Geophysical Research Abstracts
Vol. 16, EGU2014-4749, 2014
EGU General Assembly 2014

Conversion of GISP2-based sediment core age models to the GICC05 extended chronology for coherent spatial analysis

Stephen Obrochta (1), Yusuke Yokoyama (1), Jan Morén (2), and Thomas Crowley (3)

(1) Atmosphere and Ocean Research Institute, University of Tokyo, Japan, (2) Neural Computation Unit, Okinawa Institute of Science and Technology, Japan, (3) Braeheads Institute, East Linton, Scotland

Marine and lacustrine sediment-based paleoclimate records are often not comparable within the early to middle portion of the last glacial cycle. This is due in part to significant revisions over the past 15 years to the Greenland ice core chronologies commonly used to assign ages outside of the range of radiocarbon dating, which results in temporal offsets of up to 4,000 years between recently published and classical proxy data. Therefore, creation of a compatible chronology is required prior to analysis of the spatial and temporal nature of climate variability at multiple locations. This is accomplished with an automated mathematical function that updates GISP2-based chronologies to the newer, NGRIP GICC05 age scale between 8.24 and 103.74 ka b2k. The script uses, to the extent currently available, climate-independent volcanic synchronization of these two ice cores, supplemented by oxygen isotope alignment. Results of quantitative synthesis that fail to account for offset may produce spurious results.