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ACCELERATOR MASS SPECTROMETRY RADIOCARBON MEASUREMENTS ON MARINE CARBONATE SAMPLES FROM DEEP SEA CORES AND SEDIMENT TRAPS

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INTRODUCTION

This report was prepared to permit those interested in our accelerator ^{14}C results to get a complete listing of the abundance and radiocarbon age results that we have obtained during the first four years of our study. For these ^{14}C dates that have been published or are in press, reference numbers are given corresponding to those in the references cited at the end of this report. Results without reference numbers have not yet been incorporated into one of our papers.

The foram samples were prepared at Lamont as follows: the dried core sample is weighed and disaggregated in deionized water. The wet sediment is then rinsed through a 63μ mesh sieve. This wash-rinse procedure is repeated four times. The material (coarse fraction) retained in the sieve is dried and weighed. From the weight of the coarse fraction and the original sample weight, the per cent coarse fraction is calculated.

The >63μ coarse fraction is then split to yield a manageable size sample for picking. The split portion is then put through a 150μ sieve and the species of interest is counted to yield the total whole shells in the split.

The number needed for ^{14}C measurement (200 to 1000 specimens) is picked. This known number of shells is then weighed yielding the weight of the average shell. The number of specimens per gram of sediment and the milligrams of specimens per gram of sediment are calculated as follows:

$$\frac{\text{No. specimens}}{\text{Gm sediment}} = \frac{\text{No. of specimens in split}}{\text{Split fraction} \cdot \text{weight of original sample}}$$

$$\frac{\text{Mg forams}}{\text{Gm sediment}} = \frac{\text{Mass of picked sample (mg)}}{\text{No. specimens in picked sample}} \times \frac{\text{No. of specimens in split}}{\text{Weight of split (gm)}}$$

The samples listed in this report were converted to CO_2 gas at Lamont. This CO_2 was then converted in Bern to carbon targets by the zinc reduction method (Andrée *et al,* 1984). The carbon targets were then analyzed for $^{14}C/^{12}C$ ratio by AMS at the ETH facility in Zurich (Suter *et al,* 1984).

References

Andrée, M, Beer, J, Oeschger, H, Bonani, G, Hofmann, H J, Morenzoni, E, Nessi, M, Suter, M and Wolfli, W, 1984, Target preparation for milligram sized ^{14}C samples and data evaluation for AMS measurements: Nuclear Instruments & Methods, v B5, p 274–279.

Suter, M, Balzer, R, Bonani, G, Hofmann, H J, Morenzoni, E, Nessi, M, Wolfli, W, Andrée, M, Beer, J and Oeschger, H, 1984, Precision measurements of ^{14}C in AMS—some results and prospects: Nuclear Instruments & Methods, v B5, p 117–122.