

THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

A True North Dakota Winter

By Mark D. Schneider

Recently moving from Colorado to North Dakota in 2005, I hadn't experienced a "good" North Dakota winter until this season. The mild temperatures and below normal snowfalls during recent winters might have made "Snowbirds" rethink their annual migration to the southern U.S. Everything changed though as November blizzards began this winter's legacy with record snows and cold weather in December. Here are the facts restated using National Weather Service data.

In Williston, December 2008 tied December 1996 for the eighth coldest on record. The average temperature for the month was only 5.3 degrees, which was 7.7 degrees below normal! A record 32.0 inches of snow fell in Williston during the month, eclipsing the old record of 21.2 inches in 1933. This snowfall also set a record for the most snow in any single month of Williston's recorded history!

The story was very similar for Bismarck. The average temperature for December was only 6.8 degrees, 8.4 degrees below normal! A record 33.3 inches of snow fell in Bismarck, making it the snowiest December as well as the snowiest month in recorded history. The previous monthly record occurred

in March 1975 when 31.1 inches of snow buried Bismarck. To top things off, 61.8 inches of snow had fallen through the end of January, marking the most snow-to-date of any season on record.

reprieve from the snow and cold in late January, but another storm in early February dropped 8 to 14 inches of wet snow over western North Dakota, while freezing rain caused hazardous travel conditions

over the east. The Snow Water Equivalent (SWE) map included in this article reflects state-wide snowfall reports through Feb. 10 when this article was written. SWE is the amount of water the snow contains and is the best indicator of how much snowmelt our state will see during the spring. Last year at this time many areas of western and central North Dakota were fortunate if they had

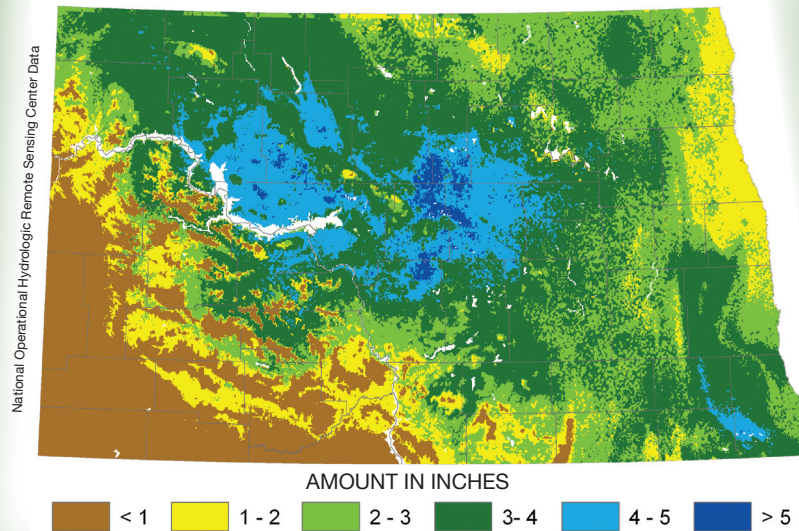
received half of their normal SWE. This season has brought most areas multiple times that amount of moisture and we are still only in March.

With the good comes the bad, when flooding concerns are taken into consideration. Some North Dakotans will benefit from the additional water while others will have too much.

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Snow Water Equivalent (SWE), Feb. 10, 2009



Minot reported very similar snowfalls for December and made the news with reports of businesses closing for snow removal purposes. The city of Minot, along with many other towns across the state, spent their entire season's snow removal fund before Feb. 1 and was forced to declare a snow emergency.

Snows in the Red River Valley were equally impressive. In Fargo, 33.5 inches of snow fell in December breaking the previous record of 31.5 inches set in 1989. Grand Forks had its fourth coldest December on record with an average temperature of only 1.6 degrees.

North Dakota experienced a brief