

Surveying early agricultural sites in Southern Africa: the Application of the Geonics EM-38 Conductivity Meter to the Early Iron Age Site of Ndongondwane, South Africa

The objective of the geophysical survey of the Early Iron Age site of Ndongondwane (ca. 750 A.D.) was to identify potential subsurface features in order to target areas with high probability for excavation. The problem with the use of most geophysical surveying techniques on EIA sites in southern Africa is the lack of comparative studies. Also, few sites have yielded the kind of high ceramic concentrations, burnt clay floors and other features that would be

easily identifiable by most geophysical instruments. Most structures in such sites are of an ephemeral nature – unburnt dung floors and thatch roofs. As a result, a Geonics EM38 conductivity instrument was used in the survey. It measured differences in soil moisture which allowed identification of even relatively ephemeral structures on the site. The results of the survey and implications for its use on other sites will be discussed.

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A Resistivity Survey to Locate the Forum of the Roman Town Flavia Solva (Austria)

In the year 1998 in the area of the Roman town Flavia Solva, Province Noricum (Styria, Austria), a primary resistivity survey was carried out during field practice with students in archaeology in two days. Target of this prospection campaign was the localisation of the *municipium's* forum which had been searched for in vain for over 125 years. The towns rectangular street system, known from partial excavation and aerial evidence, is also known from a series of Claudian (41–54 A.D.) towns in the Northern provinces (Trier, Cologne, Avenches, Virunum). Common to all of them is a predominant main street which implies the importance of the surrounding buildings (*insulae*). Due to considerations on the towns map known so far the area of *Insulae* XXIII and XXVI has been identified as a possible location of the forum.

To verify this hypothesis we carried out a resistivity survey using two RM15 resistivity meters with multiplexers MPX5 (Twin Array) covering 7,000 sqm on parcels owned by the Federal Authorities. The street system is evident on the digital image representation of the resistivity data measured with 0.5 m electrode separation in 0.5 x 0.5 m raster and with 1 m electrode separation in 0.5 x 1.0 m raster. The georeferenced images of the 0.5 m, 1.0 m and a "pseudogradient" constructed by division of the two data sets were archaeological interpreted using the GIS ArcView. Parts of the *Insulae* XXIII, XXVI and XXX were covered by the survey which confirmed the main features of the existing town map.

The archaeological interpretation of the resistivity survey testify a multi phase building activity for the *Insula* XXIII. The western part of this *insula* seems to be free of buildings. In the North along street L equally big rectangular rooms seem to fol-

low the street, reminding of *horrea* or *tabernae*. South of these rooms four nearly equally big rectangular house complexes seem to be adjacent, built over in antiquity in the West. The recognisable apses and the compact building modus as well as the big free place oriented to the North-South directing main street could point to a more monumental building. The neighbouring *Insula* XXVI with a width of approximately 60 m belongs to the largest building complexes of Flavia Solva. The length of approx. 75 m, typically for this *insula*, derives from the reconstruction of the excavation results in *Insula* XXX and V.

The prospection testifies an obvious division of the examined area in a western part mainly closed by buildings and a less closed eastern part. There is a clear structure of the buildings in a middle room which is divided in two parts, resembling a hall accompanied by smaller rooms. Adjacent in the East is a big free place surrounded by two parallel halls. The exterior hall seems to encircle the whole building complex. The inner hall terminates a place whose eastern part is build over by the Federal Highway. The interpretation of the buildings of this *insula* is still difficult at present. The big free place surrounded by halls could be interpreted as the forum of Flavia Solva searched for a long time. Also the buildings in the south-western part of the *insula* may be easily compared to the prospected findings of the civil town of Carnuntum in 1996 which were interpreted as the forum. The solution of the evolved archaeological questions to locate the forum of Flavia Solva will only be verified by surveying the area east of the Federal Highway. For higher resolution and to include depth information a radar survey also covering the fields east of the Highway is planned for 1999.

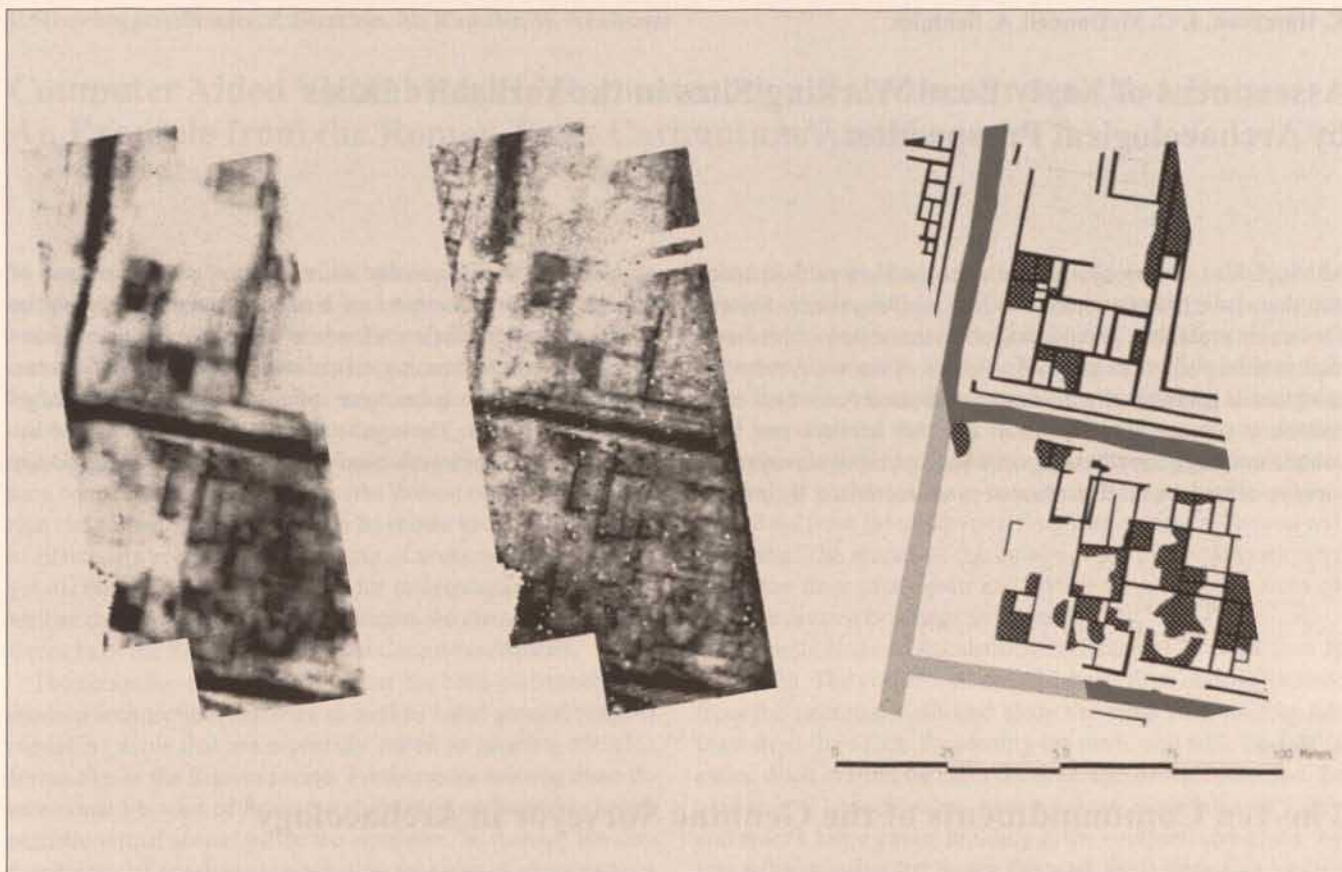


Fig. 1. Resistivity survey of a part of the Roman town Flavia Solva, Styria; RM15 twin array 0.5 m, raster 0.5 x 0.5 m, area 7,700 sqm. Right: Corrected raw data electrode spacing 0.5 m. Middle: "Pseudogradient" calculated by division of data from the survey with 0.5 m electrode spacing and the survey with 1 m electrode spacing after Wallis filter. Left: Archaeological interpretation map

Fig. 2. 3D view of the archaeological interpretation model

