

# CLIMATE CHANGE BASICS: SIX KEY TRUTHS

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Our mission at the YPCCC is to advance the science of climate change communication. Using scientific experiments and surveys of the public, we study what people know, feel, think, and do about climate change. The data we collect gives us insight into the underlying psychological, cultural, and political factors that influence different individuals. We use these insights to help leaders, the media, and educators like you better inform the public about climate change.

To simplify the scientific complexity of climate change, we focus on communicating six key truths that everyone should know:

- It's real.
- It's us.
- Experts agree.
- It's bad.
- Others care.
- There's hope!

LET'S BREAK THEM DOWN:

## 1 IT'S REAL



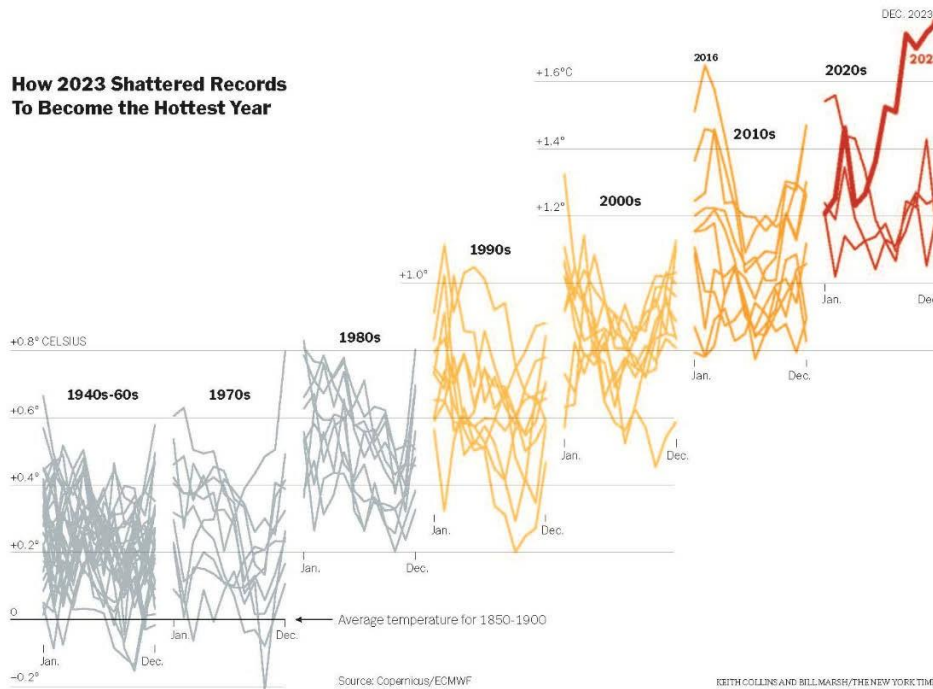
Figure 1. <https://www.scientificamerican.com/article/why-are-glaciers-melting-from-the-bottom-its-complicated/>



1

Figure 2. <https://climate.nasa.gov/evidence/>

Figure 2, a graph published by NASA shows the increase of carbon dioxide in the atmosphere over the last 600,000 years. Carbon dioxide is a greenhouse gas. Greenhouse gases act like a blanket, trapping heat in the atmosphere, which increases global temperatures, as seen in the graph below.



2

Note: One degree Celsius equals 1.8 degrees Fahrenheit.

Figure 3. <https://www.nytimes.com/2024/02/01/learning/whats-going-on-in-this-graph-feb-7-2024.html>

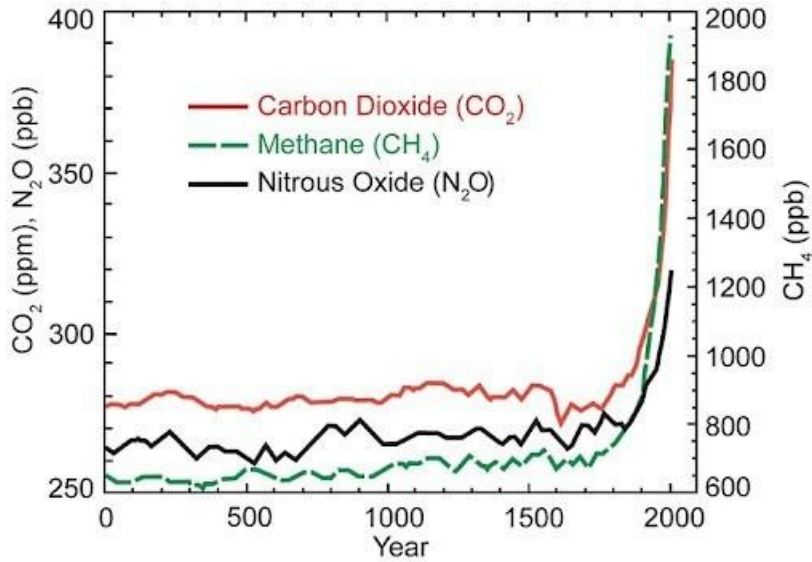
Here we can see how much the global temperature has increased since the late 1800's, which corresponds to the increase in atmospheric carbon dioxide pictured in Figure 2.

1. Find NASA's most recent data on carbon dioxide [here](#).

2. Find NASA's most recent data on global temperature [here](#).

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**2** IT'S US



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Figure 5. <https://web.archive.org/web/20210309235107/https://archive.epa.gov/epa/climate-change-science/causes-climate-change.html>

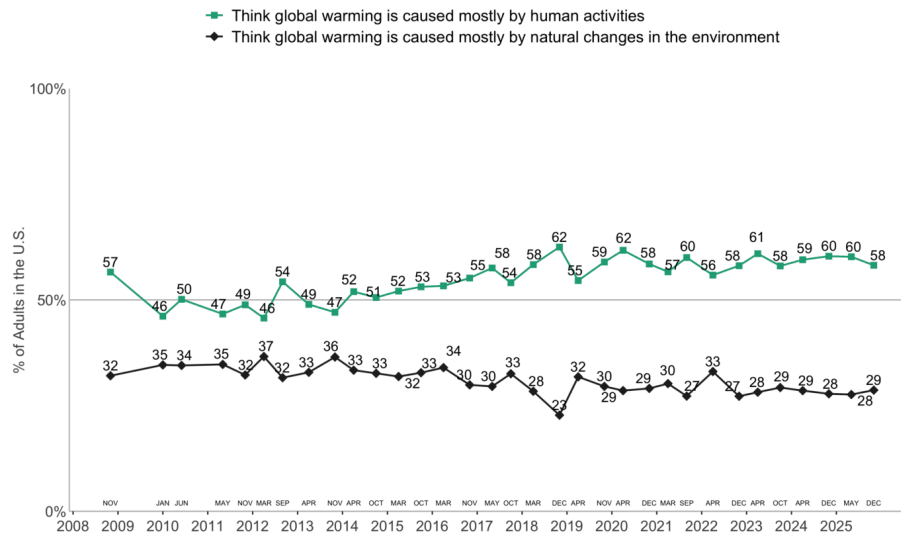
As you can see from this graph from the 2014 U.S. National Climate Assessment (Figure 5), the dramatic increase in atmospheric carbon dioxide levels and levels of other greenhouse gases coincides with the start of the Industrial Revolution in the late 1700s. When people began burning fossil fuels like coal, oil, and natural gas to power new manufacturing processes, greenhouse gas emissions increased dramatically, leading to rising global temperatures and, subsequently, climate change.



Figure 4. (Image Credit: plherrera / Getty Images)

3. As of March 2025, Figure 5 resource is no longer available on the EPA website.

**A majority of Americans think global warming is mostly human-caused**



Assuming global warming is happening, do you think it is . . .

Adults in the U.S., Fall 2025

Source: Yale Program on Climate Change Communication; George Mason University Center for Climate Change Communication

Figure 6. <https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-beliefs-attitudes-fall-2025/toc/3/>

As of Fall 2025, YPCCC research shows that over half of Americans think that humans are primarily responsible for global warming.

**3 EXPERTS AGREE.**



Figure 7. <https://crankyuncle.com/which-climate-scientists-are-in-the-97-consensus-poster>

**4. Find YPCCC’s most recent report on Americans’ belief in human-caused global warming here.**

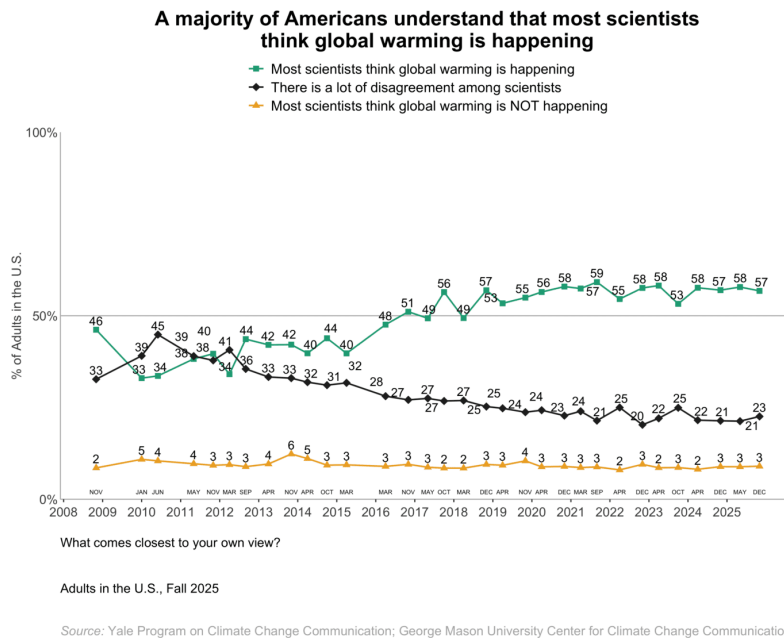
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Can you see the scientists who aren't raising their hands? Pretty hard, right?

Understanding the scientific consensus that human-caused global warming is happening is sometimes called a “gateway belief.” This is because people who understand the scientific consensus are more likely to believe that global warming is happening, human caused, and bad. People are then more likely to take action to address climate change and urge others to do so, too.

If your perception is that the experts still disagree, you're much less likely to be convinced yourself, because scientists are among the most trusted messengers in American society.

But this is changeable! Most people increase their perception of the scientific consensus when told that 97% of climate scientists have concluded that human-caused global warming is happening, and in turn become more likely to accept that climate change is happening, human-caused, and a serious problem.



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Figure 8. <https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-beliefs-attitudes-fall-2025/toc/3/>

**4** IT'S BAD



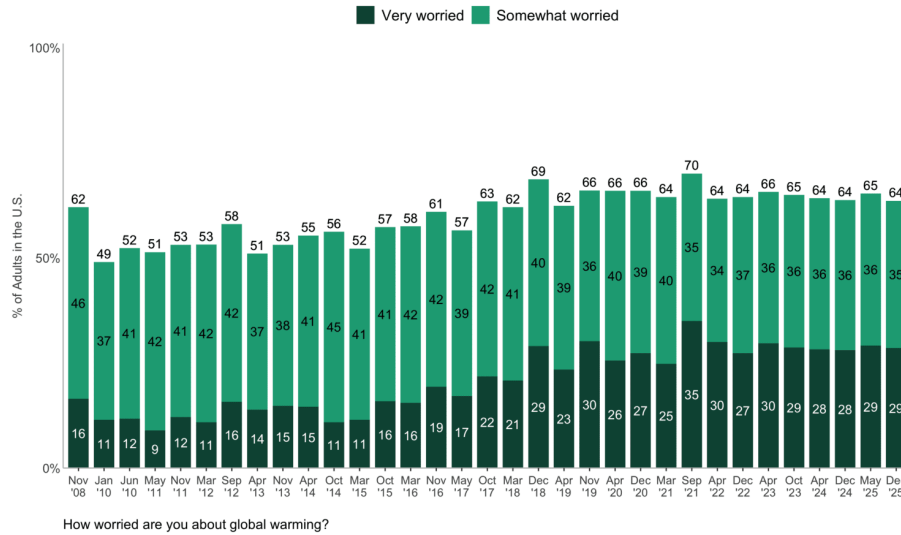
Figure 9. (Image Credit: switas / Getty Images)

After Hurricane Sandy in 2012 (aftermath pictured above), the public and the media began to connect the dots between extreme weather and climate change. Attributing the intensity of extreme weather to global warming has become more common, and we've seen even more discussion of the connection between global warming and more intense weather with increasingly severe hurricane seasons. A mental model of how global warming works may be beginning to cohere among the public.

What's the mental model? Burning fossil fuels like coal, oil, and gasoline releases carbon dioxide and other greenhouse gases into the atmosphere. Once in the atmosphere, greenhouse gases act like a blanket trapping heat. Increased temperatures cause increased evaporation of moisture from the Earth's surface. This means that more water is available in the atmosphere for big rain and snow events. Increased evaporation also means more drought, which can lead to fires. Thus, burning fossil fuels is leading to increases in the likelihood of extreme weather events.

# 5 OTHERS CARE.

A majority of Americans are worried about global warming



Adults in the U.S., Fall 2025

Source: Yale Program on Climate Change Communication; George Mason University Center for Climate Change Communication

Figure 10. <https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-beliefs-attitudes-fall-2025/toc/5/>

Data from YPCCC and George Mason University shows that most Americans are at least somewhat worried about global warming and its impacts. Does this data surprise you?

It might! But it's important to know that most people are concerned about climate change. Understanding that most people are concerned about climate change can make a big difference in peoples' behaviors around it. In a 2025 study, YPCCC found that out of all of the six key truths, 'others care' was the most powerful, positive predictor of information seeking and sharing, policy support, and political advocacy, all of which is necessary for building strong public support for climate change interventions.

Imagine that you identified a problem in your neighborhood that you thought needed fixing. If you thought that your friends, family, and teachers did not think that the issue needed addressing, would you be more or less likely to share your thoughts about it? Now, what if you knew that your community also thought the problem needed fixing? You would probably feel more comfortable and motivated to share your thoughts and engage your peers in finding solutions.

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The same goes for climate change. When people think that others aren't worried about climate change, they are less likely to talk about it in conversation with their peers, families, and friends, who then are also less likely to talk about climate change. This can lead to a climate "spiral of silence." But when people know that the majority of Americans are worried about climate change, they are more likely to engage in conversation, policy support, and advocacy around climate change issues.



Figure 11. Yale Climate Connections <https://yaleclimateconnections.org/2024/03/how-to-normalize-the-climate-conversation/>

## 6 THERE'S HOPE.

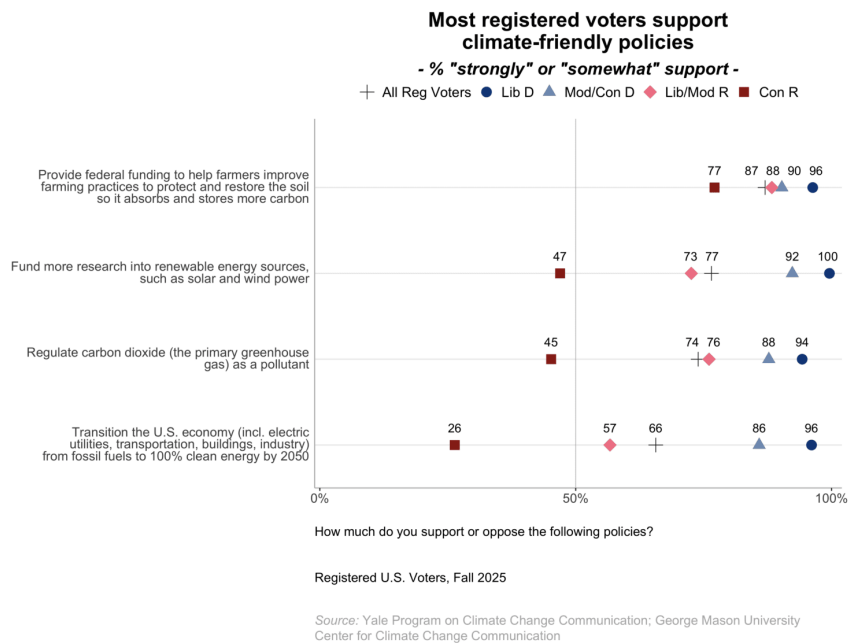


Figure 12. (Image credit: Daniel Bosma / Getty Images)

## CLIMATE CHANGE BASICS: SIX KEY TRUTHS

There are many proven solutions to climate change that are now scaling up and making a real difference. Renewable energy is the fastest-growing energy source globally and in the US. Most growth is from solar and wind, and renewables overall are expected to contribute more than 35% of electricity generation by 2030 (<https://www.c2es.org/content/renewable-energy>).

In addition to renewable energy, there are many natural solutions to keeping carbon in the soil and out of the atmosphere, such as habitat restoration and conservation, modifying our agricultural practices, and reducing food waste. Explore [Project Drawdown](#) to learn more about these and other solutions to climate change.



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Figure 13. <https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-politics-policy-fall-2025/toc/6/>

According to YPCCC's *Climate Change in the American Mind: Politics & Policy Report* from Fall 2025, large majorities of registered voters across party lines support numerous policies to reduce carbon pollution and promote clean energy. The report found similar bipartisan support for strengthening the enforcement of industrial pollution limits in disproportionately impacted communities, and for opposing the elimination of programs related to global warming.

Additionally, the same report found that 73% of registered U.S. voters believe that schools should teach about global warming (Fall 2025).

Research also shows that Americans who remain hopeful about global warming are consistently more likely than those with less hope to say they will act on global warming.