ABSTRACT SUBMISSION

Water Management Systems and Socio-Cultural Dynamics at Sila'/Sela (Jordan): an integrated approach

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Abstract

This poster presents a comprehensive study of water culture at the site of Sela, located in the semi-arid region of southern Transjordan. Our research addresses three key aspects: hydro technology and water supply systems; spatial and hydrological analysis; and the socio-cultural practices of water management. Based on archaeological surveys (2015 and 2016), Marsal documented Sela's water infrastructure, including canals, cisterns, and sedimentation basins critical for collecting, storing, and preserving rainwater. Using aerial images from the Aerial Photographic Archive for Archaeology in the Middle East (APAAME), Marsal and García-Carpallo created the first photogrammetric model of Sela, revealing previously unrecorded hydraulic structures and settlement density areas. A Digital Elevation Model (DEM) was developed to trace runoff pathways and assess zones relevant to water management, settlement density, and flood risk. Our spatial analysis of these structures has identified specific water access, control, and use, providing insights into how communities adapted to water scarcity. Interpreting these spaces has enabled us to propose hypotheses about socio-cultural practices in water management, situating our findings within global research. This integrative approach highlights the technical expertise of ancient communities in sustainable water management and provides a framework for interpreting distinct strategies devised by societies in arid regions.

Keywords

Archaeology of water, photogrammetric modelling, hydraulic engineering, spatial and hydrological analysis, socio-cultural water practices

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