

Appendix F

Severe Storm Profile

Severe weather events can be destructive forces that put life, and property at risk. The severe weather events that affect the University of Oregon campus are winter storms and wind storms. Winter storms are usually characterized by freezing temperatures, precipitation and ice. Wind storms are characterized by high winds. However, characteristics of the two storms can occur together, resulting in high winds accompanied by a winter storm. This type of storm can destroy trees and power lines, potentially interrupting utility services, starting fires, and putting life and property at risk.

Characteristics & Terminology

Below are the details of the severe weather elements that can affect the campus.

Snow

Snow does not usually pose a serious threat unless there is substantial accumulation. However, snow on roads can limit access to and from the university. For example, on December 12, 1995, a winter storm with heavy snow and rain caused serious damages to the University of Oregon and Eugene. Damages for the university were over \$13,000.

Ice

Like snow storms, ice storms are comprised of cold temperatures and moisture, but subtle changes can result in varying types of ice formation including freezing rain, sleet, and hail.¹ Freezing rain can be the most damaging of ice formations. While sleet and hail can create hazards for motorists when they accumulate, freezing rain can cause the most dangerous conditions within a community. Much of the damage from ice storms occurs when the ice thaws: although some tree limbs fall from the weight of the ice, many broken tree limbs are held in place by the frozen ice structure. Water lines that have frozen in the storm will begin to leak as the ice melts. As a result, storm emergency periods often extend beyond the freeze to include the thaw.

Wind

A windstorm is generally a short-duration event involving straight-line winds and/or gusts in excess of 50 mph. The most destructive winds are those which blow from the south, parallel to the major mountain

¹ Taylor, George H. and Hannon, Chris, *The Oregon Weather Book*, (1999) Oregon State University Press

ranges.² Trees and exposed buildings and roofs are the most vulnerable university properties when a high-speed windstorm occurs. However, lower wind speed windstorms can also be destructive, and can result in fallen trees and downed power lines.

The Columbus Day Storm of 1962 was a classic example of a southerly windstorm. The storm developed well off the coast of California and moved from the southwest, then turned and came directly from the south toward the Oregon Coast. Atmospheric pressure fell rapidly ahead of the storm center and rose rapidly once the storm center passed, creating very tight and sharp pressure gradients.³ This storm resulted in property damage and loss of life around the state.

Location and Extent of Severe Storms

Severe winter storms that affect the University of Oregon typically originate in the Gulf of Alaska or in the central Pacific Ocean. These storms most commonly occur from October through March.⁴ For wind storms, the majority of the destructive surface winds that could affect the University of Oregon are from the southwest.⁵ While some winds blow from the east, they most often do not carry the same destructive force as those from the Pacific Ocean.

Previous Occurrences of Severe Storms

Over the past 100 years, the university has been affected by both winter and wind storms. The three severe storms listed below are some of the more recent occurrences, and illustrate how damaging these storms can be.

On December 12, 1995, the university suffered damages of \$13,300 from the accumulated snow and ice during a windstorm. On December 28, 1998, campus was hit by a winter storm that cost the university \$99,381.96. Heating coils froze and had to be replaced. Additionally, the power lines that run above-ground along University Street came down. The latest severe storm damage occurred on February 7, 2002 from a windstorm. The university claimed \$52,460 in insurance to remove fallen trees, replace broken windows, and replace the roof of the Native American Longhouse. Severe storms also affected the university in

² Taylor, George H. and Hannon, Chris, *The Oregon Weather Book*, (1999) Oregon State University Press Ibid.

³ Taylor, George H. and Hannon, Chris, *The Oregon Weather Book*, (1999) Oregon State University Press Ibid.

⁴ Interagency Hazard Mitigation Team, *State Hazard Mitigation Plan* (2000) Oregon State Police - Office of Emergency Management

⁵ National Weather Service Web-Page, <http://www.wrh.noaa.gov/pqr/pdxclimate/index/php> (Accessed 20 October 2004)

February 2006, but data was not available at the time the report was published.

Table F.1. Severe Storm Events

Date	Location	Type of Severe Weather	Details	UO Insurance Claims
December 6-10, 1951	Statewide	Windstorm	Tree fell on UO Faculty Club.	
October 12, 1962	Statewide	Windstorm	Columbus day storm: Oregon's most destructive storm to date with 116~131 mph winds. Utilities were out for weeks. The total cost statewide was \$170 million.	
December 12, 1995	Statewide	Winterstorm	UO experienced heavy snow and ice. Damages included fallen tree limbs and broken windows	\$13,300
December 28, 1998	Oregon	Winterstorm	Extremely cold weather froze water in some UO heating coils. Powerlines on University St. fell down.	\$99,400
March 2, 1999	Willamette Valley	Windstorm	Severe winds broke windows at the UO, knocked down trees, and destroyed a light pole.	\$10,500
February 7, 2002	Willamette Valley	Windstorm/ Winterstorm	During this storm, trees were blown over, windows broken, and the native American Longhouse roof blew off.	\$52,500