

Tuesday, November 19, 2024
Time of Issue: 0800 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ❖ A cyclonic circulation lies over Comorin area & neighbourhood in lower tropospheric levels.
- ❖ A cyclonic circulation lies over south Bangladesh & neighbourhood and extends upto lower tropospheric levels.

Forecast & Warnings (upto 7 days):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm & lightning very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe on 19th & 20th November, 2024.
- ✓ Light to moderate rainfall at many places over Andaman & Nicobar Islands during the week; Light to moderate rainfall at isolated places over Assam & Meghalaya & Nagaland, Manipur, Mizoram & Tripura on 20th & 21st November.
- ✓ **Isolated heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal on 19th; Nicobar on 22th & 23rd November.
- ✓ Isolated **Hailstorm** activity also very likely over Assam & Meghalaya on 20th & 21st November.
- ✓ **Dense fog** conditions very likely to prevail in isolated pockets of Punjab, Haryana-Chandigarh, Himachal Pradesh, Uttarakhand Uttar Pradesh, north Rajasthan, north Madhya Pradesh during next 2 days.

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 on 18th November. Minimum temperatures were above **normal (2°C to 3°C)** at many places over Punjab, Haryana, West Uttar Pradesh; at isolated places over East Rajasthan, Gujarat Region, East Uttar Pradesh, north Madhya Pradesh and Rayalaseema. These were **below normal (2°C to 3°C)** at isolated places over Odisha, Telangana, Chhattisgarh and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 9.1°C** was reported at **Delhi Ridge (Delhi)** over the plains of the country.

Forecast of temperature:

- ❖ No large change in minimum temperatures over Northwest & East India during next 5 days.
- ❖ Gradual fall in minimum temperatures by 2-3°C very likely over Central India during next 5 days.
- ❖ No large change in minimum temperatures over northeast India during next 2 days and gradual rise by 2-3°C during subsequent 3 days.
- ❖ Gradual fall in minimum temperatures by 2-4°C very likely over Maharashtra & Gujarat Region during next 5 days.

iii. Weather forecast over Delhi/NCR during 19th Nov. to 21th Nov. 2024

Past Weather:

There had been a slight fall in maximum temperatures over Delhi/NCR on 18th November. The Maximum and Minimum temperatures over Delhi were in the range of 22 to 24°C and 11 to 16°C respectively. The Maximum temperature was below normal by 1 to 2°C and the Minimum temperature was above normal by 2 to 4°C over most places.

Weather Forecast:

19th Nov: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 05 kmph during morning hours. Smog/dense fog is likely 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 northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

20th Nov: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with speed less than 08 kmph during morning hours. Smog/dense fog is likely in the morning. The wind speed will gradually increase becoming 10-12 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 08 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

21st Nov: Mainly clear sky. The predominant surface wind is likely to be from northwest direction with wind speed less than 10 kmph during morning hours. Smog/moderate to dense fog in the morning. The wind speed will increase thereafter becoming 10-12 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 08 kmph from northwest directions during evening and night. Smog/ shallow fog is likely in the evening/night.

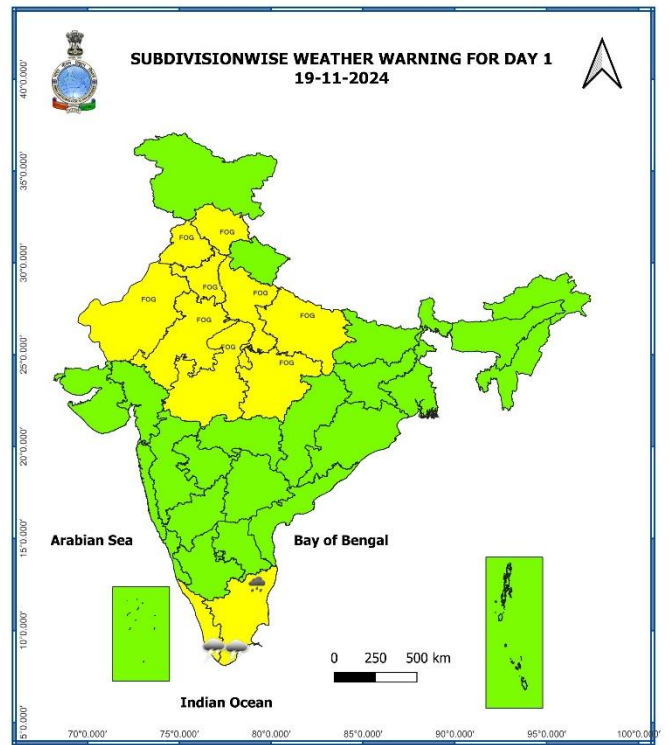
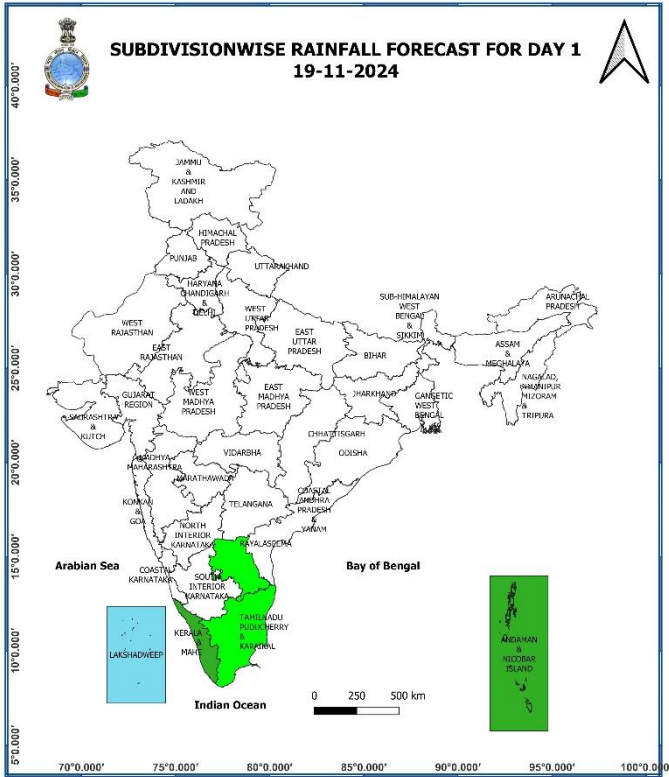
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Lakshadweep; **at a few places** over Tamil Nadu, Puducherry & Karaikal; **at isolated places** over Andaman & Nicobar Islands.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **NIL**
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Karaikal- 3, Atiramapattinam- 1; **Lakshadweep:** Aminidivi-1.
- ❖ **Fog conditions observed** (at 0530 hours IST of today): **Very Dense fog** reported in isolated pockets of West Uttar Pradesh.
- ❖ **Visibility reported** (at 0530 hours IST of today) (<500metres): Visibility reported (in m): **West Uttar Pradesh:** Agra-0.
- ❖ **Minimum Temperature Departures (as on 18-11-2024):** Minimum temperatures were **above normal (2°C to 3°C)** at a few places over Rayalaseema, Haryana-Chandigarh-Delhi, Uttar Pradesh, Kerala & Mahe; at isolated places over Saurashtra & Kutch, Tamil Nadu, Puducherry & Karaikal, Gujarat Region, Assam & Meghalaya, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Madhya Pradesh, Bihar, West Bengal & Sikkim. These were **below normal (-2°C to -3°C)** at isolated places over Odisha, Telangana, Chhattisgarh and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 9.1°C** was reported at **Hissar (Haryana)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 18-11-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Arunachal Pradesh, **above normal (1.6°C to 3.0°C)** at isolated places over Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, East Uttar Pradesh, East Madhya Pradesh, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh. These were **markedly below normal (-5.1°C or less)** at isolated places over Haryana-Chandigarh-Delhi; **below normal (-1.6°C to -3.0°C)** at most places over West Uttar Pradesh, at isolated places over Rajasthan and Gangetic West Bengal and near normal over rest parts of the country. Yesterday, **the highest maximum temperature of 35.6°C** was reported at **Karwar (Coastal Karnataka)** over the country. **(Fig. 2)**

Meteorological Analysis (Based on 0530 hours IST)

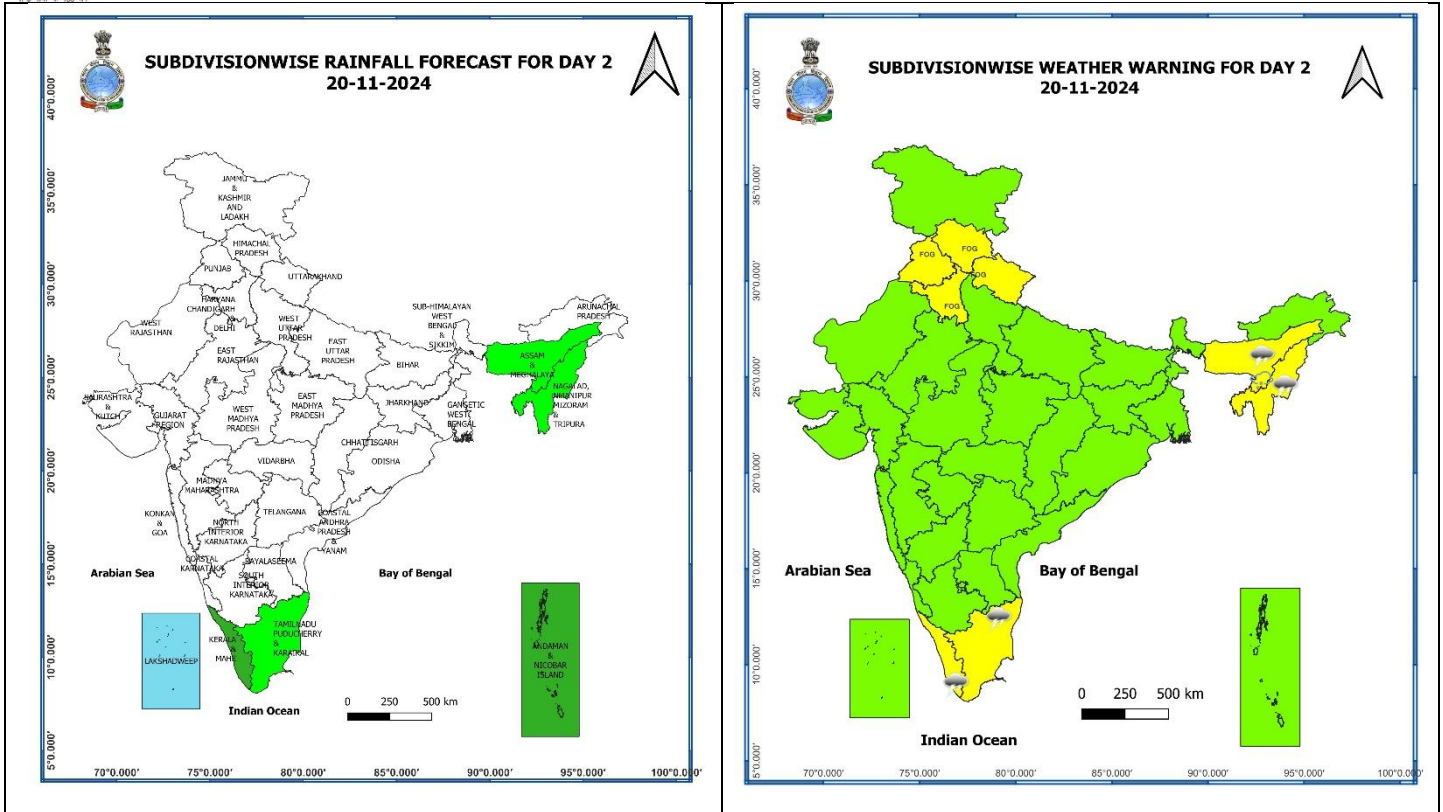
- ❖ The **cyclonic circulation** over Comorin area & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over south Bangladesh & neighbourhood extending upto 1.5 km above mean sea level persists.
- ❖ **Jet Stream Winds** of the order upto 90 knots at 12.6 km above mean sea level are prevailing over Northwest India.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 26th November, 2024)



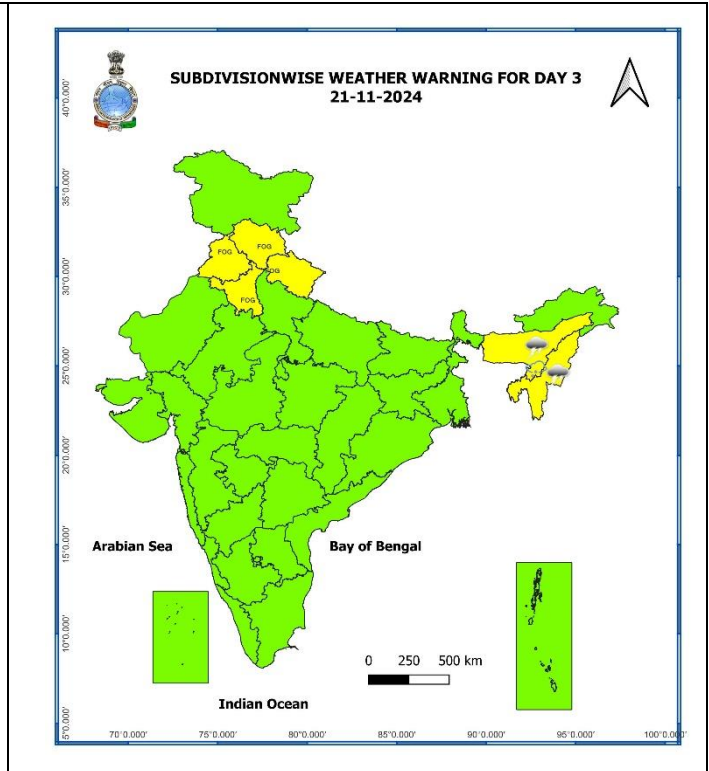
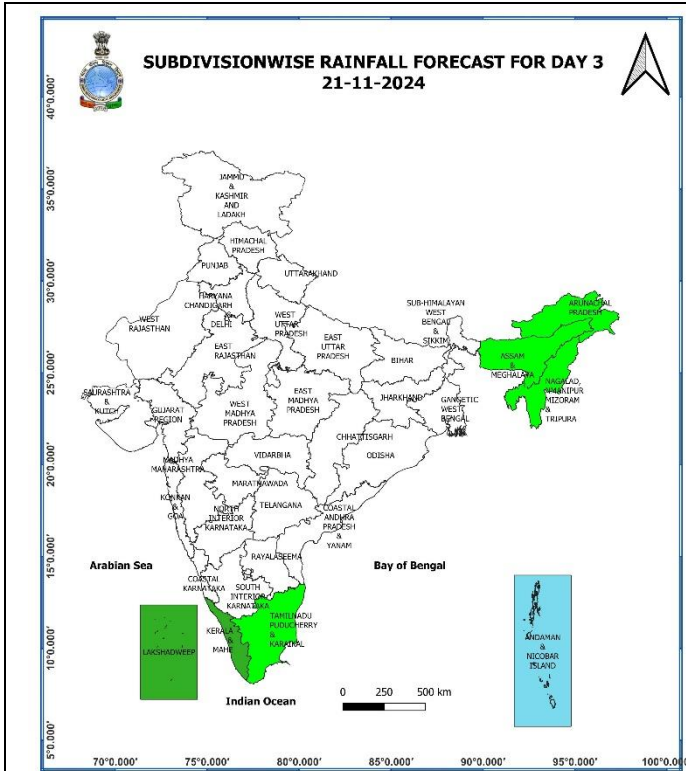
19 November (Day 1):

- ❖ **Heavy rainfall (≥ 7 cm)** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Dense fog** in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Rajasthan, Madhya Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Rayalaseema, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.



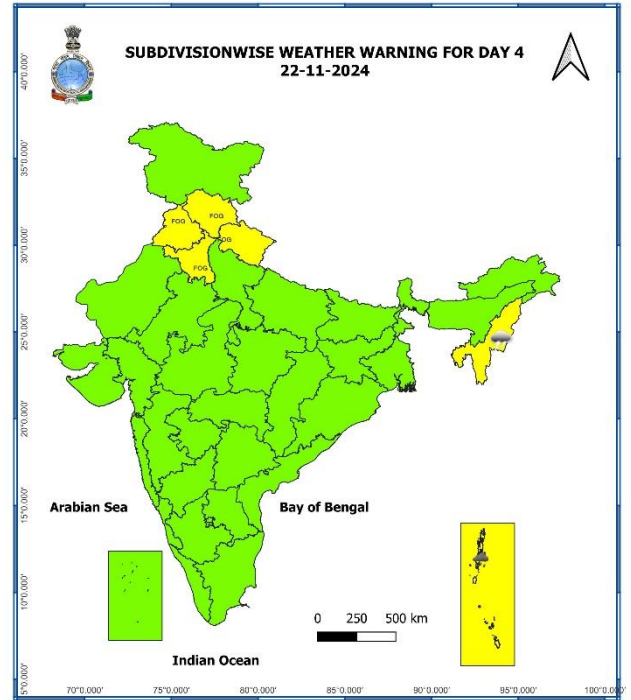
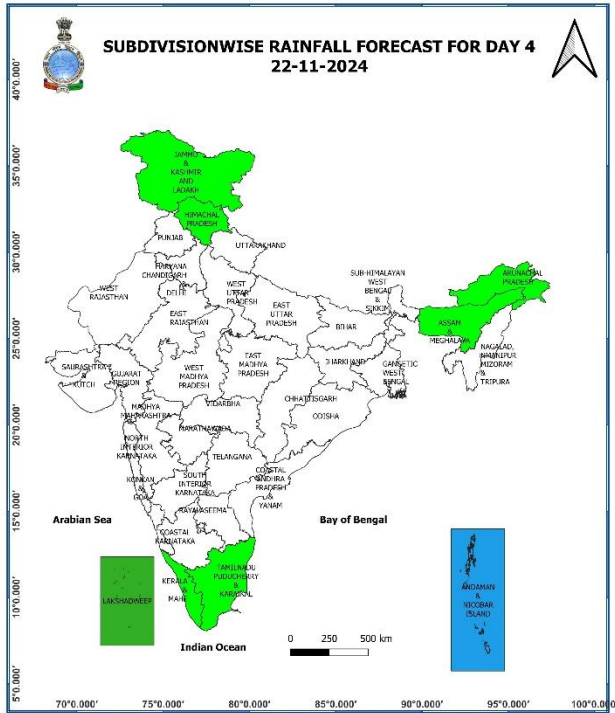
20 November (Day 2):

- ❖ **Dense fog** in isolated pockets of Himachal Pradesh, Punjab, Haryana-Chandigarh-Delhi, Uttarakhand in night/morning hours.
- ❖ **Thunderstorm accompanied with hail** very likely at isolated places over Assam & Meghalaya; **with lightning** at Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.



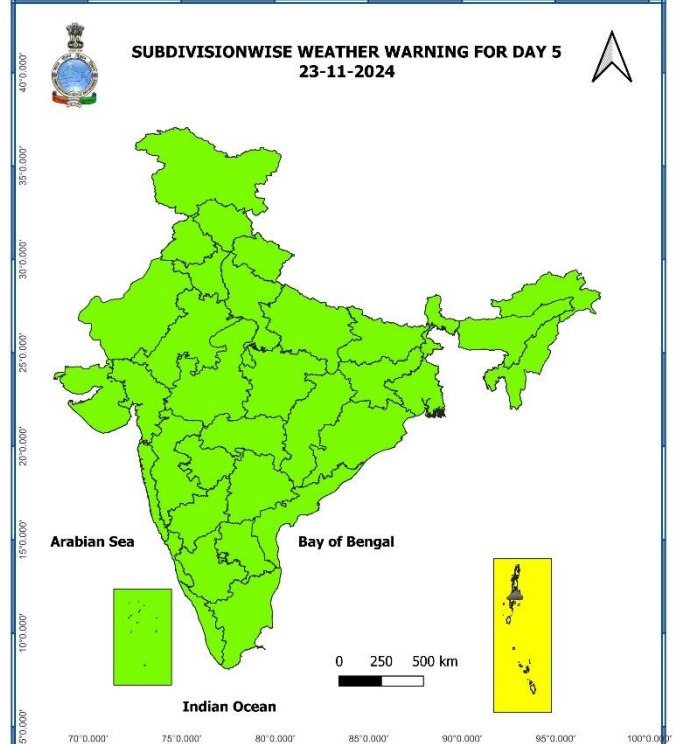
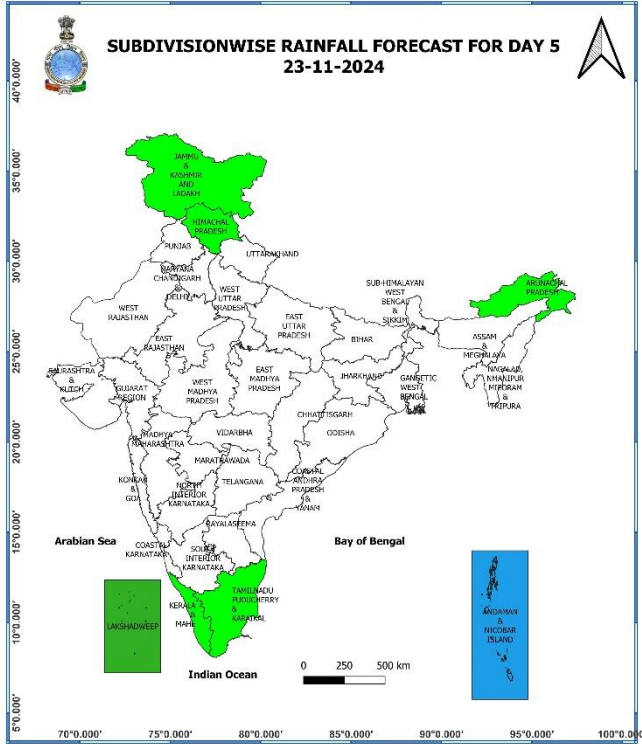
21 November (Day 3):

- ❖ **Dense fog** in isolated pockets of Punjab, Haryana-Chandigarh-Delhi, Himachal Pradesh, Uttarakhand in night/morning hours.
- ❖ **Thunderstorm accompanied with hail** likely at isolated places over Assam & Meghalaya with lightning over Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevailing over southern parts of southeast Bay of Bengal and adjoining south Andaman Sea.



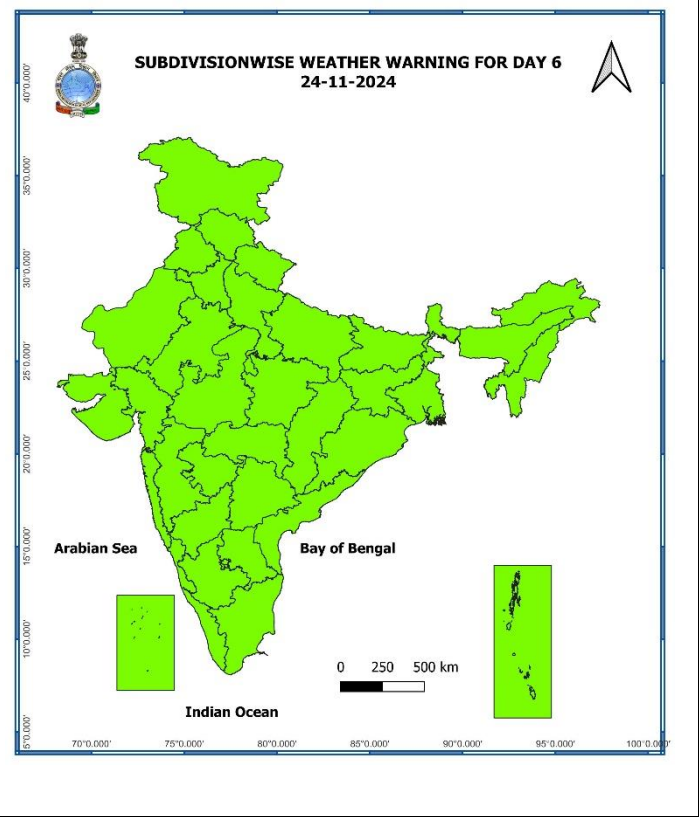
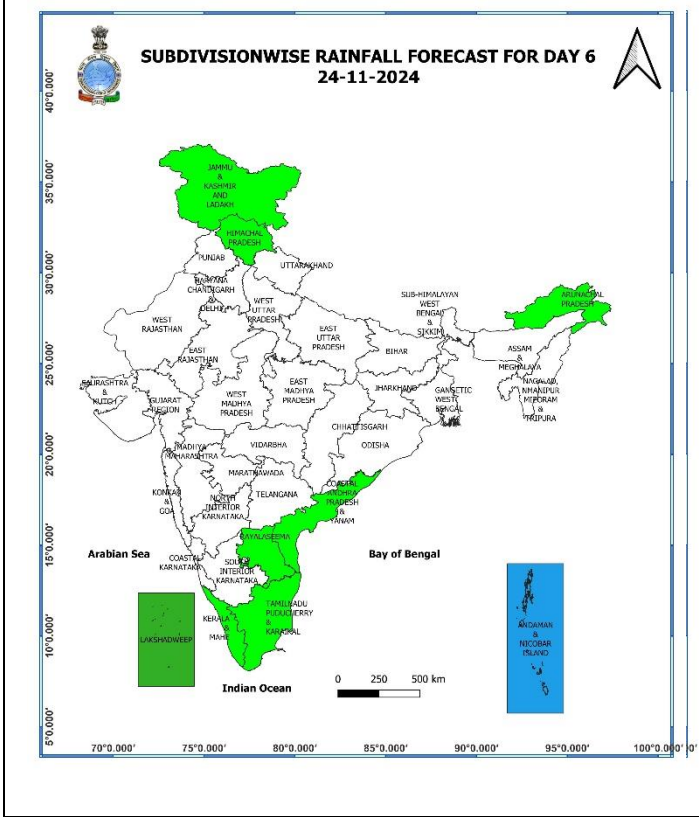
22 November (Day 4):

- ❖ **Heavy rainfall (≥ 7 cm)** very likely at isolated places over Nicobar Islands.
- ❖ **Dense fog** in isolated pockets of Punjab, Haryana-Chandigarh-Delhi, Himachal Pradesh, Uttarakhand in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevailing over southern parts of southeast Bay of Bengal.



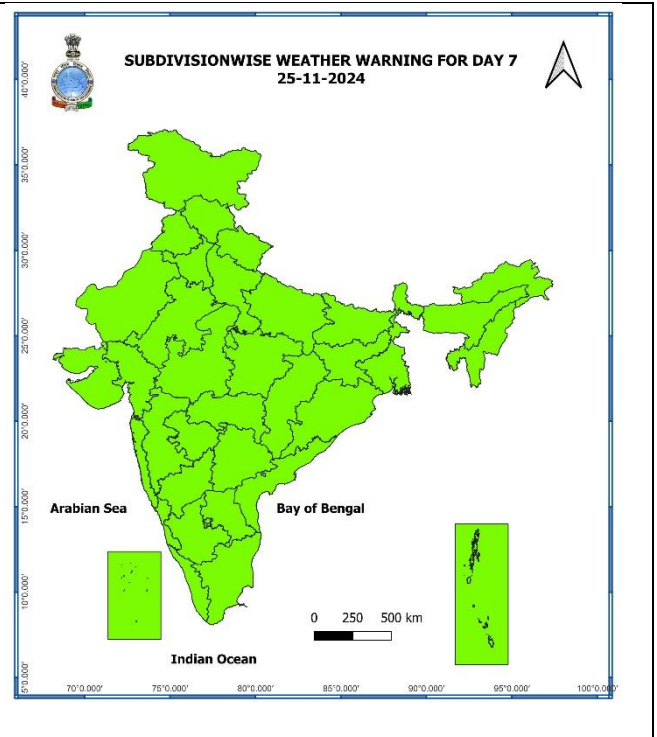
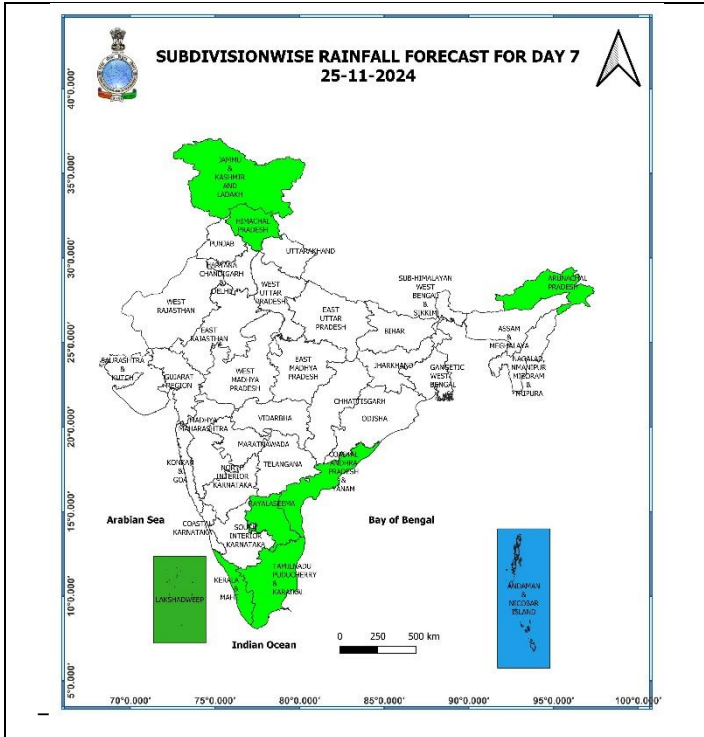
23 November (Day 5):

❖ Heavy rainfall (≥ 7 cm) very likely at isolated places over Nicobar Islands.



24 November (Day 6):

❖ **No Warning**



25 November (Day 7):

❖ **No Warning**

Weather Outlook for subsequent 3 days (During 26th November – 28th 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 Tamil Nadu, Puducherry & Karaikal:

- ✓ 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.

Impact expected due to dense to very dense fog in the late night /morning hours over parts of Northwest India during next 2-3 days.

- ❖ 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

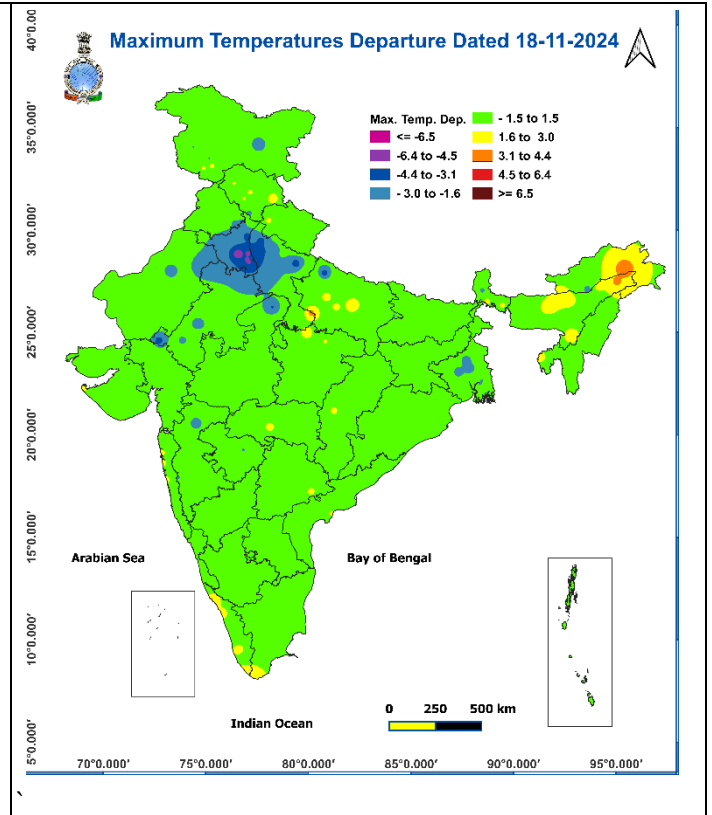
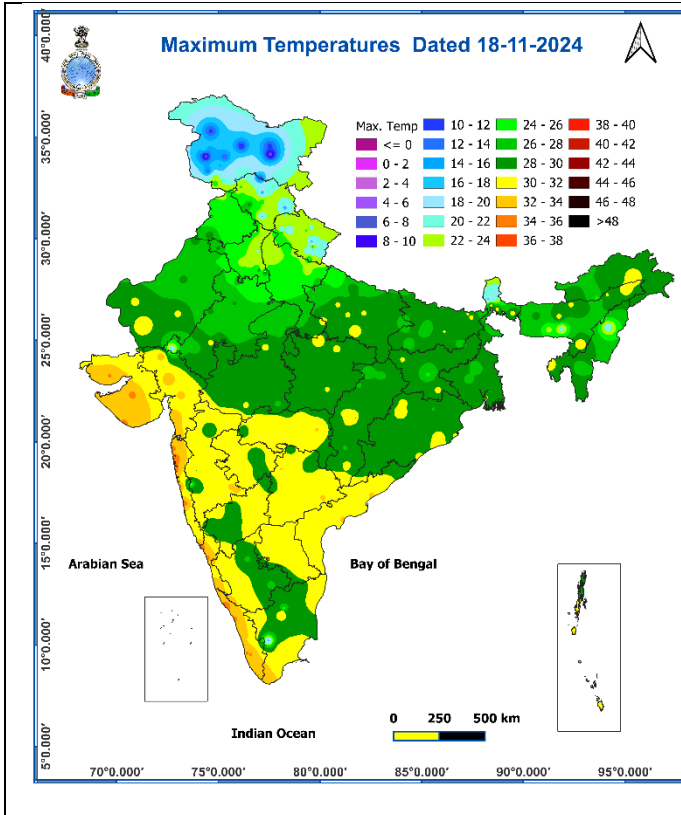


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

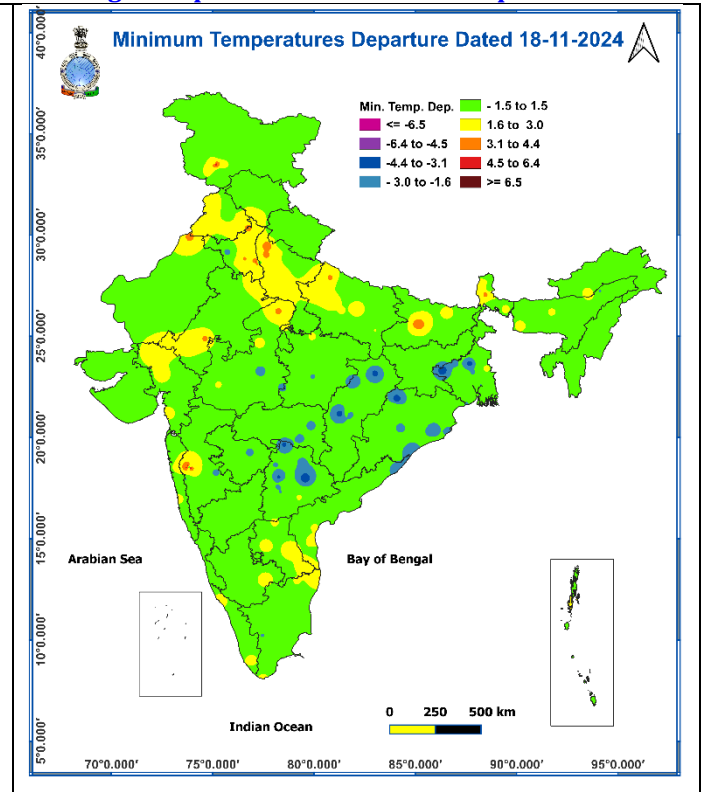
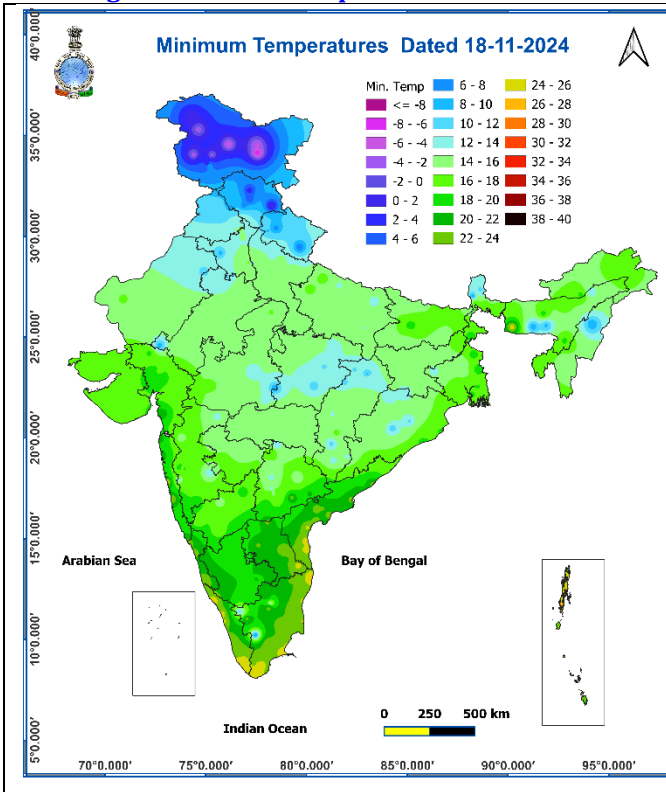
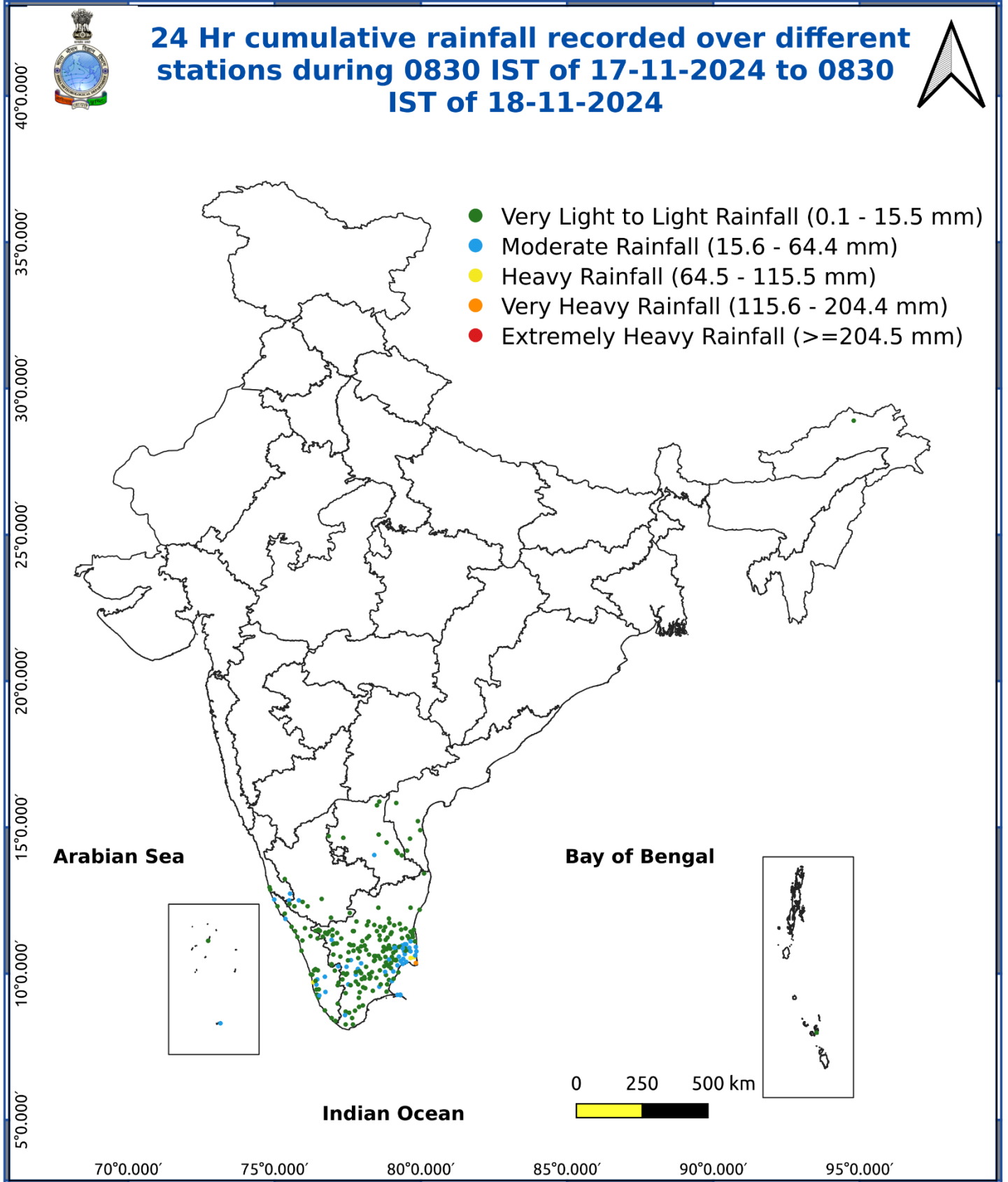


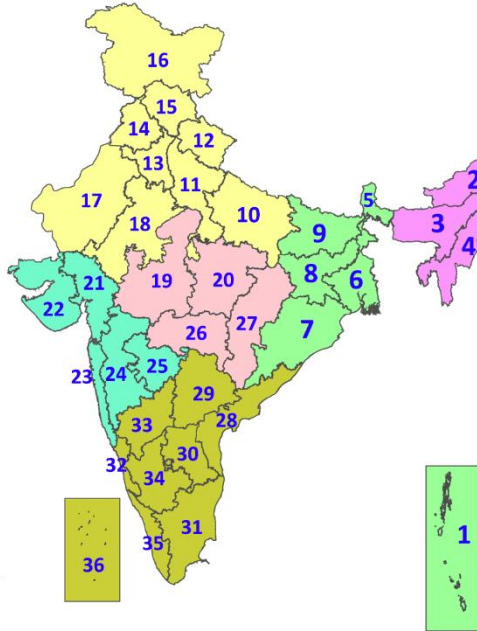
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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 *

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)