surements of, and corrections for, δ^{13}C values; 3) corrections to {superscript 14}C measurements for contamination introduced in sample preparation; 4) dependence of {superscript 14}C ages on sample size and target composition; 5) properties of {superscript 10}Be measurements; 6) a recent modification to the accelerator; and 7) planned future additions to the instrument. The particular modification to be discussed is the installation and operating characteristics of an insulator which supports the high-voltage terminal. This insulator allows us to decrease the stresses on the delrin rods which are used to maintain the accelerator tubes under compression.

HIGH FREQUENCY RADIOCARBON VARIATIONS IN PACIFIC CORALS

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Modern corals from the western Pacific Ocean reveal substantial seasonal cycles in Δ^{14}C when sampled at a monthly frequency. GCM model results suggest that a significant portion of these seasonal cycles may be advected from the equatorial Pacific region, as opposed to being of local origin. Coupled U/Th and {superscript 14}C measurements on a long-lived (700 yr) Younger Dryas (YD) age coral reveal periodic inter-annual to decadal scale variability in ocean surface water Δ^{14}C, with variations of 10–40‰ amplitudes. These periodic variations are superimposed on a long period 150‰ drop in Δ^{14}C which occurred during the YD. Carbon box model results suggest that such changes cannot plausibly be produced by changes in the Earth’s magnetic field intensity, but that it is possible to produce such variations solely by modulating the thermohaline circulation flux associated with NADW.

{superscript 36}Cl VARIATIONS IN GREENLAND ICE SINCE 1425 AD

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{superscript 36}Cl was measured in 470 samples of a 300-m-long ice core from Dye 3, Greenland, which has been analyzed previously for {superscript 10}Be. The {superscript 36}Cl record has an annual resolution and reveals interesting features. The solar modulation is reflected in the Schwabe sunspot cycle as well as in the 90-yr Gleissberg cycle. The Maunder and the Spöerer minima are also present. In the 1950s the {superscript 36}Cl concentration was increased dramatically by nuclear bomb tests.

A detailed comparison between {superscript 36}Cl and {superscript 10}Be measured on the same pre-bomb samples shows a relatively high similarity of the basic features of both records. However, on the average {superscript 36}Cl lags behind {superscript 10}Be by about one year. This points to a longer atmospheric residence time of {superscript 36}Cl compared to {superscript 10}Be and provides some hints to atmospheric transport processes.

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WEAKLY BOUND NEGATIVE IONS STUDIED BY LASER EXCITATION AND AMS

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Properties of weakly bound elemental and molecular negative ions (electron affinity and photodetachment cross section) are measured by combination of laser excitation and AMS techniques. The photodetachment cross section is determined by measuring the depletion of negative ions through