

2025-12-15

Time of Issue: 08:19:00 hours IST  
(Morning)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features

#### Weather Systems, Forecast and Warnings

- Light rainfall/snowfall at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 15<sup>th</sup> and over Himachal Pradesh and over Arunachal Pradesh during 15<sup>th</sup> -17<sup>th</sup> December.
- **Thunderstorm and lightning with gusty winds with speed reaching upto 30-40 kmph** very likely at isolated places over Andaman & Nicobar Islands during 15<sup>th</sup> - 18<sup>th</sup> December.

#### Forecast of minimum temperatures:

- Gradual fall in minimum temperature likely by about 2°C over Northwest India during next 3 days and thereafter rise by about 2°C during subsequent 4 days.
- No significant change in minimum temperature very likely over Gujarat during next 3 days and thereafter rise by 2-3°C during subsequent 4 days.
- No significant change in minimum temperature over rest parts of the India during next 7 days.

#### Dense Fog & Cold wave warning Warnings:

- **Cold wave conditions** very likely to prevail at isolated places over Telangana and Interior Karnataka on 15<sup>th</sup> and 16<sup>th</sup> with **severe cold wave conditions** likely to prevail over North Interior Karnataka on 15<sup>th</sup> December.
- **Dense fog conditions** very likely to prevail during early hours/morning hours in isolated pockets of Northeast India during 15<sup>th</sup>-19<sup>th</sup>, Himachal Pradesh during 15<sup>th</sup>-17<sup>th</sup>, Punjab, Haryana, Chandigarh, northeast Madhya Pradesh on 15<sup>th</sup> & 16<sup>th</sup> December.
- **Dense fog conditions** very likely to prevail during early hours/morning hours in isolated pockets of Uttar Pradesh on 15<sup>th</sup> & 16<sup>th</sup> with **very dense fog** over Uttar Pradesh on 15<sup>th</sup> December.

\*Red color warning does not mean "Red Alert" Red color warning means "Take Action"

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### Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST of yesterday to 0530 hours IST of today): **at many places** over Andaman & Nicobar Islands; **Dry** over rest of the country.
- ❖ **Significant rainfall recorded(in cm)** (from 0830 hours IST of yesterday to 0530 hours IST of today): **Andaman & Nicobar Islands**: Port Blair (dist South Andaman) 1.
- ❖ **Fog Condition Observed (at 0530 hours of today): Dense fog conditions:** at many places over West Uttar Pradesh and Haryana Chandigarh & Delhi, at a few places over Punjab, East Madhya Pradesh and South Interior Karnataka, at isolated places over East Uttar Pradesh **Moderate fog conditions:** at isolated places over Bihar and East Uttar Pradesh **Shallow fog conditions:** at a few places over Bihar, Punjab and West Madhya Pradesh, at isolated places over Assam & Meghalaya, Odisha and East Uttar Pradesh.
- ❖ **Visibility reported (at 0530 hours of today):** Haryana Chandigarh & Delhi: New Delhi (safdarjung), New Delhi (palam) AP (dist South West Delhi) 50.0 Each; Punjab: Amritsar (rajasansi) AP (dist Amritsar) 50.0, Patiala (dist Patiala) 500.0; West Uttar Pradesh: Bareilly (dist Bareilly), Agra (IAF) (dist Agra) 50.0 Each; East Madhya Pradesh: Satna (dist Satna) 50.0; East Uttar Pradesh: Varanasi (babatpur) AP (dist Varanasi) 50.0, Allahabad (dist Prayagraj) 200.0, Gorakhpur (dist Gorakhpur), Kanpur Airforce (dist Kanpur Nagar) 500.0 Each; South Interior Karnataka: Bengaluru HAL (dist ) 50.0; Bihar: Gaya (dist Gaya) 200.0, Purnea (dist Purnia), Bhagalpur (dist Bhagalpur) 500.0 Each; Odisha: Jharsuguda (dist Jharsuguda) 500.0; West Madhya Pradesh: Bhopal-arera Hills (dist Bhopal), Gwalior (dist Gwalior) 500.0 Each; Assam & Meghalaya: Dhubri (dist Dhubri), Barapani/shillong (dist East Khasi Hills) 500.0 Each.
- ❖ **Minimum Temperature Departures (as on 14-12-2025): below normal(-1.6°C to -3.0°C)** at many places over Madhya Maharashtra, Marathwada, Telangana, Coastal Karnataka and South Interior Karnataka; at few places over Assam & Meghalaya, Jharkhand, Konkan & Goa, Vidarbha, Chhattisgarh, Coastal Andhra Pradesh & Yanam, Rayalaseema, North Interior Karnataka and Kerala & Mahe; at isolated places over Andaman & Nicobar Islands, Nagaland, Manipur, Mizoram & Tripura, Sub Himalayan West Bengal & Sikkim, Gangetic West Bengal, Odisha, Bihar, East Uttar Pradesh, West Uttar Pradesh, Haryana-Chandigarh-Delhi, Punjab, West Rajasthan, East Rajasthan, West Madhya Pradesh, East Madhya Pradesh, Gujarat Region, Saurashtra & Kutch and Tamil Nadu, Puducherry & Karaikal. **appreciably below normal(-5.0°C to -3.1°C)** at few places over Odisha, Vidarbha, Chhattisgarh and Coastal Karnataka; at isolated places over Assam & Meghalaya, West Madhya Pradesh, East Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam, Telangana, Tamil Nadu, Puducherry & Karaikal, North Interior Karnataka and Kerala & Mahe. **markedly below normal(< -5.0°C )** at many places over Tamil Nadu, Puducherry & Karaikal; at few places over Gangetic West Bengal, West Madhya Pradesh, East Madhya Pradesh, Gujarat Region, Rayalaseema, North Interior Karnataka and South Interior Karnataka; at isolated places over Assam & Meghalaya, Sub Himalayan West Bengal & Sikkim, Odisha, Bihar, East Uttar Pradesh, Himachal Pradesh, Jammu-KashmirLadakh-Gilgit-Baltistan-Muzaffarabad, Saurashtra & Kutch, Konkan & Goa, Coastal Andhra Pradesh & Yanam and Telangana. **The lowest minimum temperature** of 5.6°C is reported at RAJGARH-OBS (MADHYA PRADESH), and AMBIKAPUR (CHHATTISGARH) over the Plains of India.
- ❖ **Maximum Temperature Departures (as on 14-12-2025): The highest maximum temperature** of 35.4°C is reported at CANNANORE (KANNUR) (KERALA).

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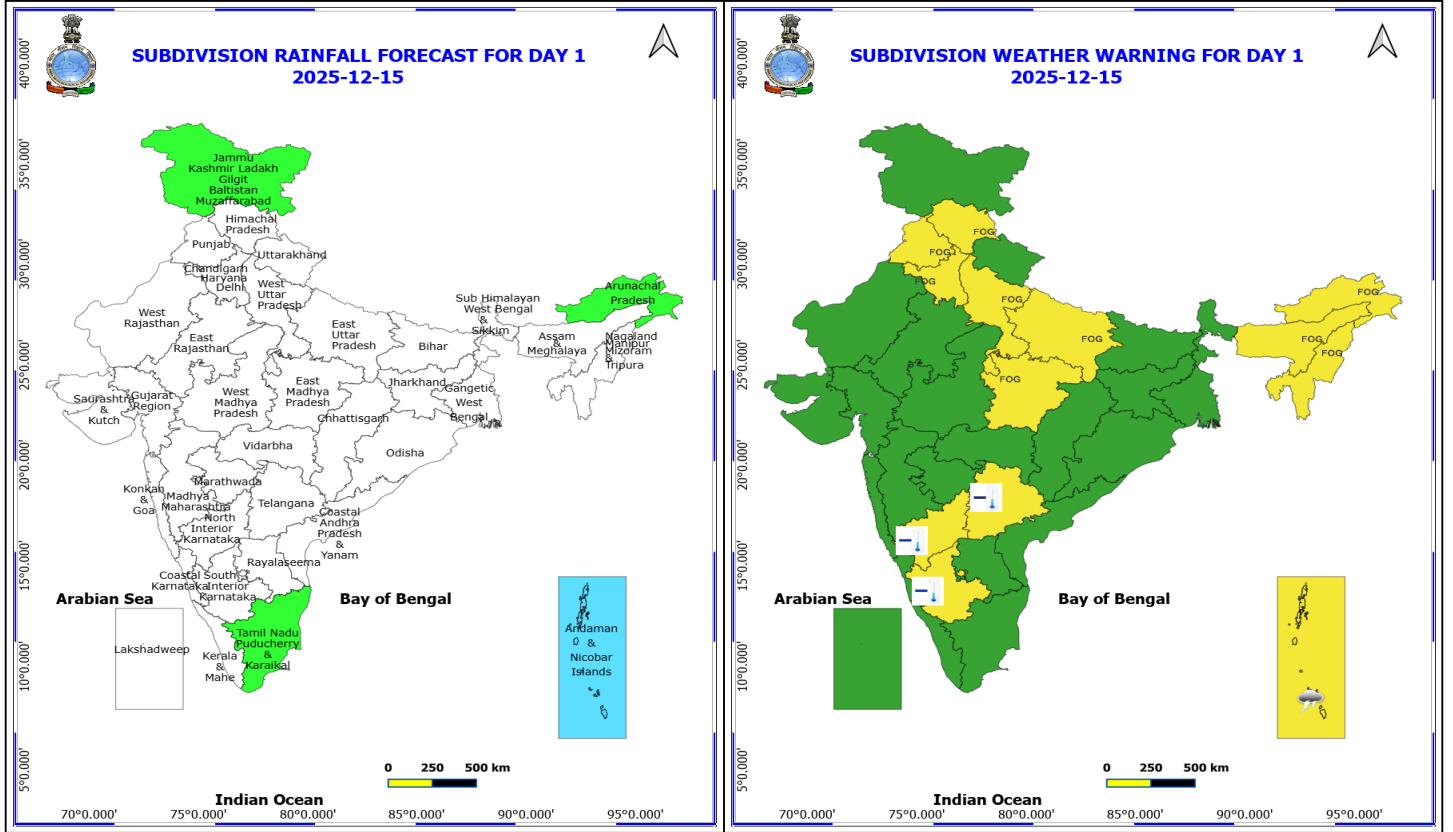
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### Meteorological Analysis (Based on 0530 hours IST)

- The **Western Disturbance** as an upper air cyclonic circulation over north Pakistan & neighbourhood at 3.1 km above mean sea level persists.
- The **Western Disturbance** as a **trough** in middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 60°E to the north of Lat. 30°N.
- **Subtropical westerly Jet Stream** with core winds of the order upto 115 knots at 12.6 km above mean sea level prevails over Northwest India.
- The **upper air cyclonic circulation** over southeast Arabian sea and adjoining Lakshadweep at 0.9 km above mean sea level persists.
- A fresh feeble **Western Disturbance** is likely to affect western Himalayan region from the night of 17<sup>th</sup> December 2025.

### Weather Outlook for subsequent 3 days

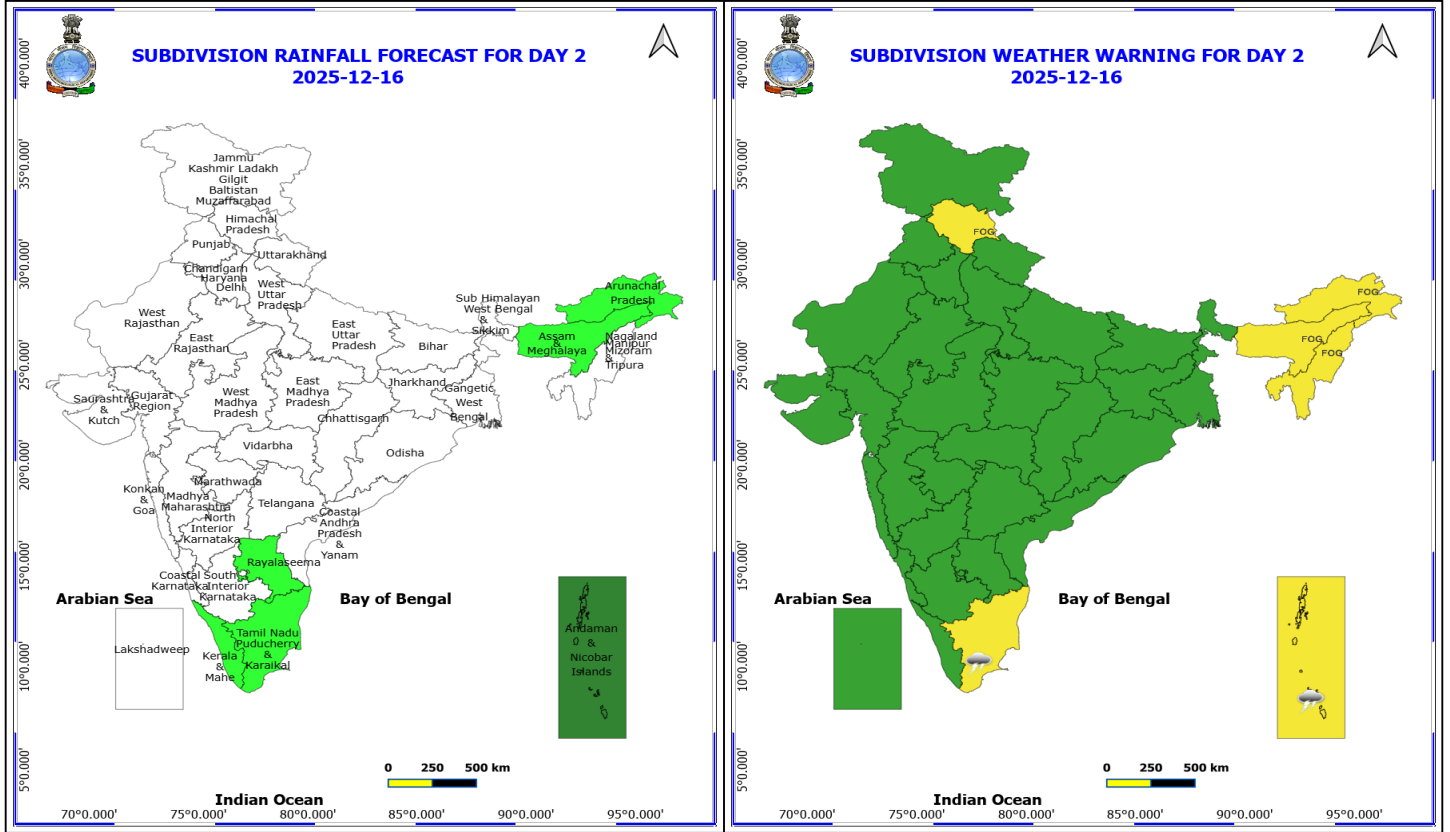
- Isolated to Scattered rainfall activity over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Hiamchal Pradesh, Kerala, Tamil Nadu and Islands.



**15 December (Day 1)**

- ❖ **Thunderstorm accompanied with lightning & gusty winds(30-40kmph)** very likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Cold wave conditions** very likely at isolated places over Interior Karnataka and Telangana.
- ❖ **Fog** very likely at isolated pockets over Arunachal Pradesh, Assam & Meghalaya, East Madhya Pradesh, Haryana, Chandigarh & Delhi, Himachal Pradesh, Nagaland, Manipur, Mizoram and Tripura, Punjab and Uttar Pradesh.

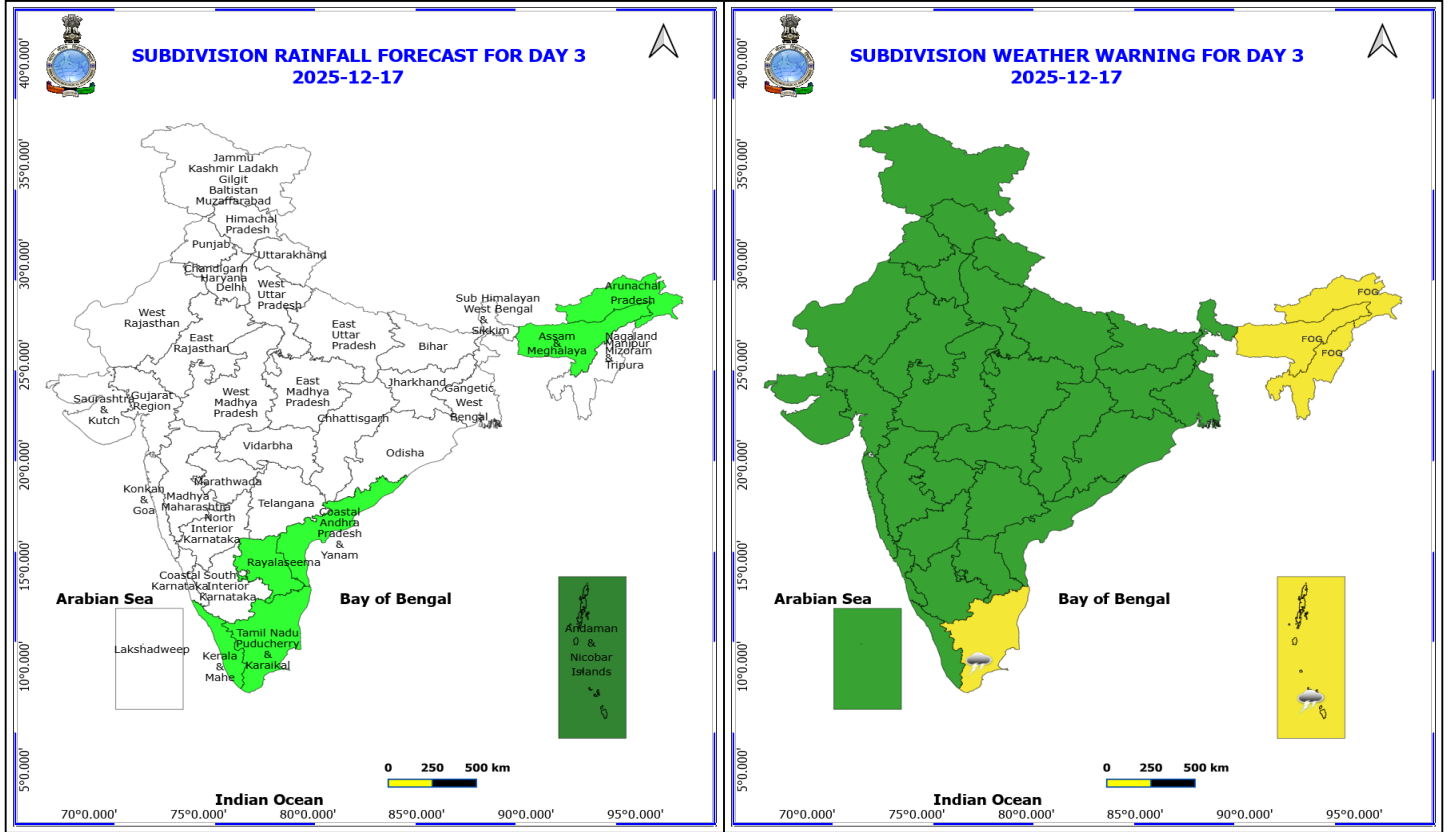
**No Fishermen Warning**



**16 December (Day 2)**

- ❖ **Thunderstorm accompanied with lightning & gusty winds(30-40kmph)** very likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Thunderstorm accompanied with Lightning** very likely at isolated places over Tamil Nadu Puducherry & Karaikal.
- ❖ **Fog** very likely at isolated pockets over Arunachal Pradesh, Assam & Meghalaya, Himachal Pradesh and Nagaland, Manipur, Mizoram and Tripura.

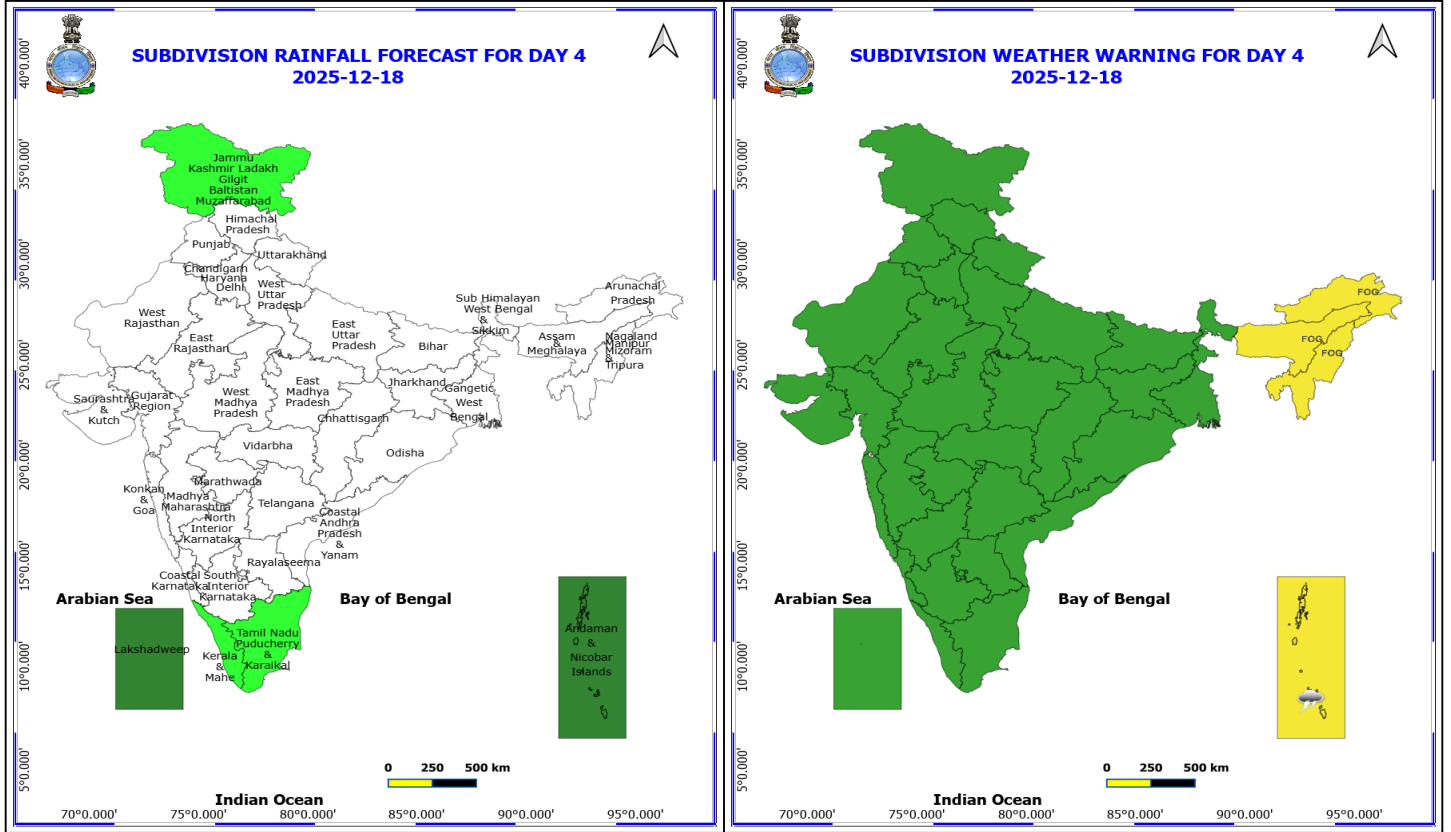
**No Fishermen Warning**



**17 December (Day 3)**

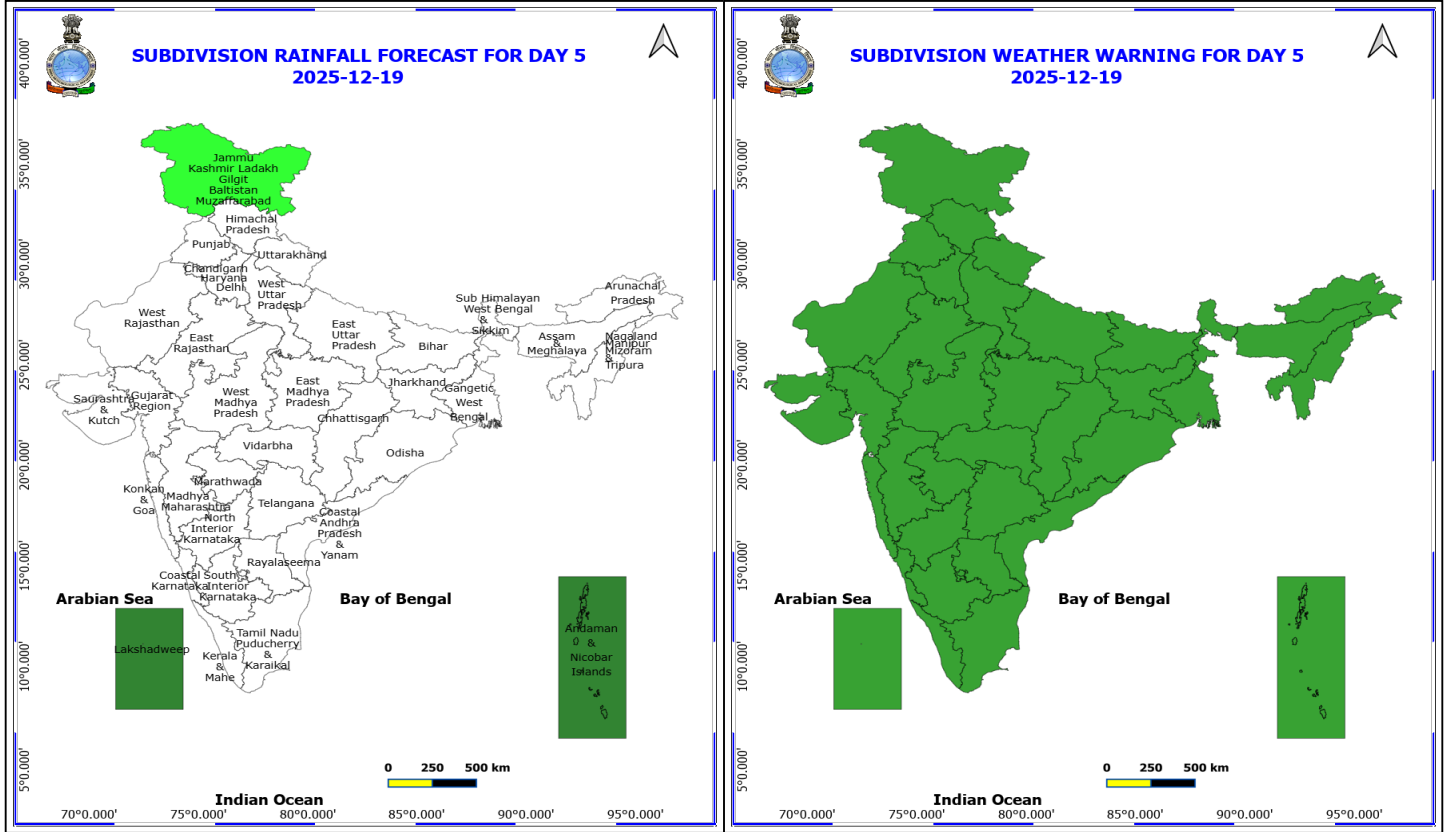
- ❖ **Thunderstorm accompanied with lightning & gusty winds(30-40kmph)** very likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Thunderstorm accompanied with Lightning** very likely at isolated places over Tamil Nadu Puducherry & Karaikal.
- ❖ **Fog** very likely at isolated pockets over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram and Tripura.

**No Fishermen Warning**



**18 December (Day 4)**

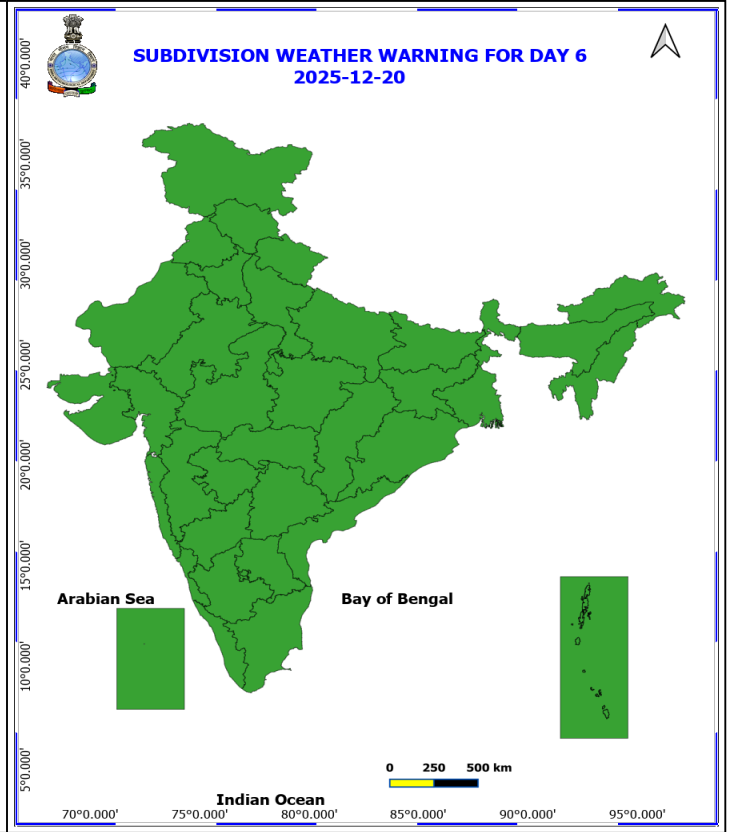
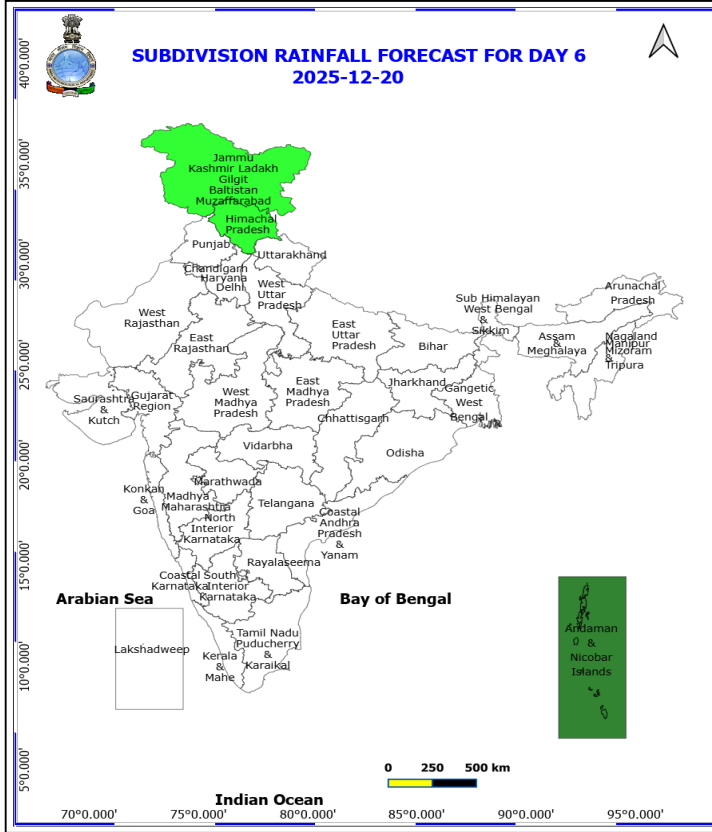
- ❖ **Thunderstorm accompanied with lightning & gusty winds(30-40kmph)** likely at isolated places over Andaman & Nicobar Islands.
  - ❖ **Fog** likely at isolated pockets over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram and Tripura.
- No Fishermen Warning**



**19 December (Day 5)**

**No Warning**  
**No Fishermen Warning**

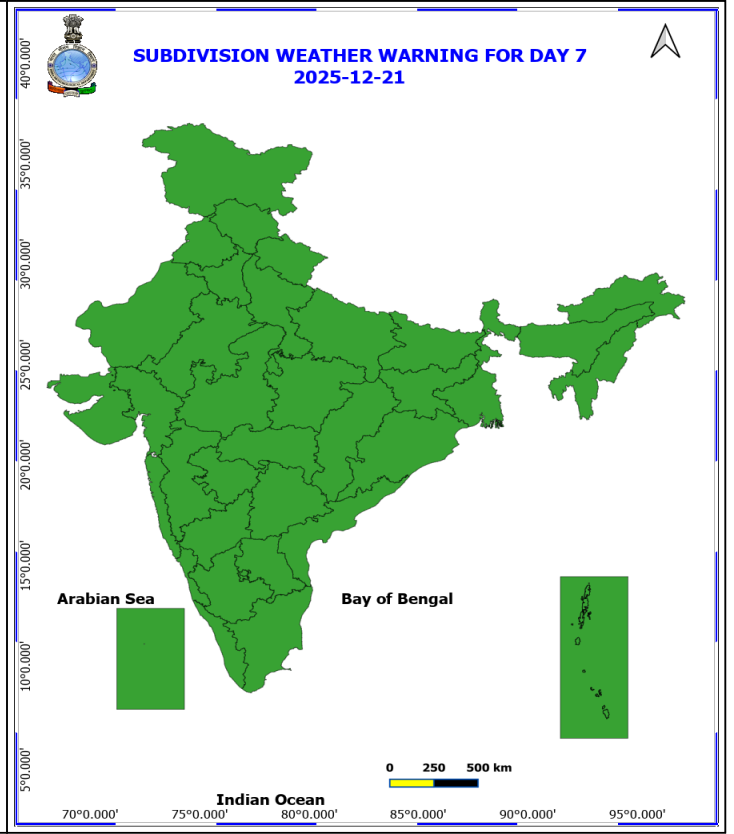
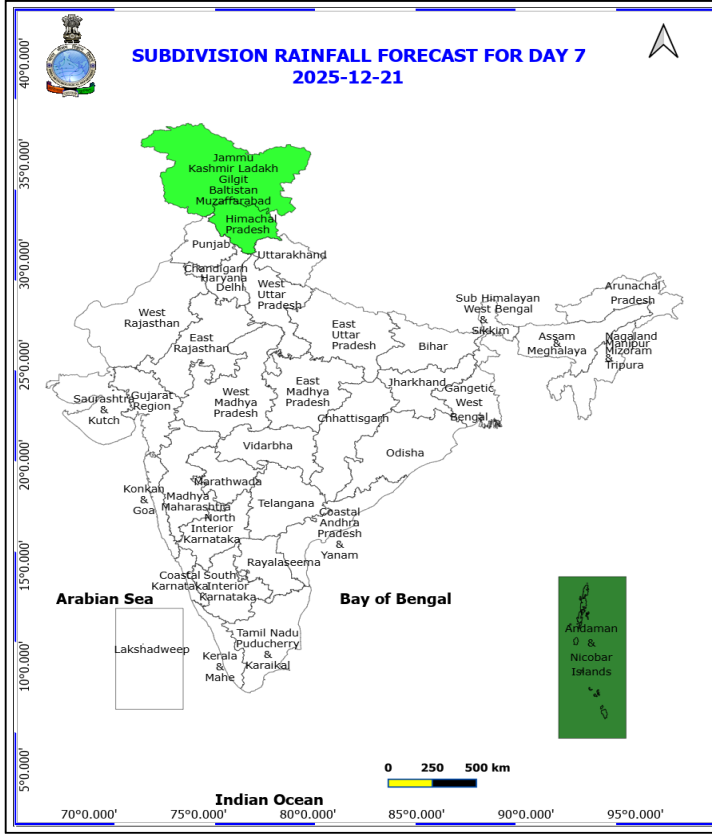
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**20 December (Day 6)**

**No Warning**

**No Fishermen Warning**



**21 December (Day 7)**

**No Warning**  
**No Fishermen Warning**



## Table-1

### 7 Days Rainfall Forecast

S.No.	Subdivision	15- Dec	16- Dec	17- Dec	18- Dec	19- Dec	20- Dec	21- Dec
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	FWS	SCT	SCT	SCT	SCT	SCT	SCT
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY
3	ASSAM & MEHGHALAYA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
4	N. M. M. & T.	DRY	DRY	DRY	DRY	DRY	DRY	DRY
5	S.H. WEST BENGAL & SIKKIM	DRY	DRY	DRY	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, CHD & 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	ISOL	ISOL
16	JAMMU AND KASHMIR AND LADAKH	ISOL	DRY	DRY	ISOL	ISOL	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	GUJRAT 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	MARATHWADA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
26	VIDARBHA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
27	CHATTISGARH	DRY	DRY	DRY	DRY	DRY	DRY	DRY
28	COASTAL ANDHRA PRADESH	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
29	TELANGANA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
30	RAYALASEEMA	DRY	ISOL	ISOL	DRY	DRY	DRY	DRY
31	TAMILNADU & PUDUCHERRY	ISOL	ISOL	ISOL	ISOL	DRY	DRY	DRY
32	COSTAL 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	DRY	ISOL	ISOL	ISOL	DRY	DRY	DRY
36	LAKSHDWEEP	DRY	DRY	DRY	SCT	SCT	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

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Fig. 1: Maximum Temperatures Dated 2025-12-14

Fig. 2: Departure of Maximum Temp. Dated 2025-12-14

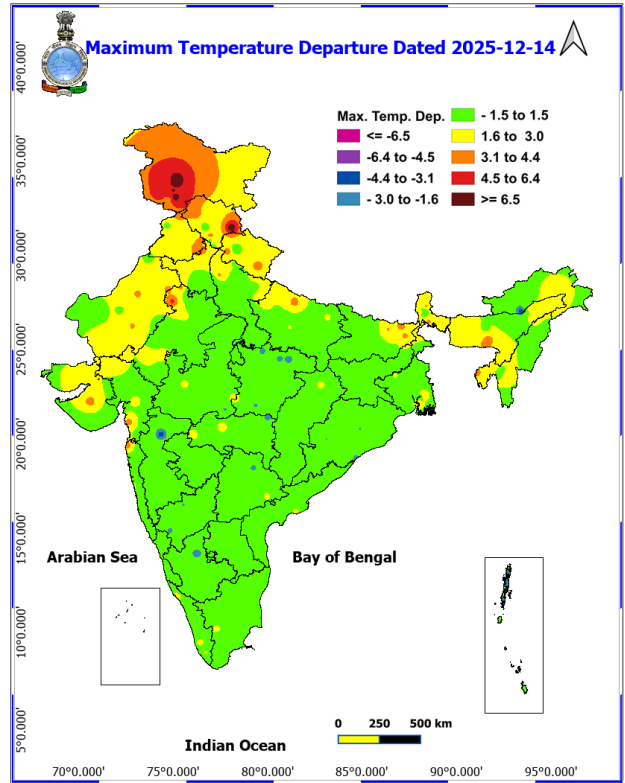
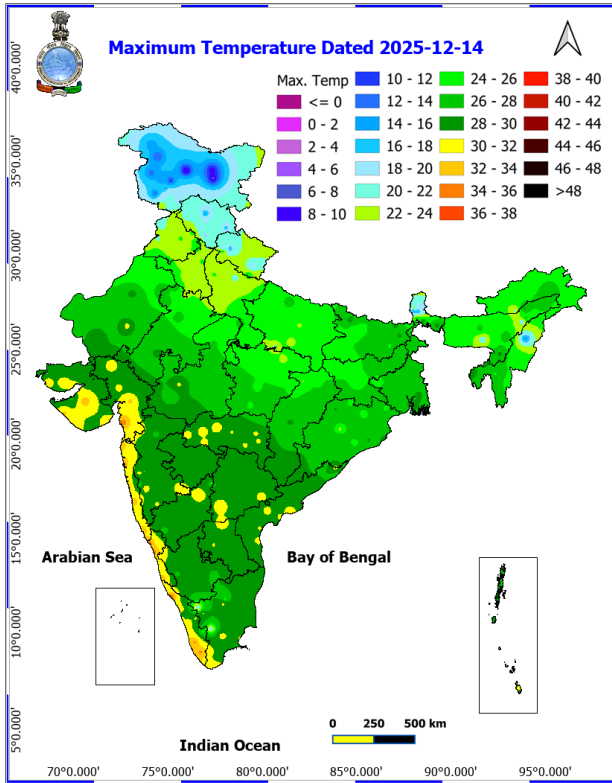
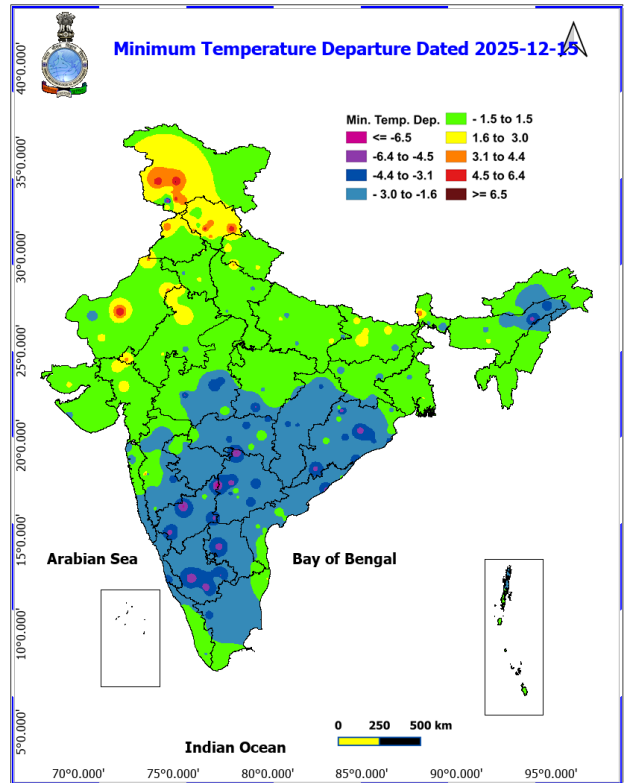
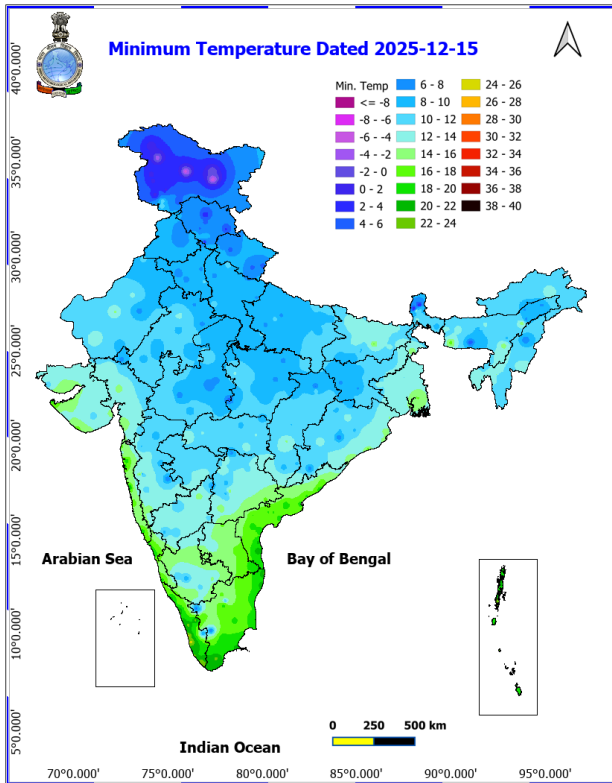
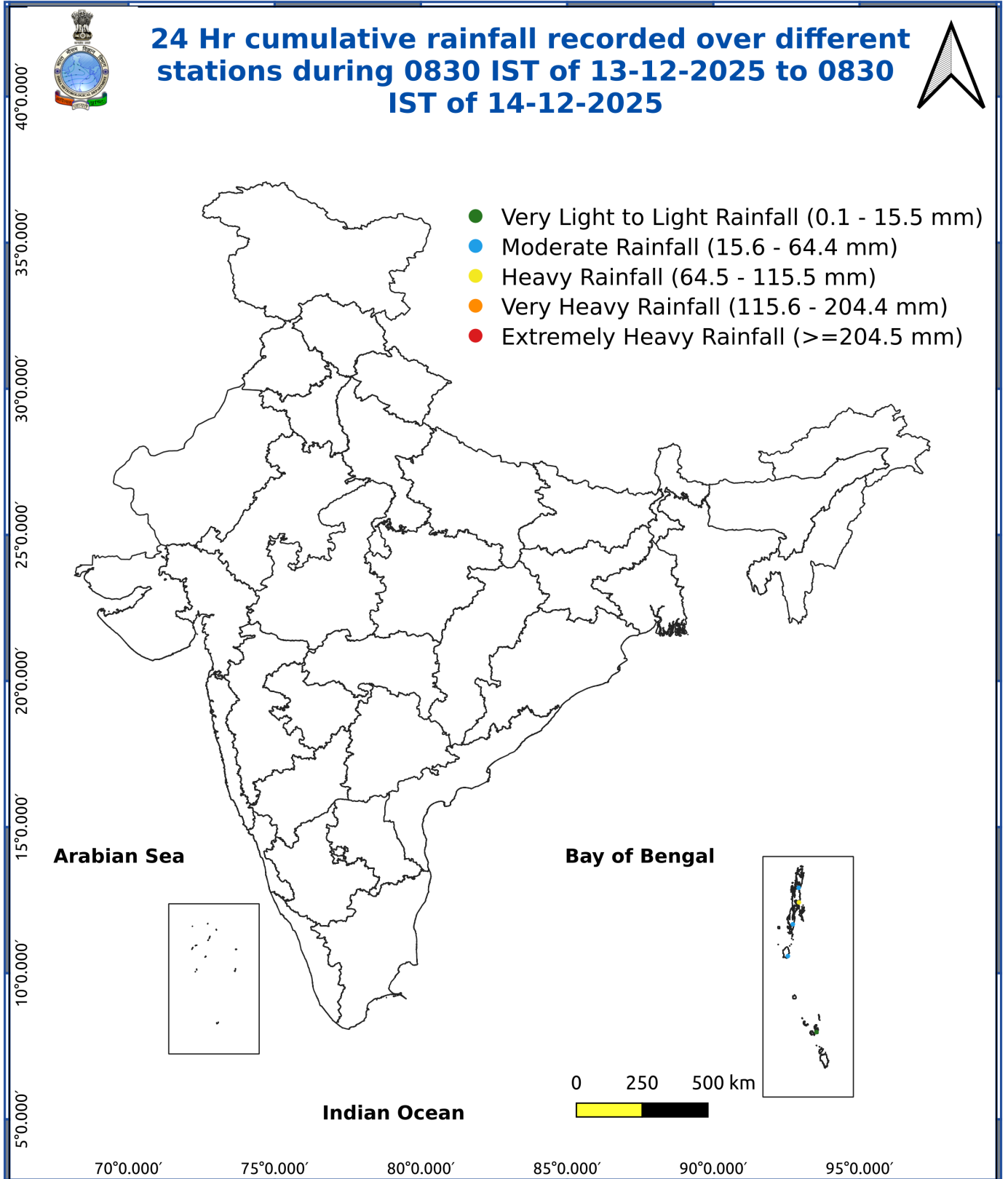


Fig. 3: Minimum Temperatures Dated 2025-12-14

Fig. 4: Departure of Minimum Temp. Dated 2025-12-14





## Impact and Actions

**Impact expected due to dense/very dense fog in the early hours/morning hours:** likely to prevail during morning hours in isolated pockets Northeast India during 15<sup>th</sup>-19<sup>th</sup>, Himachal Pradesh during 15<sup>th</sup>-17<sup>th</sup>, Punjab, Haryana Chandigarh & Delhi, northeast Madhya Pradesh, Uttar Pradesh on 15<sup>th</sup> & 16<sup>th</sup> December.

### ❖ 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** likely to prevail at isolated places over Telangana and Interior Karnataka on 15<sup>th</sup> & 16<sup>th</sup> December.

- 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.

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**Action suggested:**

- Wear several layers of loose fitting, light weight; warm woollen 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 woollen 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 various parts of the country**

**Agromet advisories for likely impact of Cold Waves / Low Temperatures**

- In **Interior Karnataka** and **Telangana**, apply light and frequent irrigation to the standing crops in the evening to protect the crops from low temperature stress. Use mulching and cover vegetable nurseries and young fruit plants with straw / polythene sheets to maintain optimum soil temperature.

**Livestock / Poultry**

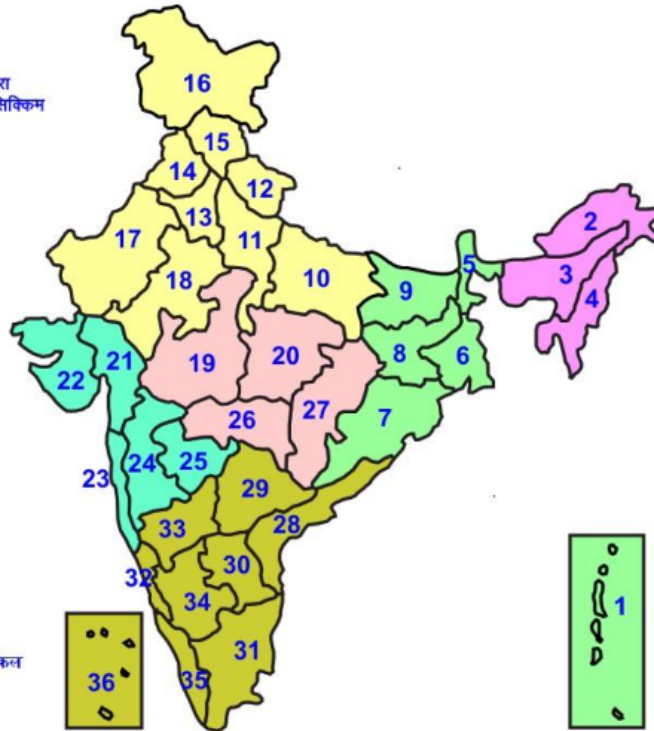
- Keep cattle inside the sheds during night and provide dry bedding to protect them from cold.
- Keep the chicks warm by providing artificial light in the poultry sheds.

**Agromet advisories for likely impact of Thunderstorm / Gusty Winds**

- Provide mechanical support to horticultural crops and staking or support to vegetables and young fruit plants / fruit-bearing plants to avoid lodging due to strong winds.

## 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 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 चन्नम
- 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. 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)

### Subdivision Colour

- NO WARNING
- WATCH (BE UPDATED)
- 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

- |                          |                 |                      |                    |
|--------------------------|-----------------|----------------------|--------------------|
| Heavy Rain               | Very Heavy Rain | Extremely Heavy Rain | Heavy Snow         |
| Thunderstorm & Lightning | Hailstorm       | Dust Storm           | Dust Raising Winds |
| Strong surface winds     | Heat Wave       | Hot Day              | Warm Night         |
| Cold Wave                | Cold Day        | Ground Frost         | Fog                |
| Hot & Humid              |                 |                      |                    |

\*Red color warning does not mean "Red Alert" Red color warning means "Take Action"

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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



Heavy: 64.5 to 115.5 mm/cm \*  
Very Heavy: 115.6 to 204.4 mm/cm\*  
Extremely Heavy: > 204.4 mm/cm \*



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  $\geq 37^{\circ}\text{C}$



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  $> 6.4^{\circ}\text{C}$ .



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  $\leq 15^{\circ}\text{C}$



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  $\leq -6.5^{\circ}\text{C}$



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



Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)



An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.



Ice deposits on ground

Air temperature  $\leq 4^{\circ}\text{C}$  ( over Plains)



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



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



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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