

Job Description

Research Fellow: UCL Atmospheric Chemistry Research Group

**Grade: 7, spine points 32-33,
1FTE**

This is a full time, fixed term post with funding available for 2.5 years. The appointment is available to start from 1st January 2027

Department: Geography

Location: UCL Bloomsbury

Reports to

You will report to and be supervised by Prof Eloise Marais (<https://profiles.ucl.ac.uk/77783-elaine-marais/>).

Context

University College London (UCL) is one of the world's top universities. Based in the heart of London, it is a dynamic, outward-looking institution. At its establishment in 1826, UCL was radical and responsive to the needs of society, and this ethos – that excellence should go hand-in-hand with enriching society – continues today.

The [UCL Department of Geography](#) is a leading UK and global department, with a heritage of excellence in research, renowned for its innovative and interdisciplinary research to understanding complex global challenges. It brings together expertise in physical and human geography to explore critical issues such as climate change, sustainable development, and social justice. The department fosters an interdisciplinary approach, equipping students and researchers with the skills to critically engage with the complex interactions between people, places, and environments.

The Department of Geography is committed to the values of equality, diversity and inclusion and we have an active Equality, Diversity and Inclusion Committee, and networks for BME, LGBTQ, and disabled/neurodiverse staff and students. The Department recognises the importance of family-friendly working and we try, as far as possible, to organise meetings and events with staff responsibilities as parents and carers in mind. In 2016, the Department was awarded an Athena SWAN Bronze award and recently gained the Silver award (October 2022) in recognition of our advancement of gender equality: representation, progression and success. Above all the Department aims to be a supportive environment for both its staff and students. More information can be found here: <https://www.geog.ucl.ac.uk/equality-diversity-inclusion/>

The project

Seeing is believing: rocket plume pollution visualised with optical imagers

This post will be part of a team of researchers at UCL and MIT investigating the ability to improve estimates of pollutant emissions from rocket launches to better constrain the atmospheric impacts of this emerging pollution source. The position is funded by a Leverhulme Research Project Grant awarded to Prof Marais in June this year (https://www.leverhulme.ac.uk/listings?field_grant_scheme_target_id=15).

You will also be a member of the [UCL Atmospheric Chemistry and Air Quality Group](#) in the department.

Main purpose of the job

The Research Fellow will have the exciting opportunity to learn to use and adapt an existing plume model to simulate pollution from rockets during launch. This will then provide the synthetic observations needed to validate top-down emission inversion estimates from space-based remote sensing instruments.

The Research Fellow will also gather datasets of launch locations and timings, and of rocket characteristics to (i) mine satellite data for coincidences between launches and instrument overpasses or scans, (ii) interpret key factors affecting pollutant emissions from launches, and (iii) maintain UCL's world-leading online tracker of rocket launch emissions (<https://orbitalemissions.org/>).

No prior plume modelling expertise or rocket engineering related degree is needed. Tailored training and guidance will be provided.

This is a full time, fixed term post with funding available until 31st July 2029. The appointment is available to start from 1st January 2027.

Duties and responsibilities

Specific responsibilities and opportunities for learning and career development include:

- Conduct primary research stated in the previous section and explore new, promising research avenues that may arise.
- Report research progress to PI at routine (weekly/fortnightly) one-on-one meetings.
- Participate in research project team meetings hosted monthly or quarterly depending on need.
- Mentor and guide junior members of the research group.
- Present research to academic community at UCL, national, and international conferences, workshops and science meetings.
- Chair and co-convene sessions at local and international workshops and conferences.
- Share findings with non-academic community, e.g., media, policymakers, space agencies.
- Lead author and co-author papers for submission to peer-review journals.

Other General Information

In-person working to foster a sense of research community is encouraged. The Research Fellow may work remotely for 2-3 days a week if they wish.

The Research Fellow will have access to UCL's world-leading computational resources and expertise.

This job description may be reviewed and be subject to amendment in consultation with the post holder. Job descriptions cannot be exhaustive, and so the post-holder will carry out any other duties within the scope, spirit and purpose of the job as requested by the line manager.

The post-holder will also:

- Follow and actively promote the UCL Ways of Working.
- Take responsibility to carry out duties in a way that embodies UCL's environmental and social sustainability values, actively supporting UCL's Sustainability Strategy, policies and objectives within the remit of their role.
- Actively follow and promote all UCL policies including Equality, Diversity and Inclusion policies.
- Maintain awareness and observation of Fire and Health and Safety Regulations.

Further details of the department are at <https://www.ucl.ac.uk/social-historical-sciences/geography>

Informal enquiries may be made to Prof Eloise Marais (e.marais@ucl.ac.uk)

If you have any queries regarding the application process, please contact geog.research@ucl.ac.uk

Person Specification

Note to job applicant: copy and paste the following criteria into your “Statement in support of your application” and describe underneath each criteria how you meet it, giving examples. You will be scored on how you meet each criteria.

Essential Criteria	Assessment method (Application form/ Interview / Practical Test)
Qualifications, experience and knowledge	
Hold a PhD in a relevant research field	Application
Fundamental science knowledge in a related discipline	Application & Interview
Experience conducting independent research	Application & Interview
Lead author of at least one peer-reviewed publication	Application & Interview
Presented at national and international science conferences	Application & Interview
Skills and abilities	
Written and verbal communication skills	Application & Interview
Computer coding in a Unix environment	Application & Interview
Anticipating issues and adjusting approaches when necessary	Application & Interview
UCL Ways of Working	
Commitment to and knowledge of advancing equality, diversity and inclusion	Application & Interview
Desirable Criteria	Assessment
Experience simulating and updating plume modelling cod	Application
Experience communicating research to non-academic audiences	Application & Interview
Software version control using Git	Application & Interview
Collaborative software development on GitHub	Application & Interview
Fundamental knowledge of remote sensing, emissions inversions, and/or combustion emissions	Application & Interview