



# SnowNews

Winter 2014-2015

Volume 4, Issue 1

## Snow School 2015... No snow? Don't panic

**Spencer Miller**

**NRCS Public Affairs Specialist**

For years, snow has been an integral part of Westwide Snow Survey Training School. But at this year's training for the NRCS cadre of snow surveyors, the Tahoe City, California, training grounds were nearly snowless.

Fortunately, snow surveyors excel at adapting and overcoming. Snow school is an annual

week of training that focuses on safety, techniques and developing presence of mind.

A Wednesday night bivouac and Thursday snow survey reinforces classroom instruction.

In the absence of snow, surveyors made their bivouacs, or outdoor shelters, from sticks and tarps.

On Thursday they split into groups and traveled to nearby snowcapped mountains to train.

Several times during the week, Snow Survey and Water Supply Forecasting Program Manager Mike Strobel lauded the "young blood" entering the Program. Indeed, this was the first snow school for most students.

Lexi Landers, who joined NRCS and Snow Survey just two weeks before this training, looks for-

ward to attending again in three years.

"I've met a lot of great people here. Next time it's going to feel like a reunion," said Landers.

Developing camaraderie and transmitting culture from old hands to new is an important part of the experience. Around a bonfire, surveyors tell stories and read stirring Robert Service ballads; they labor side-by-side to build overnight shelters; they carry equipment across miles of snow to conduct a survey.

The bond shared by snow surveyors is something rarely encountered in the federal government. An outsider might describe it as tribal.

What sets surveyors apart is that they are knowingly, willingly entering hazardous conditions. When they leave civilization behind to collect snow data in the high mountains, anything can happen.

As Alaskan avalanche expert Leighan Falley warned, "When you're traveling across snow, if you hear 'whumphing' sounds, see roller balls or notice shooting cracks beneath your feet, get out of there. Fast."

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*Measuring the snow water equivalent. Here a team of students and instructors practice measurement techniques with a snow sampling tube.*



"This really boosted my confidence. I feel prepared and mentally-equipped to stay out, even if conditions are bad."



*Avalanche survival skills are important when working in high-elevation conditions. In this photo, students learn the appropriate way to dig out victims, once an avalanche locator beacon is sensed.*



*Off-road vehicle safety is another aspect of the annual Westwide Snow Survey Training. Both snowmobile and ATV/UTV safety is stressed.*

As Alaskan survival expert Brian Horner instructed, "A few minutes of intense exercise increases your body heat from a 100W dim light bulb to a 1500W radiating electric heater." Useful to know if you're trying to stave off the cold or help a colleague recover from hypothermia.

Another young blood, Zack Wilson, found the week's training invaluable. "This really boosted my confidence. I feel prepared and mentally-equipped to stay out, even if conditions are bad."

The training grounds may not have had snow, but the training still suited surveyors with the critical skills needed.

Veteran snow surveyor Amy Burke said that if anything, the training had improved since the last time she attended snow school. This winter

many surveyors will benefit from the knowledge and training.

**Editor's Note:** The 2016 Snow School will be held at the Seventh Mountain Inn in Bend, Oregon.

# Interactive map pinpoints data collection sites

The National Water and Climate Center (NWCC) recently introduced an [interactive map](#) on its website. The map provides easy navigation to NRCS networks, such as snow and precipitation data, and other networks, such as USGS streamflow data.

Simply click on a site to get station information and data. Users can select from several data types, and map controls

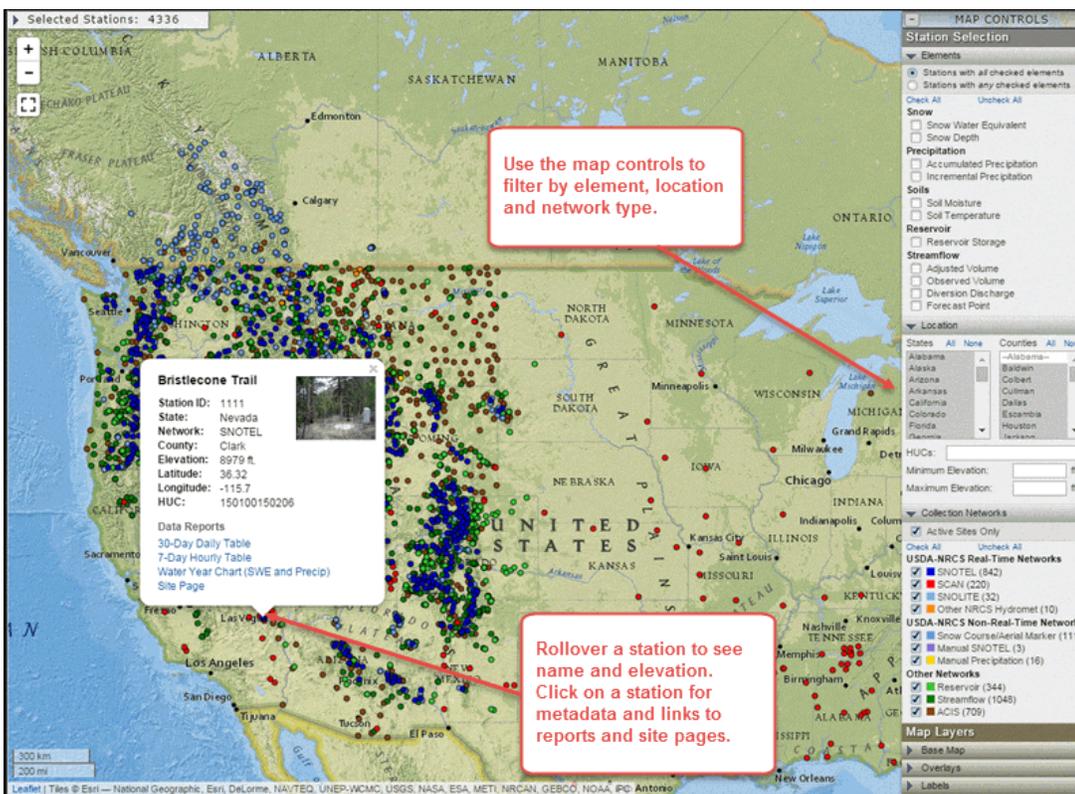
allow filtering to geographic regions (such as state or watersheds) and elevation zones. The map also offers different background layers, watershed boundary overlays and the ability to display labels.

To get started, use the map controls on the right border to select elements, location, and data collection networks.

Zoom or pan to the location of interest.

Next, rollover a station to display its name and elevation. Or, click on a station to view metadata and link to reports and site pages. [Map help](#) is also available for new users.

Remember to check the website in the coming months for some exciting enhancements to the interactive map.



Check out the new interactive map on the NWCC website.

[Click here](#) to get started.

## NWCC website gets a facelift

The National Water and Climate Center website ([www.wcc.nrcs.usda.gov](http://www.wcc.nrcs.usda.gov)) is undergoing some changes and reorganization.

Over the last few months, we've been updating, restructuring and improving the site for our users.

Our goal is to provide high quality water and climate information to our customers in a timely and easy to use format.

Some users may notice that reports and data have moved or, in some cases, are no longer supported.

We've made every effort to minimize the impact or disruption during this transition.

If you have questions, please contact our [staff](#).



## Snow Program Advisory Committee meets in Portland

The Snow Program Advisory Committee (SnowPAC) is a team comprised of state data collection officers, water supply specialists and National Water and Climate Center (NWCC) staff.

The team meets monthly via teleconference to resolve issues and share information as it relates to the Snow Survey and Water Supply Forecasting (SSWSF) Program.

The team also strives to meet annually for a series of discussions aimed at improving the Program. This year's annual meeting was held December 1-4 at the NWCC office in Portland, Oregon.

Attendees from 12 western states began the meeting with an update from **Mike Strobel**, NWCC Director and SSWSF Program Manager, on the or-

ganizational assessment which has been under consideration by National Headquarters. Mike also presented information on the current administrative transformation project, the workspace initiative, budget and staffing, the Climate Hubs, and the Conservation Delivery Streamlining Initiative (CDSI).

Monday's session ended with a demonstration of the new interactive map on the NWCC website.

Tuesday's meeting began with brief updates from each of the states on their activities, including new site installations and summer maintenance activities.

The afternoon session featured an update from **George Couch**, Public Affairs Specialist (Intranet), on the status

of the current Web Contribution Tool, and a preview of the new Enterprise Content Management (ECM) system under development.

**Cara McCarthy**, NWCC Water and Climate Services (WCS) team lead, gave an overview of the initiatives underway at the Center, including work with:

- Colorado State University on a Precipitation Runoff Modeling System (PRMS) hydrologic simulation model
- Portland State University on web-based access to PRISM data
- The Agricultural Research Service on development of a soil moisture accounting and streamflow model.

*...continued pg. 5*



**Front Row:** Maggie Dunklee, Randy Julander, Mage Hultstrand, Jolyne Lea, Laurel Grimsted. **2nd Row:** Steve Becker, James Bauchert, Chris Haines, Jeff Anderson, Scott Pattee, Mike Strobel, Amy Burke, Rose Loehr (Elyon contractor), Del Gist. **3rd Row:** Daniel Fisher, Tony Demarco, Lucas Zukiewicz, Phil Morrissey, Julie Koeberle, Dino DeSimone. **4th Row:** Ron Abramovich, Gus Goodbody, Eric Larson, Melissa Webb, Brian Domonkos.

**Not Pictured:** Greg Norris, B.J. Shoup, Karl Wetlaufer, Hal Swenson, Steve Becker, Scott Oviatt, Bill Overman, Larry Johnson, Lee Hackleman, Tony Tolsdorf, Cara McCarthy, Deb Harms, John Weeks, Rashawn Tama, David Garen. **Photo by:** Tony Tolsdorf.



*Summer maintenance is crucial in keeping SNOTEL sites operational. Here, Utah Data Collection Office personnel assist Jeff Anderson, Nevada Water Supply Specialist at the Corduroy Flat SNOTEL site near Ely, Nevada.*

Next, **Maggie Dunklee** provided an update on Information Systems Team (IST) activities, including new tools for data editors and upgraded hardware.

**Tony Tolsdorf**, Water and Climate Monitoring (WCM) team lead provided details on the upcoming Snow School and status on the National Engineering Handbook.

Electronics Maintenance Facility (EMF) activities rounded out the Tuesday session, with **John Weeks**, EMF lead technician, providing details on the new Maiden Rock Communications (MRC) 565 radio, status of the Master Stations, new testing and calibration procedures, and YSI temperature sensors.

On Wednesday, **B.J. Shoup**, Colorado State Soil Scientist, and **Deb Harms**, WCM hydrologist, led a presentation on an ongoing project in Colorado to enhance Snow Telemetry (SNOTEL) sites with soil mois-

ture sensors. Their plan is to conduct full soil characterizations on 10 existing SNOTEL sites this year.

**Spencer Miller**, Public Affairs Specialist, spoke to the group about handling media requests. Spencer also provided some guidelines for everyone to follow when communicating with the press.

Wednesday afternoon's sessions focused on new tools and applications under development or ready for deployment by the NWCC.

**Gus Goodbody**, WCS forecast hydrologist, provided a demonstration of the new basin data reports, and **Rashawn Tama**, WCS forecast hydrologist, discussed new data editing and data management tools.

The final day of the meeting featured a presentation by **Jim Alexander**, Office of the

General Council, on fluid deposition at SNOTEL sites. Jim provided a high level overview of Federal requirements for disposing of hazardous materials, including fluids drained from precipitation gages. Jim also gave the group a short list of concerns to be addressed moving forward.

The Soil Climate Analysis Network (SCAN) was the final topic of discussion on Thursday. Deb Harms and Tony Tolsdorf provided an update on new SCAN site installations in California and the transition to cellular modems for SCAN sites in the eastern U.S.

Cara McCarthy concluded the meeting by proposing the creation of a Products Committee. The goal of this group would be to provide a centralized organization structure for the SSWSF Program.



# Western State Water Program Capabilities Assessment

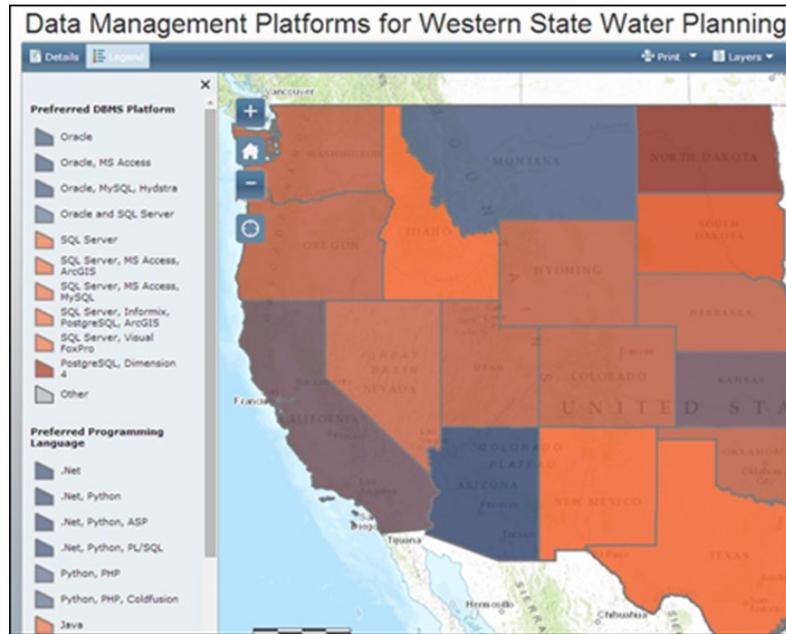
The Western States Water Council (WSWC) recently published a summary of findings and recommendations related to the capabilities of the Western State Water Program. Developed by the WSWC State Capabilities Assessment Workgroup, the report evaluated the current capabilities of the western

states with regard to water allocation, supply and demand data.

The purpose of the workgroup is to provide a better understanding of the systems and data holdings in each state and how those data are collected.

A [series of maps](#) (such as the one shown below) are also

featured on the site. These include maps on the status of hydrologic measurement data in the western states, data management platforms used for western state water planning, and a summary of water data gathering programs.



## NWCC/Snow Survey Program highlights

**Deb Harms** is the new Hydrologist in the Water and Climate Monitoring group. Deb comes to the NWCC from the National Soil Survey Center in Lincoln, Nebraska where she was a soil scientist. Look to the Spring issue of **SnowNews**, where we'll put the spotlight on Deb.

**Scott Oviatt** started work as the Oregon Data Collection Office Supervisor on November 3. Before coming to Oregon, Scott was the DCO Supervisor in Montana. For more about Scott and his ca-

reer at NRCS, see the Summer 2014 issue of **SnowNews**.

The new Team Leader for the NWCC Water and Climate Services group is **Cara McCarthy**. Prior to this position, Cara served as Senior Forecast Hydrologist at the Center.

Welcome to **Chris Haines**, the new Water Supply Specialist for the state of New Mexico. Chris has a background in meteorology, and is a U.S. Air Force veteran, having spent the last 10 years in Special Operations.

## Upcoming Events

**What:** Western Snow Conference

**When:** April 20-23, 2015

**Where:** Grass Valley, California

### More Information:

Frank Gerke, Conference Chair 916-952-4044  
[tioga1.frank@gmail.com](mailto:tioga1.frank@gmail.com)

Also see the Call for Papers for this year's conference on page 7.

# 2015 Western Snow Conference: Call for Papers

The 83rd annual Western Snow Conference is scheduled for April 20-23, 2015 in Grass Valley, California.

The conference is a forum for organizations and individuals to share information on snow and runoff, and advances in snow and hydrologic sciences.

## Call for Papers

The conference organizers have announced the first call for papers for the 2015 meeting. You are invited to submit an abstract of 150-300 words. The abstract submission form is located [here](#).

The general theme of the 2015 conference will be hydrologic forecasting and water management under drought conditions.

Suggestions for topics of poten-

tial papers and posters include:

- Climatology of Droughts
- Observed Trends in Snowpack Conditions
- Runoff Forecasting Issues during Dry Years
- Direct Measurement and Remote Sensing of Thin Snow Cover
- Hydrologic Processes during Dry Years
- Communicating with the News Media and a Drought-Weary Public
- For a special Earth Day (April 22) session - Environmental Issues Regarding Snow and Runoff

However, submissions on all

aspects of the cryosphere are welcome.

Conference committees are currently compiling a full agenda of oral and poster papers, a Monday short course, and a Thursday technical tour to explore historic water resource development in an area renowned for its gold mining and hydroelectric activity.

More information will be on the Western Snow Conference [web page](#) as it becomes available.

Direct questions to:

Gary Freeman, General Chair  
415-973-5320  
[GJF2@pge.com](mailto:GJF2@pge.com)

Frank Gerke, Conference Chair  
916-952-4044  
[tioga1.frank@gmail.com](mailto:tioga1.frank@gmail.com)



## Products and Resources on the Web

### Drought Impact Clearinghouse

In 2013, the Western States Water Council and California Department of Water Resources hosted a workshop for water managers, Federal agency directors and drought researchers to discuss ways to measure and report on the impact of drought in the U.S. Out of this workshop came the concept of a [Drought Impact Data Clearinghouse](#).

Hosted on the Western States Water Council website, the data clearinghouse contains an overview of drought impacts, a discussion on the importance of quantifying impacts, and several examples of assistance programs and resources available from various Federal agencies.

Related to environmental impacts, the site lists relevant USDA wildfire suppression, farm sector income and food price data on the current drought.

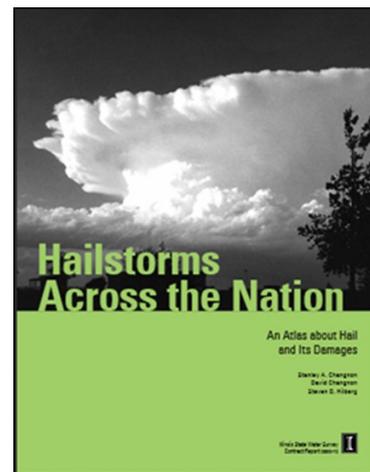
### Hailstorms Across the Nation

Representatives from the Illinois State Water Survey, Northern Illinois University and the Midwestern Regional Climate Center have joined forces to produce a publication titled "[Hailstorms Across the Nation: An Atlas about Hail and its Damages](#)."

The atlas addresses the climatology of hail in the U.S. It was compiled from diverse sources over the past 80 years and in-

cludes results of research conducted specifically for the publication.

Climatological descriptions of the hail conditions that cause damage to crops and property are presented, along with assessments of hail-produced losses.





# Snow Survey and Water Supply Forecasting Program Resource Locator

Here's a handy reference for finding resources in the Snow Survey and Water Supply Forecasting Program.

Where	What	Who	How
Alaska	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Data Collection Office Supervisor	Daniel Fisher 907-671-7746	<a href="mailto:daniel.fisher@ak.usda.gov">daniel.fisher@ak.usda.gov</a>
Arizona	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
	Water Supply Specialist	Dino De Simone 602-280-8786	<a href="mailto:dino.desimone@az.usda.gov">dino.desimone@az.usda.gov</a>
California	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Water Supply Specialist	Greg Norris 530-792-5609	<a href="mailto:greg.norris@ca.usda.gov">greg.norris@ca.usda.gov</a>
Colorado	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Hydrologist	Mage Hultstrand 720-544-2855	<a href="mailto:mage.hultstrand@co.usda.gov">mage.hultstrand@co.usda.gov</a>
	Data Collection Office Supervisor	Brian Domonkos 720-544-2852	<a href="mailto:brian.domonkos@co.usda.gov">brian.domonkos@co.usda.gov</a>
Idaho	Data Collection Officer	Phil Morrissey 208-685-6983	<a href="mailto:phil.morrissey@id.usda.gov">phil.morrissey@id.usda.gov</a>
	Forecast Hydrologist	Rashawn Tama 503-414-3010	<a href="mailto:rashawn.tama@por.usda.gov">rashawn.tama@por.usda.gov</a>
	Water Supply Specialist	Ron Abramovich 208-378-5741	<a href="mailto:ron.abramovich@id.usda.gov">ron.abramovich@id.usda.gov</a>
Montana	Data Collection Office Supervisor	Vacant	
	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Water Supply Specialist	Lucas Zukiewicz 406-587-6843	<a href="mailto:lucas.zukiewicz@mt.usda.gov">lucas.zukiewicz@mt.usda.gov</a>
Nevada	Forecast Hydrologist	Jolyne Lea 503-414-3040	<a href="mailto:jolyne.lea@por.usda.gov">jolyne.lea@por.usda.gov</a>
	Water Supply Specialist	Jeff Anderson 775-857-8500 x152	<a href="mailto:jeff.anderson@ut.usda.gov">jeff.anderson@ut.usda.gov</a>
New Mexico	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
	Water Supply Specialist	Chris Haines 520-292-2999 x107	<a href="mailto:chris.haines@nm.usda.gov">chris.haines@nm.usda.gov</a>
Oregon	Forecast Hydrologist	Rashawn Tama 503-414-3010	<a href="mailto:rashawn.tama@por.usda.gov">rashawn.tama@por.usda.gov</a>
	Hydrologist	Melissa Webb 503-414-3270	<a href="mailto:melissa.webb@or.usda.gov">melissa.webb@or.usda.gov</a>
Utah	Data Collection Officer Supervisor	Scott Oviatt 503-414-3271	<a href="mailto:scott.oviatt@or.usda.gov">scott.oviatt@or.usda.gov</a>
	Forecast Hydrologist	Gus Goodbody 503-414-3033	<a href="mailto:angus.goodbody@por.usda.gov">angus.goodbody@por.usda.gov</a>
Washington	Snow Survey Supervisor	Randy Julander 801-524-5213	<a href="mailto:randy.julander@ut.usda.gov">randy.julander@ut.usda.gov</a>
	Forecast Hydrologist	Rashawn Tama 503-414-3010	<a href="mailto:rashawn.tama@por.usda.gov">rashawn.tama@por.usda.gov</a>
Wyoming	Water Supply Specialist	Scott Pattee 360-428-7684	<a href="mailto:scott.pattee@wa.usda.gov">scott.pattee@wa.usda.gov</a>
	Forecast Hydrologist	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
All States	Water Supply Specialist	Lee Hackleman 307-233-6744	<a href="mailto:lee.hackleman@wv.usda.gov">lee.hackleman@wv.usda.gov</a>
	Center Director/Program Manager	Mike Strobel 503-414-3055	<a href="mailto:michael.strobel@por.usda.gov">michael.strobel@por.usda.gov</a>
	Information Systems Team Lead	Laurel Grimsted 503-414-3053	<a href="mailto:laurel.grimsted@por.usda.gov">laurel.grimsted@por.usda.gov</a>
	Water & Climate Monitoring Team Lead	Tony Tolsdorf 503-414-3006	<a href="mailto:tony.tolsdorf@por.usda.gov">tony.tolsdorf@por.usda.gov</a>
	Water & Climate Services Team Lead	Cara McCarthy 503-414-3088	<a href="mailto:cara.s.mccarthy@por.usda.gov">cara.s.mccarthy@por.usda.gov</a>
	Database Manager	Maggie Dunklee 503-414-3049	<a href="mailto:maggie.dunklee@por.usda.gov">maggie.dunklee@por.usda.gov</a>
	Database Manager	Del Gist 503-414-3007	<a href="mailto:del.gist@por.usda.gov">del.gist@por.usda.gov</a>
	Hydrologist (Water & Climate Monitoring)	Deb Harms 503-414-3050	<a href="mailto:deb.harms@por.usda.gov">deb.harms@por.usda.gov</a>
	Modeling Hydrologist	David Garen 503-414-3021	<a href="mailto:david.garen@por.usda.gov">david.garen@por.usda.gov</a>
	Operations Specialist (SNOTEL/SCAN)	Vacant	
Resource Conservationist	Vacant		
Statistical Assistant/SCAN QC	Denice Schilling 406-727-7580	<a href="mailto:denice.schilling@mt.usda.gov">denice.schilling@mt.usda.gov</a>	

## NWCC website features new Contact Help Center

The NWCC website has a new [Contact Help Center](#) to assist our customers in locating the right resource within the Snow Survey and Water Supply Forecasting (SSWSF) Program and Soil Climate Analysis Network (SCAN).

The Contact Help Center is a series of tables organized by State, River Basin, Function or Responsibility, and Subject.

Use the tables to locate the Data Collection Office, Water Supply Specialist, Snow Survey Program Manager or State Liaison Hydrologist for each of the 12 western states.

Hyperlinks take you to more information or open an email to

the responsible individual.

To access the Contact Help Center, simply click the [Contact Us](#) link along the top border of the NWCC webpage.



# Third Annual Photo Contest Winners

We had another great round of photographs submitted to the Snow Survey and Water Supply Forecasting (SSWSF) Program photo contest.

As in years past, photos were submitted in the categories of Equipment, Field Work, People, Scenery and Transportation. SSWSF Program person-

nel then voted for their favorite photos in each category.

This year, we placed all the photos in each category on the National Water and Climate Center website.

[Click here](#) to go to the photo gallery.

Below are "thumbnail" versions of the winning entries in each category. Just click a thumbnail to see the photo in full resolution.

Thanks to all who shared their photos and took the time to vote this year!



Category: Equipment  
1st Place: Lucas Zukiewicz  
Wild Fire Damage to SNOTEL Shelter



Category: People  
1st Place: Mage Hultstrand  
Colorado DCO personnel, Sawtooth SNOTEL



View all the photos from the 2014 contest on the Water and Climate Center website:

[www.wcc.nrcs.usda.gov/photo\\_contest](http://www.wcc.nrcs.usda.gov/photo_contest)

Click any photo to enlarge it

Category: Field Work  
1st Place: Daniel Fisher  
Independence Mine Snow Course



Category: Scenery  
1st Place: Lucas Zukiewicz  
First Snowfall, Pilot Peak, Wyoming



Category: Transportation  
1st Place: Lucas Zukiewicz  
Fire Damage, Younts Peak SNOTEL





National Water & Climate Center  
Natural Resources Conservation Service  
US Department of Agriculture  
[www.wcc.nrcs.usda.gov](http://www.wcc.nrcs.usda.gov)

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SnowNews\\_landing.htm](http://www.wcc.nrcs.usda.gov/SnowNews/SnowNews_landing.htm)



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## From the Director's desk



I often use this column to speak directly with our Snow Survey staff and address issues and concerns related to their work. However, because **SnowNews** has a distribution of over 17,000 through GovDelivery, these conversations are, in reality, shared with a very wide audience. That fact, although somewhat overwhelming to consider, is also a great opportunity to openly share our concerns in a public forum and seek input from a large number of readers.

I regularly get questions about our budget and the ability to meet the critical requirements of our mission. The past two years have been stable for our Program as far as the budget is concerned, following some difficult cuts in the two years prior. We saw a 15% reduction in our operating funds in 2012, followed by an additional 8% reduction in 2013. Last year, our appropriation was increased to the 2012 level, and remains there again in 2015.

Are these sufficient funds for conducting the Snow Survey and Water Supply Forecasting Program? Because we made some difficult decisions in 2012 and 2013 to reduce snow courses, eliminate some Program activities and cut back on agreements that funded research and development, we now have sufficient funds to carry out our mission.

One area where we've seen reductions in our activities has been the installation of new SNOTEL sites. The reality is that SNOTEL sites cost more than manual snow courses to install and maintain, but the returns on increased data and reduced safety concerns makes this a good investment.

Another cost savings has been the conversion of many aerial markers to what we call "SnoLITE" stations (these are automated aerial markers with other sensors and telemetry). The savings in not conducting flights to read the markers has been a positive contribution to our Program budget.

So the question arises, if you have sufficient funds, what are the obstacles to meeting your mission? This one is an easy answer: Personnel.

It is no secret that filling vacancies throughout government has been a difficult process. In the most recent issue of **Government Executive** (January/February 2015), the cover states "Can't Hire, Can't Fire. Other than that, everything's great with the civil service system."

We have seen a large number of retirements in recent years, as those who joined the workforce in the 1970s and 1980s are now deciding to hang up their snowshoes. And our HR departments have a large backlog to work through in order to process and fill these vacant positions. They work very hard to keep up, but the workload far exceeds their ability to quickly fill these vacancies.

Because the largest cost to any program is personnel, and because we had uncertainty in our annual budget over the

past four years, we delayed actions to replace many vacancies in order to balance budgets.

The NWCC is a good example of the impacts of delays in filling positions. The staff directory on our webpage shows nine vacant positions (based on our full staff roster from a few years ago). With 14 current employees, that relates to a vacancy level of well over one-third of our staff. There is no question that some activities key to our mission are currently not getting done. We are working to replace many of these positions, but the process takes time.

The same is true throughout the Snow Survey Program in the states. The main reason we are not installing as many new SNOTEL sites is more because of the limited personnel than it is inadequate funding. There are limits to the number of SNOTEL sites that we can maintain each year with current personnel levels. For the Program to continue to expand, the number of field personnel to handle the workload will also need to increase. At this time, that is our limiting factor.

I believe that the outlook for our Program in relation to funding is bright because people in the West highly value our data and the need to make accurate, reliable water supply forecasts. Once we can bring our staffing numbers to a level to handle the workload, we will continue to see the Program expand and strengthen.

Mike