

GEOLOGY

APRIL 2010 ⌘ VOLUME 38 NUMBER 4

- 291 **“Poseidic” explosive eruptions at Loihi Seamount, Hawaii**
C. IAN SCHIPPER, JAMES D.L. WHITE, BRUCE F. HOUGHTON,
NOBUMICHI SHIMIZU, AND ROBERT B. STEWART
- 295 **Nurse logs: An ecological strategy in a late Paleozoic forest from the southern Andean region**
S.N. CÉSARI, P. BUSQUETS, F. COLOMBO PIÑOL, I. MÉNDEZ BEDIA, AND C.O. LIMARINO
- 299 **Dating sedimentary rocks using in situ U-Pb geochronology of syneruptive zircon in ash-fall tuffs <1 mm thick**
BIRGER RASMUSSEN AND IAN R. FLETCHER
- 303 **Quantitative analysis of seismogenic shear-induced turbulence in lake sediments**
NADAV WETZLER, SHMUEL MARCO, AND EYAL HEIFETZ
- 307 **Reconciling plate kinematic and seismic estimates of lithospheric convergence in the central Indian Ocean**
J.M. BULL, C. DEMETS, K.S. KRISHNA, D.J. SANDERSON, AND S. MERKOURIEV
- 311 **Venus records a rich early history**
V.L. HANSEN AND I. LÓPEZ
- 315 **Global enhancement of ocean anoxia during Oceanic Anoxic Event 2: A quantitative approach using U isotopes**
CAROLINA MONTOYA-PINO, STEFAN WEYER, ARIEL D. ANBAR, JÖRG PROSS, WOLFGANG OSCHMANN, BAS VAN DE SCHOOTBRUGGE, AND HELGE W. ARZ
- 318 **ERRATUM: Temporal variation in climate and tectonic coupling in the central Andes**
NADINE MCQUARRIE, TODD A. EHLERS, JASON B. BARNES, AND BRENDAN MEADE
- 319 **Glacier microseismicity**
MICHAEL E. WEST, CHRISTOPHER F. LARSEN, MARTIN TRUFFER, SHAD O’NEEL, AND LAURA LEBLANC
- 323 **Extremely high solubility of rutile in chloride and fluoride-bearing metamorphic fluids: An experimental investigation**
J.F. RAPP, S. KLEMME, I.B. BUTLER, AND S.L. HARLEY
- 327 **Did intense volcanism trigger the first Late Ordovician icehouse?**
WERNER BUGGISCH, MICHAEL M. JOACHIMSKI, OLIVER LEHNERT, STIG M. BERGSTRÖM, JOHN E. REPETSKI, AND GERALD F. WEBERS
- 331 **Comparative diffusion coefficients of major and trace elements in olivine at ~950 °C from a xenocryst included in dioritic magma**
QING QIAN, HUGH ST.C. O’NEILL, AND JÖRG HERMANN
- 335 **Estimating hydraulic conductivity from drainage patterns—A case study in the Oregon Cascades**
WEI LUO, BARTOSZ P. GRUDZINSKI, AND DARRYL PEDERSON
- 339 **Shortening viscous pressure ridges, a solution to the enigma of initiating salt ‘withdrawal’ minibasins**
STEVEN J. INGS AND CHRISTOPHER BEAUMONT
- 343 **Hybrid flow sills: A new mode of igneous sheet intrusion**
ANDREW MILES AND JOSEPH CARTWRIGHT
- 347 **“Inheritance”: An influence on the particle size of pyroclastic deposits**
R.J. CAREY, AND B.F. HOUGHTON
- 351 **Offshore transport of sediment during cyclonic storms: Hurricane Ike (2008), Texas Gulf Coast, USA**
JOHN A. GOFF, MEAD A. ALLISON, AND SEAN P.S. GULICK
- 355 **Cometary airbursts and atmospheric chemistry: Tunguska and a candidate Younger Dryas event**
ADRIAN L. MELOTT, BRIAN C. THOMAS, GISELA DRESCHHOFF, AND CAREY K. JOHNSON
- 359 **Alkalinity control on the partition coefficients in lacustrine ostracodes from Australia**
CHRIS GOURAMANIS AND PATRICK DE DECKER
- 363 **Ductile fractures and magma migration from source**
ROBERTO F. WEINBERG AND KLAUS REGENAUER-LIEB
- 367 **Heterogeneous nucleation and epitaxial crystal growth of magmatic minerals**
JULIA E. HAMMER, THOMAS G. SHARP, AND PAUL WESSEL
- 371 **A $\delta^{34}\text{S}_{\text{SO}}$ approach to reconstructing biogenic pyrite burial in carbonate-evaporite basins: An example from the Ara Group, Sultanate of Oman**
D.A. FIKE AND J.P. GROTZINGER
- 375 **Oblique dilation, melt transfer, and gneiss dome emplacement**
R.R. MCFADDEN, C. TEYSSIER, C.S. SIDDOWAY, D.L. WHITNEY, AND C.M. FANNING
- 379 **Direct observation of a fossil high-temperature, fault-hosted, hydrothermal upflow zone in crust formed at the East Pacific Rise**
A.K. BARKER, L.A. COOGAN, K.M. GILLIS, N.W. HAYMAN, AND D. WEIS
- 383 **Research Focus: What Caused the Younger Dryas Cold Event?**
ANDERS E. CARLSON

ONLINE FORUM

Porphyroblast rotation and strain localization: Debate settled!

e204 COMMENT: IOAN V. SANISLAV

e205 REPLY: SCOTT E. JOHNSON

New evidence from seismic imaging for subduction during assembly of the North China craton

e206 COMMENT: GUOCHUN ZHAO, SIMON A. WILDE, AND JIAN ZHANG

e207 REPLY: TIANYU ZHENG, LIANG ZHAO, AND RIXIANG ZHU

GEOLOGY

*Geology publishes timely, innovative,
and provocative articles relevant
to its international
audience, representing research from
all fields of the geosciences.*

GEOLOGY (ISSN 0091-7613 USPS 994-580 CODEN GLGYB) is published monthly by the Geological Society of America, Inc. (GSA), with offices at 3300 Penrose Place, Boulder, Colorado, USA. Mailing address is P.O. Box 9140, Boulder, CO 80301-9140, USA. Periodicals postage paid at Boulder, Colorado, and at additional mailing offices. Postmaster: Send address changes to *Geology*, Sales & Service, P.O. Box 9140, Boulder, CO 80301-9140, USA.

Copyright © 2010, The Geological Society of America, Inc. (GSA). All rights reserved. Copyright not claimed on content prepared wholly by U.S. government employees within the scope of their employment. Individual scientists are hereby granted permission, without fees or further requests to GSA, to use a single figure, a single table, and/or a brief paragraph of text in other subsequent works and to make unlimited photocopies of items in this journal for noncommercial use in classrooms to further education and science. For any other form of capture, reproduction, and/or distribution of any item in this journal by any means, contact: Permissions, GSA, P.O. Box 9140, Boulder, CO 80301-9140, USA, fax +1-303-357-1073, editing@geosociety.org; reference *Geology*, ISSN 0091-7613. Permission is granted to authors to post the abstracts only of their articles on their own or their organization's Web site providing the posting includes this reference: "The full paper was published in the Geological Society of America's journal *Geology*, [include year, month, and page numbers, if known, where the article appears or will appear]."

GSA provides this and other forums for the presentation of diverse opinions and positions by scientists worldwide, regardless of their race, citizenship, gender, religion, or political viewpoint. Opinions presented in this publication do not reflect official positions of the Society.

SUBSCRIPTIONS for 2010 calendar year. GSA Members and Fellows: \$85 (print + online), \$90 (international print + online), \$60 (online only). GSA Student and K-12 Teacher Members: \$45 (print only; cost for online is included in membership). Nonmembers and institutions: \$875 (print + online). For more details on subscription choices, formats, and pricing, visit www.geosociety.org/pubs/. For member orders, call GSA Sales & Service at +1-888-443-4472 or +1-303-357-1000, or e-mail gsaservice@geosociety.org. Nonmembers contact AIP Customer Service, subs@aip.org or +1-800-344-6902, option 1. Claims: for nonreceipt or damaged copies, members should contact GSA Sales & Service, and nonmembers should contact AIP Customer Service. Claims are honored for one year; please allow sufficient delivery time (up to six months) for overseas copies.

GSA ONLINE

Organization home page: www.geosociety.org
Geology online journal: www.gsjournals.org
Manuscript submission online:
<http://www.editorialmanager.com/geology/>



SCIENCE ■ STEWARDSHIP ■ SERVICE

EDITORS

Patience Cowie
University of Edinburgh
+44.131.650.5886
Fax +44.131.650.2524
patience.cowie@ed.ac.uk

Bradley Opdyke
The Australian National
University
+1.61.2.6125.4205
Fax +1.61.2.6125.5544
geolsoc@anu.edu.au

Editor's Assistant:
Nancy Opdyke

Sandra J. Wyld
University of Georgia
+1.706.542.9908
Fax +1.706.542.2425
geolsoc@gly.uga.edu

Bill Collins
James Cook University
+1.61.7.4781.6077
Fax +1.67.7.4781.4020
bill.collins@jcu.edu.au

EDITORIAL BOARD

2008–2010
Camoin, Gilbert
Cederbom, Charlotte
Clark, Marin
Flesch, Lucy
Garcia, Michael
Gasse, Francoise
Georgen, Jennifer
Grice, Kliti
Grujic, Djordje
Hampel, Andrea
Jian, Zhimin
McNeill, Lisa
McQuarrie, Nadine
Rickaby, Ros
Roeske, Sarah M.
Rosenthal, Yair
Savage, Martha
Schoenbohm, Lindsay
Schmidt, Daniela
Selverstone, Jane
Sluijs, Appy
Spiegel, Cornelia
Vannucchi, Paola
Webb, Greg
Wilson, Paul
Yokoyama, Yusuke

2009–2011
Armstrong, Phil
Axen, Gary
Cawood, Peter A.
Dawers, Nancye
Gilotti, Jane A.
Hansen, Vicki L.
Kirby, Eric
Mudd, Simon M.
Prentice, Carol
Ring, Uwe
Roberts, Gerald P.
Sandiford, Mike
Spell, Terry L.
Surpless, Kathleen D.
Walker, Sally E.
Whitney, Donna L.

2010–2012
Carey, Rebecca
Dunai, Tibor J.
Fabel, Derek
Hendy, Ingrid
Hubbard, Bryn
Kokelaar, Peter
Lunn, Rebecca
Mair, Douglas W.F.
Miller, Robert B.
Siddall, Mark
Solar, Gary S.

GEOLOGY STAFF

Director of Publications
Jon Olsen

Managing Editor
Lyne Yohe
lyne.yohe@geosociety.org

Editorial Staff
Bryan Hibbard
Editorial Department
+1.303.357.1000

Production
Heather Sutphin
Eric Christensen

Advertising
Ann H. Crawford
advertising@geosociety.org
+1.303.357.1000
Fax +1.303.357.1070
Toll Free +1.800.472.1988

GSA OFFICERS

Executive Director
John W. Hess

President
Jean M. Bahr

Vice President
Joaquin Ruiz

Past President
Judith Totman Parrish

Treasurer
Jonathon G. Price

COUNCILORS

2006–2010
David Applegate
Jerome V. DeGraff
Diane R. Smith

2007–2011
Monica E. Gowan
Jacqueline E. Huntoon
G. Randy Keller

2008–2012
Murray W. Hitzman
Claudia I. Mora
Brian R. Pratt

2009–2013
Lisa D. White
Ricardo A. Astini
J. Douglas Walker

Cover: Photograph of the eruptive fissure from Tarawera volcano, New Zealand, which was produced during the A.D. 1886 eruption. Large eruptions of this type often destroy near-vent regions; however, the 1886 eruption was rare in that proximal exposures of the eruptive deposits were preserved, which retain critical information about the eruptive process. See "Inheritance: An influence on the particle size of pyroclastic deposits," by Carey and Houghton, p. 347–350.

Photo by: Rebecca Carey

Cover design by: Heather L. Sutphin