

JOB DESCRIPTION

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| Vacancy reference: | JTR00138 – R1 |
| Post Title: | Postdoctoral research associate (PDRA) |
| Grade: | 6 |
| School/Department: | National Centre for Atmospheric Science, Department of Meteorology, School of Mathematical, Physical and Computational Sciences |
| Reports to: | Prof Jonathan Gregory (principal investigator and line manager) |
| Responsible for: | None |

Purpose

To gain new physical understanding of the magnitude and geographical pattern of dynamic sea level change, ocean heat uptake and thermal expansion projected by atmosphere-ocean general circulation models (AOGCMs) for the 21st century, in order to address the “Grand Challenge” of regional sea level change, which is among the most severe consequences of anthropogenic climate change.

This work is funded by a NERC standard grant to Prof Gregory and his co-investigator Prof Laure Zanna of the University of Oxford; the project will be a collaboration between the two groups.

Main duties and responsibilities

- Analyse results from AOGCMs of the international Coupled Model Intercomparison Project Phases 5 and 6, especially the newly designed flux-anomaly-forced experiments of the CMIP6 FAFMIP subproject, to investigate the role of ocean circulation change and other processes in ocean heat uptake, using novel diagnostics and a water-mass-following framework.
- Design, carry out and analyse simulations to test hypotheses about ocean climate change with a range of AOGCMs, including HadGEM3 and HadCM3.
- Report on progress and results of this research through appropriate methods, including papers for submission to scientific journals, presentation of results at conferences, workshops and to the public.
- Maintain awareness of current progress in relevant research areas, to ensure that the research remains at the cutting edge.
- Assist in the organisation of an international workshop on the subjects of the project.
- Contribute to the maintenance of an active scientific environment in the Department through group meetings, seminars etc.

Supervision received

Prof Gregory will provide general guidance and specific scientific and technical direction as required through regular meetings.

Supervision given

There are no responsibilities for supervision of staff. There may be opportunities for MSc project supervision or co-supervision of PhD students,

Contact

It is expected that the postholder and Prof Gregory will meet periodically with Prof Zanna and her PDRA on this project. Our two groups also meet a couple of times per year with the Met Office sea level group, whose manager Dr Matt Palmer is a partner in this project. We will take any convenient opportunities to keep in touch with our project partners Drs Jan Zika (University of New South Wales), Catia Domingues (University of Tasmania) and Simon Marsland (CSIRO). Our research will be carried out in the context of FAFMIP, whose steering committee is chaired by Prof Gregory, and it will be important and valuable to coordinate with the ten groups worldwide who are participating in FAFMIP. As part of this project, we will convene an international workshop in 2019 of the FAFMIP groups and our project partners.

This project is closely related to the NERC-funded TICTOC project concerned with investigation of ocean temperature and circulation change in observations and models using passive tracers, The PI of TICTOC is Dr Elaine McDonagh of the National Oceanography Centre in Southampton. Prof Gregory is a co-investigator of TICTOC and will supervise a PDRA at Reading on that project (post advertised with this one). Exchange of ideas and collaboration in the two projects will be mutually beneficial.

Terms and conditions

This is a full-time post for three years.

This document outlines the duties required for the time being of the post to indicate the level of responsibility. It is not a comprehensive or exhaustive list and the line manager may vary duties from time to time which do not change the general character of the job or the level of responsibility entailed.

Date assessed:

PERSON SPECIFICATION

| Job Title | School/Department |
|---------------------------------|--|
| Postdoctoral Research Associate | National Centre for Atmospheric Science, Department of Meteorology, SMPCS |

| Criteria | Essential | Desirable |
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| Skills Required | Strong physical insight and analytical ability. Good facility with relevant statistical and mathematical methods. Designing and carrying out climate model experiments. Good communication skills, both written and oral. Maintaining productive relationships with collaborators. Programming in Fortran and in a suitable language for data analysis. | Programming in Linux shell. |
| Attainment | PhD in physical or mathematical science. Publication record commensurate with experience. | PhD in climate, ocean, atmospheric or Earth system science. |
| Knowledge | Knowledge of and interest in climate change science, especially ocean climate and sea level change. Understanding of essential physical and dynamical oceanography. | Science of atmospheric climate change, climate sensitivity, Earth energy budget. |
| Relevant Experience | Research involving AOGCM or 3D ocean modelling. Computer programming. Analysis of large datasets. | Use and development of AOGCMs. |
| Disposition | Self-motivated, conscientious and creative. Communicative. Collaborative. Willing to undertake visits. | Enjoy working with others. |

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| Completed by: Jonathan Gregory | Date: 6.9.17 |
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