

Earth surface process study using in situ produced cosmogenic nuclides

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The in-situ terrestrial cosmogenic nuclides (TCN) are produced from the interactions with cosmic ray bombardments with terrestrial rocks. The TCN exposure history measurement method is undergoing major developments in the Earth Science field. This method can be applied to various geological problems including tectonics, coastal environments changes and climate changes. The method is employed in the geological studies of which time scale ranges from 10^2 to 10^7 years using currently established method (^3He , ^{10}Be , ^{21}Ne , ^{26}Al , and ^{36}Cl). Combining measurements of nuclides which have different half-lives is particularly useful to determine the history of the surface process and hence quartz grains have been widely used for this types of research since they contain both in-situ ^{10}Be and ^{26}Al . In this paper we present some examples using TCN to reveal past histories of earth surface processes.

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