
Geochemical fingerprinting of Magdalenian chert tools from Caune de Belvis (Aude, France). New data about lithic procurement strategies and past territoriality in the Pyrenees

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Abstract

Caune de Belvis (Aude, France) is located in the northern slopes of the Eastern Pyrenees, in SE of France. The site was excavated during the last decades of the past century, identifying several human occupations from the Late Mousterian (Maroto, Sacchi & Ortega, 2005) and the Magdalenian periods (Sacchi, 1995). Archaeological remains are mostly composed of faunal bones and a rich osseous and lithic industry. In this study we have focused on the analysis of lithic remains recovered in the Magdalenian levels.

The goals of this study have been to determine the territoriality of Magdalenian groups settled at Caune de Belvis and to identify their lithic procurement strategies. To achieve these goals, the recovered lithic remains from the Magdalenian levels as well as geological samples from the potentially used geological formations were analyzed using several analytical techniques. First, macroscopic studies were developed to determine the textural, micropalaeontological and mineralogical content. After this, geochemical analyses were conducted to quantify the elemental chemical composition. Energy-dispersive X-ray Fluorescence (ED-XRF) was used to quantify major and minor elements and Laser-ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) was then employed to quantify trace elements.

During the macroscopic analysis, it was attested that chert was the most used rock by Magdalenian groups, identifying until five different chert types. The geochemical analysis by ED-XRF and LA-ICP-MS allowed the establishment of differences between geological

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formations macroscopically identical and the connection between some archaeological chert types and specific geological formations.

Results have showed that different geological formations from the northern and southern Pyrenees were exploited by Magdalenian groups from Caune de Belvis, making evident the existent relation between both Pyrenean slopes during the Upper Palaeolithic and showing a great knowledge of the Pyrenean territory.

Keywords: ED, XRF, LA, ICP, MS, chert, Upper Palaeolithic