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Public Safety in Avalanche Terrain

The Utah Avalanche Center is a partnership between the USDA Forest Service and the nonprofit group Friends of Utah Avalanche Center.

Additional major funding comes from: Utah Division of State Parks and Recreation, Utah Division of Emergency Management, Salt Lake County and Salt Lake Unified Fire Authority

AVALANCHE OVERVIEW Our goal is to 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 arrive 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 10 years of national data, snowmobilers lead the list followed by backcountry skiers, snowboarders, climbers and miscellaneous recreationists such as hikers and snowshoers.

How do people get caught?

In 93 percent of avalanche fatalities, the avalanche was triggered by the victim or someone in the victim's party. Which is actually good, because most 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.

How to access 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:

- The Internet Recorded telephone message updated each day Regular live interviews on radio stations
- E-Mail
- Twitter
- 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.

The UAC mobile app

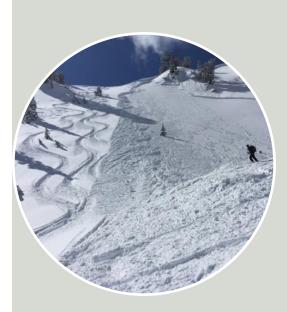
Finally, we "preach the avalanche gospel" as much as possible to the local, national and international media. The Forest Service Utah Avalanche Center staff has been featured on dozens of national and international documentaries about avalanches and they regularly appear on the national television news.

Avalanche awareness and education

The Know Before You Go program taught 198 free classes and reached over 11,208 people this year. 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.

Our Communication Philosophy

Just because people read or hear the information doesn't mean they pay attention or retain the information. Therefore, we make the advisories simple, graphical and often entertaining so that people will remember it and enjoy the experience enough to use the advisories regularly. We write using active voice, first person, personal examples and stories to illustrate points, humor where appropriate and we read the audio bulletins in a natural voice, like talking to a friend. The Internet-based products are graphically-based and targeted to users with a Level 1 avalanche certification. The advisories are extremely popular with over 2 million page views per year on our web site.



A LOOK UNDER THE HOOD

The UAC is operationally separated into five regions:

- Logan area Mountains (Wellsville and Bear River Ranges).
- 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 (Fairview Canyon Wasatch Plateau)
- Moab area mountains (La Sal and Abajo ranges)

All forecasts are issued by full time Forest Service employees. Friends of Utah Avalanche Center (FUAC) employees often work part or full time as field assistants, avalanche educators, video support or other duties. Toby Weed forecasts for the Logan area mountains with FUAC contractor Paige Pagnucco. Based in Moab, Eric Trenbeath forecasts for the nearby La Sal and Abajo Mountains. The Moab office is located in the Moab Ranger District on the Manti-La Sal National Forest. Craig Gordon issues forecasts for the western Uinta Mountains, does the

lion's share of avalanche education for snowmobilers in northern Utah and developed the Know Before You Go awareness program. Ted Scroggin, from the Evanston Ranger District regularly works as a Uinta field partner along with FUAC employee, Trent Meisenheimer who also heads up video productions. Craig Gordon and Brett Kobernik also issue weekend forecasts for the Manti Skyline. The vast majority of the backcountry use occurs in the Wasatch Range—arguably the most heavily used mountain range in the U.S, which includes the communities of Ogden, Salt Lake City, Park City and Provo. Evelyn Lees, Drew Hardesty and Brett Kobernik forecast for the Wasatch Range. Our office is co-located with the National Weather Service near the Salt Lake International Airport. Brett Kobernik is also our webmaster. Bruce Tremper, in his 29th season, is the Director and oversees forecasting operations statewide as well as forecasting part time for the Wasatch Range. On the nonprofit side, Paul Diegel served as the Executive Director of the Utah Avalanche Center, Devin Dwyer as the Program Director, Trent Miesenheimer as the Awareness Coordinator, and Bo Torrey as the Intern. In addition, the UAC contracts about 40 observers who take extra time to call or e-mail their observations after they return home at the end of an outing.

The Utah Avalanche Center is a collaborative effort between the Forest Service under the Uinta Wasatch-Cache National Forest and the Manti-La Sal National Forest and Friends of Utah Avalanche Center. Other major funding partners include Utah State Parks and Recreation, Utah Department of Public Safety, Division of Emergency Management, Salt Lake County and the National Weather Service.



Utah Avalanche Center - Full time personnel, from left, Friends of UAC: Paul Diegel and Devin Dwyer; UAC Forecasters: Drew Hardesty, Evelyn Lees, Bruce Tremper, Craig Gordon, Eric Tenbeath, Brett Kobernik, Toby Weed. Not pictured, part time personnel: Ted Scroggin, Paige Pagnucco, Trent Meisenheimer.

CONTACT

Telephone

• All Areas (courtesy of Backcountry.com). (888) 999-4019

Radio Stations

- KPCW 92 FM (Live interview, 8:06 am weekdays)
- KSL Radio every Saturday Morning

Internet

- <u>www.utahavalanchecenter.org</u>
- <u>www.wrh.noaa.gov/Saltlake</u> (National Weather Service)

E-mail

We offer daily automated e-mail of the advisories free of charge. About 2,902 e-mails are sent each day.

Mobile

We have an iPhone app where users can check conditions as well as send observations.

To contact forecast office

- PHONE: (801) 524-5304
- EMAIL: uac@utahavalanchecenter.org

To contact the Friends of Utah Avalanche Center

- PHONE: (801) 365-5522
- EMAIL: friends@utahavalanchecenter. org

The Utah Avalanche Center welcomes any questions or feedback from the general public. We would love to explain our organization to anyone who is interested.

PARTNERS

The Utah Avalanche Center is the epitome of a successful partnership organization. Thanks so much to our major funding partners and to the National Weather Service for office space, weather forecasting and technical support. (See the Sponsors section for a complete list.)



2014-2015 POINTS OF INTEREST

Season Overview

The unprecedented 2014–15 season smashed all previous records for the least amount of snow and the warmest temperatures since records began at Alta in the 1940's. The previous record for the least amount of snow at the Alta Guard Station was 314 inches in the infamous 1976–77 season. This season only 267.5 inches fell from November 1st through April 30th.

But the good news...Utah had only one fatality instead of the average of four. We had 116 unintentional, human triggered avalanches reported to us, 26 people caught in avalanches and 3 injured. Nationally avalanche deaths were down as well with 11, well under the average of close to 30.

Knowledge is Powder:

Knowledge is Powder, a 10 minute avalanche awareness video produced by Trent Meisenheimer and Craig Gordon with support from the International Snowmobile Manufacturers Association, the Federal Highway Administration, and a number of other supporters in the snowmobile community was released in November, 2014 and has spread across North America. Link: <u>http://vimeo.com/113677686</u>

Know Before You Go

In anticipation of an October, 2015 release, we began a revision of the 10-year old KBYG awareness video, taking advantage of high definition video, a plethora of POV videos, a new set of pro athletes, improved editing capability, and support from avalanche centers around the US and Canada. The UAC will partner with the Colorado Avalanche Information Center and Avalanche Canada to use a new, high quality and up-to-date video and slide deck to modernize the program and spread the program nationally and objectivize the learning outcomes.

Billboard

With help from Backcountry.com and Black Diamond Equipment, the UAC rented the billboard at the bottom of Big Cottonwood Canyon for December and January to display an avalanche awareness message. This could also allow us to display real-time information such as the avalanche danger level in the future.

App Update and Sponsorship

The UAC mobile application was updated to provide the ability to submit observations in a database-ready format from a mobile device, as well as to update content and make other small changes

SNOW AND AVALANCHES

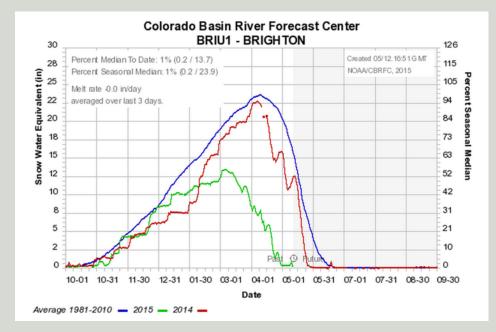
The 2014-15 year will live in infamy as the least amount of snow and the warmest temperatures in the last 70 years of record keeping at the Alta Guard Station. The previous record for the least amount of snow at the Alta Guard Station was 314 inches in the infamous 1976-77 season. This season only 267.5 inches fell from November 1st through April 30th.

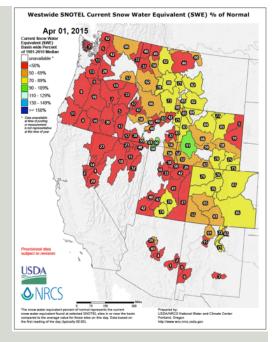
The season started out innocently enough with relative normal snow in November and a nice series of snow storms around Christmas. Then what became known as the "ridiculously persistent ridge" built in off the west coast, which pushed the weather systems north for the rest of the winter, after which, the storms plunged into the eastern US giving them a record snowy winter. As a result, the entire west coast and Intermountain West not only had very little snow in January, February and March, but also very warm temperatures. On April 1st a swath of severe snow drought hovered over the west coast extending into Utah with many mountains in the single digits or teens for percent of normal. The continental climates of Montana, Wyoming and Colorado ended up closer to average.

By the end of March, we could no longer keep issuing avalanche advisories with a straight face for mostly bare mountains, so the UAC issued its end of season advisory on April Fools Day, the earliest closure in many years. Then, of course, we had the largest snow storm of the winter in mid April with 38 inches of snow at Alta and a couple more snowstorms in May.

Thankfully, avalanche activity for the winter was as stingy as the snowfall. We had far fewer human triggered avalanches than normal with only one fatality compared to Utah's average of four. Nationally, avalanche deaths also plunged to only nine compared to the average of nearly thirty.

At least we got a lot of office projects finished. We hope for better next season.









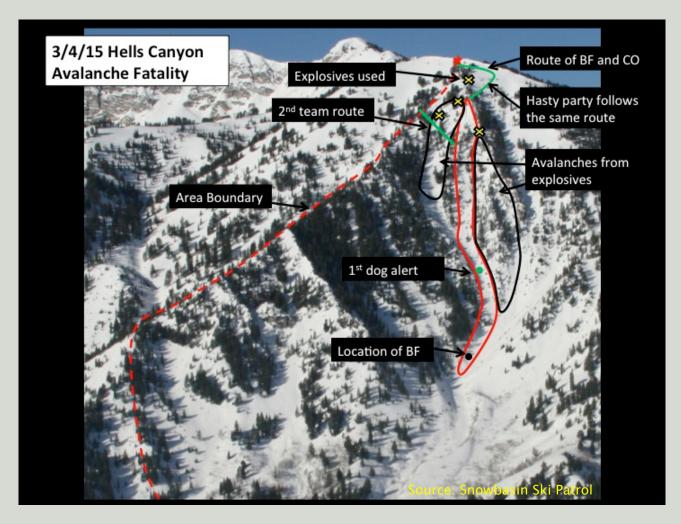
Top - Percent of average snowpack at April 1st.

Middle - The end of March with almost completely bare, south-facing slopes in Little Cottonwood Canyon -even up to 11,000 feet.

Bottom - The largest snow storm of the season in mid April - 38 inches.

Left - Brighton was one of the snowier locations in Utah but the graph still looks grim.

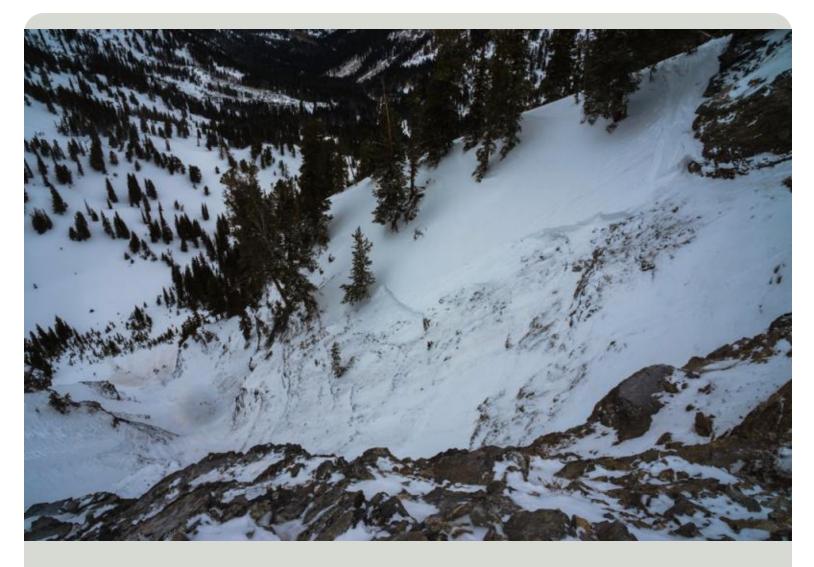
AVALANCHE INCIDENTS AND ACCIDENTS



FATALITY - HELL'S CANYON NORTH OF SNOWBASIN - MARCH 4, 2015

We thought we could squeak through the season with no fatalities but unfortunately on March 4th, a snowboarder went out of bounds from Snowbasin Ski Area triggering an avalanche in very steep, unforgiving terrain and died from the trauma of hitting trees on the way down. Complete accident report: <u>https://utahavalanchecenter.org/avalanches/23779</u>

BACKCOUNTRY AVALANCHE Incidents 2014-15	UNINTENTIONALLY TRIGGERED	CAUGHT	INJURED	KILLED
	116	26	3	1



INJURY - DAY'S FORK - "JAWS" - DECEMBER 24, 2014

The day before Christmas, people were hungry for powder in the early season with fresh snow on top of a very weak layer of basal depth hoar.

A group of three backcountry skiers descended a very steep, rocky chute appropriately called "Jaws" in Day's Fork of Big Cottonwood Canyon, which is easily accessible from the Little Cottonwood road. The first two skiers descended one at a time and tucked in beneath some cliffs in a safe spot at the bottom. When the third skier entered the slope, he triggered a large, full-depth avalanche that carried him down through rocks and small trees and completely buried him at the bottom. He suffered an open tibia-fibula fracture of his left leg with quite a bit of blood loss. His partners, along another nearby group, who happened to see it from the flats below, quickly located him using avalanche transceivers and dug him out within 3–4 minutes. He was not breathing and unconscious but he began breathing on his own after they cleared the airway. He was evacuated by a medical helicopter. He was completely buried with his face about a foot under the surface. Complete accident report: https://utahavalanchecenter.org/avalanches/22607

AVALANCHE AWARENESS, EDUCATION AND OUTREACH

Knowledge is Powder video

New for 2014–15, we produced and launched a new awareness video for motorized users, titled "Knowledge is Powder". This 10 minute video, produced with support from the International Snowmobile Manufacturer's Association, several state snowmobile clubs, and BCA, is intended to introduce the Know Before You Go program, and serve as a stand-alone resource, to motorized users. It is available to stream online, to download, and on disk. Link: <u>http://vimeo.com/113677686</u>

Know Before You Go

The Utah Avalanche Center offers our free Know Before You Go program for new and aspiring backcountry users in schools, youth groups and local snowmobile and ski shops across Utah. The program typically lasts an hour and consists of video, PowerPoint, and Q&A session. Local Utah athletes give many of the presentations, which helps spread the avalanche message to a critical target audience by respected community members. This season, we gave 198 presentations to 11,208 people. Of those, 28 were in the greater Park City area reaching 999 people. The KBYG numbers increased significantly this year compared to 2013–14, likely due to increased support from the State board of Education. The program is presented by several other avalanche centers around the US.

This spring, we teamed up with other avalanche centers to revise and update the KBYG material and distribute it across North America. The update will include an all-new KBYG video targeted to be around 10 minutes long instead of 17 minutes for the old video. The new video will feature an impressive list of well-known athletes, sport ambassadors and avalanche experts from the U.S. and Canada along with the usual spellbinding mix of avalanche footage and high energy music. We will partner with both the Colorado Avalanche Information Center and Avalanche Canada to produce the video. It should be released in the fall of 2015.

In addition, we will update the KBYG slide deck and give personal tutorials and directions on how we present it to various audiences.

Field-Based Education

The education program got off to a busy start and interest faded quickly with the record low snowfall. We introduced a new class, Companion Rescue, with good attendance for the first 2 classes in late January and early February. These classes, taught at night by local ski patrollers at Brighton Resort, were intended to provide more in-depth rescue training than we have time for in the one day backcountry 101 classes and are in line with national efforts to separate rescue training from the rest of the traditional education track. Other classes included:

- 3 Open Backcountry 101
- 1 Women's Backcountry 101
- 1 Open Advanced Avi Skills
- 2 Companion Rescue (2 additional classes cancelled due to lack of snow)
- 3 Snowshoe Avalanche Skills
- 8 Vertfest clinics

2 Snowbasin Intro to Avalanches
2 Canyons Intro classes
Park City Treasure Mountain Jr High & American International School of Utah STEM science module extensions
1 Free Beacon Clinic
Uintas
Motorized Avi & Riding Skills (2nd class cancelled due to lack of snow)
Skyline
Motorized Avi & Riding Skills (cancelled due to lack of snow)
Logan
Motorized Avi & Riding Skills (cancelled due to lack of snow)
1 Backcountry 101
1 Advanced Avalanche Skills

Utah Snow and Avalanche Workshop

The seventh annual Utah Snow and Avalanche Workshop (USAW) brought over 650 avalanche professionals and high-end backcountry users along to hear 20 presenters for a day of continuing avalanche education at the Southtowne Expo Center on November 1st. USAW has become the largest annual, professional avalanche education program in the U.S. Craig Gordon, in the traditional tuxedo, once again served as the Master of Ceremonies.



PROGRAMS AND PARTNERSHIPS

Are You Beeping signs

The UAC continued replacing old text-heavy Are You Beeping awareness signs at trailheads and resort exit gates, some incorporating transceiver checkers, printing 20 new signs and including MSD/ Gasex as the latest sign sponsor.

Science Education

For the 2nd year, the UAC partnered with Treasure Mountain Junior High School to deliver an afterschool Science Program incorporating avalanche principles to teach basic science concepts, avalanche awareness and safety, and introduce students to snow science as a career, with 28 students and their parents participating

Project Zero

The UAC was one of the founding partners of Project Zero, a coalition of avalanche centers from Utah, Colorado, and Washington along with Snowsports Industries America, AIARE, and Avalanche Canada. In its second year, the goal of Project Zero is to provide a central source of avalanche safety resources and advising for the snowsports industry. Activity included attending the Outdoor Retailer Winter Market, SIA winter show, and National Ski Area Association annual meeting and presenting avalanche safety resources to interested brands and retailers.

Partnership with other avalanche nonprofits

The UAC was in regular contact with other Friends groups, primarily from the Northwest, Colorado, and Sierras, to share ideas and resources. A group pitch was created and presented to get sell website ad space for all 4 centers as one package deal without any success. The groups met face to face at the Outdoor Retailer Winter Market in January

Backcountry Project

Spearheaded by Drew Hardesty, the UAC started work on what is called the "Backcountry Project", which highlights our responsibility to each other in the backcountry, especially not triggering avalanches that could affect other backcountry parties below, open road or open ski resorts.



Utah Adventure Journal Speaker Series

The Utah Adventure Journal – Snowbird Speaker Series returned this year with six events, raising \$5,248. One of the events was switched to a fundraiser for Jim Harris, a local photographer, adventurer, UAC observer and avalanche instructor seriously injured in a November accident. An additional \$6,464 was raised to defray Jim's medical expenses

Uinta Brewing

Uinta Brewing, donator of beer to the Black Diamond Fall Fundraiser for 21 years, introduced the new 801 Community Builder beer, with a portion of proceeds donated to a non-profit organization to be chosen yearly. The Utah Avalanche Center was chosen as the first recipient as the Pilsner raised almost \$16,000 in the first year of production.

Lift Ticket Partnership

Many thanks to Backcountry.com, Ski Utah, and our ski resort partners for their very generous support with this year's discount lift ticket program. The ski resorts donate lift tickets which are in turn sold at a discount by the Utah Avalanche Center through Backcountry.com. 100% of the proceeds go to the non-profit Friends of Utah Avalanche Center to help fund operations. We collected \$31,749 this year. We continue to enjoy a great relationship with the Utah resorts, communicating regularly on snow conditions and cooperating on avalanche education for pros and the public. Participants included: Alta, Beaver Mountain, Brighton, Canyons/Park City, Deer Valley, Nordic Valley, Snowbasin and Snowbird.

Observer Program

The Utah Avalanche Center has nurtured a group of about 40 dedicated backcountry users who submit their observations, which greatly contribute to the daily avalanche forecasts. This group is paid a nominal amount to call in or submit an online form describing what they see in the backcountry. The group ranges from hard core recreationalists to snow safety professionals. They are extremely valued contributors and are the envy of many other avalanche centers within the U.S. Despite the unprecedented snow drought, we still received over 700 observations this year including a hefty increase in observations from Moab.



MEDIA CONTACTS

The UAC forecasters regularly respond to perhaps a couple hundred requests for information and interviews from various media outlets. This record-setting drought year kept media contacts to a minimum. We only had a handful of interviews for national media such as CNN, Associated Press and national magazines such as Outside and Powder. Usually we have perhaps 70 local TV interviews but this season it was closer to 30.

In addition we do daily, live radio interviews each morning on local Public Radio station KPCW, a Weekly Saturday morning call-in to KSL Outdoors Show reaches listeners in Utah, Wyoming, and Nevada, Colorado, and Idaho. KSL has the largest market share of any radio show for that time slot. Craig Gordon did his usual weekly Sunday studio interview with Fox 13... Avalanche TV with Craig Gordon. It's a remarkable partnership with the most watched local morning news show. Craig updates viewers with the current avalanche advisory, along with pictures, videos, and of course, his own brand of humor. It's a great way to reach a wide audience, show avalanche related pictures and video, help explain how avalanches work and how to avoid them. Our unique partnership with local media in Utah helps to save lives.



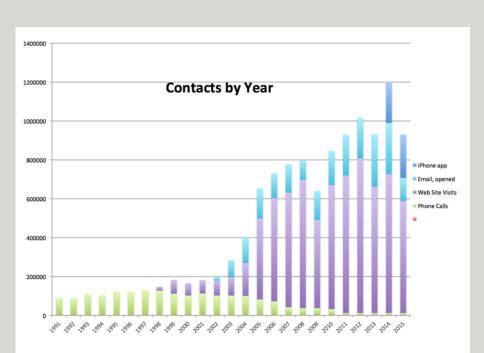
KSL Outdoors produced a great avalanche education episode featuring Utah Avalanche Center staff: <u>http://www.ksl.com/?nid=1112&sid=33249570</u>.

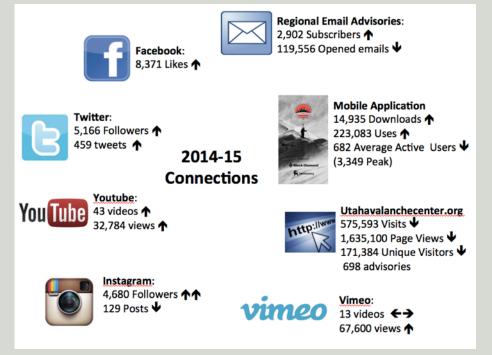
CONTACTS

As you would imagine for a record setting low-snow year like this, the contacts were down sharply. The website, mobile application, daily email advisory, and phone hotline combined in over 1.75 million connections with the UAC and 1.97 million page views (the average website visitor viewed about 3 pages per visit). In addition, the UAC broadcasts advisories by radio and distributed avalanche-related news and education via Twitter, Facebook, and Instagram. The UAC partnered with Black Diamond. Backcountry.com. and Outdoor Research to produce and distribute videos promoting brands as well as avalanche awareness and key avalanche concepts.

Especially for younger user groups, social media has become much more important than traditional media. Social media also has the advantage of two-way communication: users can communicate avalanche information back to the forecasters. We use Twitter and Instagram both for breaking news and to distribute the daily avalanche advisory, YouTube and Vimeo for our many videos of fieldwork and tutorials. Facebook for announcements and events and many people use our app to view avalanche information and submit observations.

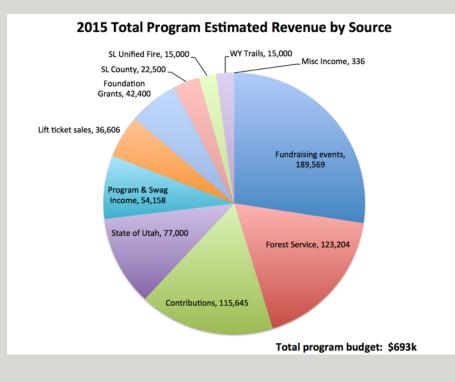
Our use of social media has been a trend setter among avalanche centers both nationally and internationally. Bruce Tremper presented well-received talks on our use of social media to both the Canadian annual meeting and to the International Snow Science Workshop in Banff, Canada.





(Arrows represent trend from last season.)

BUDGET



Combined chart of Forest Service and Friends of UAC funding statewide

The Utah Avalanche Center is a partnership between the U.S. Forest Service and the nonprofit Friends of Utah Avalanche Center. In addition, several local and state government agencies contribute funding. In other words, the Utah Avalanche Center is the epitome of a successful partnership organization. With such strong community support along with numerous and diverse funding sources, the Utah Avalanche Center will continue to exist as an essential public safety entity in Utah. Here are the details of the various funding sources:

The Forest Service Intermountain Region Office provides an earmark for base funding of \$96,850 for the Uinta-Wasatch-Cache National Forest and \$26,354 for the Manti-La Sal National Forest, \$5,000 from the American Fork Recreation Fee funds and the Evanston Ranger District provides \$7,000 in salary for one Ted Scroggin for field observations.

Most of the funding for the UAC comes from the non-profit funding sources, making up a little over \$450,000 in FY 2015. \$120,000 was contributed directly to Forest Service salaries under a collection agreement and the remainder was spent executing and administering education and awareness programs and building a contingency and endowment fund.

Utah Division of State Parks and Recreation has been a longtime funding partner with the shared interest in providing avalanche forecasting and education especially to snowmobilers throughout Utah. Their contribution of \$52,000 partially funds avalanche forecasting for Logan, Skyline and the western Uinta Mountains and without their support, avalanche forecasting would not exist in these areas.

Utah Department of Public Safety, Division of Homeland Security continued their longtime supporter of the UAC with an annual contribution of \$25,000, which is used throughout Utah to help fund avalanche forecasting and education. Salt Lake County continued their annual support for the UAC for many years with a contribution of \$22.500, which helps fund the Salt Lake-based avalanche forecasters. The Wyoming Recreation Trails grant provided \$15,000 for snowmobile forecasting and education for the north slope of the Uinta Mountains and, as mentioned above, the Evanston Ranger District provides \$7,000 additional salary for Ted Scroggin's valuable fieldwork for the north slope. Finally, Salt Lake Unified Fire Authority provides \$15,000 through a donation to FUAC.

The total program budget for the year is about \$693,000.



5: Extreme (Over \$20,000)



STATE OF UTAH NATURAL RESOURCES Division of Parks & Recreation











4: High (\$10,000 to \$20,000)









3: Considerable (\$4,000 to \$9,999)



































Visit <u>UtahAvalancheCenter.org</u> for a complete list of sponsors.



PREPARED BY:

Utah Avalanche Center staff

COMPILED BY:

Bruce Tremper