DELTOS: A DOCUMENTATION SYSTEM
FOR THE ADMINISTRATION OF SITE MONUMENTS
AND PRESERVED BUILDINGS

1. INTRODUCTION

One of the main objectives of the central and regional services of the Greek Ministry of Culture is the protection of antiquities and monuments. Particularly, Ephorates of Antiquities aim at safeguarding, preserving, studying, presenting and promoting cultural goods. Greek cultural heritage includes a great number of monuments spanned the whole of the historic and prehistoric periods.

The Ephorates mainly perform administrative functions such as: data acquisition, surveying, monuments cataloguing and classification, preservation and restoration planning and control, administrative functions as expropriations, funding and action approvals. They often respond to inquiries about various aspects of a monument or a set of monuments.

Carrying out the above tasks, the requirement of collecting a variety of information through various sources arises. This information includes formatted data and other, multimedia data (images, audio and video recordings, text...), designs, maps, etc. Especially retrieving information about a monument through its correlation with other objects or documenting in paper archives is a time consuming process and is not always achieved.

The archeological organizations of Greek Ministry of Culture, especially the regional ones, look for computerized tools providing above functionalities. The Institute of Computer Science of Foundation for Research and Technology in close collaboration with the 23rd Ephorate of Classical and Prehistoric Antiquities and the 13th Byzantine and Postbyzantine Antiquities has developed the 'DELTOS II' system.

The system has been installed at the Archeological Museum of Heraklion, Crete, Greece and is currently in the initial stage of exploitation.

2. DESCRIPTION OF THE SYSTEM

DELTOS II is intended mainly to address the needs of administrative documentation of site monuments and preserved buildings, including cartographic, geometric and photographic representations. It offers map display, supports large data volume, storage, display of multimedia data (mostly images and free text) and drawing facilities. Monument descriptions are linked to cartographic representations and images.

Ch. Bekiari, Th. Bitzou, D. Calomirakis, A. Caretsou, D. Chronaki, P. Constantopoulos, C. Gritzapi, M. Lagogianni

The system holds units of information needed for using the procedures. These units of information describe a monument's physical location, state, classification, legal status, expropriations, funding, action approvals, bibliography, history, researchers, photographs, maps, designs, archives,etc.

The system supports administration functions, (e.g., registration or cataloguing, preservation monitoring, etc.) as well as data management functions, such as insertion, update and retrieval operations, and multimedia presentation. Queries may be performed on structured data and cartographic representations.

All operations are performed and guided through a form based interface facilitated by value lists where appropriate. Various user authorization levels are supported.

DELTOS II is built on a relational database management system. It can also communicate with different vendors' systems or with systems other than databases taking into account existing information systems.

Considering that the number of monuments in Crete alone is about 120,000, the system has been designed to support records of hundreds of monuments, requiring several gigabytes of storage.

The internal organization of Antiquity Ephorates, and the resulting assignment of responsibility and authority over data and procedures, requires the system to operate either in a centralized or a distributed environment. Also DELTOS II supports operations over a network according to a client-server model.

It is envisaged that the server will be a powerful data server and the clients will be personal computers. Such a configuration is expected to maximize resource utilization as the PCs can also serve in an environment for general office work and they are relatively inexpensive.

A common and complicated procedure of the preservation function, is the control of alterations caused by humans such as town or land planning, industrial activities, building, etc. Performing this task it is necessary to study and cross reference monuments' information regarding their classification, type, history, designs, maps, photos, etc. Also, carrying out current conservation and restoration tasks, a quick reference to history and state as well as to bibliography, paper archives, notes, current studies, photographs, designs and maps are essential. DELTOS II provides all the needed correlation to supported information units. In other words, given a bibliographic reference, a researcher can find all the correlated monuments or to study or monitor all the funding concerning an action approval.

For the implementation of DELTOS we used the Sybase RDBMS and AutoCad V12.0. The communication of the two systems is achieved using the C programming language. The current version of the system runs under the UNIX operating system. The user interface of the system has been implemented using the GALAXY Application Environment.

3. RESULTS

Examples of using DELTOS II follow.

The first screendump (Fig. 1) shows the user interface of DELTOS II. In the pop up window the list of forms concerning basic monument information, classification and cataloguing, physical location, history, legal status, excavation notes, paper archives, photographs, maps, designs, studies, bibliography, funding, action approvals, expropriations are presented. This screendump concerns a medieval monastery that is located in the prefecture of Lassithi. In the map window the monastery's location is pointed out.

The second screendump (Fig. 2) is referred to the Minoan temple at the site of Anemospilia. The "main card" is opened in a slave mode, resulting in the correlation of the information given by it with that of the location card being in master mode. The location card describes the physical location of Anemospilia. Opening the corresponding photos, plans and classifications cards the relevant information for this monument is shown.
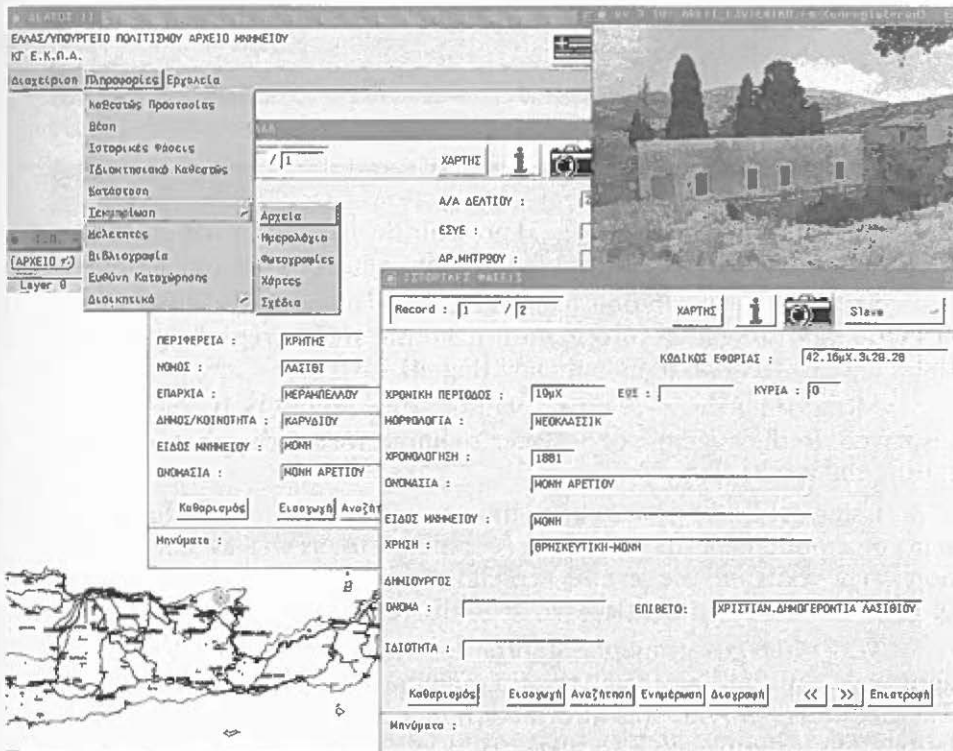

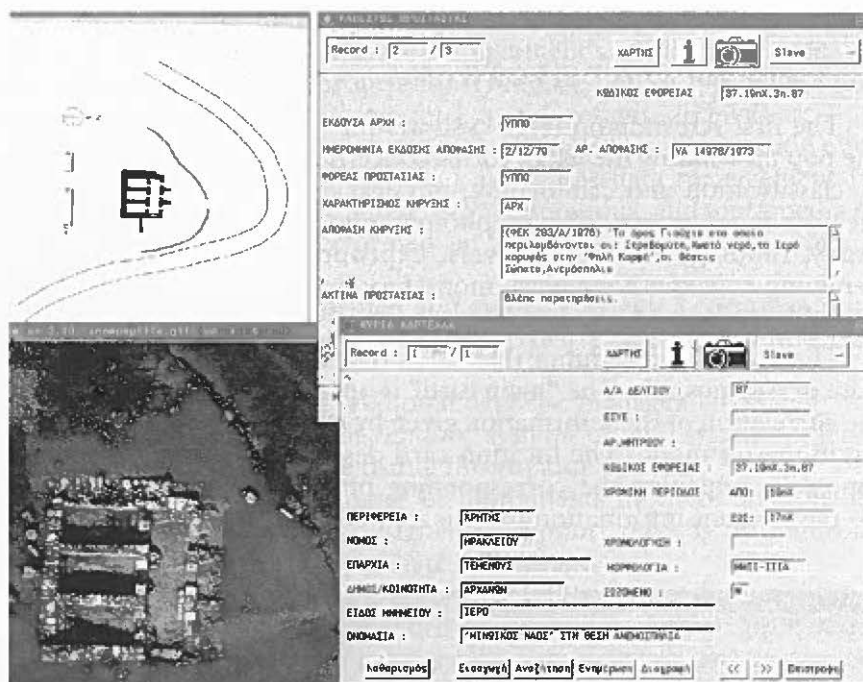Fig. 1 – The user interface of DELTOS II.

Fig. 2 – The Minoan temple at the site of Anemospilia.

The third screendump (Fig. 3) presents the basic information of Knossos palace, along with the relevant bibliography, general plan and aerial view.

Making the restoration plan of St. Peter's Dominican church, located at Heraklion, we gather information from the system regarding the history, state, designs, general plan and view (Fig. 4).

Monitoring the restoration works using DELTOS II, the photos are displayed. In the example of St. Peter's church we see the photos before and during the works (Fig. 5).

Using DELTOS II we can elaborate and modify the architectural designs of a monument in two and three dimensions, as well as edit engineering notes. The sixth and the seventh screendump (Figs. 6-7) concern the Institute of Mediterranean studies, located at Rethymno.

Very often government organizations inquire information about action approvals and funding for a specific monument or a group of monuments. The Ephorates provide this information immediately along with their correlation. The example of Kazarma' castle located at Siteia shows the action approvals and the corresponding funding (Fig. 8).
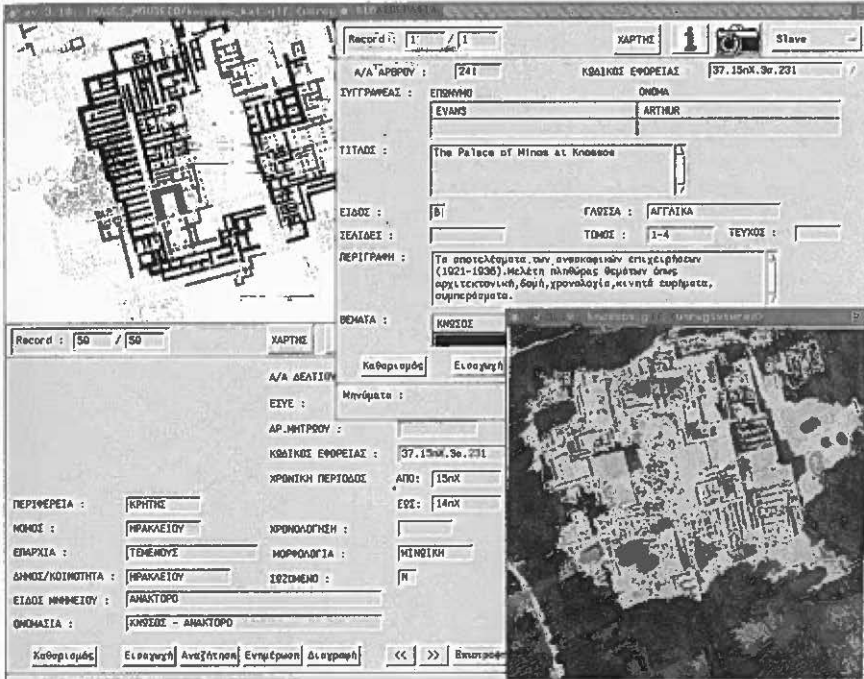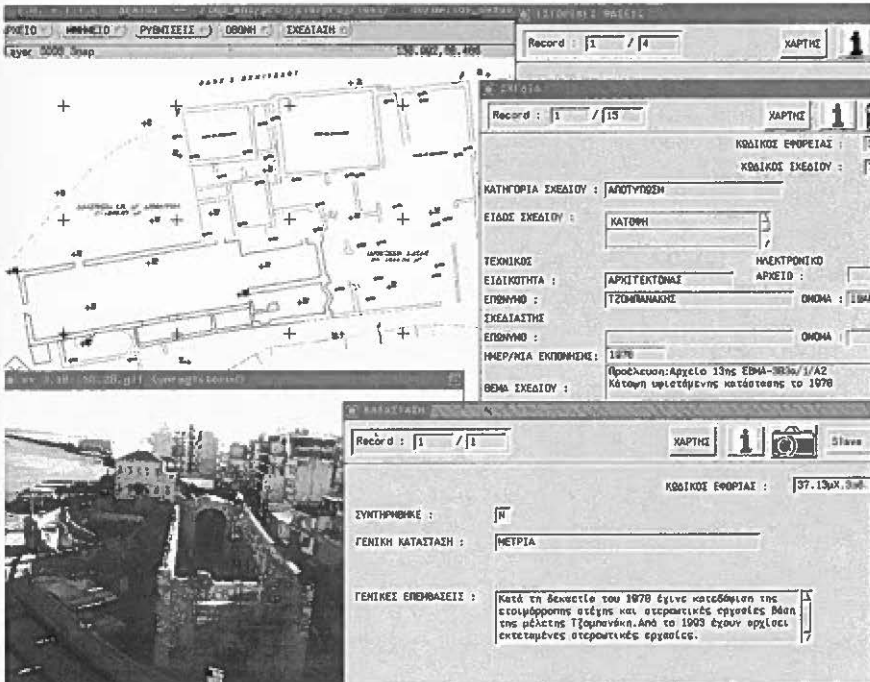
Fig. 3 – The Knossos palace.
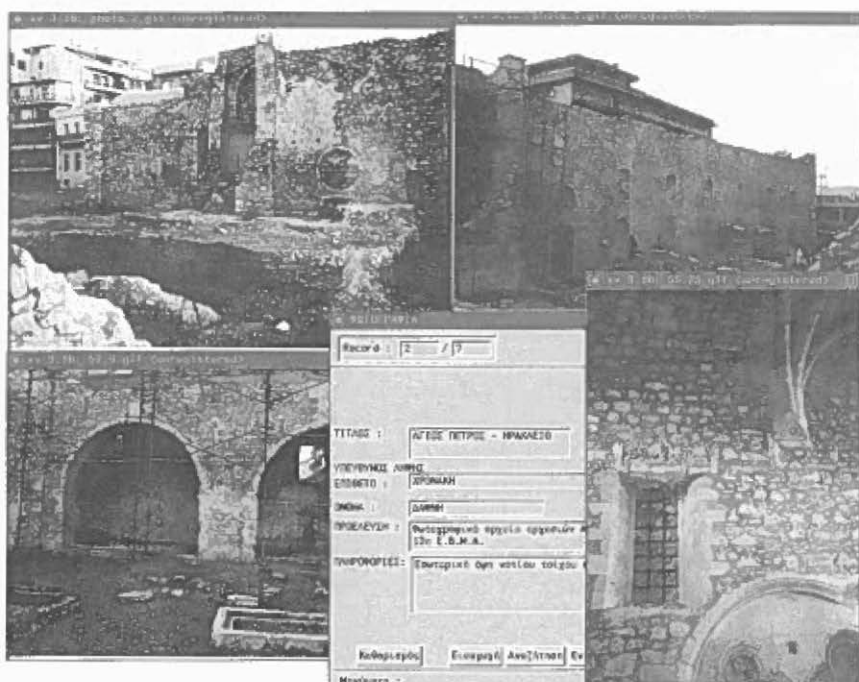

Fig. 4 – St Peter's Dominican church.

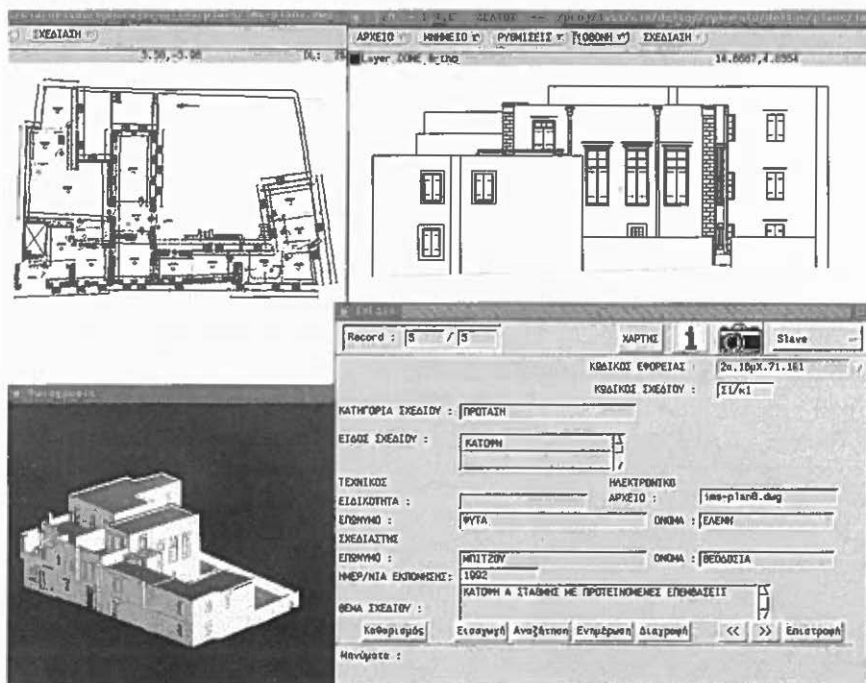Fig. 5 – St Peter's Dominican church, photos.

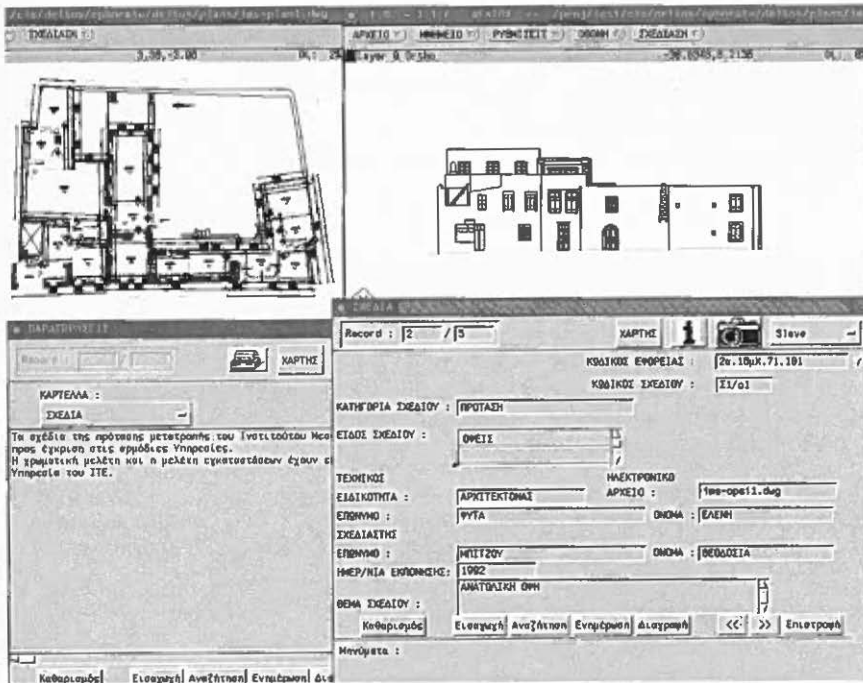Fig. 6 – Institute of Mediterranean Studies, located at Rethymnon.

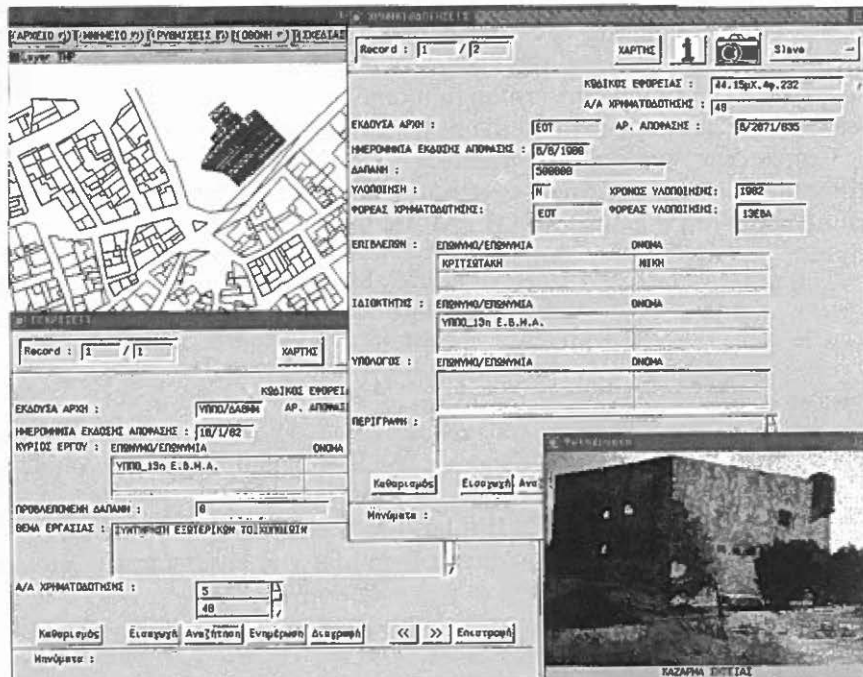Fig. 7 – Institute of Mediterranean Studies, located at Rethymnon.

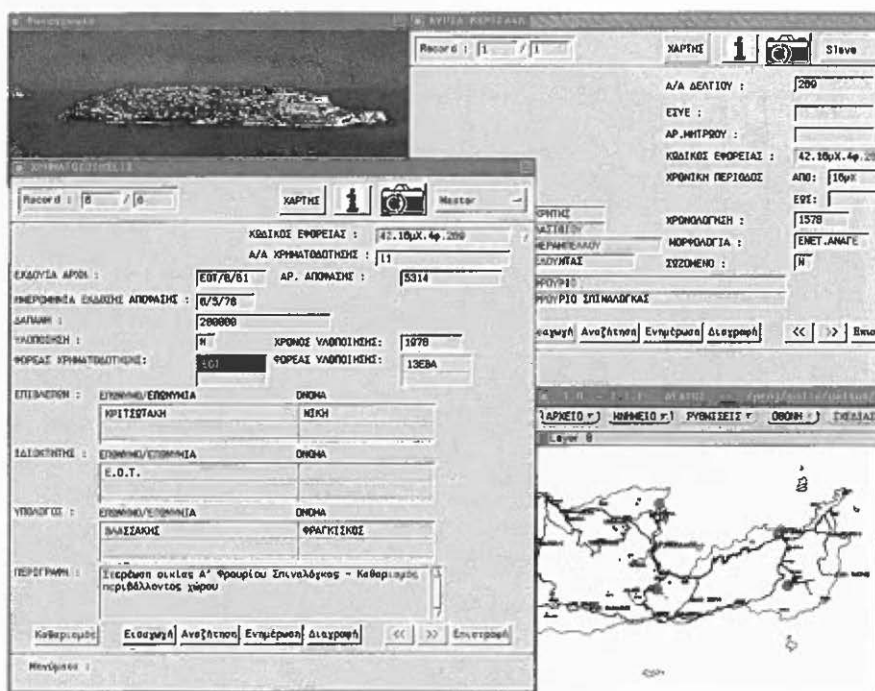Fig. 8 – The Kazarma' castle, located at Siteia.

Fig. 9 – Funding coming from Greek Tourist Organization, concerning monuments in Crete.

The last example shows the result and map display to the query: 'funding coming from Greek Tourist Organization concerning monuments in Crete.' Six funding have been found concerning monuments pointed on the map. In Fig. 9 we see the basic information and the respective photo of Spinaloga fortress.

Concluding, we want to mention that DELTOS II is being used as a building block in configuring a geographically distributed national record of monuments, being the aim of POLEMON project.

CHRISOULA BEKIARI, THEODOSSIA BITZOU
PANOS CONSTANTOPOULOS, CRISTINA GRITZAPI
Institute of Computer Science
Foundation for Research and Technology Hellas
Heraklion, Crete

ALEXANDRA CARETSOU, MARIA LAGOGIANNI
23rd Ephorate of Classical and Prehistoric Antiquities
Heraklion, Crete

DIMITRIS CALOMIRAKIS, DAFNI CHRONAKI,
13th Ephorate of Byzantine and Postbyzantine Antiquities
Heraklion, Crete

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ABSTRACT

DELTOS II is an information system covering the needs for documentation, conservation and administration of site monuments and preserved buildings. It offers map display, supports large data volume, storage and display of multimedia data (mostly images and free text) and drawing facilities. DELTOS has been developed by the Institute of Computer Science, FORTH, in close collaboration with the 23rd Ephorate of Classical and Prehistoric Antiquities and the 13th Ephorate of Byzantine and Postbyzantine Antiquities. The system has been installed at the Archaeological Museum of Heraklion, Crete, Greece and is currently in the initial stage of exploitation.