MRCC Resources to Assess Climate Patterns and Risk

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Midwestern Regional Climate Center

May 9, 2023

Data Matters.

We have tools to help you make decisions.

- Monitor regional climate conditions & impacts
- Provide climate data, derived information, and summaries
- Offer customized data services
- Research & outreach on regionally-relevant climate issues

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mrcc.purdue.edu

NOAA

PURDUE UNIVERSITY

Partnering with the National Centers for Environmental Information and Purdue University.

Operations Climatologist

- Full-time
- Entry-level
- West Lafayette, IN

Data request fulfillment, comms support, outreach & engagement, office admin

https://careers.purdue.edu/job/West-Lafayette-Operations-Climatologist-IN-47906/1016716600/

What We'll Cover Today

Snow Climatology Toolbox

Freeze Date Tool

Customized Chill Hours (sneak peek)

~~Soil Temperature Climatology~~

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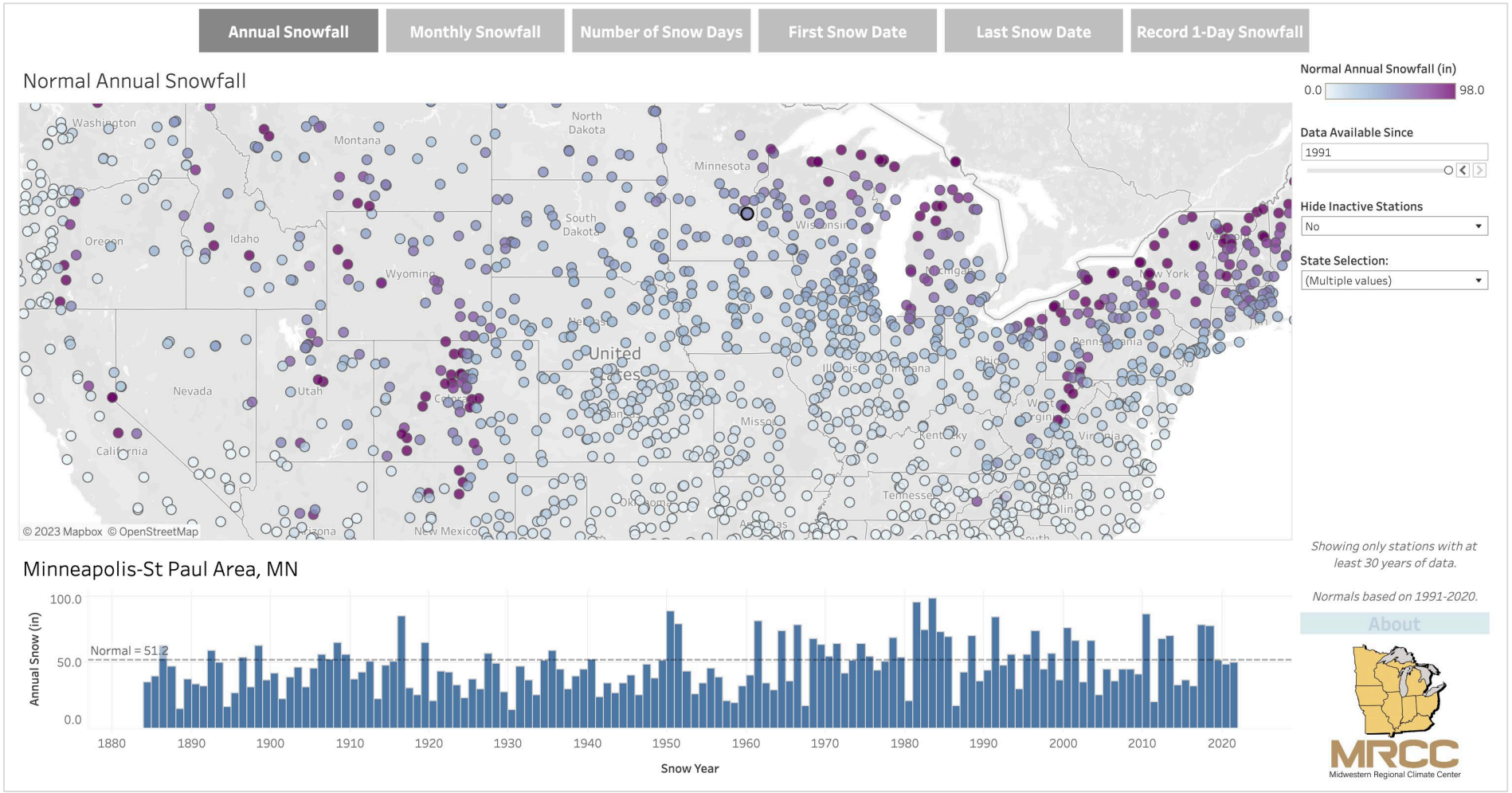
Snowfall Climatology Toolbox

Provides streamlined access to high-quality snowfall data across the entire US



https://mrcc.purdue.edu/mw_climate/snowfallClimatology/snowfallClimatology.html

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Snowfall Climatology Toolbox

Provides streamlined access to high-quality snowfall data across the entire US

Data Source

- Station-level data from ACIS
- Includes ThreadEx sites

Selection Criteria

- Reporting data since *at least* 1991
- Non-missing 1991-2020 daily climate normals
- Less than 5% missing data during likely snow season
- Less than 25% of years missing across full record

* Slightly different criteria than what's used in cli-MATE or XM-ACIS

https://mrcc.purdue.edu/mw_climate/snowfallClimatology/snowfallClimatology.html

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Snowfall Climatology Toolbox

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Other notable items

- Minimum snowfall amount is 0.1”
  - “Trace” measurements NOT included

- The tool displays whatever is in the official historical record
  - Erroneous or suspicious values can be investigated by NCEI

- This is a climatology that is updated annually
  - Does not include real-time tracking (yet)

- This is just version 1!
  - Have ideas for new features? Email mrcc@purdue.edu

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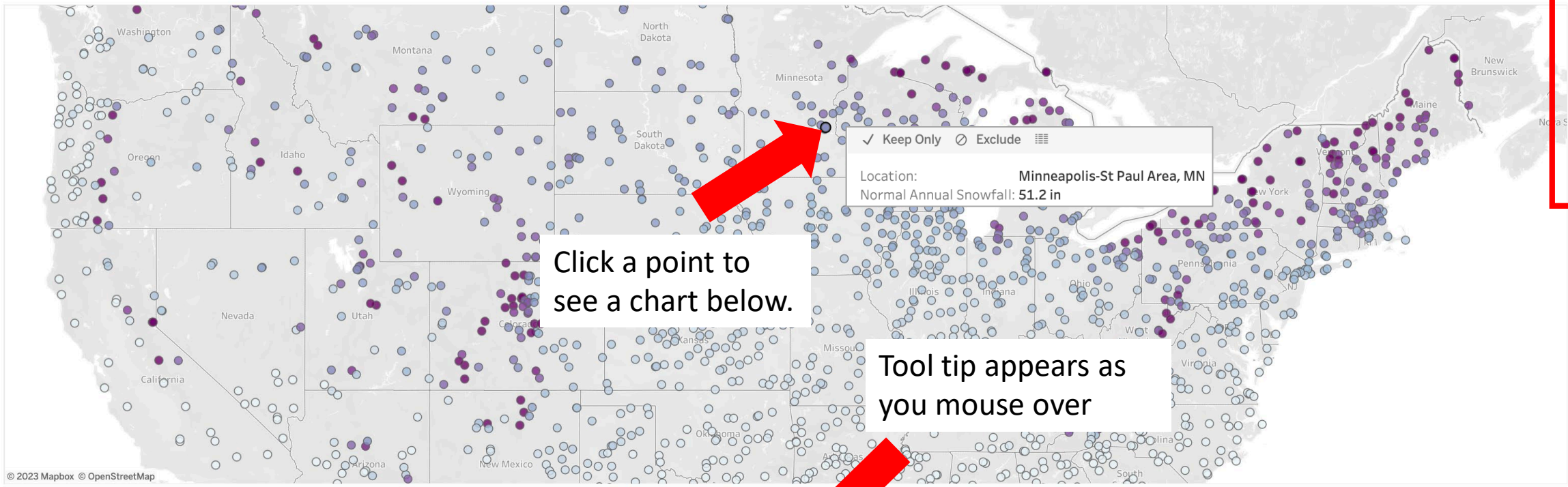
Snowfall Climatology Toolbox

Annual Snowfall | Monthly Snowfall | Number of Snow Days | First Snow Date | Last Snow Date | Record 1-Day Snowfall

Normal Annual Snowfall



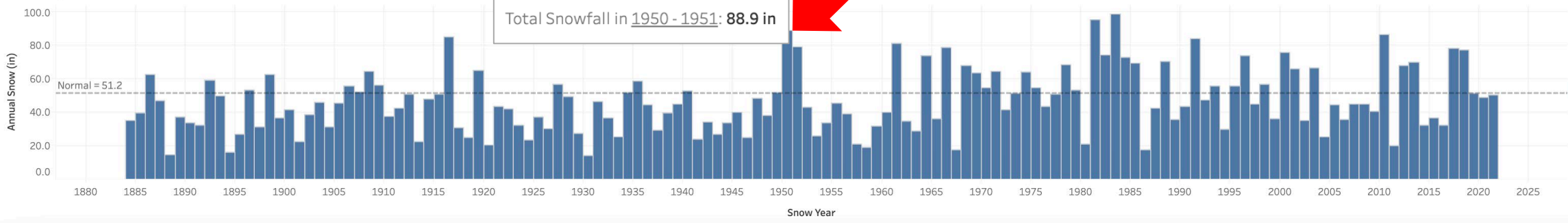
Normal Annual Snowfall (in)
0.0 98.0

Data Available Since
1991

Hide Inactive Stations
No

State Selection:
(Multiple values)

Minneapolis-St Paul Area, MN



Showing stations with at least ... of data.

Normals based on 1991-2020.

About

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On May 2, 2023 Herman, Michigan reported a 1-day snowfall total of 27”

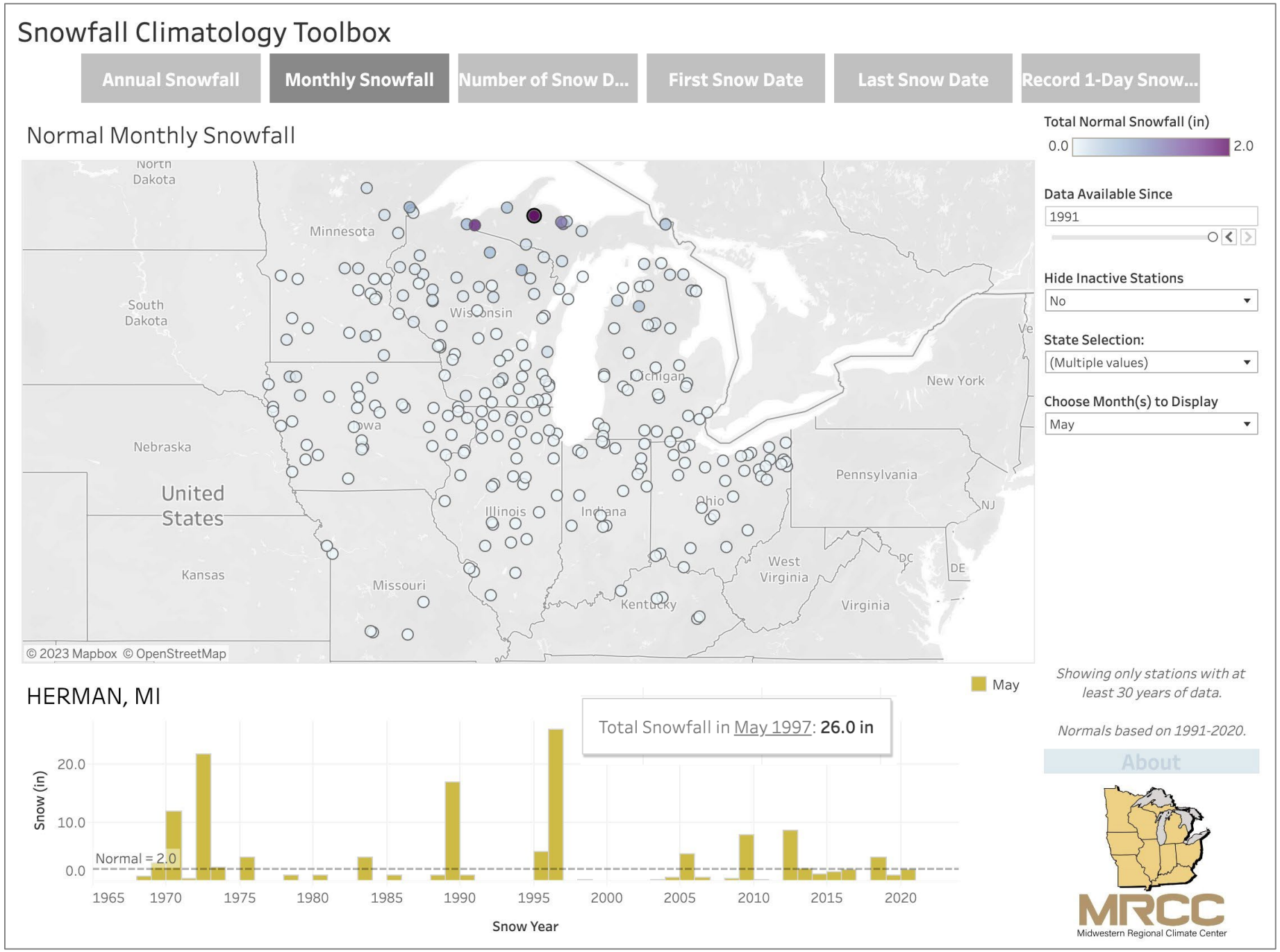
How much is “normal” in May?

Normal = 2”

What’s the highest May total?

New record!

Previous record was May 1996, 26”



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How much is “normal” in May?

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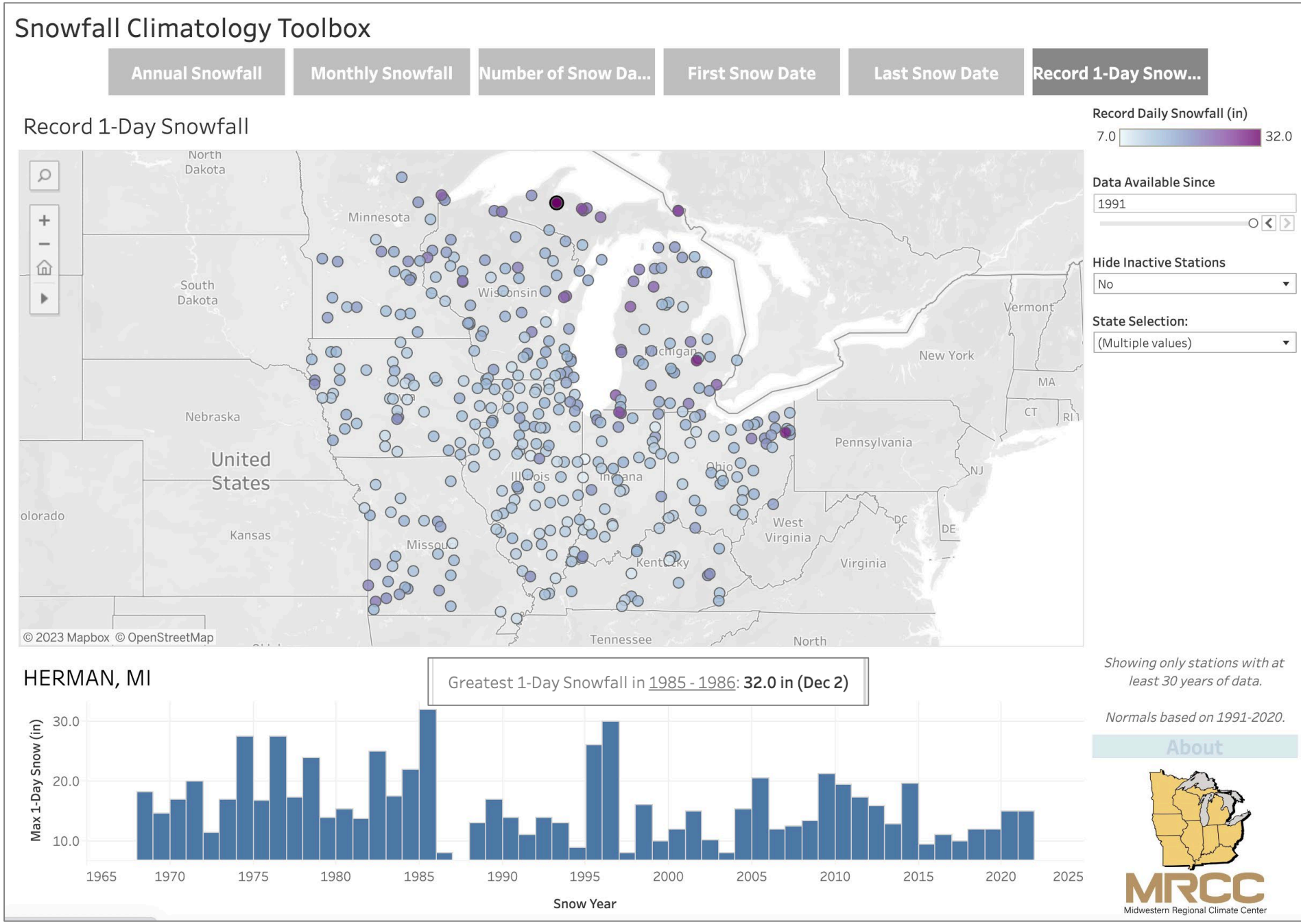
What’s the 1-day record?

32” on Dec 2, 1985

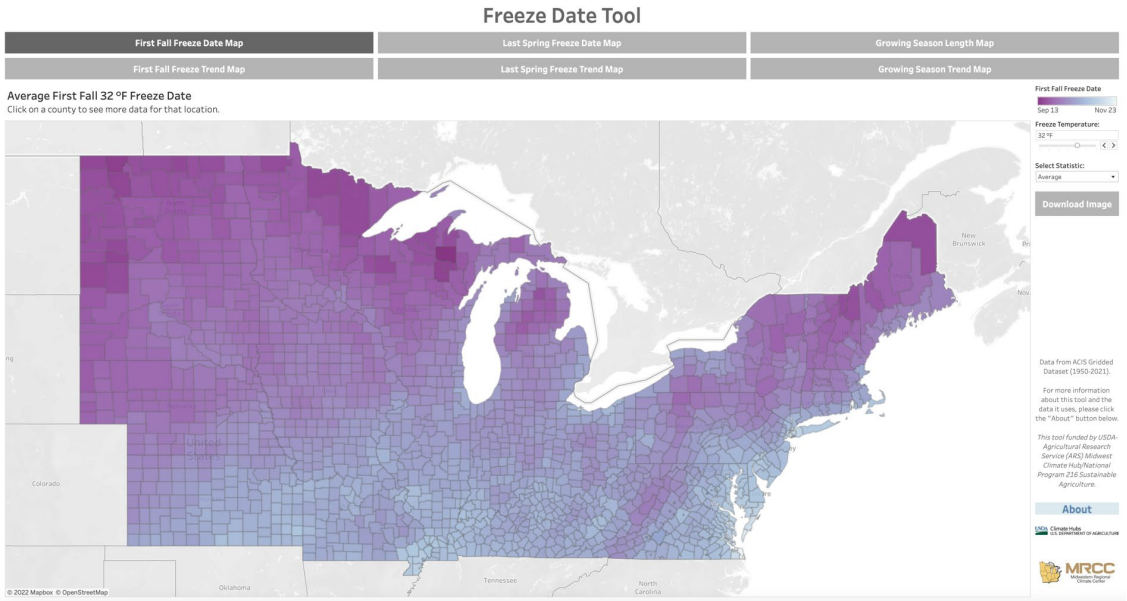
Largest 1-day total since 1996!



Freeze Date Tool

https://mrcc.purdue.edu/freeze/freezedatetool.html

Interactive tool lets you explore local first/last freeze date and growing season climatologies, and trends



USDA Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE

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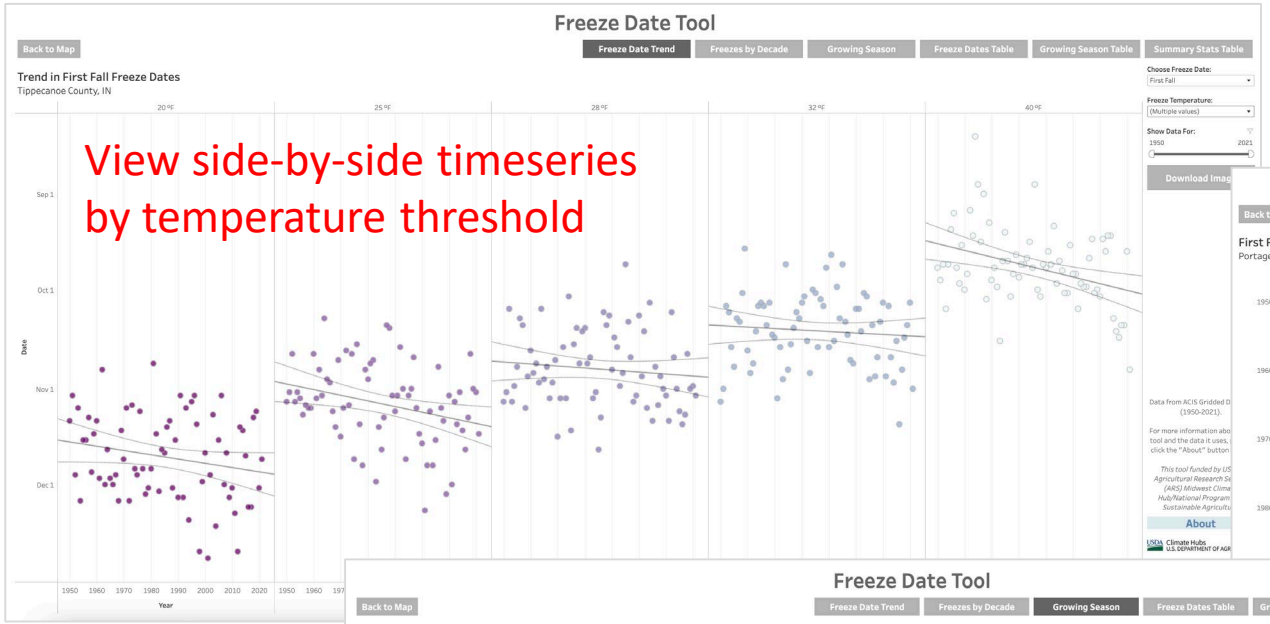
- County-level **gridded** data, 1950-2021
  - NRCC interpolated dataset in ACIS
- First fall freeze, last spring freeze, growing season length
  - Average, Early/late, Earliest/latest
  - Linear trend
- Customize freeze threshold from 20°F to 40°F
- Seamlessly move between regional maps and local charts

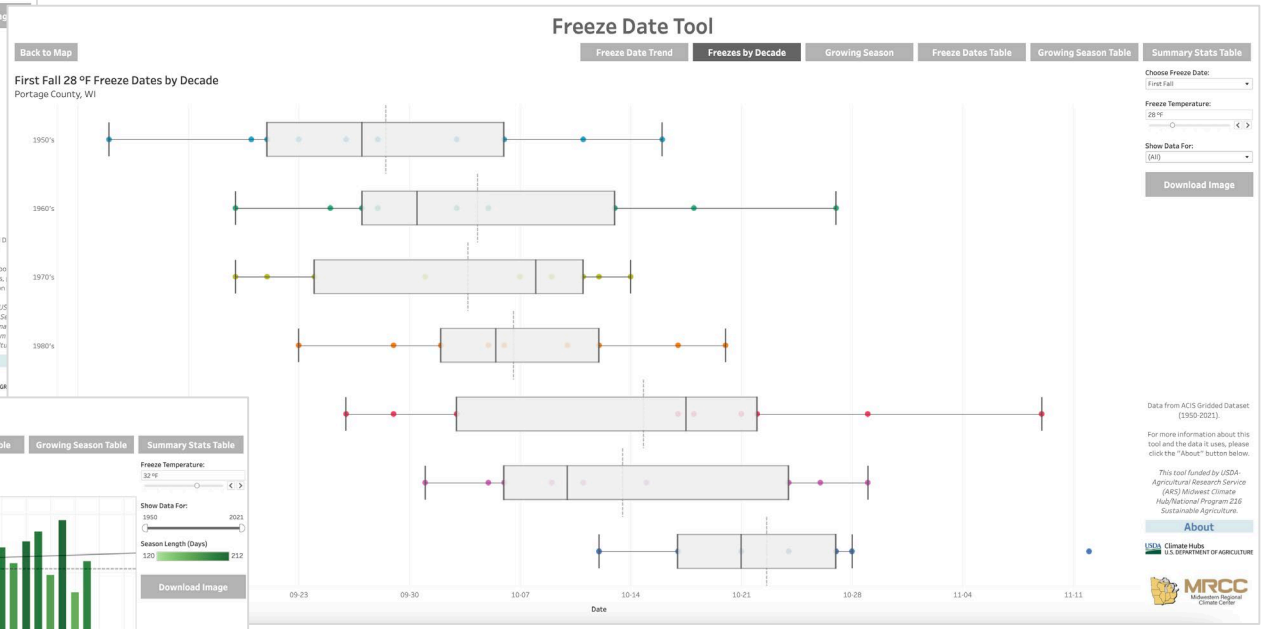
Freeze Date Tool

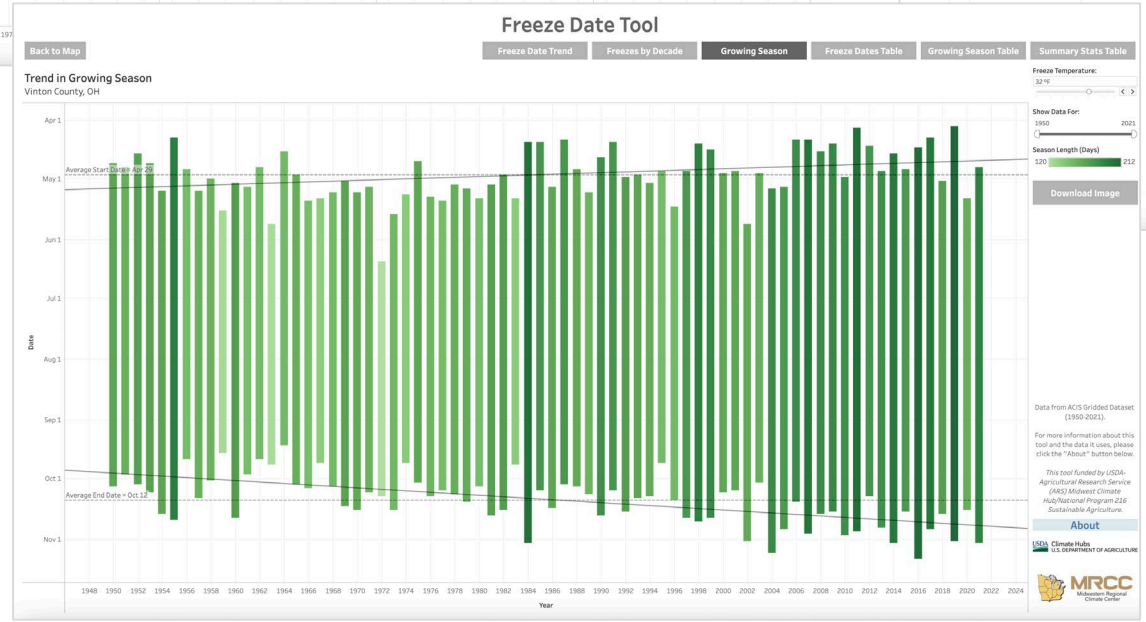
https://mrcc.purdue.edu/freeze/freezedatetool.html



View side-by-side timeseries by temperature threshold

View freeze data by decade



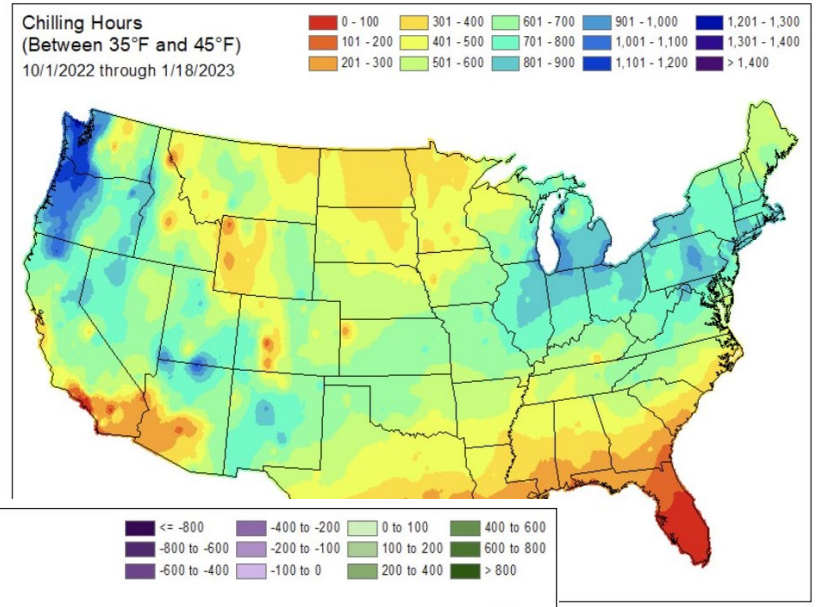


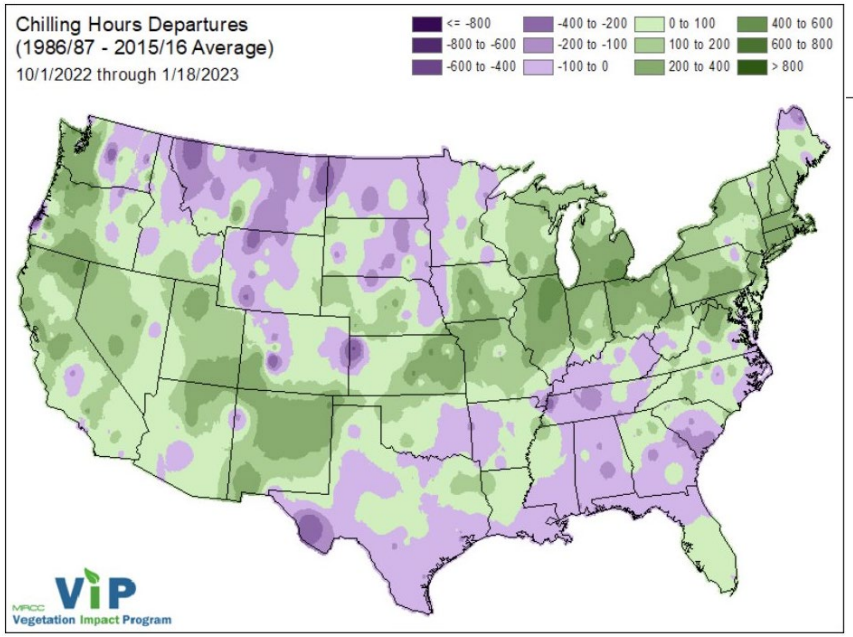
View timeseries showing length of growing season

Accumulated Chilling Hours

Fruit-producing plants must be exposed to optimum dormancy temperatures for a sufficient amount of time to have a productive growing season.

MRCC's Chilling Hours Maps lets you track cold-season chilling accumulation and departures from average.





LIMITATIONS

- Accumulation starts either Sept 1 or Oct 1
- Only tracks temps between 35°F to 45°F
- Current season only

https://mrcc.purdue.edu/VIP/indexChillHours.html

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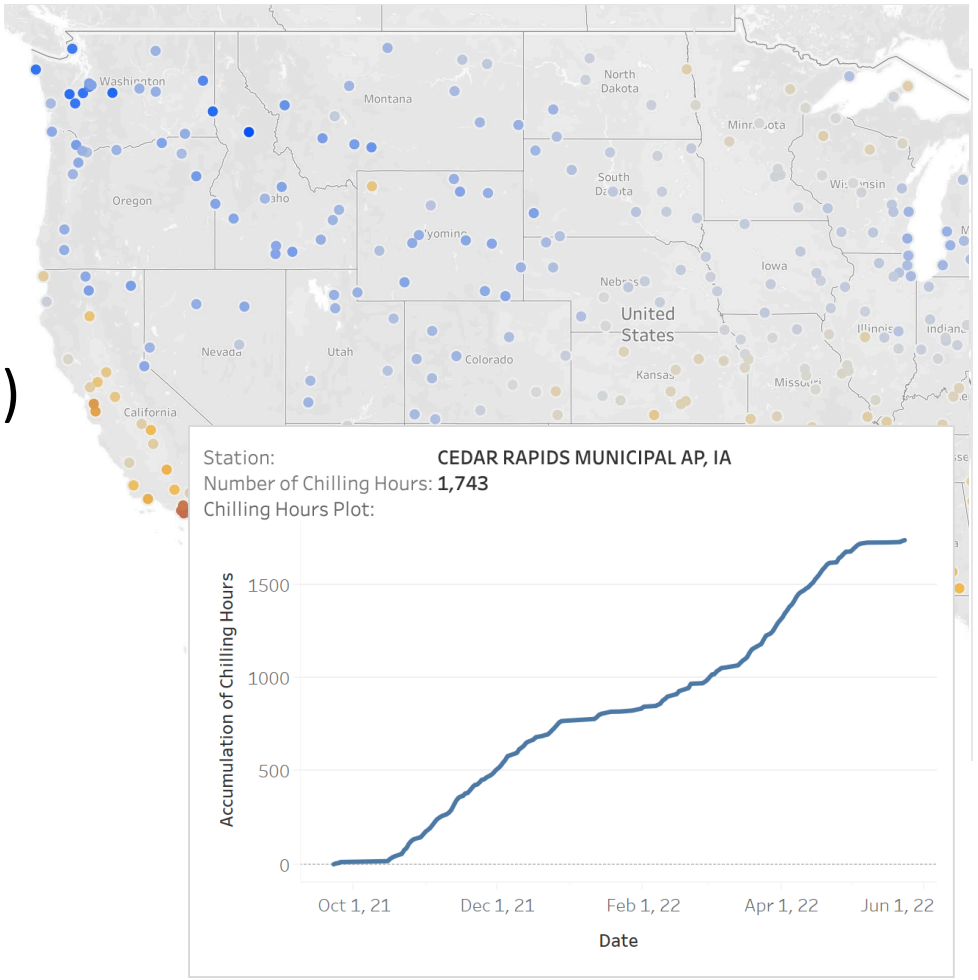
Accumulated Chilling Hours

Interactive Tool Coming in Late 2023!

- Temperature threshold
- Start/end accumulation period
- Track accumulation rates (timeseries)
- Real-time tracking
- View past years & climatology



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Thank you!

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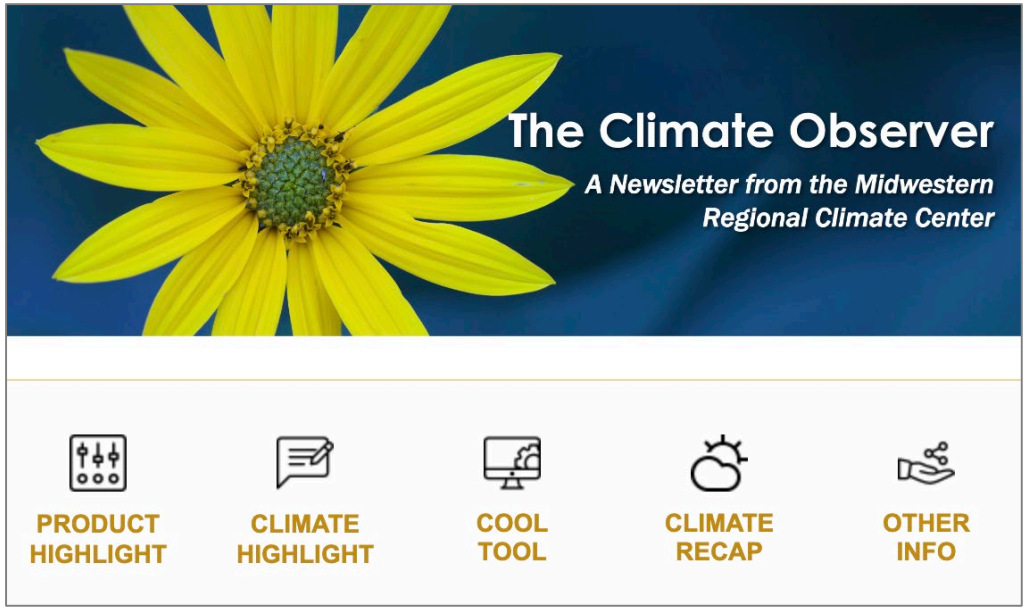
Stay Connected!



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https://bit.ly/3JrdUbJ

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