



Climate variability during the deglaciation and Holocene in a high-altitude alpine lake deduced from the sedimentary record from Laguna Seca, Sierra Nevada, southern Iberian Peninsula

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High-resolution X-ray fluorescence (XRF), magnetic susceptibility (MS), color and lithological analyses have been carried out on a 3.6 m-long sediment core from Laguna Seca, a high-elevation dry lake from Sierra Nevada mountain range, southern Spain. This is the longest sedimentary record retrieved from an alpine lake in southern Iberian Peninsula. Besides, alpine lakes are very sensitive environments to climate changes and previous studies showed that Laguna Seca could provide an excellent record to identify millennial-scale climate variations during deglaciation and the whole Holocene. XRF analyses, in particular high calcium and low K/Ca ratios, show aridity phases, very well represented during Last Glacial Maximum (LGM) and the Younger Dryas (YD). Arid events are also shown at ca. 8.1 ka BP, ca. 4.4 ka BP and the latest Holocene. On the other hand, negative values in calcium and positive values in K/Ca appear in the Bølling-Allerød (BA) and during the early Holocene until ca. 6 ka BP, indicating more humidity and higher run-off. A progressive aridification trend is also observed in the Holocene, changing from more humid conditions during the early Holocene to more aridity during the late Holocene.