The use of digital tools for the characterisation of archaeological sites by surface archaeological survey

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During the year 2021 we carried out intensive archaeological surveys at several sites of Roman chronology in the Iberian Peninsula (Navarra, Spain; North Alentejo, Portugal). These archaeological surveys are part of a project to analyze the dynamics of Roman and Late Antique settlement in the Iberian Peninsula (Dynat-Inc Project) (Tobalina-Pulido, 2019). The aim of the poster is to present the methodology employed in the archaeological field recording and subsequent analysis of the data through the use of digital humanities.

The recording of materials in the field was carried out using GPS (both constructive and ceramic material), based on the methodology proposed by F. Trément (Trément, 2013). Each of the materials was georeferenced with a GPS, mapping the different areas prospected. In some zones we have been able to carry out, in turn, drone flights, which have allowed us two things: 1) to obtain bird's-eye views of the sites, 2) to generate cartography when we lacked it (in the case of Portugal). The objective was to characterize the sites in order to try to determine their chronology, extension and posible(s) use(s).

Once the data was collected in the field, we carried out a study of the materials and uploaded the data (both GPS data and material inventories) to a GIS. This allows us to know where each of the materials was located in the field and to be able to perform GIS distribution analysis. The use of GIS for settlement characterization has been very popular in recent years, since it allows the management of a large volume of data (Mayoral Herrera & Sevillano Perea, 2016; Mínguez García & Capdevila Montes, 2016). In our case, data management is carried out by means of a relational database. We have used ArcGIS software for both data management and analysis. The analyses carried out were as follows. Firstly, a visualisation of the cloud of points was carried out, in order to be able to observe clustering. Secondly, we have carried out density analyses of all the materials together, by type of material and by type of pottery, in order to be able to observe whether it is possible to detect different uses in the same site.

The use of spatial relational databases and GIS allows for a better understanding of rural settlement patterns (Tobalina Pulido, 2020). In the Portuguese case, we have been able to characterise a Roman settlement (Carneiro, 2005), possibly a metallurgical centre or part of a village; in the case of Navarre, it is a Roman villa (Iriarte Kortazar, 2000;), with possible continuity in the Late Antique period, in which we can clearly distinguish through analysis the different areas of the complex. Therefore, the poster will present the methodology used in the field, the methodology used in GIS and, finally, the results of two case studies will be presented, one in Alto Alentejo (Portugal) and the other in Navarra (Spain).

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