



THE POST

College:	Engineering, Mathematics and Physical Sciences
Post:	Associate Research Fellow
Reference No:	P41934
Grade:	E
Reporting To:	Prof John Thuburn

The above full time post is available from 1 July 2011 in the College of Engineering, Mathematics and Physical Sciences.

Job Description

Main purpose of the job:

The successful applicant will join an international collaboration developing atmospheric models based on icosahedral grids that will achieve high performance and scalability on massively parallel computers. The Exeter component of the project will focus on parallel elliptic solvers for implicit time stepping, and efficient calculation of diagnostics.

Main duties and accountabilities:

1. To undertake research as appropriate to the field of study including:
 - Survey of existing techniques for solution of elliptic problems on parallel computing architectures;
 - Implementation of selected techniques in idealized problems; Improvement of existing techniques and/or development of new techniques; Analysis of cost and scalability of alternative techniques;
 - Development of a semi-implicit time integration version of the MPAS dynamical core using the most promising elliptic solver; analysis of its efficiency and stability; comparison with the existing explicit time integration version;
 - Analysis of bottlenecks in the output of weather and climate diagnostics from the MPAS model;
 - Development of methods for by-passing bottlenecks, including limited area and reduced resolution diagnostics; implementation in MPAS; implementation as a flexible package for use by project collaborators;
 - Contribution to the planning of the research project;
 - Making presentations at national and international conferences and similar events;
 - Writing up research work for publication.
2. To contribute to teaching and to be involved in the assessment of student knowledge including assisting in the supervision of student projects and in the development of student research skills.
3. To work in collaboration with colleagues as appropriate to the field of study including:
 - Communication and dissemination of results, including short visits to international collaborating groups;
 - Contributing to collaborative decision making within the international collaboration;
 - Contributing to the production of collaborative research reports and publications.
 - Preparing papers and presenting information on research progress and outcomes to bodies supervising research, e.g. steering groups.

4. To engage in continuous professional development and to be responsible for continually updating knowledge and understanding in field of study or specialism and for developing skills.

This job description summarises the main duties and accountabilities of the post and is not comprehensive: the post-holder may be required to undertake other duties of similar level and responsibility.

Person Specification

Competency	Essential	Desirable
Attainments/Qualifications	PhD or equivalent in a related field of study.	
Skills and Understanding	Sufficient knowledge in the discipline and of research methods and techniques to work within established research programmes.	Evidence of research activity and published research.
Prior Experience	Experience of conducting risk assessments and understanding of health and safety legislation	Experience of undergraduate teaching
Behavioural Characteristics	Excellent written and verbal communication skills. Able to communicate material of a specialist or highly technical nature. Able to liaise with colleagues and students. Able to build contacts and participate in internal and external networks for the exchange of information and collaboration. Able to identify potential sources of funding. Actively participate as a member of a research team Engage in continuous professional development.	

Informal Enquiries

Before submitting an application you may wish to discuss the post further by contacting Prof. John Thuburn, telephone (01392 725224) or email j.thuburn@exeter.ac.uk.