

**Government of India**  
**Ministry of Earth Sciences**  
**India Meteorological Department**



**Press Release**

**Date: 14<sup>th</sup> December, 2024**

**Time of Issue: 1400 hours IST**

**Subject: (i) Low pressure area is likely to form over southeast Bay of Bengal around 15<sup>th</sup> December which is likely to become more marked and move west-northwestwards towards Tamil Nadu coast during subsequent two days.**  
**(ii) Under the influence of a Western Disturbance, isolated light/moderate rainfall/snowfall likely over Jammu-Kashmir-Ladakh and adjoining areas on 16<sup>th</sup> & 17 December, 2024.**  
**(iii) Low pressure area persists over Lakshadweep & adjoining Maldives area.**

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

- ❖ **Heavy to very heavy rainfall with extremely heavy falls** at isolated places over Tamil Nadu.
- ❖ **Cold wave to severe cold wave conditions** observed in few places of Punjab; in isolated pockets over Madhya Pradesh; **Cold wave conditions** in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Haryana-Chandigarh, Uttar Pradesh, Rajasthan, Chhattisgarh, Gangetic West Bengal, Bihar, Vidarbha, Saurashtra & Kutch.
- ❖ **Cold day conditions** observed in isolated pockets of Madhya Pradesh.
- ❖ **Dense fog (50-200 m)** reported in isolated pockets of Manipur, Meghalaya.
- ❖ **Visibility reported ( $\leq 200$  m)** (in meter): **Manipur:** Imphal 50; **Meghalaya:** Barapani 50.

**Weather Systems:**

- ❖ The **low pressure area** over Lakshadweep & adjoining Maldives area with the associated upper air cyclonic circulation extending upto 5.8 km above mean sea level persists. It is likely to move westwards and become less marked during next 24 hours.
- ❖ Yesterday's **upper air cyclonic circulation** over central parts of Andaman Sea and adjoining Gulf of Thailand now lies over south Andaman Sea and adjoining area and extends upto 3.1 km above mean sea level at 0830 hours IST of today 14<sup>th</sup> December, 2024. Under its influence, a low pressure area is likely to form over southeast Bay of Bengal around 15<sup>th</sup> December. Thereafter, it is likely to become more marked and move west-northwestwards towards Tamil Nadu coast during subsequent two days.
- ❖ A fresh Western disturbance seen as a trough in middle and upper tropospheric westerlies and runs roughly along Long. 42°E to the north of Lat. 25°N. It is likely to move faster affecting Jammu-Kashmir-Ladakh and adjoining areas with isolated light to moderate rainfall/snowfall on 16<sup>th</sup> & 17 December.

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

- ❖ **Tamil Nadu: heavy to very heavy rainfall** at isolated places on 17<sup>th</sup> & 18<sup>th</sup> December. Isolated **heavy rainfall** is also very likely on 14<sup>th</sup> and during 16<sup>th</sup>-19<sup>th</sup> December.
- ❖ **Kerala:** Isolated **heavy rainfall** is also very likely on 14<sup>th</sup>, 18<sup>th</sup> & 19<sup>th</sup> December.
- ❖ **Coastal Andhra Pradesh, Rayalaseema & South Interior Karnataka:** **Heavy rainfall** at isolated places very likely on 17<sup>th</sup> & 18<sup>th</sup> December.
- ❖ **Lakshadweep:** **Heavy rainfall** at isolated places very likely on 14<sup>th</sup> December.
- ❖ **Andaman & Nicobar Islands:** **Heavy rainfall** at isolated places very likely on 14<sup>th</sup> & 15<sup>th</sup> December.
- ❖ Light to moderate rainfall at isolated places accompanied with isolated thunderstorm & lightning very likely over Tamil Nadu, Puducherry during 14<sup>th</sup>-18<sup>th</sup> and Coastal Andhra Pradesh & Yanam on 17<sup>th</sup> & 18<sup>th</sup> December.

### Fishermen Warnings (Annexure IV):

Fishermen are advised not to venture into along and off Kerala coasts and Lakshadweep on 14<sup>th</sup>; Andaman Sea, Southwest Bay of Bengal on 14<sup>th</sup> & 15<sup>th</sup>; South Bay of Bengal on 16<sup>th</sup>; Somalia Coast, Westcentral Arabian Sea 16<sup>th</sup> & 17<sup>th</sup>, Tamil Nadu coast, Comorin area, Gulf of Mannar on 17<sup>th</sup> & 18<sup>th</sup> December.

### ii. Temperature, Cold Wave and Fog Forecast:

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

Minimum temperatures are in the range of 5-10°C in the plains of Northwest India, in many parts of Central India and in the range of 10-16°C in many parts of Odisha, Gangetic West Bengal and Western India.

Minimum temperatures has fallen by 1-2°C over most parts of the country in the past 24 hours except some parts of Punjab, Himachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim and South Peninsular India, where there is a rise.

Minimum temperatures were below normal over most parts of the country except South Peninsular India and Northeastern state where it was near normal. Minimum temperatures were **appreciably below normal (-3°C to -5°C)** over many parts of East Rajasthan, Madhya Pradesh and some parts of Vidarbha, isolated parts of Uttar Pradesh; being **markedly below normal (-5°C or less)** so in isolated pockets of Madhya Pradesh and southeast Rajasthan.

Today, the **lowest minimum temperature** of 0.7°C is reported at **Adampur IAF (Punjab)** over the plains of the country.

#### Forecast of temperature:

- ❖ No significant change in minimum temperatures likely over Northwest India during next 24 hours and gradual rise by 2°C during subsequent 3 days.
- ❖ No significant change in minimum temperatures likely over Central India during next 3 days and gradual rise by 2-3°C during subsequent 2 days.
- ❖ No significant change in minimum temperatures likely over West & East India during next 5 days.

#### Cold Wave Warnings:

**Cold wave to severe cold wave** conditions very likely in some parts of Punjab on 14<sup>th</sup> and over Madhya Pradesh in isolated pockets on 14<sup>th</sup> & 15<sup>th</sup> December.

**Cold wave** conditions very likely in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 14<sup>th</sup>-16<sup>th</sup>, Himachal Pradesh, Vidarbha, Bihar, Jharkhand, Telangana on 14<sup>th</sup>; Punjab on 15<sup>th</sup>; Haryana-Chandigarh, Uttar Pradesh, Chhattisgarh, Gangetic West Bengal, Odisha on 14<sup>th</sup> & 15<sup>th</sup>; West Rajasthan on 14<sup>th</sup> and during 17<sup>th</sup>-20<sup>th</sup>; East Rajasthan during 14<sup>th</sup>-20<sup>th</sup>; Madhya Pradesh on 16<sup>th</sup> December.

#### Cold Day Warnings:

**Cold Day** conditions very likely in isolated pockets over Madhya Pradesh on 14<sup>th</sup> & 15<sup>th</sup> December.

#### Dense Fog Warnings:

**Dense fog conditions** very likely to prevail during late night/early morning hours in isolated pockets of Haryana-Chandigarh, West Uttar Pradesh during 16<sup>th</sup>-18<sup>th</sup>; Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura till 17<sup>th</sup> December morning hours.

### iii. Weather conditions and forecast over Delhi/NCR during 14<sup>th</sup> to 17<sup>th</sup> Dec. 2024 (Annexure V)

For more details, kindly refer National Weather Bulletin:

[https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

For District wise warnings refer: <https://mausam.imd.gov.in/responsive/districtWiseWarningGIS.php>

## ANNEXURE I

### Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 14.12.2024 (in cm):

- ❖ **Tamil Nadu:** Gadana Dam (dist Tenkasi) 26, Oothu (dist Tirunelveli) 23, Nalumukku (dist Tirunelveli) 22, Tuticorin Airport ARG (dist Thoothukudi) 21, Kakkachi (dist Tirunelveli) 19, Manjolai (dist Tirunelveli) 18, Tuticorin (dist Thoothukudi) 16, Ramanadhi Dam Section (dist Tenkasi), Kodayakarai (dist

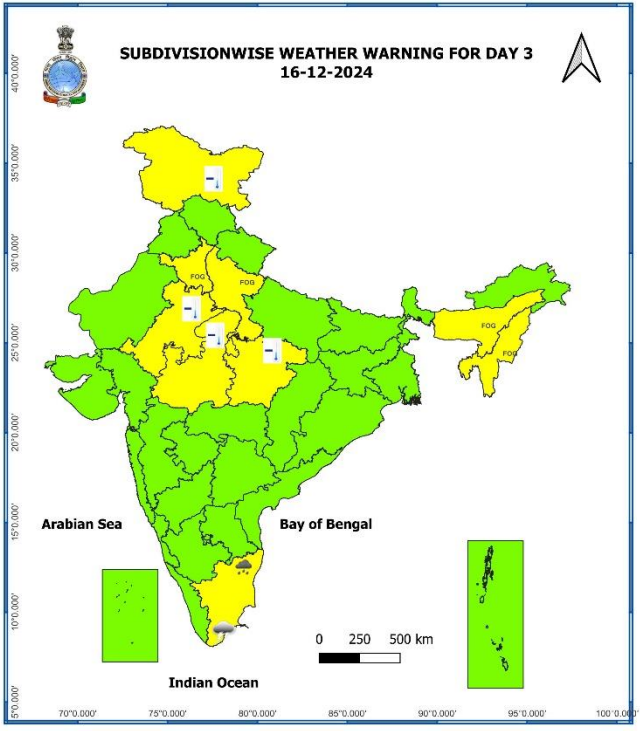
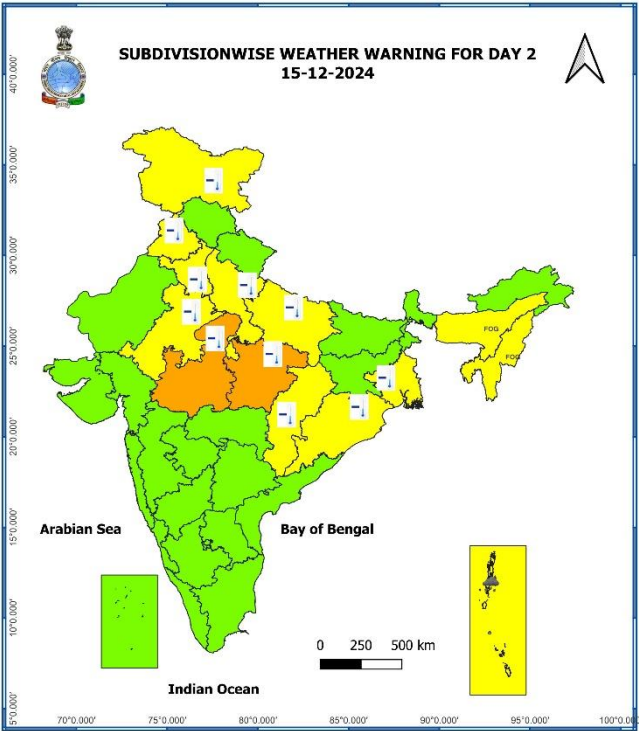
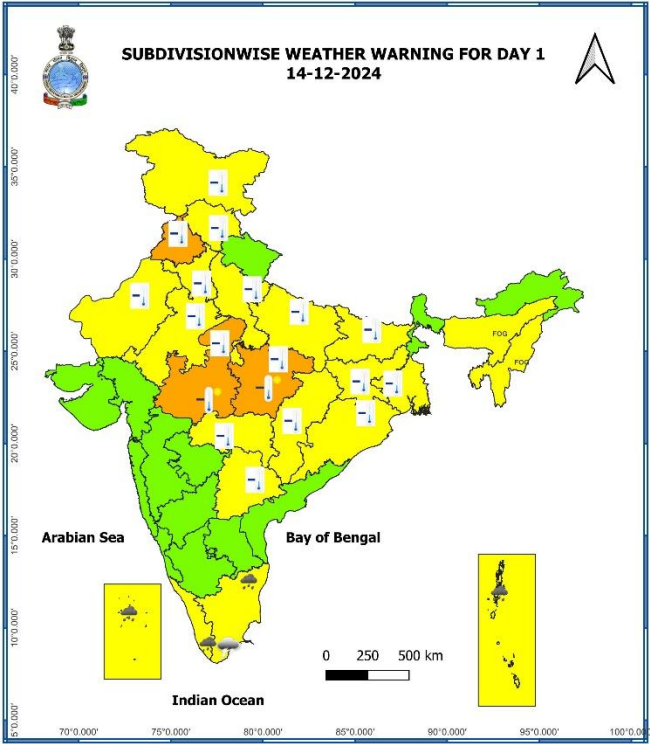
Nagapattinam), Papanasam (dist Tirunelveli) 15 each, Needamangalam (dist Thiruvavur), Shencottah (dist Tenkasi), Gundar Dam (dist Tenkasi), Servalar Dam (dist Tirunelveli) 14 each, Orthanad (dist Thanjavur), Virudhunagar AWS (dist Virudhunagar), Kurungulam (dist Thanjavur) 13 each, Kayalpattinam (dist Thoothukudi) 12, Pullambadi (dist Thiruchirappalli), Sattur (dist Virudhunagar), Satankulam (dist Thoothukudi), Sivakasi (dist Virudhunagar), Sattankulam ARG (dist Thoothukudi) 11 each, Thekkadi (dist Theni), Aruppukottai (dist Virudhunagar), Kallikudi (dist Madurai) 10 each, Tirukattupalli (dist Thanjavur), Manimutharu (dist Tirunelveli), Nagudi (dist Pudukkottai), Karuppanadhi Dam (dist Tenkasi), Budalur (dist Thanjavur), Pandavaiyar Head (dist Thiruvavur), Rajapalayam (dist Virudhunagar), Adiramapattinam (dist Thanjavur), Virudhunagar (dist Virudhunagar) 9 each, Shanmuganadhi (dist Theni), Kumbakonam (dist Thanjavur), Madukkur (dist Thanjavur), Kodavasal (dist Thiruvavur), Muthupet (dist Thiruvavur), Valangaiman (dist Thiruvavur), Peravurani (dist Thanjavur), Kovilpatti (dist Thoothukudi), Thirumanur (dist Ariyalur), Thiruvaidaimaruthur (dist Thanjavur), Ponnaniyar Dam (dist Thiruchirappalli) 8 each, Ayinkudi (dist Pudukkottai), Tiruvaiyaru (dist Thanjavur), Kariyapatti (dist Virudhunagar), Idayapatti (dist Madurai), Thuvakudi IMTI (dist Thiruchirappalli), Thanjavur (dist Thanjavur), Vedaranyam (dist Nagapattinam), Pattukottai (dist Thanjavur), Nannilam (dist Thiruvavur), Thirukuvalai (dist Nagapattinam), Thiruthuraiipoondi (dist Thiruvavur) 7 each;

- ❖ **Kerala & Mahe:** Ponmudi (Thiruvananthapuram) 6, Pampadumpara (dist Idukki) 5

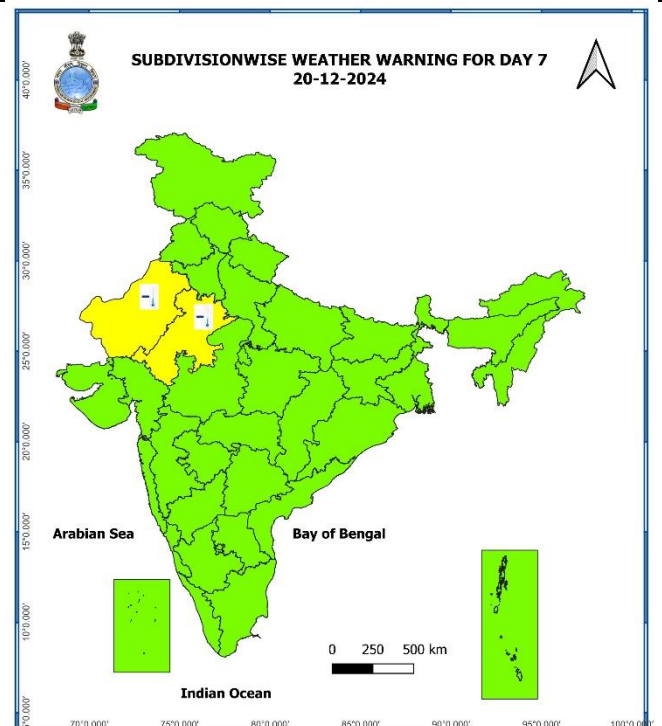
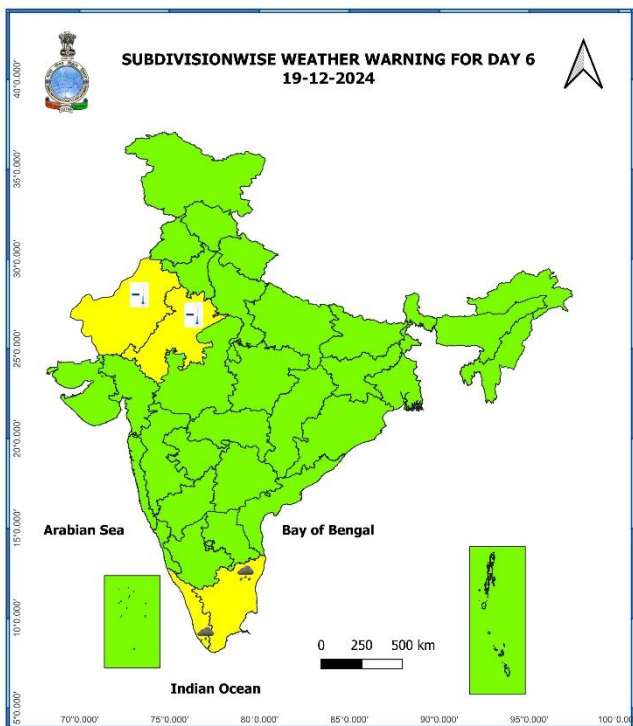
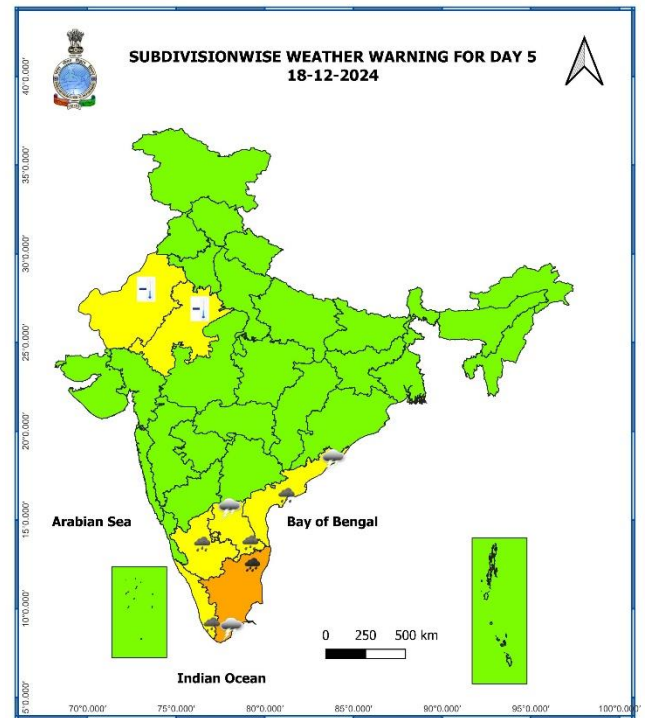
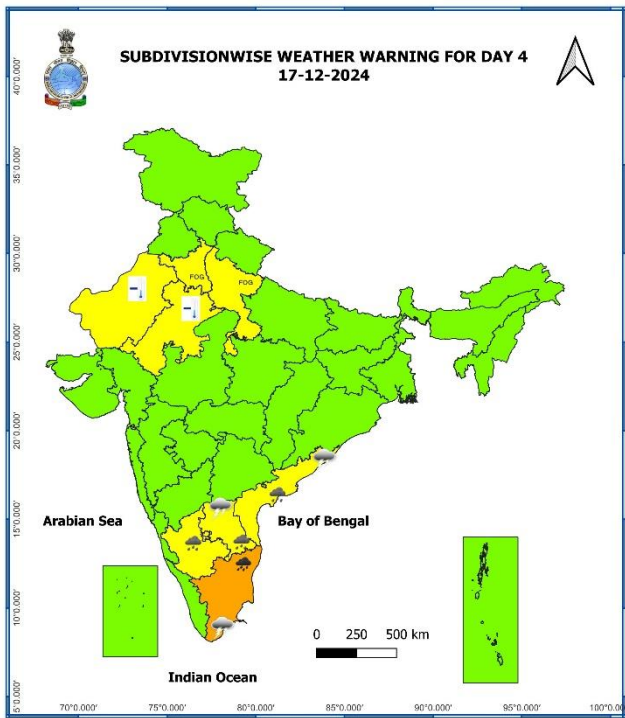
## ANNEXURE II

7 Days Rainfall Forecast								
S. No.	Subdivision	14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	FWS	FWS	FWS	SCT	SCT
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	DRY	DRY	ISOL
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	DRY	ISOL	ISOL	ISOL	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	DRY	DRY	DRY	DRY	DRY	DRY	DRY
15	HIMACHAL PRADESH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
16	JAMMU & KASHMIR AND LADAKH	DRY	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	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
24	MADHYA MAHARASHTRA	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
25	MARATHAWADA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
26	VIDARBHA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
27	CHHATTISGARH	DRY	DRY	DRY	ISOL	ISOL	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	ISOL	ISOL	ISOL	FWS	FWS	FWS	SCT
29	TELANGANA	DRY	DRY	DRY	ISOL	ISOL	ISOL	ISOL
30	RAYALASEEMA	ISOL	ISOL	ISOL	FWS	FWS	FWS	SCT
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	ISOL	SCT	FWS	FWS	SCT	ISOL
32	COASTAL KARNATAKA	DRY	DRY	DRY	DRY	FWS	FWS	SCT
33	NORTH INTERIOR KARNATAKA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
34	SOUTH INTERIOR KARNATAKA	DRY	DRY	DRY	SCT	FWS	SCT	SCT
35	KERALA & MAHE	SCT	ISOL	ISOL	ISOL	SCT	SCT	SCT
36	LAKSHADWEEP	WS	SCT	SCT	SCT	SCT	FWS	FWS

- As the lead period increases forecast accuracy decreases.



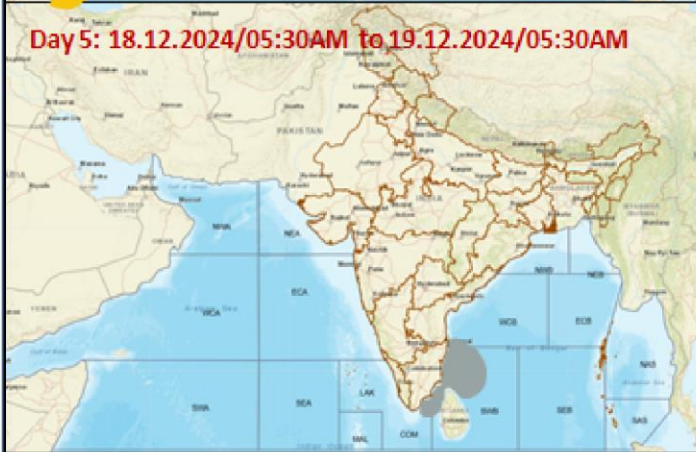
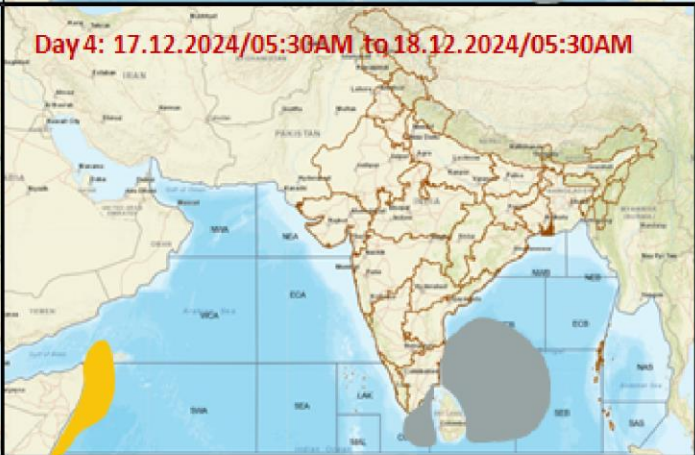
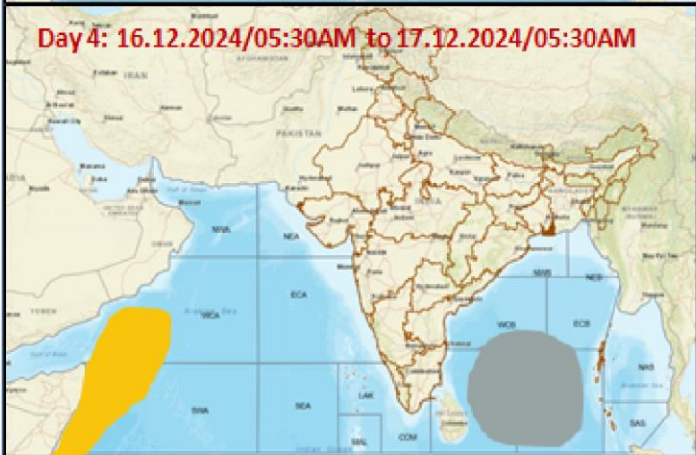
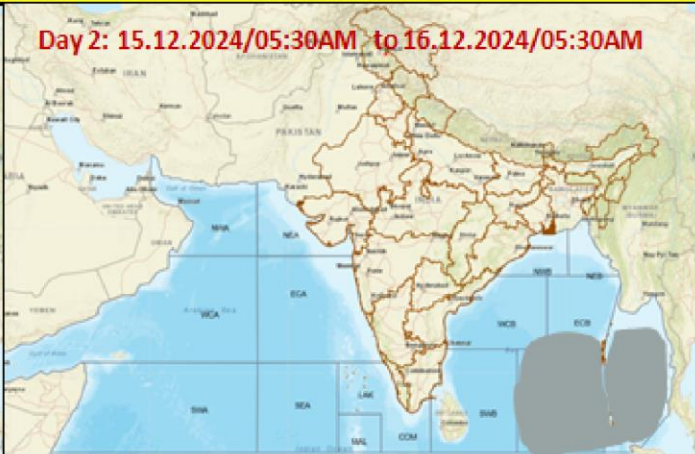




- Action may be taken based on ORANGE AND RED COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.



Fishermen Warning Graphics



	Squally Weather with wind speed 35-45 kmph gusting to 55 kmph
	Squally wind with speed 45-55 kmph gusting to 65 kmph

**Fishermen are advised not to venture into the marked areas.**

**Weather Realised (past 24 hours) & forecast (during 14<sup>th</sup> Dec. to 17<sup>th</sup> Dec. 2024) over Delhi/NCR****Past Weather:**

There has been a fall in minimum temperature upto 01°C over Delhi/NCR during past 24hr. The Maximum and Minimum temperature over Delhi is in the range of 21 to 23°C and 06 to 08°C respectively. The minimum temperature was below normal upto 1 to 3°C and maximum temperature was near normal over most places. Mainly smog/ mist condition with predominant surface wind from northwest direction with wind speed reaching 12 to 20 kmph prevailed on 13.12.2024. Mainly clear sky condition with wind speed less than 10 kmph northwest direction prevailed over the region in the forenoon today.

**Weather Forecast:**

**14.12.2024:** Mainly clear sky. The predominant surface wind is likely to be northwest direction with wind speed less than 12 kmph till evening. It would decrease thereafter becoming less than 08 kmph from northwest direction during night. Smog/mist is likely in the evening/night.

**15.12.2024:** Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 06 kmph during morning hours. Smog/mist is likely in the morning. The wind speed will increase thereafter becoming less than 08 kmph from north-northwest direction during afternoon. It will decrease thereafter becoming less than 04 kmph from variable direction during evening and night. Smog/mist is likely in the evening/night.

**16.12.2024:** Mainly clear sky. The predominant surface wind is likely to be from northeast direction with speed less than 04 kmph during morning hours. Smog/shallow to moderate fog is likely in the morning. The wind speed will gradually increase becoming 04-06 kmph from variable direction during afternoon. It will decrease thereafter becoming less than 04 kmph from variable direction during evening and night. Smog/shallow fog is likely in the evening/night.

**17.12.2024:** Mainly clear sky. The predominant surface wind is likely to be from variable direction with wind speed less than 04 kmph during morning hours. Smog/ moderate fog is likely in the morning. The wind speed will increase thereafter becoming 04-06 kmph from variable direction during afternoon. It will gradually decrease becoming less than 04 kmph from variable direction during evening and night. Smog/mist is likely in the evening/night.

**Impact & Action Suggested due to**

❖ **Isolated heavy to very heavy rainfall** over Tamil Nadu on 17<sup>th</sup> & 18<sup>th</sup> December.

**Impact Expected**

- ❖ Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- ❖ Occasional reduction in visibility due to heavy rainfall.
- ❖ Disruption of traffic in major cities due to water logging in roads leading to increased travel time.
- ❖ Minor damage to kutch roads.
- ❖ Possibilities of damage to vulnerable structure.
- ❖ Localized Landslides/Mudslides
- ❖ Damage to horticulture and standing crops in some areas due to inundation.
- ❖ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC).

**B. Action Suggested**

- ❖ Check for traffic congestion on your route before leaving for your destination.
- ❖ Follow any traffic advisories that are issued in this regard.
- ❖ Avoid going to areas that face the water logging problems often.
- ❖ Avoid staying in vulnerable structure.



### **Impact expected due to dense/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.

### **Impact expected due to cold wave/severe cold wave conditions over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Punjab, Haryana, Chandigarh, Uttar Pradesh, Rajasthan, Madhya Pradesh, Vidarbha, Chhattisgarh, Gangetic West Bengal, Bihar, Odisha, Jharkhand and Telangana**

- An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- Frostbite can occur due to prolonged exposure to cold. The skin turns pale, hard and numb and eventually black blisters appear on exposed body parts such as fingers, toes, nose and or earlobes. Severe frostbite needs immediate medical attention and treatment.
- Impact on agriculture, crop, livestock, water supply, transport and power sector at some places.

### **Action suggested:**

- Wear several layers of loose fitting, light weight; warm woolen clothing.
- Cover your head, neck, hands and toes adequately as majority of heat loss occurs through these body parts. Wear several layers of loose fitting, light weight; warm woolen clothing rather than one layer of heavy cloth.
- Eat vitamin-C rich fruits & vegetable and drink sufficient fluids preferably warm fluids to maintain adequate immunity.
- Avoid or limit outdoor activities.
- Keep dry, if wet, change cloths immediately to prevent loss of body heat. Wear insulated/waterproof shoes.
- Warm the affected area of the body slowly with lukewarm water; do not rub the skin vigorously.
- If the affected skin area turns black, immediately consult a doctor.
- Maintain ventilation while using Heaters to avoid inhaling toxic fumes.
- Take safety measures while using electrical and gas heating devices.
- Extreme care needed for vulnerable people.
- Seek medical attention as soon as possible for someone suffering from frostbite/ Hypothermia.
- Protect livestock from cold weather.



## Agromet advisories for Heavy Rainfall / Cold Wave likely over various parts of the country

- Drain out excess water from rice, sugarcane, cotton, turmeric, vegetables, and other standing crop fields, as well as coconut and banana orchards in **Tamil Nadu**; from rice, coffee, banana, coconut, arecanut, ginger, pepper, cardamom and other standing crops in **Kerala**.
- Provide adequate drainage facilities for removal of excess water from standing crop fields and fruit orchards in **Andaman & Nicobar Islands**.
- Keep the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields.
- Provide mechanical support to horticultural crops and staking to vegetables.
- In **Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, Gangetic West Bengal, Odisha, Bihar and Jharkhand**, apply light and frequent irrigation to the standing crops in the evening to protect the crops from low-temperature stress or cold injuries. Use mulching and cover vegetable nurseries and young fruit plants with straw/polythene sheets to maintain optimum soil temperature.

## Livestock and Fishery

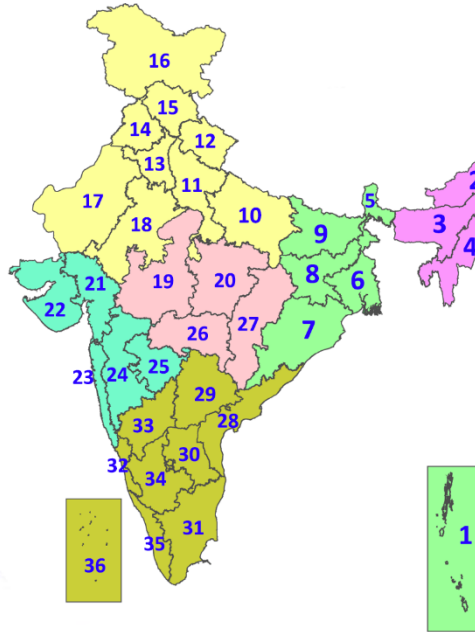
- Keep the animals inside the shed during heavy rainfall and provide balanced feed.
- Store the feed and fodder at safer place to avoid spoilage from rainfall.
- Check and disinfect poultry houses to prevent disease outbreaks due to dampness.
- Check the huts and other weaker structures before relocation of the animals.
- Remove excess water from fish ponds to avoid losses of fish (if feasible).
- To protect from cold, keep cattle inside the sheds during night and provide dry bedding. Also keep the chicks warm by providing artificial light in the poultry sheds.

## 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  $4.5^\circ \text{C}$  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 Storm: Wind speed  $> 220$  kmph ( $> 119$  knots)

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