Special Issue

3D/4D Geological Modeling for Mineral Exploration

Message from the Guest Editors

Three-dimensional and four-dimensional (3D/4D) geological modeling is a key technology and methodology for geologists to understand geological events and quantitatively analyze multiscale metallogenic models for mineral exploration. The geological concept model can be quantitatively analyzed and 3D/4D models can be built, simulated, and integrated via multisource geosciences datasets or big data from the field of geosciences. It is a challenge to construct 3D/4D certainty models for mineral exploration using multiscale and multisource datasets; mineral resource assessment and environment protection are associated with regional mining development and strategic planning. The Special Issue aims to improve decision-making processes using 3D/4D geological modeling for mineral exploration, and multiple innovative methodologies and technologies (e.g., conventional explicit and implicit modeling, real-time mining and 5G+ information technology, artificial intelligence decision making, 3D/4D simulation, and digital twin).

Guest Editors

Prof. Dr. Gongwen Wang

Prof. Dr. Lizhen Cheng

Prof. Dr. Nan Li

Dr. Weisheng Hou

Deadline for manuscript submissions

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Minerals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
minerals@mdpi.com

mdpi.com/journal/minerals

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About the Journal

Message from the Editor-in-Chief

Minerals welcomes submissions that report basic and applied research in mineralogy. Research areas of traditional interest are mineral deposits, mining, mineral processing and environmental mineralogy. The journal footprint also includes novel uses of elemental and isotopic analyses of minerals for petrology, geochronology and thermochronology, thermobarometry, ore genesis and sedimentary provenance. Contributions are encouraged in emerging research areas such as applications of quantitative mineralogy to the oil and gas, manufacturing, forensic science, climate change, geohazard and health sectors.

Editor-in-Chief

Prof. Dr. Leonid Dubrovinsky
Bayerisches Geoinstitut, University Bayreuth, D-95440 Bayreuth, Germany

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.2 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).

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