Because development of cosmogenic rock-exposure dating requires constant re-evaluation of old data in the light of new refinements, RICH accepts all parameters, such as production rates, as input. Alternatively, most parameters can remain as defaults for quick estimates prior to sampling. RICH can combine data from several different isotopes or from two different ^{36}Cl mineral separates within the same run. RICH propagates uncertainties for all data and parameters. RICH runs as a batch process on an Internet-accessible Digital Alpha workstation, and will soon support a World Wide Web on-line interface for entering data, in addition to the current e-mail interface.

ISOLATION OF INDIVIDUAL ORGANIC COMPOUNDS FOR AMS RADIOCARBON ANALYSIS: A NOVEL APPROACH

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The ability to measure natural levels of radiocarbon in individual organic compounds isolated from geologic samples adds a new dimension to the types of studies one can conduct. Successful application of this technique requires the collection of sufficient quantities of compounds usually present in very low concentrations in complex matrices and the ability to measure small samples on the AMS. In this study, isolation of compounds containing 10–200 μg C is accomplished using preparative capillary gas chromatography (PCGC). PCGC allows one to collect the same peak from repeated injections (typically 20–100) in order to isolate sufficient material for an AMS analysis. The isolated compounds are transferred to a combustion tube with a solvent, the solvent is evaporated, and then the sample is treated like a small AMS sample. We have found it is best to isolate at least 25 μg C and that it can be difficult to remove all of the solvent for some compounds. We tested this technique in a pilot study (Eglinton *et al.* in press) and found that we can accurately date individual compounds. It is best to isolate at least 25 μg C and, for some compounds, extra care must be taken to remove all the solvent. We are now applying the technique to study the origin of organic matter in surficial marine sediments. Initial results from the Black and Arabian Seas indicate that biomarker compounds from distinct sources have significantly different ages. For example, in Arabian Sea sediments, markers for diatoms (highly branched isoprenoid alkenes) were very young (~250 yr) compared to the saturated hydrocarbons (~8000–10,000 yr). We will describe the technique in detail, including the analysis of samples on the AMS. We will also discuss research areas where this technique may be useful.

REFERENCE

Eglinton T. I., Aluwihare, L. I., Bauer, J. E., Druffel, E. R. M. and McNichol, A. P., in press, Gas chromatographic isolation of individual compounds from complex matrices for radiocarbon dating. *Analytical Chemistry.*

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THE MICROSTRIP GAS CHAMBER FOR USE IN GAS-FILLED MAGNETS

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Gas-filled magnets (GFM) are becoming popular as isobar separators in AMS systems. They are useful for measurement of ^{36}Cl where ^{36}S is difficult to separate with 5–6 MV tandems and where samples are small or chemical preparation is not adequate. GFM are essential for heavier nuclides