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Mars Reconnaissance Orbiter

Water, Water, Not Everywhere?

Joanne Baker

Science 21 September 2007: 1705.

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Reports

A Closer Look at Water-Related Geologic Activity on Mars

A. S. McEwen, C. J. Hansen, W. A. Delamere, E. M. Eliason, K. E. Herkenhoff, L. Keszthelyi, V. C. Gulick, R. L. Kirk, M. T. Mellon, J. A. Grant, N. Thomas, C. M. Weitz, S. W. Squyres, N. T. Bridges, S. L. Murchie, F. Seelos, K. Seelos, C. H. Okubo, M. P. Milazzo, L. L. Tornabene, W. L. Jaeger, S. Byrne, P. S. Russell, J. L. Griffes, S. Martínez-Alonso, A. Davatzes, F. C. Chuang, B. J. Thomson, K. E. Fishbaugh, C. M. Dundas, K. J. Kolb, M. E. Banks, and J. J. Wray

Science 21 September 2007: 1706-1709.

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Athabasca Valles, Mars: A Lava-Draped Channel System

W. L. Jaeger, L. P. Keszthelyi, A. S. McEwen, C. M. Dundas, and P. S. Russell

Science 21 September 2007: 1709-1711.

[Abstract](#) » [Full Text](#) » [PDF](#) » [Supporting Online Material](#) »

Meter-Scale Morphology of the North Polar Region of Mars

K. E. Herkenhoff, S. Byrne, P. S. Russell, K. E. Fishbaugh, and A. S. McEwen

Science 21 September 2007: 1711-1715.

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Accumulation and Erosion of Mars' South Polar Layered Deposits

Roberto Seu, Roger J. Phillips, Giovanni Alberti, Daniela Biccari, Francesco Bonaventura, Marco Bortone, Diego Calabrese, Bruce A. Campbell, Marco Cartacci, Lynn M. Carter, Claudio Catallo, Anna Croce, Renato Croci, Marco Cutigni, Antonio Di Placido, Salvatore Dinardo, Costanzo Federico, Enrico Flamini, Franco Fois, Alessandro Frigeri, Oreste Fuga, Emanuele Giacomoni, Yonggyu Gim, Mauro Guelfi, John W. Holt, Wlodek Kofman, Carlton J. Leuschen, Lucia Marinangeli, Paolo Marras, Arturo Masdea, Stefania Mattei, Riccardo Mecozzi, Sarah M. Milkovich, Antonio Morlupi, Jérémie Mouginot, Roberto Orosei, Claudio Papa, Tobia Paternò, Paolo Persi del Marmo, Elena Pettinelli, Giulia Pica, Giovanni Picardi, Jeffrey J. Plaut, Marco Provenziani, Nathaniel E. Putzig, Federica Russo, Ali Safaeinili, Giuseppe Salzillo, Maria Rosaria Santovito, Suzanne E. Smrekar, Barbara Tattarletti, and Danilo Vicari

Science 21 September 2007: 1715-1718.

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Density of Mars' South Polar Layered Deposits

Maria T. Zuber, Roger J. Phillips, Jeffrey C. Andrews-Hanna, Sami W. Asmar, Alexander S. Konopliv, Frank G. Lemoine, Jeffrey J. Plaut, David E. Smith, and Suzanne E. Smrekar

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Factory Flies Are Not Equal to Wild Flies

John S. Terblanche and Steven L. Chown

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Promoting Science and Technology from the Top

Arnoldo K. Ventura

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How Old Is the Human Presence on Cyprus?

Alan H. Simmons and Rolfe D. Mandel

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Amy L. McGuire, Mildred K. Cho, Sean E. McGuire, and Timothy Caulfield

Science 21 September 2007: 1687.

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Amy E. Geddis and Kenneth Kaushansky

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Andrew Huxley and Andrew G. Green

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Steve DiNardo and Robert E. Braun

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Circuits with Light at Nanoscales: Optical Nanocircuits Inspired by Metamaterials

Nader Engheta

Science 21 September 2007: 1698-1702.

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Brevia

Feather Quill Knobs in the Dinosaur *Velociraptor*

Alan H. Turner, Peter J. Makovicky, and Mark A. Norell

Science 21 September 2007: 1721.

Regularly spaced knobs on a fossil ulna of a *Velociraptor*, a 1- to 2-meter-long theropod, are similar to knobs housing secondary feathers on modern birds.

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Research Article

A Vasculature-Associated Niche for Undifferentiated Spermatogonia in the Mouse Testis

Shosei Yoshida, Mamiko Sueno, and Yo-ichi Nabeshima

Science 21 September 2007: 1722-1726.

Published online 6 September 2007 [DOI: 10.1126/science.1144885] (in *Science Express Research Articles*)

Time-lapse imaging reveals that the stem cells that generate sperm are located near blood vessels in the testis of mice, a different organization than in invertebrates.

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Reports

Universality Classes for Domain Wall Motion in the Ferromagnetic Semiconductor (Ga,Mn)As

M. Yamanouchi, J. Ieda, F. Matsukura, S. E. Barnes, S. Maekawa, and H. Ohno

Science 21 September 2007: 1726-1729.

Walls between magnetic domains can be moved by changing the magnetic field or the spin-polarized current, but each acts through a different exponential relationship.

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Signatures of Electron Fractionalization in Ultraquantum Bismuth

Kamran Behnia, Luis Balicas, and Yakov Kopelevich

Science 21 September 2007: 1729-1731.

Published online 16 August 2007 [DOI: 10.1126/science.1146509] (in *Science Express Reports*)

At very high magnetic fields, charge transport in bismuth crystals behaves like a quantum fluid, an effect previously seen only in two-dimensional materials.

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Free-Solution, Label-Free Molecular Interactions Studied by Back-Scattering Interferometry

Darryl J. Bornhop, Joey C. Latham, Amanda Kussrow, Dmitry A. Markov, Richard D. Jones, and Henrik S. Sørensen

Science 21 September 2007: 1732-1736.

Binding constants for biomolecules paired with ions or proteins can be determined using interferometry to detect changes in refractive indices upon mixing in small channels.

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Asymmetric Catalysis of the Transannular Diels-Alder Reaction

Emily P. Balskus and Eric N. Jacobsen

Science 21 September 2007: 1736-1740.

A chiral catalyst facilitates carbon bond formation across a large ring, yielding several edge-sharing smaller rings and offering efficient synthesis of complex polycyclic molecules.

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Spin Transition Zone in Earth's Lower Mantle

Jung-Fu Lin, György Vankó, Steven D. Jacobsen, Valentin Iota, Viktor V. Struzhkin, Vitali B. Prakapenka, Alexei Kuznetsov, and Choong-Shik Yoo

Science 21 September 2007: 1740-1743.

Iron in one of the major minerals in the lower mantle, (Mg,Fe)O, undergoes a gradual transition from a high-spin state to a denser low-spin state over a large pressure range.

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The Primitive Wrist of *Homo floresiensis* and Its Implications for Hominin Evolution

Matthew W. Tocheri, Caley M. Orr, Susan G. Larson, Thomas Sutikna, Jatmiko, E. Wahyu Saptomo, Rokus Awe Due, Tony Djubiantono, Michael J. Morwood, and William L. Jungers
Science 21 September 2007: 1743-1745.

Homo floresiensis, the enigmatic diminutive hominin from Flores, Indonesia, retains primitive wrist bones, implying that it is not closely related to modern humans.

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Structure of the Zinc Transporter YiiP

Min Lu and Dax Fu

Science 21 September 2007: 1746-1748.

Published online 23 August 2007 [DOI: 10.1126/science.1143748] (in *Science Express Reports*)

The crystal structure of a bacterial membrane transporter reveals that it uses an unusual two-site, zinc-for-proton exchange mechanism.

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Multicolor Super-Resolution Imaging with Photo-Switchable Fluorescent Probes

Mark Bates, Bo Huang, Graham T. Dempsey, and Xiaowei Zhuang

Science 21 September 2007: 1749-1753.

Published online 16 August 2007 [DOI: 10.1126/science.1146598] (in *Science Express Reports*)

A super-resolution imaging method that uses a family of multicolor fluorescent probes yields images of fixed cells with a spatial resolution of 20 to 30 nanometers.

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Widespread Lateral Gene Transfer from Intracellular Bacteria to Multicellular Eukaryotes

Julie C. Dunning Hotopp, Michael E. Clark, Deodoro C. S. G. Oliveira, Jeremy M. Foster, Peter Fischer, Mónica C. Muñoz Torres, Jonathan D. Giebel, Nikhil Kumar, Nadeeza Ishmael, Shiliang Wang, Jessica Ingram, Rahul V. Nene, Jessica Shepard, Jeffrey Tomkins, Stephen Richards, David J. Spiro, Elodie Ghedin, Barton E. Slatko, Hervé Tettelin, and John H. Werren

Science 21 September 2007: 1753-1756.

Published online 30 August 2007 [DOI: 10.1126/science.1142490] (in *Science Express Reports*)

Unexpectedly, the symbiont *Wolbachia* can transfer segments of DNA consisting of individual genes or almost its entire genome to its insect or nematode hosts.

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Draft Genome of the Filarial Nematode Parasite *Brugia malayi*

Elodie Ghedin, Shiliang Wang, David Spiro, Elisabet Caler, Qi Zhao, Jonathan Crabtree, Jonathan E. Allen, Arthur L. Delcher, David B. Guiliano, Diego Miranda-Saavedra, Samuel V. Angiuoli, Todd Creasy, Paolo Amedeo, Brian Haas, Najib M. El-Sayed, Jennifer R. Wortman, Tamara Feldblyum, Luke Tallon, Michael Schatz, Martin Shumway, Hean Koo, Steven L. Salzberg, Seth Schobel, Mihaela Pertea, Mihai Pop, Owen White, Geoffrey J. Barton, Clotilde K. S. Carlow, Michael J. Crawford, Jennifer Daub, Matthew W. Dimmic, Chris F. Estes, Jeremy M. Foster, Mehul Ganatra, William F. Gregory, Nicholas M. Johnson, Jinming Jin, Richard Komuniecki, Ian Korf, Sanjay Kumar, Sandra Laney, Ben-Wen Li, Wen Li, Tim H. Lindblom, Sara Lustigman, Dong Ma, Claude V. Maina, David M. A. Martin, James P. McCarter, Larry McReynolds, Makedonka Mitreva, Thomas B. Nutman, John Parkinson, José M. Peregrín-Alvarez, Catherine Poole, Qinghu Ren, Lori Saunders, Ann E. Sluder, Katherine Smith, Mario Stanke, Thomas R. Unnasch, Jenna Ware, Aguan D. Wei, Gary Weil, Deryck J. Williams, Yinhua Zhang, Steven A. Williams, Claire Fraser-Liggett, Barton Slatko, Mark L. Blaxter, and Alan L. Scott
Science 21 September 2007: 1756-1760.

The genome sequence of a parasitic nematode shows that, in comparison to its free-living relative *Caenorhabditis elegans*, its genes are adapted for its parasitic life-style.

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UHRF1 Plays a Role in Maintaining DNA Methylation in Mammalian Cells

Magnolia Bostick, Jong Kyong Kim, Pierre-Olivier Estève, Amander Clark, Sriharsa Pradhan, and Steven E. Jacobsen

Science 21 September 2007: 1760-1764.

Published online 2 August 2007 [DOI: 10.1126/science.1147939] (in *Science Express Reports*)

Epigenetic DNA methylation patterns that persist through cell division depend on a protein that binds to hemimethylated DNA and a methyltransferase.

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MicroRNA Inhibition of Translation Initiation in Vitro by Targeting the Cap-Binding Complex eIF4F

Géraldine Mathonnet, Marc R. Fabian, Yuri V. Svitkin, Armen Parsyan, Laurent Huck, Takayuki Murata, Stefano Biffo, William C. Merrick,

Edward Darzynkiewicz, Ramesh S. Pillai, Witold Filipowicz, Thomas F. Duchaine, and Nahum Sonenberg

Science 21 September 2007: 1764-1767.

Published online 26 July 2007 [DOI: 10.1126/science.1146067] (in *Science Express Reports*)

In vitro, microRNAs can act to repress the initial step of protein translation.

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Dynamic Visualization of Thrombopoiesis Within Bone Marrow

Tobias Junt, Harald Schulze, Zhao Chen, Steffen Massberg, Tobias Goerge, Andreas Krueger, Denisa D. Wagner, Thomas Graf, Joseph E. Italiano,

Jr., Ramesh A. Shivdasani, and Ulrich H. von Andrian

Science 21 September 2007: 1767-1770.

Imaging of living bone marrow confirms that platelets form when long protrusions from sessile cells extend through the blood vessel wall and are then sheared by blood flow.

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Technical Comments

Comment on "Organics Captured from Comet 81P/Wild 2 by the Stardust Spacecraft"

Maegan K. Spencer and Richard N. Zare

Science 21 September 2007: 1680.

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Response to Comment on "Organics Captured from Comet 81P/Wild 2 by the Stardust Spacecraft"

Scott A. Sandford and Donald E. Brownlee

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Gunjan Sinha

Science 21 September 2007: 1777-1784.

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