
Sawtooth National Forest Avalanche Center

Annual Report 2013 - 2014



Photo Courtesy of Chris Marshall



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Acknowledgements

The Avalanche Center could not operate in its current capacity without the generous support of our community. We receive half of our funding from the Friends of the SNFAC, who raise money through sponsorships, donations, and events. For a list of private donors for the 2012-13 season please visit:

<http://www.sawtoothavalanche.com/docs/2013SNFACNewsletter.pdf>

This season's Advisory Sponsors:



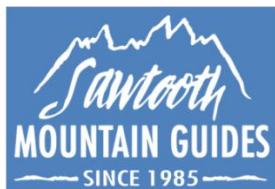
This seasons Web Technology Sponsor:



Fundraising and support generously provided by:



The following organizations provided over 200 observations to our professional observations database this season. Many thanks to:



From the Director

The mission of the Sawtooth Avalanche Center is to provide avalanche safety information and education to people recreating, working, and/or travelling in the mountains of south central Idaho. This year was marked by new staff, terrible early season snow conditions, and sustained snowfall in February leading to an impressive and extremely dangerous avalanche cycle. I want to thank Scott and Eric for keeping up with the workload; we accomplished a lot while learning new jobs. I also want to thank all of the individuals, businesses, and agencies that help the avalanche center provide valuable public safety information. I am already looking forward to next year and the challenges, powder snow, and avalanches to come.

Sincerely,

Simon Trautman
Director, Sawtooth Avalanche Center

Season Highlights

- There were two serious avalanche accidents in the advisory area this season. A snowboarder was caught and seriously injured in the Bald Mountain Sidecountry and a snowmobiler was killed when a large avalanche buried a party of four in the Smoky Mountains.
- We issued our first snow and avalanche announcement on November 19. Daily Advisories began on December 26 and continued through April 13th. In total, we produced 118 mountain weather and avalanche advisories this winter.
- The Sawtooth and Smoky Mountains received significant snowfall 19 of 28 days in February.
- February's storm cycle initiated a widespread, dangerous, and destructive deep slab avalanche cycle.
- We issued 8 avalanche warnings and had 14 days with HIGH avalanche danger (compared to 0 warnings and 7 days of HIGH danger last year).
- We used skis 60% of the time, snowmobiles 30%, and hiked or used binoculars from the highway 10%. We spent 120 days in the field and local professional groups contributed ~200 observations.
- Staff gave over 30 interviews to local, regional, and national news organizations.
- Volunteers' worked over 400 hours on Avalanche Center operations and fundraising events.
- We redesigned our homepage, advisory format, and weather products. Web site traffic increased 20% compared to last year.
- Our advisory received over 160,000 views via the web, email subscription, and recorded hotline. Advisories were accessed an average of 1336 times each day – a 4% jump over last season.
- Public outreach continues to be very successful through the local newspaper, radio, and social media. Our "Likes" on Facebook increased from 1268 to 1529, with over 50,000 reads this season.
- Avalanche Center staff gave 27 educational presentations (evenly split between recreational and professional audiences). All told we presented to over 1000 individuals this season.
- The US Forest Service increased its annual funding by 10%.
- The Friends of the Avalanche Center provided funding for 2 of 3 staff positions, discretionary spending, and two new snowmachines. The Avalanche Center would not exist without the Friends!!!

Staff

The Sawtooth Avalanche Center employs three full time employees during the winter season:

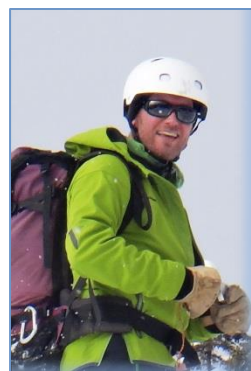
1. Avalanche Center Director: Permanent Federal Position, supported by the US Forest Service
2. Lead Forecaster: Permanent Federal Position; supported by the Friends of SAC
3. Forecaster: Temporary Seasonal Position; supported by the Friends of SAC



Simon Trautman returned for his second season as the Director and his fourth season at the avalanche center. Prior to coming to the Sawtooth Center, he researched wet snow avalanche phenomena at Montana State University and worked as an avalanche forecaster for the Moonlight Basin Ski Patrol and for the Colorado Avalanche Information Center. Last summer, he chaired a Risk Assessment and Operational Safety Project sponsored by the National Avalanche Center; a project meant to increase the safety of workers employed by avalanche centers in the United States.



In the spring of 2013 The Friends of the Avalanche Center entered into an agreement with the US Forest Service to support and fund the Lead Forecaster as a permanent federal employee. This is an important step in improving the professionalism and sustainability of center operations. Scott Savage was selected for the position after a national and highly competitive candidate search. Prior to coming to the Sawtooth in 2012, Scott spent the better part of two decades as an avalanche forecaster and snow safety director at Big Sky Resort. He has frequently contributed articles to The Avalanche Review, written columns for regional Montana newspapers, presented at international conferences and regional professional development seminars, and is currently the secretary of the American Avalanche Association.



Scott's former position was filled by Dr. Eric Lutz. Eric made the HUGE jump from Dartmouth College to the blue collar snow world of south central Idaho. He has already bought a couple new pair of skis and in his off time fixed all of our 'unfixable' technology problems. Eric has studied snow in the Alps, Cascades, Rockies and the Southern Alps. He was an intern at the Swiss Federal Institute for Snow and Avalanche Research (Davos) and earned a European Diploma in mountain geography (University of Innsbruck) and a PhD in snow science (Montana State University). His PhD centered on improving our understanding of the spatial and temporal evolution of avalanche hazards. Eric has also researched the impacts of climate change on western mountain hydrology (University of Washington) and the Greenland Ice Sheet (Dartmouth College).

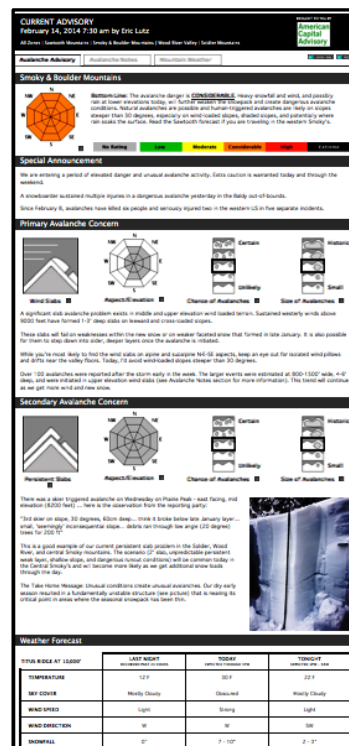
Innovation and Accomplishment

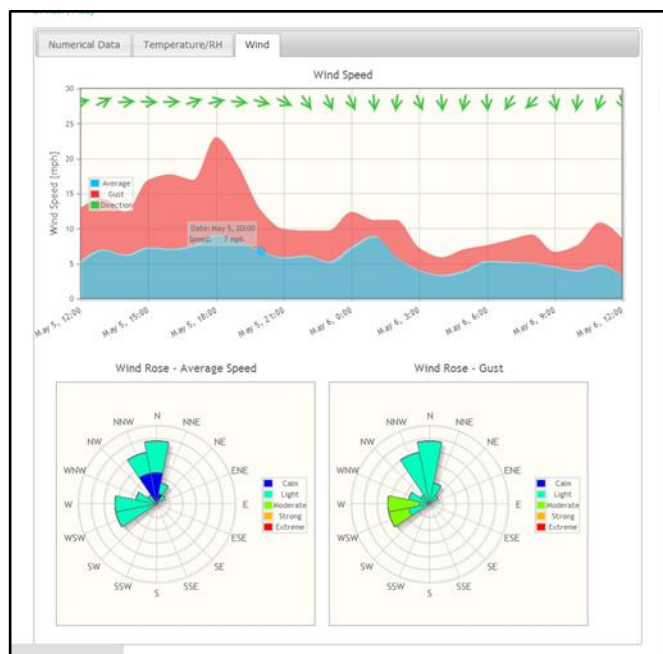
Public safety is the root of our mission at the avalanche center. We achieve this through daily avalanche advisories, time in the field, education and outreach. We take pride in seeking out new, better, or more efficient ways to help backcountry recreationists make good decisions in the mountains and in avalanche terrain.



We redesigned our homepage: adding a media carousel that depicts recent and current conditions in the advisory area.

Our new advisory format uses a combination of infographics, text, photos/videos, and tabular data to describe daily avalanche problems.





We partnered with Snowbound Solutions to develop original products that improve the output and functionality of our remote weather stations.

In addition to working on our website, the avalanche center:

- Made the transition from 4 bottom lines and 1 weather forecast and avalanche advisory to individual and specific bottom lines, avalanche advisories, and weather forecasts for each of the 4 backcountry zones under our purview.
- Expanded our advisories by forecasting 7 days week for the Soldier Mountains. Previously, information was limited to Friday, Saturday and Sunday.
- Pursued a partnership with Boise State University and Smiley Creek Lodge to build and maintain a hydrologic monitoring station in the Salmon River Headwaters. Data will be directly applicable to avalanche forecasting and applied snow and avalanche research.
- We redesigned our Avalanche Awareness and Avalanche Basics classes for both motorized and non-motorized users.
- We expanded our youth outreach program to include the Sage School in Hailey and the Community School in Ketchum.

Web Site and Advisory Use

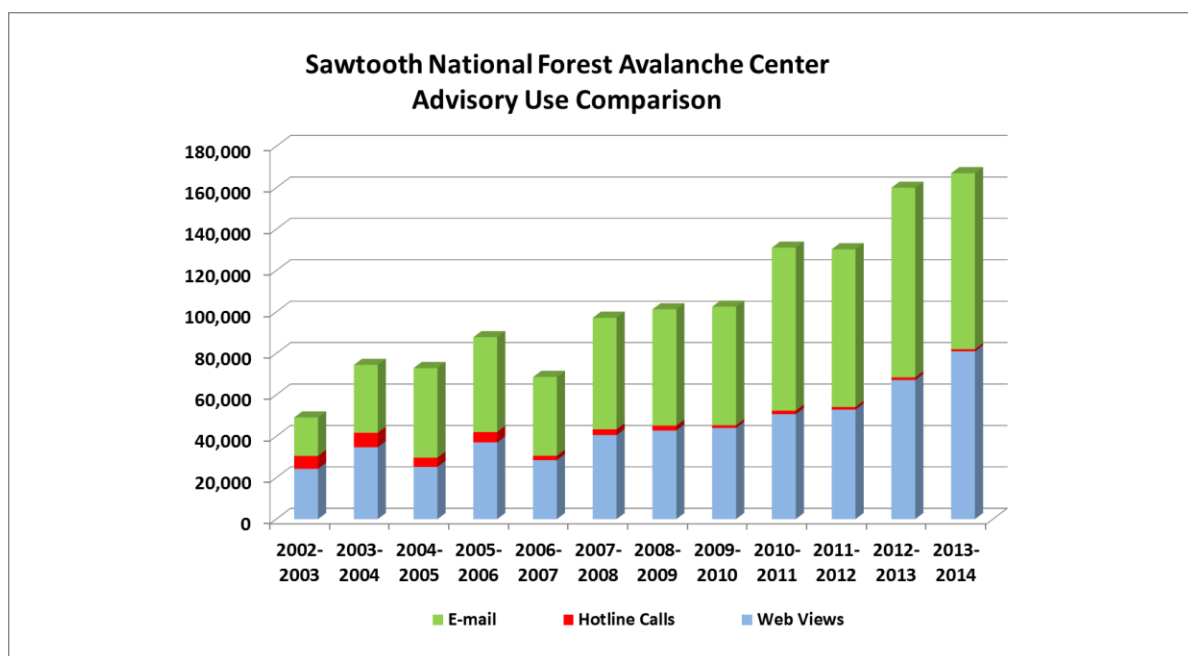
We issued our first general snow and avalanche update on November 19 and began daily advisories on December 26, issuing 118 advisories this season. (compared to 135 last season, and 119 two seasons ago).

Website updates paid off this year with a 20% jump in overall traffic and use of the site.

Despite the low snowfall and poor backcountry conditions in December and January, advisories were accessed an average of 1336 times daily and total advisory usage is up 4% from last season.

The number of email advisory subscribers decreased from 680 last year to 667 this season.

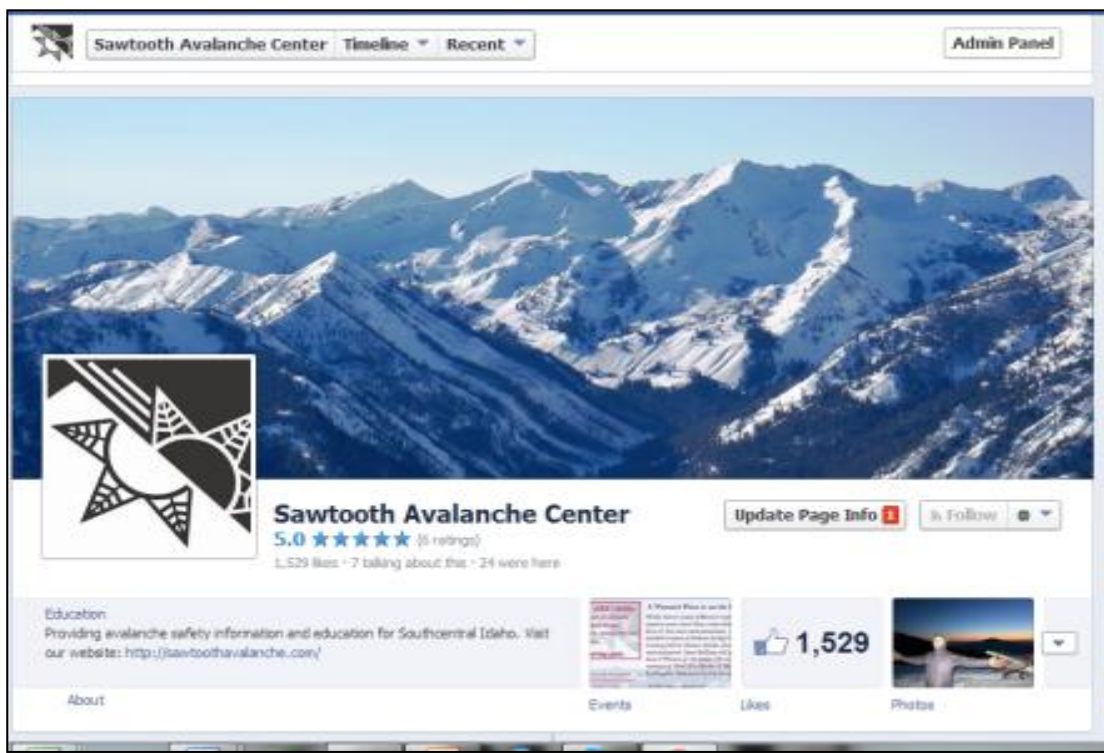
A little more than 1000 people called the avalanche hotline this season. Accessing the advisory via the recorded hotline continues to become less common as web technology becomes more dominant in our daily lives.



Advisory use totals show a steady increase over the last decade and are up 4% from last year. Our total website usage jumped 20% this year; a direct reflection of the increased access to photos, videos, and weather products.

Social Media & Outreach

We continued to use web-based social media to communicate avalanche conditions and event information. We now have 1529 followers on Facebook (up 21% from last year) and our posts were read more than 50,000 times between December and April of 2014.



Facebook proves to be a successful way to communicate avalanche information. This year we developed methods to strategically use Facebook as a means to rapidly inform the public of changing conditions. Our posts received more than 50,000 reads in 5 months. Next year we plan to explore the use of Twitter as an observational platform.



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We have 228 followers on Twitter (up 54%) and made 40 posts this season.



YouTube continues to be a successful educational tool; this season we posted 12 videos that were viewed 6324 times. Our videos have been viewed 52,786 times since 2007.



KECH Radio once again helped us broadcast conditions during periods of heightened avalanche danger and provided daily 60 second spots during the morning commute hour. This year we issued 115 morning avalanche forecasts on KECH radio.



Idaho Mountain Express provides a platform for snow and avalanche editorials and promotes our educational and fundraising events. This year we published an essay on avalanches and wildfire as well as a piece on decision making in avalanche terrain.

Operations

After the government shutdown, Eric's arrival in early December, and a website redesign project that seemed to have no end, weeks of high pressure in November and December actually came as a blessing (que horror!). The extra time without a backcountry avalanche problem (i.e. without snow) allowed us to train in our new jobs, trouble shoot the website, install and establish communications with our weather stations, and re-design our avalanche awareness and basics classes.



Avalanche forecasting requires intensive field work and safety is an integral part of our operation. This season we developed a new operational safety plan and adopted the use of a daily pre-trip planning and risk management worksheet.

We logged 120 days in the field; 60% of the time was spent on skis, 30% on snowmobiles (up 10% from last season), and 10% either hiking or with binoculars on the highway. We received just fewer than 500 observations; approximately $\frac{1}{4}$ of which were from motorized users. Local ski guides and snow safety workers contributed 200 observations to our professional observations database. A big thank-you to the guides at Sawtooth Mountain Guides, Sun Valley Heli Ski, and Sun Valley Trekking, and the ski patrols at Bald Mountain and Soldier Mountain ski areas. We also want to recognize the Fairfield Ranger District for contributing more than 15 observations from the Soldier Mountains.

Educational Programs

Our staff made 27 education presentations, evenly split between professional and recreational audiences.

Locally, the Friends of the Sawtooth Avalanche Center and local retailers hosted the 2nd annual Sawtooth Snow Safety Festival in early December. Retailers and guides showed off the latest avalanche gear and rescue techniques, the Avalanche Center and the Sun Valley Ski Patrol presented on the coming season, and guest speaker Bruce Tremper



gave us a glimpse of highlights from his new book *Avalanche Essentials*. We ran an Avalanche Basics classroom course for local snow removal crew operators this January – accidental but perfect timing given the avalanche problems they had to consider in February and March. A lack of early season snow affected attendance at our three regular Avalanche Awareness and Basics classes, but 80 people attended the classroom sessions and 14 braved the thin snowcover during the field sessions.

We hosted a professional development seminar on “Slab Properties” in April; the evening session at Smith Optics’ headquarters was well-attended by local avalanche pros and led to some head-scratching discussions.

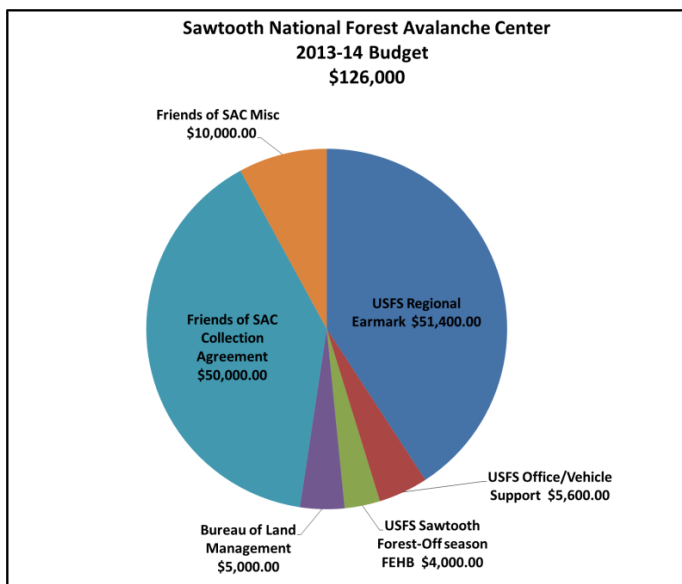
Simon presented at the Utah Snow and Avalanche Workshop (USAW) and Scott instructed at the National Avalanche School (NAS) this fall, reaching over 500 people at these events. Simon, Scott, and Eric submitted 5 abstracts between them for the upcoming International Snow Science Workshop (ISSW) in Banff in September, 2014.

All told, our education program reached over 1000 people this season.

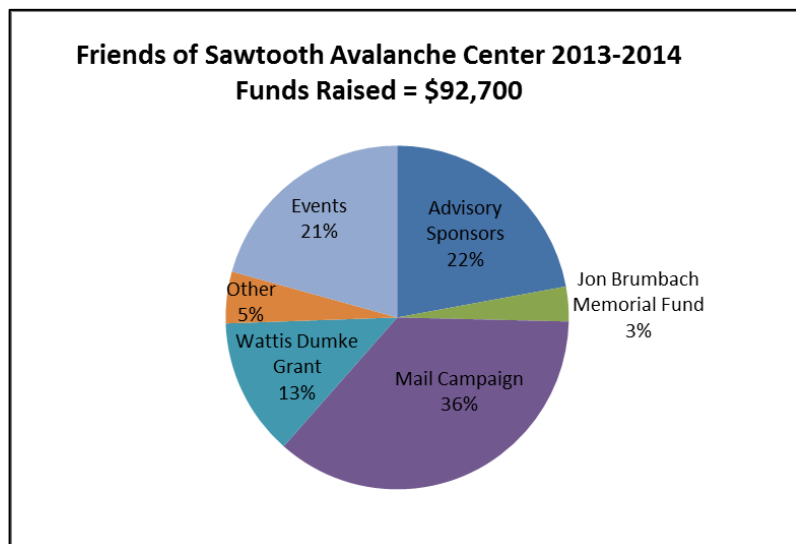
Funding & Partnerships

The Avalanche Center relies on a variety of partnerships to fund its operation. Approximately half of the Center's budget comes from the Forest Service. Despite shrinking federal budgets, Region 4 (of the USFS) continues to increase our funding; a sign of their continuing commitment to public safety. The Ketchum Ranger District provides vehicles, office support, and maintenance facilities.

The Bureau of Land Management contributes \$5000 annually.



The Sawtooth Avalanche Center is an example of a successful public-private partnership. This year 48% of our budget was provided by the USFS, 48% by the FSAC, and 4% by the BLM.



The Friends of the Sawtooth Avalanche Center (501c3) are a critical partner in our mission; the center would not exist without their support. The Friends contribution covers salaries for 2 of our 3 forecasting positions and provides discretionary funds that can be used for safety equipment, field equipment, website updates, educational supplies, etc. In total, 48% of our budget this season came from the Friends.

The Friends of the Sawtooth Avalanche Center raise funds through sponsorship, private donations, grants and fundraising events. The Friends success is indicative of strong community buy-in and support of the Avalanche Center mission.

Snowpack Summary

Two storms in late October and early November brought high hopes for an early start to the season and a repeat of the 2012 “December to Remember”. Old man winter had other plans however, and dry sunny days quickly reduced the early season snowpack to a thin blanket of crusts and facets on middle and upper elevation shady slopes.

December 2nd a blustery storm delivered 1 – 2 feet of new snow and strong winds that created out first avalanche cycle of the season. A prolonged (five week) dry spell followed, driving widespread faceting throughout the snowpack. A small storm in early January perfectly preserved faceted surface layers formed during December. Conditions were thin and unsupportable until mid-January, when the next shot of moisture arrived.

On 11-12 January we issued the first avalanche warning of the season as 1 – 2’ new snow accumulated on a weaker than average snowpack. There were several close calls during this cycle, with several skier and snowmobile triggered avalanches in the Sawtooths, White Clouds, Smoky, and Soldier Mountains. Once again, “high and dry” ridging and an arctic blast followed the storm and created small-grained facets and crusts on many aspects.

In February, over a span of three weeks, a series of back-to-back snowstorms delivered one third of the season’s snowpack in the central/western Smoky’s (10.5” SWE at Vienna Mine) and two thirds of the season’s snowpack in southern parts (4” SWE at Soldier R. S.). The event drove an impressive avalanche cycle on both the December and January weak layers and culminated in tricky and very dangerous deep slab conditions, 5 avalanche warnings, and 10 days of HIGH avalanche danger.



The February storm series drove an exceptional pattern of avalanche accidents in the western US; 12 people were killed in avalanches in the following weeks. Locally, at least 5 skier-triggered avalanches occurred in the Bald Mountain side-country and several deep and destructive avalanches were triggered by skiers in the Smoky and Boulder mountains. On February 13 a snowboarder was caught and partially buried in the Bald Mountain sidecountry. The accident resulted in serious injury and an involved rescue. On February 16, a party of four snowmobilers was caught and buried in a large avalanche that released above them in the Frenchman drainage (near Smiley Creek). Three members of the party survived but, tragically, one was killed (Please refer to <http://www.sawtoothavalanche.com/accidents.php> for details).

A weak-long storm series in early March caused flooding and another avalanche cycle that included isolated avalanches that ran full track in the Wood River Valley zone (the Mine Bender area near Triumph).

Although rain and sunshine produced some wet avalanche activity in early March, widespread wet loose avalanche activity began in the first week of April with onset of intense spring sunshine.

Snowpack Distribution



Prior to February, upper level split flow created a synoptic-scale “donut hole”, and the majority of Pacific storms tracked north of the advisory area. Extended storm cycles in February made up for lost time; snowfall was recorded in the Sawtooth’s and Smoky’s 19 of 28 days in February.

In terms of seasonal snow accumulation, the central and northwestern regions of the advisory area fared best, reaching or exceeding the 30-year average Snow Water Equivalent (SWE) by the end of the season. The southern zones were far less fortunate and recorded historic low accumulations. Bald Mountain suffered difficult conditions, and most of the viable side-country skiing occurred during the large storm event in February. The Soldier Ranger Station maintained SWE values below its 30-year *minimum* into early February. This season’s maximum (~6.5” SWE) occurred in early March and ranks in the bottom 25% (i.e., at least 3 out of every 4 years have higher maximum SWE values than this year did).

Next Season's Goals

- Construct new remote weather stations in the Sawtooth and Smoky Mountains.
- Continue to make inroads with, and increase outreach to the motorized community.
- Double the amount of observations we receive from the public by improving our public observation platform and database.
- Work with the Friends of the Avalanche Center to implement a 'know-before-you-go' program for Blaine County youth.
- Partner with the Payette Avalanche Center and expand outreach and education to the greater Boise area.
- Continue working closely with Boise State University to advance research in applied snow and avalanche science.



Continue working with the Fairfield Ranger District in the Soldier Mountains. This year's efforts increased (motorized) access to the avalanche advisory and resulted in a better understanding of recreational use in the Soldier and western Smoky mountains.