

MARS (Multimedia Archaeological Research System) An open-source web database to manage all data from collection to repository.

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BELGIAN SCIENCE POLICY









Introduction

The standardized recording of the complete information of an archaological excavation is a complex task due to the multidisciplinary aspect of fieldwork. After the excavation, the scientific study of the field data and collected specimens involves again collaborative work from specialists of different disciplines. After subsequent publications, the artifacts and specimens become part of museum and/or university collections.

MARS is a collaborative application developed by the RBINS and by Makina Corpus in order to manage this information. Funding came from the Belgian Federal Science Policy (BELSPO). The Paleolithic cave site of Spy (Belgium) was used as a case study and is available for a live demo.

Goals and targets

NESPOS already offers a centralized technical solution for the storage and sharing of information and data on Pleistocene humans. MARS is a complementary decentralized tool at the institution level that can be easily adapted for other periods and topics. It manages documents, pictures, 3D files, PDFs, and other format files in relation to an extensive, structured object database dedicated to the description of sites, their stratigraphy, and associated collections and repositories, in a similar way to the data model of NESPOS.

Potential users of MARS are scientific institutions. administrations, and private companies involved in archeology, paleontology, and biological anthropology.

Technology / Workflow

MARS is based on the Plone CMS which offers one of the richest WEB 2.0 Open Source applications. Plone is very stable and has the best security track record of any major CMS. MARS uses the most current version of Plone (Plone 4.2). In MARS the basic set of objects available in Plone was enriched with new objects related to the data model.

Access rights can be defined by roles, user groups and at the user level for each object. A complete workflow allows to start using a private status, then to share data with colleagues, and finally to share data with the whole scientific community after their publication by simply changing the publication status of objects and folders.



View Edit Sharing Isabelle Crevecoeur, Priscilla Bayle, Hélène Rougier, Bruno Maureille, Thomas Higham, Johannes van der Plich

Nora De Clerck, and Patrick Semal (2010)

tae Praehistoricae 29-2009 : 157-16

a grotte de Spy (prov. de Namu

e et des dépôts de pente (Rougier et al., 2004)

The Spy VI child: a newly discovered Neandertal infant Journal of Human Evolution, 59(6):641-656. Spy cave (Jemeppe-sur-Sambre, Belgium) is reputed for the two adult Neanderta, htiv uals discovered in situ in 1886. Recent reassessment of the Spy collections has allowed direct radiocarbon 'a up of these individuals. Th

owever, this specimen also exhibits particular traits, not

eveals that variation in the immature Neandertal variation the available fossil record. These observations demonstra-

of immature Neandertal traits in fossil anterior teeth, as w

adiocarbon dating of the Spy VI specimen has been con onfirm the age previously determined for the two adults

Age Determination by Teeth, Alveolar Process, Animals,

Fossils, Hominidae, Humans, Mandible, Paleodontolog

directly dated in northwest Europe.

X-Ray Microtomography

 Import Bibliography Export Bibliography

PMID: 20934740

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orting of all of the faunal collections has also led to the discovery of the remains on Neandertal child, Spy VI. s individual is represented by two mandibular corpus fragments. The left fragment is the most complete an th sides preserve the mental foramen. Four deciduous teeth are associated with these mandibular remain ree incisors and one canine. The lower left canine (Spy 645a) conjoins with the corresponding alveolar socket in the left part of the mandible. Following extant standards, the developmental stage of the preserved teeth indicate an age at death of about one and a half years. In addition to performing a classical morphometric comparative types of study of the mandible and teeth, we have evaluated the dental tissue proportions using high-resolution tomographic techniques. Our results show that Spy VI generally falls within the Neandertal range of variation Importing references applications EndNote

References to litterature are stored in specific folders. The BibTex format is used in order to define the different publications. Exporting local using such as Zotero is and possible using different bibliographic standards.

PDF files are stored in a

specific folder. They are fully

indexed, which allows

searching the content of the

files or specific keywords.

Private status can be used

to link PDFs protected by

copyright. The public status

allows to share PDFs

without any restriction.

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age e bliography Folder omino: Database tegories Container Mars Category	Excavations, stratigraphy and remains can be created and defined with structured and non-structured fields allowing a complete description of the object and associated data. Links between objects are created using interactive hyper-links. I Analysis Absolute Dating Analysis Relative Dating					
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Multimedia



All multimedia files can be uploaded in MARS as file, and used with user side applications. The large files like CT



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Alternate Names or IDs:

Year of Inventorisation

Spy-589a

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Assemblages

The remains are the most

detailed level of the MARS

	Assemblages and
	individuals are composed of
2 04:41 PM — History	the association of remains
	from different collections or
	even from different sites.
	Specific fields can be defined
	at this level to complete the
	data from the isolated
	remains as well as for the sex
	determination and age.
-194a 🌚 Spy-645a 🜚 Spy-589a 🜚 Spy-592a 🜚 Spy-594a	

and

ain

eB



Monsieur De Puydt, Monsieur, mon absence depuis

quisition de la collection de Spy de François Beaufays

(dit « l'Horloger ») par l'Institut Royal des Sciences Naturelles de Belgique Patrick SEMAL, Cécile JUNGELS, Isabelle CREVECOEUR, Hélène ROUGIER & Philippe PIRSON

et-clés : Spy - Betche-oux-Rotches, Prov. de Namur (B), collection Beaufays, Néandertaliens, IRSNB.

mardi m'a empêché de vous répondre plus tôt. Monsieur les propositions que vous me faites de faire explorer vous mêmes et de faire remettre le terrain bene weed his proposition a gue amos dans un bon état me sont assez no failes Define sophered mores

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arpentier, par exemple, qui a cédé by à l'IRSNB le 18 septembre 2007

ossements et dents). Dans les années septante, François Beaut

Archives are stored in a specific folder. They can be organized using folders, pages, and files, and they can be linked to any other object in the database.

Edition

Default -

View Edit Contents Pe **Edit Mars Site** Spy cave Alternate Site Name

In MARS, editing is based on a full WYSIWYG editor allowing to edit Rich

Remain components

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View

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Plomino allows to build structured databases with specific fields and items. The design and the edition of the database is based on a WYSIWYG edition. Some tools for searching, importing and exporting, reporting and synchronizing servers are included in Plomino, which is add-on Plone of an developed by Makina Corpus.



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Search

All of the information is fully indexed in MARS. Search can be done by several approaches from the Google-like search to the very specific search for unique value of a specific field. The search form can be customized with the WYSIWYG editor by all registered users and search values can be edited by anonymous users. Searching is possible in the entire site as well as in specific folders. References to literature have a specific catalog and a specific search interface.

Search results depend on the access rights of the user.

Import / Export

A simple structure of folders, pages, images, and files can be easily imported and exported through the use of a Zip file including the hierarchy of the structure and its contents.

All Plone/MARS objects can be imported and exported through CSV files that preserve the relationships between objects. The files can be opened as spreadsheets, edited, and re-imported in the MARS application.

Policies of synchronization can be defined in order to give priority to the server or client side.

Technical Support

The application is multi-platform but a Linux server is recommended. The web client (browser) is totally open. MARS and Plone are open-source solutions. The sources of MARS are available at: https://github.com/RBINS/mars.

Nevertheless, a commercial technical support can be provided by Makina Corpus, which developed the latest version of the application.



Makina Corpus

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