



All India Impact Based Weather Warning Bulletin

Sunday 17 October 2021
Time of Issue: 1630 hours IST

(EVENING)

17 October (Day 1): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Himachal Pradesh, Uttarakhand, Haryana & Chandigarh, West Uttar Pradesh and Gangetic West Bengal and **heavy rainfall** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan & Muzaffarabad, Punjab, East Uttar Pradesh, Northeast Rajasthan, West Madhya Pradesh, Odisha, Rayalaseema, Tamilnadu and Kerala & Mahe. Moderate rainfall likely over Delhi.

♦ **Thunderstorm accompanied with lightning, hail & squall** (speed reaching 40-50 kmph) likely at isolated places over Himachal Pradesh and Uttarakhand; **with lightning & gusty winds** (speed 40-50 kmph) at isolated places over Gangetic West Bengal; **with lightning & gusty winds** (speed 30-40 kmph) at isolated places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, East Rajasthan and Madhya Pradesh and **with lightning** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan & Muzaffarabad, Chhattisgarh, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Marathwada, Coastal Andhra Pradesh & Yanam, Telangana, Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.

♦ **Squally weather** (wind speed reaching 40-50 kmph) very likely over along & off Kerala coast, Maldives-Comorin areas, Gulf of Mannar and North Bay of Bengal along & off West Bengal-Bangladesh coasts. Fishermen are advised not to venture into these areas.

18 October (Day 2): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Uttarakhand and West Uttar Pradesh; **Heavy to very heavy rainfall** at isolated places over Himachal Pradesh, East Uttar Pradesh and Gangetic West Bengal and **heavy rainfall** at isolated places over Haryana, Chandigarh & Delhi, northeast Madhya Pradesh, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

♦ **Thunderstorm accompanied with lightning, hail & squall** (speed reaching 40-50 kmph) likely at isolated places over Himachal Pradesh and Uttarakhand; **with lightning & gusty winds** (speed 40-50 kmph) at isolated places over Gangetic West Bengal; **with lightning & gusty winds** (speed 30-40 kmph) at isolated places over Haryana, Chandigarh & Delhi, Uttar Pradesh and Madhya Pradesh and **with lightning** at isolated places over East Rajasthan, Chhattisgarh, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Kerala & Mahe.

♦ **Squally weather** (wind speed reaching 40-50 kmph) very likely over North Bay of Bengal along & off West Bengal-Bangladesh coasts. Fishermen are advised not to venture into these areas.

19 October (Day 3): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura and **heavy rainfall** at isolated places over West Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal.

♦ **Thunderstorm accompanied with lightning & gusty winds** (speed 30-40 kmph) at isolated places over Gangetic West Bengal; **with lightning** at isolated places over Uttarakhand, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.

♦ **Squally weather** (wind speed reaching 40-50 kmph) likely over North Bay of Bengal along & off West Bengal-Bangladesh coasts. Fishermen are advised not to venture into these areas.

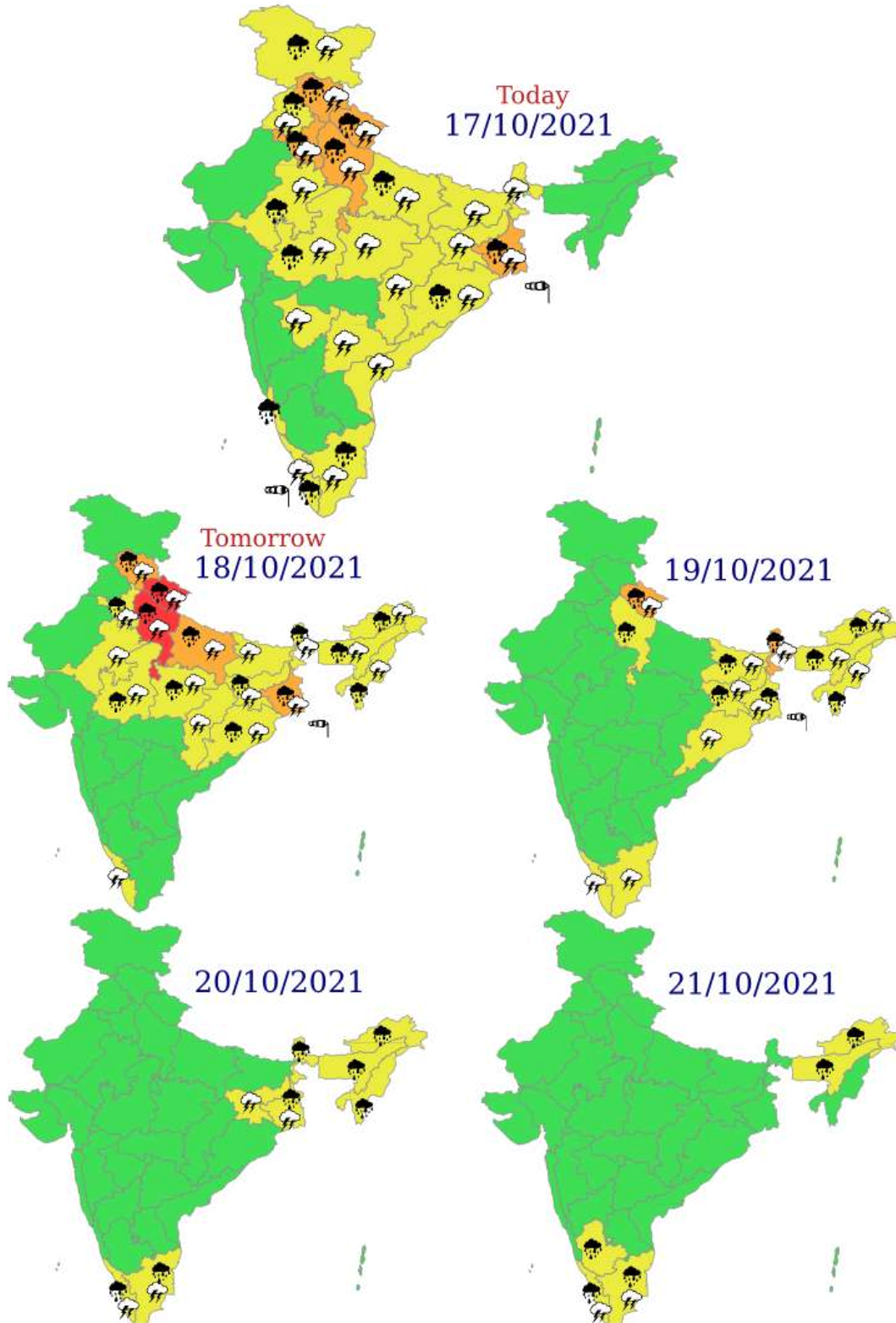
20 October (Day 4): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya and **heavy rainfall** at isolated places over Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Tamilnadu, Puducherry & Karaikal.

♦ **Thunderstorm accompanied with lightning** at isolated places over Jharkhand, Gangetic West Bengal, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.



21 October (Day 5): ♦ Heavy rainfall at isolated places over Arunachal Pradesh, Assam & Meghalaya, South Interior Karnataka, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.

♦Thunderstorm accompanied with lightning at isolated places over Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.





EXPECTED IMPACT & ACTION SUGGESTED due to

(i) Extremely heavy falls over Uttarakhand and West Uttar Pradesh on 18th October, 2021.

(ii) Very Heavy Rainfall over Haryana and West Uttar Pradesh on 17th ; over northeast Uttar Pradesh on 18th; over Himachal Pradesh, Gangetic West Bengal on 17th& 18th ; over Uttarakhand on 17th & 19th; Sub-Himalayan West Bengal, Arunachal Pradesh, Assam & Meghalaya on 19th & 20th October, 2021.

A. Impact Expected

- Localized Flooding of roads, inundation and 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 due to water logging in roads leading to increased travel time.
- Minor damage to kutcha roads.
- Possibilities of damage to vulnerable structure.
- Localized Mudslides/Landslides.
- 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)

B. Action Suggested

- 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.



EXPECTED IMPACT & ACTION SUGGESTED due to **thunderstorms, lightning, hail, squall & gusty winds** over Himachal Pradesh and Uttarakhand on 17th & 18th October, 2021 and due to **thunderstorms, lightning & gusty winds** over Punjab and east Rajasthan on 17th, over Haryana, Chandigarh, Delhi, Uttar Pradesh and Madhya Pradesh on 17th & 18th; over Gangetic West Bengal during 17th -19th October, 2021.

A. Impact Expected:

- Damage to thatched huts and asbestos roofed houses and cars. Roof tops may blow off.
- Unattached metal sheets– may fly.
- Damage to power and communication lines due to breaking of tree branches.
- Damage to standing crops.
- Lightning strikes to ground.
- Flash flood due to associated rain

B. Action Suggested

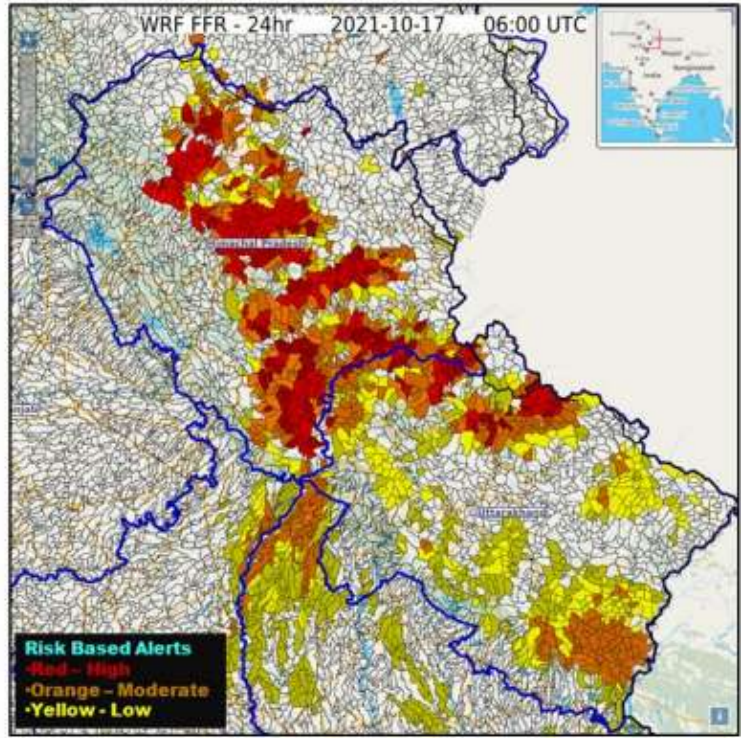
- Farmers should not go in open fields.
- Cattle grazers and animals should not be in open.
- No fishing or boat movement.
- Mango and litchi orchards should be out of bound for any activity specially by children.
- Do not take shelter under isolated trees.
- Immediately get out of and away from ponds, lakes, and outdoor watery area (e.g. paddy transplantation).
- Go indoors or seek safe pukka shelters after hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.
- If no shelter is available, immediately get into the lightning crouch.
- During travel, stay inside car or bus or train when thunderstorm occurs.
- Do not use electric/ electronic appliance.
- Stay away from downed power lines.



24 hours Flash Flood Risk (FFR)
Outlook Till 0530 IST of 18.10.2021:

Moderate to High Risk likely over few watersheds and neighborhoods of Uttarakhand and Himachal Pradesh met subdivisions in next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as depicted in map due to **expected forecasted rainfall in next 24 hours.**





LEGENDS

WARNING

| |
|-------------------------|
| WARNING (TAKE ACTION) |
| ALERT (BE PREPARED) |
| WATCH (BE UPDATED) |
| NO WARNING (NO ACTION) |

Probabilistic Forecast

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



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 $\geq -6.5^{\circ}\text{C}$

(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 $\leq -4.5^{\circ}\text{C}$ or 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



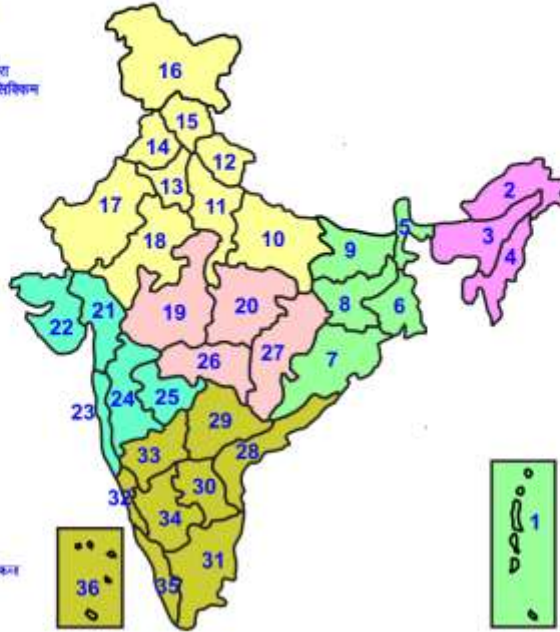
Cyclone

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 Storm: Wind speed >220 kmph (>119 knots)



LEGENDS

- 1 अंडमान और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल, असम, सिक्किम
- 6 पश्चिम बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 जम्मू, कश्मीर, चंडीगढ़ और दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवंम लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात
- 22 सौराष्ट्र
- 23 कर्नाटक
- 24 मध्य प्रदेश
- 25 मराठवाड़ा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यंम
- 29 तेलंगाना
- 30 आंध्र प्रदेश
- 31 तमिलनाडु, पुदुचेरी एवंम केरल
- 32 तटीय केरल
- 33 आन्ध्र प्रदेश के उत्तरी केरल
- 34 आन्ध्र प्रदेश के दक्षिणी केरल
- 35 केरल एवंम 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. Orissa
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Jammu, Chd & 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. Vidharbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yarnam
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) |

WARNING

| |
|-------------------------|
| WARNING (TAKE ACTION) |
| ALERT (BE PREPARED) |
| WATCH (BE UPDATED) |
| NO WARNING (NO ACTION) |

Probabilistic Forecast

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

| | | | |
|--------------|------------|--------------|--------------|
| Heavy Rain | Heavy Snow | Thunderstorm | Dust Storm |
| Strong Winds | Visibility | Cyclone | Squall/ Hail |
| Frost | Cold Wave | Heat Wave | Sea State |

Kindly download **MAUSAM** APP for location specific forecast & warning, **MEGHDOOT** APP for Agromet advisory and **DAMINI** APP for Lightning Warning & visit state MC/RMC websites for district wise warning.