ISSN: 0016-7568

GEOLOGICAL MAGAZINE

journals.cambridge.org/geo

Submit your paper online http://mc.manuscriptcentral.com/geo

Cambridge University Press



EDITOR-IN-CHIEF

Dr Mark B. Allen Department of Earth Sciences, University of Durham, Durham DH1 3LE, UK EXECUTIVE EDITORS

Dr Graham E. Budd Department of Earth Sciences, University of Uppsala, SE-752 36 Uppsala, Sweden Dr Andrew G. Whitham CASP, Cambridge CB3 ODH, UK Dr Philip T. Leat British Antarctic Survey, Cambridge CB3 0ET, UK

EDITORIAL BOARD

Guido Meinhold University of Göttingen, Germany
Robert S. Yeats Oregon State University, USA
Bas van de Schootbrugge Uthrecth University, Netherlands
Hans-Dieter Sues National Museum of Natural History, Smithsonian Institution, USA
Francisco Sierro University of Salamanca, Spain
Mark Patzkowsky Penn State University, USA

BOOK REVIEW EDITOR

Editorial Office: geolmag@cambridge.org

Dr S. Thomas

The *Geological Magazine* was originally established in 1864 and has been published continuously ever since. It covers the whole field of earth sciences, has a worldwide readership and has a particular strength in providing a niche for interdisciplinary papers and papers that would be of interest to geologists from many different specialities. Papers of any length are considered, provided that the length is justifiable.

The *Magazine* publishes both original and review articles, rapid communications, discussions of papers which have already appeared in the *Magazine*, book reviews and a list of new publications.

There are no page charges for papers published in the *Magazine*. © Cambridge University Press 2013

Internet Access

This journal is included in the Cambridge Journals Online service which can be found at http://journals.cambridge.org. For further information on other Press titles access http://www.cambridge.org. *Geological Magazine* (ISSN 0016-7568) is published in six parts in 2013, January, March, May, July, September and November. Six parts form a volume in 2013.

The subscription price (excluding VAT) of volume 150, 2013, which includes print and electronic access, is £663 (US \$1127 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £525 (US \$956 in USA, Canada and Mexico). Single parts are £115 net (US \$210 in USA, Canada and Mexico) plus postage. Prices include delivery by air where appropriate. Orders, which must be accompanied by payment should be sent to any bookseller or subscription agent, or direct to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU. Subscriptions in the USA, Canada and Mexico should be sent to Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994–2133. EU subscribers (outside the

UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Periodicals postage paid at New York, NY, and at additional mailing offices. *POSTMASTER*: send address changes in USA, Canada and Mexico to *Geological Magazine*, Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013–2473, USA.

Copying: This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, Mass. 01923, USA. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$12.50. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0016-7568/2013 \$12.50.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

For all other use, permission should be sought from Cambridge or the American Branch of Cambridge University Press.

Claims for missing issues can only be considered if made immediately after receipt of the subsequent issue.

Advertising: Details of advertising in *Geological Magazine* may be obtained from the publisher.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.