



JOB DESCRIPTION

Job Title:	Postdoctoral Research Associate
Department / Unit:	Earth Sciences
Job type	Professional Services - Research
Grade:	RHUL 7
Accountable to:	MOMENTUM project PI, Dr. Dave Lowry
Accountable for:	None
Purpose of the Post	
<p>To join the experienced mobile GHG measurement team at RHUL on the NERC-funded MOMENTUM project. The PDRA will pursue independent research within the parameters of the project under the direction of the PI. This will include planning measurement campaigns, developing methods for in vehicle data processing and interpretation of atmospheric data, and using GIS and flux modelling techniques to locate, attribute and quantify methane emissions from UK sources.</p>	
Key Tasks	
<p>Mobile surveys including:</p> <ul style="list-style-type: none"> • Selection of survey targets and design of survey routes. • Preparation of equipment prior to surveys. • Assessment of data streams during surveys with rapid decision making based on results and current meteorology • Ensuring that datafiles are saved and archived • Integration of new instrumentation into the vehicle 	
<p>Data manipulation and interpretation:</p> <ul style="list-style-type: none"> • Handling large datafiles from a range of instruments measuring at 1 and 0.1 second intervals. • Use of GIS techniques to spatially display survey data from a range of instruments • Use of statistical techniques to analyse and interpret data • Use of atmospheric modelling techniques to quantify emissions, including Gaussian and Lagrangian models, and leak rate algorithms • Coding (Python or R preferred) to allow on-the-move assessment of data during surveys, to speed up the merging and harmonisation of datafiles, to identify emission peaks and manipulate data to pick out source category specific characteristics using chemical proxies. 	

Research output and outreach:

- Presentation of findings at conferences.
- Publication of the research in high-impact journals.
- Setting up meetings and collaborating with project partners.

Involvement in MOMENTUM field measurements as campaign leader and RHUL-approved driver as part of a 2 or 3-person team. Tasks include:

- Driving the laboratory MGGAS greenhouse gas survey vehicle on measurement surveys across the UK (may involve occasional non-standard hours of work).
- Operation of instruments and GPS in the survey vehicle.
- Advising on routes and measurement targets and protocols.

Other Duties

The duties listed are not exhaustive and may be varied from time to time as dictated by the changing needs of the Greenhouse Gas Research Group. The post holder will be expected to undertake other duties as appropriate and as requested by their line manager. This could include a small amount of teaching or demonstration duties where the subject matter is akin to the post holders research experience or related to the activities of the greenhouse gas group.

The post holder will actively follow Royal Holloway policies including Equal Opportunities policies. The post holder will also observe Fire and Health and Safety Regulations.

Career Development

For career and personal development, the post holder will develop a personal development plan outlining career goals and required training support (Support by Department and University Occupational Development), to be reviewed annually as part of the Personal Annual Appraisal (PAR) with the line manager. The post-holder is expected to pursue opportunities arising for ECR within the University in support of career development and will be offered a mentor from within the Centre Of Climate, Oceans and Atmosphere (COCO A).

Internal and external relationships

In addition to the key tasks and duties in their role as Postdoctoral Research Associate of the Greenhouse Gas Laboratory, the post holder is expected to actively interact with the other research labs of the department for all shared supplies and resources. The post holder should also be an active member of COCOA, one of three research centres within the department of Earth Sciences.

The following list is not exhaustive but the post holder will be required to liaise with:

- The MOMENTUM PI, Dr Dave Lowry and Co-Is Dr Rebecca Fisher and Dr James France
- External Co-I Prof Grant Allen and members of his research group at the University of Manchester
- Project partners: Department for Energy Security and Net Zero (DESNZ, including Ricardo), National Grid, Rothamsted Research and Environmental Defense Fund.
- Other staff and PhD students of the Greenhouse Gas Research Group
- Other academics and support staff of the department
- Colleagues in other departments/universities/other research facilities
- Students, visitors, collaborators and suppliers to the laboratory



PERSON SPECIFICATION

Details on the qualifications, experience, skills, knowledge and abilities that are needed to fulfil this role are set out below.

**Job Title: Postdoctoral Research Associate
(Greenhouse Gas Group)**

Department: Earth Sciences

	Essential	Desirable	Tested by Application Form/Interview/Test
Knowledge, Education, Qualifications and Training			
PhD qualification in a mathematical or analytical science (or related subject)	x		Application, interview
First Aid at work (or willingness to be trained)		x	Application, interview
Skills and Abilities			
Ability to complete instrumental procedures without supervision	x		Application, interview
Familiarisation with laser spectrometers and / or infra-red analysers for atmospheric analysis		x	Application, interview
Excellent computing skills to process data by use of coding and algorithm development	x		Application, interview
Experience in setting up and testing instrumentation		x	Application, interview
Experience with measurement of atmospheric gases and quantification of emissions		x	Application, interview
Written, oral and listening communication skills	x		Interview
Ability to prioritise and schedule own workload	x		Interview
Experience			
Of working in adherence to health and safety procedures and precautions in routine processes	x		Application, interview
Of handling large datasets	x		Application, interview
Of mathematical and statistical analysis of data	x		Application, interview
In coding	x		Application, interview
First author experience of publishing research		x	Application, interview
Other requirements			
Ability to physically undertake the duties associated with the role, including manual handling (air canisters and backpack instruments up to 10 kg)	x		Application, interview
Full driving license to drive the research group survey vehicle		x	Application, interview
Availability to carry out UK field research	x		Interview
Availability to work variable hours		x	Interview

Occasional evening and weekend work		x	Interview
Able to commence work between 1 March and 1 May 2024	x		Interview
Date: 10/2023			