CENTER FOR SNOW & AVALANCHE STUDIES

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PRESS RELEASE
For Immediate Release

RE: Water cycle monitoring in the San Juan Mountains advances modeling and understanding of snow hydrology in the western United States

For each hour of the last ten years, the Center for Snow and Avalanche Studies has been collecting comprehensive water cycle data from its study area high up in the San Juan Mountains of southwestern Colorado, near Red Mountain Pass. The results of this unique, in-depth mountain system monitoring program have now been published in the scientific journal *Water Resources Research* as "Mountain system monitoring at Senator Beck Basin, San Juan Mountains, Colorado: A new integrative data source to develop and evaluate models of snow and hydrologic processes."

The paper's authors believe these newly published data are an important contribution to the small constellation of hydrometeorological datasets. Working with CSAS's Chris Landry and Kim Buck, coauthors Mark Raleigh and Martyn Clark, both with the Hydrometeorological Applications Program of the Research Applications Laboratory at the National Center for Atmospheric Research in Boulder, fine-tuned the "hydrologic forcing data". The team then analyzed the dataset for wind effects on measured precipitation, radiative effects on air temperature measurements, and the like, fully exploring the data's strengths and weaknesses. As perhaps the highest elevation, well-instrumented, purpose-built research watershed in the world, Senator Beck Basin expands the domain of model-ready snow and snow hydrology datasets and provides a new platform for developing improved snowpack and snowmelt runoff forecasting tools.

Further, CSAS's monitoring program at Senator Beck Basin is steadily collecting a valuable climate record where it counts, at the headwaters of major Colorado River tributaries, and within site of the Rio Grande River headwaters. Climate change researchers around the world have recognized mountains as sensitive bellwethers of global and regional change, where system responses are more transparent and perhaps quicker to present than in lower elevation settings. Understanding the complex system interactions governing the seasonal distribution of mountain snowcover, its storage and release of water, and the effects of climate on those processes, are clearly of increasing importance to Colorado water providers.

Water agencies, including the USGS and Bureau of Reclamation have pointed to the need to sustain and expand just the kind of monitoring CSAS is conducting. The USGS, in collaboration with the Army Corps of Engineers, Bureau of Reclamation, and NOAA, recently published a white paper declaring the importance of long-term monitoring for detecting and quantifying impacts of climate change.

The Bureau of Reclamation's recent Colorado River Basin Study implicitly makes the case for the need to monitor how climate change effects on headwater snowpacks are actually playing out. Senator Beck Basin is capturing those data, hour by hour. Senator Beck Basin is also the primary sentry site for CSAS's Colorado Dust-on-Snow Program.

(See attached "Center for Snow Information Sheet" for further details about CSAS.)

"CSAS is proactively addressing a gap in American monitoring of alpine landscapes. I am personally very excited by CSAS' emergence in this field" **Dr. Jonathan Overpeck**, 2007 *IPCC Nobel Laureate*

"CSAS provides vital information for understanding the critical issues of our time - issues like water usage, environmental policy, and global warming - all of which have huge implications for the future. Venture is proud to support this research, which will help preserve our mountains for the next generation." **Lisa Branner,** *Venture Snowboards*

"I support CSAS because Senator Beck Basin is the best study site in North America for high alpine snow research ... CSAS is top-notch!" **Dr. Hans-Peter Marshall,** *Geoscientist*

"Climate change equals changing snow pack, which affects people, plants and ecosystems. We depend on programs like the CSAS to determine the rate mountain systems are changing." **Dr. Heidi Steltzer,** *Alpine & Arctic Ecologist*

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