

Monday, September 16, 2024
Time of Issue: 0845 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ✓ The **deep depression** over Gangetic West Bengal moved slowly northwestward with a speed of 3 Kmph during past 6 hours and lay centered at 0530 hours IST of today, the 16th September 2024, over the same region near latitude 23.0° N and longitude 87.0° E, 40 km south of Bankura (West Bengal), 90 km east-northeast of Jamshedpur (Jharkhand) and 180 km east of Ranchi (Jharkhand). It is likely to move slowly west-northwestwards across Gangetic West Bengal and weaken into a **depression** during next 12 hours. Thereafter, it will continue to move west-northwestwards across Jharkhand and North Chhattisgarh during subsequent 24 hours.
- ✓ A **cyclonic circulation** lies over northwest Uttar Pradesh & adjoining Haryana in lower tropospheric levels.
- ✓ The western end of **monsoon trough** is north of its normal position and eastern end is near its normal position.

Forecast & Warnings (upto 7 days):

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

East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over East India; Scattered to Fairly widespread light/moderate rainfall very likely over Northeast India during the week.
- ✓ **Isolated extremely heavy rainfall** very likely over Jharkhand on 16th September.
- ✓ Isolated **very heavy rainfall** very likely over Bihar and Gangetic West Bengal on 16th; Jharkhand and Odisha on 16th & 17th September.
- ✓ Isolated **heavy rainfall** very likely over Gangetic West Bengal on 16th; Bihar on 17th; Jharkhand, Odisha on 16th; Nagaland, Manipur, Mizoram & Tripura on 18th, 19th & 21st; Assam & Meghalaya on 18th & 19th September.

Northwest India

- ✓ Scattered to Fairly widespread light/moderate rainfall very likely over Uttar Pradesh; Isolated to scattered rainfall over the remaining region during the week.
- ✓ Isolated **heavy rainfall** very likely over Uttarakhand on 17th; East Uttar Pradesh during 16th -18th and over West Uttar Pradesh on 17th & 18th September.

South Peninsular India:

- ✓ Scattered to Fairly widespread light/moderate rainfall over Coastal Karnataka, Kerala & Mahe, Lakshadweep; Isolated to Scattered rainfall over the remaining region during the week.

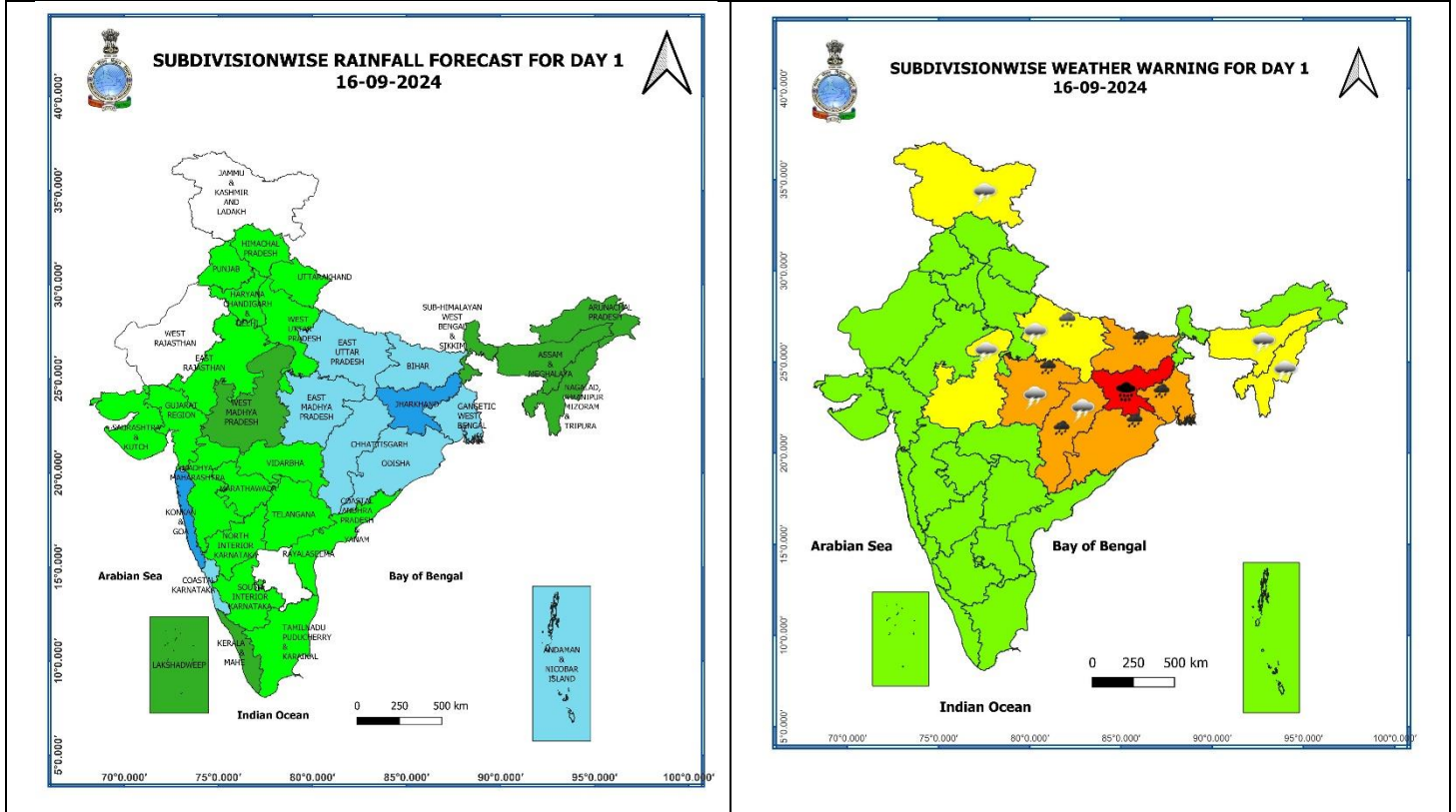
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Gangetic West Bengal and Jharkhand; **at a few places** over Sub-Himalayan West Bengal & Sikkim, Himachal Pradesh, Odisha, Marathwada, Madhya Maharashtra and Lakshadweep; at **isolated places** over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Haryana-Chandigarh-Delhi, Punjab, East Rajasthan, Vidarbha, Kerala & Mahe and Andaman & Nicobar Islands.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over Gangetic West Bengal and East Uttar Pradesh.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Sub-Himalayan West Bengal & Sikkim:** Gangtok-2; bagdogara-1; **Gangetic West Bengal:** Asansol-8; Shanti Niketan, Purulia & Kalamunda -4 each; Bankura-3; Panagarh & Canning -2; **East Uttar Pradesh:** Churk-8; **Jharkhand:** Jamshedpur-5; Chaibasa & Dalton Ganj-2 each; **Chhattisgarh:** Ambikapur -5; **Madhya Maharashtra:** Mahabaleshwar-2; **Konkan & Goa:** Santacruz -3; Colaba-2.
- ❖ **Minimum Temperature Departures (as on 15-09-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Odisha; **above normal (1.6°C to 3.0°C)** at a few places over Tamil Nadu, Puducherry & Karaikal; at isolated places over Punjab, Bihar, Coastal Andhra Pradesh & Yanam. These were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over West Uttar Pradesh; **below normal (-1.6°C to -3.0°C)** at isolated places over East Madhya Pradesh, Vidarbha, Telangana, Gangetic West Bengal and Madhya Maharashtra and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 18.2°C** was reported at **Rajgarh (West Madhya Pradesh)** over the plains of the country. (Fig.4)
- ❖ **Maximum Temperature Departures (as on 15-09-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Arunachal Pradesh and Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at many places over Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal; at a few places over Interior Karnataka and Coastal Andhra Pradesh & Yanam; at isolated places over Nagaland, Manipur, Mizoram & Tripura, Bihar, Rayalaseema and Andaman & Nicobar Islands. These were **markedly below normal (-5.1°C or less)** at many places over Gangetic West Bengal and at isolated places over Jharkhand; **below normal (-1.6°C to -3.0°C)** at many places over West Rajasthan; at a few places over Odisha; at isolated places over Chhattisgarh, Telangana, Konkan & Goa, Madhya Maharashtra, Marathwada, East Rajasthan, Himachal Pradesh, West Uttar Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature of 40.0°C** was reported at **Madurai (Tamil Nadu)** over the country. (Fig. 2)

Meteorological Analysis (Based on 0530 hours IST)

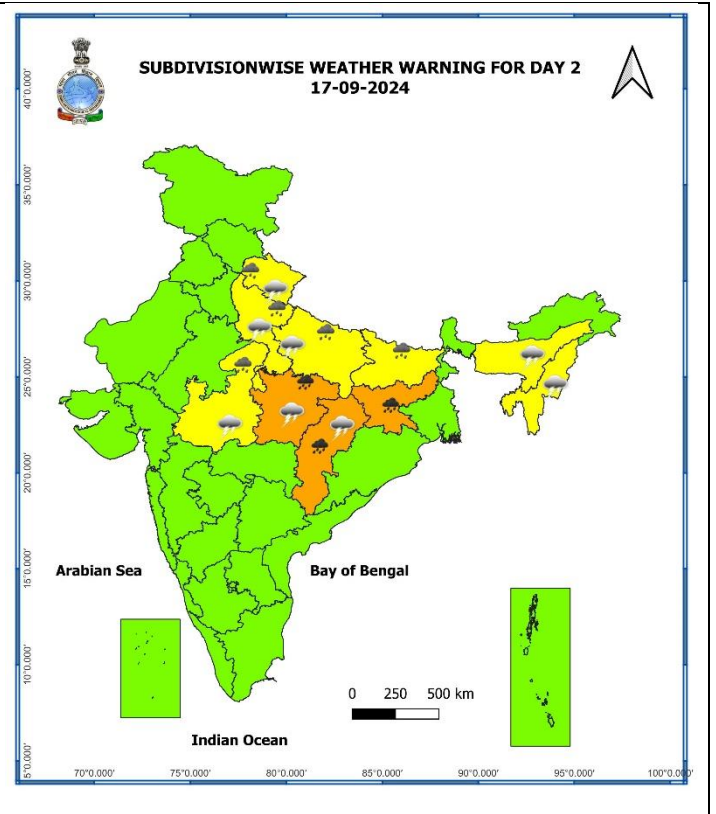
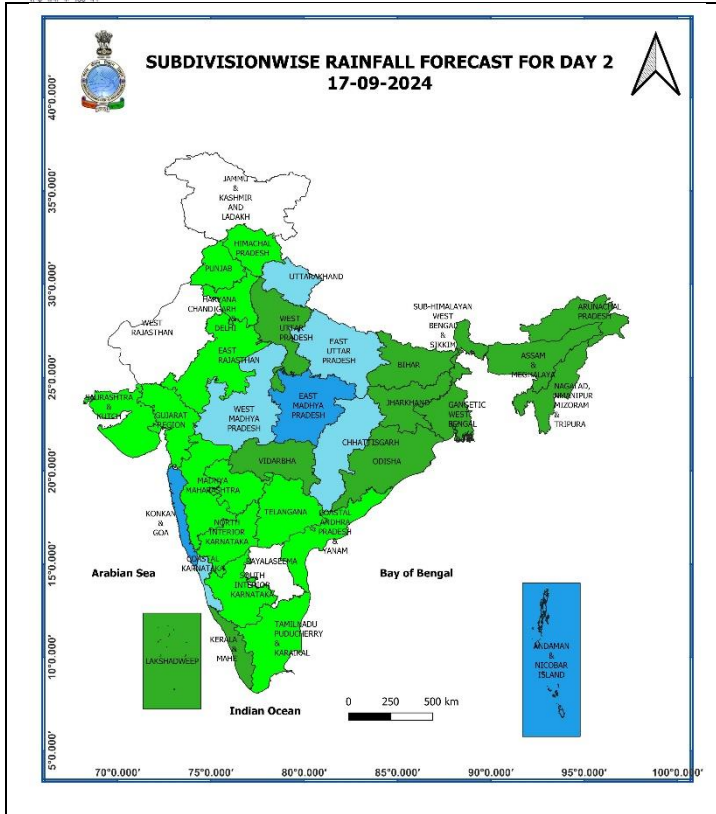
- ❖ The **deep depression** over Gangetic West Bengal moved slowly northwestward with a speed of 3 Kmph during past 6 hours and lay centered at 0530 hours IST of today, the 16th September 2024, over the same region near latitude 23.0° N and longitude 87.0° E, 40 km south of Bankura (West Bengal), 90 km east-northeast of Jamshedpur (Jharkhand) and 180 km east of Ranchi (Jharkhand). It is likely to move slowly west-northwestwards across Gangetic West Bengal and weaken into a **depression** during next 12 hours. Thereafter, it will continue to move west-northwestwards across Jharkhand and North Chhattisgarh during subsequent 24 hours.
- ❖ The **Monsoon trough** at mean sea level continues to pass through Firozpur, Patiala, Shahjahanpur, Balia, the centre of **Deep depression** over Gangetic West Bengal and thence south-southeastwards to northeast Bay of Bengal.
- ❖ A fresh **Western Disturbance** seen as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 60°E to the north of Lat. 28°N.
- ❖ The **Western Disturbance** as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 77°E to the north of Lat. 29°N.
- ❖ The **cyclonic circulation** over Northwest Uttar Pradesh & adjoining Haryana extending upto 4.5 km above mean sea level tilting southwards with height persists.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 23rd September, 2024)



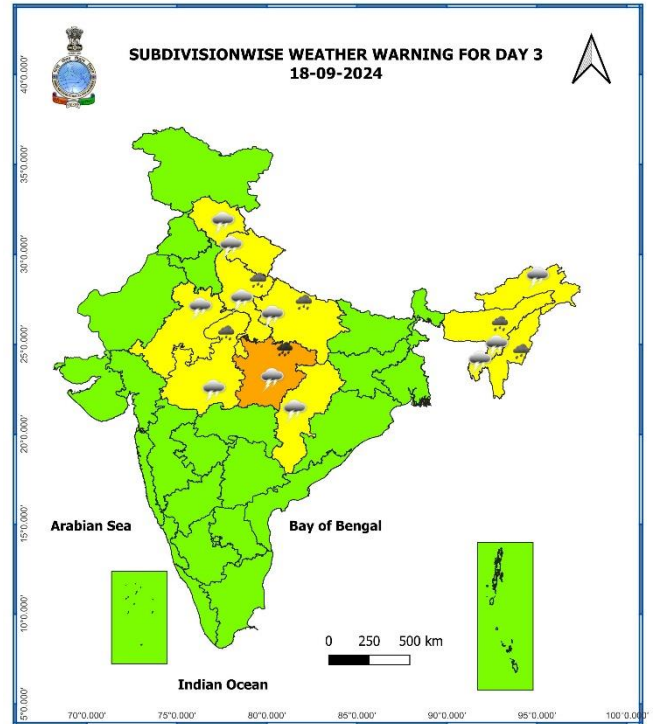
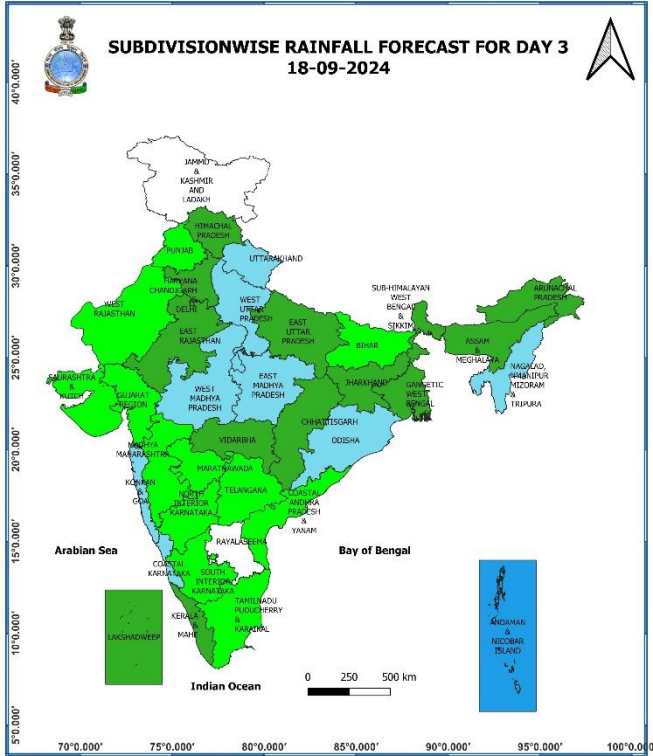
16 September (Day 1):

- ❖ **Heavy to very heavy rainfall (≥ 12 cm) with extremely heavy falls (> 20 cm)** very likely at isolated places over Jharkhand; **Heavy to very heavy rainfall (≥ 12 cm)** very likely at isolated places over north East Madhya Pradesh, north Chhattisgarh, Bihar, Jharkhand, north Odisha, western parts of Gangetic West Bengal; **Heavy rainfall (≥ 7 cm)** at isolated places over East Uttar Pradesh.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over few parts of west central Arabian sea, off Sri Lanka coast, most parts of south Bay of Bengal, many parts of northwest Bay of Bengal and adjoining parts of northeast Bay of Bengal, along and off north Odisha, west Bengal and adjoining Bangladesh, 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 parts of westcentral Arabian sea, along and off Somalia coast. Fishermen are advised not to venture into these areas.



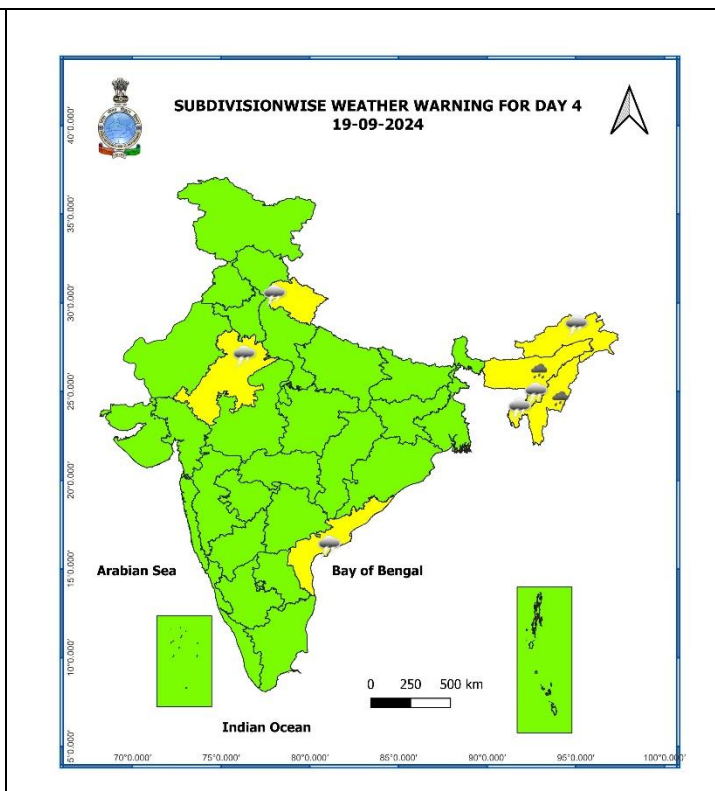
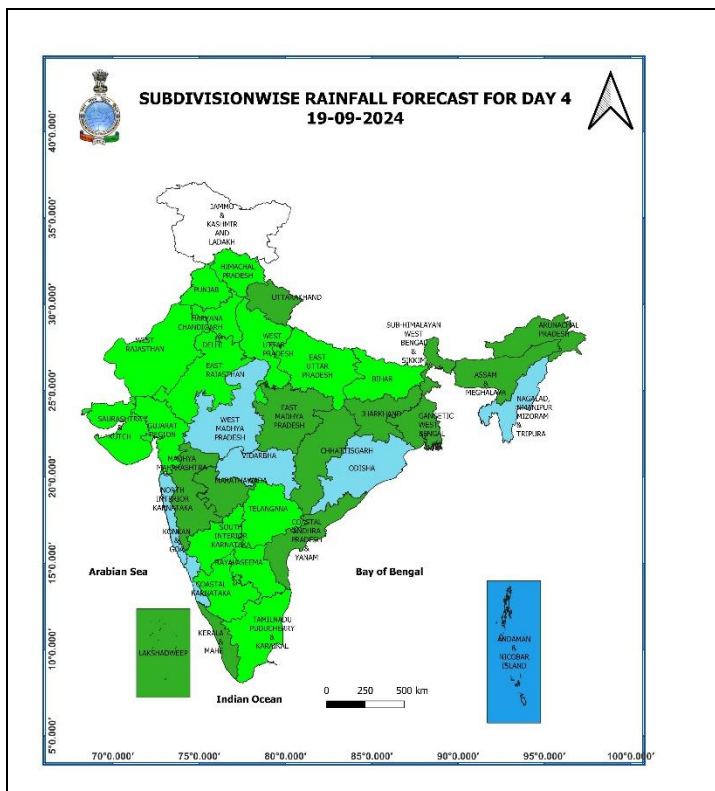
17 September (Day 2):

- ❖ **Heavy to very heavy rainfall (≥ 12 cm)** very likely at isolated places over Jharkhand, Chhattisgarh, Odisha, East Madhya Pradesh; **Heavy rainfall (≥ 7 cm)** at isolated places over Uttarakhand, Uttar Pradesh, West Madhya Pradesh, Chhattisgarh, Bihar.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Uttarakhand, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over few northern parts of southwest Arabian sea and adjoining parts of westcentral Arabian sea, over gulf of Mannar, off Sri Lanka coast, most parts of south Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over along and off Somalia coast and adjoining parts of westcentral Arabian sea. Fishermen are advised not to venture into these areas.



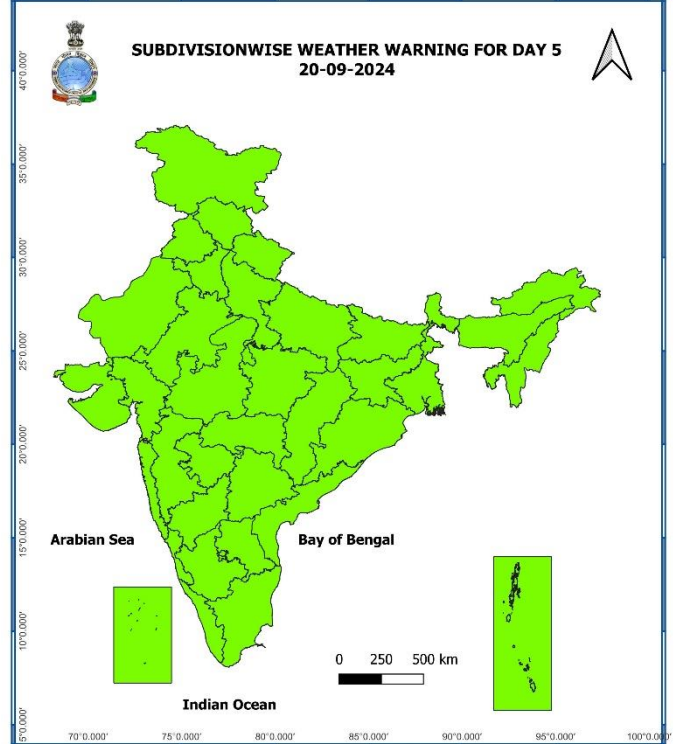
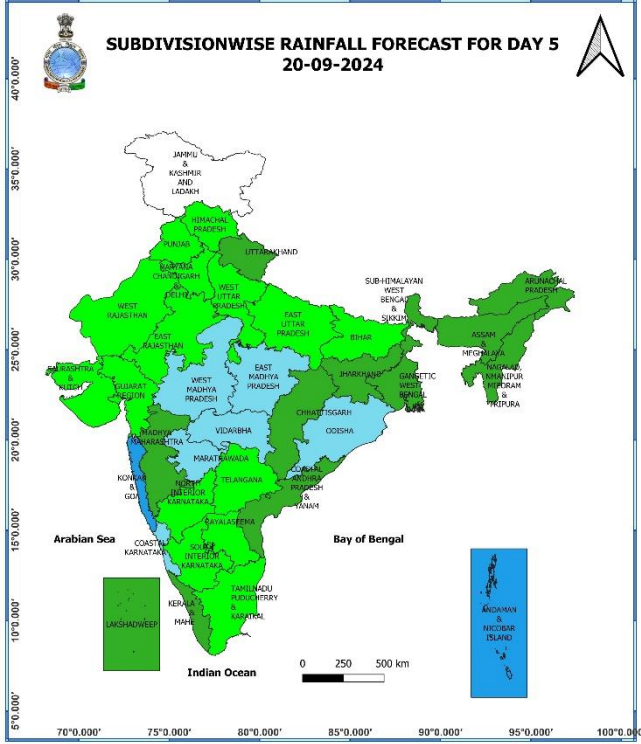
18 September (Day 3):

- ❖ **Heavy to very heavy rainfall (≥ 12 cm)** very likely at isolated places over East Madhya Pradesh; **Heavy rainfall (≥ 7 cm)** likely at isolated places over Uttar Pradesh, West Madhya Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Himachal Pradesh, Uttarakhand, East Rajasthan, Uttar Pradesh, West Madhya Pradesh, Chhattisgarh, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over few northern parts of southwest Arabian sea and adjoining parts of westcentral Arabian sea, over gulf of Mannar, off Sri Lanka coast, most parts of south Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over along and off Somalia coast and adjoining parts of westcentral Arabian sea. Fishermen are advised not to venture into these areas.



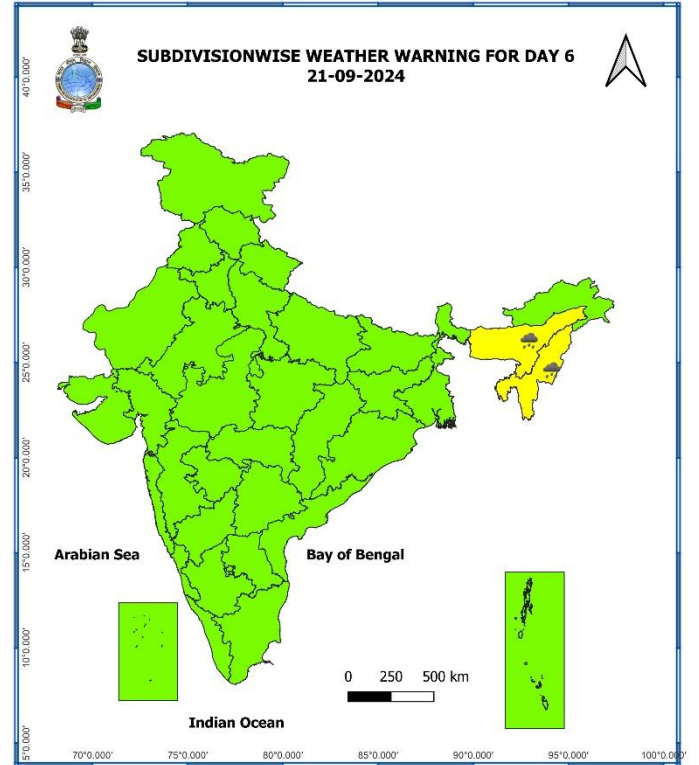
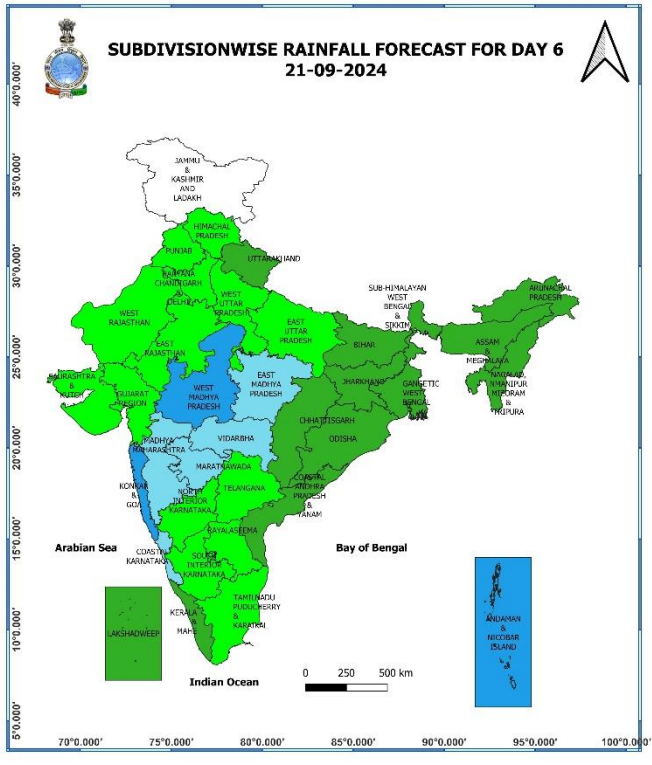
19 September (Day 4):

- ❖ **Heavy rainfall (≥7 cm)** likely at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Uttarakhand, East Rajasthan, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over few northern parts of southwest Arabian sea and adjoining parts of westcentral Arabian sea, over gulf of Mannar, off Sri Lanka coast, most parts of south Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over along and off Somalia coast and adjoining parts of westcentral Arabian sea. Fishermen are advised not to venture into these areas.



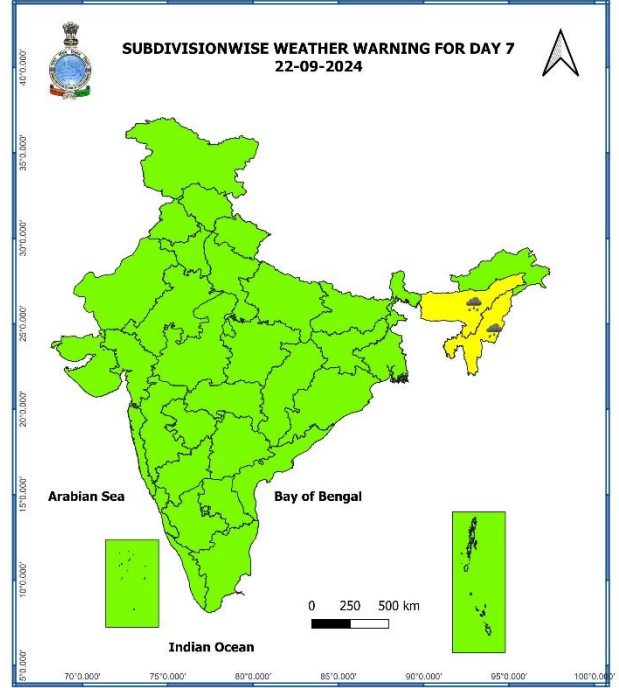
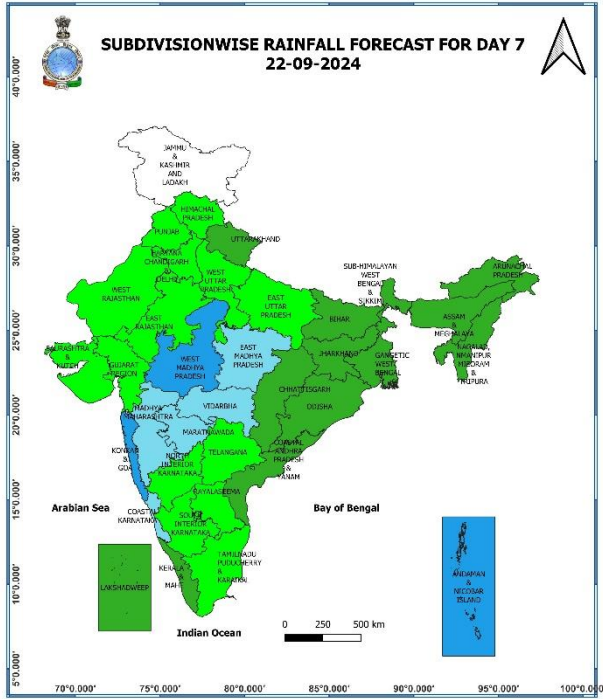
20 September (Day 5):

❖ **No weather warning**



21 September (Day 6):

- ❖ **Heavy rainfall (≥ 7 cm)** likely at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.



22 September (Day7):

- ❖ Heavy rainfall (≥ 7 cm) likely at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.

Weather Outlook for subsequent 3 days (During 23rd September- 25th 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 Odisha on 16th September.
- ✓ **Very heavy rainfall** at isolated places over Bihar on 16th; Chhattisgarh, Jharkhand and Gangetic West Bengal on 16th & 17th, East Madhya Pradesh during 16th -18th September.
- ✓ **Low to Moderate flash flood risk** likely over few watersheds & neighbourhoods of Odisha, Chhattisgarh and Jharkhand on 16th & 17th 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 rice, groundnut, brinjal, cucurbits and betel vine gardens in **Gangetic West Bengal**; from maize, green gram, black gram, rice, vegetables and other standing crops in **Odisha**; from pulse crops and vegetables in **Jharkhand**; from rice, black gram, green gram, orchards and vegetables in **Bihar**; from maize, pulses and millets 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 East Uttar Pradesh and East Madhya Pradesh.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.
- ✓ Keep the harvested produce at safer place.

Flash Flood Guidance:

ANNEXURE I

24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-09-2024 :

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

Odisha - Kendujhar, Mayurbhanj, Deogarh, Baragarh, Jharsuguda, Subarnpur, Sambalpur and Sundargarh districts.

Chhattisgarh - Balarampur, Jashpur, Korea, Surajpur and Surguja districts.

Jharkhand - Bokaro, Chatra, Deoghar, Dhanbad, Dumka, East Singhbhum, Garhwa, Giridih, Godda, Gumla, Hazaribagh, Jamtara, Khunti, Koderma, Latehar, Lohardaga, Pakur, Palamu, Ramgarh, Ranchi, Sahebganj, Saraikela and West Singhbhum districts.

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

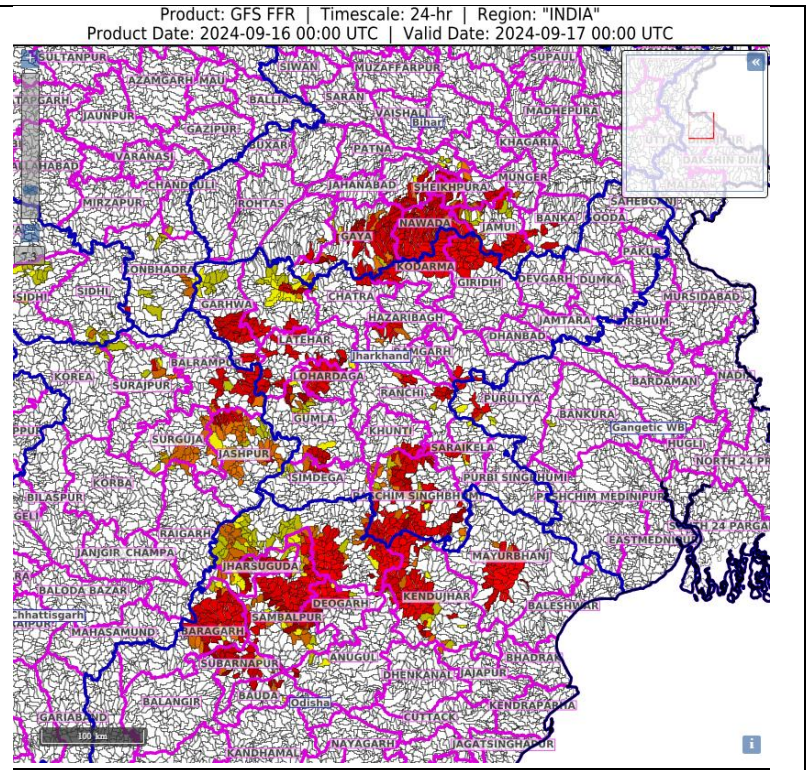


Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

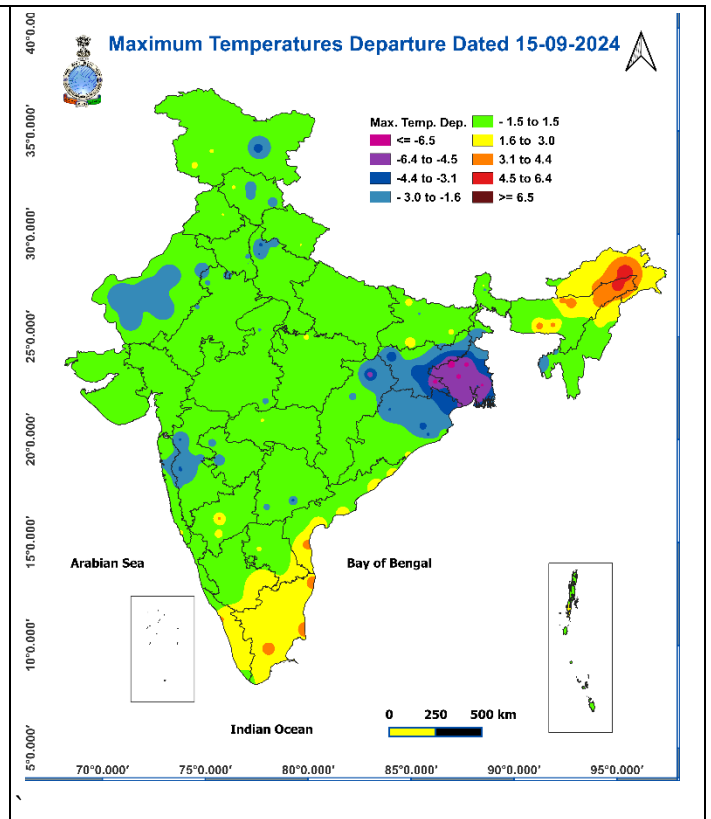
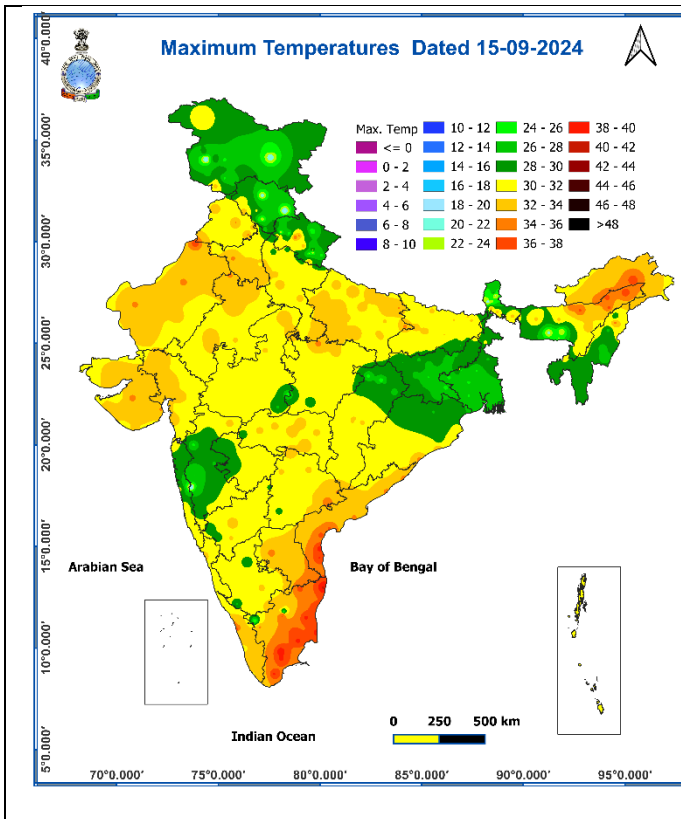


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

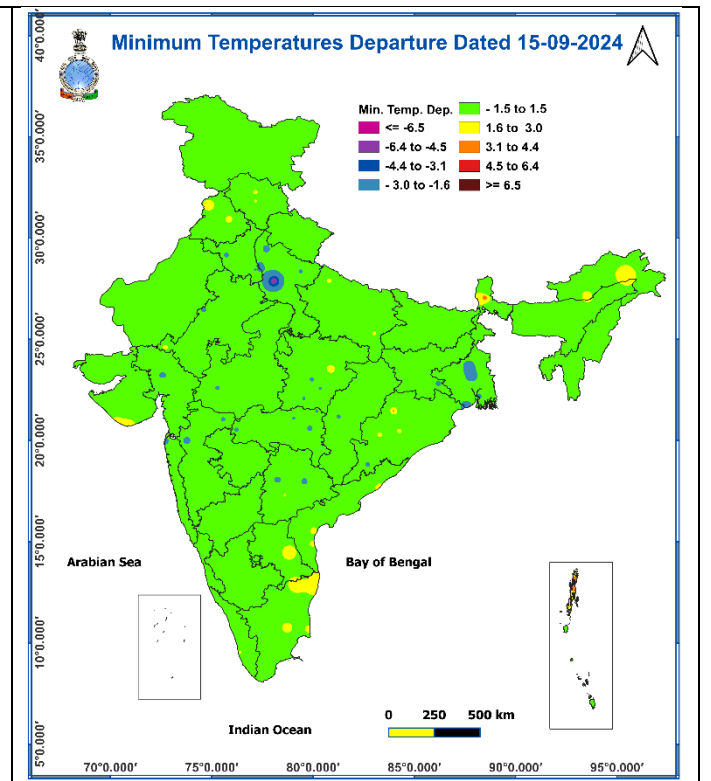
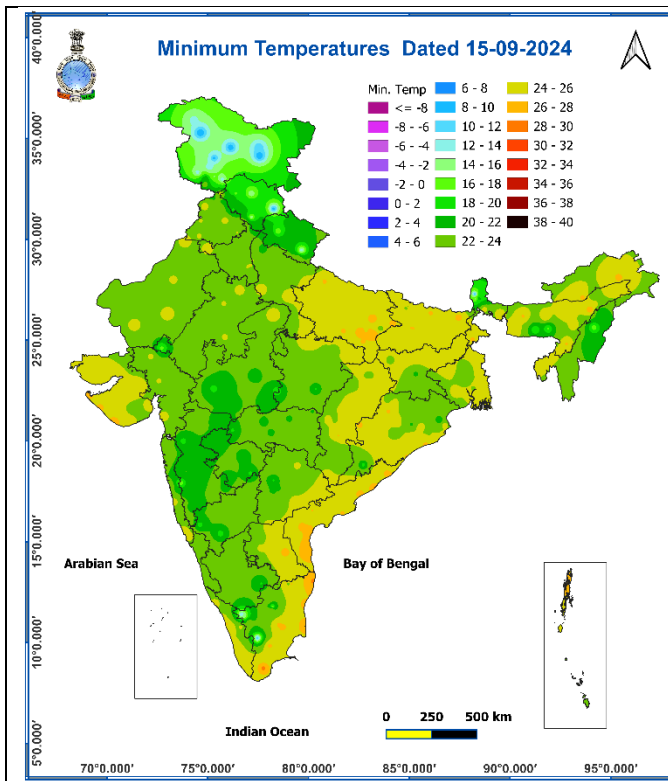
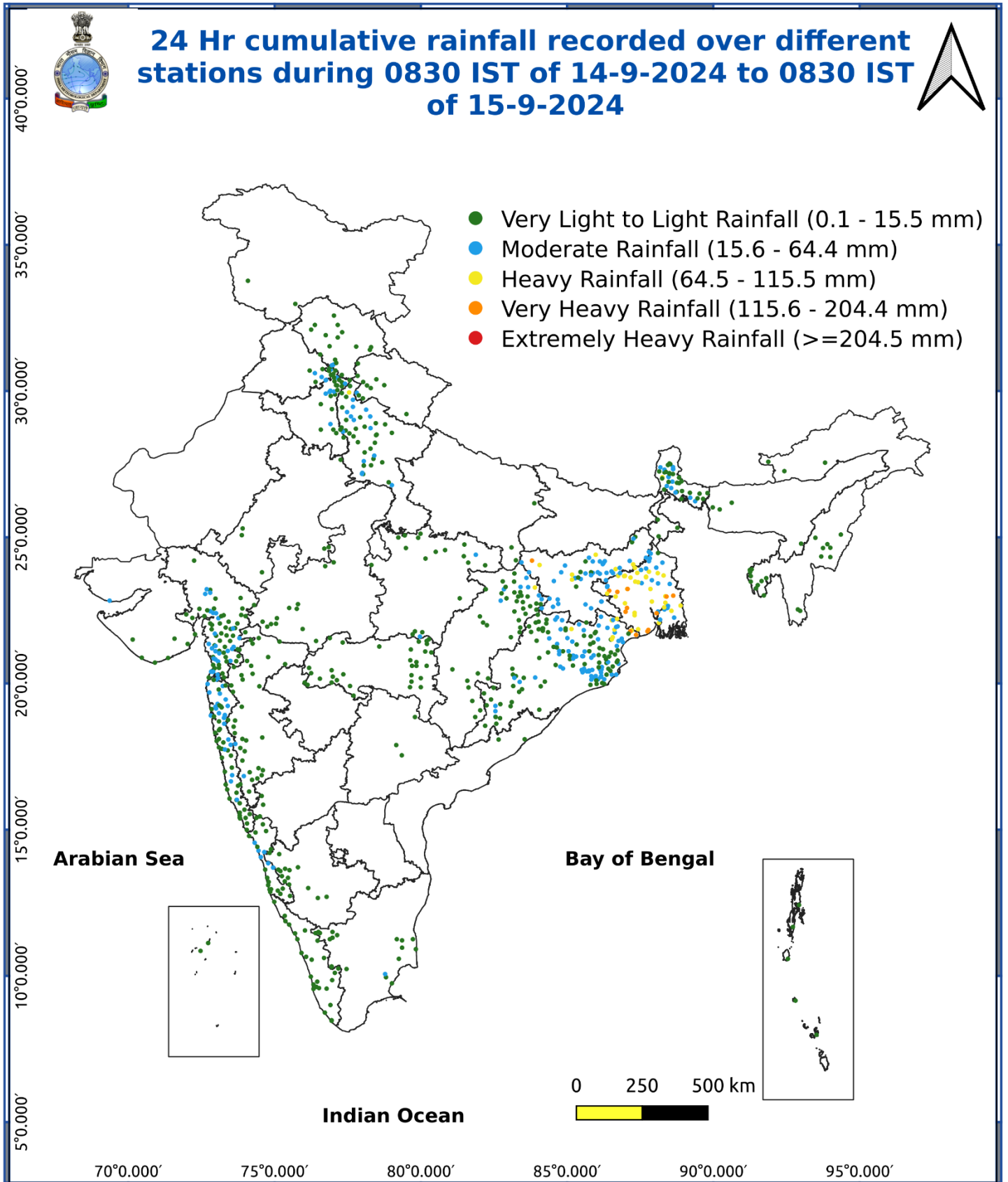


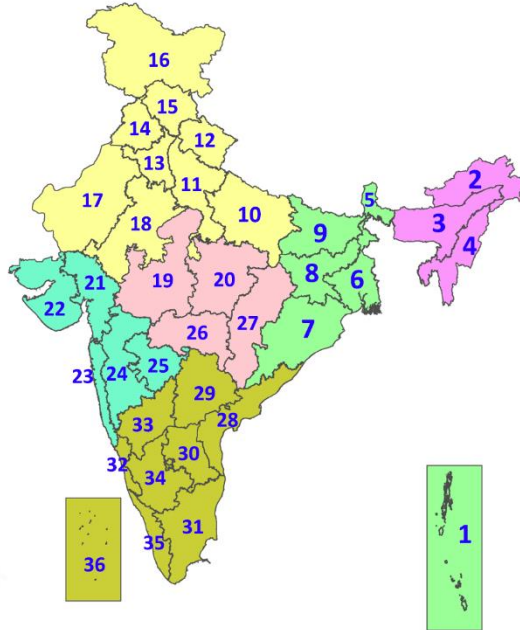
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



* 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 *	<p>Heavy: 64.5 to 115.5 mm/cm *</p> <p>Very Heavy: 115.6 to 204.4 mm/cm*</p> <p>Extremely Heavy: > 204.4 mm/cm *</p>
Heat Wave	<p>When maximum temperature of a station reaches $\geq 40^{\circ}\text{C}$ for plains and $\geq 30^{\circ}\text{C}$ for hilly regions</p> <p>(a) Based on Departure from normal</p> <p>Heat Wave: Maximum Temperature Departure from normal 4.5°C to 6.4°C.</p> <p>Severe Heat Wave: Maximum Temperature Departure from normal $\geq 6.5^{\circ}\text{C}$</p> <p>(b). Based on Actual maximum temperature</p> <p>Heat Wave: When actual maximum temperature $\geq 45^{\circ}\text{C}$.</p> <p>Severe Heat Wave: When actual maximum temperature $\geq 47^{\circ}\text{C}$</p> <p>(c). Criteria for heat wave for coastal stations</p> <p>When maximum temperature departure is $>4.5^{\circ}\text{C}$ from normal. Heat Wave may be described provided maximum temperature $\geq 37^{\circ}\text{C}$</p>
Warm Night	<p>When maximum temperature remains 40°C</p> <p>Warm Night: When minimum temperature departure 4.5°C to 6.4°C.</p> <p>Severe Warm Night: When minimum temperature departure $>6.4^{\circ}\text{C}$.</p>
Cold Wave	<p>When minimum temperature of a station $\leq 10^{\circ}\text{C}$ for plains and $\leq 0^{\circ}\text{C}$ for hilly regions.</p> <p>(a). Based on departure</p> <p>Cold Wave: Minimum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Wave: Minimum Temperature Departure from normal $\leq -6.5^{\circ}\text{C}$</p> <p>(b) Based on actual Minimum Temperature (for Plains only)</p> <p>Cold Wave : When Minimum Temperature is $\leq 4.0^{\circ}\text{C}$</p> <p>Severe Cold Wave: When Minimum Temperature is $\leq 2.0^{\circ}\text{C}$</p> <p>(c) For Coastal Stations</p> <p>When Minimum Temperature departure is $\leq -4.5^{\circ}\text{C}$ & actual Minimum Temperature is $\leq 15^{\circ}\text{C}$</p>
Cold Day	<p>When minimum temperature of a station $\leq 10^{\circ}\text{C}$ for plains and $\leq 0^{\circ}\text{C}$ for hilly regions</p> <p>Based on departure</p> <p>Cold Day: Maximum Temperature Departure from normal -4.5°C to -6.4°C.</p> <p>Severe Cold Day: Maximum Temperature Departure from normal $\leq -6.5^{\circ}\text{C}$</p>
Fog	<p>Phenomenon of small droplets suspended in air and the horizontal visibility $< 1\text{km}$</p> <p>Moderate Fog: When the visibility between 500-200 metres</p> <p>Dense Fog: when the visibility between 50- 200 metres</p> <p>Very Dense Fog: when the visibility < 50 metres</p>
Thunderstorm	<p>Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)</p>
Dust/Sand Storm	<p>An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.</p>
Frost	<p>Ice deposits on ground</p> <p>Air temperature $\leq 4^{\circ}\text{C}$ (over Plains)</p>
Squall	<p>A strong wind that rises suddenly, lasts for atleast 1 minute.</p> <p>Moderate: Wind speed 52-61 kmph</p> <p>Severe: Wind speed 62-87 kmph</p> <p>Very Severe: Wind speed >87 kmph</p>
Sea State	<p>Effect of various waves in the sea over specific area</p> <p>Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre</p> <p>High to very high: Wind speed 63-117 kmph (34-63 knots) & Wave height 6-14 metre</p> <p>Phenomenal: Wind speed >117 kmph (>63 knots) & Wave height >14 metre</p>
Cyclone	<p>Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)</p> <p>Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)</p> <p>Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)</p> <p>Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)</p> <p>Super Cyclone Strom: Wind speed >220 kmph (>119 knots)</p>