



Tuesday, October 10, 2023
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features

Withdrawal of Southwest Monsoon:

- ❖ The line of withdrawal of Southwest Monsoon continues to pass through 27.0°N/85.0°E, Raxaul, Daltonganj, Kanker, Ramagundam, Bijapur, Vengurla and 16.0°N/70.0°E.

Significant Weather features:

- ❖ A north-south trough runs from Sub-Himalayan West Bengal to north Odisha across Gangetic West Bengal in lower tropospheric levels.
- ❖ The Western Disturbance as a trough in westerlies in middle tropospheric levels runs along Long. 71°E to the north of Lat. 32°N.
- ❖ A trough runs from Rayalaseema to Comorin area across Tamil Nadu in lower tropospheric levels.
- ❖ A fresh Western Disturbance likely to affect Western Himalayan Region from 13th October, 2023.

Weather warnings for next 5 days:

East India: Light to moderate rainfall at many places very likely over Sub-Himalayan West Bengal & Sikkim during next 24 hours and reduction thereafter.

Northeast India: Light to moderate rainfall at many/some places very likely over parts of Northeast India during next 2-3 days.

South India: Light to moderate rainfall at some places with isolated **heavy rainfall** accompanied with thunderstorm & lightning very likely over Tamil Nadu, South Interior Karnataka and Kerala during 10th-11th October and reduction thereafter.

Northwest India: Light rainfall at some places very likely over Jammu-Kashmir-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 10th and on 14th & 15th October.

Central & West India: No significant weather over the regions during next 5 days.

Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at most places over** Kerala & Mahe, Assam & Meghalaya, Arunachal Pradesh; **at a few places** over Sub-Himalaya West Bengal & Sikkim, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Jharkhand and **at isolated places** over Punjab, Haryana, Uttarakhand, East Uttar Pradesh, Bihar, Konkan & Goa, Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal, Karnataka, Telangana, Odisha, Nagaland, Manipur, Mizoram & Tripura,
- ❖ **Significant rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Assam & Meghalaya:** Karbi Anglong-4; **Arunachal Pradesh:** Lohit-4, Pakke Kesang, East Kemang, Upper Siang-3 each; **Kerala & Mahe:** Kannur, Kasaragod-3 each; **Odisha:** Mayur Bhanj-3.
- ❖ **Minimum Temperature Departures (as on 09-10-2023):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at many places over Punjab and Haryana-Chandigarh-Delhi; at isolated places over Rajasthan and West Uttar Pradesh; **above normal (1.6°C to 3.0°C)** at most places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand and Gangetic West Bengal; at many places over East Uttar Pradesh; at a few places over Nagaland, Manipur, Mizoram & Tripura, Bihar, Coastal Andhra Pradesh & Yanam and Tamil Nadu, Puducherry & Karaikal; at isolated places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, Jharkhand, Odisha, Madhya Pradesh, Interior Karnataka and Kerala & Mahe. They were **below normal (-1.6°C to -3.0°C)** at isolated places over Vidarbha and Madhya Maharashtra and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 17.8°C** was reported at **Betul (West Madhya Pradesh)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 09-10-2023):** Maximum temperatures are **appreciably above normal (3.1°C to 5.0°C)** at most places over Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema; **above normal (1.6°C to 3.0°C)** at most places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Haryana-Chandigarh-Delhi, Uttar Pradesh, Bihar, Rayalaseema, Madhya Pradesh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Coastal Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe; at many places over Jharkhand, Odisha, Chhattisgarh; at a few places over West Bengal & Sikkim, Interior Karnataka; at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura. They are **below normal (-1.6°C to -3.0°C)** at isolated places over Arunachal Pradesh and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 38.5°C** was reported at **Hissar (Haryana)**.



Meteorological Analysis (Based on 0530 hours IST)

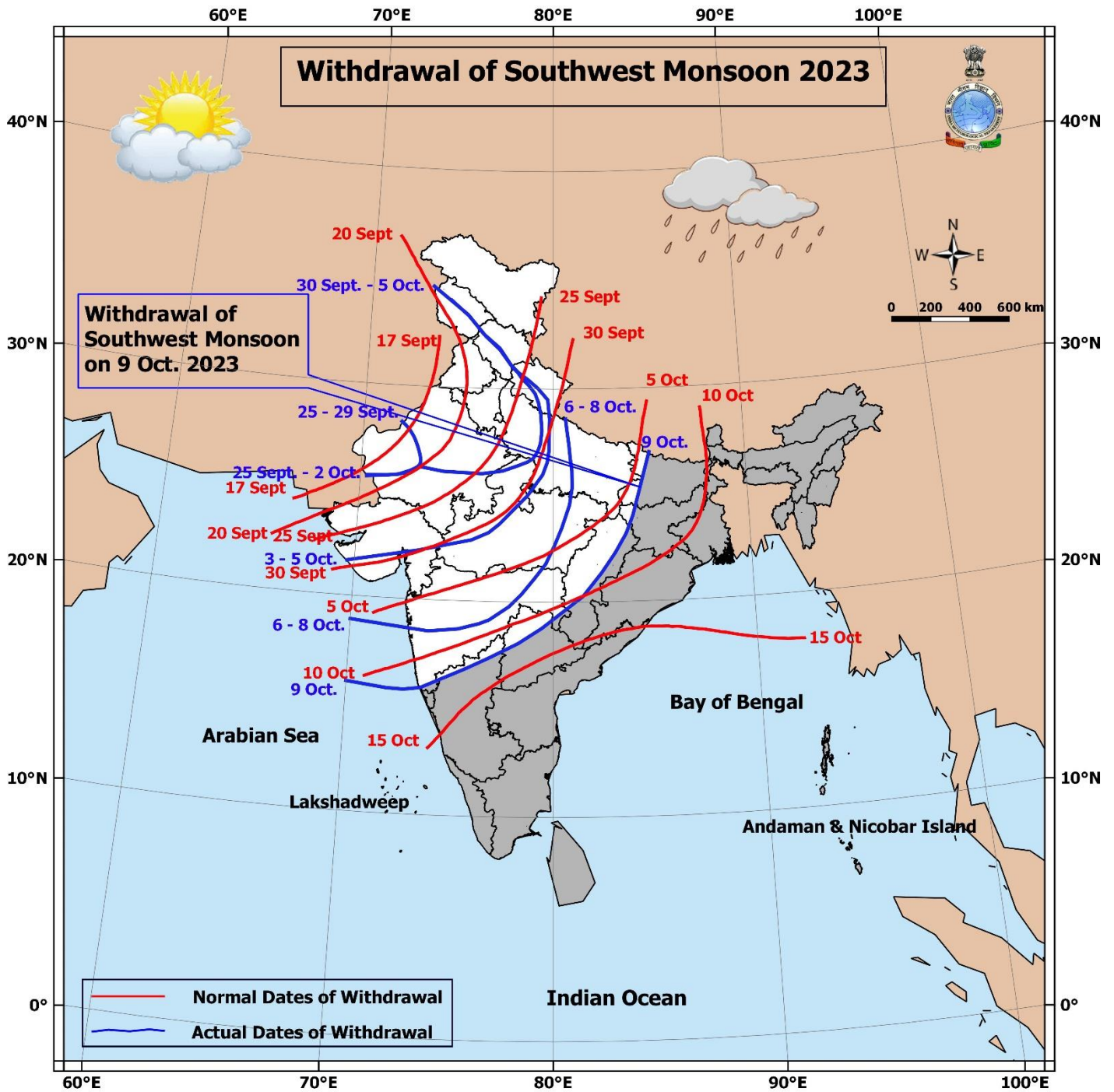
- ❖ The line of withdrawal of Southwest Monsoon continues to pass through 27.0°N/85.0°E, Raxaul, Daltonganj, Kanker, Ramagundam, Bijapur, Vengurla and 16.0°N/70.0°E.
- ❖ The cyclonic circulation over Telangana & adjoining Coastal Andhra Pradesh between 1.5 & 3.1 km above mean sea level persists.
- ❖ The cyclonic circulation over Lakshadweep & neighbourhood at 1.5 km above mean sea level persists.
- ❖ The north-south trough from Sub-Himalayan West Bengal to north Odisha across Gangetic West Bengal extending upto 1.5 km above mean sea level persists.
- ❖ The Western Disturbance as a trough in westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 71°E to the north of Lat. 32°N.
- ❖ The trough from Rayalaseema to Comorin area across Tamil Nadu extending upto 1.5 km above mean sea level persists.
- ❖ A fresh Western Disturbance likely to affect Western Himalayan Region from 13th October, 2023.

Weather Forecast for next 5 days (Upto 0830 hours IST of 15th October, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ No significant change in maximum temperatures likely over most parts of country during next 5 days.

Weather Outlook for subsequent 2 days

- ❖ Scattered to fairly widespread light/moderate rainfall likely over parts of South peninsular India; Northeast India and Islands.
- ❖ Isolated to scattered rainfall likely over parts of East India. Dry weather likely to prevail over rest parts of the country.



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Table-1

7 Days Rainfall Forecast								
S. No.	Subdivision	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct	15-Oct	16-Oct
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	FWS	FWS	SCT	SCT	FWS	SCT	SCT
2	ARUNACHAL PRADESH	FWS	SCT	ISOL	ISOL	ISOL	ISOL	ISOL
3	ASSAM & MEGHALAYA	FWS	SCT	ISOL	ISOL	ISOL	ISOL	ISOL
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	SCT	SCT	SCT	SCT	FWS	ISOL	ISOL
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	FWS	SCT	SCT	ISOL	ISOL	ISOL	ISOL
6	GANGETIC WEST BENGAL	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	ISOL	ISOL	DRY	DRY	DRY
8	JHARKHAND	DRY	DRY	DRY	DRY	DRY	DRY	DRY
9	BIHAR	ISOL	ISOL	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	ISOL	ISOL	ISOL
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	DRY	DRY	DRY	DRY	DRY
14	PUNJAB	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
15	HIMACHAL PRADESH	ISOL	DRY	DRY	DRY	ISOL	ISOL	ISOL
16	JAMMU & KASHMIR AND LADAKH	ISOL	DRY	DRY	SCT	SCT	ISOL	ISOL
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	ISOL	DRY	DRY	ISOL	ISOL	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	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
29	TELANGANA	DRY	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
30	RAYALASEEMA	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
31	TAMILNADU PUDUCHERRY & KARAİKAL	SCT	SCT	ISOL	ISOL	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	FWS	FWS	FWS	FWS	FWS	FWS	FWS
33	NORTH INTERIOR KARNATAKA	DRY	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL
34	SOUTH INTERIOR KARNATAKA	FWS	FWS	SCT	ISOL	ISOL	ISOL	ISOL
35	KERALA & MAHE	FWS	FWS	FWS	FWS	FWS	FWS	FWS
36	LAKSHADWEEP	SCT	SCT	SCT	SCT	SCT	SCT	SCT

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

Fig. 1: Maximum Temperatures Dated 09.10.2023

Fig. 2: Departure of Maximum Temp. Dated 09.10.2023

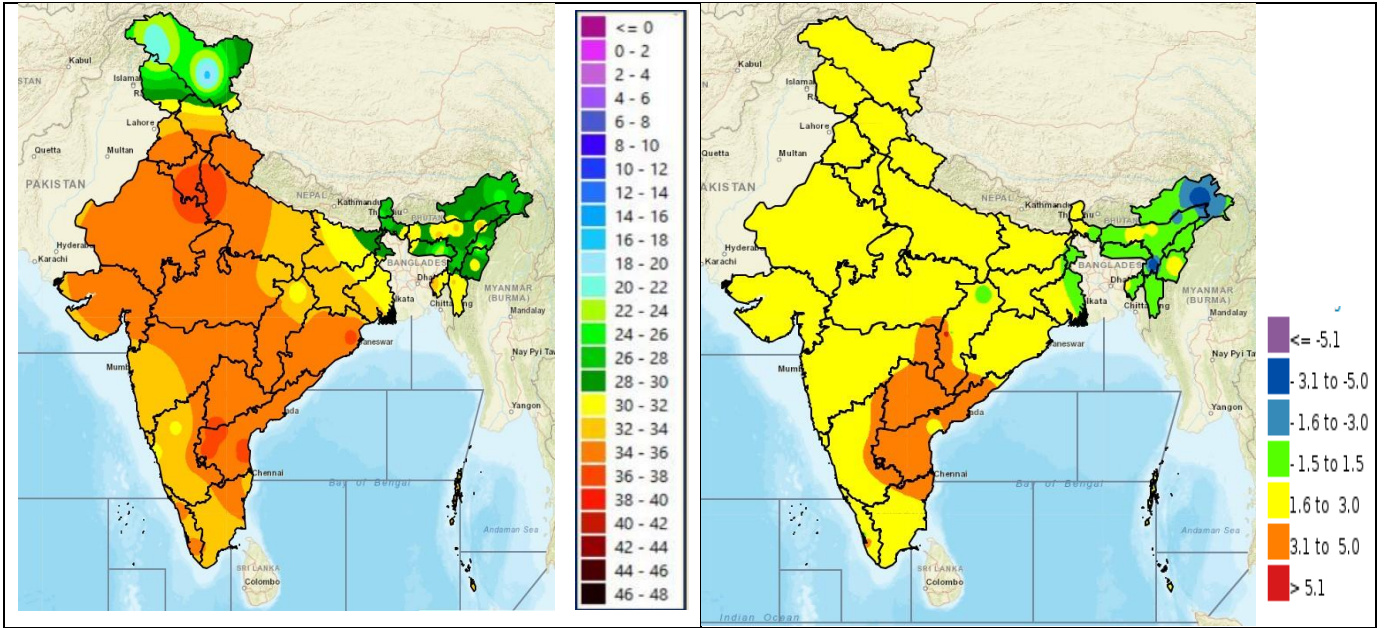


Fig. 3: Minimum Temperatures Dated 09.10.2023

Fig. 4: Departure of Minimum Temp. Dated 09.10.2023

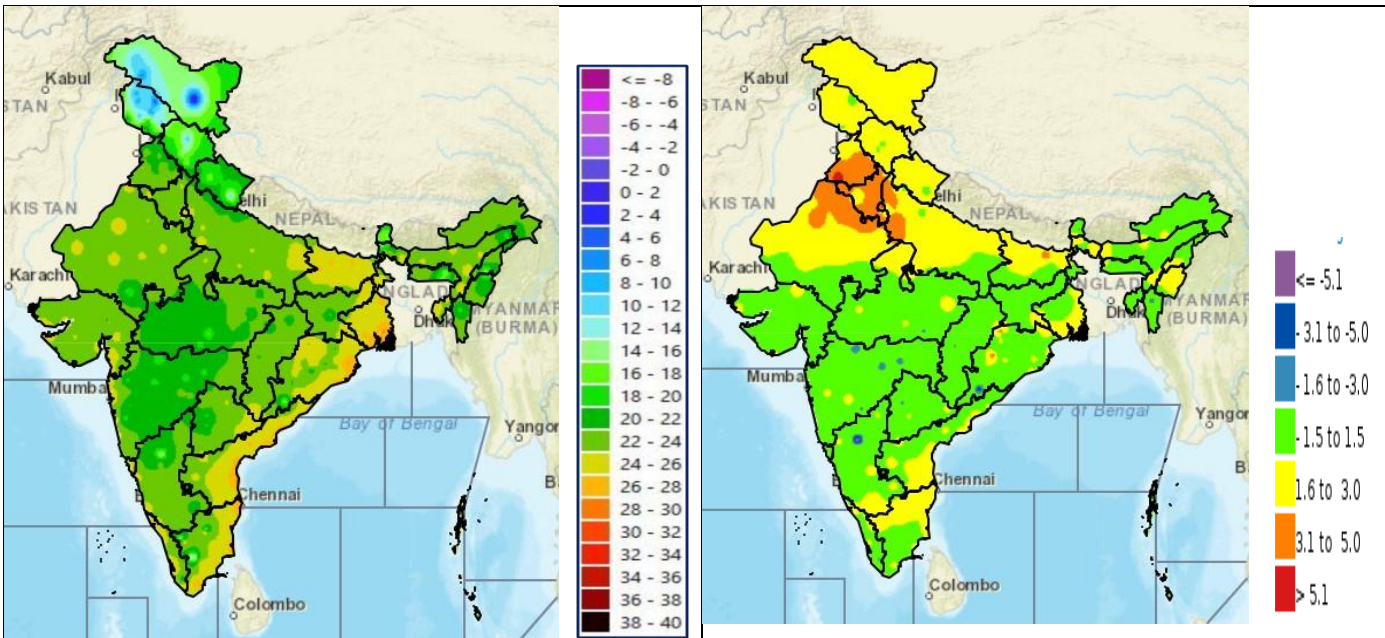
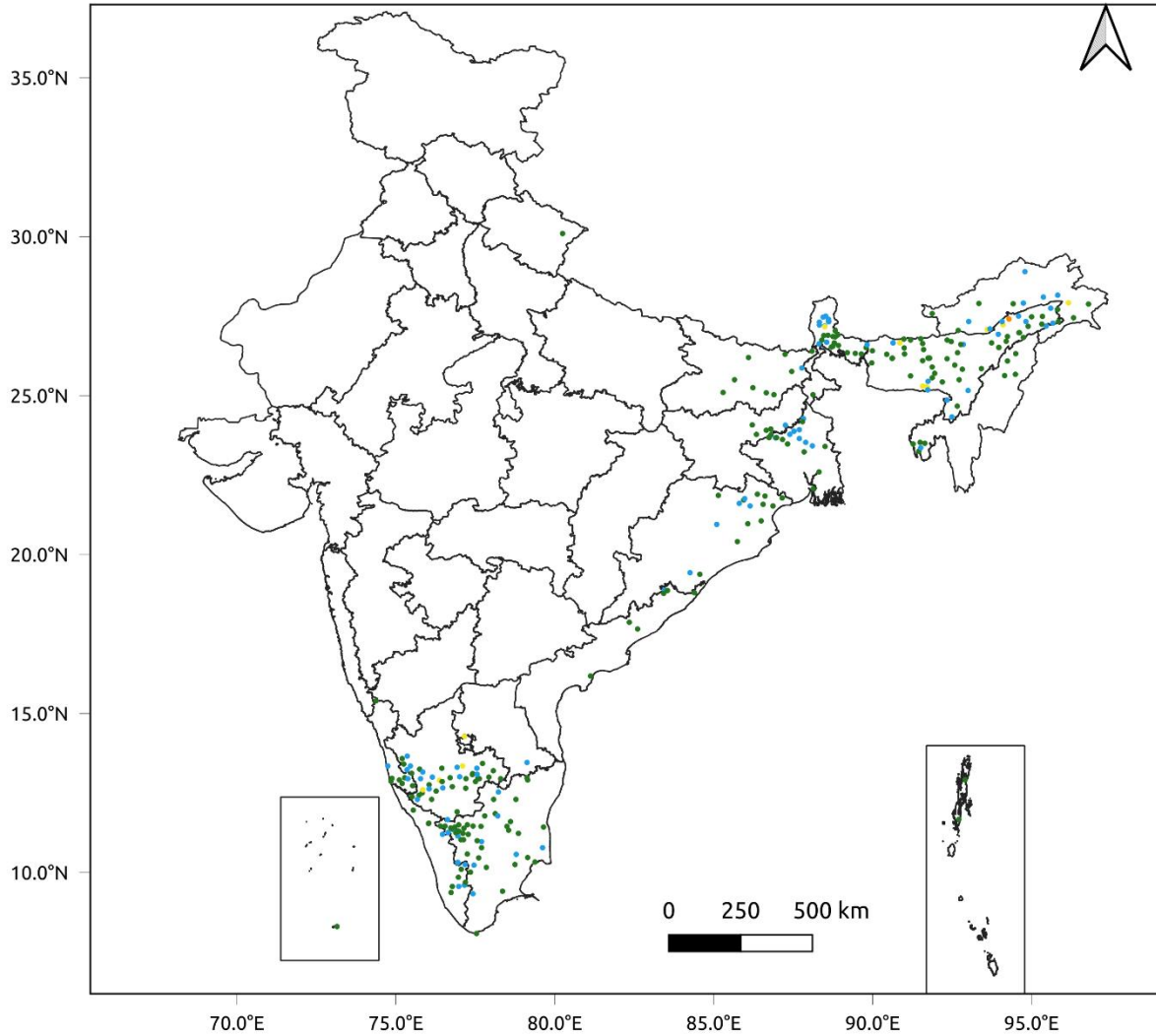


Fig. 5: Accumulated Rainfall (mm) during past 24 hours

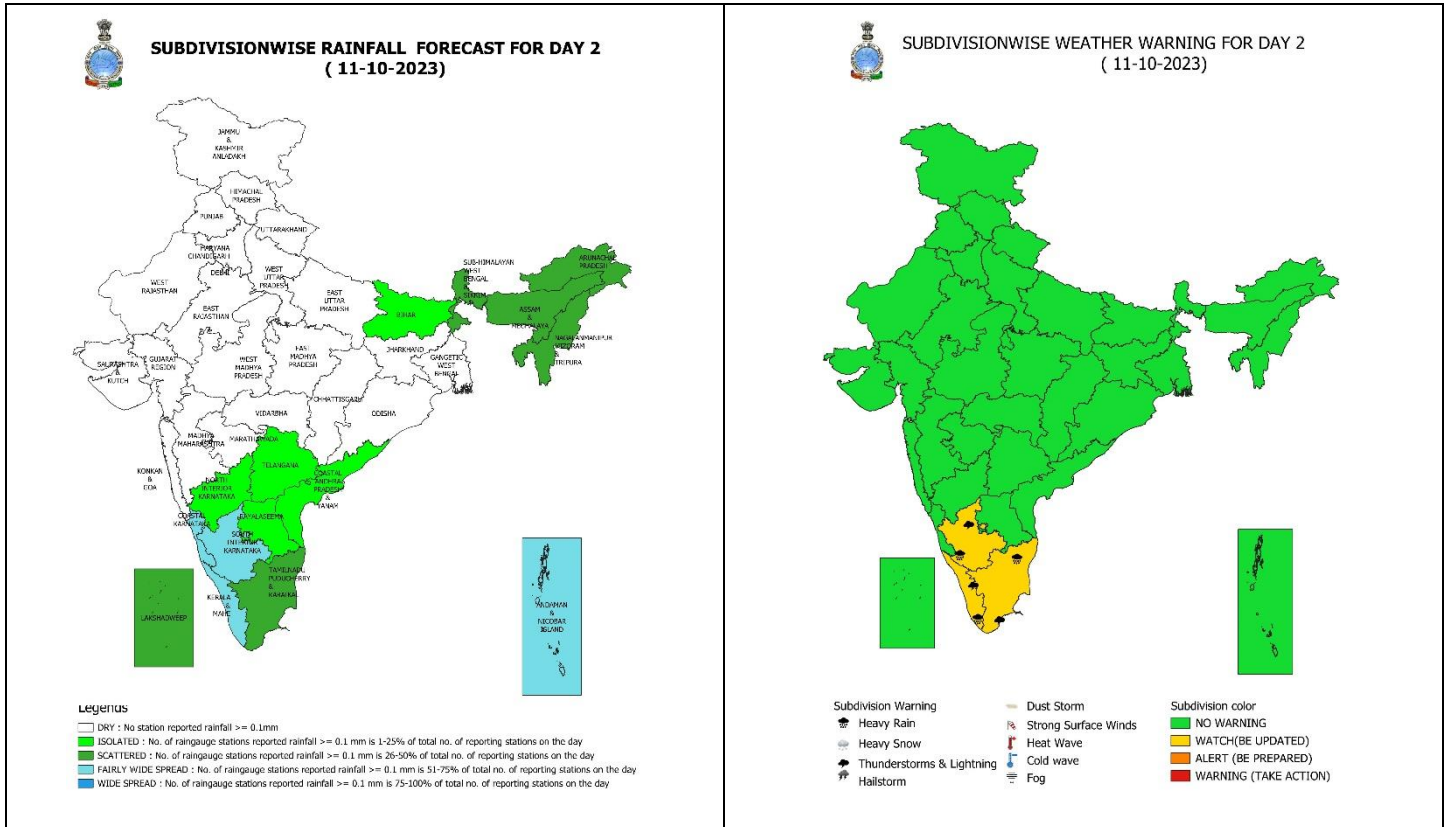


24 Hr cumulative rainfall recorded over different stations during 0830 IST of 8-10-2023 to 0830 IST of 9-10-2023



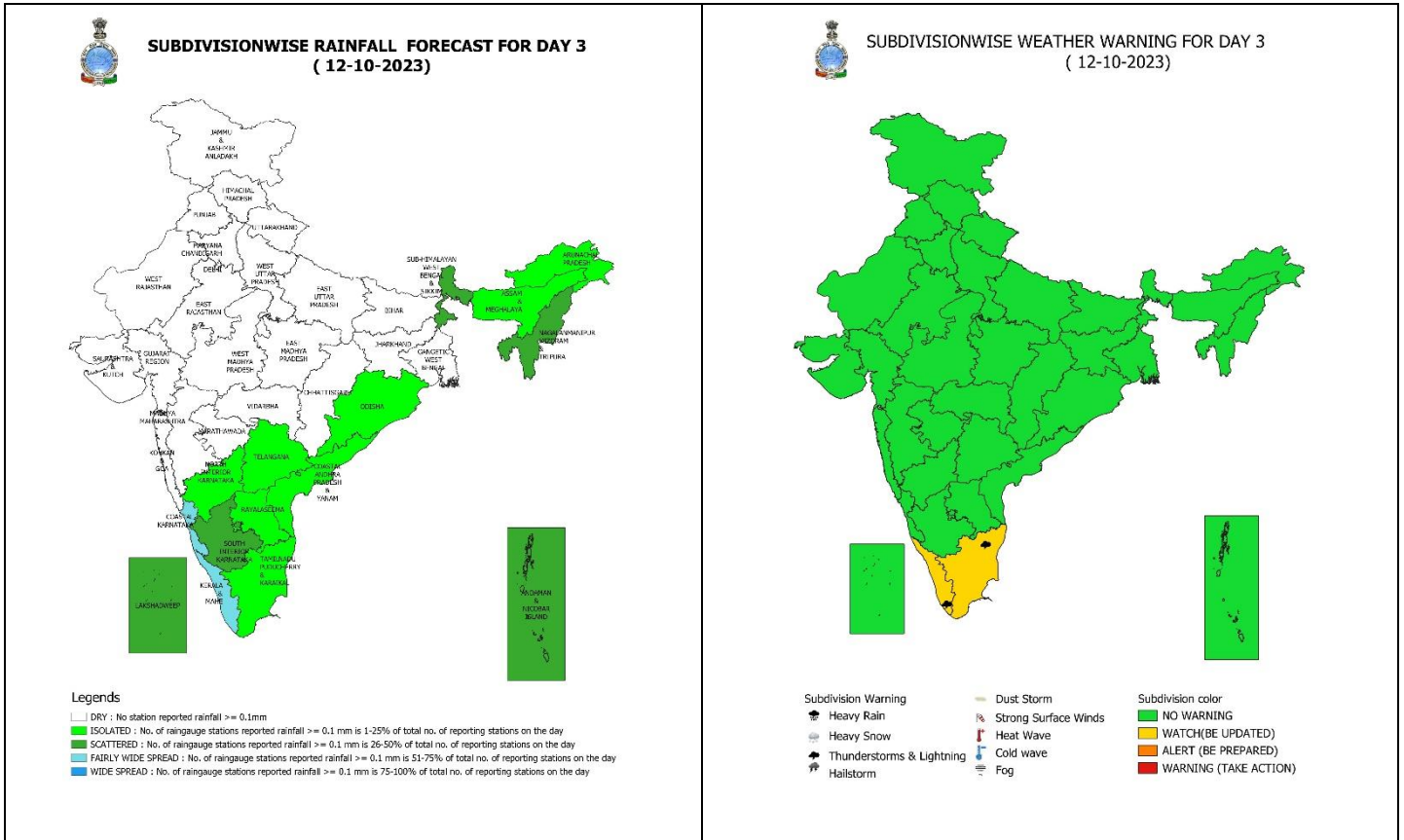
Legends

- 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)



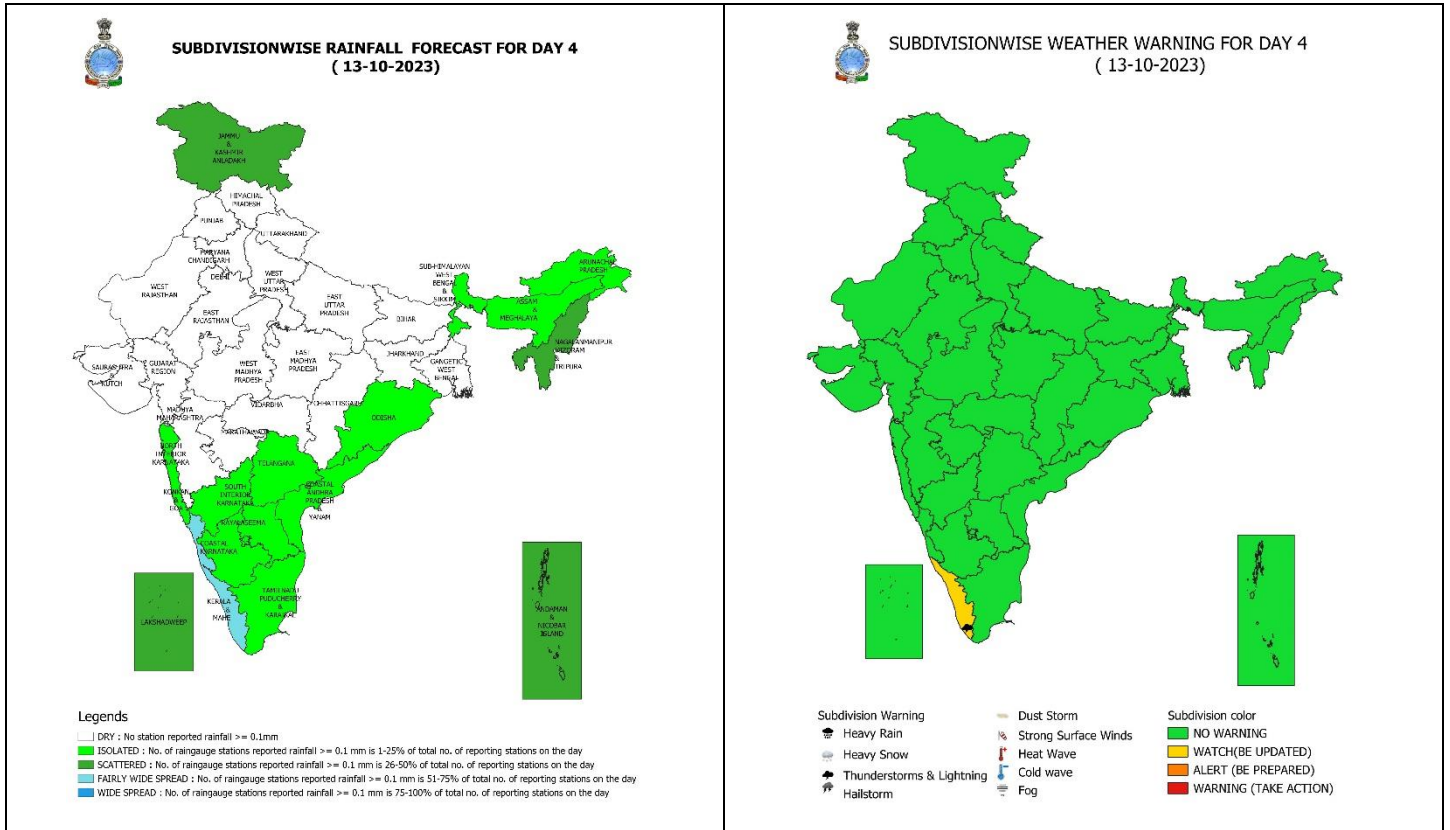
11 October (Day 2):

- ❖ **Heavy rainfall** very likely at isolated places over South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.
- ❖ **Thunderstorm with lightning** very likely at isolated places over South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.



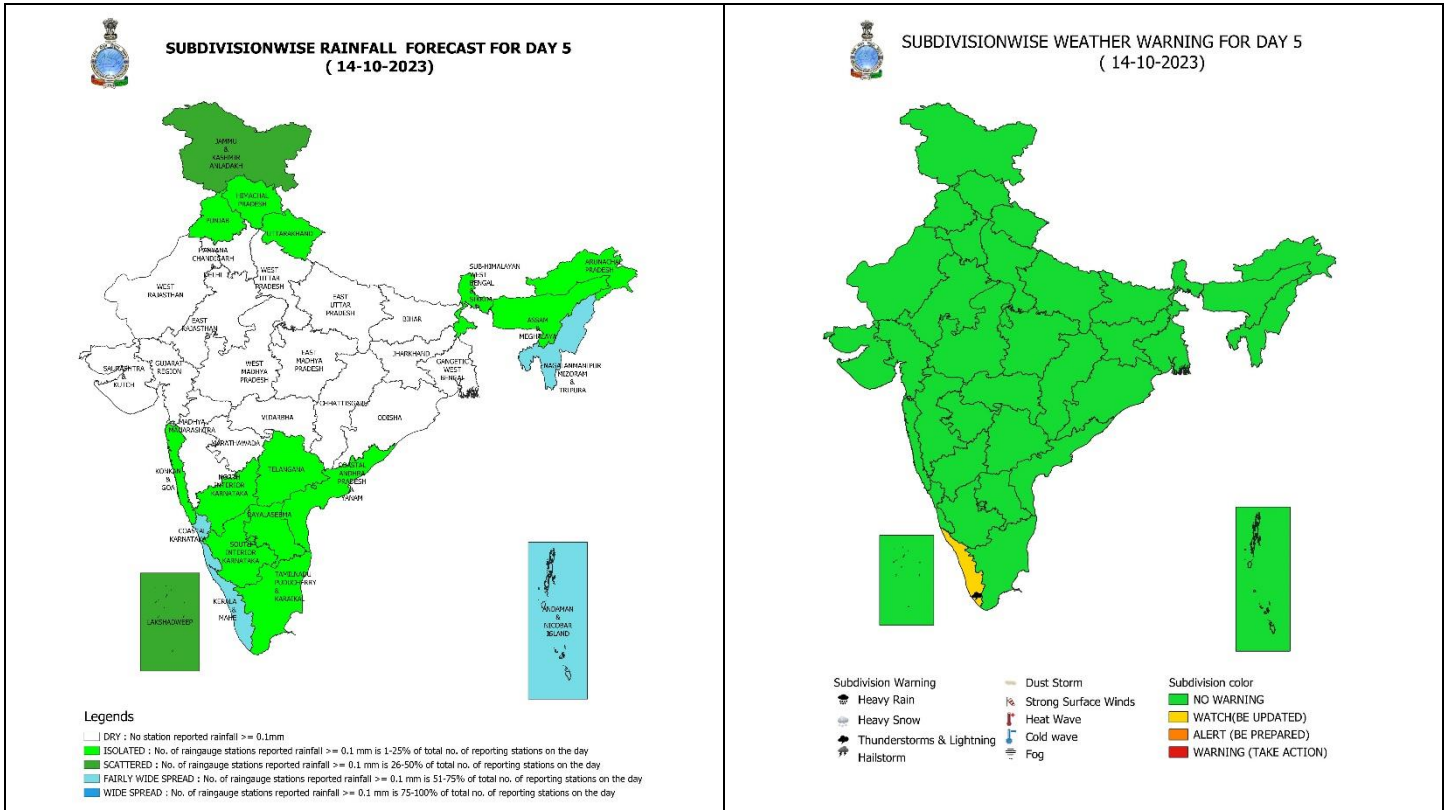
12 October (Day 3):

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



13 October (Day 4):

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

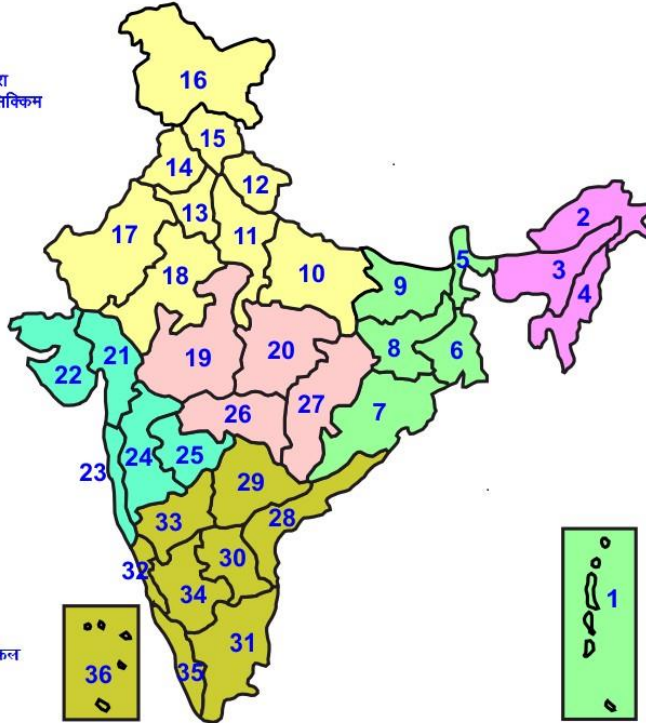


14 October (Day 5):

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

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 गंगेय बंगाल
- 7 ओडिसा
- 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 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. 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. Marathwada
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)
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 < 1km

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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