ÖAW AUSTRIAN ACADEMY OF SCIENCES

OREA Institute for Oriental and European Archaeology

Digitizing Early Farming Cultures

Sharing data from Neolithic and Copper Age Greece and Anatolia

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ÖAW ACDH

ARIADNE
www.ariadne-infrastructure.eu

OBJECTIVES

Overcoming the fragmentation of research on Neolithic and Copper Age sites and finds in Greece and Western Anatolia (7000-3000 BC)

- Creation of a standardized and integrated research dataset.
- Digitization of analogue OREA resources.
- Make the data available open access online.

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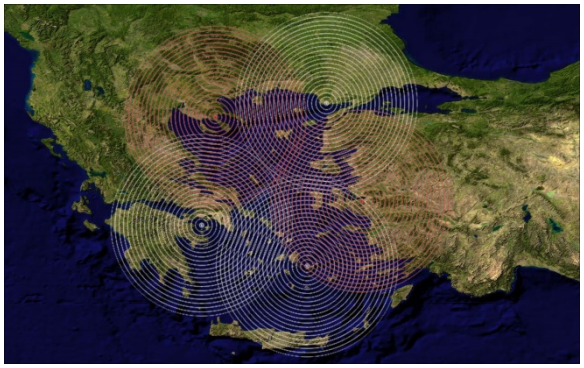
AEGEAN and ANATOLIA 7000 – 3000 BC



OREA – Research Group: Anatolian Aegean Prehistoric Phenomena (AAPP)

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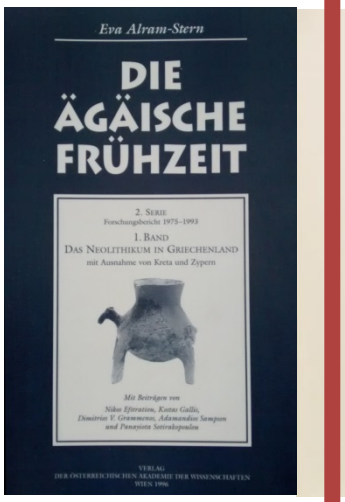
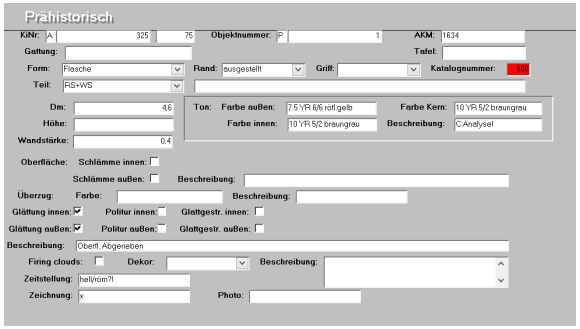
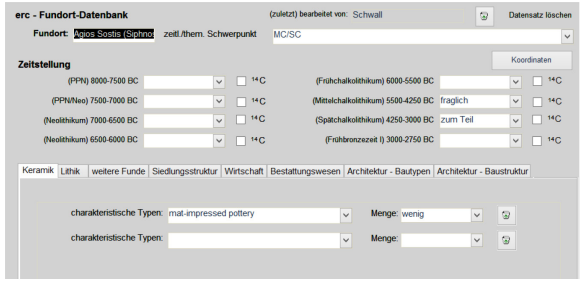
RESOURCES

Analogue



Databases (pottery and site databases)





Schachermeyr pottery collection

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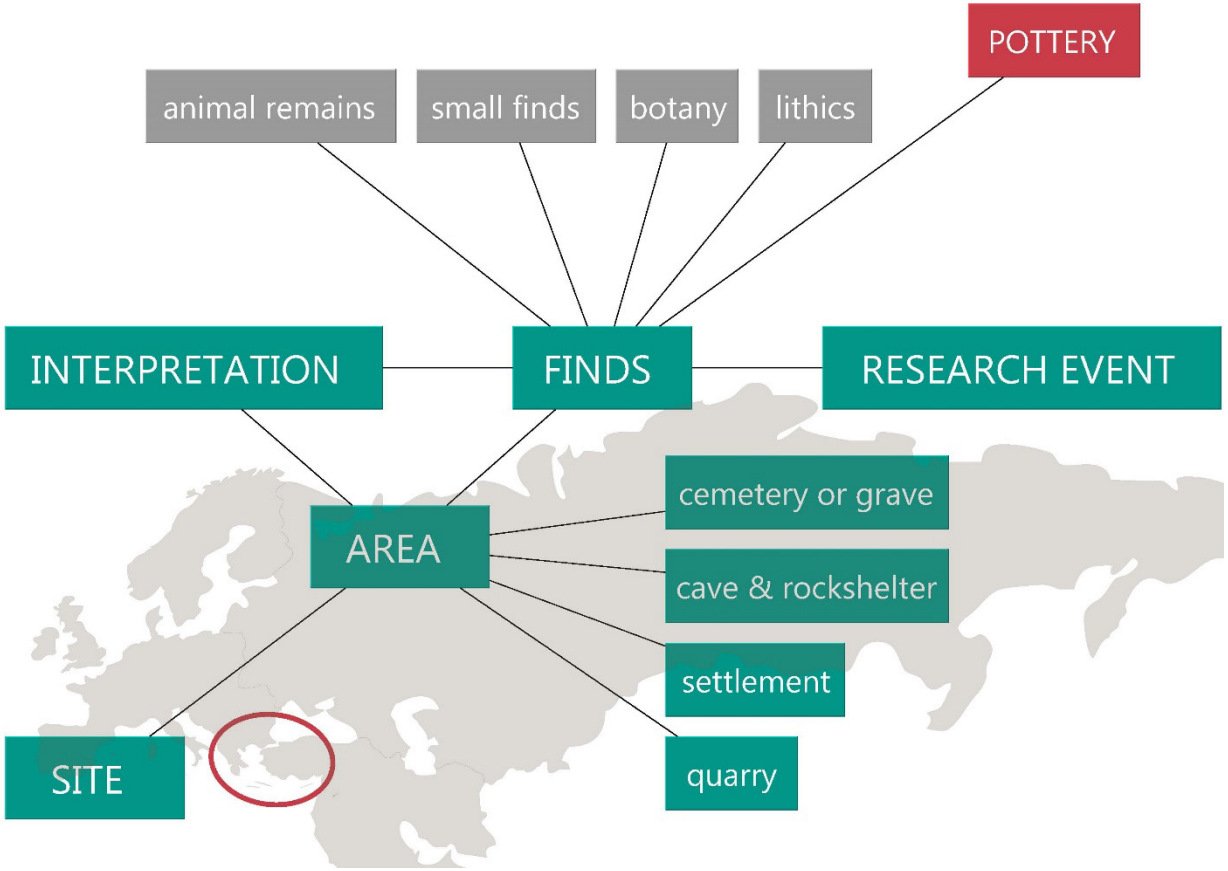
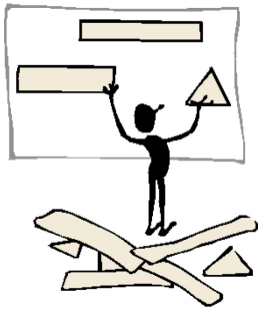
WORKFLOW

→ Creation of a conceptual data model

- → Focus group meetings with AAPP research group
- → Analysis of resources





DEVELOPMENT

→ Development of web-based data management system DEFC-App

- → Built using a Python based web framework (python, django)
- → Data stored in MySQL
- → User interface built in HTML/CSS, Bootstrap, jQuery, JavaScript libraries (e.g. Leaflet for geodata visualization)
- → 3D Models gallery built using 3DHOP (3D Heritage Online Presenter)
- → Integrated external Open Access resources: Zotero bibliography and Geonames
- → Users management: Data Curation (create/edit/delete – for OREA Members) and Data Exploration (explore/retrieve – for everyone else)

DATA RETRIEVAL

→ REST API http://defc.digital-humanities.at/api/

All data already serialized and retrievable via REST API

django REST framework


```
{
    "url": "http://defc.digital-humanities.at/api/Site/10/",
    "created": "2016-03-05T20:15:01Z",
    "modified": "2016-08-26T17:38:05Z",
    "public": true,
    "name": "Nerokourou",
    "latitude": "35.478500000000",
    "longitude": "24.042500000000",
    "elevation": null,
    "authorityfile_id": "",
    "description": "The fertile plain is situated close to the sea and lies north of the St. George`s Monastery. ",
    "exact_location": "yes",
    "number_of_activity_periods": 1,
```


→ SPARQL Endpoint demo http://defc.digital-humanities.at/defc2rdf/

Mapping MySQL ⇨ RDF (CIDOC-CRM)

Two technologies tested: ontop Karma

Derived datasets available via demo endpoint


```
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    <rdf:type rdf:resource="http://www.cidoc-crm.org/cidoc-crm/E7_Activity"/>
    <P1_is_identified_by xmlns="http://www.cidoc-crm.org/cidoc-crm/" rdf:resource="http://vocab.acdh/defc2cidoc#site/Lera-Cave"/>
    <P7_took_place_at xmlns="http://www.cidoc-crm.org/cidoc-crm/" rdf:resource="http://vocab.acdh/defc2cidoc#province/province/120"/>
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    <P90_has_value xmlns="http://www.cidoc-crm.org/cidoc-crm/" xml:lang="en">Lera-Cave</P90_has_value>
</rdf:Description>
```
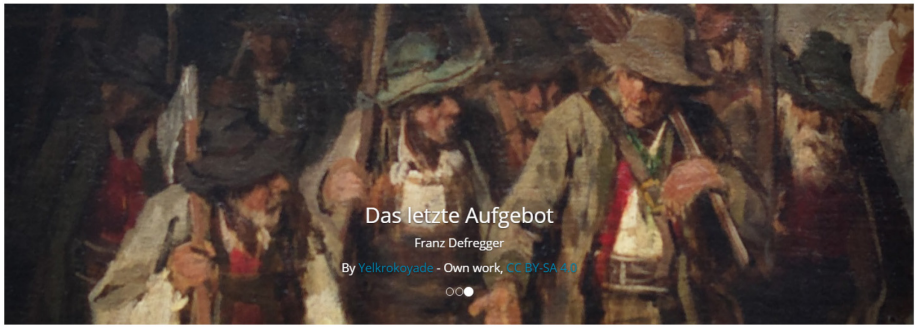

- Downed Allied Air Crew Database Austria (DAACDA)
  https://daacda.eos.arz.oeaw.ac.at/
- dig-ed-cat (digital editions catalogue)
  https://dig-ed-cat.eos.arz.oeaw.ac.at/
- LaBaSi (Late Babylonian Signs)
  https://labasi.eos.arz.oeaw.ac.at/
- ToteTiroler
  https://totetiroler.eos.arz.oeaw.ac.at/

Downed **A**llied **A**ir **C**rew **D**atabase **A**ustria

DAACDA



Tote Tiroler

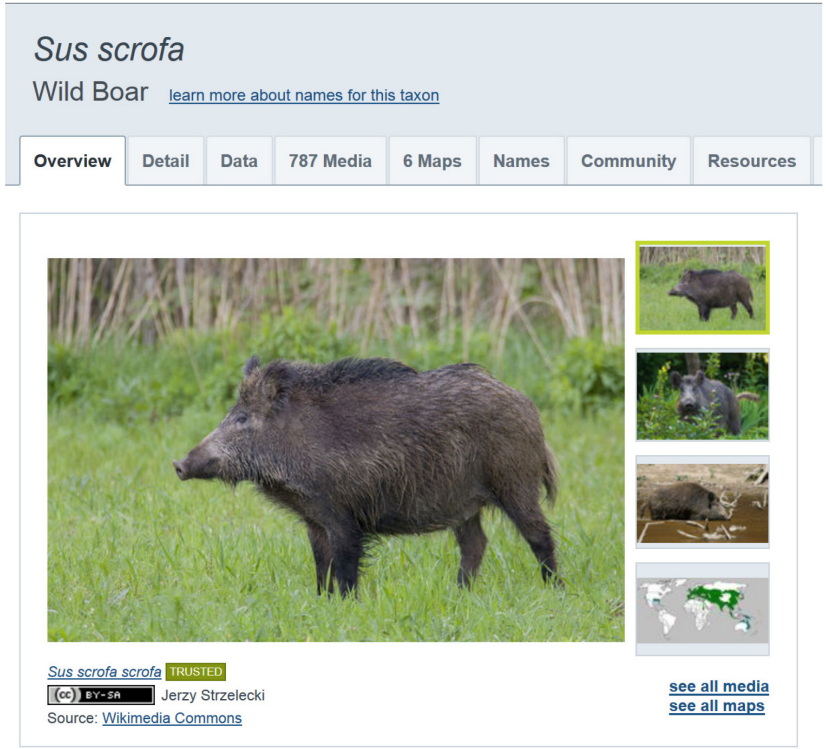
Die Gefallenen des Tiroler Aufstandes von 1809

Catalogue Digital Editions

CURRENT WORK: THESAURUS

- Definitions of terminology (scope notes)
- Problem with terminology merging different meanings
- Backbone Thesaurus (BBT) (DARIAH-EU) - top-level-concepts (facets and hierarchies) as a common basis: materials, material objects, conceptual objects, natural processes, epochs, activities
- Thesaurus provides hierarchy - querying

- Using standard reference work for interoperability, e.g. Encyclopedia of Life (EOL): http://eol.org/pages/328663



LITERATURE

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- ALRAM-STERN, E., 2010. Die Ägäische Frühzeit“. 2. Serie, Forschungsbericht 1977-2009: Das neolithische und vorpalastzeitliche Kreta. Unpublished Manuscript.
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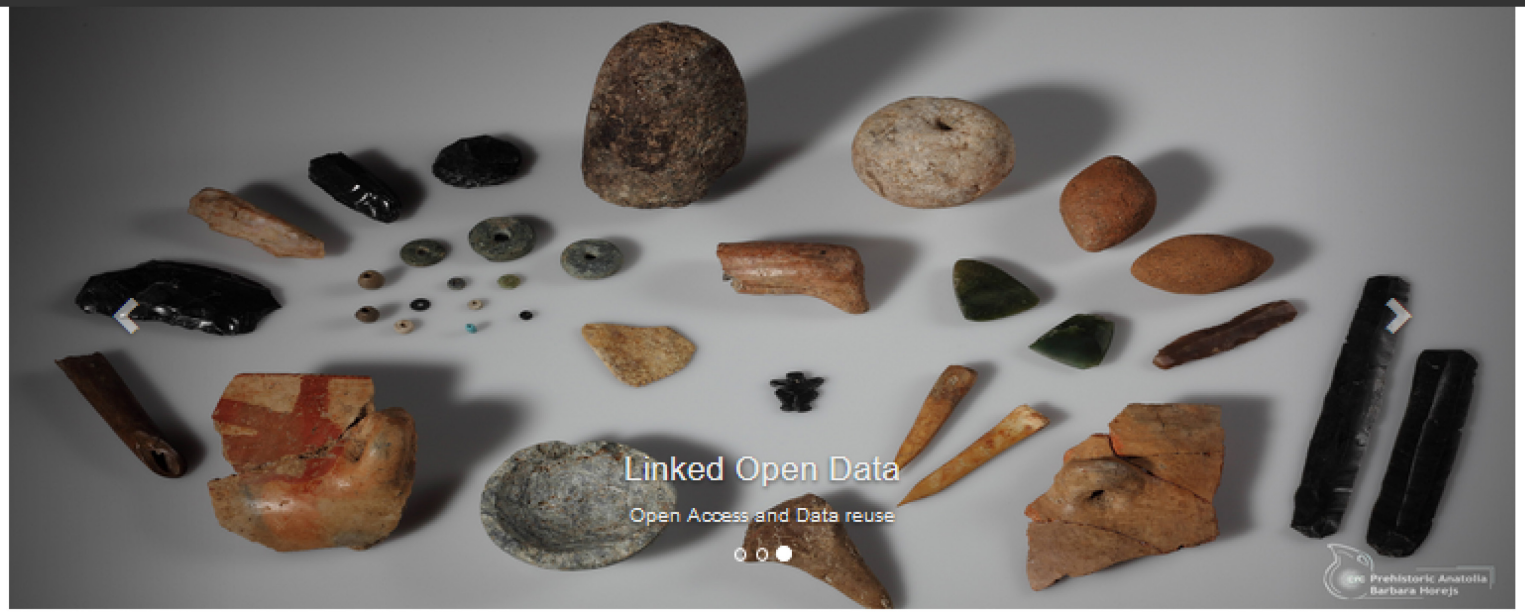
- ÖZDOĞAN, M.; BAŞGELEN, N.; KUNIHOLM, P. (ed.), The Neolithic in Turkey. New Excavations & New Research. Volume 1 - The Tigris Basin, 2011, Istanbul.
- ÖZDOĞAN, M.; BAŞGELEN, N.; KUNIHOLM, P. (ed.), The Neolithic in Turkey. New Excavations & New Research. Volume 2 - The Euphrates Basin, 2011, Istanbul.
- IN PROGRESS - ÖZDOĞAN, M.; BAŞGELEN, N.; KUNIHOLM, P. (ed.), The Neolithic in Turkey. New Excavations & New Research. Volume 3 – Central Turkey, 2012, Istanbul.



Digitizing Early Farming Cultures (DEFC)

The objective of Digitizing Early Farming Cultures (DEFC) is the standardization and integration of archaeological research data from the Neolithic and Copper Age (7000 – 3000 BC) in Greece and Western Anatolia.

Greece and Western Anatolia are two neighbouring and archaeologically closely related regions. However, they have usually been studied in isolation from each other, resulting in fragmented data organized according to different knowledge schemes. Independent terminologies and chronologies have developed, hindering collaborative research. To provide a basis for studying archaeological phenomena collaboratively across the whole region, standardization of research data is required. The aim of this project is to harmonize existing datasets, digitize analogue data from publications and integrate metadata for easy access and data reuse.

Project partners

ÖAW ACDH

Austrian Centre for Digital Humanities

OREA Institute for Oriental and European Archaeology

Institute for Oriental and European Archaeology

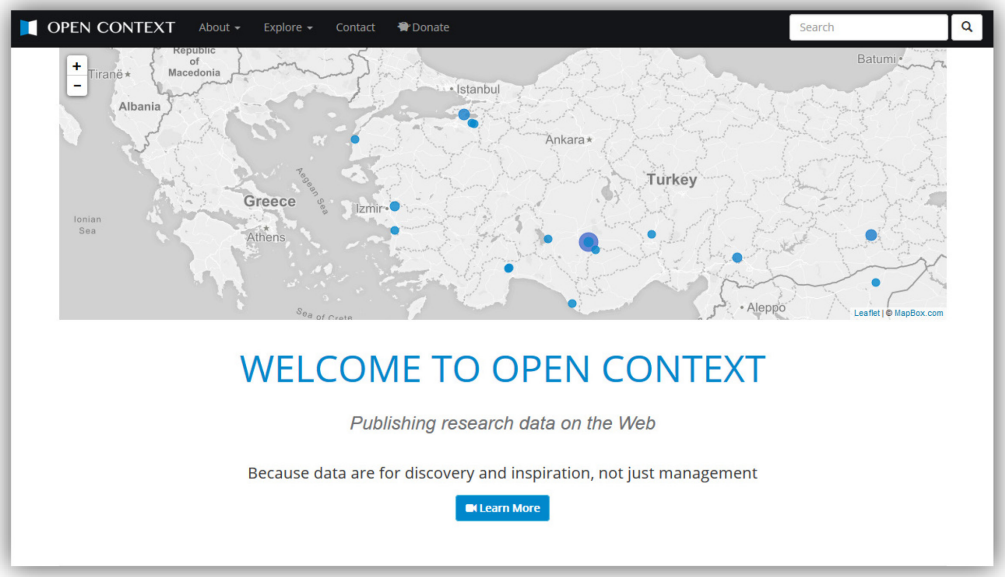
Digital Archaeology research group

Anatolian Aegean Prehistoric Phenomena (AAPP) research group

WORKFLOW

→ FUTURE

- → Pottery typology image thesaurus
- → Data integration
  - → Mapping DEFC App and pottery databases to CIDOC CRM
  - → Creation of a triple store with a SPARQL endpoint
  - → Online open access to dataset
  - → PeriodO – our periods get Uniform Resource Identifier (URI)
  - → http://opencontext.org/ - links to open context datasets, animal bone data
- → Use cases: research based on DEFC App



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PROJECT TEAM & FUNDING

OREA Institute for Oriental and European Archaeology

- Edeltraud Aspöck (project leader)
- Anja Masur (project assistant)
- Seta Štuhec (project assistant)
- Irene Petschko (project assistant)

ÖAW ACDH

- Peter Andorfer (developer)
- Ksenia Zaytseva (developer)
- Matej Durco

Anatolian Aegean Prehistoric Phenomena (AAPP)

- Eva Alram-Stern, Christoph Schwall, Barbara Horejs
- Bogdana Milić, Maria Röcklinger, Maxime Brami
- Marina Brzakovic, Theresa Rinner, Dominik Bochatz, Sheba Schilk, Eleonora Semilidou (data entry)

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Thank you for your time and attention!