Special Issue

Recent Advances in Geochronology and Thermochronology

Message from the Guest Editors

Geochronology is the science of determining the age of rock solidification, sediment deposition, fossils, and exposure to radiation. It is the basis for the geologic time scale. Chronostratigraphy, relying upon isotope geology, is an indispensable part of mapping sedimentary basins, which is important for oil, gas, and geothermal energy exploration. Key techniques are age dating using a radioactive parent and their daughter nucleus, fission tracks, the diffusion of radioactive decay-produced helium and argon gases, luminescence, and cosmogenic nuclides generated in or captured in rocks. Thermochronology is the science of determining the thermal history of rocks. It is widely used to describe geodynamic development such as mountain building, erosion, and sedimentary deposition in basins. The burial and uplift of sediments are described by thermal indicators that also provide ages. This is important for hydrocarbon and geothermal energy exploration. Fission tracks and diffusive gases as helium and argon in minerals, produced by radioactive decays, are temperature- and time-sensitive and are therefore attractive methods in thermochronology.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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