OpenAtlas
A Database System for the Humanities and Beyond

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Lead developer of OpenAtlas
Since 2017 at the ACDH-CH
Loves open source and scientific projects
About OpenAtlas

- Project website: [https://openatlas.eu](https://openatlas.eu)
- Initiated about 10 years ago by Stefan Eichert
- Mainly developed at the ACDH-CH
- Open source, browser based database software
- Acquire, edit and manage research data
OpenAtlas Collaborations

- With projects from all fields of the humanities
- Mostly historical, archaeological and prosopographic projects
- A lot of synergies between the projects
OpenAtlas Team

Stefan Eichhart
Ideas, Concept and Data Modeling
stefan.eichhart@rhm-wien.ac.at
Stefan is the initiator and master mind behind the OpenAtlas project. His main research fields are Early Medieval archaeology and history as well as computer applications in archaeology and digital humanities.

Bernhard Koschick-Krombholz
Software Development, API
bernhard.koschick-krombholz@oeaw.ac.at
Bernhard is currently developing our API and studies Computer Sciences as well as History. His research interests include computer security, Python, digital preservation, historical geography, GIS, medieval and military history.

Andreas Oelschnigg
Frontend Development
andreas.oelschnigg@oeaw.ac.at
Andi is a frontend developer and studies computer science at the Technical University of Vienna. He mainly develops with Vue.js and is also interested in UX design to make technology more accessible.

Veronika Grundhammer
Project Administration
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Veronika provides essential support for cooperations in her role as project officer at the ACDH-CH.

Alexander Watzinger
Lead Developer and Concept
alexander.watzinger@oeaw.ac.at
Alex is the lead developer of OpenAtlas and has a special interest in data modeling and scientific web applications. His favorite tools are Python, PostgreSQL, Linux and open source software in general.

Nina Richards
Bioarchaeological Expertise
nina.richards@oeaw.ac.at
Nina is an archaeologist and anthropologist, with a focus on Early Medieval burial grounds. With her expertise she provides essential support planning and implementing archaeological, anthropological and scientific modules in OpenAtlas.

Moritz “Mocca” Großfurther
Frontend Development
moritz.großfurther@oeaw.ac.at
Mocca is a frontend developer for OpenAtlas. He's currently studying computer science at the TU Vienna and interested in design that is useful and fun to use, be that software or real life objects.

Jan Belik
Logo Design and Design Consulting
bureau@janbelik.com
Jan is a freelance graphic designer, illustrator and art director at janbelik.com in Vienna, Austria. He has plenty of experience working with local as well as international brands and has created a range of OpenAtlas project logos.

Contributors
These people supported us in many different ways. Our thanks goes to all of them.

Aleksandra Apic
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Ekaterini Mitsiou
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Petra Heinicker
Roland Fitzwieser
Sandra Lehecka
Saranya Balasubramanian
Sebastian Majstorovic
Semra Kilić-Dinler
Sela Štuhel
Silvia Gómez-Senovilla
Stefan Probst
- International standard (ISO)
- Developed by CIDOC CRM Special Interest Group
- Specifies classes for entities like actor, source, event, place and rules how to link them
- Stored in an object oriented network
Data enrichment with types and linked open data

- Standard types
- Custom types
- Value types
- Linked open data
  - Wikidata
  - GeoNames
  - Custom, e.g. Viaf, GND
OpenAtlas Development

- Solely open source technology
- One release about every month
- Close cooperation with users
- High quality
  - Coding standards
  - Tests and coverage
  - Bugs have the highest priority
  - Tools to test data integrity
API – Bernhard Koschiček-Krombholz

- **Studied**
  - Computer Science at Applied University Technikum Vienna
  - History at University of Vienna

- **First contact with OpenAtlas**
  - “Digitising Pattern of Power” in 2015
  - Since 2019 developer at OpenAtlas through “THANADOS”

- **Responsibilities**
  - API
  - Backend development
  - Backup administrator
API – Overview

- **REST(-like) API**
- Only **GET**, no **PUT/POST/DELETE**
  - Presentation sites
  - Analytical tools (GIS, Network Analysis)

- **Documentation**
  - Swagger: [https://app.swaggerhub.com/apis/ctot-nondef/OpenAtlas/0.3](https://app.swaggerhub.com/apis/ctot-nondef/OpenAtlas/0.3)
  - Manual (will come)

- **Versions**
  - 0.2 deprecated/discontinued
  - 0.3 stable
  - 1.0.0 in development
API – Endpoints 1/2

- **Entities**
  - ID
  - CIDOC class
  - Menu item
  - OpenAtlas class
  - Linked to entity
  - Linked to type, also including subtypes

- **Formats for Entities**
  - Linked Places Format (LPF)
    - [https://github.com/LinkedPasts/linked-places-format](https://github.com/LinkedPasts/linked-places-format)
  - RDF
    - N3, Turtle, XML, NT
  - Linked Open Usable Data (LOUD)
    - [https://linked.art/](https://linked.art/)
  - GeoJSON
API – Endpoints 2/2

● Types
  ○ Full hierarchy
  ○ List

● Administrative data
  ○ OpenAtlas classes
  ○ Content
  ○ Count of entities sorted by class

● Image
  ○ display (resized) image

● Special endpoints
  ○ Export database dump
  ○ Geometries (e.g. for leaflet or GIS)
  ○ Subunits (THANADOS)
API – Parameters

● Options
  ○ Download
  ○ Count
  ○ Format
  ○ Export

● (Seek) Pagination
  ○ Page
  ○ First
  ○ Last
  ○ Limit
  ○ Sort
  ○ Column

● Manipulate output format
  ○ Show
  ○ Relation type

● Filter
  ○ Type
  ○ Search

● Special
  ○ Lang
  ○ Geometry
  ○ Image size
API – Usage Examples

- `{domain} / api / ({version}) / {endpoint} ? {parameter} & {parameter}

- https://demo-dev.openatlas.eu/api/0.3/entity/10608

- https://demo-dev.openatlas.eu/api/system_class/person?type=25&sort=desc&column=id&limit=50&format=lp

- https://demo-dev.openatlas.eu/api/system_class/person?search={"typeID":[{"operator":"equal","values":[25,8247],"logicalOperator":"and"}],$entityName":[{"operator":"like","values":["Costa","Costo"], "logicalOperator":"or"}]}
API – Perspective

- Fetching data from ARCHE
- New major version 1.0.0
- Implement LOUD
Front End

- Andreas Olschnögger
  - Studies
    Bachelorstudium Software & Information Engineering
    Masterstudium Software Engineering & Internet Computing
  - since January 2022 Developer for OpenAtlas

- Moritz Großfurtner
  - Studies
    Bachelorstudium Medieninformatik und Visual Computing
  - since October 2022 Developer for OpenAtlas
Front End – User Interface for data entry
Front End – Presentation Website

OpenAtlas

API

Presentation Site
Front End – OpenAtlasDiscovery

This is a presentation prototype for OpenAtlas projects.

Demo data kindly provided by:

Mapping Medieval Conflicts (MEDCIN). A digital approach towards political dynamics in the pre-modern period. More information

developed by Christoph Hoffmann
Front End – OpenAtlasDiscovery
The CONNEC database features four letter collections (388-603 CE), including Augustine, Paulinus, Avitus, and Gregory. The database foregrounds their spatial worlds and social connections. It contains ??? letters, ??? actors and groups, and ??? locations.
Front End – Connec
Front End – Shahi Kingdoms Database
Front End – Shahi Kingdoms Database
Front End – OpenAtlasDiscovery 2.0

in development …
THANADOS - Nina Richards

- Studied:
  - Medieval and Modern Times Archaeology in Bamberg (DE)
  - Biology with a focus on Biological Anthropology at the University of Vienna
- Came to DH through THANADOS
- Osteoarchaeological expertise for OpenAtlas
- Involved in RELEVEN (PI: Tara Andrews) - Data modelling and archaeology of the 11th century
THANADOS

Project:

- “go!digital next generation” call of the Austrian Academy of Sciences
- Goal: Online dissemination of all early medieval burial grounds in nowadays Austria
- Goal: State of the art presentation of the data as open access
Data source:

- Graves as most important source for Early Medieval Archaeology and Anthropology
- Settlements almost entirely missing
- (Published) sites between 600 and 1100 AD
- Catalogs and tables
- Translation of data into English
THANADOS

Team:

Nina Richards
Bernhard Koschicek
Alexander Watzinger

Stefan Eichert
Jennifer Portschy
Roland Filzwieser
Sonja Mayer
Status quo:

https://thanados.net/
Osteoarchaeological features:

- Need for an up to date way to do anthropological analyses
- Implementing those methods in OpenAtlas
- Possibility to work with projects with anthropological research questions
Sex estimation:

<table>
<thead>
<tr>
<th>Source</th>
<th>Event</th>
<th>Actor</th>
<th>Place</th>
<th>Artifact</th>
<th>Reference</th>
<th>Types</th>
</tr>
</thead>
</table>

**Burial 001 > Anthropological analyses > Sex estimation**

Ferembach et al. 1979: -1.17 - corresponds to “female”

**Skull**
- Glabella (Skull): Female?
- Arcus superciliaris (Skull): Female
- Tuber frontalis and parietalis (Skull): Indifferent
- Inclinatio frontalis (Skull): Female
- Processus mastoideus (Skull): Female
- Relief of planum nuchale (Skull): Not preserved
- Protuberantia occipitalis externa (Skull): Male?
- Processus zygomaticus (Skull): Female
- Os zygomaticum (Skull): Female?
- Crista supramastoideum (Skull): Not preserved
- Margo supraorbitalis (Skull): Not preserved
- Shape of orbita (Skull): Not preserved
- Overall apperence (Mandible): Not preserved
- Mentum (Mandible): Not preserved
- Angulus (Mandible): Not preserved
- Margo inferior (M2) (Mandible): Not preserved
- Angle (Mandible): Not preserved
- Sulcus praeauricularis (Pelvis): Not preserved
- Incisura ischiadia major (Pelvis): Not preserved
- Angulus pubis (Pelvis): Not preserved
- Arc compose (Pelvis): Not preserved
- Os coxae (Pelvis): Not preserved
- Foramen obturatum (Pelvis): Not preserved
- Corpus ossis ischii (Pelvis): Not preserved
- Crista ilaca (Pelvis): Not preserved

**Mandible**
- Overall apperence: Not preserved
- Mentum: Not preserved
- Angulus: Not preserved
- Margo inferior (M2): Not preserved
- Angle: Not preserved

**Pelvis**
- Sulcus praeauricularis: Not preserved
- Incisura ischiadia major: Not preserved
- Angulus pubis: Not preserved
Conclusion - Advantages of OpenAtlas

- OpenAtlas is open source and completely based on open source software
- Data is structured according to the international standard of CIDOC CRM (v7.1)
- Actively developed with high quality standards in mind
- Emphasis on documentation and close contact with users
  - User manual: https://manual.openatlas.eu
  - Technical wiki and issue tracker: https://redmine.openatlas.eu
  - Public meeting protocols: https://redmine.openatlas.eu/projects/uni/wiki/Project_meetings
- API to connect with external systems
- Great synergies between projects using OpenAtlas
- Tested and proven in many productive systems and projects
Thank you for your kind attention!

OpenAtlas:
Web: https://openatlas.eu
GitHub: https://github.com/craws/OpenAtlas
Twitter: @OpenAtlas_eu