



## Metamorphic Geology and Phase Equilibrium Modeling in the 21<sup>st</sup> Century

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Deadline for manuscript  
submissions:

**closed (30 October 2017)**

### Message from the Guest Editor

The application of phase equilibrium modeling is now commonplace in studies of metamorphic interest, whether region- or sample-specific, or process-oriented investigations. Bulk-composition-specific phase diagrams – or pseudosections – may be used to investigate important issues in many areas of geoscience, including thermobarometry, the genesis of precious metals and mineral deposits, hydrothermal alteration and fluid–rock interaction in the lithosphere, anataxis, melt drainage, and crustal differentiation over geological time, and the geochemical cycling of elements from the hydrosphere to the Earth’s deep interior during subduction. Future investigations aim to expand our capability to model wider ranges of rocks and minerals, such as those in the inaccessible deep mantle.

This Special Issue aims to bring together examples of how quantitative phase equilibrium modeling – a truly 21<sup>st</sup> century technique – can be applied to solve a variety of key geological problems at the micro- to the macro-scale, either theoretical or regionally focused.





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## Message from the Editor-in-Chief

Understanding the Earth's origin and its bio-geological evolution, the multiple implications of the geosciences (as a coherent set of interconnected disciplines), and the sociocultural and ethical interdisciplinary approaches, will be crucial for a better understanding of Nature, and also for undertaking scientifically based political decisions.

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