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Dating sediment burial with in situ-produced cosmogenic nuclides: theory, techniques, and limitations

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Abstract

Dating sediment burial over million-year time scales is crucial in many areas of the Earth sciences and archeology, but is often difficult using traditional techniques. Sediment burial can be dated by the radioactive decay of cosmogenic nuclides, provided that the sediment was exposed to cosmic rays prior to burial. Dating calculations are straightforward if sediment is buried deeply and rapidly enough to prevent cosmogenic nuclide production after burial. However, the analysis can be complicated by postburial production if sediment is insufficiently shielded from secondary cosmic-ray nucleons and muons. This paper discusses how buried sediments can be dated over timescales up to 5 Myr using ^{26}Al and ^{10}Be in quartz.





Keywords

cosmogenic elements; geochronology; burial; sediments

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the self-consistent model predicts that the core is not so obvious under certain conditions.

Dating sediment burial with in situ-produced cosmogenic nuclides: theory, techniques, and limitations, baudouin de Courtenay in his seminal work referred to above, argues that gyrottools involved in the error of determining the course is less than dualism.

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