

People & Places

Science of measuring snowpacks

By BRAD CARLSON
Capital Press

BOISE — Researcher Hans-Peter “HP” Marshall uses satellites, microwave radar, remote sensors and other advanced technology to study snowpacks.

He has funding from the U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory, and is on the research team for the National Aeronautics and Space Administration’s SnowEx mission.

But much of his work boils down to finding ways to more accurately measure snowpacks.

“The goal is to use these remote-sensing measurements, which we get over large areas in very high resolution, along with Snotel sites, to estimate snow everywhere,” said Marshall, a Boise State University geoscientist. Snotel stands for Snowpack Telemetry, which are remote instruments that measure the snow and transmit the information to researchers.

Snotel sites gather data with automated equipment. Snow courses are where researchers take core samples. Both are used in quantifying snowpack and its water equivalent compared to a 30-year norm.

Marshall said data from these established modes and methods could be used to help evaluate the new tools and techniques, and their findings. If that proves successful, analyses could cover more ground and produce water forecasts that are more reliable as a predictor



Hans-Peter “HP” Marshall in front of a completed science snow pit at Banner Summit, near Stanley, Idaho.

than the historical record — particularly when conditions swing widely from one year to the next.

He said climate change means snowmelt’s timing is changing. An early melt occurs more often, and it is more likely that a given winter will differ from the long-term norm.

“The tools we are working on would allow us to estimate the amount of snow in the mountains in any specific year without relying on the historical record,” Marshall said. The approach “would be more robust” and sensitive to changes in the amount of snow and the timing.

Measuring snow everywhere on the ground means “you would have to have a measurement about every

football field, the typical distance over which a measurement of one spot is representative,” he said.

Remote sensing can add many measurement points and produce valuable information, but “cannot do it alone,” Marshall said.

For example, an aircraft or satellite measurement of a large area returns a value reflecting snow amounts every five yards.

However, “you can’t use it by itself to definitively say how much is there until you have tuned it to Snotel sites,” he said.

“We are testing a large number of different techniques,” he said.

One is a special type of radar measurement. A stronger signal returns when more snow flakes or grains

are present.

Another radar technique features a longer, lower-frequency wavelength that passes through snow to the ground, and then returns to the aircraft or satellite. Measuring and tracking the down-and-back time intervals help in estimating the amount of water stored in the snow.

“Ground truth” is needed, which is where established systems come in, Marshall said.

“Snotel provides information to be able to calibrate, or tune, the remote sensing observations, and to validate the final product,” he said.

“In the future, combining both the low-frequency, time-of-flight approach with the high-frequency back-

Western Innovator

HANS-PETER MARSHALL

Age: 45

Occupation: Boise State University associate professor of geosciences.

Education: B.S., physics, University of Washington, 1999; Ph.D., civil engineering, University of Colorado, 2005.

Home: Boise

Family: Wife, Amaya Odiaga, two children.

Hobbies: Backcountry skiing, rock climbing, mountain biking.

Other organizations: Snow International, Avalanche Science, American Geophysical Union Cryosphere Section.

scatter method, we could potentially map snow water storage in a wider range of conditions around the globe,” Marshall said.

Marshall said in a profile last year that snow “is a relatively new science. A lot of the problems we tackle are questions that a lot of people haven’t actually looked at before. What this means for students is that it’s much easier to make an impact.”

Pacific Northwest Waterways Association gets new executive director

By MATTHEW WEAVER
Capital Press



Heather Stebbings

Heather Stebbings is the new executive director of the Pacific Northwest Waterways Association, the organization that speaks for farmers and others who depend on the Snake and Columbia rivers to transport grains and goods.

She replaces Kristen Meira, who departed Feb. 17 after 20 years with the organization, including 10 as executive director.

Meira joined PNWA member American Cruise Lines as its Pacific Northwest director of government affairs.

Stebbins previously worked at the association for 13 years, directing communications and government relations, beginning in 2006.

“In some ways I feel like I’m coming home a little bit,” Stebbings told the Cap-

ital Press. Her goal is to provide consistency and continue to be a partner for the agriculture community, she said.

“Making sure we can advocate for funding for the infrastructure that will ultimately support the farmers and help them be competitive in the global market,” she said.

She left the association to work for the Port of Vancouver and then Shaver Transportation.

“So I stayed in the family, somewhat,” she said.

But she missed being able to dive in on issues and projects, and PNWA’s membership.

“So the idea of coming back and being able to do that again in a different

and new way ... and chart the path for the future was a really exciting opportunity,” she said.

Stebbins studied applied mathematics at the University of Connecticut.

Her interest in the projects the association was working on grew “organically,” she said. She loves the strategic element of connecting with people and finding creative ways to help the organization’s messaging resonate.

“I find maritime to be just a very interesting world, so many different facets,” she said. “The people are so wonderful that we work with. ... People stay in this industry forever, so there’s a lot of old friends.”

The association’s key mission is to ensure that federal policies and funding are in place to maintain infrastructure for trade,

transportation and energy production.

The U.S. Army Corps of Engineers is funded annually, and PNWA relays to lawmakers the value of navigation as they determine funding.

The association’s broad membership spans the Puget Sound, Oregon coast and the Columbia-Snake River system.

The Snake River dams remain a hot topic, she said.

“Something we really need to be protecting, and making sure we’re out there telling the story of those projects and the value they provide to the region,” she said.

Stebbins’ biggest concern is ensuring that decision makers and the public understand the value of transportation and particularly water infrastructure.

“That’s something that’s been a challenge for a long

time,” she said. “Mainly because people see roads, they see the rail activity. They don’t always pay attention to what’s going on on the water side.”

Stebbins praised Meira for broadening and strengthening PNWA membership.

“I think that will really only help us as we look to bring dollars back here and support for the projects that we have,” she said.

“Heather is a proven, well-rounded leader with deep experience and relationships in our industry, across the Northwest, and in Washington, D.C.,” Glen Squires, Washington Grain Commission CEO and PNWA board president, said in a press release. “We are pleased to welcome her back to the PNWA team and are enthusiastic about her leadership and the continued success of the association.”

BLM gets new state director for Idaho

Karen Kelleher is the new state director for the Bureau of Land Management in Idaho.

She will oversee about 12 million acres of public lands — nearly a quarter of Idaho’s total land area.

BLM Director Tracy Stone-Manning appointed Kelleher on Feb. 17.

Peter Ditton, acting state director, will return to his permanent position as BLM Idaho associate state director. Ditton stepped in for John Ruhs,



Karen Kelleher

who retired last August.

Kelleher, who will start next month and be based in Boise, “is a true professional with decades of experience contributing to the BLM’s multiple-use mission on behalf of the American people,” Stone-Manning

said in a release. “We’re excited to have Karen leading our agency forward in Idaho, strengthening and expanding our partnerships with state and community leaders and being a good neighbor.”

Kelleher has been associate state director in BLM’s Arizona office since 2018. Earlier positions included senior adviser to BLM’s assistant secretary for land and minerals management; deputy assis-

tant director for resources and planning; district, field and monument manager posts; environmental coordinator; and planner. She started with BLM more than 20 years ago.

Kelleher received a bachelor’s degree in computer science from Union College, Schenectady, N.Y., and a master’s degree in environmental management from Duke University, Durham, N.C.

CALENDAR

Submit upcoming ag-related events on www.capitalpress.com or by email to newsroom@capitalpress.com.

SATURDAY-SUNDAY MARCH 5-6

Bee School by Linn Benton Beekeepers Association: Day 1: March 5, 9 a.m. to noon, virtually online via Zoom, basic beekeeping, bee biology, overview of beekeeper’s year. Day 2: March 6, 1 to 3 p.m., hands-on at Corvallis Waldorf School, 3855 NE Highway 20, covered outdoor location, beekeeping equipment and basic tasks. Free to paid LBBA members. Non-members \$25, which includes membership. To register or for more info email, info@LBBA.us or <http://www.LBBA.us/beeschools/>

MONDAY-TUESDAY MARCH 7-8

Oregon Dairy Farmers Association Convention: Salem Convention Center, 200 Commercial St. SE, Salem, Ore. The convention is the time each year for our members to network, par-

ticipate in association discussions, and learn about new technology and research advancements. Website: <https://bit.ly/3GP6Alv>

TUESDAY-WEDNESDAY MARCH 8-9

Oregon Wine Symposium 2022: Oregon Convention Center, 777 NE Martin Luther King Jr. Blvd., Portland. The Oregon Winegrowers Association will host an in-person event and trade show March 8-9 at the Oregon Convention Center. The live event attracts industry owners, directors, academics, winemakers, viticulturists, and sales and marketing professionals. Website: <https://www.oregonwinesymposiumlive.com/>

THURSDAY-SUNDAY MARCH 17-20

Oregon FFA State Convention: Deschutes County Fair and Expo Center, 3800 SW Airport Way, Redmond, Ore. Oregon FFA members from around the state will gather to

compete and to learn during their annual convention in Redmond. Website: <https://oregonffa.com/state-convention/>

FRIDAY-SUNDAY MARCH 25-27

Northwest Horse Fair and Expo: 10 a.m.-9 p.m. Friday, and 9 a.m.-9 p.m. Saturday and 9 a.m.-6 p.m. Sunday. Linn County Fair and Expo Center, 3700 Knox Butte Road E, Albany, Ore. The Northwest Horse Fair and Expo is a huge horse expo packed with family-friendly fun, exciting equine entertainment and education. It features daily clinics with top-notch trainers and riders; Colt Starting Challenge USA; stunning stallions and beautiful breeds performing daily; giant trade show; and much more. More information: <https://bit.ly/3rvKaA9> or 765-720-2098.

SATURDAY-SUNDAY MARCH 26-27

Central Oregon Agricultural

Show: 9 a.m. Deschutes County Fair and Expo Center, 3800 SW Airport Way, Redmond, Ore. Welcome to the first-ever Central Oregon Agricultural Show, featuring exhibitors, presentations, seminars and more. See you in Redmond! Website: <https://northwesttagshow.com/> Phone: 800-882-6789

SATURDAY-TUESDAY MARCH 26-29

California FFA State Leadership Conference: Golden 1 Center, 500 David Stern Walk, Sacramento, Calif. More than 7,000 FFA members will gather for this year’s convention in Sacramento. Website: <https://bit.ly/3sgmiRr>

TUESDAY MARCH 29

National Cattlemen’s Beef Association Legislative Conference: 5:30-8:30 p.m. J.W. Marriott Hotel, Washington, D.C. The conference will focus on federal policy. Website: www.ncba.org

SATURDAY APRIL 2

Free Waste Pesticide Collection Event in Pendleton: Pendleton Convention Center, 1601 Westgate, Pendleton, Ore. The Oregon Department of Agriculture through the Pesticide Stewardship Partnership is sponsoring a Free Waste Pesticide Collection Event. This event is an opportunity for landowners, farmers and other commercial pesticide users to rid storage facilities of unwanted or unused pesticide products. Registration for this event is required by March 23. Contact: Kathryn Rifenburg, 971-600-5073, kathryn.rifenburg@oda.oregon.gov Website: <https://oda.direct/PSP>

SATURDAY-SUNDAY APRIL 2-3

Spring Farming Days at Pomeroy: 9 a.m.-4 p.m. Garfield County Fairgrounds, 99 Fairgrounds Road, Pomeroy, Wash. Horse farming and antique equipment displays. No entry fee. Fun for the whole family. Contact: 509-566-7027

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Index

Markets 12
Opinion 6

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