The use of GPR in Archaeology: the structural detailing of buried roman baths

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Ground Penetrating Radar has widely proven to be an effective tool for archaeological purposes [1-4]. Our contribution concerns a geophysical experimental activity carried out in the Maxentius Complex, an archaeological site located between the second and the third miles of the ancient Appian Way in Rome, Italy. This site is characterized by different phases dated between the end of the 3rd and the beginning of the 4th century AD. The objective of this study is to evaluate the feasibility of GPR, in this case using two different antennas (200 MHz and 600 MHz frequencies), for the structural detailing of buried roman baths structures. As a result, GPR analysis confirmed the literature-based information, i.e. to precisely locate the tanks of the thermal area (2nd century AD). The structure was partially brought to light and reburied during the second half of the last century, providing a partial plan view of the area. In addition, the tomographic results, together with the analysis of B-Scans, highlighted the presence of two further tanks, thereby suggesting the possibility of further rooms which are located close to the known ones. Furthermore, the tomographic analysis revealed a wall pattern that seems to suggest the presence of other rooms in the top-right side of the area. In general terms, GPR demonstrated a great applicability to archaeological purposes, for example to detect buried remains and to interpret the function of buried structures, despite the reliability and productivity of the data interpretation are strongly influenced by the expertise of both the geophysicists and the archaeologists involved.

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