Paleoclimatic records of quaternary tufa in the Serra do André Lopes karst, southeastern Brazil

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Abstract	The Serra do André Lopes is a karst area situated in a dolomite plateau with a superhumid subtropical climate in the Ribeira de Iguape River valley, in the south of the State of São Paulo. It has tufa deposits in the form of waterfalls and dams. Gastropod shells and tufas were dated by 14C AMS and calibrated with SHCal04 (McCormac et al., 2004). Studies were made of two deposits in the form of paleo-waterfalls found on hillsides. At the location of Sapatú, stratified friable tufas, with irregular to plane-parallel layering, comprise various temporally repeated sequences with an apparent thickness of more than 12 meters. They are composed of phytohermal oolitic, peloidal and psolitic micrites, with interclasts of tufa, lithic fragments, terrestrial gastropod fossils and plant molds. Two of the dated sequences cover the period from 10,194 to 3,375 cal yrs BP. Small ?18OPDB variations occur (-4.73 to -5.8 ‰) and reflect the stability of groundwater isotopic composition, although three significant negative anomalies (-6.5 to -7.07 ‰) are present: 8,749, 8,083 and 4,812 cal yrs BP. In these levels there are concentrations of fossils of gastropods and terrigenous material, represented by concentrations of SiO2, Al2O3 and lithic fragments, and lower concentrations of CaO. Such anomalies are interpreted as representing events involving large-magnitude increases in rainfall, correlated, for example, to the 8.2 ky event. These negative anomalies have also been recorded in speleothems in the south of Brazil. Use of tufas as paleoclimatic indicators is still not commonplace in Brazil and the data obtained contribute to providing evidence of the effectiveness of the use of such data in aiding understanding of the Holocene in southeastern Brazil. (Work funded by the FAPESP - proc. n° 08/08583-7) McCormac, F G; Hogg, A G; Blackwell, P G; Buck, C E; Higham, T F G; Reimer, P J. 2004. SHCal04 Southern Hemisphere Calibration, 0-11.0 cal kyr BP. Radiocarbon, v. 46, p.1087-1092.
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