

Holocene Glacier Fluctuations in the Swiss Alps and Dendrochronological Investigations at the Alpine Timberline in the Valaisian and Grison Alps

Original title / Originaltitel

Postglaziale (holozäne) Gletscherschwankungen in den Schweizer Alpen und dendrochronologische Untersuchungen an der alpinen Waldgrenze in den Walliser und Bündner Alpen

Summary / Zusammenfassung

The reconstruction of holocene glacier fluctuations are achieved using several methods. Written and pictorial historical records such as drawings, paintings, engravings and photographs are interpreted. The radiocarbon dating of fossil soils and wood from glacier forefields indicate glacier advance and retreat periods. The dendrochronological analysis of some of these fossil woods give absolute dates if they fit within known absolute dated tree-ring chronologies. These investigations are necessary to find the range of glacier fluctuations during the last 10,000 years - the maximum and minimum extensions during holocene advance and retreat periods. Furthermore, this investigation also shows how far the modern accelerated retreat period of the alpine glaciers is unusual as compared to earlier retreat periods. A further aim of the dendrochronological analysis of larch and alpine stone pine trees found at the alpine timberline is to establish long tree-ring width chronologies as a base for dating fossil wood found in glacier forefields. These tree-ring records will also be used to reconstruct the mean June/July temperatures at high altitudes in the Swiss Alps.

Weitere Informationen unter <http://www.geo.uzh.ch/phys/research.html>

Publications / Publikationen

Holzhauser, H. (1997): Fluctuations of the Grosser Aletsch Glacier and the Gorner Glacier during the last 3200 years: new results. In: Frenzel, B. (ed.): Glacier fluctuations during the Holocene. Paläoklimaforschung/Palaeoclimate Research, 24. 35-58.

Holzhauser, H. and Zumbühl, H.J. (1996): To the history of the Lower Grindelwald Glacier during the last 2800 years - palaeosols, fossil wood and historical pictorial records - new results. Z. Geomorph. N.F., 104, 95-127.

Holzhauser, H. and Zumbühl, H.J. (1999): Glacier fluctuations in the Western Swiss Alps and French Alps in the 16th century. Climatic Change, special issue (in press).

Keywords / Suchbegriffe

Holocene glacier fluctuations, Dendrochronology, Dendroclimatology, Palaeoclimatology, Dendroecology

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