

Tuesday, September 10, 2024
Time of Issue: 0815 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ✓ The **depression** over interior Odisha moved west-northwestwards with a speed of 22 kmph during past 6 hours, lay centered at 0530 hours IST of today, the 10th September, 2024 over North Chhattisgarh & adjoining interior Odisha near latitude 21.7°N and longitude 83.3°E, about 90 km west-southwest of Jharsuguda (Odisha), 70 km west-northwest of Sambalpur (Odisha), 120 km east-southeast of Bilaspur (Chhattisgarh) and 170 km east-northeast of Raipur (Chhattisgarh). It is very likely to move west-northwestwards across north Chhattisgarh and weaken into a **well marked low pressure area** over Chhattisgarh and adjoining East Madhya Pradesh around evening of 10th September.
- ✓ A trough runs from Southwest Uttar Pradesh to the centre of Depression over North Chhattisgarh & adjoining interior Odisha across north Madhya Pradesh and extends upto 3.1 km above mean sea level tilting southwards with height
- ✓ The **monsoon trough** is south of its normal position at mean sea level. It is likely to continue so for next 3-4 days.

Forecast & Warnings (upto 7 days):

❖ South Peninsular India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Coastal Karnataka, Kerala & Mahe, Lakshadweep; Scattered to Fairly widespread light/moderate rainfall over Coastal Andhra Pradesh & Yanam, Telangana; isolated to scattered rainfall over Rayalaseema, Tamil Nadu, Puducherry & Karaikal and Interior Karnataka during the week.
- ✓ Isolated **heavy rainfall** very likely over Kerala and Mahe, South Interior Karnataka, Coastal Andhra Pradesh & Yanam on 10th; Coastal Karnataka during 10th-11th September.

East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Nagaland, Manipur, Mizoram & Tripura, Andaman & Nicobar Islands, West Bengal & Sikkim, Odisha during the week; Scattered to Fairly widespread light/moderate rainfall very likely over Arunachal Pradesh, Assam & Meghalaya, Bihar during the week.
- ✓ Isolated **very heavy rainfall** very likely over Odisha on 10th; Meghalaya on 12th & 13th; Nagaland, Manipur, Mizoram & Tripura during 11th -13th September.
- ✓ Isolated **heavy rainfall** very likely over Jharkhand during 10th -13th; Gangetic West Bengal and Arunachal Pradesh during 10th-13th; Sub-Himalayan West Bengal & Sikkim, Bihar during 11th -13th; Odisha on 11th; Assam & Meghalaya during 10th-14th; Nagaland, Manipur, Mizoram & Tripura during 10th-13th September.

West & Central India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over West and Central India during the week.
- ✓ Isolated **extremely heavy rainfall** very likely over East Madhya Pradesh on 10th September.
- ✓ Isolated **very heavy rainfall very likely over** Madhya Pradesh on 10th & 11th; Vidarbha on 10th September.
- ✓ Isolated **heavy rainfall** very likely over Madhya Pradesh during next 7 days; Chhattisgarh on 10th; Vidarbha, Konkan & Goa, ghats area of Madhya Maharashtra, Gujarat Region during 10th -11th September.

Northwest India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Uttarakhand, East Rajasthan, Uttar Pradesh; isolated to scattered rainfall over the remaining region during the week.
- ✓ Isolated **very heavy rainfall** very likely over East Uttar Pradesh on 10th & 11th; West Uttar Pradesh during 11th -13th; East Rajasthan on 11th & 12th; Haryana on 12th; Uttarakhand on 12th & 13th September.
- ✓ Isolated **heavy rainfall** very likely over East Rajasthan during next 7 days; Uttar Pradesh, Uttarakhand during 10th -14th and over Haryana on 11th September.

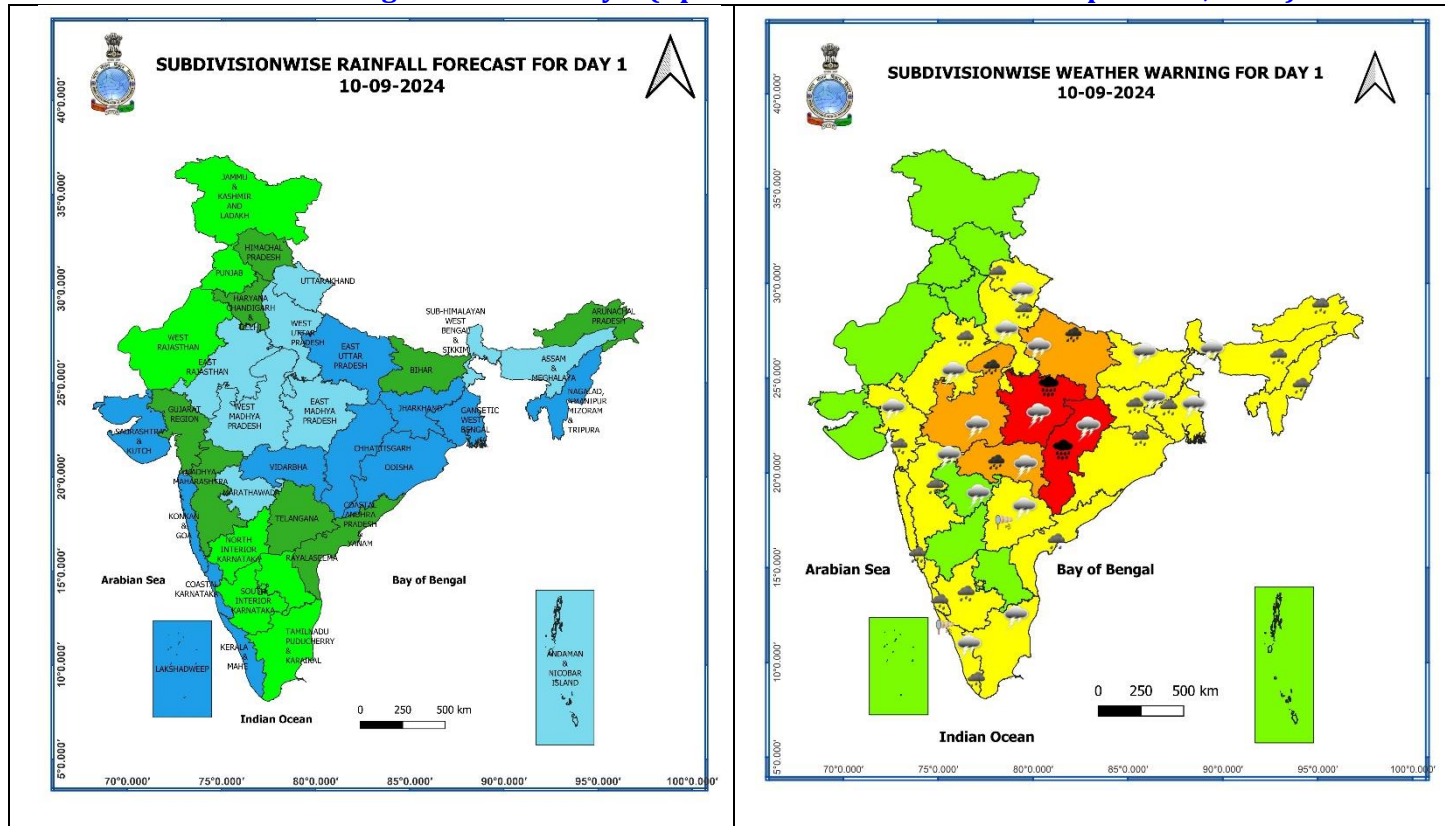
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at most places** over Odisha; **at many places** over Gangetic West Bengal, East Uttar Pradesh, Kerala & Mahe and Konkan & Goa; **at a few places** over Himachal Pradesh, West Madhya Pradesh, Chhattisgarh, Madhya Maharashtra, Lakshadweep and Vidarbha; **at isolated places** over Jammu-Kashmir, Uttarakhand, Haryana-Chandigarh-Delhi, West Uttar Pradesh, Bihar, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Jharkhand, Telangana, Karnataka, Andaman & Nicobar Islands, Tamil Nadu, Puducherry & Karaikal and Coastal Andhra Pradesh & Yanam.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over Chhattisgarh.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Chhattisgarh:** Bhanupratappur & Balod-7 each, Jagdalpur-6; **Odisha:** Nabrangpur-6, Malkangiri, Koraput & Boudh-4 each, Daringabadi, Bhawanipatna & Sonepur-3 each, Jajpur & Naupada-2 each; **Vidarbha:** Gondia-5; **Kerala:** Ayyankunnu-4, Pattambi-3, Kollengode- 2; **West Madhya Pradesh:** Ratlam-3, Ujjain-2; **West Uttar Pradesh:** Bareilly-3; **Madhya Maharashtra:** Mahabaleshwar-3; **Delhi:** Ridge-2.
- ❖ **Minimum Temperature Departures (as on 09-09-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Bihar, Himachal Pradesh, Punjab, West Rajasthan **above normal (1.6°C to 3.0°C)** at isolated places over Uttarakhand, Uttar Pradesh, Madhya Pradesh, East Rajasthan, Gujarat state, Odisha, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, Andaman & Nicobar Island, Karnataka. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Coastal Andhra Pradesh & Yanam, Telangana and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature** of 19.0°C was reported at **Bulsar (Gujarat Region)** over the plains of the country. (Fig.4)
- ❖ **Maximum Temperature Departures (as on 09-09-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim, East Madhya Pradesh, Uttarakhand, Jammu division and East Uttar Pradesh; **above normal (1.6°C to 3.0°C)** at many places over West Uttar Pradesh and Bihar; at a few places over Himachal Pradesh and Punjab; at isolated places over Haryana-Chandigarh-Delhi, Gangetic West Bengal, Chhattisgarh, West Madhya Pradesh, Madhya Maharashtra, Saurashtra & Kutch and Tamil Nadu, Puducherry & Karaikal. These were **markedly below normal (-5.1°C or Less)** at isolated places over Telangana; **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Coastal Andhra Pradesh & Yanam and Odisha and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature** of 38.2°C was reported at **Madurai (Tamil Nadu)** over the country. (Fig. 2)

Meteorological Analysis (Based on 0530 hours IST)

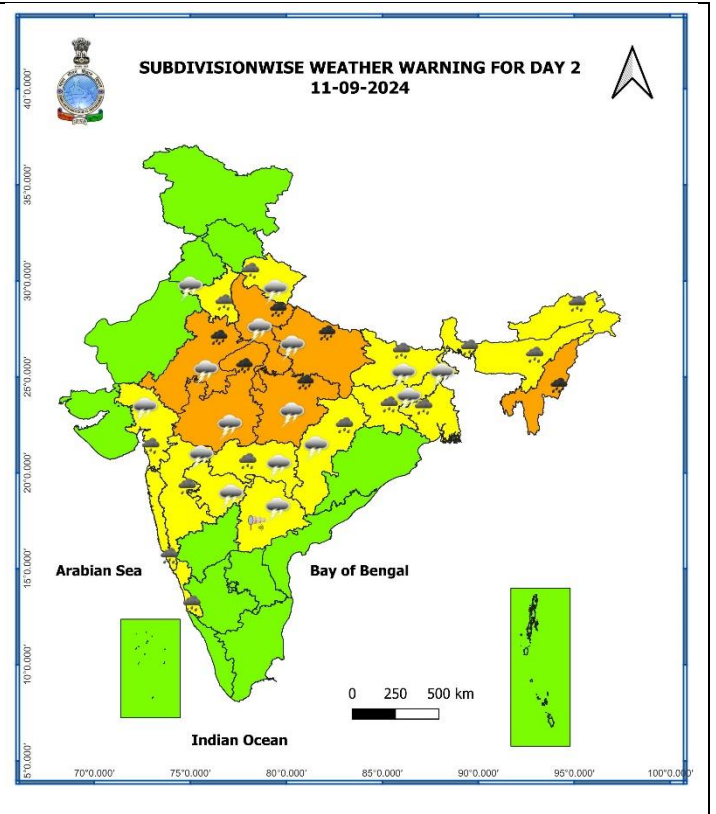
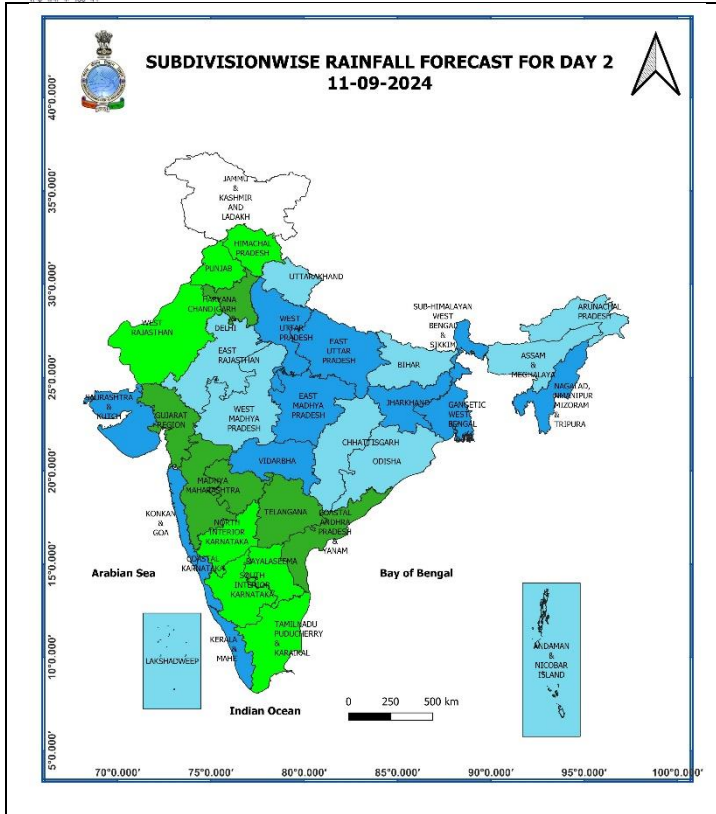
- ❖ The **depression** over interior Odisha moved west-northwestwards with a speed of 22 kmph during past 6 hours, lay centered at 0530 hours IST of today, the 10th September, 2024 over North Chhattisgarh & adjoining interior Odisha near latitude 21.7°N and longitude 83.3°E, about 90 km west-southwest of Jharsuguda (Odisha), 70 km west-northwest of Sambalpur (Odisha), 120 km east-southeast of Bilaspur (Chhattisgarh) and 170 km east-northeast of Raipur (Chhattisgarh). It is very likely to move west-northwestwards across north Chhattisgarh and weaken into a **well marked low pressure area** over Chhattisgarh and adjoining East Madhya Pradesh around evening of 10th September.
- ❖ The **Monsoon trough** at mean sea level now passes through Bikaner, Kota, Guna, Sagar, the centre of **depression** over North Chhattisgarh & adjoining interior Odisha, Puri and thence southeastwards to central Bay of Bengal.
- ❖ The **trough** now runs from Southwest Uttar Pradesh to the centre of **depression** over North Chhattisgarh & adjoining interior Odisha across north Madhya Pradesh and extends upto 3.1 km above mean sea level tilting southwards with height.
- ❖ 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. 32°N persists.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 17th September, 2024)



10 September (Day 1):

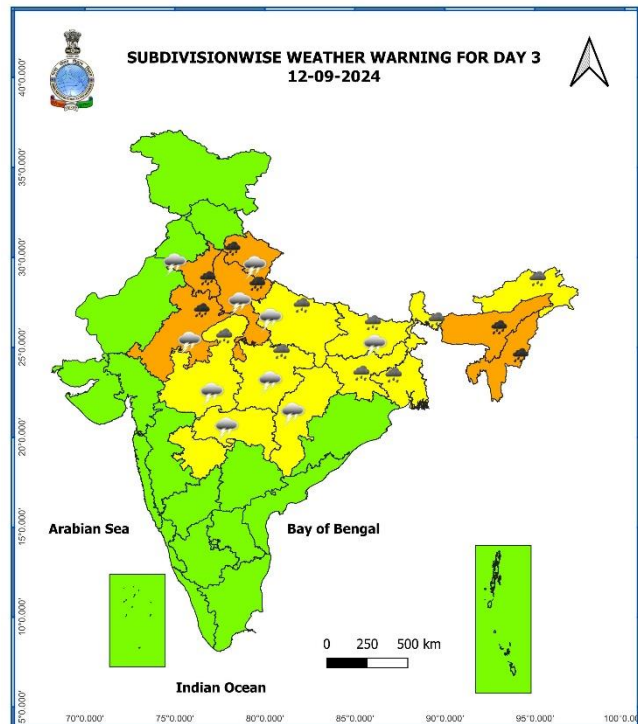
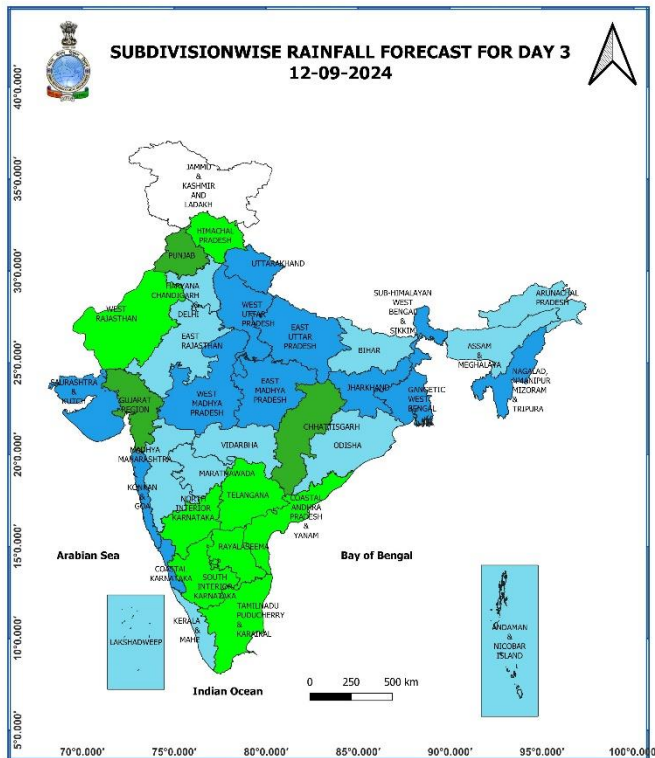
- ❖ **Heavy to very heavy rainfall (≥ 12 cm) with extremely heavy falls (> 20 cm)** very likely at isolated places over East Madhya Pradesh, Chhattisgarh; **Very heavy rainfall (≥ 12 cm)** at isolated places over East Uttar Pradesh, West Madhya Pradesh, Vidarbha; **Heavy rainfall (≥ 7 cm)** at isolated places over Uttarakhand, West Uttar Pradesh, East Rajasthan, Gangetic West Bengal, Odisha, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Madhya Maharashtra, Gujarat Region, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Coastal Karnataka & South Interior Karnataka.
- ❖ **Thunderstorm accompanied with lighting and gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Kerala & Mahe, Telangana; **with lightning** very likely at isolated places over East Rajasthan, Madhya Pradesh, Vidarbha, West Bengal & Sikkim, Bihar, Jharkhand, Madhya Maharashtra, Marathwada, Gujarat Region, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Andhra Pradesh & Yanam.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over many parts of east central and few northern parts of south Arabian sea, along and off Sri Lanka coast, most parts of south and central Bay of Bengal, northwest Bay of Bengal, many parts of northeast Bay of Bengal, along and off Andhra Pradesh, Odisha, west Bengal coasts, over north Andaman Sea. **Squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over gulf of Mannar, most parts of westcentral adjoining parts of eastcentral Bay of Bengal, along and off north Andhra Pradesh, Odisha, west Bengal coasts, over northwest Bay of Bengal. **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 parts of westcentral Arabian sea, along and off Somalia coast. Fishermen are advised not to venture into these areas.



11 September (Day 2):

- ❖ **Heavy to very heavy rainfall (≥12 cm)** very likely at isolated places over Uttar Pradesh, Madhya Pradesh, East Rajasthan, Nagaland, Manipur, Mizoram & Tripura; **Heavy rainfall (≥7 cm)** at isolated places over Uttarakhand, Haryana-Chandigarh-Delhi, Vidarbha, Chhattisgarh, West Bengal & Sikkim, Bihar, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Konkan & Goa, Madhya Maharashtra, Gujarat Region & Coastal Karnataka.
- ❖ **Thunderstorm accompanied with lighting and gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Telangana; **with lightning** very likely at isolated places over East Rajasthan, Madhya Pradesh, Vidarbha, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand, Madhya Maharashtra, Marathwada, Gujarat Region.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is very likely to prevail over many parts of east central, northern parts of southwest & adjoining southeast Arabian sea, along and off Sri Lanka coast, most parts of south and central Bay of Bengal, northwest Bay of Bengal, along and off north Andhra Pradesh, Odisha coasts. **squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over, gulf of Mannar, along and off south Tamilnadu coast, some parts of westcentral Bay of Bengal. **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 parts of westcentral Arabian sea, along and off Somalia coast. Fishermen are advised not to venture into these areas.

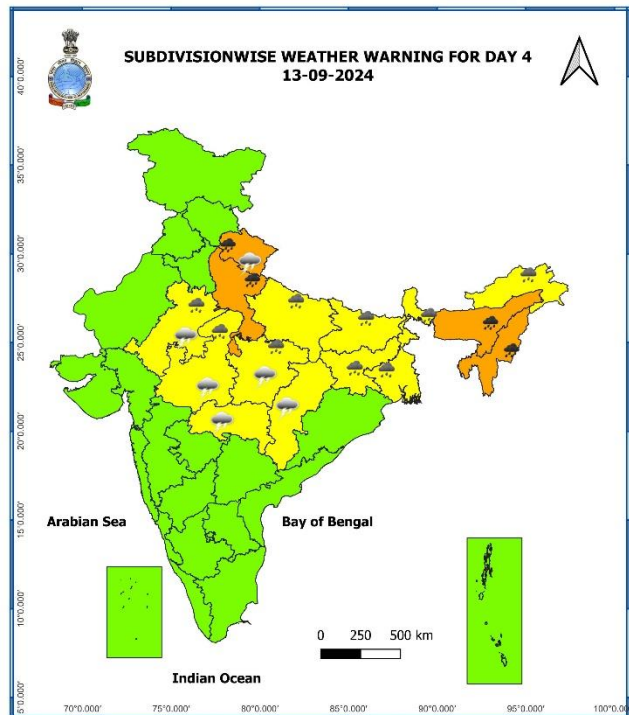
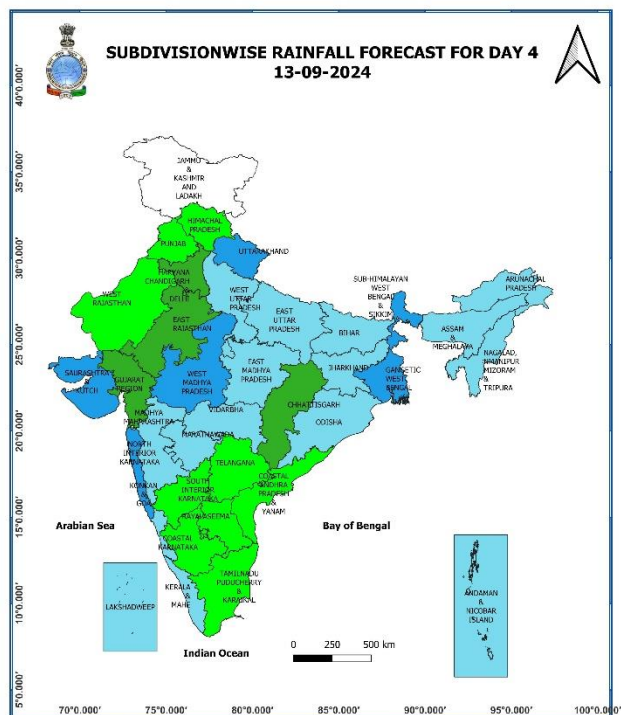
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12 September (Day 3):

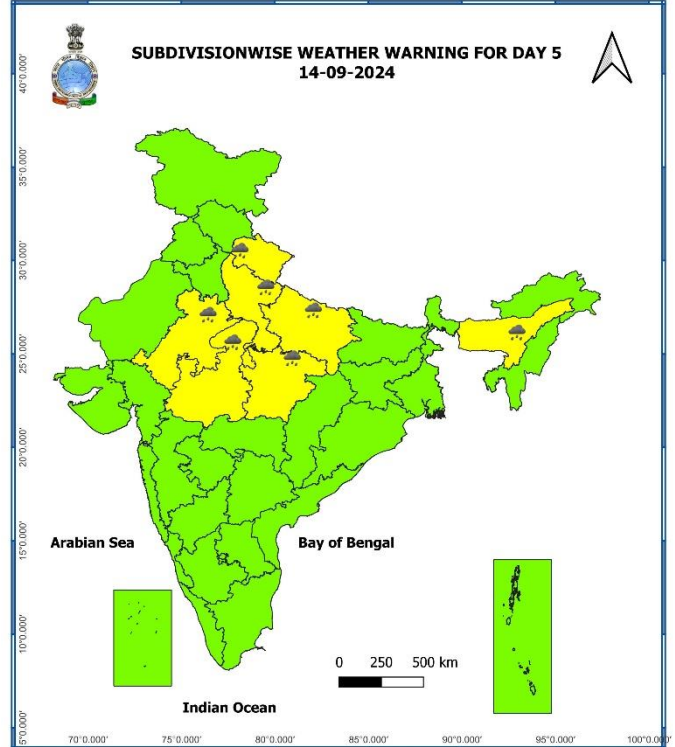
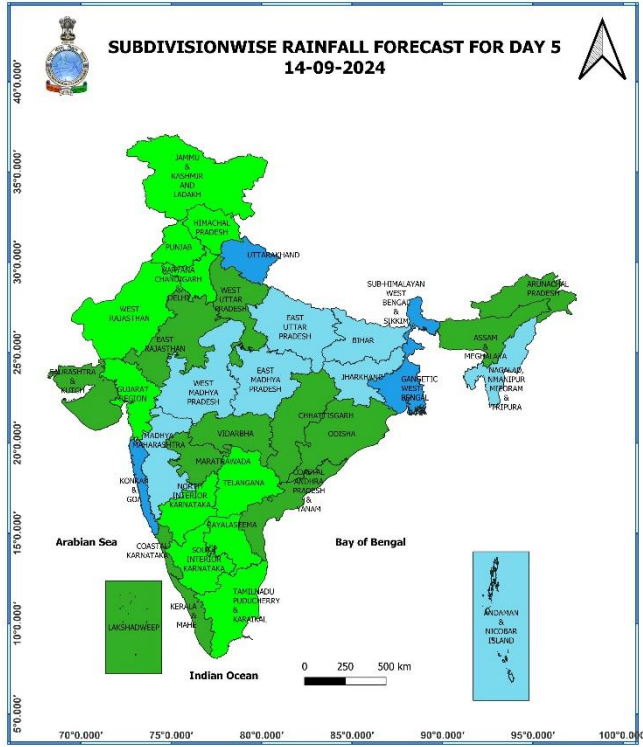
- ❖ **Heavy to very heavy rainfall (≥ 12 cm)** likely at isolated places over Uttarakhand, Haryana-Chandigarh-Delhi, West Uttar Pradesh, East Rajasthan, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura; **Heavy rainfall (≥ 7 cm)** likely at isolated places over East Uttar Pradesh, Madhya Pradesh, West Bengal & Sikkim, Bihar, Jharkhand & Arunachal Pradesh.
- ❖ **Thunderstorm accompanied with lighting** likely at isolated places over East Rajasthan, Madhya Pradesh, Vidarbha Bihar.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail many parts of east central, northern parts of southwest & adjoining southeast Arabian sea, over gulf of Mannar, along and off Sri Lanka coast, many parts of south and central Bay of Bengal. **squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over many parts of southeast & adjoining parts of eastcentral Bay of Bengal. **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.

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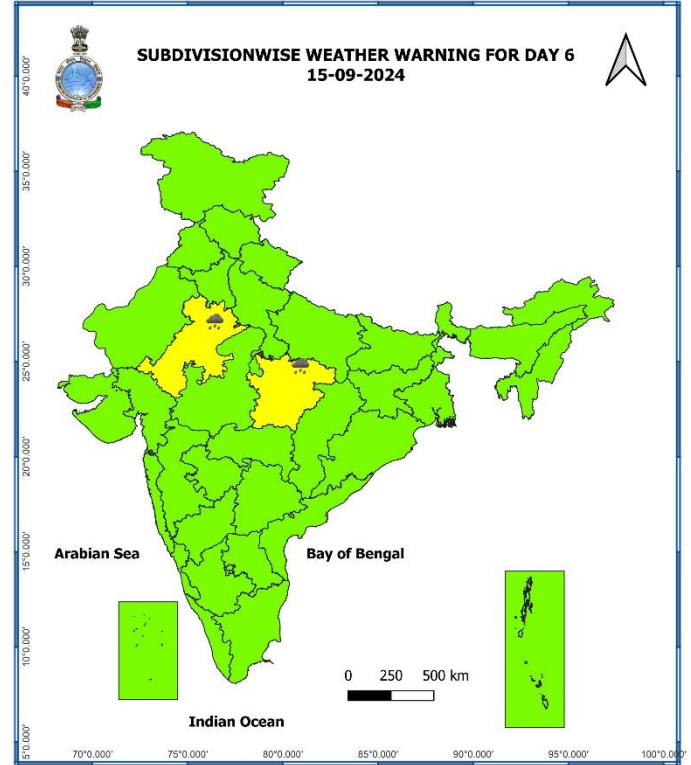
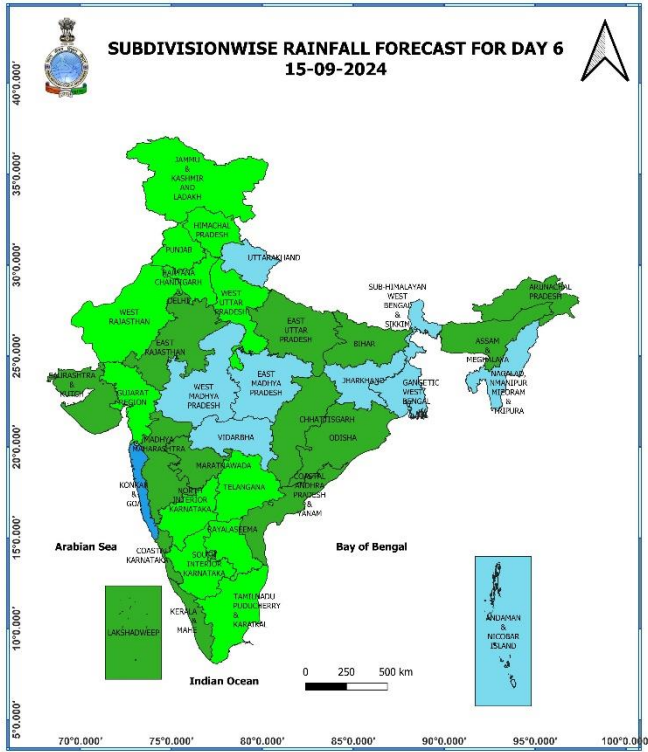
13 September (Day 4):

- ❖ **Heavy to very heavy rainfall (≥ 12 cm)** likely at isolated places over Uttarakhand, West Uttar Pradesh, Meghalaya, Nagaland, Manipur, Mizoram & Tripura; **Heavy rainfall (≥ 7 cm)** likely at isolated places East Uttar Pradesh, East Rajasthan, Madhya Pradesh, West Bengal & Sikkim, Bihar, Jharkhand.
- ❖ **Thunderstorm accompanied with lighting** likely at isolated places over Uttarakhand, over East Rajasthan, Madhya Pradesh, Vidarbha.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail many parts of east central & adjoining parts of westcentral Arabian sea, over gulf of Mannar, off Sri Lanka coast, many parts of south and central Bay of Bengal, southern parts of northwest Bay of Bengal. **squally weather with wind speed reaching 45 kmph to 55 kmph gusting to 65 kmph** is likely to prevail over many parts of southeast & adjoining parts of eastcentral Bay of Bengal. **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.



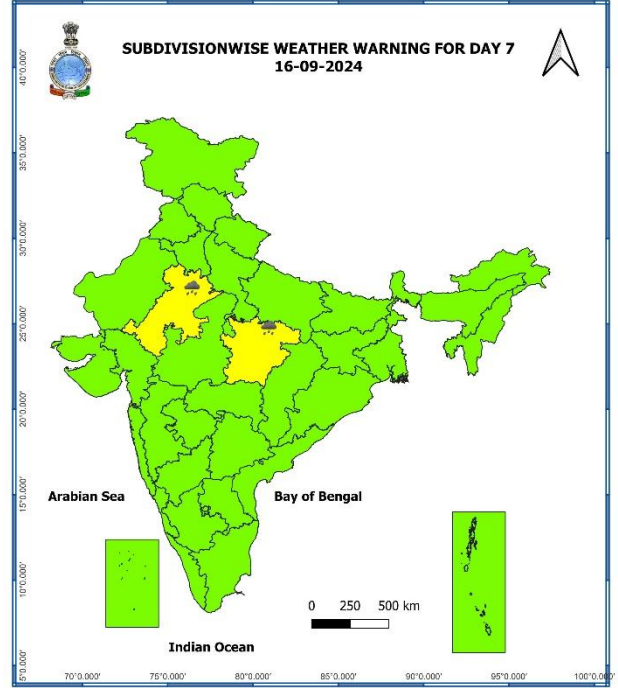
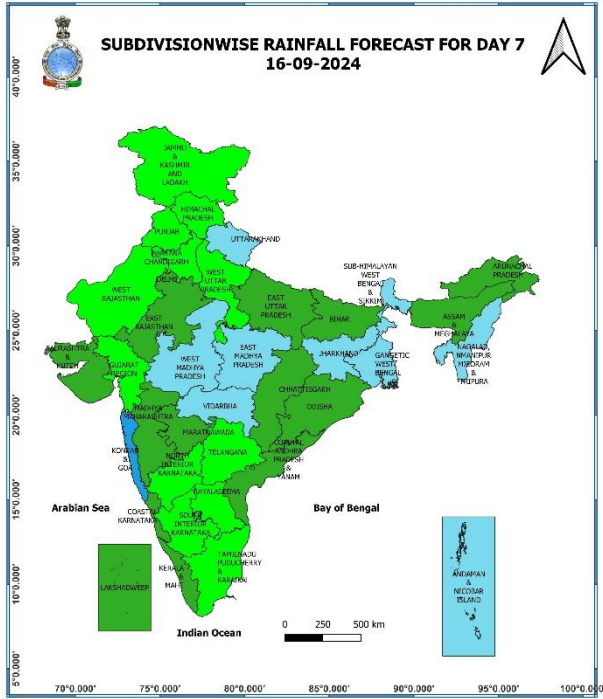
14 September (Day 5):

- ❖ **Heavy rainfall (≥ 7 cm)** likely at isolated places over Uttarakhand, Uttar Pradesh, East Rajasthan, Madhya Pradesh, Assam & Meghalaya.



15 September (Day 6):

- ❖ Heavy rainfall (≥ 7 cm) likely at isolated places over East Rajasthan & East Madhya Pradesh.



16 September (Day 7):

- ❖ Heavy rainfall (≥ 7 cm) likely at isolated places over East Rajasthan & East Madhya Pradesh.

Weather Outlook for subsequent 3 days (During 17th September- 19th September, 2024)

- ❖ Fairly widespread to widespread rainfall likely over most parts of the country except Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, West Rajasthan, Punjab, Tamil Nadu, Puducherry & Karaikal 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.

Impact due to

- ✓ Isolated **extremely heavy rainfall** very likely over East Madhya Pradesh, Chhattisgarh on 10th September.
- ✓ **Very heavy rainfall** at isolated over Uttarakhand on 12th & 13th; Haryana-Chandigarh-Delhi on 12th; West Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura during 11th -13th; East Uttar Pradesh, Madhya Pradesh on 10th & 11th; East Rajasthan on 11th & 12th; Vidarbha, Odisha on 10th; Assam & Meghalaya on 12th & 13th September.
- ✓ **Low to Moderate flash flood risk** likely over few watersheds & neighbourhoods of Uttarakhand, Vidarbha, Chhattisgarh, East Madhya Pradesh and Odisha on 10th & 11th 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.
- ✓ Reduction of visibility over sea area due to sea spray induced by strong wind and 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

- ✓ Judicious regulation of offshore/onshore Operations
- ✓ 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

- ✓ Postpone transplanting of rice in North Coastal **Andhra Pradesh**.
- ✓ Drain out excess water from rice, soybean, red gram, maize, cotton and turmeric in **Telangana**; from rice, finger millet, maize and groundnut in **Odisha**; from rice, maize, sugarcane, black gram, horse gram and niger crops in **Chhattisgarh** 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, Nagaland, Manipur, Mizoram & Tripura, Uttarakhand, Haryana, East Rajasthan, Gangetic West Bengal, Sub Himalayan West Bengal, Jharkhand, Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Vidarbha, Gujrat region, Kerala, and Karnataka.
- ✓ 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 11-09-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours

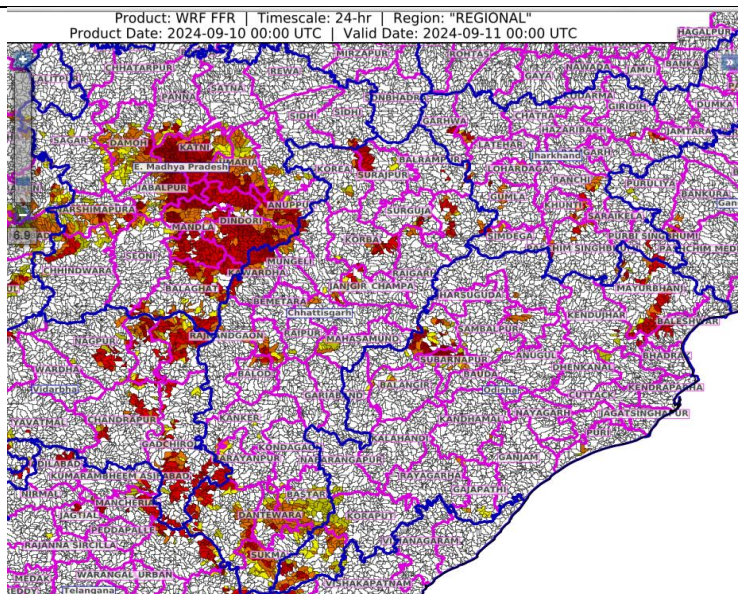
Chhattisgarh - Baloda Bazar, Bastar, Bijapur, Bilaspur, Dantewara, Durg, Janjgir_Champa, Jashpur, Korba, Mungeli, Narayanpur, Rajnandgaon, Sukma and Surguja districts.

East Madhya Pradesh - Anuppur, Balaghat, Chhindwara, Damoh, Dindori, Katni, Mandla, Narshimpura, Panna, Seoni, Shahdol and Umaria districts.

Vidarbha - Bhandara, Chandrapur, Gadchiroli, Gondiya and Nagpur districts.

Odisha - Balangir, Baleshwar, Baragarh, Deogarh, Gajapathi, Koraput, Malkangiri, Mayurbhanj, Nuaparha and Subarnapur 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 11-09-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours

Uttarakhand - Bageshwar, Chamoli, Dehradun, Pauri Garhwal, Pithoragarh, Rudraprayag, Tehri Garwal and Uttarkashi 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.

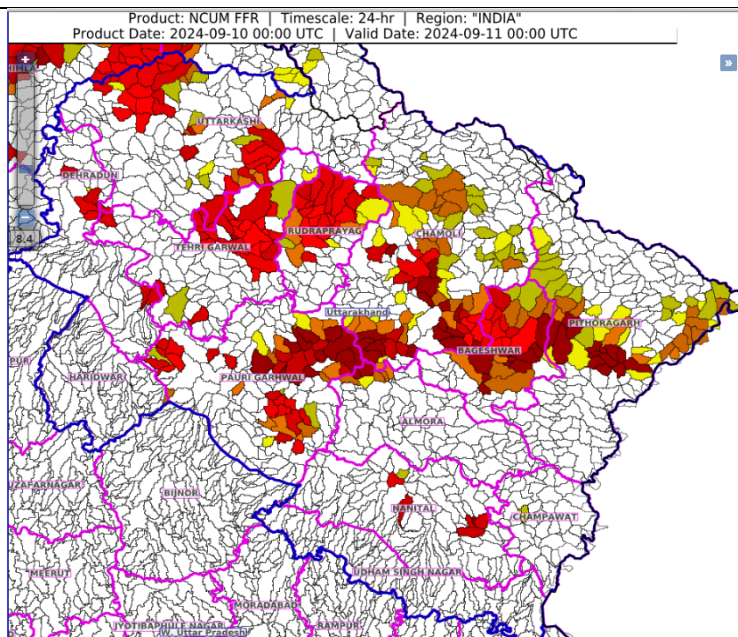


Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

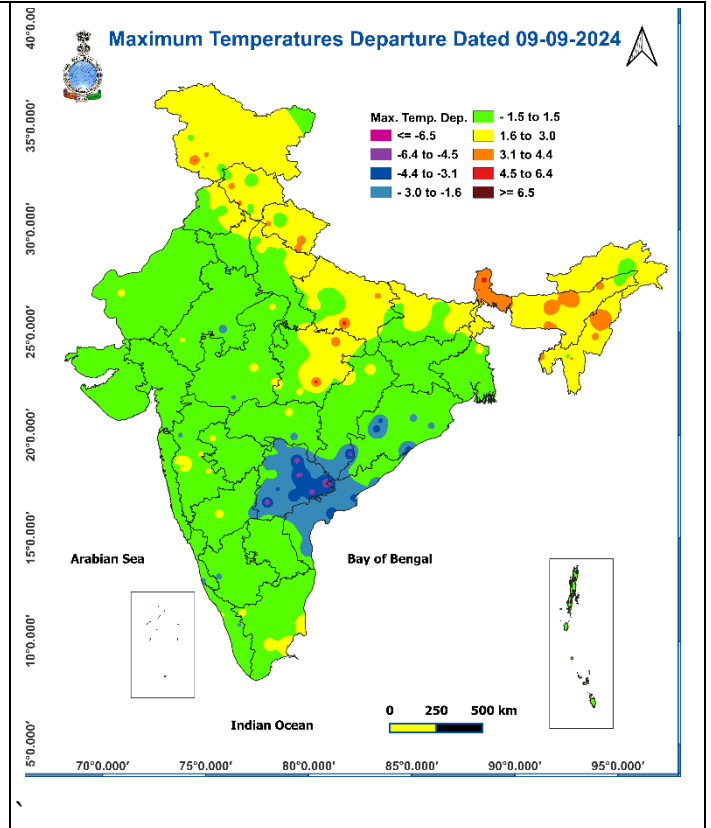
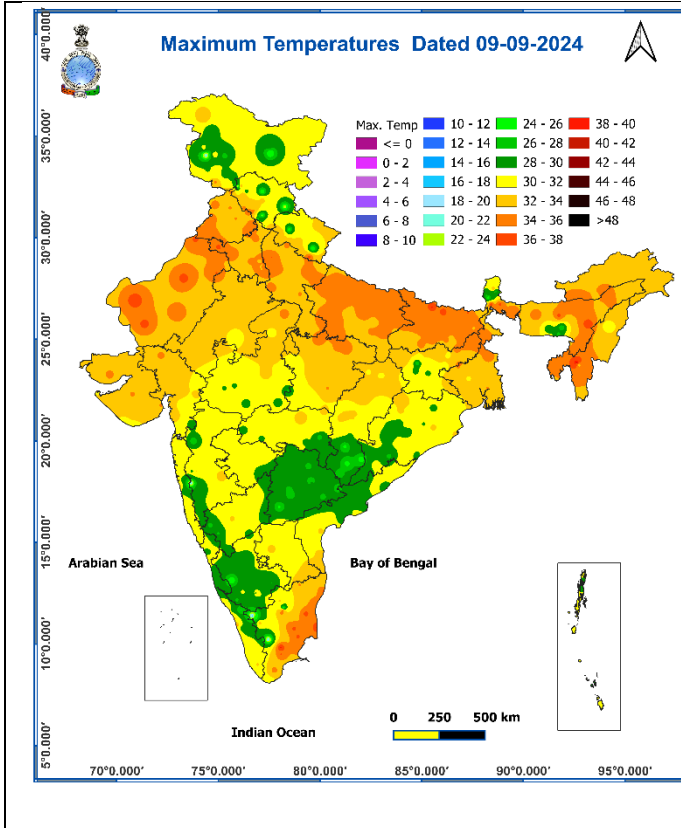


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

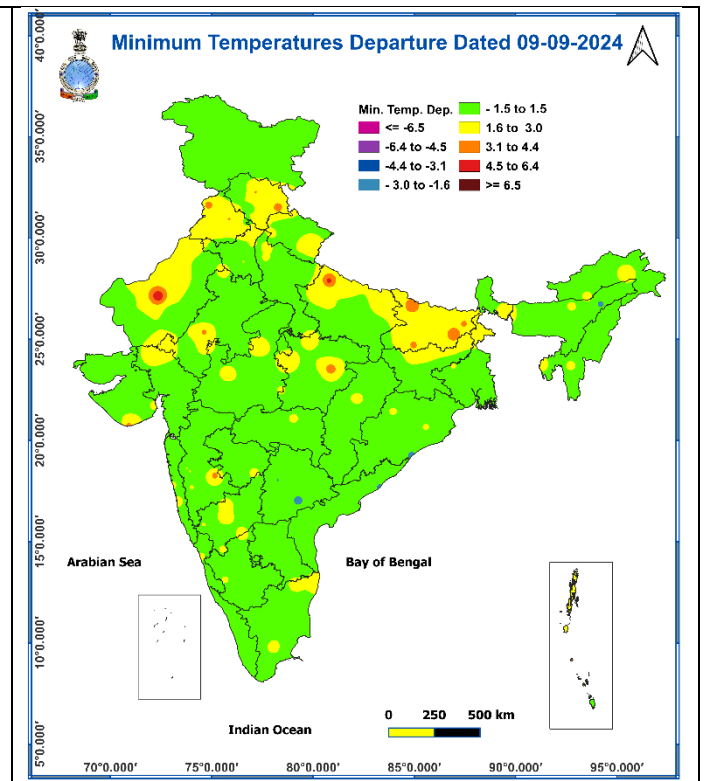
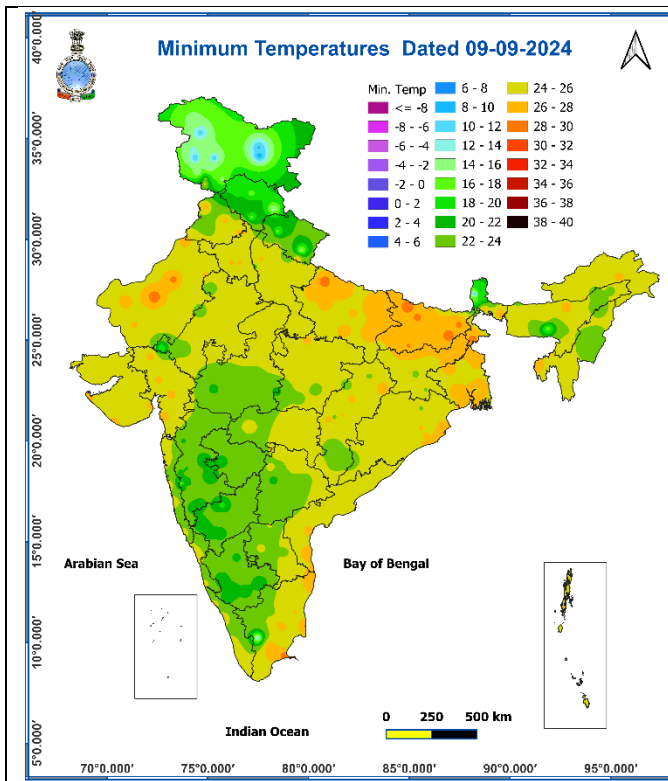
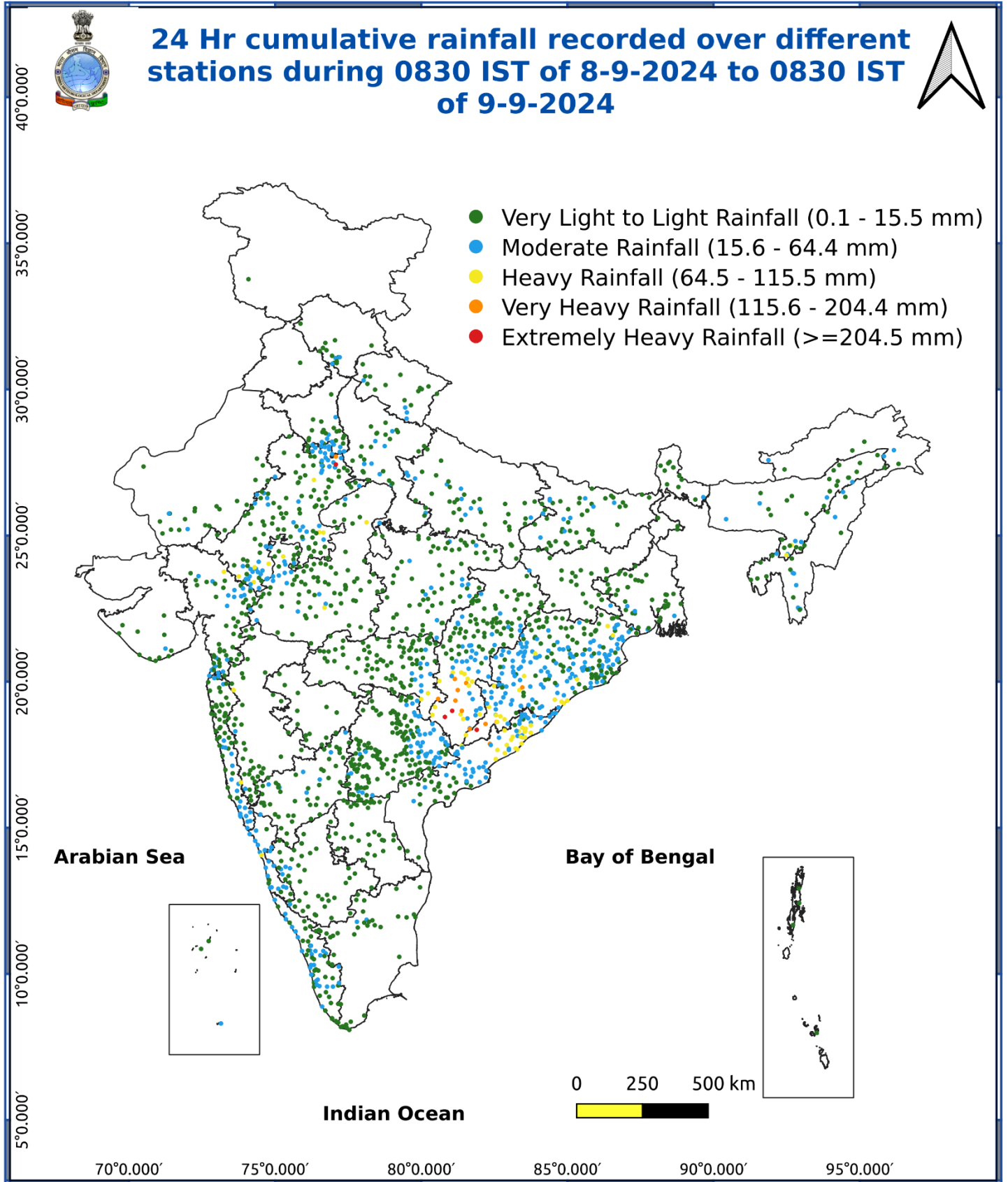


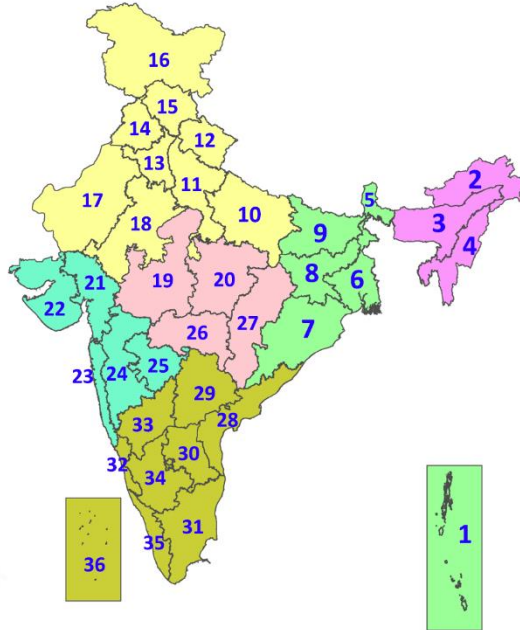
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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°C to 6.4°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°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°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°C to -6.4°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°C to -6.4°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)