



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release
Date: 29th July, 2024
Time of Issue: 1330 hours IST

**Subject: 1) Active monsoon conditions likely over most parts of northwest India during next 4-5 days.
2) Widespread rainfall with isolated heavy falls likely over Central & East India during next 4-5 days.**

During past 24 hours till 0830 hours IST of today 29th July: (details in Annexure I)

- ✓ **Heavy to very heavy rainfall** at isolated places over Uttarakhand, West Madhya Pradesh, East Rajasthan, Gujarat Region, Kerala & Mahe, Coastal Karnataka; **Heavy rainfall** at isolated places over Himachal Pradesh, Punjab, East Madhya Pradesh, Vidarbha, Chhattisgarh, Arunachal Pradesh, Assam & Meghalaya, Madhya Maharashtra, Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Odisha.

Weather Systems

- ✓ The **Monsoon trough** is active and south of its normal position at mean sea level. It is likely to shift gradually northwards during next 4-5 days.
- ✓ A **cyclonic circulation** over southeast Madhya Pradesh & neighbourhood in lower & middle tropospheric levels.
- ✓ The **shear zone** now runs roughly along 20°N over Indian region between 3.1 & 7.6 km above mean sea level tilting southwards with height.
- ✓ The **off-shore trough** at mean sea level now runs along South Gujarat to Kerala coast.
- ✓ A **cyclonic circulation** lies over northeast Arabian Sea and adjoining Saurashtra in lower tropospheric levels.

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.
- ✓ **Very heavy rainfall very likely at isolated places over Gujarat Region on 29th; Saurashtra & Kutch on 29th & 30th; Konkan & Goa on 01st August; East Madhya Pradesh during 31st July- 02nd August; ghat areas of Madhya Maharashtra, Chhattisgarh on 01st & 02nd August, , West Madhya Pradesh on 02nd August.**
- ✓ **Heavy rainfall** very likely at isolated places over Konkan & Goa, Madhya Maharashtra, Gujarat Region, West Madhya Pradesh during 29th July- 02nd August, East Madhya Pradesh, Chhattisgarh during 30th July – 02nd August, Vidarbha on 29th July, 01st & 02nd August.

❖ Northwest India

- ✓ Fairly widespread to widespread light to moderate rainfall **accompanied with thunderstorm & lightning** very likely over Himachal Pradesh, Uttarakhand and East Rajasthan; scattered to fairly widespread rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh and West Rajasthan during next 5 days.
- ✓ **Isolated very heavy rainfall also likely over East Rajasthan on 29th; Uttarakhand during 29th July- 02nd August, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 31st July & 01st August, Haryana-Chandigarh, West Uttar Pradesh, West Rajasthan on 31st July.**
- ✓ Isolated **heavy rainfall** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand during 29th July- 02nd August, Punjab during 29th July- 01st August, Haryana-Chandigarh during 30th July- 02nd August, Uttar Pradesh during 30th July- 01st August, West Rajasthan during 29th – 31st July.

❖ South Peninsular India:

- ✓ Fairly widespread to widespread light to moderate rainfall over Coastal Karnataka, Lakshadweep and Kerala & Mahe and Scattered to fairly widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Interior Karnataka and isolated to scattered rainfall over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Telangana and Rayalaseema during next 5 days.
- ✓ **Very heavy rainfall very likely at isolated places over Kerala & Mahe on 29th; Coastal & South Interior Karnataka on 29th & 30th July.**
- ✓ **Heavy rainfall** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal on 29th; North Interior Karnataka on 29th & 30th; Kerala & Mahe, Coastal & South Interior Karnataka during 29th July – 01st August.

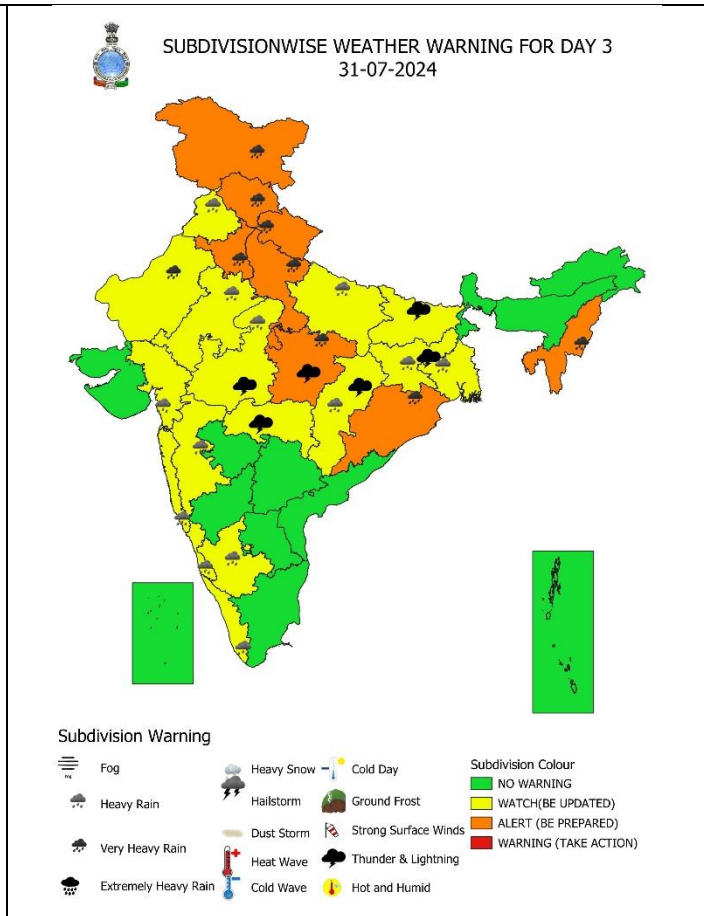
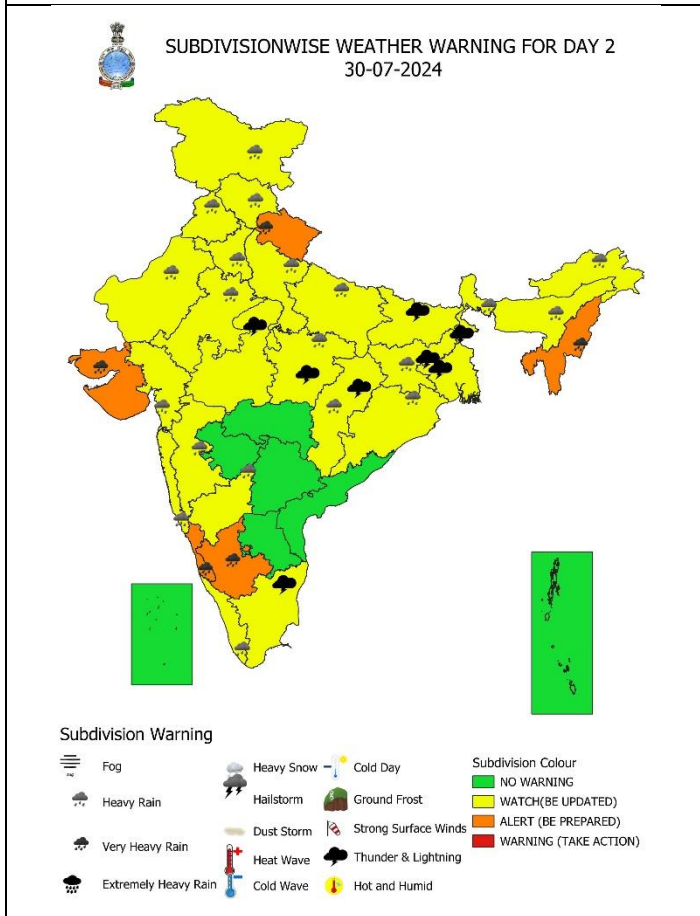
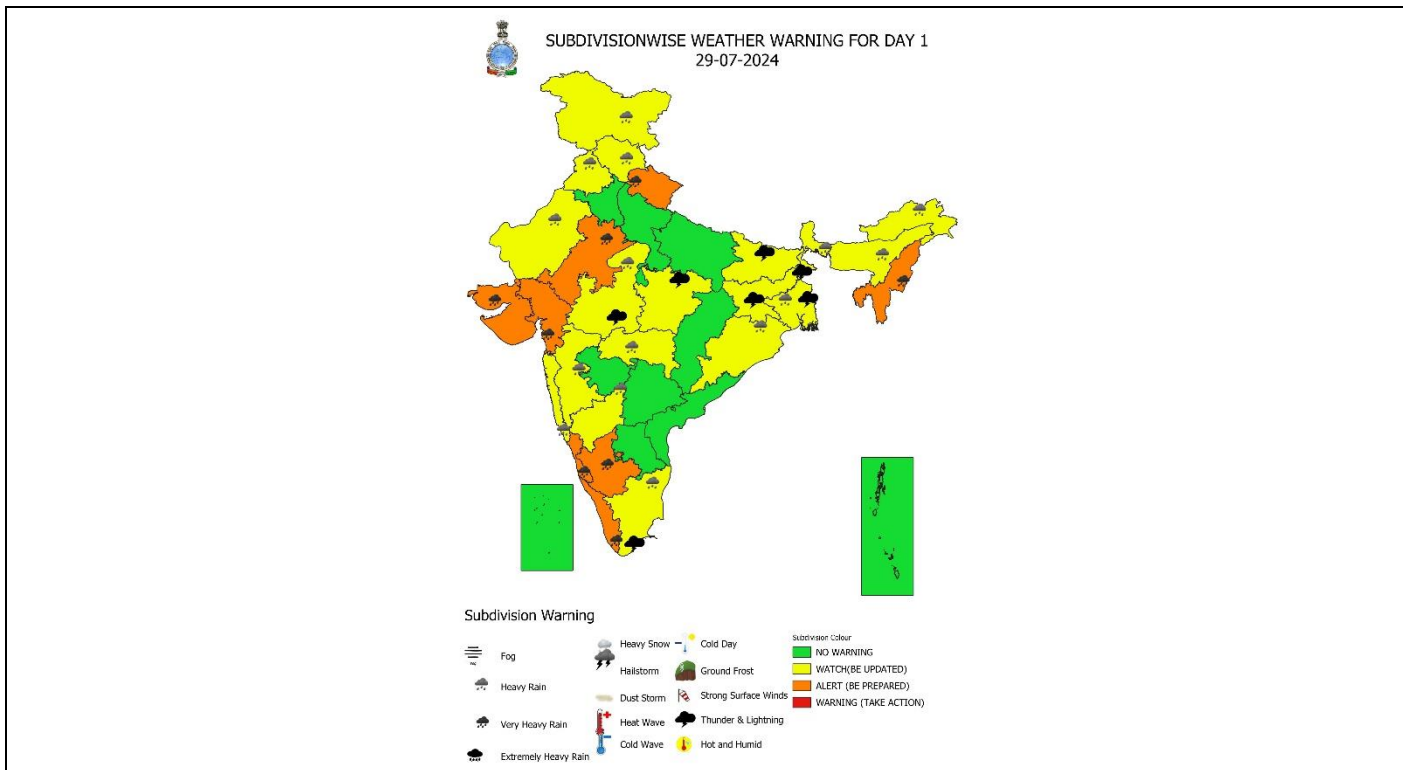
❖ East & Northeast India

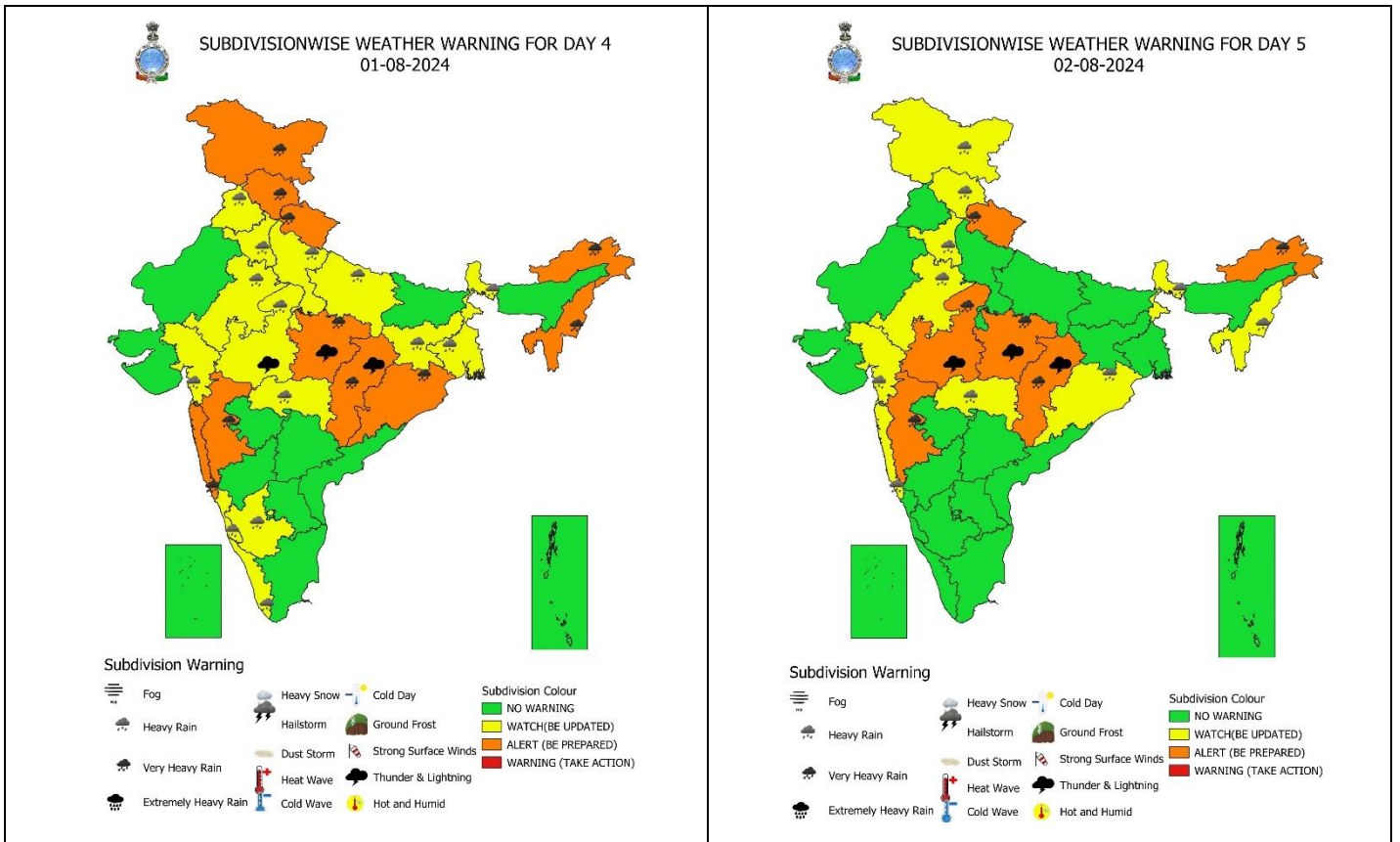
- ✓ Fairly widespread to widespread light to moderate rainfall **accompanied with thunderstorm, lightning** very likely over East India and Scattered to fairly widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Northeast India during next 5 days.
- ✓ **Very heavy rainfall very likely at isolated places over Nagaland, Manipur, Mizoram & Tripura during 29th July- 01st August, Arunachal Pradesh on 01st & 02nd August, Odisha on 31st July & 01st August.**
- ✓ Isolated **heavy rainfall** very likely over Odisha, Nagaland, Manipur, Mizoram & Tripura during 29th July – 02nd August, Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim on 29th, 30th July 01st August & 02nd August, Assam & Meghalaya on 29th, 30th; Jharkhand during 30th July- 01st August, Gangetic West Bengal on 29th, 31st July & 01 August.

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

Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 29th July (in cm):

- ❖ **East Rajasthan** Arnod (dist Pratapgarh) 17, Pratapgarh (dist Pratapgarh) 8, Khushalgarh (dist Banswara) 8;
- ❖ **West Madhya Pradesh:** Bhavgarh (dist Mandsaur) 17, Bhimpur (dist Betul) 15, Nagda (dist Ujjain) 13, Niwali (dist Barwani) 13, Shajapur (dist Shajapur) 12, Mahidpur (dist Ujjain) 11, Gulana (dist Shajapur) 11, Agar (dist Agarmalwa) 11, Tarana (dist Ujjain) 11, Sonkatch (dist Dewas) 11, Berasia (dist Bhopal) 10, Nateran (dist Vidisha) 10, Alot (dist Ratlam) 9, Shyampur (dist Sehore) 9, Dhundhadaka (dist Mandsaur) 9, Sendhwa (med) (dist Barwani) 9, Jawar (dist Sehore) 9, Shegaon (dist Khargone) 9, Khachrod (dist Ujjain) 8, Chachariyapati (dist Barwani) 8, Gulabganj (dist Vidisha) 8, Sohagpur (dist Narmadapuram) 8, Ujjain-aws (dist Ujjain) 7, Godadongri (dist Betul) 7, Shamshabad (dist Vidisha) 7, Moman Badodiya (dist Shajapur) 7, Udainagar (dist Dewas) 7, Chicholi (dist Betul) 7, Hatpiplaya (dist Dewas) 7, Rahatgaon (dist Harda) 7, Shujalpur (dist Shajapur) 7, Jharda (dist Ujjain) 7, Bagli (dist Dewas) 7, Indore (dist Indore) 7, Pipariya (dist Narmadapuram) 7, Pithampur (dist Dhar) 7, Kathiwada (dist Alirajpur) 7, Umarvan (dist Dhar) 7;
- ❖ **Coastal Karnataka:** Castle Rock (dist Uttara Kannada) 15, Yellapur (dist Uttara Kannada) 8, Kollur (dist Udupi) 8,
- ❖ **Kerala & Mahe** Ayyankunnu Aws (dist Cannur) 14, Vaikom Aws (dist Kottayam) 10, Peermade To (dist Idukki) 9, Mattanchery Aws (dist Ernakulam) 9, Choondy Aws (dist, Ernakulam) 9, Udumbannoor Aws (dist Idukki) 9, Idukki (dist Idukki) 8, Chemberi Aws (dist Cannur) 8, Ulanad Aws (dist Pathanamthitta) 8, Enamakal (dist Thrissur) 8, Peechi Aws (dist Thrissur) 8, Palluruthy Arg (dist Ernakulam) 8, Thiruvalla Aws (dist Pathanamthitta) 8, Kochi I.a.f. (dist Ernakulam) 7, Piravam (dist Ernakulam) 7, Perumpavur (dist Ernakulam) 7, Ernakulam South (dist Ernakulam) 7, Lower Sholayar Aws (dist Thrissur) 7, Venkurinji Aws (dist Pathanamthitta) 7, Ranni Aws (dist Pathanamthitta) 7, Karipur Ap. (dist Malappuram) 7,
- ❖ **Gujarat Region:** Lunawada (dist Mahisagar) 14, Nadiad (dist Kheda) 13, Dholka_arg (dist Ahmedabad) 11, Bilodara_aws (dist Kheda) 10, Vaso (dist Kheda) 10, Dahod (dist Dahod) 9, Santrampur (dist Mahisagar) 9, Mahudha (dist Kheda) 8, Dahod_aws (dist Dahod) 8, Jhalod (dist Dahod) 7,
- ❖ **Uttarakhand:** Jollygrant (DEHRADUN) 14, Jollygrant (DEHRADUN) 12, Shama_Ukg (BAGESHWAR) 10, Dehradun (DEHRADUN) 9,
- ❖ **Odisha:** Kujanga (Jagatsinghpur) 11, Bari (Jaipur) 9,
- ❖ **South Interior Karnataka:** Bhagamandala (dist Kodagu) 10, Napoklu (dist Kodagu) 9, Kottigehara (dist Chikkamagaluru) 8,
- ❖ **Himachal Pradesh:** Ghamroor (dist Kangra) 10,
- ❖ **East Madhya Pradesh :** Chhapara (dist Seoni) 10, Bijadandi (dist Mandla) 7
- ❖ **Tamil Nadu:** Nalumukku (dist Tirunelveli) 10, Oothu (dist Tirunelveli) 8, Kakkachi (dist Tirunelveli), Avalanche (dist The Nilgiris) 7,
- ❖ **Madhya Maharashtra:** Mahabaleshwar- Imd Obsy (dist Satara) 10, Chandgad (dist Kolhapur) 8, Velhe (dist Pune) 7, Shahuwadi (dist Kolhapur) 7,
- ❖ **Punjab:** Kapurthala (dist Kapurthala) 8, Bul Irr (dist Ludhiana) 4;
- ❖ **Chhattisgarh:** Bhanupratappur (dist Kanker) 8, Rajnandgaon (dist Rajnandgaon) 8, Ghumka (dist Rajnandgaon) 7;
- ❖ **Assam & Meghalaya:** Mawsynram (dist East Khasi Hills) 8, Bihpuria_ Aws (dist Lakhimpur) 8, N.lakhimpur/lilabari (dist Lakhimpur) 8, Ranganadi Nt Xing (dist Lakhimpur) 7, Udaipur (dist Tinsukia) 7,
- ❖ **Arunachal Pradesh:** Nachu Arg (dist Upper Subansiri) 7,





IMPACT & ACTION SUGGESTED due to

Very heavy rainfall very likely at isolated places over East Rajasthan, Gujarat Region, Kerala & Mahe on 29th; Saurashtra & Kutch, Coastal & South Interior Karnataka on 29th & 30th; Konkan & Goa on 01st August; East Madhya Pradesh during 31st July- 02nd August; ghat areas of Madhya Maharashtra, Chhattisgarh, Arunachal Pradesh on 01st & 02nd August, , West Madhya Pradesh on 02nd August, Nagaland, Manipur, Mizoram & Tripura during 29th July- 01st August, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Odisha on 31st July & 01st August, Uttarakhand during 29th July-02nd August, Haryana-Chandigarh, West Uttar Pradesh, West Rajasthan on 31st July.

- 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 kutcha 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 North Eastern States, Sub Himalayan West Bengal, Odisha, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, East Rajasthan, Madhya Pradesh, Chhattisgarh, Vidarbha, Konkan & Goa, *Ghat* areas of Madhya Maharashtra, Gujarat State, Kerala and Coastal 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)



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)