



credit: Rick & Susie Graetz

Yellowstone's Past, Yellowstone's Future

Cathy Whitlock
Regents Professor Emerita of Earth Sciences
Montana State University

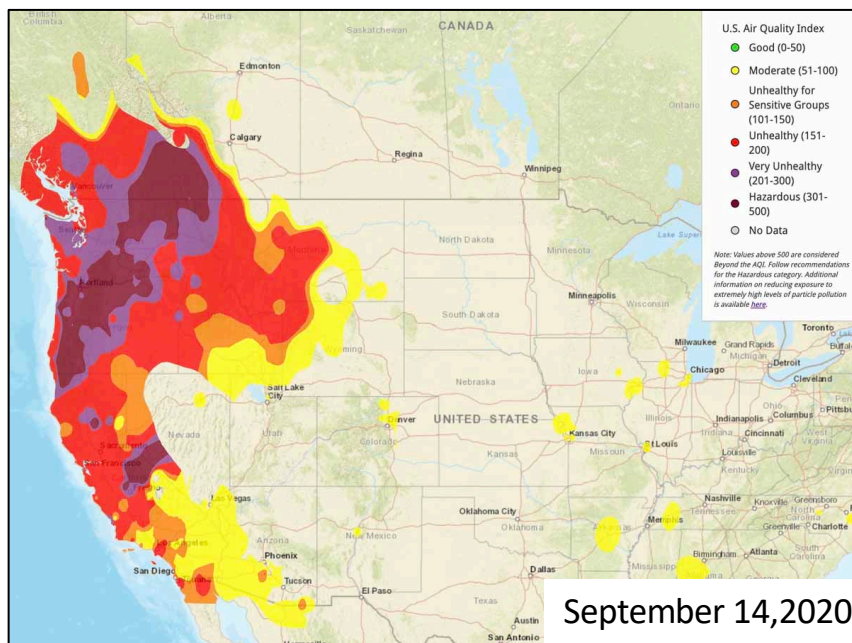




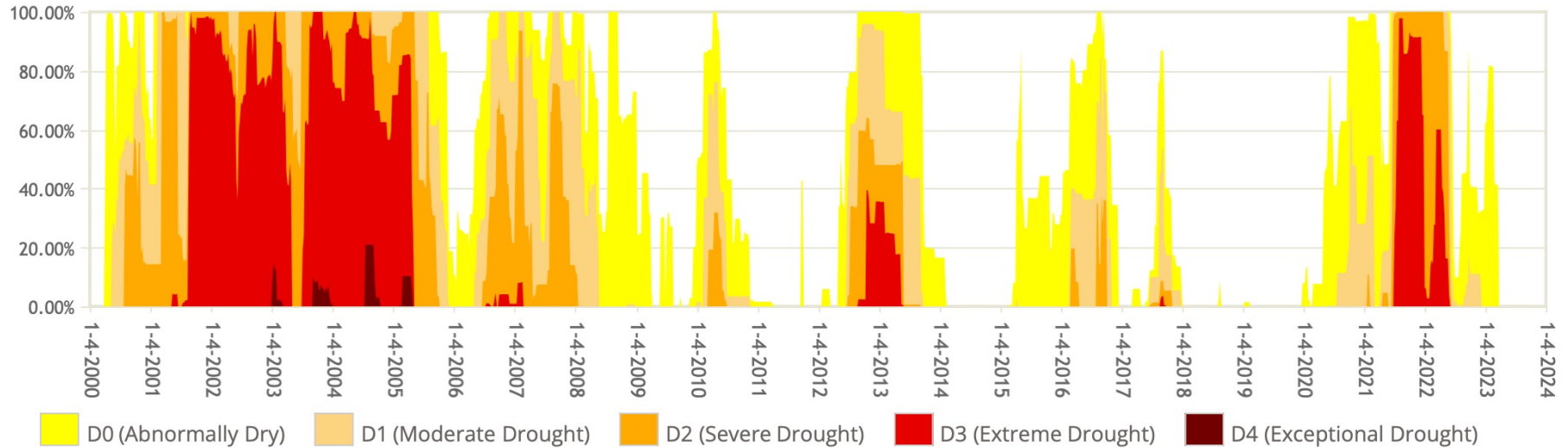
The lands and waters of the GYE have been home to Indigenous peoples for over 10,000 years. Over two dozen tribes consider Yellowstone to be part of the traditional Homeland. We pay respect to these and other indigenous peoples with strong cultural, spiritual, and contemporary ties to this land. We are indebted to their stewardship.

A wide-angle landscape photograph of Yellowstone National Park. In the foreground, a large herd of bison is grazing in a field of dry, yellowish grass. The middle ground shows rolling hills with sparse evergreen trees. In the background, a range of rugged mountains is partially covered in snow under a cloudy sky. The text "YELLOWSTONE & CLIMATE CHANGE" is overlaid in the center of the image.

YELLOWSTONE & CLIMATE CHANGE

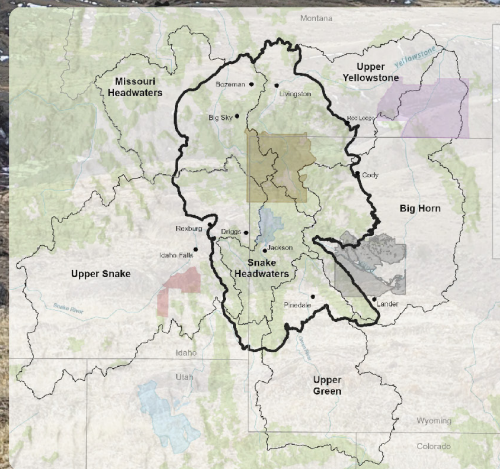


Missouri Headwaters Percent Area in Drought



GREATER YELLOWSTONE CLIMATE ASSESSMENT

*Past, Present, and Future Climate Change
in Greater Yellowstone Watersheds*



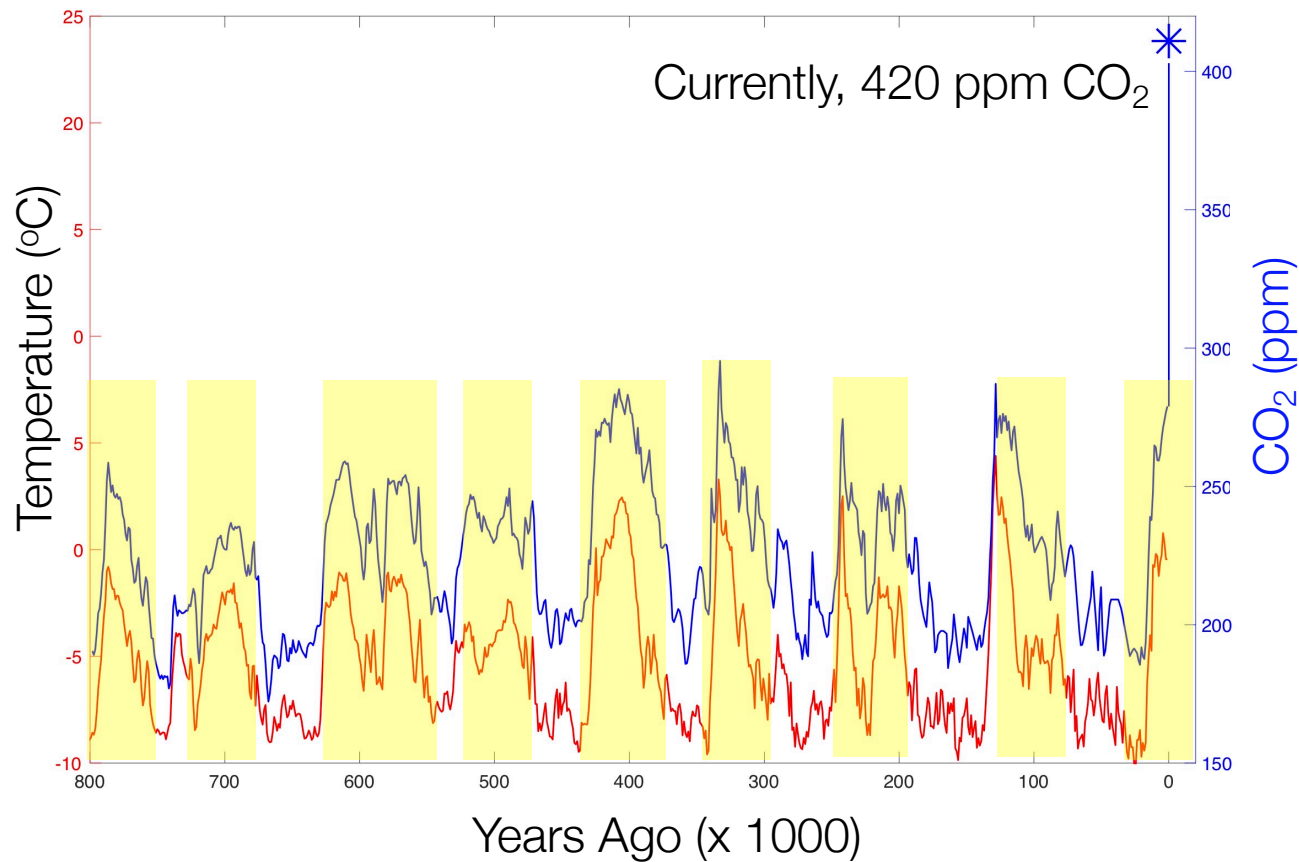
www.gyclimate.org

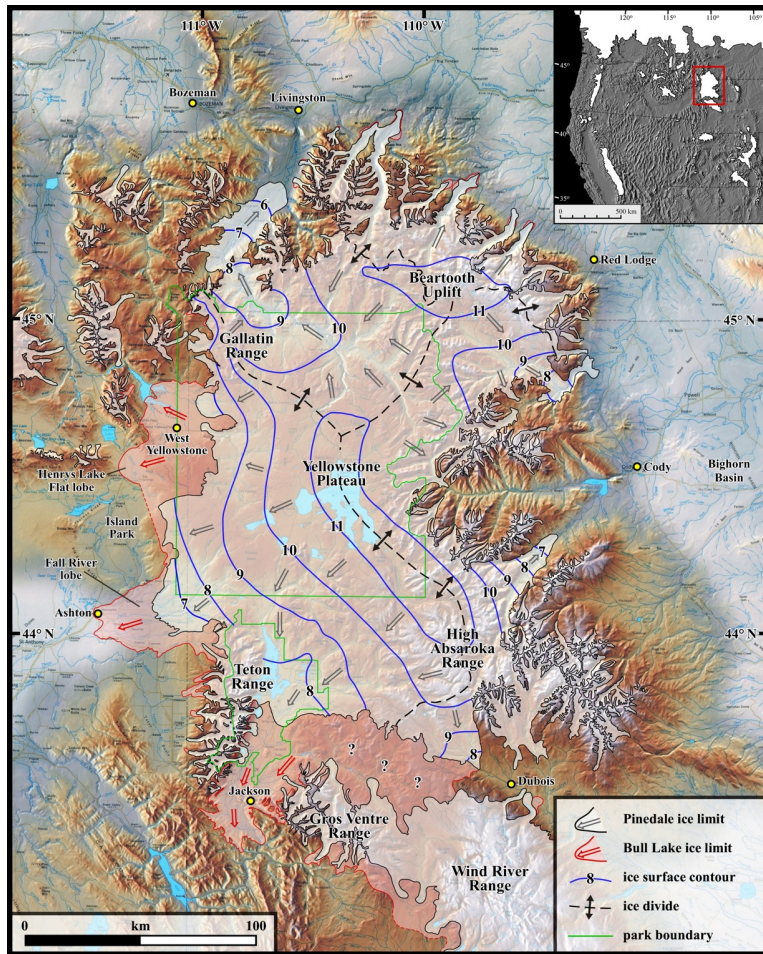
IS THE PAST THE KEY TO THE FUTURE?





800,000 years of Climate Change



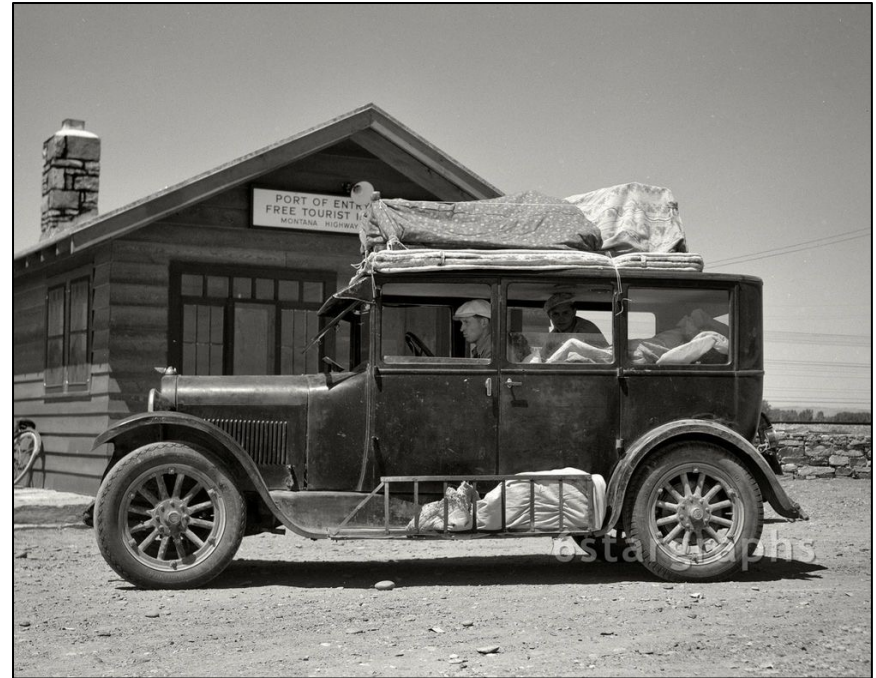
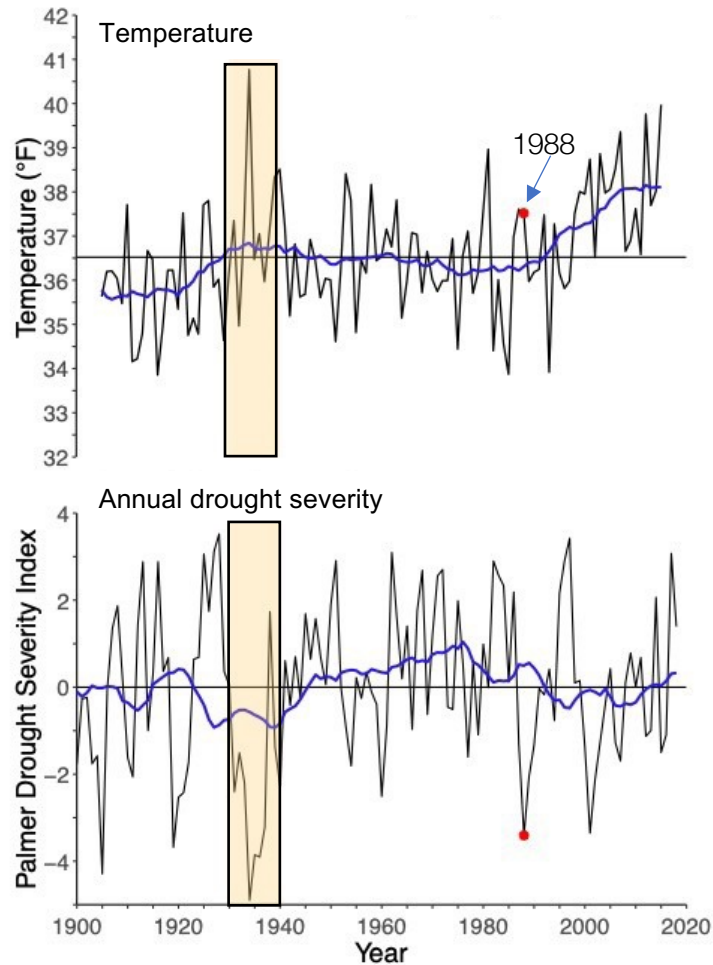


9-10°F warming to end an ice age

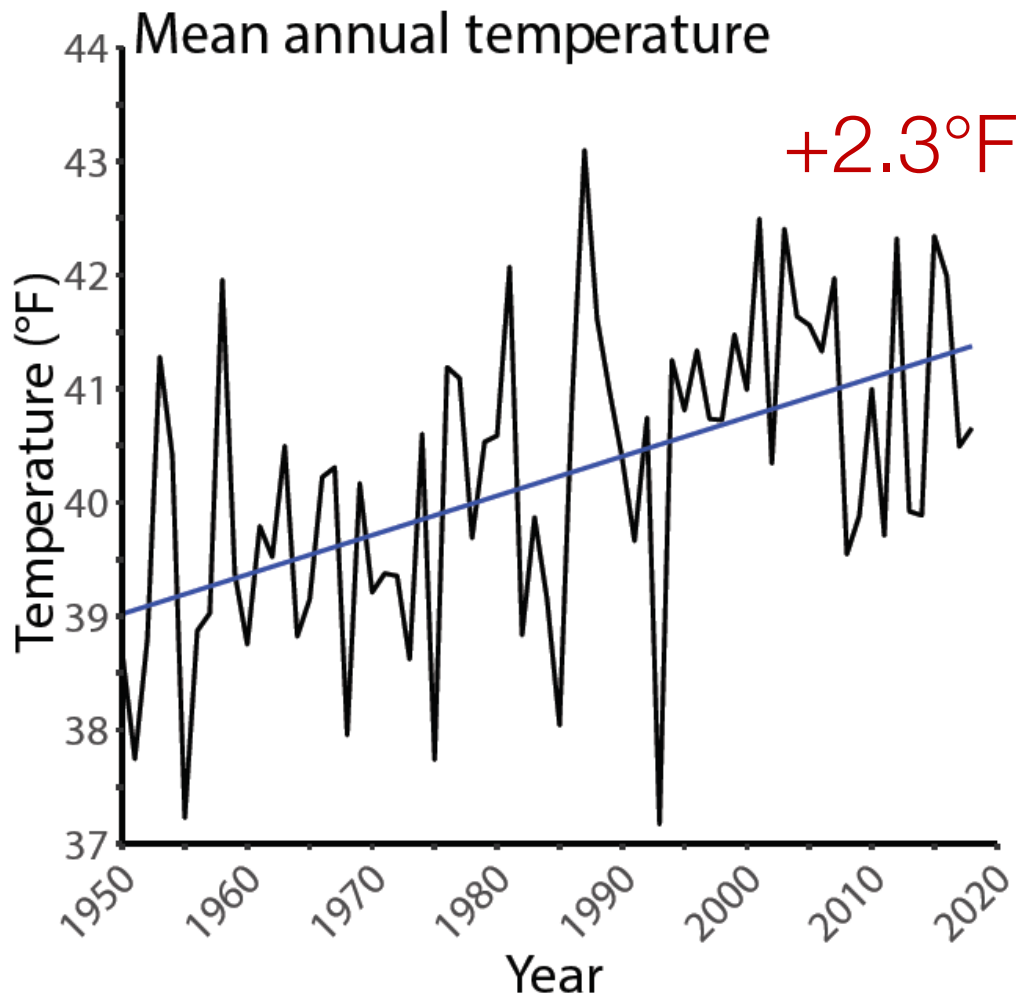
Old Faithful
stopped during a
megadrought in
1233-1362



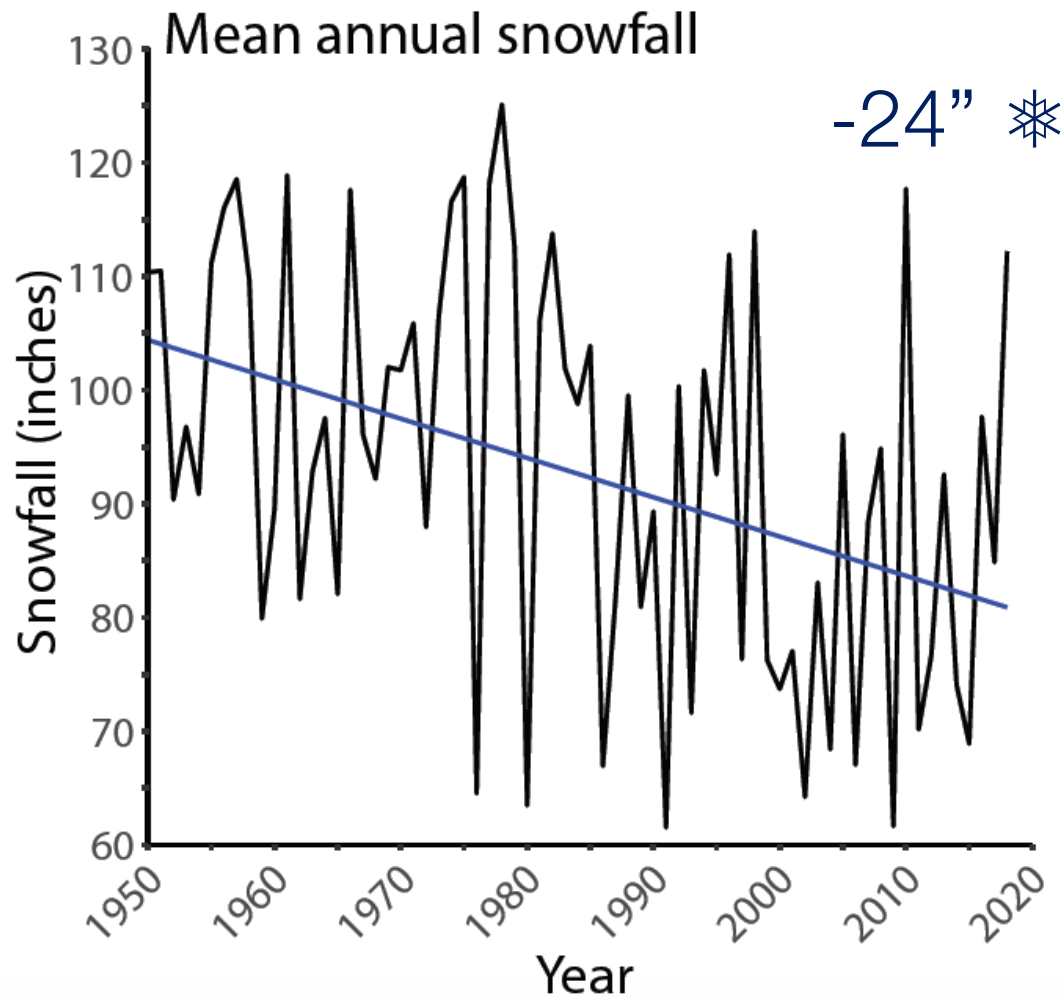
Dust Bowl vs Present



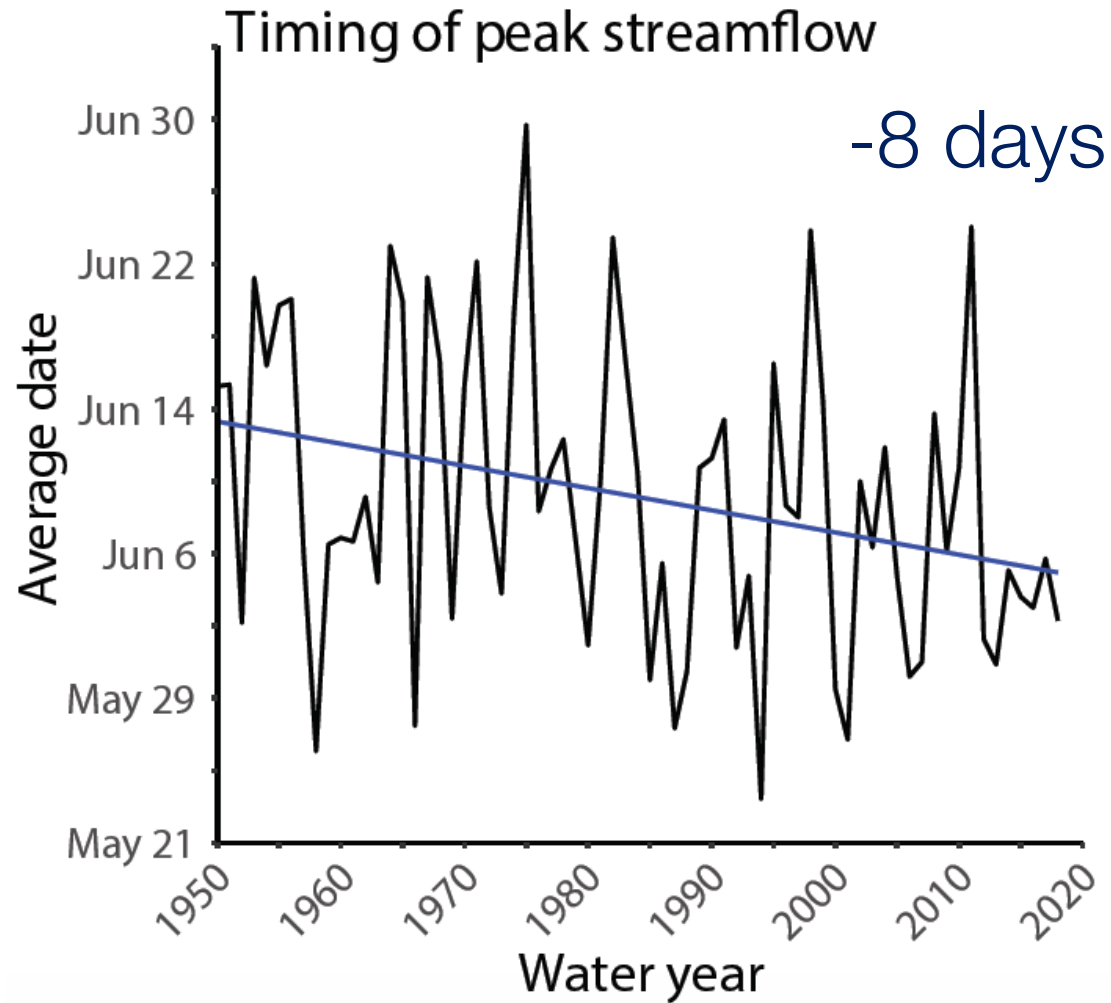
Since 1950



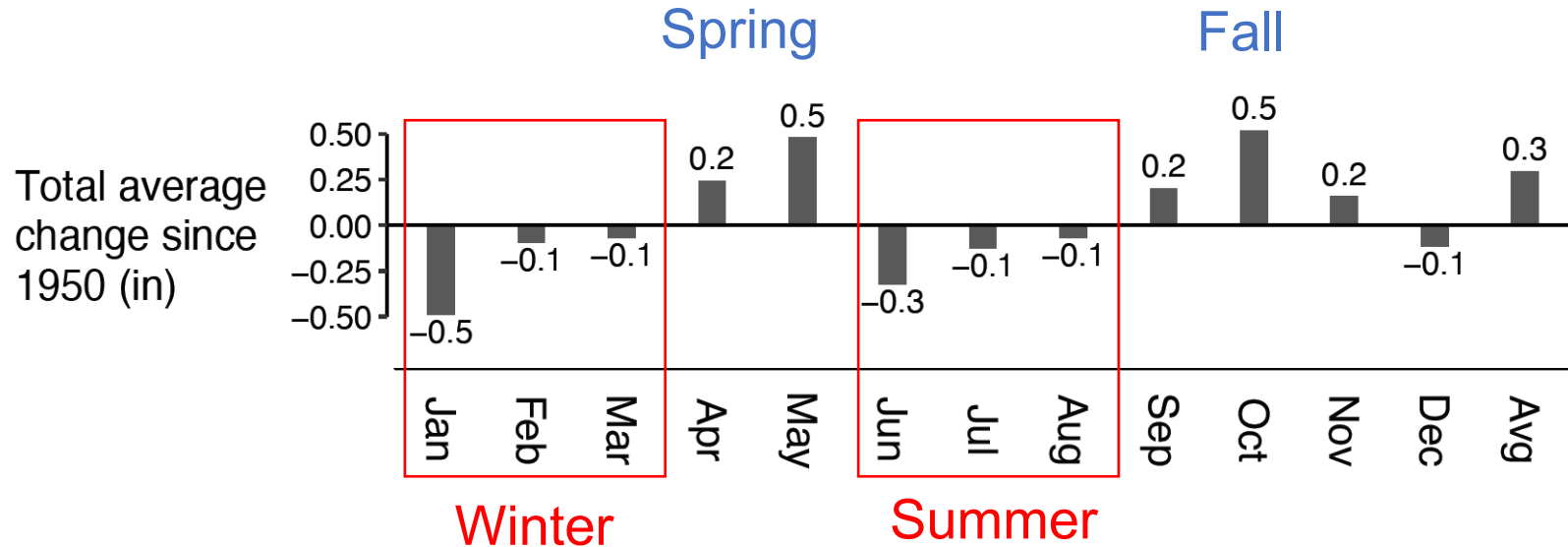
Since 1950



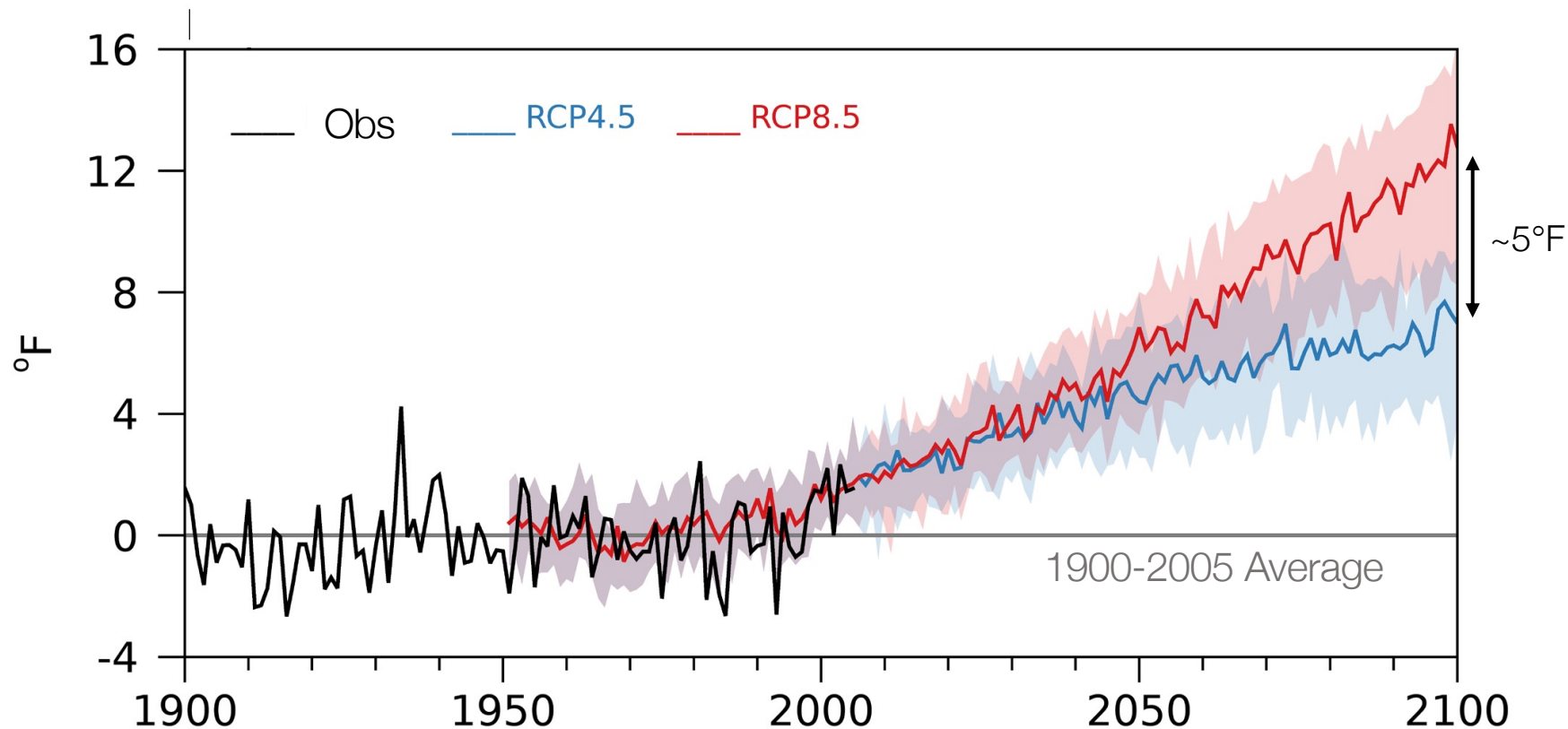
Since 1950



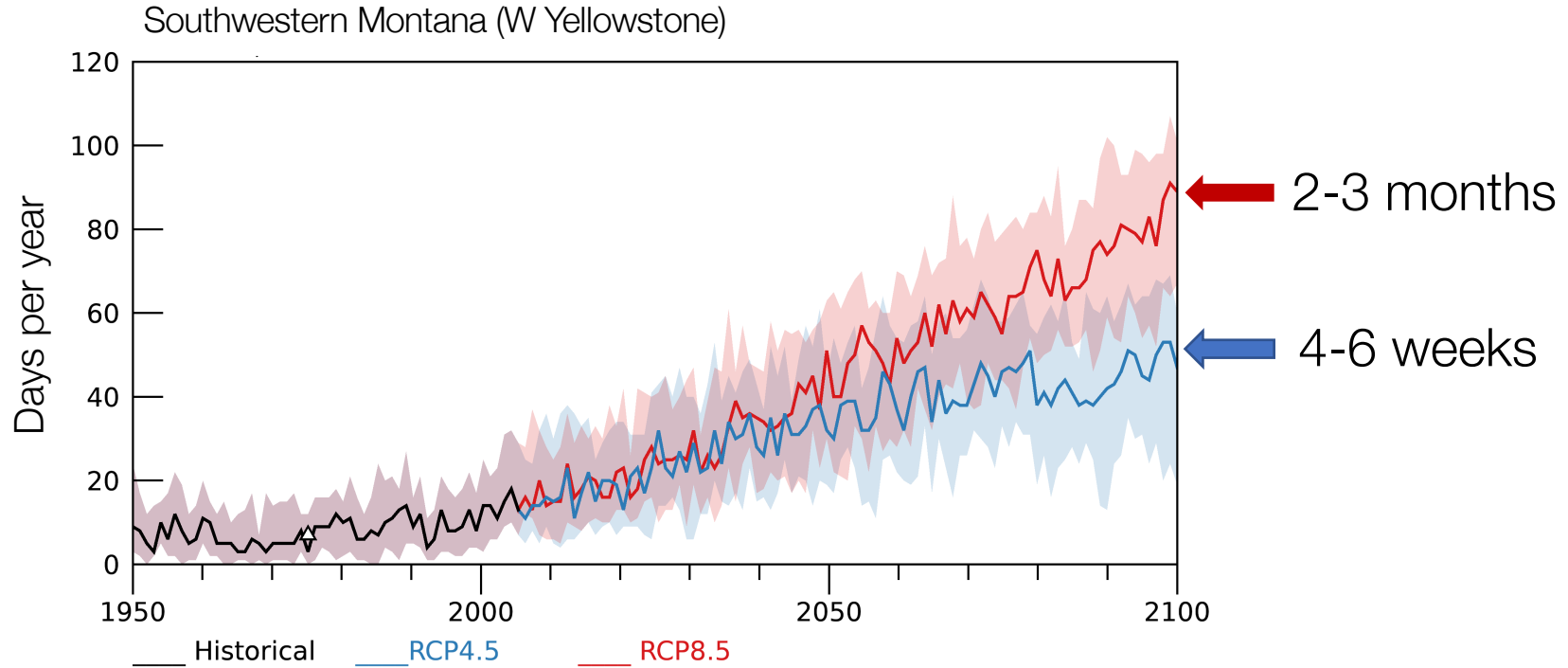
Precipitation timing has changed since 1950



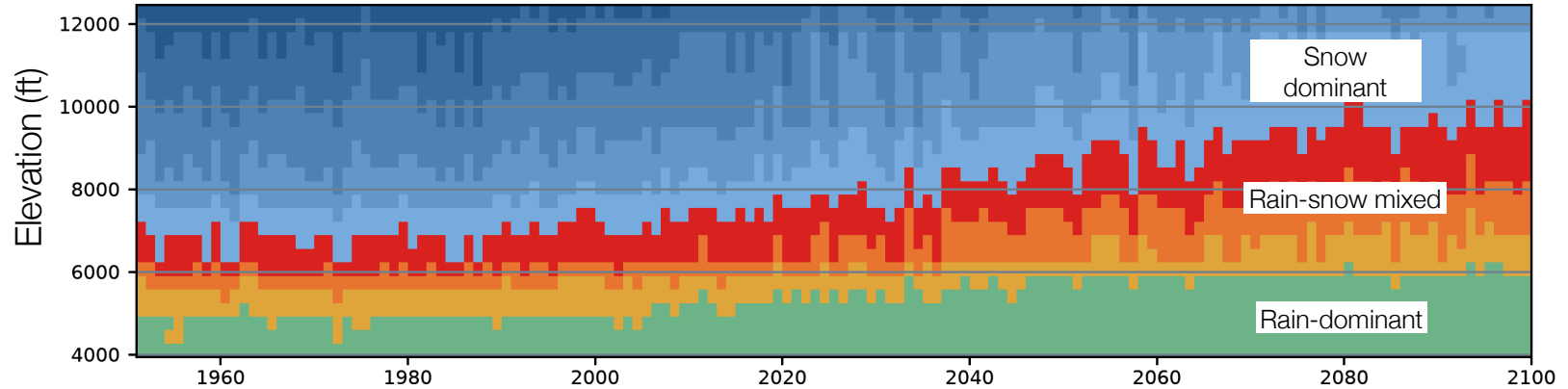
Annual Temperature Departure in Greater Yellowstone



Number of Days over 90°F

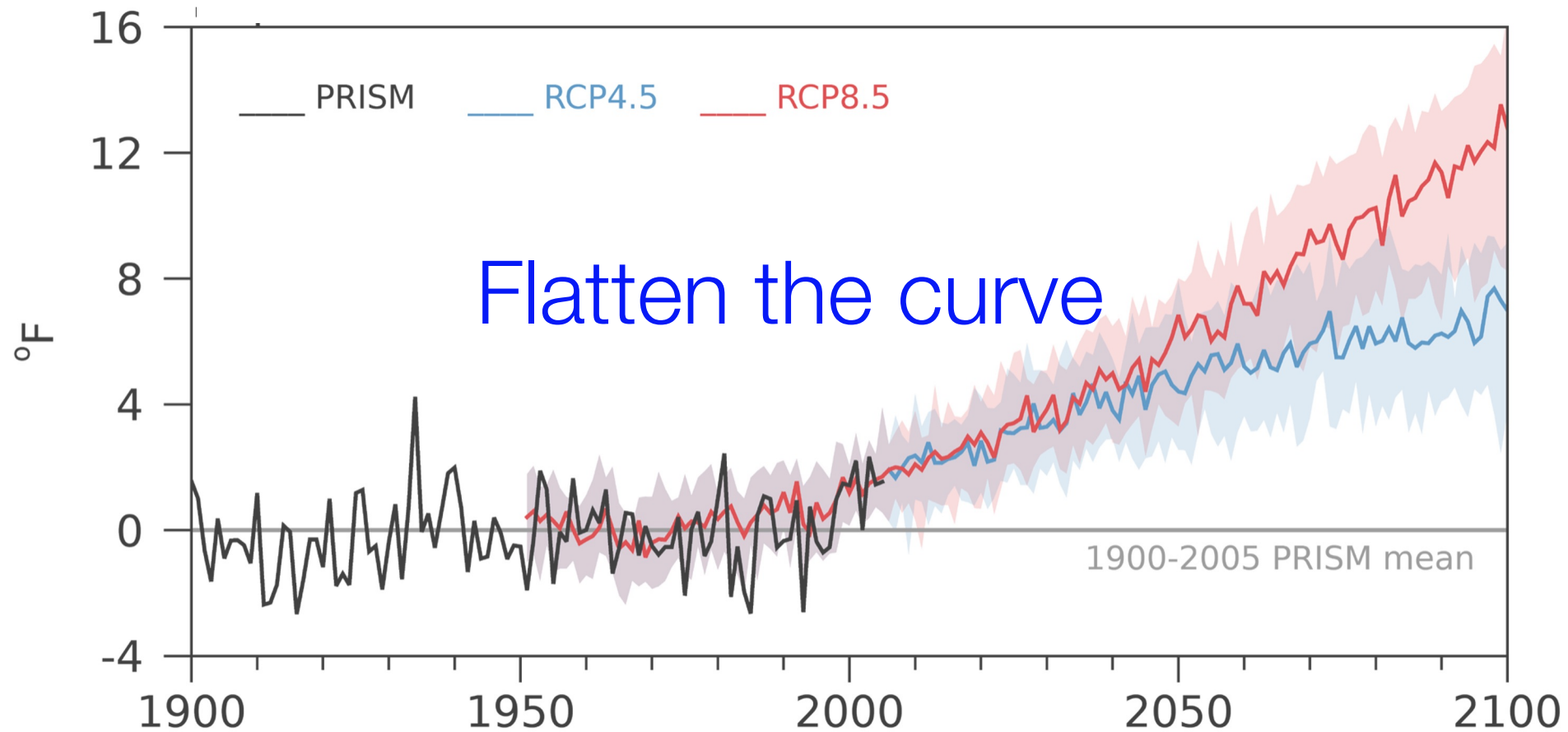


Snow-to-rain Transition (RCP4.5)

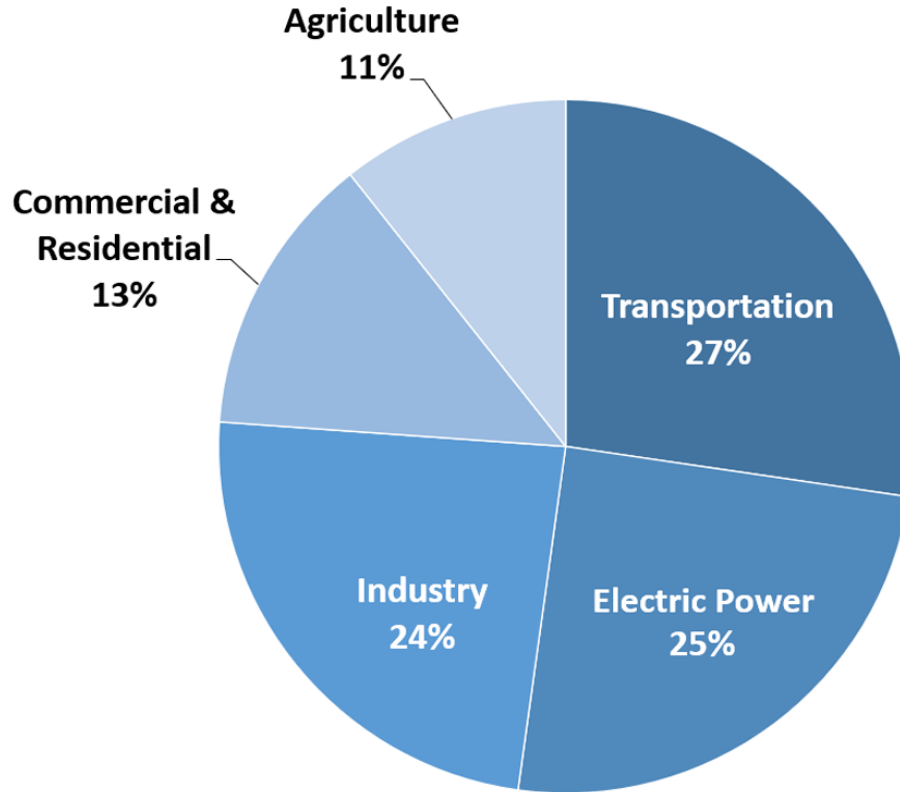




WHAT DO WE DO?



Total U.S. Greenhouse Gas Emissions by Economic Sector in 2020





Big Sky Community Climate Action Plan

Collaborating on Our Future

Prepared for
community
implementation by



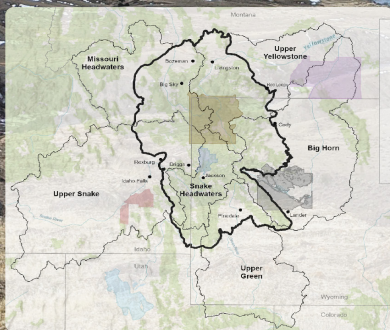
A photograph of a dirt road leading to a large metal roller, likely a land reclamation or erosion control device, situated in a grassy field. The road is muddy and leads towards the roller, which is partially obscured by tall grass. In the background, there are rolling green hills under a clear sky.

Plan for change
Leave no one behind

June 2021 | www.gyclimate.org

GREATER YELLOWSTONE CLIMATE ASSESSMENT

*Past, Present, and Future Climate Change
in Greater Yellowstone Watersheds*



gyclimate.org



2017 MONTANA CLIMATE ASSESSMENT

Stakeholder driven, science informed

montanacclimate.org

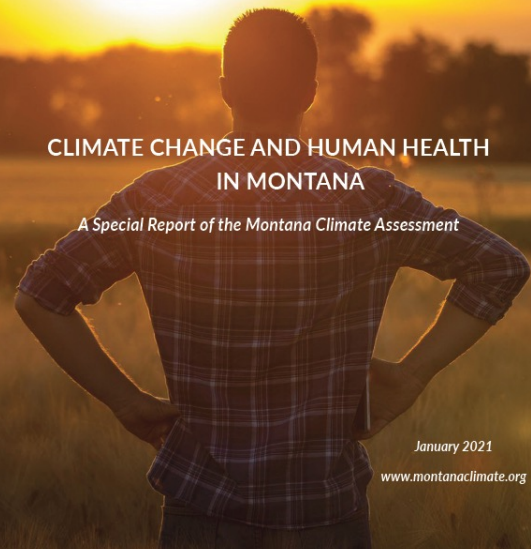


montanacclimate.org



CLIMATE CHANGE AND HUMAN HEALTH IN MONTANA

A Special Report of the Montana Climate Assessment



January 2021

www.montanacclimate.org



Center for American Indian
and Rural Health Equity

