

PRAIRIES and HIGH PLAINS

Weather and Climate Highlights and Impacts, June to August 2024
Climate Outlook, October to December 2024



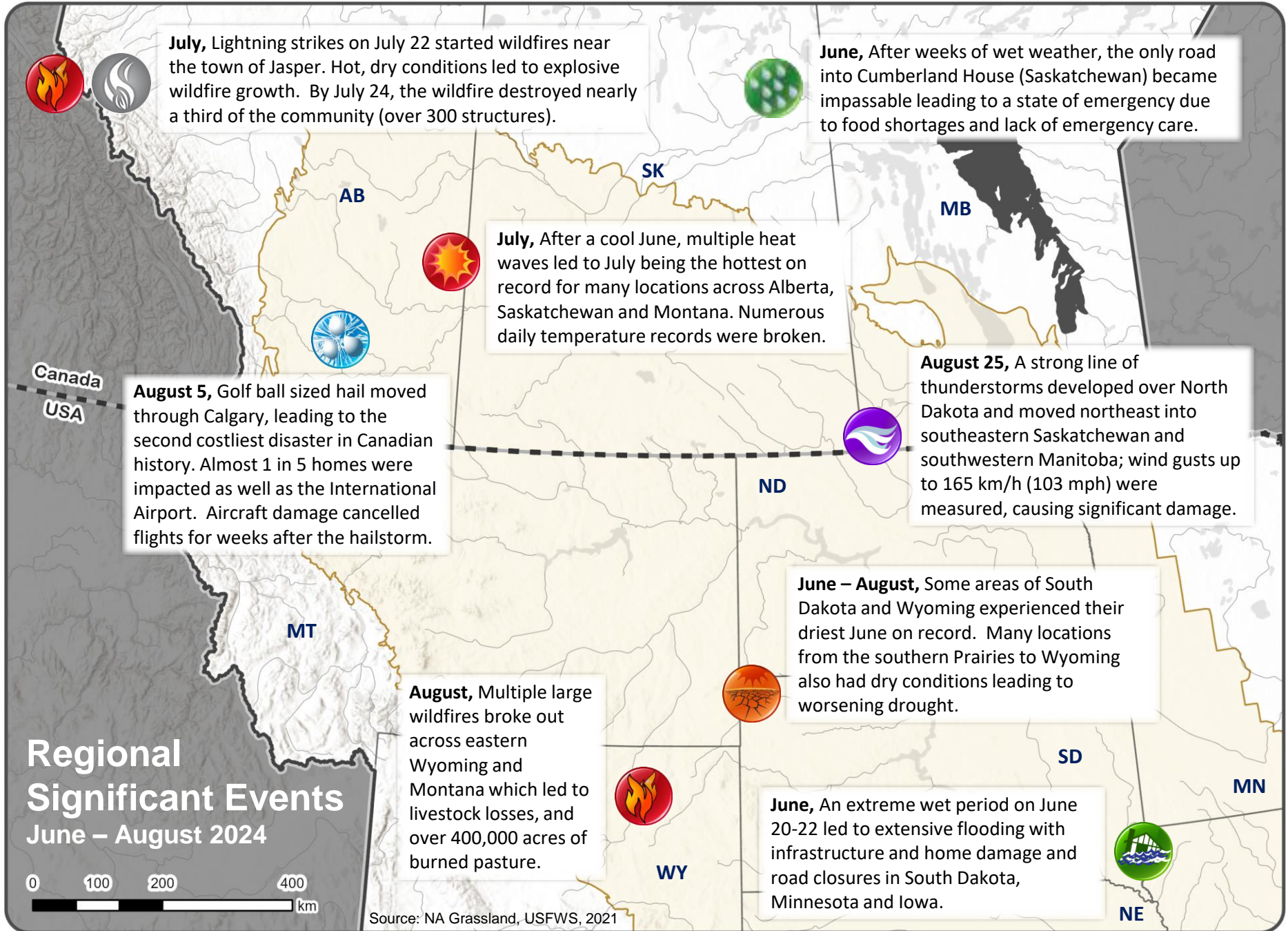
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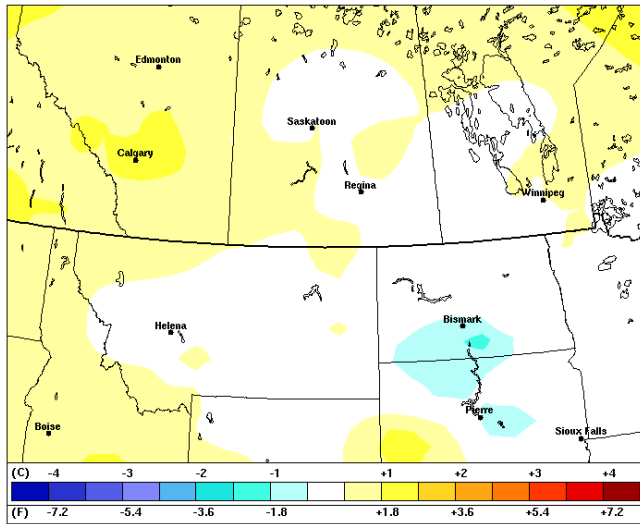
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Regional Climate Overview

June – August 2024

Departure from Normal Temperature (°C/°F)

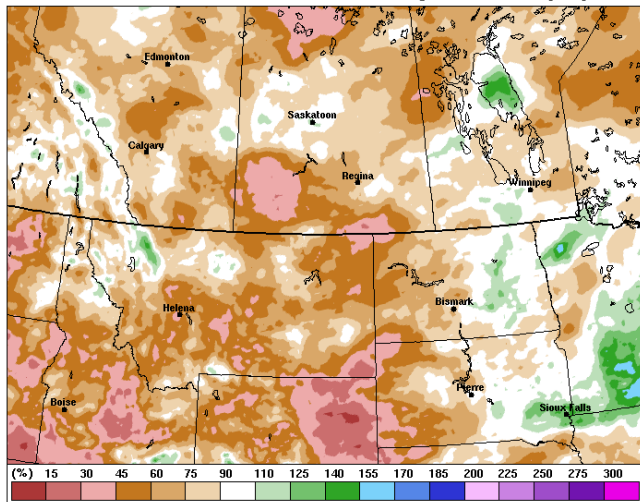


Source: ECCC Climate Archive and USHCN v 2.5
Reference period: 1991-2020

Temperature

The Prairies and High Plains region saw a typical summer, with the U.S. portion observing mostly near normal temperatures with cooler conditions in central Dakotas, while the Prairies saw slightly warmer temperatures, particularly in Alberta. Overall, June was cooler than normal in the Prairies region, but July brought a significant shift to warmer than normal temperatures. This led to record breaking temperatures both in Alberta and Saskatchewan. The warmer than normal pattern continued into August, mostly for the Canadian portion of the region.

Percent of Normal Precipitation (%)

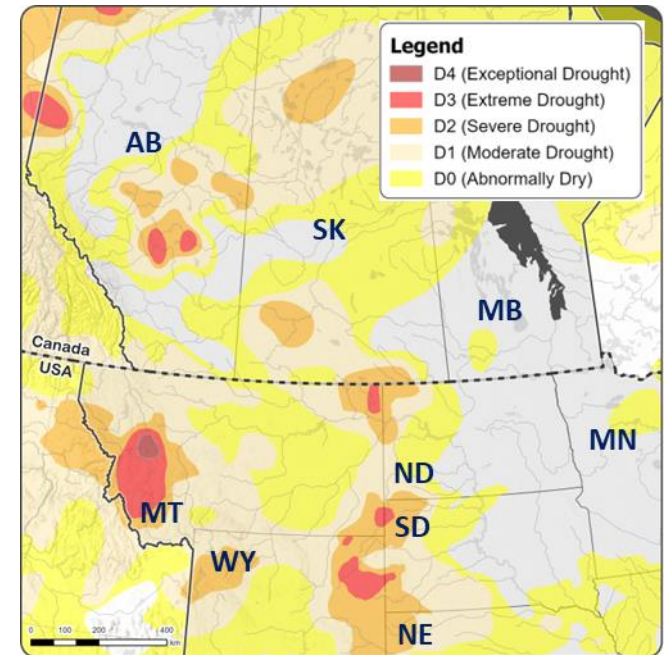


Source: Canadian Precipitation Analysis (CaPA)
Reference period: 1991-2020

Precipitation

Summer brought an abnormally dry season to the Prairies and High Plains, with western areas receiving precipitation amounts well below normal. However, some areas saw slightly above normal precipitation amounts, particularly in central Manitoba and parts of North Dakota and Minnesota. The Sioux Falls, South Dakota, area extending into southwestern Minnesota observed a modest boost in precipitation amounts for the season, primarily due to a multi-day heavy rainfall event in late June.

Drought Monitor



Source: North American Drought Monitor

Drought Conditions as of August 31, 2024

Overall drought conditions across the region degraded from June to August, with parts of Montana, North Dakota and Saskatchewan reporting a 3 to 4 class degradation. Despite eastern and northern parts of the region receiving more than 125% of normal precipitation in June, conditions remained dry across western and southern areas. This pattern shifted in July as warmer temperatures and extremely limited rain fell across the region leading to flash drought development and ongoing drought expansion, particularly across southern Saskatchewan, western parts of Montana and South Dakota, as well as eastern Wyoming. This continued into August as Extreme Drought (D3) developed across eastern Montana, eastern Wyoming and western South Dakota, in addition to Severe Drought (D2) developing in parts of Saskatchewan.

Wildfire Impacts

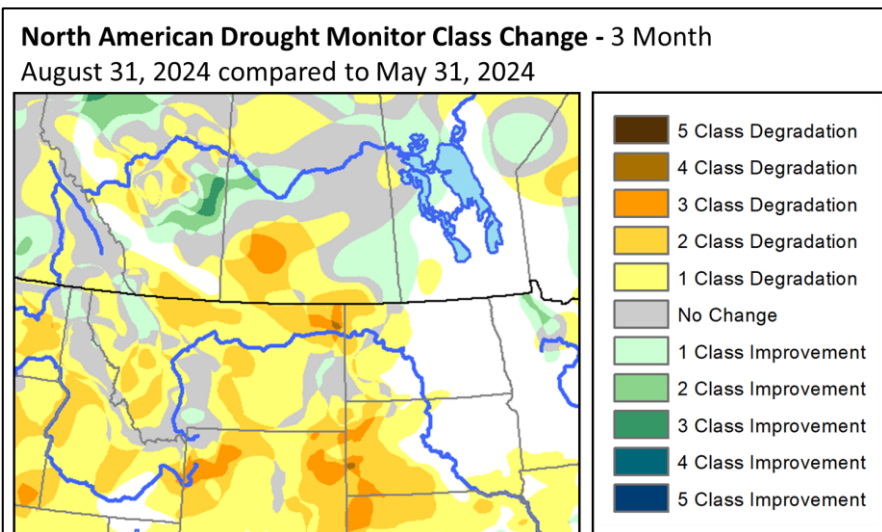


Smoke from the Jasper Wildfire Complex in Alberta, August 2, 2024.
Photo Credit: Parks Canada

Location: Alberta, Montana and Wyoming

Wildfires across western Canada and the western U.S. Plains have had an impact on many communities. On July 22, lightning strikes near the town site of Jasper (Alberta) started multiple fires. These fires spread rapidly due to hot, dry and windy conditions in Jasper National Park, forcing the evacuation of over 25,000 people, including park visitors and residents of the town of Jasper. By the evening of July 24, the fire had reached the town site and burned nearly a third of the town's structures. [Insurable losses](#) have been estimated to be at least \$880 million (CAD) and is the costliest insurance event in Canada's National Park history. On the U.S. side, in late August, [multiple large fires](#) spread rapidly across rangelands in northeast [Wyoming](#) and southeast Montana. [Losses](#) are still being tallied, but hundreds of livestock perished, and the fires burned nearly a half-million acres of pasture, hundreds of miles of fencing, and other ranch infrastructure. [Relief efforts](#) are underway, such as trucking in hay and fencing supplies. [Disaster assistance programs](#) are also available through [USDA](#) in [Wyoming](#) and [Montana](#).

Increasing Drought



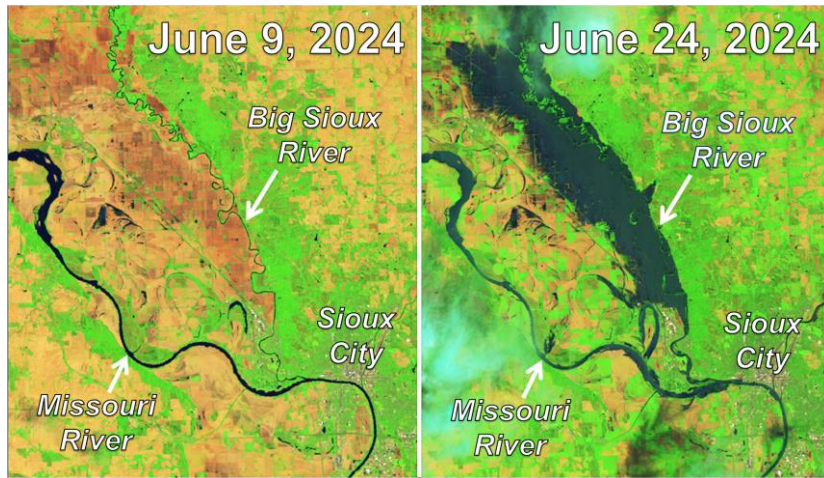
Source: North America Drought Monitor Change Map

Location: Prairies and High Plains

Drought expanded and intensified across the Prairie and High Plains region this summer, especially in the western two-thirds of the region on the U.S. side. Three U.S. counties reported their driest June on record in northeastern Wyoming and southwestern South Dakota ([NOAA](#)). These counties saw up to 40% reductions in total pounds per acre of rangeland grasses ([Grass-Cast](#)), which translated into grazeable forage losses of 80% or more. In [western North Dakota](#), some spring wheat producers saw shriveled kernels, reduced yields, low test weights, and low protein levels. Further north, drought conditions degraded across the Prairies due to the significant lack of summer precipitation and hot temperatures. Regina (Saskatchewan) reported a 29-day record-breaking stretch of no measurable precipitation in July. These conditions led to rapid crop development and stunted growth, reducing grain yields and quality. Despite good spring moisture, Extreme Drought (D3) also redeveloped across central Alberta by the end of August with reports of cattle herd reductions and ongoing concerns for pasture recovery. [As of August 27](#), nearly 73% of tame hay across Alberta was rated in Fair to Poor quality.

Regional Impacts

June – August 2024



Heavy Rain, Record Flooding

Satellite imagery showing the affected areas before and after the heavy rainfall near Sioux City, Iowa.

Credit: NASA Earth Observatory

Location: South Dakota, Southwest Minnesota, Northwest Iowa

Three days of [heavy rain \(June 20-22, 2024\)](#) caused [historic flooding](#) in South Dakota, southwest Minnesota and northwest Iowa. For example, Canton, South Dakota, reported 13.16 inches (33 cm) of rain in the three-day period. A storm of this magnitude is [exceptionally rare](#), with a recurrence interval of around 1,000 years. There was widespread, devastating flooding along several rivers that flow into the Missouri, causing [one fatality](#) and impacting [towns](#), [infrastructure](#), and summer recreation. Nineteen counties in the states of South Dakota, Minnesota and Iowa reported their record wettest June.

Temperature and Precipitation Outlook

October – December 2024

The fall temperature outlook from the [NOAA's Climate Prediction Center](#) shows an equal chance of below and above normal temperatures for the northern Plains with the exception of Wyoming, which has an enhanced chance of above normal temperatures. The [Canadian](#) model shows an enhanced chance of above normal temperatures across the Prairies with a stronger probability over the eastern sections. Both outlooks suggest equal chances of above, below or near normal precipitation over much of the Prairies and High Plains, except for western Montana where wetter than normal conditions are expected.

ENSO Outlook for Prairies and High Plains – The current El Niño Southern Oscillation (ENSO) condition is neutral. Although La Niña is forecast to emerge during the following fall and winter seasons, no significant ENSO impacts on temperature and precipitation are expected across the Prairies during October-December.

PRAIRIES and HIGH PLAINS

Contacts and Partners

- Environment and Climate Change Canada www.canada.ca/en/services/environment
- Agriculture and Agri-Food Canada www.agr.gc.ca/drought
- National Drought Mitigation Center <http://drought.unl.edu/>
- NOAA NIDIS www.drought.gov
- US State Climatologist <https://stateclimate.org/>
- NOAA NCEI www.ncei.noaa.gov
- USDA Climate Hubs www.climatehubs.usda.gov
- NOAA NWS Climate Prediction Center www.cpc.ncep.noaa.gov
- High Plains Regional Climate Center www.hprcc.unl.edu
- NOAA NWS Missouri Basin River Forecast Center www.weather.gov/mbrfc
- USDA Natural Resources Conservation Service www.nrcs.usda.gov



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