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Karst landscapes and karst aquifers are composed of a variety of soluble rocks, such as salt, gypsum, anhydrite, limestone, dolomite and quartzite. They are fascinating areas of exploration, study and research. As karst rocks are abundant on the Earth’s surface, the fast evolution of karst landscapes and the rapid flow of water through karst aquifers present many challenges from a number of different perspectives. This collection of 25 papers deals with different aspects of these challenges, including karst geology, geomorphology and speleogenesis, karst hydrogeology, karst modelling, and karst hazards and management. Together these papers provide a state-of-the-art review of the current challenges and solutions we face in describing karst from a scientific perspective, while at the same time providing useful data and information for managing karst territories to land planners, developers, and managers of show caves, natural parks and reserves in karst terrains.
Special Publication 443
Radioactive Waste Confinement: Clays in Natural and Engineered Barriers
Edited by S. Norris, J. Bruno, M. Van Geet and E. Verhoef

It is internationally accepted that the safest and most sustainable option for managing radioactive waste is geological disposal, utilizing both engineering and geology to isolate the waste and contain the radioactivity. This Special Publication contains 25 scientific studies presented at the 6th conference on ‘Clays in natural and engineered barriers for radioactive waste confinement’ held in Brussels, Belgium in 2015. The conference and this resulting volume cover many of the aspects of clay characterization and behaviour considered at various temporal and spatial scales relevant to the confinement of radionuclides in clay, from basic phenomenological process descriptions to the global understanding of performance and safety at repository and geological scales. The papers in this volume consider research into argillaceous media under the following topic areas: large-scale geological characterization; general strategy for clay-based disposal systems; geomechanics; mass transfer; bentonite evolution and gas transfer.

Special Publication 458
Geomechanics and Geology

Geomechanics investigates the origin, magnitude and deformational consequences of stresses in the crust. In recent years awareness of geomechanical processes has been heightened by societal debates on fracking, human-induced seismicity, natural geohazards and safety issues with respect to petroleum exploration drilling, carbon sequestration and radioactive waste disposal. This volume explores the common ground linking geomechanics with inter alia economic and petroleum geology, structural geology, petrophysics, seismology, geotechnics, reservoir engineering and production technology. A rich diversity of case studies herein showcase applications of geomechanics to hydrocarbon exploration and field development, natural and artificial geohazards, reservoir stimulation, contemporary tectonics and subsurface fluid flow. These papers provide a representative snapshot of the exciting state of geomechanics and establish it firmly as a flourishing subdiscipline of geology that merits broadest exposure across the academic and corporate geosciences.
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The Geometry and Growth of Normal Faults
Edited by C. Childs, R.E. Holdsworth, C.A.-L. Jackson, T. Manzocchi, J.J. Walsh and G. Yielding
This volume provides an up-to-date overview of current research into the geometry and growth of normal faults. The topics addressed include how fault length changes with displacement, how faults interact with one another, the controls of previous structure on fault evolution and the nature and origin of fault-related folding.

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Atmosphere–vegetation–soil interactions in a climate change context; impact of changing conditions on engineered transport infrastructure slopes in Europe

By A.M. Tang, P.N. Hughes et al.

In assessing the impact of climate change on infrastructure, it is essential to consider the interactions between the atmosphere, vegetation and the near-surface soil. This paper identifies the climate- and vegetation-driven processes that are of greatest concern, the suite of known unknowns that require further research, and lists key aspects that should be considered for the design of engineered transport infrastructure slopes in the context of climate change.

Read online at: http://doi.org/10.1144/qjegh2017-103

Current and future role of instrumentation and monitoring in the performance of transport infrastructure slopes

By J.A. Smethurst, A. Smith et al.

This paper looks at the current role of instrumentation and monitoring, including the reasons for monitoring infrastructure slopes, the instrumentation typically installed and parameters measured. The paper then investigates recent developments in technology and considers how these may change the way that monitoring is used in the future, and tries to summarize the barriers and challenges to greater use of instrumentation in slope engineering.

Read online at: http://doi.org/10.1144/qjegh2016-080

Heavy hydrocarbon fate and transport in the environment

By D.M. Brown, M. Bonte, R. Gill, J. Dawick and P.J. Boogaard

Despite their growing use, heavy hydrocarbons are generally overlooked when assessing the risk of hydrocarbons to human health, ecology and water reserves. Although their human and environmental health risks are considered low, heavy hydrocarbons are known to persist in the environment. This review considers the fate, transport and toxicity of heavy hydrocarbons. It provides a description of the possible mechanisms involved in heavy hydrocarbon attenuation and offers some interpretation of data that provides insight into their persistence in the environment.

Read online at: http://doi.org/10.1144/qjegh2017-142
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The Engineering Group of the Geological Society of London (EGGS) is a Specialist Group of the Society and the UK National Group of the International Association of Engineering Geologists and Hydrogeologists (IAEG). The EGGS aims to advance the study and understanding of engineering geology and to communicate and promote to other professionals, academic institutions, Government and the public, the importance and value of engineering geology and geo-environmental engineering anywhere where there is the interaction between human activities and the earth’s surface and subsurface.

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