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A new multi-proxy record of environmental change over the last 1000 years on Chiloé Island: Lake Pastahué, south-central Chile (42°S)

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Abstract

Knowledge of past environmental and climatic conditions of lake ecosystems on Chiloé Island on a millennial scale is limited. Hence, this study fills a gap in our understanding of this part of southern Chile. The aim of this study was to reconstruct the environmental and climatic history of the last 1000 years of Lake Pastahué through a multi-proxy sediment core analysis. The 1-m-long core was subsampled every centimeter for the organic matter, magnetic susceptibility, grain-size distribution, and biological indicator (pollen, chironomids) analyses. The age model was constructed from ^{210}Pb, ^{137}Cs, and ^{14}C activity. Pollen results revealed a North Patagonian forest composition represented by *Nothofagus, Weinmannia, Drimys, Tepualia*, Myrtaceae, Poaceae, and Pteridophyta. The abundance of *Rumex* and *Pinus* in the most recent part of the pollen assemblage reflects a clear anthropogenic impact. The sedimentological parameters and chironomid assemblage show similar variations, which highlight changes in the trophic state of the lake.



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