

Friday, April 11, 2025  
Time of Issue: 0815 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems, Forecast and Warnings:

- ❖ The **Low-pressure area** over westcentral Bay of Bengal persisted at 0530 hrs IST of today, the 11<sup>th</sup> April, 2025 with the associated cyclonic circulation extending upto middle tropospheric levels. It is likely to move north-northeastwards and weaken gradually over central Bay of Bengal during next 24 hours. Under its influence squally weather wind speed reaching 35-45 Kmph gusting to 55 Kmph likely over central & northeast Bay of Bengal during next 12 hours.
- ❖ The **Western Disturbance** as a **trough** in westerlies in middle tropospheric levels runs roughly along Long. 70°E to the north of Lat. 24°N and another along Long. 84°E to the north of Lat. 21°N. **An upper air cyclonic circulation** lies over south Pakistan, 2<sup>nd</sup> over Punjab and 3<sup>rd</sup> over northwest Madhya Pradesh and a trough runs from west Rajasthan to north Vidarbha across East Rajasthan & northwest Madhya Pradesh in lower tropospheric levels.
- ❖ The **upper air cyclonic circulations** also lie over north Bangladesh, 2<sup>nd</sup> over Central parts of Assam and 3<sup>rd</sup> over northeast Assam in lower tropospheric levels and 04<sup>th</sup> over Sub-Himalayan West Bengal, Sikkim & neighbourhood in lower & middle tropospheric levels.  
Under the influence of these systems:
  - ✓ **Scattered to fairly widespread** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 40-50 kmph)** likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh on 11<sup>th</sup> and Uttarakhand on 11<sup>th</sup> & 12<sup>th</sup> April.
  - ✓ **Scattered to fairly widespread** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 40-50 kmph)** likely over northeast and adjoining east India during next 7 days.
  - ✓ Isolated to scattered rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 40-50 kmph)** likely over plains of Northwest, Central and adjoining East India on 11<sup>th</sup> & 12<sup>th</sup> April.
  - ✓ **Heavy rainfall** likely over Bihar on 11<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim and Arunachal Pradesh on 11<sup>th</sup> & 12<sup>th</sup> April; Assam & Meghalaya during 11<sup>th</sup>-13<sup>th</sup> April.
  - ✓ **Isolated Hailstorm** likely over Jammu-Kashmir, Himachal Pradesh, Uttarakhand and Punjab on 11<sup>th</sup> April.
  - ✓ **Duststorm** very likely at isolated places over West Rajasthan on 11<sup>th</sup> April.
  - ✓ **Thundersquall (wind speed reaching 50-60 kmph)** very likely at isolated places over Uttarakhand, Punjab and Sub-Himalayan West Bengal & Sikkim on 11<sup>th</sup> April.
- ❖ **Scattered to fairly widespread** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 30-40 kmph)** likely over Kerala & Mahe during next 7 days and Lakshadweep during next 3 days. **Isolated to Scattered** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 40-50 kmph)** likely over Tamilnadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Telangana, Karnataka during next 5 days.

#### Temperature Forecast:

- ❖ Fall by 3-5°C in maximum temperatures likely over Northwest India during next 3 days and gradual rise by 2-4°C thereafter during subsequent 4 days.
- ❖ Fall by 2-4°C in maximum temperatures likely over Central India during next 3 days and no significant change thereafter during subsequent 4 days.
- ❖ Fall by 2-4°C in maximum temperatures likely over west India during next 3 days and gradual rise by 2-3°C thereafter during subsequent 4 days.
- ❖ No significant change over rest parts of the country.

#### Heat wave, warm night and Hot & Humid weather warning:

- ❖ **A fresh spell of Heat wave conditions** likely at West Rajasthan from 14<sup>th</sup> to 16<sup>th</sup>, East Rajasthan, Haryana and Punjab on 16<sup>th</sup> April.

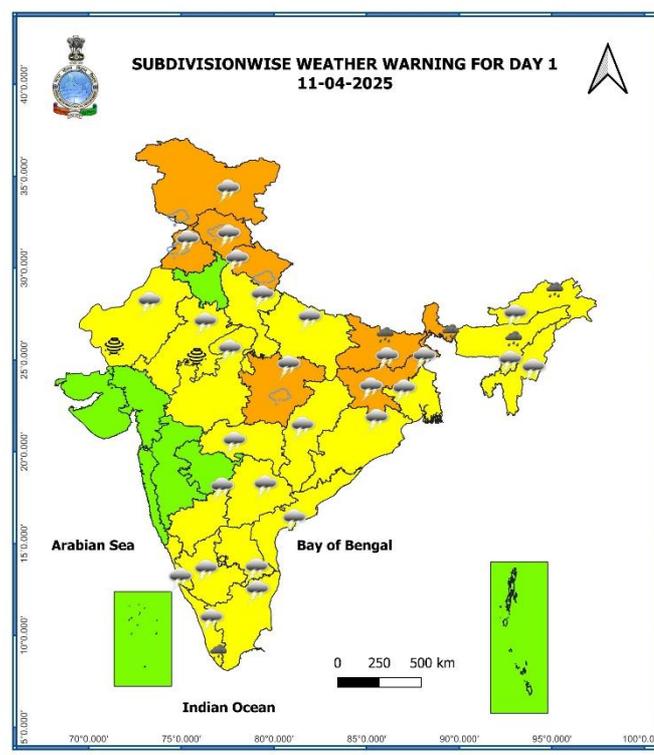
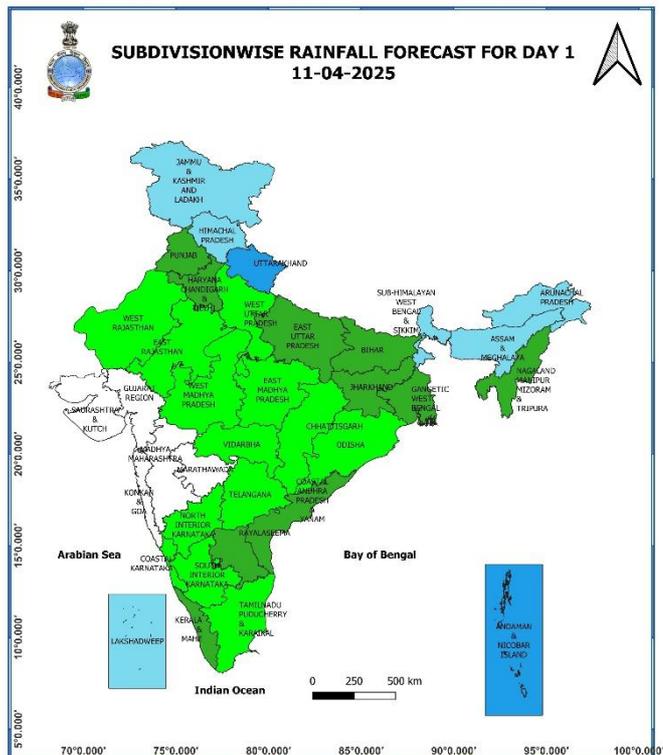
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **Light/moderate Rainfall** observed at most places over Andaman & Nicobar Islands; at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Sub-Himalayan West Bengal & Sikkim; a few places over Bihar, Assam & Meghalaya, Arunachal Pradesh, Lakshadweep; at isolated places over East Uttar Pradesh, Jharkhand, Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Odisha, Coastal Andhra Pradesh & Yanam, Uttarakhand.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday): (in cm): **Sub-Himalayan West Bengal & Sikkim:** Gangtok -2; Jalpaiguri & Cooch Behar -1 each; **Bihar:** Patna & Purnea -4 each; **Jharkhand:** Daltonganj -3; **Andaman & Nicobar Islands:** Long Island & Mayabandar -3 each; Port Blair -2; **East Uttar Pradesh:** Sultanpur-3; **Assam & Meghalaya:** Goalpara-2; Shillong, Chaparmukh -1each; **East Uttar Pradesh:** Gorakhpur & Baharaich -1 each;
- ❖ Yesterday, **Heat wave conditions** prevailed at isolated places over Rajasthan, south Haryana.
- ❖ **Minimum Temperature Departures (as on 10-04-2025):** Minimum temperatures were **markedly above normal (5.1°C or more)** at most places over Delhi; at a few places over Punjab and Haryana-Chandigarh; at isolated places over West Uttar Pradesh, West Rajasthan and Saurashtra & Kutch; **appreciably above normal (3.1°C to 5.0°C)** at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh; at a few places over Madhya Pradesh, East Rajasthan and Konkan & Goa; at isolated places over Uttarakhand, Gujarat Region, Madhya Maharashtra, Marathwada and Vidarbha; **above normal (1.6°C to 3.0°C)** at many places over Bihar; at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Telangana and Tamil Nadu, Puducherry & Karaikal. These were **below normal (-3.0°C to -1.6°C)** at isolated places over Karnataka and normal over rest parts of the country (**Fig. 4**). Yesterday, the **lowest minimum temperature of 17.0°C** was reported at **Kheri (East Uttar Pradesh)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 10-04-2025):** Maximum Temperatures are **markedly above normal (5.1°C or more)** at isolated places over Madhya West Rajasthan, Vidarbha, Marathwada, Arunachal Pradesh, Tamil Nadu, Puducherry & Karaikal and Gujarat state; **appreciably above normal (3.1°C to 5.0°C)** at few places over Punjab, Himachal Pradesh; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Haryana-Chandigarh-Delhi, East Rajasthan, Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at isolated places over Coastal Andhra Pradesh & Yanam, Nagaland, Manipur, Mizoram & Tripura, Gangetic West Bengal and Konkan & Goa. These were **appreciably below normal (-3.1°C to -5.0°C)** at few places over Bihar; at isolated places over Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim; **below normal (-3.0°C to -1.6°C)** at many places over Andaman & Nicobar Islands; at isolated places over Odisha, Jharkhand, Kerala & Mahe and normal over rest parts of the country (**Fig. 2**). Yesterday, the highest **maximum temperature of 46.5°C** was reported at **Nandurbar (Madhya Maharashtra)** over the country.

## Meteorological Analysis (Based on 0530 hours IST)

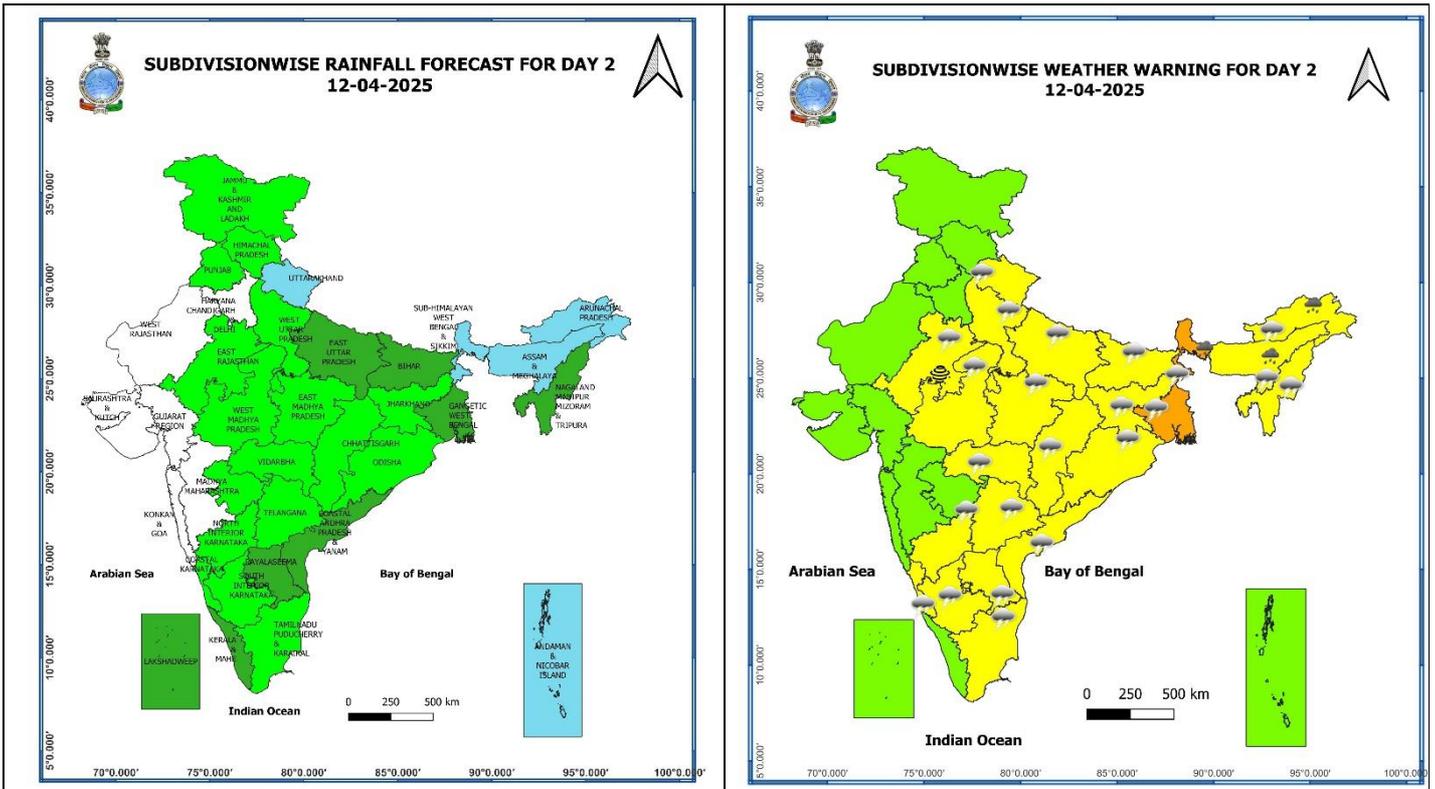
- ❖ The **Low-pressure area** over westcentral Bay of Bengal with the associated cyclonic circulation extending upto middle tropospheric levels persisted over the same region at 0530 hrs IST of today, the 11<sup>th</sup> April, 2025. It is likely to move north-northeastwards and weaken gradually over central Bay of Bengal during next 12 hours.
- ❖ The **Western Disturbance** as a trough in westerlies in middle and upper tropospheric level with its axis at 5.8 km above mean sea level roughly along Long. 70°E to the north of Lat. 24°N persists.
- ❖ The upper air **cyclonic circulation** over Punjab & neighbourhood persists and now seen at 1.5 km above mean sea level.
- ❖ The upper air **cyclonic circulation** over south Pakistan adjoining southwest Rajasthan now lies over northwest Rajasthan & neighbourhood at 1.5 km above mean sea level.
- ❖ The upper air **cyclonic circulation** over northwest Madhya Pradesh & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **trough** from west Rajasthan to Marathwada across west Madhya Pradesh now runs from west Rajasthan to north Vidarbha across East Rajasthan & northwest Madhya Pradesh at 0.9 km above mean sea level.
- ❖ The **trough** in middle and upper tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 84°E and to the north of Lat. 21°N.
- ❖ The upper air **cyclonic circulation** over northeast Bihar now lies over Sub-Himalayan West Bengal, Sikkim & neighbourhood at 3.1 km above mean sea level.
- ❖ The upper air **cyclonic circulation** over south Assam now lies over Central parts of Assam at 0.9 km above mean sea level.
- ❖ The upper air **cyclonic circulation** over north Bangladesh at 0.9 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over northeast Assam & neighbourhood at 1.5 km above mean sea level persists.

**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 18<sup>th</sup> April, 2025)**



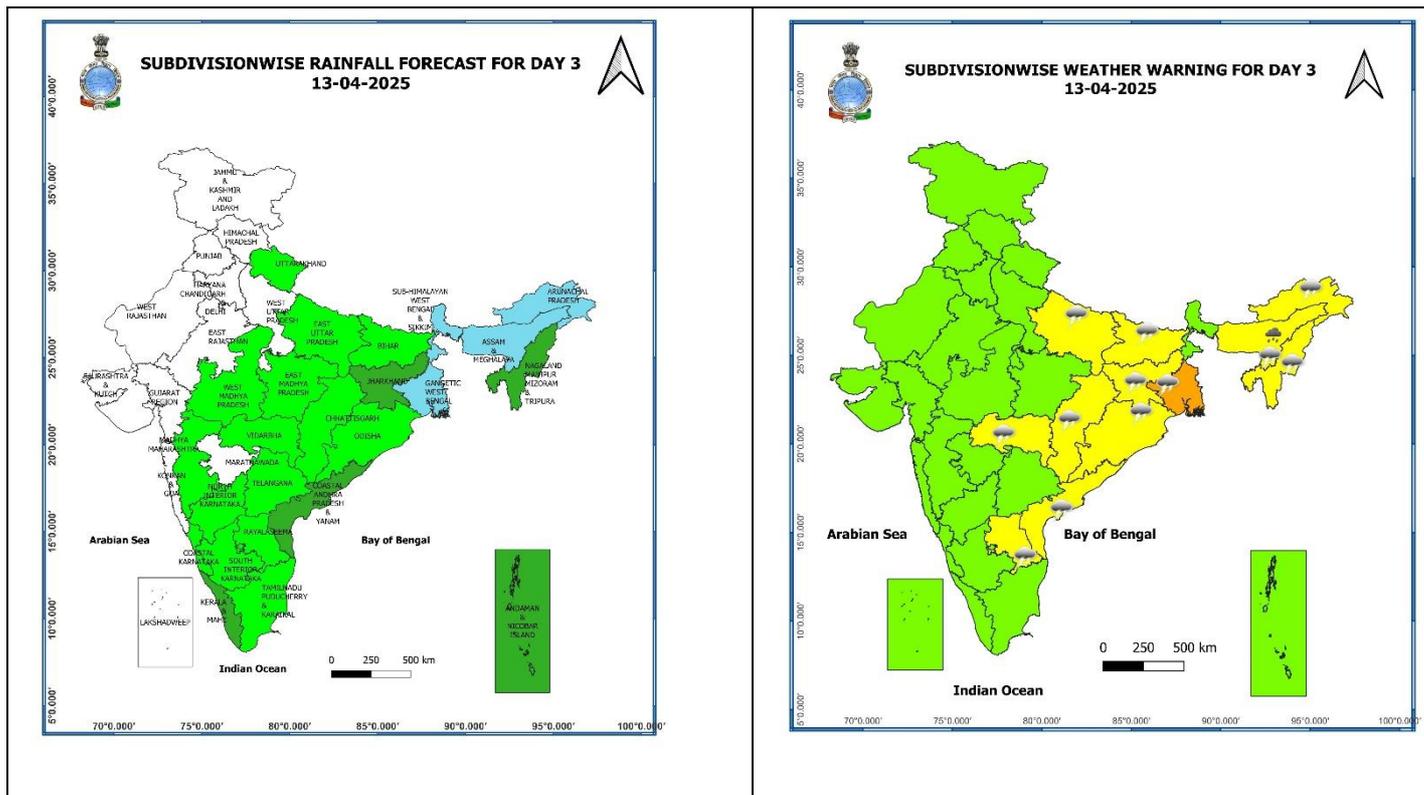
**11<sup>th</sup> April (Day 1):**

- ❖ **Heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Bihar, Arunachal Pradesh, Assam & Meghalaya and Kerala & Mahe.
- ❖ **Thundersquall accompanied with lightning, gusty Winds (speed reaching 50 - 60 kmph) & hailstorm** very likely at isolated places over Uttarakhand, Punjab; **Thundersquall accompanied with lightning, gusty Winds (speed reaching 50 - 60 kmph)** likely at isolated places over Sub-Himalayan West Bengal & Sikkim; **Thunderstorm accompanied with lightning, gusty Winds (speed reaching 40 - 50 kmph) & hailstorm** at isolated places over East Madhya Pradesh; **with lightning & gusty Winds (speed reaching 30 - 40 kmph) & hailstorm** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh; **with lightning & gusty Winds (speed reaching 40 - 50 kmph)** at isolated places over East Uttar Pradesh, West Madhya Pradesh, Vidarbha, Chhattisgarh, Bihar, Jharkhand, Odisha and Assam & Meghalaya; **with lightning & gusty Winds (speed reaching 30 - 40 kmph)** at isolated places over West Uttar Pradesh, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Telangana; **with lightning** at isolated places over Arunachal Pradesh, Tamil Nadu, Puducherry & Karaikal and Karnataka.
- ❖ **Duststorm** very likely at isolated places over Rajasthan.
- ❖ **Squally weather with Wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over gulf of Mannar & adjoining Comorin area, along and off Tamil Nadu coast, along and off Sri Lanka coast and adjoining southwest Bay of Bengal. **Squally Wind with Wind speed 45 kmph to 50 kmph gusting to 55 kmph** likely to prevail along and off Oman coasts.



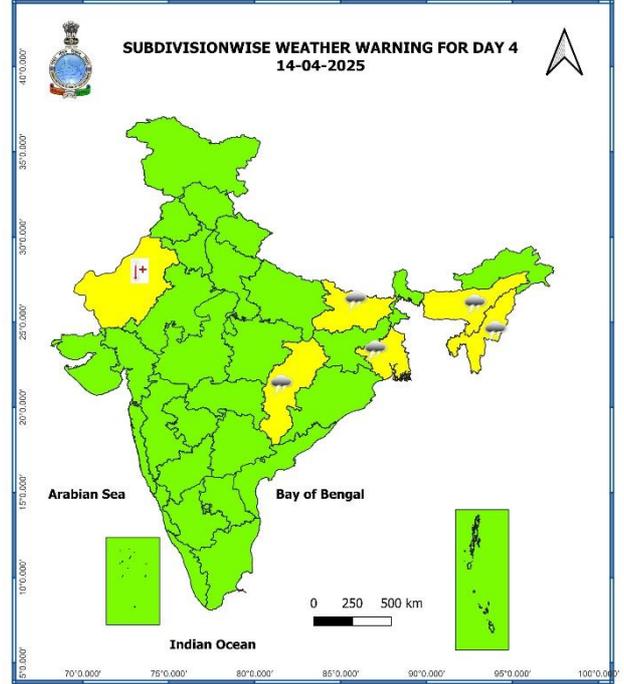
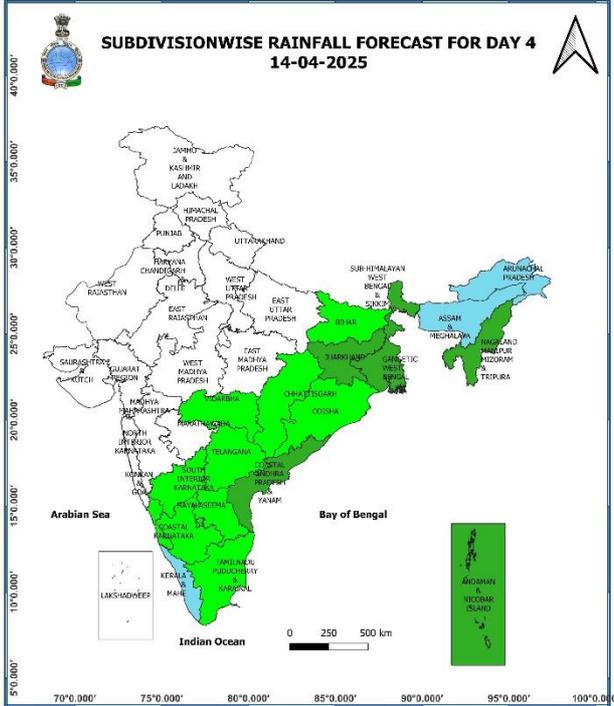
### 12<sup>th</sup> April (Day 2):

- ❖ **Heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, and Kerala & Mahe.
- ❖ **Thunderstorm accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over East Uttar Pradesh, East Madhya Pradesh, West Bengal & Sikkim, Jharkhand and Assam & Meghalaya; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over East Rajasthan, West Madhya Pradesh, Vidarbha, Chhattisgarh, Bihar, Odisha, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Rayalaseema and Telangana; **with lightning** at isolated places over East Rajasthan, Arunachal Pradesh, Tamil Nadu, Puducherry & Karaikal and Karnataka.
- ❖ **Duststorm** very likely at isolated places over east Rajasthan.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over Gulf of Mannar & adjoining Comorin area.



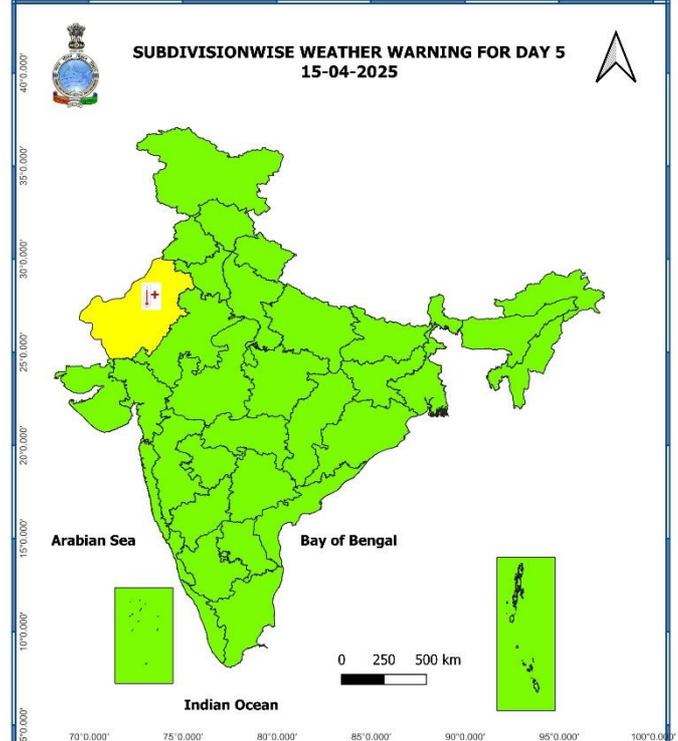
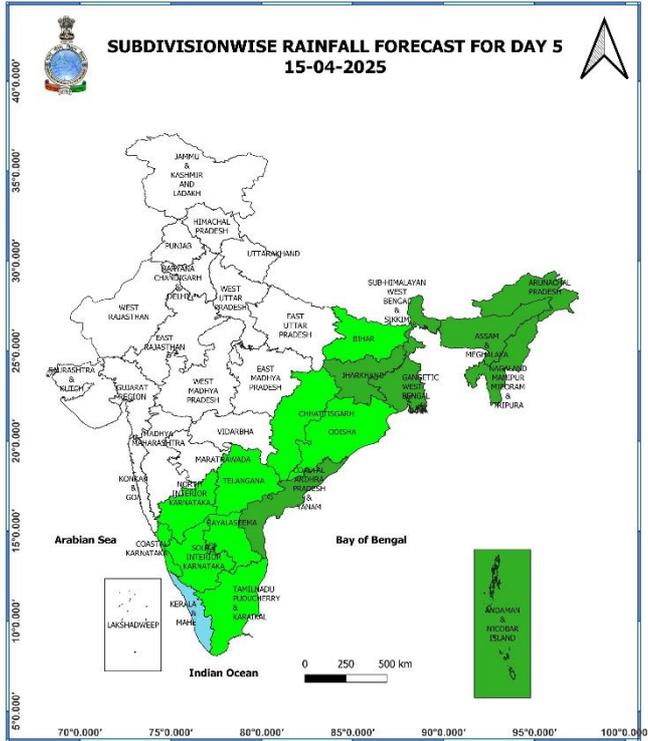
**13<sup>th</sup> April (Day 3):**

- ❖ **Heavy rainfall** very likely at isolated places over Assam & Meghalaya.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 50 - 60 kmph)** likely at isolated places over Gangetic West Bengal; **Thunderstorm accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Coastal Karnataka, Assam & Meghalaya; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over East Uttar Pradesh , Bihar, Jharkhand, Odisha, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Vidarbha and Arunachal Pradesh.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over Gulf of Mannar; adjoining Comorin area. Fishermen are advised not to venture into these areas.



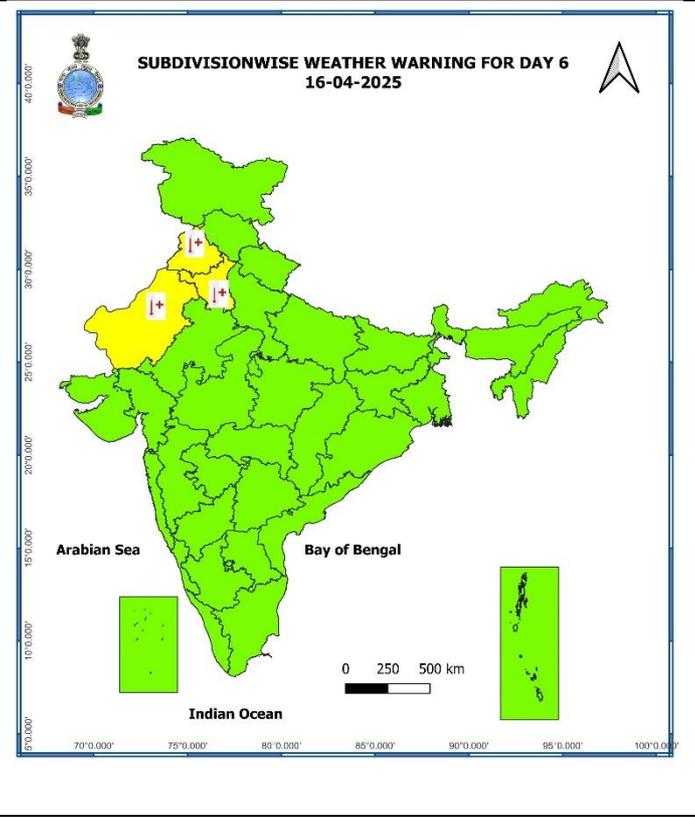
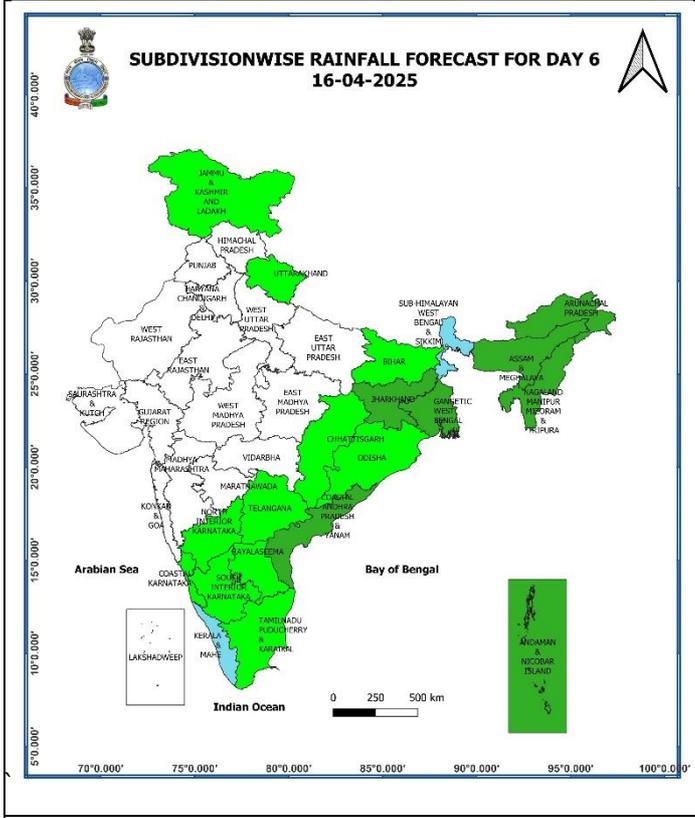
### 14<sup>th</sup> April (Day 4):

- ❖ **Heat wave conditions** very likely in isolated pockets over west Rajasthan.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Assam & Meghalaya, Gangetic West Bengal; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Bihar, Chhattisgarh and Nagaland, Manipur, Mizoram & Tripura.



**15<sup>th</sup> April (Day 5):**

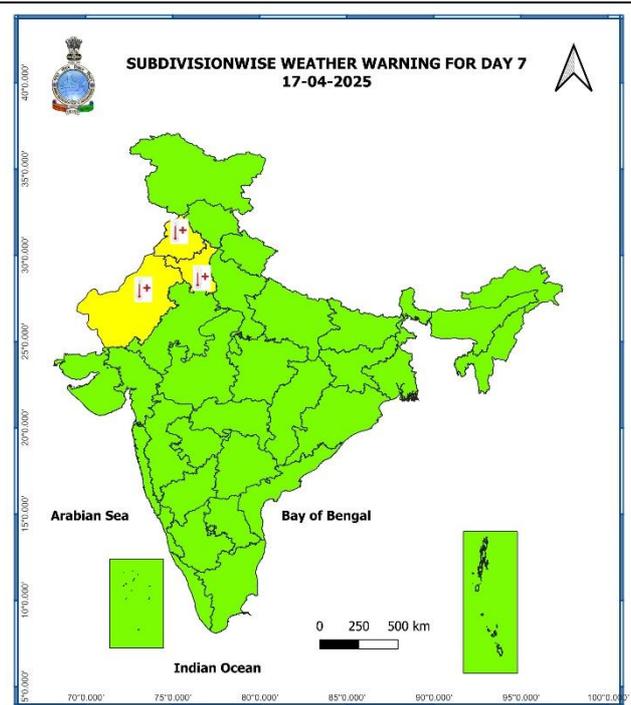
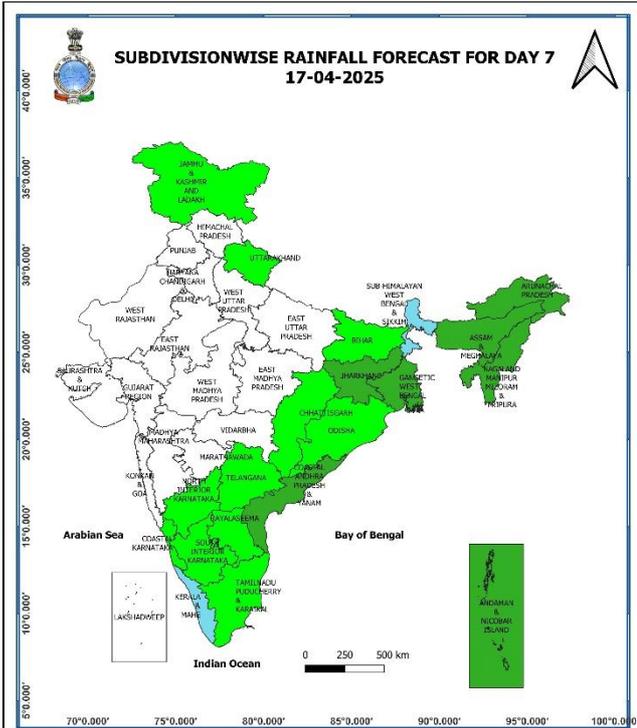
- ❖ Heat wave conditions likely in isolated pockets over West Rajasthan.



**16th April (Day 6):**

❖ Heat wave conditions likely in isolated pockets over Punjab, Haryana, Delhi and West Rajasthan.

\* 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)



### 17<sup>th</sup> April (Day 7):

- ❖ **Heat wave conditions** likely in isolated pockets over Punjab, Haryana, Delhi and West Rajasthan.

### Weather Outlook for subsequent 3 days (During 18<sup>th</sup> April- 20<sup>th</sup> April, 2025)

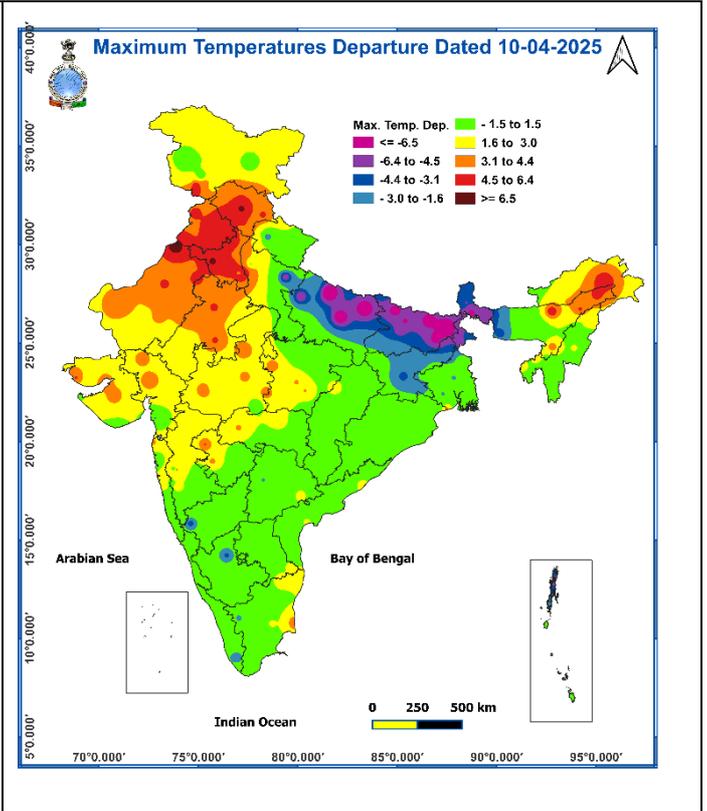
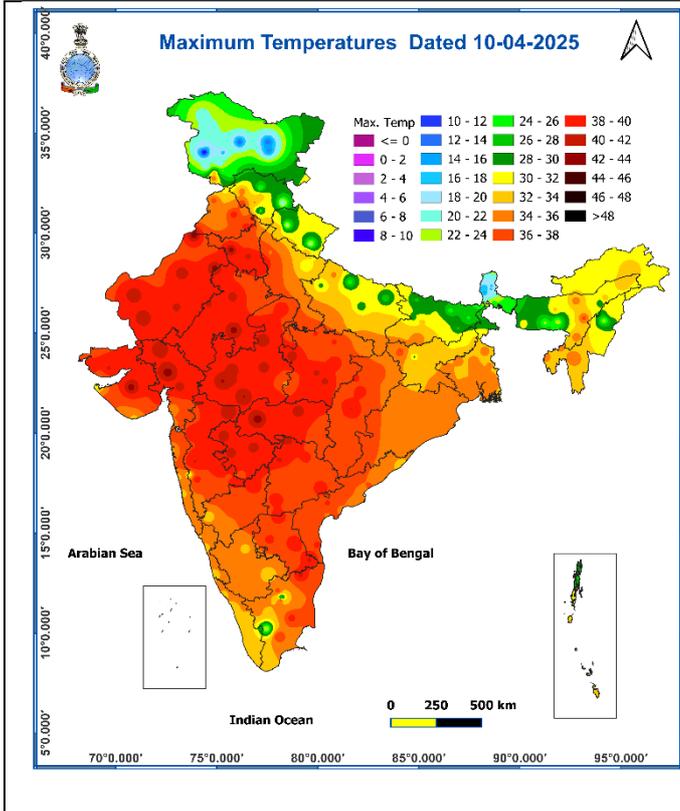
- ❖ **Isolated to scattered rainfall** likely over Western Himalayan region, East & Northeast India, south peninsular India.

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.

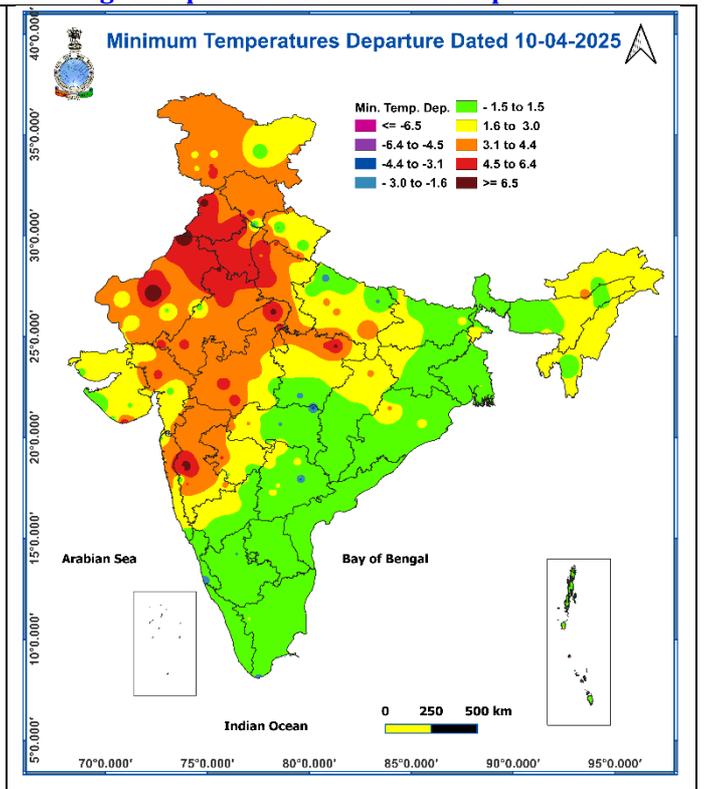
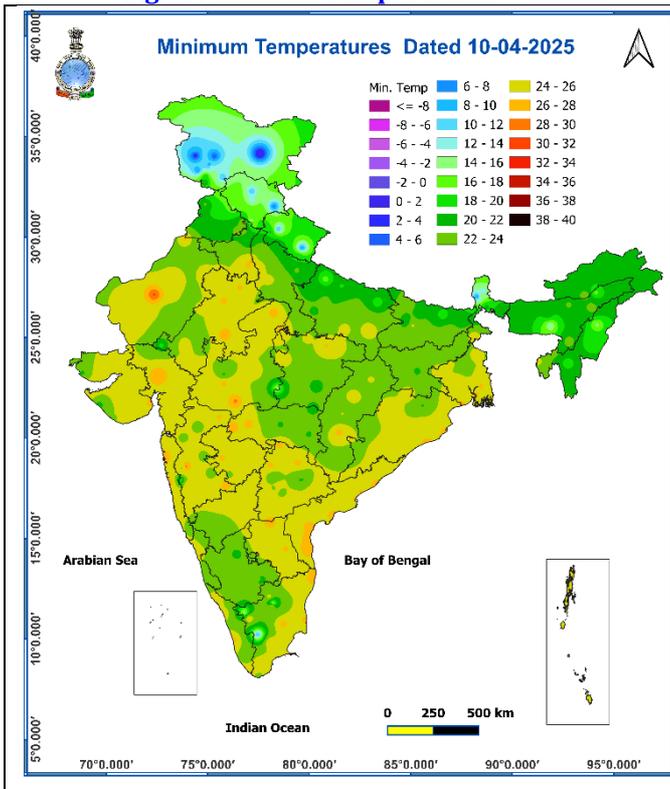
**Fig. 1: Maximum Temperatures**

**Fig. 2: Departure of Maximum Temperatures**



**Fig. 3: Minimum Temperatures**

**Fig. 4: Departure of Minimum Temperatures**



**Impact expected and action suggested due to isolated thunderstorm with lightning/gusty winds & Hailstorm over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand and Punjab on 11<sup>th</sup> and Uttarakhand on 11<sup>th</sup> & 12<sup>th</sup> April.**

**Impact expected:**

- Strong wind/hail may damage plantation, horticulture and standing crops.
- Hail may injure people and cattle at open places.
- Partial damage to vulnerable structures due to strong winds.
- Minor damage to kutcha houses/walls and huts.
- Loose objects may fly.

**Action suggested:**

- Stay indoors, close windows & doors and avoid travel if possible.
- Take safe shelters; do not take shelter under trees.
- Do not lie on concrete floors and do not lean against concrete walls.
- Unplug electrical/ electronic appliances.
- Immediately get out of water bodies.
- Keep away from all the objects that conduct electricity.

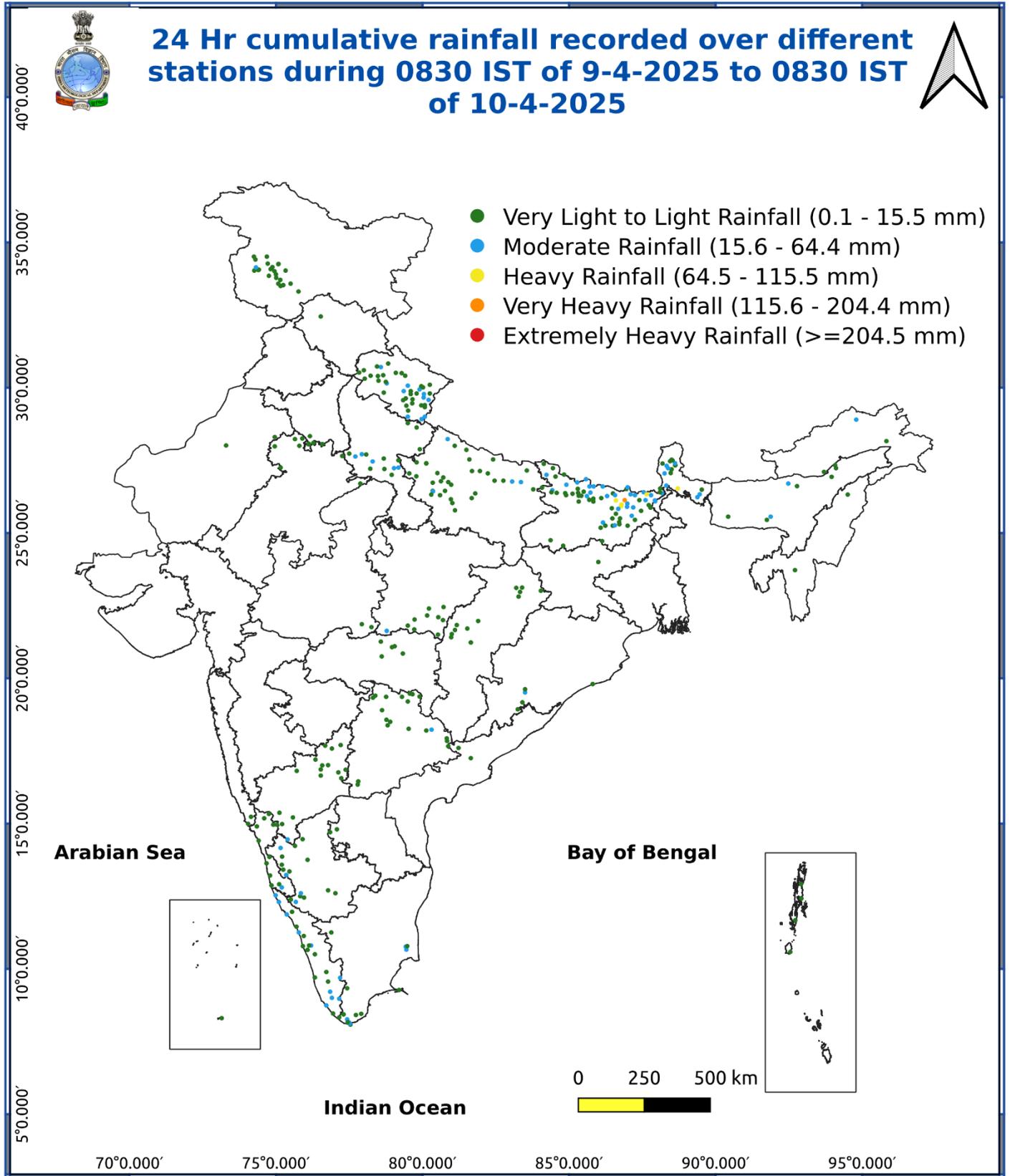
**Agromet advisories for likely impact of Hailstorm / Heavy Rainfall / Gusty Winds / Heatwave**

- In **Assam & Meghalaya, Jharkhand, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, East Uttar Pradesh and East Madhya Pradesh**, immediately shift the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields to avoid the adverse impact of likely hailstorm. Use hail net and hail caps to prevent mechanical damage in orchards due to hailstorms.
- In **Arunachal Pradesh and Assam & Meghalaya**, immediately harvest the matured crops, fruits and vegetables and shift the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields. Also make provision to drain out excess water from standing crop and vegetable fields.
- In **Bihar, Sub Himalayan West Bengal & Sikkim, Tamil Nadu and Kerala**, drain out excess water from standing crop and vegetable fields.
- In **Madhya Pradesh and Gujarat State**, apply light and frequent irrigation to standing crops in the evening to protect them from heat waves.
- Provide mechanical support to horticultural crops and staking to vegetables to avoid lodging.

**Livestock / Poultry / Fishery**

- Keep the animals inside the shed during heavy rainfall / hailstorm and provide them balanced feed.
- Store feed and fodder in a safe place to prevent spoilage.
- To reduce the effect of heat wave/high temperature, cover the roof of poultry sheds with grass.
- Also provide clean, hygienic and plenty of drinking water to animals.
- Construct an outlet with proper netting around the ponds to drain out excess water, thereby preventing fish from escaping in case of overflow.

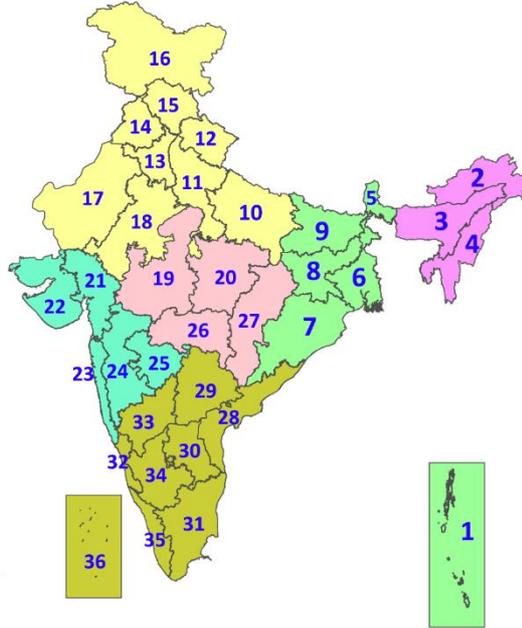
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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  $4.5^\circ\text{C}$  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)

**Hot and Humid:** When maximum temperatures remains  $3^\circ\text{C}$  above normal along with the above normal relative humidity.