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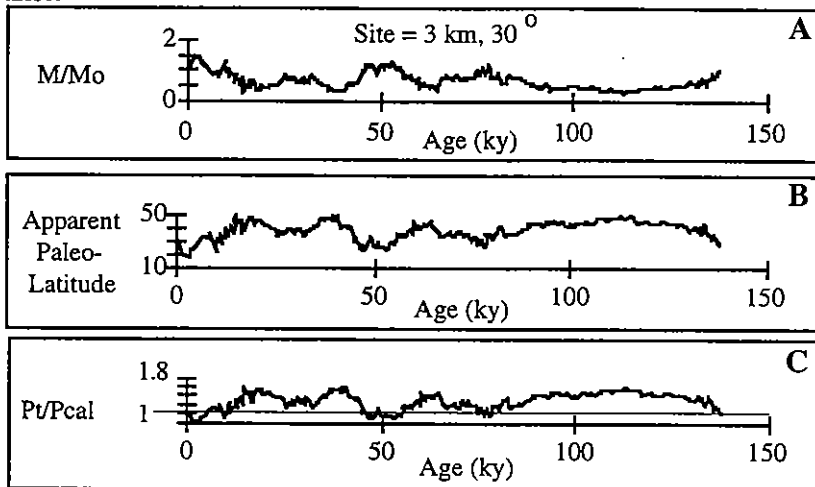
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No 5891

First Geomagnetic-Based, In Situ Produced Cosmogenic Isotope Calibration Program.

CLAPP, Erik, and BIERMAN, Paul, Univ. of Vermont, Geology Dept., Burlington, VT, 05405. We have developed a Macintosh-based computer program for the interpretation of in situ produced cosmogenic isotopes. Driven by a choice of widely accepted geomagnetic paleointensity records (Bard *et al.*, 1990; Mazaud *et al.*, 1991; McElhinny and Senanayake, 1982; Meynadier *et al.*, 1992; and Weeks *et al.*, 1995), the program represents geomagnetic-field strength changes as apparent geomagnetic latitudes by using the formulation of Nishiizumi *et al.* (1989). An instantaneous, in situ production rate (P_t) is then determined for a specific sampling site using the altitude/latitude corrections of Lal (1991). The program can ultimately be used to determine calibrated exposure ages or denudation rates of bedrock and sediment surfaces.

Output from the program displays an inverse relationship between geomagnetic field strength (A) and apparent paleolatitude (B). This inverse relationship results in higher than current instantaneous production rates through much of the Late Pleistocene (C). As a result, if short-term (10-15 ky) calibrations are used to calculate exposure ages over the past 100 ky substantial errors (>10%) could arise.



Our program facilitates the interpretation of measured, in situ produced, cosmogenic isotope data. By choosing a geomagnetic paleointensity record, and inputting the latitude and altitude of the sample site as well as the assumed calibration age, the program will output instantaneous and integrated production rates, calibrated exposure ages and calibrated denudation rates. This program will be available for demonstration.

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