THE
ATMOSPHERIC RESERVOIR
Examining the Atmosphere and Atmospheric Resource Management

"Unusually Warm and Dry 2012"

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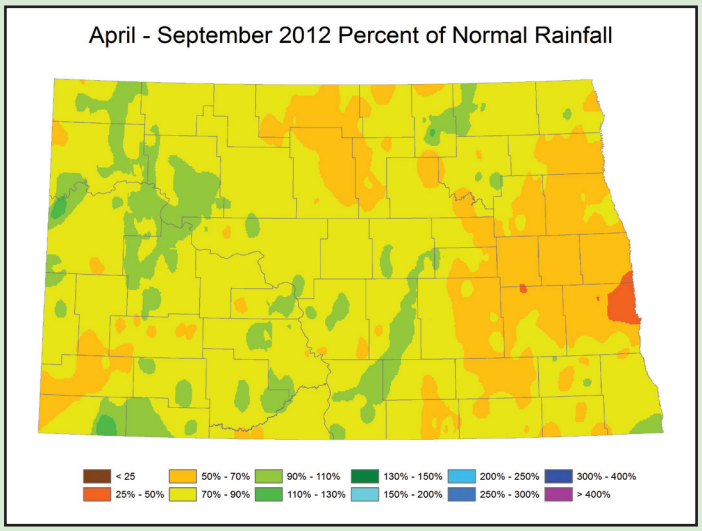

The National Climatic Data Center (NCDC) reported that the 2012 average annual temperature for the contiguous U.S. was the warmest on record for 1895-2012. NCDC also stated that, "The year consisted of the fourth warmest winter, a record warm spring, the second warmest summer, and a warmer-than-average autumn." Many North Dakota locations experienced record or near record warmth with Fargo, Grand Forks Int'l Airport, and Jamestown having their second warmest years. Of notable interest is that 1987 was the only year on record warmer for these three locations and only by 0.2 to 0.3 degrees Fahrenheit.

The remaining major reporting stations across North Dakota all recorded at least an eighth-place warmest average annual temperature for 2012, including Bismarck (5th place), Dickinson (3rd), Minot (4th), and Williston (8th). These annual averages occurred primarily because of the above average to record warmth during January through March. The Fargo-Grand Forks National Weather Service (NWS) stated that, "The first three months of 2012 were the warmest in many locations across the Red River Valley. Temperatures averaged 10 to 15 degrees above the long-term median values." Most North Dakotans would agree that 2012 was indeed the "year without a winter."

Oftentimes, dry conditions accompany record warmth and that was also the case this past year. Record droughts were experienced across the U.S. and especially in the central plains. Both Nebraska and Wyoming had their driest years on record and drought conditions were reminiscent of the 1950s. Overall, 2012 was the 15th driest year for the U.S. North Dakota experienced drought conditions and the large variability of precipitation across our state can be seen through the observations of the Atmospheric Resource Board Cooperative Observer Network (see map). Notice that the eastern part of our state, which is climatologically much wetter during the growing season than the central and western parts, was much drier last year. 2012 was so dry that irrigation pivots began running again in parts of southeastern ND where they weren't used during 2010 and 2011 due to overly saturated soils and high water tables.

During drought periods, severe storms and flash flooding are less likely to occur because local evapotranspiration and the flow of rich, low-level moisture from the Gulf of Mexico are minimized or hampered. This decreases the likelihood that thunderstorms will develop, let alone strengthen into formidable, severe cells. The Fargo-Grand Forks NWS remarked that, "severe convective storms were significantly below (roughly half of) long term averages," for their forecast area and in the Great Plains in general this past season.

As of early February when this article was written, areas of the Red River Valley, along with southwestern, east central, and southeastern North Dakota were still experiencing moderate to severe drought conditions. It remains to be seen whether late season snowfalls and spring rains can bring these areas of the state the moisture needed to begin the upcoming growing season.

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