can access it relatively easily because, offshore of Gisborne, the subduction zone experiences the shallowest slow slip in the world, just a few kilometres below the sea floor.

DRILLING FOR ANSWERS

The Hikurangi usually sees slow-slip events once every year or two — including an episode triggered in November 2016 by the magnitude-7.8 Kaikoura quake on the South Island (L. M. Wallace *et al. Nature Geosci.* **10,** 765-770; 2017). "It basically lit up the subduction zone in slow slip," says Wallace. What scientists learn about slow slip at the Hikurangi could help them to better understand earthquakes in other slow-slip regions, including those off the coasts of Costa Rica, Mexico and Japan.

The *JOIDES Resolution* expedition aims to drill three holes into the area where the Pacific and Australian plates collide. This is likely to reveal what types of rock lie on either side of the Hikurangi fault, information that would enable researchers to better understand the physical properties of the place where earthquakes are generated.

One target is a thick layer of sediments covering the deep-diving Pacific crust. "Getting our hands on those sediments before they are subducted will give us important insights into the frictional properties of rocks in the slow-slip zone," Wallace says. Drillers will need to penetrate to 1.5 kilometres beneath the sea floor for scientists to truly understand this subducting crust and its role in Hikurangi quakes, says Nathan Bangs, a geophysicist at the University of Texas at Austin who led the *Langseth* cruises.

The drill team will install long-term observatories in two of the boreholes, roughly 400 metres beneath the sea floor, to monitor how pressure and temperature change during slow-slip events. ■

EVENTS

Backlash in Brazil against police probe of marijuana researcher

Investigation of a scientist in São Paulo sparks fear of restrictions to academic freedom.

BY CLAUDIO ANGELO

A police investigation targeting Brazil's most prominent marijuana researcher has ignited a wave of protest among scientists. They say that the move by authorities from the state of São Paulo threatens research freedoms at a time when science in the country faces severe problems because of draconian budget cuts.

Police questioned Elisaldo Carlini, a retired professor of psychopharmacology at the Federal University of São Paulo (Unifesp), on 21 February on suspicion of inciting drug crime, according to authorities. They are still investigating the case and have not charged Carlini.

According to documents from Rosemary Porcelli da Silva, the public prosecutor in São Paulo state who requested opening the case against Carlini, she saw "in theory, strong hints of incitement" in a marijuana symposium that he had organized in May last year. One of the proposed guest speakers was the head of the Rastafari church in Brazil, who is still serving prison time under drug trafficking charges and did not participate in the symposium. Marijuana use, production and sale are illegal in Brazil. Da Silva declined to comment on the inquiry.

A PIONEER

Carlini, 87, is one of the pioneers of medical-marijuana research. He has investigated the drug since the 1950s, and has published several seminal papers on the anticonvulsive properties of cannabinoids. "Carlini is an outstanding scientist," says Raphael Mechoulam, a researcher at the Hebrew University of Jerusalem in Israel whose laboratory first isolated marijuana's hallucinogenic compound, THC, in 1964.

"Nearly 40 years ago, his group and my group did the first clinical experiment with cannabidiol, a major cannabis compound, on epileptic patients," Mechoulam says. A treatment that resulted from that work is used by people with epilepsy today.

"In more than 60 years of an academic career, I had never been questioned by law agents — until last month," says Carlini. He says that last year's meeting was scientific in nature and had nothing to do with inciting people to take drugs. "It's a Kafkian situation. I wonder what they think an old man can do with marijuana."

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On 1 March, researchers, students and staff at Unifesp gathered on campus to express their support for Carlini and to protest against what they perceived to be an attack on the university. As of 12 March, more than 50 scientific societies had signed a petition supporting the scientist. Another petition in defence of Carlini, organized by the Brazilian Society for the Advancement of Science (SBPC) and addressed to the São Paulo state authorities, had more than 34,000 signatures as of 12 March. Among the supporters is former Brazilian president Fernando Henrique Cardoso, who called the inquiry into Carlini "an unacceptable coercion".

ACADEMIC FREEDOM

SBPC president Ildeu Moreira says that the episode is a step backwards for academic freedom in Brazil, at a time when science there faces drastic funding declines.

Although it is not illegal to study cannabis in Brazil, current legislation makes it difficult. Research institutions cannot cultivate marijuana, and scientists must apply for a special government permit for any experiments with the drug or its components, which can delay their work. Brazil's food and drug regulatory agency, Anvisa, is examining whether to authorize marijuana's cultivation for research purposes.

Scientists say that they hope the Carlini case will highlight the difficulty that researchers in Brazil face when studying the medical uses of cannabis. Renato Filev, a neuroscientist at Unifesp, is trying to study whether cannabis can help people with alcoholism, and his animal experiments have shown encouraging results, he says. But clinical trials have been delayed because of the difficulties of getting a permit to bring the drug in from the Netherlands. Universities and ethics committees are afraid of the possibility of controversy or a police investigation, he says.

"I have fought for decades to show that marijuana is a serious plant," says Carlini. "Dozens of countries have already regulated medical marijuana. The current legislation is a shame to Brazilian science and to Brazil." ■