



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 15<sup>th</sup> April, 2024.

Time of Issue: 1300 hours IST

- Subject: i) Ongoing rainfall spell with thunderstorms, lightning, gusty winds & hail over Northwest India likely to continue during next 24 hours and a fresh spell during 18<sup>th</sup>-21<sup>st</sup> April, 2024.**
- ii) Light to moderate rainfall with thunderstorms & lightning over Northeast India during 16<sup>th</sup>-21<sup>st</sup> April, 2024.**

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

- ❖ **Hailstorm with Gusty winds** observed at isolated places over Madhya Pradesh.

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

- ❖ A **Western Disturbance** as a trough in middle tropospheric westerlies roughly along Long. 62°E to the north of Lat. 28°N. A cyclonic circulation lies over Northwest Uttar Pradesh and another over West Rajasthan in lower tropospheric levels.
- ❖ A fresh Western Disturbance is likely to affect Northwest India from 18<sup>th</sup> April, 2024.
- ❖ Under the influence these weather systems:
  - ✓ Fairly widespread to widespread light to moderate rainfall/snowfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand on 15<sup>th</sup> and during 18<sup>th</sup>-21<sup>st</sup> April, 2024.
  - ✓ Isolated to scattered rainfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over West Uttar Pradesh, Punjab, Haryana-Chandigarh, Rajasthan, Gujarat State, Vidarbha and Madhya Pradesh on 15<sup>th</sup> April and over Punjab, Haryana-Chandigarh-Delhi, West Uttar Pradesh and Rajasthan during 18<sup>th</sup>-20<sup>th</sup> April, 2024.
  - ✓ **Isolated hailstorm** very likely over Himachal Pradesh & Uttarakhand on 15<sup>th</sup> April; Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh on 18<sup>th</sup> and over Uttarakhand 18<sup>th</sup> & 19<sup>th</sup> April, 2024.
  - ✓ **Isolated heavy rainfall/snowfall** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 15<sup>th</sup> & 19<sup>th</sup> and Himachal Pradesh on 15<sup>th</sup> April, 2024.
  - ✓ **Strong surface winds (30-40 kmph)** very likely to prevail over Haryana-Chandigarh-Delhi and Uttar Pradesh on 16<sup>th</sup> & 17<sup>th</sup> April, 2024.
- ❖ As the current intense Western Disturbance moves away from Northwest India towards Northeast India and receive fresh moisture feeding from Bay of Bengal to Northeast India, as a result:
  - ✓ Fairly widespread to widespread light/moderate rainfall/snowfall with isolated **thunderstorm & lightning** over Arunachal Pradesh and Assam & Meghalaya during 16<sup>th</sup>-21<sup>st</sup> April, 2024.

✓ **Isolated heavy rainfall** over Arunachal Pradesh and Assam & Meghalaya on 16<sup>th</sup>, 17<sup>th</sup> & 19<sup>th</sup> April, 2024.

❖ A cyclonic circulation lies over Gulf of Mannar in lower tropospheric levels. Under its influence:  
✓ Scattered to fairly widespread light/moderate rainfall accompanied with isolated **thunderstorm & lightning** very likely over Kerala & Mahe and isolated to scattered rainfall with **thunderstorm & lightning** over Tamil Nadu, Puducherry-Karaikal, Karnataka, Andhra Pradesh, and Lakshadweep on during 18<sup>th</sup>-21<sup>st</sup> April, 2024.

✓ **Isolated heavy rainfall** over Kerala & Mahe on 18<sup>th</sup> & 19<sup>th</sup> April, 2024.

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

- ❖ Yesterday, maximum temperatures were in the range of 40-42°C over at a few places over Telangana and Rayalaseema; at isolated places over West Bengal, Jharkhand, Saurashtra & Kutch, Madhya Maharashtra and Odisha. These are below normal by 2-4 °C at many parts over northwest and central India and normal over rest parts of plains of the country.
- ❖ Gradual rise in maximum by 2-4°C very likely over Central India during next 3 days and no significant change thereafter.
- ❖ Gradual rise in maximum by 2-3°C very likely over East India and Maharashtra during next 4-5 days.
- ❖ No significant change in maximum temperatures very likely over Gujarat State during next 3 days and gradual rise by 2-4°C during subsequent 2 days.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

#### **Heat Wave and Hot & Humid weather warning for next 5 days:**

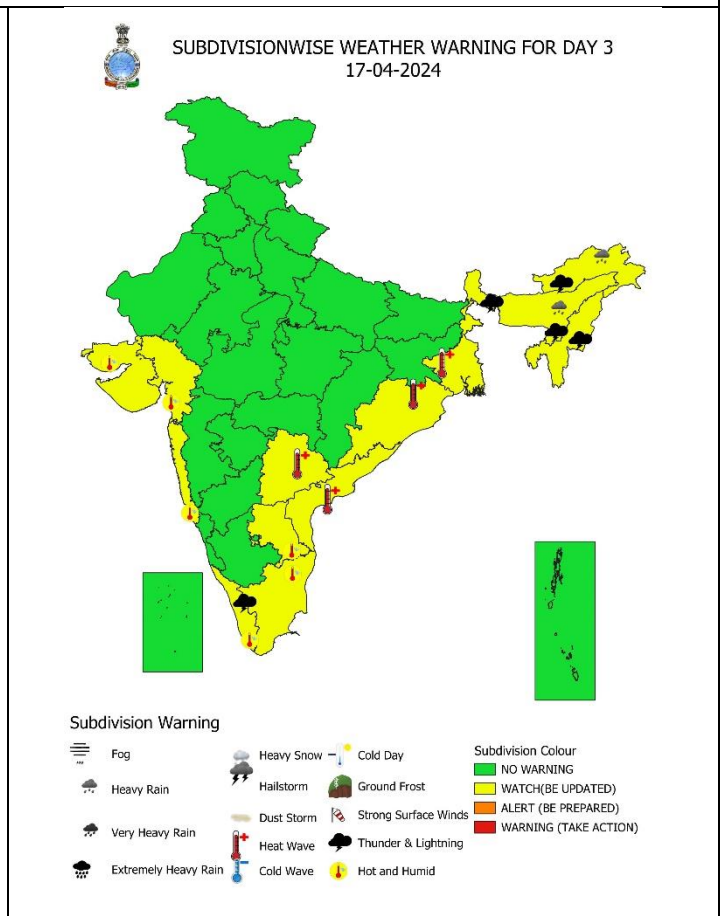
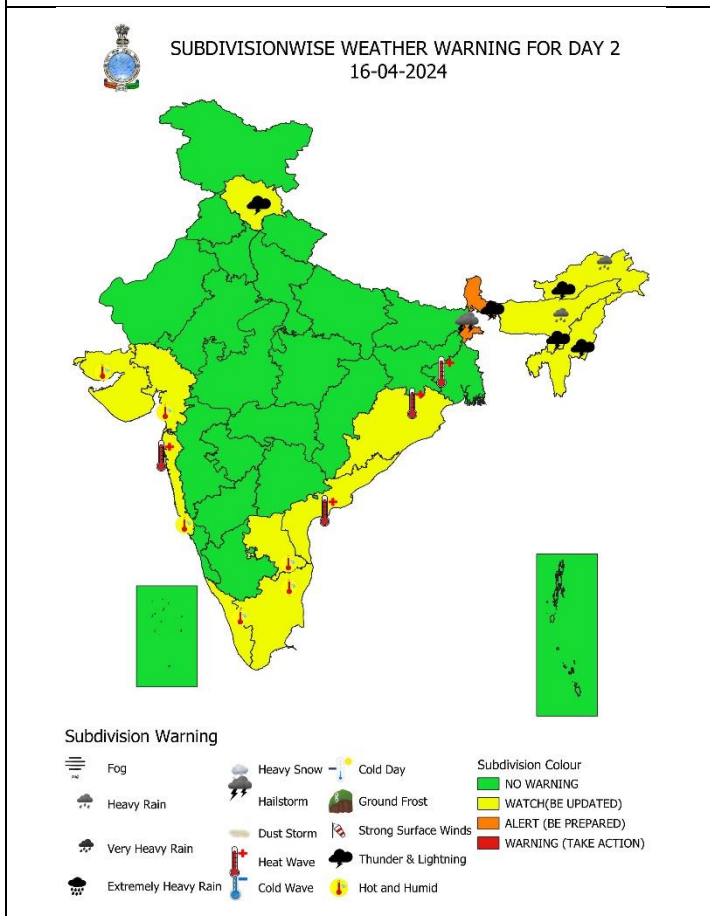
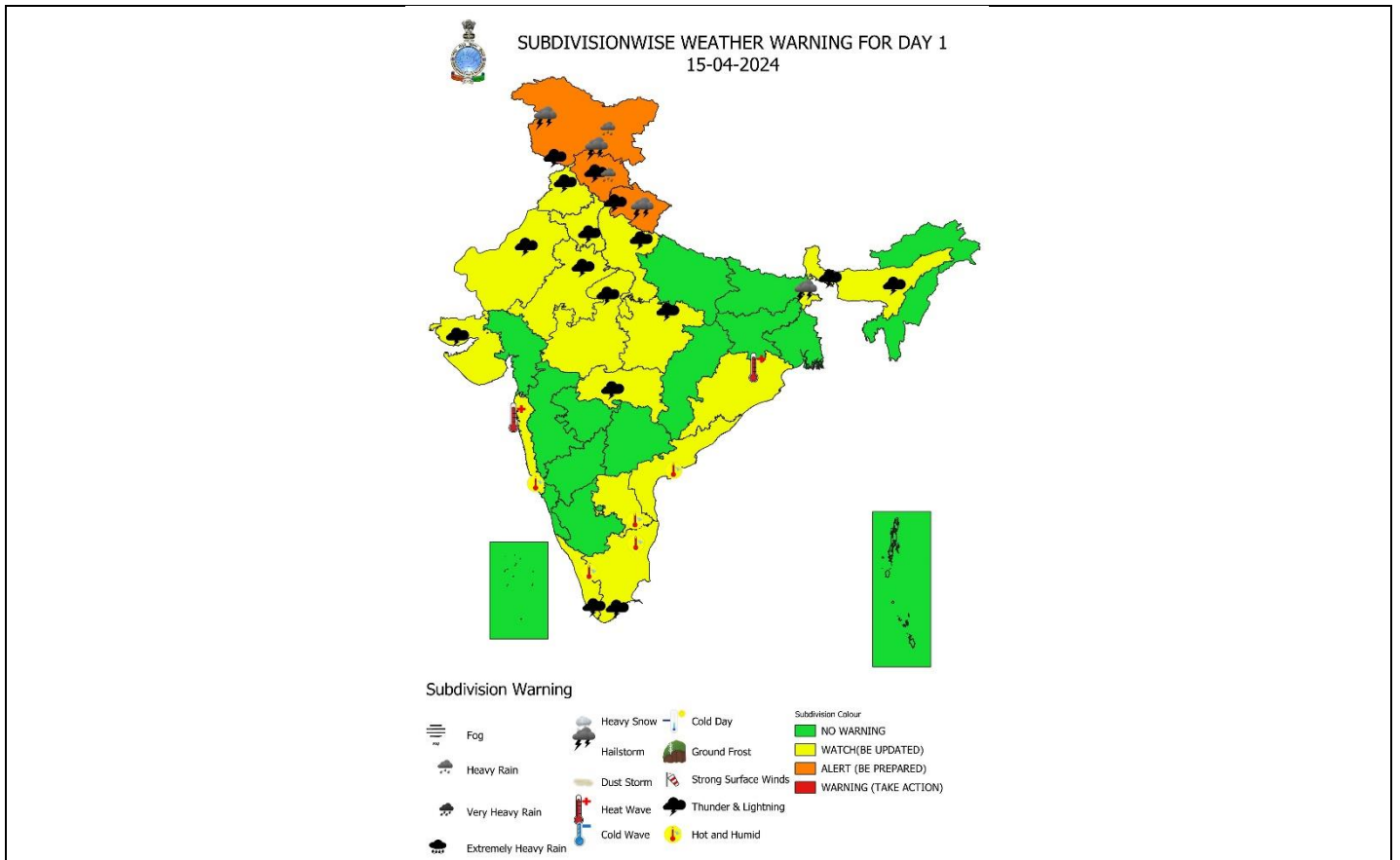
- ❖ **Heat Wave conditions** in isolated pockets of Odisha during 15<sup>th</sup>-19<sup>th</sup>; Gangetic West Bengal during 17<sup>th</sup>-19<sup>th</sup>; north Konkan on 15<sup>th</sup> & 16<sup>th</sup>; Coastal Andhra Pradesh & Yanam during 16<sup>th</sup>-18<sup>th</sup> and Telangana on 17<sup>th</sup> & 18<sup>th</sup> April, 2024.
- ❖ **Hot and humid weather** very likely to prevail over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema during 15<sup>th</sup>-18<sup>th</sup>; Gangetic West Bengal, Odisha, Konkan & Goa, coastal areas of Gujarat and Coastal Karnataka on 15<sup>th</sup> & 16<sup>th</sup> April, 2024.

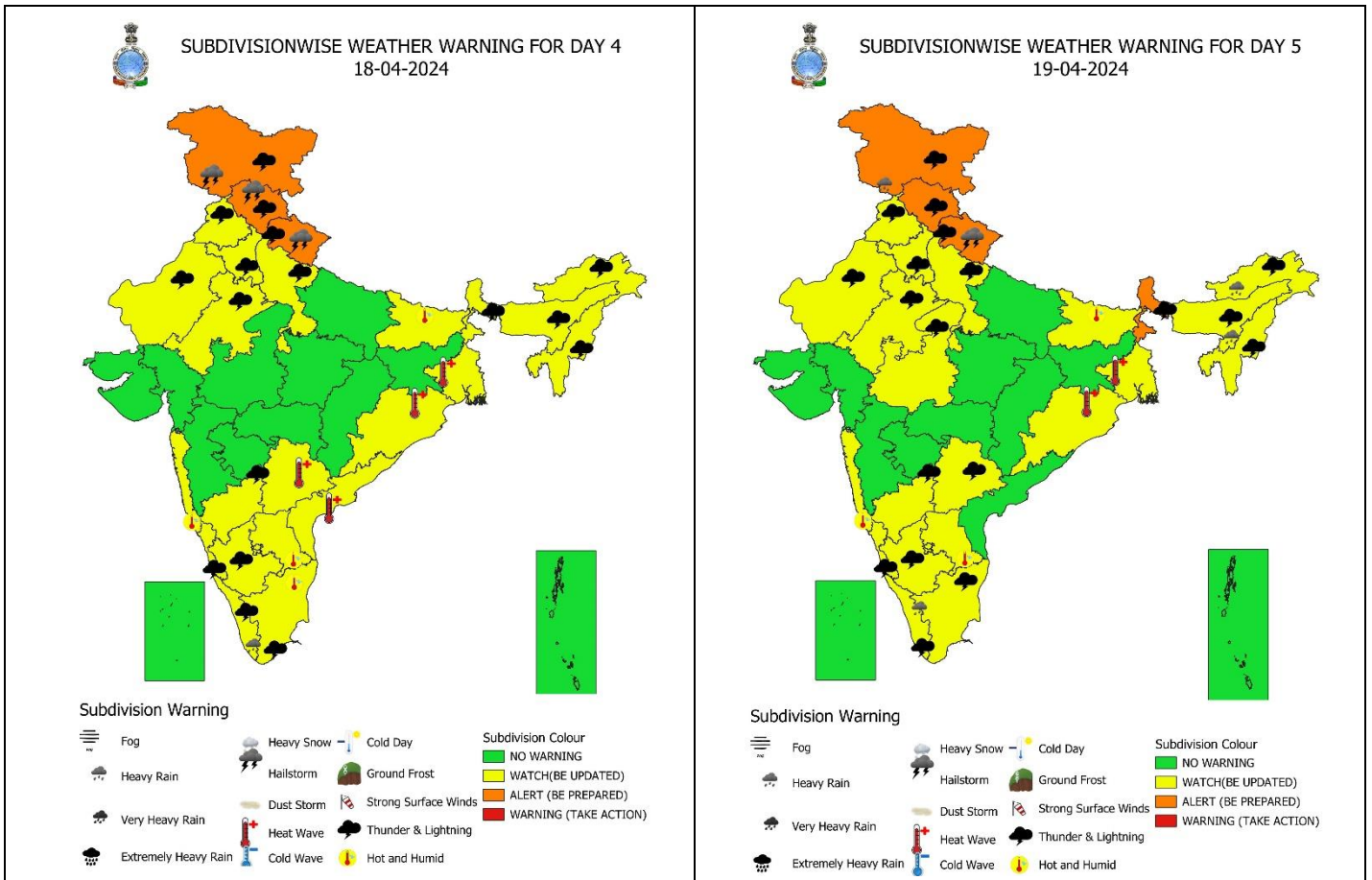
**For more details, kindly refer:** [https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

- ❖ **Light to moderate rainfall/snowfall** with isolated thunderstorm & lightning observed at most places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh; **Light rainfall/snowfall** at isolated places over Uttarakhand
- ❖ **Light to moderate rainfall/snowfall** with isolated thunderstorm & lightning observed at isolated places over Arunachal Pradesh and Sikkim.
- ❖ **Light to moderate rainfall** with isolated thunderstorm & lightning observed places over Punjab, Haryana-Chandigarh, Uttar Pradesh, Madhya Pradesh, Jharkhand, West Bengal, Madhya Maharashtra, Marathwada, Gujarat State, Assam & Meghalaya and Tamil Nadu.
- ❖ **Light rainfall** with thunderstorm & lightning observed at isolated places over Delhi, Rajasthan, Vidarbha, Chhattisgarh, Telangana, Karnataka and coastal Andhra Pradesh.

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

- ❖ **Saurashtra & Kutch:** Anjar (dist Kutch) 6, Kandla Airport (dist Kutch) 4, Gandhidham (dist Kutch) 3, Mahuva (dist Bhavnagar) 2
- ❖ **Sub-Himalayan West Bengal & Sikkim:** East Sikkim-6, Jalpaiguri-3
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Nowgam (dist Kupwara) 5, Kupwara Kvk (dist Kupwara) 4, Qazi Gund (dist Kulgam) 4, Shalimar Agro (dist Srinagar) 4, Gulmarg R.s. (dist Baramulla) 4, Baramulla (dist Baramulla) 4, Kulgam (dist Kulgam) 4, Srinagar Agro (dist Srinagar) 4, Banihal (dist Ramban) 3, Ganderbal (dist Ganderbal) 3, Gund (dist Ganderbal) 3, Tengmarg (dist Baramulla) 3, R M Bagh (dist Srinagar) 3, Bandipora (dist Bandipore) 3, Asham (dist Bandipore) 3, Kupwara (dist Kupwara) 3, Rambagh (dist Srinagar) 3, Srinagar (dist Srinagar) 3, Anantnag (dist Anantnag) 3, Harran (dist Badgam) 3, Verinag (dist Anantnag) 3, Baramulla Kvk (dist Baramulla) 3,
- ❖ **Jharkhand:** Sahibganj-5
- ❖ **Himachal Pradesh:** Kullu-4
- ❖ **West Madhya Pradesh:** Chanderi (dist Ashoknagar) 3, Isagarh (dist Ashoknagar) 1,
- ❖ **Tamil Nadu:** Eraniel (dist Kanniyakumari), Manjolai (dist Tirunelveli) 3 each, Thiruchendur (dist Thoothukudi), Nalumukku (dist Tirunelveli), Colachel (dist Kanniyakumari), Kakkachi (dist Tirunelveli) 2 each,
- ❖ **Assam & Meghalaya:** Shillong (dist East Khasi Hills) 3, Shillong C.s.o. (dist East Khasi Hills) 3
- ❖ **West Uttar Pradesh:** Moradabad (dist Moradabad) 2,
- ❖ **East Madhya Pradesh:** Rehli (dist Sagar) 2, Seoni (dist Seoni) 1,
- ❖ **Gujarat Region:** Santalpur (dist Patan) 2, Kadi (dist Mehsana) 1
- ❖ **Marathwada:** Ausa (dist Latur) 2





**Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Jammu Division, Himachal Pradesh & Uttarakhand on 15<sup>th</sup>, 18<sup>th</sup> & 19<sup>th</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 Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 15<sup>th</sup> & 19<sup>th</sup> and Himachal Pradesh on 15<sup>th</sup> April, 2024.**

**Impacts Expected for Rain/Snow**

- ❖ 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:**

**Yellow alert Areas (Gangetic West Bengal, coastal Odisha, North Konkan Telangana and Coastal Andhra Pradesh & Yanam)**

- ❖ 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, Gusty Winds, Hailstorm 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 Sub Himalayan West Bengal & Sikkim. Keep the harvested produce at safer places or cover the heaps of harvested produce in the fields with tarpaulin sheets.
- Make necessary arrangements for draining out excess water from crop fields to avoid water stagnation in Jammu & Kashmir, Himachal Pradesh, Arunachal Pradesh and Assam & Meghalaya.
- Withhold harvesting of mustard and pulses in Jammu & Kashmir; mustard in Himachal Pradesh; wheat, mustard, barley and pulses in Uttarakhand. Keep the already harvested crop at safer places.
- Postpone fresh sowing of rice, soybean, vegetables and maize in Jhum in Arunachal Pradesh. Harvest the mustard crop and keep the harvested produce at the safer place.
- 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, Coastal Andhra Pradesh and Telangana.

## 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 < 1km**  
 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)