



Non-invasive investigative techniques for the diachronic study of territorial compartments: a case study for the documentation and analysis of architectural complexes.

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The trend in the study of areas of land in their integrity and as dynamic, anthropic units in diachronic history has initiated long survey campaigns over several decades that have covered large areas mapping the evidence and attempting a reconstruction of the evolution of ancient settlements.

The need for further study to disentangle the knots of modes and types of settlement boosted further investigations of targeted excavations, based on the quality and density of the findings from the field. Currently archaeological research can rely on non-invasive integrated methods to better define the areas to be investigated systematically obtaining new typologies of information and better management of time and research costs.

In this paper we present a specific case study in which a variety of integrated survey methods have contributed to the documentation and analysis of monumental complexes linked to specific local contexts.

The area under investigation lies in Italy, in the province of Potenza and, specifically in the town of Forenza. The survey activities, involving the entire municipality, have been running on and off for about 2 years and have already resulted in the collection of a lot of interesting data that will be useful to essential fieldwork.

In particular, we carried out different types of investigation in three different sample sites:

1. monumental complex of Santa Maria de 'Armenis: to complement previous excavations which involved only a portion of the estimated area of interest, we carried out magnetometric and geo-electrical surveys aimed at a more precise definition of the true extent and interpretation of the monument in antiquity;
2. site of Monte Caruso: we carried out remote sensing using a remote-controlled UAV hexakopter drone with stereoscopic photogrammetric survey techniques aimed at the detailed documentation of the monumental evidence of a structure visible in elevation but in a context difficult to approach with traditional surveying systems;
3. wine presses in the "palmienti" district: we also tested here using remote sensing with a remote-controlled UAV hexakopter drone, introducing the automatic flight mode on waypoints in order to obtain precise photogrammetric strips and the creation of a detailed 3D model to document the complex geomorphology of the site, optimising time and the limited resources available.

In conclusion, the integrated use of these non-invasive investigative techniques had the advantage of obtaining valuable information and optimising the limited resources, creating an effective working basis for future project development, and immediately usable data for informational purposes, for the sponsors.