



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Global Seismology, Faculty of Environment



Salary: Grade 7 (£39,105 – £46,485 p.a. depending on experience)

Reporting to: Sebastian Rost

Reference: ENVEE1768

Fixed term up to 18 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 Global Seismology, Faculty of Environment

Overview of the Role

Are you an ambitious researcher looking for your next challenge? Do you have a background in global seismology and are you interested to study the structure of the deep Earth? Are you interested in numerical wave propagation? Do you want to further your career in one of the UK's leading research intensive Universities?

The primary role of this PDRA position is to perform seismological research to resolve the structure of the Earth's deep mantle. It is fully funded by a NSFGEO-NERC grant (NE/Z00036X/1). In detail, the PDRA position will quantify 2-D and 3-D waveform effects from ULVZ structures. Previous ULVZ studies have been limited to predicting waveforms from 1D ULVZ structure. Recent wavefield simulations have demonstrated that additional waveform complexity (pre- and post-cursor arrivals to ScP) exist if ULVZs have well-defined boundaries and evidence for the existence of such arrivals is observed beneath the Coral Sea [Pachhai et al., 2023]. We will characterize these new arrivals using 2-D and 3-D short period full waveform modelling approaches determining where they originate and which arrivals are most important for characterizing ULVZ properties. Furthermore, we will extend the analysis to the PcP wavefield which has thus far not been explored in 2- or 3-D.

Main duties and responsibilities

- Designing, planning and undertaking a program of research in collaboration with the principal investigators of the research project (Rost – University of Leeds, Thorne – University of Utah, Pachhai – University of Utah, and Li – Arizona State University) as part of the NSFGEO/NERC grant “Advancing capabilities to model ultra-low velocity zone properties through full waveform Bayesian inversion and geodynamic modelling”;
- Using numerical wavefield simulations to quantify 2-D and 3-D waveform effects from ULVZ structures in core reflected phases;
- 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 also as part of a larger team of researchers, engaging in knowledge-transfer activities where appropriate and feasible;
- Contributing to knowledge transfer or public outreach activities;
- Contributing to the research culture of the School;
- 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 geophysics, physics, or a similar discipline;
- A strong background in the analysis of seismic waveform data;
- A strong background in numerical simulation of seismic wave propagation;
- Experience using High-Performance Computing facilities;
- 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 international journals;
- Experience of pursuing external funding to support research;
- Expertise in modern machine learning approaches in seismology.

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. 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.

