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Supplementary Information for

The Over-Time Effects of Climate Change News and Skeptical Opinion Content

Brendan Nyhan, Ethan Porter and Thomas J. Wood

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Contents

List of Tables

List of Figures

A. Wave 1 survey instrument. This study is being conducted by Professor Ethan Porter of George Washington University, Professor Thomas J. Wood of Ohio State University, and Professor Brendan Nyhan of Dartmouth College. Your participation is voluntary and you may decline to participate in the survey or withdraw at any time. No information that identifies you will be collected or retained by the researchers. However, any online interaction carries some risk of being accessed. The survey will take about 4 to 6 minutes to complete. After you complete the survey, we may invite you to participate in subsequent surveys. The purpose of the study is to better understand the determinants of attitudes about major public challenges. Possible benefits of participation include having the opportunity to express your opinion about issues of public concern. Possible risks or discomforts you could experience during this study include breach of confidentiality and boredom. If you experience any research-related injury, you should contact the Principal Investigator immediately. Further information regarding this study may be obtained by contacting the Principal Investigator at George Washington University at evporter@gwu.edu or (202) 994-0649.

Whom can I speak with? The Office of Human Research of George Washington University, which can be reached at (202) 994-2715, can provide information about your rights as a research participant. You may also contact this office if you have questions, concerns, or complaints about the research, or wish to speak with someone independent of the research team. If you wish to provide a written signature to signal your consent, please contact Ethan Porter at the email address above.
-Yes
-No

How old are you?
-Under 18
-18–24
-25–34
-35–44
-45–54
-55–64
-65–74
-75–84
-85 or older

In what state do you currently reside? [pulldown]

What is your gender?
-Male
-Female
-Other

When it comes to politics, would you describe yourself as liberal, conservative, or neither liberal nor conservative?
-Very conservative
-Somewhat conservative
-Slightly conservative
-Moderate; middle of the road
-Slightly liberal
-Somewhat liberal
-Very liberal

Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or something else?
-Republican
-Democrat
-Independent
-Something else

[if Democrat]
Would you call yourself a strong Democrat or not very strong Democrat?
-Strong Democrat
-Not very strong Democrat

[if Republican]
Would you call yourself a strong Republican or not a very strong Republican?
-Strong Republican
-Not very strong Republican

[if independent/something else]
Do you think of yourself as closer to the Republican Party or to the Democratic Party?
-Closer to the Republican Party
-Closer to the Democratic Party
-Neither

Do you approve or disapprove of the way Donald Trump is handling his job as President?
-Strongly approve
-Somewhat approve
-Somewhat disapprove
-Strongly disapprove

What is the highest degree or level of school you have completed?
-Did not graduate from high school
-High school diploma or the equivalent (GED)
-Some college
-Associate's degree
-Bachelor's degree
-Master's degree
-Professional or doctorate degree

Please check one or more categories below to indicate what race(s) you consider yourself to be.
-White
-Black or African American
-American Indian or Alaska Native
-Asian/Pacific Islander
-Multi-racial
-Other

Are you of Spanish or Hispanic origin or descent?
-Yes
-No

Generally, how interested are you in politics?
-Extremely interested
-Very interested
-Somewhat interested
-Not very interested
-Not at all interested

Regardless of your personal opinions on the topic, how important are the following issues to you personally?
-Climate change
-Immigration
-Health care

Response options:
-Extremely important
-Very important
-Moderately important
-Slightly important
-Not at all important

The next set of questions helps us learn what types of information are commonly known to the public. Please answer these questions on your own without asking anyone or looking up the answers. Many people don't know the answers to these questions, but we'd be grateful if you would please answer every question even if you're not sure what the right answer is.

It is important to us that you do NOT use outside sources like the Internet to search for the correct answer. Will you answer the following questions without help from outside sources?
-Yes
-No

For how many years is a United States senator elected–that is, how many years are there in one full term of office for a U.S. senator?
-Two years
-Four years
-Six years
-Eight years
-None of these
-Don't know

How many times can an individual be elected President of the United States under current laws?
-Once
-Twice
-Four times
-Unlimited number of terms
-Don't know

How many U.S. senators are there from each state?
-One
-Two
-Four
-Depends on which state
-Don't know

Who is currently the Prime Minister of the United Kingdom?
-Richard Branson
-Boris Johnson
-David Cameron
-Theresa May
-Margaret Thatcher
-Don't know

For how many years is a member of the United States House of Representatives elected–that is, how many years are there in one full term of office for a U.S. House member?
-Two years
-Four years
-Six years
-Eight years
-For life
-Don't know

We would now like to ask you a few questions will ask about your own factual beliefs.

You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Do you think this probably has been happening, or do you think it probably has not been happening?
-Probably has been happening
-Probably has not been happening

[if probably has been happening]
You indicated that you think the world's temperatures are increasing. Do you think that definitely has been happening or only probably has been happening?
-Definitely has been happening
-Probably has been happening

[if probably has not been happening]
You indicated that you think the world's temperatures are not increasing. Do you think that definitely has not been happening or only probably has not been happening?
-Definitely has not been happening
-Probably has not been happening

[if probably has been happening]
Do you think a rise in the world's temperatures is being caused mostly by human activity, mostly by natural causes, or about equally by human activity and by natural causes?
-Mostly by human activity
-Mostly by natural causes
-About equally by human activity and natural causes

[if probably has not been happening]
Assuming it's happening, do you think a rise in the world's temperatures is being caused mostly by human activity, mostly by natural causes, or about equally by human activity and by natural causes?
-Mostly by human activity
-Mostly by natural causes
-About equally by human activity and natural causes

We would now like to ask you a few questions will ask about your own opinions.

Do you think the federal government should be doing more about rising temperatures, should be doing less, or is it currently doing the right amount?
-Should be doing more
-Should be doing less
-Is currently doing the right amount

[if should be doing more]
Should the federal government be doing a great deal more, a moderate amount more, or a little more about rising temperatures?
-A great deal
-A moderate amount
-A little

[if should be doing less]
Should the federal government be doing a great deal less, a moderate amount less, or a little less about rising temperatures?
-A great deal
-A moderate amount
-A little

Which of the following approaches would you prefer for addressing America's energy supply needs?
-Mostly developing alternative sources, such as wind, solar, and hydrogen technology
-A mix of expanding exploration and production of oil, coal, and natural gas, and developing alternative sources such as wind, solar, and hydrogen technology
-Mostly expanding exploration and production of oil, coal, and natural gas

Here are some institutions in this country. As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?
-Scientific community
-Major companies
-The news media
-Organized religion
-Congress
-Military

Response options:
-A great deal
-Only some
-Hardly any

How much confidence, if any, do you have in each of the following to act in the best interests of the public?
-Elected officials
-The news media
-The military
-Scientists
-Religious leaders
-Business leaders

Response options:
-A great deal
-A fair amount
-Not too much
-No confidence at all

We would like to get your feelings toward some groups, leaders, and institutions who are in the news these days using something we call the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the group, leader, or institution. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward them and that you don't care too much for them. You would rate them at the 50 degree mark if you don't feel particularly warm or cold toward them. If we come to a group, leader, or institution whose name you don't recognize, you don't need to rate them.
-Democratic Party
-Republican Party
-Donald Trump
-Joe Biden
-Scientific community
-The news media

In general, how much trust and confidence do you have in the mass media – such as newspapers, TV and radio – when it comes to reporting the news fully, accurately and fairly?
-A great deal
-A fair amount
-Not very much
-None at all

[questions from separate study about teachers' unions]

What would you like to see elected leaders in Washington get done during the next few years? Please write three sentences about what you believe the top three priorities of America's leaders should be. [open text]

It is essential for the validity of this study that we know whether participants looked up any information online during the study. Did you make an effort to look up information during the study? Please be honest; you will still be paid and you will not be penalized in any way if you did.
-Yes, I looked up information
-No, I did not look up information

We sometimes find people don't always take surveys seriously, instead providing humorous, or insincere responses to questions. How often do you do this?
-Never
-Rarely
-Some of the time
-Most of the time
-Always

Do you have any comments on the survey? Please let us know about any problems you had or aspects of the survey that were confusing. [open text]

Please enter your Worker ID: [open text]

Thank you for answering these questions and for your participation. Please do not share any information about the nature of this study with other potential participants. This research is not intended to support or oppose any political candidate or office. The research has no affiliation with any political candidate or campaign and has received no financial support from any political candidate or campaign. We may contact you to invite you to follow-up studies. Your participation in any follow-up studies is entirely voluntary and will not affect your compensation for this study. Should you have any questions about this study, please contact Prof. Ethan Porter at evporter@gwu.edu.

Please click next to get the code you need to successfully complete your HIT. Thank you again for participating!

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Do you consent to participate in the study?
-Yes
-No

Please read the following articles carefully and take your time while reading. You will be asked one or more questions about the content of the articles.

[Science article 1 (wave 2)]

UN report on global warming carries life-or-death warning
Seth Borenstein

Preventing an extra single degree of heat could make a life-or-death difference in the next few decades for multitudes of people and ecosystems on this fast-warming planet, an international panel of scientists reported Sunday. But they provide little hope the world will rise to the challenge.

The Nobel Prize-winning Intergovernmental Panel on Climate Change issued its gloomy report at a meeting in Incheon, South Korea.

In the 728-page document, the U.N. organization detailed how Earth's weather, health and ecosystems would be in better shape if the world's leaders could somehow limit future human-caused warming to just 0.9 degrees Fahrenheit (a half degree Celsius) from now, instead of the globally agreed-upon goal of 1.8 degrees F (1 degree C).

Among other things:
-Half as many people would suffer from lack of water.
-There would be fewer deaths and illnesses from heat, smog and infectious diseases.
-Seas would rise nearly 4 inches (0.1 meters) less.
-Half as many animals with back bones and plants would lose the majority of their habitats.
-There would be substantially fewer heat waves, downpours and droughts.
-The West Antarctic ice sheet might not kick into irreversible melting.
-And it just may be enough to save most of the world's coral reefs from dying.

"For some people this is a life-or-death situation without a doubt," said Cornell University climate scientist Natalie Mahowald, a lead author on the report.

Limiting warming to 0.9 degrees from now means the world can keep "a semblance" of the ecosystems we have. Adding another 0.9 degrees on top of that — the looser global goal — essentially means a different and more challenging Earth for people and species, said another of the report's lead authors, Ove Hoegh-Guldberg, director of the Global Change Institute at the University of Queensland, Australia.

[Science article 2 (wave 2)]

Radical Energy Transformation Needed to Avoid 1.5 Degrees Global Warming
Paula Kelley

Without a radical transformation of energy, transportation and agriculture systems, the world will hurtle past the 1.5 degree Celsius target of the Paris climate agreement by the middle of the century, according to a new report from the Intergovernmental Panel on Climate Change.

Failing to cap global warming near that threshold dramatically increases risks to human civilization and the ecosystems that sustain life on Earth, according to the documents and summaries released Oct. 8.

To keep warming under 1.5°C, countries will have to cut global CO2 emissions 45 percent by 2030 and reach net zero by around 2050, the report found, re-affirming previous conclusions about the need to end fossil fuel burning. Short-lived climate pollutants, such as methane, will have to be significantly reduced as well.

More than 1.5°C warming means nearly all of the planet's coral reefs will die, droughts and heat waves will continue to intensify, and an additional 10 million people will face greater risks from rising sea level, including deadly storm surges and flooded coastal zones. Most at risk are millions of people in less developed parts of the world, the panel warned.

The report is a follow-up to the 2015 Paris Agreement and shows how climate risks to society will dramatically increase if the average global temperature rises more than 1.5°C above pre-industrial levels. Through 2017, the buildup of greenhouse gases in the atmosphere had already warmed the world by about 1°C.

The scientific research underlying the report is more certain than ever that the risk of extreme and deadly heat waves increases. The increase from 1.5°C to 2°C pushes extreme heat events past the upper limit of variability and a new climate regime, particularly in tropical regions. It also suggests that:
-Risks from extreme precipitation events would increase dramatically with 2°C warming, especially in eastern Asia and eastern North America.
-Sea level would rise about 4 inches more with 2°C of warming than with 1.5°C, affecting 10 million more people.
-An extra 580,000 to 1 million square miles of permafrost would thaw at 2°C compared to 1.5°C.
-At 1.5°C of warming, the Arctic is forecast to be ice-free once per century; at 2°C warming, that would happen once every 10 years.

[Science article 3 (wave 2)]

Climate Change Warning is Dire
Chris Mooney & Brady Dennis

The world stands on the brink of failure when it comes to holding global warming to moderate levels, and nations will need to take "unprecedented" actions to cut their carbon emissions over the next decade, according to a landmark report by the globe's top scientific body studying climate change.

"There is no documented historic precedent" for the sweeping change to energy, transportation and other systems required to reach 1.5 degrees Celsius, the United Nations Intergovernmental Panel on Climate Change, or IPCC, wrote in a report requested as part of the 2015 Paris climate agreement.

Most strikingly, the document says the world's annual carbon dioxide emissions, which currently amount to more than 40 billion tons per year, would have to be on an extremely steep downward path by 2030 to either hold the globe entirely below 1.5 degrees Celsius, or allow only a brief "overshoot" in temperatures.

The bottom line, Sunday's report found, is that the world is woefully off target.

Underscoring the difficulty of interpreting what's possible, the IPCC gave two separate numbers in the report for the Earth's remaining "carbon budget," or how much carbon dioxide we can emit and still have a reasonable chance of remaining below 1.5 C. The upshot is that we are allowed either 10 or 14 years of current emissions, and no more, if we want a two-thirds or better chance of avoiding 1.5 C.

The report found that holding warming to 1.5 degrees could save an Alaska-size area of the Arctic from permafrost thaw, muting a feedback loop that could lead to still more global emissions. The occurrence of entirely ice-free summers in the Arctic Ocean goes from one per century to one per decade between 1.5 and 2 degrees, it found–one of many ways in which the mere half a degree has large real-world consequences.

[Political article 1 (wave 2)]

Climate change not priority for Senate
Caleb Bedillion

Even as a recent report says some of the most negative impacts from climate change could begin earlier than previously thought, climate policy is virtually invisible in Mississippi's midterm elections.

Earlier this month, the Intergovernmental Panel on Climate Change, a panel of scientists convened by the United Nations, released a report examining the outcomes associated with different warming scenarios.

An increase in average global temperatures of 3.6 degrees Fahrenheit above pre-industrial era temperatures was once considered the threshold at which major adverse climate impacts would be felt.

However, the latest IPCC report determined that 2.7 degrees Fahrenheit of warming above pre-industrial levels could trigger disastrous results, including widespread droughts, wildfires and a collapse of coral reefs.

To hold the rise of global temperatures at or below 2.7 degrees Fahrenheit, energy uses would have to shift dramatically, and techniques to pull carbon out of the atmosphere will also have to be more widely deployed, according to scientists.

With two races for the U.S. Senate simultaneously ongoing in Mississippi, none of the candidates devote any space on their websites to the issue, though a few discuss a need to protect natural resources like air and water from pollution.

Republicans Roger Wicker, Cindy Hyde-Smith and Chris McDaniel have all variously praised either President Donald Trump's decision to withdraw from the Paris Agreement or his decision to roll back various environmental regulations.

Sen. Roger Wicker is among the most skeptical members of the U.S. Senate toward the consensus of climate scientists. Wicker has also rejected the policy recommendations of the recent IPCC report.

On the Democrat side, Mike Espy's campaign did not respond to questions seeking a statement about the candidate's views on climate change issues.

[Political article 2 (wave 2)]

Dire Climate Warning Lands With a Thud on Trump's Desk
Mark Landler and Coral Davenport

A day after the United Nations issued its most urgent call to arms yet for the world to confront the threat of climate change, President Trump boarded Air Force One for Florida — a state that lies directly in the path of this coming calamity — and said nothing about it.

It was the latest, most vivid example of Mr. Trump's dissent from an effort that has galvanized much of the world. While the United Nations warned of mass wildfires, food shortages and dying coral reefs as soon as 2040, Mr. Trump discussed his successful Supreme Court battle rather than how rising seawaters are already flooding Miami on sunny days.

The president's isolation is not just from the world: In California, New York, Massachusetts and other states, governments and companies are pushing ahead with regulations and technological innovations to reduce greenhouse gas emissions.

That bottom-up activism is a source of hope for those who have watched in despair since last year when Mr. Trump declared he would pull the United States out of the Paris climate accord. But experts say it is no substitute for the world's largest economy, and second-largest emitter of carbon dioxide, turning its back on the fight.

The United Nations report paints a far more dire picture of the immediate consequences of climate change than previously thought and says that avoiding the damage requires transforming the world economy at a speed and scale that has "no documented historic precedent."

It describes a world of worsening food shortages and poverty; more wildfires; and a mass die-off of coral reefs as soon as 2040 — a period well within the lifetime of much of the global population.

[Political article 3 (wave 2)]

Poles apart on climate change in election season
Lori Sturdevant

Who are you going to believe about climate change–91 scientists from 40 countries who draw conclusions from more than 6,000 scientific studies, or the Republican candidate for Congress in Minnesota's First District?

That was the juxtaposition presented quite by coincidence last Monday to this newspaper's Editorial Board. It was the day the Intergovernmental Panel on Climate Change (IPCC) told the world that dire environmental consequences are just a few decades away if humans don't stop spewing large amounts of carbon-laden gases into the atmosphere. And the day that Jim Hagedorn came to call.

That report was top of mind as the Editorial Board met with candidates for Congress on Monday. First up: Hagedorn, running a third time for the seat being vacated by DFL gubernatorial candidate Tim Walz. He brought a sweeping counterpoint to the IPCC:–a mix of faith-based reassurance (it's in God's hands) and fatalism (nothing meaningful can be done).

"I'm a Christian guy. I believe the world's been heating and cooling since God created it," Hagedorn said. He scoffed at past predictions "that things were going to change, that by now we're supposed to be under water in some places in the United States, that the world was coming to an end." Rather, he said, what's happening now is what the planet has experienced "for generations and generations and generations."

Let it be noted that Hagedorn's DFL opponent, former U.S. Assistant Secretary of Defense Dan Feehan, offered a different view to the Editorial Board later that same day. He thinks combating climate change is an urgent matter of national security; that government ought to keep promoting and funding renewable energy development; and that southern Minnesota is nowhere near maxed out on its contribution to a lower-emission future.

[Placebo article 1 (wave 2)]

What do you need for birdwatching?
By Bill Thompson III

The most basic equipment required for bird watching is your eyes, though you will soon need to have more items with you if you intend to make this a pastime or serious hobby. How far you go is a matter of taste and budget.

-The most useful thing that you can carry is a notepad and pencil. Use this to make a note of location, time, date, weather and habitat. Do a list of the birds that you see and know. Do a drawing or write down a description of those that you don't. You can look them up later in you field guide. Your notebook should become a diary of where you have been and what you have seen.

-A field guide is a book that provides descriptions of birds to assist you in their identification. The descriptions use several factors to help you determine the exact bird that you are looking at. As soon as you see a bird that you do not recognize you will need to have access to a good field guide. There are many to choose from.

-Binoculars. These are pretty essential and buy the best that you can afford. A good pair well looked after will last you a lifetime. Take time to choose ones that suit you.

[Placebo article 2 (wave 2)]

Five sauces for the modern cook
By Samrin Nosrat

Travis Lett often steals. Of course, the only person this pensive chef ever steals from is himself. At his Los Angeles, USA restaurant, "We're constantly appropriating elements from dishes we've done in the past to create new combinations," he said.

There's a lesson here: To improve your cooking, learn how to make and use sauce like a professional.

Five basic types of sauces appear over and over again on menus and in cookbooks that feature the kind of vegetable-heavy, flavor-dense food that cooks and eaters favor today: yogurt sauce, pepper sauce, herb sauce, tahini sauce and pesto. Master each one, and you'll immediately have access to the dozens of variations that descend from them, too.

Think of them as the new mother sauces, an updated version of the five mother sauces of French cuisine. Armed with one of these five sauces, the home cook can go on and cook what he or she is most comfortable cooking. The right sauce will transform the distinct elements of a dish into a unified statement of taste.

[Placebo article 3 (wave 2)]

Burgett crowned Fair Queen
By Larry Eskridge

Savannah Burgett was crowned the Fulton County Fair Queen Monday in a pageant which offered a number of new features.

One of these was a special jumpstart for future Fair Queen candidates, with young ladies 3 to 5 years of age given a chance to come onstage and introduce themselves as an opportunity to see what it was like to be in front of an audience.

Another new feature was the Good Will Award. Resembling the Miss Congeniality award given at many pageants, the contestants themselves voted for the girl who most closely embodied the spirit of the pageant. The first winner was Elizabeth Parker, sponsored by the Astoria America Legion.

Yet another first was the People's Choice Award, which allowed members of the audience to vote by placing money in a special jar for each candidate. The winner will receive a portion of the proceeds. The first winner of the People's Choice Award was Sarah Linder, sponsored by the Kiwanis Club of Canton.

Burgett, sponsored by the Astoria American Legion Auxiliary, is the daughter of David and April Burgett of Astoria.

During her speech, Burgett spoke about having curvature of the spine and how most people were unaware of her condition. She told the audience her condition never prevented her from doing anything she wanted.

Broadly speaking, what were the articles you just read about?
-News reports about how scientists are describing climate change
-News reports about how politicians are responding to climate change
-Opinion articles about how writers feel about climate change
-News reports about how politicians are responding to immigration
-News reports about how experts are describing immigration
-Opinion articles about how writers feel about immigration
-Miscellaneous topics (such as travel, food, health, hobbies, and/or local news)

We would now like to ask you a few questions about your own factual beliefs.

You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Do you think this probably has been happening, or do you think it probably has not been happening?
-Probably has been happening
-Probably has not been happening

[if probably has been happening]
You indicated that you think the world's temperatures are increasing. Do you think that definitely has been happening or only probably has been happening?
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-Probably has been happening

[if probably has not been happening]
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We would now like to ask you a few questions will ask about your own opinions.

Do you think the federal government should be doing more about rising temperatures, should be doing less, or is it currently doing the right amount?
-Should be doing more
-Should be doing less
-Is currently doing the right amount

[if should be doing more]
Should the federal government be doing a great deal more, a moderate amount more, or a little more about rising temperatures?
-A great deal
-A moderate amount
-A little

[if should be doing less]
Should the federal government be doing a great deal less, a moderate amount less, or a little less about rising temperatures?
-A great deal
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-A little

Which of the following approaches would you prefer for addressing America's energy supply needs?
-Mostly developing alternative sources, such as wind, solar, and hydrogen technology
-A mix of expanding exploration and production of oil, coal, and natural gas, and developing alternative sources such as wind, solar, and hydrogen technology
-Mostly expanding exploration and production of oil, coal, and natural gas

It is essential for the validity of this study that we know whether participants looked up any information online during the study. Did you make an effort to look up information during the study? Please be honest; you will still be paid and you will not be penalized in any way if you did.
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Do you have any comments on the survey? Please let us know about any problems you had or aspects of the survey that were confusing. [text box]

Please enter your Worker ID: [text box]

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Do you consent to participate in the study?
-Yes
-No

Please read the following articles carefully and take your time while reading. You will be asked one or more questions about the content of the articles.

[Science article 1 (wave 3)]

The clock is ticking to stop catastrophic global warming, top climate scientists say Dino Grandoni

An international body of nearly 100 climate scientists convened by the United Nations have issued a stern warning to the rest of the world.

Unless governments around the globe undertake "unprecedented" action to reverse it, Earth's temperatures will soar upwards of 1.5-degrees Celsius, or 2.7 degrees Fahrenheit, over pre-industrial levels by the end of the century.

Warming above that threshold, the scientists write, could trigger the near-total loss of the world's tropical coral reefs and the collapse of ice sheets in Antarctica and Greenland that would send sea levels soaring.

In short, the scientists say the world has only a dozen years to tackle climate change to avoid some of its most devastating effects.

That is the tough-love conclusion of the U.N.'s Intergovernmental Panel on Climate Change, or IPCC, in a major consensus report released Sunday evening after days of discussions last week between scientists and government officials meeting in South Korea.

The IPCC, seen as a definitive source on the state of climate science, outlined a path to keeping temperatures under those levels.

But the path to reverse the rising temperatures is arduous. And, so far, even nations with leaders who acknowledge the severity of climate change have not pledged to do enough under the 2015 Paris climate accord that would prevent 1.5 degrees of warming, according to the scientists.

Right now, the world is not on track to stay under the 1.5-degree mark. The new report throws cold water on the idea current Paris promises will be enough to stop some of the most severe effects of global warming. Existing promises under the Paris agreement, which give countries wiggle room to come up with ways of meeting emissions targets, would lead to about 3 degrees Celsius of warming by 2100.

"It's like a deafening, piercing smoke alarm going off in the kitchen," Erik Solheim, executive director of the U.N. Environment Program, told The Post. "We have to put out the fire."

[Science article 2 (wave 3)]

Capturing CO2 From Air
Daniel Pratt

The UN's latest global warming report made it clear that if the world is to avoid the worst impacts of climate change, society urgently needs to move away from fossil fuels completely.

But to keep the planet from warming more than 1.5 degrees Celsius, the report says, we'll also have to figure out how to undo some of the damage that's already been done.

"Given our current knowledge, we can't get to 1.5 degrees without removing carbon from the atmosphere and storing it," said Kelly Levin, a senior associate at the World Resources Institute.

With 1.5°C of warming just around the corner, the UN Intergovernmental Panel on Climate Change (IPCC) considered several solutions for removing CO2 from the air-some as simple as planting more trees, others as complex as using technology to filter CO2 from the air. Their practicality and their risks vary considerably.

Some of the most viable options identified by the IPCC are based in the natural world, as opposed to more costly technologies that aren't yet proven on large scales.

Of the options considered, the solution the IPCC found to have both the most potential for reducing CO2 and the lowest costs was what's known as soil carbon sequestration.

The IPCC found that by 2050, soil carbon sequestration could remove between 2 and 5 gigatons of carbon dioxide a year, at a cost ranging from less than $0 to $100 per ton. (For comparison, technology that can capture CO2 released by the burning of biomass-known as BECCS-was estimated to be able to capture between 0.5 and 5 gigatons of carbon a year at costs ranging from $100 to $200 per ton).

[Science article 3 (wave 3)]

Business case for climate action grows as IPCC intensifies warnings
Mark Trumbull

A new global report from scientists amounts to an urgent call for the world to act more quickly and forcefully to counter fast-rising threats from climate change.

The report from the Intergovernmental Panel on Climate Change Monday said humanity's window for action is quickly closing, if the goal of holding global warming to 1.5 degrees C above pre industrial averages is to be met. And the report emphasized the benefits of aiming for that target, rather than allowing temperatures to rise 2 degrees C or more due to the buildup of heat-trapping gases in the atmosphere.

For coral reefs, for example, that half a degree could be the difference between a huge decline and a near-total loss of those ecosystems, the report estimated. Two degrees of warming would thrust an additional 489 million people into conditions of water scarcity, double the increase expected for a 1.5 degree threshold.

Of course, while this latest IPCC report frames the challenge in some fresh ways, such urgent calls to action have happened before. One of the challenges is that a dire forecast alone, even when coupled with careful scientific explanations, can sometimes spark feelings of fear, resentment, or helplessness rather than concerted action. But this time, even as the report prompted social-media reactions of "we're doomed" or "we're cooked," other shifts may give a nudge toward hope and engagement.

Technological advances, such as breakthroughs in solar energy and electric-vehicle batteries, are making the reduction of fossil-fuel emissions look more feasible. And, from droughts and wildfires to storms and floods, the "lived experience" of many people in the past few years is making action look more necessary.

The scenario outlined by the IPCC is "sobering" says Mindy Lubber of Boston-based Ceres, a nonprofit that encourages and tracks corporate actions on sustainability.

[Politics article 1 (wave 3)]

Trump steadily undoing US efforts at curbing climate change
Shelby Lin Erdman

President Donald Trump has been steadily dismantling Obama administration efforts to help curb climate change and greenhouse gas emissions since taking office in January of 2017.

In addition to gutting regulations on oil, coal and gas emissions over the past two years, Trump moved to pull the U.S. out of the Paris Climate Agreement and even said outright that he didn't believe the conclusions of a major report on the critical consequences of climate change issued Friday by 13 government agencies from his own administration.

Even though Trump's argument against regulating polluting industries has focused on the economic impact, he seemed unconcerned with the Fourth National Climate Assessment report, which predicted hundreds of billions of dollars in losses to the U.S. by the end of the century if the global temperature continues rising.

While Democratic lawmakers are promising action on the issue on Capitol Hill, they will most certainly face challenges from a Republican-controlled Senate and White House.

"We're going to raise these issues as high as we can. We're going to organize a green political wave across this country and then ask Republicans if they want to vote against it at their own peril," Sen. Ed Markey (D-Mass.) said on Monday.

Skeptics in Congress, mainly Republicans, are still unconvinced and maintain climate change is not man-made.

Oklahoma Sen. Jim Inhofe is famous for bringing a snowball onto the Senate floor in 2015 to make a point about climate change.

"The question is all this due to manmade anthropogenic gasses and the answer is no," Inhofe said on Monday during an interview with CMG' National Bureau.

At Tuesday's White House briefing, press secretary Sarah Sanders called the new report "radical" and defended Trump's record.

[Political article 2 (wave 3)]

Who drew it?
Isaac Stanley-Becker

Ninety-one leading scientists from 40 countries who together examined more than 6,000 scientific studies. Specialists such as Katharine Mach, who studies new approaches to climate assessment at Stanford University; Tor Arve Benjaminsen, a human geographer at the Norwegian University of Life Sciences; and Raman Sukumar, an ecologist at the Indian Institute of Science.

They are among the members of the Intergovernmental Panel on Climate Change, a group of scientists convened by the United Nations to make recommendations to world leaders. Their report, issued Monday, warns of environmental catastrophe as early as 2040 and advises that the worst can be staved off only if civilization is transformed more profoundly than at any point in recorded history.

President Trump, in comments to reporters Tuesday on the South Lawn, seemed unaware of the IPCC, as the body is known, and expressed doubts about its determinations. The remarks put him at odds with most world leaders, as well as with scientific fact–a familiar position for the brash former businessman who has long ridiculed climate concerns.

"It was given to me. It was given to me, and I want to look at who drew, you know, which group drew it," the president said, as Hurricane Michael edged closer to the Florida's northern Gulf Coast, threatening devastating flooding, which scientists say is exacerbated by rising sea levels.

Conspiracy theories about the climate fill Trump's Twitter page. He has called global warming a "canard," speculated about global cooling and, on Election Day in 2012, claimed that "global warming was created by and for the Chinese to make U.S. manufacturing noncompetitive." He frequently cites weather reports about rain and snow to argue, contrary to scientific consensus, that the planet can't be warming.

[Political article 3 (wave 3)]

Climate 'will change back again'
Mark Tutton

President Donald Trump has said he doesn't believe that climate change is a hoax – but added Sunday night that "it'll change back again."

In the wake of a report from the global scientific authority on climate change warning that governments around the world must take "rapid, far-reaching and unprecedented changes in all aspects of society" to avoid disastrous levels of global warming, Trump was asked for his views on climate change during an interview on CBS's "60 Minutes."

Trump replied: "I think something's happening. Something's changing and it'll change back again. I don't think it's a hoax, I think there's probably a difference. But I don't know that it's man-made."

Trump's belief that climate change may not be man-made should come as no surprise – it's reflected in many of the policies that have defined his first term. While it might be seen as progress that he's acknowledged it's not a hoax, his belief that climate change will fix itself is clear from the way his administration has rolled back many Obama-era climate change directives.

Here are some of the controversial climate actions taken by the Trump administration:

In 2017, Trump announced he would withdraw the US from the 2015 Paris agreement – the landmark accord through which countries have pledged to reduce carbon emissions – leaving the US as the only country in the world not signed on to the deal.

In August, the administration announced plans to freeze Obama-era greenhouse gas emissions standards for automobiles. It also proposed withdrawing California's Clean Air Act pre-emption waiver, which lets the state set its own emission standards. California and about a dozen states that follow its rules account for about a third of all the passenger vehicles sold in the United States.

In September, the Environmental Protection Agency (EPA) released a proposal that would relax requirements from the Obama-era on how energy companies monitor and repair methane leaks.

[Opinion article 1 (wave 3)]

Why the U.N. Climate Report Cannot Be Trusted
Tim Ball and Tom Harris

The U.N. Intergovernmental Panel on Climate Change (IPCC) released a special report last week, claiming that, unless governments virtually eliminate human production of carbon dioxide (CO2), we are headed toward a climate catastrophe.

The IPCC climate forecasts were wrong from their earliest reports in 1990. They were so inaccurate that they stopped calling them forecasts and made three "projections": low, medium, and high. Since then, even their "low" scenario projections were wrong.

One of the reasons the IPCC gets away with this is that almost no one reads the underlying science reports. Indeed, the "Final Government Draft" of the underlying science report, which appears on the IPCC Web site, even cautions the reader, "Do Not Cite, Quote or Distribute."

Partly for this reason, but mainly because the underlying science reports are so complicated, media and politicians rely instead on the Summary for Policymakers (SPM). This document is highly politicized, as it is mostly written by government representatives and must be approved by them. IPCC Reviewer and independent analyst David Wojick explained some of the problems with this system:
"What is systematically omitted from the Summary for Policymakers are precisely the uncertainties and positive counter evidence that might negate the human interference theory."

The IPCC procedures further allow government representatives to ultimately control the underlying science reports by specifying that changes to the science reports may be made even after they have been approved.

The scientific section of the IPCC Third Assessment Report illustrates how little they actually know about climate futures: "In climate research and modelling, we should recognize that we are dealing with a coupled non-linear chaotic system, and therefore that the long-term prediction of future climate states is not possible."

The supposed threat is a 1.5 to 2C increase, but global temperatures were higher than today by at least that much for most of the last 10,000 years. Yet polar bears and the world survived.

No one should take the new IPCC climate report seriously.

[Opinion article 2 (wave 3)]

Global warming movement damaging world
Jay Lehr and Tom Harris

For many of the entities driving the global warming debate, the goal has never been about climate. Their long-term goal is to unite the world under a single socialistic government in which there is no capitalism, no democracy, and, ultimately, no freedom.

Renewable energy sources are incapable of ever meeting the world's energy needs. Their cost, which must be heavily subsidized by the taxpayer, their intermittency (power generation is interrupted when the wind doesn't blow or the sun goes behind a cloud), and their limited capacity rule them out as major energy sources.

Yet, in many states, energy costs are rising because public utilities are being forced by governments to replace some existing economical power with solar and wind farms. As usual, low-income families and small businesses are the biggest losers.

Scientists understand that, if they want to receive research funding, publish papers, and even retain their jobs, they must support the global warming movement. The net result is a loss of credibility for all scientists and the propagation of numerous falsehoods regarding global warming. Even so, a broad spectrum of meteorologists and other scientists have spoken out to say that there is no compelling evidence to support the hypothesis that humans are the cause of any climate changes.

Several U.S. states are trying to pass unconstitutional legislation that would make it a crime to speak out against man-caused global warming. Socialists are trying to place all energy sources under government control using a "smart grid" that will eventually be able to monitor and dictate the energy use of all Americans.

Global warming represents the most pervasive and damaging example of scientific fraud in history. It has already seriously damaged the United States and other free market economies. While our economy is booming now, it will continue to be threatened as long as our government bases any of its policies on the global warming movement.

[Opinion article 3 (wave 3)]

Climate change industry grows rich from hysteria
Stephen Moore

The first iron rule of American politics is: Follow the money.

Shortly after the latest "Chicken Little" climate change report was published last month, I noted that one reason so many hundreds of scientists are persuaded that the sky is falling is that they are paid handsomely to do so.

According to a recent report by the U.S. Government Accountability Office, "Federal funding for climate change research, technology, international assistance and adaptation has increased from $2.4 billion in 1993 to $11.6 billion in 2014, with an additional $26.1 billion for climate change programs and activities provided by the American Recovery and Reinvestment Act in 2009."

This doesn't mean that the planet isn't warming. But the tidal wave of funding reveals a powerful financial motive for scientists to conclude that the apocalypse is upon us. No one hires a fireman if there are no fires.

A few years ago, Forbes magazine went through the federal budget and estimated about $150 billion in spending on climate change and green energy subsidies during President Obama's first term.

That didn't include the tax subsidies that provide a 30 percent tax credit for wind and solar power – $8-10 billion a year. Then add billions more in costs attributable to the 29 states with renewable energy mandates.

Five years ago, a leftist group called the Climate Policy Initiative issued a study that found "global investment in climate change" reached $359 billion that year. The money-hungry planet-saviors moaned that this spending "falls far short of what's needed."

By the industry's own admission, there has been almost no progress worldwide in combating climate change. After three decades of "research," the only "solution" is for the world to stop using fossil fuels.

The greatest minds of the world entrusted with hundreds of billions of dollars can only come up with a solution that would entail the largest government power grab in world history, shutting down industrial production, and throwing perhaps billions of human beings into poverty?

[Placebo article 1 (wave 3)]

Airlines seek to serve hearing-impaired passengers
By Anne Herr

Delta Airlines recently announced that employees who speak any of the 300-plus types of sign language will be identified by a notice on their employee nametag. In a press release, the company stated that this update will allow "customers and qualified employees [to] immediately be able to visually recognize when they hold sign language as a common connection."

Delta becomes the latest major airline to take steps to help their customers who are deaf or hard of hearing have a smoother time traveling. In early 2019, Virgin Atlantic Airways introduced a "hidden symbol," included on a slip with its tickets or worn as a pin, which allow people with disabilities that are not apparent to identify themselves to employees. The company also offers sign language interpretation in British Sign Language if notified in advance. Those services, however, are only available on international flights.

A number of other airlines, including Southwest, do not list their specific services for deaf and hard-of-hearing passengers on their websites but provide a phone number with relay service or teletypewriter service. Many airlines, including United, ask deaf and hard-of-hearing customers to identify themselves to staff.

[Placebo article 2 (wave 3)]

The 5 Best (and 5 Worst) Food Developments of the Last 10 Years
By Cathy Erway

A lot of developments have happened in the world of food and I will attempt a reckoning of the last ten years of them. First up, the five most awesome developments in food, followed by the five most, well, not awesome ones in my humble opinion.

The 5 Best Food Developments of the Last 10 Years:
1. Whole grains appreciation: They've made a big comeback in recent years, thanks to their nutrition, gluten-free nature, and maybe just fashion.
2. Fast food goes down, tries to get fresher: The fast food industry has slipped steadily over the last decade.
3. Soda is in the doghouse: Soda and sugary beverages are being banned from schools and taxed in some cities much like cigarettes for its unhealthiness.
4. Asian food is super trendy: Cuisines from all around Asia have moved rapidly into the mainstream dining scene
5. Cooking: Home cooking has been recognized as a necessary and integral part of living a more sustainable lifestyle.

The 5 Worst Food Developments of the Last 10 Years:
1. Gluten rage: Perhaps the most misunderstood ingredient of the decade.
2. Meal kits: I think that meal kits are essentially the illusion of home cooking sheathed in a consumer packaged good.
3. More overfishing: According to recent reports, we're still overfishing the most popular seafoods at unsustainable levels.
4. Avocados everywhere: When a food becomes the next "hotcakes," its production becomes mismanaged and unsustainable.
5. Spiralizing: the world could do without another cookbook about shredding vegetables into raw curls.

[Placebo article 3 (wave 3)]

Got a meeting? Take a walk
By Nilofer Merchant

More than cars or the Internet or even that little mobile device we keep talking about, the technology you're using the most almost every day is this, your tush. Nowadays people are sitting 9.3 hours a day, which is more than we're sleeping, at 7.7 hours. Sitting is so incredibly prevalent, we don't even question how much we're doing it, and because everyone else is doing it, it doesn't even occur to us that it's not okay. In that way, sitting has become the smoking of our generation. Of course there's health consequences to this, scary ones, besides the waist. Things like breast cancer and colon cancer are directly tied to our lack of physical [activity], Ten percent in fact, on both of those. Six percent for heart disease, seven percent for type 2 diabetes, which is what my father died of.

Now, any of those stats should convince each of us to get off our duff more, but if you're anything like me, it won't. What did get me moving was a social interaction. Someone invited me to a meeting, but couldn't manage to fit me in to a regular sort of conference room meeting, and said, "I have to walk my dogs tomorrow. Could you come then?" It seemed kind of odd to do, and actually, that first meeting, I remember thinking, "I have to be the one to ask the next question," because I knew I was going to huff and puff during this conversation. And yet, I've taken that idea and made it my own. So instead of going to coffee meetings or fluorescent-lit conference room meetings, I ask people to go on a walking meeting, to the tune of 20 to 30 miles a week.

Broadly speaking, what were the articles you just read about?
-News reports about how scientists are describing climate change
-News reports about how politicians are responding to climate change
-Opinion articles about how writers feel about climate change
-News reports about how politicians are responding to immigration
-News reports about how experts are describing immigration
-Opinion articles about how writers feel about immigration
-Miscellaneous topics (such as travel, food, health, hobbies, and/or local news)

We would now like to ask you a few questions will ask about your own factual beliefs.

You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Do you think this probably has been happening, or do you think it probably has not been happening?
-Probably has been happening
-Probably has not been happening

[if probably has been happening]
You indicated that you think the world's temperatures are increasing. Do you think that definitely has been happening or only probably has been happening?
-Definitely has been happening
-Probably has been happening

[if probably has not been happening]
You indicated that you think the world's temperatures are not increasing. Do you think that definitely has not been happening or only probably has not been happening?
-Definitely has not been happening
-Probably has not been happening

[if probably has been happening]
Do you think a rise in the world's temperatures is being caused mostly by human activity, mostly by natural causes, or about equally by human activity and by natural causes?
-Mostly by human activity
-Mostly by natural causes
-About equally by human activity and natural causes

[if probably has not been happening]
Assuming it's happening, do you think a rise in the world's temperatures is being caused mostly by human activity, mostly by natural causes, or about equally by human activity and by natural causes?
-Mostly by human activity
-Mostly by natural causes
-About equally by human activity and natural causes

We would now like to ask you a few questions will ask about your own opinions.

Do you think the federal government should be doing more about rising temperatures, should be doing less, or is it currently doing the right amount?
-Should be doing more
-Should be doing less
-Is currently doing the right amount

[if should be doing more]
Should the federal government be doing a great deal more, a moderate amount more, or a little more about rising temperatures?
-A great deal
-A moderate amount
-A little

[if should be doing less]
Should the federal government be doing a great deal less, a moderate amount less, or a little less about rising temperatures?
-A great deal
-A moderate amount

-A little

Which of the following approaches would you prefer for addressing America's energy supply needs?
-Mostly developing alternative sources, such as wind, solar, and hydrogen technology
-A mix of expanding exploration and production of oil, coal, and natural gas, and developing alternative sources such as wind, solar, and hydrogen technology
-Mostly expanding exploration and production of oil, coal, and natural gas

Here are some institutions in this country. As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?
-Scientific community
-Major companies
-The news media
-Organized religion
-Congress
-Military

Response options:
-A great deal
-Only some
-Hardly any

How much confidence, if any, do you have in each of the following to act in the best interests of the public?
Elected officials
The news media
The military
Scientists
Religious leaders
Business leaders

Response options:
-A great deal
-A fair amount
-Not too much
-No confidence at all

We would like to get your feelings toward some groups, leaders, and institutions who are in the news these days using something we call the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the group, leader, or institution. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward them and that you don't care too much for them. You would rate them at the 50 degree mark if you don't feel particularly warm or cold toward them. If we come to a group, leader, or institution whose name you don't recognize, you don't need to rate them.
-Democratic Party
-Republican Party
-Donald Trump
-Joe Biden
-Scientific community
-The news media

In general, how much trust and confidence do you have in the mass media – such as newspapers, TV and radio – when it comes to reporting the news fully, accurately and fairly?
-A great deal
-A fair amount
-Not very much
-None at all

It is essential for the validity of this study that we know whether participants looked up any information online during the study. Did you make an effort to look up information during the study? Please be honest; you will still be paid and you will not be penalized in any way if you did.
-Yes, I looked up information
-No, I did not look up information

Do you have any comments on the survey? Please let us know about any problems you had or aspects of the survey that were confusing. [text box]

Please enter your Worker ID: [text box]

Thank you for answering these questions and for your participation. Please do not share any information about the nature of this study with other potential participants. This research is not intended to support or oppose any political candidate or office. The research has no affiliation with any political candidate or campaign and has received no financial support from any political candidate or campaign. We may contact you to invite you to follow-up studies. Your participation in any follow-up studies is entirely voluntary and will not affect your compensation for this study. Should you have any questions about this study, please contact Prof. Ethan Porter at evporter@gwu.edu.

Please click next to get the code you need to successfully complete your HIT. Thank you again for participating!

D. Wave 4 survey instrument. This study is being conducted by Professor Ethan Porter of George Washington University, Professor Thomas J. Wood of Ohio State University, and Professor Brendan Nyhan of Dartmouth College. Your participation is voluntary and you may decline to participate in the survey or withdraw at any time. No information that identifies you will be collected or retained by the researchers. However, any online interaction carries some risk of being accessed. The survey will take about 4 to 6 minutes to complete. The purpose of the study is to better understand the determinants of attitudes about major public challenges. Possible benefits of participation include having the opportunity to express your opinion about issues of public concern. Possible risks or discomforts you could experience during this study include breach of confidentiality and boredom. If you experience any research-related injury, you should contact the Principal Investigator immediately. Further information regarding this study may be obtained by contacting the Principal Investigator at George Washington University at evporter@gwu.edu or (202) 994-0649.

Whom can I speak with? The Office of Human Research of George Washington University, which can be reached at (202) 994-2715, can provide information about your rights as a research participant. You may also contact this office if you have questions, concerns, or complaints about the research, or wish to speak with someone independent of the research team. If you wish to provide a written signature to signal your consent, please contact Ethan Porter at the email address above.
-Yes
-No

Regardless of your personal opinions on the topic, how important are the following issues to you personally?
-Climate change
-Immigration
-Health care

Response options:
-Not at all important
-A little important
-Moderately important
-Very important
-Extremely important

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Table S1. Experimental balance by treatment condition

		Placebo W2 → Placebo W3	Partisan W2 → Partisan W3	Placebo W2 → Science W3	Science W2 → Opinion W3	Science W2 → Partisan W3	Science W2 → Placebo W3	Science W2 → Science W3	χ^2 test (p-value)
Age	18–34	40	39	38	40	38	37	39	6.9(24), p =.99
	35–44	31	29	28	32	31	29	25	
	45–54	16	15	19	15	14	19	16	
	55–64	9	11	12	8	12	9	13	
	65+	4	5	3	6	5	6	7	
Education	College	63	64	64	64	60	68	65	1.5(6), p = .96
	No college	37	36	36	36	40	32	35	
Gender	Female	54	51	55	51	49	48	49	1.7(6), p =.94
	Male	46	49	44	49	51	51	51	
Ideology	Conservative	36	39	32	35	35	31	38	3.7(12), p =.98
	Moderate	13	13	15	10	12	15	13	
	Liberal	51	48	53	55	53	55	49	
Partisanship	Democrat	60	54	63	63	63	61	59	2.7(6), p=.85
	Republican	40	46	37	37	37	39	41	
Race	Non-white	17	18	19	18	18	17	20	.46(6), p=.99
	White	83	82	81	82	82	83	80	
N		418	402	404	352	369	397	398	

Table S2. Within-wave treatment effects on factual beliefs (main effects and interactions with partisanship and rejection of anthropogenic climate change)

	Climate change has human cause						Climate change is happening					
	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Science	0.089***	0.044*	0.083***	0.024	0.028	0.021	0.096***	-0.001	0.053	-0.053	0.057*	-0.025
	(0.017)	(0.019)	(0.018)	(0.020)	(0.017)	(0.020)	(0.031)	(0.034)	(0.030)	(0.033)	(0.029)	(0.033)
Partisan	0.060*	0.023	0.065*	0.015	0.025	-0.001	0.018	-0.005	0.020	-0.014	0.024	0.024
	(0.025)	(0.020)	(0.029)	(0.022)	(0.025)	(0.022)	(0.044)	(0.034)	(0.047)	(0.033)	(0.044)	(0.033)
Opinion		-0.034		-0.028		-0.060*		-0.073		-0.043		-0.017
		(0.026)		(0.029)		(0.030)		(0.045)		(0.043)		(0.043)
Science × Republican			0.016	0.051					0.111	0.134		
			(0.038)	(0.043)					(0.070)	(0.078)		
Partisan × Republican			-0.010	0.020					0.005	0.023		
			(0.054)	(0.044)					(0.096)	(0.077)		
Opinion × Republican				-0.018						-0.083		
				(0.059)						(0.104)		
Science × reject ACC					0.153***	0.058					0.097	0.071
					(0.038)	(0.042)					(0.069)	(0.076)
Partisan × reject ACC					0.085	0.063					-0.016	-0.072
					(0.055)	(0.045)					(0.096)	(0.079)
Opinion × reject ACC						0.066						-0.099
						(0.056)						(0.096)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2707	2718	2707	2718	2707	2718	2707	2718	2707	2718	2707

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table (all models): ideology, wave 1 importance of climate change, wave 1 trust in science, wave 1 belief in anthropogenic climate change, wave 1 support for renewable energy, and partisanship.

Table S3. Within-wave treatment effects on policy attitudes (main effects and interactions with partisanship and rejection of anthropogenic climate change)

	Favor renewable energy						Favor government action					
	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Science	0.070***	0.009	0.035	-0.010	0.066***	0.015	0.195***	0.191***	0.095*	0.163***	0.130***	0.090
	(0.017)	(0.018)	(0.019)	(0.021)	(0.020)	(0.022)	(0.042)	(0.049)	(0.041)	(0.048)	(0.040)	(0.050)
Partisan	-0.004	-0.001	0.003	-0.031	0.007	-0.014	0.149*	0.104*	0.132*	0.104*	0.073	0.070
	(0.025)	(0.019)	(0.029)	(0.021)	(0.031)	(0.023)	(0.062)	(0.051)	(0.064)	(0.052)	(0.070)	(0.054)
Opinion		-0.018		-0.034		0.001		-0.231***		-0.053		-0.035
		(0.025)		(0.029)		(0.030)		(0.071)		(0.066)		(0.069)
Science × Republican			0.090*	0.049					0.260**	0.074		
			(0.037)	(0.040)					(0.097)	(0.112)		
Partisan × Republican			-0.007	0.074					0.060	0.000		
			(0.052)	(0.042)					(0.133)	(0.114)		
Opinion × Republican				0.041						-0.476***		
				(0.055)						(0.163)		
Science × reject ACC					0.009	-0.017					0.160	0.220*
					(0.035)	(0.039)					(0.095)	(0.109)
Partisan × reject ACC					-0.023	0.032					0.189	0.085
					(0.052)	(0.041)					(0.130)	(0.115)
Opinion × reject ACC						-0.049						-0.467***
						(0.053)						(0.150)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2706	2718	2706	2718	2706	2718	2718	2718	2718	2718	2718

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table (all models): ideology, wave 1 importance of climate change, wave 1 trust in science, wave 1 belief in anthropogenic climate change, wave 1 support for renewable energy, and partisanship.

Table S4. Treatment effects on factual beliefs across waves

	Climate change has human cause			Climate change is happening		
	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4
Science W2 → Science W3	0.091***	0.088***	0.054	0.080	0.030	-0.008
	(0.028)	(0.029)	(0.029)	(0.048)	(0.048)	(0.047)
Science W2 → Opinion W3	0.059	-0.006	-0.016	0.077	-0.060	-0.032
	(0.030)	(0.030)	(0.028)	(0.051)	(0.050)	(0.050)
Science W2 → Placebo W3	0.080**	0.059*	0.055*	0.156***	0.025	-0.002
	(0.029)	(0.027)	(0.027)	(0.046)	(0.046)	(0.047)
Science W2 → Partisan W3	0.081***	0.045	0.030	0.086	0.009	0.024
	(0.029)	(0.030)	(0.030)	(0.050)	(0.047)	(0.047)
Placebo W2 → Science W3	-0.023	0.057*	0.005	0.010	-0.007	-0.032
	(0.027)	(0.027)	(0.027)	(0.050)	(0.047)	(0.047)
Partisan W2 → Partisan W3	0.049	0.058*	0.032	0.023	0.006	0.002
	(0.029)	(0.029)	(0.029)	(0.050)	(0.049)	(0.048)
Control variables	✓	✓	✓	✓	✓	✓
Auxiliary quantities						
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)		-.064*	-.071**		-.086	-.031
		(.029)	(.027)		(.051)	(.051)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)		-.014	-.025		-.016	.025
		(.028)	(.029)		(.049)	(.049)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.042	.031	.022	.057	.024	-.01
	(.029)	(.029)	(.03)	(.051)	(.052)	(.05)
N	2718	2707	2711	2718	2707	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Control variables selected via lasso but omitted from table (all models): wave 1 belief in anthropogenic climate change, wave 1 preference for renewable energy, perceived importance of climate change, ideology, scientific trust, and partisanship.

Table S5. Treatment effects on policy attitudes across waves

	Favor renewable energy			Favor government action		
	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.076**	0.041	0.018	0.265***	0.288***	0.157*
	(0.027)	(0.027)	(0.026)	(0.068)	(0.071)	(0.069)
Science W2 → Opinion W3	0.093***	0.005	-0.027	0.203***	-0.169*	-0.017
	(0.027)	(0.028)	(0.027)	(0.072)	(0.078)	(0.071)
Science W2 → Placebo W3	0.092***	0.048	0.014	0.192**	0.128	0.098
	(0.026)	(0.025)	(0.025)	(0.072)	(0.070)	(0.067)
Science W2 → Partisan W3	0.117***	0.042	0.014	0.276***	0.180*	0.231***
	(0.029)	(0.028)	(0.028)	(0.071)	(0.073)	(0.067)
Placebo W2 → Science W3	0.049	0.025	0.000	0.079	0.220***	0.125
	(0.026)	(0.025)	(0.025)	(0.065)	(0.067)	(0.064)
Partisan W2 → Partisan W3	0.021	0.005	-0.010	0.188**	0.155*	0.040
	(0.028)	(0.027)	(0.027)	(0.070)	(0.071)	(0.069)
Control variables	✓	✓	✓	✓	✓	✓
Auxiliary quantities						
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)		-.043	-.041		-.297***	-.115
		(.028)	(.027)		(.08)	(.073)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)		-.006	-4e-05		.052	.134
		(.028)	(.028)		(.074)	(.069)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.055	.036	.029	.077	.133	.117
	(.029)	(.028)	(.028)	(.073)	(.074)	(.073)
N	2718	2706	2711	2718	2718	2718

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Control variables selected via lasso but omitted from table: wave 1 support for renewable energy (all), wave 1 belief in anthropogenic climate change (all), partisanship (all), scientific trust (all), importance of climate change (all), ideology (all), political knowledge (models 4 and 5), and political interest (model 5).

Table S6. Treatment effects on trust in science

	Trust in science
Partisan W2 → Partisan W3	0.033
	(0.039)
Placebo W2 → Science W3	0.036
	(0.037)
Science W2 → Opinion W3	0.023
	(0.039)
Science W2 → Partisan W3	0.057
	(0.040)
Science W2 → Placebo W3	0.058
	(0.039)
Science W2 → Science W3	0.047
	(0.038)
Control variables	✓
Auxiliary quantities	
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)	-0.035
	(0.039)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)	-0.001
	(0.040)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	0.015
	(0.038)
N	2704

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures. Control variables selected via lasso but omitted from table (all models): wave 1 belief in anthropogenic climate change, importance of climate change, ideology, and wave 1 trust in science.

Table S7. Treatment effects on climate change importance

	Issue importance
Science W2 → Science W3	0.033
	(0.049)
Science W2 → Opinion W3	0.036
	(0.051)
Science W2 → Placebo W3	-0.009
	(0.049)
Science W2 → Partisan W3	0.015
	(0.051)
Placebo W2 → Science W3	0.035
	(0.047)
Partisan W2 → Partisan W3	0.030
	(0.052)
Control variables	✓
Auxiliary quantities	
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)	.024
	(.049)
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)	.045
	(.05)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.003
	(.051)
N	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is important measured on a five-point scale. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change, wave 1 support for renewable energy, climate change issue importance, partisanship, ideology, and wave 1 scientific trust.

Table S8. Treatment effects on beliefs and attitudes across waves by partisanship

	Climate change is happening			Climate change has human cause			Favor government action			Favor renewable energy		
	W2	W3	W4	W2	W3	W4	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.055	-0.051	0.014	0.065*	0.065*	0.075*	0.075	0.198**	0.140*	0.024	0.000	-0.025
	(0.046)	(0.046)	(0.044)	(0.031)	(0.030)	(0.032)	(0.067)	(0.072)	(0.065)	(0.032)	(0.030)	(0.032)
Science W2 → Opinion W3	-0.004	-0.052	-0.057	0.076*	-0.002	0.005	0.096	-0.035	0.103	0.062*	-0.012	-0.038
	(0.051)	(0.046)	(0.049)	(0.031)	(0.033)	(0.031)	(0.066)	(0.076)	(0.064)	(0.031)	(0.032)	(0.031)
Science W2 → Placebo W3	0.036	-0.020	-0.035	0.053	0.053	0.071**	0.015	0.038	0.052	0.060*	0.045	0.018
	(0.044)	(0.043)	(0.045)	(0.029)	(0.030)	(0.027)	(0.066)	(0.070)	(0.063)	(0.029)	(0.028)	(0.028)
Science W2 → Partisan W3	0.044	-0.012	0.029	0.084***	0.036	0.056	0.158*	0.108	0.160*	0.043	-0.013	-0.036
	(0.049)	(0.045)	(0.045)	(0.029)	(0.033)	(0.033)	(0.065)	(0.076)	(0.066)	(0.031)	(0.031)	(0.030)
Placebo W2 → Science W3	-0.039	-0.074	-0.022	-0.028	0.036	0.021	-0.021	0.166*	0.103	0.023	0.024	-0.003
	(0.049)	(0.045)	(0.044)	(0.029)	(0.029)	(0.029)	(0.065)	(0.067)	(0.062)	(0.031)	(0.028)	(0.028)
Partisan W2 → Partisan W3	0.000	-0.035	0.023	0.051	0.047	0.060*	0.122	0.139	0.117	0.015	-0.003	-0.029
	(0.050)	(0.047)	(0.045)	(0.032)	(0.032)	(0.030)	(0.069)	(0.073)	(0.068)	(0.033)	(0.030)	(0.031)
Science W2 → Science W3 × Republican	0.063	0.202	-0.052	0.063	0.059	-0.053	0.474***	0.224	0.042	0.129*	0.101	0.107
	(0.109)	(0.108)	(0.108)	(0.060)	(0.063)	(0.063)	(0.152)	(0.157)	(0.158)	(0.058)	(0.058)	(0.056)
Science W2 → Opinion W3 × Republican	0.209	-0.028	0.068	-0.047	-0.012	-0.054	0.269	-0.365*	-0.321	0.080	0.042	0.024
	(0.116)	(0.115)	(0.115)	(0.068)	(0.067)	(0.063)	(0.168)	(0.178)	(0.165)	(0.060)	(0.061)	(0.059)
Science W2 → Placebo W3 × Republican	0.309***	0.114	0.087	0.071	0.014	-0.040	0.450**	0.233	0.118	0.081	0.005	-0.012
	(0.105)	(0.105)	(0.107)	(0.065)	(0.061)	(0.062)	(0.165)	(0.159)	(0.155)	(0.057)	(0.055)	(0.054)
Science W2 → Partisan W3 × Republican	0.104	0.050	-0.015	-0.010	0.022	-0.067	0.301	0.195	0.199	0.197***	0.147*	0.132*
	(0.114)	(0.111)	(0.111)	(0.065)	(0.065)	(0.068)	(0.167)	(0.164)	(0.155)	(0.065)	(0.061)	(0.061)
Placebo W2 → Science W3 × Republican	0.124	0.174	-0.028	0.014	0.053	-0.039	0.250	0.142	0.061	0.064	0.000	0.004
	(0.116)	(0.109)	(0.109)	(0.060)	(0.060)	(0.060)	(0.147)	(0.153)	(0.148)	(0.057)	(0.056)	(0.055)
Partisan W2 → Partisan W3 × Republican	0.065	0.102	-0.045	-0.003	0.027	-0.066	0.179	0.046	-0.170	0.023	0.023	0.048
	(0.108)	(0.106)	(0.104)	(0.062)	(0.061)	(0.063)	(0.152)	(0.153)	(0.149)	(0.059)	(0.057)	(0.056)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2707	2711	2718	2707	2711	2718	2718	2718	2718	2706	2711

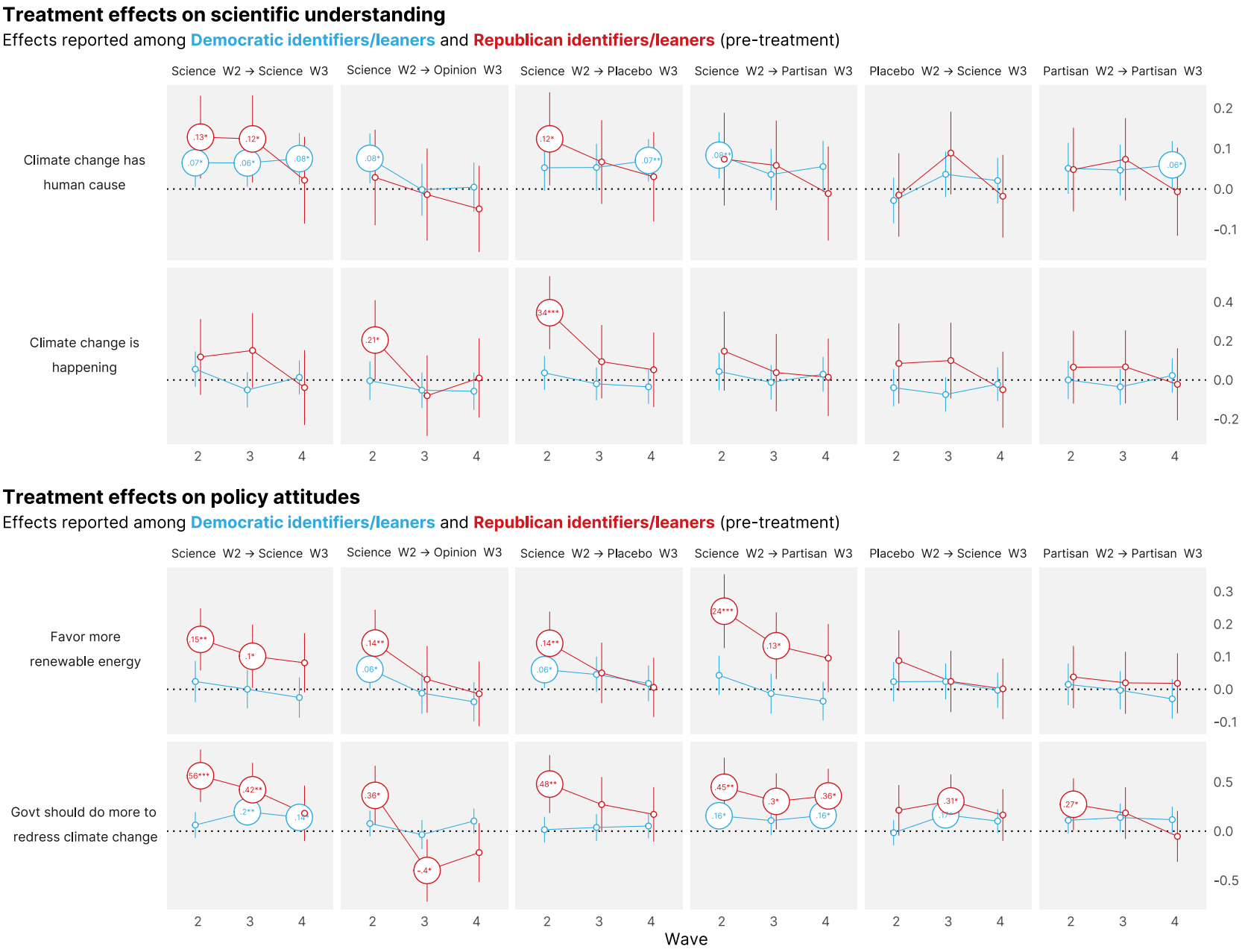
OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Support for renewable energy measured on three-point scale. Partisanship measured on seven-point scale. Control variables selected via lasso but omitted from table (all): wave 1 preference for renewable energy, wave 1 belief in anthropogenic climate change, wave 1 science trust, wave 1 importance of climate change, and ideology. All models also include an indicator for Republican party support (including leaners).

Table S9. Treatment effects on trust in science and climate change importance by partisanship

	Trust scientists	Climate change is important
	W4	W4
	(1)	(2)
Science W2 → Science W3	0.049	-0.049
	(0.042)	(0.057)
Science W2 → Opinion W3	0.080	0.014
	(0.042)	(0.061)
Science W2 → Placebo W3	0.052	-0.040
	(0.041)	(0.057)
Science W2 → Partisan W3	0.075	0.042
	(0.043)	(0.059)
Placebo W2 → Science W3	0.038	0.023
	(0.042)	(0.056)
Partisan W2 → Partisan W3	0.039	0.029
	(0.044)	(0.058)
Science W2 → Science W3 × Republican	-0.007	0.203*
	(0.083)	(0.103)
Science W2 → Opinion W3 × Republican	-0.154	0.055
	(0.088)	(0.109)
Science W2 → Placebo W3 × Republican	0.018	0.079
	(0.086)	(0.105)
Science W2 → Partisan W3 × Republican	-0.049	-0.078
	(0.089)	(0.110)
Placebo W2 → Science W3 × Republican	-0.006	0.029
	(0.080)	(0.102)
Partisan W2 → Partisan W3 × Republican	-0.017	0.008
	(0.083)	(0.111)
Control variables	✓	✓
N	2704	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures. Belief that climate change is important measured on five-point scale. Partisanship measured on seven-point scale. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change (models 1 and 2), wave 1 scientific trust (models 1 and 2), wave 1 importance of climate change (models 1 and 2), ideology (models 1 and 2), and wave 1 support for renewable energy (model 2).

Fig. S1. Treatment effects on climate change beliefs and policy attitudes across waves by condition and partisanship



Point estimates represent estimates from OLS regressions with robust standard errors and include 95% confidence intervals (Table S8); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table S10. Treatment effects on beliefs and attitudes across waves by rejection of anthropogenic climate change

	Climate change is happening			Climate change has human cause			Favor government action			Favor renewable energy		
	W2	W3	W4	W2	W3	W4	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.053	-0.048	0.000	0.043	0.050	0.016	0.183**	0.189*	0.104	0.091**	0.068*	0.030
	(0.047)	(0.046)	(0.044)	(0.026)	(0.031)	(0.032)	(0.070)	(0.074)	(0.072)	(0.033)	(0.031)	(0.032)
Science W2 → Opinion W3	0.036	-0.027	-0.050	-0.011	-0.032	-0.009	0.178**	0.039	0.043	0.089**	0.035	-0.005
	(0.049)	(0.046)	(0.049)	(0.030)	(0.034)	(0.031)	(0.068)	(0.080)	(0.071)	(0.032)	(0.034)	(0.033)
Science W2 → Placebo W3	0.076	-0.028	-0.057	0.006	0.051	0.052	0.114	0.127	0.118	0.106***	0.064*	0.014
	(0.046)	(0.045)	(0.047)	(0.027)	(0.029)	(0.027)	(0.070)	(0.071)	(0.065)	(0.031)	(0.030)	(0.029)
Science W2 → Partisan W3	0.078	0.022	0.063	0.019	0.019	0.006	0.169*	0.138	0.187**	0.077*	0.024	0.010
	(0.048)	(0.044)	(0.043)	(0.028)	(0.033)	(0.033)	(0.072)	(0.077)	(0.068)	(0.034)	(0.033)	(0.033)
Placebo W2 → Science W3	0.010	-0.031	-0.010	-0.027	0.044	0.015	0.059	0.117	0.052	0.052	0.028	-0.019
	(0.048)	(0.042)	(0.043)	(0.028)	(0.029)	(0.028)	(0.062)	(0.073)	(0.068)	(0.033)	(0.031)	(0.030)
Partisan W2 → Partisan W3	0.026	0.000	0.024	0.011	0.032	0.021	0.095	0.134	0.044	0.030	0.013	0.011
	(0.050)	(0.046)	(0.045)	(0.028)	(0.031)	(0.031)	(0.077)	(0.077)	(0.075)	(0.035)	(0.033)	(0.032)
Science W2 → Science W3 × reject ACC	0.086	0.210*	-0.002	0.121	0.096	0.095	0.199	0.233	0.136	-0.035	-0.065	-0.031
	(0.108)	(0.106)	(0.106)	(0.062)	(0.062)	(0.063)	(0.150)	(0.154)	(0.153)	(0.057)	(0.057)	(0.055)
Science W2 → Opinion W3 × reject ACC	0.135	-0.027	0.069	0.172**	0.072	-0.003	0.061	-0.461**	-0.118	0.011	-0.069	-0.054
	(0.111)	(0.108)	(0.109)	(0.066)	(0.064)	(0.061)	(0.159)	(0.168)	(0.158)	(0.057)	(0.059)	(0.057)
Science W2 → Placebo W3 × reject ACC	0.218*	0.141	0.155	0.197***	0.014	0.004	0.195	-0.010	-0.072	-0.039	-0.044	0.001
	(0.107)	(0.106)	(0.107)	(0.068)	(0.063)	(0.064)	(0.168)	(0.163)	(0.158)	(0.056)	(0.055)	(0.054)
Science W2 → Partisan W3 × reject ACC	0.028	-0.028	-0.100	0.170*	0.074	0.073	0.312	0.149	0.159	0.120	0.060	0.013
	(0.119)	(0.114)	(0.116)	(0.067)	(0.066)	(0.067)	(0.166)	(0.164)	(0.155)	(0.063)	(0.060)	(0.060)
Placebo W2 → Science W3 × reject ACC	0.027	0.084	-0.035	0.017	0.035	-0.015	0.036	0.230	0.167	-0.008	-0.010	0.042
	(0.112)	(0.106)	(0.106)	(0.059)	(0.059)	(0.059)	(0.148)	(0.148)	(0.143)	(0.055)	(0.053)	(0.052)
Partisan W2 → Partisan W3 × reject ACC	0.000	0.019	-0.049	0.094	0.061	0.028	0.213	0.036	-0.022	-0.025	-0.024	-0.050
	(0.109)	(0.108)	(0.106)	(0.064)	(0.062)	(0.063)	(0.152)	(0.156)	(0.152)	(0.058)	(0.057)	(0.056)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2707	2711	2718	2707	2711	2718	2718	2718	2718	2706	2711

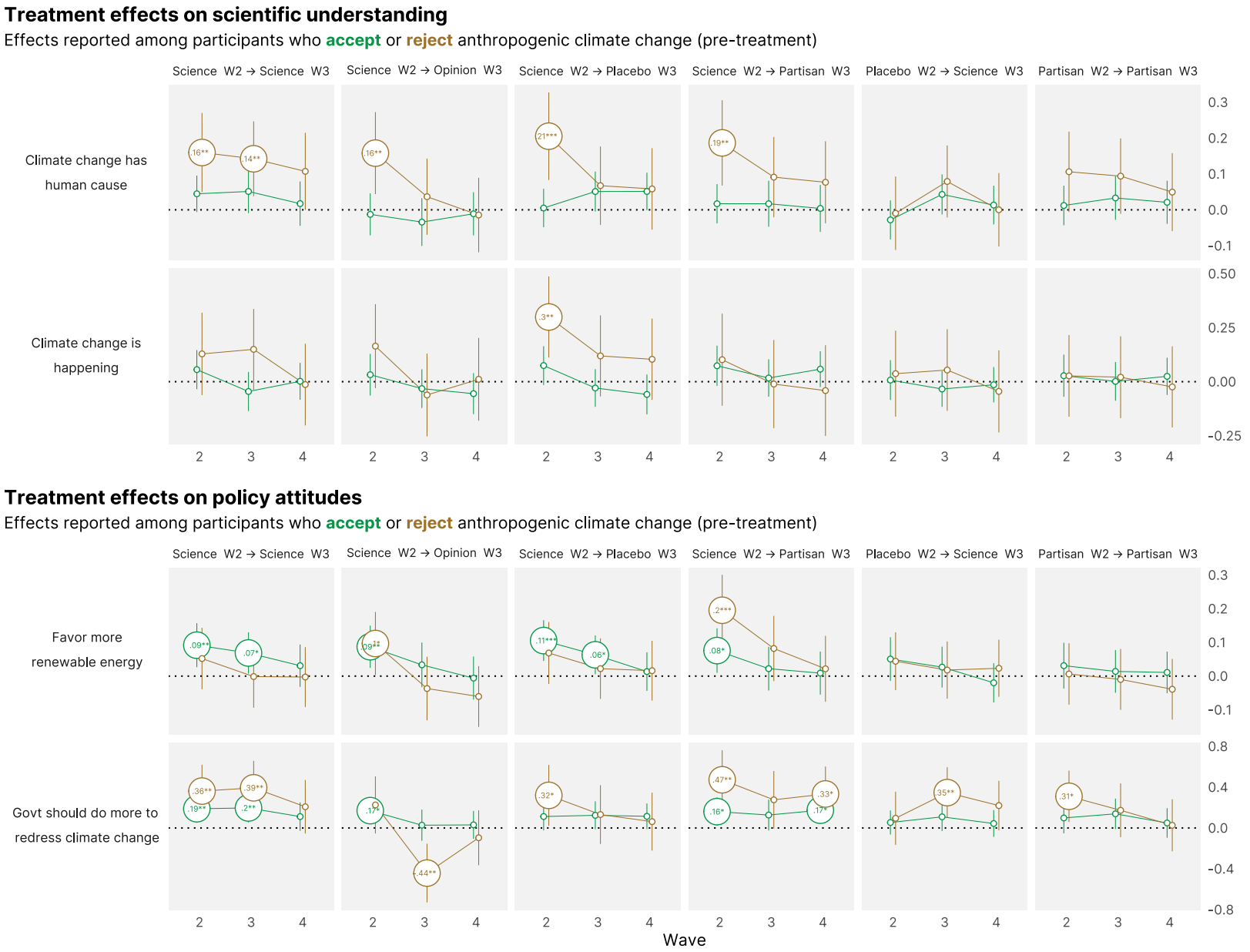
OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Support for renewable energy measured on three-point scale. Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table (all): ideology, wave 1 importance of climate change, wave 1 scientific trust, wave 1 belief in anthropogenic climate change, and wave 1 support for renewable energy.

Table S11. Treatment effects on trust in science and climate change importance by rejection of anthropogenic climate change

	Trust science	Climate change is important
	W4	W4
Science W2 → Science W3	0.079	0.038
	(0.044)	(0.056)
Science W2 → Opinion W3	0.080	0.020
	(0.041)	(0.059)
Science W2 → Placebo W3	0.071	0.002
	(0.042)	(0.058)
Science W2 → Partisan W3	0.086	0.031
	(0.044)	(0.057)
Placebo W2 → Science W3	0.052	0.071
	(0.041)	(0.058)
Partisan W2 → Partisan W3	0.076	0.035
	(0.044)	(0.063)
Science W2 → Science W3 × reject ACC	-0.081	-0.007
	(0.081)	(0.103)
Science W2 → Opinion W3 × reject ACC	-0.140	0.044
	(0.085)	(0.109)
Science W2 → Placebo W3 × reject ACC	-0.029	-0.029
	(0.087)	(0.105)
Science W2 → Partisan W3 × reject ACC	-0.072	-0.039
	(0.089)	(0.114)
Placebo W2 → Science W3 × reject ACC	-0.046	-0.081
	(0.080)	(0.100)
Partisan W2 → Partisan W3 × reject ACC	-0.106	-0.015
	(0.084)	(0.109)
Control variables	✓	✓
N	2704	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change (models 1 and 2), wave 1 scientific trust (models 1 and 2), wave 1 importance of climate change (models 1 and 2), ideology (models 1 and 2), and wave 1 support for renewable energy (model 2).

Fig. S2. Treatment effects on climate change beliefs and policy attitudes across waves by condition and rejection of anthropogenic climate change



Subgroup effects of information treatments by pre-treatment belief in anthropogenic climate change on scientific understanding and policy attitudes toward climate change by wave and condition. Point estimates represent estimates from OLS regressions with robust standard errors and include 95% confidence intervals (Table S10); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$.

Table S12. Treatment effects on beliefs and attitudes across waves (no covariates)

	Climate change is happening			Climate change has human cause			Favor govt. action			Favor renewable energy		
	W2	W3	W4	W2	W3	W4	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.057	0.017	-0.029	0.066	0.068	0.029	0.214	0.236*	0.105	0.038	0.012	-0.021
	(0.061)	(0.060)	(0.061)	(0.049)	(0.048)	(0.048)	(0.113)	(0.113)	(0.115)	(0.039)	(0.038)	(0.038)
Science W2 → Opinion W3	0.077	-0.055	-0.031	0.046	-0.019	-0.027	0.199	-0.170	-0.025	0.070	-0.012	-0.051
	(0.063)	(0.064)	(0.062)	(0.051)	(0.051)	(0.049)	(0.117)	(0.127)	(0.118)	(0.039)	(0.040)	(0.039)
Science W2 → Placebo W3	0.187***	0.056	0.020	0.133**	0.105*	0.101*	0.267*	0.198	0.150	0.110***	0.070	0.033
	(0.057)	(0.059)	(0.058)	(0.048)	(0.048)	(0.047)	(0.112)	(0.111)	(0.111)	(0.038)	(0.037)	(0.037)
Science W2 → Partisan W3	0.113	0.033	0.045	0.133**	0.092	0.079	0.301**	0.216	0.254*	0.100**	0.029	-0.008
	(0.061)	(0.061)	(0.060)	(0.049)	(0.049)	(0.048)	(0.113)	(0.114)	(0.108)	(0.039)	(0.039)	(0.038)
Placebo W2 → Science W3	0.033	0.017	-0.012	-0.008	0.068	0.017	0.115	0.271*	0.156	0.051	0.034	0.003
	(0.062)	(0.060)	(0.059)	(0.049)	(0.048)	(0.047)	(0.111)	(0.109)	(0.108)	(0.038)	(0.038)	(0.037)
Partisan W2 → Partisan W3	-0.047	-0.067	-0.072	-0.011	-0.001	-0.024	0.020	-0.028	-0.148	-0.040	-0.053	-0.071
	(0.063)	(0.062)	(0.061)	(0.050)	(0.049)	(0.048)	(0.115)	(0.114)	(0.115)	(0.040)	(0.039)	(0.038)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auxiliary quantities												
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)		-0.111	-0.051		-0.124*	-0.128**		-0.368***	-0.175		-0.082*	-0.085*
		(0.064)	(0.062)		(0.050)	(0.048)		(0.125)	(0.118)		(0.040)	(0.040)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)		-0.023	0.025		-0.013	-0.022		0.018	0.104		-0.042	-0.041
		(0.061)	(0.060)		(0.048)	(0.047)		(0.112)	(0.108)		(0.039)	(0.040)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	0.105	0.084	0.043	0.078	0.069	0.053	0.194	0.264*	0.253*	0.078	0.065	0.050
	(0.063)	(0.063)	(0.063)	(0.049)	(0.048)	(0.048)	(0.114)	(0.114)	(0.118)	(0.040)	(0.040)	(0.040)
N	2740	2729	2733	2740	2729	2733	2740	2740	2740	2740	2728	2733

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale.

Table S13. Treatment effects on trust in science and climate change importance (no covariates)

	Trust science	Climate change is important
	W4	W4
Science W2 → Science W3	0.007	0.028
	(0.068)	(0.088)
Science W2 → Opinion W3	0.057	0.044
	(0.069)	(0.090)
Science W2 → Placebo W3	0.082	0.030
	(0.066)	(0.087)
Science W2 → Partisan W3	0.006	0.041
	(0.067)	(0.088)
Placebo W2 → Science W3	0.085	0.072
	(0.066)	(0.086)
Partisan W2 → Partisan W3	-0.059	-0.093
	(0.070)	(0.090)
Control variables	✓	✓
Auxiliary quantities		
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)	-0.025	0.015
	(0.068)	(0.088)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)	-0.076	0.011
	(0.066)	0.0113(0.086)
(Science W2 → Science W3) − (Partisan W2 →Partisan)	0.067	0.121
	(0.071)	(0.089)
N	2725	2733

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures. Belief that climate change is important measured on a five-point scale.

Table S14. Treatment effects on beliefs and attitudes by political knowledge

	Climate change is happening			Climate change has human cause			Favor govt. action			Favor renewable energy		
	W2	W3	W4	W2	W3	W4	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.061	0.002	-0.006	0.075	0.093*	0.047	0.356***	0.362***	0.205*	0.099**	0.072*	0.021
	(0.064)	(0.063)	(0.063)	(0.039)	(0.040)	(0.041)	(0.092)	(0.095)	(0.094)	(0.036)	(0.037)	(0.036)
Science W2 → Opinion W3	0.119	-0.068	0.029	0.047	0.011	-0.012	0.297***	-0.132	0.038	0.099**	0.023	-0.030
	(0.066)	(0.064)	(0.065)	(0.041)	(0.041)	(0.038)	(0.093)	(0.100)	(0.091)	(0.036)	(0.037)	(0.036)
Science W2 → Placebo W3	0.187***	0.027	0.007	0.068	0.091*	0.066	0.282**	0.162	0.172	0.097**	0.074*	0.009
	(0.063)	(0.064)	(0.066)	(0.041)	(0.039)	(0.038)	(0.101)	(0.097)	(0.091)	(0.036)	(0.036)	(0.035)
Science W2 → Partisan W3	0.140*	0.007	0.055	0.071	0.077	0.035	0.370***	0.211*	0.319***	0.145***	0.080*	0.006
	(0.064)	(0.061)	(0.062)	(0.039)	(0.041)	(0.042)	(0.095)	(0.097)	(0.089)	(0.038)	(0.037)	(0.036)
Placebo W2 → Science W3	0.011	0.038	-0.008	-0.050	0.102**	0.000	0.169	0.314***	0.228**	0.079*	0.056	0.020
	(0.069)	(0.062)	(0.063)	(0.039)	(0.038)	(0.039)	(0.091)	(0.092)	(0.087)	(0.036)	(0.035)	(0.034)
Partisan W2 → Partisan W3	0.054	-0.003	0.010	0.045	0.082*	0.040	0.261**	0.160	0.076	0.010	0.023	-0.017
	(0.066)	(0.066)	(0.064)	(0.039)	(0.040)	(0.040)	(0.094)	(0.095)	(0.092)	(0.038)	(0.036)	(0.035)
Science W2 → Science W3 × high political knowledge	0.064	0.088	0.006	0.045	-0.008	0.022	-0.241	-0.193	-0.113	-0.063	-0.085	-0.009
	(0.097)	(0.096)	(0.095)	(0.051)	(0.053)	(0.055)	(0.134)	(0.142)	(0.138)	(0.055)	(0.051)	(0.051)
Science W2 → Opinion W3 × high political knowledge	-0.106	0.038	-0.171	0.033	-0.036	-0.008	-0.271	-0.093	-0.136	-0.005	-0.040	0.010
	(0.103)	(0.101)	(0.101)	(0.058)	(0.058)	(0.056)	(0.150)	(0.165)	(0.152)	(0.056)	(0.057)	(0.053)
Science W2 → Placebo W3 × high political knowledge	-0.085	-0.006	-0.026	0.033	-0.087	-0.030	-0.234	-0.086	-0.194	-0.016	-0.073	0.013
	(0.092)	(0.090)	(0.091)	(0.054)	(0.051)	(0.052)	(0.138)	(0.137)	(0.132)	(0.051)	(0.047)	(0.047)
Science W2 → Partisan W3 × high political knowledge	-0.140	0.018	-0.072	0.031	-0.086	-0.009	-0.246	-0.057	-0.215	-0.074	-0.102	0.022
	(0.102)	(0.098)	(0.097)	(0.054)	(0.056)	(0.057)	(0.142)	(0.142)	(0.133)	(0.058)	(0.054)	(0.055)
Placebo W2 → Science W3 × high political knowledge	-0.001	-0.114	-0.058	0.073	-0.119*	0.015	-0.234	-0.237	-0.261*	-0.077	-0.083	-0.053
	(0.100)	(0.096)	(0.094)	(0.049)	(0.050)	(0.050)	(0.127)	(0.133)	(0.128)	(0.052)	(0.049)	(0.049)
Partisan W2 → Partisan W3 × high political knowledge	-0.092	0.018	-0.022	0.004	-0.070	-0.025	-0.226	-0.033	-0.124	0.034	-0.052	0.020
	(0.099)	(0.095)	(0.093)	(0.057)	(0.054)	(0.055)	(0.138)	(0.143)	(0.140)	(0.054)	(0.053)	(0.053)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2707	2711	2718	2707	2711	2718	2718	2718	2718	2706	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. High political knowledge defined as respondents who answered all five knowledge questions correctly (median split). Control variables selected via lasso but omitted from table: wave 1 belief in climate change, wave 1 support for renewable energy, wave 1 importance of climate change, ideology, and scientific trust.

Table S15. Treatment effects on trust in science and climate change importance by political knowledge

	Trust scientists	Climate change is important
	W4	W4
Partisan W2 → Partisan W3	0.074	0.040
	(0.052)	(0.071)
Placebo W2 → Science W3	0.043	0.022
	(0.050)	(0.064)
Science W2 → Opinion W3	0.071	0.086
	(0.051)	(0.067)
Science W2 → Partisan W3	0.064	0.039
	(0.053)	(0.067)
Science W2 → Placebo W3	0.087	0.028
	(0.054)	(0.067)
Science W2 → Science W3	0.054	0.059
	(0.051)	(0.065)
Partisan W2 → Partisan W3 × high political knowledge	-0.117	-0.033
	(0.076)	(0.098)
Placebo W2 → Science W3 × high political knowledge	-0.022	0.036
	(0.072)	(0.093)
Science W2 → Opinion W3 × high political knowledge	-0.138	-0.157
	(0.080)	(0.103)
Science W2 → Partisan W3 × high political knowledge	-0.015	-0.064
	(0.079)	(0.102)
Science W2 → Placebo W3 × high political knowledge	-0.077	-0.091
	(0.074)	(0.095)
Science W2 → Science W3 × high political knowledge	-0.015	-0.070
	(0.076)	(0.095)
Control variables	✓	✓
N	2704	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures. Belief that climate change is important measured on a five-point scale. High political knowledge defined as respondents who answered all five knowledge questions correctly (median split). Control variables selected via lasso but omitted from table: wave 1 belief in climate change, wave 1 support for renewable energy, wave 1 importance of climate change, ideology, and wave 1 scientific trust.

Table S16. Treatment effects on beliefs and attitudes across waves by prior science trust

	Climate change is happening			Climate change has human cause			Favor govt action			Favor renewable energy		
	W2	W3	W4	W2	W3	W4	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.072	-0.009	-0.052	0.088	0.089	0.071	0.279*	0.325**	0.140	0.037	0.006	-0.054
	(0.082)	(0.082)	(0.083)	(0.047)	(0.048)	(0.052)	(0.121)	(0.125)	(0.125)	(0.043)	(0.042)	(0.042)
Science W2 → Opinion W3	0.114	-0.044	-0.020	0.087	0.015	-0.004	0.249	-0.179	0.037	0.151***	0.006	-0.026
	(0.086)	(0.084)	(0.085)	(0.050)	(0.049)	(0.047)	(0.131)	(0.138)	(0.125)	(0.043)	(0.046)	(0.042)
Science W2 → Partisan W3	0.115	-0.058	0.003	0.082	0.038	0.029	0.398***	0.201	0.323***	0.156***	0.071	0.012
	(0.082)	(0.078)	(0.079)	(0.046)	(0.047)	(0.050)	(0.117)	(0.125)	(0.111)	(0.042)	(0.041)	(0.039)
Science W2 → Placebo W3	0.216**	-0.023	-0.011	0.081	0.053	0.065	0.235	0.140	0.103	0.101*	0.029	-0.009
	(0.079)	(0.080)	(0.082)	(0.051)	(0.046)	(0.049)	(0.129)	(0.129)	(0.120)	(0.042)	(0.042)	(0.040)
Placebo W2 → Science W3	0.079	-0.031	-0.077	-0.040	0.040	0.023	0.125	0.234	0.186	0.059	-0.008	-0.019
	(0.084)	(0.081)	(0.082)	(0.046)	(0.046)	(0.046)	(0.114)	(0.123)	(0.114)	(0.040)	(0.041)	(0.039)
Partisan W2 → Partisan W3	-0.042	-0.115	-0.078	0.010	0.039	0.006	0.116	0.053	-0.105	0.039	0.029	-0.003
	(0.084)	(0.083)	(0.082)	(0.048)	(0.048)	(0.050)	(0.122)	(0.126)	(0.123)	(0.043)	(0.043)	(0.042)
Science W2 → Science × high science trust	0.020	0.080	0.091	0.006	-0.001	-0.033	-0.022	-0.068	0.046	0.080	0.072	0.144**
	(0.098)	(0.096)	(0.096)	(0.056)	(0.057)	(0.059)	(0.139)	(0.145)	(0.141)	(0.055)	(0.053)	(0.053)
Science W2 → Opinion W3 × high science trust	-0.048	-0.009	0.000	-0.046	-0.031	-0.015	-0.048	0.073	-0.055	-0.107	0.004	0.001
	(0.103)	(0.101)	(0.101)	(0.061)	(0.061)	(0.058)	(0.148)	(0.160)	(0.146)	(0.055)	(0.057)	(0.054)
Science W2 → Partisan W3 × high science trust	-0.053	0.148	0.049	-0.003	0.018	0.005	-0.273	-0.044	-0.198	-0.082	-0.062	-0.001
	(0.098)	(0.094)	(0.094)	(0.057)	(0.058)	(0.060)	(0.143)	(0.142)	(0.133)	(0.057)	(0.055)	(0.055)
Science W2 → Placebo × high science trust	-0.119	0.090	0.016	-0.004	0.010	-0.021	-0.092	-0.034	-0.021	-0.017	0.036	0.045
	(0.094)	(0.094)	(0.096)	(0.059)	(0.055)	(0.056)	(0.147)	(0.145)	(0.137)	(0.053)	(0.051)	(0.050)
Placebo W2 → Science W3 × high science trust	-0.122	0.059	0.102	0.039	0.038	-0.028	-0.067	0.002	-0.093	-0.015	0.068	0.040
	(0.102)	(0.096)	(0.096)	(0.054)	(0.054)	(0.054)	(0.134)	(0.141)	(0.134)	(0.053)	(0.051)	(0.050)
Partisan W2 → Partisan W3 × high science trust	0.116	0.223*	0.144	0.072	0.030	0.046	0.118	0.173	0.261	-0.042	-0.054	-0.020
	(0.101)	(0.098)	(0.096)	(0.058)	(0.058)	(0.059)	(0.143)	(0.146)	(0.142)	(0.056)	(0.054)	(0.053)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2718	2707	2711	2718	2707	2711	2718	2718	2718	2718	2706	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures; high trust is defined as scoring above the median on this measure. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change, wave 1 support for renewable energy, wave 1 importance of climate change, and ideology.

Table S17. Treatment effects on trust in science and climate change importance by prior science trust

	Trust scientists	Climate change is important
	W4	W4
Science W2 → Science W3	0.025	0.027
	(0.088)	(0.076)
Science W2 → Opinion W3	0.094	0.082
	(0.092)	(0.081)
Science W2 → Placebo W3	0.106	0.031
	(0.087)	(0.078)
Science W2 → Partisan W3	0.095	-0.006
	(0.088)	(0.077)
Placebo W2 → Science W3	0.115	0.057
	(0.089)	(0.073)
Partisan W2 → Partisan W3	-0.070	-0.072
	(0.090)	(0.079)
Science W2 → Science W3 × high science trust	0.032	0.001
	(0.097)	(0.097)
Science W2 → Opinion W3 ×high science trust	-0.057	-0.084
	(0.101)	(0.103)
Science W2 → Partisan W3 × high science trust	-0.091	0.054
	(0.098)	(0.100)
Science W2 → Placebo W3 × high science trust	-0.104	-0.074
	(0.097)	(0.098)
Placebo W2 → Science W3 × high science trust	-0.083	-0.029
	(0.098)	(0.095)
Partisan W2 → Partisan W3 × high science trust	0.132	0.192
	(0.100)	(0.103)
Control variables	✓	✓
N	2703	2711

OLS with robust standard errors; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Trust in science measured with factor score constructed from science trust, science confidence, and science feeling thermometer measures; high trust is defined as scoring above the median on this measure. Belief that climate change is important measured on a five-point scale. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change (models 1 and 2), wave 1 preference for renewable energy (models 1 and 2), wave 1 importance of climate change (models 1 and 2), ideology (models 1 and 2), an indicator for those aged 45–54 (model 2), an indicator for non-white respondents (model 2), and political interest (model 2).

Table S18. Attrition by treatment condition

	Attrited	Did not attrit
Partisan W2 → Partisan W3	72	437
Placebo W2 → Placebo W3	74	444
Placebo W2 → Science W3	84	436
Science W2 → Opinion W3	76	388
Science W2 → Partisan W3	80	386
Science W2 → Placebo W3	84	416
Science W2 → Science W3	79	446

Sample includes all participants who completed wave 2 (i.e., were randomized into treatment). Participants are considered to have attrited if they did not complete wave 3 or 4 (the preregistered exclusion criterion). We cannot reject the null of no difference in attrition between conditions ($\chi 2(6) = 3.34$, $p = .765$).

Table S19. Attrition by condition and demographic characteristics

	Overall	Science W2 → Science W3	Science W2 → Opinion W3	Science W2 → Placebo W3	Science W2 → Partisan W3	Placebo W2 → Science W3	Partisan W2 → Partisan W3	Placebo W2 → Placebo W3
Attrition by condition								
Percent attriting	15.6%	15.0%	16.4%	16.8%	17.2%	16.2%	14.1%	14.3%
Mean difference by attrition status								
Ideology (1–7)	.225*	.071	.248	.494*	.401	-.014	.32	-.023
Climate change important (1–5)	-,07	-.368*	.083	-.126	-.29	.111	.093	-.117
Science confidence (1–5)	-.087*	-.419***	-.06	-.126	-.072	-.123	.026	-.091
Climate change has human cause (1–3)	-.017	-.299**	-.086	.031	.113	.012	-.074	.016
Support renewable energy (1–3)	-.05	.162*	-.051	-.128	-.014	-.012	-.121	-.047
Favor government action (1–3)	-.001	.298***	.042	-.083	-.031	.068	-.095	-.071
College educated (0/1)	.024	.043	.042	-.026	.021	-.004	.038	.125*
Non-male (0/1)	-.004	.238***	-.031	-.124*	-.087	.017	.013	.101
Non-white (0/1)	.07***	.321***	.091	.041	.183**	.061	-.037	-.009
Democrat (0/1)	-.03	-.085	-.01	-.058	-.087	-.086	.043	.009
Republican (0/1)	-.03	-.085	-.01	-.058	-.087	-.086	.043	.009

Difference in means between attriters and non-attriters for all respondents ("Overall"; in the first column) and within each between-wave condition. A participant is designated an attriter if they did not complete Wave 3 or 4 (one or both post-treatment waves). Positive values indicate that the mean was higher among attriters; negative values indicate the opposite. Stars indicate level of statistical significance (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$).

Table S20. Within-wave treatment effects on factual beliefs (main effects and interactions with partisanship and rejection of anthropogenic climate change; IPW)

	Climate change has human cause						Climate change is happening					
	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Science	0.090***	0.045*	0.081***	0.019	0.027	0.025	0.071*	0.008	0.055	-0.043	0.058*	-0.017
	(0.017)	(0.020)	(0.018)	(0.020)	(0.018)	(0.020)	(0.031)	(0.035)	(0.030)	(0.033)	(0.029)	(0.034)
Partisan	0.040	0.014	0.062*	0.006	0.026	-0.008	0.004	0.000	0.008	-0.022	0.019	0.020
	(0.026)	(0.021)	(0.029)	(0.024)	(0.025)	(0.023)	(0.044)	(0.035)	(0.046)	(0.034)	(0.044)	(0.035)
Opinion		-0.040		-0.041		-0.067*		-0.074		-0.050		-0.009
		(0.028)		(0.029)		(0.031)		(0.045)		(0.043)		(0.043)
Science × Republican			0.023	0.069					0.042	0.139		
			(0.040)	(0.046)					(0.073)	(0.082)		
Partisan × Republican			-0.051	0.021					-0.010	0.060		
			(0.056)	(0.047)					(0.098)	(0.083)		
Opinion × Republican				-0.001						-0.076		
				(0.065)						(0.110)		
Science × reject ACC					0.171***	0.060					0.034	0.080
					(0.040)	(0.046)					(0.074)	(0.083)
Partisan × reject ACC					0.043	0.068					-0.034	-0.047
					(0.058)	(0.049)					(0.101)	(0.086)
Opinion × reject ACC						0.079						-0.141
						(0.061)						(0.104)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2618	2586	2618	2586	2618	2586	2618	2586	2618	2586	2618	2586

Generalized linear model with inverse probability weights (IPW); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table: ideology (all), wave 1 importance of climate change (all), wave 1 trust in science (all), wave 1 belief in anthropogenic climate change (all), wave 1 support for renewable energy (all), and partisanship (models 1, 2, 5, 6, 7, 8, 11, and 12).

Table S21. Within-wave treatment effects on policy attitudes (main effects and interactions with partisanship and rejection of anthropogenic climate change; IPW)

	Favor renewable energy						Favor government action					
	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3	W2	W3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Science	0.077***	0.007	0.039*	-0.007	0.067***	0.020	0.204***	0.196***	0.107**	0.159***	0.143***	0.096
	(0.017)	(0.019)	(0.019)	(0.021)	(0.021)	(0.022)	(0.042)	(0.050)	(0.039)	(0.047)	(0.042)	(0.053)
Partisan	-0.009	-0.008	0.011	-0.043	0.002	-0.022	0.107	0.078	0.107	0.084	0.027	0.053
	(0.025)	(0.020)	(0.028)	(0.022)	(0.031)	(0.024)	(0.063)	(0.052)	(0.066)	(0.052)	(0.075)	(0.057)
Opinion		-0.023		-0.037		0.004		-0.195***		-0.086		-0.018
		(0.026)		(0.029)		(0.030)		(0.071)		(0.067)		(0.071)
Science × Republican			0.103**	0.039					0.266**	0.096		
			(0.038)	(0.042)					(0.099)	(0.115)		
Partisan × Republican			-0.042	0.094*					0.019	-0.017		
			(0.053)	(0.044)					(0.141)	(0.120)		
Opinion × Republican				0.037						-0.321		
				(0.060)						(0.175)		
Science × reject ACC					0.027	-0.039					0.168	0.238*
					(0.036)	(0.040)					(0.096)	(0.111)
Partisan × reject ACC					-0.029	0.037					0.204	0.057
					(0.052)	(0.043)					(0.135)	(0.121)
Opinion × reject ACC						-0.074						-0.460***
						(0.057)						(0.158)
Control variables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2618	2585	2618	2585	2618	2585	2618	2618	2618	2618	2618	2618

Generalized linear model with inverse probability weights (IPW); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Rejection of anthropogenic climate change (i.e., "Reject ACC") defined as respondents who did not select "probably/definitely has been happening" and "mostly caused by human activity" on two pre-treatment items. Control variables selected via lasso but omitted from table: ideology (all), wave 1 importance of climate change (all), wave 1 trust in science (all), wave 1 belief in anthropogenic climate change (all), wave 1 support for renewable energy (all), and partisanship (models 1, 2, 5, 6, 7, 8, 11, and 12).

Table S22. Treatment effects on factual beliefs across waves (IPW)

	Climate change has human cause			Climate change is happening		
	Wave 2	Wave 3	Wave 4	Wave 2	Wave 3	Wave 4
Science W2 → Science W3	0.115***	0.102***	0.035	0.039	0.036	-0.042
	(0.029)	(0.030)	(0.029)	(0.049)	(0.049)	(0.048)
Science W2 → Opinion W3	0.050	-0.011	-0.011	0.069	-0.060	-0.050
	(0.031)	(0.031)	(0.030)	(0.052)	(0.050)	(0.051)
Science W2 → Placebo W3	0.067*	0.058*	0.059*	0.138***	0.028	-0.031
	(0.029)	(0.028)	(0.028)	(0.048)	(0.047)	(0.048)
Science W2 → Partisan W3	0.065*	0.037	0.026	0.090	0.016	0.020
	(0.029)	(0.031)	(0.031)	(0.051)	(0.050)	(0.049)
Placebo W2 → Science W3	-0.028	0.047	0.004	0.026	0.010	-0.043
	(0.027)	(0.027)	(0.027)	(0.050)	(0.048)	(0.048)
Partisan W2 → Partisan W3	0.026	0.049	0.017	0.017	0.012	-0.015
	(0.029)	(0.030)	(0.030)	(0.050)	(0.049)	(0.048)
Control variables	✓	✓	✓	✓	✓	✓
Auxiliary quantities						
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)		-.069*	-.071**		-.088	-.02
		(.031)	(.029)		(.051)	(.053)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)		-.022	-.033		-.014	.049
		(.03)	(.029)		(.051)	(.051)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.089***	.051	.019	.016	.016	-.028
	(.031)	(.031)	(.03)	(.051)	(.053)	(.049)
N	2618	2586	2611	2618	2586	2611

Generalized linear model with inverse probability weights (IPW); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is happening measured on four-point scale. Belief that climate change has a human cause measured on three-point scale. Control variables selected via lasso but omitted from table (all models): wave 1 belief in anthropogenic climate change, wave 1 preference for renewable energy, perceived importance of climate change, ideology, scientific trust, and partisanship.

Table S23. Treatment effects on policy attitudes across waves (IPW)

	Favor renewable energy			Favor government action		
	W2	W3	W4	W2	W3	W4
Science W2 → Science W3	0.084***	0.045	0.031	0.258***	0.325***	0.113
	(0.027)	(0.027)	(0.026)	(0.065)	(0.067)	(0.067)
Science W2 → Opinion W3	0.108***	0.007	-0.014	0.185**	-0.139	-0.033
	(0.028)	(0.029)	(0.028)	(0.070)	(0.077)	(0.070)
Science W2 → Placebo W3	0.104***	0.061*	0.037	0.144*	0.137*	0.074
	(0.026)	(0.025)	(0.025)	(0.071)	(0.069)	(0.067)
Science W2 → Partisan W3	0.126***	0.044	0.025	0.248***	0.158*	0.178**
	(0.29)	(0.029)	(0.028)	(0.068)	(0.071)	(0.066)
Placebo W2 → Science W3	0.056*	0.031	0.012	0.034	0.171**	0.059
	(0.026)	(0.025)	(0.025)	(0.063)	(0.066)	(0.064)
Partisan W2 → Partisan W3	0.020	0.007	0.000	0.134	0.126	-0.012
	(0.028)	(0.027)	(0.026)	(0.069)	(0.069)	(0.068)
Control variables	✓	✓	✓	✓	✓	✓
Auxiliary quantities						
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)		-.054	-.051		-.275***	-.106
		(.028)	(.028)		(.079)	(.072)
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)		-.017	-.012		.021	.104
		(.028)	(.028)		(.073)	(.068)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.064*	.037	.031	.123	.198***	.125
	(.029)	(.028)	(.028)	(.071)	(.07)	(.071)
N	2618	2585	2611	2618	2618	2618

Generalized linear model with inverse probability weights (IPW); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Support for renewable energy measured on three-point scale. Support for government action to address climate change measured on seven-point scale. Control variables selected via lasso but omitted from table: wave 1 support for renewable energy (all), wave 1 belief in anthropogenic climate change (all), scientific trust (all), importance of climate change (all), ideology (all), and partisanship (models 1, 2, 4, 5, and 6).

Table S24. Treatment effects on climate change importance and science trust (Wave 4; IPW)

	Science trust	Issue importance
	(1)	(2)
Science W2 → Science W3	0.101*	0.041
	(0.040)	(0.049)
Science W2 → Opinion W3	0.044	0.024
	(0.040)	(0.053)
Science W2 → Placebo W3	0.067	-0.039
	(0.040)	(0.050)
Science W2 → Partisan W3	0.053	-0.032
	(0.040)	(0.052)
Placebo W2 → Science W3	0.031	0.023
	(0.038)	(0.048)
Partisan W2 → Partisan W3	0.045	-0.004
	(0.040)	(0.052)
Control variables	✓	✓
Auxiliary quantities		
(Science W2 → Partisan W3) − (Science W2 → Placebo W3)	-.023	.063
	(.04)	(.052)
(Science W2 → Opinion W3) − (Science W2 → Placebo W3)	-.014	.007
	(.04)	(.051)
(Science W2 → Science W3) − (Partisan W2 → Partisan W3)	.056	.045
	(.04)	(.051)
N	2604	2628

Generalized linear models with inverse probability weights (IPW); * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ (two-sided). Belief that climate change is important measured on a five-point scale. Control variables selected via lasso but omitted from table: wave 1 belief in anthropogenic climate change (all models), ideology (all models), wave 1 issue importance (model 2), wave 1 support for renewable energy (model 2) partisanship (all models), and wave 1 scientific trust (model 1).