



Wednesday, April 12, 2023
MORNING
Time of Issue: 0800 hours IST

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features

Weather Forecast and Warnings:

- ❖ The **trough** in easterlies runs from north Kerala to south Madhya Maharashtra at lower tropospheric levels.
- ❖ A cyclonic circulation lies over southeast Pakistan upto middle tropospheric levels.

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** likely over Madhya Maharashtra on 13th & 14th April, 2023.

South India:

Light/moderate isolated rainfall with thunderstorm/lightning/gusty winds very likely over Kerala during next 5 days.

No significant weather likely over rest parts of the country.

Maximum Temperatures Forecast and heat wave during next 5 days:

- ❖ Maximum Temperatures are very likely to rise gradually by 2-4°C over many parts of the country.
- ❖ **Heat wave conditions** very likely in isolated pockets over Odisha during 13th-16th April, 2023.
- ❖ **Strong surface winds (25-35 kmph)** very likely over Haryana and Uttar Pradesh during 12th-13th April, 2023.

* Red color warning does not mean "Red Alert" Red color warning means "Take Action".

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Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): **NIL**.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Vidarbha .
- ❖ **Minimum Temperature Departures (as on 11-04-2023):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over West Rajasthan and Gujarat Region; **above normal (1.6°C to 3.0°C)** at a few places over Andaman & Nicobar Islands; at isolated places over Saurashtra & Kutch, West Madhya Pradesh and Gangetic West Bengal. They were **markedly below normal (-5.1°C or less)** at isolated places over East Madhya Pradesh; **appreciably below normal (-3.1°C to -5.0°C)** at a few places over Haryana, Chandigarh & Delhi; at isolated places over East Rajasthan, Bihar and Coastal Andhra Pradesh & Yanam; **below normal (-1.6°C to -3.0°C)** at most places over Rayalaseema; at many places over East Uttar Pradesh, Vidarbha and Telangana; at a few places over West Madhya Pradesh and Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 14.6°C** was reported at **Rewa (East Madhya Pradesh)** over plains of the country.
- ❖ **Maximum Temperature Departures (as on 11-04-2023):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at a few places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Gangetic West Bengal, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; **above normal (1.6°C to 3.0°C)** at many places over Sub-Himalayan West Bengal & Sikkim; at a few places over Bihar and Odisha; at isolated places over West Rajasthan, West Madhya Pradesh, Gujarat State, Konkan & Goa, Coastal Andhra Pradesh & Yanam, Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal. They were **below normal (-1.6°C to -3.0°C)** at isolated places over East Madhya Pradesh and **near normal** over rest parts of the country. Yesterday, the **highest maximum temperature of 42.5°C** was reported at **Rajgarh (West Madhya Pradesh)**.



Meteorological Analysis (Based on 0530 hours IST)

- ❖ The cyclonic circulation over northeast Arabian Sea & adjoining south Pakistan extending upto 5.8 km above mean sea level persists.
- ❖ The trough in easterlies from north Kerala to south Madhya Maharashtra across interior Karnataka at 0.9 km above mean sea level persists.
- ❖ A fresh Western Disturbance is likely to affect Western Himalayan Region from 15th April, 2023.

Weather Forecast for next 5 days* (upto 0830 hours IST of 17th April, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ Gradual rise in Maximum Temperatures by 2-4⁰C very likely over many parts of the country during next 5 days.
- ❖ **Strong surface winds (speed 25-35 kmph)** likely to prevail over Haryana and Uttar Pradesh during 12th -13th April.

Weather Outlook for subsequent 2 days (during 17th-19th April, 2023)

- ❖ Mainly dry weather likely over most parts of the country except over parts of south Peninsular India, Northeast India and Western Himalayan region where isolated to scattered light/moderate rainfall is likely.



Weather Warning during next 5 days

12 April (Day 1): ♦ **Thunderstorm accompanied with lightning** very likely at isolated places over Madhya Maharashtra and Kerala & Mahe.

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

♦ **Thunderstorm with lightning** very likely at isolated places over Gujarat state, Konkan & Goa, Marathwada and Kerala & Mahe.

♦ **Heat Wave conditions** very likely in isolated pockets over Odisha.

14 April (Day 3): ♦ **Hailstorm with thunderstorm & lightning** likely at isolated places over Madhya Maharashtra.

♦ **Thunderstorm with lightning & gusty wind (30-40 kmph)** likely at isolated places over Vidarbha and Kerala & Mahe and **with lightning** at isolated places over West Madhya Pradesh, Konkan & Goa, Marathwada and Interior Karnataka.

♦ **Heat Wave conditions** likely in isolated pockets over Odisha.

15 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 West Madhya Pradesh, Marathwada and South Interior Karnataka.

♦ **Heat Wave conditions** likely in isolated pockets over Odisha.

16 April (Day 5): ♦ **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.

♦ **Heat Wave conditions** likely in isolated pockets over Odisha.



Table-1

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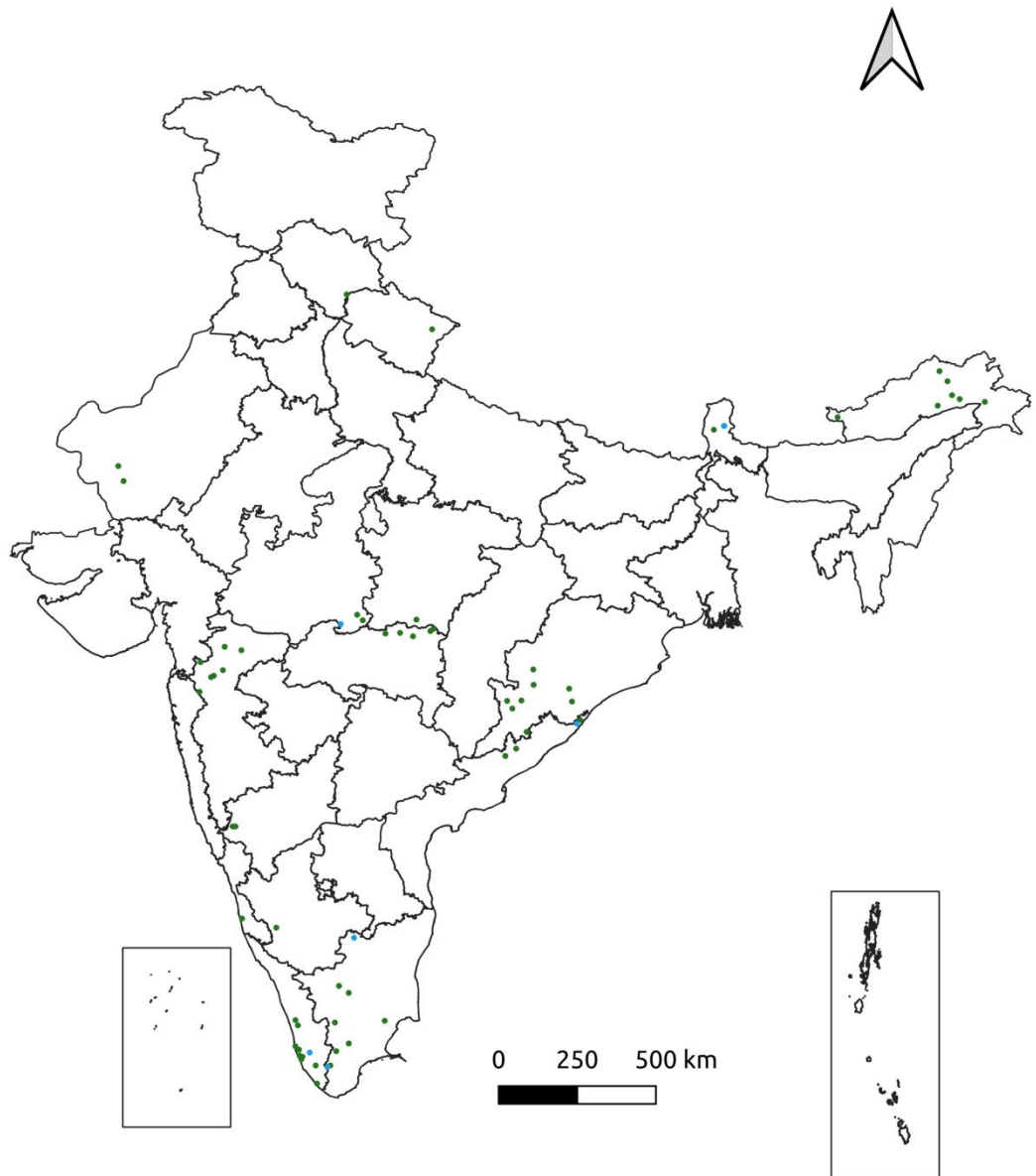
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Fig. 1: Accumulated Rainfall (mm) during past 24 hours



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 10-4-2023 to 0830 IST of 11-4-2023



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 11.04.2023

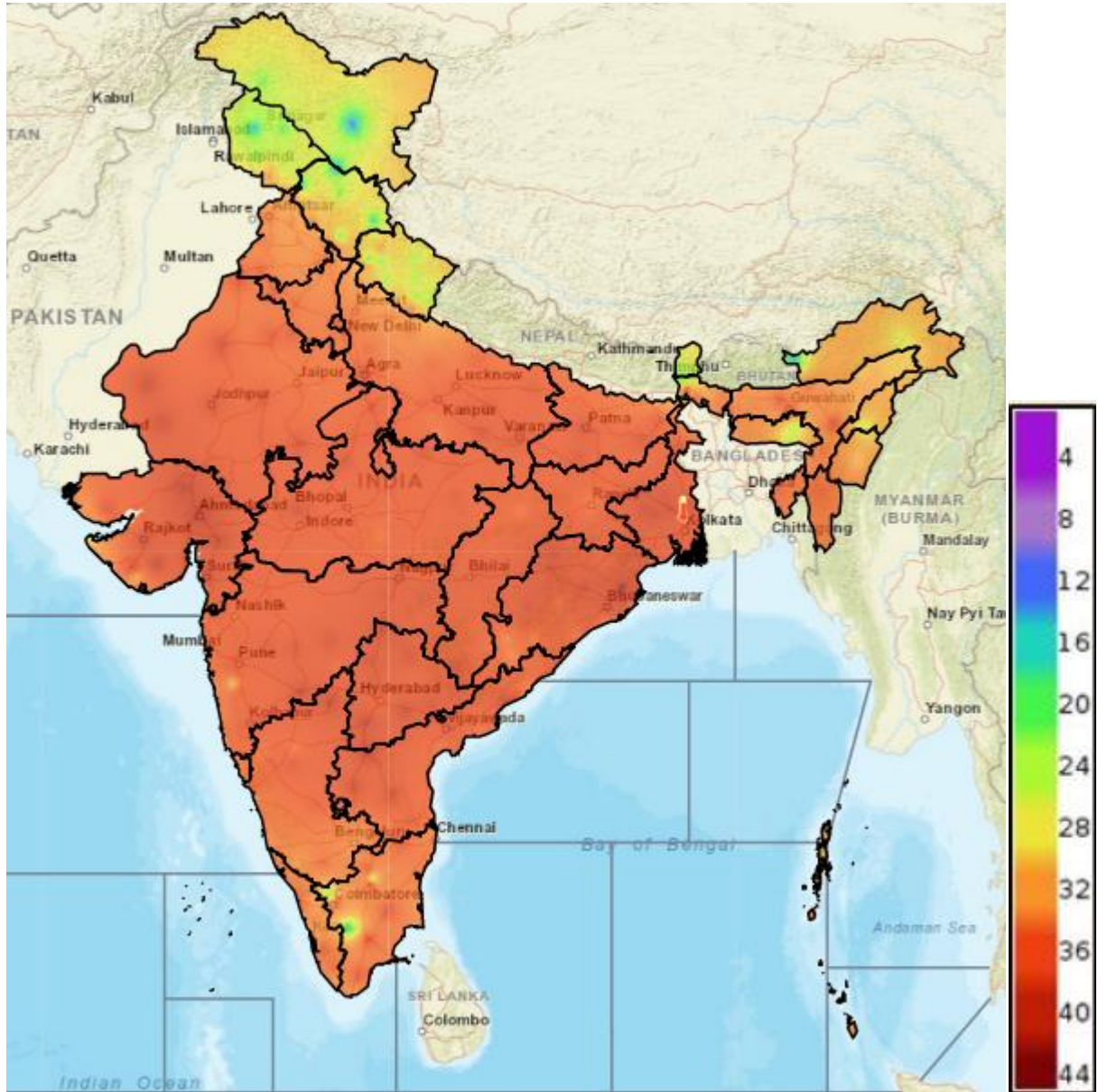
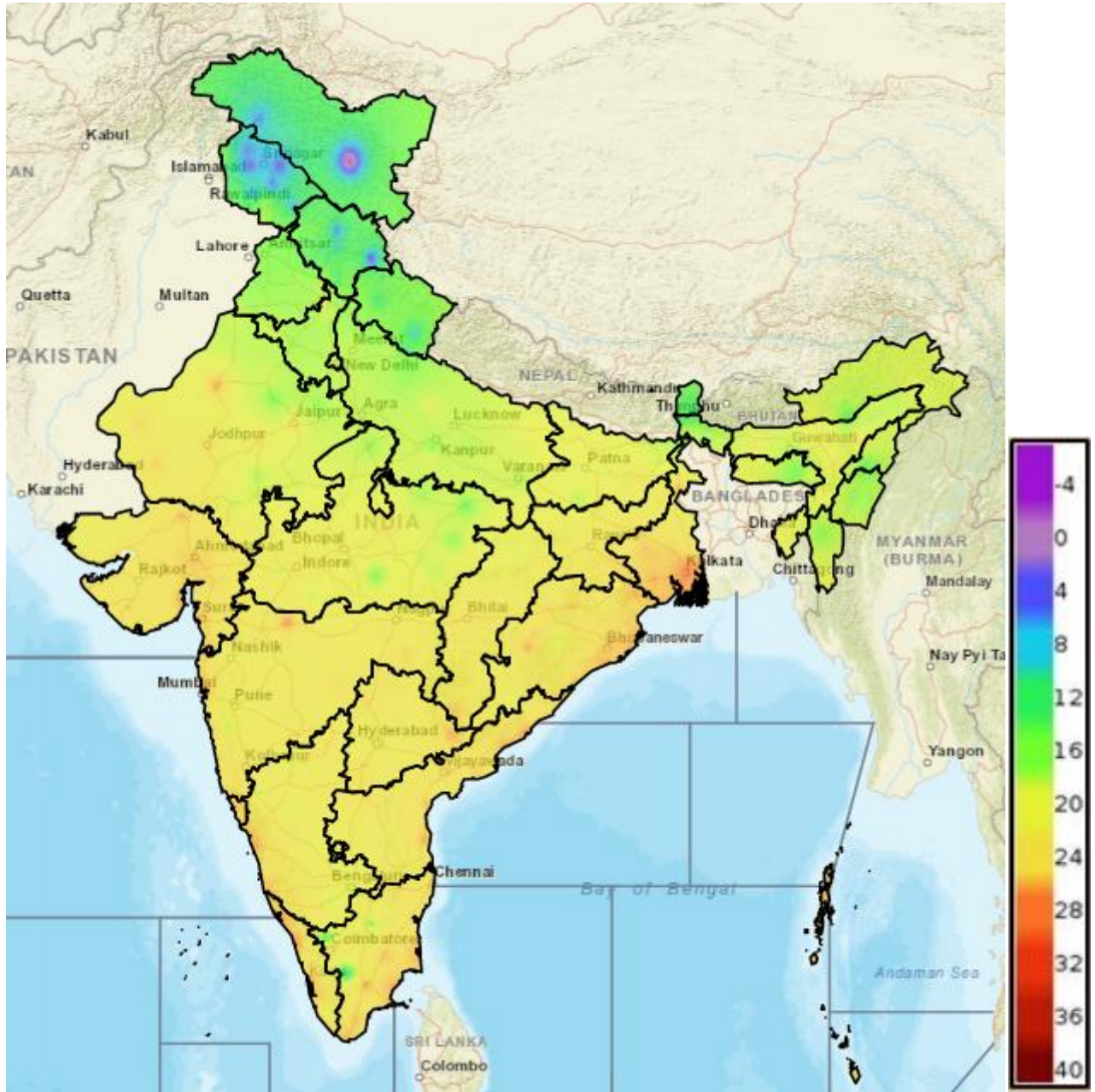


Fig. 3: Minimum Temperatures Dated 11.04.2023

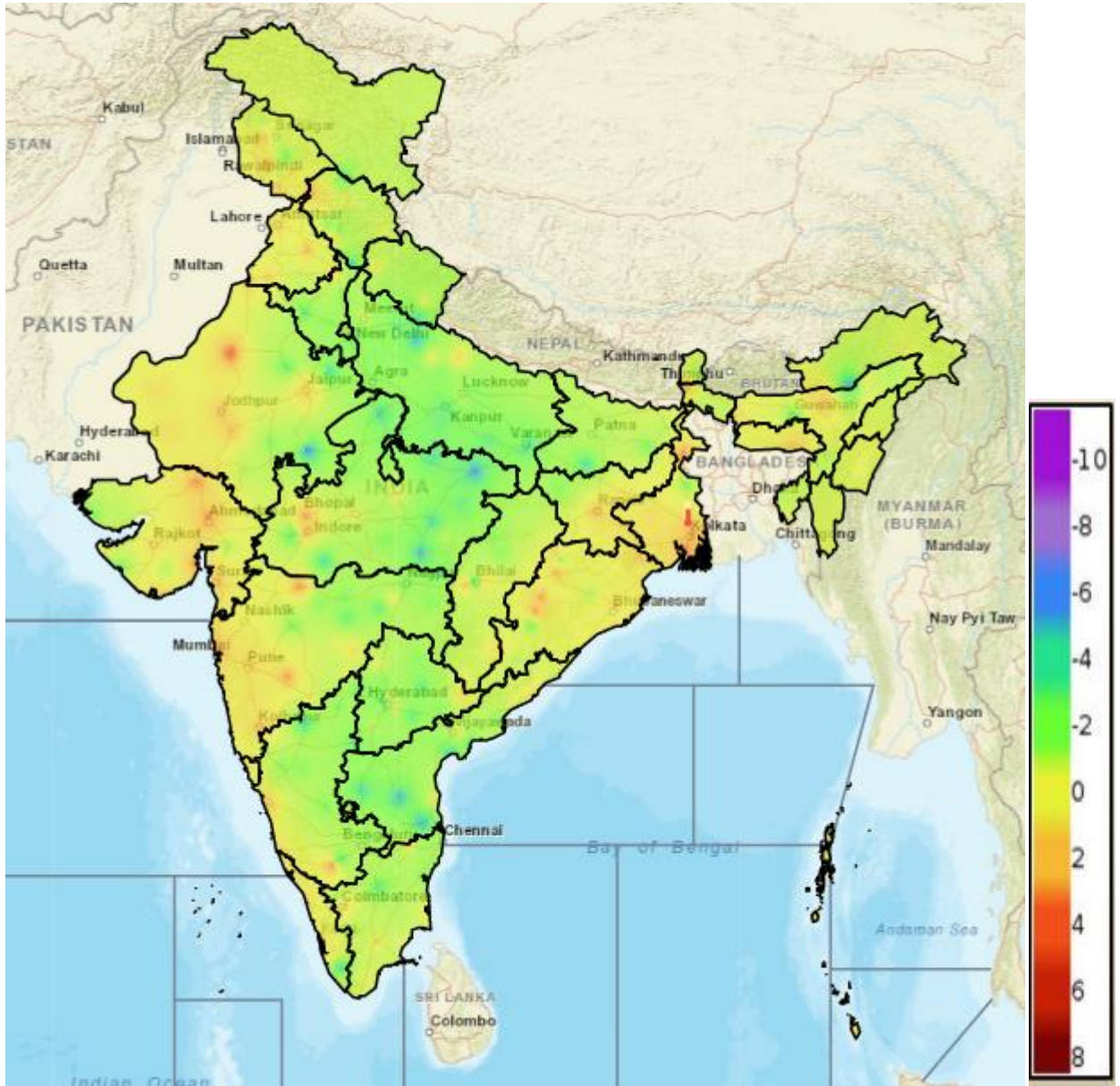


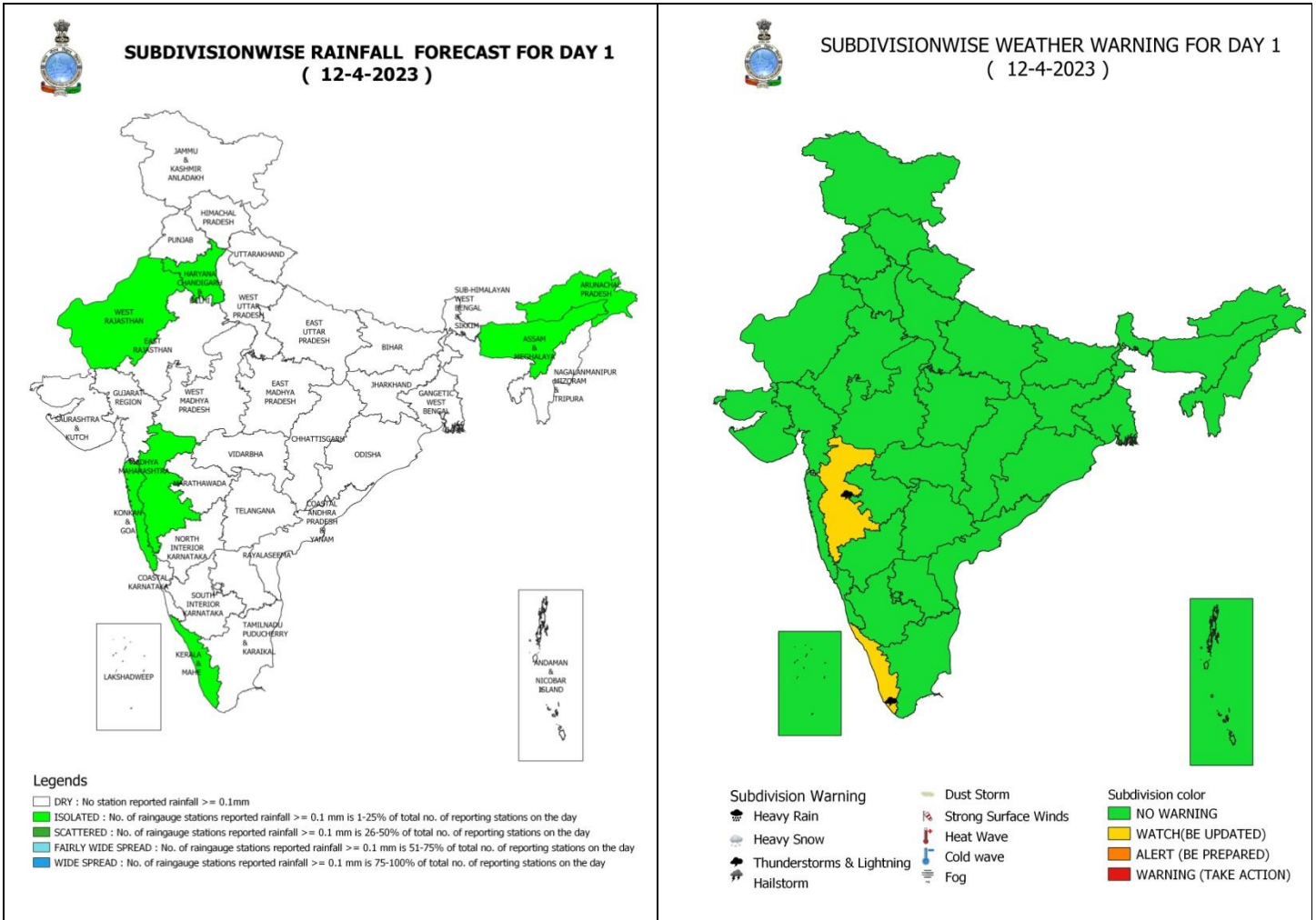
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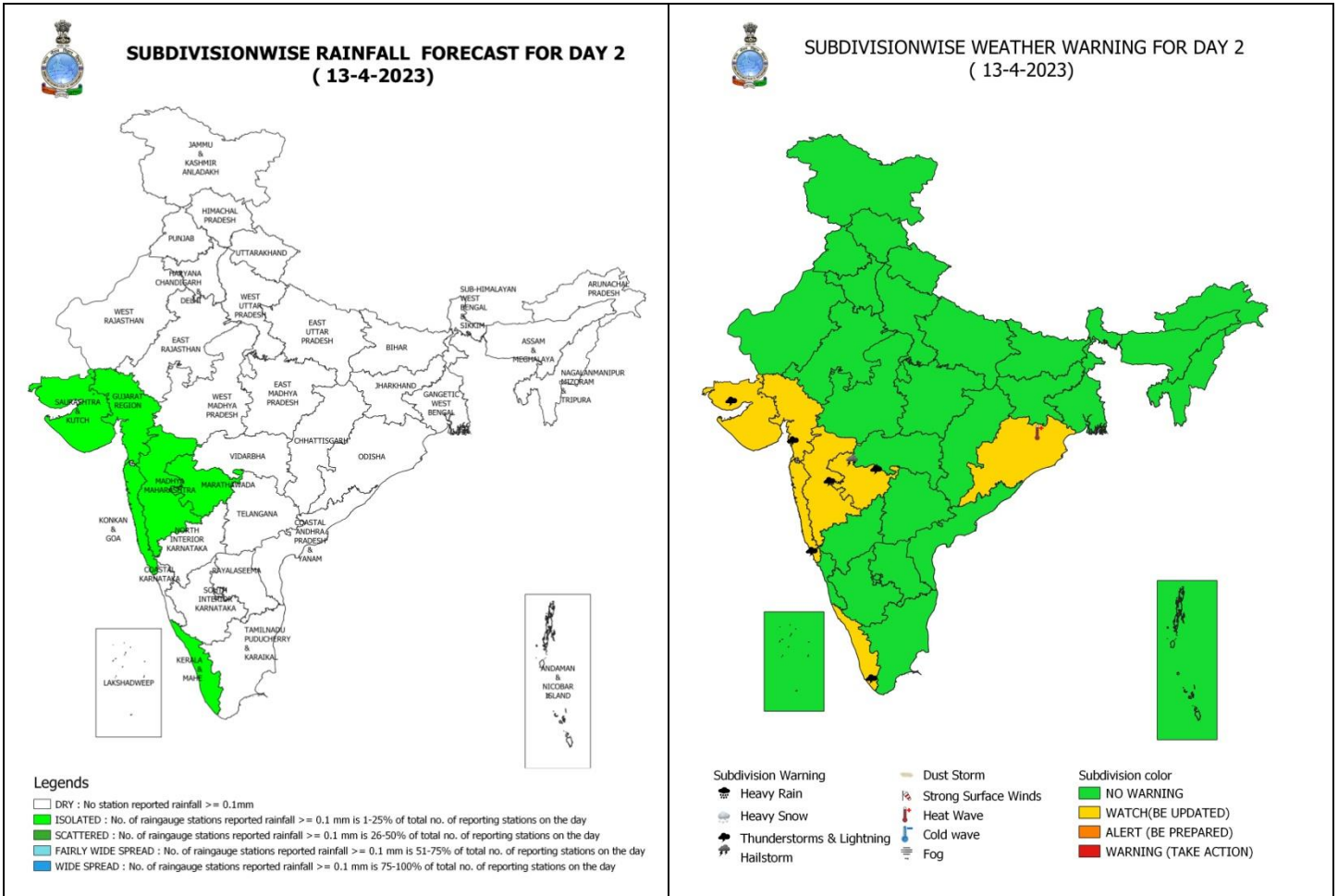
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Fig. 4: Departure from Normal of Maximum Temperatures Dated 11.04.2023





12 April (Day 1): ♦ Thunderstorm accompanied with lightning very likely at isolated places over Madhya Maharashtra and Kerala & Mahe.



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

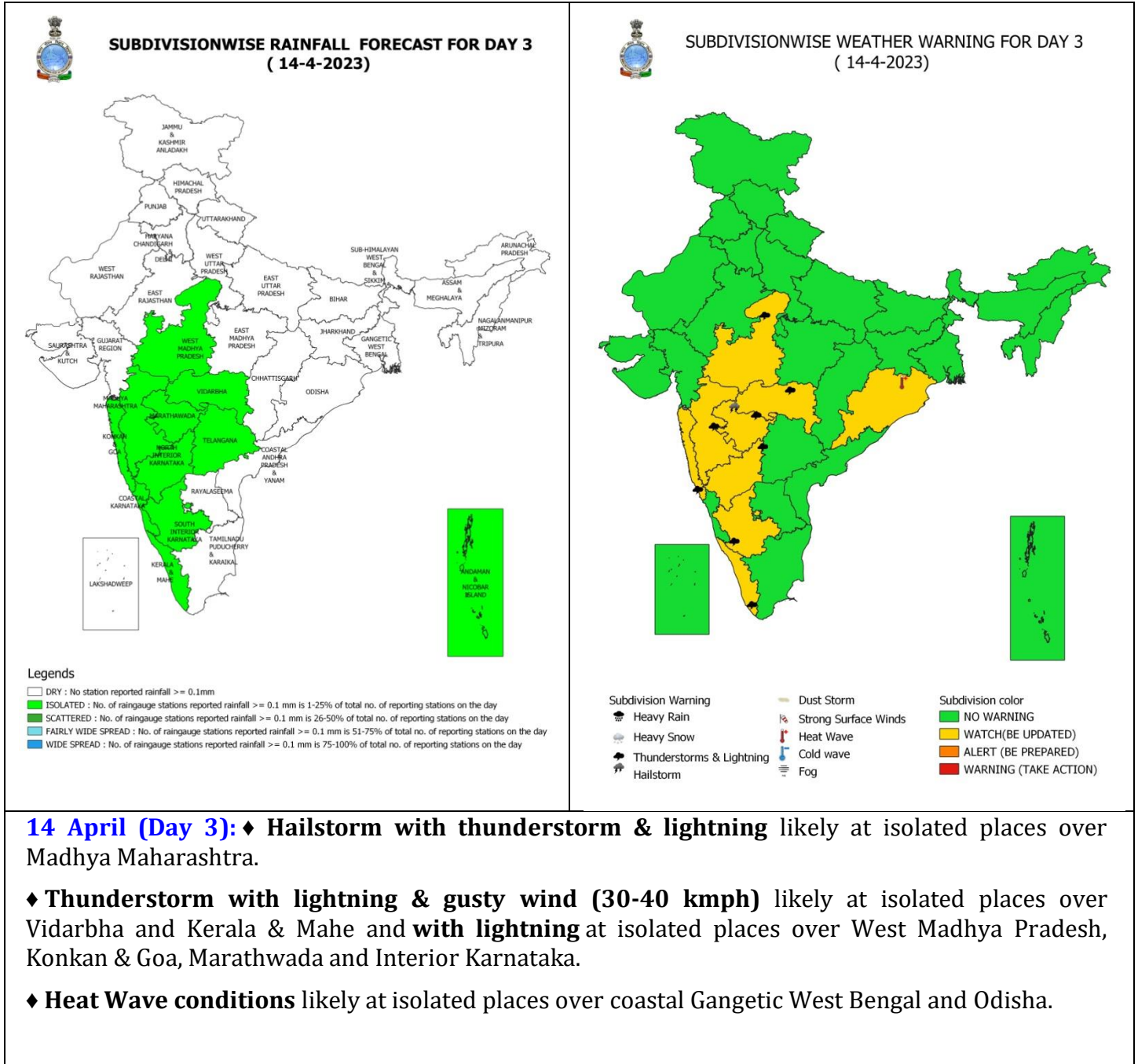
♦ **Thunderstorm with lightning** very likely at isolated places over Gujarat state, Konkan & Goa, Marathwada and Kerala & Mahe.

♦ **Heat Wave conditions** very likely at isolated places over coastal Gangetic West Bengal and Odisha.

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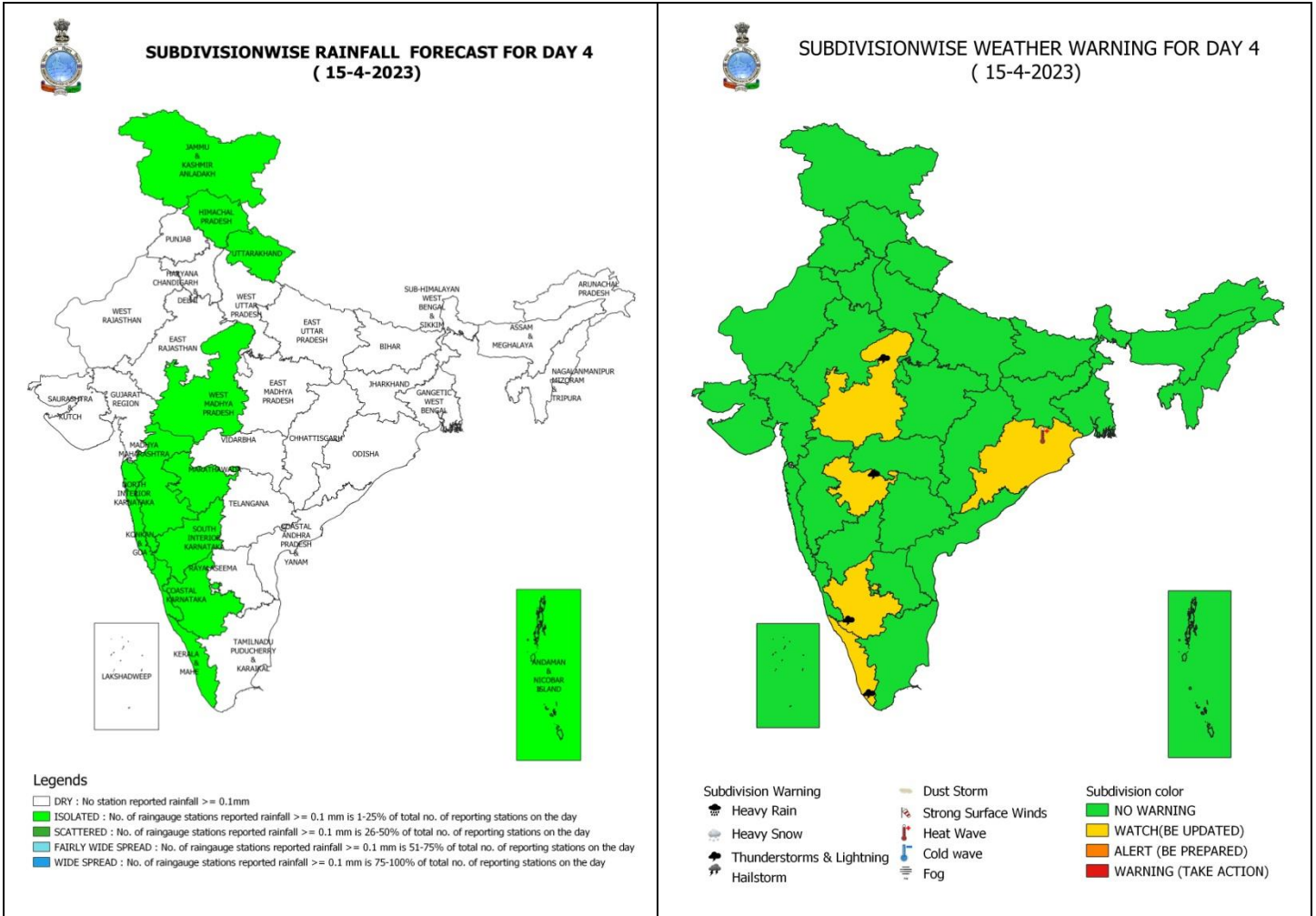
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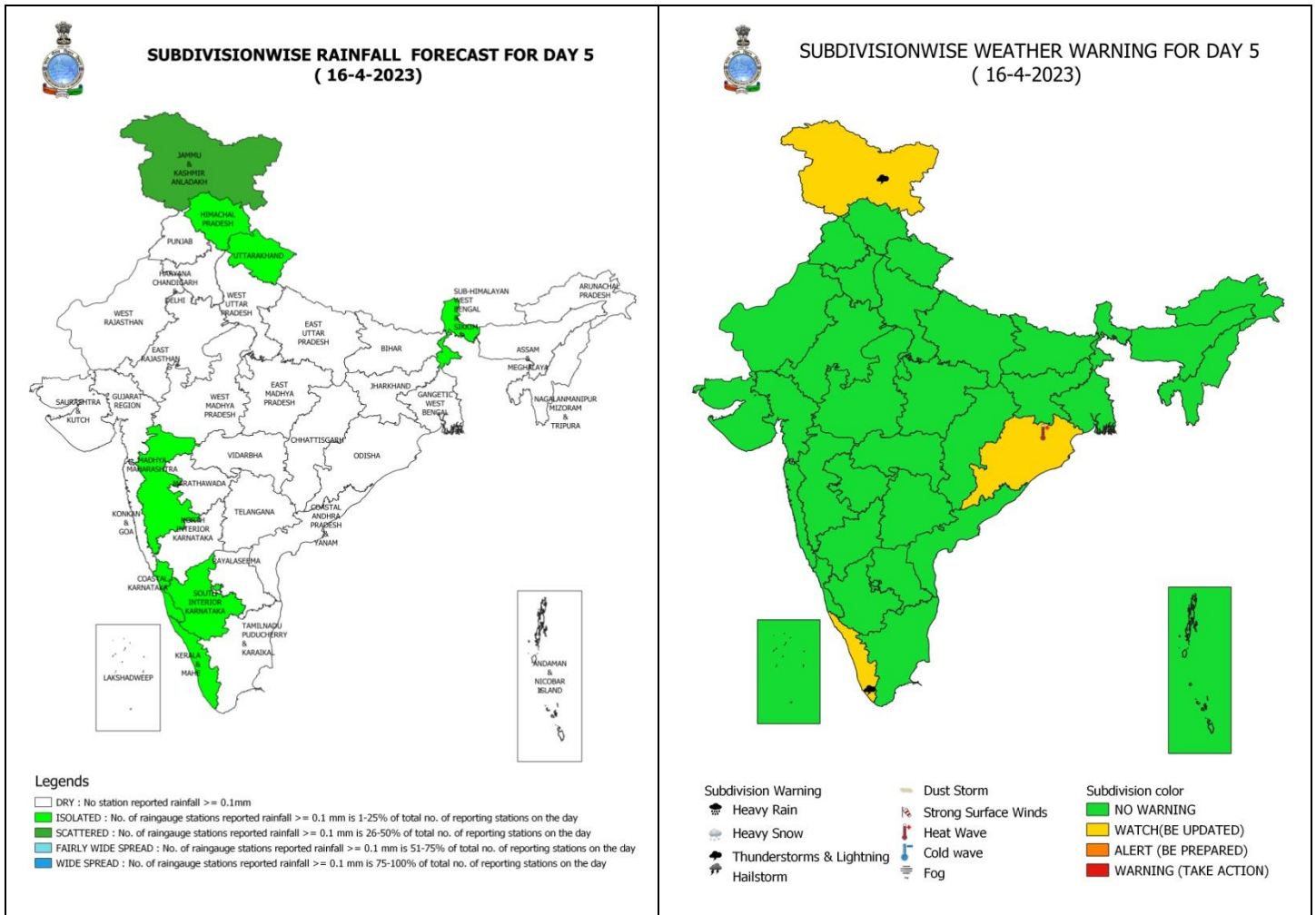
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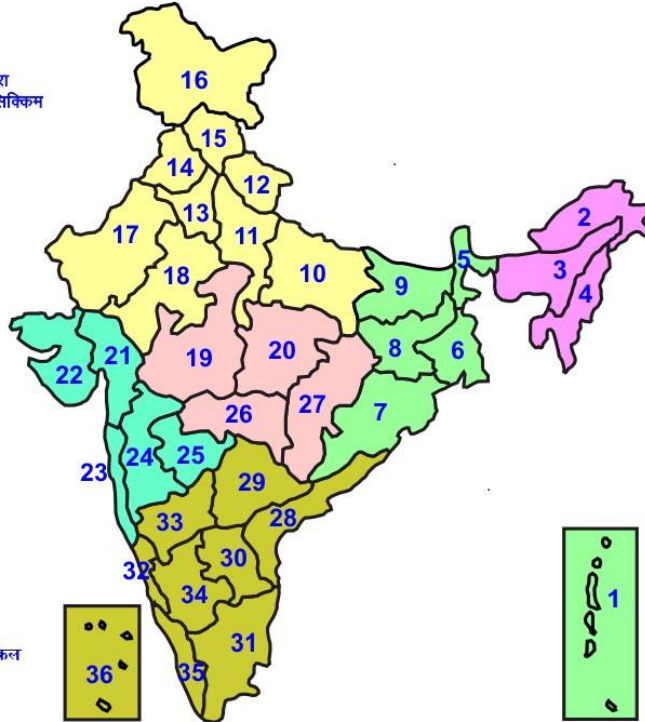


16 April (Day 5): ♦ Thunderstorm with lightning & gusty wind (30-40 kmph) likely at isolated places over Kerala & Mahe and with lightning at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffrabad.

♦ Heat Wave conditions likely in isolated pockets over Odisha.

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

| |
|--------------------------------|
| 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

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LEGENDS

WARNING

| |
|-------------------------|
| WARNING (TAKE ACTION) |
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| 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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