

# THE ATMOSPHERIC RESERVOIR

*Examining the Atmosphere and Atmospheric Resource Management*

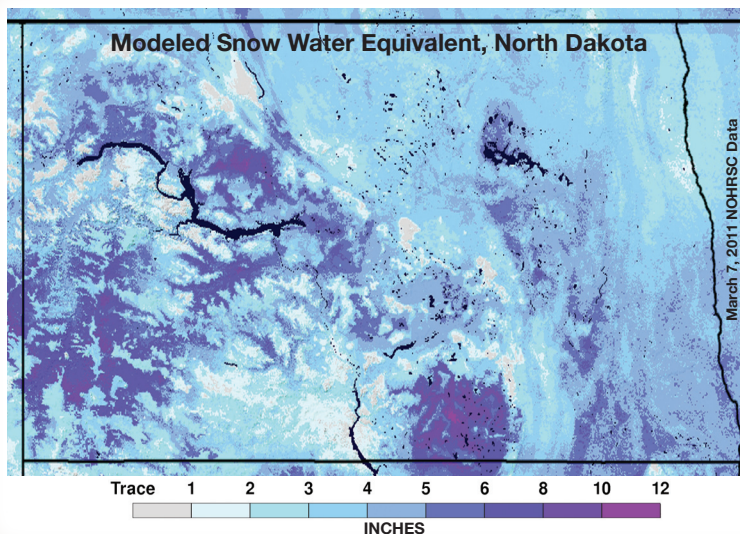
## Snow Business

By Mark D. Schneider

There was a joke going around the Bakken oil fields in northwestern North Dakota this season that rigs had to drill an extra thousand feet to hit oil because of all the snow. While this is obviously an exaggeration, it will likely be the snowiest season on record for Williston. The snow season begins July 1 of every year and ends on June 30 of the next year. On March 9

when this article was written, Williston had endured 84.1 inches of snow for the season, needing only an additional 5.9 inches to break the 1895-96 record of 89.9.

Southeastern North Dakota has received its fair share of snow this season as well. Fargo witnessed 70.8 inches through March 9 and was bracing for what could be another severe flood season. The 1971-2000 average seasonal snowfall for Fargo of 46.0 inches might be doubled before June 30. As you can see from the National Operational Hydrologic Remote Sensing Center (NOHRSC) map, some areas of the northern Red River Valley (especially around Grand Forks) were spared the exceptional early and mid-season snowfalls that much of North Dakota received. The NOHRSC map displays the Snow Water Equivalent (SWE) values across the Northern Plains. It's very apparent that the snowpack over most areas of our state con-



tained three to five inches of SWE in early March.

Northeastern Montana's snowfall is pertinent to North Dakota's waterways because rivers such as the Milk are tributaries of the Missouri River. At Glasgow, Montana, 96.6 inches of snow had fallen already this season, which more than surpassed the previous seasonal record of 70.7 inches set in 2003-04. In fact, it was also Glasgow's snowiest January on record with a whopping 41.6 inches! Considering that the 1971-2000 average seasonal snowfall for Glasgow is only 30.0 inches, they have already more than tripled their average.

The last three winters have put a financial strain on county maintenance budgets, which are typically based on average snowfall. Many counties across North Dakota, including Morton and Stutsman, declared snow emergencies in early February to be eligible for additional funding to clear their snow.

Most of North Dakota, with the

exception of the far south and western portions of the state, received only average to below average snowfall during February. In fact, Grand Forks had its second driest February on record, with only 0.04 inches of precipitation recorded. This reprieve at least provided time to plan for the remainder of the season.

Another key player in the 2010-11 snow season is the below

normal temperatures experienced month after month. Record low temperatures weren't common; however, monthly average temperatures remained below normal in the Red River Valley and over much of the state beginning in late November and running through early March. This kept snow melt to a minimum, especially over eastern North Dakota.

Much of North Dakota has witnessed three consecutive seasons of above normal snowfall. Considering the current moisture conditions across the state, a "normal" year would be very welcome and unexpected.

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