



## Adaptive Meshes for Global Atmospheric Modelling

A post-doctoral research assistant at the University of Reading is sought to work on mesh generation using optimal transport techniques for atmospheric modelling on r-adaptive meshes. This is part of the NERC funded project “Moving meshes for Global Atmospheric Modelling” joint with the University of Bath (Prof Chris Budd, Mathematics) and Imperial College London (Dr Colin Cotter, Mathematics). We are developing novel mathematical techniques involving optimal transport and solving partial differential equations using an advanced C++ library (OpenFOAM). The use of adaptive meshes could enable more accurate and efficient weather prediction models and predictions of the regional impacts of climate change.

<b>Details of the Post:</b>	Project lead by:	Dr Hilary Weller Department of Meteorology University of Reading.
	Salary (full time):	£29,301 to £38,183K pa depending on experience
	Fixed term:	18-24 months depending on salary
	Application deadline:	31 January 2017
	Interview date:	3 March 2017
	Expected start date:	1 April 2017

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### Main duties and responsibilities

- Develop and implement numerical techniques for generating adaptive meshes using optimal transport.
- Develop and implement finite volume techniques for solving the equations of atmospheric motion on moving meshes, considering conservation properties and maintenance of atmospheric balances.
- Preparing scientific papers for publication.

- Attending national and international conferences to promote the work of the project.
- Reading widely in the areas of numerical modelling, atmospheric dynamics, optimal transport and weather forecasting.
- Interacting with colleagues at the University of Bath and Imperial to ensure that complementary work is undertaken at the three universities working on the project.
- Arranging project meetings.
- Interacting with Met Office collaborators on the project.

### **Person Specification**

Candidates should have experience in numerical model development and excellent programming skills, possibly in C++ or with OpenFOAM. A PhD in mathematics, physics, engineering or a closely related subject is required, with a publication record appropriate to the length of research career. Candidates should have knowledge of numerical methods for the solution of equations representing fluid flow and ideally some knowledge of geophysical fluid dynamics and perhaps also optimal transport, the finite volume method or mimetic methods in atmospheric modelling.

- Informal inquiries to [h.weller@reading.ac.uk](mailto:h.weller@reading.ac.uk)
- Application details at <https://jobs.reading.ac.uk/> and search for meteorology