GERMANY

Academic Reform Law Made More Flexible

BERLIN—Bowing to pressure from young researchers, politicians, and the press, Germany's science minister has agreed to amend the recently passed university reform law to give young academics more time to finish their training. The change would remove what is seen as a serious flaw in otherwise needed reforms, and it may lead to a cease-fire in a drawn-out battle over the legislation.

Clarification. Bulmahn gives young German researchers an extension.

The law, which took effect on 23 February, is a major overhaul of university employment rules. It attempts to curb the practice of keeping young researchers in an indefinite state of uncertainty by setting a limit of 6 years for students to finish a Ph.D., followed by 6 years to land a permanent position in a university. Several national organizations—including the German research funding agency (DFG) and the German conference of university rectors and presidents (HRK)—supported the overall reforms but worried that current students may not have enough time to complete their training. Students and academic staff went on strike at Bielefeld University (*Science*, 1 February, p. 781), and some protesters called for Research Minister Edelgard Bulmahn to resign.

In response, Bulmahn announced on 22 March that she would "clarify" the law by providing an extension to February 2005 for those now in the system who might bump up against either time limit. The clause will be added to a bill that would prevent universities from charging student fees. A ministry spokesperson said that she expects parliament to approve the new legislation by early summer, but others say that the fees may spark a more extended debate. "I doubt that it will be ready by the summer," says Kurt Kutzler, acting president of the Technical University of Berlin and a vice president of HRK.

Bulmahn's modification doesn't address a second pressing issue, however. Under the new reforms, researchers who have finished their Ph.D. and Habilitation (a more regulated version of the postdoctoral fellowship) but fail to snag a permanent faculty position within 12 years (15 years for medical students) can be hired only under temporary contracts that comply with Germany's general employment law. But university administrators feel that the law's complex hiring and firing requirements are ill suited to research. They also worry that universities may avoid such contracts because the law gives temporary employees the right to sue an employer for a permanent post.

"We still need a satisfactory solution for researchers who have finished their training but are waiting for a suitable post as full professor," says Christoph Gusy, assistant rector of Bielefeld University. Researchers will be watching closely to see whether the new law adds to the strain on this important talent pool.

–ADAM BOSTANCI AND GRETCHEN VOGEL

SEISMOLOGY

Deep Quakes Slow But Very Steady

When it comes to quakes, Earth doesn't have much rhythm. Tens of kilometers below the surface, faults rupture with a chaotic unpredictability that has stumped seismologists and sometimes caught cities off guard. On page 2423, however, a team of geophysicists led by Meghan Miller at Central Washington University (CWU) in Ellensburg reports that a strange kind of temblor, called a slow earthquake, goes off silently about every 14 months in the Pacific Northwest.

Such a rigid schedule is "quite surprising," says Alan Linde of the Carnegie Institution of Washington in Washington, D.C. Geophysicists don't yet know why the slow earthquakes—so called because of their leisurely pace and the absence of seismic waves—occur so regularly, but they hope to deploy instruments to study them in greater detail and learn more about the boundaries of major tectonic plates called subduction zones. Slow earthquakes could even turn out to herald a season of heightened risk for larger quakes.

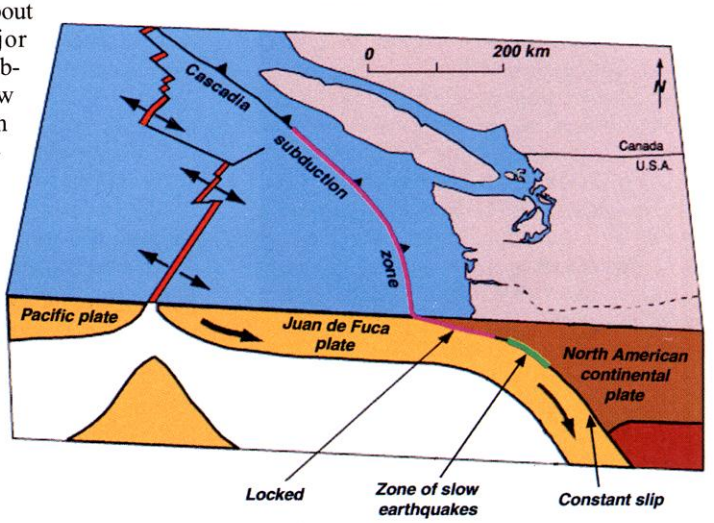
Typical earthquakes announce themselves in a battery of shaking as a jammed and stressed fault suddenly breaks loose. In the Pacific Northwest, the culprit is the Juan de Fuca plate trying to ram its way beneath the edge of North America. Every 500 years or so, the locked fault tears free and generates a major earthquake. Further down the fault, there's less potential for trouble; because the rocks are hotter and more plastic, the plates are thought to defuse their energy by slipping slowly and continuously.

But not always. Last year, Herb Dragert of the Geological Survey of Canada in Sidney, British Columbia, and colleagues found evidence for a relatively sudden pulse of movement farther down the fault than the locked zone is. By monitoring the location of Global Positioning System (GPS) stations relative to each other, Dragert's team discovered an unusual pattern of surface deformation in southeast British Columbia and northwest Washington state.

Most of the time, this region is being shoved northeastward at an average of 8 millimeters per year. Dragert's team noticed that over several weeks in 1999, the stations reversed their direction and moved 2 to 4 mm to the southwest. A numerical model indicated that roughly 35 kilometers below the surface, a 50-kilometer-by-300-kilometer swath of the plates had slipped (*Science*, 25 May 2001, p. 1525).

Geophysicists have had firm evidence of slow earthquakes in subduction zones since 1995, when Ichiro Kawasaki of Toyama University identified one off Japan, but Dragert's team was the first to find such a quake in the Pacific Northwest transition zone.

Intrigued by their finding, Miller's team went back and analyzed 10 years of data from these and other GPS stations. The researchers found a total of eight such slow earthquakes in the same general vicinity. Most remarkably, the slow quakes started every 14.5 months, give or take 1 month. "That's incredibly exciting," says co-author Tim Melbourne, also at CWU. "If you can find a fault that's regularly but intermittently creeping, maybe you can make sense of this



Quiet habit. Slow-paced earthquakes regularly release some of the strain built up by the descent of the Juan de Fuca plate, but they don't relieve the locked zone, which generates much bigger quakes.

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