

Arctic Research Programme Identifying Uncertainties in Arctic Climate Predictions

Invitation To Tender

(date issued: 16 March 2010, closing date: 16 April 2010)

1. The Natural Environment Research Council (NERC) invites tenders for the provision of research to support the development of the Arctic Research Programme¹. Working with the UK Met Office, the contractor will use existing multi-model ensemble predictions, to identify the processes/feedbacks which contribute to the range of uncertainty in future predictions of Arctic sea ice and surface temperature changes.

Scope

2. NERC is seeking an individual or a small team from a NERC eligible UK Research Organisation to undertake the specified research over a period of approximately 5 months, between May 2010 and September 2010. The successful organisation will be engaged following a competitive selection process. Funds will be awarded by contract and paid quarterly in arrears upon receipt of an invoice and subject to the satisfactory completion of milestones. NERC's standard terms and conditions for research contracts will apply. The contract and its deliverables must be satisfactorily completed by 30 September 2010.
3. Tenders for up to £50k total cost to NERC will be accepted (costs should be calculated at Full Economic Cost and the contract will be paid at 80% FEC). Please note the upper limit is not an indicative figure, and all costs must be fully justified within the approach to the research proposed. The Met Office will support the costs of their own activities that form part of the project.
4. Activities to be undertaken by the contractor will be based on analysis of IPCC AR4 experiments and other relevant model experiments, in collaboration with the Met Office. This will include: analysing the relative role of atmosphere and ocean processes in driving sea ice changes and applying methods to identify processes which lead to uncertainty in future predictions of Arctic sea ice and surface temperature in greater detail.
5. The Met Office role will be to work with the contractor on the items in paragraph 4 above and to carry out complementary analysis on other model experiments available at the Met Office including the QUMP (Quantifying Uncertainty in Model Predictions) ensemble.

Background

6. NERC is in the process of developing a £15m Arctic Research Programme. Its overarching aim is *to improve capability to predict changes in the Arctic, particularly over the next 50-100 years, including regional impacts and the potential for feedbacks on the global Earth System*. One of its key objectives is to reduce uncertainty in Arctic climate predictions. In order to inform the development of research proposals addressing this objective NERC and the Met Office are commissioning research to identify what introduces the largest uncertainties into current Arctic models. This may highlight processes where increasing understanding will have the greatest impact in improving predictions, allowing research to be better targeted and prioritised. We envisage there will be opportunities for this project to interact with the activities the programme will undertake to support the development of high-quality integrated research proposals addressing its objectives.

¹ <http://www.nerc.ac.uk/research/programmes/arctic/>

Requirements

Scientific & Technical

7. The NERC funded researcher(s) will work alongside the Met Office team to deliver the project. They will be required to:
 - Gain familiarity with the IPCC AR4 data
 - Carry out feedback analysis building on Winton (2006)² by extending to a greater range of models and to extract more detailed process information
 - Calculate ocean and atmosphere budgets from AR4 models to determine the relative roles of atmosphere and ocean processes
 - Develop methods which enable processes contributing to uncertainty to be identified in greater detail (for example, an understanding of the role of clouds in contributing to the uncertainty)
 - Document results in such a way that they are understandable to Arctic scientists who do not have expertise in climate modelling

Deliverables

8. A kick-off meeting with the Met Office team is expected within the first month of the contract. Following this a detailed Implementation Plan is required.
9. An interim report at the mid-point of the contract will be required. This should include initial findings of the analysis, any revisions to the implementation plan and an outline of expected structure and content of the final report.
10. The key findings of the study must be presented in person by the research team at a NERC Arctic Programme event, provisionally scheduled to be held in September 2010. This event will be attended by researchers preparing proposals to the programme and will be the significant opportunity to communicate the results to influence the development of the programme.
11. A final report 5-10 pages. The final report will be published on the NERC website and should be of a suitable content and format. It is expected that this will subsequently lead to a peer reviewed publication.

Skills and experience

12. The ideal applicant(s) will:
 - have a broad knowledge of climate models and their output
 - have relevant experience in analysis of climate models, including either budget calculations or feedback analysis
 - have detailed understanding of at least one of ocean, sea ice or atmospheric processes
 - have good track record of publications
 - be familiar with Arctic research issues

² Winton, M., *Amplified Arctic Climate change: what does surface albedo feedback have to do with it?*, *Geophys. Res. Letters*, 33, doi:10.1029/2005GL025244, 2006.

Governance and Performance Management

13. The consultant(s) will report to the NERC and Met Office activity managers. Activities and outputs will be reviewed on a regular basis and any changes to the work plan must be agreed in advance.
14. Payment will be quarterly in arrears upon receipt of an invoice and subject to the satisfactory completion of milestones. Suggested milestones include:
 - Kick off meeting with Met Office – May 2010
 - Detailed Implementation Plan – May 2010
 - Interim Report – July 2010
 - Present at Arctic Programme Event – September 2010
 - Final Report – 30 September 2010

Procurement Process

15. This opportunity is open to all NERC eligible UK Research Organisations.
16. The principal selection criteria will be:
 - Fit to and understanding of requirements
 - Appropriateness of approach
 - Track record of the applicant(s)
 - Cost effectiveness
17. Shortlisted applicants may be invited to meet with NERC and the Met Office before a contract is issued.
18. The provisional timetable for the procurement process is:
 - 16 March 2010: Invitation to Tender published
 - 16 April 2010: Closing date
 - April 2010: Contract placed
 - May 2010: Work commences and kick-off meeting with Met Office
19. Tenders should be submitted to NERC via e-mail to **arctic-pag@nerc.ac.uk** by 4pm on the closing date 16 April 2010.

Format and Content of Tenders

20. Review proposal (Part A) should be no longer than 4 pages and include:
 - Proposed approach to delivering the analysis
 - Proposed approach to working with the Met Office team
 - Proposed detailed milestones
 - Gantt chart summarising the work plan and effort
 - Approach to ensuring quality of the deliverables and risk management
 - track record summarising relevant skills and expertise
21. Financial proposal (Part B) should be no longer than 1 page and include:
 - Staffing, effort and associated costs
 - Proposal for any required travel and subsistence costs, consumables, equipment etc

- Justification of the resources requested
- Total cost (100% FEC and 80% FEC) and profile by contract quarter period
- Contact details of the contracts officer at the host organisation

22. Proposals must be completed in single-spaced typescript of minimum font size 11 point with margins of at least 2cm. Applicants referring to websites should note that the selection panel may choose not to use them.

23. Tenders should be valid for 90 days.

Contact Details

24. Queries about responding to this Invitation to Tender may be directed to Dr Sarah Collinge (saco@nerc.ac.uk 01793 411936) in the first instance, or Dr Louisa Watts (lw@nerc.ac.uk 01793 411609). Enquiries to the Met Office about their role and the technical requirements of the project should be directed to Dr Helene Hewitt (helene.hewitt@metoffice.gov.uk 01392 884956).