ANNOUNCEMENT OF A FURTHER INTERCOMPARISON EXERCISE

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Following recommendations of the Glasgow International Workshop on Intercomparison of Radiocarbon Laboratories (Scott, Long & Kra 1990), a further international intercomparison is planned. This new intercomparison is complementary to the existing IAEA intercalibration and will make use of natural samples whose ages will be unknown to the participants. The study has been funded by the UK Research Councils (SERC and NERC), and samples will be free to all participants.

We anticipate that this intercomparison will be ongoing, with distribution of samples in late 1991 and presentation of the results at a later meeting.

The paper will present full details of the samples available and the time scale of the study. Briefly, we envisage that the new study will be more focused than the ICS (Scott, Long & Kra 1990), and will include natural samples in both pretreated and unpretreated forms.

REFERENCE

Scott, EM, Long, A and Kra, RS, eds, 1990 Proceedings of the International Workshop on Intercomparison of Radiocarbon Laboratories. *Radiocarbon* 32(3): 253–397.

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PAST VARIATIONS OF $\delta^{13}C$ IN ATMOSPHERIC CO_2 RECONSTRUCTED FROM ANALYSES OF POLAR ICE CORES

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$\delta^{13}C$ of atmospheric CO_2 has changed in the past 200 years due to combustion of fossil fuels and deforestation, which both yield CO_2 with lower $\delta^{13}C$ than that of atmospheric CO_2. Knowledge of the time history of this isotopic signature helps us to understand the carbon cycle and its anthropogenic perturbation. We have developed, in our laboratory, a technique to extract CO_2 from air trapped in polar ice and to analyze its stable isotopic composition. We have measured $\delta^{13}C$ and $\delta^{18}O$ on CO_2 samples extracted from a shallow ice core from Dye 3, Greenland, covering the time since about 1800. Gravitational separation can enrich the isotopically heavier gases in the firn and thus lead to an enrichment of $^{13}CO_2$. Therefore, we have also measured by mass spectrometry the isotopic composition of oxygen and nitrogen in the trapped air and corrected the measured $\delta^{13}C$ results accordingly for gravitational enrichment. The results agree relatively well with those obtained earlier by Friedli *et al* (1987) on an ice core from Siple Station, Antarctica. The data will be compared with the anthropogenic $\delta^{13}C$ decrease as expected from carbon cycle model simulations.

REFERENCE

Friedli, H, Loetscher, H Oeschger, H, Siegenthaler, U and Stauffer, B 1986 Ice core record of the $^{13}C/^{12}C$ ratio of atmospheric CO_2 in the past two centuries. *Nature* 324: 237–238.