



Geochimica et Cosmochimica Acta

JOURNAL OF THE GEOCHEMICAL SOCIETY
AND THE METEORITICAL SOCIETY

EXECUTIVE EDITOR: MARC NORMAN

ASSOCIATE
EDITORS:

ROBERT C. ALLER
JEFFREY C. ALT
YURI AMELIN
WOLFGANG BACH
MIRYAM BAR-MATTHEWS
LIANE G. BENNING
THOMAS S. BIANCHI
JANNE BLICHERT-TOFT
JEAN-FRANÇOIS BOILY
ANDREW ROSS BOWIE
MAUD BOYET
ALAN D. BRANDON
JOCHEN J. BROCKS
DAVID J. BURDIGE
PETE BURNARD
ROBERT H. BYRNE
ELIZABETH A. CANUEL
JON CHOROVER
GEORGE COOPER
CHRISTOPHER J. DAUGHNEY

NICOLAS DAUPHAS
ANTHONY DOSSETO
JAMES FARQUHAR
JÉRÔME GAILLARDET
JIWCHAR GANOR
DANIEL E. GIAMMAR
JITENDRA N. GOSWAMI
JOHNSON R. HAAS
CHRIS M. HALL
H. RODGER HARVEY
GEORGE R. HELZ
SYDNEY R. HEMMING
PETER HERNES
GREGORY F. HERZOG
EDWARD HORNIBROOK
SHICHUN HUANG
TREVOR IRELAND
JUN-ICHIRO ISHIBASHI
ANDREW D. JACOBSON
KAREN JOHANNESON

CLARK JOHNSON
DAVID T. JOHNSTON
CHRISTOPHER S. KIM
PENELOPE L. KING
CHRISTIAN KOEBERL
STEPHAN M. KRAEMER
S. KRISHNASWAMI
ALEXANDER N. KROT
GRAHAM A. LOGAN
TIMOTHY J. LYONS
TOM MCCOLLOM
FRANK McDERMOTT
JAMES McMANUS
ANDERS MEIBOM
JACK J. MIDDELBURG
FREDERIC MOYNIER
ALFONSO MUCCI
BJORN MYSEN
HIROKO NAGAHARA
ALEXANDER NEMCHIN

MARTIN NOVAK
PEGGY A. O'DAY
RICHARD PANCOST
DIMITRI PAPANASTASSIOU
ANN PEARSON
GLEB S. POKROVSKI
MARK REHKAMPER
W. UWE REIMOLD
PETER W. REINERS
EDWARD M. RIPLEY
CLAIRE ROLLION-BARD
YAIR ROSENTHAL
SARA S. RUSSELL
JAMES RUSTAD
NITA SAHAI
EDWIN A. SCHAUBLE
JACQUES SCHOTT
ALEX SESSIONS
SILKE SEVERMANN
TIMOTHY J. SHAW

STEVEN B. SHIREY
DAVID L. SHUSTER
JAAP S. SINNINGHE DAMSTÉ
CARL STEEFEL
BRIAN W. STEWART
WEIDONG SUN
DIMITRI A. SVERJENSKY
MICHAEL J. TOPLIS
PETER ULMER
WIM VAN WESTRENEH
BENJAMIN A.S. VAN MOOY
DEREK VANCE
RICHARD J. WALKER
JOSEF WERNE
STEFAN WEYER
JAN G. WIEDERHOLD
ROY A. WOGELIUS
QING-ZHU YIN
CHEN ZHU

Volume 104

March 1, 2013

Articles

B. G. PAUTLER, A. DUBNICK, M. J. SHARP, A. J. SIMPSON, M. J. SIMPSON: Comparison of cryoconite organic matter composition from Arctic and Antarctic glaciers at the molecular-level	1
F. J. MILLERO, F. HUANG: Molal volumes and compressibilities of salts in seawater	19
S. C. YING, Y. MASUE-SLOWEY, B. D. KOCAR, S. D. GRIFFIS, S. WEBB, M. A. MARCUS, C. A. FRANCIS, S. FENDORF: Distributed microbially- and chemically-mediated redox processes controlling arsenic dynamics within Mn-/Fe-oxide constructed aggregates	29
M. REICH, A. DEDITIUS, S. CHRYSSOULIS, J.-W. LI, C.-Q. MA, M. A. PARADA, F. BARRA, F. MITTERMAYR: Pyrite as a record of hydrothermal fluid evolution in a porphyry copper system: A SIMS/EMPA trace element study	42
A. SHARMA, S. SENSARMA, K. KUMAR, P. P. KHANNA, N. K. SAINI: Mineralogy and geochemistry of the Mahi River sediments in tectonically active western India: Implications for Deccan large igneous province source, weathering and mobility of elements in a semi-arid climate	63
N. R. KHISINA, R. WIRTH, R. ABART, D. RHEDE, W. HEINRICH: Oriented chromite–diopside symplectic inclusions in olivine from lunar regolith delivered by “Luna-24” mission	84
A. HIORTH, E. JETTESTUEN, L. M. CATHLES, M. V. MADLAND: Precipitation, dissolution, and ion exchange processes coupled with a lattice Boltzmann advection diffusion solver	99
M. D. PICKERING, B. J. KEELY: Origins of enigmatic C-3 methyl and C-3 H porphyrins in ancient sediments revealed from formation of pyrophaeophorbide <i>d</i> in simulation experiments	111
Art. A. MIGDISOV, A. E. WILLIAMS-JONES: A predictive model for metal transport of silver chloride by aqueous vapor in ore-forming magmatic-hydrothermal systems	123
R. A. LYBRAND, G. MICHALSKI, R. C. GRAHAM, D. R. PARKER: The geochemical associations of nitrate and naturally formed perchlorate in the Mojave Desert, California, USA	136

E. M. MOON, C. L. PEACOCK: Modelling Cu(II) adsorption to ferrihydrite and ferrihydrite–bacteria composites: Deviation from additive adsorption in the composite sorption system	148
K. H. WILLIFORD, T. USHIKUBO, J. W. SCHOPF, K. LEPOT, K. KITAJIMA, J. W. VALLEY: Preservation and detection of microstructural and taxonomic correlations in the carbon isotopic compositions of individual Precambrian microfossils	165
P. MEISTER, B. LIU, T. G. FERDELMAN, B. B. JØRGENSEN, A. KHALILI: Control of sulphate and methane distributions in marine sediments by organic matter reactivity	183
J. SHIPP, I. R. GOULD, P. HERCKES, E. L. SHOCK, L. B. WILLIAMS, H. E. HARTNETT: Organic functional group transformations in water at elevated temperature and pressure: Reversibility, reactivity, and mechanisms	194
A. TORFSTEIN, S. L. GOLDSTEIN, E. J. KAGAN, M. STEIN: Integrated multi-site U–Th chronology of the last glacial Lake Lisan . . .	210
F. A. DAVIS, M. HUMAYUN, M. M. HIRSCHMANN, R. S. COOPER: Experimentally determined mineral/melt partitioning of first-row transition elements (FRTE) during partial melting of peridotite at 3 GPa	232
C. GRUBER, L. HARPAZ, C. ZHU, T. D. BULLEN, J. GANOR: A new approach for measuring dissolution rates of silicate minerals by using silicon isotopes	261
M. LOUVEL, C. SANCHEZ-VALLE, W. J. MALFAIT, D. TESTEMALE, J.-L. HAZEMANN: Zr complexation in high pressure fluids and silicate melts and implications for the mobilization of HFSE in subduction zones	281
J. N. SUTTON, D. E. VARELA, M. A. BRZEZINSKI, C. P. BEUCHER: Species-dependent silicon isotope fractionation by marine diatoms	300
F. MAILLOT, G. MORIN, F. JUILLOT, O. BRUNEEL, C. CASIOT, G. ONA-NGUEMA, Y. WANG, S. LEBRUN, E. AUBRY, G. VLAIC, G. E. BROWN Jr.: Structure and reactivity of As(III)- and As(V)-rich schwertmannites and amorphous ferric arsenate sulfate from the Carnoulès acid mine drainage, France: Comparison with biotic and abiotic model compounds and implications for As remediation	310
T. M. MCCOLLOM: The influence of minerals on decomposition of the <i>n</i> -alkyl- α -amino acid norvaline under hydrothermal conditions	330
J. J. PAPIKE, P. V. BURGER, C. K. SHEARER, F. M. MCCUBBIN: Experimental and crystal chemical study of the basalt–eclogite transition in Mars and implications for martian magmatism	358

Available online at www.sciencedirect.com

SciVerse ScienceDirect

Geochimica et Cosmochimica Acta is abstracted/listed in *Mineral. Abstr.*, *Biol. Abstr.*, *Chem. Abstr.*, *Curr. Cont.*, *Excerpt. Med.*, *Ocean. Abstr.*, *Pollut. Abstr.*, *Sci. Abstr.*, *Sci. Cit Ind.*, *AESIS*, *Br. Geol. Lit.*, *Deep-Sea Res. & Oceanogr. Abstr.*, *Fuel & Energy Abstr.*, *Geo. Abstr.*, *GoeRef.*, *INIS Atomind.*, *Ind. Sci. Rev.*, *Int. Aerosp. Abstr.*, *E&P Hlth.*, *Mass Spectr. Bull.*, *Org. Geochem.*, *Petrol. Abstr.*, *Sel. Water Res. Abstr.*, *So. Pac. Per. Ind.*, *Soils & Fert.*, *Gas Process. & Ppl.*, *W.R.C. Inf.*, *Meteor. & Geostrophys. Abstr.*, *Off. Tech.* Also covered in the abstract and citation database SciVerse Scopus®. Full text available on SciVerse ScienceDirect®

