The present report will discuss the performance characteristics of the facility established so far, and present first measurements.

THE INFLUENCE OF ARCHAEOLOGICAL CONTEXT ON THE STUDY OF MARINE RESERVOIR AGE VARIATION

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Radiocarbon age calibration for marine samples requires the application of a reservoir correction. The magnitude of this correction depends on the regional balance between upwelling and ocean atmospheric CO_2 exchange and is important for both paleoenvironmental and archaeological applications. To account for regional differences in reservoir age, Stuiver *et al.* (1986) define a term called delta-R. The ΔR suggested for southern California, 225 ± 35, is averaged from seven samples located between Bolinas Bay and San Diego (Stuiver *et al.* 1986). Because offshore depth, currents, and upwelling, among other factors, contribute to local variation in the reservoir effect, accurate ^{14}C age calibration requires a site-specific correction factor.

In this study, comparison of three archaeological deposits from southern California illustrate the complexities surrounding the estimation of marine reservoir age corrections and the calculation of a local ΔR. Fourteen shell-charcoal pairs were recovered from archaeological sites along the Newport Coast. AMS ^{14}C analysis was necessary to maximize the sampling context given the small specimen size. Wood charcoal remains were removed from inside each shell. The AMS results indicated that the ΔR obtained for each set appeared to be dependent on the formation of the archaeological deposit. The study implied that samples recovered from an open site lacking vertical strata were more accurate. In contrast, samples recovered from dense rock-shelters with stacked cooking areas contained shell-charcoal remains that were not contemporaneous and thus less appropriate for calculating ΔR.

REFERENCE

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A NEUTRAL BEAM AMS SYSTEM FOR ULTRASENSITIVE DETECTION OF ATOMS THAT DO NOT FORM NEGATIVE IONS

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In a companion paper, Litherland and Kilius discuss the usefulness of neutral beam injection for the AMS detection of atoms, such as krypton, that form negative ions with difficulty or not at all. A feature of neutral injection is that within the drift region between ground and the high voltage terminal, where the polarity of such particles is converted from neutral to positive, the trajectories are unaffected by the electric field. Consequently, the direction of the electric field can be strongly angled to the path of the neutral beam, causing any unwanted secondary particles to be removed within a few centimeters of their formation point. Thus, the normal voltage gradient limitation of long tubes,