



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 11th April, 2024.

Time of Issue: 1330 hours IST

Subject: i) Light to moderate rainfall spell accompanied with thunderstorms, gusty winds & hail over Northwest India during 13th-15th with peak intensity on 13th & 14th April, 2024.
ii) Light to moderate rainfall spell accompanied with thunderstorm, gusty winds & hail likely to continue over Central India during 11th-12th April, 2024.

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

- ❖ **Hailstorm occurred** at isolated places over Madhya Pradesh and Vidarbha.
- ❖ **Thundersquall/gusty winds** observed at isolated places over Madhya Pradesh and Chhattisgarh.
- ❖ **Light/Moderate rain** accompanied with **thunderstorm** observed over many parts of Vidarbha; over some parts of Madhya Pradesh, Chhattisgarh, Arunachal Pradesh and at isolated places over Himachal Pradesh, Uttarakhand, Haryana, Uttar Pradesh, Rajasthan, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Madhya Maharashtra, Marathwada, Kerala & Mahe, Coastal Karnataka, North Interior Karnataka and Telangana.

Weather Systems and Forecast & Warnings: (Annexure II)

- ❖ A cyclonic circulation lies over southwest Rajasthan and a trough/wind discontinuity runs from this cyclonic circulation to Coastal Karnataka and another cyclonic circulation lies over east Bihar in lower tropospheric levels. Under the influence of these systems:
 - ✓ Isolated to scattered light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Madhya Pradesh, Chhattisgarh, Vidarbha, Marathwada, Madhya Maharashtra during 11th-13th. **Squally wind speed reaching 50-60 gusting to 70 Kmph likely at isolated places over Madhya Pradesh on 11th & 12th April, 2024.**
 - ✓ Isolated light/moderate rainfall accompanied with **thunderstorm, lightning** very likely over Gangetic West Bengal, Jharkhand, Odisha, Bihar and Andaman & Nicobar Islands during 11th-13th April, 2024.
 - ✓ Isolated light/moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Telangana, Kerala & Mahe, Interior Karnataka during next 7 days and over Coastal Andhra Pradesh-Yanam, Tamil Nadu, Puducherry-Karaikal during 11th-15th April, 2024.
 - ✓ **Hailstorm activity also very likely at isolated places over Madhya Pradesh, Vidarbha & Marathwada during 11th-12th April, 2024.**
- ❖ An intense **Western Disturbance** as a cyclonic circulation lies over west Iran in middle & upper tropospheric westerlies and another one in middle tropospheric westerlies runs along Long. 72°E to the north of Lat. 32°N. High moisture feeding from Arabian Sea is likely into Northwest India during 13th-15th April. As a result:
 - ✓ Isolated light rainfall/snowfall very likely over Jammu-Kashmir, Himachal Pradesh, Uttarakhand during 11th-12th and fairly widespread to widespread light to moderate rainfall/snowfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** over the region during 13th-15th April, 2024.
 - ✓ Scattered to fairly widespread rainfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Northwest Uttar Pradesh, Punjab and Haryana during 13th-15th April and isolated to

scattered light to moderate rainfall with **thunderstorm, lightning** very likely over Rajasthan during 11th-15th April, 2024.

- ✓ **Isolated heavy rainfall/snowfall very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 13th & 14th and Himachal Pradesh on 14th April, 2024.**
- ✓ **Isolated hailstorm very likely over Jammu, Punjab, Haryana, Rajasthan on 13th; Himachal Pradesh on 13th & 14th and Uttarakhand on 14th and over West Uttar Pradesh on 14th April.**
- ✓ **Dust storm/thundersquall (50-60 kmph) very likely over Rajasthan on 13th & 14th April, 2024.**

❖ Scattered to fairly widespread light/moderate rainfall/snowfall with isolated **thunderstorm & lightning** very likely over Arunachal Pradesh; isolated to scattered light to moderate rainfall with isolated **thunderstorm, lightning & gusty winds** over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 7 days. **Isolated hailstorm very likely over Sikkim today.**

Maximum temperature observation and forecast for next 5 days:

- ❖ Yesterday, maximum temperatures were in the range of 40-42°C over many parts of West Rajasthan, Gujarat Region; at isolated places over Uttar Pradesh, Madhya Maharashtra, Saurashtra & Kutch, Marathwada, East Rajasthan. These were above normal by 2-4 °C over these areas.
- ❖ **No significant change in maximum temperatures very likely over Northwest India during next 48 hours and gradual fall by 3-5°C thereafter.**
- ❖ **No significant change** in maximum temperatures very likely over Central & East India during next 3 days and gradual rise by 2-4°C during subsequent 3 days.
- ❖ Gradual fall by 2-3°C very likely over many parts of West India during next 3 days.
- ❖ 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:

- ❖ **Hot and humid weather** very likely to prevail over Kerala & Mahe during 11th-15th; over Coastal Andhra Pradesh & Yanam, Coastal Karnataka, Rayalaseema during 11th-12th, Tamil Nadu on 11th and Odisha on 14th April, 2024.
- ❖ **Heat Wave conditions** likely over Odisha on 15th April, 2024.

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

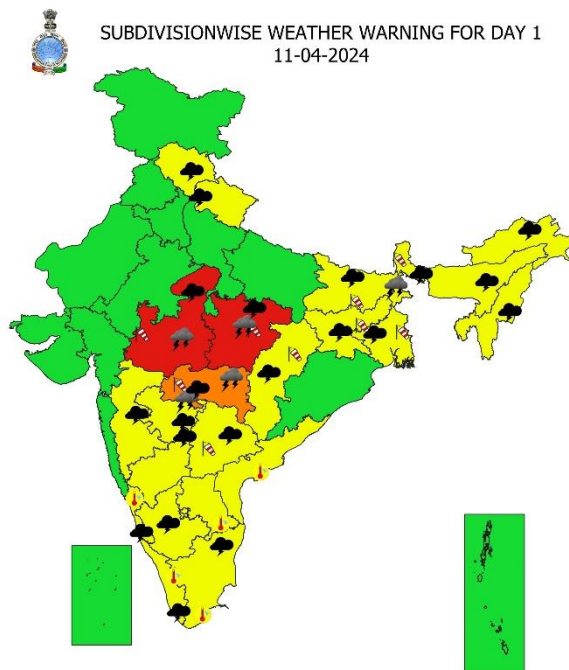
Significant amount of rainfall (in cm):

- ❖ **Arunachal Pradesh**- Nachu Arg (dist Upper Subansiri) 2;
- ❖ **Assam & Meghalaya**- Barpeta (dist Barpeta) 2;
- ❖ **Sub-Himalayan West Bengal & Sikkim**- Singhik (dist north Sikkim) 2;
- ❖ **North Interior Karnataka**: Sankeshwar (Belagavi) 3, Hukkeri (Belagavi) 2;
- ❖ **Chhattisgarh**- Chhura (dist Gariaband) 4, Kawardha (dist Kabirdham) 2, Rajim (dist Gariaband) 2, Gundardehi (dist Balod) 2, Dongargarh (dist Rajnandgaon) 2, Balod (dist Balod) 2, Dondilohara (dist Balod) 2, Kurud (dist Dhamtari) 2, Dhamtari (dist Dhamtari) 2;
- ❖ **Vidarbha**- Gondia (Aws) (dist Gondia) 2, Ramtek (dist Nagpur) 2, Gondia (dist Gondia) 2.

Hailstorm reported:

- ❖ **Vidarbha** (Buldhana, Washim)
- ❖ **West Madhya Pradesh** (Shajapur, Sehore, Narmadapuram, Rajgarh, Raisen, Vidisha, dewas, Betul)
- ❖ **East Madhya Pradesh** (Balaghat, Chindwara, Pandhurna, Seoni, Narsingpur).

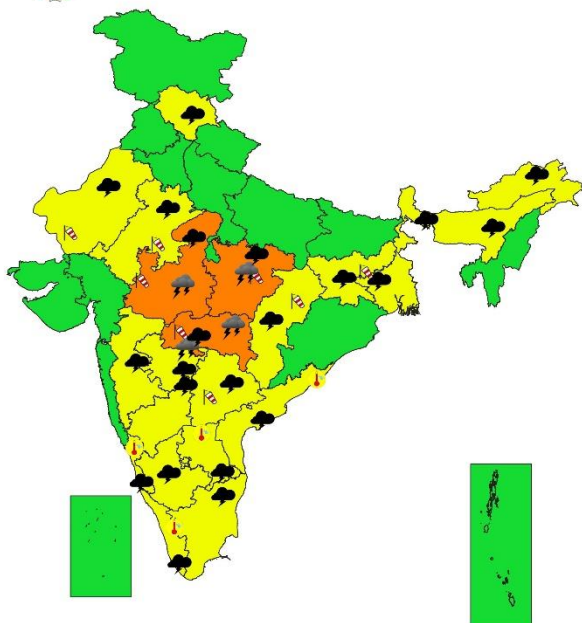
SUBDIVISIONWISE WEATHER WARNING FOR DAY 1
11-04-2024



Subdivision Warning



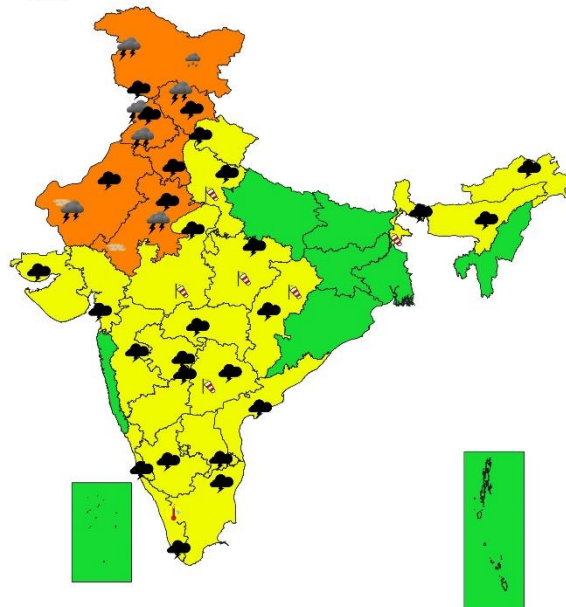
SUBDIVISIONWISE WEATHER WARNING FOR DAY 2
12-04-2024



Subdivision Warning

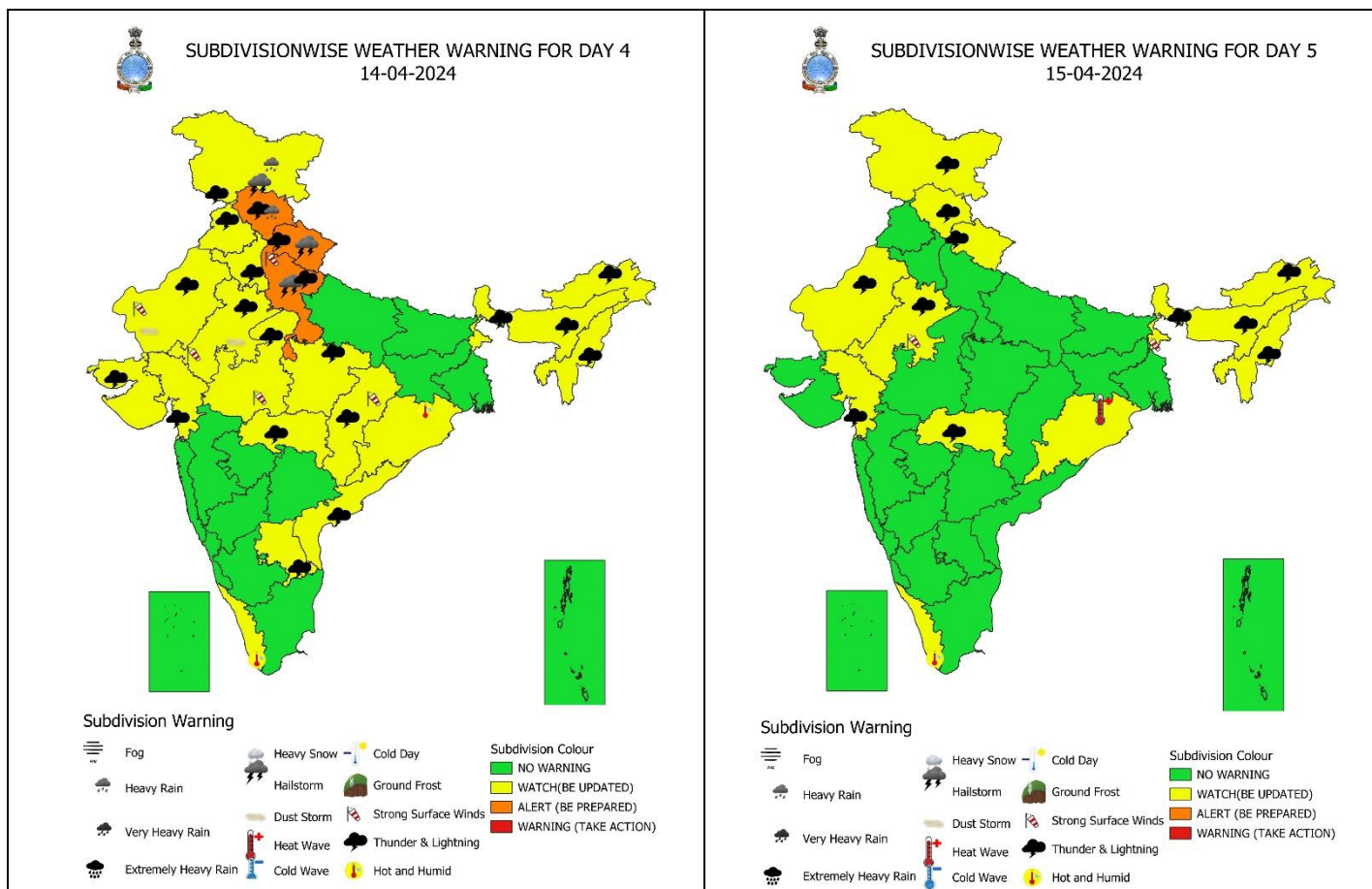


SUBDIVISIONWISE WEATHER WARNING FOR DAY 3
13-04-2024



Subdivision Warning





Impact expected and action suggested due to thunderstorm accompanied with lightning/gusty winds & Hailstorm over Sikkim on 11th; over Madhya Pradesh, Vidarbha & Marathwada on 11th & 12th; over Jammu, Punjab, Haryana, Rajasthan on 13th; Himachal Pradesh on 13th & 14th and over Uttarakhand, West Uttar Pradesh on 14th April, 2024.

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.

Impact & Action Suggested due to heavy rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad on 13th & 14th and Himachal Pradesh on 14th April, 2024.

Impacts Expected for Rain/Snow

- ❖ Disruption of Electricity.
- ❖ Landslide, rock fall and mudslides, Blocking/washout of roads/highways/bridges Nallahs.
- ❖ Disruption of traffic flow.
- ❖ Damage to Kuccha and unsecured structures.

Suggested Actions

- ❖ Avoid roadway underpasses, drainage ditches, low lying areas and areas where water collects – they can unexpectedly flood or overflow.
- ❖ Stay away from power lines or electrical wires.
- ❖ Don't stay in kuchcha houses during heavy rainfall as it may collapse anytime soon.
- ❖ Drive carefully.

IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Yellow alert Areas (Odisha)

- ❖ 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, Hailstorm and Heat Wave likely over various parts of the country

- Harvest the matured crops, fruits and vegetables at the earliest and keep the harvested produce at safer places or cover the heaps of harvested produce in the fields with tarpaulin sheets in North-West India and Central India.
- Use hail nets or hail caps in fruit orchards to protect them from mechanical damage in Madhya Pradesh, Vidarbha, Marathwada and Sikkim.
- Make necessary arrangements for draining out excess water from crop fields to avoid water stagnation in Jammu & Kashmir.
- Provide mechanical support to horticultural crops & staking to vegetables in Madhya Pradesh, Vidarbha, Chhattisgarh, Marathwada and Sikkim.

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 Marathwada.
 - **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)

Subdivision Warning	 Dust Storm	Subdivision color
 Heavy Rain	 Strong Surface Winds	 NO WARNING
 Heavy Snow	 Heat Wave	 WATCH(BE UPDATED)
 Thunderstorms & Lightning	 Cold wave	 ALERT (BE PREPARED)
 Hailstorm	 Fog	 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)