Plan Overview

A Data Management Plan created using DMPonline.be

Title: River valleys in the Anthropocene: a long-term geomorphic and historic analysis of human-environment interactions and legacies

Creator: Yves Segers

Affiliation: KU Leuven (KUL)

Template: KU Leuven BOF-IOF

Project abstract:

This interdisciplinary research project examines the impact of humans as geomorphic agents. It focuses on the reconstruction and analysis of human-environment interactions in river valleys to determine the extent to which anthropogenic processes have shaped present-day landscapes. It is framed within the concept of the Anthropocene, a period that underscores the significant influence of human activity on the landscape.

The Anthropocene is often considered to be a new geological period in which humans have altered the landscape significantly. Whilst global assessments on how important humans have been as geomorphic agents do exist, these are very crude and based on limited data. Furthermore, little is known about the beginnings and evolution of humans as landscape architects at regional and local scales, making it impossible to understand how anthropogenic current landscapes are. This research project aims to unravel, analyze and improve our understanding of the long-term landscape development of two contrasting regions and their floodplains in particular (Dijle and Grote Nete), representative for the European Loess and Coversand Belts. Both were shaped profoundly by human impact but at different times, at different rates and with different outcomes.

This project combines geomorphological and landscape-historical analyses, quantifying soil mobilization over 10,000 years and examining human-environment relations since the eighteenth century. The project's outcomes are expected to inform governmental and non-governmental organizations involved in rural and floodplain management, while also exploring the potential contribution of cultural heritage to sustainable landscape management.

To analyse these dynamics, an interdisciplinary approach is adopted that combines geomorphological and historical methods. The data sources include LIDAR data, historical maps, archival material, interviews, and other visual records.

ID: 214359

Start date: 01-10-2024

End date: 30-09-2028

Last modified: 09-04-2025

River valleys in the Anthropocene: a long-term geomorphic and historic analysis of human-environment interactions and legacies

Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		Indicate: N(ew data) or E(xisting data)	Indicate: D(igital) or P(hysical)	Indicate: Audiovisual Images Sound Numerical Textual Model SOftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
Field and labwork	Sediment corings will be performed to identify the various sediment units, resulting in descriptions, their spatial distribution and a number of soil samples. These samples (or a selection) will be used for macro botanical, palynological and/or 14C research. Where possible/needed this data will be supplemented by geophysical research. Systemic field walking might be used to complement existing archaeological data.	N	D, P	Observational	Spatial (ESRI shape file); databases containing textual as well as numerical data (Access, to be exported to CSV); textual (Word); multimedia (JPEG, TIFF); physical soil samples, archaeological finds	<100GB	NA
Remote sensing	Most will be derived from existing sources: LiDAR and aerial photography. LiDAR is public available as processed DTM raster files as well as point cloud dataset (source: Flemish Agency for Information). Aerial photography is readily available through multiple sources: Flemish Agency for Information, National Geographic Institute, Google Earth and The UK National Collection of Aerial Photography. Where needed, the existing data will be supplemented by acquiring new aerial photographs by plane and drone.	N, E	D	qualitative/quantitative	Spatial (ESRI shape files); multimedia (JPEG, TIFF)	<100GB	NA

Written and printed sources	Published articles and books, retrieved from various libraries or online databases. Furthermore we will use and valorise a wide range of written, archived sources, produced and formed by several actors and covering a long historical period, from the 11-12th century till today. These include quantitative sources such as historical censuses and visual sources: photos, postcards, drawings and paintings retrieved from (online) image databases such as CAG/ICAG and the Flemish government. Moreover, reports and archives of past archaeological excavations within the study areas will be explored. With respect to watermills, we will make use of the database collected by a Flemish association engaged with the preservation of mills (http://www.molenechos.org/).	N, E	D, P	quantitative/qualitative	Textual (PDF, MS Word) visual sources (TIFF, JPG, PDF). Databases containing textual as well as numerical data (Access, Excel, CSV)	<100GB	NA
Historical maps	Various maps of private owners (15th-20th centuries) to be found in archival records as well as regional maps available online through the Flemish Agency for Information or through the National Geographic Institute via the Cartesius online portal.	E	D	qualitative	Multimedia (TIFF, PDF)	<100GB	NA
Archaeological inventory	At the scale of Flanders, an up-to-date archaeological inventory (Centrale Archeologische Inventaris - CAI) is available. This inventory, managed by the Flanders Heritage agency, includes all sites and finds reported in publications or directly to the Heritage agency. It is a collection of data ranging from isolated finds, with or without precise localisation, up to full-scale excavations. For those sites and finds for which a precise location is registered, a spatial layer is available.	E	D	compiled	Spatial (ESRI shape file); textual (PDF); databases containing textual as well as numerical data (Access, available as CSV export)	<100GB	NA

Oral sources - living memories	As a supplement and as a touchstone for the information and insights based on the written and printed historical sources, individual and group interviews will be conducted. These interviews will be based on a semi-structured format in order to document the knowledge and interpretations of the respondents.	N	D	qualitative	Multimedia (WAV)/textual (PDF, Word)	<100GB	NA

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

See table above.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- Yes, human subject data (Provide SMEC or EC approval number below)
- No

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number).

- Yes (Provide PRET G-number or EC S-number below)

Structured interviews will be conducted with people living and working in the study areas. This will include names, ages, adresses, professional activities and ownership data of properties (houses, land, etc.).

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, …)? If so, please comment per dataset or data type where appropriate.

- Yes

Valorisation: produced data can be used for future scientific research or (water) management plans. No IP restrictions, nor tech transfers will be claimed.

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- Yes

3rd party agreements apply to the data in the Centrale Archeologische Inventaris (CAI). Access to the dataset of the CAI is restricted and has to be requested through the Agentschap Onroerend Erfgoed. The data is accessible for scientific partners in the framework of academic research, which will apply to this project. However, sharing of the original data is prohibited by Onroerend Erfgoed and will not take place.

The participants of the interviews are considered 3rd party as well. Agreements will be made concerning restrictions regarding the reuse or sharing of data which will be a part of the informed consent.

Published sources in general are subject to copyright, prohibiting the use of lengthy passages and the creation of derivative works.

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.

- No

Documentation and Metadata

Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).

Research strategies, methods and practices will be fully documented to ensure that all information
necessary for a secondary analysis is available to use the data accurately and effectively. This will
include information on:
GIS-design,
database-design,
fieldwork,
sampling methodology,
the availability/accessibility/quality of written resources,
interviews: selection of subjects, the setting, the questionnaire and the informed consent form.
Information on research strategies, methods and practices will be largely made available through
publications (articles, doctoral thesis). Detailed information on - for example - GIS and database-design will be included as .doc and .txt files, which will be stored in the same folder as the data it applies to.

Will a metadata standard be used to make it easier to find and reuse the data?
If so, please specify which metadata standard will be used.

If not, please specify which metadata will be created to make the data easier to find and reuse.

- Yes

Metadata for spatial datasets will be structured according to the metadata guideline provided by the
Agency for Geographical Information of Flanders and will result in .xml files. These guidelines follow EN ISO 19115/19119/19139 and the INSPIRE-Metadata Implementing Rules.
For the other types of datasets (statistical calculations, pollen, inventories) there are no international
standards concerning metadata available to adhere to. Metadata will be created manually for these sets, resulting in .txt, .xml, .csv or .doc files. These will include settings and technical descriptions. The
metadata will be provided in a structured manner and will contain information about the creator as well.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Shared network drive (J-drive)

During the project individual researchers will store and share data, whilst still in the editing/
(re)constructing phase, temporarily on a communal and synchronized BOX folder (100 GB).

Reused datasets along with final newly generated dataset will be stored on the shared drive on the KU Leuven server (300 GB). This shared drive is only accessible to the project members.

A part of the data is collected and used by multiple teammembers. An example is the data collected through fieldwork. These data will be stored on the KU Leuven server on the shared drive on the KU Leuven server. This drive mostly contains communal folders concerning shared data, literature and administrative info. Apart from that, two personal subfolders are included in which the data for the two doctoral projects will be stored. These folders are given the name of the doctoral students and are available to all the team members to access.

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution

The data will be stored on Box and on the university's central servers with automatic daily back-up procedures.

Is there currently sufficient storage & backup capacity during the project?

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

Yes. BOX enables us to store 100 GB, while the shared KU Leuven server has a capacity of 300 GB. The latter server's capacity can be expanded.Timely inquiries will be made regarding the purchase (using the project's budget) of an additional server to enlarge the storage and capacity.

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

Security measures taken by KU Leuven (login+ password). With reference to the interviews, the application form of the Social and Societal Ethics Committee (SMEC) contains a detailed account of the selected research method and data-handling.

What are the expected costs for data storage and backup during the research project? How will these costs be covered?

During the project we will mainly make use of box and a shared KU Leuven projectfolder at no extra cost. It this appears to be insufficient, we will make use of long-term data storage facilitated by ICTS. The expected costs for data storage and back-up have been taken into account in the project budget. So projects funds will cover this. Long-term data storage costs (ICTS L-drive) costs approx 850 euro for 5 TB but the main promotor is sharing such a folder with colleagues. At present, 1 Tb is allocated to the main promotor at an annual cost of 174 euro. This is a small costs for the project budget and should be sufficient during the project.

Data Preservation after the end of the Research Project

Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?

In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).

- Certain data cannot be kept for 10 years (explain below)

Qualitative secundary data, already stored by institutions or even made publically available, will not be retained.However newly generated data, relevant for future research will be stored for the expected 10 year period after the end of the project.
A selection of soil samples might be stored as well. A number of these will be analysed during the project and will then be discarded. Soil samples that could not be analysed, but are considered relevant, will be stored for a maximum of 5 years. After this period resampling is a better option.

Where will these data be archived (stored and curated for the long-term)?

- KU Leuven RDR

What are the expected costs for data preservation during the expected retention period? How will these costs be covered?

The expected costs for data storage and back-up have been taken into account in the project budget. So projects funds will cover this. Long-term data storage costs can be taken care of by the project promotor via the Interfaculty Center for Agrarian History (ICAG, KU Leuven), and this for at least 10
years after the termination of the project.

Data Sharing and Reuse

Will the data (or part of the data) be made available for reuse after/during the project?
Please explain per dataset or data type which data will be made available.

- Yes, as restricted data (upon approval, or institutional access only)

Well defined previously made agreements will be respected regarding info provided by the stakeholders and personal information obtained through interviews. Interviewees might want to remain anonymous or revoke previously made comments. With reference to the interviews, the application form of the Social and Societal Ethics Committee (SMEC) contains a detailed account of the selected research approach and data-handling.
Newly generated datasets will be made available in a csv format. The anonymised
transcribed audio files will be made available as well.

If access is restricted, please specify who will be able to access the data and under what conditions.

Data will be made available to anyone for whom the data seems relevant (via open access),
provided that they give appropriate credit to the creators (CC-BY license).

Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

Please explain per dataset or data type where appropriate.

- No

Where will the data be made available?

If already known, please provide a repository per dataset or data type.

- KU Leuven RDR (Research Data Repository)

The aim is to make data available for reuse through KU Leuven RDR.
Because the project is an interdisciplinary one, data will not be limited to a specific discipline. During the project this question will be re-evaluated to find the best fit for the data that is being generated.

An option is to deposit the entire dataset at a general repository like Zenodo or Figshare. Alternatively (parts of) the dataset can be deposited in a subject-specific repository: for example the descriptions of coring and spatial data concerning soils and morphology can be deposited at the DOV (Databank Ondergrond Vlaanderen); the database and spatial data concerning archaeological and historical sites can be made available through the CAI.

When will the data be made available?

- Upon publication of research results

Unpublished data will be made available 2 years after the end of the project. This will give project members the chance to finish additional publications after the end of the project.

Which data usage licenses are you going to provide?

If none, please explain why.

Question not answered.

Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.

Question not answered.

What are the expected costs for data sharing? How will these costs be covered?

There are no expected costs for data sharing.

Responsibilities

Who will manage data documentation and metadata during the research project?

First and foremost each doctoral student will take responsibility for his/her own data documentation and metadata. These will be backed up on the KU-Leuven network in the project folder on regular intervals. Supervisors are then able to keep track and see if the right procedures are followed.

Who will manage data storage and backup during the research project?

First and foremost each doctoral student will take responsibility for her own data storage and backup (BOX). These will be backupped on the KU-Leuven network in the project folder on regular intervals. KU Leuven takes care of backing up this folder. The supervisors are ultimately responsible for ensuring that the agreed-upon data storage and backup procedures are followed.

Who will manage data preservation and sharing?

The project leader - Yves Segers - will be responsible for ensuring data preservation and sharing.

Who will update and implement this DMP?

The end responsibility for updating and implementing the DMP is with the supervisor (promotor).