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The Mineral Alteration Patterns under High- to Low-Temperature in Geothermal Fields

Guest Editors:

Prof. Dr. Diego Morata
Department of Geology and Andean Geothermal Center of Excellence (CEGA), Facultad Ciencias Físicas y Matemáticas, Universidad de Chile, Santiago, Chile

Prof. Dr. Patricia Patrier-Mas
Institut de Chimie des Milieux et des Matériaux de Poitiers, Universite de Poitiers, UMR CNRS 7285, 86073 Poitiers, France

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Message from the Guest Editors

The mineral alteration patterns under high- to low-temperature conditions in active and fossil geothermal fields provide challenging topics that aim to understand heat–fluid–rock interaction processes. Geothermal systems allow us to understand and quantify heat–fluid–rock interactions in different geotectonic settings. Most, if not all, of these processes occur under thermodynamic conditions out of equilibrium, involving, among other geological processes, mineral dissolution, precipitation, recrystallisation and chemical transfer. Moreover, all these geological processes occur in a short time span—only several thousand years—with strong structural control, dominated by permeability differences between various affected geological units. Under this scenario, mineral crystal chemistry in these high- to low-temperature systems is useful for constraining P-T-t-X conditions of these heat–fluid–rock processes. The improvement of accuracy and resolution of advanced analytical techniques offered a new vision of how hot fluid interacts with rocks and how hydrothermal alteration mineralogy in high- to low-geothermal systems is formed.

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Editor-in-Chief

Prof. Dr. Leonid Dubrovinsky
Bayerisches Geoinstitut,
University Bayreuth, D-95440
Bayreuth, Germany

Message from the Editor-in-Chief

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Contact Us

Minerals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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