The Canadian Avalanche Centre – a five year retrospective

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ABSTRACT
The evolution and activities of the Canadian Avalanche Centre (CAC) are examined. The CAC is directed by the Canadian Avalanche Association. Three of its main facets are: the Training Schools; an Information Exchange; and the Public Safety Services. Keeping pace with technology, rapidly growing user groups, and fluctuations in funding sources, have been the primary forces influencing changes at the CAC. As well, several additional projects have been administered by the CAC are identified.

INTRODUCTION
In Canada we have benefited greatly from the experience of other countries. We hope that there may be some elements of what is done in Canada that may be useful in your area.

Geographically, the greatest concentration of avalanche involvements and fatalities in Canada lies inside a triangle from Edson to Pincher Creek to Vancouver Island. In the past 12 years, 72% of all fatalities have been in this triangle. In addition, Canada has large mountain areas where there are a few people. There are the huge avalanche areas of the Coast Range, the mountains of the Yukon and Northwest Territories, Labrador and Newfoundland as well as Quebec, where in the past few years there has been an increasing number of avalanche incidents reported. But the concentration remains inside Canada’s avalanche triangle.

We, in Canada, have perhaps the greatest amount of avalanche terrain used on a given day by highways, developed ski areas and backcountry ski operations. For example, the heli-skiing industry alone operates in a total of about 30 000 km² of terrain — on some days 20-30% of this terrain may be used. The combination of the helicopter skiing industry, snowmobiling and the highways system in Canada have an extraordinary rate of exposure. There is an exceptionally high standard of service required so that the roads remain open and to minimized accidents in all backcountry activities. Ski area operations, highways personnel, resource industry (particularly forestry and mining), guiding operations and public safety organizations are all examples of groups that rely on the various services of the CAC.

HISTORY, NRC AND THE CAA
The earliest record, starting in 1884, of Canada’s avalanche history is sadly shown in the record of terrible accidents that were a result of ignorance and attitude. Economic realities and an increasing concern about the value of human life saw the first developments in avalanche safety for railways. Then the long tunnels were built. A few examples still exist, like the 8 km Connaught Tunnel. There were very few people in the mountains in winter and inside the ski areas, skiers did not demand the more challenging avalanche prone terrain. In the 1950’s that started to change. The construction of the Rogers Pass Highway prompted the National Research Council (NRC) to start avalanche research and give advice on the road construction. In 1974 a major avalanche accident at a cafe beside a British Columbia highway prompted the NRC to form an avalanche section. At about the same time the growth in backcountry use and helicopter skiing increased dramatically. A transition was occurring, the industry related avalanche accidents started to decrease but the number of recreational accidents started to grow.

In September 1975 the first meeting of the avalanche committee was held by the illustrious group of Peter Schaerer, Geoff Freer, and Ron Perla. They were soon joined by Willi Pfisterer representing Parks Canada. This small group were the beginning of what became, in 1983, the Canadian Avalanche Association (CAA), a non-profit (definitely) and non-government (partly) society. The identity of the CAA is also well described by the term quango, a quasi-autonomous non-government organization. Even in the earliest stages the membership was represented by a broad cross-section of pursuits and skills required to represent everyone in the avalanche business. Research science, geographers, highways, engineering, meteorology, rescue, resource industry, snowmobiling, skiing, parks, and geoscience are all represented.

The constitution of the CAA describes its objectives. There are five committees - technical, education, explosives, membership and public safety. The CAA has 250 members who, with an elected executive, decide the policy and direction of the association. One of the earliest objectives of the association was to establish standards that would make the exchange of information efficient and ensure that similar techniques were being used to evaluate snow stability. The Training School system was started by the NRC and the British Columbia Institute of Technology in the mid-1970’s and was instrumental in establishing this most basic building block.

In 1991, funding for the avalanche activities of the National Research Council ceased. Fortunately the Schools were well established and being run by the CAA. In addition to continuing the public safety work of the NRC there were two other events that were the catalyst for opening the Canadian Avalanche Centre in 1991. Firstly, there had in the previous few years been some serious avalanche accidents where, upon investigation, it became apparent that a more immediate exchange of information about snow stability and avalanche conditions between operations may have reduced the risk of an avalanche accident. A method for information exchange was needed between near and distant neighbors. The second catalyst was the dynamic presidency of Chris Stethem who made doubters into believers and the Canadian Avalanche Centre started the first winter of the industry Information Exchange (InfoEx) in the winter of 1990/91.
OPERATIONS OF THE CANADIAN AVALANCHE CENTRE

The Training Schools
In winter there are three principal operations: the Schools; the Information Exchange; and the Public Safety Services. The Canadian Avalanche Association Training Schools are the essential building block of the other two operations. Neither the Information Exchange nor the Public Safety Services of the Canadian Avalanche Centre would be possible without the Schools. This is the 25th year of the Schools. In all those years there has been one constant presence — Peter Schaerer. His work, along with numerous other dedicated people, has led to the creation of a high and consistent standard for Canada.

The Schools have a two level structure. The Level 1 course teaches students to be good technical observers and safe travel techniques. This is a one week course that grants a certificate to successful participants. The Level 2 course may be taken after 100 days of apprenticeship. The objective of the Level 2 course is to teach students to apply the observations of weather, avalanches and snowpack to making decisions about snow stability. Courses are designed for those working in various types of avalanche safety programs. These include highways operations, ski areas, ski and mountain guiding, resource industry and parks personnel. The Schools attract about 300 students each year. Course fees pay for the entire expenses of operating the Schools. Although there are no direct government grants to the Schools, the National Search and Rescue Secretariat recently contributed funds to develop new course materials.

The policy of the Schools is decided by the Education committee. There is a Schools coordinator and a full-time registrar who also works on other CAC business. Course leaders and instructors are hired to work the courses and regular instructor training programs are required to maintain the standard of the teaching staff.

The Information Exchange
The Information Exchange (InfoEx) mentioned earlier now has fifty subscribing operations which include nearly every avalanche safety program in western Canada. For each operation the InfoEx is a vital part of their snow stability evaluation and daily information gathering process. Ski areas, highways, forestry operations, parks, helicopter and snowcat skiing operations all subscribe. Each operation submits a detailed report about weather, snowpack, avalanches and snow stability to the Avalanche Centre by 1800 h. This information is then collated and a summary report for all operations is available for distribution by 2000h. The input and output are by fax, Internet email and computer bulletin board. Each year the collation of the submitted files becomes more automated. There is also overnight remote weather station data available in the very early morning hours. Snow profiles, field stability tests and most avalanche observations are reported for the day. The standards established by the Schools ensure that the observations and decisions made at one operation are using the same methodology as all other subscribers. This is an essential element to assist in making operational decisions at their own operation.

Each operation must have a CAA member on staff and agree to a confidentiality clause in the contract. This ensures an open dialogue and eliminates the chance that the technical nature of the InfoEx will be misinterpreted. At the CAC the InfoEx requires one full time person to manage the service and troubleshoot for the clients with file transfers, modem and computer support. There is also an InfoEx assistant who collates the report for five evenings per week. The remaining two evenings are done by the InfoEx manager.

Subscribers to the InfoEx pay an annual fee for the service which wholly supports the operational costs of the InfoEx. Many of the InfoEx subscribers also buy a weather forecast package from the CAC. The Avalanche Centre purchases the weather forecast and re-distributes it as an added service.

The Public Safety Services
The Public Safety Services (PSS) started with the introduction of avalanche bulletins for areas outside National Parks. The Rocky Mountain National Parks (Banff, Jasper, Kootenay, Yoho, Waterton), Glacier National Park and Kananaskis Country in Alberta had been providing avalanche information for many years. A few large ski areas also provided avalanche information for outside the ski area. Increased activity in areas outside the Parks and public and political attention once again focused due to some senseless tragedies called for a demand for avalanche information for areas outside the Parks.

In 1991 the National Search and Rescue Secretariat (NSS) provided funding to start the Public Safety Services of the CAC. This funding was received on the condition that after three years the Public Safety Services would become financially self reliant. Money would be received through the sale of various services, such as the Public Avalanche Bulletin. A network of provincial agencies in Alberta as well as Parks and Forestry agencies in British Columbia became involved. Snowmobile manufacturers have become a part of this network of cooperators in addition to numerous other commercial, club and industry interests. To them all we have a public safety service to sell, a return on their advertising dollar and an opportunity for them to fulfill an obligation in an area where they have a responsibility.

At the same time the CAC opened there happened to be a dramatic increase in the number of accidents to snowmobilers. Because the machines are now capable of traveling in deep, steep powder snow, the amount of avalanche terrain that is available on a given day is far greater than that of a skier or snowboarder. It equals, if not surpasses, the amount of terrain used by helicopter skiers. The period of exposure is high and the snowmobiles go up and down the terrain whereas, obviously, heliskiers only goes down. The snowmobile manufacturers have become one of the important partners in making the financial viability of the PSS possible. The two western Canadian provincial snowmobile organizations have also become very proactive in avalanche safety. Fund raising and selling of the Avalanche Bulletin is a continuous process.

The Avalanche Bulletin is the primary Public Safety Service. The Bulletin is totally reliant on data and re-
ports from the InfoEx to make it work. Without the InfoEx there could be no Bulletin. The contribution of the InfoEx subscribers cannot be overstated. The Avalanche Bulletin is prepared at the Avalanche Centre on Monday and Thursday mornings for four large geographic zones. These comprise the most southern part of the Coast Range and Vancouver Island, the North Columbia Mountains, the South Columbia Mountains and the Rockies from Fernie to Jasper. The reports overlap with some of the National Parks bulletins.

The evolution of the Bulletin started with strictly a report of weather, snowpack and reported avalanche activity and any interpretation of the information was up to the user. For the next two winters we were so bold as to issue a rating on stability as well as a travel advisory. For the past two winters we have adopted the European five step danger scale and found it to be considerably successful. This evolution has been determined by two factors. The first is our careful increase in confidence in using the InfoEx data and the trust of those observers in letting us use their technical data and putting it into a plain language report for public use. Secondly, there has been an increased appreciation and demand from the public for more detailed information. We have found and received comments about the fine line between what is by some considered too general a report but, by others, a too technical report. We, like most avalanche agencies, do not have the resources to provide a variety of different reports. The Bulletins describe in general terms the conditions prevailing in huge areas, each region comprising up to 50 000 km². Has it been successful? Judging by the increase in use—yes. From 500 direct inquiries in the first winter to over 30 000 last winter. Regular distribution is by a toll free phone number, a fax network, Internet email and web page and local phone numbers in Calgary and Vancouver as well as various newspapers. 'Indirect hits' are much harder to count but include print media, national and regional radio and television—particularly at times of high danger.

The success in preventing deaths is even harder to score. But we do know that there has been a huge increase in the number of people venturing into avalanche terrain. However, there has not been a proportional increase in avalanche deaths. Let's hope that is in part due to more avalanche information being available.

Other Projects
Other CAA projects include the recently completed 45 minute avalanche search and rescue video called 'Beating the Odds'; the publication of a new edition of 'Observation Guidelines & Recording Standards for Weather, Snowpack and Avalanches'; the complete upgrade of all training material for the Schools; and, due out in November 1996, the publication of 'Avalanche Accidents in Canada, Volume 4'. These projects have been supported by the National Search and Rescue Secretariat whose mandate is increasingly in the role of prevention. The Federal Minister for Defense (also responsible for SAR) in a recent speech identified the Canadian Avalanche Association as an example of an organization that in today's economic climate takes the initiative to establish a joint venture in an area that was previously wholly a government responsibility.

CAC AND THE FUTURE
The Canadian Avalanche Association decided the policy and direction of the Canadian Avalanche Centre. The membership and executive under the current leadership of the President of the CAA Jack Bennetto have decided on some important initiatives for the future. The Information Exchange and Schools will continue to grow and develop in response to the needs of the clients. The areas covered by the Avalanche Bulletin will expand as more technical information becomes available from regions where more people are traveling. The membership of the CAA is developing standards to maintain continued competence and professionalism. Finally, of increasing concern is the number of avalanche accidents in eastern Canada, last year 40% of fatalities were in Quebec and Baffin Island. A good challenge for this organization going into the next century.