

Special Issue

Water in Mantle Minerals

Message from the Guest Editors

Subducting slabs transport water stored in dense hydrous minerals into the mantle transition zone and the lower mantle. The mantle transition zone may be a major water reservoir and water or hydrogen may be carried even further to as far as the core–mantle boundary region where reaction with metallic iron can form hydrous phases or iron hydride. Understanding the mechanics and effects of this global water recycling is key to understanding the evolution of the planet.

The areas of specific interest for this Special Issue of Minerals include, but are not limited to:

- (1) Analytical methods and atomistic models of water in nominally anhydrous minerals,
- (2) Hydrous phases and water transport in the mantle,
- (3) Water storage and content in the Earth's interior,
- (4) Thermodynamics of water solubility, diffusion and partitioning,
- (5) The role of water in the mantle minerals, partial melting and deformation,
- (6) Iron–water reaction and the role of hydrous phases at the core–mantle boundary (CMB),
- (7) Water budget and hydrogen geochemistry of mantle minerals,
- (8) Geophysical evidence and remote sensing for water in the deep mantle.

Guest Editors

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Deadline for manuscript submissions

closed (30 November 2023)



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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).