2015 was the warmest year on record. Sea level rise has been accelerating in recent decades. To myself and, I suspect, most readers of this blog, human-induced climate change is undeniable in the face of such developments, posing fundamental challenges to human well-being and biodiversity around the globe and into the future. Climate change is here and the scientific evidence is only getting stronger.

So how is it possible that significant climate skepticism and denial continue?

When I first started working on climate change issues over two decades ago, I believed, like many of my colleagues that, as our knowledge of climate change improved, doubters would be persuaded. More and better data would change people's minds. Truth would win out.

In some respects, this has been happening. A University of Michigan survey in 2015 found that only 16% of Americans believe there is not solid evidence of global warming, the smallest level since the poll started in 2008. These numbers have no doubt also been driven by the harsh reality of powerful droughts and storms in recent years.

And yet, 16% of Americans is still a big number. Donald Trump and Ted Cruz are both vocal climate skeptics presumably, at least in past, because they believe it plays well with their supporters (both voting and contributing). While 54% of self-described conservative Republicans believe the world's climate is changing due to human activities, a big percentage still doesn't.

Climate skepticism is surely controversial and the media is doing a better job portraying contrarians in the proper context, not as an equal and opposing view but as out of the mainstream of scientific consensus. My recent blog on a UCSB course teaching climate skepticism literature generated some heated offline comments about the motivations of climate skeptics, dismissing them as ignorant or venal. I understand the frustration but using a broad brush to characterize skeptics may prove counterproductive. Overcoming climate skepticism remains an important goal because meaningful state or federal legislation will ultimately require political support, ideally broad-based support.

I don't think there is a single explanation for why strong pockets of climate skepticism have endured, particularly in America. Below, I set out four potential hypotheses and effective responses.

(1) Climate skeptics are correct

This seems unlikely, given the consensus of scientists around the globe and increasing evidence of climate change, but it's not impossible. I talked about this fifteen years ago with the famed climatologist, Steve Schneider, who was often asked about this possibility. His response seems as appropriate today as when he said it then – scientific consensus does not determine facts, but it should determine policy. The appropriate response to possible error lies in testing the evidence through peer-reviewed science. (For a careful assessment of climate skeptics in the scientific literature, check out Steve Schneider's website at Stanford that has continued to be maintained since his untimely death.)

(2) Climate skeptics are misinformed or don't understand the evidence and its implications.

This hypothesis suggests that dialogue will prove effective. Skeptics or deniers are well-intentioned and better education / open dialogue will eventually change their minds – hence websites such as this one with useful advice on how to respond to the most common arguments against climate change. This type of education is made more difficult, of course, in the face of misinformation spread by the folks in hypothesis (3), below.

(3) Climate skeptics are motivated by their economic self interest.

Recent media stories have linked the Koch brothers and Exxon funding over the past few decades to climate denying organizations. The 2015 book, *Merchants of Doubt,* made connections between the strategies and actors challenging climate change with the earlier debates over ozone depletion and smoking. In this case, climate skeptics, particularly coal and oil interests, are simply motivated by their financial bottom line. The most effective strategy to address this self-interested group will be public exposure by the media and government. Hence the recent probes by state attorney generals into whether Exxon misled the public about climate change.

(4) Climate skeptics are neither ignorant nor economically motivated. Instead their views are shaped by strong cultural filters.

As Dan Kahan, a Yale professor who has long studied risk perception, puts it, people's beliefs about climate change reflect not what they know but who they are. As he describes,

“Social-science research indicates that people with different cultural values — individualists compared with egalitarians, for example — disagree sharply about how serious a threat climate change is. People with different values draw different inferences from the same evidence. Present them with a PhD scientist who is a member of the US National Academy of Sciences, for example, and they will disagree on whether he really is an ‘expert’, depending on whether his view matches the dominant view of their cultural group.”

So why does this happen? “What an ordinary individual believes about the ‘facts’ on climate change has no impact on the climate. What he or she does as a consumer, as a voter, or as a participant in public debate is just too inconsequential to have an impact… But if he or she takes the ‘wrong’ position in relation to his or her cultural group, the result could be devastating for her, given what climate change now signifies about one’s membership in and loyalty to opposing cultural groups. It could drive a wedge—material, emotional, and psychological—between the individual people whose support are indispensable to his or her well-being.

“In these circumstances, we should expect a rational person to engage information in a manner geared to forming and persisting in positions that are dominant within their cultural groups. And the better they are at making sense of complex information—the more science comprehending they are – the better they’ll do at that.”

Moral psychologist Jonathan Haidt has made a similar argument about how cultural priors shape our acceptance and interpretation of facts.

There may well be other explanations, and I’m eager to hear suggestions, but I think that Kahan and Haidt are both on to something that explains the views of many climate skeptics. It certainly seems that for part of the Republican party climate skepticism has become a proxy for membership. The challenge lies in how to disentangle one’s position on climate change from one’s cultural identity or sense of well-being.

In my view, this is the area with the greatest potential for engaging with skeptics and will require thoughtful re-framing of the climate debate. This is already happening to some extent, with the discussion shifting to energy security, green jobs, and strengthening community resilience. Things people from all ideological stripes can agree on.