Special Issue

Developments in Geochronology and Dating of Shear Zone Deformation

Message from the Guest Editors

Considerable advances in our understanding of crustal and tectonic evolution in modern geology have been made possible by the performance of detailed geochronology and isotope geochemistry. In recent decades, it has become evident that evolutionary models, which are foundational to such established geodynamic views, need to be constrained by the timing and rates of crustal deformation, itself mostly manifested by shear zones and shear zone networks. The task of determining the timing and duration of shear zone deformation is hindered greatly by unreliable dating systems, by complex deformation histories, and by uncertain field relations amongst the units used to characterize regional displacement structures. In recent years, a renewed interest in the application of multiple in situ mineral-dating techniques that are closely linked to deformation; this is in addition to traditional methods of indirectly constraining deformation timing. Additionally, the careful characterization of the textures of grain microstructures in conventional systems such as zircon has revealed complex zoning patterns related to deformation, and these can affect the ages obtained.

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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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