

Researchers mine Twitter to reveal congress' ideological divide on climate change

May 31 2016, by Thea Singer



Senate Democrats are three times more likely to follow science-related Twitter accounts than their Republican peers, according to a new study led by Northeastern's Brian Helmuth. The research shows the growing divide between parties on the issue of climate change, but also provides hope, says Helmuth, pointing to individuals who cross the aisle and bridge the gap. Credit: Luis Delgado/Northeastern University

Does human activity drive global climate change? For members of congress, the answer often depends on party affiliation. In general, Republicans say "nay," Democrats "yea."

A research team led by Brian Helmuth—professor in the College of Science and the School of Public Policy and Urban Affairs—wants to change that.

In a new paper published Monday in the journal *Climate Change Responses*, Helmuth and his Northeastern colleagues analyzed the Twitter accounts of U.S. senators to see which legislators followed research-oriented science organizations, including those covering global warming. Democrats, they found, were three times more likely than Republicans to follow them, leading the researchers to note that "overt interest in science may now primarily be a 'Democrat' value."

Yet out of that political polarization, says Helmuth, came a ray of hope: 15 Senate Republicans bridged the aisle, displaying a draw to science and thus a way to bring scientific information to those not receiving it on their own.

"Increasingly, people are using Facebook and Twitter as a means of getting news, which determines what information they are exposed to," says Helmuth. A marine biologist and an ecologist, Helmuth investigates the effects of climate change on marine organisms, aiming to provide policymakers with scientifically accurate forecasts to inform their decisions.

"Our study tells us which organizations and senators we should work with to get science-related findings into the hands of people who otherwise might not see them," says Helmuth.

Two distinct 'echo chambers'

The study sprang from the researchers' desire to make their forecasts more accessible to policymakers. The coauthors of the paper are Tarik Gouhier, assistant professor, and Steven Scyphers, associate research scientist, both in the Department of Marine and Environmental Sciences at Northeastern, and Jenn Mocarski, administrative assistant in the School of Public Policy and Urban Affairs.

"We used to make forecasts using quantitative methods and then put them out in the world," says Helmuth. "The shift now is: Let's start by learning what information end users actually want. What matters to them, and what common ground can we find to communicate our science in an effective way?"

They turned to Twitter to unearth the legislators' interests as well as the image each office projected to the public: Was a particular senator "pro science" or not? All told, they evaluated Twitter data from 89 senators—49 Republicans, 38 Democrats, and two Independents. In the paper they include a list of the total number of Twitter accounts followed by each senator and the proportion of accounts categorized as "science."

Using network analysis, they sifted through the nearly 79,000 Twitter accounts the senators followed and tracked how their science-related follows compared with their votes on amendments to the Keystone XL pipeline bill, including one regarding the role of [human activity](#) in causing climate change.

Not surprisingly, says Helmuth, the Republican and Democratic senators landed in two distinct "echo chambers." The Republicans were, let's say, in right field, bouncing the same select information back and forth, and the Democrats were in left field, bouncing their own select information back and forth.

"The bias was so great that the two parties were seeing completely different worlds," says Helmuth. "That leaves no basis for dialogue. They weren't looking at, for instance, a report with the Republicans saying, 'I interpret this report this way based on my political leanings,' and the Democrats saying, 'Well, I interpret it this way.' The divisions have gotten so great that identifying as being 'pro science' or not now looks as if it's part of party identity."

Seeking common ground

Yet there's good news, too, notes Helmuth. The researchers found it by correlating the senators' Twitter follows with their pipeline amendment votes. There are champions of science in both parties, says Helmuth, "people we identified who are willing to cross party lines and to get information from both ends of the spectrum."

Helmuth suggests that scientists target these "crossovers," as well as apolitical "boundary organizations," which straddle the science-policy divide, to help get their messages across. Focusing the conversation on issues everyone cares about, such as national defense and human health, opens doors, too.

"The science of climate change is not political—it's based on objective facts," says Helmuth. "It's the solutions to [climate change](#) that are political. But you can't force information down people's throats, and oftentimes you can't even influence positions with data. You need to concentrate on where people are starting from—the stories that are relevant to them. Then you put what you're trying to say in that context."

More information: Brian Helmuth et al. Trust, tribalism and tweets: has political polarization made science a "wedge issue"?, *Climate Change Responses* (2016). [DOI: 10.1186/s40665-016-0018-z](https://doi.org/10.1186/s40665-016-0018-z)

Provided by Northeastern University

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