



Remote sensing applications and archaeological research in the Northern Lagoon of Venice: the case of the lost settlement of *Constanciacus*

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ABSTRACT

"*Vicus Constanciacus*" is a project for the recovery, protection and evaluation of the historical and archaeological heritage of *Constanciacus*, an ancient small group of islands in the Northern Lagoon of Venice, of which currently just two emerged strips survive, namely: the abandoned islands of Sant'Ariano and La Cura. Exploring the area lying between the mainland and the lagoon represents an important opportunity for reconstructing the history of Venice before the well known medieval city and market arose. Through survey and excavations of the *Constanciacus* area, the project aims to shed new light on early patterns of occupation in the Northern Venetian Lagoon; to explore the communication network between the mainland and the sea; and to examine the evolution of settlements along the commercial routes of the Lagoon through time.

The particular research environment of the Lagoon requires a close collaboration between archaeologists and scientists of differing expertise. Remote sensing (RS) in this case is critical for investigating the ancient extent and geomorphology of the ancient islands. Aerial photographs, (both vertical and oblique), and HR satellite images, are being used to identify past traces of occupation that nowadays are buried below earth surface or under the shallow waters of the Lagoon. Visual analysis of the remotely sensed data is supported by enhancement and processing techniques that emphasize the presence of anomalies of the terrain and vegetation that can be related to archaeological structures.

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1. Introduction: the context of research and archaeological investigations (D.C.)

In 2007 a new project of archaeological research, named "Project *Constanciacus*", that is focused on the Northern Lagoon of Venice, was commenced by the University of Venice, (scientific director D. Cottica), in collaboration with the local Superintendency of Archaeological Heritage (scientific directors M. Tirelli and L. Fozzati) (see Cottica et al., 2010). The main aim of this multi-period research project is to define and bring to light the historical and archaeological heritage of an area named in some medieval documents as *vicus Constanciacus*. The *vicus*, a Latin word for settlement, consisted of emerged lands and fields, crossed by artificial and natural channels, and surrounded by sea and low lands which were periodically submerged at high tide. Today the area once occupied

by *vicus Constanciacus* is partly underwater and only two emerged areas of land still survive: the abandoned islands of Sant'Ariano and La Cura in the Northern Lagoon of Venice (Fig. 1), with their surrounding low lands (called "*barene*") periodically submerged by salty waters (Fig. 2).

The settlement is mentioned, described and even depicted in some historical documents (texts and maps) dating to the Medieval and post-Medieval periods (Cottica et al., 2009) (Fig. 3). Historical sources allow us to appreciate the role that the *vicus* played in the development, growth and history of Medieval and post-Medieval Venice. Indeed, according to the documentary evidence, a number of ecclesiastical properties (monasteries and churches) were located at *Constanciacus* between the 12th and the 16th centuries A.D., when a Christian community was present at the site (Cottica et al., 2009; Figs. 2–4).

Historical sources, however, provide us with general information on *Constanciacus* without informing upon details of specific buildings, their location, spatial organization, or abandonment and reuse. Furthermore, there is a lack of documentary sources on the role and nature of this area in the period preceding the Medieval Age, especially in the Roman period and in Late Antiquity. This

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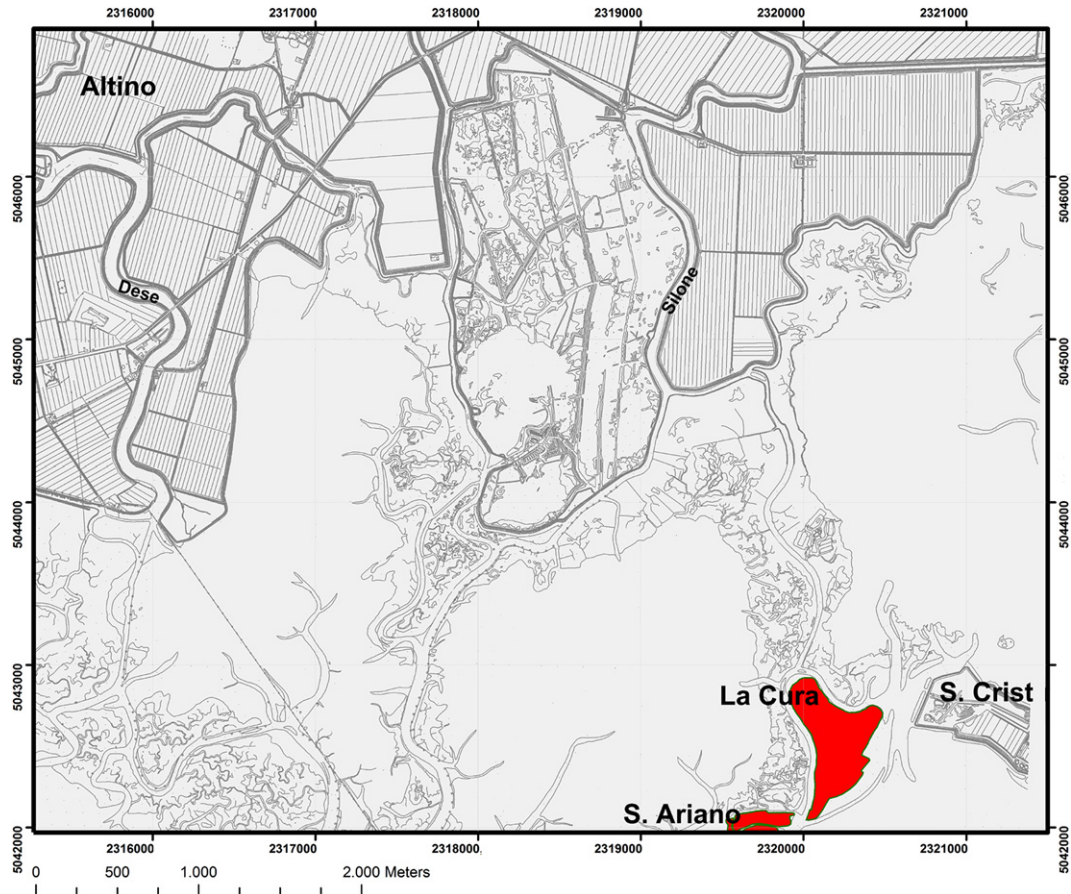


Fig. 1. The case study area, with mainland and Roman town of *Altinum/Altino*.

lack of information is compensated for by archaeological data (pottery and structural features), found by past research in the Northern Lagoon of Venice (*inter alia* Canal, 1995, 1998; Cottica et al., 2008; Dorigo, 1983, 1994, 1995). Unfortunately, the majority

of these data are still unpublished; in addition some were the result of casual discovery rather than stratigraphic investigation. It is worth noting that the lack of systematic archaeological research in this area of the Northern Venetian Lagoon is rather surprising



Fig. 2. Present view of the area of ancient *Constanciacus* and contemporary natural environment.

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