



FUTURE EXPECTATIONS FOR THE SNOW SURVEY AND WATER SUPPLY FORECASTING PROGRAM

Snow dressed landscapes remain beautiful to behold and bring thoughts of recreation fun and winter driving difficulties that persist in many Rocky mountain regions this January of 2007.

As the year 2006 of the celebration of the 100th year of Snow Surveying and Water Supply Forecasting closes, the practical natural resource value of the winter snowfalls continues vital. The United States Department of Agriculture (USDA) Snow Survey and Water Supply Forecasting program (SS/WSF) continues to bear an important responsibility to accurately monitor seasonal snowpack, precipitation and other parameters that make up our fresh water supply from streams and rivers each year.

This cooperative federal-state-private program will continually adjust to the needs of the water user, food producers, wildlife managers, climate change scientists and powerful social and geo-political forces. The American pioneering spirit will rise to close the gap of the increasing need for dependable and clean supplies of fresh water versus the challenge of accurately predicting the amounts available from the weather influenced snowfalls each year.

We depend entirely upon these surface water stream flows for 60 to 80% of our fresh water, supplemented by ground water from wells and springs where available and where recharge is possible. Water use efficiency and heightened conservation engineering will advance to "make do" with the limited supply. As the United States currently is producing more than twice its national need for food and thus playing a significant role in the world market for these goods, our federal and academic research will be needed to develop new technology to sustain this powerful position. Contributing and sharing with foreign scientists will also be important to achieve needed technologies. Significant advancements in perfecting global circulation models will be very useful in improving seasonal outlooks for naturally occurring precipitation. It is not too far fetched, that putting all geo-political boundaries and issues aside; that seasonal water supply predictions could become accurate enough to determine the most probable regions of the earth for optimal crop production each year.

The role of the SS/WSF program in monitoring this precious natural resource will continue vital and will implement new methods for accurately and efficiently measuring snow pack water equivalent by new methods to provide a spatial data base. The traditional manual snow survey technology developed by Dr. Church in

the early 1900's will continue to meet some of this need, but most of the real-time information will be provided through the current NRCS, USDA automated remote monitoring system called SNOTEL and the further enhancements and expansion that will occur in that system and similar data networks of partners. Teaming real-time, spatial data with new modeling technology, will improve water supply prediction and wise water use dramatically. The need for quality control and assurance for the SNOTEL and SCAN networks is paramount as these data sets take their place as premier data sources.

Western states of the U. S. are projecting their needs for fresh water over the next 20-50 years. The various state plans to meet the increasing need for more water include other ideas that we will hear more about as technology and economic support develops. Adjustments will need to be made. For example; new local and state policies will be implemented that restrict new urban development without mitigation of water requirements through transfer of existing water rights, desert-type of landscaping, re-conditioning and re-use and de-salinization. Although potentially challenging to environmental and endangered species interests, serious thoughts are being given to increasing the available storage behind existing and new multi-purpose dams on major river systems to augment current storage. Minimum stream flows required for wildlife and Native American water rights will also be addressed. Small scale and enormous geographical scale plans for transfers of fresh surface water from low use areas to high use areas may also become practical, emphasizing the need for comprehensive quality data on snow water, climate and stream flow information.

Understanding the full spectrum of the water supply includes accurate and comprehensive information on the moisture stored in the earth's soil surface. Future effective management of this portion of the fresh water resource will relegate full implementation of the USDA Soil Climate Analysis Network (SCAN). This technology, coupled with partner agencies and developing soil moisture science, will provide important decision support information to the western U.S. states supplementing the stream flow outlooks and to the rest of the states as well, where agricultural production and urban expansion are taxing the once seemingly limitless water supply. Accurately predicting the available soil moisture supply offers better management to avoid costly agricultural losses due to droughts.

Federal funding for natural resource monitoring and management will continue to be strongly dependent upon the grass roots support for the agricultural producer. Our nation's priorities for national defense and world peace will likely continue to limit federal funds for improvement to monitoring and accurate prediction of the nation's water supply, requiring effective information and marketing to inform water users of all types and to solicit their cooperative input.

The year 2007 marks the beginning the second century for today's Snow Survey and Water Supply Forecasting program. Over 60 professionals and hundreds of cooperators are employed to gather, maintain, analyze and interpret the data and forecasts. The county level infrastructure of NRCS field personal provides direct assistance to agricultural and many other water users and managers in making wise water management plans and decisions. Data resources of the program are web assessable through the Water and Climate Information System. This data supports all snow pack, water supply and other hydrometeorological analyses, including drought risk assessment and crop production potential, as well as climate trend research. Over 12 million data reports and data-downloads were made during 2006

by water supply customers from the web site of the Snow Survey and Water Supply Forecasting program.

The Snow Survey and Water Supply Forecasting Program recently rated very high scores in the American Customer Satisfaction Index survey. Several public reviews of the program have determined continuing federal leadership for the program. Program customers and cooperators include a wide spectrum of the populace, industry, natural resource and wildlife managers, recreationists, agriculturalists and researchers. The hallmark of this federal-state-private program remains to provide quality and timely, current and historical snow survey and water supply information without charge, or influence of geo-political interests.

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Editor's note: This is our last article celebrating the Snow Survey centennial year. We hope that you have enjoyed the entertaining stories and informative articles that paint a picture about what our program is all about. The Snow Survey and Water Supply Program is truly unique within the federal government. No other program gives its customers (you) more bang for their taxpayer dollars. For most of our professional employees, much of the work involves being out-of-doors in our beautiful Western mountains. From within our ranks, you may still occasionally hear the phrase... **"And we get paid for this?!"**

You can access our National Water & Climate Center web page at:
<http://www.wcc.nrcs.usda.gov/>

