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The journal of Canada's avalanche community

MY BEAUTIFUL BALLOON

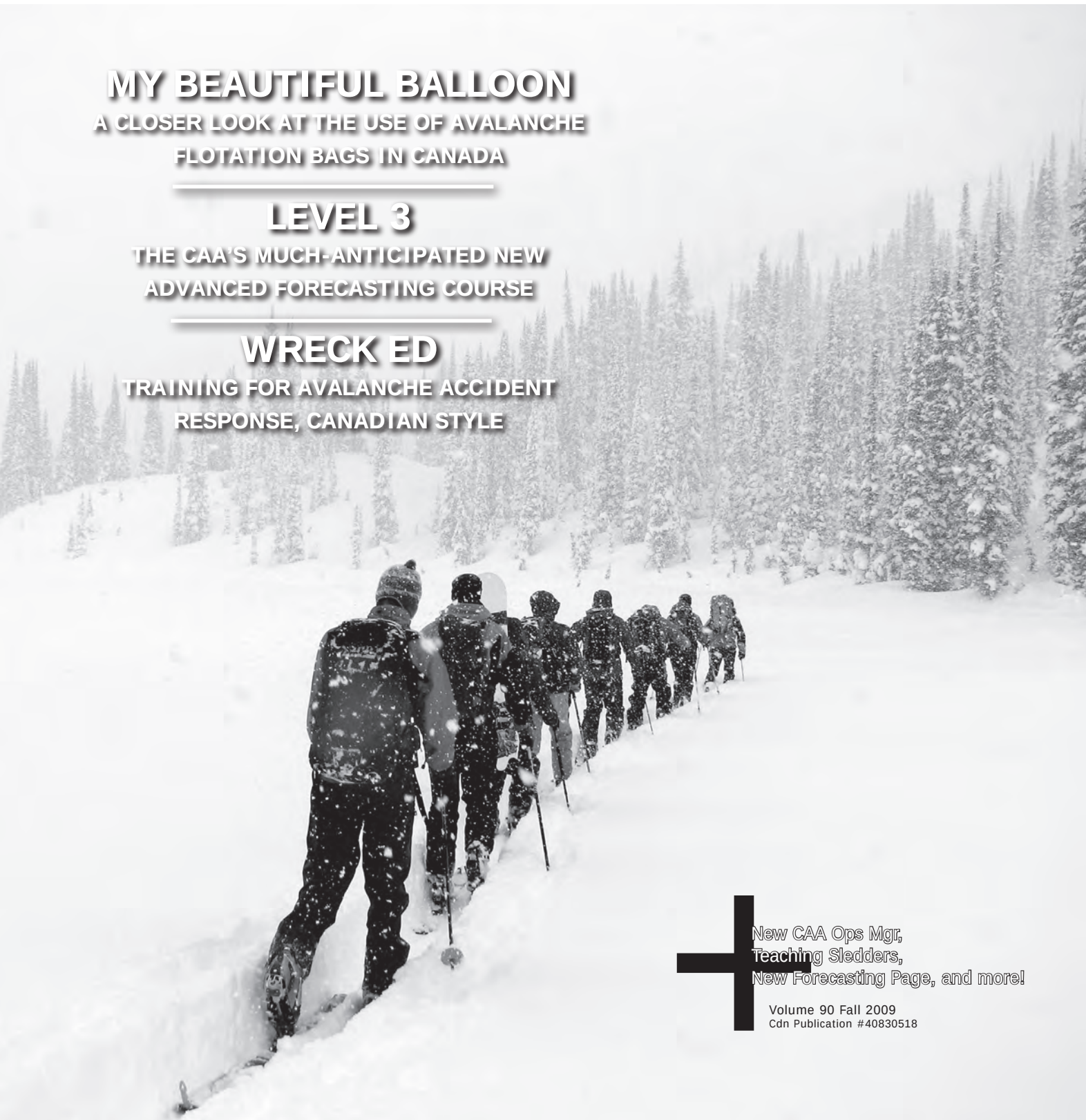
A CLOSER LOOK AT THE USE OF AVALANCHE FLOTATION BAGS IN CANADA

LEVEL 3

THE CAA'S MUCH-ANTICIPATED NEW ADVANCED FORECASTING COURSE

WRECK ED

TRAINING FOR AVALANCHE ACCIDENT RESPONSE, CANADIAN STYLE



New CAA Ops Mgr,
Teaching Sledders,
New Forecasting Page, and more!

Volume 90 Fall 2009
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Cover shot: First day out on the Avalanche Operations Level 1 course at Kokanee Glacer, December 2007. It snowed so hard that week that trail breaking became hip deep. Photo: Wren McElroy collection

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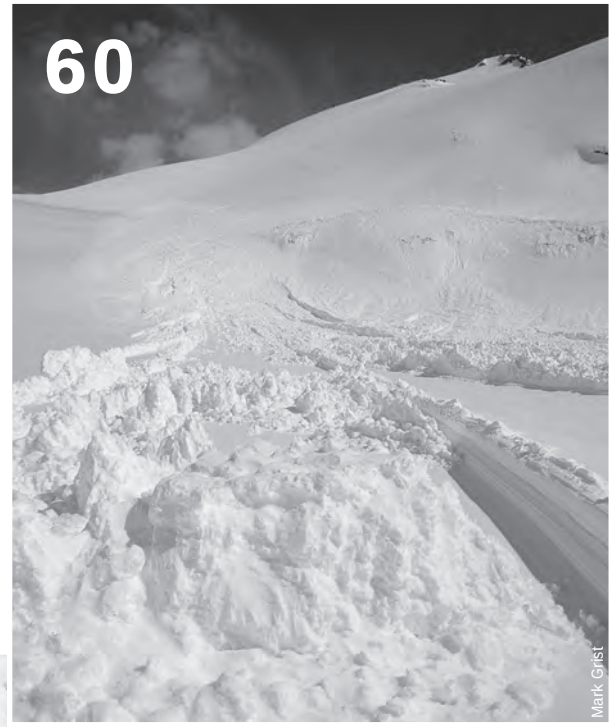

failure plane

In Volume 89 an article entitled “Recognition” appeared under CAF News. I regret the choice of words (such as “total shambles”) used in that article and would like to apologize to all the people who were essential to the start-up and early years of the Avalanche Centre. Alan Dennis, Inge Anhorn, Kel Fenwick, Chris Whalley, Torsten Geldsetzer and others worked long and hard to make the schools, the InfoEx and the public bulletin happen. All non-profit start-ups “hang on by the skin of their teeth” and, as the CAA President when the Avalanche Centre was started, I know the strong commitment that was required from all those who did the work.

Chris Stethem
President, Canadian Avalanche Foundation

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John Weinel

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 welcomes 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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Community Connections

We've talked a lot in these pages about the community of avalanche stakeholders here in Canada, and it's always exciting to see how that community continues to grow. Increasingly, we are bringing in more members who are snowmobilers, and we're interested in and grateful for their input. In this issue, you'll see how we've applied some of their feedback as we look ahead to the coming winter.

John Kelly's article on page xx gives some highlights of some of the initiatives we're pushing ahead with. As the CAC's Operations Manager, John feels a heavy responsibility to improve awareness and education for the sledding crowd. The CAC came up with a number of options for action and his article will explain which ones we've chosen to put our energies and resources into. We've taken some fresh ideas and we've got high hopes for their success.

In this issue we also have an interesting article from someone who has been concentrating his energies towards snowmobile education for close to 10 years. Niko Weis is a past president of the CAA and well known to many members. He gives us a snapshot of how his teaching style has evolved over the years, and some insight into what he's learned about teaching avalanche awareness to snowmobilers.

The Rocky Mountain Sherpas are looking to apply their energies in this direction as well. Still riding high on the success of their last film, The Fine Line, the Sherpas are looking for starting funds to launch a similar awareness film for sledders. My interview with Producer Malcolm Sangster appears on page xx. If you've ever wanted to see your name after the words "Executive Producer" give Malcolm a call.

CAC Forecaster Ilya Storm has an interesting look at airbag use in Canada, and sledders' use of this technology is of particular interest. Ilya asks some important questions and makes a strong argument for gathering more Canadian data on airbags. Take a look at his article on page xx and maybe put some thought into how you could contribute.

As always, we've got a lot of interesting reading for you as the days get shorter and temperatures begin to fall, and I think the range of articles and subjects really reflects our expanding community. And speaking of our expanding community, be sure to read the Executive Director's report on the next page. The amended regulations from WorkSafe BC for workers in avalanche terrain is bringing a whole new range of responsibilities for the CAA. Chris Stethem's article on page xx describes what the new Level 3 looks like. This course forms part of the foundation for the new Qualified Avalanche Planner designation and reflects the level of change the CAA has taken on.

It's an exciting time to be in the snow business. Have a great fall!

Coming up in our next issue

Ducking the Rope
The latest findings from the ADFAR 2 project. Pascal Haegeli and Matt Gunn share their research on out-of-bound skiers and riders.

A Conceptual Model of Avalanche Hazard
One of the objectives of the avalanche danger scale project was describing a method for evaluating avalanche hazard. Grant Statham explains the results.

Brent Strand

Dear Editor,

Are you using an older-model Avalauncher? You should know about this new barrel retainer system designed for your gun. For more information about this product, e-mail John Brennan at jbrennan@aspensnowmass.com.

While Avalanche Mitigation Services communicated with WorkSafeBC in early 2009 to acquire approval for our Falcon GT Avalauncher, it came to my attention that a concern had arisen over the barrel retainer system on older Avalaunchers. The worry was that the fiber barrels supplied on some Avalaunchers were insufficiently rigid and could be constricted by the barrel retainer system to the point of danger regarding the passage of projectiles.

In my opinion using alternative barrel retaining systems could damage, if not potentially constrict, either fiber or aluminum barrels. The photo on page 42 of your last issue (vol 89) is the reason for this note. This is exactly the type of alternative barrel retainer system that should NOT be used for properly retaining either the fiber or aluminum barrel.

The ability of this type of device, a chain wrench, to apply great pressures to concentrated areas is the reason it is unacceptable for use as a barrel retainer. The manufacturer of the pictured Avalauncher, Avalanche Control Systems—who has likely manufactured the majority of Avalaunchers currently being used in Canada—agrees with this assessment and has authorized my business to distribute the appropriate replacement barrel retainer. This replacement retainer is not only functionally an improvement over the original, but is as easy to use as the system pictured in your Summer issue.

Best wishes and great job on your journal
John Brennan
www.avalanchemitigationservices.com

Ian Tomm collection

Organizational Metamorphism

Looking up metamorphism in a dictionary will bring up rather technical engineering and geo-scientific definitions. Snow metamorphism is defined very loosely as the change a snow crystal undergoes once it's on the ground. Organizational metamorphism isn't defined anywhere, but when I take a look at our association, and where it is in its 28-year history, that is indeed what is happening. There is a subtle yet profound change taking place, motivated by government regulation but carried by the strong sense of professionalism and dedication to excellence that is ever present in the membership of the CAA.

September 1, 2009 marked the official date that WorkSafeBC's (WSBC) amendments to the Occupational Health and Safety Regulations (OHSR) in BC regarding avalanches and worker safety came into effect. This has been a long road for the CAA and the diverse community of avalanche risk management operations in BC. The wide stakeholder consultation that took place starting back in November 2006, resulted in the development of a minimum training and experience requirements for a new "Qualified Avalanche Planner" designation.

Those QAP standards were ratified by the CAA membership in the spring of 2008 and subsequently were incorporated into the OHSR amendments. We now find ourselves changing focus, from working with our community and government regulators over the past couple of years to implementation within our organization. What does this mean to us as avalanche workers, to our employers, to our organization and to our community as a whole?

In June our Board of Directors descended upon Canmore, Alberta for our annual board development workshop. The WSBC amendments were front and centre and we brought in two consultants to help us understand—really understand—what it means to the CAA to be named in government regulation.

For those who attended the spring AGM you would have seen my presentation to the membership where I talked about taking a deep breath and reassessing the scene before we move further down this new path. This development workshop was one of a few initiatives the board and I have been working on to accomplish this goal—a reality check of sorts.

One of our consultants, Frances Picherack of Petrine Consulting Inc., helped us understand the differences between "hard law" and "soft law" over the course of the weekend. Having our standards (QAP qualifications, Land Managers Guide, Risk Determination Guidelines and Safety Plan Templates) named in the OHSR means the CAA is now squarely in the domain of hard law. Along with that comes a set of expectations and accountabilities that we're just starting to understand.

Our policy and governance lawyer, George Bryce, is telling us the amount of public trust placed on the CAA by WSBC is significant, and it is important for the CAA to understand in detail the significance of these responsibilities—including the implications to our governance structures (bylaws) and policy documents. Failure to live up to our responsibilities under the OHSR is not an option. So what does this really mean?

Contemporary models of governance for organizations named in government regulation are clear. Government regulations are about protecting the public interest. In this particular case, specifically worker safety. Organizations named in regulation need to truly understand what the public interest is and how meeting that mandate affects their governance and management.

In the case of the QAP, the CAA has a duty, indeed an obligation, to help administer the QAP qualification. The CAA shares this responsibility with qualified registered professionals

(P.Eng, P.Geo, etc), the ACMG and the CSGA. No single organization has exclusivity over the qualification; indeed, this wouldn't be in the public interest as the diversity of avalanche risk management operations in Canada is simply too broad. This needs to be a shared, collaborative responsibility—a core value of the CAA since its inception in 1981.

When we look at the responsibilities the CAA has assumed, it's clear we need to evolve. New mechanisms are needed to administer the standards we have developed and ratified. We've already encountered a few issues, the most notable being the lack of a Privacy Policy as we prepared to post our registry of Professional Members on our website. That issue proved relatively easy to address but others will take more time. For example, we need to update our Code of Ethics and our complaints investigation procedures, and we need to write them directly into our bylaws. We're also asking some serious questions regarding a new class of membership—a sub-category of Professional Member—as we explore the need for the QAP classification to reside alongside practicing and non-practicing professional. The legal and policy advice we are getting is clear; these new mechanisms are immediate needs within our organization.

Time is on our side. The regulatory mechanisms that define when the CAA's minimum training and experience qualifications for Qualified Avalanche Planners don't come into full force and effect until Sept 1, 2011. As an association, we have already ratified the standards. As an association, we can move towards developing the administrative mechanisms to manage the QAP qualifications, and enhance our bylaws to bring them up to the standards of contemporary self-governing associations. As an association, we can meet the demands being placed upon us with confidence.

The ACMG did this a couple of years ago and it has enabled that organization to flourish in the modern era like

Loose Ends: Mentorship Follow-up

In the spring I talked about mentorship and its importance in the professional avalanche risk management community in Canada. Through the summer I've continued to work on the concept of developing mentorship resources for our organization and greater community. My perspective on mentorship has grown and diversified, as a series of seemingly unrelated events have combined to enable a whole new perspective on this idea. It's been a very interesting summer.

In late June, just before I left for summer leave, I began to get frequent phone calls from what I would call non-traditional avalanche affected employers—utility and construction companies, schools, colleges, municipalities, snowmobile groups, government agencies and others. The implementation of the WorkSafeBC regulations had resulted in several organizations realizing they needed formal avalanche safety plans. In other cases, organizations needed to connect with qualified individuals to help them assess their risk and develop their plans accordingly.

The CAA was being asked, repeatedly, to help out. This summer, mentorship wasn't just about colleague to colleague. It was about the CAA helping employers, as we've been doing since 1981, navigate through their avalanche safety needs by, facilitating communication and directing them to resources and members who could help them out.

Through this process I came across an interesting article by Anthony Tjan at the Harvard School of Business. His perspective on mentorship just wasn't colleague to colleague, it was organization to organization. In our case, it's the CAA mentoring a series of organizations and in some cases entire industries. Quite the honour and in no small part due to the high standards of professionalism evident within our membership.

Through all of my hunting this summer I kept coming back to a resource I named in my spring article on mentorship, and I realized nothing really seems to come close to matching this publication's value. The NHS National Workforce Projects Guidance Series: Mentoring Framework document is freely available on the web and outlines in detail all the elements of good mentoring frameworks within organizations. The guidance is simple, pragmatic, results-oriented, and clearly identifies what to look out for, areas that can lead to good programs collapsing or asymmetry developing in the expectations of mentor and mentee.

The important point that this publication identifies, as do other resources I've encountered, is that mentoring frameworks must be conscious and structured. Mentors get training on how to do their job effectively, mentees are provided the opportunity to give feedback to the mentor, and outcomes are tangible and ultimately written.

Emily, Kristin, the rest of the CAA staff and I will continue to look into mentorship programs. And, if the opportunity arises, we will move to developing more structure mechanisms in support of our Industry Training Program and the development of world-class avalanche workers. Thanks to the many members who responded with comments and feedback to my original article. Your support and enthusiasm for more formal mentorship in this industry has been noted. Be confident this stage of our association's metamorphism is only just beginning.

Resources

NHS National Workforce Projects Guidance Series: Mentoring Framework

Anthony Tjan over at the Harvard Business Blog, The 5 questions every mentor should ask.

- http://blogs.harvardbusiness.org/tjan/2009/03/five-questions-every-mentor-mu.html

> **When we look at the responsibilities the CAA has assumed, it's clear we need to evolve.**

few imagined before the bylaw revisions. Let's take it slowly. This is uncharted territory for us and we want to ensure, to the fullest extent possible, we understand the implications of this metamorphism each step of the way.

The board is fully engaged in this exercise, has an incredible amount of expert advice at their disposal and, in partnership with staff of the CAA, is dedicated to leading this organization and its membership through this change. As two of our most senior and respected members, Chris Stethem and Jack Bennetto, have recently said, this is a good thing for our association. Living up to the expectations within these amendments will help ensure high standards for avalanche protection in Canada now and into the future.

So, where do we stand right now? By the time this article hits the news stands, the board will have approved an interim operating policy that empowers staff to work on developing the administrative process and infrastructure required to administer the QAP qualification within our membership. This policy will also have enabled a detailed review of our bylaws, including the development of recommendations for amendments to the bylaws.

These bylaw amendments will go before the board this fall. Once approved in principle by the board, they will then go to three separate committees—the Audit, Professionalism & Ethics and Education Committees—for review and comment. That feedback will be used for revisions, and then it will be your turn. If all goes well you'll have the proposed bylaw amendments in your possession by Christmas time, allowing four full months of feedback and dialogue between members and board before they are presented for ratification at our Annual General Meeting in May.

Setting the stage to meet these new challenges has effected change at another level—our human resources level. The CAA has hired two new key personnel this summer. Emily Grady, the new manager of the Industry Training Program, started back in June and has been very busy getting up to speed and preparing our educational programs for this coming season. You can read more about her background on page 70 of this issue, and read her ITP update on page 19.

Another key position was also filled this summer—CAA Operations Manager Kristin Anthony-Malone. I won't focus on her exceptional experience and qualifications that got her this job; you can read that for your self in her letter to the membership on page 24. I'll focus instead on why this hiring is key to the essence of my article.

There is a subtle, yet profound change occurring at all levels, including staffing, and Kristin's hiring is a concrete example of this. By splitting the old CAA Operations Manager into two separate positions we've gone a long way to ensure high standards of training continue in our ITP programs. At the same time we now have a dedicated operations manager squarely focused on the association and its needs. While InfoEx is part of Kristin's portfolio, her primary mandate is working with me, our board, policy and governance advisors and members to help lead the CAA's evolution from a fraternal organization to a fully professional association.

The key to successful organizational metamorphism is ensuring the resources match the challenge. I feel the CAA's staffing resources are more in line with the expectations of program delivery and service than ever before. I don't mean to sugar coat anything here; be confident there is a lot of work to do. But also be confident that we have the right people, at all levels, to get this done, and do it well.

Just as snow metamorphism can either strengthen or weaken the snowpack, organizational metamorphism can also take on many forms. The change the CAA is embarking on is a strengthening change; it's solidifying the professional roots of our association (the original bylaws of the CAA in 1981 were modeled after APPEGBC's bylaws at the time). We're transitioning to a contemporary, professional association, with elements of self-regulation in the public interest, and maintaining our core values of community along the way. Excited? So am I, and I'm pleased to be able to work with you and this organization during these dynamic times.

Have a great season startup, I look forward to seeing you out there this winter. Let's hope for mild weather, little rain, calm winds and so much snow we don't know what to do with it.

What's Next?


Steve Blake collection

As I ponder this installment I wonder if I am not suffering from "short timer syndrome." Arguably a two-year term is a long time and more than adequate to accomplish many good things as a president. But it seems after six years on the board there is not much time left at all before I need to hand over the reins.

It has been extremely interesting and challenging and I learned a lot about so many things. But rather than a retrospective I'd like to take this opportunity to pose some questions and throw out some random thoughts to consider for the next phase of the continuing evolution of the CAA and CAC. Though it is not my job description to set the terms of reference for the next president, anyone interested in the position may want to consider some of these points.

First, there's our two-footed jump into the world of regulation. For a couple of years now WorkSafe BC regulatory changes have dominated the headlines of this journal. Ian's Executive Director piece speaks in detail about where things stand and what next steps are critical to our continued success as an association. Many of these next steps have legs and will take years of careful consideration and re-evaluation.

Second, how do we want to market ourselves to the public? I understand this is a fully loaded question, because first we have to answer this: Who are we? In 2005 we met and created a shared vision for the CAA, CAC and even the CAF. But now we wrestle with the internal identity issues and external realities that actually take the answer to this question out of our hands. And then the spin-off question: Can training, certification, public safety, professional membership, fraternal membership and regulatory body exist under one umbrella?

Once these questions are answered, the entire membership structure will require re-examination. For example, do the affiliate and associate membership categories fit in the CAA? The by-law mechanics aside, the question is one of optimal fit. On the same theme, are affiliates simply CAC members in disguise? Will the associate members still have a place in the next era of the CAA? And now that we broach the CAC, should the vision of a 20,000-person membership be the goal?

There's more to consider—much, much more. What are the priorities for the rest of this year? In my view, we have just come through a period of unprecedented growth. Our next few months will concentrate on shoring up the foundation, so to speak, such as our Human Resource policies and other internal processes. Of course we've just completed an organizational re-jigging which includes hiring some key personnel (welcome Kristin and Emily!). These priorities, plus it's business as usual when it comes to operations. InfoEx, schools to plan, outreach programs to be developed and forecasts to prepare. It is a truly happening place!

A final note but not an afterthought. A quick congratulations to Bruce Jamieson who received word earlier this summer that NSERC has approved the application for a second five-year term of the avalanche research chair at the University of Calgary. Look for a grand announcement some time this fall.

And don't forget—a secretary-treasurer and a president are needed for 2010!

Best Regards,
president@avalanche.ca

Project Changes

An update on the CAA's eTraining project

By Kristin Anthony-Malone

The CAA's eTraining for Winter Mountain Operations and Avalanche Search and Rescue SAR NIF project was a visionary concept conceived through the collective needs of agencies and organizations involved in avalanche search and rescue across Canada. The project had two fundamental goals: the development of best practices in avalanche search and rescue (AvSAR); and, working with the emerging capabilities of innovative technology, the development of online educational resources to disseminate those best practices.

As mentioned in previous additions of *avalanche.ca*, there have been numerous setbacks and challenges throughout this project. These setbacks were, and continue to be primarily focused on the design and development of scenario-based learning served over the internet. The reality of bringing a commercially viable online learning product to market— one that is fully tested, debugged and optimized—has been complex, challenging and expensive. We have had to carefully examine the state of this project to ensure we continue to allocate resources in the best possible way in order to maximize their value to the avalanche SAR community in Canada.

The outcome has been the creation of a "proof of concept" prototype and not a commercially viable product as was originally intended. However, the process used to create the scenarios for the online simulator have proven to be an extremely valuable resource. We have gained great insight into the decision making processes involved in organized avalanche search and rescue, which is a cornerstone of our technical manuals. This resource will also serve as a framework for present and future work in the field of avalanche search and rescue. We will continue with the development of the three technical manuals, *WinterSafe, AvSAR Response* and *Avalanche Incident Management* and will have those ready for distribution in March 2010.

The CAA would like to thank the National Search and Rescue Secretariat and our federal sponsor the RCMP for their time and attention to this project this summer. Together we had to make some big decisions regarding its outcomes. The technical manuals will be a first for the Canadian avalanche SAR community and will go a long way to promote best practices, much like our *Land Managers Guide* and *Risk Determination Guide* did.

The online training programs will be used in a limited capacity for further development and testing. We are looking for organizations that may be interested in continuing to work with the CAA to develop these online training tools further. If you are interested, please contact us directly. Special thanks to Mark Bender, Jordy Shepherd and Helen Rolfe for continuing to work incredibly hard in order to bring this complex project to completion.

>> Kristin Anthony-Malone is the CAA's Operation Manager

John Kelly


RIGHT NOW THE VIEW IS SPECTACULAR.
Kokanee
GLACIER FRESH BEER
*TM/MC Columbia Brewery.
IT'S ALL ABOUT NOW.
Kokanee
GLACIER FRESH BEER

ITP Curriculum Specialists

By Wren McElroy

To meet the demand of the ever-growing Industry Training Program, the CAA has brought on-board five curriculum specialists. These people will play a key role in the management and development of the various courses offered by the CAA. This is one of the more significant curriculum projects conducted over the past eight years, in terms of the number and variety of curriculum sets currently being overhauled.

ITP Curriculum Specialists are tasked with the maintenance and development of all resources associated with specific programs including, but not limited to, instructor and student manuals, field books, lesson plans, evaluation plans, examination standards, resources, maintenance and upkeep of relevant course equipment, and the prior learning assessment processes.

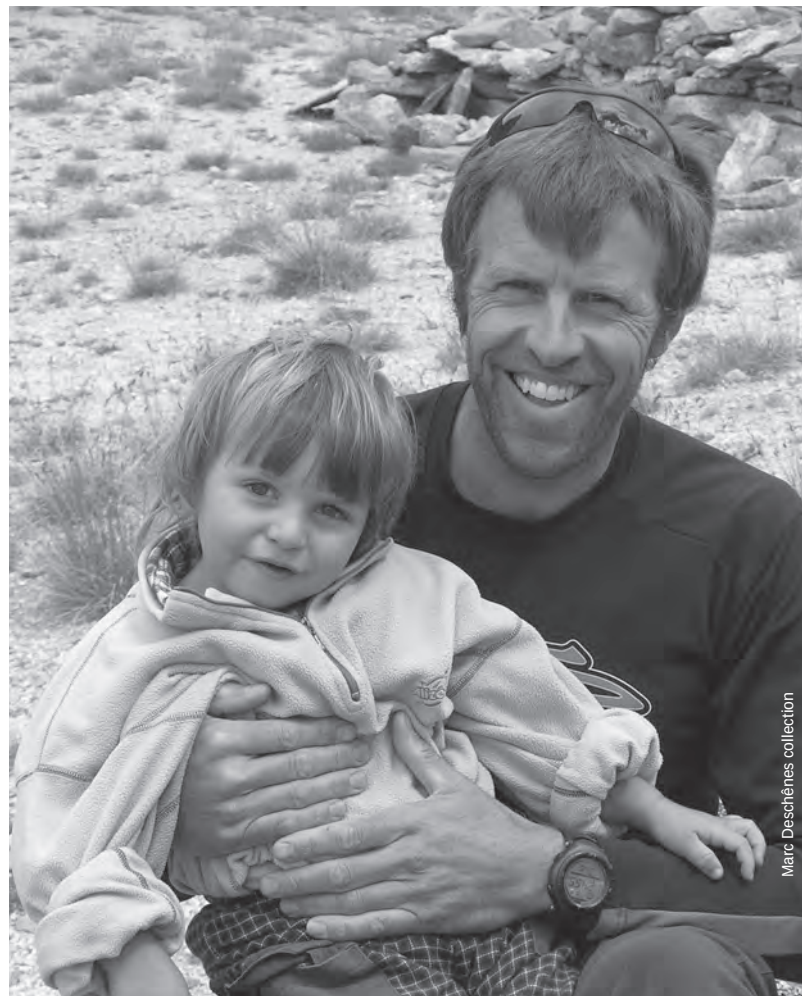
These specialists will also form a core instructor team and are scheduled to teach regularly throughout the winter, primarily on the programs they are responsible for. This frequency will help to ensure consistency among the programs delivered and currency with new revisions. All of them will be working on course content throughout the season. If you are an ITP Instructor and come across details that need attention please direct your comments to the ITP curriculum team.

The scale of this ongoing curriculum project is one of the largest undertaken in recent history, and the high standard of professional education the CAA is known for is sure to continue. The ITP Team of experienced instructors, curriculum specialists, office support staff and management are committed to continuing to deliver world-class courses. This summer most of the ITP courses have undergone updates and/or revisions. Here is an introduction to the new curriculum specialists and a brief outline of what they've been working on to prepare for this coming season.

Mapping and CPD Programs
Curriculum Specialist Marc Deschênes

Marc Deschênes has worked in the avalanche business for the past 20 years. Marc is an ACMG Ski Guide, a CAA Professional Member, a CAA-ITP instructor, the current Chairman of the CAA Education Committee and an AST 1 and 2 course provider. Marc also coordinated the QCAP project in Quebec from 2000-2004. In the summer Marc works as a geotechnical consultant, mainly conducting terrain stability assessments and is occasionally involved in avalanche mapping projects. Marc lives in Nelson with his family.

Because the CAA is delivering three avalanche mapping courses this season, Marc has spent much of his energy on developing the instructor manual, refining the student manual, tracking down, and purchasing field equipment, and developing the course for the new Golden venue. Marc is also responsible for the delivery of annual continued professional development courses including Intro and Advanced Weather, Blasting, and Medical Training. Marc is working with the course leaders to develop a work plan based on a priority list.



Marc Deschênes collection

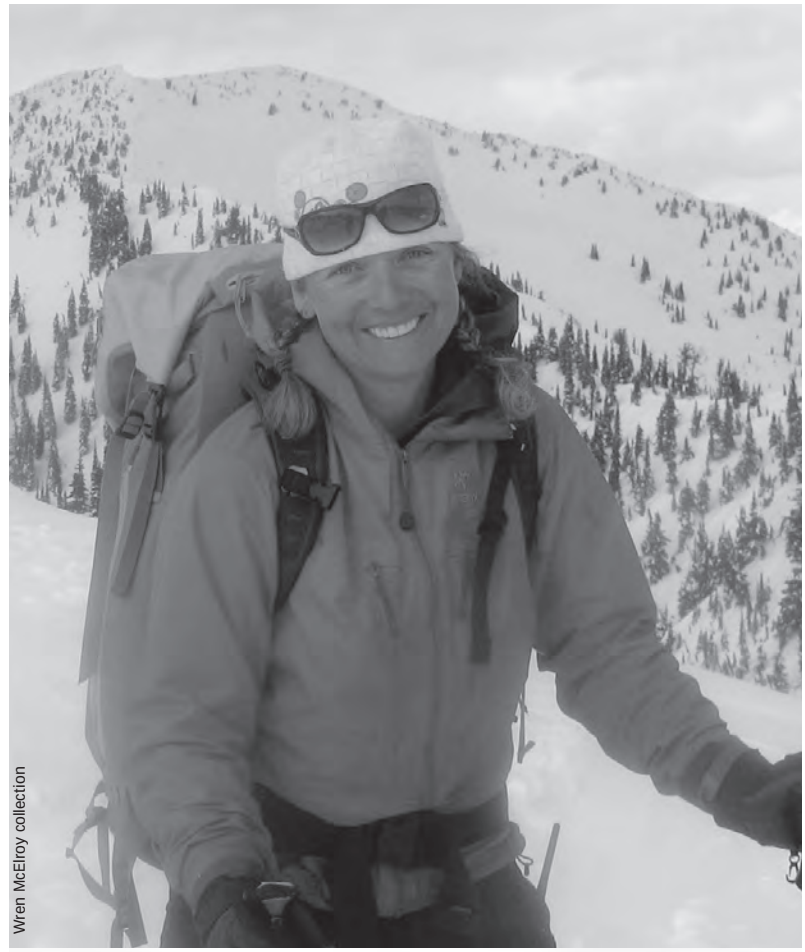
Operations Level 1 & SAR
Curriculum Specialists Wren McElroy and Ken Bibby

Wren McElroy is a Professional Member of the CAA and started in the avalanche industry in the early 90s at Whitewater Ski Area. Wren has been involved with the ITP Program for four years. This season Wren will be working on the CAA Level 1 courses as well as the medical response training course with Dr. Renata Lewis. This past year Wren put some time in the office in the position of ITP Program Support and Curriculum Development. She also has a strong background in adult education having taught Level 3 Occupational First Aid for 12 years for Selkirk College as well as AST level 1 and 2 courses. Wren is spending her time between the Slocan Valley and Revelstoke and has two sons who love to ski.

Following up on the revisions done last summer, the theme of the Level 1 work this year was consistency with ORGRS 2007 through all of the student and instructor resources. Updates to the student manual included re-doing the avalanche rescue chapters to be consistent with the work Mark Bender has done on the eTraining project. A short introduction to situational awareness was also added as well as some other small corrections

Something new for the Level 1 courses this season will be a gradual introduction of the new hazard /risk forms (currently used on the Level 2) to ensure better linking through the CAA programs. Instructors will still teach the traditional stability evaluation forms, and students will still be evaluated on this material. A long-term goal of this introduction is to shift the training emphasis from snow stability analysis to a more global hazard analysis resulting in better risk management as these concepts are adopted.

Currently, Wren is focusing on instructor resources, including the marking scheme, evaluation tools and the written exam. She is also working on consolidating and organizing the instructor CD/ manual to better support the instructors. Wren's position also includes general ITP Program Support and working directly with the new ITP Manager, Emily Grady.



Wren McElroy collection

Ken Bibby is a Professional Member of the CAA, a CAA-ITP Level 1 course instructor, and the Membership Committee Chair of the CAA/CAC Board of Directors. Ken is also an ACMG Ski Guide and is entering his 11th season of guiding. "We're in the process of going through a period of incredible growth, giving us a great catalyst for change and a chance to tweak the vision we have for our programs," says Ken. "We're doing a bit of catch up at the moment, ensuring that we continue to deliver the same internationally respected courses that we've become known for. The next few years will be an exciting time as we set ourselves up for some fairly significant changes to the way we deliver our courses and how we train the next generation of avalanche workers in Canada." Ken lives with his wife and three boys in the Bulkey Valley. He is also the Owner/Concrete Monger of EarthStone Concrete Works.

Ken's work on the Level 1 program this summer has involved a review of the weather observation curriculum and coming up with a definitive direction on how we teach and evaluate this content. He has also been in charge of updating student and instructor field books, conducting a complete review of existing lesson plans, and revising and updating the Avalanche SAR transceiver skills to include technique and probing. Ken will also be putting together a complete package of terrain photo exercises and exams with some new additions.

Ken Bibby collection

Resource Transportation Industry Avalanche Management (RTAM) and Level 1 Sled Programs

Curriculum Specialist Amber Wood

Amber Wood has worked as a Snowmobile Guide since 1998 and has been the General Manager of the BC Commercial Snowmobile Operators Association since 2004. That association represents snowmobile tour operations and snowmobile guides across the province of BC. Amber has been involved with the CAA snowmobile programs since 2003 and as an ITP Instructor Amber has taught on the RTAM and sled courses since 2005. She is also a Snowmobile Outreach Spokesperson for the CAC and AST course provider since 2006. Amber has worked for Parks Canada since 2000 and has been working as a Park Warden since 2007, receiving her enforcement training in the spring of 2009. Amber lives in Revelstoke.

Amber's work this spring and summer has focused on an overall review of the RTAM/sled curriculum. Following that review she updated the instructor resources including lesson plans, student evaluations, new terrain exercises and specific exam photos. For student resources there will be a new RTAM binder that will correspond with the current Level 1 student manual. Amber has reviewed the exams and quizzes to ensure they are applicable to the target students of the RTAM/Sled programs. She is also working on the module-based approach to teaching the Level 1 course for resource workers and snowmobilers.

Amber Wood collection

Level 2 & Operations Level 3 (Applied Avalanche Risk Management)

Curriculum Specialist James Blench

James Blench is an ACMG/IFMGA Mountain Guide and is well known in the avalanche industry. He has been guiding since the late 70s and has been involved with CAA programs since the late 80s. James is an ITP Course Leader on the Level 2, Mod 1, 2 and 3 Programs and is a Senior ITP Instructor. His avalanche background includes mechanized and non-mechanized winter guiding, several seasons as a research technician, and operations consulting. James has lived in Canmore since 1980 and is married with a 12-year-old son.

James' main work right now has been to consolidate all of the materials that exist for the Level 2 programs. This will result a draft instructor manual which will be finalized over the next season. Many of the Level 2 resources are becoming outdated, while others require development to meet the needs of our rapidly changing industry. More than any other CAA program, the Level 2 stream has relied on a core team of instructors who have apprenticed through the system with minimal written support materials. A goal of James' project will be to improve that system of support for instructor materials. James is also acting as a support person to the Level 3 team.

James Blench collection

Industry Training Program Update

By Emily Grady

As I write this, it's late August and with 20-30 cm of recent snowfall in the alpine, it's not surprising to find the CAA staff back at the office and preparing for Winter 2009/10. Likewise course registrations and inquiries have been flooding the office for the coming season. It seems as though the demand for our training programs continues to be strong even when the economic world is not.

The ITP course calendar for the winter has already begun with a Snow Avalanche Mapping (SAM) course in Nelson where all 18 students were successful. Next on the schedule are two more fully-booked SAM courses in September, one takes place in Nelson and the other is happening at our newest mapping venue—Golden. Curriculum Specialist Marc Deschênes, along with Alan Jones and Phil Hein, has done a tremendous amount of research and site investigation in order to make the Golden venue happen. Many thanks also goes to Brad White and Marc Ledwidge from Parks Canada, Doug Wilson from the Ministry of Transportation, Mike Rubenstein from Kicking Horse Mountain Resort and Andrew Nelson for their support and data.

In order to keep up with an ever-changing industry, all ITP courses have seen upgrades to curriculum, instructional support material, student resources, and reference materials. Read more about these improvements and our new Curriculum Specialists in the article on page 16 of this issue.

Other ITP Highlights

The Centre d'avalanche de la Haute Gaspésie is working in conjunction with the CAA to offer eastern-based avalanche workers a variety of courses on their home turf this winter. Included on the roster:

- Medical Aspects of Avalanche Rescue
- Introductory Weather
- Advanced Weather
- Operations Level 1
- Operations Level 1 - SAR
- Operations Level 2

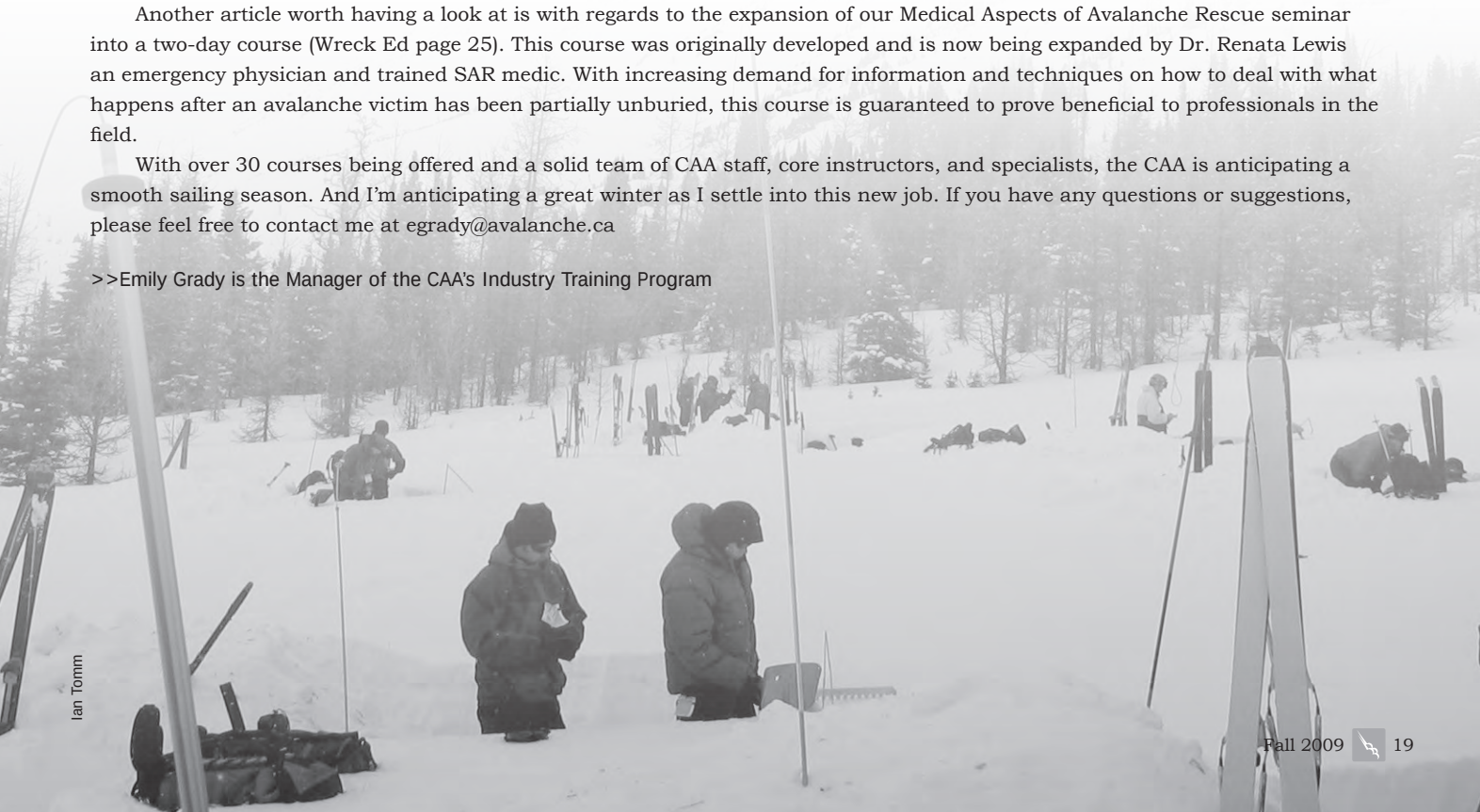
This last course is being conducted as a combination of Modules 1 and 2. A second Level 2 Mod 1 and 2 combination course is taking place in Tokach, Japan. This will be one of two ITP courses available in Japan where the avalanche industry and interest in professional development continue to develop.

As described in Chris Stethem's article on page 22, the first Applied Avalanche Risk Management (AARM) training course (also known as Operations Level 3) will be held in Canmore on October 19 – 23, 2009. This is a long-awaited advanced training course for forecasters and has received a great deal of interest from a wide range of professionals in the avalanche patch. For more information on this course, be sure to read through the article and check out www.avalanche.ca/caa .

Another article worth having a look at is with regards to the expansion of our Medical Aspects of Avalanche Rescue seminar into a two-day course (Wreck Ed page 25). This course was originally developed and is now being expanded by Dr. Renata Lewis an emergency physician and trained SAR medic. With increasing demand for information and techniques on how to deal with what happens after an avalanche victim has been partially unburied, this course is guaranteed to prove beneficial to professionals in the field.

With over 30 courses being offered and a solid team of CAA staff, core instructors, and specialists, the CAA is anticipating a smooth sailing season. And I'm anticipating a great winter as I settle into this new job. If you have any questions or suggestions, please feel free to contact me at egrady@avalanche.ca

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



Ian Tomm

CAA Industry Training Program
Training for avalanche workers in Canada.

Operations Level 1

Monashee Powder Snowcats	November 23 - 30, 2009
Kokanee	December 4 - 12, 2009
Kokanee	December 11 - 19, 2009
Fernie	January 3 - 9, 2010
Quebec	January 4 - 10, 2010
Burnie Glacier	January 8 - 15, 2010
Fernie	January 10 - 16, 2010
Hakuba, Japan	January 17 - 24, 2010
Valkyr	January 18 - 25, 2010
Ptarmigan	January 24 - 31, 2010
Kootenay Pass	January 31 - February 6, 2010
Revelstoke	January 31 - February 6, 2010
Lake Louise	March 14 - 20, 2010
Lake Louise	March 21 - 27, 2010
Revelstoke (TRU only)	February 7 - 13, 2010

Operations Level 1 – Sled (field component)

Revelstoke	December 15 - 18, 2009

Operations Level 1 SAR (for Department of National Defence)

Monashee Powder Snowcats	November 30 - December 10, 2009
Quebec	March 14 - 20, 2010

Operations Level 2 – Module 1

Canmore	October 28 - 31, 2009
Canmore	November 2 - 5, 2009

Operations Level 2 – Module 2

Whistler (overflow course)	December 5 - 8, 2009
Whistler	December 9 - 12, 2009
Rogers Pass	January 24 - 27, 2010
Rogers Pass	January 28 - 31, 2010

Operations Level 2 – Module 3

Whistler	December 15 - 21, 2009
Golden	February 14 - 20, 2010
Golden	February 21 - 27, 2010
Golden	February 28 - March 6, 2010

Operations Level 2 – Mod 1 + 2 combination

Quebec	January 18 - 25, 2010
Tokach, Japan	February 21 - 28, 2010

Operations Level 3

Canmore	October 19 - 23, 2009

Introduction to Snow Avalanche Mapping

Nelson	September 7 - 12, 2009
Golden	September 15 - 20, 2009

Medical Aspects of Avalanche SAR

Revelstoke	December 5 - 6, 2009
Quebec	February 6 - 7, 2010

Resource and Transportation Avalanche Management

Nelson	November 30 - December 4, 2009

Introductory Weather

Canmore	October 26 - 27, 2009
Quebec	November 7 - 8, 2009
Revelstoke (overflow)	October 18 - 19, 2009

Advanced Weather

Canmore	October 29 - 31, 2009
Quebec	November 9 - 11, 2009
Revelstoke (overflow)	October 21 - 23, 2009

Avalanche Control Blasting

Revelstoke	November 14 - 15, 2009

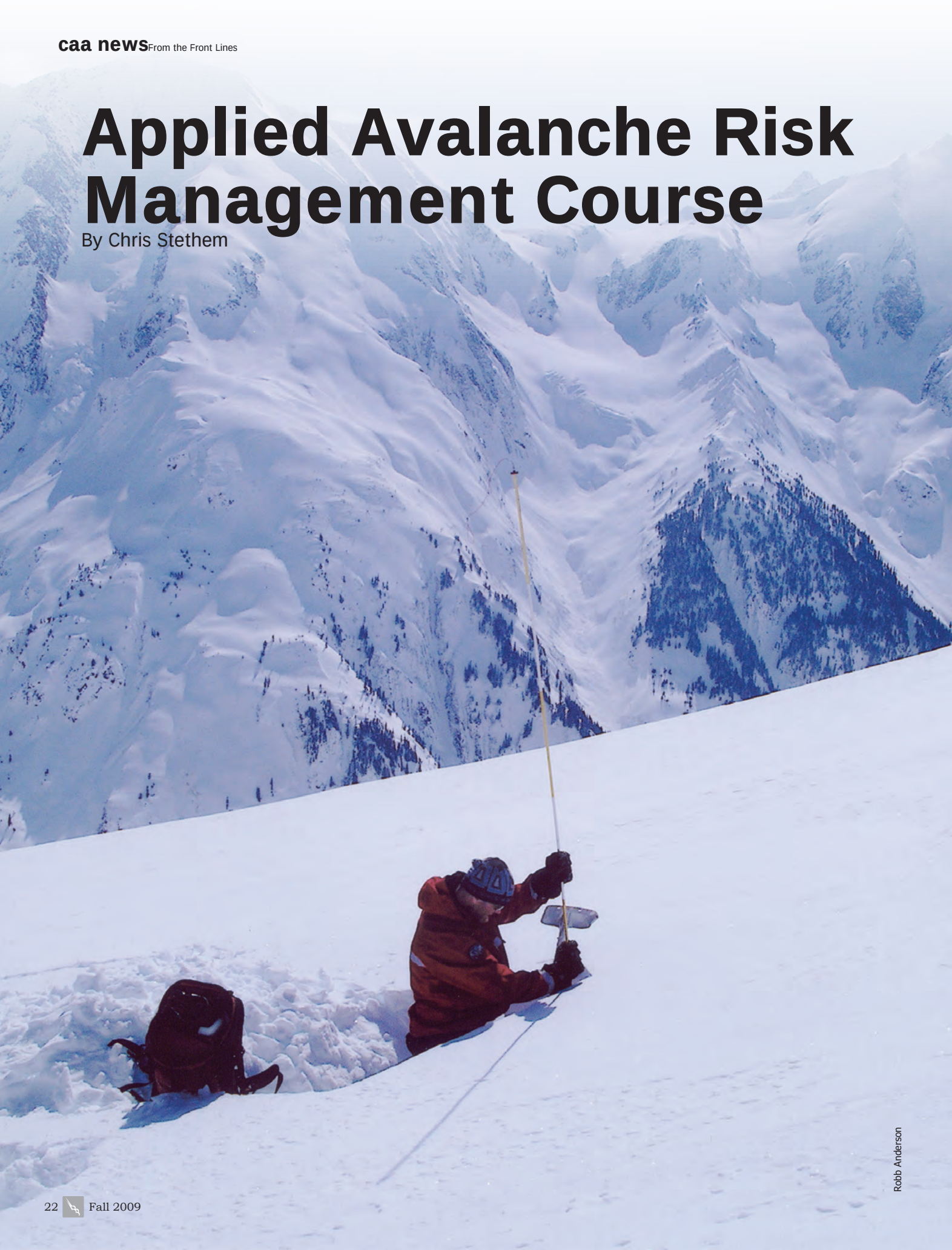
Notice of Tuition Fee Increase

As of April 1, 2010 tuition fees will be increasing for the following CAA Industry Training Program courses: Introductory Weather, Advanced Weather, Medical Aspects of Avalanche Rescue and Avalanche Control Blasting. The new fee structure will be posted on our website in the new year.

Wren McElroy

Applied Avalanche Risk Management Course

By Chris Stethem



Robb Anderson

The first Applied Avalanche Risk Management (AARM) training course (also known as Operations Level 3) will be held in Canmore on October 19 – 23, 2009. Various people within the CAA membership have discussed the merits of an advanced training course for forecasters for many years. The recently approved amendments to the Occupational Health and Safety Regulations issued by Worksafe BC include an advanced avalanche forecasting course in the qualifications for Avalanche Planners. The CAA draft stakeholder's recommendations for Avalanche Forecasters also include this course.

Over the past year, several CAA members have participated in the development of needs and concepts for this AARM course. The reasoning behind the name (tying it to risk management) as opposed to simply "advanced avalanche forecasting" is that our members who are forecasting for avalanche programs must not only come up with a hazard forecast, they must also do something about it. That could include route finding and group management decisions for guiding operations, completion of avalanche control operations and closure decisions, or providing recommendations for travel in a public forecast. That means in addition to forecasting the hazard, you also manage the risk to some degree, depending on the application.

Goals

The goals of the Applied Avalanche Risk Management Course are to:

- Analyze, assess, forecast, and communicate avalanche hazard and risk;
- Introduce the concepts of avalanche risk assessment; and
- Study operational decision making and risk management.

The goals are achieved by completing the following objectives:

- Introducing the components of avalanche hazard and risk;
- Describing structured processes for analyzing, assessing, and forecasting avalanche hazard;
- Describing structured processes for assessing risk;
- Presenting the link between operational decision modes and avalanche risk management;
- Identify cross-sector options for risk management and introduce benefit/cost of these options; and
- Presenting means for communicating hazard and risk in both workplace and public forums.

To achieve the goal of advanced learning, the course will combine lectures and practical case studies of avalanche forecasting and risk management in recreation, transportation and industrial settings.

Prerequisites

The required prerequisites for the course include:

- CAA ITP – Avalanche Operations Level 2 certificate (or equivalent training/experience)
- CAA ITP – Introduction to Weather Skills for Avalanche Workers certificate (or equivalent training/experience)
- Three seasons of employment in avalanche work after completion of the CAA Level 2 course (a minimum of five seasons in total) prior to application

Recommended prerequisites include:

- CAA ITP – Introduction to Avalanche Mapping Certificate
- CAA ITP – Advanced Weather Skills for Avalanche Workers Certificate

Each applicant will be required to identify a mentor who has played a role in their career development and who will sign off on their application package. Because of the need for a small working group scenario and the requirements of the evaluation process, only 18 applicants will be accepted into each course. The selection of applicants is based on qualifications within the allowable time limits. The application deadline for the fall 2009 course was August 31.

Course Evaluation

The course evaluation will be based on a case study by the individual students over the winter, following completion of the classroom portion of the course. The students will receive guidelines for what is expected at the end of the classroom session. In a nutshell it will be a process of documentation and presentation of the events of the winter in the students' workplace and how they managed the avalanche risk.

The deadline for submission of written student case study material will be April 15, 2010. An oral submission will complete the process. Our target for completion of marking is July 1, 2010.

In conclusion, I think the timing of this program is good given the current evolution of our industry. I know there has been (and always will be) some debate about the merit of yet another course and the associated costs. It is the goal of everyone involved to see that good value is delivered to the student and given the work to date I am sure that will be achieved. Our target audience is the current and future forecasters who lead our industry. I encourage all CAA professional members to consider including this course in your long term goals.

New CAA Operations Manager

Dear Canadian Avalanche Community,

I am Kristin Anthony-Malone, the new CAA Operations Manager, and I am honoured and excited to have the opportunity to work with and for you. I'd like to introduce myself and to ask for your help as we engage the challenges ahead of us.

For the past seven months I've been working with the CAA as the eTraining Project Manager. Originally from Seattle, Washington, I've developed a career in the outdoor industry as an educator, guide, and program manager. Before moving to Revelstoke I managed the Outdoor Studies Program for the Colorado Mountain College in Leadville, Colorado. In addition to directing that program, I was also a member of the adjunct faculty and taught several field courses, including Avalanche Level 1.

I have been an educator and guide in the outdoor industry in the US for over 10 years. The majority of my field work has taken place in Alaska, Yosemite, and the North Cascades of Washington State. I look forward to my new position at CAA and I see it as a challenging step well suited to my skills, experience and personal commitment to education, exploration and safety in the mountains.

While I bring a layered skill-set to this position, I am eager to learn more about the avalanche profession in Canada and the functionalities of the CAA. I will need your help in a number of ways. First, I ask for your patience as I get started in this multi-faceted and complex position. Second I'll need your input in order to better understand the CAA and the ways in which I can support the work you are doing. I want to know what you think is working well and where you see room for improvement.

Over the next three years, I anticipate my role will evolve in phases. The first phase will be observation of the current situation, an increased understanding of the organization and of your needs, and the creation of a plan for the future. The second phase will involve supporting current successes, implementing changes, and collaborating to ensure our continuing adherence to the CAA's vision and mission as we go forward.

Thank you in advance for your help. I look forward to meeting and working with each of you. Please feel free to contact me anytime.

Sincerely,
Kristin Anthony-Malone
kmalone@avalanche.ca

Todd Anthony-Malone

Wreck Ed

New two-day course offers advanced first-aid training for avalanche accidents

By Mary Clayton

You've probably had a lot of first aid training over the years. And you've undoubtedly had a fair amount of avalanche rescue training too. The CAA's Medical Aspects of Avalanche Rescue course aims to bridge the gap between those two fields, with real-world exercises combined with the most recent thinking on avalanche-related first aid.

This course was introduced last year as a one-day seminar taught by Dr. Renata Lewis, an emergency room doctor with an impressive field background. This year, with Dr. Lewis' input and guidance, the course has been expanded to two days to include an outdoor component with practical applications of the theory and skills learned. On-snow exercises will use hands-on simulations, starting from the initial call for help, search and rescue, first aid response and resuscitation, and finally working through to final evacuation of avalanche victims from the accidents scene.

Dr. Lewis is an emergency physician and a SAR medic. Her training and her background as a medical consultant for a number of backcountry and resort operations in BC make her a tremendous resource. Her seminar sessions have been highly successful, with student feedback praising her knowledge and her experience. She has a keen interest in developing standardized applicable avalanche rescue protocols specifically for Canada, similar to those developed by ICAR for European countries.

"There is a critical difference here in Canada in terms of our ability to respond to avalanche involvements, primarily due to geographical considerations and response time limitations, and availability of rescue resources and emergency equipment, " she explains. "The European protocols are unable to fully address the issues we have with our remote locations, the lack of advanced, medically trained and "ready-to-go" mountain rescue teams, and rural medical centres that aren't able to handle patients with significant trauma, hypothermia or other severe injuries associated with avalanche accidents, especially within an efficient time frame."

"Traditionally, our basic avalanche response training has stopped with the victim being extricated from the snow—but then what do we do?" she asks. "There are specific things we need to medically address with an avalanche victim. We need to train front-line avalanche professionals to deal more effectively when faced with such situations, thereby hopefully improving the patient's chances after being caught in an avalanche."

This course is designed for any avalanche professional interested in building their skills and knowledge in emergency care for avalanche victims. Course highlights include:

- emergency medical first response and treatment of avalanche victims
- review of ICAR MEDCOMM avalanche rescue medical guidelines and their application in the context of Canadian winter operations
- first aid kits for the avalanche professional
- an introduction to Incident Command System utilization and Organized Avalanche Search and Rescue
- rescue plan considerations to improve efficiency and efficacy in medical evacuation.

Medical Aspects of Avalanche Rescue runs Dec 5 – 6, 2009 in Revelstoke. Enroll online under the "Training" tab of the CAA's website.

Dr. Lewis (in background) oversees a Parks Canada rescue practice.

Alice Weber

Weather Wise

The CAA's Weather Services roll out a number of new programs for industry

The CAA will be expanding its weather services for industry this coming winter. In collaboration with Uwe Gramann and his company, Mountain Weather Services, the CAA is able to offer the following services, all of which are designed to be tailored to individual operations.

Manual Spot Forecasts and Synopses

Manual spot forecasting is non-automated, and is applied to a very specific lat/long location and elevation. They are specified to your needs and contain the forecast of a few parameters several days in advance. It will often be accompanied by a synopsis—a written summary of the current weather situation in your vicinity. The synopsis gives an overview of local weather patterns, features, their locations and movements over the next days. This is followed by a confidence statement, which is a mixture of current model accuracy mostly taken from ensemble forecasting systems combined with the forecaster's feel for the weather scenario and terrain. This is THE information tool for your daily weather and major risk management decisions in your operation. Manual spot forecasts can be issued on a regular basis or by special request with a 12-hour notice.

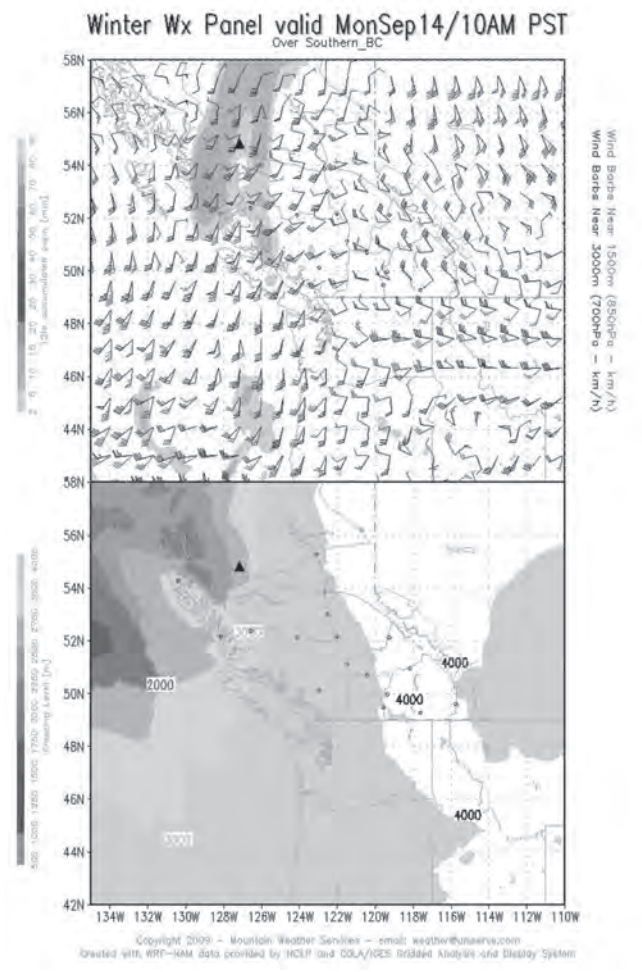
The Weather Watch

The "weather watch" is another customized service through which we follow the progression of your weather from day to day and notify you if your specific limits are expected to be surpassed. If, for example, you need to know when your particular location may receive 30cm of snow within 12 hours or more, we will give you a heads-up as soon as the probability is surpassing 60%. We can then issue a proper forecast, phone call etc. to provide you with more details. In some cases the heads-up can be as far in advance as five days.

Automated Winter Weather Panels

The automated daily winter weather panels are a horizontal depiction of precipitation amounts, alpine winds, freezing levels and temperatures over your area of interest for the next three days. You can receive either a panel that depicts most of BC and western Alberta, or the panel can zero in on your area, anywhere within Canada, south of 80 degree north.

These panels are generated automatically on a daily basis from direct model output data of one of the most advanced computer forecast systems in the world—the North American Mesoscale model (NAM) from the US National Centre of Environmental Prediction (NCEP). Customized options of this diagram are also available for boundary layer height, outgoing shortwave radiation, surface winds, and any other number of applications .



These are the main new services offered for this coming winter. The Automated Winter XT Diagram introduced last season will continue. This service was specifically developed for the skiing industry and generates a three-day time line of weather parameters for your exact location. If you are interested in any of these options, or would like to know more about the CAA's Industry Weather Services, contact Kristin Anthony-Malone at kmalone@avalanche.ca.

Mountain Weather Services

Uwe Gramann is the owner and principal operator of Mountain Weather Services, a fully operational forecasting office in Smithers, BC. Uwe has a Master's degree in Atmospheric Sciences from the University of Karlsruhe, Germany and is a certified Environment Canada meteorologist. He is also a member of Canadian Meteorological and Oceanographic Society. Mountain Weather Services provides services in four key areas: meteorological training; forecasting; automated weather model output; and climate/weather data tracking and research.

Clarity

New visualization services will make it easier to process the incredible amount of information offered by InfoEx

By Yves Richard

The trend in many business environments where large volumes of complex data need to be viewed and analysed is to develop a "dashboard" for data visualization, basic aggregation, analysis and visualizations (graphing, charts, etc). A dashboard is essentially an executive summary of the data and an entry point into underlying data and more complex views and analyses.

This past winter was the first season where the CAA used web-based visualization tools to present InfoEx data, and the result was the new and improved InfoEx website and its associated dashboard. The purpose is to give subscribers tools for so they can better analyse trends and patterns in the InfoEx dataset. The end goal is to make it easier to process the incredible volumes of data contained in InfoEx (the InfoEx dataset can grow by as much as 15,000 data points a day during high season).

This level of service has been the most requested feature since the automation of InfoEx in 2004. Last year's implementation was very basic and was used primarily for research and development of the enhanced services to be launched this fall. But last year's work also established a very important process—a real-time feedback and development cycle that allows us to be more responsive in support of subscribers' input, needs and wishes.

Currently we are concentrating on enhancing the underlying architecture of InfoEx, which will facilitate the development of visualization and other feature requirements well into the future. Please let us know if you use InfoEx in a way that could be better served visually or graphically.

What's new for this season:

- Richer user interface
- New charts (e.g. stability assessment)
- Ability to change chart type on certain elements
- Improved filtering
- Personalization
- Improved tables

>>Yves Richard is the CAA's Manager for Information Technologies

The CAA is looking for members to sit on the Information Technology committee. If you have skills in web development or GIS, or have an interest in IT, please consider volunteering some time with this group. For more information, please contact Ian Tomm at itomm@avalanche.ca

John Weinel

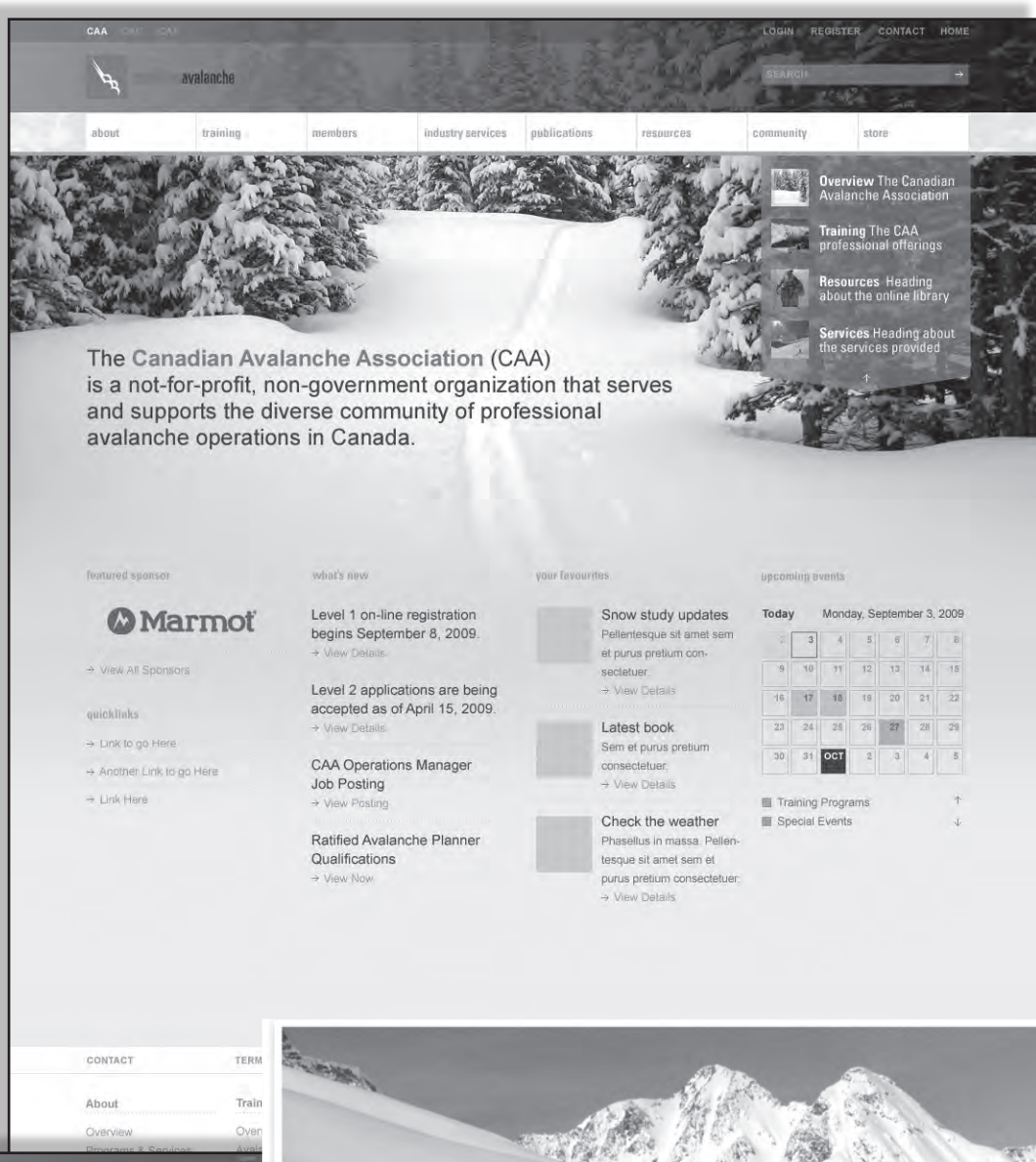


Photo by Brent Strand

Your photo would look great here! Our new website offers a great place for your images. Check out the new captioning feature. When the user scrolls over the icon in the corner of the photo, the photographer's name and image information pops up.

Web Makeover

By John Kelly

Five years is an eon on the World Wide Web. Our current website was brought online in 2004 and has served us well as our organization's most visible public face.

A relatively simple site at that time, avalanche.ca has evolved into a surprisingly complex and intricate repository of information, venue for dialogue, well of data and a constant stream of public safety products. Complex and intricate may be our euphemistic corporate shorthand for it, but some folks have begun to compare our website to a big pile of spaghetti (perhaps with delectable meatballs—if you find them).

To give you an idea of how unwieldy our site has become, here is a list of just some of the features that have been graphed on to our website's framework that was never designed to house them: online course registration; Avaluator trip planner; InfoEx web portal; avalanche incident reporting; AST instructor list; and an AST course calendar.

As you have by now guessed, we are reinventing avalanche.ca. This is partly based on the need to integrate and organize the website growth that has occurred but there is another pressing reason as well. There have been some significant technical changes to the way people view the web, which means our current format and structure is a barrier between the end user and the functionality they are seeking.

The biggest of these changes is real estate. Some time in the last five years, the web evolved from a vertically arranged universe to a horizontal one. Wide monitors are now common and the minimum standard for web page width has moved from about 700 pixels to about 900 pixels. Our current site now looks almost lost in the corner of the monitor screen, wasting valuable space that could be used to organize the information available and to present it in better, more systematic ways.

Information-rich sites have also evolved towards a spare and lean presentation with minimal use of graphics, ample space between logical divisions and consistency of navigation. This facilitates the presentation and retrieval of information by users who come to know what to expect and how to move around a given site. Avalanche.ca will evolve towards this concept, mirroring other similar sites.

We promise to not play shell game with the basic public safety products and essential trip planning tools that represent most of the use of our site. These will remain highly visible and familiar, and sensible URL addresses and prominent quicklinks may even make the main pages easier to find and easier to link from external sites.

We also recognize that not everybody has the same browser, nor the same speed of internet connection. Since graphic overhead is reduced in general, it can be assumed the average time to load pages will actually go down with the new avalanche.ca. Likewise, cross-browser compatibility will be high, with one caveat. The old, much maligned, Internet Explorer 6 will not be supported on our site. We can't afford the incredible overhead of programming to make this dog of the browser world render pages correctly. However, users of IE8, Firefox and Safari should all be equally happy with our product.

Here are some more of the design values we are incorporating in to the site. The home page for each of the CAA/CAC/CAF will reflect distinct branding elements to separate the organizations. The home pages will be more dynamic, presenting time-sensitive and important information on an ongoing basis. Callouts (distinct organized sections) will highlight the most critical news or action items, including such things as special avalanche warnings, member announcements or upcoming events. The header will remain static and constant for all pages. The left panel will offer secondary navigation choices within a subject tab. The right panel will present important or rapidly changing supporting information for the main central panel. The footer will offer an expanded sitemap of the whole site.

There are also a couple of conceptual values we are keen on enhancing in the made-over website. Every page will have a feedback link so users can comment on the content. In some cases users may be able to add content or comments, moderated of course. The intent is to increasingly facilitate the exchange of useful information between peers. The trick will be to make this easy and intuitive enough so users feel it is worth their while.

Cross-linking information is also very important to us. For example, when a user inputs an avalanche incident it gets automatically posted next to the current avalanche bulletin for that region and uploaded to the relevant discussion forum. More of this kind of cross-linking will occur in the trip planner, online course and discussion forums.

The website is slated to go public on November 1.

>>John Kelly is the Operations Manager of the CAC.

Avalanches Unite Us

Avalanche education for snowmobilers—a perspective from 10 years of immersion and delivery.

By Niko Weis

It was 1999 and early in my SOS-sponsored three-year avalanche education crusade across the mountain states and provinces, when it occurred to me that avalanches unite us. I found myself living in a world of high-markers, hill-climbers, boondockers, club trail-riders, professional and wannabe cliff or gap jumpers who talked about long tracks, suspension kits, horse power and other refinements to their rides. Despite being a skier, park ranger and dedicated non-mechanized type, I found we were talking about the same thing—avalanche risk.

SOS stands for Survival On Snow Inc., an avalanche gear manufacturer based in Edmonton. When they sponsored a three-year sales and education tour in the late 90s, we were breaking the ice a bit. It was just dawning on the sledding community that avalanches were not going away. The impact of our tour was noticeable; we visited most retailers, most sled shows in the US and Canada, and most major riding clubs. We reached 10,000 people directly and soon our backpacks and avalanche gear were becoming visible! The demand for education and beacon training followed and we were soon very busy.

We made further in-roads in 2001 when, following a fatality in the club, we gained an invitation to do a preliminary course for the Jackson Hole Snow Devils, the birthplace of mountain sledding and high-marking in the US. After the course they called up Doug Kashuba at SOS and invited me back for "MORE education!" Doug was blown away—they wanted more! By 2002 we had an invitation to the International Snowmobile Congress, an annual key communication event for the snowmobile industry. We met with representatives from ISMA, the International Snowmobile Manufacturers Association, and many associations from clubs across the US and Canada. They asked for a series of safety seminars. We were in!

Education Models for Sledders

While on the road we saw some good models for supporting sledder education. The Colorado Avalanche Center with Halstead Morris and others put on a series of courses for "snowmobile observers." Funded by trail fees and state licensing, the riders received avalanche gear to use while spreading the good word about safety and reporting conditions or events seen first-hand or reported by others in the area. In Washington State the Avalanche Association funds many events, and club-level education programs are really good. Backcountry Access also does a good job with their representatives infiltrating and servicing the sledders at sledding trade shows.

Following the SOS period, I continued touring and teaching for another six years on my own. During this time more support came from clubs and associations. Then the Black Tusk Snowmobile Club really picked up the ball with the co-creation of The Alpine Learning Centre at Brohm Ridge. We began a series of events at their club cabin, but when I say cabin I am misleading you. The two chalets at Brohm can house over 50 overnight guests, with cooking and other refinements including overnight power. It's a perfect hostage taking situation for the passionate avalanche educator.

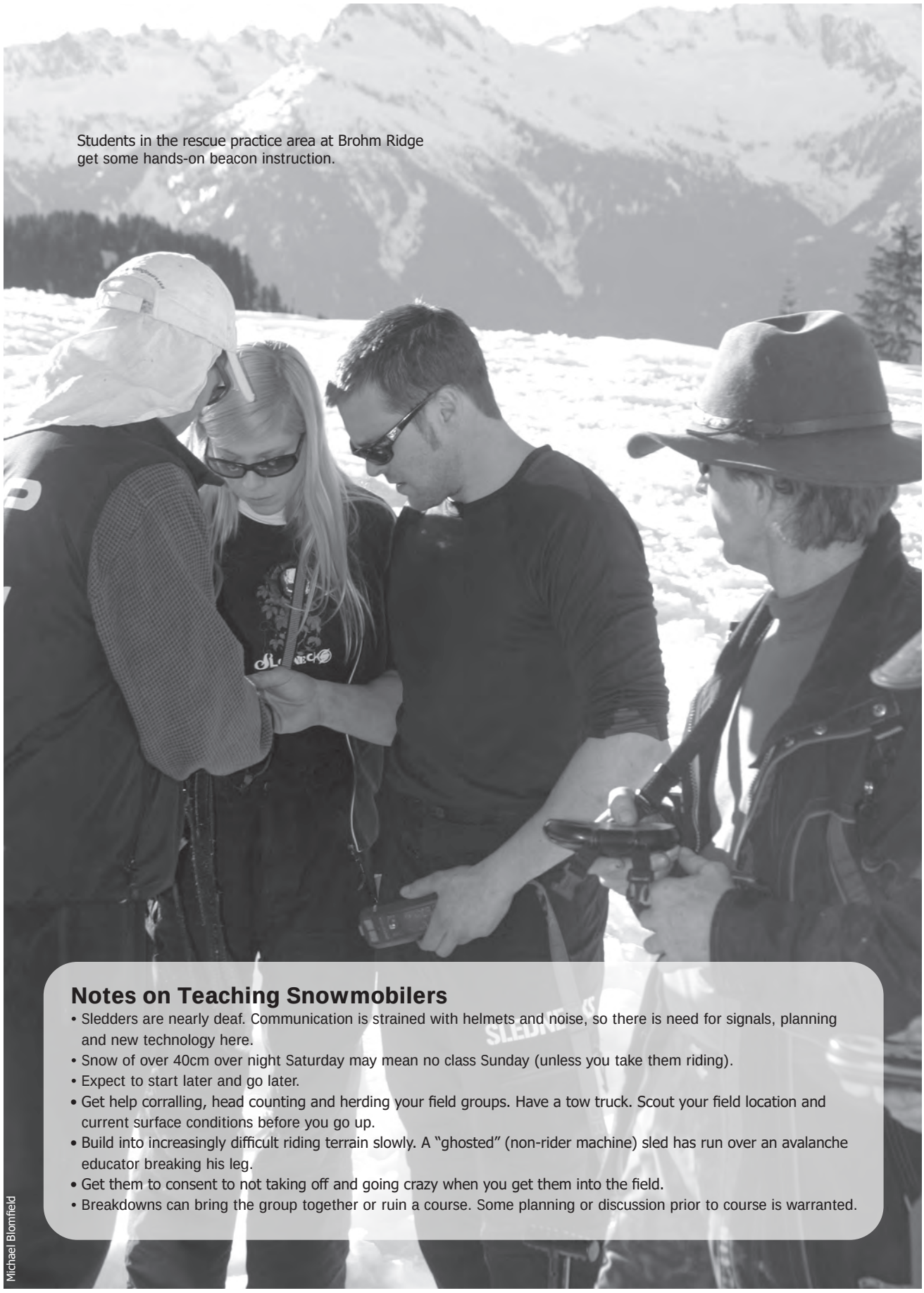
Since 2003, The Alpine Learning Centre and Black Tusk Snowmobile Club has taught more than 800 students on their two-day, one night course. They also host advanced courses for both machiners and search and rescue teams from across the South Coast. The students get a two-day course, one night's accommodation and three meals. The return rate is surprising and many travel from Alaska, Colorado and the BC Interior to attend these popular events. Classes often number in the range of 40 students.

A lot of what we do is really well supported and cross-promoted by events such as the fall trade show, BC Snow Expo, and BC Snowmobile Federation regional shows, where we sign people up for courses and send them to a gear retailer. We have enjoyed good coverage from Global TV, Shaw TV, Fairview TV, the Weather Network and other print and radio outlets. We like to get going at the start of the winter before anything has gone wrong and say to the sledders: "Hey everybody, avalanche season is here. Get the gear, get trained, get your avalanche bulletin and come down to the Snow Expo for a free avalanche seminar."

We sell our courses by reputation and promise fun, practical hands-on learning, and proficiency in rescue practices and beacon use. During the course we engage with bursts of media, news, films, images, lab examples, drawings and standup comedy. Key messages or descriptors are posted in the class and handouts support the image and terminology choices. The public bulletin and the Avaluator are promoted. We try to get pros, young radical or well-known riders into a class. Many classes are general sledder courses while others are tailored for specific clubs or groups of riders. A popular option we use away from Brohm Ridge consists of a Friday evening open house for everyone, and a two-day, on-snow course for the keen.

Who are we trying to reach?

I learned that sledders' riding behaviour varies. From the hard-core climber/high-marker/jumper to families venturing on and off trails, the list now includes those using machines for skiing or boarding access (a growing trend). The hard core and devoted have come to ride; they are not going home and riding is not an option. I met a guy in Driggs, Idaho who had been buried three times and rescued three times with avalanche beacons and companion rescue. When I met him he had a new Tracker beacon and was ready to go again! On the other hand,



Students in the rescue practice area at Brohm Ridge get some hands-on beacon instruction.

Michael Blomfield

Notes on Teaching Snowmobilers

- Sledders are nearly deaf. Communication is strained with helmets and noise, so there is need for signals, planning and new technology here.
- Snow of over 40cm over night Saturday may mean no class Sunday (unless you take them riding).
- Expect to start later and go later.
- Get help corralling, head counting and herding your field groups. Have a tow truck. Scout your field location and current surface conditions before you go up.
- Build into increasingly difficult riding terrain slowly. A "ghosted" (non-rider machine) sled has run over an avalanche educator breaking his leg.
- Get them to consent to not taking off and going crazy when you get them into the field.
- Breakdowns can bring the group together or ruin a course. Some planning or discussion prior to course is warranted.

some families and pro sledders are the most safety conscious backcountry alpine users I have ever seen. After the course some of them say, "I have to forget some of what I learned so I can still go riding." In the US, a woman came up to me at breakfast and told me her mountain riding days were over, thanks to my lecture the previous evening.

To sum up the facts of riding and the risks for triggering avalanches, I employ brutal honesty. I tell them today's riders are mountaineers on machines. They gain elevation faster than a helicopter, achieve over-snow speeds up to 130 km/hr, ride inclines of up to 45 degrees and even steeper with floatation and climbing traction in some snow conditions. The weight of machine and rider is easily 325 kg (700 lb). Their machines yank down on the slope as they climb, then cut deep with an over-throttle to dig in and turn or cut across side-hilling. (Over-throttle is similar to burning rubber with a car. When done with a snowmobile, the machine gouges into the snow and creates a pocket to pivot on or to hold the machine level when traversing the slope.)

The less discriminating descents start with speeds over 100 km/hr into the avalanche run out. I see them using simple terrain but more often it's challenging, with incidental or less frequent exposure to complex terrain. Some sledders set off avalanche intentionally.

Real people and real stories

I offer a few basic products in my courses. Basic awareness-level lectures are one to three hours, beacon or rescue sessions are two hours to one day, and recreational courses are two days. In the two-day course, icons and cartoons are used liberally to support key sequences, descriptors and rating scales. Key stories are used to build on four cornerstones: rescue; terrain; snowpack and weather; and the buddy system

Key images or descriptors are repeated. Key clips and video are kept short with discussion or illustrations of a learning outcome hinged to the clip each time. We focus on simple sled-specific slope tests, slope and people management skills like "parking in the clear" and choosing smaller slopes or fewer terrain traps. We also cover what the bulletin means and how to apply danger ratings and travel advisories to riding. This is a great opportunity for firsthand accounts, stories that drive home the "it can happen to you" feeling. For a two-day course of 16+ hours, I spend about 30% on rescue, 25% on avalanche formation, weather and snow, and 45 % of the time in the field concentrating on terrain, snow and people.

We're getting some great results from our training. The instances of riders saving riders are beginning to add up, where former students have performed successful live recoveries. We're hearing stories of self rescue and escape planning actually working, as well as accounts of riders choosing to avoid slopes or aspects of their normal riding area and thus avoiding hazard.

Dan Treadway, a professional sledder and extreme skier, owes his life to Geoff Kyle and friends. All were out on a shoot in the Coast Mountains concentrating on getting footage. Dan triggered and went down with a size 3+, burying him almost 2 m deep in a four-acre deposit. Geoff used his machine for the primary search. Stuffing his beacon under his goggle strap, he drove over the debris, finding and pinpointing Dan quickly. With the rest of the team digging he was uncovered with a weak pulse and not breathing, but recovered on site. Geoff had been trained at Brohm Ridge Alpine Learning Centre only months before this event, and the whole event is well documented on film.

Some stories are sadder. The father and son I met and trained are now both gone in an avalanche. More recently in Washington State, a man who I trained in SAR years ago lost his wife and friend in an avalanche he triggered last season. It does keep a person motivated to do more and keep trying. After all, we are all alpine users.

Recommendations

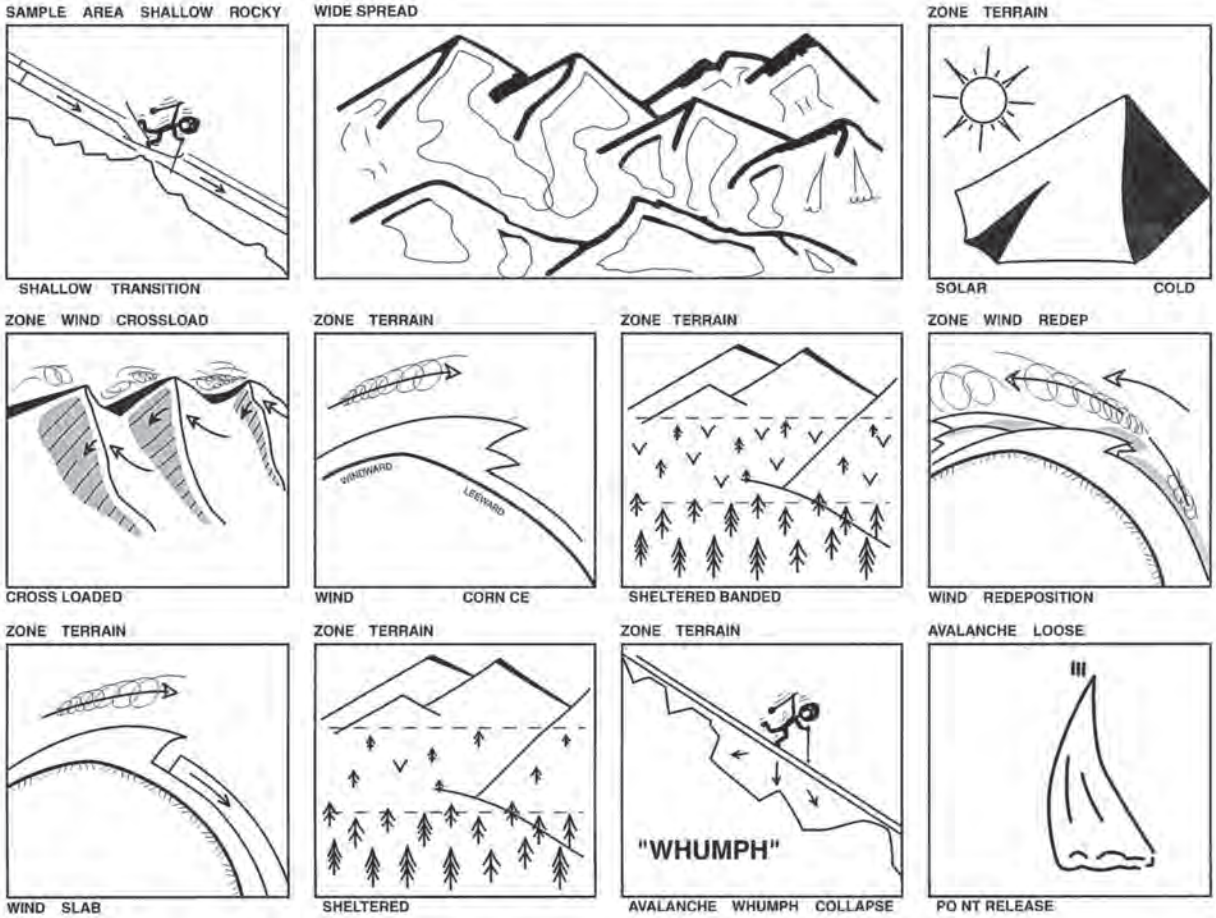
Don't take yourself too seriously. These guys demand flexibility, practicality and fun. Just tell them, "We are getting serious about having fun here—we understand why you ride!" Private groups should hire guide/instructors to tailor a course for them. Head out to where they ride and give them some advice on how to read their terrain and their conditions.

Last season left me reconsidering my effectiveness in reaching sledders and preventing avalanche involvements. How could such tragedy occur, despite all attempts by the avalanche community to communicate the risk? I considered how many riders are now reaching avalanche prone areas on today's mountain-capable machines, and I talked to some people I know in the sledding industry. "The avalanche exposure is way up from 10 or even five years ago," said Jennifer Blomfield, a snowmobile safety promoter. "The mountain machines are so good most people can do it. Progress is being made, it could be much worse, but it is obvious there is more education required."

My plans for the future are to continue teaching and promoting safety. I'm always looking for partners and pros to help refine the message and tell the story—the story of sledders who are doing it right and managing their avalanche risk. Remember, avalanches unite us.

Michael Blomfield

Niko Weis is a former President of the CAA and an avalanche educator with 24 years of experience. He has worked as an avalanche education and rescue specialist for many clubs, groups and associations including the Justice Institute and the Provincial Emergency Program. He lives with his children in Courtenay, BC.



A sample of the graphics used in class and handouts. Cartoon sequences and basic drawings support many learning objectives and student prompts for action or decision making.

How big do you feel now? An avalanche class takes a closer look at the Big Bowl slide on Brohm Ridge.

Jennifer Blomfield

Sledders' myths about avalanche education

- Wasting time you could be riding
- Loss of image
- Avalanche safety = loss of fun
- Information and strategies do not apply
- "I can out run them"
- Avalanches are unpredictable

The Alpine Learning Centre

The setting of the Alpine Learning Centre is critical to its success. Operated by the Black Tusk Snowmobile Club, it's situated on Brohm Ridge, a sub-alpine region of the Coast Mountains north of Squamish, BC. Away from the distractions of urban or resort living and within a very short distance of the Brohm Ridge Chalet, there are numerous terrain features close at hand for practical demonstrations of avalanche hazard assessment and management.

The Alpine Learning Centre is now in its sixth year and has educated more than 800 snowmobilers in avalanche awareness, terrain assessment and rescue techniques. Many students have returned for multiple sessions where they continue to expand their knowledge and hone their expertise. For more information on the Alpine Learning Centre, dates, availability and pricing, please call 1-800-390-2185.

Education Testimonial
By Mike Blomfield

Niko's educational style is unique. Having extensive experience as a backcountry skier and downhill skiing avalanche safety consultant, he saw where there was the greatest need—where he could save the most lives. Niko was one of the first to recognize that the traditional skier's approach to avalanche safety was not working for sledders. He immersed himself in the snowmobile community, learned the jargon, examined the culture and came to understand the behaviour. Then he applied this understanding to the masses with the Alpine Learning Centre. The result is a very potent educational environment that actually does work.

The subject of avalanche safety is quite mundane for most. Niko's approach is to engage students on their level in their language. He draws on metaphors that are unforgettable. He mixes humour wherever possible to drive his points home. The result is that his students—all sledders—a normally distracted, hyper-mobile group of outdoor enthusiasts are glued to this man in his pursuit of avalanche safety and awareness.

Mike Blomfield is the Executive Director of the Black Tusk Snowmobile Club

January 11, 2009—so much for a safe coastal snowpack. After a one-hour riding session, a machine got stuck in the middle of the bowl, breaking through to the facets below. After digging, the riders left the slope to take a rest. They watched in amazement as this size 3 hard slab ran to ground, sympathetically triggering the size 2 to the left, and another size 3 some 500 metres away.

Michael Blomfield

Online Course Revision

Or, what I did on my summer vacation

By Cam Campbell

The CAC online avalanche course, formerly formally known as Avalanche First Response Training, is being revised, at last. The objective of the revision project is to renew and revitalize the online course and run it on avalanche.ca (it currently resides on the Justice Institute of BC server at: http://access.jibc.bc.ca/avalancheFirstResponse/index.htm).

My management strategy is to systematically pull off each of the following prioritized goals until the money runs out, while keeping in mind that any new content must be translated into French! (Exclamation provided by John Kelly). I've already achieved the most important goal in securing Kelvin Luck, a highly capable and avalanche-savvy web developer, to rebuild the back-end and redesign the front-end. The rest is just filler.

Due to recent avalanche.ca content management upgrades, as well as the transient nature of URLs, there are several dead links that need resurrection. Cross platform reliability is becoming increasingly important now that Microsoft has lost its strangle-hold on the web-browser market.

Of course, being four years old there is bound to be curriculum that needs updating. Although stars Ken Bibby and Karl Klassen will be relieved to learn that the vintage Beating the Odds footage is still relevant and will remain for the time being (at least until I can swing a deal with the Rocky Mountain Sherpas for some Fine Line footy). It would be great to add student log-in and session control, which will enable users to resume sessions and us to collect and store user information that can help us better understand this demographic.

It will fit within the look and feel of the website and there will be a focus on integrating existing programs and tools available through the CAC website. This means incorporating the Avaluator paradigm including a focus on matching terrain choices to the danger rating, use of the trip planner and related materials, and more information on clues. There will also be direct links and "how to use" tutorials for the discussion forums and online incident reporting system and we hope to create a new section on gear.

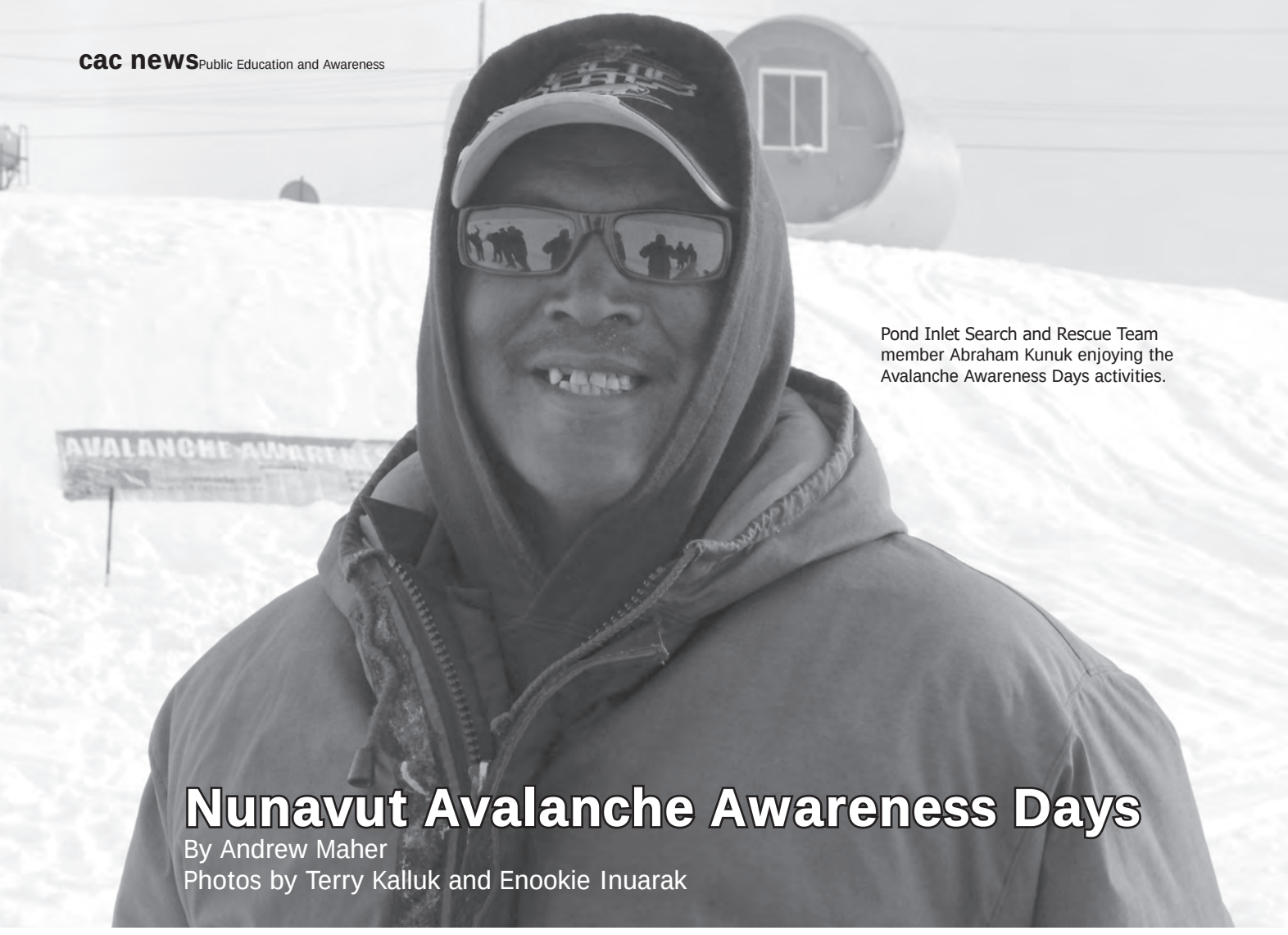
In an effort to increase the longevity of the course by making it possible for people to do it multiple times, we plan on improving the exercises by randomly drawing questions from a bank. Work could certainly be done on improving the animations. Finally, in the spirit of future revisions we are very interested in promoting interactive and user feedback loops. Speaking of feedback, send yours to ccampbell@avalanche.ca.

I would like to acknowledge the presenting sponsor RECCO for supporting this valuable public awareness initiative.

>>Cam Campbell is a CAC Public Avalanche Forecaster

Ski Journal Promotion

The editors of The Ski Journal are donating 5% of their new subscriptions to the Canadian Avalanche Centre. This is a beautifully produced magazine that comes out four times a year, providing a refreshing look at ski culture. The high-quality format includes spectacular images and thoughtful features by top writers on a range of topics including the sport's icons, adventure travel, and lost gems. The Ski Journal brings readers past the hype to reveal the true soul of skiing. Subscribe at www.theskijournal.com and use promo code "CAC" to effect the donation to the Canadian Avalanche Centre.



Pond Inlet Search and Rescue Team member Abraham Kunuk enjoying the Avalanche Awareness Days activities.

Nunavut Avalanche Awareness Days

By Andrew Maher
Photos by Terry Kalluk and Enookie Inuarak

Avalanche Awareness Days' most northerly events went well again this year. An interview I did with CBC News North ran on the regional news and was broadcast in its entirety during the Pond Inlet events. There is a lot of interest in Iqaluit to run an avalanche safety course, so we'll be working closely with them to get that organized for next year. Overall the later dates of this event were a big success, and in Pond Inlet that allowed us to enjoy some really good outdoor activities with the school and the local SAR team.

Pangnirtung March 2-6, 2009

In Pangnirtung, this year's activities focused on school presentations and reaching youth. Billy Etooangat did five presentations to students in grade 7 to 9. Due to limited staff availability this winter they were unable to run larger community events, but plan to do a larger community program next year.

Pond Inlet May 11-15, 2009

In Pond Inlet, Park staff did presentations to high school and middle school students, giving these kids an opportunity to see avalanche equipment in action. A community booth at the local Co-Op helped raise awareness of avalanches, along with an evening radio program, a prize draw, and a mock scenario with the local search and rescue team.

Iqaluit May 23-27, 2009

In Iqaluit, Parks Canada hosted a number of events including classroom presentation for a wide variety of grade levels, a presentation on avalanche safety to the regional wildlife officer conference, presentations to the Nunavut Arctic College and participation in the Environmental Technology Field Camp. We also had an information booth at the local Northern Store. Plans are in place to start early next year to have an instructor come up to Iqaluit to teach a formal avalanche awareness course.

>>Andrew Maher is the Senior Resource Management and Public Specialist for Sirmilik National Park and the Nunavut Field Unit Public Safety Coordinator.

Andrew Maher (laying down) and Brian Koonoo (centre of group) from Sirmilik National Park instruct the Pond Inlet Search and Rescue Team in group rescue techniques.

Andrew Maher and Brian Koonoo of Sirmilik National Park present the use of avalanche transceivers during an AAD activity.

Special Thanks

Local Supporters Ensure Youth Avalanche Education

The CAC wishes to thank the Columbia Basin Trust (CBT) for its contribution to the Youth Avalanche Safety Program in Revelstoke. Funding was delivered through the CBT's Community Initiatives Program for the Revelstoke area. The application process for this CBT program involved a number of screening stages, culminating in a public presentation to obtain community support. The goal of the CAC's Youth Avalanche Safety Program is to supply local students with the knowledge to participate in winter recreation responsibly and with respect. The funding support from the CBT and Revelstoke Credit Union makes it possible for the CAC to deliver this program throughout School District 19 for grades K-12.

CAC Supporter Member Drive

By Jennifer George

Together with sponsors, Supporter Members of the CAC provide critical funding support for the CAC's public avalanche programs and outreach. In these tough economic times, we are challenged with raising funding levels in order to maintain and enhance our public avalanche programs and services. Increasing our Supporter Membership is a top priority. We need to add 100 more Supporter Members this season! Our target audience consists of the following:

- Snowmobile dealers in BC and Western AB
- Independent mountain apparel/equipment retailers in mountain communities
- Targeted hotels/motels/hostels in mountain communities
- Larger snowmobile clubs, ski clubs/outdoor clubs
- Forestry companies
- Municipal governments in mountain communities

You can help us by connecting with people you already know in your local community who would benefit from the advantages of becoming a CAC Supporter Member. For more information on how you can help us with our membership campaign, please contact me at jgeorge@avalanche.ca. The benefits of CAC Supporter membership are many. Supporters elect a member to the CAC Board of Directors, and therefore have a voice in steering the CAC. Also, In return for the $200 Supporter membership fee, the CAC will:

- provide a CAC door/window sticker "Proud Supporter Member" with our logo
- list your organization's name on the CAC website under our "Community" menu tab
- acknowledge your support in one issue of our quarterly journal, *avalanche.ca*
- provide a one year subscription to *avalanche.ca*
- add your organization to our subscribers list for an automatic e-mail of the public avalanche forecasts
- provide a web-ready CAC logo to add to your website with an automatic hyperlink to the public avalanche forecasts
- provide a free subscription to our twice-yearly electronic CAC newsletter
- provide free-of-charge access to our public and technical meetings at the CAA/CAC AGM

List of our current supporters as of Sept 1, 2009:

Adanak Journeys Ltd.
Agostino Guarienti Ing
Alberta Snowmobile Association
Apex Mountain Resort
Austin Powder Ltd
Backcountry Access L.L.C.
Baldface Mountain Lodge
Calgary Board of Education
Canadian Avalanche Rescue Dog Association
Canadian Pacific Railway
Canadian Ski Patrol System
Adventure Programs – Thompson Rivers Univ.
A.I. Mears, P.E., Inc.
American Avalanche Association
Arc'teryx Equipment Inc.
Avalanche Pizza Corporation
Backcountry Mountain Training
BC Snowmobile Federation
Canadian Amphibious Search Team
Canadian Mountain Holidays Inc.
Canadian Ski Guide Association
Canadian Worksafe Consulting Inc

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Cariboo Helicopter Skiing Ltd.
Castle Mountain Resort
Chatter Creek Mountain Lodges Ltd.
District of Elkford Search & Rescue Society
Duggan, Lori
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Federation Quebecoise de la Montagne et de Lescalade
Golden & District Search and Rescue
Hutchinson/L'Heureux, Bret & Cristina
Infomagnetics Technologies Corporation
Juneau Ski Patrol
Kananaskis Country
Kelley's Sports International
Know Snow Inc.
Mammut Sports Group
Marmot Basin Ski Lifts
Mountain Equipment Co-op
Nelson Search and Rescue
Panorama Mountain Village/Avalanche Protection Program
Places Less Travelled Ltd.
Powderquest Tours Inc.
Promet Environmental Group Ltd.
Recco Rescue System - North America
Red Shreds Bike & Board
Revelstoke Edventures - OUC
ROAM - Rivers, Oceans and Mountains
Rocky Mountain Xtreme
Selkirk Backcountry Lodge
Selkirk Tangiers Helicopter Skiing Ltd.
Servizio Valanghe Italiano
Silver Star Mountain Resort
Snowline Associates Ltd.
Stanhope, Chris
Swiss North Marketing Corp.
Teck Coal
Track 'N Trail
West Country Leisure
Carleton Rescue Equipment
Centre d'avalanche de la Haute-Gaspesie
Coast Range Heliskiing
Downer EDI Works Ltd.
Ecospirit Adventures
Faban, Stan
Federation of Mountain Clubs of BC
Fernie Wilderness Adventures
Golden Alpine Holidays
Icelandic Meterological Office
Island Lake Resort Group Inc.
Justice Institute of BC
Karavanier du Monde Inc.
Kicking Horse Mountain Resort
Last Frontier Heliskiing
Markham, Dan
Mount Washington Ski Resort Ltd.
Mt. Remo Backcountry Society
Oso Negro Coffee
Parks Canada Agency
Powder Creek Lodge
Prestige Mountainside Resort
RCMP Revelstoke Detachment
Recreation Outfitters Inc.
Resorts of the Canadian Rockies - Lake Louise Div.
Revelstoke Snowmobile Club
Rocky Mountain Traveler Co. Ltd.
SEAR Search & Rescue Equipment
Selkirk College
Selkirk Wilderness Skiing
Signaux Evan Signals Ltd.
Ski Smithers
Sportech Marketing Ltd.
Survival on Snow
Technologie Alpine de Securite SA
Tembec Industries Inc.
Valkyr Adventures
Whitewater Ski Resorts Ltd.

New Supporting Sponsor

The CAC welcomes Valhalla Pure Outfitters as a new Supporting Sponsor. Valhalla Pure Outfitters was established in 1990 and named after Valhalla Park, the founders' favourite place. Today Valhalla Pure Outfitters has 16 stores across BC and Alberta, each individually owned and operated, and serves its customers 24/7 with their new online store: shop.vpo.ca.

Many of the Valhalla Pure Outfitters stores have always encouraged backcountry safety by supporting local AST providers. This new funding commitment plays a vital role in maintaining the CAC's current level of public safety services, and to providing a foundation for developing new avalanche safety programs. Thank you to Valhalla Pure Outfitters!

VALHALLA PURE OUTFITTERS

Fine Tuning

The CAC's bulletin page gets an overhaul as forecasters find better ways to get their message across

By Karl Klassen

As an avalanche forecaster, any fatality in one of my forecast regions makes me wonder if I could have somehow done a better job of getting the message across. Six fatalities in a space of 10 days, all involving the same user group, with striking similarities but in various regions with different forecasters really makes you scratch your head.

I was working in the CAC office when we were faced with just such a scenario during the run of fatal snowmobile accidents last March. Not being assigned to the forecasting desk at the time, I was asked to carry out a review of our bulletins for the period leading up to each of the accidents from March 18 to 27. That review led to a discussion about some ideas for how we might improve delivery of effective messages in our avalanche forecasts.

Fortunately, the CAA/CAC website upgrade for this coming winter (see John Kelly's article on page 29) has created an opportunity to implement some of last spring's ideas for enhancing our forecasts. At the time of this writing, we have not finalized the structure or the layout, but here are some of the changes that may become part of a new look for this coming winter.

The following five elements provide our users with the essential information they need to make preliminary, general decisions about avalanche risk.

Danger ratings

We anticipate reviewing and updating danger ratings daily.

Primary concerns.

Primary concerns will use the avalanche character descriptions developed in the avalanche danger segment of the ADFAR2 project to describe the current avalanche problem. Icons (see examples shown below) will illustrate the type of avalanche problem of concern:

- Loose dry avalanches
- Loose wet avalanches
- Wind slabs
- Storm snow slabs
- Wet slabs
- Persistent slabs
- Deep persistent slabs
- Cornices

Icons designed by Jim Conway—Glissemedia

Each of the identified concerns will have associated information about where and when forecasters feel the problem is greatest, for example: elevation band, aspect, type of terrain feature, morning or afternoon, etc. If resources allow, we plan to review and update primary concerns daily to ensure they reflect current conditions.

Confidence statement
Confidence statements will be updated when required. The statements will be better defined, standardized, and are expected to be more clear.

Avalanche activity
Avalanche activity will continue to be a written summary updated daily if possible, or when significant new information comes in. There will also be some kind of tabulated information (as now exists) or perhaps a new graphical display that summarizes reported activity on a daily basis.

Weather forecast
We are planning to expand our weather forecast section to include more detailed numerical data about precipitation, winds, temperatures, and freezing levels. We hope to update this data daily and provide a basic technical synopsis, which will be updated as required when the weather pattern changes.

Also on the forecast page, you'll see improved links to more detailed and in-depth information including:

Travel Advice
Similar to the current Travel Advisory section, we plan to update only as required when conditions change. In addition to a general discussion, our goal is to standardize certain aspects of this section. For example, clear and concise descriptions of terrain that is recommended or not recommended for travel and perhaps standardized statements about recommended travel procedures to minimize risk.

Snowpack Discussion
Similar to the current snowpack section, this will continue to be a technical discussion. In fact, it may become more in-depth and technical because the primary data needed by most people for decision making and risk management will be contained in the five primary sections of the forecast described above. This allows forecasters to engage advanced users at a higher level here. This discussion will be updated only as required when conditions change.

Avalanche Incidents and Accidents
Similar to previous years, we'll provide direct links to current, relevant reports that have a strong correlation to the current conditions.

Forums
A direct link to the appropriate forums will provide easy access to reports from the field and archived incident reports.

Advanced Weather Information
Links to information used by CAC forecasters. This includes satellite images, weather models, weather cams, real-time data from electronic weather stations in the field, etc.

Forecaster Technical Discussion
We are considering increasing our transparency and adding value for advanced users of our forecasts by making our forecasting process available to the public. If we go this way, it would give our readers a look at the analysis that led to our conclusions about avalanche danger, primary concerns and confidence. The purpose is to help people better understand our decisions about the advice we provide to our readers.

Terrain Analysis
Following last spring's very successful experiment with rudimentary analyses using terrain photos from actual avalanches, we are looking at the possibility of producing a regular terrain analysis. This product would serve as a general educational tool as well as providing forecasters with an opportunity to discuss, analyze and illustrate existing conditions or potential concerns.

Decision Making Tools
These links will take you directly from a given forecast to decision making tools and aids such as the online Avaluator Trip Planner.

Avalanche Glossary
We are working on an improved glossary. Linking from the forecasts to the glossary will allow users to quickly and efficiently find definitions of terms used in the forecasts. This not only helps them better understand the forecast, but provides a value-added learning opportunity.

Many of these changes are already in the latter stages of development while others are still on the drawing board and may not see the light of day in the winter of 2009-2010. Accomplishing some of these upgrades will depend on finding additional resources and/or funding (for example, we're looking for a sponsor to help us with the additional cost of producing terrain analyses). We are excited about these new directions in our continual quest to improve the CAC's public avalanche bulletins and look forward to serving all our users better than ever in the coming avalanche season.

>>Karl Klassen is the Manager of the CAC's Public Avalanche Bulletin program

Snowmobile Action Plan Part 2

By John Kelly

Recreational snowmobiling avalanche fatalities were top of mind through the summer, as they were in the spring and before that, all through the winter from December 28 on. In the summer edition of the journal, I reported on the evolution of snowmobile concerns and activities, the stakeholder engagement process and the resulting white paper and action plan (see "The Year of Sledding Dangerously" pg 32, Vol 89). This is an update on the development of these files over the summer and their status as we move into another season.

A brief review of the state of affairs at the beginning of the summer is probably warranted, in order to set the context of how we have advanced from there. At the AGM we collected feedback from some snowmobile stakeholders on what additional or improved programs and services would have the best chance of having a beneficial effect on snowmobile avalanche safety. This feedback was compiled, sorted and distilled and returned to the stakeholder group, together with an action plan comprised of the top three viable projects and expanded to reflect some CAC priorities and focus on our mandate.

As with any trial balloon exercise, some rise and some sink. A couple of the action plan items have flown encouragingly. In particular the BC government has been very proactive, and three separate government departments have collaborated with the CAC on action plan items.

Collaboration with the BC Coroner's Service

The BC Coroner's Service (BCCS) has been very interested in snowmobile fatalities since the winter of 2007-08, and

Which way to go? At the CAC, we're working hard to help direct snowmobilers towards safer decisions.

Paul Mason

we have been talking about sharing more information about recreational snowmobile accidents for some time. Through discussions we have identified that when there is a recreational avalanche fatality, the most important information the investigating authority (the BCCS in the case of avalanche accidents in BC) can collect about the incident falls into two categories: information about the snowpack, and information about the people involved.

Snowpack structure, avalanche character and meteorological conditions are all urgent public safety information that may be of use in preventing similar accidents in the short hours and days following a fatality. For some time now the BCCS has furnished this information to the CAC, when feasible, so that we can distribute it quickly to backcountry users who may be at risk.

The second category of information about fatal incidents also has implications for the prevention of future incidents and this is where we are forging a new level of collaboration with the BCCS. What we want to know is: How prepared was the individual and the entire group, to undertake this activity?

Until now, fatal incident reports involving avalanches, though excellent in many cases, lacked the structure to gather this type of information. We needed to create a template of simple and consistent questions related to the victims' training, safety equipment, knowledge of the snowpack, and awareness of the danger rating for their area. An MOU between the BCCS and the CAC to collaborate on the gathering of this type of information will be an important tool to structure this information, and help us understand where our avalanche safety net is failing to prevent snowmobile accidents.

Research Project Proposal

Snowmobilers' attitudes and how they approach decision making in avalanche terrain is a big unknown. With the recommendation of the Canadian Avalanche Round Table, the CAC has pursued a research project aimed at shedding light on this user group. In collaboration with the BC Provincial Emergency Program, the CAC has submitted a project proposal to the through the New Initiatives Fund of the National Search and Rescue Secretariat (NSS). Through September and October, this proposal will be reviewed by the Merit Board of the NSS. If approved, the project start date will be April 1, 2010. See the sidebar for an overview of the project proposal.

Trailhead Signs

The BC Ministry of Tourism, Culture and the Arts (MOTCA) has been very pro-active with the CAC in developing standards for trailhead signs, as well as on-trail signs alerting users to avalanche terrain. MOTCA oversees many of the snowmobile clubs' tenure leases for their access to mountain terrain. Consequently, this government department is a keenly interested partner in a very important element of the avalanche safety net—providing information about avalanche terrain to prospective users.

An article describing how templates have been developed for trailhead signs has already appeared in this journal (see "Signs of the Times," pg 40, Vol 85).These signs offer users information on how to combine the avalanche danger rating with an idea of the complexity of avalanche terrain that they are about to enter. Additional simplified signs with familiar messages and common graphical elements have also been proposed in collaboration with MOTCA. We will be providing more polished information about these on the website over the coming months, but if you are interested in these templates, please contact Jennifer George (jgeorge@avalanche.ca).

What's Next

Through the stakeholder consultation this past spring, the CAC identified three programs that had received broad consensus. One was to enhance the existing trailhead signage program, which we are moving ahead on with the help of MOTCA. The other two program ideas haven't received a commitment of resources from the stakeholder group, which is required before we can develop them further.

The programs waiting for funding are Community Avalanche Bulletins and Sledders on Staff. The Community Avalanche Bulletins proposal involved a weekly bulletin targeting sledders, written in a more "newsy" and less technical style, and issued before weekends or holidays when people are in the planning phase of their trips.

The bulletins would contain information on avalanche conditions, riding/trail conditions, and provide terrain recommendations based on good travel techniques and what we know about the avalanche hazard in the area. Local clubs and operators would contribute information on trail conditions. This idea received a lot of interest and support from the stakeholders, but not funding.

"Sledder on Staff" is pretty self explanatory and it would be wonderful if we had the resources to allow us to hire someone dedicated to this cause. This person would spearhead awareness events, gather information through surveys, attend club meetings and trade shows, and coordinate and revise the efforts we already have in place.

Of course, we've had sledders in contract positions for a number of years now. These positions have been held by Lori Zacaruk and Amber Wood, who have brought avalanche awareness seminars and weekend courses to a many communities throughout BC and Alberta. This outreach continues to grow and, later this fall, will include a very interesting program called "2008-09: What Happened?" We'll have a report on that in the winter issue of avalanche.ca.

For the coming season, Lori's contract now includes expanding the CAC's online presence for the snowmobiling community. Lori has created a Facebook and Flickr account for our sled site, avalanche.ca/sled. Lori will also be monitoring other popular sledding forums such as snowandmud.com, snowest.com and local club discussion boards. Lori's role will partly be to keep the CAC's finger on the pulse of the community, as well as being the CAC's voice in the conversation when appropriate. Always, the goal will be to keep the dialogue open.

Another idea that came from the snowmobile stakeholders

group was to place billboards in key spots on highways that sledders tend to travel every weekend. The signs would primarily encourage the use of our website. The three locations we're considering are Highway 1 westbound out of Golden, Yellowhead Highway west of Hinton, AB, and on Highway 3 westbound into the Elk Valley and Fernie area.

The cost is too much for the CAC to go alone, so we have been shopping around the idea of splitting the image on the billboard with one of our sponsors or other snowmobile stakeholders. Again, there is interest but no funding commitment.

As the fall matures we will continue to work on the remaining elements of the action plan to try to bring them in to play. Of course, we don't know what the weather and snowpack will bring this year. A good, deep, consistent snowpack might could mean a reprieve from the urgent accident situation. But a third year with a weak, thin, cold snowpack might mean that we are in for another round of tragic occurrences.

There is something changing in the recreational snowmobile world that we have been aware of for several years, but which came sharply into focus with last year's events. The divergence in avalanche fatalities among user groups is startling. Self-propelled backcountry skiing fatalities have steadily decreased for five years while snowmobile fatalities are sharply on the rise. Unfortunately, we do not yet fully understand the reasons behind this trend. Without that knowledge, we have to rely on Mother Nature delivering a stable snowpack to reverse it.

Chris Christie

NSS-NIF Project Proposal

This project aims to lower the rate of avalanche deaths within the snowmobiling community using two complimentary approaches:

Objective #1: This objective aims to systematically examine the factors influencing decision-making in avalanche terrain within the snowmobile community. An in-depth knowledge of the key driving factors and their interplay will provide the necessary foundation for the development of evidence-based avalanche awareness materials and recommendations for best practices. In addition, the resulting knowledge will provide insights for the development of effective marketing strategies for the distribution of these materials within the snowmobile community.

Objective #2: The goal of this objective is to increase the avalanche awareness, knowledge base and skill level within the snowmobiler community by promoting and providing avalanche training courses to snowmobile riders. This targeted training approach would increase the penetration of the world-leading CAC recreational avalanche skills training course. In addition we seek to promote selected dynamic individuals to the professional avalanche training stream to create a core cadre of professionally trained high-profile snowmobilers. These individuals would then seed their peer group with sound practices and encourage safe riding habits.

HLH Memorial

Fifth annual golf tournament continues its successful streak for fundraising

By Morgan Hincks

The Fifth Annual HLH Memorial Golf day was held on a beautifully sunny September 11, 2009 at Greywolf Golf Course in Panorama Mountain Village. The event continues to offer an opportunity to gather and celebrate the lives of Hugh and Helen Hincks and Linda Putnam who perished in an avalanche in St. Anton, Austria in January of 2005.

The dinner reception celebrated the unveiling of a new ski run at Panorama Mountain named "H.L.H," dedicated to the three who were all avid skiers. The live auction was a great success, raising $10,000, part of which will be donated to the Canadian Avalanche Foundation.

Plans are already underway to continue the legacy of the annual HLH event, celebrating the lives Hugh, Helen and Linda. Mark your calendars for September 10, 2010 and come join us for this enjoyable and worthwhile event.

>>Morgan Hincks is the daughter of Hugh and Helen Hincks and the organizer of the HLH Memorial.

Panorama Mountain has created a new black diamond run dedicated to the memory of the Hincks and Linda Putnam, victims of an avalanche in 2005. Posing with the new run sign are (l – r) Daniel Hincks, Morgan Hincks, Todd Gardiner and Teddy Hincks.

Morgan Hincks collection

Fine Line in French

The highly successful avalanche awareness film "The Fine Line" is now available with French subtitles. The translation project was led by the folks at the Centre d'avalanche de la Haute Gaspésie (CAHG), working closely with the film's producer, Malcolm Sangster of the Rocky Mountain Sherpas, and their contractor Supergenius Media.

Core funding for this project came from the Avalanche Dessert fund-raising project led by the Gite du Mont-Albert, a four-star hotel located in the heart of the Parc National de la Gaspésie (see "Sweet Fundraising" on pg 44, Vol 88). The CAF and the CAHG have covered the remaining costs of the translation project.

Copies of the French version of The Fine Line will be available later this fall from the CAHG office in Quebec, the CAC office in Revelstoke and the CAF office in Canmore.

Avatek Systems Changes Hands

After 44 years in the avalanche control and ski lift industries, Karl Ernst is handing over the reins of his company Avatek Systems, to long-standing CAA members Jim Bay and Phil Hein.

Karl Ernst writes...

Looking back, I have had the privilege (and sometimes the headaches!) to be on the front line of many new products. Starting with the first Mueller gondola in 1965 at Whistler Mountain, the Coquihalla avalanche rope ways in 1986, and lately the Gazex and Daisybell products from TAS in France. These projects would not have been completed as successfully without the mutual respect, fairness, and cooperation from my customers.

Phil Hein and Jim Bay are very keen to represent the technology and distribution of the reliable TAS avalanche control products. Please give them a call or visit www.groupemnd.com for the latest information on products and services they can offer through Avatek Systems Ltd. I would like to thank everyone at the CAA office for your support over the past years, and I wish you all the very best and continued success in your operations and businesses.

Dave Mossop

The Next Line

The Rocky Mountain Sherpas focus in on a new avalanche awareness film for sledders

The Rocky Mountain Sherpas are on a roll. Their film, The Fine Line has set a new precedent in avalanche awareness films. Multi-award winning (four time Best Film, Best Cinematography, Best Director, Best Concept), it's sold 10,000 copies worldwide, has visited over 70 countries with tours, festivals, and high school educational screenings and is the leading avalanche education film used by professionals around the globe. Now the Sherpas are planning to focus their own brand of creative energy and cinema expertise on a film for snowmobilers. In late August of this year, I spoke with Producer Malcolm Sangster about his plans.

Mary Clayton: The Rocky Mountain Sherpas have had great success with The Fine Line. What was your thinking to reach out to the snowmobiling community?

Malcolm Sangster: We touched on sledding a bit in The Fine Line but it wasn't a focus. Snowmobiling is a completely different realm of practice. We want to make a shorter, action-packed film aimed directly at male sledders 20-30 years old.

MC: Just males?

MS: (Laughs) Well, it will work for females as well but the accident statistics point to males. This film will appeal to aggressive riders. This one will be sort of similar to Fine Line but more action packed and less artsy. We plan to gather more avalanche footage and interview guys like pro rider Dan Treadway who was buried in an avalanche on his sled, dug up not breathing, and was eventually brought back to life. We'd like to get in touch with those from the Sparwood avalanche too. We want to send the message that this is real, it can happen to you, and you need to take the proper steps. We'll use the same training films as TFL but re-edit them with a sledder focus.

MC: Do you think there's an appetite for this sort of film with this user group?

MS: There's definitely an appetite for action films in snowmobiling. There are a bunch of great snowmobile films on the market, but I believe with our 16mm high speed cinematography and creative cinematic language, that we can significantly raise the bar on the production values that are readily seen in these films. At the same time, the CAC and instructors like Amber Wood and Lori Zacaurk are really making a difference in awareness. It's slowly starting to catch on that education is needed.

MC: What are the challenges to getting started?

MS: Our main challenge is funding, that's been the biggest hurdle this year. We've had some interest from companies like Recco and ABS, and we've also contacted energy companies in Calgary and some breweries. Of course we're reaching out to sled manufacturers as well, but I think what's tough is that overall for most sled companies, the mountain market is actually pretty small. Most of the riding is done out in Ontario and Minnesota. So manufacturers are shying away from support but the accident statistics are making a difference.

The thing is, for us to get started we don't need a huge budget. It's fairly cheap to get things going on digital. Really, we just need the means to travel around and shoot. Then when we have enough footage to get a teaser in production, we have something to show prospective sponsors and we can get the momentum going. So we're hoping someone will start us going and then we can finish it off.

MC: Finally, what are your hopes for a snowmobile safety film?

MS: I would love to see a snowmobile manufacturer put in enough funding to provide this film for free—when you buy a mountain sled, you get this disc. We'll be plugging their products, showing the machines and the riders doing what they do best, so it would be a tool those organizations can use.

The whole idea of a sledding avalanche safety film is so interesting to us. We us snowmobiles to ski and to film, but this is a whole new ball game. It will be super interesting to see what different techniques arise, and what different people are doing—everything from analyzing terrain to rescue.

The Fine Line was such a great concept and the CAF backing us was huge, helped tons. We shot that film the Winter of 07/08 and released it Fall 08. For this next project, we have the means to shoot this winter and have it out by Fall 2010. But everything depends on funding.

Dave Mossop

Are You Beeping?

BCA's new beacon checker supplies an answer to the age-old question

By Bruce Edgerly

An avalanche beacon isn't going to do anybody any good unless it's turned on. That's why Backcountry Access, Inc. (BCA) is offering its new Beacon Checker. The device can be installed at patrol rooms, backcountry access gates, alpine huts and other egress points to ensure that your beacon is turned on and transmitting properly.

The device was successfully tested last season at several resorts including Sunshine Village, Silverton Mountain, and Jackson Hole. It is about 12 cm (5 inches) square and shows a red "X" or a green "O" depending on whether the closest person's beacon is transmitting. It has a series of switches for controlling volume, brightness, lowering battery consumption, and adding external devices such as a mechanical latch. It comes with a power converter so can run off a variety of power sources including 110 and 12-volt systems.

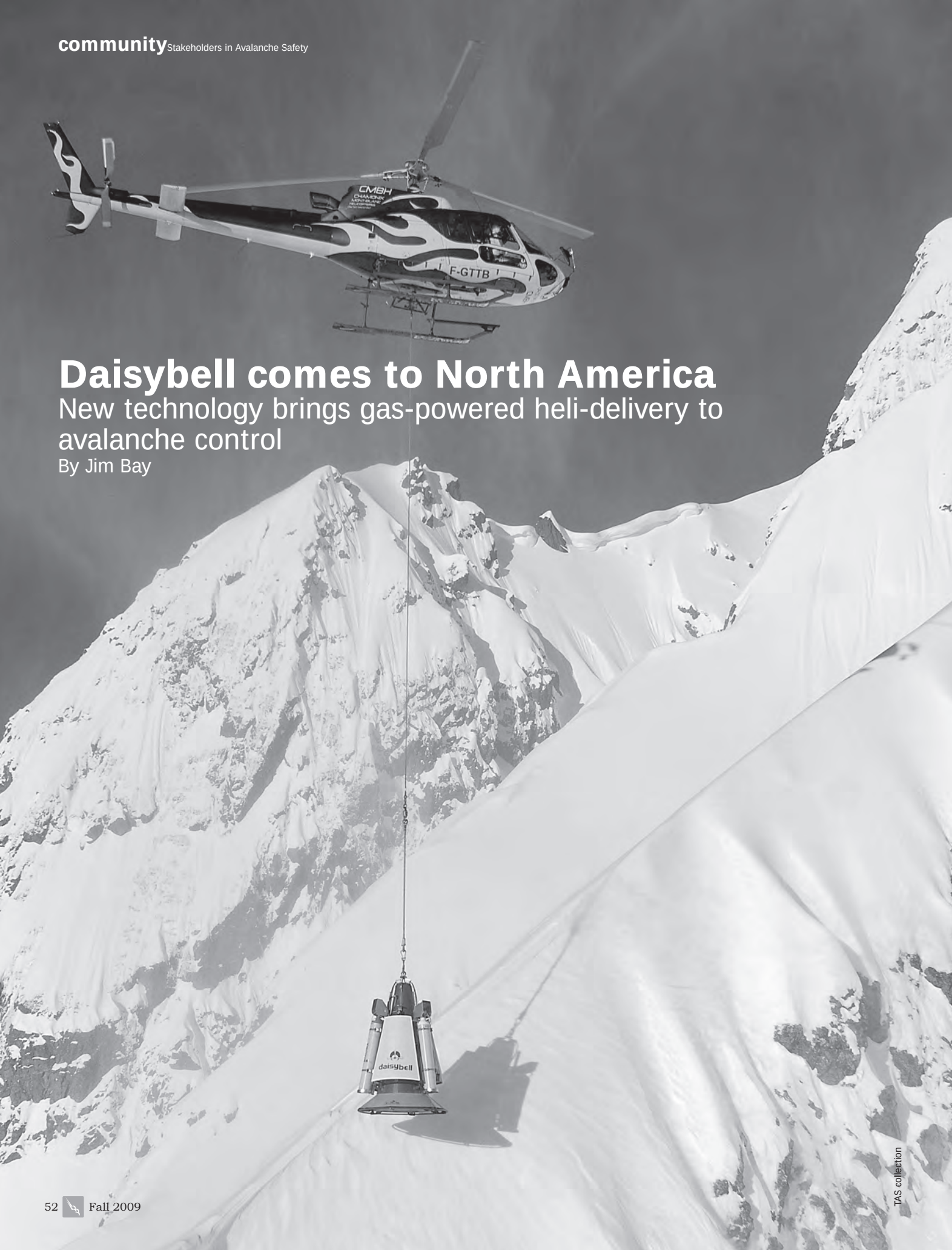
The BCA Beacon Checker is the latest in a series of educational related products from BCA. For pro and fleet pricing on Beacon Checkers and other avalanche safety equipment, contact BCA at info@backcountryaccess.com or go to the Pro Services page on the BCA website.

>>Bruce Edgerly is the Vice President of Marketing and Sales for Backcountry Access.

Daisybell comes to North America

New technology brings gas-powered heli-delivery to avalanche control

By Jim Bay



TAS collection

Daisybell® is one of the latest weapons in the avalanche control arsenal. Developed in France by TAS (Technologie Alpine Securitie), the manufacturers of the Gazex® avalanche control systems, the Daisybell is the first mobile avalanche control system using explosive gas-air blast technology.

Gazex avalanche control systems are well known in the avalanche industry and are in common use throughout Europe with some 500 customers and over 1800 units in place worldwide. In Canada, the BC Ministry of Transportation's avalanche programs have utilized the Gazex system as a key and regular method for avalanche control for many years, with 22 exploders throughout Kootenay Pass and three on the Duffey Lake road.

The Gazex is a fixed installation where a propane/oxygen mixture is remotely ignited inside a specialized steel tube, producing a powerful air blast shock wave directed at the avalanche starting zone. With the wide acceptance of this system, a mobile solution using similar technology seemed to be the next step. During the winter of 2008/09, after two years of extensive development and testing, the first Daisybells were used operationally in Europe. One unit was also sent to Canada for demonstration purposes.

Description

The Daisybell is a single unit consisting of a steel cone/bell, gas supply and control system which is carried suspended on a long line (15 – 30m) below a helicopter. The cone is injected with a specific mixture of oxygen and hydrogen (hydrogen was chosen for this application since its low density allows it to remain inside the cone) while the helicopter approaches the avalanche start zone. When the Daisybell is in position, the gas mix is ignited and the subsequent explosive blast is directed by the cone down towards the snowpack. The shock wave affects a wide area with a powerful air blast, which has proven to be one of the most effective means of triggering avalanches.

The inertia of the bell and a special damping sling reduces the "bounce" associated with the blast to the point where it is barely felt inside the helicopter. The Daisybell is radio controlled from inside the helicopter by the technician/operator using a control box designed to be very safe and simple to operate. The optimum distance above the snow for the Daisybell is between 5 and 10 metres. Positioning is facilitated by a laser rangefinder which provides a visual measure of distance above the snow to the pilot and technician/blaster.

The blast effect can be optimized for different snow conditions by varying the height above the snow surface. The explosive equivalent of the blast is comparable to that of a 1.5 cubic metre Gazex exploder or 270mb at 4 metres below the Daisybell (25mb is considered sufficient to trigger an avalanche). With pilots experienced in flying the Daisybell and familiar with the area being controlled, the movement from one target to the can be very fluid and efficient.

The key benefits that Daisybell offers are:

- Simple, safe operation
- Air blast effectiveness
- No solid explosives
- No explosive storage or licensing issues
- No explosive residue in sensitive areas
- No affect/damage to the earth/rock in shallow snowpack areas
- No duds or tobogganing explosives
- Efficient—time between shots is ~20 seconds
- Easily transported to different operational areas
- Good capacity—with standard Canadian configuration ~30 shots on one set of gas bottles
- Economical—price per charge is very reasonable and helicopter time is lower (no waiting for fuses to burn)

This past winter, over a dozen Daisybell units were used extensively in Europe during a very active avalanche season. The reports were very favourable with one of the units firing over 3000 shots. In Canada, Daisybell was introduced to the avalanche community at the Whistler ISSW where a demonstration was conducted on Whistler Mountain. In January 2009, a demonstration tour was carried out in Southern BC with visits to Hope, Revelstoke, Rogers Pass, and Kicking Horse Mountain Resort in Golden. A video of the KMHR demonstration can be seen at:
http://www.dailymotion.com/video/x8e6sl_daisybell.

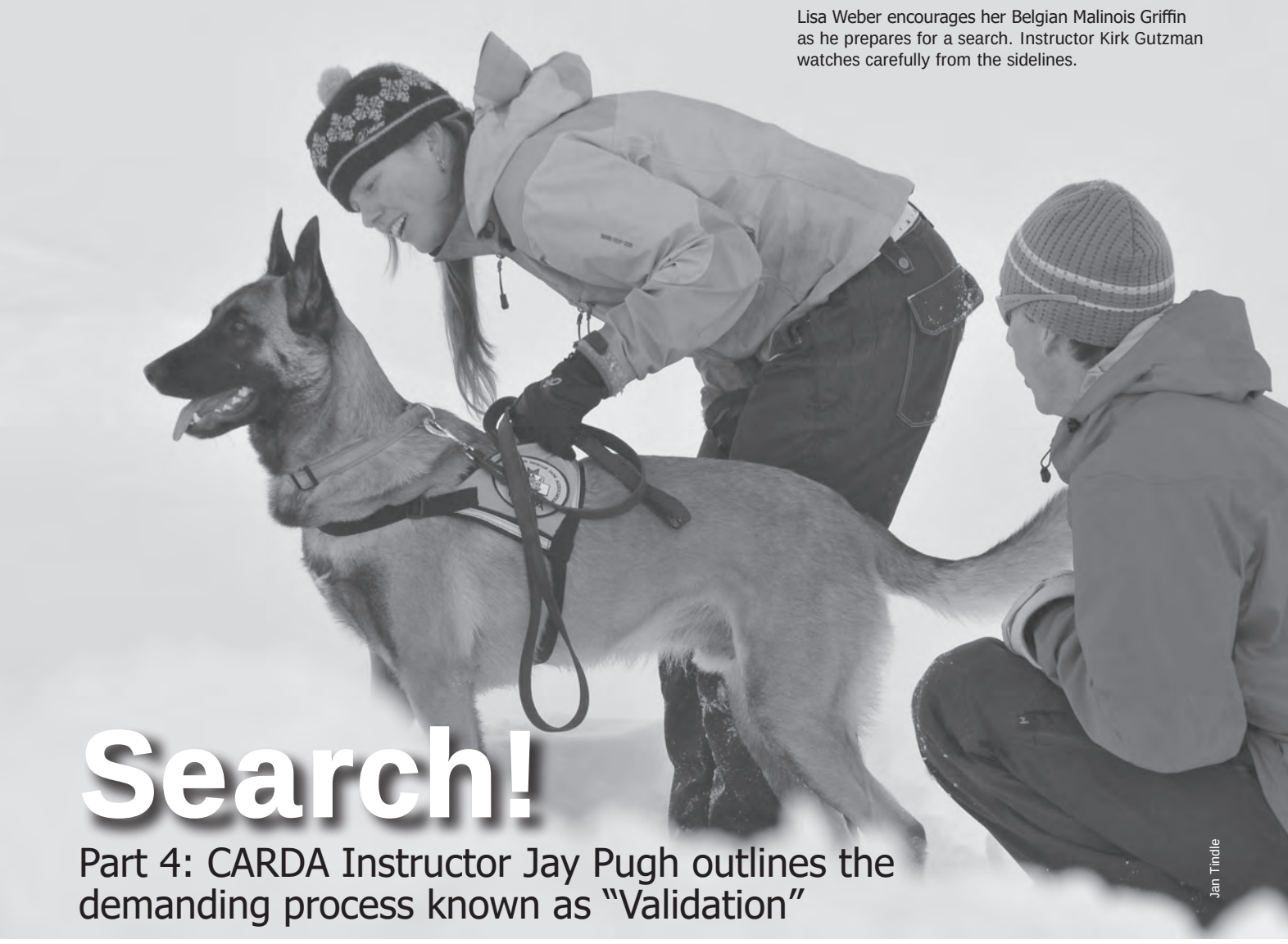
Overall the feedback from participants was positive with many people impressed at the strength of the blast and the potential for areas where the use of conventional explosives would be difficult. There were concerns raised about the weight of the device, which was ~ 580 kg (1300 lbs). In Europe where the Alouette B3 helicopters are commonly available this weight is not such a problem.

Over the course of the summer, the manufacturer (TAS) responded to feedback from both Europe and Canada and made a number of significant improvements to the Daisybell such as:

- Reducing the weight to ~450kg (990lbs) fully loaded. This reduced weight will make the unit much easier for the B2 and similar helicopters to handle.
- Increased explosive power using less gas through improved gas mixing.
- Increased number of shots on one set of gas bottles (30 shots).
- Shorter gas fill time prior to firing (five seconds) for greater efficiency.

DaisyBell offers another progressive option for avalanche control requirements in North America, with quick, mobile access to remote locations where permanent control systems are not yet installed, or where control requirements are variable and/or intermittent. The mobility by helicopter deployment and simple transport to any location via truck or trailer gives the system great flexibility for a variety of applications. Further details on the Daisybell can be found at www.groupemnd.com under the TAS link. For more local information, contact the Canadian distributor, Avatek Mountain Systems Inc. Phone 250.344.2212, or e-mail info@avateksystems.ca.

>>Jim Bay is the co-owner of Avatek Mountain Systems Inc.



Lisa Weber encourages her Belgian Malinois Griffin as he prepares for a search. Instructor Kirk Gutzman watches carefully from the sidelines.

Jan Tindle

Search!

Part 4: CARDA Instructor Jay Pugh outlines the demanding process known as "Validation"

Do I want this dog team searching for me?" This is the question that needs to be answered solidly in the positive for any CARDA team to be considered a viable resource in an avalanche response. This can easily involve life and death, so there must be an impartial and realistic testing procedure. This process is known as validation, and new CARDA handlers are tested during their second CARDA course. This is what they have spent two years preparing for. They have been through the selection process, an initial winter course and countless hours on their own bridging the gap between the first and second year. It all comes down to one week.

To know what goes into the test, consider what makes an effective team. The handler must be physically and mentally capable of dealing with an avalanche, the dog must be controllable and obedient and finally, the team must absolutely be able to search the debris of an avalanche in a quick and efficient manner. Validation consists of these three separate elements: an evaluation of the handler's backcountry skills, an obedience test, and the search. Teams are not considered active until all three elements are passed.

The backcountry test has been moved from the last day of the second year to the first day of a team's first course. CARDA has made this move after identifying that too many teams were deemed weak in this area to a degree that made validation a distant if not unlikely outcome. Considering the time already put into these teams, we would rather know beforehand whether or not it will be worth it.

The handlers must demonstrate not only a strong knowledge of safe route finding and avalanche awareness (slightly greater than a CAA Level1) but also show they are strong enough skiers to get anywhere safely in any snow conditions. It is an all-day test so obviously fitness plays a factor. The Alpine Guide hired by CARDA is tasked with evaluating the handler's ability to cope with not only traveling in the backcountry, but also their ability to make the right decision should they be in an avalanche rescue situation.

The obedience portion is relatively simple as a test. The dogs must demonstrate the heel, come, down, retrieve and stay commands while in a group. The purpose is to show the dog is

controllable and obedient to commands. As our dogs have such high drives it is vital to keep them safe and focused on the job. If the handler is unable to keep the dog in the search area and calm around helicopters and other hazards then the team is a liability.

The final portion is the actual search test. The team is required to search a 100 x 100 metre area in 30 to 40 minutes. While this may sound easy the handler has to conduct themselves as if they were the only rescue resource at the scene. This entails:

- Interviewing a witness;
- Giving directions regarding scene safety and incoming support;
- Doing a beacon and hasty search of the entire area in 10 minutes;
- Making decisions on finding clues or victims;
- Marking with flags found items, strong indications by the dog, or other areas worth further investigation; and
- Making decisions on search strategy after completion of the hasty/beacon search.

This is to say nothing of the dog which the handler must be aware of at all times lest it show an indication that is missed. There are three to four large articles hidden 75 cm under the snow that have been imprinted with human scent. A successful search is one where the articles are found, the team showed a competent and organized approach, the relationship between the dog and human is judged to be strong and the dog worked with enthusiasm for the duration of the search.

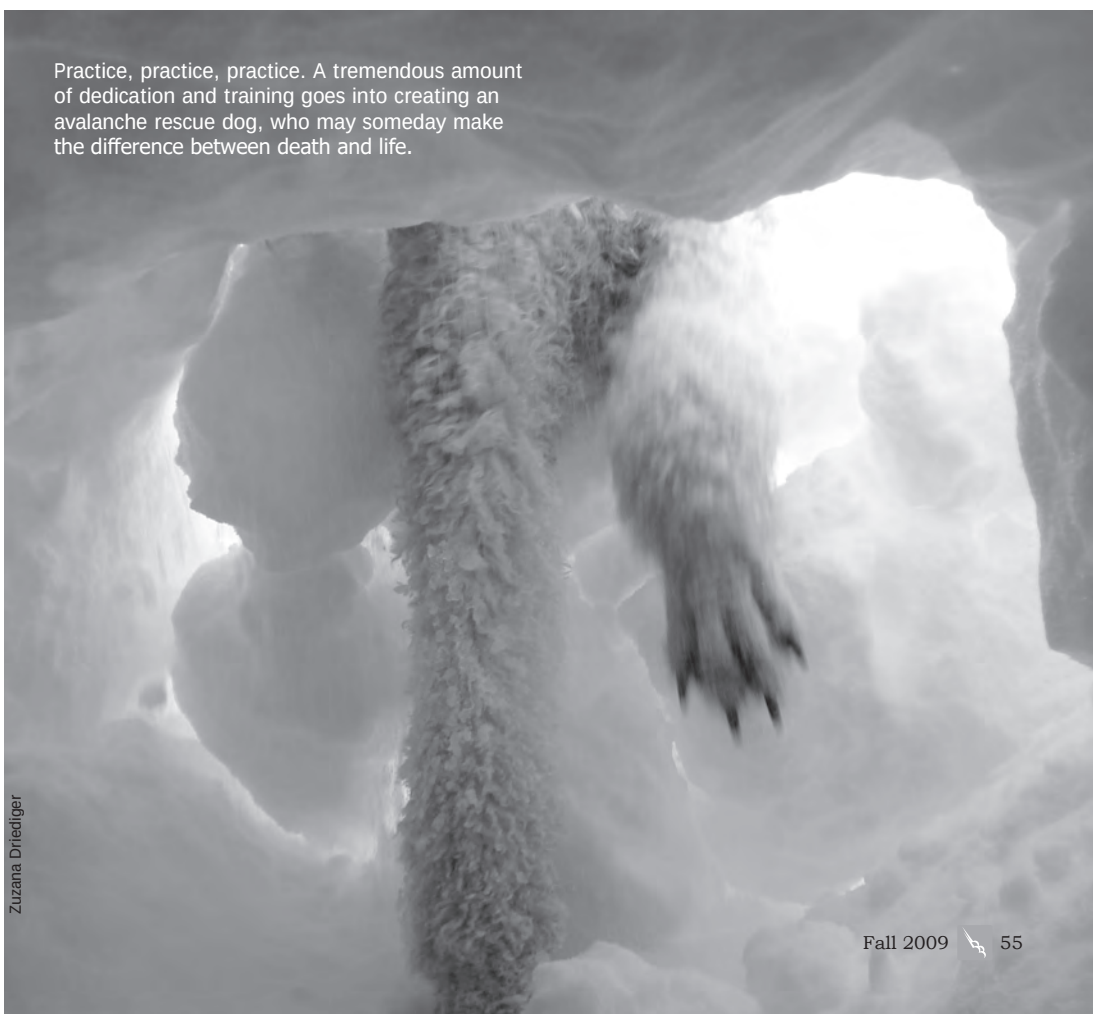
As the test is difficult there is a fairly even pass/fail ratio. Many handlers, including the author, have had difficulties with all the elements. Sometimes there has been too much concentration on the search element and not enough on the obedience and sometimes the team is simply not ready for the multi-tasking demands of the scenario.

As stated in the previous articles of this series, there is an expectation that the teams will arrive at the validation process with no major problems (such as a non-existent retrieve command) and ready to learn. The intermediate instructors are there to fine-tune the students and judge if they are ready for the test.

Sometimes the teams are not ready and the handlers have the option of taking the test as a "roadside" later in the year. (A validator is made available to test the team at a convenient location). Often a team will get a second chance later on in the week if they make an unsuccessful attempt toward the beginning. This is usually a result of the handler being stressed—as any of us in the outdoor field who have been through the ACMG, CSGA or CAA courses can relate to.

As instructors we go through our own stress. We are dedicated to the success of our students and every time one goes through the validation process, we are concerned with the outcome. Success and failure are learning opportunities to both student and instructor. On top of this most of us have to re-certify our own dogs. This, I have learned through painful experience, is not a given. Instructors are held to the same standards as anyone else. Putting time into other teams, while noble, is still not putting time into your own dog, which can be a fatal error. And as teachers, we feel a pressure to not just pass the test, but to excel.

The standard is high and the validators have the responsibility of certifying only those teams capable of saving lives. A successful test means that team will be put on the list of resources available to the RCMP and local search and rescue organizations. At the end of the week, successful teams are given the go ahead to remove the "In Training" badge from their dog's vest and are presented with the CARDA Avalanche Dog Team certificate. Beyond these awards is the very real likelihood that the team will soon find itself in a life and death situation. It is a sobering thought that brings home the necessity of the difficult and involved process of training and certifying a Canadian Avalanche Recue Dog.



Practice, practice, practice. A tremendous amount of dedication and training goes into creating an avalanche rescue dog, who may someday make the difference between death and life.

Zuzana Driediger

Terms used by CARDA

Down the Leash • An expression describing how the handler's tension level affects the dog. Many capable teams have been adversely affected by this, and the handlers must learn to convey excitement, not tension. This is crucial when one considers the tension level of an actual response.

Intermediates • Group of teams eligible for validation at the Winter course. Also known as the validation group.

Roadside • A validation attempt available for either Intermediates that were unsuccessful at the course or for teams that have to meet the requirement of validating every year and could not arrange to show up at the courses. (Teams only have to take a course every two years) The name comes from performing these validations on avalanche debris alongside mountain roads.

Retrieve • An element of the obedience test in which the dog has to stay at the handler's side while a retrieve toy is thrown. On command the dog goes, gets the toy, brings it back and presents it to the handler without dropping it or hanging on. Given that search dogs tend to be possessive this is not as easy as it sounds. Retrieve is often the biggest hurdle in obedience

Validator • The person responsible for the testing and certification of CARDA teams. Must have the ability to stand outside all day in any weather conditions, to give fair and impartial feedback and to pass only the teams capable of quick efficient rescues. Validators are characterized by irascible dispositions, blunt opinions, frozen moustaches and a fondness for Scotch (single malt, aged no less than 12 years). Contrary to popular opinion this last characteristic has no bearing whatsoever on the success of a validation attempt.

For the uninitiated, here are some common Validator phrases translated:

"That's not as bad as usual" - An expression meaning "Very Good"

"After all this time it's starting to look like you have half an idea of what you are doing" - An expression of the same validator that means "You aced it"

"Let's talk" - You didn't ace it

Schedule of Coming Events

September 23 – 27, 2009
61st ICAR Congress
The International Commission for 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: Zermatt, Switzerland
Info: www.ikar-cisa.org

September 27 – October 2, 2009
International Snow Science Workshop 2009
For the first time, the ISSW will be held in Europe. This is a great opportunity to exchange ideas and experiences in the place where snow and avalanche research began.
Where: Davos, Switzerland
Info: www.issw.ch

October 14 – 16, 2009
Wilderness Risk Managers' Conference
This annual conference focuses on risk management and practical skills for the wilderness adventure and education industry
Where: Durham, North Carolina
Info: www.nols.edu/srmc

October 24, 2009
The Alpine Club of Canada's Guides' Ball
The ACC, in concert with the Association of Canadian Mountain Guides, welcome this annual gala event to renew bonds, share stories and recognize new ACMG guides. Funds raised from the ball support a number of ACC initiatives. This year's patron is Leo Grillmair.
Where: Banff, Alberta
Info: www.alpineclubofcanada.ca
Contact: info@alpineclubofcanada.ca

October 31 – Nov 8, 2009
Banff Mountain Film Festival

The Banff Mountain Film Festival brings you the world's best mountain films and speakers. Experience the adventure of climbing, mountain expeditions, remote cultures, and the world's last great wild places—all brought to life on the big screen.
Where: Banff Centre, Banff
Info: www.banffcentre.ca/mountainculture/

November 7 – 29, 2009
Backcountry Avalanche Workshop Series Presented by Columbia Brewery

This year's BAW series will mirror last season's with presentations from the CAC forecaster team, the University of Calgary's ASARC team, and local professionals with beta on local routes. Volunteers are always welcome.
November 7 – Vancouver
November 14 – Calgary, Whitehorse
November 21 – Fernie
November 28 – Prince George
November 29 – Grande Prairie
Info: Call Nancy Geismar at (250) 837-2141 ext.233

November 8 – 23, 2009
AST Instructor Training

These seminars will run on the Sunday after the Backcountry Avalanche Workshops in the following communities.
November 8 – Vancouver
November 15 – Banff
November 22 – Fernie
Info: Call Nancy Geismar at (250) 837-2141 ext.233

January 8 -10, 2010
Avalanche Awareness Days Presented by Canadian Pacific

The CAC's annual event continues the tradition! This year, our national media event will be held on Jan 8 at Fernie Alpine Resort. Over the Jan 10-11 weekend, some 30 communities throughout Canada will host Avalanche Awareness Days. Check our website in early December for a complete schedule of events.
Where: Fernie Alpine Resort, Fernie, BC
Info: www.avalanche.ca

John Tweedy

The Saturation Point

Story and photos by Mark Grist

On April 26, 2009 our ski touring party encountered unusual avalanche debris approximately 30km ESE of Kemano, in the Kitimat Ranges of the Coast Mountains of BC. We spent over an hour exploring the debris—climbing on and over fins of snow five metres in height! The avalanche was most likely triggered by a massive rain event on April 20. The Kemano weather station recorded 63mm of rain that day and our soggy tents confirmed that it was indeed raining high in the alpine.

Hopefully these photos will serve as a potent reminder of the distance that wet snow avalanches can travel. Spring ski touring parties should very carefully consider camp locations, especially when heavy rains are forecast. Special thanks to the folks in Kemano for their kind hospitality and meteorological information.

Photo taken ~1.5 km from the starting zone, located immediately above the two skiers. Steepness of the starting zone ranged from 40-50 degrees, but what was so surprising was that the avalanche ran for over a kilometre on the flats of the glacier, which were less than 10 degrees.

Immediately below the starting zone, we found that the avalanche funnelled through an area no wider than 15 metres, before fanning out to over 60 metres width and scouring the snowpack 1.5 metres deep (but not down to glacial ice).

Overall dimensions of the starting zone were approximately 600 m wide by 400 m high. Relief from the crown face (which was tiny - 10 cms or less) to the flats on the glacier was 300 vertical metres (1700-1400 m ASL, on the north face of Peak 7577' (2260 m)).

Mark Grist is a Ranger for BC Parks in the Vancouver area. He is also a ski bum aspirant of the coastal touring variety. Encountering unexpected wonders on extended traverses are a special treat. This one was seen on the penultimate day of a 24-day ski traverse from Bella Coola to Kemano.

Peter Rowat

The extent of debris suggests a phenomenal amount of snow was entrained: In fact, one piece was the size of a small locomotive engine.

Helmets and Heliski Guiding

Everyone else in the ship sports a helmet. Why doesn't the guide? Some thoughts from a survivor.

By Matt Peter

Let's take a moment to ponder the "typical" morning of heliski guiding. The sun rises to clear skies, no wind and 60cm HN. You confidently rate the stability 3x Very Good. The pancakes are fluffy and there's no shortage of bacon. Everyone is ready on time, you do a transceiver check, load your longtime guests' skis and climb into the machine. Turning to give the final "thumbs up," you're greeted by a full complement of beaming smiles and shiny helmets.

Fair enough, this is perhaps not the typical day (there's always a shortage of bacon), but the final concept stands true more often not. Which begs the question: "Why am I the only one in the helicopter not wearing a helmet?" Upon waking in the hospital in Kamloops after a "not so typical" day of heliskiing, I got down to trying to answer this question.

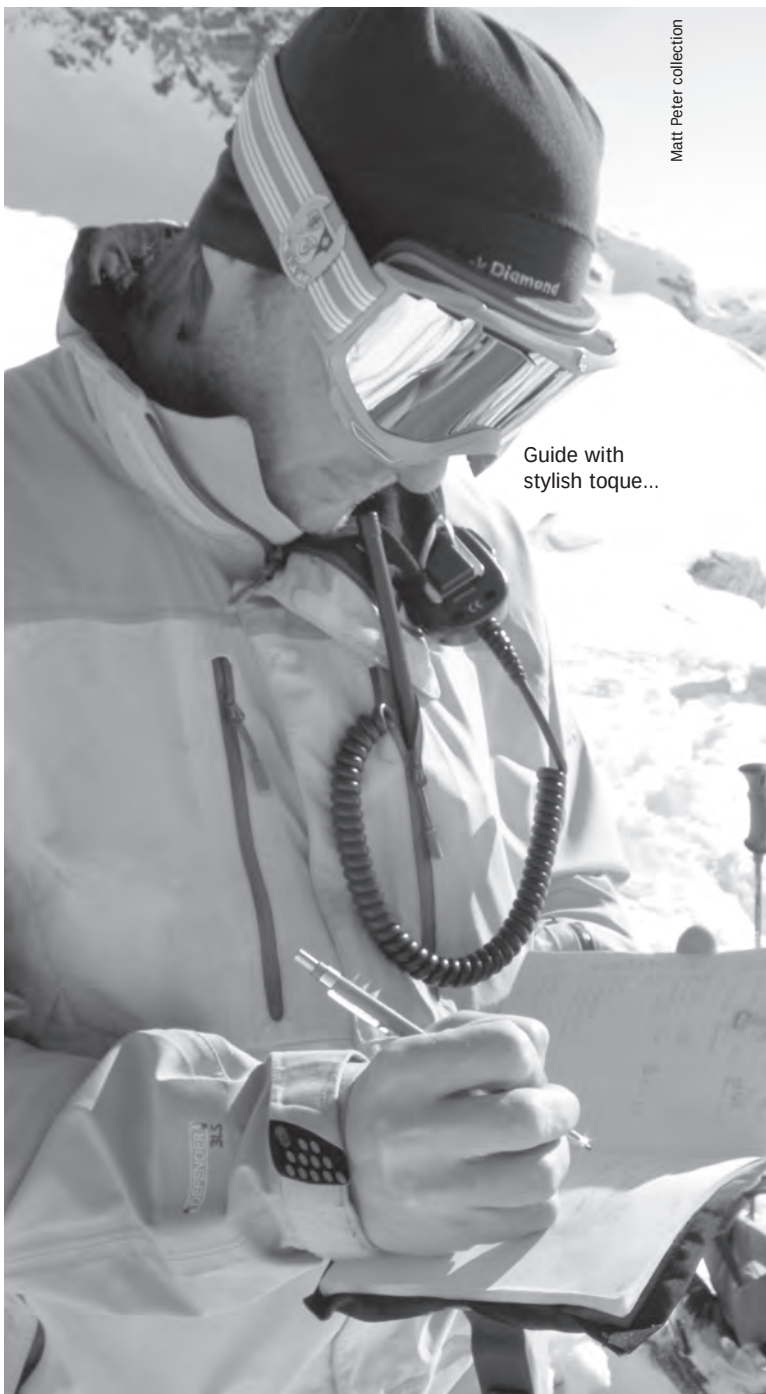
First off, a synopsis of my personal evolution in mechanized ski guiding. Initially, I was not a skier. I came to the guiding profession from a climbing background, and only after I had decided to become a Mountain Guide (as opposed to a Specialty Alpine Guide) did I truly begin to ski. Previous to this career decision, I had used skis as a vehicle for winter travel, but what I did with said apparatus could only loosely be termed skiing. Fortune smiled upon me, however, and shortly after committing to the "full square," I nabbed a tail guide position at a catskiing operation. To be fair, I told the Guiding Manager of my lack of sliding skills and he said, "Don't worry, no one can see you at the back. Just don't hold up the program."

After my first tour, thoroughly humbled and fearing for my own safety, I bought a helmet. Many lessons, ski days, courses, exams and seasons later I made the transition from catski to heliski guiding. When I first started catski guiding, I was the exception with my helmet but by the time I left, the helmet was more the rule among the guides. I was surprised to learn that guiding with a helmet was completely foreign in the heliskiing world. This was 2004.

I remained committed to the helmet, but found some distinct limitations in trying to apply my guiding norms to the helicopter. When working around the machine, a guide wants to have some type of hearing protection. The guides' standard is the Pelton earmuff, which does not fit over a helmet. Fortunately, I found a model that has a behind-the-head band instead of the normal over-the-head setup. Noise dampening solved.

Upon entering the helicopter, the helmet's shortcomings really become apparent. Regardless of how it looks in the ski movies, the upside-down headset (used to talk to the pilot and the outside world) simply does not work. This leaves you with taking off the helmet. By default, that means your goggles as well. As a new heliski guide this proved to be challenging because, in contrast to the relaxing cat ride I was used to, the heli-lift is incredibly fast. By the time I had my helmet off and headset on, I was often already at or near the top of the run, having missed the chance to scope the ski line or discuss hazards. Certainly, a less than ideal situation.

The final complication was less tangible but arguably the most compelling: the stigma associated with the guide



Matt Peter collection

Guide with stylish toque...

...Guests with helmets.
What's wrong with these pictures?

Matt Peter

wearing a helmet. As guides we have bred into us the concept of infallibility. We need to portray calm and control in the face of adversity. We are a confident bunch. In my experience, this concept is taken to the max in the heliskiing world. We deal with very affluent folks who are used to being in charge, and thus we need to portray the highest levels of mettle. As surprising as it may seem, my helmet was a portrayal of weakness, especially as a guide new to the heliski world. It was a topic for comment and discussion from both guests and fellow guides alike.

"Are you really good, or really bad?" "What are you planning on doing out there?" "Do you really need that thing?" "Do you fall down a lot?" These are but a few of the questions and comments I fielded that first season about my trusty helmet. So, for better or worse, I convinced myself that the technical issues were insurmountable and I "evolved" to a higher level of guiding, sans helmet, in the ensuing years. Trust me, I didn't feel particularly evolved upon waking in the hospital on the evening of March 20, 2009.

I was caught in a small avalanche while putting in a traverse track above a slope I did not want to ski, given the conditions of the day. The slope pulled back into the low-angled terrain and dragged me through heavy timber and over a small rock bluff. My Snowpulse airbag backpack played a critical role in helping me survive the avalanche, but I still almost bled to death from head trauma on the short flight to the Revelstoke hospital. A basal skull fracture was concern enough for immediate transfer to Kamloops, where neurosurgeons were in place to relieve intracranial pressure if my cerebral bleeding didn't stop. Fortunately, it did.

So back to the initial question:"Why am I the only one in the helicopter not wearing a helmet?" At this point, all I can come up with is, because I'm not particularly smart. Our guests' helmet use has steadily increased to the point where a majority of these folks are now on the team. Conversely, guides' helmet use is advancing at a geological rate. Ironically, in summer guiding, we don't go anywhere without the plastic hat. Let's examine more closely the technical issues to see what the future of heliski guiding might bring.

While ski guiding, it is imperative we can hear what's happening. My preference is for a helmet without the earflaps (and a light hat underneath) to keep my ears free. Properly positioned earflaps can transfer sounds well, if that's your preference.

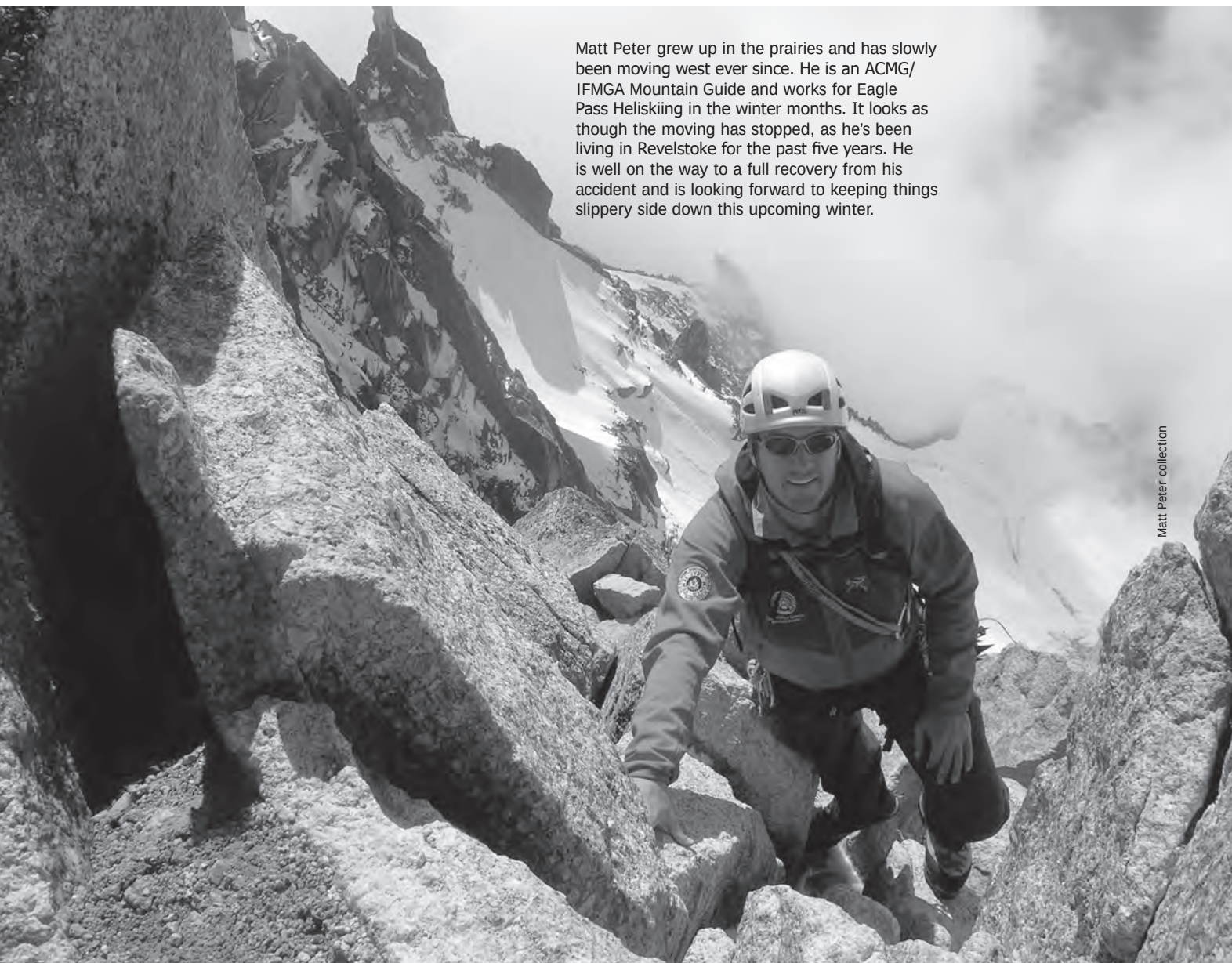
> **“As surprising as it may seem, my helmet was a portrayal of weakness.”**

Sound dampening around the machine is adequate with the behind-the-head earmuffs. With an earflap inclusive helmet, one would have to go with earbuds (e.g., Deci-Damps) for appropriate protection.

In the machine, the headset issues are complex. It seems possible to build the aviation electronics into a ski helmet and thus be able to “plug in” to the machine. Problems with this include skiing around with a boom mic attached to your helmet (sure to get wet), and storing the accordion cord appropriately. The boom mic issues could be mitigated with a throat mic. but I’m not convinced that I want to ski around with a “tactical choker” day in and day out. The built in method works only with an earflap inclusive helmet since the earflaps are required for the electronics.

It seems the simplest solution is to modify the standard headset with a behind-the-head band system. This would work for everyone in the helicopter (helmet or not) and yields the lowest habit altering for folks. A long, adjustable soft strap that runs over the top (head or helmet) would compliment this system.

And what of the stigma? To be honest, I think helmet use has become so prevalent with our guests in recent years that the shift need only be personal. In fact, I have had guests in recent seasons ask me why I don’t wear a helmet. Looks like I won’t be fielding that question again.



Matt Peter grew up in the prairies and has slowly been moving west ever since. He is an ACMG/IFMGA Mountain Guide and works for Eagle Pass Heliskiing in the winter months. It looks as though the moving has stopped, as he’s been living in Revelstoke for the past five years. He is well on the way to a full recovery from his accident and is looking forward to keeping things slippery side down this upcoming winter.

Matt Peter collection

What to wear? Airbags in the Canadian Mountains

By Ilya Storm

This past winter, six friends of mine were wearing airbags when caught in avalanches. Three didn't pull the rip-cord; two pulled the cord but the bag didn't deploy; one pulled and he remembers gaining a measure of comfort when the bag inflated as designed (but that's the last thing he clearly remembers …). Although this may sound critical, I should clarify from the outset that personally I like airbags and that organizationally the CAC (for whom I work as an Avalanche Forecaster) likes airbags—much as we like avalanche beacons. At the same time we're curious about both their strengths and their limitations.

The European Experience

My personal, albeit indirect, airbag experience last winter appears to starkly contrast the European story. Compared to North America, airbags have a longer history and their use is better established in Europe. According to the Swiss Federal Institute for Snow and Avalanche Research (SLF) "out of the proven technical devices, the avalanche airbag provides the greatest chances of survival in (an) avalanche incident" (Tschirky et al. 2000). Brugger and Falk reported that an "avalanche balloon reduces the likelihood of complete burial from 39% to 16.2% … and lowers the mortality rate from 23% to 2.5%" (2002).

More recently, members of the International Commission on Alpine Rescue (IKAR) Medical Committee reported "Persons equipped with an avalanche airbag had a lower chance of dying (2.9% versus 18.9%)" and that avalanche airbags as well as avalanche transceivers reduce mortality (Brugger et al. 2007). All other devices are of indeterminate efficacy due to lack of data (IKAR 2006, Brugger & Falk 2002). According to the best available evidence, avalanche airbags reduce the severity of the effects of being in an avalanche by reducing burial depth and facilitating rapid localization. Additionally, it follows that airbags may increase the likelihood that potential victims can be rapidly converted into companion rescuers.

The Canadian Context

It's important to recognize that almost all research supporting airbags comes from Europe. There may be good reasons to suggest the Canadian context differs, and one of these reasons is the role of trauma. Although asphyxiation is the primary cause of avalanche deaths, the role of trauma in Canadian fatal avalanches is significant. Recent research by Jeff Boyd and others (2009) found:

- 24% of Canadian avalanche deaths were attributed to trauma. The rate of death from trauma ranged from 9% for snowmobilers to 43% for ice climbers.
- Additionally 13% of the asphyxia victims who underwent autopsy had major trauma.
- Therefore major trauma contributed to a total of 33% of avalanche deaths.
- Only 48% of victims for whom trauma was the primary cause of death had been completely buried.

Notably, this Canadian study finds a far greater risk of trauma than reported elsewhere, likely due to differences in terrain selection and in mountain topography. One implication of this research is that the efficacy of avalanche airbags in the Canadian context is not well understood. But it is reasonable to think the Canadian experience may turn out differently than the European story.

Canadian Winter of 2008-09

With increased product availability, marketing, and the resolution of outstanding regulatory hurdles surrounding their transportation, Canada was poised this past winter to see much wider adoption of airbag technology. My expectation, and certainly my hope, was that success stories would come rolling into the avalanche centre.

The idea that airbag use is growing in Canada may be supported by the fact that airbags were somehow involved in 35% of last winter's fatal avalanche accidents (six of 17 events). More surprisingly, at least to me, is that 35% of those killed last winter in Canadian avalanches had an airbag (nine of 26 individuals). Furthermore, in two-thirds of these cases (six of nine fatalities) the victim didn't deploy their airbag. That leaves three people, or 12% of this past winter's fatalities, who died despite deploying an airbag.

Beyond the obvious conclusion that airbags aren't a silver bullet guaranteeing your safe return home, it isn't clear what this all means! But it raises several questions worth digging into: Is Canada different than Europe and if so, how? Is the 2008-09 Canadian fatality data representative or was it a goofy year? Does one require training and practice to benefit from an airbag, much like what is provided to help people effectively drive a beacon or operate a shovel?

First I should clarify why these numbers only consider fatal avalanches when they are but a small subset of the total avalanche involvements, and arguably the "worst case " ones. The answer is simply that because the police or coroner services are necessarily involved, fatal avalanche data are the only reliably reported incident data in Canada. Admittedly, considering only

The CAC has advocated the use of airbags for a number of years. Here, former Executive Director Clair Israelson models one for a group of journalists at Sunshine Village, during Avalanche Awareness Days 2008.

Mary Clayton

fatal avalanches doesn't tell the complete story—many success stories go unreported. Additionally, meaningful conclusions can't be drawn from the small number of records in a single year's data. But that doesn't mean the data and stories can't be instructive.

My growing interest in airbags last spring led me to look at the winter's avalanche incidents, as reported to the Avalanche Centre, where airbags were somehow involved—fatal, non-fatal, close calls, and simple involvements. It didn't take long to realize the stories are more complex than the numbers show, and there were surprises:

- Airbag not activated: There were cases where people didn't have time to pull, didn't think about pulling, or chose not to pull. It appears that sledders in particular face the dilemma of whether to "pin the throttle" to escape the slide or bail from the sled and pull the cord. Like a fighter pilot and his F-18, pretty much no matter what happens sledders like to stay with their sleds. Ejecting from a sled goes against miles of riding experience, intuition, and training.
- Airbag activated but did not inflate: Last year airbags were activated but didn't deploy for two reasons. User error (in one case the pressure canister wasn't attached, in one case the trigger assembly wasn't attached) and equipment malfunction (See Vol 88 page 55 or visit www.snowpulse.com for further information about the LifeBag Safety Warning and retrofit).
- Activated and deployed as designed: The surprise isn't that an airbag performed as designed, it's the sheer number of cases where the deployed airbag didn't make the difference between life and death. This includes cases where people were low on the slope when the avalanche hit and they didn't travel far enough to allow the airbag to rise to the surface, people were low in the runout zone and not actually wearing their airbag when hit, and at least one case where a large terrain trap formed a concentrated deep deposition.

Of course there are also straightforward successes and two examples come to mind. One incident from 2007 that was recently reported on by the BC Coroners Service found that an airbag "may have been instrumental in preventing the loss of life of one of the members of the ski party." The second example, from last winter, was a little closer to home, in that I was there. My buddy Matt Peter attributes the trauma protection his airbag provided as a critical factor for surviving an avalanche last winter. (See Matt's article on helmets and heli-skiing on page 60 of this issue). But here's the rub: there are likely numerous incidents where airbags are involved but go unreported. At the CAC we're unlikely to hear about:

- Small uneventful avalanches where an airbag was deployed but the whole thing was "no big deal."
- Avalanches where people either didn't have time to activate their airbag or chose not to pull the cord.
- Times when an airbag didn't go off when the cord was pulled, either due to user error or equipment malfunction.
- Successes where the airbag played a role in trauma reduction, burial reduction, rapidly finding someone, or converting a victim into a rescuer who goes on to do good work. People don't always think about reporting successes, particularly in the recreational community.

What does it mean? What should we do?

I'm not really clear what this all means, at least in a simple, definitive way. Although interesting, case histories and limited (likely skewed) data may be providing us with no more than "just so" stories or in science speak, "anecdotal evidence." Published research supports airbag use as proven and valuable avalanche safety technology, while at the same time it raises interesting questions for further research—especially here in Canada. As a guide, an avalanche forecaster, and a skier who likes to get at it and have some fun with friends, I'd appreciate a few answers to these questions.

I'm pretty clear about what we need to do. We need to collect empirical data from people's real-world experiences to convert anecdotal stories and personal opinion into something more akin to knowledge. We need to create a data repository that supports credible analysis and justifiable recommendations to promote avalanche safety. We need to tease out answers to questions like:

- Does the role of trauma in Canadian avalanche incidents affect the value of wearing an airbag?
- Are there things about specific Canadian user groups and their activities or terrain choices (e.g., forested terrain, avalanche size, etc.) that affect the value of wearing an airbag?
- Are there times that it's better not to deploy an airbag because it's more likely to cause harm than benefit? If so when, who, where, why?
- Do people need training or practice to use airbags effectively when a slope starts moving? We used to think the key to rescue shoveling simply meant digging hard and fast but as Manuel Genswein, Dale Atkins and others have proven, there's much more to effective shoveling than that.

This winter the CAC will be collecting information specific to airbags and working on building a repository for real-world, home-grown incidents (and that includes successes where everyone goes home happy) involving airbags to help better understand their benefits and limitations. There'll be a survey available and, as always, you can either e-mail forecaster@avalanche.ca or call the CAC at 250-837-2141 x230 to tell your story directly to one of the public forecasters. So if you have an airbag experience—especially if it's a success story, a small "no big deal" slide, or if the airbag was there but didn't play a role in the final outcome—get in touch.

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This Just In

Following a request from WorkSafe BC (WSBC) for more information about airbag use in avalanche terrain, the CAA has suggested striking a collaborative research project with WSBC and other related industry organizations to collect and analyze Canadian data for avalanche accidents involving airbags. This research would allow a more thorough understanding of the benefits and costs of using avalanche airbags technology in the BC workplace.

What's in the bag?

Three different airbag systems are currently available in Canada. All offer refillable cylinders but there are many differences in terms of the individual pack features. Below is a sample of 30 L packs from each manufacturer; all prices are in Canadian dollars. For more information, please check their websites.

ABS Systems: www.abs-airbag.com

ABS is the oldest manufacturer of the airbag system and offers the widest variety of backpacks. Two airbags with a total volume of 170 litres are located at the sides of the pack. Pictured is the Vario 30L.
Weight of the Vario 30L: 2.9 kg
Retail price: $1100. Pro pricing is available.

Backcountry Access: www.backcountryaccess.com

Backcountry Access has the newest entry to the airbag market, scheduled to be available by October, 2009. The Float 30 has a 150-litre airbag releasing to the back.
Weight of the Float 30: 3.2 kg
Retail price $569. Pro pricing available after January 1, 2010.

SnowPulse: www.snowpulse.ch

SnowPulse has a patented 150-litre airbag shape designed to offer protection to the head, neck and thorax. SnowPulse offers six pack styles in two sizes—short is for 5'9" and under, long is for 5'10" and up. Pictured is the Switch 30L.
Weight of the Switch 30L: short 2.9 kg, long 2.95 kg
Retail price $1198.00. Pro pricing is available.

Avi Vest: www.avivest.com

This is a new product in development. Check their website for more information regarding availability.

Transitions

Emily Grady
CAA Industry Training Program Manager

Born in Quebec, Emily comes to Revelstoke via Nelson and Salmo, BC (affectionately referred to as Slo-mo). An avid and accomplished skier, Emily has been the Ski School Director at Whitewater Winter Resort and a ski instructor for Women's Freeski Camps, Canadian Ski Quest and the NONSTOP Ski Program. She has a Bachelor of Science degree from UBC in Forest Resources Management and has taught at Selkirk College for their Ski Resort and Operations Management Program. For the past two years she has been the Manager of the Purcell Mountain Lodge. She is a passionate outdoors person and enjoys climbing, mountaineering and cross-country running in the summer. In the winter she says, "it's all about the skiing."

"Since taking my first professional avalanche course, I've come to know the CAA as being on the front line internationally in terms of providing and developing training for avalanche workers," explains Emily. " When the opportunity arose to be a part of such a well-recognized association with super-dedicated staff, I couldn't resist sending in my application and trying my luck." With her strong managerial skills and attention to detail, Emily brings a fresh perspective to the CAA, as it enters a period of standardization and improvement to its curriculum. "I consider myself very fortunate to have been offered the position," she adds. " I am enjoying applying a variety of logistics and organizational skills to a job that requires them to the nth degree!"

Scott Grady

Karl Klassen
Public Avalanche Bulletin Manager

After some three decades in the snow business, Karl's name is well known to a wide range of professional and amateur backcountry users. Karl is an ACMG/IFMGA Mountain Guide, spent 10 years as an examiner for the ACMG and has been ski guiding for over 20 years. In addition to his practical experience, Karl has a very strong background in writing and teaching. He has designed the curriculum for a number of programs over the years, including professional avalanche training, recreational avalanche training and professional guide training.

The Public Avalanche Bulletin Manager is a newly created position and, after four years as a CAC forecaster, Karl says he's looking forward to taking a leading role in the development of the program. "I'm already working on new products and thinking of ways to make our existing programs better," he says. " I hope to implement a number of changes in structure and direction over the next few years. My goal is to provide the CAC forecasters with the tools and support they need to produce the best possible avalanche forecasts as efficiently as possible."

Karl's skills as a teacher have made him a mentor to many aspiring guides and avalanche professionals over the years. "I've always been interested in mentorship and this job provides an opportunity to do that in a way I haven't done it before," he says. "I'm looking forward to working with and providing guidance to new forecasters as they build and develop their forecasting skills." One thing that won't change is the "think-tank" environment of the CAC forecasting office. "I love having the leisure to talk avalanches at length with highly experienced practitioners and researchers," he says. "Taking a lead role in the constant discussions and debates that are a regular part of working in the forecasting office will continue to challenge me and advance the ongoing development of my skills and knowledge as an avalanche professional."

Mary Clayton

VOLUME 5 PHOTO CONTEST

Do you have a great photo of an avalanche in action or an avalanche involvement? Enter the Volume 5 Photo Contest and you could win: Marmot Twilight two-person tent, Marmot Eiger 65 backpack, $500.00 and your photo on the cover of Avalanche Accidents in Canada Volume 5!

Each entry must include the date and location of the photograph and details of the incident. No fatal accidents please.

Entry Deadline: Due to the extended production date the new deadline will be April 30, 2010.

Photo Formats: High resolution digital (minimum 3 MB in size). No digitally altered images will be accepted. Images must be JPEG, TIFF or RAW format only; all other formats will not be accepted. Digital images may be received on CD, DVD and e-mail bstrand@avalanche.ca (please put "AvAcc photo contest" in title).

Flakes


THE BEACON BAR
"LOVE AT FIRST SIGNAL"
Ahem, I believe inductions- er, I mean, introductions are in order...
...and then he asked me if I was into multiple signals - can you believe that?
now I've heard every flux line.
It didn't work out. She kept asking me to turn down my volume...
Wow - what a classic pattern.
Ah, they always go off on tangents.
©r. buchanan

CAN YOU SEE THE DIFFERENCE?

One of these skiers has made a commitment to safely exploring the backcountry. He didn't just stumble upon fresh snow and decide to have some fun. He knows it's important to take Avalanche Skills Training, regularly check avalanche bulletins and weather forecasts, and make informed choices about the terrain. Of course, he has the necessary safety gear, but it's what you can't see that really makes the difference.

MEC is in a unique position to promote backcountry safety within the outdoor community, and is proud to be a presenting sponsor of the CAC's Avalanche Skills Training program.

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Chris Christie

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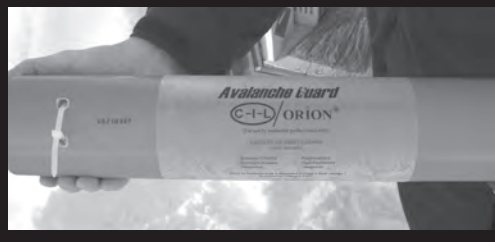
CIL/Orion custom-designed avalanche control explosives and a full line of accessories are now available throughout North America at:

▲ RECCO microchips installed inside the boosters, where they provide the most reliable tracking.



▲ The Avalanche Guard System

▲ Stubby Snow Launchers & Tail Fins

▲ Mildet Fuse Assemblies

LOCATIONS

Austin Powder Ltd

Onalaska, WA
Roseberg, OR
Fairfield, CA
Ketchican, AK
Anchorage, AK
Calgary, AB
Westlock, AB
Kamloops, BC
Courtenay, BC

Dyno Noble Inc
Salt Lake City, UT
Moab, UT
Rigby, ID

Emrick and Hill Ltd
Denver, CO

Bio-Remediation

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- ▶ Avalanche Guard 4kg Boosters
- ▶ Classic-Style Snow Launchers
- ▶ Stubby Snow Launchers

Field proven, this technology really works. When exposed to the environment, bio-organisms activate and consume the product. No shelf-life issues when properly stored in a dry, approved magazine.

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