

Special Issue

Mineral Dissolution and Growth Kinetics

Message from the Guest Editors

An incomplete list of important processes dominated by mineral dissolution and growth includes the weathering of rocks and glasses, morphogenesis of sedimentary deposits, leaching, corrosion, hydrometallurgy, biomineralization, cement hydration, and the synthesis of inorganic powders. Understanding the fundamental mechanisms that govern these processes is an ongoing challenge. The task is complicated by several factors, such as the difficulty of correlating lab-based and field-based observations, the sensitive dependence of the kinetics on mineral surface structure and near-surface chemistry, and the challenge of characterizing dynamic processes such as heterogeneous nucleation and altered surface layer formation in aqueous media. Nevertheless, the last twenty years have witnessed a number of breakthrough characterization methods, theoretical models, and computational simulation methods that have enabled a clearer picture of the phenomena that emerge. This Special Issue provides a unique collection of some of the most recent advances and applications in experimental and theoretical research on mineral dissolution and growth kinetics, from the molecular to the macroscopic scale.

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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 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).