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Why I'm trying to preserve US federal climate data before Trump takes office

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When it comes to climate science, President-elect Donald Trump has been a purveyor of conspiracy theories for years. He's called human-caused climate change a Chinese hoax and refused to acknowledge the existence of the California drought, promising farmers there that, as president, he would "open up the water". He's **vowed to eliminate** the EPA and the Energy Department and "cancel" the Paris Agreement on climate change.

Since the election, Trump has been relentlessly converting those anti-science messages into action, **wrongly believing** that doubling down on fossil fuel production will help boost long-term economic growth. (That Trump's pick for secretary of state - ExxonMobil chief executive **Rex Tillerson** - is among the least extreme of his appointments is chilling.)

According to a **Sierra Club report**, when he assumes the presidency on January 20, Trump will be the only head of state in the world to deny mainstream climate science - and yes, that includes even Kim Jong-un of North Korea.

In recent weeks, by surrounding himself with outspoken allies of the fossil fuel industry, promising cuts to NASA's earth science research and sending a **threatening questionnaire** to Energy Department staff, there is no remaining doubt that Trump is serious about overtly declaring war on science. This isn't a presidential transition. It's an Inquisition. It's a 21st-century book burning.

The incoming administration is likely to be wilfully hostile toward the scientific process, with far-reaching implications. One of the most tangible consequences of sharp cutbacks in federal funding for climate science is the potential loss of critical data - whether by neglect or malice - that underlie global efforts to understand our climate system. By all accounts, that's exactly what Trump and his team want: ignorance of how human actions are affecting our planet makes it easier to maintain the status quo.

As a scientist and a journalist focusing on climate (and the parent of two toddlers who will one day have to live in the world Trump seems eager to destroy), I can't sit by and watch this happen.

On Saturday, after news broke of Tillerson's nomination, I began an effort to **systematically catalogue and preserve** as much of the federal government's publicly available climate science data as possible in the next five weeks.

On December 10, I tweeted: "Scientists: Do you have a US .gov climate database that you don't want to see disappear?" and linked to docs.google.com.

Within two days, more than 50 key data sets had been identified, and six of them have already been archived on publicly available non-government servers. Complementary efforts at the University of Pennsylvania and the University of Toronto are merging resources to attempt to avoid duplication of effort, and the Penn Program in the Environmental Humanities put the data refuge online on Tuesday afternoon.

I've received offers of support from computer scientists, private data storage companies, investors and lawyers. On Twitter, the most common response to the project was, "I can't believe it's come to this."

It's an extraordinary step to have to take, but we live in an extraordinary moment.

If you believe, as I do, that climate change is among the most serious problems we face as a global society and that, on our current path, climate science dictates a time scale of years, not decades, before truly catastrophic long-term planetary change is irreversibly locked in, then alarm is an appropriate response.

Even conservative-leaning scientists, such as meteorologist Ryan Maue, an adjunct scholar at the Cato Institute, are opposed to a potential Trump administration purge of government data.

On Twitter, **Maue had a suggestion** for the incoming president: "an executive order to ensure all data is maintained and all scientists are transparent and cooperative". Simply, this data belongs to the public. Trump cannot and should not hold it hostage.

One of the first people to respond to my call was Drew Volpe, a Boston-based investor whose personal business model revolves around using publicly available data - often weather data - to increase economic efficiency.

"So much of the innovation in the US happens on the shoulders of publicly funded research," Volpe told me. "If you really want to grow the economy, if you want to create the next Tesla, the next Google ... companies large and small are really built on that innovation."

Fears of a Trump-led climate science purge are not without precedent. Former Canadian prime minister Stephen Harper attempted to silence scientists, and in a few cases took unique data sets offline.

In Australia, which flirted with its own scientific purge earlier this year, scientists are worried that global climate science may grind to a halt if Trump's administration carries out a full-scale assault on data.

David Karoly, a climate scientist at Melbourne University, **told *The Sydney Morning Herald*** that, in the worst-case scenario, the forthcoming Intergovernmental Panel on Climate Change report might be delayed due to the unavailability of unique climate model output that

exists on US government servers and that underpins efforts at universities around the world. That, Karoly said, "would be an enormous setback for climate science".

Of course, preserving existing data is only the first step. Ensuring the continuous collection of data requires scientists to keep their jobs - something a bunch of volunteers with a Google Doc and a few hundred terabytes of hard drive space in Iceland can't control.

Another task beyond the scope of simply archiving existing data is ensuring that the data archive is constantly maintained as new research is conducted.

I genuinely don't think the Trump administration will intentionally delete data - such an act would be illegal, as well as unforgivable. However, I do anticipate budget cuts that will most likely put data in jeopardy. Having an independent repository of the sum total of American knowledge of the climate system will serve as a testament to future fundraising efforts, if necessary, to support universities or other non-governmental organisations to continue the (previously public) practice of climate science in the United States. I see our efforts as a firewall against a hostile administration: The more we can preserve before Trump takes power, the less incentive he has to stand in the way of science.