

Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 22<sup>nd</sup> April, 2024

Time of Issue: 1330 hours IST

**Subject:**

- i. **Heat wave spell likely to continue over East India during next five days and expand to more parts of the region from 24<sup>th</sup> April.**
- ii. **Heavy rainfall accompanied with thunderstorms/lightning and gusty winds likely at isolated places over Northeast India during 22<sup>nd</sup>-24<sup>th</sup> April.**
- iii. **Moderate thunderstorms with lightning and gusty winds likely over East & Central India during next two days.**

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

- ❖ **Light to moderate rainfall/snowfall** accompanied with isolated thunderstorm & lightning observed at many places over Arunachal Pradesh; at a few places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad; at isolated places over Himachal Pradesh.
- ❖ **Light/Moderate rainfall** accompanied with thunderstorm & lightning observed at a few places over Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Kerala & Mahe and at isolated places over Punjab, Haryana, West Uttar Pradesh, Rajasthan, Konkan & Goa, Madhya Maharashtra, Chhattisgarh, Odisha, Madhya Pradesh, Vidarbha, Coastal Andhra Pradesh & Yanam, Telangana, Karnataka, Tamil Nadu, Puducherry & Karaikal.
- ❖ **Heavy rainfall** observed at isolated places over Assam & Meghalaya and Arunachal Pradesh.
- ❖ **Hailstorm** observed at isolated places over Jammu division, West Madhya Pradesh and Odisha.
- ❖ **Heat Wave conditions** prevailed in many parts with **severe heat wave conditions** in some parts over Gangetic West Bengal; **Heat Wave conditions** in isolated places over Odisha, Jharkhand, Bihar and Sub Himalayan West Bengal. **Heat wave conditions are prevailing over Odisha since 15<sup>th</sup> and over Gangetic West Bengal since 17<sup>th</sup> April.**
- ❖ **Warm Night conditions** with day maximum temperature exceeding 40°C prevailed in isolated pockets over East Madhya Pradesh, Odisha, Bihar and Chhattisgarh.

**Weather Systems and Forecast & Warnings: (Annexure II)**

- ❖ A cyclonic circulation lies over northeast Assam and another over northeast Bangladesh 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, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura and isolated to scattered rainfall over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during 22<sup>nd</sup> -28<sup>th</sup> April, 2024.
  - ✓ Isolated light/moderate rainfall accompanied with isolated **thunderstorm & lightning & gusty winds (30-40 kmph)** very likely over Sub-Himalayan West Bengal & Sikkim during 22<sup>nd</sup> -24<sup>th</sup>; Odisha, Gangetic West Bengal and Jharkhand on 22<sup>nd</sup> & 23<sup>th</sup> April, 2024.
  - ✓ **Isolated heavy rainfall** very likely over Arunachal Pradesh during 22<sup>nd</sup>-24<sup>th</sup>; Assam & Meghalaya on 22<sup>nd</sup> April, 2024. **Isolated very heavy rainfall** also very likely over Arunachal Pradesh on 23<sup>rd</sup> April, 2024.
- ❖ A Western Disturbance as a cyclonic circulation lies over Afghanistan & adjoining Pakistan in middle tropospheric levels. A fresh Western Disturbance is likely to affect Western Himalayan Region from 26<sup>th</sup> April, 2024. Under their influence:

- ✓ Scattered to fairly widespread light to moderate rainfall/snowfall accompanied with **thunderstorm, lightning** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad; Himachal Pradesh & Uttarakhand during 22<sup>nd</sup>, 23<sup>rd</sup> and 26<sup>th</sup>-28<sup>th</sup> April, 2024 with possibility of hailstorm over Himachal Pradesh today.
  - ✓ Isolated rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Punjab on 22<sup>nd</sup>, 23<sup>rd</sup>, 26<sup>th</sup> & 27<sup>th</sup>; Rajasthan on 22<sup>nd</sup> & 27<sup>th</sup>; Haryana and Uttar Pradesh on 22<sup>nd</sup> April, 2024.
  - ✓ **Strong surface winds (20-30 kmph)** very likely to prevail over Uttar Pradesh during 23<sup>rd</sup>-26<sup>th</sup> April, 2024.
- ❖ A cyclonic circulation lies over South Marathwada & adjoining West Vidarbha in lower tropospheric levels. A trough runs from south Chhattisgarh to south Kerala across Vidarbha, cyclonic circulation over South Marathwada & adjoining West Vidarbha and interior Karnataka in lower tropospheric levels. Under its influence:
- ✓ Isolated light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-50 kmph)** very likely over Madhya Maharashtra and Marathwada during 22<sup>nd</sup>-24<sup>th</sup>; Coastal Andhra Pradesh, Telangana, East Madhya Pradesh, Vidarbha and Chhattisgarh during 22<sup>nd</sup>-26<sup>th</sup> and West Madhya Pradesh on 22<sup>nd</sup>, 25<sup>th</sup> & 26<sup>th</sup> April, 2024.
  - ✓ Isolated **hailstorm** likely over south Madhya Pradesh, Vidarbha, Chhattisgarh and Odisha today.
  - ✓ Isolated to scattered light/moderate rainfall accompanied with isolated **thunderstorm & lightning** very likely over Kerala & Mahe during 22<sup>nd</sup>-26<sup>th</sup>; Karnataka, Lakshadweep on 22<sup>nd</sup>; isolated light rainfall over Tamil Nadu, during 22<sup>nd</sup>-26<sup>th</sup> April, 2024.

#### Maximum temperature observation and forecast for next 5 days:

- ❖ Yesterday, **maximum temperatures** were in the range of 42-45°C over most parts of Odisha and Rayalaseema; some parts of Gangetic West Bengal, Jharkhand & Vidarbha and in isolated pockets over Chhattisgarh, southwest Madhya Pradesh, Telangana and Coastal Andhra Pradesh & Yanam. These were in the range of 40-42°C at many parts of Bihar; some parts of East Madhya Pradesh and Tamil Nadu, Puducherry & Karaikal and in isolated pockets over East Uttar Pradesh. These were above normal by 4-6°C over many parts of Gangetic West Bengal and in isolated pockets over Bihar, Jharkhand & Odisha; above normal by 2-4°C over many parts of Sub-Himalayan West Bengal & Sikkim, Coastal Andhra Pradesh & Yanam, Rayalaseema and Tamil Nadu, Puducherry & Karaikal and in isolated pockets of Chhattisgarh, south Madhya Pradesh, Vidarbha and Telangana.
- ❖ No significant change in maximum temperatures very likely over Northwest India during next 2 days and rise gradually by 2-4°C thereafter.
- ❖ No significant change in maximum temperatures very likely over Maharashtra and Central India during next 24 hours and rise by 2-3°C thereafter.
- ❖ Fall by 2-3°C in maximum temperatures very likely over Maharashtra during next 24 hours and rise by 2-3°C thereafter.
- ❖ No significant change in maximum temperatures very likely over Gujarat state during next 3 days and rise by 2-4°C thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

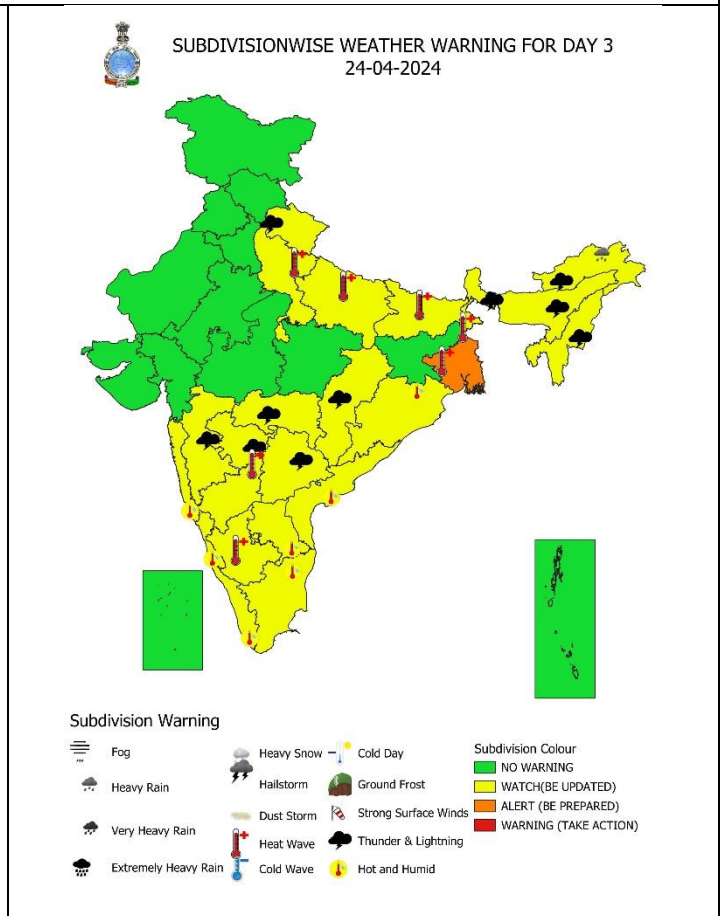
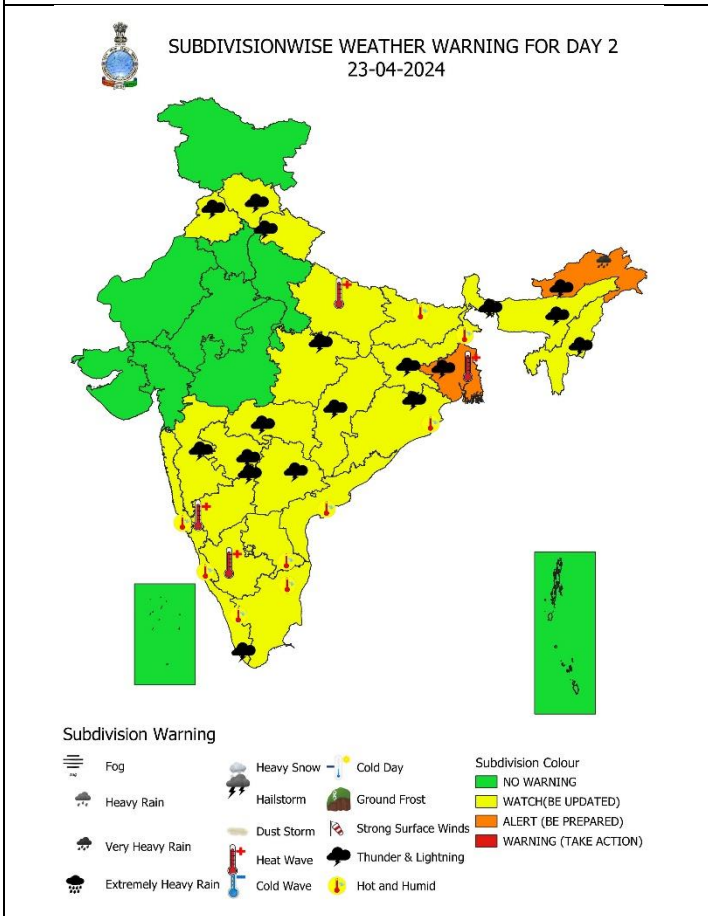
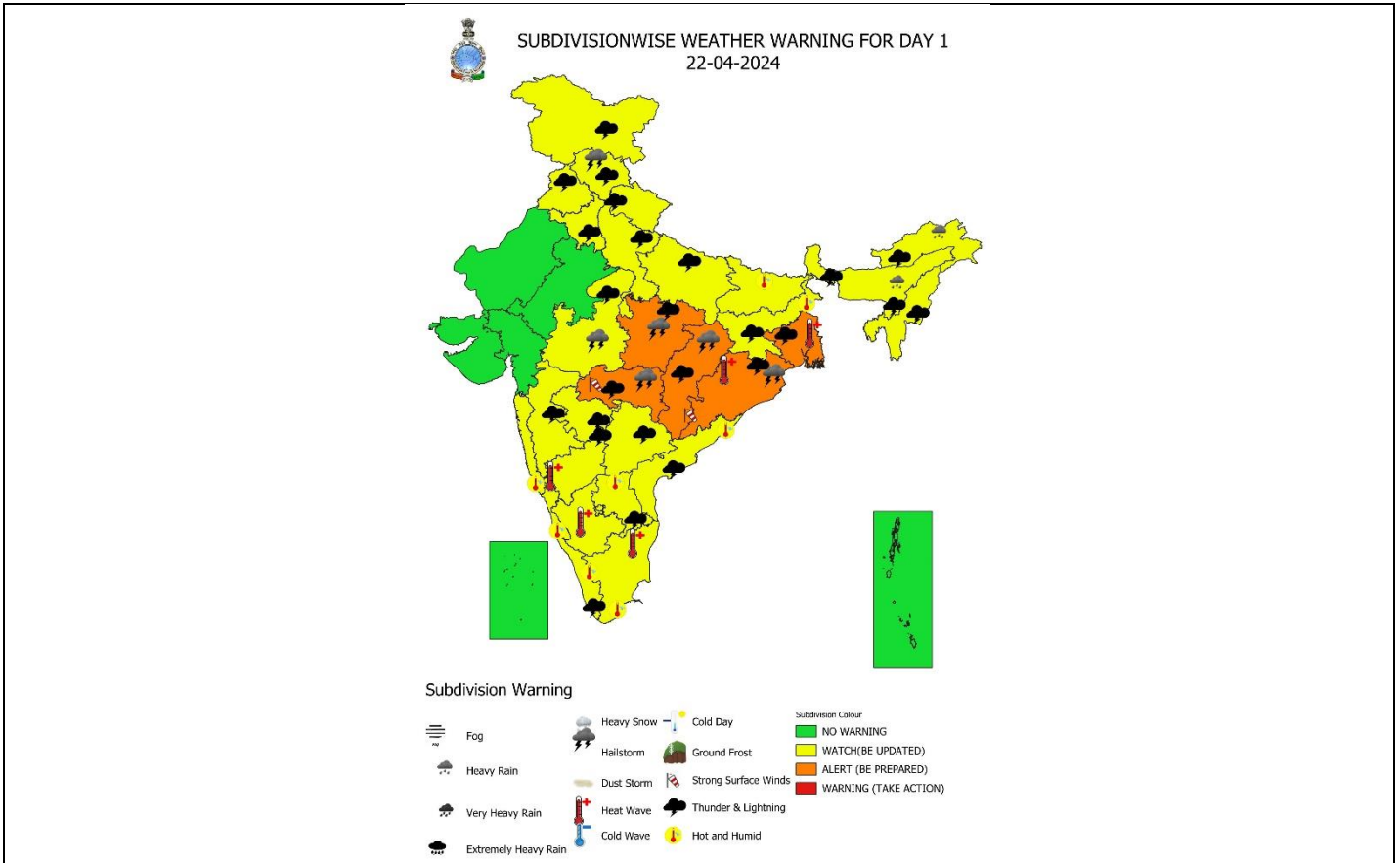
#### Heat Wave, Warm Night and Hot & Humid weather warning for next 5 days:

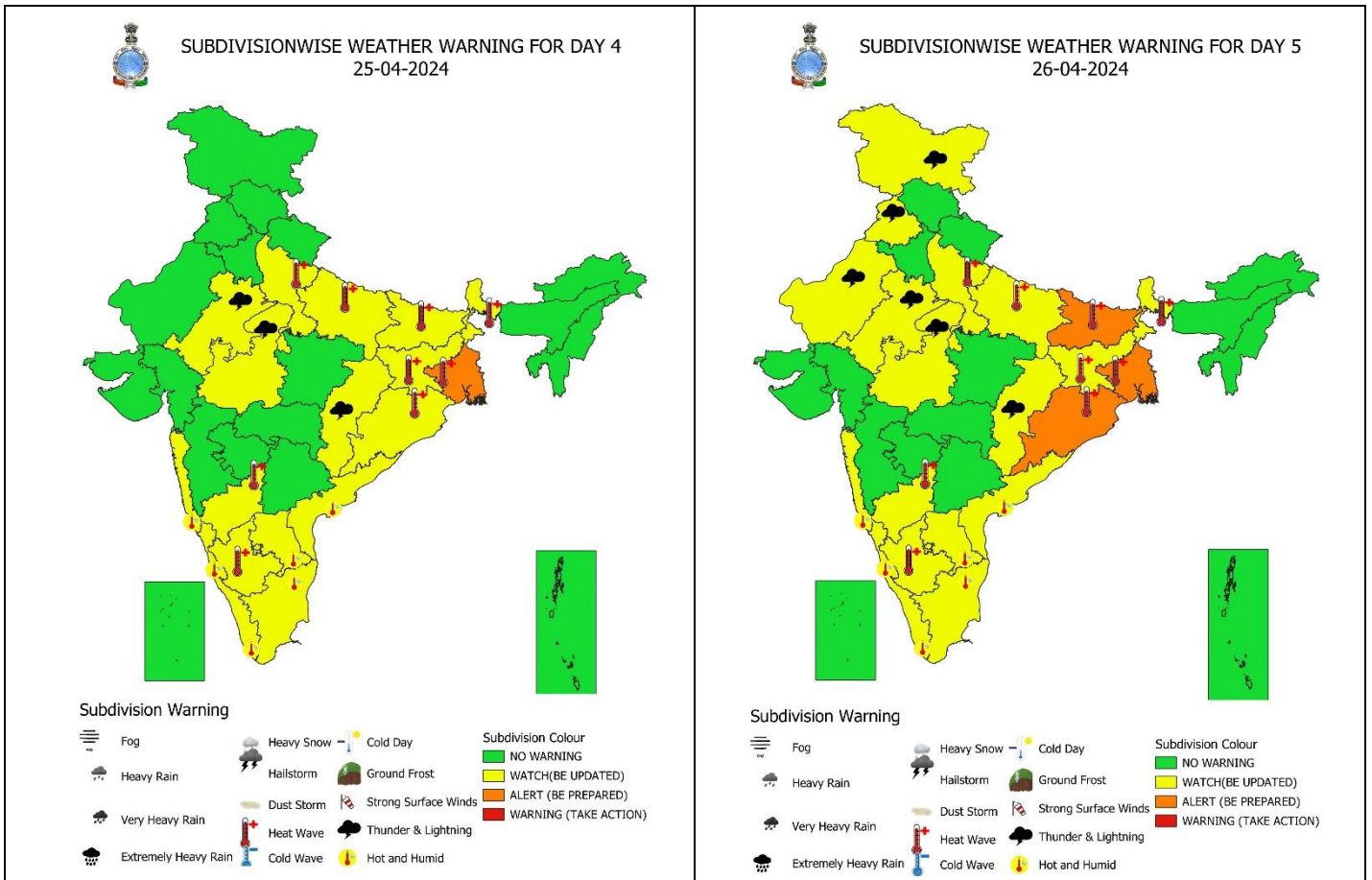
- ❖ **Heat Wave to severe heat wave conditions** very likely to prevail in isolated pockets over Gangetic West Bengal during next 5 days. **Heat wave conditions** in isolated pockets over Interior Karnataka during next 5 days; Odisha on 22<sup>nd</sup>, 25<sup>th</sup> & 26<sup>th</sup>; Tamil Nadu on 22<sup>nd</sup>; East Uttar Pradesh during 23<sup>rd</sup>-26<sup>th</sup>; West Uttar Pradesh, Bihar, Sub-Himalayan West Bengal during 24<sup>th</sup> - 26<sup>th</sup> and Jharkhand on 25<sup>th</sup> & 26<sup>th</sup> April.
- ❖ **Hot and humid weather** very likely to prevail over Coastal Andhra Pradesh & Yanam, Rayalaseema, Tamil Nadu, Puducherry & Karaikal, Coastal Karnataka, Konkan & Goa and Kerala & Mahe during 22<sup>nd</sup> -26<sup>th</sup>; Sub-Himalayan West Bengal, Bihar on 22<sup>nd</sup> & 23<sup>rd</sup> and Odisha on 23<sup>rd</sup> & 24<sup>th</sup> April, 2024.
- ❖ **Warm night conditions** with day maximum temperature exceeding 40°C very likely to prevail over East Madhya Pradesh on 22<sup>nd</sup> & 23<sup>rd</sup> April, 2024.

For more details, kindly refer: [https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

**Significant amount of rainfall (in cm):**

- ❖ **Arunachal Pradesh:** Deomali (dist Tirap) 9, Tuting (dist Upper Siang) 6, Deomali\_aws (dist Tirap) 5, Miao (dist Changlang) 5, Kibithu (dist Anjaw) 4, Hawaii (dist Anjaw) 2,
- ❖ **Assam & Meghalaya:** Udaipur (dist Tinsukia) 7, Gharmura (dist Hailakandi) 7, Shella (dist East Khasi Hills) 6, Matijuri (dist Hailakandi) 6, Dhemaji (dist Dhemaji) 5, Margherita (dist Tinsukia) 5, Dholai (dist Cachar) 5, Cacher Kvk Aws (dist Cachar) 4, Amraghat (dist Cachar) 4, Nahar Katia (dist Dibrugarh) 4, Naharkatia Arg (dist Dibrugarh) 3,
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Dharmanagar/ Panisagar (dist North Tripura) 5, Lengpui (dist Aizawl) 5, Aizwal (dist Aizawl) 5, Kolasib Agri (dist Kolasib) 4, Kadamtala Arg (dist North Tripura) 4, Kolasib\_aws (dist Kolasib) 3, Kailashahar Aero (dist Unakoti) 3, Kanchanpur (dist North Tripura) 3,
- ❖ **Telangana:** Pinapaka (dist B. Kothagudem) 6, Tekulapalle (dist B. Kothagudem) 6, Devaruppal (dist Jangaon) 4, Garla (dist Mahabubabad) 4, Ramannapeta (dist Y. Bhuvanagiri) 3, Kothagudem (dist B. Kothagudem) 3, Yellandu (dist B. Kothagudem) 3,
- ❖ **Kerala:** Alappuzha & Vaikom (Kottayam district) 5 each, Thattathumala AWS (Thiruvananthapuram district) 4, Konni & Kurudamannil (both in Pathanamthitta district), Kumarakom (Kottayam district) & Perumkadavila ARG (Thiruvananthapuram district) 3 each, Mananthavady (Wayanad district), Nooranad AWS & Karumadi AWS (both in Alapuzha district) 2 each
- ❖ **Chhattisgarh:** Lohandiguda (dist Bastar) 5, Dantewara (dist Dantewada) 4, Bastar (dist Bastar) 2, Narayanpur (dist Narayanpur) 2,
- ❖ **Tamil Nadu:** Thirparappu (dist Kanniyakumari) 4, Thalavadi (dist Erode), Pechiparai (dist Kanniyakumari) 2 each,
- ❖ **Himachal Pradesh:** Chamba-3
- ❖ **Odisha:** Rayagada-3
- ❖ **North Interior Karnataka:** Belagavi Ap Obsy (dist Belagavi) 2, Haveri Pto (dist Haveri) 1





**Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Madhya Pradesh, Vidarbha, Chhattisgarh, Odisha on 22<sup>nd</sup> 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 over Arunachal Pradesh during 22<sup>nd</sup>-24<sup>th</sup> 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, Bihar & 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, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Karnataka, 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:**

- Drain out excess water from crop field to avoid water stagnation in Arunachal Pradesh and Assam & Meghalaya. Postpone sowing of maize and cowpea in Arunachal Pradesh.
- Use hail nets or hail caps in fruit orchards to prevent mechanical damage and provide mechanical support to horticultural crops & staking to vegetables in Himachal Pradesh, Odisha, Madhya Pradesh, Vidarbha and Chhattisgarh. Provide mechanical support to horticultural crops & staking to vegetables.
- 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, East Uttar Pradesh, Interior Karnataka and Tamilnadu.

## 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.

<b>SPATIAL DISTRIBUTION</b> (% 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)

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

## LEGENDS

### WARNING

<b>WARNING (TAKE ACTION)</b>
<b>ALERT ( BE PREPARED)</b>
<b>WATCH (BE UPDATED)</b>
<b>NO WARNING ( NO ACTION)</b>

### 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 $4.5^\circ\text{C}$ to $6.4^\circ\text{C}$ .	
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  $40^\circ\text{C}$**

Warm Night: When minimum temperature departure $4.5^\circ\text{C}$ to $6.4^\circ\text{C}$ .	
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 $-4.5^\circ\text{C}$ to $-6.4^\circ\text{C}$ .	
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 $-4.5^\circ\text{C}$ to $-6.4^\circ\text{C}$ .	
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)	