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CLIMATE SCIENCE

Less sea ice, more Siberian snow

Shrinking Arctic sea ice leads to heavier snows in western Siberia. This is some of the first evidence for how low sea-ice levels in the Arctic autumn affect precipitation in neighbouring regions the following winter.

A team led by Martin Wegmann at the University of Bern, Switzerland, looked at snow measurements from 820 locations across Russia, and modelled how moisture flows between the ocean and the atmosphere. They found that the Barents and Kara seas, north of the Ural Mountains, released more moisture into the air when the seas were not covered with ice. That moisture then ends up as snow in northern Russia.

If sea ice continues to dwindle as expected, Eurasia and other continents may need to brace for heavy winter snowfalls.

Environ. Res. Lett. 10, **054015 (2015)**

ANIMAL BEHAVIOUR

Crafty crows keep their tools handy

A crow species renowned for its use of tools has a time-saving trick — stashing the same tool for future use.

New Caledonian crows (*Corvus moneduloides*) invest much time and energy turning sticks into hooks to extract food from small cavities. To see what happened to the tools when they were not in use, Barbara Klump and Christian Rutz at the University of St Andrews, UK, and their colleagues offered crows food hidden in holes in a block of wood. They found that, while they ate, the crows usually pinned their tool underfoot (**pictured**) or stashed it in a hole between uses. Crows foraging up high — where a fallen tool would be harder to retrieve — were more apt to store tools in holes than were birds lower down.

Such safekeeping probably mitigates the cost of tool-making, allowing this complex behaviour to evolve, the authors say.

Proc. R. Soc. B 282, **20150278 (2015)**

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CANCER GENETICS

Skin riddled with cancer mutations

More than one-quarter of cells in ageing, sun-exposed skin carry mutations that are known to drive cancer — even though the skin continues to function normally.

To understand how healthy cells can mutate to form cancers, Philip Jones of the University of Cambridge, UK, Peter Campbell of the Wellcome Trust Sanger Institute in Hinxton, UK, and their colleagues sequenced 74 cancer-linked genes in biopsies taken from excess eyelid skin removed from four healthy people aged over 55. More than 25% of the normal cells each contained thousands of cancer-causing mutations caused by sunlight — a similar frequency to that seen in many skin-cancer cells. These cells might form a reservoir with the potential to transform into tumours.

Cancer drugs that target these mutations could damage normal cells with the same mutations, the authors suggest.

Science 348, **880–886 (2015)**

METABOLISM

Potential obesity drug from vine

A compound found in the roots of the 'thunder god' vine could be a weight-loss drug, a study in mice suggests.

Umut Ozcan of Boston Children's Hospital in Massachusetts and his colleagues used a database of gene expression in human cells treated with various molecules to look for compounds that could increase the brain's sensitivity to leptin, a hormone that suppresses appetite. The screen fished out a compound called celastrol, found naturally in the roots of thunder god vine (*Tripterygium wilfordii*). Its skinned roots are used in traditional Chinese medicine to treat inflammation.

The team found that obese mice treated with celastrol ate less than untreated obese mice, and they lost up to 45% of their body weight. Genetically engineered animals that lacked normal leptin responses did not lose weight, however. Treatment of obese mice with celastrol also activated leptin signalling and reduced blood-sugar levels, with no obvious signs of toxicity.

Cell **http://doi.org/4sm (2015)**

MATERIALS

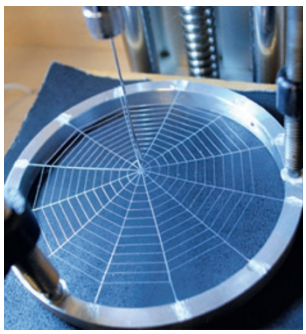
Printed spider webs get tough

Using a 3D printer, researchers have created spider-web analogues out of elastic polymer threads and tweaked their architectures to maximize the webs' strength.

Markus Buehler at the Massachusetts Institute of Technology in Cambridge and his colleagues printed synthetic webs (**pictured**) and added various sizes of load to test the webs' strength. The authors found that they could strengthen the web by adjusting the diameter of the threads radiating out from the middle, and that of the threads that spiral around the web. They did so while keeping the mass and general geometry of the web constant.

Strong synthetic webs could be used in applications such as reinforcing industrial materials, the authors say.

Nature Commun. 6, **7038 (2015)**



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SOCIAL SELECTION

Popular topics on social media

Genomics paper probed on Twitter

A recent Twitter conversation casting doubt on the conclusions of a genomics study has revived a debate about how best to publicly discuss possible errors in research. Yoav Gilad, a geneticist at the University of Chicago in Illinois, last month wrote on Twitter that fundamental errors in the design and data analysis of a December 2014 study led to an unfounded conclusion about the genetic similarities between mice and humans. Gilad and his co-author Orna Mizrahi-Man, a bioinformatics researcher also at the University of Chicago, have since detailed their data reanalysis in the open-access journal *F1000Research* (in which articles are openly peer-reviewed after publication). Michael Snyder, a geneticist at Stanford University in California and co-author of the original paper, stands by his team's study and its conclusions.

F1000Research 4, **121 (2015)**

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