

Saturday, April 12, 2025  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems, Forecast and Warnings:

- ❖ The **Western Disturbance** as a **trough** in westerlies in middle tropospheric levels runs roughly along Long. 74°E to the north of Lat. 26°N. An **upper air cyclonic circulation** lies over northwest Rajasthan, 2<sup>nd</sup> over northwest Madhya Pradesh and a trough runs from west Rajasthan to Coastal Andhra Pradesh in lower tropospheric levels.
- ❖ The **upper air cyclonic circulations** also lie over (1) northeast Assam & (2) Sub-Himalayan West Bengal and a trough runs from northeast Madhya Pradesh to Bangladesh across Jharkhand in lower 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 Uttarakhand on 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 West, Central and adjoining East India during 12<sup>th</sup>-14<sup>th</sup> April.
  - ✓ **Heavy rainfall** likely over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh on 12<sup>th</sup>; Assam & Meghalaya during 12<sup>th</sup>-15<sup>th</sup> April.
  - ✓ **Isolated Hailstorm** likely over Uttarakhand, East Madhya Pradesh and Uttar Pradesh on 12<sup>th</sup> April.
  - ✓ **Duststorm** very likely at isolated places over Rajasthan on 12<sup>th</sup> April.
  - ✓ **Thundersquall (wind speed reaching 50-60 kmph)** very likely at isolated places over Punjab, Haryana Chandigarh & Delhi, Rajasthan on 12<sup>th</sup>;
- ❖ **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 24 hour. **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.
  - ✓ **Heavy rainfall** likely over South Interior Karnataka and Kerala & Mahe on 12<sup>th</sup> April.

#### Temperature Forecast:

- ❖ Fall in maximum temperatures by 2°C likely over Northwest India during next 2 days and gradual rise by 3-5°C thereafter during subsequent 4 days.
- ❖ Fall in maximum temperatures by 2°C likely over Central India during next 2 days and gradual rise by 2-4°C thereafter during subsequent 4 days.
- ❖ Fall in maximum temperatures by 2-3°C likely over west India during next 2 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:

- ❖ **Heat wave conditions** very likely at isolated/some places over West Rajasthan on 14<sup>th</sup> & 15<sup>th</sup> with severe heat wave conditions at isolated pockets on 16<sup>th</sup> & 17<sup>th</sup> April
- ❖ **Heat wave conditions** are very likely at isolated places over Gujarat state during 15<sup>th</sup>-17<sup>th</sup>; Punjab, Haryana and East Rajasthan on 16<sup>th</sup> & 17<sup>th</sup> April.
- ❖ **Hot & humid** weather is likely to prevail over Tamilnadu Puducherry & Karaikal on 12<sup>th</sup> April.

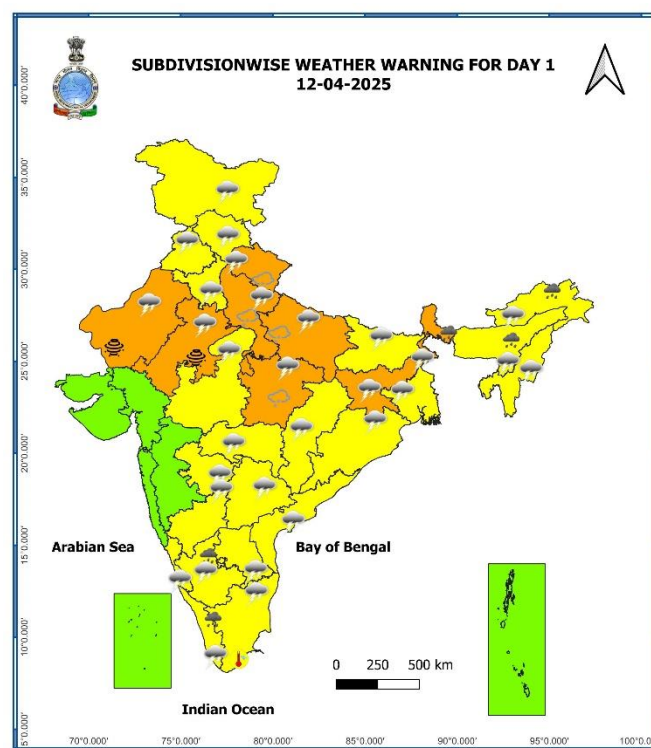
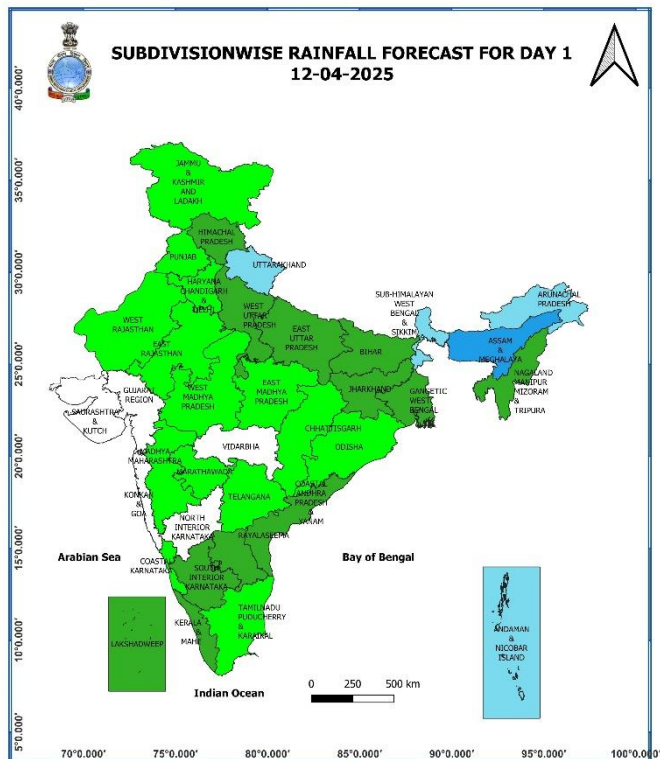
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **Light/moderate Rainfall with thunderstorm & lightning observed** at many places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Andaman & Nicobar Islands; at a few places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim; at isolated places over Punjab, Haryana Chandigarh & Delhi, Nagaland, Manipur, Mizoram & Tripura, West Madhya Pradesh, Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Sub-Himalayan West Bengal & Sikkim:** Darjeeling -3; **Tamilnadu:** Slem-4, Yercaud & Ariyalur -3 each; Kodaikanal -2; **Andaman & Nicobar Islands:** Mayabandar -1; **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Batote -2; Banihal & Bhaderwah -1 each; **Himachal Pradesh:** Dharmsala-4; Kangra & Shimla -1 each.
- ❖ **Yesterday, Thunderstorm accompanied with Squally/Gusty winds** prevailed at isolated locations over Haryana-Chandigarh-Delhi.
- ❖ **Yesterday, Hailstorm** occurred at isolated places over Assam & Meghalaya, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Uttarakhand, Himachal Pradesh, Punjab, Haryana, West Uttar Pradesh, Madhya Pradesh, Nagaland, Manipur, Mizoram & Tripura, Marathawada, Jharkhand.
- ❖ **Minimum Temperature Departures (as on 11-04-2025):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Punjab, Rajasthan, Haryana-Chandigarh, Saurashtra & Kutch, Madhya Maharashtra, East Madhya Pradesh; **above normal (1.6°C to 3.0°C)** at a few places over Konkan & Goa; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, East Madhya Pradesh, Gujarat Region, Marathwada, Coastal Andhra Pradesh & Yanam, Chhattisgarh, Tamil Nadu, Puducherry & Karaikal, Nagaland, Manipur, Mizoram & Tripura. These were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Bihar, Jharkhand, Gangetic West Bengal, Rayalaseema **below normal (-3.0°C to -1.6°C)** at a few places over East Uttar Pradesh; at isolated places over Telangana and normal over rest parts of the country (**Fig. 4**). Yesterday, the **lowest minimum temperature** of 15.1°C was reported at Nahan (**Haryana**) over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 11-04-2025):** Maximum Temperatures were **above normal (1.6°C to 3.0°C)** at isolated places over Rajasthan, Madhya Pradesh, Vidarbha, Konkan & Goa, Telangana and Tamil Nadu, Puducherry & Karaikal. These were **markedly below normal (-5.1°C or less)** at few places over Bihar; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Punjab, East Uttar Pradesh, Gangetic West Bengal; **appreciably below normal (-3.1°C to -5.0°C)** at few places over Jharkhand; **below normal (-3.0°C to -1.6°C)** at a few places over West Uttar Pradesh, Uttarakhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat Region, Rayalaseema, Haryana-Chandigarh-Delhi and North Interior Karnataka; at isolated places over Odisha, Jharkhand, Kerala & Mahe and normal over rest parts of the country (**Fig. 2**). Yesterday, the highest **maximum temperature** of 42.8°C was reported at Akola (**Vidarbha**) over the country.

## Meteorological Analysis (Based on 0530 hours IST)

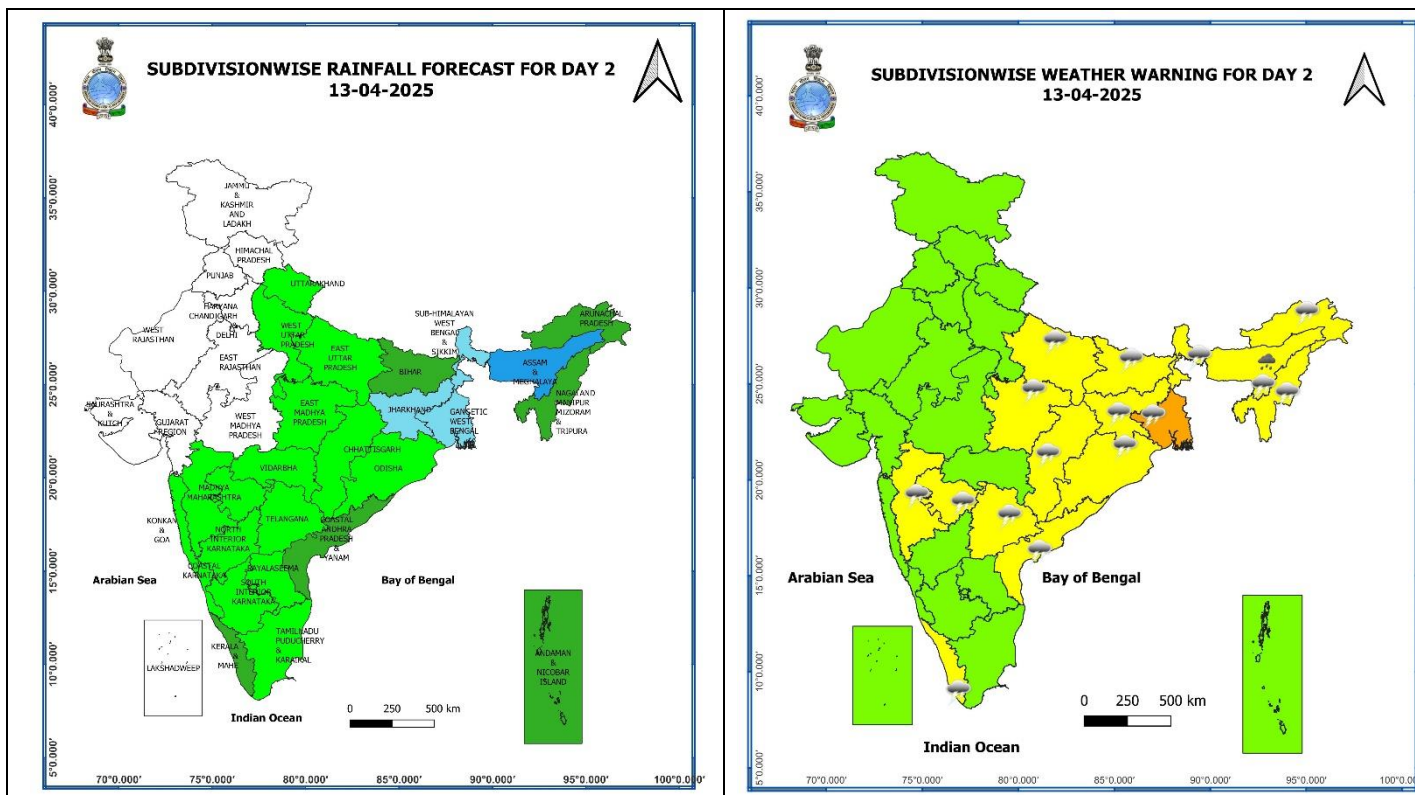
- ❖ The **cyclonic circulation** over westcentral Bay of Bengal extending upto 1.5 km above mean sea level persists.
- ❖ The **Western Disturbance** as a trough in westerlies in middle and upper tropospheric level with its axis at 5.8 km above mean sea level now runs roughly along Long. 74°E to the north of Lat. 26°N.
- ❖ The upper air **cyclonic circulation** over northwest Rajasthan & neighbourhood at 1.5 km above mean sea level persists.
- ❖ 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 Coastal Andhra Pradesh across East Rajasthan, cyclonic circulation over northwest Madhya Pradesh and Vidarbha at 0.9 km above mean sea level persists.
- ❖ The **trough** from northeast Madhya Pradesh to Bangladesh across Jharkhand extending upto 1.5 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over Sub-Himalayan West Bengal, Sikkim & neighbourhood at 3.1 km above mean sea level persists.
- ❖ The **trough** from above **cyclonic circulation** over Sub-Himalayan West Bengal, Sikkim & neighbourhood to Westcentral Bay of Bengal at 3.1 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over northeast Assam & neighbourhood extending upto 1.5 km above mean sea level persists.
- ❖ The **trough** in middle and upper tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 86°E and to the north of Lat. 23°N has moved away northeastwards.

**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 19<sup>th</sup> April, 2025)**



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

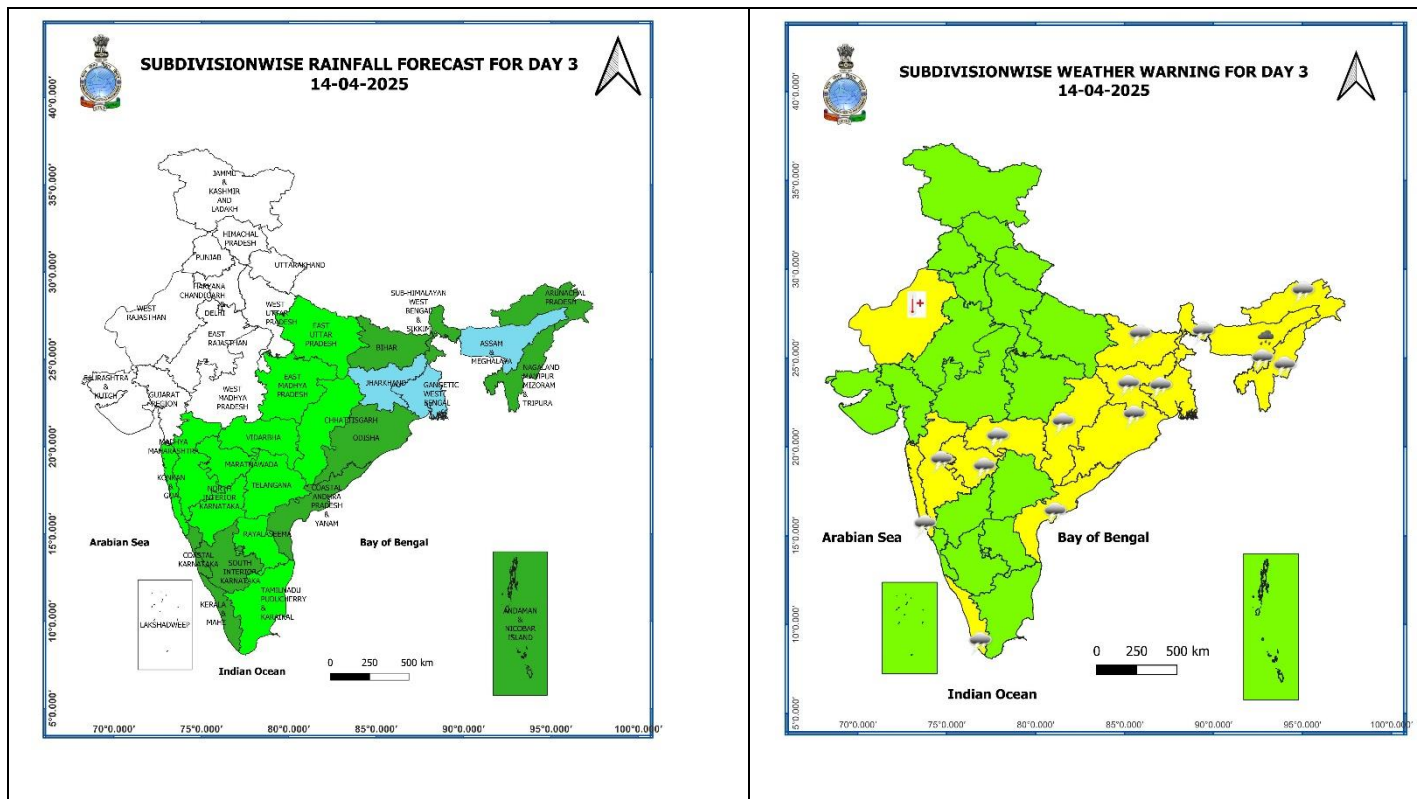
- ❖ **Heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya, South Interior Karnataka and Kerala & Mahe.
- ❖ **Thundersquall accompanied with lightning, gusty Winds (speed reaching 50 - 60 kmph) & hailstorm** very likely at isolated places over East Madhya Pradesh; **Thundersquall accompanied with lightning, gusty Winds (speed reaching 50 - 60 kmph)** at isolated places over East Rajasthan, Jharkhand; **Thunderstorm accompanied with lightning, gusty Winds (speed reaching 40 - 50 kmph) & hailstorm** at isolated places over Uttar Pradesh; **with lightning & gusty Winds (speed reaching 30 - 40 kmph) & hailstorm** at isolated places over Uttarakhand; **with lightning & gusty Winds (speed reaching 40 - 50 kmph)** at isolated places over West Madhya Pradesh, Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Coastal Andhra Pradesh & Yanam, Rayalaseema, Interior Karnataka, **with lightning & gusty Winds (speed reaching 30 - 40 kmph)** at isolated places over Punjab, Haryana, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Vidarbha, Chhattisgarh, Odisha, Marathwada, Kerala & Mahe, Coastal Karnataka, Telangana; **with lightning** at isolated places over Himachal Pradesh, Tamil Nadu, Puducherry & Karaikal and Arunachal Pradesh.
- ❖ **Duststorm** very likely at isolated places over Rajasthan.
- ❖ **Hot & humid weather** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal.
- ❖ **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 & off Tamil Nadu coast. Fishermen are advised not to venture into these areas.



**13<sup>th</sup> April (Day 2):**

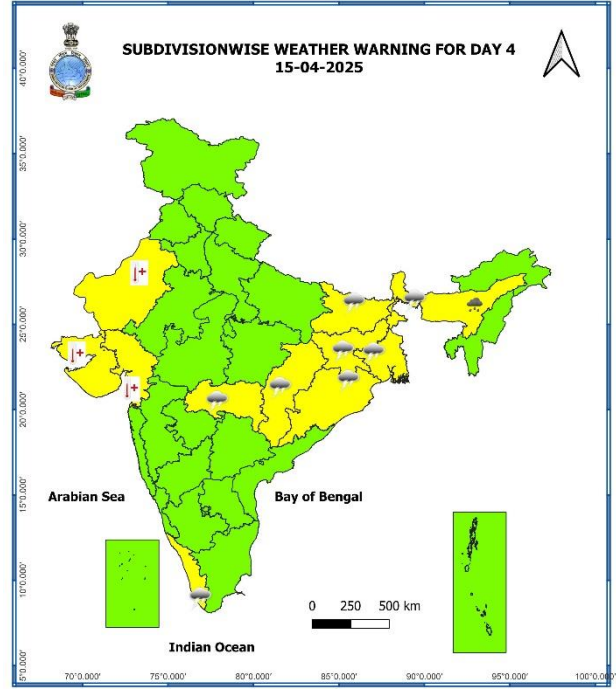
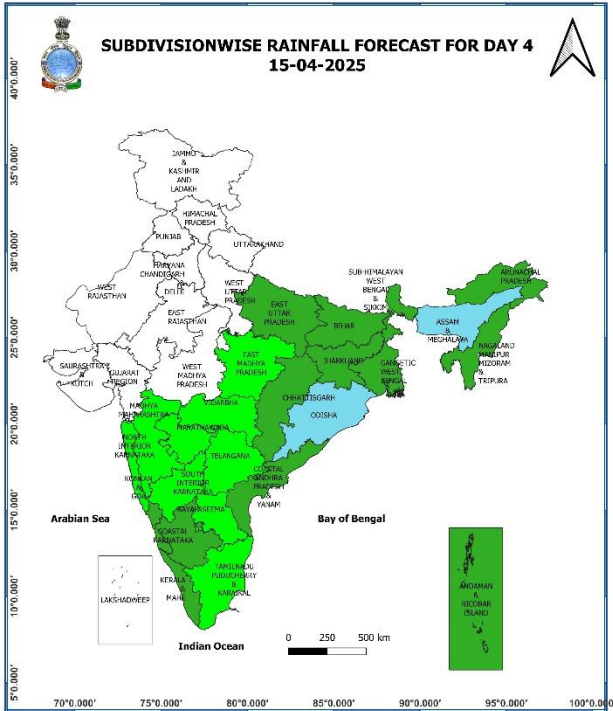
- ❖ **Heavy rainfall** very likely at isolated places over Assam & Meghalaya.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 50 - 60 kmph)** very likely at isolated places over Gangetic West Bengal; **Thunderstorm accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over East Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh & Yanam, Telangana; **with lightning** at isolated places over East Uttar Pradesh, Kerala & Mahe 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.

\* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".  
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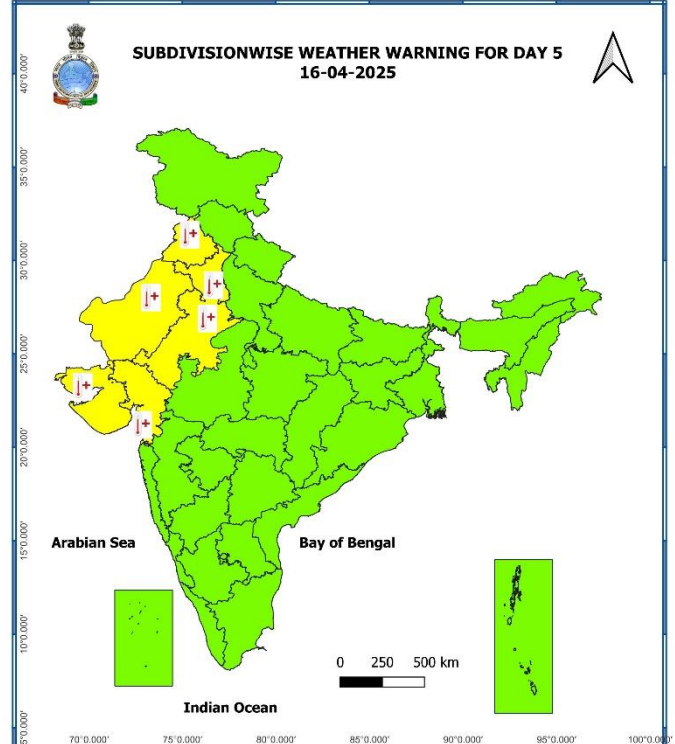
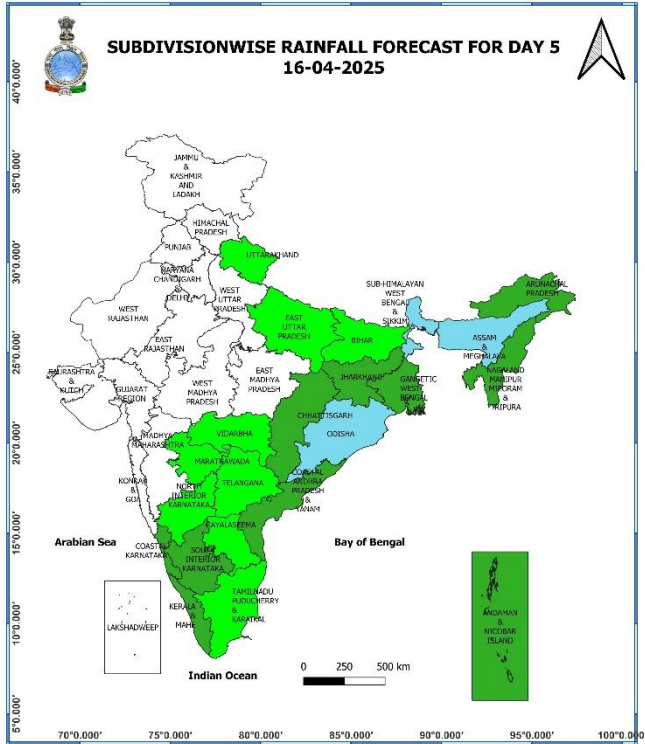
**14<sup>th</sup> April (Day 3):**

- ❖ **Heavy rainfall** likely at isolated places over Assam & Meghalaya.
- ❖ **Heat wave conditions** very likely in isolated pockets over West Rajasthan.
- ❖ **Thunderstorm accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** likely at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gangetic West Bengal, Bihar, Jharkhand, Odisha; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh & Yanam, Vidarbha, Chhattisgarh and Sub-Himalayan West Bengal & Sikkim and **with lightning** at isolated places over Kerala & Mahe and Arunachal Pradesh.



**15<sup>th</sup> April (Day 4):**

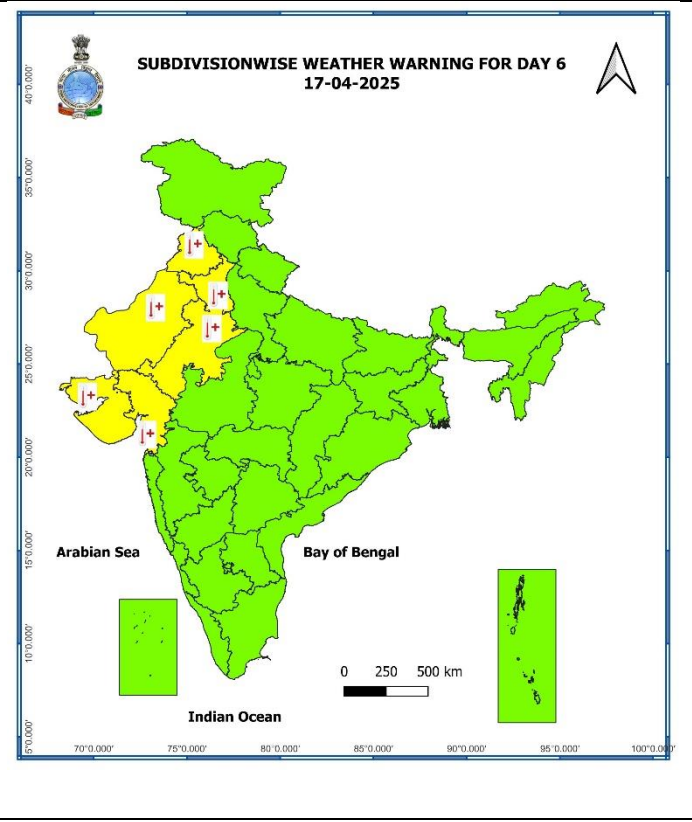
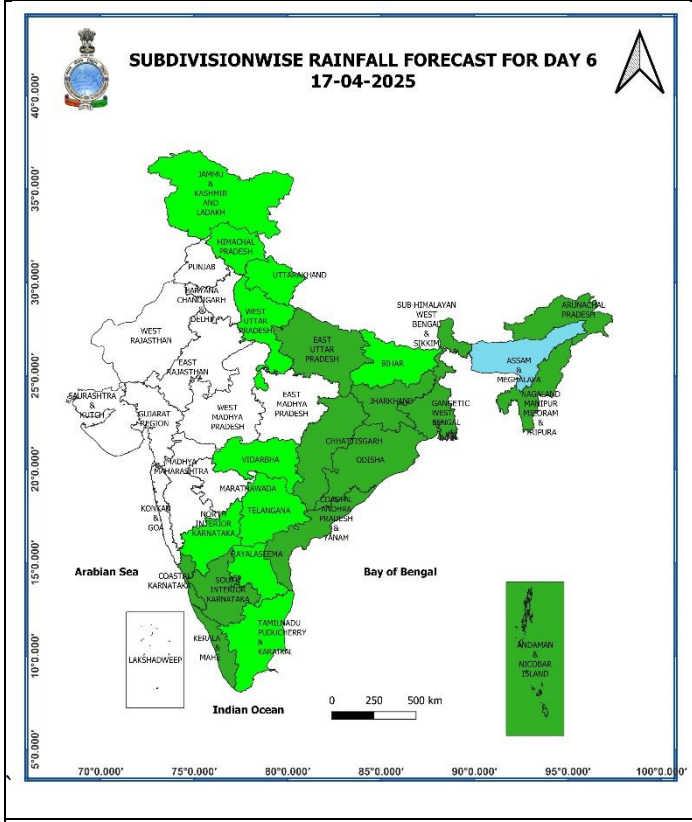
- ❖ **Heavy rainfall** very likely at isolated places over Assam & Meghalaya.
- ❖ **Thunderstorm accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** likely at isolated places over Chhattisgarh, Odisha; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Vidarbha, Bihar, Jharkhand, West Bengal & Sikkim and **with lightning** at isolated places over Kerala & Mahe.
- ❖ **Heat wave** likely in isolated pockets over West Rajasthan and Gujarat state.



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

- ❖ **Heat wave to severe heat wave conditions** likely in isolated pockets over West Rajasthan. **Heat wave conditions** in isolated pockets over Punjab, Haryana, Delhi, Gujarat state and East Rajasthan.

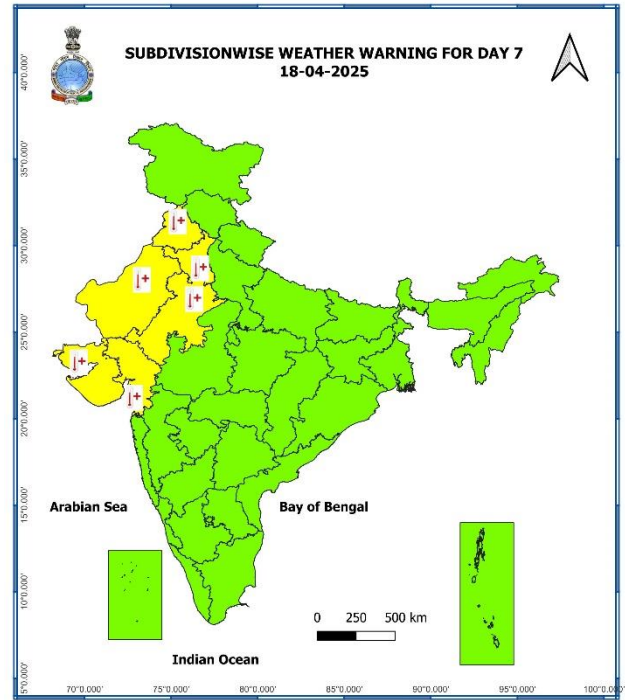
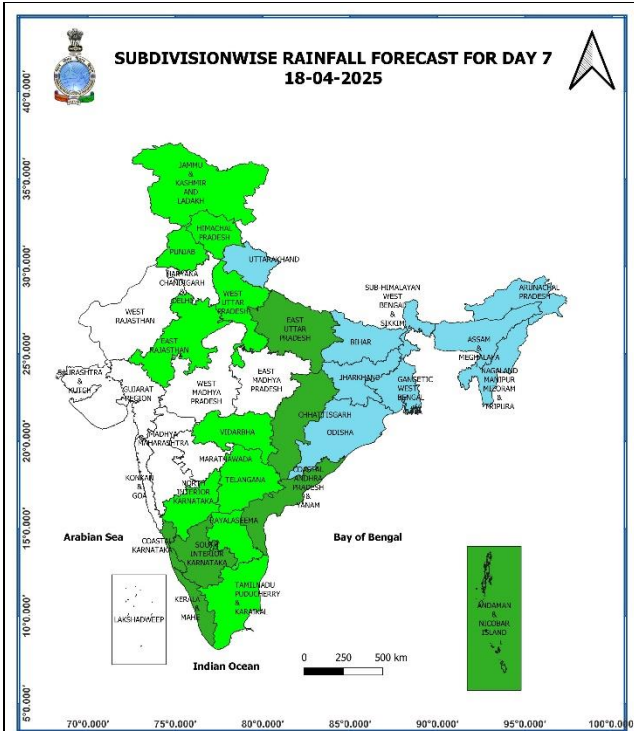




**17<sup>th</sup> April (Day 6):**

- ❖ **Heat wave to severe heat wave conditions** likely in isolated pockets over West Rajasthan. **Heat wave conditions** in isolated pockets over Punjab, Haryana, Delhi, Gujarat state and East Rajasthan.

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

- ❖ Heat wave to severe heat wave conditions likely in isolated pockets over West Rajasthan. Heat wave conditions in isolated pockets over Punjab, Haryana, Delhi, Gujarat state and East Rajasthan.

### Weather Outlook for subsequent 3 days (During 19<sup>th</sup> April- 21<sup>st</sup> April, 2025)

Fairly widespread to widespread rainfall activity likely over east & northeast India, Kerala. Isolated to scattered rainfall likely over Western Himalayan region, north Uttar Pradesh remaining parts of south peninsular India and Andaman & Nicobar Islands.

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

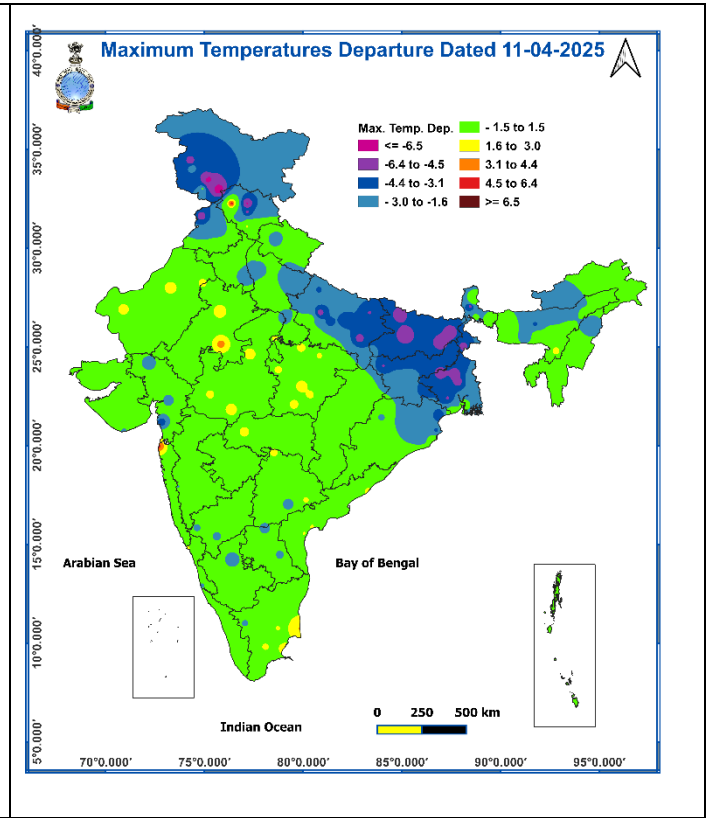
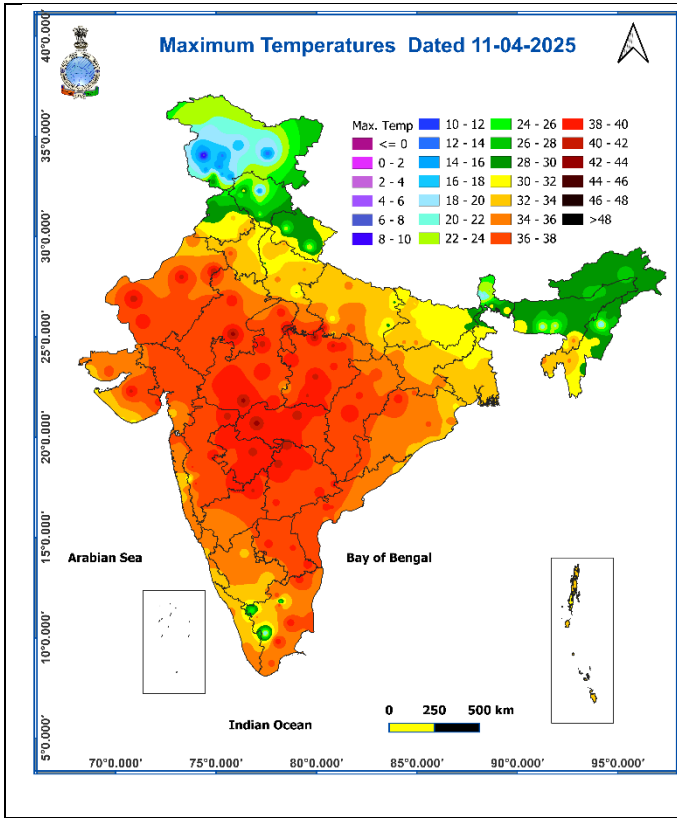
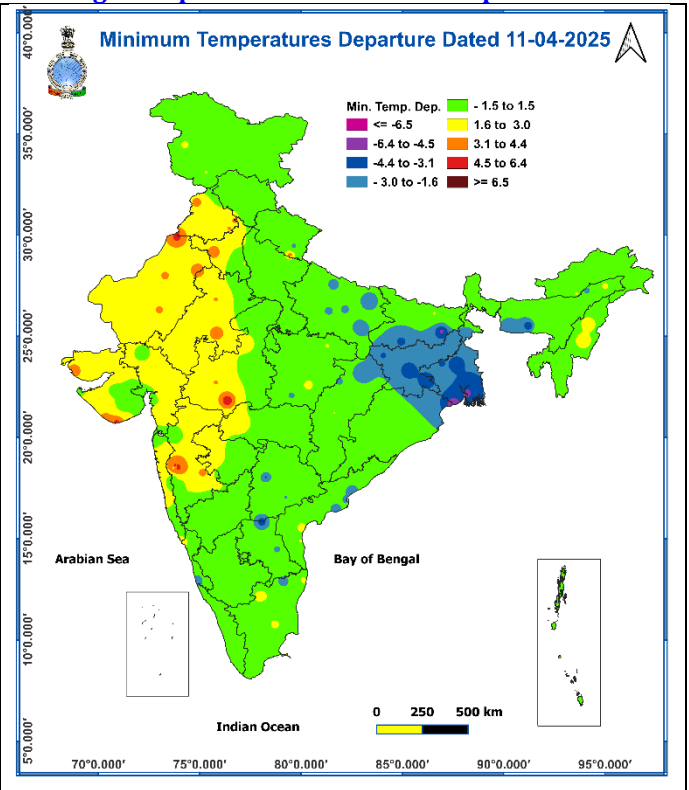
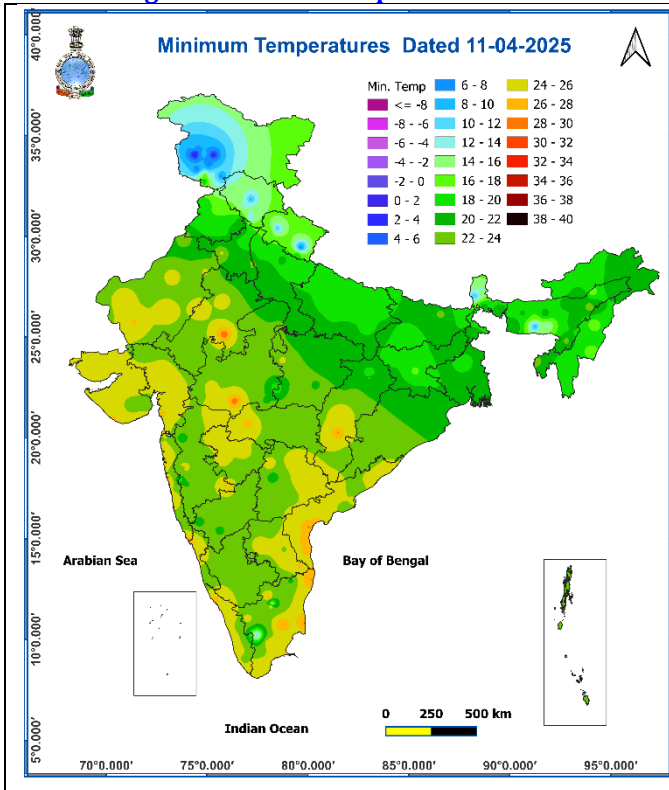


Fig. 3: Minimum Temperatures

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, Punjab, Haryana, Chhattisgarh, Bihar, Coastal Andhra Pradesh & Yanam, Odisha; Sub-Himalayan West Bengal & Sikkim, Uttarakhand, East Madhya Pradesh, Rajasthan on 12<sup>th</sup>; Jharkhand, Uttar Pradesh on 12<sup>th</sup>; Gangetic West Bengal on 13<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.

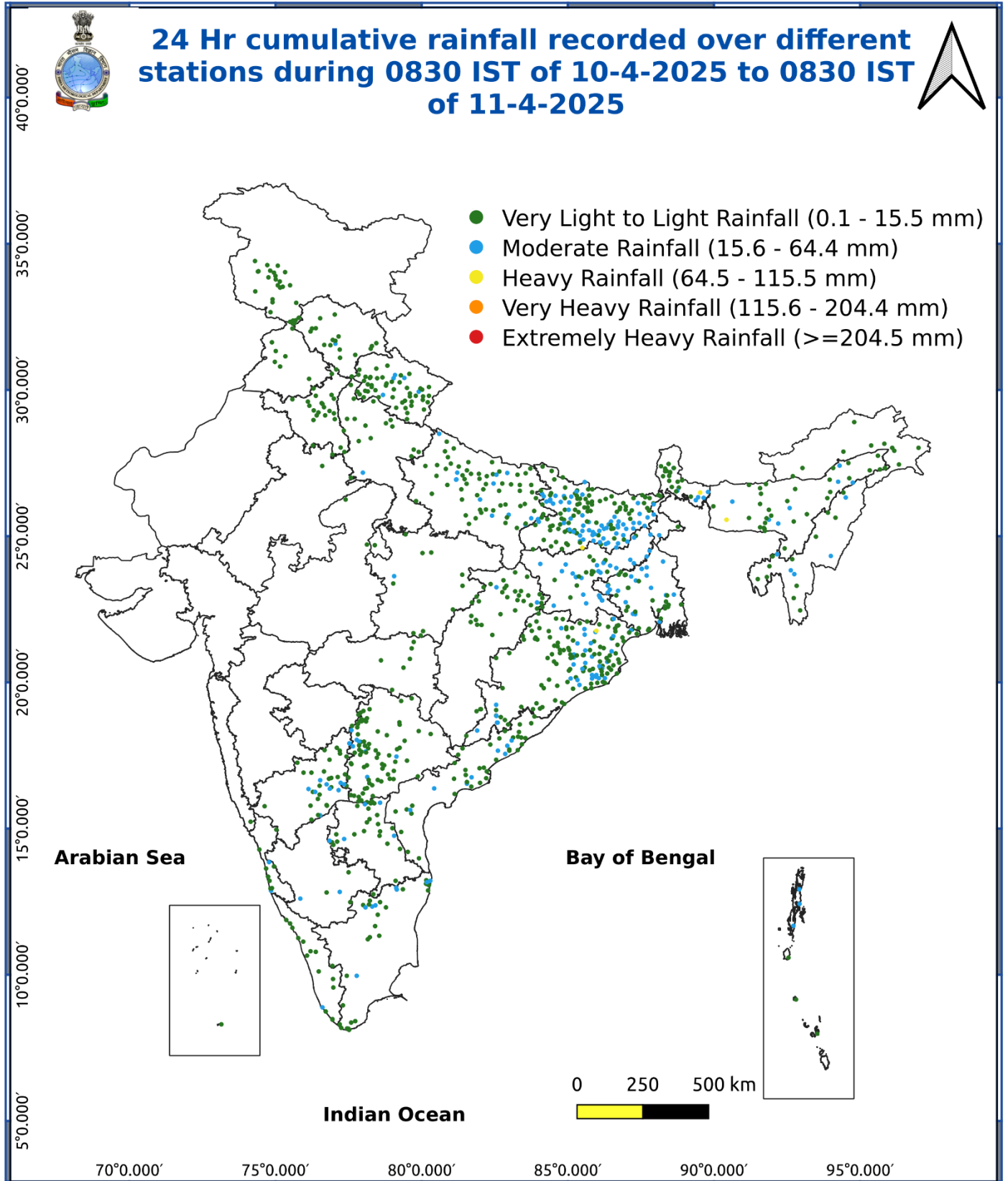
#### **Agromet advisories for likely impact of Hailstorm / Heavy Rainfall / Gusty Winds / Heatwave**

- In **Himachal Pradesh, Uttarakhand, East Madhya Pradesh** and **Chhattisgarh**, 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, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, Bihar** and **Uttarakhand** 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 drain out excess water from standing crop and vegetable fields.
- 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.
- Construct an outlet with proper netting around the ponds to drain out excess water, thereby preventing fish from escaping in case of overflow.

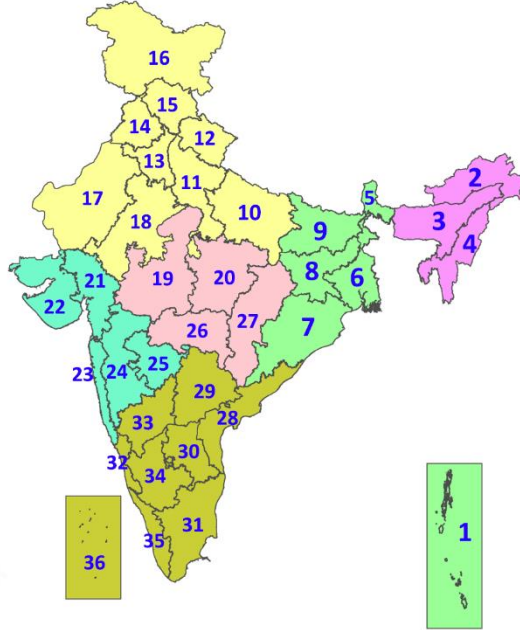
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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.