

FWO DMP Template - Flemish Standard Data Management Plan

Project supervisors (from application round 2018 onwards) and fellows (from application round 2020 onwards) will, upon being awarded their project or fellowship, be invited to develop their answers to the data management related questions into a DMP. The FWO expects a **completed DMP no later than 6 months after the official start date** of the project or fellowship. The DMP should not be submitted to FWO but to the research co-ordination office of the host institute; FWO may request the DMP in a random check.

At the end of the project, the **final version of the DMP** has to be added to the final report of the project; this should be submitted to FWO by the supervisor-spokesperson through FWO's e-portal. This DMP may of course have been updated since its first version. The DMP is an element in the final evaluation of the project by the relevant expert panel. Both the DMP submitted within the first 6 months after the start date and the final DMP may use this template.

The DMP template used by the Research Foundation Flanders (FWO) corresponds with the Flemish Standard Data Management Plan. This Flemish Standard DMP was developed by the Flemish Research Data Network (FRDN) Task Force DMP which comprises representatives of all Flemish funders and research institutions. This is a standardized DMP template based on the previous FWO template that contains the core requirements for data management planning. To increase understanding and facilitate completion of the DMP, a standardized **glossary** of definitions and abbreviations is available via the following [link](#).

1. General Project Information

Name Grant Holder & ORCID	Bart Muys (lead PI); 0000-0001-9421-527X
Contributor name(s) (+ ORCID) & roles	Karen Vancampenhout (PI); 0000-0002-9159-7011 Lukasz Musielok (PI); 0000-0002-8241-7429 Magdalena Gus-Stolarczyk (PI); 0000-0001-9560-7937
Project number ¹ & title	(CELSA/24/002) Soil organic carbon stocks and their stability under the influence of forest succession in mountain areas. A pilot study in the Gorce Mountains (southern Poland)
Funder(s) GrantID ²	KU Leuven BOF
Affiliation(s)	KU Leuven Jagiellonian University Krakow

¹ "Project number" refers to the institutional project number. This question is optional since not every institution has an internal project number different from the GrantID. Applicants can only provide one project number.

² Funder(s) GrantID refers to the number of the DMP at the funder(s), here one can specify multiple GrantIDs if multiple funding sources were used.

Please provide a short project description	<p>Soil organic matter provides many ecosystem services. A particularly important service is the sequestration and storage of carbon, which is considered a climate change mitigation strategy. The proposed project aims at a better understanding of factors affecting soil organic carbon (SOC) stocks and their stability in mountain environments under the influence of forest succession. The objectives of this pilot study are to determine the influence of different soil types, and forest succession as a main driver of land cover change on SOC stocks and SOC stability. The Gorce Mountains in Poland will serve as a pilot study, as this mountain range is characterized by a large local diversity of soil types and is subject to intensive forest succession due to the abandonment of agricultural land-use.</p> <p>The research work include three work packages: (1) defining the environmental context of SOC sequestration in the Gorce Mts., and field sampling campaign, (2) specialized and comprehensive laboratory analysis of the field samples on SOC stock and SOC stock stability, and (3) statistical evaluation of factors conditioning SOC stock stability under the influence of forest succession.</p> <p>The comprehensive pilot study in the Gorce Mts., taking into account different aspects of SOC sequestration, will give us a much deeper insight into the relationship between different soil-forming processes, stages of forest succession and formation of SOC stocks and their stability, which can contribute to optimized landscape management under climate change. The expertise acquired from this pilot study will be used to build a larger consortium targeting a Horizon Europe project focusing on SOC stability under the influence of direct and indirect human pressure in different mountain ecosystems across Europe. The project aims to produce two scientific papers and organize workshops that include field visits and the creation of a European consortium that, together with additional invited scientists, will prepare an ambitious project proposal.</p>
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2. 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 data³.

Dataset Name	Description	New or Reused	Digital or Physical	ONLY FOR DIGITAL DATA	ONLY FOR DIGITAL DATA	ONLY FOR DIGITAL DATA	ONLY FOR PHYSICAL DATA
				Digital Data Type	Digital Data Format	Digital Data Volume (MB, GB, TB)	Physical Volume
Soil and vegetation data	Results of field monitoring and laboratory analyses	<input checked="" type="checkbox"/> Generate new data <input checked="" type="checkbox"/> Reuse existing data	<input checked="" type="checkbox"/> Digital <input type="checkbox"/> Physical	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental <input checked="" type="checkbox"/> Compiled/aggregated data <input type="checkbox"/> Simulation data <input type="checkbox"/> Software <input type="checkbox"/> Other <input type="checkbox"/> NA	<input type="checkbox"/> .por <input checked="" type="checkbox"/> .xml <input type="checkbox"/> .tab <input checked="" type="checkbox"/> .csv <input type="checkbox"/> .pdf <input type="checkbox"/> .txt <input type="checkbox"/> .rtf <input type="checkbox"/> .dwg <input type="checkbox"/> .tab <input type="checkbox"/> .gml <input type="checkbox"/> other: <input type="checkbox"/> NA	<input checked="" type="checkbox"/> < 100 MB <input type="checkbox"/> < 1 GB <input type="checkbox"/> < 100 GB <input type="checkbox"/> < 1 TB <input type="checkbox"/> < 5 TB <input type="checkbox"/> < 10 TB <input type="checkbox"/> < 50 TB <input type="checkbox"/> > 50 TB <input type="checkbox"/> NA	
GIS data	Shapefiles of different succession stages	<input checked="" type="checkbox"/> Generate new data <input checked="" type="checkbox"/> Reuse existing data	<input checked="" type="checkbox"/> Digital <input type="checkbox"/> Physical	<input type="checkbox"/> Observational <input type="checkbox"/> Experimental <input checked="" type="checkbox"/> Compiled/aggregated data <input type="checkbox"/> Simulation data	<input type="checkbox"/> .por <input type="checkbox"/> .xml <input type="checkbox"/> .tab <input type="checkbox"/> .csv <input type="checkbox"/> .pdf <input type="checkbox"/> .txt	<input checked="" type="checkbox"/> < 100 MB <input type="checkbox"/> < 1 GB <input type="checkbox"/> < 100 GB <input type="checkbox"/> < 1 TB <input type="checkbox"/> < 5 TB <input type="checkbox"/> < 10 TB	

³ Add rows for each dataset you want to describe.

				<input checked="" type="checkbox"/> Software <input type="checkbox"/> Other <input type="checkbox"/> NA	<input type="checkbox"/> .rtf <input type="checkbox"/> .dwg <input type="checkbox"/> .tab <input type="checkbox"/> .gml <input checked="" type="checkbox"/> other: <input type="checkbox"/> NA	<input type="checkbox"/> < 50 TB <input type="checkbox"/> > 50 TB <input type="checkbox"/> NA	

GUIDANCE:

DATA CAN BE DIGITAL OR PHYSICAL (FOR EXAMPLE BIOBANK, BIOLOGICAL SAMPLES, ...). DATA TYPE: DATA ARE OFTEN GROUPED BY TYPE (OBSERVATIONAL, EXPERIMENTAL ETC.), FORMAT AND/OR COLLECTION/GENERATION METHOD.

EXAMPLES OF DATA TYPES: OBSERVATIONAL (E.G. SURVEY RESULTS, SENSOR READINGS, SENSORY OBSERVATIONS); EXPERIMENTAL (E.G. MICROSCOPY, SPECTROSCOPY, CHROMATOGRAMS, GENE SEQUENCES); COMPILED/AGGREGATED DATA⁴ (E.G. TEXT & DATA MINING, DERIVED VARIABLES, 3D MODELLING); SIMULATION DATA (E.G. CLIMATE MODELS); SOFTWARE, ETC.

EXAMPLES OF DATA FORMATS: TABULAR DATA (.POR, .SPSS, STRUCTURED TEXT OR MARK-UP FILE XML, .TAB, .CSV), TEXTUAL DATA (.RTF, .XML, .TXT), GEOSPATIAL DATA (.DWG, .GML, ..), IMAGE DATA, AUDIO DATA, VIDEO DATA, DOCUMENTATION & COMPUTATIONAL SCRIPT.

DIGITAL DATA VOLUME: PLEASE ESTIMATE THE UPPER LIMIT OF THE VOLUME OF THE DATA PER DATASET OR DATA TYPE.

PHYSICAL VOLUME: PLEASE ESTIMATE THE PHYSICAL VOLUME OF THE RESEARCH MATERIALS (FOR EXAMPLE THE NUMBER OF RELEVANT BIOLOGICAL SAMPLES THAT NEED TO BE STORED AND PRESERVED DURING THE PROJECT AND/OR AFTER).

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.	<ul style="list-style-type: none"> - Site setup in Gorce Mountains - Initial data gathered by Jagiellonian University (prof. Lukasz Musielok)
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⁴ These data are generated by combining multiple existing datasets.

<p>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, please describe these issues further and refer to specific datasets or data types when appropriate.</p>	<p> <input type="checkbox"/> Yes, human subject data <input type="checkbox"/> Yes, animal data <input type="checkbox"/> Yes, dual use <input checked="" type="checkbox"/> No If yes, please describe: </p>
<p>Will you process personal data⁵? If so, briefly describe the kind of personal data you will use. Please refer to specific datasets or data types when appropriate. If available, add the reference to your file in your host institution's privacy register.</p>	<p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: <ul style="list-style-type: none"> - Short description of the kind of personal data that will be used: - Privacy Registry Reference: </p>
<p>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.</p>	<p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, please comment: </p>
<p>Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/Data transfer agreements, research collaboration agreements)? If so, please explain to what data they relate and what restrictions are in place.</p>	<p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, please explain: </p>

⁵ See Glossary Flemish Standard Data Management Plan

<p>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 to what data they relate and which restrictions will be asserted.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, please explain: The site setup in Gorce mountain was established by Prof. Lukasz Musielok of Jagiellonian University, Krakow. Initial analysis of satellite images and aerial photos and measurements of basic soil properties at selected sites has taken place before the onset of the project. The setup and previous measurement data are IP of Jagiellonian University Krakow offered as background for the project. All additional measurements and analyses performed during the CELSA project will be shared IP between KU Leuven and Jagiellonian University Krakow.</p>
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3. Documentation and Metadata

<p>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).</p>	<p>Metadata are added to an intro sheet in every data xls</p>
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<p>Will a metadata standard be used to make it easier to find and reuse the data?</p> <p>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.</p> <p><i>REPOSITORIES COULD ASK TO DELIVER METADATA IN A CERTAIN FORMAT, WITH SPECIFIED ONTOLOGIES AND VOCABULARIES, I.E. STANDARD LISTS WITH UNIQUE IDENTIFIERS.</i></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If yes, please specify (where appropriate per dataset or data type) which metadata standard will be used:</p> <p>If no, please specify (where appropriate per dataset or data type) which metadata will be created:</p> <p>A metadata template will be created manually in a spreadsheet for each dataset, so data can be read and interpreted by other users in the future. SOP's and protocols will be stored along with the observational, analytical and experimental data, for reference on how the data were obtained and compiled. All analysed samples will be logged into a database with sample ID, locations, names, dates, handling persons, protocol references etc</p>
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4. Data Storage & Back-up during the Research Project

<p>Where will the data be stored?</p>	<p>Data are stored in the MS cloud service of KU Leuven, and mirrored on the hard drives of the involved scientists.</p>
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<p>How will the data be backed up?</p> <p><i>WHAT STORAGE AND BACKUP PROCEDURES WILL BE IN PLACE TO PREVENT DATA LOSS? DESCRIBE THE LOCATIONS, STORAGE MEDIA AND PROCEDURES THAT WILL BE USED FOR STORING AND BACKING UP DIGITAL AND NON-DIGITAL DATA DURING RESEARCH.⁶</i></p> <p><i>REFER TO INSTITUTION-SPECIFIC POLICIES REGARDING BACKUP PROCEDURES WHEN APPROPRIATE.</i></p>	<p>By the cloud service</p>
<p>Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available, then explain how this will be taken care of.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, please specify concisely: the amount of data in this project is limited; storage is within the boundaries of normal use</p> <p>If no, please specify:</p>
<p>How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?</p> <p><i>CLEARLY DESCRIBE THE MEASURES (IN TERMS OF PHYSICAL SECURITY, NETWORK SECURITY, AND SECURITY OF COMPUTER SYSTEMS AND FILES) THAT WILL BE TAKEN TO ENSURE THAT STORED AND TRANSFERRED DATA ARE SAFE.⁷</i></p>	<p>All data are stored in the KU Leuven and Jagiellonian cloud, behind a firewall</p>
<p>What are the expected costs for data storage and backup during the research project? How will these costs be covered?</p>	<p>These costs are low and form part of the normal operational costs of the research groups involved</p>

⁶ Source: Ghent University Generic DMP Evaluation Rubric: <https://osf.io/2z5g3/>

5. Data Preservation after the end of the Research Project

Which data will be retained for at least five 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...).	All cleaned basic data (field observations and measurements, lab analyses) will be stored in excel files accompanied with metadata
Where will these data be archived (stored and curated for the long-term)?	KU Leuven Division Forest Nature & Landscape shared archive drive Jagellonian archive drive and external hard disk
What are the expected costs for data preservation during the expected retention period? How will these costs be covered?	This is a shared recurrent cost for the KU Leuven division FNL. This cost is equally shared between all ZAP belonging to this division.

6. Data Sharing and Reuse

<p>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.</p> <p><i>NOTE THAT 'AVAILABLE' DOES NOT NECESSARILY MEAN THAT THE DATA SET BECOMES OPENLY AVAILABLE, CONDITIONS FOR ACCESS AND USE MAY APPLY. AVAILABILITY IN THIS QUESTION THUS ENTAILS BOTH OPEN & RESTRICTED ACCESS. FOR MORE INFORMATION: HTTPS://WIKI.SURFNET.NL/DISPLAY/STANDARDS/INFO-EU-REPO/#INFOEU-REPO-ACCESSRIGHTS</i></p>	<p><input checked="" type="checkbox"/> Yes, in an Open Access repository <input type="checkbox"/> Yes, in a restricted access repository (after approval, institutional access only, ...) <input type="checkbox"/> No (closed access) <input type="checkbox"/> Other, please specify:</p> <p>Cleaned raw data with metadata will be published open access under certain conditions (see further), but only after publication of related papers or by the end of the project.</p>
<p>If access is restricted, please specify who will be able to access the data and under what conditions.</p>	
<p>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.</p>	<p><input type="checkbox"/> Yes, privacy aspects <input type="checkbox"/> Yes, intellectual property rights <input type="checkbox"/> Yes, ethical aspects <input type="checkbox"/> Yes, aspects of dual use <input type="checkbox"/> Yes, other <input checked="" type="checkbox"/> No</p> <p>If yes, please specify:</p>
<p>Where will the data be made available? If already known, please provide a repository per dataset or data type.</p>	

<p>When will the data be made available?</p> <p><i>THIS COULD BE A SPECIFIC DATE (DD/MM/YYYY) OR AN INDICATION SUCH AS 'UPON PUBLICATION OF RESEARCH RESULTS'.</i></p>	<p>By the end of the project, or if not published yet, upon publication of research results</p>
<p>Which data usage licenses are you going to provide? If none, please explain why.</p> <p><i>A DATA USAGE LICENSE INDICATES WHETHER THE DATA CAN BE REUSED OR NOT AND UNDER WHAT CONDITIONS. IF NO LICENCE IS GRANTED, THE DATA ARE IN A GREY ZONE AND CANNOT BE LEGALLY REUSED. DO NOTE THAT YOU MAY ONLY RELEASE DATA UNDER A LICENCE CHOSEN BY YOURSELF IF IT DOES NOT ALREADY FALL UNDER ANOTHER LICENCE THAT MIGHT PROHIBIT THAT.</i></p> <p><i>EXAMPLE ANSWER: E.G. "DATA FROM THE PROJECT THAT CAN BE SHARED WILL BE MADE AVAILABLE UNDER A CREATIVE COMMONS ATTRIBUTION LICENSE (CC-BY 4.0), SO THAT USERS HAVE TO GIVE CREDIT TO THE ORIGINAL DATA CREATORS." ⁷</i></p>	<p>Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)</p> <p>This creative commons license is based on version 4.0 of the creative commons attribution license (CC BY 4.0). It additionally prevents commercial use and prohibits modification of the original work. Legal terms or technological measures that legally restrict others from doing anything the license permits, may not be applied.</p> <p>It also provides protection from defamation for the creator.</p> <p>The licensor cannot revoke these freedoms as long as the license terms are followed.</p>
<p>Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, please provide it here.</p> <p><i>INDICATE WHETHER YOU INTEND TO ADD A PERSISTENT AND UNIQUE IDENTIFIER IN ORDER TO IDENTIFY AND RETRIEVE THE DATA.</i></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes:</p> <p>After completion of a work package, the generated datasets and metadata will be date-stamped and deposited/ referenced by a DOI number using a dedicated online depository service. We aim to use open formats and follow FAIRsharing recommendations.</p>
<p>What are the expected costs for data sharing? How will these costs be covered?</p>	<p>2500 euro of the project budget is reserved for open access data sharing (e.g. through an open access data journal)</p>

⁷ Source: Ghent University Generic DMP Evaluation Rubric: <https://osf.io/2z5g3/>

7. Responsibilities

Who will manage data documentation and metadata during the research project?	The project PIs
Who will manage data storage and backup during the research project?	The project PIs
Who will manage data preservation and sharing?	The project PIs
Who will update and implement this DMP?	Bart Muys, the administratively leading PI