

Wednesday, October 16, 2024
Time of Issue: 0915 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ❖ The **Depression** over southwest Bay of Bengal moved west-northwestwards with a speed of 12 kmph during past 6 hours and lay centered at 0530 hours IST of today, the 16th October 2024 over the same region near latitude 12.1° N and longitude 83.4° E, about 360 km east-southeast of Chennai (Tamil Nadu), 390 km east of Puducherry and 450 km southeast of Nellore (Andhra Pradesh). **It is likely to move west-northwestwards and cross north Tamil Nadu - South Andhra Pradesh coasts between Puducherry and Nellore, close to Chennai during early morning of 17th October.**
- ❖ The **Depression** over westcentral Arabian Sea off Oman coast moved northwestwards with a speed of 23 kmph during past 6 hours, crossed Oman coast near latitude 19.35°N and longitude 57.7°E, close to Duqm (Oman) between 2230 hours IST and 2330 hours IST and lay as a **well marked low pressure area** over coastal Oman at 2330 hours IST of yesterday, the 15th October, 2024. It is likely to move northwestwards and weaken gradually thereafter over Oman. The associated **cyclonic circulation** extended upto 5.8 km above mean sea level.

Forecast & Warnings (upto 7 days):

South Peninsular India:

- ✓ Fairly widespread to widespread light to moderate rainfall very likely over Kerala & Mahe, Karnataka during the week; Scattered to Fairly widespread light to moderate rainfall very likely over Lakshadweep, Rayalaseema, Coastal Andhra Pradesh & Yanam, Telangana, Tamil Nadu, Puducherry & Karaikal during the week.
- ✓ **Light to moderate rainfall** over most places with **heavy to very heavy rainfall** at a few places with **extremely heavy rainfall** at isolated places is very likely over north Tamil Nadu & Puducherry on 16th October and isolated **heavy to very heavy rainfall** over north interior Tamil Nadu on 17th October.
- ✓ **Light to moderate rainfall** over most places with **heavy rainfall** at isolated places is very likely over south Tamil Nadu during 16th to 17th October.
- ✓ **Light to moderate rainfall** over most places with **Heavy to very heavy rainfall** at a few places with **extremely heavy rainfall** at isolated places over South Andhra Pradesh & Rayalaseema is very likely on 16th October and **heavy rainfall** at isolated places is likely on 17th October.
- ✓ **Light to moderate rainfall** over most places with **heavy to very heavy rainfall** at isolated places is likely over Kerala and south Interior Karnataka during 16th to 17th October.
- ✓ **Fishermen are advised not to venture into the**
 - Southwest and adjoining westcentral Bay of Bengal from 16th to 17th October.
 - Fishermen out at sea are advised to return to coasts.

For more details about the depression over Bay of Bengal kindly refer national bulletin available at <https://rsmcnewdelhi.imd.gov.in/>

West India:

- ✓ Scattered to Fairly widespread light to moderate rainfall very likely over Konkan & Goa; Isolated to Scattered light to moderate rainfall over remaining regions of West India except Saurashtra & Kutch where Dry weather is likely to prevail from 17th-21st during the week.
- ✓ **Isolated heavy rainfall** very likely over Konkan & Goa during 16th-17th October.

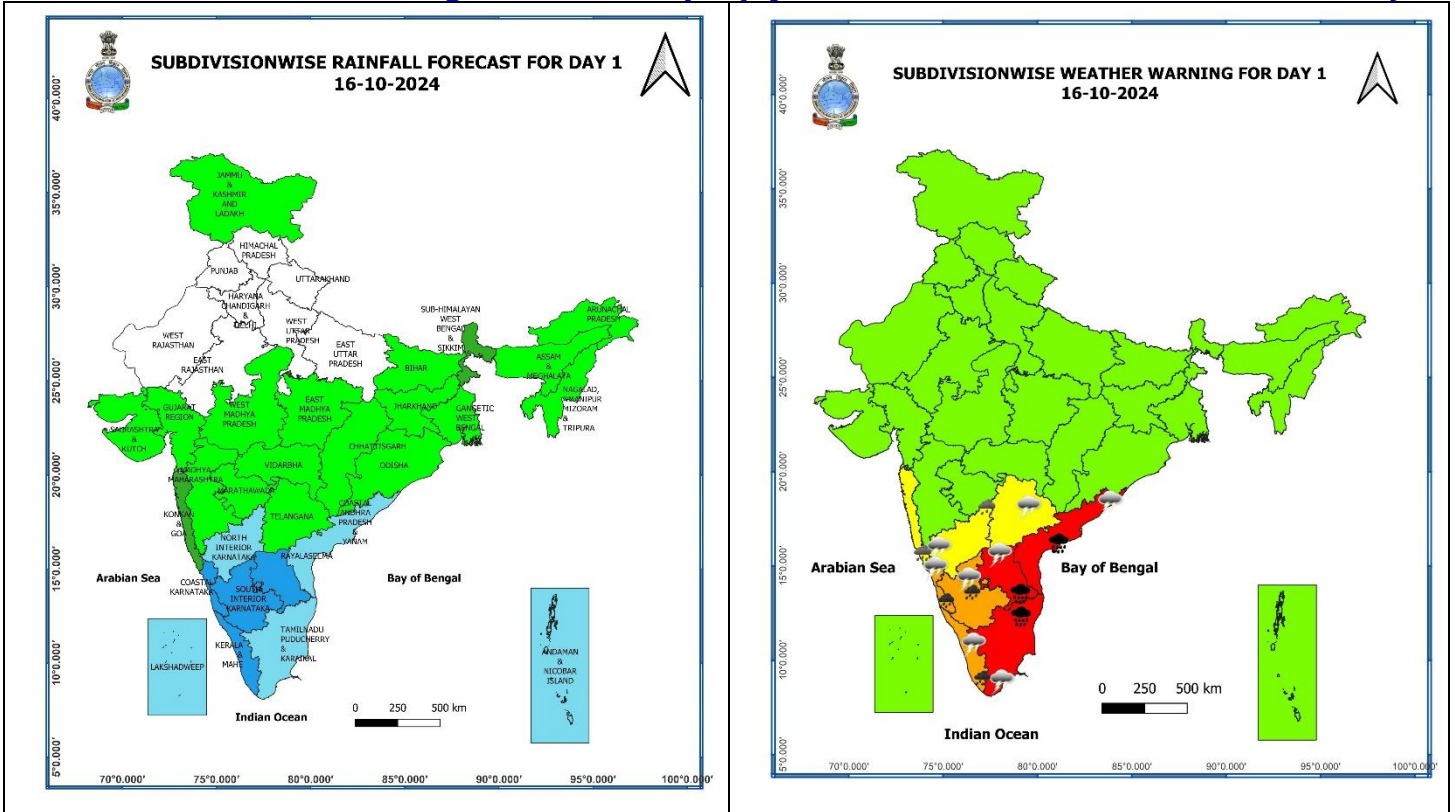
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Coastal Andhra Pradesh & Yanam and Andaman & Nicobar Islands; **at a few places** over Tamil Nadu, Puducherry & Karaikal; **at isolated places** over West Madhya Pradesh, Jharkhand, Odisha, West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Karnataka, Kerala & Mahe, Rayalaseema and Telangana.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over South Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Numgambakkam-11, Chennai (Meenambakkam)-9, Cuddalore & Tirupattur-3 each, Salem-2; **South Interior Karnataka:** Bangalore-8; **Coastal Karnataka:** Karwar-3; **North Interior Karnataka:** Kalaburagi & Belgaum-3 each; **West Madhya Pradesh:** Dhar-3; **Gangetic West Bengal:** Burdwan-2.
- ❖ **Minimum Temperature Departures (as on 15-10-2024):** Minimum temperatures were **markedly above normal (5.1°C or above)** at isolated places over East Rajasthan; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Vidarbha, Madhya Maharashtra; at isolated places over West Rajasthan, Gujarat State, Madhya Pradesh, Odisha; **above normal (1.6°C to 3.0°C)** at most places over Marathwada, Chhattisgarh; at many places over Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Telangana; at a few places over Gangetic West Bengal, North Interior Karnataka; at isolated places over Himachal Pradesh, Punjab, Uttar Pradesh, Konkan & Goa, Coastal Andhra Pradesh & Yanam. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Haryana-Delhi, Tamil Nadu, Puducherry & Karaikal. Yesterday, **the lowest minimum temperature of 15.4°C** was reported at **Delhi ridge (New Delhi)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 15-10-2024):** Maximum 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 Vidarbha; at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Chhattisgarh and Gangetic West Bengal. These were **markedly below normal (-5.1°C or less)** at isolated places over Tamil Nadu, Puducherry & Karaikal, Rayalaseema and Coastal Andhra Pradesh & Yanam; **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over West Madhya Pradesh, Telangana and Coastal & South Interior Karnataka; **below normal (-1.6°C to -3.0°C)** at isolated places over North Interior Karnataka, Andaman & Nicobar Islands, Saurashtra & Kutch, Madhya Maharashtra, East Rajasthan, Bihar and Assam & Meghalaya. Yesterday, **the highest Maximum Temperature of 39.2°C** was reported at **Sri Ganganagar (West Rajasthan)** over the country. **(Fig. 2)**

Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Depression** over southwest Bay of Bengal moved west-northwestwards with a speed of 12 kmph during past 6 hours and lay centered at 0530 hours IST of today, the 16th October 2024 over the same region near latitude 12.1° N and longitude 83.4° E, about 360 km east-southeast of Chennai (Tamil Nadu), 390 km east of Puducherry and 450 km southeast of Nellore (Andhra Pradesh). It is likely to move west-northwestwards and cross north Tamil Nadu - South Andhra Pradesh coasts between Puducherry and Nellore, close to Chennai during early morning of 17th October.
- ❖ The **Depression** over westcentral Arabian Sea off Oman coast moved northwestwards with a speed of 23 kmph during past 6 hours, crossed Oman coast near latitude 19.35° N and longitude 57.7° E, close to Duqm (Oman) between 2230 hours IST and 2330 hours IST and lay as a **well marked low pressure area** over coastal Oman at 2330 hours IST of yesterday, the 15th October, 2024. It is likely to move northwestwards and weaken gradually thereafter over Oman. The associated **cyclonic circulation** extended upto 5.8 km above mean sea level.
- ❖ The **cyclonic circulation** over northeast Bangladesh & neighbourhood at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Sub-Himalayan West Bengal & Sikkim at 0.9 km above mean sea level persists.
- ❖ The **cyclonic circulation** over westcentral Bay of Bengal off south Andhra Pradesh coast extending upto 5.8 km above mean sea level tilting southwestwards with height has become less marked.

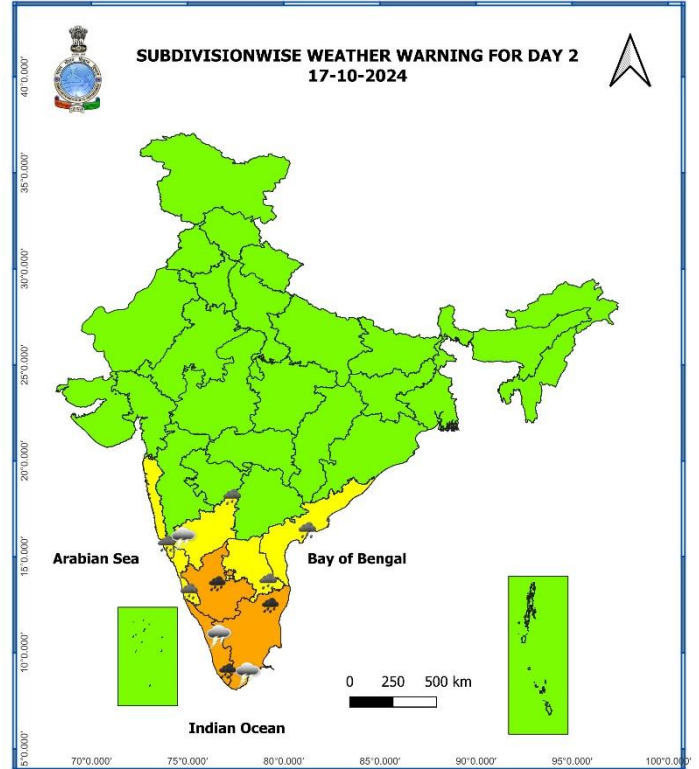
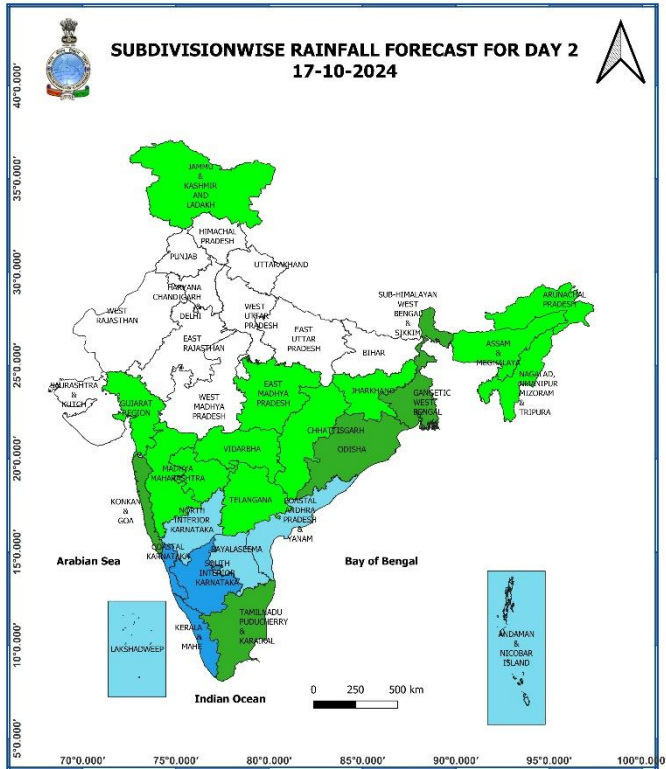
Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 22nd October, 2024)



16 October (Day 1):

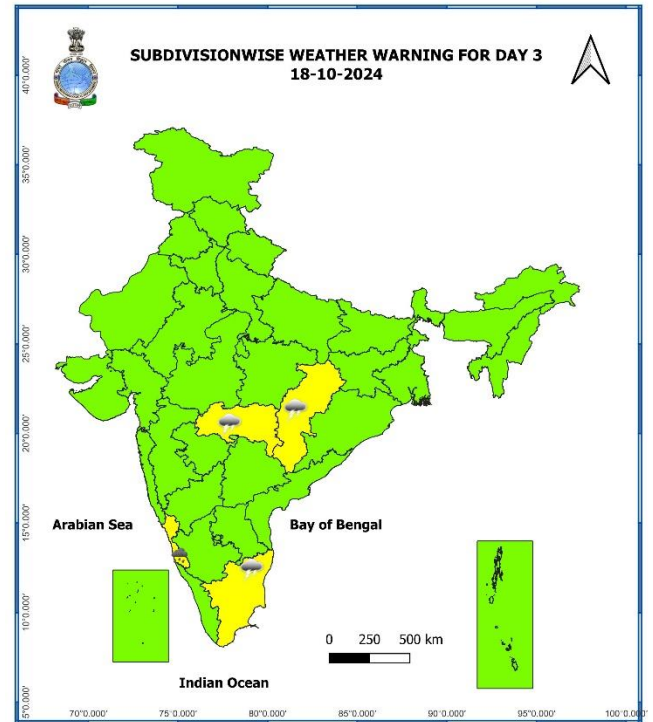
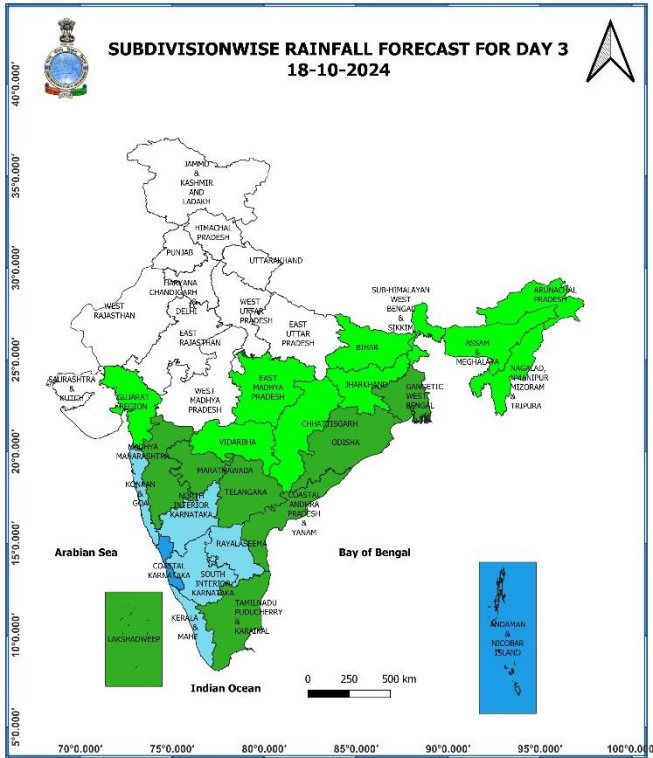
- ❖ **Heavy to very heavy rainfall with extremely heavy falls (> 20 cm)** very likely at isolated places over Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal, Rayalaseema; **Heavy to very Heavy rainfall (≥12 cm)** likely at isolated places over Kerala & Mahe, Coastal Karnataka, South Interior Karnataka; **Heavy rainfall (≥7cm)** likely at isolated places over Konkan & Goa, North Interior Karnataka.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Konkan & Goa, Madhya Maharashtra, Gujarat state, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Karnataka.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over along and off Kerala, Karnataka coasts and adjoining Lakshadweep area, over Comorin area, gulf of Mannar, along and off Sri Lanka coast, along and off Tamil Nadu, Andhra Pradesh coasts, southwest and adjoining southeast & many parts of westcentral Bay of Bengal. **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over southwest and adjoining westcentral Bay of Bengal and along & off Tamil Nadu, Puducherry and south Andhra Coast. Fishermen are advised not to venture into these areas.

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For more details, kindly visit <https://mausam.imd.gov.in> or contact: 011-2434-4599
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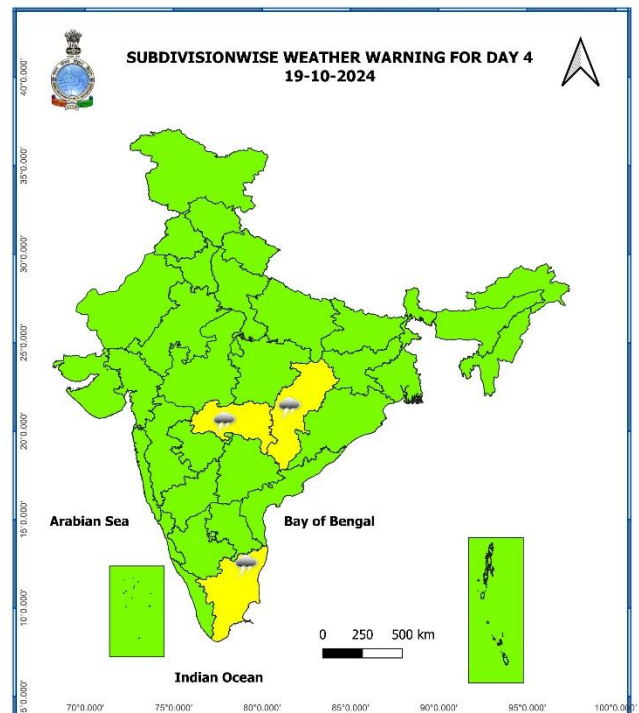
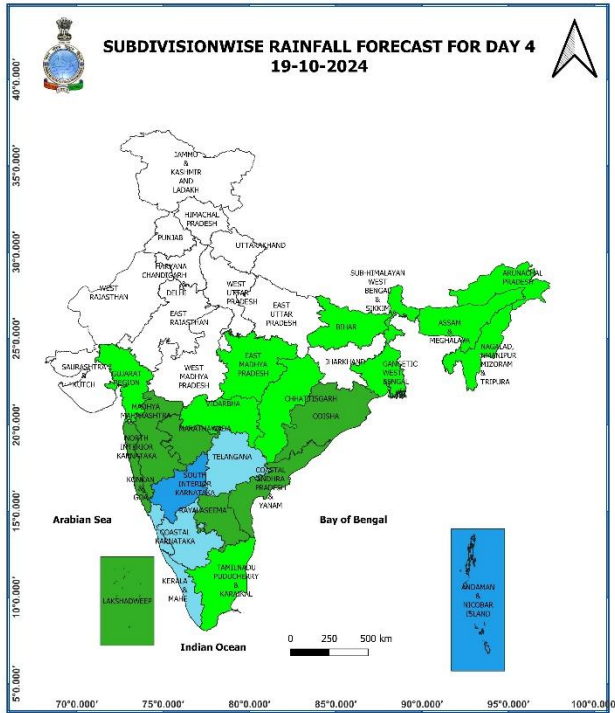
17 October (Day 2):

- ❖ **Heavy to very Heavy rainfall (≥ 12 cm)** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, South Interior Karnataka; **Heavy rainfall (≥ 7 cm)** at isolated places over Konkan & Goa, Coastal Andhra Pradesh & Yanam, Rayalaseema, Coastal Karnataka, North Interior Karnataka.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Odisha, Konkan & Goa, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, North Interior Karnataka.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over along and off Kerala, Karnataka coasts and adjoining Lakshadweep area, over Comorin area, gulf of Mannar, along and off Sri Lanka coast, along and off Tamil Nadu, Andhra Pradesh coasts, , southwest and adjoining southeast & many parts of westcentral Bay of Bengal. **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over southwest and adjoining westcentral Bay of Bengal and along & off Tamil Nadu, Puducherry and south Andhra Coast. Fishermen are advised not to venture into these areas.



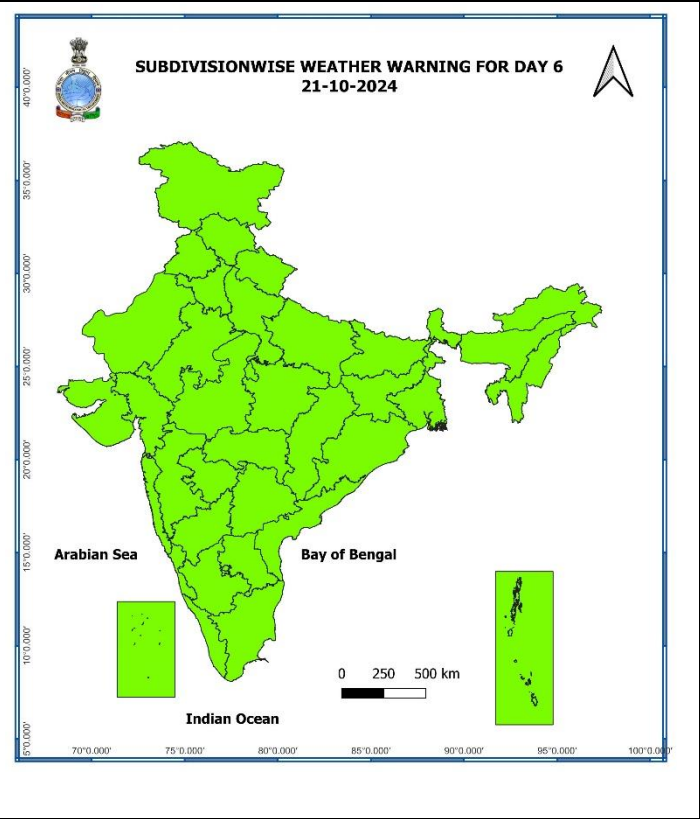
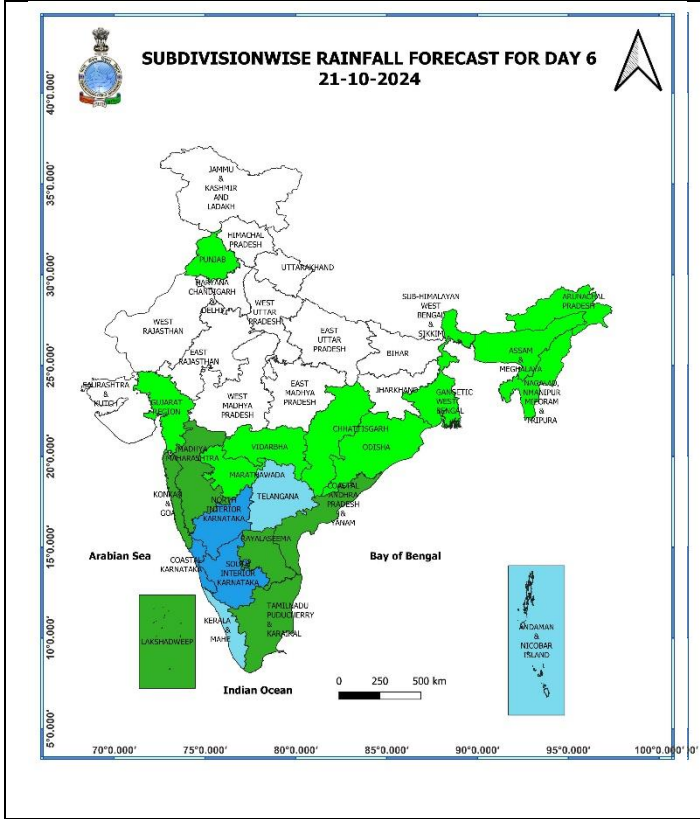
18 October (Day 3):

- ❖ **Heavy rainfall ($\geq 7\text{cm}$)** likely at isolated places over Coastal Karnataka.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Vidarbha, Chhattisgarh, Odisha, Konkan & Goa, Madhya Maharashtra, Marathwada, Tamil Nadu, Puducherry & Karaikal.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over along and off Kerala, Karnataka coasts and adjoining Lakshadweep area, over Comorin area, gulf of Mannar, along and off Sri Lanka coast, along and off Tamil Nadu, Andhra Pradesh coasts, over southwest bay of Bengal, few parts of westcentral bay of Bengal. **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over along and off north Tamil Nadu and adjoining south Andhra Pradesh coasts and adjoining sea area. Fishermen are advised not to venture into these areas.



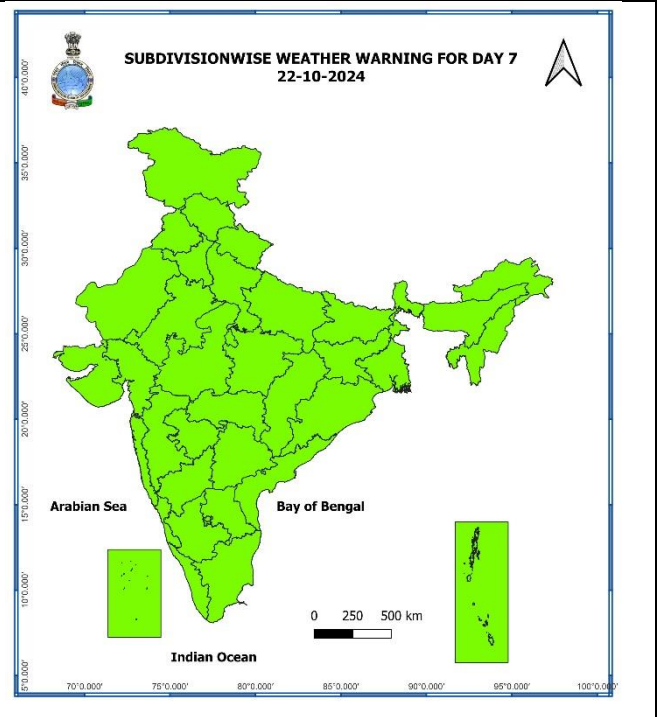
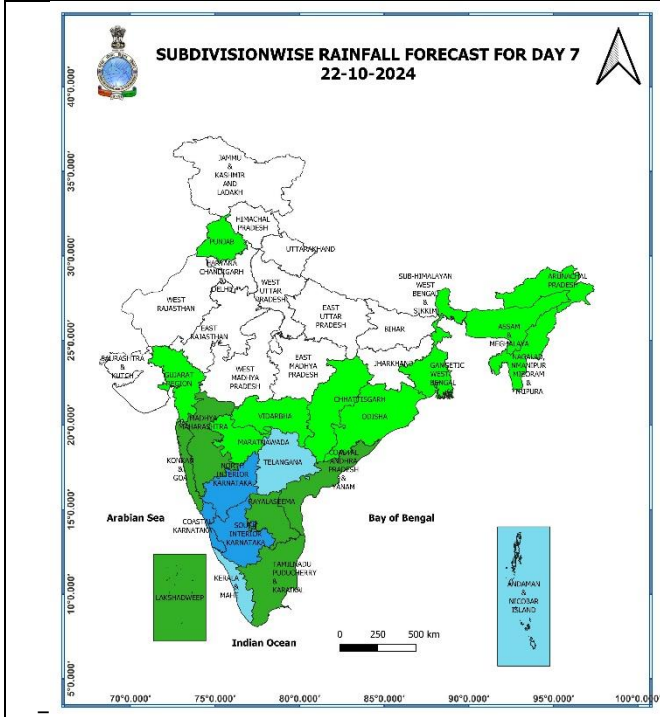
19 October (Day 4):

- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Vidarbha, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Marathwada, Tamil Nadu, Puducherry & Karaikal.
- ❖ **Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over along and off Kerala, Karnataka coasts and adjoining Lakshadweep area, over Comorin area, gulf of Mannar, along and off north Sri Lanka coast, along and off Tamil Nadu, south Andhra Pradesh coasts and adjoining sea area. **Squally weather with wind speed 40 kmph to 50 kmph gusting to 60 kmph** is likely to prevail over along and off north Tamil Nadu and adjoining south Andhra Pradesh coasts and adjoining sea area. Fishermen are advised not to venture into these areas.



21 October (Day 6):

❖ **No weather warning.**



22 October (Day 7):

❖ **No weather warning.**

Weather Outlook for subsequent 3 days (During 22nd October- 24th October, 2024)

- ❖ Fairly widespread to widespread rainfall likely over Peninsular India and Islands.
- ❖ Isolated to Scattered rainfall likely over some parts of East 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 Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema on 16th October.
- ✓ **Isolated very heavy rainfall** very likely over Kerala & Mahe, South Interior Karnataka during 16th-17th; Tamil Nadu, Puducherry & Karaikal on 17th; Coastal Andhra Pradesh & Yanam.
- ✓ **Low to Moderate flash flood likely over** few watersheds & neighbourhoods of Coastal Andhra Pradesh & Yanam, Rayalaseema on 16th October; **Moderate flash flood risk** likely over few watersheds & neighbourhoods of Coastal Andhra Pradesh & Yanam, Rayalaseema and Tamil Nadu, Puducherry & Karaikal on 16th & 17th October. **(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 kutchra 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

- ✓ In **south Coastal Andhra Pradesh**, drain out excess water from cotton, pulses, maize and rice fields and postpone sowing of *rabi* pulses. Immediately harvest matured rice in Nellore district and shift the harvested produce at safer places. In **north Coastal Andhra Pradesh**, postpone harvesting of groundnut and maize.
- ✓ In **Rayalaseema**, protect the harvested groundnut produce. Withhold sowing of *rabi* Bengal gram and groundnut.
- ✓ Drain out excess water from rice and other standing crops and vegetable fields in **Kerala**, as well as from rice nurseries and fields of rice, maize, pepper, and newly planted turmeric in **Tamil Nadu**.
- ✓ Keep the harvested produce at safer places.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.

Flash Flood Risk

Annexure I

Persistent Flash Flood Threat (PFFT) till 1130 IST of 16-10-2024 :

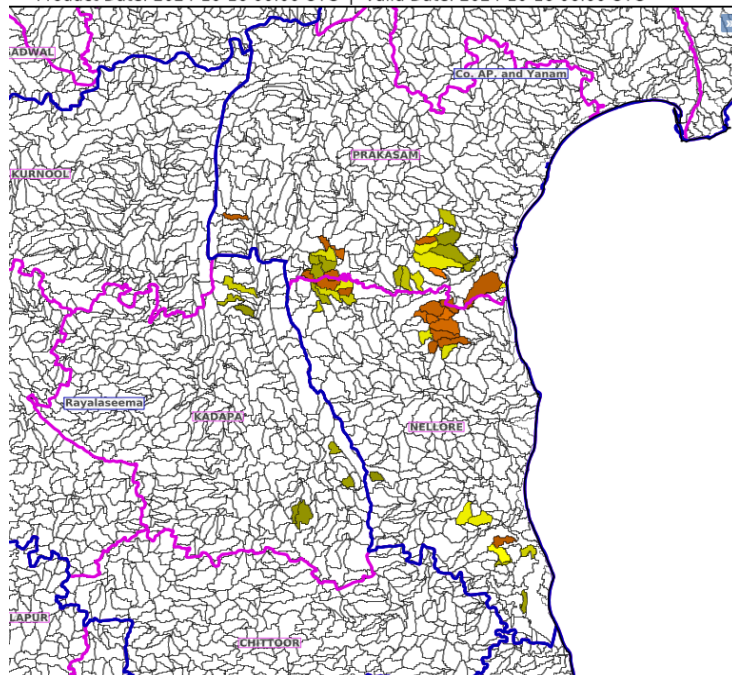
Low to Moderate flash flood threat likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 6 hours.

Coastal AP & Yanam - Prakasam and Nellore districts.
Rayalaseema - Kadapa district

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 6 hours.

SAAsiaFFGS - South Asia Flash Flood Guidance System

Product: PFFT | Timescale: 06-hr | Region: "REGIONAL"
Product Date: 2024-10-16 00:00 UTC | Valid Date: 2024-10-16 06:00 UTC



24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-10-2024 :

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

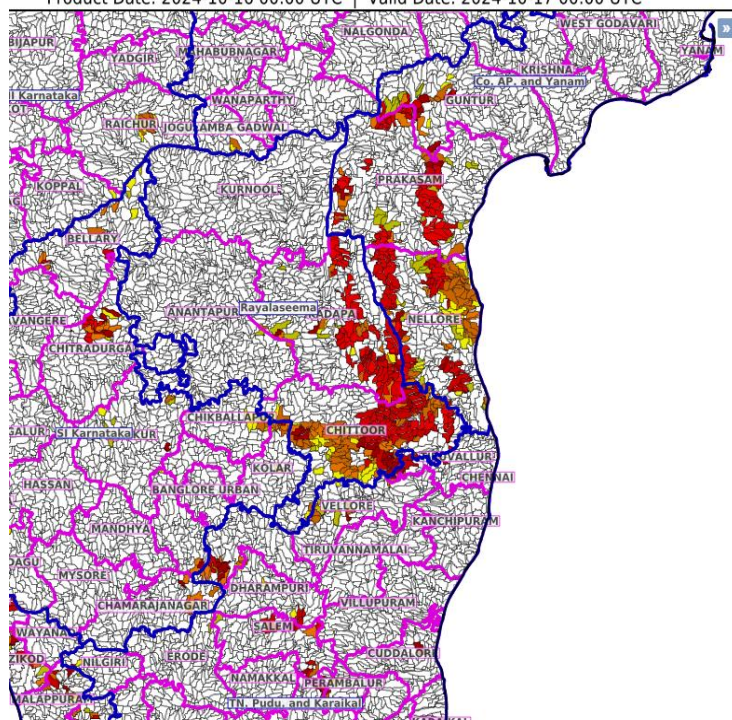
Coastal AP & Yanam - Guntur, Prakasam and Nellore districts.

Rayalaseema - Chittoor and Kadapa districts.

Tamil Nadu - Pudu & Karaikal - Cuddalore, Dharampuri, Krishnagiri, Perambalur, Salem, Tiruchirappalli, Tiruvallur and Vellore 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.

Product: WRF FFR | Timescale: 24-hr | Region: "REGIONAL"
Product Date: 2024-10-16 00:00 UTC | Valid Date: 2024-10-17 00:00 UTC



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Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

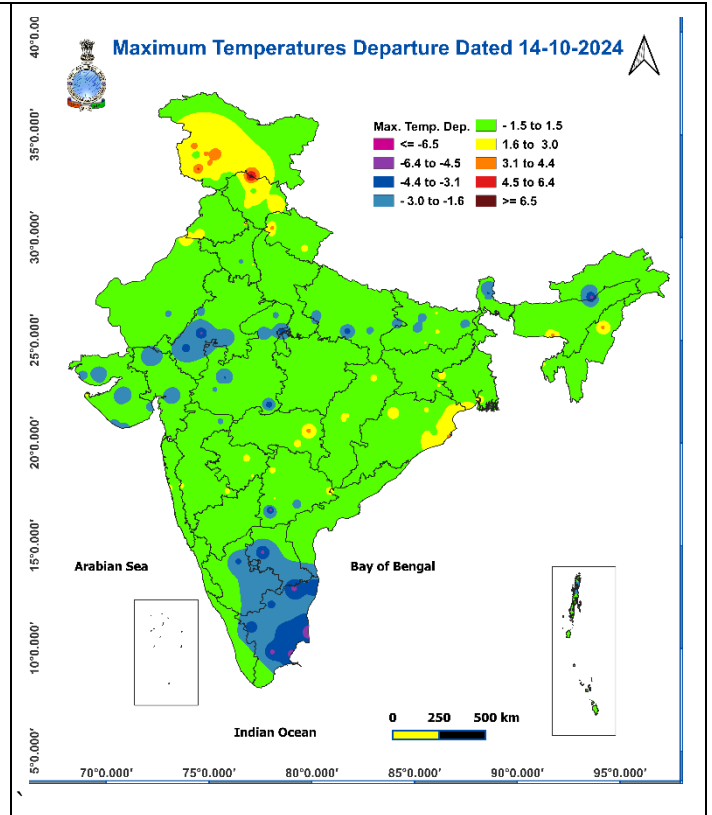
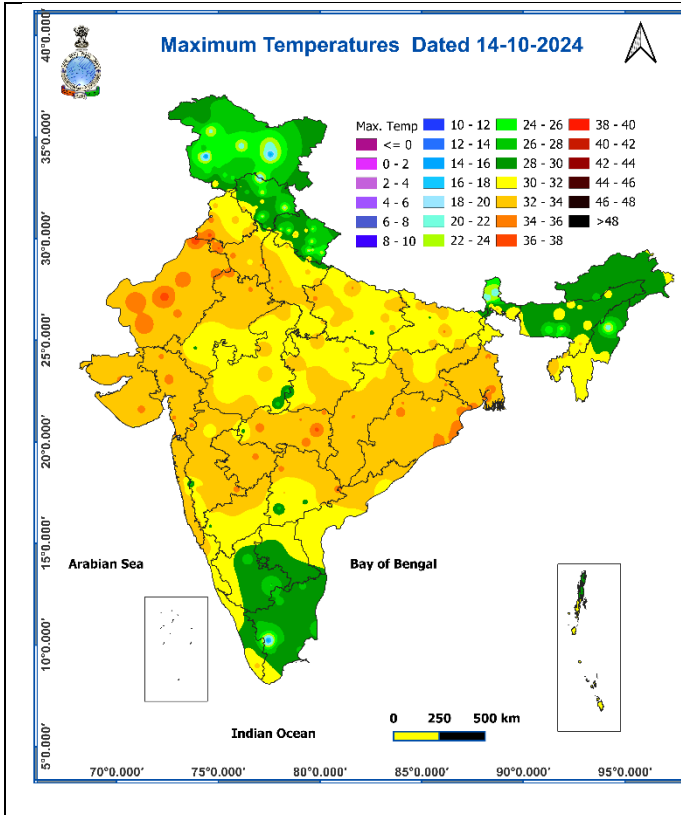


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

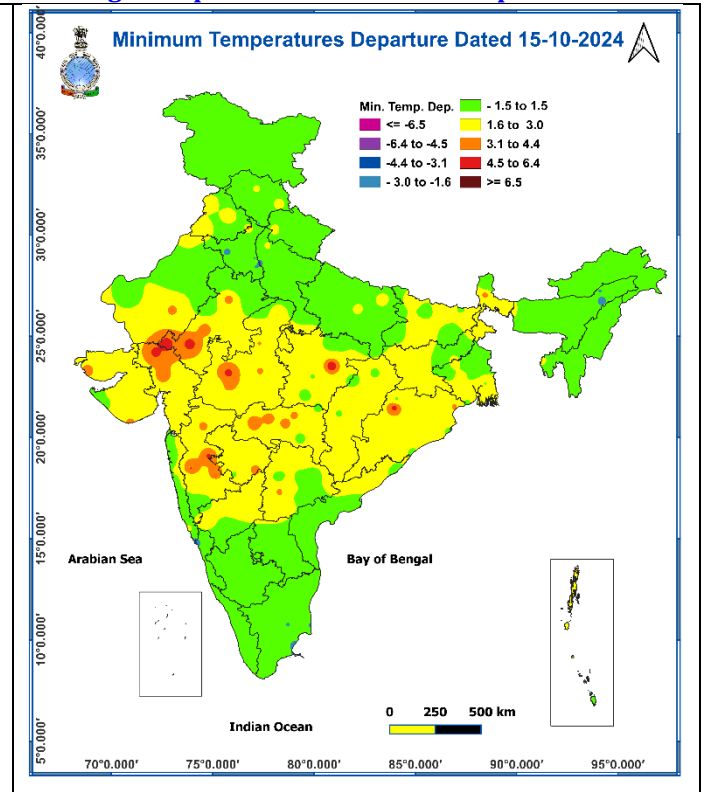
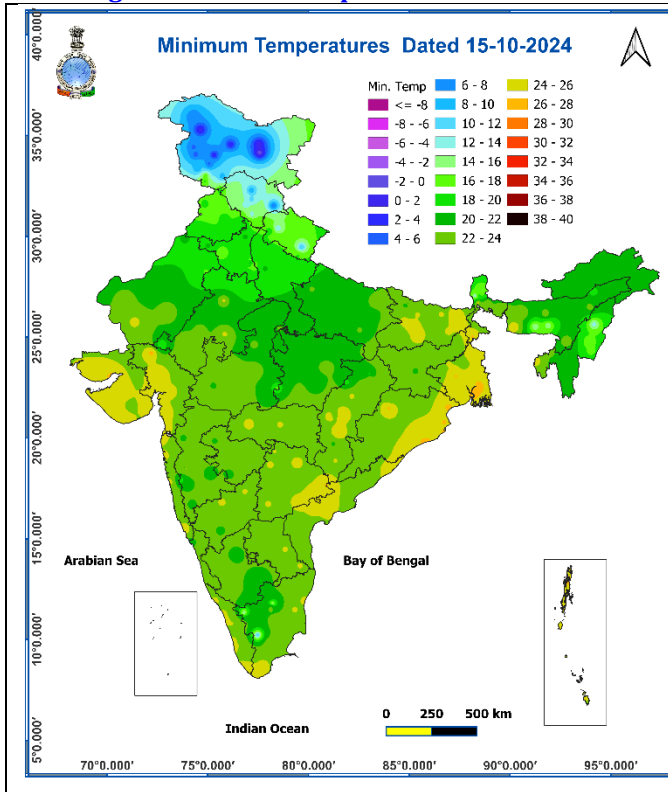
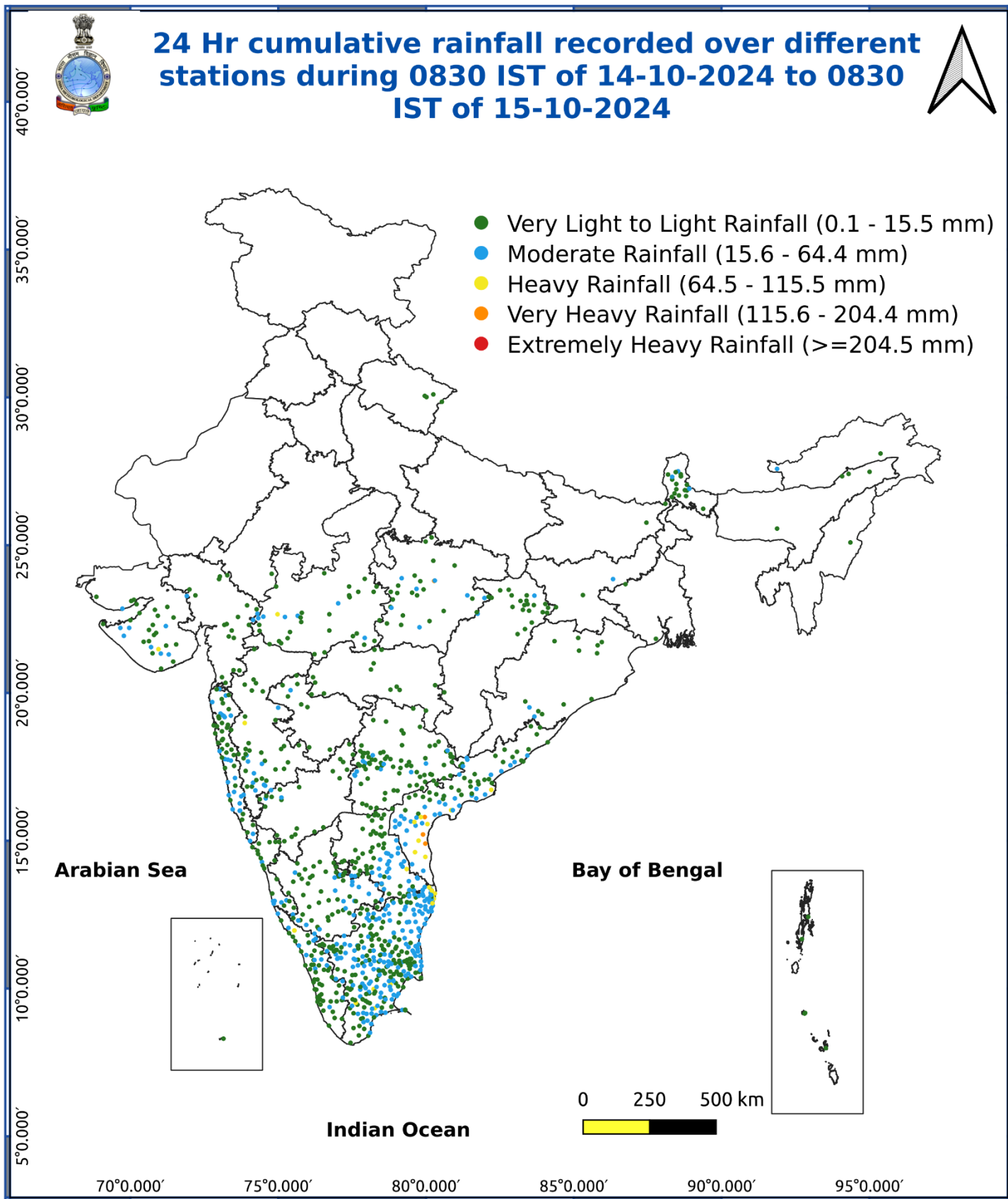


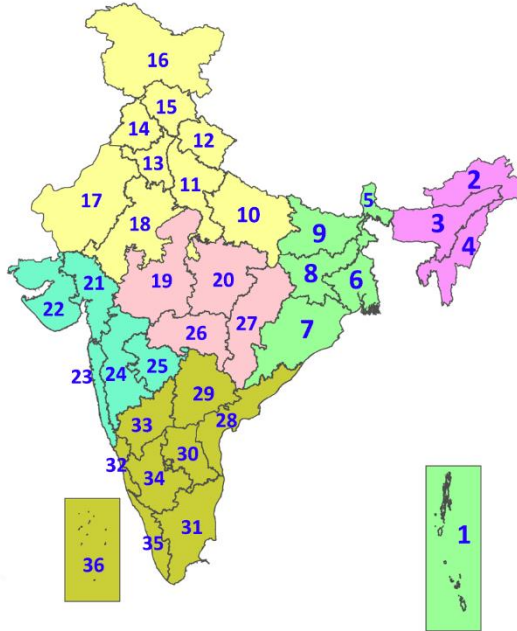
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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)