Plan Overview

A Data Management Plan created using DMPonline

Title: Building the Foundation for Geodetic Excellence in Africa through the Africa-UK Physics Partnership

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Project abstract:

Geodesy measures the Earth’s time-variable size, shape, and gravity. Its role is fundamental to various scientific areas, such as navigation and mapping, climate change, engineering, meteorology, and natural hazards. The precise geographical information systems (GIS) produced by geodesy are essential for delivering services to people, households, and businesses, administering land rights and development permits, and developing and maintaining national and regional infrastructures to access water, waste management, electricity, transport, schooling, health facilities, markets, and security. As a result, geodesy has been noted to contribute directly and indirectly to all of the United Nations Sustainable Development Goals (SDGs).

However, the status of geodetic infrastructure on the African continent needs to be fully documented, and the existing infrastructure must be made more extensive to enable African nations to effectively participate in and contribute to global geodesy.

This project seeks to address these challenges by laying the groundwork for a comprehensive understanding and enhancement of the geodetic infrastructure in Africa. It will assess the current geodetic equipment, computational infrastructure, and human capacity across critical African nations, including South Africa, Tanzania, Ghana, Kenya, Rwanda, and Uganda.

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Building the Foundation for Geodetic Excellence in Africa through the Africa-UK Physics Partnership

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?

- Yes - Part of a collaboration and owning or handling data

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

- Re-use existing data (please list below)
- Acquire new data

Existing data will be accessed from freely accessible, non-sensitive, and personal databases. This includes GNSS data from the Jet Propulsion Laboratory and the National Science Foundation, USA.

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 receiving data from, or sharing data with an external third party?

- No

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

- 5 - 10 years

10 years

Guidance for questions 8 to 13

Highly restricted information defined in the Information security classification, ownership and secure information handling SOP is information that requires enhanced security as unauthorised disclosure could cause significant harm to individuals or to the University and its ambitions in respect of its purpose, vision and values. This could be:

information that is subject to export controls; valuable intellectual property; security sensitive material or research in key industrial fields at particular risk of being targeted by foreign states. See more examples of highly restricted information.

If you are using 'Very Sensitive' information as defined by the Information Security Classification, Ownerships and Secure Information Handling SOP, please consult the Information Governance Office for guidance.

Personal information, also known as personal data, relates to identifiable living individuals. Personal data is classed as special category personal data if it includes any of the following types of information about an identifiable living individual: racial or ethnic origin; political opinions; religious or similar philosophical beliefs; trade union membership; genetic data; biometric data; health data; sexual life; sexual orientation.

Please note that in line with data protection law (the UK 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 information will you be processing (please select all that apply)?

- No confidential or personal data

9. How do you plan to store, protect and ensure confidentiality of any highly restricted data or personal data (please select all that apply)?

- Not applicable

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

- No

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

- No

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. Will this project use innovative technologies to collect or process data?

- Yes, and innovative technologies will not collect or process personal data (please list the innovative technologies below)

Machine learning and AI tools will be used to develop the simulations and establish where the new geodetic infrastructure will be placed across the globe. It will not have access to any sensitive or personal data.

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

Jack Radcliffe

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

2025-02-14

Data types

Specify the types of data the research will generate.

The data generated will likely be text based computer-readable forms that are readable by open-source computer programming languages. The published data will simply be a optimised sub-set of these.

Data preservation

Specify which data will be preserved and how.

Data for this project will be held in the Manchester Research Data Storage service, which is backed up. The data and accompanying codes that contribute to publications will be made publicly available on Github accounts.

Specify the software and metadata implications.

Code will be publicly available as stated above (mostly using Python) and metadata will be provided to ensure that users can interpret the data and its generation correctly.

Specify for how long the data will be preserved.

Published data will be preserved indefinitely, and intermediate data products will be available for 10 years from the commencement of this project.

Data sharing

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

Published data, especially regarding the simulations that aim to optimise the locations of new geodetic infrastructure, will have global appeal given that this will assist policymakers in optimising the locations and return on investment. These data will be publicly available. Any other intermediate data products can be made available to the requesting group through a reasonable request to the PI.

Specify and justify the length of any proprietary period.

There will be no proprietary period.

Specify how data will be shared

Data will be shared through a public repository (e.g., Github, cloud storage shared drives)

Resources

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

No specific resources required apart from those already provided by the University of Manchester.