Snow and Avalanches in Utah

Annual Report 2005-2006

Forest Service Utah Avalanche Center

In partnership with:

Utah Division of State Parks and Recreation
Friends of the Utah Avalanche Center
National Weather Service
Utah Division of Emergency Services and Homeland Security
Salt Lake County
Utah State University

Tom Martins photo: Explosive testing in Cardiff Fork produced one of the largest avalanches of the season in an otherwise very stable year.

Cover photo: by Tom Martens. An explosive triggered avalanche in Cardiff Fork (same as above photo).

All photos in this report are taken by the staff of the Forest Service Utah Avalanche Center unless otherwise noted.

Copies of this report can be obtained by writing, calling or e-mailing:

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Or view online at: uac@avalanche.org

www.avalanche.org and click on Salt Lake

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The Forest Service Utah Avalanche Center—An Overview

Our goal:

Help keep people on top of the Greatest Snow on Earth instead of buried beneath it.

Where do avalanche accidents occur?

Ninety nine percent of all avalanche fatalities occur in the backcountry—areas outside of ski area boundaries where no avalanche control is done. Ski areas and highway avalanche control crews routinely knock down avalanches with explosives before the public arrives each morning. They have done their jobs so well that since 1980, less than one percent of avalanche fatalities have involved general public on open runs at ski areas or on open highways.

What kind of people get caught in avalanches?

Ninety two percent of people killed in avalanches since 1985 have been recreationists, and they are almost always very skilled in their sport. In almost all cases their skill in their sport significantly outpaces their avalanche skills. Looking at the most recent 5 years of national data, nearly twice as many snowmobilers have been killed as any other user group, followed by climbers, backcountry skiers, snowboarders and miscellaneous recreationists such as hikers and snowshoers.

How do people get caught?

In over 90 percent of avalanche fatalities, the avalanche was triggered by the victim or someone in the victim's party. Which is actually good, because it means that, 90 percent of the time, we can avoid avalanche accidents through our route finding and snow stability decisions.

In summary, avalanche fatalities occur almost exclusively in the backcountry, almost always involve recreationists, and almost all avalanche incidents can be avoided if we choose.

We give backcountry travelers the weapon of knowledge. In order to avoid triggering avalanches, backcountry travelers need:

Critical, up-to-date avalanche information.

Our avalanche advisories give the public critical avalanche information they need to make their life-and-death decisions in avalanche terrain and we forecast snow stability and weather trends into the future. Our information helps the public to decide what kind of terrain is safe, what kind is dangerous and we give them useful clues to look for when they venture into avalanche terrain.

The public can access these advisories in the following ways:

- Recorded telephone message updated each day
- Live interviews each day on three different public radio stations
- The Internet
- E-Mail
- In times of extreme or unusual avalanche conditions, we issue an avalanche warning that reaches all the broadcast and print media as well as NOAA weather radio.

Finally, we "preach the avalanche gospel" as much as possible to the local, national and international media. This season, for instance, several documentaries played on national television including the WeatherChannel, Discovery Channel, the Wall Street Journal, Skiing Magazine, National Geographic Adventure and Backpacker Magazine. The Forest Service Utah Avalanche Center staff is featured in all of these documentaries.

Avalanche education:

The UAC staff teaches about 30 free, basic avalanche awareness classes each season and the Know Before You Go program teaches 120 classes and reach over 18,000 people. These not only give the public an overview of the avalanche problem, but also some basic avalanche skills. These classes encourage the public to take a more involved avalanche class offered by the private sector.

Our web site is our newest focus on avalanche education. We have added an avalanche encyclopedia which explains many terms used in backcountry travel. Using web photo galleries with captions explaining different aspects and routines in simple terms is a very effective way in teaching inexperienced backcountry users. We are also providing more detailed information for advanced users in the form of snowpit diagrams and seasonal weather history charts.

How We Help Solve the Problem:

Just because people read or hear the information doesn't mean they listen. Therefore, we try to make the advisories entertaining so that people will remember what they read and hear and enjoy the experience enough to use the advisories regularly. We try and use all the standard tools of effective writing and speaking such as using active voice, first person, personal examples and stories to illustrate points, humor where appropriate and reading the bulletins in a natural voice, like talking to a friend. The recorded bulletins are informal, chatty and funny, yet informative.

We believe local forecasters do a much better job than distant forecasters.

Local people know local conditions better. They can get out in the mountains every day, they see weather and snow out their window and they talk with people on the street about it. Because of this, we believe that local people should issue avalanche bulletins for local areas, as long as they have the avalanche skills to do so. For this reason, four crews of avalanche forecasters operate in Utah, one forecaster operates in Logan, four in Salt Lake City, one in the western Uinta Mountains and two others cover the Manti Skyline and the La Sal Mountains near Moab.

We believe in a strong field-based program.

Avalanche forecasting is just as much art as science. And because of this, computers never have, and most likely never will, be able to forecast avalanche hazard as well as an experienced and skilled human being. Avalanche forecasting works best when the forecaster has an intimate, daily connection to the snowpack. We notice that the longer we spend in an office, the more out of touch with the snowpack we become. Therefore we always put in one or more field days before our forecasting shift, and we seldom have more than two forecast days in a row.

This is our philosophy and it seems to be working. More people access the FSUAC bulletin each season than any other avalanche advisory in North America, and the number keep increasing by an average of 20 percent per year. The numbers of people going into the backcountry keep increasing exponentially, yet the death rate has risen more slowly. We also see an increasing demand for avalanche education and information, not only by Utahans, but also by the national and international media.

A Look Under the Hood

The UAC is operationally separated into four entities:

- Bear River Range (Logan area – northern Utah and southeast Idaho)
- Wasatch Mountains (Ogden, Salt Lake, Park City and Provo area mountains)
- Western Uinta Mountains (Mirror Lake Highway, Weber Canyon, Evanston WY, Daniel's Summit)
- Manti Skyline (FairviewCanyon – Wasatch Plateau)
- La Sal Mountains (near Moab)

Toby Weed staffs the Logan operation with Dave Kickert as an assistant. Kickert is employed by Utah State University. A generous contribution from the Utah State Parks funds this position.

Based in Moab, Max Forgensi and Dave Medara forecast not only for the nearby La Sal Mountains but they also issue weekend forecasts for the Wasatch Plateau—Manti Skyline area. The Moab office is located in the Moab Ranger District on the Manti-Lasal National Forest and us supported by both the Moab Ranger district and a generous contribution from Utah State Parks.

Craig Gordon issues forecasts for the western Uinta Mountains and also does the lion's share of avalanche education for snowmobilers in northern Utah. This position is supported by a generous contribution from Utah State Parks.

Last, but not least, the vast majority of the backcountry use occurs in the Wasatch Range of northern Utah. A staff of four full time workers covers the Ogden, Salt Lake City, Park City and Provo area mountains—arguably the most heavily used mountain range in the U.S. Bruce Tremper, in his 20th season, is the Director. The rest of the very experienced Salt Lake staff include: Evelyn Lees, Drew Hardesty and Brett Kobernik. All are Forest Service employees under the Wasatch-Cache National Forest. The Salt Lake office is co-located with the National Weather Service at the Salt Lake International Airport.

Finally, a private, nonprofit group, the Friends of the Utah Avalanche Center, contracts a number of "volunteer" observers, who are reimbursed for their expenses at around $10.00 per day. They also hire the intrepid Bob Athey as a full time backcountry observer.

The Utah Avalanche Center is a Forest Service program under the Wasatch-Cache National Forest and the Manti-La Sal National Forest, in partnership with Utah State Parks and Recreation, Utah State University, the State of Utah Department of Public Safety, Division of Emergency Management, Salt Lake County, the National Weather Service and private contributions through the Friends of the Utah Avalanche Forecast Center.

The public can access the bulletins in the following ways:

Telephone:

Salt Lake City - (multi-line PBX system at the University of Utah)	(801) 364-1581
Logan (multi-line PBX system at Utah State University)	(435) 797-4146
Park City (multi-line PBX system at Park City Resort)	(435) 658-5512
Ogden (multi-line PBX system at Weber State University)	(801) 626-8600
Provo (multi-line PBX system at Brigham Young University)	(435) 378-4333
Western Uinta Mountains (courtesy of Utah State Parks)	(800) 648-7433
Alta (multi-line PBX system through the Town of Alta)	(801) 742-0830
Moab (single phone line)	(435) 259-7669
Manti Skyline (courtesy of Utah State Parks)	(800) 648-7433
Snowmobile hotline (courtesy of Utah State Parks)	(800) 648-7433

Radio Stations - live on-air reports each morning
KRCL 91 FM (7:50 am weekdays)
KPCW 92 FM ((8:06 am weekdays)
KCPW 105.7 FM (8:04 am each morning)

Internet:
http://www.avalanche.org (Avalanche.org is a non-profit avalanche web site run by the professional avalanche community in the U.S.)
http://www.wrh.noaa.gov/Saltlake (National Weather Service)
http://www.csac.org (Cyberspace Snow and Avalanche Center)
http://www.utahavalanchecenter.com (Friends of Utah Avalanche Center)

E-mail:
We offer daily automated e-mail of the advisories free of charge

To contact our office: (801) 524-5304 (phone)
(801) 524-4030 (fax)
e-mail: uac@avalanche.org

How We Generate Avalanche Advisories

We split our time more or less equally between the mountains and the office. For the Wasatch Range, a staff of four people rotate through the office in which one person comes in at 4:00 am to issue the forecast for the day while the others either head into the mountains to look at avalanche conditions, teach avalanche classes or come into the office at a more reasonable hour to work on various computer or education projects.

Field Day:
A typical field day might begin at 6:00 in the morning. Like most avalanche professionals, we click on our trusty NOAA weather radio shortly after getting out of bed for the latest weather forecast., then, we fire up our home computer to look at the data from all the automated mountain weather stations. Like everyone else, we call our own avalanche advisory to get the latest information. Finally, after calling the forecaster for the day to check out, we jump in the car or on the bus and head for the mountains.

The forecaster in the field usually travels on skis or snowmobile or both, using all the usual safety equipment like electronic avalanche beacons, shovels, probes, belay rope and cell phones. We seldom have a regular patrol area, but simply go to the area that concerns us the most, or to a place that we know is representative, where we can safely look at snow on a variety of aspects, elevations and terrain types. We almost always go into the backcountry—meaning areas outside ski area boundaries where no avalanche control is done. Field days are often very labor intensive affairs, using climbing skins on skis to huff-and-puff to the top of a mountain, take off the skins, ski down into another valley, put the skins back on again, go to another ridge, and so on. Along the way we dig a number of "snow pits" in which we systematically test the stability of the snowpack.

Field information comes from many different sources, but the most powerful information usually comes from snow pits we dig on a variety of different slopes, or better yet, from profiles dug at the fracture lines of recent avalanches. A snow pit, like the name implies, is a hole dug in the snow about a 5 feet deep and 5 feet wide. On a smoothed snow pit wall, we perform a variety of stress tests to determine the stability of the snowpack and document the shear properties of weak layers. We also look at the crystallography of the various layers—crystal type, size, strength, water content and density, as well as measure temperature profile. Practiced avalanche professional usually take about 15 minutes for each snow pit. We would rather dig several quick pits in several areas than do one detailed pit in one specific area because we want to know the distribution of the pattern so we can communicate the pattern to the public.

We also test the stability of the snow in other ways, such as sawing off cornices, which bounce down the slope, we keep close track of the pattern of recent avalanches and we always pay very close attention to the present snow surface because it's much easier to map a layer of snow when it's still on the surface then after it's buried by the next storm. Finally, when we get home, we write up our observation, graph the snow pit profiles and e-mail them to the avalanche center and also leave a detailed message on our answer machine in the office, which the forecaster will hear early the next morning. Often, we post photos of the day on our web site as well. Finally, each evening, we often call the person who will forecast the next day and talk to them in more detail, catch up on news of the day and bounce theories off each other. The days invariably end up being long, often racking up unpaid overtime.

It takes years of experience and training to be an accomplished avalanche forecaster, not to mention to be able to do it safely. Most of our staff have degrees in some kind of physical science such as meteorology or geology. We also have a number of years experience doing avalanche control at ski areas, plus, all are accomplished mountaineers with many decades of accumulated mountain experience and several are veterans of mountaineering expeditions throughout the world including Nepal, South America and Alaska. Finally, we all stay in top physical condition so we can efficiently cover lots of terrain.

Office:
The forecaster for the day wakes up around 3:00 am—earlier on storm days—and arrives at our office, co-located with the National Weather Service near the Salt Lake Airport, around 4:00 am. There's only one avalanche person in the office, so the pressure and time constraint is intense.

First, the lead weather forecaster for the National Weather Service briefs us on the general weather setup and then it's time to jump on the National Weather Service computers and give the weather an even more detailed look, so it can be adapted to specific mountain areas. Then, we check our answer machines, faxes and e-mails for field observations not only from our staff, but from a dedicated corps of volunteer observers, ski areas, helicopter skiing companies and highway control programs. Next, the forecaster has to face a blank computer screen and type up a detailed narritive of snow stability and mountain weather and customize the advisory for five different zones in northern Utah. After the advisory goes out via e-mail and on the Internet, we begin recording the advisories into six different telephone systems, each located in a different local calling area for northern Utah and each one customized for a different area. Finally, we, do three live radio interviews. By 8:15 am, we're done and we collapse with relief, take that bathroom break we've needed for the last couple hours and take a walk outside and watch the sun rise and hope that our information is accurate. An average of 800 people call the avalanche recording and four times that number get it over the Internet, and many thousands hear it on the radio.

Then, just when many people are eating their breakfast, we eat lunch. After lunch—or is it breakfast—there's never a lack of telephone calls to answer, reports to write, spreadsheets and web sites to update, computer projects and media contacts. Finally, we issue the detailed mountain weather forecast by about noon, then head home by 1:00 pm.

Season Highlights

- We experienced one of the best winters anyone can remember as far as snow quality, riding conditions and, fortunately, a very stable snowpack.

- Because of the very stable snowpack, avalanche incidents were dramatically down from the record-setting pace of last season in which 8 people were killed. This season, we know of only 45 unintentional human triggered avalanches in the backcountry (the average is 100) with 43 people caught, 17 partially or fully buried, 9 injured and 3 killed. The fatality rate was less than our 10-year average of 4.1 per season.

- We introduced our new graphic-based avalanche advisory, which uses a mixture between graphics and text to communicate critical avalanche information to the public. The new advisory format received almost universally rave reviews. We hope that it allows the public to more easily understand and visualize the complexities of avalanche danger and we hope it translates into saved lives. Many other avalanche centers around the country are adopting this graphic format after our example.

- We began a pilot program of publishing the overall danger ratings in selected newspapers. The program was quite successful and we plan to expand it next season to include all newspapers, radio and television.

- We introduced several new web-based products this season:
    - Season history weather chart which show past weather for the entire season
    - Snow profiles, which show the snowpack structure in an easily-understandable graphic format
    - Avalanche encyclopedia, which has detailed tutorials on various avalanche terms including many flash animations.

- Our staff was featured in several national television and magazine articles including:
    - The Weather Channel
    - Discover-Time documentary about avalanches
    - The Wall Street Journal
    - National Geographic Adventure
    - Skiing Magazine, which featured an 18-page spread on avalanches, which we helped to produce and edit.
    - Backpacker Magazine

Backcountry Observers Program

Once again, observers throughout the range help to keep us informed about avalanche activity, their thoughts on snow pack stability, and photos of recent avalanches. As we only have one to two people in the field each day, these extra eyes and brains out there are a tremendous help.

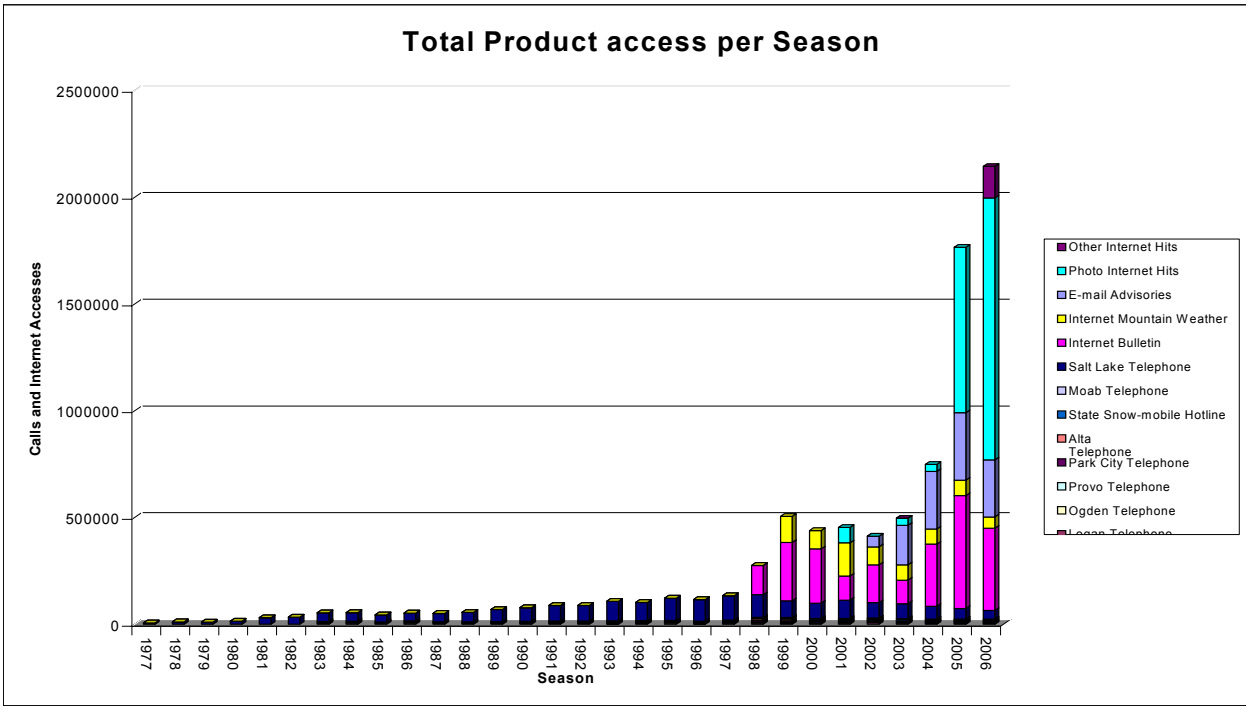
A big thanks goes to the unpaid observers whose steady stream of information into our email box full and messages on our phone answering machines. Whether it's just once a season or on a weekly bias, every observation we receive is another piece in the snow stability puzzle we're trying to complete.

In addition, the Friends of the Utah Avalanche Center's observers program was again an incredible success. The program is made up of two parts, contract observer Bob Athey and the paid "volunteers".

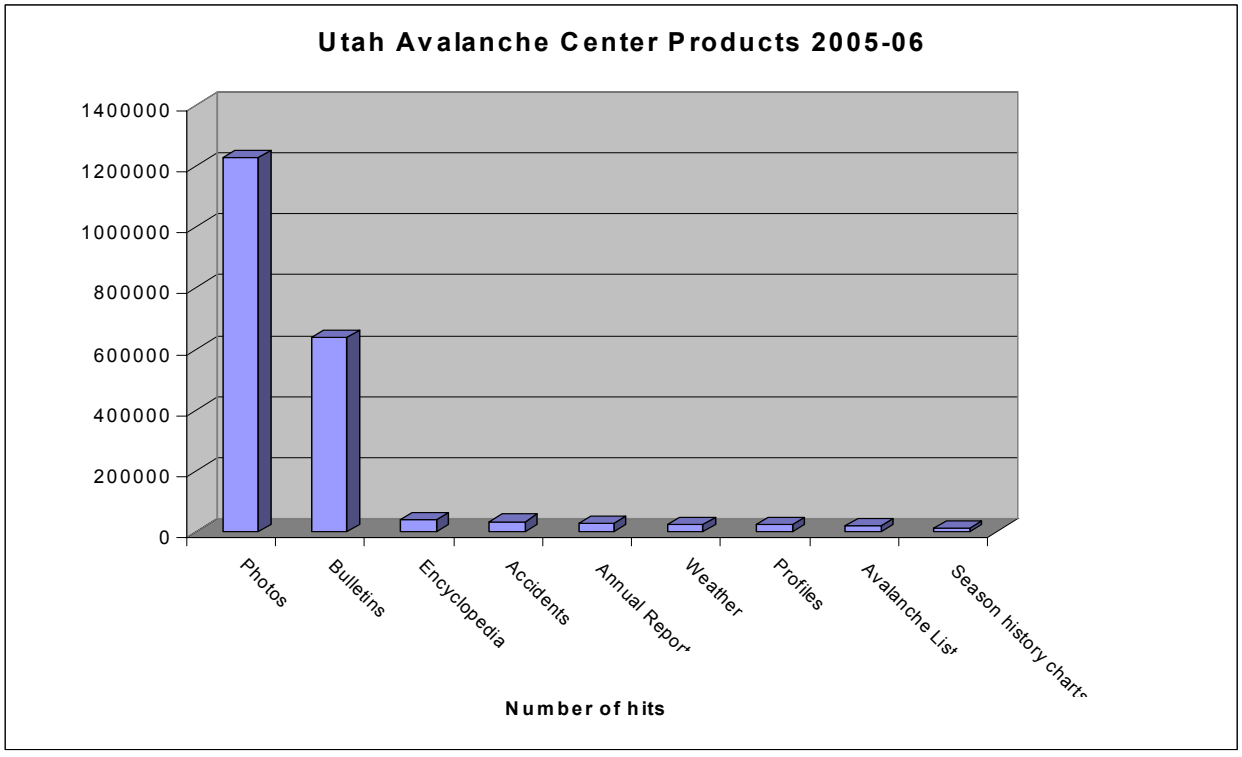
Bob Athey is contracted by the Friends of the Utah Avalanche Center to do observations in the field and report his daily findings. He was first contracted in early 90s and has been with the center since. He also is an instructor for the two avalanche education courses the Friends offer each year. Bob has recently become very computer literate and has an excellent understanding of web based products. His detailed compilations of text and photos that document his observations are informative and accurate. Bob also has a very keen sense of the winter snowpack and years of backcountry travel experience which makes it possible to investigate avalanches in areas where many other avalanche workers would not be willing to visit. Bob's years of experience in the Wasatch are probably his biggest asset to the UAC.

The excellent paid volunteer observer's program was started in the late 80's under Brad Meiklejohn, and continues to provide indispensable snowpack information to the staff forecasters. These people receive a very small token of thanks each time they make the effort after a long day in the backcountry to email or phone in an organized observation, often accompanied by photos and pit profiles. The extra effort made by these knowledgeable backcountry travelers and observers to email and phone in great observations makes a huge difference in the morning for us. There have been big changes in the last 15 years, including many more observers, an increased quality in observations and the use of the Internet to send information.

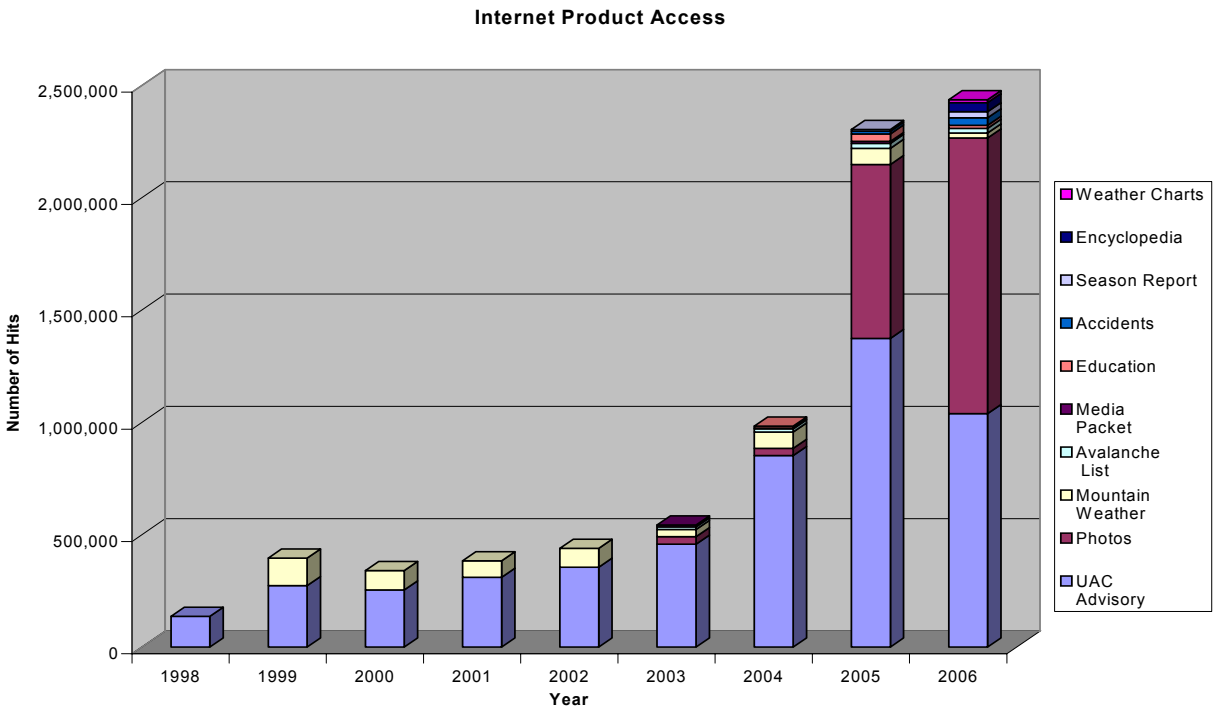
One highlight of the program was the experienced and active group of Ogden observers. This year they kept information about the Ogden area mountain snowpack flowing into our office on an almost daily basis, and they have also helped with accident site investigations over the past two years. Their information is seasoned by many years of skiing and boarding in the Ogden area mountains, a true locals knowledge. We are still looking for growth in our observer network in the Western Uinta, Logan and Provo area mountains.



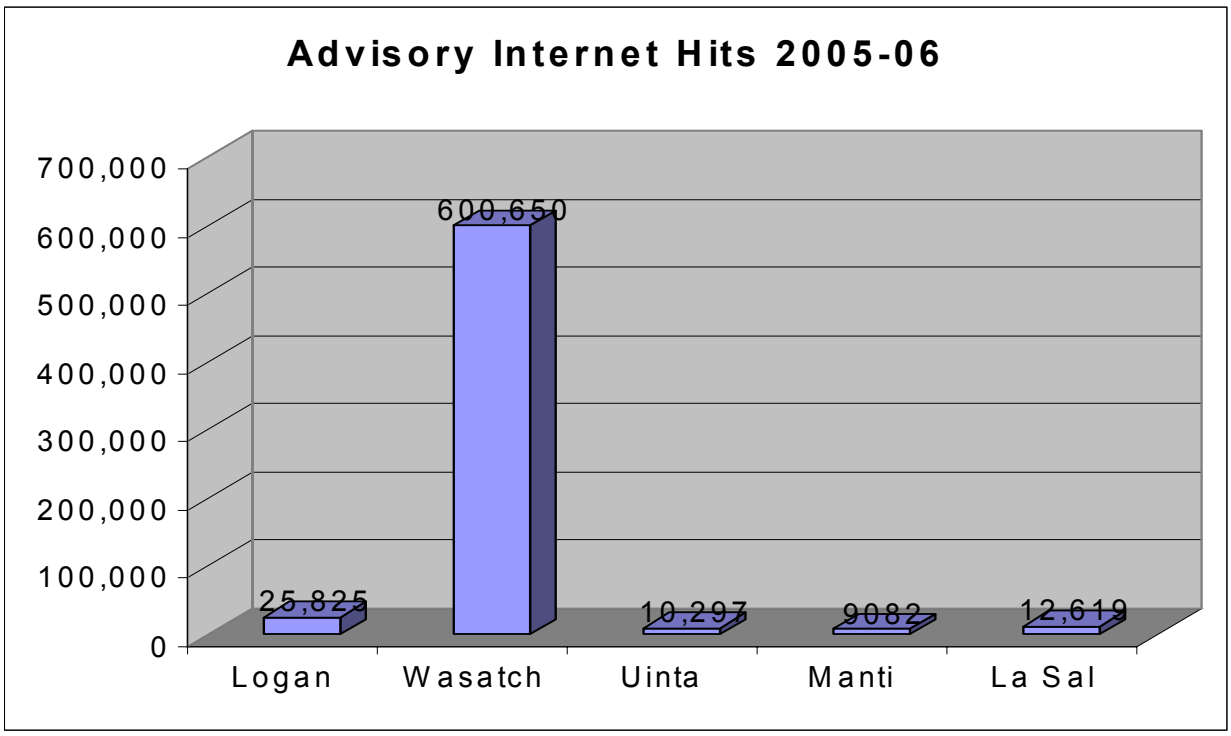
Total product access continues to rise exponentially each season. The telephone used to be the primary way to broadcast avalanche information and it now only accounts for 3 percent of the total product accesses per season. The Internet has definitely changed things.



Apparently, most people get their avalanche information the same way they read National Geographic—by looking at the pictures and reading the captions. Also, we tend to publish an average of two photos per day along with the avalanche advisory, so the numbers are a bit misleading. Still, photos are very popular.



In this chart of just Internet access, the advisory and photos are definitely the most popular products.



Not surprisingly, the vast majority of the use is in the world-famous, Wasatch Range.

Thank you to everyone who contributed to make the Utah Avalanche Center possible.

The Forest Service Utah Avalanche Centers would not exist without support from a broad base of partners and the public. This brief thanks does not represent the value of what each of these entities contributes to our program. Many of these organization's long term commitments have lead to the stability of the Forest Service Utah Avalanche Forecast Center and allowed us to expand our forecast area and pursue innovative communication and education programs. So however small this thanks is, we would like to acknowledge the following people and organizations.

Utah Division of State Parks and Recreation almost single handedly funds three avalanche programs - the Western Uinta Mountains, Manti Skyline and the Logan area mountains – to the tune of $82,000/year. In addition, they generously support the Know Before You Go education program with the loan of a power point projector. Many thanks to Fred Hayes and his cohorts for their generous support.

The Friends of the Utah Avalanche Center keeps our engine running, filling in numerous gaps in our funding, from staffing to observers, education projects and equipment, often raising and spending over $50,000/year. They coordinate innumerable fund raisers and function as a 501c3, smoothing the way for potential partners to work with us. A very special thanks to the volunteer board for all their hours of work and to the miracle worker, President **Colleen Graham**.

Black Diamond Equipment, the company that started it all, both on a local level and as a model nation-wide for company partnership with avalanche forecast centers. It's not just the $8000 they kick in each year, the hundreds of hours of staff time, or the hosting of the annual fund raising party, but also the way they bring the outdoor community together.

The Byrne Family for their annual financial donation to the Friends of the Utah Avalanche Center. Put this one after BD, as that's what puts us over the top financially at that party.

National Weather Service for their generous and long term in-kind support of office space and office supplies, not to mention the unlimited access to personalized mountain weather forecasts.

Snowbird Ski and Summer Resort for hosting the wildly successful Know Before You Go fundraiser with The Friends, raising about $15,000, and for hosting Backcountry Avalanche Awareness week.

Salt Lake County for their generous long term support of $20,000/year.

Utah Department of Public Safety, Division of Homeland Security one of our oldest dependable partners, who contributes generous $25,000/year.

Backcountry.com donated $5000, some of the original seed money to start the Know Before You Go program, plus annual donations of a portion of their sales.

The Utah Snowmobile Association partnered with the **International Snowmobile Association** for a $4000 grant for the Know Before You Go Program and donated $1000 toward the Moffit Peak weather station.

REI provided space for the Friends annual ski swap, rooms for avalanche awareness talks, and a $3000 grant for Know Before You Go.

Uinta Brewing Company for a donation of $1200.

Wasatch Backcountry Rescue donated a power point projector and a laptop to the Know Before You Go project. With help from **Red Pine Rescue** and **The Canyons,** they also bought and operated two avalanche training Rescue Training Centers, open to the public.

Backcountry Access donated a complete Beacon Basin, an avalanche beacon training center that was installed at a snowmobile trailhead in the Uinta Mountains. Each year they also loan us avalanche safety equipment for teaching and demonstrations.

Thanks to our phone line partners, the Outdoor Recreation Departments at: **University of Utah, Brig-**

ham Young University, Weber State University, and Park City Ski Area, allowing us to use their dependable and high quality phone systems for avalanche forecasts.

Deer Valley, Brighton and **The Canyons** who each donated $1000 to the Know Before You Go avalanche education program.

Utah State University for use of their phone lines and for observers/ forecasters salary.

Bear River Outdoor Recreational Alliance donated $250.00 towards the Moffit Peak weather station.

And of course, all of our **individual supporters** who support the Friends of the UAC with their annual financial donations and their volunteer time, we couldn't do it without you.

New Graphic-Based Advisory

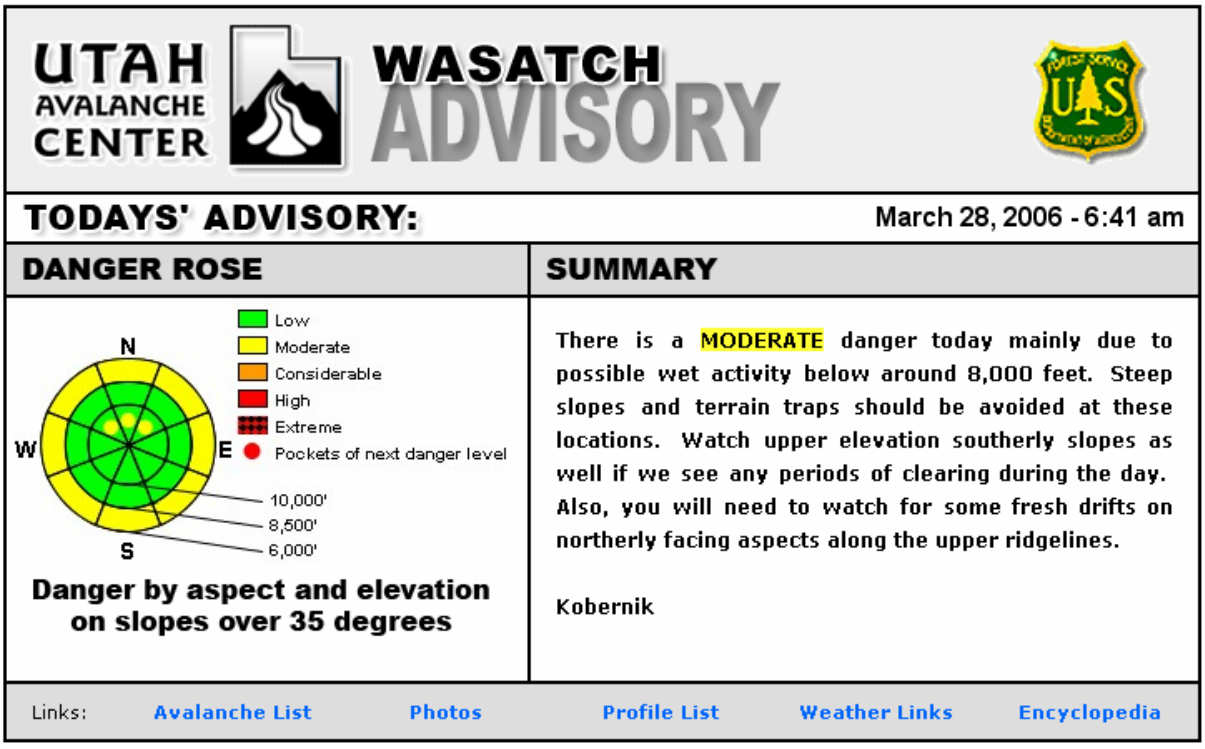
This season, we introduced a graphic-based avalanche advisory, which received rave reviews from a large number of users. As the dissemination of avalanche advisories have transitioned from the telephone recording to the Internet over the past 10 years, we have tried to adapt to adapt our products to the new medium. For the 2002 Winter Olympic Games in Salt Lake City, we introduced an avalanche advisory that used a mixture of graphics and text. Unfortunately, the interface to create the product was difficult to use so when we lost our additional staff after the Olympics, we had to revert back to the old, long, text-based advisory while we planned the next generation of the product.

After creating and testing several prototypes, Jim Conway, a web designer, who is also a professional, extreme skier and guide, designed the new graphic-based advisory. Chris Lundy from the Sawtooth National Forest Avalanche Center did the PHP programming and we went public with the new product around Christmas.

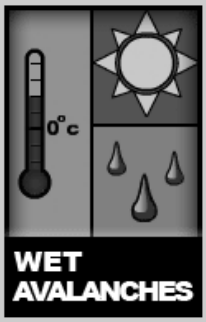
We designed the graphic-based advisory to make it easier for the public to understand the complexities of various kinds of avalanche problems and how they vary by elevation, aspect, size, future trend and how likely someone could trigger them.

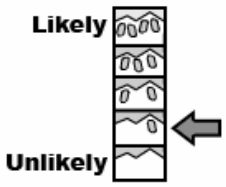
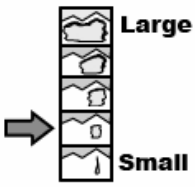
For instance, it is very difficult to communicate how avalanche danger varies by aspect and elevation using only words, but an avalanche rose (an aspect-elevation diagram) can communicate even complex relationships in just a glance. Likewise with the probability of triggering and avalanche, the expected avalanche size and future trend. Finally, we have different icons to denote specific types of avalanche problems for the day. For instance, a backcountry traveler might encounter wind slabs along the upper elevation ridges and wet avalanche activity on low elevation south facing slopes. Each avalanche problem is completely different as far as where you would find it, how to recognize it and how to mitigate the problem.

The public response to the new advisory format has been almost overwhelmingly positive. Still, we plan to make some updates over the summer so that it works even better next season.

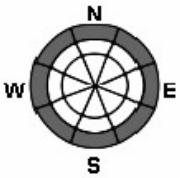


AVALANCHE CONCERN #1:



PROBABILITY AND SIZE		TREND
		
Likelihood of triggering	Avalanche Size	Trend over the next 8 Hrs

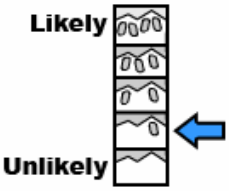
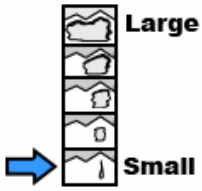
Affected Slopes



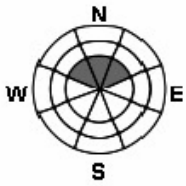
Where is it?

Wet activity at lower elevations will be the main concern today. With warm overnight temperatures only a moderate refreeze will have occurred. Terrain below about 8,000 feet must be approached cautiously. Stay out of terrain traps and out from under steep avalanche paths at these elevations.

AVALANCHE CONCERN #2:

PROBABILITY AND SIZE		TREND
		
Likelihood of triggering	Avalanche Size	Trend over the next 24 Hrs

Affected Slopes



Where is it?

While the dense snow on the surface is not very prone to drifting, southerly winds will transport some snow today. (Photo-transport from Monday) This means you should watch for minor wind drifts at the higher elevation north facing slopes.

RECENT AVALANCHE ACTIVITY:

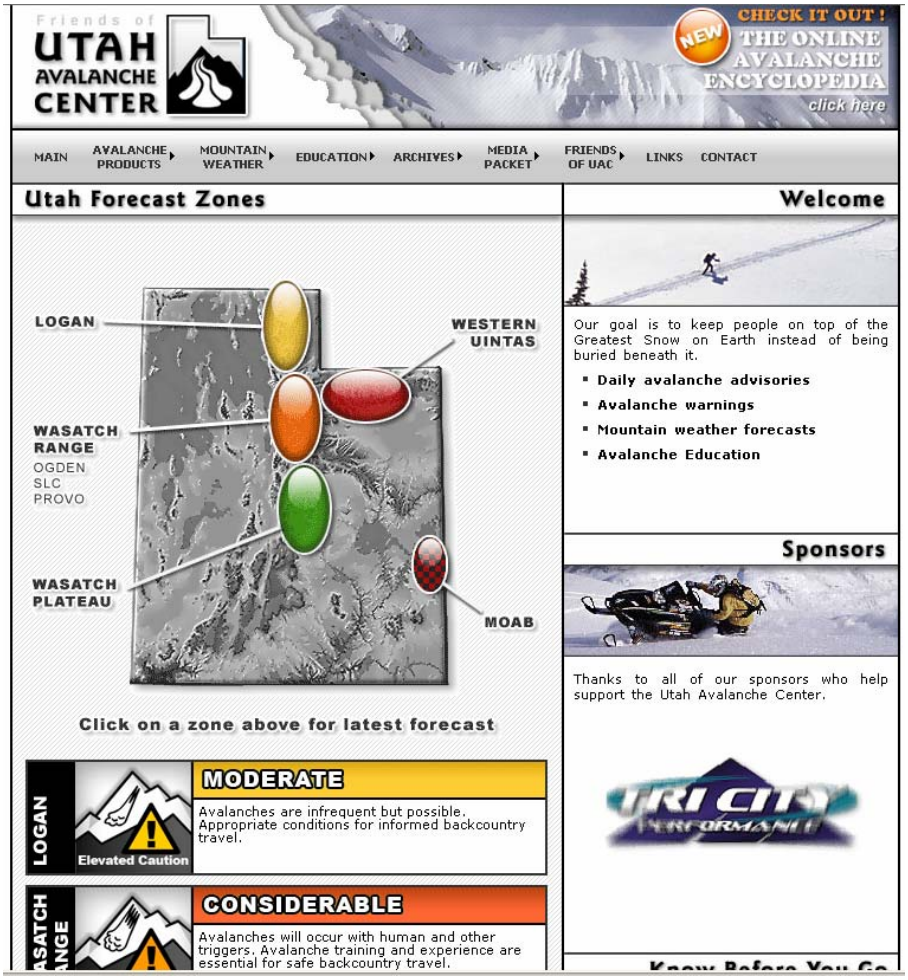
No significant avalanche activity was observed on Monday. An expected natural wet avalanche cycle did not come to fruition as mid-day cloud cover and moderate ridgetop winds kept temperatures in check which did not allow the snow to do much more then become somewhat damp. (Click here for more observations & photos from Monday)

Overall Danger Ratings in Media Outlets

For the past ten seasons, we estimate that 85 percent of the people killed in avalanches in Utah did not consult the avalanche advisory before heading out. In addition, most avalanche victims were killed on slopes where the avalanche danger was rated as High. In most other parts of the country as well as Europe, most avalanche fatalities occur at a Considerable danger. In other words, we have a problem with people who are largely uninformed about avalanches who go out on obviously dangerous days. Unfortunately, this group takes a lot of effort to reach. It means we have to get the word out using the media they already use, such as newspapers, radio and local television news.

We started a pilot program this season with selected newspapers including the Salt Lake Tribune. Each day we e-mailed the overall danger ratings for the following day and the newspapers published it the following day in the weather section of the newspaper. The program worked quite well and we plan to expand it to all media outlets for next winter. We will also change the media portal to a web page that each media source will bookmark. Each forecast region will independently update the danger rating for their region and they can do this any time of day or night. In this way, the page will reflect the latest information.

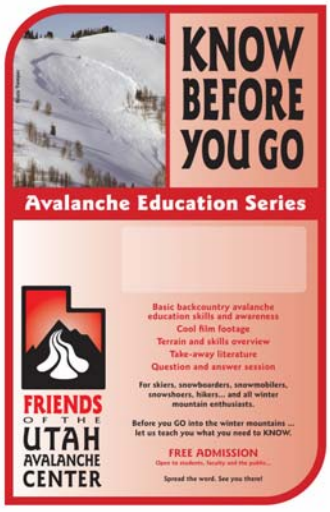
The overall danger ratings will also be color coded onto the Utah map on our home page.



This is a mockup of the home page we hope to use during the 2006-07 season in which the media and public can easily see the overall danger rating for each area of the state. It also would display the travel recommendations for the day.

Know Before You Go Avalanche Education Program

Craig Gordon teaching one of an incredible 120 avalanche talks, which directly reached over 18,000 people.



Craig Gordon and Bruce Tremper flank the featured speaker, world-famous mountaineer, Conrad Anker at a fundraiser for the KBYG program at snowbird.

Craig Gordon teaching the field session of an avalanche class.

The "Know Before You Go" Program

By Craig Gordon

History

The "Know Before You Go" avalanche awareness program was born out of the need to target young adults who travel in avalanche terrain, but often times have neither the proper safety equipment- avalanche beacons, shovels, and probes- nor much prior avalanche education. In many cases, just having basic avalanche awareness skills and being able to recognize obvious signs of snow instability can help save someone's life.

We aimed our sights at young adults in Utah for two reasons. First, it's a critical target group to reach because more and more young people are going beyond the ski area boundaries in search of powder, steep terrain, and big air. Unlike years past when skiers flailed their way down backcountry slopes on skinny skis and flimsy leather boots, today's gear is high-tech. Advances in equipment have made it possible for even novices with very little backcountry experience to quickly access avalanche prone terrain. Herein lays the problem. The gear has advanced, but peoples avalanche skills often times can't keep up with the rapid improvements of technology. This phenomenon isn't ski exclusive. If you look at snowboards, snowmobiles, and even snowshoes you see advances in technology make it easier for people to excel on these snow tools at a rapid pace. This education program was designed to reach out to all user groups.

The second need for a young adult program became obvious by the sheer escalating numbers of teens being killed in the backcountry by avalanches. The Forest Service Utah Avalanche Center (FSUAC) teaches dozens of free avalanche awareness classes to thousands of people each year, but few teens attended. In the three years prior to the programs inception, five teen avalanche fatalities- in two separate events- may have been prevented with just some basic avalanche awareness skills. One tragic avalanche in particular occurred just after Christmas on December 26, 2003. Fourteen people were recreating in the runout of one of the largest avalanche paths in Utah, near Aspen Grove, after an intense snowstorm. Unfortunately, three young snowboarders were buried and killed by a massive avalanche. The avalanche gained both local and national media coverage.

Shortly after this tragedy, Craig Gordon, a forecaster with the FSUAC, decided something needed to be done in terms of educating this age group. He proposed an idea to the FSUAC's director Bruce Tremper about developing a program specific to young adults in the state of Utah. The best way to accomplish this, go right to the source- junior highs, high schools, and colleges- preaching the avalanche gospel to the masses. Bruce agreed this was a great idea but, where would the funds come from, and who would undertake such a massive project? As with most federal agencies the FSUAC gets by on minimal funding and personnel.

Convinced of the need for this critical program, both Craig and Bruce worked on a business plan. The program would last for about an hour and to keep teens attention, it needed to be fast paced and energetic. The presentation would be given in three parts. An avalanche professional would go to a school assembly and start off with a 15-minute, narrated video that would show avalanches, people triggering avalanches, and the destructive power of avalanches. Next, they'd tell a dynamic story about a close call they had and what they've learned over the years. The presenter would follow this up with a 15-minute PowerPoint presentation about avalanche basics. A question and answer session would wrap up the assembly.

On paper and in theory it all sounded good, but several challenges lay ahead. How would we get into the school system, who would do all the leg work for avalanche footage and produce a video, and finally, the age old question… where will the funding come from? With the backing from the Friends of the FSUAC, Bruce proposed they hire Craig as a contractor for the summer of 2004 and he would take charge of coordinating the program. Bruce would act as a technical advisor to the project. The rest, as they say, is history.

Partnerships and Funding: Past and present

The "Know Before You Go" program was established in the summer of 2004 and funded solely by donations and in-kind support. The majority of the annual operating budget is generated from a fundraising dinner held at Snowbird in February. However, like any new product to hit the market, financial support hasn't been all that cut and dry.

While preliminary funding from the Friends of the FSUAC got the project off the ground, it took visionary partners who trusted us to come on board and partner with this innovative program. Fortunately, Backcountry.com saw the need and planted the first seed monies, getting the venture through its initial stages. They trusted the reputation of the FSUAC and thought we had the expertise to give this program the attention to detail it deserved. Little by little, donations started to come in as people began to hear about this exciting new program. R.E.I. who has been a partner with the FSUAC for many years, were next to come on board with another generous donation.

Also, over the years, Craig developed great working relationships with the Utah Snowmobile Association (USA) and wanted to get them involved. Bridging the gap between motorized and non-motorized users, the USA stepped up to the plate and applied for an education grant from the International Snowmobile Manufacturers Association (ISMA). This organization represents the four major snowmobile manufacturers and has two grant cycles each year, in which they grant monies for certain projects, usually education or safety related. This was the first avalanche project of its kind to ever receive grant monies from this organization. This unto itself was a major breakthrough for the program because it showed the strong commitment the snowmobile community has to avalanche safety and the well developed partnership the FSUAC has with the USA.

In the fall of 2004, the Division of Utah State Parks and Recreation came on board as a partner and donated more money than all the other partners combined! The productive, fruitful relationship with State Parks and particularly Fred Hayes, the OHV coordinator, goes back several years. This significant donation was vital to the longevity of the program and all the hard work that went into it.

A few new ski industry partners came to our rescue in the summer of 2005. First was Brighton Ski Resort, a long time partner of the FSUAC in avalanche education. While previous in-kind support included lift tickets and parking for the Friends three day Level One avalanche awareness courses, last year Area Manager, Randy Doyle, agreed to help the program out financially. In addition, Brighton's proactive approach to avalanche education with their employees is a benefit to anyone working there. For the past two years, Brighton invited Craig to provide an avalanche presentation to its employees. There's a twofold benefit to everyone attending. Not only do attendees take with them life saving skills at the end of the talk, they're also rewarded with a free day pass at the resort. Positive incentives like this help us to further spread the avalanche message and pack the house with several hundred employees each year.

Ski areas are an important partner in the avalanche equation and we're thrilled to see the additional financial support this year from Deer Valley, The Canyons and Ski Utah. Bob Wheaton, Scott Pierpont and Nathan Rafferty respectively, were instrumental in getting their organizations to donate monies and we look forward to their continued partnership.

Craig also applied for a grant through the Park City Chamber of Commerce and this helped to supplement a number of Summit County talks and helped defray video re-editing costs.

Finally, in-kind donations from Wasatch Backcountry Rescue (WBR) facilitated the program on the road. WBR contributed a PowerPoint projector in 2004 and purchased a laptop computer for the 2005 season. This summer we hope to procure some other odds and ends, making an all inclusive package presenters can grab and go. Support from valued partners like WBR help to make this program a success!

Program Development:
Prior to its wildly successful first year, "Know Before You Go" was a tough sell. Craig worked diligently to open the door of the school system and it wasn't always an easy task. After all, we were up against some stiff competition. The only programs welcomed by the Utah schools on a massive scale before were those that taught drug, alcohol and tobacco avoidance. This was a different type of program. However, once on the road, the programs dynamic message along with a very active avalanche year of 2004-05, propelled the program into the Utah schools spotlight.

In year two, we regrouped; saw what worked and what didn't and made the necessary tweaks to the original PowerPoint presentation, while keeping with the same basic avalanche curriculum message. In addition, the original video was re-edited over the summer of '05, adding a few more interviews and new avalanche footage.

The presentation will get a little face lift this summer to keep the message fresh and up-to-date.

Video development, editing and re-editing:
The video was a tremendous hit not only with students, faculty and administrators, but also with other avalanche professionals. After premiering a rough cut version at the 2004 Jackson Hole ISSW, every regional avalanche center wanted a copy. A finished version was available in November and about 150 copies were issued to snow professionals not only in the US, but in Canada, New Zealand, France, and the Netherlands. Our first go around was an international hit!

Original high quality footage came from TGR, Steve Kroschel, Steve Winter, and Richard Cheski. Craig also had some good rescue footage donated by KTVX News 4 Utah and KSTU Fox 13 News Utah. Jim Phelan, David Craig and Greg Painter chipped in with some amazing snowmobile footage that's always a crowd pleaser. New footage this year came from Ben DeJong, Andy Jacobsen, Tahoe Films, and Canadian Mountain Holidays. The piece was edited by Craig and Video Wholesale of Salt Lake City. All the footage was donated for non-profit avalanche education.

Craig saw the need to fill in some gaps and last summer conducted interviews with some of the world's top riders- Kasha Rigby and Jeremy Nobis world renowned extreme skiers, and Doug Andersen a radical snowmobiler featured in a number of popular action sports films. In addition to some exciting new footage, Craig interviewed two young avalanche survivors, putting a local face to a near catastrophic event. All the new footage helped to round out the original video. While Craig started to re-edit late in the summer, the time consuming final version wasn't ready until early January. We don't foresee any additional edits in the near future.

Nuts and Bolts-
Personnel, presentations and scheduling:
The first year objective of Know Before You Go was to reach out to 5,000 students. Word got out about the program and we easily doubled our intended goal, speaking to nearly 12,000 students. Like a rock star with a hit album wondering if they could be as successful the second time around, we set our 05-06 season sights on just trying to tie the watermark set the year before. Over the summer and fall, Craig lined up a host of new schools to visit and a number of schools we spoke to last year invited us back to present to a whole new audience. By seasons end we were able to eclipse last year's wildly successful start by giving 109 presentations, reaching out to over 18,000 students.

The program is well represented with snow professionals from Ogden to Payson to Park City to Salt Lake City. Up north, ski patrol personnel from Snow Basin included Doug Wewer, and JR Fletcher. In the Salt Lake area Dean Cardinale, Mike Morris, Dusty Sackett and Ralph Whatley from Snowbird as well as Gabe Garcia from Alta helped to cover a bulk of the talks. Darce Trotter who worked as snow safety and ski pa-

trol director at Sundance for nearly two decades provided immeasurable assistance by covering talks in the Heber Valley, Park City and Provo areas. Finally, in Park City, a natural choice was to have Jake Hutchinson help us out. He's the snow safety and ski patrol director for The Canyons and Jakes expertise was utilized in Summit and Salt Lake Counties. This dynamic team of dedicated snow professionals deserves a tremendous amount of credit. It was their hard work and commitment to avalanche education that made the program so successful.

February Fundraiser:
Snowbird Ski and Summer Resort partnered with the Friends of the FSUAC to help host the second annual "Know Before You Go" fundraising dinner. The well attended event, held in February in conjunction with Backcountry Awareness Week, raised over $13,000. This years theme revolved around Mount Everest with guest speakers Apa Sherpa, who has reached Mt. Everest's summit fifteen times, and Pemba Doma, the first woman to summit from the north side of the mountain. In addition to being a wonderful humanitarian, she has lead two successful Nepali expeditions to Everest. The keynote speaker was Conrad Anker a world renowned mountaineer.

Roger Kerr, the mastermind behind the fundraiser, is Snowbird Expeditions program director and we are truly indebted to him. Colleen Graham, the Friends president, teamed up with Roger and their hard work and dedication to avalanche awareness brings a diverse group of users together for this very special one night event, whose proceeds go directly to program's operation and expansion budget. Roger's extraordinary, unselfish efforts coupled with a near sellout crowd show just how much the community backs this successful program.

Future Direction:
We would like to see the "Know Before You Go" program become a mainstay in the Utah school system. On the heels of another successful season, we expect we'll be busier next year as even more schools have expressed interest in the program. Also, working in conjunction with the Utah Board of Education, Craig will develop a sound curriculum and hopes the program will pilot as a state-wide, 8th grade physical education elective for the 2007-08 school year. This would be the first of its kind in the nation and could act as a successful template for other mountain communities to follow. The future for "Know Before You" go looks bright and the message is well received. As a matter of fact, in the past two years, not one teen has been killed in an avalanche!

We look forward to the challenge of keeping our youth on top of the greatest snow on earth, rather than buried beneath it.

Wasatch Season Summary

By Drew Hardesty

The 2005/2006 will go down in history as perhaps the best season in memory because of a delightful combination between great riding conditions and a very stable snowpack. The storms rolled through with the regularity of marbles descending a spiral chute in a Rube Goldberg contraption. There were only three brief periods during the winter where it failed to snow for nine or ten days at a time. In other words, in a desert state usually characterized by big powder storms scattered through long spans of sunny days, it snowed 57% of the time, on nearly 100 out of 173 days of our operational season, from just before Halloween through mid-April. And despite a few early season speed-bumps, warm temperatures and prodigious snowfall produced a mostly stable "coastal" snowpack. As one forecaster put it, "the overall stability looked like an EKG monitor, with the avalanche problems spiking with the storms and then rapidly fading away."

The Pacific storms rolled south one by one out of the Gulf of Alaska, moving inland over the central or northern Pacific coast, which allowed the Cottonwoods to record over 600" of snow. Somewhat typical of a weak La Nina winter, one could almost trace the Maginot line that kept the southern mountains bone dry while their cousins to the north enjoyed a continual blanket of snow. By March, the Maginot Line moved south and southern Utah doubled their snowpack after an early season famine. While this season did not have the same amount of blockbuster storms as 04/05, the snowfall was thankfully much more consistent. Because of the very stable snowpack, we suffered only three avalanche-related fatalities, which is less than the 10-year average of 4.1. Although we see a seasonal average of over 100 unintentional human triggered avalanches in the backcountry, this season, witnessed only 76 incidents in which 45 were caught and carried, resulting in 17 partial burials, 8 injuries and three deaths. This was a big relief after last season's record-setting eight fatalities.

October

October recorded 27.5"snow/3.34" snow water equivalent and just like the storms, our avalanche advisories were intermittent through the end of the month and the beginning of November.

November

November recorded 67"snow/7.3" snow water equivalent. Two periods of high pressure resulted in some formation of weak layers that hounded us through December. Most people stayed on rock skis or boards and early indications were of a thin winter. Dense snow and two rain/rime events left even the most optimistic people reaching for long novels by the great Russian authors.

December

Winter finally arrived in December where snowfall more than doubled the pre-existing snowpack, providing 151"snow/14.87" snow water equivalent. With limited snowfall in the early season, the snowpack, particularly outside of the tri-canyons, had begun to deteriorate into weak, faceted snow. On the 3rd, a party of four experienced backcountry skiers suffered a very close call along with a few injuries warranting an assist by the Summit

Country Search and Rescue team. The party decided to ski a slope called 'No-Name bowl', a steep northeast facing slope off the Park City ridgeline. One at a time, the party lapped the bowl twice. On the third lap, the fourth skier triggered the entire bowl to the ground, engulfing him and his three friends waiting for him down below. While no one was completely buried, two were reportedly unable to dig themselves out. This was an extremely close call that could have resulted in four fatalities.

Just after Christmas, the storms began in earnest. We suffered our first fatality of the season in upper Aspen Grove on Timpanogos in the Provo area, not far from the accident site that claimed three young victims the day after Christmas 2003. Two fit snowshoers hiked up high into Primrose Cirque on a windy, stormy day. Both likely triggered the avalanche, which buried one and kept one on top of the debris. Neither had any rescue gear and the survivor immediately called 911 for help. Worsening weather and avalanche conditions combined with a very dangerous location precluded an extended search for the victim, and the body was left to melt out in spring.

January

January followed in the snow footsteps of December. Totals were 121" snow/10.34" snow water equivalent. All but nine days of the month had measurable precipitation, and we never saw the DJI (dreaded January inversion), so common in most years. By the end of the month, season totals exceeded 350" and it began feeling like a real Wasatch winter. Still emblematic of a maritime snowpack, weak layer formation was minimized due to the warm temperatures and continued snowfall.

February

February provided a let-down, providing 'just' 68" snow/6.52" snow water equivalent. The initial heavy snowfall overloaded a thinly buried weak layer that provided some close calls in some radical terrain around the turn of the month. Once incident occurred just below the Monte Cristo/Superior ridgeline as a UDOT avalanche forecaster was inspecting the crown of a recent avalanche. An unsuspecting party triggered a cornice from above, bowling the forecaster over, resulting in a slide-for-life situation. He fortunately was able to arrest on the bed surface as his gear was carried down into the choke and over some cliff-bands a couple thousand feet below. Another incident just off the summit of Box Elder revolved around the third skier triggering a new wind drift on a bed of weak snow, carrying him nearly 2000' down to the flats. Miraculously, he walked out of it unscathed. The same day, just off the north side of Little Superior, a party of four collapsed a buried weak layer, triggering a hard slab avalanche. The avalanche immediately engulfed the four, carrying them a few hundred feet, leaving them all partially buried.

March

The hose turned on again in March with the upper Cottonwoods recording 157" snow/10.46" snow water equivalent. Twenty-one of thirty-one days had measurable precipitation, making it one of the snowier Marches in years. In what has now become a rule rather than an exception, Utah suffered another fatality from someone accessing the backcountry from Snowbasin ski resort. On the 11th, a 34 year old man perished after triggering a fresh wind drift on a steep northwest facing slope near Taylor Canyon, which is just east of Snowbasin and overlooks the

town of Ogden. Significant snowfall and winds toward the end of the month led to a build-up of massive cornices, resulting in three near-misses in the last week, followed by a cornice-induced fatality a couple days later.

April

Continued heavy snowfall and winds caused avalanche problems early in the month. The upper elevations recorded 64" of snow/64.8" snow water equivalent. Again, the activity would spike during and just after the storms, and typically settle out a day or two afterwards. On the 3rd, a man in his twenties died while traversing along a corniced ridge in the backcountry adjacent to Brighton resort. Apparently, while following footsteps along the lip of the cornice, the cornice broke behind him, dropping him onto the steep rocky slope below. The impact pulled out another 2' deep slab avalanche, burying him with a hand sticking out of the snow. The young man accounted for Utah's third fatality of the season. In all three fatalities, our avalanche advisories very accurately described the conditions that caused the accident.

In mid April, the last major storm offered nearly 2' of cold fresh powder for the last fling of a very memorable season. After that, the weather blessed us with a slow warm up and the season died with a thankful whimper.

Popular backcountry terrain in Big Cottonwood Canyon,. From left: Mineral Fork, Mill B South, Broad's Fork and Stairs Gulch.

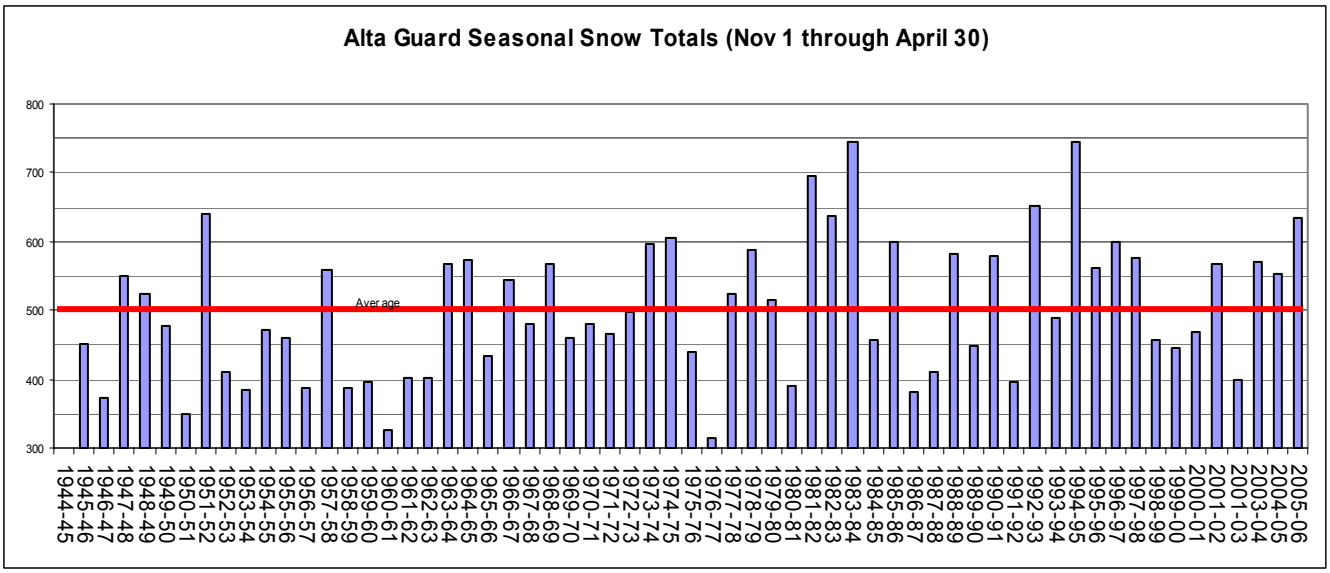
Typical of Wasatch skiers, they are very aggressive after a storm. Here Cardiac Bowl is filled with eager back-country skiers who are triggering several shallow, soft, slab avalanches. Although one person was caught, no one was injured.

The sprawling Salt Lake City lies directly at the foot of the very steep and very snowy Wasatch Range. Backcountry skiers, snowboarders, snowshoers and hikers can access dangerous avalanche terrain very easily from any road or trailhead. We suspect that there is more interaction between avalanches and people in the Wasatch Range than anywhere else in the country.

Snowfall at Alta Guard 1945- Present

Season	Year ending	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Total
1944-45	1945	---	57.0	19.5	67.0	---	57.0	
1945-46	1946	109.0	83.0	84.5	50.0	69.0	55.5	451.0
1946-47	1947	69.0	63.0	61.0	53.0	68.0	60.0	374.0
1947-48	1948	118.0	80.0	46.0	66.0	165.0	74.0	549.0
1948-49	1949	71.0	160.0	132.0	58.0	97.0	5.0	523.0
1949-50	1950	39.0	137.0	133.0	34.0	109.0	25.0	477.0
1950-51	1951	60.0	66.0	112.0	58.0	53.0	0.0	349.0
1951-52	1952	67.0	156	115.0	105.0	163.0	35.0	641.0
1952-53	1953	44.0	65.0	112.0	40.0	93.0	57.0	411.0
1953-54	1954	50.0	107.0	54.0	57.0	101.0	14.0	383.0
1954-55	1955	37.0	53.0	134.0	129.0	60.0	59.0	472.0
1955-56	1956	86.0	112.0	103.0	72.0	33.0	54.0	460.0
1956-57	1957	36.0	50.0	86.0	41.0	97.0	76.0	386.0
1957-58	1958	74.0	79.5	83.5	131.5	80.0	111.0	559.5
1958-59	1959	38.0	47.5	81.0	107.0	84.5	28.0	386.0
1959-60	1960	22.0	39.5	59.0	155.0	92.0	28.0	395.5
1960-61	1961	75.0	40.0	1.0	62.0	113.0	35.0	326.0
1961-62	1962	46.0	82.5	86.0	110.0	35.0	42.0	401.5
1962-63	1963	31.0	17.0	85.0	39.0	93.0	136.0	401.0
1963-64	1964	55.0	53.0	108.0	68.0	**183.0**	99.0	566.0
1964-65	1965	95.0	141.0	150.0	66.0	44.0	77.0	573.0
1965-66	1966	69.0	69.0	73.0	103.0	70.0	49.0	433.0
1966-67	1967	53.0	84.0	168.0	72.0	61.0	106.0	544.0
1967-68	1968	22.0	131.0	39.0	84.0	70.0	133.5	479.5
1968-69	1969	87.5	132.6	113.0	148.0	35.0	50.0	566.1
1969-70	1970	56.0	70.0	103.5	60.5	79.0	90.0	459.0
1970-71	1971	79.0	142.0	58.0	73.5	87.0	42.0	481.5
1971-72	1972	64.5	159.0	94.5	45.0	47.0	56.6	466.6
1972-73	1973	----	122.0	64.5	77.0	124.0	109.0	496.5
1973-74	1974	90.9	128.2	104.5	91.0	45.0	136.0	595.6
1974-75	1975	25.5	146.5	104.0	88.0	151.0	90.0	605.0
1975-76	1976	94.0	67.0	74.5	69.0	93.0	42.0	439.5
1976-77	1977	13.5	17.0	50.5	73.5	129.0	31.0	314.5
1977-78	1978	53.0	106.5	99.5	92.5	85.0	88.0	524.5
1978-79	1979	62.5	96.0	78.5	86.0	71.0	94.0	588.0
1979-80	1980	79.5	27.0	143.0	112.5	123.0	29.0	514.0
1980-81	1981	40.0	34.0	73.0	82.0	110.0	52.0	391.0
1981-82	1982	47.0	184.0	143.0	85.0	164.0	73.0	696.0
1982-83	1983	66.0	165.0	75.5	68.0	150.0	112.5	637.0
1983-84	1984	143.5	**244.5**	42.0	104.0	85.0	124.5	743.5
1984-85	1985	112.5	105.0	44.0	61.5	99.5	34.5	457.0
1985-86	1986	132.0	62.0	56.0	112.7	100.0	135.7	599.0
1986-87	1987	73.0	12.3	96.0	73.0	104.0	23.5	381.8

1987-88	1988	30.0	91.0	105.1	39.75	115.5	29.0	410.3
1988-89	1989	172.5	124.5	70.75	97.5	64.75	52.0	581.5
1989-90	1990	76.0	49.0	107.5	100.5	84.0	31.0	448.0
1990-91	1991	109.5	91.0	82.8	49.7	110.9	**136.3**	580.2
1991-92	1992	133.4	57.2	41.8	85	50.1	27.5	395.0
1992-93	1993	118.8	119.2	165.3	102.9	63.0	81.2	650.4
1993-94	1994	40.7	64.85	122.7	134.05	47.2	80.8	490.3
1994-95	1995	**205.9**	73.8	**199.7**	56.3	128.9	80.7	**745.4**
1995-96	1996	57	53	187	104	82	79	562
1996-97	1997	78.3	164.8	141.5	91	53.8	69.7	599.1
1997-98	1998	46.3	81.8	128.9	**156.6**	92.3	69	574.9
1998-99	1999	76.5	43.1	105.3	98	46.5	89	458.4
1999-00	2000	30.0	97.0	100.0	119.5	84.0	15.5	446.0
2000-01	2001	88.0	71.0	66.2	79.5	53.0	112.0	469.7
2001-02	2002	137	86.1	100.9	53.4	142.2	48.1	567.7
2001-03	2003	42	78.7	26	84.1	93.8	74.8	399.4
2003-04	2004	110	151	74.3	130	62	43.5	570.8
2004-05	2005	62.7	86.4	113.5	77.9	153.6	59.5	553.6
2005-06	2006	81	132	148	61.5	135	76	633.5
Average		**73.0**	**92.7**	**95.3**	**83.4**	**91.4**	**66.0**	**502.2**
Maximum		**205.9**	**244.5**	**199.7**	**156.6**	**183**	**136.3**	**745.4**
Year of Max		**94**	**83**	**95**	**97**	**64**	**91**	**95**



Western Uinta Season Summary
By Craig Gordon

Program history:
The western Uinta avalanche forecasting program, in its fourth season, is made possible through generous funding from our partner, the Utah Division of State Parks and Recreation. This year was again a particularly busy one for Craig Gordon, the forecaster for the region. Craig forecasts for nearly one million square acres of terrain, stretching from Daniels Summit near the town of Heber, Utah to Bear River, near Evanston, Wyoming. Craig likes to refer to this large swath of terrain as the "postage stamp".

The western Uinta Mountains, located east of Park City are a unique range, running east to west and they harbor the highest peaks in the state. Approaches are long and arduous and access to the high terrain is a Herculean event for non-motorized users. The bulk of traffic in this region is mostly snowmobilers. Nearly 60,000 snowmobilers recreate in these mountains each season.

The western Uinta's are a challenging range to forecast for because of what is considered a continental snowpack. In addition, infrequent avalanche observations from users are the norm. As a matter of fact, we usually don't hear about avalanches unless someone has triggered an unusually big slide or there's a close call or fatality. Advisories are issued Wednesday, Saturday, Sunday and all holidays. These products are available via the internet or a toll free phone line, provided by Utah State Parks. While there's no way to track call counts, the internet hits increase dramatically each season and this year the site received just over 10,000 hits to the avalanche advisory. Seventy-one avalanche and mountain weather advisories were issued from late November to mid April.

Craig couldn't do all of this work plus a grueling avalanche education schedule without the help of some very vital partners. Both the Kamas and Evanston Ranger Districts have supported the program by supplying him with field partners, snowmobiles, vehicles and support staff when needed. On the Kamas side of the range, District Ranger Catherine Kahlow is fully supportive of the program and provides Forest Service personnel to assist Craig in the field. Former forecaster and Alta ski patrolman Dave Ream is the usual suspect and Dave is a vital component to the western Uinta program. Over in Evanston, District Ranger Steve Ryberg, Rick Schuler and Ted Scroggin help pick up the slack on the North Slope. Again this year, Ted Scroggin was an enormous asset, getting on the snow at least three times a week and emailing in snow and avalanche observations religiously. In addition, Craig and Ted often consult on the phone several nights a week discussing recent avalanche observations and the state of the snowpack. Ted is an integral part of this program and we hope to see him contributing even more in the future by helping out with avalanche education and part time forecasting next season. Finally, Ray Santa Maria, Bill Nicholson and staff from the Park City Powder Cats were very helpful by providing weather, snowpack and avalanche observations. In addition, they help Craig by offering him snowcat access to remote terrain.

In the past four years since the inception of the western Uinta avalanche advisory program, we've witnessed an increase in basic avalanche awareness among the predominant user group, snowmobilers. Now, the majority of mountain riders wear a beacon, shovel and probe and is at least somewhat aware that an avalanche advisory exists. Personal polling numbers reveal an interesting fact- most riders only check the advisory after a major storm. Craig tries to connect with riders by talking to them at trailheads and while out on the snow. The public often approaches him, recognizing the customized Utah Avalanche Center sled, to ask about the days conditions. It's a great opportunity to interface with the public and he hopes that over time and through increased avalanche outreach education programs, more riders will realize the benefits of being fully informed and will wear the right gear and consult the advisory each time they take to the snow.

Season History:
By all accounts it was a real winter for a change and the western Uinta Mountains enjoyed the fruits of Mother Nature's labor. Unlike our close neighbors to the west, the Wasatch Range which receives copious

amounts of snow, once storms reach the western Uinta's they've usually lost a lot of their dynamics and moisture and we tend to get the left-overs. The result is a historically weak, dangerous snowpack which is usually about half that of our western neighbor. In addition, winds tend to be very strong throughout the range. This year however, cold storms consistently dumped manageable amounts of new snow- usually in the 8"-12" range- and winds were fairly well behaved, making for a deep, strong and mostly stable snowpack. Seventy-one avalanche and mountain weather advisories were issued, including three avalanche warnings, starting on November 5th and ending April 23rd. Rather than list every weather event to hit the region, the following season's summary highlights both avalanche events and storms of particular interest.

November-
The season started in earnest on November 14th when a double barreled system heralded the start of winter, depositing nearly three feet of snow at the upper elevations over the course of several days. Unfortunately, high pressure took control of the weather pattern and my usual early season nightmare snowpack began to develop. Over the course of the next few weeks, the snowpack turned weak and sugary. By Thanksgiving we were back in the flow and a vigorous system dumped nearly 18" of dense heavy snow along with strong winds. Fortunately, there wasn't quite enough snow for most riders to really get after it and other than a small natural avalanche cycle, there were no human triggered slides reported.

December-
December started off with a bang as a cold northwest flow settled over the region, dumping close to 30" of snow from the 1st through the 4th. In the nearby Park City Area Mountains, whose snowpack often mimics the early season Uinta pack, a group of four skiers had a close call, triggering a large hard slab avalanche which partially buried all four. Fortunately everyone came out unscathed, but I feared disaster would strike the western Uinta Mountains once the storm passed and riders could see where they were going. Two days later, six snowmobilers triggered a large hard slab near Wolf Creek Pass, which partially buried all six sleds. While details were sketchy and we never figured out exactly what happened, one thing is for sure… lady luck was on their side this time.

The dust settled for the second half of the month as high pressure took control of the regions weather, creating weak snow at the surface as well as near the ground. Warm temperatures ushered in the Christmas holidays, allowing the snowpack to gain some much needed strength, though we still weren't out of the woods quite yet. A strong, moist southwest flow developed on the 30th, depositing around 10" of snow with a whopping 1 ½" of water, leading to yet another close call on Double Hill in the Whitney Basin.

January-
The New Year rang in with a vengeance as the Uinta's got hammered with nearly 3' of dense, heavy glop coupled with strong winds. The combination prompted me to issue the areas first ***special avalanche statement*** and a **HIGH** avalanche danger. The new snows' wallowing depths kept most riders away from steep slopes and a short-lived break in the action was followed by more snow and wind. With storm totals reaching 4' of snow with a whopping 5"of water, I issued an ***avalanche warning*** for the range. Visibility was heinous throughout the storm cycle, but as skies cleared it was apparent much of the area had gone through a significant avalanche cycle. Unfortunately, strong winds quickly re-filled in most of the avalanche paths shortly after they slid, making recent avalanche spotting an anti-climactic event. Another brief break followed and some weak near surface facets rapidly developed, but a series of Pacific storms started lining up nicely for the second half of the month. A consistently wet weather pattern, light to moderate winds and warmer temperatures created a strong and mostly homogenous snowpack. As the end of the month drew near, you couldn't ask for a better scenario. Usually we're tiptoeing around the range looking over our shoulders, but these "designer" storms helped keep avalanche activity at bay and the month ended without incident. The snowpack got stronger over time allowing riders to get into terrain that in years past would've been impossible. Bold lines were punched out just about everywhere you looked and I hoped folks weren't getting lulled into a false sense of "snow stability security."

February-
The storm pattern changed and February started off quite active with a moist system delivering 2' of snow and strong winds from the 1st through the 4th. This led to a series of medium sized natural avalanches and at least one human triggered avalanche we heard of. High pressure dominated the weather pattern through the middle of the month and then a series of cold, albeit small storms began to impact the region. Additional weight added to the snowpack was modest at best and avalanche conditions remained relatively benign for the rest of the month. February ended with little fanfare.

March-
March roared in like a lion with rain, snow and a bit of lightening on the 1st making for a tale of two snowpacks. Up high we were still dealing with a winter snowpack, but at lower elevations, below about 9,500', the pack was rain soaked and punchy. Fortunately, winter's hiatus was short-lived and cold temperatures with a little shot of snow returned on the 2nd and 3rd. Hurricane force winds and 4"of new snow led to an unintentional human triggered avalanche on the North Slope on the 3rd.

By the middle of March, back in a consistent flow, the storm train began bearing down on the state. Strong winds and about a foot of snow on the 14th and 15th brought another small, but active avalanche cycle to the region. Like much of the season, most of the activity was confined to terrain above treeline. Storms continued to roll in through the end of the month and with the sun growing stronger, we started seeing wet activity at the lower elevations. March came in like a lion and went out with a roar as well. A strong and mild system slammed into the area on the 29th. The storm raged through the end of the month, depositing nearly 2 ½' of snow at the upper elevations, creating dangerous hard slabs which led me to issue an ***avalanche warning*** for the range.

April-
Small storms continued to affect the area through the 5th. With the storm door wide open, a cold, burley Pacific system pounded the area with 30" of January-like powder and strong reminder winter wasn't quite over just yet. Unfortunately, west and northwest winds nuked into the 70's and 80's during much of the period and the combination led to yet another ***avalanche warning*** and **HIGH** avalanche danger for the region. Spring is an interesting time of year in the mountains- one day it's dumping 3" an hour… the next day the storm is in Kansas and the sun is shining. While many big slopes avalanched during the storm, crowns were barely visible in the wake of this energetic system. Within about 36 hours, warm temperatures helped the avalanche danger rapidly subside and the snowpack quickly adjusted to the added weight. However, cloud cover and marginal refreezes, especially at lower elevations, hampered the snowpack from going through a good melt-freeze cycle leading to an unintentionally snowmobile triggered slide at about 9,000' near the Soap Stone Basin.

Historically the money begins to run out right around Easter and this year was no exemption. I ended my regularly scheduled forecasts on the 16th, followed by a general avalanche information statement posted on the 23rd which gives users some tips and weather website links to assist them while there's no advisory available.

Season Highlights:
For years, Craig has tried to partner with one of the four major snowmobile manufacturers to help provide a sled for avalanche forecasting. Unfortunately it took the avalanche death of a very popular rider last season before anyone stepped up to the plate. Instrumental in helping Craig get a machine was Doug Page and other board members from the Utah Snowmobile Association (USA). In the past seven years, Craig has developed a fruitful relationship with the USA. They've been a strong partner with the avalanche center helping to fund avalanche placemats, phone stickers, weather station installation and applying for an ISMA grant for the development of "Know Before You Go." Doug took the task at hand and courted a relationship

with Polaris Industries and a local snowmobile shop, Tri-City Performance of Centerville, Utah. Mike Poulsen of Tri-City supplied Craig with a 2006 Polaris RMK 600. This graphics customized ride was a one-of-a-kind mountain sled and its easily identifiable avalanche center markings made it and Craig stand out like no other. The benefits of riding a state-of-the-art sled are immeasurable. Interfacing with other riders to spread the avalanche gospel is a lot easier when you're riding a hot machine that gets noticed. The USA is a very valued partner and we're proud to be associated with them as we continue to work together getting the avalanche message out to a rapidly growing user group. In addition, we'd like to thank Tri-City and Polaris for partnering with us, showing a true commitment of safety to their fellow riders.

Weather Instrumentation:
Avalanche forecasting in a remote region has its benefits and drawbacks. On the plus side, there are places in the Uinta Mountains where my partners and I have made many first winter ski descents on slopes that are only accessible by snowmobile. The flip side is the remoteness of the region combined with the lack of hard weather data allows for few real-time weather, snow or avalanche observations. While the area has several snotel data sites, current reliable weather and particularly wind data are nearly non-existent, further challenging Craig's forecasting duties. Two seasons ago, Craig was able to obtain a grant which in turn helped to purchase a used weather station. The first season saw its share of minor calamities but no major disasters occurred and the station ran rather smoothly. This past fall with the generous support of the Evanston Ranger District who supplied a staff of Forest Service sherpas, we again hauled the instrumentation up to Moffit Peak for what was to become the annual fall installation. A few minor glitches, including a late in the game discovery that one of the data loggers was fried, tested our patience, but we were able to get over it. However, the biggest realization after the second year was recognizing the site didn't give us the representative wind data we needed. This coming season we'll move this weather instrumentation to a more representative site in addition to adding two more wind sites to cover the central and southern parts of the range.

Beacon Basin:
This season allowed the continued partnership between the western Uinta avalanche program and Back Country Access (BCA). For the second winter in a row we installed a semi- permanent avalanche beacon training facility exclusively for snowmobilers. "Beacon Basin" located at the Nobletts trailhead, is about 14 miles east of the town of Francis. The parking at this trailhead is free and on a sunny weekend with fresh snow, vehicles not only pack the parking lot, they also string for a mile or so down the shoulder of the highway. On a busy weekend day it's not unusual for there to be close to 200 rigs, equating to 400-600 sledders parking at this trailhead.

Bruce Edgerly, BCA's Marketing Vice President, has been very instrumental in continued avalanche education for all user groups and this hands-on facility is a huge asset to the avalanche center and the snowmobile community alike. Once again this winter, several members from the USA supported the project by donating their time and back muscles to bury the locators.

The site is within walking distance of the parking lot and is well received. On busy days, 20-30 riders would visit the area either before or after their rides. In addition, it provides a great training site when Craig teaches "on snow" avalanche awareness clinics. Beacon Basin was utilized by a wide variety of people including private groups, snowmobile clubs, and state and federal agencies. We look forward to yet another upcoming season, employing this facility at the same popular location.

Logan Mountains Season Summary
By Toby Weed

Powder connoisseurs lucky enough to taste the regional backcountry offerings will look back on this season as a first rate vintage; that is, with fond memories and insuppressible grins. Throughout the season, frequently recurring storms dumped amazingly incremental loads of snow on the region without significant breaks in the moist and warm weather pattern. Strong high pressure systems did not develop over the area, and the city of Logan was completely spared from the hated winter temperature inversions that often afflict Cache Valley with stagnate and smoggy air for weeks at a time. Snow fell every few days like clockwork, and it piled up deeply in most avalanche starting zones, insulating the basal layers and preventing depth hoar development. With only incremental loading and since depth hoar and other persistent weak layers generally form under high pressure conditions, our snowpack remained mostly stable throughout the season, with only a few exceptions. As I write this in late April, the Tony Grove Snotel site at 8400' in the heart or Bear River Range reports over 9 feet of total snow on the ground containing almost 56 inches of water equivalency weight. This puts us at 155 percent of the average for the date.

Snow began to pile up at higher elevations in early November, and crowds of eager powder hounds made their annual pilgrimage up the un-maintained Tony Grove Road to the easily accessed smooth and grassy slopes south of the lake. I put out an early season advisory on the 6th. On the 13th after a particularly productive snowstorm, a lucky snowboarder without proper backcountry equipment or avalanche knowledge, dropped into a 42-degree chute atop a steep bowl called "Ski Hill" triggering a 350'-wide by 1-2' deep new snow avalanche and taking a short ride. I presented two well-attended free Avalanche Awareness talks at the Logan Ranger District Offices, and did a half-hour interview on Utah Public Radio KUSU, which enjoys statewide coverage.

By the first of December, warmth had solidified the base layer of the snowpack, with the Tony Grove Snotel reporting only 7" of total snow containing 6" of SWE (snow water equivalent). The Friends of the Utah Avalanche Center-Logan held their second annual fundraiser bash on the 4th, and it was once again a big success, raising community support and some much needed cash. We gave a 3-day Level I (rescue) class for the Cache County Search and Rescue team starting with a 3 hr. classroom-review session on the 7th, which drew over thirty participants. We teamed up with the Utah State University Outdoor Recreation Center to present a Beacon Workshop and a 2-day Basic Avalanche Class. Each drew around 15 participants. In December we observed spotty natural avalanches associated with regular snowstorms on the 4th, 20th, and 27th. On New Year's Eve, part time forecaster Dave Kikkert tied into a rope, sawed through a big cornice and triggered a 30' wide and 1-2' deep soft slab in the Hell's Kitchen running on faceted snow. Shortly afterward, a backcountry skier on a nearby slope, who was unaware of Dave's successful slope-test, unintentionally triggered a similar slide and barely managed to escape taking a ride.

On the first day of 2006, there was 89 inches on the ground at Tony Grove with 23 inches of SWE. The Forest Service Utah Avalanche Center issued an Avalanche Warning for all the mountains of northern Utah on the afternoon of January 2nd effective through 11:00 January 3rd... The warning stated, "Heavy snowfall and very high winds have caused a HIGH avalanche danger on numerous slopes in all the mountains of northern Utah." On the 3rd, widespread natural hard and soft slab avalanches occurred in the region, and a couple of these were quite large. On the 4th, I examined the aftermath of one the most impressive avalanches I have ever seen in Pine Canyon in the way-steep Wellsville Range. The huge, full-width hard slab pulled out right at the ridge line and careened 3000 vertical feet down the twisting canyon-bottom, toppling huge pine trees and forming ½-mile-long serpentine rock and tree embedded ice walls in route to its terminus, less than two hundred vertical feet from the National Forest Boundary. In January we documented a total of 14 days with avalanches occurring. Thankfully, the rest of the month's avalanches were much smaller—most in the 1' deep range. Of these, we know of 4 unintentionally human-triggered slides, these fairly evenly divided between user groups: two snowmobilers, a snowboarder, and a skier. Due to a lack of

interest the USU ORC cancelled two multi-day avalanche classes, which we had agreed to help teach. In retrospect, the ORC feels the $130.00 fee was too expensive for the average college student. Of coarse, we offered our instructional services free of charge.

On February 1st, the Tony Grove Snotel site reported almost 12 feet of snow on the ground containing nearly 39" of water equivalent. In the first week of February we documented large natural hard slab avalanches in Pine Canyon and Castle Rock (near Naomi Peak), which were repeaters of previous slides in these same paths. Avalanches occurred on 8 days in the month, and 4 slides are listed as unintentionally triggered: two triggered by skiers and two by snowmobilers. We cancelled two free Avalanche Awareness talks (offered through local backcountry ski and snowboard shops), and the ORC cancelled a 3-day 2-night yurt-based advanced class due to lack of interest. It appeared that the small community of Logan had reached the saturation point in avalanche education. But on the 25th, 15 members of the USU College of Natural Resources Student Council packed a small University lecture hall for a free Awareness Talk, which cheered me up greatly and breathed some new life into our outreach efforts. On February 28th, heavy rain fell even at high elevations, and large natural wet loose avalanches ensued. One hit highway 89 in Logan Canyon at around midday, crossing both lanes of the busy road and forcing a couple-hour closure. The rain also created an easy-to-identify crust layer across the region. In the Wellsville Range this layer and associated facets became a persistent weakness and sliding surface for several big springtime natural avalanches.

122" of snow with 47" of water sat on the ground at Tony Grove on March 1st. Dave spent a long day at Ellis Elementary School giving a modified Know Before You Go Awareness Talk to about 130 6th graders. Regional avalanches occurred on 12 days in March, with two dangerous human triggered avalanche situations. On the 3rd, a snowmobiler triggered a sizable hard slab on the North Face of Providence Peak. The incident wasn't reported, but tracks leading into and out of the large debris pile told the amazing escape story. March 21st was another of the "all time best ever powder days" in the region, and I was enjoying the fine conditions in the rare company of my only brother and a favorite backcountry partner. High above the upper reaches of White Pine Canyon, the crown jewel of the Bear River Range, a wily old mountain goat fell prey to a momentary lapse of good decision making on the steep and craggy East Face of Gog. I'd rated the avalanche danger as Moderate, with slab avalanches possible on steep upper elevation slopes, just like one we were on. But, as the third skier to descend the steep entry gully on the main part of the face, I didn't expect to actually trigger a slide. As I popped through the narrow neck of the chute and onto the steep slope below I noticed, in the very limits of my peripheral vision, the slab breaking apart across the slope above and to my left. Instinctively and without a thought, I skied off the moving mass while yelling AVALANCHE! I watched, overcome by an indescribable helpless terror, as the slide ran within feet next my nervous partners who were waiting below on a tiny dividing rib above a hundred-foot-cliff holding desperately to the flagged lower branches of a precariously perched alpine fir. Although we faced the wrath of our families for our late return, we'd escaped the dangerous situation unscathed. But even as an experienced old goat, I'd learned a valuable lesson about responsible decision-making in the mountains when under the influence of powder fever—and I'd confidently thought, after all these years of surviving in avalanche terrain, that I was immune. In the Wellsville Range, large natural hard slab avalanches running on the February 28th rain-crust occurred on the 19th or 20th in Shumway Canyon and on the 29th in Gibson Canyon.

On April Fool's Day the Tony Grove Snotel reported an incredible 13 feet (132 inches) of total snow with 56 inches of snow water equivalent. Cornices are far bigger this year than I've seen in the past four years of my appointment, and bigger than in a long while by the accounts of hardened locals. By April 16th, we documented 4 more days with avalanche occurrences. On the 6th, near the end of a productive and windy storm, a very wide new snow hard slab avalanche spontaneously released below a cliff band just north of Naomi Peak, the sub-10,000' high point in the Bear River Range. The 1200' wide avalanche piled chunky debris on a bench after running a maximum of 250 vertical feet. On the same day in the Wellsville Range, cornice fall triggered a large hard slab, running on the now familiar February 28th rain-crust, in Old Logway Canyon. The approximately 4' deep and 400' wide slab gouged down into saturated snow and built a tremendous cement-like pile on Maple Bench after running about 2500 vertical feet down a twisting collection gully.

Through mist and lifting rain-clouds, we observed numerous and significant loose wet avalanches throughout the region. On the 16th, the last in a string of very warm days and nights with well above freezing temperatures, I posted the last regularly scheduled advisory, rating the danger of wet avalanches as Considerable. In the Wellsville Range, a large cornice fall triggered a deep wet slab in the upper North Fork of Shumway Canyon. Rapid melting in the past few days and the now exposed dry ground in the recent bed surface indicates the ~450' wide avalanche probably stepped down to a deeply buried saturated early season basal layer.

This season set the standard for fine powder conditions in the regional backcountry, and it'll be a hard one to top. Although we suffered from a mid-season bout of waning interest in backcountry safety, our education efforts were again fairly successful with slightly under 250 people attending our prepared programs and hundreds of people (mostly snowmobilers) directly contacted in the field and at regional trailheads. I posted 4 regularly scheduled advisories a week for December and January on Tuesday and Thursday nights and Saturday and Sunday nights. With the part-time help of Dave Kikkert (paid for by the Friends of UAC Logan), we were able to add Mondays, and we posted 5 a week through April We documented 43 days with avalanche occurrences, and 22 human triggered avalanches. Of these we consider 11 as unintentionally triggered. Once again, this year the good people of our pastoral Cache Valley appear to be blessed by divine luck, and no one was buried, injured, or killed, and no reported property damage occurred.

Avalanche Incidents and Accidents:

The number of accidents and fatalities in the Wasatch for the 05/06 season is significantly lower than last year, despite similar snow totals. Despite the fact that snow totals are in the same ballpark, the character of both the snowpack and storms was very different. As they say, the devil's in the details. The generally warm temperatures, high frequency of storms, and absence of long periods of high pressure produced what we term a "maritime", or "coastal" snowpack, rather than a "continental" one. This, by and large, minimized the development of very persistent weaknesses within the snowpack, allowing the instabilities to settle out relatively quickly. This was one factor that contributed to a year with below normal number of near-misses, incidents, and fatalities. Accounting for three of the nation's twenty-three fatalities, we recorded seventy six unintentionally triggered slides in which 45 were caught and carried, resulting in 17 partial burials, and 8 injuries. The following is a synopsis of the major accidents for the winter.

Four Skiers Caught and Partially Buried in No-Name Bowl along the Park City Ridgeline
Minimal early season snows contributed to a poor existing snowpack by the time the heavy storms hit in late November/early December. The Park City ridgeline is notorious for having a weaker basal and midpack than the adjacent terrain of the tri-Canyons. In this case, 40-50' of snow had fallen in the few days preceding the accident, producing very unstable conditions where both natural and human triggered activity accompanied the deluge. The party of four had a collective 30 years of backcountry skiing experience, knew the terrain well, and frequently called the avalanche center's forecast.

No-Name Bowl is a steep 38 degree northeast facing slope with a starting zone at 9200'. The strong winds had produced a cohesive hard slab over the weak sugary snow, producing very tricky, very dangerous avalanche conditions. Unless someone in the party digs down to check the layering, this snowpack regime will only inconsistently give what we call "bullseye" information regarding its instability. Had slabs will often allow multiple skiers on the slope or allow a person half-way down the slope before releasing. Ski cuts and cornice drops rarely provide good information, and are very dangerous to execute with type of early season layering.

The party skied one at a time through the terrain for two laps. On the third lap, the first three skied the bowl without incident and waited for the fourth skier to make his run. A few turns into it, he triggered the entire bowl wall to wall, engulfing him and his partners down below. All were buried to some extent and two suffered some injuries. Most would assume that eleven tracks on a slope would offer good news regarding stability. In this case, it was not a good indicator. Good habits save lives. While the party followed some critical rules of safe travel, they did not move out of the runout zone at the bottom in the event of an avalanche from above. This near miss could have resulted in four fatalities.

Two Snowshoers Caught in an Avalanche Above Aspen Grove on Timpanogos, One Fatality
A warm and windy storm that dropped 45" of snow in the higher terrain preceded this incident. Two very fit snowshoers left the Aspen Grove parking lot early morning on the last day of 2005, bound for the 11,749' summit of Timpanogos in the Provo mountains. After gaining 2500' in elevation, the two likely triggered the new wind drift on a 35-40 degree east to northeast facing slope at 9700'. One of the two men was completely buried. The other extricated himself, searched the debris the best he could without rescue equipment and called on his cell-phone for help. Teams were assembled, only to be called off due to deteriorating weather and avalanche conditions. The next day, observers noted numerous natural avalanches that had occurred the preceding day; other avalanches released with protective explosive use on adjacent slopes as well. The forecast office rated the danger that day as Considerable, with an increasing hazard. The incident is not unlike the twin fatalities occurring the year before in Mineral Fork of Big Cottonwood Canyon.

34 Year Old Man Killed in Avalanche in the Backcountry Adjacent to Snowbasin Mountain Resort

Twenty to thirty inches of snow had fallen in the week preceding the incident. On the 11th, two good friends who routinely ride both inbounds and out-of-bounds at Snowbasin made the decision to ride outside the northwestern boundary of the resort into what is known as the Taylor Canyon area. While it is unknown whether the two knew of the avalanche center's warnings of freshly blown unstable wind drifts in upper elevation terrain, it is known that the two were not equipped with any rescue gear. Both entered the upper starting zone, triggering the hard slab on a 40 degree northwest facing slope at 8900'. The slab was estimated at 2' deep and 200' wide, running 1000' vertical. The victim was carried some way down the slope before slamming into a tree and becoming fully buried. The survivor searched for some time before alerting the Snowbasin ski patrol and the Sheriff's department. Deteriorating weather and avalanche conditions precluded an immediate search. Search dogs found the victim the following day.

27 Year Old Man Dies After Falling Through a Cornice in the Backcountry Adjacent to Brighton Resort

Heavy snow and winds up until the accident had built large and unstable cornices along the high ridges in the mountainous terrain of the Wasatch. Three parties had close calls earlier in the week, with two skiers in separate incidents collapsing the cornice and riding the "boxcar' half way down the slopes below. Despite the fact that the forecast center had warned folks to give cornices a wide berth, the victim that morning traveled onto a cornice that had recent footsteps crossing it. Likely thinking nothing of it, and eager to follow a broken trail rather than create his own, he followed onto the lip of the cornice. His friend watched as the lip broke behind the victim dropping him and the boxcar onto the steep rocky slope below. The sheer impact released a hard slab avalanche 1-2' deep and 50' wide. It ran 500', burying the victim in a debris pile up to 4-5' deep. The area along the Pioneer ridge was a 40 degree northeast facing slope at 10,300' in elevation.

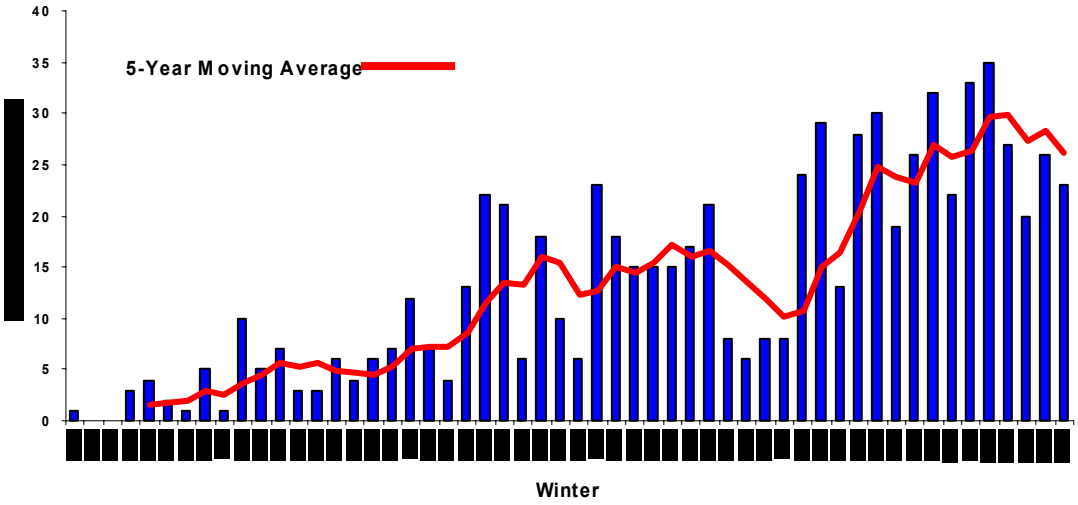
The two snowboarders did own rescue gear but did not carry it with them that day because they did not intend on leaving the resort boundaries, a situation eerily similar to last year's accident in Dutch Draw, adjacent to the Canyons Resort.

Very steep terrain on the left third of the photo is where one snowshoer was buried and was not recovered until spring.. Primrose Cirque, Mt. Timpanogos, Provo area mountains

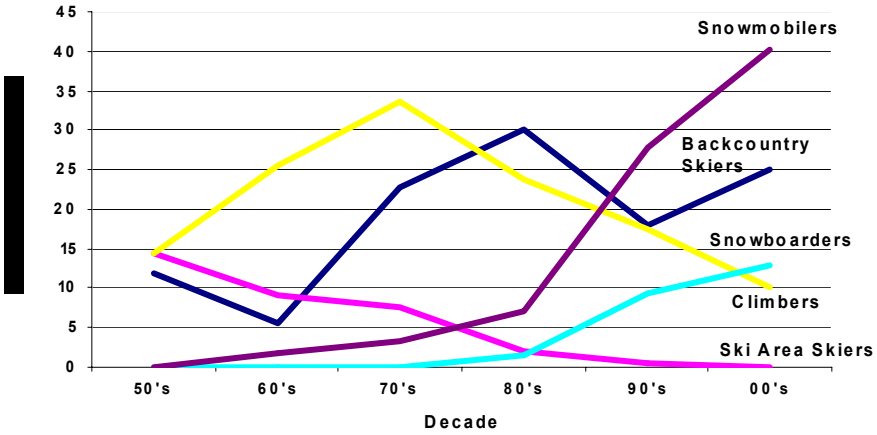
A backcountry skier took a long ride in a wind slab he triggered near the summit of Box Elder Peak. Miraculously, he was not buried or injured but lost some equipment.

The fracture line from the hard wind slab triggered by a skier on Box Elder Peak.

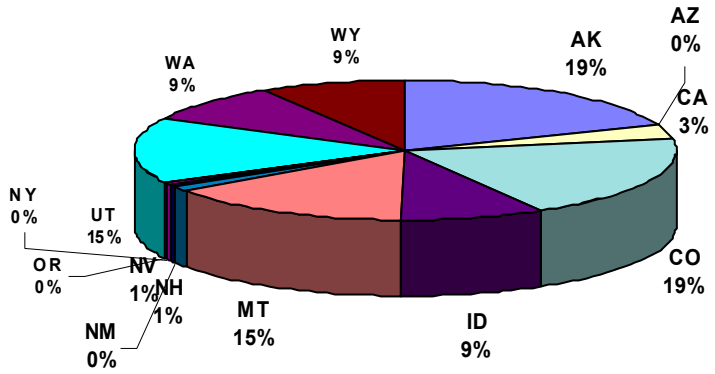
U.S. Avalanche Fatalities 1950-2006



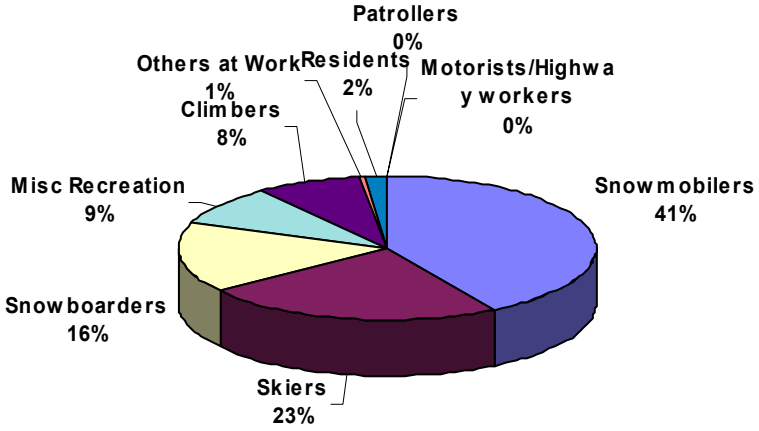
U.S. Avalanche Fatalities by Decade



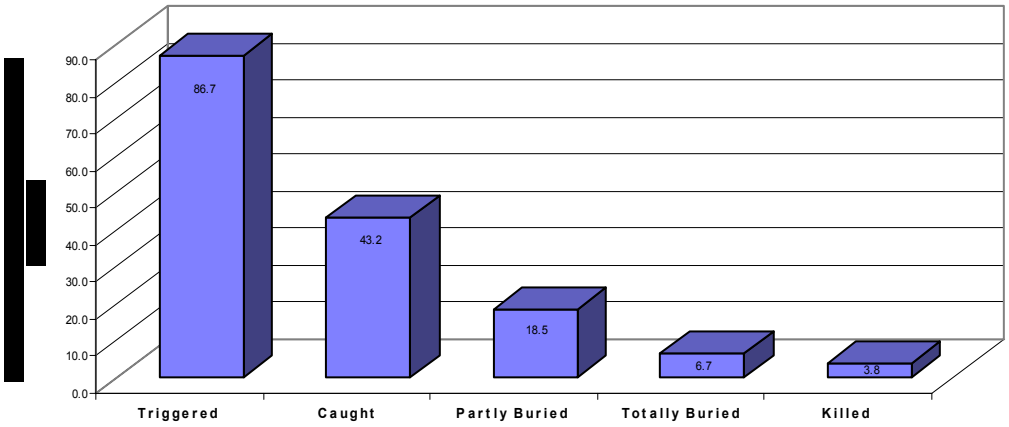
U.S. Avalanche Fatalities by State 1995-2006 (N = 278)



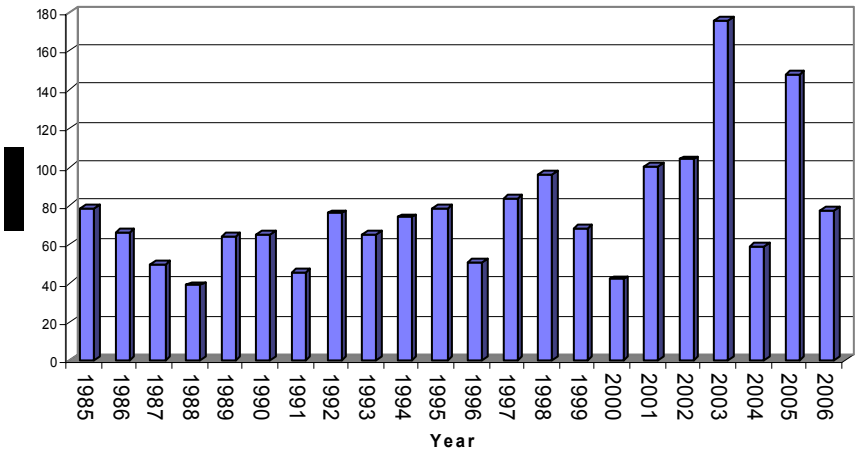
U.S. Avalanche Fatalities by Activity
Past 5 Seasons - Ending 2006
139 Total Fatalities



Avalanche Incidents in Utah (past 10 years)



Reported Unintentional Human Triggered Avalanches in the Backcountry
(We estimate that only 65% of the slides get reported)



Unintentionally triggered avalanches - Wasatch and Uinta Mountains 2005-06

Date	Region	Location	Avalanche Type	Trigger	Elevation (feet)	Aspect	Steep-ness	Depth	Width (feet)	Vertical (feet)	Weak Layer	Caught	Carried	Injured	Fatality	Part/Full Burial	Comments
4-16-06	SLC	Mary Ellen	Soft Slab	Snow-mobile	10,000	N		1.5'	200	500	Wind Slab	1	1			1	Snowmoibler triggered wind slab and was buried to waist - damaged sled
4-15-06	SLC	Little Superior	Wet sluff	Skier	10,200'	South				1500'	damp snow						
4-8-06	SLC	Red Baldy	Wet sluff	Skier	10,800'	ESE	45+	4"	40'	400'	damp snow	1	1				
4-6-06	SLC	Emma's (above Alta)	Soft Slab	Skier	9,800'	S	35	5-10"	150-200'	1000'	new snow						Sympathetically released from 200' away.
4-3-06	SLC	Pioneer Ridge	Soft Slab	Snow-boarder	10,300'	NNE	40	10-24"	100'	500'		1	1	1	1	1	Snowboarder had a cornice break under him which triggered a slab, caught, carried, killed.
4-3-06	SLC	Square Top	Cornice Fall	Skier	9800'	NE											Skiers accidently broke a very large cornice, only a small portion released.
4-2-06	SLC	Jaws into Days	Cornice	Skier	10k	N						1	1	1			Skier caught on wrong end of cornice fall.
4-2-06	SLC	Patsy Marley	Wet sluff	Skier	9600'	West			40'			1	1			1	Carried 150'
4-2-06	SLC	Banana Days	Soft slab	Skier	10,300'	NE		1'	60'	160'	wind slab	1	1			1	
4-2-06	SLC	Cardiac Ridge	Soft slab	Skier	10,400'	NE	40+	1'	150'	1500'	wind slab	1	1			1	
4-1-06	SLC	Maybird Aprons	Soft slab	Skier	9400'	N		1'	100'	150'	Wind slab						
3-30-06	SLC	Upper Days	Cornice/soft slab	Skier	10k	North					Wind slab	1	1				Skier caught on wrong end of cornice fall.
3-27-06	SLC	Banana Days	Soft slab	Skier	9400'	NE		12"	30'		Wind slab	1	1	1			Slab broke out on steep rollover way down the slope.
3-27-06	SLC	Upper Days	Soft slab	Skier	10k	N		12"	50'		Wind slab	1	1				
3-27-06	SLC	God's Lawnmower	Hard slab	Skier	9800'	N	50	12"	100'	300'	Wind slab	1	1	1		1	Broke 30' above skier, lost gear, minor injuries.
3-22-06	SLC	Coal Pit Gulch	Soft Slab	Skier	near 11,000	N	36	10"	40		Wind slab						Wind slab surprised skier but he did not go for a ride.
3-22-06	SLC	Cardiff Fork	Soft Slab	Skiers	10,500-11,000	NW & NE	35+	12-18"	40-100'	400-800	facets	1	1				At least 3 skier triggered wind slabs with one skier taking a ride after triggering hang fire above a previously released slide.
3-12-06	Provo	above Aspen Grove/Ant Knolls	Loose	Skier	8000'	East	40+			250'	new snow	1	1				skier carried 75 yards
3-12-06	SLC	Brighton BC	Soft slab	Skier	9500'	SW	35	1'	15'		Wind slab						Broke mid-slope
3-11-06	SLC	Silver Lake	Hard Slab	Skier	9000'	E		18"	70'	300'	possibly facets	1	1				broke 50' above skier
3-11-06	SLC	Raymond	Soft/slab	Skier	10,100'	N		18"			wind slab	1	1				arrested into bed surface to avoid going over cliffband.
3-11-06	Ogden	Snowbasin Backcountry	Hard slab	Snow-boarder	9400'	NW	40+	1-2'	150'		wind slab	1	1	1	1	1	Snowboarder caught out of bounds, carried short distance, killed from trauma.
3-9-06	SLC	Superior Pk.	Soft slab	Skiers	10,500	S	40				New snow						Skiers triggered sluff/slab that came within 500' or LCC highway below.
3-9-06	SLC	Reynolds Pk.	Soft Slab	Skiers	9,000	S	43	1-2'	150	800	new snow						Skiers triggered sizable soft slab, not caught
3-5-05	SLC	Pfeifferhorn/ Hogum	Soft Slab	Skier-remote	10,250	NW		18"	80'	300'	facets						Large collapse, broke 40' below party on skin track.
3-1-06	SLC	Mill B South	Soft Slab	Skier	10,400	N	35	1'	150	300	Facets	1	1				Skiers were checking out adjacent slide from yesterday. One was caught and rode short distance to bottom. No injuries
2-27-06	SLC	Big Cottonwood	Soft slab	skier							Wind slab						Skier heading for Dromedary triggered a few fresh wind slabs
2-27-06	Provo	Bear Claw/ Finger Chutes	Soft slab	skier	9,000'	NE		6-8"	50'	1,000'	Wind slab						2nd skier triggered slab but was able to ski out before getting caught.
2-26-06	SLC	Superior	wet loose	Skier	10,000'	S	40	4-6"	40'	1000'							Too-late skier parties triggering saturated snow
2-22-06	SLC	Snake Creek	Soft Slab	Skier	9,700	E-S	42	1'	150		Wind slab	1	1				Skiers triggered 6 different avalanches, skier took short ride in one with no injuries
2-20-06	Ogden	Ben Lomond	Loose	Skier	8600'	N		10"			New snow	1	1				Skier rode 80'
2-17-06	SLC	East Bowl, Silver Fork	Hard Slab	Skier	10,000'	North		1'	60'	300'	Unknown						Broke 10' above skier
2-11-06	SLC	Mill B South	Hard Slab	Skier	9600'	N		6"	30'		facets						Broke 10' above skier
2-11-06	SLC	Broad's Fork	Hard Slab	Skier	10,800'	N	40	8"	40'		facets						
2-11-06	SLC	Little Superior	Hard Slab	Skier	10,400'	N	45	1'	45'	300'	facets	4	4	2		4	Four people traversing under cliffband triggered, caught, partially buried. Minor injuries.
2-11-06	Provo	Box Elder	Hard Slab	Skier	10,800	NE	45	1-2'	200'	1500'	facets	1	1	1			Third skier rode 1500', sympathetic'd out adjacent hard slab skier's left. Minor injuries.
2-7-06	SLC	Monte Cristo	Slab	Skier Triggered Cornice	11,100	SE				1500'	facets	1	1				Skier triggered cornice fall tirggered a slab. One person on slope below was caught, carried a short distance, but stopped as slide continued.
2-4-06	SLC	LCC & BCC	Soft Slab	Skiers & Naturals	9-10,000'	N & NE		6-10"	50-150'	150-400'							Numerous sensitive soft slabs were released after they formed early Saturday.
2-4	Logan	Garden City	Soft Slab	Skier-remote	mid-low	SE		12-20"	150'	600'	facets						triggered from 50' away
2-2-06	SLC	Near Mule Hollow	Soft Slab	Skier		S		12"	50'	150'							Slide ran on a sun crust.
2-2-06	SLC	Kessler	Soft Slab	Skier	10,000'	N	40	8-10"	50'	1000'	Wind load	1	1				Skier caught, carried short distance but stopped as slide continued.
2-1-06	SLC	Days Fork	Soft Slab	skier	9,800	N	40	1.5	20	400	Wind slab						Skier dug into bed surface to keep from going down - very wind loaded slope
1-30-06	Ogden	Bridge Canyon near North Ogden Pass	Soft slab	Skier	7,000'	NE	33-35	20"	200'	800'	Surface Hoar	1	1				Skier triggered, caught, carried but got out before taking 800' ride into a terrain trap.
1-29-06	SLC	Beartrap	Soft slab	Skier-remote	9800'	South		1-2'	75'	300'	facets						
1-28-06	Provo	Timpanogos	Soft slab	Snow-Shoer		South		12"	80'	300'							Snowshoer caught and carried a short distance after triggering wind slab.
1-28-06	SLC	Upper BCC	Soft slab	Skier	10,700'	N		8-10"	70'		Probably facets						Broke above skier
1-28-06	SLC	Upper Mill B North	Soft slab	Skier	?	N		1'	80'		Probably facets						Broke 80' above skier

Unintentionally triggered avalanches - Wasatch and Uinta Mountains 2005-06																	
Date	Region	Location	Avalanche Type	Trigger	Elevation (feet)	Aspect	Steep-ness	Depth	Width (feet)	Vertical (feet)	Weak Layer	Caught	Carried	Injured	Fatality	Part/Full Burial	Comments
1-28-06	SLC	Y Couloir	Loose	Skier	7200'	N					new snow						
1-23-06	SLC	Mary Ellen	Soft Slab	Skier	10,200'	S	40+	12-18"	40-50'	400'	Radiation Re-crystallized?	1	1				Skier caught, carried, O.K. Broke ski binding.
1-23-06	SLC	Near Cardiff Peak	Soft Slab	Skier		S ?					Wind Slab	1	1				Skier caught and carried. Stopped before going off a cliff band.
1-20-06	SLC	Raymond	Soft slab	Skier	10,200'	E	40+	1'	40'		New snow	1	1				Skier took a ride.
1-13-06	SLC	Superior	Loose	skier		E?	35+					1	1				Caught, carried, OK.
1-13-06	SLC	White Pine	Soft Slab	Skier		SE	35+	6-8"	50'	200'							Caught, carried, OK. Ran on sun/wind crust.
1-12-06	SLC	Toledo Chute	Soft Slab	Skier	10,000	SE	40	6-8"	30-40'								No details other then this was skier triggered.
1-12-06	SLC	Wolverine Peak	Soft Slab	Skier	10,200	S	38	12"	100'	300	Wind Slab	1	1				Skier appeared to be off guard when he triggered this slide. Probably took a ride.
1-10-2006	SLC	Tuscarora	Soft Slab	Skier	10,300	NE	40	2		500		1					Skier triggered and caught, self-arrested, lost skis but OK
1-5-06	SLC	Tuscarora	Soft Slab	Skier or boarder	10,000'	E	40+	1-2'									Broke on third slope cut
12-31-05	Provo	Timpanogos	Soft slab	Skier	8500'	E		18"	100'		rain crust						
12-31-05	Provo	Timpanogos	Hard slab	Skier	9,800	NE		2'	150'			1	1	1	1	1	MISSING SNOWSHOER
12-31-05	SLC	Flagstaff	Soft slab	Skier	9700'	SE		18"	70'	600'	new snow						
12-31-05	SLC	Days' FK/Crystal P.	Soft slab	Skier	9800'	NE		1'	75'		new snow						Triggered three slides
12-31-05	SLC	Brighton BC	Soft slab	Skier	10,000'	NE	38	1'	200'		new snow						Three slides triggered down low on slope
12-15-05	SLC	Toledo Chute (LCC)	Hard slab	Skier	10,000	SE	40	2-6"	75	100	facets						Skier ski cut small wind slab in steep, rocky area - not caught
12-13-05	Provo	Chablis	Hard slab	Skier	9,500'	E	37	14"	30'	200'	Wind slab	1	1				Broke 10' above skier, caught, grabbed tree.
12-4-05	SLC	Clayton Peak	Hard slab	Sym-pathetic	10,500'	ENE		2-5'	300'		facets						sympathetic to control work at Brighton
12-4-05	SLC	10,420'	Hard slab	remote to skier	10,200'	NE		3-4'	100'		facets						remotely triggered 300' away
12-4-05	SLC	Pink Pine ridge	Hard slab	remote to skier	9300'	NE		4-6'	80'		facets	1					skier caught, able to hold onto tree
12-3-05	Uintas	Bald Mtn	Hard Slab	snow-mobile	9500'	E		4-6'	500'		facets						
12-3-05	PC	No Name bowl	Hard Slab	skier	9800'	NNE		3-5'	500'		facets	4	4			4	Skier caught, carried, engulfing three other skiers below. No injuries. 4 partial burials.
12-2-05	SLC	Cottonwoods	Slab	skier	above 9800'	NW?	35+	2-3'	30'	200'	facets	1	1			1	Caught, carried, partially buried, OK
12-2-05	SLC	10,420'	Slab	remote to skier	9400'	NE	35+	2-4'	50'	150'	facets						Triggered remotely from about 200' away.
12-1-05	SLC	Toledo Chute	Wind Slab	Skier	10,000'	NE	40	18"	30-40'	500	new snow	1	1				After triggering a smaller slab higher in the chute, skier was caught, carried, & uninjured by another slab.
12-1-05	SLC	Grizzly Gulch	Soft Slab	Skier	9,500'	NW	44	1-2'	35-45'	75'	facets	1	1				Slab broke above skier, caught and carried, was able to ski off before being buried in gullied terrain trap.
12-1-05	SLC	Rocky Point	Wind Slab	Skier	10,300'	NE	35+	1-3'	40	300	new snow	1	1				Cornice Broke and skier fell onto fracturing slab, went for a ride, ended on surface uninjured.
12-1-05	SLC	Rocky Point	Wind Slab	Sym-pathetic	10,300'	NE	35+	12"-24"	100-150'	300'	new snow						Slide broke sympathetically to human triggered described above.
12-1-05	SLC	Rocky Point	Wind Slab	Cornice	10,200'	NE	35+	12"-18"	30-40'	250'	new snow						Skiers kicked a cornice which released a soft slab below it.
11-30-05	Ogden	Ogden	Hard Slab	snowcat	9200'	E		4'	400'	400'							Heavily wind loaded
11-14-05	SLC	High Rustler, Alta	Wind Slab	Skier	9,800'	N	38	20"	18'	200'	new snow	1	1				Caught, carried 25', got out to side.

Avalanche Fatalities in Utah 1958-2006 - By Activity

Date	Male Deaths	Female Deaths	Location	Activity	Skier	Climber	Snow boarder	Snow mobiler	Other Recreation	Worker	Resident
9-Mar-58	2		Snowbasin	Rescuer						2	
29-Mar-64	1		Snowbasin	Worker						1	
31-Dec-65	1		Park City	In-bounds skier	1						
12-Feb-67	2		Pharoah's Glen	Climbers		2					
19-Feb-68	1		Rock Canyon	Hiker					1		
29-Jan-70	1		Alta	In-bounds skier	1						
29-Jan-73	1		Park West	In-bounds skier	1						
6-Jan-76	1		Alta	Out of bounds skier	1						
3-Mar-77	1		Snowbird	In-bounds skier	1						
19-Jan-79	1		Helper	Worker						1	
2-Apr-79	1		Lake Desolation	Backcountry skier	1						
11-Jan-80	1		Evergreen Ridge	Out of bounds skier	1						
1-Feb-81	1		Cardiff	Hiker					1		
1-Mar-81	1		Millcreek	Backcountry skier	1						
22-Mar-82	1		near Park West	Backcountry skier	1						
2-Jan-84	1		Superior Peak	Backcountry skier	1						
22-Feb-85	1		Near Powder Mountain	Backcountry skier	1						
19-Mar-85		1	Park City	In-bounds wet slide	1						
13-Nov-85	2		Sunset Peak	Backcountry skiers	2						
6-Jan-86	1		Provo Canyon	Backcountry skier	1						
17-Feb-86	1		Big Cottonwood Canyon	Backcountry snowboarder			1				
19-Feb-86	1		Alta	In bounds skier	1						
20-Nov-86	1		Sugarloaf, Alta	Hiker in unopened area					1		
15-Feb-87	1		Twin Lakes Reservoir	Backcountry skier	1						
25-Nov-89	1		Tony Grove Lake, Logan	Backcountry skier	1						
12-Feb-92	3	1	Gold Basin, La Sal Mtns	Backcountry vskiers	4						
1-Apr-92	1		Mineral Basin, near Snowbird	Backcountry skier	1						
16-Jan-93	1		Sundance (closed area)	Backcountry skier	1						
25-Feb-93	1		Pinecrest, Emig. Cyn.	Backcountry skier	1						
3-Apr-93	1		Wolverine Cirque	Backcountry skier	1						
18-Feb-94	1		10,420 Peak, B.C.C.	Backcountry skier	1						
7-Nov-94	1		Snowbird (pre-season)	Backcountry skier	1						
14-Jan-95	2		Ben Lomond, near Ogden	Snowmobilers				2			
23-Jan-95	1		Midway	Resident killed in roof slide							1
12-Feb-95	1		Gobbler's Knob, B.C.C.	Backcountry skier	1						
2-Feb-96	1		Solitude patroller	Worker						1	
27-Mar-96	1		Maybird Gulch, L.C.C.	Backcountry skier	1						
7-Dec-96	1		Bountiful Peak	Snowmobiler				1			
26-Dec-96	1		Flagstaff Peak	Backcountry snowboarder			1				
11-Jan-97	3		Logan Peak	Three campers					3		
25-Jan-97	1		Provo Canyon	Climber		1					
17-Jan-98	1		Near Coleville	Snowmobiler				1			
18-Jan-98	1		Sanpete County	Snowmobiler				1			
26-Feb-98	1		Near Weber State	hiker (possible suicide)					1		
7-Nov-98	1		Snowbird (pre-season)	Snowboarder			1				
2-Jan-99	2		Wasatch Plateau	Snowboarders			2				
29-Jan-99	1		Mt. Nebo	Snowmobiler				1			
6-Feb-99	1		Little Willow Canyon	Hiker					1		
11-Jan-00	1	1	Squaretop	Out of bounds Skiers	2						
14-Dec-01	1		Willard Basin	Snowmobiler				1			
27-Feb-01		1	Near Canyons Resort	Out of bounds Skier	1						
10-Mar-01	2		Uinta Mtns near Oakly	Snowmobiler				2			
28-Apr-01	2		Stairs Gulch, BCC	Climbers		2					
31-Jan-02	1		Windy Ridge, Uinta Mtns.	Backcountry Skier	1						
16-Mar-02	2		Pioneer Ridge near Brighton	Out of bounds Snowboarders			2				
15-Feb-03	1		Gobbler's Knob, B.C.C.	Skier	1						
26-Dec-04	3		Aspen Grove, Timpanogos	Snowboarders			3				
26-Feb-04	1		Empire Canyon - Park City	Snowshoer					1		
10-Dec-04	1		Twin Lakes Pass	Skier	1						
11-Dec-04	1		Trout Creek, Uintas	Snowmobiler				1			
11-Dec-04	2		Mineral Fork	Snowshoer					2		
8-Jan-05	1		Ephriam Canyon, Wstch Plt	Snowboarder			1				
8-Jan-05	1		Choke Cherry, Wasatch Plt	Snowmobiler				1			
14-Jan-05	1		Dutch's Draw	Snowborder			1				
31-Mar-05	1		Eccles Peak, Monte Cristo Rg	Snowmobiler				1			
31-Dec-05	1		Mt Timpanogos	Snowshoer					1		
11-Mar-06	1		Taylor Canyon near Mt Ogden	Snowboarder			1				
3-Apr-06	1		Pioneer Ridge near Brighton	Snowboarder			1				
	Male	**Female**	**Male & Female**	**1958 season - Present**	**36**	**5**	**14**	**12**	**12**	**5**	**1**
Totals	**81**	**4**	**85**	**Past 5 seasons**	**3**	**0**	**9**	**3**	**4**	**0**	**0**

Avalanche Education

We feel that avalanche education is an essential part of staying alive in avalanche terrain. It not only gives people the basics of avalanche knowledge, but it helps create and maintain an avalanche culture, where people learn from their peers. We teach many free avalanche awareness classes throughout the season, partially to give people the basics of how to stay alive, but also to inspire them to take a more detailed, multi-day avalanche class from the private sector. This season our staff taught 152 avalanche classes and directly reached over 20,000 people.

In addition, we also had a very successful Avalanche Awareness Week, starting with a signing ceremony with Jon Huntsman, Utah's Governor, Avalanche awareness week consisted of a media blitz and several classes offered both indoor and in the field, plus a successful fundraiser at Snowbird put on by the Friends of the Utah Avalanche Center. Many thanks to Roger Kehr and Colleen Graham for organizing the event, and to our great partner, Snowbird Ski resort, for hosting the event.

Bruce Tremper spent two days demonstrating avalanche rescue devices and giving out avalanche information at the Richfield National Resources Fair.

UAC Avalanche Education 2005-06

Date	Staff	Event	No. people
11/17/2005	Weed	Avalanche Awareness Talk	15
11/18/05	Hardesty	Sundance Ski Patrol - Metamorphism	25
11/22/2005	Weed	Avalanche Awareness Talk	6
11/23/2005	Tremper/Lees	National Avalanche School - 4 days	200
11/29/05	Tremper	REI - Avalanche Awareness	200
11/29/05	Hardesty	Toolee Outdoor Club - Avalanche Awareness	25
12/1/05	Lees	REI - Avalanche Awareness	100
12/1/2005	Weed	Avalanche Awareness Talk	13
12/5/05	Hardesty	Black Diamond - Avalanche Awareness	20
12/7/05	Lees	Alta Communtiy Enrichment - Avalanche Awareness	15
12/8/05	Tremper	Wasatch Mountain Club - Avalanche Awareness	120
12/13/05	Hardesty	REI - Avalanche Awareness	70
1/3/06	Tremper	Wasatch Touring - Avalanche Awareness	30
1/4/06	Tremper	Snowbird - Avalanches of Little Cottonwood Canyon	20
1/7/2006	Weed	Cache County Search + Rescue	12
1/14-16/06	Staff	FUAC Brighton 3-day Level I	25
1/8/06	Tremper	Park City - Avalanche Awareness	200
1/17/06	Hardesty	Black Diamond - Avalanche Awareness	8
2/8/2006	Weed	Avalanche Awareness Talk	2
2/21/06	Hardesty	REI - Avalanche Awareness	50
2/22/06	Lees	Alta Communtiy Enrichment - Women's Beacon Clinic	18
2/23/06	Lees	REI - Avalanche Awareness	35
2/25/2006	Weed	Avalanche Awareness Talk	15
3/1/2006	Kikkert	Avalanche Awareness Talk 6x	130
12/1/06	Tremper	Hansen Mountaineering in Orem	60
2/18-20/06	Staff	FUAC Brighton 3-day Level I	30
12/8/2006	Weed	Cache County Search + Rescue	30
12/10/2006	Weed	Cache County Search + Rescue	20
12/15/2006	Kikkert	USU ORC Basic Avalanche	15
12/17/2006	Kikkert	USU ORC Basic Avalanche	15
12/27/2006	Weed	Custom Class (snowboarders)	6
	Tremper	REI - Science of Avalanches	200
		32 Total talks	**1730**

Know Before You Go Presentations 2005-06

Date	Staff	Event	No. people
9/18/2005	Gordon	American Avalanche Association	43
10/12/2005	Gordon	Mt. Nebo School District Phys Ed Personnel Training	29
11/9/2005	Gordon	Cascade Drift Skippers Snowmobile Club	102
11/15/2005	Gordon	Bear River Yamaha Snowmobile Shop	93
11/15/2006	Gordon	Kamas Ranger District Staff	13
11/21/2005	Cardinale	Park City High School (4 talks)	378
11/22/2005	Hutchinson	Park City High School (4 talks)	342
12/1/2005	Gordon	Realms of Inquiry School	63
12/6/2005	Gordon	Full Throttle Power Sports Snowmobile Shop	28
12/7/2005	Gordon	Timponogas Regional Hospital	73
12/8/2005	Gordon	REI	41

Know Before You Go Presentations 2005-06			
Date	**Staff**	**Event**	**No. people**
12/12/2005	Garcia	Herriman Junior High School (2 talks)	856
12/13/2005	Gordon	North Summit Middle School	320
12/13/2005	Gordon	North Summit High School	472
12/15/2005	Gordon	South Summit Middle School	370
12/15/2005	Gordon	South Summit High School	441
12/16/2005	Gordon	Brigham Intermediate High School (2 talks)	1015
12/20/2005	Sackett	Churchill Junior High School	250
12/21/2005	Gordon	Wanship Fire Station Snowmobile Avy Talk	17
12/22/2005	Hutchinson	Rocky Mountain Middle School (2 talks)	626
1/4/2006	Gordon	Olympus Junior High School	900
1/4/2006	Gordon	Utah State Parks Law Enforcement Personnel	21
1/4/2006	Gordon	Powder Mountain Volunteer Ski Patrol	61
1/5/2006	Morris	Eastmont Middle School	967
1/5/2006	Trotter	Salem Stake Center	37
1/6/2006	Garcia	Ogden High School	113
1/9/2006	Garcia	Treasure Mountain Middle School (4 talks)	120
1/9/2006	Whatley	Indian Hills Middle School (2 talks)	1200
1/10/2006	Trotter	Treasure Mountain Middle School (4 talks)	107
1/10/2006	Gordon	Goldman, Sachs and Company	28
1/11/2006	Cardinale	Kennedy Junior High School (4 talks)	602
1/12/2006	Morris	Kennedy Junior High School (4 talks)	645
1/12/2006	Trotter	Novell	30
1/12/2006	Gordon	Access Motor Sports Snowmobile Shop	11
1/13/2006	Gordon	Centerville Junior High School	1052
1/13/2005	Hutchinson	Butler Middle School	1105
1/14/2005	Gordon	Rowland Hall- Saint Marks Middle School Ski Team	22
1/17/2006	Wewer/Fletcher	Bountiful Boy Scouts	33
1/18/2006	Gordon	Utah State Parks Grooming Personnel	18
1/18/2006	Trotter	Treasure Mountain Middle School (4 talks)	141
1/19/2006	Morris	Treasure Mountain Middle School (4 talks)	156
1/19/2006	Trotter	Mount Nebo Boy Scouts	22
1/19/2006	Gordon	Westminister College	42
1/20/2006	Gordon	Park City High School (2 snowpit talks)	44
1/23/2006	Garcia/Whatley	South Davis Junior High School (6 talks)	591
1/23/2006	Gordon	Park City High School (1 snowpit talk)	29
1/25/2006	Gordon	Evergreen High School	852
1/25/2006	Gordon	University of Utah Snow Dynamics	21
1/26/2006	Gordon	Utah State Parks Grooming Personnel	11
1/27/2006	Gordon	Oakley School	113
1/27/2006	Gordon	BYU College	82
1/31/2006	Gordon	Salt Lake City Boy Scouts	57
1/31/2006	Trotter	Heber Boy Scout Leaders	35
2/1/2006	Gordon	McGillis School	51
2/1/2006	Gordon	Brighton Ski Resort	156
2/6/2006	Wewer/Fletcher	Hill Airforce Base	51
2/8/2006	Gordon	Vernal Junior High School (2 talks)	782
2/8/2006	Gordon	Vernal Western Park Public Talk	37
2/9/2006	Gordon	Brighton Volunteer Ski Patrol	92
2/9/2006	Sackett	Salt Lake Realtors Association	15
2/10/2006	Gordon	Steeps Camp- Snowbird	24
2/11/2006	Gordon	Kamas Ranger District Goodwill Riders Program	18
2/13/2006	Whatley	Grantsville Middle School	480
2/13/2006	Whatley	Grantsville High School	864

Know Before You Go Presentations 2005-06			
Date	**Staff**	**Event**	**No. people**
2/14/2006	Gordon	Park City Learning Center	38
2/15/2006	Trotter	Treasure Mountain Middle School (4 talks)	124
2/15/2006	Sackett	Sandy Boy Scout Group	85
2/15/2006	Trotter	Utah Valley State College	11
2/16/2006	Morris	Treasure Mountain Middle School (4 talks)	119
2/18/2006	Gordon	Rocky Mountain Search and Rescue Dogs	21
2/24/2006	Gordon	Steeps Camp- Snowbird	22
2/25/2006	Gordon	Wasatch Search and Rescue	43
2/27/2006	Gordon	Park City Police Department	12
3/3/2006	Trotter	Wasatch Academy	10
3/23/2006	Morris	South Ogden Junior High School	822
4/3/2006	Gordon	Eagle Bay Elementary	102
4/4/2006	Wewer/Fletcher	Smithfield Boy Scout Group	29
4/5/2006	Gordon	Steeps Camp- Snowbird	8
4/27/2006	Gordon	Itineris Early College High School	72
		Total talks-120	18,928

An avalanche students practices her skills with a beacon. Avalanche skills are learned best by doing, not by reading or listening. Therefore, we try to get people out in the snow as often as possible.

UAC Media Contacts 2005-06

Date	Staff	Agency	Subject	National or Inter-national Television Interview	National or Inter-national Television Information	National or Inter-national Print Media	Local Television Interviews	National Radio Interviews	Local Radio Interviews	Local Print Interviews
10/15/2005	Gordon	Free Ride Magazine	Avalanche Education							x
10/17/2005	Gordon	Ski News	Avalanche Education							x
11/1/2005	Gordon	Snowscoop	Avalanche Education							x
11/17/2005	Gordon	Uinta County Herald	Local Avalanche Presentations							x
11/20/2005	Hardesty	Toole Register Newspaper	Avalanche Danger							x
11/30/2005	Lees	KSL Radio	Avalanche Danger						x	
11/30/2005	Weed	KUSU, Utah Public Radio	½ hour avalanche interview						x	
12/1/2005	Gordon	Snowscoop	New Advisory Format							x
12/2/2005	Tremper	Salt Lake Tribune	Avalanche Conditions							x
12/2/2005	Tremper	Channel 13	Avalanche Conditios				x			
12/4/2005	Hardesty	KSL TV	Avalanche Conditions/No Name Avalanche				x			
12/6/2005	Tremper	Park Record	No-Name Accident							x
12/10/2005	Lees	Skiing Magazine	Debunking the Avalanche Myths			x				
12/14/2005	Lees	Skiing Magazine	Debunking the Avalanche Myths			x				
12/22/2005	Gordon	Park City TV	Avalanche Advisories/Education				x			
12/26/2005	Hardesty	Skiing Magazine	Debunking the Avalanche Myths			x				
12/30/2005	Kobernik	KSL TV	Avalanche Danger				x			
1/1/2006	Gordon	Salt Lake Tribune	Avalanche Conditions							x
1/1/2006	Gordon	Snowscoop	Snow and Avalanche Obs.							x
1/1/2006	Gordon	Ski News	New Advisory Format							x
1/2/2006	Hardesty	KSL TV	Avalanche Danger				x			
1/2/2006	Hardesty	KSL Radio	Avalanche Danger						x	
1/6/2006	Weed	Logan Herald Journal	Short article giving education dates							x
1/9/2006	Gordon	Salt Lake Tribune	Avalanche Conditions							x
1/10/2006	Gordon	KSL Radio	Know Before You Go Avy Ed.						x	
1/13/2006	Gordon	The Avalanche Review	Avy Education for Snowmobilers			x				
1/14/2006	Gordon	Fox 13 News	Backcountry Awareness Week				x			
1/15/2006	Gordon	Free Ride Magazine	Five Red Flags							x
1/18/2006	Gordon	KTVX Ch 4 News	Avy Training for State Parks				x			
1/18/2006	Gordon	KSTU Ch 13 News	Avy Training for State Parks				x			
1/23/2006	Gordon	The Weather Channel	Dec. 05 Bountiful Pk. Avalanche	x	x					
2/1/2006	Gordon	Snowscoop	Clues to Instability							x
2/8/2006	Tremper	Wall Street Journal	Article about avalanches			x				
2/8/2006	Tremper	German magazine	Article about avalanches			x				
2/8/2006	Tremper	Channel 13	Avalanche conditions				x			
2/11/2006	Gordon	Park Record	Local Avalanche Presentations							x
2/15/2006	Tremper	Backpacker Magazine	Article about avalanches			x				
2/17/2006	Tremper	National Geographic Adventure	Article about avalanches			x				
2/22/2006	Gordon	Park Record	Know Before You Go Video							x
3/1/2006	Tremper	Skiing Magazine	18-page spread on avalanches			x				
3/1/2006	Gordon	Ski News	Avalanche Rescue Gear							x
3/4/2006	Kobernik	Channel 4	Pioneer Avalanhce Fatality				x			
3/4/2006	Kobernik	Channel 5	Pioneer Avalanhce Fatality				x			
3/4/2006	Kobernik	Channel 13	Pioneer Avalanhce Fatality				x			
3/5/2006	Gordon	Uinta County Herald	BRORA Donation							x
3/12/2006	Gordon	Snowscoop	Rescue Gear Technology							x
3/12/2006	Gordon	Salt Lake Tribune	Ogden Area Avy Fatality							x
3/21/2006	Weed	Logan Herald Journal	Article on Weed							x
3/28/2006	Kobernik	KSL Radio	Springtime Avalanche Concerns						x	
3/28/2006	Kobernik	KCPW	Springtime Avalanche Concerns						x	
3/29/2006	Lees	KSL TV	Avalanche Danger				x			

UAC Media Contacts 2005-06

Date	Staff	Agency	Subject	National or Inter-national Television Interview	National or Inter-national Television Information	National or Inter-national Print Media	Local Television Interviews	National Radio Interviews	Local Radio Interviews	Local Print Interviews
4/3/2006	Kobernik	Channel 2	Pioneer Avalanhce Fatality				x			
4/3/2006	Gordon	KUTV Ch 2 News	Pioneer Ridge Fatality				x			
4/4/2006	Kobernik	KSL Radio	Springtime Avalanche Concerns						x	
4/6/2006	Tremper	Channel 13	Springtime Avalanche Concerns				x			
4/7/2006	Kobernik	KSL Radio	Little Cottonwood Avalanches						x	
4/11/2006	Gordon	Park City TV	Spring Avalanche Conditions				x			
4/18/2006	Tremper	Channel 5	Spring snow storm				x			
4/19/2006	Tremper	Channel 13	Avalanche Conditions				x			
4/20/2006	Gordon	Discovery Channel	Avy Ed/Know Before You Go		x					
5/10/2006	Tremper	Discover-Time	Documentary about avalanches	x						
1/5/2006	Weed	Logan Herald Journal	Article quoted Weed and Tremper							x

Utah Governor, Jon Huntsman signs the declaration for Avalanche Awareness Week. From left: Tim Garcia, Faye Krueger, Governor Huntsman, Craig Gordon, Roger Kehr, Jerry Mika, Bruce Tremper

Budget

The Forest Service Utah Avalanche Center is the epitome of a successful partnership. Although we are a Forest Service program, only 19% of our annual funding comes from Forest Service base funding. The rest come from a variety of State, County and private funding sources. This season, we received an additional one-time grant of nearly $30,000 to do an outreach program for people who don't normally consult the avalanche advisory before heading out (see Avalanche Outreach Program).

Utah Division of Parks and Recreation is the largest contributor to the program. They fund avalanche forecasting for the western Uinta, Logan and Manti Skyline areas, plus they fund a 1-800 recorded avalanche hotline for snowmobilers and avalanche education for snowmobilers statewide. Thanks so much to Fred Hayes and his cohorts for their loyal support.

The Friends of the Utah Avalanche Center is a non-profit organization that raises private funds for avalanche forecasting and avalanche education in Utah. This season, they donated $29,500 to the Forest Service, primarily for salaries, and they also spent an estimated $20,000 outside the Forest Service to pay backcountry volunteer and contract observers, purchase computer equipment, teach avalanche classes and purchase safety equipment. Thanks so much to President Colleen Graham and the hard work by board members and volunteers who donate their time throughout the season.

Both the Utah Division of Homeland Security and Salt Lake County have been longtime contributors to the program and we heartily thank them for their support.

Forest Service	$42,000
Utah Division of Parks and Recreation	$82,000
Utah Department of Homeland Security	$25,000
Friends of the Utah Avalanche Center	$22,500
Salt Lake County	$20,000
Forest Service Centennial grant – Avalanche Outreach	$29,560
Total	**221,060**