



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)*

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

**Associate Editors: R. Bowell** (SRK Consulting, Cardiff, UK) **C. R. M. Butt** (CSIRO, Perth, Australia), **C. Reimann** (The Geological Survey of Norway)

**Production Editor: Sally Oberst**, Geological Society Publishing House, Bath, UK (e-mail: [sally.oberst@geolsoc.org.uk](mailto:sally.oberst@geolsoc.org.uk))

## CONTENTS - Volume 8, No. 3/4

### Thematic set in honour of Arthur G. Darnley (1930–2006)

Guest editors: C. Reimann & D. B. Smith

#### Introduction

C. Reimann & D. B. Smith 203

#### From geochemical prospecting to international geochemical mapping: a historical overview

R. G. Garrett, C. Reimann, D. B. Smith & X. Xie 205

#### Low-density geochemical mapping and the robustness of geochemical patterns

D. B. Smith & C. Reimann 219

#### Overbank sediment sampling in Greece: a contribution to the evaluation of methods for the 'Global Geochemical Baselines' mapping project

A. Demetriades 229

#### Geochemical mapping of the deeply weathered western Yilgarn Craton of Western Australia, using laterite geochemistry

M. Cornelius, I. D. M. Robertson, A. J. Cornelius & P. A. Morris 241

#### Use of trans-Gaussian kriging for national soil geochemical mapping in Ireland

C. Zhang, D. Fay, D. McGrath, E. Grennan & O. T. Carton 255

#### Environmental geochemical maps of Italy from the FOREGS database

B. De Vivo, A. Lima, M. A. Bove, S. Albanese, D. Cicchela, G. Sabatini, L. A. Di Lella, G. Protano, F. Riccobono, P. Frizzo & L. Raccagnì 267

#### Geochemical mapping of major and trace elements in soils from the Altiplano Potosino, Mexico: a multi-scale comparison

J. A. Chiprès, J. C. Salinas, J. Castro-Larragoitia & M. G. Monroy 279

#### Application of a risk assessment method on Europe-wide geochemical baseline data

S. Rapant, R. Salminen, T. Tarvainen, K. Krčmová & V. Cvečková 291

#### Geochemical mapping 'down under': selected results from pilot projects and strategy outline for the National Geochemical Survey of Australia

P. de Caritat, M. E. Lech & A. A. McPherson 301

#### Indications of deposits of gold and platinum group elements from a regional geochemical stream sediment survey in NW Tanzania

R. Salminen, J. Kashabano, Y. Myumbilwa, F. N. Petro & M. Partanen 313

#### Environmental geochemical mapping of the Olkusz 1:25 000 scale map sheet, Silesia–Cracow region, southern Poland

A. Pasieczna & J. Lis 323

#### Multi-scale geochemical mapping in China

X. Xie, X. Wang, Q. Zhang, G. Zhou, H. Cheng, D. Liu, Z. Cheng & S. Xu 333

#### Exploration guidelines for copper-rich iron oxide–copper–gold deposits in the Mantoverde area, northern Chile: the integration of host-rock molar element ratios and oxygen isotope compositions

J. Benavides, T. K. Kyser, A. H. Clark, C. R. Stanley & C. Oates 343

#### Application of molar element ratio analysis of lag talus composite samples to the exploration for iron oxide–copper–gold-type mineralization: Mantoverde area, northern Chile

J. Benavides, T. K. Kyser, A. H. Clark, C. R. Stanley & C. Oates 369

Index 381

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

**Subscriptions** (volume 8, 2008): The subscription rate is £190 (UK), £190/\$380 (rest of Europe, USA & Canada) and £215/\$430 (rest of world) per volume, including postage and air-speeded delivery. Single issue price is £53 (UK), £53/\$106 (rest of Europe, USA & Canada) and £60/\$120 (rest of world). Trade subscriptions should be addressed to Journals Subscriptions Department, Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath BA1 3JN, UK (Tel: +44 (0) 1225 445046; Fax +44 (0)1225 442836).

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.

© 2008 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, 90 Tottenham Court Road, London W1P 9HE, UK. Enquiries concerning reproduction outside these terms should be sent to the Publishers at the Bath address. Users registered with the Copyright Clearance Center, 27 Congress Street, Salem, MA 01970, USA: The item-fee code for this journal is 1467-7873/08/\$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:** Las Médulas, a first–second century AD Roman placer gold mine and UNESCO World Heritage Site in León Province, northern Spain. Early hydraulic mining created the spectacular galleries and landscapes in iron-stained, consolidated Miocene alluvial gravels. Photograph by Robert G. Eppinger.