Potential and pitfalls of large-scale high-resolution geophysical archaeological prospection exemplified on the Iron Age site of Uppåkra in Sweden

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The archaeological site of Uppåkra in Scania is considered to have been Sweden's largest and longest lasting Iron Age settlement. In the years 2010–2013 the Vienna based Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology (archpro.lbg.ac.at) in collaboration with its Swedish partner Riksantikvarieämbetet (RAÄ) UV and the Department of Archaeology and Ancient History at Lund University conducted high-resolution archaeological geophysical prospection surveys with customized motorized multi-channel magnetometer systems and a 16-channel 400 MHz MALÅ Imaging Radar Array (MIRA) system from Guideline Geo (www.guidelinegeo.com) as well as airborne laser scanning (www.airbornetechnologies.at). Based on the prospection results targeted excavations have been conducted by Lund University and RAÄ UV.

We present the landscape-scale archaeological prospection survey and preliminary data interpretations. The prospection results are compared with the findings of excavations, illustrating the issues of visibility of anomalies in prospection data and their respective causative physical structures. While the survey considerably contributes to the understanding of the extent and layout of this outstanding archaeological site, this truly interdisciplinary archaeological prospection approach highlights as well the need for further developed understanding of the prospection method's potentials and limitations as well as the requirement for close communication between the experts in the different disciplines.