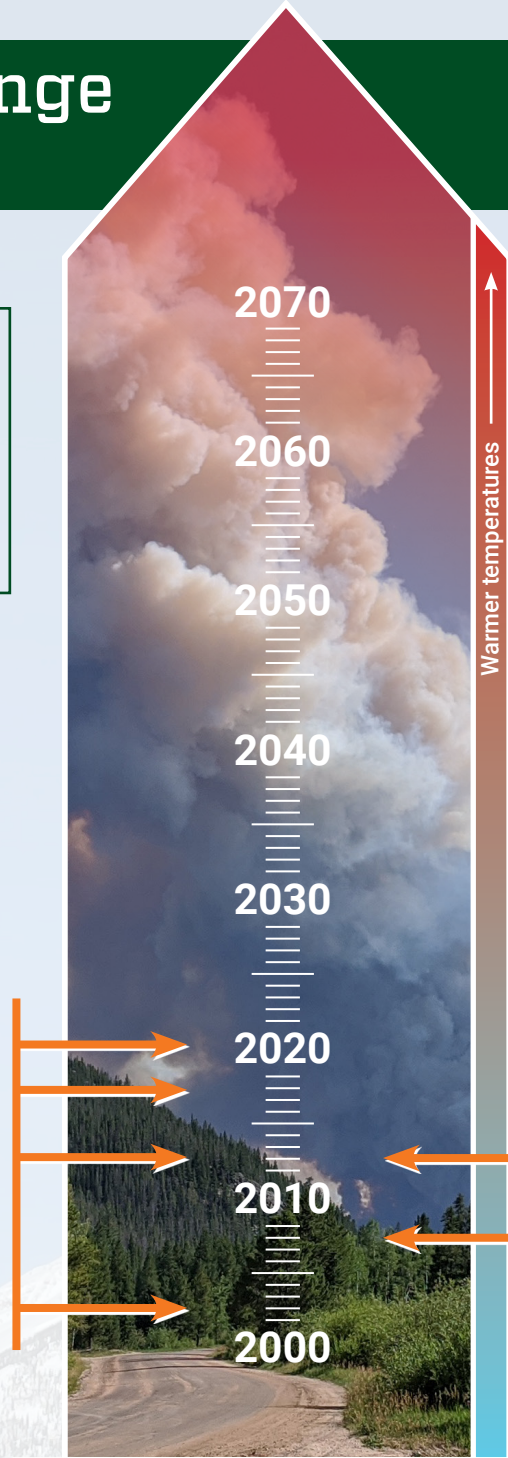


# Climate Change in Colorado

The third edition of the **Climate Change in Colorado Report** describes recent trends and future projections of Colorado's climate and hydrology.



**47.9°F - 51.6°F**

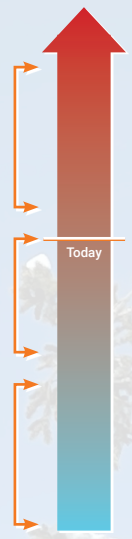
2035-2064 average temperature

**46.5°F**

2001-2022 average temperature

**45.1°F**

1971-2000 average temperature



Colorado has observed persistent dry conditions in the 21st century. Four of the top five driest water years on record have occurred since 2000 (2002, 2012, 2018, and 2020).

2012 remains the state's warmest year in the 128-year record, at 48.3°F (3.2°F warmer than the 1971-2000 average).

Only one year in the 21st century (2008) has been cooler than the Colorado statewide 1971-2000 average.



**5-30%**

Reduction of April 1 Snow Water Equivalent by 2050



**8-17%**

Increase in evaporative demand by 2050



**5-30%**

Reduction in annual streamflow volume by 2050

# A warming climate impacts many of the extremes and hazards that Coloradans experience.

Extreme/Hazard	Observed trend	Projected future change	Confidence in change
Heat waves	More frequent/intense	More frequent/intense	Very High ●
Cold waves	Fewer	Fewer	High ●
Droughts	More frequent/intense	More frequent/intense	High ●
Wildfires	More and larger	More and larger	High ●
Extreme precipitation	More intense	More frequent/intense	Medium ○
Flood risk	Mixed	Higher	Medium ○
Windstorms	Uncertain	Uncertain	Low ☹
Severe thunderstorms	Uncertain	More frequent	Low ☹
Hail	Uncertain	More large hail	Low ☹
Tornadoes	Uncertain	Uncertain	Low ☹
Winter storms	Uncertain	Larger storms	Low ☹
Dust on snow events	Greater dust levels	Greater dust levels	Medium ○

## About the full report

This report is a synthesis of climate science relevant for management and planning for Colorado’s water resources. This is an update of the 2014 report which focused on observed climate trends, climate modeling, and projections of temperature, precipitation, snowpack, and streamflow.

More of this report is devoted to extreme climate-driven events – including heat waves, droughts, wildfires, and floods – than the previous reports. Overall societal impacts of climate change will not only be determined by changes in the average climate, but by changes in these climate-driven extreme events.

The report was created by researchers at Colorado State University in the Department of Atmospheric Science within the Walter Scott, Jr. College of Engineering, and by Lukas Climate Research and Consulting. CSU Research Scientist and Assistant State Climatologist Becky Bolinger is the lead author. This project is funded by and in collaboration with the Colorado Water Conservation Board and Denver Water.



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## About the Colorado Climate Center

The Colorado Climate Center is located within the Department of Atmospheric Science at CSU. With the support of the Agricultural Experiment Station, it is the Center’s privilege and duty to provide services and expertise related to Colorado’s complex climate. As a recognized State Climate Office, the Center strives to collect and observe data with the purpose of monitoring the climate, placing individual events into historical perspective, disseminating climate information to the user community, and providing climate expertise as part of the decision-making process.



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