

Wednesday, October 23, 2024

Time of Issue: 1300 hours IST

(MID-DAY)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ❖ Yesterday's **Depression** over eastcentral Bay of Bengal intensified into a deep depression at 1730 hours IST of yesterday, further into a **cyclonic storm "DANA"** (pronounced as Dana) over the same region at 0830 hrs IST of today, the 23<sup>rd</sup> October and lay centred near latitude 16.5°N and longitude 89.6°E, about 520 km southeast of Paradip (Odisha), 600 km south-southeast of Sagar Island (West Bengal) and 610 km south-southeast of Khepupara (Bangladesh). It is very likely to move northwestwards and intensify into a **severe cyclonic storm** over northwest Bay of Bengal by early morning of 24<sup>th</sup> and cross north Odisha and West Bengal coasts between Puri and Sagar Island close to Bhitarkanika and Dhamara (Odisha) during night of 24<sup>th</sup> to morning of 25<sup>th</sup> October, 2024 as a **severe Cyclonic Storm** with a wind speed of 100-110 kmph gusting 120 kmph.
- ❖ An **upper air cyclonic circulation** lies over Comorin area & neighbourhood in lower and middle tropospheric levels.

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

#### East India:

- ✓ Light to moderate rainfall at most places with **heavy rainfall (07-11 cm)** at isolated places is very likely over **Balasore, Bhadrak, Kendrapara, Jagatsingpur, Puri and Khorda**, districts of Odisha commencing from evening of 23<sup>rd</sup> October & **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall (≥ 21 cm)** at isolated places over **Baleswar, Mayurbhanj, Bhadrak, Kendrapara, Jagatsingpur Kendujhar, Jajpur, Cuttack and Dhenkanal, Khorda and Puri** districts of Odisha on 24<sup>th</sup> & 25<sup>th</sup> October.
- ✓ **Light to moderate rainfall at most places with heavy rainfall** at isolated places is very likely on 23<sup>rd</sup> October and heavy to very heavy rainfall at a few places with **extremely heavy rainfall** at isolated places over **South & North 24 Parganas, East & West Medinipur, Jhargram, Howrah, Hooghly, Kolkata and Bankura** districts of Gangetic West Bengal on 24<sup>th</sup> & 25<sup>th</sup> October.
- ✓ Light to moderate rainfall at most places is likely over south Jharkhand with **heavy rainfall** at isolated places on 24<sup>th</sup> and **heavy to very heavy rainfall** at isolated places on 25<sup>th</sup> October.

#### South Peninsular India:

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm and lightning very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, South Interior Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema during next 3-4 days and light rainfall at isolated places is likely to prevail subsequent 3 days; light to moderate rainfall at Isolated places very likely over rest of the region during the week.
- ✓ **Isolated heavy rainfall** very likely over South Interior Karnataka on 23<sup>rd</sup>, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe on 23<sup>rd</sup> & 24<sup>th</sup>, Coastal Andhra Pradesh & Yanam on 25<sup>th</sup> October.

#### Northeast India:

- ✓ Light to moderate rainfall at many places accompanied with isolated thunderstorm and lightning very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 3 days and light to moderate rainfall at isolated places is likely to prevail during next subsequent 4 days; light to moderate rainfall at Isolated places very likely over Arunachal Pradesh during next 7 days.
- ✓ **Isolated heavy rainfall** very likely over Arunachal Pradesh on 23<sup>rd</sup>; Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura on 23<sup>rd</sup> & 24<sup>th</sup> October.

#### Central, West & Northwest India:

- ✓ No significant rainfall likely over these regions during the week.
- ✓ Shallow to moderate Fog very likely in the morning hours over Punjab on 23<sup>rd</sup> & 24<sup>th</sup> October.

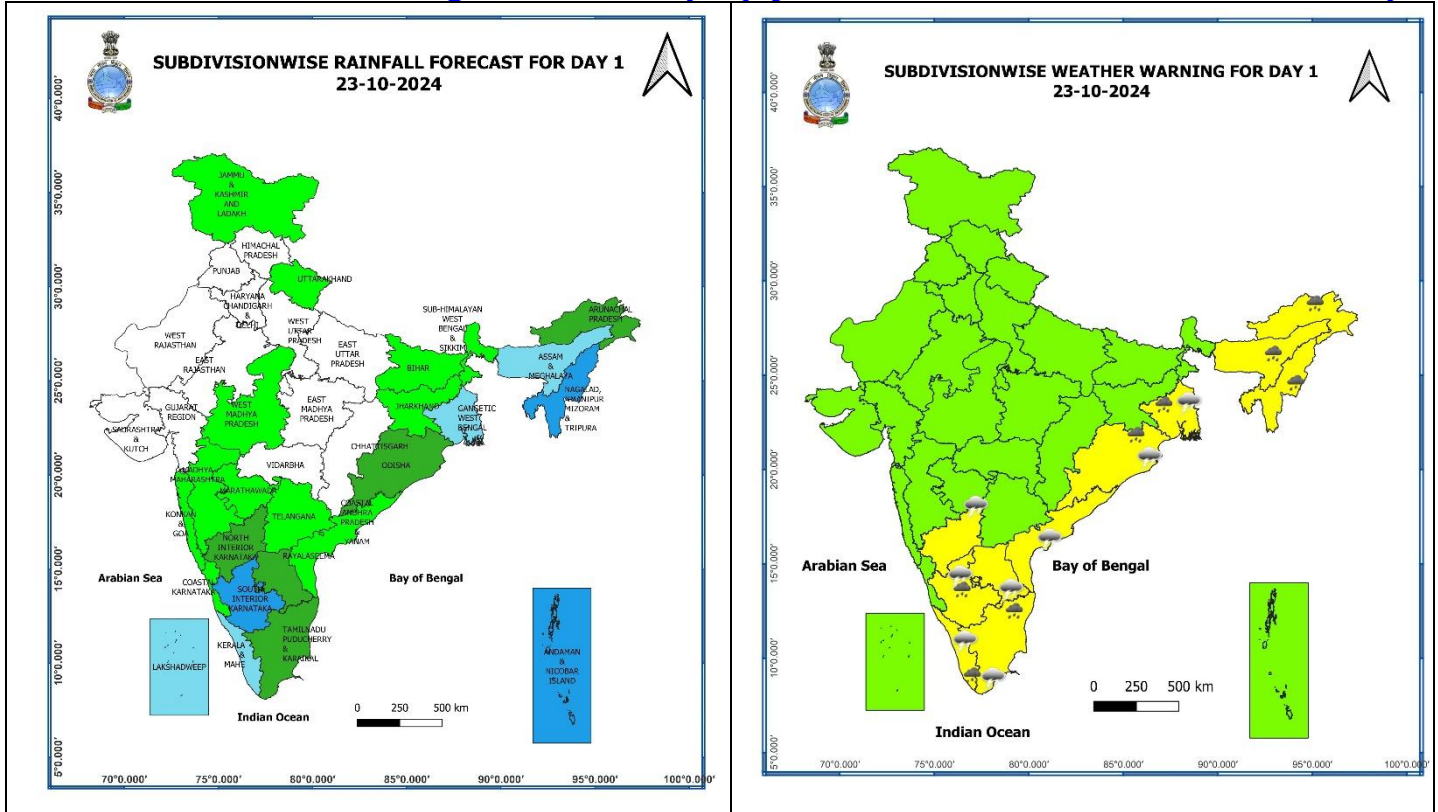
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST of yesterday to 0830 hours IST of today): **at many places** over Konkan & Goa, Coastal Andhra Pradesh & Yanam; **at few places** over Nagaland, Manipur, Mizoram & Tripura, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep; **at isolated places** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, East Rajasthan, West Madhya Pradesh, Vidarbha, Gangetic West Bengal, Arunachal Pradesh, Assam & Meghalaya, Marathwada, Gujarat state, Karnataka.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST of yesterday to 0830 hours IST of today): **Heavy rainfall** at isolated places over Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Andaman & Nicobar Islands.
- ❖ **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0830 hours IST of today) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Coimbatore AP (dist Coimbatore) 9; Coimbatore AWS (dist Coimbatore), Valparai PAP (dist Coimbatore), Tiruppur IB PWD (dist Tiruppur), Natham (dist Dindigul), Sholayar (dist Coimbatore), Valparai Taluk Office (dist Coimbatore), Kundadam (dist Tiruppur), Coimbatore South (dist Coimbatore), Shencottah (dist Tenkasi), Manapparai (dist Thiruchirappalli), Natham AWS (dist Dindigul) 7 each; **Andaman & Nicobar Islands:** Port Blair (dist South Andaman) 9; **South Interior Karnataka:** Bellur (dist Mandya) 7.
- ❖ **Hailstorm** at isolated places over Himachal Pradesh.
- ❖ **Minimum Temperature Departures (as on 23-10-2024):** Minimum temperatures are **markedly above normal (5.1°C or more)** at a few places over Gujarat state, Punjab, Madhya Maharashtra; at isolated places over Rajasthan, East Uttar Pradesh, Bihar; **appreciably above normal (3.1°C to 5.0°C)** at a few places over West Uttar Pradesh, West Madhya Pradesh; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Vidarbha, Marathwada; **above normal (1.6°C to 3.0°C)** at most places over East Madhya Pradesh, Odisha, Gangetic West Bengal, Jharkhand, Konkan & Goa, Rayalaseema, Coastal Karnataka; a few places over Chhattisgarh, Telangana, Interior Karnataka, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal; at isolated places over Arunachal Pradesh. Today, **the lowest minimum temperature** of 15.4°C is reported at **Mandla (East Madhya Pradesh)** over the plains of the country. (Fig.4)
- ❖ **Maximum Temperature Departures (as on 22-10-2024):** Maximum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Bihar, Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at many places over Kerala & Mahe; at a few place over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura; at isolated places over Himachal Pradesh, Uttarakhand, East Uttar Pradesh, Jharkhand, Gangetic West Bengal, East Madhya Pradesh, Chhattisgarh, Vidarbha, Telangana, Coastal Andhra Pradesh & Yanam, Rayalaseema, Tamil Nadu, Puducherry & Karaikal. These were **below normal (-3.0°C to -1.6°C)** at isolated places over East Rajasthan, Gujarat state, Madhya Maharashtra. Yesterday, **the highest Maximum Temperature** of 37.2°C was reported at **Pokharan IAF (West Rajasthan)** over the country. (Fig. 2)

## Meteorological Analysis (Based on 0830 hours IST)

- ❖ The **cyclonic storm "DANA" (pronounced as Dana)** over eastcentral Bay of Bengal moved northwestwards with a speed of 15 kmph during past 6 hours and lay centred at 0830 hrs IST of today, the 23<sup>rd</sup> October, over the same region near latitude 16.5°N and longitude 89.6°E, about 520 km southeast of Paradip (Odisha), 600 km south-southeast of Sagar Island (West Bengal) and 610 km south-southeast of Khepupara (Bangladesh). It is very likely to move northwestwards and intensify into a **severe cyclonic storm** over northwest Bay of Bengal by early morning of 24<sup>th</sup> and cross north Odisha and West Bengal coasts between Puri and Sagar Island close to Bhitarkanika and Dhamara (Odisha) during night of 24<sup>th</sup> to morning of 25<sup>th</sup> October, 2024 as a severe Cyclonic Storm with a wind speed of 100-110 kmph gusting 120 kmph.
- ❖ An **upper air cyclonic circulation** lay over Comorin area & neighbourhood and extends upto 5.8 km above mean sea level
- ❖ The **upper air cyclonic circulation** over Eastcentral Arabian Sea extending between 1.5 km and 5.8 km above mean sea level has become less marked.

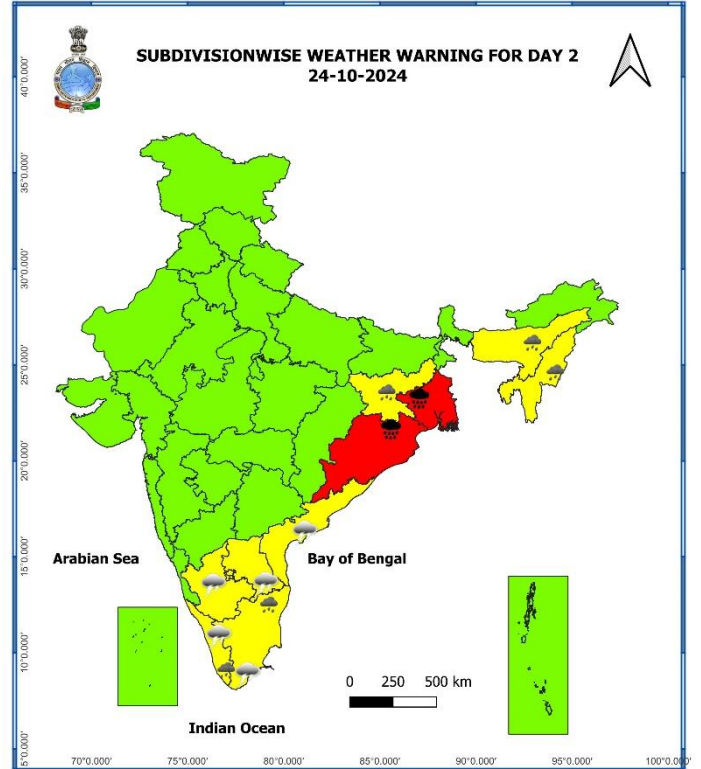
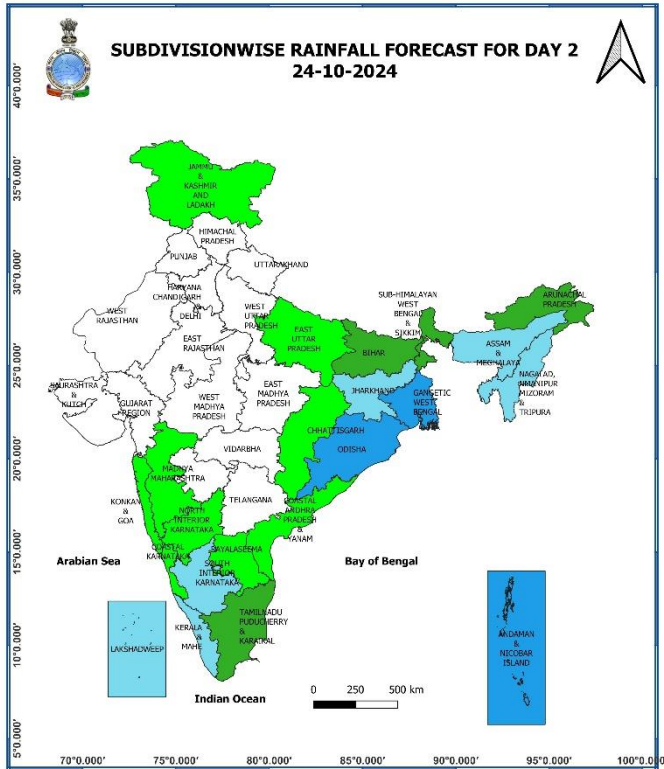
**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 30<sup>th</sup> October, 2024)**



**23 October (Day 1):**

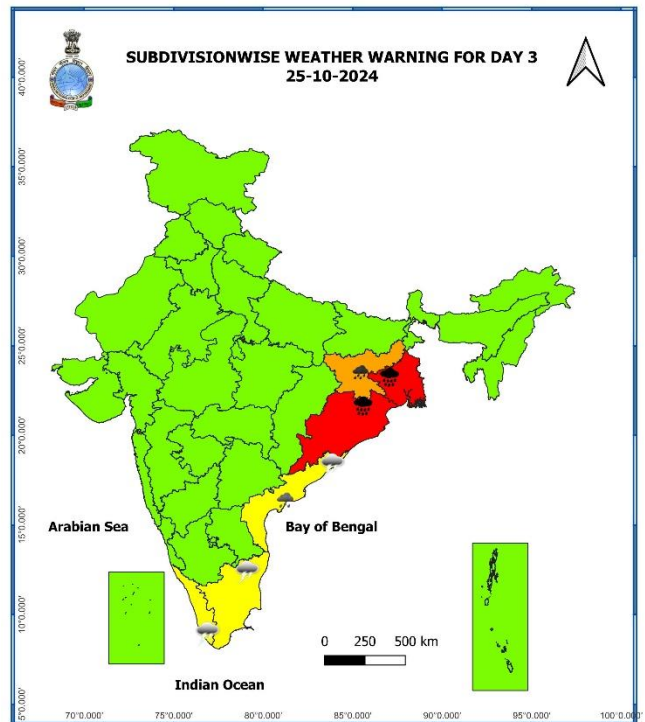
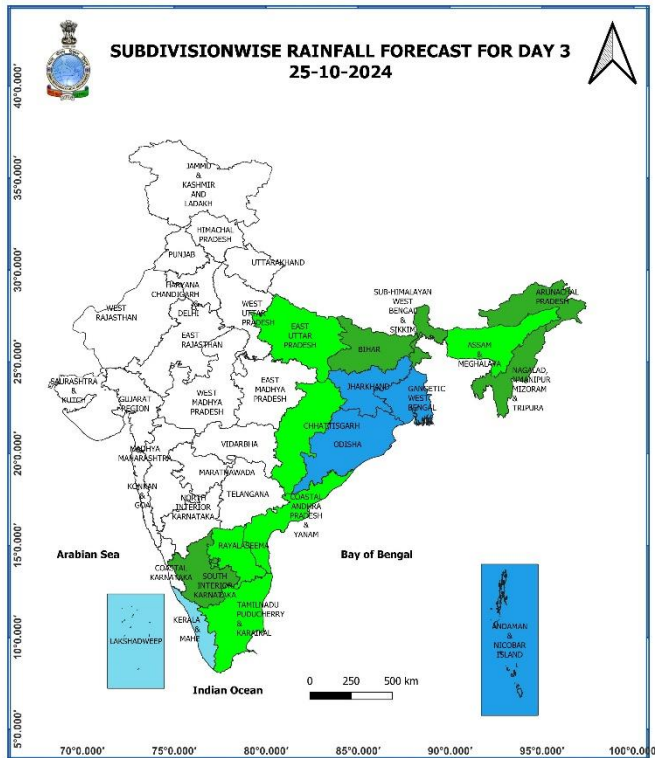
- ❖ **Heavy rainfall ( $\geq 7\text{cm}$ )** very likely at isolated places over Gangetic West Bengal, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, South Interior Karnataka.
- ❖ **Thunderstorm accompanied gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Gangetic West Bengal, Odisha, Kerala & Mahe; **with lightning** likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Interior Karnataka.
- ❖ **Shallow to moderate fog** very likely in isolated pockets over Punjab in the morning hours.
- ❖ **Squally wind speed reaching 40-50 gusting to 60 kmph** is very likely to commence from 23<sup>rd</sup> Oct evening. It would gradually increase becoming gale wind speed reaching 60-70 kmph gusting to 80 kmph from 24<sup>th</sup> morning and 100-110 kmph gusting to 120 kmph along & off north Odisha and east Medinipur district of West Bengal;
- ❖ **Total suspension of fishing operations** during 23<sup>rd</sup> to 25<sup>th</sup> Oct over Central and North Bay of Bengal. Fishermen are advised not to venture into Eastcentral Bay of Bengal during 23<sup>rd</sup> to 24<sup>th</sup> October. Adjoining areas of Westcentral Bay of Bengal till 24<sup>th</sup> Oct. Northwest & adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts during till 25<sup>th</sup> October.





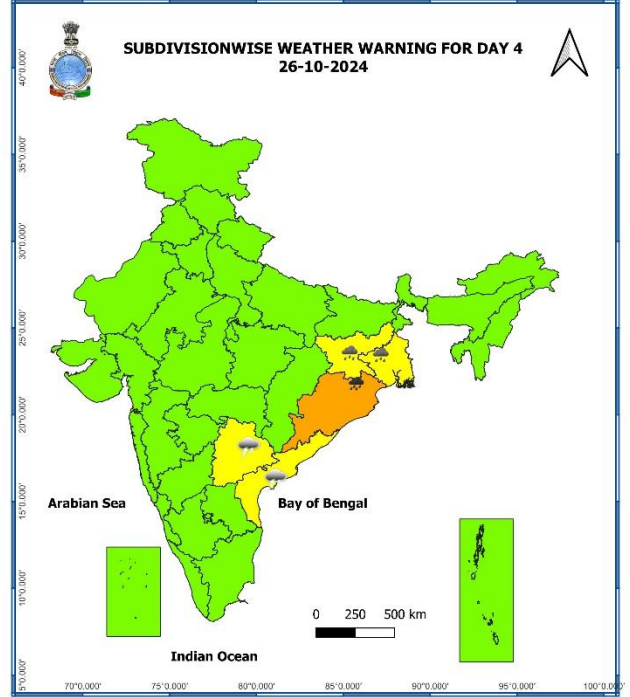
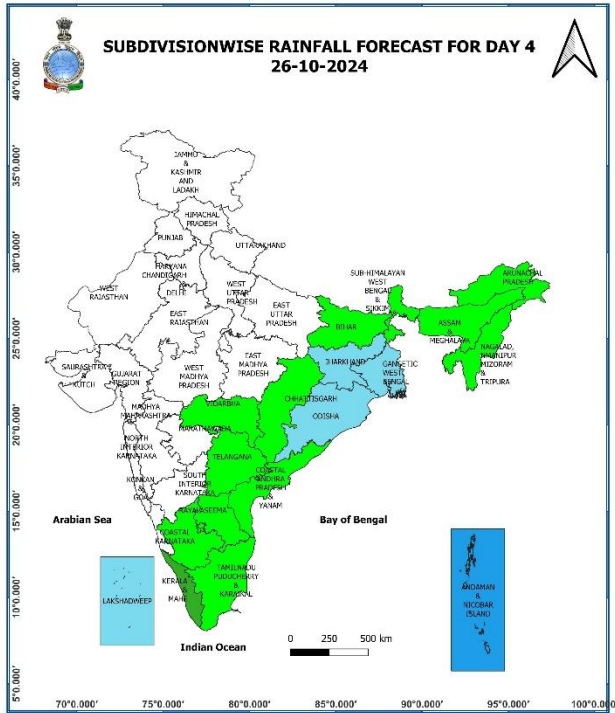
### 24 October (Day 2):

- ❖ **Heavy to very heavy rainfall with extremely heavy falls ( $\geq 20$  cm)** very likely at isolated places over Odisha and Gangetic West Bengal; **Heavy rainfall ( $\geq 7$ cm)** likely at isolated places over Jharkhand, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, South Interior Karnataka.
- ❖ **Shallow to moderate fog** very likely in isolated pockets over Punjab in the morning hours.
- ❖ **Gale wind speed reaching 60-70 kmph gusting to 80 kmph from 24<sup>th</sup> morning and 100-110 kmph gusting to 120 kmph** along & off north Odisha and east Medinipur district of West Bengal; **Gale wind speed reaching 60-80 kmph gusting to 90 kmph** is likely along & off south Odisha and remaining districts of coastal West Bengal from 24<sup>th</sup> night till 25<sup>th</sup> Oct morning and decrease gradually thereafter.
- ❖ **Storm surge** of 1.0 to 2.0 m height above astronomical tide is very likely to inundate low lying areas of Kendrapara, Bhadrak & Balasore districts of Odisha and East Medinipur districts of West Bengal during the time of landfall. Storm surge of 0.5 to 1.0 m height above astronomical tide is very likely to inundate low lying areas of South 24-Parganas district of West Bengal and Jagatsingpur district of Odisha during the time of landfall.
- ❖ **Total suspension of fishing operations** during 23<sup>rd</sup> to 25<sup>th</sup> Oct over Central and North Bay of Bengal. Fishermen are advised not to venture into Eastcentral Bay of Bengal during 23<sup>rd</sup> to 24<sup>th</sup> October. Adjoining areas of Westcentral Bay of Bengal till 24<sup>th</sup> Oct. Northwest & adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts during till 25<sup>th</sup> October.



**25 October (Day 3):**

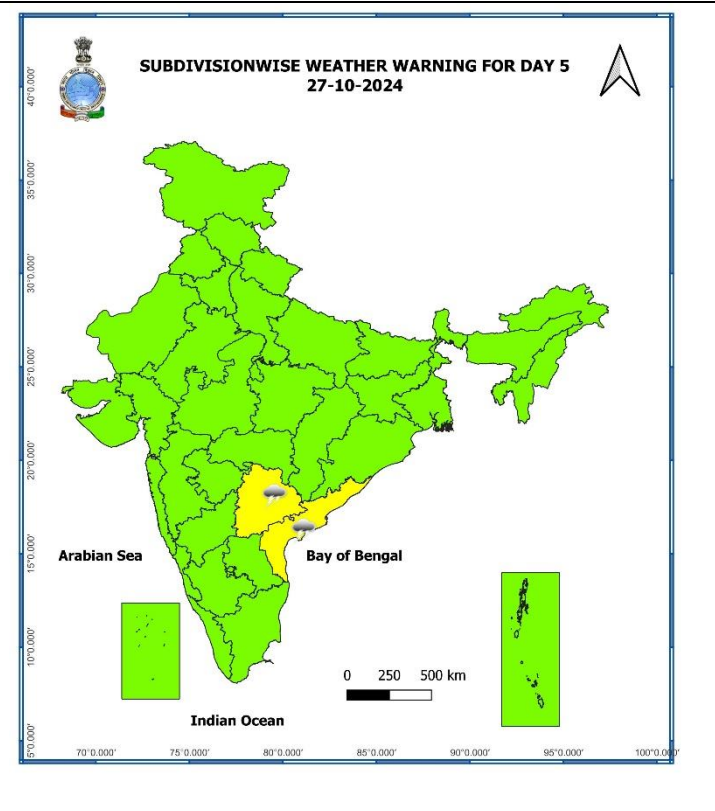
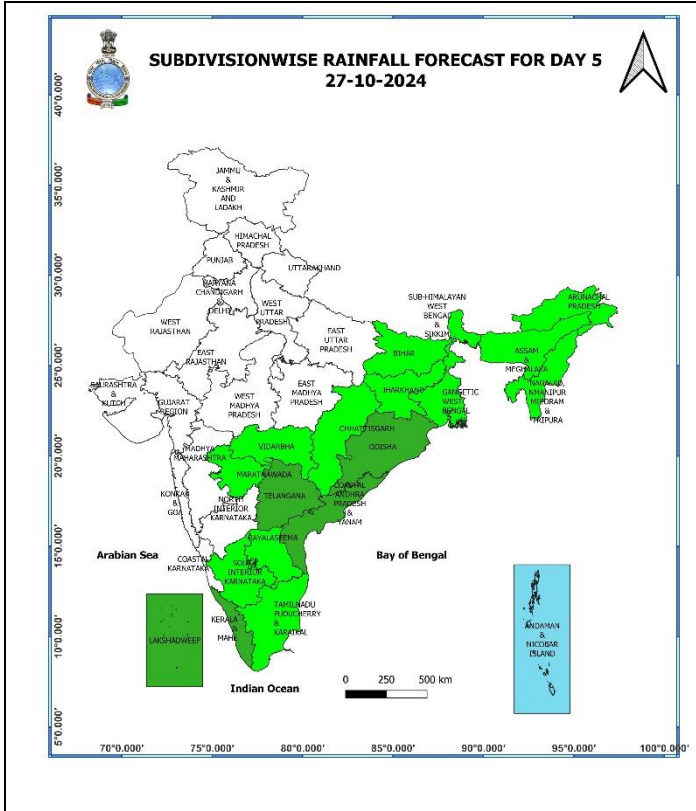
- ❖ **Heavy to very heavy rainfall with extremely heavy falls ( $\geq 20$  cm)** very likely at isolated places over Odisha, Gangetic West Bengal; **Heavy to very heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Jharkhand; **Heavy rainfall ( $\geq 7$ cm)** likely at isolated places over Coastal Andhra Pradesh & Yanam.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Bihar, Jharkhand, Chhattisgarh, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Andhra Pradesh & Yanam.
- ❖ **Gale wind speed reaching 60-80 kmph gusting to 90 kmph** is likely along & off south Odisha and remaining districts of coastal West Bengal from 24<sup>th</sup> night till 25<sup>th</sup> Oct morning and decrease gradually thereafter.
- ❖ **Storm surge** of 1.0 to 2.0 m height above astronomical tide is very likely to inundate low lying areas of Kendrapara, Bhadrak & Balasore districts of Odisha and East Medinipur districts of West Bengal during the time of landfall. Storm surge of 0.5 to 1.0 m height above astronomical tide is very likely to inundate low lying areas of South 24-Parganas district of West Bengal and Jagatsingpur district of Odisha during the time of landfall.
- ❖ **Total suspension of fishing operations during 23<sup>rd</sup> to 25<sup>th</sup> Oct over Central and North Bay of Bengal.** Fishermen are advised not to venture into Eastcentral Bay of Bengal during 23<sup>rd</sup> to 24<sup>th</sup> October. Northwest & adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts during till 25<sup>th</sup> October.



### 26 October (Day 4):

- ❖ **Heavy to very heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Odisha; **Heavy rainfall ( $\geq 7$ cm)** likely at isolated places over Gangetic West Bengal and Jharkhand.
- ❖ **Thunderstorm accompanied gusty winds (speed reaching 30-40 kmph)** likely at isolated places over Telangana; **with lightning** likely at isolated places over Chhattisgarh, Bihar, Coastal Andhra Pradesh & Yanam.

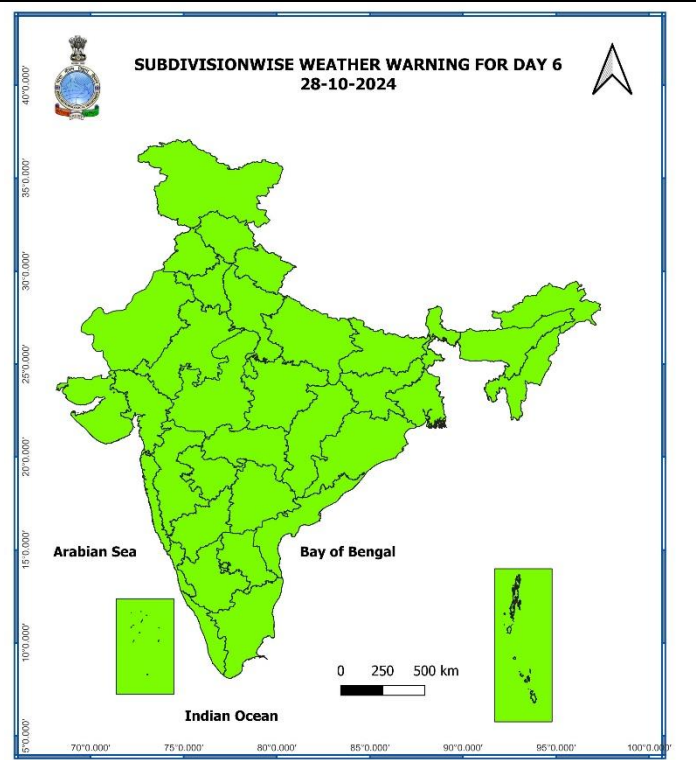
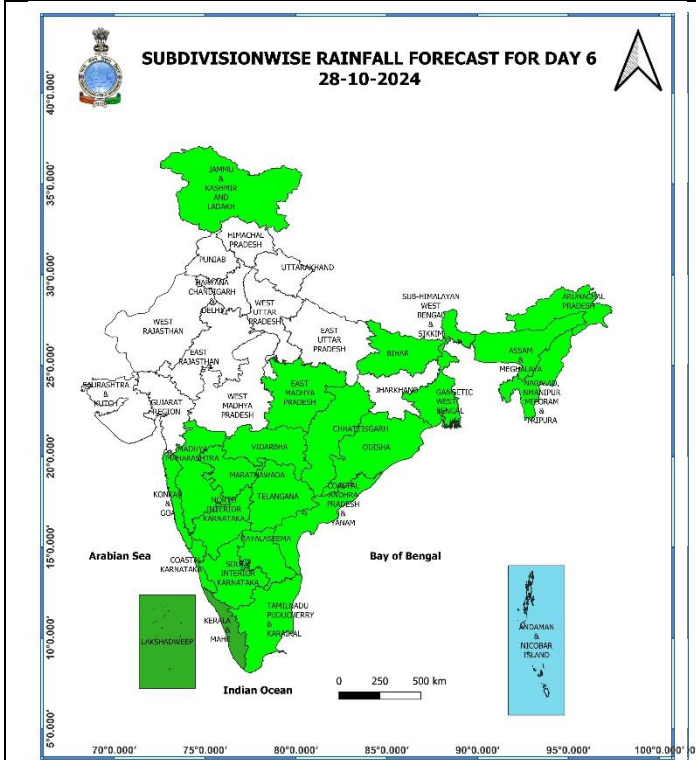




**27 October (Day 5):**

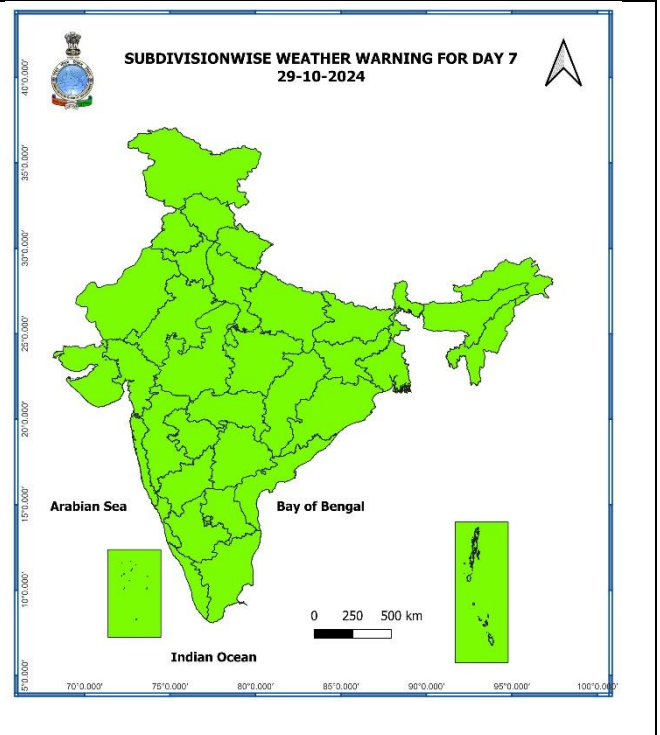
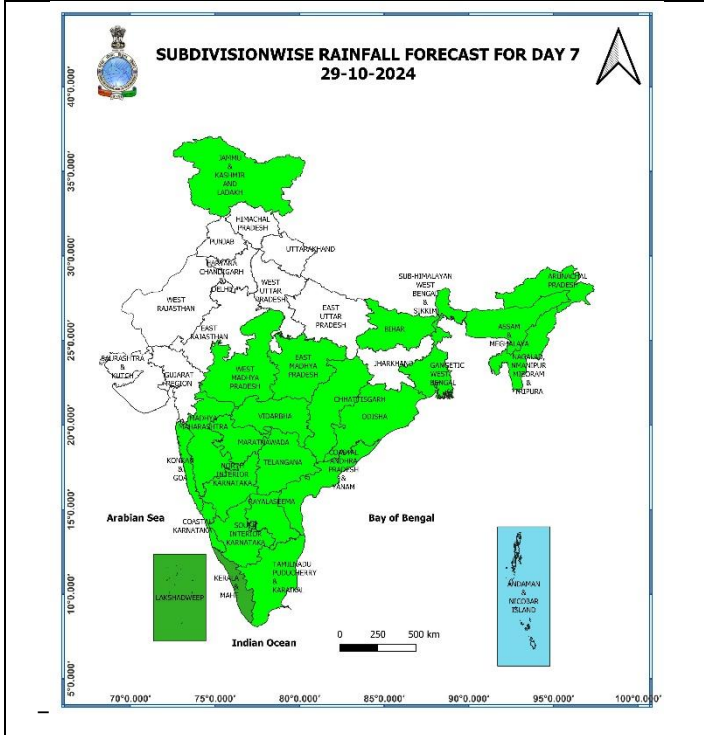
- ❖ **Thunderstorm accompanied gusty winds (speed reaching 30-40 kmph)** likely at isolated places over Telangana; **with lightning** likely at isolated places over Vidarbha, Chhattisgarh, Coastal Andhra Pradesh & Yanam.





**28 October (Day 6):**

❖ **No weather warning.**



**29 October (Day 7):**

❖ No weather warning.

**Weather Outlook for subsequent 3 days (During 30<sup>th</sup> October – 01<sup>st</sup> November, 2024)**

- ❖ Isolated to Scattered light rainfall likely over some parts of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe and Northeast India.
- ❖ Mainly dry weather will prevail over rest parts of country.

- 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, Gangetic West Bengal on 24<sup>th</sup> & 25<sup>th</sup> October.
- ✓ **Isolated heavy to very heavy rainfall** very likely over Jharkhand on 25<sup>th</sup>; Odisha on 26<sup>th</sup> October.

### Impact Expected

- ✓ Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.
- ✓ Minor damage to power and communication lines.
- ✓ Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- ✓ Possibilities of damage to vulnerable structure. Breaking of tree branches and uprooting of trees.
- ✓ Moderate damage to banana and papaya trees. Large dead limbs blown from trees.
- ✓ Damage to horticulture and standing crops in some areas due to inundation and wind.
- ✓ Damage to embankments/ salt pans.
- ✓ 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 and poor visibility due to heavy rain leading to increased travel time and incidents
- ✓ Localized Landslides/Mudslides/landslips/mud slips/land sinks/mud sinks.
- ✓ Likely disruption of marine and inland water transportation like small boats and trawlers.
- ✓ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Webpage of Central Water Commission)

### Action Suggested

- Total suspension of fishing operations during 23<sup>rd</sup> to 25<sup>th</sup> Oct over Central and North Bay of Bengal.
- Fishermen are advised not to venture into
  - ✓ Eastcentral Bay of Bengal during 23<sup>rd</sup> to 24<sup>th</sup> October.
  - ✓ **Adjoining areas of Westcentral Bay of Bengal on 23<sup>rd</sup> and 24<sup>th</sup> Oct.**
  - ✓ **Northwest and adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts** during 23<sup>rd</sup> to 25<sup>th</sup> October morning.
- Movement in motor boats unsafe
- Coastal hutment dwellers to be moved to safer places.
- People in affected areas to remain indoors.
- Judicious regulation of onshore/offshore, Port and maritime activities including shipping.
- Judicious regulation of tourism activities in coastal areas.
- 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 in view of Cyclonic storm over eastcentral Bay of Bengal (Cyclone Alert for Odisha and West Bengal coast)

- ✓ In **Odisha**, the harvesting of rice crop if 85% of grains are matured in a panicle. Immediately harvest matured maize, black gram, green gram, groundnut, vegetables and fruits. Withhold sowing of pre-rabi pulses and winter vegetables. Provide propping in sugarcane by tying leaves from four to five plants together to prevent their lodging.
- ✓ In **Gangetic West Bengal**, drain out excess water from Aman rice, groundnut, pulses and vegetables. Complete harvesting of kharif rice, vegetables, and fruits as soon as possible.
- ✓ In Andaman & Nicobar Islands, collect and safely dispose of fallen fruits and vegetables to prevent the spread of fungal diseases. Collect fallen coconuts and transport them to the market as soon as possible. For harvested rice, ensure proper sun-drying when the weather conditions are clear to minimize moisture retention and reduce the risk of mould or spoilage.
- ✓ Shift the harvested produce to safer places at the earliest.
- ✓ Make arrangements for adequate drainage to avoid water logging in crop fields.
- ✓ Provide mechanical support to young fruit plants and staking in vegetables to prevent their lodging.

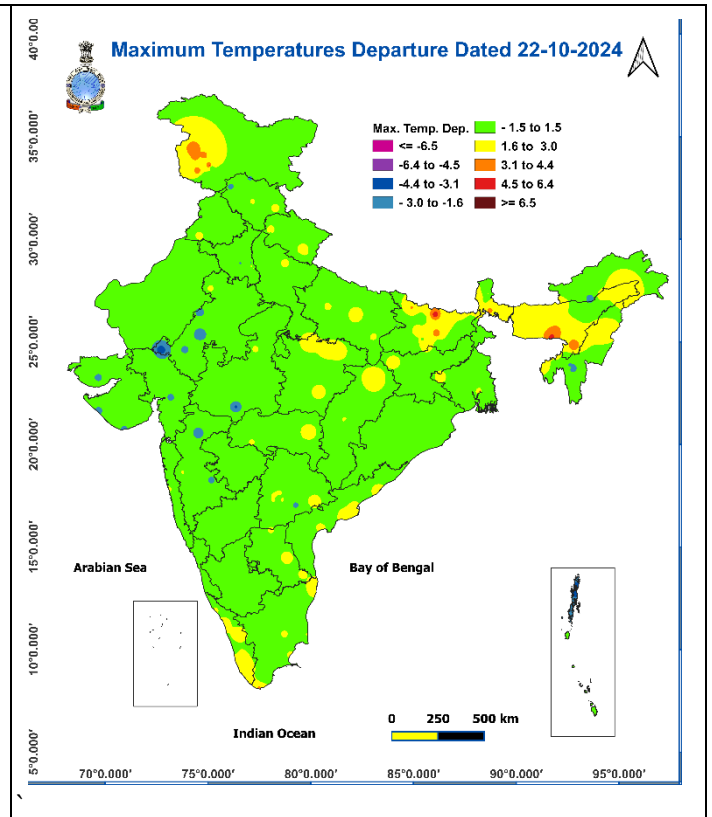
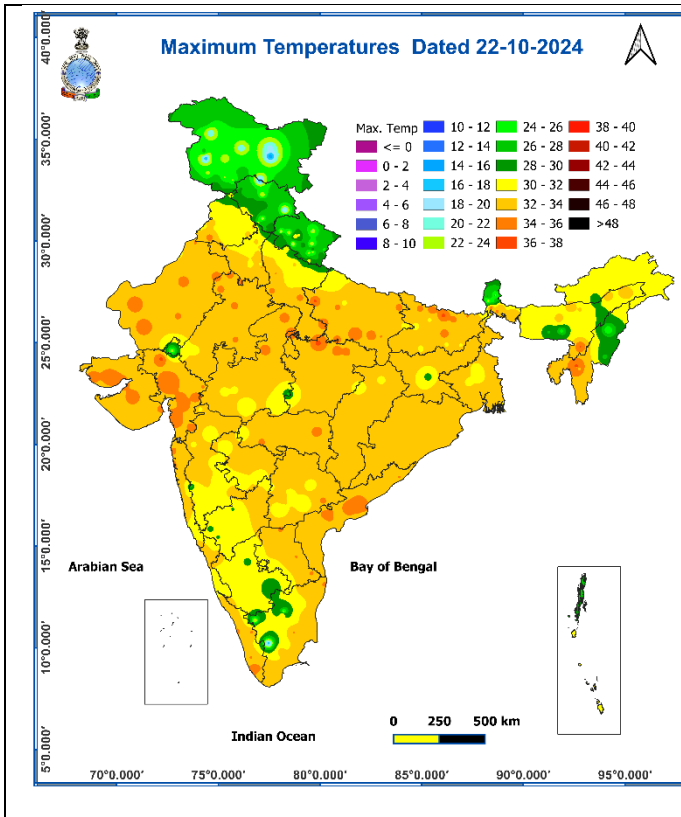
### Agromet advisories for Heavy Rainfall likely over various parts of the country

- ✓ In **Tamil Nadu**, drain out excess water from rice nurseries and fields of rice, maize, pepper and newly planted turmeric. Undertake detrashing and propping of more than five-months-old sugarcane to avoid lodging. Provide support to banana plantations.
- ✓ Make necessary arrangements to drain out excess water from standing crop fields and fruit orchards to avoid water stagnation in Kerala, South Interior Karnataka and North Eastern States.
- ✓ Keep the harvested produce at safer places.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.



**Fig. 1: Maximum Temperatures**

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



**Fig. 3: Minimum Temperatures**

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

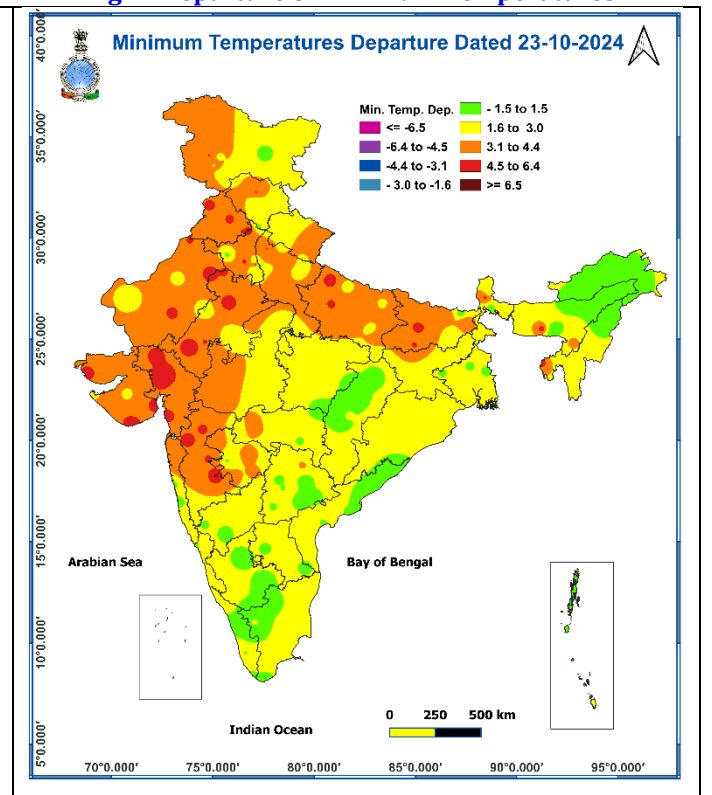
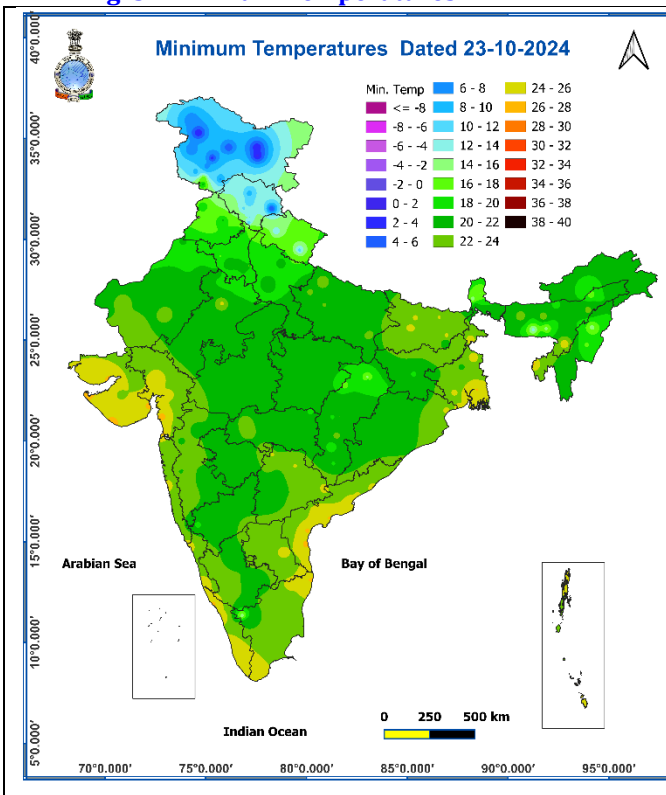
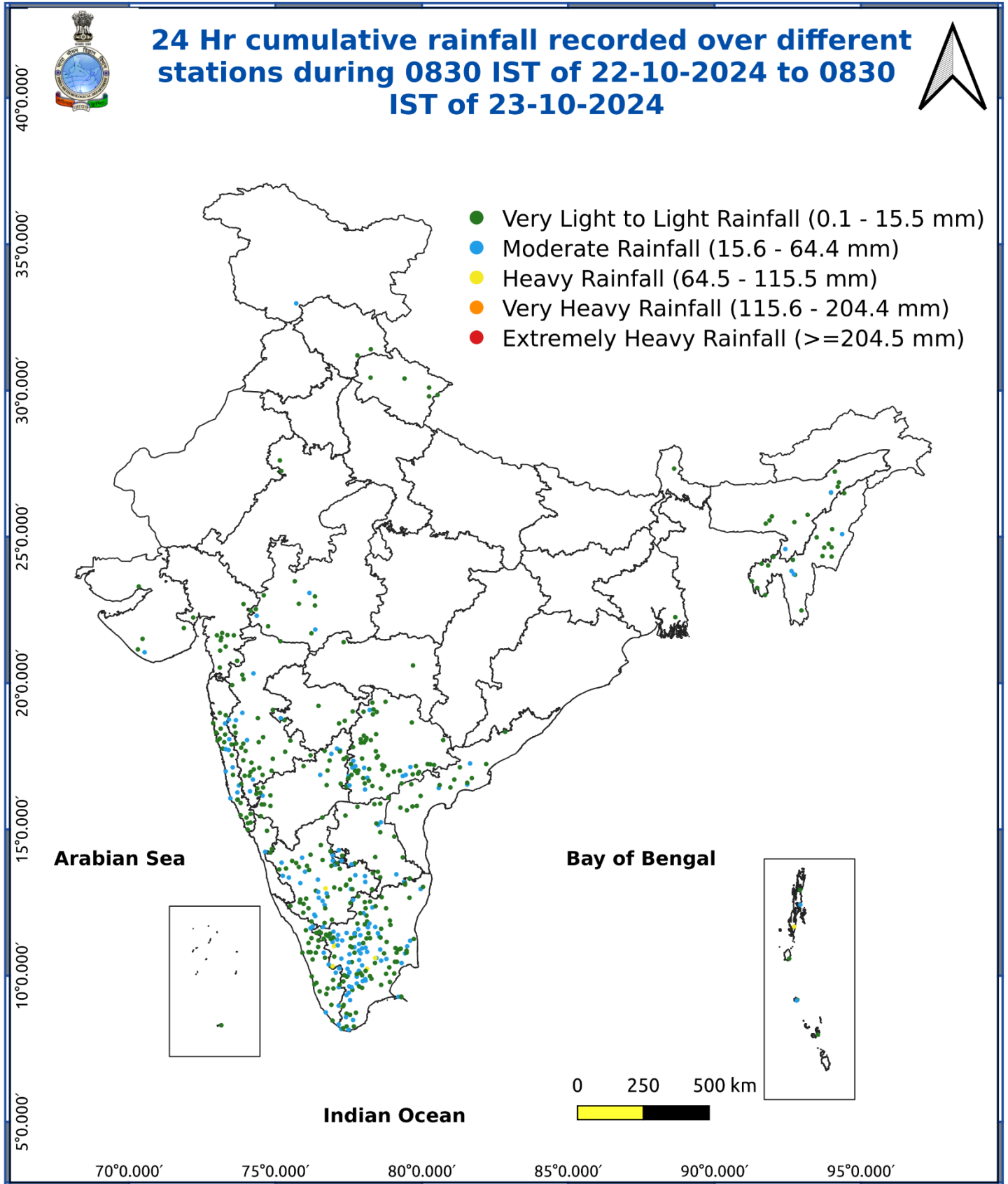


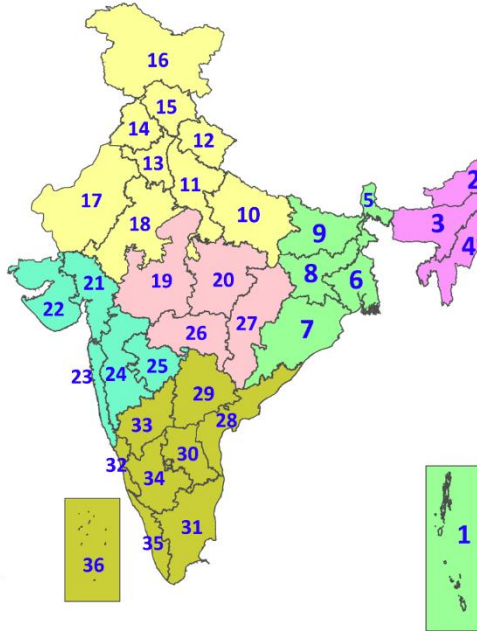
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



\* 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

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