Natural Resources Conservation Service
National Water & Climate Center
Snow Survey & Water Supply Forecasting Program

SnowNews

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Seattle hosts 84th Western Snow Conference

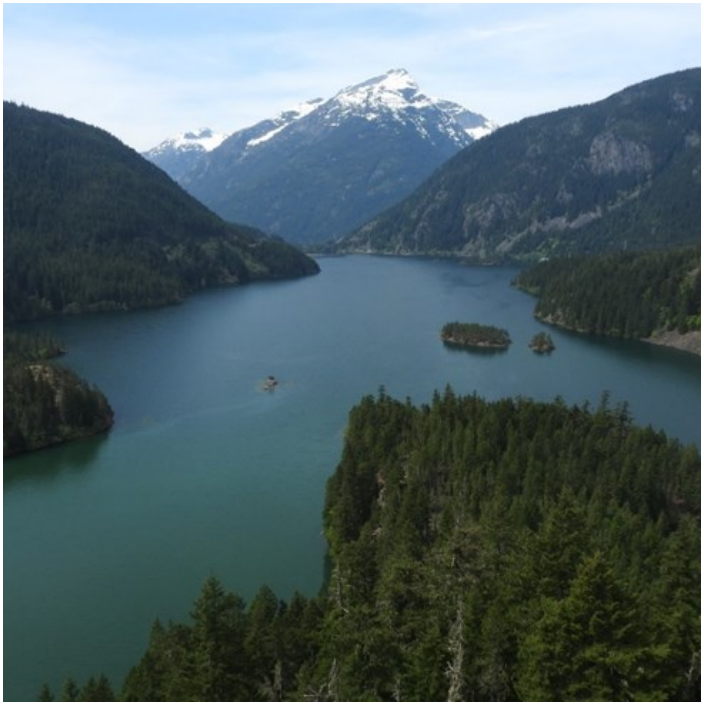
Jolyne Lea
NWCC Hydrologist,
2016 Western Snow Conference Seattle Chair

The 84th annual Western Snow Conference was held April 18-21 in Seattle, Washington. The theme of this year's conference was "Snow Drought and Hydrologic Impacts," to reflect the influence of the 2015 snow drought in much of the West.

Monday's short course focused on the "Validation of the Rain/Snow Global Precipitation Measurements (GPM) Satellite Data in the Olympic Mountains," and was presented by University of Washington researchers.

The objective of this NASA-funded research was on defining the snow-rain boundary during different storm types, using many types of satellite and radar imaging.

The project was focused across the Olympic Mountains of Washington, where little data currently are collected.



Diablo Lake on the Skagit River project was a stop on the day tour. Steep watersheds surrounding the Skagit River Valley have provided hydropower to the region since 1924.

The main conference had a packed agenda with many exceptional oral papers in four sessions:

- Snow Drought and Extremes
- Snow in the Mountains: Effects of Terrain and Forest Canopy
- Data Collection/Remote Sensing
- Forecasting/Modeling

The poster paper session had 26 presenters covering a range of topics on snow and hydrology.

Several NRCS employees presented papers, with Randy Julander presenting an oral paper entitled "Characteristics of Snowmelt Hydrographs in Utah," and two poster papers by six other NRCS authors.

Other NRCS employees were busy with committee work for the Conference.

The awards banquet included a talk by Fred Strauss, a past General Chair who shared memories of the Conference back in the 1950s, including some of the founding fathers of snow surveys.

continued on pg. 2

Inside this issue:

ServiceNow help desk	2
National Soil Moisture Network update	3
Field Operations Workshop	4
Cochran Fellows visit from China	5
Photos of the Month	6
Resource Locator	7
Director's Corner: Climate Change	8

84th Western Snow Conference

continued from pg. 1

The conference concluded with a technical field tour of the Skagit Valley watershed, with presentations of the Seattle City Light hydropower projects. A video and discussion of the Oso landslide was included as we drove by the affected area by Washington state Oso landslide consultant, Matt Brunengo.

The glaciologist from the North Cascades National Park also discussed glacier shrinking in the park and measurement methodology. The views were fantastic!

The 85th Western Snow Conference is scheduled for April 17-20, 2017, and will be held in Boise, Idaho.

Another site on the day tour. Oso, Washington. Site of March 22, 2014 landslide which took 43 lives.

Nehalem, Washington stop with review of the Seattle City Light hydropower projects.

ServiceNow help desk support available

The Snow Survey and Water Supply Forecasting Program provides valuable data, products and tools to thousands of customers each year. Sometimes these customers have questions or problems, and they reach out for assistance.

Beginning in June, a new help desk, named ServiceNow, came online to support both our internal NRCS users and our non-governmental users.

Here's how it works. If you are an NRCS employee, you login to this eAuth-protected url: https://nrcsprod.service-now.com/ServiceDesk/

This will open the customer self-service portal, where NRCS employees can ask questions, report issues, chat directly with support, or peruse the FAQs.

For non-NRCS customers, simply go to the National Water and Climate Center's (NWCC) **Contact Us** page, then select one of the **red links** at the top of the page. This opens an email to the ServiceNow help desk and automatically generates an acknowledgment to the customer. The ServiceNow representatives will endeavor to answer the question. If they are unable to do this, the question or issue is then escalated to individuals at the NWCC for resolution.

The goal is to get the customer a response to their question by the next business day.

ServiceNow also has a knowledge base to help answer questions. Over time, we will be building up this base with more FAQs and other important information.

National Soil Moisture Network update

Mike Strobel
NWCC Director,
SSWSF Program Manager

On May 24-26, 2016, a meeting of the National Soil Moisture Network (NSMN) was held at the NOAA Office in Boulder, Colorado.

USDA was represented by Mark Brusberg and Carolyn Olson, and NRCS participation included Deb Harms, Cathy Seybold, Mike Wilson, Jordan Clayton, Kent Sutcliffe, and Mike Strobel.

The purpose of the meeting was to update both soil moisture data producers and data users of the status of progress since the 2013 workshop and to lay out the strategy for our next steps in developing this network.

The critical piece in all this is that we have cooperation and involvement from a wide array of data producers and users, including the different federal and state agencies, universities, private industry, citizen science, and non-government organizations.

We had strong representation from these different groups at the meeting and we heard from each of them about their needs and concerns, as well as what they can bring to the table.

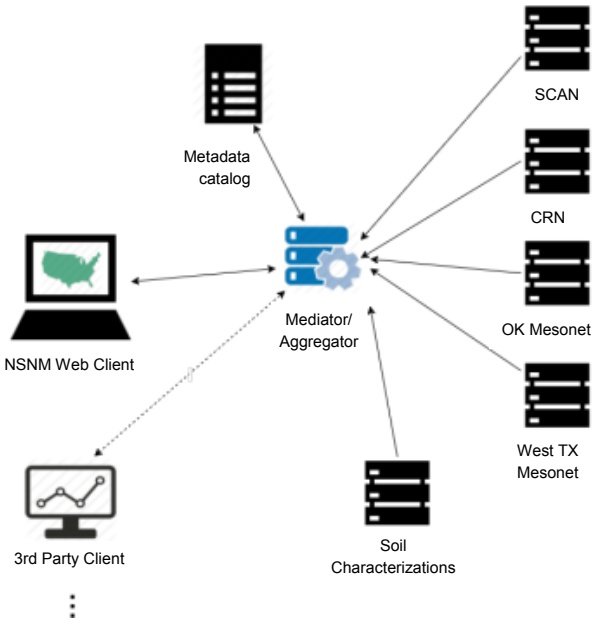
Because the NSMN is specifically identified in the MOU between the Department of Commerce and the Department of Agriculture, and also in the National Drought Resilience Partnership as part of the President's Climate Action Plan, it is critical that we continue to move forward with this effort.

Some of the outcomes/next steps from the meeting were:

1. Produce two reports; one that defines the present status of our efforts and outcomes of this meeting, and a second report that lays out the strategy and plans for moving forward in developing a NSMN.
2. Actively pursue a range of funding mechanisms for developing the network.
3. Identify a general guideline for standards and specifications for in situ stations that includes sensor types and depths, other climatic parameters measured, telemetry, spatial distribution of stations, temporal requirements for data transmission, and other factors that should be uniform throughout the network moving forward.
4. Continue to work with NASA and NOAA to incorporate the North American Land Data Assimilation Systems (NLDAS-2) and other modeling efforts into the network.
5. Work directly with users of the data (for USDA, this would include agricultural producers) to identify which products and outputs from the network would most benefit them
6. Further investigate the application and inclusion of citizen science, such as the Community Collaborative Rain, Hail, and Snow Network (CoCoRahs), in the network data collection.
7. Identify a steering committee with representation from different federal, state, university, private sector, and industry to continue to develop plans and strategies for this network.
8. Identify an organizational structure for the network with a specific agency in the leadership role.

NSMN PowerPoint Presentation

For further information about the National Soil Moisture Network, please contact Mike Strobel (503-414-3055).



Proposed National Soil Moisture Network architecture.

"The purpose of the meeting was to update both soil moisture data producers and data users of the status of progress since the 2013 workshop and to lay out the strategy for our next steps in developing this network."

2016 Field Operations Workshop hosted by Colorado DCO

Tony Tolsdorf
Water and Climate Monitoring Team Lead

The 2016 Field Operations Workshop was held May 17-19 in Golden, Colorado. Hosted by the Colorado Data Collection Office (DCO), the workshop kicked off with an enthusiastic welcome from Brian Domonkos, Colorado DCO Supervisor.

Following the welcome and introductions, the National Water and Climate Center's (NWCC) Water and Climate Monitoring team provided an overview of field-related activities going on at the NWCC, including the status of the meteor burst system, cellular modem conversions, and Master Station upgrades.

The first day of the workshop also included field reports from the individual snow survey states.

These state reports are often considered the most interesting and useful part of the workshop, as they provide a great opportunity to see how each state has approached different challenges. Information is exchanged freely and new ideas are often the result.

Demonstrating how to detect leaks in a snow pillow.

"The Field Operations Workshop is considered one of the most productive and informative meetings in the Snow Survey and Water Supply Forecasting Program."

The remainder of the week was spent covering key issues, such as fluidless snow water equivalent sensors, temperature sensor studies, cellular modem telemetry, soil sensor installation, and other new technology.

Suppliers Campbell Scientific Inc., Hydrological Services America, and SOMMER Messtechnik participated and gave updates on their products, including advice on installation and maintenance.

The workshop concluded with a tour of the Colorado DCO shop. While there, Lange Containment Systems provided demonstrations on best practices for finding and patching leaks in fluid pillows.

The Field Operations Workshop is considered one of the most productive and informative meetings in the Snow Survey and Water Supply Forecasting Program. The annual meeting focuses on the nuts and bolts of field operations without getting mired in policy and administrative discussions. This year's workshop was no exception.

Participants at this year's Field Operations Workshop.

Cochran Fellows from China visit Portland

On Friday, June 3, 2016, NRCS hosted a group of visiting scientists from China to our offices in Portland to provide an overview of some of our programs. The visiting scientists were brought to Portland by the U.C. Davis International Program's Office who are hosting a Foreign Agricultural Service (FAS) Cochran Program with Chinese Fellows on the topic of “Climate Smart Agriculture.”

Cochran Fellows and members of the National Water and Climate Center, West National Technology Support Center, and Pacific Northwest Regional Climate Hub.

FAS requested that the U.C. Davis program connect with several USDA Climate Hubs and offices working in climate science to have presentations on research and activities. They asked our staff to discuss with the Fellows the background of our organization and current conservation/climate change initiatives, as well as any lessons and suggestions to China. The goal is to help the Fellows establish relationships with hubs and partners as they commence their pilot hubs in China.

Mike Strobel presented an overview of the National Water and Climate Center, the Snow Survey and Water Supply Forecasting Program, and the Soil Climate Analysis Network (SCAN).

Shaun McKinney gave an overview of the history and mission of NRCS and the various technical programs the West National Technology Support Center supports.

Bea Van Horne gave an overview of the Pacific Northwest Climate Hub.

Patrick Binns, Westbrook Associates, gave a brief overview of the "Regional Approaches to Climate Change: PNW Agriculture" program (REACCH).

The presentations took a bit longer because we needed to stop after every few sentences to have the interpreter translate for our visitors. Plus, there were many questions addressed during the presentations. In all, the meeting lasted 3.5 hours.

The visitors included 10 representatives from China and the Hosts, Courtney Jallo, U.C. Davis International Visitors Program, and Minghua Zhang, PhD, Associate Director for Far East Programs, U.C. Davis College of Agricultural and Environmental Sciences.

The visiting Fellows were:

Mr. Gao Shangbin, Deputy Director, Rural Energy and Environment Agency, Ministry of Agriculture

Mr. Fu Changliang, Deputy Division Director, Department of Science, Technology and Education, Minister of Agriculture

Ms. Liu Yan, Deputy Division Director, Department of Development Planning, Minister of Agriculture

Dr. Fu Jindong, Deputy Director, Scientific Research Management Office, Institute of Crop Science, Chinese Academy of Agricultural Sciences

Dr. Qin Xiaobo, Associate Researcher, Institute of Environment and Sustainable Development in Agriculture, Academy of Agricultural Sciences.

The meeting was very successful and much information was shared between the representatives of the two countries. We hope this leads to further interactions between the difference scientists in the future.

*Photographer **Adam Skadsen** is a Hydrographer/Commissioner for the Wyoming State Engineer's Office (SEO). He took these stunning photographs of surveyors **Matt Hoobler** and **John Mumm**, also from the Wyoming SEO, in February 2016. The site is the Deep Lake snow course in the Snowy Range near Laramie, Wyoming.*

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	907-671-7746 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	Karl Wetlaufer	720-544-2853 karl.wetlaufer@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	Mage Hultstrand	406-587-6844 mage.hultstrand@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@nv.usda.gov
New Mexico	Forecast Hydrologist	Gus Goodbody	503-414-3033 angus.goodbody@por.usda.gov
	Water Supply Specialist	Chris Romero	520-292-2999 x107 chris.romero@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	Scott Oviatt	503-414-3271 scott.oviatt@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
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	Water & Climate Services Team Lead	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	Vacant	
	Hydrologist (Water & Climate Monitoring)	Deb Harms	503-414-3050 deb.harms@por.usda.gov
	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

Contact Help Center

There's an online tool to help locate resources within the Snow Survey and Water Supply Forecasting Program.

Click here to open the **Contact Help Center**. Don't forget to bookmark the url.

NWCC/SSWSF Highlights

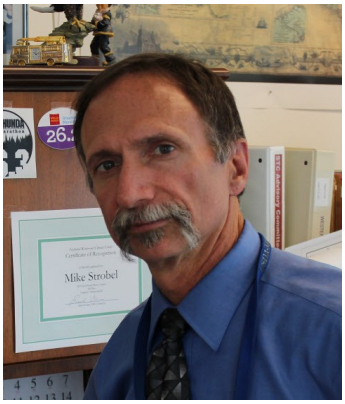
Alex Rebentisch recently joined the National Water and Water Center as an Electronics Technician. Alex last worked at the Idaho Data Collection Office in Boise. He will be working at the Electronics Maintenance Facility in Portland. Welcome aboard, Alex!

In mid-June, **John Weeks, Alex Rebentisch,** and contractors **Joel Parker** and **Jonathan Tenny** travelled to the three eastern Master Stations (Mt. Gilead, OH, Tipton, MO, and Stoneville, MS) to decommission each site.

Since the conversion of the eastern SCAN stations to cellular modems earlier in the year, the eastern Master Stations were no longer needed.

John and his team carefully removed the equipment from each site and then worked their way back to the Dugway and Boise Master Stations, where they repurposed many of the key components from the decommissioned sites.

Director's Corner: Climate Change



There are few topics in recent years with as much attention in the media and as much controversy between groups of people than that of climate change.

Is climate change happening? If so, is it natural change or human-induced, or both? Is there anything we can do about it? Should we do anything about it?

All of these questions have their experts on both sides who cite various evidence and data to support their views.

And when it comes to doing something about climate change, we need to ask if any actions will make a difference, how will we handle the costs if we do take certain actions, and are mitigation efforts worth the cost both in the short-term and the long-term.

For me, personally, I have never felt it my mission, as a scientist, to try to change people's views on things or to try to advance any political or social agenda.

I have always felt it was my mission to present the data, trends, and model results, and let people form their own conclusions. Maybe that is a cop-out on my part. It's not that I don't have a strong concern for what happens in our world, but I also feel quite strongly that scientists need to be unbiased.

Sticking to what the data and models show is one way to remain unbiased. I have been doing research and presenting study and model results for over 30 years, and am keenly aware that my conclusions may have errors.

But that is the issue: are the data and models biased by what we select to represent real-world conditions? It is possible that we omit valid data or include erroneous data in our analysis (whether intentionally or not), or present data statistically that shows trends to support or weaken a hypothesis or point of view?

The media and opponents on either side of the debate are always quick to point out such issues with any study. In some cases, these issues with data can disqualify a study and raise serious questions about credibility, both of the study and of the researcher.

But, climate change research is not limited to any one variable or data set, and the overwhelming collective body of peer-reviewed research points to a general scientific consensus that we are seeing changes in our climate and that humans, at some level, contribute to those changes.

How much climate has changed, how much will it change into the future, and what are the contributions from humans are the areas of lesser certainty.

continued on pg. 9

Upcoming events

Events of interest in the coming months.

What: American Meteorological Society Joint 21st Satellite, Meteorology, Oceanography and Climatology Conference and 20th Conference on Air-

See Interaction

When: August 15-19, 2016

Where: Madison, WI

More information: Conference Overview

What: Conference of Parties (COP) 22: United Nations Framework Convention on Climate Change

When: November 7-18, 2016

Where: Marrakech, Morocco

More information: Conference Overview

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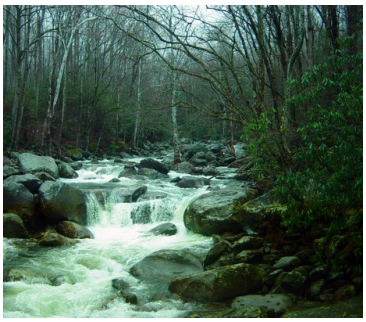

With a vision of the future as:

"A globally-recognized source for a top quality spatial snow, water, climate, and hydrologic network of information and technology."

Director's Corner: Climate Change

continued from pg. 8

Therefore, back to the original question. Is there anything we can do about climate change?

As scientists, we can continue to try to improve our data collection, expand networks, and provide more accurate assessments.

In our case here at NWCC and SSWSF Program, we are constantly striving to improve our data-collection techniques, updating sensors for better data quality, expanding our soil moisture data at SNOTEL sites and installing additional SCAN stations, as well as contributing to the National Soil Moisture Network. All of this work should help us better understand trends and variables in the climate record.

Many other agencies are also expanding their research, both on the ground and through remote sensing and modeling, to improve our knowledge base on climate.

But that is just the science part. The tougher burden is on what actions can or will be taken that have political and economic impacts.

Do we make investments now in hopes of offsetting changes that may occur decades from now? Do we risk economic growth today to possibly improve conditions for future generations? How do we weigh out the costs versus benefits from any actions we might take?

These are the questions that society must face, and none of these questions have easy answers or broad support from a majority of Americans.

It is my hope that our contribution of good science can help reduce the debate over whether climate change is happening and allow decision-makers to focus more on whether to take action or not. In reality, deciding to take action or deciding not to take action both are decisions that can impact us into the future.

Mike

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