

Ar-Ar AND K-Ar DATING OF CONTINENTAL WEATHERING

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Weathering is an ongoing process whereby rocks at or near the Earth's surface are modified by a combination of physical and chemical processes, resulting in the alteration of existing minerals and the growth of new mineral phases.

The application of Ar-Ar and K-Ar dating of continental weathering processes has been made possible by the analysis of alunite-group K-rich sulphates and hollandite-group manganese oxides (e.g., Vasconcelos 1999 and references therein).

Recent developments in the Ar-Ar laser probe technique have stimulated a new interest in weathering studies (e.g., Vasconcelos *et al.* 1992, 1994, Ruffet *et al.* 1996, Hénocque *et al.* 1998, Dammer *et al.* 1999, Hautmann & Lippolt 2000, Li & Vasconcelos 2002). The very small quantities of material necessary for the Ar-Ar laser probe technique (i.e., single grain laser step-heating analysis) allows fine scale sampling, making it possible to date distinct generations within weathering profiles, to gain an understanding on the rates and periodicity of weathering over time.

This talk will outline the K-Ar and Ar-Ar dating techniques, complications in interpreting Ar-Ar ages from weathering products, and give some examples of studies undertaken on continental weathering material.

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