

# Science AMA Series: We're Drs. Jessica Hellmann and Tessa Hill—two scientists who talk to non-scientists about climate change. Ask us anything!

Hellmann<sub>a</sub>nd\_Hill<sup>1</sup>and<sub>r</sub>/ScienceAMAs<sup>1</sup>

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## Abstract

Hi reddit! We're Drs. Jessica Hellmann and Tessa Hill and we are here to talk to you about improving how scientists can talk with the public about climate change. Climate scientists see firsthand the current and potential impacts of climate change, and often feel compelled to share these scenarios with the public and highlight the way their science intersects with critical societal interests. Yet, even the most capable science communicators can improve how they talk with non-scientists about crucial social and scientific issues in ways that both capture their complexity and move the dialogue forward. The science of scicomm suggests it's important to find common ground. There are promising practices developing within scicomm, and many scientists have had communication successes. We're here to help you improve your scicomm skills and share our stories from the field—Ask us anything! This AMA is being facilitated as part of the AAAS Leshner Leadership Institute, a fellowship program that helps foster scientists' scicomm and public engagement skills. Jessica Hellmann: I lead the Institute on the Environment at the University of Minnesota. I study global change and was among the first to propose and study new techniques for protecting ecosystems and people from climate change. Tessa Hill: I am at UC Davis and I study the impact of climate change on the ocean. I am experienced in science communication, including working with teachers and engaging stakeholders. I recently served on the West Coast Ocean Acidification and Hypoxia Panel. For background: Sara K. Yeo's 2015 paper, "Public Engagement with and Communication of Science in a Web-2.0 Media Environment" is an excellent literature review of the scicomm field as it applies to social media. Perhaps nowhere are the insights she collects more needed than when discussing climate change. We'll be back at 1 pm EST (10 am PST, 6 pm UTC) to answer your questions, ask us anything! Mod note: Listen to NPR's Joe Palca interview our AMA guests recorded yesterday, (only 2 minutes 43 seconds)

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HELLMANN\_AND\_HILL [R/SCIENCE](#)

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The science of scicomm suggests it's important to find common ground. There are promising practices developing within scicomm, and many scientists have had communication successes. We're here to help you improve your scicomm skills and share our stories from the field—Ask us anything!

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**Jessica Hellmann:** I lead the [Institute on the Environment at the University of Minnesota](#). I study global change and was among the first to propose and study new techniques for protecting ecosystems and people from climate change.

**Tessa Hill:** I am at [UC Davis](#) and I study the impact of climate change on the ocean. I am experienced in science communication, including working with teachers and engaging stakeholders. I recently served on the West Coast Ocean Acidification and Hypoxia Panel.

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**MOD NOTE:**

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Hellmann\_and\_Hill , r/Science ,

As a teacher, what is the best way to motivate my students to take action on climate change without scaring them or making them feel like the task is far too big?

[WaynieF](#)

TMH: Great question! Ultimately my goal as a teacher is to encourage students to think deeply about the world around them (and even the universe), to ask questions, investigate further, and approach the world with an inquiring mind.

When we think about climate change, I really like to encourage people to think about all of the decisions we make every day determine our overall trajectory here. We make all sorts of decisions -

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what we eat, what we drive, how we vote, how we participate in our community conversation about climate change. Your students have a huge role to play here! (and thank you for talking to your students about this)

JJH: I think it's important to empower kids that they are the future. Their choices matter but also be getting engaged with science, technology, and even policy (become a scientist??), they can help sculpt the future for all of us.

How accurate are our current climate models in hind-casting temperature patterns going back 75 years?

What is the current best estimate for climate sensitivity?

What is the relationship between a drop in CO2 emissions and the change in future temperature. For instance, if we were to reduce global CO2 emissions by 50% by 2025, what would the effect be on temperature in 2050, 2075, 2100, etc?

[rixross](#)

JJH: Very accurate. We have direct observations of temperature for the recent past. As you go back hundreds, thousands, tens of thousands, or hundreds of thousands of years, you need what we call "surrogates" of temperature or things that go and down in some reliable way with temperature. Some useful surrogates: tree rings and ice cores (that have bubbles of hydrogen in them with a stable isotope that indicates temperature).

What are the most effective actions we can take as individuals to reduce climate change and what reasonable steps would you hope to see governments take in the next five years or so?

[mbrinkm](#)

Climate change asks us to two things: First, slow and stop greenhouse gas emissions, and, second, prepare for the effects of climate change. To stop and slow greenhouse gas emissions, we need to transition our economy to sustainable energy sources. To prepare for climate change, we need to manage our farms, cities, parks, etc. differently so that they are more resistant to climate change. Here's one example of adaptation to conserve biodiversity called assisted migration or managed relocation; the paper explores scientist's opinion about this idea:

<https://www.elementalscience.org/articles/57>

Other adaptation examples: building mangroves to protect against storm surge and sea level rise; adding trees and green roofs to reduce extreme heat.

TMH: and, on the stopping/slowing the impacts theme: consider your every day choices - driving, eating, shopping - and also consider talking with members of your community about your concerns about climate change. Our conversation about this problem is important, and we want the broadest, most thoughtful dialogue possible.

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What is the most common argument that climate change deniers use and how do you counter/disprove it?

[never-ever-again-ok](#)

JJH: There are a bunch of common ones but also good resources for standard answers. A couple to check out: <https://www.skepticalscience.com/argument.php> <http://www.realclimate.org/> Check out the sources that any "myth busters" is referencing. Can the sources be traced back to original research or synthesis from reputable scientific bodies (e.g., IPCC, NAS, AAAS)?

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You mentioned the importance of finding common ground- can you give an example of how you or someone else found common ground with a climate science denier in order to open them up to climate science?

[mexicocity1234](#)

JJH: There is a lot of potential common ground, especially at the local scale when there is trust and a common goal. Often we step away from abstract ideas where folks can get trapped in ideology and talk about solutions, we find considerable common ground. I think when people with differing views on climate change or other difficult social-scientific issues get to know one another as people, that often helps too. In the Chicago Climate Action Plan, for example, there was considerable collaboration between scientists, city planners, and business because the broader goal was about protecting the people of Chicago and building a better, more resilient future. There is a lot of bipartisan support for renewable energy around job creation and reducing air pollution, often more so than greenhouse gas reduction.

TMH: Agreed. We often have a lot of common ground with people even if we don't agree on the science of climate change. We need to build on that - get to know each other and what values we might share as citizens & stakeholders.

How did you first become involved in science communication? What kinds of opportunities are there for young researchers to become more involved in this field? Thank you!

[romaniansadface](#)

TMH: Well, part of being a scientist (for me) is being an educator. I often tell people that the best thing I ever did for my science communication skills is teach a 150+ person general education freshman level course on the oceans at UC Davis. Standing in front of an auditorium full of students twice a week really gets you to think deeply about engaging people in dialogue, who your audience is, what they are interested in, and how to get people excited about science! But: more recently, I have been through several trainings by various groups so that I could work on specific skills and gain exposure to the literature on science communication. That has really helped me gain confidence, which is a big factor in whether or not scientists will choose to engage. I highly recommend taking advantage of opportunities - online or in person - to practice your Science Communication skills. And most importantly - get out there and have your voice heard, and listen to people's responses & concerns. As a junior scientist you have much at stake, and much to say, about this issue.

I am an engineer and I used to respond to climate change deniers with data. Then they would respond to me with data (which always turned out to be false or misleading). We would go back and forth like this and never really resolve anything but to breed anger toward one another.

Then one day, my uncle was trying to tell me how climate change is not man-made. I took a different approach. I told him how my college roommate of 3 years was now a PhD student studying ice cores. His career has taken him from Greenland to the Antarctic. He has dedicated his life to this field of study. So, when you (my uncle) tell me that climate change is bogus, you're telling me that my close friend is either lying to me or incompetent. While that didn't change his mind on climate change, it did give him pause. I told him that if he actually knows of a researcher, personally, that has data disproving climate change and that researcher has had peer-reviewed papers on the subject, then I would be happy to reconsider my position. By taking the argument from being about competing data sets found on the internet, to making it personal (you're insulting my friend), it greatly improved the conversation. Now he asks me, 'what does your friend say about this?' It's a far more pleasant conversation and I think that eventually I will either win him over or at least get him to stop preaching about the topic.

[peinapod](#)

TMH: This is really excellent, and very consistent with what we know about science communication 'best practices' - we need to connect science to people, personal stories, and talk more about the process of science! Very nice job.

Hi Tessa,

Could you talk a bit about ocean acidification. When trying to communicate it to people, do you couch it within climate change, try to discuss it as a related but somewhat separate issue, etc. I guess my thinking is that it seems so many people think of climate change as primarily global warming, that they miss these other types of issues like OA, hypoxia, or even ocean warming. I'm not sure if discussing OA as "the other CO2" problem is the best way of doing it, or not -- especially when a lot of tangible actions to combat it can be done at the regional/local level that can seem disconnected from the issue of global climate change. I guess I'm all over the place with this question, but any thoughts you have would be appreciated.

[KevinMcCallister](#)

TMH: Great question! This depends largely on the audience I am talking with. I sometimes talk about these issues separately because it is useful to get people thinking about the many different impacts that our CO2 emissions have. On the other hand - all of these processes are happening at the same time, creating many layers of stressors on the ocean (and land).

In public talks, I often break down the chemistry to really basic things so that people can actually understand what we do by adding carbon to the ocean. Then I talk about impacts - the food on our plates, our healthy ecosystems, local coastal communities, people! - and finally I finish with bringing the whole picture together: consider this in the context of rising temperatures and decreasing oxygen.

From my own limited observations, it seems to me that the western states in the US are experiencing climate change much more acutely currently than the middle or eastern states, and I'm sure that the effects of climate change are geographically heterogeneous. How do you think this affects policy-making and communication with climate change deniers that come from these little-affected areas?

Also, Dr. Hill, I was a recent student of yours at UCD, and it makes me really happy to see educators and scientists like you reaching out to the nation on a platform like reddit. I hope you enjoy the experience and invite other researchers to join in!

[StillnotGinger12](#)

TMH: I am so happy you posted on here! I think you raise a very important point. It is really important that we think about our audiences - we need to bring the impacts of climate change to people and talk with them about their values, questions, worries. Let's bring the science to individual communities and see if we can hear their questions and concerns.

Also, I do think that some states/regions may take faster action or leadership on this. That is ok. We need steps forward, but they don't all have to be huge, or all at the same time.

How will you attempt to change the communication methods and delivery?

Currently the method seems to be (to me) the equivalent of "we are doomed". That method tends to tune (some) people out as virtually every report tells the public that we're all going to die and unless we stop doing x right now, 2, 5, 10 years from now every living thing will be dead. This is coupled with a dearth of solutions being offered by the scientific community.

To me, although I wholeheartedly believe in climate change, this is similar to the 80's where there were reports nearly every day about x giving you cancer. The joke in the 80's was "everything gives you cancer". That seems to be happening again. Every "bad" thing in the world is now being linked to climate change.

[lostintransactions](#)

TMH: We have been spending a lot of time thinking about 'best practices' in communicating climate science. These include (but are not limited to): -asking questions to learn about your audience, so you can tailor your message -being honest and providing evidence about the problem -connecting to people's lives, their communities, the economy -thinking about how we can make changes and how to support change in a positive direction

Hello, I do believe in climate change, however I am not confident in the ability of any government to actually correct the problem, or even mitigate it in a smart way.

Is there any reason to believe that government could act intelligently on this topic?

[Amida0616](#)

JJH: I think that this is an intriguing point, and not one that I can really comment about (because I study nature/ecology/climate and not government effectiveness). What I like about this comment, however, is that it moves us to what I (personally) think is a productive space--what is the best course of action, and who are the actors likely to have the greatest effect. Surely, the private sector is key, for example. You can argue, for example, that at this moment in the US, the private sector is providing leadership to the government on climate change!

I've recently become a believer for Climate Change, but I'm still on the fence that the effects of Climate Change will be all that serious for humans. What are the predicted effects for Climate Change and why would they be bad for human life and how certain are we that these effects will occur?

[ergzay](#)

JJH: How bad climate change becomes is an open question, and it's not about how good the models are, etc. but how we run our economy and how quickly we reinvent that economy to embrace sustainable energy sources. I'm not an economist, but the data I have seen suggest that investing in that sustainable economy can be good for innovation, jobs, and economic development, with the benefit of reduced greenhouse gas emissions. The climate change that is likely to happen under a "business-as-usual" scenario will definitely affect people. ~500 million people live in areas that could flood under sea level rise under "business-as-usual." Not to mention agricultural failure. Just one example of mapping of areas affected by sea level rise: <http://sealevel.climatecentral.org>

So, multiple professors of mine (none of whom were experts in this area) expressed strong skepticism towards genuineness of climate change; their views basically boil down to "in the 90s it was that ice age was coming; now it's global warming. this is a trend and a fad that will probably go away in another 10 years" I don't know enough about climate change to dispute this; could you tell me how accurate/inaccurate this statement is, and why?

[sonotadalek](#)

JJH: In the 1970s (not the 1990s; the first IPCC report that addressed global warming came out in 1990), there was concern about small particles in atmosphere from pollution could cause global cooling. That greenhouse gases could cause warming was also known, but it wasn't clear which would win out--more pollution or more GHGs. Now we do know that warming effects of GHGs outweighs the cooling effects of pollution. Further, just FYI, we know that volcano eruptions cool the earth for a while because they put particles in the atmosphere, and there was (and still is) worry about cooling from nuclear war for the same reason (particles in the atmosphere blocking the sun).

How do you get started in scicomm? I currently volunteer as an educator at an aquarium, which I enjoy more than the fisheries work I used to do.

[iwrestledasharkonce](#)

TMH: I posted this above, but I'll repost here! Part of being a scientist (for me) is being an educator. I often tell people that the best thing I ever did for my science communication skills is teach a 150+ person general education freshman level course on the oceans at UC Davis. Standing in front of an auditorium full of students twice a week really gets you to think deeply about engaging people in

dialogue, who your audience is, what they are interested in, and how to get people excited about science! But: more recently, I have been through several trainings by various groups so that I could work on specific skills and gain exposure to the literature on science communication. That has really helped me gain confidence, which is a big factor in whether or not scientists will choose to engage. A few sources that I would recommend: <http://www.aaas.org/pes/communicating-science-workshops>  
<http://www.compassonline.org/>

Hi Dr Hellmann and Dr Hill, Thank you for taking the time to do this AMA!

What is the biggest myth about climate change and what is the most shocking truth?

[The Valeesi](#)

JJH: There are a bunch of common ones but also good resources for standard answers. A couple to check out: <https://www.skepticalscience.com/argument.php> <http://www.realclimate.org/>

I live in west Texas where the weather is consistently dry, and hot with summer temperatures in the 100's. The ignorance of the world here is staggering to say the least. The residents always have something to say about the "science/democrat/hippie agenda " like..."it's hotter 'n hell here. We ain't got no global warmin'! It's always been this hot."

How do I get them to understand it is the global average temperature on the rise, and not the local weather. Explaining the difference between weather and climate gets me a scoff and an evil eye. Help, I'm drowning in a hillbilly desert.

Edit: words.

[perediablo](#)

TMH: I think one approach would be to come both armed with evidence but also think about local impacts this might have. Will there be issues with groundwater, agriculture, cooling (a/c) costs, human health that might be exacerbated by rising temperatures?

A few websites to check out (to look at climate data): <http://berkeleyearth.org/>

<http://earthobservatory.nasa.gov/Features/WorldOfChange/decadaltemp.php>

<https://www3.epa.gov/climatechange/science/indicators/weather-climate/temperature.html>

Isn't this really about globalization and lending an air of legitimacy to seizing control of a nations energy production for our own good? Every meteorologist I have talked to agrees that the Sun drives the Earth's weather and therefore its climate yet a UN committee can vote that this is not so and no one questions this Godlike power to change the laws of nature via Democratic process.

[ChikinShoes](#)

JJH: It is true that the energy of the sun is what warms the sun and churns our atmosphere, driving weather and climate. It's also true that the composition of the atmosphere affects the amount of energy from the sun stays (is "trapped") near the surface of the Earth, where life occurs. Think of the insulating effects of the atmosphere like this: increasing the concentration of greenhouse gases is like changing your blanket from a cotton one to a down one, without changing the thermostat (the sun).

Is there any simple backyard experiment people can do themselves to see the effects of climate change? You mentioned tree rings being surrogates of past temperature, is there anything like that people can observe with inexpensive tools and minimal expertise?

[introvertedintooit](#)

JJH: Awesome question!! Scientists have used observations of plants and animals to discover that the growing season is getting longer--that spring is coming earlier. You can record the time of first flowering, for example. But better than doing it yourself, join in with others in a citizen science project. Check out these websites: <http://cocorahs.org> [https://www.usanpn.org/natures\\_notebook](https://www.usanpn.org/natures_notebook)

What is the most frustrating conversation you've had with a climate change denier?

[Manbeck](#)

JJH: The hardest conversations are the ones when people just don't want to talk or listen-- when their minds are made up and closed to new information that might change their view. (Same goes for scientists!) An upside is that those conversations don't tend to last that long. But, honestly, I've found that people don't fall easily in to just one "denier" camp. There are fewer and fewer people that simply ignore the science about the warming effect of greenhouse gases. I like to try to find out what people's concerns or reservations about climate change are and meet them there.

TMH: I'll just second that and say that one thing we can do is really get to know our audiences, ask questions like: what is important to you? What do you value? What do you worry about?

Not counting the snowball in congress, what's the most face-palming, "what the heck" pseudo-argument against climate change you've ever come across?

[lagerbaer](#)

JJH: Well, it's hard to beat the snowball. There also is a lot to exploit the difference between climate and weather. Cold weather doesn't mean that there's not climate change. On the surface of it, I do see how that difference is tricky or hard to understand. Because the only way that we, as people, experience climate change is through weather.

How do you respond to folks that say the earth goes through periods of cooling and warming and we are just in a warming period right now?

[speedylenny](#)

TMH: As a geoscientist working partly in the world of paleoclimate, I really like this question. We actually have learned a tremendous amount from the history of past climate, using both the "paleo" record as well as modern, recorded observations that go on for decades to centuries. One of my favorite illustrations of rising CO2 concentrations in the atmosphere is this one:

<https://www.youtube.com/watch?v=t0dXjmoA0dw>

Which shows first the measured CO2 concentrations from all over the globe, taken from atmospheric samples, starting (in the animation) in the 1970's. After going 'forward' in time so that you can see the modern changes, it then starts going 'backwards' in time, first using measured samples from 1 site back to the 1950's and then adding in all that we know from ice cores. Ice cores are really great, because there are air bubbles trapped in the ice that can be measured, so we are directly measuring

the amount of CO2 in the atmosphere thousands and even hundreds of thousands of years ago.

Also, this is pretty great too! <http://www.climate-lab-book.ac.uk/2016/spiralling-global-temperatures/>

I work in control engineering. We spend a significant amount of time modelling phenomena so that we can develop automatic control strategies. I have never tried to model something as complex as a weather system but I can appreciate why it is a non-trivial task owing to the number of inputs, disturbances and chaotic behaviour.

My question is: if we only have a very limited amount of data and incomplete knowledge of a chaotic system with time constants that are measured in years, how can we know with any confidence that the climate is changing as a result of a very specific set of inputs, that we attribute to human influence?

[neil\\_anblome](#)

JJH: I think this is an excellent question. The system is complex with many positive and negative feedbacks (which I know you know about feedbacks because you're a controls person), and there is uncertainty about those feedbacks. That's one reason why we do not have a precise estimate on how much warming will be caused by a certain amount (say, doubling) of carbon dioxide. But, it's still possible to have good knowledge about key factors that affect the system, driving it one direction or another. Greenhouse gases are a "force" that pushes the system in a warmer direction.

Have you ever gotten a question from a Climate Change denier that stumped you, and if so, what was it, and what did you later find the answer to be?

[robertjohnston276](#)

JJH: There are lots of things that stump me in the moment, honestly. Because I don't have the entire climate science literature in my head. I'm not afraid to say "I don't know." Sometimes I follow that with "but what I do know is..." or "I know where to find the answer to that." There are other things that stump me because we (the scientific community) really doesn't know the answer. I often point out that there is lots of disagreement in the climate community, it's just not about whether or not greenhouse gases affect global average temperature/global warming.

I was just introduced to science communication during a workshop yesterday and I was told that connecting with the audience on a personal level (ie. storytelling, emotion, etc.) was the best technique to get them to better understand your message. What else can I do during a presentation to make my scientific findings seem more relatable and important to a lay audience?

[CRiP4](#)

TMH: some resources for you! there are lots of great resources out here, so I'll just start with 2 of my favorites and then also a post that I wrote:

<http://www.compassonline.org/>

<http://www.aaas.org/pes/communicating-science-workshops>

<https://medium.com/@tmhill/we-need-to-talk-about-science-823f21c495bc#.f2jdrm3pw>

Vancouver BC Here.

Snow doesn't exist here anymore.

I have no idea how people can deny climate change.

[Bryanj117](#)

JJH: I acknowledge that climate change and climate change science can be a bit mind-boggling. It will require action and change on all of our part, and change can be scary for all of us.

I realize that this is an uncomfortable topic for many climate scientists, and could be seen as heavy-handed or even tyrannical, but what do you think about the prospect of mechanisms to control the human population? As bad as our climate and ecological problems are today, they could be much worse with, say, two billion more people. Reducing, or at least plateauing our population growth, could pay enormous dividends. If it is necessary, how can we go about controlling the population without an iron fist?

[thewhitesuburbankid](#)

JJH: The effect of people on the environment (pollution, climate change, ocean degradation, land use change, etc.) is determined by the number of people, the state of our technology, and the consumption of each person (generally speaking). Population is good to talk about, but don't forget the other too. I think it's also hard for us in developed countries to harp on population when we contribute so much to consumption. Check out: [https://en.wikipedia.org/wiki/I\\_%3D\\_PAT](https://en.wikipedia.org/wiki/I_%3D_PAT)

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JJH: Answering this for anyone who might be wondering about this issue in general: could we way off base about climate change? It's always possible that science could be wrong. Science is a process, and there is undoubtedly a number of things in climate change science that will be wrong, because there are lots of nuances, local effects, things we don't understand about how people themselves adjust to climate change, etc.. It's just extremely unlikely that we're wrong about the conclusion that greenhouse gas emissions cause global warming. This is because so many different lines of evidence in a several different fields with different methods done by different scientists over many years point to the same basic phenomena.

If you could make a kit to physically demonstrate the cause and effect of climate change to children, what would you include?

[stemcelltulsa](#)

JJH: seem my posting above suggesting a citizen science project. You can look for climate change yourself over years by watching the same thing over and over, but you can contribute more by joining with others so that scientists get lots of observations.

Countries are often focusing on Gross Domestic Product as a measure of how developed they developed they are.

However, we are told to produce and consume less to save the environment.

Do you think the current model of increasing GDP endlessly can work with a model that does not destroy our environment that we live on? Or do you think we need to change the way we think about development?

[MassiveLazer](#)

JJH: There are other ways to measure economic progress, e.g., GINI (<http://data.worldbank.org/indicator/SI.POV.GINI>) though we hear most about GDP. Assuming that GDP is desirable (a debate for another day), what we need to do is decouple it from greenhouse gas emissions. We can do that by reducing the energy intensity of each unit of economic growth and by transitioning our energy to renewable sources. In fact, there are 21 countries that since 2000 have seen economic growth in GDP without experiencing increases in greenhouse gas emissions, according to the World Resources Institute: <http://www.wri.org/blog/2016/04/roads-decoupling-21-countries-are-reducing-carbon-emissions-while-growing-gdp>

More for Tessa but relevant for both of you! As a (female) undergraduate studying biology and marine science, I eventually want to go from research after honours to science communication - particularly amongst younger people and in ecotourism. So, what is the best way to transfer from research to communication? What does it involve and also, has your experience in scicomm differed at all as women? Thanks so much, your work is inspiring and highly valued.

[aussie\\_izzi](#)

TMH: thanks for the question! I have answered this in a few ways above by stating that I find being a scientist-educator-communicator are all just integrated parts of my job. I realize there are jobs out there that emphasize more of one thing than the other.

I think the way to go is build your skills and confidence by getting practice! Offer to talk to the public about science, or talk to your neighbors about what you are working on and thinking about.

What do you make of the global temperature record being broken for 7 straight months? Can you explain your theory on how that's happened?

Source: <http://www.theguardian.com/environment/2016/may/16/april-third-month-in-row-to-break-global-temperature-records>

[BobbyLeeSwaggerr](#)

JJH: climate change (greenhouse gas emissions) plus El Nino = especially hot year. We are steadily getting warming but this past year especially so because of added effect of El Nino. There's a lot of press about this, and scientists are right now trying to figure out if it's possible to figure out how much of 2015/2016 extreme is climate change vs. El Nino. But it's undoubtedly fair to say that both contribute. Just one example from the mainstream media: <http://www.theguardian.com/environment/2016/mar/04/is-el-nino-or-climate-change-behind-the-run-of-record-temperatures>

We are well on our way to 2017 and we still have idiots like Trump who may very well be our next president--a president who blames global warming on Chinese propaganda.

I know that politics and science should not be mixed, but global warming, in the US at least, is unavoidably mixed and it sucks and is unfortunate, but what do we do? How do you scientists react to the fact that our country is in the brink of electing a single individual who may very well be the leading

cause of speeding up and nullifying any effort to slowing down global warming.

[Effex](#)

JJH: Greenhouse gases don't have a party affiliation. We need policy ideas on how to solve climate change from both (all) political persuasions. All hands on deck, I say.

What do you think the best way is to show the public and the media that this is something we really should focus our attention on?

[Noerdy](#)

TMH: I think it is really exciting when scientists can blend some of what they are learning in their work with what the meaning might be for people, communities, our economy, places we love, things we love to eat. This doesn't mean that you have to talk about your "personal feelings" (which makes some uncomfortable) but it does mean that you need to think about WHY an individual person or a group of people might feel invested in what change means. This also requires that you know a little bit about your audience, which is being addressed in some of the other questions here.

Is climate change problem is reality or hoax?

[crazybrain10](#)

JJH: reality

What are some contributing factors on your road to becoming a climate change scientist?

[teknotom](#)

TMH: I am an oceanographer, and I study both paleo and modern climate issues. I am fundamentally driven by curiosity - I have worked on many different topics over the years! Climate change is a very pressing problem, but the bigger picture is that I want people to understand the world around them, ask great questions, investigate nature, and think about how humans might be impacting the environment in many ways.