



Geophysical survey of the Burnum archaeological site (Croatia)

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A multidisciplinary geophysical investigation has been carried out at the site of Burnum (Krka Valley, Croatia) by the University of Bologna, in the context of an international agreement between the University of Zadar, the Civic Museum of Drniš, and the Centre for the Study of the Adriatic Sea Archaeology (Ravenna). The Burnum Project aims at improving our knowledge and preserve the important roman castrum, transformed in a municipium at the beginning of the 2nd century AD.

Since 2005, different geophysical techniques have been applied to the site, such as magnetometry, electrical resistivity studies and ground penetrating radar, making the investigated area an interesting case history of a multidisciplinary approach applied to archaeology.

After different field works, the geophysical mapping of the southern part of the castrum is almost complete, whereas the northern one will be completed during next planned campaigns.

Magnetic data have been collected with the gradient technique, using an Overhauser system and an optically-pumped Potassium magnetometer-gradiometer, configured with a vertical sensor distance of 1.50 m. The resistivity method has been applied using the ARP© (Automatic Resistivity Profiling) and the OhM Mapper systems. GPR surveys have been carried out testing different systems and antennas. During 2009, a special emphasis was given to the acquisition, processing and interpretation of the optically-pumped Potassium magnetometer-gradiometer data.

As a result, a clear image of the settlement configuration was obtained, improving our knowledge of the forum-basilica complex and possibly discovering a second auxiliary castrum.

Direct exploration by archaeological excavations of selected areas has correctly confirmed the geophysical results and the archaeological interpretation proposed. The features of the building materials, brought to the light and analysed after the excavations, were coherent with the instrumental responses of all the applied methods.

The use and implementation of different non-intrusive methodologies of analysis to detect the presence of buried evidences in the subsoil (that involves also topographical survey, aerial photographs acquisition and analysis, field walking survey), together with the careful survey of the unburied structures, brings to the following results (still in progress): the detection of the main areas containing buried archaeological remains, in order to help the local authorities establish a strategy for acquisition of the fields and plan archaeological excavations; a convincing reconstruction of the historical phases of the area occupied by the basilica; the education of young students and researchers (in 2009 the site began a field school of the Specialization School in Archaeology at Bologna University); the improvement of strategies of international cooperation and networking and the development of shared protocols for archaeological documentation and communication.