

Friday, November 15, 2024
Time of Issue: 0745 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ❖ A cyclonic circulation lies over south Tamil Nadu & neighbourhood in lower tropospheric levels.
- ❖ A Western Disturbance seen as a cyclonic circulation over north Afghanistan and adjoining Pakistan in lower tropospheric levels with a trough aloft in middle tropospheric westerlies runs roughly along Long. 65°E to the north of Lat. 30°N.
- ❖ Jet Stream Winds of the order upto 120 knots at 12.6 km above mean sea level are prevailing over Northwest India.

Forecast & Warnings (upto 7 days):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm and lightning very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Andhra Pradesh during 15th-18th November, 2024.
- ✓ **Isolated heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal & Kerala & Mahe on 15th; South Interior Karnataka on 15th November, 2024.
- ✓ **Dense to very dense fog** conditions very likely to prevail in night/early morning hours in isolated pockets of Punjab, Haryana till 16th morning hours and Dense fog for subsequent for 1 day & Uttar Pradesh till 15th morning hours and Dense fog for subsequent for 2 days, West Rajasthan till 17th morning hours; **Dense fog conditions** very likely to prevail in night/early morning hours in isolated pockets over Himachal Pradesh till 19th morning hours; Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Bihar and Jharkhand till 17th November, 2024.

Forecast of temperature:

- ❖ Gradual fall in minimum temperatures by 2-3°C very likely over northwest India during next 5 days.
- ❖ No significant change in minimum temperatures over central India during next 5 days.
- ❖ Gradual fall in minimum temperatures by 2-4°C very likely over East India during next 5 days.

Weather forecast over Delhi/NCR during 15th Nov. to 17th Nov. 2024

Past Weather:

On 14th Nov, there had been a slight fall in maximum and minimum temperatures over Delhi/NCR. The Maximum and Minimum temperatures over Delhi were in the range of 28-30°C and 11-17°C respectively. The Maximum temperature was below normal by 2 - 3°C over the region and the Minimum temperature was above normal by 1 -3°C over the most places. Shallow fog reported at Palam airport. Palam airport recorded lowest visibility 600 m at 0530 hours IST. Safdarjung airport recorded lowest visibility 500m at 0530 hours IST.

Weather Forecast:

15th Nov. 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/moderate to dense fog at few places in the morning. The wind speed will increase thereafter becoming less than 12 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 08 kmph from variable direction during evening and night. Smog/ shallow to moderate fog is likely in the evening/night.

16th Nov. 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 in the morning. The wind speed will gradually increase becoming 10-16 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 06 kmph from variable direction during evening and night. Smog/ shallow to moderate fog is likely in the evening/night.

17th Nov. 2024: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 04 kmph during morning hours. Smog/ moderate to dense fog at few places 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 to moderate fog is likely in the evening/night.

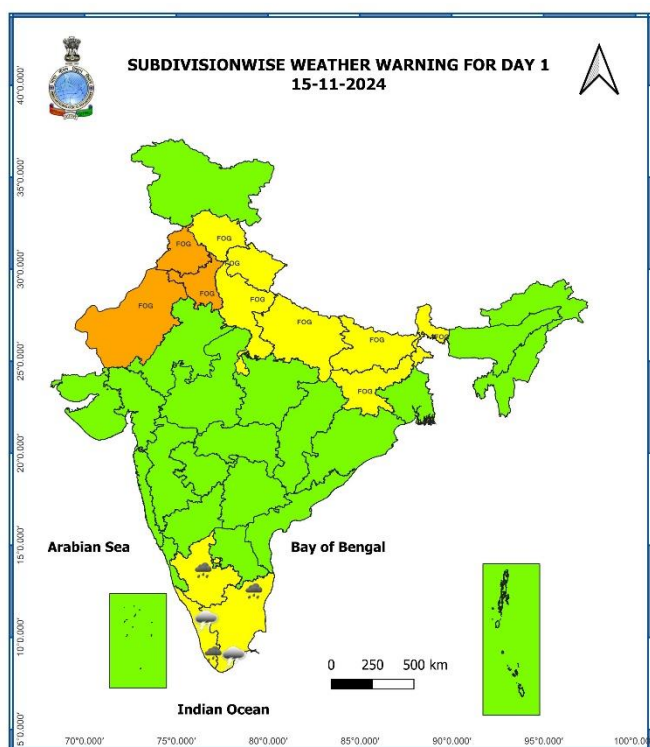
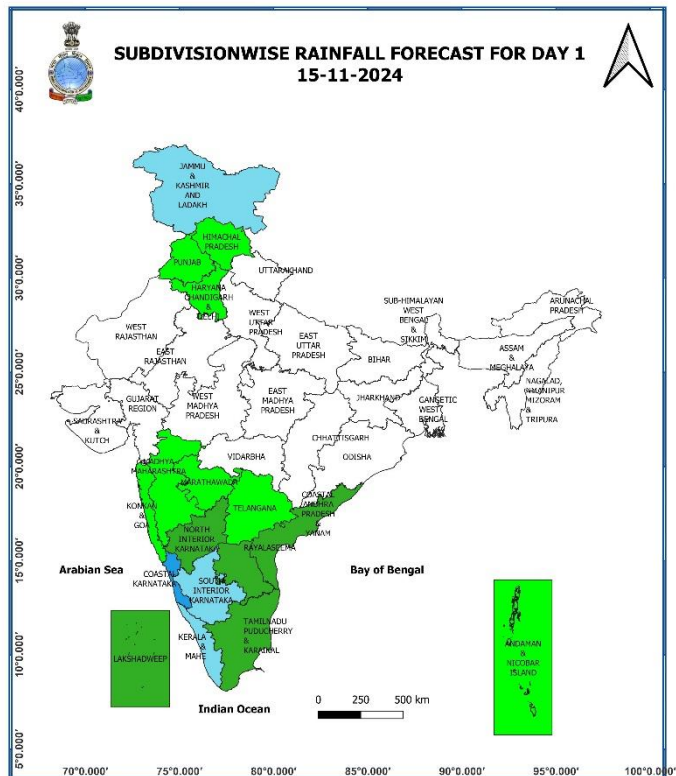
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 2030 hours IST of yesterday) **at isolated places** over Konkan & Goa, Coastal & North Interior Karnataka, Kerala & Mahe, Coastal Andhra Pradesh & Yanam and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 2030 hours IST of yesterday) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Coimbatore & Atiramapattinam-2 each.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 2030 hours IST of yesterday): **NIL**
- ❖ **Fog Observed (at 0530 hours IST of today):** **Very dense fog** reported in isolated pockets of Punjab and Haryana-Chandigarh and **Dense fog** in isolated pockets of West Uttar Pradesh.
- ❖ **Visibility Recorded (at 0530 hours IST of today) (<500 meters):** **Punjab:** Amritsar & Patiala-0 each; **Haryana-Chandigarh:** Ambala, Chandigarh & Hissar -0 each; **West Uttar Pradesh:** Bareilly-200.
- ❖ **Minimum Temperature Departures (as on 14-11-2024):** Minimum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Punjab; **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Rajasthan, Uttar Pradesh, Haryana-Chandigarh-Delhi, Gujarat state, Bihar, Konkan & Goa, Madhya Maharashtra, Rayalaseema, Telangana, Marathwada, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Gangetic West Bengal; **above normal (1.6°C to 3.0°C)** at many places over Coastal Andhra Pradesh & Yanam; at isolated places over Madhya Pradesh, Interior Karnataka, Assam & Meghalaya. Nagaland, Manipur, Mizoram & Tripura. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Vidarbha and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 11.2°C** was reported at **Ridge (Delhi)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 14-11-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over East Rajasthan and Assam & Meghalaya ; **above normal (1.6°C to 3.0°C)** at many places over Konkan & Goa; at a few places over East Uttar Pradesh, East Madhya Pradesh, West Rajasthan, Vidarbha and Kerala & Mahe; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, West Madhya Pradesh, Saurashtra & Kutch, West Bengal & Sikkim, Chhattisgarh, Odisha, Nagaland, Manipur, Mizoram & Tripura, Telangana, Coastal Andhra Pradesh & Yanam and Tamil Nadu, Puducherry & Karaikal. These were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Punjab; **below normal (-1.6°C to -3.0°C)** at isolated places over Haryana-Chandigarh and West Uttar Pradesh and near normal over rest parts of the country. Yesterday, **the highest maximum temperature of 37.2°C** was reported at **Karwar (Coastal Karnataka)** over the country. **(Fig. 2)**

Meteorological Analysis (Based on 0530 hours IST)

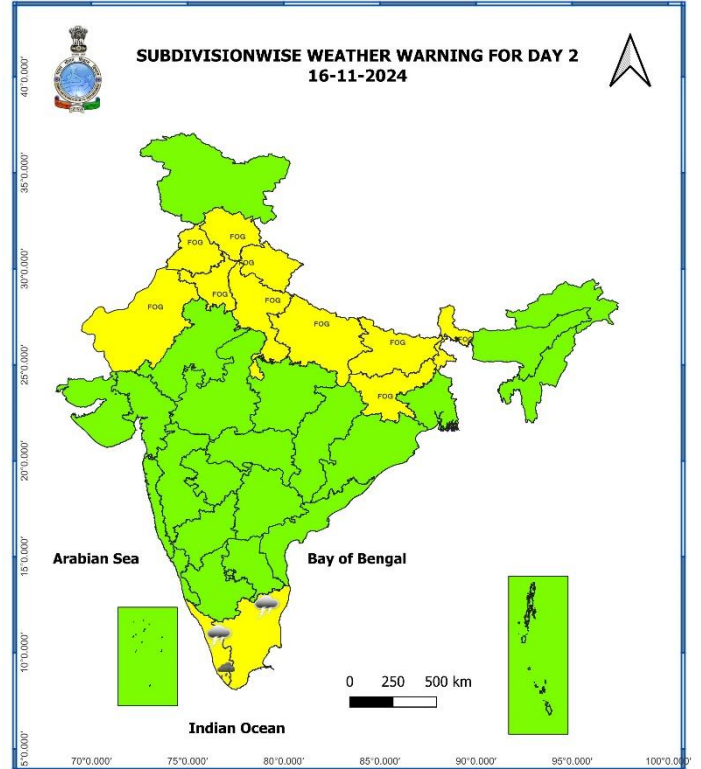
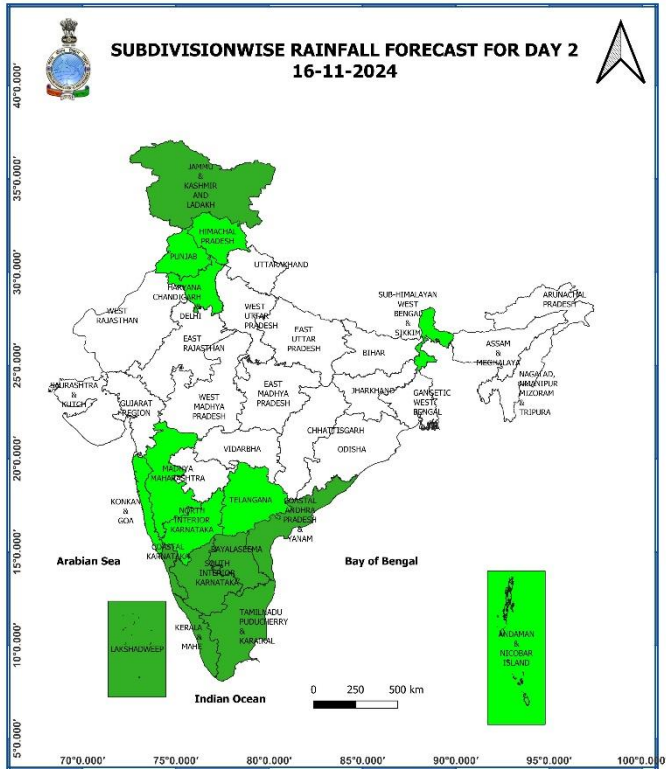
- ❖ The **cyclonic circulation** over south Tamilnadu & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Lakshadweep and adjoining southeast Arabian Sea extending upto 3.1 km above mean sea level persists.
- ❖ The **Western Disturbance** as a cyclonic circulation over north Afghanistan and adjoining Pakistan at 3.1 Km above mean sea level with a trough aloft in middle tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 65°E to the north of Lat. 30°N persists.
- ❖ **Jet Stream Winds** of the order upto 120 knots at 12.6 km above mean sea level are prevailing over Northwest India.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 22nd November, 2024)



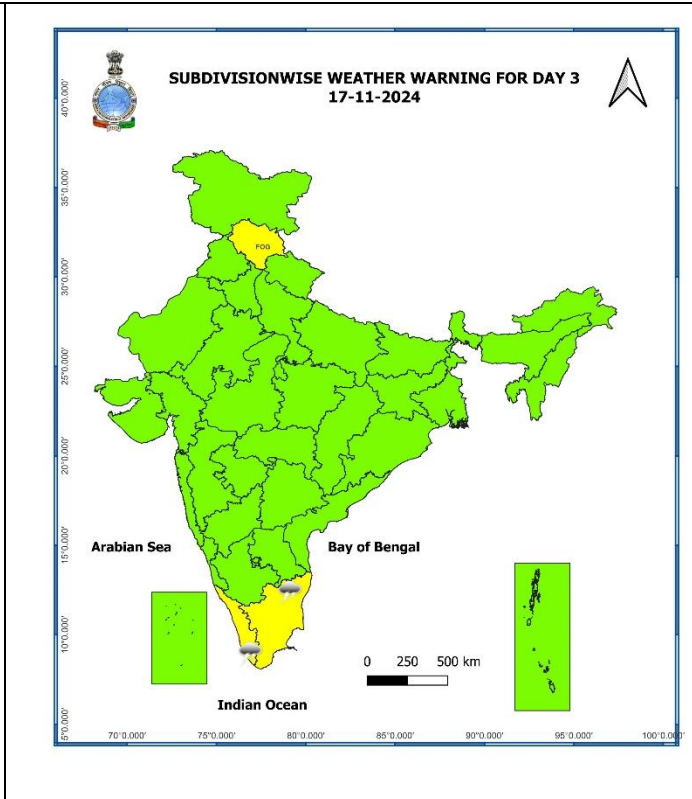
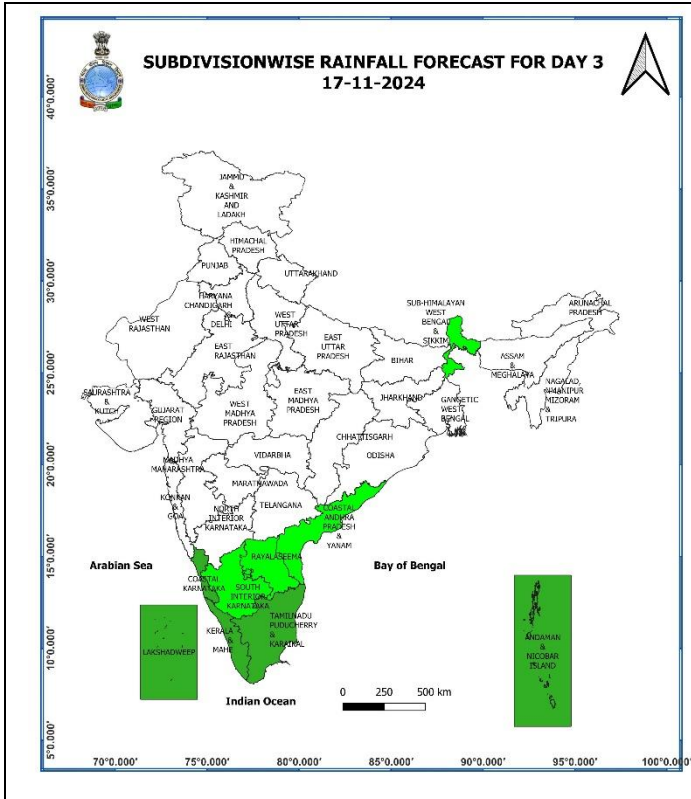
15 November (Day1):

- ❖ **Heavy rainfall (≥ 7 cm)** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe and South Interior Karnataka.
- ❖ **Very dense fog conditions** very likely in a few pockets of Punjab, Haryana-Chandigarh-Delhi; at isolated pockets over West Rajasthan; **Dense fog conditions** very likely in isolated pockets of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand in the morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.



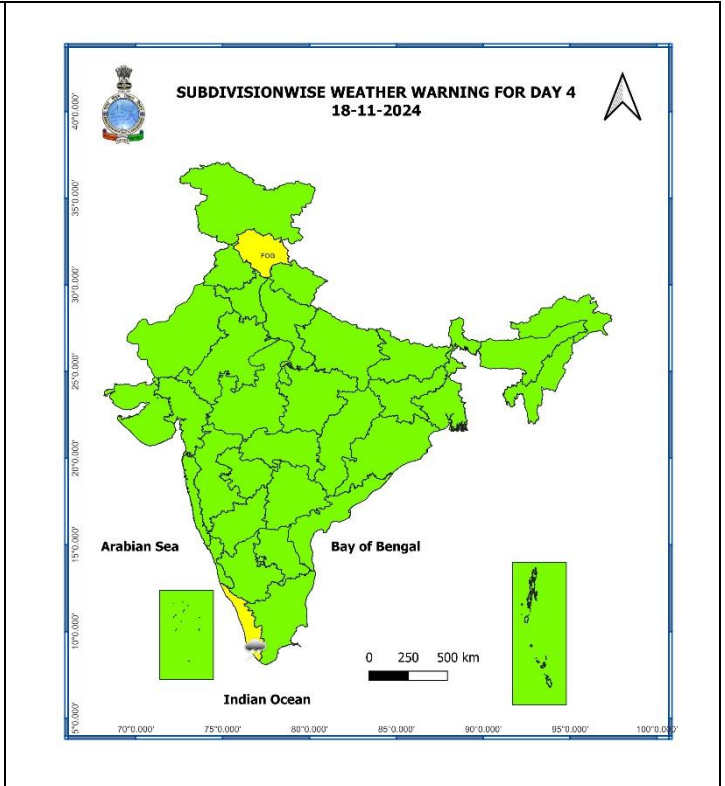
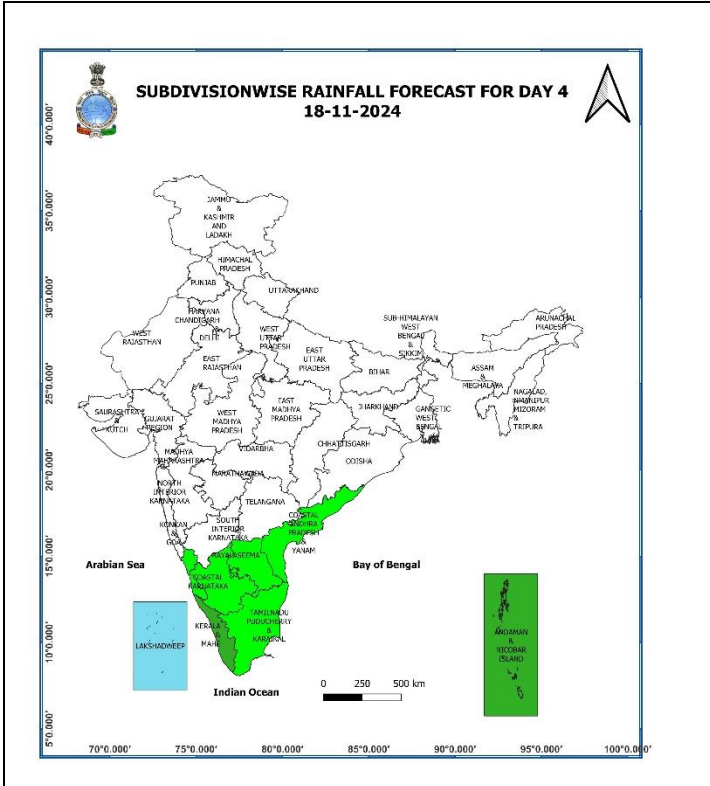
16 November (Day 2):

- ❖ **Heavy rainfall (≥ 7 cm)** very likely at isolated places over Kerala & Mahe.
- ❖ **Very dense fog conditions** very likely in isolated pockets over Punjab, Haryana-Chandigarh-Delhi, West Rajasthan; **Dense fog conditions** very likely in isolated pockets of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand in the morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.



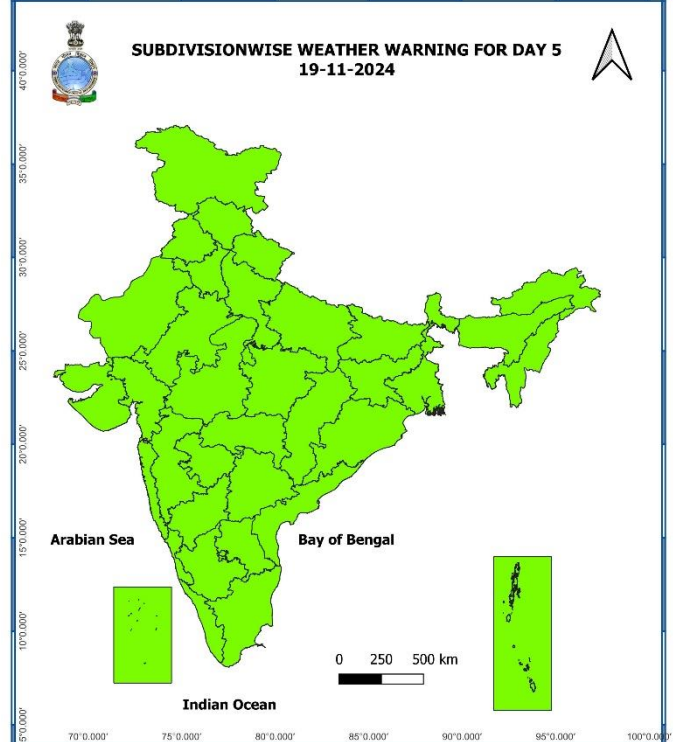
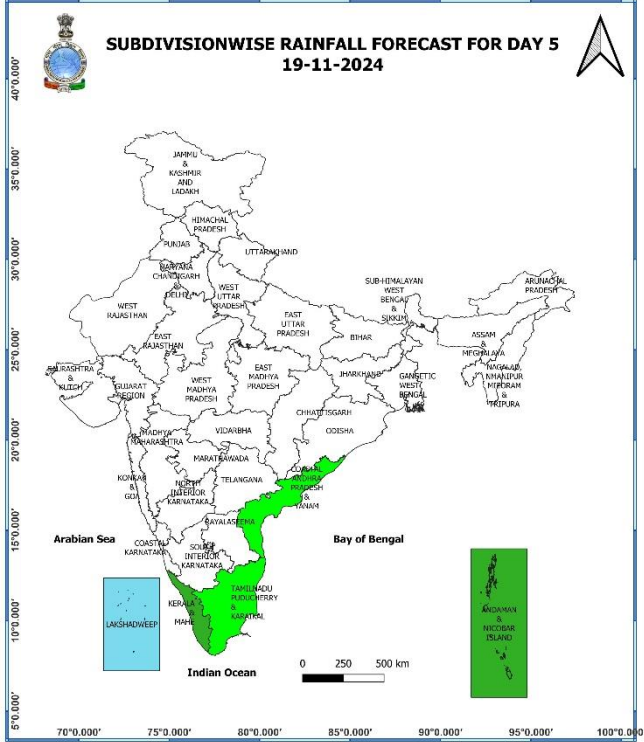
17 November (Day 3):

- ❖ **Dense fog conditions** likely in isolated pockets of Himachal Pradesh in the morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.



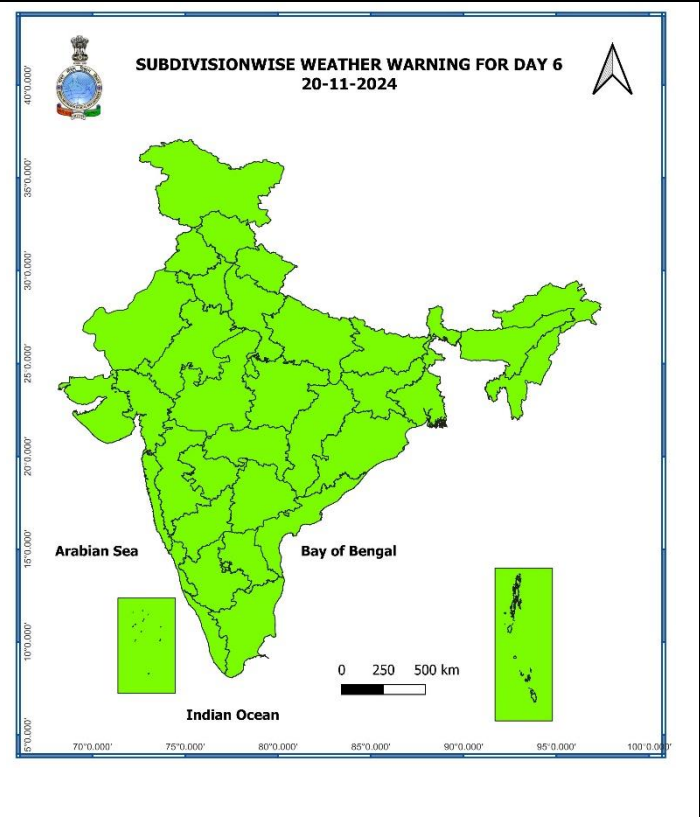
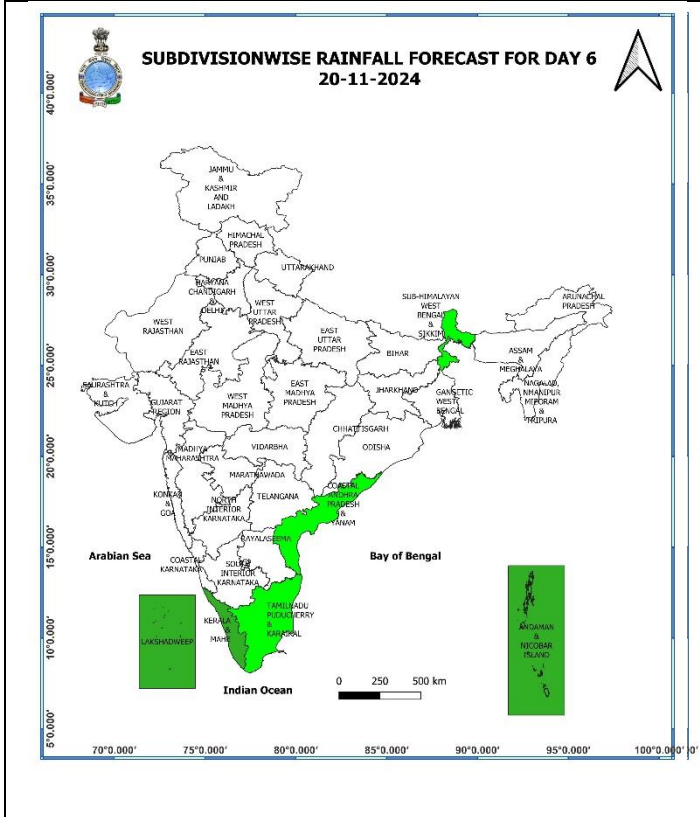
18 November (Day 4):

- ❖ **Dense fog conditions** likely in isolated pockets of Himachal Pradesh in the morning hours.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Kerala & Mahe.



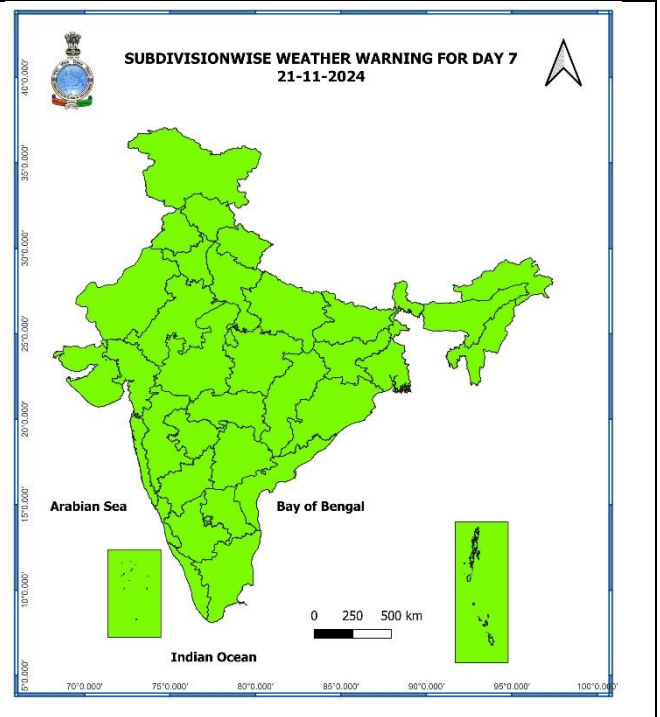
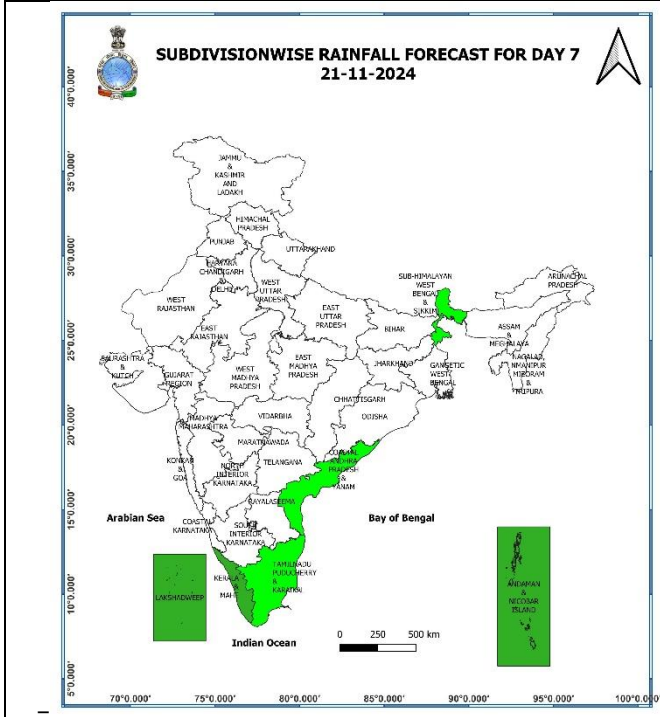
19 November (Day 5):

❖ **No Warning.**



20 November (Day 6):

❖ **No Warning**



21 November (Day 7):

❖ **No Warning**

Weather Outlook for subsequent 3 days (During 22nd November – 24th November, 2024)

- ❖ Isolated to Scattered light rainfall likely over some parts of western Himalayan region and south peninsular India.
- ❖ Mainly dry weather will prevail over rest parts of country.

- 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.

* 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)

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

- ✓ Make arrangements to drain out excess water from the standing crop fields in Tamilnadu, Kerala, South Interior Karnataka and Andhra Pradesh.
- ✓ Keep the harvested produce at safer places.
- ✓ Provide mechanical support to horticultural crops and staking to vegetables.

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

- ❖ 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.

Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

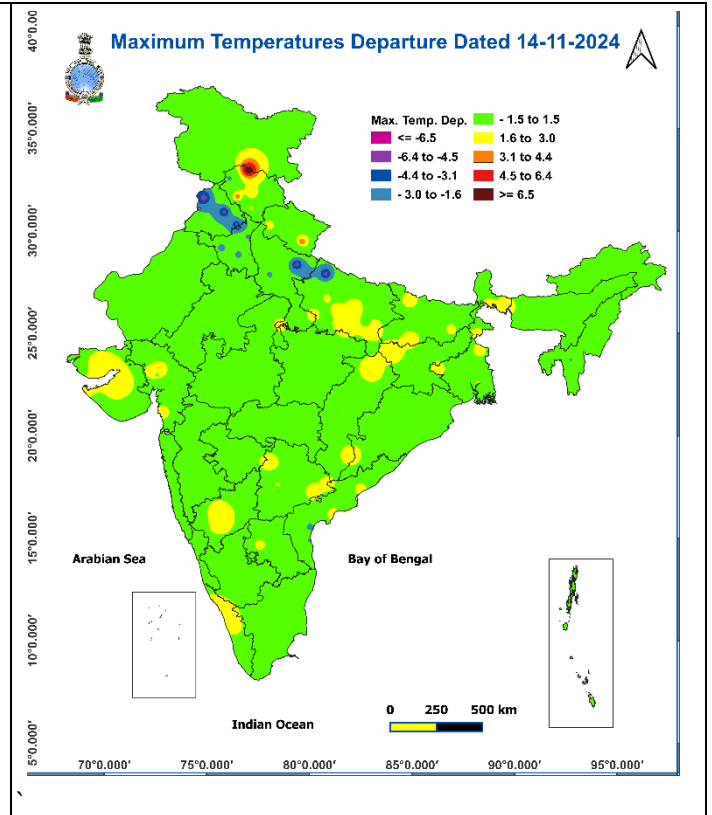
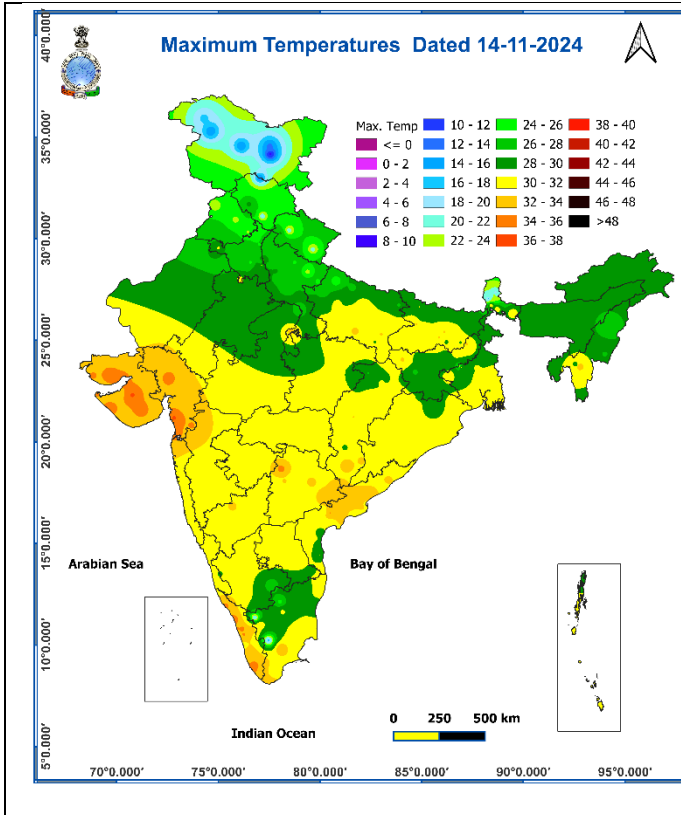


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

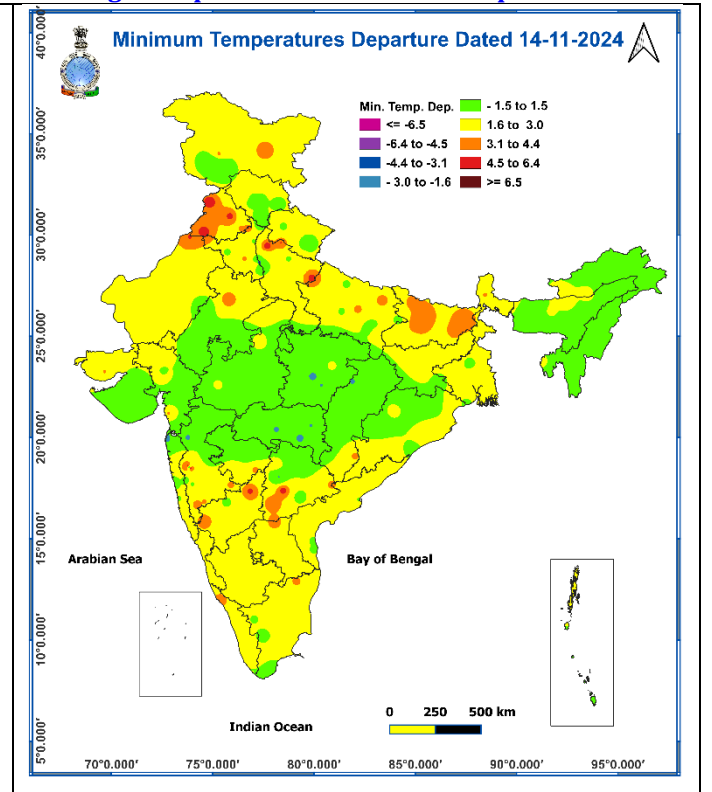
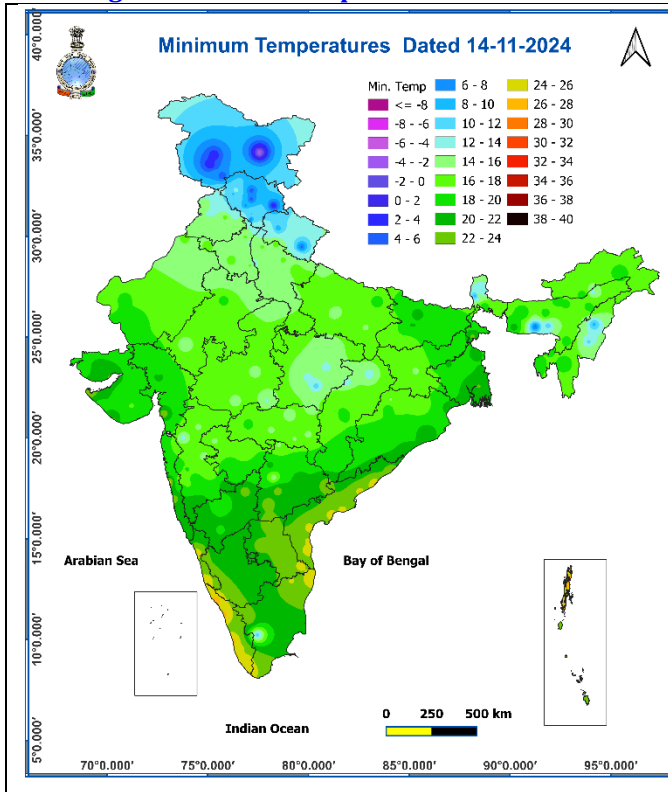
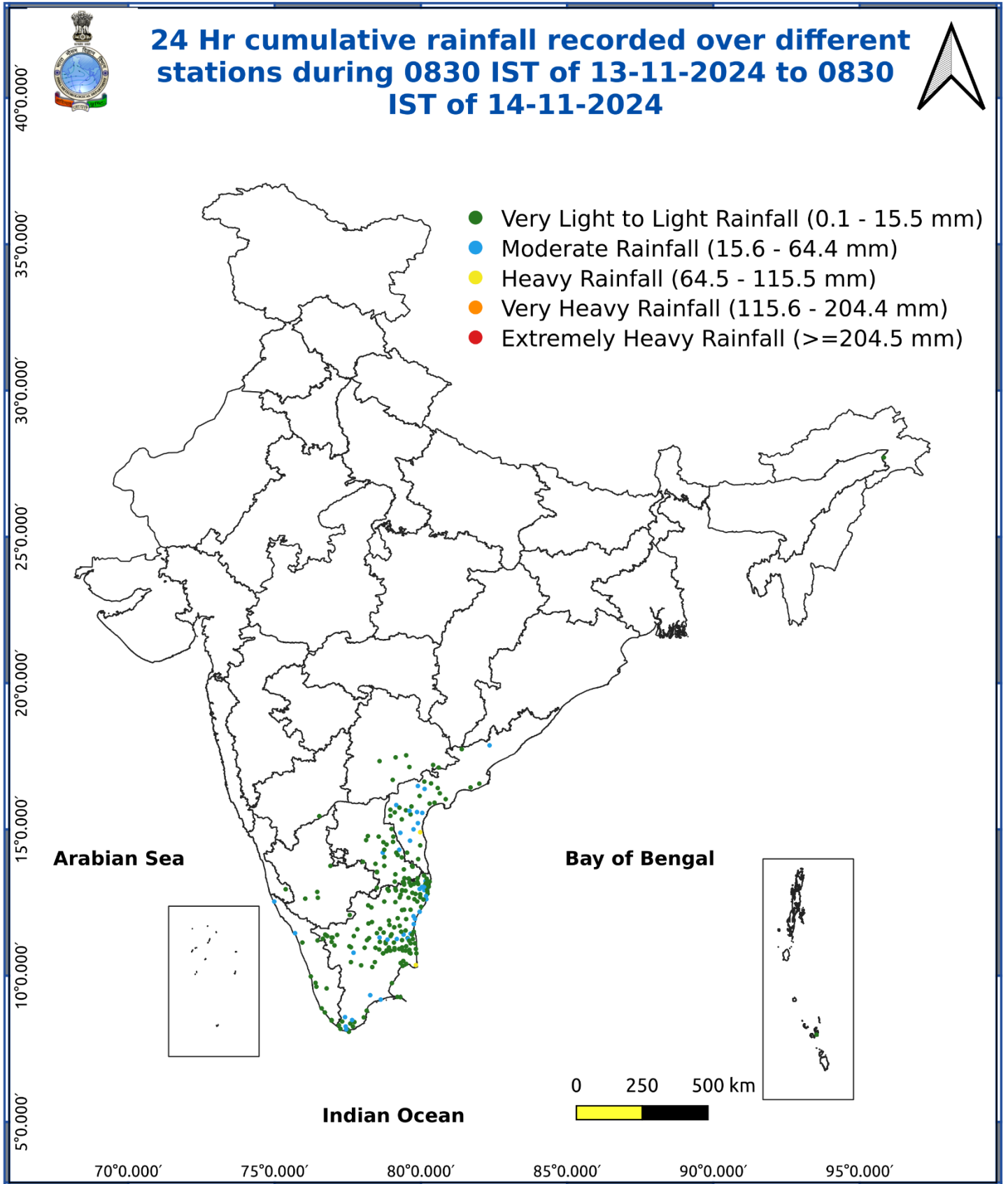


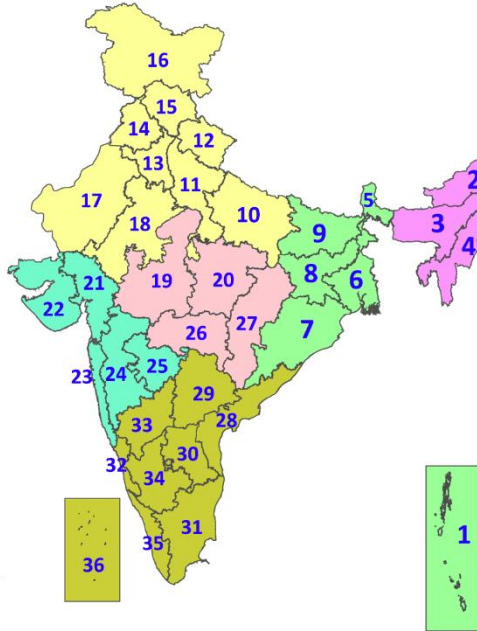
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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

DEFINITION/CRITERIA

Rain/ Snow *	<p>Heavy: 64.5 to 115.5 mm/cm *</p> <p>Very Heavy: 115.6 to 204.4 mm/cm*</p> <p>Extremely Heavy: > 204.4 mm/cm *</p>
Heat Wave	<p>When maximum temperature of a station reaches $\geq 40^\circ\text{C}$ for plains and $\geq 30^\circ\text{C}$ for hilly regions</p> <p>(a) Based on Departure from normal</p> <p>Heat Wave: Maximum Temperature Departure from normal 4.5°C to 6.4°C.</p> <p>Severe Heat Wave: Maximum Temperature Departure from normal $\geq 6.5^\circ\text{C}$</p> <p>(b). Based on Actual maximum temperature</p> <p>Heat Wave: When actual maximum temperature $\geq 45^\circ\text{C}$.</p> <p>Severe Heat Wave: When actual maximum temperature $\geq 47^\circ\text{C}$</p> <p>(c) Criteria for heat wave for coastal stations</p> <p>When maximum temperature departure is $> 4.5^\circ\text{C}$ from normal. Heat Wave may be described provided maximum temperature $\geq 37^\circ\text{C}$</p>
Warm Night	<p>When maximum temperature remains 40°C</p> <p>Warm Night: When minimum temperature departure 4.5°C to 6.4°C.</p> <p>Severe Warm Night: When minimum temperature departure $> 6.4^\circ\text{C}$.</p>
Cold Wave	<p>When minimum temperature of a station $\leq 10^\circ\text{C}$ for plains and $\leq 0^\circ\text{C}$ for hilly regions.</p> <p>(a). Based on departure</p> <p>Cold Wave: Minimum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Wave: Minimum Temperature Departure from normal $\leq -6.5^\circ\text{C}$</p> <p>(b) Based on actual Minimum Temperature (for Plains only)</p> <p>Cold Wave : When Minimum Temperature is $\leq 4.0^\circ\text{C}$</p> <p>Severe Cold Wave: When Minimum Temperature is $\leq 2.0^\circ\text{C}$</p> <p>(c) For Coastal Stations</p> <p>When Minimum Temperature departure is $\leq -4.5^\circ\text{C}$ & actual Minimum Temperature is $\leq 15^\circ\text{C}$</p>
Cold Day	<p>When minimum temperature of a station $\leq 10^\circ\text{C}$ for plains and $\leq 0^\circ\text{C}$ for hilly regions</p> <p>Based on departure</p> <p>Cold Day: Maximum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Day: Maximum Temperature Departure from normal $\leq -6.5^\circ\text{C}$</p>
Fog	<p>Phenomenon of small droplets suspended in air and the horizontal visibility $< 1\text{km}$</p> <p>Moderate Fog: When the visibility between 500-200 metres</p> <p>Dense Fog: when the visibility between 50- 200 metres</p> <p>Very Dense Fog: when the visibility < 50 metres</p>
Thunderstorm	<p>Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)</p>
Dust/Sand Storm	<p>An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.</p>
Frost	<p>Ice deposits on ground</p> <p>Air temperature $\leq 4^\circ\text{C}$ (over Plains)</p>
Squall	<p>A strong wind that rises suddenly, lasts for atleast 1 minute.</p> <p>Moderate: Wind speed 52-61 kmph</p> <p>Severe: Wind speed 62-87 kmph</p> <p>Very Severe: Wind speed > 87 kmph</p>
Sea State	<p>Effect of various waves in the sea over specific area</p> <p>Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre</p> <p>High to very high: Wind speed 63-117 kmph (34-63 knots) & Wave height 6-14 metre</p> <p>Phenomenal: Wind speed > 117 kmph (> 63 knots) & Wave height > 14 metre</p>
Cyclone	<p>Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)</p> <p>Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)</p> <p>Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)</p> <p>Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)</p> <p>Super Cyclone Strom: Wind speed > 220 kmph (> 119 knots)</p>