

Special Issue on  
**Structural Controls on Basin- and  
 Crustal-Scale Fluid Flow and Resulting  
 Mineral Reactions**

# CALL FOR PAPERS

Fluids in the Earth's lithosphere exert first-order controls on several key geological processes: including the transport of heat and solutes at multiple scales; diagenetic, metamorphic, and igneous reactions; magma generation; and ore deposit formation or earthquake triggering. Rock deformation structures, such as shear zones, fault zones, and fracture networks, play a key role in governing fluid flow, which in turn impacts mineral reactions and rock rheology in basins and orogens at variable spatial and temporal scales. The last two decades have seen substantial advances in the study of fluid flow and fluid-rock interactions, underpinned by the increasing global demand for energy and raw materials. However, a complete understanding of what the coupled effects of rock deformation processes, transport of geofluids, and elements are and how they determine fluid-mineral reactions is still a matter of intensive research.

In this special issue we encourage submissions focusing on understanding the interplay between tectonic structures, fluid flow, and different types of mineral reactions at variable scales and geological environments, from sedimentary basins to the economic basement. We particularly welcome contributions that aim to couple THCM (Thermo-Hydro-Mechanical-Chemical) processes and those analyzing transport dynamics in the Earth's crust. We welcome regional case studies, such as those based on field studies and the unravelling of fluid signatures from their geochemical fingerprints, laboratory analyses, experiments, and numerical simulations, including reactive transport models and those coupling mechanical and flow processes. Contributions related to geothermics are also encouraged. This volume is open to review articles.

Potential topics include but are not limited to the following:

- ▶ Field studies of the interactions between tectonic structures, flow of geofluids, and the mineral reactions such fluids produce
- ▶ Geochemical analyses of fracture-fluid-rock interactions based on isotopes, fluid inclusion microthermometry and geochemistry, elemental and isotope analysis, and so on
- ▶ Evaluation of fluid mixing processes and how they are controlled by rock deformation structures
- ▶ Transient versus steady-state fluid flow systems, from the small to the basin and crustal scale
- ▶ Structural controls on the formation of rock alteration and ore deposits
- ▶ Hydraulic properties of fault zones and fracture networks (e.g., their relevance for heat flow, deep geothermy, and related reactive characteristics in the subsurface)
- ▶ Controls on the transition between different fluid flow regimes, e.g., topography-driven, compaction-driven, and thermal convection

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/geofluids/scbcs/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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