



Representative John Culberson (R-TX), center, with NASA officials in 2015. NASA SMAP/IT. WYNNIE

That NASA climate science program Trump axed? House lawmakers just moved to restore it

By [Jeffrey Mervis](#), [Science News Staff](#) May. 17, 2018 , 4:32 PM

A U.S. House of Representatives spending panel voted today to restore a small NASA climate research program that President Donald Trump's administration had quietly axed.

The House appropriations panel that oversees NASA unanimously approved an amendment to a 2019 spending bill that orders the space agency to set aside \$10 million within its Earth science budget for a "climate monitoring system" that studies "biogeochemical processes to better understand the major factors driving short and long term climate change."

That sounds almost identical to the work that [NASA's Carbon Monitoring System \(CMS\)](#) was doing before the Trump administration targeted the program, which was getting about \$10 million annually, for elimination this year. Critics of the move said it jeopardized numerous research projects and plans to verify the national emission cuts agreed to in the Paris climate accords.

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Assuming the money is intended to restore CMS, researchers familiar with the program were hailing the vote. "That's great news!" earth scientist Pontus Olofsson of Boston University in Massachusetts wrote in an email. "[W]e need a research program that investigates the use of all the data and tools we now have at our disposal for the how to study, understand and mitigate carbon emissions. NASA CMS is such a research program and it's essential that the program will be allowed to continue its work."

"Effective climate policies require the ability to accurately and independently measure greenhouse gas emissions," Philip Duffy, president and executive director of the Woods Hole Research Center in Massachusetts wrote in an email. "I applaud today's bipartisan action."

The amendment is now part of a [\\$62 billion spending bill covering the departments of commerce, justice, and several science agencies including NASA](#). It was offered by Representative John Culberson (R-TX), chairman of the spending panel that oversees NASA. Culberson cited the climate program's importance as part of the agency's efforts to track all sources of greenhouse gas emissions. Culberson also thanked Representative Matt Cartwright (D-PA) for urging him to restore funding for the monitoring system.

The bill now goes to the full House, and ultimately will need to be reconciled with a parallel bill in the Senate. It will likely be several months before Congress completes action on the 2019 budget.

Here is the text of the amendment:

Under NASA, science, after the paragraph titled Earth Science Decadal, insert the following: Climate Monitoring System: Within the funds provided for Earth Science. Not less than \$10 million shall be for a Climate Monitoring program, including competitive grants to help develop the capabilities necessary for monitoring, reporting, and verification of biogeochemical processes to better understand the major factors driving short and long term climate change.

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The Carbon Monitoring System assessed deforestation, such as burning rainforest to clear lands for grazing. © JACQUES JANGOUX/SCIENCE SOURCE

Trump White House quietly cancels NASA research verifying greenhouse gas cuts

By [Paul Voosen](#) May. 9, 2018 , 2:00 PM

You can't manage what you don't measure. The adage is especially relevant for climate-warming greenhouse gases, which are crucial to manage—and challenging to measure. In recent years, though, satellite and aircraft instruments have begun monitoring carbon dioxide and methane remotely, and NASA's Carbon Monitoring System (CMS), a \$10-million-a-year research line, has helped stitch together observations of sources and sinks into high-resolution models of the planet's flows of carbon. Now, President Donald Trump's administration has quietly killed the CMS, *Science* has learned.

The move jeopardizes plans to verify the national emission cuts agreed to in the Paris climate accords, says Kelly Sims Gallagher, director of Tufts University's Center for International Environment and Resource Policy in Medford, Massachusetts. "If you cannot measure emissions reductions, you cannot be confident that countries are adhering to the agreement," she says. Canceling the CMS "is a grave mistake," she adds.

The White House has mounted a broad attack on climate science, repeatedly proposing cuts to NASA's earth science budget, including the CMS, and cancellations of climate missions such as the Orbiting Carbon Observatory 3 (OCO-3). Although Congress fended off the budget and mission cuts, a spending deal signed in March made no mention of the CMS. That allowed the administration's move to take effect, says Steve Cole, a NASA spokesperson in Washington, D.C. Cole says existing grants will be allowed to finish up, but no new research will be

supported.

The agency declined to provide a reason for the cancellation beyond "budget constraints and higher priorities within the science budget." But the CMS is an obvious target for the Trump administration because of its association with climate treaties and its work to help foreign nations understand their emissions, says Phil Duffy, president of the Woods Hole Research Center in Falmouth, Massachusetts. And, unlike the satellites that provide the data, the research line had no private contractor to lobby for it.

Many of the 65 projects supported by the CMS since 2010 focused on understanding the carbon locked up in forests. For example, the U.S. Forest Service has long operated the premier land-based global assessment of forest carbon, but the labor-intensive inventories of soil and timber did not extend to the remote interior of Alaska. With CMS financing, NASA scientists worked with the Forest Service to develop an aircraft-based laser imager to tally up forest carbon stocks. "They've now completed an inventory of forest carbon in Alaska at a fraction of the cost," says George Hurtt, a carbon cycle researcher at the University of Maryland in College Park, who leads the CMS science team.

The program has also supported research to improve tropical forest carbon inventories. Many developing nations have been paid to prevent deforestation through mechanisms like the United Nations's REDD+ program, which is focused on reducing emissions from deforestation and forest degradation. But the limited data and tools for monitoring tropical forest change often meant that claimed reductions were difficult to trust. Stephen Hagen, a senior scientist at Applied GeoSolutions in Newmarket, New Hampshire, was part of a team that with the Indonesian National Institute of Aeronautics and Space developed laser-mapping tools to automatically detect new roads and gaps in tropical forests, monitoring that helped the Indonesian government apply for REDD+ funding. The end of the CMS is disappointing and "means we're going to be less capable of tracking changes in carbon," Hagen says.

The CMS improved other carbon monitoring as well. It supported efforts by the city of Providence to combine multiple data sources into a picture of its greenhouse gas emissions, and identify ways to reduce them. It has tracked the dissolved carbon in the Mississippi River as it flows out into the ocean. And it has paid for researchers led by Daniel Jacob, an atmospheric chemist at Harvard University, to refine their satellite-based observations of methane.

It's an ironic time to kill the program, Jacob says. NASA is planning several space-based carbon observatories, including the OCO-3, which is set to be mounted on the International Space Station later this year, and the Geostationary Carbon Cycle Observatory, due for launch early next decade. The CMS would help knit all these observations together. "It would be a total shame to wind [it] down," Jacob says.

This type of research is likely to continue, Duffy adds, but leadership will pass to Europe, which already operates one carbon-monitoring satellite, with more on the way. "We really shoot ourselves in the foot if we let other people develop the technology," he says, given how important the techniques will be in managing low-carbon economies in the future. Hurtt, meanwhile, holds out hope that NASA will restore the program. After all, he says, the problem isn't going away. "The topic of climate mitigation and carbon monitoring is maybe not the highest priority now in the United States," he says. "But it is almost everywhere else."

***Update, 17 May, 5:10 p.m.:** A House spending panel has approved an amendment that may restore funding for the Carbon Monitoring System. [Read more on Sciencelnsider.](#)