

Dust on snow focus of study

Report raises questions about 'local' sources

Will Shoemaker
Times Editor

As a phenomenon called "dust on snow" continues each spring to speed up the melt of Colorado's snowpack, scientists are learning more about the concept.

A new U.S. Geological Survey (USGS) report provides a greater understanding about dust on snow through offering baseline data about the mineral and chemical properties of the dust, how much light it reflects, particle size and the deposition path.

At the same time, the data raise new questions.

For example, not all of the dust collected last spring from 11 sites throughout Colorado seems to have originated in the Four Corners region. What are the sources of this "local" dust?

The USGS report indicates that dust deposited on Colorado's snowpack can generally be linked to the Four Corners region. However, it's noted that particles derived from sites near Loveland Pass and Park Cone (south of Taylor Reservoir) "contain mostly locally derived material with lesser amounts of particles that could possibly be" from the Four Corners region.

Chris Landry is executive director of the Silverton-based Center for Snow and Avalanche Studies — home to the Colorado Dust-on-Snow program.

Landry collected the dust samples last spring before they were sent to USGS for analysis.

"This report generates a lot of new questions," he recognized. "This was just an effort on our part to expand the data set, to take a snapshot of dust composition at one point in time."

In addition to the possible sources of local dust, he noted

that the source of organic compounds — or carbon — within the dust begs for additional research.

Landry is at the forefront of studying the phenomenon. Dust's effect on snow is a fairly simple situation. Pure white snow reflects the sun to a much greater extent than dirty snow. So when dust blankets the snowpack, there's less ability for reflection. The more solar radiation the snowpack absorbs, the faster it melts.

The USGS report confirms much of what has been suspected about dust on snow. Yet, the science behind the phenomenon is still young — while the problem is

But Landry became interested in the phenomenon while conducting avalanche forecasting for the Yule Marble Quarry in the 1990s.

On March 30, 1999, a major dust event occurred leading to weaknesses in the snowpack that played out in an avalanche cycle later that spring.

At the time, Landry considered the potential link between dust and snow stability but filed it away in the back of his mind.

After starting the center in Silverton in 2002, he was approached by another scientist interested in dust on snow. The duo secured funding from the National Science Foundation to further study the concept.

It didn't take long to realize what they were onto.

"2006 was the real eye-opener," Landry said. "That year, everybody was confused. Why did the snow melt so early and runoff so harshly?"

After traveling the state presenting findings from the research, water leaders across Colorado began asking Landry to monitor dust in their respective watersheds. Since then, in large part as a result of his work, the effects of dust on snow have reached mainstream understanding — and they appear to be getting worse.

One study has shown that Colorado is ground zero for increases in dust volume of more than 200 percent since the mid-1990s, Landry said.

"We're not saying this is all brand new," he added. "But there's something new about the frequency and intensity of these events."

(Will Shoemaker can be contacted at 970.641.1414 or editor@gunnisontimes.com)

DUST ON SNOW EVENTS

| Winter | Events as of May 1 | Total events |
|---------|--------------------|--------------|
| 2010-11 | 7 | 11 |
| 2011-12 | 8 | 12 |
| 2012-13 | 8 | 10 |
| 2013-14 | 7 | 7 |

The above dust on snow events were tallied through monitoring conducted by the Colorado Dust-On-Snow program. This year's figures are through the end of April.

becoming more pressing.

"We have a little better sense that Colorado Plateau can affect all these sites, that the particles have a certain range in size and certain reflectance properties that are consistent at the sites," Landry said of the USGS report.

Research has shown — through sediment collected from alpine ponds in southwest Colorado — that a dramatic increase in dust originating from the Four Corners took place in the mid-to late-1800s, corresponding with disruption of the Four Corners area as a result of grazing.

Lifelong inhabitants of southwest Colorado have reported seeing dust on snow for decades.

ESTATE SALE
MAY 17TH - 18TH

ON LOCATION AT:
87 PASHUTA DRIVE
CASTLE MOUNTAIN SUBDIVISION
GUNNISON, COLORADO

EVERYTHING MUST GO
ALL BIDS WELCOME
ALL SALES FINAL

REMOVAL AND TRANSPORT OF ANY SALE ITEMS
ARE THE RESPONSIBILITY OF THE BUYER - THANK YOU!

Open Saturday, May 10
for WSCU Lunch

Garlic Mike's
ITALIAN CUISINE

Special Mother's Day Brunch Buffet
9AM-12:30PM (RESERVATIONS RECOMMENDED)
\$21 adults \$11 kids 10 & under
AND Dinner from 4-9PM

BELLINI omelette cheese cake BACON potatoes ham
eggs benedict Fresh Fruit antipasto cannoli
Bacon Sausage bloody mary smoked salmon
ham salads cheddar cheese peppers PASTA
peppers mushrooms Mimosa antipasto
champagne apple pie BACON bellini fresh fruit

Garlic Mike's • 2674 Hwy 135 • 970 641 2493

Look who told their friends
about the NuVista Visa®!



5.0% APR*
On Balance Transfers

promotional rate balance transfers for 18 months are still happening at NuVista Credit Union with NO FEE** balance transfers.

Hurry — offer ends May 15, 2014.

Take the opportunity to lower your monthly payments!

Consolidate high interest rate cards
Save Money...Then tell YOUR friends!



243 N. Main www.nuvista.org 970.641.2482

*Annual Percentage Rate (APR) is accurate as of March 19, 2014, subject to change, and may be changed or withdrawn at any time without notice. Only balance transfers of non-NuVista FCU debt to a NuVista Credit Card qualify for this promotion. Subject to credit approval. **No balance transfer fee; maximum transfer \$20,000. Offer ends May 15, 2014. After 18 months from transfers, October 15, 2015 to December 15, 2015 depending on the transfer date, any remaining balance will be at your regular offered rate. Must be a member of the credit union to obtain credit. See the credit union for full details.

SHONDECK

FINANCIAL SERVICES & INSURANCE

Now Providing

COMMERCIAL INSURANCE

(business & workman's comp)

as well as

PERSONAL LINES

(home & auto)

970-641-4700

114 N. Boulevard St. Suite 102 Gunnison
Local Service Since 1994.