



Lateglacial climate changes in a sediment record from Lake Mondsee (Upper Austria)

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The lateglacial sedimentary succession at the base of a c. 15 m-long sediment core recovered from pre-alpine Lake Mondsee (Upper Austria) has been microscopically analysed on large-scale thin sections. A floating varve chronology is established, showing significant sedimentation rate changes due to lateglacial climate variability. Microfacies data are discussed in combination with high-resolution geochemical analyses, spectrophotometry data and magnetic susceptibility measurements, allowing the identification of major climatic fluctuations. Fine laminations occur almost continuously during the whole Lateglacial with better preservation during stadials due to higher detrital input. The predominantly clastic basal facies is interpreted as proglacial varves with a silty base of detrital carbonate and subordinated siliciclastics accumulated in spring/summer, and a clayey sub-layer on top deposited in quiet-water conditions under ice cover. The onset of biochemical calcite precipitation at the end of the basal facies marks the shift to warmer climatic conditions. In general, stadials exhibit a dominance of allochthonous clastics, resulting in higher sedimentation rates, whereas interstadials are characterized by endogenic calcite precipitation and lower sedimentation rates. The frequent intercalation of turbidites of up to 75 mm thickness within the regular varve succession of both interstadials and stadials indicates extreme surface runoff events caused by snow melt or precipitation.

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