



NEWS

IN BRIEF

202 News at a glance

IN DEPTH

206 CYCLISTS' FAVORITE DRUG FALLS FLAT IN TRIAL

EPO can break careers—but can it really make them? *By M. Enserink*

207 FIRST FARMERS' MOTLEY ROOTS

Unrelated groups adopted farming at about the same time in different parts of the Fertile Crescent

By A. Gibbons

► REPORT BY F. BROUSHAKI ET AL.

10.1126/science.aaf7943

208 BRAIN SCANS ARE PRONE TO FALSE POSITIVES, STUDY SAYS

Common software settings may have skewed the statistics for thousands of studies *By G. Miller*

210 A TIME CAPSULE FROM BRONZE AGE BRITAIN

Charred river houses offer an extraordinary view of everyday life 3000 years ago *By E. Stokstad*

FEATURE

212 THE AVENGER

Afflicted by a rare disease, a young doctor fights back

By J. Couzin-Frankel

INSIGHTS

PERSPECTIVES

216 BUTTERFLY COMMUNITIES UNDER THREAT

Butterfly populations are declining worldwide as a result of habitat loss and degradation *By J. A. Thomas*

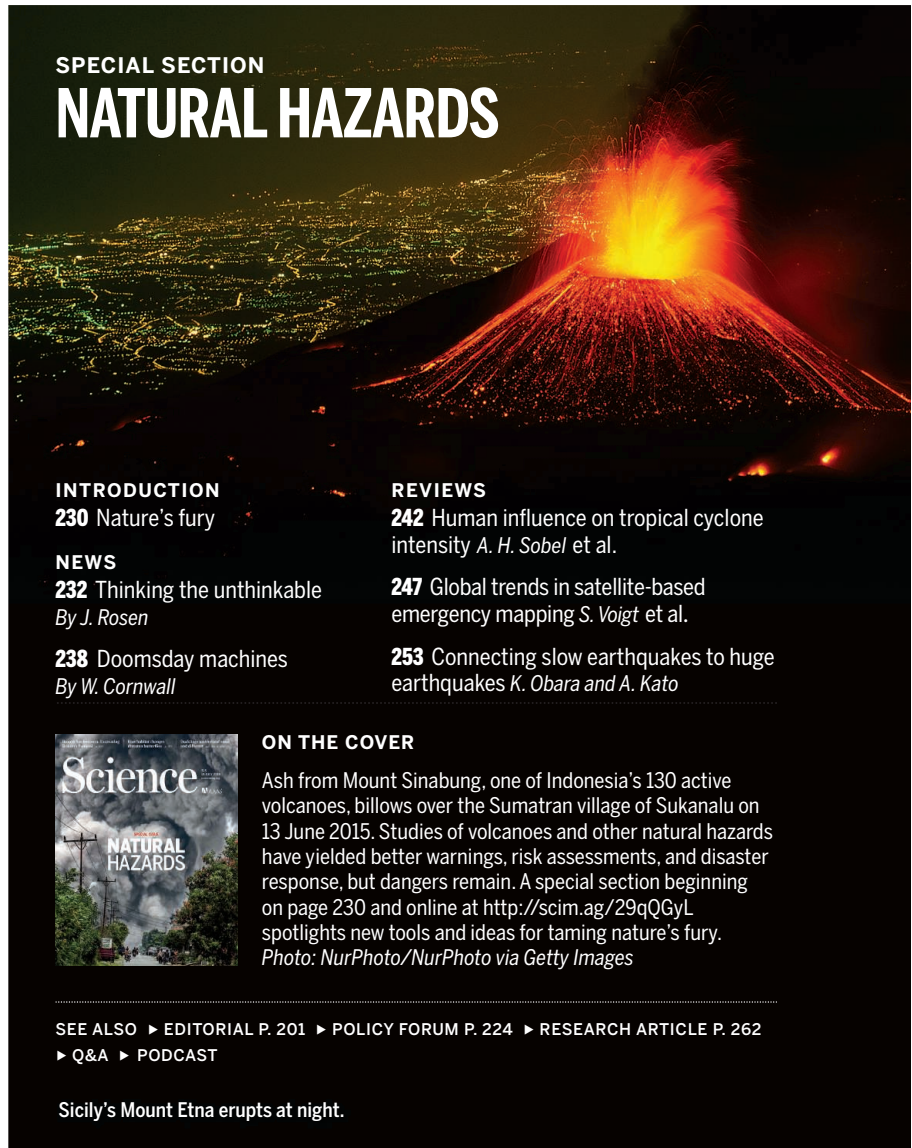
218 CHROMATIN CONTROLS BEHAVIOR

Dynamic regulation of chromatin remodeling controls learning and memory *By J. D. Sweatt*

► REPORT P. 300

SPECIAL SECTION

NATURAL HAZARDS



INTRODUCTION

230 Nature's fury

NEWS

232 Thinking the unthinkable

By J. Rosen

238 Doomsday machines

By W. Cornwall

REVIEWS

242 Human influence on tropical cyclone intensity *A. H. Sobel et al.*

247 Global trends in satellite-based emergency mapping *S. Voigt et al.*

253 Connecting slow earthquakes to huge earthquakes *K. Obara and A. Kato*



ON THE COVER

Ash from Mount Sinabung, one of Indonesia's 130 active volcanoes, billows over the Sumatran village of Sukanalu on 13 June 2015. Studies of volcanoes and other natural hazards have yielded better warnings, risk assessments, and disaster response, but dangers remain. A special section beginning on page 230 and online at <http://scim.ag/29qQGyL> spotlights new tools and ideas for taming nature's fury. *Photo: NurPhoto/NurPhoto via Getty Images*

SEE ALSO ► EDITORIAL P. 201 ► POLICY FORUM P. 224 ► RESEARCH ARTICLE P. 262

► Q&A ► PODCAST

Sicily's Mount Etna erupts at night.

220 HOW MUCH BIODIVERSITY LOSS IS TOO MUCH?

Widespread biodiversity losses are observed but safe-limit thresholds remain uncertain

By T. H. Oliver

► REPORT P. 288

221 FERROELECTRIC CHALCOGENIDES—MATERIALS AT THE EDGE

Tin telluride becomes a more robust ferroelectric as an ultrathin film

By B. J. Kooi and B. Noheda

► REPORT P. 274

222 THINKING ABSTRACTLY LIKE A DUCK(LING)

Ducklings, like human infants, show signs of abstract conceptual thought

By E. A. Wasserman

► REPORT P. 286

POLICY FORUM

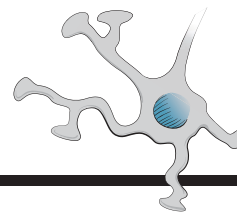
224 CRISIS INFORMATICS—NEW DATA FOR EXTRAORDINARY TIMES

Focus on behaviors, not on fetishizing social media tools

By L. Palen and K. M. Anderson

► NATURAL HAZARDS SECTION P. 230

CONTENTS



218 & 300

The dynamic neuroepigenome

15 JULY 2016 • VOLUME 353 • ISSUE 6296



BOOKS ET AL.

226 LOVE CANAL

By R. S. Newman, reviewed by J. D. Hamblin

227 SELF-TRACKING

By G. Nef and D. Nafus,

CROWDSOURCED HEALTH

By E. Yom-Tov, reviewed by C. Farrington

LETTERS

228 MINING UNDERMINING BRAZIL'S ENVIRONMENT

By H. R. El Bizri et al.

228 BRAZIL'S AMAZON CONSERVATION IN PERIL

By R. M. Almeida et al.

229 BRAZIL'S AMAZONIAN FISH AT RISK BY DECREE

By R. M. Tófoli et al.

229 TECHNICAL COMMENT ABSTRACTS

229 ERRATA

RESEARCH

IN BRIEF

258 From *Science* and other journals

RESEARCH ARTICLES

261 MITOCHONDRIA

ER-mitochondria contacts couple mtDNA synthesis with mitochondrial division in human cells S. C. Lewis et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aaf5549

262 VOLCANOLOGY

Gradual caldera collapse at Bárðarbunga volcano, Iceland, regulated by lateral magma outflow M. T. Gudmundsson et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aaf8988
► NATURAL HAZARDS SECTION P. 230

263 OPTICS

Shrinking light to allow forbidden transitions on the atomic scale N. Rivera et al.

269 OZONE HOLE

Emergence of healing in the Antarctic ozone layer S. Solomon et al.

REPORTS

274 FERROELECTRICITY

Discovery of robust in-plane ferroelectricity in atomic-thick SnTe K. Chang et al.
► PERSPECTIVE P. 221

279 ORGANIC CHEMISTRY

Aryl amination using ligand-free Ni(II) salts and photoredox catalysis E. B. Corcoran et al.

283 GLACIERS

Ocean forcing of glacier retreat in the western Antarctic Peninsula A. J. Cook et al.

286 EVOLUTIONARY COGNITION

Ducklings imprint on the relational concept of "same or different" A. Martinho III and A. Kacelnik
► PERSPECTIVE P. 222; PODCAST

288 BIODIVERSITY

Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment T. Newbold et al.
► PERSPECTIVE P. 220

292 NEURODEVELOPMENT

Return to quiescence of mouse neural stem cells by degradation of a proactivation protein N. Urbán et al.

295 STRUCTURAL BIOLOGY

Structural basis for integration of GluD receptors within synaptic organizer complexes J. Elegheert et al.

300 NEUROBIOLOGY

Chromatin remodeling inactivates activity genes and regulates neural coding Y. Yang et al.
► PERSPECTIVE P. 218

DEPARTMENTS

201 EDITORIAL

Hazards without disasters
By Marcia McNutt
► NATURAL HAZARDS SECTION P. 230

318 WORKING LIFE

Wearing my disability with pride
By Zachary S. Wiersma

Science Staff 198
New Products 309
Science Careers 310

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2016 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1522; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$89. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #R125488122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090-6178. Single-copy sales: \$15.00 current issue, \$20.00 back issue prepaid includes surface postage; bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that \$35.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

Science

353 (6296)

Science **353** (6296), 201-318.

ARTICLE TOOLS

<http://science.sciencemag.org/content/353/6296>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.