MEDGREENREV Re-thinking the Green Revolution in the Medieval Western Mediterranean (6th - 16th centuries)

Project acronym: MEDGREENREV
Project number: 101071726

1. DATA SUMMARY

The purpose of data generation and re-use is to meet the objectives of the project, by aggregating multiple datasets to answer the following key questions:

a) How did environments (plants, animals and landuse) in Iberia and Morocco change during the Arab/Berber conquests of the 7th-8th c. and the fracturing of the far Islamic West into states?

b) How did environments (plants, animals and landuse) in Iberia (including the Balearic Islands) and Morocco change during the period of Islamic state consolidation in the 9th-12th c?

c) How did environments (plants, animals and landuse) in Iberia (including the Balearic Islands) and Morocco change during political fragmentation into the Islamic and Christian western Mediterranean in the 13th-15th c? How significant were the Christian conquests in Iberia as drivers of adaptation and innovation? What was the long-term legacy of Islamic regimes in Morocco?

d) What role did successive population changes resulting from waves of conquest and associated migration play in the transmission of plants, animals, environmental technologies and diet?

e) What role did climate play in relation to environmental change in each of the four regions at this time, and how did societies adapt to fluctuations in temperature, aridity, and related water stress?

The majority of the data will be in ASCII (American Standard Code for Information Interchange) data files, eg comma separated variable (CSV) format, which can be imported into rich-text files for word-processing or into spreadsheets. If specialised software is used, then information about free readers will be provided.

Data will be generated in the following formats:
- Graphics: jpeg, odg, pdf, png, pttx
- Tables: xlsx
- Text: docx, pdf, txt
- GIS: shp

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We will collate two categories of existing datasets.

a) A secondary dataset of select historical sources from Arab, Latin and local vernacular textual sources which have already been studied.

b) Secondary datasets of published environmental and bioarchaeological data from plant macros, pollen, isotopes, and radiocarbon dates from across medieval Europe and the broader Islamic world, which will provide comparative datasets and a control for the archaeological and environmental data from our four regions.

Data will be obtained from three main sources:

a) The first is archaeological materials stored in museum collections, university and municipal stores.

b) The second category of data consists of the full range of archaeological and paleoenvironmental data obtained from targeted excavations, field systems, irrigated areas and cores and sediment / geological samples taken by the project's team. We will draw on data from provisionally 22 sites (11 rural, 7 urban, 4 fortified) and 23 associated field systems – representing individually, or between them, multiple periods and social contexts covering the proposed chronological span. The number of sites may fluctuate according to challenges and opportunities that arise during the course of the project.

c) The third category of data consists of primary and secondary written sources, housed in a variety of archives. Most of the primary sources are in Arabic and Latin; most of the secondary literature is in the local languages of the modern Western Mediterranean countries.

The expected size of the data is not currently known, but it is likely to be less than 1 TB with individual Word and Excel files being ≤1 MB. Image files will be larger.

The data will be of direct use to environmental archaeologists (working with plant and animal remains, soils and sediments, residues and related organic chemistry), archaeologists, historians, geologists and climatologists working in the Mediterranean region and beyond.
The data will also be of use to those individuals or groups working with modern agriculture, hydrology and animal husbandry. It will be particularly relevant to those organisations interested in food / water security and ecological resilience in relation to projected climate change in the Mediterranean region.

2. FAIR DATA

Making data Findable

Data not already stored in a specific repository (e.g. digital archives) will be deposited and described in CORA.RDR open access repository. CORA.RDR provides a unique URL to access the document with the format https://repository/record/1234.The repository assigns DOIs.

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Making data Accessible

All of the data associated with scientific publications will be made openly available as the default unless there is a specific reason not to publish the data.

Upon publication, the data will be made accessible by deposition in open access repository CORA.RDR. This repository is powered by Dataverse open-source software which allows you to store datasets (sets of data from the same research) while showing the descriptive metadata and allowing the download of the corresponding files.

The management of data in our open access Database, following the European Research Council (ERC) policies on data management in projects, is based on transparency, accessibility, and interoperability of information. This involves creating a relational database using open-source software, such as PostgreSQL, which will enable researchers and the general public to access and understand archaeological data efficiently. This database is built entirely on open-source software, is totally customisable and is a multi-lingual and multi-user platform. The database will be managed by a PDRA based in Granada, which will also contain the general server for the project. All members of the project will be able to access this database anywhere in the world, at any time. The data from all the WPs will be inputted over the course of the project, synchronising long-term, multi-scalar socio-environmental changes, including climate.. Each entry in the database will be linked to one another through key fields, such as chronology and UTM geographical coordinates. These fields will allow for effective data linking and analysis, providing a holistic view of archaeological contexts. Additionally, this PostgreSQL-built relational database will be integrated with a Geographic Information System (GIS) developed with PostGIS and managed by the software QGIS. The GIS will allow for visualizing and analysing archaeological data within a spatial context. Geographical data, such as UTM coordinates, will be used to georeference archaeological findings on maps. The resulting WebGIS will be available in open access for the public, facilitating the dissemination of archaeological information and encouraging collaboration and interdisciplinary research. With both, the relational Database and the Geographic Information System applied to archaeological, historical and paleoenvironmental data, users will be able to perform spatial queries to identify patterns, relationships, and distributions in the landscape. For example, they can trace the temporal evolution of settlements, study the dispersion of ceramics, or analyse the relationship between archaeological findings and the paleoenvironmental setting. The GIS will allow for overlaying geospatial layers, making it easier to integrate archaeological data with additional geographical information, such as topographic maps or climate data. In summary, our data management in open access, following ERC policies, promotes the creation of a transparent and accessible relational database, linking archaeological information through key fields and relating it spatially through a WebGIS. The hyper-linked website for the project will be launched at its onset, which will contain updated information on the objectives, procedures and outcomes of the research, related links with accessibility aimed at both scholarly and public audiences. The archaeological, historical and paleoenvironmental data from all sites within the project can be readily transferred from our Database to the Archaeological Data Service (ADS) in York for final archiving.

Making data Interoperable

The data produced in the project will be interoperable as the datasets will adhere to standardised formats: ASCII, txt, csv, xml, tiff. If MS Office, pdf viewer or image viewer cannot be used, a text (ASCII) file will be provided with the dataset that explains where a free reader can be obtained.

Final data will be published in CORA.RDR, the repository of Consorci de Serveis Universitaris de Catalunya (CSUC). This repository follows the Open Archives Initiative model, which allows interoperability with the OAI-PMH metadata transmission protocol (Open Archive Initiative - Protocol for Metadata Harvesting). This protocol allows visibility of the documents from different platforms and collectors: Google Scholar,

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BASE, CORE, etc. This data repository is OpenAIRE compliant and meets all the requirements of metadata required by the European Commission

Increase data Re-use

Metadata will accompany the data files in order to describe, contextualise and facilitate external users to understand and reuse the data.

Wherever possible the data will be shared right after production following the Creative Commons 4.0 International License with Attribution (CCBY). Experimental data will in some cases only become available after the end of the project or publication of the results, whatever comes first, and will be shared using the same CCBY license.

3. COSTS

Costs related to open access of the research data in Horizon Europe are eligible for reimbursement under the conditions defined in the HE GA. Project beneficiaries will be responsible for applying for reimbursement for costs related to making data accessible to others beyond the consortium. If a cost-free repository is used, there will be no allocation of resources necessary for data storage.

The project coordinator will be responsible for the overall data management in the project with the help of the other IPs. However, all beneficiaries have to respect the policies set out in this DMP and the datasets have to be created, managed and stored appropriately and in line with applicable legislation. The partner that generates the data is responsible for the validation and registration of the datasets, for providing the required metadata and for sharing the data through the open access repositories.

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Planned research outputs: text - "Re-thinking the green revolution in the medieval western mediterranean" a co-authored synthetic monograph of up to 250,000 words.

4. DATA SECURITY

Data from the project will be safely stored in certified repositories for long-term preservation and curation with General Data Protection Regulation 2016/679 (GDPR 2016/679) compliant features and security measures. The server ensures that the regulations and security procedures are compiled following the EU standards. Archiving and preservation of data generated by MEDGREENREV partners at their respective institutions is the responsibility of the partners individually.

This Deliverable is a living document and will be updated when necessary.

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