



The past 1000 July temperatures reconstructed by chironomids in varved Lake Silvaplana, Switzerland

I. Larocque-Tobler and M. Grosjean

Oeschger Centre for Climate Change Research, University of Bern (larocque@giub.unibe.ch)

The mean July air temperature inferences obtained from chironomids (non-biting midges) preserved in the varves of Lake Silvaplana compared well (average difference of 0.35°C) with instrumental data from a meteorological station located on the shore of the lake. The same proxy was thus used to reconstruct mean July air temperature during the last 1000 years. Warm summers (1°C warmer than the climate normal (1960-1990)) were inferred between ca. 1000 and 1200 years AD. This warmer period was followed by cold (1°C colder than the climate normal) inferred mean July air temperatures between ca. 1200 and 1770 AD. A short period between ca. 1460 and 1510 of warmer climate was registered and corresponded to decreases in glacier expansions in Switzerland. The inferred temperatures were similar to the climate normal between ca. 1770 and 1880 AD, slightly colder (by 0.4°C) between ca. 1880 and 1930, almost 1°C warmer between ca. 1930 and 1960, colder by 0.4°C during the 1970's and subsequently increased from 1980 to the present. The general pattern of temperature changes agrees well with various reconstruction using other proxies from other regions in Europe and North America. The chironomid-inferred temperatures will be used for modelling climate over the last 1000 years within the framework of the EU-funded "Millennium Project".