Special Issue

Large Igneous Provinces: Petrogenesis, Mineralization, and Environmental Impact

Message from the Guest Editors

Large igneous provinces (LIPs), as Earth's largest event, play pivotal roles in shaping crustal evolution, driving large-scale mineralization events, and triggering profound environmental perturbations throughout geological history. This Special Issue aims to synthesize cutting-edge research on Large igneous provinces (LIPs) by bridging petrogenetic studies, mineralization mechanisms, and environmental impact assessments. Key areas include:

- **Petrogenesis**: Magma generation, emplacement, geochemical evolution, and plumbing system in LIPs.
- **Metallogenesis**: LIP-related magmatic-hydrothermal systems concentrating critical metals (e.g., Cr, Ni, Cu, PGEs, REEs) and indirect links between LIPs and metallogeny.
- **Environmental Impact**: LIP volcanism's role in climate crises, biogeochemical cycles, and mass extinction, and quantitative modeling of environmental responses.
- **Habitability**: LIPs' influence on Earth's habitability via volatile fluxes (CO_2, SO_2, halogens), weathering feedbacks, and nutrient cycling, and potentially resetting planetary conditions for biological innovation.

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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

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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).

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