



Volume 388

15 February 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*
L. Stixrude, *London, UK*

CONTENTS

(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 Geoastrophysical Abstracts, Oceanic Abstracts (Proquest), ArticleFirst (OCLC), Pollution 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

Did the formation of D'' cause the Archaean–Proterozoic transition? I.H. Campbell and R.W. Griffiths	1
Nonrandom geomagnetic reversal times and geodynamo evolution P. Olson, L.A. Hinov and P.E. Driscoll	9
Ocean-atmosphere climate shift during the mid-to-late Holocene transition A. Morley, Y. Rosenthal and P. deMenocal	18
3D spherical models of Martian mantle convection constrained by melting history P. Sekhar and S.D. King	27
How well do surface slip measurements track slip at depth in large strike-slip earthquakes? The importance of fault structural maturity in controlling on-fault slip versus off-fault surface deformation J.F. Dolan and B.D. Haravitch	38
Constraints from loess on the Hf–Nd isotopic composition of the upper continental crust C. Chauvel, M. Garçon, S. Bureau, A. Besnault, B.-m. Jahn and Z. Ding	48
Direct evidence for organic carbon preservation as clay-organic nanocomposites in a Devonian black shale; from deposition to diagenesis M.J. Kennedy, S.C. Löhr, S.A. Fraser and E.T. Baruch	59
The effect of earth rheology and ice-sheet size on fault slip and magnitude of postglacial earthquakes R. Steffen, P. Wu, H. Steffen and D.W. Eaton	71
Regulation of atmospheric oxygen during the Proterozoic T.A. Laakso and D.P. Schrag	81
Creep behavior during the eutectoid transformation of albite: Implications for the slab deformation in the lower mantle N. Doi, T. Kato, T. Kubo, M. Noda, R. Shiraishi, A. Suzuki, E. Ohtani and T. Kikegawa	92
A geomagnetic field model for the Holocene based on archaeomagnetic and lava flow data F.J. Pavón-Carrasco, M.L. Osete, J.M. Torta and A. De Santis	98
Contrasting records of sea-level change in the eastern and western North Atlantic during the last 300 years A.J. Long, N.L.M. Barlow, W.R. Gehrels, M.H. Saher, P.L. Woodworth, R.G. Scaife, M.J. Brain and N. Cahill	110
Filling in the juvenile magmatic gap: Evidence for uninterrupted Paleoproterozoic plate tectonics C.A. Partin, A. Bekker, P.J. Sylvester, N. Wodicka, R.A. Stern, T. Chacko and L.M. Heaman	123
Dynamic recrystallization and phase mixing in experimentally deformed peridotite J. Linckens, R.H.C. Bruijn and P. Skemer	134
Antarctica's hypsometry and crustal thickness: Implications for the origin of anomalous topography in East Antarctica J.P. O'Donnell and A.A. Nyblade	143
Receiver function imaging of lithospheric structure and the onset of melting beneath the Galápagos Archipelago C.A. Rychert, N. Harmon and C. Ebinger	156
The influence of cooling, crystallisation and re-melting on the interpretation of geodetic signals in volcanic systems L. Caricchi, J. Biggs, C. Annen and S. Ebmeier	166
Water content of the Tanzanian lithosphere from magnetotelluric data: Implications for cratonic growth and stability K. Selway, J. Yi and S.-I. Karato	175
"Thermoba-Raman-try": Calibration of spectroscopic barometers and thermometers for mineral inclusions M.J. Kohn	187

(contents continued on inside back cover)



0012-821X(20140215)388:C;1-B

Available online at www.sciencedirect.com

ScienceDirect



(contents continued from outside back cover)

Morpho-stratigraphic characterization of a tufa mound complex in the Spanish Pyrenees using ground penetrating radar and trenching, implications for studies in Mars X.M. Pellicer, R. Linares, F. Gutiérrez, X. Comas, C. Roqué, D. Carbonel, M. Zarroca and J.A.P. Rodríguez	197
The stability of Fe–Ni carbides in the Earth's mantle: Evidence for a low Fe–Ni–C melt fraction in the deep mantle A. Rohrbach, S. Ghosh, M.W. Schmidt, C.H. Wijbrans and S. Klemme.....	211
When did the subduction first initiate in the southern Paleo-Asian Ocean: New constraints from a Cambrian intra-oceanic arc system in West Junggar, NW China R. Ren, B.-F. Han, Z. Xu, Y.-Z. Zhou, B. Liu, L. Zhang, J.-F. Chen, L. Su, J. Li, X.-H. Li and Q.-L. Li	222
Nanomagnetic intergrowths in Fe–Ni meteoritic metal: The potential for time-resolved records of planetesimal dynamo fields J.F.J. Bryson, N.S. Church, T. Kasama and R.J. Harrison	237
The giant coastal landslides of Northern Chile: Tectonic and climate interactions on a classic convergent plate margin A.E. Mather, A.J. Hartley and J.S. Griffiths	249
Is there seismic attenuation in the mantle? Y. Ricard, S. Durand, J.-P. Montagner and F. Chambat	257
Triggered aseismic slip adjacent to the 6 February 2013 Mw 8.0 Santa Cruz Islands megathrust earthquake G.P. Hayes, K.P. Furlong, H.M. Benz and M.W. Herman	265
Experimental quantification of permeability of partially molten mantle rock K.J. Miller, W.-I. Zhu, L.G.J. Montési and G.A. Gaetani	273
Density and sound speed measurements on model basalt (An–Di–Hd) liquids at one bar: New constraints on the partial molar volume and compressibility of the FeO component X. Guo, R.A. Lange and Y. Ai	283
Lead isotopes in the Eastern Equatorial Pacific record Quaternary migration of the South Westerlies S. Pichat, W. Abouchami and S.J.G. Galer	293
Lunar feldspathic meteorites: Constraints on the geology of the lunar highlands, and the origin of the lunar crust J. Gross, A.H. Treiman and C.N. Mercer	318
Reassessing rock mass properties and slope instability triggering conditions in Valles Marineris, Mars G.B. Crosta, S. Utili, F.V. De Blasio and R. Castellanza	329
Lunar core formation: New constraints from metal–silicate partitioning of siderophile elements N. Rai and W. van Westrenen	343
Quantifying subsidence and isostatic readjustment using sedimentary paleomarkers, example from the Gulf of Lion M. Rabineau, E. Leroux, D. Aslanian, F. Bache, C. Gorini, M. Moulin, S. Molliex, L. Droz, T. dos Reis, J.L. Rubino, F. Guillocheau and J.L. Olivet	353
Characterization of preserved primitive fine-grained material from the Jupiter family comet 81P/Wild 2 – A new link between comets and CP-IDPs J. Stodolna, Z. Gainsforth, A.L. Butterworth and A.J. Westphal	367
Constraining the process of Eoarchean TTG formation in the Itsaq Gneiss Complex, southern West Greenland J.E. Hoffmann, T.J. Nagel, C. Münker, T. Næraa and M.T. Rosing	374
A 4.2 billion year old impact basin on the Moon: U–Pb dating of zirconolite and apatite in lunar melt rock 67955 M.D. Norman and A.A. Nemchin	387
Discussion	
Fractionation of $^{238}\text{U}/^{235}\text{U}$ by reduction during low temperature uranium mineralisation processes M.J. Murphy, C.H. Stirling, A. Kaltenbach, S.P. Turner and B.F. Schaefer	306