Plan Overview

A Data Management Plan created using DMPonline

Title: 2022 Exploration Science Announcement of Opportunity

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Affiliation: University of Manchester

Funder: STFC (Science and Technology Facilities Council)

Template: STFC Template Customised By: University of Manchester

Project abstract:

The search for life on Mars is one of the fundamental drivers of Martian exploration dating back to the
Viking missions. One exciting possibility that has recently emerged is that hydrothermal systems associated
with active volcanic centres may have the right conditions (warmth, water, and nutrients) to support life.
Whereas rover missions on the Martian surface have made great scientific advances, they are limited to
investigating the area surrounding their landing site. Martian meteorites can help with this issue as they
sample volcanic rocks from a range of geographic locations and eruption ages. Many of these samples have
been recognised to have undergone hydrothermal alteration, however, there are still some important
questions that need to be addressed before we can fully understand the nature of these environments as
potential habitats. To understand the hydrothermal reactions and the chemistry of the fluids involved, we
need to know the initial volatile content of the volcanic rocks that were altered. This is not straightforward
because the volatile content of a magma can be modified during its ascent through the mantle and crust. If
such systems are viable habitats, a second question is to understand when and for how long
volcanicrelated hydrothermal alteration took place. It is now possible to make significant steps forward in
understanding this potential habitable environment, because recent advances in analytical instrumentation
allow us to evaluate the geological history of Martian meteorites through their chemistry, and to determine
the timing of hydrothermal activity using precise methods for radiometric dating.

ID: 45725

Start date: 01-01-2023

End date: 01-01-2026

Last modified: 30-06-2022

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2022 Exploration Science Announcement of Opportunity

Manchester Data Management Outline

1. Will this project be reviewed by any of the following bodies (please select all that apply)?

- Funder

2. Is The University of Manchester collaborating with other institutions on this project?

- No - only institution involved

3. What data will you use in this project (please select all that apply)?

- Acquire new data

4. Where will the data be stored and backed-up during the project lifetime?

- University of Manchester Research Data Storage

5. If you will be using Research Data Storage, how much storage will you require?

- 1 - 8 TB

6. Are you going to be working with a 3rd party data provider?

- No

7. How long do you intend to keep your data for after the end of your project (in years)?

- 21+ years

Questions about personal information

Personal information, also known as personal data, relates to identifiable living individuals. Special category personal data is more sensitive information such as medical records, ethnic background, religious beliefs, political opinions, sexual orientation and criminal convictions or offences information. If you are not using personal data then you can skip the rest of this section.

Please note that in line with data protection law (the General Data Protection Regulation and Data Protection Act 2018), personal information should only be stored in an identifiable form for as long as is necessary for the project; it should be pseudonymised (partially de-identified) and/or anonymised (completely de—identified) as soon as practically possible. You must obtain the appropriate ethical approval in order to use identifiable personal data.

8. What type of personal information will you be processing (please select all that apply)?

- No sensitive or personal data

9. Please briefly outline how you plan to store, protect and ensure confidentiality of the participants' information.

N/A

10. If you are storing personal information (including contact details) will you need to keep it beyond the end of the project?

- Not applicable

11. Will the participants' information (personal and/or sensitive) be shared with or accessed by anyone outside of the University of Manchester?

- Not applicable

12. If you will be sharing personal information outside of the University of Manchester will the individual or organisation you are sharing with be outside the EEA?

- Not applicable

13. Are you planning to use the personal information for future purposes such as research?

- No

14. Who will act as the data custodian for this study, and so be responsible for the information involved?

John Pernet-Fisher

15. Please provide the date on which this plan was last reviewed (dd/mm/yyyy).

2019-09-24

Data types

Specify the types of data the research will generate.

The proposal involves acquisition of analytical data from a wide range of instruments. These and their data types include:

- Electron Probe: X-ray intensity as at a selection of predefined regions of the spectrum.
- LA-ICP-MS Laser ablation Inductively Coupled Plasma Mass Spectrometry. Mass spectra related to defined spots in a sample.
- Secondary Electron Microscopy: Maps, X-ray spectra and compositional information associated with regions.

Data preservation

Specify which data will be preserved and how.

Each instrument in each laboratory has a data management plan to archive and make available the results of analyses that conforms to the requirements of the STFC and the University of Manchester and follows the guiding principle expressed above and below.
For each instrument raw data (e.g. digitised spectra) from sample analyses, calibrations and blanks will be recorded in a systematic directory structure that is backed up locally at least every night and at least weekly to the resilient and backed up university storage. Metadata (instrument conditions, analytical target) will be recorded alongside each primary dataset, as will versions of any software used to extract derived quantities from raw data.

Specify the software and metadata implications.

Raw data can only be opened with the mass-spectrometer software, the final reduced data can be opens with spreadsheet software (i.e. Excel)

Specify for how long the data will be preserved.

Data will be preserved in this format indefinitely, and for at least ten years from the completion of the project.

Data sharing

Specify and justify which data will have value to others and should be shared.

For each technique, the calibrated results appropriate for publication will be identifiable and available. These data will be signed off by the lead of the laboratory before they are added to the data repository. Image data will be presented in a standard format. Numerical data in comma delimited text files (or other widely accessible format). Sign off will constitute an affirmation that the data are of publishable quality and therefore of interest to the wider community. Alongside these data there will be metadata indicating the raw data corresponding to sample analyses, calibrations and blanks (where appropriate) and the protocols (including versions of software) used to generate the final data product from the raw data. These raw data, protocols and software versions will be available through the raw data backups described in the previous section. It is worth noting that many publications in our field now require data to be available on submission for publication, but data on which publications rely will be made available within no more than three months of acceptance.

Specify and justify the length of any proprietary period.

Data not published (but signed off as publishable) shall be made available no later than three years from the date on which they were generated in their final form.

Specify how data will be shared

Datasets that form the basis of publications will be made freely available through the University research information system Pure, where open access versions of all publications will also be available.

Resources

Specify and justify any resources required to preserve and share the data.

n/a