

# Early to mid-Holocene aridity in central Chile and the southern Westerlies: The Laguna Aculeo record (34°S)

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Central Chile (32-35°S) lies at the northern border of strong Westerly influence and thus exhibits a steep precipitation gradient. Therefore, the palaeoclimatic archives in the region are suitable for detecting past moisture changes. The study of Laguna Aculeo (33°50'S, 70°54'W) presents a multiproxy Holocene lake record including sedimentology, geochemistry, mineralogy, pollen, diatoms, and radiocarbon dating (17 dates). Results indicate an arid early to mid-Holocene period (about 9500-5700 cal yr B.P.). After 5700 cal yr B.P. effective moisture increased progressively and, around 3200 cal yr B.P., modern humid conditions were established. Numerous intercalated clastic layers reflect flood deposition during rainy winters. A fluvial unit was deposited shortly before 9000 cal yr B.P. Subsequently, flood events were absent until 5700 but have become frequent since 3200 cal yr B.P. The frequency of flood layers possibly points to weak or no El Niño activity during the early and mid-Holocene.