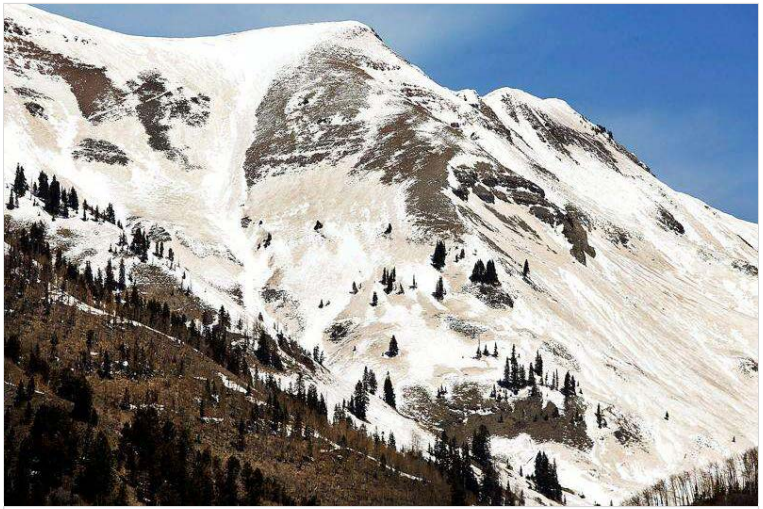
Group with diverse interests comes together for first-of-its kind dust-on-snow workshop

By Aedan Hannon Herald Staff Writer

Saturday, Dec 4, 2021 5:00



Dust covers the spring snowpack in 2013 on the La Plata Mountains. The Center for Snow and Avalanche Studies put on a first-of-its-kind workshop about dust, snow and water in the Rio Grande and Colorado River basins on Friday. The meeting brought together more than 80 scientists, water and land managers, Indigenous leaders, ranchers and conservationists to discuss dust-on-snow and water resources in the Southwest. (Jerry McBride/Durango Herald file)

Dust and snow don't seem to mix, but the two have a close relationship.

The Center for Snow and Avalanche Studies in Silverton hosted a first-of-its-kind public workshop about dust, snow and water in the Rio Grande and Colorado River basins Friday on Zoom.

The meeting convened more than 80 scientists, water and land managers,

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Indigenous leaders, ranchers and conservationists to discuss the impacts of dust on water resources in the Rio Grande and Colorado headwaters, as well as broader water issues in the Southwest.

“This is the first (workshop) that’s been a public effort to be all inclusive, meaning not just talking about the effects of dust on snowpack, but talking about land health in the desert Southwest,” said Jeff Derry, executive director of the Center for Snow and Avalanche Studies.

During a morning panel, researchers and modelers from across the West spoke about the work that’s being done to provide more accurate information about snowmelt runoff and water flows throughout the year.

They also identified some of the difficulties water managers face relying on historic records to forecast water supplies and the research that needs to be done to address gaps in data amid a changing climate.

“The other area for forecasting that really needs improvement is our ability to predict future weather,” said Gus Goodbody, a hydrologist with the U.S. Department of Agriculture’s Natural Resources Conservation Service. “Future weather uncertainty remains the largest driver for water supply forecast uncertainty.”

Rancher George Whitten from the northern San Luis Valley spoke about the need to take action and adjust agricultural practices in addition to hydrologic research and monitoring water resources.

“The science is behind the times,” he said. “We’re going to just monitor the demise of our civilization more accurately if we don’t actually change the way we practice agriculture.”

Michael Johnson, the program officer of the Native American Agriculture Fund and a member of the Hopi Tribe, and Tony Robbins, a natural resource manager with the Bureau of Indian Affairs and the Western Navajo Agency and a member of the Navajo Nation, identified the lack of environmental research in Indigenous communities as a serious issue.

“There’s hardly any weather monitoring stations on Indian reservations, not only in the Southwest but across the United States,” Johnson said. “We have to ask ourselves: Why is that?”

Both argued that scientists need to study land management on Indigenous reservations if they want to understand water resources in the Southwest.

This research is “important because of the collaboration that needs to take place in order to solve the problem,” Johnson said.

Derry and the Center for Snow and Avalanche Studies created the workshop to bring many stakeholders together to discuss the little-known issue of dust-on-snow.

The center runs the Colorado Dust-on-Snow program, which monitors and

studies how dust in snowpack and on the snow surface contribute to runoff.

“Solar radiation dominates snowmelt here in Colorado. It’s not air temperature like folks typically think,” Derry said.

“Once (dust) gets to the surface, it darkens the snow,” he said. “... You get this dark surface from dust and that increases the absorption of solar radiation and really increases the melting of the snowpack.”

Dust is carried by storms in large plumes from the deserts of the Colorado Plateau across New Mexico, Arizona, Utah and Colorado and deposited on Colorado’s mountains.

Studies have shown dust controls the rate of spring snowmelt in Colorado. Other studies have shown that dust on snowpack is increasing in Colorado.

One 2016 study in the journal *Atmospheric Environment* found that dust deposition on snow had increased 81% in the southern Rocky Mountains from 1993 to 2014.

Dust makes snow melt earlier and faster, Derry said, which can be a nightmare for water managers who are trying to make water last throughout the year.

“Snowpack is a natural reservoir, and if you make that go away earlier in the season, it’s tougher to predict and manage those flows,” he said. “Your reservoir has gone that you would depend on when you’re managing stream flows and reservoirs and allocating water.”

Those effects are felt most in later summer months such as August and September after peak river flows have passed and before the monsoon season in Colorado.

The workshop on Friday brought together an interdisciplinary group to tackle this little-known challenge.

The hope is that by starting a conversation the Center for Snow and Avalanche Studies can spur more research and investment in dust-on-snow research, which will ultimately help water mangers make better decisions.

“We are the only ones who do (dust-on-snow monitoring) on an operational basis,” Derry said. “We’re applied research. We take the latest knowledge and go out and make it useful to stakeholders throughout Colorado.”

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