

AVALANCHE IN WESTERN CANADA - WHO IS IN CHARGE?

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ABSTRACT

Every year several centimeters (feet) of snow fall in Canada. In fact, this land remains one of the snowiest countries in the world as more than 1000 cm of snow may fall in Western Canada in certain parts of the Canadian Rockies (British Columbia, Alberta, Yukon and the Northwest Territories) from as early as September to late May or yearlong for some summits (peaks). Avalanche is a common phenomenon for this part of North America and with more and more human activities ranging from infrastructure to backcountry trips. Fatalities, road and rail closures and delays are on the rise and costing millions of dollars to the Canadian economy.

In the past few decades, Canada has developed a high level of expertise to better control avalanche and save lives. This article depicts how the Canadian army (National Defense and the Canadian Forces), Parks Canada, the Canadian Avalanche Association, Avalanche Canada (Center) and several other stakeholders have developed and implemented tools and methods to protect everybody. (KEYWORDS: avalanche, monitoring, awareness, protection, winter, snow, Western Canada)

INTRODUCTION

Every winter people (as well as cattle) may be buried alive and die because of avalanche throughout the world including countries like New Zealand, Chili, and Argentina in the southern hemisphere. Research (De Quervain, 2018) in countries like Switzerland (Swiss Federal Institute for Snow and Avalanche Research in Davos), France (ETNA Research Unit in Grenoble) and in the US (namely Arctic and Alpine research, (INSTAAR) at the University of Colorado at Boulder) have studied the problem for several decades and established a high standard of expertise in that field (LaChapelle, 1977, 2001; Ferguson and LaChapelle, 2003). For the past few decades, Canada has also been developing better expertise to overcome the situation as outdoor activities claim more lives (Canadian Avalanche Association, 2002; Parks Canada, 2018; National Defense, 2018).

Number of fatalities (examples) in Western Canada due to avalanche.

1910:	58	(while clearing railway tracks in Rogers Pass, BC.)
1955:	7	(near Lake Louise, AB)
1965:	26	(in a mining camp in Stewart, BC)
1991:	9	(while skiing in Bugaboo Provincial Park, BC)
2003:	14	(while skiing in Revelstoke and Rogers Pass, BC)
2009:	8	(while snowmobiling near Fernie, BC)
2014:	3	(while snowmobiling and snowshoeing, Lake Louise and BC)
2017:	5	(while snowshoeing near Vancouver, BC)

CANADIAN ARMY, NATIONAL DEFENSE, CANADIAN FORCES

With the construction of the Trans-Canada Highway through the Rockies, the artillery unit of the Canadian army has been in charge of taming avalanches in British Columbia and in Alberta as early as the winter of 1962. Every winter the army deploys soldiers with cannons; road crews close a section of the highway, 105 mm Howitzers blast away at snow pack hanging on top of the mountains from permanent highway-side gun platforms, and then snow ploughs clear the snow that has accumulated on the highway.

Hence, several rounds triggering hundreds of avalanches every winter allow the area to be safer for everybody in what is believed to be the most avalanche-prone stretch of major highway in all North America (mainly along Glacier National Park).

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PARKS CANADA

Parks Canada is a department within the Canadian Federal Government. Over the years it has divided Western Canada into five (5) dangerous major regions in order to better monitor the problem: Banff-Yoho-Kootenay, Glacier, Jasper, Little Yoho and Waterton Lakes. Maps are issued on a regular basis all year long with avalanche warnings for skiers and other people taking part in outdoor activities.

Parks Canada also offers several online resources such as avalanche terrain ratings, avalanche terrain maps, avalanche skills training, avalanche forecasting, highway avalanche control program, basic safety information and mountain information network for the public. The department also monitors a series of weather stations located in high altitude keeping track of the temperature and the snow pack conditions year-round.

CANADIAN AVALANCHE ASSOCIATION

Founded in 1981, the Canadian Avalanche Association (CAA) is a non-profit Canadian organization aiming at protecting the public from avalanche. Courses such as Avalanche Search and Rescue, Advanced Weather, Avalanche Control Blasting and events such as conferences and awareness are available.

Several other resources are online including the publication of The Avalanche Journal. CAA is located in Revelstoke, British Columbia and members adhere to best practices to ensure the confidence of Canadians, industry, tourism and all levels of governments.

AVALANCHE CANADA (CENTER)

Avalanche Canada (AC) is also a non-government organization. It is equally committed to public avalanche safety programs in trying to eliminate avalanche fatalities and injuries in Canada. It offers numerous backcountry resources and information. AC issues daily avalanche forecasts throughout the winter for Western Canada via their website and also provides an app for iPhone and other electronic devices (Avalanche Canada Mobile). Annual reports, news and events as well as profile booklets are published and also available online.

OTHER STAKEHOLDERS

While they are not directly involved with the problem of avalanche in Canada, Canadian universities and scientists are developing more programs to better understand how Canadians feel when it comes to snow, cold and winter.

The University of Alberta with the UAlberta North (formerly called: Canadian Circumpolar Institute), McGill Arctic and Sub-Arctic research stations as well as Laval University CEN and National Research Council Canada (CNRC-NRC) are among the research institutions all working hands in hands in making the wintertime a better and safer season in Canada.

CONCLUSION

More than 1000 people died in Canada over the past 300 years because of avalanches. Since the mid-1950s, the rate of fatalities and injuries has increased, due namely by more and more backcountry activities, especially along the Rocky Mountains in Western Canada. For the past few decades, several entities such as the Canadian Government and several other stakeholders have been working together in research, education and awareness in order to save more lives. While more progress has to be made, Western Canada remains a safer place to be when it comes to winter, snow, cold and avalanche.

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WEBSOURCES

National Defense (Canadian Forces) Website (avalanche and army)
Parks Canada Website
Canadian Avalanche Association (CAA Website)
Canadian Avalanche (Center) Website
Avalanche Canada Website.