

RESEARCH HIGHLIGHTS



R. THORPE

Not-so-lonesome lizards

PloS Genet. doi:10.1371/journal.pgen.1000929 (2010)

Lizards on the Caribbean's Lesser Antilles islands were thought to provide a rare example of evolution resulting from geographical isolation. But work by Roger Thorpe and his colleagues at Bangor University, UK, suggests otherwise. They

studied populations of the lizard *Anolis roquet* (pictured) on the island of Martinique. This island formed by the merging of four ancient islands, each of which had already been populated by its own lizard species for between six million and eight million years.

Using genetic analysis,

the researchers found that lizards that originated on separate islands showed less reproductive isolation than populations from the same island that lived in distinct habitats. The results suggest that speciation was driven by adaptation to new habitats and not geographical isolation.

NEUROSCIENCE

What makes masculinity?

Neuron 66, 260–272 (2010)

In many vertebrates, male sexual and territorial behaviours are regulated by testosterone and oestrogen in the brain. Nirao Shah at the University of California, San Francisco, and his colleagues have found that, in male mice, testosterone controls the extent of these behaviours, but not their programming during development. The authors confirm previous findings that this programming is mediated by oestrogen, which in the male brain is derived from testosterone.

The authors discovered that the androgen receptor, which binds testosterone, is not abundant in the brains of developing male mice, but that oestrogen results in greater expression of this receptor later on in males than in females. Mice in which the gene for this receptor was deleted in the nervous system still displayed typical sexual and territorial behaviours, but to a lesser extent.

OCEANOGRAPHY

Deep-sea biomass boom

Proc. R. Soc. B doi:10.1098/rspb.2010.0462 (2010)

Submarine canyons are widespread in the deep ocean, but little is known about the life that they support. Fabio De Leo at the University of Hawaii in Honolulu and his team report that the floor of the Kaikoura Canyon off the coast of New Zealand sustains a huge population of invertebrates (a sampling pictured).

The biomass that the authors collected in grab samples and trawls was 100 times greater than any reported previously for habitats more than 500 metres below the sea surface that are

not fed by hydrothermal vents. The team also detected large numbers of rattail fish, which are probably feeding on these invertebrates.

Deep-sea canyons are potential hot spots for bottom-dwelling organisms, and thus could provide fish with feeding grounds.

For a longer story on this research, see go.nature.com/YXhxL5

ATMOSPHERIC SCIENCE

Ozone high and low

Geophys. Res. Lett. doi:10.1029/2010GL042812 (2010)

A combination of climate change and repair of the hole in the stratospheric ozone layer could, by 2100, lead to increased ozone concentrations in the lower atmosphere (troposphere), particularly in the Southern Hemisphere. Higher levels of ozone could adversely affect air quality and human health.

Guang Zeng of the National Institute of Water and Atmospheric Research in Lauder, New Zealand, and her colleagues used a tropospheric chemistry climate model to

separate the effects of two factors on the global ozone budget: changes in atmospheric circulation due to climate change, and the expected recovery of stratospheric ozone.

When ozone recovery was included, predicted increases in ozone at Earth's surface almost doubled in southern extra-tropical regions during winter months, relative to increases caused by climate change alone.

MICROSCOPY

See through tissue

Opt. Lett. 35, 1245–1247 (2010)

Fluorescence microscopy has become an indispensable tool for cell biologists. But the light beams used to penetrate a sample are scattered by tissues, complicating efforts to image below a tissue's surface.

Now, Ivo Vellekoop and Christof Aegerter of the University of Zurich in Switzerland have developed a type of fluorescence microscopy that can see what lies beneath. They adjusted the properties of the incoming light so that it constructively interfered with light scattered by the intervening material. The result was a sharply focused beam that could detect fluorescent beads below a light-scattering zinc-oxide layer, with the same resolution as a conventional fluorescent microscope.

GENOMICS

Rat sequencing redux

Genome Res. doi:10.1101/gr.103499.109 (2010)

Using rapid DNA sequencing methods, Timothy Aitman of Imperial College London and his colleagues have sequenced the genome of a rat strain widely used to study high blood pressure. They compared the



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