

MODERN AVALANCHE EDUCATION
A Panel Discussion

Moderator: Geoff Freer

Panelists: Doug Abromeit, Jill Fredston, Magnus Magnusson, Yasuaki Noguchi,
Ian Owens, Jurg Schweizer, Francois Sivardiere, Randy Stevens

GOAL: Increase our level of excitement about avalanche education so we can do a better job by sharing new ideas and techniques that address changing populations.

KEYWORDS: avalanche, avalanche education, avalanche countermeasures

1. INTRODUCTION (Geoff Freer)

Geoff Freer is with British Columbia Ministry of Transportation and Highways. He says that education is the key to reducing avalanche incidents in the long term.

1.1 Issues

Let's find out what has been done successfully or unsuccessfully in the past and make sure that the next generation is being educated for the future. The target audience for avalanche education has been changing in many places. We can save money by sharing experiences, processes, and methods.

1.2 Challenges

We need to make sure information learned from this ISSW is taken back and shared with peers, with others in the field, and incorporated into the courses we teach.

Reaching kids in school. They are trying to do all the things they see in magazines.

How do you reach recreationalists in larger numbers?

How do you reach smaller communities where there are no avalanche experts?

How do we educate railways and others that do not perceive a problem? Perhaps we can educate and present concerns through our associations.

Instructors. We spend a lot of time in North America talking about instructor standards, who should instruct, who should not instruct. Should we always have the highest quality instructors even if it means not contacting so many people?

How do we find the time, energy, money, and volunteers.

How do we educate the media?

Who will take the lead to coordinate avalanche education? For example, in United States, if someone doesn't take the lead, various groups will start their own programs. There needs to be a coordinated approach.

Measuring improvement or some kind of index.

Funding

Common curriculum/manage from a central location

Increasing the number of programs available

Marketing departments of various ski areas/industries, and from manufacturers

How to best utilize cyberspace

Encourage ski areas and agencies to incorporate education in their public relations programs.

2. USDA FOREST SERVICE (Doug Abromeit)

Doug Abromeit manages the USDA Forest Service, National Avalanche Center in Moscow, Idaho. He describes the role of the USDA Forest Service in avalanche education.

2.1 Money

The public is hungry for avalanche awareness classes. How can we get this information to them? There are talented, concerned people out there teaching avalanche

classes, producing videos, and writing books. Unfortunately, much of this work goes unpaid. The government used to be able to fund these types of programs. The Forest Service recently has renewed its recognition and interest in avalanche education, and avalanche forecast centers. They have not provided additional funds, but have helped the avalanche centers promote partnerships and encouraged them to pursue these partnerships with the ski, snowboarding, and snowmobiling industries and through corporate sponsors.

This coming winter, the Forest Service will broadcast avalanche forecasts in Seattle, Denver, and Salt Lake City metro areas, and sell advertisements with these broadcasts with proceeds returning to the avalanche centers and their education projects. There are plans to expand this project the following winter. The marketing firm working on this project estimates they can generate \$200,000-250,000 per year. If it works, it will allow forecasters to forecast and teach avalanche forecasting, and spend less time raising money. They will also be pursuing corporate sponsors for specific projects (videos, etc)

2.2 Education

Sun Valley Avalanche Center Project is developing an avalanche box for children, full of educational materials and props (slide shows, hands on, shovels, beacons, drawings, descriptive materials) and patterned after Forest Service Wilderness Education boxes. The Forest Service is trying to get these boxes to science teachers in central Idaho, and then expand the program. The Sun Valley Avalanche Center received a small anonymous grant to pursue this idea. Doug thinks specific projects like this are good fund-raising tools, because companies and individuals like to know where their money is going specifically.

3. ALASKA (Jill Fredston)

Jill Fredston operates the Mountain Safety Center in Anchorage, Alaska. In Alaska, their target group for avalanche education is the people who are getting caught in avalanches, primarily backcountry users. The skill levels of this group have changed over the years. Twenty years ago it was very experienced climbers (guides) who were caught. Over time the skill level of climbers who are caught in avalanches has decreased. Also, now it is often snowmobilers, again those users with high skill

levels, who are getting caught in avalanches, but the skill level of this group is expected to also change.

Jill thinks it is important to avoid stereotyping groups. The information you present is pretty much the same, though you may tailor slides, etc. to be relevant to a particular group of users. Their target group is changing to include real estate professionals, homeowners, and civic planners.

When they design training, they begin by identifying objectives. With advancing skill levels it is important to do field training with small teacher/student ratios to effectively teach this group. If increasing avalanche awareness is your goal, more people can be taught at one time.

The Mountain Safety Center does multi-day workshops in all of their training. Also, they do specific snowmachiner field training. They try to build in to their curriculum the element of discovery and make the training participatory and teach concepts rather than rules of thumb to avoid regional biases. They try to keep all information relevant to the needs of the students.

They find that pre-course work is really helpful because it gets people thinking about avalanches before they arrive for the class. They use scenarios, small group problem-solving, first hand accounts on audio tapes, videos, slides, etc. as a means of teaching skills because people learn in different ways. They try to teach by example and make limitations of the training clear. They emphasize making decisions on collection of key pieces of data, and encourage the use of an avalanche hazard checklist to assist decisionmaking. This takes the subjectivity out of decisionmaking. People are taught how to listen to the message and to understand the data they are seeing.

3.1 Primary Obstacles to Avalanche Education

There is a shortage of qualified avalanche instructors. Jill thinks there is a tendency to think that good avalanche specialists/workers are good avalanche instructors, and vice versa. Some ways to build this instructor pool are exchanges, mentor programs, and cyberspace. Also we need to make education more widely available. More funding would help. Educational messages can be incorporated into school curriculum, and also the outdoor industry. There is no lack of public interest in Alaska but educating the media is important because the myths about avalanches can be perpetuated there. Fact sheets have been useful to counteract that misinformation and key media should be involved.

4. ICELAND (Magnus Magnusson)

Magnus Magnusson heads the avalanche information and forecasting office at the Icelandic Meteorological Office. Iceland has avalanche education programs but these are currently not very comprehensive. They have a select education program that focuses on rescue teams because it is common for outdoor users in Iceland to belong to rescue teams. After 1995, they began to increase awareness of avalanche education outside of that limited sphere, and began sending people abroad to learn more.

For this discussion, however, Magnus focused on the education of villagers and farmers, a group that suffers fatalities but that has received very little avalanche education. He presented a graph showing the fatalities in these target populations since 1600 – villagers, farmers, and “travellers” (exclusive of recreational travel). Information targeted to farmers and villagers has been limited to a 30 minute video, shown when the weather is bad, and it transmits routine information

Magnus's main question to the group was, “How can we educate the people who are exposed to avalanche danger in their everyday life?” Putting themselves in danger is not a choice they make. These are people are exposed to the danger in their homes. Repeated and extended evacuations of these villages seriously affect the people psychologically and they have begun to move away. His feeling is that better knowledge of the level of danger will help them cope with the situation. The avalanche danger exists 10-40 days out of the year. What, and how, can we educate these people? What groups do we target? Do we go into kindergarten or other schools and tell them about what an avalanche is?

The Icelandic avalanche office gets phone calls in the middle of the night from people who are scared because it is snowing outside. How can he alleviate their fears?

5. JAPAN (Yasuaki Noguchi)

Yasuaki Noguchi is a research scientist at the National Research Institute for Earth Science and Disaster Prevention. The number of avalanche-related deaths in Japan in the last 100 years was 5000, so there is a very serious problem in Japan. There has never been much interest in avalanche education, however.

Researchers must do something. Yasuaki will introduce such a challenge in Japan.

He showed a slide of an avalanche simulation experiment with people and ping pong balls. It consists of two parts – scientific and education. Beginning with 5 people and balls, one vanishes down the chute and is the world's first victim of a pingpong avalanche.

Yasuaki also demonstrated a hand held avalanche simulator as an educational tool. It consists of an enclosed plexiglass square tube of tiny glass beads in a fluid. As you tilt the tube the beads simulate avalanche motion. He also has a very small version of this tube as a small scientific toy. Avalanche education can be assisted with such tools.

In Japan, there are a few avalanche education courses, but not enough. The Japanese Society of Snow and Ice puts on this education, and they have three kinds of classes – one for climbers, one for the general public, and one for Japanese Association for Mountaineering. They are not so perfect because they are only 1-2 days long, and have only 2-3 instructors. Unfortunately, the avalanche instructors are not participating at this ISSW, or they could provide much more detail about the education program.

6. NEW ZEALAND (Ian Owens)

Ian Owens is a professor in the Geography Department at University of Canterbury in Christchurch, New Zealand. He says that New Zealanders do not live in the snow zones. They only travel in avalanche areas on one public highway, and so most of the fatalities are a result of playing in the mountains; often mountaineers. There has been one avalanche fatality resulting from heliskiing in New Zealand.

To date, there have been no snowboarders killed, and there isn't much snowmobiling in New Zealand mainly because there is no snow on the flatter valley bottoms. Avalanche fatalities are increasing, though the average is still somewhat less than 2 a year. When they did introduce a serious avalanche safety course, however, the number of fatalities declined but then rose again. There has also been an increase in incidents on ski slopes, mainly of those working on ski slopes. During the period 1981-1996, 60% to 75% of avalanches fatalities are related to climbing and about ¾ of non-fatal involvement were ski related (rescues being more likely).

In 1978, Ed LaChapelle set up the first proper avalanche course in New Zealand. This education has been carried on from there to a certain extent. They imported Canada's avalanche training scheme in the mid-1980s and now conduct two levels of professional courses, include avalanche education in components of climbing courses, and the New Zealand Mountain Safety Council (NZMSC) conducts Avalanche Awareness courses with 300-600 people each year.

Innovations include actively promoting the development and use of slide sets. No videos have been produced but they have access to videos made by others. Also, a recreational course has been added.

They have already had snowboarders attending their courses, and have had instructors who were on snowboards as well.

7. SWITZERLAND (Jurg Schweizer)

Jurg Schweizer is a research scientist with the Swiss Federal Institute for Snow and Avalanche Research in Davos. He began by showing a graph of fatalities of 31 years of avalanche fatalities in the Swiss Alps. In the 60s and 70s, quite a number of people were being killed in their houses. Now, in the 80s and 90s, most of the fatalities are recreationalists. In backcountry ski areas, between 20-40 percent of recreationists are out-of-bounds skiers, and most are snowboarders.

They have seen a successful project last winter, cooperating with the snowboard school that offered avalanche awareness course, called "Basics of Powder - the Free Ride." They educated about 150 snowboarders through that program.

Avalanche education is given mostly by Swiss alpine clubs and other organizations. During the last 15 years the avalanche bulletin is being integrated into courses as the main source of information. Also, human factors have been included in the curriculum and formalizing the curriculum has taken place.

8. FRANCE (François Sivardière)

François Sivardière is director of the National Association for the Study of Snow and Avalanches (ANENA) in Grenoble. In France, over a 25 year period they averaged 30 people killed by avalanches each year. Two kinds of

public are involved in these accidents - backcountry skiers and out-of-bounds skiers. The backcountry skiers are more or less aware of avalanche dangers, but out of bounds skiers are almost not aware at all.

For those who are aware, ANENA tries to tell them how to avoid avalanches. For those who are not aware, they try to make them aware of the problem.

Concerning public education, the first group of concern is the new practitioners who have no experience and who are increasingly involved in avalanche accidents - snowboarders and snowshoers. The second concern is that many who go in to the mountains are hard to reach. Those who belong to a club are easy to reach, but most of the snowboarders and snowshoers are not.

To transmit information, ANENA has books, slide sets, videos, and a web site. They do as many conferences as possible, and offer as many training courses as possible (usually they last about 2 days). To reach the general public, they try to get articles in the newspaper and on radio. Since last year, they have begun to sponsor an education conference for people who work in ski and snow shops to help them educate people who buy or rent.

Main problems are:

- 1) Lack of funds.
- 2) Media writing incorrect information. They try to inform then, and write some papers for them.
- 3) Non-French speaking people visiting. In some years, this group represents about 50% of total fatalities.

9. CANADA (Randy Stevens)

Randy Stevens is with the Canadian Avalanche Association in Rossland, British Columbia. Randy began with a rundown on what they are doing in Canada, and the challenges they are facing. He showed a graphic of accidents statistics for the past five years. The big problem seems to be in backcountry use with a dramatic increase in snowmobile accidents. The average number of fatalities per year is rising. This results from increase in backcountry use.

Avalanche fatalities in Canada occur most frequently in the populated mountainous areas of

the country, specifically in southern British Columbia and Alberta, although they have seen an increase in accidents in the north, as well as Quebec and the Atlantic Provinces. Avalanche accidents related to industry -- buildings, on roads, and worksites -- are going down, and those related to recreational activities are increasing.

Avalanche education in Canada got going in 1971 with the first professional course designed for people interested in working in the avalanche industry. That grew into the Canadian Avalanche Training School. Out of that came people who knew about avalanches, but there was no established standard for recreational avalanche safety training. The technical courses didn't teach decision making skills for recreational use.

There appeared to be a need to come up with guidelines for recreational avalanche safety training courses. The Canadian Ski Patrol System (CSPS) and the Canadian Avalanche Association partnered to set guidelines. These courses would be delivered by private industry with guidelines set by the Canadian Avalanche Association as an "avalanche course in a box"

Problems presented themselves in the area of maintaining instructor quality.

In eastern Canada, it seems the recreational program (ROC) is more appropriate for the needs in eastern Canada. There are two levels -- introductory and advanced -- that will be put in place in that part of the country.

Of the 22 fatalities last year, 6 were teenagers, indicating a problem in educating youth. A pilot project was put together by CSPS to increase awareness in the schools. Last year they reached 3000 high school students with a 1-hour lecture. This will be incorporated into the "Smart Risk" program called "Snow Smart", as well as into the 10th grade physical education curriculum.

BC Highways has a great training program, and are leaders in industrial avalanche safety education.

10. QUESTIONS AND COMMENTS

Q. (To Magnus) If you want to reach the communities as a whole, you have to start with the kids.

A. Perhaps avalanche education boxes, like those from the Sun Valley Avalanche Education Center, would help awareness. What do you do with village elders? They often downplay the danger because

news of this could have a serious economic impact to a village.

Comment: A lot of school systems get a weekly reader such as Ranger Rick. Those types of magazines are always looking for information to go into those readers. Perhaps we could write for those.

Q. (To Magnus) The information you are looking for is much different than simply avalanche awareness education. If he were a villager in Iceland, he would be more interested in knowing where his house is on a hazard map, and what the impacts would be on his family. Perhaps avalanche education there should emphasize what people can do to minimize their risk.

A. He agrees. It is also a question of going through a generation of avalanche education. The concept of building homes with a "bunker in the basement," like the Swiss, has come up, and the responsible authorities need to be educated about such possibilities. The Architectural Society of Iceland raised serious doubts if the avalanche defense structures are necessary; they say the villages should just be evacuated. We must educate them and tell them this is not so easy. There will be accidents in forecasting, and mistakes will be made. The psychological effect of evacuation is serious to the population.

Comment: It seems like there are similarities and differences between the nations. Would it be possible for this group to get together before the end of the conference and summarize its thoughts into a few statements or advice to the avalanche educators around the world? He isn't sure this is possible, but it would be a good opportunity.

Comment: What stuns her is the lack of class materials in educating about avalanches. She wants better pictures and diagrams like the ones she saw up here. She thinks she can do a service by just teaching the basics. If she as an instructor can have access to these materials, she can do a better job.

Comment: Three years ago they instituted a pilot avalanche education program in Pinedale, Wyoming in the science classes. It has proven to be a valuable way of exposing young people in a mountain community to avalanche awareness -- kids approaching the high hazard group. Doug

might want to consider the packets, and address it not just to elementary, but also to secondary students.

Comment: On education part, you might teach young people to view avalanches as a natural occurrence and not just "white death".

Comment: He was involved with backcountry skiing and snowboarding publications. They ran an education piece with each issue, a Q and A session. Bruce Tremper provided the introduction and information. Maybe it would be possible for local avalanche experts to be involved with local and regional newspapers. Educate people and the media at the same time.

Comment: It was mentioned earlier that the films shown with skiers (with safety gear) could help educate people. Perhaps we can reach the shop people by having AAAP attend the national trade shows. He thinks they could obtain space for free. Convince them that avalanche awareness is a good thing for their business.

Q. AAAP he believes has an education committee. Are they dealing with these issues and questions in an effective manner?

A. (Jill) It is in the works. It has had peaks and valleys over the years – qualified instructors, course content to be discussed further in the Association.

11. CLOSING REMARKS (Geoff Freer)

Interest has been high and there have been a number of excellent suggestions and comments brought forward in this session. In order to move forward we could consider the having a entire half day education session at the next ISSW that could include some of the following:

summary of examples of actual course outlines and materials,

a summary of different types of courses (recreational vs industry),

educational tools, and

presentation of instructor standards from different areas.