



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release
Date: 31st July, 2024
Time of Issue: 1315 hours IST

**Subject: 1) Isolated heavy to very rainfall likely to continue along west coast during next 5 days.
2) Widespread rainfall with isolated heavy to very heavy falls likely over Northwest, Central & East India during next 3-4 days.**

Realised weather during past 24 hours till 0830 hours IST of today 31st July: (details in Annexure I)

- ✓ **Heavy to very heavy rainfall** with **extremely heavy falls** occurred at isolated places over South Interior Karnataka; **Heavy to very heavy rainfall** at isolated places over Kerala, Gujarat Region, Chhattisgarh, Uttarakhand, Coastal Karnataka, Konkan & Goa, Madhya Maharashtra, Bihar, Assam & Meghalaya; **Heavy rainfall** at isolated places over East Rajasthan, Uttarakhand, East Uttar Pradesh, Telangana, Tamil Nadu, Saurashtra, North Interior Karnataka, Marathwada, Sub-Himalayan West Bengal, Jharkhand and Mizoram.

Weather Systems

- ✓ The **Monsoon trough** is active and near of its normal position at mean sea level. It is likely to persist near its normal position during next 3 days and gradually shift southwards thereafter.
- ✓ A **cyclonic circulation** over Gangetic West Bengal & neighbourhood in lower & middle tropospheric levels.
- ✓ The **off-shore trough** at mean sea level runs along South Gujarat to Kerala coast.
- ✓ A **shear zone** runs roughly along 20°N in lower & middle tropospheric levels tilting southwards with height.
- ✓ A **cyclonic circulation** lies over north Arabian Sea in lower tropospheric levels tilting southwards with height.

Forecast & Warnings: (Annexure II)

❖ **West & Central India**

- ✓ Fairly widespread to widespread light to moderate rainfall **accompanied with thunderstorm & lightning** very likely over the region during next 5 days.
- ✓ **Isolated extremely heavy rainfall very likely over Madhya Maharashtra during 01st-03rd August; East Madhya Pradesh on 01st & 02nd; Konkan & Goa on 02nd & 03rd and Gujarat Region on 03rd August.**
- ✓ **Very heavy rainfall very likely at isolated places over Konkan & Goa during 31st July, 01st & 04th August; Madhya Maharashtra on 31st July & 04th August; Vidarbha, Chhattisgarh during 31st July-02nd August; West Madhya Pradesh during 01st – 03rd August; East Madhya Pradesh on 31st July & 03rd August; Saurashtra & Kutch on 03rd August and Gujarat Region on 04th August.**

- ✓ **Heavy rainfall** very likely at isolated places over West Madhya Pradesh on 31st July & 04th August; Gujarat Region on 02nd August; Chhattisgarh & Marathwada on 03rd August; Saurashtra & Kutch, Vidarbha on 04th August.

❖ **Northwest India**

- ✓ Fairly widespread to widespread light to moderate rainfall **accompanied with thunderstorm & lightning** very likely over Himachal Pradesh, Uttarakhand; scattered to fairly widespread rainfall over Jammu-Kashmir, Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh and Rajasthan during next 4-5 days.
- ✓ **Isolated very heavy rainfall also likely over Uttarakhand during 31st July-03rd August; Himachal Pradesh, Punjab, Haryana-Chandigarh, Uttar Pradesh on 31st July & 01st August; northeast Rajasthan on 31st July.**
- ✓ Isolated **heavy rainfall** very likely over Jammu-Kashmir, Himachal Pradesh, Uttarakhand, East Rajasthan during 31st July-04th August; Uttar Pradesh on 02nd & 03rd August; Punjab, Haryana-Chandigarh on 02nd August, northwest Rajasthan & Delhi on 31st July & 01st August.

❖ **South Peninsular India:**

- ✓ Fairly widespread to widespread light to moderate rainfall over Coastal Karnataka, Lakshadweep and Kerala & Mahe; Scattered to fairly widespread light to moderate rainfall over Interior Karnataka and isolated to scattered rainfall over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Telangana and Rayalaseema during next 5 days.
- ✓ **Isolated extremely heavy rainfall very likely over Coastal Karnataka on 31st July.**
- ✓ **Very heavy rainfall very likely at isolated places over Tamil Nadu, Kerala & Mahe on 31st July; Coastal Karnataka on 01st & 02nd August and South Interior Karnataka during 31st July-02nd August.**
- ✓ **Heavy rainfall** very likely at isolated places over Coastal & South Interior Karnataka during 31st July-04th August; Telangana on 31st July; Kerala & Mahe on 01st & 02nd August; Tamil Nadu on 01st August and North Interior Karnataka during 31st July-02nd August.

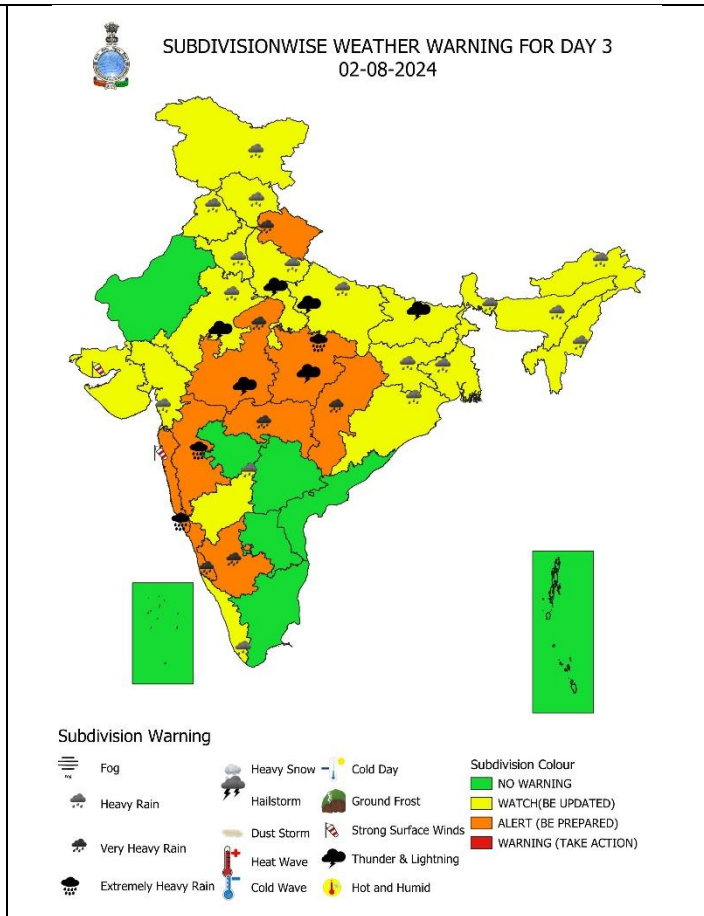
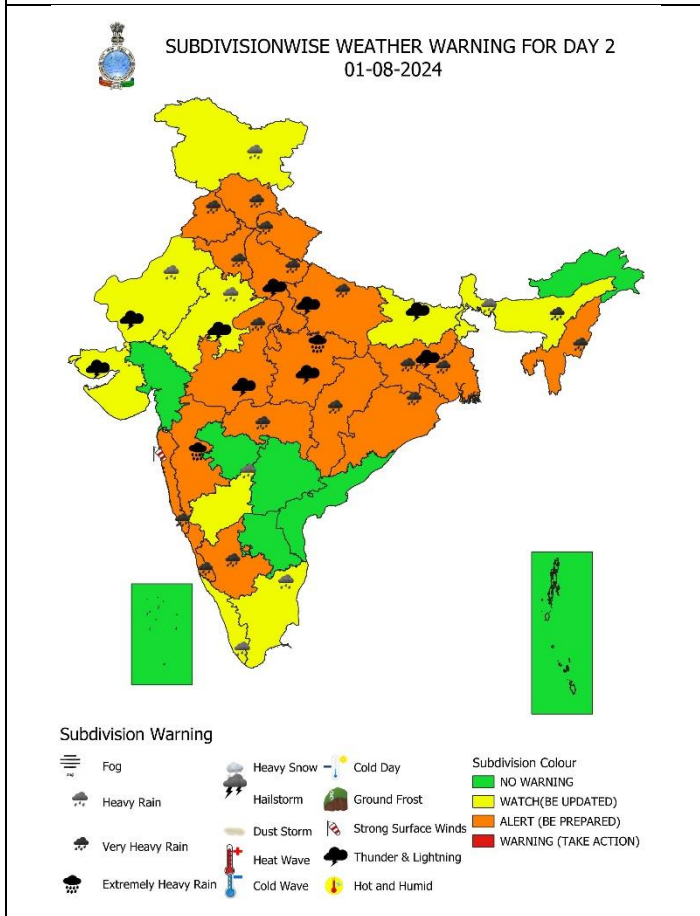
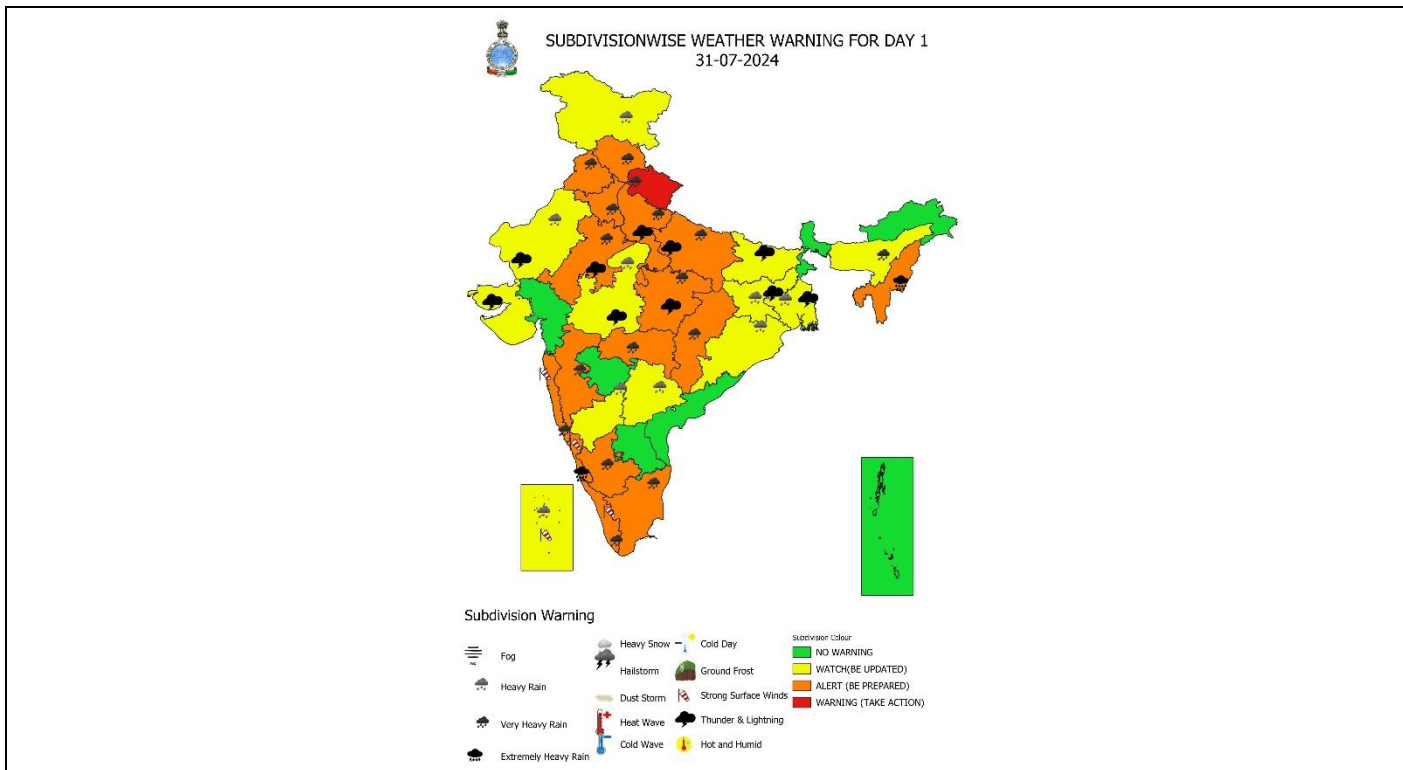
❖ **East & Northeast India**

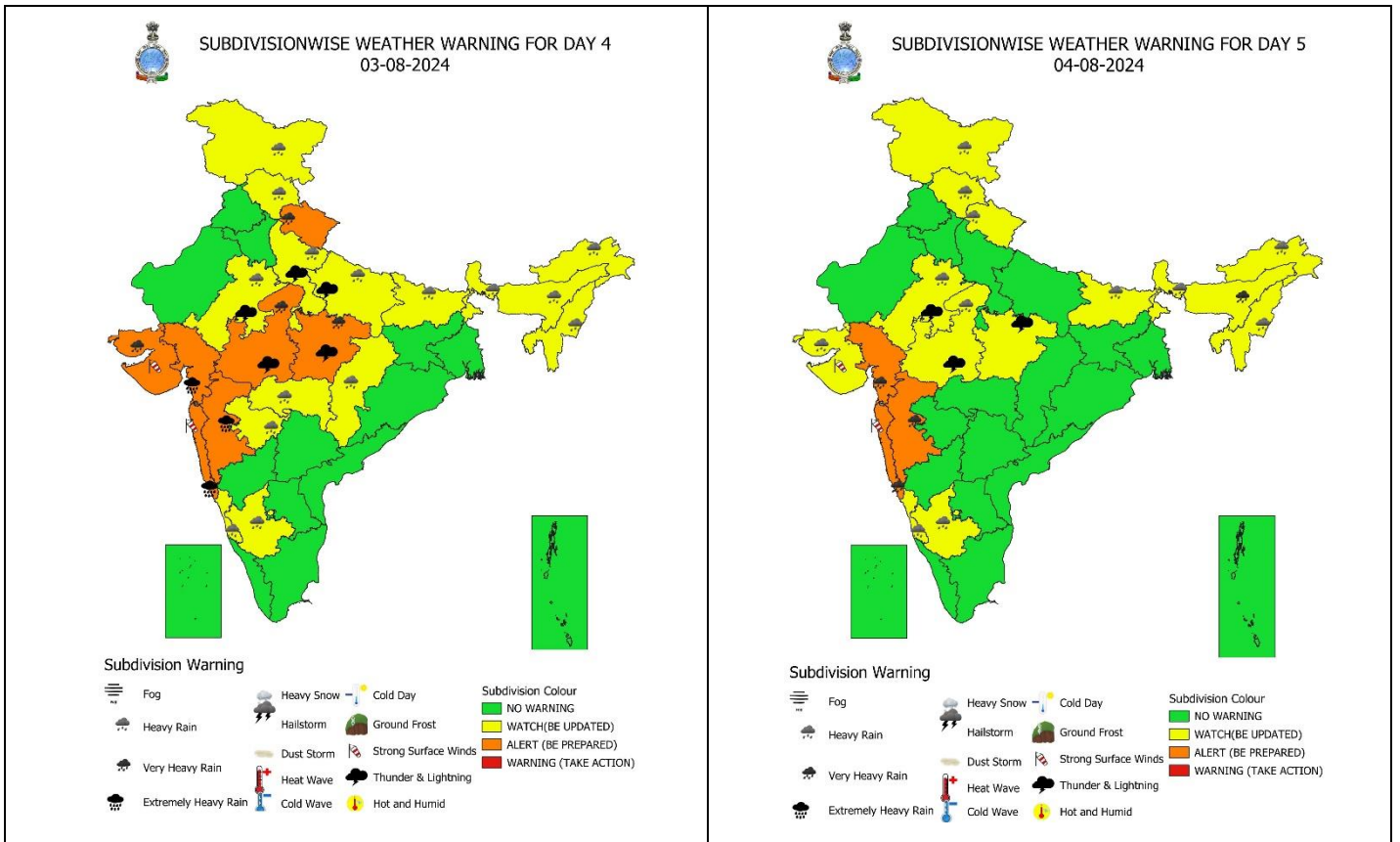
- ✓ Fairly widespread to widespread light to moderate rainfall **accompanied with thunderstorm, lightning** very likely over East & Northeast India during next 5 days.
- ✓ **Isolated extremely heavy rainfall very likely over Mizoram on 31st July.**
- ✓ **Very heavy rainfall very likely at isolated places over Assam & Meghalaya and Manipur, Mizoram on 31st July & 01st August.**
- ✓ Isolated **heavy rainfall** very likely over Jharkhand, Odisha, Gangetic West Bengal, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during 31st July – 02nd August, Arunachal Pradesh during 02nd-04th August; Sub-Himalayan West Bengal & Sikkim during 01st-03rd August.

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

Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 31st July (in cm):

- ❖ **SOUTH INTERIOR KARNATAKA:** Agumbe Emo (dist Shivamogga) 21, Kammardi (dist Chikkamagaluru) 15, Bhagamandala (dist Kodagu) 14, Mudigere (dist Chikkamagaluru) 14, Sringeri Hms (dist Chikkamagaluru) 12, Tarikere (dist Chikkamagaluru) 11, Linganamakki Hms (dist Shivamogga) 11, Jayapura (dist Chikkamagaluru) 9, Balehonnur (dist Chikkamagaluru) 9, Kalasa (dist Chikkamagaluru) 8, Koppa (dist Chikkamagaluru) 8, Napoklu (dist Kodagu) 8, Kottigehara (dist Chikkamagaluru) 8, Hunchadakatte (dist Shivamogga) 7,
- ❖ **COASTAL KARNATAKA:** Mani (dist Dakshina Kannada) 19, Castle Rock (dist Uttara Kannada) 19, Karkala (dist Udupi) 18, Uppinangadi (dist Dakshina Kannada) 17, Manki (dist Uttara Kannada) 16, Puttur Hms (dist Dakshina Kannada) 15, Belthangadi (dist Dakshina Kannada) 14, Panambur Obsy (dist Dakshina Kannada) 14, Mulki (dist Dakshina Kannada) 14, Dharmasthala (dist Dakshina Kannada) 13, Kadra (dist Uttara Kannada) 13, Kollur (dist Udupi) 13, Mangaluru Ap Obsy (dist Dakshina Kannada) 12, Gersoppa (dist Uttara Kannada) 12, Ankola (dist Uttara Kannada) 12, Mangaluru (dist Dakshina Kannada) 11, Siddapura (dist Udupi) 11, Kumta (dist Uttara Kannada) 10, Udupi (dist Udupi) 9, Yellapur (dist Uttara Kannada) 9, Kundapur (dist Udupi) 9, Shirali Pto (dist Uttara Kannada) 8, Sulya (dist Dakshina Kannada) 8, Siddapur (dist Uttara Kannada) 7, Gokarna (dist Uttara Kannada) 7, Jagalbet (dist Uttara Kannada) 7, Kota (dist Udupi) 7,
- ❖ **Kerala & Mahe:** Panathur AWS (Kasaragod district) 13, Kudulu (Kasaragod district), Ayyankunnu AWS (Kannur district), Vellarikkundu AWS (Kasaragod district), Muliya AWS & Bayar AWS (both in Kasaragod district) 11 each, Hosdurg (Kasaragod district) & Neryamangalam ARG (Ernakulam district) 9 each, Kunnankulam (Thrissur district) & Vadakara (Kozhikode district) 8 each, Ponnani (Malappuram district) 7;
- ❖ **Chhattisgarh:** Korba (dist Korba) 14, Darri (dist Korba) 13, Rajpur (dist Balrampur) 13, Katghora (dist Korba) 11, Shankargarh (dist Balrampur) 10, Manora (dist Jashpur) 9, Raigarh (dist Raigarh) 9, Dhabhara (dist Sakti) 7, Konta (dist Sukma) 7, Kharsiya (dist Raigarh) 7, Wandrafnagar (dist Balrampur) 7, Chando (dist Balrampur) 7, Tamnar (dist Raigarh) 7,
- ❖ **Bihar:** Ramnagar (dist West Champaran) 14, Gaunaha (dist West Champaran) 7,
- ❖ **Assam & Meghalaya:** Lala Arg (dist Hailakandi) 13, Amraghat (dist Cachar) 12, Lakhipur (dist Cachar) 8, B P Ghat (dist Karimganj) 7,
- ❖ **Gujarat Region:** Surat_kvks Aws (dist Surat) 13, Patan (dist Patan) 9, Jotana (dist Mehsana) 8, Mahesana (dist Mehsana) 7, Visnagar (dist Mehsana) 7, Bhabhar (dist Banaskantha) 7, Kheralu (dist Mehsana) 7, Radhanpur (dist Patan) 6,
- ❖ **Saurashtra & Kutch:** Abdasa (dist Kutch) 11, Naliya (dist Kutch) 10, Anjar (dist Kutch) 6, Bhachau (dist Kutch) 5,
- ❖ **NORTH INTERIOR KARNATAKA:** Londa (dist Belagavi) 11,
- ❖ **Uttarakhand:** Banbasa (CHAMPAWAT) : 10, Loharkhet (BAGESHWAR) : 8, Khatima (UDHAM SINGH NAGAR) 8, Haldwani (NAINITAL) : 6,
- ❖ **Telangana:** Gandhari (dist Kamareddy) 9, Venkatapuram (dist Mulugu) 8, Sirpur (t) (dist Kumaram Bheem) 8, Sadasivanagar (dist Kamareddy) 7;
- ❖ **East Uttar Pradesh:** Bansi Tehsil (dist Siddharth Nagar) 9, Churk (dist Sonbhadra) 7,
- ❖ **Jharkhand:** ranchi, Latehar-8 each; Koderma, Simdega-7 each;
- ❖ **Tamil Nadu:** Coimbatore-7;
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Neora (dist Jalpaiguri) 7,
- ❖ **Mizoram:** Lunglei-7;





IMPACT & ACTION SUGGESTED due to

- Isolated extremely heavy rainfall very likely over Mizoram and Coastal Karnataka on 31st July; Madhya Maharashtra during 01st-03rd August; East Madhya Pradesh on 01st & 02nd; Konkan & Goa on 02nd & 03rd and Gujarat Region on 03rd August.
- Very heavy rainfall very likely at isolated places over Tamil Nadu, Kerala & Mahe on 31st July; Mizoram , Manipur on 31st July & 01st August; Coastal Karnataka on 01st & 02nd August; Konkan & Goa during 31st July, 01st & 04th August; Madhya Maharashtra on 31st July & 04th August; Vidarbha, Chhattisgarh, South Interior Karnataka during 31st July-02nd August; West Madhya Pradesh during 01st – 03rd August; East Madhya Pradesh on 31st July & 03rd August; Saurashtra & Kutch on 03rd August and Gujarat Region on 04th August.
- Localized Flooding of roads, 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 kutchha roads.
- Possibilities of damage to vulnerable structure.
- Localized Landslides/Mudslides/landslips/mud slips/land sinks/mud sinks.
- 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)

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.

Agromet advisories for Heavy Rainfall likely over various parts of the country

- Make provision for draining out excess water from crop fields to avoid water stagnation in Assam & Meghalaya, NMMT, Sub Himalayan West Bengal, Odisha, Jharkhand, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, East Rajasthan, Madhya Pradesh, Chhattisgarh, Vidarbha, Konkan & Goa, Ghat areas of Madhya Maharashtra, Gujarat State, Tamilnadu, Kerala and Karnataka.
- Provide mechanical support to horticultural crops & staking to vegetables.

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; **ARG:** Automatic Rain Gauge; **dist:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO:** Part Time Office, **Aero:** Aerodrome, **IAF:** Indian Air Force.
- ❖ **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)

 Fog
 Heavy Rain
 Very Heavy Rain
 Extremely Heavy Rain

 Heavy Snow
 Hailstorm
 Dust Storm
 Heat Wave
 Cold Wave

 Cold Day
 Ground Frost
 Strong Surface Winds
 Thunder & Lightning
 Hot and Humid

Subdivision Colour

 NO WARNING
 WATCH(BE UPDATED)
 ALERT (BE PREPARED)
 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 Storm: Wind speed >220 kmph (>119 knots)	