

# **Extreme weather's impact on global climate change belief**

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# Extreme weather's impact on global climate change belief

*People's belief in the urgency of climate change remains mixed across the world, but extreme weather might be changing that.*

Despite decades of urgent climate change warnings, a substantial chunk of the world population (about one in three individuals surveyed) remains unconvinced that climate change is an emergency.<sup>1</sup> In many countries surveyed—including the United States, Australia, and Germany—it's closer to a 50/50 split.

But what happens when climate change shifts from a distant problem for future generations to something that more people can tangibly feel?

In 2023, Earth officially experienced its hottest year on record.<sup>2</sup> Between January and November 2023, the global average temperature reached 15.1°C (59.2°F), marking a record-breaking increase of 1.46°C (2.63°F) from preindustrial levels.

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And with the heat came more extreme weather.

From wildfires across Canada and record drought in Europe to extreme flooding in Asia, extreme weather events painted news headlines throughout 2023. Climate scientists have detected a stronger link between global warming and shifting weather patterns.<sup>3</sup> Although determining whether climate change directly intensified a particular weather event is still an emerging science,<sup>4</sup> the overall trend appears to be clear: more severe heat waves, prolonged droughts, more powerful storms, and rising sea levels.

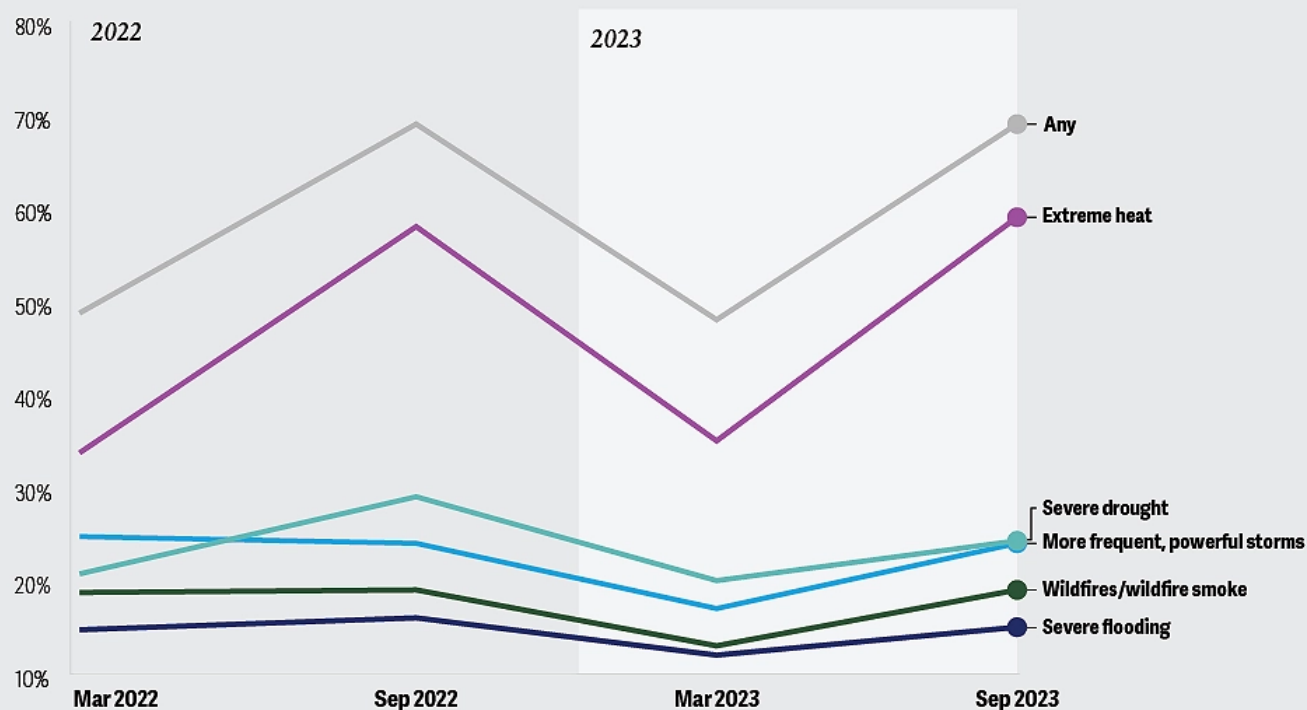
## Extreme weather around the world

Across the 17 studied countries, most respondents (roughly six in 10) said they experienced extreme weather in 2022 and 2023—particularly extreme summer heat (figure 1).

Figure 1

## Roughly six in 10 respondents across 17 countries cited experiencing extreme weather in 2022 and 2023

Percentage of respondents experiencing climate events within the past six months



Notes: N = 68,003 (1,000 per country per monthly survey wave). Data represents an average of Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Netherlands, Poland, South Africa, South Korea, Spain, the United Kingdom, and the United States.

Source: ConsumerSignals.

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While less prevalent, other extreme weather events touched many lives. About one in five individuals surveyed globally reported experiencing severe drought, more frequent and powerful storms, wildfires or wildfire smoke, or severe flooding.

Respondents' weather experiences, however, vary greatly around the world.

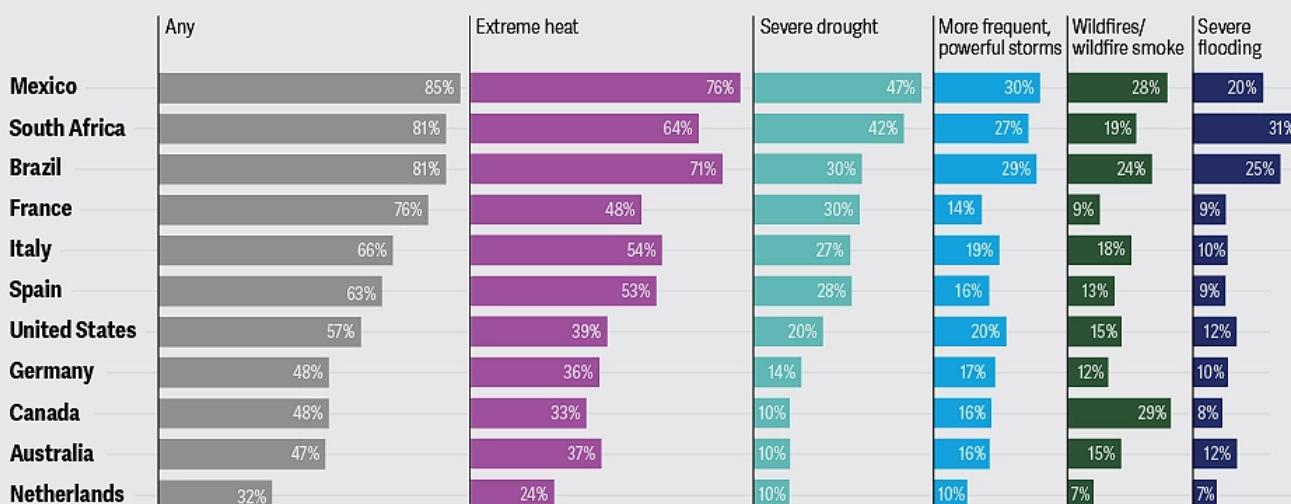
In 2023, the overall incidence of extreme weather events reached as high as 85% in Mexico and as low as 32% in the Netherlands (figure 2). This gap can largely be attributed to the combination of heat and drought. Countries with naturally hotter climates, such as Mexico, Brazil, South Africa, and India, experience a higher incidence of extreme heat events. The overall incidence of extreme weather in these countries is likely pushed even higher due to relatively high incidences of drought.

Drought is the second most common extreme weather event in all such countries surveyed where the overall incidence of extreme weather is higher than 60%. In all other countries surveyed, more frequent and powerful storms rank second. Canada is the only exception, with wildfires coming in at number two.

Figure 2

### People's extreme-weather experiences vary significantly around the world

Percentage of respondents experiencing climate events (2023 average)



Notes: N=34,000. Data collected between March 2023 and September 2023 for Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Netherlands, Poland, South Africa, South Korea, the United Kingdom, and the United States.

Source: ConsumerSignals.

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## Is extreme weather creating a sense of urgency?

People globally are experiencing extreme weather events. But are these experiences changing how they think about climate change? The data suggests they do.

Modeling to control for variables that often correlate with people's climate change beliefs, including age, income, urban vs. rural, and level of anxiety around other global challenges, individuals who experienced extreme weather were statistically more likely to believe climate change is an emergency compared to individuals who didn't (see endnotes for model summary).<sup>5</sup>

And the type of weather event can matter. Extreme heat had the most significant effect on sentiment. The odds of someone believing that climate change is an emergency is 2.6 times more likely if they experienced extreme heat (compared to if they didn't). Drought had about half of the impact of heat. Flooding, wildfires, and storms were all significant predictors, but their overall effect on respondents' sense of climate change urgency was much weaker.

Experiencing multiple weather events matters, too. The odds of a respondent believing that climate change is an emergency are 7.5 times greater for each additional type of extreme weather event they endure. Roughly one in five respondents cited experiencing three or more extreme weather events within the past six months. Models suggest the odds of this group believing climate change is an emergency is more than 20 times higher than those that experienced none.

The impact of these events is potentially more remarkable in countries where relatively fewer people perceive climate change as an emergency. For example, the percentage of respondents who believe climate change is an emergency is relatively low in Germany (53%), Australia (52%), and the United States (49%)—at least compared to countries such as France (80%), Italy (77%), and Spain (74%) (figure 3). But in countries where belief is low, extreme weather events shift perspective more dramatically. Seventy-five percent of Australians surveyed who experienced more frequent and powerful storms in 2023 believe climate change is an emergency—23 percentage points higher than the national average. Similarly, in the United States, extreme flooding swings opinion by 19 points. In countries where the belief that we're in an emergency is already pervasive, the impact of extreme weather remains more muted.

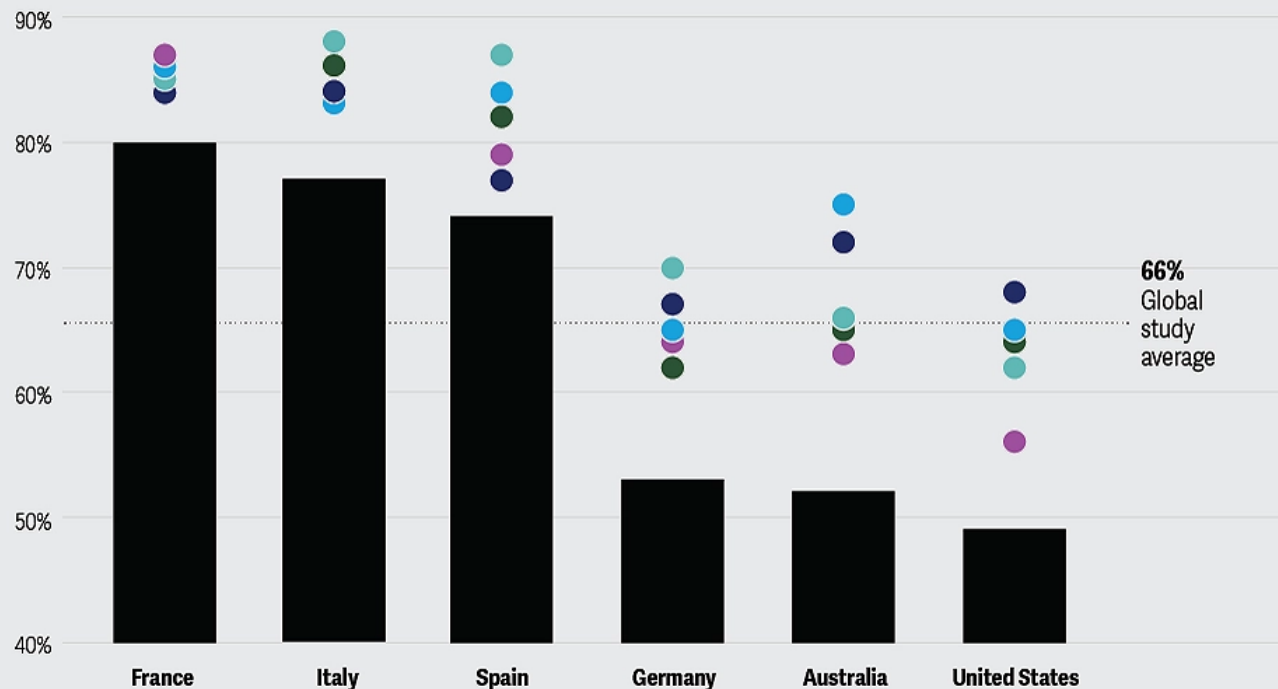
Figure 3

## Relatively fewer people in Germany, Australia, and the United States believe climate change is an emergency vs. countries such as France, Italy, and Spain

Percentage of respondents who believe climate change is an emergency (2023 average)

● **Country average** Among respondents in each country who experienced...

● **Extreme heat** ● **Severe drought** ● **More frequent, powerful storms** ● **Wildfires/wildfire smoke** ● **Severe flooding**



Notes: N = 12,000. Data collected between March 2023 and September 2023 for Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Netherlands, Poland, South Africa, South Korea, the United Kingdom, and the United States.

Source: ConsumerSignals.

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## From belief to action

While extreme weather can shape belief, its impact on sustainable behavior is cloudier. Extreme weather events may drive consumers to engage in some sustainable behaviors but not others.

Across nearly a dozen sustainable behaviors, respondents who experienced at least one extreme weather event were likelier to engage in only four behaviors (often or whenever possible) (figure 4). These include buying locally, buying sustainable products, ordering fewer packaged deliveries to their homes, and eating less meat. All other behaviors showed no material differences.

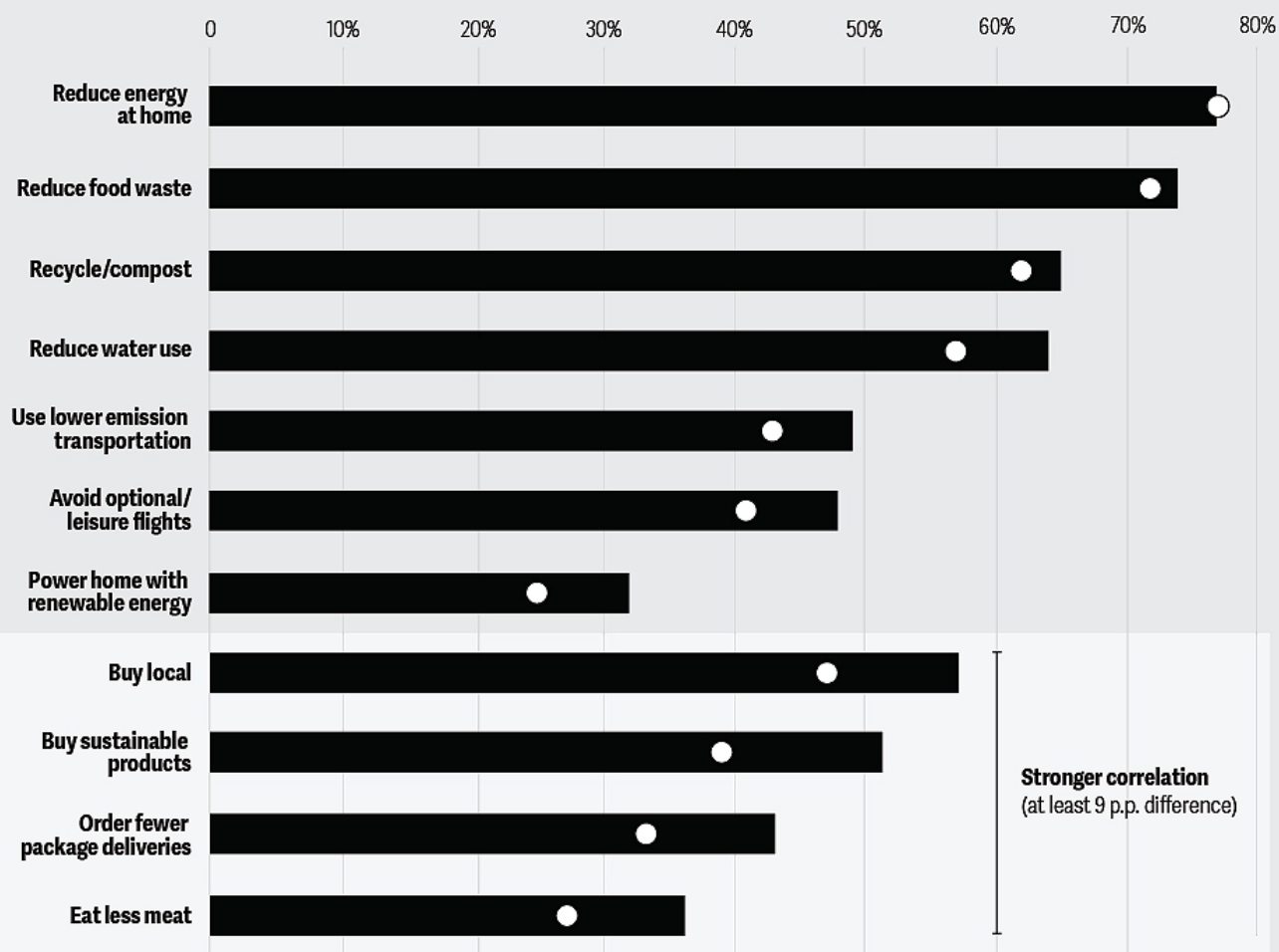


Figure 4

## People experiencing at least one extreme weather event are likelier to engage in sustainable consumption behaviors

Percentage of respondents engaging in sustainable behavior often or whenever possible (2023 average)

● Experienced climate event within past 6 months ○ Did not experience climate event



Notes: N = 34,000. Data collected between March 2023 and September 2023. Data represents the average of Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Netherlands, Poland, South Africa, South Korea, the United Kingdom, and the United States.

Source: ConsumerSignals.

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Reducing energy use at home, reducing food waste, and using less water are behaviors already widely practiced globally by respondents. Perhaps not by coincidence, those behaviors show minimal differences before and after extreme weather events. In addition to being good for the planet, these behaviors may help people save money. Because extreme weather competes with important cost-saving drivers that make these behaviors popular, extreme weather's impact on these behaviors becomes almost nonexistent.



In contrast, actions like buying green products, eating less meat, or ordering fewer packages have approachable characteristics that can make them more accessible for consumers looking to live more sustainably. However, these actions are generally less popular and less convenient and perhaps still on a longer-term global upswing. Catalysts like extreme weather could be more likely to give these actions an adoption boost. Additionally, people are more likely to adopt these actions, particularly relative to behaviors like using lower-emission transportation or powering homes with renewable energy, which might not be an option for some.

A similar dynamic appears in the civic realm. Compared to actions like reducing home energy use, relatively few people overall say climate change impacts their voting choices. Less than half (45%) of those surveyed who did not experience an extreme weather event say they would be more likely to vote for a candidate who supports climate action. However, it jumps to 60% among those who have directly felt the impact of extreme weather.

## Why this matters

As hot gets hotter, wet gets wetter, and dry gets drier. Climate scientists have referred to this well-known climate change paradigm to describe potential shifts in weather patterns in the future. Increasingly, people around the world are likely experiencing these shifts firsthand. Climate science is clear that these impacts are almost certain to grow more frequent and acute in the coming decades.<sup>6</sup>

But there's a bright side. In a world where many remain unconvinced about the urgency of climate change, shifting weather patterns are shifting awareness. If action follows, we could be traveling toward a future of more sustainable behavior and consumption faster than many expect.

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## Endnotes

1. Deloitte ConsumerSignals. Includes adults (18+) from Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Poland, South Africa, South Korea, the United Kingdom, and the United States.

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2. Dinah Voyles Pulver, Doyle Rice, and Ramon Padilla, “[It’s over: 2023 was Earth’s hottest year, experts say](#),” *USA Today*, January 1, 2024.

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3. Environmental Defense Fund, “[Extreme weather gets a boost from climate change](#),” accessed January 2024.

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4. World Weather Attribution, “[Homepage](#),” accessed January 2024.

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5. A logistic regression model was used to understand the relationship between people’s experience with extreme weather events and their belief about the urgency of climate change. Belief that climate change is an emergency was operationalized as a binary dependent variable (1 = Yes, 0 = No). Independent variables included experience with five extreme weather events: extreme heat, more frequent and powerful storms, severe flooding, severe drought, and wildfires. The model controlled for age, income, gender, household composition, employment status, urban vs. rural classification, financial sentiment, and anxiety levels around other global challenges. A Nagelkerke R squared value of 0.138 indicated that the model explained approximately 13.8% of the variance in the outcome variable. The model correctly predicted whether respondents believed climate change was an emergency for 98.1% of cases where the actual observation was “Yes.” However, it only correctly predicted 7.2% of “No” cases, resulting in an overall prediction accuracy of 77.5%. The R square values suggest that while the model identifies significant relationships, a substantial amount of variance in people’s belief about the climate remains unexplained. This implies the presence of other influential factors not captured in the model.

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6. The Intergovernmental Panel on Climate Change, *Climate change 2022: Impacts, adaptation and vulnerability*, 2022.

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