



Detrital cave sediments as recorders of environmental changes, the Seso Cave System (Huesca, Spain)

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The sedimentological study of a waterlaid detrital sequence of ~ 240 cm thick within the Seso Cave System (West-Central Pyrenees) reveals two types of sedimentary environments, the lower part (first 100 cm) is made of autochthonous (piping detached material from the Eocene marls host rock inside of the cavity) and the upper part, which is mixed with the pond deposits from 100 to 190 cm, is made of allochthonous (stream transported sediments from the outside) sediments. In these sediments, seven charcoal samples were dated using ^{14}C AMS ranging from 2080 to 650 cal yr BP (130 BC-1300 AD). Two levels of human occupation of the cave have been recognized by ceramics associated to the Iberian Period and to the Roman Period, respectively. The autochthonous material is made up of fine grain laminated sediments (lutites and marls) and corresponds to pond facies, whereas the allochthonous material is lutites and sands and corresponds to stream facies. The increase in sedimentation rate towards the end of the sequence points to an intensification of the alluvial activity as a possible consequence of a more arid climate during the Medieval Climate Anomaly. In addition to the sedimentological and chronological studies, magnetic analyses were performed in 44 standard samples taken along the profile. The magnetic signature of the samples confirm the difference in the provenance of the studied sequence, with lower values in the natural remanent magnetization and magnetic susceptibility in the pond facies than in the stream facies due to the lower quantity of ferromagnetic minerals in the former. The rock magnetic analyses reveal that the ferromagnetic mineral is a soft coercive mineral with Curie temperatures of 580°C , i.e. magnetite. In addition, the direction of the paleomagnetic record of the sediments is modified by the two human settlements.