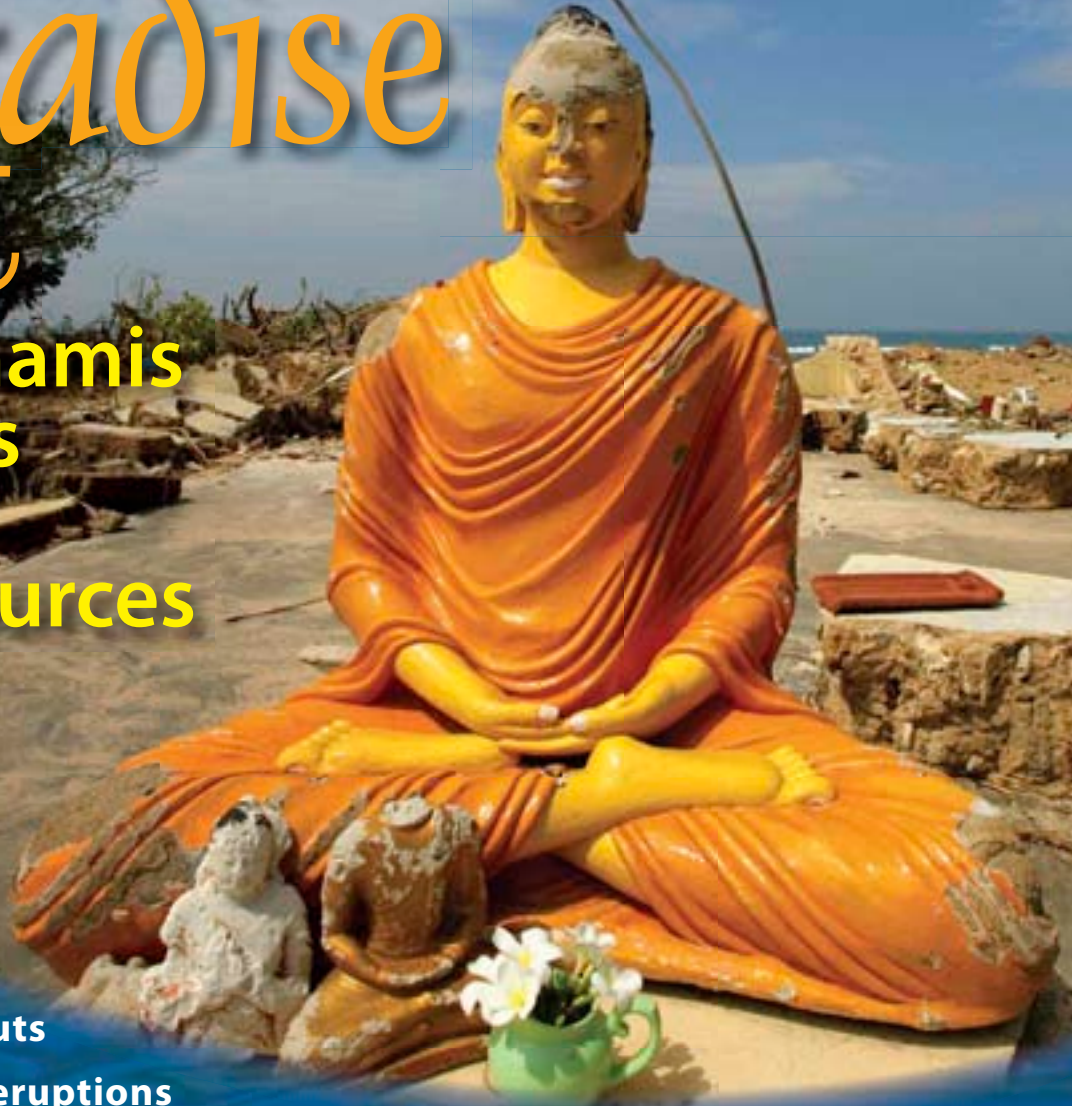


# EARTH

## Paradise Lost

When tsunamis  
and storms  
devastate  
water resources



### Plus:

- The seismic non-pocalypse
- Cooking for astronauts
- Betting on volcanic eruptions
- Impact crater reveals Arctic's past
- Costa Rica's wild geology
- Gassy cows reduce one greenhouse gas

THE SCIENCE BEHIND  
ICELAND'S ERUPTION



July 2010  
[www.earthmagazine.org](http://www.earthmagazine.org)



## FEATURE

### NATURAL HAZARDS LEAVE LASTING IMPRESSIONS ON WATER RESOURCES

When tsunamis or storm surges wash ashore, they leave behind a lasting legacy: saltwater. That saltwater can permeate coastal aquifers and wells, rendering drinking water supplies useless. Is there any way to prevent such devastation?

**Meg Marquardt**



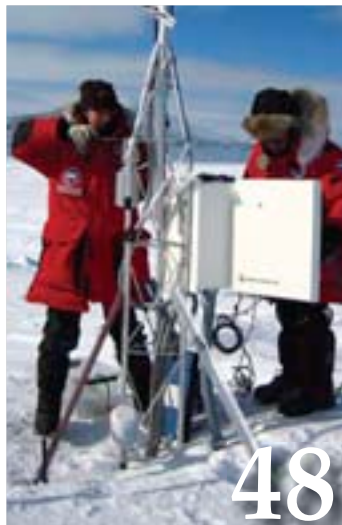
38

## FEATURE

### THE THRILL TO DRILL IN THE CHILL

Researchers recently traveled to northeastern Russia, one of the most remote places on Earth, to drill an ancient impact crater to learn about the past 3.6 million years of climate change in the Arctic.

**Julie Brigham-Grette, Martin Melles, Pavel Minyuk and Christian Koeberl**



48

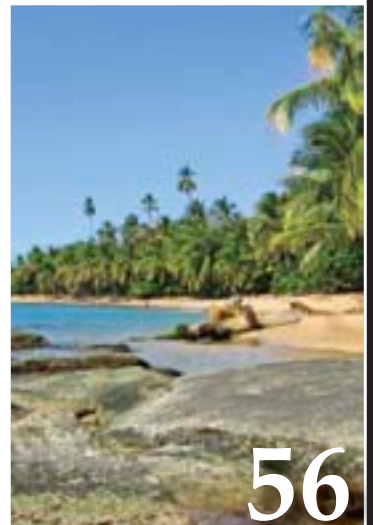
## FEATURE

### TRAVELS IN GEOLOGY:

#### VOLCANOES, BEACHES AND RAINFORESTS: TERRAIN HOPPING IN COSTA RICA

Costa Rica's terrain is sure to please any geo-traveler: active volcanoes, highland and tropical rainforests, and rocky and sandy beaches on two coasts.

**Joshua Zaffos**



56

## TRENDS AND INNOVATIONS

### BIDS IN SPACE

Government research and development is limited by time, money and bureaucracy. Those limits are prompting federal agencies, including NASA, to reach out more to private companies to drive new innovation and keep costs down.

**Carolyn Gramling**



30

## NEWS

- 8 NEWS SHORTS
- 9 OLDEST MARTIAN METEORITE NOT QUITE SO OLD
- 9 BAJA QUAKE SHEDS LIGHT ON LIQUEFACTION
- 10 ATOMIC BOMB TESTS UNCOVER WINE FRAUD
- 11 CAYMAN TROUGH HOLDS DEEPEST-KNOWN BLACK SMOKERS
- 12 GRAZING ANIMALS REDUCE GREENHOUSE GAS EMISSIONS
- 13 ANIMALS THRIVE WITHOUT OXYGEN
- 14 STUDYING A RARE SEAFLOOR SUPERVOLCANO
- 14 SHEETS OF ICE ON THE MOON
- 15 U.S. SCIENCE LITERACY INDICATORS RAISE A RUCKUS
- 16 SCIENTISTS LOCATE YOUNGER DRYAS FLOOD
- 17 VIRUSES HELP SPLIT WATER TO MAKE FUEL
- 17 AMBER SHINES NEW LIGHT ON ANT EVOLUTION
- 18 AFRICAN WETLAND FLOODS ITSELF



- 20 HAWAII-LIKE HOT SPOTS SAY ALOHA FROM VENUS
- 21 A DIFFERENT KIND OF MINE DISASTER
- 22 EARLY AMERICANS ALTERED THE CARBON CYCLE
- 23 CLOUDS, OCEANS CAUSED EARTH'S EARLY WARMTH?
- 24 WORKING TOGETHER TO BUILD THE ANDES
- 25 FIRE AND ICE PRODUCED EYJAFJALLA'S EXPLOSION
- 29 MINERAL RESOURCE OF THE MONTH: PLATINUM GROUP METALS

## VIEWS

- 86 **A COMMENT**  
THE SEISMIC NON-POCALYPSE  
With volcanoes erupting and the ground quaking in a very public way early this year, there's been a lot of talk about whether these events are anomalous or a sign of the apocalypse. They're neither.  
**Chris Rowan**
- 87 **A COMMENT**  
VOLCANIC VERSUS ANTHROPOGENIC CARBON DIOXIDE: THE MISSING SCIENCE  
No matter what measure you use, you cannot argue that volcanoes release more carbon dioxide than human sources in any given year.  
**Terry Gerlach**
- 88 **GEOLOGIC COLUMN**  
CAN SCLERACTINIAN CORALS SAVE THE WORLD?  
New carbon capture technology is based on the skeletal structure of the scleractinian coral. Wouldn't it be remarkable if the coral saved itself?  
**Lisa A. Rossbacher**

## DEPARTMENTS

- 4 FROM THE EDITOR
- 6 LETTERS: PERSPECTIVES FROM READERS
- 66 **GEOMEDIA**  
**Books:** Giving Credit Where Credit Is Due: Two New Books Chronicle the Life of Fossil Hunter Mary Anning  
**Books:** Dining in Space: "The Astronaut's Cookbook"  
**Web:** Offbeat Betting
- 70 **CROSS-SECTION: A PUZZLE**
- 71 **WHERE ON EARTH?**
- 72 **BENCHMARKS**  
July 11, 1997: Neanderthal DNA Unraveled



- 75 **DOWN TO EARTH WITH ...**  
CLIMATOLOGIST AND GEOARCHAEOLOGIST NICK BROOKS
- 78 **GEOMARKETPLACE**
- 80 **CLASSIFIEDS: CAREER OPPORTUNITIES**