However, a most exciting application is the assessment of tropospheric OH, which is based on the fact that the dominant sink of ^{14}CO is OH, *via* $^{14}CO + OH$ ($^{14}CO_2 + H$). This OH radical is extremely short lived and it defies large-scale direct measurement, yet it is fundamental to the photochemical cleaning process of the atmosphere. The first results we have obtained showed that probably the established OH values had been too low by *ca.* 20%, and indeed, just recently the independent estimates for OH have been "re-adjusted". This meant, for instance, that the lifetime of the greenhouse gas methane in the atmosphere has been scaled down from *ca.* 9 to 8 yr. Although this fact has almost gone unnoticed, we are looking forward to a most rewarding application of ^{14}CO which will help to better constrain 1) stratosphere-troposphere exchange, 2) meridional transport, and 3) tropospheric OH levels. We will present and discuss the latest results in the use of ^{14}CO.

CORRECTIONS FOR CONTAMINATION BACKGROUND IN AMS ^{14}C MEASUREMENTS

T. A. BROWN and J. R. SOUTHON

Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, California 94551 USA

Measurements of $^{14}C/^{13}C$ ratios of a standard material (HOxI) and ^{14}C "dead" materials have been made that span the mass range from *ca.* 10 μg to 2 mg. These measurements have allowed the determination of both the amount of the contaminant carbon introduced during sample processing in our laboratory and ^{14}C content of the contaminant carbon. These data have been used to correct $^{14}C/^{13}C$ ratios obtained for a test sample *ca.* one half-life old for influence of the background contaminant. The $^{14}C/^{13}C$ ratios measured for the test sample span the 10 μg to 2 mg mass range and the corrections have been made using three different formulae. The results obtained from these calculations allow the accuracy of these background correction formulae to be evaluated.

This work was performed under the auspices of the U.S. Department of Energy at the Lawrence Livermore National Laboratory under contract W-7405-Eng-48.

A RADIOCARBON CALIBRATION DURING THE LAST DEGLACIATION BASED ON TIMS ^{230}Th AGES OF AMS ^{14}C DATED CORALS FROM VANUATU, NEW HEBRIDES

G. S. BURR,[1] S. C. GRAY,[2,3] R. L. EDWARDS,[3] F. W. TAYLOR,[4] D. J. DONAHUE,[1] J. RECY,[5] G. CABIOCH[5] and J. W. BECK[1]

Radiocarbon calibration beyond the range of tree rings is critical not only to improve the accuracy of ^{14}C ages and correlations, but also because the pattern of secular variation gives important clues about the nature of deglacial climate transitions. Previous dating studies of corals have demonstrated that ^{230}Th ages give an independent calibration of the ^{14}C time scale beyond the limits of dendrocalibration. We present a comparison of high-precision thermal ionization mass spectrometry (TIMS) U/Th ages to AMS ^{14}C ages of corals drilled from an uplifted reef along the coast of Tasmaloum, Espiritu Santo, Vanuatu. Tectonic uplift of the coastline provided a substrate for a relatively continuous sequence of reef growth during periods of rapid post-glacial sea-level rise between 14 and 7 thousand years ago during the transition from full glacial to full interglacial conditions. The Vanuatu coral calibration indicates an overall pattern of decreasing $^{14}C/^{12}C$ throughout the last deglaciation. However, superimposed upon this gradual trend, the Vanuatu calibration shows two prominent ^{14}C plateaux/reversals that are temporally correlated with two ^{14}C plateaux identified in terrestrial varved ^{14}C calibrations. Assuming a constant reservoir age of the surface waters, these features would suggest a rapid decrease in atmospheric $^{14}C/^{12}C$ (from ~250‰ to 130‰) between