



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 20th April, 2024

Time of Issue: 1245 hours IST

Subject:

- i. **Heat wave to severe heat wave spell likely to continue over Gangetic West Bengal on 20th & 21st and over Odisha on 20th April and reduce gradually thereafter.**
- ii. **Heavy rainfall accompanied with thunderstorms/lightning and gusty winds likely at isolated places over Northeast India during 20th-24th April, 2024.**
- iii. **Thunderstorms with lightning and strong gusty winds over Central and south Peninsular India during 20th-22nd April, 2024.**

Realised weather during past 24 hours till 0830 hours IST of today: (details in Annexure I)

- ❖ **Heavy to very heavy rainfall** observed at isolated places over Assam and Coastal Karnataka and **heavy rainfall** at isolated places over Meghalaya, South Interior Karnataka, Telangana, Arunachal Pradesh and Nagaland.
- ❖ **Hailstorm** observed at isolated places over Telangana, northwest Rajasthan, Himachal Pradesh, Uttarakhand, Punjab and Haryana.
- ❖ **Heat Wave conditions** prevailed in many parts with **severe heat wave conditions** in some parts over Gangetic West Bengal; **Heat Wave conditions** in some areas over Odisha and in isolated places over Telangana and Tamil Nadu.
- ❖ **Warm Night conditions** with day maximum temperature exceeding 40°C prevailed in isolated pockets over East Uttar Pradesh and Madhya Maharashtra.
- ❖ **Light to moderate rainfall/snowfall** accompanied with isolated thunderstorm & lightning observed at many places over Arunachal Pradesh, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad; at some places over Uttarakhand.
- ❖ **Light/Moderate rainfall** accompanied with thunderstorm & lightning observed many places over Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Punjab, Coastal Karnataka; at a few places over South Interior Karnataka and at isolated places over Haryana, West Rajasthan, Konkan & Goa, Madhya Maharashtra, Marathwada, Kerala & Mahe and Telangana.

Weather Systems and Forecast & Warnings: (Annexure II)

- ❖ A cyclonic circulation lies over northeast Assam and a trough runs from east Bihar to this cyclonic circulation in lower tropospheric levels. Under their influence:
 - ✓ Fairly widespread to widespread light to moderate rainfall/snowfall accompanied with isolated **thunderstorm & lightning & gusty winds (30-40 kmph)** very likely over Arunachal Pradesh and scattered to fairly widespread rainfall over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 20th-24th April, 2024.
 - ✓ Isolated to scattered light/moderate rainfall accompanied with isolated **thunderstorm & lightning & gusty winds (30-40 kmph)** very likely over Sub-Himalayan West Bengal & Sikkim during 20th-26th; Odisha during 20th-24th; Gangetic West Bengal and Jharkhand on 22nd & 23rd April, 2024.
 - ✓ **Isolated heavy rainfall** very likely over Arunachal Pradesh during 20th-24th; Assam & Meghalaya during 20th, 21st, 23rd & 24th and Nagaland, Manipur on 20th & 21st April, 2024. **Isolated very heavy rainfall** also very likely over Arunachal Pradesh on 23rd April, 2024.

- ❖ A Western Disturbance as a cyclonic circulation lies over north Pakistan & adjoining Jammu-Kashmir-Ladakh-Gilgit-Baltistan, Muzaffarabad in lower & middle tropospheric levels. An induced cyclonic circulation lies over Haryana & neighbourhood in lower tropospheric levels. A fresh Western Disturbance is likely to affect Northwest India from 22nd April, 2024. Under their influence:
 - ✓ Isolated to scattered light to moderate rainfall/snowfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand during 20th-26th April, 2024.
 - ✓ Isolated to scattered rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Punjab during 20th-23rd; Haryana-Chandigarh during 21st-23rd; West Rajasthan on 21st & 22nd; East Rajasthan and West Uttar Pradesh on 22nd April, 2024.
 - ✓ **Strong surface winds (25-35 kmph)** very likely to prevail over East Uttar Pradesh and Bihar during 20th-22nd April, 2024.
- ❖ A trough runs from Vidarbha to east central Arabian sea off Karnataka-Goa coast and another from South Interior Karnataka to north Tamil Nadu in lower tropospheric levels. Under its influence:
 - ✓ Isolated light rainfall accompanied with isolated **thunderstorm & lightning** very likely over Madhya Maharashtra and Marathwada during 20th-26th and Konkan & Goa during 20th-22nd April, 2024.
 - ✓ Isolated light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Vidarbha and Chhattisgarh during 20th-24th; West Madhya Pradesh on 20th & 21st and over East Madhya Pradesh during 21st-23rd April, 2024.
 - ✓ Scattered to fairly widespread light/moderate rainfall accompanied with isolated **thunderstorm & lightning** very likely over Kerala & Mahe during 20th-22nd; Lakshadweep on 20th and isolated rainfall accompanied with **thunderstorm & lightning & gusty winds (40-60 kmph)** over Interior Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema, Karnataka, Telangana and Tamil Nadu, Puducherry & Karaikal during 20th-24th April, 2024.
 - ✓ **Isolated heavy rainfall** very likely over Goa and Karnataka today.

Maximum temperature observation and forecast for next 5 days:

- ❖ Yesterday, maximum temperatures were in the range of 42-44°C over many parts of Vidarbha, Marathwada, Rayalaseema over some parts of Madhya Maharashtra, Telangana, Chhattisgarh, Odisha, north Madhya Pradesh and Gangetic West Bengal and in isolated pockets over East Uttar Pradesh & Jharkhand. These were in the range of 40-42°C some parts of East Madhya Pradesh, East Uttar Pradesh, Tamil Nadu, Puducherry & Karaikal and at isolated pockets over Bihar and West Madhya Pradesh. These were above normal by 2-4°C over many parts of Gangetic West Bengal and in isolated pockets over Bihar, Jharkhand, East Uttar Pradesh, Chhattisgarh, Odisha, Telangana, Rayalaseema, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Uttarakhand, Vidarbha and Madhya Pradesh.
- ❖ Rise in maximum temperatures by 2-3°C very likely over East Uttar Pradesh during next 24 hours and no significant change thereafter.
- ❖ No significant change in maximum temperatures very likely over West India during next 2 days and rise by 2-3°C thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

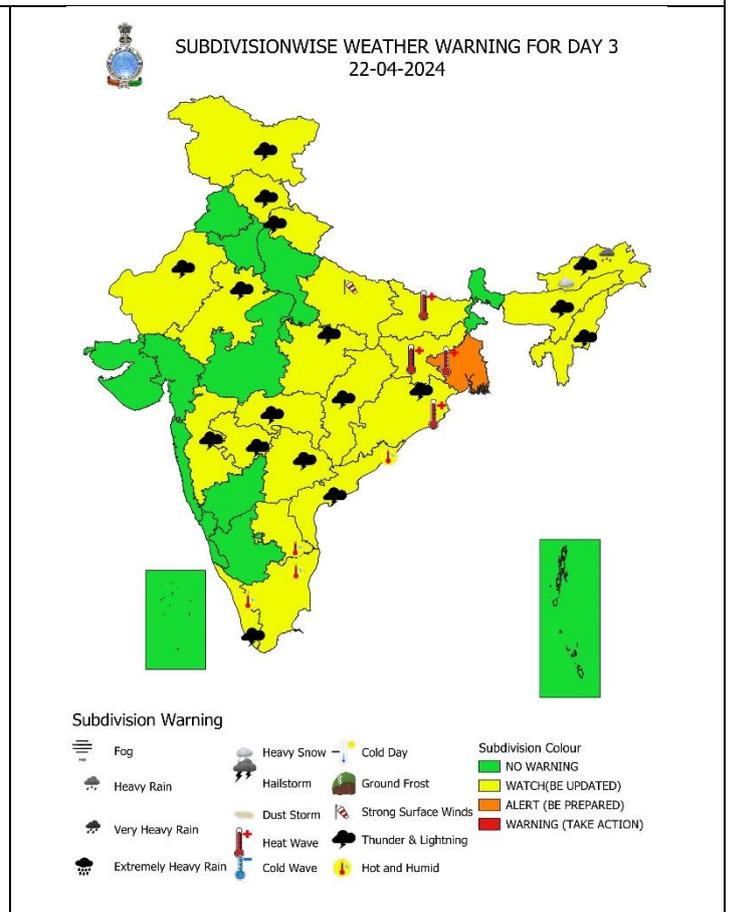
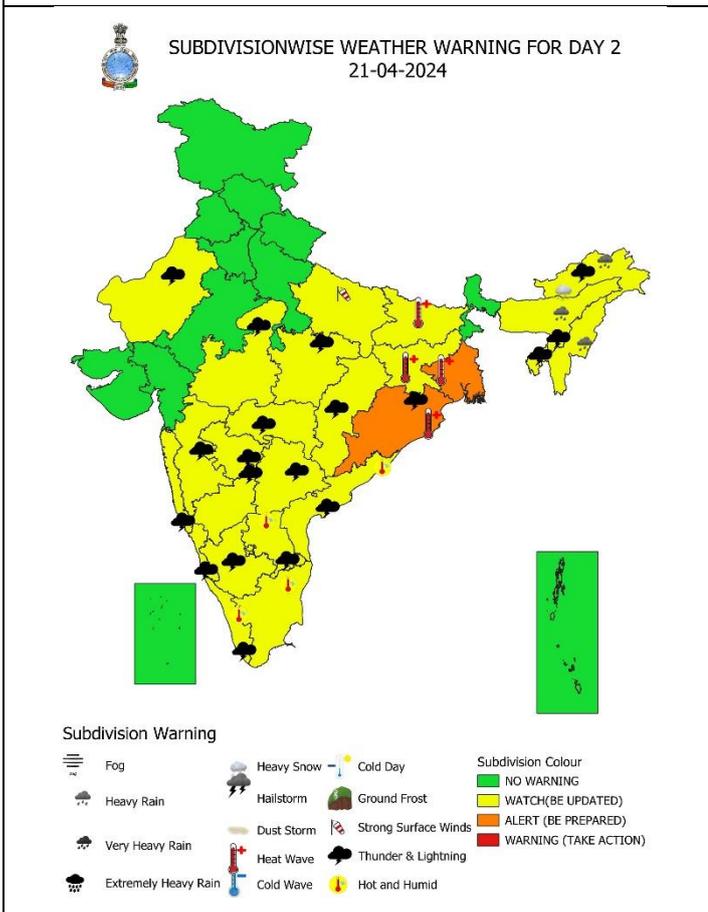
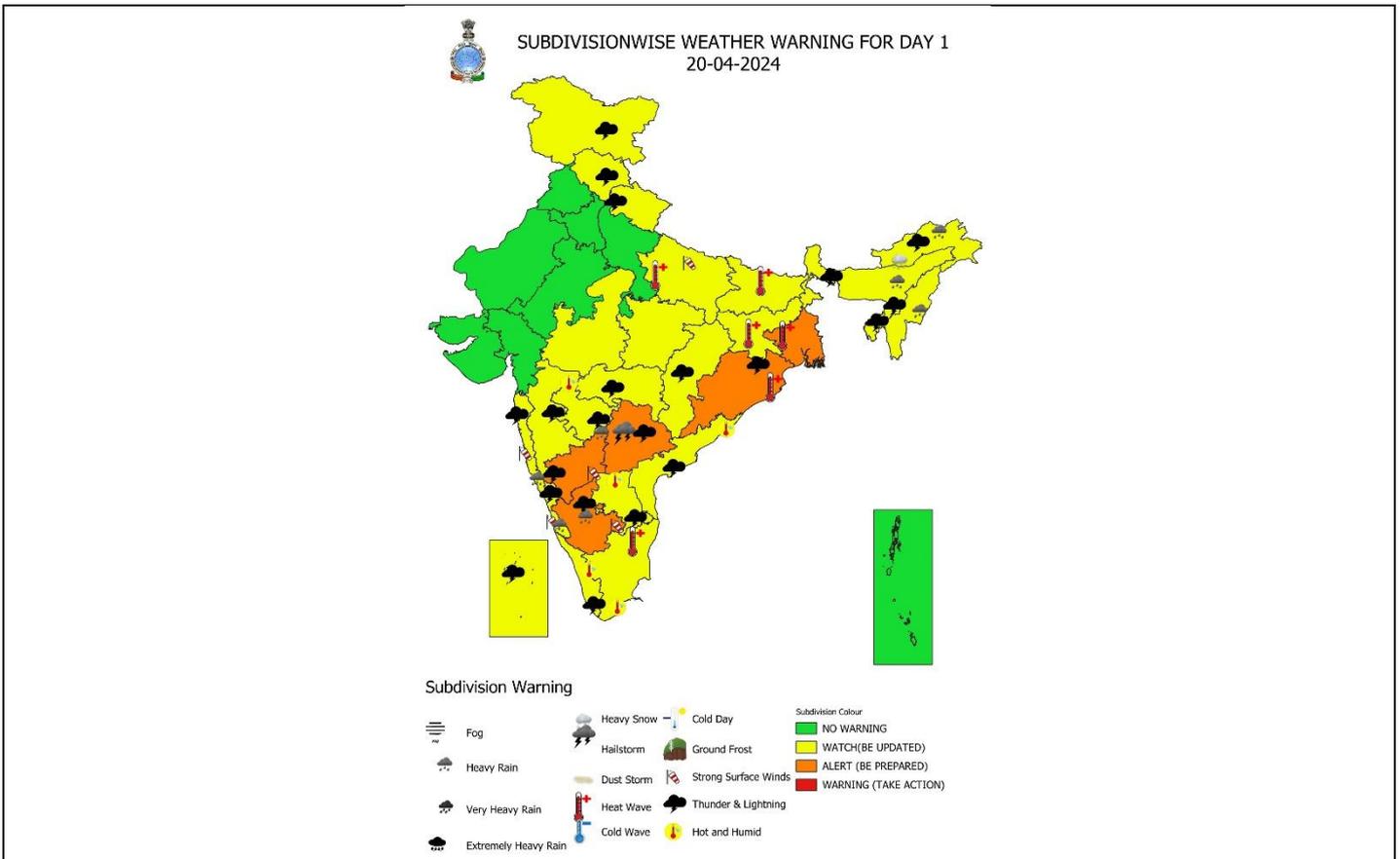
Heat Wave, Warm Night and Hot & Humid weather warning for next 5 days:

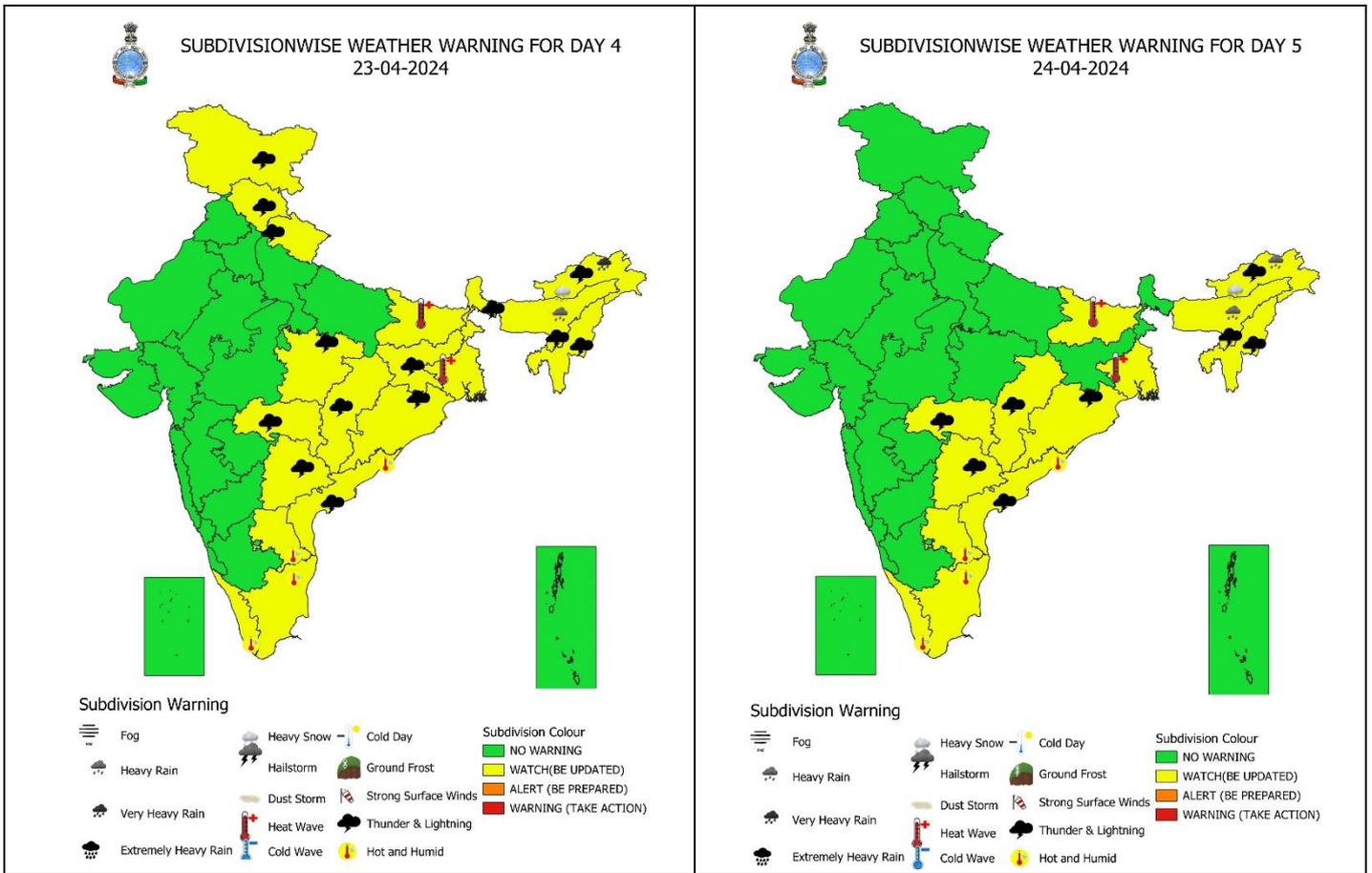
- ❖ **Heat Wave conditions** very likely to prevail in many/some parts of Gangetic West Bengal on 20th & 21st; in some parts of Odisha on 20th and gradually abate from 21st; heat wave conditions in isolated pockets over Jharkhand, Bihar during 20th-24th; East Uttar Pradesh, interior Tamil Nadu on 20th April, 2024. **Severe Heat Wave conditions also likely in isolated pockets of Odisha on 20th and Gangetic West Bengal on 20th & 21st April, 2024.**
- ❖ **Hot and humid weather** very likely to prevail over Coastal Andhra Pradesh & Yanam, Rayalaseema, Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe during 20th-24th April, 2024.
- ❖ **Warm night conditions** with day maximum temperature exceeding 40°C very likely to prevail over East Uttar Pradesh, north Madhya Pradesh on 20th & 21st April, 2024.

For more details, kindly refer: https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php

Significant amount of rainfall (in cm):

- ❖ **Assam & Meghalaya:** Barpathar (dist Golaghat) 13, B P Ghat (dist Karimganj) 12, Cherrapunji (dist East Khasi Hills) 9, Silchar (dist Cachar) 9, Cherrapunji(rkm) (dist East Khasi Hills) 8, Matijuri (dist Hailakandi) 6, Lakhipur Arg (dist Cachar) 5,
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Mokokchang (dist Mokokchung) 10, Mangkolemba (dist Mokokchung) 10, Zunheboto (dist Zunheboto) 9, Mokokchung_ Aws (dist Mokokchung) 4, Chottabekra (dist Imphal West) 4,
- ❖ **Arunachal Pradesh:** Longding-7
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Banihal (dist Ramban) 4, Nowgam (dist Kupwara) 3, Govindpura Aws (dist Ramban) 3, Qazi Gund (dist Kulgam) 3, Batote (dist Ramban) 3, Khudwani Arg (dist Anantnag) 3, Shalimar Agro (dist Srinagar) 3, Sangam Arg (dist Anantnag) 3, Anantnag Aws (dist Anantnag) 3, Tengmarg (dist Baramula) 3, Srinagar Agro Aws (dist Srinagar) 2, Udhampur(iaf) (dist Udhampur) 2, Kupwara Kvk Aws (dist Kupwara) 2, Anantnag (dist Anantnag) 2, Kukernag (dist Anantnag) 2, Bhaderwah Arg (dist Doda) 2, R M Bagh Arg (dist Srinagar) 2, Bandipora Aws (dist Bandipore) 2,
- ❖ **Himachal Pradesh:** Chamba-3, Sola, Lahaul & Spiti, Sirmaur, Kinnaur, Shimla, Kullu, Hamirpur, Mandi-2 each
- ❖ **Haryana:** Indri (dist Karnal) 2, Chandigarh (dist Chandigarh) 1, Chandigarh Aws (dist Chandigarh) 1
- ❖ **Punjab:** Aliwal (dist Gurdaspur) 2, Sirhind (dist Fatehgarh Sahib) 2, Jalandhar (dist Jalandhar) 2, Patiala (dist Patiala) 1, Jagraon (dist Ludhiana) 1,
- ❖ **Goa:** Ponda (dist North Goa) 2





Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Telangana, Karnataka on 20th April, 2024.

Impact expected:

- ❖ Strong wind/hail may damage plantation, horticulture and standing crops.
- ❖ Hail may injure people and cattle at open places.
- ❖ Partial damage to vulnerable structures due to strong winds.
- ❖ Minor damage to kutcha houses/walls and huts.
- ❖ Loose objects may fly.

Action suggested:

- ❖ Stay indoors, close windows & doors and avoid travel if possible.
- ❖ Take safe shelters; do not take shelter under trees.
- ❖ Do not lie on concrete floors and do not lean against concrete walls.
- ❖ Unplug electrical/ electronic appliances.
- ❖ Immediately get out of water bodies.
- ❖ Keep away from all the objects that conduct electricity.

Impact & Action Suggested due to heavy rainfall/snowfall over Arunachal Pradesh during 20th-24th; Assam & Meghalaya on 20th, 21st, 23rd & 24th April, 2024.

Impacts Expected for Rainfall/Snowfall over above regions:

- ❖ Disruption of Electricity.
- ❖ Landslide, rock fall and mudslides, Blocking/washout of roads/highways/bridges Nallahs.
- ❖ Disruption of traffic flow.
- ❖ Damage to Kuccha and unsecured structures.

Suggested Actions

- ❖ Avoid roadway underpasses, drainage ditches, low lying areas and areas where water collects – they can unexpectedly flood or overflow.
- ❖ Stay away from power lines or electrical wires.
- ❖ Don't stay in kuchcha houses during heavy rainfall as it may collapse anytime soon.
- ❖ Drive carefully.

IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Orange alert Areas (Odisha & Gangetic West Bengal)

- ❖ Moderate temperature & heat is tolerable for general public but moderate health concern likely for vulnerable people e.g. infants, elderly, people with chronic diseases.
- ❖ Avoid heat exposure– keep cool. Avoid dehydration.
- ❖ Drink sufficient water- even if not thirsty.
- ❖ Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated

Yellow alert Areas (Jharkhand, Bihar, East Uttar Pradesh, interior Tamil Nadu)

- ❖ Moderate temperature & heat is tolerable for general public but moderate health concern likely for vulnerable people e.g. infants, elderly, people with chronic diseases.
- ❖ Avoid heat exposure.
- ❖ Wear lightweight, light colour, loose, cotton clothes.
- ❖ Cover your head, use a cloth, hat or umbrella.

Agromet advisories for Heavy Rainfall, Hailstorm, Gusty Winds and Heat Wave likely over various parts of the country

(Based on the IBF and advisories issued by different AMFUs)

- Drain out excess water from crop field to avoid water stagnation in North Eastern States. Postpone sowing of maize and cowpea in Arunachal Pradesh.
- Make necessary arrangements for draining out excess water from crop fields to avoid water stagnation in Karnataka & Goa and keep the harvested produce at safer places.
- Use hail nets or hail caps in fruit orchards to prevent mechanical damage and provide mechanical support to horticultural crops & staking to vegetables in Telangana.
- Provide mechanical support to horticultural crops & staking to vegetables in Vidarbha, Chhattisgarh, North Interior Karnataka, South Interior Karnataka, Rayalaseema, Nagaland and Manipur.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Odisha, Gangetic West Bengal, Bihar, Jharkhand, East Uttar Pradesh and Tamil Nadu.

Legends & abbreviations:

- ❖ **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- ❖ **Obsy:** Observatory; **AWS:** Automatic Weather Station; **dist:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO:** Part Time Office.
- ❖ **Region wise classification of meteorological Sub-Divisions:**
 - **Northwest India:** Western Himalayan Region (Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand); Punjab, Haryana-Chandigarh-Delhi; West Uttar Pradesh, East Uttar Pradesh, West Rajasthan and East Rajasthan.
 - **Central India:** West Madhya Pradesh, East Madhya Pradesh, Vidarbha and Chhattisgarh.
 - **East India:** Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim; Gangetic West Bengal, Odisha and Andaman & Nicobar Islands.
 - **Northeast India:** Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
 - **West India:** Gujarat Region, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra and Marathawada.
 - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and 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)

Subdivision Warning	Dust Storm	Subdivision color
 Heavy Rain	 Strong Surface Winds	 NO WARNING
 Heavy Snow	 Heat Wave	 WATCH(BE UPDATED)
 Thunderstorms & Lightning	 Cold wave	 ALERT (BE PREPARED)
 Hailstorm	 Fog	 WARNING (TAKE ACTION)

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

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

(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)	
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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)	