



Short Paper

A short note on the geo-archeological significance of the ancient Theodosius harbour (İstanbul, Turkey)

Oya Algan^{a,*}, M. Namık Yalçın^b, Mehmet Özdoğan^c, İsak Yılmaz^b, Erol Sarı^a, Elmas Kırıcı-Elmas^a, Demet Ongan^a, Özlem Bulkan-Yeşiladalı^b, Yücel Yılmaz^d, İsmail Karamut^e

^a Istanbul University, Institute of Marine Sciences and Management, Vefa, 34470, Istanbul, Turkey

^b Istanbul University, Engineering Faculty, Department of Geological Engineering, Avcılar Campus, Istanbul, Turkey

^c Istanbul University, Faculty of Letters, Department of Archaeology, Beyazıt, Istanbul, Turkey

^d Kadir Has University, Cibali Campus, Haliç, Istanbul, Turkey

^e Istanbul Arkeoloji Müzesi Müdürlüğü, Gülhane, Istanbul, Turkey

ARTICLE INFO

Article history:

Received 3 March 2009

Available online 7 October 2009

Keywords:

Sea of Marmara

Istanbul

Sea level

Coastal sediments

Holocene transgression

Neolithic

Geoarchaeology

ABSTRACT

The sedimentary sequence discovered at archaeological excavations in ancient Theodosius Harbour at Istanbul contains the records of sea level, environmental changes and the cultural history of the region. The cobbles at the base of the sequence include archaeological remnants of Neolithic culture that settled in the area between 8.4 and 7.3 ¹⁴C ka BP, and are located at 6 m below the present sea level. The sediments representing a coastal environment indicate that the area was used as a harbour from AD 4th to at least the 11th century and were filled by the sediments derived from Lykos Stream after 11th century.

© 2009 University of Washington. Published by Elsevier Inc. All rights reserved.

Introduction

As the capital of two world empires, the historic significance of İstanbul is self evident; furthermore, due to its strategic location at the crossroads connecting Anatolia with southeastern Europe and the Black Sea basin to the Mediterranean, it has always been of prime importance in the history of civilisation. Along with its historicity, the geographical setting of the city is of significance, featuring unique but at the same time environmentally critical characteristics. First, it is located at the narrow neck of a shallow and long water channel, the Bosphorus, connecting two inland seas, Marmara and the Black Sea. The controversy on the water exchange system between those two inland seas, coupled with the impact of the active neotectonic structure of this particular region, presents İstanbul as a unique case for geoarchaeology.

This short note is based on the preliminary assessment of the data that became available through the rescue excavations conducted through the construction works at Yenikapı, located along the northern coast of the Sea of Marmara, in the historic core of İstanbul (Fig. 1). The construction activity at Yenikapı is being carried out within the framework of an urban development program of İstanbul, a large-scale undertaking to connect the new urban areas on the Asian

part of the town with the historic core on the European section by building a tube tunnel resting on the sea floor. During the initial stages of quarrying for the construction of the Marmaray Rail-Tube Tunnel, remains of a Byzantine harbour dated to the time of the Emperor Theodosius was recovered; later the excavations were carried out by a team of the Istanbul Archaeology Museums (Kızıltan, 2007). Underneath what remained of the harbour, the sedimentary sequence has revealed stratified deposits displaying the records of changing environmental conditions in the Sea of Marmara together with the well-preserved archaeological material of ancient İstanbul. The outcome of these rescue operations have revealed results far beyond all anticipations, not only disclosing a rich and a unique assemblage of archaeological material, but also broadening our understanding of the changing paleoenvironmental conditions of the Marmara basin during the Holocene and compiling the lacuna in the geological history of the Sea of Marmara.

The evidence at Yenikapı now provides a much-needed time scale to correlate environmental history with the cultural sequence as an indicator of human adaptations patterns to changing conditions. In this respect, the numerous artifacts and architectural fragments that could be ascribed to previously known cultures being imbedded in natural sedimentary sequence has provided a unique opportunity. Within the frame of a multi-disciplinary research programme, this short note is the presentation of first results based on field observations and some radiocarbon dating results of geological

* Corresponding author.

E-mail address: algan@istanbul.edu.tr (O. Algan).

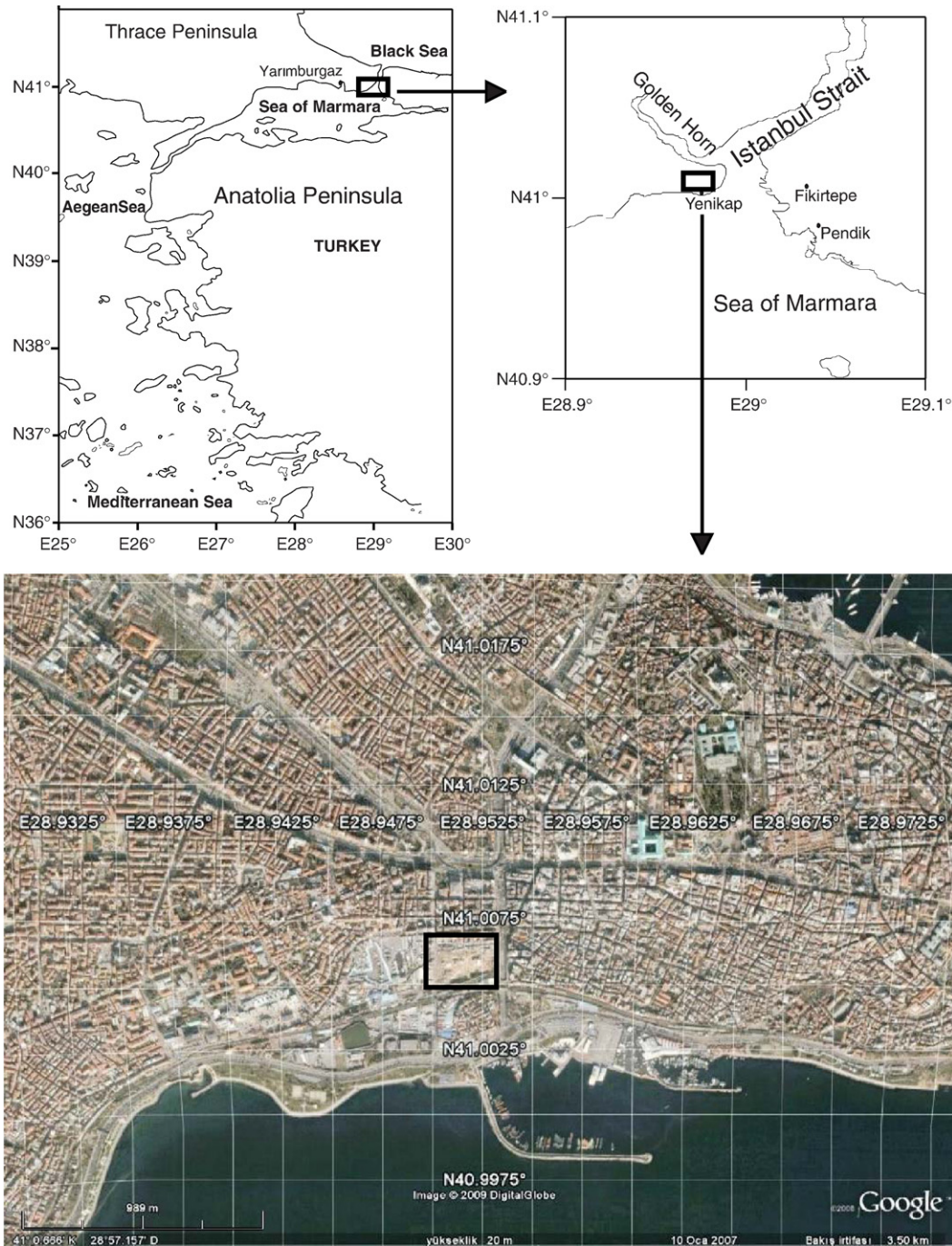


Figure 1. The location of the excavation site in Istanbul. Digital image is produced from Google Earth 4.3.

material from the excavation site. Prehistoric archaeological material dating is used by analogy with the material studied by Özdoğan (1997, 2006, 2007) elsewhere in Marmara Region.

Geological setting

The Sea of Marmara features some unique characteristics that are of high scientific interest. First, it is in a region having continuous tectonic activity over the last 5 Ma from the strike-slip regime of the North Anatolian Fault Zone. It also connects two oceanographically different marine realms—the brackish Black Sea via İstanbul (Bosporus) Strait and normal marine water of the Mediterranean Sea via the Çanakkale (Dardanelles) Strait. The depths of the sills in these straits (Bosporus, –30 m; Dardanelles, –60 m) control the water

exchange and bottom-water circulation at present and have played important roles during late Quaternary oscillations of sea level. The shelf areas of the Sea of Marmara were exposed to subaerial erosion and subject to delta progradations, during the last glacial maximum, due to lowering of the global sea level. The connection with the Mediterranean Sea via Çanakkale Strait occurred at ~12 ¹⁴C ka BP as a result of rising sea level (Stanley and Blanpied, 1980; Çağatay et al., 2000; Aksu et al., 1999; 2002).

However, the timing and mode of connection with the Black Sea is debatable. A strong and persistent outflow of the Black Sea into the Sea of Marmara at ~11–9 ¹⁴C ka BP following the intrusion of the Mediterranean waters is supported by Çağatay et al., (2000) and Aksu et al., (2002). On the other hand, an abrupt Mediterranean transgression at ~8.4 ¹⁴C ka BP, submerging the low shelf area of

Download English Version:

<https://daneshyari.com/en/article/1045864>

Download Persian Version:

<https://daneshyari.com/article/1045864>

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