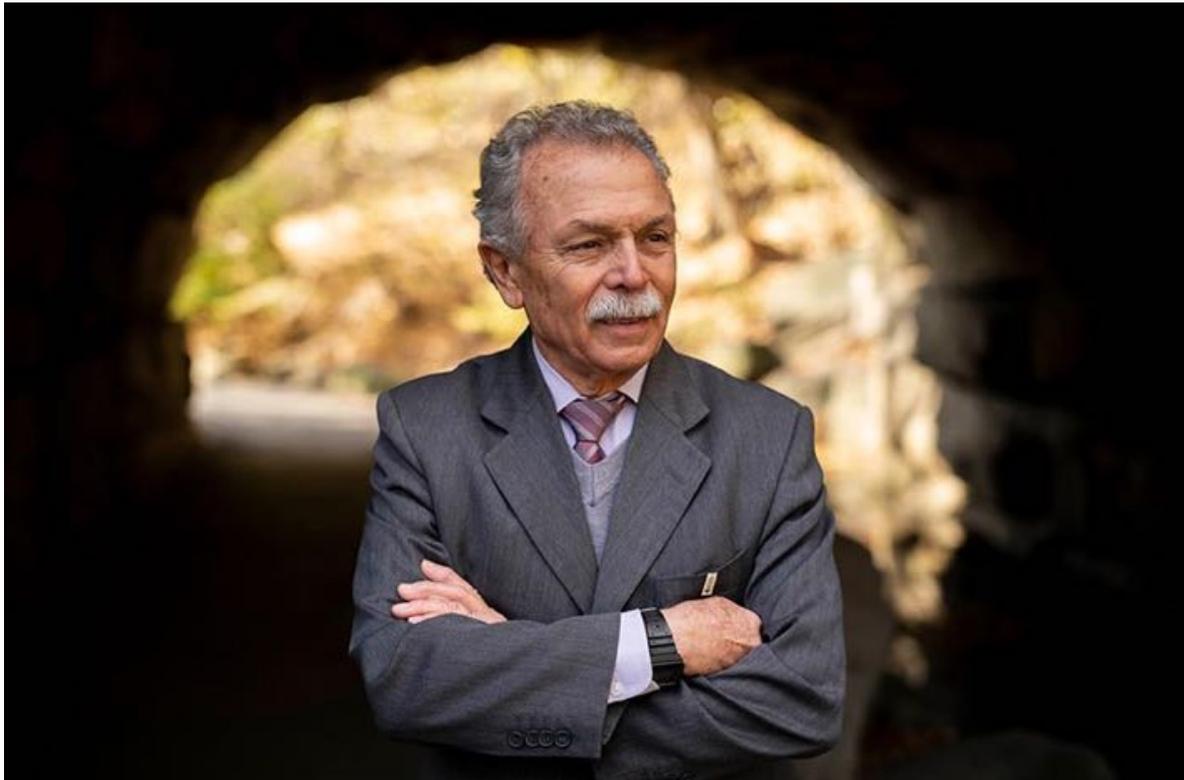


# RICARDO GALVÃO: Science defender

*As chaos spiked in the Amazon, the physicist became a national hero by challenging Brazil's government.*

BY JEFF TOLLEFSON



Credit: Micah B. Rubin for *Nature*

Ricardo Galvão nearly passed out when he heard the news and realized he was being targeted by his own president. On 19 July, Brazil's leader, Jair Bolsonaro, lashed out against a report on deforestation by Galvão's team at the National Institute for Space Research (INPE) in São Paulo. The group's analysis had incited the president's wrath because it found a sharp spike in forest clearing in the Amazon. The president accused the scientists of lying about the data and suggested that Galvão — as head of the institute — might be in cahoots with environmentalists. The 72-year-old fusion physicist was stunned by the accusation. "My wife had to bring me a glass of water," he says.

Rather than rush to react, Galvão gave himself 12 hours to craft a response.

After a nearly sleepless night, he spoke out in defence of INPE scientists. He also accused the president of cowardice and called for a face-to-face meeting — acts that he knew would lead to him losing his job. What he didn't know was that he would become a hero of sorts, hailed by his scientific colleagues as well as by strangers on the streets. A woman even stopped him on the subway in São Paulo to thank him for standing up to Bolsonaro and helping her to understand why preserving the Amazon matters.

“He lost his job because he took a very clear and strong position in defence of science — and against authoritarianism,” says Paulo Artaxo, an atmospheric physicist and Galvão's colleague at the University of São Paulo. Artaxo sees worrisome parallels between Bolsonaro's government and the dictatorship that ruled Brazil between 1964 and 1985, including a tendency to attack any evidence that doesn't support its political goals. “We need people like Galvão to stand up.”

It wasn't Galvão's first run-in with the Bolsonaro administration. Officials had repeatedly questioned the accuracy of INPE's deforestation alerts, which use detailed analysis of satellite imagery.

This time, however, the president was attacking the integrity of scientists and one of Brazil's top scientific institutions. As expected, Galvão was dismissed two weeks after he defended INPE, just as the burning season kicked off in the Amazon. Farmers light fires as the last step in clearing the land for agriculture.

Brazil's reputation as an environmental leader has been deteriorating in recent years. The country had managed to curb deforestation by more than 80% between 2004 and 2012, but the aggressive environmental enforcement ended up sparking a political backlash and a rise in deforestation.

INPE's latest numbers, released on 18 November, show that an estimated 9,762 kilometres of land — an area larger than Puerto Rico — was cleared between August 2018 and July 2019. That is an increase of 30% over the previous year, and more than twice the area cleared in 2012. Scientists and conservationists charge that Bolsonaro's anti-environmental rhetoric has sent a signal to ranchers, farmers and land-grabbers that they can once again clear

forest in the Amazon with impunity.

Galvão has since returned to his previous position at the University of São Paulo. He doesn't enjoy the limelight and was preparing to stop giving interviews and focus on his fusion research. After receiving messages from fellow scientists thanking him for speaking out, however, he realized that he has a responsibility to continue to advocate on behalf of science — and scientists — in the face of political pressure. "I'm just a humble old man who works in physics," Galvão says. "But I decided to go on for this reason."