UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Volcano Deformation, Faculty of Environment

Salary: Grade 7 (£39,355 – £46,735 p.a. depending on experience)

Reporting to: Craig Magee

Reference: ENVEE1803

Fixed term for up to 17.5 months to complete specific time limited work

Location: University of Leeds (with scope for hybrid working)

We are open to discussing flexible working arrangements

Research Fellow in Volcano Deformation, School of Earth and Environment, Faculty of Environment

Overview of the Role

Would you like to help improve how we forecast volcanic eruptions? Do you have experience in understanding deformation of active or ancient magmatic systems? Are you keen to be part of a multidisciplinary project that brings together techniques, ideas, and people from a range of research fields?

This is an opportunity to join the exciting MAGMA (Magma Accommodation and Ground Movement Analysis) project funded by NERC, which aims to transform volcano deformation modelling. MAGMA will use analyses of ancient intrusions, both exposed at Earth's surface and imaged geophysically, and rock mechanic experiments to benchmark how host rock physical properties and deformation patterns change with space and time during magma emplacement. These findings will inform a new generation of Finite Element computational models that seek to include the complex behaviour of rocks into volcano deformation models.

You will join and work with Dr Craig Magee (providing expertise in magma emplacement and host rock deformation), Dr Susanna Ebmeier (volcano monitoring), Professor John Forth (rock mechanic experiments), and Dr James Hickey (Finite Element modelling of volcanoes) to achieve MAGMA. You will also benefit from interacting with project partners Dr Janine Kavanagh, Professor John Howell, Dr William McCarthy, and Dr John Browning.

Your role will focus on analogue modelling and Finite Element modelling. You will hold a PhD (or close to completion) in the Earth Sciences, have experience in conducting geological fieldwork, and have a working knowledge of magma emplacement and volcano deformation. Experience in conducting analogue modelling, numerical modelling and coding, and science communication is desirable.

Overall, you will become an integral member of the MAGMA team, helping deliver a new generation of volcano deformation models that can account for complexity and uncertainty in the host rocks, which will improve the reliability of eruption forecasts.

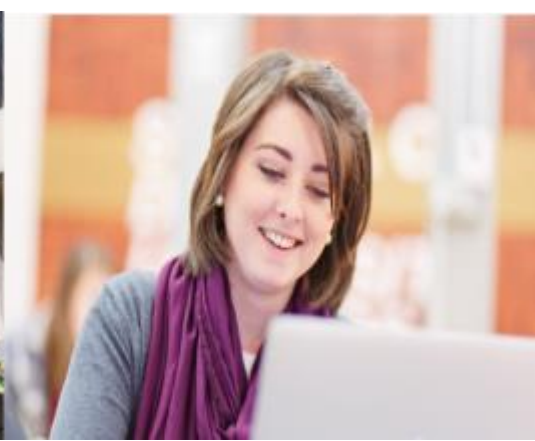


Main duties and responsibilities

- Liaising with the supervisory team and project partners to ensure effective and timely delivery of data and project outputs;
- Contributing to and following the Code of Conduct and Research Statement for MAGMA, which will frame expectations regarding our aim, communication, academic integrity, ethics and publishing practices, and supportive behaviour;
- Assuming responsibility for the day-to-day planning, delivery, budget assignment, and reporting of specific elements of the project;
- Building and running of Finite Element models using COMSOL Multiphysics software;
- Designing and conducting analogue modelling experiments using the gelatin-based set-up available in the Magma lab at the University of Liverpool;
- Taking a careful and responsible approach to health and safety within the laboratory and field sites, including preparing or updating appropriate risk assessments;
- Communicating and presenting research through publications and conferences to the scientific community, and via other avenues to broader audiences;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work;
- Working both independently and also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.





Qualifications and skills

Essential

- A PhD or near completion - i.e. the initial thesis needs to have been handed in at the point of application in Earth Sciences or a closely allied discipline;
- A strong background in volcanology and/or structural geology;
- Enthusiasm for the MAGMA project;
- Experience of multidiscplinary work;
- Experience at designing and conducting analogue modelling of magmatic processes and associated host material deformation;
- Experience in Finite Element numerical modelling using COMSOL Multiphysics;
- Evidence of engagement with initiatives that promote equal and inclusive access to science;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A developing track record of peer reviewed publications in international journals;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

Desirable

- Experience in use of computer coding languages (e.g. Python);
- Demonstrable knowledge of rock mechanics.

Additional information

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.



Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information please visit: www.gov.uk/skilled-worker-visa

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information please visit: https://www.gov.uk/global-talent

Find out more about the Faculty of Environment

Find out more about the School of Earth and Environment

Find out more about our Research and associated facilities

Find out more about Equality and Inclusion in the faculty

Working at Leeds

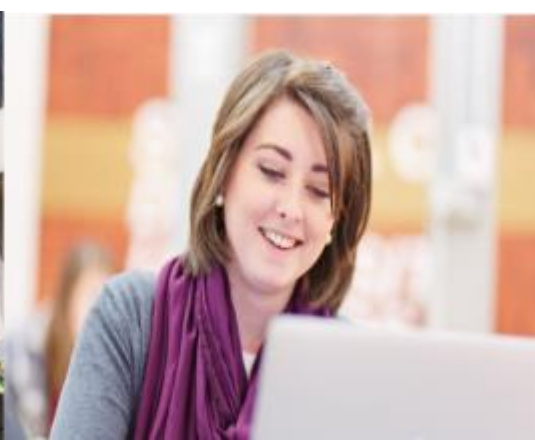
We are a campus based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our Working at Leeds information page.

Our University

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Environment we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian, people who belong to a minority ethnic community; people who identify as LGBT+; and disabled people.

The Faculty of Environment has received a prestigious Athena SWAN silver award from Advance HE, the national body that promotes equality in the higher education sector. This award represents the combined efforts of all schools in the Faculty and shows the positive actions we have taken to ensure that our policies, processes and ethos all promote an equal and inclusive environment for work and study.





Information for disabled candidates
Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at hr@leeds.ac.uk

Criminal record information

Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.