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## Sediment core analysis of glacial lakes Löbbensee and Salzbodensee, Hohe Tauern, Austria

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Glacial lakes represent important sedimentary archives that provide information on recent and postglacial dynamics in terms of climate, glacial development, geology, depositional processes, and mass movement dynamics in the catchment. This study investigates the sediment of two glacial lakes, Salzbodensee and Löbbensee, in the Hohe Tauern National Park, Austria. The work aims to characterise the lake sediments, to relate sediment composition to catchment characteristics, and to calculate sedimentation rates. A broad analysis of sedimentological parameters, including grain size, water content, organic content, magnetic susceptibility, bulk density, P-wave velocity, as well as geochemistry (X-ray fluorescence) was conducted on five sediment cores. Based on the radiometric dating (Pb-210 and Cs-137), sedimentation rates for Lake Löbbensee were calculated. The analysis reveals that fine sand predominates in both lakes. Due to the size and shallowness of Lake Salzbodensee the fluvial sediment entering the lake is distributed equally, whereas Lake Löbbensee shows proximal-distal fining. Deeper locations generally exhibit a higher water content, whereas in shallow water greater deviations exist. Organic contents of both lake sediments are low compared to similar studies. Measured XRF elements and magnetic susceptibility relate to gneiss in the catchment. Higher values of Si and Ca in the cores correlate with sandy samples. In turn, all main component elements Fe, K, Ti, Ca and Si are more frequent in silty samples. The sediment of Lake Löbbensee is up to  $145 \pm 24.4$  years old with an average sedimentation rate of 3.54 mm/a. This research provides the first sedimentary analyses of Lake Salzbodensee and Lake Löbbensee.

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