

Senior Research Associate in Vegetation and Fire Modelling

1 JOB DESCRIPTION

Faculty / School or Division: Faculty of Health and Life Sciences / School of Biological Sciences

Faculty/School or Division Address: Life Sciences Building, 24 Tyndall Avenue, Bristol, BS8 1TQ

Job Family:	Research and Teaching		
Grade/Pathway:	Grade J / Pathway 2	Salary range:	£44,746 - £50,253 per annum
Hours of work:	100% time	Contract type:	Open-ended (fixed funding for 3 years)
Work pattern:	Full time / Monday-Friday	Vacancy Reference Number: ACAD108736	

1.1 Main Job Purpose

We are seeking an enthusiastic and dedicated Postdoctoral Research Associate to join the Copernicus Fire and Land-Atmosphere Modelling of Emissions (CoFLAME) project.

Recent years have witnessed unprecedented wildfire activity across many regions of the world, including devastating fire seasons in Europe, North America, South America, and Australia. Climate projections suggest that fire weather and the frequency of extreme fire events are likely to increase across many regions during the twenty-first century, with significant consequences for ecosystems, carbon cycling, air quality, and climate.

CoFLAME aims to improve our understanding of the interactions between wildfire and vegetation and to develop the next generation of land surface modelling capabilities for predicting wildfire emissions, vegetation recovery, and land-atmosphere carbon exchanges. The project brings together leading European research institutions to improve the representation of fire-vegetation feedbacks within operational forecasting and Earth system modelling frameworks.

This role will focus on developing and testing novel approaches to represent post-fire vegetation dynamics, including vegetation recovery, mortality, fuel characteristics, and carbon cycling processes. The successful candidate will analyse observational and satellite datasets, develop and evaluate model improvements, and contribute to the implementation of these advances within ECMWF's land surface modelling framework. The work will help improve our ability to predict the long-term impacts of wildfire on ecosystems and the carbon cycle under a changing climate.

The position is based within the School of Biological Sciences at the University of Bristol, working in the research group of Professor Martin De Kauwe. The successful candidate will collaborate closely with an international consortium led by the European Centre for Medium-Range Weather Forecasts (ECMWF), including researchers from the Finnish Meteorological Institute (FMI), GEOVILLE, NILU, the

Royal Netherlands Meteorological Institute (KNMI), and the Portuguese Institute for Sea and Atmosphere (IPMA).

1.2 Main Statement of Responsibilities

Research Responsibilities

- Conduct high-quality research aligned with the aims of the Copernicus Fire and Land-Atmosphere Modelling of Emissions (CoFLAME) project, both independently and as part of a multidisciplinary international team under the guidance of the line manager.
- Lead the development, implementation, and evaluation of new representations of wildfire impacts, vegetation recovery, mortality, and carbon cycling within land surface and ecosystem models.
- Analyse and synthesise observational, remote-sensing, and model datasets to understand post-fire vegetation dynamics and improve model performance.
- Contribute to the integration and testing of new model developments within ECMWF's land surface modelling framework, in collaboration with project partners.
- Prepare scientific reports, peer-reviewed publications, and project deliverables; contribute to the coordination of research activities and the development of future research directions.
- Maintain a strong focus on scientific communication by engaging with the international research community, publishing in leading journals, and presenting research findings at national and international conferences.

Administration Responsibilities

- Collaborate closely with researchers across the **CoFLAME** consortium and with other members of the research group to deliver project objectives and outputs.
- Contribute to the supervision and mentoring of postgraduate and undergraduate students working in related research areas, as opportunities arise.
- Participate in project meetings, workshops, and engagement activities with national and international project partners.
- Ensure effective management, documentation, storage, and sharing of research data, model code, and workflows in accordance with project, funder, and University policies.
- Contribute to project reporting, deliverables, and other administrative activities required to support the successful delivery of the research programme.
- Comply with all University health and safety policies and procedures, taking reasonable care to ensure that your actions do not adversely affect the health and safety of yourself or others.

Teaching Responsibilities

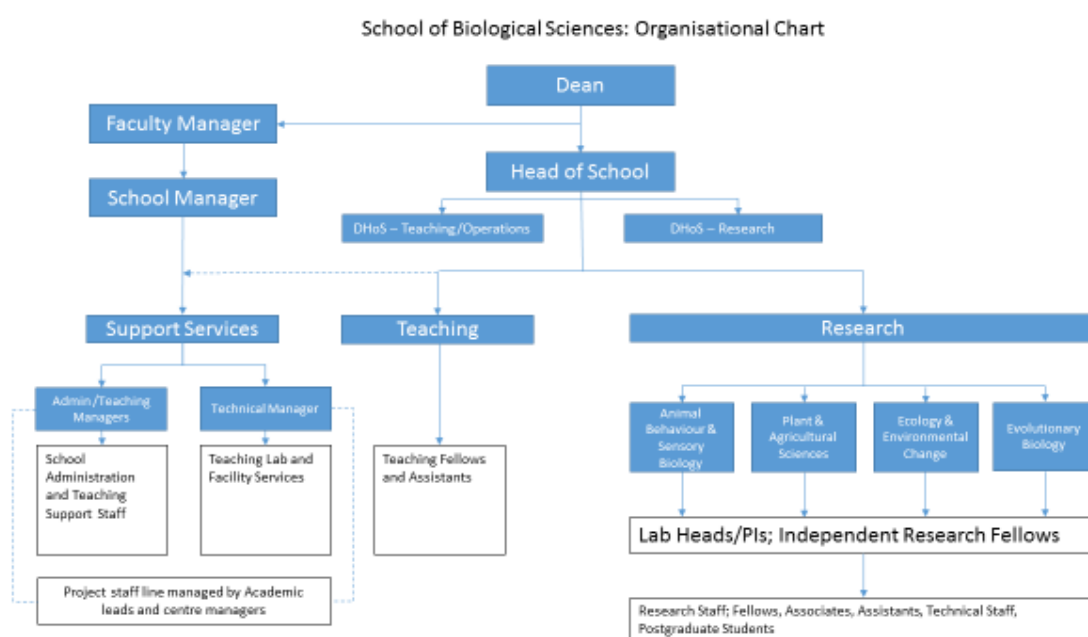
As this role is a Pathway 2 (Research) role, there are no formally specified teaching duties required of the role-holder. However, other commitments permitting, the role-holder may be given development opportunities to undertake activities such as teaching on Masters and Doctoral programmes and/ or supervising MSc dissertations within the School of Biological Sciences, as appropriate.

1.3 Relationships

Line manager: Professor Martin De Kauwe

Line manager to (where appropriate): N/A

1.4 Organisation Chart



1.5 Job Hazards/Safety Critical Duties (Pre-employment health screening)

The following duties are an intrinsic part of the role and any offer of employment will be conditional upon satisfactory health screening by the University Occupational Health Service:

Not Applicable

2 PERSON SPECIFICATION

2.1 Relevant Experience, Skills and Knowledge

Essential

- Significant experience in ecosystem, vegetation, land surface, or Earth system modelling, ideally with applications to wildfire, disturbance, or ecosystem recovery.
- Demonstrated programming and computational skills in a Unix/Linux environment. Experience working with large environmental, ecological, remote-sensing, or modelling datasets.
- Excellent verbal and written communication skills

Desirable

- Knowledge of plant ecophysiology, carbon cycling, and vegetation responses to environmental stress and disturbance.
- Experience with land surface models, dynamic global vegetation models, or related modelling frameworks.
- Demonstrated ability to work effectively both independently and as part of a collaborative research team.
- Demonstrated capacity to deliver high-quality research outputs in a timely manner.

2.2 Relevant Qualifications***Essential***

- A PhD or near completion in ecology, environmental science, Earth system science, atmospheric science, climate science, physics, mathematics, or a related quantitative discipline, or equivalent research experience in an academic, industrial or clinical setting equivalent to a PhD

Desirable

- A good honours degree (or equivalent) with subject knowledge relevant to ecosystem science, environmental modelling, or wildfire research.

2.3 Communication and Interpersonal Skills***Essential***

- Enthusiasm for collaborating with colleagues, students, and international project partners.
- Strong motivation, initiative, and interpersonal skills.
- Strong research and publication record (relative to career stage) in an area relevant to the position.
- Ability to organise time, data, and research activities effectively and to work independently within a team environment.
- Ability to communicate complex scientific concepts clearly, both orally and in writing.

2.4 Additional Criteria***Desirable***

- Interest in increasing access to scientific research through outreach, engagement, and widening participation activities.
- Experience working in interdisciplinary and international research collaborations.

3 CAREER PATHWAY AND OTHER RELEVANT INFORMATION

3.1 Career Pathways

All members of academic staff have a clear career pathway involving a series of levels with distinct role profiles, each with its unique requirements. Each profile sets out what is expected of an academic at the particular level. The role profiles also set out a collection of competencies expected for each level. Promotion to the next level may occur after these competencies have been attained in conjunction with the expectations outlined in the Promotions Process and Academic Promotions Framework (APF) applicable to the role. .

The academic pathways are as follows:

Career Pathway One - academic roles that combine teaching, research and administrative duties.

Career Pathway Two - academic roles focusing on research and associated administrative duties.

Career Pathway Three – academic roles focusing on teaching and associated administrative pathways

This post is located on Pathway Two. Role Summaries setting out what is expected of an academic at each particular profile level on pathway two can be found below. Please note that an appointment may be made at any level of the pathway.

A schematic diagram of the career pathways can be found at <http://www.bristol.ac.uk/hr/grading/academic/>.

The University has two procedures for promotions depending on the level of promotion being applied for as follows:

Promotion up to Senior Lecturer / Senior Research Fellow

Promotion to Associate Professor or Professor

The procedure for Promotion up to Senior Lecturer / Senior Research Fellow describes the process for anyone on the academic career pathways and is based on the concept of readiness as determined with managers using the Academic Promotions Framework (APF). Eligibility for making a case for promotion is subject to:

1. Having a contractual expectation and meeting the performance requirements described in the Promotion up to Senior Lecturer / Senior Research Fellow process
2. Completion of a full year of service following appointment and successful completion of their Initial Service Review (ISR)
3. Meeting the expectations set out in the CREATE policy for those with teaching responsibilities (pathway 1 and 3), e.g. those seeking promotion to Senior Lecturer should achieve and have been formally notified of their Fellowship (ratified outcome) through the University's CREATE scheme before applying

The procedure for Promotion to Professor covers staff for promotion to profile level d2 (Associate Professor) and profile level e (Professor) on all pathways in the [Academic Career Pathway](#) framework.

3.1.1 Role Summaries

Research Associate (Level a)

Role holders at this level are concerned with *assisting* an individual research leader or team to conduct a particular study (or group of studies). They will generally be involved in data generation and/or collection using standard and well-defined methods developed by others. They will be working under close supervision by, and direction from, a more senior researcher, who will be ultimately responsible for the project. This may be the entry level for some staff who are expected to train and/or develop to take on more senior researcher roles. Role holders will be provided with academic and pastoral support within the department (including counselling on realistic career opportunities) and training will be available designed to develop their competences and to prepare them to take on more responsibilities associated with a higher grade.

Senior Research Associate (Level b)

Role holders at this level will be experienced and professional researchers (or have considerable professional experience) and will be specialists in a particular area or methodology, drawing upon knowledge gained from postgraduate research and/or working within a Level a role. They will be *associated* with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies. They will be expected to do some writing for dissemination outside the Department. They will still be working under supervision, but will be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They may, where practical, contribute to the department's teaching, through supervision of projects, overseeing practical classes, or taking small group classes. They will be provided with academic and pastoral support within the department and training will be available designed to develop their competences (including counselling on realistic career opportunities) and prepare them to take on more responsibilities associated with a higher grade.

Research Fellow (Level c)

Role holders at this level will have substantial experience of research (normally not less than six years). They will initiate and take responsibility for some research projects and may be Principal Investigators or, where a Research Council does not permit this, act as though they were Principal Investigators. They will be involved in administration relevant to their projects (e.g. helping to prepare bids for research funding), managing other researchers and monitoring research budgets. They will be expected to be undertaking research individually and/or collectively and to be advancing the state of knowledge and understanding within their particular area of expertise. They will be publishing regularly in high quality outlets. They are likely to provide some teaching support for the department (consonant with the terms of their funding). They will be expected to be establishing a growing reputation within their particular research field and academic discipline and to be developing and demonstrating intellectual independence.

Senior Research Fellow (Level d)

Role holders at this level will have extensive experience in research and research management. They will normally be Principal Investigators, leading collaborative research bids and research teams, or driving forward innovative research themselves. They will be involved in scholastic projects (e.g. editing journals and academic books), and be making a significant leadership and/or management contribution within their department or the wider university, to be participating in national/international academic networks and conferences. They may be transferring their knowledge through some teaching and/or supervision to undergraduate or graduate students (consonant with the terms of their funding). Role holders at this level will be independent researchers and will have an established national and growing international reputation within their academic discipline generally and research field in particular.

Professorial Research Fellow (Level e)

Role holders at this level will have very extensive experience of research leadership and related management/administration. They will enjoy a wide recognition for their expertise within the academic community internationally (as evidenced by conference invitations, journal editorships, office holding in specialist groupings, associations with appropriate Research Councils etc.). They will have made recognised and significant contributions to the developing knowledge and understanding of their research area. They will already have responsibilities for the creation, initiation, development and overall management of significant research programmes. They will 'profess' their discipline within the Department, as appropriate and consonant with the terms of their funding. They may also carry significant leadership roles within the Faculty or University.