

**Monday, March 11, 2024**  
**Time of Issue: 0745 hours IST**  
**(MORNING)**

## **ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN**

### **Significant Weather Features:**

#### **Weather Systems and Forecast & Warnings:**

- ❖ The Western Disturbance as a trough in middle tropospheric westerlies runs roughly along Long. 58°E to the north of Lat. 30°N. Another fresh Western Disturbance likely to affect Northwest India from 12<sup>th</sup> March, 2024. Under the influence of these systems:
  - ✓ Isolated to scattered light/moderate rainfall/snowfall very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 11<sup>th</sup> & 12<sup>th</sup> and ***fairly widespread to widespread light/moderate rainfall/snowfall on 13<sup>th</sup> March, 2024*** and reduction in distribution and intensity likely thereafter.
  - ✓ ***Isolated thunderstorm & lightning also very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 13<sup>th</sup>; over Himachal Pradesh and Uttarakhand on 13<sup>th</sup> & 14<sup>th</sup> March, 2024.***
  - ✓ Isolated to scattered light to moderate rainfall very likely over Punjab, Haryana, Chandigarh, West Uttar Pradesh & Rajasthan on 13<sup>th</sup> March, 2024. Isolated thunderstorm accompanied with lightning and gusty winds (30-40 kmph) also very likely over Punjab, Haryana & Chandigarh on 13<sup>th</sup> March, 2024.
  - ✓ Isolated light rainfall very likely over Sub-Himalayan West Bengal & Sikkim during 11<sup>th</sup>-14<sup>th</sup>; over Odisha during 14<sup>th</sup>-17<sup>th</sup>; over Jharkhand, East Madhya Pradesh, Vidarbha and Chhattisgarh on 16<sup>th</sup> & 17<sup>th</sup> March, 2024.
  - ✓ Isolated to scattered light/moderate rainfall accompanied with thunderstorm & lightning also very likely over Gangetic West Bengal during 14<sup>th</sup>-16<sup>th</sup> March, 2024.
- ❖ Isolated to scattered light/moderate rainfall/snowfall very likely over Arunachal Pradesh during next 7 days. Isolated light rainfall very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 13<sup>th</sup> & 14<sup>th</sup> March, 2024.
- ❖ Isolated light/moderate rainfall very likely over Kerala & Mahe on 11<sup>th</sup> March, 2024.
- ❖ **Hot and humid weather** very likely to prevail over Rayalaseema and Tamil Nadu, Puducherry & Karaikal during next 2 days and Kerala & Mahe during next 24 hours.

## Main Weather Observations:

- ❖ **Rainfall/snowfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): at isolated places over Himachal Pradesh, Uttarakhand and Arunachal Pradesh.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday): (in cm): Nil.
- ❖ **Minimum Temperature Departures (as on 10-03-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Rayalaseema and Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over Telangana, North & South Interior Karnataka, Coastal Andhra Pradesh & Yanam and Kerala & Mahe; at isolated places over Uttarakhand, West Rajasthan, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada and Arunachal Pradesh. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Himachal Pradesh, Bihar and Gangetic West Bengal; **below normal (-1.6°C to -3.0°C)** at many places over Uttar Pradesh, Haryana-Chandigarh-Delhi and Jharkhand; at a few places over Himachal Pradesh, East Madhya Pradesh, Nagaland, Manipur, Mizoram & Tripura; at isolated places over East Rajasthan, West Madhya Pradesh, Chhattisgarh, Odisha, Sub-Himalayan West Bengal & Sikkim and Assam & Meghalaya and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 9.2°C** was reported at **Lodi Road (New Delhi)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 10-03-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over East Rajasthan; **above normal (1.6°C to 3.0°C)** at many places over Arunachal Pradesh; at a few places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, North Interior Karnataka, Kerala & Mahe; at isolated places over Sub-Himalayan West Bengal & Sikkim, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Vidarbha, Marathwada, South Interior Karnataka, Rayalaseema, Telangana, Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal, Saurashtra & Kutch and Odisha. They were **below normal (-1.6°C to -3.0°C)** at a few places over Gangetic West Bengal, Bihar; at isolated places over Jharkhand, Uttar Pradesh, Rayalaseema, Haryana-Chandigarh-Delhi and near normal over rest parts of the country. Yesterday, **the highest maximum temperature of 40.9°C** was reported at **Anantapur (Rayalaseema)** over the country.

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The Western Disturbance as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 58°E to the north of Lat. 30°N persists.
- ❖ The trough from east Vidarbha to interior Odisha at 0.9 km above mean sea level persists.
- ❖ The cyclonic circulation over southwest Rajasthan & neighbourhood at 3.1 km above mean sea level persists.
- ❖ The cyclonic circulation over South Interior Karnataka & neighbourhood at 1.5 km above mean sea level persists.
- ❖ A fresh Western Disturbance likely to affect Northwest India from 12<sup>th</sup> March, 2024.

## Weather Forecast for next 7 days (Upto 0830 hours IST of 18<sup>th</sup> March, 2024)

- ❖ Meteorological sub-division wise detailed 7 days rainfall forecast is given in Table-1.
- ❖ Gradual Rise in maximum temperatures by 2-3°C very likely over Northwest, West & South India during next 2 days and no significant change thereafter.
- ❖ Gradual Rise in maximum temperatures by 2-4°C very likely over Central & East India during next 5 days.
- ❖ No significant change in minimum temperatures very likely over rest part of the country during next 5 days.

## Weather Outlook for subsequent 3 days (18<sup>th</sup>-20<sup>th</sup> March, 2024)

- ❖ Isolated light rainfall/snowfall likely over Arunachal Pradesh.
- ❖ isolated to scattered light to moderate rainfall likely over Central & East India.
- ❖ Dry weather likely to prevail over rest parts of the country.

Table-1

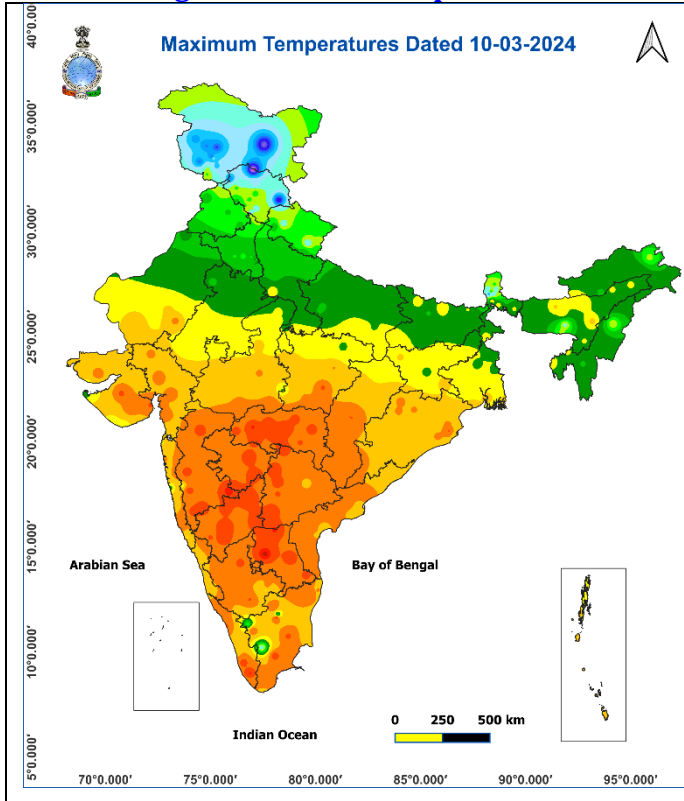
**7 Days Rainfall Forecast**

S. No.	Subdivision	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY
2	ARUNACHAL PRADESH	ISOL	ISOL	SCT	SCT	SCT	SCT	ISOL
3	ASSAM & MEGHALAYA	DRY	DRY	ISOL	ISOL	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	ISOL	ISOL	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	SCT	ISOL	ISOL	DRY
7	ODISHA	DRY	DRY	DRY	ISOL	ISOL	ISOL	ISOL
8	JHARKHAND	DRY	DRY	DRY	DRY	DRY	ISOL	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	ISOL	DRY	DRY	DRY	DRY
12	UTTARAKHAND	ISOL	ISOL	FWS	SCT	ISOL	DRY	DRY
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
14	PUNJAB	DRY	DRY	SCT	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	SCT	ISOL	WS	SCT	ISOL	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	ISOL	ISOL	WS	SCT	DRY	DRY	DRY
17	WEST RAJASTHAN	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
18	EAST RAJASTHAN	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
19	WEST MADHYA PRADESH	DRY	DRY	DRY	DRY	DRY	DRY	ISOL
20	EAST MADHYA PRADESH	DRY	DRY	DRY	DRY	DRY	ISOL	SCT
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	ISOL	ISOL
27	CHHATTISGARH	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	DRY	DRY	DRY	DRY	DRY	DRY	ISOL
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	DRY	DRY	DRY	DRY	DRY	DRY	DRY
32	COASTAL KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
33	NORTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
34	SOUTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
35	KERALA & MAHE	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
36	LAKSHADWEEP	DRY	DRY	DRY	DRY	DRY	DRY	DRY

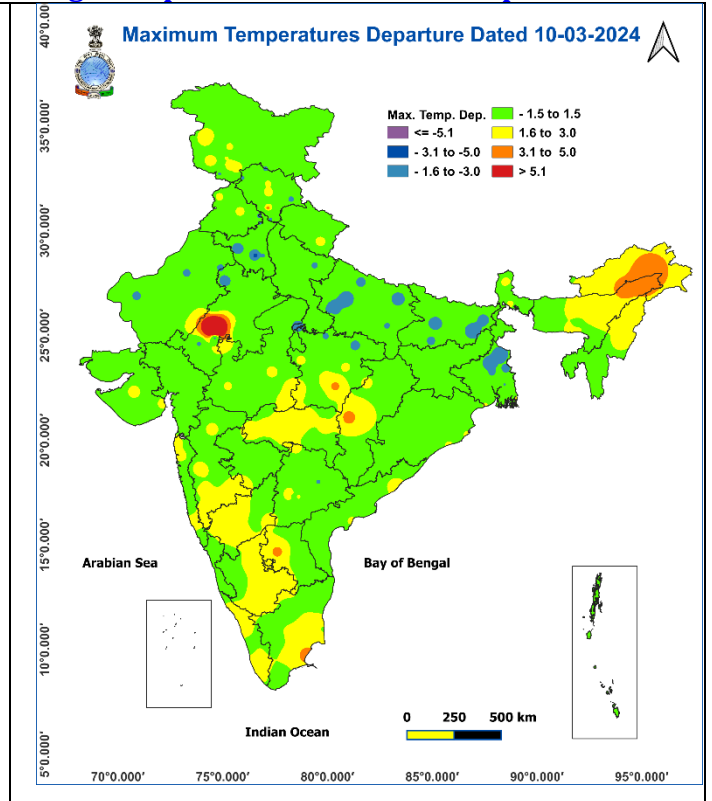
Legend	Category	% Stations
WS	Widespread/Most Places	76-100
FWS	Fairly Widespread/Many Places	51-75
SCT	Scattered/ A Few Places	26-50
ISOL	Isolated Places	1-25
DRY	No Rain	0

\* 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)

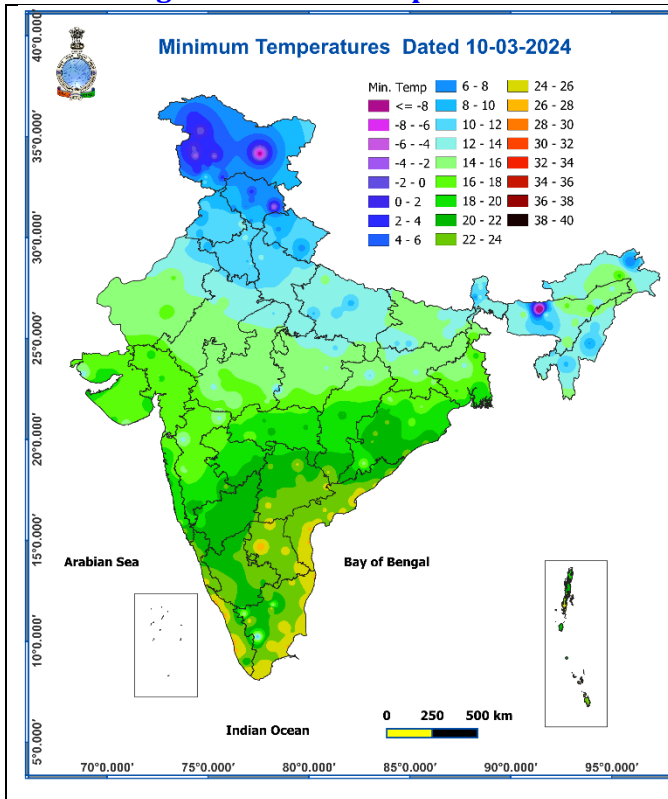
**Fig. 1: Maximum Temperatures**



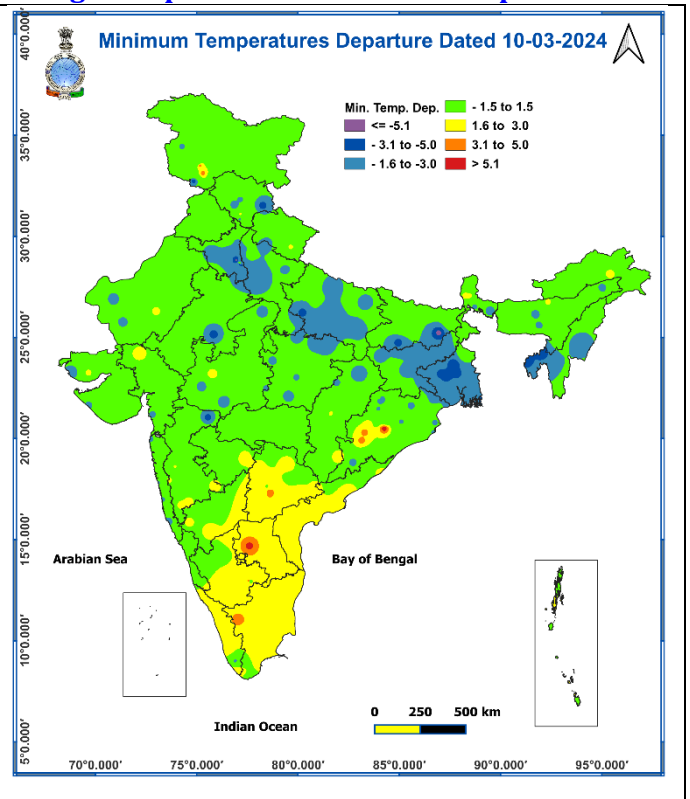
**Fig. 2: Departure of Maximum Temperatures**



**Fig. 3: Minimum Temperatures**



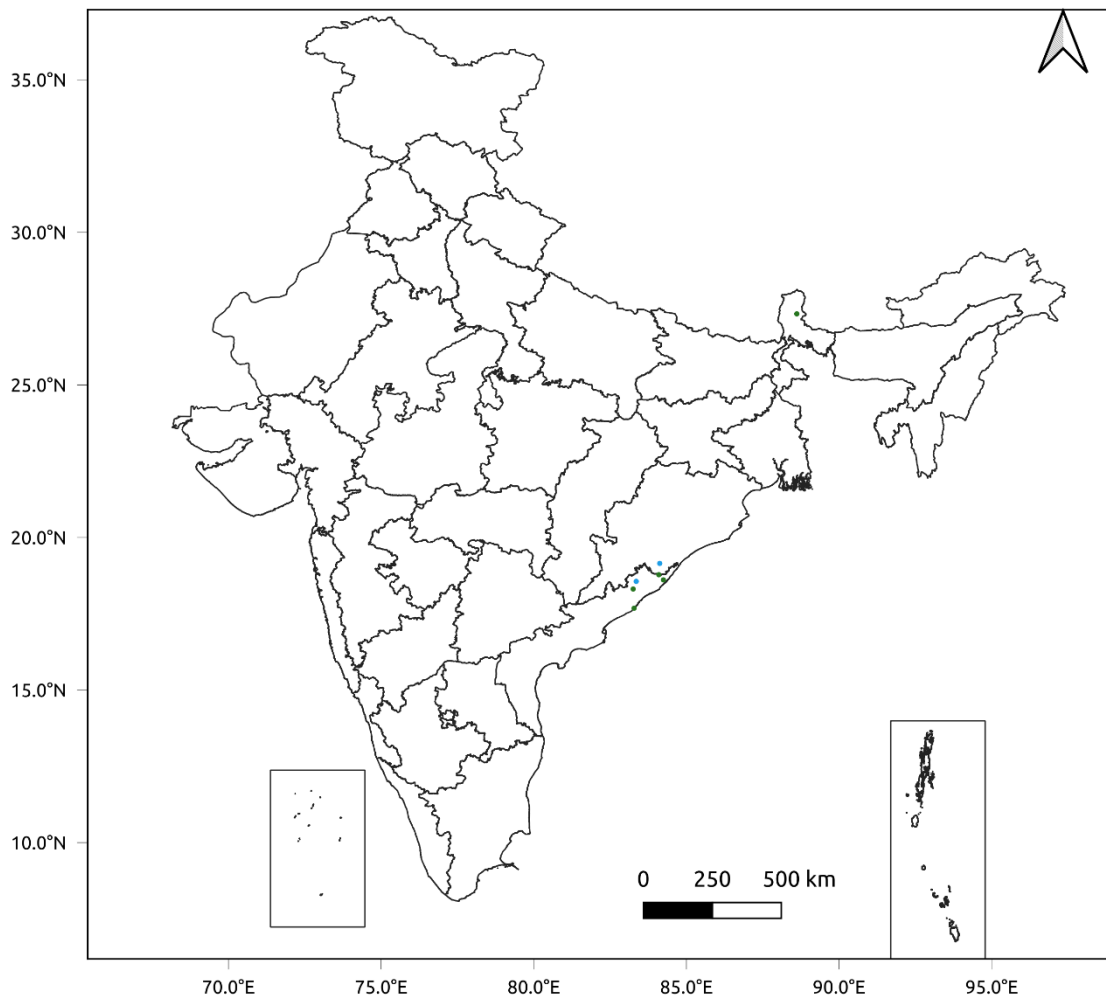
**Fig. 4: Departure of Minimum Temperatures**



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

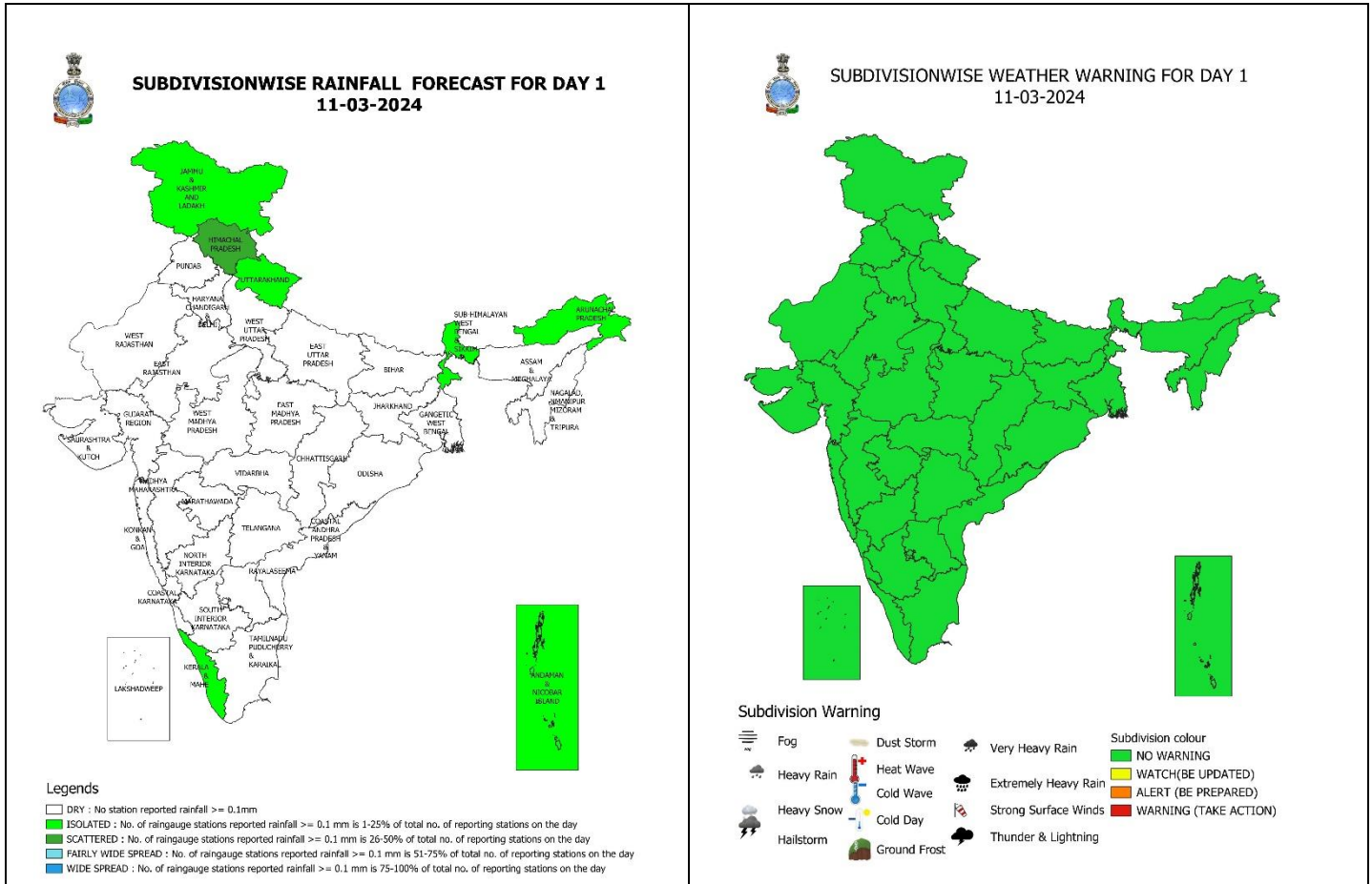


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 9-3-2024 to 0830 IST of 10-3-2024



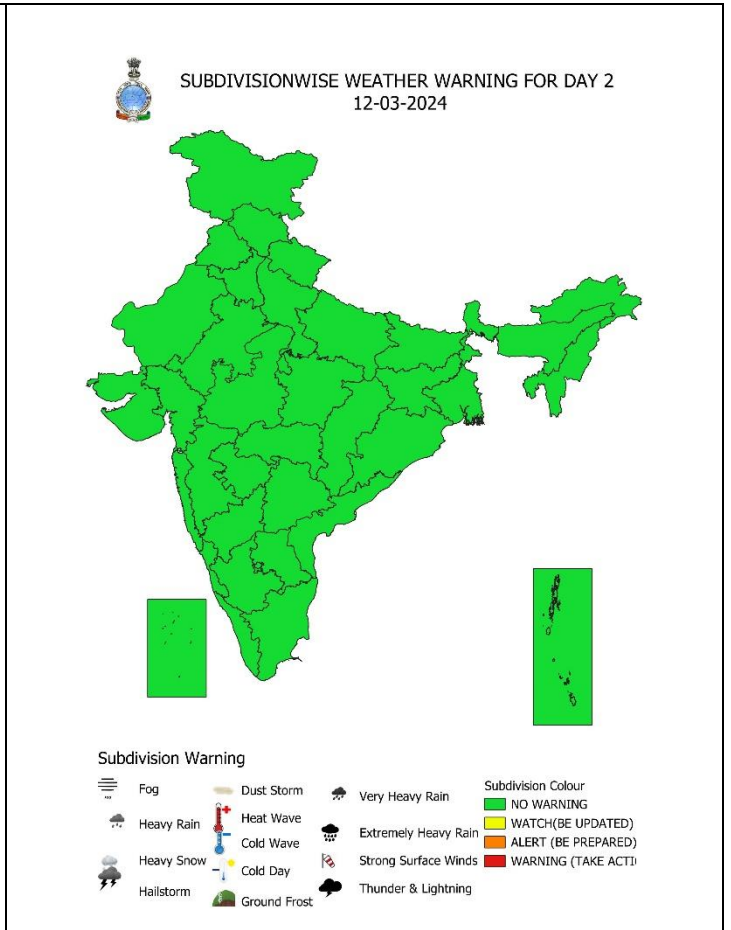
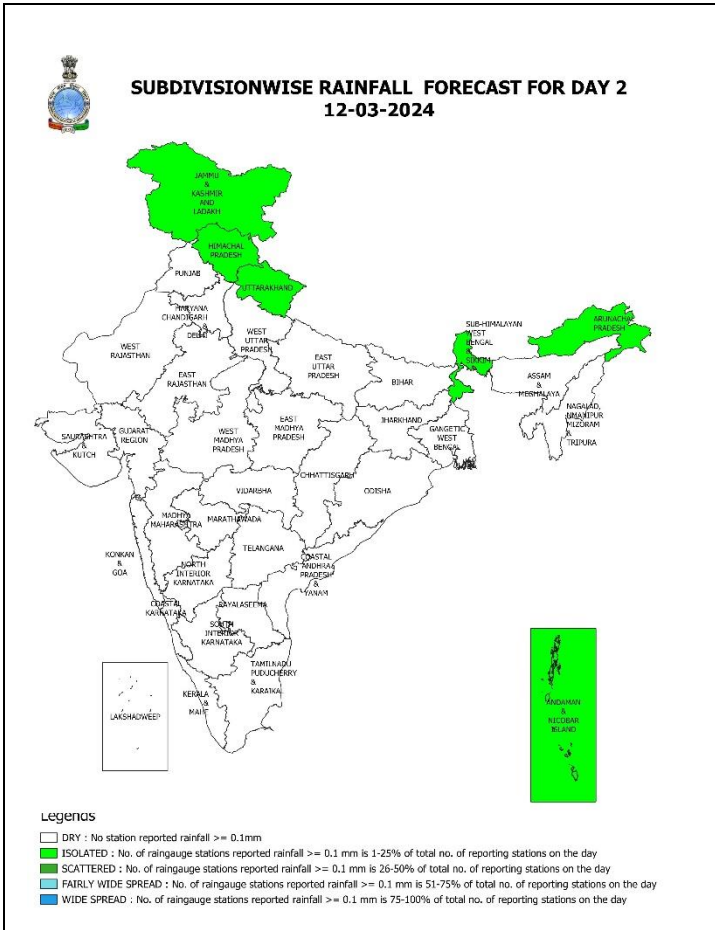
### Legends

- 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)



**11 March (Day 1):**

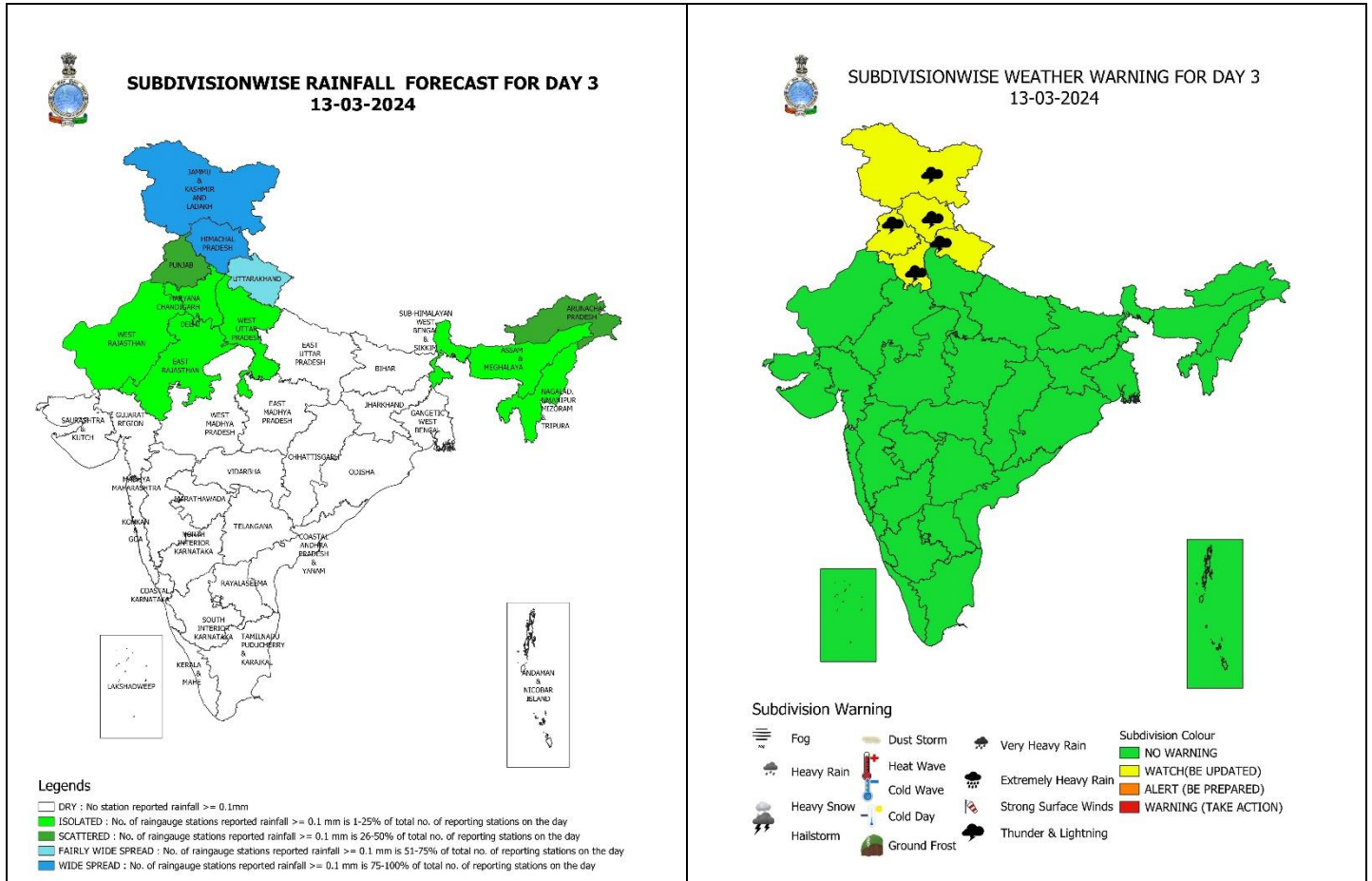
**❖ No Weather Warning.**



**12 March (Day 2):**

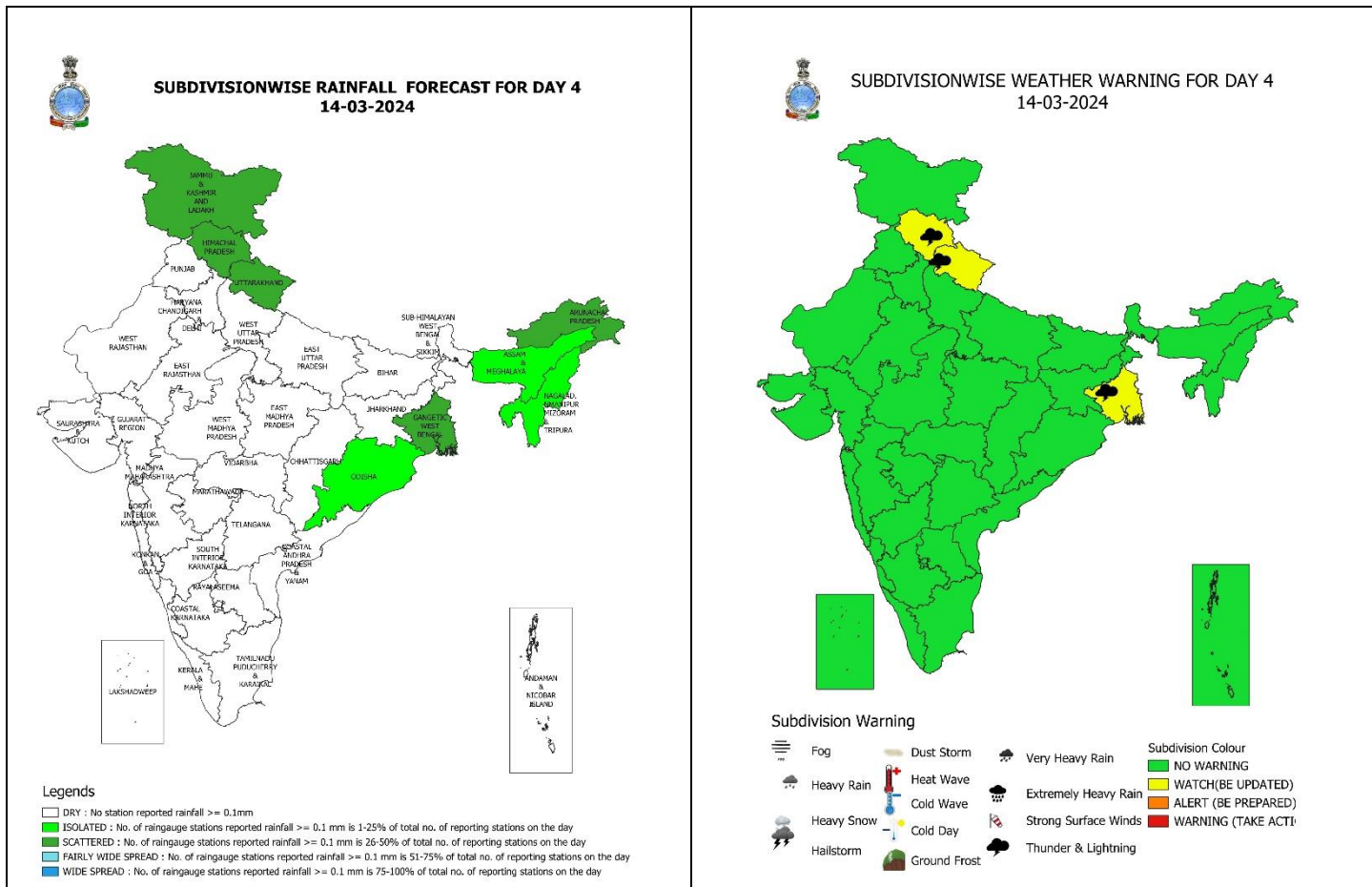
**❖ No Weather Warning.**





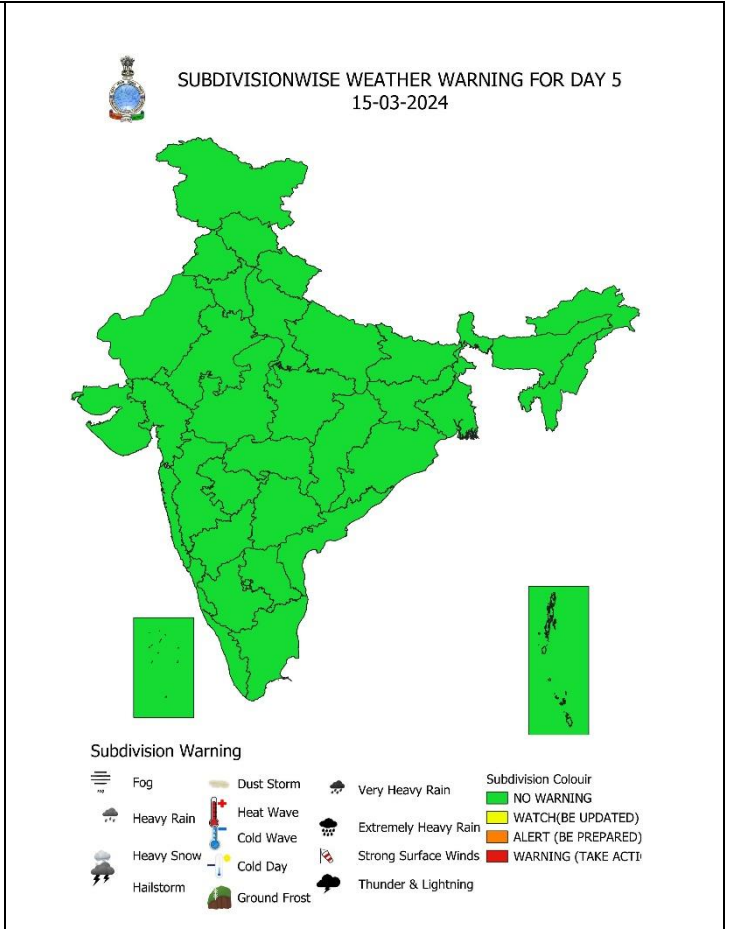
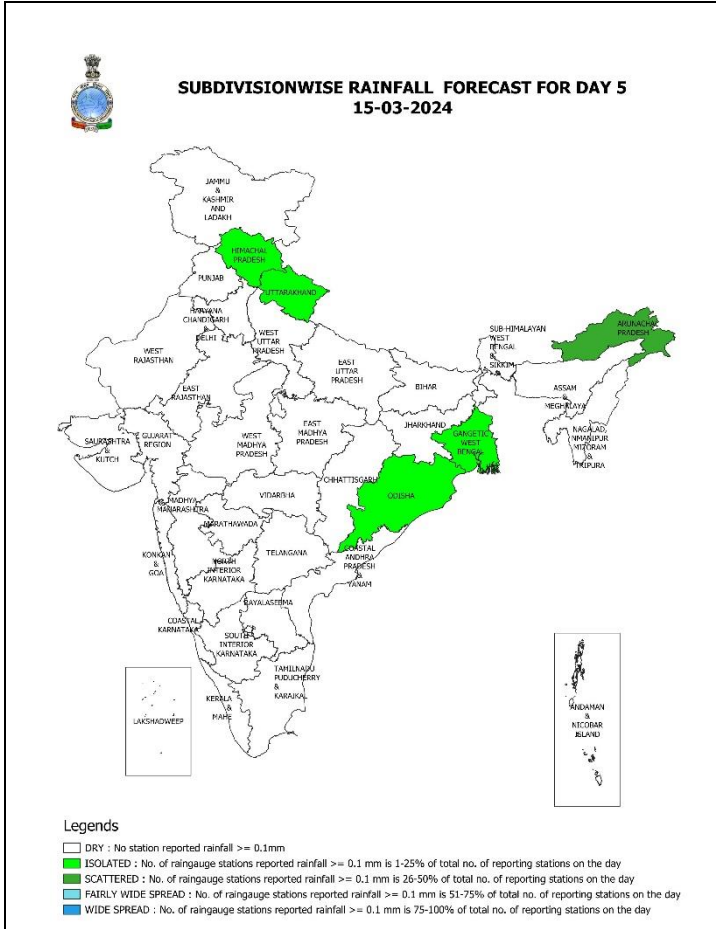
## 13 March (Day 3):

❖ **Thunderstorm accompanied with lightning & gusty winds (speed reaching 30-40 kmph) very likely at isolated places over Punjab, Haryana and with lightning at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand.**



## 14 March (Day 4):

❖ **Thunderstorm accompanied with lightning** likely at isolated places over Himachal Pradesh, Uttarakhand and Gangetic West Bengal.

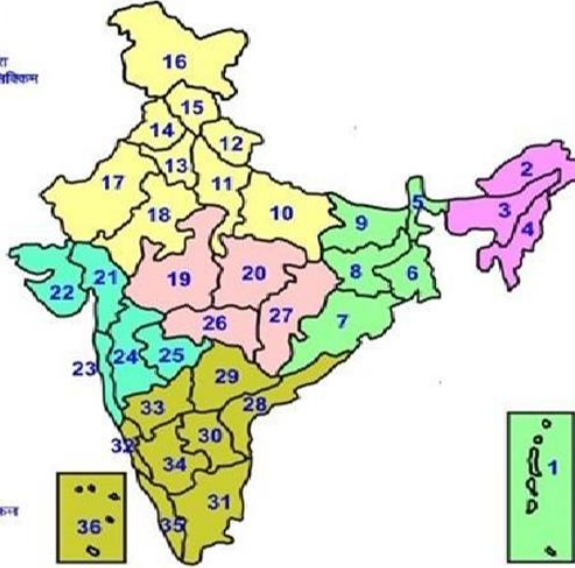


**15 March (Day 5):**

**❖ No Weather Warning.**

## LEGENDS

- 1 अंडमन और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर भीजोरम 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 चंडिगढ़ एवं दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवंम 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 मराठवाड़ा
- 26 विदर्भ
- 27 उत्तरीमहाराष्ट्र
- 28 तटीय आंध्र प्रदेश एवं यानम
- 29 तेलंगाना
- 30 दख्खिणीय
- 31 पश्चिमनाडु, पुदुचेरी एवंम 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. 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

## LEGENDS

### WARNING

<b>WARNING (TAKE ACTION)</b>
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: 64.5 to 115.5 mm/cm \*  
Very Heavy: 115.6 to 204.4 mm/cm\*  
Extremely Heavy: > 204.4 mm/cm \*

Rain/ Snow \*



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 Strom: Wind speed  $> 220$  kmph ( $> 119$  knots)