RESEARCH HIGHLIGHTS

Martian devilry

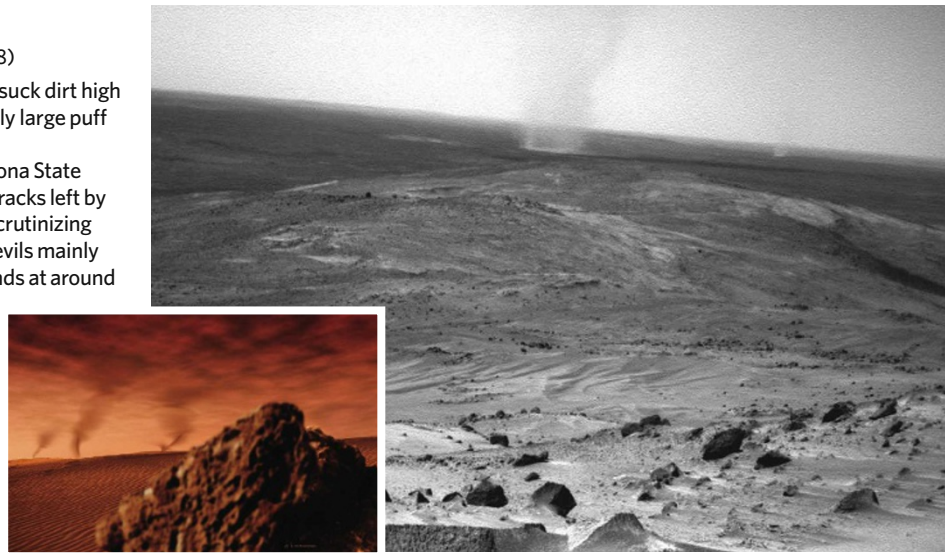
J. Geophys. Res. doi:10.1029/2007JE002966 (2008)

Dust devils — dancing, twisting vortices that suck dirt high into the air — seem to contribute a surprisingly large puff of dust to the martian atmosphere.

Patrick Whelley and Ronald Greeley of Arizona State University in Tempe counted almost 55,000 tracks left by dust devils over the course of three years by scrutinizing images from the Mars Orbital Camera. The devils mainly clumped in narrow, seasonally dependent bands at around 60° North and South.

Altogether, dust devils contribute roughly half as much dust to the atmospheric total as do bigger dust storms — information that could improve models that help spacecraft to navigate their way to the red planet's surface.

The images show an artist's impression (inset) and a dust devil photographed by NASA's *Spirit* rover.



D. VAN RAVENSWAAY/SPL/NASA/JPL

MATERIALS SCIENCE

All white

J. Am. Chem. Soc. **130,** 8114–8115 (2008)

Light-emitting diodes (LEDs) that emit white light could offer low-energy indoor lighting. But they are hard to make. Today's examples rely on red–green–blue mixtures or complex blends of materials, which are cumbersome and costly.

Wooseok Ki and Jing Li of Rutgers University in Piscataway, New Jersey, have discovered a new type of semiconducting material that emits white light when illuminated by a blue LED. It consists of stacked sheets of cadmium sulphide that have amine molecules attached to their top and bottom surfaces.

The brightness is improved by adding a little manganese. Next the researchers will need to see if the white emission can be driven purely by electricity.

Y. LOYA

ZOOLOGY

Quick-change artists

Proc. R. Soc. B doi:10.1098/rspb.2008.0675 (2008)

Although many animals can switch from one sex to the other, repeated flip-flopping was thought to be the preserve of one species of fish. But some corals do it too, reveal Yossi Loya at Tel Aviv University and Kazuhiko Sakai at the University of the Ryukyus in Japan.

They collected wild mushroom coral, *Ctenactis echinata* (pictured right), and monitored it in a laboratory over many months. Large coral heads remained female and small ones remained male, but medium-sized corals changed sex bidirectionally and often.

Loya and Sakai note that this coral's size-dependent, labile sexuality is remarkably similar to that of a Japanese tree, *Bischofia javanica*.

GENETICS

Autistic details

Science **321,** 218–223 (2008)

A pedigree analysis of 104 families has revealed associations between several genes and disorders in the spectrum that includes autism and Asperger syndrome.

Christopher Walsh of Harvard Medical School in Boston, Massachusetts, and his colleagues collected data from Middle Eastern families with affected members. Eighty-eight families in their sample had at least one child-bearing marriage between first cousins, which makes mapping genetic conditions simpler.

The analysis revealed several genomic regions that are linked to autism, including five large deletions. Several genes within these regions are thought to have a role in learning and seem to be important for stages of brain development during which autism symptoms usually develop.

VIROLOGY

Collective calm

Biophys. J. doi:10.1529/biophysj.108.133694 (2008)

Whether viruses kill a host or lie dormant may be decided 'by committee', according to a model designed by Joshua Weitz at the Georgia Institute of Technology in Atlanta and his collaborators.

Viruses that infect bacteria can 'choose' to burst out of the host cell or to sit tight in a latent state. Previous research with the virus bacteriophage λ has shown that if two or more virus particles inhabit a single cell they are more likely to defer killing their host than is a lone virus.

The more virus particles there are in a cell, the greater the overall level of viral gene expression. Weitz's model proposes that even slight increases in the viral messenger RNA beyond the amount that can be produced from a single virus can have a dramatic effect on gene networks that control cell fate.

GEOSCIENCE

Carbon sinks

Geophys. Res. Lett. doi:10.1029/2008GL034271 (2008)

The contents of a sediment trap suspended more than 3,000 metres below the sea surface may force a reassessment of the Arctic Ocean's carbon cycle.

Jeomshik Hwang and his colleagues from