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**FACT CHECK**

Temperatures

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# April 1895 v. April 2023 temperature comparison does not disprove climate change | Fact check



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USA TODAY

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## The claim: April 1895 v. April 2023 temperature proves CO2-driven global warming is a hoax

A tweet shows a National Oceanic and Atmospheric Administration graph with average April temperatures for the lower 48 states between 1895 and 2023. It's from a tool that shows

There is considerable variability in the graph, but it shows April 2023 was cooler than April 1895.

"Just in from NOAA: April 2023 cooler in the US than April 1895, despite a 1000% increase in industrial era atmospheric CO<sub>2</sub>," reads the May 12 tweet (direct link, archive link). "Emissions-driven warming is a total hoax."

The tweet was shared on Facebook more than 60 times in four days, according to CrowdTangle, a social media analytics tool. It was retweeted more than 2,000 times.

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## Our rating: False

The post is inaccurate in two ways. First, a global warming trend cannot be proven or disproven by comparing temperature data from only two months. When all available data is analyzed, there is a clear overall global warming trend driven by human-released carbon dioxide emissions. Second, the post drastically overstates how much atmospheric CO<sub>2</sub> has increased.

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## US has warmed significantly since 1895

Comparing two discrete, short time frames to each other is not an effective way to determine whether global warming has occurred, according to Sean Birkel, an assistant professor at the University of Maine and the Maine state climatologist.

"To identify climate trends it is necessary to examine long-term observational records, not just recent months or seasons," he told USA TODAY in an email.

The graph in question comes from NOAA's "National Time Series" tool, and the trends become clear upon a closer look at this data. While the tool shows April 1895 was warmer than April 2023, it also shows there has been nearly 1 degree of warming per century since 1895 – about 1.2 degrees total – for the month of April.

This information is easily accessed while using the tool but was not included in the tweet.

On an annual basis, the tool shows U.S. temperatures increased by 1.6 degrees per century – 2 degrees total – between 1895 and 2022. The rate of warming in the U.S. is increasing, having roughly doubled or tripled since 1979, according to the Environmental Protection Agency.

**Fact check:** Six states had record maximum temperature in the last 20 years, but most set annual marks

Similar to the U.S., the average global temperature has increased nearly 2 degrees since 1880, according to NASA.

"You can almost always find a shorter time or more local record to seemingly contradict the long-term global" warming trend, Gavin Schmidt, director of the NASA Goddard Institute for Space Studies previously told USA TODAY. "They don't though."

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## Global warming is driven by greenhouse gas emissions caused by human activity

The post also claims there has been a "1000% increase in industrial era atmospheric CO<sub>2</sub>." That is wrong.

Instead, "atmospheric carbon dioxide is now 50% higher than it was before the Industrial Revolution," reads the NOAA website.

While this increase is smaller than the amount stated in the post, CO<sub>2</sub> released as a result of human activity is driving modern global warming, Josh Willis, a NASA climate scientist, previously told USA TODAY.

**Fact check:** Global temperatures and atmospheric CO<sub>2</sub> levels are correlated, contrary to claim

CO<sub>2</sub> and other greenhouse gases cause warming by slowing the release of heat into space. The consequences of this warming are readily observable. For instance, the warming-

induced melting of the Greenland and Antarctic ice sheets has contributed to sea level rise.

Scientists know human CO<sub>2</sub> emissions are causing this warming because "the amount of warming we see matches what we expect based on the increased CO<sub>2</sub> we've added," Willis said in an email. "The timing of the warming matches the timing of the CO<sub>2</sub> increase caused by people. Not only that, the timing of global sea level rise matches the CO<sub>2</sub> increase."

The type of carbon in the excess CO<sub>2</sub> found in the atmosphere is also the same type of carbon found in fossil fuels, he said.

"Scientists have looked for other sources of heat, cycles of the sun, volcanos on the sea floor and pretty much everything else you can think of," Willis said. "Nothing besides humans burning fossil fuels can explain all of these things."

USA TODAY reached out to the Twitter user who shared the post for comment but did not immediately receive a response.

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## Our fact-check sources:

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