Geophysical Research Abstracts,
Vol. 11, EGU2009-7109, 2009
EGU General Assembly 2009

Chronostratigraphical Subdivision of the Late Glacial and the Holocene for the Alaska Region

D. J. Michczynska (1) and I. Hajdas (2)

(1) Silesian University of Technology, Institute of Physics, GADAM Centre of Excellence, Gliwice, Poland (danuta.michczynska@polsl.pl), (2) Laboratory for Ion Beam Physics, ETH Zurich, Switzerland (hajdas@phys.ethz.ch)

Our work is a kind of so called data mining. The first step of our work was collection of the radiocarbon data for samples coming from Alaska. We construct data base using Radiocarbon Measurements Lists published by different radiocarbon laboratories (mainly in the journal
Ŕadiocaron
ŕ). The next step was careful analysis of collected dates. We excluded from our analysis all dates suspected of contamination by younger or older organic matter. Such fact could be stated, for instance, on the base of inconsistency of radiocarbon age and stratigraphy or palynology. Finally, we calibrated whole large set of chosen radiocarbon dates and construct probability density function (PDF).
Analysis of the shape of PDF was the subject of the previous research (eg. Michczynska and Pazdur, 2004; Macklin et al., 2006; Starkel et al., 2006, Michczynska et al., 2007). In our analysis we take into account the distinct tendency to collect samples from specific horizons. It is a general rule to take samples for radiocarbon dating from places of visible sedimentation changes or changes in palynological diagram. Therefore the culminations of the PDF represent periods of environmental changes and could be helpful in identifying the chronostratigraphical boundaries on the calendar time scale.

References:
Michczyńska D.J., Pazdur A., 2004. A shape analysis of cumulative probability density function of radiocarbon dates set in the study of climate change in Late Glacial and Holocene. Radiocarbon 46(2): 733-744.
Michczyńska D.J., Michczyński A., Pazdur A. 2007. Frequency distribution of radiocarbon dates as a tool for reconstructing environmental changes. Radiocarbon 49(2): 799-806.
Macklin M.G., Benito G., Gregory K.J., Johnstone E., Lewin J., Michczyńska D.J., Soja R., Starkel L., Thorndycraft V.R., 2006. Past hydrological events reflected in the Holocene fluvial record of Europe. CATENA 66: 145-154.
Starkel L., Soja R., Michczyńska D.J., 2006. Past hydrological events reflected in Holocene history of Polish rivers. CATENA 66: 24-33.