

Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 20th November, 2024

Time of Issue: 1330 hours IST

Subject: i) Heavy rainfall likely at isolated places over Tamil Nadu, Kerala & Lakshadweep today, the 20th November, 2024.

ii) A low pressure area is likely to form over the southeast Bay of Bengal around 23rd November and cause isolated heavy spell over south Peninsular India on the 25th & 26th November, 2024.

i. Rainfall Forecast and warning over the country:

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

- ❖ **Heavy to very heavy rainfall** occurred at isolated places over Tamil Nadu, Puducherry & Karaikal; **heavy rainfall** at isolated places over Kerala & Mahe and Lakshadweep.
- ❖ **Fog conditions observed** (at 0830 hours IST of today): **Very dense fog (visibility < 50 m)** reported in isolated pockets of Jammu-Kashmir, Uttar Pradesh; **dense fog (visibility 51-200 m)** reported in isolated pockets of Haryana.
- ❖ **Visibility reported** (in m): **Jammu-Kashmir:** Udhampur IAF 0; **East Uttar Pradesh:** Kheri, Bahraich, Kanpur, Bakshi ka talab IAF 0 each, Lucknow Amausi, Fursatganj 200 each; **West Uttar Pradesh:** Moradabad 50, Hindon IAF, Aligarh, Bareilly, Agra IAF 500 each; **Haryana:** Sirsa IAF 200.

Weather Systems:

- ❖ An **upper air cyclonic circulation** is likely to form over South Andaman Sea and adjoining areas around 21st November. It is likely to move west-northwestwards and become a **low pressure area** over southeast Bay of Bengal around 23rd November. Thereafter, it is likely to continue move west-northwestwards and intensify into a **depression** over southwest Bay of Bengal during subsequent 2 days.
- ❖ A **cyclonic circulation** lies over Comorin area & neighbourhood in lower tropospheric levels.
- ❖ Another **cyclonic circulation** lies over southeast Arabian sea off Kerala coast in lower tropospheric levels.

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

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm & lightning very likely over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe on 20th & 21st November.
- ✓ Light to moderate rainfall at many places over Andaman & Nicobar Islands during the week; Light to moderate rainfall at isolated places over Assam & Meghalaya on 21st & 22nd November.
- ✓ Isolated **very heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal on 20th & 26th, Coastal Andhra Pradesh & Yanam & Rayalaseema on 26th November.
- ✓ Isolated **heavy rainfall** very likely over Lakshadweep on 20th, Kerala & Mahe on 20th & 26th, Nicobar during 22nd – 24th and Tamil Nadu, Puducherry & Karaikal on 25th November.
- ✓ **Dense to very dense fog conditions** very likely to prevail in isolated pockets of East Uttar Pradesh in late night of 20th/early morning of 21st and dense fog for subsequent 24 hours. **Dense fog conditions** is very

likely to prevail in isolated pockets of Punjab, Haryana-Chandigarh during late night of 22nd to early morning of 24th and Himachal Pradesh during late night of 23rd to early morning of 25th November.

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 **appreciably above normal (3°C to 5°C)** at isolated places over Bihar; **above normal (2°C to 3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura. These are **markedly below normal (5°C or less)** at isolated places over Odisha; **appreciably below normal (3°C to 5°C)** at isolated places over Chhattisgarh, Telangana; **below normal (2°C to 3°C)** at a few places over West Madhya Pradesh, Vidarbha, Marathwada; at isolated places over Haryana-Chandigarh-Delhi, Rajasthan, Assam & Meghalaya, Coastal Andhra Pradesh & Yanam, North Interior Karnataka and near normal over rest parts of the country. Today, **the lowest minimum temperature** of 7.3°C is reported at **Adampur IAF (Punjab)** over the plains of the country.

Forecast of temperature:

- ❖ No significant change in minimum temperatures over most parts of the country during next 5 days.

iii. Weather forecast over Delhi/NCR during 20th Nov. to 23rd Nov. 2024

Past Weather:

There has been a fall in maximum and minimum temperatures over Delhi/NCR during past 24hr. The Maximum and Minimum temperature over Delhi is in the range of 23 to 25°C and 08 to 12°C respectively. The maximum temperature was below normal by 2 to 4°C and the minimum temperature was near normal. Mainly shallow fog/smog condition with predominant surface wind from northwest direction with wind speed reaching 06 to 12 kmph prevailed during daytime and calm wind during night time on 19.11.2024. Shallow fog reported at Palam airport during early morning today. Palam airport recorded lowest visibility 600m at 0830 hours IST which improve thereafter becoming 700m at 0900 hours IST. Safdarjung airport recorded lowest visibility 500 m at 0530 hours IST which improved thereafter becoming 600m at 0730 hours IST. Mainly smog condition with wind speed less than 10 kmph west direction prevailed over the region in the forenoon today.

Weather Forecast:

20.11.2024: Mainly clear sky. The predominant surface wind is likely to be northwest with wind speed upto 06-08 kmph till evening. It would decrease thereafter becoming less than 06 kmph from northwest direction during night. Smog/shallow fog is likely in the evening/night.

21.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 08 kmph during morning hours. Smog/ shallow to moderate fog is likely in the morning. The wind speed will increase thereafter becoming less than 10 kmph from west direction during afternoon. It will decrease thereafter becoming less than 04 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

22.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 06 kmph during morning hours. Smog/ shallow to moderate fog is likely in the morning. The wind speed will gradually increase becoming 08-12 kmph from west direction during afternoon. It will decrease thereafter becoming less than 06 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

23.11.2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 06 kmph during morning hours. Smog/shallow to moderate fog in the morning. The wind speed will increase thereafter becoming 06-08 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 04 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_forecast_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

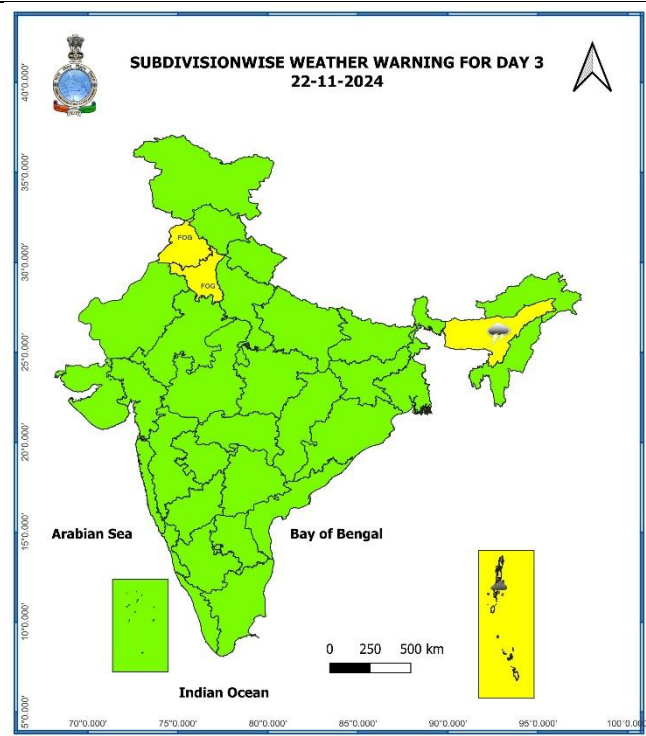
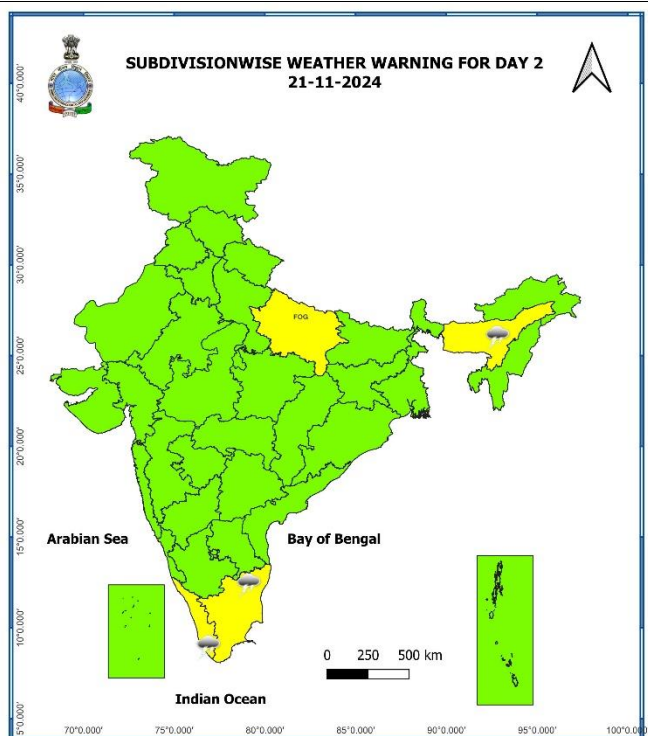
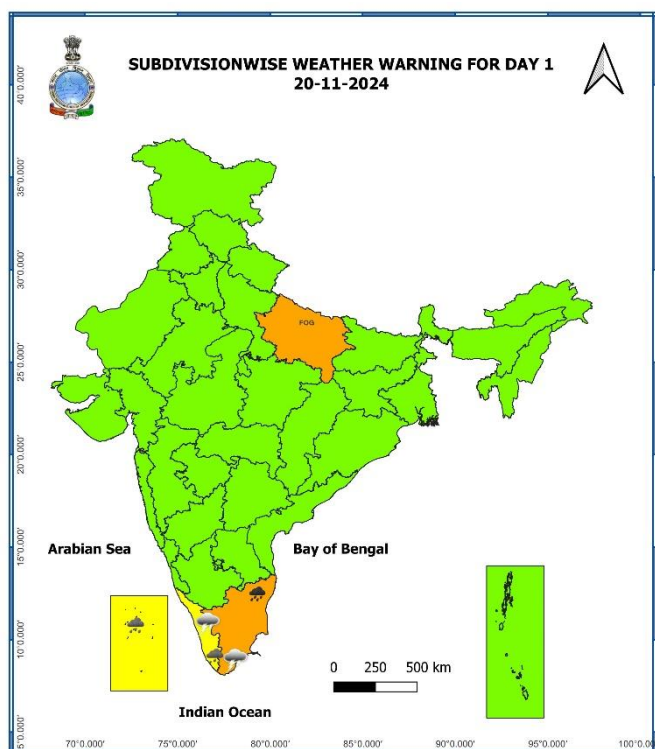
ANNEXURE I

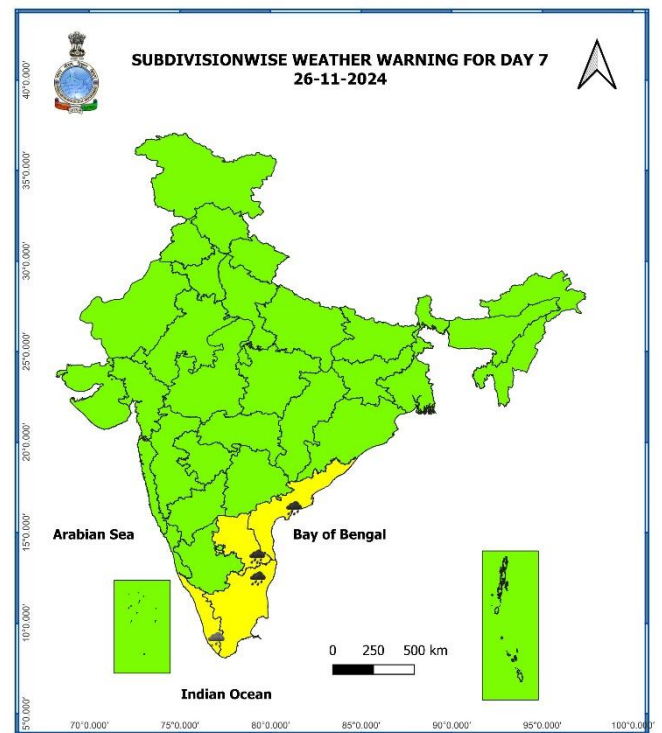
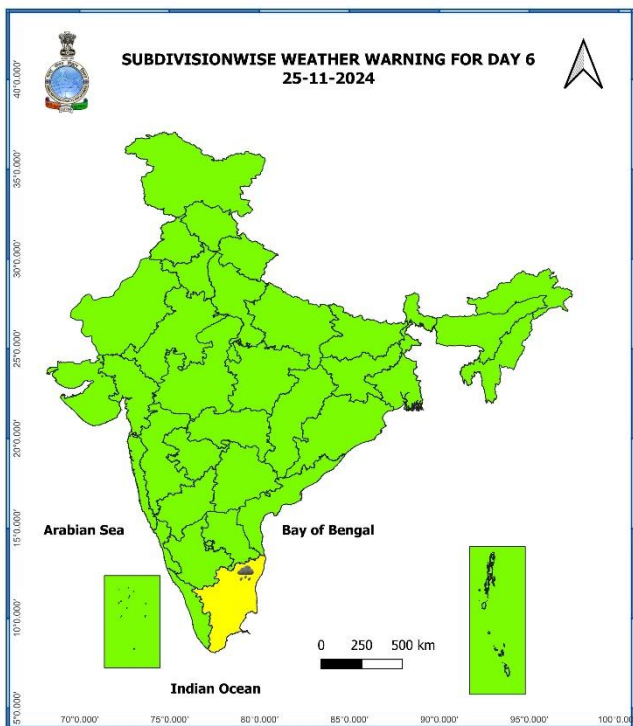
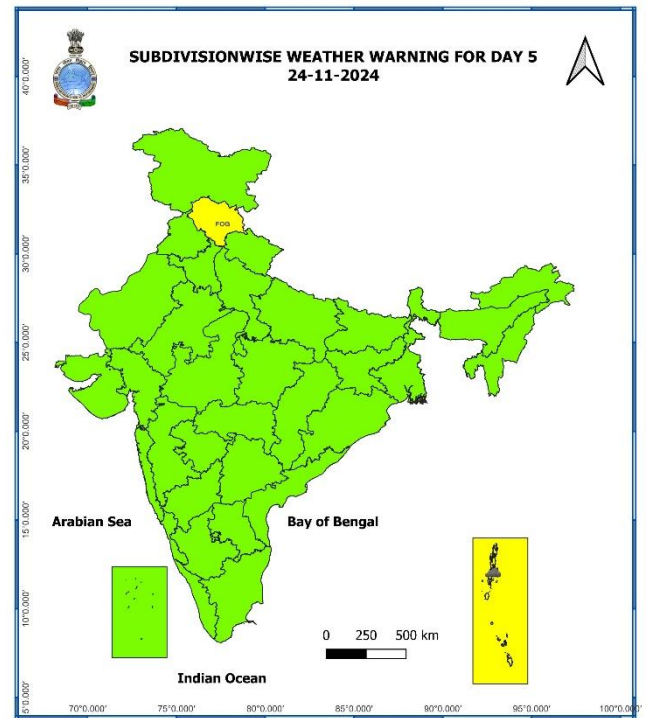
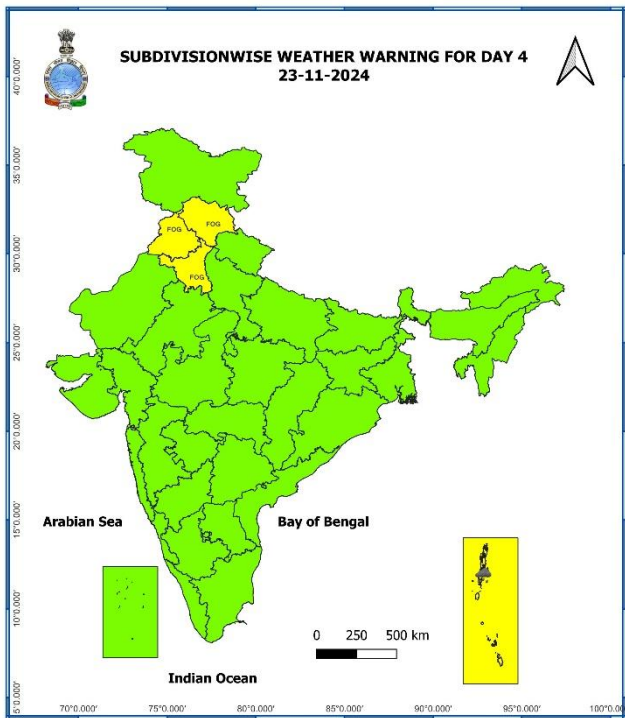
Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 20.11.2024 (in cm):

- ❖ **Tamil Nadu, Puducherry & Karaikal:** Nalumukku (dist Tirunelveli) 17, Oothu (dist Tirunelveli), Kodayakarai (dist Nagapattinam) 15 each, Kakkachi (dist Tirunelveli) 14, Tirupoondi (dist Nagapattinam) 13, Thirukuvalai (dist Nagapattinam) 11, Vedaranyam (dist Nagapattinam), Manjolai (dist Tirunelveli), Ramanathapuram (dist Ramanathapuram) 10 each, Thalaigayyer (dist Nagapattinam) 9, Velankanni (dist Nagapattinam), Paramakudi (dist Ramanathapuram) 8 each, Valinokam (dist Ramanathapuram) 7, Theerthandathanam (dist Ramanathapuram), Tuticorin Rly Station ARG (dist Tuticorin), Nanguneri (dist Tirunelveli), Kalakadu (dist Tirunelveli), Tuticorin (dist Thoothukudi) 6 each;
- ❖ **Lakshadweep:** Minicoy (dist Lakshadweep) 10;
- ❖ **Kerala & Mahe:** Vaikom (dist Kottayam) 7, Piravam (dist Ernakulam) 6, Kumarakam (dist Kottayam) 5, Vaikom (dist Kottayam) 4.

7 Days Rainfall Forecast								
S. No.	Subdivision	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	SCT	FWS	WS	WS	WS	WS	FWS
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	DRY
3	ASSAM & MEGHALAYA	ISOL	ISOL	ISOL	ISOL	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	ISOL	SCT	SCT	ISOL	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	DRY	DRY	ISOL	DRY	DRY	DRY	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	SCT	DRY
14	PUNJAB	DRY	DRY	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	DRY	DRY	DRY	ISOL	DRY	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	DRY	DRY	ISOL	SCT	ISOL	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	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	DRY	DRY
27	CHHATTISGARH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
28	COASTAL ANDHRA PRADESH & YANAM	DRY	DRY	DRY	DRY	ISOL	ISOL	SCT
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	DRY	DRY	DRY	DRY	ISOL	ISOL	SCT
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	ISOL	ISOL	ISOL	ISOL	SCT	FWS
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	ISOL
35	KERALA & MAHE	FWS	FWS	SCT	SCT	SCT	SCT	FWS
36	LAKSHADWEEP	FWS	FWS	SCT	SCT	SCT	SCT	FWS

- As the lead period increases forecast accuracy decreases.





- 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 night /morning hour:

❖ 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

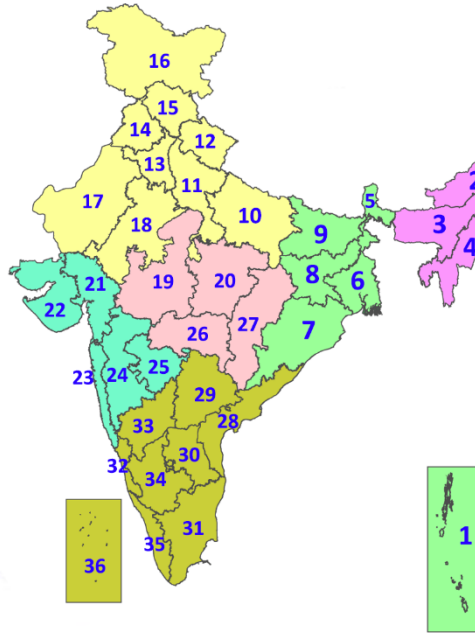
- In **Tamil Nadu**, provide adequate drainage facilities for the removal of excess water from rice, cotton, sugarcane, turmeric and vegetable fields, coconut and banana orchards. Undertake propping in sugarcane. Provide mechanical support to banana plants to prevent lodging.
- In **Kerala**, provide proper drainage in rice, ginger and vegetable fields. Provide mechanical support to banana plants and strengthen the vegetable pandals.

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.

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 Snow



Cold Wave



Heavy Rain



Dust Storm



Cold Day



Very Heavy Rain



Heat Wave



Ground Frost



Extremely Heavy Rain



Warm Night



Thunder & Lightning



Hot Day



Hailstorm



Hot & Humid



Dust Raising Winds



Strong Surface Winds

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 $\geq 40^\circ \text{C}$ 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 Strom: Wind speed > 220 kmph (> 119 knots)

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