National Water & Climate Center

Snow Survey & Water Supply Forecasting Program

SnowNews

Summer 2014

Volume 3, Issue 4

Master Station upgrades completed across the U.S.

To gather the enormous amount of data generated by the Snow Telemetry (SNOTEL) and Soil Climate Analysis Network (SCAN), the National Water and Climate Center (NWCC) operates five meteor burst Master Stations.

The Master Stations are geographically-dispersed across the U.S. to efficiently receive data from the thousands of SNOTEL and SCAN sites supported, and then transmit that data to the centralized Data Center in Portland, Oregon.

Until recently, the Master Stations had been configured with very old technology (hardware/software), in some cases even still relying on DOS-based systems. As a result, some Master Stations were experiencing long-term outages, and required constant monitoring and expensive repair trips.

MRC 525 Meteor Burst Communication Terminal

Working with subcontractor Maiden Rock Communications, technicians from the NWCC Electronics Maintenance Facility (EMF) completed comprehensive upgrades to Master Station components at Boise, ID; Dugway, UT; Tipton, MO; Stoneville, MS and Mt. Gilead, OH.

The five meteor burst Master Stations serve the contiguous states. The two western Master Stations (Boise, Idaho and Dugway, Utah) collect data primarily for the SNOTEL network. The three eastern Master Stations (Tipton, MO, Stoneville, MS, and Mt. Gilead, OH) primarily serve the Soil Climate Analysis Network (SCAN).

In early May, **Steve Dunn**, EMF technician, and **John Weeks**, EMF lead technician, travelled with **Alex Rebentisch** from the Idaho Data Collection Office to each of the Master Stations. They removed the DOS-based computers, discrete receivers and frequency synthesizers, and installed the new **MRC 525 Meteor Burst Communications Terminal**.

According to John, "Those DOS computers were 20-plus years old and contained custom boards that haven't been supported in 10 years. The new MRC 525 has proven to be so much better. Field sites that have never performed well have made a complete turnaround. We even have sites in Idaho, Wyoming, Montana and Colorado that are being recognized by the Master Station in Stoneville, Mississippi. In some cases, this is a distance of almost 2,000 miles!"

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Inside this issue:

Special points of interest:

- Photo contest
- Upcoming events
- "Infographics" illustrate concepts in entertaining way
- Products/Resources on the Web

Master Station upgrades completed

...cont. from pg 1

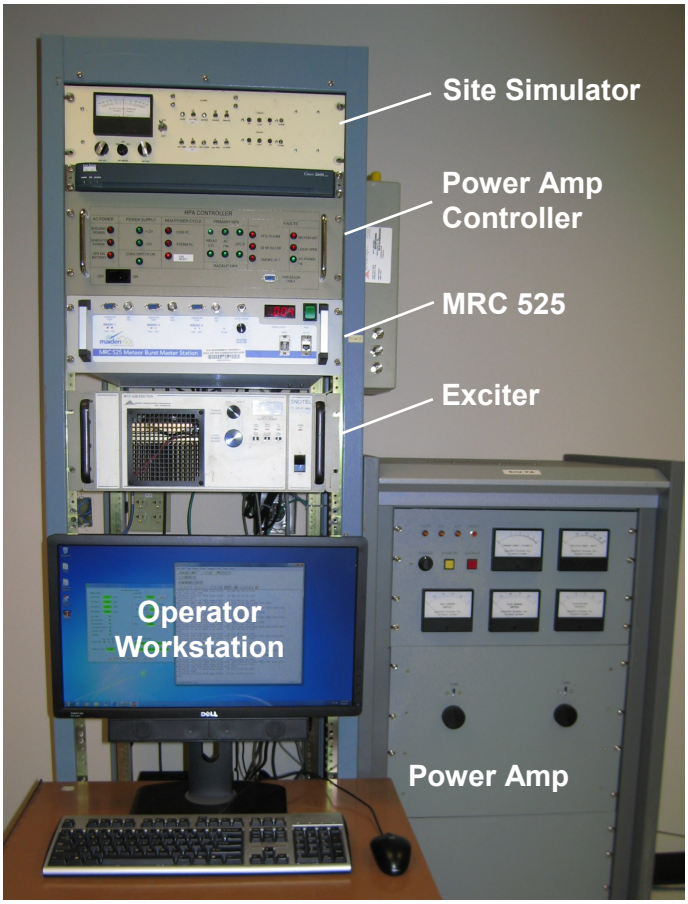
John went on to say, “The MRC 525 is pretty much a complete receive site. It contains the processing unit that is the heart of the system, a frequency synthesizer, all eight receivers, plus a GPS receiver to keep everything time-synced.”

In addition to the MRC 525, the system is comprised of two high-power (2000 watt) RF amplifiers (one primary and one backup), an exciter, a Power Amplifier Interface Module (PAIM), coaxial relay module, operator workstation and a set of antennas and duplex filters.

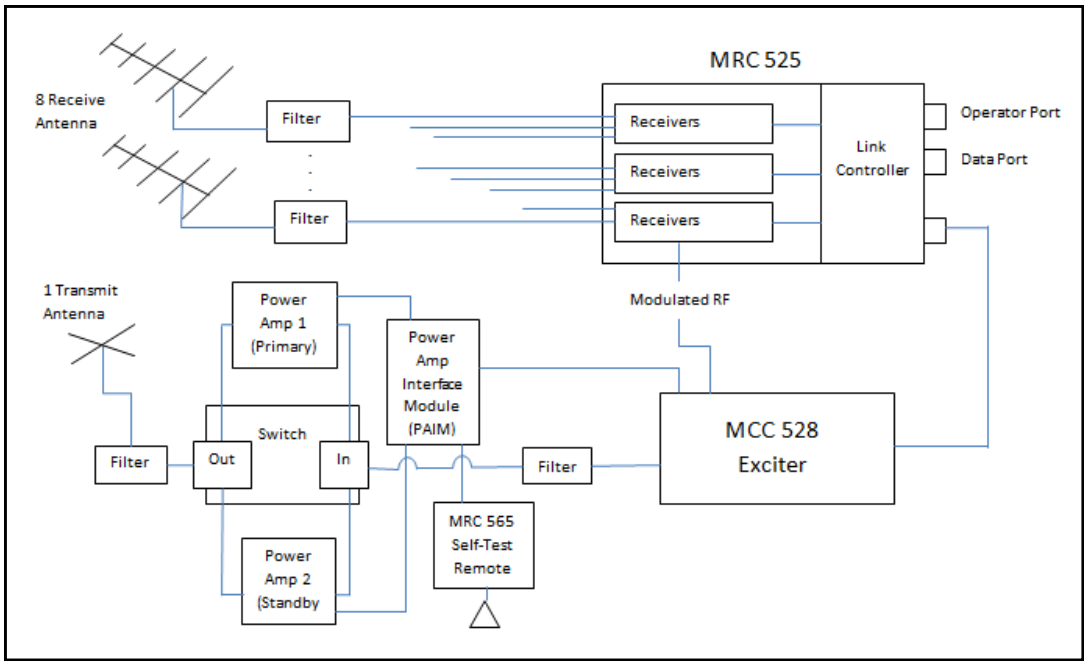
Currently, the MRC 525 sends the channel assignment frequency to the exciter, which amplifies and modulates the signal before sending it to the main power amplifier.

However, this tube-type power amp/exciter design is over 25 years old, so it is the next target for upgrades.

“The MRC 525 is pretty much a complete receive site. It contains the processing unit that is the heart of the system, a frequency synthesizer, all eight receivers, plus a GPS receiver to keep everything time-synced.”



Master Station components in the test environment at EMF



Master Station Communications System components

A solid state replacement unit is now under development by Maiden Rock Communications and is slated for release in the spring of 2015.

For more information about the upgrades to the meteor burst Master Stations, contact Tony Tolsdorf, Water and Climate Monitoring team lead, (503) 414-3006.

82nd Western Snow Conference focuses on “dust on snow”

[Jolyne Lea](#)
NWCC Forecast Hydrologist

77 attendees participated in this year’s Western Snow Conference (WSC), held April 14-17 in Durango, Colorado. About a third of the attendees were students from nearby universities. Federal, state and local agencies across the country, as well as several Canadian counterparts were also represented.

The conference kicked off Monday with a short course and panel discussion "Dust and Carbon Effects on Snow Processes: Detection and Adaptation" with several invited experts in the field including **Jeff Deems** from the National Snow and Ice Data Center (NSIDC) and **Tom Painter** from Cal Tech and NASA’s Jet Propulsion Lab.

There was a good discussion of dust on snow, its sources, effects to the snowpack and snowmelt, and the continuing problem of dust in Colorado.

Tuesday and Wednesday consisted of a full forum of posters and oral presentations on topics related to snow and runoff, climate variability, water management and water supply forecasting.

For a complete listing of oral and poster papers and their authors, the program is available at http://www.westernsnowconference.org/2014.

Thursday’s Technical Tour explored current snow research activities in the Durango/Silverton area and was led by personnel from the Center for Snow and Avalanche Studies in Silverton.

The first stop was at a highway rest area where the group viewed a snow pit, where layers of dust could easily be seen in the snowpack. Attendees discussed how dust was increasing the snowmelt, the timing and source of the dust deposits, and its effect on the hydrology in the region.

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Attendees discussed dust on snow and how it increases melt on the snow surface

“The group discussed how dust is increasing the snowmelt, the timing and source of the dust deposits, and its effect on the hydrology in the region.”

82nd Western Snow Conference

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At the Center for Snow and Avalanche Studies in Silverton the group discussed the research, data collection and measurements that the staff take on a daily basis, relying heavily on mountain networks like SNOTEL, as well as detailed data taken from snowpits, and recording changes in the snowpack.

One of the Center's projects is to collect and research the dust on snow, changes in albedo, accelerated melt, and the subsequent impact on timing and peaks of streamflow. Attendees discussed the wind events and source of the dust deposits and its effect on the hydrology across the region.

Networking at informal gatherings with colleagues was a highlight of the meeting, where new research and information sharing along with new tools and technology discussion creates a great way to improve our science.

Conference proceedings will be available on the WSC website in approximately six months.

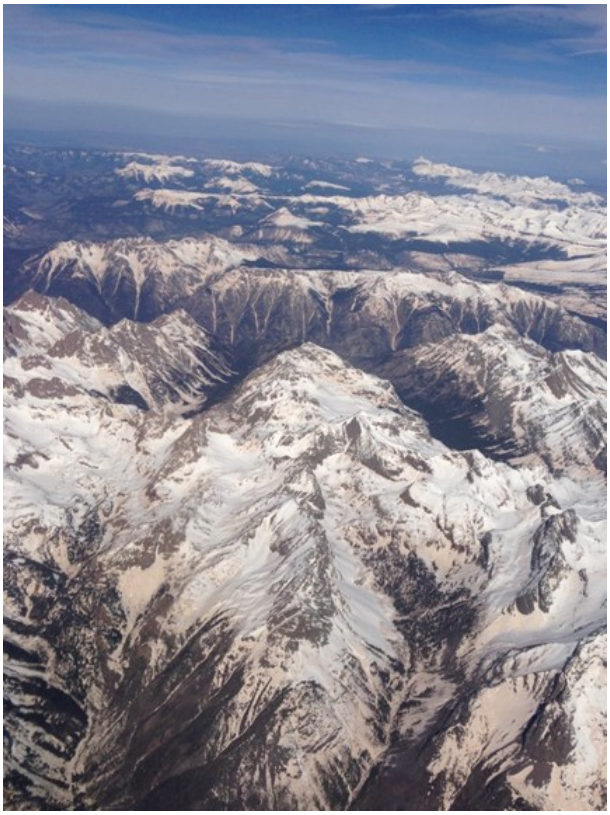
The 2015 Western Snow Conference is scheduled for April 20 – 23 in Grass Valley, CA

General Chair
Gary Freeman (415) 973-5320 gjf2@pge.com

Local Arrangements
Frank Gehrke (916) 574-2635

Field trip from Durango to Silverton observing dust on snow and effect on snowmelt and hydrology. One event in April deposited 47 grams/m^2.

Close up of the "red" dust from the Four Corners area.



Dust seen across the Colorado Rockies from the plane leaving Durango.

Hanging out at Tower Climbing and Rescue Training

It was another successful year at the annual **Tower Climbing and Rescue Training,** held May 19-22 at the Boise Master Station.

This year, 10 participants from the Natural Resources Conservation Service (NRCS) learned techniques for properly ascending, descending and rescue on meteorological and transmit/receive towers.

Tony Tolsdorf, National Water and Climate Center (NWCC), has been an OSHA-certified tower safety and rescue instructor since 2005. **Rashawn Tama**, NWCC, has assisted Tony for most of those years and was OSHA-certified in 2011.

The three-day training consisted of lectures, demonstrations and field exercises. After passing a written examination, participants used field exercises to practice their skills.

The 40-foot receive towers at the Boise Master Station provided an ideal training ground, by allowing ample height for rescuers to descend their awaiting "patients."

The simulated rescue is performed at a height of about 20 feet – the same height as most Snow Telemetry (SNOTEL) tower installations.

For more information about annual Tower Climbing and Rescue Training, contact Tony Tolsdorf, (503) 414-3006.

Instructor Rashawn Tama assists Travis Kolling and Karl Wetlaufer in a tower rescue

2014 Tower Climbing and Rescue Training Participants. *Front row: Rashawn Tama, Chad Gipson, Karl Wetlaufer, Phil Morrisey (Idaho DCO), Tony Tolsdorf. Back row: Alex Rebentisch, Ron Abramovich, Abby Lute, Jeff O'Connell, Christine Shook, Wayne Sleep, Beau Uriona, Joseph Acers, Travis Kolling, Hal Swenson.*

A brief history: SNOTEL electronics

The following article was originally written by Bob Nault (Utah Data Collection Office) for the 2006 Snow Survey Centennial. It was condensed and updated for this issue of ***SnowNews.***

Beginning in 1964, and prior to the advent of meteor burst radios, a small remote sensing program was ongoing at Utah State University (USU) in Logan, Utah. Here members of the USU Water Resources Department remotely measured five mountain sites for snow water and precipitation. The radios were 2 watt CBs (citizen band) with weighting type transducers. Sites were interrogated by flying over them in a fixed-wing aircraft and counting tones, which were then graphed to estimate measurements.

1966 saw a new generation of radios. Developed by Motorola, these radios used a transmitter and receiver along with a network of mountaintop repeaters. This system allowed researchers to interrogate the data sites from their office.

In 1972, the combined efforts of USU and Thiokol Corporation created the ***Hydrologic Telemetry (HiTel)*** system.

Metracom Radio, 1979

The radios were now operating on 172.55 MHz, and the system was expanded to 15 HiTel sites which were adjacent to snow courses established and maintained by the USDA Soil Conservation Service.

Meteor burst enters the scene

The Soil Conservation Service began in 1975 to convert snow courses in key watersheds to obtain near real-time hydrologic data. A new radio technology was needed and a contract was awarded to Western Union. Western Union subcontracted with Secode Electronics to supply the Snow Survey Program's first meteor burst radios, named ***Metracom***.

In the back room of the Secode Electronics radio design team was a group of Boeing engineers. Boeing was interested in meteor burst technology for military applications. In 1975, this small team formed Meteor Communications Consultants. And, in 1980, this team became known as MeteorComm Corporation (MCC).

Western Union contracted to install and maintain the first meteor burst sites, which were called ***Snow Telemetry (SNOTEL)***, using the Metracom radio.

Within a short time, it became evident that the job of keeping an operational, real time database running was a bigger job than Western Union could handle.

So the Soil Conservation Service started to staff up with their own electronic and hydrologic technicians to install and maintain the SNOTEL network, with the first personnel coming on board in 1979-80.

By early 1980, the electronic package at remote sites consisted of a Metracom radio which measured 17x15x4 inches and weighed 13 pounds. It had a mother board, four sensor interface cards, a power control unit, two 24 ampere-hour battery packs, and a 36 volt battery pack.

The radio consisted of a receiver board, transmitter board, an exciter board, a data acquisition board, and a control logic board.

The power control unit contained the main power switch, and a transformer which stepped up the 12 volts from the main batteries to 36 volts for the transmit battery. The nominal forward power was 300 watts.

Mt. St. Helens eruption yields the MCC 550 Series

It's often said, "Timing is everything" or "Necessity is the mother of invention." After the eruption of Mt. Saint Helens in May 1980, the National Weather Service wanted special monitoring around the mountain, so they provided funds to the Soil Conservation Service to install seven sites. However, these sites needed to have some capabilities that the Secode radio did not have, including rapid snow melt or snow (ash) accumulation when temperatures are above freezing, and the ability to send out an alert.

The ***MCC 550*** series radios were designed and manufactured during the summer of 1980 and installed around the mountain that fall.

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Brief history of SNOTEL electronics

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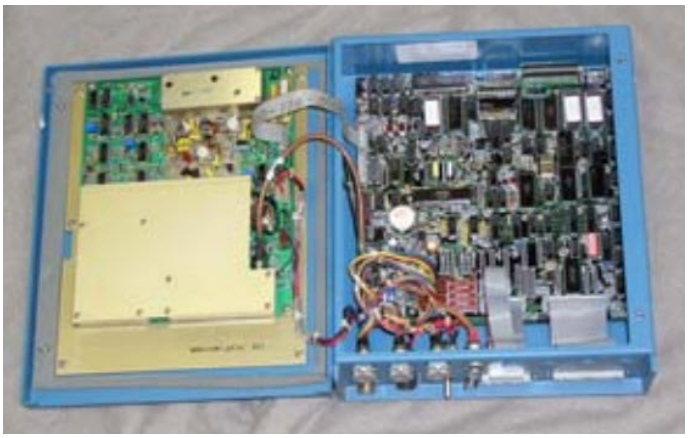


MCC 550 Radio, 1980

These radios measured 13x11x3 inches, weighed 8 pounds, and transmitted at 300 watts, requiring a 36 volt battery pack. The radios had maximum, minimum, and average temperature, and entered the site address through a series of thumb wheel switches.

The next generation of radio was the ***MCC 550A***, with 12 volt 100 watt transmitters. These radios were extremely troublesome; they had data spikes (anomalies), performance problems, power problems, and antenna problems. The power problems were associated with too many transmissions, too little solar power, with batteries that were too small. The ***MCC 550B*** was designed to clear up these problems and operated with a 12 volt battery and had 100 watts output.

MCC 545 Series introduced in 1999

A new era in SNOTEL instrumentation started in 1999 with the introduction of the MCC 545 series of radios. These would also be the precursors to the radio and sensor configuration we now use.

The ***MCC 545A*** measured 14x10x2 inches and weighed 4 lbs., did not have data acquisition capability, so the need for a data logger was necessary. SNOTEL sites were becoming what were called “fire weather -instrumented sites.” These sites had soil moisture and temperature, wind, solar radiation, relative humidly, precipitation, and snow depth sensors, along with the standard snow water equivalent and air temperature sensors.

In 2002, the ***MCC 545B*** was introduced, measuring 9x4x2 inches and weighing 3.5 lbs.

MCC 545B Radio and CR10X Datalogger, 2002

The 545B had a 100 watt transmitter and RF receiver that operated on a 90 degree phase shift key, which was different than the MCC 550 and 545A series. As part of this transition, the entire SNOTEL system was upgraded to the MCC 545B/Campbell CR10x Datalogger combination. Sites use either a Campbell 1632 multiplexer or a Dan Judd interface board to connect the sensors to the CR10x datalogger.

Fast forward to today

Since the MCC 545B radio was introduced in 2002, the production of the 545B radios has transitioned from MCC to Maiden Rock Communications, based in Seeley Lake, Montana. Maiden Rock engineers helped design the original Master Station hardware and software, including the 525B control computer and the 545B radios, and continue to be the primary supplier of these systems.

...continued on pg 8

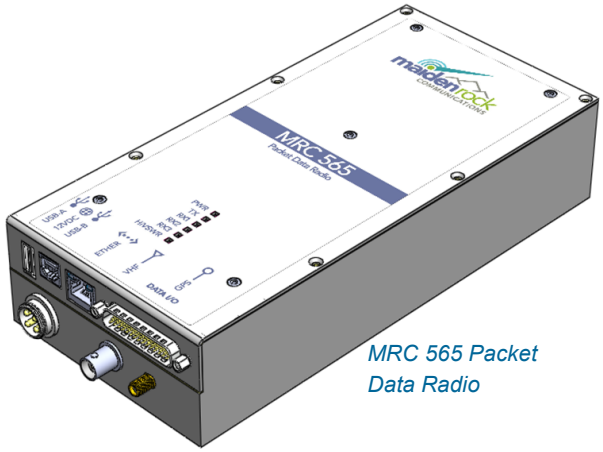
Brief history of SNOTEL electronics

...cont. from pg 7

In addition, over the years the CR10x datalogger has been replaced by the CR1000 datalogger.

Next generation radio

Over the last 18 months, Maiden Rock Communications has been designing and building the next generation meteor burst radio, called the ***MRC 565 Packet Data Radio.***



MRC 565 Packet Data Radio

The MRC 565 features:

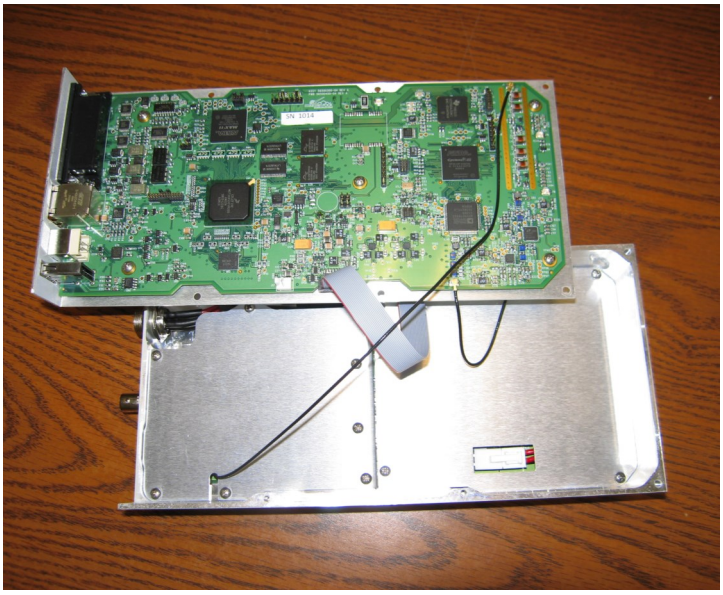
* New circuit boards. The Communications Management Unit (CMU) board replaces the receiver and processor boards used in the old MCC 545B.
* Software defined radio (SDR). All radio functions (except the receiver pre-amp and power amplifier) are performed via the software.
* No physical adjustments on the CMU. Frequency and RF gain are adjusted using the software.
* Lower DC power consumption than the MCC 5454B. Receiver current drain is as low as 50 mA in certain modes.
* Smaller footprint. Dimensions are 9.4x4.5x2 and 3.5 lbs.

Three Beta units for the new MRC 565 arrived at the Snow Survey and Water Supply Forecasting Electronics Maintenance Facility (EMF) for acceptance testing in May 2014.

In early June, nine more units were deployed into the field for further testing and analysis.

The plan is to begin integrating the new radios into the SNOTEL network during the fall of 2014.

Editor's Note: Check out the Fall issue of SnowNews for an update on how the new MRC 565 radios are performing in the field.



The MRC 565 features new circuit boards, software-defined functions, lower DC power consumption and a smaller footprint.

It's not too late! Enter the 2014 Snow Survey Photo Contest

The annual **Snow Survey Photo Contest** is on! This year, we've extended the deadline for entries, giving you more time to capture the beauty of the work we do.

The rules are the same:

- The contest is open to all. Photos must have something to do with the Snow Survey Program and the work we do.
- The photo must be taken within the last 18 months.
- Limit of three entries in each category for each person.
- Only those who took the photo can submit. However, if you have historic pictures, we would like to archive them.

There are five categories with First, Second and Third Place awarded in each:

1. **Scenery**
2. **Field work** (people in the field)
3. **Transportation** (helicopters, snow machines, horses, skiing, etc)
4. **Equipment** (such as SNOTEL stations, master stations, computers, warehouses)
5. **People**

Please **rename** each picture submitted with the following:

- Your name
- Category of picture
- Location of picture

For example: smith.scenery.yellowstone.jpg

Deadline for submissions is September 30. Send your entries to Jacquie Workman.

Just like last year, snow survey employees will vote for the winners. Voting will begin October 7.

Winners in each category will receive the following:

First Place – Snow Survey belt buckle
Second Place – Gift Card
Third Place – Certificate

Plus the winning entries in each category will be framed and placed on the walls of the NWCC and featured in the winter issue of ***SnowNews***.

Please contact Jacquie (503) 414-3038 with questions.

Deadline for entries in this year's photo contest is Sept. 30. Voting starts October 7.

Climate Data Initiative launches new website

In June of last year, President Obama launched a Climate Action Plan aimed at reducing carbon pollution, helping communities prepare for the impacts of climate change, and leading an international effort to meet this challenge.

As part of the plan, the Obama administration launched the Climate Data Initiative in March 2014.

The plan will leverage the Federal government's extensive, freely-available climate data and resources to "stimulate innovation and private-sector entrepreneurship in support of national climate-change preparedness."

The initiative builds on two key commitments:

1. To strengthen America's resilience to climate change.
2. To make government-held data more accessible to the public, researchers and others as fuel for innovation and growth.

One of the highlights of the initiative is the introduction of the climate.data.gov website.

With leadership from the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) climate.data.gov is a climate-focused section of data.gov, the government's open data platform.

The goal for the site is to make Federal data about climate more open, accessible, and useful. Climate.data.gov will initially focus on coastal flooding and sea level rise, and already includes more than 100 curated, high-quality datasets, web services, and tools.

Click here for more information on the initiative.

Spotlight On… Scott Oviatt

This month's spotlight is on Scott Oviatt, Montana Data Collection Office (DCO) leader.

"Working in Montana has been an interesting, rewarding and challenging job."

Scott was the youngest child growing up on the family farm in Vienna, Missouri. Mom was a teacher and dad an educational administrator. Their 700 acres supported a 50-head cow/calf operation.

When Scott was 15, he and his father were discussing college and eventual career choices. Scott's dad was always interested in the weather and suggested Scott pursue becoming a meteorologist. Scott agreed, since his dad had recently purchased a NOAA weather radio, and he was fascinated that they could receive real-time data, forecasts, and storm warnings.

After graduating from the largest class in Vienna High School history (40 strong), Scott attended the University of Missouri in Columbia. While there, he worked for four years as a Research Assistant for the chairman of the Atmospheric Science Department, doing data analysis and field work.

Scott graduated with a BS degree in Atmospheric Science in 1985, and took a job with an engineering firm, working on air quality and meteorological monitoring projects.

Scott's job took him to Sheridan, Wyoming in 1986. It was a good move. While there, he met his wife, Richie, and her sons, Bryan and Chris.

After three years in Sheridan, Scott began projects that took him to all the western states, including Alaska.

During his 15 years in the private sector, Scott spent 5 years working on large engineering projects in Bolivia and Peru. The logistics of these projects were challenging, transporting heavy equipment and learning the ins and outs of the local culture.

In 1999, the consulting industry was suffering and Scott saw the writing on the wall. He decided it was time to change course.

So, in 1999, Scott accepted a position as a Physical Scientist with the Agricultural Research Service (ARS) in Pendleton, Oregon. He worked for ARS for six years in this role.

When the position for a DCO leader opened in Montana, Scott made the move to the Snow Survey and Water Supply Forecasting Program. That was in 2005.

After nine years in Montana, Scott has seen his position evolve and change. Today, he spends a lot of time working on budgets, staffing, equipment maintenance and procurement.

As he puts it, "No one day is ever the same. You may be a little frustrated, but you're never bored."

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Scott at home with his wife, Richie, and son, Chris.

Spotlight on Scott Oviatt

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When asked about his favorite memories during his time with the Program, Scott says, “Getting to know the Montana and Wyoming area better has been a great experience. Plus, I have the chance to work with a really great staff.”

When he’s not at work, Scott and Richie enjoy hiking and travelling. They also look forward to visiting with Brian and Chris, who are still living a few hours away in Sheridan.

Scott is an avid, “aspiring” blues mandolinist, having played for over 10 years. It’s a great stress reliever for both the picker (Scott) and the listener (Richie).

As we concluded the interview, I asked Scott about his vision for the future of the Program.

“I’d like to see more integration and standardization as a Program across all the western states. I think that would make us more effective and productive.”

BBQ and retirement celebration brings team to EMF

NWCC Meteorologist Jan Curtis retired at the end of May. To wish him well, we held a BBQ at the Electronics Maintenance Facility. Top left: John Weeks fires up the Big Green Egg while Jo Huelshoff looks on. Bottom left: Some of team enjoying the celebration. Right: Jan looks happy with his retirement certificate.

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 jolyne.lea@por.usda.gov
	Data Collection Office Supervisor	Daniel Fisher 907-271-2424 daniel.fisher@ak.usda.gov
Arizona	Forecast Hydrologist	Gus Goodbody 503-414-3033 angus.goodbody@por.usda.gov
	Water Supply Specialist	Dino De Simone 602-280-8786 dino.desimone@az.usda.gov
California	Forecast Hydrologist	Jolyne Lea 503-414-3040 jolyne.lea@por.usda.gov
	Water Supply Specialist	Greg Norris 530-792-5609 greg.norris@ca.usda.gov
Colorado	Forecast Hydrologist	Cara McCarthy 503-414-3088 cara.s.mccarthy@por.usda.gov
	Hydrologist	Mage Hultstrand 720-544-2855 mage.hultstrand@co.usda.gov
	Data Collection Office Supervisor	Brian Domonkos 720-544-2852 brian.domonkos@co.usda.gov
Idaho	Data Collection Officer	Phil Morrisey 208-685-6983 phil.morrisey@id.usda.gov
	Forecast Hydrologist	Rashawn Tama 503-414-3010 rashawn.tama@por.usda.gov
	Water Supply Specialist	Ron Abramovich 208-378-5741 ron.abramovich@id.usda.gov
Montana	Data Collection Office Supervisor	Scott Oviatt 406-587-6844 scott.oviatt@mt.usda.gov
	Forecast Hydrologist	Cara McCarthy 503-414-3088 cara.s.mccarthy@por.usda.gov
	Water Supply Specialist	Lucas Zukiewicz 406-587-6843 lucas.zukiewicz@mt.usda.gov
Nevada	Forecast Hydrologist	Jolyne Lea 503-414-3040 jolyne.lea@por.usda.gov
	Water Supply Specialist	Jeff Anderson 775-857-8500 x152 jeff.anderson@ut.usda.gov
New Mexico	Forecast Hydrologist	Gus Goodbody 503-414-3033 angus.goodbody@por.usda.gov
	Water Supply Specialist	Wayne Sleep 505-761-4431 wayne.sleep@nm.usda.gov
Oregon	Forecast Hydrologist	Rashawn Tama 503-414-3010 rashawn.tama@por.usda.gov
	Hydrologist	Melissa Webb 503-414-3270 melissa.webb@or.usda.gov
	Data Collection Officer Supervisor	(acting) Thor Thorson 503-414-3003 thor.thorson@or.usda.gov
Utah	Forecast Hydrologist	Gus Goodbody 503-414-3033 angus.goodbody@por.usda.gov
	Snow Survey Supervisor	Randy Julander 801-524-5213 randy.julander@ut.usda.gov
Washington	Forecast Hydrologist	Rashawn Tama 503-414-3010 rashawn.tama@por.usda.gov
	Water Supply Specialist	Scott Pattee 360-428-7684 scott.pattee@wa.usda.gov
Wyoming	Forecast Hydrologist	Cara McCarthy 503-414-3088 cara.s.mccarthy@por.usda.gov
	Water Supply Specialist	Lee Hackleman 307-233-6744 lee.hackleman@wy.usda.gov
All States	Center Director/Program Manager	Mike Strobel 503-414-3055 michael.strobel@por.usda.gov
	Information Systems Team Lead	Laurel Grimsted 503-414-3053 l aurel.grimsted@por.usda.gov
	Water & Climate Monitoring Team Lead	Tony Tolsdorf 503-414-3006 tony.tolsdorf@por.usda.gov
	Water & Climate Services Team Lead (acting)	Cara McCarthy 503-414-3088 cara.s.mccarthy@por.usda.gov
	Database Manager	Maggie Dunklee 503-414-3049 maggie.dunklee@por.usda.gov
	Database Manager	Del Gist 503-414-3007 del.gist@por.usda.gov
	Meteorologist/Applied Climatologist	Vacant
	Modeling Hydrologist	David Garen 503-414-3021 david.garen@por.usda.gov
	Operations Specialist (SNOTEL/SCAN)	Vacant
	Resource Conservationist	Vacant
	Statistical Assistant/SCAN QC	Denice Schilling 406-727-7580 denice.schilling@mt.usda.gov

Upcoming events

Events of interest in the coming months.

What: American Association of State Climatologists (AASC) Annual Meeting

When: July 8-11, 2014

Where: Skamania Lodge, Stevenson, Washington

How: Conference Web Site

More Information: Karen Bumbaco, (206) 543-3145.

What: International Snow Science Workshop 2014

When: September 29-October 3, 2014

Where: Banff, Alberta, Canada

How: Conference Web Site

More Information: isswsteering@gmail.com

What: American Geophysical Union Fall Meeting

When: December 15-19, 2014

Where: San Francisco, California

How: Conference Web Site

More Information: meetinginfo@agu.org

“Infographics” illustrate concepts in an entertaining way

What’s an infographic?

An infographic or “information graphic” is a visual image such as a chart or diagram that is used to represent information or data. The goal is to condense large amounts of information into a form that can be more easily absorbed by the reader.

The Snow Survey and Water Supply Forecasting Program is introducing a series of infographics, illustrating the science and technology behind the Program. Click an image below to open a downloadable version of each image.

Report Generator 1.3 features new charting tool, improved performance

The National Water and Climate Center recently released version 1.3 of the **Report Generator** application.

Report Generator uses long-term snowpack, precipitation, reservoir, streamflow and soils data from a variety of quality-controlled sources to create reports.

Some of the new features in this release include:

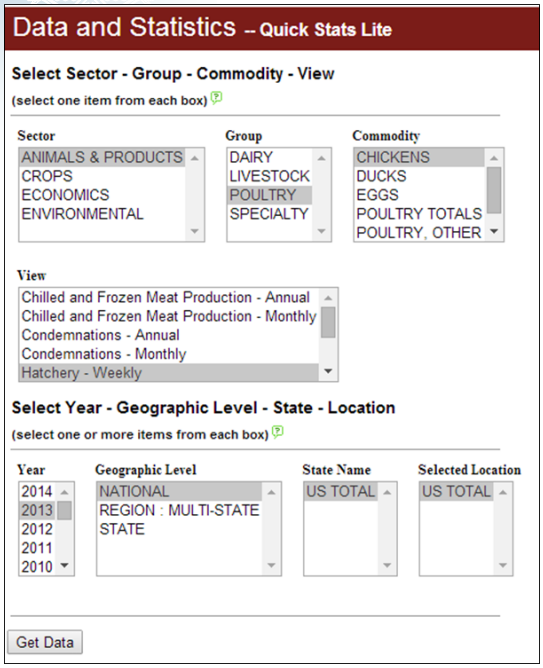
* An improved charting tool, with hover-over, zoom, automatic sizing and export-to-image capabilities.
* Overall performance enhancements.
* The addition of progress bars and status indicators.
* Eliminated paging on the View Report tab; replaced with option to fit the table to the screen.
* Added support for requesting water year precipitation normals.

Click here for a complete list of the all the features and improvements in Report Generator 1.3.

Questions? Contact Gus Goodbody, 503 (414) 3033.

Quick Stats "Lite" now available

The National Agricultural Statistics Service (NASS) recently released an enhanced, Beta version of its Quick Stats 2.0 database, called **Quick Stats Lite**.



The Quick Stats 2.0 database is a comprehensive tool for accessing NASS agricultural data based on commodity, location, or time. You can visualize the data on a map, edit and export results, or bookmark the site.

Quick Stats Lite is a new, guided interface to the Quick Stats 2.0 database, allowing you to get commonly-requested statistics more quickly and efficiently. It lets you create queries based on simple filtering rules: What, Where and When.

Users first select the Commodity (what), then the Location (where), and finally the Time (when).

In the coming months, NASS will make additional improvements to **Quick Stats Lite**, including the addition of more commodities and views, enhancements to the results, and usability features.

Plus, NASS is inviting users to try out the new interface and provide suggestions for further improvements.

NWCC/Snow Survey Program highlights

Brian Domonkos is the new Colorado Snow Survey And Water Supply Forecasting Data Collection Office (DCO) supervisor. Brian returns to Colorado after more than 10 years as a Hydrologist and Water Supply Specialist in Montana. Brian's experience and energy makes him a welcomed addition to the state. Full press release.

Nevada welcomes **Jeff Anderson** as its new Water Supply Specialist. Prior to this position, Jeff was a Hydrologist with the Idaho DCO.

Anthony DeMarco has been named the new Hydrologic Technician for the state of Alaska. Before joining the Snow Survey and Water Supply Forecasting Program, Tony worked as a soil scientist for the NRCS in Alaska. He took part of the Kodiak, Nushagak, and Glacier Bay soil surveys. He is originally from Georgia and is an avid back country skier. Welcome to the Program, Anthony!

Quanlin (Tran) Chen, Team Vistronix, re-joined the National Water and Climate Center contractor Team Vistronix in May as a software developer.

Lucas Zukiewicz is the new Water Supply Specialist for the state of Montana. Prior to this assignment, Lucas was a Hydrologist in Montana.

NWCC Applied Climatologist **Jan Curtis** retired May 31, after almost nine years at the Center. We had an after-hours BBQ celebration for Jan at the Electronics Maintenance Facility in Portland. A few pictures of the event are on page 11 of this issue.

Photo of the month

Tom Perkins recently retired as NWCC Water and Climate Services Team Lead. Tom spent his last day of service doing one of his favorite things...measuring the snowpack on Mt. Hood.

Products and resources on the web

Monthly weather event and climate anomaly synopses

NOAA's National Climatic Data Center (NCDC) produces monthly Synoptic Discussions which describe recent weather events and climate anomalies in relation to the phenomena that cause the weather.

The report focuses on the jet stream, fronts and low pressure systems, high pressure systems, and the mechanisms that control these features (such as El Niño, La Niña, and other atmospheric drivers).

The NCDC provides other State of the Climate reports on both a national and global level. National report topics include an overview, and subtopics on drought, wildfires, hurricanes and tropical storms, snow and ice, and tornados. Global topics include a summary of global temperatures and precipitation, and subtopics on upper air, global snow and ice, global hazards, and El Niño/Southern Oscillation (ENSO).

Storm events database

The Storm Events Database is maintained by the National Climatic Data Center (NCDC) The database allows users to search areas, including states, counties, and other geographic boundaries, by date(s) for various events.

The events are not limited to tornadoes, hail, and high winds, but also include blizzards, fog, droughts, floods, wildfires, and more.

After searching for an event, additional information may include fatalities, injuries, property damage, event description, and path.

Events go back as far as 1950 for tornadoes, 1955 for thunderstorm winds and hail, and 1996 for 48 additional event types.

National Climate Assessment released

In May, the U.S. Global Change Research Program released the Third National Climate Assessment, a comprehensive report on climate change and its impact on the United States. The report contends that climate change is increasing the likelihood of water shortages and competition for water on a global level.

As an example, in the Southwest the report describes a pattern over the last 50 years of reduced snowpack in the mountains, as measured against 01 April values in comparison years. This reduction in snowpack affects runoff volumes and the timing of runoff in snow-fed rivers.

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www.wcc.nrcs.usda.gov/SnowNews/SnowNews_landing.htm

"The challenge for NWCC has always been to provide the support necessary for the SSWSF Program while also serving NRCS in so many other roles."

From the Director's desk

NWCC: Our dual roles and responsibilities

I often get questions about the roles and responsibilities of the National Water and Climate Center (NWCC) and about how Snow Telemetry (SNOTEL) and the Soil Climate Analysis Network (SCAN) differ from one another. I thought I would use this format to help clarify some of these topics.

First, a little about the NWCC. We are located in Portland, Oregon and our offices and IT servers are co-located with the Oregon State NRCS office, Rural Development, the West National Technical Support Center and the West Remote Sensing Laboratory.

Our NWCC staff consists of 19 positions, five of which are vacant right now. We have two employees housed at the Electronics Maintenance Facility (EMF) in Portland and one located in Great Falls, Montana. We also have nine contractors who work closely with our staff in providing IT support and technical editing.

NWCC has many different roles in the agency. The largest program we oversee, and the one with the most media coverage, is the **Snow Survey and Water Supply Forecasting (SSWSF) Program**. NWCC serves as the technical lead for this program, and my other role as acting Program Manager is to distribute funds and manage/coordinate certain aspects of operations in the 12 western states.

At the NWCC, we have four forecast hydrologists and a modeler who are dedicated entirely to the SSWSF program. Our small IT staff of four specialists handles all the data flow, management and storage for the program. Our entire staff provides support and assistance to our SSWSF offices in the states.

Although SSWSF is a huge part of our efforts, NWCC also provides water and climate services across the U.S. SCAN is a national network of in-situ monitoring stations which are located in 40 states and in Puerto Rico and the U.S. Virgin Islands. These sites operate in a similar manner to our SNOTEL sites, but are an entirely separate activity from SSWSF outside of the western U.S.

SCAN stations collect soil moisture and soil temperature data at five different depths, as well as many other atmospheric parameters such as air temperature, relative humidity and precipitation. This information is used by many different agencies and groups, such as the U.S. Drought Monitor.

NWCC also provides data on climate to the NRCS Field Office Technical Guide (FOTG), wetland delineation tables, weekly snowpack and drought updates, and a huge number of other contributions. Our staff serves on committees to assess climate change, drought conditions and soil moisture measurements.

Because the legislation that provides funding for the SSWSF program is specific to the western U.S., NWCC receives funding from both the Snow budget and from Conservation Technical Assistance.

So, we need to wear two hats...one that represents the SSWSF Program and the other that is a national center which serves the country as a source of water and climate data, expertise and technical assistance.

The challenge for NWCC has always been to provide the support necessary for the SSWSF Program while also serving NRCS in so many other roles.

The focus and priorities for the agency can shift between drought, floods, climate change and many other topics, and NWCC has been and will continue to be there to serve NRCS in addressing these concerns.

I am extremely proud of our staff, their abilities, and their willingness to provide outstanding service to the country even with limited budgets and vacancies in many critical roles.

Mike