

# The thinking error that makes people susceptible to climate change denial

May 2 2023, by Jeremy P. Shapiro

## Few things in life advance in a straight line

### Apple's stock price

Technology company Apple's closing stock price each day.

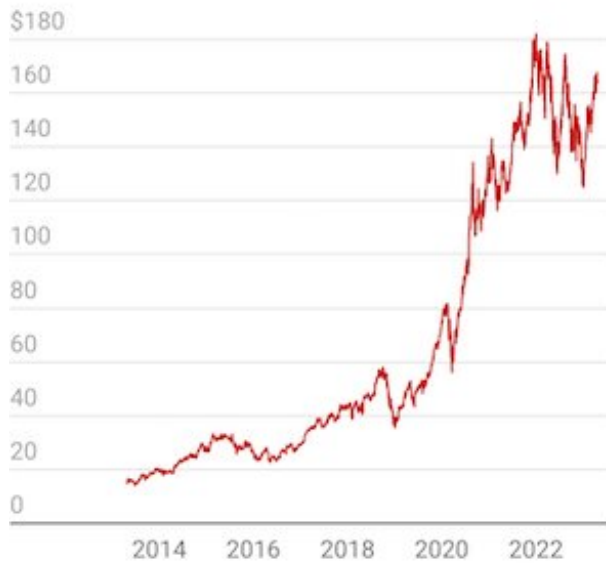


Chart: The Conversation/CC-BY-ND • Source: NASDAQ • Created with Datawrapper

### Global temperature anomaly

Yearly average global temperature difference from the 1951-1980 average.

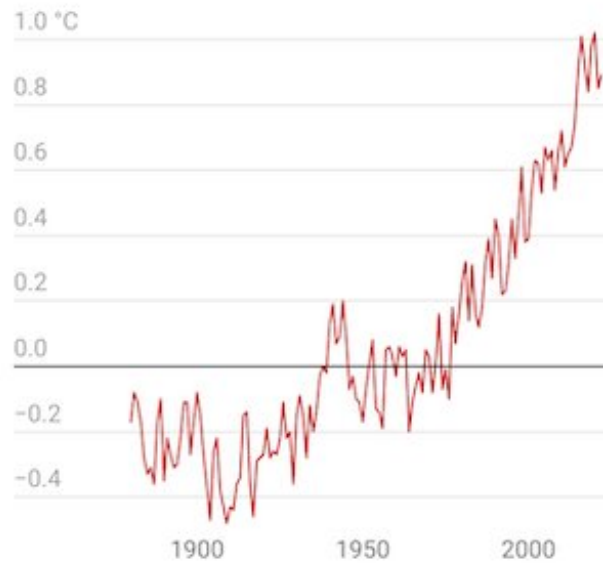


Chart: The Conversation/CC-BY-ND • Source: NASA GISS • Created with Datawrapper

These two graphs have the same form: a long-term trend of major increase within which there are short-term fluctuations. CC BY-ND

Cold spells often bring climate change deniers out in force on social

media, with hashtags like [#ClimateHoax](#) and [#ClimateScam](#). Former President Donald Trump often chimes in, [repeatedly claiming](#) that each cold snap disproves the existence of global warming.

From a scientific standpoint, these claims of disproof are absurd. Fluctuations in the weather don't refute clear [long-term trends in the climate](#).

Yet many people believe these claims, and the political result has been reduced willingness to take action to mitigate [climate change](#).

Why are so many people susceptible to this type of disinformation? [My field](#), psychology, can help explain—and help people avoid being misled.

## **The allure of black-and-white thinking**

Close examination of the arguments made by climate change deniers reveals the same mistake made over and over again. That mistake is the cognitive error known as black-and-white thinking, also called dichotomous and all-or-none thinking. As I explain in my book "[Finding Goldilocks](#)," black-and-white thinking is a source of dysfunction in [mental health](#), relationships—and politics.

People are often susceptible to it because in many areas of life, dichotomous thinking does something helpful: It simplifies the world.

Binaries are easy to handle because there are only two possibilities to consider. When people face a spectrum of possibilities and nuance, they have to exert more mental effort. But when that spectrum is polarized into pairs of opposites, choices are clear and dramatic.

This mental labor-saving device is practical in many everyday situations, but it is a poor tool for understanding complicated realities—and the

climate is complicated.

Sometimes, people divide the spectrum in asymmetric ways, with one side much larger than the other. For example, perfectionists often categorize their work as either perfect or unsatisfactory, so even good and very good outcomes are [lumped together with poor ones](#) in the unsatisfactory category. In dichotomous thinking like this, a single exception can tip a person's view to one side. It's like a pass/fail grading system in which 100% earns a pass and everything else gets an F.

With a grading system like this, it's not surprising that opponents of climate action have found ways to reject global warming research, despite the [overwhelming evidence](#).

Here's how they do it:

## **The all-or-nothing problem**

Climate change deniers simplify the spectrum of possible scientific consensus into two categories: 100% agreement or no consensus at all. If it's not one, it's the other.

A 2021 review of thousands of climate science papers and conference proceedings concluded that over 99% of studies have found that burning [fossil fuels warms the planet](#). That's not good enough for some skeptics. If they find one contrarian scientist somewhere, they categorize the idea of human-caused global warming as controversial and [conclude that there is no basis for action](#).

Powerful economic interests are at work here: The fossil fuel industry has funded disinformation campaigns for years to [create this kind of doubt about climate change](#), despite knowing that their products cause it and the consequences. Members of Congress have [used that](#)

[disinformation](#) to block or weaken federal policies that could slow climate change.

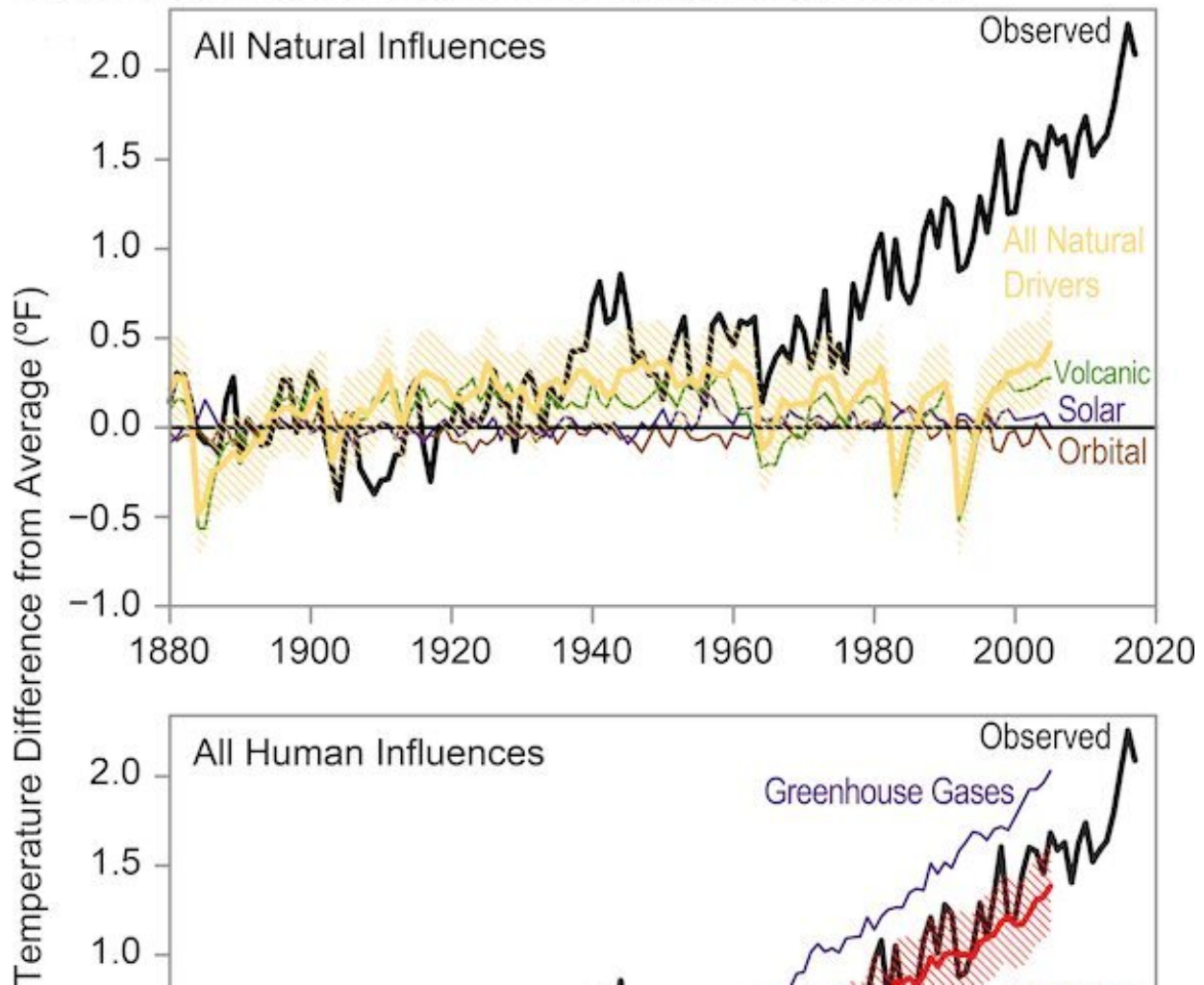
## Expecting a straight line in a variable world

In another example of black-and-white thinking, deniers argue that if global temperatures are not increasing at a perfectly consistent rate, there is no such thing as global warming.

However, complex variables never change in a uniform way; they wiggle up and down in the short term even when exhibiting long-term trends. Most business data, such as revenues, profits and [stock prices](#), do this too, with short-term fluctuations contained in long-term trends.

Mistaking a cold snap for disproof of climate change is like mistaking [a bad month for Apple stock](#) for proof that Apple isn't a good long-term investment. This error results from homing in on a tiny slice of the graph and ignoring the rest.

## Human and natural influences on global temperature



Influences on global temperature over time. Credit: 4th National Climate Assessment

### Failing to examine the gray area

Climate change deniers also mistakenly cite correlations below 100% as evidence against human-caused global warming. They triumphantly point out that sunspots and [volcanic eruptions](#) also affect the climate, even though evidence shows both have [very little influence on long-term](#)

[temperature rise](#) in comparison to greenhouse gas emissions.

In essence, deniers argue that if fossil fuel burning is not all-important, it's unimportant. They miss the gray area in between: Greenhouse gases are indeed just one factor warming the planet, but they're the most important one and the factor humans can influence.

## **'The climate has always been changing'—but not like this**

As increases in [global temperatures](#) have become obvious, some climate change skeptics have switched from denying them to reframing them.

Their oft-repeated line, "The climate has always been changing," typically delivered with an air of patient wisdom, is based on a striking lack of knowledge about the [evidence from climate research](#).

Their reasoning is based on an invalid binary: Either the climate is changing or it's not, and since it's always been changing, there is nothing new here and no cause for concern.

However, the current warming is on par with [nothing humans have ever seen](#), and intense warming events in the distant past were [planetwide disasters that caused massive extinctions](#)—something we do not want to repeat.

As humanity faces the challenge of global warming, we need to use all our cognitive resources. Recognizing the thinking error at the root of climate change denial could disarm objections to climate research and make science the basis of our efforts to preserve a hospitable environment for our future.

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