

Friday, September 13, 2024  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ✓ The **depression** over central Uttar Pradesh moved north-northwestwards with a speed of 10 kmph during past 6 hours and lay centred at 0530 hours IST of 13th September over northwest Uttar Pradesh and neighbourhood near latitude 28.2°N and longitude 79.3°E, about 20 km south-southwest of Bareilly (Uttar Pradesh), 70 km west-northwest of Shahjahanpur (Uttar Pradesh), 120 km northwest of Hardoi (Uttar Pradesh), 130 km east-northeast of Aligarh (Uttar Pradesh) and 170 km northeast of Agra (Uttar Pradesh). It is likely to continue to move nearly north-northwestwards and weaken gradually into a well-marked low pressure area during next 12 hours.
- ✓ Under the influence of a cyclonic circulation over southeast Bangladesh and neighbourhood, a **low pressure** area formed over southeast Bangladesh and neighbourhood in the night of 12th September and lay over the same region at 0530 hours IST of today, the 13th September, 2024. It is likely to move slowly west-northwestwards and intensify into a depression over coastal West Bengal and adjoining northwest Bay of Bengal during next 48 hours.
- ✓ The **monsoon trough** is near normal position at mean sea level.

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

##### Northwest India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Uttarakhand, West Uttar Pradesh; Scattered to Fairly widespread light/moderate rainfall very likely over Haryana-Chandigarh-Delhi, East Uttar Pradesh, East Rajasthan, Himachal Pradesh; Isolated to scattered rainfall over the remaining region during the week.
- ✓ Isolated **extremely heavy rainfall** very likely over Uttarakhand on 13<sup>th</sup>.
- ✓ Isolated **very heavy rainfall** very likely over West Uttar Pradesh on 13<sup>th</sup> September.
- ✓ Isolated **heavy rainfall** very likely over Himachal Pradesh, Haryana-Chandigarh-Delhi, West Uttar Pradesh & East Rajasthan on 13<sup>th</sup>; Uttarakhand during 13<sup>th</sup>-14<sup>th</sup>; East Uttar Pradesh during 13<sup>th</sup>-17<sup>th</sup> September.

##### West & Central India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Madhya Pradesh, Konkan & Goa; Scattered to Fairly widespread light/moderate rainfall very likely over Vidarbha, Chhattisgarh; Isolated to Scattered light/moderate rainfall very likely over Madhya Maharashtra, Marathwada, Gujarat State during the week.
- ✓ Isolated **very heavy rainfall** very likely over East Madhya Pradesh & Chhattisgarh on 16<sup>th</sup> & 17<sup>th</sup> September.
- ✓ Isolated **heavy rainfall** very likely over West Madhya Pradesh during 13<sup>th</sup>, 17<sup>th</sup> & 18<sup>th</sup>; East Madhya Pradesh during 13<sup>th</sup> & 15<sup>th</sup>-18<sup>th</sup>; Chhattisgarh during 15<sup>th</sup>-17<sup>th</sup>.

##### East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Nagaland, Manipur, Mizoram & Tripura, Jharkhand, Odisha, Gangetic West Bengal, Andaman & Nicobar Islands; Scattered to Fairly widespread light/moderate rainfall very likely over Assam & Meghalaya, Arunachal Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim during the week.
- ✓ Isolated **very heavy rainfall** very likely over Assam & Meghalaya on 14<sup>th</sup> & 15<sup>th</sup>; Nagaland, Manipur, Mizoram & Tripura on 12<sup>th</sup> & 13<sup>th</sup>; Gangetic West Bengal & Odisha on 13<sup>th</sup> & 14<sup>th</sup>; Jharkhand on 14<sup>th</sup> & 15<sup>th</sup> September.
- ✓ Isolated **heavy rainfall** very likely over Assam & Meghalaya during the next 7 days; Arunachal Pradesh during 14<sup>th</sup>-16<sup>th</sup>; Nagaland, Manipur, Mizoram & Tripura during 13<sup>th</sup>-17<sup>th</sup>; Gangetic West Bengal during 13<sup>th</sup>-15<sup>th</sup>; Bihar during 13<sup>th</sup>-16<sup>th</sup>; Jharkhand 13<sup>th</sup>-16<sup>th</sup>; Odisha during 13<sup>th</sup>-15<sup>th</sup> September.

##### South Peninsular India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Coastal Karnataka, Coastal Andhra Pradesh & Yanam; Scattered to Fairly widespread light/moderate rainfall over Lakshadweep, Kerala & Mahe; isolated to scattered rainfall over Tamil Nadu, Puducherry & Karaikal, Rayalaseema, Telangana & Interior Karnataka during the week.

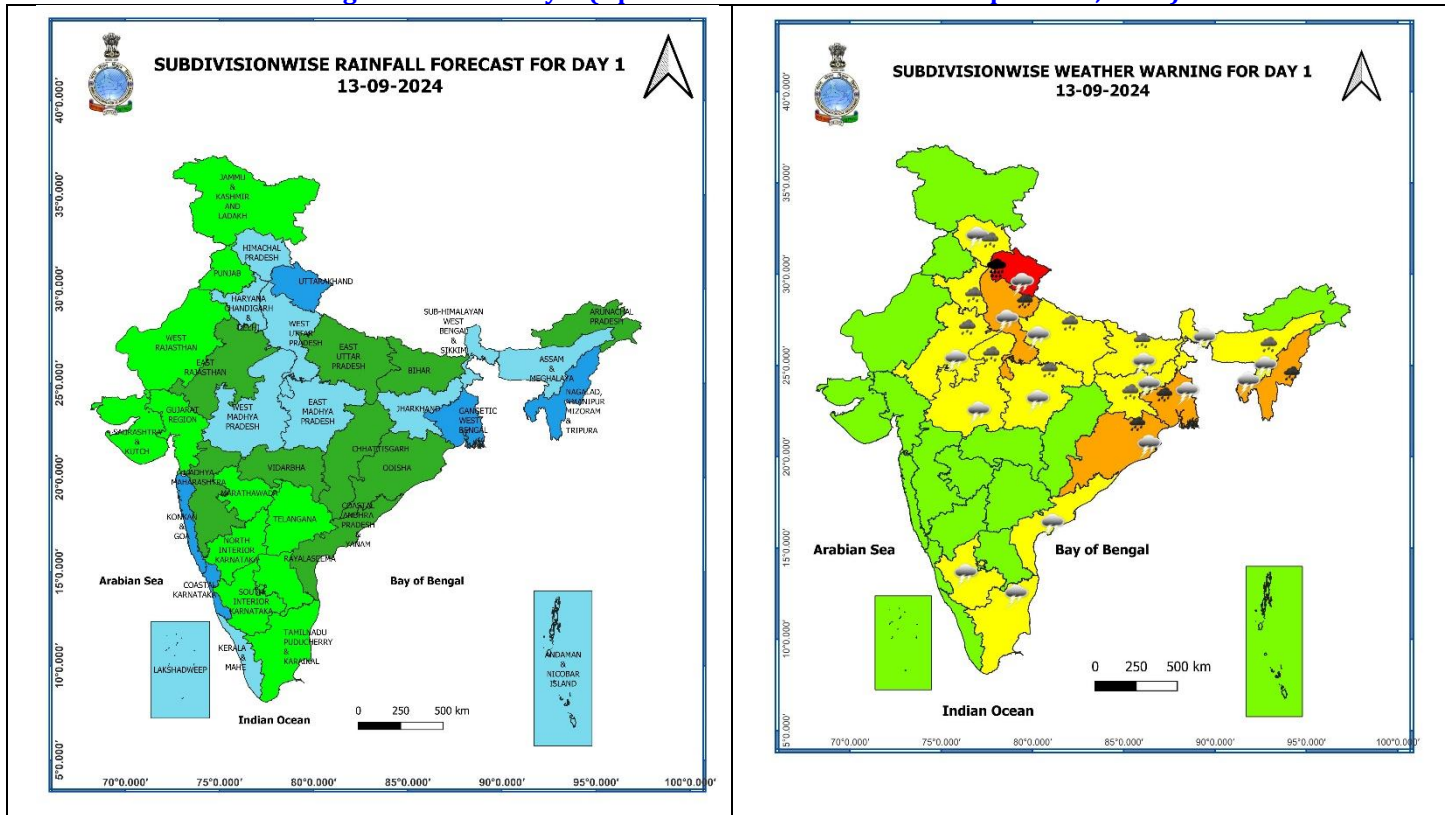
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at most places** over Uttar Pradesh; **at many places** over Himachal Pradesh, Uttarakhand, East Rajasthan, East Madhya Pradesh, Kerala & Mahe, Andaman & Nicobar Islands; **at a few places** over Haryana-Chandigarh-Delhi, West Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Lakshadweep; **at isolated places** over West Rajasthan, Bihar, Jharkhand, West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Chhattisgarh, Odisha, Saurashtra & Kutch, Vidarbha, Marathwada, Telangana, North Interior Karnataka, Coastal Karnataka, Tamil Nadu, Puducherry & Karaikal.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over East Rajasthan, Uttarakhand and West Uttar Pradesh.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **East Rajasthan:** Mitrapura (Sawai Madhopur) 9, Patan (Neem Ka Thana) & Viratnagar (Kotputli-Behror) 8 each, Khatoli (Kota) 7, Andhi (Jaipur gramin) 7, Nirjharna (Dausa) 7, Shahbad (Baran) 7, Pilani 3; **Uttarakhand:** Pati 8, Jainti & Dhari 6 each, Lohaghat 5, Devidhura 5, Rudrapur & Tanakpur 5 each, Mukteshwar Kumaon & Khatima 4 each, Pithoragarh 3, Mussoorie 2, Pantnagar & New Tehri 2; **West Uttar Pradesh:** Kannauj \_Anaughi (Dis. Kannauj) 8, Aligarh 5, Agra & Deomali 5 each, Meerut & Moradabad 3 each, Bareilly & Muzaffar Nagar 2 each; **Himachal Pradesh:** Dharmsala 4; **East Uttar Pradesh:** Bahraich 3; Hardoi 2, Fatehgarh & Kanpur Chakeri 2 each; **East Madhya Pradesh:** Damoh 3, Malanjkhanda 2; **Haryana:** Narnaul 2.
- ❖ **Minimum Temperature Departures (as on 12-09-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over West Rajasthan; **above normal (1.6°C to 3.0°C)** at many places over Bihar; at a few places over Odisha and Andaman & Nicobar Islands; at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Madhya Pradesh, East Rajasthan, Gujarat state, Vidarbha, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Haryana-Chandigarh. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Delhi and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 19.6°C** was reported at **Delhi-Ridge (New Delhi)** over the plains of the country. (Fig.4)
- ❖ **Maximum Temperature Departures (as on 12-09-2024):** Maximum temperatures were **markedly above normal (5.1°C or above)** at isolated places over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya; **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Bihar, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at many places over Kerala & Mahe; at a few places over Jharkhand, Gangetic West Bengal; at isolated places over Chhattisgarh, Odisha, Interior Karnataka, Rayalaseema. These were **markedly below normal (-5.1°C or less)** at many places over West Uttar Pradesh; at isolated places over Haryana-Chandigarh-Delhi, Uttarakhand, East Rajasthan, West Madhya Pradesh, East Uttar Pradesh; **below normal (-1.6°C to -3.0°C)** at isolated places over East Madhya Pradesh, Madhya Maharashtra and Telangana and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature of 40.6°C** was reported at **Madurai (Tamil Nadu)** over the country. (Fig. 2)

## Meteorological Analysis (Based on 0530 hours IST)

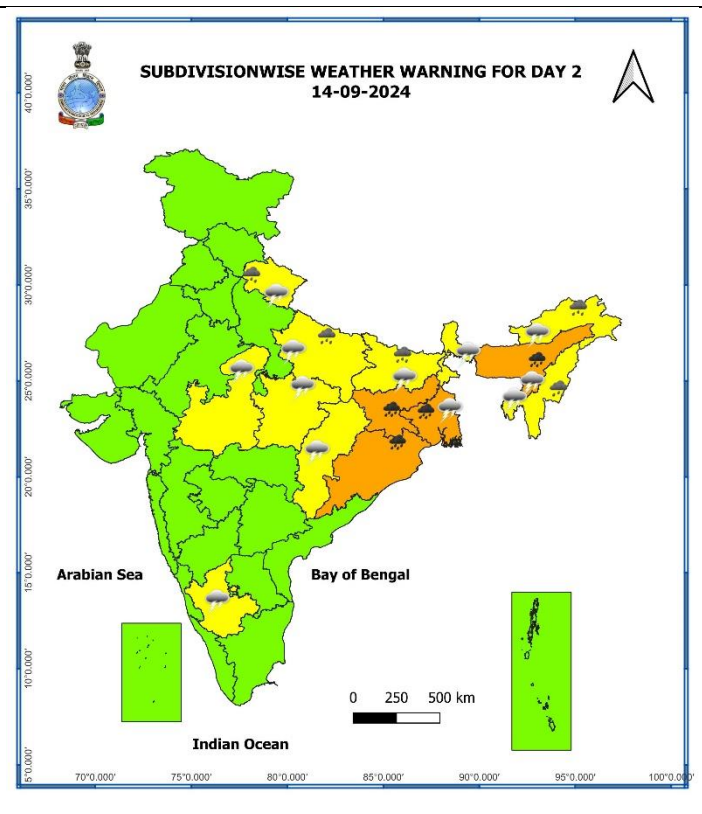
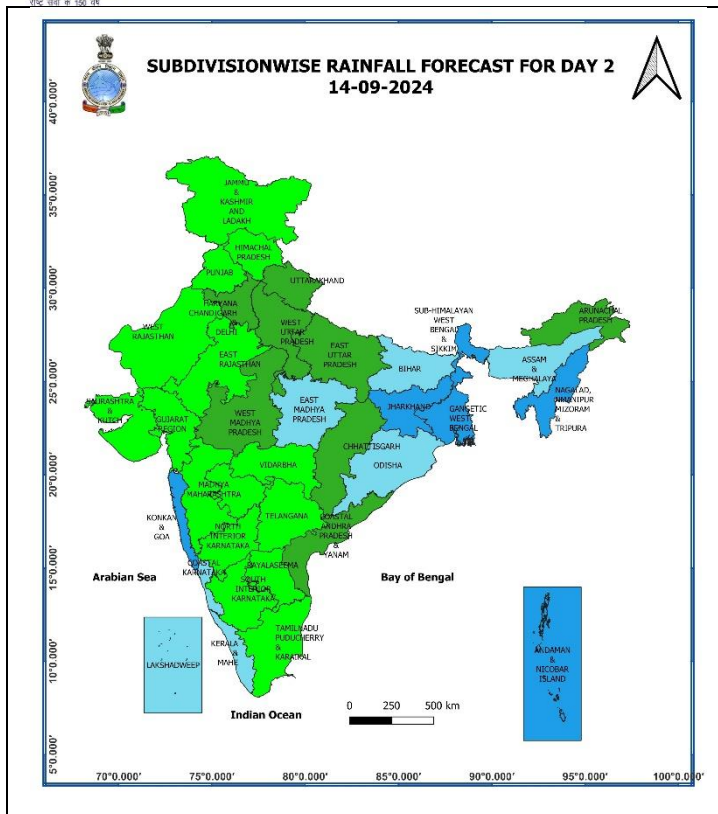
- ❖ The **depression** over central Uttar Pradesh moved north-northwestwards with a speed of 10 kmph during past 6 hours and lay centred at 0530 hours IST of 13th September over northwest Uttar Pradesh and neighbourhood near latitude 28.2°N and longitude 79.3°E, about 20 km south-southwest of Bareilly (Uttar Pradesh), 70 km west-northwest of Shahjahanpur (Uttar Pradesh), 120 km northwest of Hardoi (Uttar Pradesh), 130 km east-northeast of Aligarh (Uttar Pradesh) and 170 km northeast of Agra (Uttar Pradesh). It is likely to continue to move nearly north-northwestwards and weaken gradually into a well-marked low pressure area during next 12 hours.
- ❖ Under the influence of a cyclonic circulation over southeast Bangladesh and neighbourhood, a **low pressure** area formed over southeast Bangladesh and neighbourhood in the night of 12th September and lay over the same region at 0530 hours IST of today, the 13th September, 2024. It is likely to move slowly west-northwestwards and intensify into a depression over coastal West Bengal and adjoining northwest Bay of Bengal during next 48 hours.
- ❖ The **Monsoon trough** at mean sea level now passes through Amritsar, Ambala, Sarsawa, the centre of **depression** over northwest Uttar Pradesh and neighbourhood, Varanasi, Patna, Mandla, centre of low pressure area over southeast Bangladesh and neighbourhood.
- ❖ The **off-shore trough** at mean sea level along South Gujarat to Karnataka coasts persists.
- ❖ The **cyclonic circulation** over Saurashtra & neighbourhood now lies over Kutch at 3.1 km above mean sea level.
- ❖ The **cyclonic circulation** over Punjab & adjoining Haryana at 3.1 km above mean sea level has become less marked.
- ❖ The **Western Disturbance** as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 72°E to the north of Lat. 30°N persists.

**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 19<sup>th</sup> September, 2024)**



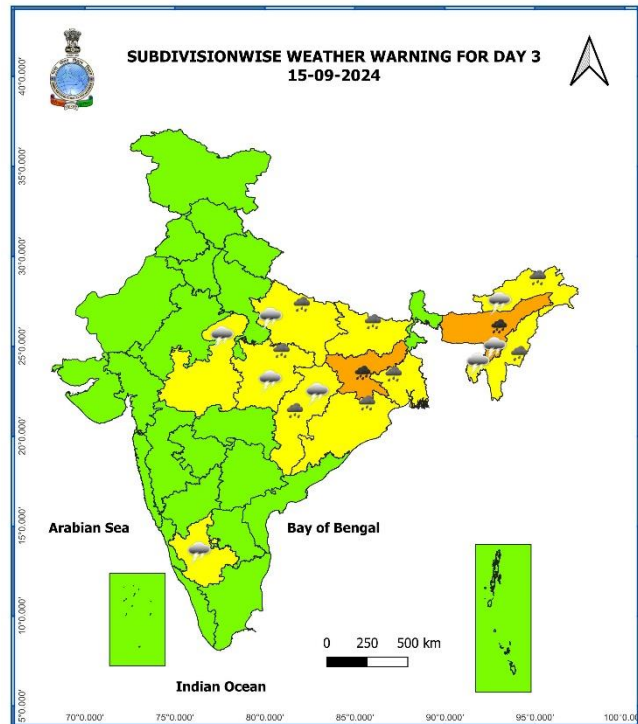
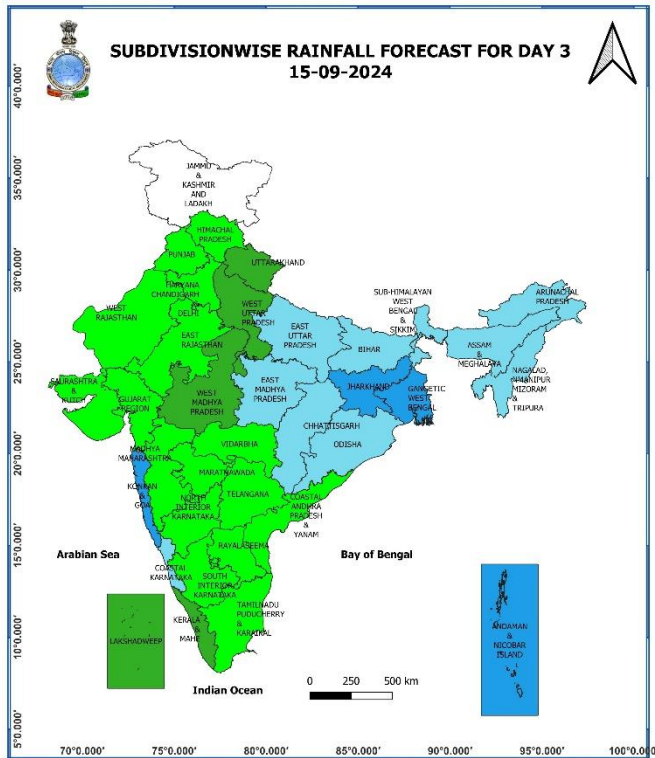
**13 September (Day 1):**

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm) with extremely heavy falls ( $> 20$  cm) very likely at isolated places over Uttarakhand; Heavy to very heavy rainfall ( $\geq 12$  cm) very likely at isolated places over West Uttar Pradesh, Gangetic West Bengal, Odisha, Nagaland, Manipur, Mizoram & Tripura; Heavy rainfall ( $\geq 7$  cm) at isolated places over Himachal Pradesh, Haryana-Chandigarh, East Uttar Pradesh, East Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Assam & Meghalaya.**
- ❖ **Thunderstorm accompanied with lightning very likely at isolated places over Himachal Pradesh, Uttarakhand, Uttar Pradesh, Madhya Pradesh, East Rajasthan, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, South Interior Karnataka.**
- ❖ **Squally weather with wind speed: reaching 30 kmph to 40 kmph gusting to 50 kmph is very likely to prevail over most parts of west central Arabian Sea and adjoining east central Arabian Sea, northern parts of southwest Arabian Sea, off Sri Lanka coast, most parts of south Bay of Bengal, many parts of central Bay of Bengal, most parts of north Bay of Bengal, and along and off Odisha, west Bengal and Bangladesh, Myanmar coasts. Squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph is likely to prevail over gulf of Mannar. Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph likely to prevail over western parts of southwest Arabian Sea; adjoining some parts of westcentral Arabian Sea, along and off Somalia coast, and off Oman coast. Fishermen are advised not to venture into these areas.**



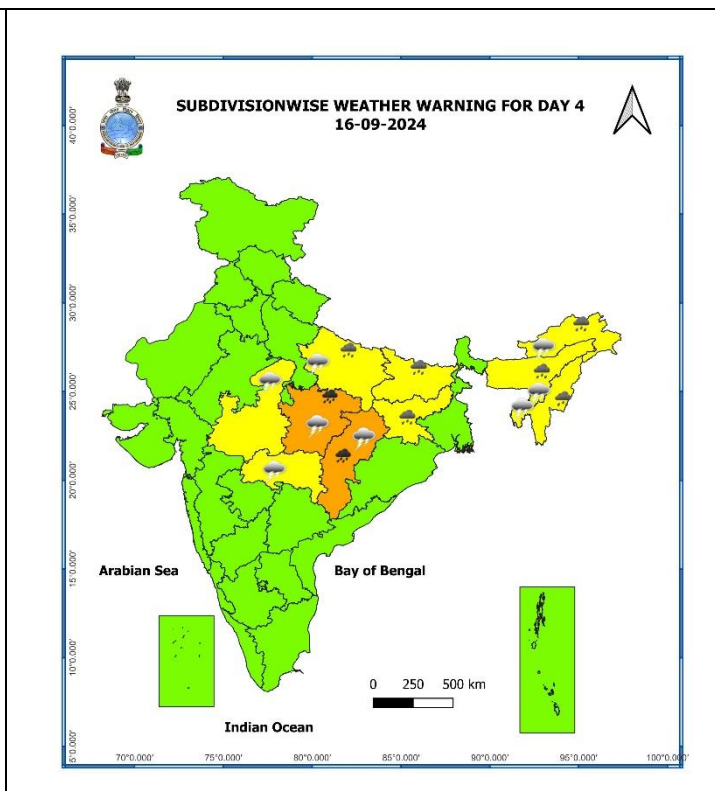
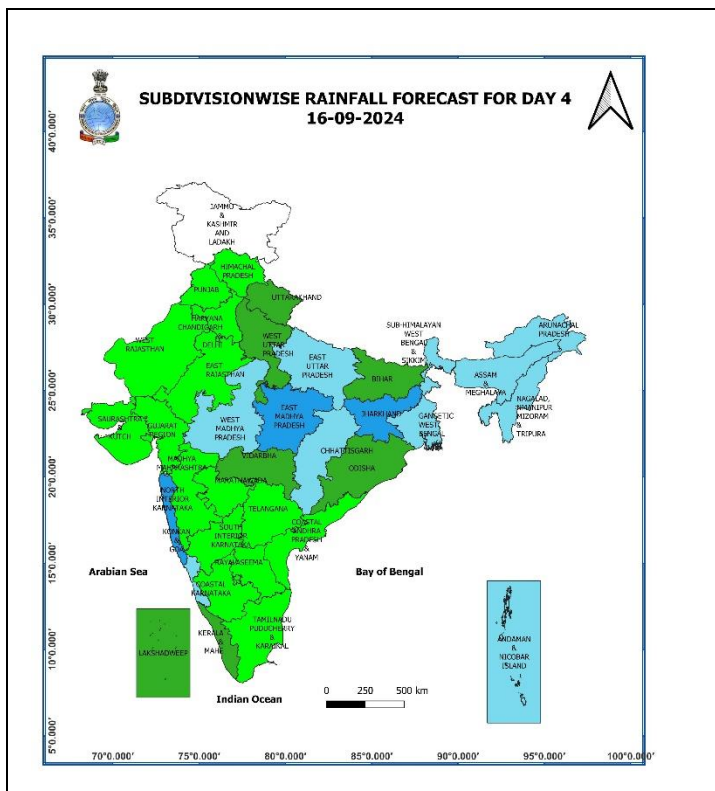
### 14 September (Day 2):

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** is very likely at isolated places over Gangetic West Bengal, Jharkhand, Assam & Meghalaya, Odisha; **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Uttarakhand, East Uttar Pradesh, Bihar, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Thunderstorm accompanied with lightning** is very likely at isolated places over Uttarakhand, East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Sub-Himalayan West Bengal & Sikkim, Bihar, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, South Interior Karnataka.
- ❖ **Squally weather with wind speed reaching 30 kmph to 40 kmph gusting to 50 kmph** is very likely to prevail over central parts of central Arabian Sea, over gulf of Mannar, off silence coast, most parts of south Bay of Bengal, many parts of central Bay of Bengal, most parts of north Bay of Bengal, along and off Odisha, West Bengal and Bangladesh, off Myanmar coasts. **Squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail along and off West Bengal and Bangladesh coast. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian Sea; southwestern parts of westcentral Arabian Sea, along and off Somalia coast. Fishermen are advised not to venture into these areas.



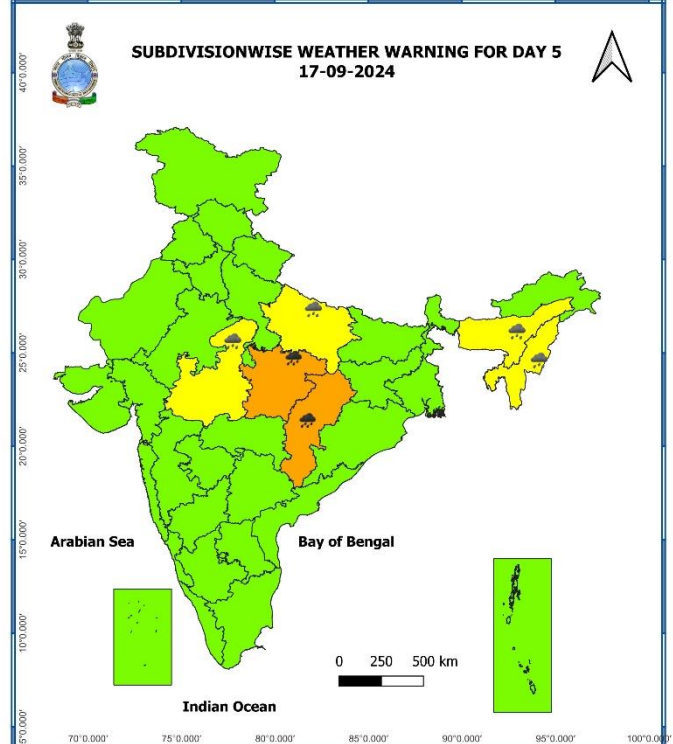
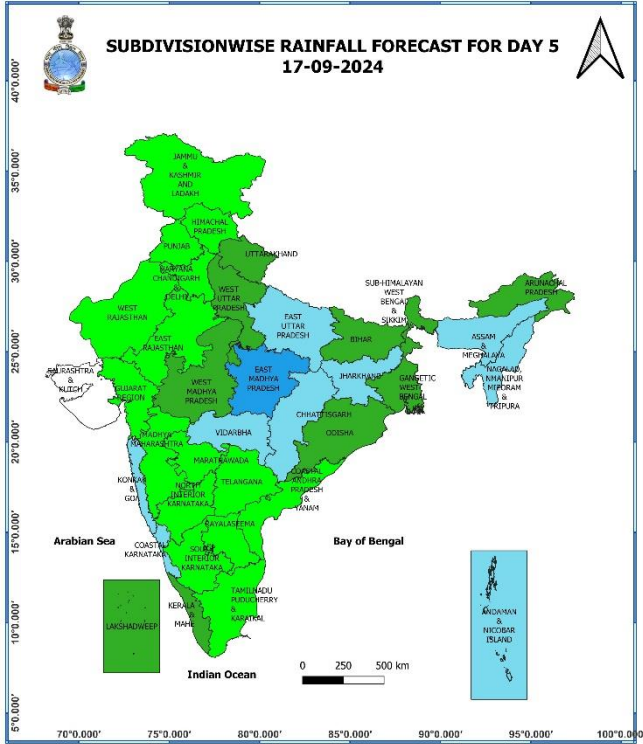
**15 September (Day 3):**

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Jharkhand, Assam & Meghalaya; **Heavy rainfall ( $\geq 7$  cm)** at isolated places over East Uttar Pradesh, East Madhya Pradesh, Chhattisgarh, Gangetic West Bengal, Bihar, Odisha, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, South Interior Karnataka.
- ❖ **Squally weather with wind speed reaching 30 kmph to 40 kmph gusting to 50 kmph** is likely to prevail over central parts of central Arabian Sea, over gulf of Mannar, off silence coast, most parts of south Bay of Bengal, many parts of central Bay of Bengal, most parts of north Bay of Bengal, along and off Odisha, West Bengal and Bangladesh, off Myanmar coasts. **Squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail along and off north Odisha coast. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian Sea; southwestern parts of westcentral Arabian Sea, along and off Somalia coast. Fishermen are advised not to venture into these areas.



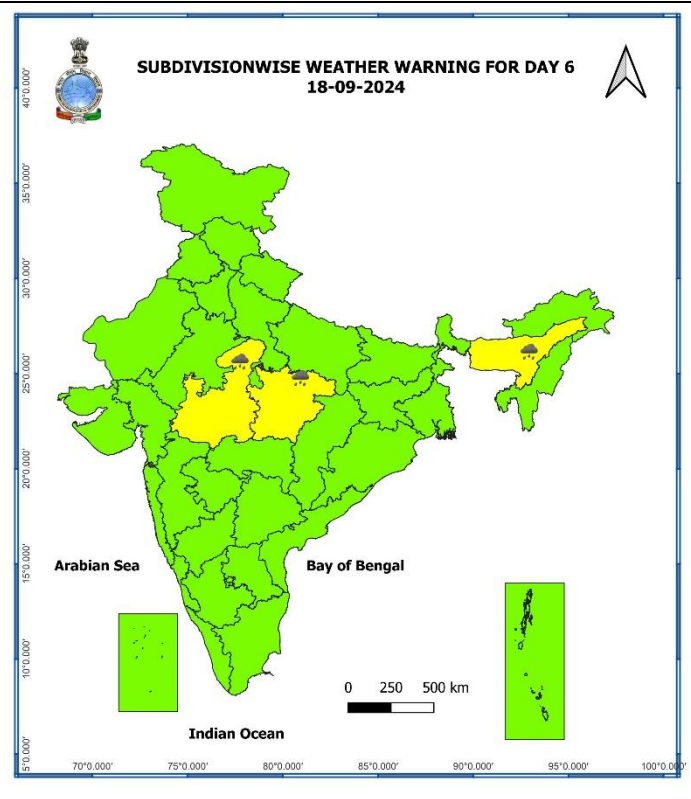
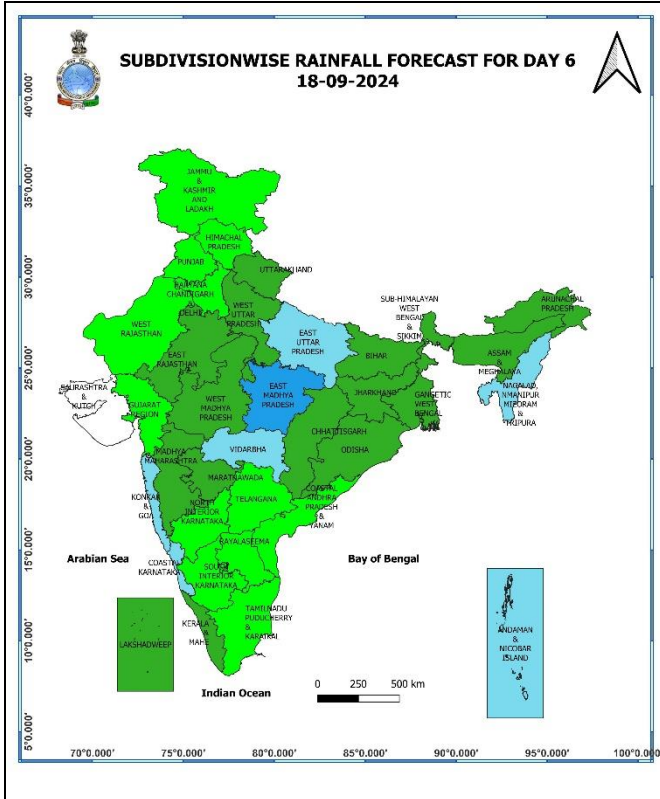
**16 September (Day 4):**

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** likely at isolated places over East Madhya Pradesh, Chhattisgarh; **Heavy rainfall ( $\geq 7$  cm)** at isolated places over East Uttar Pradesh, Bihar, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 30 kmph to 40 kmph gusting to 50 kmph** is likely to prevail over many parts of west central Arabian Sea and adjoining east central Arabian Sea, northern parts of southwest Arabian Sea, over gulf of Mannar, off silence coast, most parts of south Bay of Bengal; adjoining parts of central Bay of Bengal, along and off Odisha, west Bengal coasts. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian Sea; adjoining some parts of westcentral Arabian Sea along and off Somalia coast. Fishermen are advised not to venture into these areas.



### 17 September (Day 5):

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** likely at isolated places over East Madhya Pradesh, Chhattisgarh; **Heavy rainfall ( $\geq 7$  cm)** at isolated places over East Uttar Pradesh, West Madhya Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.



**18 September (Day 6):**

- ❖ Heavy rainfall ( $\geq 7$  cm) likely at isolated places over Madhya Pradesh, Assam & Meghalaya.



## Impact due to

- Isolated **extremely heavy rainfall** very likely over Uttarakhand on 13<sup>th</sup>; **Very heavy rainfall** at isolated places over West Uttar Pradesh on 13<sup>th</sup>; East Madhya Pradesh, Chhattisgarh on 16<sup>th</sup> & 17<sup>th</sup>; Gangetic West Bengal on 13<sup>th</sup> & 14<sup>th</sup>; Jharkhand, Assam & Meghalaya on 14<sup>th</sup> & 15<sup>th</sup>; Odisha on 13<sup>th</sup> & 14<sup>th</sup>; Nagaland, Manipur, Mizoram & Tripura on 13<sup>th</sup> September.
- **Moderate to High flash flood risk** likely over Uttarakhand, Himachal Pradesh & Uttar Pradesh; **Low to Moderate flash flood risk** likely over Gangetic West Bengal, Odisha on 13<sup>th</sup> & 14<sup>th</sup> September. **(ANNEXURE I)**

## Impact Expected

- ✓ Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- ✓ Occasional reduction in visibility due to heavy rainfall.
- ✓ Disruption of traffic in major cities and roadways 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 and wind.
- ✓ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC)

## Action Suggested

- ✓ Judicious regulation of surface transports including railways and roadways.
- ✓ 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 cotton, maize, soybean, pulses and vegetables in **Madhya Pradesh**; from maize, sorghum, pearl millet, groundnut, pulses and vegetables in **East Rajasthan**; from rice, maize, groundnut, sesame, arhar, black gram and vegetables in **Uttar Pradesh**; from rice, maize, soybean, finger millet, pigeon pea and vegetables in **Uttarakhand** to prevent water logging.
- ✓ Make provision for draining out excess water from standing crop fields and fruit orchards to avoid water stagnation in Assam & Meghalaya, NMMT, Gangetic West Bengal, Odisha, Jharkhand, Himachal Pradesh and Haryana.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ Keep the harvested produce at safer place.

**Flash Flood Guidance:**

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 14-09-2024 :**

**Moderate to High flash flood risk** likely over few watersheds & neighbourhoods of

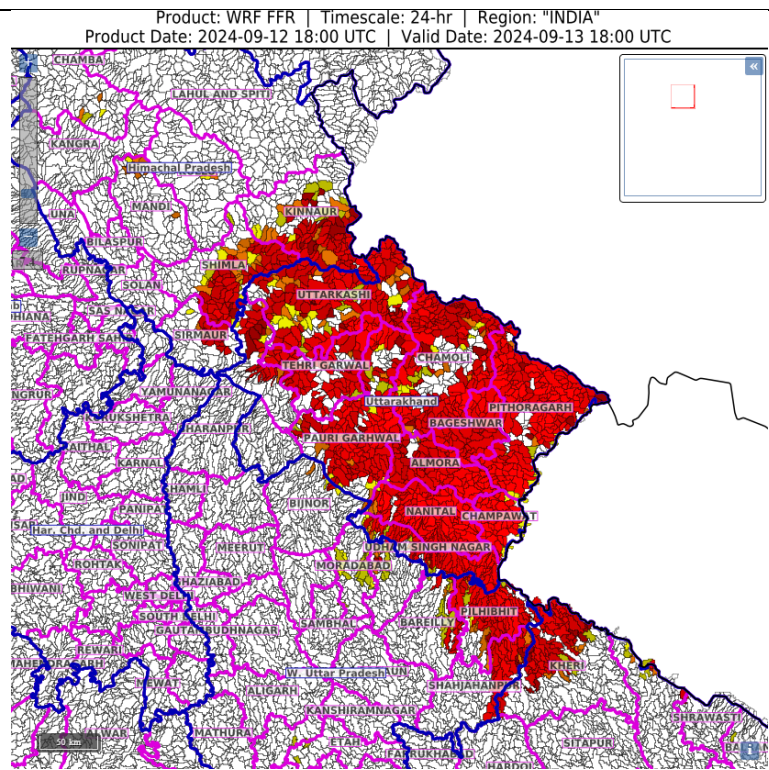
**Uttarakhand** - Almora, Bageshwar, Chamoli, Champawat, Dehradun, Nanital, Pauri Garhwal, Pithoragarh, Rudraprayag, Tehri Garwal, Udham Singh Nagar and Uttarkashi districts.

**Himachal Pradesh** – Shimla, Sirmour and Kinnaur districts

**West Uttar Pradesh** -Bareilly, Moradabad, Pilhibhit, Rampur and Sambhal districts.

**East Uttar Pradesh** Kheri 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.



**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 14-09-2024 :**

**Low to Moderate flash flood risk** likely over few watersheds & neighbourhoods of

**Gangetic West Bengal** – 24 Paraganas, East Mednipur, Pashim Medipur, Haora and Bankura.

**Orissa** – Mayurbanj, Baleshwar, Kendujhar and Sundargarh 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.

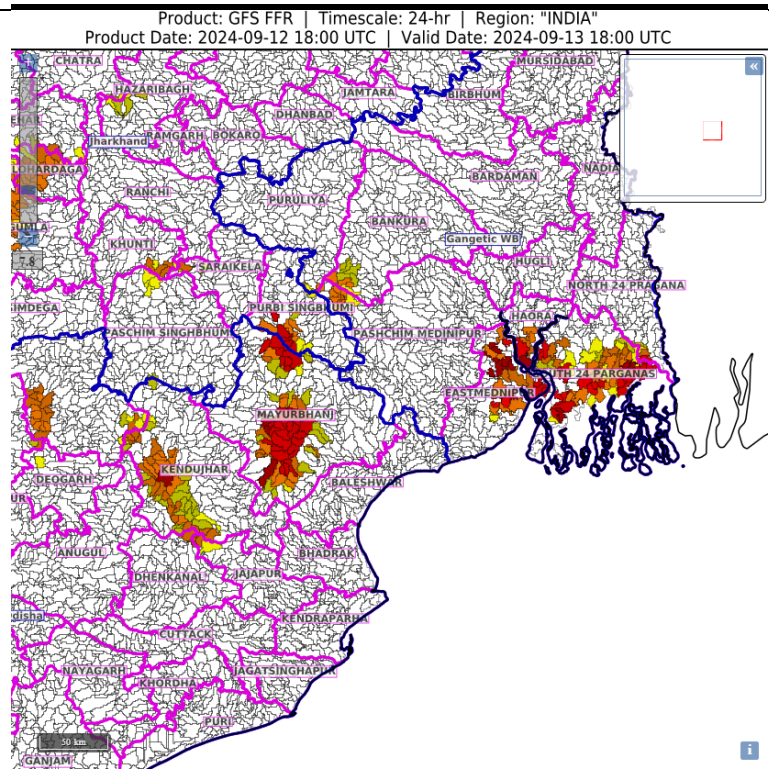


Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

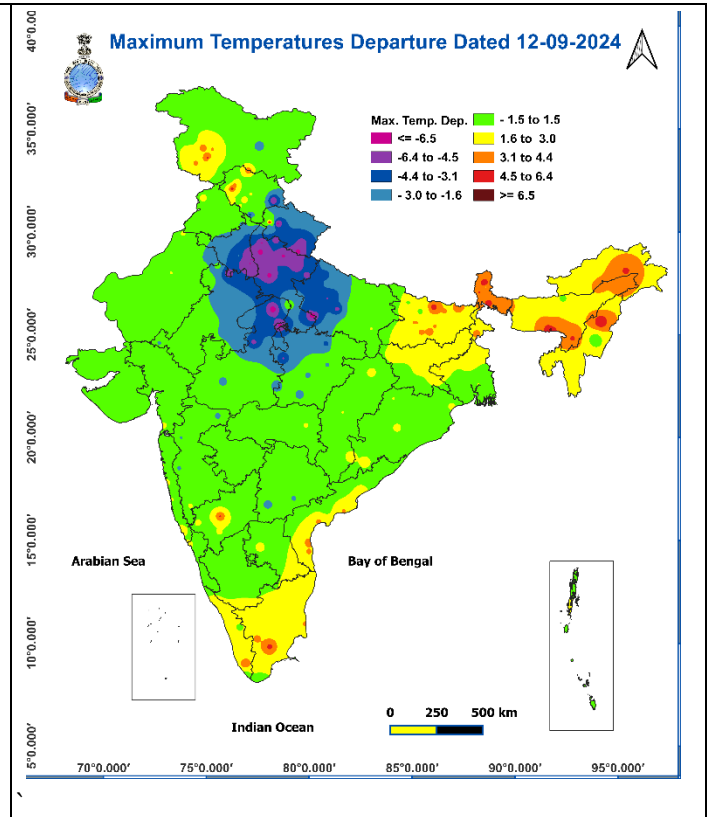
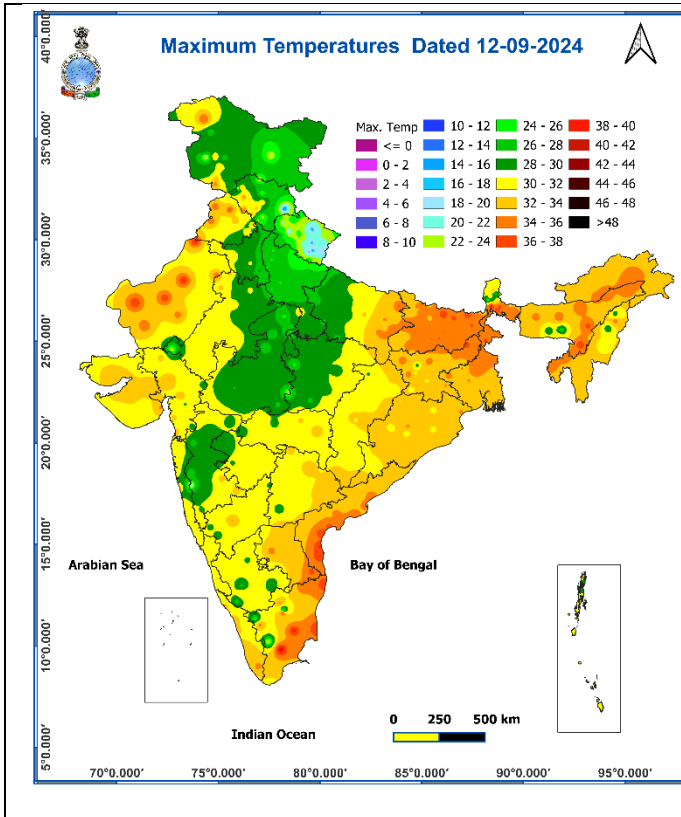


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

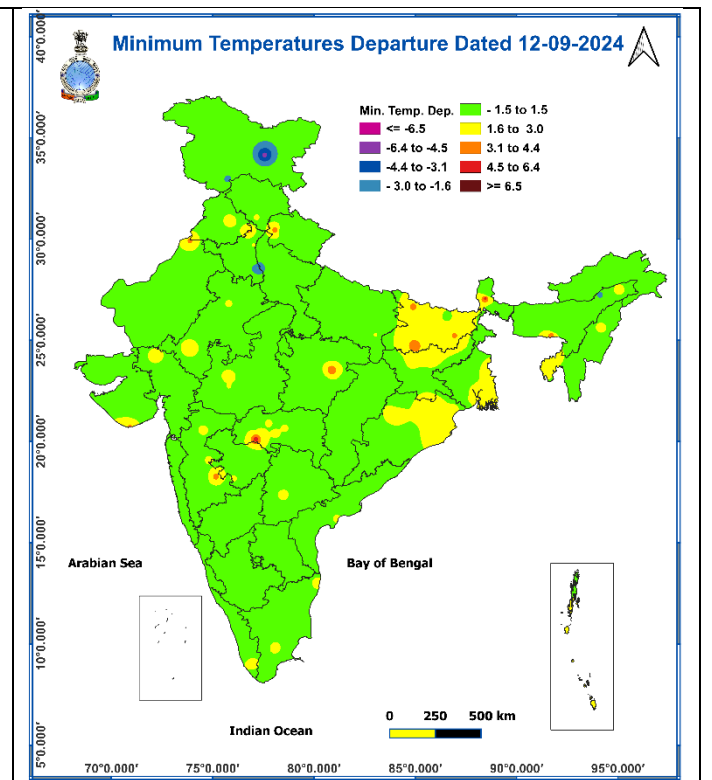
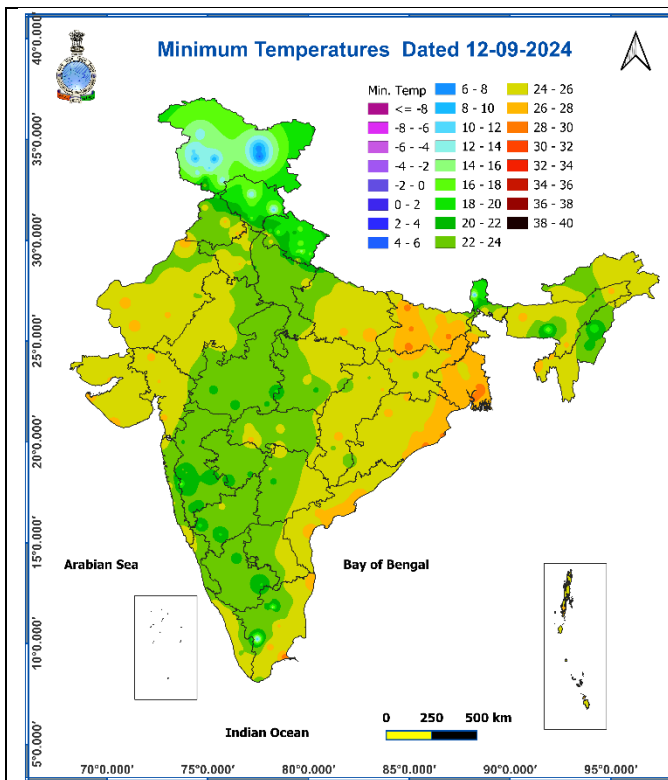
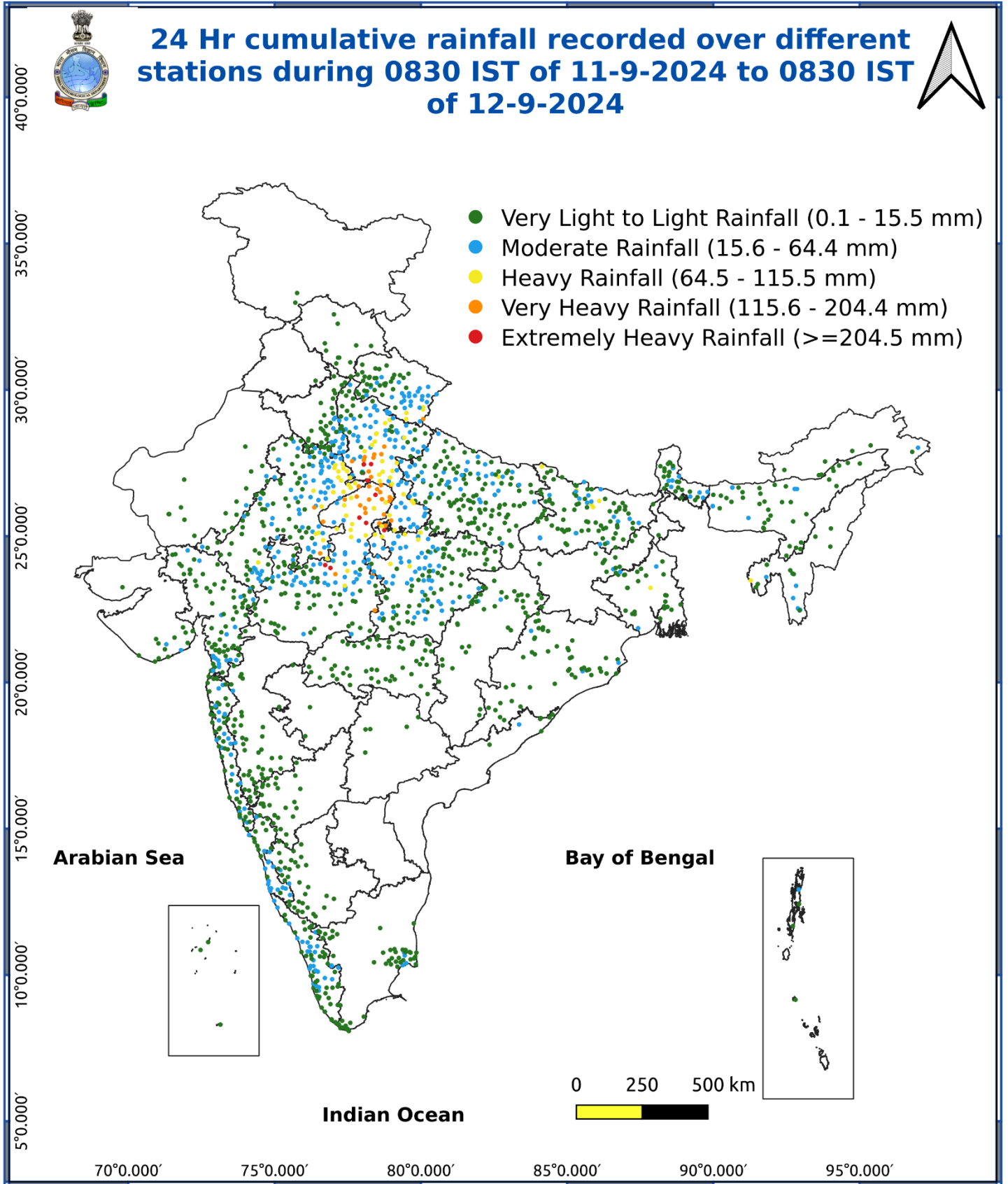


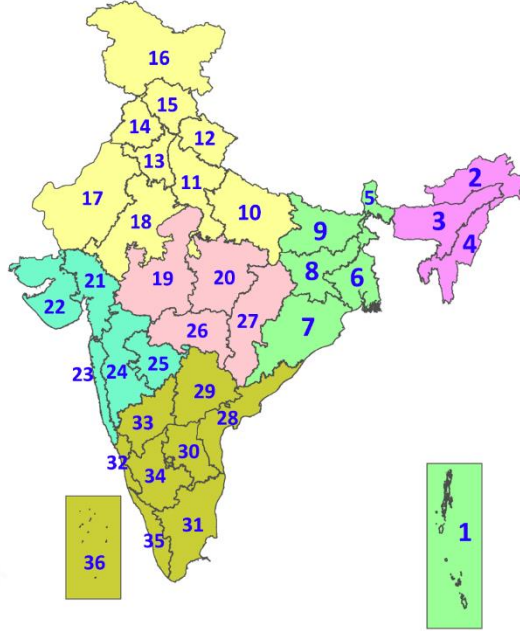
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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

## LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और माहे
36. लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Odisha
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chandigarh & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidarbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

## SPATIAL DISTRIBUTION (% of Stations reporting)

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/A Few Places)
51-75	Fairly Widespread (FWS/Many Places)	1-25	Isolated (ISOL)



Fog



Heavy Snow



Cold Wave



Heavy Rain



Dust Storm



Cold Day



Very Heavy Rain



Heat Wave



Ground Frost



Extremely Heavy Rain



Warm Night



Thunder & Lightning



Hot Day



Hailstorm



Hot & Humid



Dust Raising Winds



Strong Surface Winds

### COLOUR CODED WARNING

No Warning (No Action)
Watch (Be Aware)
Alert (Be Prepared To Take Action)
Warning (Take Action)

### Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

## DEFINITION/CRITERIA

### Rain/ Snow \*

Heavy: 64.5 to 115.5 mm/cm \*  
Very Heavy: 115.6 to 204.4 mm/cm\*  
Extremely Heavy: > 204.4 mm/cm \*

### Heat Wave

When maximum temperature of a station reaches  $\geq 40^\circ\text{C}$  for plains and  $\geq 30^\circ\text{C}$  for hilly regions  
(a) Based on Departure from normal

Heat Wave: Maximum Temperature Departure from normal  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .  
Severe Heat Wave: Maximum Temperature Departure from normal  $\geq 6.5^\circ\text{C}$

(b). Based on Actual maximum temperature

Heat Wave: When actual maximum temperature  $\geq 45^\circ\text{C}$ .  
Severe Heat Wave: When actual maximum temperature  $\geq 47^\circ\text{C}$

(c) Criteria for heat wave for coastal stations

When maximum temperature departure is  $>4.5^\circ\text{C}$  from normal. Heat Wave may be described provided maximum temperature  $\geq 37^\circ\text{C}$

### Warm Night

When maximum temperature remains  $40^\circ\text{C}$

Warm Night: When minimum temperature departure  $4.5^\circ\text{C}$  to  $6.4^\circ\text{C}$ .  
Severe Warm Night: When minimum temperature departure  $>6.4^\circ\text{C}$ .

### Cold Wave

When minimum temperature of a station  $\leq 10^\circ\text{C}$  for plains and  $\leq 0^\circ\text{C}$  for hilly regions.  
(a). Based on departure

Cold Wave: Minimum Temperature Departure from normal  $-4.5^\circ\text{C}$  to  $-6.4^\circ\text{C}$ .  
Severe Cold Wave: Minimum Temperature Departure from normal  $\leq -6.5^\circ\text{C}$

(b) Based on actual Minimum Temperature (for Plains only)

Cold Wave : When Minimum Temperature is  $\leq 4.0^\circ\text{C}$   
Severe Cold Wave: When Minimum Temperature is  $\leq 2.0^\circ\text{C}$

(c) For Coastal Stations

When Minimum Temperature departure is  $\leq -4.5^\circ\text{C}$  & actual Minimum Temperature is  $\leq 15^\circ\text{C}$

### Cold Day

When minimum temperature of a station  $\leq 10^\circ\text{C}$  for plains and  $\leq 0^\circ\text{C}$  for hilly regions  
Based on departure

Cold Day: Maximum Temperature Departure from normal  $-4.5^\circ\text{C}$  to  $-6.4^\circ\text{C}$ .  
Severe Cold Day: Maximum Temperature Departure from normal  $\leq -6.5^\circ\text{C}$

### Fog

Phenomenon of small droplets suspended in air and the horizontal visibility  $< 1\text{km}$

Moderate Fog: When the visibility between 500-200 metres  
Dense Fog: when the visibility between 50- 200 metres  
Very Dense Fog: when the visibility  $< 50$  metres

### Thunderstorm

Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)

### Dust/Sand Storm

An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.

### Frost

Ice deposits on ground

Air temperature  $\leq 4^\circ\text{C}$  ( over Plains)

### Squall

A strong wind that rises suddenly, lasts for atleast 1 minute.

Moderate: Wind speed 52-61 kmph  
Severe: Wind speed 62-87 kmph  
Very Severe: Wind speed  $>87$  kmph

### Sea State

Effect of various waves in the sea over specific area

Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre  
High to very high: Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre  
Phenomenal: Wind speed  $>117$  kmph ( $>63$  knots) & Wave height  $>14$  metre

### Cyclone

Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)  
Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)  
Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)  
Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)  
Super Cyclone Strom: Wind speed  $>220$  kmph ( $>119$  knots)