

PLOS Science Wednesday: We’re Kaitlin Raimi, Paul Stern, and Alex Maki, we research how to talk about climate change, Ask Us Anything!

PLOSScienceWednesday¹ and r/Science AMAs¹

¹Affiliation not available

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Abstract

Hi Reddit, My name is Kaitlin Raimi and I am an Assistant Professor at the Ford School of Public Policy at the University of Michigan. My research focuses on how people think and act when it comes to climate change, including how social motivations can promote or prevent sustainable solutions. I’m particularly interested in how people compare their own beliefs and behaviors to those of other people, how the desire to make a good impression can influence people to mitigate climate change, and how one adopting one sustainable behavior affects later environmental decisions. I also have ongoing work on how framing climate change in different ways affects people’s understanding of climate change and support for climate policies. Together with my colleagues Paul Stern and Alex Maki, I recently published a paper titled “The Promise and Limitations of Using Analogies to Improve Decision-Relevant Understanding of Climate Change” in the journal PLOS ONE. My name is Alex Maki and I am a Postdoctoral Research Fellow with the Vanderbilt Institute for Energy and Environment and the Vanderbilt Climate Change Research Network. My research uses theory-based behavior change interventions to understand and influence environmental (e.g., energy use), health (e.g., eating choices), and prosocial (e.g., volunteerism) behaviors. Specifically, I am interested in how interventions can help people initiate and maintain changes to multiple, related behaviors over time (e.g., both conserve energy and water at home). I also examine the social dynamics surrounding environmental behaviors, including who chooses to talk to other people (e.g., friends or family) about environmental issues, and how we can help people have more constructive conversations about important environmental issues, including climate change. My name is Paul Stern. For over two decades I was staff director of the Committee on the Human Dimensions of Global Change at the U.S. National Research Council. At the same time, I have been conducting research with colleagues outside the Council on topics that have included household energy consumption, the effectiveness of policies to reduce greenhouse gas emissions by changing consumer behavior, and people’s understanding of various kinds of environmental risks. Understanding the risks of climate change is a real challenge because of its long-term nature and the difficulty of making confident predictions of what risks particular communities will face. This paper is part of an effort to find ways to help people think through the risks without having to understand all the scientific details. We wanted to know whether using analogies helps people understand key factors that are important for climate change decisions, including uncertainties about when and where serious damage may occur, its unprecedented and progressive nature, and trade-offs in limiting climate change. Specifically, across two studies, we looked at whether comparing climate change to medical decision-making, disaster preparedness, or courtroom trials helped people to understand these issues. We found that disaster preparedness and a courtroom trial analogy weren’t very helpful, and that none of the analogies helped people understand the basic science of climate change. However, we did find that comparing climate change to a medical decision helped people—especially political conservatives—to better recognize several decision-relevant attributes of climate change. Follow Kaitlin on Twitter @KaitlinRaimi We will be back at 1 pm ET to answer your questions, ask us anything!

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PLOSSCIENCEWEDNESDAY [R/SCIENCE](#)

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Follow Kaitlin on Twitter [@KaitlinRaimi](#)

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I've seen some compelling arguments for appealing to the values of those who do not accept

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anthropogenic climate change, and trying to agree on beneficial goals rather than reaching a consensus on the specific reasoning for them--such as switching to alternative fuels to boost the American economy, vs to protect the environment. What do you see as the risks and benefits of that approach, compared with arguing directly for acceptance of climate change?

[neurobeegirl](#)

Kaitlin, Paul, and Alex here: There has been a fair amount of research in recent years trying to pinpoint effective ways to talk to people who are dismissive or unsure of climate change in a way consistent with their values. For example, a recent paper found that discussing how taking care of the environment is patriotic made political conservatives more open to climate science. This makes sense; not everyone finds the same argument compelling.

Talking about more general concerns, such as health or national defense considerations associated with environmental issues, is one way to potentially reach more people and not turn off climate change skeptics. Reaching that wider audience, and bypassing having to address people's gut reactions to climate science, is certainly an appealing approach.

The risk of trying to appeal to values for persuading people is that this approach to climate communication is still relatively new. Sometimes this approach works and sometimes it doesn't (or can even backfire if people feel like they are just being hoodwinked). This is why we have focused on not trying to persuade people of the right action but rather helping them develop a deeper understanding of the problem so that they can make their own decisions.

Hi all! First, thanks so much for doing this AMA.

I'm a first year graduate student in meteorology, therefore I am a TA and have the pleasure of grading for the intro level classes. One of the professors doesn't believe in anthropogenic climate change, and though he 'tries' to teach in a manner that hides his bias, it definitely shines through in the final papers the students write. When I'm grading, how can I effectively portray to students that it is indeed a real and serious thing? In the same vein (yet a different class), the professor is going to start talking about climate change. These kids are freshmen and have a very elementary understanding of weather and climate. What's an effective way to teach them and to get them to think critically about the subject?

Next week my school is putting on a student showcase so that we can present our research. Within this there is going to be a round table discussion about climate change and how we as scientists communicate it. Here are a few of the sample questions that we will be discussing : -Do we need to change the way scientists are educated (e.g., broaden, add more "soft skills" or social science)? -To what extent do scientists need to be involved in decision making? -How much responsibility do scientists (as opposed to journalists or school teachers) hold for increasing public understanding of scientific/environmental issues?

Thanks again so much for doing this AMA!!

[malorianne](#)

Kaitlin, Paul, and Alex here: We are certainly not meteorologists ourselves but have heard that some meteorologists are skeptical of our ability to predict long term climate change due to the difficulties of predicting short term weather. The modeling approaches are different for weather and climate. And what your students may not know is that the research shows that the majority of meteorologists do believe in anthropogenic climate change (<http://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-13-00091.1>) and that they can have a really important and helpful role in educating the public about climate change (http://www.climateaccess.org/sites/default/files/Zhao_TV%20weathercasts.pdf).

We think it's absolutely important for natural scientists to communicate in ways that people can

understand. In our paper, we've been trying to find useful analogies that would help people understand important characteristics of climate change. We think that natural scientists can help in this effort as well, and would encourage them and you to talk to and learn from communication specialists who study the best ways to do this.

Hi All,

To me the biggest opportunity to stop climate change is described by these three facts:

- From 2000 to 2013 we [cut down 7% of the world's forests](#) Mostly to make room for more livestock.
- [Carbon in all the world's forests is about 638 GtC](#)
- All manmade [carbon emissions add up to about 10 GtC per year](#)

From which I conclude that roughly, if instead of spending time and energy to cut down forests, we'd been re-planting forests and had added 7% more over the last 13 years we would've eventually sequestered the equivalent of *50% of human GHG emissions* from that period.

We've had some success getting people to voluntarily switch to renewable energy and reduce consumption, but if we're going to stop catastrophic climate change we also need sequestration, and it seems like the only viable "technology" right now is reforestation. How do we use "theory-based behavior change interventions" to make this happen?

[PM_ME_UR_Definitions](#)

Kaitlin, Paul, and Alex here: Kaitlin here: Reforestation is certainly one way to sequester carbon and most climate change models suggest that we need to both slow emissions and remove carbon from the atmosphere to avoid the worst consequences of climate change. For those who are interested, I recommend the National Research Council reports on Climate Intervention, which talk about the potential benefits and costs of reforestation and other forms of carbon dioxide removal (you can find them [[linktext\]\(https://nas-sites.org/americasclimatechoices/other-reports-on-climate-change/climate-intervention-reports/\)](https://nas-sites.org/americasclimatechoices/other-reports-on-climate-change/climate-intervention-reports/)).

So if you think that reforestation is the goal, then what you'd need to do is get people to support it, by planting trees on their own land and/or supporting policy measures to plant large forests. To do that, you need to give them some understanding of why this matters, but that is not enough. You also need to tie it into the values that they hold (whether those are values to help the environment or values to help other people, or even how this could help their own self-interest).

Even though there might not be much that most people can do as individuals in terms of reforestation, they can support larger policies or community actions so you may want to focus your effort there.

What do you consider the largest or most difficult hurdle in convincing populations about the legitimacy of climate change, and what can be done to help?

[Cor Slutty](#)

Kaitlin, Paul, and Alex: In the United States, where we in particular struggle with understanding and believing in climate change, well-funded denial and skepticism is a huge barrier. Recent research has found that climate change messages can help people understand climate change, but pairing a climate change message with an additional skeptical message can offset these positive outcomes. <http://onlinelibrary.wiley.com/doi/10.1111/tops.12171/full>. This is a problem because even though polling suggests that only about 10-12% of the US population are really skeptical about climate change, they are a vocal minority.

What can be done to help is to talk amongst your friends and family and talk to your elected officials about what you think about climate change so that there are other voices in the room. Part of what we were doing in our paper was to try to find ways to get people thinking about the pros and cons of different approaches so that they can engage in these types of discussions. We found that using an analogy to a progressive medical disease might be one way to get people thinking more deeply about what to do about climate change, the costs and benefits of different actions and the results of postponing action.

Hi

I'm wondering what effect do you think in how one would deliver there talk about climate change. I think one of the major problems is that we still ask people do they "believe" in climate change. Like its a matter of faith. Do you think its time to try a different method of communication for the wider audience? Like people don't ask do we believe that $E=mc^2$. We just take the scientists word for it.

[AdamBirmingham2916](#)

Kaitlin, Paul, Alex: Climate change is less like $E=MC^2$ and more like a medical diagnosis in which we can't be exactly sure of what is going to happen or where or when the biggest impacts will occur. What we would argue is that the question to ask is not whether you "believe" in climate change but whether you are willing to accept the risks that climate science suggests are likely to come true? Climate science indicates that there are things that can be done to reduce the risks that can have long term benefits, some of them at fairly low costs. But waiting to act increases the risks and raises the costs for when we have act on them later.