[H-TT35_1PM1] Developments and applications of AMS techniques for earth and human environmental research

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Accelerator mass spectrometry (AMS) is a technique developed in 1977, to detect and count the small amount of nuclides in the environment, and to measure precisely the isotope ratios of the nuclides. In particular, by means of measuring rare radioisotopes in the environment, AMS techniques are applied for age measurement of samples from various application fields, such as geology, archeology and cultural properties. AMS can measure isotope ratios in the order of as low as 1.0E-10 to 1.0E-16, by the process of producing negative ions of specific nuclides by an ion source, accelerating the ions by a tandem accelerator, analyzing mass of the isotope ions by an analyzing magnet, and identifying the specific nuclides by an ionization detector. Thus AMS is used to measure isotope ratios of natural radionuclides of quite low natural abundances. AMS can be applied for studies of materials recycling and environmental science by using rare isotopes as a chemical tracer, and investigations of time sequence of tephra layers, land deposits, lacustrine and ocean sediments that are quite important for Quaternary research. This session offers a brief outlook of present status on technical progresses going on present days and interesting application programs, given by specific researchers and students engaged in AMS studies.

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[HTT35-P05_PG] AMS radiocarbon dating of peaty layers in Kimotsuki lowland, southern Kyushu

3-min talk in an oral session

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Since the middle Holocene, peaty layers have accumulated on the Kimotsuki lowland in south Kyushu, Japan. They can be applied radiocarbon (^14 C) wiggle-matching for establishing high-resolution chronology. Moreover, several tephra intercalated with the peat bed which originated from Kaimondake, Sakurajima, and the Kirishima volcanoes, and they can certify the reproducibility of ^14 C dates. On the other hand, the age of the tephra by them can be determined correctly. We present here the results of AMS ^14 C dating on the core sample, and report the age of each tephra determined from these dates.