

## Arctic Research Programme Announcement of Opportunity - Call for Expressions of Interest

Closing date 29 July 2010 at 16.00

*This document must be read in conjunction with the Arctic [Programme Science and Implementation Plans](#), which detail the full scope of the programme.*

### Summary

Proposals are invited for the first and main funding round of a major new research programme on the Arctic. This £15 million programme directly relates to the delivery of NERC strategy, in particular the Climate Systems, Earth System Science, Biodiversity and Natural Hazards Science Themes. This programme is also expected to contribute to Living With Environmental Change (LWEC).

This call is for Expressions of Interest (Eols) describing proposals to deliver across the programme's *Objectives* and address the questions posed within the related *Science Topics*. Up to £10m is expected to be available in this funding round for research projects (including any fieldwork/facility costs). The programme anticipates supporting standard grants and consortium grants.

It is mandatory to submit an Eol in order to participate in the funding round at the full proposal stage. All Eols received will be checked by NERC against programme scope and feasibility and those identified as unsuitable will not be invited to proceed to the full proposal stage. Information on all Eols proceeding to the full proposal stage will be published on the NERC website; this will comprise details of project titles and investigators/institutions involved.

Following the assessment of Expressions of Interest, a workshop will be held **29-30 September 2010** to share information about the programme and support the formation of new collaborations and the integration and alignment of projects prior to the development of full proposals.

Applications to attend the workshop, from those intending to submit Expressions of Interest or interested in participating in the programme, are invited under a separate call on the NERC website and must be received by 18 August 2010.

### Background

The Arctic is a region of very rapid change, driven by climate change in the form of rising temperatures, and other global pressures. This situation may lead to a step change within the Arctic system associated with rapidly declining summer sea ice and melting permafrost, resulting in major impacts both within the Arctic and more widely within the Earth System, via physical and biogeochemical feedbacks. Because of the importance of understanding this region and its interactions with the global Earth System, NERC is investing £15 million over the period 2010-2016 in an Arctic Research Programme.

The overarching aim of this programme is to improve capability to predict changes in the Arctic, particularly over timescales of months to decades, including regional impacts and the potential for feedbacks on the global Earth System.

This will be achieved via four linked scientific objectives:

- Objective 1: Understanding and attributing the current rapid changes in the Arctic
- Objective 2: Quantifying Arctic processes leading to methane and carbon dioxide release
- Objective 3: Reducing uncertainty in Arctic climate and associated regional biogeochemistry predictions
- Objective 4: Assessing the likely risks of submarine hazards associated with rapid Arctic climate change

The Arctic represents a critical region for global environmental change where the UK has significant strategic interests. Understanding the drivers and feedbacks of this change and predicting its scale and rate on timescales from months to decades represents a major and urgent global scientific challenge of great societal importance. It is timely to invest in this research programme now due to the rate and scale of change in this region, opportunities for collaborative research with international partners and the availability of new tools for remote sensing and direct measurements in this hostile environment.

Understanding current Arctic change is important in order that policymakers are well informed of its significance and Arctic communities are prepared to mitigate and adapt to its impacts. This research programme will make an impact by enhancing abilities to:

- forecast both regional and global weather and climate, over a wide range of timescales;
- forecast hazardous events, and develop mitigation strategies for these;
- plan for exploitation of resources such as minerals, methane hydrates and fisheries;
- facilitate transport management and security issues related to polar sea-routes.

Interested stakeholders may include both public and private sector organisations, e.g. the Met Office, Foreign & Commonwealth Office (FCO), Department for Energy and Climate Change (DECC), Ministry of Defence (MOD), Department for Transport (DfT - especially Maritime and Coastguard Agency), Department for Environment, Food and Rural Affairs (Defra), Joint Nature Conservation Committee (JNCC), Scottish Government, Arctic Council, and/or oil companies, shipping, tourism and fishing industries. The Arctic programme is also likely to be of interest to the general public and Arctic communities.

A preliminary study is underway, led by a team from the National Centre for Atmospheric Science (based at the University of Reading) and the Met Office, to identify the processes/feedbacks which contribute to the range of uncertainty in future predictions of Arctic sea ice and surface temperature changes. We hope that this will inform the development of proposals in response to this call. An initial literature review will be published in July 2010 and results of the study are expected to be available in September 2010. For further information about the project and its outputs please contact the project team at [met-arctic@lists.reading.ac.uk](mailto:met-arctic@lists.reading.ac.uk) (this email is accessed by both NCAS and Met Office staff).

The Arctic programme will directly address many NERC strategy challenges including: cryospheric change and its interaction with the Earth System; destabilisation of methane hydrate stores under global warming; submarine hazards associated with rapid climate change; improving understanding of biodiversity's role in ecosystems, processes, resilience and environmental change; and increasing knowledge of the role of the polar and tundra regions in the global climate system.

By working in partnerships with organisations such as the Met Office and Department for Energy and Climate Change (DECC), the programme will contribute to Living With

Environmental Change (LWEC), in particular addressing LWEC objectives on predicting the impacts of climate change, promoting sustainable solutions through mitigation and adaptation, and managing ecosystem services for human well-being and protecting the natural environment in a changing world.

Full details of the background, science questions, partnerships and potential impacts of the programme can be found in the programme [Science Plan](#).

The delivery of the programme will be supported by a Programme Management Team, based at NERC Swindon office and the British Antarctic Survey (BAS), which will facilitate the coordination and integration of activities. Further details can be found in the programme [Implementation Plan](#) (section 4).

## Scope of the Call

Up to £10 million is available in this funding round for research projects that directly address the programme Objectives via work on the identified Science Topics. The Science Topics are detailed in the Programme [Science Plan](#).

Two types of proposal will be accepted at the full proposal stage:

- Standard Grant – total cost up to £1million (at 100% FEC, including fieldwork/facility costs)
- Consortium Grant – total cost £1million-£3million (at 100% FEC, including fieldwork/facility costs), involving multiple institutions and addressing more than one Programme Objective, with a clear need for a consortium approach.

The project scale should be appropriate to the research proposed. The exact number of grants supported will depend on the relative quality and size of proposals received.

Both types of proposal may include project studentships; these may be held as CASE studentships if appropriate. If studentships are requested appropriate resources should be included to support student training and development e.g. summer schools, short courses.

Proposals may request support for projects up to four years in duration. Depending on the timing of fieldwork, it is anticipated that projects funded in the first round will start between April 2011 and April 2012. The research may include activities such as fieldwork, laboratory studies, remote sensing and modelling. Observational and modelling activities must be coordinated to ensure the modelling informs observations and vice versa.

A variety of boundaries have been proposed to define the limits of the Arctic, including the tree-line, climatic boundaries (such as the atmospheric Arctic Polar Front), permafrost extent on land and maximum sea-ice extent on the Ocean. For the purposes of the Arctic Research Programme, the boundary will be more flexible, and will encompass sub-arctic land and ocean areas integral to the functioning of the Arctic system. A flexible height boundary will be applied, to encompass those regions of the atmosphere that demonstrably influence tropospheric and surface climate in the Arctic.

Awards will be made under the usual NERC research grant terms and conditions. There will also be additional conditions included specific to delivery of this programme and participation in its activities. The NERC funding contribution will be 80% of FEC (with the standard exceptions paid at 100% FEC).

# Programme Requirements

## ***Scientific & Technical***

- All proposals must directly address one or more of the programme Objectives (note Consortium Grants must address more than one objective). The relationship to Objectives must be clearly explained in the proposal documentation.
- All proposals must focus their research activities on one or more of the Science Topics identified by the programme. The relationship to Science Topics must be clearly explained in the proposal documentation. Please consult the programme [Science Plan](#) for full details of the required Science Topics.
- Observational and modelling activities must be coordinated to ensure modelling informs observations and vice versa.
- The outputs of the Arctic programme preliminary study 'Identifying uncertainties in Arctic climate predictions' should inform projects as appropriate.

## ***Implementation & Delivery***

- Projects may be up to four years in duration with a start date between 1 April 2011 and 1 April 2012. Projects are strongly encouraged to start as soon as feasible once awards are announced.
- All proposals must include milestones and deliverables to ensure the science outputs are delivered effectively.
- All proposals must be designed to aim to produce deliverables of one or more of the following types:
  - New or improved models for process studies
  - Improved parameterization of Arctic processes
  - Improved capabilities for predicting changes in the Arctic
  - Interpretation of current Arctic climate change and its implications for policy makers and Arctic communities
- All proposals must demonstrate evidence of and mechanisms for alignment of work-programmes and collaboration with other Arctic programme projects wherever possible.

## ***Knowledge Exchange / Impact***

- All proposals are required to identify appropriate Pathways to Impact<sup>1</sup> for their project and associated costs for delivery of project-specific activities.
- All projects will also be required to engage with and input to programme-wide Knowledge Exchange activities led by the Programme Management Team (which will include a knowledge exchange coordinator).

To allow project-specific impact activities to be developed in the appropriate context, a high-level summary of the programme Knowledge Exchange Plan and activities to be led by the KE coordinator will be available in Autumn 2010.

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<sup>1</sup> <http://www.nerc.ac.uk/funding/application/pathwaystoimpact.asp>  
<http://impacts.rcuk.ac.uk/default.htm>

## **Other Requirements**

- It is highly desirable for proposals to involve international partners (for information about potential international opportunities please contact the NERC Arctic Office).
- It is highly desirable for project teams to be inter-disciplinary and cross traditional boundaries marine, terrestrial, atmospheric, etc.
- Proposals are welcomed that include team members who have not previously worked on the Arctic.
- Proposals should be developed in the context of the emerging NERC Earth System Modelling Strategy<sup>2</sup>.
- All projects are required to comply with the programme data management policy, including data sharing with other programme participants, and contribute to delivery of the data management plan.
- Principal Investigators will be required to report regularly to the Programme Management Team on the milestones and outputs they have been funded to deliver. The projects supported will also be required to provide the standard reporting measures as per NERC terms and conditions, i.e.:
  - annually Output and Performance Measures (OPMs), and
  - a final report at the end of the project

## **Eligibility**

This opportunity is open to individuals and organisations eligible for NERC research grant funding i.e. applicants based in UK Higher Education Institutions (HEIs), NERC Research & Collaborative Centres, and Independent Research Organisations (IROs) approved by NERC. Please refer to the NERC Research Grants Handbook for details<sup>3</sup>. Potential applicants should contact NERC well in advance of the submission deadline if they have any queries concerning their eligibility.

Individuals may be named on as many Expressions of Interest as they wish.

At the full proposal stage individuals are limited to involvement as investigators in no more than two proposals; only one of these may be as the lead Principal Investigator. The maximum involvement may be in 2 consortium proposals or 2 standard proposals or 1 standard and 1 consortium proposal.

## **Application Process**

Part 1) Expressions of Interest (Eols)

**Closing date: 16.00 on 29 July 2010**

One Eol submission is required for each proposed project; this should be submitted by the lead Principal Investigator. Note that projects that expect to be submitted as joint applications at the full proposal stage need only submit one Eol covering the whole project.

Please complete the Eol Form available on the NERC website. The following details are required:

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<sup>2</sup> <http://www.nerc.ac.uk/research/news/documents/esm-draft-strategy.pdf>

<sup>3</sup> <http://www.nerc.ac.uk/funding/application/researchgrants/grantshandbook.pdf>

- Title of proposal
- Eligible Investigators & Institutions
- Project partners (UK and International)
- Type of proposal (standard or consortium – requires justification)
- Proposed start date and duration of project
- Numbers of PDRAs and Projects Studentships
- Estimated budget request (100% FEC)\*
- Fieldwork planned (locations and timing)
- UK and international facilities/logistics required (base access, ships, aircraft, HPC, other NERC facilities, etc)
- Possible Ethical and Environmental Issues
- Programme Objectives and Science Topics to be addressed
- Deliverables envisaged
- Description of the proposed research (up to 4000 characters)

Guidance notes on the completion of the Eol are also available on the NERC website.

\* In the Eol please provide a realistic estimate of the budget required to undertake the research proposed. The maximum budget for a consortium proposal in this programme is £3 million (100% FEC). However if, and only in exceptional circumstances, the project outlined requires a higher level of funding to be viable and achieve its objectives, the budget presented in the Eol can exceed the stated limit. If a budget over £3 million is submitted at the Eol stage, detailed costing and a clear justification of resources also need to be provided in the Eol. Such cases will be specially considered by the Programme Executive Board. Feedback to applicants after the assessment of Eols will confirm the maximum funding level for the full proposal; the default is that this will remain at £3 million.

Eol Forms must be submitted as an email attachment in word format to:

[arctic-pag@nerc.ac.uk](mailto:arctic-pag@nerc.ac.uk)

Applicants must ensure that their Eol is received by NERC by 4pm on the closing date.

You will be informed by 1 September if you are invited to proceed to the full proposal stage.

Information on all Eols proceeding to the full proposal stage will be published on the NERC website; this will comprise details of project titles and investigators/institutions involved.

Following the assessment of Expressions of Interest, a workshop will be held 29-30 September 2010 to share information about the programme and support the formation of new collaborations and the integration and alignment of projects prior to the development of full proposals. It is hoped that both the Eol assessment and the workshop will allow issues such as the potential sharing of fieldwork costs to be effectively addressed.

Attendance at the workshop is strongly encouraged but is not a prerequisite for participation in the funding round, nor any guarantee of funding.

Applications to attend the workshop, from those intending to submit Expressions of Interest or interested in participating in the programme, are invited under a separate call on the NERC website and must be received by 18 August 2010.

Part 2) Full Proposals

**Closing date: 16.00 on 7 December 2010**

You must previously have submitted an EoI that has been invited to proceed to the full proposal stage in order to submit a related full proposal.

Further guidance on the full proposal stage procedures will be provided to successful EoI applicants at a later date.

For this programme opportunity only Standard Grant proposals are defined as requesting a total budget of up to £1 million (100% FEC). Consortium Grant proposals are defined as requesting a total budget of £1 million-£3 million (100% FEC); they must involve multiple institutions, address more than one programme Objective and demonstrate a clear need for a consortium approach.

Full proposal applications must be submitted using the Research Councils Joint Electronic Submission system (Je-S). For both Standard and Consortium applications please select Proposal Type - 'Standard Proposal' and then select the Scheme – 'Directed' and the Call – 'Arctic Programme'.

Please indicate the type of proposal Standard or Consortium in the title of your application

To use the JeS system, the applicant's Research Organisation must be registered as a Je-S user. Full details are available on the Je-S website<sup>4</sup>. Further information can also be obtained by contacting the Je-S Helpdesk by email at [JeSHelp@rcuk.ac.uk](mailto:JeSHelp@rcuk.ac.uk) or by telephone on 01793 44 4164.

Applicants must ensure that their application is received by NERC by 4pm on the closing date. Applicants should leave enough time for their application to pass through their organisation's Je-S submission route before this date. Any application that is received after the closing date, is incomplete, or does not meet NERC's eligibility criteria, will be returned to the applicant and will not be considered.

The Principal Investigator must submit form Je-SRP1 (NERC) detailing the financial request, together with the Case for Support and other attachments. All attachments submitted through the JeS system must be completed in single-spaced typescript of minimum font size 11 point, Arial font, with margins of at least 2cm.

Depending on the nature of the proposal, please follow the instructions for Standard or Consortium Grants given in the NERC Research Grants Handbook, in terms of the required length and content of the Case for Support and other attachments and how to handle joint applications and project studentships. Full details are given in the NERC Research Grants Handbook<sup>5</sup>.

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<sup>4</sup> <http://www.rcuk.ac.uk/je-s/>

<sup>5</sup> <http://www.nerc.ac.uk/funding/application/researchgrants/grantshandbook.pdf>

## Arctic Access, Facilities & Logistics

Please contact Cynan Ellis Evans [icel@bas.ac.uk](mailto:icel@bas.ac.uk) (Programme Management Team/NERC Arctic Office) in advance of submission of EoIs and full proposals to discuss any queries relating to access to Arctic regions, facilities or logistics, particularly international opportunities. Proposals with significant logistics components may wish to consider if the sharing of logistics is feasible, the programme will assist in facilitating this via the EoI process and programme workshop as far as possible.

General fieldwork costs (including travel, consumables, equipment etc.) should be included in proposal budgets and justified in the normal way as directly incurred costs.

If access to non-NERC facilities or logistics is required, this should be discussed with the Programme Management Team/NERC Arctic Office in advance of submission of EoIs and the feasibility and potential costs determined. The funding required to achieve access must be included in full proposals under directly incurred costs and fully explained in the justification of resources attachment. These costs are included in the total budget, which must fall within the grant financial limits the programme has set out.

If access to NERC facilities is requested please proceed as described below:

*NERC Ships* - At the EoI stage, please indicate if NERC ship-time will be required in Section 3 of the EoI form. Include details of the NERC vessel(s) suitable for use and why, where the cruise would take place, the number of science days required and the type of cruise and activities involved. You are advised to discuss potential ship availability with NERC. In the estimated budget provide a note that NERC ship-time will be required in addition to the estimate given, although no estimate of the ship-time costs need be provided at this stage. Please note that it is not anticipated that ice-breaker vessels will be available through NERC's normal ship-barter arrangements.

At the full proposal stage NERC ship-time costs (i.e. superstructure costs) must be factored into the total budget, which must fall within the grant financial limits the programme has set out. An online Ship-time and Marine Equipment (SME) application form must be completed, by creating a Cruise Profile through the Marine Facilities Planning webpage<sup>6</sup>. Before the SME can be submitted, researchers are required to speak to NERC Marine Planning (contact: Helen Beadman [habe@nerc.ac.uk](mailto:habe@nerc.ac.uk) 01793 411513) and the SME must be submitted two months prior to the full proposal closing date (i.e. 7 October 2010) in order to allow a costing to be provided by National Marine Facilities – Sea Systems. These costs should not be included in the financial section of the JeS grant proposal application form but should be included in the Justification of Resources. The Cruise Profile number should be included on the JeS grant proposal application form under Services and Facilities.

The first opportunity for projects funded in the Arctic Programme first round to be fully considered for scheduling will be the FY 2012-13 NERC Marine Facilities Programme; earlier ship time may be available on an opportunistic basis. No research grant involving a ship-time application will be allowed to commence until ship-time has been formally allocated, and contact should therefore be made with Marine Planning if any preliminary work will need to be undertaken prior to the allocation of your cruise.

*NERC Aircraft* – Please contact the appropriate facility in advance of submission of EoIs to confirm potential availability and costs of access to NERC aircraft for inclusion in the estimated budget. A description of the facilities required and campaigns proposed should be

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<sup>6</sup> <http://www.noc.soton.ac.uk/nmf/mfp/mfp.php>

included in Section 3 of the EoI form. The funding required to support flight hours and superstructure costs must be included in the full proposal budget as directly incurred costs and fully explained in the justification of resources. These costs are included in the total budget which must fall within the grant financial limits the programme has set out. An appropriate facility application form must be submitted with the full proposal. Detailed guidance on application procedures is available on the FAAM website<sup>7</sup> and the ARSF website<sup>8</sup>. You are advised to contact the FAAM Operations Manager for guidance on available access periods, technical issues, potential superstructure costs and issue of a FAAM Application Form. Contact the ARSF Science & Operations Coordinator and/or the Operations Manager to discuss the proposal, and to estimate resource implications such as flight hours and superstructure costs and issue of an ARSF application form.

*NERC HPC* – Please contact the appropriate HPC consortium leader to discuss the project and its requirements in advance of submitting an EoI. Projects do not usually need to include specific costs to access NERC HPC facilities. In the full proposal please include details of the facility request in the appropriate section of the JeS form and explain in the justification of resources, no additional HPC forms are required at this stage. Details of the application procedure for HPC are available on the NERC website<sup>9</sup>.

## **Assessment Process**

All Expressions of Interest received will be checked by NERC against programme scope and feasibility and those identified as unsuitable will not be invited to proceed to the full proposal stage. Depending on the numbers received, NERC reserve the right to sift EoIs and only invite a proportion to proceed to the full proposal stage.

Full proposals will be internationally peer-reviewed and final funding recommendations made by a Moderating Panel, consisting of a sub-set of members from the Programme Advisory Group (PAG) plus independent experts and members of the NERC Peer Review College. Applicants will be given the opportunity to provide a written response to peer review comments prior to the Moderating Panel. Consortium grant applicants may be invited to give a presentation at the Moderating Panel.

The assessment criteria used will be as follows:

- Research Excellence
- Fit to Programme Requirements
- Pathways to Impact

Feedback on applications unsuccessful at the full proposal stage will be available on request.

## **Timetable**

Closing date for Expressions of Interest: 29 July 2010  
Notification EoIs invited to proceed: 1 September 2010  
Programme Workshop: 29-30 September 2010  
Closing date for Full Proposals: 7 December 2010  
Decisions communicated to applicants: Late March 2011  
Anticipated start date: April 2011-April 2012

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<sup>7</sup> <http://www.faam.ac.uk/index.php/using-faam-/how-to-apply>

<sup>8</sup> <http://arsf.nerc.ac.uk/documents/guidelines2010.pdf>

<sup>9</sup> <http://www.nerc.ac.uk/research/sites/facilities/hpc/documents/policy.doc>

## Successful Projects

Directly following the award of research grants, a programme workshop will be held. These will bring together all Principal Investigators (attendance compulsory) and a range of other project team members, to further integrate and align the individual work plans and coordinate activities and logistics.

The workshops will:

- Give teams the opportunity to share their project plans.
- Confirm where sharing of logistics is feasible.
- Enable the Arctic Programme Advisory Group and Science Management Team to advise on further links between projects.
- Start to identify additional programme activities that would complement and build on the awarded projects.

## Contact

For general queries and further information about application/assessment procedures please contact:

Louisa Watts ([lw@nerc.ac.uk](mailto:lw@nerc.ac.uk) Tel: 01793 411609) or Sarah Collinge ([saco@nerc.ac.uk](mailto:saco@nerc.ac.uk) Tel: 01793 411936)

For queries relating to international partnerships and access to Arctic regions, facilities or infrastructure please contact:

Cynan Ellis Evans ([icel@bas.ac.uk](mailto:icel@bas.ac.uk) Tel: 01223 221400)

For queries relating to the preliminary study 'Identifying uncertainties in Arctic climate predictions' please contact:

NCAS/Met Office project team ([met-arctic@lists.reading.ac.uk](mailto:met-arctic@lists.reading.ac.uk))