of Western Himalayan region and Peninsular India.
- ❖ Dry weather likely over rest parts of India.

Weather Warning during next 5 days

21 April (Day 1): ♦ **Heavy rainfall** very likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.

♦ **Hailstorm with thunderstorm, lightning** very likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** very likely at isolated places over East Uttar Pradesh, East Madhya Pradesh, Vidarbha, Chhattisgarh, Assam & Meghalaya, Kerala & Mahe and **with lightning** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Jharkhand, Telangana and Interior Karnataka.

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

♦ **Squally wind (speed 40-50 kmph)** very likely along & off Gujarat coast. Fishermen are advised not to venture into these areas.

22 April (Day 2): ♦ **Heavy rainfall** likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.

♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over East Madhya Pradesh, Vidarbha, Chhattisgarh, Jharkhand, Kerala & Mahe and **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamilnadu.

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

23 April (Day 3): ♦ **Hailstorm with thunderstorm, lightning** likely at isolated places over Chhattisgarh.

♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over East Madhya Pradesh, Vidarbha, Gangetic West Bengal, Odisha, Jharkhand, Kerala & Mahe and **with lightning** at isolated places over Bihar, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamilnadu.

24 April (Day 4): ♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over Chhattisgarh, Gangetic West Bengal, Kerala & Mahe and **with lightning** at isolated places over Odisha, Bihar, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamil Nadu.

25 April (Day 5): ♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over Chhattisgarh, Gangetic West Bengal, Kerala & Mahe and **with lightning** at isolated places over Odisha, Bihar, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamil Nadu.

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5 Day Rainfall Forecast (MORNING)

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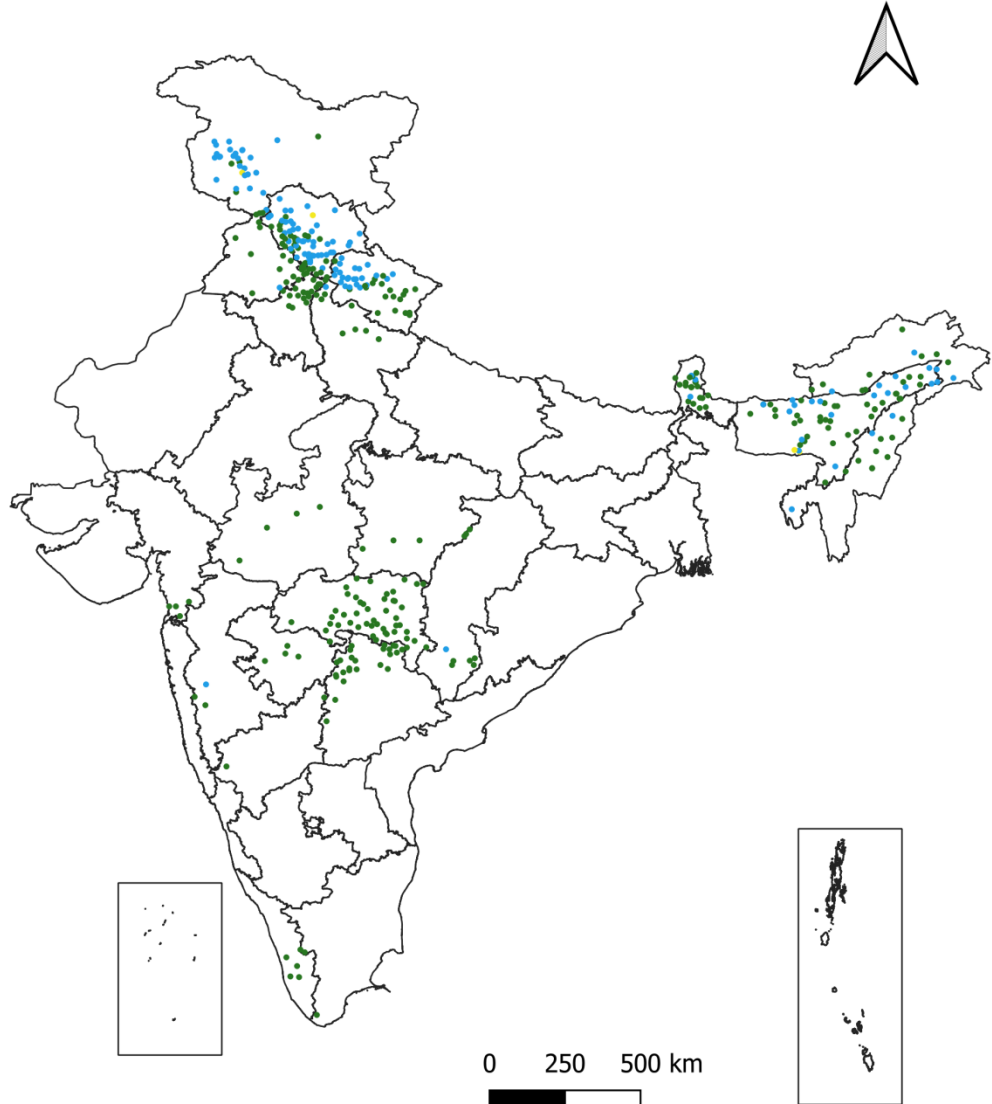
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Fig. 1: Accumulated Rainfall (mm) during past 24 hours



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 19-4-2023 to 0830 IST of 20-4-2023



Legends

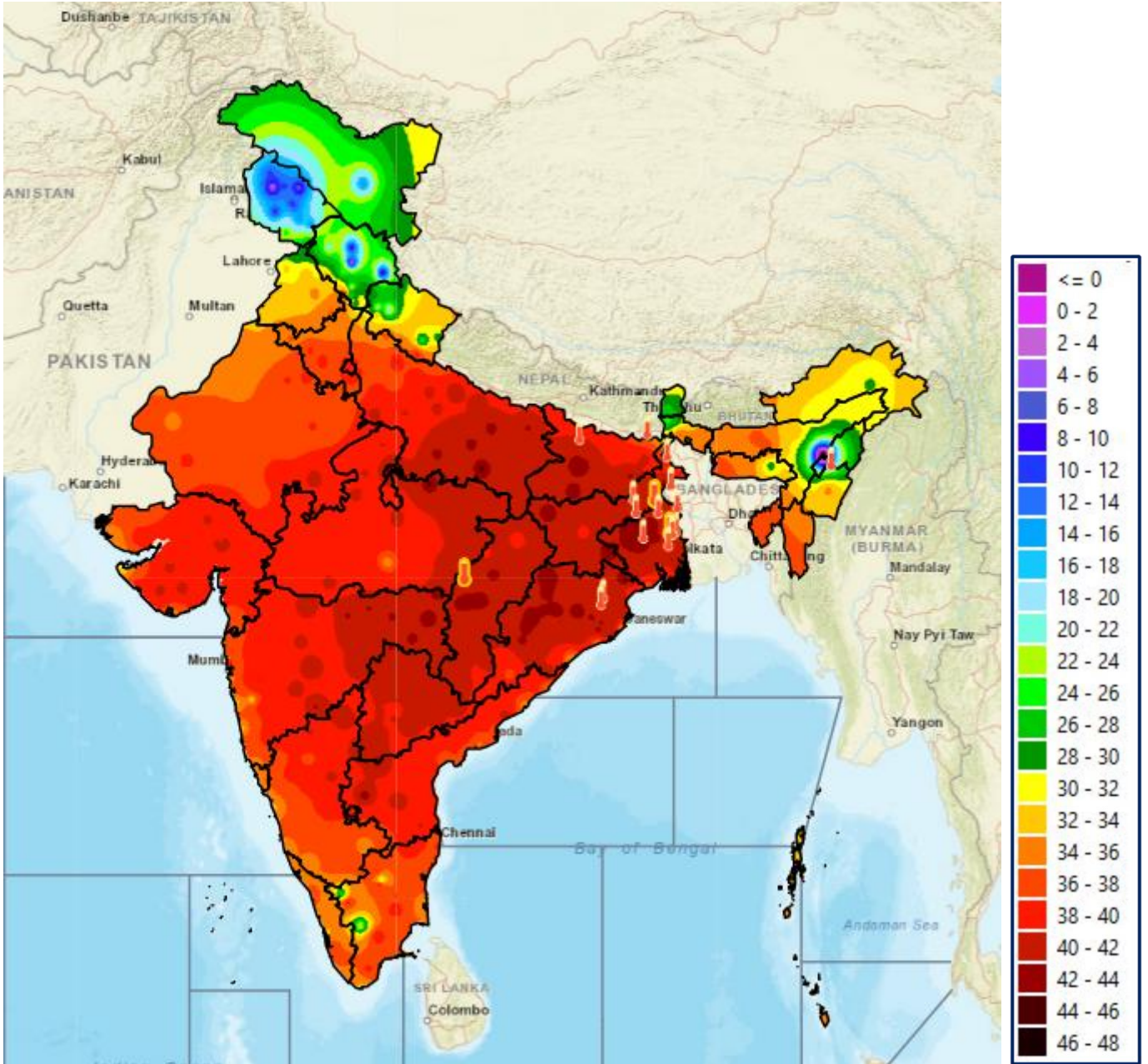
- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall (≥ 204.5 mm)

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Fig. 2: Maximum Temperatures Dated 20.04.2023



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Fig. 3: Minimum Temperatures Dated 20.04.2023

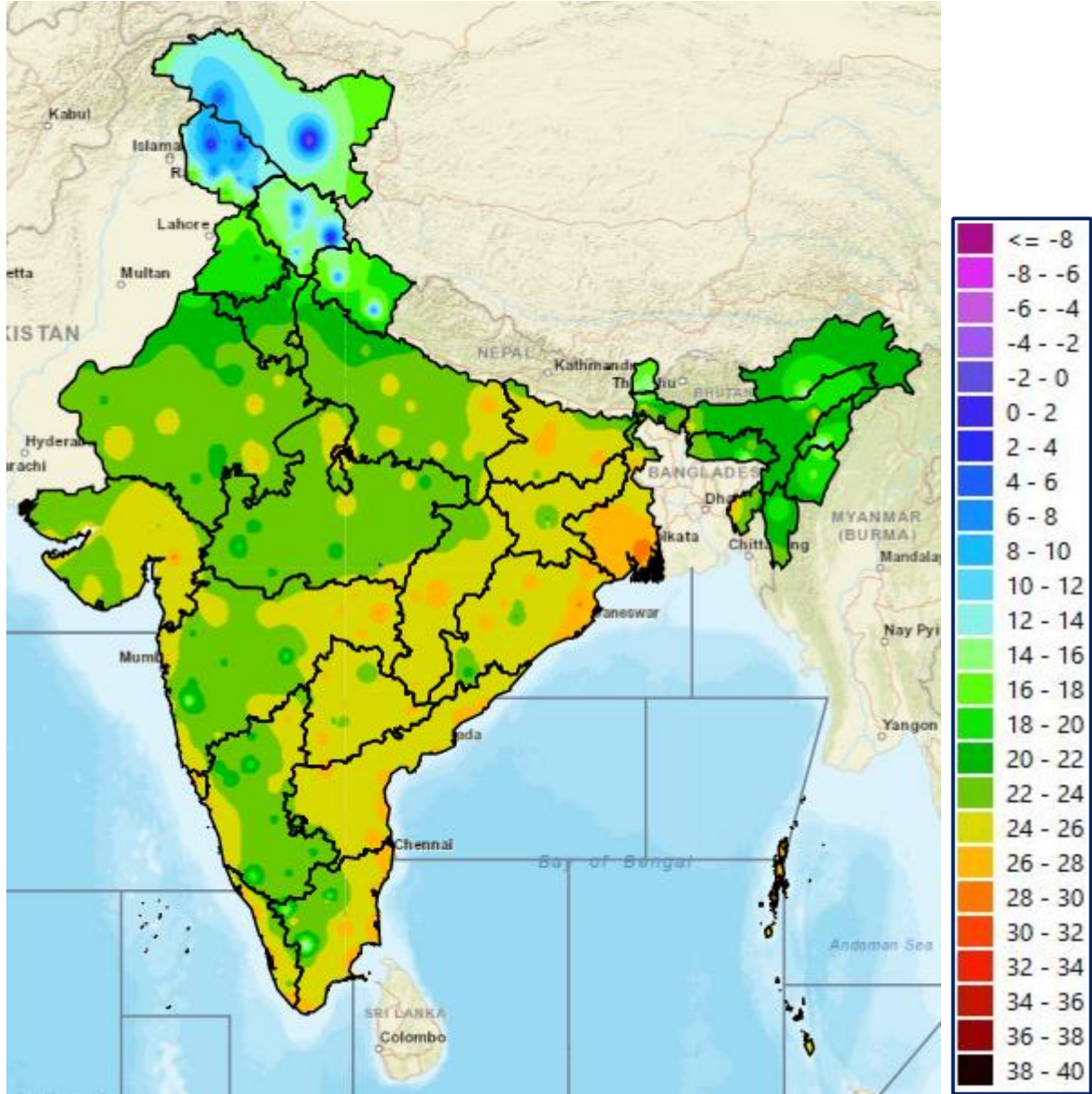
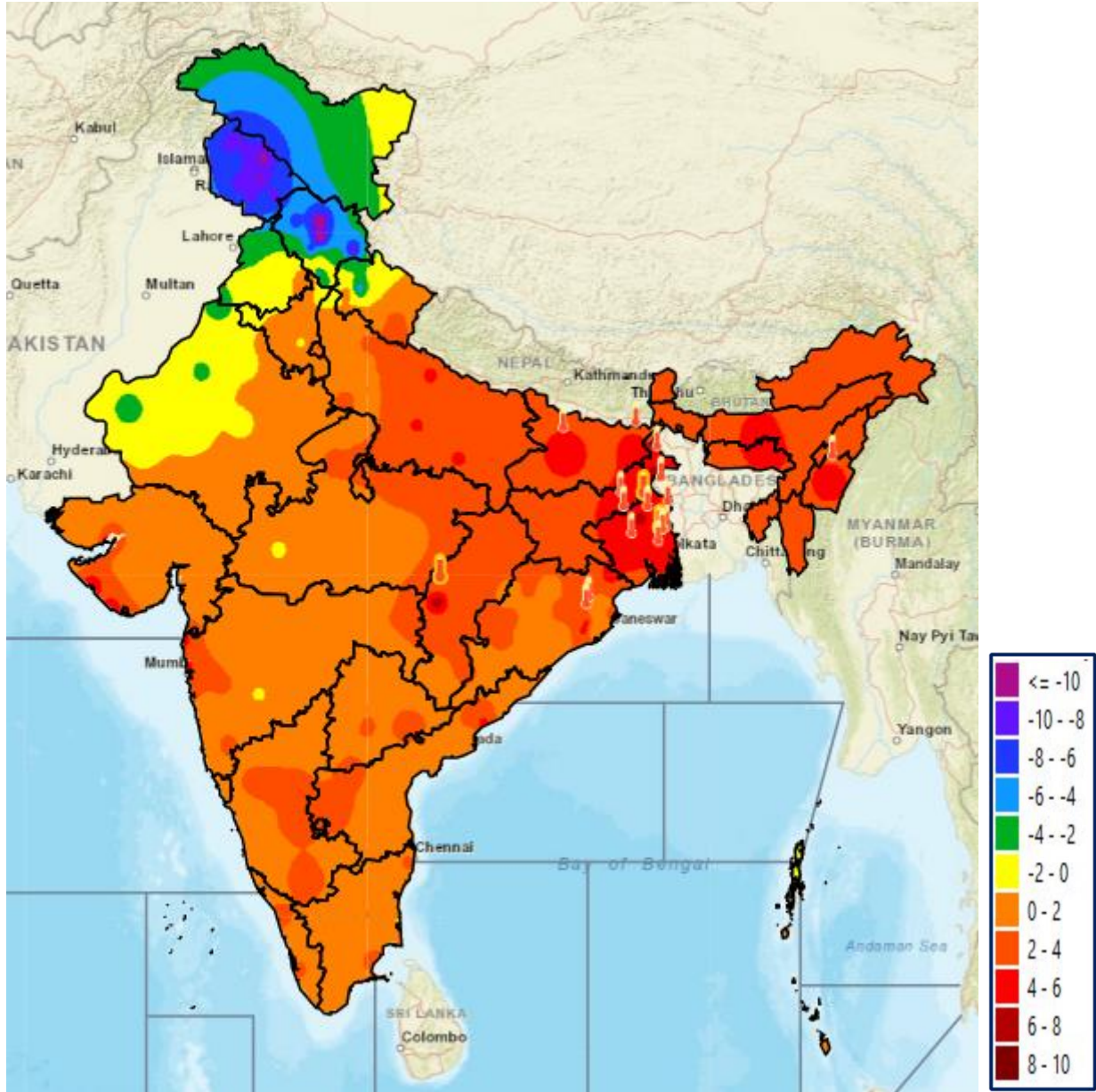
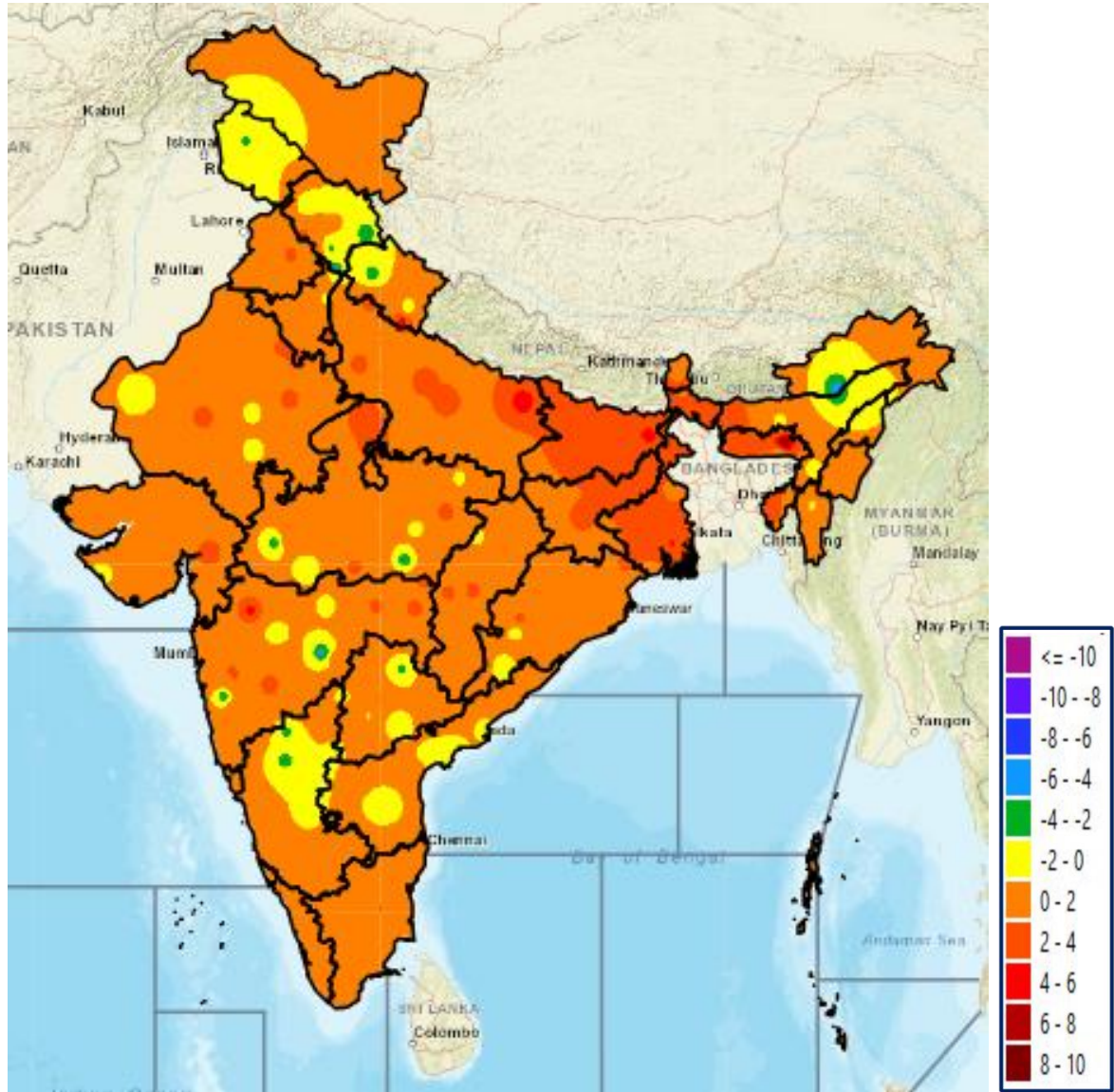


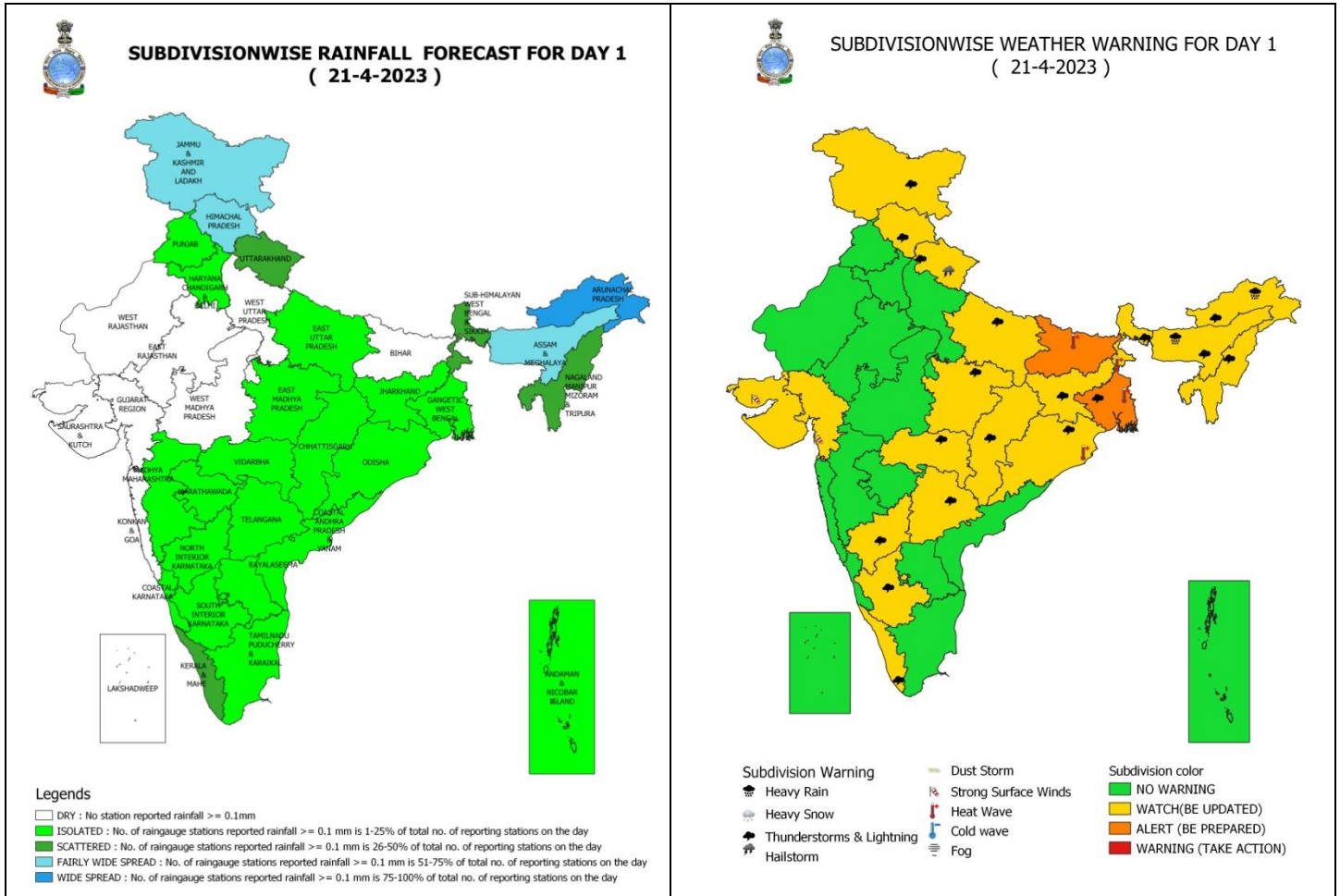
Fig. 4: Departure from Normal of Maximum Temperatures Dated 20.04.2023



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Fig. 5: Departure from Normal of Minimum Temperatures Dated 20.04.2023





21 April (Day 1): ♦ Heavy rainfall very likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.

♦ **Hailstorm with thunderstorm, lightning** very likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** very likely at isolated places over East Uttar Pradesh, East Madhya Pradesh, Vidarbha, Chhattisgarh, Assam & Meghalaya, Kerala & Mahe and **with lightning** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Jharkhand, Telangana and Interior Karnataka.

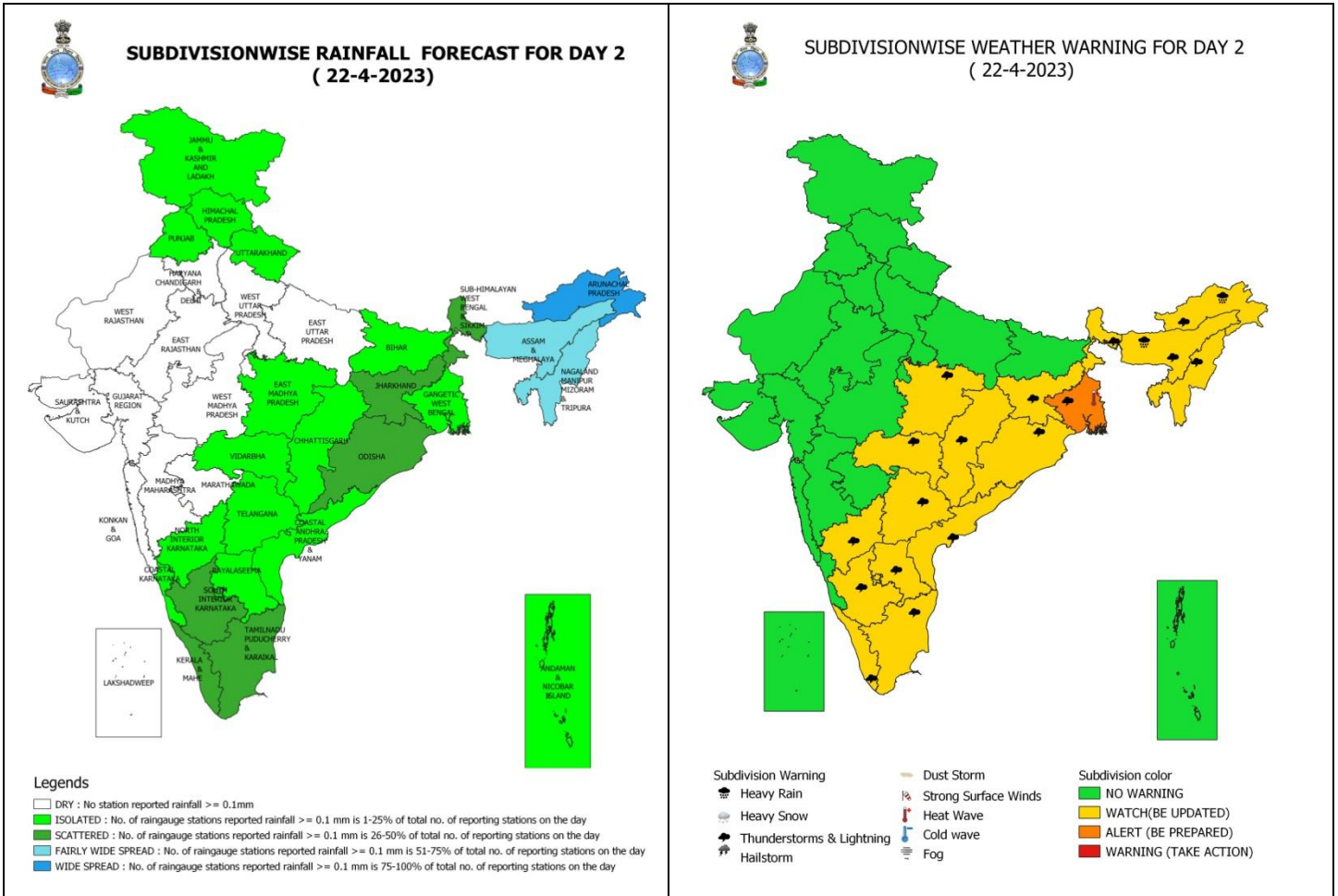
♦ **Heat Wave conditions** very likely in isolated pockets over Odisha, West Bengal and Bihar.

♦ **Squally wind (speed 40-50 kmph)** very likely along & off Gujarat coast. Fishermen are advised not to venture into these areas.

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22 April (Day 2): ♦ Heavy rainfall likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.

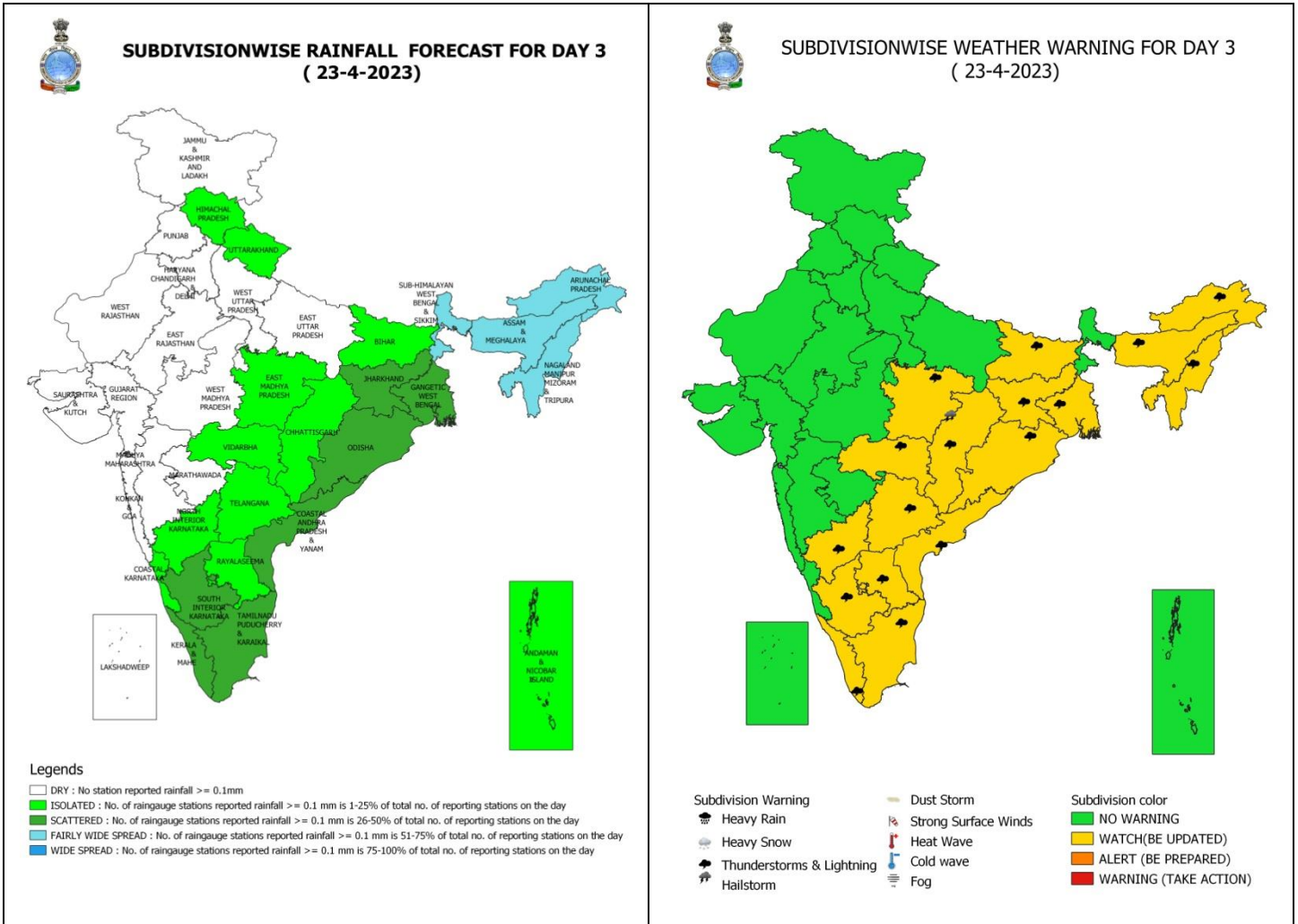
♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over East Madhya Pradesh, Vidarbha, Chhattisgarh, Jharkhand, Kerala & Mahe and **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamilnadu.

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

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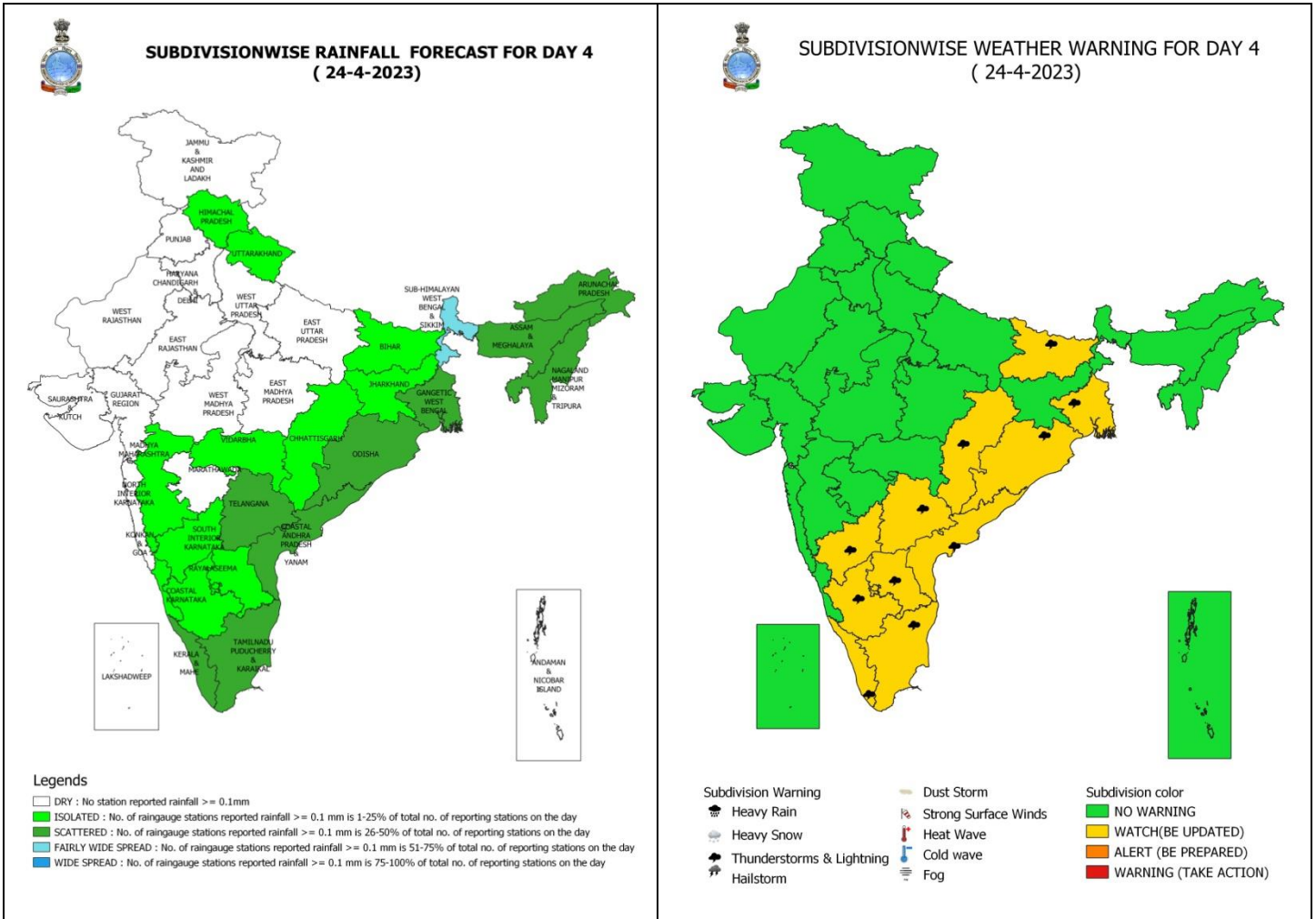
23 April (Day 3): ♦ Hailstorm with thunderstorm, lightning likely at isolated places over Chhattisgarh.

♦ Thunderstorm with lightning & gusty wind (30-40 kmph) likely at isolated places over East Madhya Pradesh, Vidarbha, Gangetic West Bengal, Odisha, Jharkhand, Kerala & Mahe and **with lightning** at isolated places over Bihar, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamilnadu.

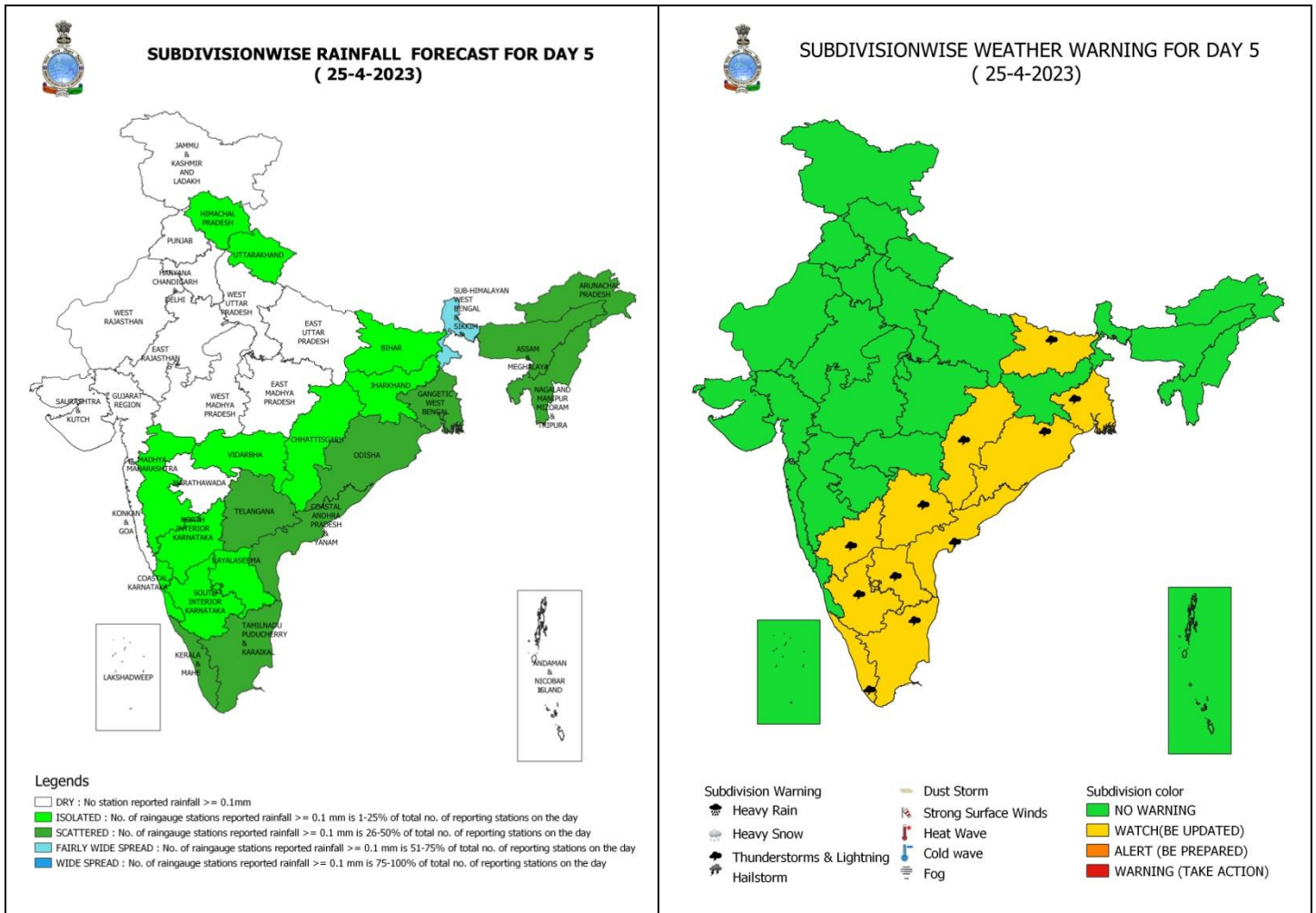
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24 April (Day 4): ♦ Thunderstorm with lightning & gusty wind (30-40 kmph) likely at isolated places over Chhattisgarh, Gangetic West Bengal, Kerala & Mahe and with lightning at isolated places over Odisha, Bihar, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.

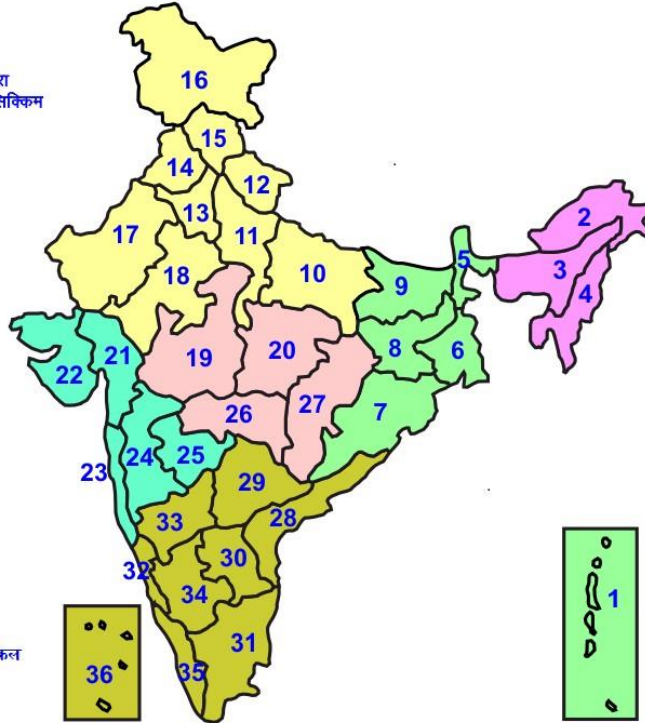


25 April (Day 5): ♦ Thunderstorm with lightning & gusty wind (30-40 kmph) likely at isolated places over Chhattisgarh, Gangetic West Bengal, Kerala & Mahe and with lightning at isolated places over Odisha, Bihar, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.



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 एवं सिक्किम
- 6 पश्चिम गॉंगेय बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडिगढ़ 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 क्षेत्र
- 22 सौराष्ट्र एवं कच्छ
- 23 कोंकण एवं गोवा
- 24 मध्य महाराष्ट्र
- 25 मराठावाडा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यनम
- 29 तेलंगाना
- 30 रायलसीमा
- 31 तमिलनाडु, पुदुचेरी एवं 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. 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

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

* 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

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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°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)

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