



Rapid hydrological and environmental changes during the Late Glacial - diatomaceous silica oxygen isotopes derived from varved sediments of Meerfelder Maar, Germany

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Variations of biogenic silica oxygen isotopes have been investigated on a composite varve dated sediment profile from Lake Meerfelder Maar located in the mountainous Eifel region, Germany, covering the time span from 13.450-11.000 years BP. Geochemical parameters (e.g. carbon isotopes, TOC values), micro-facies analysis and flux rates show distinct changes in the transition phases between Late Glacial Biozones (Allerød-Younger Dryas and Younger Dryas-Preboreal boundary) and a clear division of the Younger Dryas into two parts (Lücke & Brauer, 2004). The aim was to shed more light on these results by using the oxygen isotope composition of diatomaceous silica as an additional proxy for hydrological and/or environmental changes.

Diatom frustules were separated from the sediment in three different size classes (20-80, 10-20, 5-10 μm) representing different assemblages. The diatom oxygen isotope composition was measured for each size class to investigate potential differences between these assemblages. The resulting values are different for the studied size classes from the same samples and, in addition, the $\delta^{18}\text{O}_{\text{diatom}}$ record shows a large variability over the investigated time period.

These results will be discussed in view of other Northern Hemisphere archives.

Lücke, A. & Brauer, A. (2004) : Biogeochemical and micro-facial fingerprints of ecosystem response to rapid Late Glacial climatic changes in varved sediments of

Meerfelder Maar (Germany). *Palaeogeography, Palaeoclimatology, Palaeoecology* 211, 139-155.

Moschen, R., Lücke, A. & Schleser, G. H. (2005): Sensitivity of biogenic silica oxygen isotopes to changes in surface water temperature and palaeoclimatology. *Geophysical Research Letters* 32, No. 7.