

Cold Wave

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What is Cold Wave

A cold wave is a weather phenomenon that is distinguished by marked cooling of the air, or the invasion of very cold air, over a large area. It can also be a prolonged period of excessively cold weather, which may be accompanied by high winds that cause excessive wind chills, leading to weather that seems even colder than it is. Cold waves can be preceded or accompanied by significant winter weather events, such as blizzards or ice storms. Other names for a cold wave include "cold snap" and "deep freeze".

Effect on persons and economic activity

Exposure to extreme and especially unexpected cold can lead to hypothermia and frostbite, which require medical attention due to the hazards of tissue damage and organ failure. They can cause death and injury to livestock and wildlife. Exposure to cold mandates greater caloric intake for all animals, including humans, and if a cold wave is accompanied by heavy and persistent snow, grazing animals may be unable to reach needed food and die of hypothermia or starvation. They often necessitate the purchase of foodstuffs at considerable cost to farmers to feed livestock.

Extreme winter cold often causes poorly insulated water pipelines and mains to freeze. Even some poorly-protected indoor plumbing ruptures as water expands within them, causing much damage to property and costly insurance claims. Demand for electrical power and fuels rises dramatically during such times, even though the generation of electrical power may fail due to the freezing of water necessary for the generation of hydroelectricity. Some metals may become brittle at low temperatures. Motor vehicles may fail as antifreeze fails and motor oil gels, resulting even in the failure of the transportation system. To be sure, such is more likely in places like Siberia and much of Canada that customarily get very cold weather.

Fires, paradoxically, become even more of a hazard during extreme cold. Water mains may break and water supplies may become unreliable, making firefighting more difficult. The air during a cold wave is typically more dense and any cold air that a fire draws in is

likely to cause a more intense fire because the colder, denser air contains more oxygen.

Winter cold waves that aren't considered cold in some areas, but cause temperatures significantly below average for an area, are also destructive. Areas with subtropical climates may recognize unusual cold, perhaps barely-freezing, temperatures, as a cold wave. In such places, plant and animal life is less tolerant of such cold as may appear rarely. The same winter temperatures that one associates with the norm for Kentucky, northern Utah, or Bavaria would be catastrophic to winter crops in southern Florida, southern Arizona, or southern Italy that might be grown for wintertime consumption farther north, or to such all-year tropical or subtropical crops as citrus fruits. Likewise, abnormal cold waves that penetrate into tropical countries in which people do not customarily insulate houses or have reliable heating may cause hypothermia and even frostbite.

Cold waves that bring unexpected freezes and frosts during the growing season in mid-latitude zones can kill plants during the early and most vulnerable stages of growth, resulting in crop failure as plants are killed before they can be harvested economically. Such cold waves have caused famines. At times as deadly to plants as drought, cold waves can leave a land in danger of later brush and forest fires that consume dead biomass. One extreme was the so-called Year Without a Summer of 1816, one of several years during the 1810s in which numerous crops failed during freakish summer cold snaps after volcanic eruptions that reduced incoming sunlight.

Countermeasures

In some places (like Siberia), extreme cold requires that fuel-powered machinery to be used even part-time must be run continuously. Internal plumbing can be wrapped, and persons can often run water continuously through pipes. Energy conservation, difficult as it is in a cold wave, may require such measures as collecting people (especially the poor and elderly) in communal shelters. Even the homeless may be arrested on trumped-up charges and taken to shelters, only to be released when the hazard abates.

People can stock up on food, water, and other necessities before a cold wave. Some may even choose to migrate to places of milder climates, at least during the winter.

Suitable stocks of forage can be secured before cold waves for livestock, and livestock in vulnerable areas might be shipped from affected areas or even slaughtered. Smudge pots can bring smoke

that prevents hard freezes on a farm or grove. Vulnerable crops may be sprayed with water that will paradoxically protect the plants by freezing and absorbing the cold from surrounding air. (The freezing of water releases heat that protects the fruit.)

Hospitals can prepare for the admission of victims of frostbite and hypothermia; schools and other public buildings can be converted into shelters.

Most people can dress appropriately and can even layer their clothing should they need to go outside or should their heating fail. They can also stock candles, matches, flashlights, and portable fuel for cooking and wood for fireplaces or wood stoves, as necessary. However caution should be taken as the use of charcoal fires for cooking or heating within an enclosed dwelling is extremely dangerous due to carbon monoxide poisoning.

Adults must remain aware of the exposure that children and the elderly have to cold.