



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 19th May, 2024

Time of Issue: 1400 hours IST

Subject:

- i. **Advance of Southwest Monsoon into some parts of Maldives & Comorin area, South Bay of Bengal, Nicobar Islands and South Andaman Sea.**
- ii. **Heat wave to severe heat wave conditions likely to continue over plains of Northwest India and Heat wave conditions over East & Central India during next 5 days.**
- iii. **Isolated extremely heavy rainfall very likely over south Peninsular India till 22nd May, 2024.**
- iv. **A low pressure area is likely to form over Southwest Bay of Bengal around 22nd May. It is likely to move initially northeastwards and concentrate into a Depression over central parts of Bay of Bengal around 24th May.**

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 some parts of Rajasthan, Uttar Pradesh and Gujarat. Heat wave conditions in many parts of Punjab, Haryana-Chandigarh-Delhi; in isolated pockets of Madhya Pradesh. Heat wave conditions have been prevailing over Gujarat region since 15th, Saurashtra & Kutch since 16th, May, 2024.*
- ❖ *Heavy to very heavy rainfall observed at isolated places over Kerala, South Interior Karnataka, Chhattisgarh and Tamil Nadu; Heavy rainfall at isolated places over Coastal Karnataka, Rayalaseema, Coastal Andhra Pradesh & Yanam, Sub-Himalayan West Bengal & Sikkim Assam & Meghalaya.*
- ❖ *Hailstorm observed at isolated places over Vidarbha.*
- ❖ *Thunderstorm observed at many places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, South Interior Karnataka; at some places over Telangana, Rayalaseema, Coastal Andhra Pradesh & Yanam, Coastal Karnataka, North Interior Karnataka, Assam & Meghalaya, Madhya Pradesh; at isolated places over Jammu-Kashmir, Uttarakhand, Nagaland, Manipur, Mizoram & Tripura, Arunachal Pradesh, Konkan & Goa, Marathwada, Vidarbha, Chhattisgarh and Madhya Maharashtra.*
- ❖ *Gusty winds data reported over the country is attached in **Annexure II***
- ❖ *Yesterday, the highest maximum temperature of 46.9°C was reported at Barmer (Rajasthan) & Kanpur IAF (Uttar Pradesh) over the country.*

Weather Systems and Forecast & Warnings: (Annexure III)

- ❖ The strength of Westerly winds in the lower tropospheric levels (upto 3 km) has increased and is about 20 knots. The southwesterly winds prevail up to the height of 4.5 km above mean sea level over the region. With increase in cloudiness, the Outgoing Longwave Radiation (OLR) over the area is <200 watts/meter² There has been widespread rainfall over Nicobar Islands during past 24 hours. Considering all the above satisfied conditions, **Southwest Monsoon has advanced into some parts of Maldives & Comorin area, South Bay of Bengal, Nicobar Islands and South Andaman Sea today, the 19th May, 2024. Annexure IV**
- ❖ The Northern Limit of Monsoon passes through 5°N/75°E, 6°N/80°E, 7°N/85°E, Nancowry and 10°N/100°E.

- ❖ A cyclonic circulation lies over south interior Tamil Nadu & neighbourhood in low and mid tropospheric levels. A trough runs from Madhya Maharashtra to south Tamil Nadu 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, Karnataka and Isolated to scattered light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** over Coastal Andhra Pradesh & Yanam, Telangana and Rayalaseema during next 7 days.
 - *Isolated heavy rainfall very likely over Coastal Karnataka on 19th, 20th & 23rd, South Interior Karnataka on 22nd & 23rd, Coastal Andhra Pradesh, Rayalaseema on 19th and Lakshadweep during 19th-22nd May, 2024.*
 - *Isolated heavy to very heavy rainfall very likely over Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe on 23rd; Coastal Karnataka on 21st & 22nd and South Interior Karnataka during 19th-21st May, 2024.*
 - *Isolated extremely heavy rainfall also very likely over Tamil Nadu and Kerala during 19th-22nd May, 2024.*
 - Fairly widespread to widespread light to moderate rainfall very likely over Andaman & Nicobar Islands during next 7 days. *Isolated heavy rainfall very likely over Nicobar Islands during 20th-23rd May.*
 - Isolated light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Konkan & Goa, Madhya Maharashtra, Marathwada during 19th-22nd; Vidarbha and Chhattisgarh during 19th-23rd; West Madhya Pradesh on 19th and East Madhya Pradesh on 19th & 20th May.
 - Isolated to scattered light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Odisha and Bihar during 19th-23rd; over Gangetic West Bengal and Jharkhand during 19th-22nd May.
- ❖ A cyclonic circulation lies over northeast Assam & neighbourhood in lower tropospheric levels. Under its influence:
 - Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (40-50 kmph)** very likely over Sub-Himalayan West Bengal & Sikkim during next 5 days.
 - Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur, Mizoram and Tripura during next 5 days.
 - *Isolated heavy rainfall likely over Sikkim during 19th-21st; Arunachal Pradesh on 19th May, 2024. Isolated very heavy rainfall also likely over Assam & Meghalaya on 19th & 20th May.*
- ❖ A Western Disturbance as a cyclonic circulation lies over Afghanistan & north Pakistan in lower tropospheric level with a trough aloft in middle tropospheric westerlies roughly along long. 64°E to the north of lat. 28°N. Under its influence; Isolated to scattered light rainfall with **thunderstorm, lightning** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh during 19th-21st May and Uttarakhand during next 7 days.
- ❖ **Strong surface winds (25-35 kmph)** very likely to prevail Uttar Pradesh, Haryana, Delhi and Rajasthan during next 5 days.

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 43-46°C in most places over Rajasthan, Punjab, Haryana-Chandigarh-Delhi and Uttar Pradesh;

in many places over Gujarat state; in some places over Madhya Pradesh; in the range of 40- 42°C in some parts over Bihar; at isolated pockets over Jharkhand, Vidarbha and north Madhya Maharashtra. These were above normal by 2-4°C over these regions.

- ❖ Gradual rise by about 2-3°C in maximum temperatures very likely over many parts of Central India during next 4 days.
- ❖ Gradual rise by about 2-3°C in maximum temperatures very likely over many parts of Maharashtra during next 3 days and no significant change thereafter.
- ❖ No significant change in maximum temperatures very likely over many parts of Northwest India during next 2 days and gradual rise by about 2°C thereafter.
- ❖ 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 to severe heat wave conditions very likely in many pockets over Punjab, Haryana-Chandigarh-Delhi during 19th-23rd; West Rajasthan during 21st-23rd; East Rajasthan on 22nd & 23rd; in some parts of West Uttar Pradesh during 19th-21st and East Uttar Pradesh on 19th & 20th May, 2024.**
- ❖ **Heat wave conditions** very likely in many parts of West Rajasthan on 19th & 20th; in some parts of East Rajasthan during 19th-21st; in isolated pockets of East Uttar Pradesh during 21st-23rd; West Uttar Pradesh on 22nd & 23rd; Himachal Pradesh, Gujarat and north Madhya Pradesh during 19th-23rd; Uttarakhand during 19th-22nd; Bihar, Gangetic West Bengal during 19th-20th; Jharkhand on 20th & 21st; Odisha during 21st-23rd May, 2024.
- ❖ **Hot and humid weather** very likely to prevail over Konkan & Goa during 19th-21st and Sub-Himalayan West Bengal and Odisha on 19th & 20th May.
- ❖ **Warm night conditions** very likely to prevail over East Rajasthan during 19th-23rd and Bihar on 19th May, 2024.

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

ANNEXURE I

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

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

Significant amount of rainfall (in cm):

- ❖ **Kerala & Mahe:** Laha Aws (dist Pathanamthitta) 19, Kollam Rly (dist Kollam) 19, Airport Chakka Arg(dist Thiruvananthapuram) 16, Trivandrum Aero (dist Thiruvananthapuram) 13, Thiruvalla (distPathanamthitta) 13, Thiruvananthapuram (dist Thiruvananthapuram) 12, Aralam Aws (distCannur) 11, Konni Arg (dist Pathanamthitta) 10, Konni (dist Pathanamthitta) 9, Poonjar Aws(dist Kottayam) 9, Neyyattinkara (dist Thiruvananthapuram) 9, Ranni Aws (dist Pathanamthitta)8, Peermade To (dist Idukki) 8, Ams Kannur (dist Cannur) 8, Keerampara Arg (dist Ernakulam)8, Thodupuzha Arg (dist Idukki) 8, Perumkadavila Arg (dist Thiruvananthapuram) 8, Quilandi(dist Kozhikode) 7, Varkala (dist Thiruvananthapuram) 7, Anakayam Arg (dist Malappuram) 7, Mattannur Arg (dist Cannur) 7, Paripalli Aws (dist Kollam) 7, Ottapalam (dist Palakkad) 7, Kochi C.i.a.l. (dist Ernakulam) 7, Myladumpara_agri (dist Idukki) 6, Vakkad Aws (dist Malappuram) 6, Vaikom (dist Kottayam) 6, Thodupuzha (dist Idukki) 6, Neryamangalam Arg (dist Ernakulam) 6, Thattathumala Aws (dist Thiruvananthapuram) 6, Athirappalli Aws (distThrissur) 6, Udumbannoor Aws (dist Idukki) 6, Kanjirappally (dist Kottayam) 6;
- ❖ **Tamil Nadu:** Jamunamarathur (dist Tiruvannamalai) 12, Pechiparai (dist Kanniyakumari) 10, Vadapudupattu (dist Tirupathur), Ambur (dist Tirupathur) 9, Kozhiporvilai (dist Kanniyakumari) 8,Thirparappu (dist Kanniyakumari), Pambar Dam (dist Krishnagiri), Natrampalli (distTirupathur), Chittar-I (dist Kanniyakumari) 7 each, Thuckalay (dist Kanniyakumari), Mullanginavillai (dist Kanniyakumari), Kalial (dist Kanniyakumari), Sivalogam (Chittar II) (dist Kanniyakumari), Yelagiri_hill ARG (dist Tirupattur), Ketti (dist The Nilgiris), Valparai PAP (dist Coimbatore) 6 each, Kuzhithurai (dist Kanniyakumari), Valparai Taluk Office (dist Coimbatore) , Balamore (dist Kanniyakumari), Vaniyambadi (dist Tirupathur), Mambzhathuraiyaru (dist Kanniyakumari) ,TNAU Coimbatore (dist Coimbatore), Kodumudiyaru Dam (dist Tirunelveli) , Colachel (dist Kanniyakumari) , Anaikedanku (dist Kanniyakumari) 5 each;
- ❖ **South Interior Karnataka:** Hosadurga (dist Chitradurga) 12, Channagiri (dist Davangere) 12, Hesaraghatta (dist Bengaluru Urban) 9, Kadur (dist Chikkamagaluru) 7, Yagati (dist Chikkamagaluru) 7, Napoklu (dist Kodagu) 7, Chikballapura (dist Chikaballapura) 7, C R Patna (dist Hassan) 6;
- ❖ **Andaman & Nicobar Islands:** IAF Carnicobar (dist Nicobar) 11, Carnicobar (dist Nicobar) 10;
- ❖ **Coastal Karnataka:** Belthangadi (dist Dakshina Kannada) 9, Yellapur (dist Uttara Kannada) 9, Banavasi(dist Uttara Kannada) 6, Kiravatti (dist Uttara Kannada) 6, Udupi (dist Udupi) 6, Siddapur (distUttara Kannada) 5, Dharmasthala (dist Dakshina Kannada) 5, Manki (dist Uttara Kannada) 5;
- ❖ **Coastal Andhra Pradesh & Yanam:** Parvathipuram (dist Parvathipuram Manyam) 8, Seethanagaram (dist Parvathipuram Manyam) 6, Veeraghattam (dist Parvathipuram Manyam) 5, Seetharamapuram (dist Spsr Nellore) 4, Paderu (dist Alluri Sitharamaraju) 4;
- ❖ **Rayalaseema:** Gooty (dist Anantapuramu) 8, Chinnamandem (dist Annamayya District) 7, Ramagiri (dist Sri Sathyasai) 6, Palamaner (dist Chittoor) 5, Rayadurg (dist Anantapuramu) 4, Amarapuram (dist Sri Sathyasai) 4, Settur (dist Anantapuramu) 4;
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Gangtok (dist East Sikkim) 8, Nagarkata & Chengmari (dist Jalpaiguri) 7, Tadong (dist East Sikkim) 7, Buxaduar (dist Jalpaiguri) 6;
- ❖ **Assam & Meghalaya:** Cacher Kvk Aws (dist Cachar) 7, Majuli (dist Jorhat) 4, Mirza Circle Office Arg (dist Kamrup (rural)) 4, Umiam_arg (dist Ri Bhoi) 4, Barapani (dist Ri Bhoi) 4;
- ❖ **Tripura:** Dharmanagar/ Panisagar (dist North Tripura) 6, Kailashahar Aero (dist Unakoti) 5;
- ❖ **North Interior Karnataka:** Hubballi (dist Dharwad) 6, Devarhippargi (dist Vijayapura) 5, Ron (dist Gadag) 5, Shiggaon (dist Haveri) 5;
- ❖ **Lakshadweep:** Minicoy (dist Lakshadweep) 6;
- ❖ **Telangana:** Jadcherla (dist Mahabubnagar) 5;

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

Madhya Pradesh: Shivpuri 73, Sagar 63, Badwani 43, Sehore - 39 kmph, Indore 37, Chhatarpur 37, Rewa 36, Chitrakoot 36, Ashoknagar 36

Rajasthan: Bikaner 61, Fatehpur_AMFU 56, Barmer 41, Bhilwara 39;

Bihar: IIT Patna 44, Rajgir & Bhojpur 41, Nawada & East Champaran 39;

Gujarat: Arnej_AMFU 61, Maktampur_AMFU52, Bhavnagar 37;

Haryana: Kaul_AMFU 43, Panchkula 41, Pandu_Pindara 41, Mahendragarh 39;

Jammu & Kashmir: Nyoma_KVK 54, Chuchot_Yokma 50, Khaltse 46, Padum_KVK 44;

Uttarakhand: Champawat 43;

Maharashtra: DPS_Hadapsar_Pune 52, Lonikalbhor_Haveli 48, Aurangabad & Talegaon 43;

Himachal Pradesh: Mashobra 52, Nauni_AMFU 50, Tabo 46, Kufri 44, Reckon 41, Bilaspur 39;

Karnataka: Bagalkot 43;

Assam & Meghalaya: Tura_KVK 61, Hailakandi 50, Ampati & Karimganj 46;

Tamil Nadu: Thiruchendur 41;

Odisha: Sonapur 48, Janhukuda 39;

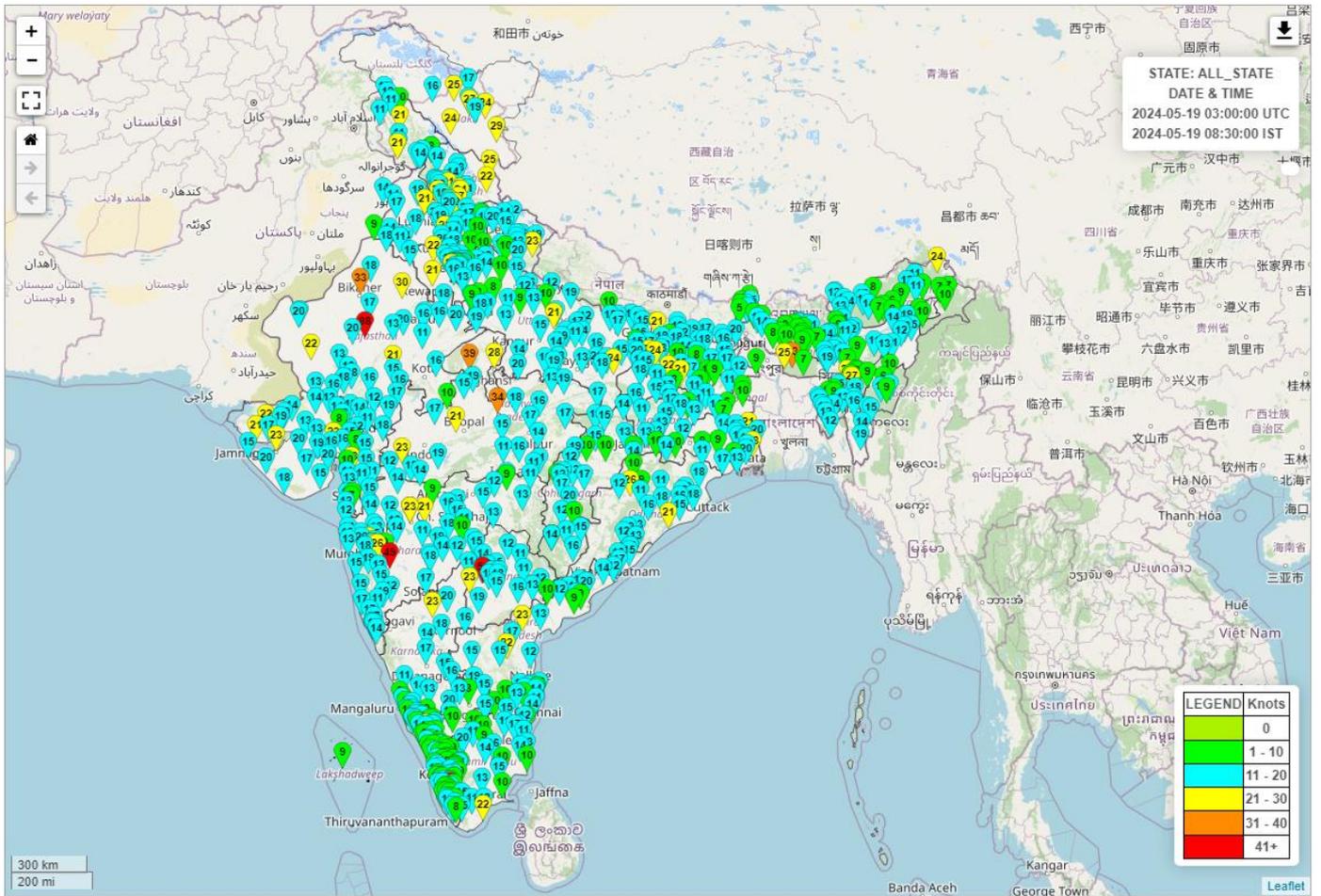
Gangetic West Bengal: Canning 52, Kalyani 39;

Uttar Pradesh: Chandauli 44, Lucknow 39;

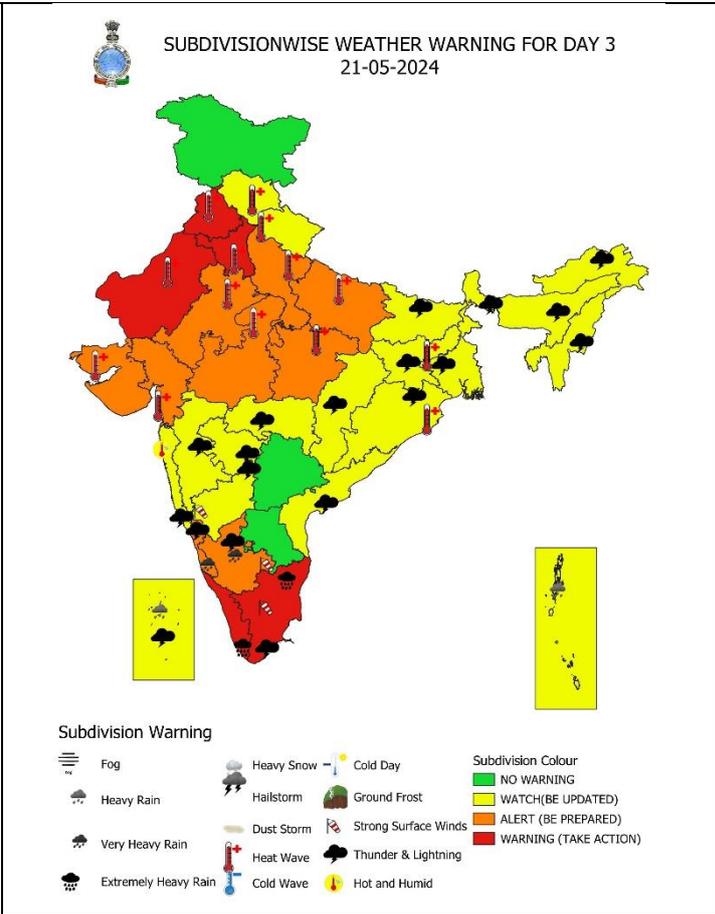
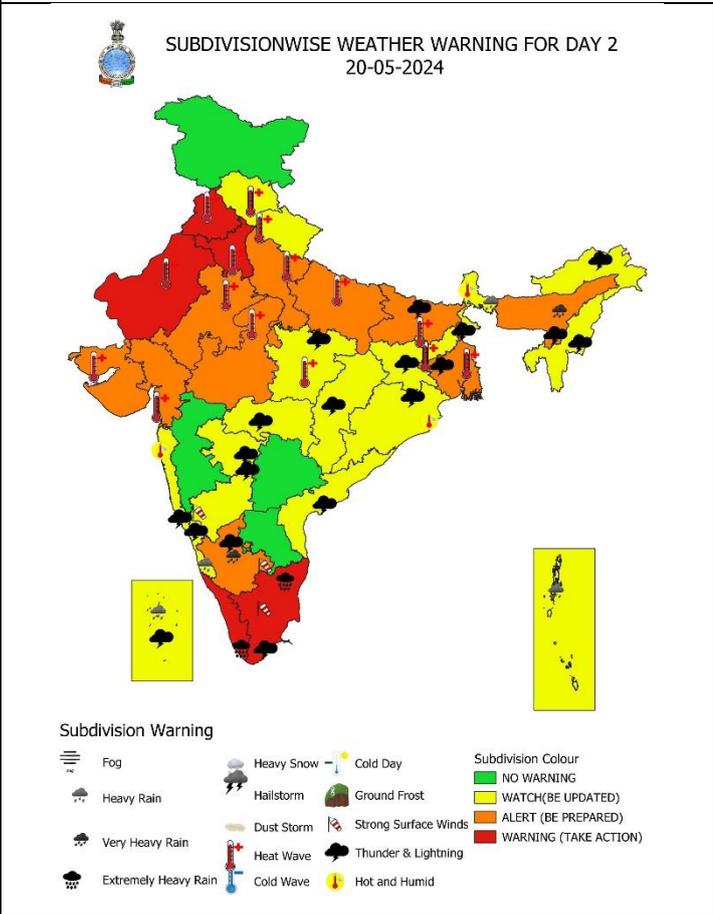
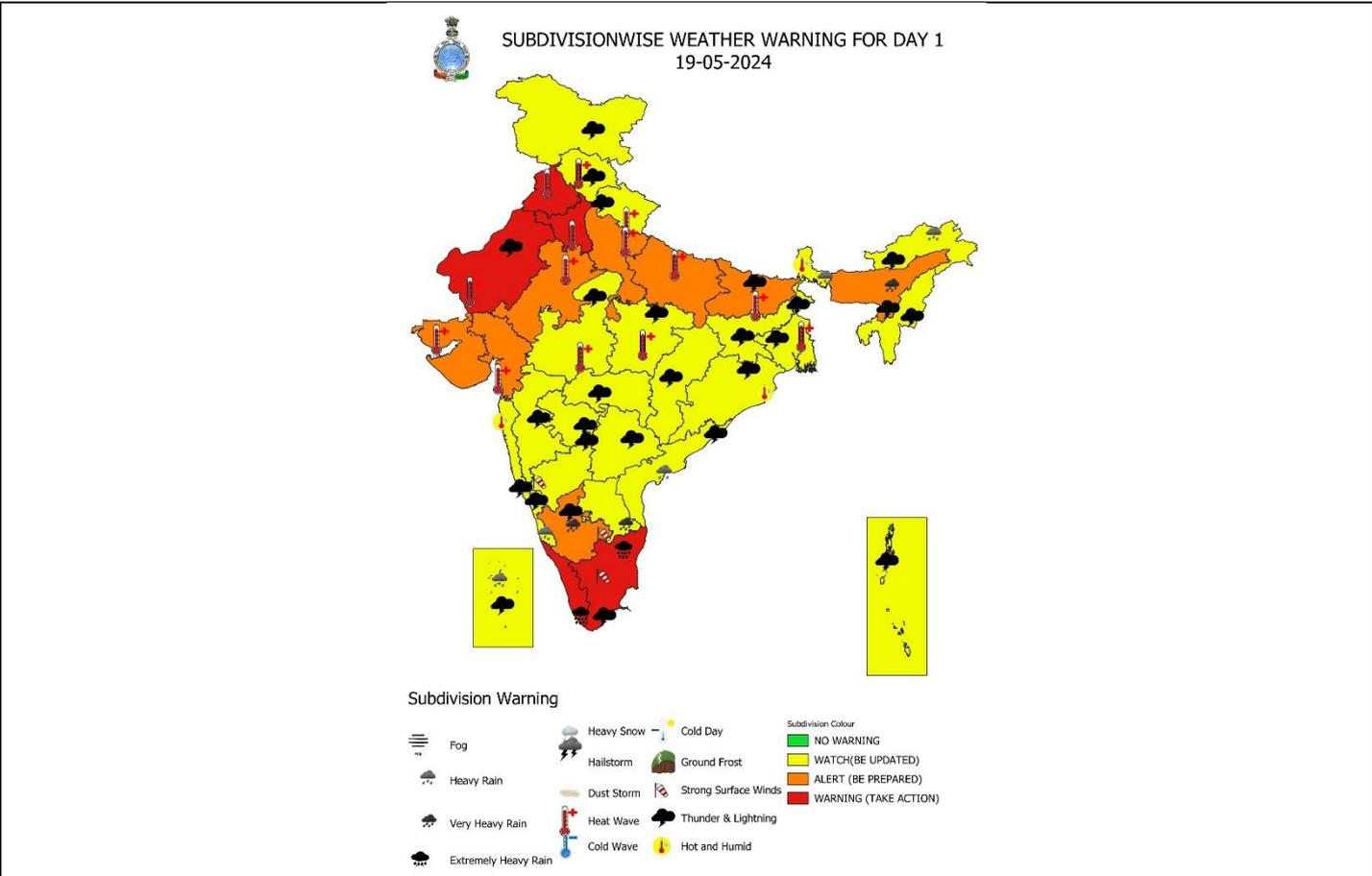
Telangana: Tandur 43;

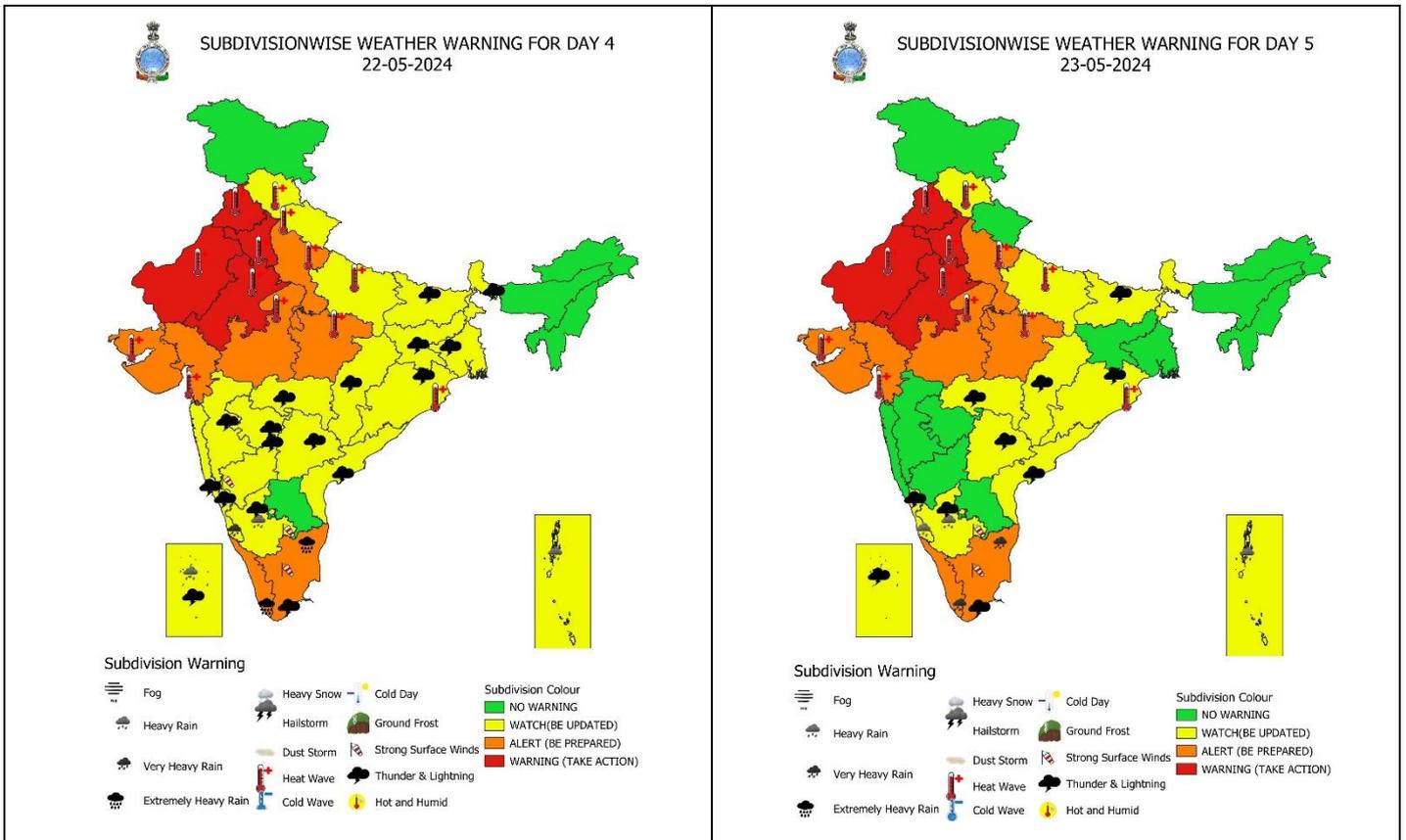
Kerala: Kannur 41, Wayanad 41;

Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 17.05.2024 to 0830 hrs IST of 18.05.2024



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, Kerala & Mahe during 19th-23rd; Coastal Karnataka on 21st & 22nd; South Interior Karnataka during 19th-21st; Meghalaya on 19th & 20th 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)

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

Orange alert Areas (Uttar Pradesh, Bihar, Gujarat State)

- ✓ 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.

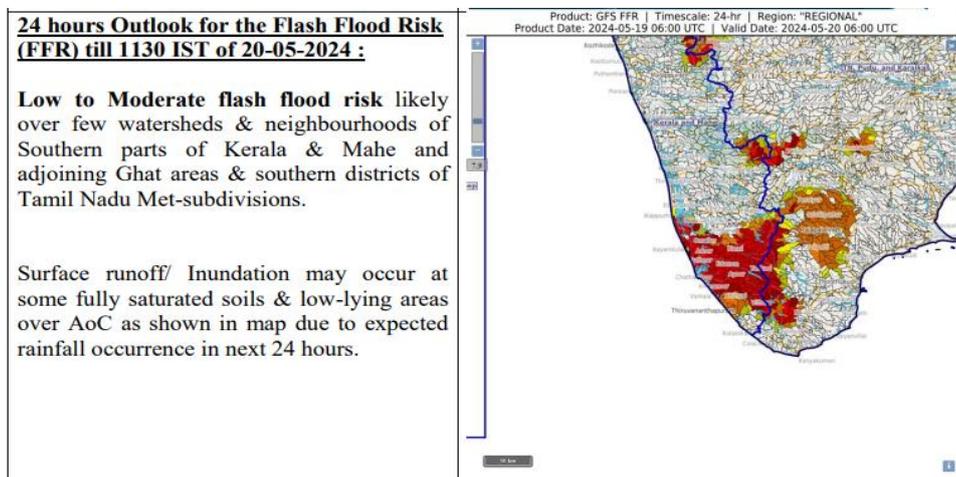
Yellow alert Areas (Madhya Pradesh, Jharkhand, Gangetic West Bengal, Odisha, Uttarakhand, Himachal Pradesh)

- ✓ 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.

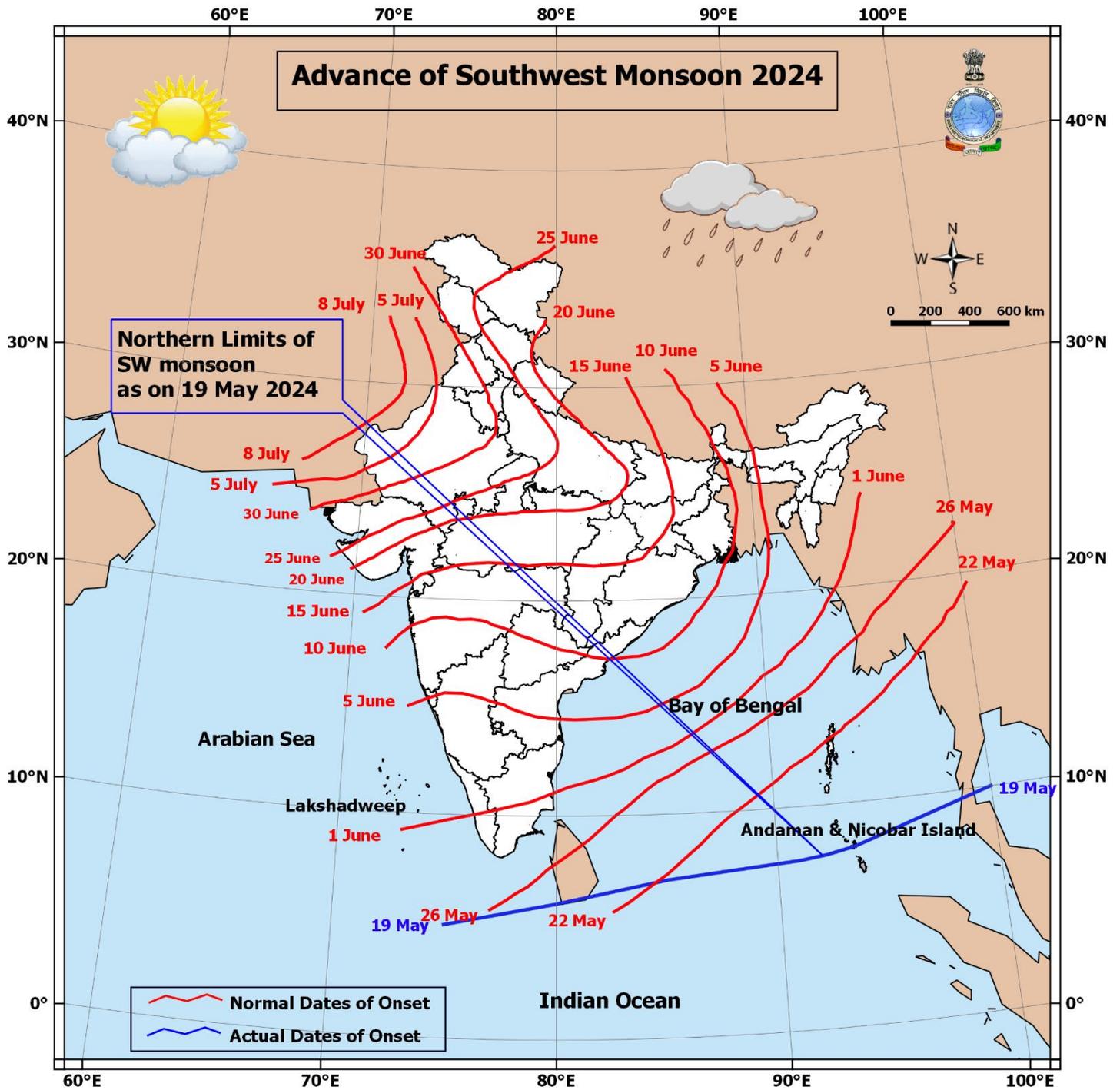
Agromet advisories for Heavy Rainfall, Gusty winds and Heat Wave likely over various parts of the country:

- Make provision for draining out excess water from crop fields to avoid water stagnation in Tamil Nadu, Kerala, Lakshadweep, Coastal Karnataka, South Interior Karnataka, Andhra Pradesh, Arunachal Pradesh, Assam & Meghalaya, 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 Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, Rajasthan, Gangetic West Bengal, Jharkhand, Bihar, Gujarat and North Madhya Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

Flash Flood Guidance



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)



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)	