



Research Associate

Department of Physics and Astronomy

Salary Grade 7 - £30,870 to £35,788 per annum

Open Ended Contract, subject to Fixed Term Funding. Funding is available for 30 months.

Ref: SEN00221

At Leicester we're going places. Ranked in the top 20 universities in Britain our aim is to climb further. A commitment to high quality fused with an inclusive academic culture is our hallmark and led the Times Higher Education to describe us as "elite without being elitist".

A new role has arisen for a Research Associate to work in the Earth Observation Science Group, Department of Physics and Astronomy, on the characterization and utilization of greenhouse gas data from satellites, the development of more accurate greenhouse gas retrievals and the wider exploitation of the remotely-sensed greenhouse gas data through models and data assimilation. You will be involved in two major European projects and you will directly work with colleagues from the European Centre for Medium-Range Weather Forecasts.

You will have a PhD or near completion of a PhD in Earth Observation, Physics, Astronomy, Meteorology, Geography or Environmental Science as well as a good publication record or potential for publication. Any candidates with expertise in any of the following: radiative transfer, earth observation, optimal estimation retrieval or data assimilation would be desirable but not essential.

The University

There's never been a more exciting time to join us. At the University of Leicester we are enjoying research success on a world stage and gathering the awards and plaudits to match.

A judge in a recent awards ceremony described Leicester as "elite without being elitist". We are proud to be elite. But we are at least as proud to be an inclusive and progressive university. This commitment to high quality, an inclusive academic culture and belief in the synergy of teaching and research are our hallmarks. We believe that teaching is inspirational when delivered by passionate scholars engaged in world-changing research that is delivered in an academic community that includes postgraduate as well as undergraduate students.

Our approach to research yields great rewards. Our research impact, measured by citations per academic, is the sixth highest in the UK. Our success in the 2008 Research Assessment Exercise saw Quality Related research income rise by 18% placing us firmly amongst Britain's top 20 research universities by this measure. The RAE also revealed that Leicester is home to Britain's top-rated research department – Museum Studies – which has the highest concentration of world class research of any department of any discipline in the UK.

For a University that believes teaching and research are synergistic, it is pleasing that the National Student Survey reveals the quality of our teaching is amongst the highest in the country. Since the

launch of the survey in 2006, Leicester has consistently featured amongst the top-10 universities in England for student satisfaction. The Sunday Times recently described Leicester as "top... amongst mainstream multi-faculty universities for student satisfaction".

Currently a University of 23,000 students, with a turnover of £260m and 3,800 colleagues, our future is bright. Our Strategic Vision describes our plans to invest a billion pounds in our estate as we transform our campus. Already consistently ranked in the top-20 universities in Britain, by 2015 we aim to rise further to become top-10.

Leicester is the most inclusive of Britain's top-20 universities with the greatest proportions of students from under-represented groups.

As a group of talented individuals we are more diverse than ever and stronger for it. At Leicester we are proud of our distinct approach, our achievements and our ambitious plans. If you share our approach join us.

We are proud holders of the Athena Swan Bronze Award which recognises and celebrates good practice for employment in science, engineering and technology (SET) in higher education and research. The award reflects our commitment to the advancement and promotion of diversity and equality. We are actively seeking Silver and Gold awards.

<http://www.athenaswan.org.uk/html/athena-swan/>

College of Science and Engineering

Pro Vice-Chancellor and Head of College: Professor Martin Barstow, BA PhD CSci CPhys F.InstP FRAS

This is an exciting time to join a dynamic new college and contribute to its development.

The College has 436 staff, 1928 undergraduate and 892 postgraduate students. It has an annual turnover of £39M. The new College is creating the academic and physical environment to enable scientists and engineers to work together across traditional boundaries to address some of the grand research challenges and to engage with increasing effectiveness with business and industrial partners.

The College is made up of seven research-led departments: Chemistry, Computer Science, Engineering, Geography, Geology, Mathematics, and Physics and Astronomy. Together, these departments teach approximately 20% of the University's campus based undergraduate students. Our students undertake diverse programmes of study, from human geography, through a range of laboratory-based subjects including engineering. Our departments have contributed to the University's ascent through national league tables with consistently excellent scores in the National Student Survey and a very strong performance in the 2008 RAE. Our departments also generate more than a third of the University's research income.

Our College has a reputation for research of international quality and is home to several specialist multidisciplinary, interdisciplinary and intra-disciplinary research centres. These centres include Space Research, Climate Change Research, Mathematical / Computational Modelling and Advanced Microscopy. A new Energy Centre is also being proposed. Researchers within the College have international reputations and collaborate with esteemed colleagues throughout the world, making it an exciting environment for both teaching and research.

The College has led the development of High Performance Computing within the University culminating in the establishment of a dedicated centrally-funded HPC unit and the installation of the ALICE state-of-the-art £2M, 2048 processor super-computer. This facility is freely available to all University staff for their research projects.

Our students benefit from following best practice and working alongside leaders in their fields. Approximately a quarter of our undergraduate students go on to study for a higher degree. Our

graduates are much sought after by employers – either by going directly into employment in the broad area of their degree subject, or pursuing successful careers in diverse areas such as education, commerce, IT and the public sector.

The key strategic aims for the College over the next five years are:

To ensure a strong performance in the REF and beyond, improving on the RAE 2008 results

To establish two or three new large interdisciplinary research programmes

To maintain, and improve where possible, the student experience and resulting student satisfaction ratings

Department of Physics and Astronomy

The Department of Physics and Astronomy currently has a full-time academic staff complement of about 36 (including 12 Professors), supported by over 100 research, technical and clerical staff. The Department is also host to 230 undergraduate students following either BSc or MPhys degree courses and over 30 postgraduate students registered for higher degrees. We achieved a grade 5 rating in the last three Research Assessment Exercises.

We are internationally renowned for our research programme which attracts external funding, in the form of research grants and contracts, in excess of £5 million per annum. The main Physics building accommodates the Radio and Space Plasma Physics, X-ray and Observational Astronomy, Condensed Matter Physics and Theoretical Astrophysics Groups, as well as national centres for supercomputing, radar sounding and X-ray astronomy. The purpose-built Space Research Centre (SRC) housed in the Michael Atiyah building provides laboratories, engineering support, clean rooms and test facilities for space instrument development, Planetary Science (including Earth Observation Science) and Bioimaging. Leicester has a hardware involvement in five operational space missions, one of the most recent being the NASA gamma-ray burst mission SWIFT – launched in November 2004.

The Department was awarded the Queen's Anniversary Prize in 1994 for its research and teaching in the areas of astronomy, space and planetary science and was rated as excellent in its most recent Teaching Quality Assessment. We currently offer three-year (BSc) and four-year (MPhys) honours degree courses in Physics, Physics with Astrophysics, Physics with Space Science and Technology, Physics with Planetary Science and Physics with Nanoscience and Technology. The first year intake is typically 70-80 undergraduate students. Postgraduate training to PhD level is a major activity within the Department with studentship funding available mainly from STFC, EPSRC and NERC.

We have close links with the National Space Centre (NSC) in Leicester and, in addition, we have our own active programme in the Public Understanding of Science.

The Space Research Centre

The Space Research Centre ("SRC") at the University of Leicester is a specialist unit involved in space exploration, planetary and Earth Observation Science. The SRC carries out research, design and development of detectors and instruments in support of future missions: for example, the SRC has leading roles in the BepiColombo mission to Mercury, the EXOMARS mission to search for life on Mars, and in the MIRI instrument of the next generation space telescope (JWST), as well as developing technology for ground based and future space missions. The SRC benefits from its own laboratories and clean rooms, engineering and instrumentation groups and an extensive experience of space projects. The SRC is part of the Department of Physics and Astronomy and has strong inter-departmental interactions as well as wider campus and international links.

Your Role

You will support the characterization and utilization of satellite greenhouse gas (GHG) data within the MACC-II and the InGOS projects, the development of more accurate GHG products in the EOS group, and the wider exploitation of GHG data through models and data assimilation.

MACC-II and InGOS are European projects funded by the Framework 7 programme of the European Community. The Earth Observation Science (EOS) group has a strong focus on developing carbon dioxide (CO₂) and methane (CH₄) retrievals from satellite such as GOSAT and exploiting satellite GHG data through the European Space Agency (ESA) and the Natural Environment Research Council.

Principal Accountabilities

The Research Associate will work in the GHG team of the EOS group on the development and characterization of GHG datasets and undertake collaborative studies with the modelling, data assimilation and validation teams of the MACC-II and InGOS projects.

Specifically the Research Associate will:

- To undertake day-to-day research within the MACC-II and InGOS projects, evaluating the quality of GHG data from satellites, contribute to the development of improved GHG datasets and support the exploitation of GHG data with data assimilation system at ECMWF.
- To contribute to the preparation of the data assimilation system for new satellite missions, in particular NASA OCO-2 and ESA Sentinel-5p.
- To support detailed error assessments of the GOSAT CH₄ data over Europe and to help establishing a consistent CH₄ dataset from multiple observing methods.
- To interpret and communicate results at project meetings, and to represent the University at conferences and seminars on a regular basis.
- To analyse and write up research findings, and contribute to research papers as lead author for submission to journals, to support the preparation of future funding proposals related to the project.

Qualifications, Knowledge and Experience

Essential

- A PhD in Earth Observation, Physics, Astronomy, Meteorology, Geography, Environmental Science (or soon to be obtained).*
- Proven experience of completing project and research programmes in a timely manner.
- Good publication record or potential for publication.*

Desirable

- Expertise in any of the following: radiative transfer, earth observation, optimal estimation retrieval, data assimilation. *
- Ability to make strong presentations of results at scientific meetings.

Skills, Abilities and Competencies

Essential

- Capability to analyse large EO datasets preferably of the atmosphere. *
- Excellent written* and verbal communication skills.
- Good time management and organisational skills.
- Willingness to travel nationally and internationally.*
- Ability to independently work as part of a research team.
- Ability to program in scientific computing languages such as FORTRAN and IDL.*

Desirable

- Ability to develop own ideas and research

(* Criteria to be used in shortlisting candidates for interview)

Informal Enquiries

Informal enquiries are welcome and should be made to Dr. Hartmut Boesch on hartmut.boesch@le.ac.uk or 0116 252 2273.

Applications

For further information and to apply on-line, please visit our website: www.le.ac.uk/joinus

The closing date for this post is midnight on Thursday 1 December 2011.

Candidates short-listed for interview will be contacted by the University. If you do not receive a communication from the University within 4 weeks of the closing date, please assume that your application has been unsuccessful.