

Sierra Avalanche Center  
2006-2007 Season Summary

The 2006-2007 season was characterized by significant growth for the Sierra Avalanche Center, despite 40% of average snowfall amounts for the Sierra Nevada Mountains. With the support of the Tahoe National Forest, our Friends group, and the backcountry traveling public, we were able to increase the size of our staff and improve our daily avalanche advisory product. For the second winter in a row, no avalanche fatalities occurred within our forecast area.

We are proud of our accomplishments this past season and would like to extend our gratitude to everyone who has supported the Sierra Avalanche Center.

- Our staff increased from one forecaster to two forecasters and one professional observer. The avalanche center welcomed the addition of forecaster Andy Anderson and professional observer Steve Reynaud.
- Our Friends group successfully raised \$56,700 to support the Sierra Avalanche Center.
- The Tahoe National Forest provided \$12,110 in infrastructure support and \$16,500 in cash funding.
- Our advisory web page was accessed 127,964 times from November 1<sup>st</sup> through April 27<sup>th</sup>.
- We issued 137 avalanche advisories, 7 early season condition reports, and 4 late season condition reports.
- Our website was improved to include archived advisories and a map of the forecast area.
- We provided outreach education to six different local groups including NOAA, Sugar Bowl Academy, elementary school students from Incline Village, the Reno chapter of the American Meteorological Society, the Eldorado Nordic Ski Patrol, and the Steep and Deep Avalanche Awareness clinic at Squaw Valley.
- We strengthened our working relationship with the National Weather Service in Reno, NV in order to provide better mountain weather information for the creation of our advisories.
- We strengthened our relationships with the local ski area snow safety programs and other local avalanche professionals.

This was a very important winter for the continued development of the Sierra Avalanche Center. We will be back again in November 2007.

Brandon Schwartz and Andy Anderson  
Forecasters  
Sierra Avalanche Center  
Tahoe National Forest

## **Friends of the Avalanche Center**

The Friends of the Sierra Avalanche Center is a not-for-profit organization run by volunteers who are dedicated to promoting safe backcountry travel. The mission of the Sierra Avalanche Center includes disseminating current snowpack stability information to the general public; providing educational information, knowledge, and understanding of avalanches to recreational users and groups; and facilitating communication in the region to reduce the impact of avalanches on recreation, industry, and transportation through a partnership with the United States Forest Service.

The Board of Directors includes: Larry Heywood (CEO), Justin Broglio (Secretary), Randall Osterhuber (CFO), Dave Beck, Cameron Bordner, Phil Caterino, T.J. Kolanko, Jen Lees, Dave Paradysz, Don Triplat, and Kristin York.

The Advisory Committee to the Board of Directors includes: Debby Broback, Mike Colpo, Jason Oelkers, Robert Moore, and Stacey Westrum.

The Board of Directors is the financial backbone of the Sierra Avalanche Center. Through soliciting donations from the public and organizing/marketing fund raising events, they are the major source of funding for the Sierra Avalanche Center. Money raised by the Board of Directors goes toward operational costs for the Avalanche Center through a collection agreement with the Tahoe National Forest. These funds cover forecaster salaries, compensation for our contracted professional observer, some equipment needs, and the costs of professional level continuing education.

For more a more detailed summary of the financial number from this season, please see the financial summary section of this document.



Brandon Schwartz making new snow density observations.

## **Sierra Avalanche Center –Financial Summary**

The Board of Directors, the not-for-profit fundraising arm of the Sierra Avalanche Center, successfully raised over 70% of this season's operating funds from the local community. The remaining 30% of this year's operating funds came from generous support from the Tahoe National Forest. The Tahoe National Forest increased its donated infrastructure support (computers, truck, gas, office, etc) to \$12,110 and gave the Avalanche Center \$16,500 in cash funding.

The Board of Directors of the Sierra Avalanche Center raised funds for the season through several different avenues including private donations, online donations, resort donations for the SAC Ski/Ride Days, and advertising.

The primary fund raising events for the Sierra Avalanche Center are "Ski Days". The Board of Directors of the Sierra Avalanche Center used their connections in the Tahoe ski industry to partner with four participating ski resorts in these Ski Days. Each resort donated between 250 and 500 lift tickets for a specific day. The Sierra Avalanche Center set a fixed public donation amount necessary to receive a lift ticket for the Ski Day as a thank you gift.

To facilitate the distribution of these tickets to the donors, SnowBomb.com donated its services as an e-lift-ticket provider. The public simply donated to the Sierra Avalanche Center by selecting the specific ski day that he/she wanted to attend by clicking the appropriate icon on the SnowBomb.com website. After the transaction was confirmed, he/she was able to print an e-lift-ticket from the website. The Sierra Avalanche Center kept 97% of the donations. 3% was kept by SnowBomb.com to cover their credit card processing fees.

The "Support the SAC: Ski/ Ride Day" at each resort featured Question & Answer sessions with professional avalanche forecasters and a Meet & Greet of the SAC volunteer Board of Directors. Skiers and snowboarders could inquire about avalanche conditions and anything else related to backcountry travel and recreation.

Backcountry ski gear was donated by several companies and used as raffle prizes at each SAC Ski/Ride Day throughout the season. SAC sold raffle tickets for \$2 each throughout the day. All of the proceeds from the raffles went directly to support the Sierra Avalanche Center. At the end of the day, skiers and snowboarders gathered around to see who were the lucky winners of new backcountry gear.

Another way the SAC raised money was through private donations. With the broad range of experience and backgrounds on the volunteer board of directors, several contacts were made to high-end donors who alone contributed more than \$10,000 to the SAC during the 2006/07 winter season. The amount of money that the Sierra Avalanche Center needed to support the Forest Service's avalanche forecasting program was displayed publicly on the Sierra Avalanche Center's website. The SAC encouraged donations from the general public

via the website, by mail, or in person. The SAC accepted cash, checks, and donations via credit card or electronic transfers through a PayPal donation link on our website. Through these avenues, the SAC received 179 individual donations from the general public. The average donation amount was \$74.08. Donations from the general public received through the mail, the SAC website, and in person amount to over 33% of the SAC's annual income.

On a smaller scale, the SAC raised awareness for each of the SAC Ski/Ride Days and the possibility of online donations through donated advertising received from local newspaper stories, radio and TV public service announcements, local utility bill mailers, and through several online communities (i.e. – forums and discount websites).

### **Ski Resorts – SAC Ski/Ride Days Fundraisers - Details**

- Sugar Bowl
  - Donated 500 adult all day lift tickets to be used by the Sierra Avalanche Center as fundraising incentives.
  - Funds raised - \$10,110
- Mt. Rose
  - Donated 500 adult all day lift tickets to be used by the Sierra Avalanche Center as fundraising incentives.
  - Funds raised - \$5,206
- Kirkwood
  - Donated 350 adult all day lift tickets to be used by the Sierra Avalanche Center as fundraising incentives.
  - Funds raised - \$13,356
- Homewood
  - Donated 350 adult all day lift tickets to be used by the Sierra Avalanche Center as fundraising incentives.
  - Funds raised - \$3,254

### **Fundraising partners and the services they provide:**

#### **Snowbomb**

- Primary e-ticketing partner. Donated their service to facilitate online lift ticket distribution for the SAC Ski/Ride Days.

#### **Heavenly Ski Resort – Ski Patrol**

- Private donations raised through their annual fundraising party.
  - Funds donated – \$4,500

#### **Panoptx**

- Primary eyewear sponsor of the Sierra Avalanche Center. Provided product for giveaway during SAC Ski/Ride Day fundraisers. Also has a link to their website on the SAC website. If the public buys sunglasses from Panoptx through this link, Panoptx donates 50% of the purchase price to the SAC. This is a new partnership and SAC does not yet know how much money will be generated through this relationship.

#### **BCA**

- Product sponsorship. Donated product for giveaway during SAC Ski/Ride Day fundraiser.
  - Estimated product value - \$1,250

#### **Black Diamond**

- Product sponsorship. Donated product for giveaway during SAC Ski/Ride Day fundraiser.
  - Estimated product value - \$1,000

Patagonia

- Product sponsorship. Donated product for giveaway during SAC Ski/Ride Day fundraiser.
  - Estimated product value - \$1,000

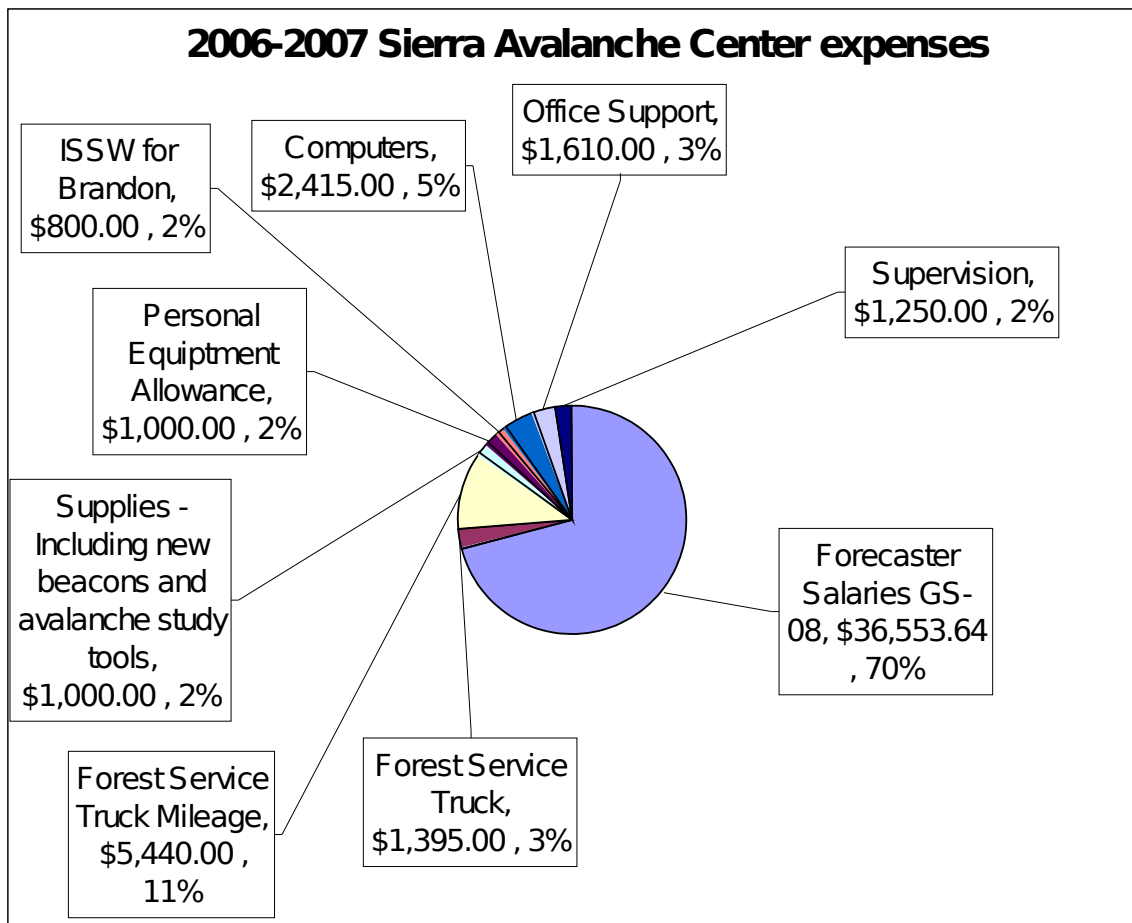
Orthovox

- Product sponsorship. Donated product for giveaway during SAC Ski/Ride Day fundraiser.
  - Estimated product value - \$800



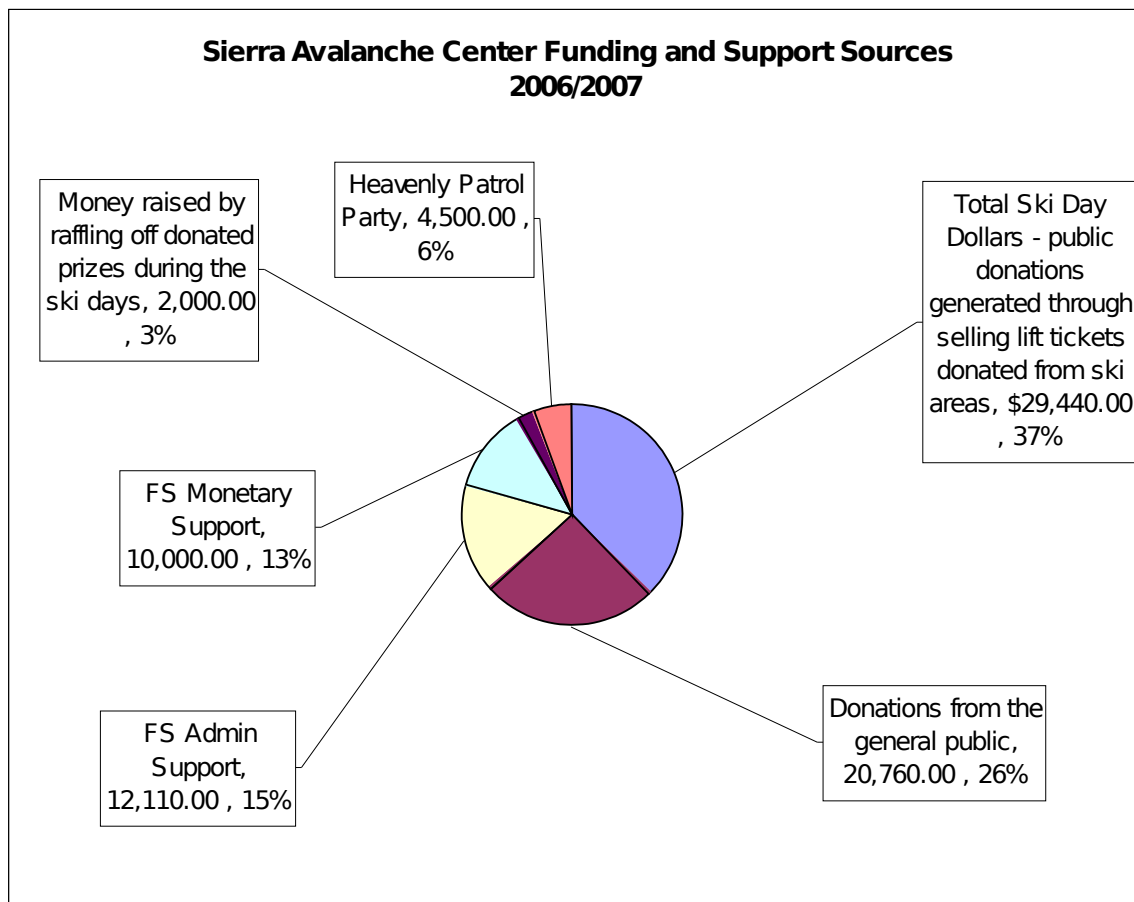
Avalanche Center 2006-2007 operating expenses:

<b>Paid for by the Sierra Avalanche Center Board of Directors</b>	
Forecaster Salaries GS-08	\$36,553.00
Supplies - Including new beacons and avalanche study tools	\$1,000.00
Personal Equipment Allowance	\$1,000.00
ISSW for Brandon	\$800.00
<b>Donated by the Tahoe National Forest</b>	
Forest Service Truck	\$1,395.00
Forest Service Truck Mileage	\$5,440.00
Computers	\$2,415.00
Office Support	\$1,610.00
Supervision	\$1,250.00
<b>TOTAL</b>	<b>51,463.00</b>



Sierra Avalanche Center 2006-2007 income:

	Received	Promised
Forest Service Admin Support (Monetary Value)	\$12,110.00	\$12,110.00
Forest Service Money	\$16,500.00	\$16,500.00
private donations	\$20,760.00	
Mt Rose Ski Day	\$4,260.00	\$12,500.00
Kirkwood Ski Day	\$13,820.00	\$14,000.00
Homewood Ski Day	\$3,360.00	\$7,000.00
Sugarbowl Ski Day	\$10,000.00	\$15,000.00
Heavenly Pro Patrol Fund Raiser	\$4,500.00	
<b>Total amount received for the 2006-2007 season</b>	<b>\$85,310.00</b>	<b>\$77,110.00</b>



## **2006-2007 Season storm and snowpack summary**

This winter was characterized by long dry periods, above average temperatures, and overall low snowfall amounts. Most of the storms that hit the Central Sierra Nevada this winter were small and almost every burst of snow accumulation was followed immediately by strong east winds that scoured the traditional starting zones within the forecast area.

After a few minor snow storms at the higher elevations this fall, the winter, if it can be called that, started in November. Several small storms rolled through the area and brought the snow depth at the 8200' Snotel site near Squaw Valley up to a whopping 15 inches by the end of the month. This shallow snowpack, relatively cold temperatures, and lots of sun created a snowpack that was a mix of faceted layers and supportable crusts on many of the upper elevation northerly aspects. Some of these facets persisted for the rest of the season.

The first half of December followed November's trend. It was dry with overall above average temperatures. The snow on the north aspects that hardly saw any solar radiation continued to facet and in most other areas there was little if any snow cover. A medium sized storm arrived in mid December and brought some heavy wet snow to the forecast area. At the end of this storm, air temperatures cooled significantly and the winds shifted to the east. Most of the newly deposited snow was wind transported from the previously covered areas and onto bare ground. After a few more bursts of snow and east winds the total snow depth reached 33.5 inches at the 8200' Snotel site.

January did little to improve on the winter's lack of snow. A single storm right after the New Year dropped 10-12 inches of new snow on the forecast area. Immediately after that storm the winds again shifted to the east and scoured most of the traditional starting zones. There were more than 25 days in January with no appreciable snowfall recorded. The temperatures dropped significantly and during January there was a prolonged cold period. The cold, clear weather and shallow snowpack continued to promote facet formation throughout all layers of the snowpack. Depth hoar formed in the snowpack on some of the upper elevation northerly aspects. Widespread near surface and near crust facets formed across most of the forecast area. Near the end of the month there was 6-8 inches of recrystallized, unconsolidated facets on the surface in some parts of the forecast area.

With all hopes for a decent winter now riding on the fabled Sierra late winter storms, the first week of February was disappointingly dry. The beginning of February was also unseasonably warm and much of the faceting that had occurred in January started to reverse or became bridged by thick supportable melt-freeze crusts. Finally after 26 consecutive dry days, snow started to fall again over the forecast area. On February 9<sup>th</sup> a wet subtropical storm impacted the forecast area, depositing 28 inches of very high density snow over 3 days. Widespread human triggering of avalanches was reported in all areas with more isolated reports of natural avalanche activity. In the backcountry, 3 individual events of partially buried skiers were reported. After such a prolonged dry start to winter, backcountry traffic was intense. All trailheads were overflowing with cars during the storm cycle.

In the last week of February and first few days of March a large Sierra storm cycle hit. This storm was the kind that everyone one else envies. We received over 60 inches of snow in less than 6 days. This storm doubled the existing snowpack bring the snow height at the 8200' Snotel up to 107 inches

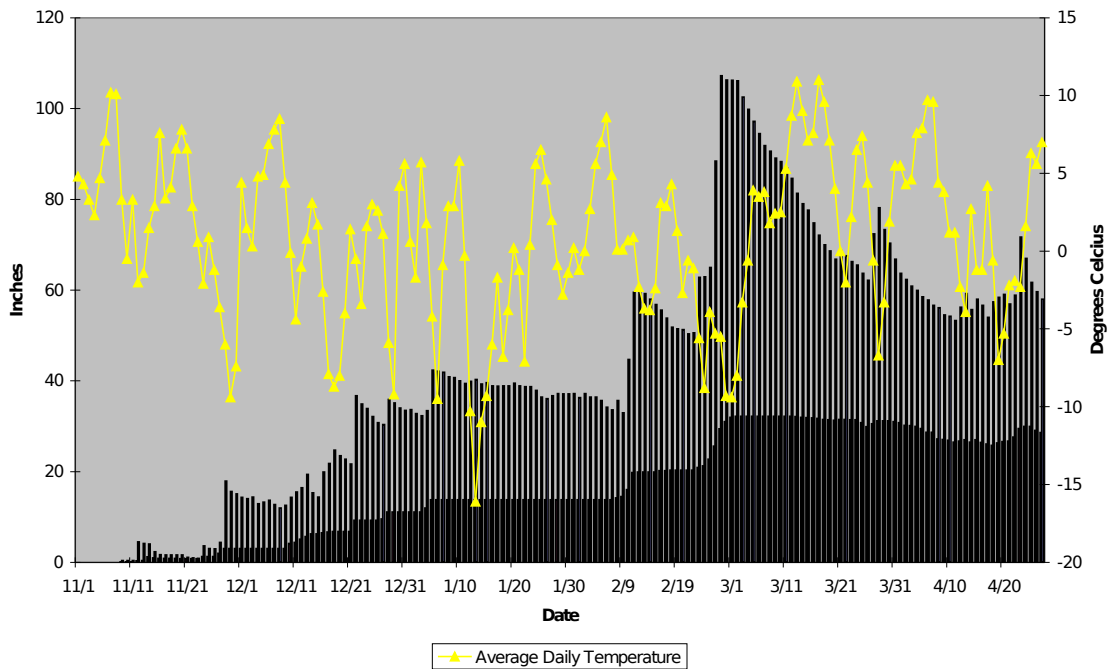


on February 27<sup>th</sup>. At the end of this storm new snow density was 5-6%. During the 10 days of this storm cycle, the wind gusted over 130 mph every hour for 5 of the 10 storm days. Winds averaged over 100 mph every hour for 6 of the 10 storm days and consistently blew over 50 mph for 10 out of 10 storm days. Several large avalanches with 6-7 foot crowns were triggered by explosive control work during this storm.

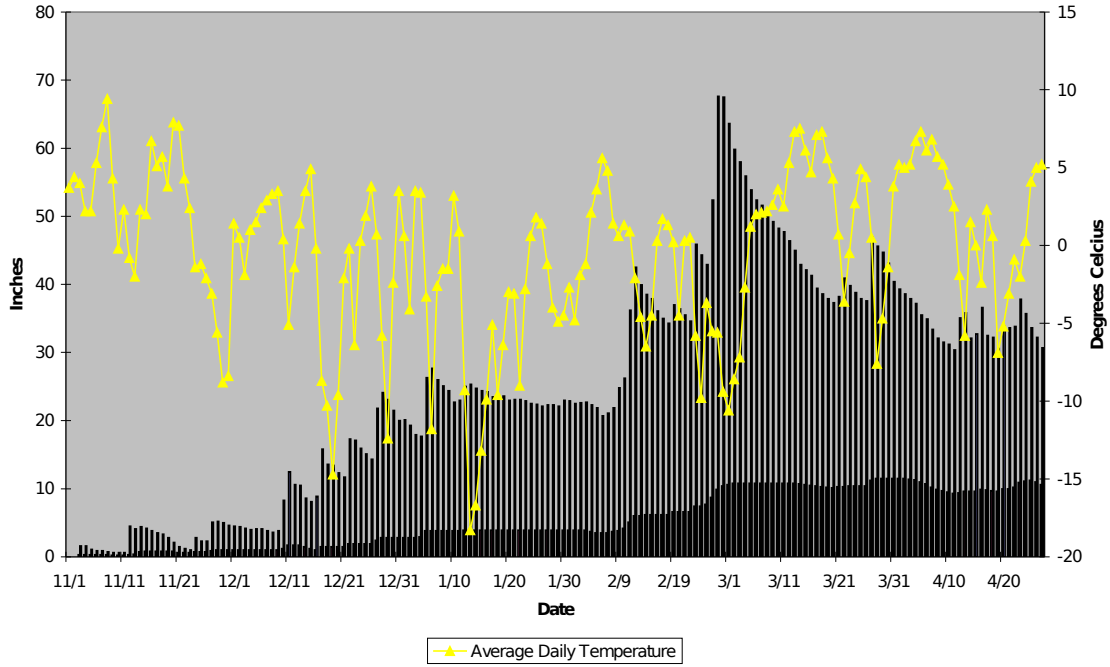
Unfortunately this was the only real winter storm of the season and as it broke in the beginning of March it was followed by three days of strong east winds. That ushered in a very dry and warm month. March had 26 dry days and record high temperatures were recorded across most of the forecast area in the middle of the month. On the more sun exposed aspects, the snowpack became isothermal and corn conditions were prevalent. By the end of the month, the total snowpack depth had decreased to 64 inches.

As the warm dry weather continued during the beginning of April, it looked like the winter was over. Many of the approaches to people's favorite backcountry areas melted out to bare ground and rocks and other hazards started to melt out on the upper elevation slopes. In mid April the weather pattern changed to cold stormy days adding small amounts of snow to the snowpack alternating with warm sunny days melting large amounts of snow. On April 20<sup>th</sup>, the temperatures dropped and one more storm hit the area with strong southwest winds and 14 -20 inches of new snow. This combination of new snow and refrozen surface crusts resulted in one of the few major avalanche cycles of the season. East winds again followed this storm. As the east winds died down, the temperatures again were forecasted to reach record highs in the forecast area.

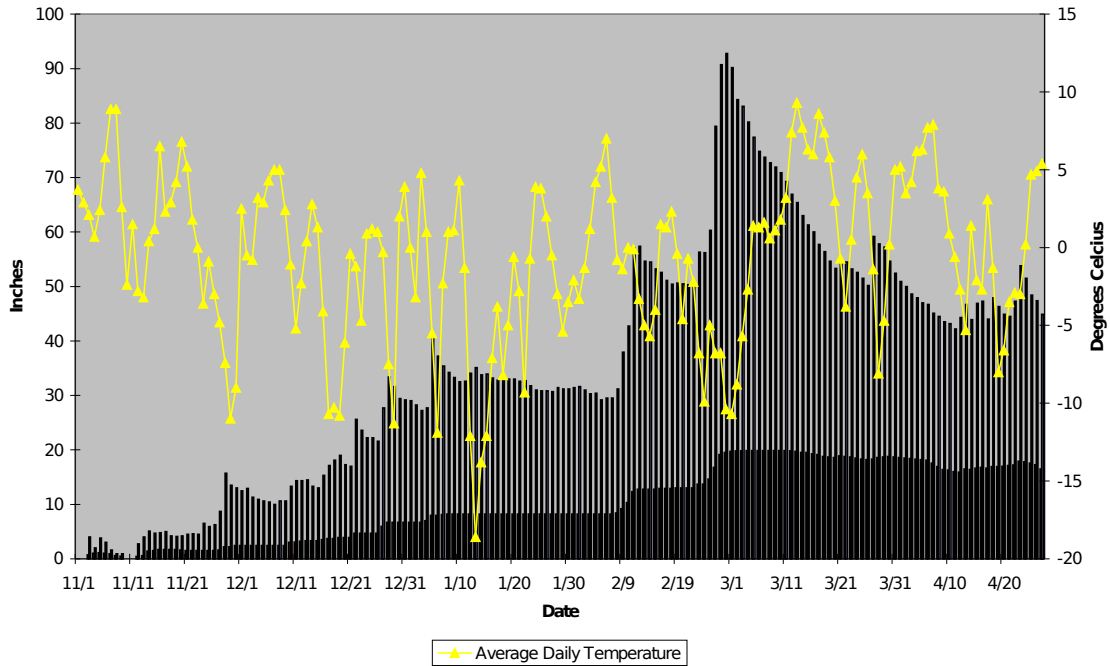
**Daily SWE, snow height, and average temperature at the 8200' Snotel sensor near Squaw.**  
**SWE is represented by the black area and snow height by the grey area.**



Daily SWE, snow height, and average temperature at the 8800' Snotel sensor near Sonora Pass. SWE is represented by the black area and snow height by the grey area.

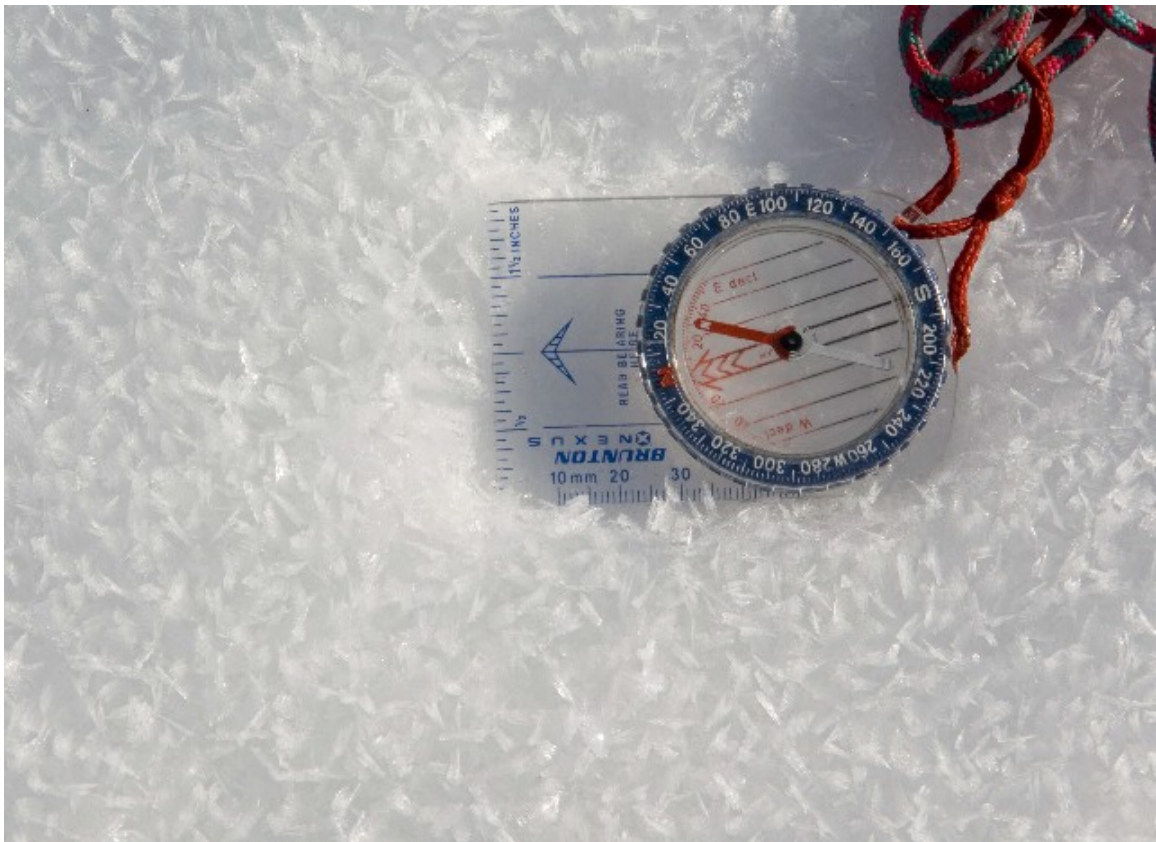


Daily SWE, snow height, and average temperature at the 8800' Snotel sensor near Mt. Rose. SWE is represented by the black area and snow height by the grey area.

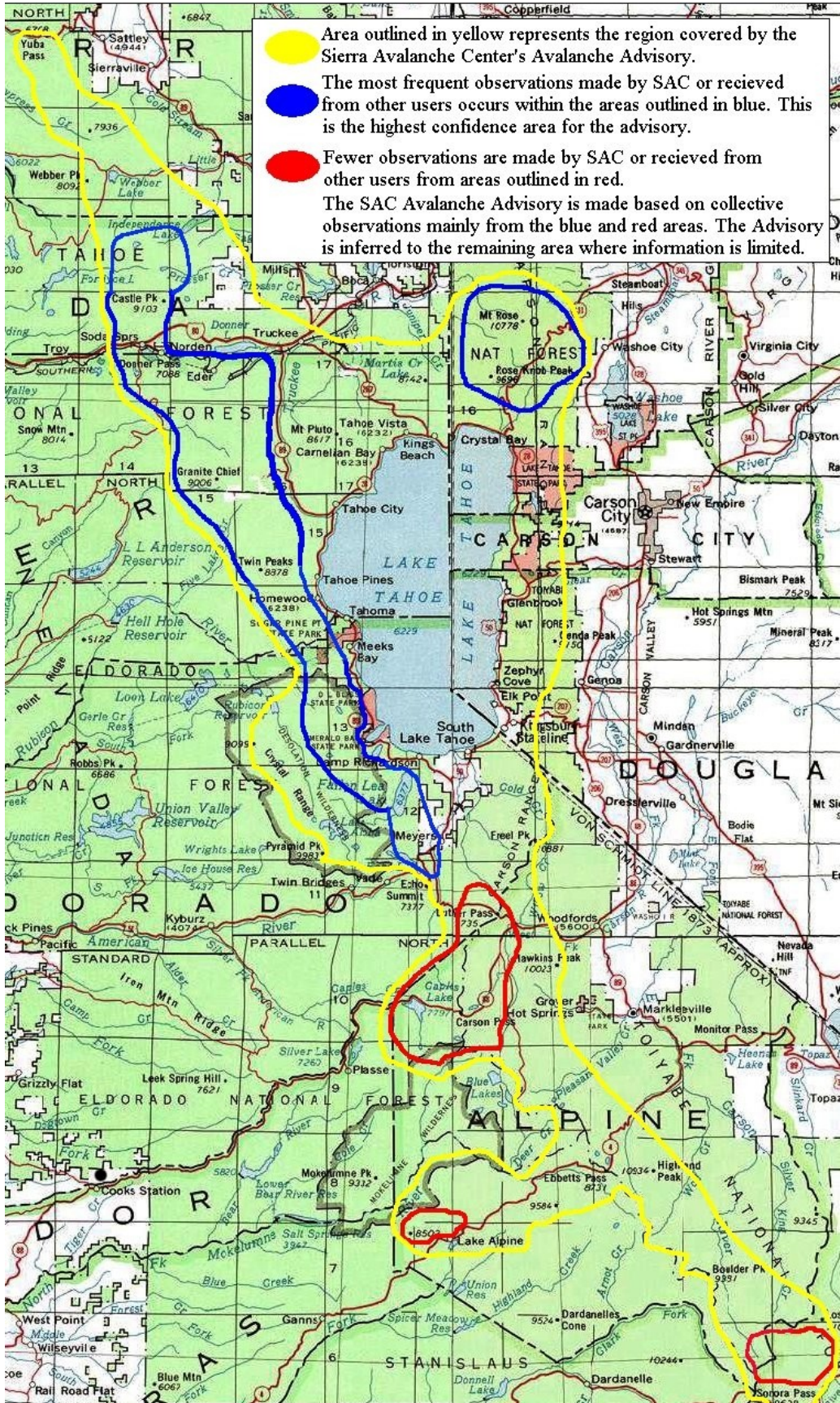


## Advisory Area

The advisory area of the Sierra Avalanche Center covers approximately 1,700 square miles of the Central Sierra Nevada Mountains of California and Nevada. The advisory area is bound by Hwy 49 Yuba Pass on the north and Hwy 108 Sonora Pass on the south. The advisory covers the avalanche terrain along the Sierra Crest and extending to the eastern slope of the Sierra Nevada. To inroads to the west side of the Sierra Crest are included in the advisory area at Carson Pass and at Ebbets Pass, in order to include the backcountry terrain surrounding the established boundaries of Kirkwood and Bear Valley ski areas.



Surface Hoar on Jake's Peak



## **Advisories**

Between November 25<sup>th</sup> and April 27<sup>th</sup>, we issued 137 daily avalanche advisories, 7 early season condition reports, and 4 late season condition reports. The number of advisories issued for each danger level were 68 Low, 52 Moderate, 14 Considerable, 3 High, and 0 Extreme. Small storms and long periods of high pressure kept snowfall amounts well below seasonal averages. Only one typical Sierra storm dropping 6 feet of new snow in a single storm event occurred this past winter. This was a significant change from the 2005-2006 season during which 29 Considerable and 25 High danger advisories were issued and snowfall records were broken for the month of March.

Our advisories were available 24 hours a day, 7 seven days per week on the web and by phone. Despite an overall winter snowfall that measured 40% of average, our advisory web page was loaded 127,964 times this past winter. This is an average of 857 times per day with the single day maximum of 3,783 page loads occurring on February 26th. Our recorded phone message was called over 1,500 times. Our total number of page loads decreased by approximately 48,000 compared to last winter. This is believed to be a result of the poor snowfall received this past season. A significant reduction in skier visits was also recorded at the local ski areas.

Our formal program of avalanche, snowpack, and weather information sharing was improved this season by adding a password protected online submittal form to our website and establishing more personal contacts with local avalanche professionals. Observations from Alpine Meadows, Central Sierra Snow Laboratory, Heavenly, Kirkwood, Mt. Rose, Squaw Valley, and Sugar Bowl were submitted to the avalanche center on storm mornings with afternoon updates often submitted. This information, combined with observations submitted by the public, was an important supplement to the information gathered by forecasters Brandon Schwartz and Andy Anderson, as well as professional observer Steve Reynaud.



**Andy Anderson performing a crown profile on Mt. Judah.**

## **Media Articles and Thank You Letters**

The Sierra Avalanche Center was featured in several newspaper articles, TV interviews, and Radio shows from around the region this winter. In the Reno area we provided an early season interview on Channel 2 KTVN about general avalanche characteristics and awareness. We also appeared weekly on KTHX-FM as part of their Friday morning programming. During this interview we would discuss current avalanche conditions and give an overall outlook for the weekend. A few other media outlets from the San Francisco Bay area and the Tahoe area contacted us for interviews or appearances.

The bulk of the media coverage we received came from newspapers around the region. Articles about the Sierra Avalanche Center appeared in the *North Tahoe Bonanza*, *Sierra Sun*, *Tahoe Daily Tribune*, *Reno Gazette Journal*, *San Francisco Chronicle*, and *Sacramento Bee*. Some of these articles are available on the Internet.

General interest newspaper articles printed in *The San Francisco Chronicle* and *Sierra Sun*:

<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/02/22/SPGTVO8N841.DTL&type=travelbayarea>

<http://www.sierrasun.com/article/20070228/NEWS/70227005&SearchID=73278546798718>

<http://www.sierrasun.com/article/20070105/NEWS/70105005&SearchID=73278546935173>

Newspaper articles about the SAC Ski Day at Sugar Bowl printed in the *Sacramento Bee* and *Sierra Sun*:

<http://www.sacbee.com/384/story/141631.html>

<http://www.sierrasun.com/article/20070321/SPORTS/70321003&SearchID=73278546651819>

The Avalanche Center also received countless Thank You Letters via mail and email from users of the avalanche advisory.

