

Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release  
Date: 02<sup>nd</sup> July, 2024  
Time of Issue: 1320 hours IST

**Subject: (i) Active monsoon condition very likely over Northwest, East & Northeast India during next 4-5 days.**  
**(ii) Southwest Monsoon covered the entire country.**

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

- ❖ **Heavy to very heavy rainfall with extremely heavy falls occurred** at isolated places over Gujarat State, Bihar, Assam & Meghalaya; **Heavy to very heavy rainfall** at isolated places over East Madhya Pradesh, Madhya Maharashtra, Nagaland, Manipur, Mizoram & Tripura, Uttar Pradesh; Heavy rainfall at isolated places over Uttarakhand, Himachal Pradesh, West Madhya Pradesh, Konkan & Goa, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Karnataka, South Interior Karnataka, Arunachal Pradesh and Jharkhand.
- ❖ **Gusty winds/squally winds** data reported over the country is attached in **Annexure II**.

**Advance of Southwest Monsoon: (Annexure III)**

- ❖ The Southwest Monsoon has further advanced into remaining parts of Rajasthan, Haryana and Punjab today, the 2<sup>nd</sup> July 2024. Thus, it has covered the entire country on 2<sup>nd</sup> July 2024, against the normal date of 08<sup>th</sup> July (6 days before the normal date of covering the entire India).
- ❖ The Monsoon trough at mean sea level passes through Firozpur, Rohtak, Hardoi, Ballia, Balurghat, Kailashahar and thence eastwards to Manipur.

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

- ❖ A cyclonic circulation lies over southeast Pakistan and monsoon trough is north of its normal position at mean sea level. Under their influence;
  - Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm, lightning very likely over Northwest and Central India during next 5 days.
  - Isolated **heavy rainfall** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad 04<sup>th</sup> – 06<sup>th</sup>, Himachal Pradesh, Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, East Rajasthan during 02<sup>nd</sup>-06<sup>th</sup>; West Rajasthan on 03<sup>rd</sup>; Madhya Pradesh during 02<sup>nd</sup> – 04<sup>th</sup> July and Chhattisgarh on 02<sup>nd</sup> & 03<sup>rd</sup> July.
  - **Isolated very heavy rainfall likely over Uttarakhand during 02<sup>nd</sup> – 06<sup>th</sup>, Punjab on 03<sup>rd</sup>, Haryana on 02<sup>nd</sup> & 03<sup>rd</sup> July; West Uttar Pradesh on 02<sup>nd</sup> & 06<sup>th</sup>; East Uttar Pradesh on 05<sup>th</sup> & 06<sup>th</sup> July.**
- ❖ A cyclonic circulation lies over north Bangladesh, another over Assam and a trough runs from northeast Madhya Pradesh to the cyclonic circulation over Assam, in lower tropospheric levels. Under their influence;
  - Widespread light to moderate rainfall accompanied with thunderstorm, lightning **with heavy to very heavy rainfall** very likely over Northeast India, Sub-Himalayan West Bengal & Sikkim and scattered to fairly widespread rainfall over East India during next 5 days.

- Isolated **heavy rainfall** very likely over Bihar, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura during 02<sup>nd</sup> - 06<sup>th</sup>; Andaman & Nicobar Islands on 04<sup>th</sup> & 05<sup>th</sup>; Gangetic West Bengal on 03<sup>rd</sup> & 04<sup>th</sup>, Jharkhand during 02<sup>nd</sup> - 04<sup>th</sup>; Odisha on 06<sup>th</sup> July.
  - **Isolated very heavy rainfall likely over Bihar on 02<sup>nd</sup> & 03<sup>rd</sup>; Arunachal Pradesh & Assam & Meghalaya during 02<sup>nd</sup> - 04<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura during 02<sup>nd</sup> - 05<sup>th</sup> July.**
  - **Isolated extremely heavy rainfall very likely over Arunachal Pradesh & Assam & Meghalaya on 05<sup>th</sup> & 06<sup>th</sup> July.**
- ❖ A cyclonic circulation lies over north Gujarat & neighbourhood in middle tropospheric levels tilting southwards with height. The off-shore trough at mean sea level along Maharashtra- Kerala coasts. Under their influence:
- Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Kerala & Mahe, Lakshadweep, Coastal Karnataka, Konkan & Goa, Gujarat State; scattered to fairly widespread light to moderate rainfall over Madhya Maharashtra, Coastal Andhra Pradesh & Yanam and Interior Karnataka; isolated to scattered light to moderate rainfall over Marathwada, Tamil Nadu, Puducherry & Karaikal, Rayalaseema, Telangana during next 5 days.
  - Isolated **heavy rainfall** very likely over Konkan & Goa, Madhya Maharashtra, Kerala & Mahe, Coastal & South Interior Karnataka during 02<sup>nd</sup> - 06<sup>th</sup>; Saurashtra & Kutch on 02<sup>nd</sup> & 03<sup>rd</sup>; Gujarat Region during 02<sup>nd</sup> - 05<sup>th</sup>, Tamil Nadu, Puducherry & Karaikal on 02<sup>nd</sup> July.
  - **Isolated very heavy rainfall very likely over Konkan & Goa, Madhya Maharashtra on 02<sup>nd</sup> & 06<sup>th</sup>; Saurashtra & Kutch on 02<sup>nd</sup>; Gujarat Region on 03<sup>rd</sup>; Coastal Karnataka on 05<sup>th</sup> & 06<sup>th</sup> July.**
  - **Isolated extremely heavy rainfall very likely over Gujarat Region today.**

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

- ❖ No significant change in maximum temperatures very likely over most parts of the country during next 5 days.

**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)**

**Significant Rainfall during past 24 hours till 0830 hours IST of today (in cm):**

- ❖ **Saurashtra & Kutch:** Vanthali (dist Junagadh) 36, Visavadar (dist Junagadh) 34, Junagadh (dist Junagadh) 30, Khambhalia (dist Devbhoomi Dwarka) 23, Manavadar (dist Junagadh) 22, Kalyanpur (dist Devbhoomi Dwarka) 20, Keshod (dist Junagadh) 19, Mendarda (dist Junagadh) 18, Dhoraji (dist Rajkot) 18, Bhesan (dist Junagadh) 17, Malia (dist Junagadh) 16, Okha (dist Devbhoomi Dwarka) 16, Mahuva(b) (dist Bhavnagar) 15, Rajula (dist Amreli) 14, Morbi (dist Morbi) 14, Talala (dist Gir Somnath) 14, Gir Gadhada (dist Gir Somnath) 13, Una (dist Gir Somnath) 12, Kutiana (dist Porbandar) 12, Bagasra (dist Amreli) 12, Dwarka (dist Devbhoomi Dwarka) 12, Mangrol(j) (dist Junagadh) 12, Kodinar (dist Gir Somnath) 12, Khambha (dist Amreli) 11, Jamjodhpur (dist Jamnagar) 11;
- ❖ **Assam & Meghalaya:** Mawkyrwat (dist South West Khasi Hills) 26, Shella (dist East Khasi Hills) 25, Mawsynram (dist East Khasi Hills) 21, Khliehriat (dist East Jaintia Hills) 18, Goalpara\_cwc (dist Goalpara) 16, Karimganj (dist Karimganj) 16, Cherrapunji(rkm) (dist East Khasi Hills) 15, Gossaigaon (dist Kokrajhar) 14, Mawkyrwat\_arg (dist South West Khasi Hills) 14, Goalpara\_aws (dist Goalpara) 14, Cherrapunji (dist East Khasi Hills) 14, Kokrajhar (dist Kokrajhar) 13, Tikrikilla (dist West Garo Hills) 12;
- ❖ **Gujarat Region:** Bardoli (dist Surat) 24, Navsari (dist Navsari) 21, Jalalpor (dist Navsari) 20, Palsana (dist Surat) 19, Mahuva (dist Surat) 18, Daman Fmo (dist Daman) 12, Valod (dist Tapi) 12, Silvassa (dist Dadara & Nagar Haveli) 11, Olpad (dist Surat) 10, Surat City (dist Surat) 10;
- ❖ **Bihar:** Barharia (dist Siwan) 22, Siwan Sadar (dist Siwan) 20, Lakri Nabiganj (dist Siwan) 20, Goriakothi (dist Siwan) 19, Baitunthpur (dist Gopalganj) 15, Bathnaha (dist Sitamarhi) 15, Barauli (dist Gopalganj) 13, Siswan (dist Siwan) 13, Katihar (dist Katihar) 13, Katoria (dist Banka) 12, Rosera (dist Samastipur) 11;
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Sabroom (dist South Tripura) 18, Gandachara Aws (dist Dhalai) 12, Chhamonu (dist Dhalai) 11, Belonia (dist South Tripura) 11;
- ❖ **East Uttar Pradesh:** Mahsi (dist Bahraich) 15, Chanderdeepghat (dist Gorakhpur) 14, Bahraich (dist Bahraich) 14, Kaiserganj (dist Bahraich) 11, Palliakalan (dist Kheri) 11, Sidhauri (dist Sitapur) 8;
- ❖ **East Madhya Pradesh:** Hanumana (dist Rewa) 14, Mandla (dist Mandla) 10, Narayanganj (dist Mandla) 8, Sihawal (dist Sidhi) 7, Matiyari (dist Mandla) 7, Amarpur (dist Dindori) 7;
- ❖ **Madhya Maharashtra:** Lonavala\_agri (dist Pune) 14, Igatpuri (dist Nashik) 12, Mahabaleshwar- Imd Obsy (dist Satara) 10, Shahuwadi (dist Kolhapur) 8, Velhe (dist Pune) 7;
- ❖ **Konkan & Goa:** Vasai (dist Palghar) 11, Jawhar (dist Palghar) 8, Matheran (dist Raigad) 7, Vikramgad (dist Palghar) 7, Wada (dist Palghar) 7;
- ❖ **West Madhya Pradesh:** Kalapipal (dist Shajapur) 10;
- ❖ **West Uttar Pradesh:** Aonla (dist Bareilly) 12, Sahabad (dist Rampur) 10, Pawayan (dist Shahjahanpur) 10, Thakurdwara (dist Moradabad) 8, Bisalpur (dist Pilibhit) 7, Nawabganj (dist Bareilly) 7;
- ❖ **Arunachal Pradesh:** Bomdila\_Aws (dist West Kameng) 10, Naharlagun (dist Papumpara) 5;
- ❖ **Kerala:** Ayyankunnu Aws (dist Cannur) 8, Hosdurg (dist Kasargod) 7, Vyttiri (dist Wynad) 6, Vadakara (dist Kozhikode) 6, Vellarikkundu Aws (dist Kasargod) 6, Padinjarathara Dam Aws (dist Wynad) 6;
- ❖ **Uttarakhand:** Sama 9, Khatima 8, Dharchula 6, Ukhimath 5, Haripur 3, Kapkot 3, Didihat 3, Munsiyari 3, Banbasa 3, Berinag 2, Joshimath 2
- ❖ **Himachal Pradesh:** R L Bbmb (dist Bilaspur) 8, Kangra Aero (dist Kangra) 8;
- ❖ **Odisha:** Daringibadi (Kandhamal) 6, Kantapada (Cuttack) 5, Balikuda (Jagatsinghpur) 5;
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Katra (dist Reasi) 5, Samba Aws (dist Samba) 5, Udampur(iaf) (dist Udampur) 4;
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Went Worth Estate (dist The Nilgiris) 7, Taluk Office Pandalur (dist The Nilgiris), Wood Braiyar Estate (dist The Nilgiris), Avalanche (dist The Nilgiris), Harisan Malayalam Ltd. (dist The Nilgiris) 4;
- ❖ **Kerala:** Ayyankunnu Aws (dist Cannur) 8, Hosdurg (dist Kasargod) 7, Vyttiri (dist Wynad) 6, Vadakara (dist Kozhikode) 6, Vellarikkundu Aws (dist Kasargod) 6, Padinjarathara Dam Aws (dist Wynad) 6, Kudulu (dist Kasargod) 4, Mahe (dist Mahe) 4;

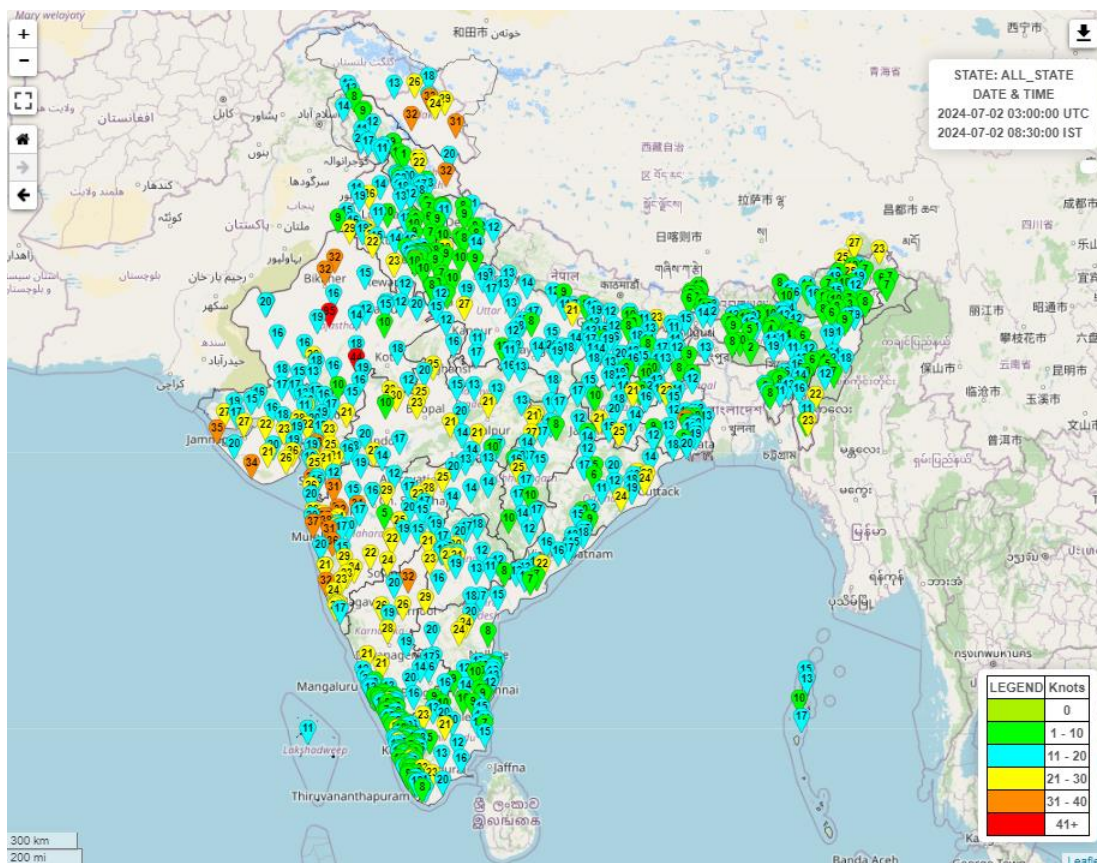
- ❖ **Coastal Karnataka:** Siddapur (dist Uttara Kannada) 9, Kota (dist Udupi) 8, Dharmasthala (dist Dakshina Kannada) 7, Udupi (dist Udupi) 7;
- ❖ **South Interior Karnataka:** Kottigehara (dist Chikkamagaluru) 9, Agumbe Emo (dist Shivamogga) 8, Linganamakki Hms (dist Shivamogga) 7;
- ❖ **Jharkhand:** Bano Simdega Kvk Aws (Dist.Simdega) 8, Kolebira (Dist.Simdega) 6

## ANNEXURE II

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

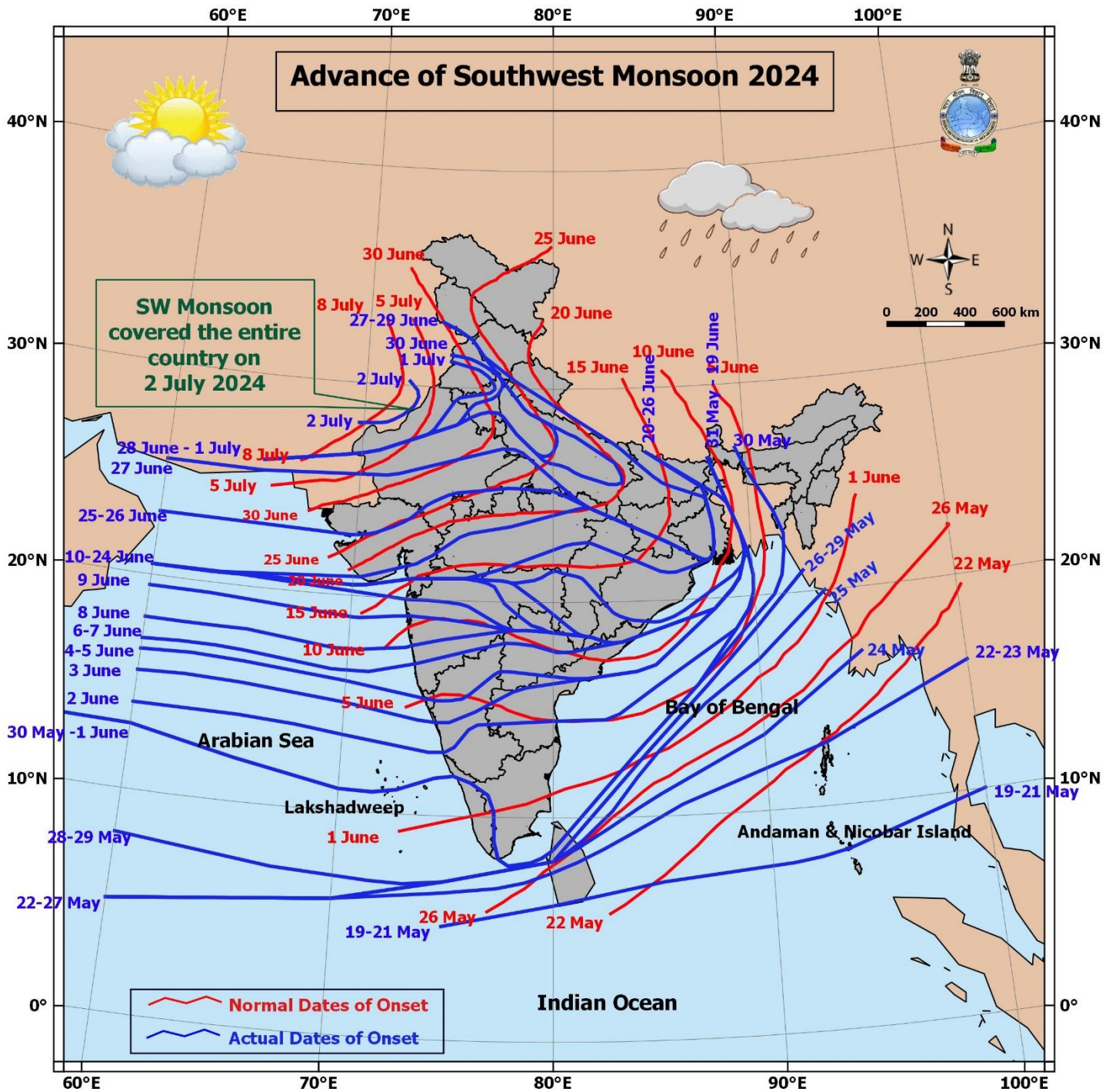
- ❖ **Rajasthan:** Chittaurgarh 81, Bikaner 59;
- ❖ **Maharashtra:** Pune 70, Raigad 68, Satara 67, Singhdurg 59;
- ❖ **Gujarat State:** Dwarka 65, Gir Somnath 63, Bharuch 61, Daman 59;
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Leh 61, Kargil 59;
- ❖ **Himachal Pradesh:** Kinnaur 59, Kullu 41;
- ❖ **Karnataka:** Yadgir 59, Davangere 52;
- ❖ **West Bengal:** Howrah 57;
- ❖ **Madhya Pradesh:** Shajapur 55, Sehore, Ashoknagar 46;
- ❖ **Uttar Pradesh:** Amroha 52, Etawah 50;
- ❖ **Chhattisgarh:** Mungeli 50, Balod 46, Pendra\_Road 42;
- ❖ **Kerala:** Ernakulam 48, Wayanad 46;
- ❖ **Punjab:** Moga 48;
- ❖ **Jharkhand:** Kiriburu 46;

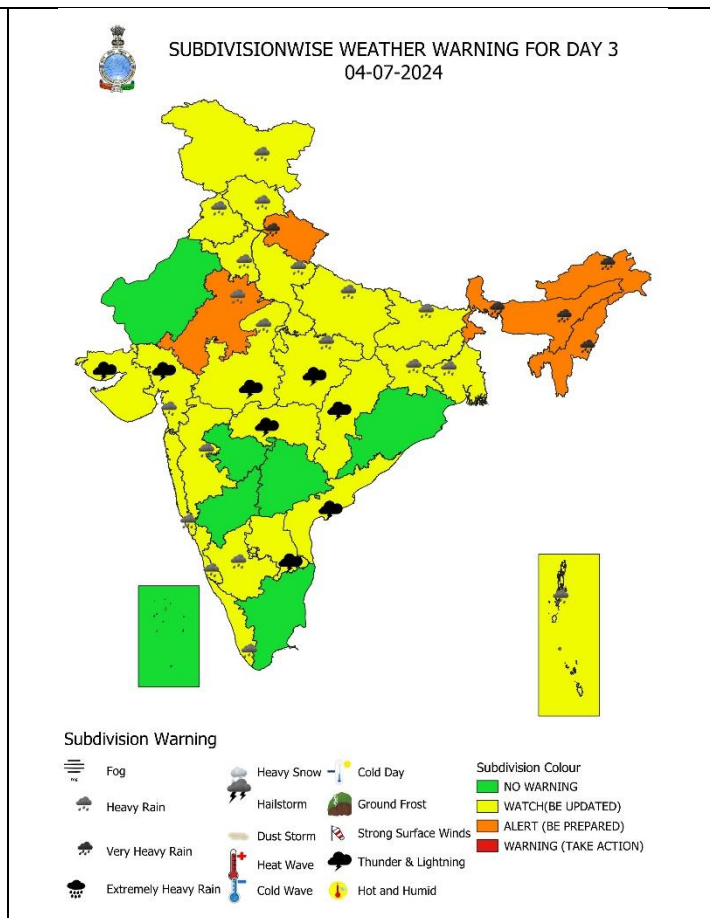
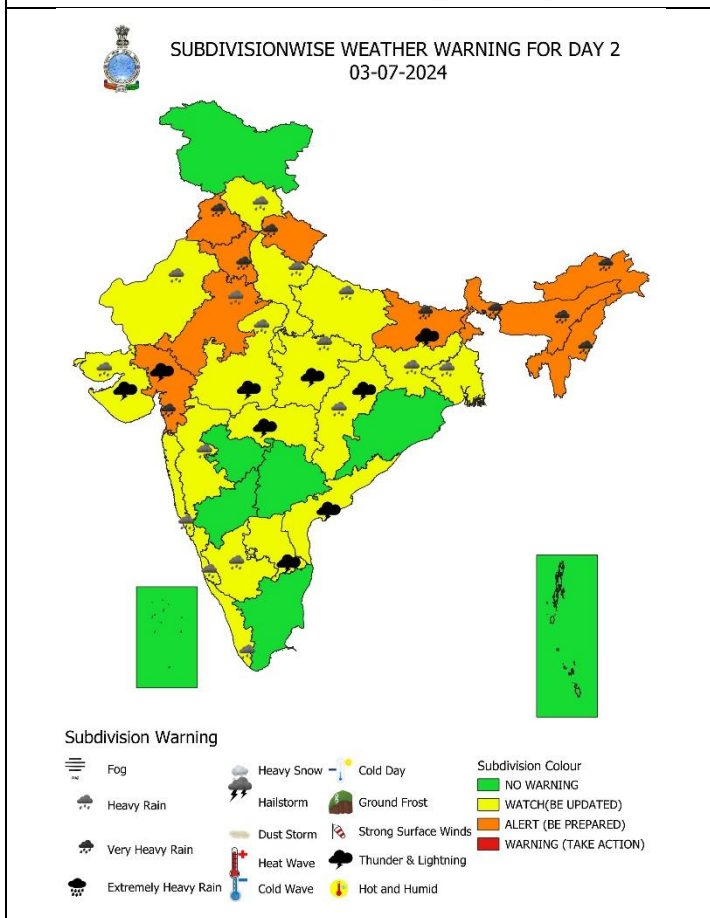
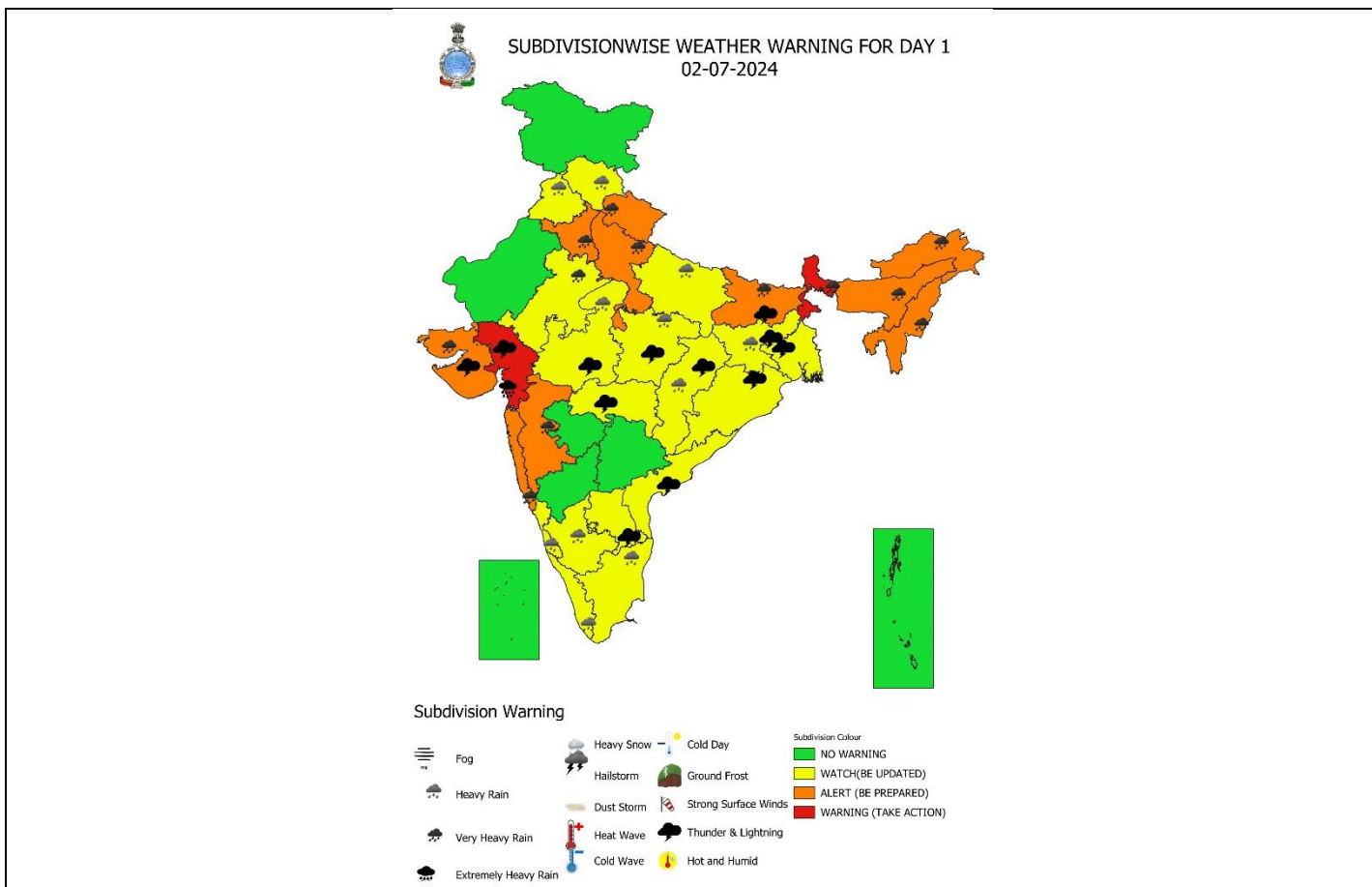
**Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 01.07.2024 to 0830 hrs IST of 02.07.2024**

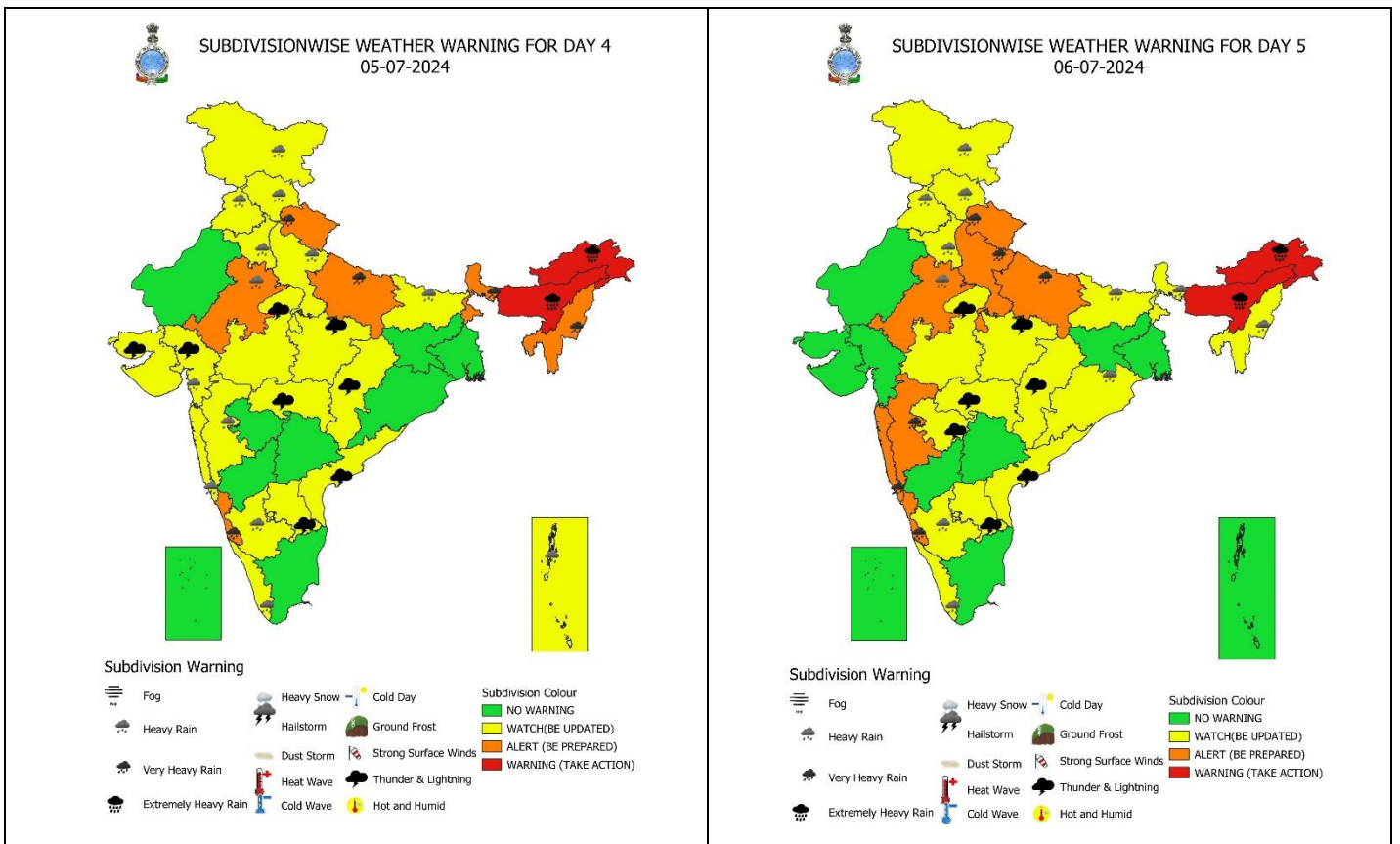


For more details, kindly refer: <http://aws.imd.gov.in:8091/>

Advance of Southwest Monsoon 2024







### IMPACT & ACTION SUGGESTED due to

- **Isolated extremely heavy rainfall very likely over Arunachal Pradesh & Assam & Meghalaya on 05th & 06th; over Gujarat Region on 02nd July.**
- **Isolated very heavy rainfall very likely over Uttarakhand during 02nd – 06th, Punjab on 03rd, Haryana on 02nd & 03rd July; West Uttar Pradesh on 02nd & 06th; East Uttar Pradesh on 05th & 06th; Bihar on 02nd & 03rd; Arunachal Pradesh & Assam & Meghalaya during 02nd – 04th; Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura during 02nd – 05th; Konkan & Goa, Madhya Maharashtra on 02nd & 06th; Saurashtra & Kutch on 02nd; Gujarat Region on 03rd; Coastal Karnataka on 05th & 06th July.**

#### 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/landslips/mud slips/landsinks/mudsinks.
- 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, Gusty winds and Heat Wave likely over various parts of the country:**

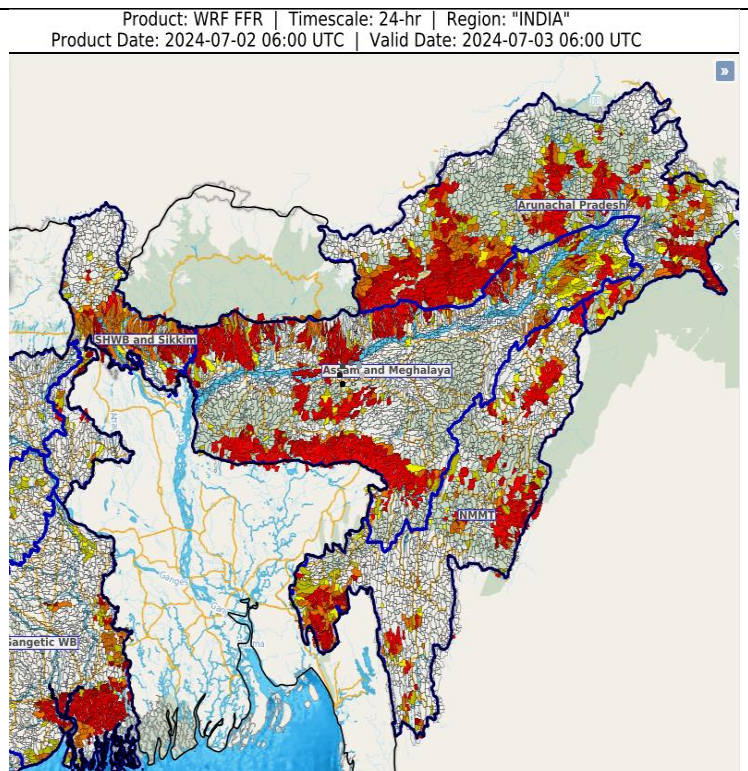
- Make provision for draining out excess water from crop fields to avoid water stagnation in North Eastern States, West Bengal & Sikkim, Odisha, Bihar, Jharkhand, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, East Rajasthan, Madhya Pradesh, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Vidarbha, Gujarat State, Tamil Nadu, Kerala, Coastal and South Interior Karnataka, Andhra Pradesh and Telangana.
- Postpone land preparation, nursery preparation and transplantation of WRC rice in Arunachal Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables.

**24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 03-07-2024 :**

Moderate flash flood risk likely over few watersheds & neighbourhoods of SHWB & Sikkim Met Sub-divisions during next 24 hours.

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Arunachal Pradesh, Assam & Meghalaya and Gangetic West Bengal Met Sub-divisions during next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.

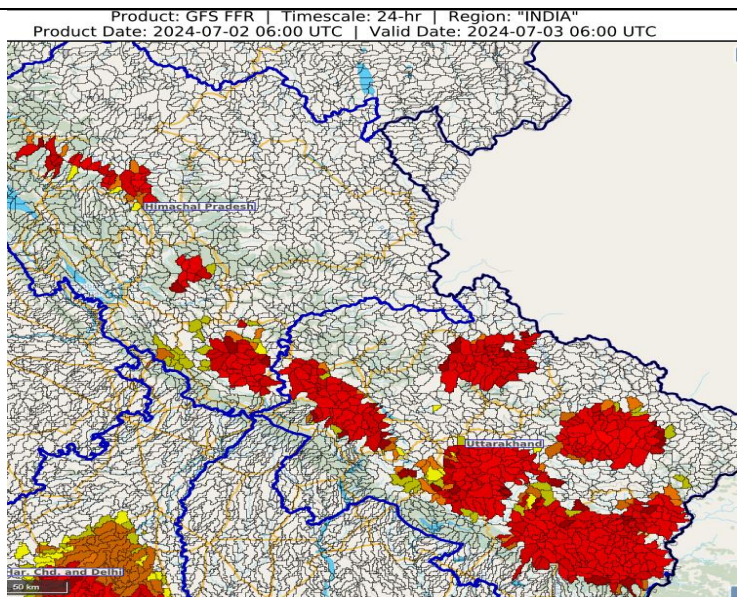




24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 03-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Himachal Pradesh and Uttarakhand Met Sub-divisions during next 24 hours.

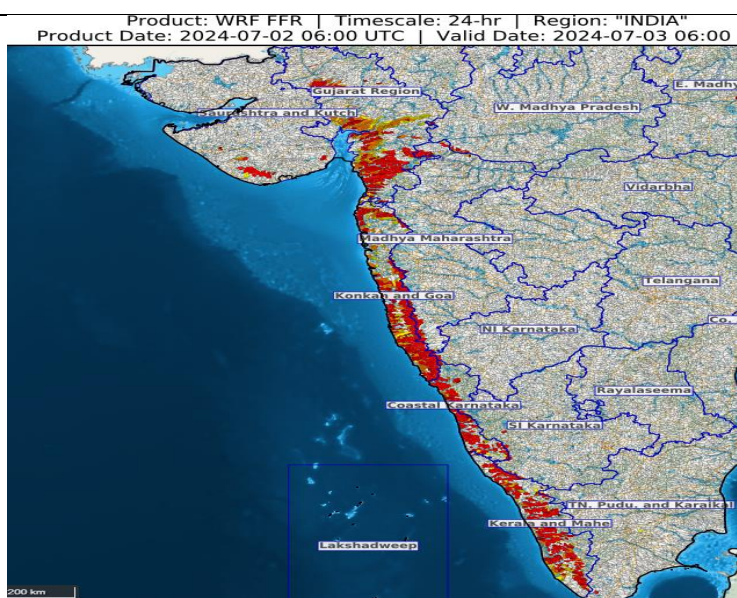
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 03-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Coastal Karnataka, Kerala & Mahe, Gujarat Region, Saurashtra & Kutch and Konkan & Goa Met Sub-divisions during next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



**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, **Aero:** Aerodrome.
- ❖ **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

<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  $< 1\text{km}$**

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)