



Volume 396

15 June 2014

ISSN 0012-821X

# EARTH & PLANETARY SCIENCE LETTERS



## Editors

J. Brodholt, *London, UK*

T. Elliott, *Bristol, UK*

T.M. Harrison, *Los Angeles, USA*

G.M. Henderson, *Oxford, UK*

M.M. Hirschmann, *Minneapolis, USA*

J. Lynch-Stieglitz, *Atlanta, USA*

B. Marty, *Vandoeuvre-les-Nancy, France*

Y. Ricard, *Lyon, France*

P. Shearer, *La Jolla, USA*

C. Sotin, *Pasadena, USA*

(Abstracted/indexed in: *Bulletin Signalétique, Chemical Abstracts, Current Contents, Geo Abstracts and GEOBASE, Service: Astrophysics Data Systems, Aquatic Sciences and Fisheries Abstracts, CAS: Scopus (ELS), Geobase (ELS), Compendex (ELS), Georef (AGI), INSPEC: Meteorological and Geostrophysical Abstracts, Oceanic Abstracts (Proquest), ArticleFirst (OCLC), Pollutions Abstracts (Proquest), Science Citation Index (TR), Science Citation Index Expanded (TR), Zoological Record (TR), Current Contents – Physical, Chemical & Earth Sciences (TR), Summon (Proquest), Water Resources Abstracts, Petroleum Abstracts, Environment Index (EBSCO), Science & Technology Collection (EBSCO), Mineralogical Abstracts, PASCAL/CNRS, PHYS/Physics Briefs and AGI's Bibliography and Index of Geology.*  
 Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®)

**Letters**

|  |     |
|--|-----|
| Ocean redox structure across the Late Neoproterozoic Oxygenation Event: A nitrogen isotope perspective<br>M. Ader, P. Sansjofre, G.P. Halverson, V. Busigny, R.I.F. Trindade, M. Kunzmann and A.C.R. Nogueira .....  | 1   |
| Multiple sulfur isotope constraints on the modern sulfur cycle<br>R. Tostevin, A.V. Turchyn, J. Farquhar, D.T. Johnston, D.L. Eldridge, J.K.B. Bishop and M. McIlvin .....   | 14  |
| Chlorine stable isotope variations across the Quaternary volcanic arc of Ecuador<br>M. Chiaradia, J.D. Barnes and S. Cadet-Voisin .....  | 22  |
| Seismicity and structural heterogeneities around the western Nankai Trough subduction zone, southwestern Japan<br>Y. Yamamoto, K. Obana, T. Takahashi, A. Nakanishi, S. Kodaira and Y. Kaneda .....  | 34  |
| An analogue study of the influence of solidification on the advance and surface thermal signature of lava flows<br>F. Gareil, E. Kaminski, S. Tait and A. Limare .....   | 46  |
| Constraining shallow slip and tsunami excitation in megathrust ruptures using seismic and ocean acoustic waves recorded on ocean-bottom sensor networks<br>J.E. Kozdon and E.M. Dunham .....   | 56  |
| Continental weathering following a Cryogenian glaciation: Evidence from calcium and magnesium isotopes<br>S.A. Kasemann, P.A.E. Pogge von Strandmann, A.R. Prave, A.E. Fallick, T. Elliott and K.-H. Hoffmann .....  | 66  |
| Sound velocity of Fe–S liquids at high pressure: Implications for the Moon's molten outer core<br>Z. Jing, Y. Wang, Y. Kono, T. Yu, T. Sakamaki, C. Park, M.L. Rivers, S.R. Sutton and G. Shen .....   | 78  |
| Probing the lithospheric rheology across the eastern margin of the Tibetan Plateau<br>M.-H. Huang, R. Bürgmann and A.M. Freed .....  | 88  |
| Phantom Archean crust in Mangaia hotspot lavas and the meaning of heterogeneous mantle<br>C. Herzberg, R.A. Cabral, M.G. Jackson, C. Vidito, J.M.D. Day and E.H. Hauri .....   | 97  |
| Evaluating volumes for magma chambers and magma withdrawn for caldera collapse<br>N. Geshi, J. Ruch and V. Acocella .....  | 107 |
| Short-term and localized plume-slab interaction explains the genesis of Abukuma adakite in Northeastern Japan<br>C. Lee and C. Lim .....   | 116 |
| Nanopaleomagnetism of meteoritic Fe–Ni studied using X-ray photoemission electron microscopy<br>J.F.J. Bryson, J. Herrero-Albillos, F. Kronast, M. Ghidini, S.A.T. Redfern, G. van der Laan and R.J. Harrison .....  | 125 |
| Millennial-scale Atlantic/East Pacific sea surface temperature linkages during the last 100,000 years<br>N. Dubois, M. Kienast, S.S. Kienast and A. Timmermann .....   | 134 |
| Dilution of <sup>10</sup> Be in detrital quartz by earthquake-induced landslides: Implications for determining denudation rates and potential to provide insights into landslide sediment dynamics<br>A.J. West, R. Hetzel, G. Li, Z. Jin, F. Zhang, R.G. Hilton and A.L. Densmore ..... | 143 |
| Earthquake rupture propagation inferred from the spatial distribution of fault rock frictional properties<br>A.R. Niemeijer and R.L.M. Vissers .....   | 154 |
| Pore pressure distribution of a mega-splay fault system in the Nankai Trough subduction zone: Insight into up-dip extent of the seismogenic zone<br>T. Tsuji, R. Kamei and R.G. Pratt .....  | 165 |
| Constraints on the formation age and evolution of the Moon from <sup>142</sup> Nd– <sup>143</sup> Nd systematics of Apollo 12 basalts<br>C.L. McLeod, A.D. Brandon and R.M.G. Armytage .....   | 179 |
| The role of S <sub>3</sub> <sup>-</sup> ion in thermochemical sulphate reduction: Geological and geochemical implications<br>L. Truche, E.F. Bazarkina, G. Barré, E. Thomassot, G. Berger, J. Dubessy and P. Robert .....  | 190 |

(contents continued on inside back cover)





(contents continued from outside back cover)

|  |     |
|--|-----|
| Constraining the cause of the end-Guadalupian extinction with coupled records of carbon and calcium isotopes<br>A.B. Jost, R. Mundil, B. He, S.T. Brown, D. Altiner, Y. Sun, D.J. DePaolo and J.L. Payne .....                   | 201 |
| Molecular controls on Cu and Zn isotopic fractionation in Fe–Mn crusts<br>S.H. Little, D.M. Sherman, D. Vance and J.R. Hein .....  | 213 |
| Rhenium–osmium abundance and isotopic compositions of massive sulfides from modern deep-sea hydrothermal systems: Implications for vent associated ore forming processes<br>Z. Zeng, S. Chen, D. Selby, X. Yin and X. Wang ..... | 223 |
| Burial and exhumation during Archean sagduction in the East Pilbara Granite-Greenstone Terrane<br>C. François, P. Philippot, P. Rey and D. Rubatto .....   | 235 |
| A juvenile oceanic island arc origin for the Archean ( <i>ca.</i> 2.97 Ga) Fiskenæsset anorthosite complex, southwestern Greenland: Evidence from oxygen isotopes<br>A. Polat and F.J. Longstaffe .....                          | 252 |
| Arc crustal differentiation mechanisms<br>O. Jagoutz .....   | 267 |