

Climate change

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The rise of anti-science discourse: Forehead slapping conversations with climate change deniers

Imagine, just for a moment, that significant numbers of apparently smart people believed – and vociferously argued – that, rather than being an oblate spheroid, the Earth was flat. Flat! We would find that belief shocking, them deluded and the assertion preposterous. Imagine further that despite universal scientific evidence to the contrary, these considerable numbers of flat earthers remained intransigent, and stood their ground and even doubled down in the face of research and validated scientific evidence. Take this exercise a step further: imagine these flat earthers, who called all science that didn't fit their preconception of the world into question and who invoked conspiracy theories against scientific facts, had the power to shape our economic and political life. Finally, imagine these views were given equivalence with those who hold that the Earth is spheroid in both the mainstream and other media. Absurd isn't it? Incredulous, you might slap your forehead and roll your eyes in exasperation.

Ludicrous as this scenario is, it is not dissimilar to the anti-science and populist views of climate change deniers. We do live in a world as strange as this. Indeed, scientific consensus does exist with 97% of climate scientists agreeing that climate change is caused by CO₂ emissions due to human activity. The science demands that we act, and act in time to avert what climate scientists are calling climate catastrophe. Surely it's not possible that huge swathes of people, segments of the mainstream media, and even some governments disregard the hard evidence before them in denying human-induced climate change? How is it possible that this has become such a polarised debate?

What we know is due to climate science. We know that climate change or global warming is the change in the global climate patterns that have occurred largely since the mid 20th century onwards due to increased levels of atmospheric CO₂ as a result of burning fossil fuels. We know too that the planet is further warmed by, among other things, the warming of the oceans, the retreat of arctic ice, wide-scale deforestation which releases further CO₂ into the atmosphere, and cattle farming. Like any science, climate science isn't 100% certain. A healthy scepticism is desirable and critical in any scientific reasoning. True scepticism may prompt the reconsideration of a scientific claim on the basis of evidence and reasoning. Climate science continues to refine the data as it eliminates more and more uncertainties. The Intergovernmental Panel on Climate Change (IPCC), under the auspices of the United Nations, is the global authority on climate science. The IPCC is the primary guidance on climate change everywhere. It is an intergovernmental and scientific organisation tasked with providing the world with objective and scientific information on climate change, as well as models on climate change's political and economic impacts. The IPCC data is produced through analysis by thousands of scientists globally who have reviewed the primary data and peer-reviewed literature with consistency and rigour over the last three decades, calibrating with confidence all that we know. Using climate science data that is a result of extremely rigorous processes is especially important to underpin and inform climate change policy. The data can't predict the when but it does tell us this: we do know that humanity has never before faced such an all-consuming and imminent threat to our very survival. Our future is in the balance. Climate change action is critical, and a mammoth and sustained effort is critical to human well-being. Such a demanding responsibility, however, is being continuously undermined by climate change deniers or sceptics, especially those refuting its anthropogenic origins.

As is the case with many strongly held opinions, the facts and hard evidence may not, in fact, change the perceptions of climate deniers: it's often less demanding intellectually and socially for them to stick obdurately to their guns. The Internet is by nature democratic, open, and teeming with bloggers and websites, many of which support outlandish claims. Climate change deniers, however, give these views disproportionate airing. It's almost impossible to embrace denialism in peer-reviewed literature while the Internet often promotes these ideas that have lost their intellectual respectability. The presence of these views on the worldwide web doesn't make these opinions correct or valid, nor should these views enjoy the false

equivalence or respectability of simply being ‘another equally valid viewpoint’. No, the stakes are just far too high.

This anti-science discourse appears selective and particular. It’s unlikely that while denying climate science, deniers would also refute the existence of gravity, mathematical principles, principles of combustion or the causal role of chlorofluorocarbons (CFCs) in eroding the ozone layer. Unquestionably, climate change has sharpened political focus. There seems to be a higher likelihood that groups among the political right and proponents of laissez-faire free markets will deny climate science. Peer reviewed research has found that the rejection of climate science is strongly associated with laissez-faire free-market economics, and that this political worldview is a major predictor of the rejection of climate science. In particular, climate change sceptics deny the role of human activity – particularly the burning of fossil fuels – in the warming of the planet. The rejection of climate science is often motivated by free-market ideologies that view as threatening any scientific evidence that might result in additional regulation by government. It’s therefore unsurprising that President Trump has cast himself as ‘climate change denier-in-chief’. Trump has overseen the rolling back of environmental policies and the US’ withdrawal from the Paris Agreement which obliges signatory states to commit to keeping global warming under two degrees to avert climate catastrophe. This is political hubris and economic short-termism at the cost of planetary survival.

Researchers from the Universities of Western Australia and of Zurich also identified the increased propensity of those with right-wing political views to reject climate science on the grounds of conspiratorial thinking. Conspiracy theories, favoured disproportionately (though not only) by the right, perceive the conspirators as almost omnipotent, and seek to explain climate change, among other events, as a clandestine plan by powerful individuals or organisations in the service of their own political and social interests. Trump himself tweeted petulantly that climate science is a hoax disseminated by the Chinese to gain market competitiveness by making US exports more expensive. Conspiracies about climate science should, of course, be treated with the same disdain as those regarding the moon landing, or the profit motive of pharmaceutical companies in producing childhood vaccinations that cause autism, or the notion that HIV was manufactured by the US government to control the black population.

Historians and sociologists call the creation of such misrepresentation the “manufacture of doubt”, and it’s usually constructed, and its propagation orchestrated, by those with vested political interests. Often, these are vested economic interests too. For example, another study established that over 90% of environmentally sceptical books published since 1972 have been funded by conservative think tanks. More commonly, the Internet is the source of such disinformation, and conspiracy theories and propaganda are shared quickly, widely and, most worryingly, uncritically. What appears to fuel scepticism is really a lack of discrimination between what is true and what is false. Large-scale and industrially funded operations to disseminate climate denialism exploit this lack of discrimination, and are a significant demonstration of these ideologically driven attempts to question or discredit rigorous scientific findings.

Climate change denialism attacks climate science further in various ways. By confusing weather and climate and eliding the difference (whether through ignorance or intention), climate change deniers might remark wryly on an unseasonably cold day on the Highveld with ‘Global warming, my foot!’. Of course, weather and climate are not the same, the difference being a measure of time. Weather is what conditions of the atmosphere are over a short period of time (days, week or months) whilst climate is how the atmosphere behaves over relatively long periods of time. A cold day has nothing to do with the long-term trend in global warming and while variations in weather exist, it’s irrefutable that changes in the climate data (measured with relentless consistency and rigour) point to long-term climate change and rising global temperatures driven primarily by increased CO₂ emissions.

Scientists and policymakers know that the largest single positive impact on the climate will be the elimination of reliance on fossil fuels, and the challenge exists to do so whilst providing close to 8 billion people with the electricity to live meaningful and fulfilling lives. The transfer of energy systems from carbon-emitting to carbon-free needs strong political will and collaboration, for which a shared understanding of facts is vital. In embracing green technology, developing countries have

the opportunity to hurdle old carbon-reliant options. Technologies are becoming more readily available and some, such as solar and on-shore wind technologies, are becoming cheaper and quicker. Alternatives are affordable and, if anything, have shown themselves to be a boost to adopting economies. Unquestionably, the cost of climate policy success will be less than the cost of climate policy failure. The need to commit to green alternatives is being recognised by enlightened businesses and consumers. Political will, imagination, innovation and investment can be purposed to keep the climate protected.

We have already reached the halfway one degree to threshold of catastrophic climate change identified in the Paris Agreement. We're in trouble. Climate science tells us that we are going to experience increasingly extreme and dangerous weather events. In his recent Nelson Mandela Lecture, Barack Obama said, "We actually have to believe in objective reality... You have to believe in facts". Indeed, it's hard to engage in any comprehensive dialogue about climate change when people whose vested interests are dangerous to planetary well-being, and whose positions are fabricated. The idea that we can continue with business as usual is nothing but populist fantasy.

The task of addressing the anti-science discourse and its political agenda is a critical aspect in countering widespread populist denials of anthropogenic climate change. We need to focus on where such influence counts. To ensure that policies are driven by robust science, we need to concentrate on changing the views and spotlighting the actions of decision makers. We may never eliminate widespread misinformation, though unfolding climate events might well. Research published in *Nature* predicts that things will get a lot worse before they get better: humanity will endure frequent killer heat waves, mass migration and marked sea level rises before governments take decisive and game-changing action against climate change.

So, you might not encounter a flat earther, but you're very likely to have met a climate change denier. The stakes are so urgent and grave that there is no option but to keep reasoning and advocating, on the basis of sound facts (they matter). Either way, you're likely to have a bruised forehead.