

Special Issue

Biogeochemical Cycling and the Fate of Heavy Metals in the Environment

Message from the Guest Editors

The large-scale extraction of mineral resources inevitably releases heavy metals into the environment. Once introduced, these metals persist as a serious threat to both ecosystems and human health, owing to their non-degradable nature and their tendency to bioaccumulate through food chains. Toxic elements, such as chromium, arsenic, cadmium, mercury, and lead, inflict severe ecological and physiological damage by disrupting enzymatic functions and impairing organ systems when they occur in soluble, bioavailable forms. This Special Issue brings together cutting-edge research on the fate of heavy metals—tracing their transport pathways through environmental compartments, their bioaccumulation in biota, and the development of innovative detection techniques and sustainable remediation strategies—while also examining how global change influences metal mobilization. Its goal is to foster a comprehensive understanding of metal cycling dynamics and to inform effective risk management and policy development in the face of enduring metal contamination.

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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.

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