



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release.

Date: 21st May, 2024

Time of Issue: 1345 hours IST

Subject:

- i. **Heat wave to severe heat wave conditions most likely to continue over plains of Northwest India and Heat wave conditions over north Madhya Pradesh & Gujarat State during next 5 days.**
- ii. **Isolated heavy to very heavy rainfall very likely over south Peninsular India till 24th May with possibility of extremely heavy falls over Kerala on 22nd & 23rd May, 2024.**
- iii. **A Low Pressure Area is likely to form over Southwest Bay of Bengal around 22nd May. It is likely to move northeastwards and concentrate into a Depression over central parts of Bay of Bengal by morning of 24th May. It would continue to move northeastwards and intensify further thereafter.**

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

- ❖ **Heat wave to severe heat wave conditions** observed in many parts over Haryana & Delhi; in some parts of Punjab. **Heat wave conditions** observed in some parts over Rajasthan and Uttar Pradesh and isolated pockets of Gujarat and Madhya Pradesh. **Heat wave conditions** have been prevailing over Gujarat region since 15th; Saurashtra & Kutch since 16th; over Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh and Rajasthan since 17th May, 2024.
- ❖ **Warm night conditions** observed in some parts of Rajasthan.
- ❖ Yesterday, the **highest maximum temperature of 47.4°C** was reported at **Najafgarh (Delhi)** over the country.
- ❖ **Heavy to very heavy rainfall** observed at isolated places over Kerala, Tamil Nadu, Coastal Karnataka; **Heavy rainfall** at isolated places over Odisha, Interior Karnataka, Lakshadweep and Gangetic West Bengal.
- ❖ **Hailstorm** observed at isolated places over West Madhya Pradesh and Vidarbha.
- ❖ **Gusty winds/squally winds** data reported over the country is attached in **Annexure II**.

Weather Systems and Forecast & Warnings: (Annexure III)

- ❖ The Northern Limit of Monsoon continues to pass through 05°N/75°E, 06°N/80°E, 07°N/85°E, Nancowry and 10°N/100°E (**Annexure IV**).
- ❖ **Conditions are favorable for further advance of Southwest Monsoon over some parts of Southeast Arabian Sea, some more parts of Maldives, Comorin area and South Bay of Bengal and some more parts of Andaman & Nicobar Islands and Andaman Sea during next 2 days.**
- ❖ A cyclonic circulation lies over north Kerala in lower & middle tropospheric levels and another over north Coastal Andhra Pradesh neighbourhood in lower tropospheric levels. Under their influence:
 - Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Coastal & South Interior Karnataka and Isolated to scattered light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** over Coastal Andhra Pradesh & Yanam, Telangana, North Interior Karnataka and Rayalaseema during next 5 days.
 - **Isolated heavy rainfall very likely over Coastal & South Interior Karnataka during 21st-23rd; Lakshadweep, Tamil Nadu, Puducherry & Karaikal on 24th; Kerala on 25th May, 2024.**

- *Isolated heavy to very heavy rainfall very likely over Tamil Nadu, Puducherry & Karaikal during 21st-23rd; Kerala & Mahe on 21st & 24th and South Interior Karnataka on 21st May, 2024 with isolated extremely heavy rainfall over Kerala on 22nd & 23rd May, 2024.*
- Widespread light to moderate rainfall very likely over Andaman & Nicobar Islands during next 7 days. *Isolated heavy rainfall very likely over Andaman & Nicobar Islands during 21st-25th May with very heavy fall on Andaman Islands today.*
- Isolated light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha, Madhya Pradesh on 21st & 22nd; Chhattisgarh during 21st-25th May, 2024.
- ❖ A cyclonic circulation lies over east Bangladesh & neighbourhood and a trough runs from Haryana to east Bangladesh in lower tropospheric levels. Under its influence:
 - Scattered to fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Gangetic West Bengal and isolated to scattered light to moderate rainfall over Odisha, Bihar and Jharkhand during next 7 days.
 - *Isolated heavy rainfall very likely over Bihar on 21st May, 2024.*
 - Scattered to fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram and Tripura during next 5 days.
 - *Isolated heavy rainfall likely over Sub-Himalayan West Bengal & Sikkim on 21st May, 2024.*

A Low Pressure Area is likely to form over Southwest Bay of Bengal around 22nd May:

- ❖ A cyclonic circulation lies over Southwest Bay of Bengal coast and extends upto 3.1 km above mean sea level. Under its influence, a Low Pressure Area is very likely to form over southwest Bay of Bengal by 22nd May, 2024. It is very likely to move northeastwards and concentrate into a Depression over central parts of Bay of Bengal by morning of 24th May, 2024. It would continue to move northeastwards and intensify further thereafter. Under its influence:
 - ❖ **Heavy Rainfall Warning:**
 - ✓ Light to moderate rainfall at many places with heavy rainfall at isolated places is likely over North & South 24 Parganas, East Medinipur districts of West Bengal and Balasore district of Odisha on 25th May.
 - ✓ Light to moderate rainfall at many places with heavy rainfall at isolated places is likely over Mizoram, Tripura and South Manipur on 25th May.
 - ❖ **Fishermen Warning:**
 - ✓ Fishermen are advised not to venture into central & adjoining south Bay of Bengal from 23rd May and into North Bay of Bengal from 24th May onwards. Fishermen out at sea are advised to return to the coast before 23rd May.

Maximum temperature observation and forecast for next 5 days:

- ❖ **Areas having maximum temperatures greater than 40°C:** Yesterday, maximum temperatures were in the range of 44-47°C in most places over Haryana-Chandigarh-Delhi; in many parts of Rajasthan; in some places over Gujarat Region, Punjab, West Madhya Pradesh, Uttar Pradesh; in the range of 40- 44°C in many parts of Vidarbha, East Madhya Pradesh; in some parts of Madhya Maharashtra, Marathwada, Saurashtra & Kutch. These were above normal by 4-6°C at many places over Delhi and above normal by 2-4°C over many parts of Punjab, Haryana, Chandigarh; in isolated pockets of Rajasthan, Saurashtra & Kutch and West Uttar Pradesh.
- ❖ Gradual rise by about 2-3°C in maximum temperatures very likely over many parts of Central India during next 5 days.
- ❖ No significant change in maximum temperatures very likely over Northwest India and Maharashtra during next 24 hours and gradual rise by 2-3°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 in many/most pockets over Punjab, Haryana-Chandigarh-Delhi, West Rajasthan; in some parts of West Uttar Pradesh, East Rajasthan & northwest Madhya Pradesh during 21st-25th; in isolated pockets of East Uttar Pradesh during 21st-25th May, 2024.**
- ❖ **Heat wave conditions** very likely in isolated pockets of East Uttar Pradesh on 21st & 22nd; Jammu division, Himachal Pradesh, Gujarat state, northeast Madhya Pradesh during 21st -25th; Vidarbha during 22nd-25th and north Madhya Maharashtra during 22nd-24th May, 2024.
- ❖ **Hot and humid weather** very likely to prevail over Assam during 21st-24th; Konkan & Goa, Odisha on 21st & 22nd May, 2024.
- ❖ **Warm night conditions** very likely to prevail over West Uttar Pradesh and Rajasthan during 21st -25th May, 2024.

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

Realised Rainfall during past 24 hours till 0830 hours IST of today:

- ❖ Light to moderate rainfall accompanied with thunderstorm & lightning observed **at most places** over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Coastal Karnataka, Andaman & Nicobar Islands; **at many places** over South Interior Karnataka, Gangetic West Bengal, Bihar; **at a few places** over North Interior Karnataka, Rayalaseema, Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya and **at isolated places** over Coastal Andhra Pradesh & Yanam, Telangana, Konkan & Goa, Madhya Maharashtra, Marathwada, Madhya Pradesh, Vidarbha, Chhattisgarh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttar Pradesh, East Rajasthan, Jharkhand and Nagaland, Manipur, Mizoram & Tripura.

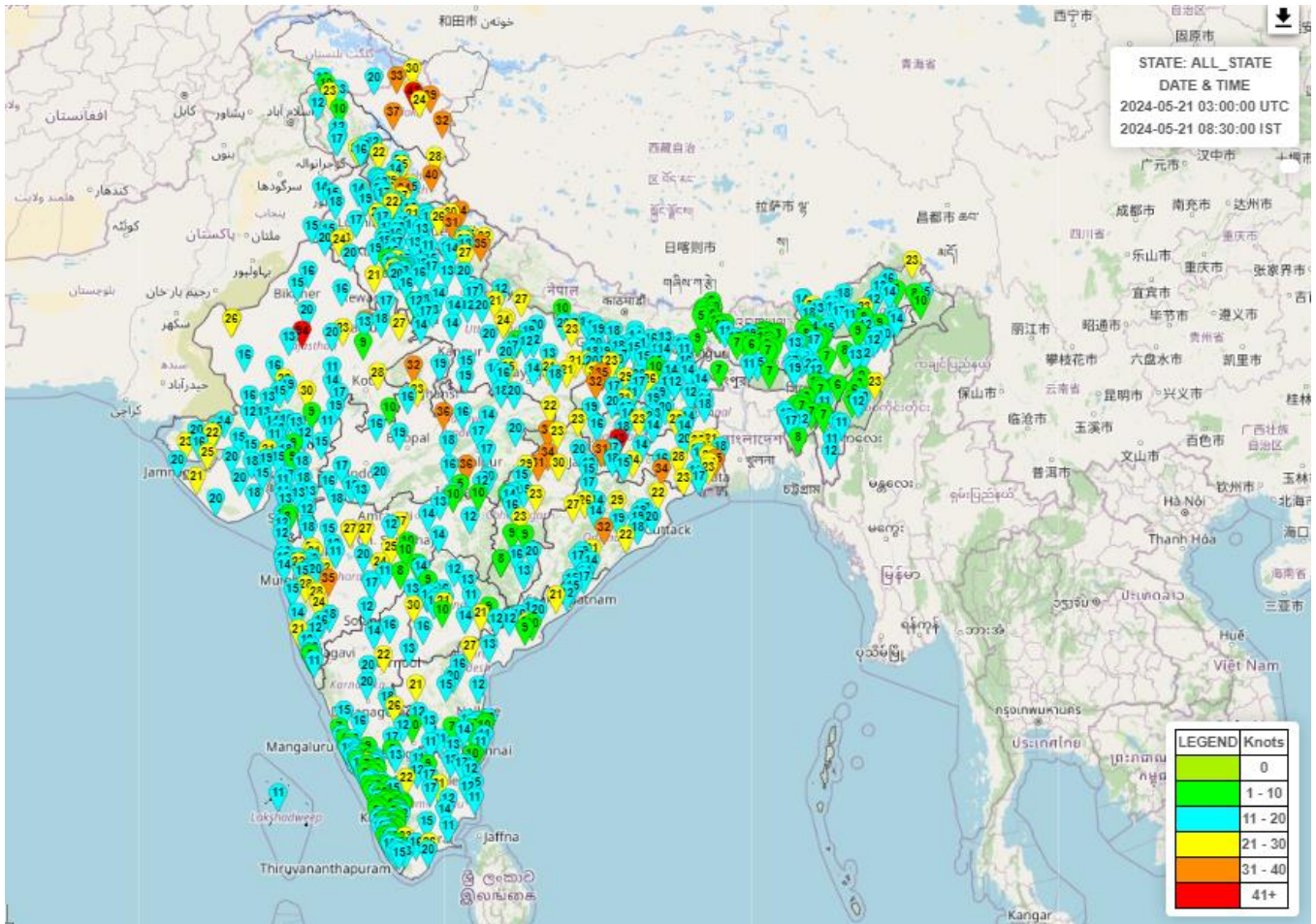
Significant amount of rainfall (in cm):

- ❖ **Tamil Nadu, Puducherry & Karaikal:** Puduchatram (dist Namakkal) 16, Grand Anaicut (dist Thanjavur) 14, Karur (dist Karur), Tiruchirappalli Airport (dist Thiruchirappalli) 13 each, Chinnakalar (dist Coimbatore), Samayapuram (dist Thiruchirappalli) 12 each, Namakkal (dist Namakkal), Sendamangalam (dist Namakkal) 11 each, Rasipuram (dist Namakkal), Viralimalai (dist Pudukkottai), Panchapatti (dist Karur), Tondi (dist Ramanathapuram) 10 each, Sivaganga (dist Sivagangai), Yercaud (dist Salem), Chennimalai (dist Erode) 9 each, Hogenekal (dist Dharmapuri), Tiruchirappalli Junction (dist Thiruchirappalli), Illupur (dist Pudukkottai), Lalgudi (dist Thiruchirappalli), Valparai PAP (dist Coimbatore), Sankaridurg (dist Salem), Krishnarayapuram (dist Karur), Theerthandathanam (dist Ramanathapuram), Salem (dist Salem), Karaiyur (dist Pudukkottai) 8 each, Danishpet (dist Salem), Manapparai (dist Thiruchirappalli), Sankarapuram (dist Kallakurichi), Erumapatti (dist Namakkal), Nambiyur (dist Erode), Barwood (dist The Nilgiris), Annavasal (dist Pudukkottai), Perundururai (dist Erode), Kuruvadi (dist Ariyalur), Tiruchirappalli Town (dist Thiruchirappalli), Namakkal PTO (dist Namakkal), Kudimiyamalai (dist Pudukkottai), Mullanginavillai (dist Kanniyakumari), Cincona (dist Coimbatore), Vathalai Anaicut (dist Thiruchirappalli), Vattanam (dist Ramanathapuram), Kumarapalayam (dist Namakkal) 7 each, Kozhiporvilai
- ❖ **Coastal Karnataka:** Dharmasthala (dist Dakshina Kannada) 15, Yellapur (dist Uttara Kannada) 10, Uppinangadi (dist Dakshina Kannada) 7, Panambur Obsy (dist Dakshina Kannada) 7, Mangaluru Ap Obsy (dist Dakshina Kannada) 7,
- ❖ **Kerala & Mahe:** Urumi Aws (dist Kozhikode) 13, Ambalavayal (dist Wynad) 11, Karapuzha Aws (dist Wynad) 10, Mavelikara (dist Alapuzha) 9, Nilambur (dist Malappuram) 8, Nilambur Aws (dist Malappuram) 7, Kuppady (dist Wynad) 7, Vakkad Aws (dist Malappuram) 7,
- ❖ **Lakshadweep:** Agathi (dist Lakshadweep) 7, Amini (dist Lakshadweep) 6
- ❖ **Gangetic West Bengal:** Dum Dum (dist North 24 Parganas) 6, Canning (dist South 24 Parganas) 5, Contai (dist East Midnapore) 5, Kalyani Smo (dist Nadia) 2,
- ❖ **South Interior Karnataka:** Santhebennur (dist Davangere) 8, Koppa (dist Chikkamagaluru) 7, Hunchadakatte (dist Shivamogga) 7,
- ❖ **North Interior Karnataka:** Lakshmeswar (dist Gadag) 7, Bellatti (dist Gadag) 6, Savanur (dist Haveri) 4, Shiggaon (dist Haveri) 4,
- ❖ **Odisha:** Similiguda (dist Koraput) 7, Angul (dist Angul) 6, Bhadrak (dist Bhadrak) 6, Burla (dist Sambalpur) 5, Barmul (dist Nayagarh) 4, R Guda (dist Rayagada) 4, Telkoi (dist Keonjhar) 4,

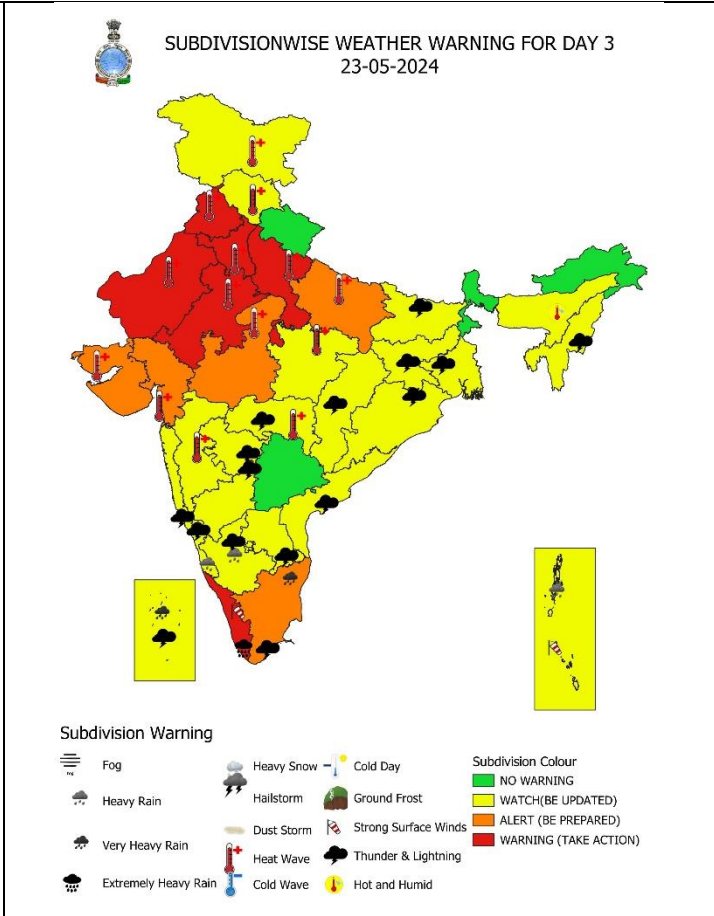
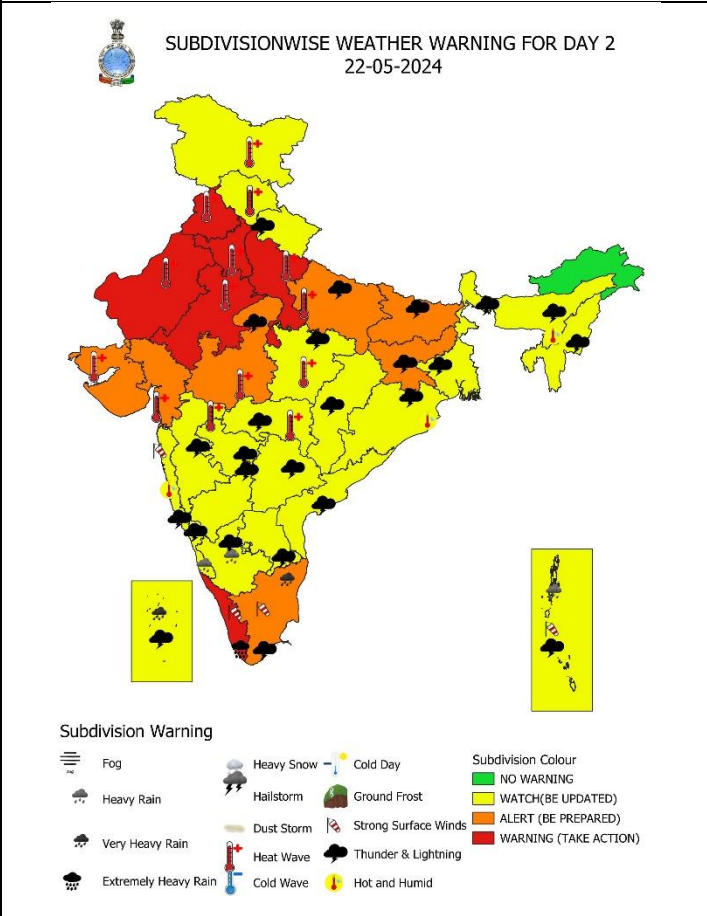
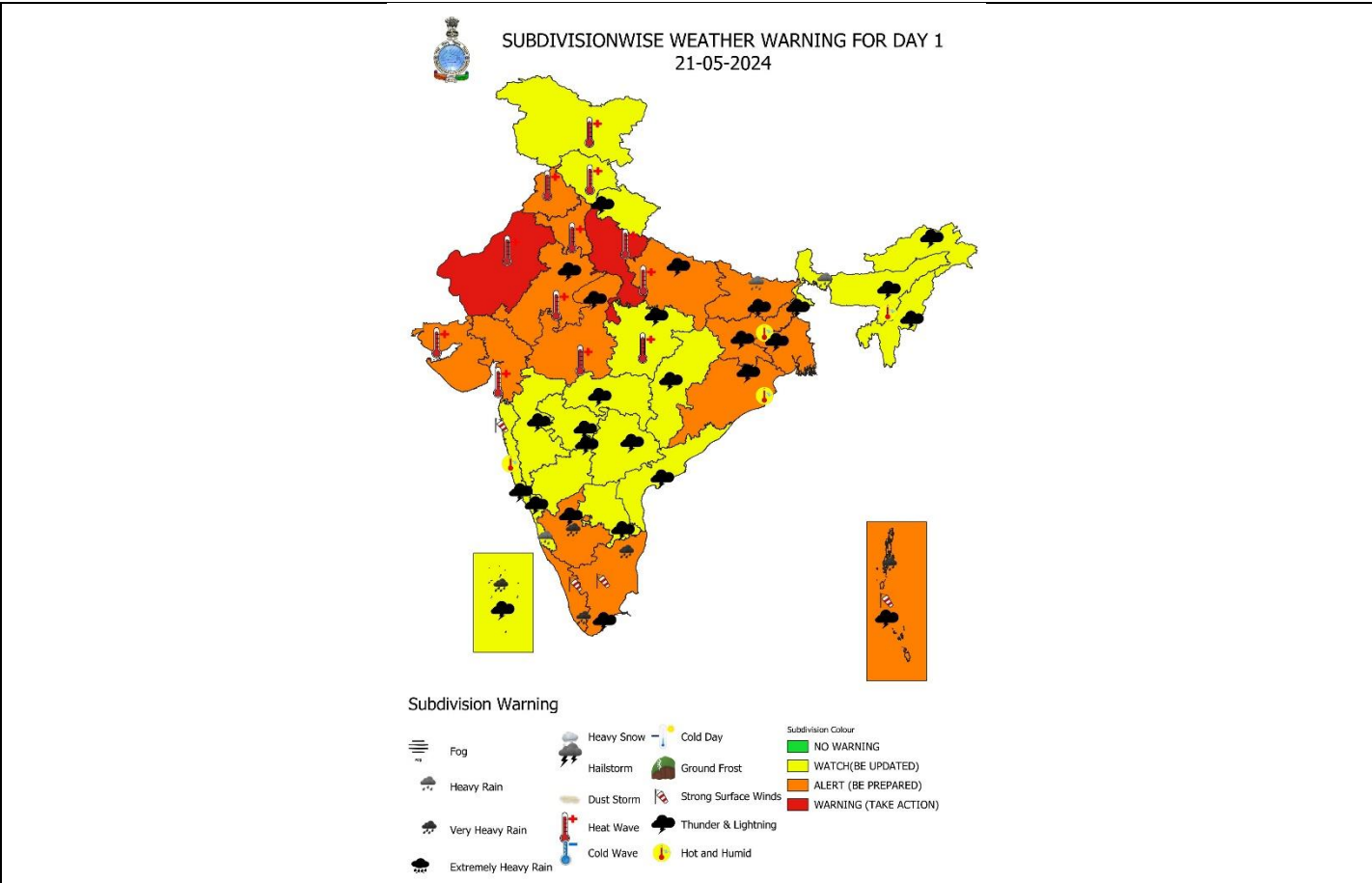
Reported maximum wind speed (kmph) during past 24 hours till 0830 hours IST of today:

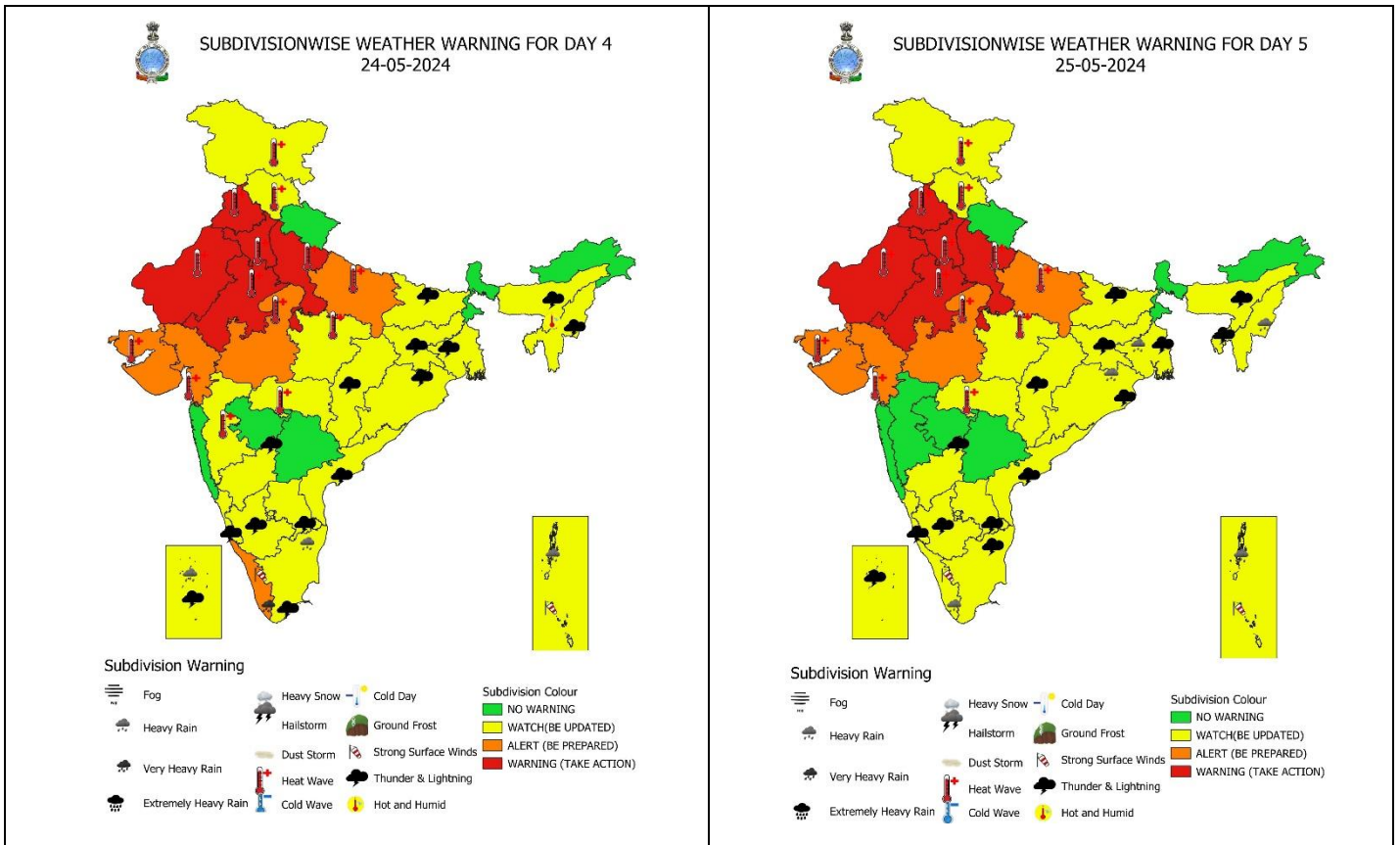
- ❖ **West Madhya Pradesh:** Shivpuri – 59, Ashoknagar – 43, Khandwa – 37, Gwalior – 37, Sehore – 35, Neemuch – 31, Shajapur - 30
- ❖ **East Madhya Pradesh:** Seoni – 67, Sagar – 67, Singrauli – 41, Rewa, Shahdol , Balaghat, Jabalpur - 37 each, Chhatarpur – 35, Chhindwada, Satna - 33 each, Mandla – 31
- ❖ **Chhattisgarh:** Korba, Koriya 63, Janjgir champa 50, Mungeli 54, Surajpur, Balrampur 43
- ❖ **Jharkhand:** Khunti-79, Simdega-57, Bokaro-42
- ❖ **West Rajasthan:** Jaipur-67, Udaipur-55, Sirohi-41
- ❖ **Uttarakhand:** Champawat-65, Chamoli-63, Pauri_Garhwal-57, Rudraprayag-55, Nainital-55, Udham Singh Nagar-50
- ❖ **Gangetic West Bengal:** South Twenty Four Parganas-65
- ❖ **Madhya Maharashtra:** Pune-65, Satara-51
- ❖ **Bihar:** Arwal-65, Aurangabad-59, Sasaram-55, Nalanda-53, Buxar-51, Jamui-48
- ❖ **Odisha:** Mayurbhanj-63, Ganjam-59, Balangir-50, Sonapur-48
- ❖ **Telangana:** Vikarabad-55, NTR-39, Ranga_Reddy-39
- ❖ **East Rajasthan:** Baran-51, Karauli-50, Ajmer-42
- ❖ **East Uttar Pradesh:** Bahraich-50, Chitrakoot-46, Lucknow-44, Ghazipur-39, Chandauli-39, Bhadohi-39
- ❖ **Marathwada:** Aurangabad-50, Jalna-50, Washim-50, Parabhani-46, Beed-44
- ❖ **Tami Nadu:** Thoothukudi-48, Tenkasi-42, Tiruppur-40, Tiruchiappalli-39
- ❖ **Kerala & Mahe:** Wayanad-48, Thiruvananthapuram-42
- ❖ **Haryana:** Mewat-44, Sirsa-44, Southwest Delhi-42, Mahendragarh-38
- ❖ **Saurashtra & Kutch:** Jamnagar-46, Kachchh-42, Porbandar-39
- ❖ **Gujarat State:** Ahmedabad-39
- ❖ **Punjab:** Patiala-39

Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 20.05.2024 to 0830 hrs IST of 21.05.2024



For more details, kindly refer: <http://aws.imd.gov.in:8091/>





IMPACT & ACTION SUGGESTED due to very heavy rainfall/extremely falls over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe during 21st-24th; Andaman Islands on 21st May 2024.

A. Impact Expected

- 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
- 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)

B. 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.

IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Red alert Areas: (Rajasthan, Punjab, Haryana, Chandigarh, Delhi, West Uttar Pradesh)

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

Orange alert Areas (East Uttar Pradesh, Gujarat State, West Madhya Pradesh)

- ✓ 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 Madhya Pradesh, Vidarbha, Odisha, Himachal Pradesh, Jammu division)

- ✓ 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.

Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Bihar, Jharkhand on 21st & 22nd; Gangetic West Bengal and Odisha on 21st May.

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.

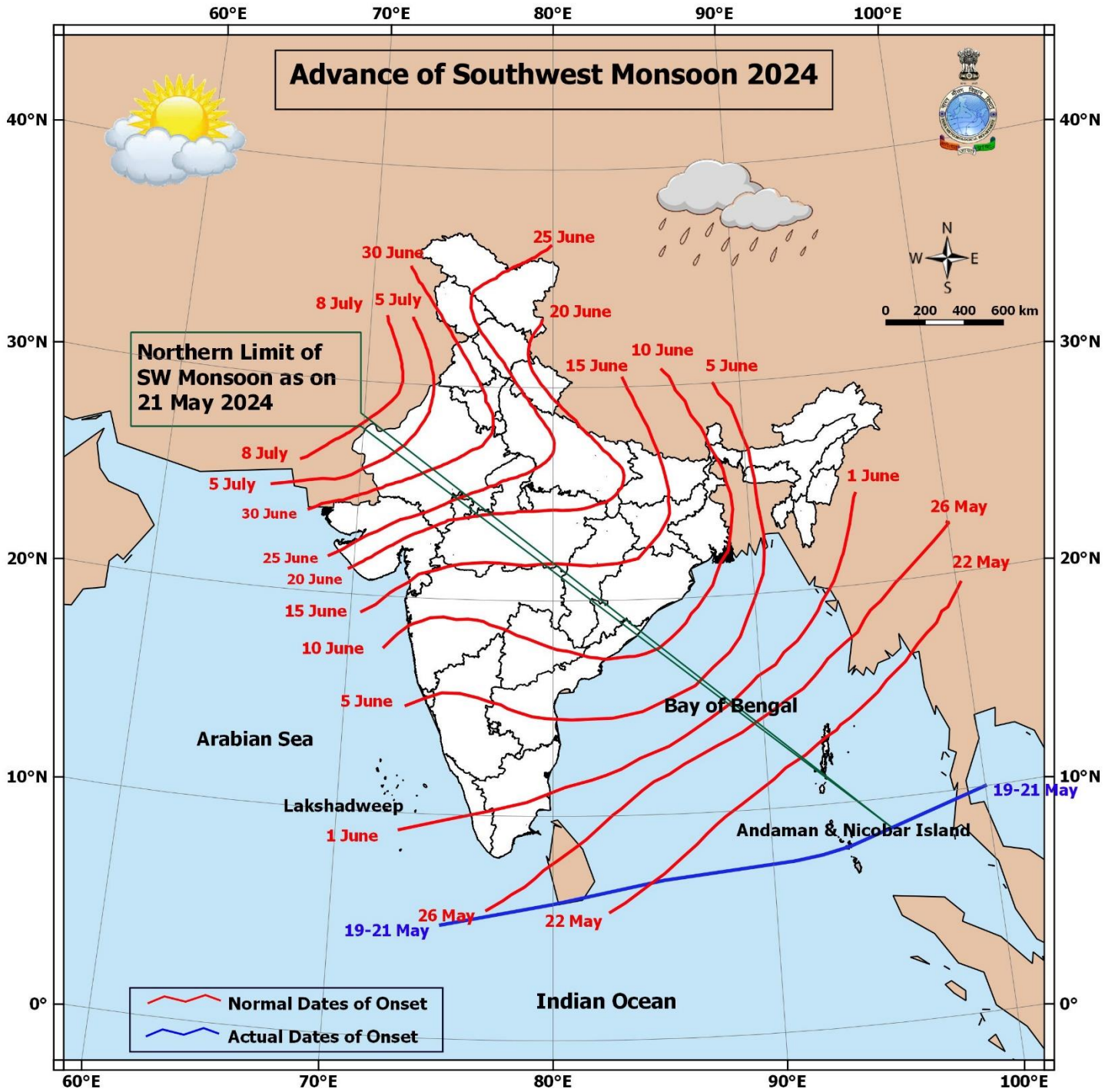
Action suggested:

- ❖ 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.

Agromet advisories for Heavy Rainfall, Gusty winds and Heat Wave likely over various parts of the country

- ✓ Make provision for draining out excess water from crop fields to avoid water stagnation in Tamil Nadu, Kerala, Lakshadweep, Coastal and South Interior Karnataka, Sub Himalayan West Bengal & Sikkim and Andaman & Nicobar Islands.
- ✓ Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Rajasthan, Gujarat, North Madhya Maharashtra and North Madhya Pradesh.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

Advance of Southwest Monsoon 2024



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)

 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)	