2017 NORTHERN PLAINS DROUGHT ASSESSMENT

National Integrated Drought Information System
Drought.gov

The Northern Plains drought started in the spring and summer of 2017 and sparked widespread wildfires and compromised water resources, leading to the destruction of property, livestock losses, and reduced agricultural production. These impacts were felt in South Dakota, North Dakota, Montana, by the tribes of the Northern Plains, and in the Canadian Prairies. The total estimated cost of the drought in the region was $2.5 billion.

A drought snapshot: what happened in 2017?

The 2017 drought developed quickly. In early May, the US Drought Monitor reported no drought in the region. By the end of the month, moderate (D1) drought began to develop in North and South Dakota. Over the course of just four weeks, from the beginning to the end of June, moderate, severe, and extreme drought (D1-D3) had spread across the Dakotas and into Montana. Exceptional Drought (D4), the most severe category, first appeared in North Dakota and Montana on the Drought Monitor on July 18, 2017. One week later, drought had spread to cover about 80% of both South Dakota and North Dakota, and most of the eastern half of Montana. While autumn brought some relief to the region, areas in all three states are still under a severe drought classification as of February 15, 2018.

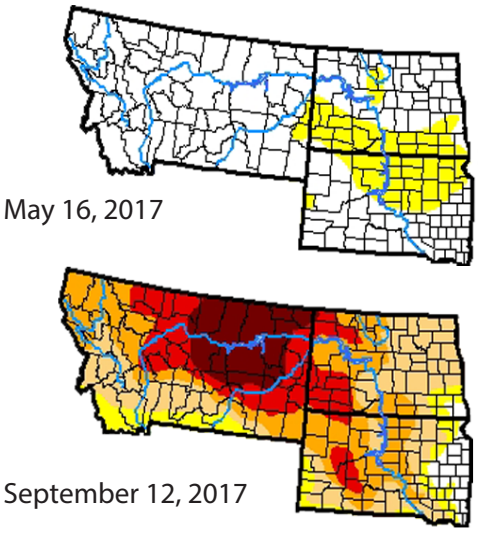

Fig. 1. U.S. Drought Monitor maps showing the rapid development of the 2017 drought.

Learning from the past to improve future resilience

NIDIS and partners will be looking back at the 2017 drought through two lenses: how can we improve drought early warning and how can we improve preparedness and response to lessen the impact of drought.

Attribution Study

A study to examine the causes, predictability, and historical behavior of this and other Northern Plains droughts.

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Drought Assessment

An assessment to better understand the 2017 drought impacts, what actions were taken, and identify lessons learned and best practices.

Attribution Study

NIDIS is partnering with the NOAA Earth Systems Research Laboratory Physical Sciences Division to examine the causes, predictability, and historical behavior of this and other droughts over the Northern Plains. This study will be completed at the end of 2018.

The overarching questions to be addressed by the attribution study are:

1. What are the characteristics of past droughts in the region (in order to put this drought into the appropriate historical context)?
2. What were the physical drivers of this drought, and how did they deviate from past droughts?
3. Did climate change make this drought more intense?
4. What are the sources of predictability for droughts in this region, and can they be applied to constrain the probability of drought termination during spring of 2018?

Drought in the Northern Plains is understudied relative to other regions of the United States, and this study will help to lay a foundation of understanding what aspects of the region's droughts are predictable.

Drought Assessment

NIDIS is working with Federal, Tribal, State, Local, and Canadian partners on an impact assessment of the 2017 Northern Plains Drought. The purpose of the assessment is to better understand the economic, ecosystem, health, and cultural impacts of the drought; what actions were taken to respond as conditions worsened; and identify lessons learned and best practices to build resilience to future droughts. In addition, barriers to response will be identified, as well as ways to improve drought early warning and monitoring in the future.

Key Partners

National Oceanic and Atmospheric Administration	www.noaa.gov
National Integrated Drought Information System	www.drought.gov
Office of Oceanic and Atmospheric Research	www.research.noaa.gov
National Weather Service	www.weather.gov
National Centers for Environmental Information	www.ncei.noaa.gov
Montana Climate Office	www.climate.umt.edu
South Dakota State Climate Office	www.sdstate.edu/state-climatologist
North Dakota State Climate Office	www.ndsu.edu/ndsco
USDA Northern Plains Climate Hub	www.climatehubs.oce.usda.gov/
High Plains Regional Climate Center	www.hprcc.unl.edu
National Drought Mitigation Center	www.drought.unl.edu
Agriculture and Agri-Food Canada	www.agr.gc.edu
Great Plains Tribal Water Alliance	www.tribalwateralliance.org

Contributors

Montana Department of Natural Resources and Conservation, North Dakota Department of Emergency Services, South Dakota Department of Environment and Natural Resources, US Department of Agriculture, US Department of Interior, Federal Emergency Management Agency, Bureau of Indian Affairs, US Army Corps of Engineers, US Environmental Protection Agency, and the tribes of the Northern Plains.