

Two potential pitfalls are evident. One is that even if the carrier iodine is in the same oxidation state as iodine from the sample, extraction efficiencies for the carrier and sample iodine may differ due to matrix effects. Another is that accurate measurement of stable iodine concentrations at various stages during the extraction is imperative. Given that determination of iodine at low concentrations, in solids, and in matrices with high dissolved solids is not at all trivial, the absolute accuracy of some reported anthropogenic ratios may be in question.

INVESTIGATION OF CHANGING BIOSPHERE BY ^{14}C -DATING OF PEAT PROFILES FROM BAVARIA

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As part of the program "Change of the Geo- and Biosphere During the Last 15,000 Years" some peat sediment profiles from South Bavaria, provided by H. J. Küster, have been dated using the Erlangen AMS facility (Arslan *et al.* 1994; Kretschmer *et al.* 1996). The sediment cores have been roughly predated by pollen-analytical methods, but due to local climatic variations this method has an estimated error of up to 2000 yr. With several sediment datings together with pollen analyses it should be possible to establish a better chronology of climate and vegetation of Holocene in Bavaria. By our measurements we found that the Eggstätt peat with an age of 13,000 BC is one of the oldest continuous peats in South Bavaria.

The sediment samples were pretreated with the usual acid-alkali-acid method to remove carbonates and humic acids. The remaining material was converted to CO_2 by heating it up to 900°C with CuO and silver wool under vacuum. Then the CO_2 was catalytically reduced with H_2 and iron powder at a temperature of 625°C . These so called bulk sediment samples were dated by AMS.

To eliminate dating errors due to the "hard water effect" we try to date extracted pollen itself. The first step of the preparation procedure is the treatment of the sample with hot NaOH to remove humic acids. Afterwards the sample is sieved with a $100\ \mu\text{m}$ nylon mesh. The filtrate is then repeatedly heated with NaOH followed by HCl to remove carbonates. As described in Faegri and Iversen (1989) we use for the removal of silicates hot HF and HCl , for the deflocculation of amorphous organic material a treatment with NaOCl is performed, and at last the cellulose of the residues is removed with H_2SO_4 . After each step the dissolved material is separated from the pollen by sieving with a $20\ \mu\text{m}$ nylon mesh. The efficiency of this separation method is finally checked by microscope. The adjacent conversion to sputter targets is done in the usual manner described above. But due to the small sample size the reduction is performed in a newly built reduction facility with a volume of $3.8\ \text{cm}^3$. The resulting material contains $50\text{--}500\ \mu\text{g}$ carbon. First pollen datings have been performed and the results are encouraging. Future measurements with pollen will lead to a more reliable dating of sediments.

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