

**Job Description**

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| Job Title: | Post Doctoral Research Associate in Geothermal Energy |
| Faculty/Professional Directorate: | Science & Engineering |
| Subject Group/Team: | Geology, School of Environmental Sciences |
| Reporting to: | Mark Anderson |
| Duration: | Fixed Term for 10 months |
| Job Family: | Academic |
| Pay Band: | 7 |
| Benchmark Profile: | Research Band 7 |
| DBS Disclosure requirement: | NA |
| Vacancy Reference: |  |

**Details Specific to the Post**

**Background and Context**

### The [School of Environmental Sciences, University of Hull are looking to recruit a postdoctoral research associate in geothermal energy. The PDRA will join an interdisciplinary team and have the opportunity to develop new methodologies for analysing geological and commercial opportunities for deep geothermal energy in the UK.](https://catastrophicflows.wordpress.com/)

### The NNZA-funded project “Humber Geothermal Energy (HuGE) - from Model to Market” establishes a new partnership between the University of Hull (UoH), Consortium Drilling Limited (CDL), and Eden Geothermal Limited (EGL). This unique partnership aims to advance the pre-feasibility and feasibility stages of developing deep geothermal energy resources in the Humber region. Combining technical, regulatory, and commercial expertise, it addresses subsurface uncertainties and evaluates commercial viability, promoting regional awareness and policy development for strategic alignment with regional and governmental priorities in relation to Net Zero.

### Previous research at the University of Hull highlighted the geothermal resource potential of the Humber Basin, demonstrating significant carbon-saving benefits for SMEs transitioning to geothermal energy. However, high upfront costs limited adoption, even for shallow geothermal systems, without government support. This project shifts focus to deep geothermal supply, addressing geological and commercial risks to unlock these resources for broader markets. It will combine empirical field studies, numerical and analogue modelling and computational approaches to drive a step change in our ability to mitigate the risks associated with bringing geothermal resources to market in the Humber region. By partnering with the UK’s leading deep geothermal energy producer, the project leverages their expertise to advance practical solutions. The project aligns with the 2023 Government White Paper, *"The case for deep geothermal energy – unlocking investment at scale in the UK"*, funded in part by the North East and Yorkshire Net Zero Hub.

**The success of the deep geothermal operation at the Eden Project in Cornwall has demonstrated that early stakeholder engagement is crucial to geothermal feasibility studies. A stakeholder engagement mapping workshop will be conducted at the project's start to identify key stakeholders who may significantly influence the advancement of geothermal energy in the region, together with their specific needs, even where these needs are not immediately obvious.**

The PDRA will be based in the School of Environmental Sciences and will work with the project PI, Professor Mark Anderson and CIs from both the University and industry. Beyond the immediate project team the PDRA will be expected to foster collaborations across the university, including the Energy and Environment Institute and with a network of international partners. There will be opportunities to proactively engage with other related research projects and career development opportunities. This will be 1.0 FTE fixed term post for 10 months.

### Specific Duties and Responsibilities of the post

The project is structured around three main work packages:

**WP1: De-risking Subsurface Geological Models**

* Evaluate uncertainties in the Humber Basin geological model, including heat flow, fluid flow, depth, and lateral continuity of structures and stratigraphy.
* Use industry-standard software to reassess and optimise the model, targeting structures with high geothermal potential.
* Develop a deep geothermal model incorporating heat energy output and market infrastructure connections.

**WP2: Assessing Commercial Viability**

* Engage with key regional stakeholders, such as Hull City Council, NHS Trusts, and Humber Port Authority.
* Identify common objectives, commercial success factors, and shared risks to inform a comprehensive feasibility assessment.

**WP3: Stakeholder Engagement and Communication**

* Explore socio-economic impacts and public perceptions of geothermal energy adoption in the Humber region.
* Develop a communication and public awareness strategy, building on stakeholder consultations/workshops.
* Culminate in a high-profile regional stakeholder impact event to present findings and foster alignment.

The PDRA will work on each of these three work packages and will support the PI with monthly online network meetings and the stakeholder impact event.

The PDRA will additionally work with Dr Eddie Dempsey and Ms Lucy Cotton to refine the existing geological model for the Humber Basin. This will involve re-evaluation of existing model input data, incorporation of relevant new data and creation of a model in a format that can be accessed by, and communicated to, a wide range of stakeholders.

It is expected that the successful applicant will hold a PhD in Geology/Earth Science and will have experience in the description and interpretation of sub-surface geology relevant to deep geothermal systems in the UK and continental Europe, especially fracture networks and fluid flow. They will have experience of using surface outcrop models as analogues for the sub-surface and in organising and analysing large data sets. The candidate is not expected to have direct experience of stakeholder engagement and communication as relevant training will be given.

The position would suit someone with excellent communication, presentation and writing skills, as well as very good critical and analytical problem-solving skills. The PDRA will be supported through the University of Hull’s mentoring (assigned a mentor external to the project team) and, where relevant, researcher development programme at Hull. The University of Hull is a current holder of the European HR Excellence in Research award and is committed to the UUK Concordat to Support the Career Development of Researchers. Given the short duration of the PDRA position, particular attention will be given to career development training and support, and the PI will work with the PDRA to co-develop funding proposals as a researcher co-investigator, or to develop fellowship proposals.

In your covering letter please refer directly to the criteria, given in the person specification below. Applications are assessed by the selection panel according to these criteria. To discuss this role informally, please contact Professor Mark Anderson M.Anderson2@hull.ac.uk.

**GENERIC JOB DESCRIPTION**

The job duties and responsibilities listed below are intended to describe the general nature of the role. The duties and responsibilities and the balance between the elements in the role may change or vary over time depending on the specific needs at a specific point in time or due to changing needs in the department. Candidates should note that there may not be an immediate requirement to carry out all the activities listed below.

### Overall Purpose of the Role

The researcher at this level will be:

* An experienced and professional researcher and will be a subject specialist, drawing upon knowledge gained from postgraduate research and/or working within a Research Band 6 role.
* Associated with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies and be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They will work under supervision and receive academic, pastoral support and guidance which may include specific training, career opportunities and mentoring.

They may contribute to the Department’s teaching, through supervision of projects, overseeing practical classes, or taking small group tutorial classes.

The main focus of the work will involve conducting individual and collaborative research projects under the general guidance of a senior academic or Principal Investigator using new research techniques and methods, analysing and interpreting data and writing up research for publication.

**Main Work Activities**

1. Conduct individual and collaborative research projects to include:
* Using expertise to carry out projects they are working on.
* Contribute to the preparing proposals and applications for external bodies, e.g. for funding and contractual purposes with appropriate support or contribute to the writing of collective bids.
* Use new research techniques and methods.
* Analyse and interpret research data.
* Write up research work of the project and its dissemination through seminar and conferences presentations and publications.
1. Responsible for the management of projects to include:
* Plan and manage own research activity in collaboration with others.
* Manage administrative activities with guidance if required.
* Plan and monitor the work of the project or projects if applicable.
1. Assist with teaching and learning support in own area of study to include:
* Assist in the development of student research skills.
* Assess student knowledge and supervision of projects.
* Supervise and guide final year students.
1. Develop and initiate collaborative working internally and externally to include:
* Build internal contacts and participate in internal networks for exchange of information and to form relationships for future collaboration and to progress their research.
* Develop links and join external networks to share information and identify future potential sources of funding.
* Work with colleagues on joint projects as required.
* Attend and contribute to relevant meetings.
1. Demonstrate evidence of own personal and professional development to include:
* Continually update knowledge and understanding in field or specialism.
* Appraisal, induction and performance reviews.
* Participate in training and development activity.
* Maintain links with professional institutions and other related bodies.
* Collaborate with academic colleagues on areas of shared research interest.

### Additionally the post holder will be required to:

* Fulfil the employees’ duties described in the University’s health and safety policies and co-operate with the health and safety arrangements in place within the department. May be required to undertake specific health and safety roles on request e.g. Display screen equipment assessor, departmental safety officer, fire warden etc.
* Show a commitment to diversity, equal opportunities and anti-discriminatory practices this includes undertaking mandatory equality and diversity training.
* Comply with University regulations, policies and procedures.

**PERSON SPECIFICATION – Research Band 7**

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| **Specification** | **Essential** | **Desirable** | **Examples Measured by** |
| **Education and Training**Formal qualifications and relevant training | * A PhD in Geology/Earth Science or a cognate field
* Training in the description and interpretation of geological structures in relation to fluid flow in the sub-surface
* Experience of geothermal systems in the UK and continental Europe and how these may be commercialised
 |  | ApplicationInterviewOther |
| **Work Experience**Ability to undertake duties of the post | **Evidence of:*** A track record in an appropriate research field, including recent scientific publications, presentations at scientific conferences and contributing to grant applications
 |  | ApplicationInterviewOther |
| **Skills and Knowledge**Includes abilities and intellect | **Evidence of:*** Familiarity with quantitative description of the geological controls on low enthalpy geothermal systems
* Experience in the field analysis of the fracture networks and the application of outcrop models as analogues for the sub-surface
* Experience with organising and analysing large geological and geophysical datasets using GIS and specialist software, such as Petrel, for modelling structures in 3D
* Experience of conducting research, and delivering outputs
 | * Participation in networks that seek to promote research collaboration
* Effective management of resources
 | ApplicationInterviewOther |
| **Personal Qualities**Includes any specific physical requirements of the post – (subject to the provisions of the Equality Act 2010) | * An expectation to positively contribute to University activities and initiatives and have a willingness to undertake administrative activities
* Show evidence of collaborative working
* Evidence of working in an open and transparent way, providing information and communicating effectively with colleagues
* Evidence of Continuous Professional Development
 | * Organisational skills
 | ApplicationInterviewOther |