

Cold Wave Across Northwestern India

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What's in today's article?

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Why in News?

- Delhi and other parts of northwest India have been reeling under a cold wave spell that set in last week.
- In Delhi, the Safdarjung weather station has recorded cold wave conditions for five consecutive days so far this month, making it the longest such spell in a decade.

What is a Cold Wave?

- The **Indian Meteorological Department** (IMD) marks a cold wave in terms of minimum temperatures –
- When the **minimum temperature in the plains is 4 degrees or less** or
 - When the **minimum temperature is less than 10 degrees and 4.5 to 6.4 degrees below the normal.**

What are the Factors Contributing to Cold Wave in Northwest India?

- One of the major factors contributing to colder than normal temperatures over north India this month is the **large-scale fog cover.**
- Fog has been lasting for longer durations, preventing sunlight from reaching the surface and affecting the radiation balance.
- There is no heating in the day time, and then there is the impact of the night.
- Foggy or cloudy nights are usually associated with warmer nights, but if the fog remains for two or three days, cooling begins even at night.

Why is Delhi Colder than Himachal Pradesh and Uttarakhand?

- Delhi is reeling under an intense cold wave that has gripped northern India.
- The long cold wave spell in Delhi can be attributed to a **large gap between two western disturbances** which allowed the chilly north-westerly winds from the mountains to affect the plains for a longer-than-usual period.
- Mostly there is a gap of three to four days between two western disturbances but this time the period expanded to seven days.

What is Western Disturbance and how does it affect Weather in India?

Image Caption: Western Disturbance

- In simple terms, a Western Disturbance (WD) is an extra-tropical storm which originates in the **Mediterranean region**, the meaning of WD lies in its name.
 - In the term “extra-tropical storm”, storm refers to low pressure.
 - “Extra-tropical” means outside the tropics. As the WD originates outside the tropical region, the word “extra-tropical” has been associated with them.
- The disturbance travels from the “western” to the eastern direction.
- Disturbance means an area of “disturbed” or reduced air pressure. Equilibrium exists in nature due to which the air in a region tries to normalise its pressure.

- **Impact on India -**
 - A WD is associated with rainfall, snowfall and fog in northern India during winters.
 - Upon its arrival in Pakistan and northern India, clouds along with rain also arrive.
- It is very **useful for wheat and other Rabi crops**.

What is Indian Meteorological Department (IMD)?

- India Meteorological Department was established in **1875**.
- It is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology and allied subjects.
- **Concerned Ministry:** Ministry of Earth Sciences
- **Headquarters:** New Delhi

What are the Functions of IMD?

- To take meteorological observations and to provide current and forecast meteorological information for optimum operation of weather-sensitive activities like agriculture, irrigation, shipping, aviation, offshore oil explorations, etc.
- To warn against severe weather phenomena like tropical cyclones, norwesters, dust storms, heavy rains and snow, cold and heat waves, etc., which cause destruction of life and property.
- To provide meteorological statistics required for agriculture, water resource management, industries, oil exploration and other nation-building activities.

Q1) What are Tropical Cyclones?

Tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas bringing about large scale destruction caused by violent winds, very heavy rainfall and storm surges. This is one of the most devastating natural calamities.

Q2) What is the difference between Tropical and Extratropical Cyclones?

Extratropical cyclones cover a larger area and can originate over the land and sea. Whereas the tropical cyclones originate only over the seas and on reaching the land they dissipate. The extratropical cyclone affects a much larger area as compared to the tropical cyclone.

Source: [What is a cold wave, why northwest India is shivering](#) | [Indian Express](#)

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