

Chief Scientific Editor: **J. Dottridge**, Mott MacDonald, UK

Assistant Scientific Editor (engineering geology):  
**C. Moses**, Edge Hill University, UK

Assistant Scientific Editor (geomaterials):  
**J. Smethurst**, University of Southampton, UK

Assistant Scientific Editor (geotechnical):  
**S. Millis**, Arup, Hong Kong

Assistant Scientific Editor (hydrogeology):  
**J.W.N. Smith**, Shell Global Solutions, The Netherlands

**Journal Manager: Helen Floyd-Walker**  
(helen.floyd-walker@geolsoc.org.uk)  
Geological Society, Publishing House, Unit 7, Brassmill  
Enterprise Centre, Brassmill Lane,  
Bath BA1 3JN, UK. Books for review should  
also be sent to this address.

**Submissions:** <http://www.editorialmanager.com/qjegh/>

**Instructions for authors:**  
<http://www.geolsoc.org.uk/qjegh>

## Editorial Board Members

### **N. Bhattacharjee**

Indian Institute of Technology (Indian School  
of Mines), India

### **D. Birks**

WSP, UK

### **A. Bowden**

Bowden Geological Pty Ltd, Australia

### **M. Carey**

John Wood Group plc, UK

### **S. Coates**

WS Atkins plc, UK

### **J. Cobbing**

Consultant, USA

### **M. Cuthbert**

Cardiff University, UK

### **M.C.R. Davies**

University of Sussex, UK

### **J. Dodds**

Envireau Water, UK

### **D. Elmo**

University of British Columbia, Canada

### **D. Entwisle**

British Geological Survey, UK

### **M. Geach**

WS Atkins plc, UK

### **M. Geertsema**

Ministry of Forests, Lands, and Natural  
Resource Operations, Canada

### **R. Ghail**

Royal Holloway, UK

### **R. Guthrie**

Stantec, Canada

### **J. Hambling**

Arup, Australia

### **W. Haneberg**

University of Kentucky, USA

### **A. Hart**

WS Atkins plc, UK

### **L. Huang**

China University of Geosciences, China

### **P. Hughes**

Durham University, UK

### **C. Jack**

COWI, UK

### **J. Jordan**

Create Consulting Engineers Ltd, UK

### **S. Krause**

University of Birmingham, UK

### **J.A. Lawrence**

Imperial College London, UK

### **U. Lawrence**

Capita, UK

### **E.M. Lee**

Ebor Geoscience Ltd, UK

### **M. Long**

University College Dublin, Ireland

### **F. Loveridge**

University of Leeds, UK

### **C. Martin**

BP Exploration Operating Company Limited,  
UK

### **R. Martin**

GeoconsultHK Ltd, Hong Kong

### **R. Moore**

Jacobs, UK

### **K.Y.A. Ng**

Arup, UK

### **C. Paraskevopoulou**

University of Leeds, UK

### **H. Potter**

Environment Agency, UK

### **G. Preisig**

Universite de Neuchatel, Switzerland

### **J. Price**

MMG Ltd, Australia

### **P. Redshaw**

Arup, UK

### **P. Renforth**

Heriot-Watt University, UK

### **A. Rosi**

The University of Florence, Italy

### **C.J. Serridge**

Consultant, UK

### **M. Spence**

British Geological Survey, UK

### **R. Stirling**

Newcastle University, UK

### **C. Swainston**

Soils Ltd, UK

### **N. Tafesse**

University of Botswana, Botswana

### **H. Tang**

China University of Geosciences, China

### **R. Thomas**

WSP, UK

### **G. Usher**

Wardell Armstrong, UK

### **G. Wealthall**

Geosyntec Consultants Inc., UK

## **The Quarterly Journal of Engineering Geology and Hydrogeology**

is published by the Geological Society and is an established peer reviewed journal. Papers are invited from, and about, all areas of the world on engineering geology and hydrogeology topics including all relevant aspects of the approach of geology to civil engineering, mining practice and water resources. This includes but is not limited to: applied geophysics, engineering geomorphology, environmental geology, hydrogeology, groundwater quality, ground source heat, contaminated land, waste management, land use planning, geotechnics, rock mechanics, soil mechanics, geomaterials and geological hazards. The journal features review, research, case study, technical note and photographic feature articles as well as prestigious lectures, thematic collections, discussions and book reviews.

**The Geological Society** of London was founded in 1807, and is the oldest geological society in the world. It received its Royal Charter in 1825 and is now Britain's national society for geology. Both a learned society and a professional body, the Geological Society is the chartering authority able to award Chartered Geologist (CGeol) status to appropriately qualified Fellows with six years relevant postgraduate experience in the practice of geology. The Society also awards the title of Chartered Scientist (CSI). Candidate Fellowship is available to those not yet qualifying for Fellowship (students). Fellows of the Geological Society can choose a subscription to the *Quarterly Journal of Engineering Geology and Hydrogeology* as a benefit of membership. Further information: email: [membership@geolsoc.org.uk](mailto:membership@geolsoc.org.uk); <http://www.geolsoc.org.uk>; tel: +44 (0) 207 434 9944. The Society is a Registered Charity, no. 210161.

Typeset by Nova Techset Private Limited, Bengaluru and Chennai, India. Printed and bound by Henry Ling Limited, at the Dorset Press, Dorchester, DT1 1HD