



**Faculty of Environment
School of Earth and Environment
Institute for Climate and Atmospheric Science**

Research Fellow in Arctic Atmospheric Boundary Layer Processes

2 posts, fixed term for 2 years

You will pursue a research programme studying the dynamic and turbulent processes controlling the properties of Arctic boundary-layer clouds and their interactions with boundary layer structure and the underlying ocean and sea ice within the Arctic marginal ice zone.

You will utilise an extensive data set of measurements made during a research cruise on board the Swedish icebreaker Oden during summer 2014. These include ship-based remote sensing measurements including Doppler cloud radar, lidar, and scanning microwave radiometer measurements; radiosonde profiles; direct surface flux measurements; estimates of sea ice fraction; and in low ice-fraction regions direct measurements of the ocean wave field.

The research will be undertaken in close collaboration with research partners at Stockholm University, Sweden and the NOAA Earth System Research Lab, Boulder, Colorado.

You will have a PhD (or be nearing completion) in a relevant discipline, e.g. boundary layer meteorology, turbulent dynamics, cloud physics, or remote sensing measurements.

University Grade 7 (£30,424- £36,298 p.a.)

Informal enquiries may be made to Dr Ian Brooks, tel +44 (0)113 343 6743, email i.brooks@see.leeds.ac.uk.

Closing Date: 30 October 2013

Ref: ENVEE0193

Job Description

Responsible to: Head of School

Reports to: Dr Ian Brooks

Main Duties and Responsibilities

Funding is available for two post-doctoral positions. Research responsibilities will be split between the posts according to expertise, and it is expected that both positions will work closely together. The main responsibilities are:

- Assist in the preparation for, and conduct of a 3-month field measurement campaign in the Arctic Ocean
- Undertake analysis of boundary layer dynamics and cloud data sets obtained at sea and within the Arctic sea ice, and analysis of measurements of forcing processes for cloud-surface interaction including: synoptic meteorology, sea-ice fractional cover, boundary layer turbulent structure. This work will include initial data processing, quality control, and data management of large data sets including remote sensing data from lidar and scanning microwave radiometers
- Undertake analysis of surface flux data sets obtained at sea and within the Arctic sea ice, and analysis of measurements of forcing processes for air-sea exchange, including: synoptic meteorology, wind-driven waves, sea-ice fractional cover. This work will include initial data processing, quality control, and data management of large data sets
- Collaborate with the project partners at Stockholm University, the NOAA Earth System Research Laboratory, and the National Oceanography Centre
- Present the results of this work at international conferences
- Prepare and submit research papers on this work in high-ranking, peer reviewed, international journals
- Contribute to the wider research programme in Arctic meteorology and climate processes and air-sea interaction at Leeds
- Identify other research project opportunities and directions as they arise, and assist in the writing of grant proposals or contribute to the development of follow-on research funding applications as appropriate
- Plan and manage your own research activity in collaboration with others and within the strategy identified for the project team as a whole
- Interact with, and provide assistance to, other staff in the research group
- Carry out any other duties commensurate with the grade of post as may arise from time to time, including (should the opportunity arise) contributing to teaching activity, by undertaking lectures, tutorials and/or seminars and ensuring an integration of current research into teaching, for example

The School of Earth and Environment is a green impact award holder, and expects all staff to go about their duties in a resource efficient way, minimising impacts to the environment wherever possible.

Career Expectations

The University of Leeds is committed to developing its staff. All staff participate in the Staff Review and Development scheme and we continue to work with individuals, supporting them to maximise their potential.

Progression to a higher grade is dependent on an individual taking on an increased level of responsibility. Vacancies that arise within the area or across the wider University are advertised on the HR website - <http://jobs.leeds.ac.uk> - to allow staff to apply for wider career development opportunities.

University Values

All staff are expected to operate in line with the University's values and standards, which work as an integral part of our strategy and set out the principles of how we work together. More information about the University's strategy and values is available at <http://www.leeds.ac.uk/comms/strategy/>.

Person Specification

Essential

- Have (or be nearing completion) a PhD in relevant branch of atmospheric science (e.g. boundary layer meteorology, turbulence processes, cloud physics and dynamics, surface-atmosphere interactions, remote sensing measurements)
- A demonstrable commitment to research, including:
 - The ability to identify research objectives
 - Independence and initiative in tackling research problems
 - The ability to work effectively as part of a collaborative team
 - Identification of new or applicable methodologies/techniques
- Effective communication skills, evidenced by contributions to international conferences and/or meetings
- Strong writing skills, evidenced by a record of published peer reviewed research articles
- Strong computer programming skills (experience of Matlab\Octave is highly beneficial)
- Enthusiastic approach and helpful manner
- Ability to work under pressure and to meet deadlines
- Full current valid driving licence

Desirable

- Experience working with large, complex data sets
- Experience with Matlab\Octave and 'C' programming languages
- Experience with Linux operating system
- Practical experience of fieldwork and working with instrumentation, including: setup, programming of instrument control and data acquisition systems, fault finding, calibration, and maintenance
- Experience of working with numerical models of atmospheric processes

Additional Information

Details of the terms and conditions of employment for all staff at the University, including information on pensions and benefits, are available on the Human Resources web pages accessible at <http://hr.leeds.ac.uk/>

Disclosure and Barring Service Checks

A Disclosure and Barring Service (DBS) Check is not required for this position. However, applicants who have unspent convictions must indicate this in the 'other personal details' section of the application form and send details to the Recruitment Officer at disclosure@leeds.ac.uk.

Disabled Applicants

The post is located in the School of Earth and Environment. Disabled applicants wishing to review access to the building are invited to contact the department direct. Additional information may be sought from the Recruitment Officer, email disclosure@leeds.ac.uk or tel + 44 (0)113 343 1723.

Disabled applicants are not obliged to inform employers of their disability but will still be covered by the Equality Act once their disability becomes known.

Further information for applicants with disabilities, impairments or health conditions is available in the applicant guidance.

Further Particulars

The University of Leeds is one of the largest universities in Britain, with over thirty thousand students and more than six thousand staff, including over two thousand academic and academic-related staff. The University has departments in all major disciplines and is committed to developing a number of research areas as world class centres of excellence. This has involved identifying a number of `gold peaks' of high quality research and developing strategic investment initiatives for these areas to enable them to develop further. The University has recently invested over £23 million in a new/refurbished building for the School of Earth and Environment.

School of Earth and Environment

The School of Earth and Environment is established as one of the leading centres of international excellence across the Earth and Environmental Sciences. In the UK RAE 2008, we ranked second nationally in terms of research power (the amount of internationally excellent and world-leading research outputs) for Earth and Environmental Sciences. The School comprises +90 academic staff and +80 postdoctoral researchers. In 2011/12 we attracted £11.2million in research funding and this figure is expected to exceed £13 million in 2014/15.

The School mission is “to lead internationally in research, to deliver a high quality of learning and teaching in Earth and Environmental Sciences and hence to beneficially impact society”. This is supported by a School Strategy that aims to achieve international recognition for frontier research of global impact and influence and by building strong dynamic academic communities across the School. Strong research – teaching linkages are central to this aim with the School being home to over 1,000 students spread across a portfolio of undergraduate, masters and PhD programmes.

Earth Surface Science Institute

This is an institute of earth science researchers with a broad range of expertise falling into four natural groupings: Process Sedimentology; Paleontology; Environmental Geochemistry; and Engineering Geology and Hydrogeology. Research endeavours encompass the study of past and present environmental and climatic conditions and the processes that control them and produce change. Thus, we model river and turbidity current flow dynamics, study deep-sea vent communities, quantify groundwater systems, constrain nutrient fluxes in oceans, assess the causes of ancient mass extinctions and much more. Work ranges across all scales from the microscopic study of mineral growth and weathering to the global-scale study of iron cycling and the sulphur isotopic system of the oceans. The Institute also includes a strong group working on Engineering Geology and Hydrogeology whose interests overlap the Geochemists in the field of contaminated land and groundwater.

<http://www.see.leeds.ac.uk/research/essi/>

Institute for Climate and Atmospheric Science

ICAS, in the School of Earth and Environment at the University of Leeds, is an established and expanding group, representing one of the largest and most active Atmosphere and Climate research teams in Europe. We have around 100 research-active members, whose programme covers Atmospheric Dynamics, Aerosols, Cloud Microphysics, Atmospheric Composition and Climate Change. In each of these areas, the Institute makes use of theoretical and numerical modelling on the full spectrum of scales, from cloud microphysics to global dynamics and chemistry. We maintain a long-term commitment to field measurement of atmospheric phenomena, including aerosols and chemistry as well as the physics and dynamics of weather systems. We also have well-established research collaborations with several UK and international agencies, including the Met Office, and we host the Directorate of the UK National Centre for Atmospheric Research (NCAS).

<http://www.see.leeds.ac.uk/research/icas>

Institute of Geophysics and Tectonics

The Institute of Geophysics and Tectonics is dedicated to understanding the structure and evolution of the Earth and neighbouring planets. Detection and measurement of resources in the crustal layer and understanding of geological hazard also are principal aims. Measurement of gravity, magnetism, seismic waves and electrical properties, theoretical and computer modelling, surface structural mapping and petrological studies all contribute to these goals. Recently, in collaboration with the Faculty of Engineering, we have expanded applied research in petroleum engineering, seismology and structural geology.

<http://www.see.leeds.ac.uk/research/igt>

The Sustainability Research Institute

As a key part of the School of Earth and Environment, the Sustainability Research Institute (SRI) is home to a team of over 30 academic staff and 35 research students conducting inter-disciplinary research on the different dimensions of sustainability. Research within SRI is based largely on the environmental social sciences and draws upon aspects of geography, sociology, politics, planning, economics, management, development studies and science and technology studies. Our broader activities combine social and natural sciences in leading-edge, interdisciplinary research. SRI has received significant research funding from various sources, including the recent award of £5.5 million from the ESRC to establish the Centre for Climate Change Economics and Policy (in partnership with the LSE). As well as being a centre of excellence for inter-disciplinary research, SRI runs a range of postgraduate and undergraduate programmes on the different dimensions of sustainability.

<http://www.see.leeds.ac.uk/research/sri>

Research Laboratory Facilities

The School of Earth and Environment has recently invested in newly commissioned geochemical and atmospheric science laboratories as part of the new build. These world class research facilities embrace all aspects of earth and environmental

science including atmospheric instrument and chemistry labs, laser facilities, geomicrobiology-, geochemistry instrument-, isotope geochemistry-, hydrochemistry-, clean- and radiochemistry- labs. Further, the co-location of these facilities in the new School facilitates access to a wide range of analytical services including ICPMS, XRD, IC and isotope analysis.

<http://www.see.leeds.ac.uk/research/facilities/>

Learning and Teaching

The School of Earth and Environment has a student population approaching 1000. We offer a wide range of undergraduate and MSc programmes within the broad areas of Earth Sciences, Environmental Science and Sustainability. We also offer two MRes courses and have a vibrant PhD community.

Our learning and teaching strategy is to:

1. Create learning opportunities for students to engage with Earth and Environmental research excellence.
2. Provide an exceptional student experience by delivering distinctive high quality modules and building academic communities.
3. Enhance student employability through building key skills and experience.

This strategy is delivered through high quality teaching supported by state-of-the-art equipment, facilities and resources. Strong links are made between research and teaching throughout the programmes, but in particular during projects and fieldwork.

<http://www.see.leeds.ac.uk/study/undergrad/>

<http://www.see.leeds.ac.uk/study/masters/>

<http://www.see.leeds.ac.uk/study/phd/>