Exceptional drought continues across parts of western and central North Dakota.

Widespread precipitation over the past two weeks has been helpful, especially in the southwest, but significant impacts from drought conditions continue. Continued above to well above average temperatures will not help with widespread improvement.

Drought is likely to persist through the summer, although some areas could see improvement due to summer rains.
Past Conditions

Since October 1\textsuperscript{st}, 2020, North Dakota has been warmer and much drier than average. However, recent near normal temperatures and widespread precipitation have helped with deficits, especially in parts of western North Dakota where the percent of normal precipitation is back to near normal.
North Dakota has received widespread amounts of precipitation over the past 14 days, leading to some improvement in soil moisture percentiles. There could be slight improvements in drought conditions in a few areas, but widespread improvement is not expected due to long-term precipitation deficits being so large.
Climate
June is favored for above average temperatures across all of North Dakota, with above normal precipitation slightly favored for eastern parts of the state. Looking further into the rest of summer and into the beginning of fall, there is an increasing signal for both above average temperatures and below normal precipitation across the state, which would lead to drought persisting. The latest outlooks for the summer and fall do have slightly lower odds for these above normal temperatures and below average precipitation compared to previous outlooks, although this could partially be from CPC using the new base period of 1991-2020. The possible return of La Niña conditions is also being factored into these outlooks for the fall. Overall, there is some indication of a slightly weaker signal for dry and warm conditions this summer and fall, which would be good news in regards to the potential for drought persisting.

Hydrology
Despite recent beneficial rainfall across much of North Dakota, it would still take an extended period of above normal rainfall to bring the region back to near normal hydrologic conditions. Similarly, crops and pastures will continue to struggle without near weekly rain as soil moisture values are still well below normal in the deeper root zone. As the region is now in the thunderstorm season, heavy localized rains can generate runoff into streams, wetlands, and stockdam, but relief from low water conditions is likely temporary and of limited geographic extent.

Fire Weather
Green up of grasses is occurring but is slower than average, especially over north central North Dakota. Recent rains, particularly over western locations, have helped advance this. Still, standing cured grasses from last year can readily burn, and larger dry fuels also continue to readily burn. If drought conditions persist into summer, new season grasses may cure early, leading to an earlier than average summer/fall fire season.
USGS streamflow levels show improvement in levels from recent rains. There are still locations at much below normal levels, especially in the northeast. However, we have many locations across the west that are at normal levels, due to recent high rainfall amounts.
Even with beneficial precipitation amounts across the state over the past 14 days, we are not expecting widespread improvements in drought conditions. Precipitation deficits are so large that we need multiple rain events to see a widespread significant change in drought conditions. The latest 8-14 day outlooks show North Dakota is favored to be warm and dry, so positive impacts from the recent rain will be short lived for the majority of the area.
CPC Seasonal Outlook for July-August-September
• Drought is likely to persist through the summer, although some areas could see improvement due to summer rains.
• Warm and dry weather is favored for summer months and into the beginning of fall.
• The active spring fire season will slow down as grass green up occurs, but an early secondary fire season remains possible if drought conditions persist.

Partners

National Drought Mitigation Center - https://drought.unl.edu/
USDA Climate Hubs - https://www.climatehubs.usda.gov/hubs/northern-plains
US Forest Service - https://www.wfas.net/
Midwestern Regional Climate Center - https://mrcc.illinois.edu/
High Plains Regional Climate Center - https://hprcc.unl.edu/
Report Drought Conditions: https://droughtreporter.unl.edu/submitreport/
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