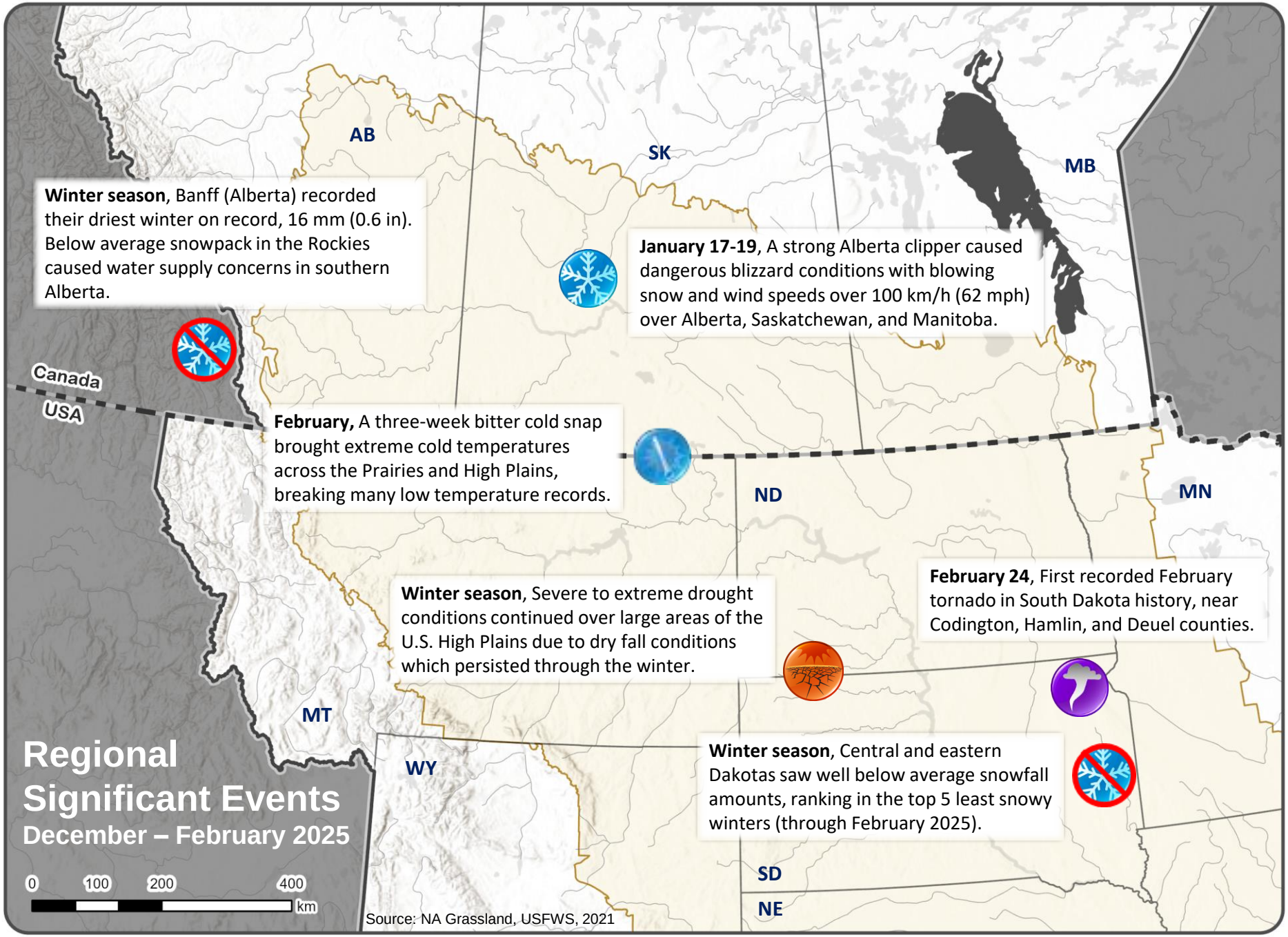
PRAIRIES and HIGH PLAINS

Weather and Climate Highlights and Impacts, December to February 2025
Climate Outlook, April to June 2025

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada



Winter season, Banff (Alberta) recorded their driest winter on record, 16 mm (0.6 in). Below average snowpack in the Rockies caused water supply concerns in southern Alberta.

January 17-19, A strong Alberta clipper caused dangerous blizzard conditions with blowing snow and wind speeds over 100 km/h (62 mph) over Alberta, Saskatchewan, and Manitoba.

February, A three-week bitter cold snap brought extreme cold temperatures across the Prairies and High Plains, breaking many low temperature records.

Winter season, Severe to extreme drought conditions continued over large areas of the U.S. High Plains due to dry fall conditions which persisted through the winter.

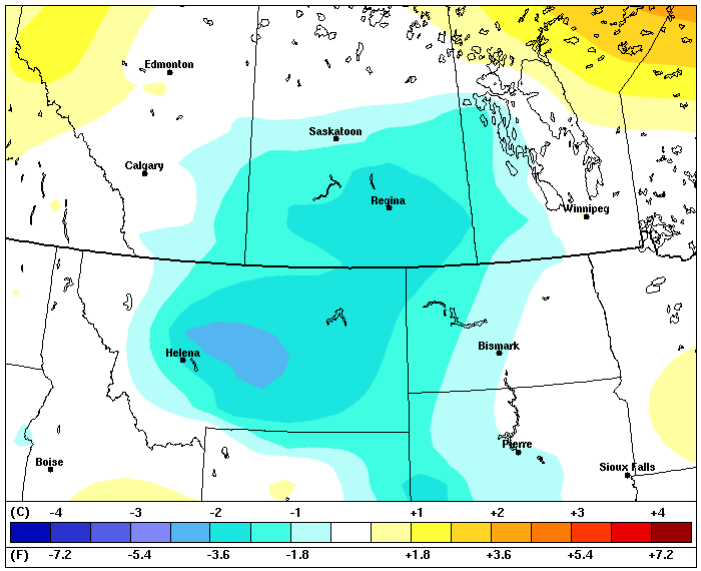
February 24, First recorded February tornado in South Dakota history, near Codington, Hamlin, and Deuel counties.

Winter season, Central and eastern Dakotas saw well below average snowfall amounts, ranking in the top 5 least snowy winters (through February 2025).

Regional Climate Overview

December – February 2025

Departure from Normal Temperature (°C/°F)

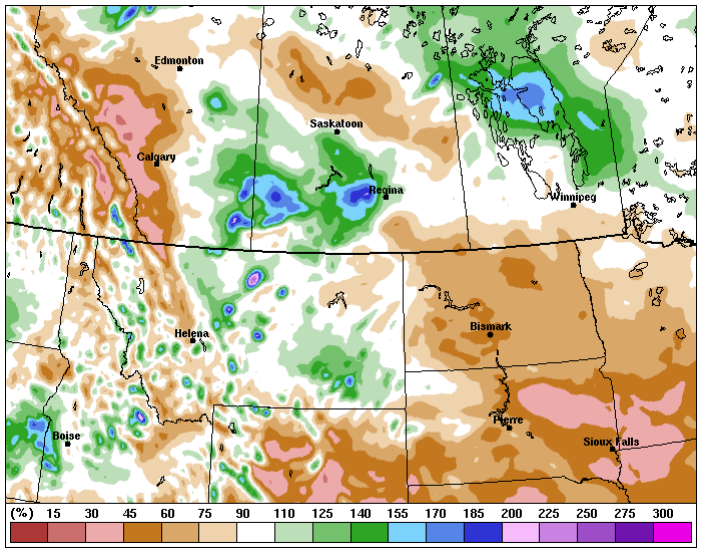


Source: ECCC Climate Archive and USHCN v 2.5
Reference period: 1991-2020

Temperature

Despite warm temperatures in December, a frigid February led to below average seasonal temperatures across the central portion of the region. Central Montana experienced the biggest temperature anomaly, averaging 2.5°C/4.5°F colder than normal. Small areas in northwestern Alberta, northern Manitoba, and southern Minnesota had warm seasonal anomalies.

Percent of Normal Precipitation (%)

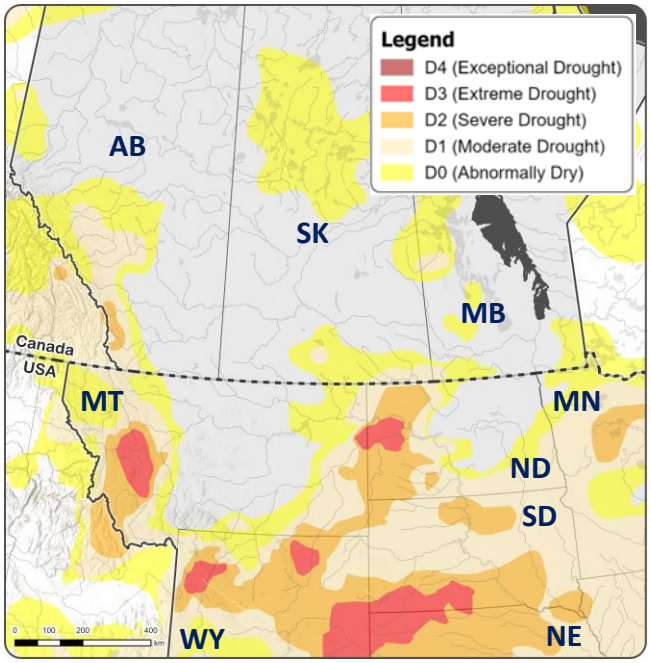


Source: Canadian Precipitation Analysis (CaPA)
Reference period: 1991-2020

Precipitation

Very dry conditions were observed throughout southwestern Alberta and much of the High Plains. Areas in South Dakota, Minnesota, Wyoming, and Alberta received less than 45% of their normal precipitation this winter. There were fewer areas with above normal precipitation, including southwestern Saskatchewan, central Manitoba, and some parts of central and eastern Montana.

Drought Monitor



Source: North American Drought Monitor

Drought Conditions as of February 28, 2025

Overall, drought conditions have improved mildly through the winter in much of the Prairies and High Plains region. The west central Prairies saw abnormally high precipitation and snow accumulation with periods of melting, resulting in improved drought conditions. However, poor precipitation and low snowpack in southwestern Alberta resulted in heightened drought concern in areas that provide critical spring runoff to fill irrigation reservoirs. Large areas of the High Plains remain in Moderate (D1) to Extreme Drought (D3). All of South Dakota and most of Wyoming continued to be in drought, with about half of each state classified as Severe (D2) or Extreme Drought (D3) by the end of February. North Dakota and Montana had better overall conditions, however, significant portions of each of these states were still in Severe to Extreme Drought. With spring approaching, snowmelt runoff and traditionally higher precipitation amounts can often improve drought conditions quickly.

Regional Impacts

December – February 2025

A Late Start to Winter

The winter started off mild as December closed out the hottest year on record for many locations in the Prairies and High Plains. It was a warm December across the whole region, which allowed cattle on feed in the High Plains to gain extra weight and rangeland livestock to maintain body condition with less supplemental feed.

Winter did appear, however, in the Prairies and High Plains from mid-January to mid-February. Several feet of snow fell on Lewistown, Montana, during a mid-January storm, making travel nearly impossible. A few days later, a widespread blizzard wreaked havoc across the Canadian Prairies. There, heavy snow and wind gusts near 100 km/h (62 mph) caused hundreds of vehicle collisions, widespread power outages, and school and highway closures. In February, a multi-week cold spell settled over much of the Prairies and High Plains, prompting extreme cold warnings with many temperature lows reaching below -40°C (-40°F). No widespread losses have been reported among early-lambing and calving operations, but the extreme cold did briefly disrupt oil and natural gas production in North Dakota. Roofs collapsed on several buildings in central Montana due to the weight of deep snow, locked in place by bitter cold temperatures. In the Dakotas, lack of snow cover combined with the extreme cold and dry soil profiles enabled frost depths to plunge deep enough to cause water-main breaks in several communities, such as Devils Lake, North Dakota.

An extended period of warm temperatures and high winds returned in late February. Snowpack over the Prairies began decreasing, and the little snow that had accumulated over the High Plains in early February disappeared quickly. Over the High Plains, warmth and dryness raised concerns about wildfire risks and soil moisture losses, especially in already drought-stressed areas. On February 28, several wildfires broke out in southeastern and southwestern South Dakota due to tinder-dry vegetation and windy conditions.

This winter's temperature swings and variable snowfall created weak layers of snow that contributed to dangerous avalanche conditions. Warm conditions in the second half of February triggered avalanche warnings for the Alberta foothills (Avalanche Canada). There was also one avalanche-related death in northern Wyoming, in the Absaroka Range in early January, triggered by a weak layer formed early in the season.

Snow load, locked in place by a low of -27°F (-33°C), led to this barn roof collapse on February 18.
Photo Credit: Lee Schmelzer

Collapsed barn roof near Columbus, Montana.
Photo Credit: Lee Schmelzer

Temperature and Precipitation Outlook

April – June 2025

The spring temperature outlook from the Canadian model shows an enhanced probability of above-normal temperatures throughout the Canadian Prairies with the highest chance over eastern sections. The American temperature forecast is for equal chance of below or above normal temperatures across much of the U.S. High Plains, with the exception of an enhanced probability of above normal temperatures in Wyoming. Both the Canadian and American models suggest an equal chance of below or above normal precipitation across the Prairies and High Plains, except for Wyoming and southern Montana where below normal precipitation is forecast.

ENSO Outlook for Prairies and High Plains – The current La Niña conditions are weakening with a trend toward ENSO-neutral for April 2025. No significant ENSO impacts are expected for this spring.

Additional Resources

Cold Advisory for Newborn Livestock

Forecasts of weather hazards for young animals

Billings, MT

Glasgow, MT

Cheyenne, WY

Bismarck, ND

Grand Forks, ND

Aberdeen, SD

Flood and Water Resources

Observations, conditions, forecasts

Missouri River Basin

North Central Basin

Manitoba

Saskatchewan

Alberta

Seasonal Fire Outlook

Conditions, forecasts

North America

U.S. (Home)

Canada

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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