



Productivity phases in Glacial Patagonian steppe lake sediments as counterparts to Antarctic warm events

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In Antarctica the last Glacial was punctuated by several warm events (A1- A7) occurring between 90 and 35 ka BP. The pronounced reduction of the non-sea-salt calcium flux (nss-Ca²⁺) in Antarctic ice cores during these millennial scale warm events are interpreted as changes in eolian dust deposition connected to intensity changes of the Southern Hemispheric Westerlies (SHW) and to warmer conditions in southern Patagonia.

We have investigated the Glacial section of a composite sediment profile (5022-2CP) recovered in 2008 in the framework of the ICDP deep drilling project PASADO from Laguna Potrok Aike located in south-eastern Patagonia, Argentina (51°58' S, 70°23' W). We used element contents and stable isotopes (C, N) of sedimentary organic matter to trace evidences for Glacial warm phases in Patagonia. Intercalated into the quasi-monotonic behaviour of our proxies we find two distinct phases of increased carbon and nitrogen content, increased carbon isotope and decreased nitrogen isotope values. According to the current age-depth model (v.3) these are millennial scale phases centred around 37.5 and 46.0 cal. ka BP that chronologically match the first two warm events in Antarctica (A1 and A2). Based on our knowledge of the behaviour of organic isotope proxies during the Holocene and Late Glacial we interpret the observed pattern during these phases as typical for enhanced lacustrine productivity that could be stimulated by nutrient input and/or reduced strength of the SHW.