



High-resolution diatom-inferred climate reconstruction (AD1500 to 1950) from the eastern Swiss Alps

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Analysis of diatoms preserved in the glacially-varved sediments of Lej da Silvaplauna, located in the Upper Engadine Valley of southeastern Switzerland, provides a new high-resolution climate proxy record for the last 500 years with very precise chronological control. Previous work on the Lej da Silvaplauna sediment record by Blass et al. (2007) produced a decadal-scale autumn temperature reconstruction based on biogenic silica (mainly diatoms) accumulation rates and a decadal-scale summer temperature reconstruction based on total mass accumulation rates (mainly detrital minerals).

Two methodologies for quantitative reconstruction of climate from the diatom record are considered: calibration to existing regional training sets (i.e., space for time substitution) and regression of individual time-series to the local instrumental record, which extends back to 1864. Diatoms show a strong response to cultural eutrophication since AD1950, precluding the use of this period in model development and validation. Prior to this period, however, low accumulation rates and dominance by *Cyclotella* taxa suggest oligotrophy and sensitivity to climate.

This record represents one of multiple terrestrial sedimentary proxy records developed as an element of the EU-wide project, 'European climate of the last millennium.'