



Geoarchaeology confirms location of the ancient harbour basin of Ostia (Italy)



Jean-Philippe Goiran^{a,*}, Ferréol Salomon^b, Ilaria Mazzini^c, Jean-Paul Bravard^b,
Elisa Pleuger^a, Cécile Vittori^a, Giulia Boetto^d, Jonatan Christiansen^e, Pascal Arnaud^e,
Angelo Pellegrino^f, Caterina Pepe^{g,h}, Laura Sadori^g

^a CNRS – UMR 5133, Maison de l'Orient et de la Méditerranée, 7 rue Raulin, 69007 Lyon, France

^b UMR 5600, Université de Lyon, France

^c Dipartimento di Scienze, Università Roma TRE, Italy

^d Aix-Marseille Université, CNRS, Centre Camille Jullian (UMR 7299), France

^e UMR 5189, Université de Lyon, France

^f Soprintendenza Speciale per i Beni Archeologici di Roma, Italy

^g Dipartimento di Biologia Ambientale, Università degli Studi di Roma “La Sapienza”, Italy

^h Dipartimento di Scienze della Terra, Università degli studi di Roma “La Sapienza”, Italy

ARTICLE INFO

Article history:

Received 10 April 2013

Received in revised form

17 August 2013

Accepted 22 August 2013

Keywords:

Harbour

Geoarchaeology

Stratigraphy

Ostia

Rome

Tiber

Mediterranean Sea

ABSTRACT

To the northwest of the ancient city of Ostia, the analysis of cores revealed a stratigraphic sequence, which we interpret as the filling of a harbour basin. This basin, located at the west of the so-called “Palazzo Imperiale” presents seven characteristics: (1) The maximum depth is 6 m below the Roman sea level. This depth allowed any type of ship (even heavy tonnage) to access the harbour. (2) A chronostratigraphic gap at –6 m below Roman sea level suggests digging operations in the basin (or subsequent dredging) that have caused the loss of sedimentary archives. (3) The filling consists of dark clays typical of a quiet environment but open to marine and river influences. (4) The dates at the base of this sequence give a range between the 4th and the 2nd century BC. (5) In the harbour sequence, a facies change at –2.5 m under the Roman sea level involves a change in the processes of sedimentation and/or operation. (6) No later than the beginning of the 1st century AD, the thickness of the water column in the basin is less than 50 cm and seems to be caused by a massive siltation following a succession of floods of the Tiber. (7) This basin was thus already abandoned during the start-up of Portus.

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Many attempts have been carried out to locate the ancient, river mouth, harbour basin of Ostia. In the 19th century, an Italian archaeologist and an architect (Fea, 1824, 1831, 1835; Canina, 1830) both defined an area with a topographical depression in the north of the city to the west of the so-called “Palazzo Imperiale” where it could be situated. In the early 2000s, a team of German and American archaeologists (Heinzelmann and Martin, 2002) used geomagnetic instruments, to corroborate the hypothesis of a localization of the basin in this area. Geomagnetic surveys effectively indicate that this area is structureless with different surface sediment relative to the proximity (Figs. 1 and 2). We can propose

two hypotheses: the presence of a harbour basin or the presence of a place, used to boat landing and handling of goods (Canina, 1830). The presence of groundwater did only permit the conduction of two shallow trenches, which do not prove the presence of a basin or harbour structures like breakwater or embankments. So, from our point of view, there is still not sufficient scientific evidence and there is still no consensus about the location of the harbour basin; the debate is still alive.

A Franco-Italian multidisciplinary team (CNRS, Université Lyon 2, Aix-Marseille Université, Ecole Française de Rome, Soprintendenza Speciale per i Beni Archeologici di Roma – Sede di Ostia, Università Roma 3, Università degli Studi di Roma “La Sapienza”) finally decided to validate or refute the hypothesis of a harbour basin situated in the location of the trough-shaped depression sloping down the Tiber between the supposed ancient lighthouse “Torre Boacciana” to the west and the so-called “Palazzo Imperiale” to the east (Fig. 3), using a mechanical drill. The goal was to obtain

* Corresponding author. Tel.: +33 683727866.

E-mail address: Jean-Philippe.Goiran@mom.fr (J.-P. Goiran).

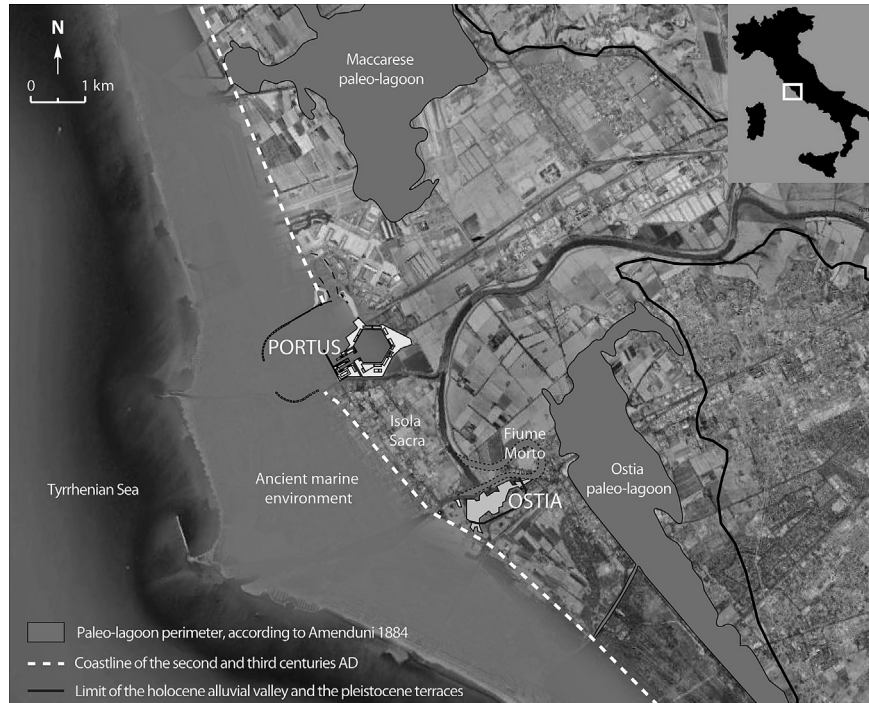


Fig. 1. General location map of the Tiber Delta.

sedimentary pieces of evidence about the ancient harbour basin of Ostia. This technology solves the problem of groundwater, which makes this area rather difficult for archaeologists to excavate beyond 2 m depth (Goiran and Morhange, 2003; Marriner et al., 2010; Goiran et al., 2012).

In order to reach this goal, two 12 m cores were drilled in the depression structureless area, which could coincide with the

location of a harbour basin. The coring PO1 is located in the south of the area and PO2 in the north, near the present day Tiber River (Fig. 2). The stratigraphy of the two cores being similar, we will focus our discussion on PO2, which benefits from a detailed analysis in the laboratory (Fig. 4). We will integrate this data with pollen analyses carried out on the more suitable lithologies of PO1 (Fig. 5).

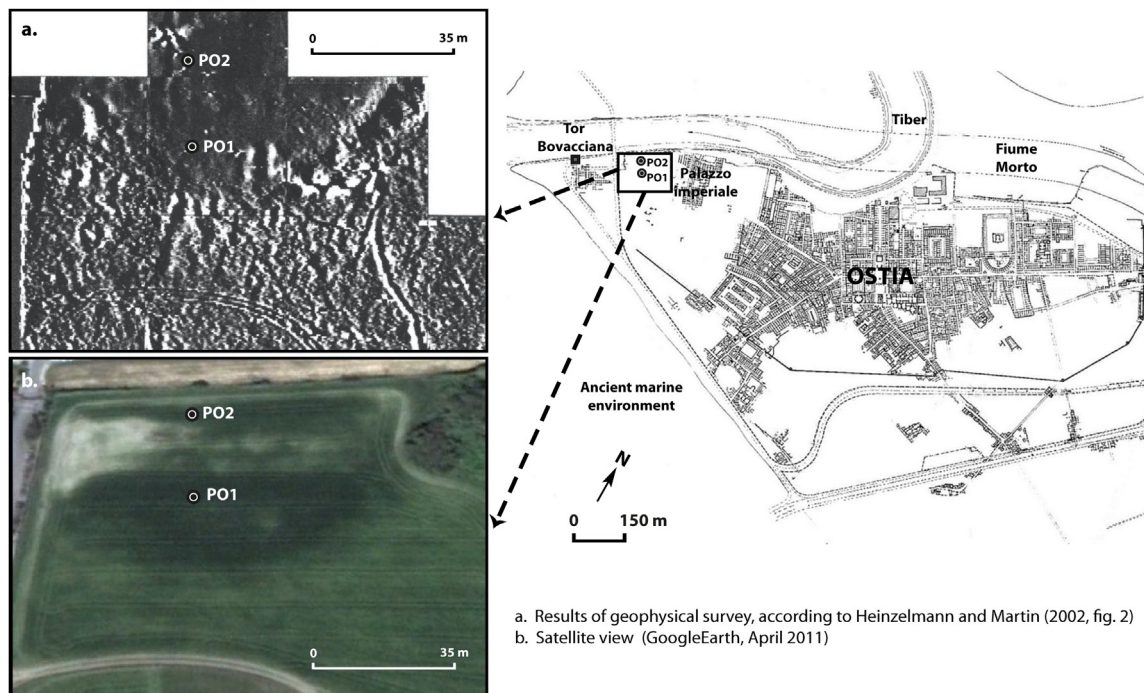


Fig. 2. Location map of the two cores, compared to the geophysical studies of Heinzelmann and Martin (2002).

Download English Version:

<https://daneshyari.com/en/article/7443879>

Download Persian Version:

<https://daneshyari.com/article/7443879>

[Daneshyari.com](https://daneshyari.com)