



Municipal Services - Water - Power & Light

***CITY OF INDEPENDENCE, MO
PUBLIC UTILITY ADVISORY BOARD***

**Public Utilities Advisory Board Meeting Minutes
February 15, 2024**

PUAB MEMBERS PRESENT

Les Boatright, Chairperson
Anthony Giaramita
Steve McLuckie
Sheri Tindle, Vice-Chairperson
Michael Talcott
Brad Chance

PRESENT FROM MUNICIPAL SERV.

Lisa Reynolds, Director

PRESENT FROM IPL

Joe Hegendeff, Director
Khristina Irvine, Asst. to the Director

OTHERS PRESENT

Lisa Reynolds, Interim Asst. City Manager
Stephanie Harris, Accounting Mgr. - F&A
Riley Newton, Asst. Comm. Mgr.

Steve Wagner, City 7

Chairperson, Les Boatright called the meeting to order at 2:30 p.m.

I. ROLL CALL

- A. Roll Call** - The board was able to establish a quorum. All members were present.
1. Approval of 12/21/23 minutes – Ms. Tindle made a motion to approve the 12/21/23 minutes as written; Mr. McLuckie seconded the motion. All voted in favor, motion passed.

II. REPORTS

A. Finance & Administration

1. Questions on Utility Financial Reports – December 2023 – Stephanie Harris gave an update on all utility financials for the monthly December 2023 reports. Said everything is right on track or under budget. Revenues also look good. Nothing extra to report.
Ms. Tindle asked about targeted reserved level being \$14.4 on Water but currently at \$6.1, is that something we work up to during the course of the year? Stephanie said yes, it is over time and a long-term study, so they are accumulated over time.

B. Municipal Services – None

- C. IPL** – Joe Hegendeff said he was previously asked about purple streetlights being out. Those were actually MoDOT's lights that were out. I will be adding money into our capital project in the out years for starting replacement of LED streetlights as their end of life might be reached at that point. We are continuing to meet with Northpoint and figuring out future needs, that's going very well, and I would like to talk about the council candidate speeches and the mentioning of a nuclear power plant, FERC waiver and SPP, I've heard we can build, build, build and drill, drill, drill. It would be financially prohibitive, and we no longer have the valid permits to restart the Blue Valley Power Plant even burning natural gas. It was totally shut down and retired. We



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don't have the air permits to burn anything there, so the answer is no. If we would want to put something there it would have to be something new that would benefit the residents of the city. Do we have a permit to build? No, we don't. You've heard about the FERC waiver; it did not grant us permission to build anything. It gave us an entrance into the SPP replacement generation study. Since we had already retired the plant, their waiver allowed us to join into a study for replacement generation. We went through the process, they said we were good to go, they gave us 30 days to decide and at that time we went to City Council, they voted no, and we had to tell SPP we are canceling the project. If we were to build something new today, we would start the interconnect study from the beginning which is an approximate five-year process. Can we build a nuclear power plant? I'll never say no, but the process is decades long and very high capital requirements, estimated cost is between \$14 - \$30 Billion. The bottom line is in comparison, the turbines last year were \$80M for 90 MW, so say \$1M per MW, nuclear is estimated at about \$20 per MW, so approx. 20 times the cost.

1. January 2024 Winter Blast – Joe Hegendeffler discussed the January 2024 winter blast and covered such topics as SPP Advisory Timeline, IPL Preparations, Natural Gas Prices, Average Temperatures, Load Peaks, IPL Unit Performance, Load vs. Generation, IPL Unit Issues, etc.
2. Update on DKMT Studies – Joe Hegendeffler gave an update on DKMT they will be in town in March, a lot of meetings scheduled with IPL and other departments in the City, Mayor, City Council, City Manager, PUAB, etc. to see how others see IPL in the future. They will have other outward facing meetings with Chamber, School District and others. Mr. Boatright added that I have appointed Mr. McLuckie, Mr. Talcott and myself to meet with them, so if anyone has something to get to them, please let us know, we can't have a quorum at the meeting.

Mr. Talcott said for the next Council meeting there is a request for a P.O. to Shockey Consulting for the study. Joe said we are hiring them as part of the study, they will be the professional outside PR firm, public meetings will be held in conjunction with both firms. Shockey is just helping facilitate the meetings and get the external stakeholders together. Mr. Talcott asked where the funding was coming from? Joe responded from IPL's money. Mr. Talcott said I'm confused then, because it's not IPL wanting to sell IPL, it's the city that requested this so why isn't it coming out of the general fund? Joe responded your asking the wrong person that, I can't say. The studies are also being paid for by IPL. Mr. Talcott responded that I thought those were coming out of general fund as well. Mr. Boatright added that the city asked for them, but IPL is paying for them. Lisa Reynolds added that it's also not just whether to sell IPL, but the other half of that study is to make IPL successful and to make it run well what does that long-term plan look like?

D. Interim Assistant City Manager of Community Affairs – None



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III. BOARD MEMBER COMMENTS

A. Board Member Comments –

1. Mr. McLuckie wanted to point out a packet that was handed out to members, it was the research I put together at the Genealogy Center, articles from the Examiner and I wanted to thank Khristina for putting those together. These are articles from 1989 and 1990, the PUAB suggested there should be a different kind of governance, short version is the PUAB ended up with 4 ideas, Council added another, Council said they would put it to an election to the public, there was a city election, Council members changed, new Council decided not to put it to a vote. The Charter Review Committee has suggested some changes so thought this might be good history. Mr. Boatright said I appreciate all your hard work that went into this and maybe we can do a presentation on the history.
2. Ms. Tindle thanks Mr. McLuckie for putting this information together and would second a motion of having a presentation on not only this historical info. but what surrounding municipalities do for their governance. Mr. Boatright added that the Council is looking at the changes to the charter and getting those on the August ballot for a vote and one of the items listed is the governance.
3. Mr. Boatright said on March 13th, Indy Energy will be holding a forum, and the City of Springfield will be attending. We will need to be careful of a quorum and if more than a quorum attend, be sure to sit separately if possible and be careful what you discuss together. Also, the City has had some resolutions passed to try and combine boards and committees. I don't think the PUAB can be combined with any other committee. We need to align with the strategic plan for our committee.

IV. ADJOURNMENT – Meeting adjourned at 3:39 p.m.

- A. The next meeting will be March 21, 2024.**



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Anthony Giaramita
Steve McLuckie
Sheri Tindle, Vice-Chairperson
Michael Talcott

PRESENT FROM IPL

Joe Hegendeffe, Director
Jennifer Sawyer, Division Admin. Spec.

PRESENT FROM MUNICIPAL SERV.

Lisa Reynolds, Director & Interim ACM

PUAB MEMBERS ABSENT

Brad Chance

OTHERS PRESENT

Cindy Gray, Finance Director
Riley Newton, Asst. Comm. Mgr.
Steve Wagner, City 7

Chairperson, Les Boatright called the meeting to order at 2:33 p.m.

I. ROLL CALL

- A. Roll Call - The board was able to establish a quorum. All members were present except Brad Chance.

II. PRESENTATION

- A. Draft Capital Improvement Projects FY 2025-2030 – Municipal Services and IPL gave a brief overview of all utility capital projects that are being requested for the 2025-2030 fiscal year budgets.

III. REPORTS

A. Finance & Administration

1. Questions on Utility Financial Reports – January 2024 – Cindy Gray gave an update on all utility financials for the monthly January 2024 reports.

B. Municipal Services – None

C. IPL –

1. Battery Technology & Project - Joe Hegendeffe said Batteries in general provide mainly for ancillary services with an average of a four-hour life. They don't generate tons of megawatts like a substation. They could potentially stabilize IPL's voltage and make up for generation shortfalls in certain situations. Battery accreditation capacity is still a big discussion point within SPP. The battery installation by Ameren does not hurt or benefit IPL. Ameren is dealing straight with SPP and any costs that is associated with them getting connected to SPP



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through our interconnect we will recover but we won't make any revenue from their generation either.

Mr. Boatright asked if the system would be charged off of an IPL connection. Joe clarified that Ameren will be an SPP interconnect just like we are. They may have some house voltage we can meter them for, but the battery will be charged with power purchased from SPP just like we do. They will be called on by the SPP market to discharge, give voltage stability, and be regulated by SPP. It would not necessarily lower energy costs for us or this region because IPL purchases power a day ahead, but it will not increase costs either. IPL cannot say if purchasing power directly from Ameren would be any cheaper or more benefit than purchasing from SPP directly at this time.

Mr. Talcott asked for clarification of where the battery would be hooked up to SPP. Joe explained that there has been an interconnection agreement with them to connect to SPP at Blue Valley and any costs associated with upgrades to our system required for that connection Ameren will be paying for directly.

Mr. McLuckie stated that he was under the impression that a benefit to City of Independence would be in reducing congestion. Joe said it's possible that it could help with congestion and also possible that it could increase IPL reliability by providing momentary power to alleviate disruptions, but the taxes will probably be the biggest benefit to the city overall.

Ms. Tindle asked if IPL was interested in building or installing a large battery. Joe stated that was definitely a discussion for the future and explained that part of IPL's long-term plan with the turbines, that was turned down by City Council, had been to retire the "J" units and look at a possible battery installation to replace. Joe stated he believes a diverse portfolio is definitely in IPL's best interests.

Mr. Talcott asked why Ameren stated they are waiting on IPL redlines and technical issues. Joe clarified that IPL is currently having legal review the connection agreement and SPP is still reviewing if any upgrades will need to occur. He stated IPL is tracking the time spent this project as well. Construction is not even scheduled to start until 2027. If there are significant transmission upgrades needed they may decide it's not as economic as they had thought.

2. Joe state that another item of note was that IPL did finalize the gas prepay deal with Dogwood. It came out favorable for IPL saving us \$240,000 a year in gas pricing we spend at Dogwood.
3. Joe also stated that IPL had a pretty significant NERC audit between SIP Standards and OMP. IPL exited with zero non-compliant actions and just one recommendation which is a positive for the IPL Team.



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- D.** Interim Assistant City Manager of Community Affairs – Lisa Reynolds state she wanted to mention that The Rock Creek Treatment Plant was chosen to receive the Missouri Water Environment Association’s treatment plant of the year award next week.

IV. BOARD MEMBER COMMENTS

A. Board Member Comments –

- 1.** Mr. Talcott stated he had seen some recent information regarding cyber attacks on Water Infrastructures.
Lisa assured him that the Water Department had measures in place, but she was not able to disclose them to the public.
- 2.** Mr. Talcott presented some documentation he had printed regarding the AI Boom and energy requirements to reinforce the importance of generation.
Joe stated that he was hoping the 20-year study will verify the importance of generation with a good pathway provided.
- 3.** Mr. Giaramita stated he felt very good about the last meeting held with DKMT.
- 4.** Mr. Boatright reiterated that the August ballot would address the Charter Review question of the city and council not being able to sell any utility without putting it to the vote of the people. He also stated that the April PUAB meeting would need to be moved by date, location, or cancelled due to an equipment install in Conference Room #117 during the next scheduled meeting. It was agreed by all members that they would prefer to find another location where it can still be streamed.
- 5.** Mr. McLuckie inquired about the Midwest Energy Policy Series coming and if any of the other board members were interested in attending.
Lisa advised she would get information on if this would be allowed and if there was even a budget for it.

V. ADJOURNMENT – Meeting adjourned at 3:17 p.m.

- A.** The next meeting is TBD.

Missouri Climate Trends and Impacts

City of Independence Public Utility Advisory Board, May 16, 2024

Zack Leasor

leasorz@missouri.edu

State Climatologist | Assistant Professor

Missouri Climate Center, School of Natural Resources, University of Missouri, Columbia, MO



Missouri Climate Trends

Weather and climate observations with a complete and lengthy historical record are needed to analyze long-term climate trends

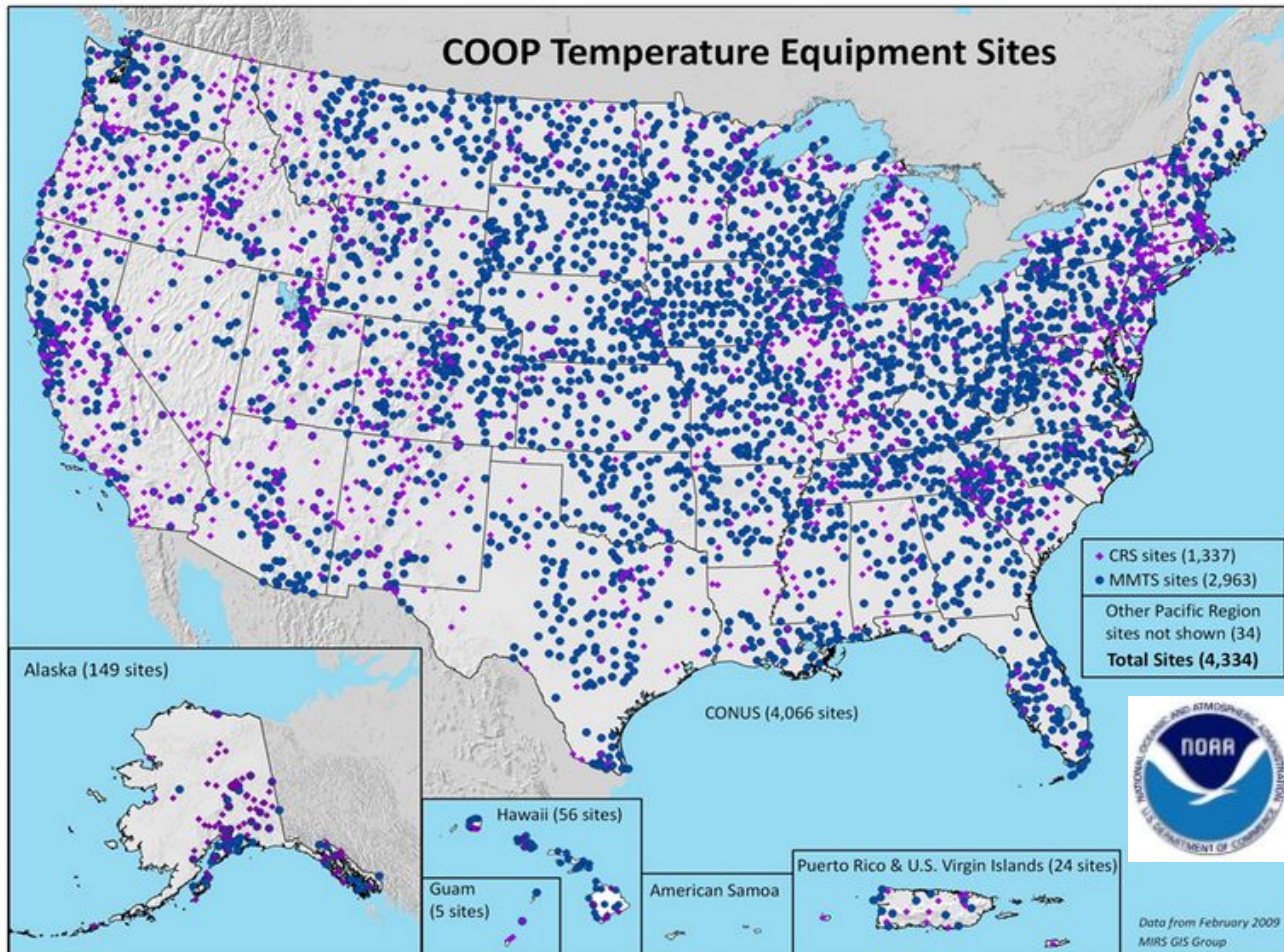


Figure 2. Map displaying the national distribution of MADIS stations recording daily temperature and precipitation data (n=18,974) on 1/5/2020.

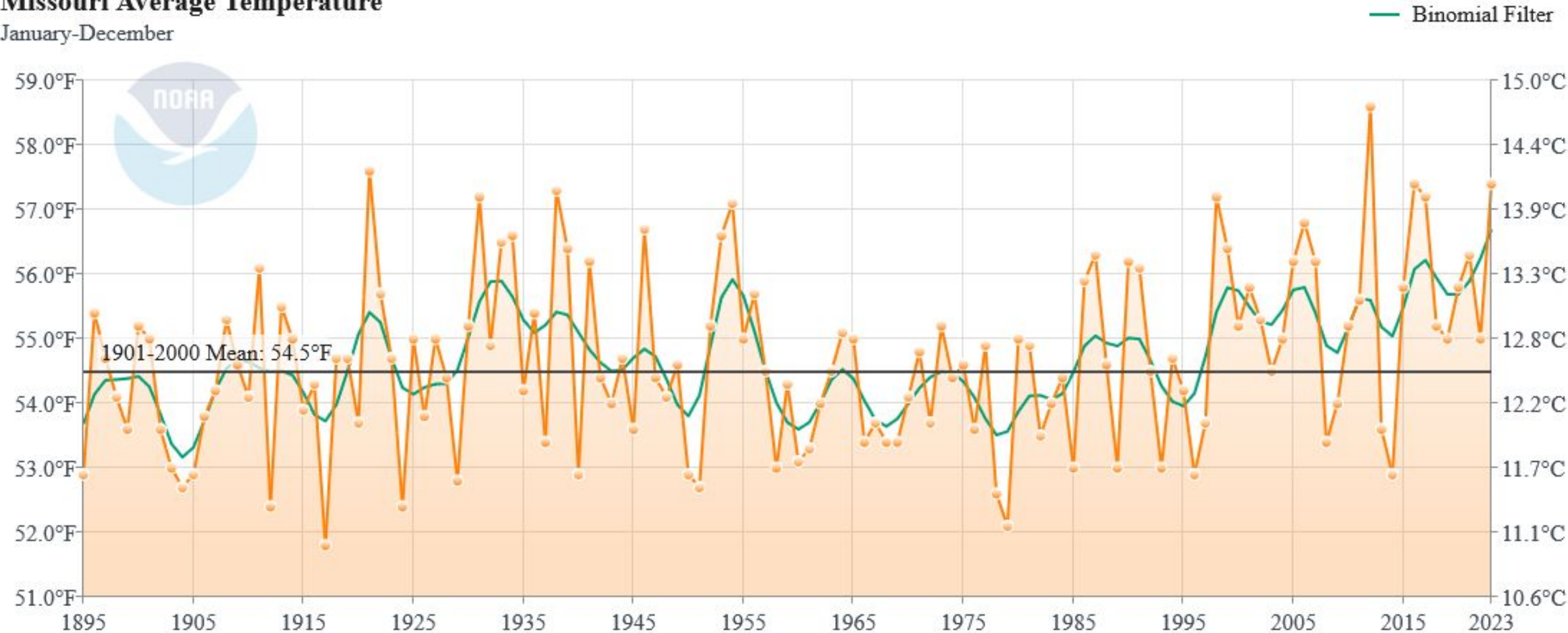
**U.S. National Weather Service
Cooperative Weather Station Network**

*“The Backbone of the Nation’s Climate
Records”*

Missouri annual temperature trends have been warming since the late 1990's

Missouri Average Temperature

January-December



Missouri annual temperature trends have been warming since the late 1990's

Missouri Average Temperature

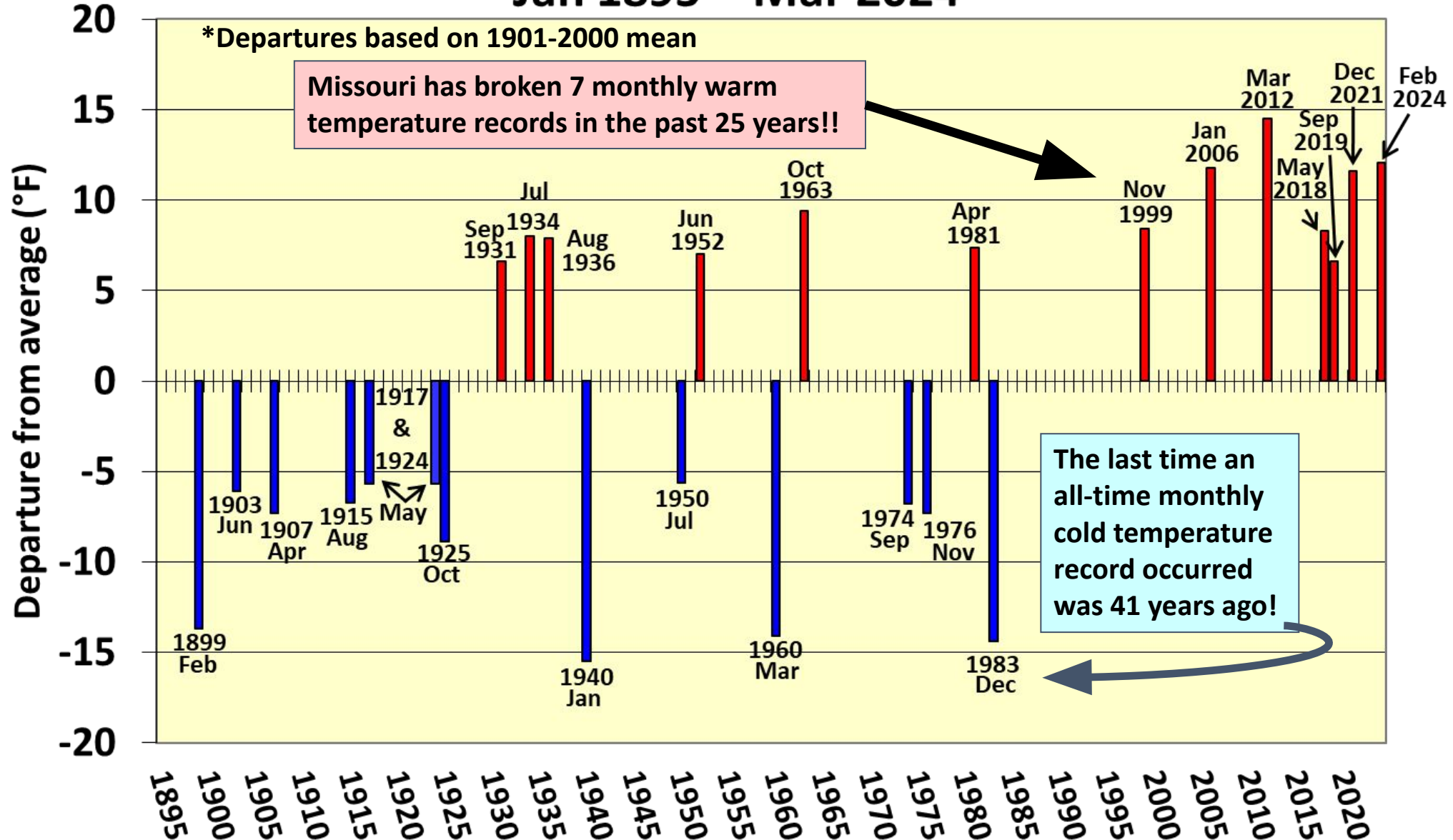
January-December

◆ Period	◆ Average Temperature	Rank (out of 129)	◆ Anomaly 1901-2000 Mean: 54.5°F
January -December 2012	58.6°F	129	4.1°F
January -December 1921	57.6°F	128	3.1°F
January -December 2016	57.4°F	127	2.9°F
January -December 2023	57.4°F	127	2.9°F
January -December 1938	57.3°F	125	2.8°F
January -December 1931	57.2°F	124	2.7°F
January -December 1998	57.2°F	124	2.7°F
January -December 2017	57.2°F	124	2.7°F
January -December 1954	57.1°F	121	2.6°F
January -December 2006	56.8°F	120	2.3°F



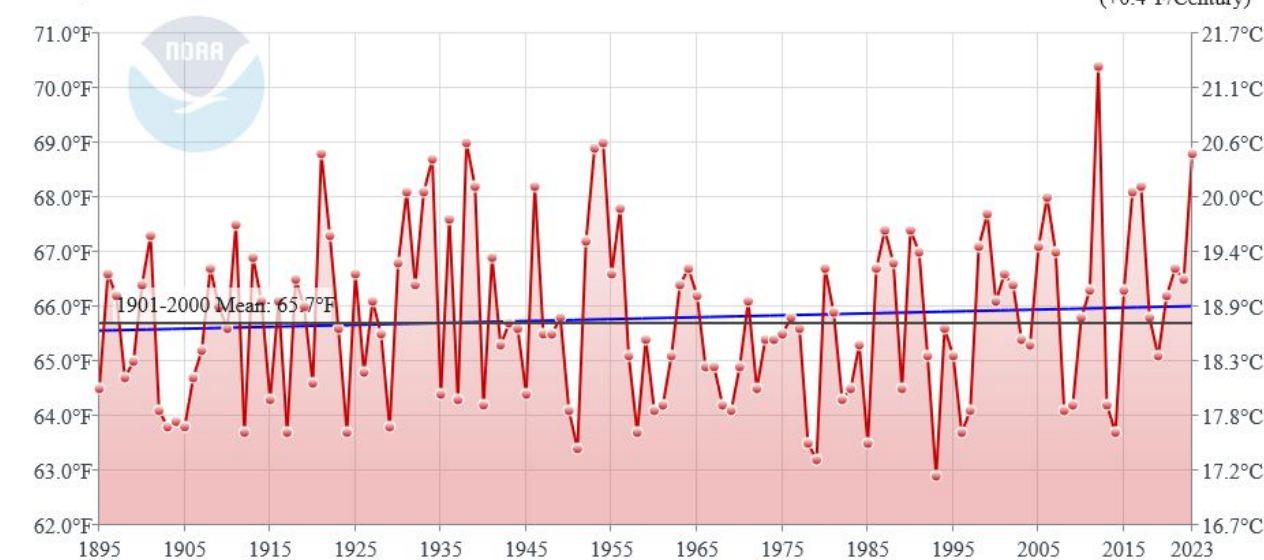
Missouri's Highest Extreme Monthly Temperature Departures*

Jan 1895 – Mar 2024



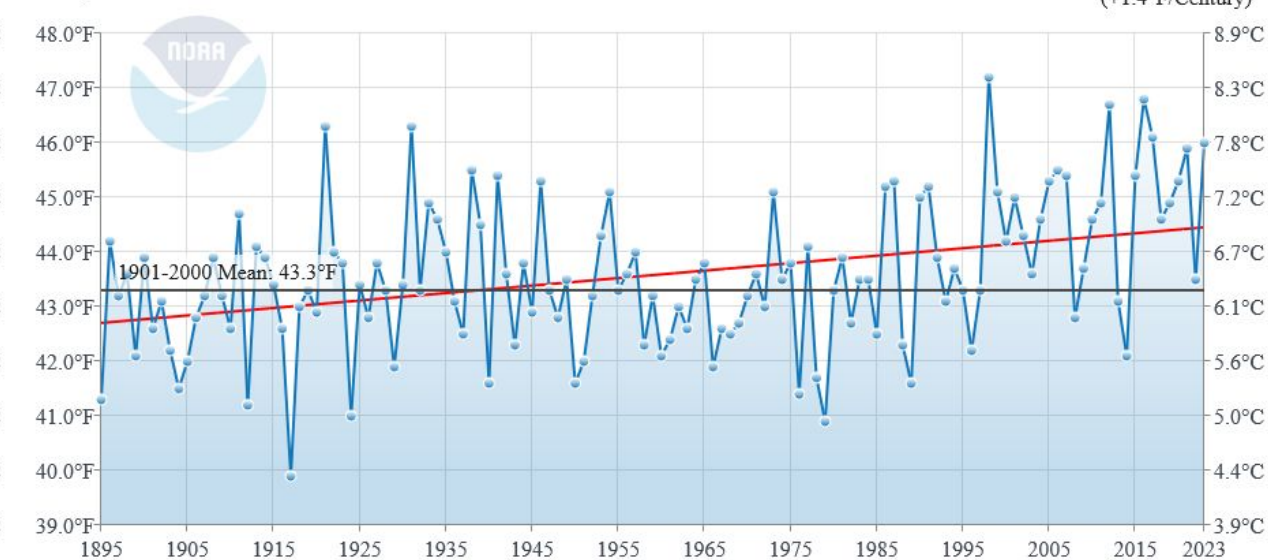
Missouri maximum and minimum annual temperature trends are both warming but the rate of warming has been faster with minimum temperature

Missouri Maximum Temperature
January-December



For 18 out of the past 25 years (1999-2023), annual max temp has been above average, 72%.

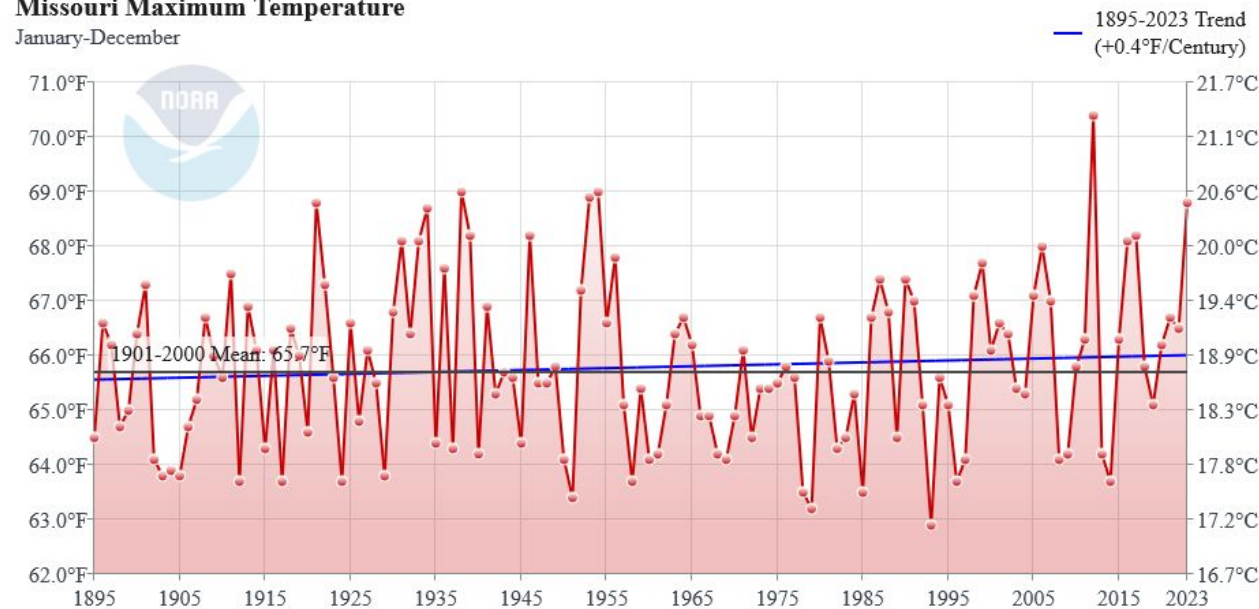
Missouri Minimum Temperature
January-December



For 22 out of the past 25 years (1999-2023), annual min temp has been above average, 88%.

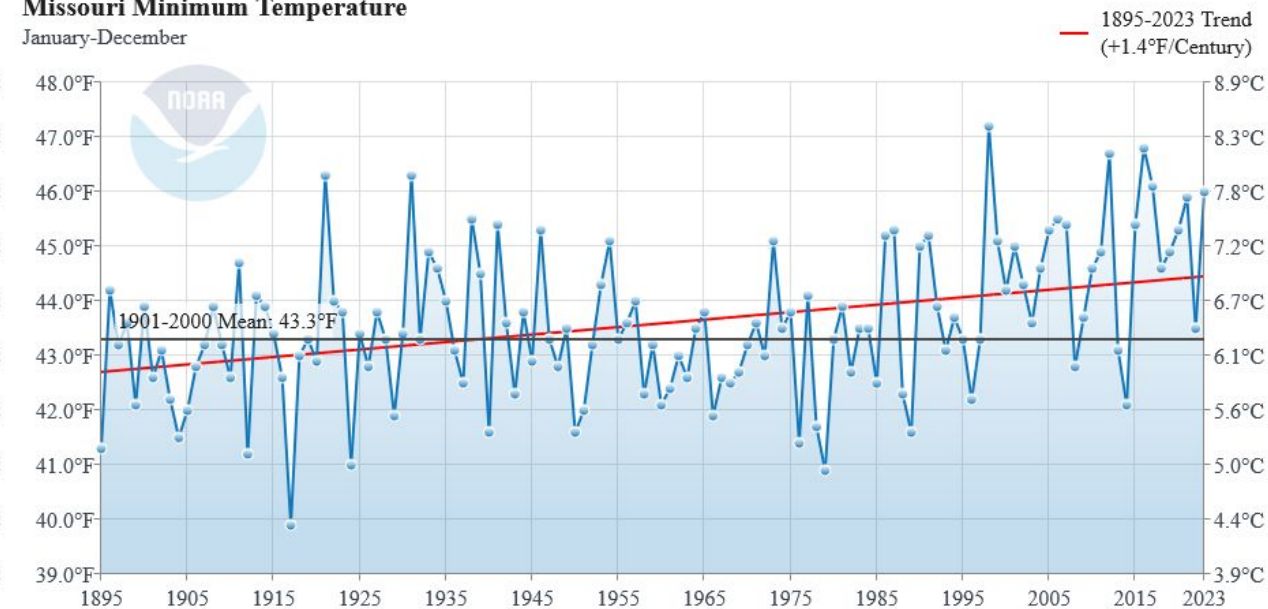
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Missouri Maximum Temperature
January-December



2023 Statewide Maximum Temperature:
68.8°F (+ 3.2°F)

Missouri Minimum Temperature
January-December



2023 Statewide Minimum Temperature:
46.0°F (+ 2.6°F)

Missouri maximum and minimum annual temperature trends are both warming but the rate of warming has been faster with minimum temperature

Missouri's maximum temp warming has been occurring in winter & spring

Missouri's minimum temp warming has been occurring in all seasons, with the strongest warming in winter & spring

1895 – 2023 Missouri Temperature Trends (°F / century)			
Season	Max Temp	Min Temp	Avg Temp
Winter	+1.4	+2.1	+1.8
Spring	+0.8	+1.3	+1.1
Summer	-0.6	+0.9	+0.1
Fall	-0.4	+0.8	+0.2
Annual	+0.4	+1.4	+0.9

What are the climatic impacts from warmer spring and fall minimum temperatures?

Longer growing season

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Longer growing season

On Date of First Fall Frost ($\leq 32^{\circ}\text{F}$)

The map displays the dates of the first fall frost across North Carolina. Orange dots represent the location of the frost. The dates are color-coded: light blue for the long-term average (1895-2019) and pink for the past 20 years (2000-2019). The dates range from 10/12 in the northwest to 10/26 in the southwest.

Location (approximate)	Long term (1895-2019)	Past 20 years (2000-2019)
Northwest (Wayne County)	10/12	10/16
Northwest (Catawba County)	10/12	10/18
Central (Forsyth County)	10/20	10/28
Central (Gaston County)	10/20	10/28
Central (Guilford County)	10/25	10/28
Southwest (Graham County)	10/19	10/24
Southwest (Swain County)	10/19	10/26
East (Currituck County)	10/24	10/28

Long term (1895-2019)
vs.
Past 20 years (2000-2019)

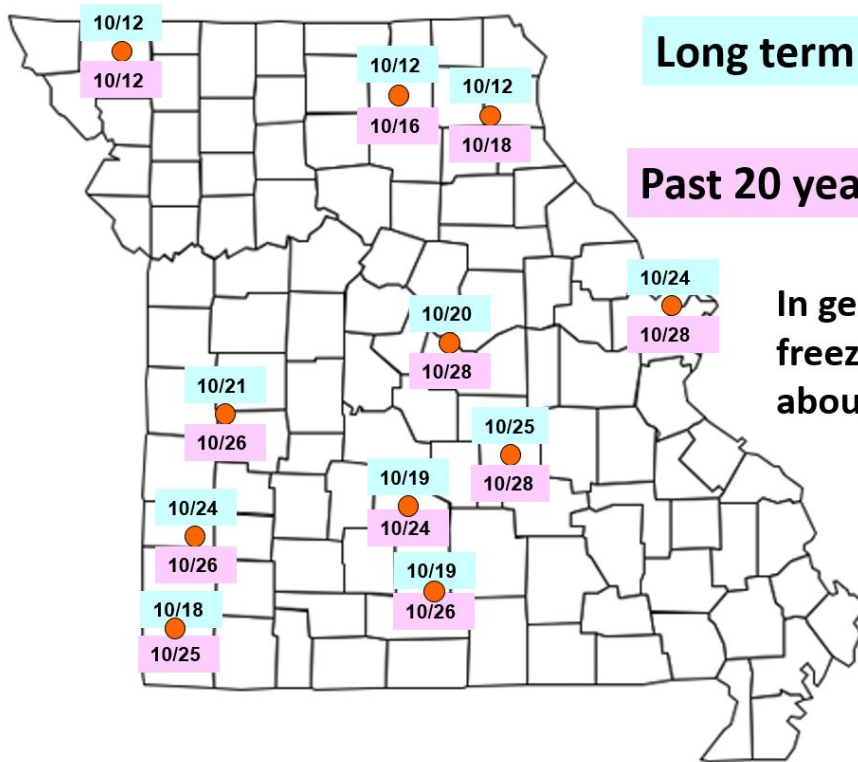
In general, the first fall freeze is occurring about 5 days *later*...

Long term (1895-2019)

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Past 20 years (2000-2019)

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Median Date of Last Spring Frost ($\leq 32^{\circ}\text{F}$)

Long term (1895-2019)
vs.
Past 20 years (2000-2019)

In general, the last spring freeze is occurring about 6 days *earlier*...

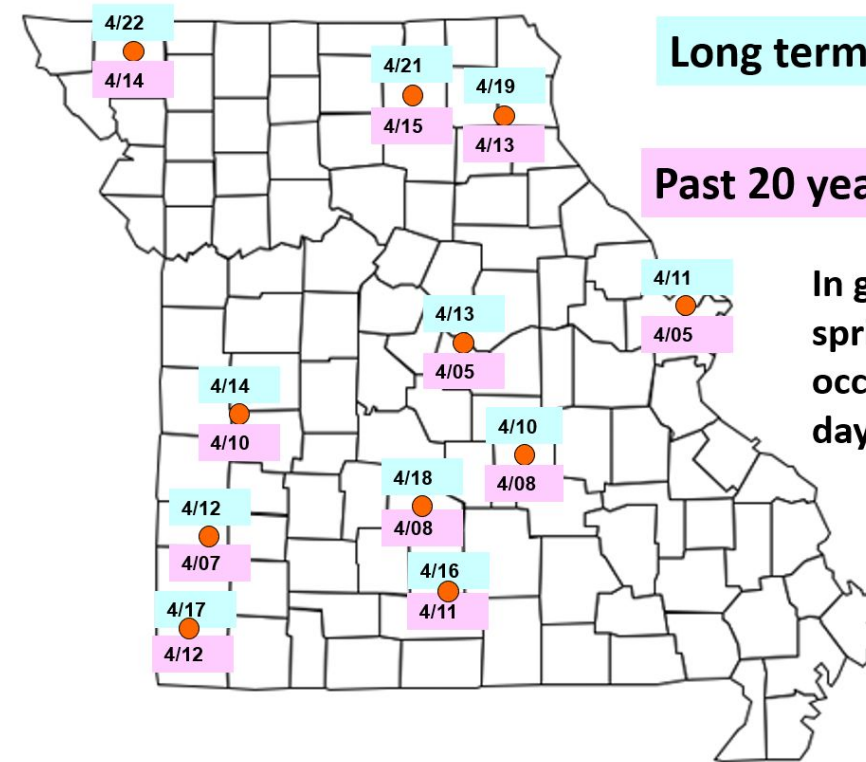
Location (Approximate)	Long term (1895-2019)	Past 20 years (2000-2019)
Northwest (Waynes County)	4/22	4/14
North Central (Cherokee County)	4/21	4/15
North Central (Forsyth County)	4/19	4/13
East (Chatham County)	4/11	4/05
Central (Fulton County)	4/13	4/05
West (Wilkes County)	4/14	4/10
Southwest (Waynes County)	4/12	4/07
Southwest (Wilkes County)	4/17	4/12
Central (Fulton County)	4/18	4/08
Central (Fulton County)	4/16	4/11
Central (Fulton County)	4/10	4/08

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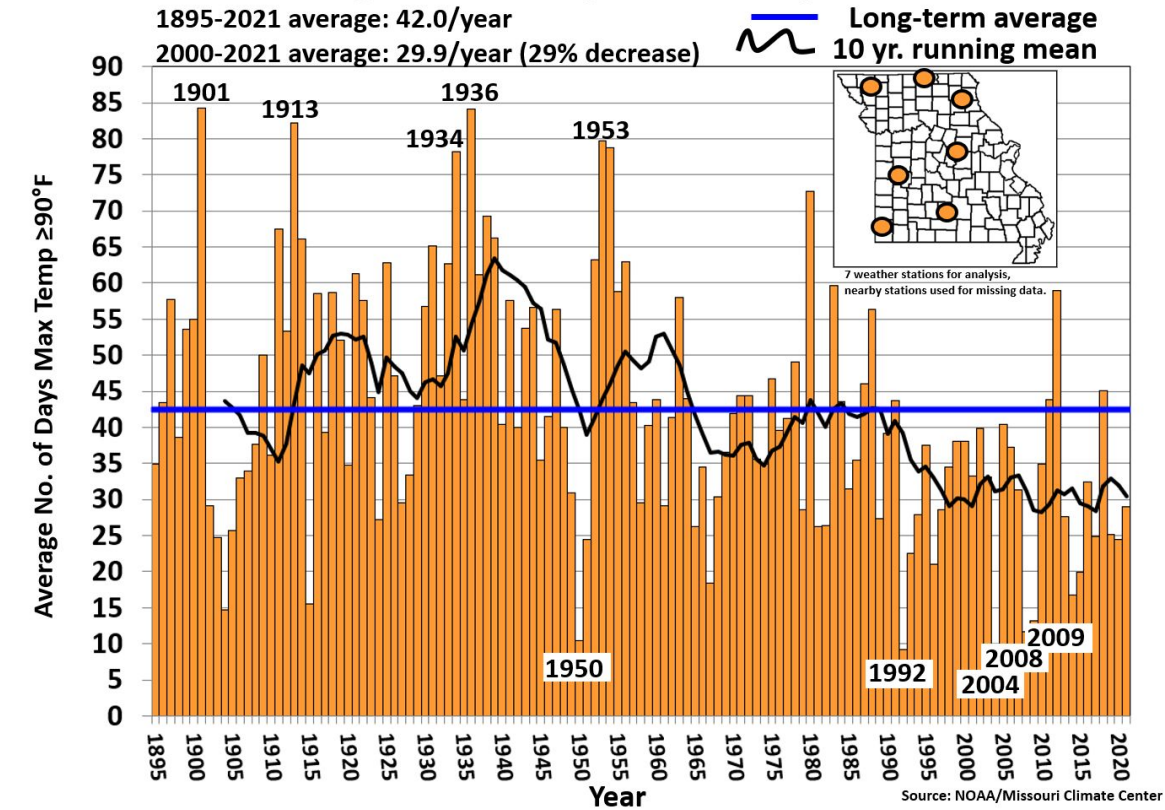


Missouri Climate Center Frost/Freeze Guide:
<https://ipm.missouri.edu/frostfreezeguide/>

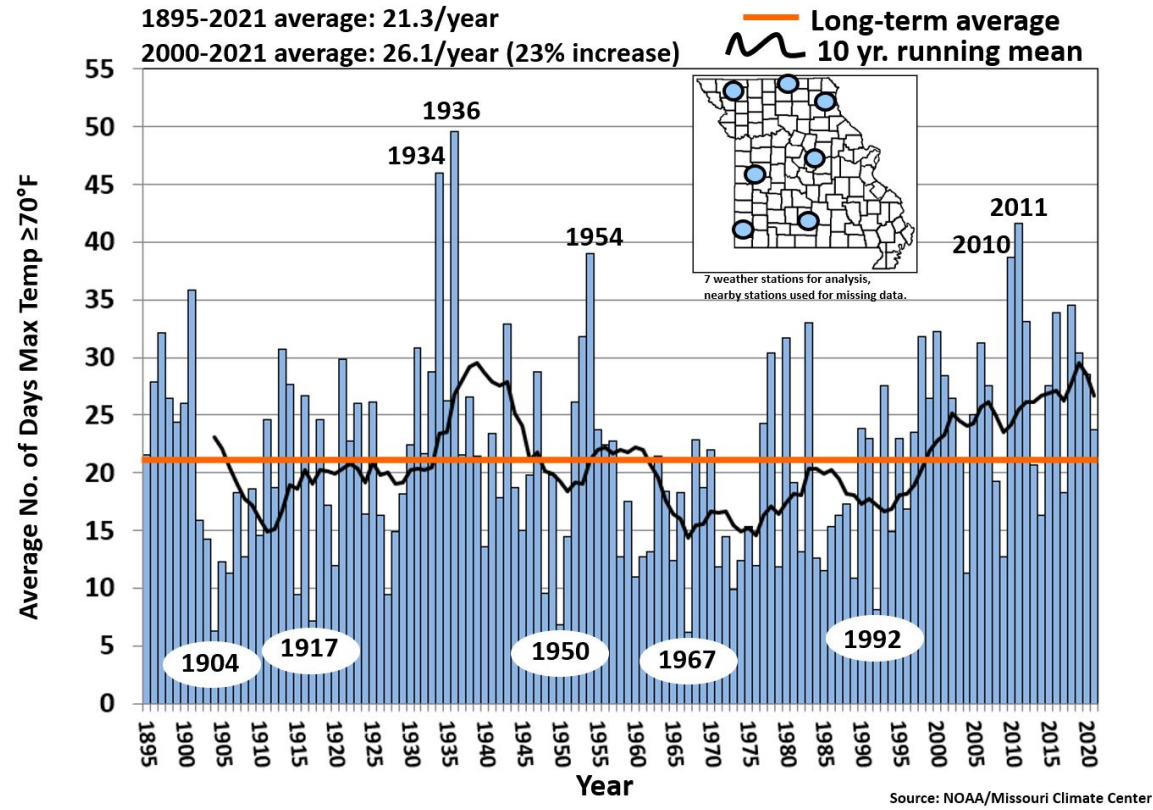
What are the climatic impacts from cooler summer maximum temperatures & warmer summer minimum temperatures?

Fewer 90°F days, but more uncomfortable summer nights

Average No. of Days Max Temp $\geq 90^{\circ}\text{F}$



Average No. of Days Min Temp $\geq 70^{\circ}\text{F}$



Major Missouri Records Broken: August 2023

Columbia

- All-time heat index high (back to 1945): 118° F on August 20
- Daily warm minimum temperature: 78° F on August 24

St. Louis

- Daily high temperature: 104° F on August 25
- Daily warm minimum temperature: 83° F on August 25
- Daily warm minimum temperature: 82° F on August 24
- Daily warm minimum temperature: 82° F on August 23

Joplin

- Daily high temperature (tie): 101° F on August 25
- Daily high temperature (tie): 101° F on August 20

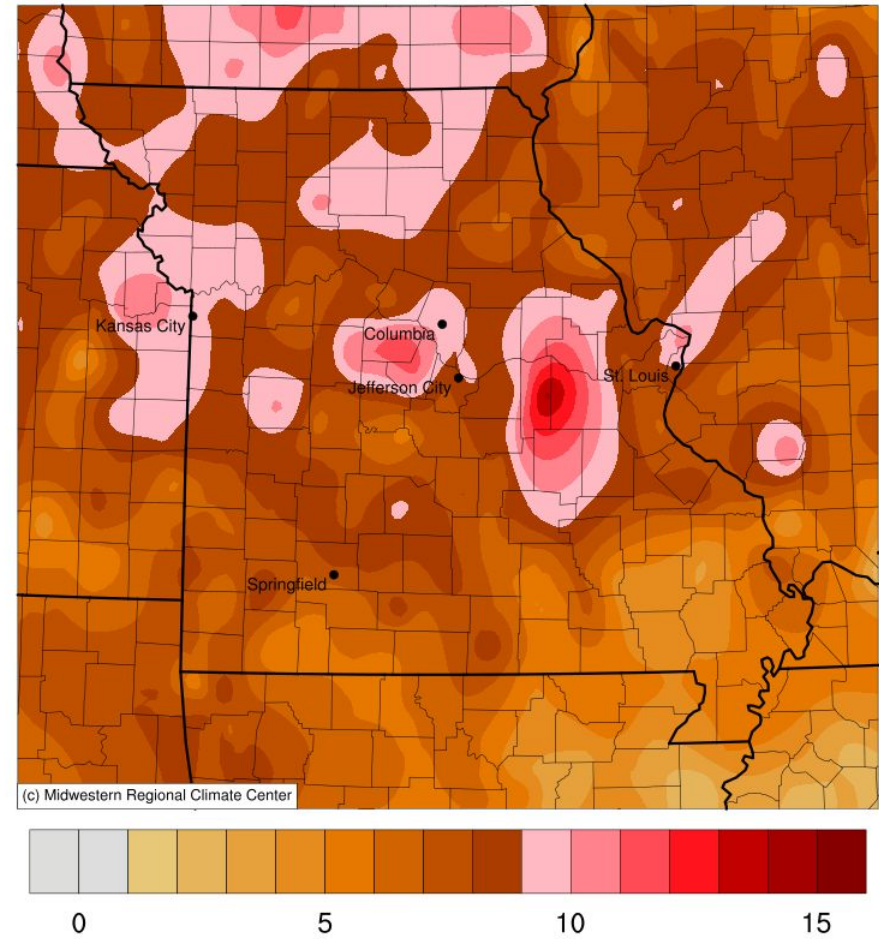
West Plains

- Daily high temperature (tie): 102° F on August 20

Cape Girardeau

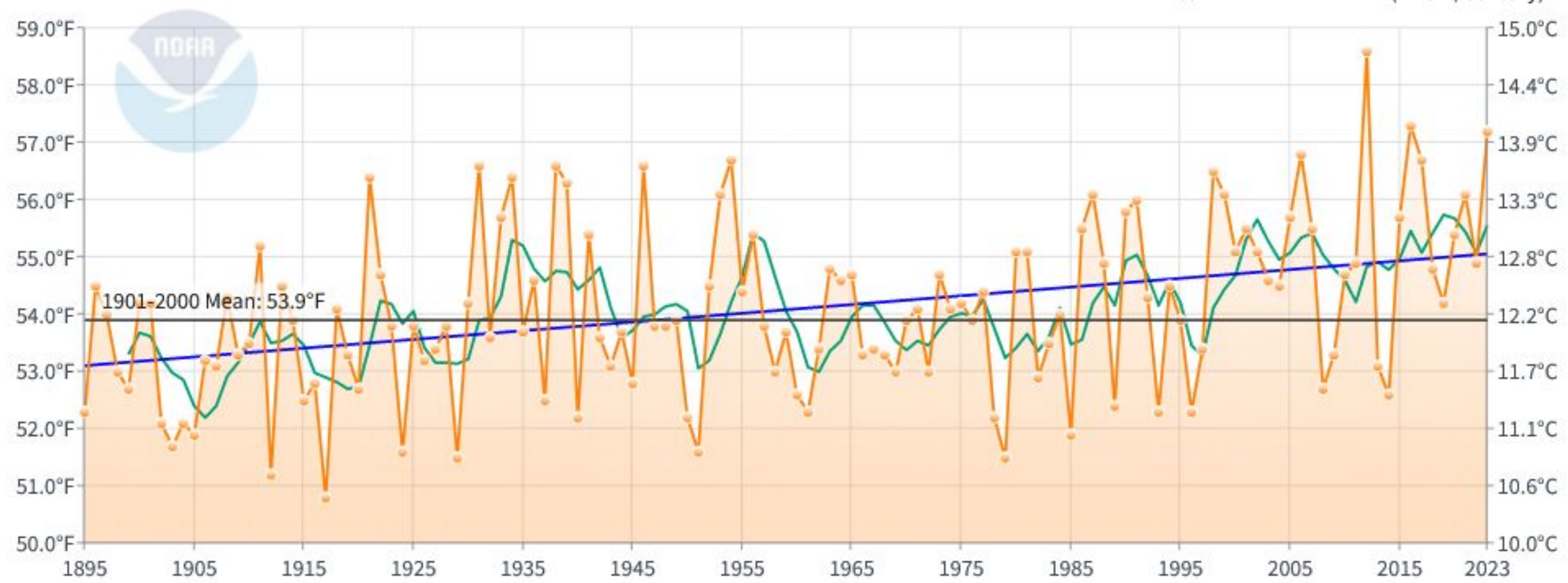
- Daily warm minimum temperature: 74° F on August 25
- Daily warm minimum temperature: 76° F on August 21

Average Minimum Temperature (°F): Departure from 1991-2020 Normals
August 19, 2023 to August 26, 2023



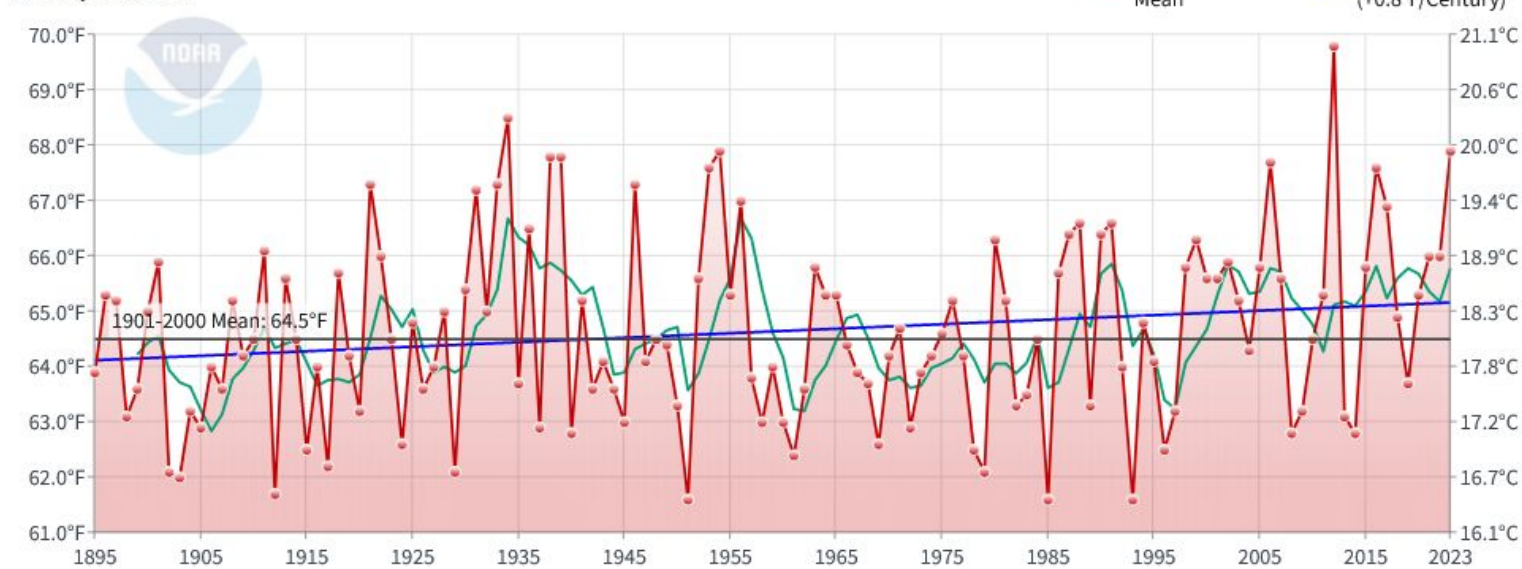
Jackson County, Missouri Average Temperature

January-December



Jackson County, Missouri Maximum Temperature

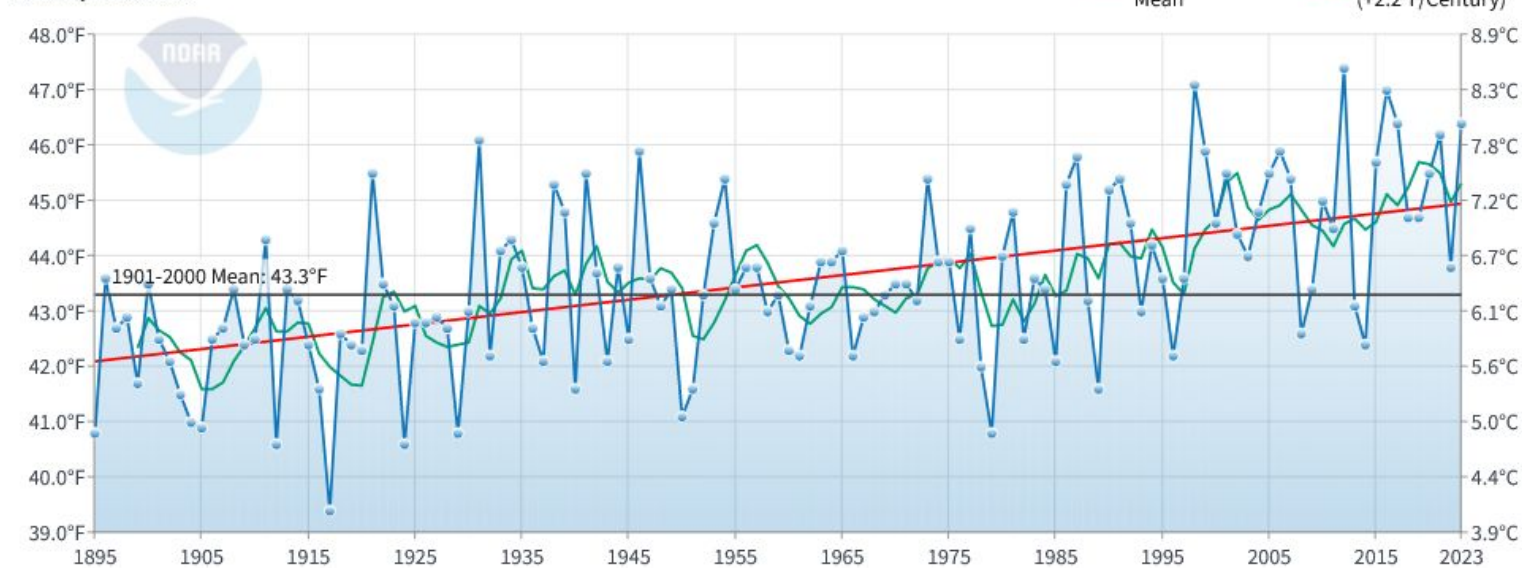
January-December



Powered by ZingChart

Jackson County, Missouri Minimum Temperature

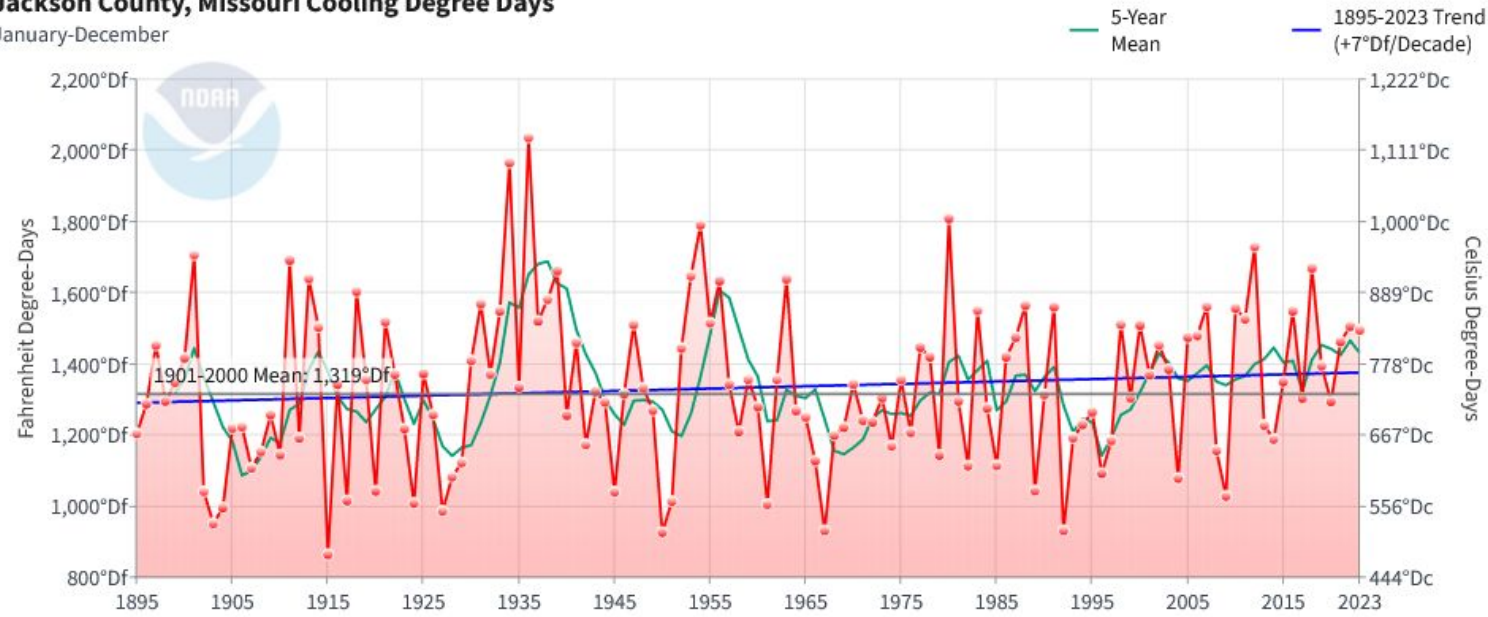
January-December



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Jackson County, Missouri Cooling Degree Days

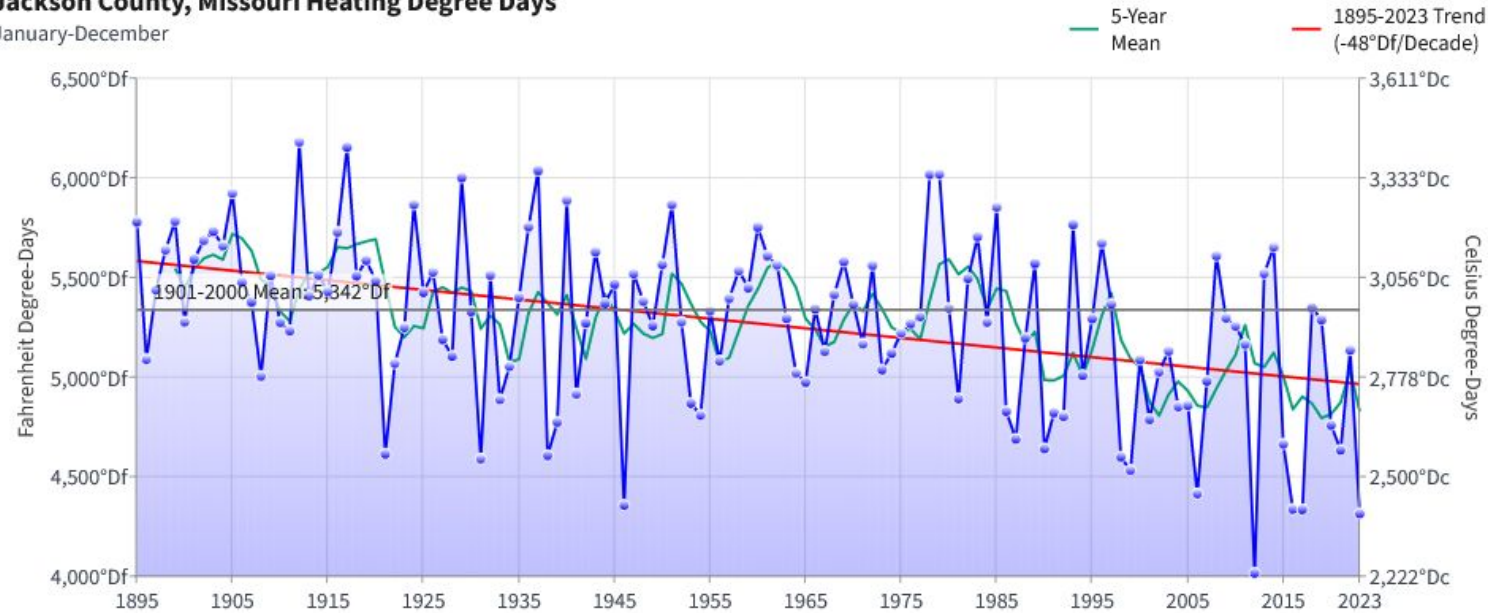
January-December



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Jackson County, Missouri Heating Degree Days

January-December

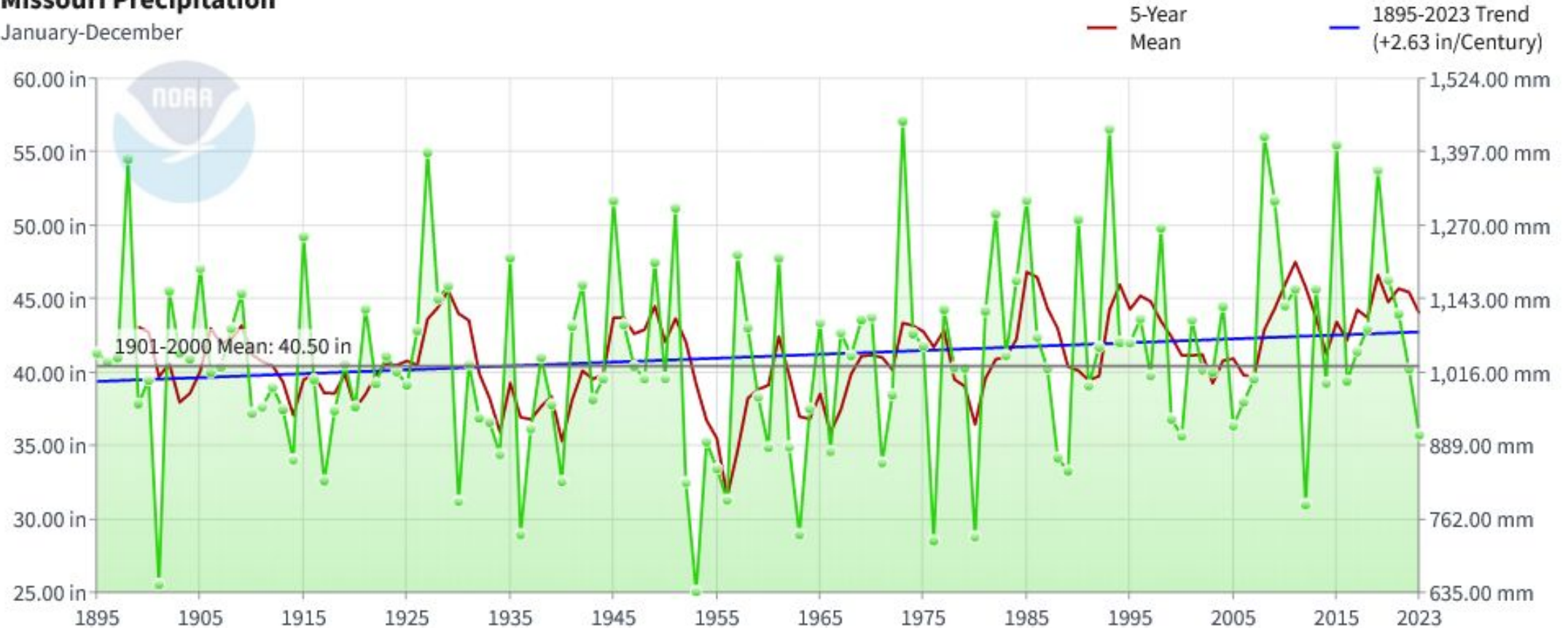


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Missouri precipitation has been trending wetter all four seasons

Missouri Precipitation

January-December

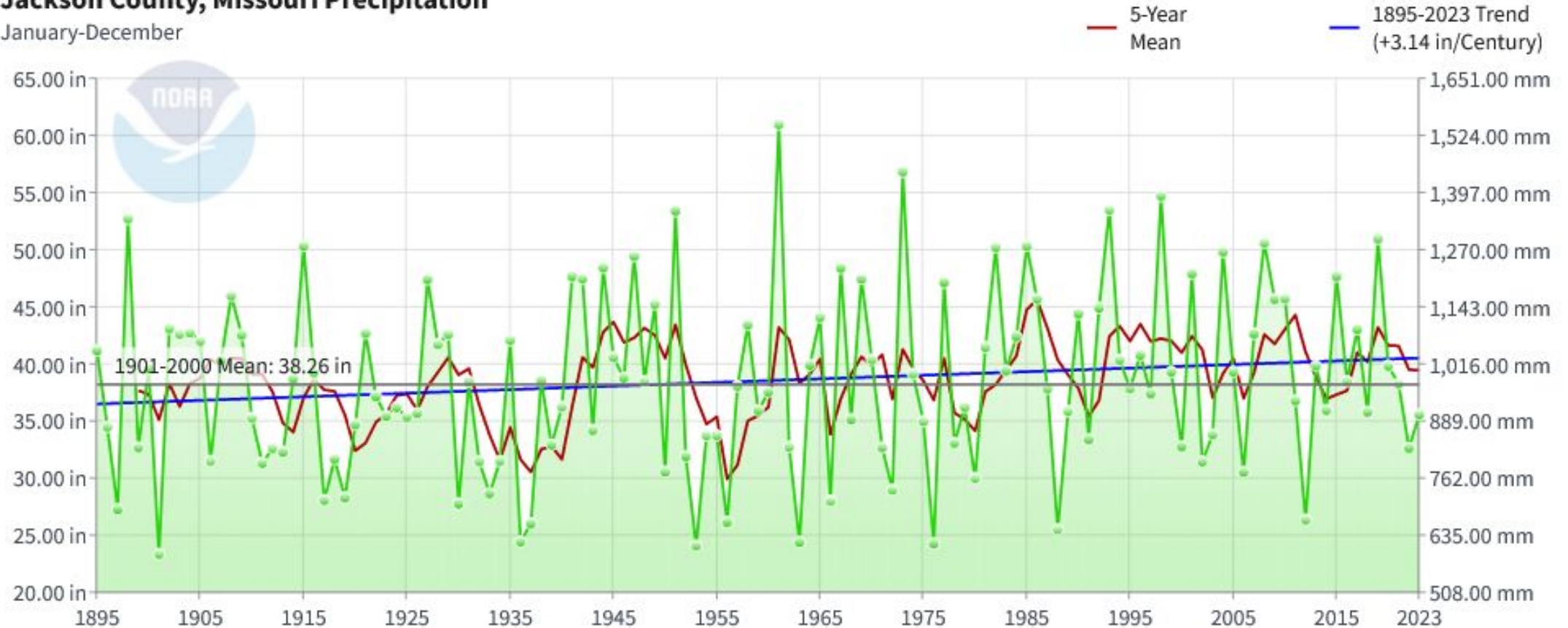


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Missouri precipitation has been trending wetter all four seasons

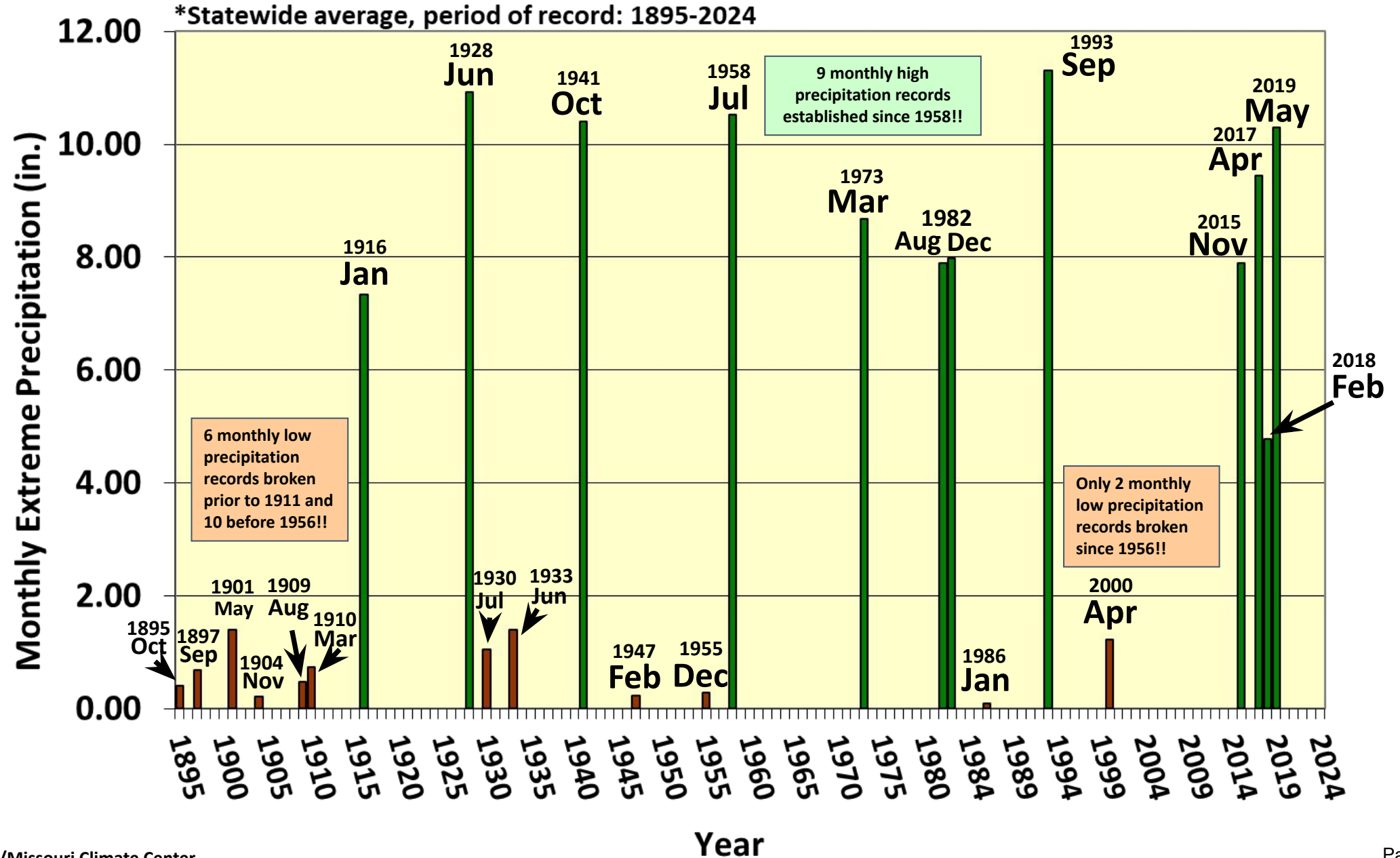
Jackson County, Missouri Precipitation

January-December



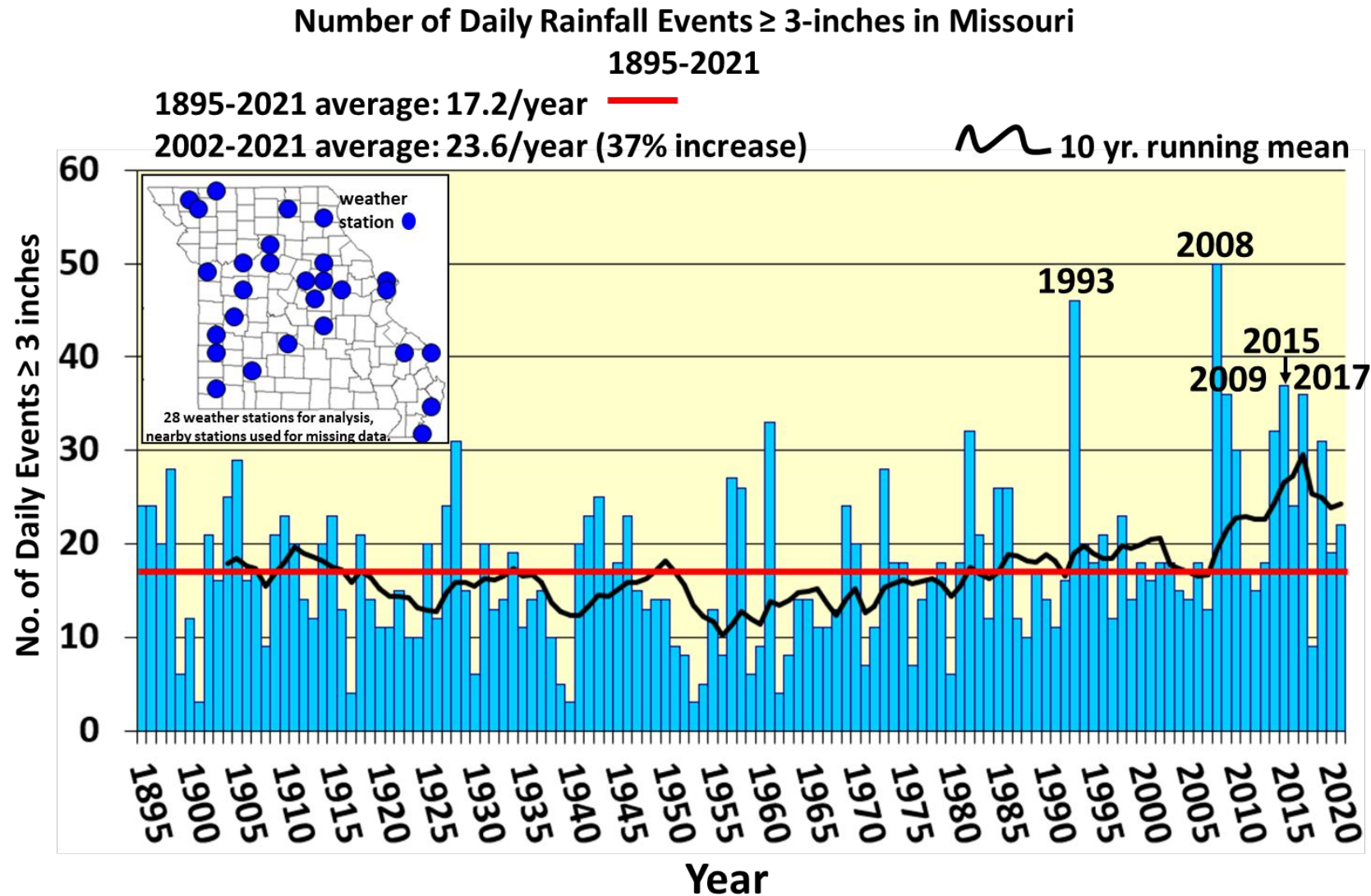
Powered by ZingChart

Missouri Extreme Monthly Precipitation*



What are the climatic impacts of wetter precipitation trends?

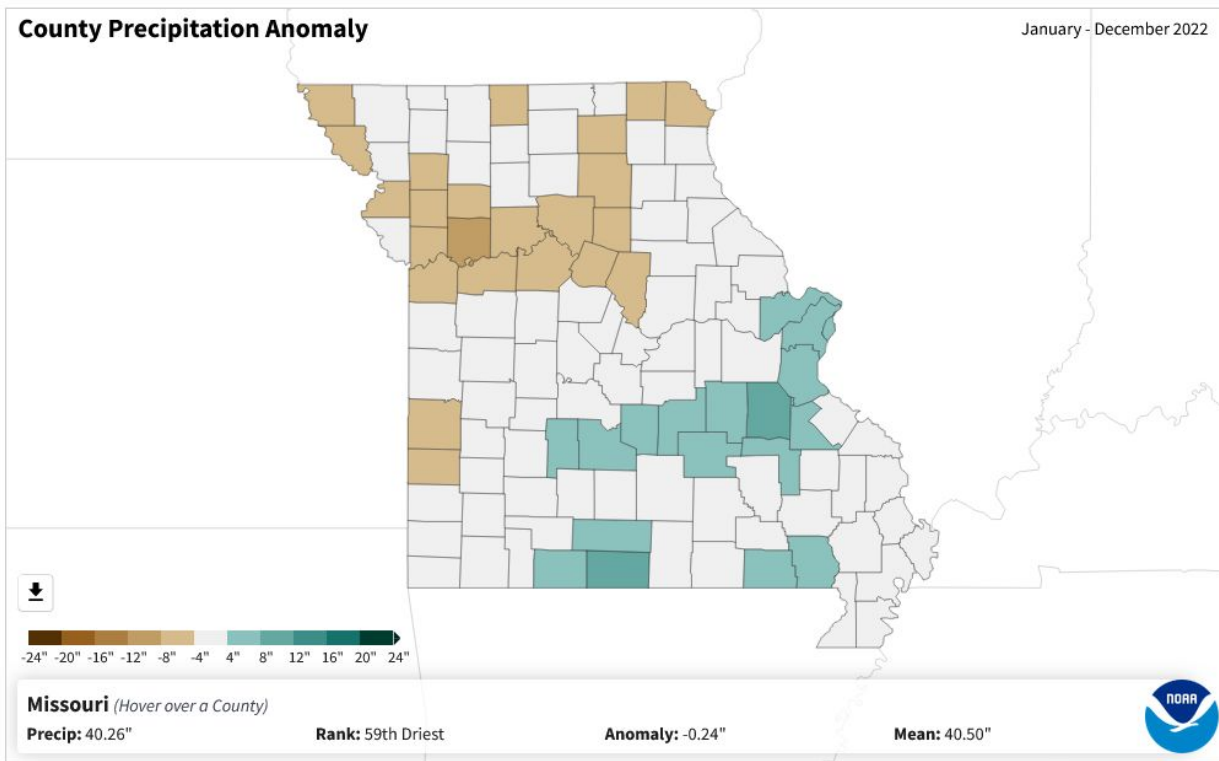
More extreme precipitation events, more flooding.



How do 2022 and 2023 compare to climate trends?

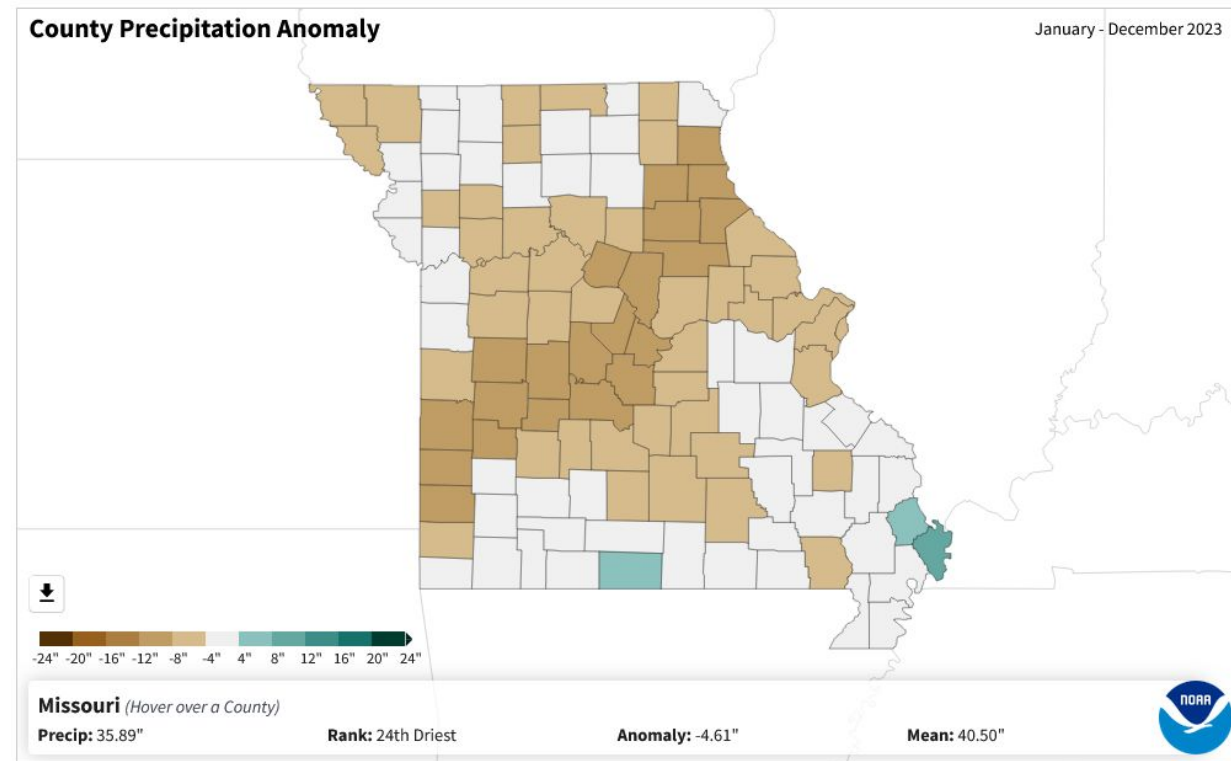
2022 Statistics for Missouri

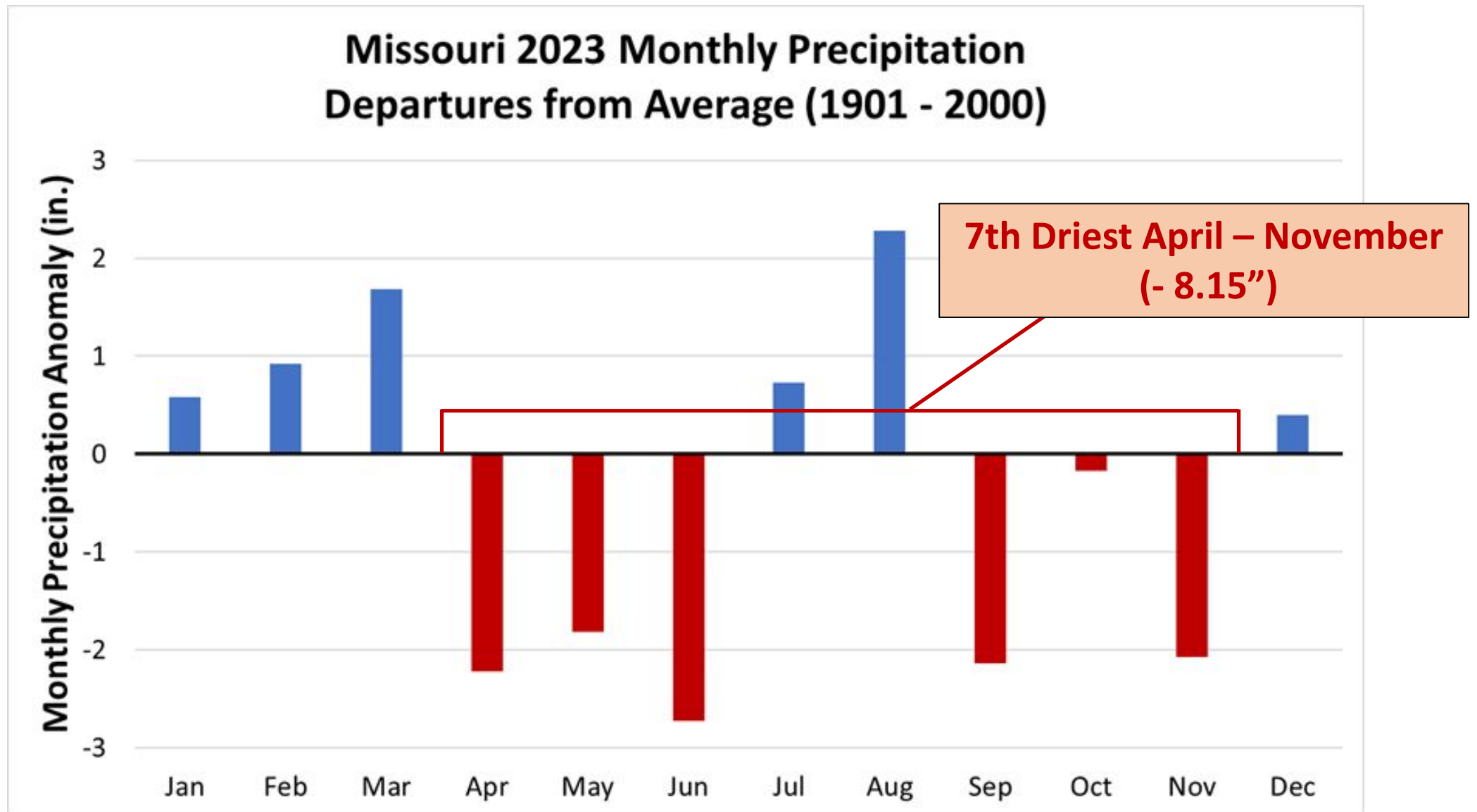
- Max Temp: 40th Warmest (+ 0.8 °F)
- Min Temp: 54th Warmest (+ 0.3 °F)
- Avg Temp: 44th Warmest (+ 0.5 °F)
- Precipitation: 58th Driest (-0.22")



2023 Statistics for Missouri

- Max Temp: 5th Warmest (+ 3.2 °F)
- Min Temp: 7th Warmest (+ 2.6 °F)
- Avg Temp: 3rd Warmest (+2.9 °F)
- Precipitation: 24th Driest (-4.61")





Hydroclimatic Extremes

Billion-dollar events to affect Missouri from 1980 to 2023 (CPI-Adjusted)

Disaster Type	Events	Events/Year	Percent Frequency	Total Costs	Percent of Total Costs
 Drought	15	0.3	13.6%	\$10.0B-\$20.0B	22.2%
 Flooding	9	0.2	8.2%	\$10.0B-\$20.0B	28.9%
 Freeze	2	0.0	1.8%	\$500M-\$1.0B	1.2%
 Severe Storm	75	1.7	68.2%	\$20.0B-\$50.0B	45.3%
 Tropical Cyclone	1	0.0	0.9%	\$250M-\$500M	0.9%
 Wildfire	--	--	--	--	--
 Winter Storm	8	0.2	7.3%	\$500M-\$1.0B	1.5%
 All Disasters	110	2.5	100.0%	\$50.0B-\$100.0B	100.0%

[†]Deaths associated with drought are the result of heat waves. (Not all droughts are accompanied by extreme heat waves.)

Flooding events (river basin or urban flooding from excessive rainfall) are separate from inland flood damage caused by tropical cyclone events.

Hydroclimate Extremes

HISTORIC ST. LOUIS RAINFALL

25-26 July 2022

9.04": Highest 24-hour rainfall on record
(Beat 7.02" in August 19-20, 1915 with the remnants of the Galveston Hurricane)

7.68": Received in just 6 hours!
(This has less than a 1 in 1,000 chance of occurring in a given year)

25%: Received about 25% of our normal yearly rainfall amount in 12 hours!

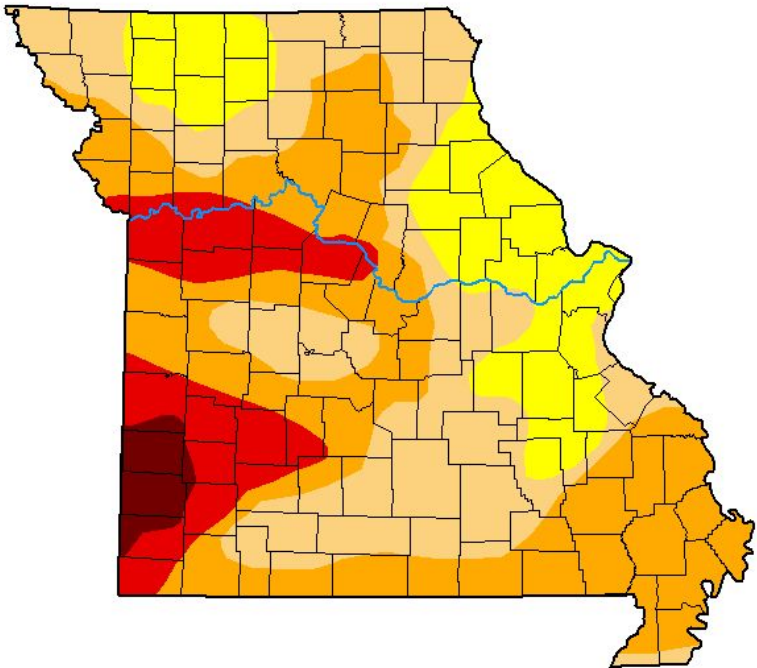
7.31": This is the normal amount of rain for July and August combined.
(St. Louis surpassed that amount in just 6 hours!)

NWS ST. LOUIS

weather.gov/lpx @NWStLouis

7/26/2022 1:20 PM

U.S. Drought Monitor Missouri



October 18, 2022
(Released Thursday, Oct. 20, 2022)
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	82.40	50.40	14.28	2.55
Last Week 10-11-2022	0.00	100.00	72.86	37.22	13.38	2.55
3 Months Ago 07-19-2022	26.36	73.64	50.72	33.13	2.08	0.00
Start of Calendar Year 01-04-2022	64.36	35.64	0.43	0.00	0.00	0.00
Start of Water Year 09-27-2022	18.48	81.52	56.59	15.39	4.83	1.92
One Year Ago 10-19-2021	74.39	25.61	0.78	0.00	0.00	0.00

Intensity:

None

D0 Abnormally Dry

D1 Moderate Drought

D2 Severe Drought

D3 Extreme Drought

D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:
Adam Hartman
NOAA/NWS/NCEP/CPC

droughtmonitor.unl.edu

Hydroclimate Extremes

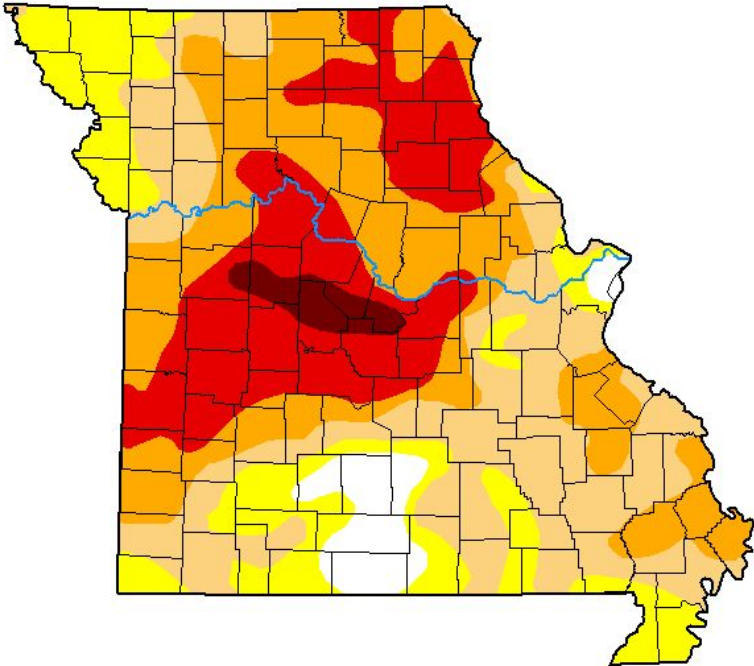
U.S. Drought Monitor Missouri

July 18, 2023
(Released Thursday, Jul. 20, 2023)
Valid 8 a.m. EDT

Extremely Wet Summer!

These locations finished in their Top 5 wettest Summer's on record:

Location	Precip	Ranking	Wettest	Period of Record
Mayfield, KY COOP	26.92"	1 st	26.92" (2023)	1982-2023
Murray, KY COOP	24.83"	2 nd	26.29" (2016)	1926-2023
Olmsted, IL COOP	23.14"	1 st	23.14" (2023)	1923-2023
Marble Hill, MO COOP	22.20"	4 th	27.95" (1928)	1894-2023
Cape Girardeau, MO Airport	19.25"	1 st	19.25" (2023)	1960-2023
Paducah, KY Airport	18.90"	5 th	22.45" (1958)	1938-2023
Sikeston, MO COOP	18.47"	2 nd	19.70" (1957)	1951-2023



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.66	95.34	78.95	51.13	23.18	2.15
Last Week 07-11-2023	0.24	99.76	81.76	58.20	25.76	3.25
3 Months Ago 04-18-2023	86.13	13.87	1.79	0.21	0.00	0.00
Start of Calendar Year 01-03-2023	50.31	49.69	12.51	1.61	0.00	0.00
Start of Water Year 09-27-2022	18.48	81.52	56.59	15.39	4.83	1.92
One Year Ago 07-19-2022	26.36	73.64	50.72	33.13	2.08	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. For more information on the
Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu



@NWSPaducah
weather.gov/pah

National Weather Service Paducah, KY

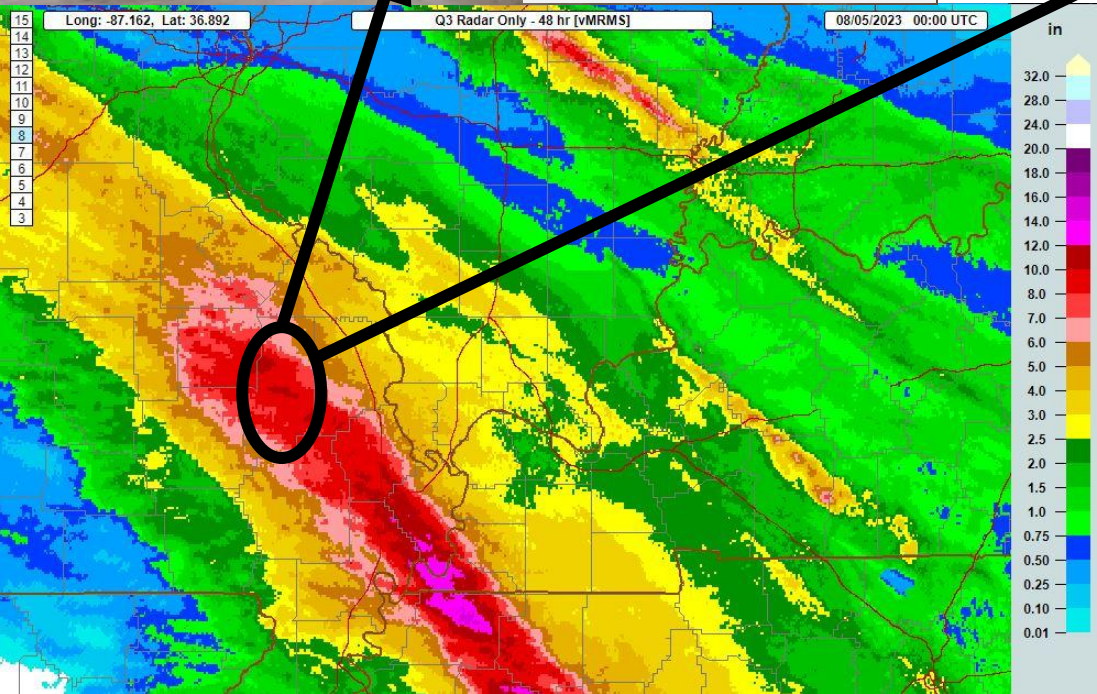


Hydroclimate Extremes

Marble Hill, MO courtesy of Emily Pike



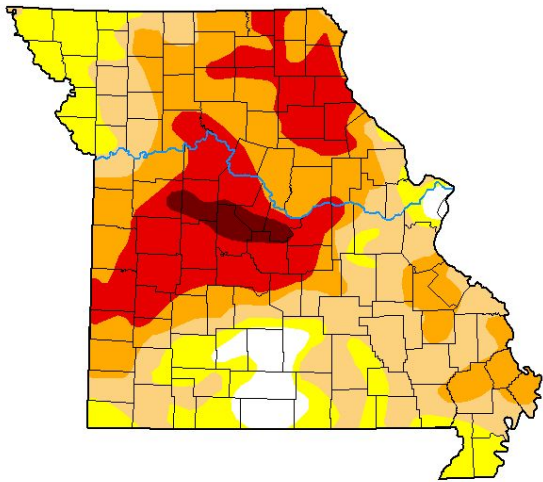
Bollinger County Flooding August 5, 2023



Bollinger County, MO
CMOR July, 2023



U.S. Drought Monitor
Missouri



July 18, 2023
(Released Thursday, Jul. 20, 2023)
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.66	95.34	78.95	51.13	23.18	2.15
Last Week 07-11-2023	0.24	99.76	81.76	58.20	25.76	3.25
3 Months Ago 04-16-2023	86.13	13.87	1.79	0.21	0.00	0.00
Start of Calendar Year 01-01-2023	50.31	49.69	12.51	1.61	0.00	0.00
Start of Water Year 09-27-2022	18.48	81.52	56.59	15.39	4.83	1.92
One Year Ago 07-19-2022	26.36	73.64	50.72	33.13	2.08	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

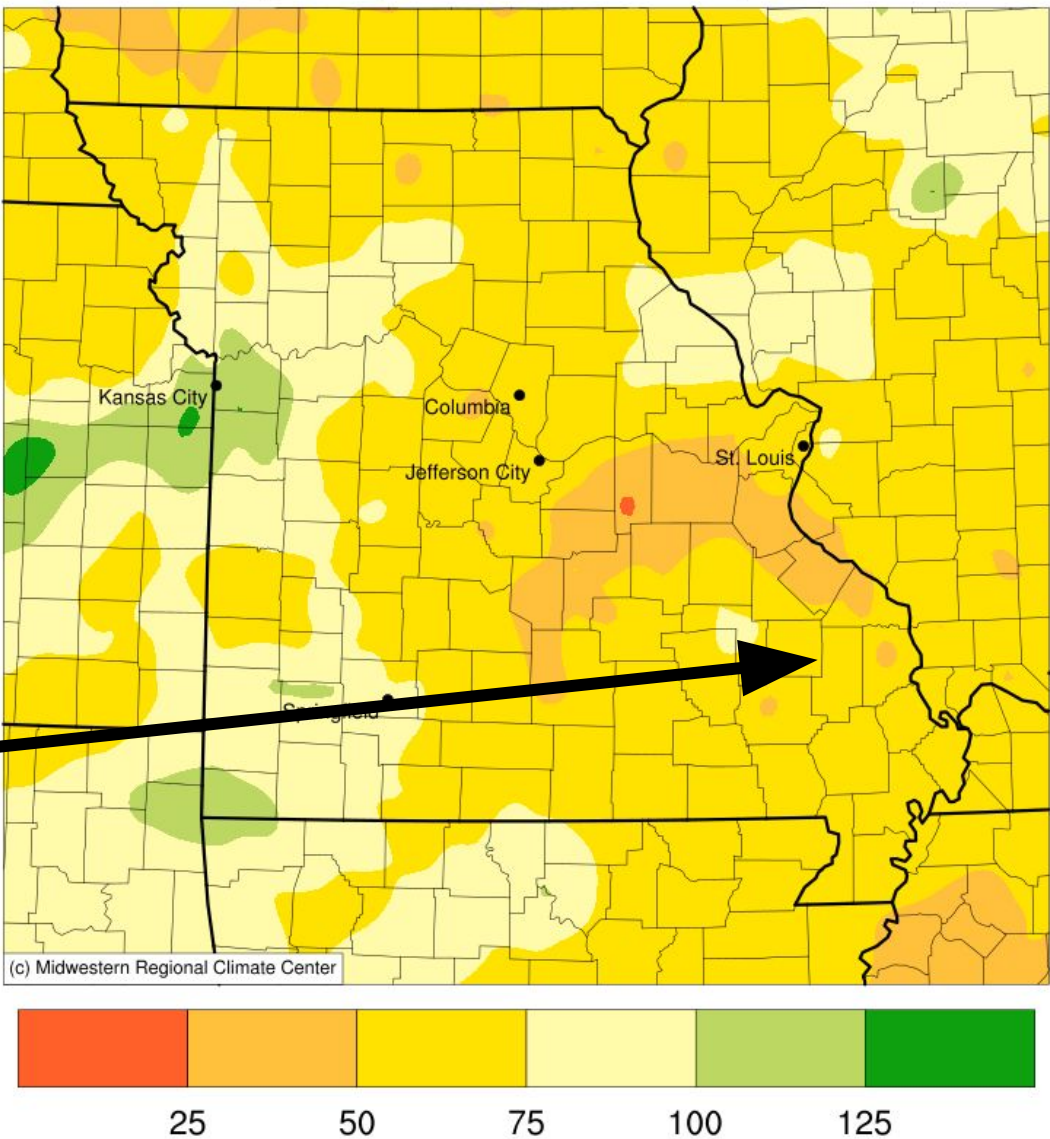
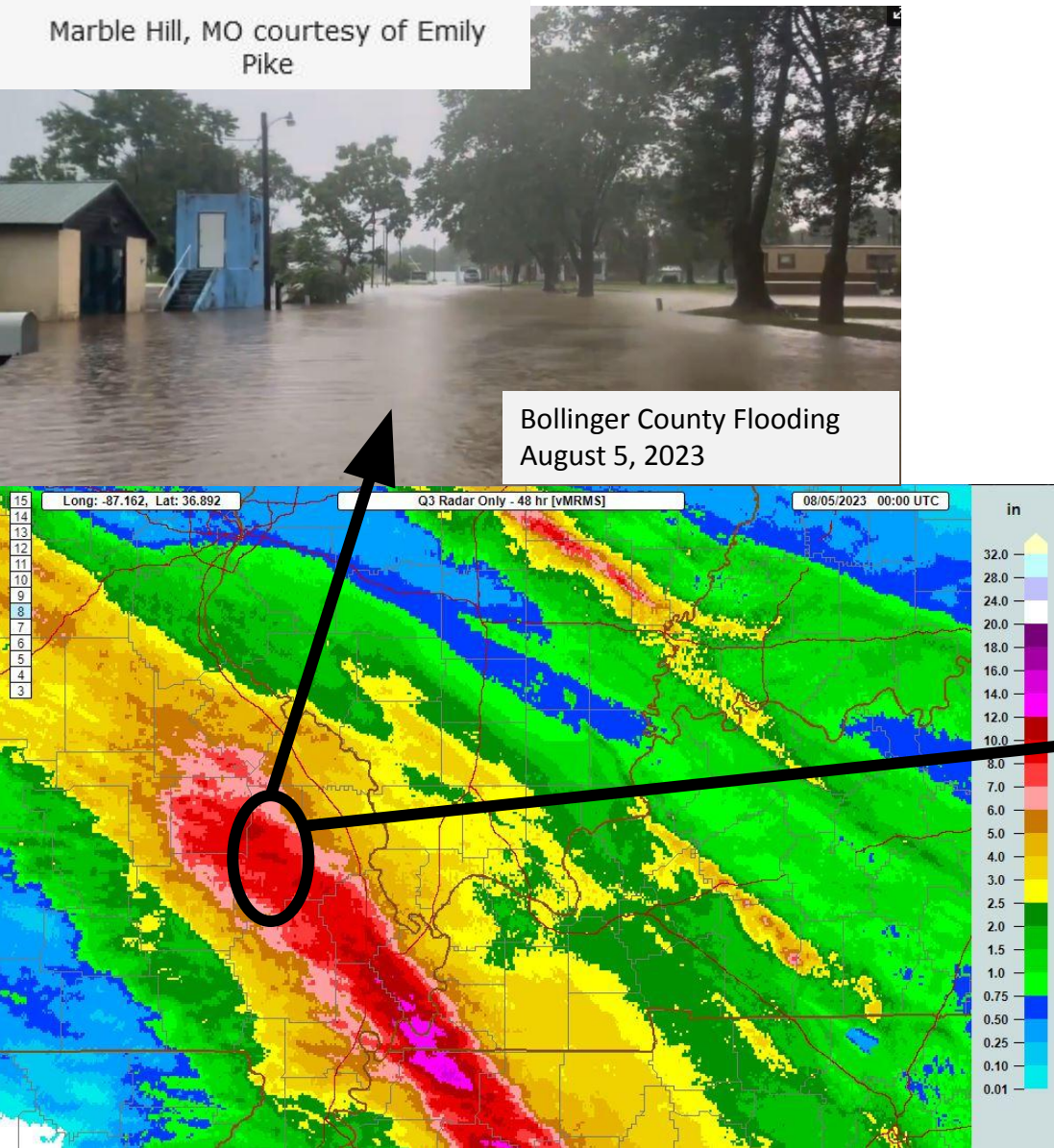
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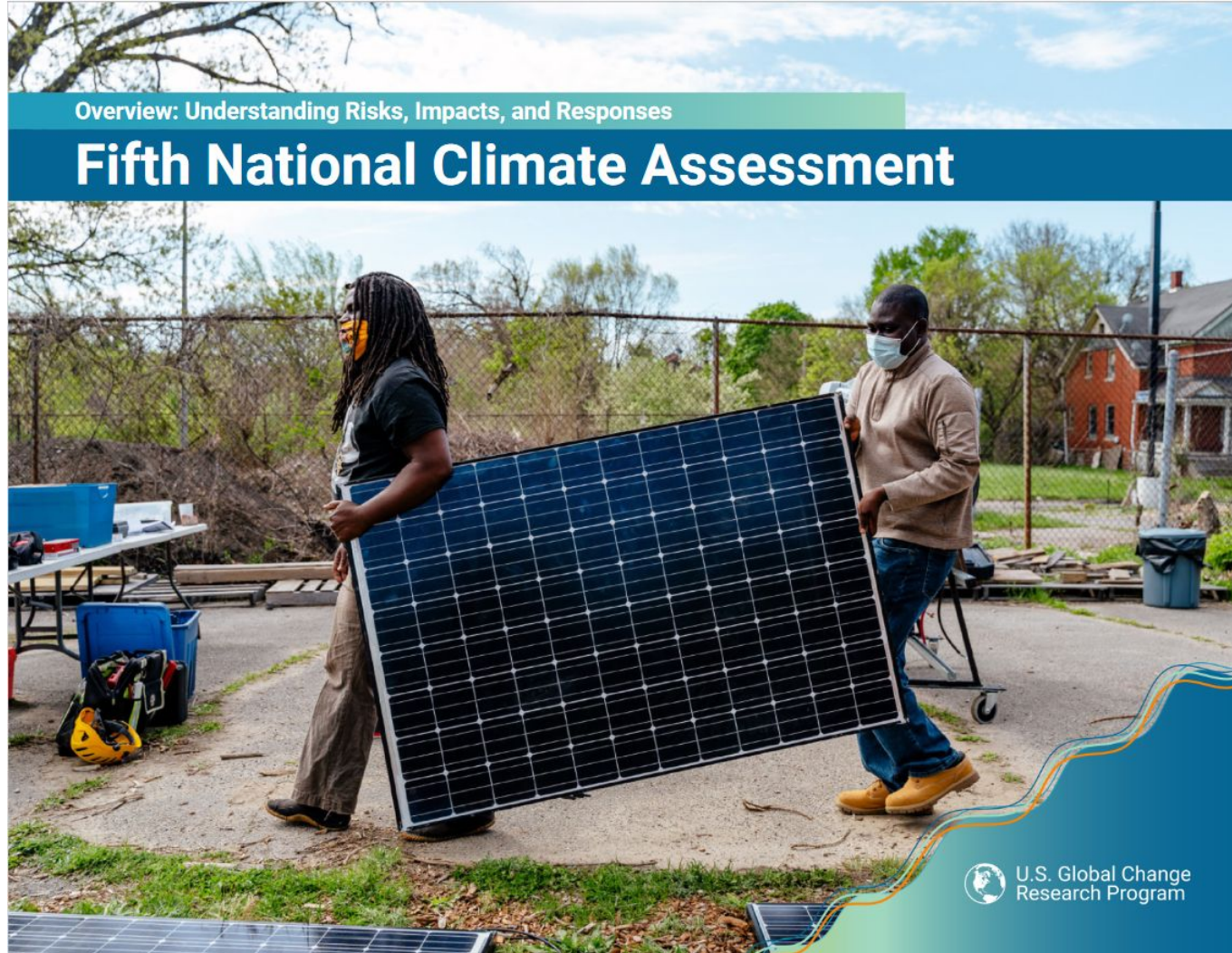


Hydroclimate Extremes

Accumulated Precipitation (in): Percent of 1991-2020 Normals
August 14, 2023 to December 31, 2023



Future possibilities for Missouri...

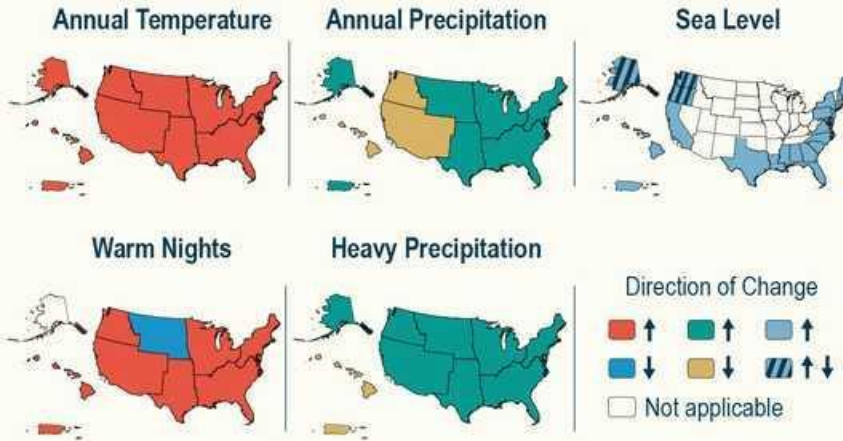


<https://nca2023.globalchange.gov/>

Future possibilities for Missouri...

Climate Change Risks and Opportunities in the US

Climate change is happening now in all regions of the US



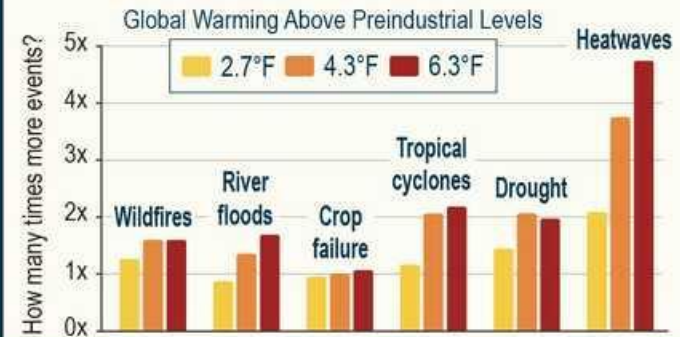
Each additional increment of warming leads to greater risks

Water supply
Food security
Infrastructure
Health and well-being
Ecosystems
Economy
Livelihoods and heritage



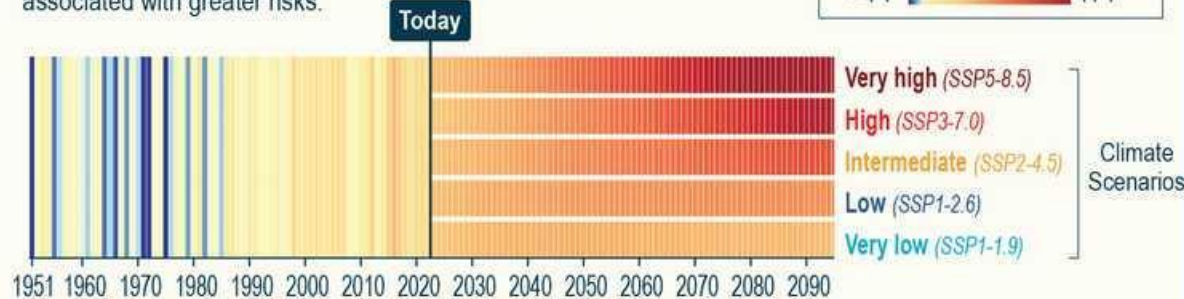
Without deeper cuts in global net emissions, climate risks to the US will continue to grow

► A person born in North America in 2020 will experience more climate hazards during their lifetime, on average, than a person born in 1965.



How much more the US warms depends on choices made today

► Future global greenhouse gas emissions from human activities determine whether and how quickly the US reaches warming levels associated with greater risks.

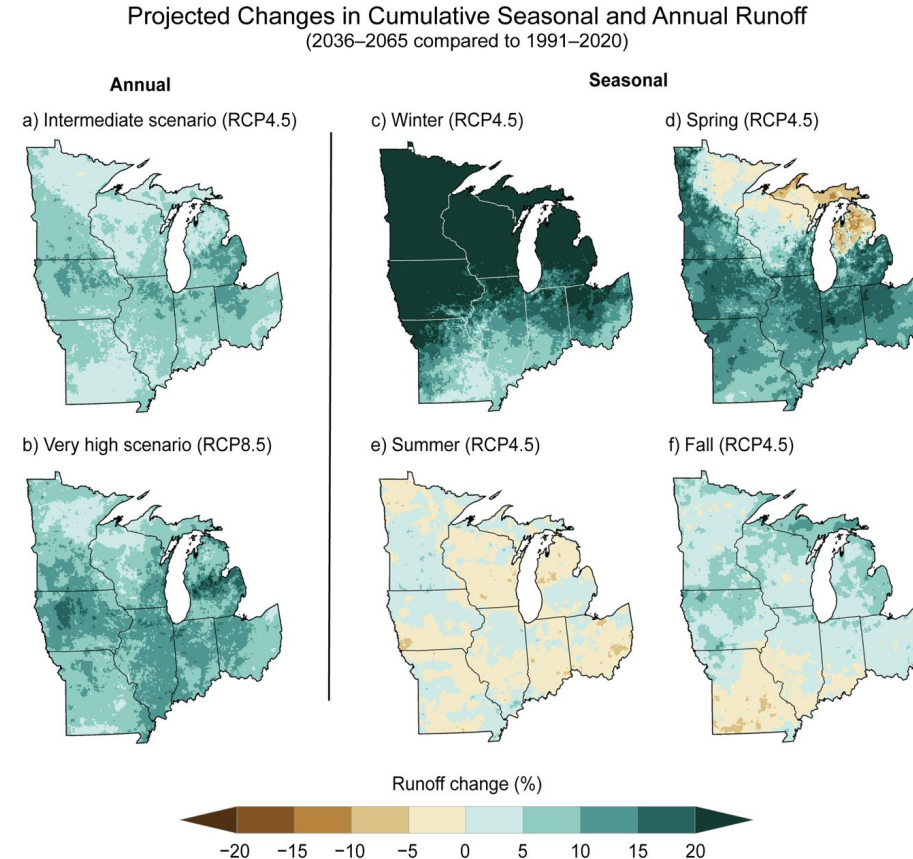


Action to limit future warming and reduce risks can have near-term benefits and opportunities



Future possibilities for Missouri...

Figure 24.11.
Projected changes in
cumulative local
runoff will lead to
increased flooding
susceptibility in
winter and spring
with, increased flash
drought potential in
summer.



Key Message 24.5

Managing Extremes Is Necessary to Minimize Impacts on Water Quality and Quantity

Climate-related changes to water quantity and quality are increasing the risks to ecosystem health, adequate food production, surface water and groundwater uses, and recreation (*high confidence*). Projected increases in droughts, floods, and runoff events across the Mississippi River basin and the Great Lakes will adversely impact ecosystems through increased erosion, harmful algal blooms, and expansion of invasive species (*likely, high confidence*). Federal and state agencies and nongovernmental organizations are cooperating on adaptation efforts related to streamflow, water quality, and other water issues (*high confidence*).

Future possibilities for Missouri...

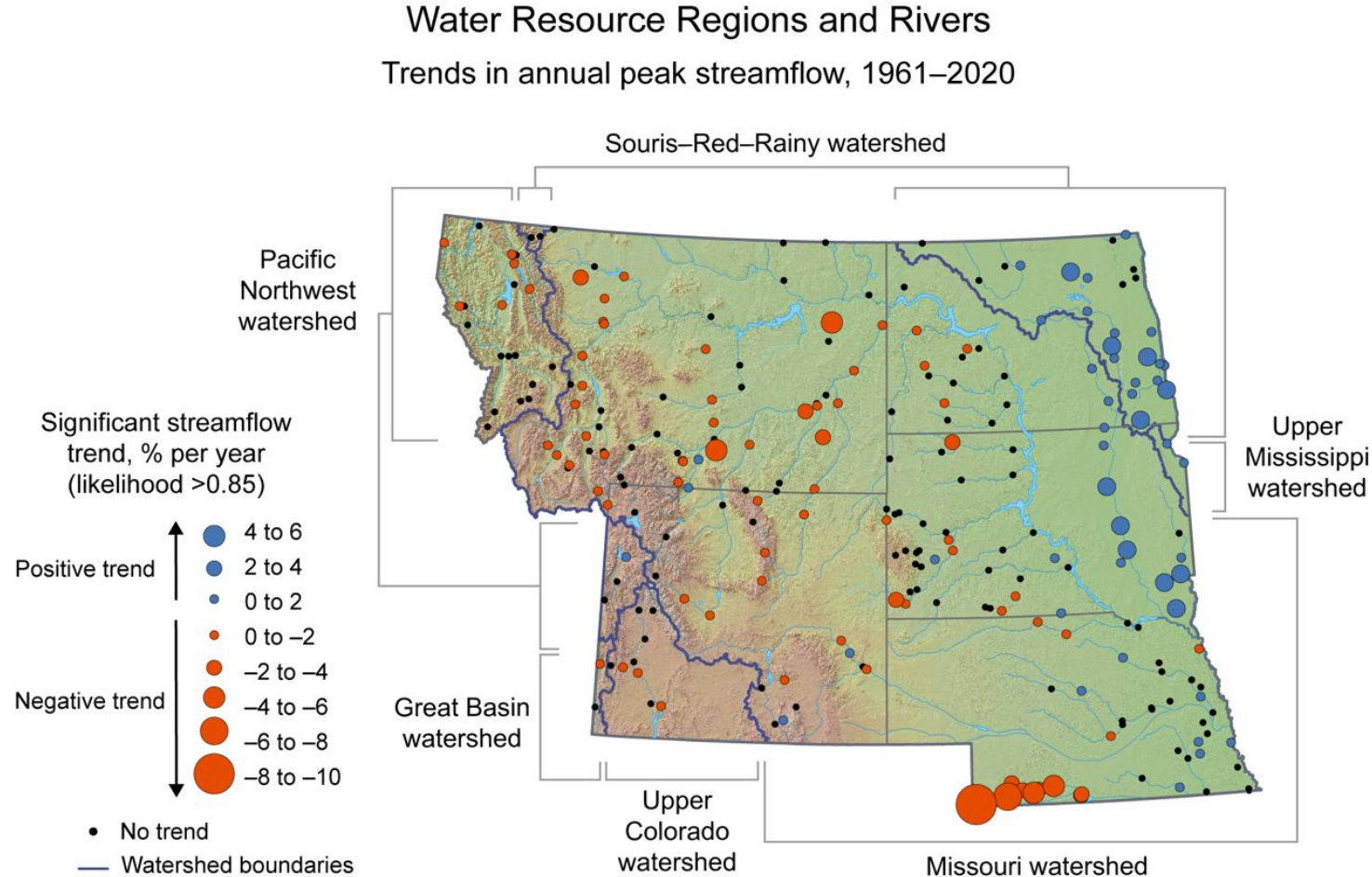


Figure 25.4. Annual peak streamflow—a proxy for flooding—has been rising in eastern portions of the region and declining in the west.

Future possibilities for Missouri...

The Urban Heat Island Effect

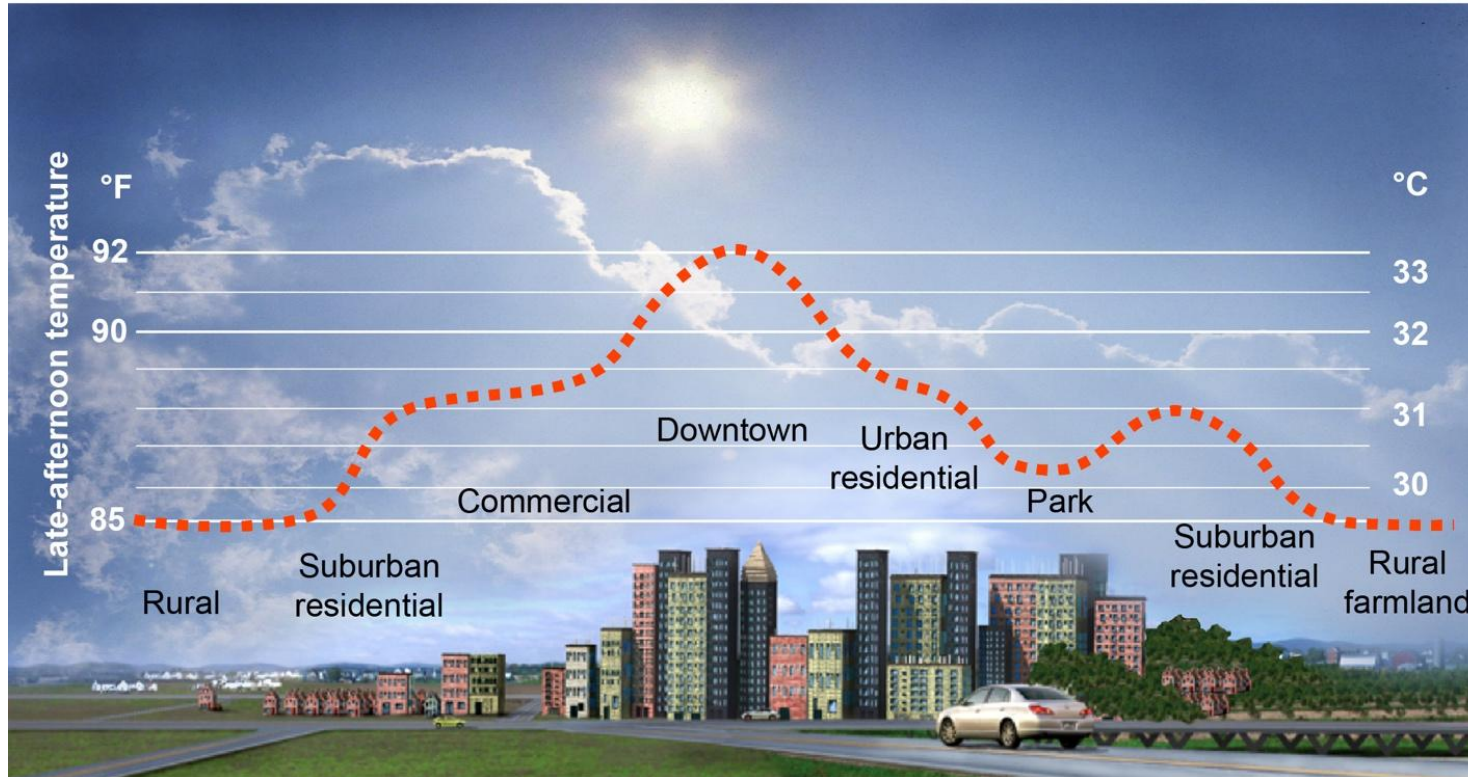


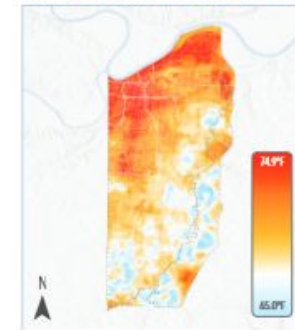
Figure 12.5. Urban heat islands are most prominent in dense downtown areas with little access to open space.



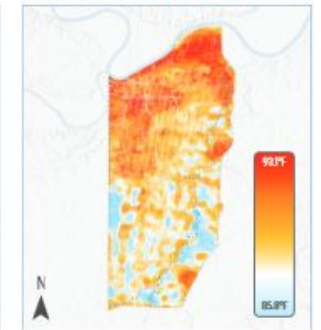
Executive Summary

Major thanks to all of the participants and organizers of the Urban Heat Watch program in Kansas City. After months of collaboration and coordination, local organizers and volunteers collected thousands of temperature and humidity data points in the morning, afternoon, and evening of a long, hot campaign day on August 6th, 2021.

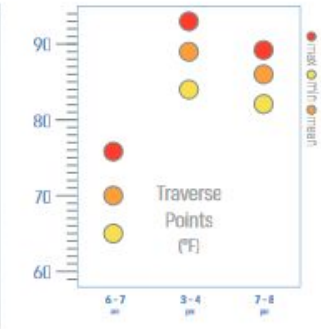
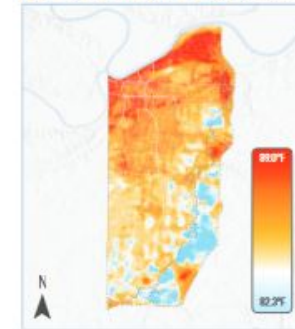
Morning Area-Wide Predictions (6 - 7 am)



Afternoon Area-Wide Predictions (3 - 4 pm)



Evening Area-Wide Predictions (7 - 8 pm)



Study Date

Aug 6th, 2021

50
Volunteers

10
Routes

71,820
Measurements

93.4°
Max Temperature

10.0°
Temperature
Differential



Learn more about the background and goals of each Heat Watch 2021 campaign city at <https://nihhis.cpa.noaa.gov/Urban-Heat-Islands/Mapping-Campaigns/Campaign-Cities>

Future possibilities for Missouri...

Change in Frequency of Transitions Between 1-Month Precipitation Extremes

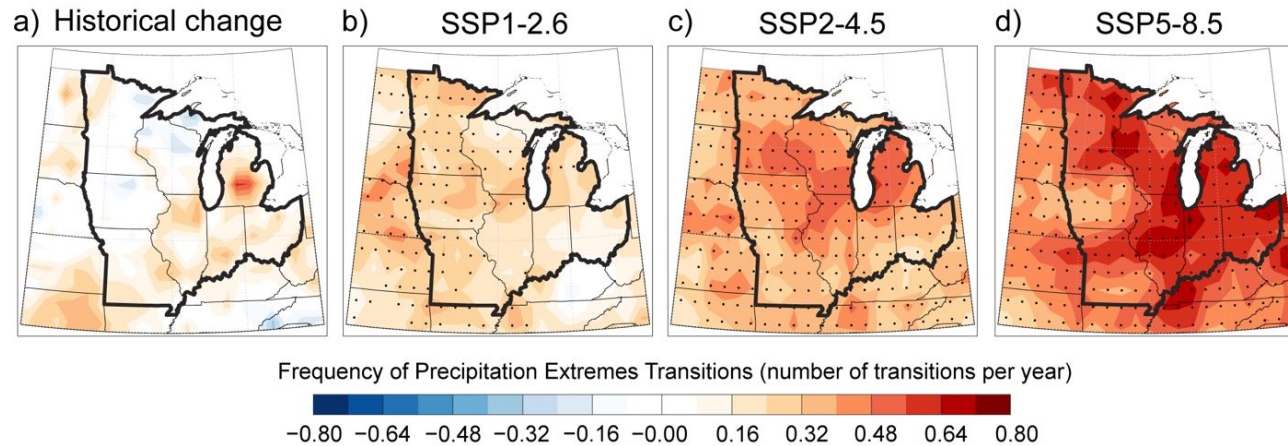


Figure 24.1. The frequency of wet–dry and dry–wet transitions across the Midwest is projected to increase by late century (2071–2100).

Key Message 5.1

Climate Change Threatens Energy Systems

Energy supply and delivery are at risk from climate-driven changes, which are also shifting demand (*virtually certain, very high confidence*). Climate change threats, including increases in extreme precipitation, extreme temperatures, sea level rise, and more intense storms, droughts, and wildfires, are damaging infrastructure and operations and affecting human lives and livelihoods (*virtually certain, very high confidence*). Impacts will vary over time and location (*virtually certain, very high confidence*). Without mitigation and adaptation, projected increases in the frequency, intensity, duration, and variability of extreme events will amplify effects on energy systems (*virtually certain, very high confidence*).

Projected Changes in Electricity Demand

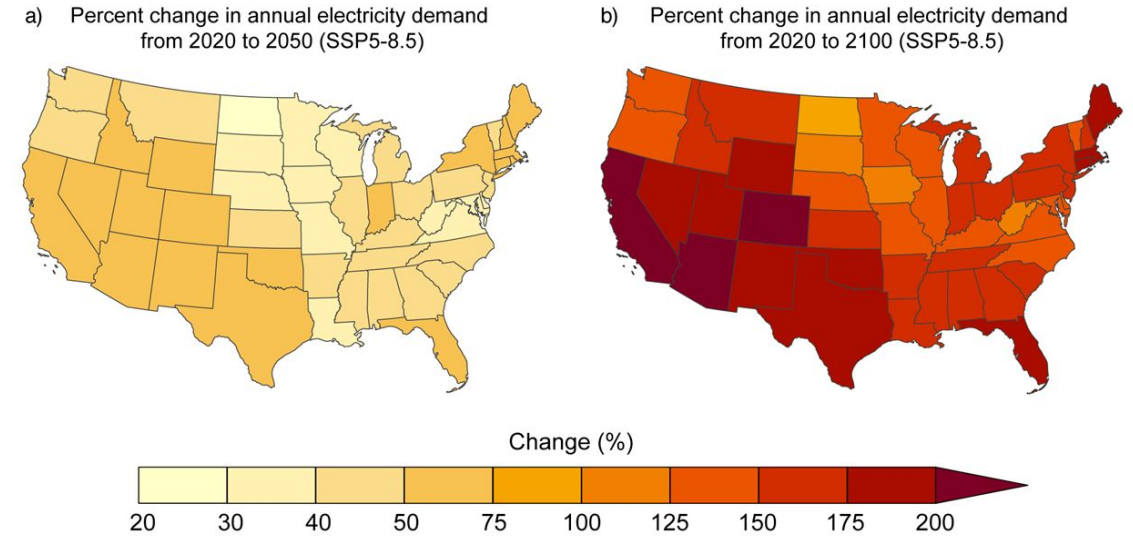
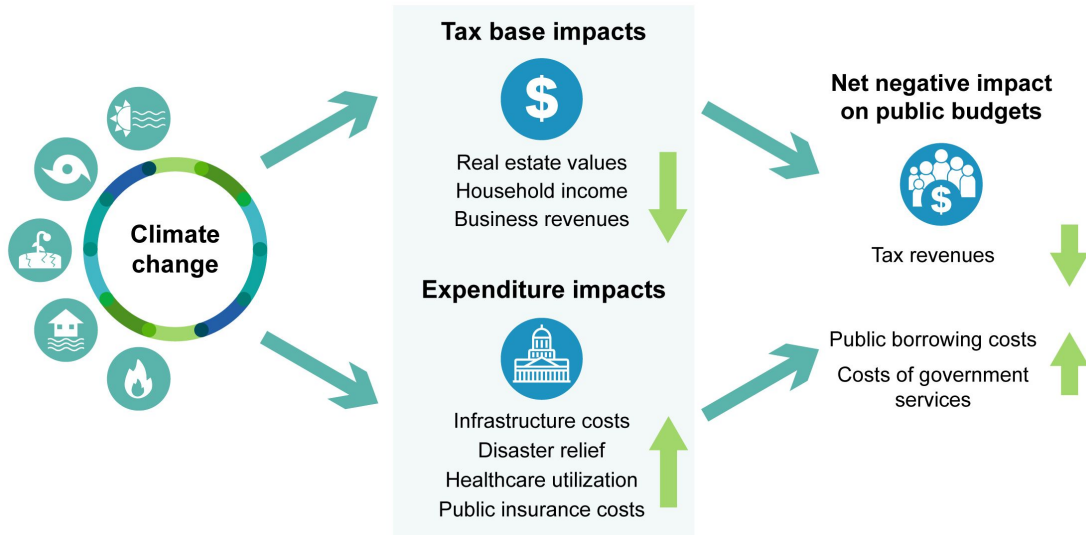


Figure 5.2. Due to climate change, electricity demand is projected to increase over this century.

Future possibilities for Missouri...

Fiscal Risks of Climate Change



Key Message 19.1

Climate Change Affects the Economy Directly

Climate change directly impacts the economy through increases in temperature, rising sea levels, and more frequent and intense weather-related extreme events (e.g., wildfires, floods, hurricanes, droughts), which are estimated to generate substantial and increasing economic costs in many sectors (*likely, high confidence*). These impacts are projected to be distributed unequally, affecting certain regions, industries, and socioeconomic groups more than others (*very likely, high confidence*). Adaptation can attenuate some impacts by reducing vulnerability to climate change, but adaptation strategies vary in their effectiveness and costs (*medium confidence*).

Key Message 19.2

Markets and Budgets Respond to Climate Change

Markets are responding to current and anticipated climate changes, and stronger market responses are expected as climate change progresses (*medium confidence*). Climate risks are projected to change asset values as markets and prices adjust to reflect economic conditions that result from climate change (*very likely, high confidence*). New costs and challenges will emerge in insurance systems and public budgets that were not originally designed to respond to climate change (*high confidence*). Trade and economic growth are projected to be impacted by climate change directly and through policy responses to climate change (*likely, medium confidence*).

Key Message 19.3

Economic Opportunities for Households, Businesses, and Institutions Will Change

Climate change is projected to impose a variety of new or higher costs on most households and to impact their employment, income, and quality of life (*very likely, high confidence*). Climate change will alter the economic landscape that businesses face, generating new risks but also creating new opportunities (*likely, medium confidence*). Institutions and governments are expected to see existing programs used more intensively or in new ways as populations cope with climate change, generating new system-wide risks (*medium confidence*). Design, evaluation, and deployment of adaptation technologies and policies will strengthen our national preparedness for climate change (*high confidence*).

Figure 19.4. Climate change puts pressure on public budgets.

Future possibilities for Missouri...

Extreme Precipitation Impacts

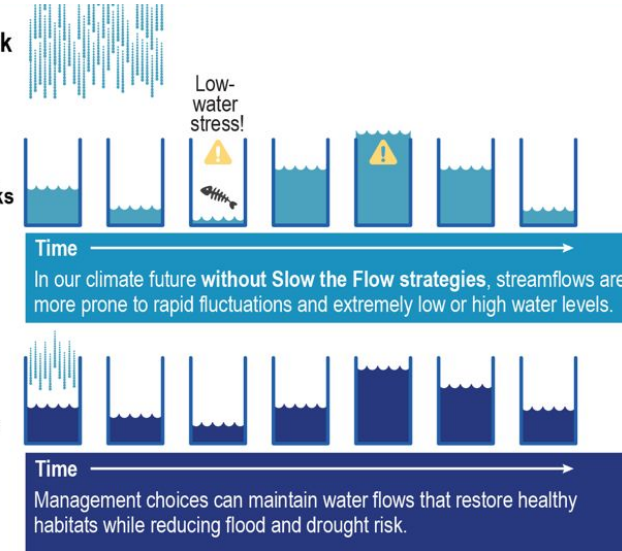


Flood and drought risk

No adaptation
More extreme precipitation increases risks



With adaptation
Adaptation reduces risks



Adaptation benefits

- Increase watershed storage
- Improve fish habitat
- Increase recreation opportunities
- Improve water quality
- Reduce erosion

Figure 24.5. Extreme precipitation events have adverse impacts on aquatic and terrestrial ecosystems, human health, infrastructure, and economies. Conservation and management strategies can help moderate these impacts.

Key Message 24.2

Adaptation May Ease Disruptions to Ecosystems and Their Services

Ecosystems are already being affected by changes in extreme weather and other climate-related changes, with negative impacts on a wide range of species (*likely, high confidence*). Increasing incidence of flooding and drought is expected to further alter aquatic ecosystems (*likely, medium confidence*), while terrestrial ecosystems are being reshaped by rising temperatures and decreasing snow and ice cover (*very likely, high confidence*). Loss of ecosystem services is undermining human well-being, causing the loss of economic, cultural, and health benefits (*medium confidence*). In response, communities are adapting their cultural practices and the ways they manage the landscape, preserving and protecting ecosystems and the services they provide (*low confidence*).

Future possibilities for Missouri...

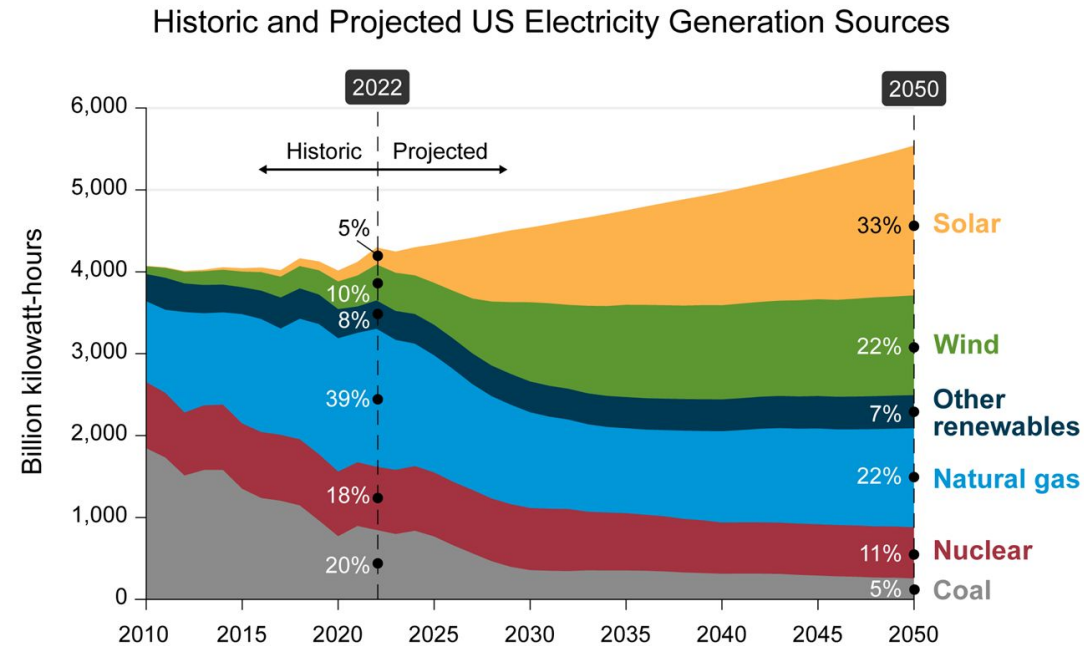


Figure 5.7. The Nation's electricity grid continues to expand use of clean energy technologies.

Key Message 5.3

Efforts to Enhance Energy System Resilience Are Underway

Federal, state, local, Tribal, and private-sector investments are being made to increase the resilience of the energy system to climate-related stressors, and opportunities exist to build upon this progress (*very high confidence*). Ongoing investments will need to include improvements in energy-efficient buildings; technology to decarbonize the energy system; advanced automation and communication and artificial intelligence technologies to optimize operations; climate modeling and planning methodologies under uncertainties; and efforts to increase equitable access to clean energy (*very high confidence*). An energy system transition emphasizing decarbonization and electrification would require efforts in new generation, transmission, distribution, and fuel delivery (*very high confidence*).

Future possibilities for Missouri...

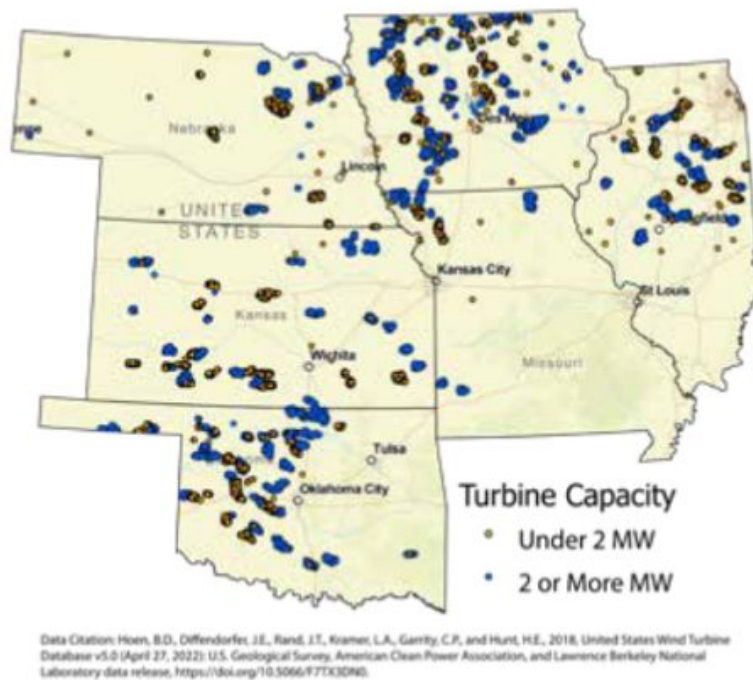
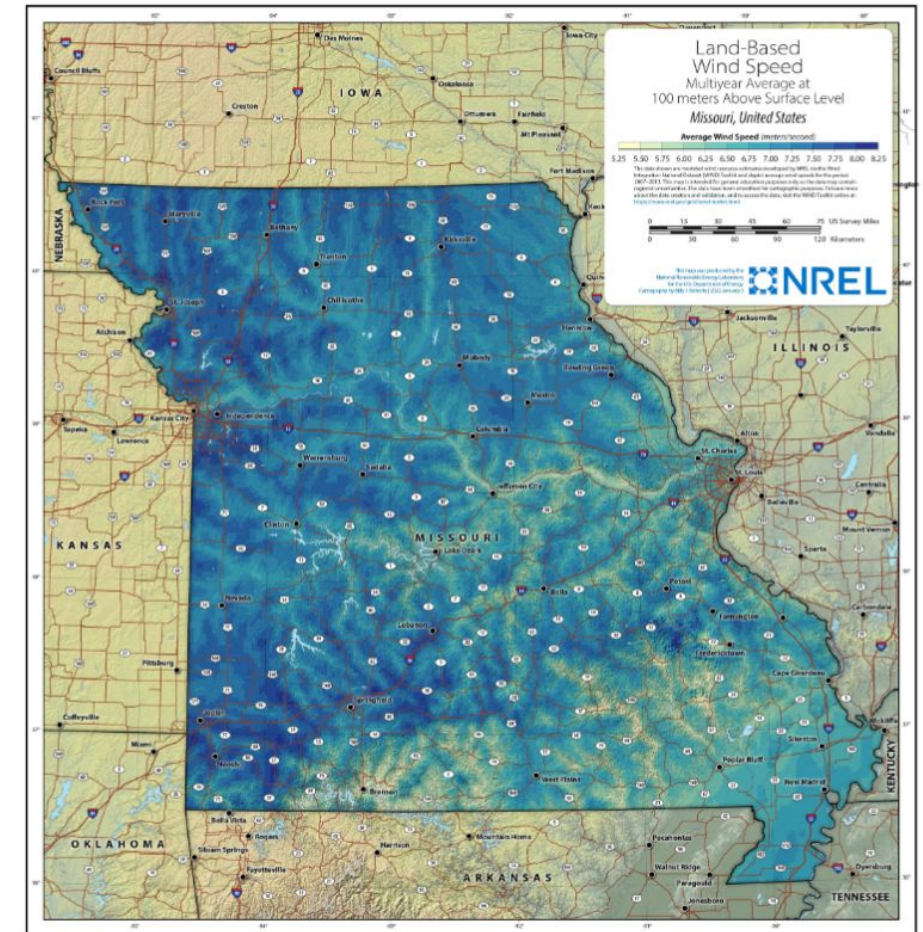


Figure 2. Wind turbine locations in Missouri, Illinois, Iowa, Nebraska, Kansas and Oklahoma.

Key Message 5.3

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Thank you!

Questions?

Zack Leasor, PhD

Assistant Professor | Missouri State Climatologist

School of Natural Resources | University of Missouri

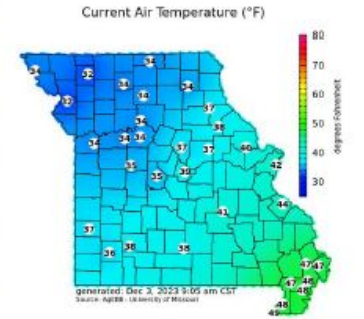
320 Anheuser-Busch Natural Resources Building | Columbia MO 65211

O: 573-882-5908 | E: leasorz@missouri.edu

W: <http://climate.missouri.edu>

Missouri Climate Center:
<http://climate.missouri.edu/>

Missouri Mesonet:
<http://agebb.missouri.edu/weather/stations/>



MISSOURI CLIMATE CENTER

<http://climate.missouri.edu/>

The Missouri Climate Center was established in 1995 and is an integrated unit for atmospheric and climate science research and extension in the University of Missouri's College of Agriculture, Food and Natural Resources, the School of Natural Resources, and the School's Atmospheric Science Program. The Center's primary mission is to monitor and document Missouri's climate and to produce value-added products and tools from available weather data. These climate tools provide needed information for effective planning and management of state agriculture, industry, and natural resources. The Missouri Climate Center is an institutional associate member of the American Association of State Climatologists (AASC) with an AASC recognized state climate office designation.

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Zack Leasor, Ph.D. | Missouri State Climatologist
320 ABNR, 1111 Rollins Street, Columbia, MO 65211
(573) - 882 - 5908 | leasorz@missouri.edu



Missouri Climate Center
University of Missouri

CITY OF INDEPENDENCE, MISSOURI
 Budgetary Comparison Schedule
 Power and Light
 For the period ended March 31, 2024

	Budgeted Amounts		Actual Amounts	Variance	Percent Actual	Percent From
	Original	Amended	(Budget Basis)	with Amended Budget	75.00% of Year	Budget
Operating Revenues:						
Charges for Services	\$ 137,475,870	137,475,870	113,598,031	(23,877,839)	82.63%	7.63%
Penalties	1,000,000	1,000,000	1,143,005	143,005	114.30%	39.30%
Connection Charges	33,000	33,000	5,415	(27,585)	16.41%	-58.59%
Miscellaneous	—	—	48,282	48,282	0.00%	-75.00%
Temporary Service	1,000	1,000	450	(550)	45.00%	-30.00%
Rental Income	294,500	294,500	295,751	1,251	100.42%	25.42%
Transmission Wheeling	7,000,000	7,000,000	4,746,646	(2,253,354)	67.81%	-7.19%
Total Operating Revenues	145,804,370	145,804,370	119,837,580	(25,966,790)	82.19%	7.19%
Operating Expenses:						
Personnel Services	30,327,879	30,327,879	21,679,426	8,648,453	71.48%	-3.52%
Retiree Benefits	1,460,000	1,460,000	1,090,657	369,343	74.70%	-0.30%
Other Services	28,080,687	28,692,887	22,439,803	6,253,084	78.21%	3.21%
Supplies	62,389,475	62,442,275	47,536,533	14,905,742	76.13%	1.13%
Capital Projects	14,747,000	23,120,096	2,632,174	20,487,922	11.38%	-63.62%
Capital Operating	1,356,440	1,577,637	379,890	1,197,747	24.08%	-50.92%
Debt Service	8,638,100	8,638,100	3,836,179	4,801,921	44.41%	-30.59%
Other Expenses	100,000	100,000	—	100,000	0.00%	-75.00%
Total Operating Expenses	147,099,581	156,358,874	99,594,662	56,764,212	63.70%	-11.30%
Nonoperating Revenues (Expenses):						
Investment Income	118,000	118,000	1,976,583	1,858,583	1675.07%	1600.07%
Interfund Charges for Support Services	2,075,300	2,075,300	1,589,457	(485,843)	76.59%	1.59%
Miscellaneous Revenue (Expense)	15,700	15,700	555,214	539,514	3536.39%	3461.39%
Total Nonoperating Revenue (Expenses)	2,209,000	2,209,000	4,121,254	1,912,254	186.57%	111.57%
Income (Loss) Before Transfers	913,789	(8,345,504)	24,364,172	32,709,676	-291.94%	-366.94%
Capital Contributions	—	—	—	—	0.00%	-75.00%
Transfers Out – Utility Payments In Lieu of Taxes	(14,601,000)	(14,601,000)	(11,831,009)	(2,769,991)	81.03%	6.03%
Transfers In	—	—	—	—	0.00%	-75.00%
Transfers Out	—	—	—	—	0.00%	-75.00%
Total Transfers	(14,601,000)	(14,601,000)	(11,831,009)	(2,769,991)	81.03%	6.03%
Excess of Revenue and Other Financing Sources Over (Under) Expenditures and Other Financing Uses, Budget Basis	\$ (13,687,211)	(22,946,504)	12,533,163	35,479,667		
Beginning Available Resources			51,797,305			
Prior Period Adjustment			—			
Year-End Investment Market Value Adjustment			—			
Ending Available Resources			<u>64,330,468</u>			
Revenue Risk			5,300,000			
Capital Reserve			3,000,000			
Expense Risk			18,700,000			
Working Capital			<u>25,500,000</u>			
Targeted Reserve Level			<u>52,500,000</u>			
Total Non-Restricted Resources Available			\$ 11,830,468			

Power and Light - Open Capital Projects
As of March 31, 2024

PROJECT	PROJECT TITLE	ORIGINAL BUDGET	NET BUDGET AMENDMENTS	REVISED BUDGET	ENCUMBRANCES	ACTUALS	AVAILABLE BUDGET
200815	T&D Sys IMPROVEMENTS	\$ 550,000.00	751,671.50	1,301,671.50	217,258.14	755,979.53	328,433.83
200828	FIBER OPTIC PROGRAM	200,000.00	70,789.23	270,789.23	94,288.97	142,762.33	33,737.93
201106	69 KV SUBSTATION FACILITIES	-	236,068.65	236,068.65	38,493.25	121,089.08	76,486.32
201405	SUBSTATION SECURITY PROJECT	-	196,405.74	196,405.74	68,411.53	43,660.52	84,333.69
201510	Sys OpS / DISPATCH	-	43,034.77	43,034.77	33,430.50	-	9,604.27
201603	69 KV Trans LINE REBUIL	-	771,535.88	771,535.88	64,309.79	20,381.70	686,844.39
201604	Sys OpS / UPS UPGRAD	-	51,175.00	51,175.00	-	51,175.00	-
201605	Sys OpS WORK AREA	700,000.00	619,842.18	1,319,842.18	-	-	1,319,842.18
201702	Prod FACILITIES IMPROVE	-	172,116.00	172,116.00	-	-	172,116.00
201703	BV GROUND WATER	-	289,356.17	289,356.17	85,096.00	42,475.15	161,785.02
201706	SUBSTATION K SWITCHGEAR &	-	146,637.27	146,637.27	146,316.11	-	321.16
201710	Mo CITY DIVESTITURE	-	350,294.83	350,294.83	287,241.32	63,053.01	0.50
201804	SUBSTATION E SWITCHGEAR REPLACEMENT	-	2,281,361.33	2,281,361.33	119,905.56	237,018.90	1,924,436.87
202101	Substation Fiber Optic Network	217,000.00	832,919.23	1,049,919.23	17,925.00	53,321.00	978,673.23
202102	Traffic Controller Upgrades	-	56,342.00	56,342.00	27,715.00	19,686.00	8,941.00
202103	Traffic Camera System Upgrades	-	51,837.00	51,837.00	45,000.00	-	6,837.00
202107	Motorola APX Radio Purchase Phase 2	-	67,716.89	67,716.89	-	-	67,716.89
202108	Operations APC UPS Battery Replace	75,000.00	99,700.00	174,700.00	-	-	174,700.00
202109	Substation Modeling	150,000.00	-	150,000.00	-	-	150,000.00
202110	20MVAR Capacitor Bank Sub A	-	190,689.11	190,689.11	-	13,233.83	177,455.28
202111	Transmission Pole Replacement Prog	-	529,680.46	529,680.46	21,375.83	35,674.10	472,630.53
202201	Substation A Transformer T-9 Mtce	-	180,000.00	180,000.00	70,425.00	-	109,575.00
202202	Substation N Transformer T-1 Maint	180,000.00	-	180,000.00	-	-	180,000.00
202205	Desert Storm Switchgear Cabinets	250,000.00	500,000.00	750,000.00	296,099.58	249,977.25	203,923.17
202206	T & D Road Improvement Projects	-	1,205,645.70	1,205,645.70	913,291.78	204,265.26	88,088.66
202208	Traffic Signal Detection Systems	60,000.00	21,635.00	81,635.00	2,140.00	2,860.73	76,634.27
202210	IPL Service Center PBX Upgrade to I	15,000.00	85,000.00	100,000.00	-	-	100,000.00
202211	H-5 Hot Gas Path Inspection	-	239,397.25	239,397.25	-	-	239,397.25
202304	Controls Software Upgrade	-	364,491.80	364,491.80	46,669.40	303,986.40	13,836.00
202305	PLSC Operations Area HVAC Upgrade	-	100,000.00	100,000.00	-	-	100,000.00
202306	Substation A Blockhouse Roof Repl	-	25,022.00	25,022.00	-	-	25,022.00
202308	Substn & Trans Upgrade &Replacement	-	389,841.71	389,841.71	-	1,441.58	388,400.13
202314	Construction of New Substation S	6,000,000.00	-	6,000,000.00	-	-	6,000,000.00
202315	Construct New Trans System Sub S	1,350,000.00	-	1,350,000.00	-	-	1,350,000.00
202316	Construct 6 New Dist Feeders Sub S	650,000.00	357,460.73	1,007,460.73	113,861.74	37,077.99	856,521.00
202317	H5 Combustion Turbine Repair	-	714,175.19	714,175.19	22,862.02	330,876.40	360,436.77
202401	Purchase Evergy 69kV Line	1,200,000.00	-	1,200,000.00	20,000.00	-	1,180,000.00
202403	Sub M Breaker Replacement	150,000.00	-	150,000.00	-	-	150,000.00
202405	Emergency Replacement Trans Poles	250,000.00	-	250,000.00	42,751.66	-	207,248.34
202406	Service Center Upgrades	500,000.00	-	500,000.00	-	-	500,000.00
202407	Emergent Maintenance Production	400,000.00	-	400,000.00	-	-	400,000.00
202408	Substation & Trans Upgrade &Replace	400,000.00	-	400,000.00	-	-	400,000.00
202409	T & D Road Improvement Projects	500,000.00	-	500,000.00	-	-	500,000.00
202410	T & D System Improvements	500,000.00	-	500,000.00	-	-	500,000.00
202411	SCADA/EMS Software/Hardware Upgrade	450,000.00	-	450,000.00	188,448.21	147,349.60	114,202.19
\$		14,747,000.00	11,991,842.62	26,738,842.62	2,983,316.39	2,877,345.36	20,878,180.87

	Current Year	Prior Year	Total
	Budget	Budget (Enc Roll)	
Budget	\$ 23,120,096.31	3,618,746.31	26,738,842.62
Less Expenditures	886,483.59	1,990,861.77	2,877,345.36
Less Encumbrances	1,745,689.99	1,237,626.40	2,983,316.39
Total Available	\$ 20,487,922.73	390,258.14	20,878,180.87

CITY OF INDEPENDENCE, MISSOURI
 Budgetary Comparison Schedule
 Water
 For the period ended March 31, 2024

	Budgeted Amounts		Actual Amounts (Budget Basis)	Variance with Amended Budget	Percent Actual 75.00% of Year	Percent From Budget
	Original	Amended				
Operating Revenues:						
Charges for Services	\$ 32,610,000	32,610,000	25,382,988	(7,227,012)	77.84%	2.84%
Penalties	200,000	200,000	169,894	(30,106)	84.95%	9.95%
Connection/Disconnection Charges	17,000	17,000	18,622	1,622	109.54%	34.54%
Miscellaneous	15,000	15,000	5,797	(9,203)	38.65%	-36.35%
Returned Check Charges	26,000	26,000	23,325	(2,675)	89.71%	14.71%
Rental Income	85,000	85,000	90,334	5,334	106.28%	31.28%
Meter Repairs	—	—	—	—	0.00%	-75.00%
Merchandising Jobbing	—	—	3,269	3,269	0.00%	-75.00%
Total Operating Revenues	32,953,000	32,953,000	25,694,229	(7,258,771)	77.97%	2.97%
Operating expenses:						
Personnel Services	10,123,922	10,026,347	6,499,636	3,526,711	64.83%	-10.17%
Retiree Benefits	364,000	364,000	242,503	121,497	66.62%	-8.38%
Other Services	14,168,493	13,968,493	8,763,765	5,204,728	62.74%	-12.26%
Supplies	3,626,950	4,160,950	3,765,139	395,811	90.49%	15.49%
Capital Projects	8,050,000	20,781,289	1,698,096	19,083,193	8.17%	-66.83%
Capital Operating	1,037,800	711,800	475,481	236,319	66.80%	-8.20%
Debt Service	2,540,938	2,540,938	2,367,220	173,718	93.16%	18.16%
Other Expenses	50,000	50,000	—	50,000	0.00%	-75.00%
Total Operating Expenses	39,962,103	52,603,817	23,811,840	28,791,977	45.27%	-29.73%
Nonoperating Revenues (Expenses):						
Investment Income	657,138	657,138	1,533,759	876,621	233.40%	158.40%
Interfund Charges for Support Services	3,360,000	3,360,000	2,523,578	(836,422)	75.11%	0.11%
Miscellaneous Revenue (Expense)	16,700	16,700	84,950	68,250	508.68%	433.68%
Total Nonoperating Revenue (Expenses)	4,033,838	4,033,838	4,142,287	108,449	102.69%	27.69%
Income (Loss) Before Transfers	(2,975,265)	(15,616,979)	6,024,676	21,641,655	-38.58%	-113.58%
Transfers Out – Utility Payments In Lieu of Taxes	(2,990,770)	(2,990,770)	(2,465,812)	(524,958)	82.45%	7.45%
Transfers In	—	—	—	—	0.00%	-75.00%
Transfers Out	—	—	—	—	0.00%	-75.00%
Total Transfers	(2,990,770)	(2,990,770)	(2,465,812)	(524,958)	82.45%	7.45%
Excess of Revenue and Other Financing Sources Over (Under) Expenditures and Other Financing Uses, Budget Basis	\$ (5,966,035)	(18,607,749)	3,558,864	22,166,613		
Beginning Available Resources			51,219,649			
Year-End Investment Market Value Adjustment			—			
Ending Available Resources			<u>54,778,513</u>			
Revenue Risk			2,000,000			
Capital Reserve			6,100,000			
Expense Risk			700,000			
Working Capital			5,600,000			
Targeted Reserve Level			<u>14,400,000</u>			
Total Non-Restricted Resources Available			\$ <u>40,378,513</u>			

**Water - Open Capital Projects
As of March 31, 2024**

PROJECT	PROJECT TITLE	ORIGINAL BUDGET	NET BUDGET AMENDMENTS	REVISED BUDGET	ENCUMBRANCES	ACTUALS	AVAILABLE BUDGET
400708	TREATMENT PIT DISCHARGE	\$ 1,000,000.00	273,113.14	1,273,113.14	67,638.14	3,475.00	1,202,000.00
400904	EAST INDEPENDENCE INDUST PARK	-	674,000.00	674,000.00	-	-	674,000.00
401003	FUTURE Prod WELLS	500,000.00	1,462,326.00	1,962,326.00	603,339.94	646,554.06	712,432.00
401301	23RD ST MAIN REPLACEMENT	-	311,672.57	311,672.57	2,811.00	-	308,861.57
401402	LAGOON CLEANOUT	500,000.00	(24,500.00)	475,500.00	194,400.00	-	281,100.00
401505	Dist Sys IMPROVE	-	244,781.00	244,781.00	-	-	244,781.00
401506	TRUMAN ROAD BOOSTER STATION	-	106,569.52	106,569.52	-	-	106,569.52
401601	FILTER BACKWASH OUTFALL	-	190,325.00	190,325.00	-	-	190,325.00
401602	Pit DISCHARGE OUTFALL	-	459,824.48	459,824.48	-	-	459,824.48
401605	COURTNEY BEND BASIN CATWALK	-	10,020.00	10,020.00	-	-	10,020.00
401608	LIME SILO	-	3,919,760.18	3,919,760.18	2,105,258.25	1,446,380.28	368,121.65
401703	Maint BUILDING AT CBP	-	200,000.00	200,000.00	-	-	200,000.00
401704	VAN HORN RESERVOIR IMPROVE	-	(49,699.58)	(49,699.58)	-	-	(49,699.58)
401802	6" Main Replacement James Downey Rd	-	250,087.60	250,087.60	-	-	250,087.60
401804	Filter Valve House Roof Improvement	-	97,292.00	97,292.00	-	-	97,292.00
401808	VFD Drive Replacements HSP 2 & 4	-	230,967.00	230,967.00	-	-	230,967.00
401818	30" Steel Transmission Main Assess	-	156,300.00	156,300.00	-	-	156,300.00
401821	Main Replacement-32nd/Hunter/Bird	-	91,000.00	91,000.00	-	-	91,000.00
401822	Main Replacement-24Hwy/Northern/RR	-	240,166.00	240,166.00	-	-	240,166.00
402002	39th Street Reservoir	-	(16,042.60)	(16,042.60)	13,455.30	4,953.00	(34,450.90)
402004	Main Replace Walnut/Leslie/LeesSumm	-	81,218.73	81,218.73	-	-	81,218.73
402007	Courtney Bend Emergency Generator	-	1,150,000.00	1,150,000.00	-	-	1,150,000.00
402008	Wellfield Overhead Electrical Imp	-	1,000,000.00	1,000,000.00	-	-	1,000,000.00
402009	Main Replace Sheley/Claremont/Norw	-	188,790.00	188,790.00	-	-	188,790.00
402010	Main Replace Gudgeon/Dodgion/KingsH	-	103,132.50	103,132.50	-	-	103,132.50
402011	Main Replace Salisbury/Peck/Geospac	-	120,100.00	120,100.00	-	-	120,100.00
402012	College Avenue Improvements	-	250,000.00	250,000.00	-	-	250,000.00
402101	Main Replacement Ralston 31st/29th	-	361,105.00	361,105.00	152,749.98	176,446.52	31,908.50
402102	Main Replacement 3rd St & Jennings	-	436,013.00	436,013.00	-	-	436,013.00
402103	Main Replacement Truman Road	-	86,890.00	86,890.00	44,728.00	-	42,162.00
402104	Lime Slaker No 5	-	350,000.00	350,000.00	6,286.63	371,802.17	(28,088.80)
402105	Main Replacement Sheley	-	89,229.50	89,229.50	-	-	89,229.50
402106	Main Replacement Sheley & Northern	-	983,910.00	983,910.00	105,949.23	445,108.11	432,852.66
402107	Facility Improvements/Const/Maint	-	1,714,358.50	1,714,358.50	53,607.97	10,750.53	1,650,000.00
402108	Basin Drive Improvements	-	340,523.00	340,523.00	397,033.00	6,443.00	(62,953.00)
402201	Roof Improvements	-	(19,500.00)	(19,500.00)	-	-	(19,500.00)
402203	Lime Slaker No 1	-	350,000.00	350,000.00	7,701.86	369,209.34	(26,911.20)
402207	CB Electrical Switchgear Improvemen	-	200,000.00	200,000.00	-	-	200,000.00
402301	IT Infrastructure Upgrade	-	9,034.80	9,034.80	-	-	9,034.80
402302	HSPS HVAC Improvements	-	250,000.00	250,000.00	106,520.00	-	143,480.00
402303	Lime Silo Recoating	-	400,000.00	400,000.00	-	-	400,000.00
402401	Fiber Optic Upgrades	500,000.00	-	500,000.00	496,780.00	-	3,220.00
402402	Lime Slaker No. 6	350,000.00	-	350,000.00	91,242.86	242,065.14	16,692.00
402403	Sludge House Piping Improvements	200,000.00	-	200,000.00	-	-	200,000.00
9749	MAIN REPLACEMENT PROGRAM	5,000,000.00	3,176,870.47	8,176,870.47	345,823.58	912,572.54	6,918,474.35
9952	SECURITY UPGRADES	-	454,706.39	454,706.39	6,104.34	65,096.39	383,505.66
		\$ 8,050,000.00	20,904,344.20	28,954,344.20	4,801,430.08	4,700,856.08	19,452,058.04

	Budget	Budget (Enc Roll)	Total
Budget	\$ 20,781,289.40	8,173,054.80	28,954,344.20
Less Expenditures	280,191.14	4,420,664.94	4,700,856.08
Less Encumbrances	1,417,905.22	3,383,524.86	4,801,430.08
Total Available	\$ 19,083,193.04	368,865.00	19,452,058.04

CITY OF INDEPENDENCE, MISSOURI
 Budgetary Comparison Schedule
 Sanitary Sewer
 For the period ended March 31, 2024

	Budgeted Amounts		Actual Amounts (Budget Basis)	Variance with Amended Budget	Percent Actual 75.00% of Year	Percent From Budget
	Original	Amended				
Operating revenues:						
Charges for Services	\$ 35,546,430	35,546,430	27,305,215	(8,241,215)	76.82%	1.82%
Penalties	200,000	200,000	279,842	79,842	139.92%	64.92%
Total operating revenues	35,746,430	35,746,430	27,585,057	(8,161,373)	77.17%	2.17%
Operating expenses:						
Personnel Services	6,988,726	6,988,726	4,515,054	2,473,672	64.60%	-10.40%
Retiree Benefits	348,000	348,000	321,292	26,708	92.33%	17.33%
Other Services	15,920,944	15,935,244	11,156,544	4,778,700	70.01%	-4.99%
Supplies	1,478,000	1,485,540	887,919	597,621	59.77%	-15.23%
Capital Projects	6,330,000	17,274,356	2,604,391	14,669,965	15.08%	-59.92%
Capital Operating	409,600	452,059	283,854	168,205	62.79%	-12.21%
Debt Service	6,242,978	6,242,978	5,587,469	655,509	89.50%	14.50%
Other Expenses	—	—	—	—	0.00%	-75.00%
Total Operating Expenses	37,718,248	48,726,903	25,356,523	23,370,380	52.04%	-22.96%
Nonoperating Revenues (Expenses):						
Investment Income	326,000	326,000	1,022,030	696,030	313.51%	238.51%
Miscellaneous Revenue (Expense)	7,900	7,900	50,766	42,866	642.61%	567.61%
Total Nonoperating Revenue (Expenses)	333,900	333,900	1,072,796	738,896	321.29%	246.29%
Income (Loss) Before Transfers	(1,637,918)	(12,646,573)	3,301,330	15,947,903	-26.10%	-101.10%
Transfers Out – Utility Payments In Lieu of Taxes	(3,596,612)	(3,596,612)	(2,745,513)	(851,099)	76.34%	1.34%
Transfers In	10,000	10,000	10,000	—	100.00%	25.00%
Transfers Out	—	(2,130,000)	(2,336)	(2,127,664)	0.11%	-74.89%
Total Transfers	(3,586,612)	(5,716,612)	(2,737,849)	(2,978,763)	47.89%	-27.11%
Excess of Revenue and Other Financing Sources Over (Under) Expenditures and Other Financing Uses, Budget Basis	\$ (5,224,530)	(18,363,185)	563,481	18,926,666		
Beginning Available Resources			33,820,216			
Year-End Investment Market Value Adjustment			—			
Ending Available Resources			<u>34,383,697</u>			
Revenue Risk			1,200,000			
Capital Reserve			4,000,000			
Expense Risk			700,000			
Working Capital			6,800,000			
Targeted Reserve Level			<u>12,700,000</u>			
Total Non-Restricted Resources Available			<u>\$ 21,683,697</u>			

**Sanitary Sewer - Open Capital Projects
As of March 31, 2024**

PROJECT	PROJECT TITLE	ORIGINAL BUDGET	NET BUDGET AMENDMENTS	REVISED BUDGET	ENCUMBRANCES	ACTUALS	AVAILABLE BUDGET
301201	BURR OAK EAST	\$ -	1,035,327.15	1,035,327.15	-	-	1,035,327.15
301202	CRACKERNECK-VAN HOOK SEWER	-	529,163.59	529,163.59	-	-	529,163.59
301701	SCADA UPGRADE	-	84,886.62	84,886.62	-	7,378.84	77,507.78
301706	TREATMENT FACILITY IMPROVEMENT	-	480,293.20	480,293.20	79,382.20	158,438.21	242,472.79
301804	ROCK CREEK EFFLUENT STRUCTURE	-	321,449.93	321,449.93	-	-	321,449.93
302002	Arlington Improvements	-	100,000.00	100,000.00	-	-	100,000.00
302004	Neighborhood Projects 2019-20	150,000.00	1,890,934.34	2,040,934.34	645,096.12	184,963.09	1,210,875.13
302005	Biosolids Handling	-	991,019.78	991,019.78	-	-	991,019.78
302006	Raw Pumps & Screening	-	579,279.41	579,279.41	-	-	579,279.41
302007	Electrical Substation Rehab	-	158,690.00	158,690.00	29,351.00	-	129,339.00
302008	RCTP Fence	-	36,015.56	36,015.56	-	-	36,015.56
302101	Sanitation Sewer Evaluation Survey	-	106,982.83	106,982.83	-	-	106,982.83
302102	Raymond Harkless Mills San Imp	-	200,000.00	200,000.00	295,269.34	-	(95,269.34)
302103	Pump Station Imp & Maintenance	150,000.00	568,240.98	718,240.98	-	-	718,240.98
302104	Polymer System Relocation	-	100,000.00	100,000.00	-	-	100,000.00
302105	Piping Rehabilitation	-	585,933.69	585,933.69	14,332.50	-	571,601.19
302201	Upper Adair Interceptor	-	800,000.00	800,000.00	126,439.26	302,019.00	371,541.74
302202	Crackerneck Creek Slope Rehab	-	2,270,141.29	2,270,141.29	231,966.60	104,890.50	1,933,284.19
302203	Sanitary Sewer Main Reloc from Stre	300,000.00	400,000.00	700,000.00	-	-	700,000.00
302204	RCTP - Septic Pumper	-	300,000.00	300,000.00	-	-	300,000.00
302205	Clarifier Rehabilitation	1,800,000.00	1,235,952.56	3,035,952.56	18,646.70	27,637.24	2,989,668.62
302206	Railing Safety RCPS & SCPS	-	14,083.09	14,083.09	-	-	14,083.09
302301	Sludge Thickening Process Improve	200,000.00	400,000.00	600,000.00	-	-	600,000.00
302401	Cost of Service Study	100,000.00	-	100,000.00	-	-	100,000.00
302402	Grit Removal Improvements-RCPS	750,000.00	-	750,000.00	-	-	750,000.00
302403	Pressure Cleaning Truck	250,000.00	-	250,000.00	188,770.75	-	61,229.25
9757	TRENCHLESS TECHNOLOGY	500,000.00	620,433.66	1,120,433.66	676,892.95	247,387.81	196,152.90
\$		4,200,000.00	13,808,827.68	18,008,827.68	2,306,147.42	1,032,714.69	14,669,965.57

	Current Year	Prior Year	
	Budget	Budget (Enc Roll)	Total
Budget	\$ 17,274,356.23	734,471.45	18,008,827.68
Less Expenditures	587,613.94	445,100.75	1,032,714.69
Less Encumbrances	2,016,776.72	289,370.70	2,306,147.42
Total Available	\$ 14,669,965.57	-	14,669,965.57