

Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 29th April, 2024

Time of Issue: 1330 hours IST

Subject:

- i. **Heat wave to severe heat wave conditions likely to continue over East India upto 01st May and gradually abate thereafter.**
- ii. **Heat wave conditions likely to continue over south Peninsular India during next 5 days.**
- iii. **Heavy rainfall spell accompanied with thunderstorms and gusty winds very likely to continue over Northeast India during next 4-5 days.**
- iv. **Rainfall accompanied with thunderstorms/lightning and gusty winds likely to continue over Western Himalayan Region and adjoining plains of Northwest India today and decrease thereafter.**

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

- ❖ **Heat Wave conditions in many places with severe heat wave** in isolated pockets prevailed over Gangetic West Bengal, Odisha and Bihar and **heat wave conditions** in isolated pockets over Sub-Himalayan West Bengal, Rayalaseema, Konkan, Interior Karnataka and Kerala. **Heat wave conditions are prevailing over Odisha since 15th and Gangetic West Bengal since 17th April.**
- ❖ **Hot & Humid** prevailed in isolated places over Kerala, Tamil Nadu, Puducherry & Karaikal and Coastal Karnataka.
- ❖ **Warm Night** prevailed in isolated places over North Interior Karnataka and East Uttar Pradesh.
- ❖ **Light to moderate rainfall** accompanied with thunderstorm & lightning was observed at most places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Arunachal Pradesh; at a few places over Himachal Pradesh, Punjab, Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura and at isolated places over Chandigarh, West Rajasthan, Madhya Maharashtra, Marathwada, Madhya Pradesh, Vidarbha, Chhattisgarh, Marathwada, Sub-Himalayan West Bengal & Sikkim, south Odisha, Jharkhand, Bihar, Coastal Andhra Pradesh, Tamil Nadu, Puducherry, Kerala, Mahe and Lakshadweep.
- ❖ **Hailstorm** also observed at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Assam & Meghalaya
- ❖ **Heavy Rainfall** was recorded over Assam, Meghalaya and Arunachal Pradesh.

Weather Systems and Forecast & Warnings: (Annexure II)

- ❖ A cyclonic circulation lies over northeast Assam and a trough runs from north Bihar to Manipur in lower tropospheric levels. Under its influence:
 - ✓ Fairly widespread to widespread light to moderate rainfall/snowfall accompanied with isolated **thunderstorm & lightning & gusty winds (40-50 kmph)** very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 5 days.
 - ✓ Isolated light to moderate rainfall accompanied with **thunderstorm & lightning & gusty winds (30-40 kmph)** very likely over Sikkim on 29th April-02nd May with isolated **hailstorm** on 01st May.
 - ✓ **Isolated heavy rainfall** very likely over Arunachal Pradesh during 29th April-01st May and Assam & Meghalaya on 30th April-01st May and over Nagaland, Manipur, Mizoram & Tripura on 01st & 03rd May;

with isolated **very heavy rainfall** over Arunachal Pradesh, Assam and Mizoram & Tripura and isolated **extremely heavy rainfall** very likely over Meghalaya on 02nd May 2024.

- ❖ A Western Disturbance as a cyclonic circulation lies over east Afghanistan & neighbourhood upto middle tropospheric level and a cyclonic circulation lies over northwest Rajasthan & neighbourhood in lower tropospheric levels. Under their influence:
 - ✓ Farley widespread to Widespread light to moderate rainfall/snowfall accompanied with **thunderstorm, lightning** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand on 29th April -30 April, 2024. with possibility of **hailstorm over Himachal Pradesh and Uttarakhand on 29th April, 2024.**
 - ✓ Isolated **Heavy rainfall** also likely over Jammu-Kashmir-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh on 29th April, 2024.
 - ✓ Isolated to scattered rainfall accompanied with **thunderstorm, lightning & gusty winds and duststorm (40-50 kmph)** very likely over Punjab on 29th & 30th April, over West Uttar Pradesh and Haryana-Chandigarh on 29th April, 2024. Isolated **Hailstorm** very likely over Punjab on 29th April, 2024.
 - ✓ **Strong surface winds (25-35 kmph)** very likely to prevail over West Madhya Pradesh during 29th April – 02nd May; over East Uttar Pradesh, Bihar, Jharkhand during 30th April – 02nd May and over East Rajasthan on 29th April.
- ❖ A trough/wind discontinuity runs from central Vidarbha to Coastal Karnataka in lower tropospheric levels. Under their influence:
 - ✓ Isolated light rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over south Odisha, East Madhya Pradesh, Vidarbha, Chhattisgarh on 29th April
 - ✓ Isolated to scattered light to moderate rainfall accompanied with isolated **thunderstorm & lightning** very likely over Kerala & Mahe during next 7 days; over Lakshadweep on 29th & 30th; over Coastal Andhra Pradesh & Yanam on 29th April, 2024.

Maximum temperature observation and forecast for next 5 days:

- ❖ Yesterday, maximum temperatures are in the range of 42-45°C over in some parts of Odisha, Gangetic West Bengal and Rayalaseema; in the range of 40-42 over many parts of East Uttar Pradesh, Bihar, Jharkhand, Marathwada, Madhya Maharashtra, North Interior Karnataka, Telangana; in some parts of Vidarbha, Coastal Andhra Pradesh & Yanam; in isolated pockets of Chhattisgarh and Gujarat. These are above normal by 4-8°C over in many parts of Bihar and Gangetic West Bengal; in some parts of Sub Himalayan West Bengal and in isolated pockets of north Odisha.
- ❖ Rise in maximum temperatures by about 1-2 °C very likely over East India during next 2 days and no significant change thereafter.
- ❖ Gradual Rise in maximum temperatures by about 2-4°C very likely over Central India during next 4-5 days and no significant change thereafter.
- ❖ Rise in maximum temperatures by 2-3°C very likely over Tamil Nadu during next 3-4 days and no significant change 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 many places over Odisha, Bihar during 29th April - 01st May; Gangetic West Bengal during 29th April – 02nd May **and reduce in intensity thereafter. Heat Wave to severe heat wave conditions** very likely to prevail in isolated pockets over Rayalaseema on 02nd & 03rd May. **Heat wave conditions** in isolated pockets over Sub-Himalayan West Bengal & Sikkim, Saurashtra & Kutch, Rayalaseema during 29th April - 01st May; over Telangana, Interior Karnataka, Coastal Andhra Pradesh & Yanam during next 5 days; over Konkan & Goa and Kerala on 29th April.
- ❖ **Hot and humid weather** very likely to prevail over West Assam, Tripura, south Gujarat Region, Tamil Nadu, Puducherry & Karaikal during 29th April - 01st May; Konkan & Goa during 30th April - 03st May; over Kerala & Mahe during 30th April – 03rd May; over Coastal Karnataka during next 5 days.

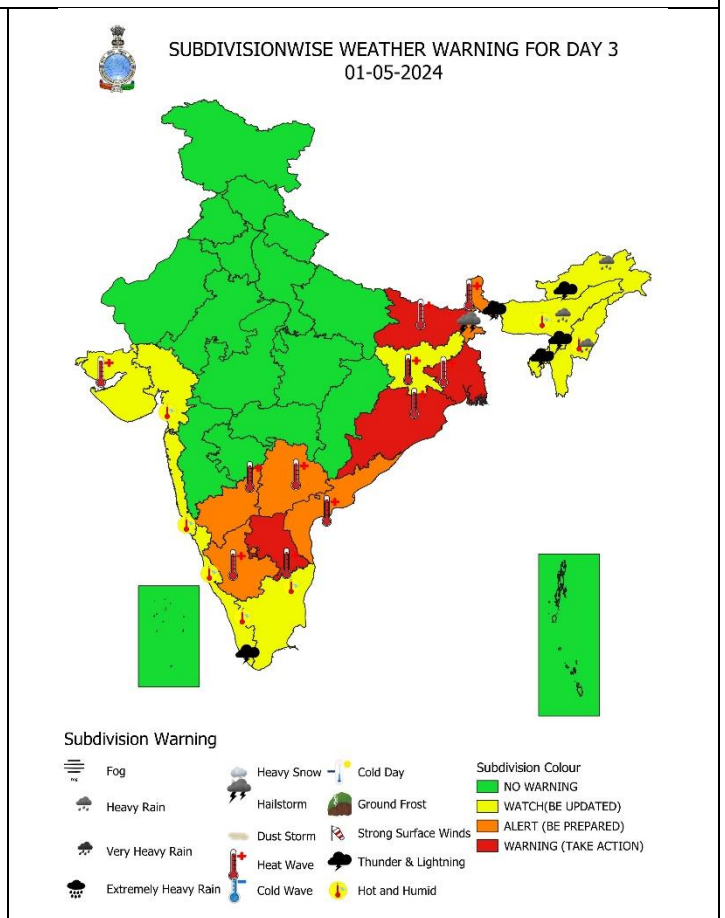
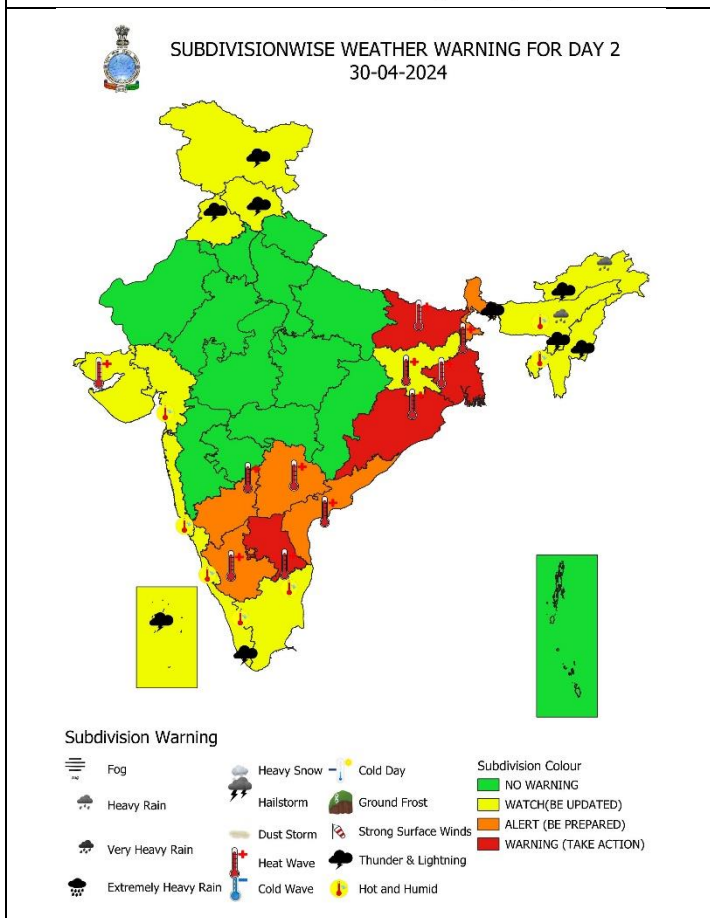
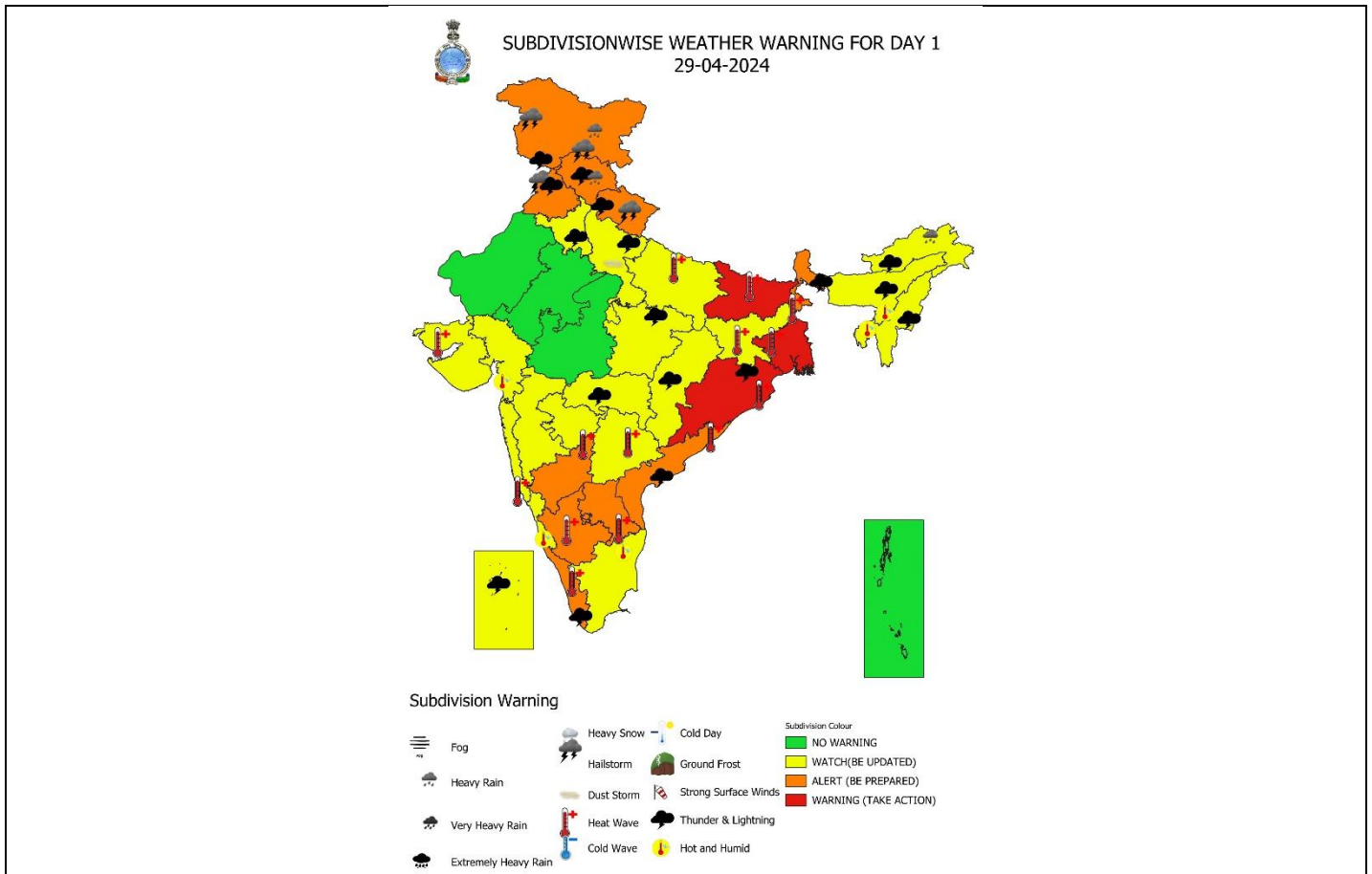
❖ **Warm night** very likely to prevail over East Uttar Pradesh on 29th April; over Interior Karnataka during next 5 days.

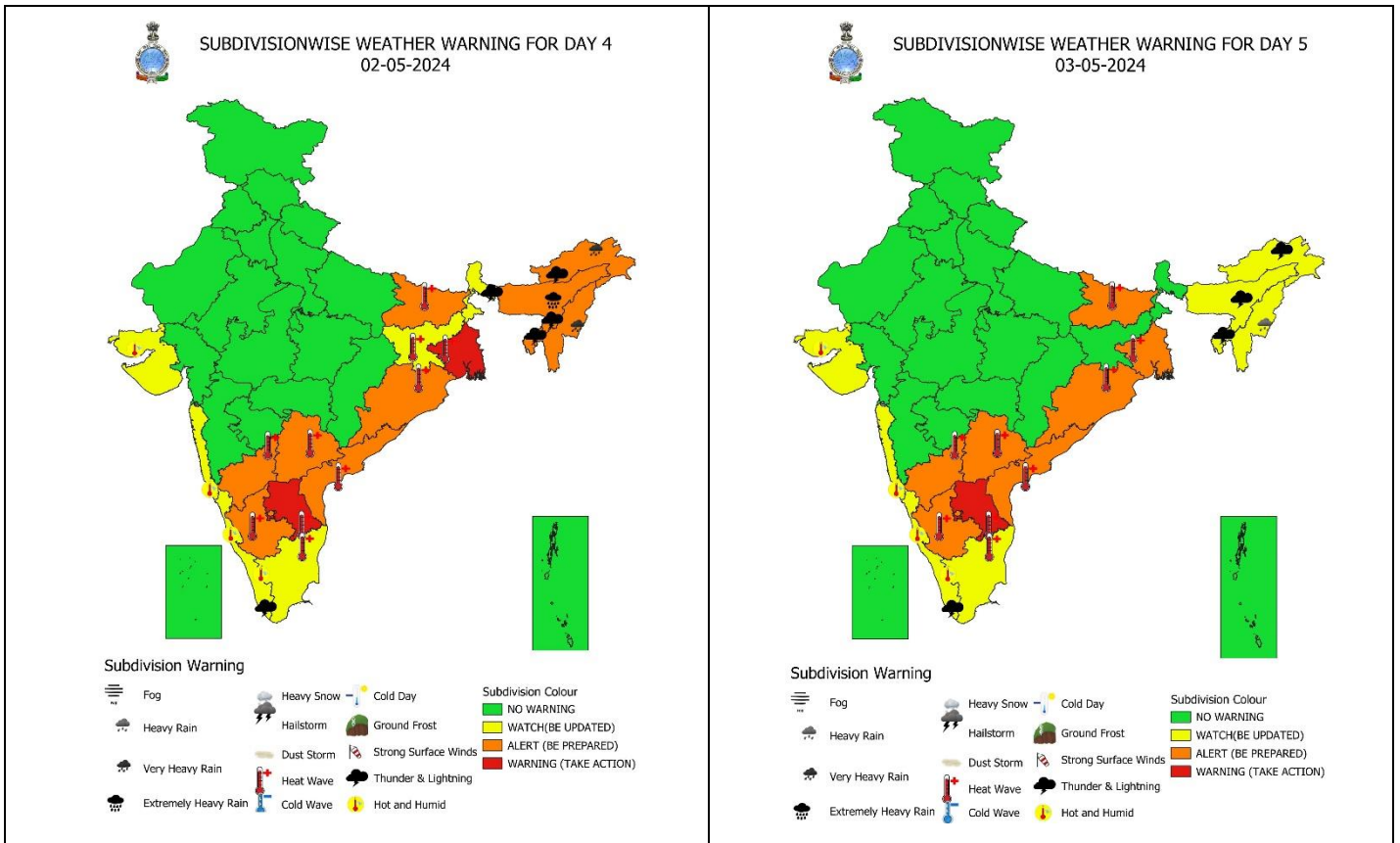
For more details, kindly refer: https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php

ANNEXURE I

Significant amount of rainfall (in cm):

- ❖ **Arunachal Pradesh:** Hawaii (dist Anjaw) 11, Roing (dist Lower Dibang Valley) 4, Ziro (dist Lower Subansiri) 3, Ziro_Arg (dist Lower Subansiri) 3, Deomali_aws (dist Tirap) 2, Namsai Kvk Aws (dist Lohit) 2, Itanagar (dist Papumpara) 2, Yazali (dist Lower Subansiri) 2;
- ❖ **Assam & Meghalaya:** Silchar_aws (dist Cachar) 9, Lakhipur (dist Cachar) 9, A P Ghat (dist Cachar) 8, Lakhipur Arg (dist Cachar) 7, Silchar (dist Cachar) 7, Amraghat Arg (dist Cachar) 6, Amraghat (disCachar) 6, Dholai (dist Cachar) 5, B P Ghat (dist Karimganj) 5, Jorhat (dist Jorhat) 5, Cacher KvkAws (dist Cachar) 5, Badarpur Arg (dist Karimganj) 4, Majuli (dist Jorhat) 4, Sonari_arg (dist Sibsagar) 4, Jiagaon (dist Tinsukia) 3, Barpathar (dist Golaghat) 3, Golaghat_Cwc (dist Golaghat) 3, Margherita (dist Tinsukia) 2, Bihubar (dist Sibsagar) 2, Beki Mathungari (dist Barpeta) 2, Dhemaji (dist Dhemaji) 2, Kheronighat (dist Karbi Anglong) 2, Bhumuraguri (dist Shonitpur) 2, Khowang (dist Dibrugarh) 2, Fakiragram Arg (dist Kokrajhar) 2, Melabazar/matunga (dist Nalbari) 2, Tezpur (dist Shonitpur) 2, Ranganadi Nt Xing (dist Lakhimpur) 2, Badatighat (dist Lakhimpur) 2, Numaligarh (dist Golaghat) 2, Shella (dist East Khasi Hills) 2;
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Chottabekra (dist Imphal West) 7, Jiribam_Aws (dist Imphal East) 4, Aizwal (dist Aizawl) 4, Bishnupur (dist Bishnupur) 2, Kamalpur_aws (dist Dhalai) 2, Kamalpur (dist Dhalai) 2, Kailashahar Aero (dist Unakoti) 2, Kanchanpur (dist North Tripura) 2, Mangkolemba (dist Mokochung) 2, Lengpui (dist Aizawl) 2;
- ❖ **Punjab:** Bhuchar Irr (dist Tarn Taran) 1;
- ❖ **Marathwada:** Parbhani - Imd Obsy (dist Parbhani) 3, Dhalegaon - Fmo (dist Parbhani) 1;
- ❖ **Vidarbha:** Yeotmal (aws) (dist Yeotmal) 2;
- ❖ **Coastal Andhra Pradesh & Yanam:** Araku Valley (dist Alluri Sitharamaraju) 1;
- ❖ **Kerala & Mahe:** Kurudamannil (Pathanamthitta district) 5, Kanjirappally (Kottayam district) 3, Mavelikkara (Alappuzha district) 2 and Kayamkulam_agri (Alappuzha district) & Nooranad (Alapuzha district) 1 each.





Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Himachal Pradesh, Uttarakhand and Punjab on 29th April; over Sikkim on 01st May, 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 / very rainfall over Jammu-Kashmir-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh on 29th April; over Arunachal Pradesh during 29th April-02nd May; Assam & Meghalaya during 30th April-02nd May and Nagaland, Manipur, Mizoram & Tripura during 01st -03rd May 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:

Red alert Areas (Gangetic West Bengal, Odisha, Bihar, Rayalaseema)

- ✓ Very high likelihood of developing heat illness and heat stroke in all ages.
- ✓ Extreme care needed for vulnerable people.

Orange alert Areas (Sub-Himalayan West Bengal & Sikkim, cap, Telangana, Interior Karnataka)

- ✓ High temperature & increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work.
- ✓ High health concern 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 (East Uttar Pradesh, Jharkhand, Saurashtra & Kutch, Konkan & Goa, Tamil Nadu, Puducherry & Karaikal)

- ✓ 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:

- 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, Uttarakhand and Punjab. Keep the harvested produce at safer places or cover the heaps of harvested produce in the fields with tarpaulin sheets.
- In Jammu & Kashmir, withhold harvesting of wheat; shift already harvested produce of wheat, mustard, chickpea and pea from crop fields to safer places or cover the harvested produce with polythene sheet or tarpaulin; postpone sowing of vegetables, turmeric and transplanting of cucurbits.
- In Arunachal Pradesh, postpone sowing of maize, *jhum* upland rice and vegetables.
- Make necessary arrangements for draining out excess water from crop fields to avoid water stagnation in Jammu & Kashmir, Himachal Pradesh and North-Eastern States.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in West Bengal, Odisha, Bihar, Jharkhand, East Uttar Pradesh, North Konkan, Saurashtra & Kutch, Kerala, Interior Karnataka, Andhra Pradesh and Telangana.
- Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

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)



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)	