



18th INQUA Congress, Bern, Switzerland
(21st-27th July 2011)
Poster presentation:

The Late Glacial in Japan: Micro-facies Analyses of the Lake Suigetsu Sediments and Palaeoenvironmental Implications

G Schlolaut^{a*}, A Kossler^b, MC Marshall^c, A Brauer^a, P Tarasov^b, T Nakagawa^d,
HF Lamb^c, Y Yokoyama^{e,f}, R Tada^e, T Haraguchi^g, and Suigetsu 2006 Project Members^h

^a GeoForschungsZentrum, Potsdam, Germany.

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

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

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

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

^f Ocean Research Institute, University of Tokyo, Japan.

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

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

* Corresponding author: gosch@gfz-potsdam.de

Lake Suigetsu, located on the west coast of central Japan, is a highly suitable site for the reconstruction of palaeoclimatic changes in the East Asian realm, as demonstrated previously by [Nakagawa *et al.* \(2006\)](#) for palaeo-monsoon variability. Since the sediment record is varved for much of its depth, it allows climate changes to be considered at a high temporal resolution.

However, the core on which previous work was performed (SG93), showed gaps in the sediment profile, as core sections weren't overlapping. In 2006, four parallel cores were recovered from Lake Suigetsu and combined to construct a new, continuous, master profile (SG06). Along with a new program of AMS radiocarbon measurements, varve counting is being carried out using two different techniques: thin section microscopy, and high-resolution X-ray fluorescence and X-radiography. As well as facilitating the construction of a new and highly robust chronology, this approach also allows sedimentological analyses of the SG06 sediment profile at extremely high resolution.

Results are presented for the Late Glacial and early Holocene (15.0 - 10.2 kyr BP). Major climate changes within the Late Glacial (onset of the Late Glacial warming, and Younger Dryas cooling) are identified through micro-facies analyses using the distribution of varve sub-layers composed of detrital material, organic matter, diatoms and authigenic siderite. In addition, high resolution diatom analyses allow the Younger Dryas cooling in Japan to be characterised using a multi-proxy approach. Together with the independent varve chronology, this allows the precise temporal delineation of the boundaries with respect to the

different proxies. Results shed new light on the timing of Late Glacial climate changes and advance our understanding of these abrupt transitions.

Reference:

[Nakagawa T *et al.* \(2006\)](#) *Geology* **34** (7), 521-524.