

Special Issue

From Microbes to Minerals: Geochemical Signatures of Bacterial and Algal Sedimentary Systems

Message from the Guest Editors

This Special Issue aims to bring together the latest research deciphering the complex signals preserved in the biogenic and microbialite records. It offers contributions investigating mineral deposition mechanisms, the preservation of organic biomarkers, and the application of unconventional isotope systems in determining biological impact in rock records. Microorganisms play a crucial role in mineral formation, diagenesis, and elemental cycling, particularly in lacustrine, marine, and terrestrial systems. These processes include biomineralization, the behavior of redox-sensitive elements, fractionation of rare earth elements (REEs), and trace metal enrichment in sediments. In this issue, studies integrating field observations, laboratory experiments, and modeling approaches are particularly encouraged. We welcome original research articles, reviews, and case studies focusing on, but not limited to, microbialites, stromatolites and algal processes, diatomites, diatoms and siliceous sediments, isotopic proxies, biomarker geochemistry, biogenic carbonates and phosphates, early diagenesis and astrobiology.

Guest Editors

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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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 17.7 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the second half of 2025).