

Tarragona, Spain
4th-7th October, 2021

Multi-scalar Characterization of Raw Materials

Session 10: 3D-Based Approaches to Lithic Tools

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The application of digital tools for technological analyses in archaeology has bloomed during the last two decades and different digitalization techniques have been progressively applied to archaeological assemblages. Three-dimensional modelling is probably the most widespread digitalization technique so far, especially since the generalization of 3D scans and the appearance of structure from motion photogrammetric techniques.

3D-based approaches to artifacts allows us to quantify complex attributes and diverse morphological patterns, generating huge amounts of data. In parallel, new workflows based on complex statistical and quantitative methods are being developed. Furthermore, 3D modelling allows us to generate virtual shareable collections overcoming time and budget limitations and fostering on-line collaboration among institutions and researchers.

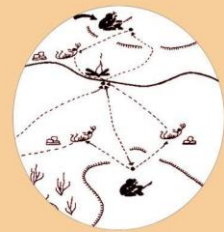
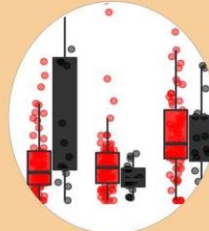
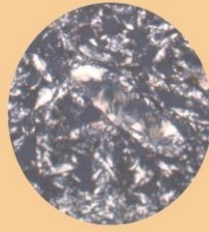
However, such generalization has been rarely accompanied by the definition and standardization of research procedures and workflows within the scientific community. This problem has been partially solved with the increase of reproducible protocols, especially for 3D acquisition and computer code.

This session has been conceived to make advances in this direction by pursuing a compilation of state-of-the-art reproducible methods and applications involving 3D-based approaches to stone tools.

Therefore, the session is structured around four main topics:

- Shape analysis and geometric morphometrics.
- Reduction intensity estimation in tools and cores.

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- Technological approaches and refitting.
- Data and code management: generation, storage, shareability, reproducibility.

All of these potentials have been explored already, some of them generating a considerable number of publications. However, the diversification of 3D approaches and the accumulation of virtual collections lose their potential without Open Data Protocols. This allows us to evaluate the methods, to reproduce the results and to foster further research, not only integrating different 3D approaches but also using virtual collections to improve the quality of the scientific debate.

For these reasons, the goal of this session is to bring together the research community developing and applying 3D-based approaches to lithic assemblages to compile and homogenize a robust methodological toolkit.