United States Department of Agriculture

Minnesota STAC Update

Midwest Climate Hub
Northern Forests Climate Hub

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Introductions

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USDA Climate Hubs

Adaptation in Action

The Climate Hubs and their partners support USDA's Climate Adaptation and Resilience Plan connecting science and practice through place-based resources.

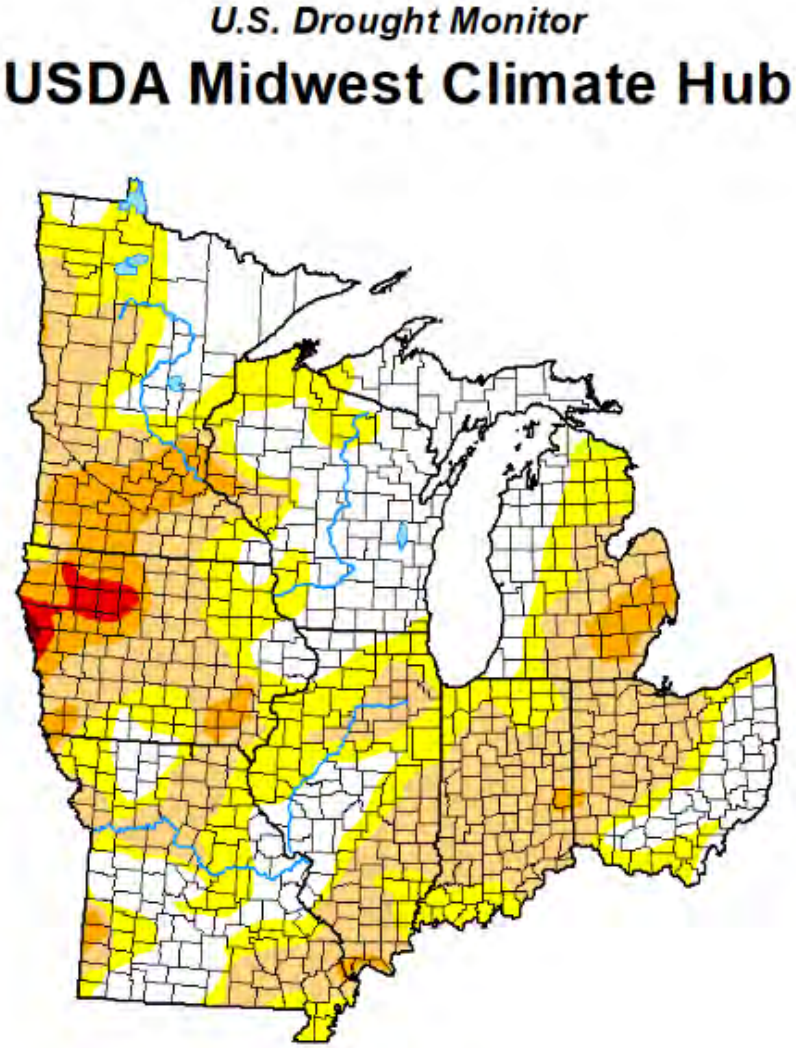
- Formed in 2014 by Secretary Vilsack
- 10 Regional Climate Hubs - all of US and Territories
- Collaboration between ARS, FS, and NRCS
- Deliver science-based, regionally specific information, tools, and practices to assist producers in achieving their goals in today's climate
- Help farmers and foresters adjust and adapt to climate change by demystifying the concept and supporting climate-informed decision-making to stay profitable
- Focused on what's happening now

www.climatehubs.usda.gov

Midwest Climate Hub Service Area

About the Midwest Climate Hub

Our goal is to provide information that will help producers cope with climate change through linkages of research, education and extension partnerships. Encompassing Michigan, Ohio, Wisconsin, Minnesota, Iowa, Missouri, Indiana and Illinois, this region represents one of the most intense areas of agricultural production in the world with a wide array of products.



Midwest Climate Hub Mission Statement

The mission of the Midwest Climate Hub is to develop science-based, region-specific information and technologies alongside USDA agencies and partners, and deliver these products to agricultural and natural resource managers that enable climate-informed decision-making. This is in alignment with the USDA mission to provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management.

Midwest Climate HUB Resources Available

Animals

Bioenergy

Carbon

Grazing Lands

Greenhouse Gases

Pollinators

Soil

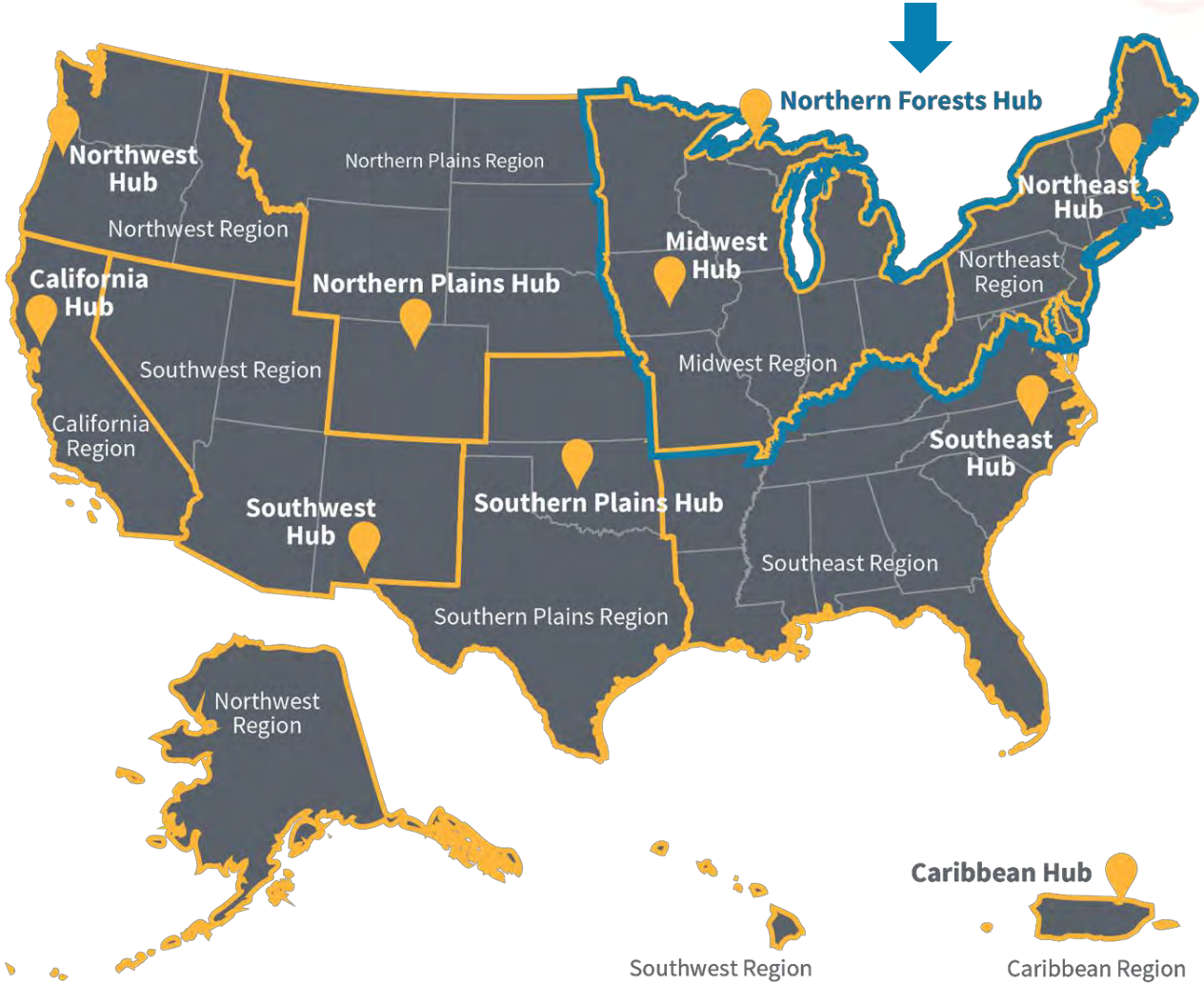
Urban

Water

Natural Resources Conservation Service

nrcs.usda.gov/

USDA Northern Forests Climate Hub



Quick Facts

USDA Northern Forests Climate Hub:

Special focus on forest and ecosystems land management

Supports two Regional Hubs

20 states across NRCS Northeast and Central regions

- 42% forested
- 41% of US population
- >70% privately owned

Climate Services

- Assessment
- Practical resources
- Technical assistance

Supported by

NIACS NORTHERN INSTITUTE OF APPLIED CLIMATE SCIENCE

Conservation Service

nrcs.usda.gov/

www.climatehubs.usda.gov/hubs/northern-forests

NRCS Climate Change Adaption Plan

- Climate Change Effects and Vulnerabilities
- Climate Change Adaption Actions

7 VULNER-ABILITIES

Climate change preparedness depends on a climate literate and capable workforce

7 VULNER-ABILITIES

The pace and intensity of climate change impacts may exceed existing conservation science, knowledge, and data systems

7 VULNER-ABILITIES

Shifting climate trends and increasing variability require nimble and comprehensive business processes that support adaptive conservation

7 VULNER-ABILITIES

Climate change impacts threaten the viability and longevity of current and future applied conservation investments

7 VULNER-ABILITIES

Climate change disproportionately impacts vulnerable communities

7 VULNER-ABILITIES

The scale and complexity of climate change demands broad and diverse partnerships

7 VULNER-ABILITIES

Increasing frequency, severity, and extent of disturbances pose risks to current agency infrastructure

TABLE 1: NRCS ADAPTATION ACTIONS TO ADDRESS CLIMATE CHANGE

VULNERABILITY	ACTION TITLE/ DESCRIPTION	TYPE OF ACTIVITY	LEAD OFFICE	TIMEFRAME	COORDINATION	PROGRESS METRICS	ACCOMPLISHMENTS TO DATE
Vulnerability 1: Climate change preparedness depends on a climate literate and capable workforce	Establish a comprehensive Communications Strategy that evaluates audiences, prioritizes actions, and assesses performance.	Proposed and ongoing	Agency Climate Lead, All Deputy Areas, FPAC-BC Communications	2022 and continuous	All agency wide, with partnerships, cross walked with other USDA agencies,	Plan Developed, Action Items to be tracked	Strategy has been developed and will be continuously reviewed and improved
	Communicate with external clients to increase awareness of NRCS programs and services that support voluntary conservation efforts furthering climate-smart agriculture and forestry, and specifically those that build climate resilience, including through targeted outreach	Proposed and ongoing	Agency Climate Lead, All Deputy Areas and RC's, FPAC-BC Communications	2022 and continuous	All agency wide, with partnerships, cross walked with other USDA agencies	Communications toolkit will be developed and utilized by Sr. Leaders, STC and all NRCS Employees. Farmers.Gov will include climate adaptation and resilience information	Toolkit in progress
	Develop training	Proposed	Agency Climate	2022 with	USDA-NRCS	Training plan will	Climate Hubs have

Climate Change Adaptation Plan Implementation Working Groups

- Devised of 6 multi-disciplinary, agency cross-section groups
  - Climate Literacy
  - Collaboration and Communication
  - Science and Strategic Planning
  - Outcomes and Data Management
  - Policy Development
  - Management Strategy

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Inflation Reduction Act

Natural
Resources
Conservation
Service

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Inflation Reduction Act - Overview

- On August 18, President Biden signed the Inflation Reduction Act into law.
- The Inflation Reduction Act represents the single largest investment in climate and clean energy solutions in American history.
- Promote climate-smart agriculture by increasing access to conservation assistance.

Inflation Reduction Act - Overview

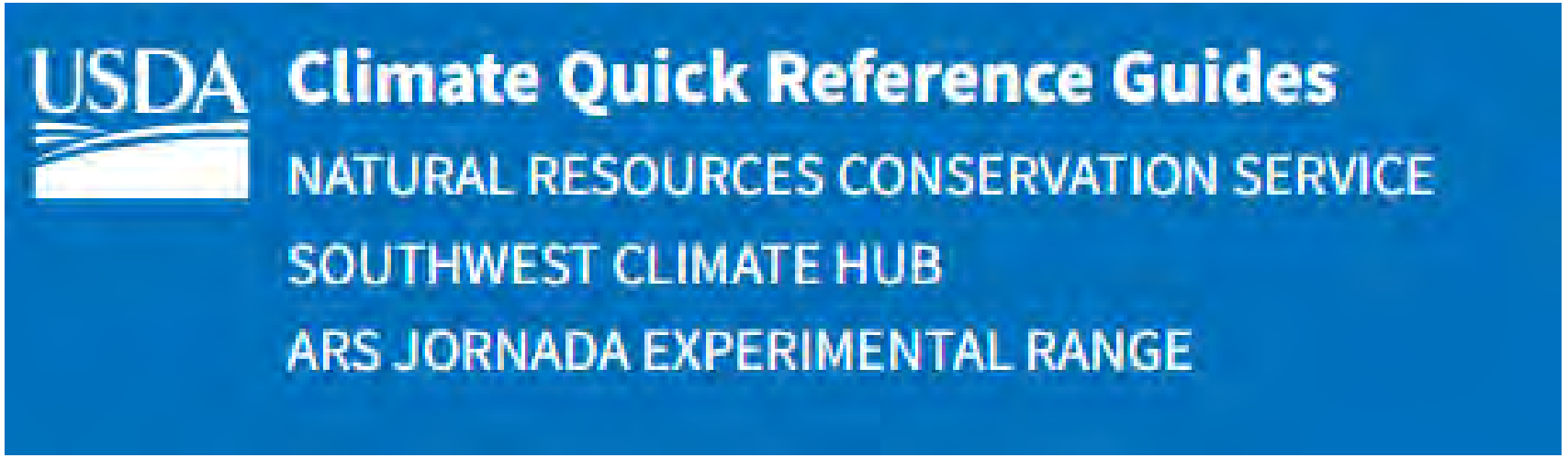
- The Inflation Reduction Act invests around $40 billion into existing USDA programs.

- Approximately $20 billion of this investment supports USDA's conservation programs within NRCS.

Inflation Reduction Act - Opportunities

- $8.45 B - Environmental Quality Incentives Program (EQIP)
- $4.95 B - Regional Conservation Partnership Program (RCPP)
- $3.25 B - Conservation Stewardship Program (CSP)
- $1.4 B - Agricultural Conservation Easement Program (ACEP)
- $1 B - Conservation Technical Assistance (CTA)

- USDA will be immediately focused on FY23 implementation, while also continuing to further expand capacity in the years ahead.



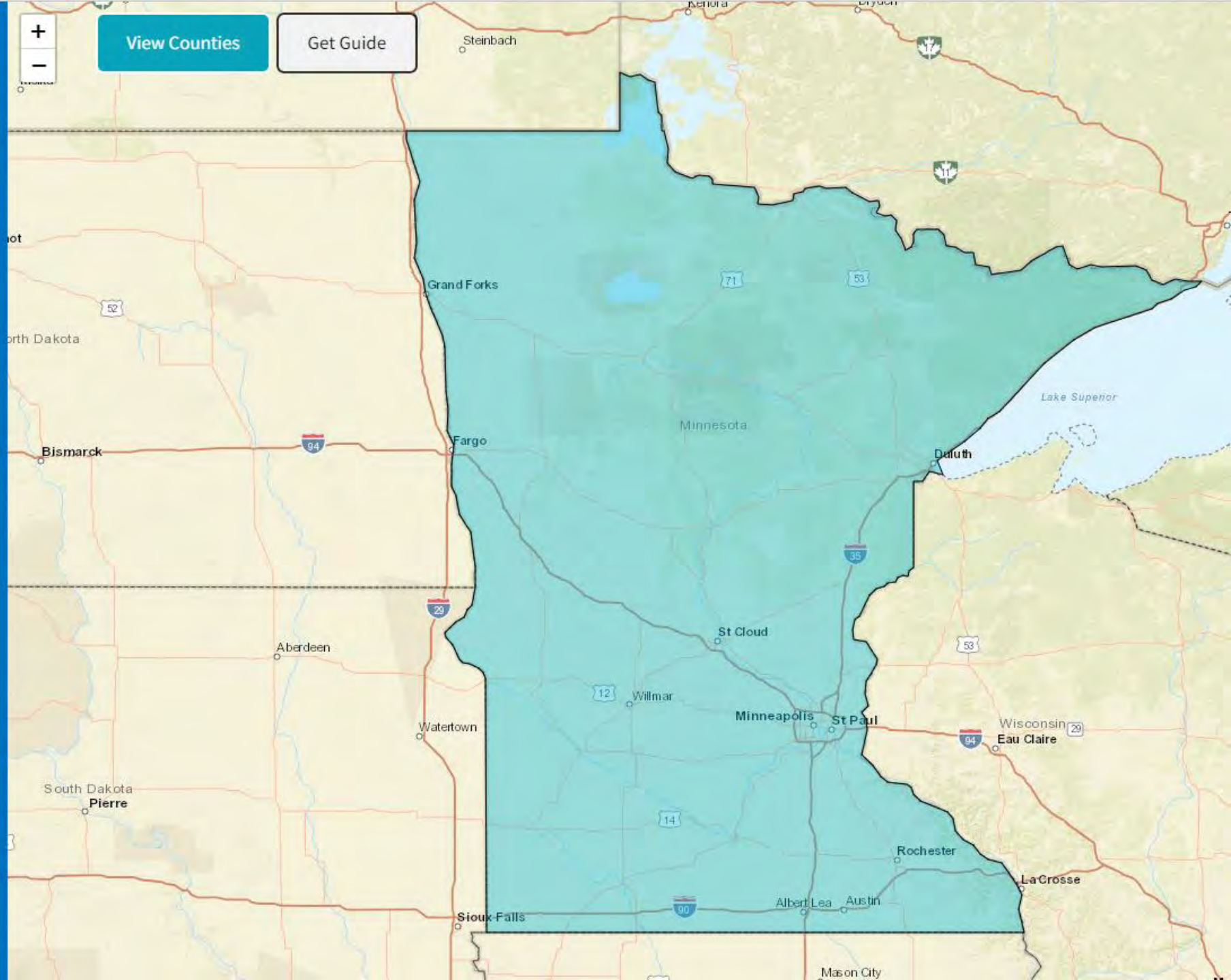
Climate Quick Reference Guide

Climate Quick Reference Guides

NATURAL RESOURCES CONSERVATION SERVICE
SOUTHWEST CLIMATE HUB
ARS JORNADA EXPERIMENTAL RANGE

Minnesota

Select a state or county. Then click on Get Guide to view the Climate Quick Reference Guide for that selection.

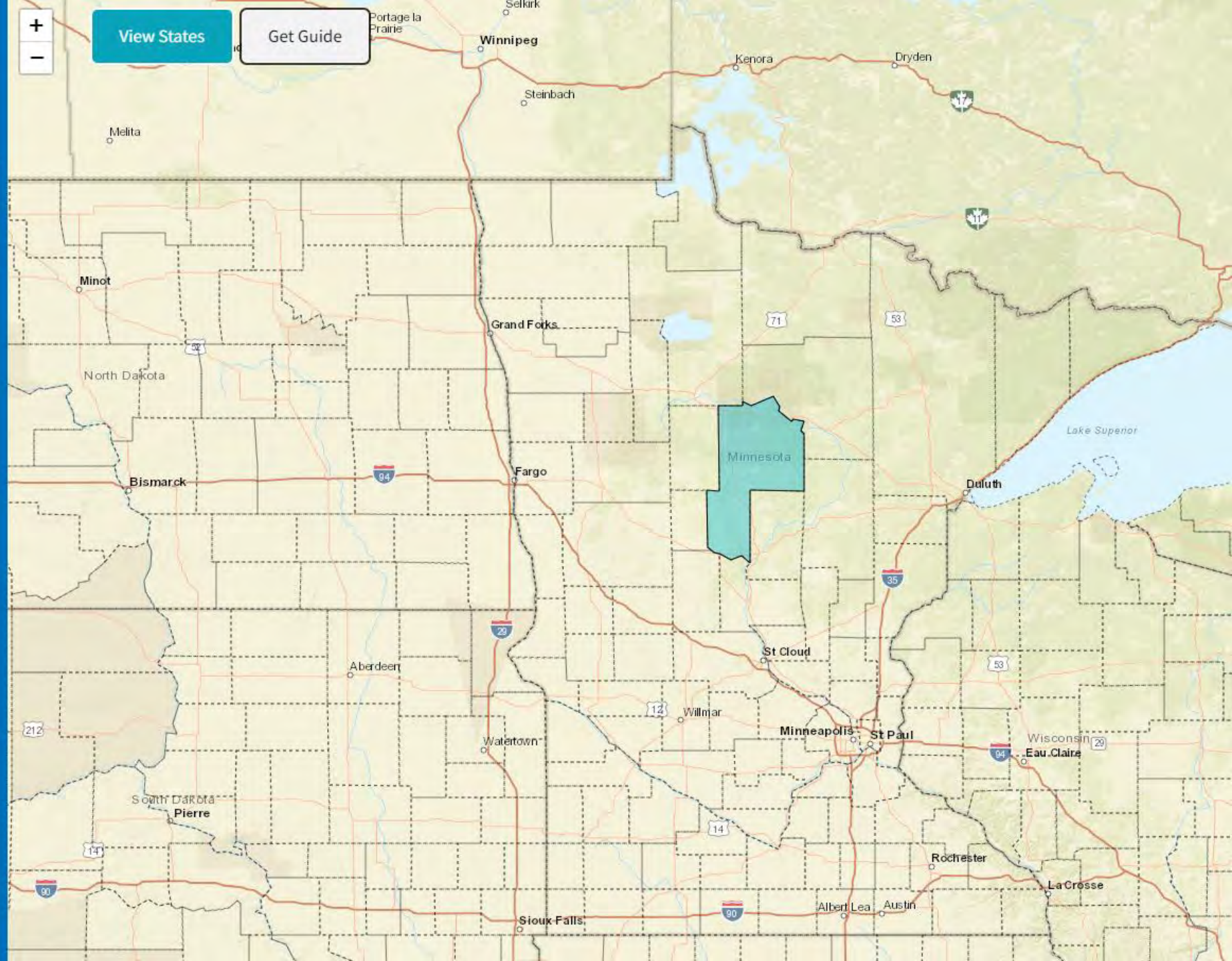


Climate Quick Reference Guides

NATURAL RESOURCES CONSERVATION SERVICE
SOUTHWEST CLIMATE HUB
ARS JORNADA EXPERIMENTAL RANGE

Cass County, Minnesota

Select a state or county. Then click on Get Guide to view the Climate Quick Reference Guide for that selection.



USDA Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE
Southwest Climate Hub

Minnesota
Cass County
2022

Climate Quick Reference Guide:

Historic Changes 1900 - 2020

- Since 1998, Minnesota has experienced 8 of its 10 warmest years on record. This warming has been concentrated in the winter, while summers have not warmed as much.
- Since 2000, the number of very heavy rains (6 inches or more in a day) has been 2 to 3 times higher than in the 20th century.
- Total annual precipitation in Minnesota has been above the long-term (1895–2020) average since 1990.

Projected Changes 2041 - 2070

- Even under a lower emissions pathway, annual average temperatures are projected to most likely exceed historical record levels by the middle of this century.
- Annual average precipitation is projected to increase, with increases most likely occurring in winter and spring.
- Recent events demonstrate the likelihood of simultaneous increases in both flooding and drought severity within the state.

Climate and Weather Information Resources

Maps and graphs that show climate changes and projections for your location:

https://climatetoolbox.org or
https://www.ncdc.noaa.gov/cag/

Climate Change Adaptation and Information:

https://www.climatehubs.usda.gov/

Current and predicted drought conditions and resources:

https://www.drought.gov

NOAA State summaries of past and projected climate by State:

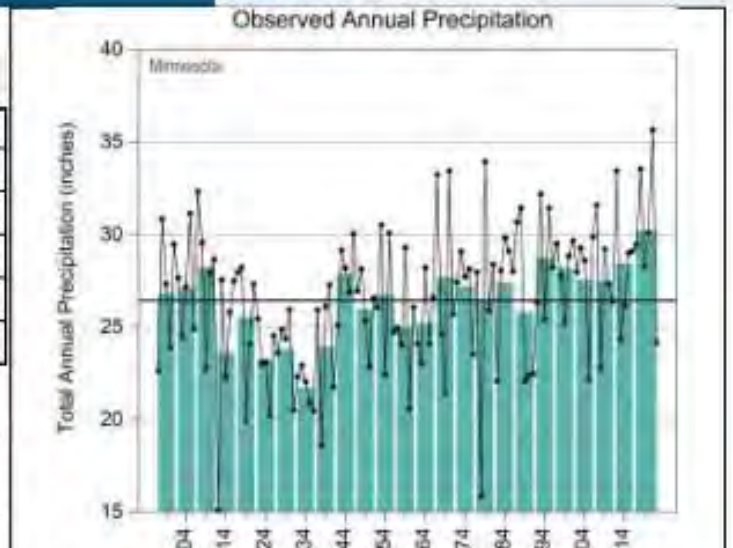
https://statesummaries.ncics.org
https://www.usda.gov/oce/energy-and-environment/climate

Data for: Cass County

	Max Temperature (Farenheit)			Max Precipitation (inches)		
Season	Current	Future	Change	Current	Future	Change
Spring	52.8	58.8	6.0	6.1	7.5	1.4
Summer	77.5	84.3	6.8	12.0	11.5	-0.5
Fall	52.3	59.0	6.6	6.9	7.7	0.8
Winter	21.6	28.4	6.8	2.1	2.5	0.4
Annual	51.0	57.6	6.6	27.1	29.2	2.1

https://swclimatehub.info/data/interactive-maps

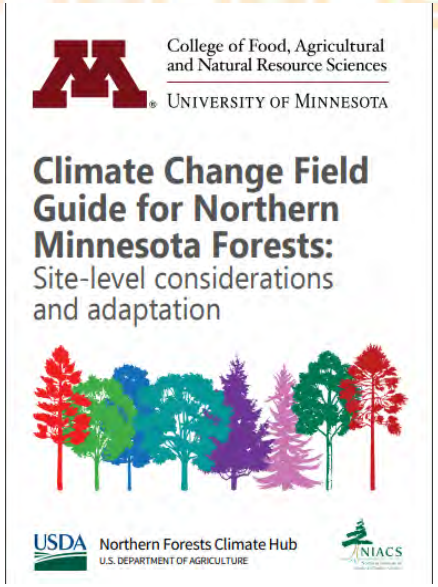
Seasonal and annual data was calculated using mean maximum temperature and precipitation to provide broad seasonal changes at the county scale to aid planning and management amid uncertainty. Current data comes from PRISM Climate Group 30 year normal data for the 1971-2000 time period. Future is derived from the CMIP5 data using the mid-century time period and higher emissions scenario (RCP 8.5).

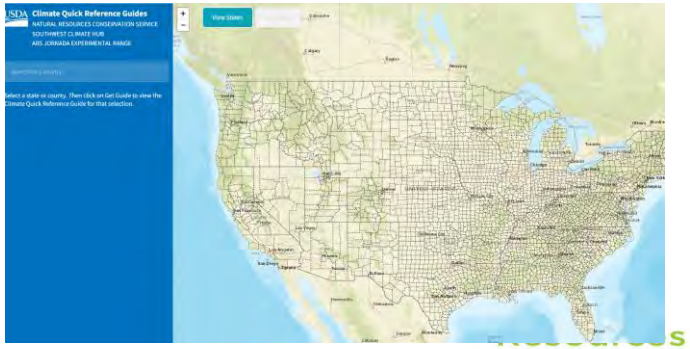


State-Specific Resources to Learn More

- Climate Quick Reference Guide
- NRCS Practices to Support Climate Change Adaptation
- Minnesota Forest Ecosystem Vulnerability Assessment
- Climate Change Field Guide for Northern Minnesota Forests: Site-level considerations and adaptation
- Northern Forests Vulnerability
- Explore Climate Impacts

- Midwest Climate Hub
- Northern Forests Climate Hub





National Resources to Learn More

- USDA Climate Hubs
- NOAA State Summaries
- US Fourth National Climate Assessment
- Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6)
- U.S. Forest Service Climate Gallery
- U.S. Forest Service Climate Change Pressures in the 21st Century