

# CAT Hotsheet



Institute for  
Catastrophic Loss Reduction

## Pine Lake tornado

Date: July 14, 2000  
Time: 7:05 p.m. MDT  
Location: Pine Lake, Alberta  
Insured loss: CAD10-15 million  
Economic loss: >CAD10 million (total)  
Return period: N/A

Just after 7 p.m. Mountain Daylight Time (MDT) on July 14, 2000, a tornado measuring F3 on the Fujita Tornado Intensity Scale, touched down five kilometres west of a campground/trailer park at Pine Lake, Alberta, located about 90 kilometres north of Calgary. Travelling east, the kilometre-wide twister remained on the ground for 15 to 20 kilometres - about half-an-hour - carving a swath of damage ranging from 800 to 1,500 metres wide. According to Environment Canada, damage was heaviest in a 500-metre central corridor. It estimated that winds reached 300 km/h. Baseball-size hail was also reported.

Several hundred trailers were flipped over, boats and cars were tossed into the lake, buildings were levelled, trees were uprooted and common items were turned into deadly missiles. Approximately 400 camp sites were destroyed. The storm claimed 12 lives and injured 140, making it the deadliest in Canada since the 1987 Edmonton tornado, which claimed 27 lives.

Environment Canada issued a severe thunderstorm watch for the Red Deer area (including Pine Lake) at 5:37 p.m. MDT on Friday July 14, 2000. At 6:18 p.m., the watch was upgraded to a severe thunderstorm warning, indicating that a thunderstorm with potentially large hail, very heavy rain, intense lightning and dangerous winds had developed. The warning also included a reminder that some severe thunderstorms produce tornadoes. In Canada and the United States, tornado warnings are usually issued on visual confirmation of funnel clouds having touched down or with Doppler radar evidence.

At 7:05 p.m. MDT the RCMP notified Environment Canada's Prairie Storm Prediction Centre that a tornado had just been reported at Pine Lake. The severe thunderstorm warning was immediately upgraded to a tornado warning. Warnings and watches were continued through the evening hours of July 14. More than 40 watches and warnings were issued for Alberta and Saskatchewan.

According to Environment Canada, an average of 16 tornadoes occur in Alberta every year. An average of 41 tornadoes occur each year on the Prairies. Canada ranks second in the world for tornado occurrences after the United States.

### Canada's Worst Tornadoes

Regina, Saskatchewan - June 30, 1912 - 28 dead, hundreds injured  
Edmonton, Alberta - July 31, 1987 - 27 dead, hundreds injured  
Windsor, Ontario - June 17, 1946 - 17 dead, hundreds injured  
Pine Lake, Alberta - July 14, 2000 - 12 dead, 140 injured  
Valleyfield, Quebec - August 16, 1888 - 9 dead, 14 injured  
Windsor, Ontario - April 3, 1974 - 9 dead, 30 injured  
Barrie, Ontario - May 31, 1985 - 8 dead, 155 injured  
Sudbury, Ontario - August 20, 1970 - 6 dead, 200 injured  
St-Rose, Quebec - June 14, 1892 - 6 dead, 26 injured  
Buctouche, New Brunswick - August 6, 1879 - 5 dead, 10 injured  
(Source: Environment Canada)

## The Fujita Scale

F-Scale	Winds	Type of damage
<b>F0</b>	40-72 mph 64-116 km/h	MINIMAL DAMAGE: Some damage to chimneys, TV antennas, roof shingles, trees, and windows.
<b>F1</b>	73-112 mph 117-180 km/h	MODERATE DAMAGE: Automobiles overturned, carports destroyed, trees uprooted.
<b>F2</b>	113-157 mph 181-253 km/h	MAJOR DAMAGE: Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned.
<b>F3</b>	158-206 mph 254-332 km/h	SEVERE DAMAGE: Exterior walls and roofs blown off homes. Metal buildings collapsed or are severely damaged. Forests and farmland flattened.
<b>F4</b>	207-260 mph 333-418 km/h	DEVASTATING DAMAGE: Few walls, if any, standing in well-built homes. Large steel and concrete missiles thrown far distances.
<b>F5</b>	261-318 mph 419-512 km/h	INCREDIBLE DAMAGE: Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished.

*Established in 1998 by Canada's property and casualty insurers, ICLR is an independent, not-for-profit research institute based in Toronto and at the University of Western Ontario in London, Canada. ICLR is a centre of excellence for disaster loss prevention research and education. ICLR's research staff is internationally recognized for pioneering work in a number of fields including wind and seismic engineering, atmospheric sciences, water resources engineering and economics. Multi-disciplined research is a foundation for ICLR's work to build communities more resilient to disasters.*