Geofluids

Special Issue on

Mechanism, Cause, and Control of Water, Solutes, and Gas Migration Triggered by Mining Activities

CALL FOR PAPERS

Mining industry plays an important role in extracting the underground resources, such as coal, metals, petroleum, and natural gas. However, with the mining activities surging, a large number of disastrous mine accidents, such as flood, water inrush, tunnel collapse, gas outburst, and gas explosion, have occurred due to water and gas migration caused by the mining operations, thus posing a threat to the environment and the health and safety of field workers. In addition, mining activity may cause potential environmental issues such as generating or triggering toxic aquifer solute plumes, including acid or neutral mine drainage. Therefore, it is very important to have a sound understanding of the mechanism of these hazards, which is reflected by the rock and fluid behaviors during mining.

The migration of water and gas in rocks during mining of underground resources is a complex problem which may involve multiphase (solid, liquid, and gas), multiscale (nano- to macro-), and multifield coupled (mechanical, thermal, chemical, hydro, etc.) processes. It may also require a sound understanding of biogeochemically sustained processes, for instance, in the production of acid drainage. Moreover, sometimes related phase change, rock damage, or crack propagation complicates this problem. As there exist many factors affecting the coupled process, the mechanism behind the water and gas migration and rock deformation is still not completely understood and needs further investigation so that proper measure can be taken to prevent the mining hazards. In addition, effective control technologies, such as underground reservoir, water-preserved mining, integrated coal mining and gas extraction, and hydraulic fracturing technology, are encouraged to be further explored for a safer and more environment-friendly mining.

This special issue will collect high-quality original research articles and review papers reflecting the advances in the mechanism, cause, and control technology related to clean and solute-polluted water and gas migration triggered by mining activities. They could be based on the numerical and theoretical simulation and laboratory experiments. Case studies from the field work are also acceptable.

Potential topics include but are not limited to the following:

- Highly efficient mining technology
- Ground water mitigation mechanism and water-preserved mining technology
- Reactive solute transport in heterogeneous mining settings
- Underground reservoir stability control
- Gas migration mechanism and gas drainage technology
- Application of hydraulic fracturing to disaster control
- Geothermal resource extraction
- Natural gas hydrate
- Rock strata movement
- Mining induced seismicity

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/geofluids/cwgm/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor
Fangtian Wang, China University of Mining and Technology, Xuzhou, China
wangfangtian111@163.com

Guest Editors
Wen Wang, Henan Polytechnic University, Jiaozuo, China
wwang306@foxmail.com

Bisheng Wu, CSIRO Energy, Clayton, Australia
bisheng.wu@csiro.au

Qingsheng Bai, University of Toronto, Toronto, Canada
qingsheng_bai@yahoo.com

Mandadige S. A. Perera, University of Melbourne, Melbourne, Australia
samintha.perera@unimelb.edu.au

Submission Deadline
Friday, 6 July 2018

Publication Date
November 2018