



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Geosolutions: Fluid Flow in Stressed Fracture Networks, Faculty of Environment



Salary: Grade 7 (£37,099 – £44,263 p.a. depending on experience)

Reporting to: Professor David Healy

Reference: ENVEE1732

Fixed term until 31 July 2027 to complete specific time limited work.

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

We are open to discussing flexible working arrangements

Overview of the Role

The role is based in the Geosolutions Leeds research centre, an exciting new strategic investment by the University of Leeds as part of its Climate Plan, supporting the refocusing of research. Geosolutions Leeds brings together world-leading expertise in geology, engineering and social science to deliver an integrated systems approach to energy geoscience that will meet Net Zero goals.

You will work with Professor Dave Healy on the development of fracture patterns and their fluid flow behaviour under stress. This work includes a new Natural Environment Research Council (NERC) project ('Quantifying Fluid Flow in Stressed & Fractured Carbonates'), and an existing NERC project with UCL ('Quantifying the Anisotropy of Poroelasticity'). Overall, this work aims to develop new understanding of fracture pattern development and response using outcrop and well data, integrated with numerical modelling of fluid flow in stressed networks.

You will have, or be close to obtaining, a PhD in the field of Earth Science (Geology or Geophysics), Engineering or Physics and have experience of structural field work, numerical modelling/coding, and have a strong commitment to publishing scientific results.

Main duties and responsibilities

- Working with, and in support of, Professor Healy's research group;
- Collating, analysing and interpreting outcrop and borehole datasets to define fracture patterns at multiple scales;
- Designing, building and testing models to explore fluid flow in fracture networks under applied stresses;
- 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;
- Preparing papers for publication in leading international journals and disseminating research results through other recognised forms of output;



- Working both independently and 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.

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 Science (Geology or Geophysics), Engineering or Physics, or a closely allied discipline;
- A strong background in quantitative structural geology, rock mechanics and/or geomechanics;
- Numerical modelling of Earth processes, including coding skills (e.g., Python or MATLAB);
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- 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

- A proven track record of peer-reviewed publications in high impact factor journals;
- Experience of pursuing external funding to support research;
- Experience of Discrete Fracture Network or Boundary Element modelling;
- A strong interest in accelerating the Energy Transition through fundamental research.



Additional information

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.

Find out more about the [Faculty of Environment](#).

Find out more about [Athena Swan](#) in the Faculty.

Find out more about [Equality in the Faculty](#).

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. Candidates will always be selected based on merit and ability.

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.

