

Hazard / Definition

High Winds:

Violent down slope hurricane velocity winds, referred to as "Chinooks."

Description / Frequency

Violent down slope winds referred to as "Chinooks" are commonplace in Boulder County. These powerful windstorms can occur anytime from December through March, but most occur during the month of January. The jet stream (powerful current of air in the upper atmosphere) is at its strongest during that time and is usually directly over the area.

Historical Score: 5

One of the most devastating windstorms in Boulder County history occurred on **January 17, 1982**. Winds were clocked at the National Center for Atmospheric Research at 137 mph. Twenty gusts in excess of 120 mph were measured during a 45 minute period. This factor is probably why Boulder sustained so much damage during this particular storm. Generally serious damage starts to occur when winds reach 100 mph. Winds at 120 mph will exert four times the force of a 60 mph wind on a structure. South Boulder, which typically experiences strong winds, was the hardest hit area of the county. At least 15 people were treated at Boulder Community Hospital for cuts and bruises after they were struck with flying debris and glass. Trees were uprooted, power lines toppled, roofs blown off, houses torn apart, and cars damaged. Damage from this storm was approximately \$17 million dollars.

January 11, 1972: Also described as a "vintage year." Winds gusting to 97 mph damaged 40 trailers at Boulder Valley Village, including three that burned. Damage was estimated near \$3,000,000.

Boulder County usually experiences at least a couple wind storms each year, but not necessarily damaging storms.

Wind-Related Deaths in Boulder County:

March 18, 1920: Three people were killed when a fire truck responding to a fire collided with a car.

January 7, 1969: Vintage year for winds with one-half of all the houses in the City damaged. Winds clocked at 96 mph downtown and 130 at NCAR. One person died when he was blown off a Cherryvale fire department truck that was responding to a grass fire near the Boulder Airport.

Mitigation Options / Strategies

- C Following the wind storms in 1969 and 1972 the city began requiring contractors to erect buildings that could withstand winds up to 105 mph. Methods included the installation of "hurricane brackets" installed where roofs meet the wall beams. Tie down on all mobile homes are required. Building codes and ordinances are enforced.
- C Where new homes and buildings are under construction, contractors are encouraged to secure all loose building materials.
- C Residents of Boulder have become aware of the hazards caused from the wind and they are learning to deal with this hazard. A lot of property damage is caused from flying debris, so lawn furniture, garbage cans and etc. should be secured. The Table Mesa area in South Boulder is most vulnerable to the wind and some home owners have taken precautions by installing hurricane shutters to protect windows from flying debris.
- C SCC Communications and US West partnered together for a warning and evacuation system for Boulder County. It is called the Emergency Warning and Evacuation Service (EWES) and is part of the Emergency Preparedness Network (EPN). The existing 9-1-1 database of telephone numbers and addresses is used in combination with detailed maps to help determine the geographic boundaries of an area impacted. The system is capable of calling up to 2,000 numbers in one minute. It is designed to deliver recorded information to endangered people in advance of a disaster or any major event. Messages can be delivered in various languages, as well as to pagers or the Emergency Alert System (EAS).
- C The Boulder County Multiple Agency Coordinating System (MACS) group, consists of representatives from all agencies and jurisdictions within the County. This group makes plans and agreements for the procurement of resources needed during emergencies.

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June 1969: A University of Colorado student died while sailing under a parachute in 80 mph winds.

January 10, 1990: One person killed in a three-car accident on the Boulder Turnpike 2 miles west of Broomfield. Winds gusting to 107 mph caused poor visibility.

October 29, 1996: A Boulder County man died as he was trying to secure his pop-up camper trailer during winds exceeding 100 mph. The trailer blew over on top of him. Trees were downed and cars and property damaged.

February 3, 1999: Downed power poles and tree limbs cut power to over 10,000 homes. The peak gust of 127 mph was recorded at Sugarloaf. Nederland had 80 mph winds, Boulder 98, Lafayette 120, Longmont 100, and Wondervu 119 mph. Nearly a dozen power poles went down between Baseline and Arapahoe on 95th Street near Lafayette. The roof of the Boulder County Jail sustained approximately \$150,000 damage. Damage along the front range was close to \$3 million dollars.

April 8-10, 1999: High winds hit Boulder County on April 8, 1999 and then again on April 10, 1999 with winds recorded at 120 miles per hour at Sugarloaf, near 100 in South Boulder and 90 mph in Longmont. Trees were uprooted and semi-trailers overturned.

Other significant storms with wind **velocities above 90 mph or where damage occurred:**

10/1949: (85 mph-300 ton crane toppled-Valmont Plant)

1/15/1967: (125 mph - NCAR)

6/25/1969: (123 mph - NCAR)

1/24/1970: (122 mph at NCAR)

1/25/1971: (147 mph at NCAR)

12/11/1973: (120 mph - Marshall Mesa)

11/26/1977: (119 mph - Davidson Mesa)

12/4/1978: (148 mph - one death)

1/24/1982: (140 mph - Wondervu)

12/25/1984: (112 mph - \$100,000 damage)

9/24/1986: (131 mph - \$100,000 damage)

1/23/1988: (90 mph-damaged bridge-Hwy 157)

2/9/1988: (96 mph - 1600 homes without power)

5/7/1988: (110 mph - 12,000 residents without power)

1/8/1990: (110 mph - Minor damage)

Mitigation Options / Strategies

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12/14/1990: (120 mph - roof, trees, cars damage)
1/24/1992: (143 mph at NCAR - minor damage)
1/3/1995: (104 mph - Boulder Airport)
12/4/1995: (95 mph-NCAR - minor damage)
11/13/1995: (124 mph-NCAR - power outages)
3/8/2000: (96 mph-NCAR -power outages in Nederland,
a downed power line started wildfire in Pine
Brook Hills)

Potential Score: 5

This hazard has been rated moderate even though Boulder experiences high winds yearly, sometimes with velocities exceeding 100 mph. ***Loss of life, due to this hazard has been minimal.*** Most property is covered by insurance and residents have learned mitigation measures to prepare for this hazard.

Impact on Life and Property:

Damage occurs to homes, cars and trees in Boulder County from these destructive winds. Injuries can occur from flying debris. The City of Boulder is usually the most affected because of its location so close to the foothills.

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