National Snow Analyses

National Operational Hydrologic Remote Sensing Center

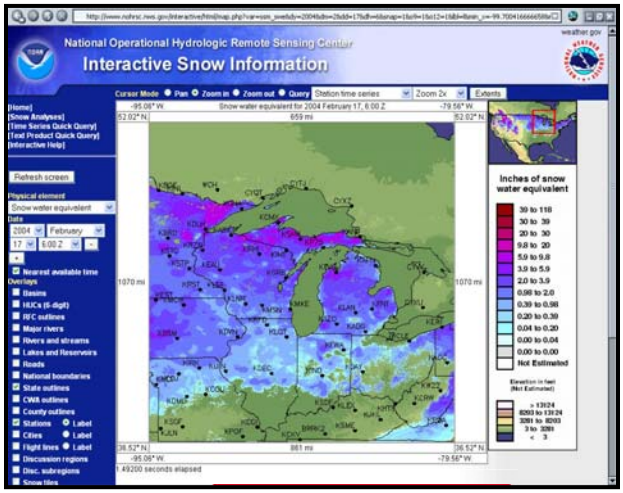
National Weather Service

National Oceanic and Atmospheric Administration

U.S. Department of Commerce • Minneapolis, Minnesota

www.nohrsc.noaa.gov

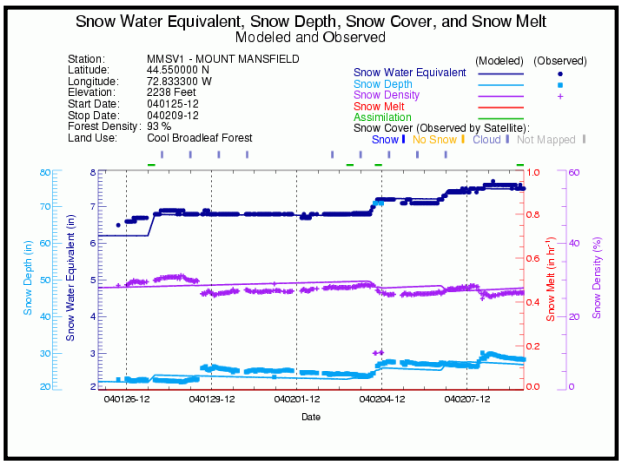
The National Operational Hydrologic Remote Sensing Center (NOHRSC) is responsible for generating daily National Snow Analyses for the Nation, in near real-time, using all appropriate, observed, and modeled information. A variety of map, alphanumeric, time-series, and gridded products are posted to the NOHRSC web site daily.



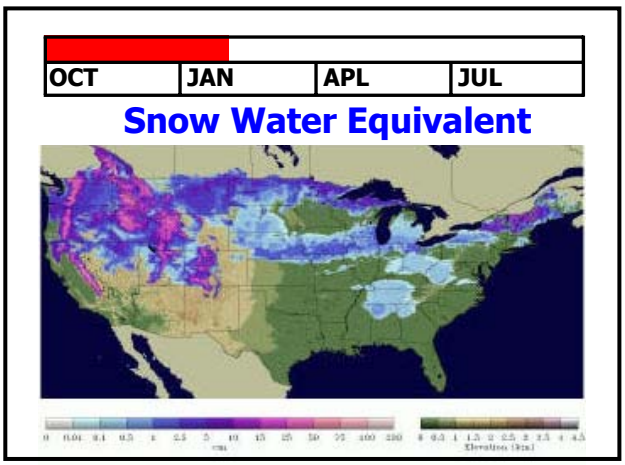
The NOHRSC interactive web site allows users to select a specific physical element, geographic region of interest, and period of record. Additionally, users can select data to overlay on the maps including cities, road, rivers, lakes, state and county boundaries, etc.

Products Include:	Format Options For Each Product:
Snow water equivalent	Interactive and movie-loop maps giving seasonal snow cover animations
Snow depth	Alphanumeric (text) summaries for each of over 5,600 hydrologic basins
Average snowpack temperature	Time-series plots giving both modeled and observed snowpack characteristics for over 14,000 reporting stations
Snowpack sublimation	Narrative text discussions for the Nation and for each of 18 sub-regions
Snowmelt	Gridded data sets (1 km²)

The NOHRSC uses ground-based, airborne, satellite, and modeled estimates of snowpack properties to create a variety of maps and alphanumeric products that describe snow cover conditions. Daily products include a number of snowpack characteristics and are available from the NOHRSC web site in a variety of formats.

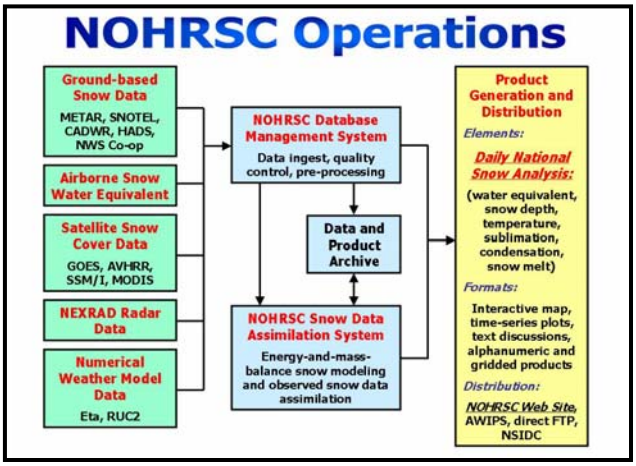


Point observations from over 14,000 data reporting stations can be accessed from the NOHRSC web site. Modeled estimates (solid lines) can be compared to point observations (dots) for snow water equivalent, snow depth, and snow density.



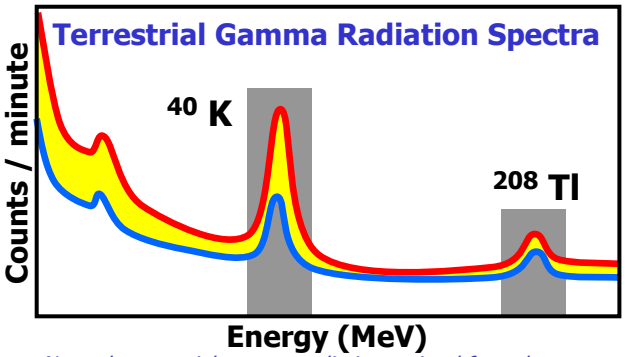
The interactive web site provides daily movie loops or maps of seasonal snow water equivalent, snow depth, average snowpack temperature, snowmelt, snow water equivalent change in 24 hours, blowing snow and surface sublimation. Hourly movie loops maps are available for the last 14 days.

over

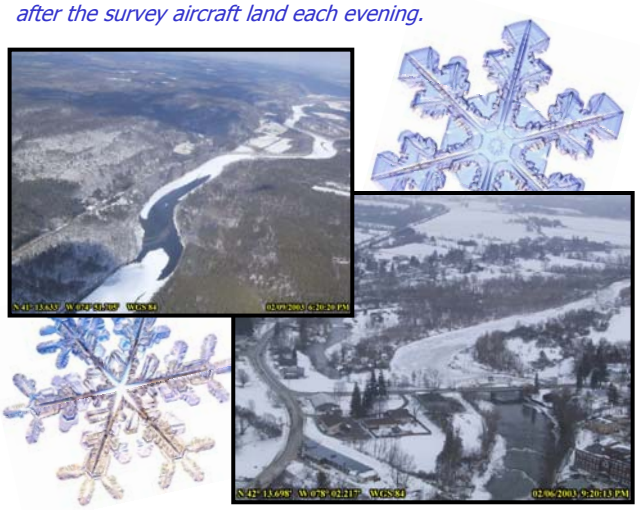


The NOHRSC continuously ingests a variety of ground-based, airborne, satellite, radar, and numerical weather model data from multiple sources across the country. The data are managed in a database system and processed by the SNOw Data Assimilation System (SNODAS). Products are generated and distributed to end users across the country over the NOHRSC web site and the NWS computer network.

The NOHRSC uses two low-flying aircraft to make airborne snow water equivalent measurements across the U.S. including Alaska. Each winter airborne snow measurements are made from a network of over 2,200 flight lines covering portions of 31 states and 7 Canadian provinces. The data are reported in near real-time to the NOHRSC office in Minneapolis and distributed to other NWS offices and the NOHRSC web site within an hour after the survey aircraft land each evening.



Natural, terrestrial gamma radiation emitted from the upper 8 inches of soil is used to infer snow water equivalent on the ground. A one-time background radiation spectrum (red) is collected with no snow on the ground. The water in the snowpack blocks the radiation signal. The difference (yellow) between the background (red) and the over-snow radiation spectra (blue) provide the ability to measure the snow water equivalent on the ground with an error of less than one cm of water equivalent.



The snow-survey pilots take photographs of ice jams and rivers in flood that are posted daily to the NOHRSC web site for use by hydrologists at the NWS River Forecast Centers and Weather Forecast Offices as well as other end users.





The general public, the private sector, and numerous federal, state, and local government agencies use NOHRSC *National Snow Analyses* products in a multitude of research and operational applications including snowmelt flood and water supply forecasting. Additionally, U.S. citizens use NOHRSC products directly to assess snow cover conditions associated with recreation, transportation, and commerce.