REVIEW

Proceedings of the Regional Conference on the Application of Isotope Analyses in Archaeology, Hydrology and Geology, Zagreb and Plitvice, October 11 and 12, 1979; edited by Dušan Srdoč, Bogomil Obelić, and Adela Sliepčević, Fizika, v 12, supp 2, 1980, 256 p.

The tenth anniversary of the Rudjer Bošković Radiocarbon and Tritium Laboratory brought together a number of invited specialists and Yugoslav scientists interested in the application of natural stable and radioactive isotopes. The papers presented provide a general introduction to the field of natural isotope studies with a special emphasis on ^{14}C.

The development of the radiocarbon dating method from the discovery of the production of radioactive nuclei by cosmic radiation in 1934 to the present is described together with some of the problems (contamination, isotope fractionation, varying atmospheric ^{14}C levels, reservoir effects) encountered. The difficulties of using ^{14}C in groundwater studies are evident from the discussion of the large number of models developed for this purpose. Naturally, the construction and the operation of the Rudjer Bošković ^{14}C set-up are given in detail. The current techniques in use for tritium measurements are likewise described.

The general section is completed by a discussion of expected future developments in the use of natural isotopes like ^{39}Ar, ^{81}Kr, ^{36}Cl, and ^{10}Be made feasible by special background reduction of the counters used to detect their decay or by accelerator mass spectrometry.

The results that can be obtained by the use of natural isotopes like ^{2}H, ^{3}H, ^{13}C, ^{14}C, ^{18}O, and ^{34}S are nicely illustrated by one of the invited talks and several papers. It is unfortunate that a number of those are only included as an abstract.

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