

Cold Wave in Telangana

Mains: GS I - Geography

Why in News?

Recently, The India Meteorological Department (IMD) has issued a cold wave alert for four districts of Telangana.

What is a cold wave?

- **Definition** - According to world meteorological organization, cold wave is a period of marked and unusual cold weather characterised by a sharp and significant drop in air temperatures near the surface (maximum, minimum and daily average) over a large area and persisting below certain thresholds for at least two consecutive days during the cold season.
- **Criteria of IMD (Indian Meteorological department)**
 - **Cold Wave** - Min temp $\leq 10^{\circ}\text{C}$ (plains) AND $\geq 4.5^{\circ}\text{C}$ below normal.
 - **Severe Cold Wave** - Min temp $\leq 4^{\circ}\text{C}$ (plains) OR $\geq 6.4^{\circ}\text{C}$ below normal.
- **Season of Occurrence** - In India it primarily occurs between November to March, with December and January being the coldest months.
- **Vulnerable regions** - It hits the states of North & Central India such as: Punjab, Haryana, Delhi, Rajasthan, UP, MP, Chhattisgarh, Bihar, Jharkhand, West Bengal.
 - **Himalayan Regions** - Naturally colder, criteria focus on deviation from normal.
- **Causes**
 - **Western Disturbances** - Transient weather systems bringing moisture and cold air.
 - **Cold Air Masses** - Cold, Dry Air Masses - Movement of air from Siberia/Canada into India.
 - **Snowfall** - Heavy snow in the Himalayas triggers cold winds.
 - **Clear Skies** - Lack of cloud cover allows heat to escape rapidly.
- **Impacts**
 - **Health** - Hypothermia, frostbite, respiratory issues, increased mortality (infants, elderly).
 - **Agriculture** - Damage to Rabi crops (wheat, coffee, tea).
 - **Energy** - Spike in demand for heating fuels/electricity.
 - **Transport** - Reduced visibility, accidents.
- **Management**
 - **Warnings and guidelines** - Issued by IMD & NDMA (National disaster

management authority)

- **Preparedness** - Emergency shelters, public awareness, heat retention tips (dry clothes, hot fluids).
- **Agriculture** - Shielding crops, animal care.

Why there is a persistent cold wave over Telangana recently?

- **Combination of factors** - Over Telangana right now, the India Meteorological Department (IMD) has pointed to a combination familiar in winter:
 - Dry air,
 - Clear skies,
 - Continental winds.
- **Unusual dry air mass** - The air mass over Telangana State has been unusually dry of late.
 - When humidity is low, the atmosphere holds less water vapour, which is one of the main greenhouse gases near the surface.
 - With less water vapour to trap heat, the ground loses energy more efficiently after sunset.
 - Clear skies strengthen this effect because clouds that might otherwise absorb and re-radiate some of the outgoing heat are absent.
 - Meteorologists have already said the ongoing cold wave is partly linked to dry winds blowing north and northeast and clear skies at night.
- **Influence of surface winds** - The northerly and northeasterly surface winds bring cooler, drier air from inland parts of India rather than air from the Bay of Bengal, which is more moist.
 - This steady cooling keeps the daily minimum temperature down even when the daytime temperature is 'ordinary' since each night begins with a cooler starting point.
 - Telangana had a cold wave warning in mid-November but it has seemed to go on because these low-level winds haven't shifted, thus the local air mass has remained cool and dry.
- **Impact of weak disturbance** - A weak western disturbance is expected to influence the western Himalaya the IMD has said there could be a 2-4°C rise in the minimum temperature as the larger pattern evolves with the lower-level easterlies.

What lies ahead?

- In a press release issued by the IMD it has been said that cold-wave conditions had occurred at isolated places over Telangana and warned that such conditions were "very likely" over the State, as well as in north interior Karnataka.
- The bulletin also said there would be "no significant change" in minimum temperatures over "remaining parts of the country" during the next week.
- That is, the cold patterns won't break in a sudden way.

Reference

[The Hindu| Cold Waves](#)



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