

# THE ATMOSPHERIC RESERVOIR

*Examining the Atmosphere and Atmospheric Resource Management*

## *Flood Forecasting Resources*

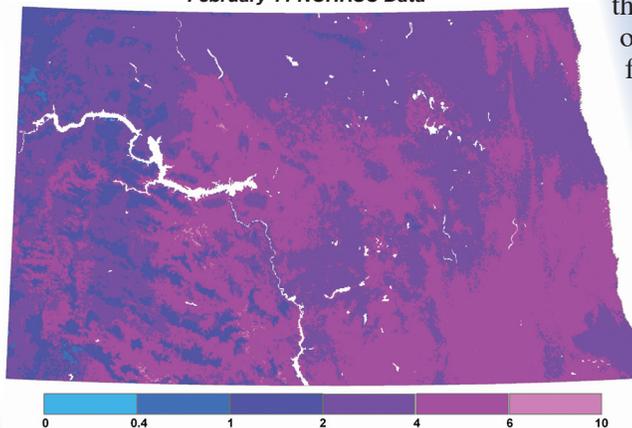
By Mark D. Schneider

With saturated grounds and a significant snow pack ready to melt, many North Dakotans are preparing for flooding again this spring. In times like these, we look to professionals working with the North Central River Forecast Center (NCRFC) and National Operational Hydrologic Remote Sensing Center (NOHRSC) for guidance and assurance. In January, Andrea Holz and Brian Connelly of the NCRFC and Carrie Olheiser of the NOHRSC traveled to Bismarck for presentations of their work. State Water Commission staff, along with members of the US Geological Survey (USGS), National Weather Service (NWS), and the Department of Emergency Services (DES) had the fortune of attending the presentations.

The NCRFC and NOHRSC are colocated with the Twin Cities NWS Office in the southwestern Minneapolis/St. Paul suburb of Chanhassen. This provides for real-time sharing of weather information and resources for flood planning between the agencies. The NCRFC website is located at <http://www.crh.noaa.gov/ncrfc/> and provides users with three main products: Flash Flood Guidance, Time Series Forecasts, and Long-range Probabilistic Products. These products are based on forecast models that ingest data from weather observations, precipitation reporting networks, and stream gauge measurements across the region. When

dealing with potential floods, it's important to use computer model guidance to aid in predicting the most likely outcomes. A computer model will rarely be 100 percent correct, but it will usually provide

**SNOW WATER EQUIVALENT (in inches)**  
February 11 NOHRSC Data



a reasonable estimation of future flood probabilities. It also allows the incorporation of near real-time data and weather forecasts into the flood projections. Last spring served as a perfect example of the importance of flood planning and its implications on reducing loss of life and property.

The NOHRSC's primary purpose is to "provide comprehensive snow observations, analyses, data sets and map products for the Nation." Carrie Olheiser explained how that mission is accomplished each season. The NOHRSC website is located at <http://www.nohrsc.nws.gov/> and provides snow water equivalent (SWE), soil moisture, satellite snow cover mapping, and many other products. Airborne snow surveys, using gamma radiation remote sensing, are conducted periodically by NOHRSC

and are used for SWE and soil moisture measurements. The map included in this article is a graphical representation of the SWE across North Dakota on Feb. 11. This map was made using NOHRSC raw data for North Dakota measured by surface weather observers. Notice that there are widespread SWE values of four to six inches in place before the spring melt begins.

When asked about the Red River Valley flood outlook, Andrea Holz of the NCRFC commented that, "With the amount of snow currently on the ground, flooding in the Red River Valley this spring is a certainty. If we get a spring rainstorm during the melt, widespread major flooding is very likely. At NCRFC and NOHRSC, we continue

to closely monitor conditions in the Red River Valley and provide our best forecasts to the residents of the Valley."

Flood predictions in February were already indicating that most rivers across North Dakota could reach their flood stages this spring. The NCRFC and NOHRSC staffs were instrumental in providing North Dakotans with timely flood information last season and we are looking for their guidance again now.

Atmospheric Resource Board  
North Dakota State Water Commission  
900 East Boulevard, Bismarck, ND 58505  
(701) 328-2788  
<http://swc.nd.gov>  
ND Weather Modification Association  
PO Box 2599, Bismarck, ND 58502  
(701) 223-4232