

Thursday, November 21, 2024  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ❖ An **upper air cyclonic circulation** is likely to form over South Andaman Sea and adjoining areas during next 24 hours. It is likely to move west-northwestwards and become a **low pressure area** over southeast Bay of Bengal around 23rd November. Thereafter, it is likely to continue move west-northwestwards and intensify into a **depression** over southwest Bay of Bengal during subsequent 2 days.
- ❖ A **cyclonic circulation** lies over Comorin area & neighbourhood in lower tropospheric levels.
- ❖ Another **cyclonic circulation** lies over southeast Arabian sea off Kerala coast in lower tropospheric levels.

#### Forecast & Warnings (upto 7 days):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm & lightning very likely over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe on 21<sup>st</sup> November.
- ✓ Light to moderate rainfall at many places over Andaman & Nicobar Islands during the week; Light to moderate rainfall at isolated places over Assam & Meghalaya on 21<sup>st</sup> & 22<sup>nd</sup> November.
- ✓ Isolated **very heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal and Coastal Andhra Pradesh & Yanam & Rayalaseema on 26<sup>th</sup> November.
- ✓ Isolated **heavy rainfall** very likely over Kerala & Mahe on 26<sup>th</sup>, Nicobar during 22<sup>nd</sup>-24<sup>th</sup> and Tamil Nadu, Puducherry & Karaikal on 25<sup>th</sup> November.
- ✓ **Dense fog conditions** very likely to prevail in isolated pockets of East Uttar Pradesh till early morning of 22<sup>nd</sup>; Punjab, Haryana-Chandigarh during late night of 22<sup>nd</sup> to early morning of 24<sup>th</sup> and Himachal Pradesh during late night of 23<sup>rd</sup> to early morning of 25<sup>th</sup> November.

#### ii. Temperature conditions and Forecast:

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

No significant change in minimum temperature observed over most parts of the country during past 24 hours. Minimum temperatures were **appreciably above normal (3°C to 5°C)** at isolated places over Bihar; **above normal (2°C to 3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura. These were **markedly below normal (-5°C or less)** at isolated places over Odisha; **appreciably below normal (-5°C to -3°C)** at isolated places over Chhattisgarh, Telangana; **below normal (-2°C to -3°C)** at a few places over West Madhya Pradesh, Vidarbha, Marathwada; at isolated places over Haryana-Chandigarh-Delhi, Rajasthan, Assam & Meghalaya, Coastal Andhra Pradesh & Yanam, North Interior Karnataka and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature of 7.3°C** was reported at **Adampur IAF (Punjab)** over the plains of the country.

##### Forecast of temperature:

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

#### iii. Weather forecast over Delhi/NCR during 21<sup>st</sup> Nov. to 23<sup>rd</sup> Nov. 2024

##### Weather Forecast:

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

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

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

\* 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)

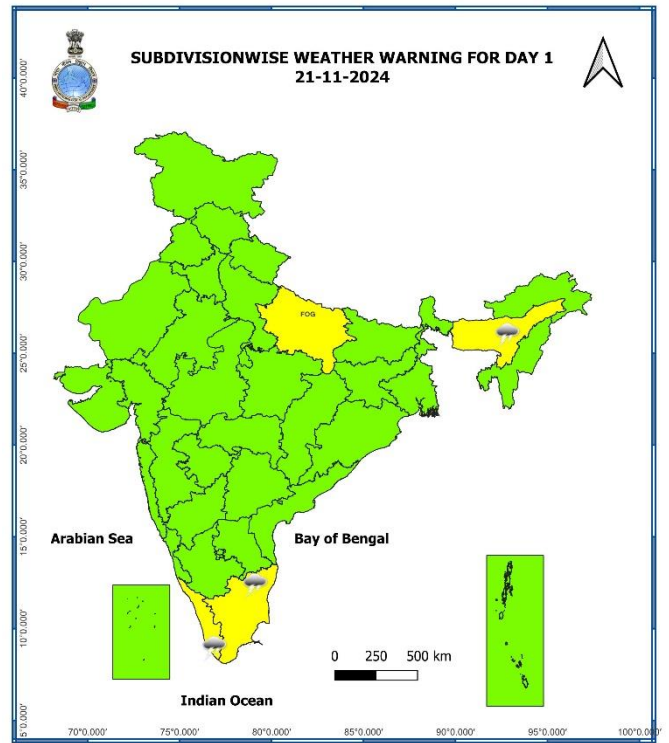
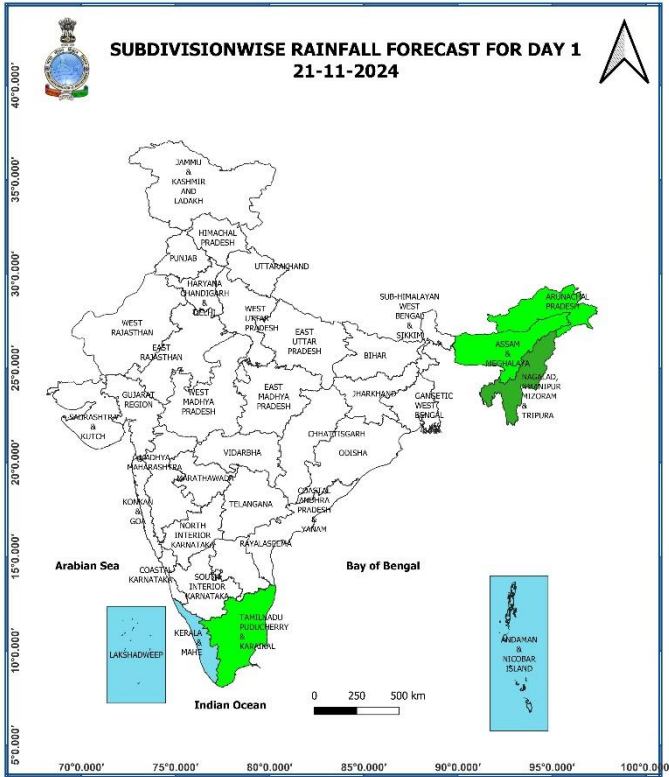
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at a few places** over Tamil Nadu, Puducherry & Karaikal; **at isolated places** over Lakshadweep, Kerala & Mahe, Andaman & Nicobar Islands, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy to Extremely Heavy rainfall** at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Pamban-28, Nagapattinam & Karaikal-9, Atiramapattinam-4.
- ❖ **Fog conditions observed** (at 0530 hours IST of today): **Shallow to moderate fog** in isolated pockets of Delhi, Uttar Pradesh, Bihar and West Madhya Pradesh.
- ❖ **Visibility reported** (at 0530 hours IST of today) ( $\leq 500$ metres) (in m): **Delhi:** Safdarjung- 500; **West Uttar Pradesh:** Bareilly-500; **East Uttar Pradesh:** Kanpur-200; Varanasi, Lucknow and Gorakhpur- 500 each; **Bihar:** Patna, Bhagalpur and Purnea- 500 each; **West Madhya Pradesh:** Gwalior -500.
- ❖ **Minimum Temperature Departures (as on 20-11-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Bihar; **above normal (2°C to 3°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura. These were **markedly below normal (-5.1°C or less)** at isolated places over Odisha; **appreciably below normal (-5.0°C to -3.1°C)** at isolated places over Chhattisgarh, Telangana; **below normal (-2°C to -3°C)** at a few places over West Madhya Pradesh, Vidarbha, Marathwada; at isolated places over Haryana-Chandigarh-Delhi, Rajasthan, Assam & Meghalaya, Coastal Andhra Pradesh & Yanam, North Interior Karnataka and near normal over rest parts of the country. Yesterday, **the lowest minimum temperature** of 7.3°C was reported at **Adampur IAF (Punjab)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 20-11-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Arunachal Pradesh, Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad. These were **markedly below normal (-5.1°C or less)** at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe; **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over East Rajasthan, East Uttar Pradesh, East Madhya Pradesh, Haryana-Chandigarh-Delhi; **below normal (-1.6°C to -3.0°C)** at a few places over West Madhya Pradesh, Saurashtra & Kutch; at isolated places over West Rajasthan, Gujarat Region, Madhya Maharashtra, Marathwada, Telangana, Odisha, Jharkhand, Uttarakhand, Chhattisgarh 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 east Arabian sea off Kerala coast at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over central Pakistan & neighbourhood at 1.5 km above mean sea level persists.
- ❖ The **cyclonic circulation** over south Bangladesh area at 1.5 km above mean sea level persists.
- ❖ **Jet Stream Winds** of the order upto 95 knots at 12.6 km above mean sea level are prevailing over Northwest India.
- ❖ An **upper air cyclonic circulation** is likely to form over South Andaman Sea and adjoining areas during next 24 hours. It is likely to move west-northwestwards and become a **low pressure area** over southeast Bay of Bengal around 23<sup>rd</sup> November. Thereafter, it is likely to continue move west-northwestwards and intensify into a **depression** over southwest Bay of Bengal during subsequent 2 days.

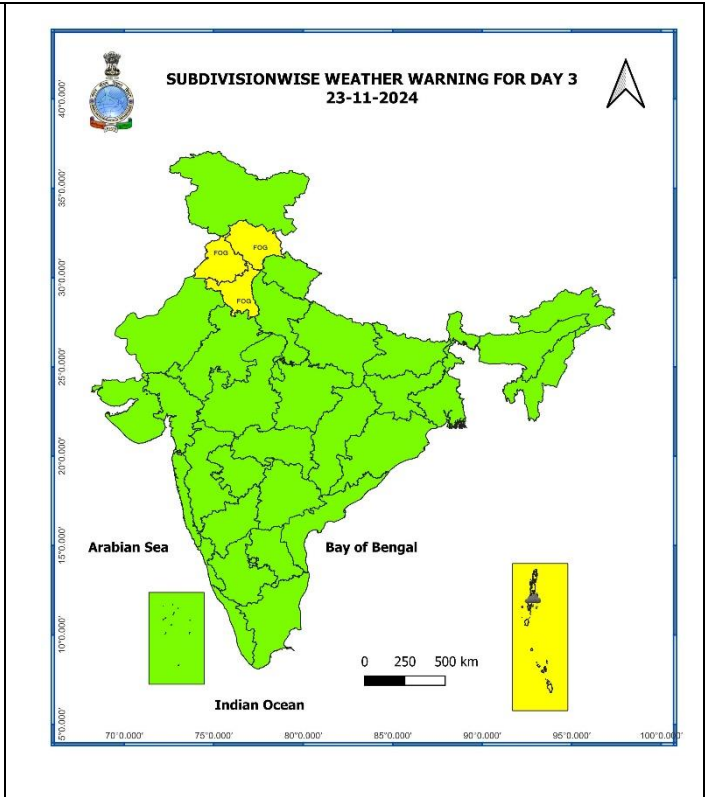
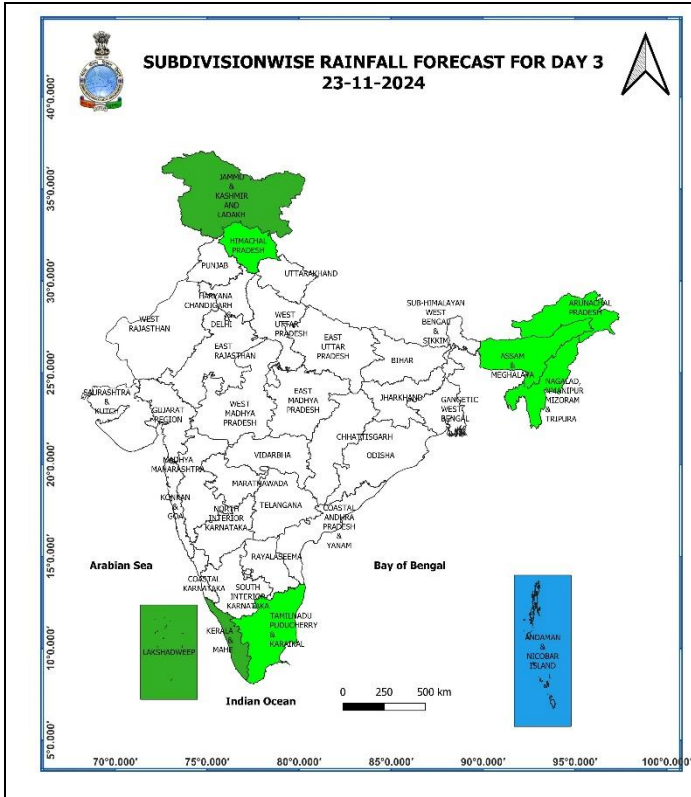
**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 28<sup>th</sup> November, 2024)**



**21 November (Day 1):**

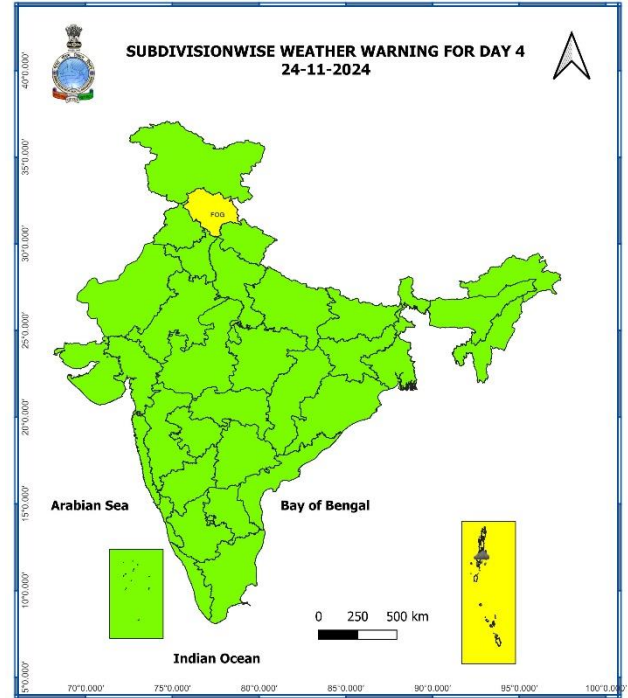
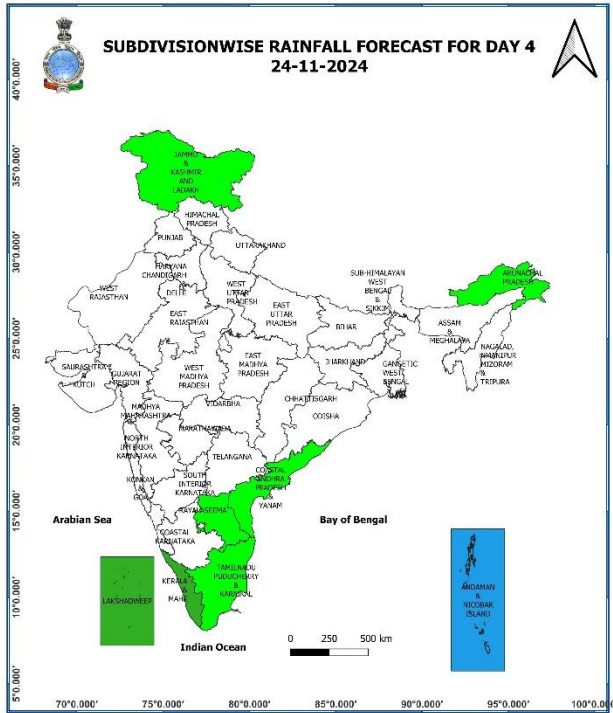
- ❖ **Dense fog** very likely in isolated pockets of East Uttar Pradesh; **Shallow to moderate fog** in isolated pockets of West Madhya Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Assam & Meghalaya, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevailing along and off south Kerala coast and Lakshadweep area, over southern parts of southeast Bay of Bengal and adjoining south Andaman Sea. Fishermen are advised not to venture into these areas.





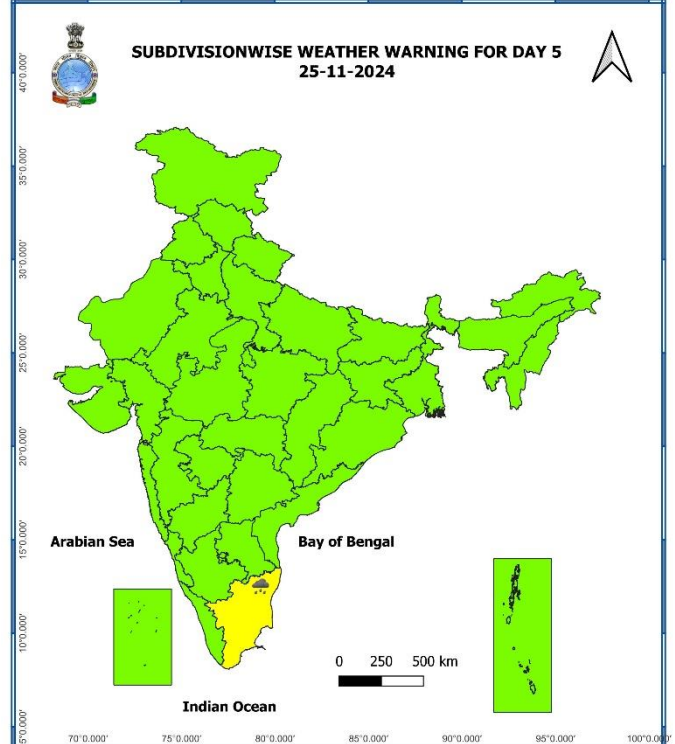
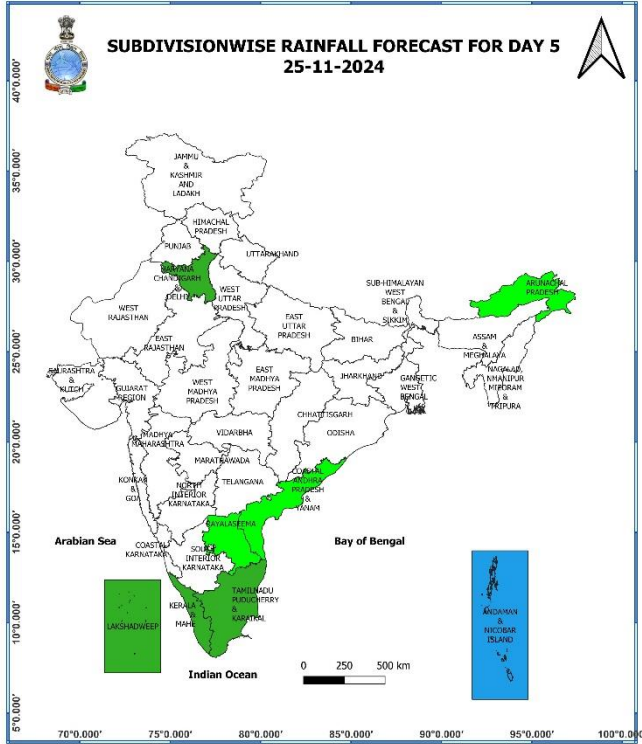
### 23 November (Day 3):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Dense fog** likely in isolated pockets of Punjab, Himachal Pradesh and Haryana-Chandigarh-Delhi in night/morning hours.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevailing over south central parts of south Bay of Bengal, Andaman sea. Fishermen are advised not to venture into these areas.



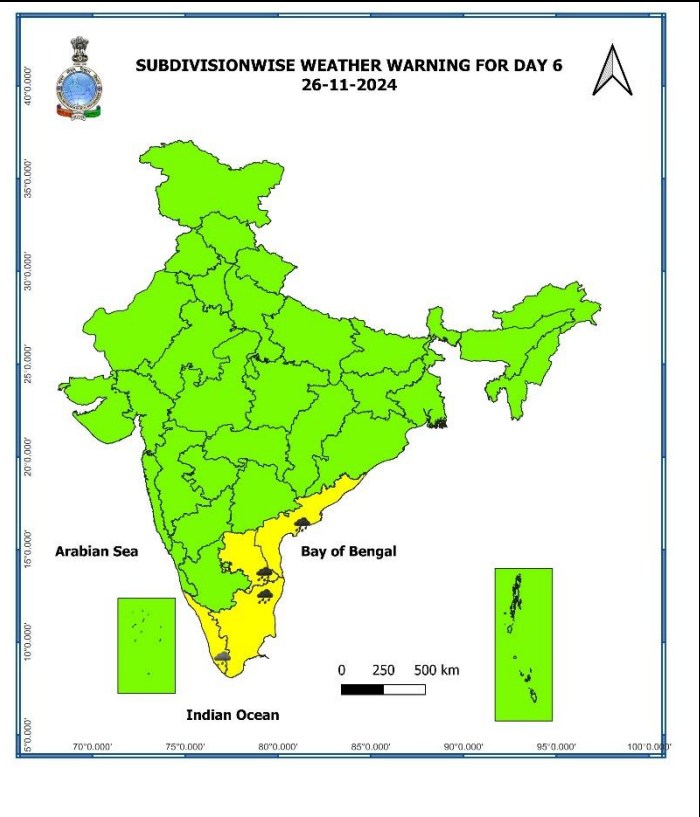
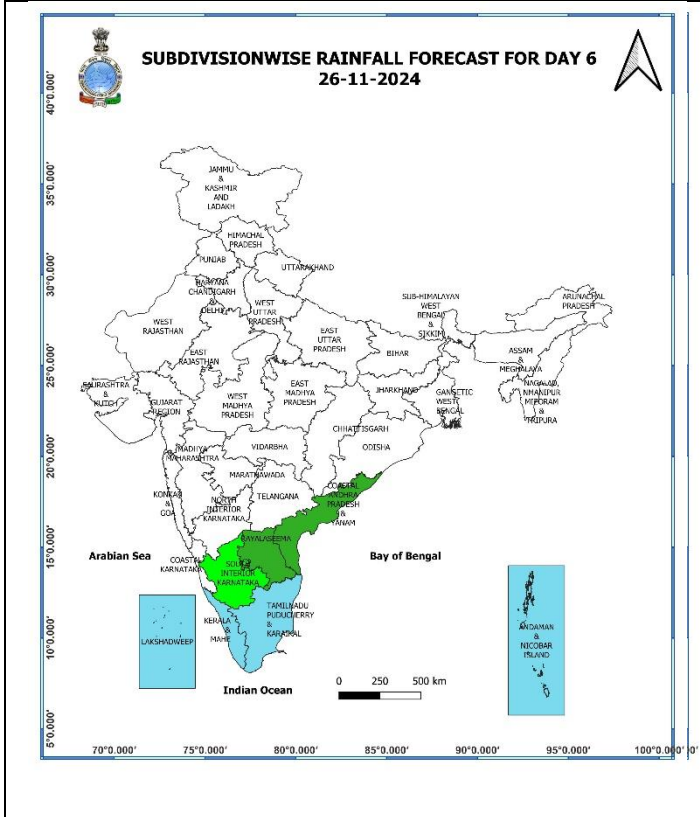
### 24 November (Day 4):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Andaman & Nicobar Islands.
- ❖ **Dense fog** likely in isolated pockets of Himachal Pradesh in night/morning hours.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevailing over Andaman Sea. **Squally weather with wind speed 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevailing over southern parts of southwest Bay of Bengal and adjoining southeast Bay of Bengal. Fishermen are advised not to venture into these areas.



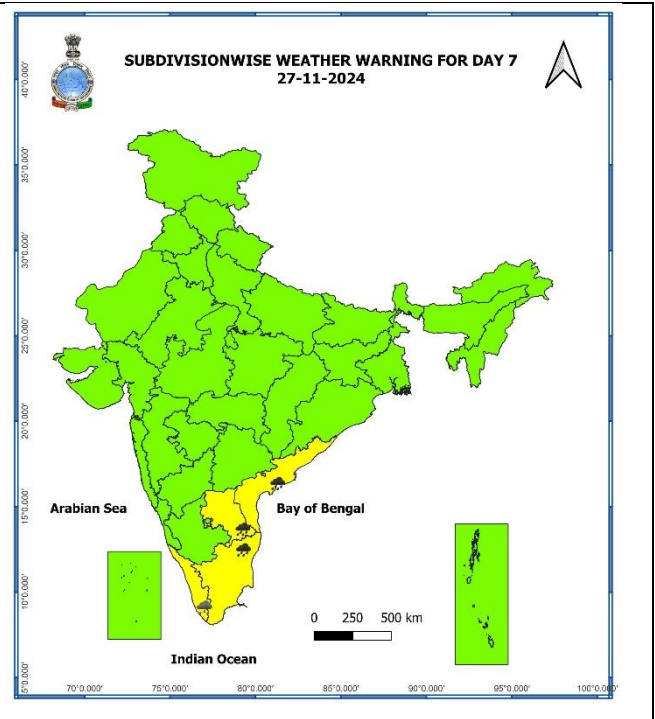
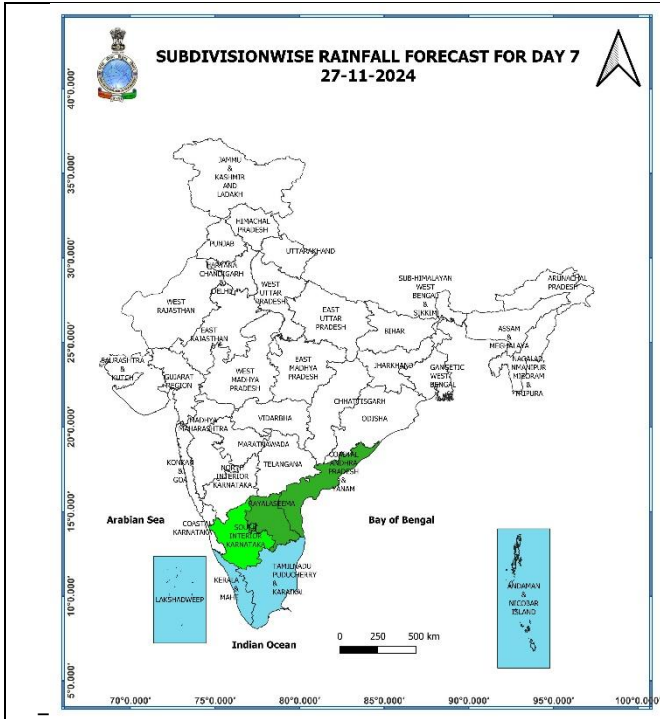
**25 November (Day 5):**

- ❖ Heavy rainfall ( $\geq 7$  cm) likely at isolated places over Tamil Nadu, Puducherry & Karaikal.



**26 November (Day 6):**

- ❖ **Very Heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam and Rayalaseema; **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Kerala & Mahe.



### 27 November (Day 7):

- ❖ **Very Heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam and Rayalaseema; **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Kerala & Mahe.

### Weather Outlook for subsequent 3 days (During 28<sup>th</sup> November – 30<sup>th</sup> 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.

**Impact & Action Suggested due to very heavy to extremely heavy rainfall over** Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema on 26<sup>th</sup> & 27<sup>th</sup> November, 2024.

#### A. 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 kutcha 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 late night /morning hours over parts of Northwest India during next 3-4 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.

## 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.
- ✓ In **Kerala**, provide proper drainage in rice, ginger and vegetable fields. Provide mechanical support to banana plants and strengthen the vegetable pandals.

Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

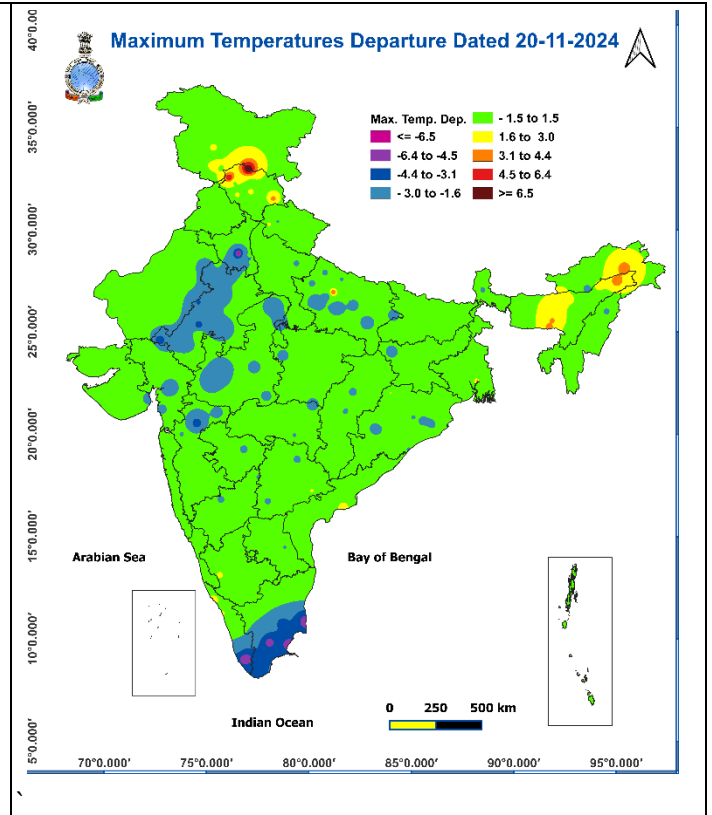
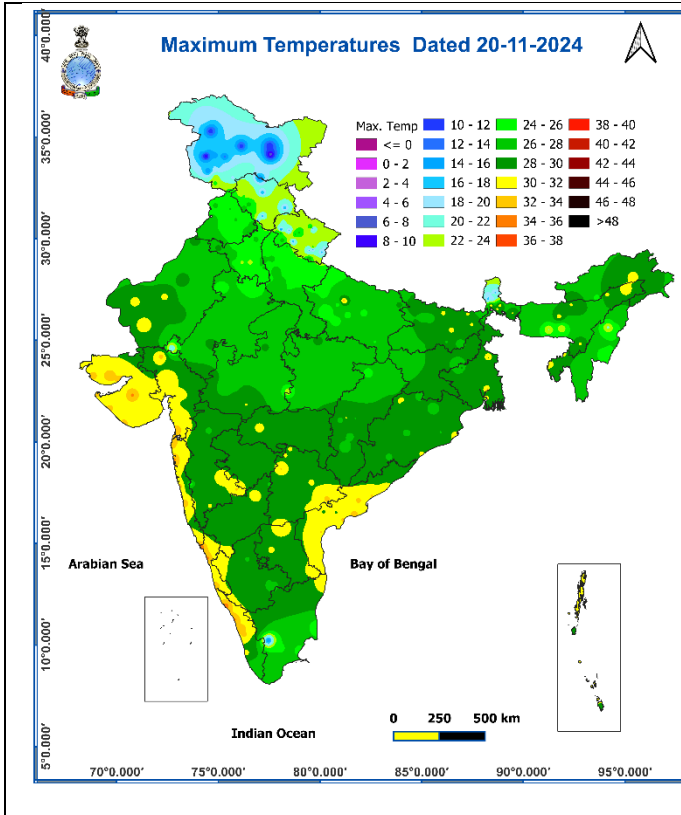


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

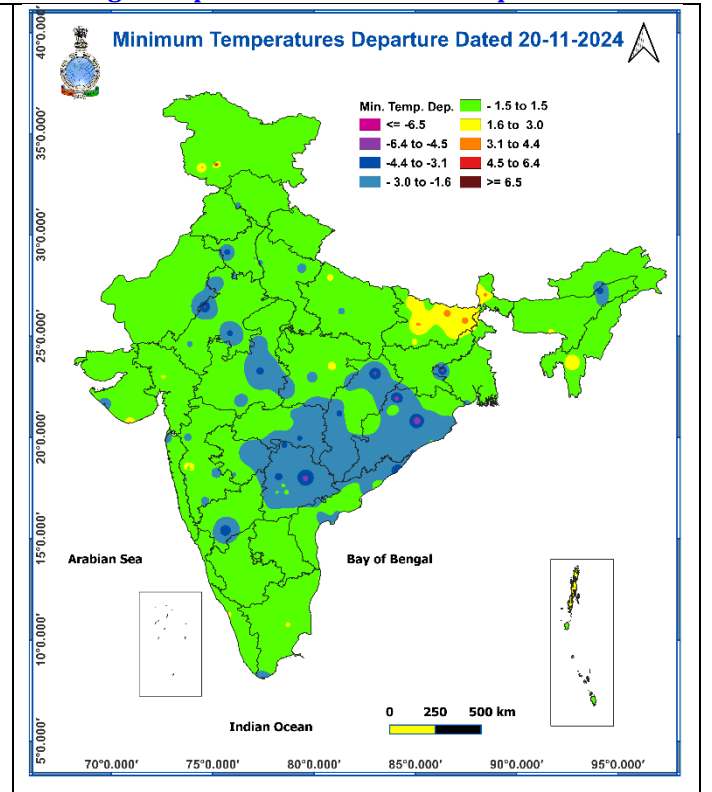
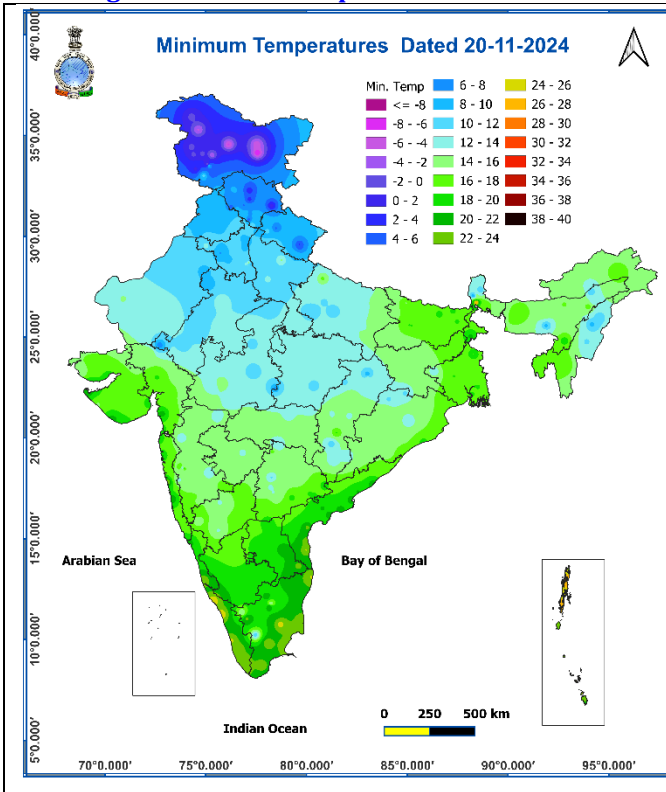
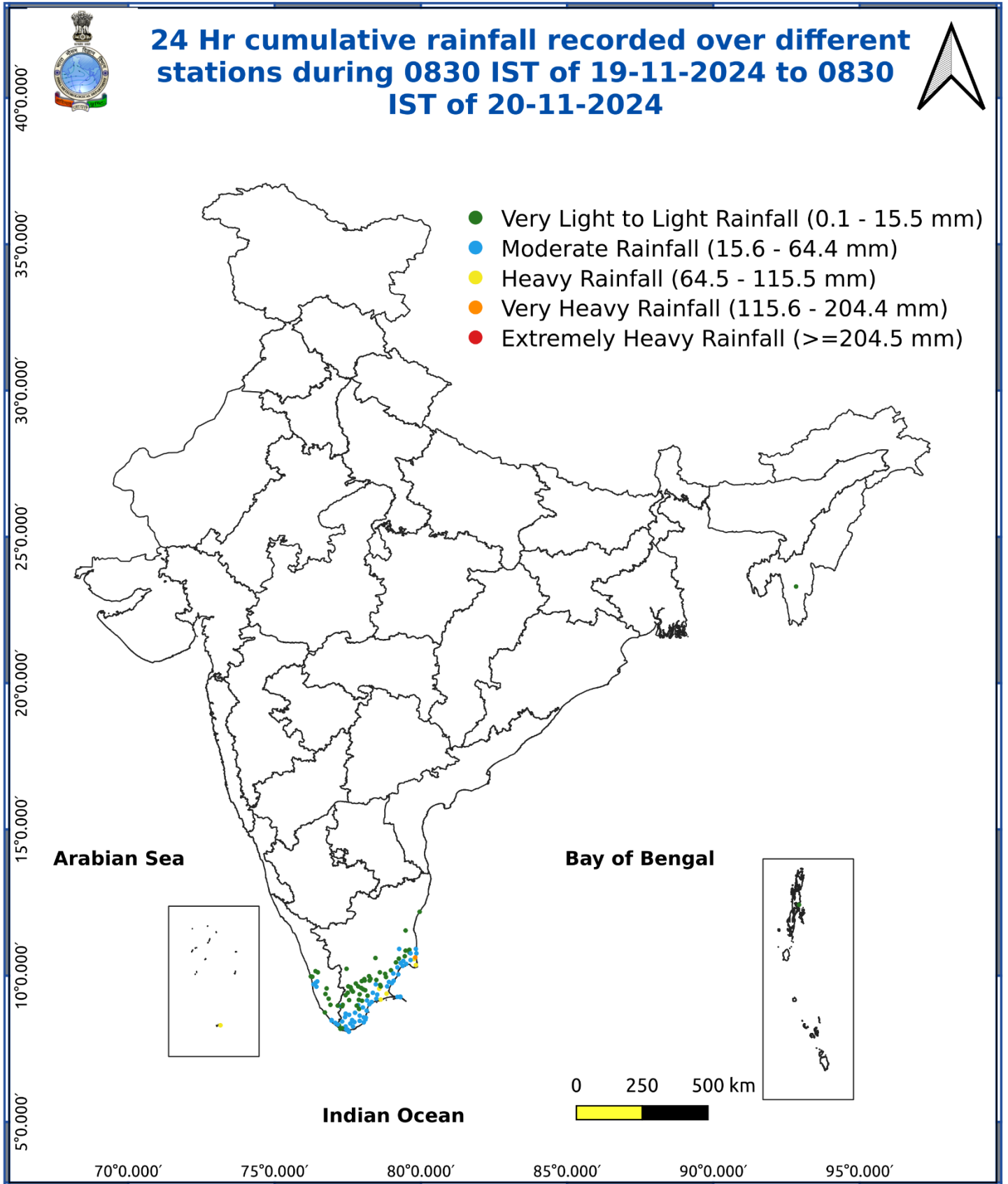


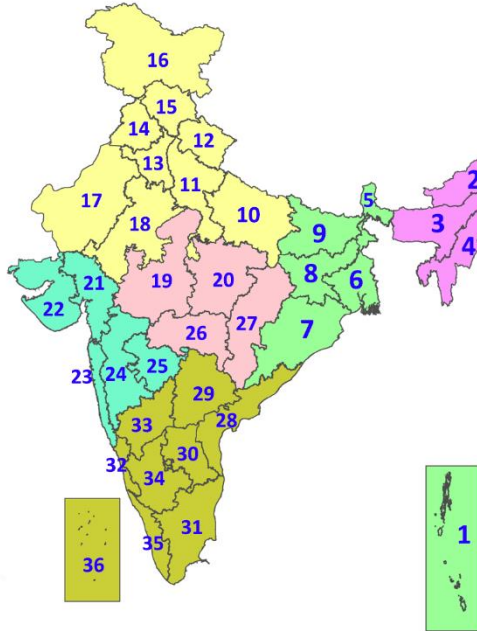
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



\* 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)

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