

# Quarterly Journal of Engineering Geology and Hydrogeology

The journal is abstracted and/or indexed in Current Contents, ASCA, Science Citation Index, Groundwater On-Line, Geological Abstracts, International Civil Engineering Abstracts, Petroleum Abstracts, Geotechnical Abstracts, GeoArchive, GeoRef and Geobase.

## CONTENTS – Volume 51, Part 1, February 2018

<b>Editorial 2018</b> Jane Dottridge & Eddie Bromhead	1
<b>Thematic set: Organic contaminants in groundwater</b>	
<b>Vertical screening distances for total petroleum hydrocarbon for vapour intrusion risk assessment at petroleum underground storage tank sites</b> Matthew A. Lahvis	3
<b>Photographic feature</b>	
<b>Deposit morphology of Luanshibao Landslide in Tibetan Plateau</b> Zili Dai, Fawu Wang & Qiangong Cheng	13
<b>The Chabrières Tunnel, Alpes-de-Haute-Provence, France</b> David Giles	17
<b>Review article</b>	
<b>Engineering geology and tunnelling in the Limmo Peninsula, East London</b> Emilio Linde-Arias, David Harris & Richard Ghail	23
<b>Regional-scale groundwater investigations for the Crossrail project</b> U. Lawrence, C. O. Menkiti & M. Black	31
<b>Research article</b>	
<b>Groundwater monitoring of the deep aquifer for the construction phase of the Crossrail project</b> U. Lawrence, C. O. Menkiti & M. Black	38
<b>Determination of water flow through clayey slurries using computed micro-tomography</b> Maki Ito & Shahid Azam	49
<b>Glacio-marine clay resistivity as a proxy for remoulded shear strength: correlations and limitations</b> Michael Long, Andreas Aspörm Pfaffhuber, Sara Bazin, Kristoffer Kåsin, Anders Gylland & Alberto Montaña	63
<b>Three-dimensional geostatistical integration of borehole and geophysical datasets in developing geological unit boundaries for geotechnical investigations</b> Han-Saem Kim, Choong-Ki Chung & Jeong-Jun Kim	79
<b>Geotechnical characterization of the Miocene formations at the location of Ivens shaft, Lisbon</b> António Pedro, Lidija Zdravković, David Potts & Jorge Almeida e Sousa	96
<b>Effect of surface void percentage (SVP) on the unconfined compressive strength (UCS) of porous rocks</b> Işık Yilmaz, Mustafa Yildirim & Marian Marschalko	108
<b>A two-layer model for the intrusion of two-phase debris flow into a river</b> Wei Liu & Siming He	113
<b>Evaluation of optimal aquifer yield in Nantong City, China, under land subsidence constraints</b> Qingshan Ma, Zujiang Luo, Ken W. F. Howard & Qi Wang	124
<b>Book review</b> E. N. Bromhead	138

*Quarterly Journal of Engineering Geology and Hydrogeology* (ISSN 1470-9236) is published in February, May, August and November by the Geological Society Publishing House for the Geological Society, London. The Geological Society, Burlington House, Piccadilly, London W1V 0JU.

**Subscription rates 2018 (volume 51, 4 parts).** More information about subscription options can be found at <http://www.geolsoc.org.uk/LyellCollection>. 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](mailto:sales@geolsoc.org.uk)). The subscription prices for 2018 to institutions and non-Fellows is: UK, £541 + VAT (online only), £676 + VAT (online + print); EU, £605 + VAT (online only), £756 + VAT (online + print); Rest of World, £605 (online only), £756 (online + print). More information about subscription prices can be found at <http://www.geolsoc.org.uk/lcaccess>.

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 Quarterly Journal of Engineering Geology and Hydrogeology, 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.

© The Geological Society of London 2018. 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](http://www.geolsoc.org.uk/permissions)

Publishing disclaimer: [www.geolsoc.org.uk/pub\\_ethics](http://www.geolsoc.org.uk/pub_ethics)

**Cover Photograph.** Salinity testing of a groundwater fed watering hole in Lewa Wildlife Conservancy, Isiolo District, Laikipia County, north-central Kenya. Maasai counterparts are investigating water chemistry to determine the hydro-chemical signature, origin, recharge processes and travel times of a groundwater fed perennial watering hole, as part of a conservancy-wide water scarcity assessment and resilience planning initiative in the northern foothills of Mount Kenya, following severe droughts in the region. Springs discharging from Pleistocene basalts on the northern flank of Mount Kenya support year round stream flows and wetland ecosystems, which sustain one of the largest black and white rhino populations in East Africa, in addition to more than 300 zebra, 500 elephants, innumerable wildebeest and gazelle, as well as more than 40 wild cats including lions, cheetahs and leopards. The springs and local boreholes also provide drinking water supplies to more than 6000 people living within and around the conservancy.

<http://www.lewa.org/who-we-are/about-lewa/>

Photograph by: C. Carpenter, GWP Consultants LLP.