



Combining ERT and magnetic prospections to reveal buried limestone structures and burnt layers of the Richeaume necropolis in Provence (France)

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The Richeaume archaeological site is a rural domain around a classical villa and was occupied since Antiquity. Recently, a roman and high middle age necropolis centered on a limestone-built square-shaped wall was discovered using geophysical prospection and excavations. Many burial places were discovered in the red clay-composed soil around this building : it consists of sepultures covered by strongly-magnetized tegulae as well as of burnt layers (cremations).

For magnetic prospection at this site, the main problem is the great abundance of iron objects resulting from recent agricultural activities in the first 50 cm of the soil disturbing magnetic measurements even with a pre-cleaning of the studied area. Another particularity of this site is that walls, composed of weakly-magnetized limestones, appear negative on magnetic anomaly maps comparing with the surrounding composed of a red clay with iron oxides. Here we present the magnetic maps obtained after a specific data processing (filtering and modeling) to identify and to remove recent iron objects. Then, we compare these maps with cross-sections resulting from ERT soundings at this place. Combined with magnetic modeling, these ERT images help to define the depth and shape of these geophysical anomalies and to correlate them with already-excavated or possible archeological structures and artefacts.