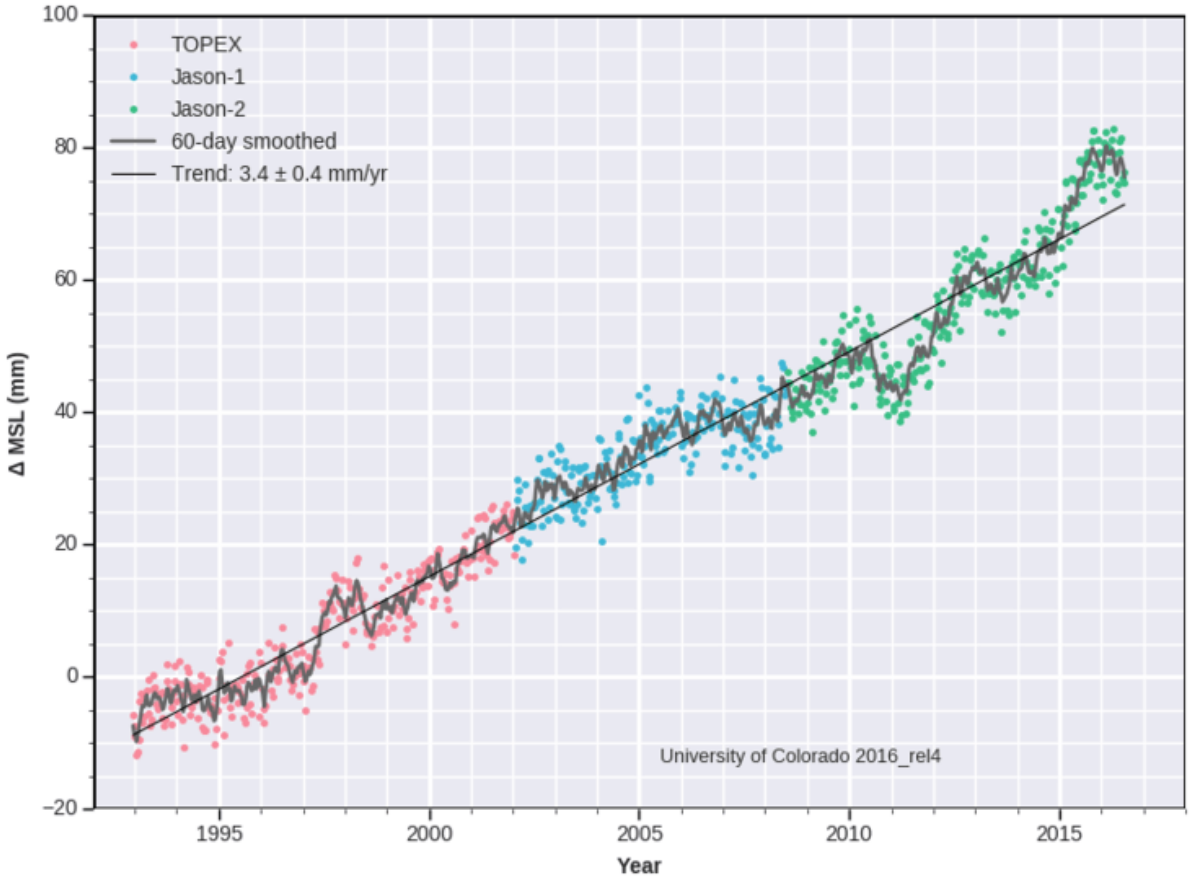
Opinion: Trump has embraced pseudoscience and its deceptive tactics in a post-truth world

December 12 2016, by Michael J. I. Brown



Despite the long-term rise of sea levels, some media reporting emphasises temporary dips. Credit: CU Sea Level Research Group

As a scientist, I expect the Trump presidency to have a curious familiarity.

Why? Because the relentless stream of falsehoods and character attacks of Trump's campaign mainstreamed disinformation tactics that biologists, immunologists and climate scientists have come to know and despise.

Trump has embraced pseudoscience and its accompanying conspiracy theories. He's tweeted that climate change is a hoax and vaccines cause autism.

> Snowing in Texas and Louisiana, record setting freezing temperatures throughout the country and beyond. Global warming is an expensive hoax!
>
> — Donald J. Trump (@realDonaldTrump) January 29, 2014
>
> Healthy young child goes to doctor, gets pumped with massive shot of many vaccines, doesn't feel good and changes - AUTISM. Many such cases!
>
> — Donald J. Trump (@realDonaldTrump) March 28, 2014

Trump has met with Andrew Wakefield, whose fraudulent 1998 study kickstarted the modern anti-vaccine movement. And he has just appointed a climate change denier to lead the Environmental Protection Agency.

These pseudoscience communities are nothing new, and they haven't even bothered to rebadge themselves as "alt-science" (yet).

It's critical that the broader community learns from the grim experience

of scientists when dealing with these attacks. Often scientists failed to appreciate that many public arguments about science are actually political battles, rather than evidence-based discussions. Raw political battle isn't about seeking truth and reasoned argument. It's about winning news cycles and elections.

> The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.
>
> — Donald J. Trump (@realDonaldTrump) November 6, 2012

Debate

Scientific argument is often methodical, technical and slow. Perhaps this is exemplified by the biggest scientific announcement of 2016, the detection of gravitational waves, which were predicted by Einstein a century ago.

I'm engaged in a scientific argument right now about how rapidly galaxies form stars. My key points are in a 10,000-word manuscript detailing the data, methods, comparison with prior studies, and conclusions. An anonymous astronomer is reviewing that manuscript, and I expect my article to be published in 2017.

So if commentators or politicians demand "an honest debate" about science, what are they doing?

First, don't ignore the adjective "honest", with its veiled implication of dishonesty. It can be the starting point for conspiracy theories, with scientists and organisations around the globe manipulating science for no good.

What kind of debate is being sought? Are both sides going to face off by

undertaking years of research and submitting 10,000-word manuscripts to scientific journals? Not likely.

Often a very literal debate is being sought, either on television, radio or stage. We find such debates, with their rhetorical flourishes, provocative and entertaining but they rarely advance science.

When Albert Einstein and Phillip Lenard debated relativity in 1920, Einstein wasn't the clear winner. Perhaps the audience and newspapers that dutifully reported the debate didn't appreciate that Lenard's arguments about fictitious gravitational fields were wrong.

Demands for debate – such as the recent call for one by Australian One Nation Senator Malcolm Roberts – are often seeking formats where even Einstein couldn't win an argument about relativity.

They provide theatre and column inches. And critically, they provide equal billing for scientists and those who've never truly engaged in science. They embrace false equivalence.

Who am I?

I'm a scientist, but on Twitter people have some strange ideas about who I am. I've been accused of being a "warmist" and "alarmist" who is on the "gravy train" with a "bed wetting agenda". (For the record, I prefer people not to wet their beds.)

I've encountered these accusations when discussing evidence, and they're a means of derailing discussion. "Warmist" and "alarmist" are attempts to frame scientific findings as extreme political positions. Creationists can play this game too, preferring "evolutionism" to "evolutionary biology". This tactic falsely reframes the argument as a debate between competing and equivalent ideological positions.

It doesn't matter if the accusations have no factual basis, embrace conspiracy theories or are insincere. That's not the point. I've been accused of using neo-fascist techniques and neo-Marxist attacks on the same day. Donald Trump has never provided evidence that climate change is a "hoax", with its accompanying global conspiracy of scientists.

This isn't reasoned argument; it's disrupting discussion of evidence. It's about what needs to be true to reject scientists, not what is actually true about scientists.

Evidence

Scientists slowly accumulate evidence to test their hypotheses, but in political fights evidence only needs to survive the news cycle. Robust methodology, statistics and hypothesis testing be damned.

I was reminded of this recently when the US House Committee on Science, Space and Technology tweeted a link to a Breitbart article claiming that global temperatures are falling:

> .@BreitbartNews: Global Temperatures Plunge. Icy Silence from Climate Alarmists https://t.co/uLUPW4o93V
>
> — Sci,Space,&Tech Cmte (@HouseScience) December 1, 2016

Breitbart wasn't reporting the findings of a new peer-reviewed study with new data and a compelling analysis, but rather was quoting the Daily Mail's David Rose.

While the accumulation of data, from satellites and weather stations, shows the globe warming over decades, Rose had a different focus. He

highlighted a few months of data, from a deprecated dataset, that excluded polar regions and the oceans, to suggest the "run of record temperatures are at an end". This is misinformation, as there's no evidence to show an end to long-term global warming.

Of course scientists picked apart Rose's article, but by then the news cycle had moved on.

Such articles are a feature, not a bug, in the politicised climate debate. In 2008, Bjorn Lomborg in The Guardian noted "a slight drop" in sea levels, and concluded that we "urgently need balance." In 2012, the Australian's Graham Lloyd reported on sea level falls that supposedly "defied climate warnings." Of course, those were blips in the long-term trend of sea level rise, but those articles did effectively spread doubt about climate science.

Trump has embraced pseudoscience and its tactics, and will be bringing it to the White House. I expect the accusations and misinformation of Trump's campaign to continue, and like many scientists I will find it all too familiar. To argue with today's politically expedient statements as if they're evidence-based and carefully reasoned arguments embraces a false equivalence of fact and fiction. It is a time for true scepticism.

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