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Poster presentation:

Assessing the Importance of Terrestrial Radiocarbon Archives for the Glacial Period: Implications of the Suigetsu (SG06) Radiocarbon Record

C Bronk Ramsey^{a*}, RA Staff^a, C Bryant^b, F Brock^a, A Brauer^c, H Lamb^d, M Marshall^d, G Schlolaut^c, P Tarasov^e, T Haraguchi^f, K Gotanda^g, Y Yokoyama^{h,i}, H Yonenobu^j, R Tada^h, T Nakagawa^k, and Suigetsu 2006 Project Members^l

^a Research Laboratory for Archaeology and the History of Art, University of Oxford, UK.

^b NERC Radiocarbon Facility (Environment), East Kilbride, UK.

^c GeoForschungsZentrum, Potsdam, Germany.

^d Institute of Geography and Earth Sciences, University of Wales Aberystwyth, UK.

^e Institute of Geological Sciences, Freie Universität, Berlin, Germany.

^f Department of Biology and Geosciences, Osaka City University, Japan.

^g Faculty of Policy Informatics, Chiba University of Commerce, Japan.

^h Department of Earth and Planetary Sciences, University of Tokyo, Japan.

ⁱ Ocean Research Institute, University of Tokyo, Japan.

^j College of Education, Naruto University of Education, Japan.

^k Department of Geography, University of Newcastle-upon-Tyne, UK.

^l For full details see: www.suigetsu.org

* Corresponding author: christopher.ramsey@rlaha.ox.ac.uk

Long-term radiocarbon records contribute in two main ways to our understanding of the Quaternary. Most obviously they provide us with the necessary data to calibrate radiocarbon dates to provide chronologies for this period. Equally important, however, is the part they can play in helping us to understand aspects of the earth's system.

Most of the existing radiocarbon archives for this period, prior to the continuous tree-ring records of Northern Europe and North America, are measured on samples that have reservoir offsets relative to the atmosphere. In the case of marine samples, such as coral and foraminifera, the difference between the atmosphere and the marine environment depends on ocean circulation and rates of exchange in surface waters. Speleothems, which provide another important archive, have ground-water reservoir effects that might (or might not) vary with local changes in climate. These archives have provided an important proxy for atmospheric variation in radiocarbon and give us the ability to calibrate radiocarbon over this age range, albeit with some inherent uncertainties.

Lake Suigetsu, with its new varve-based chronology, provides an independent and purely terrestrial radiocarbon record (SG06; see [Staff et al., this conference](#)). This enables us

to test some of the assumptions underlying the use of non-terrestrial radiocarbon records for calibration and, perhaps equally importantly, enables us to use the combination of terrestrial, marine and other records to tell us about changes in carbon cycling. This paper will look at the implications of the new radiocarbon dataset for both chronological and climatic research.