

Wednesday, August 14, 2024  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ✓ The **Monsoon trough** is near its normal position at mean sea level. It is likely to oscillate near its normal position during most days of the week.
- ✓ A **cyclonic circulation** lies over northeast Rajasthan & neighbourhood extending upto middle tropospheric levels. A trough runs from this cyclonic circulation to Bangladesh in lower tropospheric levels.
- ✓ A **cyclonic circulation** lies over southeast Pakistan & adjoining Rajasthan at lower tropospheric levels.
- ✓ Another **cyclonic circulation** over Gujarat & neighbourhood in middle tropospheric levels.
- ✓ Another **cyclonic circulation** over northeast Assam lies in lower tropospheric levels.
- ✓ Another **cyclonic circulation** over south Bangladesh & neighbourhood extending upto middle tropospheric levels.
- ✓ Another **trough** runs from Rayalaseema to Comorin area in lower tropospheric levels.
- ✓ Another **cyclonic circulation** over south Sri Lanka & neighbourhood extending upto middle tropospheric levels.

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

##### ❖ Northwest India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Himachal Pradesh & Uttarakhand; scattered to fairly widespread rainfall over Jammu-Kashmir, Haryana-Chandigarh-Delhi, Uttar Pradesh & Rajasthan during the week.
- ✓ Isolated **heavy rainfall** very likely over Himachal Pradesh, Uttarakhand & Uttar Pradesh during 14<sup>th</sup>-20<sup>th</sup>; Punjab on 14<sup>th</sup>; West Rajasthan & Haryana-Chandigarh during 14<sup>th</sup>-16<sup>th</sup>; East Rajasthan during 15<sup>th</sup>-17<sup>th</sup> and Jammu division during 15<sup>th</sup>-20<sup>th</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over East Rajasthan on 14<sup>th</sup> August.

##### ❖ West & Central India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Madhya Pradesh, Chhattisgarh, Konkan & Goa & Gujarat Region; scattered to fairly widespread rainfall over Vidarbha, Saurashtra & Kutch; isolated to scattered rainfall over Madhya Maharashtra & Marathwada during the week.
- ✓ Isolated **Heavy rainfall** very likely over Madhya Pradesh & Gujarat Region on 14<sup>th</sup>; Chhattisgarh during 14<sup>th</sup>-16<sup>th</sup> August.

##### ❖ East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over east India and scattered to fairly widespread rainfall over northeast during the week.
- ✓ Isolated **heavy rainfall** very likely over Arunachal Pradesh on 14<sup>th</sup> & 15<sup>th</sup>; Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during 14<sup>th</sup>-16<sup>th</sup>; Bihar & Sub-Himalayan West Bengal & Sikkim during 14<sup>th</sup>-20<sup>th</sup>; Gangetic West Bengal on 14<sup>th</sup> & 17<sup>th</sup>; Jharkhand on 14<sup>th</sup>, 17<sup>th</sup> & 18<sup>th</sup>; Odisha during 14<sup>th</sup>-18<sup>th</sup> August.

##### ❖ South Peninsular India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Kerala & Mahe, Lakshadweep & South Interior Karnataka; scattered to fairly widespread rainfall over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana and Coastal & North Interior Karnataka during the week.
- ✓ Isolated **heavy rainfall** very likely over South Interior Karnataka and Kerala & Mahe on 16<sup>th</sup> & 17<sup>th</sup>; Rayalaseema and Tamil Nadu, Puducherry & Karaikal during 14<sup>th</sup>-17<sup>th</sup>; Lakshadweep on 14<sup>th</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over Kerala & Mahe and South Interior Karnataka on 14<sup>th</sup> & 15<sup>th</sup> August.

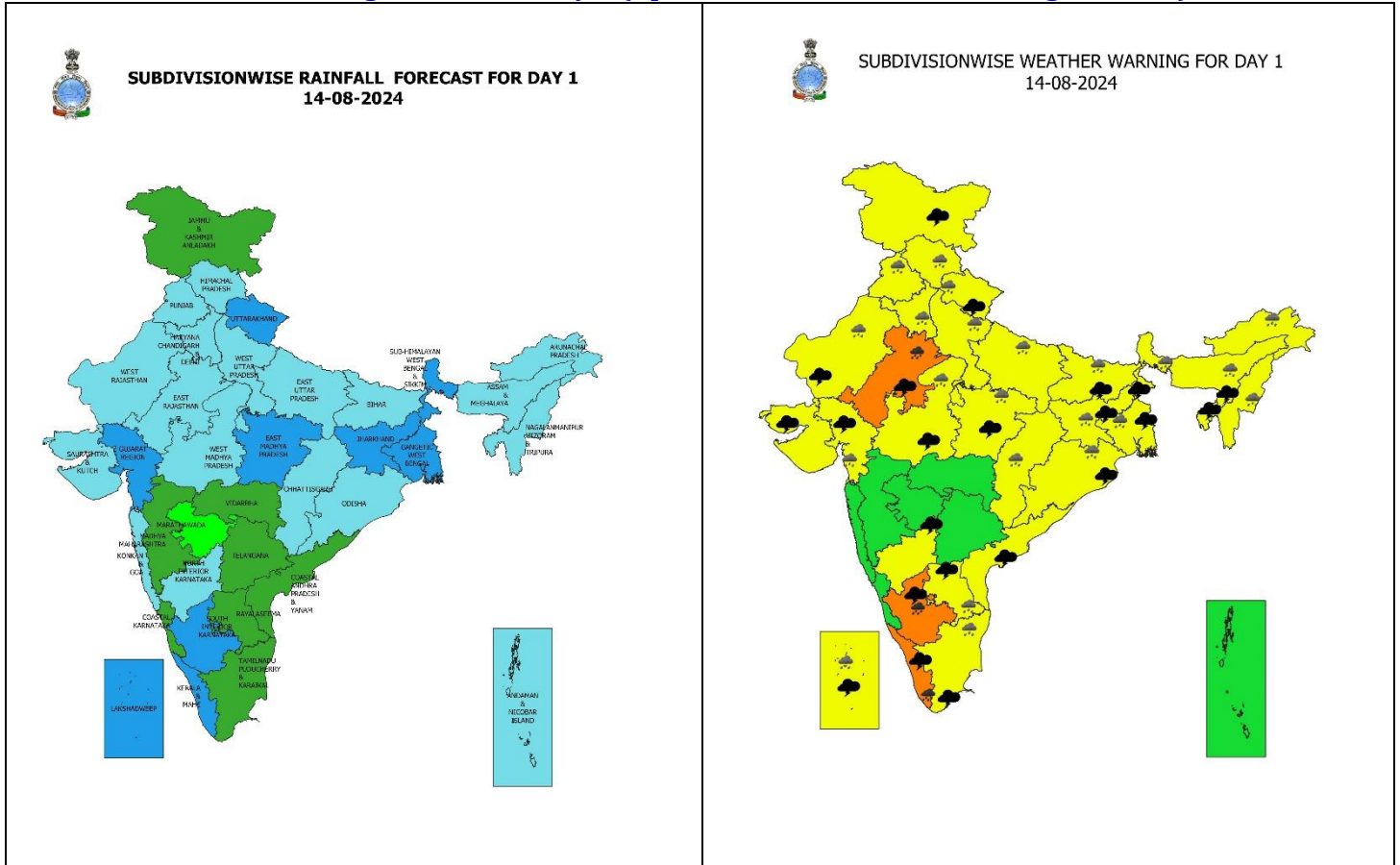
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Uttarakhand, Kerala & Mahe, Sub-Himalayan West Bengal & Sikkim; **at a few places** over Himachal Pradesh, Haryana-Chandigarh-Delhi, Konkan & Goa, Telangana, Gangetic West Bengal, Jharkhand, Bihar, Assam & Meghalaya, Gujarat Region, Tamil Nadu, Puducherry & Karaikal; **at isolated places** over Madhya Pradesh, Rajasthan, Punjab, Uttar Pradesh, Chhattisgarh, South Interior Karnataka, Madhya Maharashtra, Saurashtra & Kutch, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Odisha.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over Tamil Nadu and Kerala & Mahe.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Tamil Nadu:** Kanyakumari 9, Virudhunagar 3, Palayankottai 3, Tiruppattur 2, Udhagamandalam 2; **Kerala & Mahe:** Kannur 7, Thiruvananthapuram 7, Wayanad 4; **Odisha:** Balasore 6, Rourkela 2; **Madhya Pradesh:** Deora 6; **Uttar Pradesh:** Kushinagar 4, Chitrakoot 2, Shahjahanpur 2; **Telangana:** Ranga Reddy 4; **Delhi:** Najafgarh 4, Palam 3, Lodi Road 2, Ridge 2; **Himachal Pradesh:** Dharamshala 3; **Bihar:** Muzaffarpur 3; **West Rajasthan:** Jodhpur 3; **East Rajasthan:** Karauli 3; **Gangetic West Bengal:** Kolkata 2, Haldia 2, Diamond Harbour 2.
- ❖ **Minimum Temperature Departures (as on 13-08-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Odisha and North Interior Karnataka; **above normal (1.6°C to 3.0°C)** at many places over Coastal Andhra Pradesh & Yanam and Telangana; at a few places over Gangetic West Bengal, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe; at isolated places over Rayalaseema, Konkan & Goa, East Madhya Pradesh and West Rajasthan and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 20.1°C** was reported at **Baramati (Madhya Maharashtra)** over the plains of the country. (Fig.4)
- ❖ **Maximum Temperature Departures (as on 13-08-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at many places over Konkan & Goa, Madhya Maharashtra; at a few places over Chhattisgarh, North Interior Karnataka, Telangana, Rayalaseema, Kerala & Mahe; at isolated places over East Madhya Pradesh, Odisha, Assam & Meghalaya ; **above normal (1.6°C to 3.0°C)** at most places over Coastal Karnataka; at many places over Gujarat Region, Coastal Andhra Pradesh & Yanam; at a few places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Jharkhand, at isolated places over West Rajasthan, Saurashtra & Kutch, Nagaland, Manipur, Mizoram & Tripura, East Uttar Pradesh, Tamil Nadu, Puducherry & Karaikal. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Haryana-Chandigarh-Delhi and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature of 38.3°C** was reported at **Anantapur (Rayalaseema)** over the country. (Fig. 2)

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Monsoon trough** at mean sea level now runs through Bikaner, Delhi, Bareilly, Lucknow, Patna, Bankura, Digha and thence east-southeastwards to central Bay of Bengal.
- ❖ The **cyclonic circulation** over northeast Rajasthan & neighbourhood extending upto 7.6 km above mean sea level persists.
- ❖ The **trough** from the cyclonic circulation over northeast Rajasthan & neighbourhood to Bangladesh across south Uttar Pradesh, south Bihar and Gangetic West Bengal at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over southeast Pakistan & adjoining Rajasthan at 1.5 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Gujarat & neighbourhood at 3.1 km above mean sea level persists.
- ❖ The **cyclonic circulation** over northeast Assam at 1.5 km above mean sea level persists.
- ❖ The **cyclonic circulation** over south Bangladesh & neighbourhood between 1.5 & 4.5 km above mean sea level persists.
- ❖ The **trough** from Rayalaseema to Comorin area extending upto 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over south Sri Lanka & neighbourhood extending upto 4.5 km above mean sea level tilting southwestwards with height persists.

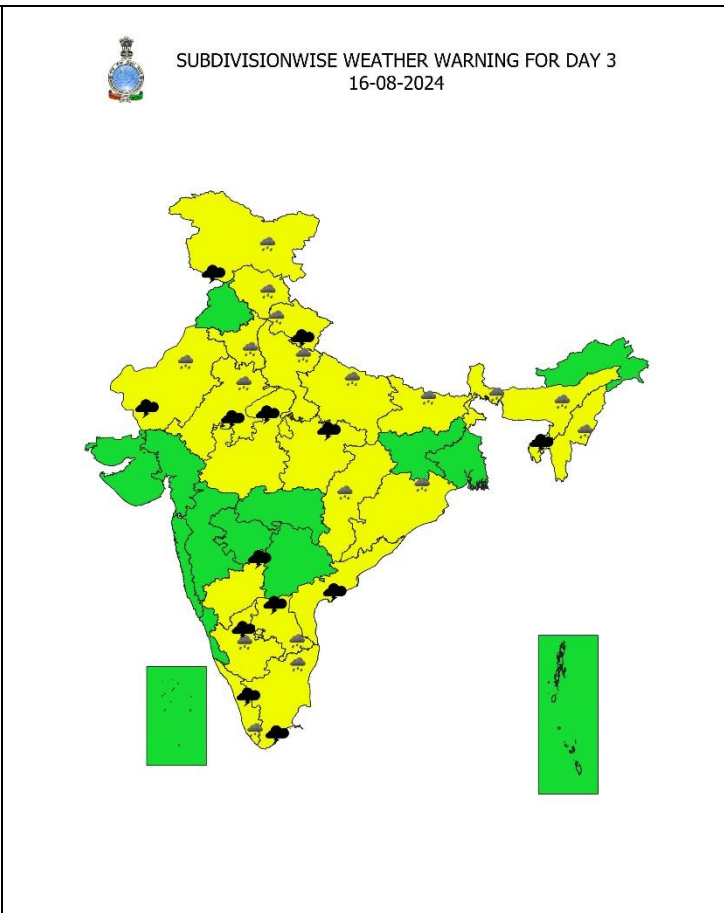
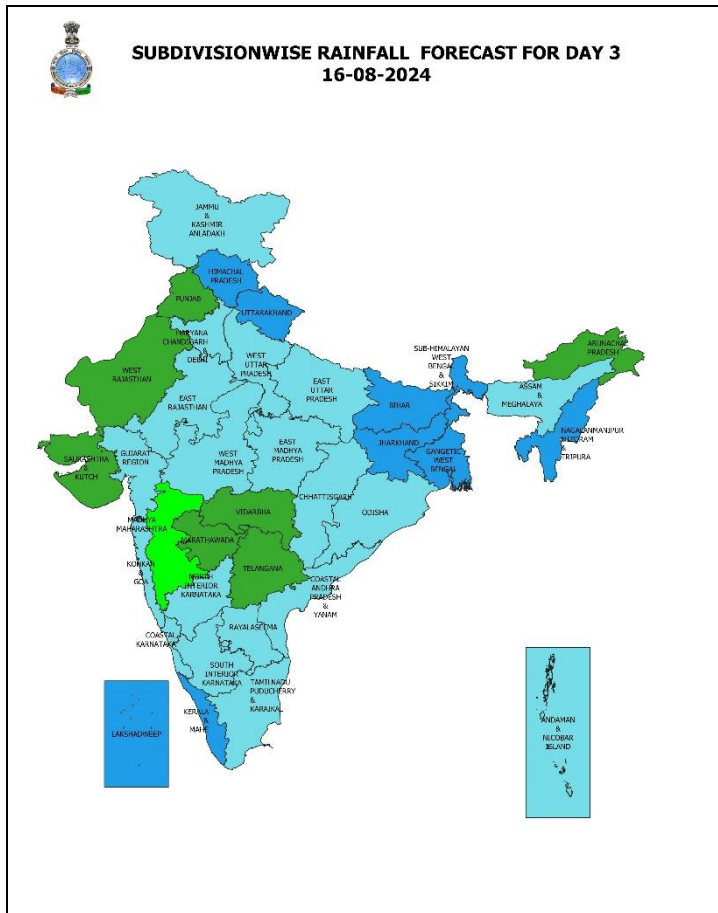
Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 21<sup>st</sup> August, 2024)



14 August (Day 1):

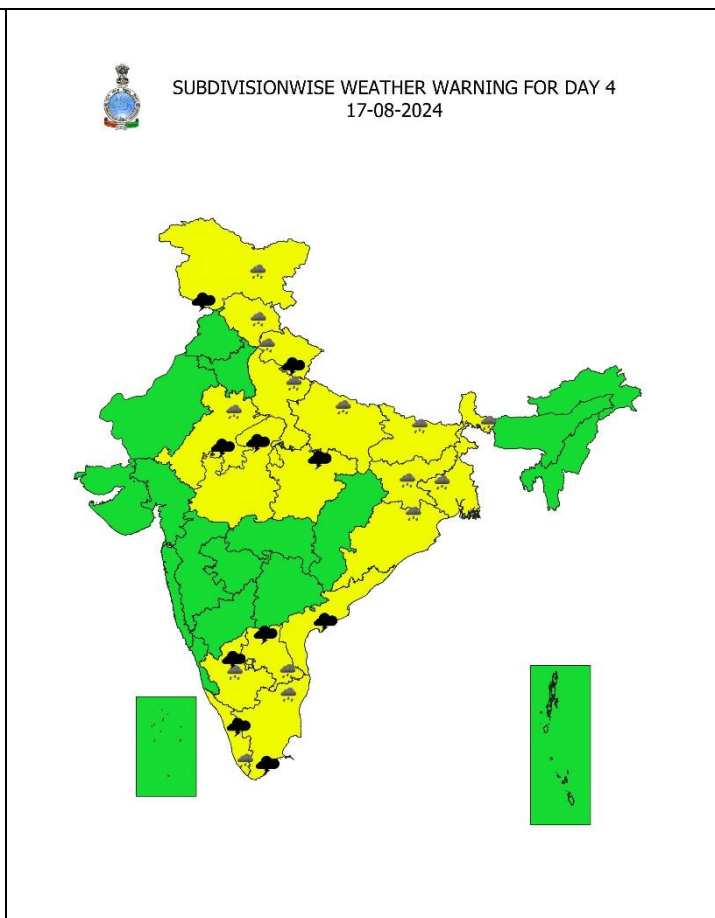
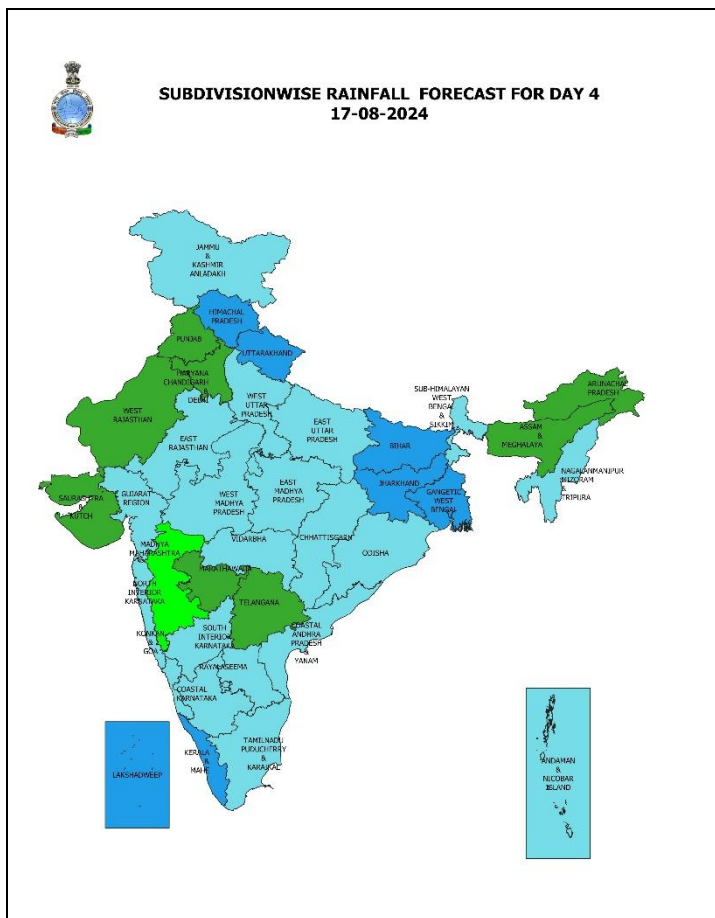
- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** very likely at isolated places over East Rajasthan, South Interior Karnataka and Kerala & Mahe; **Heavy rainfall ( $\geq 7$  cm)** at isolated places Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat Region, Tamil Nadu, Puducherry & Karaikal, Lakshadweep, Himachal Pradesh, Uttarakhand, Punjab, Haryana-Chandigarh, Uttar Pradesh, West Rajasthan, Rayalaseema, Madhya Pradesh, Chhattisgarh, Gangetic West Bengal & Sikkim, West Rajasthan and Jharkhand.
- ❖ **Thunderstorm accompanied with lighting and gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Kerala & Mahe; **with lightning** very likely over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Tamil Nadu, Puducherry & Karaikal, Lakshadweep, Coastal Andhra Pradesh & Yanam, Rayalaseema, Interior Karnataka, Jammu Division, Uttarakhand, Rajasthan, Madhya Pradesh, West Bengal & Sikkim, Bihar, Jharkhand and Odisha.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely is likely to prevail over southern parts of northwest Arabian sea, many parts of westcentral Arabian sea, along and off Kerala coast, over Lakshadweep, Maldives, Comorin areas, gulf of Mannar, off Sri Lanka coast, many parts of central Bay of Bengal, southwest Bay of Bengal and northern parts of southeast Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** very likely to prevail over westcentral & adjoining areas of southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.





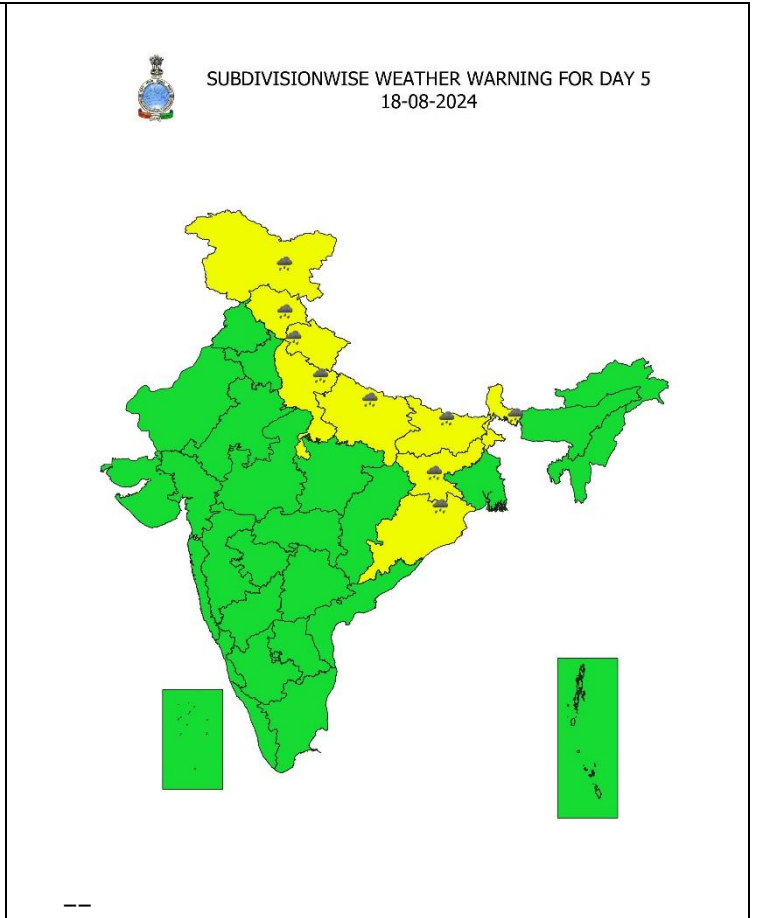
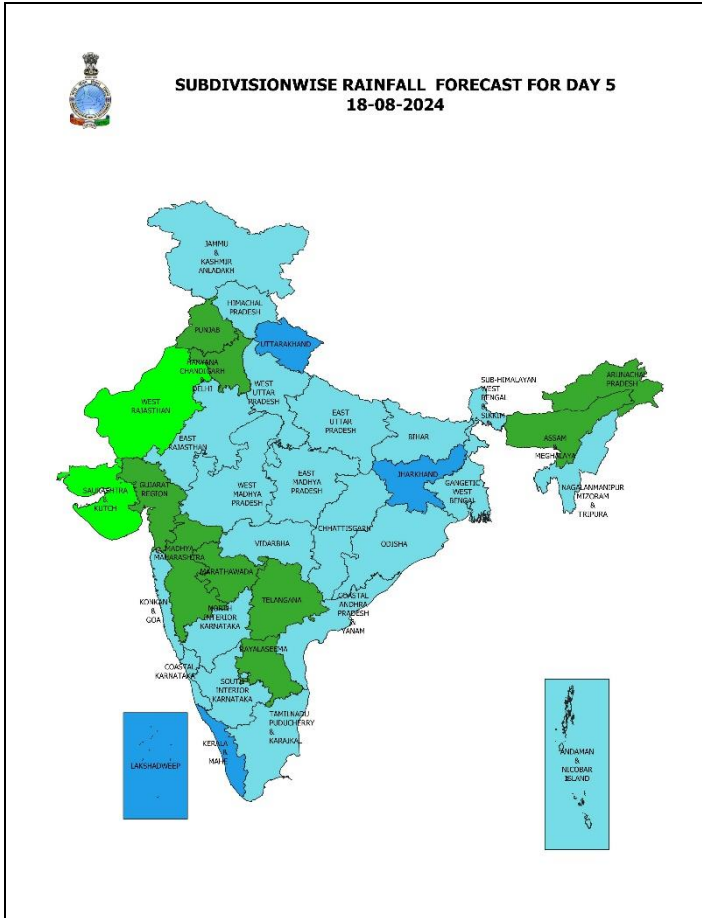
**16 August (Day 3):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Kerala & Mahe, Rayalaseema, South Interior Karnataka, Jammu division, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana-Chandigarh and Rajasthan.
- ❖ **Thunderstorm accompanied with lighting and gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Kerala & Mahe; **with lightning** very likely over Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Interior Karnataka, Jammu Division, Uttarakhand, Rajasthan and Madhya Pradesh.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is very likely to prevail over southern parts of northwest Arabian sea, many parts of westcentral Arabian sea, along and off Kerala coast, over Lakshadweep, Maldives, Comorin areas, gulf of Mannar, off Sri Lanka coast, many parts of central Bay of Bengal, southwest Bay of Bengal and northern parts of southeast Bay of Bengal, southern parts of northwest Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** very likely to prevail over westcentral & adjoining areas of southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.



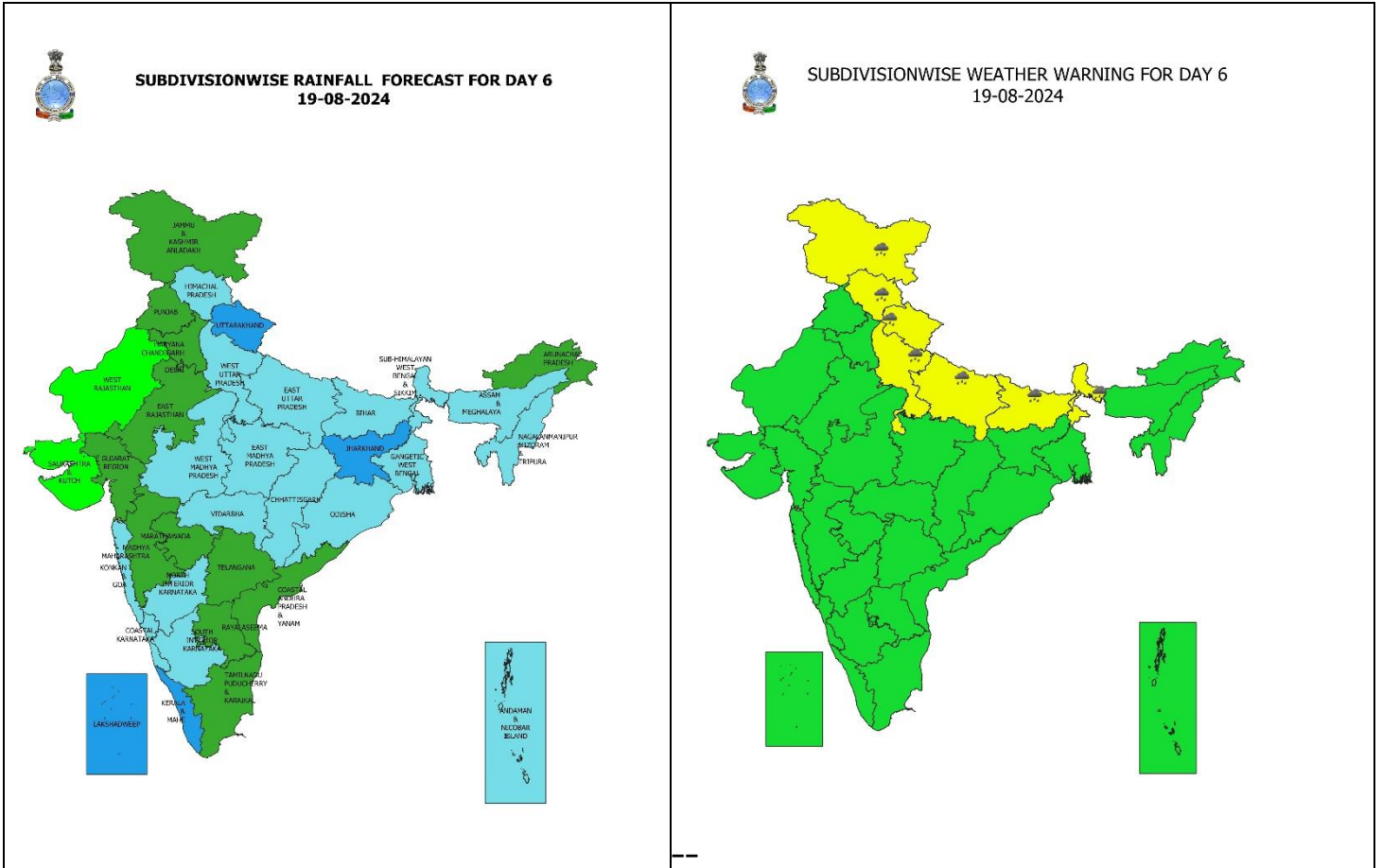
### 17 August (Day 4):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Royalaseema, South Interior Karnataka, Jammu division, Himachal Pradesh, Uttarakhand, Uttar Pradesh, East Rajasthan, West Bengal & Sikkim.
- ❖ **Thunderstorm accompanied with lighting and gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Kerala & Mahe; **with lightning** very likely over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Royalaseema, South Interior Karnataka, Jammu Division, Uttarakhand, East Rajasthan, Madhya Pradesh.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over southern parts of northwest Arabian sea, many parts of westcentral Arabian sea, southwest Arabian sea, along and off Kerala coast, over Lakshadweep, Maldives, Comorin areas, gulf of Mannar, off Sri Lanka coast, many parts of central Bay of Bengal and southeast Bay of Bengal, most parts of southwest Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over westcentral & adjoining areas of southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.



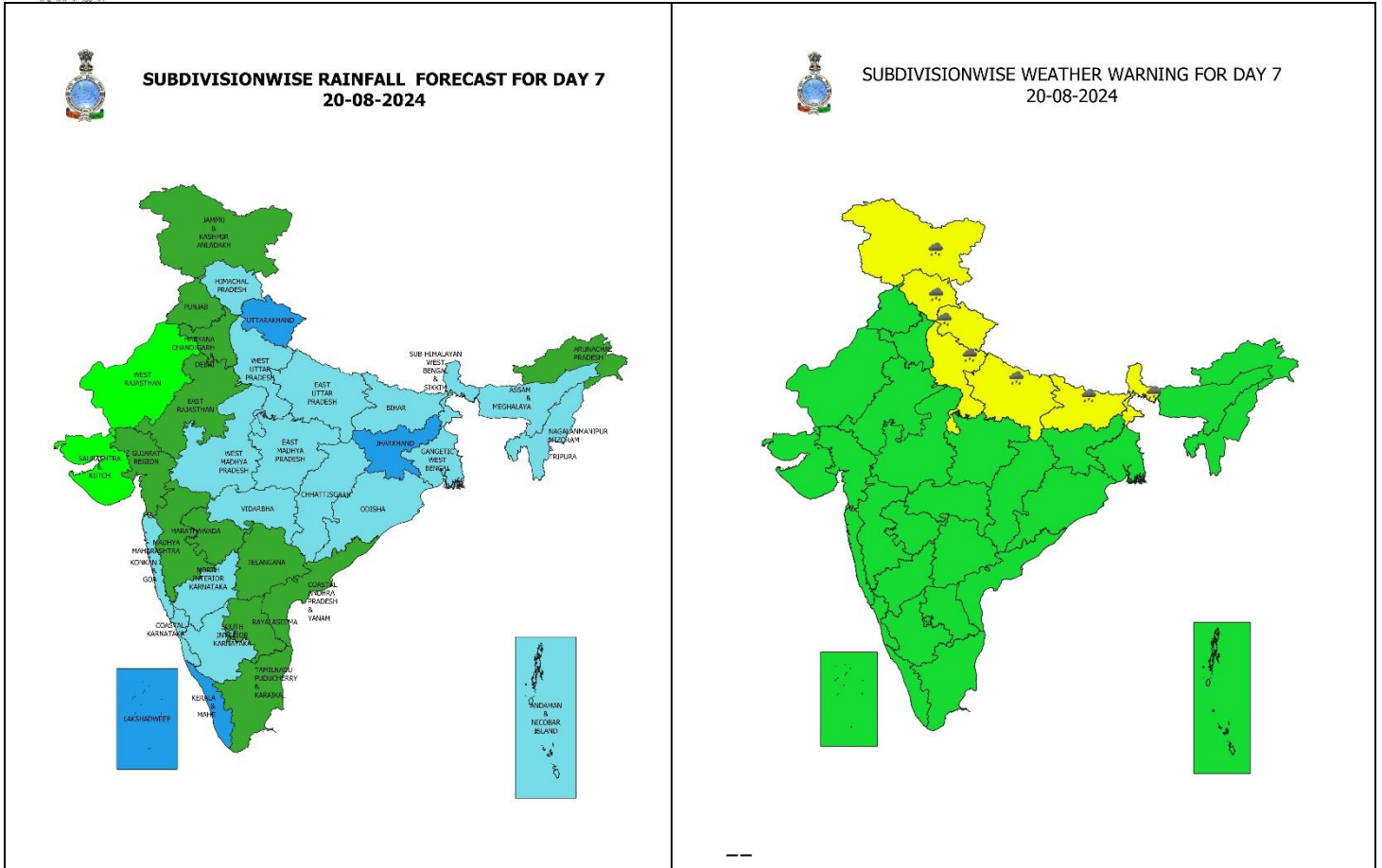
**18 August (Day 5):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Jammu division, Uttarakhand, Himachal Pradesh, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand and Odisha.



**19 August (Day 6):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Jammu division, Uttarakhand, Himachal Pradesh, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim and Bihar.



**20 August (Day 7):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Jammu division, Uttarakhand, Himachal Pradesh, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim and Bihar.

**Weather Outlook for subsequent 3 days (During 21<sup>st</sup> August – 23<sup>rd</sup> August, 2024)**

- ❖ Fairly widespread to widespread rainfall likely over most parts of the country except southwest Rajasthan, interior Maharashtra, Coastal & North Interior Karnataka where isolated to scattered rainfall likely.

- Action may be taken based on **ORANGE AND RED** COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

\* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".  
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.  
For more details, kindly visit <https://mausam.imd.gov.in> or contact: 011-2434-4599  
(Service to the Nation since 1875)

### Impact due to

- **Very heavy rainfall** at isolated places over East Rajasthan on 14<sup>th</sup>; Kerala & Mahe and South Interior Karnataka on 14<sup>th</sup> & 15<sup>th</sup> August.
- **Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Himachal Pradesh, Uttarakhand Met Sub-divisions 14<sup>th</sup> & 15<sup>th</sup> August. (ANNEXURE I)**
  - ✓ 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/landslips/mud slips/land sinks/mud sinks.
  - ✓ 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)

### 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.

### Agromet advisories for Heavy Rainfall likely over various parts of the country:

- ✓ Drain out excess water from field crops and horticultural crops in Arunachal Pradesh, Assam & Meghalaya, Bihar, Himachal Pradesh, Uttarakhand, East Rajasthan, West Madhya Pradesh, Tamil Nadu, Kerala and South Interior Karnataka.
- ✓ Make provision for draining out excess water from standing crop fields and fruit orchards to avoid water stagnation in Haryana, Uttar Pradesh and Coastal Andhra Pradesh.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ In Arunachal Pradesh, make proper arrangements for runoff management in Jhum rice fields by putting obstacles across the slopes.
- ✓ In Assam, postpone sowing of sesame, green gram and black gram.

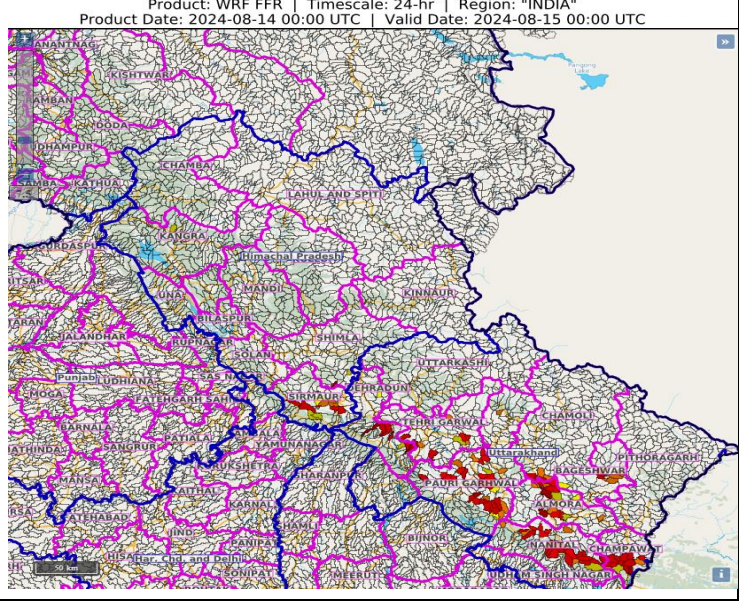
**FLASH FLOOD GUIDANCE:**

**Annexure-I**

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 15-08-2024:**

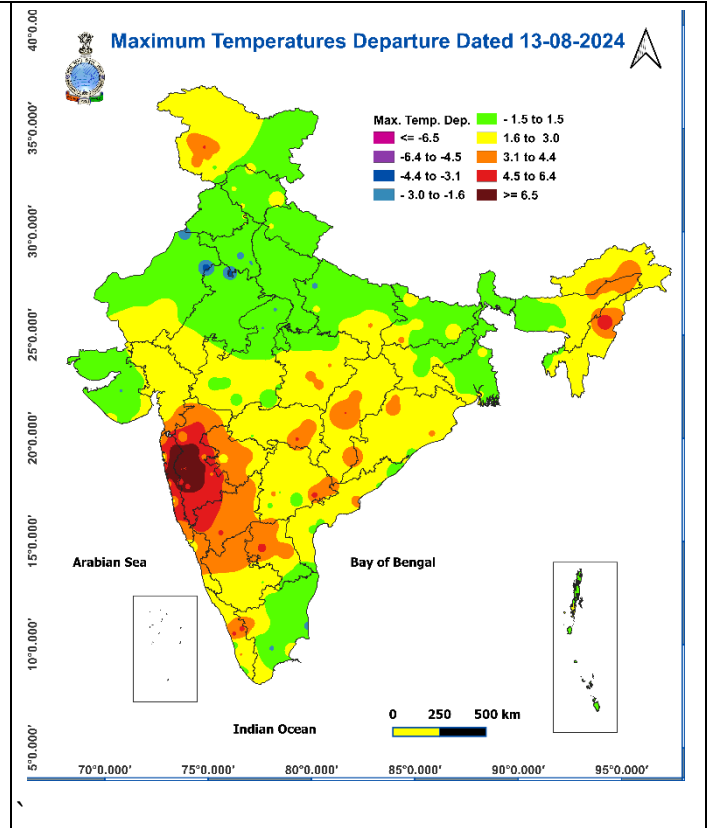
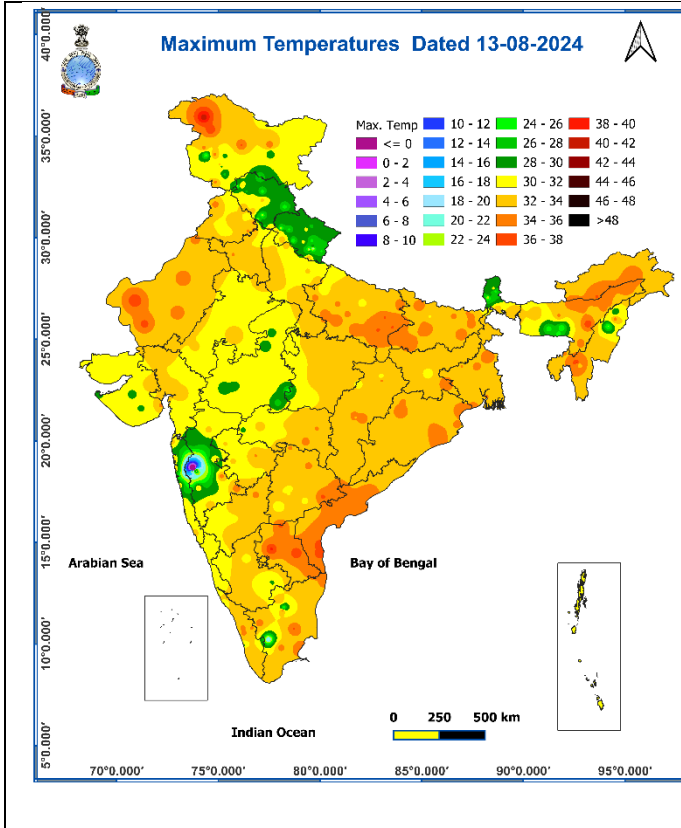
Low flash flood risk likely over few watersheds & neighbourhoods of **Himachal Pradesh** - Sirmaur district. **Uttarakhand**-Almora, Bageshwar, Chamoli, Champawat, Dehradun, Nanital, Pauri Garhwal, Rudraprayag and Tehri Garwal districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



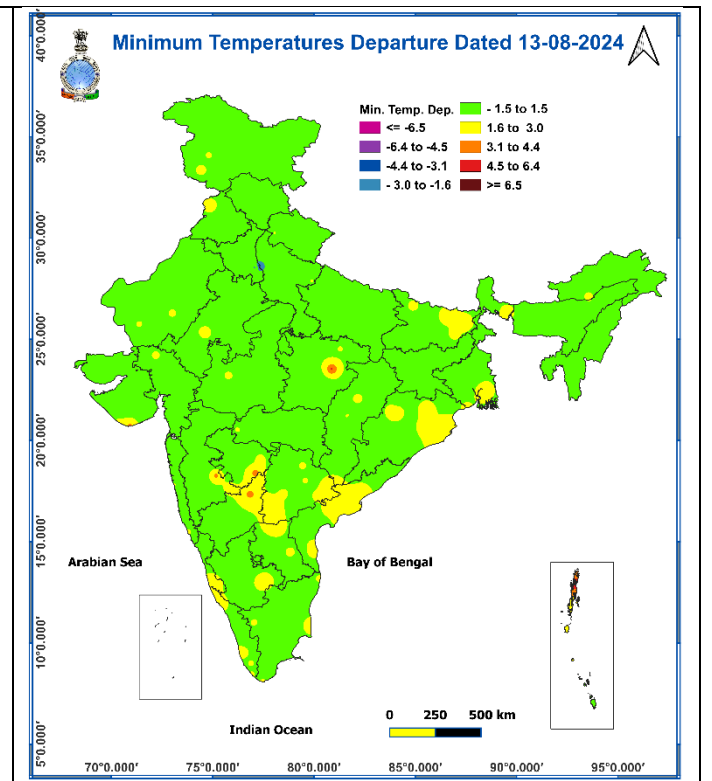
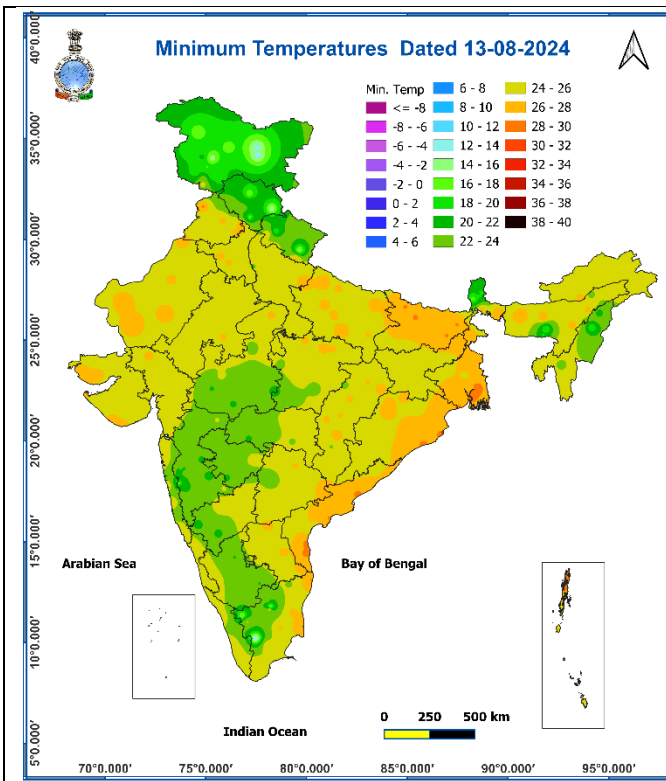
**Fig. 1: Maximum Temperatures**

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



**Fig. 3: Minimum Temperatures**

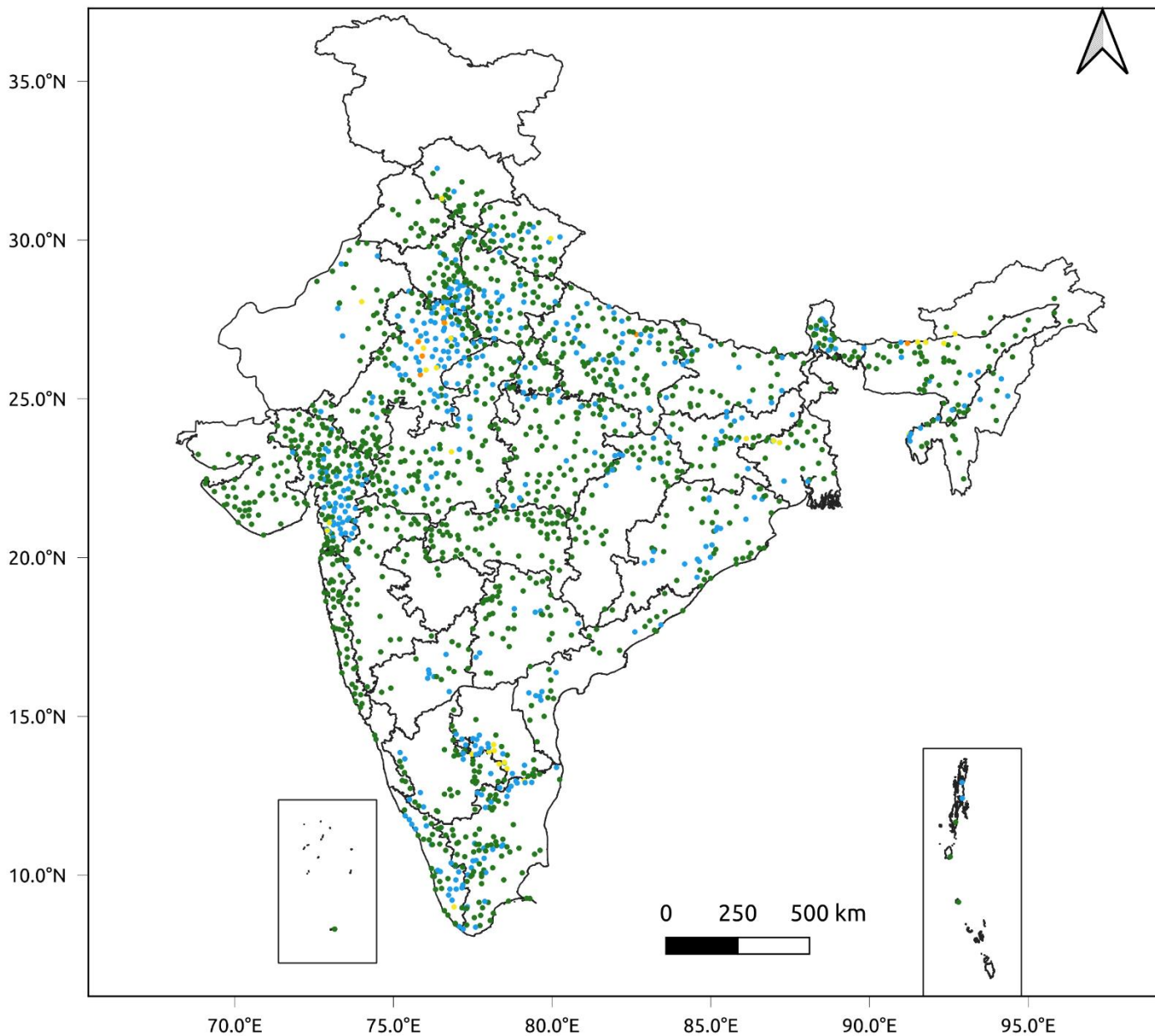
**Fig. 4: Departure of Minimum Temperatures**



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



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 12-8-2024 to 0830 IST of 13-8-2024

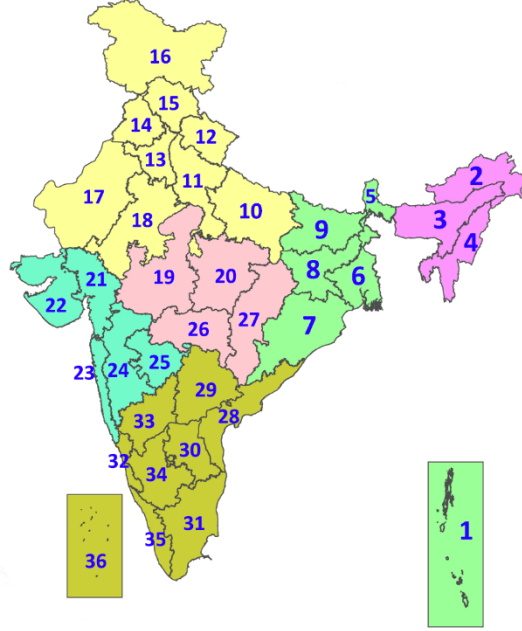


## Legends

- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall ( $\geq 204.5$  mm)

## 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

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## 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)