Government of India
Ministry of Earth Sciences
India Meteorological Department

Press Release
Date: 22nd December, 2024
Time of Issue: 1435 hours IST

Subject: (i) Well marked low pressure area over Westcentral Bay of Bengal. It is likely to move west-southwestwards and reach southwest Bay of Bengal near north Tamil Nadu & south Andhra Pradesh coasts around 24th December.
(ii) A Western disturbance lay over central parts of Afghanistan, likely to move eastwards and cause light precipitation on 22 and 23 Dec over northwest India.
(iii) A fresh and active Western Disturbance is very likely to affect Northwest India from the night of 26th December.

i. Realised weather during past 24 hours till 0830 hours IST of today (Annexure I)

- **Cold wave to severe cold wave conditions** observed in isolated pockets over Himachal Pradesh; **cold wave conditions** observed in isolated pockets over Jammu -Kashmir, Uttarakhand, Punjab & Haryana.
- **Very dense fog** reported in isolated pockets of Assam; **Dense fog** in isolated pockets Himachal Pradesh, East Rajasthan, East Uttar Pradesh, Odisha, Gangetic West Bengal.
- **Visibility reported (≤ 200 m)** (in meter): **Assam:** Barapani 30; **Gangetic West Bengal:** Dum Dum Airport 50; **East Uttar Pradesh:** Varanasi 50; **Tripura**: Agartala 200.
- **Heavy rainfall** at isolated places over Tamil Nadu.

Weather Systems, Forecast and warning:

- **Yesterday's depression over westcentral Bay of Bengal weakened into well marked low pressure area over the same region at 1730 hours IST of yesterday, the 21st December 2024. It persisted over the same region at 0830 hrs IST of today, the 22nd December 2024. The associated cyclonic circulation extends upto 3.1 km above mean sea level. It is likely to move west-southwestwards and reach southwest Bay of Bengal near north Tamil Nadu & south Andhra Pradesh coasts around 24th December.**
- Under the influence of these systems:
  - ✓ Light to moderate rainfall very likely at a few places with **heavy rainfall** at isolated places over Coastal Andhra Pradesh during 23th-26th December.
  - ✓ Light to moderate rainfall very likely at a few places likely over coastal Odisha on 24th-25th December with possibility of isolated **heavy rainfall** on 24th December; Light to moderate rainfall very likely at a many places likely over north coastal Tamil Nadu & Puducherry during 24th-26th December; with possibility of isolated **heavy rainfall** on 25th & 26th December.
  - ✓ Thunderstorm accompanied with lightening over Coastal Andhra Pradesh, Rayalaseema during 23th-26th; Tamil Nadu, Puducherry & Karaikal on 25th & 26th; Madhya Maharashtra during 26th to 28th December.

- **The Western disturbance now seen as a cyclonic circulation in middle tropospheric levels over central parts of Afghanistan.**
  Under its influence, **Light/moderate rainfall/snowfall** likely at a few places over Western Himalayan Region during 22nd -24th December, 2024 and light isolated rainfall at isolated places over Punjab, Haryana, Chandigarh, Delhi, Rajasthan on 22nd & 23rd December, 2024.

- **Another intense Western Disturbance is very likely to affect Northwest India from the night of 26th December onwards. Under its influence, an induced cyclonic circulation very likely to form over southwest Rajasthan & neighbourhood on 27th December, 2024. These systems likely to interact with lower levels easterlies leading to high moisture feeding from Arabian Sea as well as Bay of Bengal till 28th December. Under the influence of these systems:**
  - ✓ Isolated to Scattered Rainfall/Snowfall is likely over Western Himalayan Region during 26th-28th December with peak activity on 27th and 28th December.

- ✓ Scattered to fairly widespread rainfall also likely over plains of northwest India and adjoining central India on 27th and 28th December; Maharashtra & Gujarat on 28th December.
- ✓ Thunderstorm accompanied with hailstorms also likely over Northwest India, on 27th & 28th December.

ii. Temperature, Cold Wave and Fog Forecast:

Temperature Conditions during past 24 hours till 0830 hours IST of today (Annexure IV):

Minimum temperatures were **below 0°C** over many parts of Jammu, Kashmir & Ladakh & Himachal Pradesh; **5-10°C** over plains of northwest India, **10-15°C** over central India & Eastern India & adjoining northeast India, Gujarat & north Maharashtra; **>15°C** over remaining parts of India. Today, **the lowest minimum temperature** of **5.6°C** is reported at **Khajuraho (East Madhya Pradesh) & Ludhiana (Punjab)** over the plains of the country.

Minimum temperatures are **below normal (-1°C to -3°C)** at isolated places over Gujarat, western Himalayan region; **above normal by (2-4°C)** over Rajasthan, Bihar, Punjab & most parts of Central India; **(4-6°C)** over remaining parts of India.

Forecast of temperature:

- ❖ No significant change in minimum temperatures likely over Western Himalayan during next 2 days & gradual fall by 2-3°C Thereafter.
- ❖ Rise in minimum temperatures likely over Northwest India during next 2 days and gradual fall thereafter.
- ❖ No significant change in minimum temperatures likely over Central India during the next 3 days & gradual fall by 2-3°C Thereafter.
- ❖ Gradual rise in minimum temperatures likely over West India by 2-3°C during next 3-4 days.

Cold Wave Warnings:

Cold wave to severe cold wave conditions very likely in some parts of Himachal Pradesh during 24th-26th; **Cold wave** conditions very likely in isolated pockets over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 22nd -26th; Himachal Pradesh on 22nd &23rd December.

Dense Fog Warnings:

Dense fog conditions very likely to prevail during late night/early morning hours in isolated pockets of Himachal Pradesh during 24th & 26th; Punjab, Haryana during 22nd to 25th; Sub Himalayan West Bengal, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during 22nd to 24th; Uttar Pradesh, Odisha & Rajasthan on 22nd & 23rd; Jharkhand on 22nd December.

Ground Frost Warnings:

Ground Frost conditions very likely in isolated pockets of Uttarakhand on 22nd; Himachal Pradesh during 24th - 26th; Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during 22nd to 24th December.

Fishermen Warnings (Annexure V):

Fishermen are advised not to venture into westcentral & adjoining central parts of South Bay of Bengal and along & off south Andhra Pradesh-north Tamil Nadu coasts during 22nd -25th December.

iii. Weather conditions and forecast over Delhi/NCR during 22nd to 25th Dec. 2024 (Annexure VI)

For more details, kindly refer National Weather Bulletin:
https://mausam.imd.gov.in/responsive/all_india_forcast_bulletin.php
For District wise warnings refer: https://mausam.imd.gov.in/responsive/districtWiseWarningGIS.php

ANNEXURE I

Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 22.12.2024 (in cm):

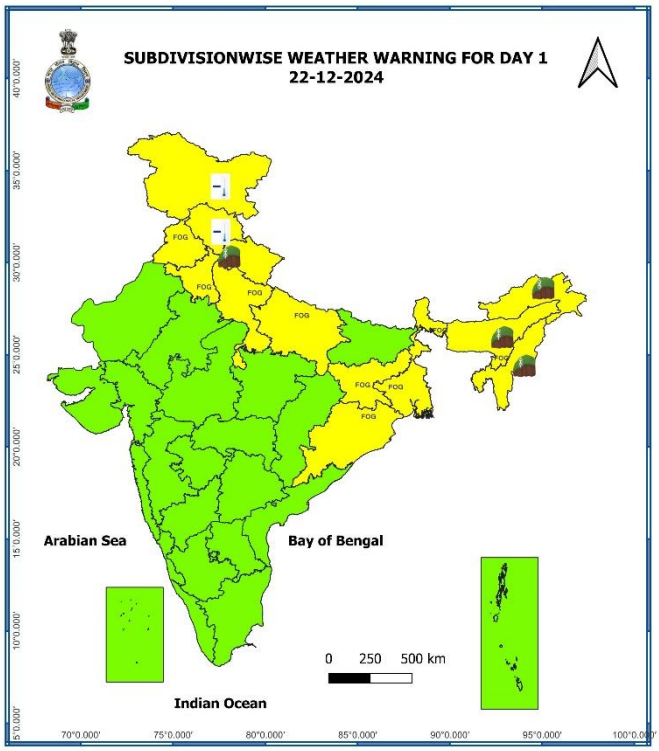
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Pochampalli ARG (dist Krishnagiri) 8.

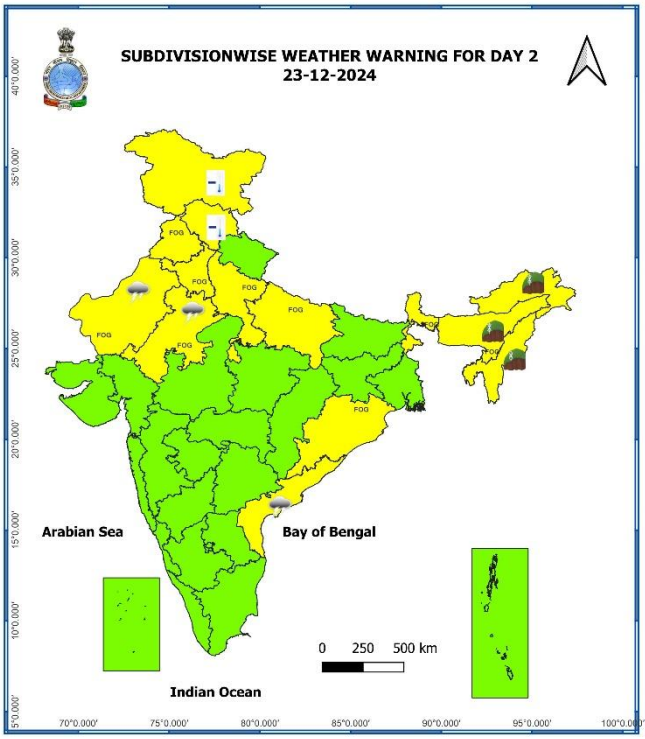
ANNEXURE II

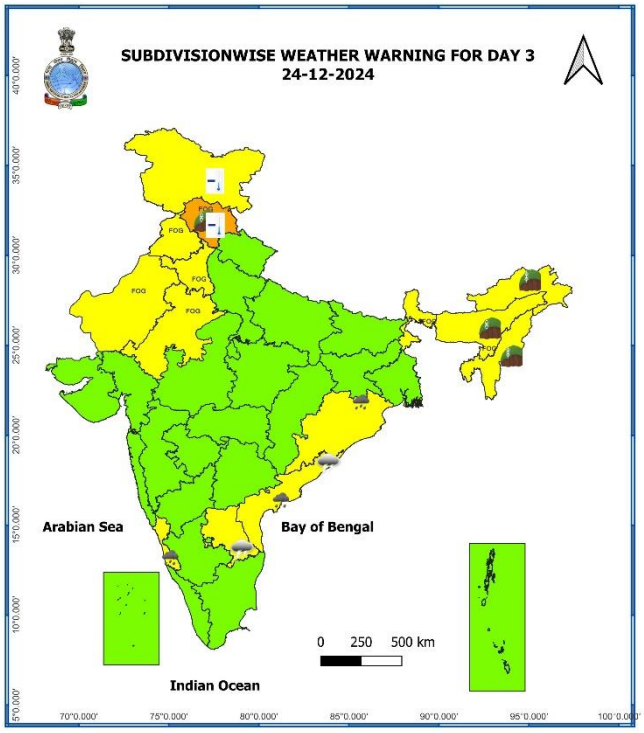
7 Days Rainfall Forecast								
S. No.	Subdivision	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	FWS	SCT	ISOL	ISOL	SCT	FWS	FWS
2	ARUNACHAL PRADESH	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY
3	ASSAM & MEGHALAYA	ISOL	DRY	DRY	DRY	DRY	DRY	DRY
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	DRY	DRY	DRY	DRY	DRY	DRY	DRY
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL	ISOL	ISOL	ISOL	DRY	DRY	DRY
6	GANGETIC WEST BENGAL	DRY	DRY	DRY	DRY	DRY	DRY	DRY
7	ODISHA	DRY	DRY	ISOL	ISOL	DRY	DRY	DRY
8	JHARKHAND	DRY	DRY	ISOL	DRY	DRY	DRY	DRY
9	BIHAR	DRY	DRY	DRY	DRY	DRY	DRY	DRY
10	EAST UTTAR PRADESH	DRY	DRY	ISOL	DRY	DRY	ISOL	ISOL
11	WEST UTTAR PRADESH	DRY	ISOL	ISOL	DRY	DRY	ISOL	SCT
12	UTTARAKHAND	DRY	ISOL	ISOL	DRY	DRY	ISOL	SCT
13	HARYANA CHANDIGARH & DELHI	DRY	ISOL	DRY	DRY	ISOL	FWS	ISOL
14	PUNJAB	DRY	ISOL	DRY	DRY	ISOL	FWS	ISOL
15	HIMACHAL PRADESH	ISOL	SCT	ISOL	DRY	DRY	SCT	SCT
16	JAMMU & KASHMIR AND LADAKH	DRY	ISOL	ISOL	DRY	ISOL	ISOL	ISOL
17	WEST RAJASTHAN	ISOL	ISOL	DRY	DRY	DRY	ISOL	ISOL
18	EAST RAJASTHAN	ISOL	ISOL	DRY	DRY	ISOL	SCT	ISOL
19	WEST MADHYA PRADESH	DRY	ISOL	ISOL	DRY	ISOL	SCT	ISOL
20	EAST MADHYA PRADESH	DRY	DRY	ISOL	DRY	DRY	ISOL	ISOL
21	GUJARAT REGION	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
22	SAURASHTRA & KUTCH	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
23	KONKAN & GOA	DRY	DRY	DRY	DRY	ISOL	ISOL	DRY
24	MADHYA MAHARASHTRA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
25	MARATHAWADA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
26	VIDARBHA	DRY	DRY	DRY	DRY	ISOL	ISOL	ISOL
27	CHHATTISGARH	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	ISOL	ISOL	SCT	SCT	ISOL	ISOL	ISOL
29	TELANGANA	ISOL	ISOL	ISOL	ISOL	ISOL	DRY	DRY
30	RAYALASEEMA	ISOL	ISOL	SCT	SCT	SCT	ISOL	ISOL
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	ISOL	ISOL	SCT	SCT	ISOL	ISOL
32	COASTAL KARNATAKA	DRY	DRY	DRY	ISOL	SCT	SCT	DRY
33	NORTH INTERIOR KARNATAKA	ISOL	DRY	DRY	ISOL	SCT	ISOL	DRY
34	SOUTH INTERIOR KARNATAKA	ISOL	DRY	DRY	ISOL	SCT	ISOL	DRY
35	KERALA & MAHE	ISOL	ISOL	DRY	DRY	ISOL	ISOL	ISOL
36	LAKSHADWEEP	DRY	DRY	DRY	DRY	DRY	DRY	DRY

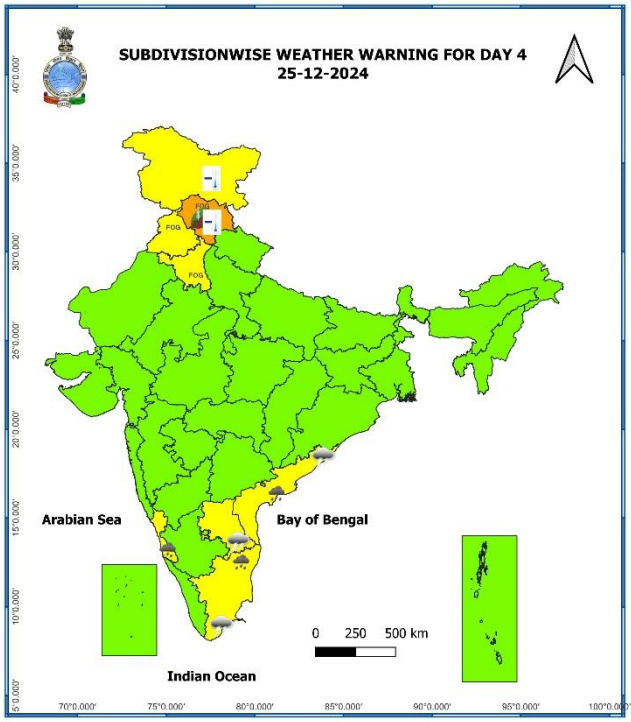
- **As the lead period increases forecast accuracy decreases.**

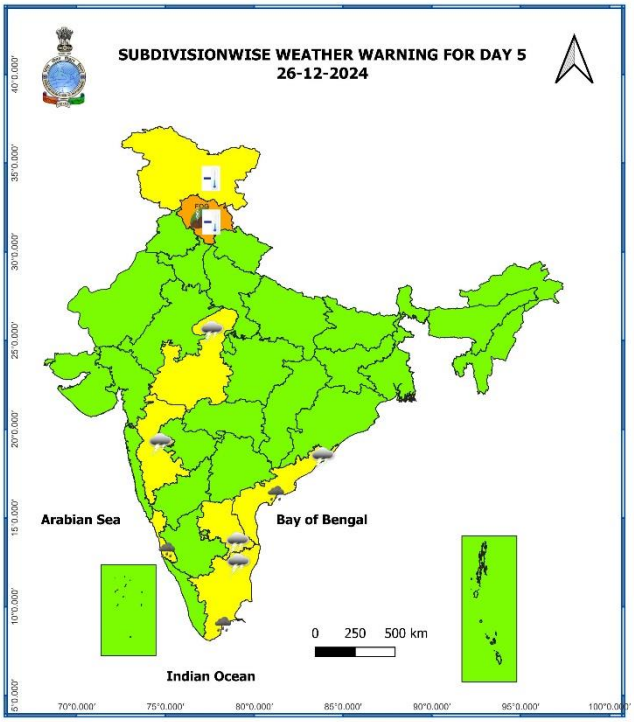
ANNEXURE III

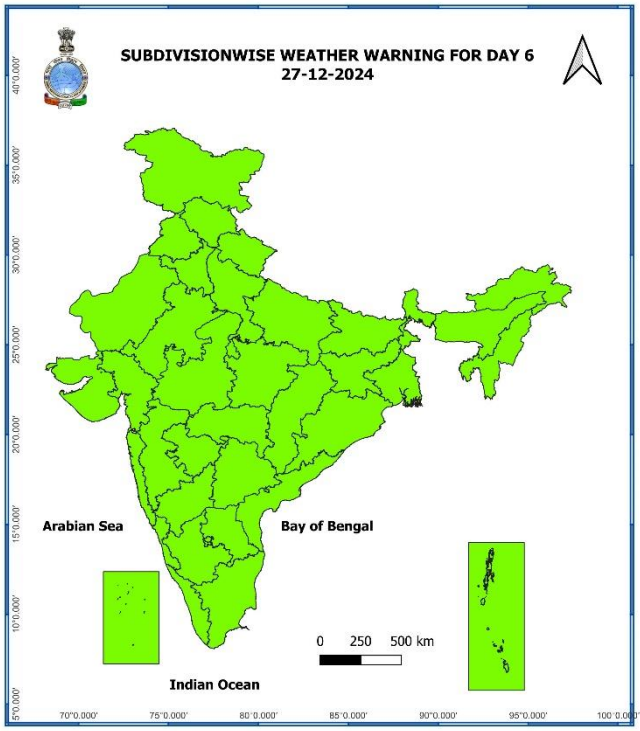


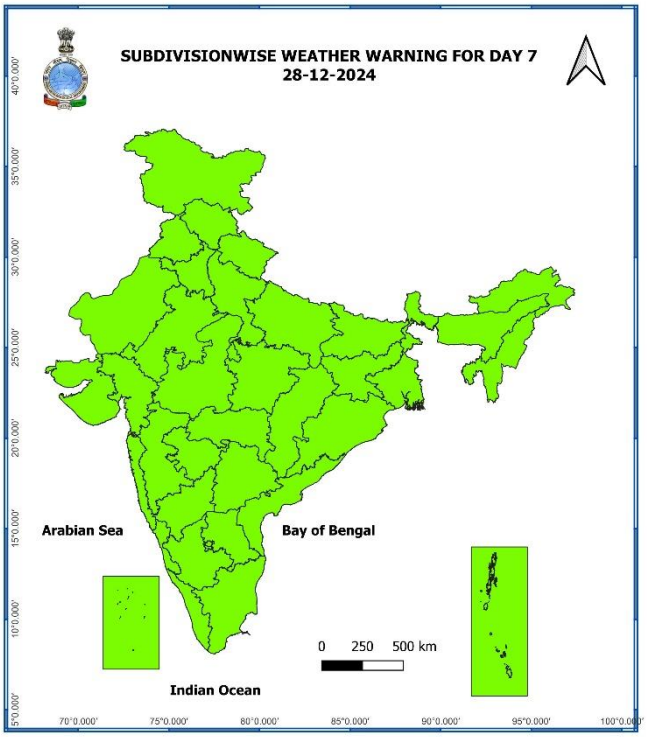












- **Action may be taken based on ORANGE AND RED COLOUR warnings.**
- **Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.**
- **As the lead period increases forecast accuracy decreases.**

Fig. 1: Maximum Temperatures

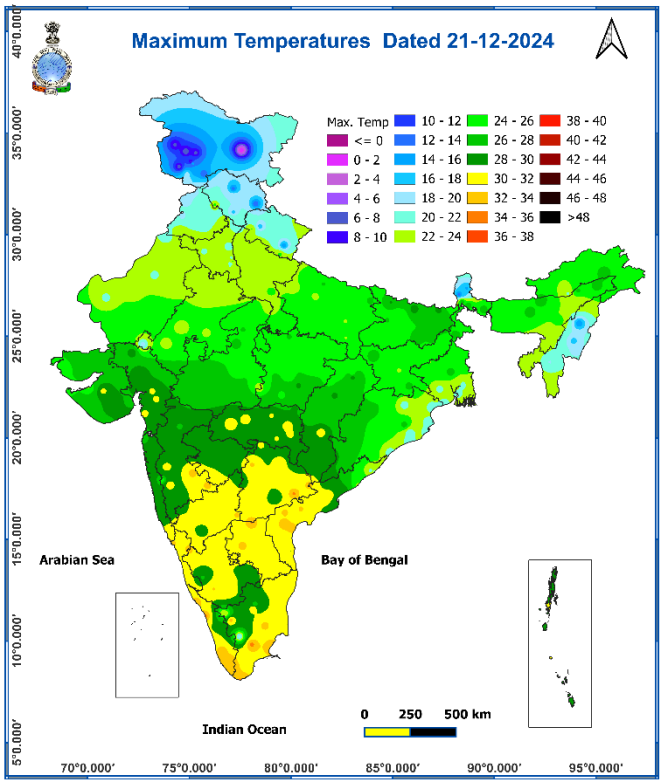


Fig. 2: Departure of Maximum Temperatures

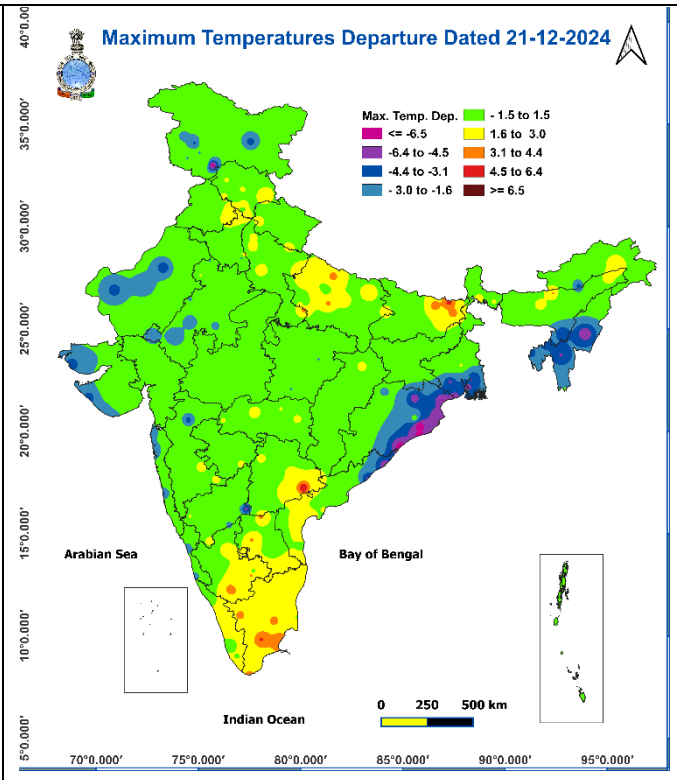


Fig. 3: Minimum Temperatures

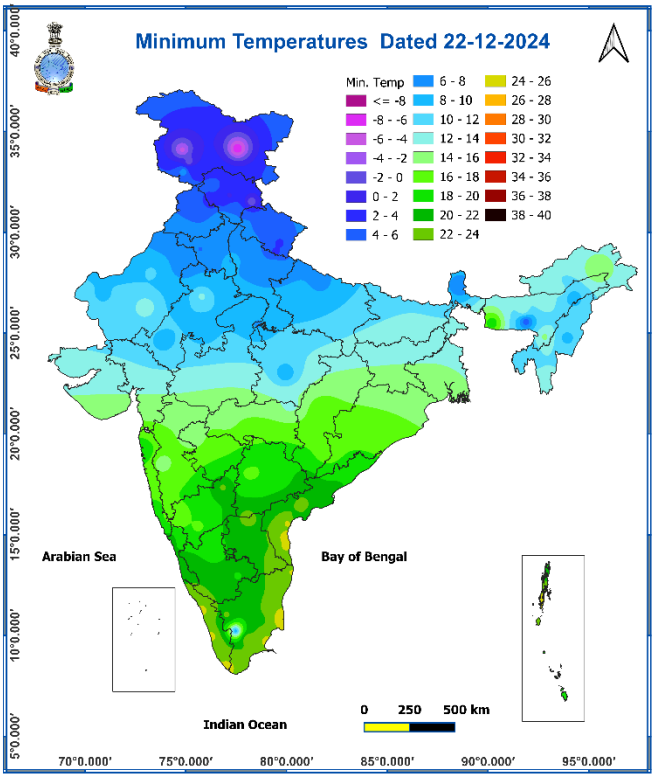
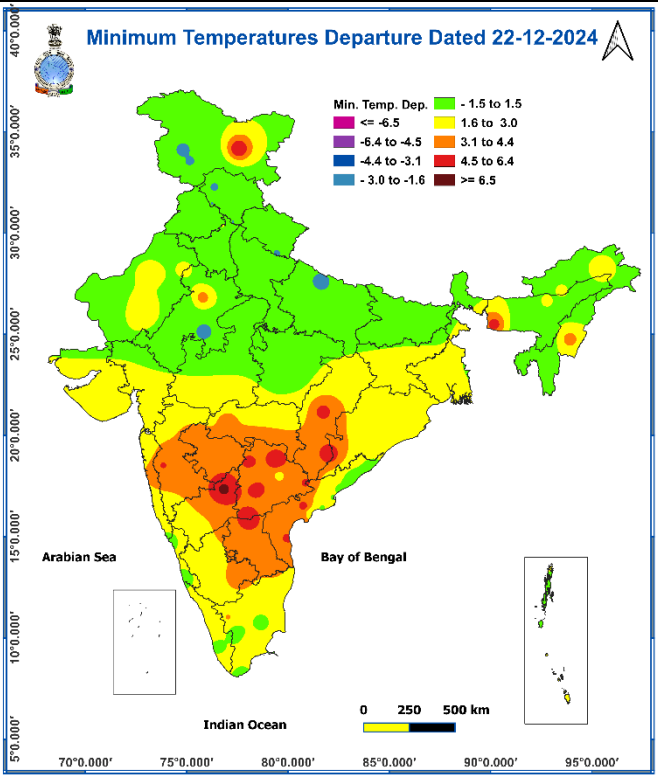
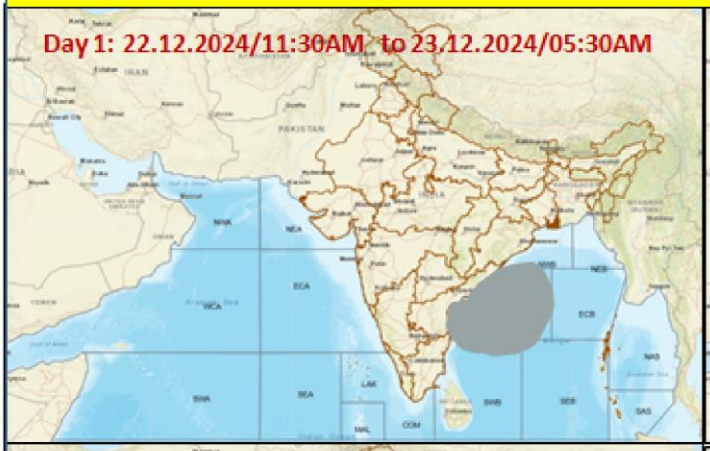


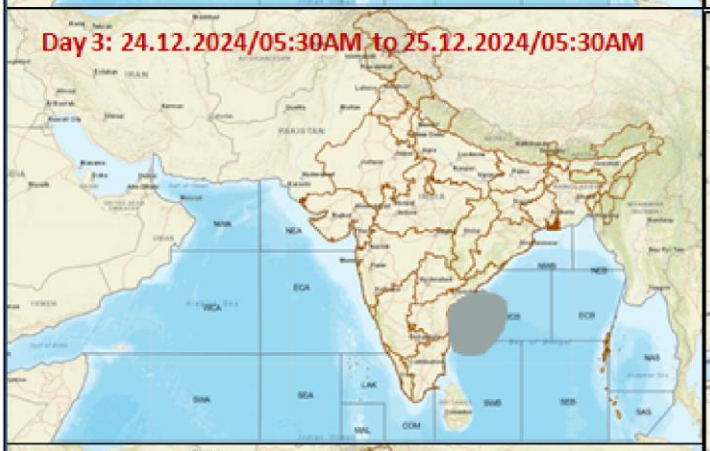
Fig. 4: Departure of Minimum Temperatures

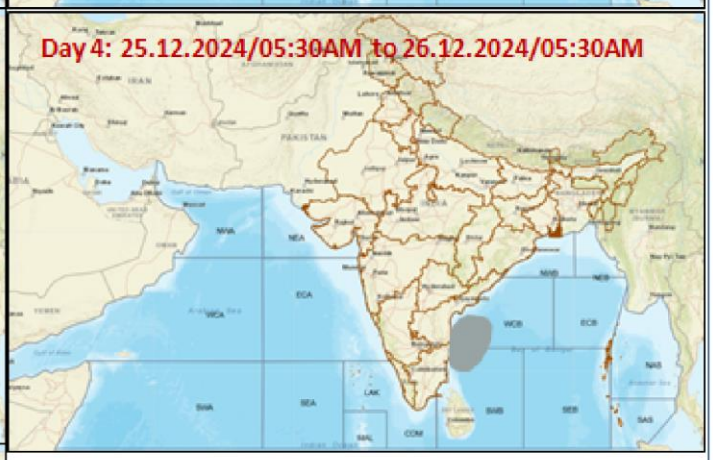


ANNEXURE V

Fishermen Warning Graphics







Squally Weather with wind speed 35-45 kmph gusting to 55 kmph

Fishermen are advised not to venture into the marked areas.

ANNEXURE VI

Weather forecast over Delhi/NCR during 22nd Dec. to 25th Dec. 2024

Past Weather:

There has been a slight fall in minimum temperature over Delhi/NCR during past 24hr. The Maximum and Minimum temperature over Delhi is in the range of 21 to 24°C and 07 to 09°C respectively. The minimum temperature was near normal and maximum temperature was above normal upto 01 to 03°C over most places. Moderate fog reported at Safdarjung airport. Safdarjung airport recorded lowest visibility 400m during 0700 hours to 0730 hours IST which improved thereafter becoming 600m at 0800 hours IST. Palam airport recorded lowest visibility 600 m during 0800 hours to 0830 hours IST which improved thereafter becoming 700m at 0900 hours IST. Mainly smog/ moderate fog condition with predominant surface wind from variable direction with wind speed reaching calm to 06 kmph prevailed past 24hr. Mainly smog condition with wind speed less than 06 kmph variable direction prevailed over the region in the forenoon today.

Weather Forecast:

22.12.2024: Mainly clear sky. The predominant surface wind is likely to be variable direction with wind speed less than 06 kmph till evening. It would decrease thereafter becoming less than 04 kmph from southeast direction during night. Smog/shallow fog is likely in the evening/night.

23.12.2024: Partly cloudy sky with possibility of very light rain to light rain. The predominant surface wind is likely to be from southeast direction with speed less than 04 kmph during morning hours. Smog/shallow fog in most of the places and moderate fog in isolated places is likely in the morning. The wind speed will increase thereafter becoming less than 06 kmph from northeast direction during afternoon. It will decrease thereafter becoming less than 04 kmph from east direction during evening and night. Smog/shallow fog is likely in the evening/night.

24.12.2024: Mainly clear sky. The predominant surface wind is likely to be from southeast direction with speed less than 04 kmph during morning hours. Smog/ moderate fog in most of the places and dense fog in isolated places is likely in the morning. The wind speed will gradually increase becoming 04-06 kmph from southeast direction during afternoon. It will decrease thereafter becoming less than 04 kmph from northeast direction during evening and night. Smog/shallow fog is likely in the evening/night.

25.12.2024: Mainly clear sky. The predominant surface wind is likely to be from north direction with wind speed less than 04 kmph during morning hours. Smog/ moderate fog in most of the places and dense fog in isolated places is likely in the morning. The wind speed will increase thereafter becoming 08-10 kmph from northwest direction during afternoon. It will gradually decrease becoming less than 04 kmph from northwest direction during evening and night. Smog/shallow fog is likely in the evening/night.

Impact expected due to dense/very dense fog in the night /morning hour:

❖ Transport and Aviation:
- May affect some airports, highways and railway routes in the areas of met- sub-division.
- Difficult driving conditions with slower journey times.
- Unless taken precautionary measures, it may lead to some road traffic collisions.

❖ Power Sector:
- Chances of Tripping of Power lines in the very dense fog routes.

❖ Human Health:
- Lung related health impacts: Dense fog contains particulate matter and other pollutants and in case exposed it gets lodged in the lungs, clogging them and decreasing their functional capacity which increases episodes of wheezing, coughing and shortness of breath.
- Impact on people having asthma bronchitis: Long time exposure to dense fog may cause respiratory problem for people having asthma bronchitis and other lung related health problems.
- Eye Irritation: Dense fog contains pollutions of various types and these Pollutants in the air if exposed may tend to irritate the membranes of the eye causing various infections leading to redness or swelling of the eye.

Action suggested:

❖ Transport and Aviation:
- Be careful while driving or outing through any transport.
- Use fog lights during driving.
- Be in touch with airlines, railways and state transport for schedule of your journey.

❖ Power Sector:
- To keep ready Maintenance Team.
- Human Health: To avoid outing until unless emergency and to cover the face.

Impact expected due to cold wave/severe cold wave conditions over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Punjab, Rajasthan and Saurashtra & Kutch

- An increased likelihood of various illnesses like flu, running/ stuffy nose or nosebleed, which usually set in or get aggravated due to prolonged exposure to cold.
- Do not ignore shivering. It is the first sign that the body is losing heat. Get Indoors.
- Frostbite can occur due to prolonged exposure to cold. The skin turns pale, hard and numb and eventually black blisters appear on exposed body parts such as fingers, toes, nose and or earlobes. Severe frostbite needs immediate medical attention and treatment.
- Impact on agriculture, crop, livestock, water supply, transport and power sector at some places.

Action suggested:
- Wear several layers of loose fitting, light weight; warm woollen clothing.
- Cover your head, neck, hands and toes adequately as majority of heat loss occurs through these body parts. Wear several layers of loose fitting, light weight; warm woollen clothing rather than one layer of heavy cloth.
- Eat vitamin-C rich fruits & vegetable and drink sufficient fluids preferably warm fluids to maintain adequate immunity.
- Avoid or limit outdoor activities.
- Keep dry, if wet, change cloths immediately to prevent loss of body heat. Wear insulated/waterproof shoes.
- Warm the affected area of the body slowly with lukewarm water; do not rub the skin vigorously.
- If the affected skin area turns black, immediately consult a doctor.
- Maintain ventilation while using Heaters to avoid inhaling toxic fumes.
- Take safety measures while using electrical and gas heating devices.
- Extreme care needed for vulnerable people.
- Seek medical attention as soon as possible for someone suffering from frostbite/ Hypothermia.
- Protect livestock from cold weather.

Agromet advisories for Heavy Rainfall / Cold Wave likely over various parts of the country

- In **Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Meghalaya, Nagaland** and **Manipur,** apply light and frequent irrigation to the standing crops in the evening to protect them from low-temperature stress or cold injuries. Use mulching and cover vegetable nurseries and young fruit plants with straw/polythene sheets to maintain optimum soil temperature.

Livestock

- To protect from cold, keep cattle inside the sheds during night and provide dry bedding. Also keep the chicks warm by providing artificial light in the poultry sheds.

Legends & abbreviations:

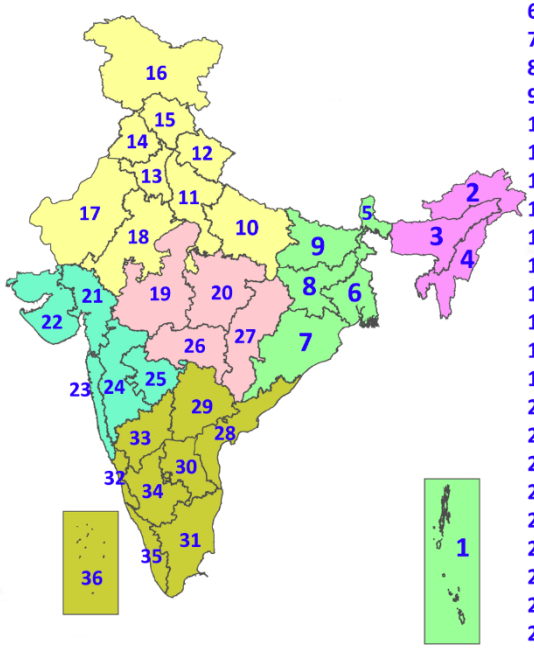
- **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- **Obsy:** Observatory; **AWS:** Automatic Weather Station; **ARG:** Automatic Rain Gauge; **dist:** District: **NH:** National Highway; **KVK**: Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **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.

राष्ट्रीय मौसम पूर्वानुमान केन्द्र
भारत मौसम विज्ञान विभाग
पृथ्वी विज्ञान मंत्रालय

National Weather Forecasting Centre
India Meteorological Department
Ministry of Earth Sciences

LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और माहे
36. लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Odisha
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chandigarh & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidarbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. 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
Thunder & Lightning
Hailstorm
Dust Raising Winds

Heavy Snow
Dust Storm
Heat Wave
Warm Night
Hot Day
Hot & Humid
Strong Surface Winds

Cold Wave
Cold Day
Ground Frost

COLOUR CODED WARNING

- No Warning (No Action)
- Watch (Be Aware)
- Alert (Be Prepared To Take Action)
- Warning (Take Action)

Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.
For more details, kindly visit https://mausam.imd.gov.in or contact: 011-2434-4599
(Service to the Nation since 1875)

DEFINITION/CRITERIA

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 ≥40° C for plains and ≥30° 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 ≥6.5° C **(b). Based on Actual maximum temperature** **Heat Wave:** When actual maximum temperature ≥45°C. **Severe Heat Wave:** When actual maximum temperature ≥47°C **(c). Criteria for heat wave for coastal stations** When maximum temperature departure is >4.5°C from normal. Heat Wave may be described provided maximum temperature ≥37°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 °C.
Cold Wave	**When minimum temperature of a station ≤10°C for plains and ≤0°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 ≤ -6.5 °C **(b) Based on actual Minimum Temperature (for Plains only)** **Cold Wave :** When Minimum Temperature is ≤ 4.0 °C **Severe Cold Wave:** When Minimum Temperature is ≤ 2.0 °C **(c) For Coastal Stations** When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C
Cold Day	**When minimum temperature of a station ≤10°C for plains and ≤0°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 ≤ -6.5 °C
Fog	**Phenomenon of small droplets suspended in air and the horizontal visibility < 1km** **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 ≤4°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 Strom**: Wind speed >220 kmph (>119 knots)

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