

ON THE RECORD

“People may have thought: ‘We have tapes of the Moon walk, we don’t need these.’”

Australian scientist John Sarkissian hunts for the original high-quality magnetic tapes, apparently misplaced, of the first Apollo 11 Moon walk.

“The gene won’t automatically make you a criminal.”

New Zealand researcher Rod Lea triggers controversy by reporting a high incidence among Maori people of a gene linked to aggression.

**WHILE YOU'RE THERE**

Those attending the International Astronomical Union's general assembly in Prague, Czech Republic, from 14 to 25 August should be sure to check out the astronomical clock, or Orloj, in the town square. The clock has been operating since 1410, on and off, and so the meeting's attendees may notice it is slightly out of date. Research done since its construction suggests that Earth orbits the Sun, not the other way around.

DATAPOINT

Turning the corner? After years of being thwarted by immigration difficulties, international students may finally be returning to US graduate schools in greater numbers. A study in admissions found increases since 2005:

| | |
|-------------------|------|
| Life sciences | +1% |
| Physical sciences | +5% |
| Engineering | +26% |

Sources: Sydney Morning Herald, Australian Associated Press, Council of Graduate Schools

Guilty, but no jail sentence for Russian scientist

Russian physicist Oskar Kaibyshev was given a six-year suspended prison sentence last week for exporting technologies with possible military use to South Korea. Human-rights advocates say the accusation is baseless and part of a series of prosecutions unjustly targeting Russian scientists.

Kaibyshev, the suspended director of the Institute for Metals Superplasticity Problems in Ufa, was also fined about US\$130,000 and banned from resuming his directorship for three years. Reports say he intends to appeal against the verdict.

In 2002, Kaibyshev's institute sent samples of aluminium alloys and a titanium product to a tyre company in Seoul, South Korea. The materials allow better high-pressure tyres to be made, but the prosecution said they could also be used in manufacturing missiles.

Agents of the Russian Federal Security Service first arrested Kaibyshev in March 2003 after seizing documents from a South Korean busi-

ness delegation, including representatives from the tyre company and the Korea Aerospace Research Institute, at the airport in Ufa. He was arrested again in February 2005.

Kaibyshev's supporters say the information he provided was public knowledge. "Every country has the right to defend its state secrets, but Kaibyshev's defence has clearly proved that all information he passed on was previously published in books and journals," says Eugene Chudnovsky, a condensed-matter physicist at the City University of New York who chairs the human-rights division of the New York Academy of Sciences.

Over the past decade, Russian courts have given lengthy prison sentences to a number of scientists convicted of spying. Prominent examples include physicist Valentin Danilov and military analyst Igor Sutyagin, who were sentenced to 14 and 15 years, respectively, in 2004. Several other Russian scientists are also being held in custody for alleged espionage and

The outlook for Amazonia is dry

Drought hit the Amazon last year, with devastating results. Rivers fell, fish rotted and routes to schools and hospitals were cut off. Now studies of the dry spell suggest that such conditions could become increasingly common.

The drought first caught scientists' interest because its cause was unusual. Dry spells in the Amazon usually occur in El Niño years, when warm water off the Pacific coast of South America sets up a pattern of circulating air that inhibits rainfall in the Amazon. But last year was not an El Niño year.

Instead, the drought was caused by a circulation pattern powered by warm seas in the Atlantic — the same phenomenon responsible for last year's unusually intense Atlantic hurricane season. The

result was a dry spell that hit particularly hard in the western Amazon, a region that normally has more rainfall than other parts of the forest.

"It caught people by surprise," says William Laurance, an ecologist with the

Smithsonian Tropical Research Institute, based in Balboa, Panama. "We hadn't seen a drought like that before."

The media quickly blamed global warming, but climate researchers warn that it may not be possible to make such



How will the rainforest respond to drought?

P. WILSON/CORBIS

A. LIMA/EMPICS/AP



A. VALIEV/KOMMERSANT

Oskar Kaibyshev (centre) and his lawyers: other scientists have received much harsher sentences.

high treason, and there may be more unpublished cases, says Chudnovsky.

Since the collapse of the Soviet Union, science in Russia has suffered financially. Foreign grants and collaborations have helped keep many institutes alive. But accusations against scientists who work with foreign groups or companies have also become widespread.

The threat of prosecution is making things tense for Russian scientists who maintain international contacts and aim to commercialize their research, says Sarah Olmstead of

the human-rights programme at the American Association for the Advancement of Science.

Prosecutors in Kaibyshev's case had called for an unsuspended six-year sentence. The relatively mild verdict could be due, some say, to international outrage over the case.

"It's a big relief to us all, but one case doesn't make a statistic," says Chudnovsky. "I'm still waiting for an imprisoned scientist to be released before I can believe that things are getting better."

Quirin Schiermeier

a link — in part because vast areas of Amazonia have no weather stations.

But early results from studies suggest that the Amazon could have more such events in the future. In a paper to be finalized this month, researchers from the United Kingdom and Brazil use a climate model developed at the Hadley Centre for Climate Prediction and Research in Exeter, UK, to study whether the 2005 event was a one-off or a taste of things to come.

The team says the model predicts the latter. "The 2005 situation will be more frequent by 2050," says co-author Jose Marengo of the Center for Weather and Climate Prediction in Cachoeira Paulista, Brazil.

Last year's drought also bolsters a controversial 2004 finding about the future of the Amazon rainforest. Peter Cox of the Centre for Ecology and

Hydrology in Winfrith, UK, who is also an author of the new paper, had predicted that more frequent droughts would wipe out around 65% of the Amazon forest cover by 2090 (P. M. Cox *et al. Theor. Appl. Climatol.* 78, 137-156; 2004). Many questioned the result when it was published, in part because some of the droughts predicted by the model were caused by warm waters in the Atlantic — a phenomenon that hadn't been observed at the time. Now that such an event has been seen, says Laurance, researchers are looking at Cox's results with a little less scepticism.

Other studies disagree, predicting less drought and forest destruction than Cox's model. But more and more evidence suggests that drought will take a serious toll on the Amazonian forest.

Daniel Nepstad, an ecologist at the Woods Hole Research

Center in Massachusetts, has been simulating drought since 1998 with a plastic canopy covering 10,000 square metres of forest in the eastern Amazon. His results show that during drought, more large trees die off, all trees produce less wood, and there are more fires. In a paper under review at *Ecology*, Nepstad calculates that the combination of dead trees and reduced wood formation in Amazonia as a whole led to an extra half-a-billion tonnes of atmospheric carbon in 2005. In contrast, the Kyoto Protocol on Climate Change aims to reduce global carbon emissions by a billion tonnes annually by 2012.

Nepstad is now lighting test fires to assess whether one fire makes the forest more vulnerable to others. "Our biggest fear is that the forest will be invaded by highly flammable grasses," he says. ■ Jim Giles



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Miltenyi Biotec GmbH Phone +49 2204 8336-0
Friedrich-Ebert-Str. 68 Fax +49 2204 8336-1
51429 Bergisch Gladbach macs@miltenyibiotec.de
Germany www.miltenyibiotec.com