United States Department of Agriculture
NRCS Natural Resources Conservation Service

National Water and Climate Center

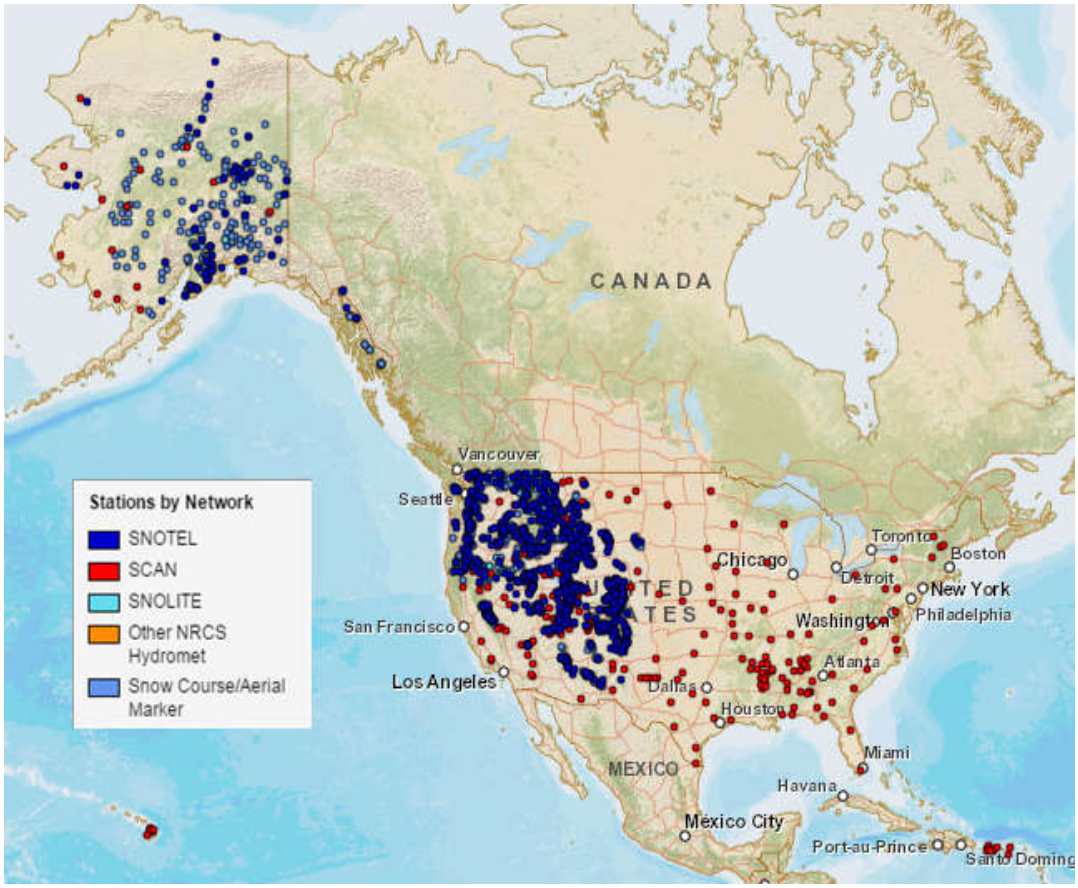
Program Overview

In 1935, a federal **Snow Survey and Water Supply Forecasting (SSWSF) Program** was created under the direction of the Bureau of Agriculture Engineering. In 1939, the bureau was transferred to the Soil Conservation Service (SCS); this agency, now known as the Natural Resources Conservation Service (NRCS), continues to conduct snow surveys and develop water supply forecasts for the western U.S. With the vast majority of water in the West coming from the melting of winter snowpack, data on snow provide information critical to water managers, agriculture, dam operations, recreationists, municipalities, and businesses.

In the early days of the SSWSF Program, snow surveyors on skis or snowshoes manually measured snowpack along a series of remote, high-elevation snow courses. The invention of over-snow machines, such as snowmobiles, made travel to snow courses less challenging. Some years later, aerial markers were introduced, allowing for snow measurement using airplane flyovers.

In 1977, the automated Snow Telemetry (SNOTEL) system was introduced. SNOTEL sites are fully automated and designed to operate continuously and unattended for up to one year. SNOTEL has grown into an extensive network of over 800 data collection sites in the West.

In 1991, the Program instituted a pilot Soil Climate Analysis Network (SCAN) project. SCAN stations monitor and report soil moisture, soil temperature, and other climate data at over 200 sites across the U.S.



NWCC's interactive map showing snow courses, aerial markers, and SNOTEL sites in blue. SCAN sites are red.

In addition to the NRCS data collected through the automated and manual collection processes, the SSWSF Program also incorporates snowpack, precipitation, streamflow, and reservoir data from the U.S. Army Corps of Engineers (USACE), the U.S. Bureau of Reclamation (BOR), the Applied Climate Information System (ACIS), the U.S. Geological Survey (USGS), various water districts, and other entities.

All the NRCS data collected are quality-controlled and placed in a comprehensive database known as the Water and Climate Information System (WCIS).

Program Organization

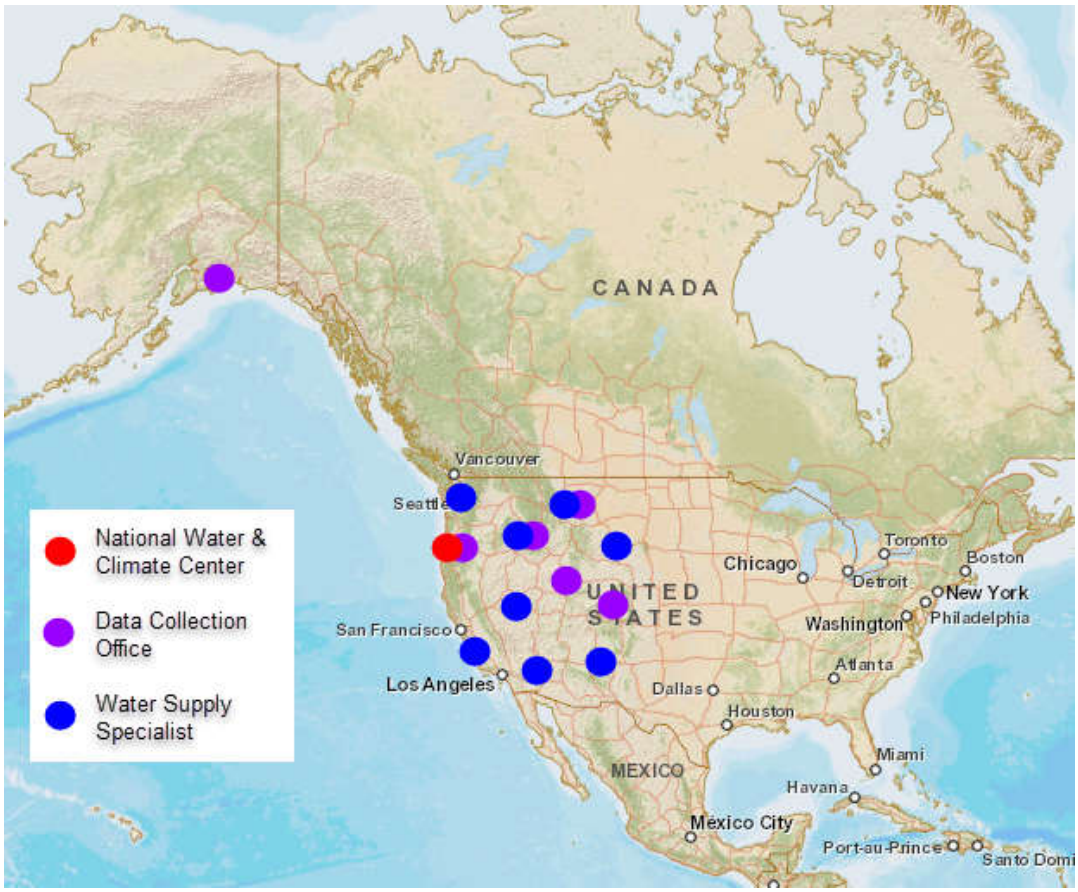
Organizationally, the SSWSF Program is composed of two major operations:

- A network of **Data Collection Offices (DCOs)** located in key areas of the western U.S. Each of the western states and Alaska have snow surveyors, water supply specialists, hydrologists, and technicians who gather, analyze, and disseminate snowpack and climate data for their respective regions.

- A centralized **National Water and Climate Center (NWCC)**. The hydrologic data collected by each of the DCOs are analyzed by hydrologists at the National Water and Climate Center. During the January-June snowpack season, NWCC staff produce detailed water supply forecasts for the western states. Each state uses these data to produce monthly Water Supply Outlook Reports.

  The NWCC also conducts the annual, westwide Snow Survey Training School, an intense week of training in data collection, safety, avalanche awareness, and outdoor survival.

In addition to administering the SSWSF Program, the NWCC is also responsible for making the data in the Water and Climate Information System database available to its wide variety of users. An extensive internet delivery system provides data in raw format as well as processed into reports, maps, graphs, and other tools.



Location of the National Water and Climate Center, Data Collection Offices, and Water Supply Specialists in the western U.S.

More information

Snow Survey and Water Supply Forecasting Program Brochure

History of the SSWSF Program
