

ON THE RECORD

“The pain was immediate and felt like my body was on fire.”

Endurance swimmer Lewis Pugh (pictured) after his 19-minute swim at the North Pole, when he braved water temperatures of $-1.8\text{ }^{\circ}\text{C}$ to raise awareness of melting polar ice.



REUTERS

SCORECARD**Low-sugar water melons**

Diabetics and dieters will be pleased to learn that US geneticists have bred water melons with 50% less sugar than normal.

**High-fat friends**

A 30-year study monitoring some 12,000 Americans concludes that they were 57% more likely to become obese if one of their close friends became obese too, suggesting that social ties help to spread the obesity epidemic.

ZOO NEWS**Prolific panda**

Huamei, a US-born giant panda now living at a reserve in Sichuan, China, has delivered her third set of twins, boosting China's captive giant-panda population by nearly 1%.



CHINA DAILY/REUTERS

NUMBER CRUNCH

74 watts is the power needed to display a full-screen version of the Google homepage on a conventional cathode-ray monitor.

3,000 megawatt-hours

is the energy that would be saved worldwide each year if everyone switched to blackle.com, a new website that allows users to do Google-powered searches from a dark page that uses only 59 watts.

25% is the proportion of computers worldwide that still use cathode-ray monitors. This figure is declining all the time, prompting cynics to argue that 'dark searching' is merely a gimmick.

Sources: *The Times*, USDA, N. Engl. J. Med., blackle.com; ecolron, Reuters

Carbon sinks threatened by increasing ozone

Rising levels of ozone pollution over the coming century will erode the ability of plants to absorb carbon dioxide from the atmosphere, a new climate-modelling study predicts.

Ozone is already known to be a minor greenhouse gas, but the new calculations highlight another, indirect way in which it is likely to influence global warming by 2100. High levels can poison plants and reduce their ability to photosynthesize, says Stephen Sitch of the UK Met Office's Hadley Centre for Climate Prediction and Research in Exeter.

Whereas ozone high in the stratosphere shields Earth from solar ultraviolet rays, high levels of ozone closer in are toxic to plants and animals. Ozone is generated when oxides of nitrogen — chiefly from vehicle exhausts and fossil-fuel power stations — react with other chemicals in the air.

Many of the world's most polluted areas routinely endure ozone concentrations higher than 40 parts per billion, enough to damage plant life. By the end of the century, virtually all the world's populated areas are predicted to be above this threshold.

Plant growth is a vital carbon sink, estimated to suck up around a quarter of the CO_2



R. KRAUSE/REUTERS

Beijing smog is a sign of rising ozone pollution.

emitted into the atmosphere. “This study combines knowledge about ecosystem function with atmospheric chemistry, and that's never been done before,” says Sitch. “No one has considered the detrimental effect of ozone on plants.”

The issue is complicated by the intricate interplay between rising CO_2 levels, which boost plant growth, and increasing ozone, which stunts it. Some ecosystem models had predicted that the rise in CO_2 expected over the coming century might be offset by the expected

Diamonds 'melted' inside an onion

Diamonds may not be for ever: researchers think they have seen, for the first time, the molten form of what is arguably the world's hardest material.

Jianguo Huang of Sandia National Laboratories in New Mexico heated diamond, at high pressure, to more than $2,000\text{ }^{\circ}\text{C}$ inside microscopic hollow shells of carbon and watched the diamond soften (J. Y. Huang *Nano Lett.* doi:10.1021/nl0709975; 2007).

Huang describes this as

quasi-melting. It is not true melting, he says, because the diamond particles don't become liquid carbon, but instead flicker between crystal forms by continually melting and instantly refreezing in a different conformation.

This is the closest anyone has ever come to directly melting diamond. No one really knows what molten carbon looks like. One form, graphite, seems to break down into liquid-like blobs when heated to high temperatures, although

they have not been examined while still molten. But until now, molten diamond had not been achieved.

A key problem is that when diamond is heated to very high temperatures, at atmospheric pressure, it turns into graphite rather than melting. To overcome this, Huang's team used structures known as 'carbon onions' to create very high pressures and temperatures.

These roughly spherical concentric shells of graphite-