

Growth rate investigations of tropical trees are often difficult, because information on growth rhythm is rare. The interpretation of visible growth zones, which are caused by periodic floods and dry seasons, are not always unique. Therefore, we performed radiocarbon measurements along the cross-section of the tree and on predated individual growth zones. Since the variation of  $^{14}\text{C}$  in the atmosphere between 1950, the so-called bomb peak in the 1960s, and the present level is known (eg, Worbes 1989), the age profiles and, thus, growth rates of tropical trees may be deduced (Leavitt & Long 1989). Details of the apparatus, the sample preparation technique and the measurements will be presented.

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#### THE IMPACT OF CALCITE DISSOLUTION ON RADIOCARBON DATING OF DEEP-SEA SEDIMENTS

WALLACE S BROECKER, MILLIE KLAS, ELIZABETH CLARK

Lamont-Doherty Geological Observatory, Palisades, New York 10964 USA

GEORGES BONANI, WILLY WÖLFLI and SUSAN IVY

ETH-Honggerberg, CH-8093 Zürich, Switzerland

The combination of bioturbation and dissolution in deep-sea sediments is expected to lead to a reduction in the radiocarbon age of core-top material (relative to that expected in the absence of dissolution). The reason is that dissolution should reduce in mass grains with large mixed-layer residence times. In an attempt to document this impact, we carried out by accelerator mass spectrometry (AMS), radiocarbon measurements on core-top material from cores of a series of depths in the equatorial Pacific. These cores range from little dissolution to extensive dissolution. We were surprised to find no evidence for age reductions. This suggests that dissolution occurs before grains have been mixed into the 5–8-cm-thick zone defined by nearly uniform  $^{14}\text{C}$  age versus depth.

#### EXPERIMENTAL DETERMINATION OF THE $^{14}\text{C}$ INITIAL ACTIVITY OF CALCAREOUS DEPOSITS<sup>1</sup>

INES KRAJCAR BRONIĆ, NADA HORVATINČIĆ, DUŠAN SRDOČ and BOGOMIL OBELIĆ

Rudjer Bošković Institute, 41001 Zagreb, Yugoslavia

The initial  $^{14}\text{C}$  activity ( $A_0$ ) of dissolved inorganic carbon (DIC) reflects geochemical processes of groundwater formation and influences the calculation of  $^{14}\text{C}$  age of calcareous deposits.  $^{14}\text{C}$  activity of carbonate precipitated from fresh water is practically identical to that of  $\text{HCO}_3^-$  dissolved in