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The journal of Canada's avalanche community

OUR HISTORY
A LOOK BACK AT 20 YEARS OF INFOEX AND 30 YEARS OF THE CAA

TODAY'S TRANSCEIVERS
THE TROUBLE WITH SIGNAL OVERLAP

POACHERS!
INCREASING THE STRESS FOR AVALANCHE WORKERS AT SKI AREAS

ICAR field session, Swiss history, Japan, AGM, Forecast regions, and more!

Volume 97 Summer 2011
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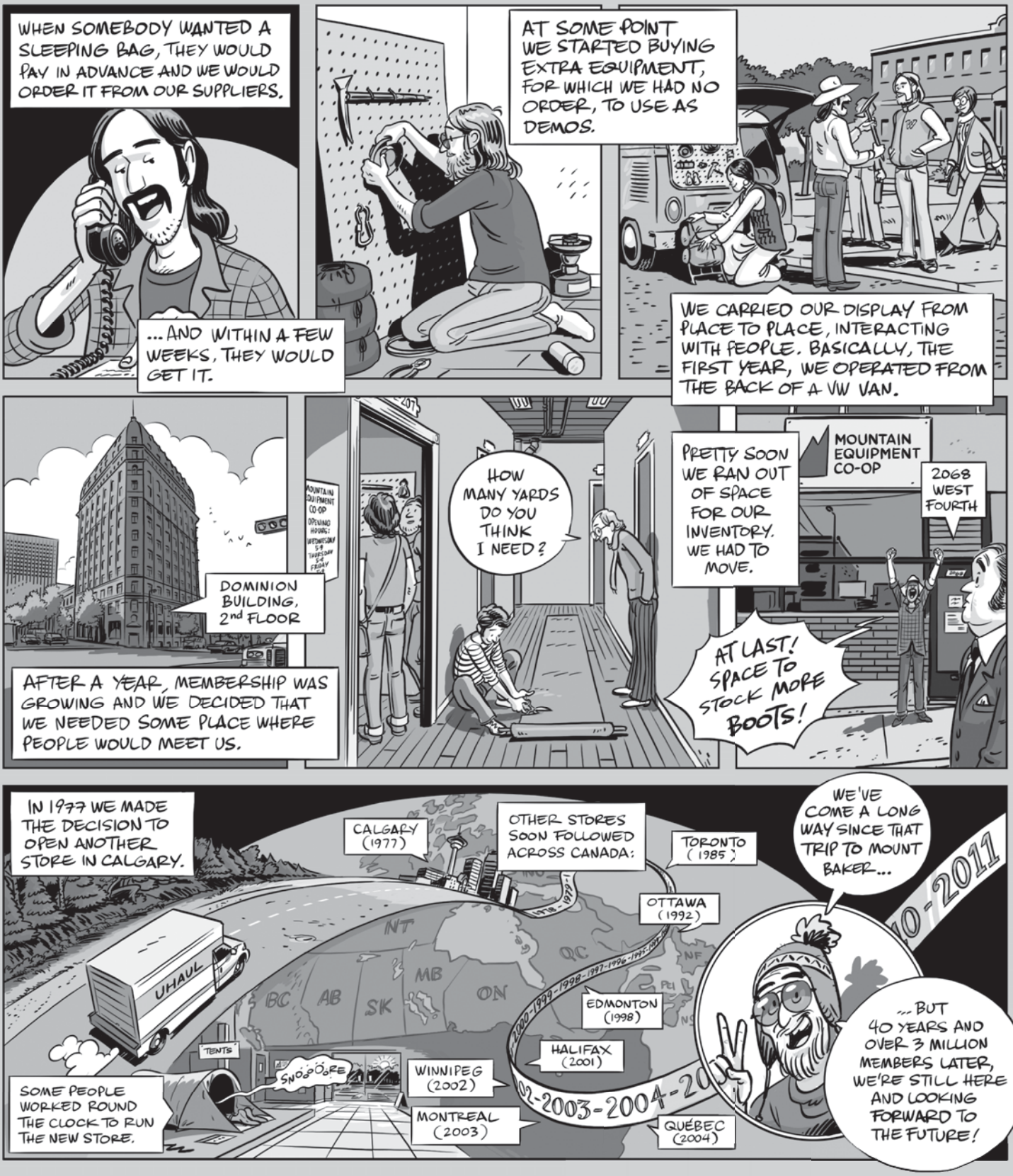

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On the cover: The Cheops 1 slide path at the summit of Rogers Pass in 1961, one year before the Trans-Canada Highway was completed. The earth mounds, formed in a checkerboard arrangement to deflect avalanches, were an innovation introduced by Peter Schaerer, who had first seen them in Austria. "As an experiment, we built a series of mounds in the Mounds slide path in September, 1957," he says. "They performed well the following winter so, encouraged by the results, I located earth mounds in other suitable paths. The contractors who did the earth work for the highway were happy to use their equipment for the extra pay. Today, most of the mounds are barely visible due to the vegetation that has grown around them." Photo Bruno Engler
This page: Parks Canada Wardens probe line practice, circa 1960s. Photo: Revelstoke Museum and Archives

Revelstoke Museum and Archives

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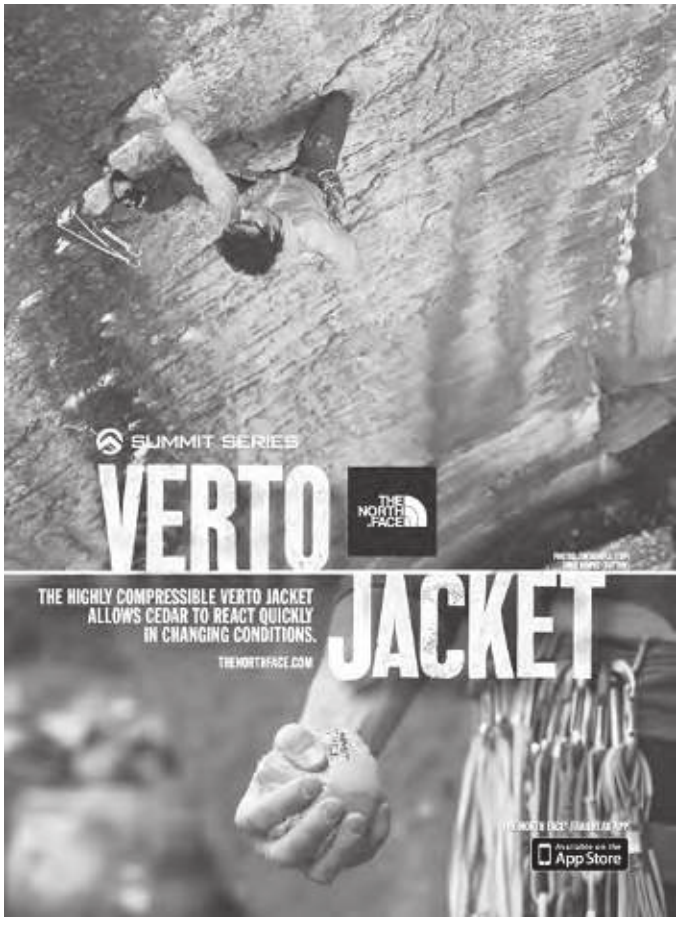

This journal is the official publication of the Canadian Avalanche Association (CAA), the Canadian Avalanche Centre (CAC) and the Canadian Avalanche Foundation (CAF). The CAA and CAC are non-profit societies based in Revelstoke, BC, serving as Canada's national organizations promoting avalanche safety. The CAF is a registered charity formed to provide a tax-deductible fundraising mechanism for the support of public avalanche safety initiatives. The CAF is based in Canmore, AB.

The goal of *avalanche.ca* is to keep readers current on avalanche-related events and issues in Canada. We foster knowledge transfer and informed debate by publishing submissions from our readers. Responsibility for content in articles submitted by our readers lies with the individual or organization producing that material. Submitted articles do not necessarily reflect the views or policies of the CAA, CAC or CAF.

We always welcome your opinions, teaching tips, photos, research papers, survival stories, new product announcements, product reviews, book reviews, historical tales, event listings, job openings, humourous anecdotes and, really, anything interesting about avalanches or those people involved with them. Help us share what you have. Please send submissions to:

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Our vision:
To be a world leader in avalanche awareness, education and safety services.

To the editor:

I recently received Volume 96 and read it through immediately. Many, many interesting articles and concepts were presented to keep the avalanche professionals well informed. But as I turned over to page 60, the hair on the back of my neck stood on end. The photo may be an interesting art piece but the safety message is not even close to correct. The safety message that is always explained by the helicopter companies and pilots, heli-ski guides, and instructions to volunteer SAR workers is to never approach the tail rotor under any circumstances. If the pilot does not know you are there and decides to start up, the tail rotor is immediately engaged and could have severe consequences. This no-approach toward the tail rotor is firmly endorsed by Transport Canada and WorkSafe BC.
I believe the high standard of safety the Avalanche Association is striving for should be seen in all aspects of our professional work. Therefore, we need to look at safety at all times and clearly review our documented messages that are seen and read by many other folks in related industries. Thanks again for all the rest of the great information and photos.

Yours truly
George Field
Mountain Guide ACMG-UIAGM
CAA Professional Member

Photographer Greg Paltinger replies:

This photo is not meant to be representative of working safety around helicopters. It was simply taken during interesting lighting upon return from a snow study plot. The helicopter landing zone is a natural clearing below the top of the ridge, where the machine can only "nose in" with the tail boom in the clear. The pilot shuts down the helicopter before workers exit the machine. Walking past the tail boom (when the helicopter is shut down) is the only access and egress to this study plot, and all safety protocols are strictly followed. My intent was not to show poor safety procedure—just a ride home at the end of our day.

Sincerely,
Greg Paltinger

Troy Grant

Karl Klassen

Survey Says...

Earlier this year, CAA members were given a survey to fill out. The questions were wide-ranging, designed to give staff and the board an idea of what's going well, what needs improving, and ideas for the future. One of the questions asked about your satisfaction with this publication, and when we first had access to the responses that was the section I zeroed in on.

Overall, when asked how satisfied you are with the journal, virtually everyone chose either "very satisfied" or "satisfied." A couple of readers even went outside the box and wrote "extremely satisfied," and though that extreme version wasn't an option, it was nice to see. A small number of responders answered "fairly satisfied" to that question and we'll be working hard until the next survey to change those member's minds. You know who you are.

This survey also allowed people to add comments, and that section has been especially interesting and informative as we work to evolve this publication. A number of people wondered if it could be in colour, even partially, but most were aware the answer to that is cost. Certainly we'd love to be in colour and, as print technology improves and becomes more affordable, it may be in our future. We'll keep you posted on that.

While we received many compliments on content, more than a few people asked for a broader range of articles, with an emphasis on educational and experiential pieces. Some suggestions were for "CPD-like articles" and "more case history stories." Another suggested more open-ended articles that invite discussion by soliciting comments and someone else thought we might try a regular feature interviewing some of the "big pros" to share their day-to-day activities in assessing avalanche terrain. There were good suggestions in there and we'll give some a try. Thanks for the ideas.

I also heard the call for more international stories, and for more bilingual articles. In this issue you'll see we have a short article from the Swiss Federal Avalanche Institute, which is also celebrating an anniversary this year, and we'll have another story from them in the fall issue. And you're right, those of you who suggested more bilingual stories, we should be doing that and I'll make more of an effort to round up stories from our colleagues in Quebec.

Another topic of discussion centred on the preference for electronic or hard copy. While many pointed out the obvious cost savings of an electronic version of the journal, an equal number made the point of the "readability" of the hard copy and the ability to pass the publication on to students. Currently we're considering making older issues available online but at this point, we remain committed to the hard copy model.

A couple of other respondents said they'd like to see more letters to the editor published, or letters to the president. For my part, I have published every letter to the editor since I took over this publication in volume 68. So I'm putting the ball back in your court—write more letters to the editor! On the other hand, I had never thought about publishing letters to the president. While much of the president's correspondence would not be of interest to a wider audience, some of it is probably relevant to the membership. I'll work with the board on that.

On a final note, more than a couple of members suggested that it's time to change the name of our journal, and I couldn't agree more. We've been batting around ideas for a few months and now it's your turn. What do you think would be a suitable name for this publication? There are already many votes to return to the original title of Avalanche News, but let us know if you think you have something better.

Thanks again to everyone who took the time to respond to the survey, share their thoughts on this publication, and on our whole association. Have a great summer!

Ian Tomm (right) and CAA Professional Member Chris Granter on Boulder Mt during an ICAR field session.

John Kelly

RE-VISIONING CONTINUING PROFESSIONAL DEVELOPMENT

Continuing Professional Development (CPD) has been a core principle of the CAA since its incorporation in 1981. According to records found in a few old boxes at our office, the first official full-day CPD seminar ran in the spring of 1998. That seminar cost $1800 in consulting fees and $1487 in travel expenses for a total of $3,287. Today's seminars run more in the $20,000.00 range, with over 300 people in attendance this past spring. How times have changed!

CPD topics have ranged over the years but a few things have stayed consistent—the session has always been held in the spring during our annual general meetings in Penticton, and the focus has been on challenging participants in their learning and understanding about avalanche-related topics.

This spring marked the 14th spring CPD seminar for CAA members. Combined with the 20-30-40 anniversary celebrations held later that evening, the day provided a good opportunity for reflection on what we are trying to accomplish with our CPD seminars. The board, our education committee and CAA staff have always tried to find the most relevant theme for the spring CPD seminar that will be of interest and value to members. This year we sought your input via an online survey. The results were very helpful, and it was through your feedback and request that we decided on the topic of Avalanche Search and Rescue in Canada for this spring's seminar.

In March of this year, the CAA hosted the first North American meeting of the Avalanche Commission of the International Commission of Alpine Rescue. In attendance were 30 professional avalanche workers from nine alpine countries—Norway, Sweden, Japan, US, France, Slovenia, Switzerland and Canada. They all said the same thing—it was great to be in the field together, ski touring, snowmobiling, participating in workshops and developing skills in the snow.

There are many quotes that will sure to become standard in our community from this meeting. One in

"I THINK IT'S TIME WE START THINKING AND PLANNING FOR A FIELD-BASED CPD SESSION."

particular stands out for me. Colani Bezzola, Mountain Safety Manager for Canadian Mountain Holidays, said "I wish I did this years ago. Now I understand!" after a day of snowmobiling that took the group all the way to the site of the March 13, 2010 accident on Boulder Mountain.

There was another statement made during that conference that has contributed a fair bit to the current reflection we're doing about the CAA, its role in the modern avalanche industry and the future of CPD. Bill Mark, past CAA president and current lead guide with Mike Wiegele Helicopter Skiing, said, "We need to do this more." We means us, members of the CAA, and I couldn't agree with Bill more.

Fourteen years of indoor CPD seminars is a lot. While each of those annual sessions has had its own share of strengths and weaknesses, they remain a cornerstone to the CAA's CPD program for members. But we need to learn from our experiences and that ICAR conference was a good teacher. I think it's time we start thinking and planning for a field-based CPD session. The need is there, the solutions are becoming clearer, and with the pressures of evolving professional practice, we have the motivation. So, what are the options and how do we move from concept to completion?

Smaller, regional field-based CPD seminars have been tried in the past with mixed success. I know of no large-scale, organized field-based CPD seminar of CAA members in the past but I'm sure this idea is not new. With the learning that occurred while running the ICAR seminar, the CAA is now in a much better place to understand (and not underestimate) what it takes to host a multi-day, field-based seminar.

Since 1990, ITP has scaled from a $90,766 training program to a $923,475.00 program in 2011. That's a 920% increase in 20 years and, as you can imagine, ITP administrative capacity has scaled along with that increase in revenues. We've also recently added a dedicated Member Services staff person. In short, we now have a capacity at the CAA that we didn't have even three years ago. If there is a time when the CAA is ready to organize a larger, field-based CPD program it is now. So what's stopping us?

Over the summer, the CAA board, committees and staff will be looking at the CPD program in a more holistic way than we have in the past. We have a motion from the spring AGM to review the CPD policy to ensure its currency, and at the same time we need a new vision for what the CAA is doing "on the ground" for its members in support of that CPD policy.

The value of the spring CPD is clear. Can we re-profile it a little and focus some of our attention on fall, pre-season regional CPD seminars between members, and potentially a larger, late March/early April field-based CPD seminar? I think the answer is yes and this summer promises to be a time of investigation to think of ways that we can do this for members.

The number one disappointment of the ICAR conference was that more CAA members couldn't be involved. The list of members wanting to attend was considerable, in stark contrast to the small scale of the seminar. Clearly we need to move towards offering something of this nature—if not every year, perhaps every other year.

I'd like to reproduce the value of the ICAR 2011 conference for CAA members in early April 2012. Revelstoke seems like a natural place to host such an event, although large-scale meeting room space is limited. A day in the helicopter, a day on a snowmobile, and a day at the ski area. It worked for ICAR and it will work for CAA members, but are you interested? Please let us know.

Professions and Professional Practice

2011 has sure come up fast—wasn't it 2000 just a few short years ago? In recent years I have found myself reflecting increasingly on the vocation and profession path that many of us have taken over a number of years or, in many cases of CAA professional members, many, many, years. Okay, that's four "manys" in one sentence. That may be seen as a bit emphatic, but it is meant to be.

As I look back on the early years of my own path, I can recall guiding experienced clients—who had been skiing with CMH for 20-plus years—who asked, "Is this your first or second year of guiding? Are you only in your early twenties?" The depth of your training and experience were of great interest to the people in your care, and I looked forward to when I would have five or ten years under my belt, as some measure of professionally gained experience. Those were important lessons, realizing the responsibilities and duty of care when you're in a position of trust.

All CAA Professional Members are in a position of trust and our CAA Code of Ethics, established in 1985 and updated in 2006, reflect that responsibility. Article 1 states:

The purpose of the code of ethics is to state general principles of conduct to be observed by each Member in order that he/she may best serve the interest of the public, his/her employer, his/her clients and his/her fellow members.

That article, which has remained constant over the past 25 years, defines the essential requirement of professional responsibilities, congruent with any established profession and professional practice.

The CAA has just celebrated 30 years. When we look at the purposes of our association, which have been in place since 1981, the professional expectations for avalanche practitioners are clear:

- To represent persons who are professionally engaged in avalanche-related activities in Canada.
- To establish and maintain high standards of professional competence and ethics for persons engaged in avalanche-related activities.
- To exchange technical information and to maintain communications between persons engaged in avalanche-related activities.
- To establish and maintain standards of education in avalanche safety.
- To organize training courses in all aspects of avalanche hazard control for professionals.
- To promote and to act as a resource base for public awareness programs about avalanche hazards and safety measures.
- To promote research and development in avalanche safety.

While the CAA's mandate has remained constant, the CAA's function in society has evolved. As we all know, CAA Professional membership and expertise has come under increasing scrutiny over the past decade or so. There is continued pressure for further formation of professional standards, structure and documentation, and ongoing expectations for professional status and recognition in the avalanche field of expertise.

The CAA continues to engage at various levels on issues regarding professional practice, both with members on the front line and partner organizations. On June 14, the CAA attended a meeting with WorkSafeBC, along with many other stakeholder organizations. What was noticeable is how the CAA is perceived as the "honest broker" in these negotiations—trusted, knowledgeable, and without bias. We should all be proud that our association has the integrity and transparency this position requires.

On June 15 – 16, the first Professional Practices meeting was held in Revelstoke, with 24 CAA Professional Members in attendance. The focus of discussion was on establishing a Professional Ethics Practices Committee and hammering working out on the details structure for standards of professional practice. This meeting was an important milestone in our efforts to refine the definitions of the important work we all do, and foster professionalism in our ranks. You can expect to hear more about this over the summer. As always, member engagement and involvement is essential at this time if you expect the avalanche profession to continue to be well respected and trusted.

On a final note, I'd like to shine a light on one of the cornerstones of the CAA, our professional training schools. Forty years ago, Canada's first recognized and multi-sector professional avalanche training session was delivered at Rogers Pass. Over the decades, the CAA's training program has earned respect and recognition, both nationally and internationally. I'm following Mary Clayton's suggestion that we include more letters to the president, so I've included one that was sent to me earlier this year that highlights the success of our Industry Training Program.

All the best in the summer ahead. Look for some important recharging after a busy winter, and keep up the important professional development reflections and actions.

Phil Hein

The first Professional Practices meeting was held in Revelstoke June 15-16, with 24 professional members in attendance.

Letter to the President

Dear Phil:

RE: Avalanche Operations Level 1 course Jan 2-Jan 9, 2011

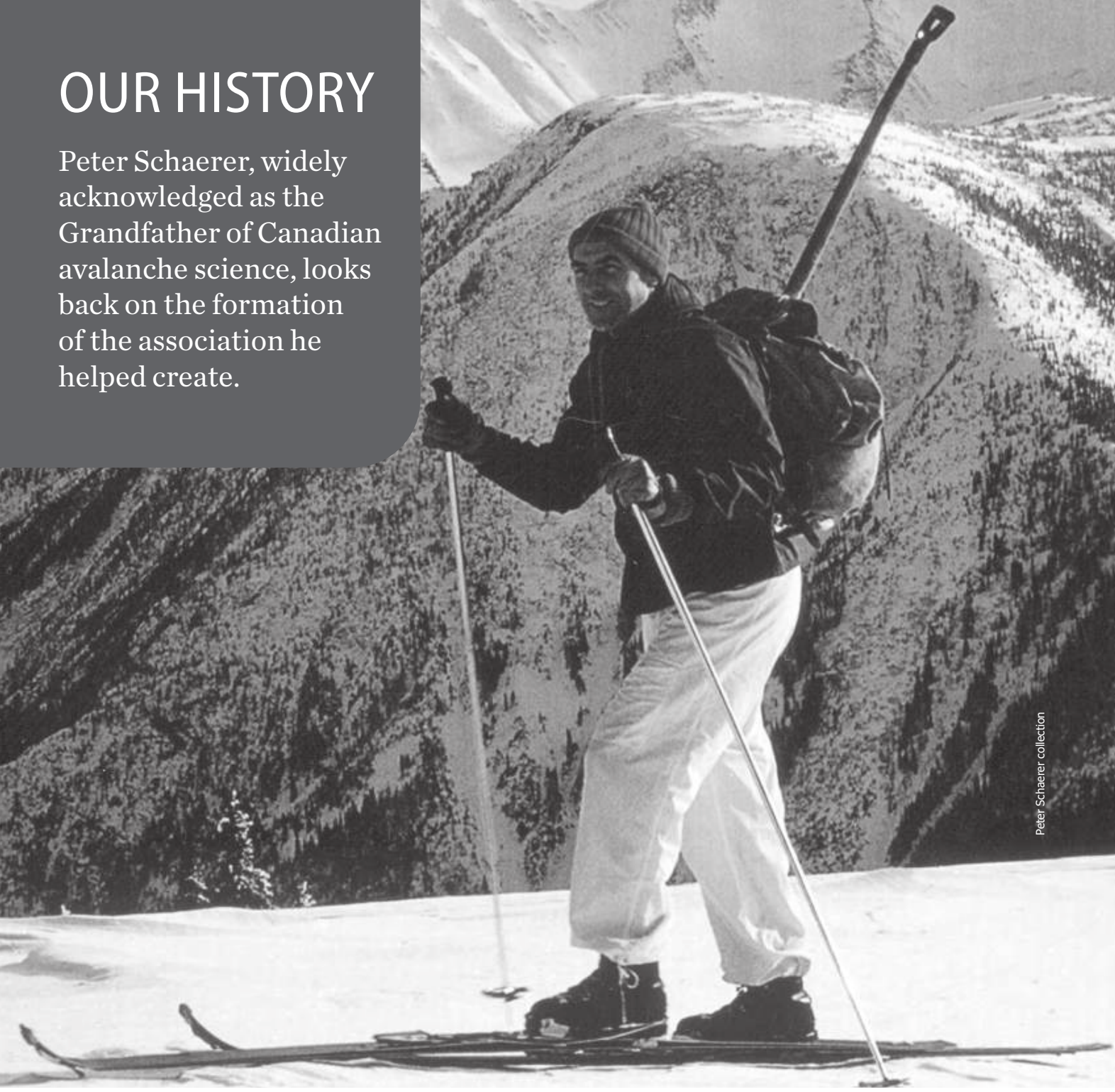
I attended the level 1 course during the above dates in Fernie and I wanted to let you know how much I enjoyed the course in all aspects. The instructors, course leader Mark Klassen along with Rick Schroeder, and Jock Richardson did an excellent job. I suppose there is no proper way to say "hard-ass" in a formal letter but these guys were all of that when it was required and very supportive and humorous to the students when that happened to be required. The personal experiences of these instructors were impressive to say the least and quite educational but if I had to pick anything about the course material and the instructors it was the level of professionalism and detail that they clearly expected. I found that refreshing and very enjoyable.
I look forward to attending future CAA courses.

Sincerely,

Peter Russell, RPF
Harvesting Supervisor

OUR HISTORY

Peter Schaerer, widely acknowledged as the Grandfather of Canadian avalanche science, looks back on the formation of the association he helped create.



Peter Schaerer collection

The Canadian Avalanche Association has grown in 30 years, similar to an avalanche that was artificially triggered as a small slab, picked up an unexpected mass of snow in its track and impacted and spread powder beyond its anticipated path. The CAA was formed because there was a need for cooperation among professionals in governments, industry and recreation who were involved with the protection against snow avalanches in Canada. Who could have foreseen the depth and breadth of its impact today?

Historically, railways and mines were the first operations in Canada concerned with avalanche safety but those operations made no formal snow observations and hardly had safety and rescue plans. Banff National Park was probably the first establishment in Canada with staff trained in avalanche safety and rescue, because fatal avalanche accidents had occurred in the park. With the opening of the highway at Rogers Pass in 1962, Glacier National Park joined Banff in leading the Parks in avalanche safety, and staff who had worked at Rogers Pass introduced snow observation techniques and safety measures in other parks.

Between 1965 and 1975, there was a rapid development of resources, transportation and recreation in the mountains of Western Canada, and operators of mines, railways, highways,

electric transmission lines, ski areas, helicopter skiing and backcountry guiding soon discovered that avalanches were a serious hazard. The winter of 1964-1965 in particular alerted industries, when numerous avalanches closed roads and an avalanche destroyed the camp of the Granduc Mine with 26 fatalities.

Over the winters of 1971-1972 and 1973-1974 numerous and destructive avalanches affected highways, railways, buildings and power lines, and caused fatalities among skiers and road users. A destructive avalanche causing the death of seven people near Terrace in January, 1974 motivated the BC Ministry of Highways to engage in an extensive avalanche safety program with specialized technicians. 1977 and 1979 followed as bad winters with accidents and deaths at helicopter and other guided skiing operations. The numerous destructive avalanches and accidents in that decade not only stimulated an awareness of safety measures and caused an increase of the number of students in avalanche training courses, but they triggered a need for exchange of information among operators through a central body.

The idea of forming a national avalanche centre floated around departments of the governments of Canada and BC in 1974, but did not become a reality for various reasons, despite good intentions and numerous debates. However, the demands for exchange of information and the development of techniques were strong, and in 1975 an Avalanche Committee was formed.

This committee was comprised of four people representing separate agencies with an interest in avalanche safety: Peter Schaerer of the National Research Council; Ron Perla with the Glaciology Division of Environment Canada; Dave Pick (later replaced by Willi Pfisterer) of the National Parks; and Geoff Freer of the BC Ministry of Highways. Among other tasks, the committee organized successful avalanche workshops in 1976 at Banff and 1980 at Vancouver, which later evolved into the International Snow Safety Workshops (ISSW) we know today. The committee also organized the reporting of avalanche accidents and published the newsletter Avalanche News (now superseded by avalanche.ca). The first issue of Avalanche News appeared in October 1979, generously printed by the BC Ministry of Highways and made available to anybody who expressed an interest.

In February 1981, the Avalanche Committee resolved that the demand on its activities had become too onerous, and that a stronger organization should be formed. That replacement had begun to form already, as those who were engaged in avalanche safety programs in Canada were working together for a common purpose.

After the serious 1979 avalanche winter with 14 fatalities, approximately 30 representatives of avalanche safety programs met in Vancouver for frank discussions of the accidents and the individual operations. The attendees included wardens of national and provincial parks, highway avalanche technicians, ski patrollers, mountain guides and ski guides. When the meeting was repeated in May 1980, the participants concluded that common problems, for example standards of observations, control with explosives, and training and qualifications of avalanche technicians, might best be resolved through an organized body. On November 4, 1980, the same group gathered during an avalanche workshop in Vancouver and resolved to form an association.

The action to form the association started at the next winter review meeting on May 5, 1981 in Banff. The participants elected a steering committee of eight members representing national parks, provincial parks, highways, ski areas, mountain guides, helicopter skiing, and research. The committee drafted by-laws on the same evening but was unable to reach a decision about who would be eligible to become a member of the association.

This problem was solved on the next day in discussions of small working groups and a vote by all participants. The attendees of the meeting felt strongly that active members should be only professionals with experience in making decisions in avalanche terrain and responsible for the safety of an operation or for guided groups. Consequently, in the first two decades of the CAA, the by-laws with respect to membership contained only practicing professional members (the original term was “active members”) and associate members. An elected membership committee was created with the task of enforcing the qualifications of the professional members.

In the summer of 1981, the steering committee finalized the constitution and by-laws and submitted an application for registration to the Government of BC. The acceptance of the name of the association by the Registrar of Societies proved to be the biggest obstacle, but after three rejections of proposed names and a personal talk with the officers in Victoria, we were registered as the Canadian Avalanche Association on December 30, 1981. The formation of the CAA, the qualifications for membership and an application form were published in Avalanche News in January 1982.

The CAA held its first annual general meeting in Revelstoke on May 5, 1982. At that time there were 50 professional (active) members and nine associate members. The first elected directors were Peter Schaerer (President), Willi Pfisterer (Vice President), Geoff Freer (Secretary Treasurer), Walter Schleiss (Chair of Membership Committee), Chris Stethem (Member at Large), Herbert Bleuer (Member at Large), and Brian Weightman (Associate Member representing the Alpine Club of Canada). In 1982, the CAA was registered as a society in the Province of Alberta.

The activities and the tasks of the directors were modest in the first decade. The principal achievements were strong presentations to other organizations, for example to the British Columbia Institute of Technology concerning the administration and standards of the avalanche courses, and to Environment Canada with requests for mountain weather forecast. The CAA made the next significant step in 1989 when it assumed the administration of the industry training courses, and for this purpose occupied office space and hired its first employee. From that moment on, there has been only growth. The members who attended that first annual general meeting in 1982 now look with amazement at the unforeseen size and successful activities of the CAA.

OUR HISTORY

A framework for industry and the backbone of the public avalanche bulletin, InfoEx is a uniquely Canadian innovation

By Alan Dennis

As part of the 20/30/40 year event at the CAA AGM in Penticton I was asked to say a few words after the banquet about the early years of InfoEx. That certainly brought back some interesting and hopefully accurate memories. It was a time of late nights, now old technology and establishing what is still a unique service in the world for the avalanche community. I want particularly to remember the people involved in the early years.

Thanks to Chris Stethem and Colani Bezzola who interviewed and hired me in September 1991. It was a leap of faith to hire the maverick from the North (Stewart, BC) and South (Milford Road, NZ) to help set up the Centre in Revelstoke. Chris took a fairly hands-off style of management role, while Colani was often in the office during his CMH visits in Revelstoke and we had many animated, candid and productive discussions during those early years.

Following cuts to the National Research Council avalanche project in 1991, there was a serious hole in avalanche infrastructure in Canada. There was also a huge increase in the use of avalanche terrain for recreation, both publicly and commercially, which was resulting in more avalanche incidents.

Through coroners' inquests and legal judgements, it was recognized that information was required for the public outside the avalanche bulletins of the national parks. The idea was formed to create a means by which all operational avalanche programs could exchange their snow avalanche information.

Chris Stethem put together a grant proposal for a New Initiatives Fund from the National Search and Rescue Secretariat (NSS). The funds approved were $133,000 over three years to establish InfoEx, develop a training program for the public and provide avalanche bulletins for areas outside the national parks. It was signed off by then-Environment Minister Jean Charest in September 1991 and had strong support from the NSS and Parks Canada.

Kel Fenwick and Chris Whalley ran the "beta" winter of InfoEx in the winter of 1990-91. Inge Anhorn looked after the registration of the schools and administration of the small office just above the Revelstoke post office. Because of the technical nature of the information to be shared, there were concerns about confidentiality and liability among the various types of avalanche safety operation. Also, given the computer and communication technology of the time it was a challenge to provide timely collated reports with daily exchange of weather, snowpack, stability and avalanche information.

In the first few years there were four very different approaches to the running of InfoEx. I think it would be fair to say that Kel came from the school of the "Big Idea." He had a contract to provide a computer-based platform for InfoEx to run on. This was a big idea at the time, with computer literacy not universal among subscribers (or this writer), and the fragile communication links from some operations made this a major challenge.

I read recently some of the instructions that came with InfoEx v2.0: daunting. I don`t know if our hearts sank or soared when Kel showed up from Whistler with that latest version. He was very ahead of his time with trying to develop custom software to transfers files and near-automatic collating of the report. He sure worked hard at it.

Chris Whalley and Torsten Geldsetzer (who took over after Chris was head-hunted for GIS pastures) both came from the School of Perfectionism. This was difficult to achieve as the reports were all arriving at the Centre on faxes. Many were handwritten and came via slow systems. Some were blurred, written at the end of the day to be collated and sent out by 10 pm. Negative/minus signs, decimal points, and other critical words and symbols were easily lost, causing frustration at both ends—the subscriber and the Centre. I would say Chris and Torsten achieved >99% perfection.

Evan Manners was hired to replace Torsten who left for graduate school and high arctic adventures. Evan came from the School of "No Problem." There was no problem for any challenge that occurred daily, as PC-based use became more widespread and faxes were slowly phased out. Any time of day or night Evan could be called to troubleshoot an InfoEx crash at one end or the other, and talk through with the subscriber about how to fix the problem.

While the scale of the operation grew, the boys needed help. This came from a rota of girls. Lisa Longinotto, Lynn Freeland, Wanda Hill, Laura Dyer all came from the School of "Get It Done, We Can Do It." And that they did with faxes still to be deciphered, system shutdowns and tight deadlines. Over the following years Clair Israelson and Ian Tomm with their team further developed the growth of InfoEx to being a fundamental part of all avalanche safety operations. The body of data gathered now has applications for research and other benefits for the public good.

That initial NSS New Initiatives Funding served the public well, and the NSS continues to be a strong supporter of the CAA/CAC. InfoEx data was used as the foundation for public avalanche bulletins, a role that continues. The main objectives of InfoEx are still to assist avalanche forecasters with daily decisions, minimize risk and reduce the number of avalanche incidents. Thanks to the commitment of all subscribers, especially those who signed on in the early days, and to the CAA staff who have worked on this vital service over the years.

CANADIAN AVALANCHE ASSOCIATION
INDUSTRY INFORMATION EXCHANGE
SNOW STABILITY SUMMARY
BY REGION

DATE: December 19, 1990 1800 PST

N.COAST
NO REPORTS

S.COAST
WHISTLER; STRONG NORTHERLY WINDS HAVE SCOURED MOST SLOPES. SNOW STABILITY GENERALLY GOOD...LOCALLY FAIR ON SOUTH SLOPES. NO AVALANCHE ACTIVITY OBSERVED.

N.COLUMBIA:
ADAMENTS; GOLDSTRM - SORCERER; EASY SHEAR AT 13 ON NEW SNOW NO AVALANCHES OBSERVED. COMMENT ON WIND SLAB? NEEDS CLARIFICATION. STAILITY FAIR IN ALPINE AND SUBALPINE GOOD ELSEWHERE.

MONASHEES; SOARDS CREEK; NEW SNOW BONDING WELL.. WIND AFFECTED? IN ALPINE ESPECIALLY SE SLOPES..NO SLIDES OBSERVED STABILITY ALPINE FAIR... STABILITY SUB ALPINE GOOD

CARIBOOS; LOWR CANOE; COLD LOW DENSITY SNOW SURFACE TO 30 - 40. ND SHEARS OBSERVED IN NEW SNOW..LOWER SNOWPACK WELL SETTLED. NO AVALANCHES OBSERVERED. STABILITY FAIR IN ALPINE GOOD SUB-ALPINE.

S.COLUMBIA:
BUGABOOS; RORY CREEK; EASY SHEAR AT 30 CM ON STELLARS, MODERATE SHEAR AT 50 ON PART SETTLED; LOWER SNOWPACK WELL SETTLED.
WIND SLAB OBSERVED IN ALL OPEN AREAS. MANY CLASS 2 TO 3 NATURALS OBSERVED FOR PAST 24 HRS. SNOW STABILITY POOR IN ALPINE, FAIR SUB-ALPINE AND GOOD IN SHELTERED AREAS.

KOOTENAY

ROCKIES:
MARMOT BASIN: TEMPERATURE GRADIENT AT SURFACE TO 40 CM WITH SOME FACETTING OBSERVED IN PARTIALLY SETTLED SNOW. MID PACK NOW FIST WITH OLD RAIN CRUST FAILING WITH MODERATE UNEVEN SHEAR.. 2 - 3 FACETTS AT GROUND NOW 4 FINGER ..NO NEW AVALANCHE ACTIVITY OBSERVED...MOST HIGH START ZONES IN SKI AREA HAVE BEEN SCOURED BY WIND...STABILITY GENERALLY FAIR WITH LOCALLY POOR IN POCKETS...SOME INSTABILITY CONNECTED WITH OLD POLISHED BED SURFACES AND IN AREAS WHERE SNOW COVER IS THIN.

The first InfoEx submission.
Information used with permission.

INFOEX OVER THE YEARS

	1991	2001	2011
Number of subscriptions	35	60	115
Cost of subscription	$800	$900	Class A $465 Class B $1000 Class C $2500

OUR HISTORY

Memories from an InfoEx Tech

By Lisa Longinotto

I remember thinking how great it would be to be a part of this new association, and replied to an advertisement for a job with the fledgling InfoEx. I could type 120 words a minute, and I had taken a Level 1 avalanche course from BCIT in the early 80s. I arrived in Revelstoke in the winter of 1990, working as a starving ski instructor on barely eight hours a week, which at least gave me lots of time to explore Rogers Pass with new-found friends.

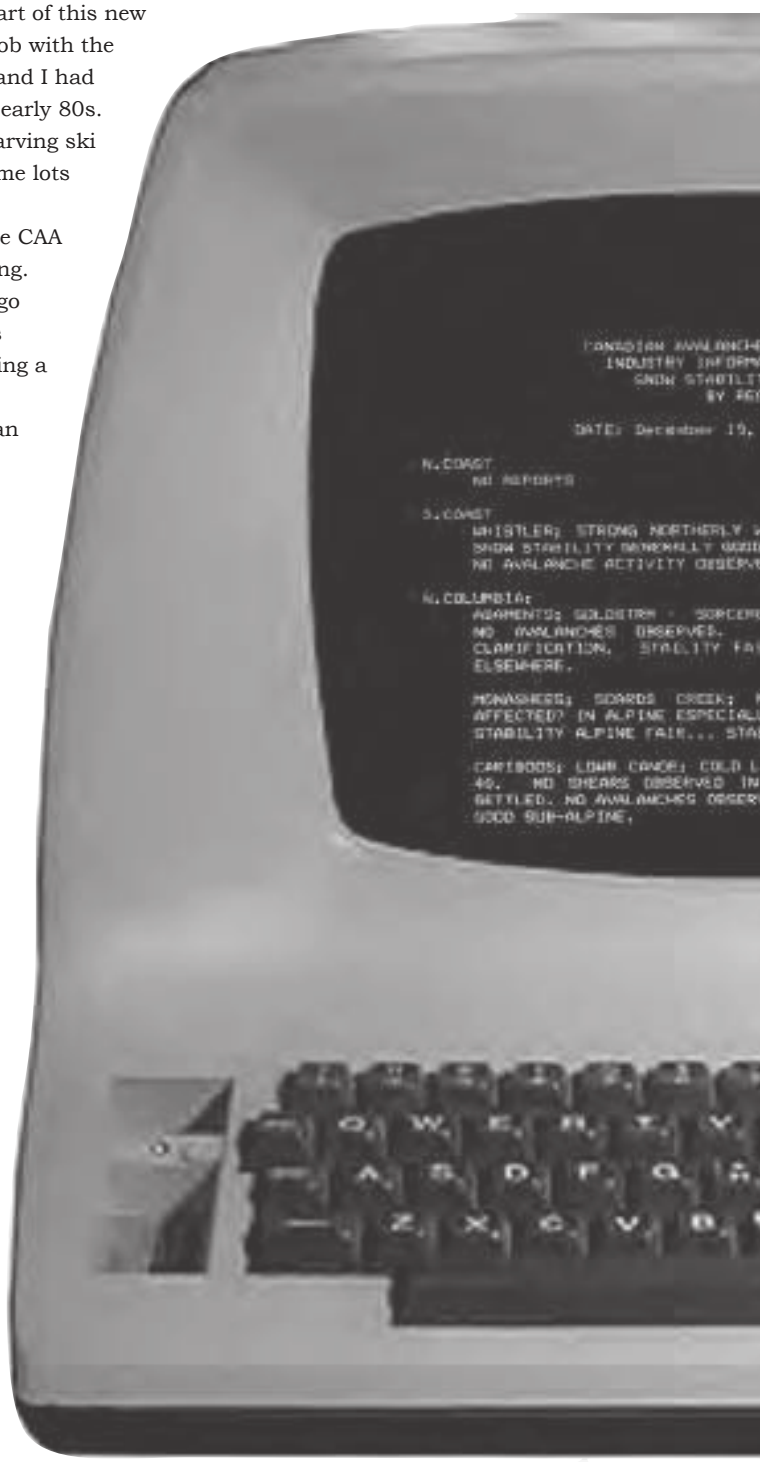
I met Alan Dennis ski touring one day, and found out the CAA was operating in a room upstairs in the Parks Canada building. So, about once a week over the month of December, I would go to the office and drop off coffee and donuts to Alan and Chris Whalley (the computer tech), and ask if they would be requiring a typist to input the information for the newly formed InfoEx.

Perseverance paid off, and at a New Year's Eve party, Alan informed me that I could start the next day. Thus began my learning curve—using an antiquated DOS format, no easy cut-and-paste formula, and a system with a lot of glitches to work through. The fax machine ran the subscribers reports into the "office," and the computer and I would record and store the information. The rest of the night was spent standing beside the fax machine trying to feed it all back out to the subscribers for their morning meetings—IF THEY ANSWERED!

The following year Alan had managed to rent a real office space, giving us more room and better facilities. We had a few more subscribers that year and Chris Whalley had managed to computerize the system entries, but a lot of typing was still involved. Inga Anhorn managed the school registrations, which were literally "taking off" with participants. We were suddenly overwhelmed with an obviously successful idea, and an operation with a huge amount of work. At the end of that season, I took on a "real" job, and left the CAA for a few years.

In 1998 I came back to the CAA for another couple of years, sharing the job of InfoEx Tech with Wanda Hill and later Lynn Parker. By then the CAA had moved into a corner office space and Alan had his hands full. There was a lot of momentum to get sponsorships and more funding for this association. Audrey Defant had taken over the schools, and others had taken up new positions, but InfoEx was still the backroom computer and the "after hours" job.

The CAA has grown in leaps and bounds. When I remember the dedication of everyone who worked there, it was obvious this association would be successful. Just imagine, coffee and donuts got me a job that has turned out to be such a vital service. Congratulations CAA for 20 years of InfoEx! It's a great resource for all in the industry.



Ian Tomm

NOTICE OF FEE REDUCTION

As of June 1, 2011, the charge for all Prior Learning Assessment Review (PLAR) Equivalency forms has been reduced to $25 (plus applicable taxes).

CIL Orion Donation to the Avalanche Control Blasting Program

Mary Clayton

Everett Clausen, President of CIL/Orion, presents a cheque for $9862.72 to CAA Explosives Committee Chair Scott Aitken. Every year, CIL/Orion donates a portion of their company's revenue to the CAA. Thank you Everett and CIL Orion!

Revelstoke, BC
March 21-25, 2011

ICAR AVALANCHE COMMISSION MEETINGS

Photos by P O Wikberg

ICAR delegates from nine Alpine countries and CAA organizers smile for the camera on Revelstoke Mountain Resort.

Brent Strand

Avalanche Forecaster Chad Hemphill gives a briefing of the avalanche control program at Revelstoke Mountain Resort.

CAC forecaster Cam Campbell plays host to the delegates at the CAC's forecasting office.

Manuel Genswein conducts a session on deep burial extrication techniques.

Canadian Avalanche Rescue Dog Association member Lisa Weber and Griffin.

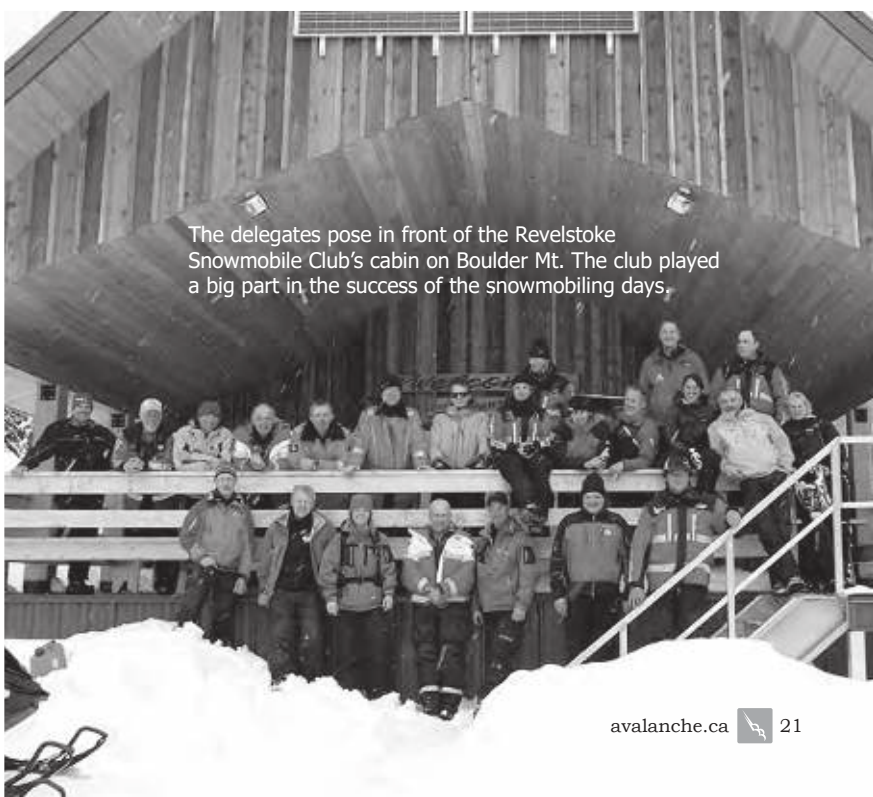
CAA Professional member Buck Corrigan is also a manager for Revelstoke's SAR group, which hosted a wine and cheese evening for the conference.

Gerrit Van Staalduinen and Olivia Cyca from Anderson and Son Wine Brokerage, and Bruce Hibbard from Hester Creek Winery donated a selection of BC wines for the first social event of the meetings.

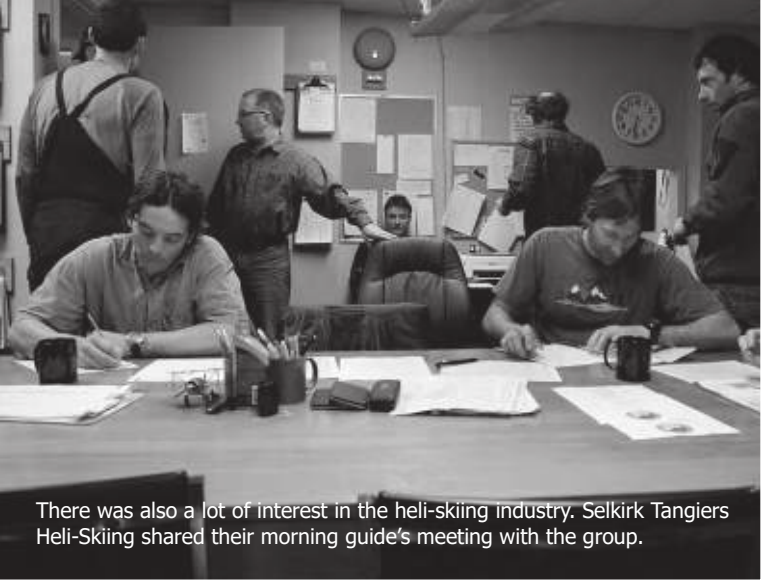
CAC snowmobile outreach team member Lori Zacaruk briefs a group on communications while riding.

The delegates from Sweden were especially interested in our snowmobile programs and had many questions about terrain ratings and other communication initiatives currently underway.

A delegate getting the hang of riding a mountain sled.



The delegates pose in front of the Revelstoke Snowmobile Club's cabin on Boulder Mt. The club played a big part in the success of the snowmobiling days.

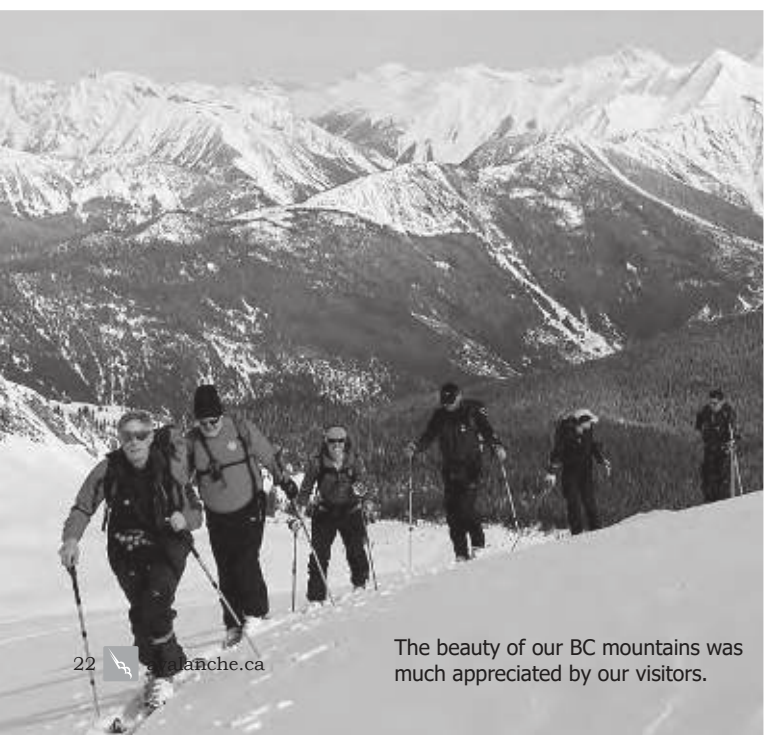


There was also a lot of interest in the heli-skiing industry. Selkirk Tangiers Heli-Skiing shared their morning guide's meeting with the group.

Thanks to Selkirk Tangiers who supported the conference with two days of heli-assisted ski touring.

An on-slope discussion about safety and search practices while heli-skiing.

Katherine Johnston from the University of Calgary's avalanche research team and CAA Professional Member Tomoaki Fujimura demonstrate the snowpack tests taught on a CAA Level 1 course.



The beauty of our BC mountains was much appreciated by our visitors.

The evenings were just as important as the days. Here, five countries are represented at one table.

Industry Training Program Season Wrap-Up

By Emily Grady

The winter of 2010-11 has made for another exciting season for the CAA's Industry Training Program (ITP). From high student enrolment, on-going international interest in our courses, a fully booked Operations Level 1 – Snowmobile to a strong demand for the new Avalanche Search & Rescue Response course, the ITP is going strong. In fact, the ITP has been highlighted as a world leader in avalanche training; this was particularly the case during the International Commission for Alpine Rescue hosted in Revelstoke in March, when representatives from across the world saw the ITP as a model for professional training.

In order to continue delivering quality programs both in Canada and abroad, we have been conducting an industry-wide survey asking for feedback on what we're doing, how we're doing it and what we can do to do it better. The result of this survey will be used to help determine the direction of the curriculum development project announced during the CAA AGM.

This curriculum project involves a major upgrade of all ITP curriculums and ensures that high-quality instructor and student resources link directly to the course objectives and goals. The project will involve a number of parties, including a steering committee comprised of industry representatives, a project manager, educators (curriculum specialists), and subject matter experts. We anticipate implementation of the results from this large-scale project during the winter of 2012-13.

We are coming out of this past season with great momentum for the coming years, and we look forward to sharing the results of both the industry survey and curriculum project.

Emily Grady is the Manager of the CAA's Industry Training Program

Participants conduct a mock rescue during the CAA's first AvSAR Response course, held in Revelstoke this past November.

Sylvia Forest

Robert Onstott from Orica Explosives talks to Mark Veseley from Fernie Alpine Resort

Gord Burns from RECCO

Mark Freeburn from Mammut had many products on display

James Bronson from the Arc'teryx booth was also kept busy with questions from members

AGM TRADE SHOW

Randy Swenson from Yamaha (left) and Dwayne Payton from BCA (right)

G3 Engineer Cam Shute

Jim Bay from Avaterra discusses business with CAA Professional Members Scott Aitken and Robin Siggers

Einar Hanson from Snowpulse

Truc Allen from Outdoor Research answers questions from CAA Professional Member Rick Schroeder

Mark Bender demonstrates some new technology from Pieps as CAA Professional Member Rupert Wedgwood observes

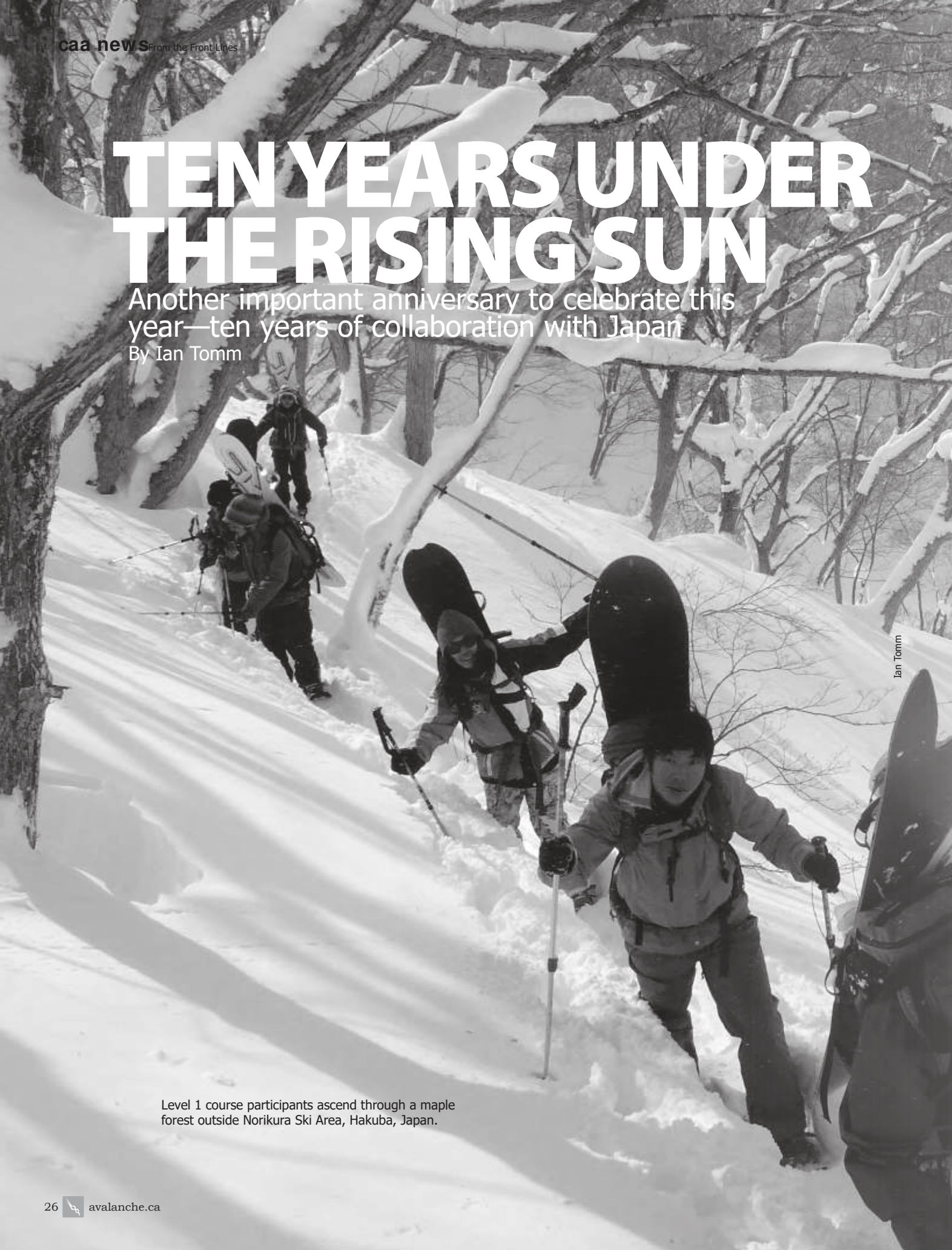
We would also like to thank the following individuals whose companies were represented at our tradeshow:

- Uwe Gramann - Mountain Weather Services
- Ryan Johnston - Ortovox
- Dan Curry/David Usher - Powder Cloud
- Steve Wagner/Tobi Reiner - ABS

TEN YEARS UNDER THE RISING SUN

Another important anniversary to celebrate this year—ten years of collaboration with Japan

By Ian Tomm



Ian Tomm

Level 1 course participants ascend through a maple forest outside Norikura Ski Area, Hakuba, Japan.

In addition to the CAA's own anniversaries, 2011 marks yet another milestone for the organization and its membership. This year is the tenth anniversary of the CAA's partnership with the Japan Avalanche Network (JAN). The CAA's work in Japan has been written about extensively in past editions of the journal but few members likely realize what Japan started with 10 years ago and where they are today. Their progress has been steady and the infrastructure that exists today, while built upon the model of the CAA, is uniquely Japanese. JAN is well positioned for future growth and success due, in large part, to a lot of hard work by its members and Executive Azusa Degawa.

The 2010-11 winter in Japan started off with the shock of four ski patrollers dying in an in-bounds avalanche at the Mount Daisen ski resort in the western Japanese prefecture of Tottori. After snowing more than 60cm in a few short hours, an avalanche occurred in the ski area. Four ski patrollers travelled to the site to inspect the avalanche and were hit by a second slide. None of them were wearing transceivers and all were killed.

This accident highlights the avalanche safety challenges that Degawa and his team at JAN face. Many fatal accidents exhibit patterns—a lack of basic avalanche awareness and a lack of proper safety equipment, even in accidents involving professionals such as this one.

Yet this worrisome pattern is offset by the growth of JAN and its membership of trained observers and instructors throughout the country. Since 2001 JAN has been training many students to CAA professional standards. They've also established an information-sharing network that includes two components—SnowBBS, a general information sharing website for snow, avalanche, weather and terrain information (much like InfoEx) and SPIN, the Snow Profile Information Network, a custom built web-based snow profile data entry and graphing website for JAN members.

Information on both websites is viewable by the general public but only trained members of JAN may submit information. This information-sharing network has grown over the past few years and next winter, will form the backbone of some of the first standardized public avalanche bulletins. It's the Japanese version of the Canadian paradigm. Standards (JAN uses a translated version of the CAA OGRS), training to promote good understanding and application of those standards (JAN runs CAA Level 1 and 2 courses annually now), a membership network of observers and a website to act as an information hub, and a database for this information.

JAN is hoping to morph SnowBBS into a place for data and avalanche danger information as well as a resource base for professional development. The vision is to have articles on avalanche forecasting and related topics regularly updated on this site. This is a good opportunity for CAA members to contribute to JAN. Articles such as "a day in the life of a ski guide" or "avalanche forecasting at ski areas in Canada" would be extremely helpful and interesting to members of JAN and the public who use SnowBSS greatly. If you are interested in such a volunteer opportunity please contact me and I will put you in touch with JAN.

I travelled to Japan in 2004 to teach alongside our Japanese avalanche veteran John Buffery. It was a profound experience for me, as it has been for many other ITP instructors who have travelled over there. So when the opportunity came up to teach there this past year, I jumped at it. I was looking forward to not only teaching but also celebrating with Degawa and JAN the decade of our close partnership.

Compared to my first visit, the students this year had a more professional focus, not unlike the evolution of Level 1 students in Canada. There were mountain guides, ski patrollers, educators and professional athletes (the current Asian Snowboarding champion was one of the students). My memory of 2004 was that the students were some of the most dedicated I had ever taught; my experiences in 2011 were no different. It was a pleasure to travel in the Japanese Alps with these students, all keenly interested in learning the language of avalanches and bringing that language to more Japanese in the future.

Teaching through translators is a unique if not challenging and draining experience. We take for granted terminology like "fracture character" or "sudden planar" but, like many other technical terms, they have no direct translation to Japanese. Thus, a 20-second statement can easily turn into a two-minute Japanese monologue while the translator sets context, explains meaning and then arrives at the take-home point of the statement.

Teaching through translation is a learned skill that takes perseverance. Special thanks to Chika, Nori, Degawa and Yuske for helping with the many challenging translation needs during my stay. Yuske Hirota was a translator in 2004 and after that course, he headed to Canada where he spent six years working at Baldface Lodge near Nelson, BC. There he received some exceptional mentorship from their guiding and avalanche team, and in 2010 Yuske successfully passed the CAA Avalanche Operations Level 2 course in Canada.

Yuske was one of my fellow instructors in Japan, alongside Nori Satome who has been teaching since 2004 and is a trained New Zealand ski guide and avalanche worker. Yuske made a profound observation during our course that has stuck with me ever since and captures well the value of standardized avalanche training, not only within a country but between countries: "The greatest thing about avalanche work is that if you know the symbols you can communicate."

One of the biggest challenges in promoting advanced avalanche forecasting and decision-making skills in Japan is the strong and homogeneous snowpack. We all know the value of seeing and traveling in a variety of geo-climatic regions, and experiencing the associated various snowpack regimes, avalanche characters and travel habits. Having an inherently stable snowpack presents a challenge to learning.

However, many JAN members are making an effort to travel to Canada and other countries to get that experience and bring back what they learn to Japan. Nori and Yuske are good examples of members making that extra effort. As a result,

last year Yuske and Shoji Matsumoto, JAN member and translator, opened up TENGU SnowCat Tours on the northern island of Hokkaido—tengucat.jimdo.com. It sounds like they've had a successful first season and look forward to many more in the future.

Yuske is also hard at work preparing for his Assistant Ski Guide Exam, to be held this coming winter. These stories are just an example of what is going on in Japan—a maturation of avalanche training and knowledge, importing Canadian expertise and methodology to help public and professional avalanche education, safety programs, and now mechanized guiding. Best of luck to the TENGU crew and I look forward to visiting one day soon.

In looking back at the past 10 years it is clear the initial work done in 2000 by Degawa, then-Executive Director Clair Israelson and then-CAA President Bill Mark has helped JAN in many, many ways. The success of the Avalanche Operations Level 1 program and now the gradual implementation of the Level 2 program shows increasing interest in Canadian-style professional avalanche risk management systems and views. The efforts of many JAN members and Asuza Degawa himself need to be congratulated, for without this dedication to improved avalanche safety in Japan, none of the gains in the past 10 years would have been possible.

So what does the next 10 years look like for Japan? If we look at our own history, we see that it took 10 years of hard work before CAA programs really started to take off. Is JAN at the same juncture as the CAA was in the early 90s, and now looking at 10 years of continued growth? Only time will tell but one thing is for certain, the CAA's partnership with JAN is strong and only improving. The next decade will focus on developing on past success, with an eye to addressing the challenges of public avalanche bulletins, warnings and improved training and awareness programs for JAN. Indeed, we look forward to the next 10 years under the rising sun.

CAA and JAN: a ten-year timeline

- 2000-01—Degawa visits the CAA office in Revelstoke, BC, gains permission to use OGRS and to translate *Freeriding in Avalanche Terrain* and other CAA educational products. JAN starts SPIN. First Avalanche Operations Level 1 course held in Japan with CAA instructors Randy Stevens, Nic Seaton and John Buffery. Level 1 courses have been held annually ever since.
- 2002-03 –Public education starts with evening seminar series AviNights, and Safety Camp and Advanced Safety Camp, two- and five-day recreational training courses.
- 2003-04– SPIN website upgraded
- 2004-05– *Staying Alive in Avalanche Terrain* by Bruce Tremper translated into Japanese, and JAN publishes their own fieldbooks.
- 2005-06– ThinkSnow campaign starts with awareness seminars and sticker campaign.
- 2006-07– Snow BBS started. Working with SPIN, Snow BBS is a website much like the CAA's InfoEx system, a storing house for snow, weather and avalanche observations across Japan.
- 2007-08– *Avalanche Handbook, 2nd Edition*, translated into Japanese. Study plots for Snow BBS established in a few key locations across Japan, and refresher course established for Snow BBS contributors.
- 2008-09–JAN introduces *Avalanche Press,* an annual publication modeled after the CAA's journal, which includes translations of many Canadian articles.
- 2009-10–The first CAA Avalanche Operations Level 2, Module A delivered by ITP Instructor Brad White in Hokkaido, Japan. Japan has condensed the course into two modules. Module B scheduled for the following winter.
- 2010-11–10 year anniversary of the first Level 1 in Japan, completion of the first Level 2, and JAN releases the first "made in Japan" avalanche awareness book (pictured at right).

CAC and CAA Service Awards

These annual awards recognize individuals who have made extraordinary contributions to avalanche safety. **Top left:** A CAC Service Award goes to Al Hodgson, President of the Association of BC Snowmobile Clubs, "for his leadership in uniting member clubs in support of improved avalanche safety for snowmobilers." **Top right:** A CAC Service Award goes to Bill Marshall, Director of Recreation Sites and Trails, BC, for "his tireless work in assisting organizations to address the challenge of managing avalanche hazards." **Bottom left:** John Hetherington accepts the CAA Service Award on behalf of Chris Stethem, who was recognized for "his countless contributions to the professional avalanche field." **Bottom right:** A CAA Service Award goes to Dave Aikens, who was nominated for "his contributions over 30 years to avalanche forecasting, teaching and public safety in the Elk Valley."

Photo Gallery

Mark Lang

The International Snowmobile Congress (ISC) is an annual gathering of organized snowmobiling with representatives from North America, Sweden and Russia. This year it was held in Calgary and presented a perfect opportunity for the CAC to unveil the Mountain Snowmobiling Avalanche Prevention Project. This project will run over three years beginning April 2011 and is funded by the National Search and Rescue Secretariat through the sponsorship of the Province of British Columbia. Stakeholders were introduced to project deliverables, and invited to share information related to their in-kind support. We will have more information on that project in future issues of the journal.

APEG BC Interior Section

In early June of this year, CAA Executive Director Ian Tomm attended a meeting of the Interior BC Section of the Association of Professional Engineers of BC (APEGBC) and gave a very well-received presentation entitled, "100 Years of Professional Avalanche Risk Management in Canada." Pictured here are (left to right) Doug Wilson, Senior Avalanche Officer BC Ministry of Transportation, Jeff Holm, P.Eng, Vice-President of APEGBC, Mike Boissonneault, Manager of Avalanche and Weather Program BC Ministry of Transportation, Matthew Davis, P.Eng, Ian Tomm, and John Buffery, Senior Avalanche Officer BC Ministry of Transportation.

If the Avalanche Scarf Could Talk

Knitting for avalanche safety brings individuals, companies and communities together

By Mary Weselake

Well, it has been a busy three months for the avalanche awareness scarf, but is has been completed and with each stitch there are memories of sadness, happiness and hope. The scarf was knit in sections and stitched together—all done it is 10m long and raised $1295.00 ($1500.00 with the baskets) for the CAC in Revelstoke.

The red sections of the scarf were knit from donations from the people in Fernie, all knit with the hope that the money raised will keep avalanche awareness possible and help save lives. Thank you for your kind donations, Fernie. A black and white section in the scarf in memory of Susanna is a kind donation from Dan and Susan.

There is a happiness section in the scarf, knit in shades of blue and pink. This is a BIG HUG for Ian and Janina who took the avalanche course and used their knowledge and skills to save a life. This section is thanks to a kind donation from Ian and Bonnie of Almonte, Ontario and knit with love by Mary. The scarf would never have been possible without the kind donation of yarn from Al and his family in Lumsden, Sask. A white section with a red heart was placed at the end of the scarf as big thank you.

Heaven Stitch and Design Company supported and participated in the project and have an on-going basket of knit items in the store with all money going to the CAC. If you're in Fernie, drop in and take a look. Thank you, Heaven Stitch and Design, you're amazing.

Big Bang Bagels is doing a "bang up" job of selling coffee sleeves in their shop and welcomed the scarf and knitters any time. The staff joined in the fun and knit their own rows. As well as coffee sleeves they now have cosies for water bottles and glasses. Thank you, you guy are great.

The GearHub and their amazing staff spent a weekend knitting and raising money, Angie even taught some people how to knit. They were so excited about the project they kept the scarf and raised money all month long. Thanks guys, you rock.

Mary Weselake (second from left) and her husband Tony (far right) pose in front of Fernie's knitting store Heaven Stitch and Design with friends and locals who have supported this initiative.

Todd Weselake

CAC staff share a chance to wear the scarf while JK (inset) opted for a solo fitting as well.

CAC Staff

CAC Staff

Freshies welcomed the scarf to their shop and let us knit and raise money to save lives and made a store donation as well. Thank you, it was fun being there, and with the help of Debbie Olson we knit many rows. Meanwhile, Angelika was busy knitting and raising money at the Fernie Tea and Coffee House, and also made a kind store donation. Thank you.

Mug Shots gave it a "shot' and welcomed us to their shop. The BeanPod donated their March gratitude money to us, and also made a store donation. Is that awesome or what? Thank you! And Ghostrider Motor Sports had a donation jar in the store and helped raise money to help save lives. Thank you.

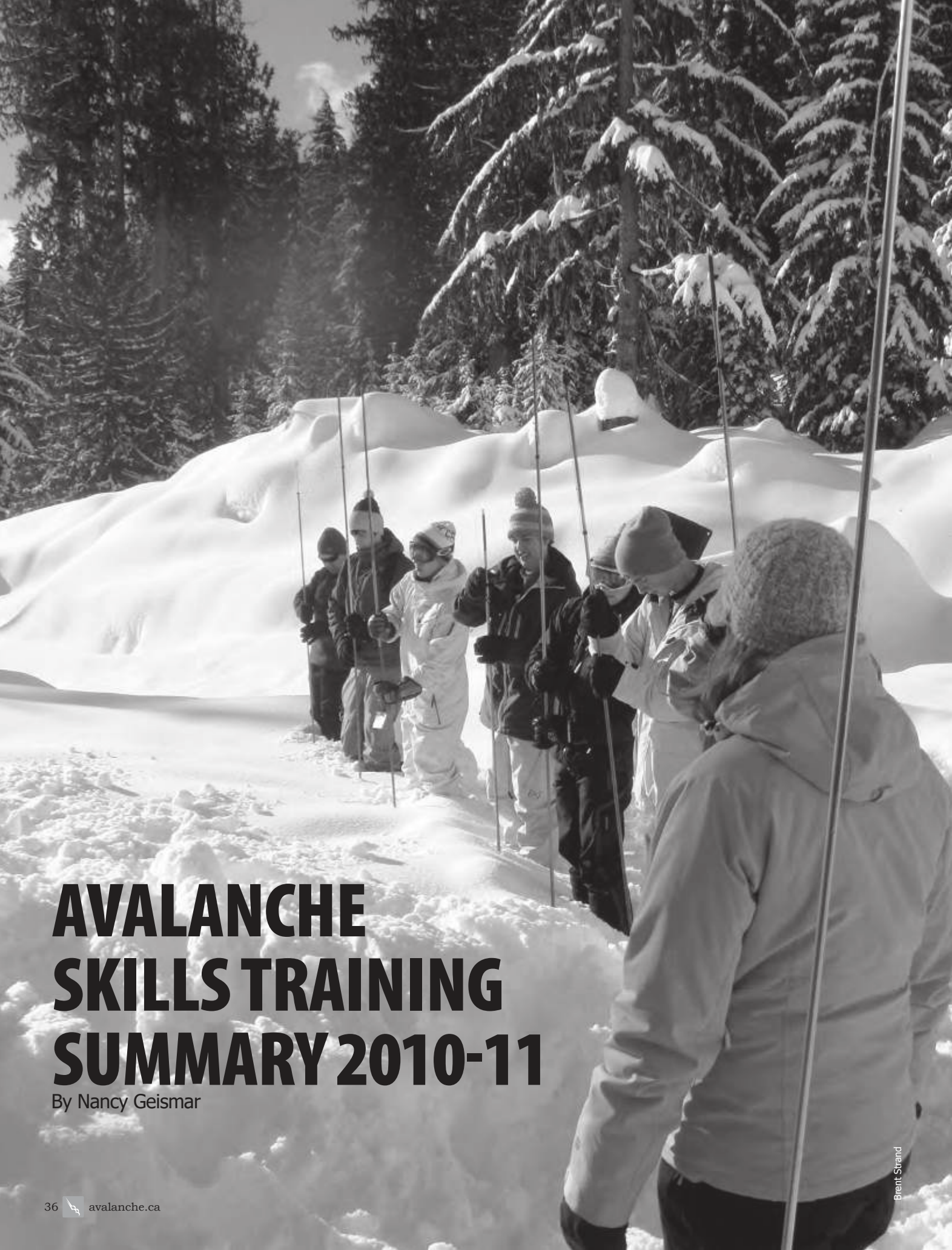
Kimberley sent us the "rainbow" section of scarf and a kind donation from the people of Kimberley. Thanks to Jennifer for organizing the project and to everyone for their kind donations. The Armstrong knitting group got together and raised money there, the green and gold section of the scarf is from them. Thank you.

And to our Mayor Cindy Corrigan who supported the project and got out her knitting needles after, well, let's say several years. This was beyond the call of duty. Thank you Cindy, for all your help.

Again, thank you to everyone who supported this great fundraiser. The $1500.00 we raised will go toward Avalanche Awareness Education.

Mary Weselake's son Todd survived an avalanche burial because his two companions had recently taken an AST course and learned the skills that made the difference. We first wrote about Mary's project to raise money for the CAC by knitting in Volume 95, page 43.


RIGHT NOW THE VIEW IS SPECTACULAR.
Kokanee
IT'S ALL ABOUT NOW.
Kokanee
GLACIER FRESH BEER



AVALANCHE SKILLS TRAINING SUMMARY 2010-11

By Nancy Geismar

Brent Strand

This past season was another record breaking year for recreational avalanche courses, with close to 6500 students graduating from the AST program (1 and 2), a 16% increase over last year. We saw a corresponding increase in CAA members licensing to teach AST with a 17% increase. Currently there are 238 licensed AST providers, made up of 138 Professional and 100 Active members. There were 43 new licensees this year.

Curriculum updates included new materials completed by the ADFAR2 project, Avaluator 2.0 and our fieldbook, Decision Making in Avalanche Terrain. Sales of each of these products far exceeded expectations with 7500 Avaluators and 900 fieldbooks sold. As well, the instructor manual and CD were revised and updated to incorporate the new ADFAR materials.

By all measures, AST 1 is a success, and is seen as "the" course to take for backcountry recreationists—an essential first step in learning about avalanche awareness and safety. Now we need to work on promoting the next step in the progression. AST 2 is an excellent course, giving the student more tools to assess terrain and avalanche conditions and improving their decision-making skills. In the past, AST 2 numbers were approximately 10% of the AST 1 numbers. This year saw that ratio decline to 8%. There is an increase in applications for the Avalanche Operations Level 1 course, and many of these students may be better served by taking the AST 2 course. We will work on promoting and branding this product for next season.

Another growth area was in our youth education. Over 500 young people took an AST course this past year, up from 189 in the previous season. Acting on a request from the AST committee, the CAC produced a pamphlet for parents to explain more clearly the goals and objectives of an AST course and, more importantly, the limitations. The main message was this course is the first step in life-long learning, and does not make their child immune from ever being involved in an avalanche. The pamphlet was well received and will be produced next year. It assists in providing yet another layer of "informed consent."

Next season, we will launch a new, one-day companion rescue course. This will be a field course, open to any AST 1 (or higher equivalency) graduate, and will focus on preventative measures, contrasting rescue equipment, analyzing transceiver functions and applying search and rescue techniques. Field activities will include demonstrations, problem solving, small group work and simulations.

There will be pre-requisites for teaching this course. At time of writing this, the details are not yet finalized but our goal is to ensure that the instructors of these courses are proficient and up-to-date in their rescue skills. For more details on this course, see "Companion Rescue Refresher" on page 39 of this issue.

To better meet the needs of the geographically far-flung AST instructor corps, the CAC will conduct AST Instructor Trainings in at least four venues this fall and possibly more. We hope that as many AST instructors can attend as possible.

Mountain Equipment Co-op (MEC) is the presenting sponsor for the AST program. They are thrilled with the success of the AST program and are a strong supporter in what the CAC is doing with training for the recreationist. With MEC's help, we will be looking for new and innovative ways to target an even broader audience for these courses.

New CAC Supporting Sponsor Yamnuska Mountain Adventures

The contribution from Yamnuska Mountain Adventures supports the CAC's core public avalanche safety programs. Additionally, Yamnuska will be donating instructor time to assist the CAC in delivering youth avalanche education in the Calgary area.

YAMNUSKA
mountain adventures

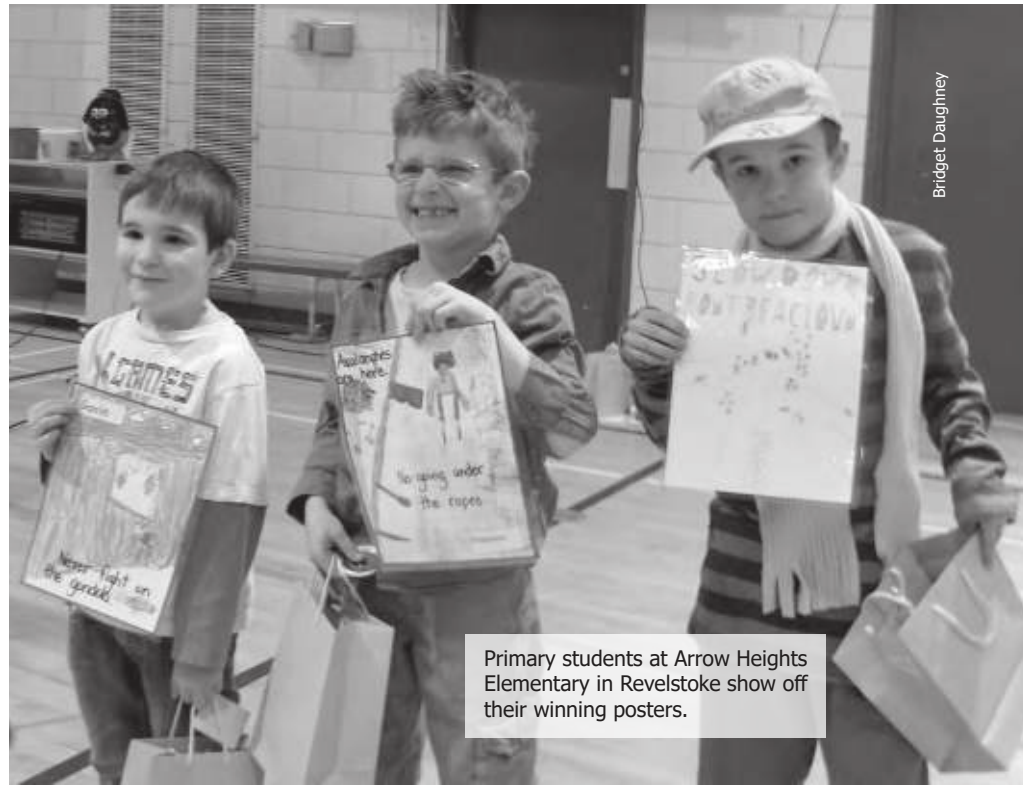
Youth Avalanche Safety Programming

An update on the CAC's work with safety and awareness for kids

By Bridget Daughney

Youth avalanche safety continues to be a high priority focus of the CAC and this past season we focused on strengthening the community of educators. Our approach to this is to act as a central hub, hosting information and resources. Some of our initiatives to date include:

- hosting the second annual educators' meeting to share ideas and get ready for the season;
- launching an official education newsletter, which currently has 128 people on its mailing list;
- offering a CAA Level 1 designed for educators;
- adding curriculum activities and lesson plans to our online resources; and
- designing a new educators' section for the CAC website, which will be implemented over the coming summer and will give this community a more interactive place to share ideas and methods.



Primary students at Arrow Heights Elementary in Revelstoke show off their winning posters.

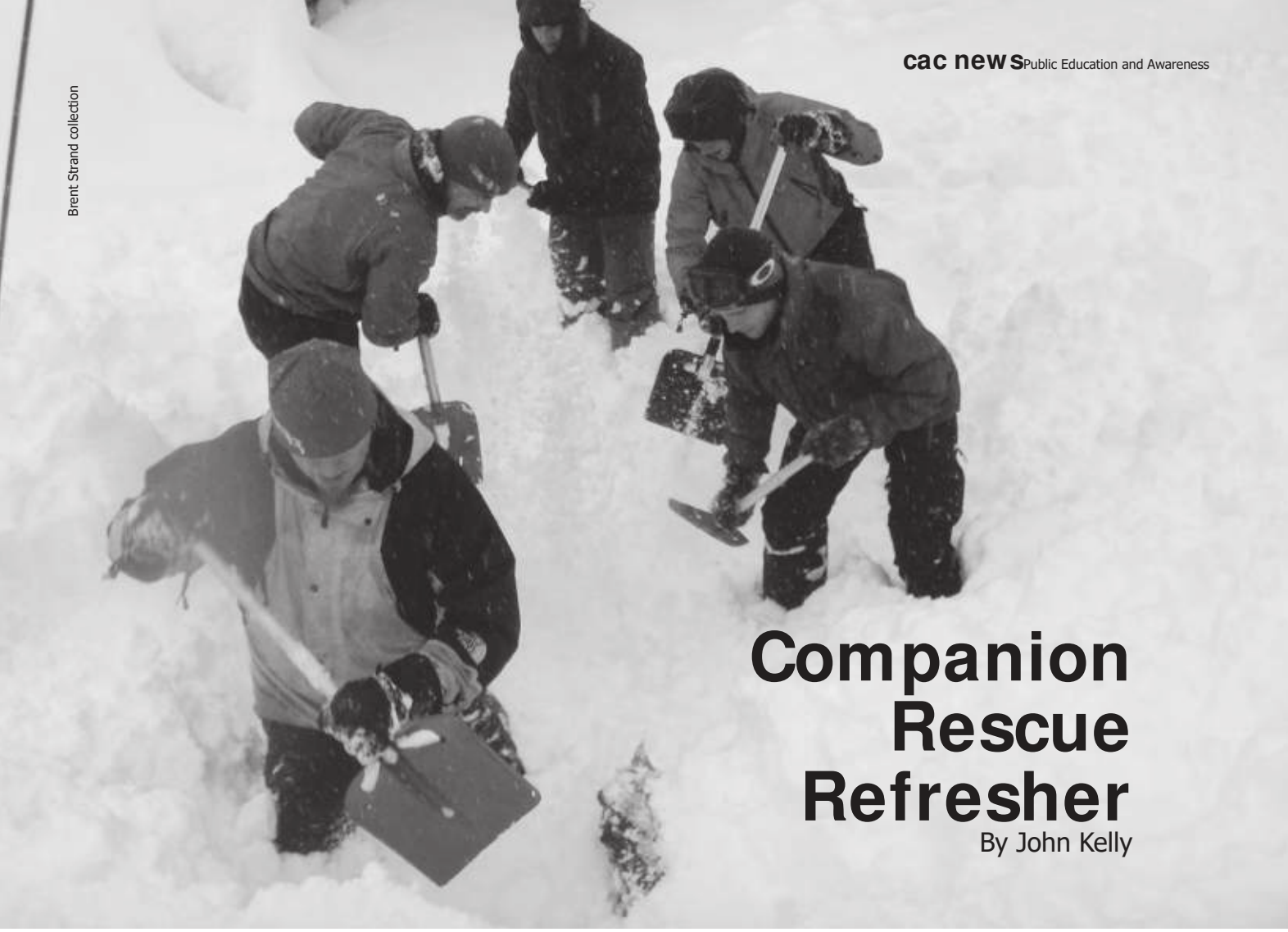
The CAC's youth avalanche education initiative continued to provide classroom curriculum in grades K-12 in both Golden and Revelstoke. Parks Canada, Revelstoke Mountain Resort and Kicking Horse Mountain Resort partnered with the CAC for school-based snow and avalanche safety projects in their communities. Programs covered both in-bounds and out-of-bounds/backcountry winter recreation risks and safety, and reached approximately 1800 Grade K-12 students in Revelstoke and Golden. For the first time, the CAC was invited to do presentations in Vernon, BC.

2010-11 marked the fourth season that AST providers could teach to minors and stay within their AST agreements. There were 527 students under the age of 19 who successfully completed AST programs this season, up significantly from 189 in 2010. We also created an information pamphlet for parents that provides them with an understanding of the limitations of an AST course, and what precautions should still be taken when their child goes into the backcountry.

The CAC also delivers avalanche safety messaging directly to young people through our Tool Box initiative and classroom kits, which are both offered free of charge. The Tool Box contains beacons, probes, shovels and resource materials. Its purpose is to familiarize students, in a non-field situation, with basic backcountry safety equipment and promote discussion around avalanche awareness. This year the Tool Box program was expanded to the Yukon, as well as returning to BC and Alberta. Classroom kits include age-appropriate DVDs, avalanche safety brochures and books, companion rescue cards, avalanche danger cards, CAC stickers, and small prizes (safety whistles).

This past season, CAC forecasters and a few CAA professional members visited a number of schools with outdoor education programs. The aim was to provide a face-to-face opportunity for student to discuss how and why avalanches occur and how to manage risk. There is a growing demand from schools and clubs for avalanche awareness presentations, and we are in the process of creating a list of speakers for next season. The CAC will support these volunteers with presentation materials.

Bridget Daughney is the Coordinator of the CAC's Youth Avalanche Education Program



Brent Strand collection

Companion Rescue Refresher

By John Kelly

The CAC is currently in the process of developing a one-day, field-based Companion Rescue Refresher Course. It will be taught by Avalanche Skills Training course (AST) providers and is due to roll out November 2011. Students will be trained to consider preventative measures, contrast rescue equipment, analyze transceiver functions, and apply search and rescue techniques. This course is being developed to satisfy a recommendation from the British Columbia Coroner's Service Death Review Panel Report from December 2009.

Students enrolling in this course will be looking to update and improve upon search and rescue abilities learned in their AST Level 1 course. It will be suitable for anyone who recreates in avalanche terrain—snowmobilers, skiers, snowboarders or snowshoers. We have proposed that the course can also be used as a skills refresher, and we imagine upgrading the information with the latest tools and techniques on a regular basis. We hope that recreationists will view the course as a refresher, to be taken on a yearly basis to keep rescue skills up-to-date.

The development process is well underway and will be using an expert-driven approach. We are incorporating the recommendations of the AST provider group through workshops and the AST committee to make sure that we offer a course that will appeal to students. The main, and overwhelming, advice is to ensure that the course is field-based and practical, focused on the best chances to reduce fatal incidents.

AST providers seem enthusiastic about a course based on strategic scenarios designed to target optimal recovery strategies. We see a potential for a course that provides pedagogical background for a quiver of scenarios that instructors can select from. This means that students taking the course more than once will be able to view new material each time.

We have retained Mark Bender to write the lesson plans and develop some train-the-trainer sessions. Mark will be engaging the expertise of the professional membership of the CAA to ensure that we are on track to produce a great product and to give best-practice advice.

This year's AST instructor seminars will be focused on preparing instructors to deliver the Companion Rescue Course. Judging from the positive feedback from potential students and the AST instructor community it will be a product that is in demand from coast to coast.

Re-Drawing the Map
Part 1: Taking Stock

It sounds like a no-brainer—add a few regions to our map so all backcountry winter use areas are covered by an avalanche forecast. But doing this right takes careful planning. In this instalment of a new series, CAC Operations Manager John Kelly sketches out some of the challenges to creating a new map of bulletin regions.

In Western Canada, public avalanche warnings for amateur recreation are produced by a combination of public, public-private, and private agencies, resulting in a patchwork of warning regions that range in size from 200 square km to 100,000 square km. These public warnings cover many regions of BC and Alberta, but there are still many high-traffic areas that do not have a warning product in place.

At the Canadian Avalanche Centre (CAC), our public warning system originated organically, based on data availability, backcountry traffic and local support. Since 2003 a more structured approach to filling out the public warning system began to emerge, but there is still no formula for development of public warning products. I propose a considered approach to future development of warning extent and frequency that focuses on maximizing harm reduction per invested dollar.

Two complementary routes to increased coverage and utility of avalanche bulletins were followed in the past. The first is optimization of existing areas with an emphasis on large regional bulletin products. The other area of focus is small-area local warning products, created either by the CAC or by independent third-party organizations.

Quality assurance, continuity and risk management are important considerations in the development of public avalanche warning information, when public funds are involved. Large regional warning products supply good value per investment because they are useful to a larger audience, and with large gaps remaining in the warning map, a large-area regional focus is sure to remain a priority. For the remainder of this article I will refer to these as "regional warning products."

Small-area warning products are more complex and have more narrowly targeted benefits that may be quite compelling in their own way. Local forecast products can be developed at low cost through collaboration with local stakeholders, while maintaining a high expectation for quality assurance. The North Shore (Vancouver) is a good example of this. While the interaction between the CAC and third-party organizations may be quite complex, this situation can be optimized with good results. I call these bulletins "local warning products."

Now that we have established regional warning products for all areas where there is a consistent feed of good data, development of warnings in data-sparse regions is the main challenge for regional warning product development. Building high quality avalanche forecasts for these areas will take time, and will involve finding new ways of getting reliable snow, weather and avalanche information to the forecast team.

Overview

Public avalanche warnings for amateur recreation are produced by five agencies in Western Canada, ranging from fully government funded direct-data-collection operations to grassroots informal bulletins relying on community collaboration. There are a variety of reasons behind the

The following is a list of regions and agencies producing public avalanche warning information in Western Canada

Region	Agency	Product Type	Frequency	Scope	Data	Funding
North Columbia	CAC	Forecast	Daily	Regional	Third Party	Public/Private
South Columbia	CAC	Forecast	Daily	Regional	Third Party	Public/Private
Kootenay Boundary	CAC	Forecast	Daily	Regional	Third Party	Public/Private
South Rockies	CAC	Forecast	Daily	Regional	Third Party/Direct Collection	Public/Private
South Coast	CAC	Forecast	Daily	Regional	Third Party	Public/Private
Northwest BC	CAC	Forecast	Daily	Regional	Third Party	Public/Private
North Shore	CAC/North Shore Avalanche Advisory	Forecast	Daily	Local	Third Party/Direct Collection	Public/Private/ Stakeholder
Glacier National Park	Parks Canada	Forecast	Daily	Local	Direct Collection	Govt.
Banff/Kootenay/Yoho	Parks Canada	Forecast	Daily	Local/regional	Direct Collection	Govt.
Jasper National Park	Parks Canada	Forecast	Daily	Local/regional	Direct Collection	Govt.
Waterton Lakes National Park	Parks Canada	Forecast	Twice Weekly	Local	Direct Collection	Govt.
Kananaskis Country	Alberta Environment	Forecast	Daily	Local/regional	Direct Collection	Govt.
Whistler Blackcomb	Whistler Blackcomb	Forecast	Daily	Local	Direct Collection	Private
Vancouver Island	Island Alpine Guides	Forecast	Twice Weekly	Local	Direct Collection	Stakeholder/ Private
Bighorn Country	CAC	Report	Weekly	Regional	Third Party	Public/Private
North Rockies	CAC	Report	Weekly	Regional	Third Party	Public/Private

production of public avalanche information. These reasons are all centred on public service and harm reduction, but may also involve such diverse motivations as: land manager responsibility (Parks Canada); organizational mandate and mission (CAC); community engagement (Vancouver Island); and may even involve elements of commercial interest (Whistler Blackcomb).

For the sake of this discussion, I will focus on organizations that supply avalanche information for public land not under their jurisdiction. The CAC was incorporated in 2004 with the input of a wide panel of stakeholders. One of the assigned mission goals was to coordinate public avalanche safety programming. Acting as a hub for public avalanche information is one of the natural outgrowths of this goal.

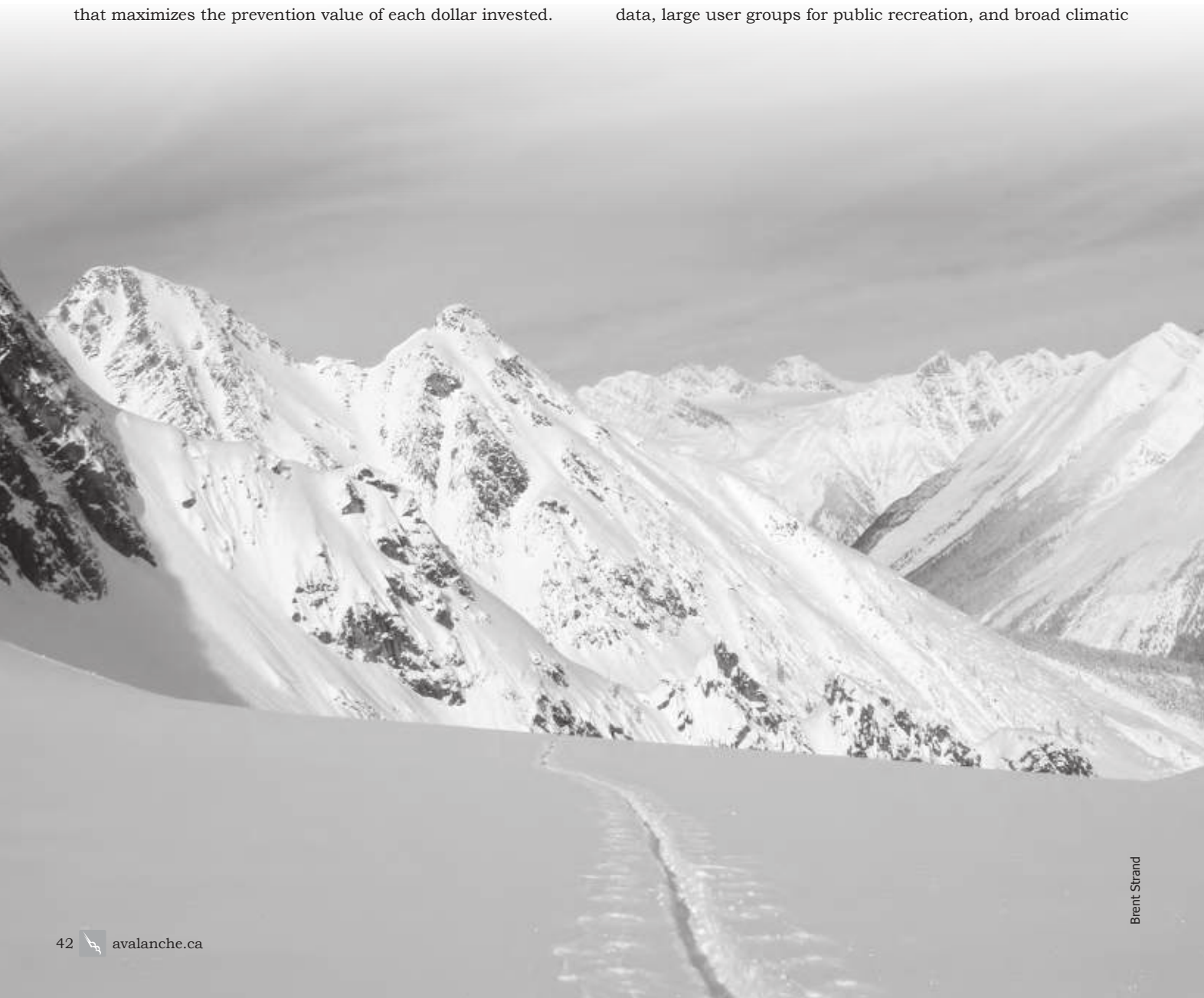
Growth in backcountry use is driving both need and demand for public avalanche warning information. Meanwhile resources for the production of these warnings remain scarce. Consequently the expansion of the public warning network is a complex issue requiring a strategic and systematic approach that maximizes the prevention value of each dollar invested.

To understand some of the basic issues around this goal it is useful to review the development of what exists now. I'll begin with an analysis of current warning products, before undertaking a discussion of issues relevant to building warning products in areas with sparse data.

Current Warning Products

Selection and development of the existing regions for avalanche warnings is based on factors that may be as simple as outlining the boundaries of a land manager's responsibility (Glacier National Park) or on complicated factors related to backcountry use metrics, climate zones, accident statistics, relationship with stakeholder groups, local investment and other factors.

Before incorporation of the CAC, the development of avalanche warning regions was based mostly on opportunity (matching data to climate) and consensus overseen by the informal collaboration of avalanche professionals. Areas such as the North and South Columbia mountains have rich sources of data, large user groups for public recreation, and broad climatic



Brent Strand

similarity. These choices were largely obvious. As of 2003, the network comprised four regions produced by the CAC, four regions produced by Parks Canada, and Kananaskis Country.

Evolution of warning regions since then has been more strategic and planned, resulting in the current network of 16 warning regions. Beginning in 2003, the CAC regional warning network expanded to the South Rockies, and the South Columbias region was partitioned to create a separate regional warning product for the Kootenay-Boundary area. Third-party small-area local warning products were added to the avalanche.ca web portal, namely the Whistler-Blackcomb bulletin and the North Shore Avalanche Advisory, which later became an integrated CAC forecast area. Eventually the Vancouver Island avalanche bulletin was added in this category.

In early 2004, user demand and an increasing number of incidents resulted in new CAC warning regions in the form of weekly reports in Northwest BC and the North Rockies. By December 2004, data flow permitted the Northwest BC report to expand into a thrice-weekly avalanche forecast concurrent with the existing warning regions. However, in the North Rockies the flow of avalanche, snowpack and weather information has never been regular or reliable enough to support an avalanche forecast, despite the need.

The North Rockies situation is illustrative of an important point in public warning development. There are two warning regions in western Canada that are supplied with a lower-frequency product called "public avalanche reports," due to the limited supply of relevant avalanche, snowpack and weather data. These reports describe observed conditions but do not forecast danger ratings, and advice to users is more general and conditional.

While some valuable information is presented in these reports, their usefulness as tools for decision support is limited. The CAC has always intended report regions to evolve to avalanche forecast regions over time. Our entire integrated suite of trip planning and decision-support systems such as the Avaluator relies on a forecast of danger ratings.

High Use, Low Data

High-use, low-data areas, such as the North Rockies, are perhaps the most urgent targets for a structured strategic approach to public warning development. However, these areas present significant logistical and resource challenges. The vast majority of data for the CAC's current public warning products is provided free of charge through Canada's unique information exchange called InfoEx. InfoEx is a subscription service for professional avalanche risk operations throughout Western Canada and is administered by the CAC's sister organization, the Canadian Avalanche Association. This submitted data forms the backbone of the CAC's public warning products.

The cost of paying for this data would exceed all other operating costs for the public warning program by an order of magnitude. Relevant data for avalanche safety must be collected in remote locations, often with difficult access and under all environmental conditions. Thus, expansion of public warning programs into data-sparse areas is both potentially costly and new territory for the CAC. Our whole model is based on third-party information supplied by the professional community. How do we now ensure the continuity of public information in areas where we don't have this third-party information, without incurring skyrocketing costs related to data collection? This presents a situation where thoughtful incremental steps are wise and implementation of solutions will take time to mature.

Some logical launching points can be imagined. The InfoEx model is a cornerstone of public avalanche warning products. Expanding into data-sparse areas should explore ways to also expand the InfoEx network. This may entail working with existing subscribers to expand their geographic scope and quantity of information, searching out new subscribers, or providing direct support and partnership with subscribers who may have access to areas, employ qualified personnel in the region or have a peripheral interest in avalanche safety.

There is no doubt that in a vast area such as the North Rockies, InfoEx is unlikely to ever supply the quantity of data necessary to produce a public forecast even with the recruitment of new subscribers. Other sources of data will have to be found. Observer networks are used in other public warning programs worldwide to supply a stream of data to forecast offices. This data can range in quality and relevance according to the qualifications of observers, the location it was obtained from and its timing. Both amateur and professional observer networks have been successfully implemented, but each has unique characteristics and different logistics to maintain.

Professional observer networks are high cost endeavours—including salaries for qualified avalanche observers, transportation, field team logistics, and planning overhead. Placing a single team in the field can cost $1000 per day, returning only a point or two of data in a vast region. Viable public warning products require on the order of ten professional quality data points daily to produce an avalanche forecast.

Amateur observations can also be very useful and supply a significant proportion of data in some existing warning regions, notably Northwest BC. However, the data quality may be uncertain, and their rhythms may be out of sync with needs of the warning product. Amateurs are in the field on weekends, but warnings are most useful late in the work-week. Building systems to make amateur reporting both easy and useful requires considerable design and scoping resources. Encouraging submissions requires a marketing and promotion program to engage the user group. Some user groups do not report avalanche incidents, for instance, because of the perception that fault or blame will be placed on the reporter or tarnish their backcountry activity.

In the next issue, we'll take a look at another strategy to improve coverage—decreasing the size of the existing regions. We'll also take a closer look at how the North Shore Avalanche Advisory evolved and how that model can be used for similar small-scale, local products.

Report from Newfoundland

By Keith Nicol

A snowmobile-triggered avalanche in the Lewis Hills region on the west coast of Newfoundland

Keith Nicol

The CAF supplied a grant of $5,715 to promote avalanche awareness in Newfoundland. Over the winter, I held four school sessions, which about 100 students attended. I also ran two AST1 courses, one in Rocky Harbour (seven people) and one in Corner Brook (eight people). The Rocky Harbour course was attended by members of the local SAR group, which is a first in the past seven years or so. I also ran a four-hour refresher for Gros Morne Park wardens and Bonne Bay SAR personnel while in Gros Morne.

Corner Brook's first Avalanche Awareness Day was held at Marble Mountain Alpine Resort and the Blow Me Down cross-country ski park on February 12. This was well received and was covered by the local newspaper. Overall we attracted about 60 people, four of whom also signed up for an AST course. Other promotion of avalanche awareness and the CAF occurred on a six-minute cable TV show.

I also added information on avalanches and avalanche start zones to an avalanche hazard map of Gros Morne National Park—a popular place for snowmobiling and ski touring. This hazard map was started last year and first featured areas near Corner Brook. As well, avalanche hazard maps were created to be placed in snowmobile warm up huts near the Lewis Hills and North Arm Mountains. Over the winter I received many emails about avalanche sightings, which I added to the avalanche update page on my web page.

The third annual CAF Talk and Silent Auction was reasonably successful and we had about 30 people come out to hear our guest speaker's presentation on ski touring in Western Newfoundland. We raised $703, in addition to a donation of $100.

All school visits and SAR group sessions were free. The avalanche awareness day event was free as was the CAF Talk and Silent Auction. The two AST courses were greatly subsidized by the CAF grant. Evaluation from schools and courses are very positive, and I received inquiries about doing avalanche awareness training in St. John's, Goose Bay and Nain, Labrador. Thanks again to the CAF for promoting avalanche awareness in Newfoundland.

Heather Nicol

Keith Nicol is an associate professor of Geography and Environmental Studies at Grenfell Campus of Memorial University in Corner Brook, NL. He is an avid Nordic skier and runs ski instructor courses for the Canadian Association of Nordic Ski Instructors (CANSI) in Atlantic Canada

CAF Supports ISSW Participants

The Canadian Avalanche Foundation's ISSW Fund supports the preparation and presentation of applied avalanche research and innovative field work at the International Snow Science Workshops held every two years in Canada or the United States. It is intended to assist aspiring participants, particularly practitioners and others with limited financial resources, cover part of their expenses such as those associated with paper/poster preparation, travel and accommodation.

ISSW 2012 will be held in Anchorage, Alaska and ISSW 2014 is planned for Banff, Alberta. The CAF particularly encourages members of the Canadian avalanche community to start thinking about making an ISSW presentation. You have time now to develop ideas and gather/analyze data for presentation, particularly for Banff, a readily accessible and attractive Canadian venue. For more information on this fund, please contact the CAF office at info@avalanchefoundation.ca or 403-678-1235.

Banff Fundraiser March 24, 2011

This second annual event was organized by Rowan Harper and hosted by the Rose and Crown in Banff. A total of $1344 was raised through ticket sales, a 50/50 draw and a silent auction. Many thanks to Rowan, Erin, the staff at the Rose and Crown and the following donors for their support:

- Patagonia Banff
- Caribou Properties
- The Banff Mountain Film Festival
- Magpie & Stump Restaurant
- The Drake Inn
- Maple Leaf Grill & Lounge
- Giorgio's Trattoria
- Bear Street Tavern

Lake Louise Transceiver Training

By Richard "Rocket" Miller

I am particularly proud to write this article on the transceiver training area at the Lake Louise Ski Area (LLSA). Members of our snow safety team have visited several ski areas offering beacon plots for rescue training, and we are always impressed to see them in use. These are a great place to start an AST course field segment.

While we are not familiar with all the available products on the market, we know of the products that require hard wiring your targets before the snow flies. We have also heard of the trouble shooting required to maintain the plot and the manner in which the plot can 'go stale' so to speak.

When a product was introduced to us called the Easy Searcher, we were given an opportunity to test drive the system. Without getting too technical (for fear of getting it wrong and ruffling anybody's feathers) here is a brief description. The Easy Searcher comes with a "Brain," which is an electronic box in an enclosure that has either manual or automatic settings that speaks to the targets in your plot. The targets transmit a signal and also have a sensor. When a probe strikes the target, the target sends a signal back to the Brain.

The Brain also times the user, so speed can be measured. The Brain and the targets are battery operated, not hard wired, and each use eight AA batteries, so the whole system is 12 volts (AA batteries are 1.5 volts: 8 x 1.5=12).

We soon found out that batteries in the targets would last a couple of weeks but the ol' Brain seemed to chew through a few more, even when we used the high-priced alternatives. That is when we inquired with the "Sparkies" at LLSA to ask about a solar panel and the possibility of hooking up the Brain to a solar-assisted 12 volt battery. "Yup, no problem," came the response and soon we had a "green" message in our plot too.

While we still use a few batteries in the targets there are benefits. It forces us to dig them up, which gives us the opportunity to re-arrange and refresh the plot. If we are too busy or slack and lose the signal, the targets can be detected with the RECCO device (how about that Gordie?).

The cost isn't cheap, so we sourced out some partners whose names are now displayed on a banner at the plot. The Pro Patrol and the CSPS Patrol went "Dutch" on the Brain. Parks Canada, who originally let us test drive the system, loans us six targets each season. And Eddie Burger in Banff has a fund they call "Eddie Cares." When we approached them about a partnership in avalanche safety, they jumped on with enthusiasm.

The plot is at treeline at a busy junction on the backside of LLSA. Patrol checks it twice a day on run checks and sweep to open and close it. We placed a trail counter at the entrance and the visitor numbers are impressive. Since creating the plot in 2009-2010, the site has attracted nearly 700 users each season—1400 in total! We were truly amazed at that number, and that is after factoring out our own snow safety staff visits. We get numerous positive comments about the plot and to be honest, we keep patting ourselves on the back.

We have had to trouble shoot a little, but so far the whole system seems to have endured the rigours of public use quite well. However, the plywood surface of the targets will soon need replacing. Probes have left them looking like a road sign in hunting season.

Rocket Miller is the head of the Lake Louise avalanche safety team and sits on the Board of Directors for the CAA and CAC

Rocket Miller

Lake Louise avalanche control team member Jameson Harbottle rests his hand on the box containing the "Brain" that runs the transceiver training area. It's run by a 12 volt battery that sits under the Brain, all powered by the solar panel at the back of the area.

THE SWISS STORY

A brief history of snow and avalanche research in Switzerland

By Christine Huovinen and Jürg Schweizer

Ever since man first occupied the Alps, avalanches have posed a threat. For centuries, it was primarily the inhabitants of the mountains who were affected, together with their cattle and dwellings, but the gradual development of the tourist industry has since extended the risk of damage and, therefore, the interest in avalanche research.

Until the start of the 20th century, the avalanche problem in Switzerland was addressed largely by individuals, often foresters. These observers described avalanches and categorised them according to their character. Some early works concerning avalanches and defensive structures were published. By the 1920s, promoters of ski tourism, railway companies and hydropower plant operators were making louder pleas for scientific methods to be adopted for avalanche research, and they supported the establishment of the Commission for Snow and Avalanche Research in 1931. It became the first central agency in Switzerland dedicated to researching avalanches systematically.

The members of the commission soon realised, however, that their interest in avalanches had to extend beyond the summer; they needed to observe the snow in the winter and learn about its structure and the evolution of microscopic snow crystals. For this purpose, the first laboratory was built out of snow in Davos in 1935. To avoid the risk of warm spells threatening not only the experiments but also their accommodation, the following winter the laboratory became a wooden shed. The location of the laboratory was moved up to avalanche country on the Weissfluhjoch, a minor summit above Davos, and a study plot was established.

The commission continued to work there until 1942, when the federal government adopted a resolution to establish the Swiss Federal Institute for Snow and Avalanche Research. The timing, during the Second World War, mirrors the great significance attached to avalanche research by contemporary business leaders and politicians. Just one year later, in April 1943, the SLF celebrated the official opening of its new home on the Weissfluhjoch.

Besides new premises, however, the scientific discipline of snow and avalanche research needed a methodology of its own and special measuring instruments. Scholars had been developing a variety of measuring instruments since research started in 1936, including a ram penetrometer, a shear test apparatus, and a device to determine the air permeability of snow. Some of these instruments are still being used today, of course with technical refinements introduced in the intervening period.

In the early years, especially during the war, the avalanche researchers sought very little international contact, but a lively exchange began once hostilities ceased. Researchers from the Alpine countries and overseas turned to the Swiss as experts and undertook further studies at the SLF, and SLF employees travelled abroad to assist with local avalanche protection programs. The SLF was soon recognised as the centre of snow and avalanche research and is still acknowledged as such today.

Christine Huovinen is on the Communications Team and Jürg Schweizer is the Head of the Research Unit at the WSL Institute for Snow and Avalanche Research in Davos, Switzerland.

The world's first snow-science laboratory was made of snow in Davos, Switzerland, 1935.

SLF archive

New Head of Swiss Avalanche Institute

Well known in Canada, Jürg Schweizer assumes leadership of world's foremost avalanche research organization

On May 1 of this year, Dr. Jürg Schweizer became the new Head of the WSL Institute for Snow and Avalanche Research SLF and of its "Warning and Prevention" Research Unit. He succeeds Dr. Jakob Rhyner in these positions.

Dr. Schweizer ranks among the world's foremost scholars of snow and avalanches. His outstanding curriculum vitae includes many years of research activity, teaching at the ETH (Swiss Federal Institutes of Technology), leading the training programmes for avalanche safety personnel, and his role as the SLF's senior expert witness for avalanche accidents. Dr. Schweizer has already served the SLF/WSL for 21 years, and has headed the research group that investigates the formation of snow avalanches. He has been interim head of the "Warning and Prevention" Research Unit since March 1, 2011.

His predecessor, Dr. Rhyner, left the WSL and SLF in mid-May 2011 to become Vice Rector Europe of the United Nations University (UNU) and Director of the UNU Institute for Environment and Human Security in Bonn. Dr. Rhyner played a pivotal role in enhancing the SLF's contribution both to research into natural hazards and to practice, through the provision of services such as GIN, the Common Natural Hazard Information Platform. He significantly fostered collaboration with other natural hazards agencies, the Swiss cantons, industry, and research institutes—always with the goal of improving the protection of the population against natural hazards

SLF archive

POACHERS!

Managing closed areas and sign-lines has become increasingly challenging over the past several years at Whistler Blackcomb. This winter saw record numbers of guests lose their skiing privileges for the season as a result of sign-line violations. Avalanche forecaster Anton Horvath shares his thoughts on this worrying trend.

At Whistler Blackcomb, the goal of our avalanche control program is to provide the maximum use of terrain within our area boundaries, while minimizing the avalanche hazard for both the public as well as our avalanche workers. For many years, we have used avalanche sign-lines to assist us in achieving this goal.

Ideally, sign-lines are established on obvious terrain features, which assist with both management and compliance. However, this is not always possible. In the absence of any effective terrain features, we routinely conduct avalanche control on slopes adjacent to any easily accessible sign-lines prior to the arrival of skier traffic from neighbouring zones, in order to provide an adequate buffer zone. This not only helps to protect any violators from their own actions or ignorance, but also provides for increased worker safety should any rescue efforts be required.

In recent years we have seen increasing numbers of sign-line violations, with riders accessing closed terrain from the side and even from below. We have had to establish and install additional signage at the bottom of sign-lines, stating "no hiking above this point."

The violators vary widely in scope. Some guests are honestly ignorant of our procedures, and wander over to the wrong side of sign-lines in search of fresh tracks. Some guests follow tracks into closed and uncontrolled areas (we suspended a mom who was taking her 12-year-old into a closure because it was open the last time she was there). We have "Backcountry Access Only" ticket holders who re-enter our tenure from outside our area boundary, and we encounter well-coordinated and radio-equipped poachers, who monitor the progress of avalanche control work in order to access closed terrain undetected.

Those of us with many years experience at this resort have noted the appearance of a culture (spanning multiple generations) that fosters a sense of entitlement and celebrates a lack of respect for established ski area procedures and protocols. The aura of invincibility that many big-mountain skiers cultivate seems to have extended beyond their big-air tricks. For them, our warnings appear meaningless. No guard on the sign-line means no compliance.

We have had to deal with many delays in our control operations to address these violations, clear the violators from the area, and ensure the zone of effect is clear. The situation came to a head on Whistler Mountain early this past winter, when we were no longer able to safely provide backcountry access to Garibaldi Park during periods of alpine terrain closures and during periods of extended closures. In the past, we were able to provide this access along one of our ski area boundary egresses. However, this became unmanageable because of the increase in backcountry access ticket holders re-entering our closed terrain while avalanche control was in progress endangering themselves and our personnel.

While we would dearly love to be able to continue to accommodate the local guiding community as we have in the past, it has become impossible to do so. In order to better manage our terrain next winter, the following new initiatives have either been implemented, or are being considered:

- Backcountry access passes will no longer be sold unless conditions are such that we anticipate being able to open all of our alpine terrain;
- Establishing designated hiking areas, with new signage at the bottom of both Blackcomb and Whistler Mountains indicating the only areas where uphill hiking is permitted within our area boundaries;
- Blackcomb Mountain may consider additional alpine lift closures to provide larger buffer zones during periods of active avalanche control, effectively decreasing the terrain currently available while avalanche control is in progress;
- Continuing media outreach requesting peer pressure to assist with education and compliance with avalanche closures; and
- Expanding our Avalanche Awareness Tour Program to heighten public awareness.

For my part, I continue to cherish my experiences away from Whistler Blackcomb, on courses or on exchange at smaller resorts in Canada and the US, where I find a local culture of mutual respect with people who acknowledge and are grateful for avalanche control workers. It reminds me of the way things used to be. If this is the price of success, I'm not sure we can afford the cost.

The Flute Bowls, accessed by hiking from the Whistler ski area. This area presented many problems for the avalanche control team, as backcountry-access ticket holders can enter the area during storm cycles and alpine avalanche closures.

Anton Horvath

Anton Horvath

An avalanche in West Bowl crosses a cat road; just below is a popular route used by poachers during storm cycles and alpine avalanche closures to access the Peak to Creek run.

Avalanche Bulletin System v.3

After extensive collaboration and development, Parks Canada is set to launch new avalanche forecasting software

By Grant Statham

Parks Canada will launch a new avalanche bulletin product for the winter of 2011-12. With help from Kananaskis Country and the Canadian Avalanche Centre, we are designing a comprehensive piece of avalanche forecasting software that brings together recent developments in public bulletin formats, avalanche forecasting theory, and modern technology. One of our biggest goals is that one day, all public avalanche bulletins will be presented using the same format, regardless of who issued it: a national standard for avalanche bulletins. The CAC and K-Country also share this vision, and we hope to begin to achieve it next winter.

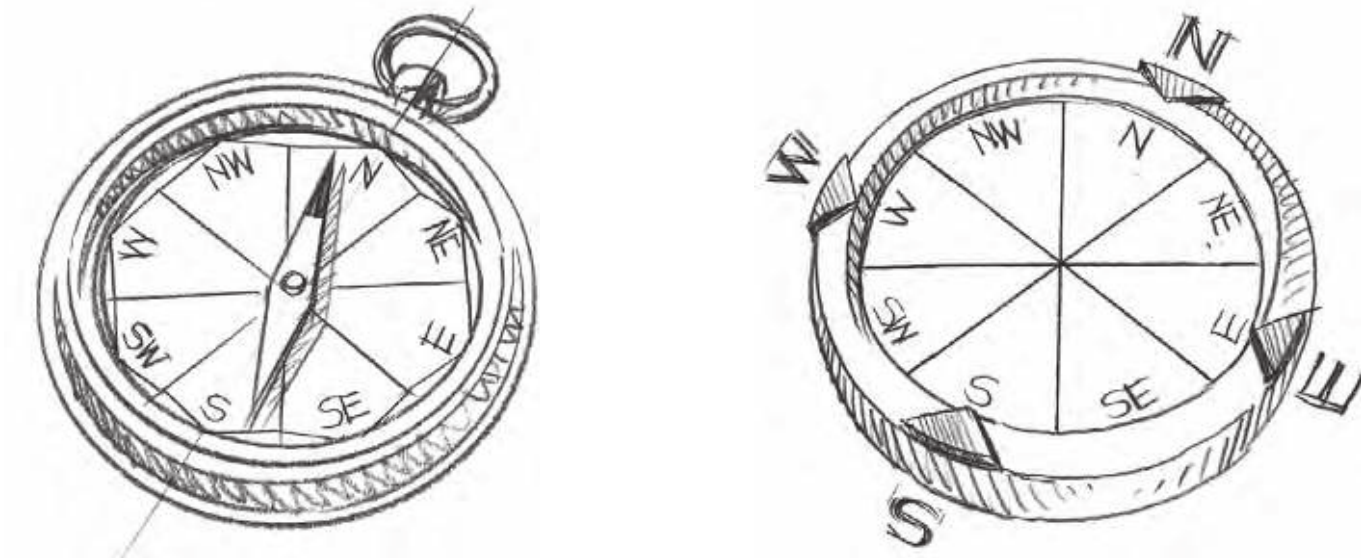
Public avalanche bulletins have evolved a long way over the past decade. What has historically been a text-based warning of 400-600 words, accompanied by a danger rating, now trends towards less text, more graphics and mobile technology. The most obvious example in Canada is the incremental changes to the CAC's bulletins in recent years, with their emphasis on avalanche problems and an accompanying set of graphics to illustrate the problem. These are important changes, as modern bulletin users relying on mobile technology have little patience for plowing through 600 words of text. We need to get to the point, quickly.

The original graphical avalanche bulletins came from the Utah Avalanche Center. Bruce Tremper's early ideas for graphical warnings caught on almost instantly, driving ideas that have subsequently evolved into a variety of products developed over the past few years. European avalanche bulletins are no different, following the same trends of going graphic and working hard to keep up with smartphone technology.

At the same time, Parks Canada's Avalanche Danger Scale project was developing a Conceptual Model of Avalanche Hazard. This is a common framework, based on risk, that sets out a workflow for analyzing and rating avalanche danger. These concepts have caught on rapidly, and today form the core of the CAA's Level 3 Applied Avalanche Risk Management course. This step-by-step forecasting model breaks away from traditional stability analysis by walking forecasters through a process that asks them to identify the most important avalanche problems, specify their location, and then evaluate the likelihood of triggering and potential avalanche size of each problem. The results are then consolidated, and an overall danger rating is applied for the region.

While each of these individual components has been under development in recent years, this project aims to tie them all together and implement them systematically into Parks Canada's daily avalanche forecasting programs. Then, we will share this product with other public forecasting agencies for no direct cost. We get the benefit of their expertise, they get the benefit of our $300,000 investment, and the public gets the benefit of a universal product. This is a win-win for everybody, realized through partnerships and the leveraging of resources between agencies. You gotta love Canada!

Evolution of an image: one of the many icons developed for the new software, this aspect icon has evolved through numerous variations.



The result will be a dramatically different product, both in terms of forecasting methods and output for the public. Producing an avalanche bulletin will no longer be an exercise in creative writing, with all the avalanche forecasting details left behind in the forecaster's mind. This system draws those details out of the forecasters by walking them through the following steps in both Nowcast and Forecast modes:

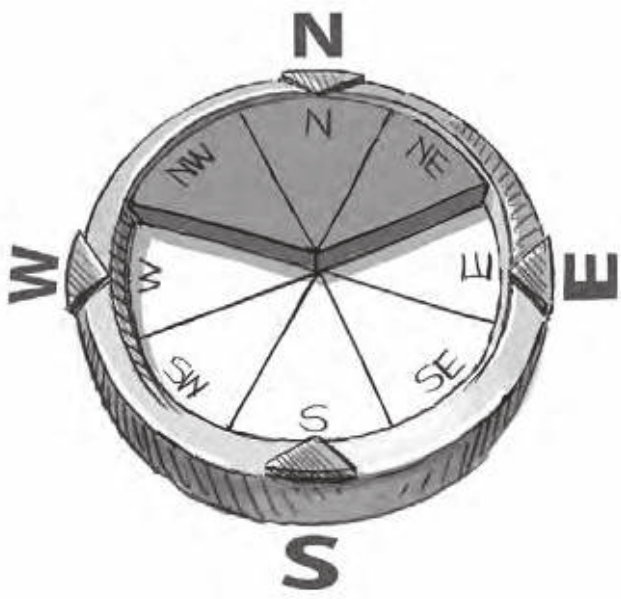
1. Field Observations
2. Weak Layer Tracking
3. Avalanche Problems
4. Likelihood and Size
5. Danger Ratings

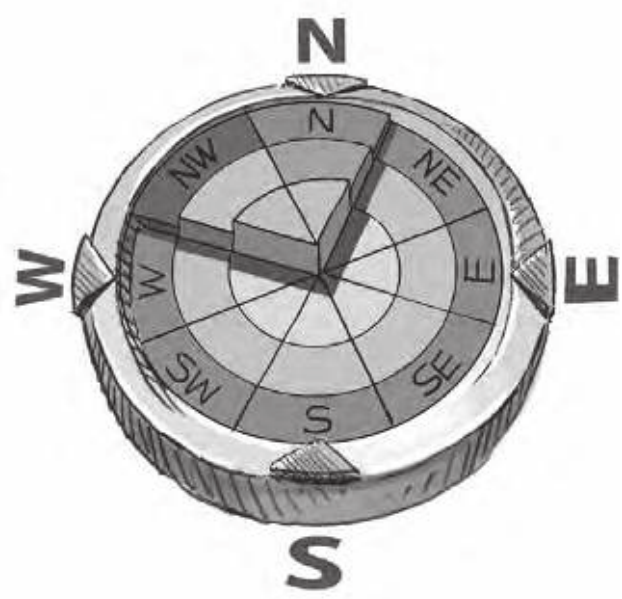
Forecasters will editorialize briefly on each avalanche problem (avalanche activity, terrain specifics and triggering), while terrain and travel advice will be provided using a bulleted list of pre-determined phrases. The idea here is to limit variations in creative writing, and focus in on the most important advice. Studies of historic bulletins show patterns in the terrain advice; forecasters generally say the same things (e.g. watch out for windslabs in the lee of ridges). Our goal here is to use those patterns to make a simple list where the most important phrases stand out clearly.

The design of the public bulletin itself will be driven by mobile technology. Recognizing smartphones as the primary channel for communication allows us to design accordingly, and then transfer these ideas onto the web. Working with ebranders, a Toronto-based design firm specializing in risk communication, we are in the process of designing and testing graphics that will easily communicate the technical concepts that forecasters are analyzing in the back-end of the software.

All of this work is a potential goldmine for future research. In a few years from now, the robust database this system stands upon will contain thousands of assessments by avalanche forecasters. Future research could use this data to unlock many of the hidden patterns in avalanche forecasting, previously trapped in the forecaster's mind. For example: what are the patterns and different combinations of likelihood and size that lead to different danger ratings? It's solving these kinds of mysteries that will help improve the accuracy and consistency between avalanche forecasters in the future.

A substantial amount of work remains to ensure we can implement this successfully by November 2011. At the same time, another big job emerges as we train forecasters and educate the public on how to use this product. However, we are all very excited by what is coming, and look forward to sharing it with other forecasters and the public very soon.





Schedule of Coming Events

September 15 – 17, 2011
16th European Avalanche Warning Services Meeting
The 16th annual meeting of the EAWS will also mark the 40th anniversary of ANENA, France's national avalanche organization.
Where: Grenoble, France
Info: www.interpraevent.at

October 5 – 7, 2011
Wilderness Risk Management Conference
This annual conference focuses on risk management and practical skills for the wilderness adventure and education industry.
Where: Boston, Massachusetts
Info: www.nols.edu/srmc

October 18 – 23, 2011
ICAR 2011
The International Commission of Alpine Rescue is once again hosting an open forum to discuss ideas and share information on mountain rescue. ICAR represents 30 mountain-rescue organizations from Europe and North America.
Where: Åre, Sweden
Info: www.ikar-cisa2011.org

November – December, 2011
Backcountry Avalanche Workshops
Stay tuned to avalanche.ca for a schedule of these annual outreach events.
Info: Contact Nancy Geismar at ngeismar@avalanche.ca

January 21 – 22, 2012
Avalanche Awareness Days
It's never too early to start planning an Avalanche Awareness Days event in your community!
Info: Contact Nancy Geismar at ngeismar@avalanche.ca

Lyle Grisedale

connecting backcountry operations and safety since 1884

Photo by Francis Jolin

For over 125 years, Canadian Pacific has been a pioneer of backcountry exploration, operations and safety in Western Canada. Building the railway opened up the west and helped form a nation. It also taught some difficult lessons about avalanches, and how to manage the risk in mountainous areas. CP and the Canadian Avalanche Centre are proud to continue this legacy, working together to raise avalanche awareness and making the backcountry a safer place for people to work and play.
To support the Canadian Avalanche Centre, visit www.avalanche.ca

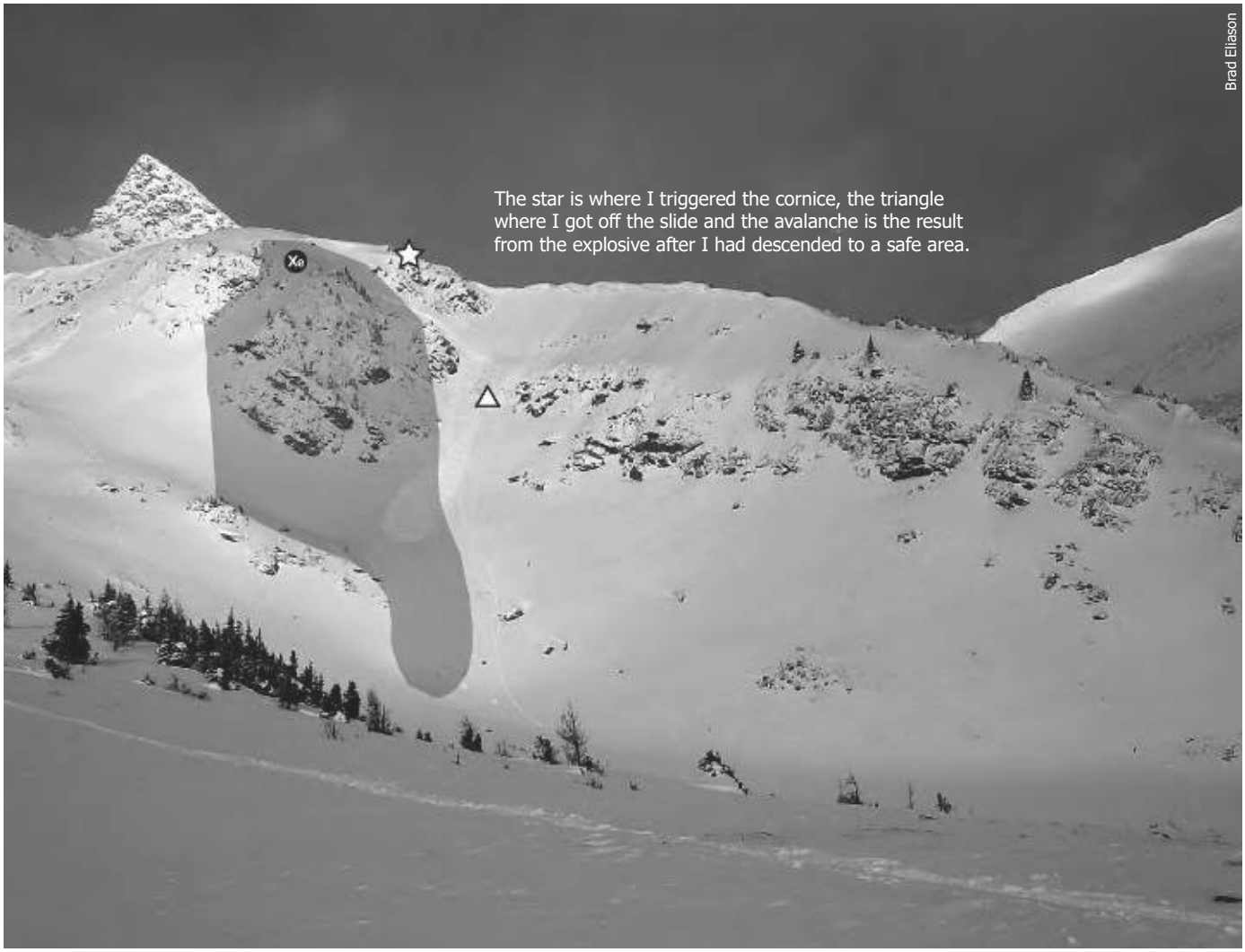
www.cpr.ca

CANADIAN PACIFIC
DRIVING THE DIGITAL RAILWAY »

Her name is Nina

Thanks to La Niña, 2010-11 was a winter to remember. For a sleep-deprived father of two, it was a season to never forget.

By Craig Sheppard



On October 20, 2010 Nina Sheppard was born. I knew long before her arrival that having a second baby at the beginning of the winter was going to be a challenge. Two kids under the age of two and a major home renovation is more than enough. Add La Niña to the mix, and suddenly I've got quite the winter to try and remember.

First, a quick recap of the Rockies winter: a November rain crust, below-average snowfall and cold temperatures (you're probably thinking "yup, typical"), but then in January, snow, snow and more snow (not so typical). Not dissimilar to much of western Canada, we had a major avalanche cycle mid-January. For me, the day to remember is January 21, 2011.

Nearing the end of the January cycle we were mostly caught up within our lease hold at the Lake Louise Ski Area and were in an area called North Cornice. Everyone had been working long hours with no days off to try and keep up through the cycle, and the end was in sight.

At 1500h I had a decision to make. My options were to take off my skis and stumble through some rocks to get to the other side, or keep my skis on and simply glide around the corner to continue the control route. Skis off—wide margin of safety; skis on—not so much.

Oh Nina. Those of you with kids know that emotions are constantly on a teeter totter when dealing with children. Some days are bliss and other days I would trade for used bicycle parts. With Nina, sleep has been hard to come by. The night before, there had not been much sleep. So there I am—exhausted, near the end of the day, at the end of a long cycle, looking forward to rest. I chose to keep my skis on.

Visibility was poor but I could see the edge of the cornice off in the distance and felt that I was far enough away. Well, I thought wrong. As I rounded the corner—snap—off broke the cornice with my feet on the wrong side of the equation and down I went. The rocks I fell over were about 5m high and I managed to keep all of the impact on my skis (luckily all my skis are rock skis). But then I found myself being dragged down slope by the cornice debris and the subsequent slab it triggered. The avalanche ended up being a size 1.5.

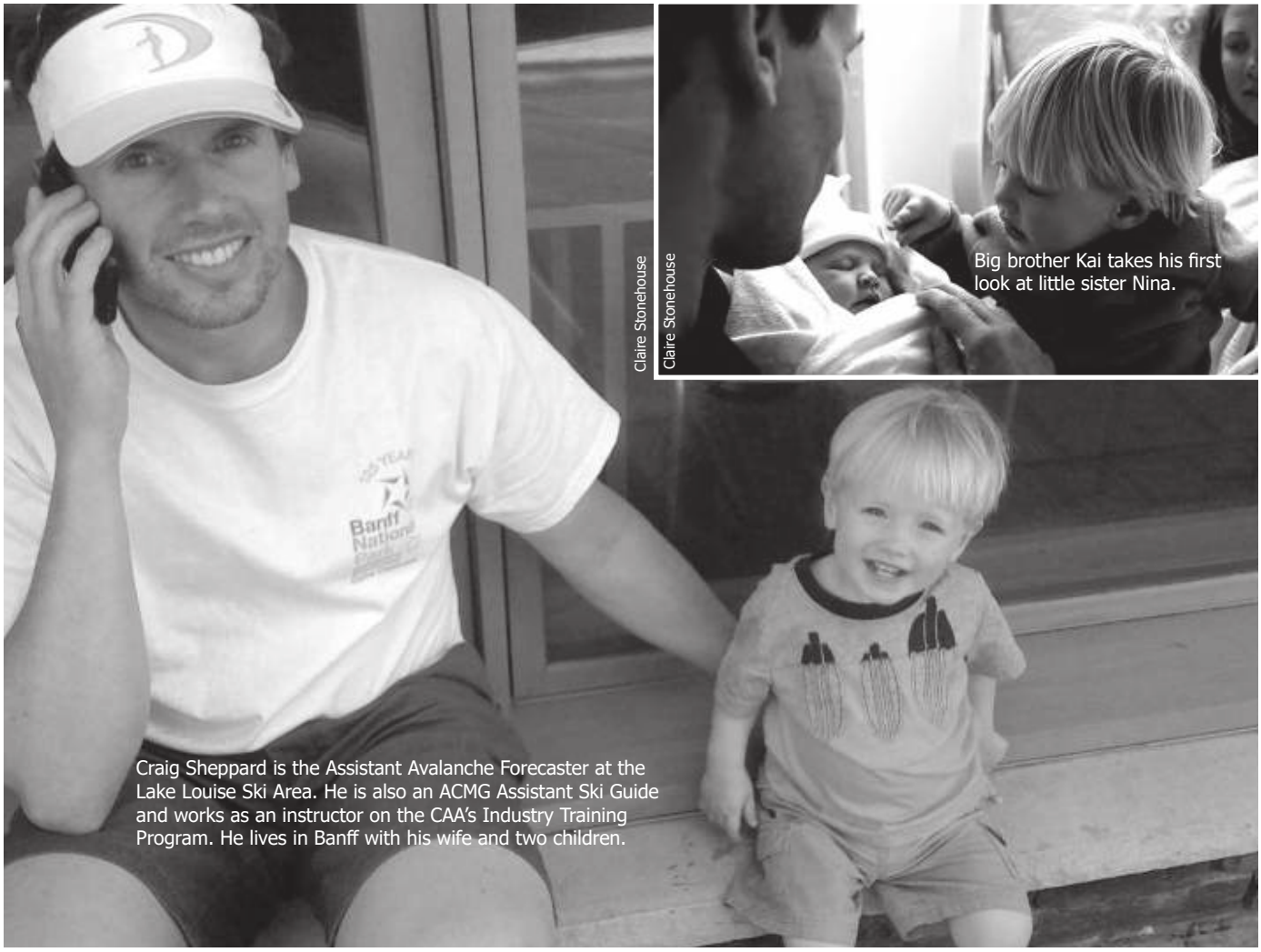
I fought and swam off to the side and exited stage left, mid-track. I was uninjured, had lost a pole, and a ski had come off but was visible 3m upslope from where I stopped. After lots of deep breaths and a few expletives, I got my ski and skied down to safety.

Once safely down, the others continued the control route. The next shot on an adjacent slope that shares some of the same track and runout triggered a size 2.5 with a 3m crown. It probably would not have hit me given where I stopped, but I am glad that theory was not put to the test. That night my family received lots of hugs.

I have thought about this day over and over, questioning the factors leading to my decision. Would I have chosen differently if I had slept better the night before? If it had not been at the end of a long day, a long week, a long month? If there had been better visibility? It is always easy to come up with more questions but the truth is I'll never know. It is what it is. It was the decision I made.

Since that day, circumstances outside of work are still the same. We have not traded our kids for bike parts, the house is still a construction zone and La Niña continued to send snow to the Rockies for the rest of the season. What has changed is my ability to see myself, and realize that my decision making this winter has been hindered by extenuating circumstances. I have talked about these factors in theory, but now I have been living them. I felt that I was a conservative person, but now I have widened my margins of safety again to accommodate my current fatigue.

I have been at Lake Louise for 11 years. This was my only incident (touch wood) and it is one too many. I will do everything I can to ensure that something like this doesn't happen to me again, and I hope by sharing this story it doesn't happen to you either. The nice thing is, as I write this, the clocks have sprung forward, the days are getting longer, spring is around the corner and sleep is returning to our household. I will always look back at La Niña as the winter to try and remember.



Claire Stonehouse

Claire Stonehouse

Big brother Kai takes his first look at little sister Nina.

Craig Sheppard is the Assistant Avalanche Forecaster at the Lake Louise Ski Area. He is also an ACMG Assistant Ski Guide and works as an instructor on the CAA's Industry Training Program. He lives in Banff with his wife and two children.

Today's Transceivers

Part 2 Understanding the Marking Function: Pattern Recognition

By Rob Whelan

Brent Strand

In the previous issue of this journal, we examined the disconnect between marketing messages, user expectations, and the real-world performance of modern avalanche transceivers. One of our conclusions was that modern devices with digital technology and multiple antennas are a vast improvement over the old analog transceivers, especially for recreational users. With distance and direction indications displayed to the user, searching for a single burial is pretty straightforward. Multiple burials, however, can still be a challenge.

Manufacturers have differing design philosophies when it comes to managing multiple burials. There are two fundamentally different approaches. The first is to use a search strategy that does not rely on any special function of the transceiver, but rather on a strategic search pattern that is applied by the rescuer, such as searching in parallel[1] or the Three Circle Method[2]. The second approach is to use properties of the incoming signals to separate the signals, allowing the searcher to "mark" a burial when it is pinpointed. This method is used by Pieps (DSP series), Barryvox (Pulse, Element), Ortovox (S1, 3+) and Arva (Evo).

Among the devices that employ this "marking" function, there are two different strategies for separating the signals from multiple transceivers. The first strategy is signal separation by amplitude. At any one time, one signal will be stronger than the others, allowing it to be separated and identified. The second strategy is signal separation by pattern recognition. Pattern recognition takes advantage of the concept that each transmitter has a unique transmit pattern, allowing it to be identified by this pattern. In this article, we will focus on the pattern recognition strategy, and examine its strengths and weaknesses.

Signal separation by pattern recognition is used by Barryvox, Ortovox and Arva transceivers. Although each manufacturer has its own proprietary twist on this basic concept, here is roughly how it works. Within the specification for avalanche transceivers, there is a range of allowed pulse widths (the "on" time of the beep sound) and a range of pulse periods (the length of time between beep sounds)[3]. This allows manufacturers to somewhat randomize these parameters, assigning each device a slightly different pulse period. Modern transceivers have high quality oscillators, and as a result they have very precise and reliable timing. If my beacon starts up with a pulse width of 80 ms (milliseconds) and a period of 900 ms, then the 80 ms pulse width and the corresponding pulse period will remain consistent as long as the device is transmitting.

When you look at this pattern on an oscilloscope, you can see the distinct leading edge of the signal pulse every 900 ms. This is known as a "positive edge" and is what a Pulse, S1, 3+ or Arva is "seeing." Once the searcher has received a certain number of these positive edges, the searching device can assign a unique identity to that particular signal. Every 900 ms, it expects a positive edge from that transmitter. This particular pattern is now confirmed, and the pattern can be assigned to a buried subject. The searcher's display is updated to show that there is one buried subject, and that their signal is unmarked.

Now imagine that the searcher moves within range of a second transmitter. The searching device now has another signal to analyse. The arrival time of the positive edge of the new signal will be different from the arrival time of the signal from the first buried subject. If you listen to the analog beep sounds, you will hear "BEEP-beep…BEEP---beep…BEEP-----beep…." The louder beep is coming from the first buried subject. You will also notice that the signal pattern from the second transmitter is slightly different. The beep sounds do not have the same cadence, so the signals migrate away from each other over time. This makes signal separation easier for the searching device—the two signals have unique pulse periods and pulse widths.

Once again, the searching device confirms that the new signal is unique, then assigns an identity to the signal and updates the display to notify the searcher that a second buried subject has been added to the list. The search continues, using the distance and direction indication to move to the first buried subject. It is important to understand that now we are getting distance and direction for the first buried subject ONLY; all the other signals are still being processed, but are not displayed to the searcher. This means that if we wander off and do not follow the direction indicator, we could end up standing right on top of the second buried subject—and still seeing the distance and direction indication for the first buried subject who has not yet been found.

This drives people crazy. "I walked right over one and went past it!" Well, of course we did. That is not the signal we are currently looking for. The searching device can only show one distance and direction at a time, and if the device "switches" to another closer signal, we become like a pinball in a pinball game—and risk missing even more burials. So, the best strategy is to search in a concentrated manner, being attentive to the balance between speed and precision in our search technique.

It sounds easy enough—one single burial search after another. So why does it sometimes just not work? The short answer is signal overlap. When we listen to the analog beep

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[1] Dieter Stopper, Franz Hohensinn and Bruce Edgerly, "Harnessing Manpower in Transceiver Rescues," < http://backcountryaccess.com/index.php?id=106>

[2] Steve Christie, "The Three Circle Method: A Standardized Approach for Avalanche Professionals," < http://www.backcountryaccess.com/index.php?id=163>

[3] Rob Whelan, "Today's Transceivers," avalanche.ca, vol 96, p 56-58.

sounds from two transmitters, the beeps migrate away from each other for a time, and then they start to converge again. At some point, the two beeps sounds will be so overlapped that it will sound like just one signal. For a searching device, when the signal is overlapped like this, there is no usable information to process. Which of the two signals is getting stronger? Which of the two directions is the correct one? The processor needs a minimum separation between the incoming signals to provide useful information to the user.

At this point, with the signal overlapped, it's all about the transmitters. If the pulse period of the transmitters is nicely randomized, then the duration of the signal overlap will be short. We can say that they have a good migration rate. However, if the migration rate is poor, and/or there are transmitters with long pulse widths (Ortovox F1, SOS, M1) then the signal overlap can persist for a long time—a long time in the context of an avalanche rescue.

When this signal overlap condition persists for more than a few seconds, the searching device has no more useful information to process, and is forced to warn the user. At this point we might see a Stand Still message, or the Stop icon displayed. This is often misinterpreted as "processor overload." The processor is not overloaded. In fact, the processors in these devices are so fast they spend 80 – 90% of the time just idling, waiting for the next pulse to arrive so they have something to process. This warning is just telling the user that there is no usable information available, and to wait for the signal overlap condition to resolve itself.

So now for the hard part. If we want to use the marking function as our search strategy, we have to actually heed the advice of the searching device, and STAND STILL! That is not the easiest thing to do in a rescue situation. The signal overlap may last for several seconds, which seems like an eternity in a rescue (or even a practice, for that matter). However, once those seconds have passed, we will once again be on the most efficient path to the buried subject.

Sometimes, though, the search can get totally frustrating. You've been there. Multiple "Stop" and "Stand Still" messages. Confusing and conflicting distance and direction indications. Returning to a previously marked burial. These are all signs of repeated or prolonged signal overlap. The incoming signals are such that just as one signal overlap problem starts to resolve itself, another one is developing. I see this most commonly in practice scenarios and on avalanche courses. Which two brands of transceiver are inexpensive, readily available and most likely to be used as search targets? The popular Tracker DTS and the trusty Ortovox F1. Which two beacons are most likely to have signal overlap? Sure enough, the Tracker DTS and the Ortovox F1. They are both totally reliable devices, and meet current specifications, but the properties of their signals are not friendly for pattern recognition algorithms.

The Ortovox F1 has a relatively long pulse width (long beep sound). This means that its signal is taking up more of the space in the pulse period than other devices, and increases the chance that this long pulse will overlap another signal. The Tracker DTS was designed with a narrow set of possible pulse widths. Therefore, even though the pulse width is short, the migration rate is slow. This means that when two Tracker DTS are sending, they will very slowly migrate to a condition of signal overlap. And once that overlap condition is reached, it will last for a long time (again, a long time in the context of a rescue).

The ideal situation for successful pattern recognition is transmitters with short, randomized pulse widths, which results in fast migration rates. There will still be lots of signal overlap, but those overlap periods will be brief.

In conclusion, when using pattern recognition to solve multiple burial scenarios, the transmitter is an important factor regarding the success of the search strategy. In the next article of this series, we will look at other marking strategies—signal separation by amplitude, the Pieps Smart Transmitter, and the W-Link support for multiple burials available from Barryvox and Arva.

For a visual representation of some of the concepts in this article, check out these videos on YouTube:

Transceiver transmit patterns: http://youtu.be/oVvbs40aX1U
Migration rate: http://youtu.be/wxcoB940TU0
F1 signal overlap: http://youtu.be/Fjvn4QxGgbg
Tracker DTS signal overlap: http://youtu.be/sHNYSR4sj90
Pulse/Tracker/Opto3000 good signal separation: http://youtu.be/4mt7GOFT9bU
Ortovox F1 / Tracker signal overlap: http://youtu.be/Cnq8EQT-JoM

Transitions


Kristina Welch collection

Kristina Welch
Web Developer

Kristina comes to us from the Sauder School of Business at the University of BC, where she was the Manager of Green Information Technology (IT) at ISIS, a progressive research centre aimed at solving existing social, cultural, economic, political and environmental challenges in Canadian business. Kristina has an Honours B.Sc. in Computer Science from the University of Western Ontario, and an MBA from UBC's Sauder School of Business. Prior to working with ISIS, she lived in Whistler where she worked as a web developer for snowboard.com and whistler.com.

"I have quite a few interests, both professional and personal, which relate to sustainability issues and improving the quality of life for communities," she says. "I am interested in the opportunities to leverage IT for positive environmental and social change, as well as the role that IT plays in shaping modern society and our interactions with it. I am also passionate about local economic development, particularly as it pertains to rural and small town communities and their resiliency. Living sustainably is important to me, and provides the context for much of what I do and am interested in."

Kristina is also passionate about the outdoors and "all things food-related, including preparing it, eating it, and thinking about it." As a backcountry skier, she is already invested in the work of the CAA and CAC, and is looking forward to her move to the Columbia Mountains. "This offers me an opportunity to collaborate with other like-minded people in an amazing area of BC, and support an organization that is critical to the success and safety of the sport." Welcome to Revelstoke, Kristina!

Curtis Pawliuk collection

Curtis Pawliuk
CAC Director for Supporter Members

Originally from Prince George, Curtis brings some northern BC perspective to the board. Curtis now lives in Valemount where he is the General Manager of the Valemount Area Recreation Development Association (VARDA), a non-profit group that promotes and helps manage public recreation in the Valemount area. Curtis is a graduate of the Northern Outdoor Adventure and Ecotourism Program from Prince George's College of New Caledonia, and is currently working on his CAA Level 2 certification. In addition to his position with VARDA, Curtis is also a member of Valemount's volunteer fire/rescue team.

For a number of years now, VARDA has been at the forefront of promoting avalanche safety for its members and the mountain snowmobiling community in general. "I take pride in what Valemount and our umbrella organization, the Association of BC Snowmobile Clubs, has done to encourage avalanche education," says Curtis, "Increasing the avalanche awareness of the recreational snowmobile community is something I pursue very heavily on a local level. I'm looking forward to bringing that desire to my new position on the CAC board, and getting more involved on a provincial and national level."

Amber Wood
CAA Director for Professional Members

As a professional snowmobiler, Amber Wood brings a fresh perspective to her new position on the CAA Board of Directors. Since 2002, Amber has worked as a snowmobile guide and consultant for a number of snowmobile operations, as well as the film industry. In 2005 she co-founded and was named the General Manager of the BC Commercial Snowmobile Operators Association (BCCSOA), which represents snowmobile tour operators and guides. She also runs her own business, Trigger Point Snow Services, conducting AST courses for snowmobilers and other contract work.

Originally from Ontario, Amber has a BSc degree from the University of Guelph. She has worked as a Park Ranger for BC Parks and is currently a Parks Canada Warden at Glacier and Mt Revelstoke National Parks. She has lived in Revelstoke since 2002, until a recent move took her to "the other side of the Pass" to Golden, where she and her partner Chris Granter now live. She's an avid mountain biker, skier, snowmobiler and dirt biker, "mostly anything where you need to wear a helmet," she says.

Amber says she will "be a reliable and resilient voice for the membership, providing insight from a variety of aspects within the avalanche world." As she looks forward to her new position, she is eager to have some influence over the programs she has been involved with over the past few years. "I feel that it may be an exciting time for change," she says. "I'm looking forward to both learning and contributing as the association takes on new challenges."

A rare photo of Amber without a helmet, and her partner Chris Granter.

Amber Wood collection

Scott Hicks and his son William

Shelly Hicks

Scott Hicks
CAA Director, Affiliate Members

Scott Hicks is a forester with the BC Forest Service. Born in Quebec City, he received his BscF from the University of New Brunswick. He has lived in Terrace since 2003, where he is a Stewardship Officer for the Ministry of Forests, Lands and Natural Resource Operations. He has been a CARDA member since 1996 and is currently working with his fourth CARDA puppy, a black lab named Johnny Cash.

Scott first began working with BC's Provincial Emergency Program in 1995, when he was a member of the SAR team in Golden. "My forestry background and passion for hunting lent themselves well to summer wilderness searches," he says. "Mountains and helping others are strong motivators for me, and I have focused my SAR development on winter, avalanche and mountain rescue."

A professional forester is a welcome addition to the board, and Scott is eager to contribute. "I believe the CAA and Association of BC Forest Professionals should continue to help each other meet their respective mandates, in light of QRP/QAP legislation coming into place in 2011," he says. As a member of the Skeena Valley Snowmobile Association, Scott also brings a snowmobiling perspective to the board. "I'd like to think I might be able to contribute to both sledder engagement, and the evolution of the relationship between two strong professional member associations."

Bruce Brink

Scott with his former CARDA partner Josey Wales.

Richard "Rocket" Miller
Director, Membership Committee

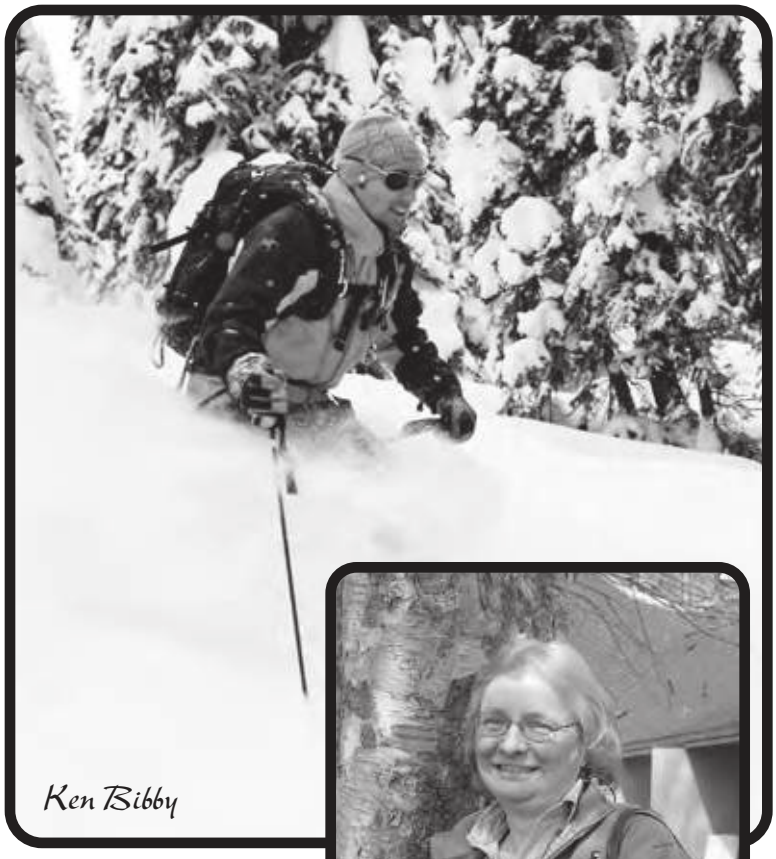

Chris Moseley

Rocket Miller has been in Banff since 1983 and has been working as a Pro Patrol at Lake Louise Ski Area for almost as long. Born in Toronto, he came west when he was 21. "I started the mountain lifestyle by parking cars at Sunshine Village," he recalls. "On my days off I skied at Lake Louise and decided that is where I would pursue a job with the ski patrol."

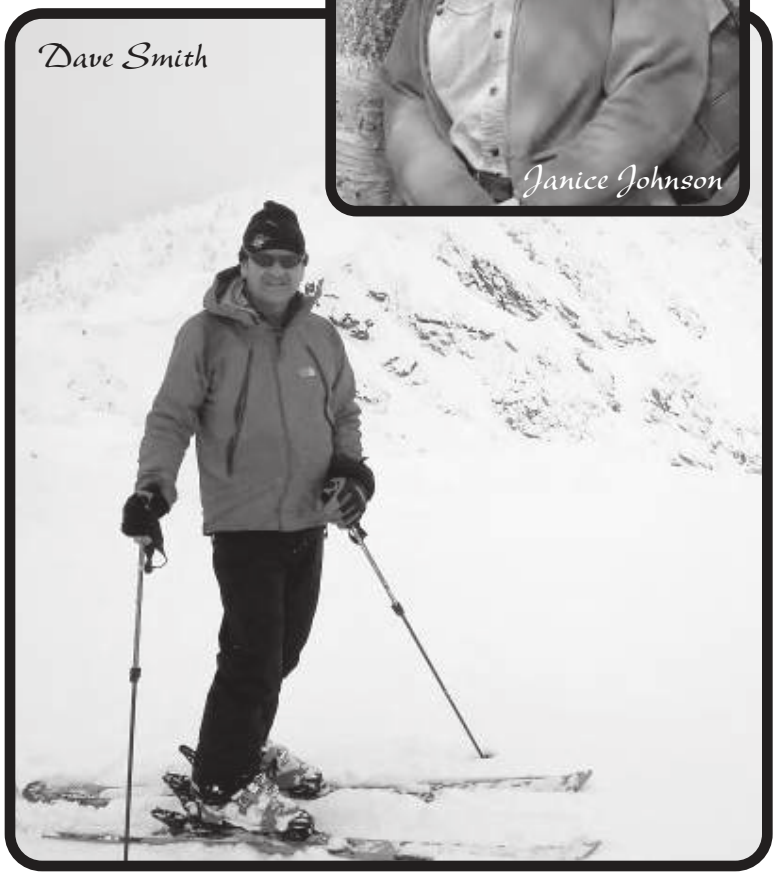
Rocket calls his education "45 degrees at the University of Lake Louise," and he is now the lead avalanche forecaster at Lake Louise. "The work is very satisfying and while I won't get rich, I get a million dollars worth of laughs nearly every day," he says. He has served for three years on the Membership committee and is looking forward to taking on this new role as Chair of the Membership Committee and board member. "I feel the boards of both the CAA and CAC represent our industry well," he says. "I'm ready to take my turn pitching in toward continuing the good work."

Rocket Miller flanked by his colleagues on the Lake Louise ski patrol at the end of the 2006-07 season.

Dave Iles


Ken Bibby

Janice Johnson


Dave Smith

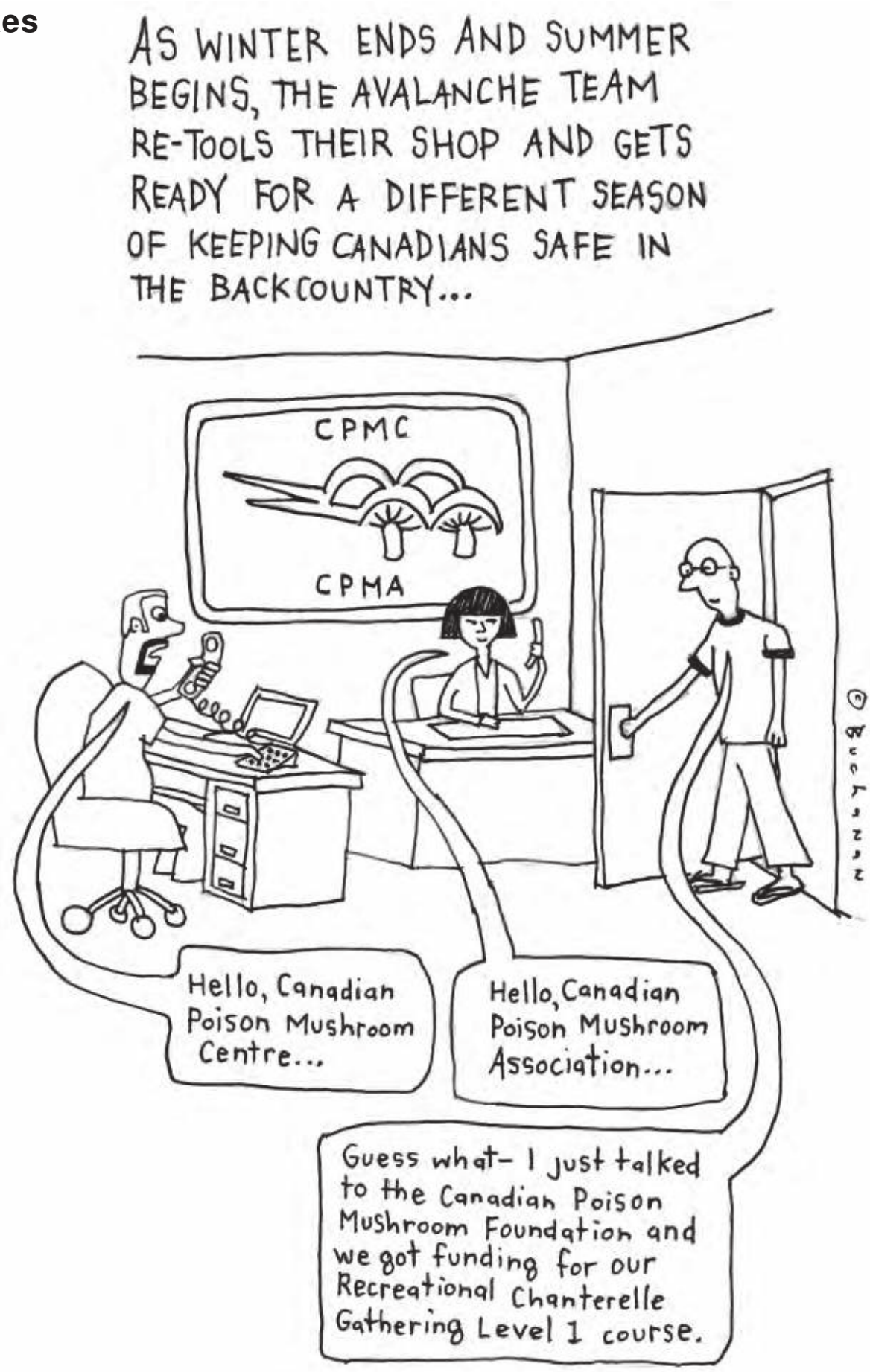
Goodbye to Board Members

This spring we said goodbye to three board members: Janice Johnson, Dave Smith and Ken Bibby. Janice Johnson served for three terms as the Affiliate Representative on the CAA Board of Directors. "I'd like to thank the members of the CAA and CAC Boards, and the CAA/CAC staff—both past and present—for sharing their insights, expertise and perspectives with me during my six years on the Board," she says. "I wish the current Board members all the best as they continue to deal with the many challenging issues they are currently addressing. I'm sure that their positive, thoughtful, collaborative approach will serve them well."

Dave Smith stepped down from the Vice-President's position, after serving many roles on CAA boards and committees. "What I always found interesting about my various stints volunteering for the CAA was that it was never a one-way street," says Dave. "My initial term as secretary-treasurer in the late 1980's started with a one-page financial statement from my predecessor, a rudimentary knowledge of balance sheets and shaky self-confidence in public speaking. At the end of my three-year term, I delivered a multi-page report at the AGM with increased knowledge about finances and much improved presentation skills. So the pay back from volunteering was an opportunity for personal growth—a two-street indeed."

Ken Bibby has resigned after two terms as the Chair of the Membership Committee. "These past four years were a pivotal time in the association," recalls Ken. "I'm grateful to have had the opportunity to be a part of that process. The board is made up of some pretty remarkable people and there's so much to learn by working in that environment, with such a wealth of experience and wisdom." On that note, the final word goes to Dave Smith, who says: "I highly recommend my fellow members consider volunteering for this organization, especially in these very interesting times. You won't be disappointed."

Flakes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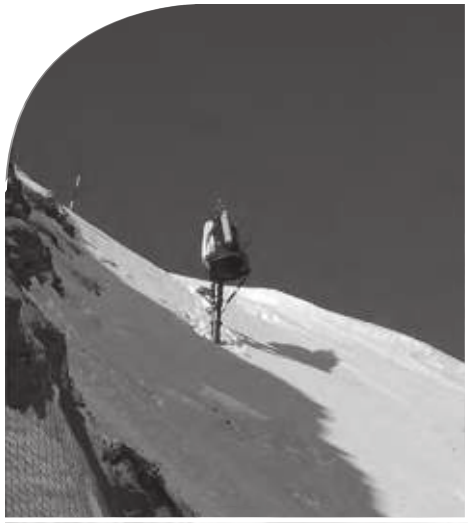

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