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Job Description

Job Title:	Research Assistant or Research Associate (Climate change impact on infectious diseases)
Department/Division/Faculty:	MRC Centre for Global Infectious Disease Analysis, Department of Infectious Disease Epidemiology, School of Public Health, Faculty of Medicine; and Grantham Institute
Campus/Location:	St Mary's Campus (Paddington), then White City Campus from autumn 2023
Job Family/Level:	Research Job Family, Research Assistant or Research Associate* (Research salary scale)
Responsible to:	Principal Investigator (Neil Ferguson) and Grantham Institute co-investigator Prof Ralf Toumi
Key Working Relationships (Internal):	Co-investigators and researchers within the VIMC climate change research programme, climate and health researchers within the MRC Centre and Grantham Institute
Key Working Relationships (External):	Infectious disease researchers, climate scientists, research funders and policymakers
Contract type:	Full time and fixed term for 3 years.

Purpose of the Post

Quantifying the potential public health impact of climate change on infectious diseases is an increasing priority for the global health policymaking community. While a number of studies have concluded that infectious disease risks may increase overall, much uncertainty remains, with substantial heterogeneity by region and disease expected. Furthermore, the likely impact of increasingly frequent extreme weather events on infectious disease risk remains poorly characterised. We are looking for a Research Associate to work in a dynamic, inter-disciplinary team within a Wellcome Trust funded research programme examining the implications of climate change for the burden of disease and control of five infectious diseases: malaria, dengue, yellow fever, cholera and meningitis.

The successful applicant will be able to combine experience of climate modelling and/or data analysis and current Bayesian statistical methods to develop a high performance inferential platform combining climate data and projections with epidemiological data and disease transmission models.

This post will lie within and contribute to the Vaccine Impact Modelling Consortium (VIMC)'s new research programme on the impact of climate change on vaccine-preventable diseases. VIMC (www.vaccineimpact.org) is a major collaborative initiative, based within the MRC Centre for Global Infectious Disease Analysis at Imperial College London, and was founded in 2016. It is now entering a new five-year grant phase, jointly funded by the Bill and Melinda Gates Foundation; Gavi, the Vaccine Alliance; and the Wellcome Trust. It is directed by Professor Caroline Trotter with Professor Neil Ferguson as Deputy Director and Principal Investigator of its climate change research programme.

This climate change research programme within VIMC is collaborative with researchers at the Grantham Institute of Climate Change and the Environment (https://www.imperial.ac.uk/grantham/).

The research programme – which will involve 5 postdoctoral researchers – will assess the implications of changing environments on infectious disease burden and how this will influence optimal vaccination strategy, with a focus on low- and middle-income countries. Two interlinked research strands will: (a) assess the long-term impacts of changing weather and climate on the geographical range of the target diseases,

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epidemiology and strategic implications for vaccine strategy and stockpiling; (b) examine how climate drives seasonal variation in disease transmission and burden, the impacts of increasingly frequent extreme climate events for disease epidemiology, and model optimal prophylactic or reactive vaccination campaigns for mitigation. This post will be critical to bring climate modelling and/or climate change impact assessment experience and skills to the project. The successful applicant will form close working relationships with climate scientists across Imperial College, notably within the Grantham Institute.

The Grantham Institute is the largest of the College's Global Challenge Institutes, which is in receipt of a generous donation from the Grantham Foundation for the Protection of the Environment. Since its inception, the mission of the Grantham Institute has been to drive climate-related research,
translating this into real world impact and communicating knowledge to help shape decision-making in business, policy and the third sector.

The mission of the MRC Centre for Global Infectious Disease Analysis is to be an international resource and centre of excellence for research and capacity building for the epidemiological analysis and modelling of infectious diseases. The Centre has built upon a world-leading research group to undertake applied collaborative work with national and international agencies in support of policy planning and response across a wide range of emerging infectious disease threats and global health challenges.

Please contact vimc@imperial.ac.uk for further information about the post or project.

Key Responsibilities

Research Duties:

- Identify, develop and implement suitable techniques for the collation and analysis of climate data, including historical observations and climate model simulations.
- Develop novel mechanistic models of transmission and parameterise them using historical surveillance data.
- Use a variety of statistical and/or machine learning methods to explore the relationship between disease transmission and climatic variables.
- Take initiative in planning and conducting research with appropriate supervision
- Always ensure the validity and reliability of data
- Write reports for submission to research sponsors and collaborators
- Attend relevant workshops and conferences as necessary
- Develop contacts and research collaborations within the College and the wider community
- Promote the reputation of VIMC, the MRC Centre and the College
- Contribute to bids for research grants as requested
- Publish in high quality journals and present data at national and international meetings
- Participate in internal research meetings and seminars
- Collaborate with other allied scientists within Imperial College and elsewhere in London and abroad, as appropriate
- Contribute to the smooth running of the Group's activities with other scientists and students
- Any other duties as may be deemed reasonable by the Head of Department or Director of the School of Public Health.
- Provide guidance to PhD Students (Associate)
- Assist in the supervision of undergraduate and postgraduate research students and research assistants as required (Associate)

Other Duties:

- Comply with the College, Faculty, and Department safety practices and to attend courses on safety when appropriate

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- Undertake any necessary training and/or development
- Undertake appropriate administration tasks
- Attend relevant meetings

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Person Specification

Requirements Candidates/post holders will be expected to demonstrate the following:	**Essential (E)/ Desirable (D)**
Education	
Hold a PhD in atmospheric physics, climate change, or a closely related discipline. **Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant.*	E
Experience	
Practical experience within a research environment and / or publication in relevant and refereed journals	E
Experience in analysis of climate data and/or climate model projections	E
Experience in coding analysis pipelines	E
Experience of research on weather extremes	D
Experience in Bayesian statistical inference	D
Experience of participating in international research collaborations	D
Experience in communicating research findings to specialist and non-specialist audiences	D
Experience in working in a collaborative development coding environment	D
Knowledge	
Knowledge of statistical methods for analysis of climate data or climate projections, including bias correction	E
Knowledge of climate change projection models	D
Knowledge of scientific literature on weather extremes	D
Knowledge of statistics, including Bayesian approaches	D
Knowledge of R programming language	D
Demonstrated interest in global health and/or infectious diseases	D
Skills & Abilities	
Proven research skills	E
Ability to develop and apply new concepts	E
Creative approach to problem-solving	E
Excellent verbal communication skills and the ability to deal with a wide range of people	E
Excellent written communication skills and the ability to write clearly and succinctly for publication	E
Ability to organise own work with minimal supervision and prioritise in response to deadlines	E
Ability to direct the work of a small research team and motivate others to produce a high standard of work	D
Other	
Willingness to work as part of a team and to be open-minded and cooperative	E
Flexible attitude towards work	E
Discipline and regard for confidentiality and security at all times	E
Willingness to undertake any necessary training for the role	E
Willingness to travel both within the United Kingdom and abroad to conduct research and attend conferences	E

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Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the Imperial Values & Behaviours framework. Our values are:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all College policies and regulations paying special attention to: Confidentiality, Conflict of Interest, Data Protection, Equal Opportunities, Financial Regulations, Health and Safety, Information Technology, Smoking, Private Engagements and Register of Interests. They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the College Website Health and Safety Structure and Responsibilities page.

The College is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the journal impact factor where it is published. For more information, see https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/

The College believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes which are ultimately aimed towards finding new treatments and making scientific and medical advances, and where there are no satisfactory or reasonably practical alternatives to their use. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in the College's care are treated with full respect, and that all staff involved with this work show due consideration at every level. Find out more about animal research at Imperial.

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We therefore encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender reassignment, sex, or sexual orientation. We are an Athena SWAN Silver Award winner, a Disability Confident Leader and a Stonewall Diversity Champion.

January 2023