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Oxygen isotope analysis of bones in palaeoclimatic reconstruction: The case of Arkoudospilia cave, N. Greece

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Samples of Late Pleistocene bear bones (Ursus ingressus) from the Almopia Speleopark bear-cave (Macedonia, N. Greece) were studied from paleontological and geochemical point of view, for palaeoclimatic reconstruction of the area. The age range of the fossil layers is from 32ka BP to a maximum of 38ka BP. Bone material was tested for diagenetic alteration through mineralogical (X-Ray Diffraction) and geochemical (C/N ratio) analyses. The 18O of the carbonate material of hydroxyapatite of the bones was used several times in literature as a good indicator of the 18O of the local water precipitation. The results of stable isotope analyses on bone carbonate hydroxyapatite were used in this study, after comparison with isotopic composition of modern local water precipitation, to reconstruct the palaeoclimatic conditions of the region of Almopia Speleopark.