

GEOCHEMISTRY

Arctic thaw boosts carbon

Wintertime warming of Alaskan soils may up the release of carbon dioxide from soil respiration, bolstering fears that tundra could have positive-feedback effects on global warming.

Susan Natali and her team at the University of Florida in Gainesville used fences to boost snow cover over a series of experimental plots in Alaska, resulting in a 1.5°C increase in soil temperatures during the winter of 2008–09. They later removed excess snow to ensure that spring thaw occurred as normal and then set up open-air chambers to increase the summer temperature.

The authors found that greater soil respiration, particularly in winter, doubled CO₂ emissions during the year-long experiment. This was despite a 20% increase in CO₂ uptake from enhanced plant growth in the warmer summer. *Glob. Change Biol.* doi:10.1111/j.1365-2486.2010.02303.x (2010)

ZOOLOGY

Killer jelly hunts by stealth

The comb jelly *Mnemiopsis leidyi* (pictured) is a highly effective predator, even though it does not actively pursue or look for its prey. Sean Colin



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at Roger Williams University in Bristol, Rhode Island, and his colleagues report that the animal captures its prey by producing a subtle current with its cilia — tiny beating hair-like structures. This current moves a large volume of water past its feeding apparatus.

By measuring fluid flow around jellies in the laboratory, the team showed that the current becomes turbulent enough to be detectable by typical prey species, such as microplankton, only in the capture zone near the creature's mouth. By then, it is normally too late for prey to escape.

Such 'stealth predation' partly explains the animal's success as an invasive species, say the authors.

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NEUROIMMUNOLOGY

Autoimmune disease culprit

Multiple sclerosis causes disabling neurological symptoms, but the mechanism behind the disease has not been clear. An imaging study in mice now reveals

that a specific set of immune cells may be the culprit in triggering neuronal injury.

Volker Siffrin and Frauke Zipp at Johannes Gutenberg University in Mainz, Germany, and their group used *in vivo* microscopy to observe immune cells and neurons in the brains of mice with autoimmune encephalomyelitis, an animal model of multiple sclerosis. The authors found that a type of white blood cell called a T_H17 cell directly interacts with neurons to form synapse-like contacts. This interaction increases calcium levels in the neurons — an early sign of cell



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BOTANY

Crazy for you, daisy

Orchids are masters of sexual deception, with petal ornaments that so closely resemble female insects that their flowers attract amorous, pollinating males. Allan Ellis at Stellenbosch University in Matieland, and Steven Johnson at the University of KwaZulu-Natal in Pietermaritzburg, both in South Africa, now report that the daisy *Gorteria diffusa* uses a similar ruse.

The duo observed the behaviour of bombyliid flies around several forms of the daisy (pictured)

in both the field and the laboratory. Male flies were attracted to some of the flowers (top row) and were mildly curious about others (bottom row), but showed little interest in daisies with minimal fly-like ornamentation.

The researchers also found that the males attempting to mate with the petal ornaments spread pollen between flowers more effectively than did the more sedate females, which came just to feed.

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