



DATA POINTS: MELTING

Antarctica has lost a significant amount of ice in the past few years, find Isabella Velicogna and John Wahr of the University of Colorado at Boulder. They used measurements taken from April 2002 to August 2005 by the Gravity Recovery and Climate Experiment (GRACE). It consists of two orbiting satellites whose separation is affected by slight gravitational tugs caused by the shifting of mass on the earth's surface. The changes can be measured to an accuracy of one micron.

Percent of the earth's freshwater in Antarctica: **70**

Percent of the earth's ice in Antarctica: **90**

Cubic kilometers of ice lost annually during study period: **152**

In gallons: **40 trillion**

Time needed by U.S. to consume that amount of water: **3 months**

Resulting contribution to annual rise in sea level: **0.4 millimeter**

Margin of error: **0.2 millimeter**

Percent of total sea-level rise during study period accounted for by Antarctic melting: **13**

SOURCE: Science Express, March 2

AVIATION

Powering Off for Safety

Lifting the ban on cell phones during flights, a change being considered by the Federal Communications Commission, may be a bad idea: portable electronics can potentially interfere with GPS navigation, which has been increasingly used during landings. Carnegie Mellon University researchers stowed, with permission, a wireless frequency spectrum analyzer onboard 37 commercial flights in the eastern U.S. They found that passengers made one to four cell phone calls per flight. Moreover, the group discovered that other onboard



CELL PHONES might interfere with GPS signals.

sources (possibly DVD players, gaming devices or laptops) emitted in the GPS frequency, consistent with anonymous safety reports that these devices have interrupted the function of navigation systems. "There's enough to leave you feeling queasy about opening the floodgates to lots of other radiating sources," says M. Granger Morgan, co-author of a report published in the March *IEEE Spectrum*. If the ban were lifted, portable electronics would still have to comply with airline regulations that prohibit cockpit interference. —JR Minkel

ENTOMOLOGY

Cannibal Run

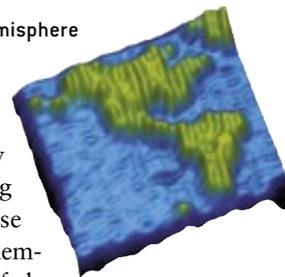
Millions of Mormon crickets swarm across western North America—not to devour crops, as do the more familiar locust hordes, but apparently to flee from one another. An international team studying a one-kilometer-long swarm in Idaho last year found that the flightless crickets were avid cannibals. When the scientists left food out for the insects, they clearly preferred meals high in protein and salt, nutrients the crickets are themselves rich in. Impairing cricket mobility (by gluing them to rocks) substantially increased the risk of cannibalization, suggesting that the insects swarm to escape death from behind. Although these forced marches are obviously dangerous for the crickets, apparently traveling alone is even more so, often quickly leading to death from predation. These findings, published online March 3 in the *Proceedings of the National Academy of Sciences USA*, could elucidate why locusts and other insects swarm. —Charles Q. Choi

NANOTECH

Origami from DNA

Strands of DNA can be folded into flat structures as elaborate as maps of the Americas. The DNA origami technique developed by California Institute of Technology computer scientist Paul Rothemund takes a long DNA and folds it repeatedly like a piece of string to create any desired shape, much like drawing a picture using a single line. Short DNAs are added to hold each fold in place. The results, revealed in the March 16 *Nature*, are origami forms up to roughly 100 nanometers wide made of about 200 pixels, in which each pixel is a short nucleotide chain. DNA's propen-

NANO ART: The Western Hemisphere as rendered by DNA.



sity for spontaneously lining up with matching sequences means these shapes will assemble themselves automatically if the molecules are sequenced properly. Designing structures takes about a day, using a computer program simple enough for a high school chemistry experiment. Scientists could create devices with such origami by attaching electronics or enzymes, and experiments have begun creating three-dimensional structures. —Charles Q. Choi

PHYSICS

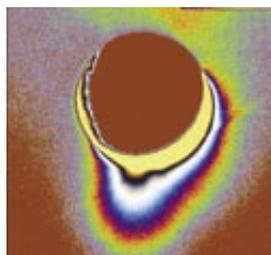
Artificial Gravity with Magnetism

Devices for simulating changes in gravity range from centrifuges to “vomit comets,” but simple magnetism may offer the most versatile method. Living tissues are diamagnetic, meaning that they become magnetic in response to an external magnetic field. Researchers have used a powerful magnet to levitate frogs, effectively putting them in zero gravity; now the same Brown University group has varied and reversed the gravity felt by the single-celled paramecium, which senses gravity and swims against it. The scientists found that the cells keep swimming in magnetic fields that simulate up to 10 g’s, at which point they tread water or poop out. The technique might serve to grow hard-to-produce tissues for medical research, says Brown physics Ph.D. candidate Karine Guevorkian, who presented the results at the March meeting of the American Physical Society. —*JR Minkel*

PLANETS

Cold Faithful

Ice geysers off the south pole of Saturn’s moon Enceladus potentially hint at an underground ocean. In three flybys, the Cassini space probe detected a plume of ice and dust shooting thousands of kilometers high above the cracked, buckling crust. Most of the plume falls back down as snow to gild plains already littered with house-size ice boulders. The rest escapes the moon’s gravity apparently to later make up Saturn’s blue outermost E ring, some 300,000 kilo-



GEYSER erupts from Enceladus, as seen in false color by the Cassini probe.

meters wide. Like Yellowstone’s Old Faithful, Enceladus’s geysers are powered largely by deep-down heat, researchers believe. The heat within the moon that must be setting off the geysers may result from shifting, glacierlike tectonic plates and tidal forces. Such movement suggests that a liquid ocean might lie 10 meters or less below the icy surface. It might even be capable of supporting life, scientists speculate in the March 10 *Science*. —*Charles Q. Choi*

VISION

Eyeing Redness

Color vision may have originated in humans and related primates to spot blushes on cheeks and faces pale with fear. Whereas birds’ and bees’ color receptors are evenly sensitive across the visible spectrum, two of the three kinds of color photoreceptors in humans and other Old World primates are both most sensitive to roughly 550-nanometer-wavelength light. California Institute of Technology neurobiologists suggest that this closeness in sensitivities is optimized toward detecting subtle changes in skin tone because of varying concentrations of oxygenated hemoglobin in the blood. This could help primates tell if a potential mate is rosy from good health or if an enemy is blanched with alarm. Supporting this idea, they say in their upcoming June 22 *Biology Letters* paper, is the fact that Old World primates tend to be bare-faced and bare-bottomed, the better to color-signal with. —*Charles Q. Choi*



SEEING RED in cheeks may explain why primate vision is sensitive to that color.

BRIEF POINTS

■ **Sleep on it:** subjects pondering a complex decision and then distracted by puzzles made more satisfying choices than those who deliberated continuously. Evidently, the unconscious mind is better at plowing through information without bias.

Science, February 17

■ **One concern about carbon nanotubes** has been their toxicity—they can build up inside the body and damage organs. Special chemical modifications of the tube surface, however, enabled the nanotubes to be excreted intact in urine.

Proceedings of the National Academy of Sciences USA, February 28

■ **First, the good news:** treating mildly elevated blood pressure with drugs moderately cut the risk of hypertension later, perhaps by interfering with vascular processes that ultimately boost pressure.

New England Journal of Medicine online, March 14

■ **Now, the bad:** reducing blood levels of homocysteine, an amino acid thought to increase the likelihood of cardiovascular disease, by taking B vitamins failed to prevent heart attacks and stroke in high-risk patients.

New England Journal of Medicine online, March 12