

AVALANCHES AND THE 2002 OLYMPIC GAMES
A Panel Discussion

Moderator: Bruce Tremper

Panelists: Doug Abromeit, Tom Leonard, Jim Steenburgh, and Chris Stethem

GOAL: Identify problems and issues that affect avalanche safety at large alpine events and propose solutions and suggestions.

KEYWORDS: avalanches, avalanche defense, avalanche protection, avalanche forecasting, avalanche countermeasures, avalanche rescue

1. INTRODUCTION (Bruce Tremper)

The Olympics are a huge deal. One to one- and a half-million people are expected in Salt Lake City, Utah in February 2002. Bruce Tremper and the Utah Avalanche Center is interested in identifying avalanche problems associated with the Olympic Games. Suggestions and solutions are solicited from the panelists and audience.

2. ROLE OF THE USDA FOREST SERVICE AT SNOWBASIN (Doug Abromeit)

Doug Abromeit is the Director of the USDA Forest Service, National Avalanche Center in Ketchum, Idaho. Doug is assisting in the implementation of Snowbasin Ski Area avalanche safety plan for the 2002 Olympic Games and addressed the role of Forest Service at Snowbasin, the Olympic Games, and challenges they are facing.

Snowbasin Ski Area is a charming little, community-based ski area outside of Ogden, Utah, on National Forest land, and operates under a special use permit. A few years ago, Earl Holding, one of the richest men in the U.S., purchased Snowbasin and left it essentially the way it was until last summer, when an extensive expansion effort began in preparation for the 2002 Olympic Games Super-G and downhill ski races. Typically, before a ski area on National Forest land can embark upon an expansion, the Forest Service does an Environmental Assessment (EA) or Environmental Impact Statement (EIS), analyzing the environmental impacts of the expansion, including avalanche control, forecasting, and protecting the public safety. Snowbasin, accurately so, recognized that there was going to be a lot of public opposition to

expansion, and in general to the Olympic Games being held on public land. The environmental assessment process was bypassed when Snowbasin convinced the Utah Congressional delegation to attach a rider to a larger bill mandating that the Forest Service trade the public land it held at the base of the ski area to Snowbasin, a private landholder, and authorizing the expansion of Snowbasin without the requiring an EA or EIS. This situation has created a unique relationship between the Forest Service and Snowbasin.

The current situation is that a ski area exists, currently undergoing a giant expansion, with a base area that became private property, with no Environmental Impact Statement available. The reason this is important is that, avalanche-wise, under normal environmental analysis the Forest Service can specify number of ski patrollers, the avalanche control methods to be used, and other parameters that predicate the authorization to operate. This type of leverage is not available in this situation.

As we all know, ski area owners are willing to spend money to build and develop lifts and lodges, but not on avalanche control, ski patrol, and other public safety measures. This is definitely the case at Snowbasin. The management of Snowbasin has authorized millions of dollars for new lifts and lodges but very little for avalanche control at this point. Management is seemingly unwilling to fund a state-of-the-art avalanche control program.

The Forest Service, Ogden Ranger District asked Doug if he would try to facilitate a solution, a way to convince Snowbasin to spend the money to get up to speed on public safety. The task is not overwhelming because (1) Snowbasin has an excellent snow safety director in Tom Leonard, and (2) the Liam Fitzgerald, Snowbird's snow safety director, had previously

written a comprehensive snow safety plan for the proposed expansion.

Therefore, Doug is focusing his efforts on (1) assuring that there are enough experienced ski patrollers and (2) finding a way to control the avalanche hazard in the expansion area (NoName). Options have been considered for controlling avalanches. The use of military artillery turned out not to be an option because, although the ski runs are on public land, the artillery would have to be staged on private land at the base area, and that is a prohibited practice by army law. The second, chosen, option is to install GAZ EX® avalanche release systems. Snowbasin has agreed to install GAZ EX® next summer so they can control hazard in the NoName expansion area. To Doug's knowledge, this would be the first use of GAZ EX® technology in any U.S. ski area.

Dictating ski patrol staffing is much more difficult, because the ski area may perceive this as interfering in their internal affairs. Nevertheless, Doug recommended (1) a minimum number of ski patrollers per day, (2) an increase in their salaries so that Snowbasin is competitive with other Northern Utah ski resorts, (3) that Snowbasin get enough ski patrollers so that they can run mock routes and train people for a year or so before they have to run the actual routes, and (4) that extensive training be provided by internal and external experts. There will be a summit meeting between Forest Service and Snowbasin this October that is expected to result in agreement among all parties on how to proceed. He is confident that this effort will be successful, providing a perfect opportunity to meld the public and private sector.

3. SNOW SAFETY PLAN AT SNOWBASIN SKI AREA (Tom Leonard)

Tom Leonard is the Ski Patrol Director at Snowbasin Ski Area, Utah. Tom is developing the avalanche plan for Snowbasin, host site for the downhill and Super-G events, and has been at Snowbasin for 18 years. He showed a series of slides that provided an overview of the ski area both before and after the expansion. Snowbasin is small, with one beginner lift lower on the mountain, two fixed grip lifts from the lower area to mid-mountain, and the two upper mountain lifts. There will be expansion at both ends of the ski area, but for the Olympic Games they are mainly concerned with the NoName area. The new stuff includes the lift going up to John Paul. Currently

the ski area has 3200 acres, with 2950 vertical feet.

In the 1930s, Ogden City purchased this land from sheepherders to protect their watershed. In 1940, at request of the Forest Service, a rope tow was built, and a chair lift completed by 1946.

Before the newest lifts were installed, extensive weather monitoring was done. There are four weather stations on the Olympic Games course, and the Olympic Committee has seen and passed on the previous weather history he provided, as well as the data coming off these four stations. The University of Utah is improving their weather modeling for Snowbasin. Tom was hopeful that the pressure and money associated with the Olympic Games will filter down to the National Weather Service to improve the quality and frequency of their forecasts. The Olympic Games coaches also need weather data off the runs. The speed of the skiers will be fast, and there will be extensive jumps, so they need to know about wind gusts and timing.

Tom showed slides documenting the placement of gondola footings, lift towers, trams, and how work must progress so rapidly that people are often working on top of each other. Snowbasin has been a minimalist resort, and electrical and sewer facilities are being significantly upgraded with all new power being put into the resort. There is more work being done this summer at Snowbasin than in the entire history of the resort. They need to complete the base area (restaurant, lodges, ticket offices), install snowmaking equipment to cover 1000 acres, do summer grooming, and build roads off the highway.

The terrain on the John Paul side will have three gun towers and five hand routes. They are heavily invested in Avalaunchers, and will be siting nine of them this summer.

4. PREPARATION FOR SPECIAL WEATHER FORECASTING PRODUCTS (Jim Steenburgh)

Jim Steenburgh is a Professor of Meteorology at the University of Utah and is a fellow at National Oceanographic and Atmospheric Administration's Cooperative Institute for Regional Prediction, who are in charge in developing all of the tools for weather forecasting for the Olympic Games. Jim provided overview of this work, including the process of developing a fairly detailed meteorological observing network over all of Utah and the

surrounding states to aid in understanding the weather on the larger scale, which in turn will improve the ability to predict it locally. In the last year, and continuing, the Olympic Games "community" is in the process of gathering venue observations and developing climatologies for the outdoor venues. They are developing a data assimilation system that takes all the surface, radar, and satellite observations and puts them together in a gridded observation analysis that will tell them what is going on at a 2 km scale. They can also initialize very high resolution computer models. He briefly showed examples of weather in the past three winters, during the period in which the 2002 Olympic Games events are expected to be run. They include winds in excess of 120 miles per hour on Mt. Ogden (at Snowbasin), snowstorms that dumped 2-3 feet of snow, record warm temperatures in Park City, hundreds of traffic accidents, and high winds at nearby airports. Their work can be followed on the Internet web site:

<http://www.met.utah.edu/olympics>

There are four major venues for the Olympic Games, each with weather observation stations:

1. Wasatch Mountain State Park: Cross-country/biathlon events
2. Deer Valley: Alpine and freestyle events
3. Park City: Giant Slalom
4. Winter Sports Park
5. Snowbasin: Downhill and Super-G

Avalanche concern is greatest at Snowbasin. There are a few meteorological sites already in place, and at this time there are 6 sites in the NoName area from top to bottom. One site of concern, Mt. Ogden, is probably the windiest spot in Utah. They continue to put in more sensors. Jim showed the graphic array from the Utah Mesonet of weather stations around the Salt Lake City basin, Wasatch Range, and Great Salt Lake.

The University of Utah is involved in three major forecast system support activities:

1. High resolution local data assimilation
2. High resolution mesoscale modeling
3. Taking model output, using statistics to get detailed forecasts for various sites along the courses.

5. MAJOR EVENT CONSIDERATIONS (Chris Stetham)

Chris Stetham was an Avalanche Consultant for the Calgary Olympic Games. Chris directed avalanche preparation for several World Cup events and was an observer at Sarajevo Olympic Games. He touched on a few points about avalanche work at major special events that are different from day-to-day work. There is nothing technically different about the job to be done in a major special event. There is no difference in how avalanches are forecast and controlled, except perhaps in the resources available. Everything else is different, from the people you work with to the timing of the event. The technical nature of the work remains the same, however. He touched on a few of those different things:

5.1. Pressure

Someone else will tell you when the event will be run, and how many television viewers there will be. That is the scope of pressure you have to deal with. The media or officials will ask if you are sure conditions will be alright on the day of the event. Can they run it then? Everything is time dependent. There are 3 phases of this planning: 1) Early Phase, when you have lots of opportunity to help make plans and implement them; 2) Implementation Phase where things are being built and opportunities decrease because of pressures on budget and time and people; and 3) Operations Phase (within one year of the event) where you have no opportunities. Pre-Olympic Game events (tests) are run the year before the actual games.

5.2 Organizational Structure

The organizational structure is quite different from the hierarchical structure most people are used to. The Olympic Games have a series of parallel organizational structures which don't intersect. There is a venue structure, involving the Salt Lake Olympic Organizing Committee and people who own the different venues. There is a large group of volunteers. Finally, there are the Olympic Games technical delegates, who are in charge beginning the first moment of the games.

5.3 People Flow

Pedestrian traffic: Most control plans are oriented around the experience of the user; for example, novice or advanced terrain. Closures are developed around that idea, because they are

oriented around the fall line. At the Olympic Games, people go straight up the hill or across the hill, not down the fall line as in a regular ski area. Seventy-five thousand viewers can be expected, with far fewer skiers (perhaps 5,000). The traffic issue is entirely different and considerations of avalanche management change significantly.

Vehicle Traffic: You have to think differently. The access routes are completely blocked almost all of the day.

5.4 Security

Staff: There will be a lot of people interested in your personal history, and that of the people who work with you. If there is any reason for that personal history to be questioned, you'll have problems. Other issues are those surrounding the storage locations and methods, inventory control, licensing, and other use of explosives. Your work has to be perfect because the heaviest hitters will be there, and there is a fear of terrorist attacks.

Accreditation: The authority issue of who gets to go where under what security clearances, can be a big problem. This can be a problem for workers who need to be closely involved in avalanche work but who are not considered "accredited" to get close to locations or officials.

6. PUBLIC AVALANCHE SAFETY (Bruce Tremper)

Bruce Tremper is the Director of the Utah Avalanche Forecast Center, which is in charge of backcountry avalanche safety for the 2002 Olympic Games. He summarized some of his concerns about avalanche safety:

6.1 The Public and the Olympics

Ways must be developed to educate the public about avalanches that are easy to digest. The Utah Avalanche Forecast Center has developed a simple web page:

<http://www.avalanche.org~uafc>

to help transmit this information, and uses a charismatic mascot, Powder the Polar Bear.

6.2 Security and the Olympics

Security forces will secure the perimeter of all venue sites, most of which is in dangerous avalanche terrain. These people must be trained about avalanches. An interagency avalanche

rescue plan must be developed to coordinate avalanche rescue not only in the backcountry, but for highways and venue sites.

6.3 Media and the Olympics

The Utah Avalanche Center is developing written media packets, Internet media packets, and video media packets. There is an Olympic Games winter symposium planned for the fall before the 2002 Olympic Games to showcase avalanche and mountain weather preparations to the media and public.

7. GROUP DISCUSSION

Q. Was the proposed expansion of Snowbasin Ski Area in place before Olympic Games proposal, or is it occurring because of the Olympic Games?

A. There have been plans in the past for expansion, but the final push obviously came with the Olympic Games. Mr. Holding has owned the resort for 14 years, and the previous owner also had plans for expansion.

Q. Has it been decided who will do weather forecasting for the Olympics?

A. This is one of the biggest sticking points. At the moment, no one is. This is a hot political subject in the U.S. because at the 1996 Atlanta Olympic Games, a number of private companies were upset because National Weather Service was involved and they didn't have an opportunity to bid on the work. There is an impression that SLOOC (Salt Lake Olympic Organizing Committee) wants the National Weather Service to do it, and they may be working on getting Congress to pass legislation that would direct the National Weather Service to do this.

Q. The Salt Lake Organizing Committee is actually many committees. Is there a subcommittee that the Utah Avalanche Forecast Center is working with? Is this group part of a subcommittee of SLOOC?

A. Most of the time SLOOC seems disorganized and doesn't seem to know what is going on. They depend on others outside SLOOC to organize themselves

and come to SLOOC with solutions. Therefore, the Avalanche Center plans to go to SLOOC and tell them what they are coming up with.

Q. Had they yet designated someone in particular to work with each venue?

A. Actually, the only venue that will have an avalanche hazard attached to it is Snowbasin. It is up to Snowbasin to decide. (Comment: Park City has a legitimate avalanche hazard). There is no one at this point designated as the overseer of avalanche control and safety for these venues. There will be a meeting in mid-October 1998 involving the Forest Service, National Weather Service, Department of Transportation, security, ski areas, rescue groups and SLOOC to iron out the questions and designate contact individuals (Comment: The Winter Sports Park jumping area is another venue with obvious avalanche hazard. This hazard is being created by moving large parts of a mountain around. Photographs are available which prove this.)

Q. Among these various interests, who is responsible for preparing the competition surfaces, what methods are being used, and what are the plans if there is a major Wasatch dump?

A. It is a loaded question. In Calgary, Chris became the specialist. The greatest example of hazard he had ever seen was in Sarajevo, when a big snowfall occurred and the untrained army was brought in. They went up there with shovels and equipment, and were shoveling when the avalanche was released. There could be thousands of people who know nothing about avalanches who could be suddenly be involved.

Q. A suggestion was put forward that ISSW is a perfect venue to join forces and present a united viewpoint to SLOOC of how to deal with avalanche problems.

A. One of the problems is the bureaucracy of the Salt Lake Olympic Organizing Committee and the problems that exist there in terms of snow safety

and weather. This cuts across all the sub-organizations within SLOOC. Avalanche forecasters have been dealing almost exclusively with the sports groups because they are the ones that need information first. Transportation and security are too busy worrying about other things at the moment. They have been trying to get an Olympic weather director appointed within SLOOC. Perhaps someone needs to be appointed as a snow safety person to act as a liaison.

8. CONCLUSION (Bruce Tremper)

The 2002 Winter Olympics in Salt Lake City is a huge project. A million and a half visitors are expected in Salt Lake City with a television viewership of a billion and a half. The Wasatch Range of Utah is one of the most avalanche prone areas in the U.S., and it receives more inches of snow per year than nearly any other place in the U.S. This, combined with a population of 2 ½ million people will put tremendous pressures on all the avalanche workers in northern Utah to keep avalanches out of the news during the Olympic Games.

The organization of these efforts began a year ago and will involve a significant portion of many avalanche worker's jobs for the next 3 ½ years until the Olympic Games. Even after the Olympic Games, international exposure is expected to dramatically increase tourism for the following several years. A series of meetings will begin this fall to identify all potential problems associated with avalanches and mountain weather and come up with an integrated plan. This will involve a significant amount of additional funds and extra work for all avalanche and mountain weather workers in Utah. But in the long term, it will leave a legacy of much-improved avalanche and mountain weather operations and smoother cooperation among the involved parties.