

NWS Damage Survey

Cloudcroft Wind Event (March 13, 2019)

Overview...

Strong westerly winds developed just after sunrise across the higher terrain of the Sacramento Mountains in Otero county. Sustained winds from the west of 60 to 70 mph with much higher gusts persisted through most of the day. By 11 AM the Village of Cloudcroft lost all power and would remain without power for more than 24 hours. Hundreds of ponderosa pines were either uprooted or snapped within the Village of Cloudcroft resulting in damage to 30 structures, 10 vehicles, and completely blocking 15 roads. Across the entire area surrounding Cloudcroft it is estimated that more than 1000 trees were either snapped or uprooted.

Map of Surveyed Damage (Village of Cloudcroft)



Location 1: 11:10 AM

Estimated Max Wind Speed: 107 MPH

A total of three large trees fell on this property. The largest measured approximately 4 feet in diameter at its base. The estimated wind gust of 107 MPH snapped this tree completely at its base, with the tree falling onto the home. Shortly thereafter another large tree across the street was uprooted and also fell into the home. Finally, a third tree in the yard next door was uprooted and fell on a car parked next to the home. In addition, several power lines came down as a nearby utility pole was also snapped (likely by a falling tree).

Location 1: Damage Images



Location 2: 11:40 AM

Estimated Max Wind Speed: 90 MPH

A nearly 100' tall ponderosa pine with a trunk measuring a little more than 2 feet in diameter was uprooted in the back yard of this home, falling directly on the roof. Upon impact, the trunk of the tree snapped in half with the top portion of the tree landing in the front yard.

Location 2: Damage Images



Location 3: 11:52 AM

Estimated Max Wind Speed: 94 MPH

Two separate trees came crashing down on this residence in southern parts of Cloudcroft. One tree was uprooted, falling across the front deck of the home and crushing a red Porsche parked in front of the home. A second tree, approximately 2 feet in diameter snapped in half, falling on a truck that was parked next to the house.

Location 3: Damage Images



Location 4: 11:53 AM

Estimated Max Wind Speed: 101 MPH

A very tall ponderosa pine with a trunk diameter of almost 3 feet completely snapped just above its base, allowing the entire tree to fall onto the front of a two-story house. The max wind gust here was estimated to be around 101 MPH. This house is actually located just next door to location 2 where a tree was uprooted by a 90 MPH wind gust less than 15 minutes earlier.

Location 4: Damage Images



Location 5: 3:20 PM

Estimated Max Wind Speed: 94 MPH

Two trees fell on this property just south of Highway 82. The first was uprooted and fell across the front yard, narrowly missing this house. However, a second tree from the next-door neighbors back yard also was uprooted and fell directly on the home, puncturing a hole in the bedroom ceiling.

Location 5: Damage Images



Survey Summary...

This damage survey was conducted in the Village of Cloudcroft in Otero county following public reports of over 100 MPH wind gusts and reports of extensive damage within Cloudcroft and nearby areas. Extensive tree damage was observed including both uprooted ponderosa pines as well as pines snapped either at their bases or midsections. The Cloudcroft Fire Department escorted three meteorologists from NWS El Paso to multiple locations where both tree and property damage were located. Wind speed estimates based on the damage done to these hardwood trees suggested an extended period of stress due to sustained winds of near 70 MPH. The most significant tree damage appeared to have been caused by wind gusts exceeding 90 MPH with the highest estimated wind speed estimated to be around 107 MPH.

Meteorological conditions at the time included very strong gradient winds (blowing primarily from the west) across the area extending from the surface to well above mountain top levels. Light to moderate frozen precipitation combined with the strong winds led to excessive rime ice build up on the windward side of the exposed trees. This ice accumulation likely caused the trees to become top-heavy, thus increasing their vulnerability to the strong wind.

The majority of the significant damage surveyed was located on a north to south exposed ridge line on the windward side of the mountain. Most of the damage also appeared to be located at the edge of canyons, where funneling of up-canyon winds resulted in the higher wind gusts that were ultimately responsible for the most extensive damage.

Additional Images...



Report Courtesy: Jason Laney – Warning Coordination Meteorologist (NWS El Paso)
Greg Lundeen – Science and Operations Officer (NWS El Paso)
Jordan Pegram – Meteorologist (NWS El Paso)