



Snow Survey Training School Doin' it Right and Comin' Back Alive!

Snow surveys are often done in some of the most beautiful locations in the United States. Serene mountain meadows and canyons with high soaring peaks towering nearby are often the norm for a snow course setting. Throw in snow covered tree bows and shimmering white peaks against a clear blue sky... It is a vision fit for a holiday greeting card. What could be better! While the setting is beautiful, the environment is often remote, wild, and harsh, where the unexpected is almost always expected. Extremely cold temperatures, biting winds, steep terrain, snow and rain all contribute to the likelihood of mechanical breakdowns, personal injuries, getting lost and other mishaps that can make the most routine day turn into a struggle for survival. Even during ideal conditions, the work can be exhausting, making it very difficult to measure snowpack conditions consistently and as accurately as possible.

Because of the extreme environment in which the snow surveyors conduct their work, it is vitally important that they receive the best possible training in both outdoor survival skills and snow survey measurements. Since 1950, snow surveyors have been receiving training through the West Wide Snow Survey Training School. This intense course is held annually by the Natural Resources Conservation Service and is a requirement for NRCS personnel new to the snow survey program, and is a refresher course for those already in the program.

Most of the students are NRCS surveyors, but many come from cooperating agencies and private organizations that contribute to the snow data collection activity. Usually, all of the western states are represented and often students attend from Canada or other countries wishing to gain the knowledge and insight from the NRCS program, to take back to their own snow survey program.

Although the snow survey program has undergone many changes and advancements since the first snow survey school was held in 1950, the intent and the curriculum of the school has remained nearly the same. At the 1962 Snow School, held at Winter Park, Colorado, R. A. Work, then Head of the SCS, Water Supply Forecasting Unit in Portland, Oregon, gave an introduction and welcome speech to the students. The words he used to describe the school are as prevalent today as they were back then. The following is an excerpt from that speech given 44 years ago.

" The Administrator's purpose in authorizing and supporting this meeting is to provide to each of us, trainees and observers alike, an opportunity to learn and

improve ourselves in the manual and mental skills of snow surveying. It is the Service's desire that you each gain a basic and possibly better understanding, of the reasons for doing your snow survey job. It is the policy of the Department that we each be provided with the best training possible in winter safety.

The Soil Conservation Service is proud of the safety record which has been achieved and maintained in snow surveys. There have now been 21 preceding winter seasons in the activity in the Service's sphere of activity without a fatal accident. We are firmly confident that this will prove the 22nd consecutive season without heartbreak to the family and colleagues of those in field snow survey ranks. You can help make it so for yourself and for those with whom you work, by close consideration and application of the rules for personal conduct during your winter trips in the mountains.

Some one snow surveyor, perhaps one of you men here, before long will travel the millionth over-snow mile, and I earnestly hope this goal will be reached without fatal accident. Your predecessors, including some of your instructors here, have built this durable record with skilled and sound guidance. You are the men who will continue and enhance it. I know you each will take pride in being a part of this snow survey team – as much pride in doing a good job the safe way as the Administrator and his line and staff officers take in being associated with you men in the effort.

The Federal-State-Private Cooperative Snow Survey Team brings together technicians from Canada and the United States in a common effort. It brings together the snow surveyors of California, who work under the guidance and coordination of the State's Department of Water Resources, and those of SCS and many other cooperating agencies. In 1960-61 there were more than 100 men –yes, and some women, too --- on this elite team. They all practiced the things we are here to study together – accuracy in sampling, uses of snow survey data in forecasting, winter survival, travel tricks, first aid, and many other parts of your job."

Since 1950 there have been 43 Snow Survey Schools. They have been held at a variety of locations spread across the west, and most of the western states have hosted it at one time or another. In the earlier years the school was held irregularly, often skipping years, but over time it evolved into an annual event and has been held every year since 1977.

WESTWIDE SNOW SURVEY TRAINING SCHOOL LOCATIONS

1950	Odd Fellows Hall	Ketchum, Idaho
1951		
1952		
1953		
1954	---	McCall, Idaho
1955		
1956	---	Alta, Utah
1957		
1958	Eagles Lodge	Jackson Hole, Wyoming
1959		
1960	Timberline Lodge	Mount Hood, Oregon
1961		
1962	---	Winter Park, Colorado
1963	Colorado State University	Fort Collins, Colorado

1964	Olympic Village	Squaw Valley, California
1965		
1966	The Big Mountain	Whitefish, Montana
1967		
1968		
1969	The Hostel	Teton Village, Wyoming
1970		
1971	C'est Bon	Park City, Utah
1972		
1973	Buttermilk Ski Area	Aspen, Colorado
1974		
1975*	Huntley Lodge	Big Sky, Montana
1976		
1977*	Sahara Tahoe	Stateline, Nevada
1978	Silver Skis Chalet	Crystal Mountain, WA
1979	Teton Village	Wilson, Wyoming
1980*	Timberline Lodge	Mount Hood, Oregon
1981*	Raquet Club Village	Park City, Utah
1982*	Shore Lodge	McCall, Idaho
1983*	Huntley Lodge	Big Sky, Montana
1984*	Raquet Club Village	Park City, Utah
1985	Raquet Club Village	Park City, Utah
1986*	Raquet Club Village	Park City, Utah
1987*	Raquet Club Village	Park City, Utah
1988*	Granlibakken Conf. Center	Tahoe City, California
1989*	Huntley Lodge	Big Sky, Montana
1990*	Keystone Resort	Keystone, Colorado
1991*	Inn Of The Seventh Mountain	Bend, Oregon
1992*	Granlibakken Conf. Center	Tahoe City, California
1993*	Prospector Square Hotel	Park City, Utah
1994*	Inn Of The Seventh Mountain	Bend, Oregon
1995*	Granlibakken Conf. Center	Tahoe City, California
1996*	Yellowstone Conf. Center	Big Sky, Montana
1997*	Inn At Silver Creek	Silver Creek, Colorado
1998*	Granlibakken Conf. Center	Tahoe City, California
1999*	Inn Of The Seventh Mountain	Bend, Oregon
2000*	Daniels Summit Lodge	Heber City, Utah
2001*	Granlibakken Conf. Center	Tahoe City, California
2002	Mount Bachelor Village	Bend, Oregon
2003	Granlibakken Conf. Center	Tahoe City, California
2004	Mount Bachelor Village	Bend, Oregon
2005	Granlibakken Conf. Center	Tahoe City, California
2006	Mount Bachelor Village	Bend, Oregon

The Snow Survey Training School strives to give a good basic knowledge of the entire scope and purpose of snow surveys, but the overwhelming emphasis focuses on two aspects which are safety/survival and data collection. The course is nearly five full days, during which, about half of the time is classroom presentations and the other half is outdoor field exercises and presentations.

Safety topics are usually presented by professional experts in the particular topics. These presentations tend to be very dramatic and effective in demonstrating the potential for disaster in the outdoors. Topics such as avalanche awareness, wilderness survival, survival gear, and wilderness first aid, all teach students how to

avoid being caught of guard in the outdoors and how to survive when the unexpected happens. Not surprisingly, these are usually the most popular portions of the course.

Early on it was decided to add an overnight bivouac to the agenda. This is a field exercise in which the students are required to carry their own survival equipment to a selected outdoor location, build a survival shelter, and remain outside until the following morning. The students gain knowledge and experience with their over snow equipment, shelter construction, proper clothing and layering, and most importantly... they gain the confidence that they can remain outside during extremely cold conditions, and survive in reasonable comfort by being prepared and using natural materials available to help stay warm and dry.



1960's Bivouac



2006 Bivouac

Much of the course is focused on the specifics of data collection. Topics covered include sampling techniques, note taking, care for the sampling equipment, data use, and more. This training includes outdoor demonstrations of the proper techniques and procedures for sampling snow at a snow course, as well as spending an afternoon practicing sampling and taking notes.

Other topics covered during the week are intended to give the students an understanding of why the data are important and what it is used for. They include history of snow surveying, stream flow forecasting procedures and uses of snow survey data and products.



1957 over snow Machines Demonstration



2006 Over Snow Machine Demonstration

For the 100 years that snow surveying has been around, the snow survey school has been there for 56 of them. It continues to be an extremely important educational experience for new snow surveyors as well as seasoned veterans that need a refresher. The school can be credited for helping to ensure that the snow surveys are done by highly motivated people who are capable of collecting data as consistently and accurately as possible. It also helps insure that the snow surveyors are capable to determine when conditions are too dangerous, and competent enough to survive in the harsh environment that they are required to work in.

Over the past 25 years, the snow survey program has evolved into a more automated network, yet the importance of the school remains as strong today as ever... and for much the same reasons that it was important 50 years ago. Manual surveys will continue to be important for areas that automated equipment is not allowed or not practical to install. They are also important as ground truths for the automated data sites. Automated sites often require onsite visits, which continue to subject the people visiting those sites to the same outdoor environment that the surveyors dealt with 100 years ago. Although there have been huge technological advancements in communications and over snow travel equipment, entering the backcountry can still be as dangerous as ever.

In 100 years not one life has been lost while performing snow survey activities. This is remarkable, considering the remote, harsh environment, and the number of surveyors and their numerous site visits over the years. The continuation of the snow survey training school will be an important step in making sure the next 100 years are just as safe.



1956 Snow School, Alta Utah



2006 Snow School, Bend Oregon

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