

Science entering a new frontier: Politics

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Like many scientists, Aaron Parsons doesn't have a history of political engagement.

Instead of focusing on earthly concerns, the University of California, Berkeley radio astronomer spent most of his time scanning the outer reaches of the cosmos, searching for the earliest stars in the universe.

"We're looking for when the lights turned on," he said.

But after Donald Trump became the leading Republican candidate for president, Parsons turned his attention closer to home.

As someone who has lectured about the atmospheres of distant planets, he was dismayed by Trump's dismissive attitude toward [climate change](#) and his claim that the [science](#) on global warming was a hoax perpetrated by the Chinese.

He became distraught when he heard that the new Trump administration was considering pulling out of the Paris climate agreement to curb greenhouse emissions.

And he watched with increasing despair when Trump's nominee to head the Environmental Protection Agency, Scott Pruitt, said at his Senate committee hearing that there is no clear scientific consensus that [global warming](#) is caused by human activity.

"I had to do something," Parsons said. "I felt like I couldn't ignore what was going on anymore."

So he sent an open letter to Trump explaining the widespread consensus among experts that human-caused climate change is real and that its consequences are already being felt.

"The science of how greenhouse gases trap heat is unimpeachable," he wrote.

He passed it around Berkeley's astronomy

department to see whether his colleagues would sign on. Within a few weeks, 2,300 researchers and academics from across the University of California and Cal State University systems had added their names to the letter.

"When facts become politicized, then [scientists](#) have to speak up," Parsons said. "We are fighting for what is knowledge, and how we know it."

In ivory towers across the country, scientists are leaning in.

Spurred by a flurry of executive orders and presidential adviser Kellyanne Conway's references to "alternative facts," certain researchers are venturing beyond the safety of the lab and into the murky political fray.

Four hundred scientists took to the San Francisco streets at an American Geophysical Union conference in December to denounce Trump's position on climate change. A larger "March for Science" in Washington is being organized for Earth Day in April.

Researchers have spoken out against new restrictions on how government scientists at the EPA and other federal agencies communicate with the public. Others have been collecting and storing the government's copious climate data for fear that it may soon become unavailable to the public or deleted entirely. Many have lamented that nearly a month into his presidency, Trump has still not selected a science adviser.

Perhaps the biggest outcry came after the White House announced that travelers from seven primarily Muslim countries would be blocked from entering the United States. Hundreds of research institutions, hospitals and scientific organizations expressed grave concerns for how it would affect the future of research in the United States.

"It doesn't matter if you were born in Pakistan or Somalia or whatever - scientists like to work with

scientists," said Massachusetts Institute of Technology President Rafael Reif. "If you are after facts and truth and what's real, then it doesn't matter who can help you."

James Appleby, head of the Gerontological Society of America, echoed that sentiment.

"There is a saying that all politics is local, but I think it's fair to say all science is international," he said.

"There is this image of the lone scientist toiling away in the laboratory to come up with the next big advance, but in reality, many of the biggest leaps come from our ability to sit down with other scholars from around the world."

The burst of activity has been particularly gratifying to Rush Holt. As a physicist, he helped lead the Department of Energy's Princeton Plasma Physics Laboratory for more than a decade. Then he was elected to Congress, representing the New Jersey district that includes Princeton University for 16 years. Now he leads the American Association for the Advancement of Science, the largest organization of scientists and engineers in the world.

Holt said that when his group penned a letter to President Trump decrying the travel ban, 171 other institutions quickly signed on.

"In my relatively long career I have not seen this level of concern about science," he said.

"This immigration ban has serious humanitarian issues, but I bet it never occurred to them that it also has scientific implications."

Among them: Researchers from overseas are threatening to boycott meetings held in the United States. Already, Sudanese-born Mohamed H.A. Hassan, co-leader of a group of scientific academies from around the world, has said he won't travel from Europe to attend the AAAS annual meeting in Boston next week.

Bill Foster, a physicist-turned-congressman from Illinois, said the political awakening among researchers is not solely a consequence of the rapid series of executive orders coming from the

Oval Office.

"In science, if you stand up and say something you know is not correct, that's career-ending," said Foster, a Democrat. "It used to be that way in politics, but not anymore. To see how far we have fallen, that is particularly disturbing to scientists."

Holt agreed.

"Some of us have been saying for years now that ideological assertions have been crowding out scientific evidence in public debate," he said. "But the willful disregard for facts is worse now than it's ever been."

To counteract this trend, some researchers are considering their own experiments with politics.

The recently formed 314 Action PAC had 2,500 people with backgrounds in science, technology, engineering and math sign up for training on how to run for office. Thousands more have volunteered to help with their campaigns.

"What has motivated them? Donald Trump," said founder Shaughnessy Naughton, a trained chemist from Pennsylvania who lost two campaigns for Congress. "But the bigger picture is the feeling that science is under attack."

Jamie Tijerina of Highland Park is one of the scientists who signed up for 314 Action's workshop. She works in Caltech's cytometry lab and is a member of her local neighborhood council.

"It's important for people with a scientific background to have a seat at the table," she said. "The taxpayers deserve to have someone knowledgeable about the scientific literature to offer their expertise."

UC Berkeley evolutionary biologist Michael Eisen has announced on Twitter his plan to run for U.S. Senate in 2018.

He hasn't filed formal papers yet, and he has no fundraising apparatus in place, but he says his campaign is not a stunt.

"I'd been thinking about issues of science and politics for a long time, and a lot of people felt like things were coming to a head with the new administration," he said. "The moment seemed to call for more engagement, so one morning I just said ... this is what I have to do."

Eisen said the whole thing is kind of like one of his science experiments.

"It's clear that there is a lack of empirical decision-making in our politics," he said. "Our hypothesis is that having more scientists involved in politics would reverse that trend. It's an untested hypothesis, but one we should test."

As a realist, he doesn't expect to win. But he said he hoped his campaign would help spark a conversation about the relationship between science and politics, and possibly inspire other scientists to run for office as well.

Foster, the sole physicist in Congress, said he hoped more scientists would join him there.

"Scientists want to know the evidence behind a statement; they want reproducible tests and verifiable facts," he said.

"There is a big difference in the thought process of a trial lawyer who is interested not in what's true, but what he can convince a jury is true."

Parsons, the astronomer who penned the letter about climate change, said scientists had a moral obligation to speak out.

"I wish we lived in a world where science could live outside of the political sphere," he said.

"But we didn't bring this battle to them; they brought it to us. And we have to fight back."

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