JOURNAL OF THE GEOLOGICAL SOCIETY EDITORIAL BOARD

Chief Editor: Quentin Crowley (Trinity College, Dublin, Ireland)

Editors

| Brian Bell | Moonsup Cho | Stephen Lokier | Veerle Vandeginste |
|--|------------------------------------|----------------------------------|-------------------------------------|
| (Glasgow University, UK) | (Seoul National University, Korea) | (The Petroleum Institute, UAE) | (Imperial College London, UK) |
| Bernard Bingen | Chris Clark | Conall Mac Niocaill | Igor Villa |
| (Geological Survey of Norway) | (Curtin University, Australia) | (University of Oxford, UK) | (University of Bern, Switzerland) |
| Anna Bird | Philip Donoghue | Ian Millar | Sebastian Watt |
| (Royal Holloway, University of London, UK) | (University of Bristol, UK) | (British Geological Survey, UK) | (University of Birmingham, UK) |
| Rituparna Bose | Adrian Hartley | Tyrone Rooney | Martin Whitehouse |
| (City University of New York) | (University of Aberdeen, UK) | (Michigan State University, USA) | (Swedish Museum of Natural History) |
| Erdin Bozkurt | Philip Hughes | Ivan Sansom | |
| (Middle East Technical University, Turkey) | (University of Manchester, UK) | (University of Birmingham, UK) | |
| Andrew Carter | Stuart Jones | Carl Stevenson | |
| (Birkbeck College, London, UK) | (Durham University, UK) | (University of Birmingham, UK) | |
| | | | |

Advisory Editors

| THAT ISOT Y ENGLIS | | | | |
|--------------------------------------|---------------------------------------|--|-----------------------------------|--|
| Jon Blundy | Dave Harper | Brendan Murphy | James Scourse | |
| (Bristol University, UK) | (Durham University, UK) | (St. Francis Xavier University, Canada) | (Bangor University, UK) | |
| Stephen Daly | Dave Hodgson | Victoria Pease | Cees van Staal | |
| (University College Dublin, Ireland) | (University of Leeds, UK) | (Stockholm University, Sweden) | (Geological Survey of Canada) | |
| Richard England | Peter Kokelaar | Victor Ramos | Mike Watkeys | |
| (University of Leicester, UK) | (Liverpool University, UK) | (University of Buenos Aires, Argentina) | (University of KwaZulu-Natal, SA) | |
| Ian Fitzsimons | Anne Mather | Hugh Rollinson | Wenjiao Xiao | |
| (Curtin University, Australia) | (Plymouth University, UK) | (University of Derby, UK) | (Chinese Academy of Sciences) | |
| Haakon Fossen | Rajat Mazumder | Karel Schulmann | | |
| (University of Bergen, Norway) | (Curtin University Sarawak, Malaysia) | (Université Louis Pasteur, Strasbourg, France) | | |

Production Editor: Patricia Pantos (e-mail: patricia.pantos@geolsoc.org.uk)

The Journal of the Geological Society is published bi-monthly in January, March, May, July, September and November.

Subscriptions: 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 01225 445046; fax 01225 442836; e-mail: sales@geolsoc.org.uk). The online + print subscription prices for 2015 to institutions and non-Fellows is: £1378.28 (UK), £1530.90 (EU), £1304/\$2607 (RoW). Prices include tax. More information about subscription options can be found at http://www.geolsoc.org.uk/journals.

Outside Europe, the Journal is dispatched by various forms of airspeeded delivery. Airfreight and mailing in the USA by agent named Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Jamaica NY 11431. US Postmaster: send address corrections to The Journal of the Geological Society, Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Back numbers are normally dispatched by surface mail.

Editorial correspondence and material submitted for publication: see inside back cover.

The Geological Society of London was founded in 1807. It is the oldest national geological society in the world and the largest in Europe. It was incorporated under Royal Charter in 1825 and is Registered Charity 210161. To find out about the Society and how you can join, please visit our website at www.geolsoc.org.uk or e-mail enquiries@geolsoc.org.uk.

© The Geological Society of London 2015. No reproduction, copy or transmission of all or part of this publication may be made without the prior written permission of the publisher. In the UK, users may clear copying permissions and make payment to The Copyright Licensing Agency Ltd, Saffron House, 6-10 Kirby Street, London EC1N 8TS UK, and in the USA to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Other countries may have a local reproduction rights agency for such payments. Full information on the Society's permissions policy can be found at: www. geolsoc.org.uk/permissions

Typeset and printed in the UK by Henry Ling Ltd, The Dorset Press, Dorchester DT1 1HD