Final dissertation: Master of Science in Geotechnologies for Archaeology

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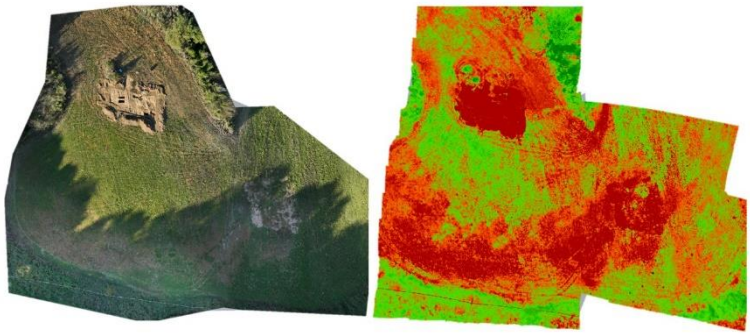
Dr. Anna Mecci

The case studies of Veio and Fiesole: non-invasive investigation tools and methodologies for the study of archaeological contexts

Internship at Istituto di scienze del patrimonio culturale - CNR (Sesto Fiorentino - FI)

The investigations conducted in the necropolis at Casa Agrifoglio in Veio and in the territory of Fiesole, using GNSS, multispectral UAVs, photo interpretation and GIS systems, have allowed me to develop new knowledge and skills regarding the use of non-invasive instruments for archaeological research.



Both studies highlighted two fundamental aspects: considering these technologies as excellent aids in the study of archaeological sites and contexts; acknowledging that, in most cases, the data acquired will need to be integrated and compared with field surveys.

The studies conducted in Casa Agrifoglio have partially expanded our knowledge of the Vientian necropolis and improved the georeferencing of archaeological traces. At the same time, external factors such as weather, vegetation and season have greatly influenced the interpretation of the burials.

In the territory of Fiesole, the study of aerial and satellite photographs did not lead to any new findings, but surveys and the creation of a geodatabase of ancient sites in wooded areas provided new information on the archaeological evidence present in this area.

Dr. Francesca Plateroti

Documenting an emergency urban excavation: multi-temporal TLS and UAV digital documentation and surveying of the Ex Albergo Roma "ARCUB" site (Camerino, MC)

Internship at ARCHEOLAB società cooperativa (Macerata)

This paper illustrates the results of the curricular internship carried out at the Archeolab società cooperativa, which focused on multi-temporal survey and digital documentation of the site of the former Albergo Roma “Arcub”, in the historic centre of Camerino (MC). The building, which was damaged in the 2016 earthquake and is now under archaeological excavation, overlooks Piazza Garibaldi, which is characterized by high stratigraphic complexity and likely corresponding to the Roman Forum of Camerinum.

The investigations have brought to light a complex context that dates to the 2nd century BC and the 17th century, and only the most superficial levels have been studied so far. The mediaeval church of San Michele Arcangelo's structures, which were destroyed in 1938, have been identified and include the perimeter walls, some community burials, and parts of the basement crypt.

The purpose of the work was to systematically document the evolution of the excavation to create a digital information base to support the cooperative's activities. Field data was acquired using a Leica BLK360 G2 Terrestrial Laser Scanner and subsequently integrated with UAV imagery. The post-processing was carried out entirely remotely, utilizing Leica Cyclone REGISTER 360 software to align TLS scans and Agisoft Metashape Professional 2.2 software to process photogrammetrically and generate dense point clouds, meshes, and orthophotos. A GIS environment was used to create a final site plan. CloudCompare software was then used to calculate excavation volumes and extract parts from point clouds.