



minerals



Special Issue Reprint

Advances in Low-Temperature Mineralogy and Geochemistry

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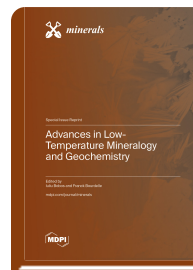
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Low-temperature mineralogy and geochemistry, i.e., mineralogical and geochemical reactions occurring at temperatures below 300 °C, provide challenging topics for the broad qualitative questions related to near-surface Earth processes. Low-temperature geochemical processes are ubiquitous in chemical weathering, diagenesis, very low-grade metamorphism, and post-magmatic processes, and enable the explanation of the P–T–X history of the Earth's crust. They involve mineral dissolution and the re-crystallization, transformation, mineralization, chemical transfer, and recycling of materials that occur at shallow levels of the Earth's crust, and whose study must allow for characterizing crustal alteration, evolution, and growth.

In this way, light, stable, and radiogenic isotope ratios are potentially powerful tracers of fluid–mineral interactions, while thermobarometers based on fine mineralogical compositions make appropriate probes to reconstruct pro- and retro-grade mineralogical reactions. Furthermore, remarkable advances have recently been made in understanding chemical elements recycling within the diagenesis and low-grade metamorphism environment, hydrothermal systems, and fluids circulation. Over the past decade, analytical techniques have also advanced and offered a new vision to scientists in mineralogy and geochemistry, making data available with an unparalleled analytical- and spatial-resolution.



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