

ORAL CONTRIBUTIONS
9:00-9:20 PRESENTATION

ORAL

1. PALAEOGEOGRAPHICAL RECONSTRUCTION OF THE PLEISTOCENE SITES IN THE SIERRA DE ATAPUERCA (BURGOS, SPAIN)

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The Sierra de Atapuerca is a carbonated gentle anticlinal ridge belonging to the NW extreme of the Iberian Chain (North-Central Spain, Burgos), which has been isolated (at least from the Oligocene) by subhorizontal continental endoreic sediments of the NE Duero Cenozoic Basin. The shift to exoreic conditions in the Duero Basin caused the onset of a downcutting staircase model, which caused the development of the Atapuerca multi-level cave system, containing several sites from the Early Pleistocene. In this work, we carry out the palaeogeographical reconstruction of the SW flank of the Sierra de Atapuerca, where these archaeo-palaeoanthropological sites are located.

These works are based on detailed geomorphological, geological and stratigraphical analysis, combined with GPS and 3D LiDAR data, and GIS and finite elements modelling. This work combines the reconstruction of Pleistocene base levels, the analysis of valley longitudinal profiles, the study of slope retreatment, the reconstruction of cave morphologies, and the reconstruction of post-depositional deformation features shown by the site sediments

These reconstructions have provided the landscape and karstic palaeogeographical habitats during the Pleistocene hominid occupation of the Sierra de Atapuerca.

ORAL

2. ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT) FOR IDENTIFYING TORCAS AREA PASSAGES CONNECTING GRAN DOLINA, GALERÍA COMPLEX AND SIMA DEL ELEFANTE SITES (SIERRA DE ATAPUERCA, BURGOS, SPAIN)

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Electrical Resistivity Tomography (ERT) carried out in the Sierra de Atapuerca sites (Ortega et al., 2010; Bermejo et al., 2013) has revealed its ability to characterizing the sub-surface geometry, which allows future archaeological planning strategies. This work is specially focused on the Torcas area in which the Gran Dolina, Galería Complex and Sima del Elefante sites, discovered by the railway trench, are located. These sites preserve archaeo-palaeoanthropological sedimentary infills dating back to the Early and Middle Pleistocene. The surveying was based on the elaboration of several ERT sections on the Trinchera area and in these sites' slope. This geophysical survey is aimed to identifying the extension and continuity of passages in the Trinchera multilevel cave system. The result of this exploration, together with previous geophysical, topographic, archaeological, geological and geomorphological data, shows a larger complexity of the karstic system than previously thought. The data confirms the presence of ancient cave entrances filled with sediments which relate to the upper cave level, and the existence of endokarstic morphologies belonging to the intermediate and lower karst level.

ORAL

3. SOIL-STRATIGRAPHY OF THE MIDDLE PLEISTOCENE SEDIMENTARY UNITS IN THE ELEFANTE, GALERIA AND GRAN DOLINA CAVE ENTRANCE DEPOSITS (SIERRA DE ATAPUERCA, SPAIN).

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In the cave entrance deposits of the Trinchera del Ferrocarril (Sierra de Atapuerca) there are sediments derived from soils and paleosoils. Paleosol studies provide observations to characterize paleoclimates, rates of sedimentation or fix hierarchies on stratigraphic discontinuities, among others. In this contribution, we present the description and classification of soil-horizons through field and microscopic features in order to propose a preliminary soil stratigraphy of the Middle Pleistocene lithostratigraphical units of the Elefante, Galería and Gran Dolina sites. The description of soil-horizon forming processes is based on the association of relict features and are distinguished from disturbed and inherited (re-sedimented) pedological features.

The indirect evidences available about paleoclimates and climate change in the Middle Pleistocene record of the Trinchera del Ferrocarril are mainly based on the abundant biostratigraphic record. This biostratigraphic record illustrates the dominance of temperate habitats according to the stable ecological composition of the mammalian record. The climatic-related significance and temporal span of the soil-forming processes can be added to the evidences devoted to interpret the Paleoeology in the Sierra de Atapuerca project.

Trinchera del Ferrocarril soil-horizons of Middle Pleistocene age can be grouped according to the dominant nature and number of phases in the soil forming processes recognized. Sediments derived from upslope soils recorded in the lithostratigraphic units can be characterised by their mineral composition and colour as yellow calcitic, red-yellowish carbonated and brown carbonaceous. The calcitic and carbonated sediments shows monophased pedological features of carbonatation and criogenic soil forming processes. Also, carbonated sediments may contain polyphased carbonatation and cryptocrystalline enrichments and depletions. Carbonaceous sediments contain monophased carbonatation and iron depletion.

During the Middle Pleistocene, the cave entrances of the Trinchera del Ferrocarril are located in the karstified middle slope of the Sierra de Atapuerca. The cave entrance depositional environment is a product of short