

## Patent office takes small step to get the measure of nanotech

**Washington** The word 'nanotechnology' has been used and abused by everyone from researchers hoping to take advantage of funding to advertisers hoping to give their product a high-tech ring. But now the US Patent and Trademark Office has stepped in to provide some guidance on what nanotechnology really is.

The patent office last month unveiled Class 977 for nanotechnology patents. For an invention to qualify, the office says, at least one of its dimensions should be between 1 and 100 nanometres in size, and the tiny size of the device must be essential to its function. This means that some ingredients in sunscreen may well be nanotech, for example, but a computer chip may not be.

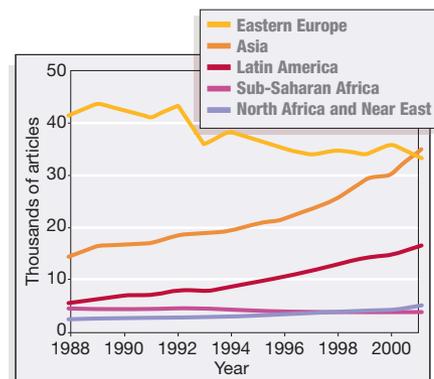
Worried about overlapping patents being granted amid a flood of claims, the patent office began training its examiners in nanotechnology concepts and terminology, and last November it set up an advisory group of outside lawyers and scientists. The new definition is meant to clear up any remaining confusion for patent officers. Whether it will have the same effect on a general public bombarded with nano-promises remains to be seen.

## Latin America records rapid rise in research publications

**Washington** Research output is booming in Latin America and Asia, according to the US National Science Foundation (NSF).

The number of science and engineering papers published in journals with authors from Latin America tripled from 1988 to 2001, with Argentina, Brazil, Chile and Mexico leading the way. Asia is also producing more papers, mainly because of a boom in China (see *Nature* 426, 752–753; 2003).

The NSF says the rises are due to policy reform, increases in the number of researchers and the money for salaries, and



Going up: a rise in publications suggests that science is booming in Latin America and Asia.

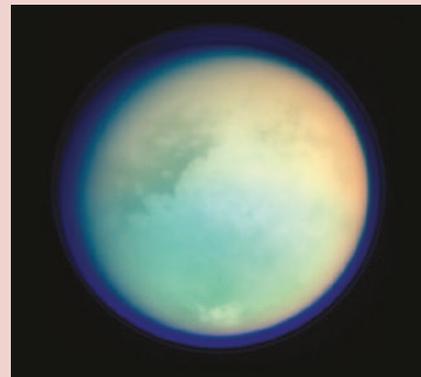
## Atmospheric snoop gives Cassini a titanic view

**London** The Cassini-Huygens spacecraft grazed the atmosphere of Saturn's moon Titan on 26 October, taking radar images of a cold landscape carved by winds and dotted with what look like lakes.

Titan is the second-largest moon in the Solar System and the only one known to have an atmosphere. Its chemical make-up is thought to be similar to that on Earth long before life emerged, but an opaque smog makes it hard to observe Titan's surface.

The recent observations (right) indicate that Titan may have lakes of methane, ridges of minerals, and floes of ice. The surface seems to be coated in organic chemicals such as liquid propane or solid acetylene, both of which would be stable at the temperature of  $-179^{\circ}\text{C}$ .

The Cassini craft is planned to swoop past



the moon 43 more times before releasing the Huygens probe in December. The probe should float through the atmosphere by parachute and gather more detailed information.

a growing tendency for researchers to collaborate in international projects.

Other regions fared less well: the research output from Eastern Europe (including the former Soviet Union) has actually fallen.

## Spanish stem-cell law allows IVF embryo use

**Madrid** The rules governing stem-cell research in Spain have been relaxed, thanks to a bill passed on 29 October by the country's recently elected Socialist government.

Research on embryonic stem cells has technically been allowed in Spain since 2003, but only in limited circumstances and with restrictions. The creation of human embryos specifically for research was prohibited, for example, embryonic stem cells could be studied only if their use was unavoidable, and embryos left over from *in vitro* fertilization (IVF) procedures could not be used if they had been frozen for more than five years.

Some restrictions have now been lifted, provided the researchers get permission from the embryo's parents. "It's all about making things easier for scientists," says Spain's vice-president, María Teresa Fernández de la Vega.

Other European countries that currently allow stem cells to be obtained from IVF embryos include Belgium, Denmark, Finland, Greece, the Netherlands, Sweden and Britain. But Austria, Germany, France and Ireland prohibit the practice.

## Caltech cash lands Earth scientists a moving study

**San Diego** A US\$13-million Tectonic Observatory has been established at the California Institute of Technology, launching an initiative to study the movement of the plates that make up the Earth's crust.

Seismometers, global positioning systems and satellite radar will be deployed to focus

on key tectonic plate boundaries in western North America, Central America, Sumatra and Taiwan. Their data should tackle such questions as whether tectonic plates are pushed about by new material forming at ocean ridges, or pulled by old ocean floor sliding under continents, and should provide insight into earthquakes and volcanoes.

The money comes from the Gordon and Betty Moore Foundation in San Francisco.

## NASA's vomit comet sickens for a final time

**Washington** Wannabe-astronauts, and researchers looking for a weightless environment, will soon have a new craft in which to run their experiments.

The 'vomit comet' — the jet used by NASA to create microgravity by plunging towards Earth in a stomach-clenching dive — took its last flight on 29 October. The plane plunged 50 times during the three-hour flight, giving those on board 30-second slots for their experiments. Unusually, few of the two dozen seasoned passengers travelling on this final flight were sick.

The KC-135 jet has seen nine years of service with NASA. During this time the crew boasts to having hosted more than 2,000 students and cleaned up more than 1,000 litres of vomit.

The craft will be replaced by a C-9 plane next year that is likely to have the same sickening effect on its passengers. The first person to vomit in the new craft will probably get "a little plaque — all in good fun, of course", says test director John Yanic.

### Correction

David King's Feature "The scientific impact of nations" (*Nature* 430, 311–316; 2004) states that Japan is "first on higher education" in terms of %GDP spent in G8 nations (page 313). In fact, as Figure 5 shows, Canada is first and Japan second.