

Sunday, April 15, 2025  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems, Forecast and Warnings:

- ❖ An **upper air cyclonic circulation** lies over northeast Madhya Pradesh, 02<sup>nd</sup> over Bangladesh and 03<sup>rd</sup> over Gulf of Mannar in lower tropospheric levels.
- ❖ A **trough** runs from West Rajasthan to Gulf of Mannar; 02<sup>nd</sup> trough from West Madhya Pradesh to Bangladesh in lower tropospheric levels.
- ❖ Under the influence of these systems:
  - ✓ **Scattered to fairly widespread** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed reaching 40-50 kmph)** likely over Northeast & East India during next 4 days.
  - ✓ Isolated to scattered rainfall accompanied with **thunderstorm, lightning & gusty winds (speed reaching 40-50 kmph)** likely over the plains of Central India and Maharashtra on 15<sup>th</sup> April.
  - ✓ **Heavy rainfall** likely over Odisha on 15<sup>th</sup> & 16<sup>th</sup>; Assam & Meghalaya during 16<sup>th</sup>-18<sup>th</sup>; Nagaland, Manipur, Mizoram & Tripura on 17<sup>th</sup> April.
  - ✓ **Isolated Hailstorm** likely over Jharkhand on 15<sup>th</sup> April.
  - ✓ **Thundersquall (wind speed reaching 50-60 kmph)** very likely at isolated places over Gangetic West Bengal, Bihar, Jharkhand on 15<sup>th</sup> April.
  - ✓ **Scattered to fairly widespread** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 30-40 kmph)** likely over Tamilnadu Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana and Interior Karnataka during next 4 days. **Isolated to Scattered** light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (speed 40-50 kmph)** likely over Kerala & Mahe during next 2 days.
- ❖ An intense Western Disturbance likely to affect Western Himalayan Region from 16<sup>th</sup> to 20<sup>th</sup> with peak intensity with isolated heavy falls on 18<sup>th</sup> & 19<sup>th</sup> April. **Isolated Hailstorm** likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 18<sup>th</sup>; Himachal Pradesh, Uttarakhand on 18<sup>th</sup> & 19<sup>th</sup>. Rainfall along with thunderstorm & lightning and gusty winds is likely over adjoining plains of northwest India during 18<sup>th</sup> to 20<sup>th</sup> April, 2025.

#### Temperature Forecast:

- ❖ Gradual Rise in maximum temperatures by 3-5°C likely over Northwest India during next 5-6 days till 18<sup>th</sup> April and gradual fall by 2-4°C during subsequent 2 days.
- ❖ No significant change in maximum temperatures likely over Central India during next 24 hours and gradual rise by 2-4°C during 15<sup>th</sup>-18<sup>th</sup> and gradual fall by 2-4°C during subsequent 2 days.
- ❖ Rise in maximum temperatures by 2-3°C likely over interior Maharashtra during next 5 days and no significant change thereafter during subsequent 2 days.
- ❖ Gradual Rise in maximum temperatures by 2-3°C likely over Gujarat State during next 4 days till 17<sup>th</sup> April and gradual fall by 2-3°C during subsequent 3 days.
- ❖ No significant change in maximum temperatures likely over rest parts of the country.

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

- ❖ **Heat wave conditions to severe heat wave condition** very likely at isolated/some places over West Rajasthan during 16<sup>th</sup>-18<sup>th</sup> April.
- ❖ **Heat wave conditions** are very likely at isolated places over West Rajasthan on 15<sup>th</sup> & 19<sup>th</sup>; East Rajasthan during 15<sup>th</sup>-19<sup>th</sup>; Gujarat State during 15<sup>th</sup>-17<sup>th</sup>; Punjab, Haryana, West Madhya Pradesh during 16<sup>th</sup>-18<sup>th</sup>;
- ❖ **Hot & humid** weather is likely to prevail over Kerala & Mahe on 15<sup>th</sup>; Gujarat State during 15<sup>th</sup>-17<sup>th</sup> April.
- ❖ **Warm Night conditions** are likely at isolated places over West Rajasthan during 16<sup>th</sup>-18<sup>th</sup>; East Rajasthan on 17<sup>th</sup> & 18<sup>th</sup> April.

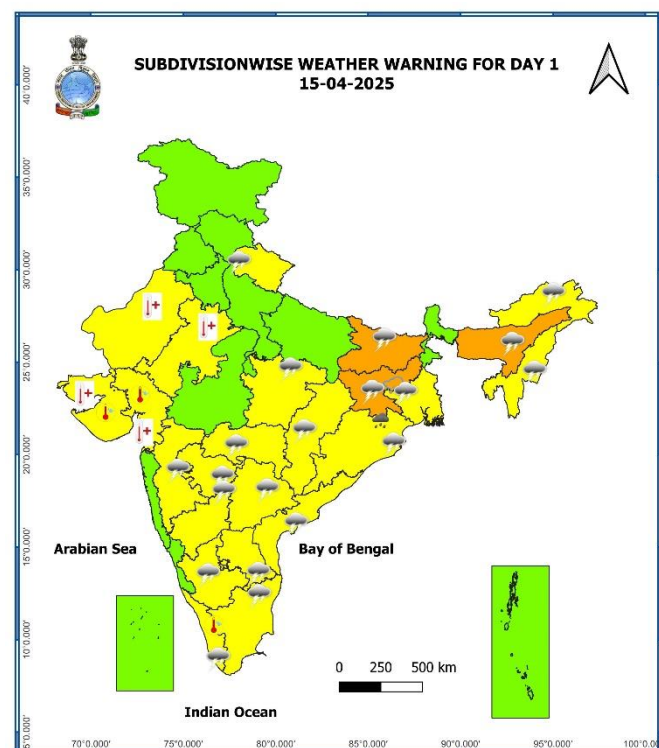
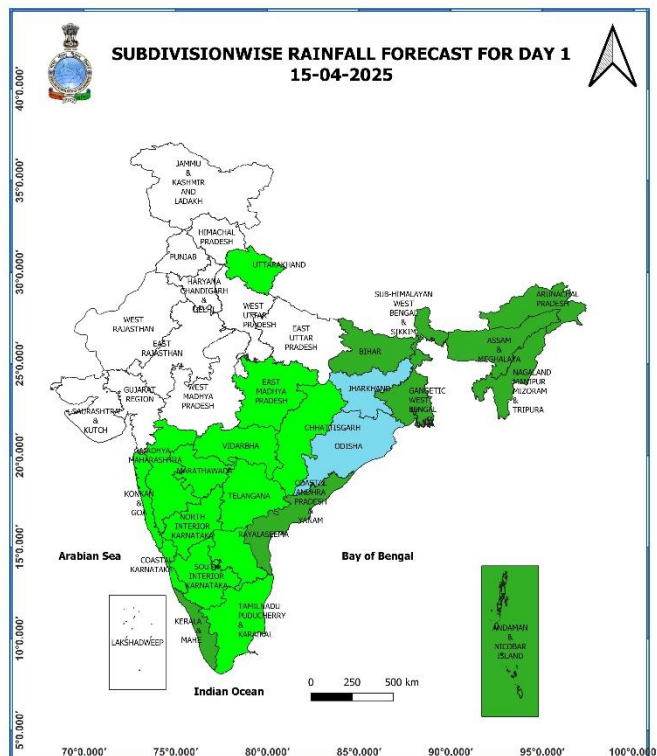
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Kerala & Mahe; **at a few places** over Andaman & Nicobar Islands, Jharkhand; **at isolated places** over Coastal & South Interior Karnataka, Bihar, Gangetic West Bengal, Assam & Meghalaya.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Kerala & Mahe:** Kannur Airport 4, Punalur 3.
- ❖ **Minimum Temperature Departures (as on 14-04-2025):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, West Uttar Pradesh, West Rajasthan, Gujarat state; **above normal (1.6°C to 3.0°C)** at isolated places over Himachal Pradesh, Delhi, West Madhya Pradesh, Assam, Telangana, Tamil Nadu, Puducherry & Karaikal. These were **appreciably below normal (-5.0°C to -3.1°C)** at isolated places over Coastal Andhra Pradesh & Yanam; **below normal (-3.0°C to -1.6°C)** at a few places over East Uttar Pradesh; at isolated places over East Madhya Pradesh, Chhattisgarh, Jharkhand and normal over rest parts of the country (**Fig. 4**). Yesterday, the **lowest minimum temperature** of 17.5°C was reported at **Nowgong (East Madhya Pradesh)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 14-04-2025):** Maximum Temperatures were **markedly above normal (5.1°C or more)** at a few places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Gujarat state; at isolated places over Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam; **above normal (1.6°C to 3.0°C)** at many places over Konkan & Goa; at a few places over Marathwada; at isolated places over Assam & Meghalaya, Arunachal Pradesh, West Madhya Pradesh, Telangana. These were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over East Uttar Pradesh, Jharkhand, Odisha; **below normal (-3.0°C to -1.6°C)** at a few places over Andaman & Nicobar Islands; at isolated places over Uttarakhand, East Madhya Pradesh, Bihar, Gangetic West Bengal and normal over rest parts of the country (**Fig. 2**). Yesterday, the highest **maximum temperature** of 45.4°C was reported at **Barmer (West Rajasthan)** over the country.

### Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Western Disturbance** as a trough in middle to upper tropospheric levels with its axis at 5.8 km above mean sea level roughly along Long. 83°E to north of Lat. 20°N persists.
- ❖ The **trough** from West Rajasthan to Gulf of Mannar across East Rajasthan, West Madhya Pradesh, Vidarbha, Marathwada, interior Karnataka, Tamil Nadu at 0.9 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over northeast Madhya Pradesh & neighbourhood at 1.5 km above mean sea level persists.
- ❖ The trough from above **cyclonic circulation** over northeast Madhya Pradesh to south coastal Odisha across Chhattisgarh at 1.5 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over Bangladesh & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The trough from West Madhya Pradesh to above cyclonic circulation over Bangladesh across East Madhya Pradesh, Jharkhand and Gangetic West Bengal at 0.9 km above mean sea level persists.
- ❖ The upper air **cyclonic circulation** over Gulf of Mannar & neighbourhood between 1.5 km & 3.1 km above mean sea level persists.
- ❖ A fresh **Western Disturbance** is likely to affect Western Himalayan region from 16<sup>th</sup> April, 2025.

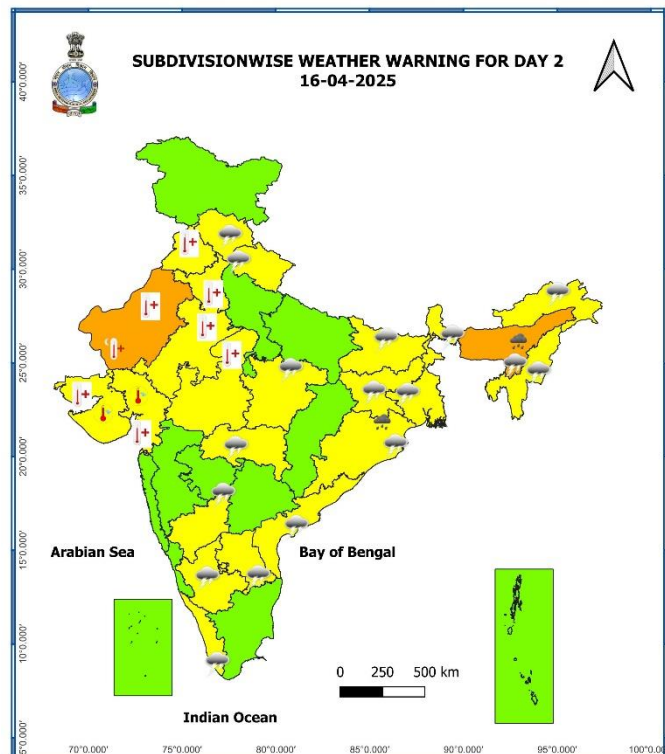
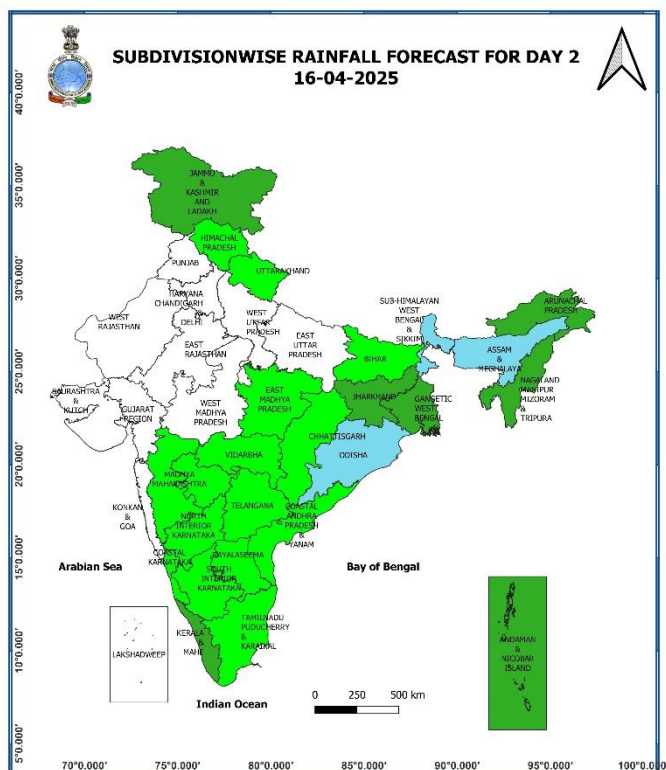
## Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 22<sup>nd</sup> April, 2025)



### 15<sup>th</sup> April (Day 1):

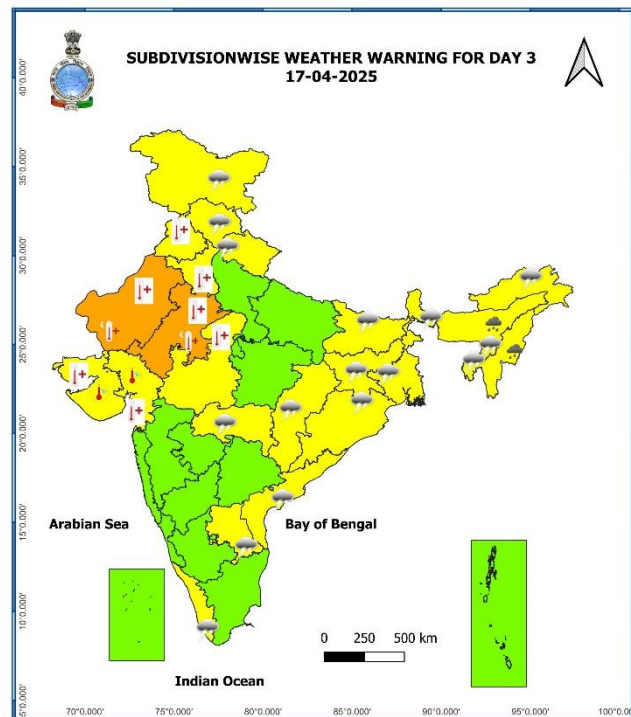
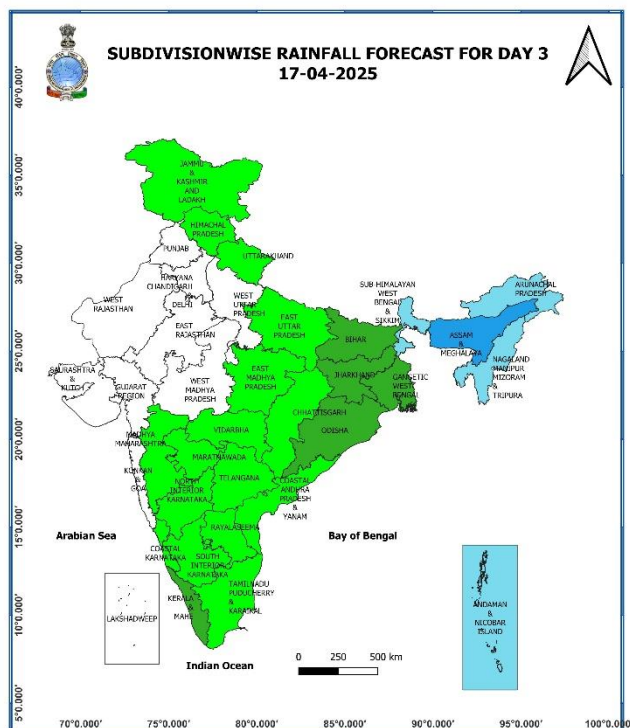
- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Odisha.
- ❖ **Thundersquall accompanied with lightning, gusty winds, hailstorm (speed reaching 50 - 60 kmph)** at isolated places over Jharkhand; **Thundersquall accompanied with lightning, gusty winds (speed reaching 50 - 60 kmph)** at isolated places over Assam & Meghalaya; **Thundersquall accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Vidarbha, Chhattisgarh, Odisha, Nagaland, Manipur, Mizoram & Tripura; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Gangetic West Bengal, Bihar, Madhya Maharashtra, Marathwada, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana and Interior Karnataka; **with lightning** at isolated places over Uttarakhand and East Madhya Pradesh Arunachal Pradesh, Tamil Nadu, Puducherry & Karaikal,
- ❖ **Heat wave** very likely in isolated pockets over Rajasthan, Gujarat State;
- ❖ **Hot and Humid** very likely at isolated places over Gujarat state and Kerala & Mahe.





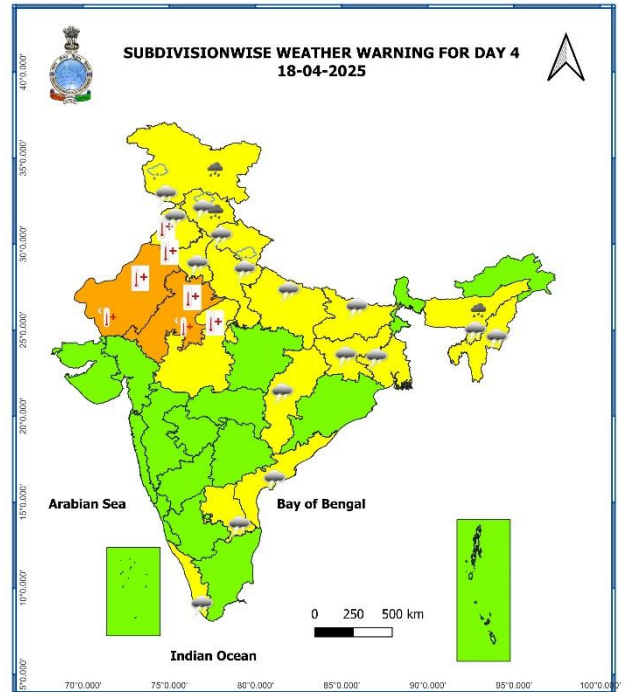
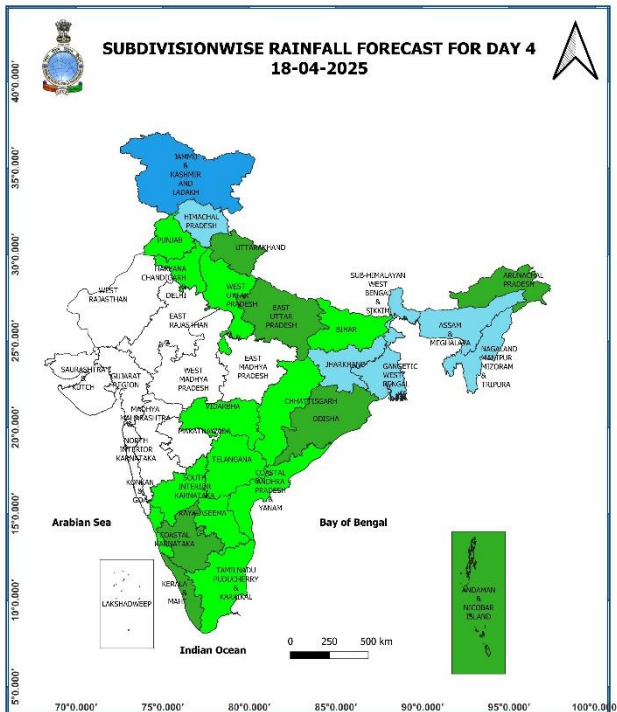
## 16<sup>th</sup> April (Day 2):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Odisha and Assam & Meghalaya.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Vidarbha, Jharkhand, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Bihar, Rayalaseema and Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Himachal Pradesh, Uttarakhand, East Madhya Pradesh, Arunachal Pradesh, Kerala & Mahe and Interior Karnataka.
- ❖ **Heat wave at some places with severe Heat wave conditions** very likely at many places of West Rajasthan; **Heat wave conditions** in isolated pockets over Punjab, Haryana-Chandigarh-Delhi, East Rajasthan, West Madhya Pradesh, Gujarat State.
- ❖ **Hot and Humid conditions** very likely at isolated places over Gujarat state.
- ❖ **Warm night conditions** very likely at isolated places over West Rajasthan.



### 17<sup>th</sup> April (Day 3):

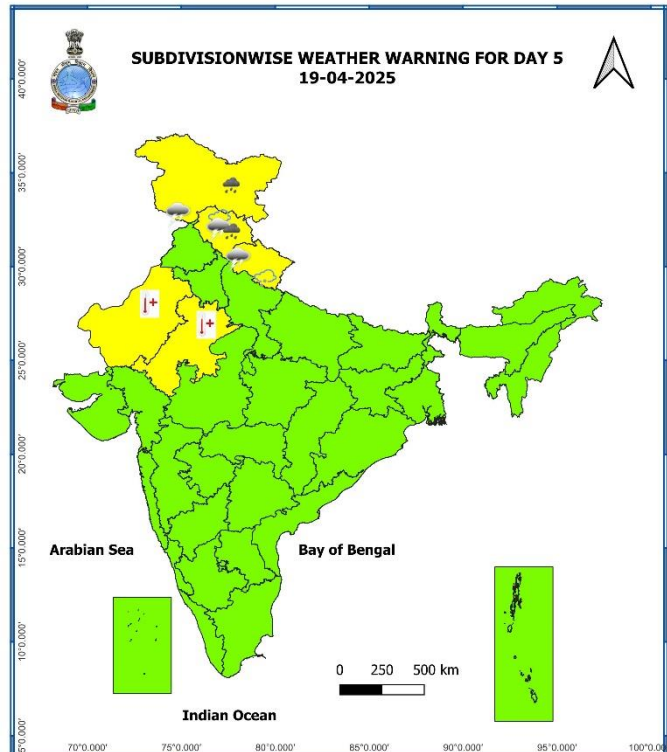
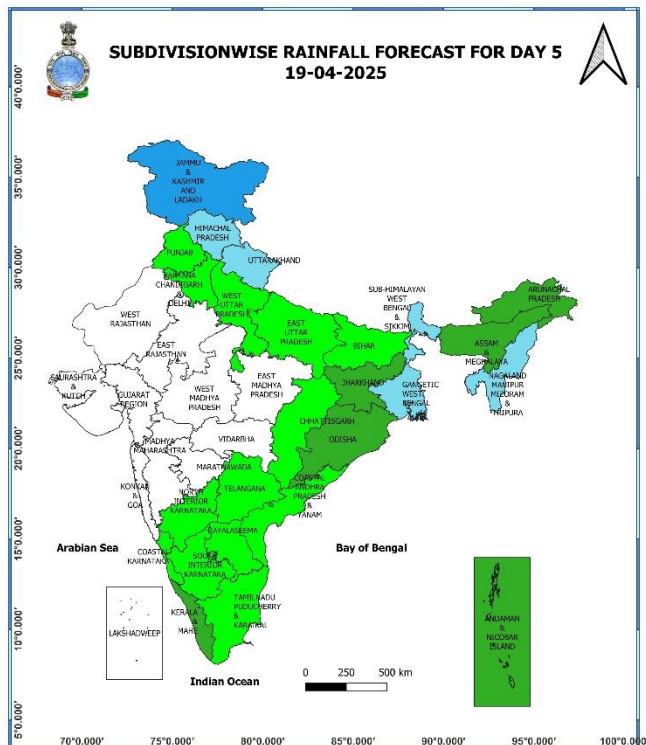
- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Assam & Meghalaya, Mizoram and Tripura.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Chhattisgarh, Bihar, Jharkhand, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Vidarbha, West Bengal & Sikkim, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Arunachal Pradesh, Kerala & Mahe, Rayalaseema, Uttarakhand and Himachal Pradesh.
- ❖ **Heat wave at some places with severe Heat wave conditions** very likely at many places of Rajasthan; **Heat wave conditions** in isolated pockets over Punjab, Haryana-Chandigarh-Delhi, Gujarat state.
- ❖ **Hot and Humid** very likely at isolated places over Gujarat state.



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

- ❖ **Heavy rainfall/snowfall** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Assam & Meghalaya.
- ❖ **Thundersquall accompanied with lightning, gusty winds (speed reaching 40 - 50 kmph)** at isolated places over Chhattisgarh, Bihar, Jharkhand, Assam & Meghalaya  
**Thundersquall accompanied with lightning, gusty winds, hailstorm (speed reaching 30 - 40 kmph)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand; **with lightning & gusty winds (speed reaching 30 - 40 kmph)** at isolated places over Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Gangetic West Bengal; **with lightning** at isolated places over Nagaland, Manipur, Mizoram & Tripura, Kerala & Mahe, Coastal Andhra Pradesh & Yanam and Rayalaseema.
- ❖ **Heat wave at some places with severe Heat wave conditions** likely at many places of West Rajasthan; **Heat wave conditions** in isolated pockets over East Rajasthan, Punjab, Haryana-Chandigarh-Delhi and West Madhya Pradesh.
- ❖ **Warm night conditions** very likely at isolated places over Rajasthan.

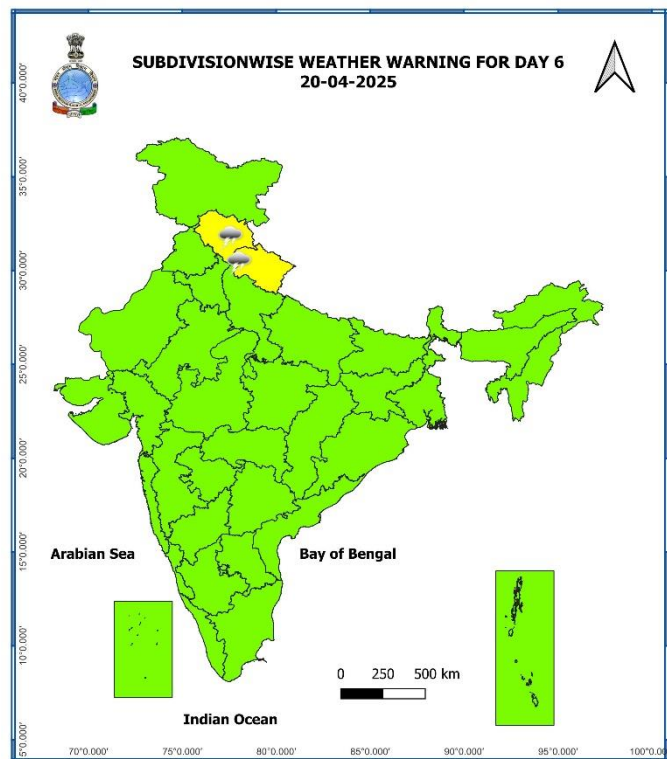
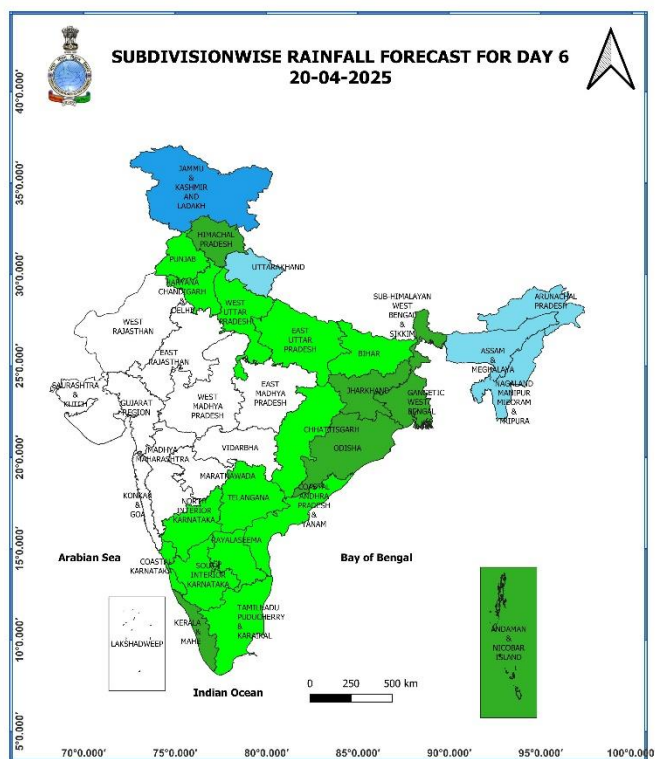




### 19<sup>th</sup> April (Day 5):

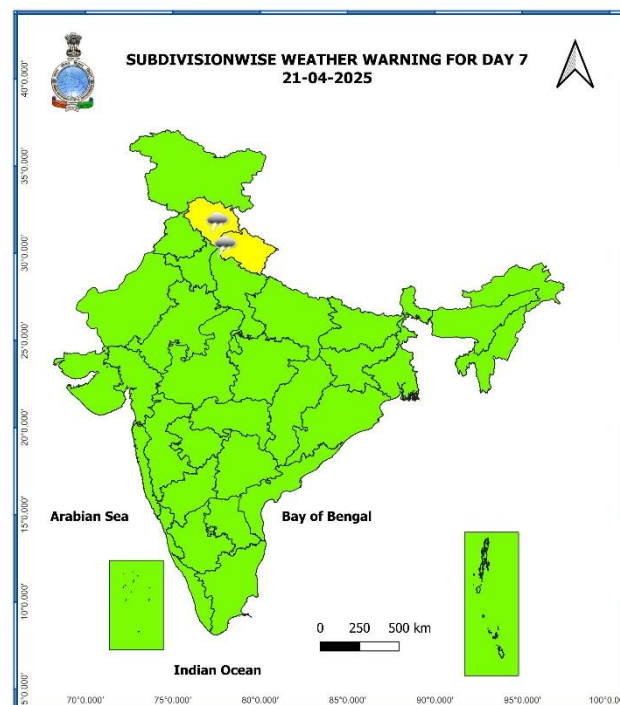
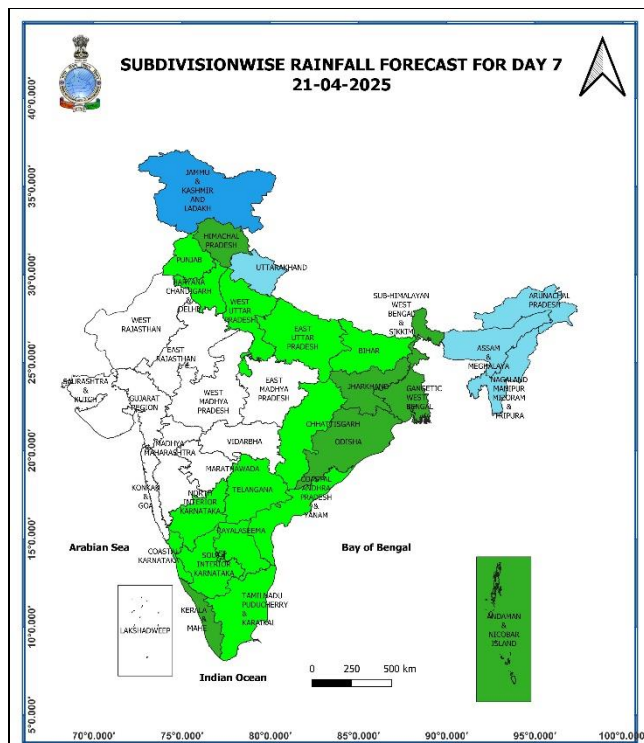
- ❖ **Heat wave conditions** in isolated pockets over Rajasthan.
- ❖ **Heavy rainfall/snowfall** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ **Thundersquall accompanied with lightning, gusty winds, hailstorm (speed reaching 30 - 40 kmph)** at isolated places over Himachal Pradesh and Uttarakhand.





## 20<sup>th</sup> April (Day 6):

- ❖ **Thunderstorm accompanied with lightning** at isolated places over Himachal Pradesh and Uttarakhand.



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

- ❖ **Thunderstorm accompanied with lightning** at isolated places over Himachal Pradesh and Uttarakhand.

## Weather Outlook for subsequent 3 days (During 22<sup>nd</sup> April- 24<sup>th</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

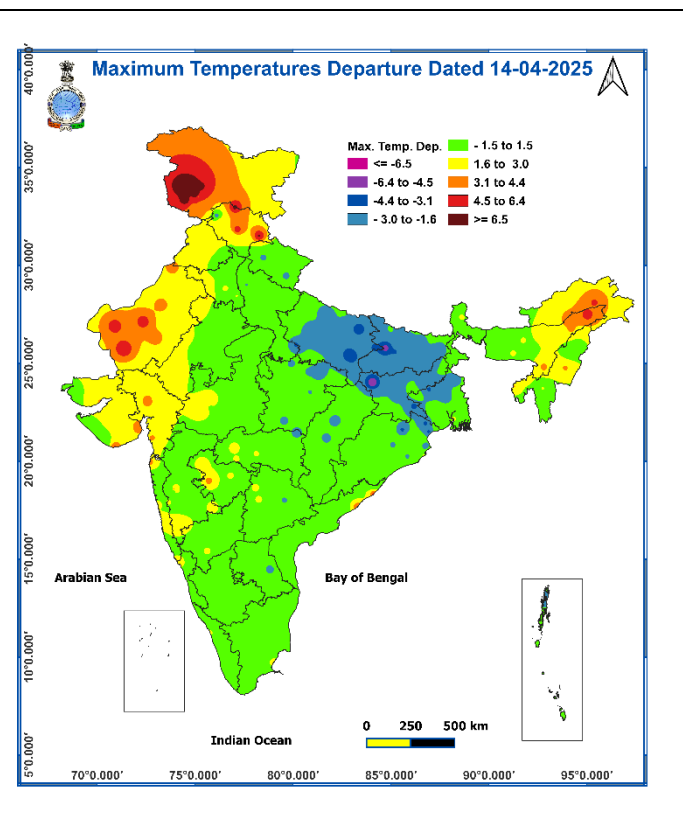
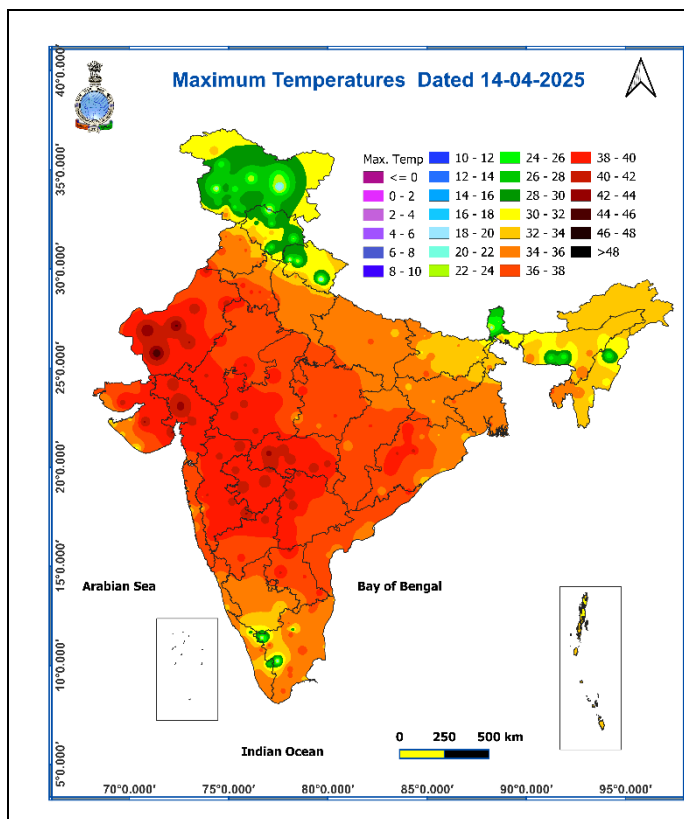
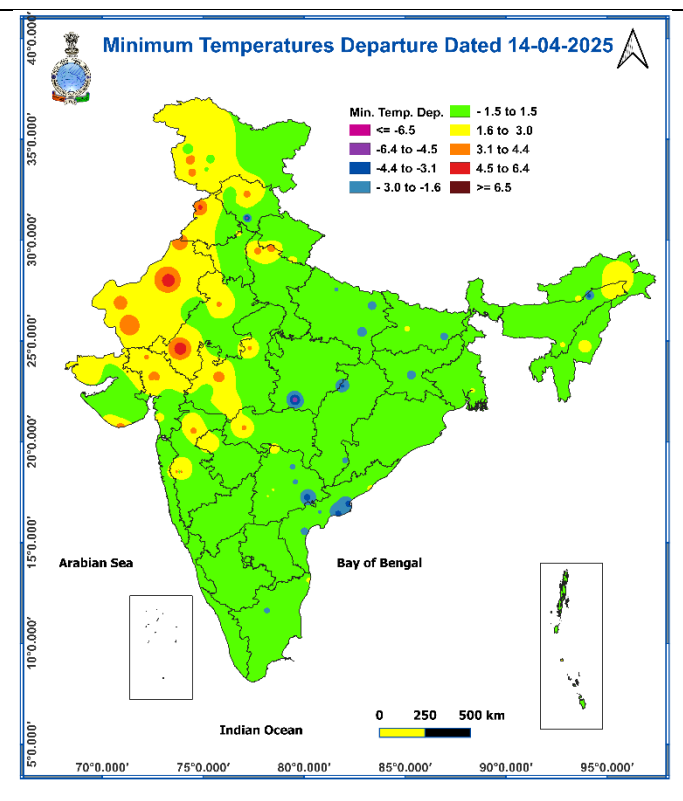
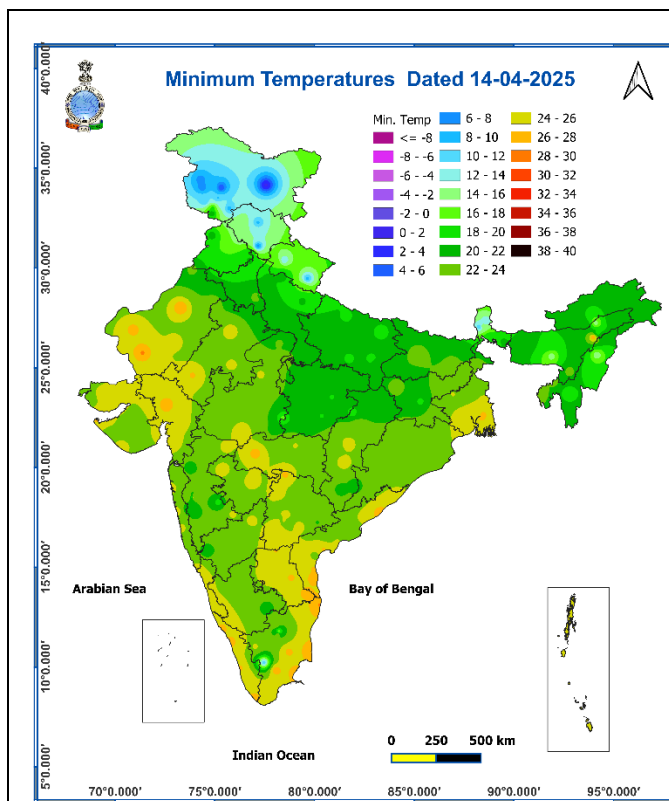


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures



**Impact expected and action suggested due to isolated thunderstorm with lightning/gusty winds & Hailstorm over Jharkhand on 15<sup>th</sup>; Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 18<sup>th</sup>; Himachal Pradesh, Uttarakhand on 18<sup>th</sup> & 19<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.

#### Impact expected and action suggested due to Heat wave to severe heat wave conditions over

1. **Heat wave conditions to severe heat wave condition** over West Rajasthan during 14<sup>th</sup>-19<sup>th</sup> with severe heat wave conditions at isolated/some parts during 16<sup>th</sup>-18<sup>th</sup> April.
2. **Heat wave conditions** over East Rajasthan during 15<sup>th</sup>-19<sup>th</sup>; Gujarat State during 15<sup>th</sup>-17<sup>th</sup>; Punjab, Haryana, West Madhya Pradesh during 16<sup>th</sup>-18<sup>th</sup> April.

#### Orange alert Areas

- High temperature & increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work.
- High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.
- Avoid heat exposure- keep cool. Avoid dehydration.
- Drink sufficient water- even if not thirsty.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated.

#### Yellow alert Areas

- Moderate temperature & heat is tolerable for general public but moderate health concern likely for vulnerable people e.g. infants, elderly, people with chronic diseases.
- Avoid heat exposure.
- Wear lightweight, light colour, loose, cotton clothes.
- Cover your head, use a cloth, hat or umbrella.



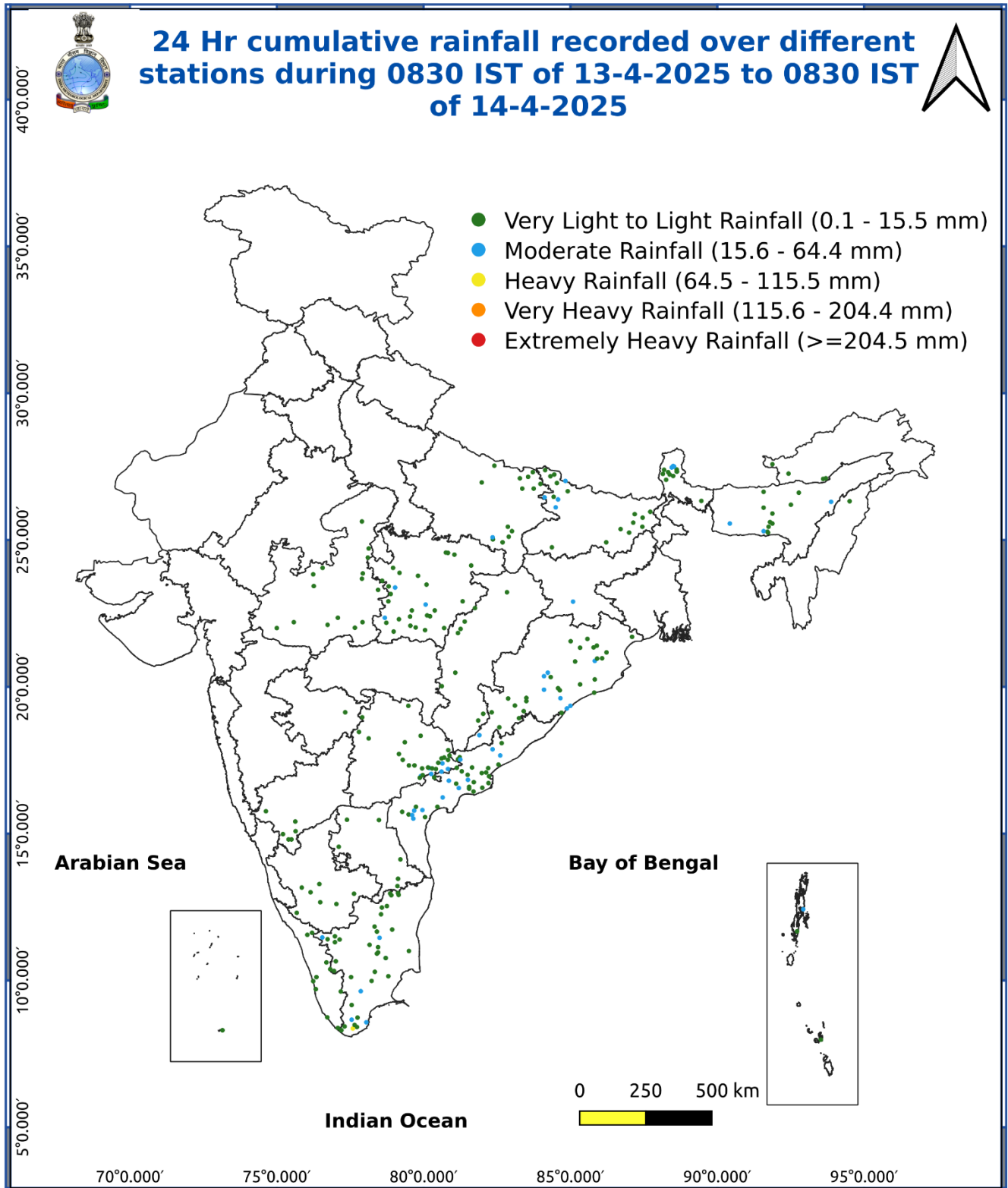
## Agromet advisories for likely impact of Hailstorm / Heavy Rainfall / Gusty Winds / Heatwave

- In **Jharkhand**, 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 **Meghalaya** and **Odisha**, immediately harvest the mature 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 **Rajasthan, Punjab, Haryana, West Madhya Pradesh** and **Gujarat**, 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

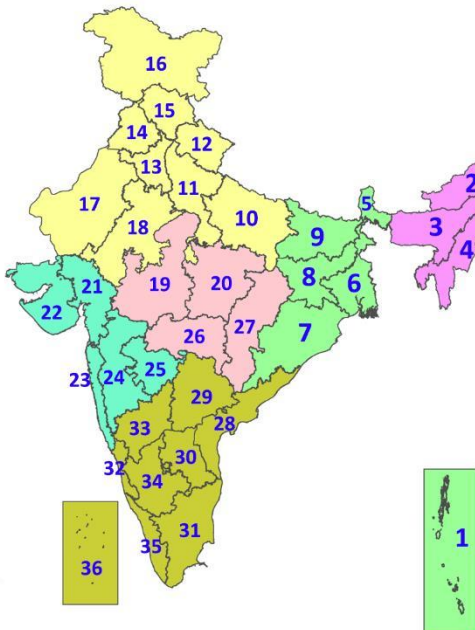
- Keep the animals inside the shed during heavy rainfall / hailstorm and provide them balanced feed.
- Store feed and fodder in a safe place to prevent spoilage.
- To reduce the effect of heat wave/high temperature, cover the roof of poultry sheds with grass. Also provide clean, hygienic and plenty of 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



## 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

\* 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)



## 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.