**CONICYT-NERC International Research Projects call**

**UK Annex:**

Full details of the call and the application process are provided via the CONICYT website [www.conicyt.cl/pci](http://www.conicyt.cl/pci). The call announcement for the UK has been published on the NERC website <http://www.nerc.ac.uk/funding/application/currentopportunities/>. For UK enquiries please see below.

This call is being administered by CONICYT in Chile on behalf of both funders. Please note that this opportunity is part of a wider call run by CONICYT: Chile-UK proposals must address the specific science case set out in this UK Annex.

**Science Case/UK Scope**

The focus of the Chile-UK partnership will be on improving our understanding of the impacts of environmental change on terrestrial and marine ecosystems from southern Chile to the Antarctic Peninsula. Proposals will be expected to study multiple sites within the region.

This call is focused on the **impacts** of ice loss and deglaciation, and so proposals on the *causes*, *processes* or *rates* of ice loss or deglaciation are out of scope.

The two key science questions to be addressed are:

Topic 1: What are the key processes and mechanisms by which ice loss and glacial retreat influence marine and terrestrial ecosystems in a region of rapid environmental change?

Topic 2: How have these processes combined to determine previous ecosystem change in areas across this region, and how will they govern future change?

Projects can address one or both of these science topics.

It should be noted that the Chilean component must build on/relate to existing funding that the Chilean partner holds, please see the main Terms of Reference (ToR) for full details, [www.conicyt.cl/pci](http://www.conicyt.cl/pci).

Further details and background of the science case are in Annex A (at the end of this document).

**Finances**

Applications to this call must be Collaborative Research Grants with the consortium composition as defined in the ToR. NERC will fund eligible UK partners of any successful collaboration.

NERC is committing up to £1.8m to this call.

* Up to £1.5m is available to fund @ 3 grants at ~£500k each (at 80% FEC) subject to the quality of proposals received.
* £300k from the overall budget is set aside *in total* to cover UK project logistics, e.g. Antarctic support, Ship time etc. to support successful grants.

The funds available through this NERC-CONICYT call are intended to support focused, co-ordinated and collaborative research between the UK and Chile to address the scope of the call specifically as outlined above and in the Terms of Reference. These grants are intended to promote inter-institutional collaborations between the UK and Chile. Partnerships should be genuine and reciprocal, and working together must add value to that which could be achieved by individual partners working on their own.

Standard NERC eligibility rules apply. Financial conditions follow the standard NERC guidelines as detailed in the [NERC Grants Handbook Section E](http://www.nerc.ac.uk/funding/application/howtoapply/forms/grantshandbook.pdfhttp:/www.nerc.ac.uk/funding/application/howtoapply/forms/grantshandbook.pdf).

**Application Process**

*Timeline*

Call closes: 27th July 2015

Panel meets: October 2015

Decision announced: December 2015

Earliest start date: January 2016

Each proposal should be submitted as a combined application including the work of both the UK and Chilean partners, following the process as detailed in the main Chilean ToR found at [www.conicyt.cl/pci](http://www.conicyt.cl/pci).

The following additional forms will be needed for the UK component of the collaborative application:

1. Preliminary Request for Antarctic Logistic Support form (as required)
2. NERC Facilities form/s (as required)

These should be submitted directly to NERC at ‘[matdob@nerc.ac.uk](mailto:matdob@nerc.ac.uk)’ within 1 day of the main application form deadline as detailed in the Chilean ToR.

*Antarctic Logistics:*

Where the project is looking to utilise NERC Antarctic logistics and facilities a Preliminary Request for Antarctic Logistic Support form should be included (see below for link).

Logistic support in Antarctica for NERC-funded projects is provided by the British Antarctic Survey (BAS), which is a NERC Research Centre. Only in exceptional circumstances, and with the agreement of BAS, will NERC sanction funding applicants to negotiate their own logistic arrangements with a commercial operator. In the event that BAS cannot support the fieldwork as proposed, applicants will be advised of what is feasible, thereby enabling the proposal to be modified accordingly.

To ensure that BAS is able to consider the likely logistic support requirements at an early stage, before proposals have been developed in detail, applicants need to complete a Preliminary Request for Antarctic Logistic Support form and submit this by e-mail to the Antarctic Funding Office at BAS (afibas@bas.ac.uk) **no later than one month** before the proposal deadline on 27 July.

Please note that the Preliminary Request for Antarctic Logistic Support form will not be sent with the proposal for Peer Review; it will be sent to BAS for their logistics planning.

There are three types of costs for Antarctic fieldwork, which are all treated differently (http://www.antarctica.ac.uk/apfp/funding/costs.php).

Applicants are advised to discuss their detailed requirements with Martin Miller (Tel: 01223 221537, e-mail mfm@bas.ac.uk) at the NERC Antarctic Funding Office (located at BAS):

* Provision of Antarctic fieldwork support by BAS is not costed in grant proposals; the support is provided free of charge to Investigators, as part of BAS National Capability. This includes use of Antarctic research station facilities, together with use of BAS ships and aircraft, and fieldwork support by Field General Assistants.
* Items that are eligible costs and will not be removed from the grant (e.g. travel to and from RAF Brize Norton, travel to BAS and any required training, other training costs).
* Items that should be costed into the proposal, but will be removed from the grant and awarded to BAS (flights to and from the Falkland Islands, meals/accommodation/transport relating to Stanley/Punta Arenas/Mount Pleasant, fieldwork clothing, additional aviation fuel, specialist clothing, e.g. diving suits).

Successful grant applicants will be required to complete a full ‘fieldwork requirements questionnaire’ post award to finalise their requirements from BAS.

Further information including full eligibility and requirements, and the preliminary request form can be found on the BAS website:<http://www.antarctica.ac.uk/apfp/funding/antarctic-process.php>

*Facilities:*

Applicants for NERC grants may also apply to NERC for access to any of the NERC services and facilities. Further information on NERC services and facilities is on the NERC website at: <http://www.nerc.ac.uk/research/sites/facilities/>.

Prior to submitting the grant proposal, the applicants must first contact the facility to seek agreement that they could provide the service required and obtain a technical assessment (quote).

Applicants should contact the relevant facility at least one month prior to the grant or fellowship proposal closing date to ensure that the facility can provide the quote in time to be submitted with the proposal. Advice on the application procedure for a particular facility should be sought from the relevant contact (see <http://www.nerc.ac.uk/research/sites/facilities/list/>).

For most facilities and schemes, the notional costs of using the facility should be included in the grant proposal, under the directly incurred other costs heading. For some facilities the costs will then be removed from the grant and awarded notionally (where NERC provides the funding directly to the facility). If the relevant facilities costs have not been requested on the grant proposal, they will not be added later.

Different rules apply for Sea Time and High Performance Computing which are covered in the [NERC Grants Handbook](http://www.nerc.ac.uk/funding/application/howtoapply/forms/grantshandbook.pdfhttp:/www.nerc.ac.uk/funding/application/howtoapply/forms/grantshandbook.pdf).

**Assessment Process**

As with the rest of the call, this will be led by CONICYT. Proposals will be reviewed jointly by NERC and CONICYT at both external peer review and moderating panel stages.

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**Annex A: Science Case**

**Determining the impacts of ice loss and deglaciation on marine and terrestrial ecosystems in a region of rapid climate change**

**INTRODUCTION**

The high latitude regions of the Southern Hemisphere contain one of most rapidly warming areas anywhere in the world, resulting in loss of sea ice, reductions in snow and ice cover on land, and retreat of glaciers, all of which influence existing and create new habitats. Major and on-going changes have occurred over only a few decades and result in complete change in local environmental conditions, from ice-dominated to ice-free, as well as exposing habitats for the first time in millennia. Over evolutionary time, repeated glacial cycles have characterised earlier epochs which, it is increasingly realised, have left a clear signal in the distribution of biodiversity in these regions today. The changing ice cover and climate of habitats affect biological processes at multiple scales of organisation from the sub-cellular to ecosystems, and organisms must either adapt to new conditions or move to alternative regions. These effects on biology change species distribution patterns, resulting in shifts in food-web structure and hence potentially disrupt the functioning and delivery of services of entire ecosystems. In coastal high latitude regions, such as southern South America and the Antarctic Peninsula, there are strong connections between land and ocean glacial processes, which affect the structure and functioning of both local terrestrial and coastal ecosystems and, as a result of atmospheric and oceanographic advection and movements of organisms, can have consequences that extend over very large areas.

There is little understanding of the processes involved in connecting these systems, which affect physical habitat availability and structure (on land and in the ocean) and freshwater and nutrient budgets. A major challenge is to develop understanding of how climatically-driven changes in cryospheric processes (from sea-ice to glaciers) affect the structure and functioning of marine and terrestrial ecosystems, and how these vary across a range of glacial conditions. There is a clear opportunity to develop this understanding through coordinated studies of past and present processes and linkages across the wide environmental and latitudinal gradient of the Antarctic Peninsula, Scotia Arc, and southern South America. Taking advantage of this opportunity will contribute to the development of a quantitative understanding of how these ecosystems have been and are being affected by change and how they are likely to change in the future. In glaciated regions, changes in the cryosphere are the key process likely to determine ecosystem change. Developing this understanding is crucial for the sustainable management of human interactions and impacts in these ecosystems, which may be particularly sensitive during periods of rapid change.

**The opportunity**

In the Southern Hemisphere, the region most affected by rapid warming is centred on the northern Antarctic Peninsula, and encompasses the area from the southern regions of South America, across the Scotia Sea and southwards along the Peninsula. A strategic programme that combines UK and Chilean scientific expertise and assets in this region has the potential to make major advances in determining how ecosystems are impacted by climatically-induced change across a range of glacial conditions. Chile operates a range of ecological studies encompassing terrestrial and marine ecosystems in the northern Peninsula and South Shetlands Islands region and in Tierra del Fuego/Patagonia, as well as throughout the Andean mountain chain. UK analyses have focussed on complementary areas around the South Orkney Islands and South Georgia and further south around Rothera on the Antarctic Peninsula. Southern Chile includes ecosystems that are progressively less influenced by glacial processes. This creates an opportunity for a gradient-based analysis of the influence of glacial processes on terrestrial and marine ecosystems from ice-free to fully ice-covered in a southern region. This region also encompasses some of the highest production and biomass regions of the Southern Ocean and supports some of the largest colonies of large-bodied predators and significant population proportions of a range of globally important species. Finally, it is also the centre of important commercial fisheries and other human interactions in the Antarctic and southern South America.

**SCOPE**

This call will be for joint UK and Chilean projects to improve our understanding of the impacts of ice loss and deglaciation on marine and terrestrial ecosystems in the region from the west Antarctic Peninsula to southern Chile. It is expected that the studies proposed, as appropriate, will characterise the ecologically-relevant environmental change in the regions under study, and will develop detailed understanding of biological and ecosystem responses to those changes. This call is focused on the **impacts** of ice loss and deglaciation, and so proposals on the causes, processes or rates of ice loss or deglaciation are out of scope. Projects will be expected to study multiple sites within the region.

The two key science questions to be addressed are:

**Topic 1:** What are the key processes and mechanisms by which ice loss and glacial retreat influence marine and terrestrial ecosystems in a region of rapid environmental change?

**Topic 2:** How have these processes combined to determine previous ecosystem change in areas across this region, and how will they govern future change?

Projects can address one or both of these science topics.

**SCIENCE CHALLENGES**

**Topic 1 approaches**: Studies will determine the processes by which changes in the cryosphere influence biodiversity and interactions in terrestrial and marine ecosystems across a range of glacial conditions and habitats along an environmental gradient from South America through the Scotia Arc to the Antarctic Peninsula.

*Studies are expected to address one or more of the following issues*:

* The processes by which the distribution, abundance and dispersal (i.e. regional linkages) and alpha and beta diversity (i.e. diversity both within individual sites and between different sites) of terrestrial and marine species, and in particular of keystone species, are influenced by the changing cryosphere.
* The adaptive capacities (physiological, genetic, behavioural and ecological) of organisms across a gradient of ice and glacial processes, and over what timescales these may operate.
* How the major land-ocean physical, biogeochemical and ecological connections that affect terrestrial and marine ecosystem structure vary under different glacial conditions.
* How the influence of cryospheric processes on the distribution of keystone species and on the structure and functioning of marine and terrestrial ecosystems can be included in models.

**Topic 2 approaches**: Studies will examine the impacts of past change on terrestrial and marine ecosystems in areas of fluctuating glacial conditions. Complementing studies undertaken in Topic 1, analyses will develop understanding of the impacts of change under different glacial conditions. Outcomes may include generation of models that can be used to understand the effects of past change and the impacts of future change.

*It is envisaged that the major activities in this topic will contribute to one of more the following:*

* Characterisation of the major influences on past change in marine and terrestrial biodiversity, including the distribution, abundance, dispersal (i.e. regional linkages) and alpha and beta diversity (i.e. diversity both within individual sites and between different sites) from South America through the Scotia Arc to the Antarctic Peninsula.
* Quantification of the impacts of recent cryospheric change on the biology of organisms and on ecosystem structure and functioning.
* Examination of the potential for rapid (decadal) shifts in cryospheric regimes, organism distributions and ecosystem structure.
* Development of models and projections of the impacts of future cryospheric change on multiple trophic level species and on whole ecosystems.

**POSSIBLE OUTCOMES**

The studies achieved will identify and link the ecologically-relevant environmental change in the regions under study, with detailed understanding of biological and ecosystem responses to those changes over different physical and temporal scales. Topic studies are also expected to be important in the development of understanding of how human interactions (particularly fisheries and tourism) may develop with a changing cryosphere, and their potential impacts on marine and terrestrial ecosystems. Outcomes from the studies are likely to be influential in the development of sustainable management, including that of human interactions, in areas of rapid cryospheric change.