



UNIVERSITY OF
LINCOLN

UNIVERSITY OF LINCOLN JOB DESCRIPTION

JOB TITLE	Post-Doctoral Research Associate (Greenland Ice Sheet Change)				
DEPARTMENT	School of Life and Environmental Sciences				
LOCATION	Lincoln Campuses				
JOB NUMBER	CHS037	GRADE	7	DATE	September 2023
REPORTS TO	Principal Investigator (Professor of Climate Science and Meteorology)				

CONTEXT

The Post-Doctoral Research Associate (PDRA) will work on an NERC-funded 2.5-year project on the *"Greenland Ice Sheet and sea level response under climate change from AD 1600 to 2100"* led by Edward Hanna, Professor of Climate Science and Meteorology.

The project aims to produce a novel Greenland Ice Sheet mass balance history from AD 1600-2023 and Greenland Ice Sheet mass projections to 2100 (thus fitting Intergovernmental Panel on Climate Change timescales), and to assess the impact on global sea-level change and Greenland Ice Sheet-climate interactions. The Lincoln component of the project will focus on deriving a novel 500-yr (AD 1600-2100) monthly high-spatial resolution Greenland Ice Sheet surface mass balance (net snow accumulation minus surface meltwater runoff) dataset with formally constrained uncertainty, using meteorological and Bayesian modelling applied to new global climate datasets and recently collected in situ Greenland climate records for the last few centuries. The results will be combined with ice-flow modelling of Greenland Ice Sheet mass changes, carried out elsewhere in the project, in order to gain key insights into spatial/temporal patterns of surface mass balance and total mass balance and their relationship with climate drivers during AD 1600-2023, and to deduce the relative spatial and temporal contributions of surface mass balance versus ice dynamic components to mass balance and their sensitivity to ongoing climate forcing during AD 1600-2100.

The Post-Doctoral Research Associate will work directly on the NERC project to help push back the frontiers of knowledge and understanding in the topical and high-impact area of the Greenland Ice Sheet and climate change. We expect the project to begin on (or as close as possible to) 19 February 2024.

JOB PURPOSE

The Post-Doctoral Research Associate (PDRA) is responsible for conducting research on the project, as directed by the Principal Investigator and is expected to operate with a significant degree of autonomy. The PDRA is not expected to operate as an independent researcher.

During this appointment the Research Associate will work closely with the Principal Investigator (E. Hanna), Co-Investigators, Project Partners, and other PDRAs on the project to:

- (1) Derive a novel 500-yr (AD 1600-2100) monthly high-spatial resolution Greenland Ice Sheet surface mass balance (net snow accumulation minus surface meltwater runoff) dataset with formally constrained uncertainty, using meteorological and Bayesian modelling applied to new global climate datasets and recently collected in situ Greenland climate records for the last few centuries.
- (2) Compare the results from (1) with ice-flow modelling of Greenland Ice Sheet mass changes, carried out elsewhere in the project, in order to gain key insights into

spatial/temporal patterns of surface mass balance and total mass balance and their relationship with climate drivers during AD 1600-2023, and to deduce the relative spatial and temporal contributions of surface mass balance versus ice dynamic components to mass balance and their sensitivity to ongoing climate forcing during AD 1600-2100.

The focus of this position is on research, publication, and outreach activities that are directly related to the NERC grant. However, there may be opportunities to make occasional contributions to the teaching of meteorology and/or climate science within the Department of Geography. The successful candidate may also suggest their own ideas or topic of research, in collaboration with the PI, to co-develop an idea that could lead to further funding. The post holder may be required to help supervise the work of more junior researchers.

KEY RESPONSIBILITIES

Literature Surveys
Undertake literature surveys and other investigations of the state-of-the-science investigations, and prepare reports as required.
Programme of Research
Undertake a programme of research under the direction of the Principal Investigator, demonstrating a significant level of autonomy, to generate original knowledge, contribute to decisions about research direction, and to prepare reports on results, as required.
Lead in the production of high-quality research outputs, including project reports and papers of national/international standing. Prepare for, and present at, project workshops and inter/national research conferences. Help with project planning and reporting, as required.
Project Management
Perform project management activities, planning, scheduling, monitoring and reporting on progress of research projects.
Liaison and Networking
Liaise with internal and external collaborators on the grant, and with colleagues in the Department of Geography, maintaining positive and effective working relationships; this may include liaison with senior personnel in other organisations including collaborators.
Internal Research Activities
Participate in and help to organise internal research activities, including seminars, research meetings and conferences.
Continuous Professional Development
Undertake continuous professional development activities.
Grant Applications
Contribute to the production of grant applications.
Teaching Support
Engage by mutual agreement in teaching support activities, up to a maximum of six hours per week.
Aid in the supervision of postgraduate research students.

In addition to the above, undertake such duties as may reasonably be requested and that are commensurate with the nature and grade of the post.

ADDITIONAL INFORMATION

Key working relationships/networks	
Internal	External
<ul style="list-style-type: none">• Principal Investigator• Co-Investigators• Coordinator of Research Group• Head of School• Other research and academic staff within the Department of Geography• Research Projects Manager• Post-Award Research Office• Finance Officers	<ul style="list-style-type: none">• Research collaborators

UNIVERSITY OF LINCOLN PERSON SPECIFICATION



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Selection Criteria	Essential (E) or Desirable (D)	Where Evidenced Application (A) Interview (I) Presentation (P) References (R)
Qualifications:		
Have, or about to receive, a PhD in relevant topic such as climatology, meteorology or glaciology.	E	A
Experience:		
Some experience of relevant research methods	E	A/I
Experience specific to project/area, e.g. statistical analysis and/or modelling and relevant computer software/programming (e.g. R, Fortran, C++ or Python).	E	A/I
Experience and record of scientific publication	D	A
Experience of dissemination of scientific results at conferences	D	A
Experience of working with external partners	D	A/I
Experience of developing and maintaining a network of contacts throughout own work area	D	A/I
Experience of reviewing individual/team progress and performance and embedding organisational strategy into individual performance planning.	D	A/I
Teaching support	D	A/I
Skills and Knowledge:		
Ability to design, conduct and project manage original research in the subject area	E	A/I
Excellent written and verbal communication skills, including the ability to write reports and research outputs and deliver presentations	E	A/I
Ability to prioritise own workload and work to specified deadlines under pressure	E	A/I
Ability to communicate complex subjects orally	E	A/I
Ability to analyse and solve problems with an appreciation of longer-term implications	E	A/I
Ability to assess and organise resources, and plan and progress work activities	E	A/I
Competencies and Personal Attributes:		
Flexible approach to workload	E	I
Ability to work on own and as part of a team	E	A/I
Enthusiasm and commitment	E	I
Experience in adapting own skills to new circumstances	D	A/I
Ability to develop creative approaches to problem solving	E	A/I
Have a strong interest in Greenland glaciology- and climate-related research	E	A/I

Be a clear scientific thinker	E	A/I
Have good skills of prioritisation	E	A/I
Business Requirements:		
Occasional travel nationally and internationally for project meetings/conferences	E	A/I

Essential Requirements are those, without which, a candidate would not be able to do the job. **Desirable Requirements** are those which would be useful for the post holder to possess and will be considered when more than one applicant meets the essential requirements.

Author	EH	APBP	AH
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