more accurately. We expect to have a series of rocks measured, and we plan to present the data in a form that allows discussion the various corrections made to the final result for a time integrated production rate for the last 10,000 yr.

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AMS FACILITY AT NATIONAL INSTITUTE FOR ENVIRONMENTAL STUDIES

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A new AMS system based on a 5 MV tandem accelerator has been installed at National Institute for Environmental Studies (NIES), Tsukuba. This system, NIES-TERRA (Tandem accelerator for Environmental Research and Radiocarbon Analysis), is used primarily for precise measurement of $^{14}$C/$^{12}$C and $^{13}$C/$^{12}$C isotope ratios to investigate the origin and global circulation of greenhouse gases such as CO$_2$ and CH$_4$. Our research program is also directed towards using $^{10}$Be, $^{26}$Al, $^{36}$Cl, $^{41}$Ca, and $^{129}$I as both tracers and chronometers in environmental studies.

The construction of the total system was contracted with NEC. The accelerator is a horizontal tandem Pelletron (15SDH-2) whose charging system can deliver ca. 250 μA to the high-voltage terminal. Negative ion injection is performed by two combinations of ion source and injector. One of the ion sources is a multiple cathode cesium sputter type for solid target (MC-SNICS). Up to 40 cathodes at a time can be held on the fluid cooled cathode ring. Negative ions produced in the source are accelerated to a maximum of 80 keV and fed into a fast bouncing sequential injector through a 45° spherical electrostatic analyzer (305-mm radius). This injector has a 90° double focusing magnet (ME/$Z_2$=15, 457-mm radius) with a chamber insulated electrically from the ground to maintain the constant magnetic rigidity. Fast sequential injection of isotopes is performed by applying short high-voltage pulses to the insulated magnet chamber. The second ion source produces negative carbon ions by using cesium to sputter pure titanium surface onto which sample gas is continuously bled. Details of this multiple gas feed negative ion source (MGF-SNICS) are reported elsewhere in this conference. The MGF-SNICS is dedicated to accurate radiocarbon dating with a simultaneous isotope injector. In this injector, two magnets are used to separate and combine the negative ions of masses 12, 13, and 14 in the horizontal plane. Einzel lenses are provided to focus the ion beams into and out of the magnets. At the midpoint of the magnets, there is a slot lens for focusing three ion beams vertically. The rare radioisotopes are detected by a multiple electrode ion chamber. A time of flight setup with a path of 3 m can be used for a measurement of heavy isotopes.

Current status of our AMS facility will be reported.