

Geochemistry

EXPLORATION, ENVIRONMENT,
ANALYSIS

Editor: **G. E. M. Hall**, Geological Survey of Canada, Ottawa, Canada (e-mail: GHall@NRCan.gc.ca)

Associate Editors: **M. Leybourne** (GNS Science, New Zealand), **J. Carranza** (James Cook University, Australia)

Production Editor: **Jessica Pollitt**, Geological Society Publishing House, Bath, UK (e-mail: jessica.pollitt@geolsoc.org.uk)

The journal is abstracted and/or indexed in *AGI's Bibliography and Index of Geology*, *Chemical Abstracts*, *Current Contents*, *Engineering Index*, *GEOBASE*, *GeoRef*, *Mineralogical Abstracts*, *PASCAL/CNRS*, *GeoArchive*, *Thomson ISI database (SCIE, CC/PC & ES)*

CONTENTS - Volume 14, No. 3

This is a special issue on portable XRF in the exploration and mining industry, edited by G. E. M. Hall and G. F. Bonham-Carter.

Use and calibration of portable X-Ray fluorescence analysers: application to lithochemical exploration for komatiite-hosted nickel sulphide deposit

M. Le Vaillant, S. J. Barnes, L. Fisher,
M. L. Fiorentini & S. Caruso 199

Applicability of handheld X-Ray fluorescence spectrometry in the exploration and development of carbonatite-related niobium deposits: a case study of the Aley Carbonatite, British Columbia, Canada

G. J. Simandl, S. Paradis, R. S. Stone, R. Fajber,
R. D. Kressall, K. Grattan, J. Crozier & L. J. Simandl 211

Application of portable X-ray fluorescence analysis to characterize dolerite dykes at the Plutonic Gold Mine, Western Australia

M. F. Gazley, C. M. Tutt, L. I. Brisbout,
L. A. Fisher & G. Duclaux 223

The use of property-scale portable X-ray fluorescence data in gold exploration: advantages and limitations

D. C. Arne, R. A. Mackie & S. A. Jones 233

An assessment of field-portable X-ray fluorescence analysis for nickel and iron in laterite ore (New Caledonia)

T. Quiniou & V. Laperche 245

Portable XRF and wet materials: application to dredged contaminated sediments from waterways

B. Lemiere, V. Laperche, L. Haouche & P. Auger 257

Spatial patterns of geochemical elements measured on rock surfaces by portable X-ray fluorescence: application to hand specimens and rock outcrops

Z. Yuan, Q. Cheng, Q. Xia, L. Yao, Z. Chen,
R. Zuo & D. Xu 265

Vertical distribution of elements in regolith over mineral deposits and implications for mapping geochemical weak anomalies in covered areas

Q. Cheng 277

Calibration of a portable X-ray fluorescence spectrometer in the analysis of archaeological samples using influence coefficients

R. M. Conrey, M. Goodman-Elgar, N. Bettencourt,
A. Seyfarth, A. Van Hoose & J. A. Wolff 291

Geochemistry: Exploration, Environment, Analysis (ISSN 1467-7873) is published in February, May, August and November by the Geological Society Publishing House the Geological Society, London and the Association of Applied Geochemists.

Subscription rates 2014 (volume 14, 4 parts): All correspondence relating to trade subscriptions should be addressed to the Journal Subscriptions Department, Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath, UK, BA1 3JN (Tel: +44 (0) 1225 445046; Fax: +44 (0) 1225 442836; e-mail: sales@geolsoc.org.uk). The subscription prices for 2014 to institutions and non-fellows are GEEA Online: £284.40 +VAT (UK), £268 (overseas) or GEEA Online+print: £327.55 +VAT (UK), £315 (overseas). The current tax rates (for UK and European Union subscribers) and more information can be found on <http://www.geolsoc.org.uk/LyellCollection>.

Periodical postage paid at Middlesex, N.J. *Postmaster:* send address changes to *Geochemistry: Exploration, Environment, Analysis*. The Geological Society, c/o Pronto Mailers, PO Box 177, Middlesex, NJ 08846.

© 2014 The Geological Society of London and AAG. Except as otherwise permitted under the Copyright, Designs and Patents Acts, 1988, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency Ltd, Saffron House, 6–10 Kirby Street, London EC1N 8TS, UK. Enquiries concerning reproduction outside these terms should be sent to the Publishers at the Bath address. Users registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA: The item-fee code for this journal is 1467-7873/14/\$15.00.

The Geological Society and AAG make no representation, express or implied, with regard to the accuracy of the information contained in this publication and cannot accept any legal responsibility for any errors or omissions that may be made.

Cover illustration: Yellow and white sulphur crystals growing amongst bubbling fumaroles inside the crater walls of the active White Island volcano, 48 km off the NE coast of New Zealand.