

## Carnuntum – The Largest Archaeological Landscape in Austria and the Impact of Archaeological Prospection

A total area of about 300 hectares within the modern communities of Petronell and Bad Deutsch Altenburg can be classified as an archaeological area, which only partly has been archaeologically explored up to now. A complete inventory of all available aerial photographs will soon be compiled. A new general view of known archaeological structures may now be obtained by using photogrammetry for the interpretation of aerial photographs.

So far parts of the area have been successfully prospected applying geomagnetic and/or geoelectrical methods and GPR. Both aerial photography and existing geophysical data indicate that the archaeological heritage has suffered severe damage by deep ploughing. As constant excavation and reconstruction work is done at the “Archäologischer Park Carnuntum”, rescue excavations have to be initiated quite often because of modern construction projects. Those excavations tend to become long term projects. Scientific interests frequently are in conflict with the economic and housing development of the today's villages Petronell and Bad Deutsch Altenburg which are situated right in the archaeological zone. Thus establishing an appropriate prospection strategy applying non-intrusive methods for Carnuntum, the largest archaeological landscape in Austria, seems to be an important step towards further archaeological research and monument protection as well as regional planning.

The presented case studies may be regarded as prime examples of combined archaeological-geophysical prospection. The available aerial photographs are complemented by non-destructive geomagnetic and geoelectric measurements with a reading distance of 0.5 m or less. The resulting images can be combined with supplementary information. Thus quickly and inexpensively further knowledge of the archaeological monuments may be gained by means of digital image combination. After choosing suitable instrument set-up and measuring parameters accuracy may be enhanced by adding data of GPR measurements and depth information. The presented interpretation methods allows us to incorporate GPR into the standardized interpretation process of archaeological – geophysical prospection. GPR and other available geophysical data being the basis, a detailed 3D interpretation model of monuments is created. The thus gained information is an extremely important and efficient tool for any further archaeological research. Empiric data resulting from special case studies and developed evaluation – and interpretation methods enable projecting of a specific strategy for overall prospection of Carnuntum. Such a prospection seems to be urgently necessary from the scientific as well as from the development-planning point of view and could give enormous input to economic strategies by bundled and focused actions for the largest archaeological zone in Austria.

Fig. 1. Time-slices of GPR-data from Carnuntum; visualised are the absolute amplitude of the reflection waves in 15 cm slices (Pulse Ekko 1000, 450 MHz antenna, area 80 x 80 m, measured raster 0,5 x 0,1 m)

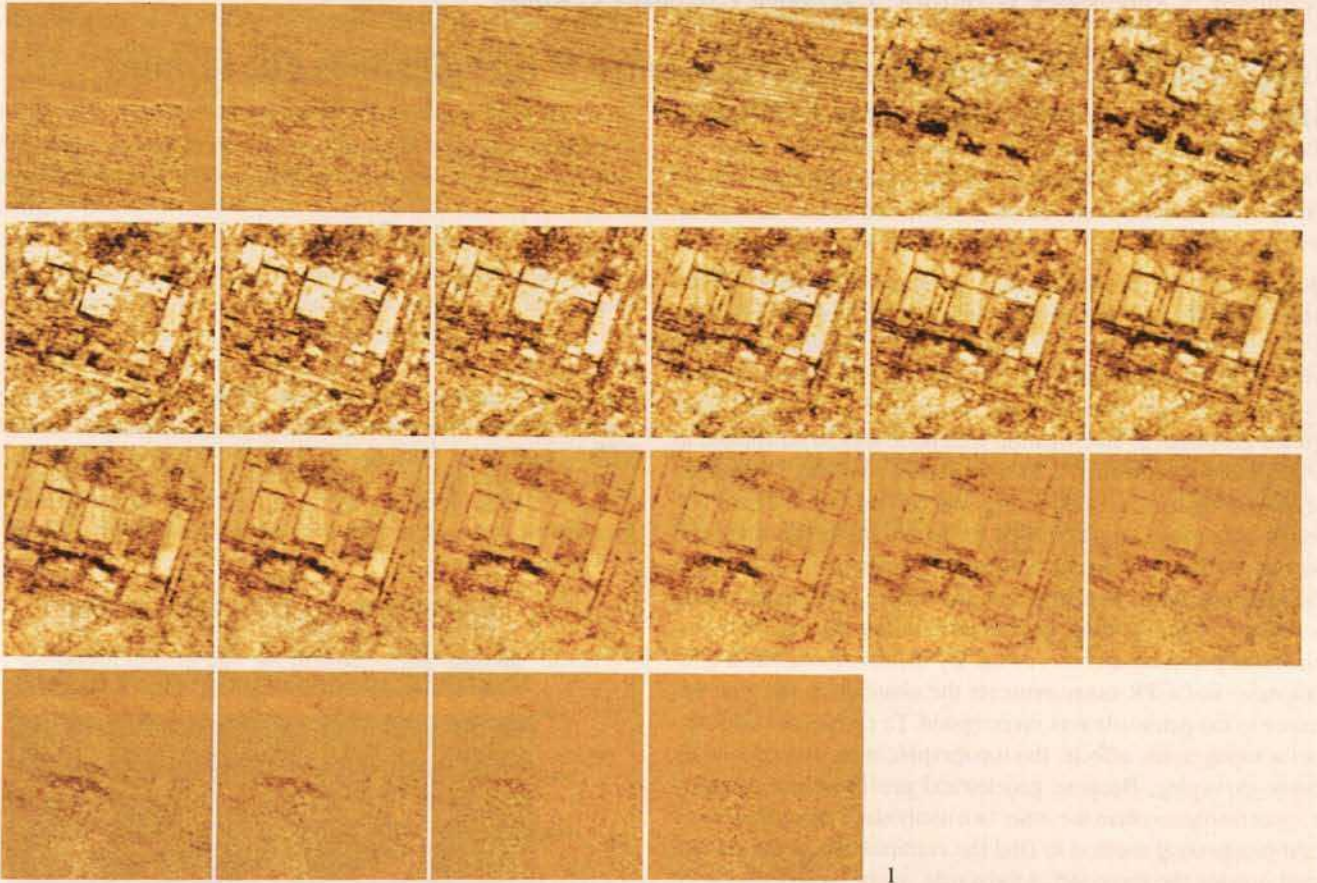
Fig. 2. The integrated archaeological interpretation model: based on the GPR-prospection, the geoelectric prospection and the geomagnetic prospection

Fig. 3. Geoelectric prospection (RM15, twin-array 0,5 m, raster 0,5 x 0,5 m, dynamic range [80-180] Ohm meter)

Fig. 4. Geomagnetic prospection (Caesium gradiometer 0,5–2,0 m, area 80 x 80 m, raster 0,5 x 0,25 m, dynamic range [-10,10] nT)

Fig. 5. 3D visualisation of the archaeological interpretation model; view from the south-west





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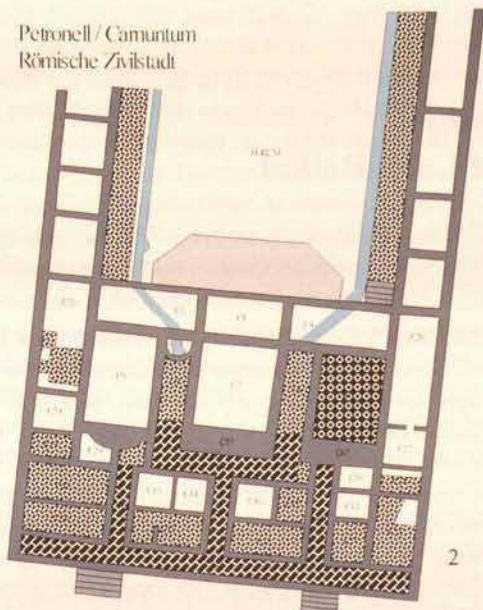


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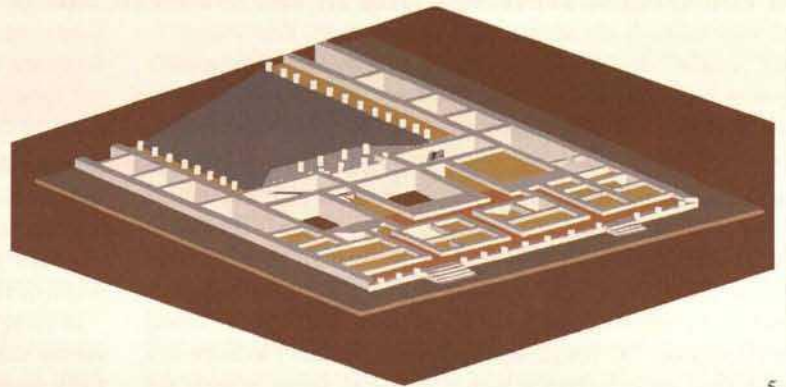


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Petronell / Camuntum  
Römische Zivilstadt



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