from ^{14}C, $\delta^{13}C$ and $\delta^{15}N$ analysis of individual amino acids from collagen. Carbon isotopes monitor C_3 and C_4 plant abundances, N isotopes record soil moisture and ^{14}C provides chronological control. Using individual amino acids controls for diagenesis of proteins.

IMPLICATIONS OF DIPOLE-MOMENT SECULAR VARIATION FROM 50,000 TO 10,000 YEARS FOR THE RADIOCARBON RECORD

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Sparse paleointensity data from 10,000 to 50,000 years suggest that the average dipole moment (DM) was 50–75% of the average of 8.67 ($\times 10^{22}$) Am^2 for the past 5 million years and 8.75 for the past 11,000 years. A linear ramp function, increasing the DM from 4 to 8.75 Am^2 between 50,000 and 10,000 BP, generates a total ^{14}C inventory of 122 dpm/cm^2, yielding better agreement with recent inventory assays, which include ^{14}C in sedimentary sinks. Using the Lingenfelter and Ramaty (1970) production function and a model DC gain of about 110, this DM function would give a $\Delta^{14}C > 200‰$ from 20,000 to 30,000 BP, similar to the Barbados coral record. This particular production function leaves a decaying tail showing a decrease of 25% during the Holocene. Another problem in this time period is the existence and nature of the Laschamp event ca 45,000 BP. Such an event, with a DM equal to 25% of its average value and lasting 5000 years, would only increase the present-day inventory by 0.3–1.2 dpm/cm^2, but could produce a ^{14}C spike of 500‰. We will present a family of DM histories that are consistent with Holocene and Pleistocene ^{14}C records.

A REVISED SWEDISH CLAY VARVE CHRONOLOGY: PRESENT STATE OF THE ART

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A comprehensive revision of the late- and postglacial Swedish varve chronology (the Swedish time scale) is in progress. So far, a new chronology covering a 1000-year period of Late Weichselian deglaciation from the youngest Younger Dryas moraines has been worked out, and the postglacial time scale has been connected to the present. Older, pre-Younger Dryas parts of the time scale are covered by floating chronologies, which have not yet been definitely correlated.

The clay varve chronology now dates the end of the Younger Dryas to about 10,700 calendar years BP (10,738 +50/–225 BP). The end of the Younger Dryas is then morphologically and clay-stratigraphically defined as the end of the stagnation period at the youngest Fennoscandian moraines in Sweden. This stagnation is followed by rapid and uncomplicated ice recession. The date is younger than the value obtained by mass spectrometry of U-Th in Barbados corals (ca 11,500 BP) for the Pleistocene/Holocene boundary, but very close to the number of annual layers counted down to this boundary in the Dye 3 deep ice core from Greenland (10,720 ± 150 BP).