
Plan Overview

A Data Management Plan created using DMPTuuli

Title: Geochemical and isotopic comparison among Phanerozoic basalts, Archean TTG-related metabasalts, and Archean non-TTG-related metabasalts: A global perspective / Solutions for Green and Digital Transition (UTU-GreDiT)

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Project abstract:

Our project aims to describe the geochemical and isotopic composition of basaltic rocks found in the different Archean cratons of the Earth, and to compare them with the geochemistry of the basaltic rocks contained within the Archean Rommaeno and Inari terrains, located in Northern Finland. With this main objective we want to shed light on the mobilization of chemical elements from the mantle to the crust during the Archean, and to identify any anomalous concentrations of metals and elements necessary for energies that promise a green energy transition.

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Geochemical and isotopical comparison among Phanerozoic basalts, Archean TTG-related metabasalts, and Archean non-TTG-related metabasalts: A global perspective / Solutions for Green and Digital Transition (UTU-GreDiT) - Initial DMP (a part of proposal text)

Research data management and management of other research outputs

Types of data/research outputs (e.g. experimental, observational, images, text, numerical) and their estimated size; if applicable, combination with, and provenance of, existing data.

Question not answered.

Findability of data/research outputs: Types of persistent and unique identifiers (e.g. digital object identifiers) and trusted repositories that will be used.

Question not answered.

Accessibility of data/research outputs: IPR considerations and timeline for open access (if open access not provided, explain why); provisions for access to restricted data for verification purposes.

Question not answered.

Interoperability of data/research outputs: Standards, formats and vocabularies for data and metadata.

Question not answered.

Reusability of data/research outputs: Licenses for data sharing and re-use (e.g. Creative Commons, Open Data Commons); availability of tools/software/models for data generation and validation/interpretation /re-use.

Question not answered.

Curation and storage/preservation costs: person/team responsible for data management and quality assurance.

Question not answered.

Geochemical and isotopic comparison among Phanerozoic basalts, Archean TTG-related metabasalts, and Archean non-TTG-related metabasalts: A global perspective / Solutions for Green and Digital Transition (UTU-GreDiT) - Data management plan (after 6 months)

1. Data Summary

Date of the DMP

16.04.2025

DMP version

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1. Data Summary

We will re-use published data of geochemistry and isotope systematics of Phanerozoic and Archean basalts. We calculate that in internet there are more than 40,000 basaltic samples with geochemical and isotopic data published, and 10,000 Archean basaltic samples. We plan also to produce our own data of basaltic samples taken from the Rommaeno and Inari Archean complexes.

These data are mainly excel sheets containing rows and columns of concentrations of oxides and elements in wt.% and ppm. Isotopic data contain the ratios of isotopes concentrations of certain elements as well.

The purpose of this big data is to compare the concentrations and ratios of certain chemical elements that are tracers for tectonic and geological processes shaping the Earth during the Archean, and to describe the concentrations of these basaltic rocks in terms of critical elements necessary for green energy transition.

Several excel sheets do not exceed 10 MB.

The origin of geochemical and isotopic data in basaltic samples is analyzes of rock powders done using different techniques of mass spectrometry and X-ray fluorescence.

This data will be useful in the future for the geological scientific community around the world, and also for mining companies.

2. FAIR data

2.1. Making data findable, including provisions for metadata

Data will be published as supplementary data on each article of my Doctoral Research.

No general standard must be done to make the data findable and available. Data will be just published as excel sheets.

no special keywords are needed.

Data will be offered as rawest as possible.

2.2. Making data accessible

Data will be published as supplementary data on each article of my Doctoral Research, so this supplementary data will be available in the online version of each article.

2.3. Making data interoperable

The data will just contain general information of location, geological age, and Archean-Phanerozoic craton domain, followed by the several concentrations of oxides, trace elements, and specific isotopes per sample.

Our data will contain the specific references the re-used data was taken from.

2.4. Increase data re-use

Documentation for data processing is not defined yet in my Doctoral research.
Data will be 100% available as supplementary data on each published article.
Data will be 100% reusable by any third party.
Provenance of data will be documented just by citing the article the re-used data was taken from.

3. Other research outputs

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Research outputs of this data will be mainly plots of element ratio concentrations and isotopic composition, followed by numerical modelling in python language to generate any discrimination of classification among basaltic rocks from Phanerozoic and Archean.

4. Allocation of resources

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Economical costs of generating these data are covered by my salary. Samples taken from Rommaeno and Inari complexes will be sent to geochemical laboratories for geochemical analyzes. These analyzes cost ca. 200 eur per sample. These costs are funded by the UTU-GreDIT doctoral program.

Jaana Halla, Esa Heilimo, and Marco A. Rodriguez-Ruiz will be responsible for data management.

Data will be kept for all the 4 years doctoral training. Data will be stored in our computers and also in hard disks.

5. Data security

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No security provisions are needed. This is 100% scientific public data.

Data will be kept for all the 4 years doctoral training. Data will be stored in our computers and also in hard disks.

6. Ethics

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No ethics of legal issues should arise if we just cite all the compiled data correctly.

7. Other issues

7. Other issues

none