

BULLETIN

ISSN 0016-7606 VOL. 127 NO. 1/2

JANUARY/FEBRUARY 2015



Nature's fracking away

p. 61

There's no place like dome

p. 162

Watch your step

p. 281



BULLETIN

VOL. 127 = NO. 1/2 = P. 1-320

JANUARY/FEBRUARY 2015

The Geological Society of America Bulletin is a leading international journal for major scholarly research in all branches of the earth sciences. Published continuously since 1890.

TABLE OF CONTENTS

VOLCANOLOGY

 $\ensuremath{\mathfrak{J}}$ Textural features as indicators of debris avalanche transport and emplacement, Taranaki volcano

M. Roverato, S. Cronin, J. Procter, and L. Capra

266 Impacts of catastrophic volcanic collapse on the erosion and morphology of a distal fluvial landscape: Hautapu River, Mount Ruapehu, New Zealand

M. Tost, S.J. Cronin, J.N. Procter, I.E.M. Smith, V.E. Neall, and R.C. Price

GEOCHRONOLOGY

19 Timing and significance of gabbro emplacement within two distinct plutonic domains of the Peninsular Ranges batholith, southern and Baja California

David L. Kimbrough, Marty Grove, and Douglas M. Morton

|62 Himalayan gneiss dome formation in the middle crust and exhumation by normal faulting: New geochronology of Gianbul dome, northwestern India

Forrest Horton, Jeffrey Lee, Bradley Hacker, Meilani Bowman-Kamaha'o, and Michael Cosca

SEDIMENTARY GEOLOGY: SILICICLASTICS

38 Detrital zircon provenance of the Late Cretaceous-Eocene California forearc: Influence of Laramide low-angle subduction on sediment dispersal and paleogeography

Glenn R. Sharman, Stephan A. Graham, Marty Grove, David L. Kimbrough, and James E. Wright

STRUCTURAL GEOLOGY

6] Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado

András Fall, Peter Eichhubl, Robert J. Bodnar, Stephen E. Laubach, and I. Steve Davis

87 Three-dimensional (3-D) finite strain at the central Andean orocline and implications for grain-scale shortening in orogens Nathan Eichelberger and Nadine McQuarrie

PRECAMBRIAN GEOLOGY

76 Age and provenance of the Cryogenian to Cambrian passive margin to foreland basin sequence of the northern Paraguay Belt. Brazil

Ben McGee, Alan S. Collins, Ricardo I.F. Trindade, and Justin Payne

250 U-Pb geochronology and global context of the Charnian Supergroup, UK: Constraints on the age of key Ediacaran fossil assemblages

Stephen R. Noble, Daniel J. Condon, John N. Carney, Philip R. Wilby, Timothy C. Pharaoh, and Trevor D. Ford

TECTONICS: NEOTECTONICS

[1]3 Evidence for late Alpine tectonics in the Lake Garda area (northern Italy) and seismogenic implications

Giancarlo Scardia, Andrea Festa, Giovanni Monegato, Roberta Pini, Sergio Rogledi, Fabrizio Tremolada, and Fabrizio Galadini

GEOMORPHOLOGY: UPLIFT AND EROSION

[3] Hillslope response to climate-modulated river incision in the Waipaoa catchment, East Coast North Island, New Zealand Eric L. Bilderback, Jarg R. Pettinga, Nicola J. Litchfield, Mark Quigley, Michael Marden, Josh J. Roering, and Alan S. Palmer

TECTONICS

Meteoric water circulation in a rolling-hinge detachment system (northern Snake Range core complex, Nevada)
Aude Gébelin. Christian Tevssier. Matthew T. Heizler. and Andreas Mulch

227 Evolution of the central Garlock fault zone, California: A major sinistral fault embedded in a dextral plate margin
Joseph E. Andrew, J. Douglas Walker, and Francis C. Monastero

GEOCHEMISTRY

181 High late Miocene-Pliocene elevation of the Zhada Basin, southwestern Tibetan Plateau, from carbonate clumped isotope thermometry

Katharine W. Huntington, Joel Saylor, Jay Quade, and Adam M. Hudson

THERMOCHRONOLOGY

200 Confirmation of a low pre-extensional geothermal gradient in the Grayback normal fault block, Arizona: Structural and AHe thermochronologic evidence

Martin S. Wong, Daniel M.B. Gleason, Hillary P. O'Brien, and Bruce D. Idleman

NEOTECTONICS/PALEOSEISMICITY

21] Stratigraphic and microfossil evidence for a 4500-year history of Cascadia subduction zone earthquakes and tsunamis at Yaquina River estuary, Oregon, USA

Nicholas A. Graehl, Harvey M. Kelsey, Robert C. Witter, Eileen Hemphill-Haley, and Simon E. Engelhart

DEFORMATION: EXPERIMENTAL

28] Sinkholes, pit craters, and small calderas: Analog models of depletion-induced collapse analyzed by computed X-ray microtomography

Sam Poppe, Eoghan P. Holohan, Elin Pauwels, Veerle Cnudde, and Matthieu Kervyn

QUATERNARY GEOLOGY/GEOMORPHOLOGY

297 Late Holocene glacial advance and ice shelf growth in Barilari Bay, Graham Land, west Antarctic Peninsula

Andrew J. Christ, Manique Talaia-Murray, Natalie Elking, Eugene W. Domack, Amy Leventer, Caroline Lavoie, Stefanie Brachfeld, Kyu-Cheul Yoo, Robert Gilbert, Sun-Mi Jeong, Stephen Petrushak, Julia Wellner, and the LARISSA Group

DISCUSSION

3]6 Origin and lateral migration of linear dunes in the Qaidam Basin of NW China revealed by dune sediments, internal structures, and optically stimulated luminescence ages, with implications for linear dunes on Titan: Comment and Discussion

Lupeng Yu, Zhibao Dong, Zhongping Lai, Guangqiang Qian, and Tong Pan