Government of India
Ministry of Earth Sciences
India Meteorological Department

Press Release
Date: 16th November, 2024
Time of Issue: 1400 hours IST

Subject: (i) Minimum temperature is likely to fall by 2-3°C over most places of northwest, central, east and west India during next 5 days.
(ii) Dense to very dense fog conditions likely to continue in early morning hours of tomorrow over Punjab, Haryana, northwest Rajasthan and Bihar.

i. Rainfall Forecast and warning over the country:

Realised weather during past 24 hours till 0830 hours IST of today (Annexure I)

- **Very Heavy rainfall** occurred at isolated places over Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal.
- **Fog conditions observed** (at 0530- & 0830-hours IST of today): **Very dense fog** reported in isolated pockets of Punjab, Haryana, East Uttar Pradesh & West Rajasthan and **Dense fog** in isolated pockets of West Uttar Pradesh. Following stations reported visibility (≤200metres): **Punjab:** Amritsar, Patiala, Ludhiana 0 each; **Haryana:** Ambala, Karnal 0 each; **West Rajasthan:** Ganganagar-0; **East Uttar Pradesh**: Gorakhpur 0, Shravasti & Kushinagar 50 each; **West Uttar Pradesh:** Moradabad 50.

Weather Systems:

- A trough runs from Comorin area to southwest Bay of Bengal in lower tropospheric level.
- The Western Disturbance as a trough in middle tropospheric westerlies now seen with its axis at 5.8 km above mean sea level roughly along Long. 70°E to the north of Lat. 32°N.

Forecast & Warnings (upto 7 days) (Annexure II & III):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm and lightning very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe on 16th & 17th November, 2024.
- ✓ Light to moderate rainfall at many places over Andaman & Nicobar Islands during the week.
- ✓ **Isolated heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal, Kerala on 16th & 17th November, 2024.
- ✓ **Dense to very dense fog** conditions very likely to prevail in night/early morning hours in some pockets of Punjab, Haryana-Chandigarh-Delhi, West Rajasthan tomorrow morning & Bihar till 18th morning hours. **Dense fog conditions** very likely to prevail in night/early morning hours in isolated pockets over Sub-Himalayan West Bengal & Sikkim during 17th -19th morning hours; Assam & Meghalaya during 17th -19th morning hours; Bihar during 19th morning hours; Himachal Pradesh during 19th-21th morning hours; Punjab, Haryana-Chandigarh-Delhi, West Uttar Pradesh, West Rajasthan during 18th morning hours.

ii. Temperature conditions and Forecast:

Temperature Conditions during past 24 hours till 0830 hours IST of today

No significant change in minimum temperature observed over most parts of the country during past 24 hours. Minimum temperatures are **markedly above normal (5°C -6°C)** at few places over Madhya

Maharashtra; at isolated places over Konkan & Goa; **appreciably above normal (3°C to 5°C)** at few places over North Interior Karnataka; at isolated places over Punjab, West Uttar Pradesh, Bihar, Marathwada, Coastal Karnataka; **above normal (2°C to 3°C)** at most places over South Interior Karnataka; at many places over Rayalaseema; at a few places over Telangana, Kerala & Mahe; at isolated places over Rajasthan, Gujarat state, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim. These are **below normal (-2°C to -3°C)** at isolated places over East Madhya Pradesh, Chhattisgarh, Odisha, Jharkhand, Gangetic West Bengal and near normal over rest parts of the country. Today, **the lowest minimum temperature** of **11.0°C** is reported at **Delhi Ridge (Delhi)** over the plains of the country.

Forecast of temperature:

- Gradual fall in minimum temperatures by 2-3°C over northwest & Central India during next 4-5 days.
- Gradual fall in minimum temperatures by 2-3°C in the next 2 days and no large change thereafter over East India.
- Gradual fall in minimum temperatures by 2-3°C over West India during next 5 days.

iii. Weather forecast over Delhi/NCR during 16th Nov. to 19th Nov. 2024

There has been a slight fall in minimum temperatures over Delhi/NCR during past 24hr. The Maximum and Minimum temperature over Delhi is in the range of 28 to 31°C and 11 to 16°C respectively. The maximum temperature was above normal by 2 to 3°C and the minimum temperature was above normal by 2 °C over most places. Mainly smog condition with predominant surface wind from west/northwest direction with wind speed reaching 10 to 16 kmph prevailed during past 24hr. Shallow fog reported at Palam airport. Palam airport recorded lowest visibility 500 m during 0700 to 0800 hours IST which improved thereafter becoming 700m at 0830 hours IST. Safdarjung airport recorded lowest visibility 300m during 0730 hours to 0830 IST which improved thereafter becoming 400m at 0900 hours IST. Mainly smog condition with wind speed less than 08 kmph variable direction prevailed over the region in the forenoon today.

Weather Forecast:

16.11.2024: Mainly clear sky. The predominant surface wind is likely to be northwest with wind speed upto 10-16 kmph till evening. It would decrease thereafter becoming less than 10 kmph from north-northwest direction during night. Smog/shallow fog is likely in the evening/night.

17.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 10 kmph during morning hours. Smog/moderate to dense fog at few places is likely in the morning. The wind speed will increase thereafter becoming less than 16 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 10 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

18.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 10 kmph during morning hours. Smog/moderate to dense fog at few places is likely in the morning. The wind speed will gradually increase becoming 10-14 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 08 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

19.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 10 kmph during morning hours. Smog/moderate fog in the morning. The wind speed will increase thereafter becoming 10-12 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 08 kmph from northwest directions during evening and night. Smog/ shallow fog is likely in the evening/night.

For more details, kindly refer National Weather Bulletin:
https://mausam.imd.gov.in/responsive/all_india_forcast_bulletin.php
For District wise warnings refer: https://mausam.imd.gov.in/responsive/districtWiseWarningGIS.php
For Fishermen warnings, kindly refer:
https://rsmcnewdelhi.imd.gov.in/uploads/archive/51/51_bdf575_GRAPHIC.png

ANNEXURE I

Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 16.11.2024 (in cm):

- **Kerala & Mahe**: Kayamkulam (dist Alapuzha) 15, Nilambur (dist Malappuram) 10, Cherthala (dist Alapuzha) 8, Mavelikara (dist Alapuzha) 7, Kozhikode (dist Kozhikode) 7;

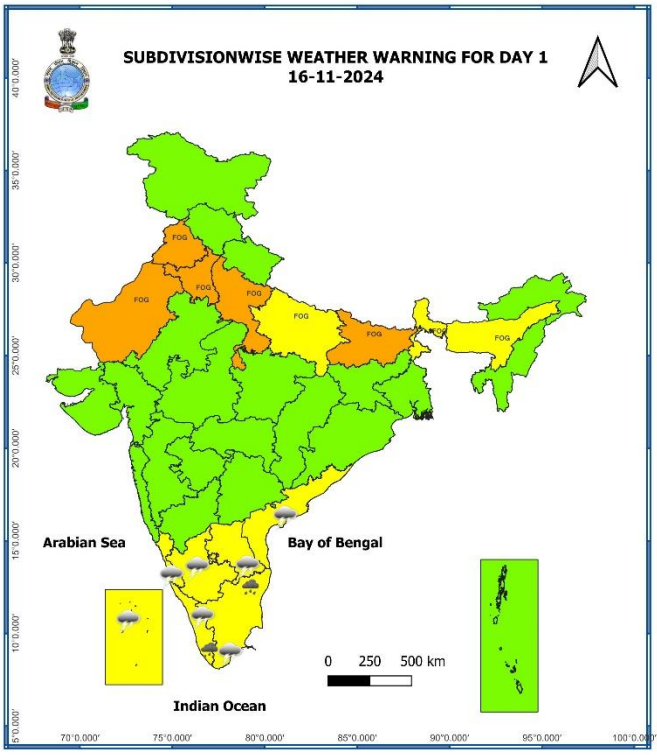
- **Tamil Nadu, Puducherry & Karaikal:** Nalumukku (dist Tirunelveli) 12; Oothu (dist Tirunelveli) 11; Kakkachi (dist Tirunelveli) 10; Manjolai (dist Tirunelveli) 9;

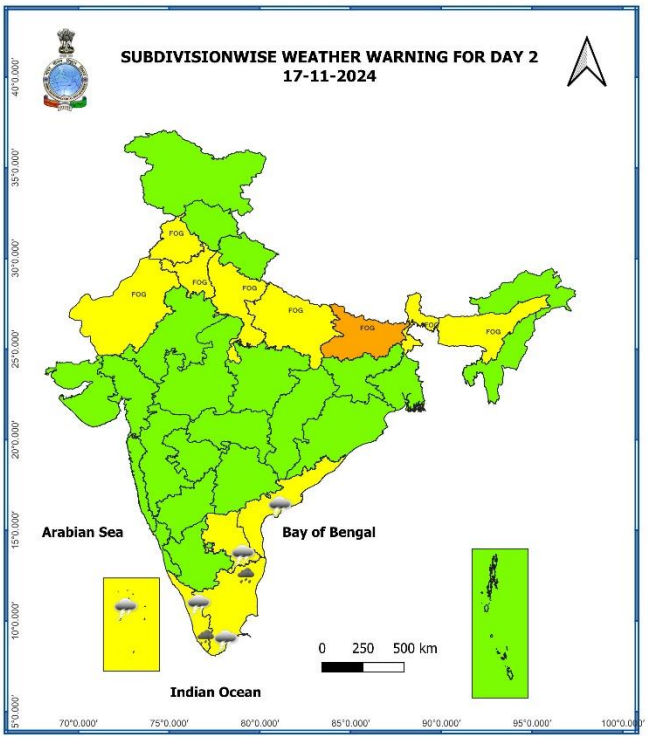
ANNEXURE II

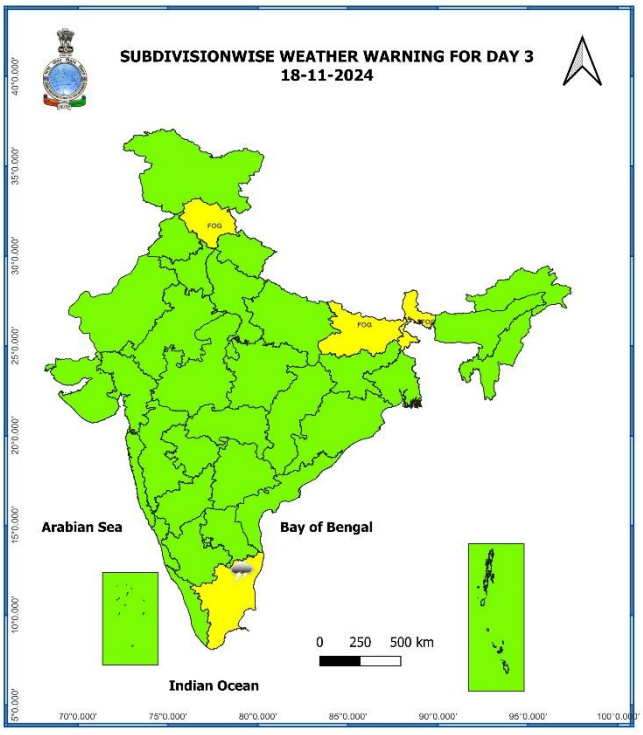
7 Days Rainfall Forecast								
S. No.	Subdivision	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	SCT	SCT	FWS	FWS	FWS	FWS	FWS
2	ARUNACHAL PRADESH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
3	ASSAM & MEGHALAYA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	DRY	DRY	DRY	DRY	ISOL	ISOL	DRY
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
8	JHARKHAND	DRY	DRY	DRY	DRY	DRY	DRY	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	DRY	DRY	DRY	DRY	DRY
12	UTTARAKHAND	DRY	DRY	DRY	DRY	DRY	DRY	DRY
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	DRY	DRY	DRY	DRY	DRY
14	PUNJAB	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	ISOL	DRY	DRY	DRY	DRY	DRY	ISOL
16	JAMMU & KASHMIR AND LADAKH	SCT	DRY	DRY	DRY	DRY	DRY	DRY
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	DRY	DRY	DRY	DRY
24	MADHYA MAHARASHTRA	ISOL	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	DRY	DRY	DRY	DRY
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	SCT	SCT	ISOL	DRY	DRY	DRY	DRY
31	TAMILNADU PUDUCHERRY & KARAIKAL	FWS	SCT	ISOL	ISOL	ISOL	ISOL	ISOL
32	COASTAL KARNATAKA	SCT	SCT	ISOL	DRY	DRY	DRY	DRY
33	NORTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
34	SOUTH INTERIOR KARNATAKA	SCT	SCT	ISOL	DRY	DRY	DRY	DRY
35	KERALA & MAHE	FWS	FWS	SCT	SCT	SCT	ISOL	ISOL
36	LAKSHADWEEP	FWS	FWS	FWS	SCT	SCT	SCT	SCT

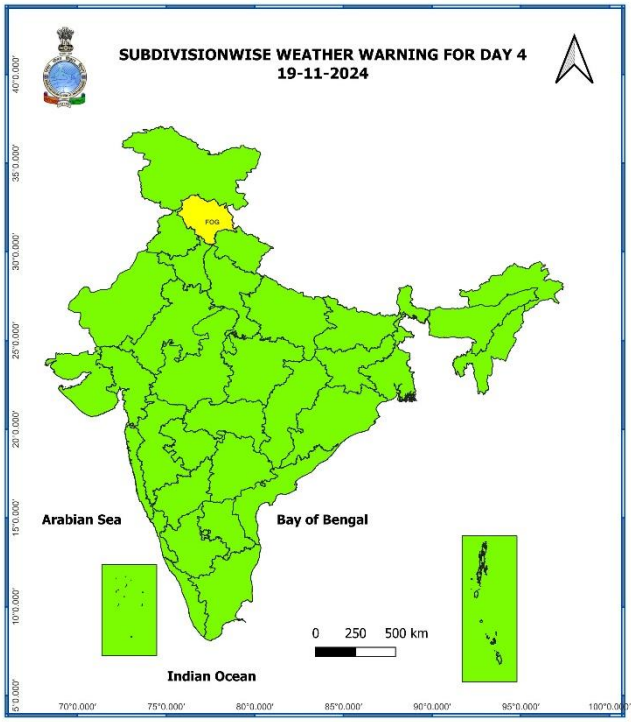
- **As the lead period increases forecast accuracy decreases.**

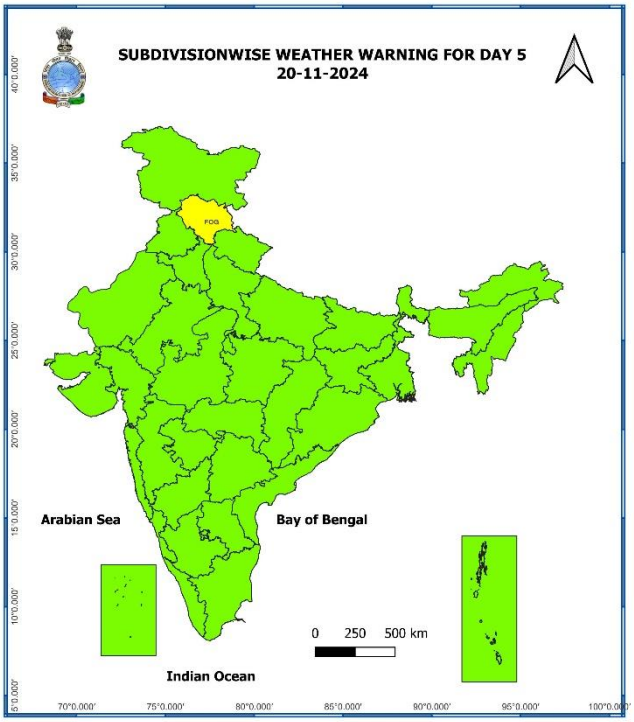
ANNEXURE III

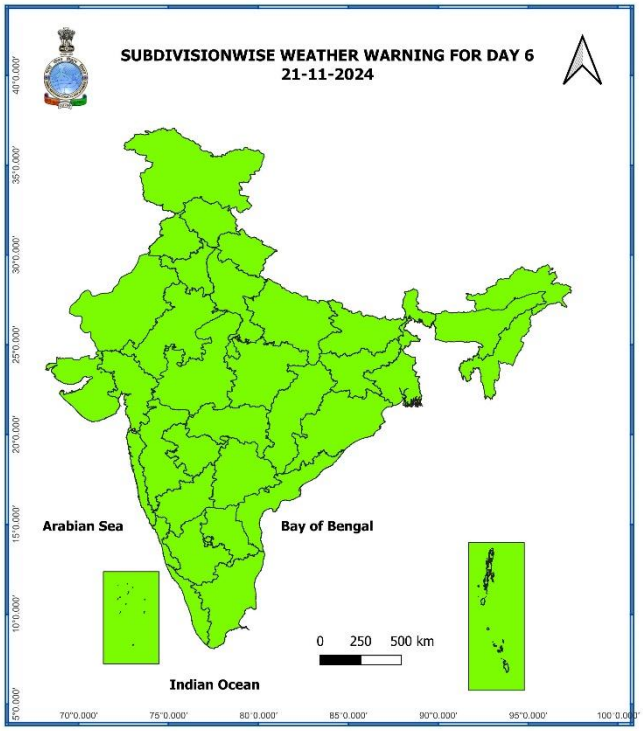


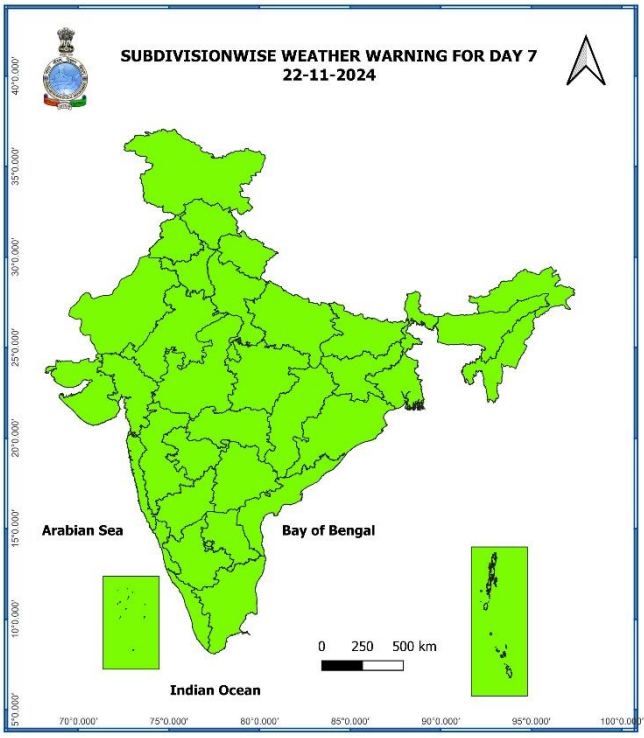












- **Action may be taken based on ORANGE AND RED COLOUR warnings.**
- **Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.**
- **As the lead period increases forecast accuracy decreases.**

Impact expected due to dense to very dense fog in the late night /morning hours over.

❖ Transport and Aviation:

- May affect some airports, highways and railway routes in the areas of met- sub-division.
- Difficult driving conditions with slower journey times.
- Unless taken precautionary measures, it may lead to some road traffic collisions.

❖ Power Sector:

- Chances of Tripping of Power lines in the very dense fog routes.

❖ Human Health:

- Lung related health impacts: Dense fog contains particulate matter and other pollutants and in case exposed it gets lodged in the lungs, clogging them and decreasing their functional capacity which increases episodes of wheezing, coughing and shortness of breath.
- Impact on people having asthma bronchitis: Long time exposure to dense fog may cause respiratory problem for people having asthma bronchitis and other lung related health problems.
- Eye Irritation: Dense fog contains pollutions of various types and these Pollutants in the air if exposed may tend to irritate the membranes of the eye causing various infections leading to redness or swelling of the eye.

Action suggested:

❖ Transport and Aviation:

- Be careful while driving or outing through any transport.
- Use fog lights during driving.
- Be in touch with airlines, railways and state transport for schedule of your journey.

❖ Power Sector:

- To keep ready Maintenance Team
- Human Health: To avoid outing until unless emergency and to cover the face.

Agromet advisories for Heavy Rainfall likely over various parts of the country

➢ Drain out excess water from the standing crop fields and fruit orchards in Tamil Nadu and Kerala.
➢ Keep the harvested produce at safer places.
➢ Provide mechanical support to horticultural crops and staking to vegetables.

Legends & abbreviations:

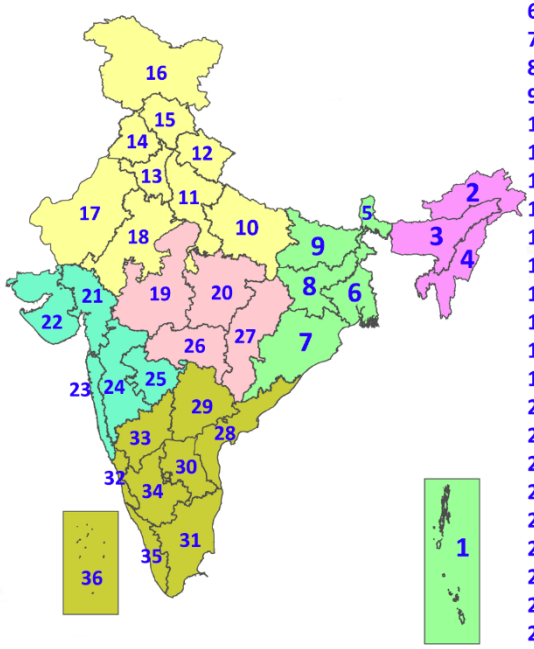
- **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- **Obsy:** Observatory; **AWS:** Automatic Weather Station; **ARG:** Automatic Rain Gauge; **dist:** District: **NH:** National Highway; **KVK**: Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO**: Part Time Office, **Aero:** Aerodrome, **IAF:** Indian Air Force.
- **Region wise classification of meteorological Sub-Divisions:**
  - **Northwest India:** Western Himalayan Region (Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand); Punjab, Haryana-Chandigarh-Delhi; West Uttar Pradesh, East Uttar Pradesh, West Rajasthan and East Rajasthan.
  - **Central India:** West Madhya Pradesh, East Madhya Pradesh, Vidarbha and Chhattisgarh.
  - **East India:** Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim; Gangetic West Bengal, Odisha and Andaman & Nicobar Islands.
  - **Northeast India:** Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
  - **West India:** Gujarat Region, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra and Marathawada.
  - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Lakshadweep.

राष्ट्रीय मौसम पूर्वानुमान केन्द्र
भारत मौसम विज्ञान विभाग
पृथ्वी विज्ञान मंत्रालय

National Weather Forecasting Centre
India Meteorological Department
Ministry of Earth Sciences

LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और 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, Chandigarh & 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. Vidarbha
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)

Fog
Heavy Rain
Very Heavy Rain
Extremely Heavy Rain
Thunder & Lightning
Hailstorm
Dust Raising Winds

Heavy Snow
Dust Storm
Heat Wave
Warm Night
Hot Day
Hot & Humid
Strong Surface Winds

Cold Wave
Cold Day
Ground Frost

COLOUR CODED WARNING

- No Warning (No Action)
- Watch (Be Aware)
- Alert (Be Prepared To Take Action)
- Warning (Take Action)

Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

* 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)

DEFINITION/CRITERIA

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 ≥40° C for plains and ≥30° 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 ≥6.5° C **(b). Based on Actual maximum temperature** **Heat Wave:** When actual maximum temperature ≥45°C. **Severe Heat Wave:** When actual maximum temperature ≥47°C **(c). Criteria for heat wave for coastal stations** When maximum temperature departure is >4.5°C from normal. Heat Wave may be described provided maximum temperature ≥37°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 °C.
Cold Wave	**When minimum temperature of a station ≤10°C for plains and ≤0°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 ≤ -6.5 °C **(b) Based on actual Minimum Temperature (for Plains only)** **Cold Wave :** When Minimum Temperature is ≤ 4.0 °C **Severe Cold Wave:** When Minimum Temperature is ≤ 2.0 °C **(c) For Coastal Stations** When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C
Cold Day	**When minimum temperature of a station ≤10°C for plains and ≤0°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 ≤ -6.5 °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 ≤4°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)

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