

**Guidelines for Acceptable Use of Data obtained from the CSAS Website:**

1. Data are available "as is" without express or implied warranty. The Center for Snow and Avalanche Studies (CSAS) shall not be liable for damages resulting from mis-use or mis-interpretation of datasets obtained from this website or from errors or omissions that may exist in those data.
2. It is considered a matter of routine professional ethics to acknowledge the work of other scientists generating "project-specific" datasets that are used in subsequent research. The CSAS encourages users of project-specific datasets to contact the original principal investigator responsible for that data. Researchers whose projects are dependent on another researcher's data are encouraged to consider collaboration and/or co-authorship with the original investigators.
3. Similarly, any use of the CSAS's "core" snow system datasets will be accompanied by the appropriate citations and acknowledgments (<http://www.snowstudies.org/data.html> could be a general web link) and the CSAS requests that users notify us of any utilization of those data, whether for research or teaching purposes.
4. The CSAS requests that users submit to the CSAS three copies (reprints preferred) of any publication resulting from the use of data obtained from this website. PDF versions of papers may be emailed to the CSAS. If your paper is not subject to copyright protection and you wish the CSAS to post a link to your paper on its website, please so indicate in your email.
5. Data are provided by the CSAS on an end-user basis. Users may not redistribute data obtained from this website. However, links or references to this website, or pages within this website, may be freely posted.
6. Data will be used only for research and educational purposes. Commercial use for profit is prohibited without written permission from the Principal Investigator (PI) or CSAS Director (if the PI is no longer living).
7. Data are provided by the CSAS under the understanding that their use will not be detrimental to the CSAS's study areas or to ongoing research projects being conducted by the CSAS or its hosted researchers and/or collaborators at those study areas.

## CSAS Data Management Policy

By electing to utilize research support from, or to collaborate with the Center for Snow and Avalanche Studies, those conducting research projects at CSAS research sites recognize their obligation to share datasets collected during publicly funded research or monitoring programs.

CSAS collaborators and/or hosted research teams acknowledge that the CSAS collects and publishes, in consultation with its hosted researchers, "core" snow system datasets collected at its study sites. A detailed list of the data constituting those "core" CSAS data is provided at the end of this document. Other, project-specific data not included in that list shall be subject to the following CSAS data-sharing policies and to the requirements of the funding entity and, on a case-by-case basis, the CSAS will work with its collaborators or hosted researchers to determine the most appropriate approach for full compliance. That data-sharing approach will be outlined in an Agreement between the parties prior to the commencement of research and data collection which identifies both the "core" data and "project-specific" data elements involved in the project, and the data publication schedule anticipated for each type of data. The overall purpose and fundamental objective of the CSAS is to ensure and facilitate full and open access to quality data for research and education in snow system science. That Agreement will be considered to be a binding condition on all CSAS-supported projects.

For its part, the CSAS recognizes that a summary and thorough analysis published in a refereed journal may represent the first, best "sharing" of project-specific datasets. The CSAS's data management policy, therefore, includes provisions consistent with National Science Foundation and other data policies that ensures investigators a reasonable opportunity to have exclusive, initial use of the project-specific data while also assuring that the CSAS is not unnecessarily hindered in publishing "core" snow system science datasets, even when those "core" data comprise a component of the data required for a specific research project. The intent of the CSAS data policy is to identify in advance and resolve, by Agreement, any overlap and conflict between project-specific and core data publication imperatives.

### Sharing of Findings, Data, and Other Research Products

The CSAS expects significant findings from research and educational activities it supports to be promptly submitted for publication, with authorship that accurately reflects the contributions of those involved. Subsequent to publication, the CSAS expects investigators to share with other researchers, at no more than incremental cost and within a reasonable time, the data, samples, physical collections, and other supporting materials created or gathered in the course of the work. It also encourages awardees to share software and inventions or otherwise act to make the innovations they embody widely useful and usable. To those ends, the CSAS adopts the following policies and requirements for research conducted with its support, at its facilities:

1. The CSAS is committed to the establishment, maintenance, validation, description, and distribution of high-quality, long-term snow system and other snow-related datasets.
2. Preservation of all data, samples, physical collections and other supporting materials needed for long term snow system science research and education is required of all CSAS-supported researchers. Researchers will prepare and provide the CSAS with detailed "metadata" documenting their project's data collection methodology and equipment (exclusive of CSAS-collected "core" data instrumentation), field methods, lab methods, quality assessments, and data structure. Metadata will be presented to the CSAS in "Word" or "Excel" file formats.
3. Following publication of project results, it is the responsibility of the CSAS and its hosted researchers and organizations to make project data, derived data products, and collections available to the research community in a timely manner and at a reasonable cost. The

Internet is acknowledged as the premier vehicle with which to accomplish that goal (apart from physical specimens). Prior to the initiation of research, the CSAS and hosted research will determine the most appropriate venue for "open" publishing of project-specific datasets. In any event, the CSAS will be provided with and given permission to publish "open access" Internet links to project-specific datasets in a timely manner, as required by funder data policies, and will be apprised of any change in location or status of those data sources.

4. In the interest of full and open access, data should be provided at the lowest possible cost to researchers and educators. This cost should, as a first principle, be no more than the marginal cost of filling a specific user request.
5. Project-specific and CSAS "core" research project data may be made available for secondary use through submission to a national data center, publication in a widely available scientific journal, in a book, through the institutional archives that are standard for a particular discipline, or through Internet websites or webpages created specifically for the dissemination of project data, given that the CSAS is notified and appropriately acknowledged.
6. Project-specific data or observations generated during multi-year projects are to be made public within 1 year of the conclusion of project funding unless the research funder has consented to a longer delay in publication to protect researcher interests. Researchers agree that, and will inform their funder that, the CSAS's "core" snow system datasets will be published routinely and may become publicly accessible in near-real-time via the Internet.
7. Principal Investigators working in coordinated programs may establish (in consultation with funding agencies) more stringent data submission procedures, but the CSAS must be consulted and consent to any embargoing of the CSAS's "core" snow system datasets.
8. Exceptions to these data management policies require written agreement between the Principal Investigator and the CSAS.

**Core CSAS Snow System Dataset <sup>(1)</sup>**

## Weather (collected year-round)

- Wind speed and direction (at multiple heights above ground/snow)
- Air temperature (at multiple heights above ground/snow)
- Relative humidity (at multiple heights above ground/snow)
- Barometric Pressure
- Precipitation (as SWE of snow, or as rain)
- Snowfall (i.e., automated or manually collected storm board data)

## Snowpack (collected seasonally)

- Snowpack depth
- Snowpack temperatures (inter-snowpack, at multiple depths/heights)
- Snowpack surface infrared temperature
- Snowpack SWE (manually measured during routine profiles)
- Snowpack structure (routine snow profiles, etc.)

## Radiation (collected year-round)

- Incoming broadband shortwave
- Incoming "filtered" shortwave (near-infrared)
- Incoming longwave
- Reflected broadband shortwave
- Reflected "filtered" shortwave (near-infrared)
- Snow surface infrared temperature
- Reflected radiation measurement "surface" geometry

## Soils (collected year-round)

- Soil heat flux
- Soil temperatures (at multiple depths and surface)
- Soil volumetric water content

## Hydrologic (collected spring through fall)

- Basin discharge via stream gauging
- Water temperature
- Water electrical conductivity

## Biology (collected occasionally)

- Senator Beck Basin Study Area baseline inventory

(1) This list constitutes the complete, nominal "core" dataset for routine publication but, in negotiation with hosted researchers, certain items may be temporarily embargoed pending completion and publication of a research project.